Final
Environmental Assessment

Proposed Pavaho Pumping Plant Improvements
Dallas, Texas

June 2010

US Army Corps of Engineers ®
Fort Worth District

City of Dallas

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FINDING OF NO SIGNIFICANT IMPACT
PROPOSED IMPROVEMENTS TO THE
PAVAHO PUMPING PLANT
DALLAS, TEXAS

Description of Action. The United States Army Corps of Engineers (USACE) has prepared an Environmental Assessment (EA) to assess the potential environmental consequences resulting from implementation of proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Texas. Section 5141 of the Water Resources Development Act of 2007 outlines authorization for this project. The USACE, Fort Worth District is the action proponent, as the proposed project involves federal funding and federal interests in property. The City of Dallas is a cooperating agency.

The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts. By improving the Pavaho Pumping Plant, the USACE and City of Dallas would be able to provide improved flood risk management to people and property in the Pavaho Basin.

Under the Proposed Action, the USACE and City of Dallas would construct a new approximately 10,890-square foot (ft) pump station consisting of three, 125,000-gallons per minute (gpm) pumps, and one, 6,000-gpm low-flow pump. Discharge from new pumps would flow into one 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. There, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing 6 ft by 8 ft gravity sluices into the Trinity River.

Additionally, the USACE and City of Dallas would enact minor improvements to the existing Pavaho Pump Station to increase the service life and minimize future maintenance. The USACE and City of Dallas would construct two new sluice gates and replace the existing ladder and junction box. A series of 1-ft thick gabion mattress would minimize erosion in and around the existing Pavaho Pumping Plant outfall.

Anticipated Environmental Effects. Through the planning process, the USACE identified six feasible alternatives to address flood risk management needs within the project area and the no action alternative. Under the no action alternative, no flood risk management measures would be implemented. If no action were taken, current flood risk would likely continue and gradually worsen. The lack of protection from a 100-year, 24-hour storm event would likely result in loss of property and threat to human life. Other alternatives addressed various options for sump expansion, use of pressure sewers, and increasing pumping capacity by constructing new pumps and potentially demolishing the existing pump station. Five of the six remaining alternatives were eliminated from further consideration because either they did not meet flood risk management objectives of the proposed project or had potential for significant impacts if implemented.

The proposed action would not have any significant impacts on the social, economic, or human and natural environments. No adverse impact on any species, which are proposed or listed as threatened or endangered under the Endangered Species Act, is expected. No significant transportation, noise, land use, environmental justice, or hazardous waste concerns were identified within the project area. The existing Pavaho Pump Station is eligible for listing on the National Register of Historic Places. Consultation with the Texas State Historic Preservation Officer resulted in a Memorandum of Agreement that mitigated the adverse effect of the undertaking. Contractors would be required to have erosion control, traffic control, and hazardous spill prevention plans in place. Proposed construction measures and operation and maintenance features of the project meet the criteria for Nationwide Permit 12 - "Utility Line Activities."

Facts and Conclusions. Based on a review of the information contained in this EA, it is concluded that the implementation of the Pavaho Pumping Plant improvements in Dallas, Texas is not a major Federal action, which would significantly affect the quality of the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended.

Richard J. Muraski, Jr.
Colonel, Corps of Engineers
District Commander

20 June 2010
Date

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FINAL
ENVIRONMENTAL ASSESSMENT

Lead Agency for the EA:	United States Army Corps of Engineers, Fort Worth District
Cooperating Agency:	City of Dallas, Texas
Title of Proposed Action:	**Proposed Improvements to the Pavaho Pumping Plant, Dallas, Texas**
Designation:	Environmental Assessment

Abstract

The United States Army Corps of Engineers (USACE) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969 (42 United States Code Section 4321, et seq,), the Council on Environmental Quality regulations found in 40 Code of Federal Regulations (C.F.R.) Parts 1500-1508, and USACE Engineer regulations found in 33 C.F.R. Part 230. This EA describes the potential environmental consequences resulting from implementation of proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Texas. The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts. By improving the Pavaho Pumping Plant, the USACE and City of Dallas would be able to provide improved flood risk management to people and property in the Pavaho Basin.

Section 5141 of the Water Resources Development Act of 2007 outlines authorization for this project. The USACE, Fort Worth District is the action proponent, as the proposed project involves federal funding and federal interests in property. The City of Dallas is a cooperating agency.

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JUNE 2010

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EXECUTIVE SUMMARY

The United States Army Corps of Engineers (USACE) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code Section 4321, et seq,), the Council on Environmental Quality regulations found in 40 Code of Federal Regulations (C.F.R.) Parts 1500-1508, and USACE Engineer regulations found in 33 C.F.R. Part 230. This EA describes the potential environmental consequences resulting from implementation of proposed improvements to the Pavaho Pumping Plant in Dallas, Texas. The Pavaho Pumping Plant is located adjacent to the west levee of the Dallas Floodway on Canada Drive, in the City of Dallas, Texas.

The City of Dallas manages interior drainage by allowing the stormwater runoff to pool in sumps (low areas) in interior areas before pumping or gravity feeding it into the Dallas Floodway. The Pavaho Pumping Plant currently consists of three sump ponds, a pump station, and associated infrastructure. The existing Pavaho Pumping Station consists of one 46,000-gallon per minute (gpm) pump, one 30,000-gpm pump, and one low-flow 6,000-gpm.

Over the last 50 years, improvements to the Pavaho Pumping Plant have not kept up with changes in area hydrology or technology. The current Pavaho Pumping Plant is not capable of managing predicted 100-year, 24-hour storm event water levels, resulting in increased flood potential and associated threats to people and property in the Pavaho Basin. In March 2006, the need for improving the Pavaho Pumping Plant was demonstrated when a storm caused widespread flooding in the City of Dallas, resulting in one fatality and significant property damage. During this storm, City of Dallas Police and Fire-Rescue Departments responded to hundreds of emergency rescue calls from stranded motorists and residents.

The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts. By improving the Pavaho Pumping Plant, the USACE and City of Dallas would be able to provide improved flood risk management to people and property in the Pavaho Basin.

Section 5141 of the Water Resources Development Act (WRDA) of 2007 outlines authorization for the Pavaho Pumping Plant improvements. As the lead agency for this NEPA document, the USACE Fort Worth District must determine the technical soundness and environmental acceptability of this WRDA-authorized project, as documented in this EA. The City of Dallas is a cooperating agency for this EA. Dallas approved the proposed improvements to the Pavaho Pumping Plant with the passing of the 2006 Bond Program in an election held on November 7, 2006.

Implementation of the Proposed Action would reduce predicted 100-year, 24-hour storm event water levels to elevations at or below the established City of Dallas design water levels, reducing the potential flooding impacts to people and property in the Pavaho Basin. In addition, proposed improvements would modernize and extend the service life of existing facilities for at least another 50 years.

The USACE analyzed two action alternatives in this EA: the Proposed Action and the No Action Alternative. Under the Proposed Action, the USACE and City of Dallas would construct a new pump station with a total pumping capacity of 381,000 gpm and associated infrastructure. The new Pavaho Pump Station would utilize the two existing 6 ft by 8 ft gravity sluices to convey stormwater to the Trinity River via the installation of a new junction box that would connect flow from the existing and proposed Pavaho Pump Stations. In addition, proposed sump improvement and erosion control measures would further improve flood risk management in the Pavaho Basin.

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FINAL
ENVIRONMENTAL ASSESSMENT
PROPOSED PAVAHO PUMPING PLANT IMPROVEMENTS
CITY OF DALLAS, TEXAS

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Acronyms and Abbreviations

ACM	asbestos containing materials
ADT	average daily traffic
ALERT	Automated Local Evaluation in Real Time
AQCR	Air Quality Control Region
CAA	Clean Air Act
CWA	Clean Water Act
CEQ	Council on Environmental Quality
C.F.R.	Code of Federal Regulations
CO	carbon monoxide
dBA	A-weighted decibels
DCLID	Dallas County Levee Improvement District
DFP	Dallas Floodway Project
EA	Environmental Assessment
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EO	Executive Order
ER	Engineering Regulation
ESA	Endangered Species Act
EWLIDS	East and West Levee Interior Drainage Systems
ft	foot/feet
GHGs	greenhouse gases
gpm	gallons per minute
LBP	lead based paint
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standards
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act
NO_x	nitrogen oxides
NPS	National Park Service
NRHP	National Register of Historic Places
NWP	Nationwide Permit
O_3	ozone
PB	Pavaho Basin
PCN	Pre-Construction Notification
ROI	Region of Influence
SCADA	Supervisory Control and Data Acquisition
SHPO	State Historic Preservation Officer
TCEQ	Texas Council on Environmental Quality
THC	Texas Historical Commission
TPWD	Texas Parks and Wildlife Division
TRFCD	Trinity River Flood Control District
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	U.S. Code
USEPA	U.S. Environmental Protection Agency
VOCs	volatile organic compounds
WRDA	Water Resources Development Act

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CHAPTER 1
PURPOSE AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

The United States Army Corps of Engineers (USACE) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [U.S.C.] Section 4321, et seq.), the Council on Environmental Quality (CEQ) regulations found in 40 Code of Federal Regulations (C.F.R.) Parts 1500-1508, and USACE Engineer regulations found in 33 C.F.R. Part 230. This EA describes the potential environmental consequences resulting from implementation of proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Texas.

1.2 PROJECT AREA

The City of Dallas is located adjacent to the Trinity River, just downstream of the confluence of the West and Elm Forks of the Trinity River. The Pavaho Pumping Plant is part of the East and West Levee Interior Drainage Systems (EWLIDS), which currently includes six pumping plants, associated sumps, seven pressure sewers, and numerous gravity sluices that, in total, serve much of the City of Dallas metropolitan area (Figure 1-1). The EWLIDS are discrete stormwater flood risk management systems separated by geography that are not hydrologically connected. The Pavaho Pumping Plant is located adjacent to the west levee of the Dallas Floodway on Canada Drive, approximately 350 feet (ft) north of the northern terminus of Parvia Avenue in the City of Dallas, Texas (Figure 1-2).

The approximately 1,900-acre Pavaho Basin defines the project area; however, this EA focuses on the area associated with proposed improvements at the Pavaho Pumping Plant.

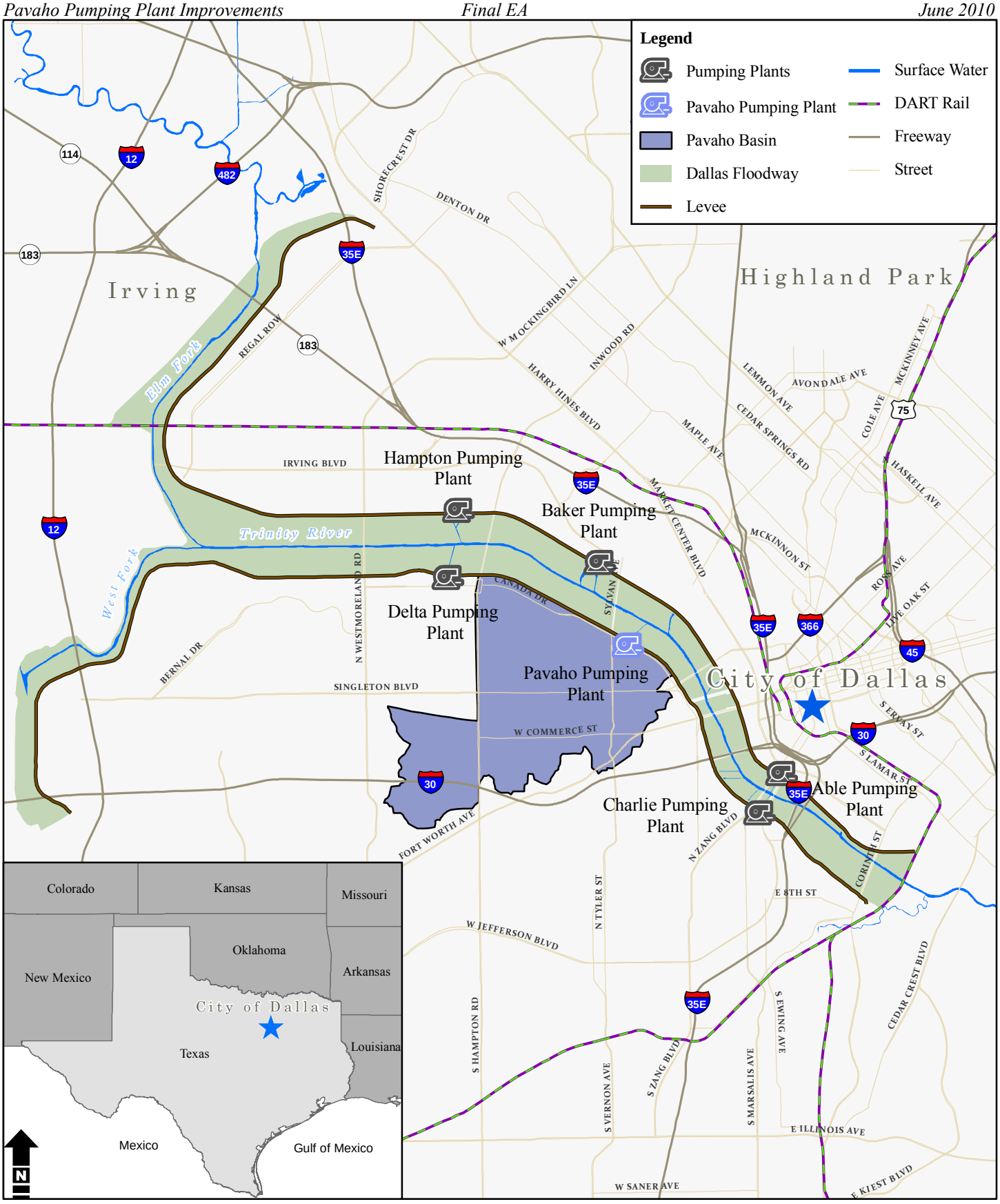
1.3 BACKGROUND

1.3.1 Dallas Floodway and Stormwater Drainage Systems

The Trinity River was vital to the early development of the City of Dallas. However, numerous large floods, including the catastrophic flood of 1908, led the City of Dallas to seek protection from Trinity River floodwaters. Between 1928 and 1931, the Dallas County Levee Improvement District (DCLID) constructed levees to protect the City of Dallas from riverine flooding. The DCLID relocated the confluence of the West and Elm Forks, and filled the remnant channel or set it aside for sump storage. In 1932, the DCLID had completed construction of the original components of the EWLIDS.

In the mid-1940s, major storms, compounded by continued urbanization in the watershed, resulted in severe flooding in the project area. To reduce flooding within the City of Dallas area, Congress authorized the flood control project termed the "Dallas Floodway" in 1945 and again in 1950. The USACE completed building the authorized Dallas Floodway project in 1958, which included significant improvements to the levees and the EWLIDS.

The same levees that protect the City of Dallas from Trinity River flooding also block local stormwater runoff from the interior (developed) side of the levee from reaching the Trinity River. Thus, the City of Dallas manages interior drainage by allowing the stormwater runoff to pool in sumps (low areas) in interior areas before pumping or gravity feeding it into the Dallas Floodway. For the last 75 years, the City of Dallas (in cooperation with the USACE) has employed this strategy for managing stormwater in the EWLIDS.



Kilometers
0 0.5 1 1.5 2
0 0.25 0.5 0.75 1
Miles

Figure 1-1
Regional Vicinity Map

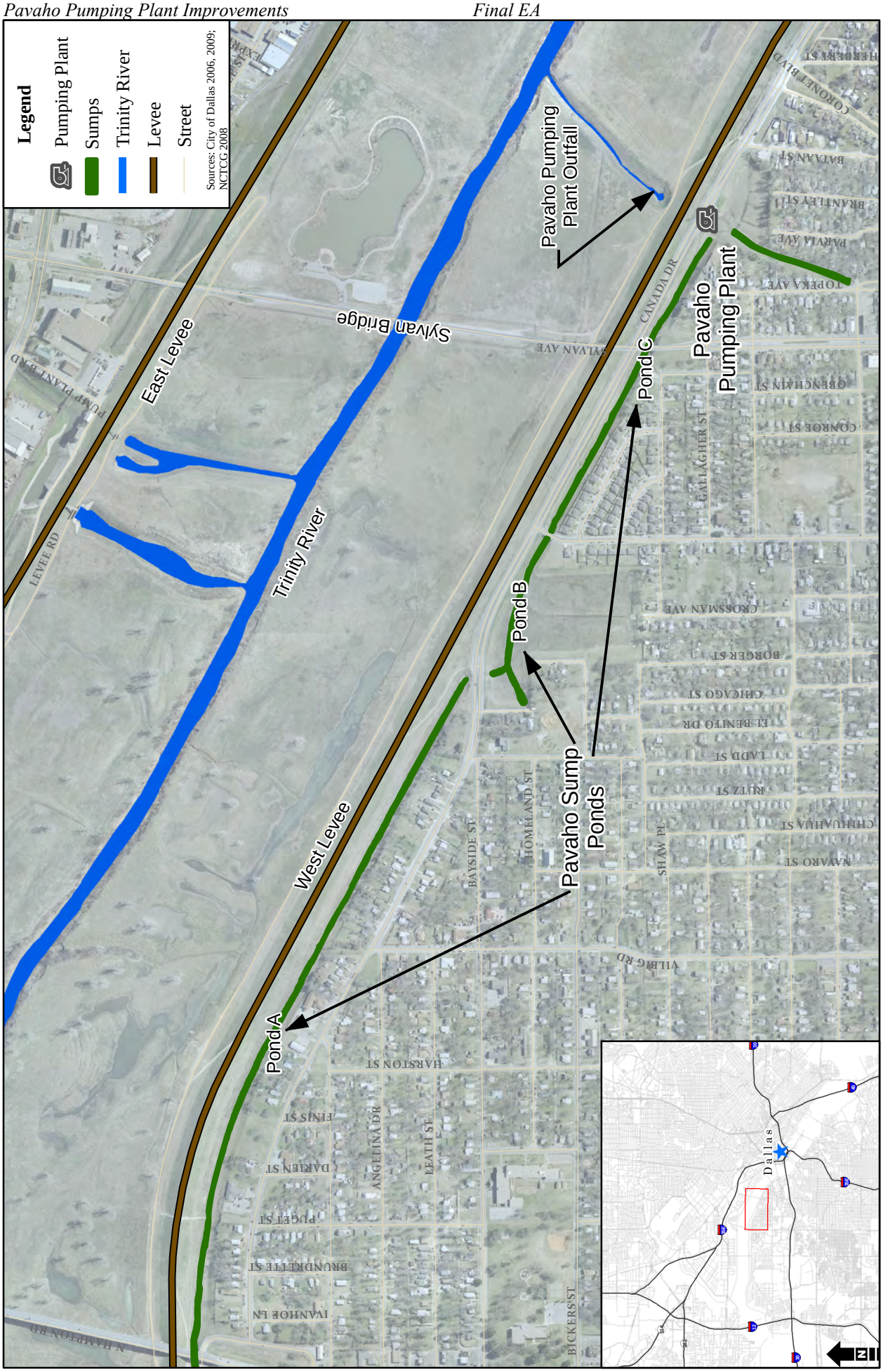


Figure 1-2
Pavaho Pumping Plant and Sump Ponds

The City of Dallas Trinity River Flood Control District (TRFCD) operates and maintains the Dallas Floodway and EWLIDS under the regulatory control of the USACE (City of Dallas 2008b). The City of Dallas TRFCD uses a sophisticated Supervisory Control and Data Acquisition (SCADA) system to control and monitor the operation of the pumping plants. As part of the system, the City of Dallas TRFCD incorporates a network of closed-circuit TV cameras and an Automated Local Evaluation in Real Time (ALERT) reporting system that provides real-time measurements of precipitation and stream and sump levels throughout the watershed.

In March 2006, the need for improving the EWLIDS was demonstrated when a significant local storm caused widespread stormwater flooding in the City of Dallas, resulting in one fatality and significant property damage. During this storm, City of Dallas Police and Fire-Rescue Departments responded to hundreds of emergency rescue calls from stranded motorists and residents, several of which were in the Pavaho Basin. More recently, in June 2009, following approximately five inches of rainfall in a 24-hour period (National Climate Data Center 2009), localized street flooding occurred in the Pavaho Basin when the Pavaho Pumping Plant capacity could not keep up with stormwater runoff (WFAA.com 2010).

1.3.2 Storm Terminology

This document describes storms by their intensity and associated ability to affect the project area. By understanding the range of reasonably foreseeable floods and associated flood water levels that could affect the project area, responsible authorities can plan, design, and construct appropriately sized infrastructure to reduce the potential for injury and/or damage from flooding.

Using historical storm data, hydrologists describe the range of potential storm intensities and durations that could reasonably affect an area. This range or "recurrence interval," is the probability that a given storm will be equaled or exceeded in any given year. Thus, a storm event with a recurrence interval of 2 years would have a 50% chance of occurring in any year; a storm event with a recurrence interval of 500 years would have a 0.2% chance of occurring in any year. In this document, the storm used for modeling and engineering purposes in the project area is the "100-year, 24-hour storm event." This storm corresponds to the estimated amount of rain that would fall within a 24-hour period that has a 1% chance of occurring in any given year in the project area.

As a point of comparison, rainfall data collected in the EWLIDS basin during the March 2006 storm revealed the storm had an estimated recurrence interval of 40 years (2.5% chance of occurring in any given year).

1.4 PAVAHO PUMPING PLANT

1.4.1 Pavaho Sump Ponds

The Pavaho Pumping Plant drains an area of approximately 1,900 acres. Sump storage for the Pavaho Basin consists of a series of three interconnected ponds (Ponds A, B, and C) located generally parallel to the West Levee from the Hampton Street Bridge to east of the Sylvan Street Bridge (Figure 1-2). Pond A is the westernmost pond and connects to Pond B via a 10 ft by 8 ft reinforced concrete box culvert at Canada Drive. Pond B connects to Pond C via a 72-inch diameter reinforced concrete pipe underneath the Sylvan Avenue Bridge. In addition, a 10 ft by 8 ft reinforced concrete box culvert connects Pond A to the Westmoreland-Hampton Sump at the Hampton Street Bridge.

1.4.2 Pavaho Pumping Plant

Constructed in 1954 as part of the USACE Dallas Floodway project, the Pavaho Pumping Plant originally consisted of two, 30,000-gallons per minute (gpm) pumps. In 1979, the City of Dallas added one, 6,000-

gpm pump. In 2003, the City of Dallas replaced one of the 30,000-gpm pumps with a 46,000-gpm pump. When the Trinity River stage is low, stormwater flow gravitates via concrete sluices beneath the West Levee into the Trinity River. When the Trinity River rises, the City of Dallas closes the sluice gates and pumps the stormwater into the Trinity River. The Pavaho Pumping Plant outfall is located in the Dallas Floodway.

1.4.3 Storm Event Water Levels and Associated Potential Flooding Risk

This section presents the predicted 100-year, 24-hour storm event water levels; the City of Dallas design 100-year, 24-hr storm event water levels; and the number, type, and value of structures potentially subject to flooding impacts in the Pavaho sumps. These model predictions and the subsequent comparison to existing conditions identified problems in the existing Pavaho Pumping Plant system and aided in the development of potential measures to address stormwater-flooding concerns (City of Dallas 2006a, 2009a).

1.4.3.1 Predicted and Design 100-year, 24-hour Storm Event Water Levels

The predicted and design 100-year, 24-hour storm event water levels for the Pavaho sumps are 408.2 ft and 405.5 ft, respectively. The design water level corresponds to original (1960s and 1970s-era) 100-year, 24-hour storm events, which reflected stormwater basin conditions at that time. Primarily due to changes in the stormwater basins, the design storm event water level no longer reflects current stormwater basin conditions (City of Dallas 2006a, 2009a). As the predicted 100-year, 24-hour storm event water levels are greater than the original design storm event water levels, the Pavaho Pumping Plant is undersized to handle the predicted volume of stormwater, and flooding in areas adjacent to the Pavaho Sump Ponds is likely. Recent flooding (in 2006 and 2009) in the Pavaho sumps demonstrated that the Pavaho Pumping Plant does not have sufficient capacity to dewater the sumps in a timely manner.

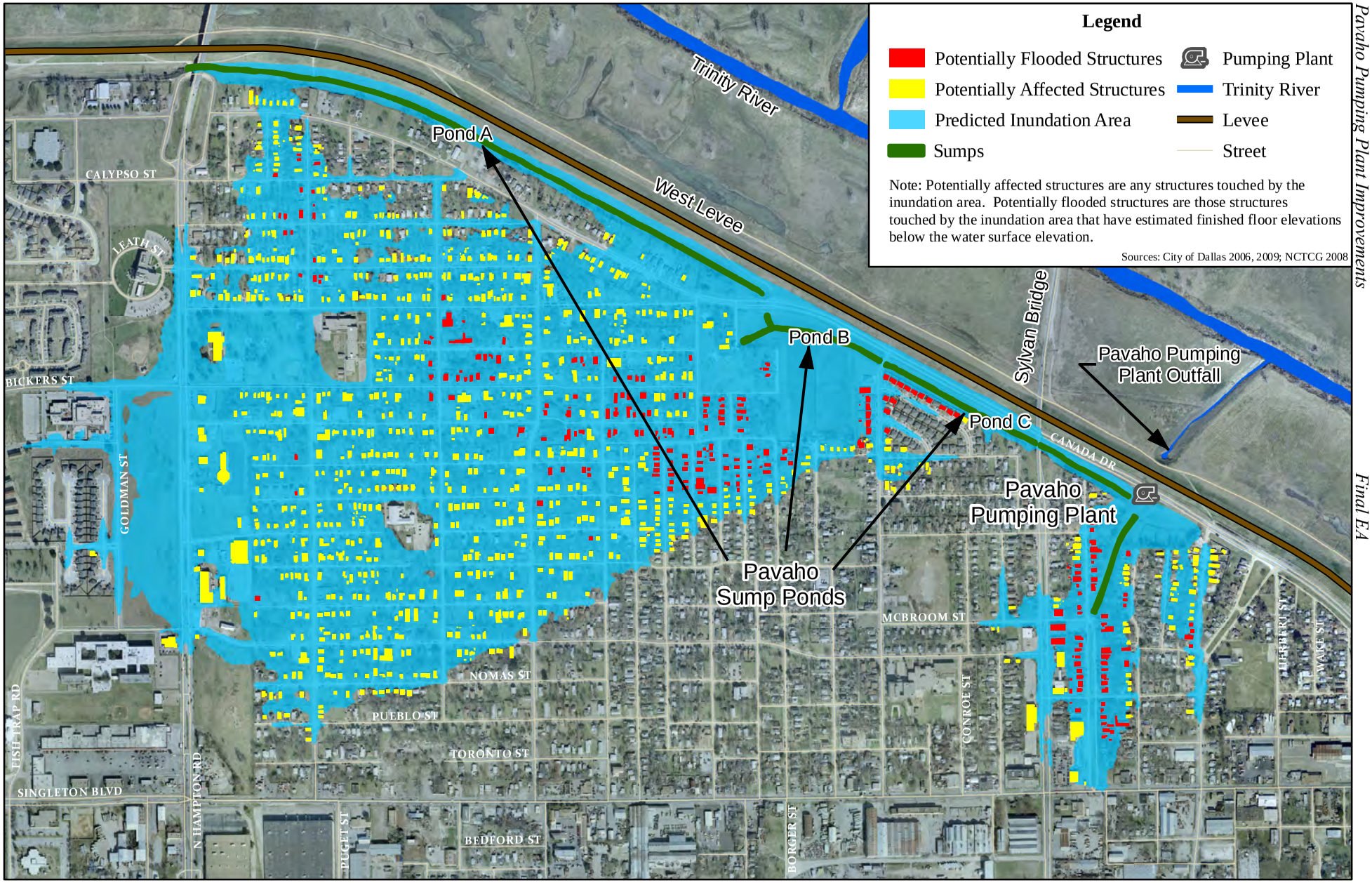
1.4.3.2 Predicted Flooding Risk

Stormwater flooding from the modeled 100-year, 24-hour storm event has the potential to affect 1,047 structures within the Pavaho Basin. A "potentially affected structure" is any structure touched by the predicted inundation area. Flooded structures are those structures touched by the inundation area that have finished floor elevations below the predicted water surface elevation. Thus, of these 1,047 structures, 205 are subject to flooding. The potentially affected structures represent a mix of residential and non-residential properties (for demographic information, refer to Section 3.9.1). As of 2006, the total market value of these structures was $33,522,470 (City of Dallas 2009a).

Figure 1-3 depicts the predicted flood inundation area and the potentially affected structures during a modeled 100-year, 24-hour storm event in the Pavaho Basin, based on current conditions. As a point of comparison, for the EWLIDS as a whole, the 100-year, 24-hour storm event has the potential to affect 1,644 structures in the entire EWLIDS (City of Dallas 2009a). Thus, the majority of the structures in the entire EWLIDS potentially subject to flooding are located in the Pavaho Basin.

1.5 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts. By improving the Pavaho Pumping Plant, the USACE and City of Dallas would be able to provide improved flood risk management to people and property in the Pavaho Basin.



Meters
0 75 150 225 300
0 250 500 750 1,000
Feet

Figure 1-3
Predicted Inundation Areas and Potentially Affected Structures Resulting from Modeled 100-Year, 24-Hour Storm Event under Existing Conditions

N

1.6 PROJECT AUTHORITY

Section 5141 of the Water Resources Development Act (WRDA) of 2007 (Public Law 110-114; 121 Stat. 1041) provides authorization for interior drainage improvements in the City of Dallas. The USACE is the action proponent for this NEPA document, as the proposed project involves federal funding and federal interests in property. The Federal interest in property are currently owned and maintained by the City of Dallas as part of the Dallas Floodway. As the lead agency for this NEPA document, the USACE Fort Worth District must determine the technical soundness and environmental acceptability of this WRDA-authorized project, as documented in this EA. This analysis takes into consideration the potential environmental aspects of the action alternatives. The information has been made available to the public before reaching a decision.

Dallas approved the proposed improvements to the Pavaho Pumping Plant with the passing of the 2006 Bond Program in an election held on November 7, 2006. The proposed improvements were included in the 2006 Bond Program under Proposition 2 – Flood Protection and Storm Drainage Facilities.

1.7 USACE ENVIRONMENTAL OPERATING PRINCIPLES

The USACE has identified core "Environmental Operating Principles" that guide the USACE in its planning, coordination, and project implementation efforts. A description of these core Environmental Operating Principles follows:

Environmental Sustainability. The USACE will strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.

Understand Interdependence. The USACE recognizes the interdependence of life and the physical environment and will proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.

Seek Balance. The USACE will seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.

Accept Responsibility. The USACE will continue to accept corporate responsibility and accountability under the law for activities and decisions under USACE control that impact human health and welfare and the continued viability of natural systems.

Recognize the Big Picture. The USACE will seek ways and means to assess and mitigate cumulative impacts to the environment. The USACE will do this by applying systems approaches to the full life cycle of USACE processes and work.

Build Awareness. The USACE will build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of proposed USACE actions.

Listen and Learn. The USACE will respect the views of individuals and groups interested in USACE activities, listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

The USACE strives to incorporate these principles into their projects when applicable. In doing so, the USACE and project stakeholders can work together to ensure proposed projects maximize the "public good" and minimize recognized negative impacts. The USACE has incorporated these Environmental Operating Principles into this NEPA document.

1.8 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

As part of the NEPA process, the USACE has reached out to government agencies and the public in an attempt to solicit input on the Proposed Action. The following paragraphs describe how the USACE has coordinated with government agencies and involved the public.

1.8.1 Agency Coordination

On April 2, 2010, the USACE mailed letters to over 20 federal and state agencies notifying them of the USACE's intent to prepare an EA for proposed improvements to the Pavaho Pumping Plant (Appendix A). On May 7, 2010, the USACE mailed letters to the same agencies notifying them of the completion and availability of the Public Draft EA. Through the course of this NEPA process, the USACE has coordinated and corresponded with these and government agencies.

1.8.2 Public Involvement

The USACE and City of Dallas held a public scoping meeting for the Dallas Floodway Project (DFP) Environmental Impact Statement (EIS) on November 17, 2009 that included information on the proposed changes to the Pavaho Pumping Plant. None of the comments received during and after the meeting regarded proposed improvements to the Pavaho Pumping Plant.

The USACE and City of Dallas made the Public Draft EA available for public and agency comment with the publication of the Notice of Availability in local newspapers (Appendix B). Copies of the Public Draft EA were available in City of Dallas libraries, on the project website (http://www.dallasfloodwayprojecteis.com) and via mail for interested parties on the USACE mailing list. The 30-day Public Review Period ran from Friday, May 7 to Sunday, June 6. During this period, the USACE and City of Dallas received one comment from the National Park Service (NPS), which stated that the NPS had no comment.

1.9 IMPACT ANALYSIS CRITERIA

The USACE has identified a broad spectrum of general and project-specific criteria with which to analyze the potential effects of the action alternatives. The USACE will use these "impact analysis criteria," to assess the potential impacts stemming from implementation of the action alternatives. The following criteria serve as the basis for the impact analysis presented in Chapter 4:

- Institutional Criteria;
- Public Criteria;
- Technical Criteria; and
- Scientific Criteria.

1.9.1 Institutional Criteria

Institutional criteria include those criteria required by NEPA for federal agencies to take into consideration when assessing the potential environmental consequences of a proposed action in their decision-making process. The intent of NEPA is to protect, restore, or enhance the environment through well-informed federal decisions. The USACE has prepared this EA in accordance with the requirements as outlined in the following sections.

- NEPA (42 U.S.C. Section 4321, et seq.)
- CEQ Regulations (40 C.F.R. Parts 1500-1508)
- USACE Engineering Regulation 200-2-2, Environmental Quality, Procedures for Implementing NEPA (33 C.F.R. Part 230)

- National Historic Preservation Act
- Clean Air Act (CAA)
- Endangered Species Act (ESA)
- Clean Water Act (CWA)
- Migratory Bird Treaty Act
- Safe Drinking Water Act
- Native American Graves Protection and Repatriation Act
- Resource Conservation and Recovery Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Historic Sites Act of 1935
- Rivers and Harbors Act
- Executive Order (EO) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations
- EO 13045 - Protection of Children from Environmental Health Risks and Safety Risks
- EO 13148 - Greening the Government through Leadership in Environmental Management
- EO 13175 - Consultation and Coordination with Indian Tribal Governments
- EO 13186 - Responsibilities of Federal Agencies to Protect Migratory Birds

1.9.2 Public Criteria

Public Criteria include those criteria deemed important by the public. These criteria include things such as flood protection, visual/aesthetic corridors, and recreational opportunities. As part of the public involvement process, the USACE solicited input from the public as to public areas of concern during the Draft EA Public Review Period. The USACE did not receive any comments presenting additional public criteria.

1.9.3 Technical Criteria

Technical Criteria include those criteria developed by the USACE that demonstrate consistency with the technical aspects of the USACE mission, most namely, flood risk management. These criteria assist in determining the "technical soundness" of the project. These criteria include:

- Levee Stability
- Operational Costs
- Hydrologic Impacts
- Structure Stability

1.9.4 Scientific Criteria

Scientific Criteria include those criteria that represent the recognized scientific or environmental qualities specific to the project area that would assist in determining the "environmental acceptability" of the project. These include criteria that are important to local and state interests.

- Texas Endangered Species
- North Central Texas Council of Governments Certification
- Section 26 of the Texas Water Code
- State of Texas Water Quality Certification
- No Net Negative Impact to Fish and Wildlife

- Acceptable Environmental Cost/Benefit Ratio
- Environmental Value
- Global System
- Environmental Stewardship
- Green Design

1.10 DOCUMENT FRAMEWORK

The organization of this EA is as follows: Chapter 1 defines the purpose of and need for the Proposed Action. Chapter 2 describes the action alternatives. Chapter 3 presents a discussion of existing conditions and potential environmental consequences for each resource area. Chapter 4 presents an analysis of the potential cumulative effects of the Proposed Action. Chapter 5 provides a summary of impacts. Chapter 6 addresses various other considerations required by NEPA. Chapter 7 contains all references cited in the EA and Chapter 8 provides the list of preparers. In addition, there are five appendices. Appendix A presents the letters used to notify federal and state agencies of the USACE's intent to prepare and EA. Appendix B includes documents created and/or received in the course of the Public Review Process. Appendix C presents the USACE coordination letter regarding the applicability of a Nationwide Permit (NWP) for the Proposed Action. Appendix D documents correspondence and coordination for cultural resources. Appendix E includes the data analysis associated with air quality analysis, and the associated Record of Non-Applicability (RONA).

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

In order to identify action alternatives to carry forward for analysis to satisfy the purpose and need, the USACE and City of Dallas followed a two-step screening process: 1) Courses of Action Development (Section 2.2) and 2) Action Alternative Development (Section 2.3). The following sections describe this two-step process, the resulting Action Alternatives (Section 2.4), and the Project Timeline (Section 2.5).

2.2 COURSES OF ACTION DEVELOPMENT

In this initial screening step, the USACE and City of Dallas analyzed potential courses of action to address existing stormwater flooding concerns in the Pavaho Basin. The USACE and City of Dallas did this by reviewing recently completed engineering studies that identified potential courses of action (step one). Those courses of action deemed feasible and merited additional screening were included for additional assessment in this EA (step two) (City of Dallas 2009a).

2.2.1 Potential Courses of Action

The USACE and City of Dallas identified the following potential courses of action to address existing stormwater flooding concerns in the area served by the Pavaho Pumping Plant:

- Increase Sump Storage Capacity;
- Alter Sump Inflow Hydrographs;
- Increase Pumping Capacity; and,
- Construct Pressure Sewers.

These potential courses of action could work independently, or in combination with one or more other courses of action, to address existing stormwater flooding concerns in the Pavaho Basin (City of Dallas 2009a). In addition, the USACE and City of Dallas identified the following associated actions that while not providing additional stormwater flood protection, are associated with the Proposed Action and are included for consideration. A description of each of these potential courses of action follows.

2.2.1.1 Increase Sump Storage Capacity

A potential approach to managing stormwater is to increase the size of the retention basins, or sumps. When land is readily available, agencies can consider increasing the size of sumps to increase the amount of available volume for stormwater storage; as the size of the sump increases, the required pumping capacity decreases.

The USACE and City of Dallas examined the Pavaho Sumps for expansion potential, but found that only in a few locations was this feasible, albeit at a small scale. In these locations, the amount of available land would not significantly increase the volume of sump storage capacity. Furthermore, the developed nature of the area surrounding the existing sumps limits their potential for large-scale expansion. In the project area, the USACE and City of Dallas would have to acquire significant amounts of private property to augment existing sump storage capacity, and displacing residents and/or businesses is not a desired approach (City of Dallas 2009a). Therefore, the USACE and City of Dallas have eliminated the Increase Sump Storage Capacity course of action from analysis in this EA.

2.2.1.2 Alter Sump Inflow Hydrographs

Decreasing the magnitude or altering the timing of the inflow of stormwater to the sump is possible by increasing the amount of detention storage. When land is readily available, agencies can increase the size of detention storage, which provides the capability to decrease the magnitude of peak water levels (alter the hydrograph) (City of Dallas 2009a).

The USACE and City of Dallas investigated the feasibility of increasing the amount of stormwater detention storage to a sufficient level to alter the hydrograph, but did not identify any areas that would be feasible, primarily for the same reasons as presented for the potential Increase Sump Storage Capacity Course of Action discussion (City of Dallas 2009a). Therefore, the USACE and City of Dallas have eliminated the Alter Sump Inflow Hydrograph course of action from analysis in this EA.

2.2.1.3 Increasing Pumping Capacity

Increasing the capacity of the pumping plants to handle stormwater is possible through rehabilitating existing pump stations, constructing new pump stations at existing pumping plants, and/or constructing new pumping plants.

The USACE and City of Dallas determined that increasing the pumping capacity of the Pavaho Pumping Plant is a feasible course of action for addressing existing stormwater flooding concerns in the Pavaho Basin (City of Dallas 2009a). Therefore, the USACE and City of Dallas have included the Increasing Pumping Capacity course of action for analysis in this EA.

2.2.1.4 Construct Pressure Sewers

Constructing new pressure sewers to collect and convey stormwater to the Dallas Floodway is possible under certain conditions: a potential pressure sewer basin must be capable of generating enough hydraulic head to generate sufficient pressure, and the station must be large enough to contribute a significant amount of flow to the sump to make the system economically viable.

The USACE and City of Dallas investigated potential areas, but did not identify any areas that could provide enough hydraulic head and area to contribute a significant amount of flow at a reasonable cost (City of Dallas 2009a). Therefore, the USACE and City of Dallas have eliminated the Pressure Sewer Construction course of action from analysis in this EA.

2.2.2 Potential Courses of Action Summary

As shown in Table 2-1, the USACE and City of Dallas have determined that increasing the pumping capacity of the Pavaho Pumping Plant is the selected course of action for addressing existing stormwater flooding concerns in the Pavaho Basin. In addition, as required by CEQ regulations, the No Action Alternative is also a potential course of action. The USACE and City of Dallas have eliminated the other potential courses of action from further analysis in this EA. Section 2.3 presents a discussion of the development, and identification of the measures associated with the selected course of action.

Table 2-1. Potential Courses of Action Summary

Potential Course of Action	Eliminated	Included
Increase Sump Storage Capacity	✓	
Alter Sump Inflow Hydrographs	✓	
Increase Pumping Capacity		✓
Construct Pressure Sewers	✓	

2.3 ACTION ALTERNATIVE DEVELOPMENT

In the second part of their two-step approach, the USACE and City of Dallas identified potential measures at the Pavaho Pumping Plant to address existing stormwater flooding risks. This section evaluates the potential improvement measures to determine which, if any of the proposed improvement measures (other than the No Action) would constitute the Proposed Action. Those determined feasible are included as part of the Proposed Action, while those that are not feasible are excluded from further analysis.

2.3.1 Potential Pavaho Pumping Plant Improvement Measures

Potential improvement measures for the Pavaho Pumping Plant include a range of activities that would increase the pumping capacity of the Pavaho Pumping Plant. Table 2-2 summarizes the potential stormwater flooding reduction measures for the Pavaho Pumping Plant.

Table 2-2. Potential Pavaho Pumping Plant Improvement Measures

Measure	Scales	Estimated Cost
PB-1	Demolish Existing Pavaho Pump Station Construct New 500,000 gpm Pump Station at Pavaho	$40,868,593
PB-2	Demolish Existing Pavaho Pump Station Construct New 381,000 gpm Pump Station at Pavaho	$38,346,071
PB-3	Perform Minor Improvements to the Existing Pavaho Pump Station Construct New 381,000 gpm Pump Station at Pavaho	$37,800,000

Notes: PB = Pavaho Basin, gpm = gallons per minute.
Source: City of Dallas 2009a.

The existing Pavaho Pump Station provides stormwater-pumping capacity and, with improvements, can continue to provide pumping capacity for years to come. Thus, demolition of the existing Pavaho Pump Station is not a preferred measure. In addition, the existing Pavaho Pump Station is a historic property eligible for inclusion on the National Register of Historic Places (NRHP) under Criterion A and C (refer to Appendix D, Cultural Resources Coordination). Therefore, the USACE and City of Dallas eliminated Pavaho Basin (PB) measures PB-1 and PB-2, and have identified measure PB-3 as the Proposed Action analyzed in this EA.

2.4 ACTION ALTERNATIVES

2.4.1 Proposed Action

2.4.1.1 Overview

Implementation of the Proposed Action would reduce predicted 100-year, 24-hour storm event water levels to heights in the Pavaho Basin at or below the established City of Dallas water levels, resulting in a significant reduction in the number of structures potentially affected by flooding in the Pavaho Basin. This risk reduction would serve to reduce potential stormwater flooding impacts to people and property in the City of Dallas. In addition, proposed improvements would modernize and extend the service life of existing facilities for at least another 50 years. Proposed construction activities would last approximately 800 days. Upon completion, the City of Dallas would continue to follow the current Pavaho Pumping Plant operations and maintenance procedures. Figure 2-1 depicts the locations of the Proposed Action components. The limit of construction associated with the Proposed Action covers just less than four acres and includes the small area of proposed improvements at the Pavaho Pumping Plant outfall. The following paragraphs provide detailed descriptions of these components.

Figure 2-1
Proposed Improvements to the Pavaho Pumping Plant

2.4.1.2 New Pavaho Pump Station

Under the Proposed Action, the USACE and City of Dallas would construct a new approximately 10,890-square ft pump station consisting of three, 125,000-gpm pumps (375,000 gpm total pumping capacity), and one, 6,000-gpm low-flow pump. A permanent retaining wall would protect the sides of the building. In addition, the proposed Pavaho Pump Station would include two new driveway access points off Canada Drive. Eight-inch thick reinforced concrete pavement would surround the proposed Pavaho Pump Station (Figure 2-1). Discharge from the new pumps would flow into one 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. There, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via the two existing 6 ft by 8 ft gravity sluices into the Trinity River. When the pumps are operational, the City of Dallas would continue to close the sluice gates.

2.4.1.3 Improvements to the Existing Pavaho Pump Station

Under the Proposed Action, the USACE and City of Dallas would enact minor improvements to the existing Pavaho Pump Station to increase the service life and minimize future maintenance. The improvements would include the removal of sluice gates, guides, stems, guardrails, grating supports, beam, and float-gage well to ensure compatibility with the proposed Pavaho Pump Station. The USACE and City of Dallas would construct two new sluice gates and replace the existing ladder and junction box. A series of 1-ft thick gabion mattress would minimize erosion in and around the existing outfall. The existing Pavaho Pump Station would operate in concert with the proposed new Pavaho Pump Station.

2.4.1.4 Improvements to the Pavaho Sump

Under the Proposed Action, the USACE and City of Dallas would install a liner in the sump area immediately adjacent to existing and proposed Pavaho Pump Stations to improve stormwater conveyance by minimizing the maintenance need associated with erosion, silting, and vegetation. The maximum elevation of the lining in the main channel would generally be 385 ft; however, the elevation may be higher in areas around drainage outfall structures. The USACE and City of Dallas would also construct a new self-cleaning trash rack at the proposed Pavaho Pump Station inlet.

2.4.1.5 Resource Conservation Measures

The USACE and the City of Dallas would implement the following Resource Conservation Measures as part of the Proposed Action to avoid or minimize potential effects to environmental resources:

1. All disturbed soils would be immediately stabilized following the completion of work and be re-planted with native grass and shrub species. Before approval of the final design, the contractor would obtain USACE and City of Dallas approval of a soil layering plan, seed mixes, planting/seeding, and monitoring methods proposed for use in revegetation. Noxious weeds would be controlled by hand weeding or herbicide application.
2. Before the start of construction the project boundary (i.e., limit of construction) would be clearly marked with flagging, fencing, stakes, or lath.
3. Erosion and sedimentation controls would be monitored and maintained during construction and for 12 months thereafter to ensure site stabilization. An Erosion Control Plan would be prepared and implemented. The Erosion Control Plan would include Best Management Practices (BMPs) that could include rock stabilization at the construction site entrance, inlet protection barriers at the Pavaho Pumping Plant inlet, and the use of rock filter dams within the sump. The contractor would also be required to use silt fences throughout the construction area wherever there is the

potential for erosion. The City of Dallas would finalize the Erosion Control Plan upon final design approval of the proposed improvements, and all erosion control measures would be field adjusted for site conditions.

4. The contractor would implement a Traffic Control Plan approved by the City of Dallas prior to construction. The Traffic Control Plan would include requirements to cover any excavated pavement exposed to traffic with anchored steel plates during non-working hours; provide 48-hour notice of intended lane closures; site appropriate signage for construction periods; and site a temporary concrete traffic barrier before constructing the proposed discharge pipe shoring wall.
5. The Proposed Action would permanently impact 0.09 acres of jurisdictional waters of the U.S. Therefore, prior to construction, the contractor would obtain a CWA Section 404 NWP 12 – "Utility Line Activities (Appendix C). The contractor would implement any measures to minimize and/or mitigation impacts as required by the NWP. As stipulated by NWP 12, because the permanent impacts would be less than 0.10 acres, Pre-Construction Notification (PCN) to the USACE District Engineer would not be required.
6. The construction contractor would survey for all pre-existing utilities in the area to avoid and/or minimize any temporary interruption of utility service(s).
7. Hazardous wastes would be handled in accordance with applicable USACE and City of Dallas regulations. If an unknown or unidentified waste is encountered during construction, all construction in the area would stop, and the City of Dallas personnel would be notified.
8. All modifications to the existing Pavaho Pump Station would be done in accordance with the Memorandum of Agreement (MOA) established between the USACE and the Texas State Historic Preservation Officer (SHPO) (Appendix D).

2.4.2 No Action

Under the No Action Alternative, the USACE would not improve the Pavaho Pumping Plant. Existing public safety and property concerns in the Pavaho Basin would persist. The No Action Alternative is not a reasonable action alternative because it does not meet the purpose and need for the Proposed Action. However, as required under CEQ regulations (40 C.F.R. § 1502.14[d]), it does provide a meaningful measure of baseline conditions against which the impacts of the action alternatives can be compared, as well as describe potential future conditions in the absence of the Proposed Action. In this EA, the No Action Alternative represents the baseline conditions described in Chapter 3, Affected Environment.

2.5 PROJECT PLANNING TIMELINE

To address existing 100-year, 24-hour stormwater flood risk management concerns in the Pavaho Basin, the USACE and City of Dallas are proactively moving forward in their planning and analysis of proposed Pavaho Pumping Plant improvements. Proposed improvements to the Pavaho Pumping Plant were initially included as part of the on-going DFP EIS, which includes proposed improvements to the entire EWLIDS. However, due to pressing safety concerns as identified in Section 1.4, most notably that the Pavaho Basin has the highest number of potentially flood-affected structures in the entire EWLIDS, the USACE and City of Dallas decided to extract the proposed improvements to the Pavaho Pumping Plant element from the DFP EIS and prepare this separate NEPA document to expedite the analysis of proposed stormwater flood risk management actions in the Pavaho Basin. The on-going DFP EIS will include an analysis of the proposed Pavaho Pumping Plant improvements in the cumulative impact section.

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 APPROACH TO ANALYSIS

The affected environment sections provide a discussion of the existing conditions for each of the following resource areas deemed pertinent to the Proposed Action: land use, noise, geology and soils, water resources, biological resources, cultural resources, visual resources, socioeconomics and environmental justice, air quality, utilities, hazardous materials and wastes, transportation, and public safety. In this EA, the No Action Alternative represents the baseline conditions described in the Existing Conditions discussion. The environmental consequences sections provide a discussion of the potential impacts the Action Alternatives would have on each environmental resource area.

3.2 LAND USE

3.2.1 Existing Conditions

The Pavaho Pumping Plant and outfall are situated at the western border of the Trinity River Corridor Comprehensive Land Use Plan Downtown Lakes District in the Residential Riverside development module (City of Dallas 2005a). The Pavaho Pumping Plant straddles two zoning districts: Agricultural and R-5(A). The Agricultural-zoning district is for lands that are presently used for agricultural purposes and to which urban services are not yet available. The uses permitted in the Agricultural district are intended to accommodate normal farming, ranching, and gardening activities. The R-5(A) zoning district favors dense, single-family residential development (City of Dallas 2009b). The 2005 North Central Texas Council of Governments (NCTCOG) land use data does not designate the land use type of the Pavaho Pumping Plant; however, the identified surrounding land use is Dedicated-Flood Control and Vacant. The outfall is classified as Dedicated-Parks (NCTCOG 2007).

In 2009, the USACE and City of Dallas developed a protocol for reviewing construction projects with the potential to encroach upon the levees. Any construction projects within 250 ft of the levee toe trigger a heightened review and permitting process by the City of Dallas Development Services. A building applicant must submit full site plans, technical specifications, and a geotechnical report of the proposed site to Development Services and to the USACE for review and consultation. Development Services requires proof of consultation from the applicant before issuing a permit (City of Dallas 2010).

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

Implementation of the Proposed Action would be consistent with the existing zoning and land use designations. In addition, the Proposed Action would be implemented in accordance with any measures identified as part of the review and permitting process by the City of Dallas Development Services. Furthermore, by using the existing gravity conduits through the West Levee, the Proposed Action would avoid any unique or special design challenges associated with construction adjacent or through the West Levee. Therefore, implementation of the Proposed Action would result in no impacts to land use.

3.2.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.2.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to land use.

3.3 NOISE

3.3.1 Existing Conditions

Noise is generally described by sound waves of pressure differentials at varying frequencies that travel through any medium (mostly air) that can be detected by the human ear. Noise-sensitive receptors are those locations where activities that could be affected by increased noise levels and include locations such as residences, motels, churches, schools, parks, and libraries. Typical noise levels range from approximately 40 A-weighted decibels (dBA) for an urban setting to approximately 100 dBA for loud power equipment at close range. Noise impacts can result from any sound that interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise 1992).

Vehicular and air traffic in the vicinity of the Pavaho Pumping Plant represent the primary sources of noise at the project site. In addition, when pumping plant and/or trash screens are operating, these activities represent a minor contributor to the local noise environment immediately adjacent to the Pavaho Pumping Plant. On September 14-16, 2009, baseline noise levels were recorded for 5-minute intervals throughout the Dallas Floodway and drainage area to characterize baseline noise conditions. Ambient noise measured at the sump culvert 15-20 ft from Canada Drive ranged from 48 to 75.1 dBA. At the time of the data collection, the Pavaho Pumping Plant was not operating; however, the Able Pumping Plant and trash screens were operating. The noise levels recorded at Able Pumping Plant (66.3 dBA to 73.1 dBA at a distance of 30 ft) are considered representative of the Pavaho Pumping Plant when their pumps and trash screeners are operational. Identified sensitive noise receptors are residences located approximately 250 ft to the south and southwest of the Pavaho Pumping Plant.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Under the Proposed Action, construction and ground-disturbing activities would create localized, temporary noise impacts from construction equipment/vehicles, and the construction of the proposed Pavaho Pump Station. These vehicles and equipment can typically generate noise levels of approximately 80 to 85 dBA at approximately 50 ft (U.S. Environmental Protection Agency [USEPA] 1974). These noise levels would not be significantly higher than baseline noise levels measured from Canada Drive; furthermore, nearby sensitive receptors (residences) are approximately 250 ft away with vegetation buffers between them and proposed construction footprints.

Prior to implementation of the Proposed Action, the City of Dallas would notify nearby residents of the construction schedule. In addition, all construction activities would occur between the hours of 7:00 A.M. and 5:00 P.M. and staging areas would be sited to minimize impacts to surrounding areas.

During high stormwater levels, the pumps at the proposed Pavaho Pump Station would start to pump the water to the Dallas Floodway and the trash screeners would become operational. This operation would not be a constant occurrence and would only last until stormwater levels subside. This currently occurs at the existing Pavaho Pump Station. Because of the addition of more pumps in the same location, noise levels potentially could be marginally higher, but because the pumps would be housed inside a building,

and pump and trash screen activity occur infrequently and for short periods of time, implementation of the Proposed Action would not change the overall noise environment. Therefore, implementation of the Proposed Action would result in less than significant impacts to noise.

3.3.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.3.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to noise.

3.4 GEOLOGY AND SOILS

3.4.1 Existing Conditions

The Pavaho Pumping Plant is situated in Quaternary-age alluvial soils and terrace alluvial soils overlying gray shale of the Cretaceous Eagle Ford formation. The alluvial deposits typically consist of firm clays and sands with some gravel and silt content. The weathering profile over the shale includes weathered shale and residual clays. The unweathered bedrock consists of gray to dark gray shale, which classifies as a soft rock, on a rock strength basis. Beneath alluvial soils, the upper gray shale is often found to be softer than the deeper shale, likely from mechanical weathering resulting from surface saturation and erosion of overburden materials over time. North-central Texas is located in an area of low seismic activity (CH2M HILL 2009). No unique geologic features or geologic hazards are present within the proposed project area.

3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

Soils would be disturbed during grading activities associated with proposed construction activities. In addition, planned construction activities would minimally increase impervious surfaces, which would increase stormwater runoff and erosion rates. However, these minor increases would be reduced through engineering measures during construction activities and using BMPs as outlined in the Erosion Control Plan included as part of the Proposed Action. The plan would include silt fences, rock filter dams, inlet protection, and vegetation removal. The City of Dallas would remove constructed erosion control elements upon the final stabilization of the site. Disturbed areas that are seeded or sodded would be checked periodically to see that grass coverage is properly maintained, and would be watered, fertilized, and reseeded or sodded if necessary.

A liner would be added to the sump channel to improve stormwater conveyance by minimizing the maintenance need associated with erosion, silting, and vegetation associated with the sump stormwater storage area adjacent to the Pavaho Pumping Plant. A permanent retaining wall would also be added to prevent erosion and protect the sides of the proposed Pavaho Pump Station. These additional actions would help reduce erosion. As no unique geologic features or geologic hazards are located within the proposed project area, no impact to these geological resources would occur. Therefore, implementation of the Proposed Action would result in less than significant impacts to geology and soils.

3.4.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.4.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to geology and soils.

3.5 WATER RESOURCES

3.5.1 Existing Conditions

The majority of surface water features in the Dallas Floodway have been substantially modified from their natural conditions. These changes began in the late 1920s when the City of Dallas began a major effort to control flooding of the Trinity River in and around the downtown area. The most substantial change involved the diversion of the Trinity River (old river channel) to its current location within the Dallas Floodway.

The Pavaho Sump Ponds are remnant levee borrow ditches that run adjacent to the levee and serve to store stormwater. Surveys of habitat surrounding the Pavaho Pumping Plant in 2006 and 2008 identified one perennial stream, one ephemeral stream, two herbaceous wetlands, and one Jurisdictional Waters of the U.S. within the proposed project area (Figure 3-1) (USACE 2006, City of Dallas 2006b).

When water levels in the Pavaho Sumps reach preprogrammed elevations, the pumps transfer water under the West Levee and into the Trinity River. After being pumped/drained to the Floodway, stormwater is conveyed to the Trinity River through a channel aligned perpendicular to the West Levee and the Trinity River channel. During intense rain events, flooding can overwhelm stormwater drainage control measures and threaten structures, people, and water quality in the Pavaho Basin. Flooding occurs most often in the floodplains adjacent to sump ponds.

Because the study area is highly urbanized, stormwater quality associated with runoff in an urban setting is affected greatly. Urban stormwater carries pollutants from many sources, including oil and grease, heavy metals, chemicals, toxic substances, solid waste (trash and debris), wastewater, effluence, bacteria, erosion, and other waste streams. The amounts of pollutants and chemicals in stormwater can vary depending on factors such as surrounding land use (commercial vs. residential), frequency of rain events and the intensity of rain events.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Implementation of the Proposed Action would greatly increase the ability of the Pavaho Pumping Plant to draw down stormwater levels within the sumps, and thus reduce the risk of stormwater flooding. In addition, the sump lining would reduce roughness in the channels immediately surrounding the Pavaho Pumping Plant, which would reduce local erosion rates and facilitate stormwater pumping. Potential impacts to wetlands and jurisdictional waters are discussed in Section 3.6, Biological Resources. Erosion control measures incorporated in both the sump and the Dallas Floodway would minimize erosion, increase bank stability, and improve water quality by reducing particulates and suspended solids in the area water. Therefore, implementation of the Proposed Action would result in less than significant impacts to water resources.

3.5.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.5.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to water resources.

Meters
0 10 20 30 40
0 25 50 75 100
Feet

Figure 3-1
Jurisdictional Waters of the U.S. and Wetlands in the Proposed Project Area

N

3.6 BIOLOGICAL RESOURCES

3.6.1 Existing Conditions

For the purpose of this EA, biological resources are divided into three categories: habitat types including aquatic and terrestrial vegetation; fish and wildlife including migratory birds; and special status species including state and federally listed species, candidate species, and other species of local or regional concern listed by the Texas Parks and Wildlife Department (TPWD). The Region of Influence (ROI) for biological resources corresponds to the 3.75-acre limit of construction associated with the proposed Pavaho Pumping Plant improvements.

Habitat Types

The vegetation at the sump consists of aquatic and wetland habitat surrounded by non-native mowed short grassland. The habitat types and urban areas are shown on Figure 3-2 and described below. Acreages for each habitat type and developed areas are shown in Table 3-1. The adjacent sump area is used for flood control purposes; it is not meant to provide wetland habitat. Similarly, the channels draining to the sump area were developed for flood control purposes. An investigation performed in 2006 determined that because of the man-made nature of these sumps and that the sumps were constructed for stormwater conveyance purposes, they are not jurisdictional waters of the U.S. (City of Dallas 2006b).

Habitat Descriptions

Jurisdictional Waters of the U.S. The portion of the ROI associated with the Pavaho Pumping Plant outfall in the Dallas Floodway encompasses an area of 0.09 acres of aquatic riverine habitat that is also identified as jurisdictional waters of the U.S. (City of Dallas 2006b).

Table 3-1. Habitat Types and Associated Acreages in the Region of Influence

Habitat Type	Acres
Aquatic	
Jurisdictional Waters of the U.S.	0.09
Non-Wetland Jurisdictional Waters of the U.S.	2.12
Terrestrial	
Grassland	0.80
Urban	0.74
Total	**3.75**

Sources: USACE 2007, City of Dallas 2006b.

Non-Jurisdictional Waters of the U.S. There are approximately 2.12 acres of non-jurisdictional waters of the U.S. in the ROI. Habitat within this area consists of one perennial stream channel, one ephemeral stream channel, two herbaceous wetlands, and Pavaho Sump storage that are dominated with marsh seedbox (*Ludwigia palustris*) and flatstem spikerush (*Eleocharis compressa*). The ephemeral stream only fills during storm events (City of Dallas 2006b).

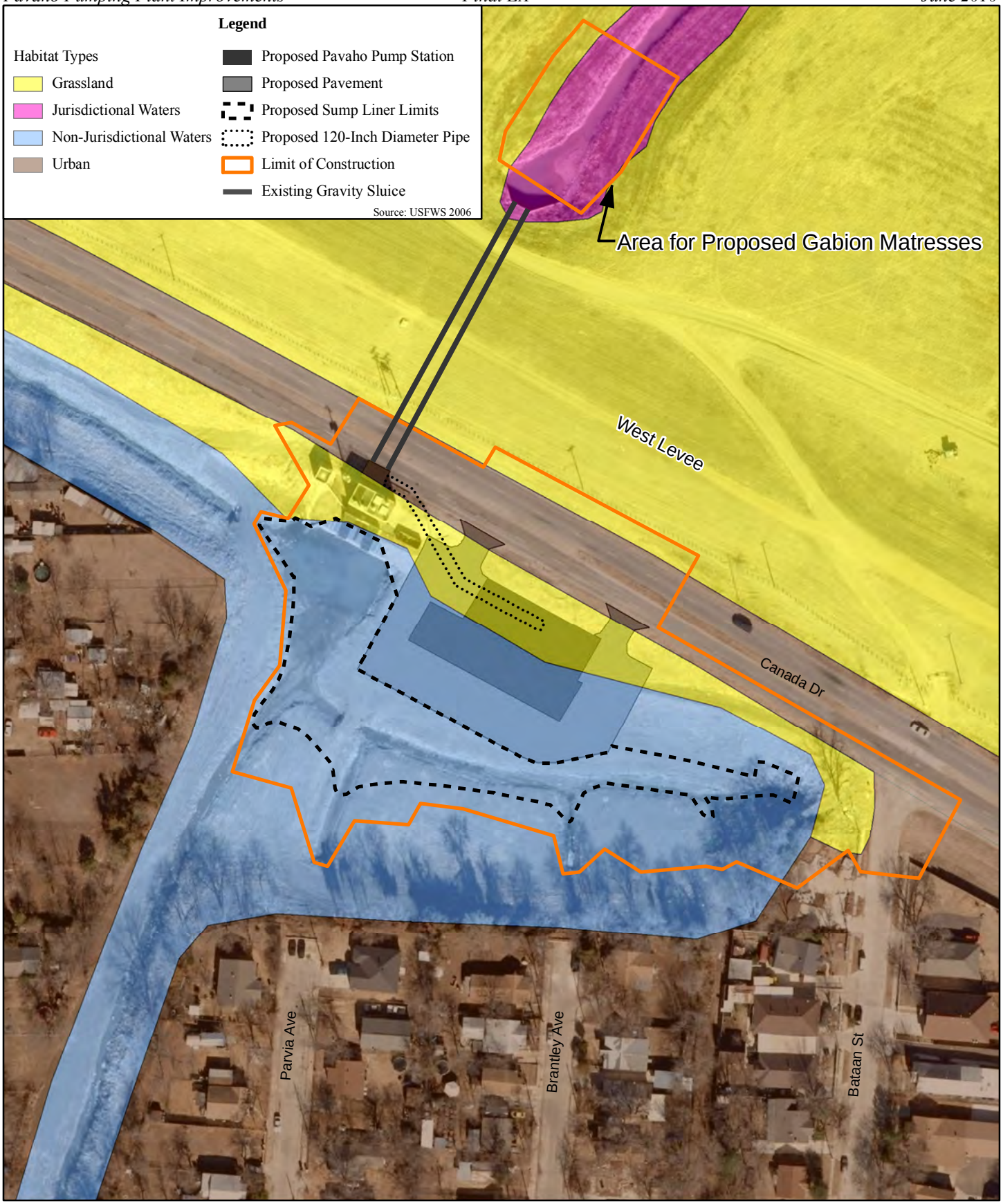


Figure 3-2
Habitat Types Within and Adjacent to the Region of Influence for Biological Resources

Grassland. The proposed project area contains 0.80 acres of maintained (by mowing) grasslands dominated by widely distributed species that include white clover (*Trifolium repens*), ryegrass (*Lolium perenne*), Bermuda grass (*Cynodon dactylon*), white tridens (*Tridens albescens*), curly dock (*Rumex crispus*), and annual sumpweed (*Iva annua*).

Urban. Urban areas include the existing Pavaho Pump Station, roads, and disturbed areas devoid of vegetation in the ROI.

Fish and Wildlife

The habitat surrounding the Pavaho Pumping Plant consists of maintained grasslands that provide limited habitat for wildlife. Utility lines provide roosting and foraging areas for birds. Common terrestrial wildlife has the potential to be transitory through the proposed Pavaho Pumping Plant footprint. Common rodent species are within the proposed project area. Common grackle (*Quiscalus quiscula*) and mourning dove (*Zenaida macroura)* were observed at the site on September 15, 2009 (TEC 2009). Other common birds likely to transit the area include northern mockingbird (*Mimus polyglottos*), house sparrow *(Passer domesticus)*, European starling (*Sturnus vulgaris)*, and American crow (*Corvus brachyrhynchos*). Common waterbirds likely to temporarily use the sump include great blue heron *(Ardea Herodias)*, little blue heron (*Egretta caerulea*), great egret *(Ardea alba*), snowy egret (*Egretta thula*), cattle egret (*Bubulcus ibis*), and killdeer (*Charadrius vociferous*). Turtles including red-eared slider (*Trachemys scripta elegans*), river cooter (*Pseudemys texana*), and spiny soft shell turtle (*Apalone spinifera*) are likely to occur in the drainage channel and sump. Common fish and other aquatic wildlife also have the potential to occur within the sump.

Special Status Species

Federal- and state-listed threatened and endangered species that potentially occur in Dallas County are included in Table 3-2. There are 11 listed bird species in Dallas County; five are federally endangered; three are federally delisted but are state listed, and two additional species are state listed. There are no state or federally listed mammals in Dallas County. There are three state threatened reptiles in Dallas County (TPWD 2010). No listed species are known or likely to occur in the proposed project area due to lack of suitable habitat.

Table 3-2. Dallas County Federal and State Threatened and Endangered Species

Species	Habitat	Federal Status	State Status
BIRDS			
American Peregrine Falcon *(Falco peregrinus anatum)*	Nests in the Trans-Pecos region of West Texas; nests on high cliffs and structures, often near water where prey species are most common.	-	E
Arctic Peregrine Falcon *(Falco peregrinus tundrius)*	Nests in tundra regions; migrates through Texas; winters along gulf coast. Open areas, usually near water.	-	T
Bald Eagle *(Haliaeetus leucocephalus)*	Nests and winters near rivers and large lakes; nests in tall trees or on cliffs near large bodies of water; all reservoirs in north central Texas are considered potential nesting habitat.	DM	T
Black-capped Vireo *(Vireo atricapilla)*	Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces.	E	E
Golden-cheeked Warbler *(Dendroica chrysoparia)*	Oak-juniper woodlands; dependent on mature Ashe juniper (cedar) for long fine bark strips from mature trees in nest construction; nests in various other trees; forages for insects in broad-leaved trees and shrubs.	E	E

Species	Habitat	Federal Status	State Status
Interior Least Tern *(Sternula antillarum athalassos)*	Nests along sand and gravel bars within braided streams and rivers; also known to nest on man-made structures near water.	E	E
White-Faced Ibis *(Plegadis chihi)*	Freshwater marshes, sloughs, and irrigated rice fields; nests in marshes, in low trees, in bulrushes or reeds, or on floating mats.	-	T
REPTILES			
Alligator Snapping Turtle *(Macrochelys temminckii)*	Perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps and ponds near deep running water.	-	T
Texas Horned Lizard *(Phrynosoma cornutum)*	Open, arid, and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush, or scrubby trees.	-	T
Timber Rattlesnake *(Crotalus horridus)*	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland, limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines or palmetto.	-	T

Notes: E = Endangered, T = Threatened, DM = Delisted, being monitored through August 8, 2012 (USFWS)
Sources: FWHA 2008, TPWD 2009a.

Sixteen TPWD species of concern that occur in Dallas County are listed in Table 3-3 and include two birds, one insect, two mammals, eight mollusks, one reptile, and two plants (TPWD 2010). No TPWD species of concern are known or likely to occur in the proposed project area due to lack of suitable habitat.

Table 3-3. Dallas County Species of Concern

Species	Habitat
BIRDS	
Henslow's Sparrow (*Ammodramus henslowii)*	Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; key component is bare ground.
Western Burrowing Owl (*Athene cunicularia hypugaea)*	Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows.
INSECTS	
Black Lordithon rove beetle (*Lordithon niger)*	Hardwood forest.
MAMMALS	
Cave myotis bat (*Myotis velifer)*	Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals.
Plains spotted skunk (*Spilogale putorius interrupta)*	Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie.
MOLLUSKS	
Fawnsfoot (*Truncilla donaciformis)*	Small and large rivers especially on sand, mud, rocky mud, and sand and gravel, also silt and cobble bottoms in still to swiftly flowing waters; Red (historic), Cypress (historic), Sabine (historic), Neches, Trinity, and San Jacinto River basins.
Little spectaclecase (*Villosa lienosa)*	Creeks, rivers, and reservoirs, sandy substrates in slight to moderate current, usually along the banks in slower currents; east Texas, Cypress through San Jacinto River basins.
Louisiana pigtoe (*Pleurobema riddellii)*	Streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; Sabine, Neches, and Trinity (historic) River basins.
Pistolgrip (*Tritogonia verrucosa)*	Stable substrate, rock, hard mud, silt, and soft bottoms, often buried deeply; east and central Texas, Red through San Antonio River basins.
Rock pocketbook (*Arcidens confragosus)*	Mud, sand, and gravel substrates of medium to large rivers in standing or slow flowing water, may tolerate moderate currents and some reservoirs, Red through Guadalupe River basins.
Sandbank pocketbook (*Lampsilis satura)*	Small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms; east Texas, Sulfur south through San Jacinto River basins; Neches River.

Species	Habitat
Texas heelsplitter (*Potamilus amphichaenus)*	Quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins.
Wabash pigtoe (*Fusconaia flava)*	Creeks to large rivers on mud, sand, and gravel from all habitats except deep shifting sand; found in moderate to swift current velocities; east Texas River basins, Red through San Jacinto River basins; elsewhere occurs in reservoirs and lakes with no flow.
REPTILES	
Texas garter snake (*Thamnophis sirtalis annectens*)	Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August.
PLANTS	
Glen Rose yucca (*Yucca necopina)*	Grasslands on sandy soils and limestone outcrops.
Warnock's coral root (*Hexalectris warnockii).*	Leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons.

Sources: FWHA 2008; TPWD 2010.

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

Habitat Types

Implementation of the Proposed Action would temporarily impact up to 1.43 acres and permanently impact up to 2.32 acres of habitat types. Table 3-4 presents the potential temporary and permanent impacts to each habitat type within the ROI.

Table 3-4. Temporary and Permanent Acreage Impacts from Implementation of the Proposed Action

Habitat Type	Temporary	Permanent	Total
Aquatic			
Jurisdictional Waters of the U.S.	0.00	0.09	0.09
Non-Jurisdictional Waters of the	0.84	1.28	2.12
Terrestrial			
Grassland	0.58	0.22	0.80
Urban	0.01	0.73	0.74
Total	**1.43**	**2.32**	**3.75**

Implementation of the Proposed Action would permanently impact 0.09 acres of jurisdictional waters of the U.S. with the placing of the gabion mattresses at the Pavaho Pumping Plant outfall in the Dallas Floodway. Impacts to jurisdictional waters of the U.S. would be minimized to the maximum extent possible. As part of the Proposed Action, the construction contractor would obtain authorization under a NWP, most likely NWP 12 – "Utility Line Activities" (Appendix C). As stipulated under NWP 12, because the permanent impacts would be less than 0.10 acres, PCN to the USACE District Engineer would not be required. The construction contractor would then implement any measures to minimize and/or mitigate impacts as required by the NWP. In addition, implementation of the Proposed Action would permanently impact 1.28 acre of non-jurisdictional waters of the U.S. due to the construction of the proposed Pavaho Pump Station and the installation of the sump liner, 0.22 acre of grassland, and 0.73 acre of urban habitat types. Therefore, implementation of the Proposed Action would result in less than significant impacts to aquatic and terrestrial habitats.

Fish and Wildlife

Implementation of the Proposed Action would disturb or displace wildlife from the areas of construction and immediately surrounding areas. These activities could destroy individuals of the smaller, less mobile and burrowing species, whereas mobile species would disperse to surrounding areas. Individuals dispersing away from the activity would likely experience increased risks of predation, reduced foraging or reproductive success, and energetic costs. The overall impact on wildlife populations would be relatively small, proportional to the relatively small areas of habitat affected. In areas temporarily impacted, wildlife species would re-colonize available habitat area after construction. No long-term impacts to wildlife populations are likely. If an active bird nest were encountered during the implementation of the Proposed Action, it would be avoided. Due to the low quality of the habitat surrounding the majority of proposed project area and the small area of impact, the impacts to fish and wildlife, including migratory birds, would be minor. Therefore, implementation of the Proposed Action would result in less than significant impacts to fish and wildlife.

Special Status Species

No state or federally listed or TPWD species of concern are located in the ROI. Therefore, implementation of the Proposed Action would result in no impacts to special status species.

3.6.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.6.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to biological resources.

3.7 CULTURAL RESOURCES

3.7.1 Existing Conditions

3.7.1.1 Pavaho Pumping Plant

The Pavaho Pumping Plant consists of the existing Pavaho Pump Station and its adjoining building, a discharge chamber, an inlet structure, and an outlet structure (Figure 3-3). The existing Pavaho Pump Station, built in 1954, is a two-story, concrete structure with a flat roof and a concrete foundation. The building contains no windows and has a double door entrance on the east façade. The associated building is a small rectangular building directly west of the existing Pavaho Pump Station with a metal overhead door on the west façade.

Figure 3-3 Pavaho Pumping Plant

The associated structures include an inlet structure, discharge chamber, sluice, and an outlet structure. The inlet structure consists of approach walls, guide walls, an approach apron, trash racks, and a raking platform. The outlet structure consists of a headwall, wing walls, and apron with flap gates on the outlets. The discharge chamber consists of two 6-ft by 8-ft sluice gates for control of gravity flow. A 6-ft chain-link fence restricts access to the Pavaho Pumping Plant. The Pavaho Pumping Plant outfall consists of a headwall, wing walls, and apron with

flap gates on the outlets. The discharge chamber consists of two 6-ft by 8-ft sluice gates for control of gravity flow with motor-operated floorstands to operate the gates.

3.7.1.2 Historical Review and Designation

A search of the USACE files and the Texas Archaeological Sites Atlas Databases identified archaeological sites and architectural resources located within and near the project area. The project area and search parameters encompassed the immediate vicinity of the Pavaho Pump Station, which is also the Area of Potential Effect, per 36 C.F.R. 800.16(d). Results of the file search identified 15 previously undertaken cultural resource surveys that involved the Dallas Floodway, of which the project area is a part. However, only four previous investigations evaluated the Pavaho Pump Station site as an individual resource. These four surveys resulted in no previously recorded archaeological sites and one NRHP-eligible architectural resource, the existing Pavaho Pump Station. The following paragraphs summarize the previous investigations.

A survey conducted in 2000 and 2001 by Norman Alston Architects determined the Pavaho Pump Station was not eligible for inclusion in the NRHP (Norman Alston Architects 2000). The Texas SHPO provided official concurrence for this finding in a letter dated July 2, 2002 (Texas Historical Commission [THC] 2002). A survey conducted by Thomas P. Eisenhour in October 2009 upheld previous eligibility determinations and recommended the Pavaho Station not eligible for inclusion in the NRHP (Eisenhour 2009). In a letter dated November 13, 2009, the Texas SHPO expressed objections to this determination (THC 2009b). AR Consultants, Inc. submitted a letter dated July 2, 2009 to the Texas SHPO determining that no archeological investigation of the property was warranted (AR Consultants, Inc. 2009). The Texas SHPO concurred with this finding on July 22, 2009, with a finding of "no historic properties affected project may proceed."

In a letter report submitted to the THC on October 23, 2009, the USACE Fort Worth District determined the Pavaho Pump Station to be individually eligible for inclusion in the NRHP under Criterion A for its association with local planning and development as well as Criterion C for its design and construction values. The THC concurred with the USACE's finding of the Pavaho Pump Station's NRHP eligibility in a letter to the USACE Fort Worth District dated November 12, 2009 (THC 2009a).

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

Implementation of the Proposed Action would impact one historic property: the NRHP-eligible existing Pavaho Pump Station. Although the construction of the proposed Pavaho Pump Station would not directly or indirectly impact the existing Pavaho Pump Station, the historic features of the existing Pavaho Pump Station including the sluice gates, guides, stems, and operator, would be removed and two new sluice gates would be constructed. In addition, the existing guardrails, grating supports, and beam would be removed, and the existing ladder and junction box would be replaced. The USACE finds these Proposed Actions would have an adverse effect to this historic property according to 36 C.F.R. 800.5(i), which states that physical destruction of or damage to all or part of the property is an example of an adverse effect.

If Native American human remains and/or objects subject to the Native American Graves Protection and Repatriation Act (25 U.S. Code 3001 et seq.) are encountered during proposed construction activities, the USACE will immediately notify the THC and consult with appropriate federally recognized Tribe(s) to determine appropriate treatment measures in agreement with 36 C.F.R. Part 800.13.

In a letter dated December 21, 2009, THC concurred with the USACE's finding that the Proposed Action would result in an adverse effect to historic properties (THC 2009c). Mitigation actions to resolve this effect have been determined through the consultation process and as outlined in the MOA between the USACE and the THC and any other consulting parties (Appendix D). As documented in a letter dated March 25, 2010 (Appendix D), the THC verified that the USACE has photographically documented the existing Pavaho Pump Station to the digital photograph standards of the National Park Service. In accordance with the MOA, the USACE would incorporate the photographs into documentation equivalent to National Park Service Level II documentation, and would submit them to the THC and the Dallas Public Library Dallas History Section. Therefore, with the inclusion of mitigation measures as specified in the MOA, implementation of the Proposed Action would result in less than significant impacts to cultural resources.

3.7.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.7.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to cultural resources.

3.8 VISUAL RESOURCES

3.8.1 Existing Conditions

The Pavaho Pumping Plant is located near a low-density residential area adjacent to Canada Drive near the West Levee. As shown in Figure 3-3, the existing Pavaho Pump Station is a light brown concrete box structure visible from Canada Drive. A stand of mature trees to the west of the Pavaho Pumping Plant screens views of the Pavaho Pumping Plant from nearby residences. The Pavaho Pumping Plant is located within the La Bajada viewshed, which is characterized by single-family residences and older commercial and industrial buildings. The Pavaho Pumping Plant is consistent with the visual character of the surrounding area. The visual quality is low, as vividness is low, intactness is low, and unity is low. Based on the viewshed and surrounding land use, there is a low level of visual sensitivity. There are no key observation points located near the Pavaho Pumping Plant.

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

Proposed construction and ground disturbing activities associated with the Proposed Action would result in short-term impacts to visual resources due to the presence of construction equipment, vehicles, and building activities. The design of the proposed Pavaho Pump Station would be consistent with the existing Pavaho Pump Station and surrounding area. Specifically, the exterior would be clad in a neutral toned architectural pre-cast concrete. The sloped roof would have a colored standing seam metal roof and accents in the metal would be painted to provide accent elements. The proposed gable roof on the building would blend in with the traditional single-family housing in the greater project area. Thus, the addition of a new Pavaho Pump Station under the Proposed Action would not substantially alter or degrade the existing visual environment. Therefore, implementation of the Proposed Action would result in less than significant impacts to visual resources.

3.8.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.8.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to visual resources.

3.9 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.9.1 Existing Conditions

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued to focus the attention of federal agencies on human health and environmental conditions in minority and low-income communities. In addition, EO 12898 aims to ensure that any potential disproportionately high and adverse human health or environmental effects on these communities are identified and addressed. Because children may suffer disproportionately from environmental health and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced to help ensure that federal agencies' policies, programs, activities, and standards address environmental health and safety risks to children.

Data used for the socioeconomic analysis were collected primarily from the 2000 Census of Population and Housing (U.S. Census Bureau 2010). Demographic data are used to determine if there would be a potential disproportionate burden associated with a proposed action on a minority group (Environmental Justice) or on minors (Protection of Children).

According to the 2000 Census of Population and Housing, the population of the Census blocks served by the Pavaho Pumping Plant is 11,171. Of that total population, 66.3% is Hispanic, 27.5% is Black or African American, 0.7% is Asian, and 0.5% is Native American. In some cases, individuals identify themselves with more than one race. White, non-Hispanic persons comprise 33.5% of the population in the Pavaho Basin. The population of the Census blocks within the predicted 100-year, 24-hour storm event inundation area of the Pavaho Pumping Plant is 5,638. Of that total population, 52.7% is Hispanic, 45.34% is Black or African American, 0.3% is Asian, and 0.4% is Native American. In some cases, individuals identify themselves with more than one race. White, non-Hispanic persons comprise 24.9% of the population in the potential inundation area (U.S. Census Bureau 2010).

The neighborhood surrounding the Pavaho Pumping Plant is largely residential. 62.7% of those residences are owned by the residents, and 37.3% are rented. In 2000, 67.7% of the household in the census block had children under 18 living at home; 10.2% included children under six years old. Nearly half (47%) of the households in the Pavaho Pumping Plant vicinity earn below the 2008 poverty level and 17% of the households earn less than half of the 2008 poverty level (U.S. Census Bureau 2010).

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

Implementation of the Proposed Action would result in a minor, temporary increase in jobs for the region. Following construction, no new jobs would be created and no change to the existing economic condition would occur. Therefore, implementation of the Proposed Action would result in less than significant impacts to socioeconomics.

Construction activities associated with the Proposed Action would generate short-term construction noise. To reduce potential disturbances to children in the surrounding area, the City of Dallas would contact nearby residences and notify them of the construction and typical construction hours. Upon completion of construction, a fence would enclose the Pavaho Pumping Plant, thereby restricting unauthorized access. Therefore, implementation of the Proposed Action would result in less than significant impacts to the health and safety of children.

The poverty level of the affected population results in a greater personal impact from flood events, as the population is less able to afford repairs and replacement of damaged or lost property. Similarly, families

with low incomes and with children are less able to relocate during a flood event. The Proposed Action would improve stormwater conveyance and therefore decrease flood risk in the Pavaho Basin. Thus, implementation of the Proposed Action would decrease the flood risk posed to a socioeconomically sensitive population. Therefore, implementation of the Proposed Action would result in a beneficial impact to socioeconomics and there would be no disproportionate impact to minority populations or the health and safety of children.

3.9.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.9.1 would remain unchanged. Existing stormwater flooding risks for minority and low income populations would continue and potentially affected structures would continue to be subject to economic damages. Therefore, implementation of the No Action Alternative would result in continued adverse, but less than significant impacts to socioeconomics and no disproportional impact to environmental justice.

3.10 AIR QUALITY

3.10.1 Existing Conditions

3.10.1.1 Attainment Status

The study area is located in Dallas County, and is included within the Metropolitan Dallas Fort Worth Air Quality Control Region (AQCR) 215. The Texas Council on Environmental Quality (TCEQ) regulates the Metropolitan Dallas Fort Worth AQCR, by authority of the USEPA (Region 6), and promulgated in the TCEQ's SIP. The ROI is in "moderate" non-attainment for the federal ozone (O_3) standard, and is in attainment of all other criteria air pollutants (USEPA 2009c, TCEQ 2009a). The applicable criteria pollutant *de minimis* levels are 100 tons/year for volatile organic compounds (VOCs) and nitrogen oxides (NO_x); VOCs and NO_x are precursors to the formation of O_3 (USEPA 2009c, TCEQ 2009b).

3.10.1.2 Baseline Emissions

Emissions in the study area come from a variety of stationary and mobile sources. Emission sources include vehicles, aircraft, industrial operations, and on-going construction activities. For example, there are several industrial facilities along and near the Trinity River that contribute to the ambient air quality of the region. These facilities include, but are not limited to, chemical plants, cement plants, semi-conductor facilities, printing operations, and oil and gas facilities. The Pavaho Pumping Plant is electrically powered and does not use generators (City of Dallas 2009a).

Approximately 70 percent of the Dallas Fort Worth region's air pollution comes from mobile sources such as cars, trucks, airplanes, construction equipment, and lawn equipment. The majority of pollutants emitted from motor vehicles include VOCs, NO_x, carbon monoxide (CO), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The City of Dallas is implementing several initiatives to improve air quality and reduce ozone levels, including: green fleet/vehicles, ordinances, commute solutions, and outreach programs. The Dallas/Fort Worth region has experienced a steady decline in ozone levels measured across the study area. Emission reductions have been achieved from stationary sources (stack) emissions, cleaner cars and construction equipment, and cleaner fuels (Green Dallas 2010).

3.10.1.3 Greenhouse Gas Emissions

Greenhouse gases (GHGs) are gases that trap heat in the atmosphere. These emissions occur from natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the earth's

temperature. Predictions of long-term environmental impacts due to global climate change include sea level rise, changing weather patterns with increases in the severity of storms and droughts, changes to local and regional ecosystems including the potential loss of species, and a significant reduction in winter snow pack. In Texas, predictions of these effects include exacerbation of air quality problems, increased storm frequency, and drastic impacts from sea level rise (Anderson n.d.).

Federal agencies are, on a national scale, addressing emissions of GHGs by reductions mandated in federal laws and EOs, most recently, EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management.* Several states have promulgated laws as a means to reduce statewide levels of GHG emissions. In particular, Senate Bill 184 (September 1, 2009), requires the State Comptroller to develop strategies to reduce GHG emissions, and the Texas Emission Reductions Plan, established in 2001, provides incentives to reduce emissions and improve and maintain air quality in Texas (Texas Comptroller of Public Accounts 2009). In addition, the City of Dallas initiated the "Green Dallas" program in 2005 designed to reduce GHG emissions from both municipal and private sectors of the city (City of Dallas 2005b).

3.10.2 Environmental Consequences

Emission thresholds associated with federal CAA conformity requirements are the primary means of assessing the significance of potential air quality impacts associated with implementation of a proposed action under NEPA. On March 24, 2010, the USEPA revised the General Conformity regulations. These rules implement CAA provisions prohibiting federal agencies from taking actions that may cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS) (USEPA 2010a). A formal conformity determination is required for federal actions occurring in nonattainment or maintenance areas when the total direct and indirect stationary and mobile source emissions of nonattainment pollutants or their precursors exceed *de minimis* thresholds.

3.10.2.1 Proposed Action

Air quality impacts would occur from the use of equipment during construction activities, other project-related vehicles, and worker commuting trips. Total emissions resulting from project activities have been estimated using data presented in Chapter 2, general air quality assumptions, and standard emission factors. Emissions calculations, assumptions, and a Record of Non-Applicability for CAA Conformity are presented in Appendix E.

For the purposes of establishing compliance with conformity requirements, the estimated emissions for implementation of the Proposed Action were divided over the course of three implementation years, since full implementation of the new Pavaho Pumping Plant were assumed to begin in 2010 and be completed by 2012. This approach provides estimated annual construction emissions for 2010 thru 2012.

Implementation of the Proposed Action would result in temporary increases in criteria pollutant emissions associated with construction activities. Estimated average annual emissions resulting from proposed activities have been estimated and compared with basic non-attainment area *de minimis* thresholds for planning purposes only (Table 3-5).

Table 3-5. Estimated Emissions Resulting from Implementation of the Proposed Action

Project Emissions Tons Per Year	Pollutant					
	VOCs[1]	NO_x[1]	CO[2]	SO_x[2]	PM_{10}[2]	$PM_{2.5}$[2]
Average Annual Emissions (2010 – 2012)	0.52	3.93	2.03	0.00	2.55	0.45
de minimis threshold	100	100	100	100	100	100
Exceeds *de minimis* threshold?	No	No	No	No	No	No

Notes: [1] The Metropolitan Dallas Fort Worth AQCR is in "moderate" non-attainment for the federal O_3 standard; VOCs and NO_x are precursors to the formation of O_3.

[2] The Metropolitan Dallas Fort Worth AQCR is in attainment of the federal CO, SO_2, $PM_{2.5}$, and PM_{10} standards. *De minimis* thresholds are not applicable to NAAQS attainment areas; however, estimated average annual emissions have been compared with moderate non-attainment *de minimis* thresholds for planning purposes only.

Sources: TCEQ 2010, USEPA 2010b.

Vehicle emissions generated by proposed construction activities would be temporary and short-term; no long-term increases in vehicle emissions would occur under the Proposed Action. Emissions associated with construction-related vehicles and equipment would be minor, as most vehicles would be driven to and kept at the relevant site until project activities are complete. There would be no long-term increase in mobile or stationary source emissions in the region and no emergency generators would be installed.

Fugitive dust (i.e., PM_{10} and $PM_{2.5}$) would increase (as a result of surface disturbances associated with construction and demolition activities) and would temporarily impact local air quality. However, fugitive dust generated by proposed construction activities would be temporary and short-term; no long-term increases in fugitive dust would occur. In addition, increases in PM_{10} and $PM_{2.5}$ would be moderated through BMPs (i.e., watering exposed soils, soil stockpiling, and soil stabilization), thereby limiting the total quantity of fugitive dust emitted during project implementation.

Estimated emissions would be below *de minimis* levels for conformity. Therefore, implementation of the Proposed Action would not trigger a formal conformity determination under Section 176(c) of the CAA, and less than significant impacts to air quality would occur.

3.10.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.10.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to air quality.

3.11 UTILITIES

3.11.1 Existing Conditions

Major utilities larger than local service in the Pavaho Basin are two underground fiber optic cables that cross the West Levee and continue south of the levee along Sylvan Avenue (USACE 2007). Buried electrical lines lie under the sidewalk on Canada Drive abutting the Pavaho Pumping Plant. There are overhead power lines that run along Canada Drive that provide service to the Pavaho Pumping Plant. There are no public water or wastewater utilities in Canada Drive, immediately adjacent to the site. The exact location of every utility line is not always certain; thus, construction managers must call utility locate companies prior to any major underground construction within the study area to avoid disturbing existing utility lines.

Stormwater from the Pavaho Basin collects in three ponds (Ponds A, B and C) generally located parallel to the West Levee from east of the Sylvan Street Bridge to the Hampton Street Bridge. Stormwater in the Pavaho Basin is subsequently conveyed to the Dallas Floodway via the Pavaho Pumping Plant. Pond A is the westernmost pond and is connected to Pond B via a 72-inch diameter reinforced concrete box culvert

located underneath Sylvan Avenue. Pond B is connected to Pond C via a 10-ft by 8-ft reinforced concrete pipe culvert underneath Canada Drive (City of Dallas 2006a).

The Pavaho Pumping Plant was originally equipped with two, 30,000-gpm pumps. In 1979, the City of Dallas added one, 6,000-gpm sump pump. In 2003, one of the original 30,000-gpm pumps was replaced with a 46,000-gpm pump. The Pavaho Pumping Plant outfall passes under the West Levee at a depth of approximately 42 feet and discharges approximately 53 feet from the toe of the levee (Carter & Burgess 2009, City of Dallas 2008a).

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

Prior to implementation of the Proposed Action, construction managers would ensure that construction would not damage infrastructure (e.g. buried pipes or power lines) by contacting utility locate companies and identifying utility crossings.

The proposed Pavaho Pump Station would be built on undeveloped land, neighboring the existing Pavaho Pump Station on the southeast along Canada Drive. Utility access would not be an issue, as the services are at the site for the existing Pavaho Pump Station. The overhead power lines that run along Canada Drive would continue to provide service to the Pavaho Pumping Plant. A 10-ft wide electric utility easement would be added and connected to the existing power line from the northwest corner of the proposed Pavaho Pump Station. Any existing utilities (e.g. fire hydrants, gas meters, etc.) that would be in conflict with the design plan during construction would be relocated.

The Proposed Action would increase the pump capacity of the Pavaho Pumping Plant by 381,000 gpm. The improvements to the sump would improve the conveyance of stormwater to the pump stations, and the increased pump capacity would increase stormwater conveyance to the Dallas Floodway. With the implementation of the proposed improvements, the Pavaho Pumping Plant predicted 100-year, 24-hour storm event elevations would be the same as the design elevation (405.5 ft), resulting in a significant reduction (approximately 96 percent; see Section 3.14.2.1) in the number of structures potentially affected by flooding from the predicted 100-year, 24-hour storm event.

The discharge from both the existing and proposed Pavaho Pump Station would flow into a 22 ft by 18 ft junction box sited between the existing Pavaho Pump Station and Canada Drive. The stormwater would then drain into the Trinity River from the junction box via the two existing 6 ft by 8 ft gravity sluices. The stormwater management within the Pavaho Basin would improve and the stormwater flood risk would decrease. Therefore, implementation of the Proposed Action would result in beneficial impacts to utilities.

3.11.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.11.1 would remain unchanged. Existing stormwater flood risk management concerns would continue. Therefore, implementation of the No Action Alternative would result in adverse, but less than significant impacts to utilities.

3.12 HAZARDOUS MATERIALS AND WASTE

3.12.1 Existing Conditions

On February 19, 2010, an environmental records/database review of all applicable federal, state, local, and tribal records for use in a Phase I report was prepared in support of the on-going DFP EIS (USACE

2010). A total of 77 federal, state, local and tribal databases were searched. The search identified 963 known hazardous/toxic sites within the boundary search area (a subset of the study area associated with the DFP EIS). All of these sites except for one are located outside of the ROI for the proposed Pavaho Pumping Plant improvements. The one site within the Pavaho Pumping Plant ROI is the Murmur Corporation Site 3/RSR Corporation.

The Murmur Corporation Site 3/RSR Corporation is located at the corner of North Westmoreland Road and Singleton Boulevard. This site encompasses approximately 13.6 square miles in West Dallas. Historically, this site was used as a secondary lead smeltering operation from the early 1930s until 1984. Contaminants of concern are arsenic, cadmium, and lead. In the early 1990s, the USEPA began soil sampling, followed by several years of removal and remediation of contaminated soil in affected residential areas. Currently the site is on the Final NPL (Superfund program) slated for priority cleanup and is most recently in a remediation phase (EDR 2010).

Buildings constructed between 1945 and 1978 commonly include asbestos containing materials (ACM) that include friable asbestos. Renovation of such buildings increases the risk of exposure to asbestos fibers and the potential for exposed persons to develop asbestosis and/or mesothelioma (USEPA 2010c). The Texas Department of State Health Services (DSHS) regulates asbestos remediation and management, and has codified requirements in the *Texas Asbestos Health Protection Rules*. The State rules adopt existing OSHA and USEPA regulations and apply them to all public facilities in which activities involving the disturbance or removal of ACM may occur. The regulations also address remediation worker certification, training, notification and recordkeeping.

Through the 1940's, paint manufacturers frequently used lead as a primary ingredient in many oil-based interior and exterior house paints. Usage gradually decreased through the 1950's and 1960's as titanium dioxide replaced lead and as latex paints became more widely available. Lead exposure through lead based paint (LBP) has been demonstrated to have significant adverse health effects, most notably nervous system and cognitive function damage. The USEPA maintains guidance on management inspection of facilities that may have LBP (USEPA 2010d). The DSHS regulates LBP inspection, remediation and management. The State rules adopt existing OSHA and USEPA regulations and apply them to all public facilities in which activities involving the disturbance or removal of LBP may occur. The regulations also address remediation worker certification, training, notification and recordkeeping.

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

The results of the 2010 EDR report confirmed the absence of any known hazardous materials/waste sites within or near the vicinity of the project area. Although no known sites where detected in the EDR report, there is still a potential for lead contamination in the soil in the study area, since the proposed project area is within the boundary of the Murmur Corporation Site 3/RSR Corporation contamination plume.

Before initiating any renovation or construction within the existing Pavaho Pump Station, the contractor would inspect the building for ACM and for LBP. If the inspection reveals ACM or LCP, the contractor would remediate the building in accordance with all applicable regulations.

It is unlikely that implementation of proposed Pavaho Pumping Plant improvements would expose workers, nearby residents, or the environment to hazardous materials/contaminants or waste. If any potential hazardous materials/contaminants or waste are discovered during construction activities, work would cease immediately and the proper personnel would be contacted for further assessment. To

minimize potential impacts from construction equipment, workers would follow standard BMPs and industry-wide protocols to minimize the potential for fuel, oil, and/or lubricant spills.

After implementation of the Proposed Action, the improved Pavaho Pumping Plant would not be a user or generator of any hazardous materials/wastes, except oils, solvents, paints, etc. to properly operate and maintain the pumping systems and other associated features. These products would be properly used and stored in accordance with all applicable local, state, and federal regulations. Therefore, implementation of the Proposed Action would result in less than significant impacts to hazardous materials and waste.

3.12.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.12.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to hazardous materials and waste.

3.13 TRANSPORTATION

3.13.1 Existing Conditions

Within the Pavaho Basin, 40 roads are potentially subject to flooding; major roads subject to flooding and their baseline average daily traffic (ADT) values are presented in Table 3.6. The ADT values are representative of the roadways near a major intersection within or adjacent to the predicted flood area. Access to the Pavaho Pumping Plant is via Canada Drive, a Class 4 major thoroughfare.

Table 3-6. Pavaho Basin Roads Potentially Subject to Flooding

Road	ADT
Canada Drive	3,849
N Hampton Road	18,313
Dennison Street	2,761

Sources: City of Dallas 2004, NCTCOG 2009, and FWHA 2008.

3.13.2 Environmental Consequences

3.13.2.1 Proposed Action

Construction activities associated with the project would have a short-term impact on the traffic using Canada Drive due to lane closures, rerouting of traffic and possible traffic stoppages to allow construction traffic movement. Increases in daily traffic volumes associated with proposed construction activities would be temporary. Once completed, the Proposed Action would include two new driveway access points off Canada Drive and four new parking places.

During construction, contractors would implement the provisions contained in the Traffic Control Plan to be prepared as part of the Proposed Action. Contractors would be responsible for providing and maintaining all barricades, warning signs, flashing lights and traffic control devices in conformance with Part VI of the *Texas Manual on Uniform Traffic Control Devices*. Once complete, the contractor would restore all items not specifically included in street reconstruction that are disturbed during installation of temporary traffic control, to original or better condition. Closure of traffic lanes and sidewalks along any public roadway would be restricted to the hours of 8:30 a.m. to 3:30 p.m. workdays to minimize the impact on traffic flows, unless approved otherwise by the City of Dallas.

Upon completion of the Proposed Action, the new Pavaho Pumping Plant would be better equipped to manage stormwater in the Pavaho Basin. As a result, the roads identified as being potentially subject to flooding would have a reduced risk of flooding-related closure. Therefore, while the construction period

would have a temporary less than significant impact on transportation, the implementation of the Proposed Action would result in beneficial impacts to transportation overall.

3.13.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.13.1 would remain unchanged. Therefore, implementation of the No Action Alternative would result in no impacts to transportation.

3.14 PUBLIC SAFETY

3.14.1 Existing Conditions

The Pavaho Pumping Plant drains a densely developed residential section of West Dallas. Stormwater flooding from the modeled 100-year, 24-hour storm event has the potential to affect 1,047 structures within the Pavaho Basin (City of Dallas 2009a). During large flooding events in the Pavaho Basin, emergency responders (e.g., fire, police, and medical) respond to flood-related emergencies.

A 2007 USACE inspection identified significant erosion at the Pavaho Pumping Plant driveway. As described in the report, the erosion has exposed structural supports and will compromise the integrity of the surface if it is not repaired. This situation has the potential to impact O&M of the Pavaho Pumping Plant, which, in turn, can compromise the effectiveness of the Pavaho Pumping Plant. The USACE report also identified siltation in the sump at the trash rack and debris accumulation in the adjacent sump (USACE 2007).

In an effort to curtail damage to the levee systems from vegetation, in April 2009, the USACE issued Technical Letter Number 1110-2-571 regarding vegetation on levees. The intent of the letter is to provide basic requirements for vegetation-free and root-free zones in levee systems to protect levee integrity. The vegetation-free zone limits levee vegetation to grasses for the entire width of the levee, plus a buffer of 15 ft on either side of the levee. The 15-ft buffer is intended to minimize root growth that may penetrate the levee; no roots (aside from grasses) are permitted to penetrate the levee. In addition, the buffer extends vertically eight feet, such that an adjacent tree may not have a branch overhang less than 15-ft from the levee toe. In addition to the vegetation-free zone, Technical Letter Number 1110-2-571 provides for the development of a vegetation management zone. This zone aids in maintenance of the vegetation-free zone and aids in flood control efforts by increasing grass growth for erosion control, removing large trees that become damaged by construction, and selecting species to moderate the erosive potential of water currents and wave action (USACE 2009).

3.14.2 Environmental Consequences

3.14.2.1 Proposed Action

The Proposed Action would reduce the stormwater flood risk associated with the 100-year, 24-hour storm event. With the implementation of proposed improvements, the predicted Pavaho Pumping Plant 100-year, 24-hour storm event elevation (408.2 ft) would be reduced to the original design elevation (405.5 ft), resulting in a significant reduction in the number of structures potentially affected by flooding from the 100-year, 24-hour storm event. Specifically, the Proposed Action would reduce the number of structures potentially affected by flooding from 1,047 to 41 (a reduction of 96 percent). Of this number, the number of structures subject to flooding would decrease from 205 to 4 (a reduction of 98 percent). Overall, the Proposed Action would result in a dramatically lower flood risk (approximately 96 percent) for persons and property in the Pavaho Basin. Correspondingly, there would be a lower demand for flood-related emergency services.

Implementation of the Proposed Action would remedy the deficiencies identified in the 2007 USACE inspection report. Installation of the sump liner would reduce siltation and erosion, and the installation of a trash rack at the proposed Pavaho Pump Station would alleviate some of the pressure on the current trash rack and result in less debris in the sump. Furthermore, proposed improvements would be implemented in accordance with Technical Letter Number 1110-2-571 by increasing grass growth for erosion control, removing any large trees that might become damaged by construction, and selecting species to moderate the erosive potential of water. Therefore, implementation of the Proposed Action would result in beneficial impacts to public safety.

3.14.2.2 No Action Alternative

Under the No Action Alternative, existing conditions as described in Section 3.14.1 would remain unchanged. Flood risk would continue at the current levels, with 1,047 structures potentially affected from flooding associated with the predicted 100-year, 24-hour storm event. Existing public safety and associated emergency response concerns would continue. Furthermore, existing deficiencies at the Pavaho Pumping Plant, as noted in the USACE inspection report, would continue. Therefore, implementation of the No Action Alternative would result in significant impacts to public safety.

CHAPTER 4
CUMULATIVE EFFECTS

4.1 CUMULATIVE IMPACTS

Cumulative effects are defined as the "impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions (40 C.F.R. 1508.7)." Currently, the City of Dallas and USACE are reviewing the environmental impacts of the DFP, a large-scale comprehensive action incorporating the Trinity River Corridor and associated projects. These impacts are being reviewed in a comprehensive EIS, the draft of which is expected to be publicly available in late 2011.

4.1.1 Overview

The proposed improvements to the Pavaho Pumping Plant are localized and represent a relatively small action in an extensive area subject to on-going planning for large-scale activities. The comprehensive cumulative impact analysis included as part of the on-going DFP EIS includes an analysis of the proposed Pavaho Pumping Plant improvements. The cumulative impact from the implementation of proposed Pavaho Pumping Plant improvements would be less than the aggregate impact of actions analyzed in the DFP EIS.

4.1.2 Identified Cumulative Projects

The following projects are part of the DFP EIS Proposed Action and are located in the vicinity of the Proposed Action (Figure 4-1):

- Baker Pumping Plant: The USACE FWD is currently preparing an EA for proposed improvements to the Baker Pumping Plant.
- Trinity Parkway: The Trinity Parkway is a proposed 9-mile toll road that would extend from the SH-183/IH-35E juncture to U.S. 175/Spur 310. The Federal Highway Administration is analyzing action alternatives in their NEPA process (Federal Highway Administration 2008).
- Ecosystem Restoration and Recreation Features: These elements include ecosystem restoration and recreation features defined in *"The Balanced Vision Plan for the Trinity River Corridor, Dallas, TX,"* dated December 2003, and amended in March 2004 and include the Flex Fields, the Trinity River Meanders, Trails, the West Dallas Gateway Park, and Urban Lake.
- Pavaho Wetlands: The City of Dallas proposed to construct approximately 70 acres of stormwater wetlands adjacent to the Pavaho Pumping Plant outfall.

There are several projects not part of the DFP EIS Proposed Action that are located in the vicinity of the Proposed Action (Figure 4-1). Projects of note include the:

- Continental Pedestrian Bridge: As part of the Margaret Hunt Hill Bridge construction, the Continental Avenue Bridge would be converted from vehicular to pedestrian and bicycle use.
- Beckley Boulevard Improvements: The City of Dallas plans to enhance Beckley Boulevard from Commerce Street to north of Continental Avenue with the addition of four new vehicle lanes and a new major drainage system.

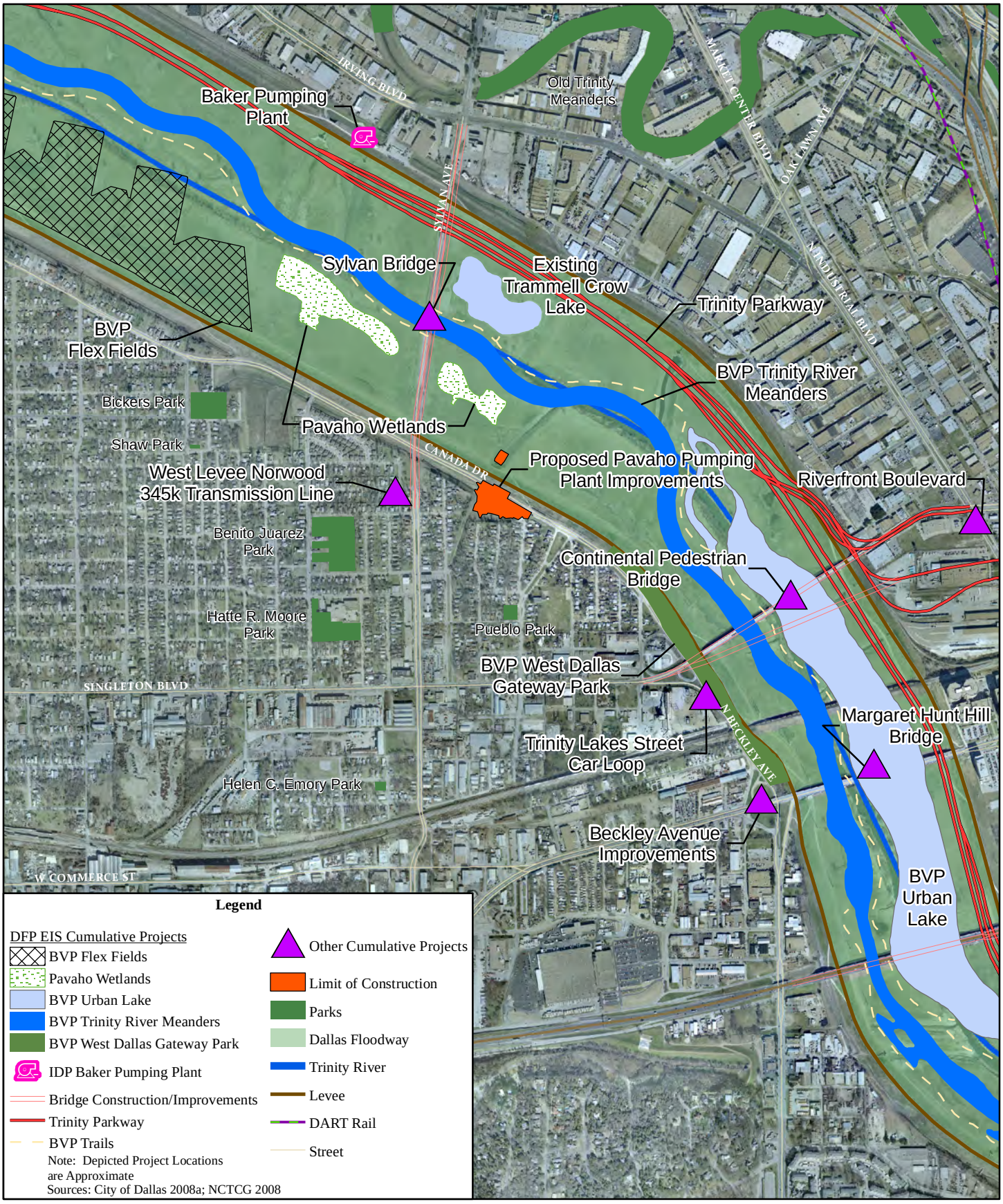


Figure 4-1
Cumulative Projects in the Vicinity of
Proposed Pavaho Pumping Plant Improvements

- Sylvan Bridge: TxDOT proposes to replace the existing low water Sylvan Avenue crossing with a 3,400-ft long structure that would include sidewalks; four, 12-ft wide driving lanes; and two, 14-ft wide shared bicycle and vehicle lanes.
- Riverfront Boulevard: The City of Dallas proposes to retain Riverfront (formerly Industrial) Boulevard as a six-lane facility, and add turn lanes at Riverfront Boulevard and the ramps to/from the overhead Spur 366 extension. Through lanes would consist of three, 11-foot wide lanes in each direction.
- Trinity Lakes Street Car Loop: The City of Dallas proposed creating a streetcar loop to better connect Oak Cliff and West Dallas to downtown. The route would zigzag from the convention center hotel, down the east-west commercial district, and finally up to the Arts District.
- Margaret Hunt Hill Bridge: The Margaret Hunt Hill Bridge is one of three proposed "signature" bridges that would span the Trinity Floodway. The structure will be located between the Continental Avenue and Union Pacific Railroad bridges.

4.1.3 Cumulative Impact Analysis

4.1.3.1 Land Use

The Proposed Action would result in less than significant impacts to land use. The projects identified in the cumulative effects region would be implemented in accordance with all applicable land use regulations. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant cumulative impacts to land use.

4.1.3.2 Noise

The Proposed Action would result in less than significant impacts to noise. The other projects in the cumulative effects region would likely result in minor localized changes in ambient existing noise levels, and would thus incorporate any necessary design or mitigation measures to minimize noise impacts to any sensitive noise receptors during construction and/or operation. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant cumulative impacts to noise.

4.1.3.3 Geology and Soils

The Proposed Action would result in less than significant impacts to geology and soils. The preparation and implementation of an Erosion Control Plan would minimize the potential for erosion during construction. The identified cumulative projects would be required to develop erosion control plans as well for any construction efforts, thus preventing any potential negative impact to the soils in the vicinity of the Proposed Action. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant cumulative impacts to geology and soils.

4.1.3.4 Water Resources

The Proposed Action would result in less than significant impacts to water resources. Other projects identified in the cumulative effects region would not significantly affect area water resources and would be implemented in accordance with all applicable laws and regulations relating to water resources. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant cumulative impacts to water resources.

4.1.3.5 Biological Resources

The Proposed Action would result in less than significant impacts to biological resources. The potential loss of jurisdictional waters of the U.S. would be authorized by a NWP. There are no known special status species within the project area. Other projects identified in the cumulative effects region would result in minor changes to habitat types and an overall net benefit to wetland habitat. As no sensitive plant communities are known to exist within the project area, no impacts to sensitive plant communities would occur. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant cumulative impacts to biological resources.

4.1.3.6 Cultural Resources

With the implementation of mitigation measures per the MOA (Appendix D), implementation of the Proposed Action would result in less than significant impacts to cultural resources. The proposed Continental Bridge project would occur on a structure eligible for listing on the NRHP – yet this action would consist of no significant changes to the bridge as the action consists of a change in transportation type from vehicle to pedestrian. Any potentially adverse effects from any of the identified cumulative projects would be mitigated as necessary following coordination with the THC. Therefore, the Proposed Action, in conjunction with identified cumulative projects and implementation of any applicable mitigation, would result in less than significant cumulative impacts to cultural resources.

4.1.3.7 Visual Resources

The Proposed Action would result in less than significant impacts to visual resources. The proposed Pavaho Pump Station would be consistent with the existing Pavaho Pump Station and surrounding area. The identified cumulative DFP EIS projects would strive for visual consistency through the region of influence, and could potentially include design features to soften any potential visual impacts. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant cumulative impacts to visual resources.

4.1.3.8 Socioeconomics and Environmental Justice

The Proposed Action would result in beneficial impacts to socioeconomic and no disproportionate impact to minority populations or the health and safety of children. The identified cumulative projects would result in a beneficial impact to socioeconomics by improving connectivity between the economic centers of the City of Dallas and the more economically depressed residential areas and potentially increase tourism. In addition, construction of the identified cumulative projects would result in a temporary increase in construction-related spending in the local economy. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in beneficial cumulative impacts to socioeconomics. There would be no cumulative disproportionate impact to minority populations or the health and safety of children.

4.1.3.9 Air Quality

The Proposed Action would result in less than significant impacts to air quality. Many of the identified cumulative projects would result in a beneficial impact to air quality by improving regional transportation and thus reducing trip times and associated emissions. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in less than significant impacts to air quality.

4.1.3.10 Utilities

The Proposed Action would have a beneficial impact to utilities by improving stormwater conveyance and increasing stormwater flood risk management. The Beckley Boulevard improvements include revising the local stormwater drainage of Beckley Boulevard, which would provide a benefit to stormwater management. The proposed Baker Pumping Plant improvements would improve stormwater flood risk management in the Baker Basin. The other identified cumulative projects would be implemented following coordination with regional utility companies to minimize the potential for impacts to utilities. Therefore, the Proposed Action, in conjunction with the identified cumulative projects, would result in beneficial cumulative impacts to utilities.

4.1.3.11 Hazardous Materials and Waste

The Proposed Action would result in less than significant impacts to hazardous materials and waste. The Proposed Action and many of identified cumulative projects are all within the Murmur Corporation Site 3/RSR Corporation site. Any contamination discovered would be addressed and managed on a project-specific basis to minimize potential impacts from hazardous materials. All potentially hazardous wastes would be transported, stored, and disposed of in accordance with all applicable regulations. Therefore, the Proposed Action, in conjunction with the identified cumulative projects, would result in less than significant impacts to hazardous materials and waste.

4.1.3.12 Transportation

The preparation and implementation of the traffic control plan during construction would minimize the potential for local transportation delays. Upon the completion of construction, there would be a slight benefit to local and regional transportation as there would be a reduced risk of stormwater flooding closing area roadways in the Pavaho Basin. The identified cumulative projects would result in an overall beneficial impact to regional transportation. Therefore, the Proposed Action, in conjunction with identified cumulative projects, would result in beneficial cumulative impacts to transportation.

4.1.3.13 Public Safety

The Proposed Action would have a beneficial impact to public safety by reducing the stormwater flood risk. The identified cumulative projects would benefit public safety by improving transportation and therefore regional access for emergency response services and would include any necessary safety measures to reduce potential health and safety risks to the public. Therefore, the Proposed Action, in conjunction with the identified cumulative projects, would result in beneficial cumulative impacts to public safety.

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CHAPTER 5
SUMMARY OF IMPACTS

5.1 SUMMARY OF IMPACTS

In accordance with NEPA, the USACE performed a focused analysis of the following resource areas potentially affected by implementation of the Proposed Action, No Action, and cumulative effects: land use, noise, geology and soils, water resources, biological resources, cultural resources, socioeconomics and environmental justice, air quality, utilities, hazardous materials and wastes, transportation, and public safety. Table 5-1 presents a summary of the impacts to all resource areas under the Proposed Action and No Action Alternatives, and the potential impacts of the Proposed Action in conjunction with the identified cumulative projects.

Table 5-1. Summary of Environmental Consequences

Resource Area	Proposed Action	No Action	Cumulative Impacts
Land Use	-	-	○
Noise	○	-	○
Geology and Soils	○	-	○
Water Resources	○	-	○
Biological Resources	○	-	○
Cultural Resources	*	-	*
Visual Resources	○	-	○
Socioeconomics	+	●	+
Air Quality	○	-	○
Utilities	+	●	+
Hazardous Materials and Wastes	○	-	○
Transportation	+	-	+
Public Safety	+	▲	+

Notes: + = Beneficial impact
- = No impact
○ = Less than significant impact
● = Adverse, but less than significant impact
* = With mitigation, less than significant impact
▲ = Significant impact

5.2 RESOURCE CONSERVATION MEASURES

In accordance with the criteria identified in Section 1.9, the USACE and the City of Dallas would implement the following Resource Conservation Measures as part of the Proposed Action to avoid or minimize potential effects to environmental resources:

1. All disturbed soils would be immediately stabilized following the completion of work and be re-planted with native grass and shrub species. Before approval of the final design, the contractor would obtain USACE and City of Dallas approval of a soil layering plan, seed mixes, planting/seeding, and monitoring methods proposed for use in revegetation. Noxious weeds would be controlled by hand weeding or herbicide application.
2. Before the start of construction the project boundary (i.e., limit of construction) would be clearly marked with flagging, fencing, stakes, or lath.

3. Erosion and sedimentation controls would be monitored and maintained during construction and for 12 months thereafter to ensure site stabilization. An Erosion Control Plan would be prepared and implemented. The Erosion Control Plan would include BMPs that could include rock stabilization at the construction site entrance, inlet protection barriers at the Pavaho Pumping Plant inlet, and the use of rock filter dams within the sump. The contractor would also be required to use silt fences throughout the construction area wherever there is the potential for erosion. The City of Dallas would finalize the Erosion Control Plan upon final design approval of the proposed improvements, and all erosion control measures would be field adjusted for site conditions.
4. The contractor would implement a Traffic Control Plan approved by the City of Dallas prior to construction. The Traffic Control Plan would include requirements to cover any excavated pavement exposed to traffic with anchored steel plates during non-working hours; provide 48-hour notice of intended lane closures; site appropriate signage for construction periods; and site a temporary concrete traffic barrier before constructing the proposed discharge pipe shoring wall.
5. The Proposed Action would permanently impact 0.09 acres of jurisdictional waters of the U.S. Therefore, prior to construction, the contractor would obtain a CWA Section 404 NWP 12 – "Utility Line Activities (Appendix C). The contractor would implement any measures to minimize and/or mitigation impacts as required by the NWP. As stipulated by NWP 12, because the permanent impacts would be less than 0.10 acres, PCN to the USACE District Engineer would not be required.
6. The construction contractor would survey for all pre-existing utilities in the area to avoid and/or minimize any temporary interruption of utility service(s).
7. Hazardous wastes would be handled in accordance with applicable USACE and City of Dallas regulations. If an unknown or unidentified waste is encountered during construction, all construction in the area would stop, and the City of Dallas personnel would be notified.
8. All modifications to the existing Pavaho Pump Station would be done in accordance with the MOA established between the USACE and the Texas SHPO (Appendix D).

CHAPTER 6
OTHER CONSIDERATIONS REQUIRED BY NEPA

6.1 IRREVERSIBLE OR IRRETRIEVABLE COMMITMENT OF NATURAL OR FINITE RESOURCES

Resources that are irreversibly or irretrievably committed to a project are those that are used on a long-term or permanent basis. This includes the use of non-renewable resources such as metal and fuel. These resources are irretrievable in that they would be used for a project when they could have been used for other purposes. Human labor is also considered an irretrievable resource. In addition, the unavoidable destruction of natural resources that could limit the range of potential uses of that particular environment is also considered an irreversible commitment of resources.

Implementation of the Proposed Action would require the consumption of materials typically associated with construction activities (e.g. concrete). In addition, the use of vehicles and construction equipment would result in the consumption of fuel, oil, and lubricants. An undetermined amount of human energy for construction would also be expended and irreversibly lost. However, the amount of these resources used would be negligible and these resources are readily available in large quantities. Therefore, implementation of the Proposed Action would not result in significant irreversible or irretrievable commitment of resources.

6.2 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF THE HUMAN ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM NATURAL RESOURCE PRODUCTIVITY

NEPA requires an analysis of the relationship between a project's short-term impacts on the environment and the effects that these impacts may have on the maintenance and enhancement of the long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. This refers to the possibility that choosing one development option reduces future flexibility in pursuing other options, or that giving over a parcel of land or other resource to a certain use often eliminates the possibility of other uses being performed at that site.

Under the Proposed Action, short-term effects would be primarily related to construction activities and the use of associated vehicle and equipment that are currently used for other purposes. In the long-term, the proposed construction would provide an important increase in flood risk management capability. With implementation of BMPs and mitigation measures, the Proposed Action would not result in any impacts that would reduce environmental productivity or narrow the range of beneficial uses of the environment.

6.3 MEANS TO MITIGATE AND/OR MONITOR ADVERSE ENVIRONMENTAL IMPACTS

With the implementation of resource conservation measures as presented in Section 2.4 into the project design and implementation, the Proposed Action would not result in significant environmental impacts.

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CHAPTER 7
REFERENCES

AR Consultants, Inc. 2009. Letter from S. Alan Skinner (AR Consultants, Inc) to Bill Martin (THC). Inc. July 2.

CH2M HILL. 2009. Trinity Lakes Geotechnical Report. Prepared for: City of Dallas, Texas. June.

City of Dallas. 2004. Street Conditions Inventory. Online at:

http://www.dallascityhall.com/streets/links.html. Accessed March 17, 2009.

_____. 2005a. Trinity River Corridor Comprehensive Land Use Plan. Adopted March 9, 2005.

_____. 2005b. Environmental Policy. Approved by Dallas City Council on January 26.

_____. 2006a. Draft City of Dallas Interior Levee Drainage Study – Phase I. Volume 1 of 2 – Report. Prepared by Carter Burgess. September.

_____. 2006b. Jurisdictional Determination for the Dallas Floodway and NTTA Trinity Parkway, Dallas Texas. Prepared by Halff Associates. May 12.

_____. 2008a. GIS Data, Provided by Trinity River Corridor Project Office during Site Visit, 14 Nov.

_____. 2008b. City of Dallas Trinity River Flood Control District. "Information." http://fc.dallascityhall.com/html/fc.html. Accessed on December 18.

_____. 2009a. Interior Levee Drainage Study. West Levee – Phase II. Volume 1 of 2 - Report. Prepared by Jacobs Carter Burgess. January.

_____. 2009b. GIS Data, Quarterly Zoning Update. December 31.

_____. 2010. Personal communication with Jennifer Hiromoto, Planner, Development Services, January 20. Information regarding permit review process to ensure consistency between City of Dallas and USACE building requirements. Dallas, TX.

EDR. 2010. EDR DataMap Environmental Atlas: Dallas Floodway Project EIS, Dallas, TX (Inquiry Number 02701908.1r). February 19.

Eisenhour, Thomas P. 2009. Non-Archeological Historic-Age Resource Reconnaissance Survey Report Trinity Parkway from IH-35E/SH-183 to US-175/SH-310, Dallas County, TxDOT Dallas District. Prepared for North Dallas Texas Tollway, city of Dallas, and Texas Department of Transportation. Ecological Communications Corporation, Austin, Texas. October.

Federal Highways Administration. 2008. Supplemental Draft Environmental Impact Statement and Draft Section 4(f) Evaluation for the Trinity Parkway. October.

Green Dallas. 2010. Building a Greener City – Air Quality. http://www.greendallas.net/air_quality.html. Accessed on January 28.

National Climate Data Center. 2009. State of the Climate: Global Hazards: June 2009. http://www.ncdc.noaa.gov/sotc/?report=hazards&year=2009&month=jun. Last updated July 31, 2009, accessed on April 21, 2010.

Norman Alston Architects. 2000. Cultural Resource Review for the Environmental Impact Statement Areas of Potential Effect of the Trinity River Parkway, Dallas, Texas.

North Central Texas Council of Governments. 2008. GIS Data.

_____. 2007. 2005 Land Use GIS Data.

_____. 2009. Historic Traffic Counts. http://www.nctcog.org/trans/data/tcins/historic/. Accessed September 9, 2009.

TEC. 2009. Site Visit September 15-16. Observer: Melissa Tu, Biologist.

Texas Comptroller of Public Accounts. 2009. State Policies and Programs. http://www.window.state.tx.us/finances/captrade/txpolicies_programs/. Accessed on September 24.

TCEQ. 2009a. Dallas-Fort Worth Ozone Non-attainment Area. http://www.tceq.state.tx.us/implementation/air/sip/dfw.html. Accessed on September 22.

_____. 2009b. Texas Attainment Status by Region. http://www.tceq.state.tx.us/implementation/air/sip/siptexas.html. Accessed on September 22.

_____. 2010. Texas Attainment Status by Region. http://www.tceq.state.tx.us/implementation/air/sip/siptexas.html. Accessed on April 6.

THC. 2002. Letter from Bob Brinkman (THC) to Mario Sanchez (TxDOT). July 2.

_____. 2009a. Letter to Fort Worth Corps, United States Corps of Engineers. November 12.

_____. 2009b. Letter to Texas Department of Transportation. November 13.

_____. 2009c. Texas Archaeological Site Atlas. Accessed on March 15.

TPWD. 2007. Post Oak Savannah and Blackland Prairie Wildlife Management, Historical Perspective. http://www.tpwd.state.tx.us/landwater/land/habitats/post_oak/ Last updated February 9 2007, accessed on September 19, 2009.

_____. 2009a. TPWD Rare Resources Review for the USACE DFP (Dallas County). November 30.

_____. 2010. Annotated County Lists of Rare Species for Dallas County. http://gis2.tpwd.state.tx.us/ReportServer$GIS_EPASDE_SQL/Pages/ReportViewer.aspx?%2fReport+Project2%2fReport5&rs%3aCommand=Render&county=Dallas. Last updated January 15, 2010, accessed on April 8.

USACE. 2007. GIS vegetation data.

_____. 2009. Engineering and Design: Guidelines for landscape planting and vegetation management at levees, floodwalls, embankment dams, and appurtenant structures. Technical Letter Number 1110-2-571. Adopted April 10.

U.S. Census Bureau. 2010. Prepared for U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau. http://www.census.gov. Accessed on April 20.

USEPA. 1974 Information on Levels of Environmental Noise Requisite to Protect Health and Welfare with an Adequate Margin of Safety. Report 550/9-74-004.

_____. 2010a. General Conformity Regulatory Actions. http://www.epa.gov/oar/genconform/regs.htm. Accessed on April 6.

_____. 2010b. The Green Book Non-attainment Areas for Criteria Pollutants. http://www.epa.gov/air/oaqps/greenbk/index.html. Accessed on April 6.

_____. 2010c. Asbestos. http://www.epa.gov/oppt/asbestos/. Accessed on April 30.

_____. 2010d. Lead in Paint, Dust, and Soil. http://www.epa.gov/oppt/lead/. Accessed on April 30.

WFAA.com. 2010. Trinity flood fears could mandate costly insurance. http://www.wfaa.com/news/local/Trinity-flood-fears-could-mandate-costly-insurance-91564974.html. Accessed on April 21.

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CHAPTER 8
LIST OF PREPARERS

This EA was prepared for, and under the direction of the USACE Fort Worth District and the City of Dallas, by the following TEC staff:

Project Management

Dan Muslin, Project Director, 38 years experience
B.S.C.E., Civil Engineering

Ryan Pingree, Project Manager, 12 years experience
M.S., Environmental Science and Management

Quality Assurance

Keith Pohs, Quality Assurance/Quality Control, 11 years experience
M.S., Earth Sciences

Technical Analysts

Jennifer Bryant, Cultural Resources, 5 years experience
M.A., History/Public History

Christine Davis, Air Quality, 9 years experience
M.S., Environmental Management

Elizabeth Gray, Utilities, Transportation, Geology and Soils, GIS Analysis, 2 years experience
B.A., Environmental Studies/Managerial Studies

Christopher Griggs, Visual Resources, Noise, Hazardous Materials and Waste, 2 years experience
B.S., Environmental Sciences

Erica Mignone, Deputy Project Manager, Public Safety, Land Use, Water, Socioeconomics and Environmental Justice, 6 years experience
B.S. Environmental Science

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M.Arh., Architectural History

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GIS & Graphic Design

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B.A., Geography

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Claudia Tan, Production Manager, 9 years experience
A.A., Liberal Arts and Sciences

Jackie Brownlow, Production Assistant, 3 years experience
B.A., Business Administration

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Appendix A

Agency Notification

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DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

April 2, 2010

Planning, Environmental and Regulatory Division

Name
Title
Agency
Address
City, State, Zip

Dear Name:

This letter is to notify you that the U.S. Army Corps of Engineers (USACE) Fort Worth District, in partnership with the City of Dallas, is preparing an Environmental Assessment (EA), pursuant to Section 102 of the National Environmental Policy Act (NEPA) as implemented by the regulations promulgated by the Council on Environmental Quality (40 Code of Federal Regulations Parts 1500-1508) and USACE Engineering Regulation 200-2-2 for proposed improvements to the Pavaho Pumping Plant, located on Canada Drive between the Hampton and Sylvan Bridges in Dallas, Texas.

The Proposed Action consists of constructing a new 375,000-gallon per minute capacity pump station and associated infrastructure adjacent to the existing Pavaho Pump Station. The EA will describe the action alternatives and affected environment, and will analyze the potential environmental effects of the action alternatives.

Our office will send you additional correspondence soliciting your input as we progress through the NEPA process. We look forward to receiving your comments as we move forward. Thank you for your cooperation.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental and Regulatory Division

Mark Denton
Director of State and Federal Review
Advisory Council on Historic Preservation
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Regional Director
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1445 Ross Avenue, Suite 1200
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Stan Ponce
Regional Executive
US Geological Survey
South Central Area Region
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Columbia, MO 65201

Gary Thomas
Executive Director
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Regional Engineer
Federal Energy Regulatory Commission
Atlanta Regional Office
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Chairman
North Texas Tollway Authority
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Mike Berger
Director of Wildlife
Texas Parks and Wildlife Department
Wildlife Division
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Donald Gohmert
State Conservationist
US Department of Agriculture
Natural Resources Conservation District
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,
,

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Texas Commission on Environmental Quality
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General Manager
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Texas Office
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Dallas, TX 75202-5007

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Regional Forester
US Forest Service
Southern Region
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Atlanta, GA 30309

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Appendix B

Public Draft EA Public and Agency Review Documentation and Correspondence

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DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

May 6, 2010

NOTICE OF AVAILABILITY

PROPOSED IMPROVEMENTS TO THE PAVAHO PUMPING PLANT DALLAS, TEXAS

Description. Interested parties are hereby notified that the District Engineer, U.S. Army Corps of Engineers (USACE), Fort Worth District, has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) regarding proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Dallas County, Texas.

Statutory Authority. This notice is being issued to all interested parties in accordance with the National Environmental Policy Act of 1969, as amended, the Council on Environmental Quality Code of Federal Regulations (CFR) (40 CFR parts 1500-1508), and USACE Engineering Regulation 200-2-2. Section 5141 of the Water Resources Development Act of 2007 outlines authorization for this proposed project. This improvement project would be conducted under Section 5141 of the Water Resources Development Act of 2007.

Background. The Pavaho Pumping Plant is located adjacent to the west levee of the Dallas Floodway on Canada Drive, approximately 350 feet (ft) north of the northern terminus of Parvia Avenue in the City of Dallas, Texas. Constructed in 1954 as part of the USACE Dallas Floodway project and upgraded in 1979 and 2003, the Pavaho Pumping Plant consists of one, 46,000-gallons per minute (gpm) pump; one, 30,000-gpm pump; and one, 6,000-gpm pump. The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts from the 100-year, 24-hour storm event. During significant rainfall, localized flooding in the Pavaho drainage area occurs regularly. By improving the Pavaho Pumping Plant, the USACE and City of Dallas would be able to provide improved flood risk management to people and property in the Pavaho Basin.

Proposed Action. Under the Proposed Action, the USACE and City of Dallas would construct a new approximately 10,890-square ft pump station consisting of three, 125,000-gpm pumps, and one, 6,000-gpm low-flow pump. Discharge from the new pumps would flow into one 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. From there, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing 6 ft by 8 ft gravity sluices into the Trinity River.

The USACE and City of Dallas would also install a liner in the sump area immediately adjacent to existing and proposed Pavaho Pump Stations to improve stormwater conveyance by minimizing the maintenance need associated with erosion, silting, and vegetation. The USACE and City of Dallas would also install a new self-cleaning trash rack at the proposed Pavaho Pump Station inlet. Additionally, the USACE and City of Dallas would enact minor improvements to the existing Pavaho Pump Station to increase the service life and minimize future maintenance. The USACE and City of Dallas would construct two new sluice gates and replace the existing ladder and junction box. A series of 1-ft thick gabion mattress would minimize erosion in and around the existing Pavaho Pumping Plant outfall.

Implementation of the Proposed Action would not result in significant impacts on the social, economic, or human and natural environment. No adverse impact on any species, which are proposed or listed as threatened or endangered under the Endangered Species Act, is expected. No significant transportation, noise, land use, environmental justice, or hazardous waste concerns were identified within the project area. Long-term effects of the Proposed Action would be beneficial. The existing Pavaho Pump Station is eligible for listing on the National Register of Historic Places, and consultation with the State Historic Preservation Officer provided guidelines for implementing the Proposed Action without impacting the integrity of the existing building.

Prior to beginning construction, contractors would be required to have erosion control, traffic control, and hazardous spill prevention plans in place. Proposed construction measures and operation and maintenance features of the project may meet the criteria for Nationwide Permit 12 - "Utility Line Activities." The potential adverse and beneficial cumulative impacts of the Proposed Action and other proposed projects within the study area were assessed for human and natural resources and are documented in the EA.

Public Meeting. A public meeting has not been scheduled for the Proposed Action. Prior to the close of the comment period, any person may make a written request for a public meeting, setting forth the particular reasons for the request. The District Engineer will then determine whether the issues raised are substantial and should be considered in his decision. If a public meeting is warranted all known interested parties will be notified of the time, date, and location of such a meeting.

Public Review. Pursuant to the regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 as amended in 1975 (40 CFR Parts 1500 through 1508), the U.S. Department of the Army gives notice that it has prepared the required environmental documentation for the proposed improvements to the Pavaho Pumping Plant in Dallas, Texas. This document is available for review at the project public website (http://www.dallasfloodwayprojecteis.com) and the following addresses:

Dallas Public Library
Government Information Center
6th Floor
1515 Young Street
Dallas, Texas 75201
(214) 670-1482

Dallas West Branch Library
2332 Singleton Boulevard
Dallas, Texas 75212
(214) 670-6445

Comment Period. The comment period for this action is 30 days from the date of this Public Notice; the comment period ends on June 6, 2010. Please address any comments to Mr. Jeffry A. Tripe, CESWF-PER-EE, Post Office Box 17300, Fort Worth, Texas 76102-0300, or by e-mail at Jeffry.A.Tripe@swf02.usace.army.mil. Copies of the EA and Draft FONSI may be requested in writing at the above address or by telephone at (817) 886-1716, or by visiting the project website (http://www.dallasfloodwayprojecteis.com).

William Fickel, Jr.
Chief, Planning, Environmental, and
Regulatory Division

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

May 6, 2010

Planning, Environmental, and Regulatory Division

Mike Berger
Director of Wildlife
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744-3291

Dear Mr. Berger:

The United States Army Corps of Engineers (USACE) has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) regarding proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Texas. The USACE prepared this EA in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality Code of Federal Regulations (CFR) (40 CFR parts 1500-1508), and USACE Engineering Regulation 200-2-2. The Proposed Action is authorized by Section 5141 of the Water Resources Development Act of 2007.

The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts. Under the Proposed Action, the USACE and City of Dallas propose to construct a new pump station at the Pavaho Pumping Plant, located adjacent to the west levee of the Dallas Floodway on Canada Drive. The proposed pump station would consist of three, 125,000-gallons per minute (gpm) pumps, and one, 6,000-gpm low-flow pump. Discharge from the new pumps would flow through a 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. From there, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing gravity sluices into the Trinity River.

Based on the EA and result of agency coordination, a draft FONSI has been prepared for this action. A Notice of Availability (NOA) has been prepared to notify the public of this action and to solicit comments. The Public Draft EA, including the draft FONSI and NOA, are enclosed with this communication for your review and to solicit any comments or concerns your agency may have regarding this action. We will consider any comments that we receive from your office by the close of the comment period, June 6, 2010. Additional information regarding the Proposed Action is also available upon request. Please address any requests or comments to the contact information indicated in the NOA. Thank you for your cooperation in this matter.

Sincerely,

William Fickel, Jr.
Chief, Planning Environmental, and
Regulatory Division

Enclosures:
Notice of Availability
Public Draft Environmental Assessment

Distribution:

1. Texas Parks and Wildlife Department
   4200 Smith School Road
   Austin, TX 78744-3291

2. US Fish and Wildlife Service
   Southwest Region
   P.O. Box 1306
   Albuquerque, NM 87103-1306

3. Texas Historical Commission
   History Programs Division
   P.O. Box 12276
   Austin, TX 78711-2276

4. US Environmental Protection Agency
   Region 6
   1445 Ross Avenue, Suite 1200
   Dallas, TX 75202

5. Texas Commission on Environmental Quality
   Region 4
   2309 Gravel Drive,
   Fort Worth, TX 76118-6951

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

May 6, 2010

Planning, Environmental, and Regulatory Division

Johanna Johnson
Dallas Public Library
Government Information Center
6th Floor
1515 Young Street
Dallas, Texas 75201

Dear Ms. Johnson:

The United States Army Corps of Engineers (USACE) has prepared an Environmental Assessment (EA) that reviews potential impacts to the environment that may result from the implementation of the proposed improvements to the Pavaho Pumping Plant in Dallas, Texas. This EA addresses the existing environmental resources, proposed project measures, and impacts to environmental resources that could occur with implementation of the proposed project. The purpose of the EA is to identify and evaluate the environmental aspects of implementing the proposed improvements to the Pavaho Pumping Plant in accordance with the National Environmental Policy Act of 1969, as amended, the Council on Environmental Quality Code of Federal Regulations (40 CFR parts 1500-1508), and USACE Engineering Regulation 200-2-2.

Based on the EA and results of agency coordination, a draft Finding of No Significant Impact (FONSI) has been prepared for this action. A Notice of Availability (NOA) has been prepared to notify the public of this action and to solicit comments. The NOA, draft FONSI, and Public Draft EA are enclosed with this communication. Please post the enclosed information at the library for public review until June 6, 2010. We will consider comments that we receive by the close of the comment period. Please address any requests or comments to the contact information indicated in the Notice of Availability. This information can be removed from public review after the 30-day comment period ends on June 6, 2010. Thank you for your cooperation in this matter.

Sincerely,

William Fickel, Jr.
Chief, Planning, Environmental, and
Regulatory Division

Enclosures
Notice of Availability
Public Draft Environmental Assessment

Distribution:

1. Dallas Public Library
   Government Information Center
   6th Floor
   1515 Young Street
   Dallas, Texas 75201

2. Dallas West Branch Library
   2332 Singleton Boulevard
   Dallas, Texas 75212

US Army Corps of Engineers
Fort Worth District

News Release

Release No. _____ Contact: Jeffry Tripe

For Release: Immediate 07 May 10 Phone: (817) 886-1716

U.S Army Corps of Engineers seeks public comment on environmental document for the implementation of proposed improvements to the Pavaho Pumping Plant in Dallas, Texas

FORT WORTH, Texas-- The Fort Worth District, U.S. Army Corps of Engineers (Corps) is currently accepting comments on the Environmental Assessment (EA), a National Environmental Policy Act document, for the improvements pertaining to the proposed Pavaho Pumping Plant in the City of Dallas, Texas.

The USACE and City of Dallas propose to construct a new pump station at the Pavaho Pumping Plant, located adjacent to the west levee of the Dallas Floodway on Canada Drive. The proposed pump station would consist of three, 125,000-gallons per minute (gpm) pumps, and one, 6,000-gpm low-flow pump. Discharge from the pumps would flow through a 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. From there, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing gravity sluices into the Trinity River.

Section 5141 of the Water Resources Development Act of 2007 authorizes the Proposed Action. Implementation of the Proposed Action would not result in significant impacts on the social, economic, or human and natural environment. No adverse impact on any species considered by the Endangered Species Act is expected. No significant transportation, noise, land use, environmental justice, or hazardous waste concerns were identified within the project area. As the existing Pavaho Pump Station is eligible for listing on the National Register of Historic Places, contractors would implement the Proposed Action in accordance with the Memorandum of Agreement developed with the State Historic Preservation Officer. Before starting construction, contractors would be required to have erosion control, traffic control, and hazardous spill prevention plans in place. Proposed construction measures and operation and maintenance features of the project may meet the criteria for Nationwide Permit 12 - "Utility Line Activities."

Written comments on the EA will be accepted through June 6, 2010 by sending them directly to Jeffry A. Tripe, CESWF-PER-EE, P.O. Box 17300, Fort Worth, Texas, 76102-0300, or by e-mail at Jeffry.A.Tripe@usace.army.mil. Copies of the EA and Draft Finding of No Significant Impact may be requested in writing at the above address, by telephone at (817) 886-1716, or by visiting the project website at http://www.dallasfloodwayprojecteis.com.

Search Hits: 1 of 1

Publication: **The Dallas Morning News**
Publication Date: **May 10, 2010**
Agency:
Advertiser (#): **TEC INC. (100074675)**
Insertion Number: **1265941**
Description:
Ad Number: **269629**
Color, Ad Size: **B&W, 1.25 x 9.13 Inches x Inches**
Sales Rep: **007311**
Code: **Class'n: LN Legal**
Edition: **Edition1**
Zone: **State**
Section, Page: **Business (D), 11**

CAST AND CREW, continued from page 10

part and then hit snags with negotiating the contract. He said the turning point was when "Queen called me and said, 'I want you to play my daddy.' I said, 'Well, if you put it that way…"

Pickens, who plays Dr. Richard Webber in the TV series Grey's Anatomy, was very much attracted to the positive and present father figure role in *Just Wright*.

"That was one of the things I was attracted to was that. I hope it's not missed by the audience," he said. "It's something that we don't see enough of; the writer made the part to show that this family was solid."

Pickens is working to have a movie made about Bass Reeves, the first Black to receive a commission as a Deputy U.S. Marshal, west of the Mississippi River, in the late 1800s.

About improving Black images in movies and television, Pickens said: "At some point, we've got to stop waiting for folks to give us something. We have to create our own venue, make our own projects, distribute and develop our own projects. If you do so, you would open up the eyes of Hollywood. It runs on the dollar, they've got to see a profit."

Paula Patton is married to blue-eyed soul platinum-selling crooner Robin Thicke, who is the son of Alan Thicke, star of the TV series Growing Pains (1985-92) and a former talk show host. Robin and Paula just gave birth to their first child, Julian Feugo Thicke, born April 6.

DISRESPECTED, continued from page 5

nal Black Caucus Foundation; Lezli Baskerville, president, The National Association for Equal Opportunity in Higher education (NAFEO); Clayola Brown, president, A. Philip Randolph Institute; Vanessa Williams, executive Director, National Conference of Black Mayors; Ms. Felicia Davis, president, Just Environment; Makani Themba-Nixon, executive director, The Praxis Project; Rev. Dr. Judith C. Moore, executive director, Sisters Saving Ourselves Now; Lisa Fager Bediako, president, Industry Ears; Constance Berry Newman, member, Black Women's Roundtable; Yvonne Scruggs-Leftwich, executive director, Center for Community and Economic Justice, Inc.; Rev. Marcia Dyson, member, Black Women's Roundtable; Eleanor Hinton Hoytt; president & CEO, Black Women's Health Imperative; Kathi Wilkes, president, Wilkes & Associates; Letetia Daniels Jackson, president and CEO, Tandeka, LLC; Sandra Fowler, founder and president, Brewton Enterprises; Dr. Avis Jones-DeWeever, director of Research, Policy, and Programs, National Council of Negro Women; Reverend Cheryl J. Sanders, senior pastor, Third Street Church of God and professor of Christian Ethics, Howard University; Barbara Perkins, executive life coach, Image Builders Etcetera; Claire Nelson, president & CEO, Institute of Caribbean Studies; Lakimba DeSadier, member, Black Women's Roundtable; Gaea L. Honeycutt, president, G.L. Honeycutt, LLC; Carlottia Scott, board member, NCBCP; Rev. Gloria Miller, associate minister, First Baptist Church Glenarden; Joycelyn Tate, telecommunications policy advisor Black Women's Roundtable.

PQC, continued from front page

played their new innovative flair, along with their tenacity and resiliency, finishing off a school year that almost didn't happen. Before clear skies and mild temperatures, the 56 students received their valid and accredited bachelor degree diplomas, along with special thanks from several for believing in the school that looked near closing.

"You are special, don't forget that," the graduates were told by J.D. Mitchell, President of the Paul Quinn College National Alumni Association and a 1969 PQC graduate. "You stood up for Paul Quinn when no one else did. There were some who were told by others, 'come with me, where the grass is greener.' You stayed and graduated."

Sorrell reiterated: "Each day, we watched people walk in to pick up their transcript. There were naysayers who had nothing good to say."

The college lost their accreditation with Southern Association of College and Schools (SACS) last June, in spite strong gains in their financial and academic standards over the past two years and lost their appeal in August. That would have made Paul Quinn ineligible for federal funds and their degrees non-valid.

The law firm of Bickel and Brewer represented Paul Quinn and won a court injunction that keeps Paul Quinn accredited until their hearing, which has not yet been scheduled and not expected for several more months. Paul Quinn in the meantime has filed for accreditation with another association.

"This board is committed to the future of Paul Quinn College," said Robert Weiss, the new Paul Quinn chairman of the board of trustees. "Get the hook-up and leave the world a better place than you found it."

Weiss had stolen a phrase used by Pastor Frederick Haynes of Friendship West Baptist Church, who gave a fiery keynote address. Attorney DeMetris Sampson, who donated $50,000 to the school, received an honorary degree. The Meadow Foundation donated $500,000 late last year.

Earlier in the week, the school introduced one of their new innovative projects. In partnership with Pepsico, they have transformed the campus football field into a spacious urban farm and garden. Their plan is to grown fruits and vegetables to help provide food for the school and, in entrepreneurial spirit, sell the goods to the food market.

"We're transforming more than a football field. Our aim is to continually bring unique, academic and cultural opportunities to our students and extend that knowledge, know-how and value to the community where they live," Sorrell said during the May 5 press conference that introduced the project to the public. "Part of Paul Quinn's mission is to prepare students to be servant leaders and agents of change in their communities.

"When you combine the passion of our people, the discipline of business, and a deep sense of purpose with the commitment and energy of a partner like Paul Quinn College, you have a recipe for real transformation," said Amy Chen, project manager, Food for Good initiative, PepsiCo. "We are so excited to work with Paul Quinn College to create a holistic business proposition that provides access to nutrition in an educational, transformative, and community-focused way."

Paul Quinn will eventually develop a new curriculum and degree under Social Entrepreneurship, which will teach students how to use entrepreneurial principals to organize, create and manage a venture to make social change. The curriculum will also integrate the farm into its academic program, teaching principles not only of biology and botany, but also of social enterprise.

The project will also be used to serve southern Dallas communities and the Highland Hills area, which is severely void of major supermarkets and food stores.

Notice of Availability of the Public Draft Environmental Assessment for the Proposed Pavaho Pumping Plant Improvements Dallas, Texas

The Fort Worth District, U.S. Army Corps of Engineers (Corps) is currently accepting comments on the Public Draft Environmental Assessment (EA), a National Environmental Policy Act document, for the improvements pertaining to the proposed Pavaho Pumping Plant in the City of Dallas, Texas.

The USACE and City of Dallas propose to construct a new pump station at the Pavaho Pumping Plant, located adjacent to the west levee of the Dallas Floodway on Canada Drive. The proposed pump station would consist of three, 125,000-gallons per minute (gpm) pumps, and one, 6,000-gpm low-flow pump. Discharge from the pumps would flow through a 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. From there, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing gravity sluices into the Trinity River.

Section 5141 of the Water Resources Development Act of 2007 authorizes the Proposed Action. Implementation of the Proposed Action would not result in significant impacts on the social, economic, or human and natural environment. No adverse impact on any species considered by the Endangered Species Act is expected. No significant transportation, noise, land use, environmental justice, or hazardous waste concerns were identified within the project area. As the existing Pavaho Pump Station is eligible for listing on the National Register of Historic Places, contractors would implement the Proposed Action in accordance with the Memorandum of Agreement developed with the State Historic Preservation Officer. Before starting construction, contractors would be required to have erosion control, traffic control, and hazardous spill prevention plans in place. Proposed construction measures and operation and maintenance features of the project may meet the criteria for Nationwide Permit 12 - "Utility Line Activities."

Copies of the Public Draft EA and Draft Finding of No Significant Impact are available for review at the Dallas Public Library (1515 Young Street, Dallas, TX 75201) and the Dallas West Branch Library (2332 Singleton Blvd, Dallas, TX 75212). Copies may be requested in writing at Jeffry A. Tripe, CESWF-PER-EE, P.O. Box 17300, Fort Worth, TX 76102-0300, by telephone at (817) 886-1716, or by visiting the project website at http://www.dallasfloodwayprojecteis.com. Written comments on the Public Draft EA will be accepted through June 6, 2010 by sending them directly to the above address, or by e-mail at Jeffry.A.Tripe@usace.army.mil.

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5/7, 5/8, 5/9 @ 7am
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& more

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venue Sat only starts at
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lothes, and Houseware.

FarmersBranch 2861
laydelle Ln. May 7&8 9-
3pm Furn&HomeDecor
mallToolsWheelbarrow

rand Prairie 1646 Walnut
riday 9:00am Go East on
arrant at Beltline 1 mile
on left 75050

**ge Multi Family Ga-
ge Sale 6931 Cliffbrook
75254, May 7-8, 8am.
urn, electronics, decor.**

ving 2901 N OConnor Sat
5/8 9 to 3 many sellers,
crafts, jewelry, plants,
od, new stuff, tools, etc.

**ucas Garage Sale. 1730
Winning Koff Rd. Fri 9-
1, Sat. 8-3. Antiques,
Mopar parts and more**

ichardson 5707 Abingdon
r Fri and Sat 7:30 - noon
all types high quality
stuff!

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room, dinnett, profes-
nal excercise equip.
and Prairie 214-215-1780**

illas 5521 Winton St 75206
. 5/8/10, 9am. Bird
uip, furn, bike, x-mas,
aytag W/D, & misc items

**illas 9141 Loma Vista
243, May 7, 9-6 - Sat 9-1
ltiq, quilts, crafts, furn
toys. Alley access only.**

**Dallas- Multi Family
oving Sale, Fri-Sat (5/9-10)
a-5p, Some of all clothes,
oks, etc. 5023 Village Cir.**

Multi Family Sale
312 Westmont Dr. Plano
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Plano 4527 Woodsboro
Lane, 75024 Friday 5/7
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ay 8-12 noon Neighbor-

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AVISOS PÚBLICOS

Avisos legales

Aviso de disponibilidad de la Evaluación Ambiental del Proyecto de mejoras de la Planta de Bombeo Pavaho Dallas, Texas

El Distrito de Fort Worth, EE.UU. El cuerpo de Ingenieros del Ejército (Corps) actualmente está aceptando comentarios sobre el Proyecto Público de Evaluación Ambiental (EA), el documento del acta de Política Ambiental Nacional, por las mejoras relacionadas con el proyecto de Planta de Bombeo Pavaho en la Ciudad de Dallas, Texas.

El USACE y la Ciudad de Dallas proponen construir una nueva estación de bombeo en la Planta de Bombeo Pavaho, situado al lado oeste del dique del canal de desagüe de Dallas en Canada Drive. La estación de bombeo propuesto constaría de tres, de 125.000 galones por minuto (gpm) las bombas, y una bomba de bajo flujo de 6,000 gpm. La descarga de las bombas fluiría por un tubo de 120 pulgadas de diámetro en una caja de conexiones adyacente y al norte de la existente Planta de Bombeo de Pavaho. Desde allí, la descarga de la existente y la propuesta Planta de Bombeo de Pavaho se combinarían y el drenaje iría vía dos compuertas de gravedad existentes en el Río de Trinidad.

La sección 5141 del Acta de Desarrollo de Recursos de Agua del 2007 autoriza la acción propuesta. La realización de la acción propuesta no causaría impactos significativos en el ambiente social, económico, humano y natural. No está considerado ningún impacto adverso de especies en peligro de extinción, según lo propuesto en el acta. No fueron identificados dentro del área del proyecto transportación significativa, ruido, uso de tierra, detrimento ambiental o desechos peligrosos. La Planta de Bombeo de Pavaho existente es elegible para incluirla en la lista del Registro Nacional de Sitios Históricos, los contratistas pondrían en práctica la acción propuesta de acuerdo con el memorándum de acuerdo desarrollado con el Oficial de Preservación Histórico Estatal. Antes de iniciar la construcción, se requeriría que los contratistas tengan control sobre la erosión, control de tráfico, y planes de prevención de desechos peligrosos en el lugar. Las medidas de construcción propuestas, la operación y mantenimiento del proyecto pueden ser encontrados en los criterios para el Permiso 12 de escala nacional - "Utility Line Activities."

Las copias preliminares del Proyecto Público de Evaluación EA y el bosquejo del proyecto de Impacto No Significativo están disponibles para revisión en la Biblioteca Pública de Dallas (1515 Young Street, Dallas, TX 75201) y en la Biblioteca West Branch en Dallas (2332 Singleton Blvd, Dallas, TX 75212). Las copias pueden ser solicitadas por escrito a Jeffry A. Tripe, CESWF-PER-EE, P.O. Box 17300, Fort Worth, TX 76102-0300, por teléfono en el (817) 886-1716, o visitando la página de internet http://www.dallasfloodwayprojecteis.com

Los comentarios escritos sobre el Proyecto Público de Evaluación EA serán aceptados hasta el día 6 de junio de 2010, mediante el envío directamente a la dirección antes mencionada o por correo electrónico a dirigido a Jeffry.A.Tripe@usace.army.mil

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

May 6, 2010

The National Park Service reviewed this project and determined that no parks will be affected; therefore, we have no comments.

Signed: _____ Date: 5/18/10

NOTICE OF AVAILABILITY

PROPOSED IMPROVEMENTS TO THE PAVAHO PUMPING PLANT DALLAS, TEXAS

Description. Interested parties are hereby notified that the District Engineer, U.S. Army Corps of Engineers (USACE), Fort Worth District, has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) regarding proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Dallas County, Texas.

Statutory Authority. This notice is being issued to all interested parties in accordance with the National Environmental Policy Act of 1969, as amended, the Council on Environmental Quality Code of Federal Regulations (CFR) (40 CFR parts 1500-1508), and USACE Engineering Regulation 200-2-2. Section 5141 of the Water Resources Development Act of 2007 outlines authorization for this proposed project. This improvement project would be conducted under Section 5141 of the Water Resources Development Act of 2007.

Background. The Pavaho Pumping Plant is located adjacent to the west levee of the Dallas Floodway on Canada Drive, approximately 350 feet (ft) north of the northern terminus of Parvia Avenue in the City of Dallas, Texas. Constructed in 1954 as part of the USACE Dallas Floodway project and upgraded in 1979 and 2003, the Pavaho Pumping Plant consists of one, 46,000-gallons per minute (gpm) pump; one, 30,000-gpm pump; and one, 6,000-gpm pump. The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts from the 100-year, 24-hour storm event. During significant rainfall, localized flooding in the Pavaho drainage area occurs regularly. By improving the Pavaho Pumping Plant, the USACE and City of Dallas would be able to provide improved flood risk management to people and property in the Pavaho Basin.

Proposed Action. Under the Proposed Action, the USACE and City of Dallas would construct a new approximately 10,890-square ft pump station consisting of three, 125,000-gpm pumps, and one, 6,000-gpm low-flow pump. Discharge from the new pumps would flow into one 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. From there, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing 6 ft by 8 ft gravity sluices into the Trinity River.

The USACE and City of Dallas would also install a liner in the sump area immediately adjacent to existing and proposed Pavaho Pump Stations to improve stormwater conveyance by minimizing the maintenance need associated with erosion, silting, and vegetation. The USACE and City of Dallas would also install a new self-cleaning trash rack at the proposed Pavaho Pump Station inlet. Additionally, the USACE and City of Dallas would enact minor improvements to the existing Pavaho Pump Station to increase the service life and minimize future maintenance. The USACE and City of Dallas would construct two new sluice gates and replace the existing ladder and junction box. A series of 1-ft thick gabion mattress would minimize erosion in and around the existing Pavaho Pumping Plant outfall.

Implementation of the Proposed Action would not result in significant impacts on the social, economic, or human and natural environment. No adverse impact on any species, which are proposed or listed as threatened or endangered under the Endangered Species Act, is expected. No significant transportation, noise, land use, environmental justice, or hazardous waste concerns were identified within the project area. Long-term effects of the Proposed Action would be beneficial. The existing Pavaho Pump Station is eligible for listing on the National Register of Historic Places, and consultation with the State Historic Preservation Officer provided guidelines for implementing the Proposed Action without impacting the integrity of the existing building.

Prior to beginning construction, contractors would be required to have erosion control, traffic control, and hazardous spill prevention plans in place. Proposed construction measures and operation and maintenance features of the project may meet the criteria for Nationwide Permit 12 - "Utility Line Activities." The potential adverse and beneficial cumulative impacts of the Proposed Action and other proposed projects within the study area were assessed for human and natural resources and are documented in the EA.

Public Meeting. A public meeting has not been scheduled for the Proposed Action. Prior to the close of the comment period, any person may make a written request for a public meeting, setting forth the particular reasons for the request. The District Engineer will then determine whether the issues raised are substantial and should be considered in his decision. If a public meeting is warranted all known interested parties will be notified of the time, date, and location of such a meeting.

Public Review. Pursuant to the regulations implementing the procedural provisions of the National Environmental Policy Act of 1969 as amended in 1975 (40 CFR Parts 1500 through 1508), the U.S. Department of the Army gives notice that it has prepared the required environmental documentation for the proposed improvements to the Pavaho Pumping Plant in Dallas, Texas. This document is available for review at the project public website (http://www.dallasfloodwayprojecteis.com) and the following addresses:

Dallas Public Library
Government Information Center
6th Floor
1515 Young Street
Dallas, Texas 75201
(214) 670-1482

Dallas West Branch Library
2332 Singleton Boulevard
Dallas, Texas 75212
(214) 670-6445

Comment Period. The comment period for this action is 30 days from the date of this Public Notice; the comment period ends on June 6, 2010. Please address any comments to Mr. Jeffry A. Tripe, CESWF-PER-EE, Post Office Box 17300, Fort Worth, Texas 76102-0300, or by e-mail at Jeffry.A.Tripe@swf02.usace.army.mil. Copies of the EA and Draft FONSI may be requested in writing at the above address or by telephone at (817) 886-1716, or by visiting the project website (http://www.dallasfloodwayprojecteis.com).

William Fickel, Jr.
Chief, Planning, Environmental, and
Regulatory Division

W7
PER-Pm

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

May 6, 2010

Planning, Environmental, and Regulatory Division

Texas Parks & Wildlife Dept.
MAY 12 2010
Wildlife Habitat Assessment Program

Mike Berger
Director of Wildlife
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744-3291

Dear Mr. Berger:

The United States Army Corps of Engineers (USACE) has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) regarding proposed improvements to the Pavaho Pumping Plant in the City of Dallas, Texas. The USACE prepared this EA in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the Council on Environmental Quality Code of Federal Regulations (CFR) (40 CFR parts 1500-1508), and USACE Engineering Regulation 200-2-2. The Proposed Action is authorized by Section 5141 of the Water Resources Development Act of 2007.

The purpose of the Proposed Action is to provide 100-year, 24-hour storm event flood risk management for the area served by the Pavaho Pumping Plant. The USACE and City of Dallas need to implement Pavaho Pumping Plant improvements because people and property in the Pavaho Basin are currently subject to stormwater flooding impacts. Under the Proposed Action, the USACE and City of Dallas propose to construct a new pump station at the Pavaho Pumping Plant, located adjacent to the west levee of the Dallas Floodway on Canada Drive. The proposed pump station would consist of three, 125,000-gallons per minute (gpm) pumps, and one, 6,000-gpm low-flow pump. Discharge from the new pumps would flow through a 120-inch diameter pipe into a junction box adjacent to and north of the existing Pavaho Pump Station. From there, the discharge from the existing and proposed Pavaho Pump Stations would combine and drain via two existing gravity sluices into the Trinity River.

Based on the EA and result of agency coordination, a draft FONSI has been prepared for this action. A Notice of Availability (NOA) has been prepared to notify the public of this action and to solicit comments. The Public Draft EA, including the draft FONSI and NOA, are enclosed with this communication for your review and to solicit any comments or concerns your agency may have regarding this action. We will consider any comments that we receive from your office by the close of the comment period, June 6, 2010. Additional information regarding the Proposed Action is also available upon request. Please address any requests or comments to the contact information indicated in the NOA. Thank you for your cooperation in this matter.

TEXAS PARKS & WILDLIFE

Based on the project description, the Wildlife Habitat Assessment Program does not anticipate significant adverse impacts to rare, threatened or endangered species, or other fish and wildlife resources.
Signed: Peter B Hardi
Date: 6/4/10

Sincerely,

William Fickel Jr.

William Fickel, Jr.
Chief, Planning Environmental, and
Regulatory Division

Enclosures:
Notice of Availability
Public Draft Environmental Assessment

RECEIVED
21 Jun 2010
PER

Pingree, Ryan H.

Subject: FW: Pavaho Pump Station

-----Original Message-----
From: Tripe, Jeffry A SWF
Sent: Thursday, June 03, 2010 1:41 PM
To: 'Bartos, Lorlee'
Subject: RE: Pavaho Pump Station

Mr. Bartos,

Thank you for the comments on the Pavaho Pump Station Environmental Assessment (EA). This action is not in association with the proposed Trinity Parkway toll road. This EA was prepared for City of Dallas proposed construction actions on only the Pavaho Pumping Plant. Pavaho Pumping Plant upgrades are being proposed to address interior drainage (land side of the
levees) concerns within the Dallas Floodway, Dallas, Texas. Without the proposed upgrades, existing interior drainage flooding concerns would remain.
Future projects being proposed by other entities such as the Trinity Parkway will be addressed in separate environmental documents.

Thank you,

Jeffry A. Tripe
Regional Technical Specialist
U.S. Army Corps of Engineers
819 Taylor Street, RM 3A14
P.O. Box 17300
Fort Worth, Texas 76102-0300
Phone: 817-886-1716
Fax: 817-886-6499
E-mail: Jeffry.A.Tripe@usace.army.mil

-----Original Message-----
From: Bartos, Lorlee [mailto:]
Sent: Thursday, June 03, 2010 11:33 AM
To: Tripe, Jeffry A SWF
Subject: Pavaho Pump Station

If these actions are in any way preparation for the proposed ill-conceived toll road, I am opposed to taking this action.

Until the toll road has been cleared on environmental issues connected to the floodway, doing any work in any way connected with it is premature. I do not believe that it can clear these hurdles and any money should be spent on improving our substandard levees.

Sincerely,

Lorlee Bartos

Appendix C

USACE Nationwide Permit (NWP) Coordination

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DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

May 12, 2010

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2010-00215, Pavaho Pump Station Outfall

Ms. Maria Moreno
Jacobs Engineering Group, Incorporated
777 Main Street
Fort Worth, TX 76102

Dear Ms. Moreno:

Thank you for your letter received May 10, 2010, concerning the proposal by the City of Dallas to place rip-rap associated with the outfall structure for the Pavaho Pump Station located on the northeast side of the Trinity levee in the City of Dallas, Dallas County, Texas. This project has been assigned Project Number SWF-2010-00215. Please include this number in all future correspondence concerning this project.

Under Section 404 of the Clean Water Act the U. S. Army Corps of Engineers (USACE) regulates the discharge of dredged and fill material into waters of the United States, including wetlands. USACE responsibility under Section 10 of the Rivers and Harbors Act of 1899 is to regulate any work in, or affecting, navigable waters of the United States. Based on your description of the proposed work, and other information available to us, we have determined this project will involve activities subject to the requirements of Section 404.

We have reviewed the proposal and based on the information provided, it appears the activity qualifies for Nationwide Permit NWP 12 Utility Line Activities. Please review the enclosed nationwide permit concerning the proposed placement of dredged or fill material into waters of the United States. The permittee must comply with all the terms and conditions of the Nationwide Permit. If the permittee cannot comply with the conditions of the nationwide permit, please contact our office.

This nationwide permit is valid until March 18, 2012, unless prior to that date the nationwide permit is suspended, revoked, or modified such that the activity would no longer comply with the terms and conditions of the nationwide permit on a regional or national basis. The USACE will issue a public notice announcing the changes when they occur. Furthermore, activities that have commenced, or are under contract to commence, in reliance on a nationwide permit will remain authorized provided the activity is completed within 12 months of the date of the nationwide permit's expiration, modification, or revocation, unless discretionary authority has been exercised on a case-by-case basis to modify suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5(c) or (d).

This letter verifies the proposed project under Section 404 of the Clean Water Act; however, this letter does not authorize construction of the project. Because the proposed project would be located within or affecting an existing federal flood control facility, you must obtain written approval from the Fort Worth District Commander, in accordance with the requirements of 33 CFR 208.10. For further information, please contact our Maintenance Branch at (817) 886-1606.

Thank you for your interest in our nation's water resources. If you have any questions concerning our regulatory program, please refer to our website at http://www.swf.usace.army.mil/regulatory or contact Mr. Barry Osborn at the address above or telephone (817) 886-1734.

Please help the Regulatory Program improve its service by completing the survey on the following website: http://per2.nwp.usace.army.mil/survey.html.

Sincerely,

Stephen L Brooks
Chief, Regulatory Branch

Enclosures

Copy Furnished:

Mr. Terry Bachim, CESWF-OD-M

OSBORN/bgo/1734
SCOTT/CESWF-PER-R
BROOKS/CESWF-PER-R

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Appendix D

Cultural Resources Coordination

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TEXAS HISTORICAL COMMISSION
real places telling real stories

W7
1) PEE-E

March 25, 2010

William Fickel, Jr., Chief
Planning, Environmental, and Regulatory Division
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966, as amended: Submittal of Digital Photography under the Memorandum of Agreement (MOA), City of Dallas Modifications to the Pavaho Pump Station of the Dallas Floodway, Dallas, Dallas County (USACE/106/201008459)*

Dear Mr. Fickel:

Thank you for your correspondence of March 4, 2010 describing the above referenced project. This letter serves as comment from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

The review staff, led by Adam Alsobrook, has completed its review of the information provided. This information was provided according to Stipulation IA set forth in the December 2009 Memorandum of Agreement (MOA) between the THC and the U.S. Army Corps of Engineers (Corps). The number of digital photographic views meets the requirements of the stipulation. The image views are appropriate for documenting both the Pavaho Pump Station and its historic setting. The overall quality of the images is good to excellent, and the THC accepts the images for inclusion in the documentation and report to be completed by the Corps and submitted for review according to Stipulation IB of the MOA.

Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Adam Alsobrook at 512/463-6183.**

Sincerely,

Adam Alsobrook, Project Reviewer
For: Mark Wolfe, State Historic Preservation Officer

cc: Michael Lowenberg, Chair, Dallas County Historical Commission
Jim Anderson, Historic Preservation Officer, City of Dallas

MW/aa

RECEIVED
30 Mar 2010

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

October 23, 2009

Planning, Environmental and Regulatory Division

RE: City of Dallas Modifications to Pavaho Pump Station of the Dallas Floodway, Dallas County, Texas

Texas Historical Commission
Mark S. Wolfe, Executive Director
1511 Colorado P.O. Box 12276
Austin, Texas 78711-2276

Dear Mr. Wolfe,

The City of Dallas seeks approval from the US Army Corps of Engineers (USACE) to make modifications to the Pavaho Pump Station in the Dallas Floodway, an undertaking that invokes Section 106 of the National Historic Preservation Act of 1966.

The US Army Corps of Engineers (USACE) has begun a comprehensive analysis and Environmental Impact Statement (EIS) regarding all proposed projects involving the USACE within and around the Dallas Floodway and its associated elements in Dallas County, Texas. However, this project is being pursued now due to health and human safety issues and the need to immediately provide flood protection around these two critical areas.

The Area of Potential Effect (APE) is limited to the immediate vicinity of the Pavaho Pump Station, which is isolated against the landward side of the West Dallas Floodway Levees. Within the APE are the Pavaho Pump Station (1954) and the West Levee (1930/1955).

The proposed new pump station potential effects to archeology were coordinated with your office in a letter dated July 2, 2009. The letter states no survey or additional investigations were warranted and your office concurred.

The USACE finds the West Levee (reference enclosure) **eligible** for the National Register under Criterion A for its association with events under local planning and development of the city of Dallas. Originally constructed in 1928-132 and updated in 1954, the levee system is over fifty years of age and significantly impacted the growth and development of Dallas and retains integrity. The West Levee will not be modified by the undertaking, therefore The Corps finds this a **no adverse effect**.

The USACE finds that the Pavaho Pump Station (reference enclosure), constructed in 1954, is individually **eligible** for the National Register of Historic Places under Criterion A for association with local planning and development and under Criterion C for design and construction values. It is a true representative example of the type of floodway pump houses

from the mid-twentieth century. The structure has a very high degree of integrity when compared to its as-built construction drawings (reference enclosure). While the original structure is being retained and reused, the pumps are being removed and a small addition is added to the top of the discharge chamber. The USACE finds this an **adverse effect** on the property. As mitigation, the USACE proposes documentation of Pavaho in accordance with the written standards of HABS Level II and digital photographic documentation to the National Park Service Digital Photographic Standards.

Should you concur with these findings, the USACE will notify the Advisory Council on Historic Preservation and offer them an opportunity to comment. We will also offer the public and consulting parties an opportunity to comment and participate, and seek your input on the identification of consulting parties.

The Corps looks forward to working closely with the THC, consulting parties and the public throughout the Section 106 process for this undertaking. Please contact Joseph Scott Murphey at (817) 229-1956 or joseph.murphey@us.army.mil regarding any cultural resources questions regarding the project.

Sincerely,

Mark C. Harburg

For William Fickel, Jr.
Chief, Planning, Environmental
and Regulatory Division

Enclosures (2)

PROPOSED MODIFICATIONS TO PAVAHO PUMP STATION OF THE DALLAS FLOODWAY
October 23, 2009

Pavaho Pump Station was constructed by the USACE in 1954 as part of a larger Strengthening Program intended to update the original Dallas Floodway. The Floodway was constructed from 1928-1932 as part of a larger Plan of Reclamation by the City and County of Dallas Levee Improvement District and Dallas Levee Improvement District No. 5. Reference the attached research being conducted by the Corps on the Plan of Reclamation for the Comprehensive Analysis Environmental Impact Statement for placement of Pavaho within a larger historic context.

Significance

The significance of Pavaho Pump Station is that is a true and representative example of a type, period and style of construction, i.e., a mid 20th century pumping plant in support of a working engineering feature that significantly impacted the growth patterns of Dallas since its initial construction. Specifically, the distinctive characteristics of this type of construction are:

Sump Area to collect storm water to pump to the interior of the floodway.

Inlet Structure serves to direct storm water either to gravity flow during normal drainage or the pumps during floods. Concrete guide walls direct the water and trash gates keep out items that would clog the pumps.

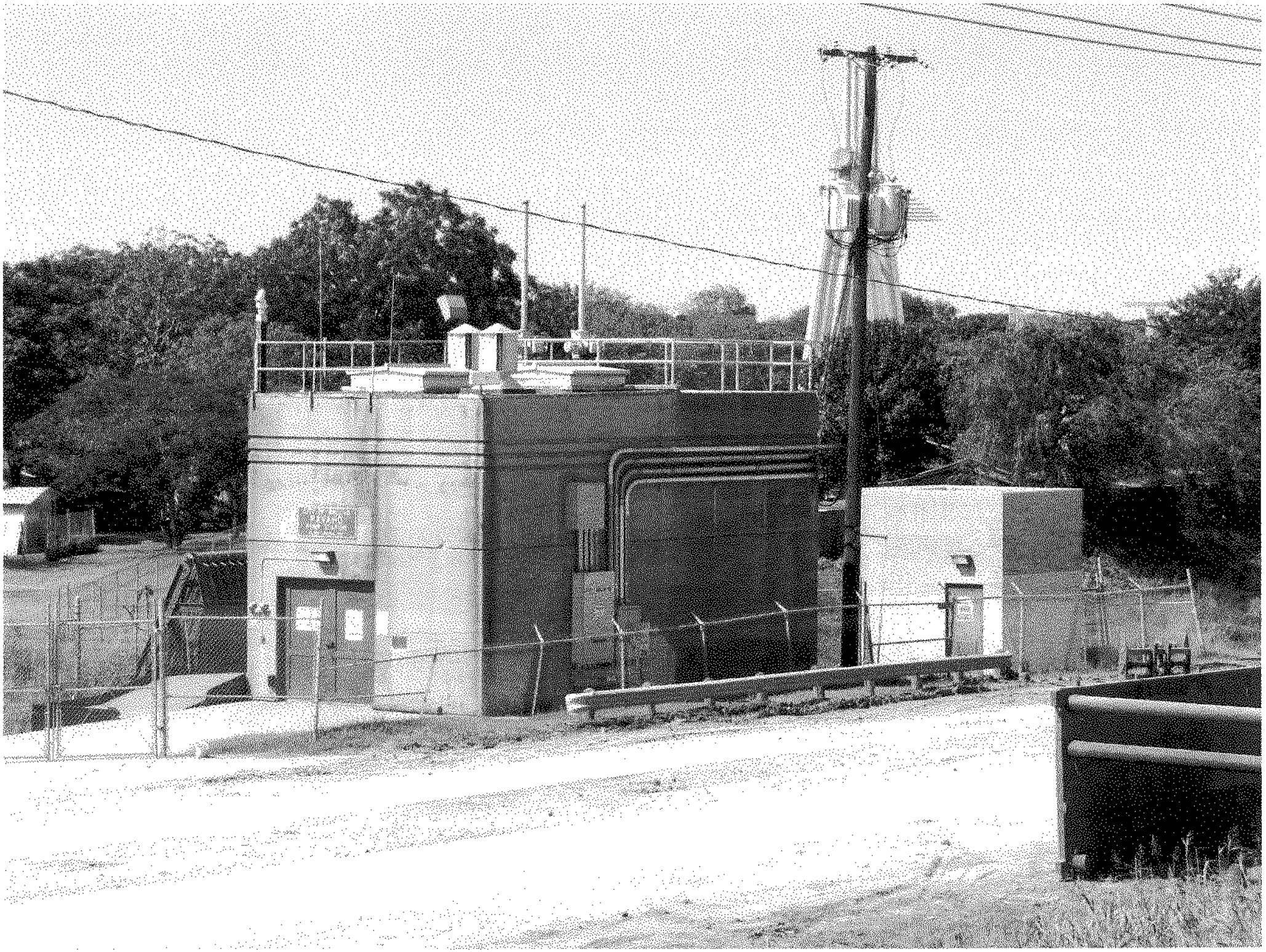
Pump House composed of two distinct parts; a sump pit and motor room to house the pump motors and accessories, and a discharge chamber.

Discharge Chamber is a dual purpose structure. It discharges the storm water to the interior of the floodway via two box culverts when the pumps are not in operation. When the water levels rise to a predetermined point, the gated openings close and the pumps discharge into the chamber.

Box Culvert/Sluiceway. This concrete tube connects at the Discharge Chamber and carries the storm water through the levee to the outlet structure.

Outlet Structure. Consists of concrete head and wing walls to discharge the storm water inside the floodway. Automatic flap gates keep the water from back flowing to the landside of the levee.

Pavaho represents the continuing evolution of the Dallas Floodway in response to its success as a reclamation project of moving the Trinity River for planned development under the Plan of Reclamation. The development of reclaimed lands, in turn, has led to increased drainage requirements and the need for increased capacity and additional pump stations.



Integrity

As evidenced by the 1954 construction drawings (attached) and the October 1952 Definitive Project Report (attached) on Pavaho, the structure retains a high degree of integrity. Integrity of Location, Design, Setting, Materials Workmanship, Feeling and Association are highly intact. The sump area, pump house, discharge chamber, box culvert and outlet structure remain essentially unchanged from their initial construction.

The only change to the structure is the addition of an external low flow pump in an adjacent building (approximately 10'x10') constructed next to the pump station. The setting is slightly changed but the Pavaho Pump Station clearly retains the identity for which it is significant.

Eligibility

The Pavaho Pump Station is individually eligible under Criterion C for its design and construction values as a mid 20th century pump station that is a true and representative example of a type and style of construction that retains a high degree of integrity.

The Pavaho Pump Station is individually eligible under Criterion A for its association with events at a local level for the community planning and development of West Dallas. Without effective interior drainage provided by the Pavaho Pump Station, development and habitation of large sections of West Dallas would not have been possible.

Under a separate undertaking, the Corps is currently examining its numerous actions within the floodway and is evaluating the Pavaho Pump Station as a potential contributing element of the Plan of Reclamation (1928-1959). A preliminary draft of the research is underway and is included for your information. Future research may reveal additional significance for this resource.

Proposed Undertaking

Due to life and safety issues due to increased flooding, the City of Dallas proposes to add a New Pavaho Pump Station while retaining many of the essential features of the 1954 Pump Station. The reoccurring issue with the floodway is as development increases, runoff increases and the interior drainage (getting water outside the levees into the floodway) demands increase. The increased demands leads to updated the system. Historically, the updating did not require the removal of the existing pump houses, but the addition of new facilities alongside the existing. The New Pavaho Station is consistent with this approach.

- A new pump station will be built alongside the existing Pavaho. Existing Pavaho will be modified as follows:

- Existing pumps will be removed and a 120 inch pipe from the new pump station will penetrate the Pavaho sump pump area and terminate at the discharge chamber of the existing station.

- The existing discharge chamber will be made taller by approximately four feet.

- The existing inlet structure and trash gates will be removed.

Effects

The removal of the character defining elements of the inlet structure, trash gates, and pumps are an **adverse effect.** The addition to the discharge chamber is in keeping with the scale, massing and proportion of the original structure and is **not an adverse effect**.

Mitigation

Due to life safety issues, retention of the existing structure unmodified is not an option. The proposed undertaking makes a slight addition to the original structure in keeping with the Secretary of the Interior's Standards. Removal of the intake and the pumps are unavoidable in the reuse of the existing station in tandem with the new station.

The Corps proposes photographically documenting the Pavaho Pump Station to the digital photographs standards of the National Park Service and printing on archival paper before construction begins. The archival photographs will be incorporated into a documentation equivalent to NPS HABS Level II documentation and submitted to THC and the Dallas Public Library Dallas History Section.

AR Consultants, Inc.

Archaeological and Environmental Consulting
11828 Audelia Road, Suite C103, Dallas, TX 75243
Phone: (214) 368-0478
Fax: (214) 221-1519
email: archar@swbell.net

July 2, 2009

Bill Martin, Archeologist
Texas Historical Commission
PO Box 12276
Austin, TX 78711

Dear Bill,

Jacobs Engineering asked me to look the archaeological potential of an area where the City of Dallas currently has the historic Pahavo Pump Station (Figure 1). They are proposing to construct a modern pumping station adjacent to the existing building but without doing any damage to the older facility. All this is going to be done on a roughly triangular-shaped piece of property that the city owns and is shown on the enclosed aerial photo (Figure 2). The property is located outside the levee at the toe of the upland and includes the borrow pit area where the levee fill was obtained. In addition, a channelized drainage flows northeast into the sump that is included within the seven acres. Besides these factors, the location is at the edge of the Trinity River floodplain and the old river channel is located outside the levee on the north side of the present channelized river which is where the archaeological potential is high. Based on these factors of excavation, disturbance, and distance to the real river channel, it is my opinion that an archaeological investigation of the property is unwarranted and that construction should be allowed to proceed without any survey or testing. I have discussed this particular project with Robert Scott at the Corps of Engineers and he indicated that they would not require any archaeological investigations.

Therefore, I am requesting that you concur with my conclusion that archaeological investigations are unwarranted.

Thank you for your attention to this matter and if you have any questions, please give me a call at 214 368 0478 or on my cell at 214 906 8021.

Sincerely,

S. Alan Skinner, PhD
President

NO HISTORIC
PROPERTIES AFFECTED
PROJECT MAY PROCEED
By _____
for F. Lawerence Oaks
State Historic Preservation Officer
Date 7/22/09
Project # _____

Encl. Dallas, TX 7.5' USGS map with location circled
Aerial photo of project area

cc. Robert Scott, Corps of Engineers
Lindi Weber, Jacobs

PAVAHO PUMP STATION

ORIGINAL CONSTRUCTION DRAWINGS

TRINITY RIVER AND TRIBUTARIES, TEXAS

DALLAS FLOODWAY

TRINITY RIVER, TEXAS

AS BUILT

PLANS FOR

CONSTRUCTION OF

PAVAHO STREET PUMPING PLANT

DALLAS, TEXAS

CONTRACT No. DA-41-443-eng-3886

CORPS OF ENGINEERS
UNITED STATES ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS
JUNE 1954

DRAWINGS IN THIS FOLIO HAVE BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

1

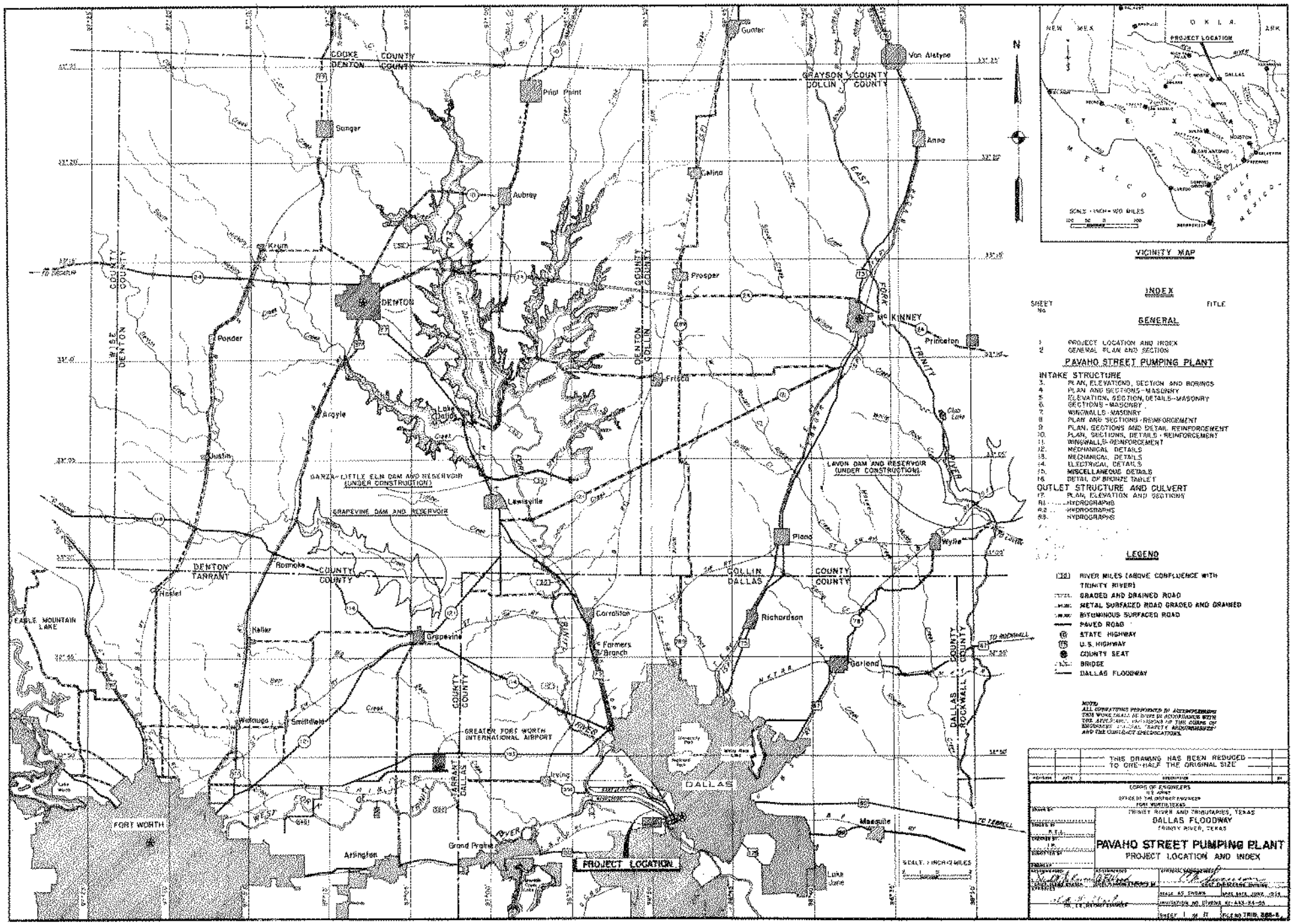
RETURN TO
OPERATIONS DIVISION

TRACINGS REVISED AND
MARKED AS-BUILT
HF

RECORD DRAWING
AS BUILT

INVITATION NO. DIVENG. 41-443-54-35

Add 1 - Add 2 - Add 3



VICINITY MAP

INDEX

SHEET No	TITLE
	GENERAL
1	PROJECT LOCATION AND INDEX
2	GENERAL PLAN AND SECTION
	PAVAHO STREET PUMPING PLANT
	INTAKE STRUCTURE
3	PLAN, ELEVATIONS, SECTION AND BORINGS
4	PLAN AND SECTIONS - MASONRY
5	ELEVATION, SECTION, DETAILS - MASONRY
6	SECTIONS - MASONRY
7	WINGWALLS - MASONRY
8	PLAN AND SECTIONS - REINFORCEMENT
9	PLAN, SECTIONS AND DETAIL REINFORCEMENT
10	PLAN, SECTIONS, DETAILS - REINFORCEMENT
11	WINGWALLS - REINFORCEMENT
12	MECHANICAL DETAILS
13	MECHANICAL DETAILS
14	ELECTRICAL DETAILS
15	MISCELLANEOUS DETAILS
16	DETAIL OF BRONZE TABLET
	OUTLET STRUCTURE AND CULVERT
17	PLAN, ELEVATION AND SECTIONS
81	HYDROGRAPHS
82	HYDROGRAPHS
83	HYDROGRAPHS

LEGEND

- (130) RIVER MILES (ABOVE CONFLUENCE WITH TRINITY RIVER)
- GRADED AND DRAINED ROAD
- METAL SURFACED ROAD GRADED AND DRAINED
- BITUMINOUS SURFACED ROAD
- PAVED ROAD
- STATE HIGHWAY
- U.S. HIGHWAY
- COUNTY SEAT
- BRIDGE
- DALLAS FLOODWAY

NOTE:
ALL OPERATIONS PERFORMED BY AUTHORIZED PERSONNEL THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PROVISIONS OF THE CODE OF ENGINEERING MANUAL "SAFETY AND HEALTH" AND THE CONTRACT SPECIFICATIONS.

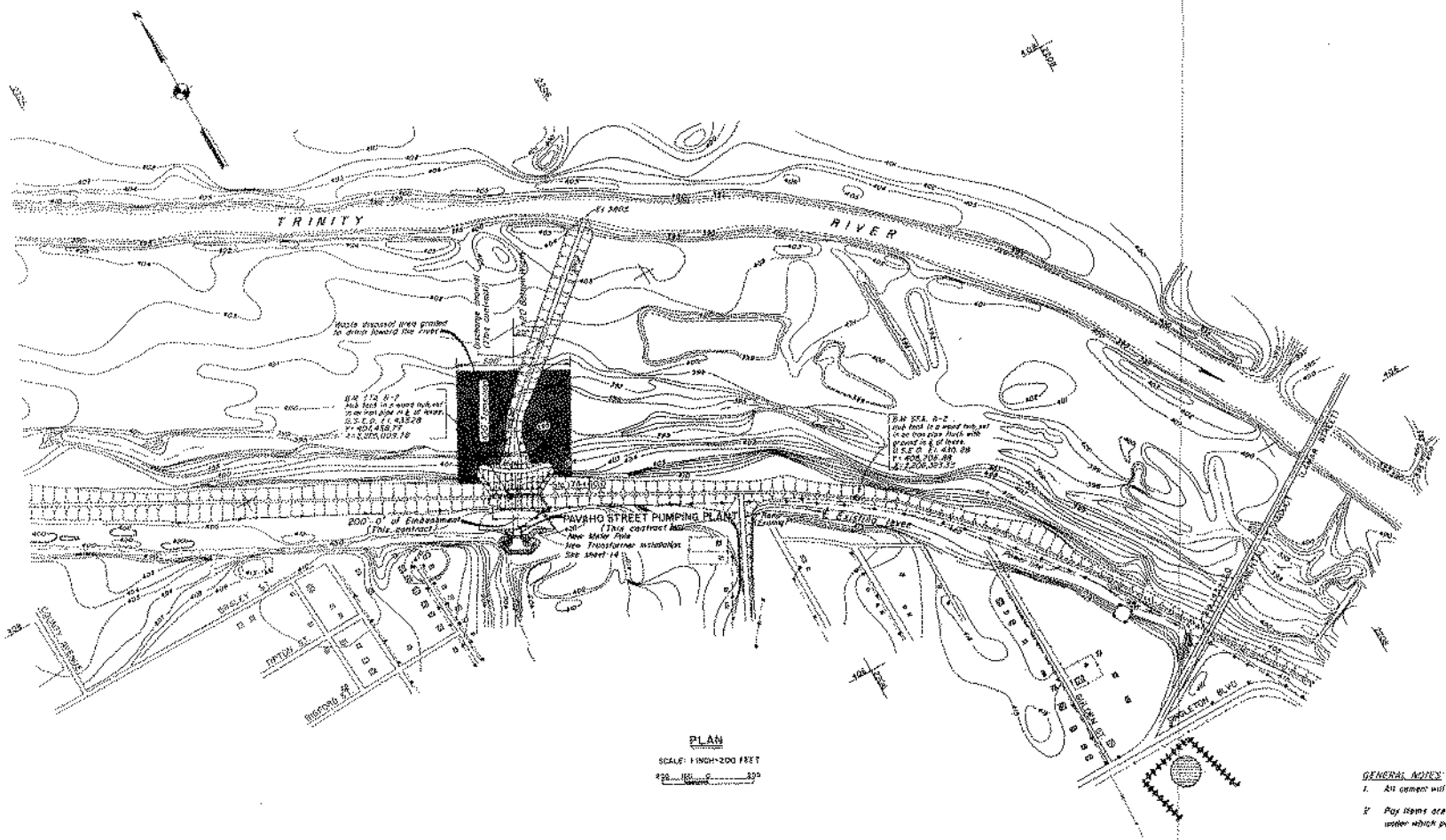
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U.S. ARMY
DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
PROJECT LOCATION AND INDEX

RECOMMENDED: Chief, Engineering Division
APPROVED: District Engineer
DATE APPROVED: MAR 30TH, 1966
DRAWING NO. 16-33-D-1



PLAN

SCALE: 1 INCH = 200 FEET

TYPICAL LEVEE SECTION

SCALE: 1 INCH = 10 FEET

GENERAL NOTES:

1. All cement will be paid for under pay item (7)
2. Pay items are shown thus, (P), the number indicates pay item under which payment will be made.

NOTE:
ALL OPERATIONS PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE SAFETY REQUIREMENTS MANUAL, SAFETY REQUIREMENTS AND THE CONTRACT SPECIFICATIONS.

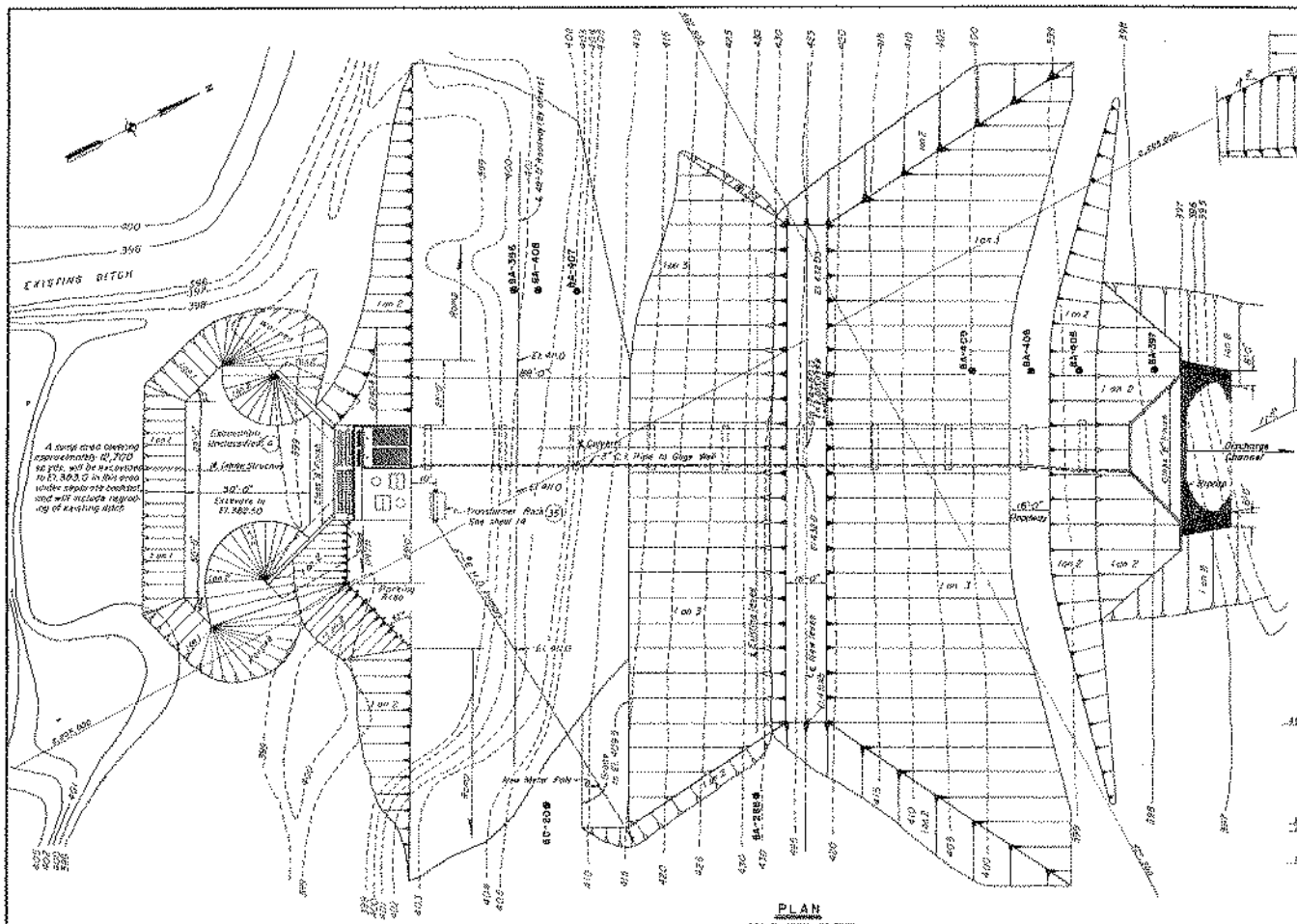
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE.

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

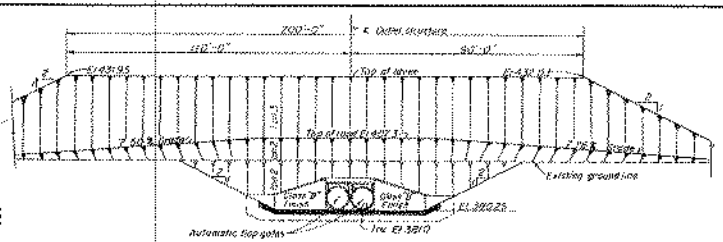
PAVAHO STREET PUMPING PLANT
GENERAL PLAN AND SECTION

DRAWN BY: B.A.M. L.L.
TRACED BY: B.A.M. L.L.
CHECKED BY: L.S.
RECOMMENDED:
APPROVED:
ENGINEER:
SCALE: AS SHOWN
DATE: JUNE 1954
DRAWING NO. CANEND 41-463-94-96
SHEET 2 OF 17
FILE NO. TRIN 265-5



PLAN

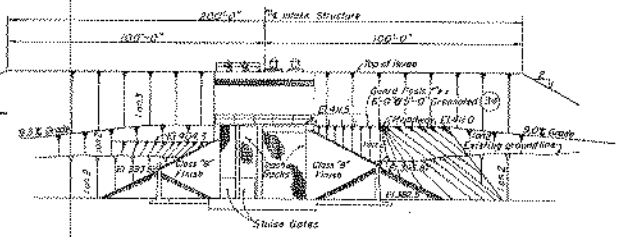
SCALE: 1 INCH = 50 FEET



ELEVATION

OUTLET STRUCTURE

SCALE: 1 INCH = 20 FEET

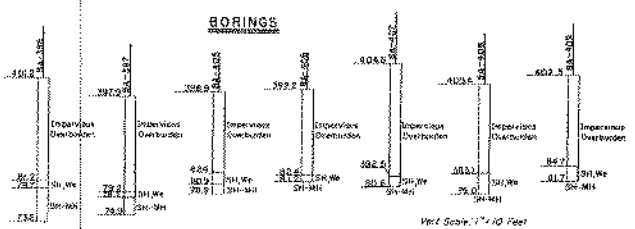


ELEVATION

INTAKE STRUCTURE

SCALE: 1 INCH = 20 FEET

BORINGS



LEGEND

CONSISTENCY	ROCK	STRUCTURE
Stf = Medium Hard	Sh = Shale	Wx = Weathered

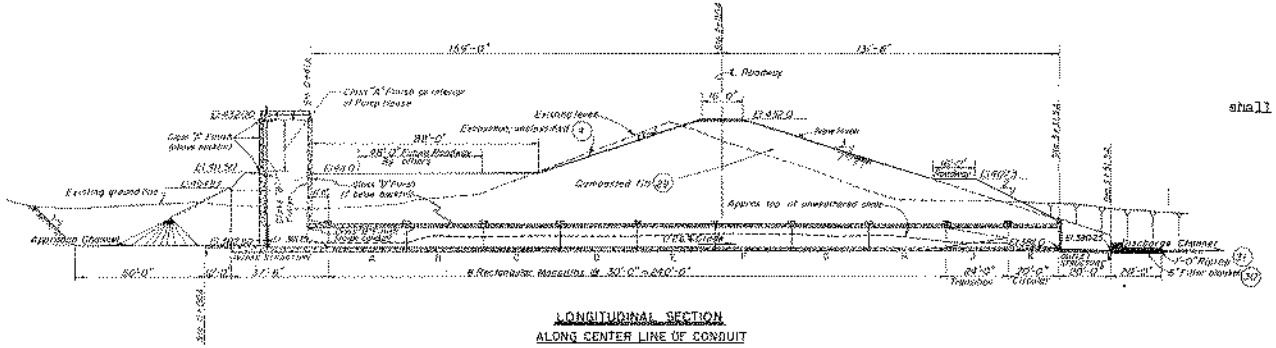
NOTES:

Logs on holes 61-295 and 61-290 are available.

All classifications are based on Shelby logs.

All outside concrete surfaces (below elevation to be Class "D" Interior formed surfaces at discharge chamber and conduit shall have Class "B" Finish

"Guard Posts shall have a reflector button on front, and shall extend 2'-6" below ground surface."



LONGITUDINAL SECTION

ALONG CENTER LINE OF CONDUIT

SCALE: 1 INCH = 20 FEET

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE.

CORPS OF ENGINEERS
U. S. ARMY
DISTRICT ENGINEER
FORT WORTH, TEXAS

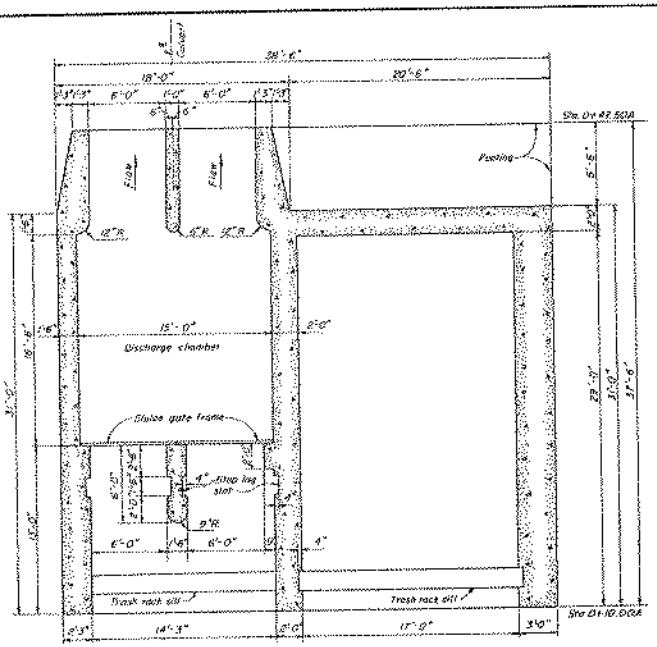
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT

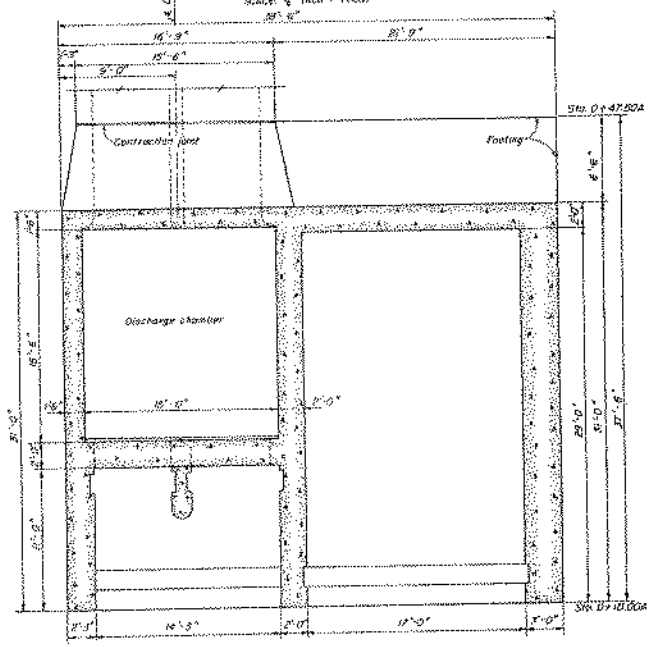
PLAN, ELEVATIONS, SECTION AND BORINGS

NOTE:
ALL DIMENSIONS ARE SHOWN IN ACCORDANCE WITH THE U.S. STANDARD SYSTEM OF MEASURES AND THE UNITS OF MEASUREMENT ARE IN ACCORDANCE WITH THE ABOVE SYSTEM.

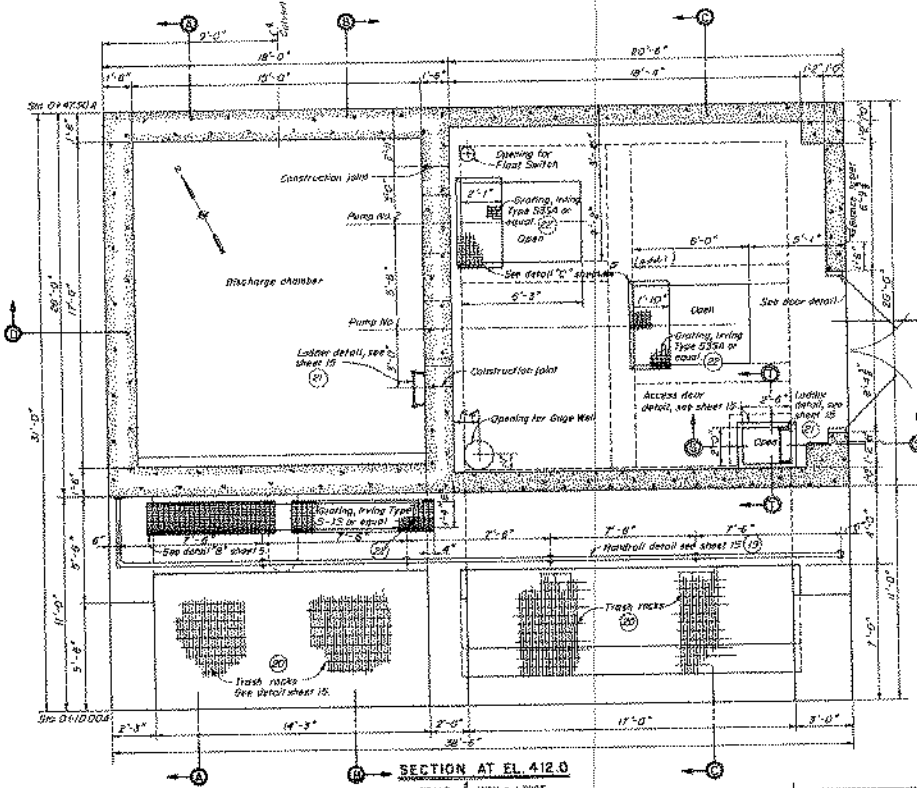
SHEET 3 OF 17 SHEETS



SECTION AT EL. 382.5
SCALE: 1/4 INCH = 1 FOOT



SECTION AT EL. 393.0
SCALE: 1/4 INCH = 1 FOOT



SECTION AT EL. 412.0
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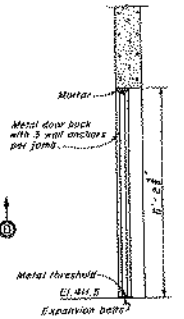
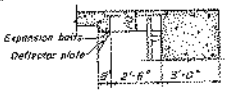
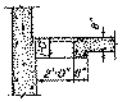


DOOR DETAIL
SCALE: 1/4 INCH = 1 FOOT

TYPICAL CONSTRUCTION JOINT
NO SCALE

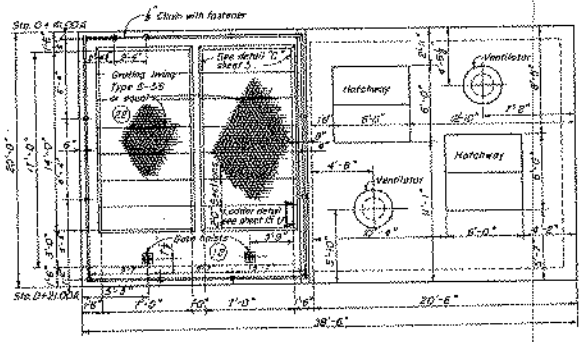


SECTION S-S



SECTION T-T

SCALE: 1/4 INCH = 1 FOOT



ROOF PLAN
SCALE: 1/4 INCH = 1 FOOT

NOTES:
For General Notes see sheet 2.
All concrete shown on this sheet will be paid for under pay item (5).
All exposed corners shall have 3/4" chamfer.

NOTE:
ALL OPERATIONS PERFORMED IN ACCUMULATED [illegible]

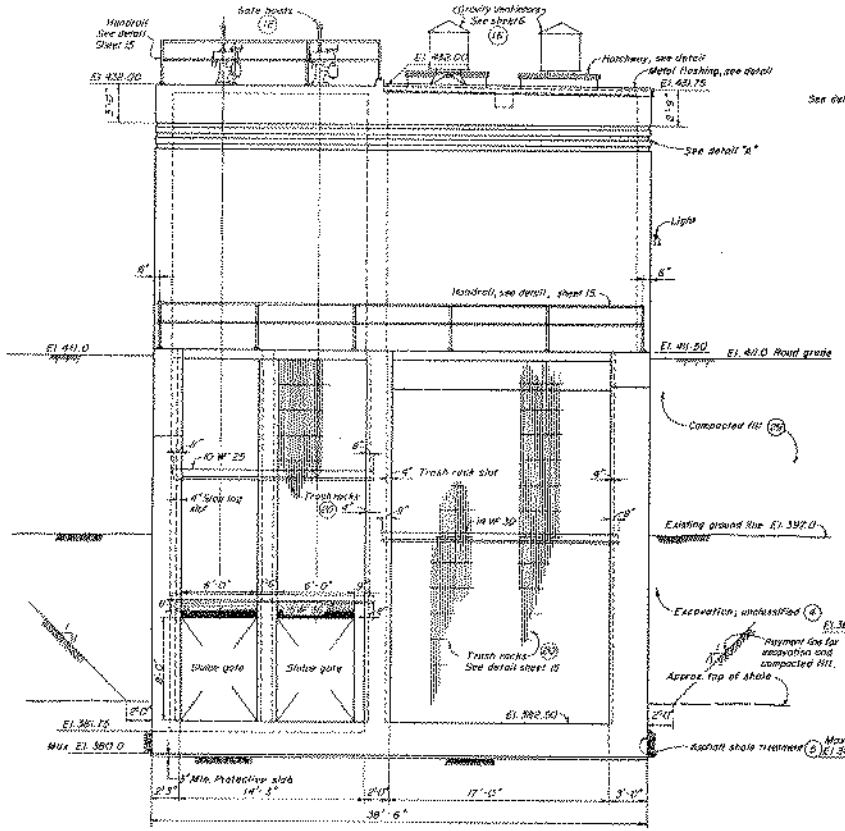
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE.

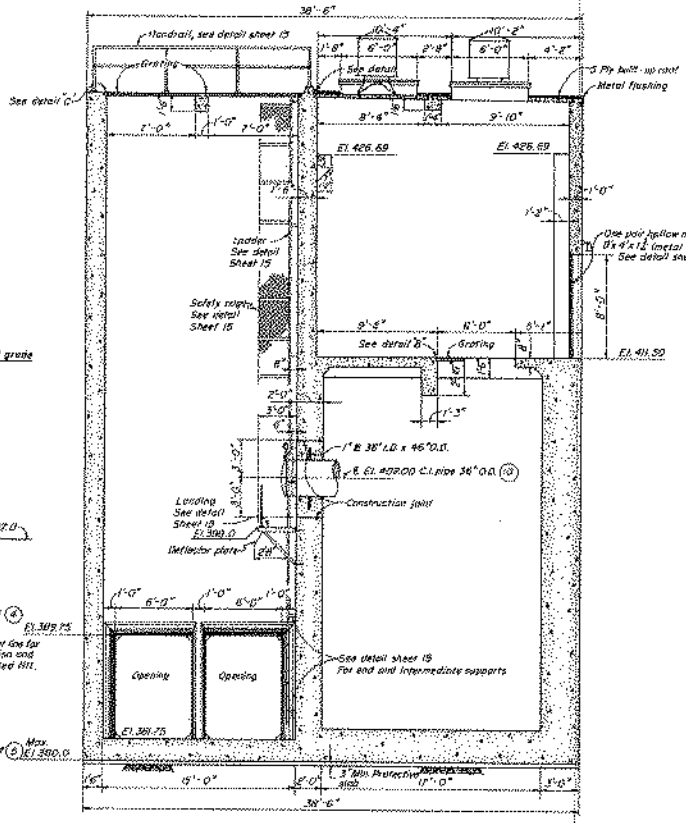
CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

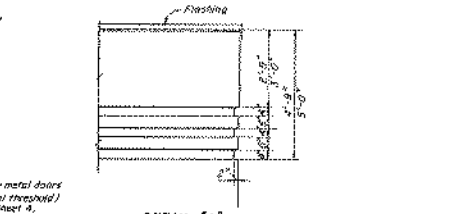
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

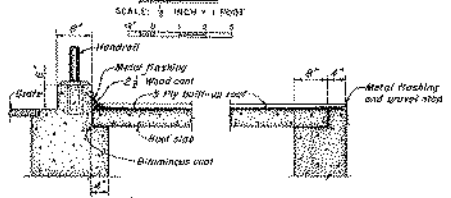
PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
PLAN AND SECTIONS-MASONRY

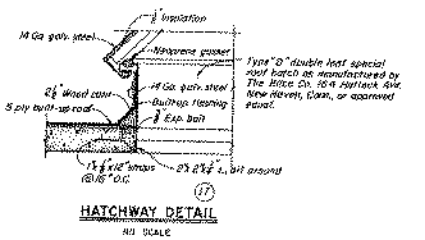
DESIGNED BY: L.P.S.
DRAWN BY: W.L.G.
CHECKED BY: [illegible]
SUBMITTED BY: [illegible]
RECOMMENDED: [illegible]
APPROVED: [illegible]
DIVISION ENGINEER: [illegible]
DATE: JULY 31, 1954
DATE APPROVED: JULY 31, 1954
CONTRACT NO. DA-41-443-ENG-55
SHEET 4 OF 17
FILE NO. 260-D

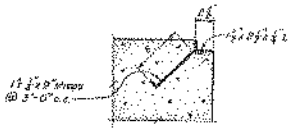


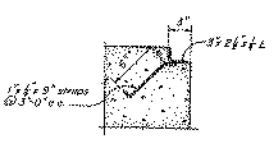












NOTES:
For General Notes see sheet 2.
All concrete shown on this sheet will be paid for under pay item (6).
For typical construction joint see sheet 4.

NOTE:
ALL DIMENSIONS AND FORMS IN ACCORDANCE WITH THE LATEST EDITION OF THE COPY OF ENGINEERS MANUAL "CONCRETE MONUMENTS" AND THE CONTRACT SPECIFICATIONS.

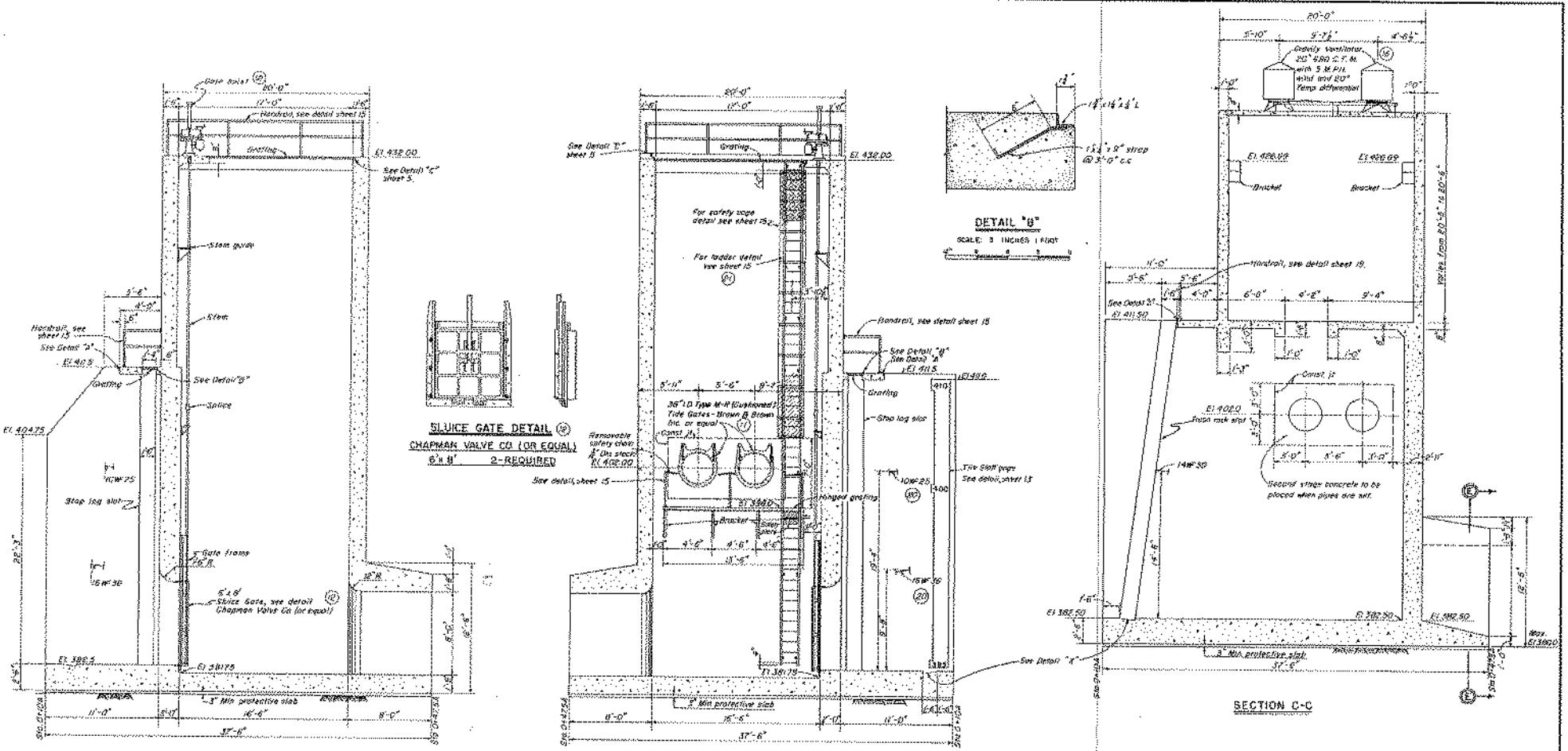
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE.

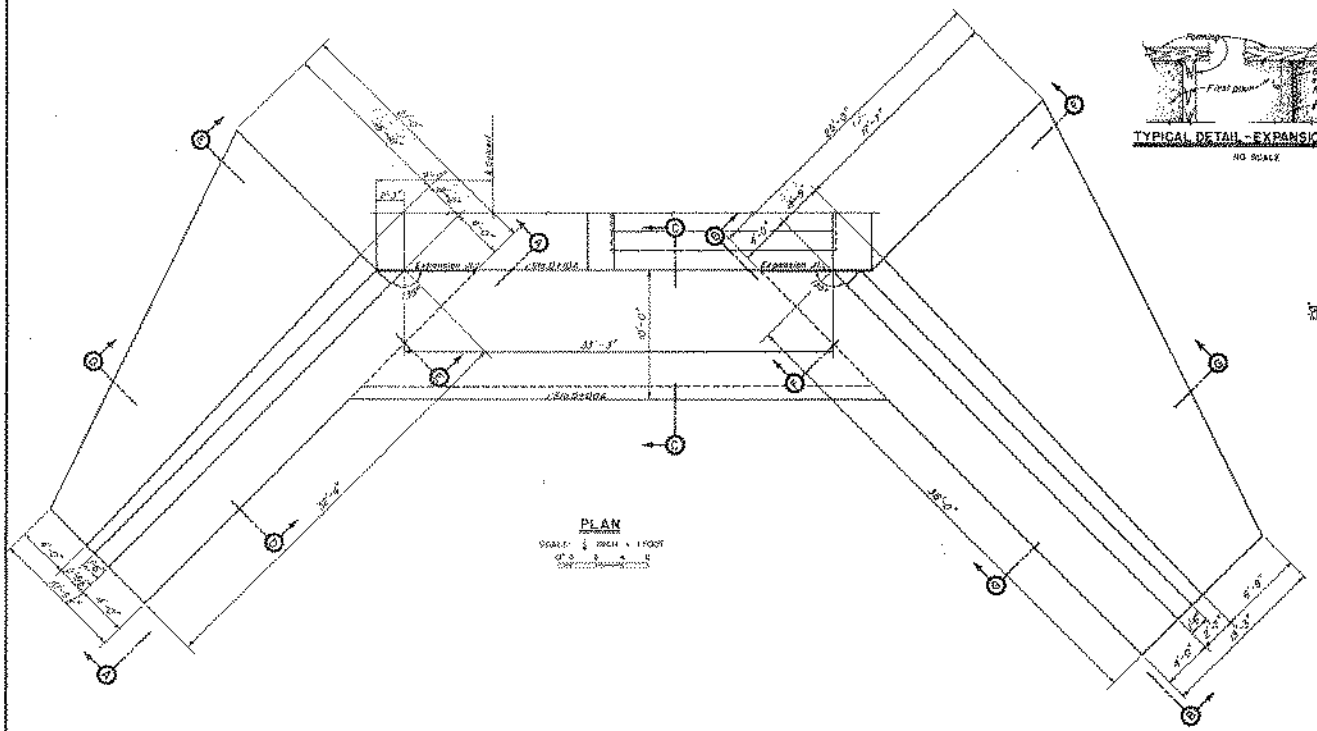
CORPS OF ENGINEERS
U. S. ARMY
DISTRICT OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
ELEVATION, SECTION, DETAILS-MASONRY

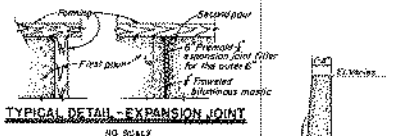
U.S.G.S. H.L.W.
MEAN SEA LEVEL DATUM OF 1929
H.L.O.
DESIGNED BY: C.E. Gladden
DRAWN BY: C.E. Gladden
CHECKED BY: C.E. Gladden
SUBMITTED BY: C.E. Gladden
RECOMMENDED BY: C.E. Gladden
APPROVED BY: C.E. Gladden
DATE: 16 AUGUST 1954
SUBMISSION NO. GIVENS NO. 443-54-55
SHEET 9 OF 17 SHEETS
FILE NO. TRIN. 265-D


Gate hoist
Handrail, see detail sheet 15
Grating
El 432.00
See Detail "C" sheet 5
Stem guide
Stem
Handrail, see sheet 15
See Detail "A"
El 410.5
See Detail "B"
Splice
El 404.75
Stop log slot
5' Gate frame
5'-6" Slide Gate, see detail Chapman Valve Co (or equal)
El 386.5
El 381.75
3' Min protective slab
11'-0"
16'-6"
8'-0"
37'-6"
See Detail "A" sheet 15
See Detail "C" sheet 15
SLUICE GATE DETAIL
CHAPMAN VALVE CO (OR EQUAL)
6'H 8' 2-REQUIRED
See detail sheet 15
Removable safety chain 1" Dia stock
El 408.00
Const. jt.
36" I.D. Type M-R (Reinforced) Tide Gates - Brown & Brown Inc. or equal
Hinged grating
Stop log slot
Trash guard
See detail sheet 13
Bracket
Safety ladder
El 396.0
El 381.75
3' Min protective slab
See Detail "A" sheet 15
See Detail "B" sheet 8
See Detail "A"
Handrail, see detail sheet 15
See detail sheet 15
For safety cage detail see sheet 15
For ladder detail see sheet 15
DETAIL "B"
SCALE: 3 INCHES = 1 FOOT
1" x 1/4" x 2 1/2" L
1 1/4" x 8" strap @ 3'-0" c.c.
Gravity Ventilator 20" ø 490 C.F.M. with 5 M.P.H. wind and 20° Temp. differential
El 408.08
El 408.09
Bracket
Handrail, see detail sheet 19
See Detail 2
El 411.50
Const. jt.
El 400.0
Finish rock slope
14WF30
Varies from 20'-6" to 20'-6"
Secure strap concrete to be placed when plates are set.
El 386.50
El 382.50
Max. El 382.0
3' Min protective slab
37'-6"
See Detail "A"
SECTION C-C
NOTES
For General Notes see sheet 2.
All concrete shown on this sheet will be paid for under pay item (E)
For typical construction joint see sheet 3.
SECTION A-A
Varies from 1'-6" to 2'-6"
Excavation, unclassified
Compacted fill
Pavement line for excavation and compacted fill
Approx. top of slope
Asphalt shore treatment
SECTION B-B
SCALE: 1/4 INCH = 1 FOOT
Varies from 1'-0" to 2'-6"
El Varies
Max. El 380.00
3' Min protective slab
SECTION E-E
1"x1/2" C
2"x1/2" Bolt and washers
Shot weld
Trash rack
DETAIL "A"
DETAIL "X"
NO SCALE
6" Pavement
1/2" x 2" x1'-6" Anchor straps 3'-0" c.c.
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE
CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS
PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
SECTIONS-MASONRY
DESIGNED BY
DRAWN BY
CHECKED BY
TRACED BY
RECOMMENDED
APPROVED
Chief, Engineering Division
Chief, Design Section
Chief, Engineering Branch
SCALE AS SHOWN
JUNE 1954
INSTALLATION NO. CIVD-54-61-443-54-13
SHEET 6 OF 17
FILE NO. TRIN 255-8
NOTE:
ALL OPERATIONS PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE CORPS OF ENGINEERS MANUAL "SAFETY REQUIREMENTS" AND THE CONTRACT SPECIFICATIONS.



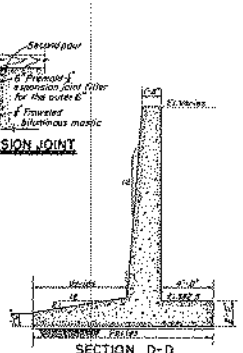
PLAN

SCALE: 1/8 INCH = 1 FOOT



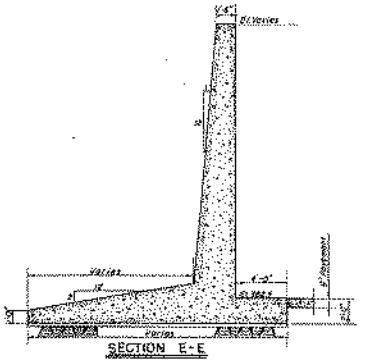
TYPICAL DETAIL - EXPANSION JOINT

NO SCALE



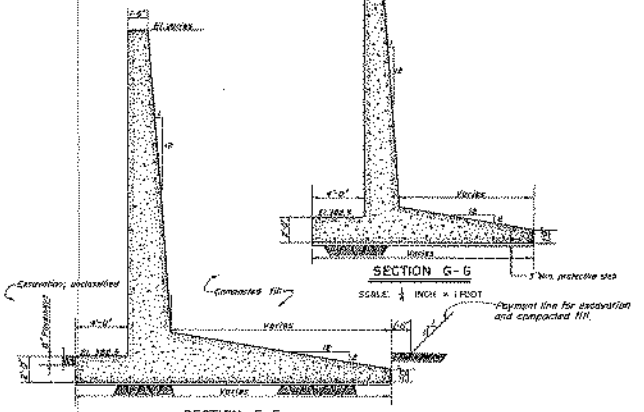
SECTION D-D

SCALE: 1/4 INCH = 1 FOOT



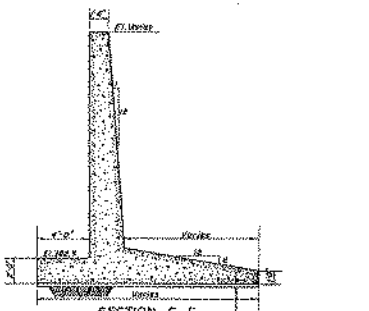
SECTION E-E

SCALE: 1/4 INCH = 1 FOOT



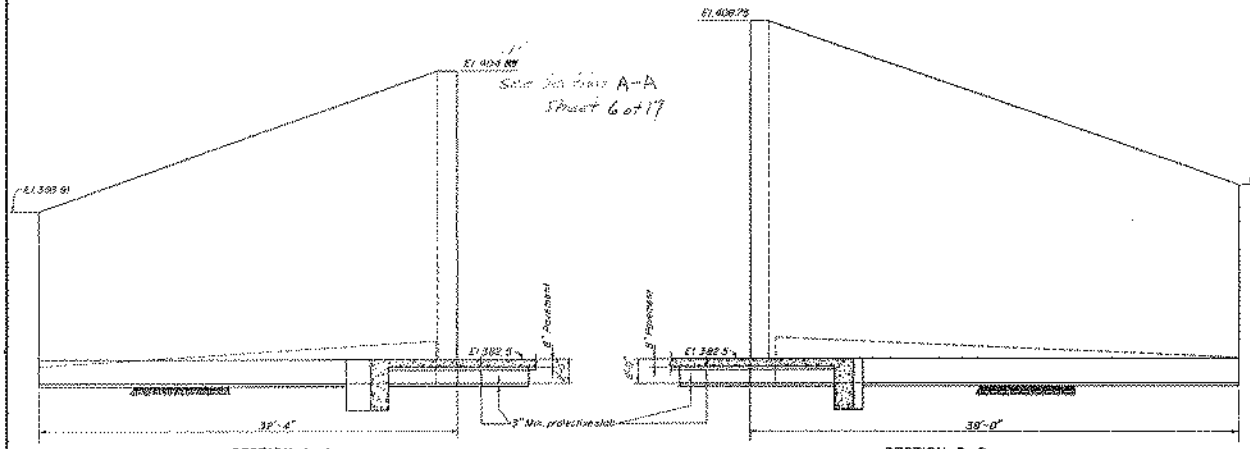
SECTION F-F

SCALE: 1/4 INCH = 1 FOOT



SECTION G-G

SCALE: 1/4 INCH = 1 FOOT

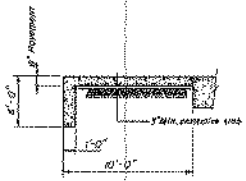


SECTION A-A

SCALE: 1/4 INCH = 1 FOOT

SECTION B-B

SCALE: 1/4 INCH = 1 FOOT



SECTION C-C

SCALE: 1/4 INCH = 1 FOOT

NOTES

For General Notes see sheet 2.

All concrete shown on this sheet will be paid for under pay item (6)

For typical construction joint see sheet 4

NOTE:
ALL EXCAVATING PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE CORPS OF ENGINEERS "GENERAL SAFETY REQUIREMENTS" AND THE DISTRICT SPECIFICATIONS.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

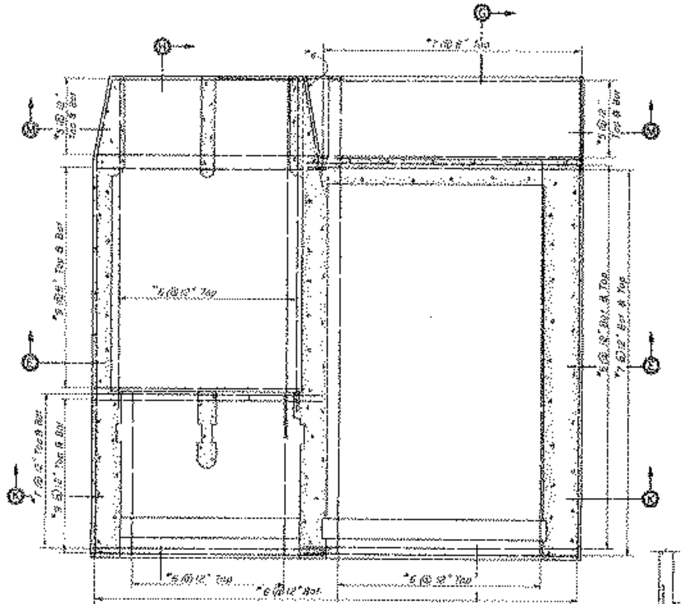
REVISIONS	DATE	DESCRIPTION	BY

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

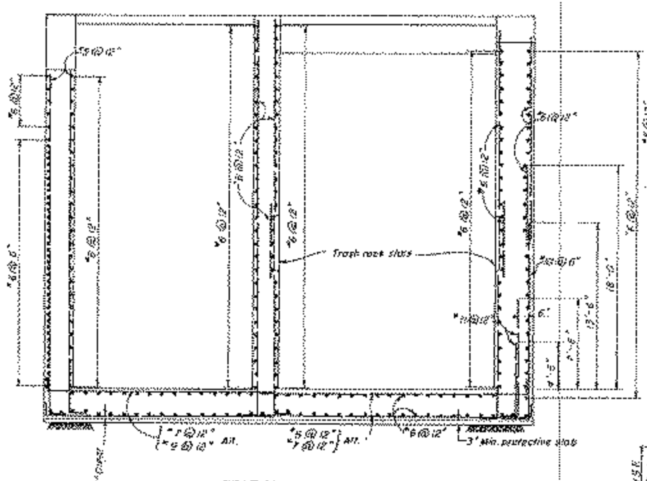
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
WINGWALLS — MASONRY

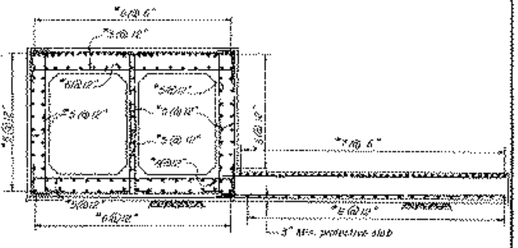
APPROVED	RECOMMENDED
Col. Corps of Engineers, District Engineer	Chief, Engineering Division
SCALE AS SHOWN	SUBMITTED JUNE 1951
DIVISION NO. DIVISION, SWD-552-54-22	
SHEET 7 OF 17 SHEETS	FILE NO. TRIN. 265-R



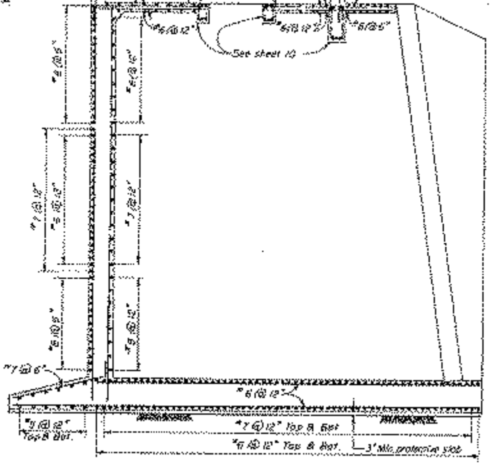
PLAN BASE - REINF.



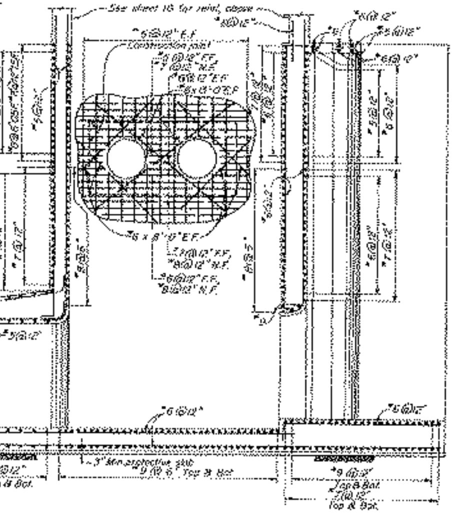
SECTION K-K



SECTION M-M



SECTION G-G



SECTION H-H

NOTES:

For General Notes see sheet 2.

All reinforcing steel shown on this sheet will be paid for under pay item ⑥.

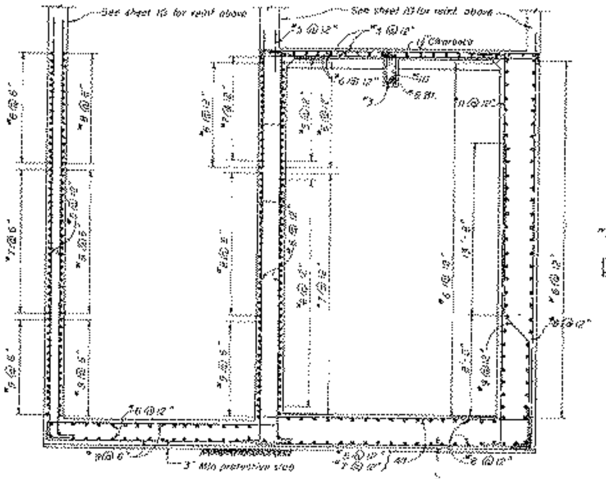
All reinforcement shall have a 3" cover unless otherwise shown.

All hooks shall be made around a pin of 6 bar diameters.

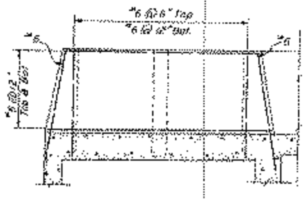
All bars shall be bent cold. Stirrup and tie bars shall be bent around a pin of 2 bar diameters.

Bar extensions and splices shall have an overlap of 20 bar diameters.

90° bends shall have a radius of 4 bar diameters.



SECTION E-E



PLAN - REINF.
CULVERT TRANSITION

SCALE: ⅛ INCH = 1 FOOT

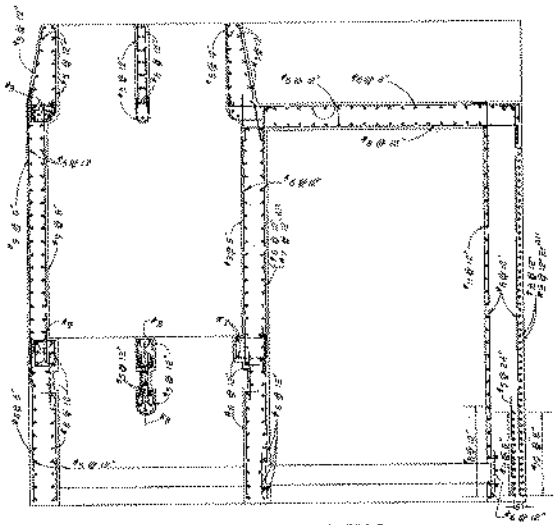
NOTE:
ALL OPERATIONS PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE CHIEF OF ENGINEERS' MANUAL "SAFETY REQUIREMENTS" AND THE CONTRACT SPECIFICATIONS.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

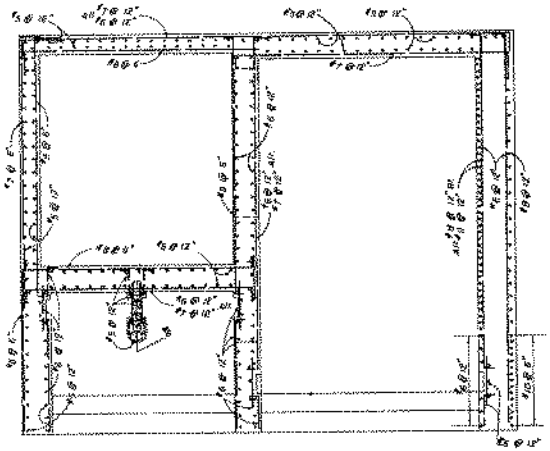
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS
PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
PLAN AND SECTIONS - REINFORCEMENT

SCALE: AS SHOWN
INVITATION NO. CIVENG 41-443-56-85
SHEET 8 OF 17



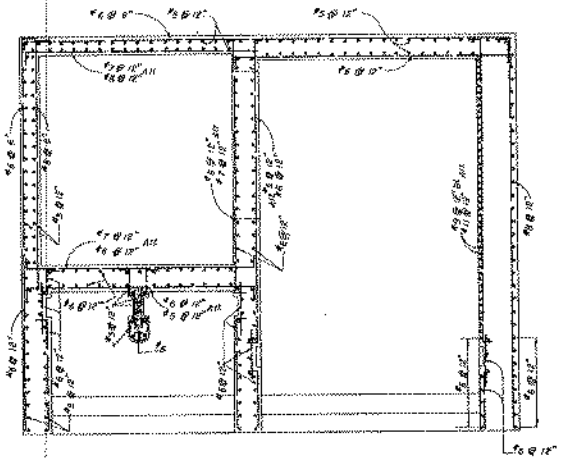
SECTION EL. 382.5 TO EL. 390.5

SCALE: 1/8 INCH = 1 FOOT



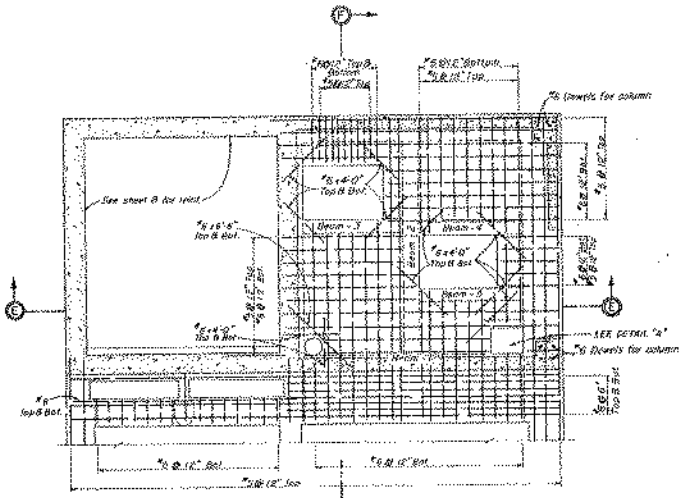
SECTION EL. 390.5 TO EL. 401.5

SCALE: 1/8 INCH = 1 FOOT



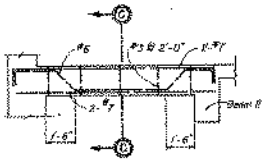
SECTION EL. 401.5 TO EL. 410.83

SCALE: 1/8 INCH = 1 FOOT



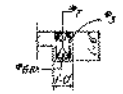
DECK PLAN EL. 418.5

SCALE: 1/8 INCH = 1 FOOT



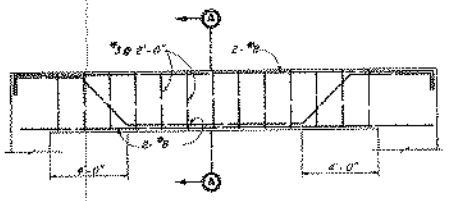
BEAM 3

SCALE: 3/8 INCH = 1 FOOT



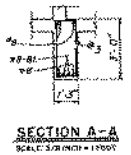
SECTION C-C

SCALE: 3/8 INCH = 1 FOOT



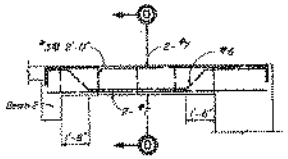
BEAM 1

SCALE: 3/8 INCH = 1 FOOT



SECTION A-A

SCALE: 3/8 INCH = 1 FOOT

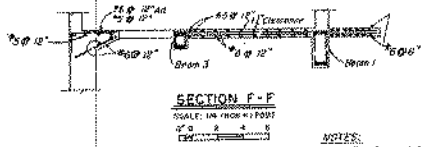


BEAM 4 & 5

SCALE: 3/8 INCH = 1 FOOT

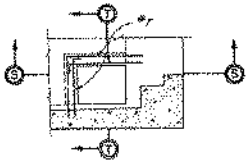
SECTION D-D

SCALE: 3/8 INCH = 1 FOOT



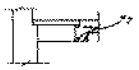
SECTION F-F

SCALE: 1/8 INCH = 1 FOOT



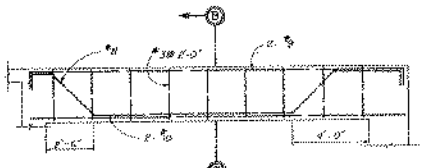
DETAIL A

SCALE: 3/8 INCH = 1 FOOT



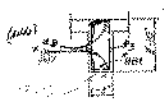
SECTION T-T

SCALE: 3/8 INCH = 1 FOOT



BEAM 2

SCALE: 3/8 INCH = 1 FOOT



SECTION B-B

SCALE: 3/8 INCH = 1 FOOT

SECTION S-S

SCALE: 3/8 INCH = 1 FOOT

NOTES:

For General Notes see sheet 8.

All reinforcing steel shown on this sheet will be paid for under pay item 611

See sheet 3 for Section F-F.

For notes on reinforcing steel see sheet 8.

NOTE:

ALL DIMENSIONS PERTAINING TO ACCOMPLISHMENT FROM WORK SHALL BE SHOWN BY ACCURATELY NOTED TIME APPROPRIATE PROGRAMS OF THE CORPS OF ENGINEERS MANUAL "OFFICE ENGINEERING" AND THE CONTRACT SPECIFICATIONS.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

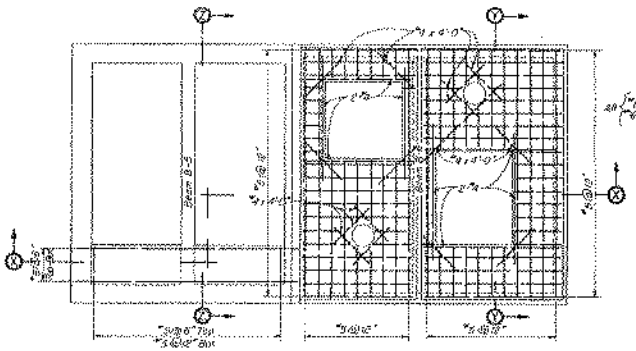
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
PLAN, SECTIONS AND DETAIL-REINFORCEMENT

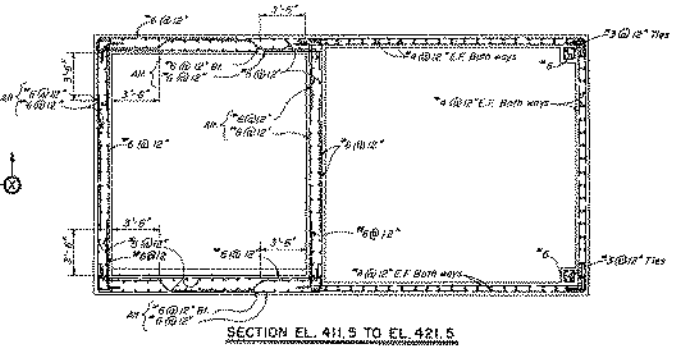
DRAWN BY: L.A.S.
CHECKED BY: L.A.S.
APPROVED BY: 10-1-53
CORRECTED BY:
TRACED BY:

RECOMMENDED: L. A. Stidd, Chief, Engineering Division
APPROVED: [illegible], Lt. Col., C.E., District Engineer

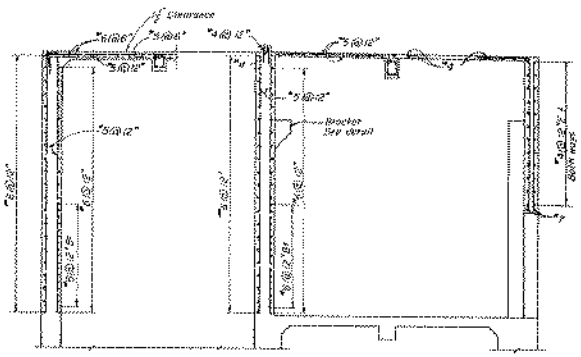
OFFICIAL IN CHARGE: [illegible], Chief, Structural Design
WORK AS SHOWN: [illegible] JUNE 1954
INVITATION NO. CIVENG. 51-465-54-52
SHEET 9 OF 17 SHEETS
FILE NO. FTW. 245-A



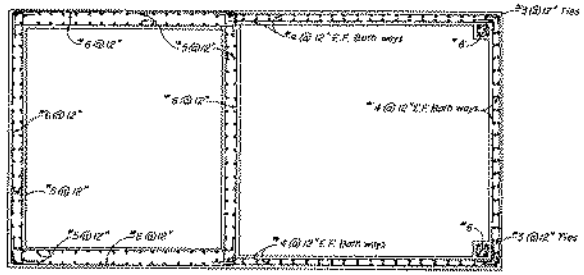
REINF. PLAN - ROOF



SECTION EL. 411.5 TO EL. 421.5

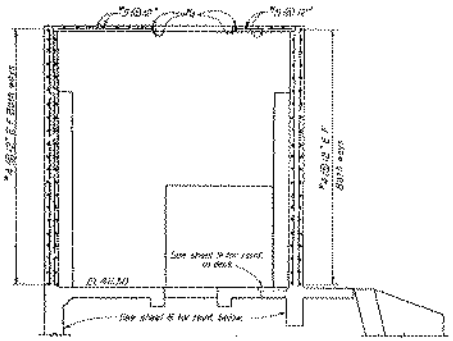


SECTION X-X

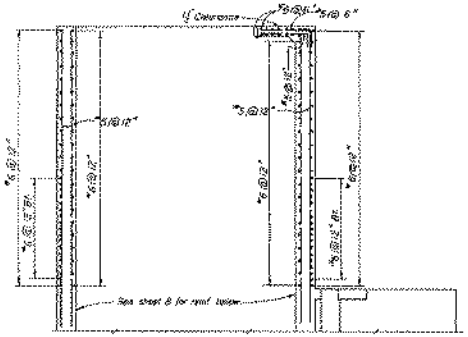


SECTION EL. 421.5 TO TOP

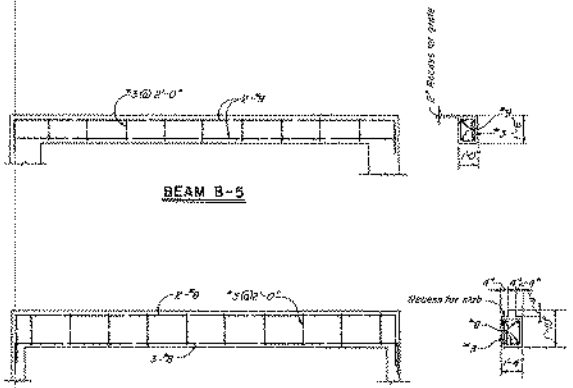
SCALE: ½ INCH = 1 FOOT



SECTION Y-Y

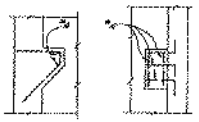


SECTION Z-Z



BEAM B-5

BEAM B-6



BRACKET DETAIL

SCALE: ½ INCH = 1 FOOT

NOTES:

For General Notes see sheet 2.

All reinforcing steel shown on this sheet will be paid for under pay item (6).

For notes on reinforcing steel see sheet 8.

NOTE:
ALL OPERATIONS PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION" AND THE CONTRACT SPECIFICATIONS.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE.

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

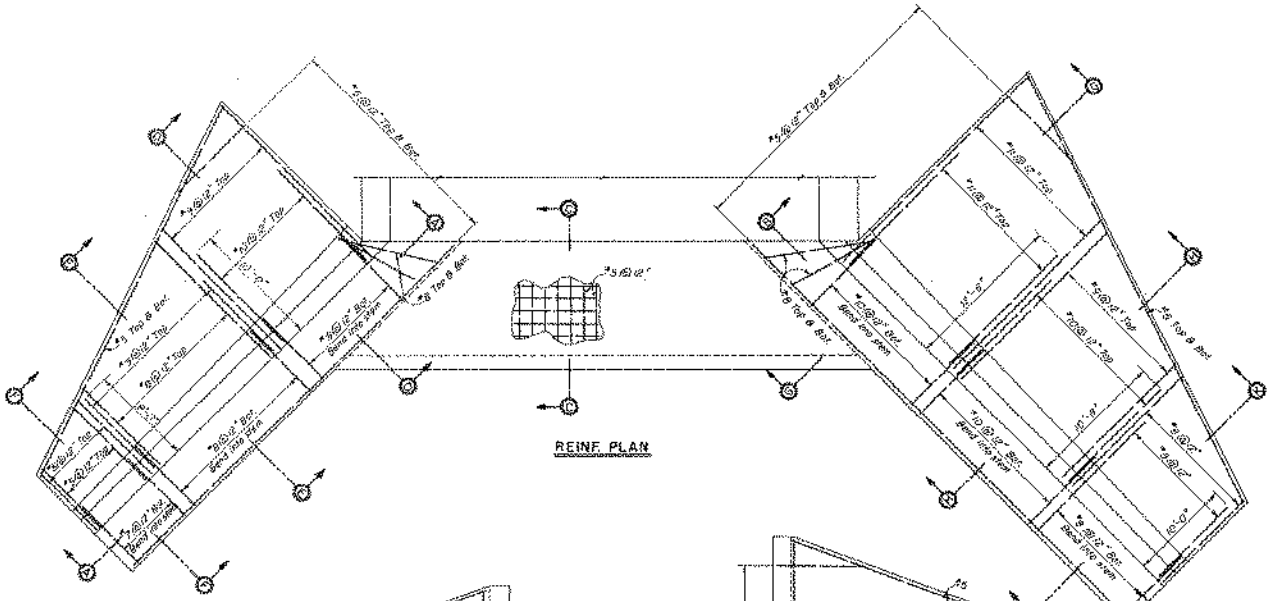
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
PLAN, SECTIONS, DETAILS - REINFORCEMENT

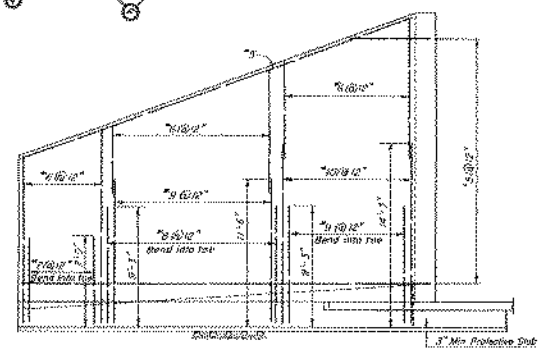
DATE AS SHOWN: FEBRUARY, JUNE 1954

DRAWING NO. (OFFICE) 41-443-55-150

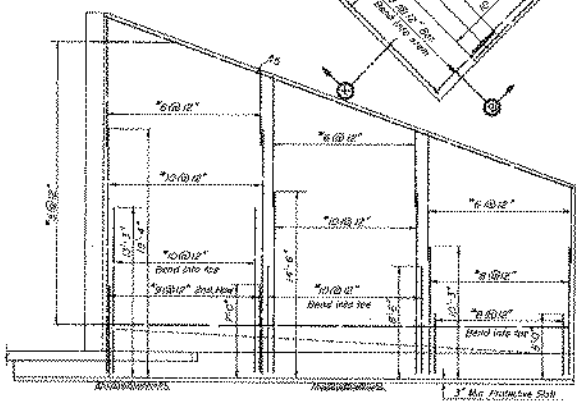
SHEET 10 OF 57 FILE NO. TRIN-285-8



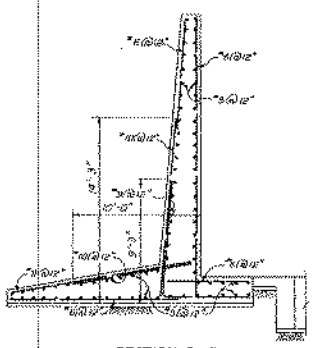
REINF. PLAN



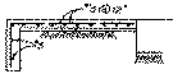
SECTION A-A REINF. IN FAR FACE



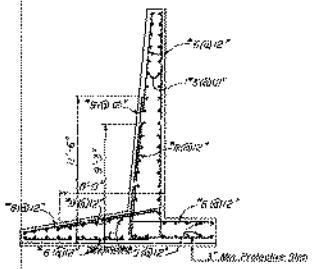
SECTION B-B REINF. IN FAR FACE



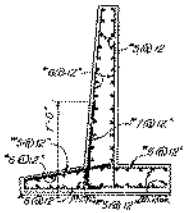
SECTION D-D



SECTION C-C



SECTION E-E



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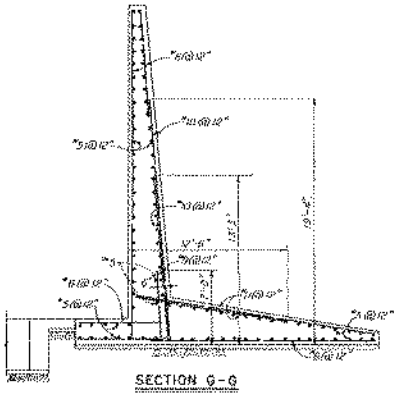

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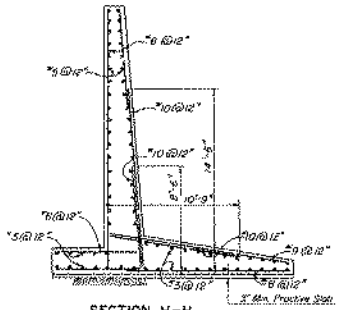
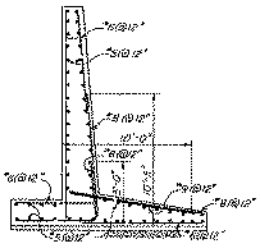


SECTION H-H



SECTION K-K

NOTES:

For General Notes see sheet 2.

All reinforcing steel shown on this sheet will be paid for under pay item (6)

For notes on reinforcing steel see sheet 11

NOTE:
ALL ERRORS OR OMISSIONS PERTAINING OR ASSOCIATED WITH THESE WORKS SHALL BE BROUGHT IN ACCORDANCE WITH THE SPECIFICATIONS OF THE SIGNING OR ENGINEERS. ALL SUCH DISCREPANCIES SHALL BE RECONCILED IN ACCORDANCE WITH SPECIFICATIONS.

SCALE: 1/2 INCH = 1 FOOT

0 1 2 4 6

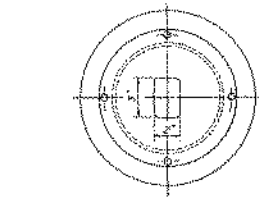
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE.

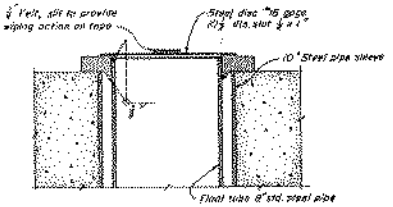
CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
WINGWALLS - REINFORCEMENT

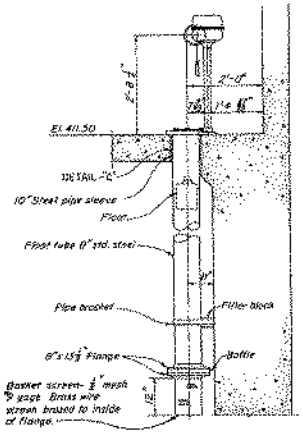
DESIGNED: L.E.P.
DRAWN: N.L.G.
CHECKED: L.E.P.
SUBMITTED: L.E. Pinkston
RECOMMENDED: [illegible]
APPROVED: [illegible]
CHIEF, ENGINEERING DIVISION
APPROVED: [illegible]
CHIEF, ENGINEERING DIVISION
SPECIFICATIONS: [illegible]
CHIEF, CONSTRUCTION BRANCH
ISSUED BY: SHEPPARD
SPEC. PAGE (JOINT): 195-0
INVITATION NO. DACW63-74-B-0030 DATED: 3-4-74
SHEET 11 OF 17 SHEETS
USCE-ORTHO 7065-48





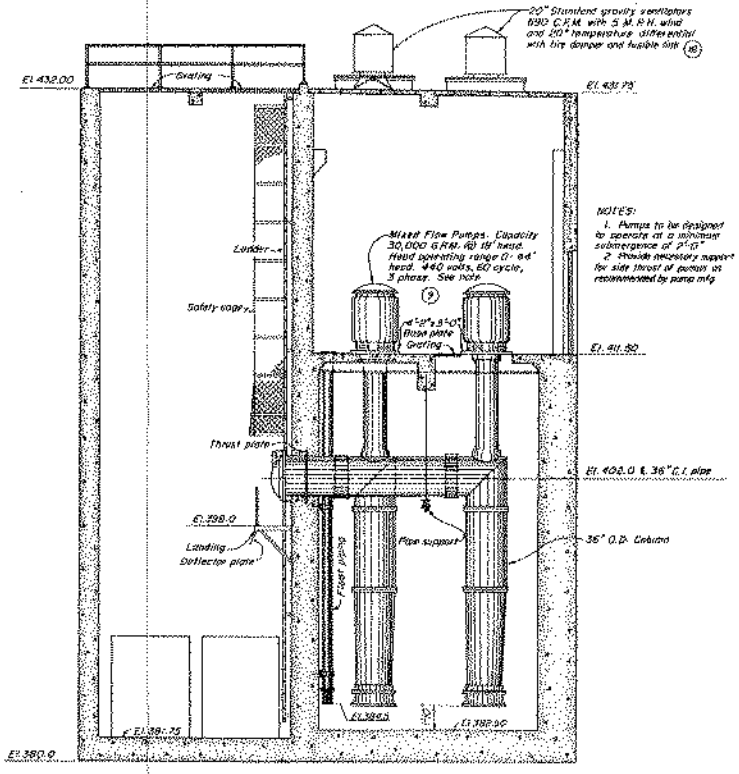
DETAIL "C"

SCALE: ½ INCH = 1 FOOT



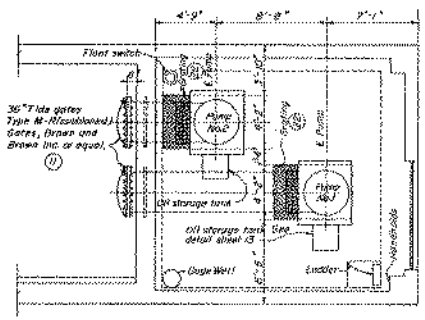
FLOAT SWITCH

SCALE: ½ INCH = 1 FOOT



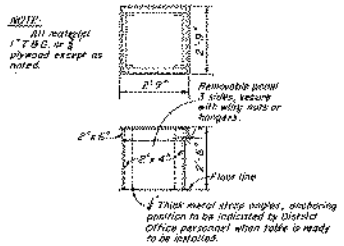
ELEVATION

SCALE: ½ INCH = 1 FOOT



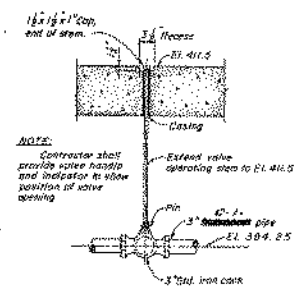
PLAN

SCALE: ½ INCH = 1 FOOT



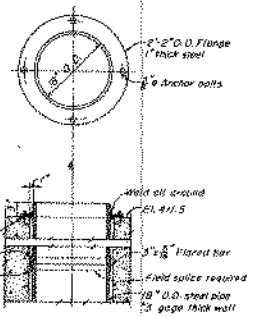
DETAIL OF TABLE FOR GAGE

SCALE: ½ INCH = 1 FOOT



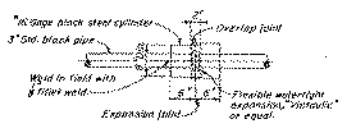
DETAIL "A"

SCALE: 1 INCH = 1 FOOT



GAGE WELL PIPE INSTALLATION

SCALE: 1 INCH = 1 FOOT



COUPLING DETAIL AT EXPANSION JOINT

SCALE: 1 INCH = 1 FOOT

NOTES:

For General Notes see sheet 2.

NOTE:

ALL OPERATIONS PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE CODE OF FEDERAL REGULATIONS, SAFETY REQUIREMENTS AND THE CONTRACT SPECIFICATIONS.

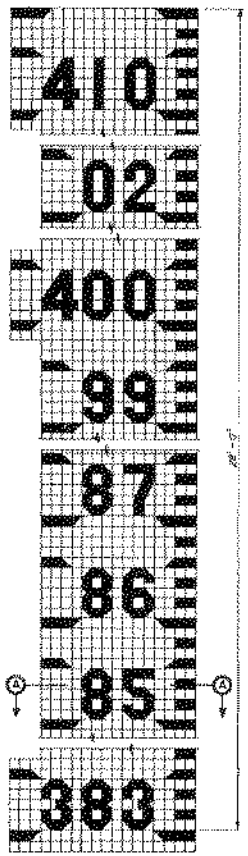
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

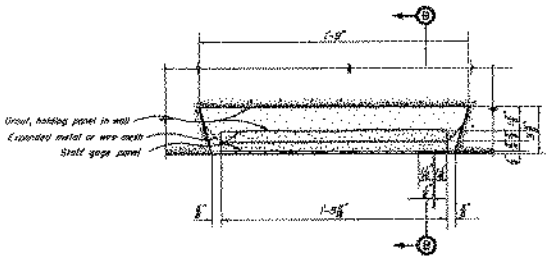
PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
MECHANICAL DETAILS

SUBMITTED BY: C. C. Adams
RECOMMENDED: [illegible]
APPROVED: [illegible]
DATE APPROVED: JUNE 1964
SCALE AS SHOWN
DRAWING NO. CWENG 41-441-D4-D5
SHEET 12 OF 17
FILE NO. TRIN. 855-8



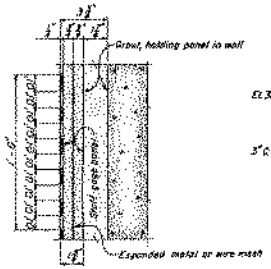
TILE STAFF GAGE

NO SCALE



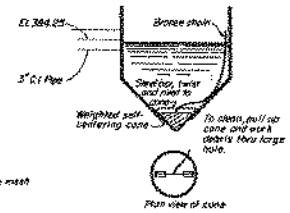
SECTION A-A

SCALE: 3 INCHES = 1 FOOT

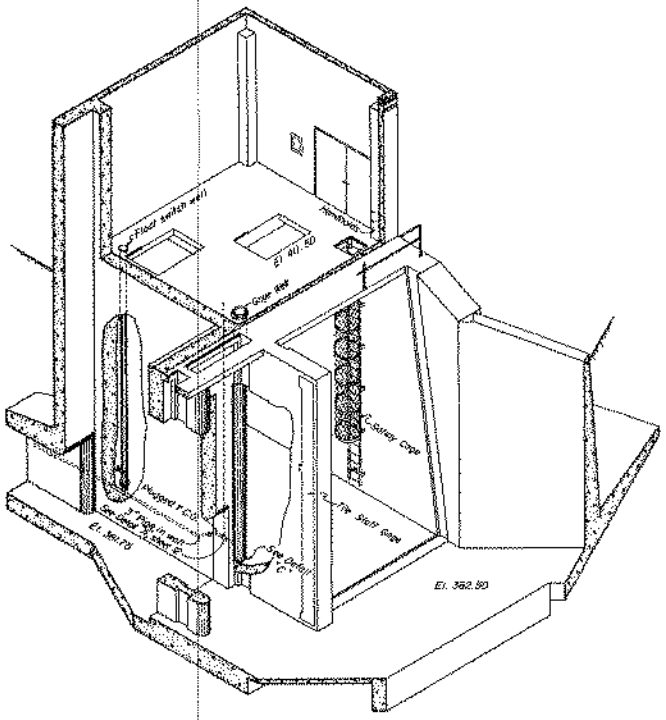


SECTION B-B

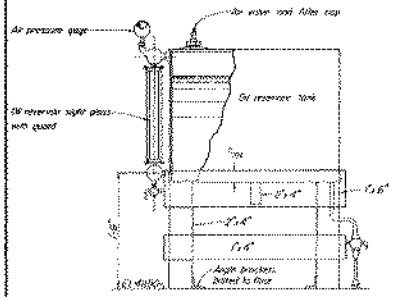
SCALE: 3 INCHES = 1 FOOT



DETAIL "C"

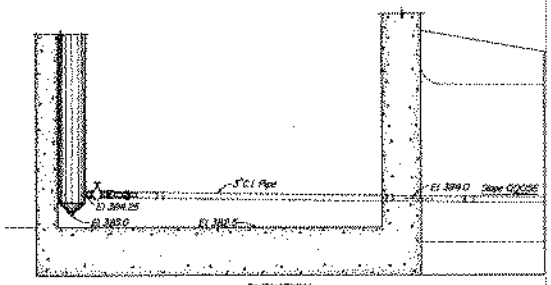


ISOMETRIC VIEW



STAND FOR OIL STORAGE TANK

NO SCALE



ELEVATION

PLAN

3" PIPE TO GAGE WELL

SCALE: 3/8 INCH = 1 FOOT

NOTES:

See General Notes on sheet 5.
For gage well details see sheet 12.

NOTE:
AS OPERATIVE EXPERIENCE IN ACCORDANCE
THIS WORK IS ... IN ACCORDANCE WITH
THE ABOVE ... BY THE CORPS OF
ENGINEERS, U.S. ARMY, ENVIRONMENTAL
AND THE CORPS OF ENGINEERS.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

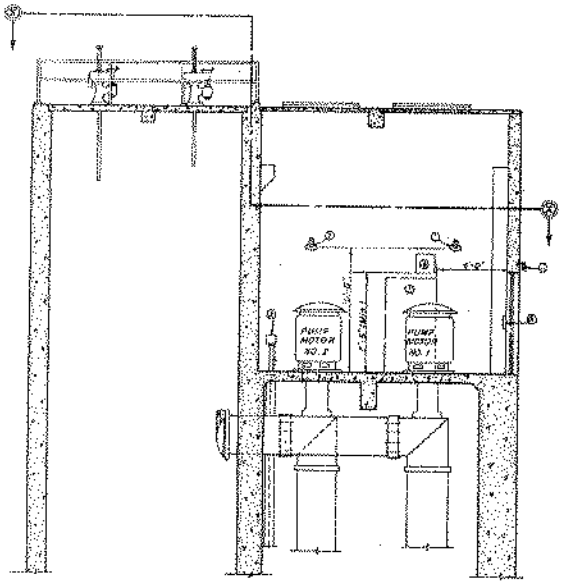
CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
MECHANICAL DETAILS

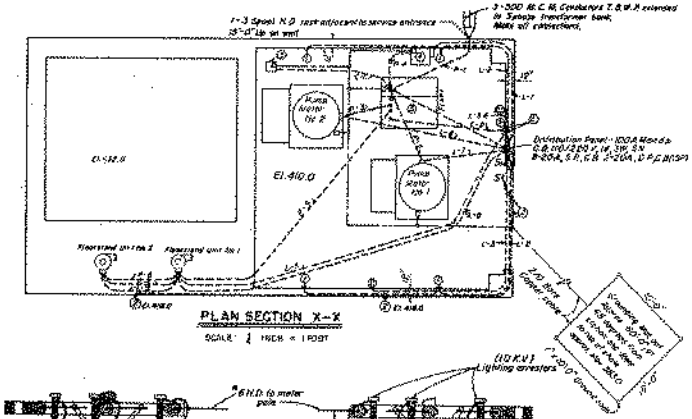
DESIGNED BY: J.E.R.
TRACED BY: B.L.G. - W.B.R.
CHECKED BY: R.L.H. - E.P.S.
SUBMITTED BY: Chief, Engineering Division
RECOMMENDED: Chief, Engineering Division
APPROVED FOR THE DISTRICT ENGINEER: Chief, Engineering Division
DRAWING: H.K. Hollis, Chief, Design Branch

AS BUILT
ENG. DWG. JUNE 1961
IDENTIFICATION NO. GIVEN NO. SWD-448-56-55
SHEET 13 OF 17
FILE NO. FTWDK 385-M



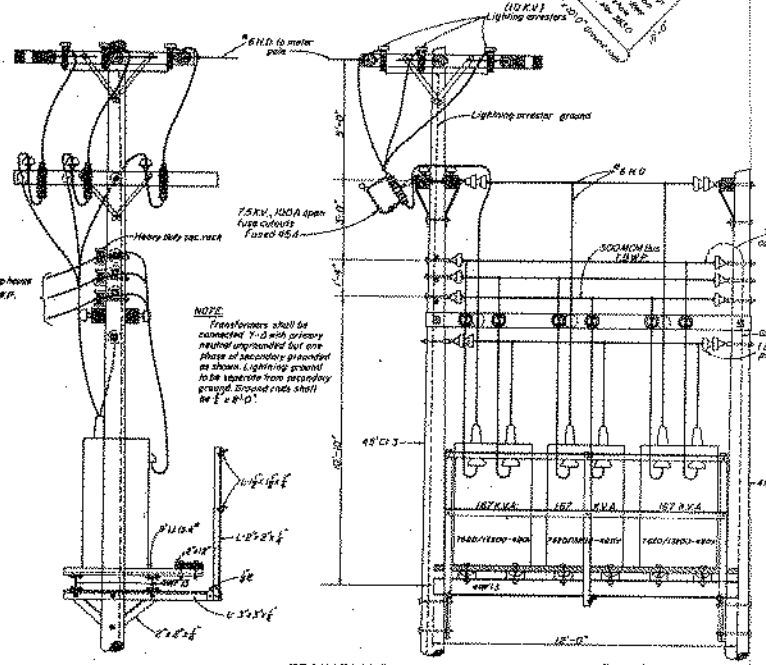
SECTIONAL VIEW

SCALE: ½ INCH = 1 FOOT



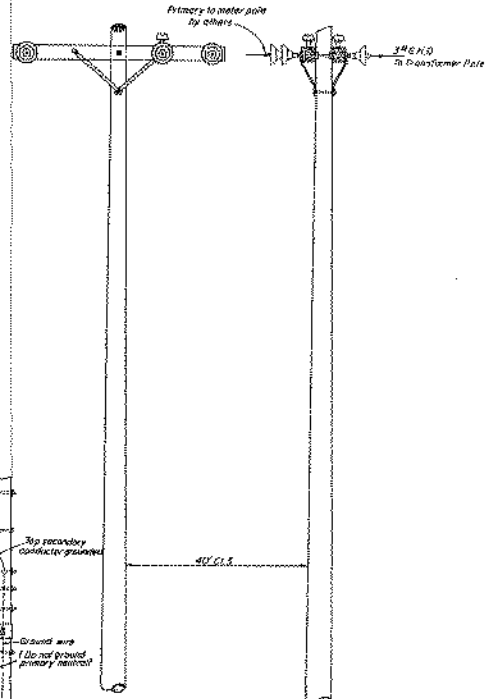
PLAN SECTION X-X

SCALE: ½ INCH = 1 FOOT



TRANSFORMER POLE RACK DETAIL

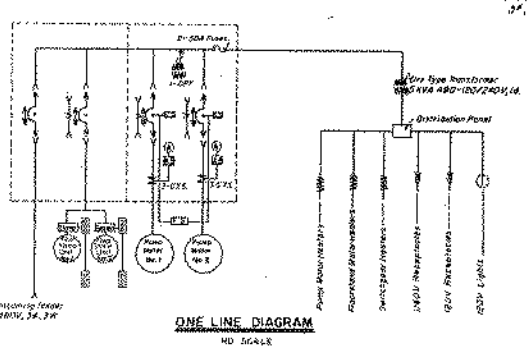
SCALE: ½ INCH = 1 FOOT



METER POLE

NO SCALE

NOTE: Metering equipment and connections by others.



ONE LINE DIAGRAM

NO SCALE

NOTE: Transformers shall be connected Y-Δ with primary neutral ungrounded but one phase of secondary grounded as shown. Lighting ground to be separate from secondary ground. Ground rods shall be 1" x 8'-0".

Service drops to pump house 3-500 M.C.M.-T.B.W.P., 3 Ø, 3 W, 480 V.

(10 KV) Lighting arresters

6 H.D. to meter pole

Lightning arrester ground

7.5 KV, 100 A open type cutouts Fused 65 A

Heavy duty pole rack

500 MCM Bus T.B.W.P.

3Ø secondary conductor grounded

Ground wire (Do not ground primary neutral)

167 K.V.A. 167 K.V.A. 167 K.V.A.

7620/13200-480 V. 7620/13200-480 V. 7620/13200-480 V.

40' Cl. 3

45' Cl. 3

48' Cl. 3

12'-0"

Primary to meter pole by others

3Ø 6 H.D. To Transformer Pole

40' Cl. 5

NOTES:

1 All wiring shall be in rigid conduit.
2 Receptacles shall be mounted 12" above floor.
3 Switches shall be mounted 4'-0" above floor.
4 Height above floor to center of distribution panel shall be 6'-0"
5 Pole counterweights on float cables shall clear floor of substructure upper travel limit of the float.
6 Float switch shall be set in sump motors at elevation 386.32
7 Water heater and heater outlets are to come up to ceiling through rigid iron pipe risers.
8 Fluorescent lights shall be controlled by push buttons located on wall at inside station as well as outside lights shall be placed at each location in radial gates "Open or Closed" positions. Push buttons located inside station to be mounted 4'-0" above floor.
9 Number of conductors in conduit 5-#10 to be increased for control as required.
10 All exterior electrical work will be paid for under payment item No 93.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

POWER & LIGHTING CIRCUIT SCHEDULE

CIRCUIT NO	CONDUIT SIZE	CONDUCTOR SIZE	CONDUCTOR NO	CONDUCTOR VOLTAGE	FROM	TO
E-1	1"	#00	5	440	Service Entrance	440 V. Switchgear Bus
E-2	1½"	#00	3	440	Switchgear	Pump Motor No. 1
E-3	1½"	#00	3	440	Switchgear	Pump Motor No. 2
E-4	1"	#6	3	440	440 V. Switchgear Bus	to Transformer
E-5	3/4"	#6	3	440	Switchgear	Floodgate Unit No. 1
E-6	3/4"	#6	3	440	Floodgate Unit No. 1	Floodgate Unit No. 2
C-1	1½"	#6	See Note 9		Switchgear	Float Switch
C-2	3/4"	#12	2	220	Switchgear	Distribution Station, as req'd.
C-3	1"	#12	2	220	Pushbutton station on wall	Floodgate Unit No. 1
C-4	1"	#12	2	220	Floodgate Unit No. 1	Floodgate Unit No. 2
A-1	1"	#6	3	7620/13200	Y-Side of Transformer	Distribution Panel
L-1	3/4"	#12	2	120	Distribution Panel	Lights
L-2	3/4"	#12	2	120	"	150 W Floodlights
L-3	3/4"	#12	2	120	"	250 W Floodlights
L-4	3/4"	#10	3	120/240	"	Switchgear Heater
L-5	3/4"	#12	2	120	"	Switchgear Heater
L-6	3/4"	#12	2	240	"	Pump Motor No. 2 Heater
L-7	3/4"	#12	2	120	"	Pump Motor No. 1 Heater
L-8	3/4"	#10	2	120	"	Floodgate Motor No. 1 & 2 Heaters

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO	DESCRIPTION	QUANTITY	UNIT AND/OR RATING	REMARKS
1	Lighting Fixture - Wall	4	200 Watt	Weatherproof, for 3/4" conduit or cable
2	Lighting Fixture - Bracket	3	150 Watt	Concrete Bracket Type, Pole or Wall
3	Float Switch	1	Type Required	Mercury-Built On Bar Type, or Equal. Switch to be provided with suitable Type Clamps for Mounting and one 5'-0" Float
4	Dry Type Transformer	1	500 KVA, 1Ø, 60 cycle, 7620/13200 V	Westinghouse, Class 50-1000, Style No. 1699, 2400 or equal
5	Switchgear			See Specifications
6	Pumping Unit Motor	2	To be 440 volt, 3Ø, 60 cycle, squirrel cage induction motor	To be furnished with Pump Unit

LEGEND

- Exposed conduit on walls
- Exposed conduit below floor
- Underground conduit in floor
- Ground cable entrenched in floor and covered
- Item Number See Electrical Equipment Schedule
- 15A, 125V, 2W, 3Pole Pole grounded Single convenience outlet
- 20A, 250V Single convenience outlet (interlocked)
- 10A, 250V, 3 P Switch, Sump pit pumps, lights controlled
- Air circuit breaker, drawout type.
- Relay, overcurrent time and instantaneous.
- Relay, undervoltage time delay
- Control switch.
- Ammeter switch
- Ammeter.
- Control Power Transformer - Suitable rating.
- Pushbutton, Open-Close-Stop with indicating lights.
- Current Transformer - Suitable ratio.
- Float Switch

NOTE: ALL EQUIPMENT AND MATERIALS TO BE ACCOMPANIED BY THE MANUFACTURER'S CERTIFICATE OF INSPECTION AND TEST STATING THAT THE EQUIPMENT OR MATERIALS COMPLY IN ALL RESPECTS WITH THE SPECIFICATIONS.

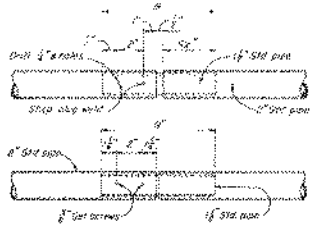
Add. #2	12-23-53	Added Typical Scheme to Plan Section X-X and Junction Box Details	
Revised		Changed Conductors from #6 to #4	B.K.K.
Revised			
Revised			

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
CASE BUILDING, DALLAS, TEXAS

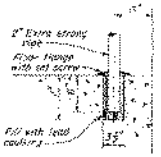
DESIGNED - B.K.K.	TRINITY RIVER AND TRIBUTARIES, TEXAS
DRAWN - B.K.K.	DALLAS FLOODWAY
TRACED - H.E.	TRINITY RIVER, TEXAS
CHECKED - B.K.K.	PAVAHO STREET PUMPING PLANT
QUANTITIES - B.K.K.	INTAKE STRUCTURE
SUBMITTED -	ELECTRICAL DETAILS
RECOMMENDED FOR APPROVAL	APPROVED
Chief, Engineering Division	District Engineer
DATE: 25 MARCH 1954	DATE: JUNE 1954

DRAWING NO. ENGR. D-1443-D-38

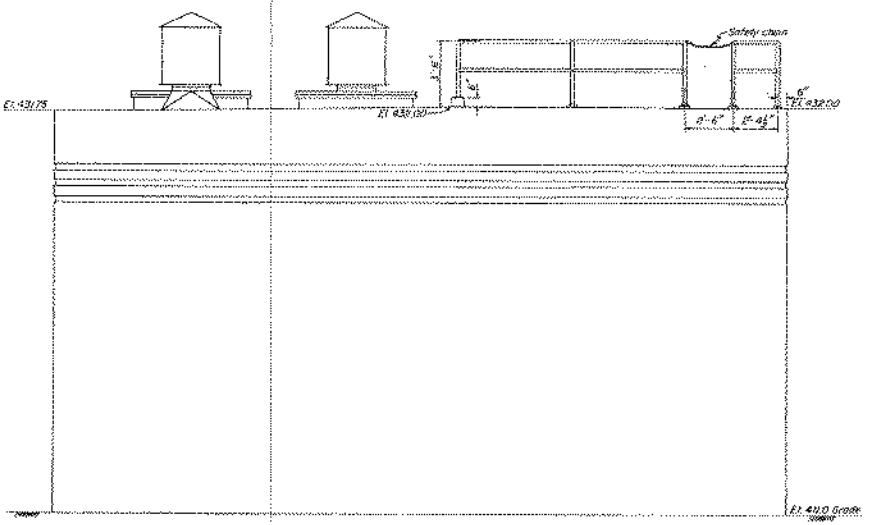
SHEET 14 OF 17 FILE NO. 1106-2-B

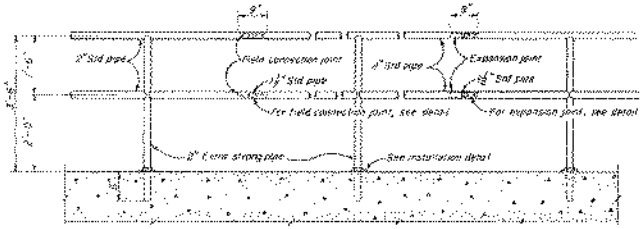


EXPANSION JOINT DETAIL
FIELD CONNECTION DETAIL
HANDRAIL
SCALE: 3 INCHES = 1 FOOT



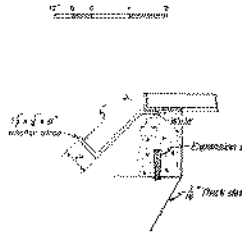
INSTALLATION DETAIL - HANDRAIL
SCALE ½ INCHES = 1 FOOT



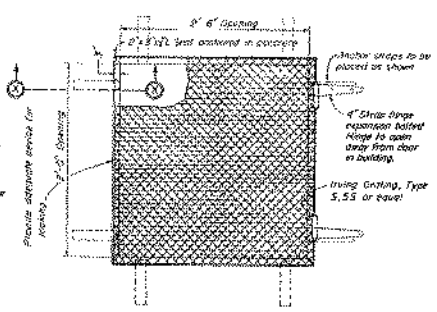


TYPICAL HANDRAIL DETAIL
SCALE: ¾ INCH = 1 FOOT

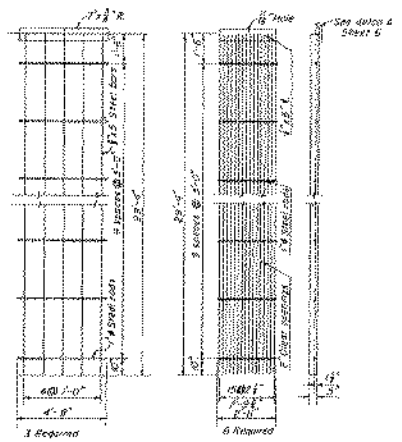
ELEVATION SUPERSTRUCTURE
SCALE ¼ INCH = 1 FOOT



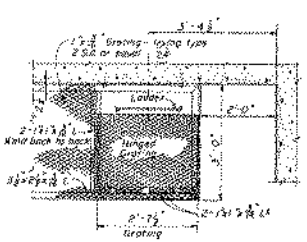
SECTION X-X



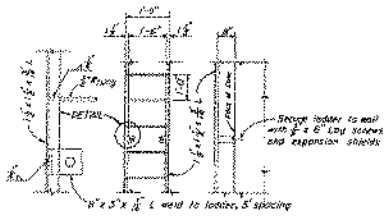
PLAN - ACCESS DOOR
NO SCALE



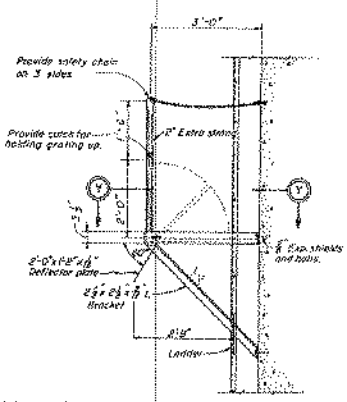
TRASH RACK DETAIL
SCALE: ¾ INCH = 1 FOOT



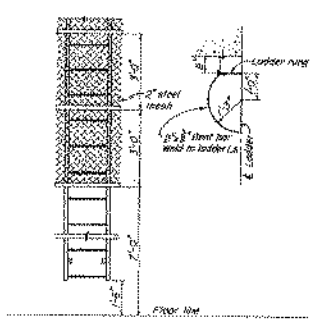
SECTION Y-Y



LADDER DETAIL
NO SCALE



PLATFORM DETAIL



SAFETY CAGE DETAILS (27)
NO SCALE

NOTES:
ALL OPERATIONS PERFORMED IN ACCORDANCE WITH THESE DETAILS OF A SIMILAR NATURE SHALL BE IN ACCORDANCE WITH THE APPLICABLE PARAGRAPHS OF THE SPECIFICATIONS.

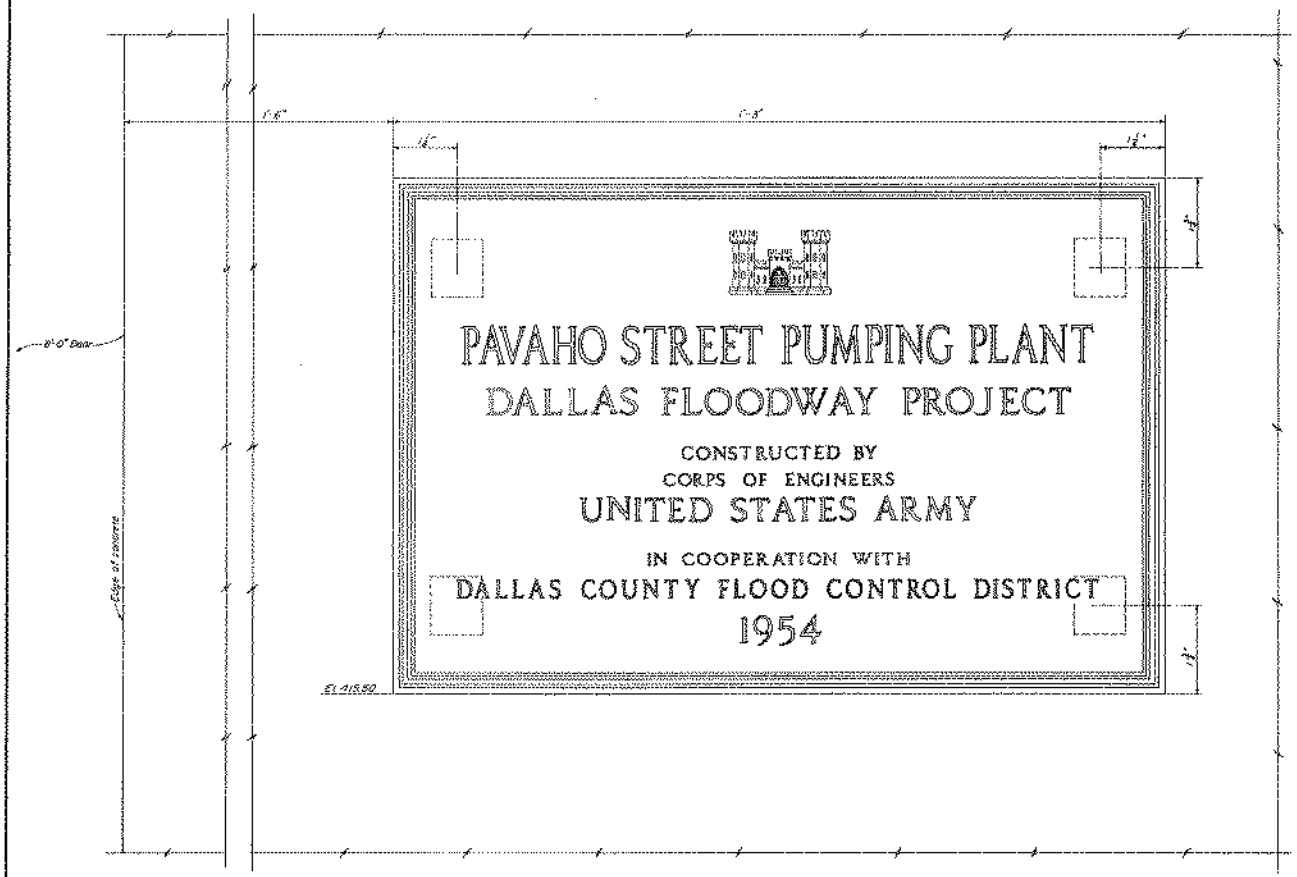
THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U. S. ARMY
DISTRICT ENGINEER
FORT WORTH, TEXAS

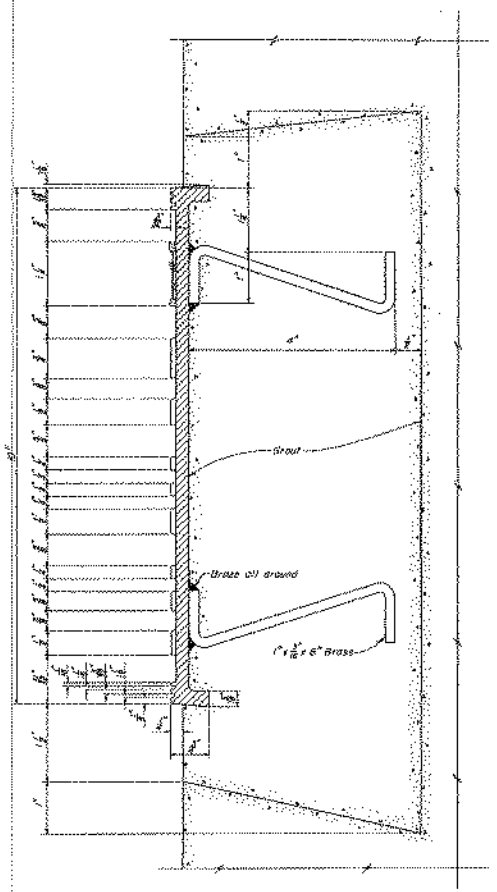
TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
INTAKE STRUCTURE
MISCELLANEOUS DETAILS

SCALE AS SHOWN — DATE JUNE 1954
IRRIGATION NO. DRAWING NO. 63-1-58-82
SHEET 15 OF 17 — FILE NO. FWH 265-15

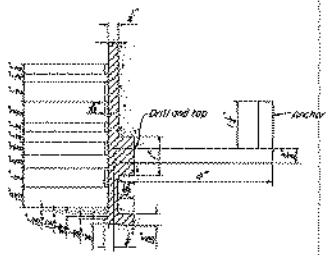


ELEVATION



SECTION
SCALE: 1 INCH = 1 INCH

DETAIL OF BRONZE TABLET
SCALE: 1 INCH = 1 INCH



ALTERNATE DETAIL OF ANCHOR
SCALE: 1 INCH = 1 INCH

NOTE:
ALL OPERATIONS PERFORMED IN ACCOMPLISHING THIS WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE PROVISIONS OF THE MANUAL OF EMBODIED MANUAL "SAFETY REQUIREMENTS" AND THE CONTRACT SPECIFICATIONS

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

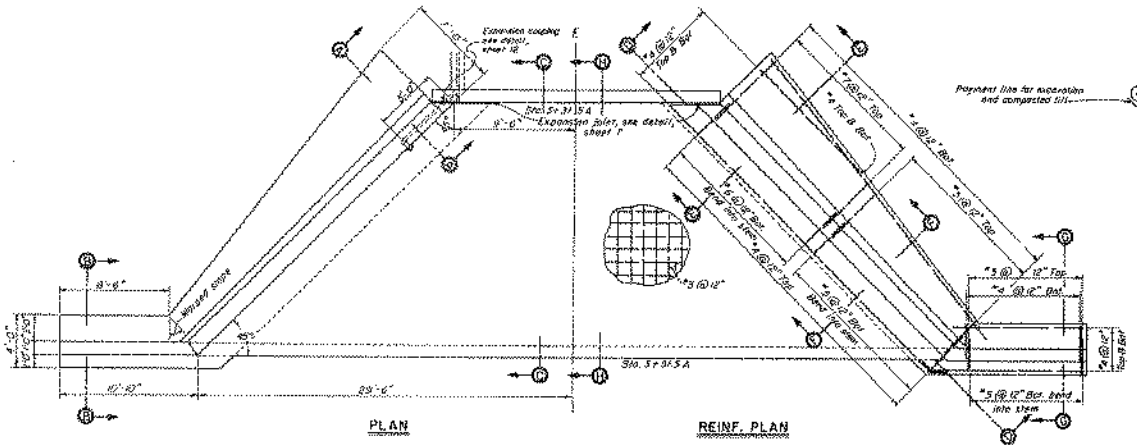
DETAIL OF BRONZE TABLET

E. L. B.

El. as shown

Initials or given 41-440-04-56

Sheet 16 of 17 | File no. TRIN 265-8



SECTION A-A

SECTION B-B

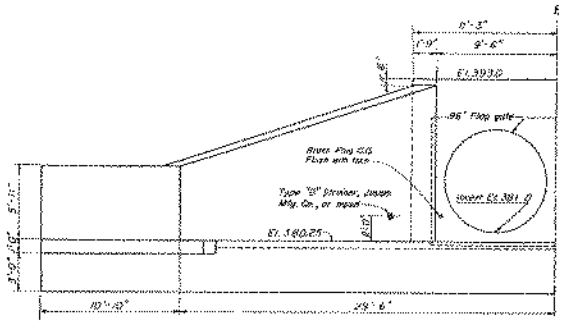
SECTION C-C

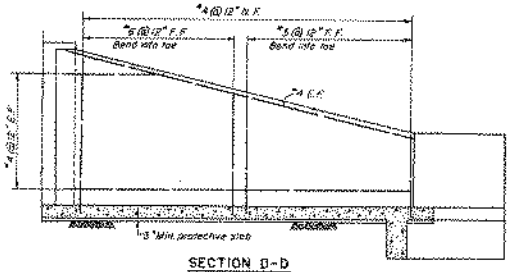
SECTION E-E

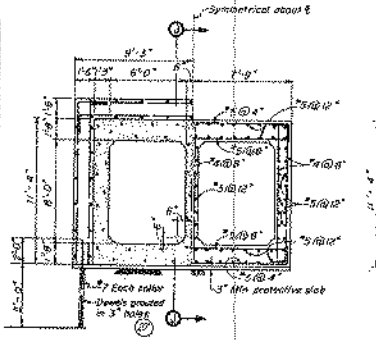
SECTION F-F

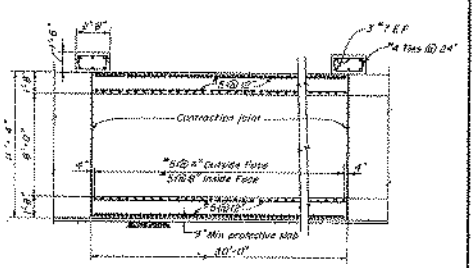
SECTION G-G

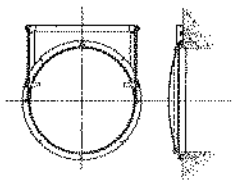
SECTION H-H

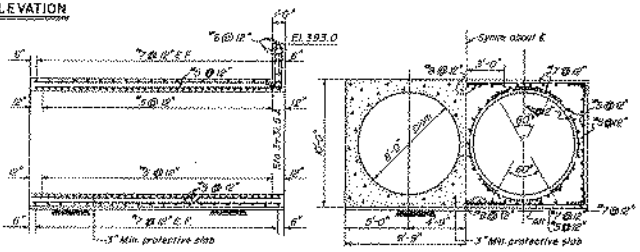


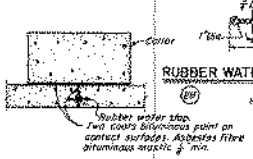


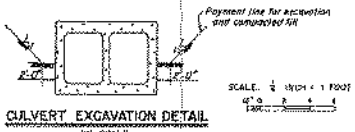


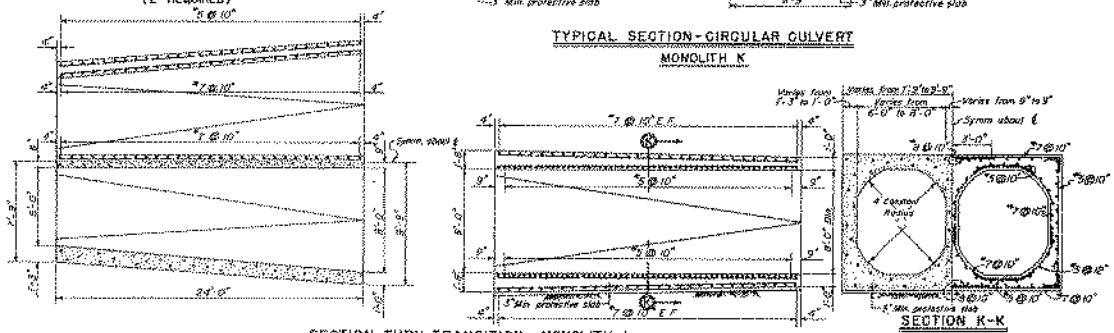












NOTES:

For General Notes see sheet 2.

All concrete shown on this sheet will be paid for under pay item (K).

All reinforcing steel shown on this sheet will be paid for under pay item (R).

Where the structure is founded on rock shale, a 3" minimum protective concrete slab shall be provided.

For notes on reinforcing steel, see sheet 8.

NOTE: ALL DIMENSIONS PERTINENT TO ACCOMPLISHING THIS WORK SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE THE FABRICATION OF ANY EQUIPMENT OR THE START OF CONSTRUCTION.

THIS DRAWING HAS BEEN REDUCED TO ONE-HALF THE ORIGINAL SIZE

CORPS OF ENGINEERS
U. S. ARMY
OFFICE OF THE DISTRICT ENGINEER
FORT WORTH, TEXAS

TRINITY RIVER AND TRIBUTARIES, TEXAS
DALLAS FLOODWAY
TRINITY RIVER, TEXAS

PAVAHO STREET PUMPING PLANT
OUTLET STRUCTURE AND CULVERT
PLAN - ELEVATION AND SECTIONS

SCALE: ½ INCH = 1 FOOT

APPROVED: JUNE 1954

INVITATION NO. DACW63-54-B-0033

SHEET 17 OF 77 SHEETS NO. 3/16-265-11

NEW PAVAHO PUMP STATION

SELECT
CONSTRUCTION
DRAWINGS

PAVAHO STORM WATER PUMPING STATION

FOR

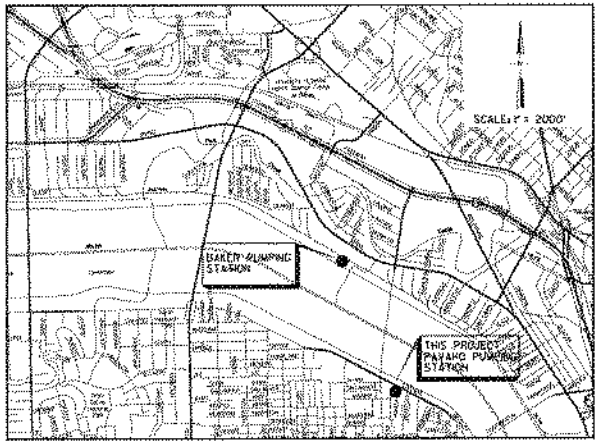
CITY OF DALLAS

DEPARTMENT OF PUBLIC WORKS AND TRANSPORTATION

PB167094

PLANS, PROFILES, AND DETAILS APPROVED FOR THIS PROJECT

FILE	SHEET	DESCRIPTION
421Q-R	G-1 THRU G-6	PAVING IMPROVEMENTS
	C-1 THRU C-13	PUMP STATION CIVIL SITE IMPROVEMENTS
41Q- 421Q-B	C-14 THRU C-15	WATER & WASTEWATER IMPROVEMENTS
	C-16 THRU C-29	PUMP STATION CIVIL SITE IMPROVEMENTS
	LB-1 THRU LB-8	SOIL BORINGS
	A-1 THRU A-20	PUMP STATION ARCHITECTURAL PLANS
	SG-1, S-1 THRU S-29	PUMP STATION STRUCTURAL PLANS & DETAILS
	SD-1 THRU SD-9	PUMP STATION STRUCTURAL PLANS & DETAILS
	TS-1 THRU TS-5	TEMPORARY SHORING WALLS
	RW-1 THRU RW-10	RETAINING WALL PLANS & DETAILS
	TXDOT-CR 11 THRU TXDOT-CR-13	TXDOT COMBINATION RAIL TYPE C402
	EP-1 THRU EP-14	EXISTING PUMP STATION & LOW FLOW PUMP STRUCTURE MODIFICATIONS
	SP-1 THRU SP-2	DRILLED PIERS FOR DISCHARGE PIPING
	M-1 THRU M-16	PUMP STATION MECHANICAL PLANS & DETAILS
	MS-1 THRU MS-3	PUMP STATION MISC. EQUIPMENT LOCATIONS
	MP-1 THRU MP-8	PUMP STATION HVAC/PLUMBING
	E-1 THRU E-31	PUMP STATION ELECTRICAL PLANS & DETAILS
	IC-1 THRU IC-18	PUMP STATION INSTRUMENTATION CONTROLS
2540-1	SET	DEPARTMENT OF PUBLIC WORKS STANDARD CONSTRUCTION DETAILS
DWU	SET	DALLAS WATER UTILITIES



LOCATION MAP

DESIGNED BY

RECOMMENDED FOR APPROVAL

PROJECT ENGINEER DATE

PROGRAM MANAGER DATE

ASSISTANT DIRECTOR DATE

APPROVAL

THIS, THE _____ DAY OF _____ _____

DIRECTOR OF PUBLIC WORKS & TRANSPORTATION

FILE: 421Q-8

PREPARED BY:

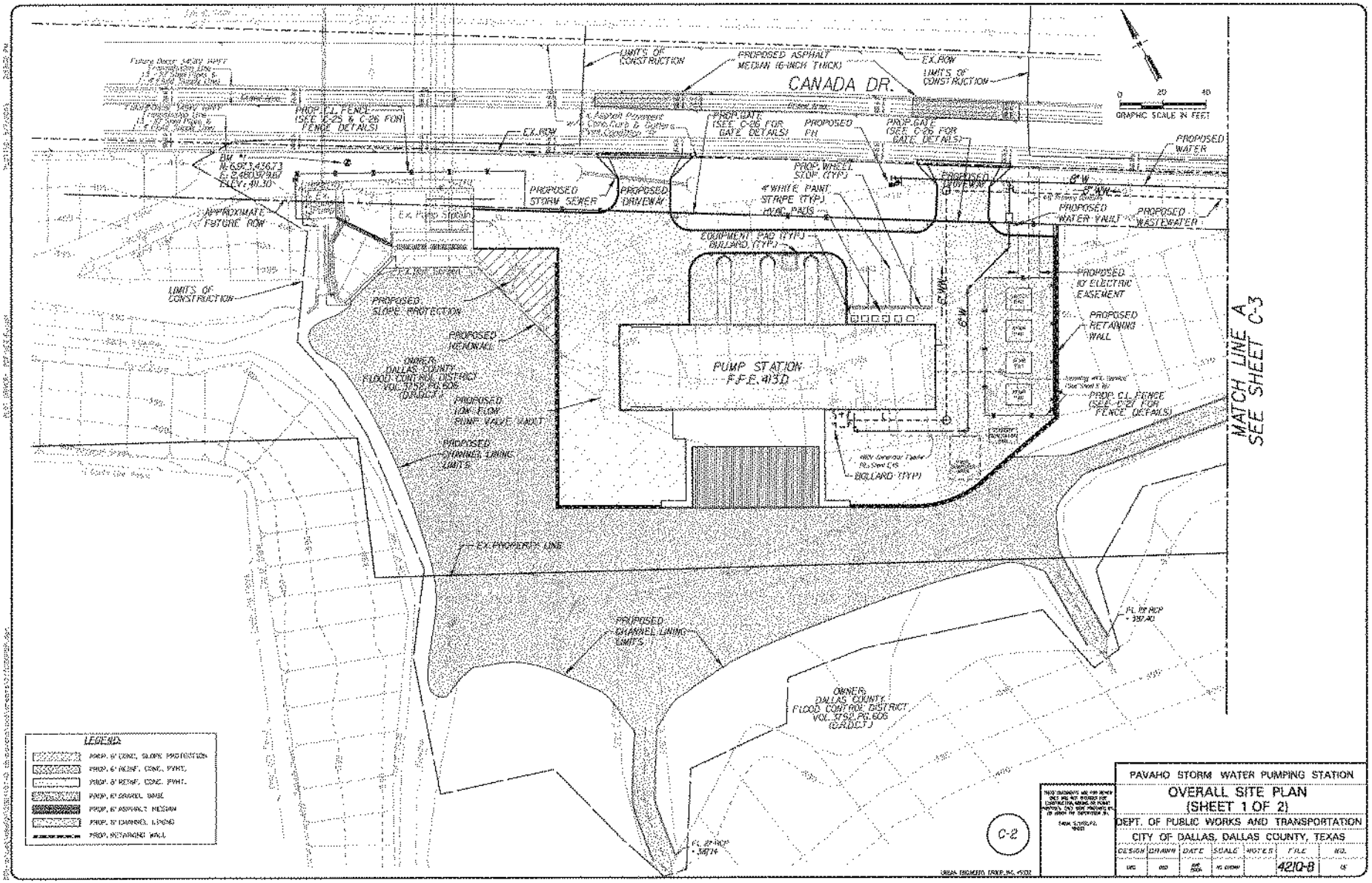
CARTER & BURGESS, INC.
IN ASSOCIATION WITH:

CAMPOS ENGINEERING, INC.
CHIANG, PATEL & YERBY, INC.
DAL-TECH ENGINEERING, INC.
URBAN ENGINEERS GROUP, INC.
FUGRO CONSULTANTS, LP

Carter-Burgess
CONSULTANTS IN ENGINEERING, ARCHITECTURE, CONSTRUCTION MANAGEMENT AND RELATED SERVICES
7950 ELMBROOK DRIVE, DALLAS, TEXAS, 75247
PHONE (214) 638-0145, FAX (214) 630-0447
TEXAS ENGINEERING FIRM NO. F-1046

90% SUBMITTAL

SHEET REF. NO.
G-1
OF



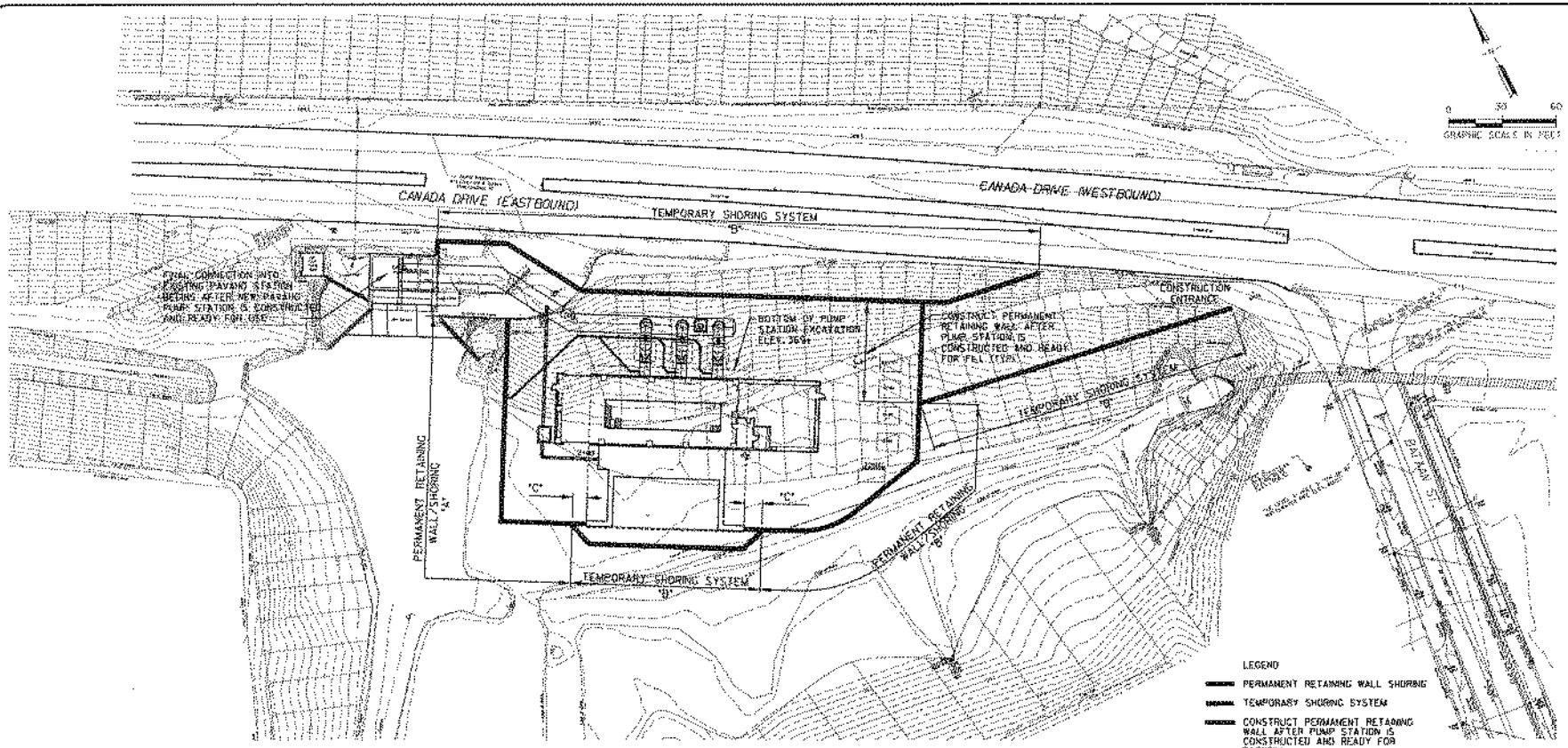
PAVAHO STORM WATER PUMPING STATION

OVERALL SITE PLAN (SHEET 1 OF 2)

DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
MG	BD	05-2024	AS SHOWN		4210-8	15



PAVAHO STORMWATER PUMP STATION
CONCEPTUAL CONSTRUCTION SEQUENCE

1. CONTRACTOR MOBILIZE ON SITE
2. SET PERIMETER CONSTRUCTION SECURITY FENCE
3. SET UP TRAILERS, TEMPORARY UTILITIES, ETC.
4. CLEAR AND GRUB LAY DOWN/STORAGE AREAS
5. CONSTRUCT TEMPORARY CONSTRUCTION DIKES
6. ESTABLISH ALL CONSTRUCTION ACCESS ROADS
7. DEWATER CONSTRUCTION SITE - MAINTAIN DRY
8. CONSTRUCT RETAINING WALL SECTION "A"
9. CONSTRUCT RETAINING WALL SECTION "B"
10. EXCAVATE PUMP STATION
11. PLACE PS MUD SLAB
12. CONSTRUCT PS FOUNDATION SLAB
13. CONSTRUCT PS WALLS TO EL 413 IN PREPARATION FOR CVP MASS POUR
14. CONSTRUCT PS INTAKE BAY WALLS TO EL 413
15. CVP MASS POUR PLACEMENT TO ELEVATION SPECIFIED IN THE PLANS
16. INSTALLATION DISCHARGE PIPING 400 NOT CONNECT TO EXISTING PAVAHO
17. BACKFILL PUMP STATION
18. CONSTRUCT ELECTRICAL ROOM FOUNDATION SLAB
19. CONSTRUCT PS FLOOR AT EL. 413
20. REMOVE TEMPORARY SHORING
21. INSTALL MECHANICALLY CLEANED SCREENS
22. COMPLETE PS SUPERSTRUCTURE FRAMING
23. INSTALL BRIDGE CRANE
24. COMPLETE PS ARCHITECTURAL ENCLOSURE
25. INSTALL PS ELECTRICAL/HVAC/IC SYSTEMS
26. YARD PIPING AND ROUGH SITE GRADING
27. DEWATER SUMP AREA
28. CONSTRUCT NEW SUMP CHANNEL LINER
29. SITE PAVING AND PERIMETER SECURITY FENCE
30. FINAL SUMP GRADING, REMAINING CHANNEL LINER, ACCESS ROAD, ETC
31. MAKE FINAL CONNECTION INTO EXISTING PAVAHO
32. FINAL SITE SEEDING/SOD AND LANDSCAPING

C-17

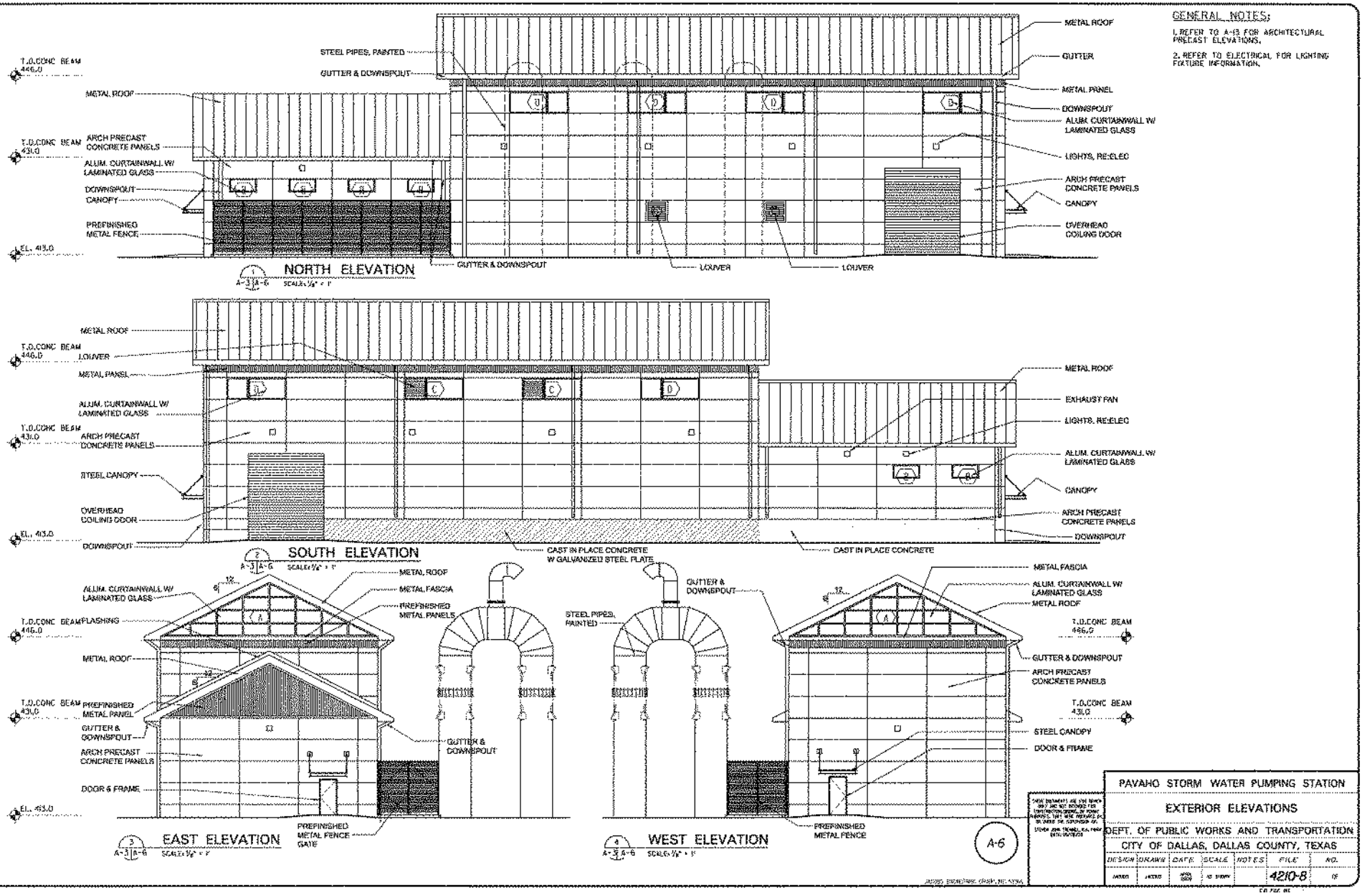
PAVAHO STORM WATER PUMPING STATION

CONSTRUCTION SEQUENCE

DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTICE	FILE	NO.
JACOBS	JACOBS	APRIL 2009	AS SHOWN		4210-8	35



GENERAL NOTES:

1. REFER TO A-13 FOR ARCHITECTURAL PRECAST ELEVATIONS.
2. REFER TO ELECTRICAL FOR LIGHTING FIXTURE INFORMATION.

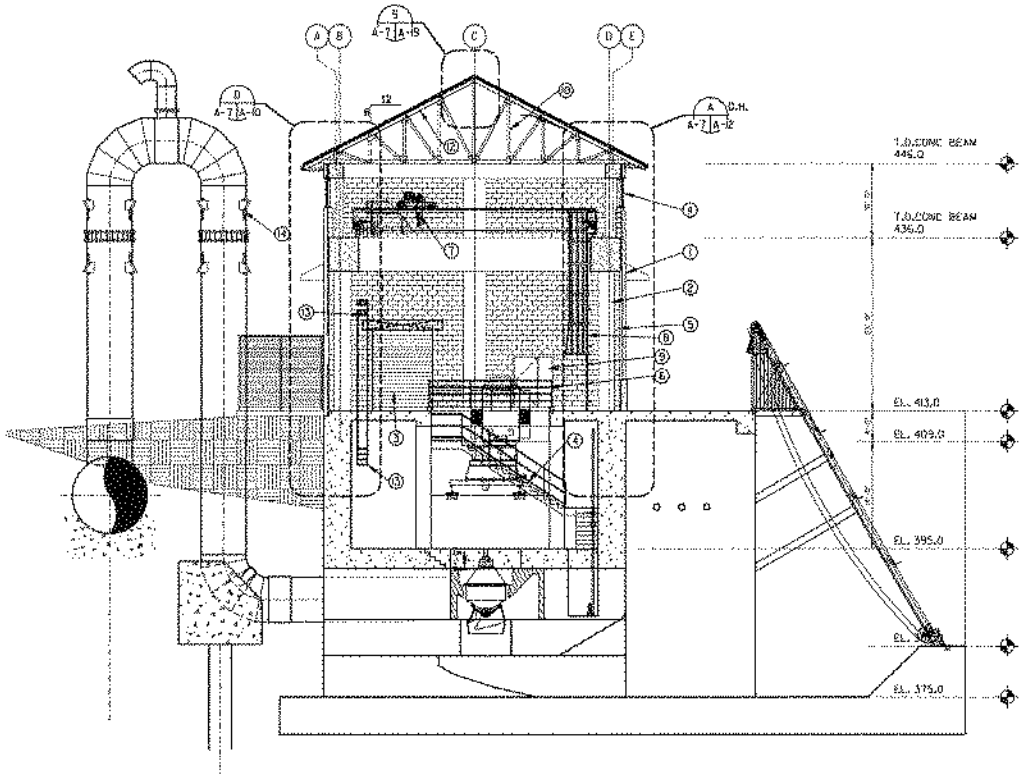
PAVAHO STORM WATER PUMPING STATION

EXTERIOR ELEVATIONS

DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
			AS SHOWN		4210-8	

A-6



BUILDING SECTION

A-3 | A-7 SCALE: 1/4" = 1'

KEYED NOTES:

1. ARCHITECTURAL PRECAST CONCRETE PANELS
2. CONCRETE COLUMNS, EXPOSED, TYP.
3. OVERHEAD COILING DOOR
4. STEEL STAIR & RAILINGS
5. GLAZED CMU, TYP.
6. STEEL GUARDRAIL
7. BRIDGE CRANE
8. STEEL LADDER
9. STEEL DOORS & FRAMES, PAINTED
10. STRUCTURAL STEEL, EXPOSED PAINTED
11. ALUMINUM CURTAINWALL W/ LAMINATED GLASS
12. METAL DECK EXPOSED, PAINTED
13. ELECTRICAL CABLE TRAY
14. STEEL PIPE, PAINTED

A-7

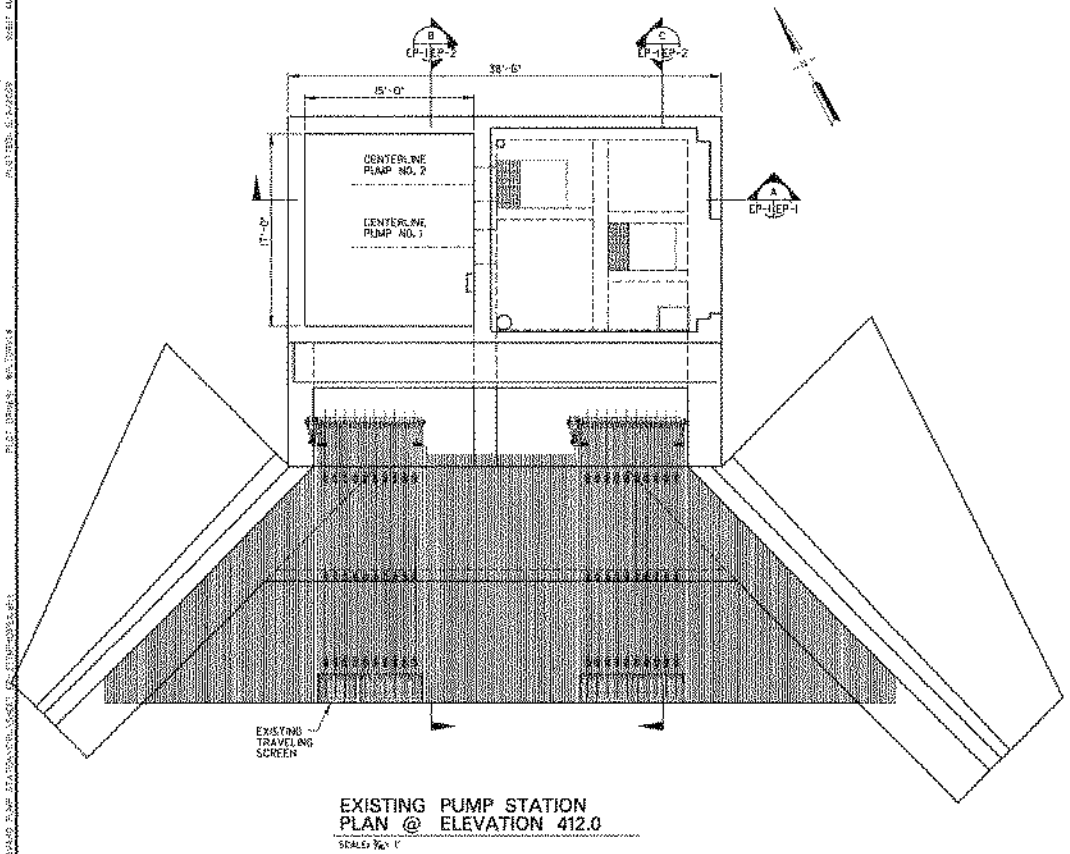
PAVAHO STORM WATER PUMPING STATION

BUILDING SECTION

DEPT. OF PUBLIC WORKS AND TRANSPORTATION

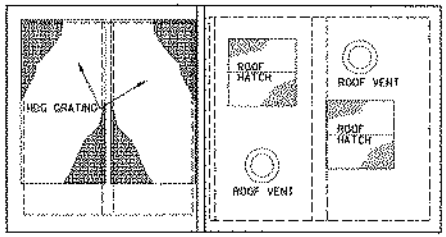
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JWHS	JWHS	[illegible]	AS SHOWN		4210-8	17



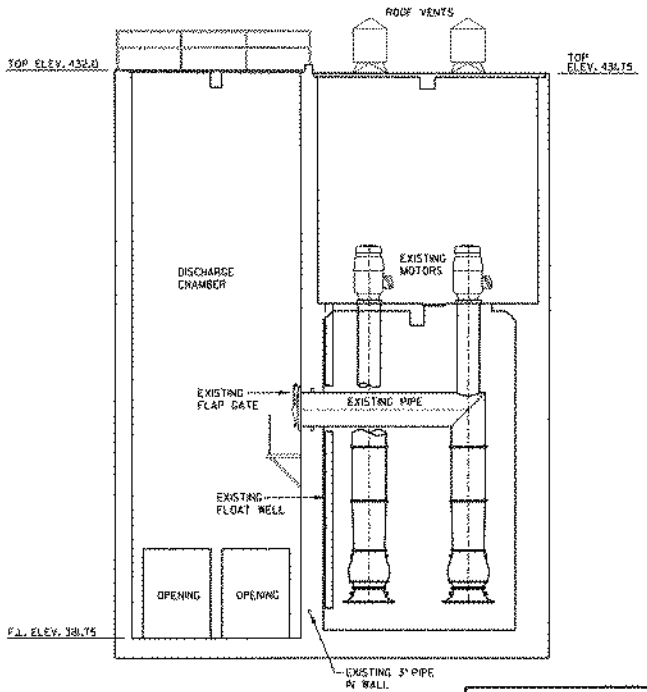
EXISTING PUMP STATION
PLAN @ ELEVATION 412.0

SCALE: 1/8" = 1'



PLAN VIEW – ROOF

SCALE: 1/8" = 1'



A
EP-1/EP-1
SECTION

SCALE: 1/8" = 1'

EP-1

PAVAHO STORM WATER PUMPING STATION

EXISTING PLAN & SECTION

SHEET 1 OF 2

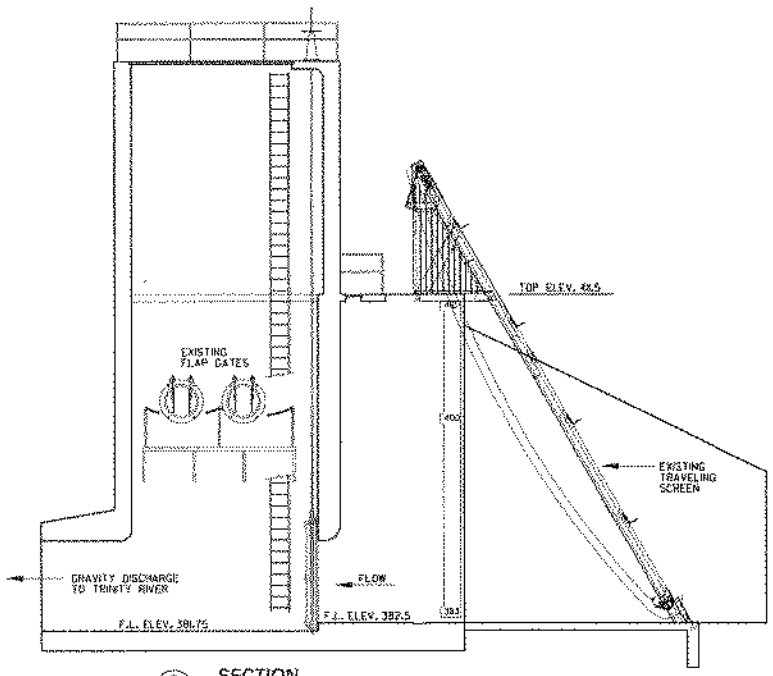
DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

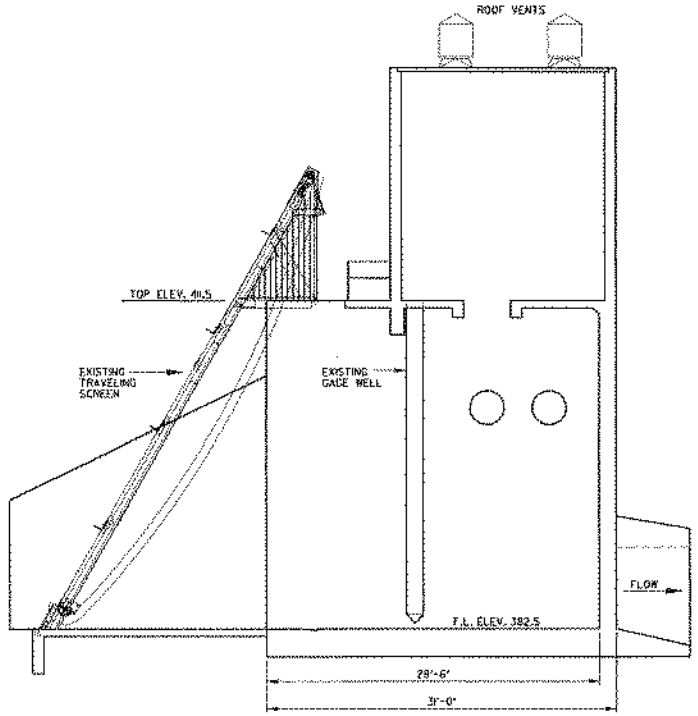
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	NOV. 2009	AS SHOWN		4210-8	01

DETAIL NO.

JACOBS ENGINEERING GROUP INC. ©2009



a SECTION
EP-1 EP-2 SCALE: 3/16" = 1'



c SECTION
EP-1 EP-2 SCALE: 3/16" = 1'

EP-2

PAVAHO STORM WATER PUMPING STATION

EXISTING SECTIONS
SHEET 2 OF 2

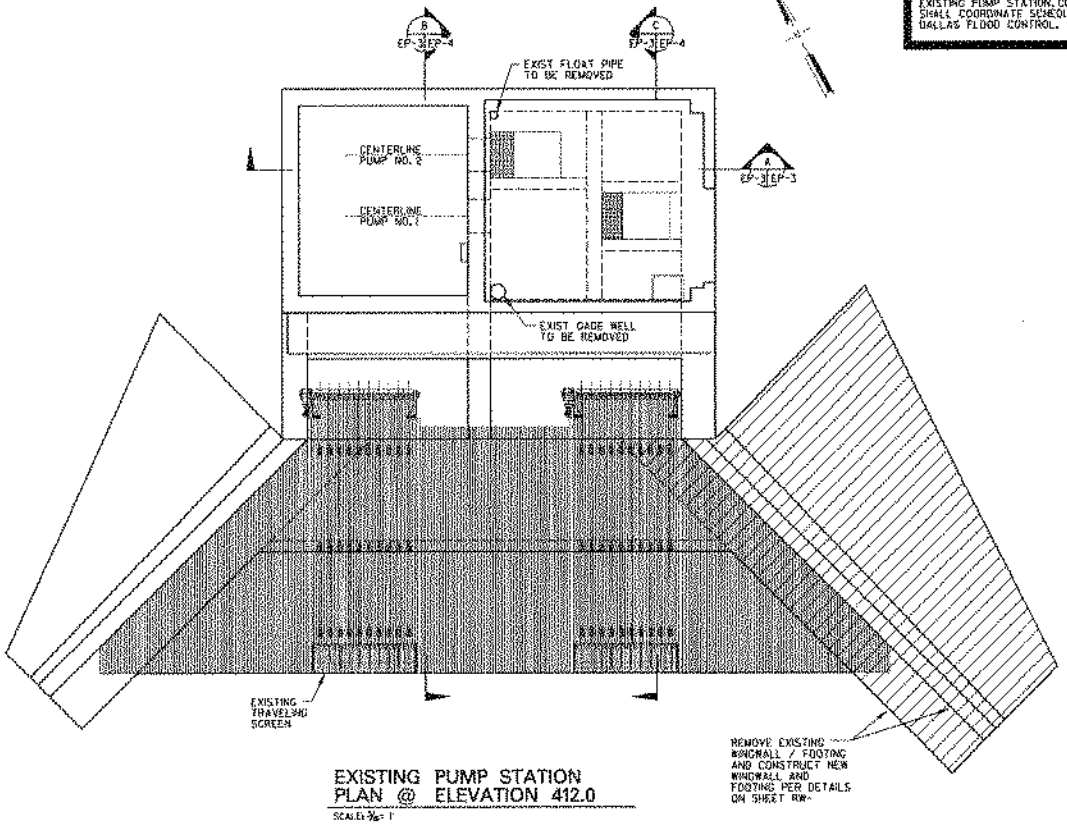
DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	REV.
JACOBS	JACOBS	APRIL 2008	AS SHOWN		42I0-8	0

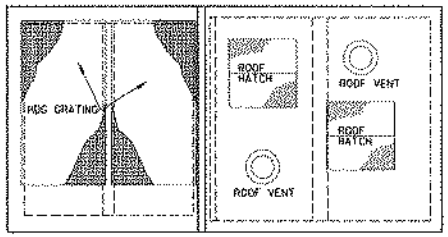
JACOBS ENGINEERING GROUP, INC. 1999

NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.

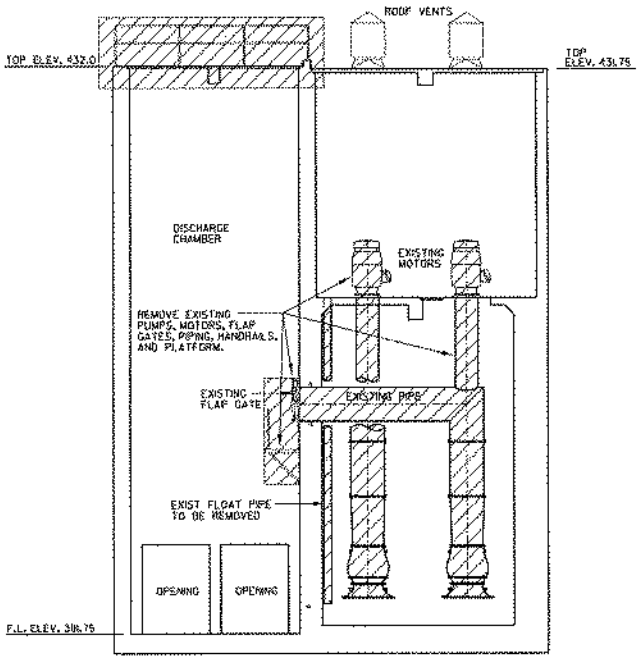


EXISTING PUMP STATION
PLAN @ ELEVATION 412.0
SCALE: 3/16" = 1'

ITEMS TO BE REMOVED



PLAN VIEW - ROOF
SCALE: 3/16" = 1'



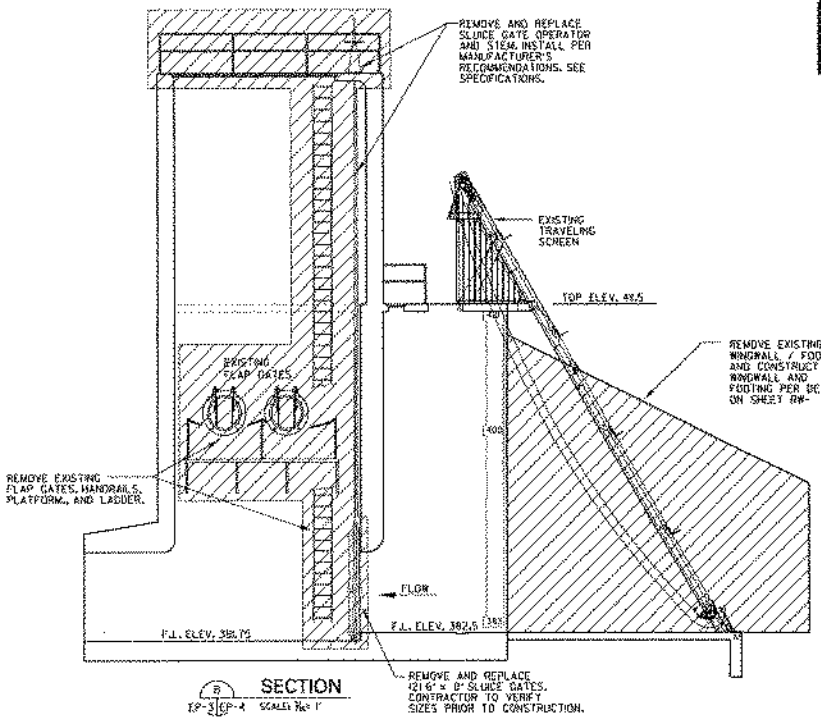
A
EP-3 SECTION
EP-3 SCALE: 3/16" = 1'

PAVAHO STORM WATER PUMPING STATION
EXISTING PUMP STATION
DEMOLITION PLAN - SHEET 1 OF 2
DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	APRIL 2008	AS SHOWN		4210-8	17

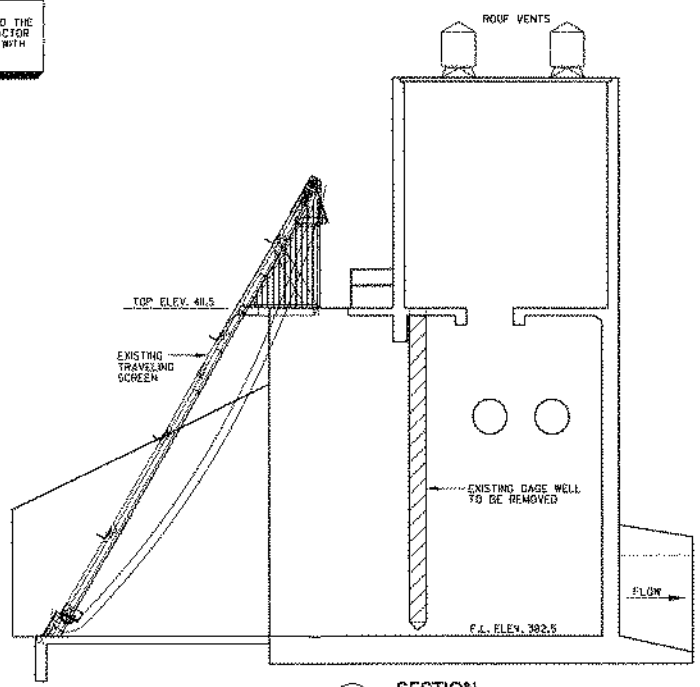
EP-3

JACOBS ENGINEERING GROUP, INC. TEXAS



B SECTION
EP-3 | EP-4 SCALE: 3/16" = 1'

NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.



C SECTION
EP-3 | EP-4 SCALE: 3/16" = 1'

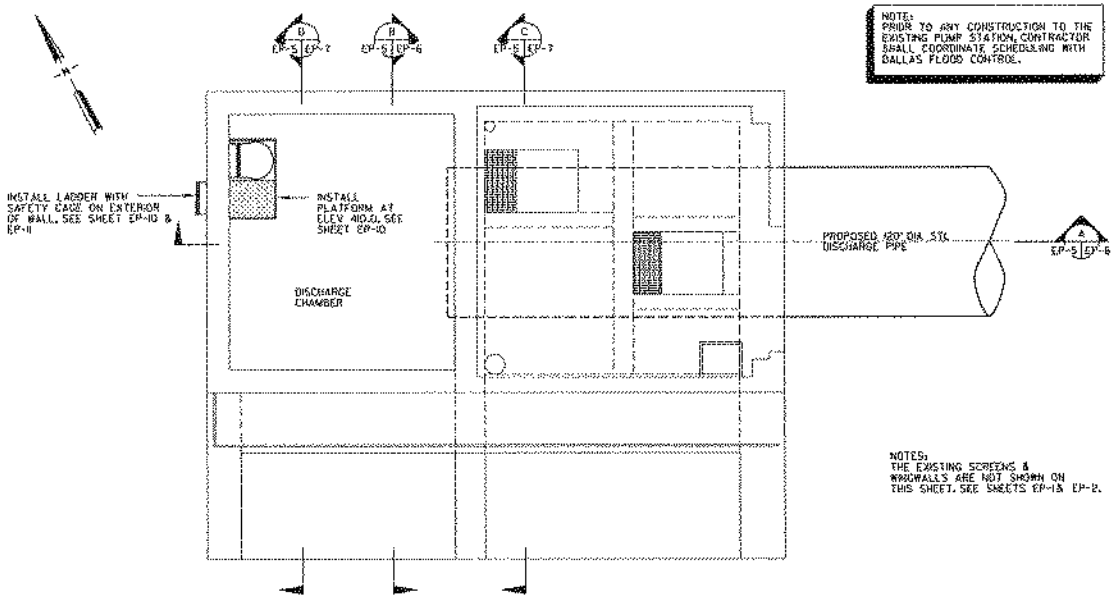
ITEMS TO BE REMOVED

EP-4

PAVAHO STORM WATER PUMPING STATION
EXISTING PUMP STATION
DEMOLITION PLAN - SHEET 2 OF 2
DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE M-4 NO.
JACOBS	JACOBS	APRIL 2008	AS SHOWN		4210-8

JACOBS ENGINEERING GROUP INC. TEXAS



NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.

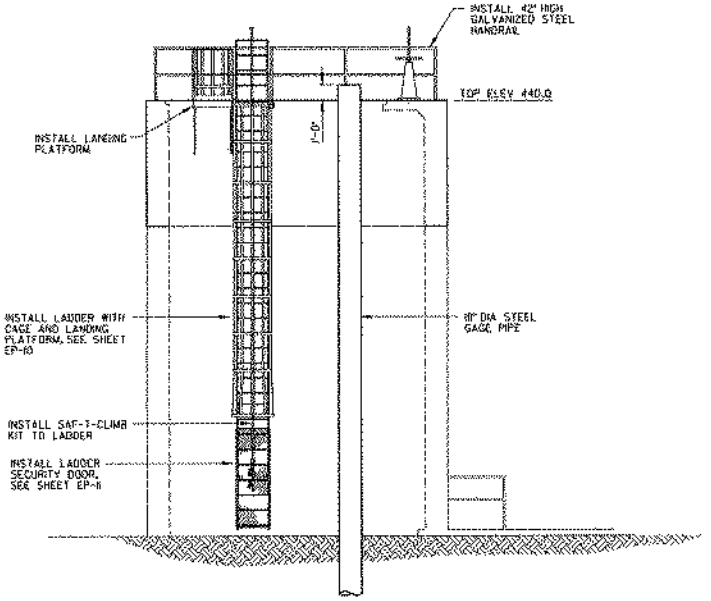
NOTES:
THE EXISTING SCREENS & WINGWALLS ARE NOT SHOWN ON THIS SHEET. SEE SHEETS EP-13 EP-2.

PLAN @ ELEVATION 412.0

SCALE: 1/4" = 1'

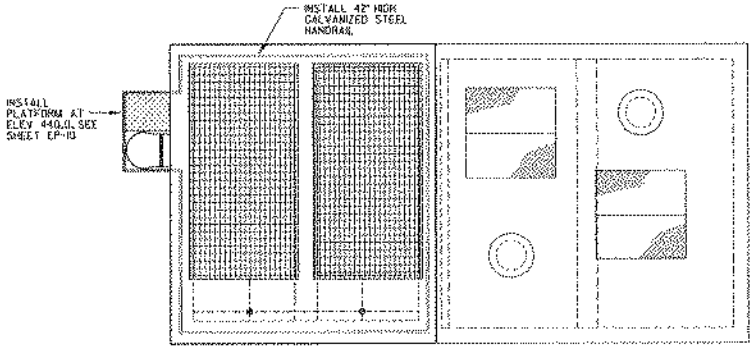
LADDER ACCESS:

1. IN ADDITION TO THE SAFETY CAGE, THE LADDER MUST BE EQUIPPED WITH LADDER SAFETY DEVICES OR SELF-RETRACTING LIFELINES.
2. LADDER INSTALLATION SHALL BE MANUFACTURED AND INSTALLED PER OSHA REQUIREMENTS.
3. ALL COMPONENTS TO BE GALVANIZED STEEL.



ELEVATION LOOKING WEST

SCALE: 1/4" = 1'



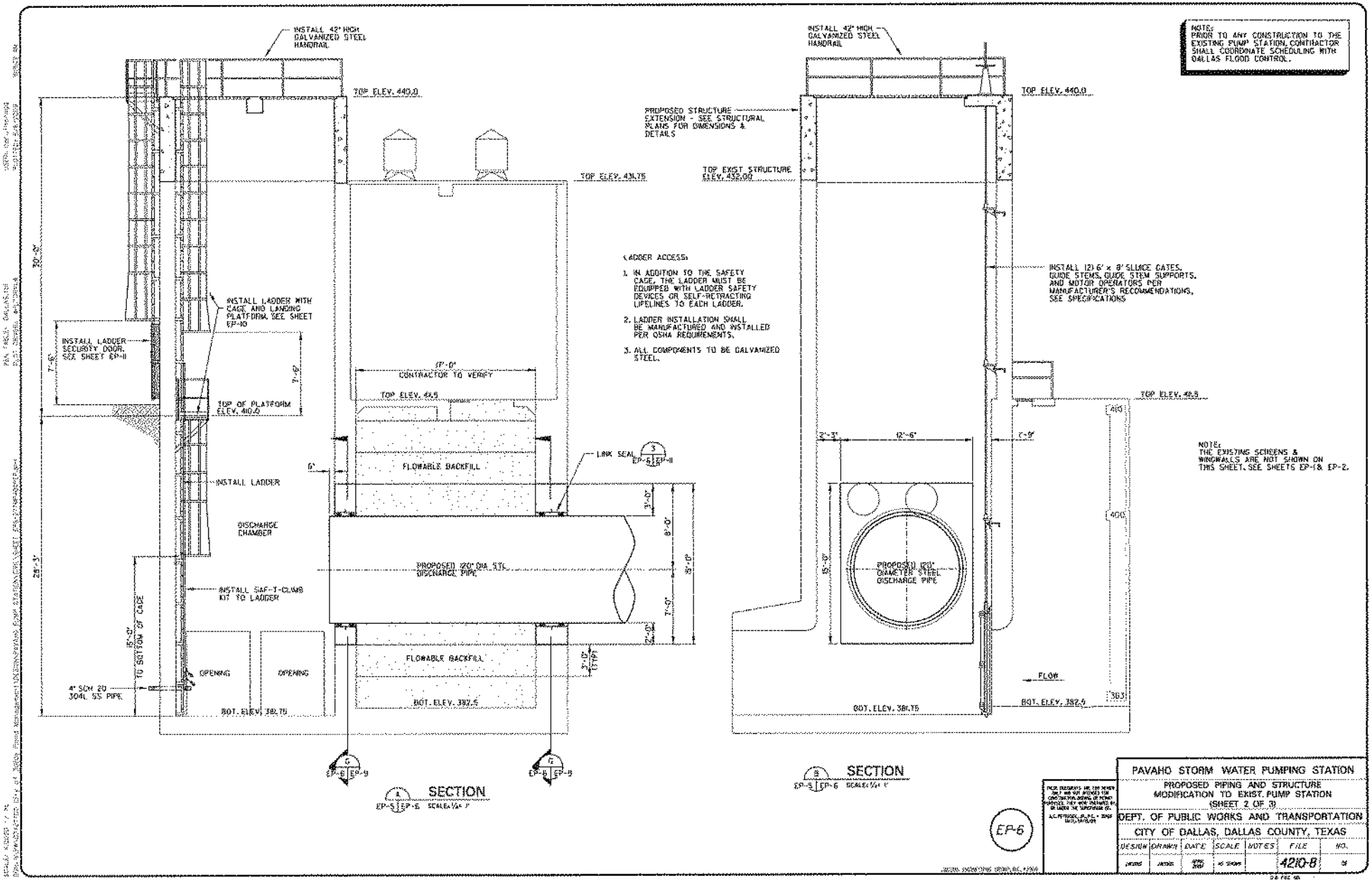
PLAN VIEW - ROOF

SCALE: 1/4" = 1'

EP-5

PAVAHO STORM WATER PUMPING STATION
PROPOSED PIPING AND STRUCTURE MODIFICATION TO EXIST. PUMP STATION
(SHEET 1 OF 3)
DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	APRIL 2005	AS SHOWN		4210-8	OF



PAVAHO STORM WATER PUMPING STATION

PROPOSED PIPING AND STRUCTURE MODIFICATION TO EXIST. PUMP STATION

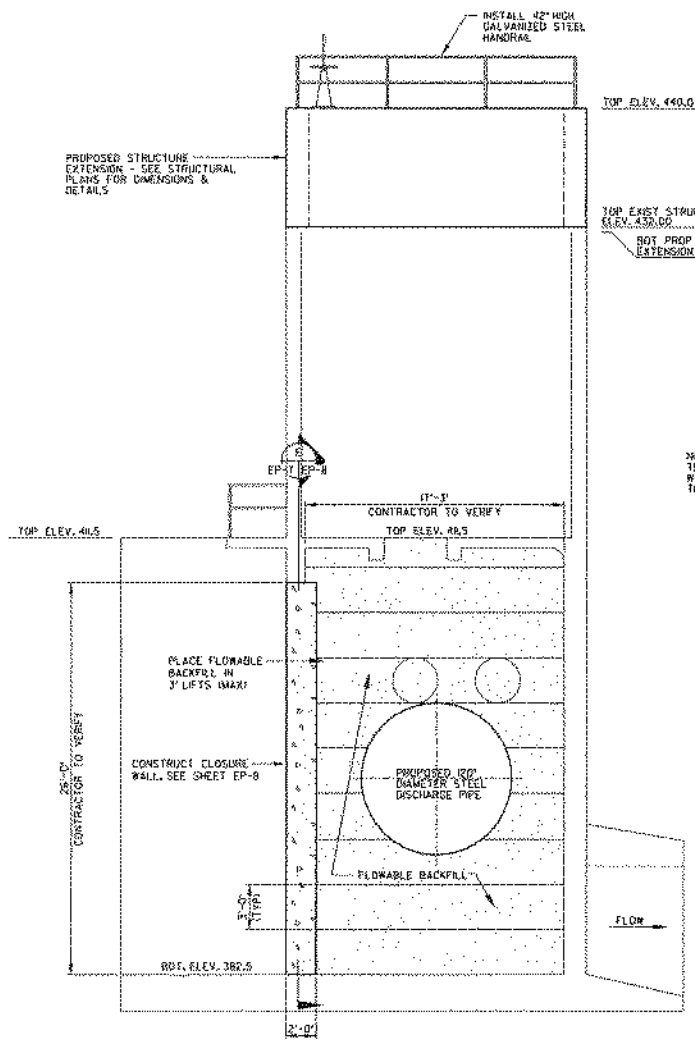
(SHEET 2 OF 3)

DEPT. OF PUBLIC WORKS AND TRANSPORTATION

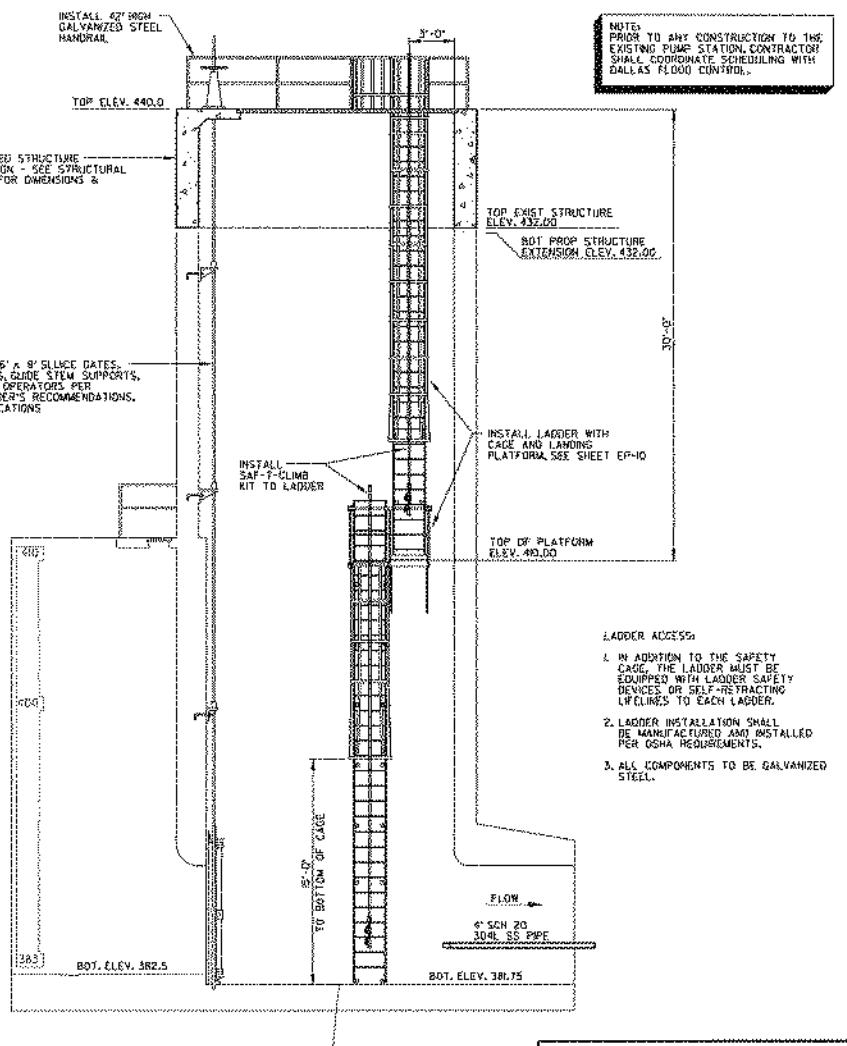
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
			AS SHOWN		4210-B	

EP-6



E SECTION
EP-5 EP-7 SCALE: 1/4" = 1'



NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.

NOTE:
THE EXISTING SCREENS & WINGWALLS ARE NOT SHOWN ON THIS SHEET, SEE SHEETS EP-1 & EP-2.

LADDER ACCESS:

1. IN ADDITION TO THE SAFETY CAGE, THE LADDER MUST BE EQUIPPED WITH LADDER SAFETY DEVICES OR SELF-RETRACTING LIFELINES TO EACH LADDER.
2. LADDER INSTALLATION SHALL BE MANUFACTURED AND INSTALLED PER OSHA REQUIREMENTS.
3. ALL COMPONENTS TO BE GALVANIZED STEEL.

D SECTION
EP-5 EP-7 SCALE: 1/4" = 1'

EP-7

PAVAHO STORM WATER PUMPING STATION
PROPOSED PIPING AND STRUCTURE MODIFICATION TO EXIST. PUMP STATION
(SHEET 3 OF 3)
DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
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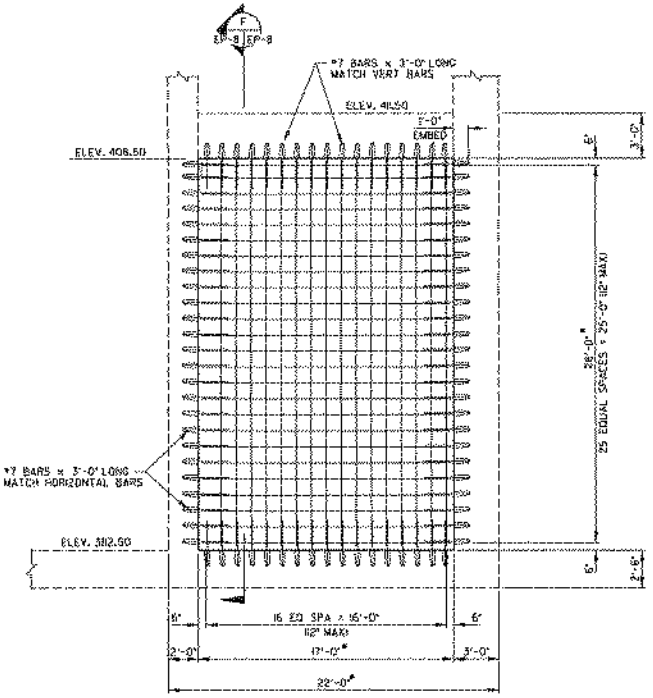
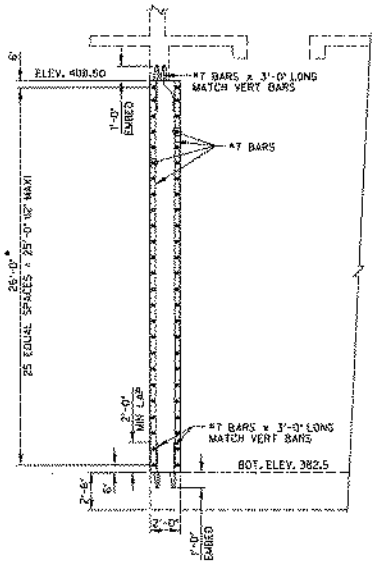


E EP-7 | EP-8 SECTION SCALE: 1/4" = 1'-0"



F EP-8 | EP-8 SECTION SCALE: 1/4" = 1'-0"

NOTES:

1. CONTRACTOR TO DRILL AND GROUT REBAR PER MANUFACTURER'S DIRECTION.
2. CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO ORDERING MATERIALS OR STARTING CONSTRUCTION.

NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.

EP-8

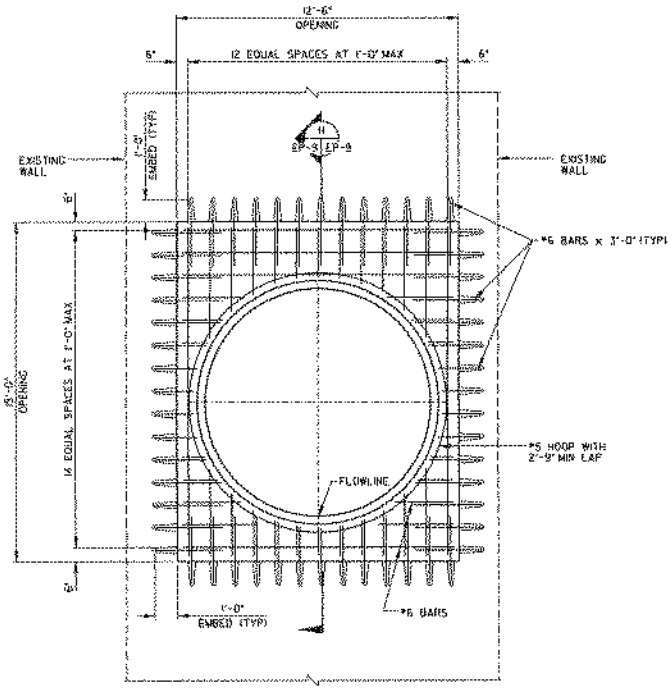
PAVAHO STORM WATER PUMPING STATION

PROPOSED CLOSURE WALL AND WALL EXTENSIONS

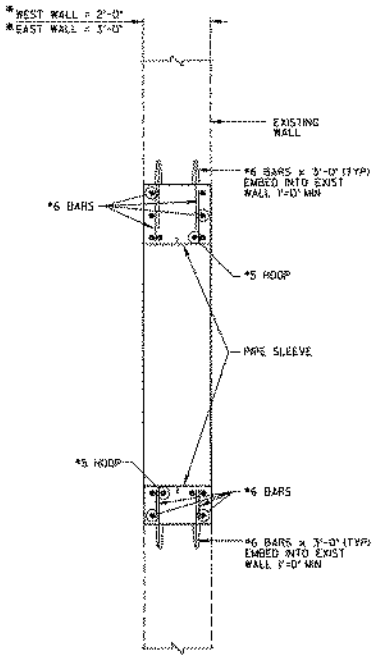
DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	AS NOTED	AS NOTED		4210-8	18



C SECTION
EP-6 | EP-9 SCALE: 3/8" = 1'-0"



B SECTION
EP-9 | EP-9 SCALE: 3/8" = 1'-0"

NOTES:

1. CONTRACTOR TO DRILL AND GROUT REBAR PER MANUFACTURER'S DIRECTION.
2. * CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO ORDERING MATERIALS OR STARTING CONSTRUCTION.
3. CONTRACTOR TO FIELD CUT *6 BARS TO MAINTAIN 2" MINIMUM CLEARANCE TO DISCHARGE PIPE SLEEVE.
4. SEE 120" DISCHARGE PIPE PLAN AND PROFILE SHEET FOR FLOWLINE INFORMATION.

NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.

EP-9

PAVAHO STORM WATER PUMPING STATION

PROPOSED WALL PENETRATION AT EXISTING PUMP STATION

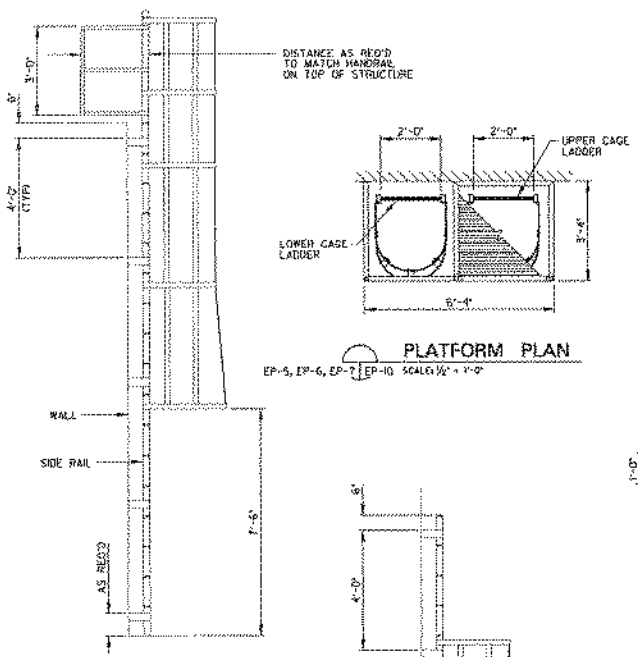
DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JMOSS	JMOSS	4/26/2013	AS SHOWN		4210-8	09

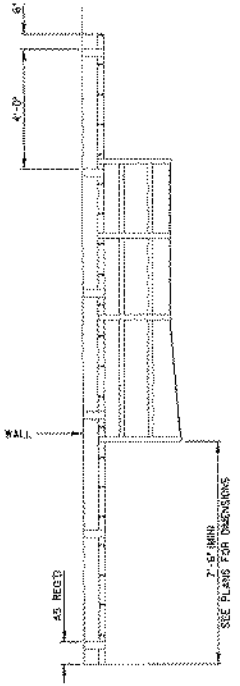
ICS FILE NO.

JACOBS ENGINEERING GROUP, INC. ©2013



PLATFORM PLAN

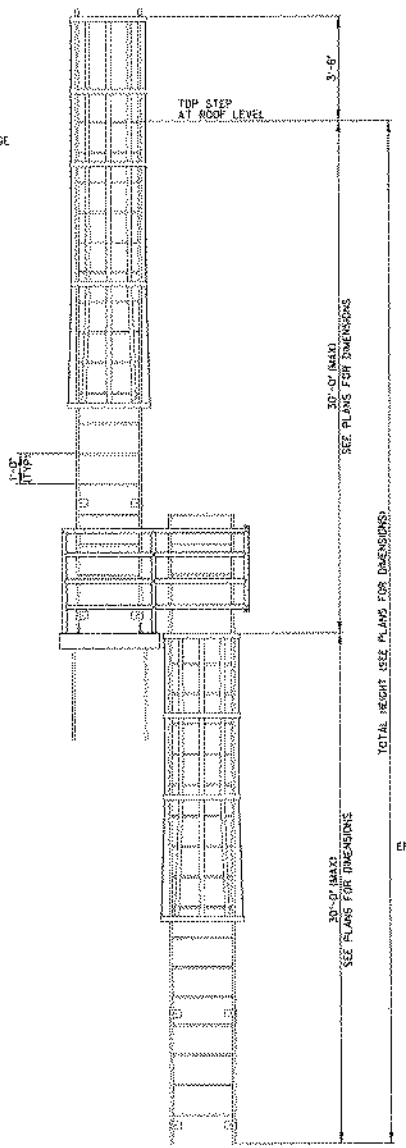
EP-5, EP-6, EP-7 | EP-10 SCALE: ½" = 1'-0"



NOTE:
LADDERS ARE SHOWN OFFSET IN LEFT SIDE VIEW FOR CLARITY, REST PLATFORM IS OMITTED IN THIS VIEW FOR CLARITY.

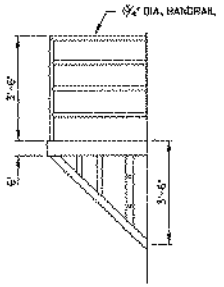
LADDER SECTION

EP-5, EP-6, EP-7 | EP-10 SCALE: ½" = 1'-0"



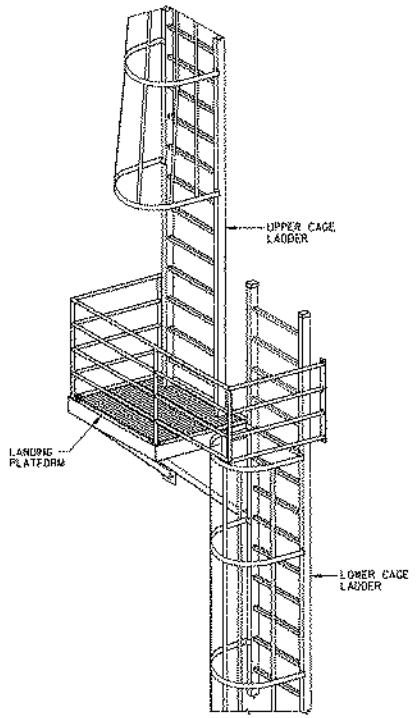
LADDER ELEVATION

EP-5, EP-6, EP-7 | EP-10 SCALE: ½" = 1'-0"



LEFT SIDE VIEW OF REST PLATFORM

EP-5, EP-6, EP-7 | EP-10 SCALE: ½" = 1'-0"



PLATFORM ISOMETRIC

EP-5, EP-6, EP-7 | EP-10 NOT TO SCALE

PAVAHO STORM WATER PUMPING STATION

PROPOSED LADDER, CAGE, AND PLATFORM DETAILS

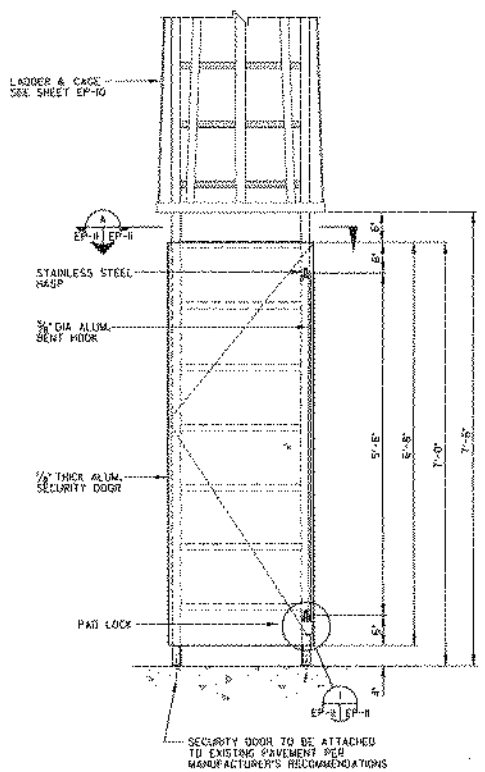
DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

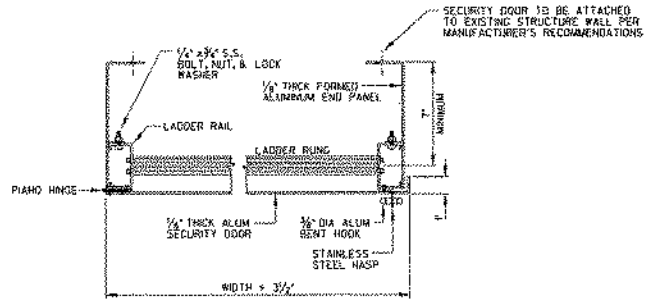
DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
AMW	JACOBS	4/2021	AS SHOWN		4210-8	18

EP-10

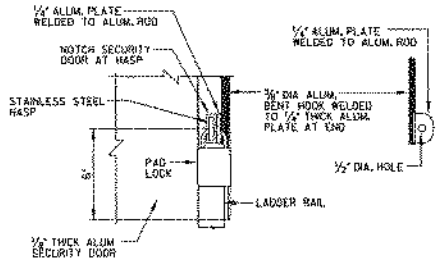
JACOBS ENGINEERING GROUP, INC. 42066



FRONT ELEVATION - SECURITY DOOR
EP-6, EP-8 | EP-8 SCALE: 1" = 1'-0"



SECTION
EP-8 | EP-8 NOT TO SCALE

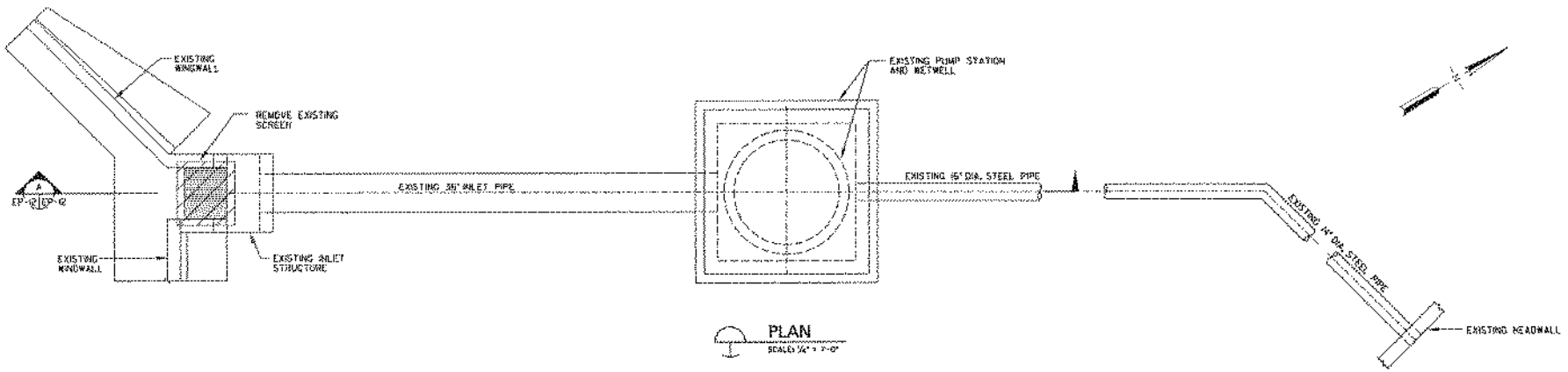


HASP & PAD LOCK DETAIL
EP-8 | EP-11 NOT TO SCALE

EP-11

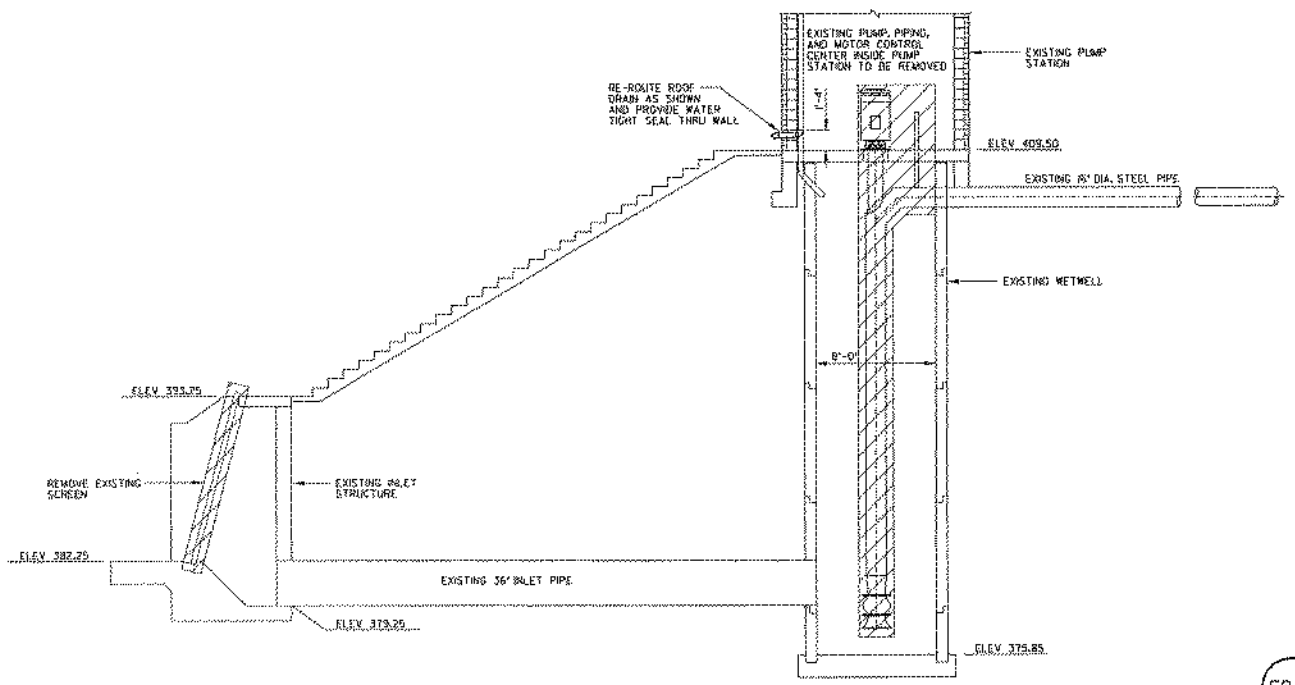
PAVAHO STORM WATER PUMPING STATION
PROPOSED SECURITY DOOR AT EXTERIOR LADDER INSTALLATION DETAILS
DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	NOV. 2009	AS SHOWN		4210-8	11



PLAN

SCALE 1/4" = 1'-0"



SECTION

EP-12 EP-12 SCALE 1/4" = 1'-0"

ITEMS TO BE REMOVED

NOTE:
PRIOR TO ANY CONSTRUCTION TO THE EXISTING PUMP STATION, CONTRACTOR SHALL COORDINATE SCHEDULING WITH DALLAS FLOOD CONTROL.

EP-12

PAVAHO STORM WATER PUMPING STATION

EXISTING LOW FLOW PUMP STATION DEMOLITION PLAN

DEPT. OF PUBLIC WORKS AND TRANSPORTATION

CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
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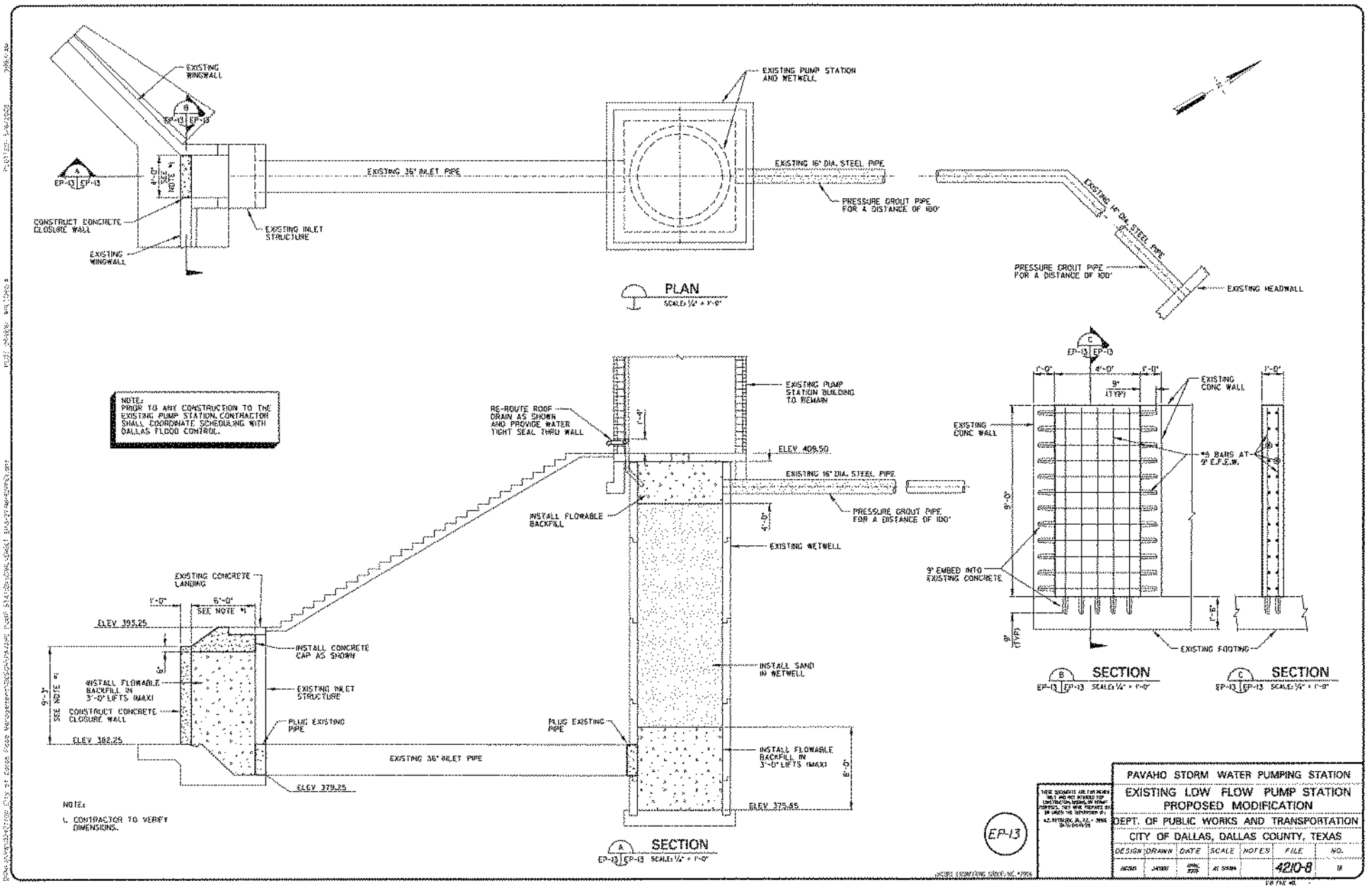


PAVAHO STORM WATER PUMPING STATION

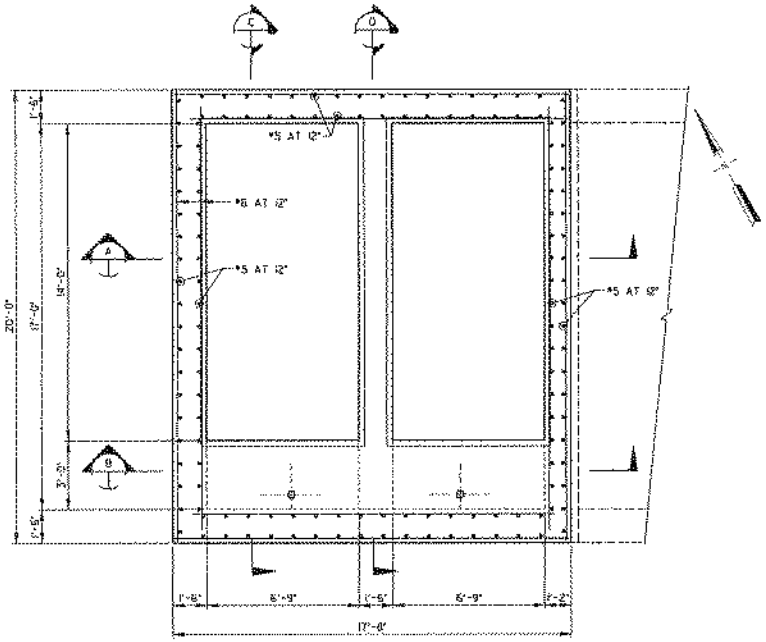
EXISTING LOW FLOW PUMP STATION PROPOSED MODIFICATION

DEPT. OF PUBLIC WORKS AND TRANSPORTATION

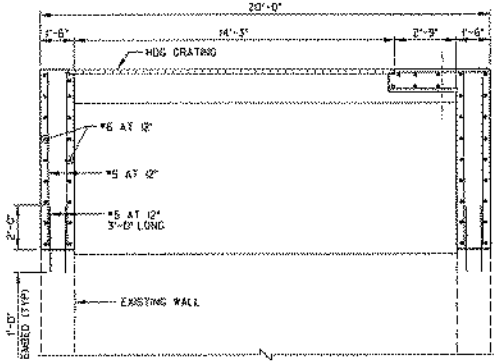
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	APRIL 2008	AS SHOWN		4210-8	18

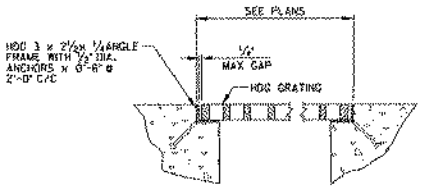
EP-13



PLAN
SCALE: 3/8" = 1'-0"



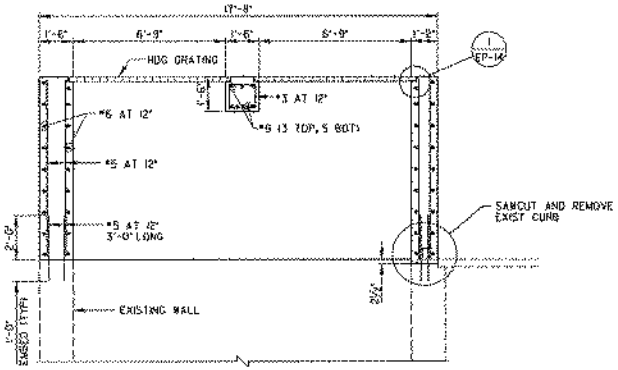
E SECTION
SCALE: 3/8" = 1'-0"



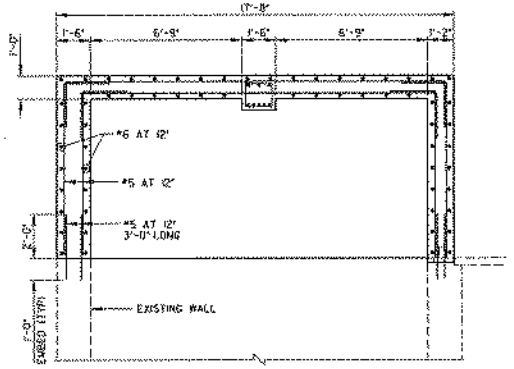
NOTES:

1. ALL GRATING SHALL BE SECURED IN PLACE WITH REMOVABLE FASTENERS OR WELDINGS.
2. ALL BOLTS, RIVETS, ANCHOR BOLTS & FASTENERS SHALL BE 316 SS UNLESS NOTED OTHERWISE.

1 BAR GRATING & SUPPORT
EP-14 EP-14 NOT TO SCALE



A SECTION
SCALE: 3/8" = 1'-0"



B SECTION
SCALE: 3/8" = 1'-0"

EP-14

PAVAHO STORM WATER PUMPING STATION
EXISTING DISCHARGE CHAMBER EXTENSION – STRUCTURAL
DEPT. OF PUBLIC WORKS AND TRANSPORTATION
CITY OF DALLAS, DALLAS COUNTY, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
JACOBS	JACOBS	APRIL 2024	AS SHOWN		4210-8	17

CO FILE NO.

WJ
PER-EMM.
PER-EC

TEXAS HISTORICAL COMMISSION
real places telling real stories

December 21, 2009

William Fickel, Jr., Chief
Planning, Environmental, and Regulatory Division
Department of the Army
Fort Worth District, Corps of Engineers
P.O. Box 17300
Fort Worth, TX 76102-0300

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966, as amended: City of Dallas Modifications to the Pavaho Pump Station of the Dallas Floodway, Final Memorandum of Agreement (MOA), Dallas, Dallas County (USACE/106/201004364)*

Dear Mr. Fickel:

Thank you for your correspondence of describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

The review staff in the Division of Architecture, led by Adam Alsobrook, has completed its review of the final MOA provided. The THC accepts the USACE mitigation proposal to document the Pavaho Pump Station in accordance with the written standards of HABS Level II and digital photographic documentation to the National Park Service Digital Photographic Standards. We hereby return to your office the copy of the final MOA that has been signed by Mark Wolfe, the Texas SHPO. We look forward to receiving a copy of the final MOA once the concurring parties have also signed the document.

Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Adam Alsobrook at 512/463-6183.**

Sincerely,

Adam Alsobrook, Project Reviewer
For: Mark Wolfe, State Historic Preservation Officer

cc: Michael Lowenberg, Chair, Dallas County Historical Commission
Jim Anderson, Historic Preservation Officer, City of Dallas
Katherine Seale, Preservation Dallas
MW/aa

RECEIVED 31 Dec 09

Memorandum of Agreement
Between the
U.S. Army Corps of Engineers
and the
Texas Historical Commission
Regarding the Dallas Floodway
Pavaho Pump Station
December 1, 2009

WHEREAS, the City of Dallas seeks approval from the U.S. Army Corps of Engineers (USACE) to modify the Pavaho Pump Station of Dallas Floodway; and

WHEREAS, a permit and/or approval by the USACE constitutes an undertaking under the National Historic Preservation Act (NHPA) of 1966, as amended

WHEREAS, this undertaking is separate from the Dallas Floodway Project Environmental Impact Statement due to the immediate need to protect life and property from flooding; and

WHEREAS the USACE has determined and the Texas Historical Commission (THC) has concurred the identification of historic properties present within the APE is complete; and

WHEREAS, The USACE has determined and THC has concurred that the Pavaho Pump Station and the West Levee of the Dallas Floodway are eligible for the National Register of Historic Places (Attachments A and B); and

WHEREAS, The USACE has determined and THC has concurred that effect of the undertaking on the Pavaho Pump Station is adverse and effects on the West Levee of the Dallas Floodway are not adverse (Attachments A and B); and

WHEREAS, the USACE has determined and the THC has concurred there are no known archeological sites present and the undertaking does not have the potential to affect any known or potential archeological sites within the APE; and

WHEREAS, the Advisory Council on Historic Preservation (the Council) was notified of the adverse effect on November 10, 2009; and

WHEREAS, the public has been kept informed on the undertaking and its effects on historic properties through notification on the USACE Website; and

WHEREAS, the City of Dallas and Preservation Dallas have been invited to participate in consultation to seek ways to avoid, reduce or mitigate adverse effects as the result of this undertaking and to concur in this agreement; and

NOW, THEREFORE, the signatories agree that the undertaking shall be implemented in accordance with the following stipulations to take into account the direct and indirect effects of the undertaking on historic properties within the APE and mitigates the adverse effects on historic properties as the result of the undertaking, therefore satisfying the USACE's Section 106, 110, and 111 responsibilities under the NHPA.

Stipulations

The USACE shall ensure the following stipulations:

I. Documentation.

The USACE shall document the Pavaho Pump Station prior to the undertaking.

A. USACE shall photographically document the Pavaho Pump Station adhering to the Proposed Digital Photographic Standards (Photographic Standards) of the National Park Service dated March 2008 (Attachment C).
    1. USACE shall submit printed copies of the digital images via U.S. Mail to the THC for a 30 day review and comment period. The THC shall review and comment as to number of views, appropriateness of and overall quality of the images. The THC will indicate acceptance of the images via letter conveyed to the USACE via U.S. Mail. This notification will constitute approval for the USACE to proceed with the undertaking.
    2. Upon THC acceptance of the images for conformance to the Photographic Standards in terms of photographic coverage, the undertaking may proceed while the written documentation is under development.
B. Within six months of the signing of the agreement, USACE shall submit to THC written documentation to NPS Level II HABS Standards. The digital images shall be incorporated into the documentation. THC shall review and comment on the draft. USACE shall revise and resubmit the written documentation until the document is mutually acceptable.
C. Final archival copies shall be submitted to the City of Dallas Public Library Dallas History Division and the THC archives.

II. Inadvertent Discoveries

If Native American human remains and/or objects subject to the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA), i.e., burials, associated

and unassociated funerary objects, sacred objects and objects of cultural patrimony, are encountered during the undertaking, USACE shall immediately notify the THC and consult with the appropriate federally recognized Tribe(s) to determine appropriate treatment measures for these human remains in agreement with 36 CFR Part 800.13. It shall be the responsibility of USACE to either preserve in place or repatriate the human remains or objects subject to NAGPRA, depending on the agreed upon determination of the tribe(s). If remains / objects subject to NAGPRA are encountered prior to completion of the transfer, the rules of NAGPRA disposition will be followed by the USACE. Nothing in this agreement should be construed to contradict this stipulation.

In the event of inadvertent discovery of archaeological materials not subject to NAGPRA, work shall immediately stop in the area of discovery and the USACE shall comply with 36 CFR 800.13(b) to notify and consult with the THC, Federally recognized Indian tribes that might attach significance to the property, and the Advisory Council on Historic Preservation.

IV. Status Reports

Until this agreement terminates, the USACE shall provide monthly status reports to all consulting parties via email to review implementation of the terms of this agreement and to determine whether amendments are needed. If amendments are needed, the signatories to this agreement will consult, in accordance with stipulations of this agreement, to make such revisions. The first status report will be submitted to all consulting parties one month after the date this agreement is ratified.

V. Dispute Resolution

A. Should the signatories to this agreement object within thirty (30) days to any plans or other documents provided by the USACE or others for review pursuant to this agreement, or to any actions proposed or initiated by the USACE pursuant to this agreement, USACE shall consult with the objecting party to resolve the objection. If USACE determines that the objection cannot be resolved, USACE shall forward all documentation relevant to the dispute to the ACHP. Within thirty (30) days after receipt of all pertinent documentation, the ACHP will either:

1. Provide the USACE with recommendations, which the USACE will take into account in reaching a final decision regarding the dispute; or
2. Notify the USACE that it will comment pursuant to 36 CFR 800.7(a)(4), and proceed to comment.
3. Any ACHP comment will be taken into account by the USACE in accordance with 36 CFR 800.7 with reference to the subject of the dispute.

B. Only those recommendations or comments provided by the ACHP that pertain to the subject of the dispute will be considered by the USACE in reaching a decision; the

USACE's responsibility to carry out all other actions under this agreement that are not the subjects of the dispute will remain unchanged.

C. Should an interested party raise an objection to the manner of the USACE implementation of the measures stipulated in this agreement, then the USACE shall consider the objection and consult, as appropriate, with the objecting party and the consulting parties to attempt to resolve the objection.

VI. Amendments

A. The signatories to this agreement may request that this agreement be revised, whereby the parties will consult to consider whether such revision is necessary, pursuant to 36 CFR Part 800.6(c)(1).

B. If it is determined that revisions to this agreement are necessary, then the USACE and the signatories shall consult pursuant to 36 CFR Part 800.13(1), as appropriate, to make such revisions. Except that reviewing parties must comment on, or signify their acceptance of, the proposed changes to the agreement in writing within 30 days of their receipt.

VII. Termination of Agreement

A. The signatories to this agreement may terminate this agreement by providing thirty (30) days written notice to the other signatory parties, pursuant to 36 CFR Part 800.6(c)(i). During the period after notification and prior to termination, the USACE and the other signatories will consult to seek agreement on amendments or other actions that would avoid termination. In the event of termination, the USACE will comply with 36 CFR Parts 800.4 through 800.6 with regard to individual undertakings.

B. The parties agree that this agreement will become null and void upon completion of all mitigation measures stipulated herein.

C. The effective date of this agreement shall be the date of the last signature by a signatory.

Signatories:

US ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

Date 7 Dec 09

Richard J. Muraski, Jr.
Colonel, Corps of Engineers
Commanding

TEXAS HISTORICAL COMMISSION

Mark Wolfe Date 12/16/09

Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission

Concur:

City of Dallas, Texas

_____ Date _____

Jim Anderson
Historic Preservation Officer
City of Dallas

Preservation Dallas

_____ Date _____

Katherine Seale
Executive Director
Preservation Dallas

AR Consultants, Inc.

Archaeological and Environmental Consulting
11020 Audelia Road, Suite C105, Dallas, TX 75243
Phone: (214) 368-0478
Fax: (214) 221-1519
email: arcdigs@aol.com

July 2, 2009

Bill Martin, Archeologist
Texas Historical Commission
PO Box 12276
Austin, TX 78711

Dear Bill,

Jacobs Engineering asked me to look the archaeological potential of an area where the City of Dallas currently has the historic Pahavo Pump Station (Figure 1). They are proposing to construct a modern pumping station adjacent to the existing building but without doing any damage to the older facility. All this is going to be done on a roughly triangular-shaped piece of property that the city owns and is shown on the enclosed aerial photo (Figure 2). The property is located outside the levee at the toe of the upland and includes the borrow pit area where the levee fill was obtained. In addition, a channelized drainage flows northeast into the sump that is included within the seven acres. Besides these factors, the location is at the edge of the Trinity River floodplain and the old river channel is located outside the levee on the north side of the present channelized river which is where the archaeological potential is high. Based on these factors of excavation, disturbance, and distance to the real river channel, it is my opinion that an archaeological investigation of the property is unwarranted and that construction should be allowed to proceed without any survey or testing. I have discussed this particular project with Robert Scott at the Corps of Engineers and he indicated that they would not require any archaeological investigations.

Therefore, I am requesting that you concur with my conclusion that archaeological investigations are unwarranted.

Thank you for your attention to this matter and if you have any questions, please give me a call at 214 368 0478 or on my cell at 214 906 8021.

Sincerely,

S. Alan Skinner, PhD
President

NO HISTORIC PROPERTIES AFFECTED
PROJECT MAY PROCEED
By _____
for F. Lawerence Oaks
State Historic Preservation Officer
Date 7/22/09
Track# _____

Encl. Dallas, TX 7.5' USGS map with location circled
Aerial photo of project area

cc. Robert Scott, Corps of Engineers
Lindi Weber, Jacobs

Appendix E

Record of Non-Applicability (RONA) and Air Quality Data

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RECORD OF NON-APPLICABILITY (RONA) FOR THE PROPOSED IMPROVEMENTS TO THE PAVAHO PUMPING PLANT IN THE CITY OF DALLAS, TEXAS

CLEAN AIR ACT CONFORMITY METROPOLITAN DALLAS FORT WORTH AIR QUALITY CONTROL REGION (AQCR)

INTRODUCTION

The U.S. Environmental Protection Agency (USEPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* in the 30 November 1993, Federal Register (40 Code of Federal Regulations [CFR] Parts 6, 51, and 93). This publication provides implementing guidance to document Clean Air Act Conformity Determination requirements.

Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan, before the action is taken (40 CFR Part 1 51.850[a]).

The general conformity rule applies to federal actions proposed within areas which are designated as either nonattainment or maintenance areas for a National Ambient Air Quality Standards (NAAQS) for any of the criteria pollutants. Former nonattainment areas that have attained a NAAQS are designated as maintenance areas. Emissions of pollutants for which an area is in attainment are exempt from conformity analyses.

The Proposed Action would occur within the Metropolitan Dallas Fort Worth AQCR, which is currently in nonattainment of the 8-hour ozone (O_3) NAAQS, and attains the NAAQS for all other criteria pollutants. Therefore, only project emissions of O_3 precursors (volatile organic compounds [VOCs] and oxides of nitrogen [NO_x]) are analyzed for conformity rule applicability.

The annual *de minimis* levels for this region are 100 tons of VOC and NO_x, as listed in Table 1. Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels (40 CFR Part 1, Section 51.853[b]) and are not regionally significant (totals less than 10 percent of projected regional emissions for that pollutant) (40 CFR Part 1, Section 93.153).

Table 1. Conformity *de minimis* Levels for Criteria Pollutants in the Metropolitan Dallas Fort Worth AQCR

Criteria Pollutant	*De minimis* Level (tons/year)
Volatile Organic Compounds (VOC)	100
Oxides of Nitrogen (NO_x)	100

PROPOSED ACTION

Action Proponent: USACE

Location: City of Dallas, Texas

Proposed Action Name: Proposed Improvements to the Pavaho Pumping Plant in the City of Dallas, Texas.

Proposed Action Summary: The Proposed Action would involve construction of a new pump station at the Pavaho Pumping Plant. The new pump station would consist of three, 125,000-gpm pumps (375,000 gpm total pumping capacity), and one, 6,000-gpm low-flow pump. The New Pavaho Pump Station would neighbor the existing Pavaho Pump Station on Canada Drive.

Air Emissions Summary: For the purposes of establishing compliance with conformity requirements, the estimated emissions for implementation of the Proposed Action were divided over the course of three implementation years, since full implementation of the Proposed Action was assumed to begin in 2010 and be completed by 2012. This approach provides estimated annual construction emissions for 2010 thru 2012. Estimated construction emissions due to implementation of the Proposed Action are shown in Table 2. Based on the air quality analysis for the Proposed Action, the maximum estimated emissions would be below conformity *de minimis* levels and would not be regionally significant.

Table 2. Estimated Emissions Resulting from Implementation of the Proposed Action

Project Emissions Tons Per Year	Pollutant					
	VOCs[1]	NO_x[1]	CO[2]	SO_x[2]	PM_{10}[2]	$PM_{2.5}$[2]
2010 – 2012 Annual Emissions	0.52	3.93	2.03	0.00	2.55	0.45
de minimis threshold	100	100	100	100	100	100
Exceeds *de minimis* threshold?	No	No	No	No	No	No

Notes: [1] The Metropolitan Dallas Fort Worth AQCR is in "moderate" non-attainment for the federal O_3 standard; VOCs and NO_x are precursors to the formation of O_3.

[2] The Metropolitan Dallas Fort Worth AQCR is in attainment of the federal CO, SO_2, $PM_{2.5}$, and PM_{10} standards. *De minimis* thresholds are not applicable to NAAQS attainment areas; however, estimated emissions have been compared with moderate non-attainment *de minimis* thresholds for planning purposes only.

Affected Air Basin: Metropolitan Dallas Fort Worth

Date RONA Prepared: 3 May 2010

RONA Prepared By: USACE with direct support from TEC Inc.

EMISSIONS EVALUATION AND CONCLUSION

Emissions associated with the Proposed Action were calculated using data presented in Chapter 2 of the Environmental Assessment (EA), general air quality assumptions, and standard emission factors. The USACE concludes that *de minimis* thresholds for applicable criteria pollutants would not be exceeded as a result of implementation of the Proposed Action. The emissions data supporting that conclusion is shown in Table 2, which is a summary of the calculations, methodology, and data included in Appendix E of the Pavaho Pumping Plant EA. Therefore, the USACE concludes that further formal Conformity Determination procedures are not required, resulting in this RONA.

Emissions Summary

Construction Emmissions Summary

Pavaho Pumping Plant	Emissions (tons)					
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
Emissions per year (2010-2012)	2.03	0.52	3.93	0.00	2.55	0.45

Construction Equipment Emissions

Pavaho Pumping Plant Construction - 2010 thru 2012

Proposed Action	Fuel	HP	Load Factor	Emission Factors, g/bhp-hr								No of Equipment	Hrs/day	Months	Emissions, lbs/day								Emissions, tons/year							
Equipment				CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4				CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4	CO	VOC	NOx	SOx	PM10	PM2.5	CO2	CH4
Tractor/Loader/Backhoe	Diesel	108	55	4.07	1.19	7.16	0.007	0.654	0.58206	568.3	0.108	1	4	26	2.13	0.62	3.75	0.00	0.34	0.30	297.69	0.06	0.72	0.21	1.27	0.00	0.12	0.10	100.62	0.02
Dump Truck	Diesel	479	57	1.82	0.57	5.55	0.006	0.295	0.26255	568.3	0.051	1	2	26	2.19	0.69	6.68	0.01	0.36	0.32	684.16	0.06	0.74	0.23	2.26	0.00	0.12	0.11	231.24	0.02
Water Truck	Diesel	250	50	1.82	0.57	5.55	0.006	0.295	0.26255	568.3	0.051	1	4	26	2.01	0.63	6.12	0.01	0.33	0.29	626.45	0.06	0.68	0.21	2.07	0.00	0.11	0.10	211.74	0.02
Excavator	Diesel	168	57	2.19	0.59	6.15	0.006	0.229	0.20381	568.3	0.053	1	4	26	1.85	0.50	5.19	0.01	0.19	0.17	479.91	0.04	0.63	0.17	1.76	0.00	0.07	0.06	162.21	0.02
Bobcat	Diesel	44	55	6.07	2.25	5.68	0.007	0.578	0.51442	568.3	0.203	1	4	26	1.30	0.48	1.21	0.00	0.12	0.11	121.28	0.04	0.44	0.16	0.41	0.00	0.04	0.04	40.99	0.01
Trencher	Diesel	63	75	4.35	1.47	8.72	0.007	0.734	0.65326	568.3	0.133	1	4	12	1.81	0.61	3.63	0.00	0.31	0.27	236.80	0.06	0.28	0.10	0.57	0.00	0.05	0.04	36.94	0.01
Compactor	Diesel	8	43	3.47	0.68	4.33	0.009	0.274	0.24386	568.3	0.061	1	4	12	0.11	0.02	0.13	0.00	0.01	0.01	17.24	0.00	0.02	0.00	0.02	0.00	0.00	0.00	2.69	0.00
Compressor	Diesel	106	48	4.08	1.32	7.76	0.007	0.686	0.61054	568.3	0.119	1	4	26	1.83	0.59	3.48	0.00	0.31	0.27	254.99	0.05	0.62	0.20	1.18	0.00	0.10	0.09	86.19	0.02
Paver	Diesel	100	62	4.4	1.5	8.75	0.007	0.759	0.67551	568.3	0.135	1	4	12	2.41	0.82	4.78	0.00	0.41	0.37	310.72	0.07	0.38	0.13	0.75	0.00	0.06	0.06	48.47	0.01
													TOTAL		15.63	4.96	34.99	0.03	2.38	2.12	3029.22	0.45	4.50	1.41	10.27	0.01	0.67	0.60	921.09	0.13
															Annual Totals 2010 - 2012 (divide by 3 years) =								**1.498**	**0.471**	**3.423**	**0.00**	**0.224**	**0.199**	**307**	**0.042**

ASSUMPTIONS:

1) It was assumed that construction would occur over approximately 800 calendar days or approximately 26 months.

2) For the purposes of establishing compliance with conformity requirements, the estimated emissions for implementation of the Proposed Action were divided over the course of three implementation years, since full implementation of the new Pavaho Pumping Plant were assumed to begin in 2010 and be completed by 2012. This approach provides estimated annual construction emissions for 2010 thru 2012.

Construction Truck Emissions

Vehicle Class	No. of Trucks Per Construction Year	Speed (mph)	VMT (mi/vehicle-day)	CO Running Exhaust (g/mi)	NO_x Running Exhaust (g/mi)	VOC Running Exhaust (g/mi)	SOx Running Exhaust (g/mi)	PM10 Running Exhaust (g/mi)	PM10 Tire Wear (g/mi)	PM10 Brake Wear (g/mi)	PM2.5 Running Exhaust (g/mi)	PM2.5 Tire Wear (g/mi)	PM2.5 Brake Wear (g/mi)	CO2 Running Exhaust (g/mi)	CH4 Running Exhaust (g/mi)	Emissions, lbs/day								Emissions, tons/year							
																CO	NOx	VOCs	SOx	PM10	PM2.5	CO2	CH4	CO	NOx	VOCs	SOx	PM10	PM2.5	CO2	CH4
Heavy-duty diesel truck	5	27	20	6.303	17.209	1.262	0.019	0.713	0.036	0.028	0.656	0.009	0.012	1992.669	0.059	**1.39**	**3.79**	**0.28**	**0.00**	**0.17**	**0.15**	**439.31**	**0.01**	**0.17**	**0.47**	**0.03**	**0.00**	**0.02**	**0.02**	**54.91**	**0.00**

Emission Factors from EMFAC2007, Year 2009, 60 F, 27 mph

Unpaved Road Emissions		**PM10**	**PM2.5**
E = k(s/12)^a(W/3)^b	k	1.5	0.15
Assume s = 8.5	a	0.9	0.9
Assume W = 10	b	0.45	0.45
Assume 5 miles of travel per vehicle per day			
Emission Factor		1.8906	0.18906
Control Efficiency		61%	61%
Emissions, lbs/day		18.4334	1.84334
Emissions, tons/year		2.30417	0.23042

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