

# Designing Improvements to the Riverside Canal for Improved Conveyance and Conservation



## Final Report

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**Final Report pursuant to Texas Water Development Board  
Contract Number 1813582258**

**October 23, 2020**

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# 1 Executive Summary

On May 3, 2018 the Texas Water Development Board (TWDB) approved funding for Contract No.1813582258 with El Paso Water Improvement District No. 1 (EPCWID1) for an Agricultural Water Conservation Project titled “Designing Improvements to the Riverside Canal for Improved Conveyance and Conservation” (the Project). The Project completion date was originally December 31, 2019. After administrative delays, the Project was completed on July 17, 2020.

The project consisted of performing survey, engineering design, and environmental review work necessary for concrete lining 42,300 feet (8.01 miles) of the Riverside Canal and reconstructing the Riverside Canal Wasteway II and Check structures. The Project location is shown in Figure 1-1. The main tasks were as follows:

- Task 1: Field survey work and preliminary design of Riverside Canal improvements
- Task 2: Engineering design of Riverside Canal improvements
- Task 3: Environmental summary
- Task 4: Grant administration and technical support

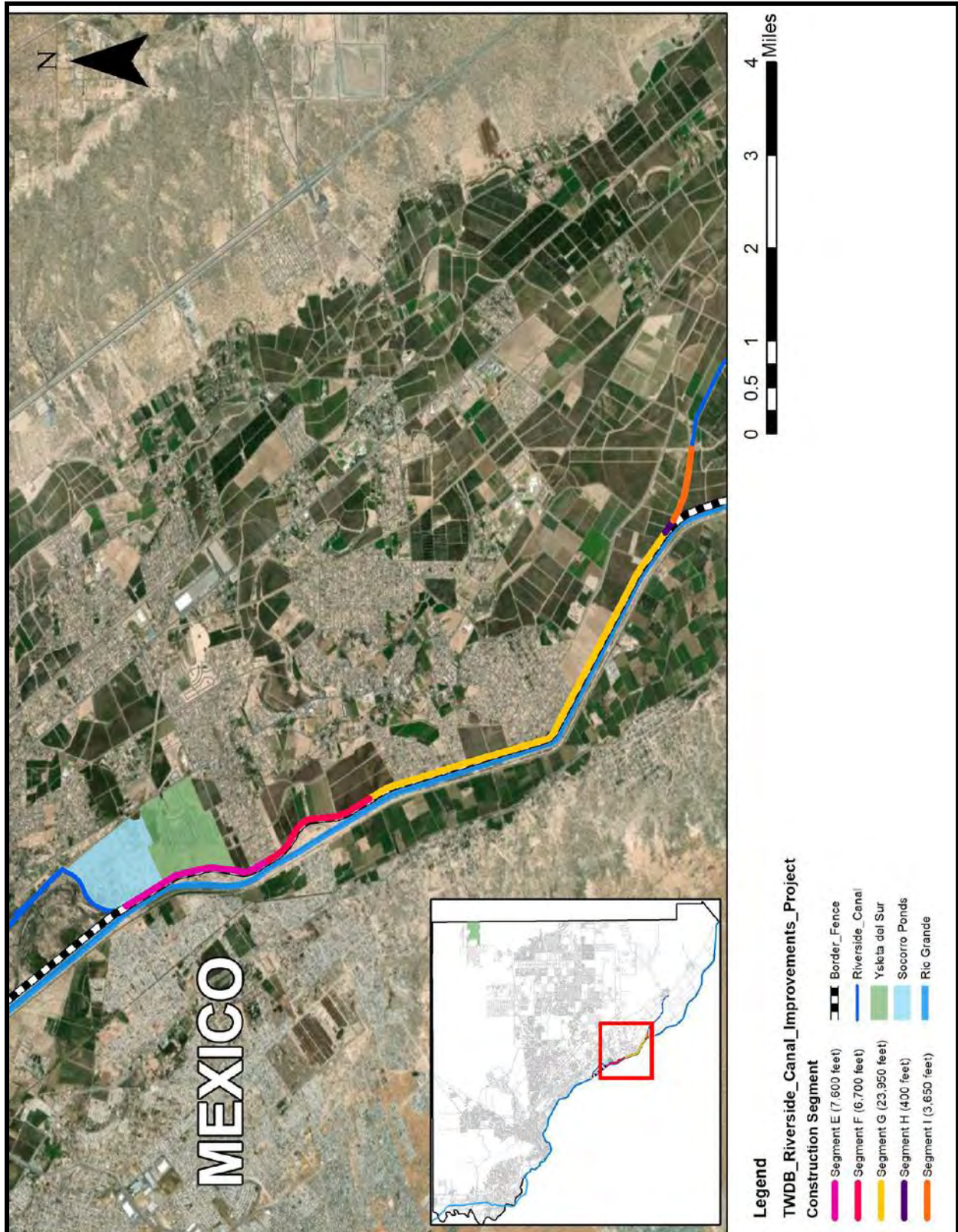
Field survey work was completed via a TWDB-approved subcontract with H2O Terra, LLC. The preliminary design, engineering design, and environmental review work was completed via a TWDB-approved subcontract with AW Blair Engineering. EPCWID1 staff administered the grant and provided technical support to complete the Project.

Completing survey, engineering design, and environmental review work necessary for concrete lining the Riverside Canal is essential to securing funding for construction. Since the start of the Project, funding has been secured for 8,000 feet of concrete lining construction (equivalent to 18% of the Project design length) via federal funding programs. The Project design length was split into five segments and prorated cost estimates were developed based on cost estimates for Segment E. Possible funding sources have been identified for the remaining 34,300 feet (82%).

**Table 1-1. Current and possible funding sources for concrete lining.**

Segments	Length	Segments, funding programs, and amounts (dollars)				Year
		Agency	Program	EPCWID1	External Funding	
Segment E	7,600 ft	USBR	WaterSMART	\$1,700,820	\$1,131,406	2020
Segment F	6,700 ft	USBR (planned)	WaterSMART	\$1,000,000	\$1,000,000	2023
Segment G	23,950 ft	TWDB (planned)	SWIFT	0	\$8,626,774	2022
Segment H	400 ft	IBWC	Agreement	\$392,064	\$227,936	2020
Segment I	3,650 ft	USBR (planned)	WaterSMART	\$570,500	\$570,500	2024
<b>Subtotal</b>				<b>\$3,663,384</b>	<b>\$11,556,616</b>	

Figure 1-1. Location of designed improvements for the Riverside Canal.





## **2 Introduction and Background**

The Designing Improvements to the Riverside Canal for Improved Conveyance and Conservation Project is located in Far West Texas (Region E Water Planning Region) in El Paso County. El Paso County has an arid climate and receives an average annual rainfall of about 8 inches with net evaporation exceeding 70 inches. The region faces unique water challenges characterized by an agricultural system that is a century old, prolonged drought conditions, a growing population and a growing sister city in Mexico with shared groundwater and surface water supplies, interstate and international treaties, and interstate litigation that may impact the District's water supply from the Rio Grande.

The El Paso County Water Improvement District (EPCWID1) provides water from the Rio Grande for 69,010 acres of water rights lands divided into more than 30,000 water user accounts. Active irrigation users include approximately 325 large farms and 4,500 irrigated tracts of two acres or less (small-tracts). EPCWID1 delivers water to an average of 49,000 acres of cropland using 350 miles of canals, 269 miles of drains, 60 wells, and over 2,200 turnouts.

The City of El Paso currently has water rights for approximately 70,000 acre-feet per year from Rio Grande Project water in contracts and from leasing water rights from holders. Rio Grande Project water is used to meet approximately 50% of municipal demand for a population of over 700,000. The amount of water attainable by the City of El Paso is subject to availability and is dependent on the District's total diversion rights and prior appropriations.

The Project design length of the Riverside Canal is located adjacent to the United States – Mexico border. Concrete lining the Riverside Canal is among the most cost-effective projects available to EPCWID1 and is necessary to continue providing the water necessary to sustain farming operations and provide additional water to the City of El Paso under its contracts with the EPCWID1. As water demand is met by a more efficient system, EPCWID1 can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest.

Prolonged drought conditions prompted the need to make investments in water conservation and efficiency improvements. Engineering specifications were needed to make improvements to structures and appurtenances at the Riverside Canal, including the Riverside Canal Wasteway II and Check structures. The need for these improvements became more apparent after the construction of the U.S.-Mexico Border Fence on the Rio Grande levee running parallel to the Riverside Canal.

### 3 Water Savings

Because the Project is composed of planning and design work, the actual water savings are essentially zero. The water savings estimates included herein are those savings that would be realized once construction is complete. Post-construction water savings were determined water loss estimates from a seepage test (Blair, 2000).

#### 3.1 Riverside Canal Ponding (Seepage) Test

On November of 1998, EPCWID1 performed a hydrostatic test on approximately the first 2.25 miles (11,880 feet) of the Riverside Canal between Riverside Dam and the Partidor Check (Blair, 2000).

A ponding test was used to determine the amount of water seeping from an irrigation canal into the surrounding earth. Conducting the test requires that a preselected canal test segment is isolated by means of constructing temporary earthen dams at both ends of the segment, filled with water, and then measuring the rate of water level decline over a given time interval using staff gauges and submersible data loggers. To ensure that the test is as accurate as possible the temporary dams were carefully constructed to ensure that minimal leakage occurs through the dams. All other outflows such as irrigation turnouts were checked and sealed. The canal test areas were filled to normal operating levels and held there for a minimum of 24 hours before measuring water surface drop.

The results of the seepage test indicated that the annual loss of water from seepage in the test portion of the Riverside Canal is approximately 3,000 acre-feet per mile (year-round). Approximately 2,000 acre-feet per mile (February 15 to October 15, 243 days) could be salvaged by lining the canal with concrete. A small amount of the seepage water is captured by nearby deep rooted vegetation, but most of the water is lost to regional groundwater flow across the international border to the south.

#### 3.2 Water Savings Estimates

Water savings are determined using a prorated formula based on pre-construction seepage estimates in acre-feet of water conserved per mile tested (Blair, 2000), post-construction seepage estimates in acre-feet of water conserved based on construction materials and methodology, and the concrete lining construction length and the duration of the irrigation season.

The concrete lining designs for the Riverside Canal generally will not include an impervious geotextile under the shotcrete paving or water stops at each of the construction joints (every 10 feet) because of cost. It is estimated that approximately 50% of the measured seepage will be salvaged. As such, the post-construction seepage rate is 1,000 acre-feet per mile.

$$\begin{aligned} & 2,000 \text{ acre-feet per mile per year (pre-construction seepage)} \\ & - \underline{1,000 \text{ acre-feet per mile per year (50\% salvage rate)}} \\ & = 1,000 \text{ acre-feet per mile per year (post-construction water savings)} \end{aligned}$$



The Project consists of designing concrete lining specifications for 42,300 feet of the Riverside Canal. The prorated amount of salvage for the Riverside Canal is based on a full water allocation from February 15 to October 15 (243 days).

$$0.50 \text{ [salvage rate]} \times 2,000 \text{ acre-feet per mile}$$

$$* \text{ [segment length in feet]} / 5280 \text{ feet}$$

$$= \text{segment savings rate in acre-feet}$$

The prorated amount of water savings are determined based on the duration of the irrigation season (in days).

$$\text{[number of days per irrigation season scenario]} / 243 \text{ days}$$

$$* \text{ [segment water savings rate]}$$

$$= \text{prorated segment savings in acre-feet}$$

Table 3-1 summarizes the prorated water savings that can be achieved after implementation in a drought-of-record scenario (45 days), 5-year average from 2015-2019 (182 days), and a full allocation year (243 days). An average water savings rate for the Project can be determined using the average of annual prorated water savings calculated each year.

**Table 3-1. Water savings for the Riverside Canal.**

Water savings (acre-feet) by drought scenario						
Segment	Length (ft)	Irrigation season scenario	Days	Segment WS rate	Prorated savings	
Segment E	7,600	Drought of record	45	1,439	266	
		5-year average (2015-2019)	182	1,439	1,078	
		Full allocation	243	1,439	1,439	
Segment F	6,700	Drought of record	45	1,269	235	
		5-year average (2015-2019)	182	1,269	950	
		Full allocation	243	1,269	1,269	
Segment G	23,950	Drought of record	45	4,536	840	
		5-year average (2015-2019)	182	4,536	3,397	
		Full allocation	243	4,536	4,536	
Segment H	400	Drought of record	45	76	14 <sup>a</sup>	
		5-year average (2015-2019)	182	76	57 <sup>a</sup>	
		Full allocation	243	76	76 <sup>a</sup>	
Segment I	3,650	Drought of record	45	691	128	
		5-year average (2015-2019)	182	691	517	
		Full allocation	243	691	691	

<sup>a</sup> There are additional efficiency and conservation benefits from the reconstruction of Riverside Canal Wasteway II and Check structures

Per the calculations above, the maximum amount of water conserved by the implementation of the Project is estimated at 8,011 acre-feet per irrigation year with a full allotment, 5,999 acre-feet per irrigation year based on 5-year average from 2015-2019, and the amount of water conserved under estimated drought-of-record conditions is 643 acre-feet per irrigation year. To date, EPCWID1 has only implemented Segment H and achieved its respective water savings.

## **4 Scope of Work**

### **4.1 Task 1: Field Survey Work and Preliminary Design of Improvements**

#### **4.1.1 Field survey**

On October 25, 2018, EPCWID1 contracted professional surveying services from H2O Terra LLC. The TWDB approved the subcontract on February 19, 2019. The contract with H2O Terra LLC and the field survey deliverable are available for reference in Appendix B.

H2O Terra LLC surveyed approximately 44,300 feet of the Riverside Canal from the Wasteway I structure to 500 feet downstream from Hole-in-the-Wall Road, exceeding the Project design length by 2,000 feet. H2O Terra LLC completed all deliverables stated in the scope of services on March 19, 2019. The scope of services included:

1. The limits of the Riverside Canal including right top of bank, right toe of slope, center line, left toe of slope, and left top of bank at 500 foot intervals. The surveyed sections will also include top of bank width and outside top and toes of the bank;
2. Existing wasteway structures, irrigation check structures, irrigation turnouts, roadways, bridges, and fences within the survey limits requested area including the Border Fence adjacent to the Riverside Canal.
3. Existing utilities including overhead and underground within the limits of the survey request. Verification of utilities by One-call is to be done prior to performing survey in the field.
4. All flow line elevations for structures are to be to the actual finished concrete and not to the silt accumulation on top of the concrete structures.
5. All elevations are to be in USBR datum. The coordinated system shall be to Texas State
6. Plane Coordinate System, Central Zone (4203) NAD83.
7. Deliverables: 3 sets of hard copies as well as a digital file in AutoCAD 2013 format including the Civil 3D surface and text file listing of all points with Point Number, Northing, Easting, Elevation and Description.

#### **4.1.2 Preliminary design summary**

AW Blair Engineering was contracted to review the field survey produced by H2O Terra LLC and to prepare a Preliminary Design Summary. The terms of the subcontract with AW Blair Engineering are described in Task 2 below. Work included in the Preliminary Design Summary was incorporated into subsequent deliverables and is therefore not included as a separate document in this report.

The summary was available early in the subcontract period and was used to secure \$1 million in funding from the U.S. Bureau of Reclamation's WaterSMART program and \$227,936 in funding via a Memorandum of Understanding with the U.S. Section of the International Boundary and Water Commission (IBWC). The summary included estimates for cross-sectional dimensions,

water flow capacity design estimates used for cultural and historical compliance with the Texas Historical Commission, and cost estimates necessary to develop grant proposal budgets for funding opportunities in 2019 and 2020.

## **4.2 Task 2: Engineering design of Riverside Canal improvements**

On October 25, 2019, EPCWID1 contracted professional engineering services from AW Blair Engineering. The TWDB approved the subcontract on April 28, 2020. The contract with AW Blair Engineering and the multiple deliverables can be referenced in Appendices C, D, and E.

### ***4.2.1 Project plan and study***

The Project plan and study subtask included project management for the subcontracted engineering services and involved producing design and planning deliverables while simultaneously working with EPCWID1 to secure funding and undergo construction. Specifically, this subtask resulted in two project implementation outcomes:

1. Engineering design was completed in February of 2019 for the Riverside Canal Wasteway II and Check Structures, construction funding was secured in May 8 of 2019 from the U.S. Section of the International Boundary and Water Commission (USIBWC), and construction was completed from October of 2019 to May of 2020.
2. Preliminary concrete lining engineering specifications for Segment E (7,600 feet) of the Riverside Canal were completed by September of 2019 and construction funding was secured in May of 2020 from the U.S. Bureau of Reclamation.

### ***4.2.2 Construction plans and specifications for the unlined length of the Riverside Canal***

Completed construction drawings prepared by AW Blair Engineering are available for reference in Appendix D. The plans are suitable for continued funding acquisition and construction of concrete lining for the unlined length of the proposed 42,300 feet of the Riverside Canal.

### ***4.2.3 Construction plans and specifications for Riverside Canal Wasteway II and Check***

Completed construction drawings prepared by AW Blair Engineering are available for reference in Appendix C. The plans were suitable for funding acquisition and construction. As previously stated, the implementation of construction plans and specifications for the Riverside Canal Wasteway II and Check Structures was completed in May of 2020.

### ***4.2.4 Planned regulating reservoir***

Recommendations regarding the planned “Socorro Ponds” regulating reservoir are available in page 5 of 58 of the Drawings for Construction of the Riverside Canal Improvements in Appendix D. Specifically, it is recommended that modifications to the structure be based on the final design specifications of the planned regulating reservoir.

### ***4.2.5 Gate automation***

Automated gates were designed as part of the construction plans and specifications for the Riverside Canal Wasteway II and Check Structures in Appendix C. Automated gates have been successfully implemented in the structures.

### 4.3 Task 3: Environmental Summary

#### 4.3.1 Project purpose, need, and possible funding sources for construction

A Final Environmental Summary was successfully completed by AW Blair Engineering and is available for reference in Appendix E. Sections detailing the project purpose, need, and possible funding sources for construction are available in pages 6 – 8 of the Final Environmental Summary. Sections of the document are suitable for use in funding acquisition and to meet federal and state environmental, cultural, and historic compliance requirements.

#### 4.3.2 Reasonable alternatives

The section detailing reasonable alternatives to the Project can be referenced in pages 9 – 11 of the Final Environmental Summary. This section is suitable for use to meet compliance requirements defined in the National Historic Preservation Act (NHPA) of 1966 per the Texas Historical Commission (THC / SHPO) Section 106 Review process.

#### 4.3.3 Summary of environmental impacts

The section detailing the environmental impacts of the Project can be referenced in pages 11 – 20 of the Final Environmental Summary. This section is suitable for use to meet compliance and reporting requirements for federally-funded projects and is consistent with environmental determinations produced by other local, state, and federal entities.

### 4.4 Task 4: Grant Administration and Technical Support

EPCWID1 staff contributed administrative and technical support to the project as in-kind. Payment requests were made on a reimbursement basis for all costs. Delays in securing a TWDB-approved subcontract for AW Blair Engineering resulted in no payment request submissions from March 2019 through May of 2020.

#### 4.4.1 Quarterly report schedule

**Table 4-1. Summary of administrative reports.**

			Report date and type
Year	Month	Report Type	Description
2018	October	Progress report	Progress report from May 2018 through August 2018
2018	October	Payment request	Payment request from May 2018 through August 2018
2019	January	Progress report	Progress report from September 2018 through November 2018
2019	January	Payment request	Payment request from September 2018 through November 2018
2019	March	Progress report	Progress report from December 2018 through February 2019
2019	March	Payment request	Payment request from December 2018 through February 2019
2019	June	Progress report	Progress report from March 2019 through May 2019
2019	October	Progress report	Progress report from June 2019 through August 2019
2020	January	Progress report	Progress report from September 2019 through November 2019
2020	March	Progress report	Progress report from December 2019 through February 2020
2020	July	Progress report	Progress report from March 2020 through May 2020
2020	July	Payment request	Payment request from March 2020 through May 2020
2020	July	Draft final report	Draft final report submission
2020	October	Final report	Final report submission ( <i>projected</i> )
2020	October	Payment request	Final payment request for retainage (5%) ( <i>projected</i> )

#### 4.4.2 Grant contractual obligations

EPCWID1 staff worked with TWDB staff to meet the contractual obligations listed in Contract No. 1813582258. The TWDB approved a budget revision on April 17, 2020, and costs reported to the TWDB reflect the budget revision to match reported expenditures. A payment adjustment was made as part of payment request no. 3, and EPCWID1 absorbed \$4,130 in costs exceeding the TWDB-approved subcontract with H2O Terra Inc. \$2,065 was paid in advance by the TWDB during payment request no. 3 that was subtracted for payment request no. 4.

**Table 4-2. Summary of payment requests.**

Payment dates and amounts (dollars)					
Payment #	Service dates	Total expenses	EPCWID1	TWDB <sup>a</sup>	Retainage <sup>a</sup>
1	05/03/18-08/31/18	\$102.89	\$51.45	\$48.87	\$2.57
2	09/01/18-11/30/18	\$793.28	\$396.64	\$376.81	\$19.83
3	12/01/18-02/28/19	\$50,244.70	\$25,122.35	\$23,866.23	\$1,256.12
	(adjustment)	-\$4,130.00	-\$4,130.00	0.00	0.00
4	03/01/19-05/31/20	\$52,989.13	\$28,559.56	\$20,708.09	\$3,721.48
<b>Total</b>		<b>\$100,000.00</b>	<b>\$50,000.00</b>	<b>\$45,000.00</b>	<b>\$5,000.00</b>

<sup>a</sup> The TWDB column excludes retainage. The total TWDB share is \$50,000 after adding the retainage.

**Table 4-3. Final Task Budget.**

Task and expenses (dollars)				
Task	Service dates	Task budget	Expenses	Percent of budget
1	Field survey work and preliminary design	\$35,050.00	\$35,050.00	100%
2	Engineering design of canal improvements	\$50,000.00	\$50,000.00	100%
3	Environmental summary	\$10,000.00	\$10,000.00	100%
4	Grant administration and technical support	\$4,950.00	\$4,950.00	100%
<b>Total</b>		<b>\$100,000.00</b>	<b>\$100,000.00</b>	<b>100%</b>

**Table 4-4. Final Expense Budget.**

Cost categories and expenses (dollars)			
Cost category	Expense budget	Expenses	Percent of budget
Salaries and Wages	\$4,125.00	\$4,125.00	100%
Fringe	\$825.00	\$825.00	100%
Subcontractor Services	\$95,050.00	\$95,050.00	100%
<b>Total</b>	<b>\$100,000.00</b>	<b>\$100,000.00</b>	<b>100%</b>

#### 4.4.3 Technical support

Technical support provided by EPCWID1 staff included site ground and aerial photography, GIS work, environmental, historical, cultural, and stormwater compliance work, and reviewing work submitted by subcontractors.

## 4.5 Outreach and Education

Outreach and public education activities occurred from the Project start date through May 31, 2020, and included presentations to the EPCWID1 Board of Directors (monthly), farmer's meetings (quarterly), and occasional site visits with local, state and federal water stakeholders.

Project presentations were held in the following public events:

1. Presentation at the City of El Paso District 1 Community Meeting on May 23, 2019
2. Presentation for the City of Socorro City Council and staff on September 5, 2019
3. Presentation at the 2019 Rio Grande Project Annual Operating Plan (AOP) meeting to multiple stakeholders on April 25, 2019
4. Presentation to multiple stakeholders at the North American Development Bank (NADBank) Board Meeting on May 30, 2019
5. Presentation at the El Paso County Historical Commission public meeting on August 13, 2019

Project implementation sessions with water stakeholders included:

6. Project presentation at the USBR Albuquerque Area Office on March 28, 2019
7. Riverside Canal site visit with USBR staff on June 6, 2020
8. Presentation for State Senator Jose Rodriguez (State Senate District 29), staff, and the S29 Environmental Committee on June 30, 2019
9. Consultation with the U.S. Customs and Border Protection (CBP) Ysleta Field Office and Clint Field Office requesting input on the use of the Riverside Canal banks on August 13, 2019
10. Initial consultation with the Ysleta del Sur Pueblo Tribe (federally recognized) requesting input on the planned improvements to the Riverside Canal adjacent to the Reservation on August 14, 2019
11. Multiple work sessions with the U.S. Section of the International Border and Water Commission (USIBWC) and related construction at the Riverside Canal Wasteway II structures.

Outreach activities were also included as part of comprehensive project descriptions for this and other TWDB grant-funded projects, federally-funded projects, and other initiatives to the Office of State Representative Mary Gonzales (Texas House District 75), the Office of Representative Veronica Escobar (U.S. House District 16), and the Office of Representative Will Hurd (U.S. House District 23).

## **4.6 Project Construction Implementation**

Funding for concrete lining the Riverside Canal has been secured for Segment E from the United States Bureau of Reclamation (USBR) WaterSMART Water and Energy Efficiency Grants (WEEG) program. \$131,406 are being allocated to the first 1,000 feet of Segment E from a FY2018 WaterSMART WEEG grant. Construction of this 1,000-foot section will begin in October of 2020. \$1,000,000 were awarded from the FY2020 WaterSMART WEEG program for the construction of the remaining 6,600 feet of Segment E. Construction of this section will begin in October of 2021.

In 2019, \$227,936 in funding was secured for Segment H from the United States Section of the International Boundary and Water Commission (USIBWC) to concrete line 400 feet of the Riverside Canal and reconstruct the Riverside Canal Wasteway II and Check structures. Construction of Segment H was completed in May of 2020.

Grant funds from these federal sources are being used to meet approximately 40% of the construction costs, with the District contributing the remaining 60% in cash and in-kind contributions. The combined canal length of Segments D and G is 8,000 feet and accounts for approximately 18% of the total Project.

## **5 Conclusions and Recommendations**

Making improvements to the Riverside Canal to conserve water and increase efficiency was determined to be among the most cost-effective projects available to EPCWID1. Concrete lining the Riverside Canal is considered extensively in the 2016 Region E Far West Texas Water Plan. Implementing the Project is necessary to continue providing the water necessary to sustain farming operations and provide additional water for municipal use.

EPCWID1 used the Project to successfully secure funding for 8,000 feet of concrete lining and reconstruct a major check and waste structure. Completed engineering design and environmental and cultural compliance work improves EPCWID1's ability to secure external funding. It is expected that EPCWID1 will use the work performed as part of the Project to request additional local, state, and federal funds to concrete line the remaining 34,300 feet of canal.

## **6 Acknowledgements**

EPCWID1 would like to thank the Texas Water Development Board (TWDB) for funding the Designing Improvements to the Riverside Canal for Improved Conveyance and Conservation Project. EPCWID1 would also like to give special thanks to Mr. Cameron Turner, Manager of Agricultural Water Conservation Programs and Agricultural Grants with the TWDB, for his continued support and assistance.

## **7 References**

Blair, A.W., 2000, Salvage of Water in El Paso County Water Improvement District No. 1 Canal System: Sealed Engineering Report available electronically upon request from EPCWID1.



## 8 Appendix

### Appendix A. Summary of Project costs, invoices, and payments

Reporting period, invoice and check numbers, and amount (dollars)

Payment Request No.	Reporting Period	Invoice No.	Check No.	Source	Amount	Totals
1	05/03/18-08/31/18	In-Kind	In-Kind	EPCWID1	\$102.89	\$102.89
2	09/01/18-11/30/18	In-Kind	In-Kind	EPCWID1	\$793.28	\$793.28
3	12/01/18-02/28/19	In-Kind	In-Kind	EPCWID1	\$424.70	
		5774	47604	H2O Terra	\$18,405.00	
		5821	47967	H2O Terra	\$10,095.00	
		5822	47967	H2O Terra	\$5,680.00	
		2018-79	47715	AWBE	\$15,640.00	
						\$50,244.70
	(adjustment)	--	--	--	-\$4,130.00	-\$4,130.00
4	03/01/19-05/31/20	In-Kind	In-Kind	EPCWID1	\$3,629.13	
		2019-09	48107	AWBE	\$7,160.00	
		2019-027	48423	AWBE	\$5,000.00	
		2019-040	48910	AWBE	\$14,600.00	
		2019-054	49122	AWBE	\$9,920.00	
		2020-022	50264	AWBE	\$12,680.00	
						\$52,989.13
					<b>Total</b>	<b>\$100,000.00</b>

**Appendix B. Survey performed by H2O Terra Inc.**

EPCWID 1  
RECEIVED  
2019 FEB 19 A 10:44

# Texas Water Development Board

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

Mr. Jesus "Chuy" Reyes, General Manager  
El Paso County Water Improvement District No. 1  
PO Box 749  
Clint, TX 79836



RE: Agricultural Water Conservation Grant Contract Agreement with the El Paso County Water Improvement District No. 1; Contract No. 1813582258, Subcontract with H<sup>2</sup>O Terra LLC

Dear Mr. Reyes:

The Texas Water Development Board (TWDB) has received the above-referenced subcontract. The referenced subcontract has been reviewed and found to be consistent with the scope of work and budget in Contract No. 1813582258. The subcontract between El Paso County Water Improvement District No. 1 and H<sup>2</sup>O Terra LLC is therefore acceptable to the TWDB.

TWDB is disallowing lump sum payments and monitoring the reimbursement requests for any mark ups or fees that TWDB does not allow to be reimbursed.

Please feel free to contact Cameron Turner of our Conservation & Innovative Water Technologies staff at 512-936-6090 or [cameron.turner@twdb.texas.gov](mailto:cameron.turner@twdb.texas.gov) if you have any questions or need any further information.

Sincerely,



John T. Dupnik, P.G.  
Deputy Executive Administrator  
Water Science and Conservation

Date: 2.12.19

c w/o enc.: Cameron Turner, Conservation & Innovative Water Technologies

#### Our Mission

To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas

#### Board Members

Peter M. Lake, Chairman | Kathleen Jackson, Board Member | Brooke T. Paup, Board Member

Jeff Walker, Executive Administrator

## LETTER AGREEMENT

October 09, 2018

The El Paso County Water Improvement District No.1  
13247 Alameda Ave.  
Clint, Texas 79836-0749

Subject: Riverside Canal Cross-Sections & Detail Survey on Structures A2036 - Survey Services for Existing Ground Conditions for Part of the Riverside Canal – revised w/ TWDB Requirements

Dear Mr. Ornelas:

Thank you for the opportunity to serve you. In accordance with your Request for Proposal dated August 15, 2018, H<sub>2</sub>O Terra is pleased to present this proposal as detailed below. For your convenience, this proposal is presented in a form that can be accepted and signed as an agreement between H<sub>2</sub>O Terra and The El Paso County Water Improvements District No. 1 (EPCWID #1), hereinafter "Client."

**SCOPE:** The scope of services to be performed by H<sub>2</sub>O Terra under this letter agreement is:  
*Surveying of approximately 44,300 feet of the Riverside Canal from the Wasteway 1 (WW1) structure to 500 feet downstream from Hole-in-the-Wall Road.*

1. Existing wasteway structures, irrigation check structures, irrigation turnouts, roadways, bridges, and fences within the survey limits requested area including the Border Fence adjacent to the Riverside Canal.
2. Existing utilities including overhead and underground within the limits of the survey request. Verification of utilities by One-call is to be done prior to performing survey in the field.
3. All flow line elevations for structures are to be to the actual finished concrete and not to the silt accumulation on top of the concrete structures.
4. All elevations are to be in USBR datum. The coordinated system shall be to Texas State Plane Coordinate System, Central Zone (4203) NAD83.
5. Deliverables: 3 sets of hard copies as well as a digital file in AutoCAD 2013 format including the Civil 3D surface and text file listing of all points with Point Number, Northing, Easting, Elevation and Description.

**COMPENSATION:** Compensation for services shall be on a lump sum basis of **\$30,050.00**.

Any additional labor charges outside of the scope of work will at the hourly rates in accordance with the attached Standard Labor Schedule (2018) billing schedule. Additional direct expenses outside of the scope of work shall be charged at the rate(s) in accordance with that same billing schedule. Payment for the work shall be submitted for payment monthly based upon the percent of the total work completed at that time.

**SCHEDULE:** The work defined herein and in your Request for Proposal dated August 15, 2018, request for proposal shall begin at a date to be determined after H<sub>2</sub>O Terra receives the signed copy of this letter agreement from you. The estimated time completion date is February 15<sup>th</sup>, 2019. This assumes that this proposal will be returned signed to H<sub>2</sub>O Terra no later than October 18<sup>th</sup>, 2018. All work will be performed in accordance with H<sub>2</sub>O Terra's attached **Standard Terms and Conditions**. To accept this proposal, please sign and date two copies and return one copy to H<sub>2</sub>O Terra within five days.

We look forward to the opportunity to perform the work for you. Please call Charlie Gutierrez or me at (915) 533-1418 if you have questions.

Very truly yours,



Steve Morgan

The undersigned agrees to the Terms and Conditions of this Letter Agreement attached hereto.

**El Paso County Water Improvement District No.1**

Signature 

Printed Name JESUS REYES

Title GENERAL MANAGER

Date 10-25-18

**H2O Terra LLC**

Signature 

Printed Name Steven T Morgan

Title Partner

Date October 09, 2018

- Attachments: (2)  
1) Standard Terms and Conditions (Pages 3-6)  
2) H2O Terra, LLC - STANDARD LABOR SCHEDULE (2018)

## **H<sub>2</sub>O Terra / Client - Standard Terms and Conditions**

### **I. SCOPE**

H<sub>2</sub>O Terra agrees to perform the services described in the scope of work attached hereto which incorporates these terms and conditions. Unless modified in writing by the parties hereto, the duties of H<sub>2</sub>O Terra shall not be construed to exceed those services specifically set forth in the proposal. These terms and conditions and the proposal, when executed by Client, shall constitute a binding agreement on both parties (hereinafter the "Agreement").

### **II. COMPENSATION**

Client agrees to pay for the services in Article I in accordance with the compensation provisions in the proposal. Payment to H<sub>2</sub>O Terra will be made within 30 days after the date of billing. Interest on the unpaid balance at a rate of 3% per month will accrue beginning on the 31st day or at the maximum rate permitted by law whichever is higher.

Out of Scope time-related charges will be made in accordance with the billing rate referenced in the proposal letter or compensation exhibit attached to this Agreement. Direct expenses and Subcontractor services shall be billed in accordance with the proposal or compensation exhibit attached to this Agreement. In the event any uncontested portions of any invoice are not paid within 30 days of the date of Consultant's invoice, Consultant shall have the right to suspend work per Article XIV, Suspension of Work.

### **III. RESPONSIBILITY**

**STANDARD OF CARE.** H<sub>2</sub>O Terra is employed to render a professional service only, and any payments made by Client are compensation solely for such services rendered and recommendations made in carrying out the Work. H<sub>2</sub>O Terra shall perform the services in accordance with generally accepted engineering practices and standards in effect when the services are rendered. H<sub>2</sub>O Terra does not expressly or impliedly warrant or guarantee its services.

In performing construction management services, H<sub>2</sub>O Terra shall act as agent of Client. H<sub>2</sub>O Terra's review or supervision of work prepared or performed by other individuals or firms employed by Client shall not relieve those individuals or firms of complete responsibility for the adequacy of their work.

The presence of H<sub>2</sub>O Terra's personnel at a construction site, whether as on-site representative, resident engineer or construction manager, shall be for the sole purpose of determining that the work is generally proceeding in conformance with the intent of the project specifications and contract documents and does not constitute any form of guarantee or assurance with respect to contractor's performance. H<sub>2</sub>O Terra shall have no responsibility for the contractor's means, methods, techniques, sequences, for safety precautions and programs incident to the contractor's work, or for any failure of contractor to comply with laws and regulations applicable to performing its work.

### **IV. TEXAS WATER DEVELOPMENT BOARD CONTRACT REQUIREMENTS**

1. By executing this Contract, the H<sub>2</sub>O TERRA accepts the authority of the State Auditor's Office, under direction of the legislative audit committee, to conduct audits and investigations in connection with any and all state funds received pursuant to this contract. The H<sub>2</sub>O TERRA shall comply with and cooperate in any such investigation or audit. The H<sub>2</sub>O TERRA agrees to provide the State Auditor with access to any information the State Auditor considers relevant to the investigation or audit. The H<sub>2</sub>O TERRA also agrees to include a provision in any subcontract related to this contract that requires the H<sub>2</sub>O TERRA to submit to audits and investigation by the State Auditor's Office in connection with any and all state funds received pursuant to the subcontract.
2. H<sub>2</sub>O TERRA and its contracted parties shall maintain satisfactory financial accounting documents and records, including copies of invoices and receipts, and shall make them available for examination and audit by the DISTRICT and the EXECUTIVE ADMINISTRATOR of the TWDB. Accounting by the H<sub>2</sub>O TERRA and its contracted parties shall be in a manner consistent with generally accepted accounting principles.



3. The DISTRICT and the TWDB shall have unlimited rights to technical or other data resulting directly from the performance of services under this CONTRACT. It is agreed that all reports, drafts of reports, or other material, data, drawings, computer programs and codes associated with this CONTRACT and developed by the H2O TERRA or its contracted parties pursuant to this CONTRACT shall become the joint property of the H2O TERRA, the DISTRICT, and the TWDB. These materials shall not be copyrighted or patented by the H2O TERRA or by any consultants involved in this CONTRACT unless the DISTRICT and the EXECUTIVE ADMINISTRATOR of the TWDB approves in writing the right to establish copyright or patent; provided, however, that copyrighting or patenting by the H2O TERRA or its SUB-H2O TERRAs will in no way limit the DISTRICT and the TWDB 's access to or right to request and receive or distribute data and information obtained or developed pursuant to this CONTRACT. Any material subject to a TWDB copyright and produced by the H2O TERRA or TWDB pursuant to this CONTRACT may be printed by the DISTRICT and the H2O TERRA or the TWDB at their own cost and distributed by either at their discretion. The H2O TERRA may otherwise utilize such material provided under this CONTRACT as it deems necessary and appropriate, including the right to publish and distribute the materials or any parts thereof under its own name, provided that any TWDB copyright is appropriately noted on the printed materials.
4. The H2O TERRA and its contracted parties agree to acknowledge the DISTRICT and the TWDB in any news releases or other publications relating to the work performed under this CONTRACT.
5. NO DEBT AGAINST THE STATE CLAUSE: This SUBCONTRACT and Agreement shall not be construed as creating any debt by or on behalf of the State of Texas and the TWDB, and all obligations of the State of Texas are subject to the availability of funds. To the extent the performance of this SUBCONTRACT transcends the biennium in which this SUBCONTRACT is entered into, this SUBCONTRACT is specifically contingent upon the continued authority of the TWDB and appropriations therefore.
6. For the purpose of this CONTRACT, the H2O TERRA will be considered an independent H2O subcontractor and therefore solely responsible for liability resulting from negligent acts or omissions. The H2O TERRA shall obtain all necessary insurance, in the judgment of the H2O TERRA, to protect themselves, the DISTRICT, the TWDB, and employees and officials of the TWDB from liability arising out of this CONTRACT. The H2O TERRA shall indemnify and hold the TWDB and the State of Texas harmless, to the extent the H2O TERRA may do so in accordance with state law, from any and all losses, damages, liability, or claims therefore, on account of personal injury, death, or property damage of any nature whatsoever caused by the H2O TERRA, arising out of the activities under this CONTRACT.
7. H2O TERRA shall be solely and entirely responsible for procuring all appropriate licenses and permits, which may be required by any competent authority for the H2O TERRA to perform the subject work.

**V. RELIANCE UPON INFORMATION PROVIDED BY OTHERS.** If H<sub>2</sub>O Terra's performance of services hereunder requires H<sub>2</sub>O Terra to rely on information provided by other parties (excepting H<sub>2</sub>O Terra's subcontractors), H<sub>2</sub>O Terra shall not independently verify the validity, completeness or accuracy of such information unless otherwise expressly engaged to do so in writing by Client.

**VI. INDEMNIFICATION**

H<sub>2</sub>O Terra agrees to indemnify and hold Client harmless from and against any liability to the extent arising out of the negligent acts, errors or omissions of H<sub>2</sub>O Terra, its agents, employees, or representatives, in the



performance of duties under the Agreement. Regardless of any other term of this Agreement, in no event shall H<sub>2</sub>O Terra be responsible or liable to Client for any incidental, consequential, or other indirect damages.

#### **VII. INSURANCE**

H<sub>2</sub>O Terra shall maintain during the life of the Agreement the following minimum insurance:

1. **Commercial general liability** insurance, including personal injury liability, blanket contractual liability and broad form property damage liability. The combined single limit for bodily injury and property damage shall be not less than \$1,000,000.
2. **Automobile bodily injury and property damage liability** insurance covering owned, non-owned, rented, and hired cars. The combined single limit for bodily injury and property damage shall be not less than \$1,000,000.
3. **Statutory worker's compensation and employers' liability** insurance as required by state law.
4. **Professional liability** insurance with limits of not less than \$1,000,000.

Client shall be named as additional insured on policies 1 and 2 above. Upon request, a certificate of insurance will be provided to Client with a 30-day written notice in the event the above policies are cancelled.

#### **VIII. SUBCONTRACTS**

H<sub>2</sub>O Terra shall be entitled, to the extent determined to be appropriate to subcontract any portion of the Work to be performed under this Agreement.

#### **IX. ASSIGNMENT \_ Not Used**

#### **X. INTEGRATION**

These terms and conditions and the proposal to which they are attached represent the entire understanding of Client and H<sub>2</sub>O Terra as to those matters contained herein. No prior oral or written understanding shall be of any force or effect with respect to those matters covered herein. The Agreement may not be modified or altered except in writing signed by both parties, provided further that any terms and conditions in any client authorization or purchase order issued in connection or under the Agreement which are inconsistent with the Agreement are hereby superseded and shall be of no force and effect.

#### **XI. CHOICE OF LAW/JURISDICTION**

This Agreement shall be administered and interpreted under the laws of the state Texas. Jurisdiction of litigation arising from the Agreement shall be in that state.

#### **XII. SEVERABILITY**

If any part of the Agreement is found unenforceable under applicable laws, such part shall be inoperative, null and void insofar as it is in conflict with said laws, but the remainder of the Agreement shall be in full force and effect.

#### **XIII. FORCE MAJEURE**

H<sub>2</sub>O Terra shall not be responsible for delays in performing the scope of services that may result from causes beyond the reasonable control or contemplation of H<sub>2</sub>O Terra. H<sub>2</sub>O Terra will take reasonable steps to mitigate the impact of any force majeure.

#### **XIV. NO BENEFIT FOR THIRD PARTIES**

The services to be performed by H<sub>2</sub>O Terra hereunder are intended solely for the benefit of Client, and no right nor benefit is conferred on, nor any contractual relationship intended or established with any person or entity not a party to this Agreement. No such person or entity shall be entitled to rely on H<sub>2</sub>O Terra's performance of its services hereunder.

#### **XV. WORK PRODUCT**

H<sub>2</sub>O Terra and Client recognize that H<sub>2</sub>O Terra's work product submitted in performance of this Agreement is intended only for the Client's benefit and use. Change, alteration, or reuse on another project by Client shall be at Client's sole risk, and Client shall hold harmless and indemnify H<sub>2</sub>O Terra against all losses, damages, costs and expense, including attorneys' fees, arising out of or related to any such unauthorized change, alteration or reuse.

#### **XVI. SUSPENSION OF WORK**

Work under this Agreement may be suspended as follows:

1. **By Client.** By written notice to H<sub>2</sub>O Terra, Client may suspend all or a portion of the Work under this Agreement if unforeseen circumstances beyond Client's control make normal progress of the Work impracticable. H<sub>2</sub>O Terra shall be compensated for its reasonable expenses resulting from such suspension including mobilization and de-mobilization. If suspension is greater than 30 days, then H<sub>2</sub>O Terra shall have the right to terminate this Agreement in accordance with Article XV, Termination of Work.
2. **By H<sub>2</sub>O TERRA.** By written notice to Client, H<sub>2</sub>O Terra may suspend the Work if H<sub>2</sub>O Terra reasonably determines that working conditions at the Site (outside H<sub>2</sub>O Terra's control) are unsafe, or in violation of applicable laws, or in the event Client has not made timely payment in accordance with Article II, Compensation, or for other circumstances not caused by H<sub>2</sub>O Terra that are interfering with the normal progress of the Work. H<sub>2</sub>O Terra's suspension of Work hereunder shall be without prejudice to any other remedy of H<sub>2</sub>O Terra at law or equity.

#### **XVII. TERMINATION OF WORK**

**This Agreement may be terminated as follows:**

1. **By Client** (a) for its convenience on 30 days' notice to H<sub>2</sub>O Terra, or (b) for cause, if H<sub>2</sub>O Terra materially breaches this Agreement through no fault of Client and H<sub>2</sub>O Terra neither cures such material breach nor makes reasonable progress toward cure within 15 days after Client has given written notice of the alleged breach to H<sub>2</sub>O Terra.
2. **By H<sub>2</sub>O Terra** (a) for cause, if Client materially breaches this Agreement through no fault of H<sub>2</sub>O Terra and Client neither cures such material breach nor makes reasonable progress toward cure within 15 days after H<sub>2</sub>O Terra has given written notice of the alleged breach to Client, or (b) upon five days' notice if Work under this Agreement has been suspended by either Client or H<sub>2</sub>O Terra in the aggregate for more than 30 days.
3. **Payment upon Termination.** In the event of termination, H<sub>2</sub>O Terra shall perform such additional work as is reasonably necessary for the orderly closing of the Work. H<sub>2</sub>O Terra shall be compensated for all work performed prior to the effective date of termination, plus work required for the orderly closing of the Work. Except for termination of H<sub>2</sub>O Terra by Client for cause, H<sub>2</sub>O Terra shall also receive a termination fee equal to 15 percent of the total compensation yet to be earned under existing authorizations at the time of termination.

#### **XVIII. NOTICES**

All notices required under this Agreement shall be by personal delivery, facsimile or mail to the H<sub>2</sub>O Terra Project Manager and to the person signing the proposal on behalf of the Client, and shall be effective upon delivery to the addressed stated in the proposal.

# H2O Terra, LLC

## STANDARD LABOR SCHEDULE (2018)

EFFECTIVE DECEMBER 31, 2017 THE FOLLOWING RATES ARE FOR WORK PERFORMED ON AN HOURLY CHARGE BASIS. RATES INCLUDE RAW LABOR, 2018 COMPANY OVERHEAD AND PROFIT FOR SERVICES ACCOMPLISHED DURING REGULAR WORKING HOURS. THESE RATES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

### DIRECT LABOR

#### OFFICE PERSONNEL SERVICES

##### Classification Rate

Partner.....	\$ 175.00 per hour
Associate.....	\$ 144.00 per hour
Project Manager.....	\$ 160.00 per hour
Project Engineer .....	\$ 119.00 per hour
Engineer Associate (EIT).....	\$ 98.50 per hour
Land Planner.....	\$ 150.00 per hour
Senior Engineering Technician .....	\$ 95.00 per hour
Engineering Technician .....	\$ 95.00 per hour
Engineering Assistant I .....	\$ 79.50 per hour
CAD Designer III .....	\$ 95.00 per hour
CAD Designer II.....	\$ 79.00 per hour
CAD Designer I .....	\$ 75.12 per hour
Registered Professional Land Surveyor .....	\$ 150.00 per hour
Survey/Technical Coordinator .....	\$ 120.00 per hour
Senior Survey Technician.....	\$ 100.50 per hour
Survey Technician III .....	\$ 90.00 per hour
Survey Technician II.....	\$ 85.00 per hour
Survey Technician I .....	\$ 75.00 per hour
Administrative Assistant .....	\$ 60.00 per hour
Secretary.....	\$ 60.00 per hour
Construction Observer/RPR.....	\$ 69.50 per hour

#### FIELD PARTY SERVICES

2-Man Field Party.....	\$ 140.00 per hour
3-Man Field Party.....	\$ 170.00 per hour

#### DIRECT EXPENSES

##### Transportation:

By Firm's Passenger Vehicles.....	\$ 0.56 per mile
By Firm's Survey Trucks .....	\$ 0.56 per mile
Subsistence for Out-of-City Work (Survey Field Crew) .....	Prevailing IRS approved.....rates for survey locale
Survey Stakes, Lathes, Iron Rods and other Direct Expenses.....	Our cost plus 10%
In-House Reproduction & Printing by Firm .....	Prevailing commercial rates
Outside Reproductions, Couriers and other Direct Expenses .....	Our cost plus 10%

**NOTES:**

1. Field Party rates include a charge for normal equipment, normal supplies and survey vehicles. Abnormal use of stakes, lathes, etc. used (such as during the construction phase of a project) will be charged as indicated. A mileage charge will be billed for projects exceeding a 50 mile radius of the base office.
2. A minimum of two (2) hours Field Party time charge will be made for show up time and return to office, resulting from inclement weather conditions, etc.
3. Field Party stand-by time will be charged for at the appropriate rates shown above.
4. Hours in excess of 8 hours per day will be charged at time and ½ for all non-exempt personnel per Texas overtime laws.









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**Appendix C. Engineering Design of Riverside Canal Wasteway II and Check Structures**

# Texas Water Development Board

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

Mr. Jesus Reyes  
General Manager  
El Paso County Water Improvement District No. 1  
PO Box 749  
Clint, TX 79836

RE: Agricultural Water Conservation Grant Contract Agreement with the El Paso County Water Improvement District No. 1; Contract No. 1813582258, Subcontract Approval for AW Blair Engineering

Dear Mr. Reyes:

The Texas Water Development Board (TWDB) has received the above-referenced subcontract. The subcontract has been reviewed and found to be consistent with the scope of work and budget in Contract No. 1813582258. The subcontract between El Paso County Water Improvement District No. 1 and AW Blair Engineering is therefore acceptable to the TWDB.

Please feel free to contact Cameron Turner of our Conservation & Innovative Water Technologies staff at (512) 936-6090 or by email at [cameron.turner@twdb.texas.gov](mailto:cameron.turner@twdb.texas.gov) if you have any questions or need any further information.

Sincerely,



John T. Dupnik, P.G.  
Deputy Executive Administrator  
Water Science and Conservation

Date: 4/28/2020

c w/o enc.: Cameron Turner, Conservation and Innovative Water Technologies

### Our Mission

To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas

### Board Members

Peter M. Lake, Chairman | Kathleen Jackson, Board Member | Brooke T. Paup, Board Member  
Jeff Walker, Executive Administrator

## **AGREEMENT FOR ENGINEERING SERVICES**

This Agreement for Engineering Services (“Agreement”) is entered into by AW Blair Engineering (“the Engineer”) and El Paso County Water Improvement District No. 1 (“the Client”), (collectively “the Parties”), and is effective as of January 1, 2019.

1. **Request for Services:** The Engineer shall provide engineering and technical services (“Services”) as requested by the Client.

### **2. Scope of Work and Budgets**

#### **Task 1 – Preliminary Design of Riverside Canal Improvements**

The objective of this task is to prepare a Preliminary Design Summary for the Riverside Project based on the engineering survey information prepared by others.

Deliverables: Preliminary Design Summary of the Riverside Project shall be developed as a work product.

#### **Task 2 – Engineering Design of Riverside Canal Improvements**

The objective of this task is to perform engineering design work of improvements for the Riverside Project. Work shall include but not be limited to the following:

- a) Developing a project plan and study
- b) Developing construction plans and specifications for the proposed unlined length of the Riverside Canal
- c) Developing construction plans and specifications for any upgrades needed on canal gates, check structures, and culverts
- d) Developing feasibility designs and specifications to link Riverside Project operations to a planned regulating reservoir
- e) Identifying opportunities for implementing gate automation using District in-house designs

Deliverables: A completed Project Design Report shall be developed as a work product.

#### **Task 3 – Environmental Summary**

The objective of this task is to perform preliminary environmental summary and compliance work at the Riverside Project. Work shall include but not be limited to the following:

- a) Describing purpose, need, and possible funding sources for the construction of the proposed project
- b) Identifying Reasonable Alternatives to the proposed project
- c) Summarizing Environmental Impacts of the proposed project

Deliverables: A completed Environmental Summary shall be developed as a work product.

**Task Budget**

TASK DESCRIPTION	TOTAL PROJECT COST
1 Field Survey Work and Preliminary Design of Riverside Canal Improvements	\$ 5,000
2 Engineering Design of Riverside Canal Improvements	\$ 50,000
3 Environmental Summary	\$ 10,000
<b>TOTAL</b>	<b>\$ 65,000</b>

3. **Hourly Compensation:** For all Services provided by the Engineer under this Agreement the Client shall pay the Engineer for work completed by the Engineer according to the hourly fees as set forth in **AW Blair Engineering 2019 Engineering Services Fee Schedule** ("Fee Schedule") that is attached and made a part of this agreement. For each billing period (typically monthly) in which the Engineer performs such Service, the Engineer shall furnish the Client with an invoice describing each separately identifiable service provided in that period. The cumulative amount invoiced by the Engineer under this Agreement shall not exceed \$65,000.

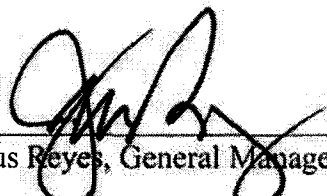
4. **Travel and Reimbursable Expense:** The Client shall reimburse the Engineer for travel expense and any other reasonable expense incurred in his performance of this Agreement. Reimbursement for travel expense shall be at rates prescribed in the Fee Schedule. Reimbursement for all other expense shall be at the cost to the Engineer and subject to the approval of the Client. The Engineer shall furnish to the Client receipts supporting any reimbursement request.


5. **Payment:** The District shall pay the Engineer within 30 days after the District receives an invoice from the Engineer.

6. **Terms and Conditions.** The General Terms and Conditions of this agreement are included and made a part of this agreement. This Agreement can be terminated at will by either party upon receipt of written notice to the other party, or on December 31, 2019 whichever is earlier. Such notice may be given by regular U.S. Mail, hand delivered, or sent by facsimile.

El Paso County Water Improvement  
District No. 1

AW Blair Engineering

By:   
Jesus Reyes, General Manager  
10-25-19

  
A.W. Blair, Principal  
10-25-19

## **General Terms and Conditions**

### **TERMINATION**

Either party may terminate this Agreement upon giving written notice to the other party at least one (1) days prior to the date of termination. In the event of termination, the Engineer shall within 15 days deliver to the Client one (1) reproducible copy of all finished or unfinished documents, computer programs developed by Engineer under contract with the Client, data, studies, surveys, drawings, maps, models, reports, etc. prepared by the Engineer and paid by the Client under this Agreement. The Engineer shall be entitled to receive just and equitable compensation for any work performed in accordance with the provisions of this Agreement prior to termination. If the Engineer has completed the specified tasks and phases prior to termination, Engineer will be entitled to the fees stipulated under this Agreement for such work completed. If termination should occur prior to the completion of a task or phase, the Engineer shall be reimbursed for his work under that particular task and phase based on the hours completed for that particular task and phase.

### **OWNERSHIP OF DOCUMENTS**

All documents including drawings and specifications prepared or furnished by the Engineer pursuant to this Agreement are instruments of service in respect of the Project and the Engineer shall retain ownership and property interest therein. In addition to design and construction documents otherwise provided under this Agreement, the Engineer will provide the Client, upon completion of the project, one reproducible copy of all pertinent work product, if so requested by the Client. As limited herein below for work completed and paid for by the Client whether or not the Project is completed, the Client may make and retain physical and digital copies for information and reference in connection with the use and occupancy of the Project by the Client and others; however, such documents are not intended or represented to be suitable for reuse by Client or others on any other project. Any such reuse will be at Client's sole risk and without liability or legal exposure to Engineer, and Client shall indemnify and hold harmless Engineer from all claims arising out of or resulting from such reuse.

### **LIMITATION OF LIABILITY**

To the fullest extent permitted by law, the total liability, in the aggregate, of Engineer and Engineer's officers, directors, employees, agents and independent professional associates and consultants, and any of them, to OWNER and/or Client and anyone claiming by, through and under OWNER and/or Client, for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in any way related to Engineer's services, the Project or this agreement from any cause or causes whatsoever, including but not limited to the negligence, errors, omissions, strict liability or breach of contract of Engineer or Engineer's officers, directors, employees, agents and independent professional associates and consultants, and any of them, shall not exceed the total compensation of received by Engineer under this agreement, or the total amount of \$100,000.00, whichever is less.

### **CONFIDENTIALITY**

(a) The Engineer may reveal confidences and private information only with a fully informed client's or employer's consent, or when required by law or court order; or when those confidences, if left undisclosed, would constitute a threat to the health, safety or welfare of the public.

(b) The Engineer shall not use a confidence or private information regarding a client or employer to the disadvantage of such client or employer or for the advantage of a third party.

(c) The Engineer shall exercise reasonable care to prevent unauthorized disclosure or use of private information or confidences concerning a client or employer by the engineer's employees and associates.

### **OPINIONS OF COST**

Since Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor's methods of determining prices, or over competitive bidding or market conditions, Engineer's opinions of probable total Project costs and construction costs provided herein are to be made on the basis of Engineer's experience and qualifications and represent Engineer's best judgment as an experienced and qualified professional Engineer, familiar with the construction industry; but Engineer cannot and does not guarantee that proposals, bids or actual total Project or construction costs will not vary from opinions of probable cost prepared by Engineer. If prior to the bidding of project, the Client wishes greater assurance as to total Project or construction costs, Client shall employ an independent cost estimator to modify the contract documents to bring the construction cost within any limitation established by Client will be considered Additional Services and paid for as such by Client.

### **SUCCESSORS AND ASSIGNS**

Client and Engineer each binds himself and his partners, successors, executors, administrators, assigns and legal representatives to the other party to this Agreement and to the partners, successors, executors, administrators, assigns and legal representatives of such other party, in respect to all covenants, agreements and obligations of this Agreement.

a. Neither Client or Engineer shall assign, sublet or transfer any rights under or interest in (including, but without limitation, monies that may become due or monies that are due) this Agreement without the written consent of the other, except as stated above and except prior to the extent that the effect of the limitation may be restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement. Nothing contained in the paragraph shall prevent the Engineer from employing such independent consultants, associates and subcontractors, as he may deem appropriate to assist him in the performance of services hereunder.

b. Nothing herein shall be construed to give any rights or benefits hereunder to anyone other than Client and Engineer.

### **PROVISIONS CONCERNING PAYMENTS**

If Client fails to make any payment due under this agreement for Engineering services and expenses within thirty days after receipt of Engineer's statement, Engineer may, after giving seven days' written notice to Client, suspend services under this Agreement until Engineer has been paid in full all amounts due for services and expenses.



### **NONBINDING MEDIATION**

Any claims or disputes between the Client and Engineer, made during or after providing Engineering services, shall be first submitted to non-binding mediation.

### **ARBITRATION**

If the Client and Engineer fail to reach agreement among themselves or through non-binding mediation, all claims, disputes, and other matters in question arising out of, or thereof may be decided by arbitration in accordance with the rules of the American Arbitration Association. Either Client or Engineer may initiate a request for such arbitration, but consent of the other party to such procedure shall be mandatory. No arbitration arising out of, or relating to, this Agreement may include, by consolidation, joinder, or in any other manner, any additional party not a party to this authorization.

### **ATTORNEY'S FEES**

If any action is brought to either party against the other, the prevailing party shall be entitled to recover reasonable attorney fees.

### **VENUE**

The venue for this Agreement shall be any court of competent jurisdiction in El Paso County, Texas.

## **TEXAS WATER DEVELOPMENT BOARD REQUIREMENTS**

By executing this Agreement, the Engineer accepts the authority of the State Auditor's Office, under direction of the legislative audit committee, to conduct audits and investigations in connection with any and all state funds received pursuant to this Agreement. The Engineer shall comply with and cooperate in any such investigation or audit. The Engineer agrees to provide the State Auditor with access to any information the State Auditor considers relevant to the investigation or audit. The Engineer shall not subcontract for any of the work under this Agreement.

The Engineer shall maintain satisfactory financial accounting documents and records, including copies of invoices and receipts, and shall make them available for examination and audit by the EXECUTIVE ADMINISTRATOR of the TWDB. Accounting by the Engineer shall be in a manner consistent with generally accepted accounting principles

The TWDB shall have unlimited rights to technical or other data resulting directly from the performance of services under this Agreement. It is agreed that all reports, drafts of reports, or other material, data, drawings, computer programs and codes associated with this Agreement and developed by the Engineer pursuant to this Agreement shall become the joint property of the Engineer and the TWDB. These materials shall not be copyrighted or patented by the Engineer unless the EXECUTIVE ADMINISTRATOR of the TWDB approves in writing the right to establish copyright or patent; provided, however, that copyrighting or patenting by the Engineer will in no way limit the TWDB's access to or right to request and receive or distribute data and information obtained or developed pursuant to this Agreement. Any material subject to a TWDB

Engineer may otherwise utilize such material provided under this Agreement as it deems necessary and appropriate, including the right to publish and distribute the materials or any parts thereof under its own name, provided that any TWDB copyright is appropriately noted on the printed materials. The Engineer agrees to acknowledge the TWDB in any news releases or other publications relating to the work performed under this Agreement

This Agreement shall not be construed as creating any debt by or on behalf of the State of Texas and the TWDB, and all obligations of the State of Texas are subject to the availability of funds. To the extent the performance of this Agreement transcends the biennium in which this Agreement is entered into, this Agreement is specifically contingent upon the continued authority of the TWDB and appropriations therefore.

For the purpose of this Agreement, the Engineer will be considered an independent Engineer and therefore solely responsible for liability resulting from negligent acts or omissions. The Engineer shall obtain all necessary insurance, in the judgment of the Engineer to protect themselves, the Client, TWDB, and employees and officials of the TWDB from liability arising out of this Agreement. The Engineer shall indemnify and hold the TWDB and the State of Texas harmless, to the extent the Engineer may do so in accordance with state law, from any and all losses, damages, liability, or claims therefore, on account of personal injury, death, or property damage of any nature whatsoever caused by the Engineer, arising out of the activities under this Agreement.

The Engineer shall be solely and entirely responsible for procuring all appropriate licenses and permits, which may be required by any competent authority for the Engineer to perform the work under this Agreement.

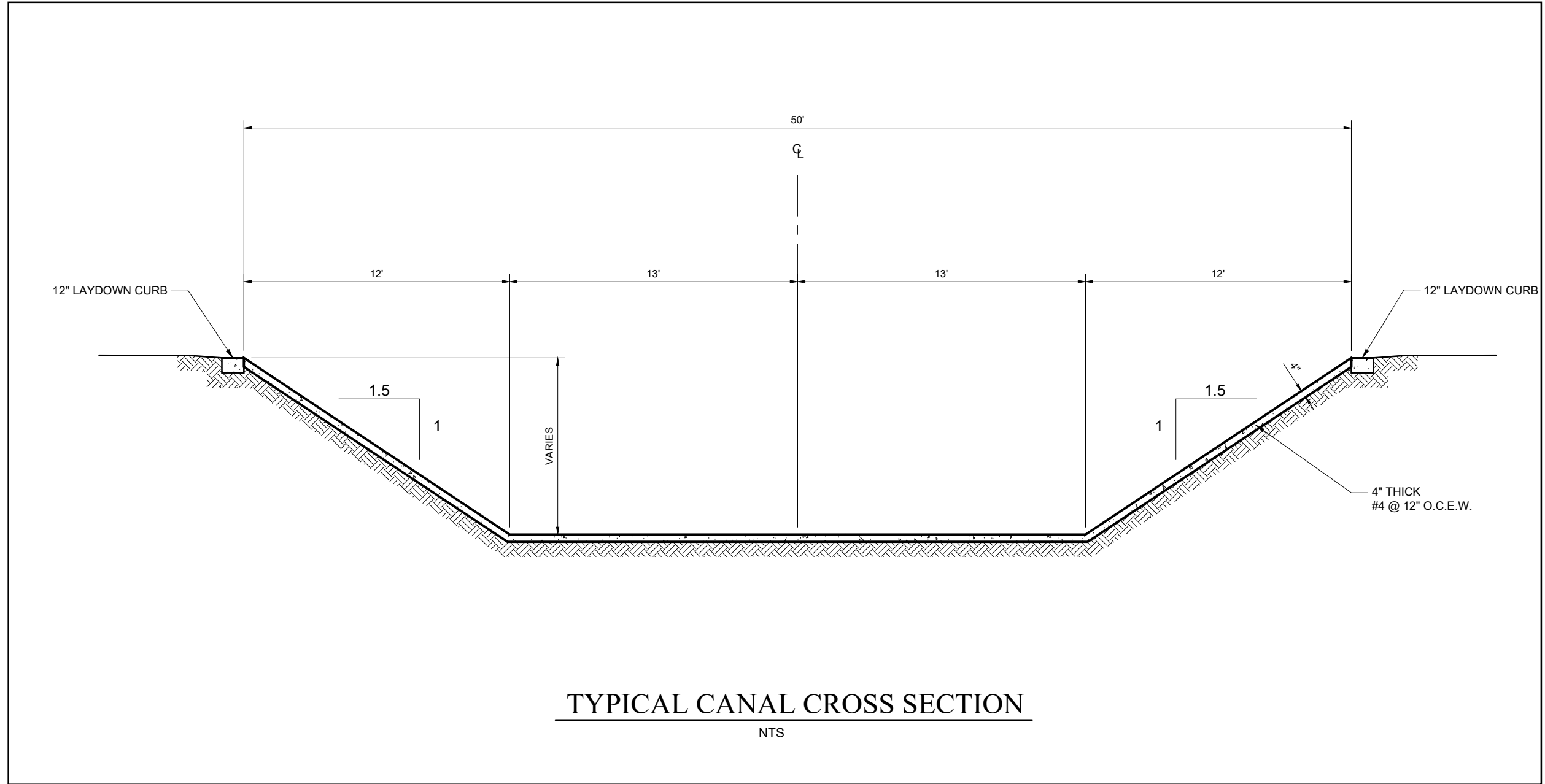
*2019 Engineering Services Fee Schedule – State of Texas Contracts*  
*for*  
**AWBlair Engineering**  
**P.O. Box 4615**  
**Austin, TX 78765-4615**

<u>Service</u>	<u>Rates</u>
<b>A.W. Blair, P.E., Ph.D., Principal</b>	
Expert testimony, depositions, expert reports, negotiations, review	\$285.00
Engineering design, research, meetings, travel	\$250.00
<b>Design Engineer/Project Manager (governmental and non-profit rate)</b>	
Engineering design, research, meetings, travel	\$200.00
<b>Field Engineer and Programming</b>	
Flow calibration measurement, surveying, site evaluations	\$150.00
Telemetry system support, Data Base Programming, Sys Admin	\$120.00
<b>Senior GIS/CAD Analyst</b>	\$120.00
<b>Engineering/Drafting Technician</b>	\$120.00
<b>Travel</b>	
Hotel and Lodging (in Texas)	State of Texas Rate
Hotel and Lodging (outside of Texas)	State of Texas Rate
Meals and Incidentals	State of Texas Rate
Airfare	Business
Car rental	intermediate or mid size car
Private vehicle	(current State of Texas Rate \$/mile)
<b>Report duplication, field supplies, special equipment</b>	at cost

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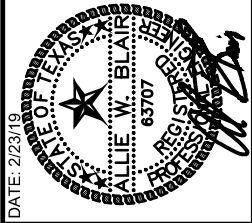


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**TYPICAL CANAL CROSS SECTION**

NTS



El Paso County Water Improvement District No. 1  
 P.O. Box 749 | 13247 Alameda Ave. Clint, Texas 79836-0749  
 (915) 872-4000 | Fax (915) 851-0091 | www.epcwidi.org

El Paso County Water Improvement District No. 1  
 Riverside Canal WW2 Check Structure  
 TYPICAL CANAL CROSS SECTION

DESIGNED: AWB  
 APPROVED: AWB  
 FILE: WW2-EPSCO-XSECS  
 JOB NO.: EPCWID WW2 CHECK  
 DATE: 2/23/19

SHEET 4 OF 25

NO.	DATE	APP'VD

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**Appendix D. Engineering Design of Riverside Canal Concrete Lining**

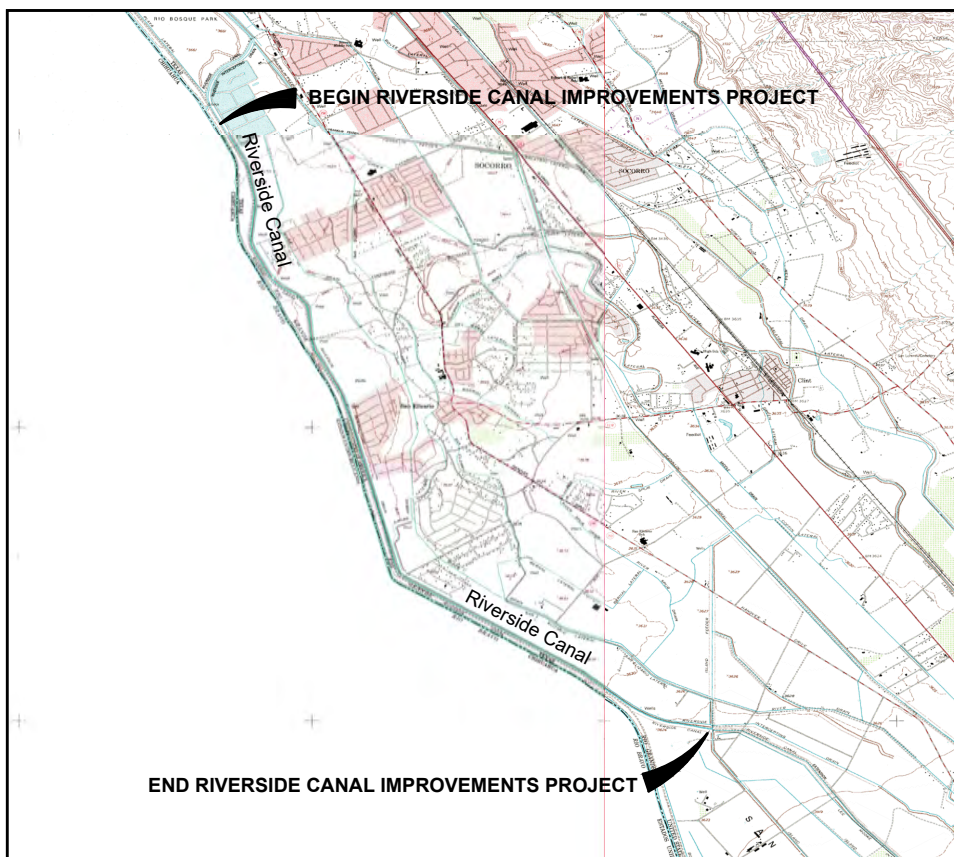
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# DRAWINGS FOR CONSTRUCTION OF Riverside Canal Improvements

**PREPARED FOR**

## **EL PASO COUNTY WATER IMPROVEMENT DISTRICT NO. 1**

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PROJECT LOCATION MAP  
NTS



El Paso County Water Improvement District No. 1

P.O. Box 749 | 13247 Alameda Ave. Clint, Texas 79836-0749  
(915) 872-4000 | Fax (915) 851-0091 | www.epcwid.org

APPROVED BY:

\_\_\_\_\_

for El Paso County Water Improvement District No. 1

\_\_\_\_\_

Date

SUBMITTED BY:

\_\_\_\_\_

A.W. Blair, P.E., Ph.D.  
EPCWID District Engineer

\_\_\_\_\_

Date

90% REVIEW  
3/10/20

NO.	DATE	REVISION	APPV'D

**LEGEND**

- IRON PIN FOUND
- ⊙ SURVEY MONUMENT

**CONSTRUCTION SEQUENCING**

1. Notify the government a minimum of 48 hours prior to beginning any work or as required in bid specifications.
2. Arrange for all existing utility lines to be marked.
3. Commence earth work.
4. Grade all areas to be paved to subgrade.
5. Place concrete.
6. Final grade areas surrounding pavement.
7. Repeat steps 3 through 6 for subsequent segments.
8. Complete final dress.
9. Schedule and attend preliminary walk through.
10. Correct punch list items.
11. Project engineer inspects job and writes concurrence letter and submits the letter to the District. Final inspection is scheduled upon the receipt of the concurrence letter.

**BENCHMARK INFORMATION**

**BENCHMARK NO. 1**

Bureau of Reclamation brass cap at point of inflection on top of concrete headwall located west of the Partidor Radial Gate and east of the old wood bridge. Stamped Elevation = 3618.86.

**BENCHMARK NO. 2**

Bureau of Reclamation brass cap on southeast end of concrete headwall on the opposite side of the levee road from Wasteway Headgate No. 3.05 MKD. Cap Elevation = 3618.86.

**BENCHMARK NO. 3**

Bureau of Reclamation brass cap on top right of check structure located on the San Elizario Lateral at approximately Station 324+98. Elevation = 3589.80

**GENERAL CONSTRUCTION NOTES**

**90% REVIEW**

1. All construction shall be in accordance with adopted specifications.
2. Prior to beginning construction, the owner or his authorized representative shall convene a Pre-Construction Conference between the government, consulting engineer and contractor.
3. Any existing pavement, curbs, and/or sidewalks or other structures damaged or removed will be repaired by the contractor at his expense before acceptance of the project.
4. All drain pipes to be Class IV RCP unless noted otherwise.
5. Cast bronze survey markers shall be placed in concrete in permanent, accessible locations at the time of construction. The location of the markers shall be indicated on the construction plans.
6. For slopes or trenches greater than five feet in depth: All construction operations shall be accomplished in accordance with applicable regulations of the U.S. Occupational Safety and Health Administration.
7. All site work must also comply with Environmental requirements.
8. The contractor shall not dispose of surplus excavated material from the site without notifying the government at least 24 hours prior to the spoils removal. This notification shall include the disposal location.
9. The contractor shall uncover and verify the depths and horizontal location of all existing utilities to be extended to, altered or subject to damage or inconvenience by this project prior to commencing construction. No separate pay.
10. The location and elevation of all existing utilities to be connected to shall be confirmed prior to the installation of any utility line. The contractor shall confirm with the Engineer the grade of the final segment of connecting pipe as necessary to meet the flowline elevation of the existing pipe. No separate pay.
11. The Contractor shall provide all trench safety as necessary and in strict accordance with the State and OSHA requirements.
12. The Contractor shall provide all traffic control as necessary for construction vehicles entering and exiting the site. No separate pay.
13. The contractor is responsible for assuring that all permits necessary to legally perform the work have been obtained prior to commencing construction. Required permits that can be issued to the Contractor only will be obtained at the Contractor's expense.
14. All steel shall conform to the requirements of ASTM A615 Grade 60.
15. All reinforcing steel laps shall be a minimum length of 30 bar diameters unless otherwise specified.
16. Expansion joint dowels shall be supported as necessary during pouring to assure that dowels are horizontal and plumb.
17. All reinforcing steel laps shall be made in a plane horizontal to the concrete surface to maintain minimum cover.
18. All construction joints shall be sealed as indicated on the plans.
19. Prior to hauling to the site, contractor must obtain approval of the engineer for any fill material to be utilized for the project.
20. Contractor is responsible for protecting all concrete work from rain and flooding.
21. All canal lining concrete shall have a minimum compressive strength of 4000 psi at 28 days unless otherwise noted. All structural concrete shall have a minimum compressive strength of 3600 psi at 28 days unless otherwise noted. High early strength mix designs may be proposed by the contractor but will require the approval of the engineer.
22. In the event of a conflict between the requirements of the plans and the requirements of the specifications, the more restrictive requirement shall govern. The Engineer shall determine which requirement is more restrictive.
23. The unit cost for all excavation shall include removal and transport of material within the project site or specified borrow location to the point of final placement.
24. Concrete debris may be placed below finished grade in the location indicated on the typical section detail. Concrete must be placed in a manner that will allow the placement of surrounding earthen fill in a manner the will not encourage future consolidation.
25. No more than two longitudinal construction joints made be placed in the canal concrete in any given transverse section. Construction joints shall be sealed in accordance with the construction joint detail. Construction joints shall be considered a subsidiary item to Concrete Canal Paving. The cost of construction joints proposed by the contractor shall be included in the unit cost for Concrete Canal Paving.
26. No transverse construction joints will be allowed in the Concrete Canal Paving. The Contractor shall conduct work in a manner that allows all pours to end at a proposed expansion joint. In the event it is necessary to terminate a pour at a location other than a planned expansion joint, the Contractor shall install an additional expansion joint at no cost to the Owner.
27. The unit cost for Concrete Canal Paving shall apply for all slab thicknesses including the standard 5-inch slab and thickened sections at canal ladders, expansion joints and end joints.
28. The contractor shall incorporate existing and proposed levee pipe penetrations into the Concrete Canal Paving. No separate pay. Such work may include mitering pipes and final grouting penetrations. Required pipe extensions will be performed by others.
29. The contractor may adjust the receding "finished grade" slope east of the eastern levee to accommodate cut and fill quantities. Such slope adjustments shall provide for positive drainage away from the levee and shall maintain slopes between 1.5 and 5.0 percent.
30. The unit cost for embankment shall apply to the construction of the formal channel embankment and for the construction of the receding slopes outside of the channel embankments.
31. Geotechnical bore locations indicated on the plans are approximate.
32. The cost of demolition of structures indicated on the plans to be removed shall be included in the unit cost of excavation. No separate pay.
33. Erosion controls shall be installed in locations directed by the Engineer.
34. Contractor shall provide all traffic control as necessary and in accordance with the specifications. No separate pay.
35. Contractor shall provide all construction staking and cut sheets as necessary and in accordance with the adopted specifications. No separate pay.
36. Contractor shall verify the location and elevation of all existing facilities prior to construction of proposed facilities. No separate pay.
37. Final payment shall require acceptance of facilities by the Owner prior to payment.
38. Contractor shall give notice to all authorized inspectors, superintendents, or persons in charge of utilities affected by his operations prior to commencement of work and assure himself that all construction permits have been obtained. Required permits that can only be issued to the contractor will be obtained at his expense.
39. Contractor to remove and lawfully dispose all excess spoil materials from the construction site. No separate pay.
35. Water stops shall be installed in all cold joints, construction joints and keyways within ten vertical feet of the flowline of all linings and/or structures.
36. Epoxy coated #4 dowels to be placed at all joints where proposed concrete lining meets existing concrete lining at 12-inch centers (see detail sheet 30). Dowels to be installed as per manufacture's specifications. Epoxy coated #4 dowels to be placed where proposed lining meets proposed concrete structures at 12-inch centers (see detail sheet 30).
37. Alternate doweling systems and/or methods may be proposed by the contractor but will require the approval of the engineer.

**OWNER INFORMATION**

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 Mailing Address P.O. BOX 0749, CLINT, TEXAS 79836-0749  
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Owner's representative responsible for plan alterations:  
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El Paso County Water Improvement District No. 1  
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 (915) 872-4000 | Fax (915) 851-0091 | www.epcwid1.org

El Paso County Water Improvement District No. 1  
Riverside Canal Improvements

**GENERAL NOTES**

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FILE:
JOB NO: TWDB_RCLP
DATE: 3/10/20
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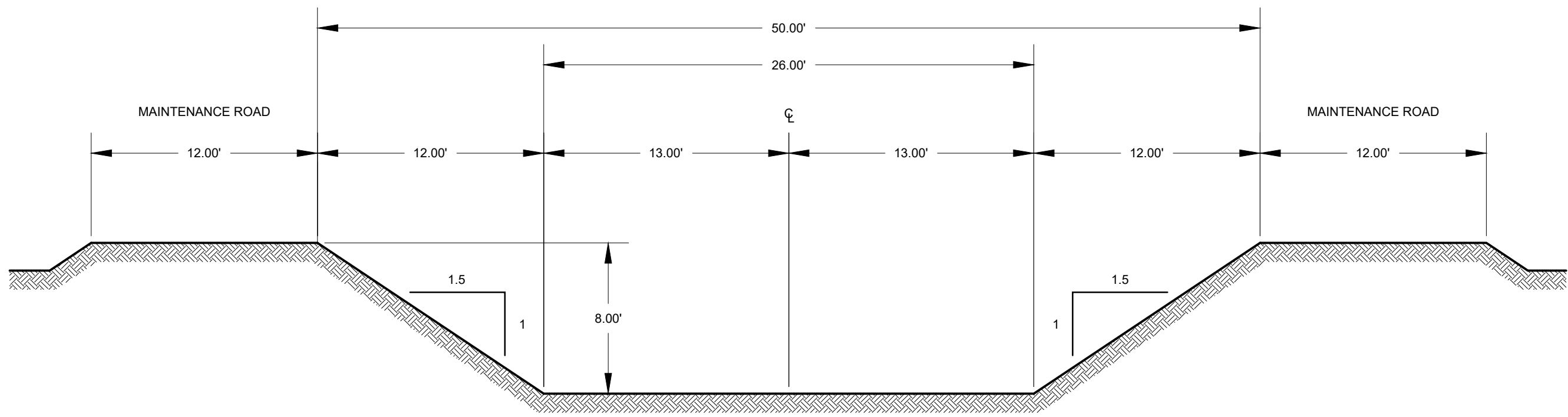
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TYPICAL CANAL CROSS SECTION

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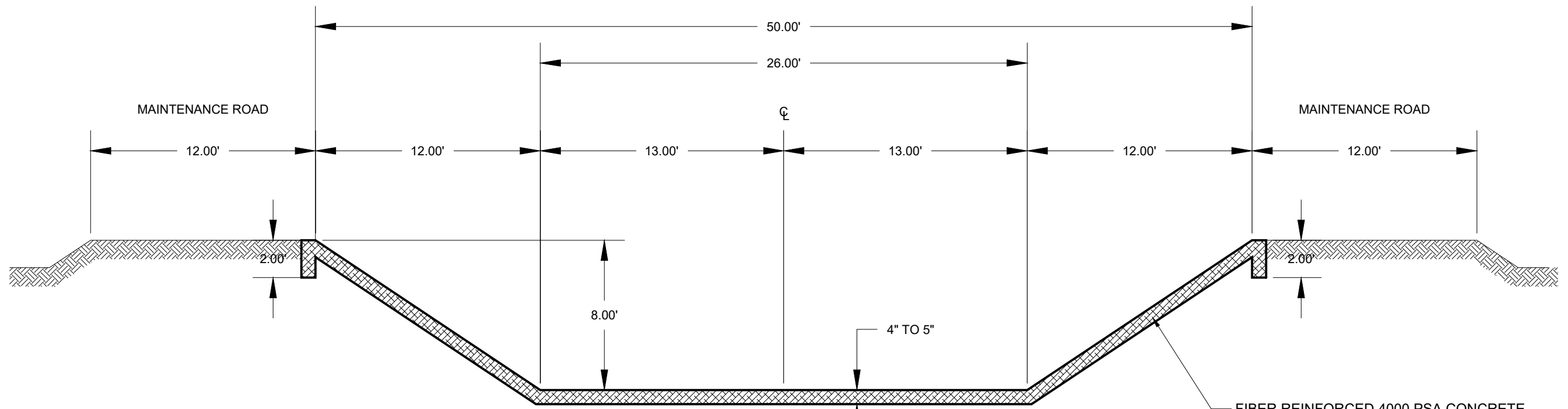
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(915) 872-4000 | Fax (915) 851-0091 | www.epcwid1.org

El Paso County Water Improvement District No. 1  
Riverside Canal Improvements  
**TYPICAL CANAL CROSS SECTION**

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TYPICAL CONCRETE LINING DETAIL  
NTS

FIBER REINFORCED 4000 PSA CONCRETE  
WITH CONTROL JOINTS PLACED EVERY 10 FEET

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El Paso County Water Improvement District No. 1  
Riverside Canal Improvements  
**CONCRETE LINING DETAIL**

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**Appendix E. Final Environmental Summary**

**FINAL ENVIRONMENTAL SUMMARY**

**RIVERSIDE CANAL IMPROVEMENTS PROJECT**  
**Canal Segments E, F, G, H, and I**



**Prepared For:**  
El Paso County Water Improvement District No. 1

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**June 2020**

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# **1 Introduction and Background**

The El Paso County Water Improvement District No. 1 (the “District”) Riverside Canal Improvements Project (the “Project”) consists of making improvements to the existing irrigation water transmission and distribution system in order to reduce water losses to seepage and evaporation. Improvements will also provide for a more efficient overall system operation. Construction work includes concrete lining 42,300 feet (8.01 miles) of the Riverside Canal and reconstructing the Wasteway II Check Structure. Construction is divided into Segments E, F, G, H, and I. A Project map is available for reference in Figure 1.

The earlier construction of the Riverside Canal Improvements Project included the concrete lining of Segments A, B, C, and D of the Riverside Canal, the reconstruction of the Partidor Check Structure, and the reconstruction of the Riverside Canal Wasteway I. The work was possible using a combination of funds from the United States Bureau of Reclamation (USBR), the International Boundary and Water Commission (IBWC), the Texas Water Development Board (TWDB), and District funds. The USBR performed an Environmental Assessment (EA) and issued a Finding of No Significant Impact (FONSI) for the first and second phases of the Riverside Canal Improvements Project.

The proposed Project will also be developed using a combination of District funds and federal and state grant programs. The District plans to access funding for construction from the Texas Water Development Board (TWDB), the United States Bureau of Reclamation (USBR), and the United States Section of the International Boundary and Water Commission (USIBWC). Because of the construction of the U.S.-Mexico Border Fence adjacent to the Riverside Canal, it is expected that environmental impacts for the proposed Project will be less than for the previous phases. As part of National Environmental Policy Act (NEPA) compliance for grant-funded projects, the USBR has already issued a Categorical Exclusion Checklist for the entire length of Segment E.

The El Paso County Water Improvement District No. 1 is governed by Chapters 49 and 55 of the Texas Water Code. The District is a political subdivision of the State of Texas, organized under and by virtue of Article XVI, Section 59 of the Constitution of the State of Texas. The District is located in El Paso County, Texas, and provides water for 69,010 acres of water rights lands. The District boundary consists of 156 square miles containing over 350 miles of canals and laterals and 269 miles of drains. Irrigated crops include cotton, alfalfa, pecan trees, chilies, wheat, milo, vegetables, pasture grass, and family gardens.

## **2 Description of Purpose and Need**

### **2.1 Purpose**

The El Paso County Water Improvement District No. 1 proposes to reconstruct a section of the Riverside Canal (the “Project”). The purpose of the Project is to decrease losses and to increase accountability of water in the existing canal system. The El Paso region has an arid climate and receives an average annual rainfall of about 8 inches with net evaporation exceeding 70 inches. The region faces unique water challenges characterized by an agricultural system that is a century old, prolonged drought conditions, a growing population and a growing sister city in Mexico with shared groundwater and surface water supplies, interstate and international treaties, and interstate litigation that may impact the District’s water supply from the Rio Grande.

Groundwater resources were developed and utilized heavily in the decades leading up to the 1990’s. Historical groundwater overdraft in El Paso and Ciudad Juarez has caused large groundwater drawdowns, deterioration of groundwater quality, and land subsidence in the Hueco Bolson, although some shared measures have been taken since then to control the groundwater use (Sheng 2013). Water resource development in the region has reached a stage of diminishing returns. Simply put, as the El Paso / Juarez region grows, less desirable water resources will have to be used to meet the growing demand. These water resources tend to be deeper, more removed, and of a poorer quality than those currently utilized (FWTWPG 2021). As such, the residents and taxpayers of the area can expect to devote increasing amounts of money toward water resource development.

### **2.2 Need**

The total water demand in El Paso County is 406,422 acre-feet of water per year (TWDB 2017). By 2070, water demand is expected to increase to 476,929 acre-feet of water per year. The population of El Paso County exceeds 840,000, and projections by the Texas Water Development Board (TWDB) indicate that the population is expected to grow to over 1.5 million by 2070 (TWDB 2017). Population growth is expected to occur primarily outside the incorporated limits of the City of El Paso. Irrigation currently accounts for over 60% of water use in El Paso County, and a significant portion of future municipal water needs are projected to be supplied using increasing amounts of water previously allocated for irrigation.

The City of El Paso provides retail water and wastewater service to approximately 749,000 people inside the city limits, 75,000 people through whole sale contracts with water providers located outside of the city limits, and 25% of the water supply for Fort Bliss (EPWU 2019). The City of El Paso currently has water rights for approximately 70,000 acre-feet of year from Rio Grande Project water that is used to meet approximately 40% of municipal water demand. The amount of water attainable by the City of El Paso is subject to availability and is dependent on the Districts total diversion rights and appropriations. Rio Grande Project water is typically available only eight months of the year, from March through October, when water is released from Elephant Butte and Caballo Reservoirs during the primary irrigation season.



The westernmost part of Texas, as well the headwaters of the Rio Grande in Colorado and New Mexico from which the District's water supply originates, have been in drought for much of the past two decades, with only 2005, 2008, 2016, 2017, and 2019 experiencing average or above-average spring runoff into Elephant Butte Reservoir. In 2018, Elephant Butte Reservoir reached near record-low levels at about 3% capacity, with just 58,240 acre-feet of water in storage as of September (total conservation capacity is 1,973,358 acre-feet).

Investments in conservation are needed to adapt to continued drought conditions and to ensure the continued delivery of Rio Grande Project water for shared agricultural and municipal use. Historically, the District has aggressively sought to maximize the benefit of all water drawn from the Rio Grande. Each year, the District reviews past performance and identifies an efficiency goals of the delivery of water in the coming year. Since maintenance of the system was assumed from the U.S. Bureau of Reclamation, efficiency has increased from less than 50 percent to approximately 70 percent through a variety of programs initiated by the District. Accordingly, all of the low-cost, easily developed improvements were long ago identified and implemented. A study funded by the TWDB indicates that concrete lining the irrigation system is among the few alternatives left for water conservation in El Paso County (Michelsen et al. 2009).

In developing this improvement project, an evaluation was performed of the Districts' water transmission and delivery system to identify weaknesses that might be eliminated. Three primarily weaknesses were identified which reduce the overall delivery efficiency:

1. Seepage and evaporation losses from existing earthen canals
2. Excess bypass and waste flows resulting from limitations of existing check structures
3. Inefficient withdrawal scheduling from the river due to a lack of storage in the system

Although the weaknesses outlined above represent deficiencies in the existing system, they also present a clear opportunity for improvement. Seepage and evaporation losses can be reduced by minimizing surface area and leakage. Both of these objectives can be accomplished through the installation of concrete canal lining or closed conduit. Additional check structures can be added and scheduling difficulties can be reduced by the construction of storage facilities.

Each year the Riverside Canal loses up to 3,000 acre feet of water per mile through seepage and 55 acre-feet per mile due to evaporation (Blair 2000; USBR 2009). Losses vary by year, use, and water supply availability. Based on these estimates, the Riverside Canal loses approximately 12,000 to 24,000 acre feet of water per year in the Project area. Improvements to the canal would reduce the need to pump water from the Hueco Bolson aquifer to provide water for municipal and agricultural use.

### **3 Description of Proposed Project**

#### **3.1 Project Description**

The Project area is located in El Paso County, Texas. Figure 1 shows the location of the Project. The existing contents of the irrigation system include approximately 42,300 feet of earthen-lined canal with bottom widths varying from 45 to 60 feet and a wasting structure located near the

downstream outlet to the canal system. As shown in Figure 1, the canal is divided into six segments: E, F, G, H, and I. The most upstream segment (E) begins at the Riverside Wasteway I Check Structure. The most downstream segment (I) ends at the Island Feeder Canal confluence. The U.S.-Mexico Border Fence is located adjacent to the Riverside Canal across 92% of the length of the Project (38,800 feet out of 42,300 feet).

### ***3.1.1 Riverside Canal Alternatives***

All sections of the Riverside Canal will be concrete lined with side slopes of 1.5:1, an average depth of 8 feet, and a 26-foot bottom. Steel panel reinforcement will be used to extend the life of the concrete lining where it is economically feasible. The canal is designed to carry a maximum flow of 900 cubic feet per second (cfs) while maintaining about 4 feet of freeboard. A typical canal lining cross-section is indicated in Figure 2.

### ***3.1.2 Riverside Canal Wasteway II and Check Structures Alternatives***

The Riverside Canal Wasteway II Structure is intended to pass water from the Riverside Canal to the Rio Grande. It includes a side-channel weir to allow water to be wasted (in an emergency) or sluiced (for maintenance) through existing gates placed below the U.S.-Mexico Border Fence. A schematic check structure layout and cross-section are shown in Figure 3.

The Riverside Canal Wasteway II Check Structure contains two automated twelve-foot radial gates to control flow and a telemetric metering system. Transition sections will be constructed from the proposed concrete lined canal into and out of the structure. A schematic check structure layout and cross-section are also shown in Figure 3.

### ***3.1.3 Future Regulating Reservoir***

The Riverside Canal is located adjacent to an abandoned wastewater treatment site and settling ponds previously referred to the Socorro Ponds. This site has been determined to be suitable for the construction of a regulating reservoir. Although the reservoir design and construction is outside the scope of this environmental review, an existing release structure at the Riverside Canal linked to the Socorro Ponds site will be modified, relocated, or removed based on the final construction design of the regulating reservoir.

## **3.2 Project Funding**

Funding for the Project will be provided by multiple sources and construction will occur in phased segments. The construction cost for the Project is estimated to be at approximately \$14,600,000 for concrete lining and \$620,000 for improvements at the Riverside Canal Wasteway II and check structures.

Construction plans and specifications for the Project were funded by the Texas Water Development Board (TWDB). As a result of this work, 42,300 feet of the Riverside Canal are ready for concrete lining construction and fund acquisition. Funding for concrete lining the Riverside Canal has been secured for Segment E from the United States Bureau of Reclamation (USBR) WaterSMART Water and Energy Efficiency Grants program and Segment H with funding from the United States Section of the International Boundary and Water Commission (USIBWC). Grant funds from these federal sources are being used to meet approximately 40% of the

construction costs, with the District contributing the remaining 60% in cash and in-kind contributions. The combined canal length of segments E and G is 8,000 feet and accounts for approximately 18% of the total Project.

The following funding sources have been secured or are being considered for concrete lining the remaining 34,300 feet (82%) of earthen canal:

**Table 4-1. Current and possible funding sources for concrete lining.**

Agencies, funding programs, and amounts (dollars)					
Segments	Agency	Program	EPCWID1	External Funding	Year
Segment E	USBR	WaterSMART	\$1,700,820	\$1,131,406	2020
Segment F	USBR (planned)	WaterSMART	\$1,000,000	\$1,000,000	2023
Segment G	TWDB (planned)	SWIFT	0	\$8,626,774	2022
Segment H	IBWC	Agreement	\$392,064	\$227,936	2020
Segment I	USBR (planned)	WaterSMART	\$570,500	\$570,500	2024
<b>Subtotal</b>			\$3,663,384	\$11,556,616	

Alternative funding programs considered for concrete lining include the TWDB Agricultural Water Conservation Grants program, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Regional Conservation Partnership Program (RCPP), and special request funding from the North American Development Bank (NADB). Due to the proximity of the Riverside Canal to the U.S.-Mexico Border Fence and relevance to operations from the U.S. Customs and Border Protection, funding may become available in the future from the U.S. Department of Homeland Security.

## 4 Reasonable Alternatives

The alternative evaluation process focused on two primary areas including canals and structures.

### 4.1 Riverside Canal

Four basic alternatives were identified for improving the existing canal system, including:

1. Elimination of the canal
2. Reconstruction of the canal
3. Concrete lining of the canal, and
4. Replacement of the canal with large diameter pipe

#### 4.1.1 Elimination of the canal

The District currently serves a large number of customers who draw a widely ranging amount of water. The District must maintain the ability to convey water to the point of delivery for each customer. Because the District is located in, and adjacent to, the suburban fringe of the City of El Paso and adjacent to the growing rural communities of the City of Socorro and the City of San Elizario, the acquisition of new canal easements (on a significant scale) is virtually impossible. The proximity of the Riverside Canal to the U.S.-Mexico Border Fence is another barrier to new canal construction. As a result, the elimination of existing canals in favor of an improvement on an alternative alignment was eliminated from consideration.

#### ***4.1.2 Reconstruction of the canal***

The five canal segments (E, F, G, H, and I) in question are currently of earthen construction and are of varying cross section. Reconstruction of the canal was considered to improve the hydraulic cross section, reducing the surface area required to convey a fixed quantity of water. Reducing surface area would reduce evaporation losses. However, any reconstruction would be performed with existing materials, providing little reduction in seepage losses. Additionally, the reconstructed earthen canal would decay over time, losing any conservation gains obtained by reconstruction. As such, reconstruction was eliminated from consideration.

#### ***4.1.3 Concrete lining the canal***

Concrete lining improvements would provide both reduced surface areas and significantly reduced seepage. Concrete lining is three-to-four times as hydraulically efficient as earth. Consequently, concrete lined canals (for any given flow) are much smaller in cross sectional area than are earthen canals, reducing both surface area and wetted perimeter. Concrete lining was determined to be a favorable alternative despite a substantially higher installation cost relative to earth.

#### ***4.1.4 Replacement of the canal with large diameter pipe***

Large diameter pipe was also considered for use. Properly installed, pipe virtually eliminates losses due to evaporation and seepage. Pipe usage also has secondary benefits including very low maintenance, low vandalism exposure and efficient land use. Unfortunately, the flow capacity required for the canal would require using an extremely large diameter, effectively requiring custom fabrication. A preliminary cost analysis revealed install cost for pipe was likely to be several times that of concrete lining pipe was therefore eliminated from consideration.

### **4.2 Check Structures and Wasteways**

Delivery of water is primarily controlled by turnouts, check structures, and pumps. As discussed previously, the layout of the District's delivery system is effectively fixed due to property constraints. Accordingly, check structures are required at fixed locations where water is discharged and/or diverted to drains and laterals. All existing check structures as well as potential improvement sites were evaluated by the District. Due to both maintenance and operation concerns, four check structures and four levee access roads were selected for construction improvements, and one check structure and one levee road were recommended for removal. Most notable is the Riverside Canal Wasteway II and Check Structures, which were fully redesigned as part of the Project.

### **4.3 Recommended Alternatives**

The following improvements are recommended:

1. Installation of concrete lining from the downstream end of the Riverside Wasteway I structure to the confluence point of the Riverside Canal with the Island Feeder Canal. This reach will include approximately 42,300 linear feet of canal.
2. Reconstruction of the Riverside Wasteway II and Check Structures.
3. Construct improvements to the Stallings and Telles Check Structures, the Drop Check Structure located at STA 153+05, the check structure located at STA 329+77.

4. Construct improvements to the Socorro Ponds levee access, Walcott Road levee access, and Las Pompas levee access.
5. Remove the Salcido Road levee access and the Old Stallings Check.

All recommended improvements are shown on the Drawings for Construction of Riverside Canal Improvements, which are included as Appendix D.

## **5 Environmental Impacts**

### **5.1 Social and economic impacts**

Appendix A contains data from the U.S. Census Bureau for El Paso County, the City of El Paso, the City of Socorro, and the City of San Elizario. This information represents conditions of political subdivisions surrounding the Project and key social and economic indicators are summarized in Table 6-1.

A review of U.S. Census data suggests that the Project area is economically depressed. Rapid population growth and low education rates combined with high poverty and unemployment rates produce significant challenges to local community leaders. The Project is not expected to segregate, disturb, or otherwise negatively impact any existing residences, businesses, and other facilities. No relocations are required. The project will not place a disproportionate share of negative environmental impacts on any racial, ethnic, or socioeconomic group of people.

The overall economic impact of the proposed project is expected to be positive. By using water more efficiently, less water will be required to achieve the same or better irrigation results, thereby leaving more water available to raise crops or to use for municipal water supplies. Additionally, crops that have traditionally been considered too water consumptive but are more lucrative for the farmer are more feasible. Eliminating the water waste will also less water costs for the District, the agricultural community, and taxpayers.

Measures will be taken to protect public health and safety during construction phases of the Project. Construction warning signs, safety fencing, and vehicle barricades will be utilized to limit and discourage access to construction areas. During certain phases of construction, security guards may be utilized during non-work hours to protect stored equipment and materials and to prevent access from unauthorized persons. After completing construction, general access to the site is typically not restricted as the access roads are used by U.S. Customs and Border Protection. Access to check structures and mechanical pumping equipment and other critical infrastructure will be restricted through the installation of security fencing.

A short-term benefit to the local economy will also be realized with the construction of the project. Concrete, steel, and other materials and supplies will be sourced competitively.

**Table 6-1. Summary of U.S. Census data**

Statistic	Select social and economic statistics			
	San Elizario	Socorro	City of El Paso	El Paso County
<b>People</b>				
Population	9,089	34,370	681,728	839,238
Percent Hispanic	98.8%	95.8%	80.9%	83.30%
Foreign Born	37.2%	34.4%	23.8%	24.8%
Veterans	1.6%	2.3%	6.4%	5.7%
<b>Housing</b>				
Owner-occupied	69.8%	75.1%	59.1%	61.4%
Median gross rent	\$714	\$693	\$814	\$812
<b>Computer and Internet Use</b>				
Households with computer	86.3%	83.4%	84.5%	84.8%
Households with broadband	66.8%	68.4%	75.0%	74.6%
<b>Education</b>				
High school graduate (age 25+)	57.2%	59.0%	79.6%	77.5%
Bachelor's degree or higher (age 25+)	12.2%	6.6%	24.7%	22.8%
<b>Health</b>				
Persons with disability under (age -65)	11.3%	13.2%	9.4%	9.6%
Persons without insurance (age -65)	33.8%	33.9%	21.6%	23.8%
<b>Economy</b>				
Median household income (2018)	\$33,588	\$34,339	\$45,656	\$44,597
Per capita income (2018)	\$13,137	\$13,257	\$21,927	\$20,763
Persons in poverty, percent	37.7%	26.9%	20.0%	20.5%

## 5.2 Soils

El Paso County is located in the Mexican Highlands Section of the Basin and Range Physiographic Provide and in the Chihuahuan Desert Biotic Provide of North America. This area exhibits north-south trending fault-block mountains and valleys. Sedimentary and metamorphic rocks are exposed in the nearby Franklin Mountains, which reach an elevation of 7,152 feet MSL and extend north from the city about 16 miles. The Rio Grande alluvial valley, immediately south of the Franklin Mountains, is relatively flat with typical gradients of one percent or less (USBR 1990; USIBWC 1993; EPA 1997).

The natural floodplain of the Rio Grande consists of young quaternary alluvium, varying from silty clay loams to fine sands that have been deposited by flood events. Soils in the El Paso Lower Valley belong primarily to the Harkey and Glendale Series. They consist of loamy, friable sediments with a high lime content. Soils in the immediate vicinity of the proposed project are not considered prime farmland in their native state because of their low moisture content, high alkalinity, and high susceptibility to wind erosion (USBR 1990; USIBWC 1993; EPA 1997).

Soil disturbance within the immediate construction area is expected to be significant, as large-scale earthwork will be required. Approximately 59.04 acres of land will be disturbed during construction of the canal and check structures. This land has been previously disturbed. Construction practices will utilize methods that minimize soil loss due to wind and rain erosion. Silt fences will be installed in areas where the erosion hazard is considered high. Temporary erosion control procedures will be utilized until all areas disturbed by construction have been successfully stabilized. There are no expected adverse impacts on the geophysical resources from the proposed project.

### 5.3 Vegetation Impacts

El Paso County is in the Trans-Pecos vegetation region of Texas and the Chihuahuan Desert scrub biotic community. Most native vegetation in this general area has been modified or replaced by urbanization, agriculture, or overgrazing (EPA 1997). Much of the land in the El Paso Lower Valley consists of residential subdivisions and agricultural fields mixed with patches of desert scrub vegetation, irrigation ditches and drains, and the Rio Grande channel (USBR 1990).

The project site is located on a site consisting of scattered grasses and weedy annuals that commonly occur on disturbed sites. Appendix B contains aerial and ground photographs of existing conditions at the Project site. Areas immediately surrounding the canal are essentially devoid of vegetation due to canal maintenance and the construction of the U.S.-Mexico Border Fence. However, some vegetation is well established immediately adjacent to the water line inside the canal banks. The area is bladed regularly to remove weed growth. All vegetation will be removed along the project alignment throughout a minimum width of about 40 feet on the northern bank of the canal. Additionally, significant disturbance may occur to any existing vegetation within 15 to 20 feet outside of the primarily disturbed area. The general width of the overall disturbed area is expected to average about 60 feet. Although significant disturbance will occur within the work zone, no significant long-term impacts on the distribution, diversity, and coverage of vegetation is expected. Vegetation is expected to be rapidly reintroduced by adjacent undisturbed vegetation.

### 5.4 Endangered and/or Threatened Species

The Texas Parks and Wildlife Department (TPWD) publishes updates to listed endangered and/or threatened species at: <https://tpwd.texas.gov/gis/rtest/>.

The U.S. Fish & Wildlife Service (USFWS) publishes updates to listed endangered and/or threatened species at: <https://ecos.fws.gov/ecp/species-reports>.

Five species included on the Federal Endangered Species List (USESA) potentially inhabit El Paso County. Eleven species are included on the subnational (Texas) protection / listing status

**TABLE 2. Endangered and Threatened Species in El Paso County**

Species name and status			
Common Name	Scientific Name	Federal Status	State Status
southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	Listed Endangered	Endangered
Pima pineapple cactus	<i>Coryphantha scheeri var. robustispina</i>	Listed Endangered	
Sneed's pincushion cactus	<i>Escobaria sneedii var. sneedii</i>	Listed Endangered	Endangered
western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Listed Threatened	
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Listed Threatened	Threatened
white-faced ibis	<i>Plegadis chihi</i>		Threatened
gray hawk	<i>Buteo plagiatus</i>		Threatened
American peregrine falcon	<i>Falco peregrinus anatum</i>		Threatened
speckled chub	<i>Macrhybopsis aestivalis</i>		Threatened
Texas horned lizard	<i>Phrynosoma cornutum</i>		Threatened
mountain short-horned lizard	<i>Phrynosoma hernandesi</i>		Threatened

An examination of records available from the TPWD and USFWS showed that no listed threatened or endangered species have been observed at or near the Project area in the last five years. A similar determination was made in the EA and FONSI for concrete lining construction work of Segments A, B, C, and D of the Riverside Canal Improvements Project (USBR 2009). A similar determination was also made as part of an Environmental Assessment for the U.S.-Mexico Border Fence performed by the U.S. Customs and Border Protection (USCBP 2008). The following is a discussion of the habitats of listed threatened and endangered species in relation to the Project area.

## **5.5 Wildlife Habitat**

### ***5.5.1 Threatened and Endangered Species Habitat***

The southwestern willow flycatcher (*Empidonax trailii extimus*) breeds in dense riparian habitats along rivers, streams, or other wetlands. One of the most important characteristics of the habitat appears to be the presence of dense vegetation, including thickets of willow, cottonwood, mesquite, and other species along desert streams. The existing and future conditions of the project site is not expected to support dense vegetation, and so it is unlikely that a Flycatcher will be affected by the Project.

The Pima pineapple cactus (*Coryphantha scheeri var. robustispina*) is generally found in lower Sonoran desert-scrubland, desert-grassland, or the ecotone between desert-scrubland and desert-grassland in southeastern Arizona and northern Sonora, Mexico. No designated critical habitat exists in El Paso County; therefore, the cactus is expected to be unaffected by the Project.

The Sneed's pincushion cactus (*Coryphantha sneedvi var. sneedii*) lives in grasslands or Chihuahuan Desert succulent shrublands on limestone outcrops and rocky slopes of mountains within the Chihuahuan Desert. The Project area contains none of those features, so it is expected that this cactus will not be affected by the proposed project.

The protected status of the western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) Status applies only to western populations beyond the Pecos River Drainage. The cuckoo breeds in riparian habitat and associated drainages, including springs, developed wells, and earthen ponds supporting mesic vegetation, on deciduous woodlands with cottonwoods and willows. Dense understory foliage is important for nest site selection and the cuckoo nests in willow, mesquite, cottonwood, and hackberry and forages in similar riparian woodlands. The existing and future conditions of the project site are not expected to support dense vegetation, and so it is unlikely that the cuckoo will be affected by the Project.

The Mexican spotted owl (*Strix occidentalis lucida*) inhabits canyon and montane forest habitats across a range that extends from Southern Utah and Colorado, through Arizona, New Mexico, and west Texas, to the mountains of central Mexico. No designated critical habitat exists in El Paso County; therefore, the owl is expected to be unaffected by the Project.



### 5.5.2 Open Water Habitat

Since one of the main objectives of the proposed project is to minimize evaporation losses by reducing the surface area of the water in the irrigation canal, the open water habitat in the irrigation canal will be reduced. Table 6-2 summarizes changes in open water acreage resulting from the Project.

**Table 6-2. Changes in open water acreage per segment**

Summary of open water habitat changes

Segments	Length (ft)	Existing Avg. Width (ft)	Proposed width (ft)	Existing Area (ac)	Proposed Area (ac)	Difference (ac)
Segment E	7600	55	50	9.60	8.72	-0.88
Segment F	6700	63	50	9.69	7.69	-2.00
Segment G	23950	69	50	37.94	27.49	-10.45
Segment H	400	57	50	0.52	0.46	-0.06
Segment I	3650	60	50	5.03	4.19	-0.84
<b>Totals</b>	<b>42,300</b>			<b>62.78</b>	<b>48.58</b>	<b>-14.23</b>

### 5.5.3 Woody and Brushy Habitat

The existing conditions of the Project area support almost no woody and minimal brushy habitat. Vegetation is concentrated on the Rio Grande flood plain, which runs parallel to the Project and is separated by the U.S.-Mexico Border Fence. Lining the Riverside Canal with concrete will have little to no impact on the woody and brushy habitat of the flood plain and surrounding areas.

### 5.5.4 Disruption to Wildlife Habitat

The land within the Project area is undoubtedly populated by a variety of creatures, particularly due to the proximity to the Rio Grande. The Project area runs parallel to the Rio Grande and floodplain, but is separated by the U.S.-Mexico Border Fence. This limits the access of ground animals to the canal. The Riverside Canal also runs parallel to the Riverside Intercepting Drain. Vegetation in this irrigation drain will not be impacted, thereby limiting disruption to wildlife habitat. Concrete lining construction may lead to the relocation of animals into adjacent areas. Wholesale movement of animals into significantly removed areas is not anticipated.

While concrete lining the Riverside Canal will not be conducive to burrowing animals, existing vegetation and wildlife is expected to re-establish itself in the surrounding area upon completion of the construction phase.

The concrete lined canal will lead to a more efficient use of water diverted out of the Rio Grande. As water demand is met by a more efficient system, the District can better manage its allocation of Rio Grande Project water and allow more storage in Elephant Butte and Caballo Reservoirs to accumulate and provide critical water in drought years when unmet water demands are highest. Among the benefitting surface water users is the Rio Bosque Wetlands Park, a 372-acre, water-righted City of El Paso park with constructed wetland and riparian habitats.

## **5.6 Weather**

Climactic characteristics of El Paso County include abundant sunshine, high daytime summer temperatures, very low humidity, little rainfall, and relatively mild winters. Mean daily temperatures range from 84.5°F in June to 46.1°F in January. The frost-free period typically extends about 230 days from early March through mid-November. Small amounts of snow fall nearly every winter but usually melts in hours (USIBWC 2007).

Precipitation in El Paso averages only about 8.5 inches per year. However, several local thunderstorms and resultant flooding sometimes occur, especially during summer. Rainfall is generally insufficient for plant growth, except desert vegetation, and irrigation is necessary to support crops, gardens, and lawns. Low humidity, high temperatures, and relatively high winds in the area contribute to evaporation rates typically ranging from 90 to 100 inches per year (USIBWC 2007).

## **5.7 Wetlands and Waterways**

The Project will replace the entirety of the existing Riverside Canal between Segments E and I with a narrower, more hydraulically-efficient concrete lined canal. No other waterways or wetlands are expected to be adversely affected. Conversely, by providing for a more efficient use of water, the Project is expected to have an incremental but positive impact on other waterways within the region. Efficient operation will require the use of less water for any given task, freeing “conserved” water for other uses, environmental or otherwise. The Rio Grande, which runs parallel to the Riverside Canal, is separated by the U.S.-Mexico Border Fence and is removed from the limits of construction. As such, no impact to the Rio Grande is expected.

The waterway segment currently occupied by the Riverside Canal will be intensely impacted by construction. The canal segment in question currently has a surface area of approximately 62.78 acres. This waterway will be removed in its entirety and will be replaced with a surface area of about 48.58 acres.

A site inspection revealed only one location that exhibited any presence of water outside of the canal itself: the box culvert that receives discharge from Wasteway II during sluicing and overflow events. The box culverts that allowed discharge of canal water into the Rio Grande from Wasteway II appeared at some point to be receiving water from leaking gates on the canal side of the structure. Improvements to the Riverside Canal Wasteway II Structure and Wasteway II Check are expected to eliminate all accidental discharge of water in this location.

## **5.8 Flood Zones**

No adverse flood impacts to the surrounding communities are expected as a result of the Project. Although every political subdivision in El Paso County participates in the National Flood Insurance Program, Flood Insurance Rate Maps (FIRMs) are not available for much of the El Paso Lower Valley, including the Project site.

## **5.9 Stormwater**

The limits of construction will encompass approximately 97.10 acres of construction. Projects containing disturbed areas larger than one acre in size are subject to the United States Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) requirements. NPDES rules allow construction under the Construction General Permit for Industrial Activity. Prior to commencing construction, a Storm Water Pollution Prevention Plan (SWP3) will be prepared. A Notice of Intent will be filed with the Texas Commission on Environmental Quality (TCEQ) using the State of Texas Environmental Electronic Reporting System (STEERS).

Construction will progress in a manner consistent with the Pollution Prevention Plan, utilizing appropriate erosion and sedimentation control measures in locations where negative water quality impacts are possible. Typical temporary control measures may include the installation of silt fences, rock berms, and erosion control matting. Permanent erosion control will be accomplished through the reestablishment of a vegetative ground cover, which is expected to occur naturally overtime. All temporary controls will be inspected on a regular basis to assure effectiveness. A Notice of Termination will be filed via STEERS upon completion of construction.

## **5.10 Effects of Earthwork on Water Bearing Bodies**

The Project consists of reconstructing existing irrigation canals on the original canal site. The construction phase will take place during the winter months where there is little to no demand for irrigation water; no water will be transported through the canals during this time. Therefore, it is anticipated that there will be no significant effect on water bearing bodies by closing the gates on the Partidor Check Structure and Riverside Wasteway I (located upstream, thereby eliminating the water source) and draining water downstream to the lower reaches of the Riverside Canal. Ideally, planning for dewatering will allow for the beneficial use of most water drained from the canal. It is anticipated that a small volume of water will be returned to the river through existing waste structures as part of routine maintenance operations (not requiring special permits).

## **5.11 Public Land**

The Project will be constructed on land owned by the District. The District is a political subdivision of the State of Texas.

## **5.12 Land Use**

El Paso County is composed of the urban area of the City of El Paso, the suburban area of the City of Socorro, the Fort Bliss military base, the Franklin Mountains State Park, the smaller rural towns and communities outside of the incorporated limits of El Paso and Socorro, and the agricultural areas of the El Paso Upper Valley (northwest of El Paso) and El Paso Lower Valley (Southeast of El Paso). El Paso County is experiencing a transition in land use from agricultural to mixed urban, suburban, and commercial and industrial development.

Land use at the proposed project site is primarily agricultural but is rapidly urbanizing. Land uses immediately adjacent to the Project includes rural residential and agricultural. The ground is bladed regularly to remove weed growth and has been previously disturbed by the construction of

the U.S.-Mexico Border Fence. The Project will have no impact on land use as the site is currently used for an irrigation canal.

### **5.13 Farmlands**

Farmland adjacent to the Project generally receives irrigation water via the Riverside Canal. The Project does not involve new construction, acquisition of undeveloped land, or conversion of agricultural land. As such, no adverse impacts are anticipated on any agricultural land in the area, and no reporting is required under the Farmland Policy Protection Act.

### **5.14 Historical and Cultural Resources**

The El Paso County Water Improvement District No. 1 is listed in the National Register of Historic Places under National Register Information System ID 97000885. At the time of the listing, agreements were executed between the Texas Historical Commission (THC) and the USBR and between the THC and the District defining the conditions of the listing. A copy of the agreement between the District and the THC is available for reference in Appendix C.

There are no anticipated adverse effects of features listed in the National Register of Historic Places (NRHP) as a result of the proposed project. The District's agreement with the THC categorically excludes certain activities from THC review while requiring consultations on others. Special consultations are required for work within the San Elizario Historic District and the San Elizario Main Lateral.

The Project is removed from all historic sites according to existing listings in the National Register of Historic Places and according to regularly-updated maps and publications by the National Park Service.

Updates on NRHP listed and eligible resources and landmarks can be referenced at: <https://www.nps.gov/subjects/nationalregister/index.htm>.

The THC offers a listing of national and state historic resources in El Paso County at: <https://atlas.thc.state.tx.us/>.

Per the National Historic Preservation Act (NHPA) of 1966 and definitions set by the Advisory Council on Historic Preservation in 36 CFR 800.16(y), any project, activity, or program funded in whole or in part by a federal agency will be subject to the Section 106 review process. Federal funding from the USBR and the IBWC for previous improvements made to the Riverside Canal required that the District consult with the THC using the electronic THC Review and Compliance (eTRAC) system: <https://xapps.thc.state.tx.us/106Review/>.

The THC generally issues a determination of no adverse effect under the following conditions:

1. The section of the canal proposed for concrete lining must be of the same width (or as close to the same width as possible) as the current historic canal;
2. A representative canal section shall be maintained in its original appearance and condition; and
3. No changes are made to existing headgates and turnouts (except as part of regular maintenance activities).

The Project (Segment E) is adjacent to Reservation land owned by the Ysleta del Sur Pueblo Tribe, a federally recognized tribe. Per the Native American Graves Protection and Repatriation Act (NAGPRA) and the Antiquities Code of Texas, political subdivisions of the State of Texas must notify the THC and applicable Native American tribes prior to commencing any project on public land that may affect archeological sites (including tribal lands). The Antiquities Code of Texas requires that the District make a reasonable and good-faith effort to account for the adverse effects of the Project upon Native American cultural or historic resources. The potential for impact on undisturbed archeological sites within the Project area is unlikely due to the nature of the existing land use of the area. In the event that any archeological or other culturally-significant artifacts and/or structures are discovered, construction activity will cease immediately and appropriate local and state authorities will be contacted.

There are no anticipated limits to access to and ceremonial use of Indian sacred sites or adverse impacts to tribal lands. The proposed concrete lining work will not impact the District's existing agreement with the Ysleta del Sur Pueblo and the Kickapoo Traditional Tribe of Texas (from Eagle Pass, Texas) allowing the harvesting of native plants from the Rio Grande growing in the District drain system.

### **5.15 Air Quality and Acoustic Impacts**

Air quality impacts associated with the proposed project are expected to be limited and temporary. Heavy earth moving and shaping equipment will be utilized for construction and will produce combustion exhaust. All equipment will be legal for use within the State of Texas and will comply with any applicable air quality regulations. Earth-moving operations are expected to generate dust. Extreme dust generation will be controlled through the use of sprinkling methods. Given the rural location, no significant air quality impacts are expected on any business, residence, or public facility.

Construction equipment will produce significant noise during operating hours. Upon completion of the project, noise generation is expected to be limited to that generated by occasional maintenance vehicles. Similar to air impacts, due to the isolated nature of the project, acoustic impacts are expected to be limited and temporary.

### **5.16 Hazardous Materials**

Segments of the existing canal bank contain construction rubble places for erosion armoring. This is generally limited to large chunks of concrete. It is expected that all construction rubble will be removed as part of the Project.

### **5.17 Traffic Hazards and Disruptions**

Project construction will occur off-road in an undeveloped area. Transportation of equipment to and from the project may utilize existing roadways. No unreasonable traffic delays and/or hazards are expected to occur as a result of transporting equipment and materials. All traffic detours and other traffic handling procedures will be in strict compliance with the Texas Manual on Uniform Traffic Control Devices (TMUTCD). Procedures can be referenced from the Texas Department of Transportation at: <https://www.txdot.gov/government/enforcement/signage/tmutcd.html>.

## **5.18 Clearing, Grubbing, and Soil Disposal**

Areas within the limits of construction will be initially cleared using heavy equipment, including bull dozers and graders. Significant work will be conducted with large excavators. Localized hauling of material will be required to allow cut-and-fill to be balanced for the project, significantly reducing the need to truck-in borrow or truck-out spoil. At the commencement of clearing, any existing topsoil will be stripped and stockpiled for use in surfacing finished slopes and grades. Vegetative material will generally be disposed of offsite in a legal manner.

## **5.19 Obstruction of Scenic Views**

No local or state defined scenic views, corridors, or facilities are located in close proximity to the Project site. The U.S.-Mexico Border Fence constructed adjacent to the southern bank of the Riverside Canal already blocks the view to the Rio Grande. Other than the Rio Grande, the area does not contain any unique topographic features. Except in the immediate vicinity of the canal, no impact to views, scenic or otherwise, are expected.

## **6 Conclusions**

Preparation of this Environmental Summary Report is based on visual field reconnaissance and interviews with District employees. Record information was obtained from a number of sources including the U.S. Census Bureau, the Texas Commission on Environmental Quality (TCEQ), the Texas Parks and Wildlife Department (TPWD), the Texas Historical Commission (THC) the U.S. Fish and Wildlife Service (USFWS), the U.S. Soil and Water Conservation Service (USSWCS), as well as other publications. Based on the information collected, the following conclusions are reasonable and valid:

1. The benefits expected to be produced by the project are significant and quantifiable. The improvements will result in the conservation of water directly and, secondarily, in the conservation of energy through increased regional water use efficiency.
2. No reasonable alternatives exist to those identified. Aggressive water management and conservation programs instituted by the District in the past have already identified and implemented “easy” water savings programs.
3. The socioeconomic impacts of the project are expected to be positive. No temporary or long-term detrimental socioeconomic impacts are expected to result from the project.
4. No significant cultural resources are expected to be impacted by the project. The entire limits of construction lies within an area regularly and repeatedly disturbed by District operations and operations from the U.S. Customs and Border Protection.
5. No significant long-term air, water, or vegetative impacts are anticipated. Some permanent removal of vegetation will occur along the inside of the banks of the existing canal.
6. No permanent wildlife habitat disturbance is anticipated. Some wildlife will be temporarily displaced during construction, however, other sources of cover and water are available in the area.
7. The project as proposed is anticipated to have a net positive impact from an environmental and economic perspective.

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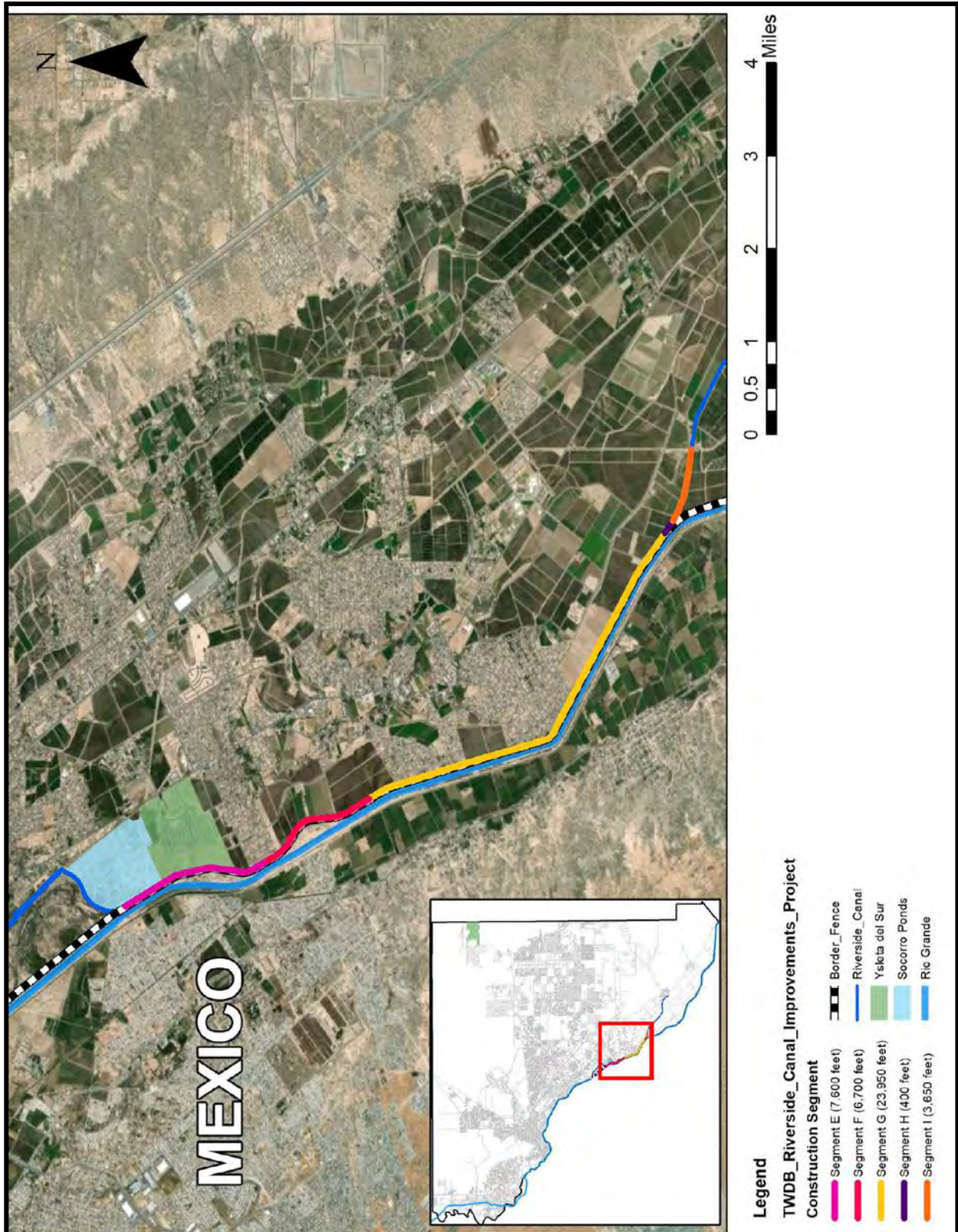
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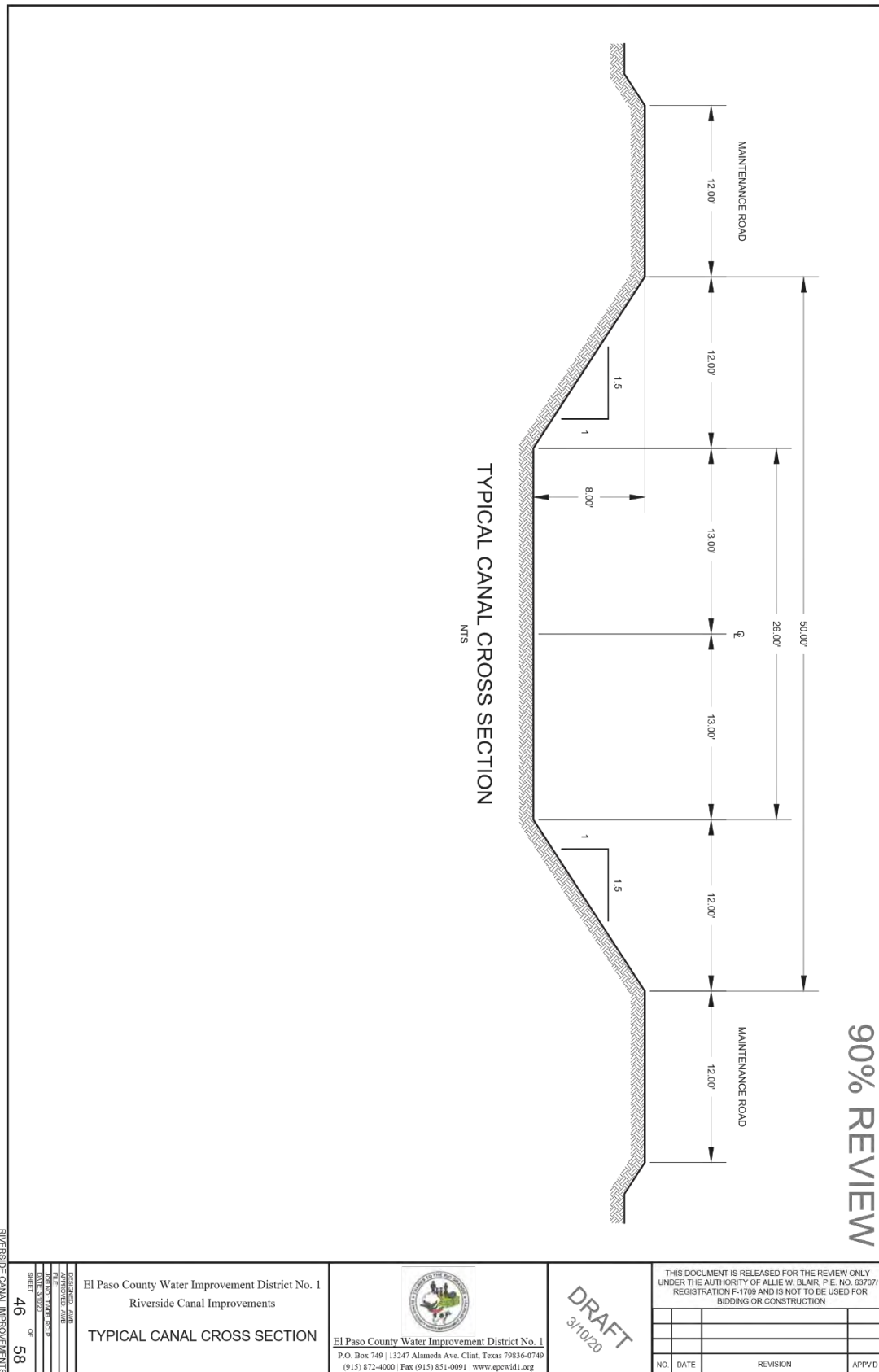
# 8 Figures

Figure 1: Project Location Map





**Figure 3: Typical Canal Cross-Section**



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## **9 Appendix**

### **Appendix A: U.S. Census Bureau Community Profiles**

**QuickFacts**

**San Elizario city, Texas; Socorro city, Texas; El Paso city, Texas; El Paso County, Texas**

QuickFacts provides statistics for all states and counties, and for cities and towns with a *population of 5,000 or more*.

**Table**

All Topics 	San Elizario city, Texas	Socorro city, Texas	El Paso city, Texas	El Paso County, Texas
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>9,089</b>	<b>34,370</b>	<b>681,728</b>	<b>839,238</b>
 <b>PEOPLE</b>				
<b>Population</b>				
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>9,089</b>	<b>34,370</b>	<b>681,728</b>	<b>839,238</b>
Population estimates base, April 1, 2010, (V2019)	9,244	32,048	648,245	800,633
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	-1.7%	7.2%	5.2%	4.8%
Population, Census, April 1, 2010	NA	32,013	649,121	800,647
<b>Age and Sex</b>				
Persons under 5 years, percent	▲ 8.1%	▲ 8.3%	▲ 7.5%	▲ 7.5%
Persons under 18 years, percent	▲ 34.3%	▲ 29.2%	▲ 26.9%	▲ 27.1%
Persons 65 years and over, percent	▲ 12.6%	▲ 11.5%	▲ 12.4%	▲ 12.3%
Female persons, percent	▲ 50.9%	▲ 53.7%	▲ 51.1%	▲ 50.7%
<b>Race and Hispanic Origin</b>				
White alone, percent	▲ 64.8%	▲ 78.2%	▲ 80.8%	▲ 92.0%
Black or African American alone, percent (a)	▲ 0.0%	▲ 0.1%	▲ 3.8%	▲ 3.9%
American Indian and Alaska Native alone, percent (a)	▲ 0.8%	▲ 2.1%	▲ 0.5%	▲ 1.0%
Asian alone, percent (a)	▲ 0.3%	▲ 0.1%	▲ 1.4%	▲ 1.3%
Native Hawaiian and Other Pacific Islander alone, percent (a)	▲ 0.0%	▲ 0.1%	▲ 0.2%	▲ 0.2%
Two or More Races, percent	▲ 0.3%	▲ 1.3%	▲ 2.7%	▲ 1.5%
Hispanic or Latino, percent (b)	▲ 98.8%	▲ 95.8%	▲ 80.9%	▲ 83.0%
White alone, not Hispanic or Latino, percent	▲ 0.9%	▲ 2.8%	▲ 13.2%	▲ 11.6%
<b>Population Characteristics</b>				
Veterans, 2014-2018	146	791	43,536	48,167
Foreign born persons, percent, 2014-2018	37.2%	34.4%	23.8%	24.8%
<b>Housing</b>				
Housing units, July 1, 2019, (V2019)	X	X	X	301,462
Owner-occupied housing unit rate, 2014-2018	69.8%	75.1%	59.1%	61.4%
Median value of owner-occupied housing units, 2014-2018	\$66,200	\$91,400	\$123,900	\$119,100
Median selected monthly owner costs -with a mortgage, 2014-2018	\$739	\$1,049	\$1,222	\$1,202
Median selected monthly owner costs -without a mortgage, 2014-2018	\$352	\$372	\$415	\$397
Median gross rent, 2014-2018	\$714	\$693	\$814	\$812
Building permits, 2019	X	X	X	3,066
<b>Families &amp; Living Arrangements</b>				
Households, 2014-2018	2,391	9,169	225,264	265,724
Persons per household, 2014-2018	3.85	3.70	2.99	3.10
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	89.2%	90.9%	84.7%	85.3%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	90.4%	89.9%	69.3%	71.3%
<b>Computer and Internet Use</b>				
Households with a computer, percent, 2014-2018	86.3%	83.4%	84.5%	84.8%
Households with a broadband Internet subscription, percent, 2014-2018	66.8%	68.4%	75.0%	74.6%
<b>Education</b>				
High school graduate or higher, percent of persons age 25 years+, 2014-2018	57.2%	59.0%	79.6%	77.5%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	12.2%	6.6%	24.7%	22.8%
<b>Health</b>				
With a disability, under age 65 years, percent, 2014-2018	11.3%	13.2%	9.4%	9.6%
Persons without health insurance, under age 65 years, percent	26▲ 33.8%	▲ 33.9%	▲ 21.6%	▲ 23.8%

**Economy**

In civilian labor force, total, percent of population age 16 years+, 2014-2018	56.5%	56.6%	59.9%	59.0%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	45.0%	47.6%	54.7%	53.7%
Total accommodation and food services sales, 2012 (\$1,000) (c)	NA	12,746	1,310,836	1,384,416
Total health care and social assistance receipts/revenue, 2012 (\$1,000) (c)	NA	D	4,253,438	D
Total manufacturers shipments, 2012 (\$1,000) (c)	NA	16,747	13,170,825	13,643,227
Total merchant wholesaler sales, 2012 (\$1,000) (c)	NA	148,659	6,348,564	D
Total retail sales, 2012 (\$1,000) (c)	NA	219,269	8,445,411	9,180,623
Total retail sales per capita, 2012 (c)	NA	\$6,707	\$12,558	\$11,096

**Transportation**

Mean travel time to work (minutes), workers age 16 years+, 2014-2018	39.9	28.4	22.8	23.4
--	------	------	------	------

**Income & Poverty**

Median household income (in 2018 dollars), 2014-2018	\$33,588	\$34,339	\$45,656	\$44,597
Per capita income in past 12 months (in 2018 dollars), 2014-2018	\$13,137	\$13,257	\$21,927	\$20,763
Persons in poverty, percent	▲ 37.7%	▲ 26.9%	▲ 20.0%	▲ 20.5%

** BUSINESSES****Businesses**


Total employer establishments, 2017	X	X	X	14,569
Total employment, 2017	X	X	X	237,385
Total annual payroll, 2017 (\$1,000)	X	X	X	7,629,075
Total employment, percent change, 2016-2017	X	X	X	0.7%
Total nonemployer establishments, 2018	X	X	X	64,533
All firms, 2012	NA	2,804	55,697	67,321
Men-owned firms, 2012	NA	1,402	29,356	35,681
Women-owned firms, 2012	NA	1,233	21,872	26,471
Minority-owned firms, 2012	NA	2,649	43,311	54,163
Nonminority-owned firms, 2012	NA	98	10,349	10,989
Veteran-owned firms, 2012	NA	177	4,277	4,871
Nonveteran-owned firms, 2012	NA	2,571	49,350	60,209


** GEOGRAPHY****Geography**

Population per square mile, 2010	NA	1,452.8	2,543.2	790.6
Land area in square miles, 2010	NA	22.04	255.24	1,012.69
FIPS Code	4865360	4868636	4824000	48141

About datasets used in this table

**Value Notes**

 Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

Some estimates presented here come from sample data, and thus have sampling errors that may render some apparent differences between geographies statistically indistinguishable. Click the Quick Info  icon to the row in TABLE view to learn about sampling error.

The vintage year (e.g., V2019) refers to the final year of the series (2010 thru 2019). *Different vintage years of estimates are not comparable.*

**Fact Notes**

- (a) Includes persons reporting only one race
- (b) Hispanics may be of any race, so also are included in applicable race categories
- (c) Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data

**Value Flags**

- Either no or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest or upper in open ended distribution.
- D Suppressed to avoid disclosure of confidential information
- F Fewer than 25 firms
- FN Footnote on this item in place of data
- N Data for this geographic area cannot be displayed because the number of sample cases is too small.
- NA Not available
- S Suppressed; does not meet publication standards
- X Not applicable
- Z Value greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and F Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

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- 2010 Census
- Economic Census
- Interactive Maps
- Training & Workshops
- Data Tools
- Developers
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- Economic Census
- E-Stats
- International Trade
- Export Codes
- NAICS
- Governments
- Longitudinal Employer-Household Dynamics (LEHD)
- Survey of Business Owners

**PEOPLE & HOUSEHOLDS**

- 2020 Census
- 2010 Census
- American Community Survey
- Income
- Poverty
- Population Estimates
- Population Projections
- Health Insurance
- Housing
- International
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## **Appendix B: Aerial and Ground Photography**

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**Appendix C: Memorandum of Agreement between EPCWID1 and the Texas Historical Commission**

**ATTACHMENT #1**

**MEMORANDUM OF AGREEMENT  
BETWEEN THE EL PASO COUNTY WATER IMPROVEMENT  
DISTRICT NUMBER ONE AND  
THE TEXAS HISTORICAL COMMISSION**

**WHEREAS**, the Bureau of Reclamation's Upper Colorado Regional Office (BOR) has determined that the transfer of title of such easements, ditches, laterals, canals, drains and other rights of way which the United States has acquired on behalf of the Rio Grande Project (hereafter RGP) exclusively to the El Paso County Water Improvement District Number One, (EPCWID#1) under Public Law 102-575 has the potential to affect the EPIS which is considered eligible for inclusion in the National Register of Historic Places, and has consulted with the Texas Historical Commission;

**AND WHEREAS**, the EPIS will become a State Archaeological Landmark and will be transferred to El Paso County Water Improvement District Number One which is a political subdivision. The EPIS will be protected under the Antiquities Code of Texas.

**AND WHEREAS**, under the Memorandum of Agreement (see cover document) among the BOR, El Paso County Water Improvement District Number One, and Texas Historical Commission enabling the transfer of title to El Paso County Water Improvement District Number One it is stipulated that: "prior to the proposed transfer of title, the Texas Historical Commission and El Paso County Water Improvement District Number One shall consult to develop a process to ensure continued protection of those qualities that make the EPIS eligible for the National Register of Historic Places during ongoing operation/maintenance and construction activities."

**NOW, THEREFORE**, the El Paso County Water Improvement District Number One and Texas Historical Commission agree to consult about operation and maintenance practices, and any substantial alterations to the EPIS, which are under the jurisdiction of the Texas Historical Commission, according to the following stipulations.

## **I. CATEGORICAL EXCLUSIONS.**

**THE FOLLOWING EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER ONE OPERATIONS, MAINTENANCE, AND NEW CONSTRUCTION WILL NOT REQUIRE CONSULTATION WITH THE TEXAS HISTORICAL COMMISSION**

### **A. ROUTINE SPRING AND SUMMER OPERATIONS**

1. Turnout repairs - consisting of replacing cast iron parts, patching concrete head walls and pipe in the field. Parts needed for these repairs have changed very little since the EPIS was constructed.
2. Check gate repairs - consisting of replacing/repairing gates, gate runners, gate lifting devices, some concrete work usually in the field. Parts needed for these have changed very little since the EPIS was constructed.
3. Walkway, guard rail repair - consisting of replacing and sometimes installing walkways and guard rails on existing structures in the field. These replacements are usually of the same design and material.

### **B. ROUTINE SPRING AND SUMMER MAINTENANCE**

1. Bank restoration - consisting of raising low sections of ditch banks that might extend from 100 feet to several miles long. Material is obtained from State and County permitted pits, or from spoil stored on El Paso County Water Improvement District Number One right of way.
2. Canal cleaning and dredging - consisting of removal of sand and spoil left in the ditch channel by flowing water. This material is then stock piled on El Paso County Water Improvement District right of way.
3. Weed control - consisting of mechanical mowing, herbicide spraying, and mechanical grading control of the ditch banks.

### **C. EMERGENCY SPRING AND SUMMER OPERATIONS AND**

## MAINTENANCE

1. Run overs - occurs where the water level in a ditch exceeds the level of the bank and overflows. Dirt is brought in as described in stipulation B.1.
2. Ditch breaks - occurs when, owing to some external problem such as a gopher hole, the water creates a breach in the ditch bank. Repairs consist of hauling dirt in an amount to fill the breach along with appropriate compaction. Similarly to Stipulation B.1.
3. Rodent control - consisting of mechanical, as well as chemical, control of gophers, squirrels, and other burrowing animals.
4. Structure failure - occurs where a check structure, vehicle crossing, flume, syphon, etc. fails owing to erosion, flood event, accident, etc. and usually demands immediate action and repair. The repairs will be of the same material and design as the original, unless prior consultation with the Texas Historical Commission is conducted.

## D. ROUTINE FALL AND WINTER OPERATIONS

1. Turnout installations - This consists of installing a turnout at a new location, usually at the request of a constituent. This is a new product resembling the original design.
2. Replacement of turnouts - This consists of refurbishing leaky or damaged turnouts. Very similar to "turnout installations" and "turnout repairs."
3. Check gate replacement - This consists of simply replacing check gates as they wear out or are damaged. This is a new product which usually resembles the original design.
4. Paint and stencil - This consists of simply painting structures as needed and maintaining a visible station or locator number on each structure.
5. Realignment of canals - Due to the age of El Paso County Water

Improvement District facilities there has been a certain amount of movement of the ditches because of maintenance practices, especially on curves causing encroachment on private property. Canal is realigned to fall within the dedicated right of way.

#### **E. ROUTINE FALL AND WINTER MAINTENANCE**

1. Structure modification - This consists of installing head walls on an existing crossing, changing out walkways, and installing water measuring devices.
2. New construction on canals - This consists of installing new checks, vehicle crossings, spillways and water measuring structures.
3. Concrete lining of ditches - This consists of lining sections of ditches with concrete to move sediment more effectively, reduce ditch break frequency, increase efficiency, and or reduce liability exposure. Installation of concrete lining in canals and ditches that will not change the characteristics of the canal.
4. Core walling canal banks - This consists of determining trouble spots on ditches that do not necessarily demand lining. A trench is dug running parallel down the operating road and then filled with a cement slurry, creating a dike, and then covered up. This activity takes place on a previously disturbed right of way.

#### **II. STANDARD CONSULTATIONS.**

**THE FOLLOWING EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER ONE OPERATIONS, MAINTENANCE, AND NEW CONSTRUCTION WILL REQUIRE CONSULTATION WITH THE TEXAS HISTORICAL COMMISSION.**

1. New concrete lined sections and piping of ditches/canals/drains will only require consultation if located in Historic Districts, existing or new.
2. Piping of ditches/canals/drains in Non-Historic Districts will only



require notification with adequate photographic and drawn documentation.

3. Removal of structures exceeding fifty years of age. This requirement is not intended to restrict the removal of a failed structure which is a public health or safety hazard under paragraph (C-4) and does not require El Paso County Water Improvement District Number One to replace the structure.
4. Relocation of any ditches/canals out of existing right of way.

### **III. SPECIAL CONSULTATIONS FOR THE SAN ELIZARIO HISTORIC DISTRICT.**

The ditches in San Elizario are part of an eligible National Register Historic District. Major alterations to the ditch system, such as concrete lining, relocation and piping, could have an effect on the San Elizario Historic District. Such alterations to the EPIS in San Elizario will require consultation with the Texas Historical Commission. Such alterations will be avoided unless no prudent and feasible alternative exists.

### **IV. CONSULTATION PROCESS**

Any proposed action for which consultation hereunder is required shall be sent by El Paso County Water Improvement District Number One to the Texas Historical Commission, for review and consultation. The description of the proposed action will include a detailed description of the project, including a map, relevant photographs, date of implementation, and a discussion of prudent and feasible alternatives. The Texas Historical Commission will have 30 days to review and respond to the proposed action, and the approval of the proposed action and grant of any required permit shall be presumed in the event that such response and comment have not been received by El Paso County Water Improvement District Number One within the 30 days.

### **V. PERIODIC REVIEW AND AMENDMENT**

If additions or amendments to the categorical exclusions are recommended by either party after the signing of this document, a

yearly review of the document can take place, with amendments added to or removed from this document if agreed to by both parties.

**TEXAS HISTORICAL COMMISSION**

By: *Casilda Randall* Date: 1-11-96

**EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER ONE**

By: *Johnny Stillo, pres.* Date: 1/10/96

**Appendix D: Drawings for Construction of Riverside Canal Improvements**

## DRAFT REPORT

CONTRACT #	CONTRACTOR	DATE/ INITIAL
<p><b>1813582258</b></p> <p>Contract Administration</p> <p>Stephen Ross</p>	<p><b>EPWID</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Draft Report received; Date: July 19, 2020</li> <li><input checked="" type="checkbox"/> Enter receipt of draft report in Worklog</li> <li><input checked="" type="checkbox"/> Date stamp and label with contract info (if not digital)</li> <li><input checked="" type="checkbox"/> Create DRAFT Report Folder under Active Contracts</li> <li><input type="checkbox"/> Request reviewers' names from CM</li> <li><input checked="" type="checkbox"/> Create a pdf of the SOW for the contract</li> <li><input checked="" type="checkbox"/> Create a Draft Report Review Memo and update applicable instructions (under Forms-Templates/Reports)</li> <li><input checked="" type="checkbox"/> Forward a copy of the Memo, SOW and the Draft Report to the reviewers</li> <li><input checked="" type="checkbox"/> Enter in CAS (on Contracts Reports tab) receipt of draft report; Upload Draft Report into CAS</li> <li><input checked="" type="checkbox"/> Calendar a reminder to check on the comments by the date in the memo</li> </ul>	<p>09/04/20 sr</p>
<p>Contract Administration</p> <p>Stephen Ross</p>	<p>Once comments are received from CM</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Prepare Draft Report Comment Letter and the Comments for routing; save as pdf documents</li> <li><input checked="" type="checkbox"/> Upload letter and comments into CAS under Contract Reports tab</li> <li><input checked="" type="checkbox"/> Scan route slip</li> <li><input checked="" type="checkbox"/> Create DocuSign for internal approval, including the Contractor as a "receives copy only" after DEA's execution</li> <li><input checked="" type="checkbox"/> Update the Worklog with dates of comments sent</li> </ul>	<p>10/16/20 sr</p>
Angela Wallace	CAD Manager reviews and approves with CMs comments addressed	10/4/2020 -aw
Cameron Turner	Contract Manager reviews and approves	10/5/20 -ct
Cameron Turner	Division Team Lead or Manager reviews and approves	10/5/20 -ct
<ul style="list-style-type: none"> <li style="width: 50%;"><input type="checkbox"/> Mark Wyatt</li> <li style="width: 50%;"><input checked="" type="checkbox"/> Kevin Kluge</li> <li style="width: 50%;"><input type="checkbox"/> Larry French</li> <li style="width: 50%;"><input type="checkbox"/> Clay Schultz</li> <li style="width: 50%;"><input type="checkbox"/> Carla Guthrie</li> <li style="width: 50%;"><input type="checkbox"/> David Carter</li> <li style="width: 50%;"><input type="checkbox"/> Temple McKinnon</li> <li style="width: 50%;"><input type="checkbox"/> LaDawn Gray</li> <li style="width: 50%;"><input type="checkbox"/> Saul Nuccitelli</li> <li style="width: 50%;"><input type="checkbox"/> Darrell Tompkins</li> </ul>	<p>Division Director reviews and approves</p>	<p>10/07/20 -kk</p> <p style="text-align: center;"><i>kk</i></p> <p>10/20/2020</p>
<p>Deputy Executive Administrator</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Edna Jackson</li> <li><input type="checkbox"/> Richard Wade</li> <li><input checked="" type="checkbox"/> John Dupnik</li> <li><input type="checkbox"/> Jessica Zuba</li> <li><input type="checkbox"/> Rebecca Trevino</li> </ul>	<p>Deputy Executive Administrator reviews and approves</p>	<p>JTD 10/7/20</p>

**INITIAL IN DOCUSIGN:**

10/19/2020  
Contract Manager

10/19/2020  
Team Lead / Manager



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

Mr. Jesus "Chuy" Reyes, General Manager  
El Paso County Water Improvement District No. 1  
P.O. Box 749  
Clint, TX 79836

RE: Agricultural Water Conservation Grant Contract with El Paso County Water Improvement District No. 1 (EPCWID), Contract 1813582258, Draft Final Report titled "Designing Improvements to the Riverside Canal for Improved Conveyance and Conservation".

Dear Mr. Reyes:


Staff members of the Texas Water Development Board (TWDB) have completed a review of the draft report prepared under the above-referenced contract. ATTACHMENT 1 provides the comments resulting from this review. As stated in the TWDB contract, EPCWID will consider revising the final report in response to comments from the Executive Administrator and other reviewers. In addition, EPCWID will include a copy of the Executive Administrator's draft report comments in the Final Report.

Please note: The TWDB logo should not be used in the Final Report.

The TWDB's Contract Administration staff looks forward to receiving one (1) electronic copy of the entire Final Report in Portable Document Format (PDF). **Please further note, that in compliance with Texas Government Code (TGC) Chapters 469 and 2054 (related to Accessibility and Usability of State Web Sites), the digital copy of the final report must comply with the requirements and standards specified in statute. For more information, visit <http://www.sos.state.tx.us/tac/index.shtml>.** If you have any questions on accessibility, please contact Angela Wallace with the Contract Administration Division at (512) 463-5077 or [Angela.Wallace@twdb.texas.gov](mailto:Angela.Wallace@twdb.texas.gov).

If you have any questions or need any further information, please feel free to contact Mr. Cameron Turner of TWDB's Agricultural Water Conservation staff at 512-936-6090 or [Cameron.Turner@twdb.texas.gov](mailto:Cameron.Turner@twdb.texas.gov).

Sincerely,

  
\_\_\_\_\_  
John T. Lake  
Deputy Executive Administrator  
Water Science and Conservation

10/20/2020  
Date

Attachment

c w/o att.: Cameron Turner, Agricultural Water Conservation

## Attachment 1

### Staff comments for Draft Final Report #1813582258

1. Please ensure the final report meets accessibility standards.
2. Remove the word “draft” when submitting the final version.
3. Page 5. Please correct the first sentence to say the Board “approved funding for the project” on May 3, 2018, rather than signed the contract. (The contract was fully executed on July 25, 2018.)
4. Page 5. Please add a comma after the word “survey” in the first sentence of the last paragraph.
5. Table 1-1. The District will need to work with TWDB staff in the Water Supply & Infrastructure – Regional Water Project Development Division if pursuing funding through the SWIFT Program for Segment G, in order to receive approval for any engineering and environmental work, as those coordination efforts and program requirements are beyond the scope of this grant contract.
6. Page 14. Section 4.5. There is a typo after the word “Reservation” in Outreach item #10.
7. Consider removing the invoices and detailed billing information from the final report.