RECLAMATION

Managing Water in the West

FINDING OF NO SIGNIFICANT IMPACT
AND
FINAL ENVIRONMENTAL ASSESSMENT
FOR
El Paso County Water Improvement District Number One, Canal, Structure, and Improvements Project

U.S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office
Environment Division
Albuquerque, New Mexico

May 2009

MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Front Cover Photo Caption – Photo showing Riverside Canal at the Partidor, El Paso, Texas, April 8, 2003

U.S. Department of the Interior

BUREAU OF RECLAMATION

Albuquerque Area Office
Albuquerque, New Mexico

Finding of No Significant Impact

El Paso County Water Improvement District Number One, Canal, Structure, and Improvement Project, El Paso County, Texas

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May 12, 2009
Date

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5/12/09
Date

AAO-07-004
FONSI Number

BACKGROUND

The El Paso County Water Improvement District Number One (District) of Texas established in 1917, provides water by way of the Riverside Canal (Canal) to approximately 50% of the raw water supply of the City of El Paso (City) and to supply irrigation water to over 45,000 acres of irrigable land. An evaluation of the Canal was performed to identify weaknesses that could be corrected. These weaknesses include seepage and evaporation losses, and excess bypass waste flows from check structures. The proposed work would be partially federally funded in cooperation with Reclamation under a Memorandum of Agreement (MOA, see appendix A). In addition, authorization and requirements for funding the project are written in the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (P.L. 106-576) (The Act).

SUMMARY OF THE PROPOSED ACTION

Due to excessive water losses found in the Canal as a result of evaluations, the District proposes to reconstruct and then concrete line the first 3 miles of the canal, hereinafter referred to as the Project. In addition, the District proposes to replace leaky gates, and check structures which would and correct inefficient deliveries.

The proposed Project lies within El Paso County, Texas as indicated in Figure 1 (Page 2 of the EA). The existing components of the segment of the Canal include approximately 16,000 feet of earthen-lined canal with bottom widths varying from 45 to 90 feet. The proposed Canal (see Figure 2, section A, B, and C on Page 9 of the EA) begins at the downstream end of the existing American Canal. The Project is divided into three segments: A, B, and C. Reach B connects to the middle of Reach, A at a point just downstream of the Wastewater Treatment Plant Bridge. Reach A terminates at the Partidor Check Structure. Reach C extends from the Partidor Check structure to the Wasteway One Check Structure.

Canal sections A, B, and C would be concrete lined with side slopes of 1:5:1 and a depth of about 11 feet. Each is designed to carry a maximum flow of 1590 cfs while maintaining about 4 feet of total freeboard. Section A would have a length of 7630 feet and a bottom width of 14 feet. Section B would have a length of 4000 feet and a bottom width of 18 feet. Section C would have a length of 4370 feet and a bottom width of 28 feet. The Partidor Check, Franklin Check, and the Wasteway One Check Structures would be replaced with new efficient Structures.

No additional roads would be required; therefore construction would occur with in the existing right-of-way.

ENVIRONMENTAL IMPACTS RELATED TO THE RESOURCES OF CONCERN

As a result of analyzing the effects of the proposed action in the EA, the following summarizes the reasons why there would be a Finding of No Significant Impact:

Wildlife

The U.S. Fish and Wildlife Service (Service) has stated in a letter (see attached Appendix A) that habitat for federally listed threatened and endangered wildlife species is not known to exist on or near the proposed project site, and impacts to the species by the proposed Project are not anticipated (Service letter page 36 of Appendix A).

The Pecos River Muskrat known to exist in canals similar to the Canal was listed by the Texas Parks and Wildlife (TPW) as a species of concern. The Pecos River Muskrat is not federally listed as threatened or endangered. A presence or absence survey was conducted by the TPW within the proposed Project area and the adjacent Rio Bosque Wetlands Park (Park). The survey identified muskrat fecal matter in the Canal and the Park, however, the fecal matter was not specifically identified with the Pecos River Muskrat. Construction activities would only temporarily displace muskrat within the proposed Project site. After construction, the species would return to areas of the canal not lined with concrete or relocate to the adjacent Park, the Rio Grande or nearby unlined canals.

Although construction activities may scare existing wildlife away temporarily, most animal species in the Project area would be able to return after completion. Like the Pecos River Muskrat, other wildlife species would likely relocate to other easily accessible habitat nearby in the Park, the Rio Grande or nearby unlined canals.

Cultural Resources

The Canal is included on the National Register of Historic Places (NRHP). However, the Texas Historical Commission (THC) determined that the proposed improvements to the Canal would cause no adverse effects.

The Ysleta del Sur Pueblo (Pueblo) has designated the Park as a Traditional Cultural Resource. The resources are traditional plants that are necessary for the Pueblo to carry on their cultural events. The lining of the canal would not affect the traditional plants in the Park because there are other sources of water to help sustain the vegetation in the Park. The District has made provisions to enhance the establishment of wetland species in the Park, which include drilling a well for year round use, providing a turnout at the Bustamante Wastewater Treatment Plant and helping the "Friends of the Bosque (Friends)" acquire water rights. Water rights would provide the Friends an opportunity to apply for an additional turnout for water during the irrigation season that would benefit the Park.

Water Resources

The groundwater level of the area under the Park is controlled by the elevation of the bottom of the Rio Grande, the Riverside Intercepting Drainage Canal, and the River Intercepting Drainage Canal. Currently, the groundwater level is greater than the bottom elevation of the drainage canals, and therefore the groundwater level is not controlled by the amount of seepage from the Canal. As long as these drains have flow, the elevation of the bottom of the drains controls the groundwater level in the Park area.

Furthermore, when excess water is available the District has voluntarily made treated effluent water available to University of Texas El Paso (UTEP) for application on the lands of the Park. Typically, approximately 45 cfs of water is provided to the Park from October to February of each year. This equals a volume greater than 10,000 acre-feet per year which exceeds by several times the amount of water that recharges the alluvium aquifer as a result of seepage from the portion of the Canal adjacent to the Park. Any decrease in the seepage from the Canal is more than offset by the application of water in excess to the plant needs during the winter. Much of this excess water infiltrates into the alluvium aquifer and will offset any reduction in seepage.

The UTEP operates the Park. UTEP or any other entity has several options for obtaining water during the summer months to help address plant sustainability. The City owns the land and the associated water rights associated with the Park. The City can on a temporary or permanent basis assign rights that would allow UTEP to order and receive irrigation water during the summer months. The construction of the proposed conservation project will have no effect or impact on status of the water rights associated with the park. In addition to obtaining water or water rights from the City, UTEP has received donations towards construction and operation of an irrigation well in the alluvium aquifer. During the drought of 2003 and 2004 many of the alluvium wells were operated with little decline in the water levels in the alluvium aquifer. The proposed Project will have no impact on UTEP alternatives for obtain irrigation water for use in sustaining plant life during the summer.

As mentioned in the Axiom-Blair report (See Appendix B) and above, the groundwater level in the region of the Park is controlled by elevation of the water flowing in the nearby drainage canals and not by the amount of water that seeps from the Canal. The amount of water that recharges the Hueco Bolson Regional Aquifer (Hueco) must flow through the clay confining layer at the bottom of the alluvium aquifer, and varies from location to location. However, in general the amount of recharge to the Hueco from the alluvium aquifer in the flood plain of the Rio Grande is small. Furthermore, because of the fluvial origins of the alluvium aquifer, the vertical conductivity is estimated to be only 1 to 5% of the horizontal conductivity. Any decrease in the groundwater elevation in the Park will have minimal effect on recharge (vertical flow of water) and cause water to flow horizontally towards the Park from the surrounding portions of the alluvium aquifer. UTEP's recharging of the alluvium aquifer using treated effluent offsets any possible reduction in recharge to the Hueco by keeping the groundwater levels in the alluvium aquifer greater than the bottom elevation of the nearby drainage canals. The proposed conservation Project will have no or negligible reduction in the recharge of the Hueco from the alluvium aquifer in the vicinity of the Park.

Wetlands

The emergent wetland and the Park was planted with riparian vegetation that is being enhanced by water donated by the District during the non-irrigation season from a wastewater treatment plant nearby. The Project has been identified as a source of water (contingent upon water rights) to enhance the establishment of the emergent wetland. In addition, the District has made provisions for the Friends and the UTEP to acquire water rights so that they may apply for a turn out for additional water during the irrigation season.

If seepage were to be eliminated or significantly reduced as a result of lining the Canal with concrete, the Park would not be affected. Even though seepage would be reduced, the aquifers would maintain the groundwater level much the same as before lining of the Canal. Pump tests have shown that the rate of recovery from pumping wells installed within a few feet of the Canal is very high (Axiom-Blair, 2007). Since recovery rate of water is very high, this shows that the aquifers would rapidly replace any water lost from Canal seepage.

The emergent wetland and the Park were planted with riparian vegetation that is being enhanced by water donated by the District during the non-irrigation season. In addition, District has made provisions to enhance the establishment of wetland species in the Park, which include drilling a well for year round use, providing a turnout at the Bustamante Wastewater Treatment Plant, and helping the Friends acquire water rights. Water rights would provide the Friends an opportunity to apply for an additional turnout for water during the irrigation season that would enhance riparian and emerging wetland species.

The Park is identified by the Pueblo as a Traditional Cultural Resource.

Vegetation

With in the proposed Project site, little vegetation exists as a result of being disturbed from the operation and maintenance of the Canal. Lining the Canal with concrete would eliminate existing vegetation. However, after construction, plants are expected to be rapidly and naturally reintroduced to open soil areas from adjacent undisturbed plants.

Environmental Justice

The Proposed Action would result in a variety of environmental effects that do not disproportionately affect minority populations or low-income communities. The Pueblo is concerned about potential effects that the Project may have on the Park, which is a Traditional Cultural Resource of special significance to the Pueblo. If the Project were to impact the Park, then that would be considered a disproportionate impact to a minority population. However, because water level within the Park is influenced by groundwater level which is not affected by canal seepage, the loss of seepage will have no effect on the Park. Thus, no environmental justice implications are anticipated.

Indian Trust Assets

Although these are resources of special significance to the Pueblo, there are no ITAs (Assets held in trust by the Federal Government) within the Project area or within the vicinity to be affected.

Air Quality and Noise

During the reconstruction of the Canal and the placement of the new check structures, the construction equipment, as trucks and bulldozers, will cause an increase to the existing dust (PM10) and noise levels: dust from the unlined Canal and noise from nearby industrial facilities.

Nearby houses and others will be impacted by this increase in dust and noise, which will return to normal levels after construction ends.. During the Project, the times of construction would be restricted to avoid interference with religious ceremonies of the Pueblo.

ENVIRONMENTAL COMMITMENTS

- Construction activities would be scheduled to avoid conflicts with religious ceremonies of the Pueblo.

- Reclamation is committed to ongoing government to government relations with the Pueblo.

- A letter from the THC can be found at Appendix A. The letter lists a few conditions if the project were to be implemented.

  The THC requires that the section of the Canal that would be lined should be the same width (or as close to the same width as possible) as the current historic canal. In addition, the THC requires that a representative section of the canal shall be maintained in its original appearance and condition in the event of any future improvements to the Canal.

- Should evidence of possible scientific, prehistorical, historical, or archeological data be discovered during the course of this action, work shall cease at that location and the Area archaeologist shall be notified by phone immediately, with the location and nature of the findings. Care shall be exercised so as not to disturb or damage artifacts or fossils uncovered during operations, and the proponents shall provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Government.

  Any person who knows or has reason to know that he or she has inadvertently discovered human remains on Federal or tribal lands, must provide immediate telephone notification of the inadvertent discovery, with written confirmation, to the responsible Federal agency official with respect to Federal lands, and, with respect to tribal lands, to the responsible Indian tribe official. The requirement is prescribed under the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3042) of November 1990 and National Historic Preservation Act, Section 110(a)(2)(E)(iii) (P.L. 102-575, 106 Stat. 4753) of October 1992.

COORDINATION

Consultation took place with the U.S. Army Corps of Engineers, TPW, the Service, Friends, Pueblo, THC, UTEP, District, and several private individuals who attended the public meeting.

A public meeting was held September 10, 2003 to present the proposed Project and receive comments from those who attended.

Additional meetings have taken place with the Friends, to share Project information, identify their concerns about the Project, and describe how the Project would not affect groundwater or the Park's vegetation.

The following is a series of technical and formal meetings undertaken with the Pueblo as part of the government to government process:

- September 25, 2003, to brief the Governor and his staff regarding the proposed Project. During that time, the Pueblo provided their concerns regarding air quality and noise during religious ceremonies, and impacts of lining the Canal. They requested that construction be scheduled to avoid conflicts with religious ceremonies.

- May 24, 2004, follow-up meeting in the field with the War Captain to discuss sacred plants.

- July 28, 2004, to continue government to government consultation with the Governor. This discussion included sacred plants and issues regarding potential impacts to the Park.

- August 1, 2007, to continue government to government consultation with the Governor. It had been three years since communication took place regarding the proposed Project, and therefore helped to reconfirm the Pueblo's concerns and issues. Several informal field trips were conducted with the Pueblo to consult further and understand their needs.

- March 19, 2008, a meeting to brief Governor Paiz and his staff regarding the proposed Project. The Lt. Governor, War Captain, and Environmental Manager were present.

- May 22, 2008, to continue government to government consultation with the new Governor Paiz and his staff. The meeting centered around Pueblo consultation policies and the draft EA.

- February 28, 2009, a meeting with Governor Paiz, the District, and Reclamation personnel to update the progress of the Project and EA.

- Previous issues and letters submitted by the Pueblo since 2003 have been addressed through all the meetings listed above and in the final EA for the Project.

- April 15, 2009, letter from the Governor to Reclamation listing comments after additional review of another draft revision of the EA (see Appendix C in the letter addressing comments).

CONCLUSION

In accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, and based on the analysis in the EA, Reclamation has determined that the Proposed Action would not result in a significant impact on the human environment and does not require the preparation of an Environmental Impact Statement.

RECLAMATION

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FOR
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U.S. Department of the Interior
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May 2009

Table of Contents

Acronyms and Abbreviations

EA	Environmental Assessment
ITAs	Indian Trust Assets
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
Reclamation	Bureau of Reclamation
P.L	Public Law
EPA	Environmental Protection Agency
USGS	United States Geological Survey
MOA	Memorandum of Agreement
EIS	Environmental Impact Statement
cfs	Cubic feet per second
CFR	Code of Federal Regulations

1.0 Purpose of and Need for Action

1.1. Introduction

The El Paso County Water Improvement District Number One (District) of Texas proposes to reconstruct a portion of the Riverside Canal (Canal) system (see map page 2). The project would be in cooperation with Reclamation under a Memorandum of Agreement (MOA, see appendix B). In addition, authorization and requirements for funding the project are written in the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (P.L. 106-576), hereinafter referred to as "The Act". This environmental assessment will analyze the potential impacts of the proposed action on canal reaches A, B, and C. A more detailed description of the Proposed Action will appear in Chapter 2.

1.2. Proposed Action

Due to excessive water losses found in the Canal as a result of evaluations, there is a proposal to reconstruct the first 3 miles of the Canal. The following four alternatives were considered for correcting the identified weaknesses:

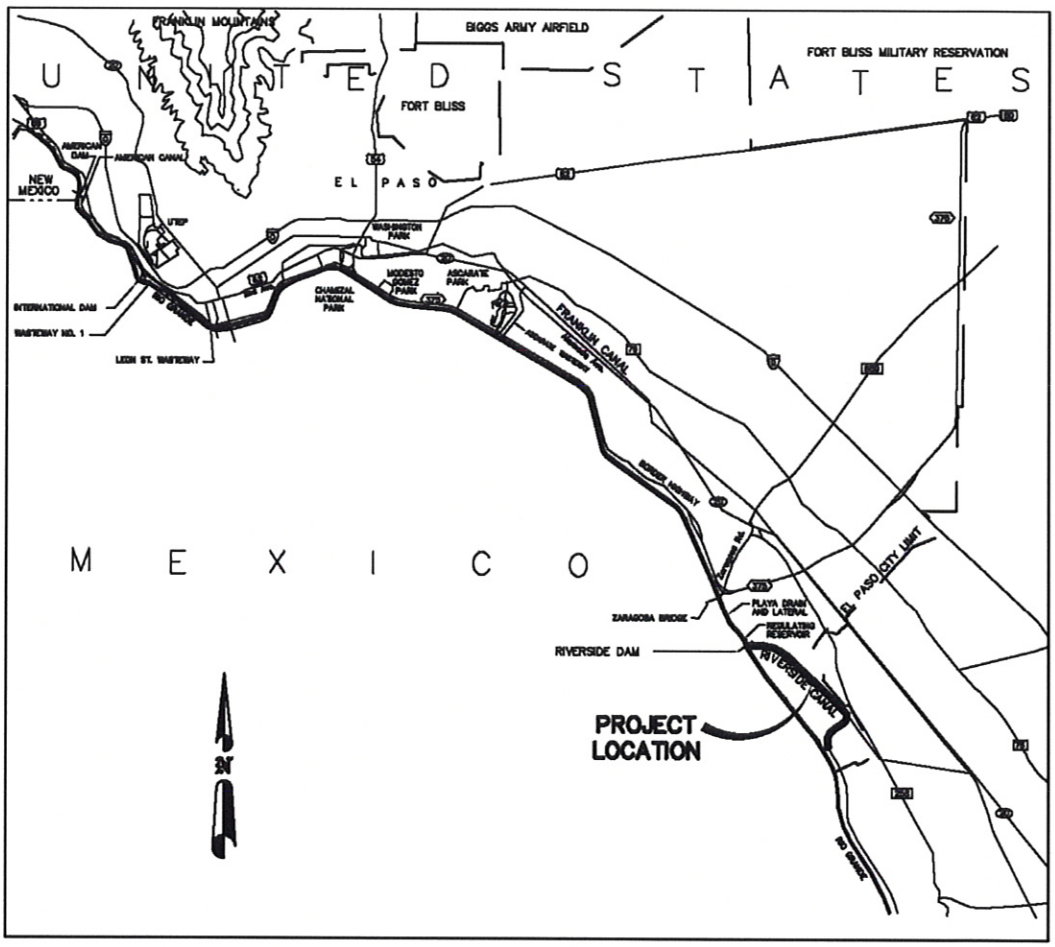
1. Elimination of the canal
2. Reconstruction of the earthen canal
3. Concrete line the canal, replace leaky gates, check structures, and correct inefficient delivery
4. Replacement of canal with large diameter pipe

Lining the canal with concrete, replace leaky gates, and check structures which would correct inefficient deliveries has been subsequently identified as the proposed action, which would be partially Federally funded through Reclamation.

1.3. Need for the Action

In the lower Rio Grande Valley, the Rio Grande has been severely impacted by prevalent drought conditions. A portion of the lower Rio Grande Valley includes the District and the City of El Paso (City) in far west Texas. Water demands in this region are increasing each year dramatically as a result of population increases (EPA 1997). Waters of the Rio Grande are distributed in accordance with the Congressional Authorizations of Reclamation's Rio Grande Project. The District has primacy use of these surface waters during an eight month irrigation season. The Canal is used to deliver approximately 50% of the raw water supply to the City, and to supply irrigation water to over 45,000 acres of irrigable land.

Since 1941, the City has obtained about 43 percent of its water supply from the Rio Grande by way of contracts with the District authorized by the Act of February 25, 1920 (Sale of water for miscellaneous purposes other than for irrigation). The City also obtains 40 percent of its water from the Hueco Bolson Regional Aquifer (Hueco), and 17 percent from the Mesilla Bolson groundwater aquifer (New Mexico-Texas Water Commission (Commission) 1998, 1999). However, according to the United States Geological Survey (USGS), these aquifers will begin to



EL PASO COUNTY
WATER IMPROVEMENT DISTRICT NUMBER ONE

FIGURE 1
PROJECT LOCATION MAP

NOT TO SCALE	JUNE 2003

run dry and will be severely depleted by 2025. As a result, depleted groundwater will also increase the demand for surface water in the Rio Grande. Therefore, irrigation system improvements, water conservation projects and increased efficiencies are critical to meet this region's growing need for water.

Limited options exist which would satisfy the need to increase the water supply. Of these options, conservation holds the greatest advantage over other potential approaches. Conservation programs allow previously developed, higher quality water sources to be extended, effectively creating new, "good" water sources.

Each year the Canal loses approximately 3,000 acre feet of water per mile through seepage and 55 acre feet per mile due to evaporation (District project report 2003). Therefore, the Canal loses approximately 7,000 to 9,000 acre feet of water per year in the Project area. In addition, diversion, check, and bypass structures along the Project leak water and need to be replaced. As a result, inefficient withdrawal scheduling and excess bypass waste flows exist. Improvements to the Canal would help the District reduce the need to pump water from the Hueco Bolson groundwater aquifer to provide irrigation water.

1.4. Purpose of the Action

In an effort to conserve water, the District proposes to correct weaknesses identified in the Canal. These weaknesses were identified in evaluations of the first 2.25 miles of the Canal (District project report 2003). The following summarizes these weaknesses:

- Seepage of water and evaporation losses from existing earthen canals.
- Excess bypass of water and waste flows resulting from limitations of existing check structures.
- Inefficient withdrawal scheduling in the system.

Therefore, the purpose and objectives of reasonable alternatives to overall increase the water supply, the proposed action would:

1.4.1. Reduce or eliminate seepage losses to the groundwater
1.4.2. Reduce evaporation losses due to the current surface area of the canal
1.4.3. Correct inefficient delivery due to leaky diversion and check structures

1.5. Laws, Regulations, and Environmental Impact Statement (EIS) that affect this EA

The referenced MOA, the Act, and the El Paso-Las Cruces Regional Sustainable Water Project 2001 EIS , dated January 16, 2001, affect this EA. Under the MOA dated June 11, 2003, Reclamation agreed to prepare an EA for the project plan to comply with the National Environmental Policy Act (NEPA). The Act requires that a project plan approved by Reclamation be prepared by the District to qualify for federal funds required for the proposed action. According to the 2001 EIS (see page 4 and 6 of the Record of Decision), the Project or the preferred alternative will strive to deliver water efficiently. In addition, the Project will

promote water conservation. Therefore, irrigation system improvements, water conservation projects and increased efficiencies are critical to meet this region's growing need for water. This EA will address these improvements to promote water conservation. Improvements to the Canal would help the District to reduce the need for pumping water from the Hueco to provide irrigation water.

1.6. Public Scoping and Issues

A public meeting was held on September 10, 2003, at the District office. The purpose of the meeting was to provide an opportunity to discuss a proposal to improve the Canal. Several alternatives were presented including the preferred alternative to line the canal with concrete. Approximately 30 people attended representing the District, University of Texas at El Paso (UTEP), Ysleta del Sur Pueblo (Pueblo), Friends of the Rio Bosque (Friends), Axiom-Blair Engineering, and Reclamation. Each of the representatives were encouraged to send comments regarding the proposed action in writing to Reclamation. The following issues were discussed:

1.6.1. Pecos River Muskrat

The Pecos River Muskrat was sighted 3 to 4 miles southeast in irrigation ditches. However, it can live in canal systems and around hydraulic structures (Prevention and Control of Animal Damage to Hydraulic Structures, Hegdal and Harbour USDA, BOR, US Government Printing Office, April 1991. page 51.).

1.6.2. Historic Features of the Riverside Canal

The proposed project takes place entirely within the District which is included on the National Register of Historic Places (NHRP). Three hydraulic structures in excess of 50 years of age will be modified and/or replaced in the proposed Project area.

1.6.3. Effects of lining the Canal with concrete to the Rio Bosque Wetlands Park (Park)

Lining the Canal with concrete near the Park was identified as an issue in the public meeting of Sept. 10, 2003. Additional meetings were held with the Friends to further define their issues regarding the proposed action. Proponents of the Park believe that lining the Canal with concrete will impact the potential for creating and maintaining a wetlands park.

1.6.4. Effects of lining the Canal with concrete to the groundwater aquifer

Friends believe that lining the Canal would affect the groundwater aquifer below the Canal and the Park.

1.6.5. Impacts to the culture of the Ysleta del Sur Pueblo

Additional meetings were held with the Pueblo to further define their issues regarding the

proposed action. The following concerns were identified.

1.6.5.1. Effects of lining the canal on sacred plants.
1.6.5.2. Effects of construction activities during religious ceremonies.

2.0 Description of Alternatives Including the Proposed Action

2.1. Introduction

This chapter will be devoted to describing and comparing the alternatives including a summary of environmental consequences. The chapter has five sections as follows:

2.1.1. Description of Alternatives
2.1.2. Process Used to Consider, Select, and Eliminate Alternatives
2.1.3. Discussion of Reclamation's Preferred Alternative
2.1.4. Summary Comparison of the Activities, the Predicted Achievement of the Project Objectives, and the Predicted Environmental Effects of All Alternatives (see table on page 11)

2.2. Description of the Alternatives

2.2.1. No Action Alternative (A):

Implementation of this alternative would not satisfy the purpose and need of the proposed action. Weaknesses in the Canal would continue to exist including inefficiencies of the delivery structures. In addition, high seepage and evaporation losses would continue to exist at the present rate.

2.2.2. Proposed Alternative (B)

Three Canal sections A, B, and C (see Figure 2, Page 9) would be concrete lined with side slopes of 1:5:1. Although the dimensions would be different for each section, it would be necessary to carry a maximum flow of 1,590 cubic feet per second (cfs). The Partidor Check, Franklin Check, and the Wasteway One Check Structures would be replaced with new efficient Structures. The Partidor Check Structure would discharge water to Reach C of the Riverside Canal. The Franklin Check Structure would discharge water to the Franklin feeder, an existing, earthen-lined, irrigation canal which flows to the northeast to feed the Franklin Canal. Both check structures would contain two, twelve-foot wide radial gates to control flow. The Wasteway One Structure is intended to pass water from Reach C to the existing Canal. Its design would also include a side-channel weir to allow water to be wasted in an emergency from Reach C to the Rio Grande.

Access to the Project during construction would be along the current right-of-way roads.

2.3. Process Used to Consider, Select, and Eliminate Alternatives

2.3.1. An effective alternative would correct weaknesses in the Canal and help satisfy the need to help increase the water supply and efficiency of water delivery to the District. The following are criteria used for the process to select a preferred alternative:

2.3.1.1. An engineering design that fulfills the objectives listed in section 1.4.
2.3.1.2. An alternative that would be comply with the Lower Rio Grande Act (P.L. 106-576) including any additions to the Act that would affect this project.
2.3.1.3. An alternative that would be most cost effective.

2.3.2. The following table compares alternatives considered including the preferred alternative:

Alternatives Considered	Criteria for Selecting the Preferred Alternative		
	Meets Objective criteria in sections 1.4 and 2.3.1	Complies with Public Law 106-576	Cost Effective
No action	No	No	No
1. Elimination of canals	No	No	No
2. Reconstruction of canals	Partially	No	No
3. Replacement of canals with large diameter pipe	Yes	Yes	No
4. Concrete line canal sections A, B, and C	Yes	Yes	Yes

2.3.3. The following is a cost analysis for the previous table:

2.3.3.1. No Action Alternative

The no action alternative would leave the Canal and associated facilities as they exist today. This option would leave at risk the City's water and sewage treatment plants from flooding, contamination of the Park and surrounding area with untreated sewage during such flood, and make the capture and reuse of flood water impossible, resulting in an average loss to the region of between 3,000 and 20,000 acre-feet of water each year. The cost of the no action alternative is estimated to range on average between $1 and $7 million dollars per year depending on the risk of flooding and the cost of developing alternative water resources.

2.3.3.2. Elimination of Canals

The Canal is used to deliver approximately 50% of the raw water supply of the City, and supply irrigation water to over 45,000 acres of irrigable land. The elimination of the canal would result in tens of millions of dollars of economic damage per year. The long term cost of the elimination of the canal could total in excess of a billion dollars. The canal is also used to convey storm water from the American Canal Extension to the Rio Grande. Elimination of the Canal would require the

re-engineering of the American Canal Extension at a cost several million dollars. Damage caused by flooding to the City's primary water and sewage treatment plants could range from hundred of thousands to millions of dollars. A third use of the Canal is to convey treated sewage effluent for reuse downstream. Elimination of the canal would require such effluent be discharged to the Rio Grande, resulting in a loss of over 60,000 acres- feet of reused water and the loss to the City of 12,000 acres-feet of upstream raw water treated by the City. The direct cost of the loss of the reuse water ranges between $2 and $4 million per year.

2.3.3.3. Reconstruction of Canals

One of the primary objectives of the proposed project is to increase the flow capacity of the Canal to 1,500 cfs. Reconstruction of the Canal to provide this flow capacity without concrete lining the Canal would require a doubling of the width of the Canal. This larger Canal would require the purchase of additional right-of-way or the transfer of land in the Park to the District. A portion of the existing Canal has been condemned by the Department of Homeland Security and cannot be enlarged. The cost of reconstruction of the Canal, if possible, would be several times greater in cost than the proposed improvements.

2.3.3.4. Replacement of Canal with Large Diameter Pipe

The design flow rate of the Canal is approximately 800 cfs, the current capacity of the Canal is approximately 500 cfs. The Canal is supplied by the American Canal Extension which has a capacity in excess of 1,500 cfs. The proposed design of the concrete lining of Canal is 1,500 cfs. It typically is not economical to use pipelines or box culverts for the conveyance of surface water for flows greater than 75 to 125 cfs, unless the land cost for the Canal is very large or other constraints exist on the location of the conveyance facility. Pipelines or box culverts can be designed and built for flows of 1,500 cfs or greater but at a significantly greater cost than an open channel. For a 1,500 cfs facility the additional cost increase between a pipeline or box culvert and a concrete lined open canal would range between $3 to $5 million per mile.

2.3.3.5. Concrete Line Canal Sections A, B, and C

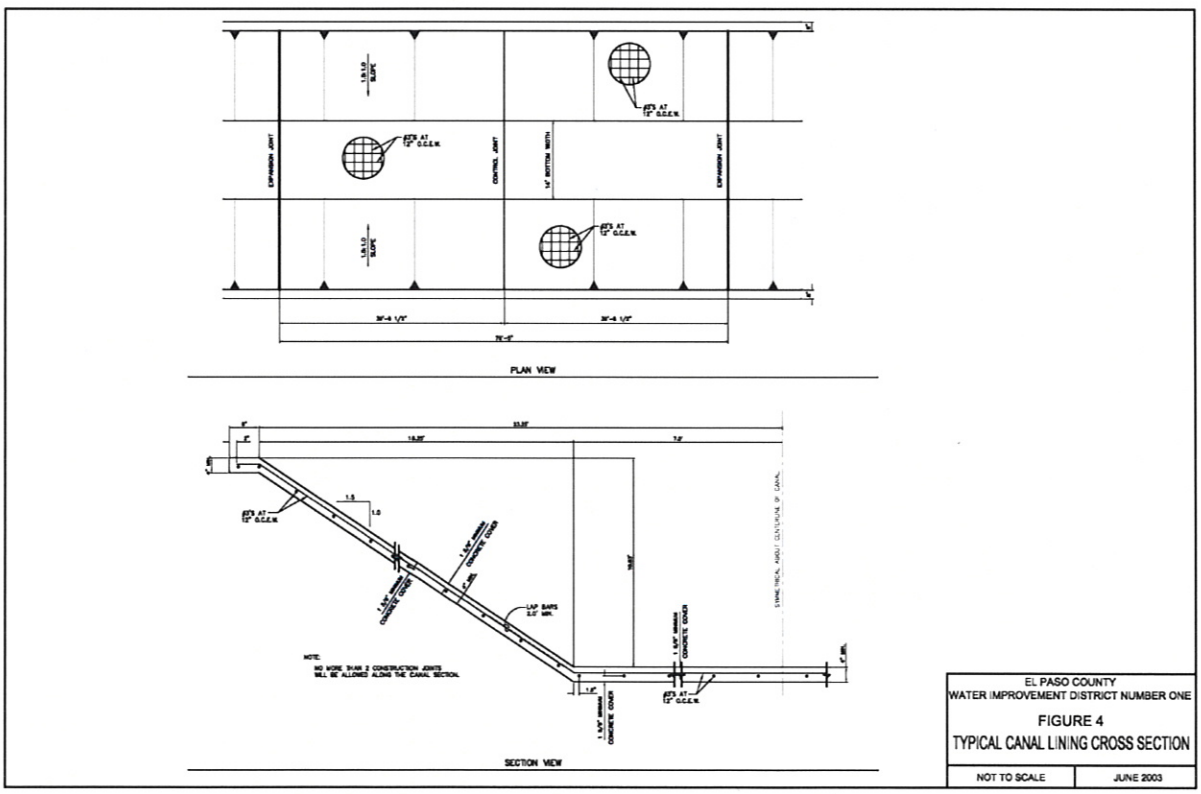
This is the least costly option when installation cost, maintenance cost, and reliability issues are considered. Concrete lined canals have been successfully built and operated for many decades, and have been extensively used in the United States and through-out the world. When properly designed and built, concrete lined canals have a life cycle of over 75 years. The cost of the Project is estimated to be approximately $6

million dollars. The cost of this Project would be much less than the other alternatives described on Page 7.

2.4. Proposed Action, Alternative B

The proposed Project area lies within El Paso County, Texas as indicated in Figure 1. The existing components of the segment of the Canal include approximately 16,000 feet of earthen-lined canal with bottom widths varying from 45 to 90 feet. The proposed Canal (see Figure 2 of Page 9, section A, B, and C) begins at the downstream end of the existing American Canal. The Project is divided into three segments: A, B, and C. Reach B connects to the middle of Reach, A at a point just downstream of the Wastewater Treatment Plant Bridge. Reach A terminates at the Partidor Check Structure. Reach C extends from the Partidor Check structure to the Wasteway One Check Structure.

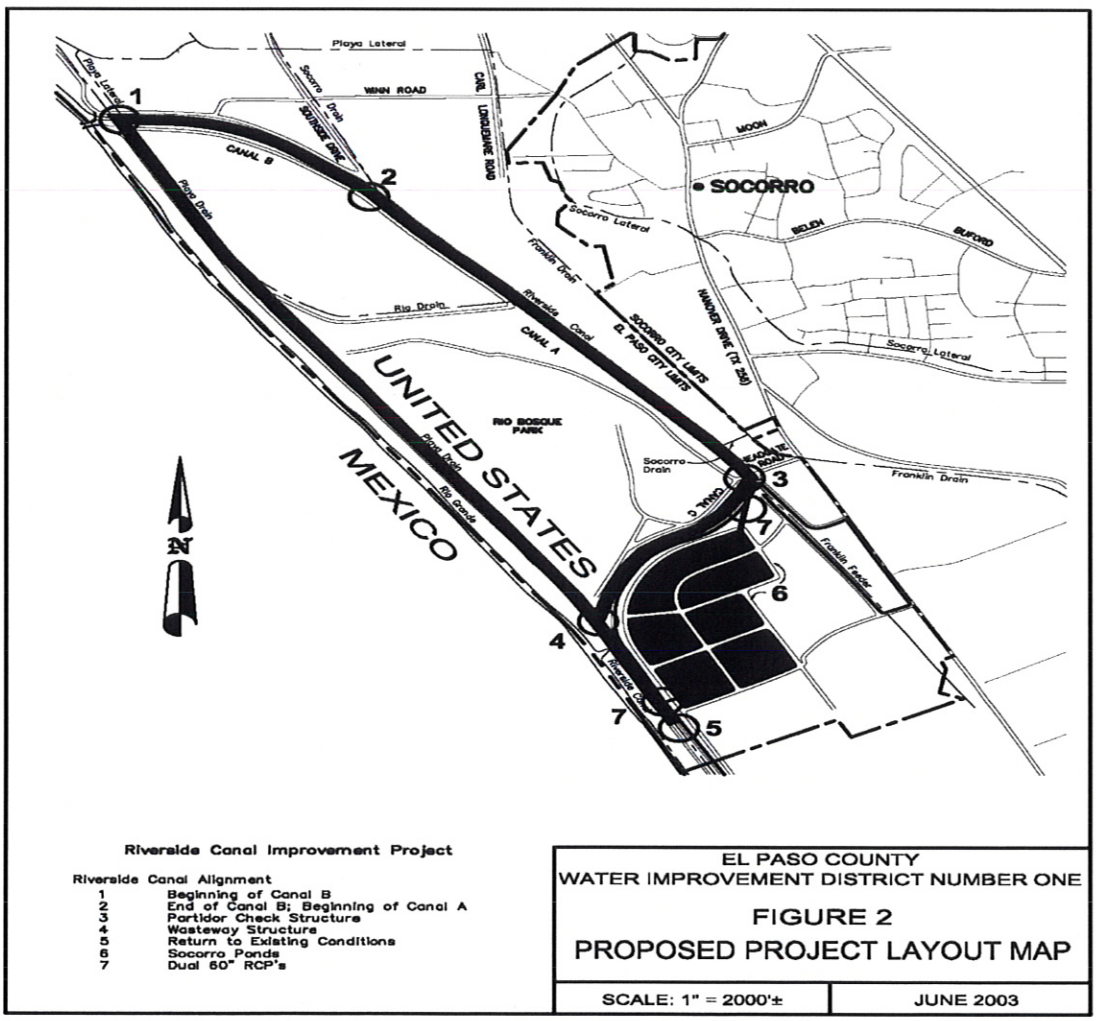
Canal sections A, B, and C will be concrete lined with side slopes of 1:5:1 and a depth of about 11 feet. Each is designed to carry a maximum flow of 1,590 cfs while maintaining about 4 feet of total freeboard. Section A has a length of 7,630 feet and a bottom width of 14 feet. Section B has a length of 4,000 feet and a bottom width of 18 feet. Section C has a length of 4,370 feet and a bottom width of 28 feet. A typical canal lining cross-section is shown in Figure 4 as follows:

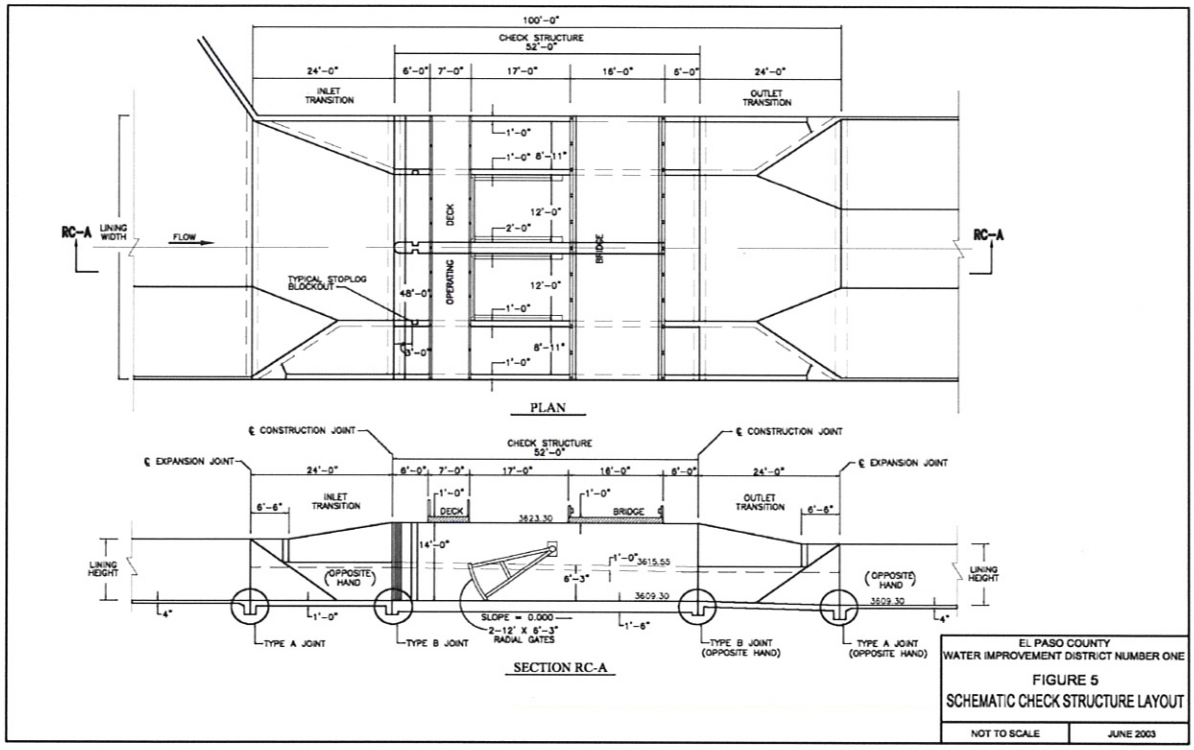


The Partidor and Franklin Check Structures would be constructed to allow more concise and efficient management of water within the primary canal systems. Both check structures would contain two, twelve-foot wide radial gates to manage flow. The Partidor check would also

contain overflow bypass channels on both sides of the radial gate bays, giving it a total bypass capacity of approximately 1590 cfs. The structures would each be approximately 140 feet long. Transition sections would be constructed from the proposed concrete-lined Canal A, into the structure, and through to the Franklin Feeder. A Schematic Check Structure Layout is provided at Figure 5 on page 10.

Also the Canal would be lined from the Partidor Check Structure to the Wasteway One Check Structure (see Figure 2, below). The design of Wasteway One Check Structure would match that of the Franklin and Partidor Check Structures. Included at the Wasteway One Check Structure would be the construction of a side-channel weir to allow water to be wasted (in an emergency) or sluiced (for maintenance) from Canal reach C to the Rio Grande through an existing wasteway culvert (see Figure 6, Page 10). The proposed Socorro Ponds shown on Figure 2, below are no longer a part of the Project.

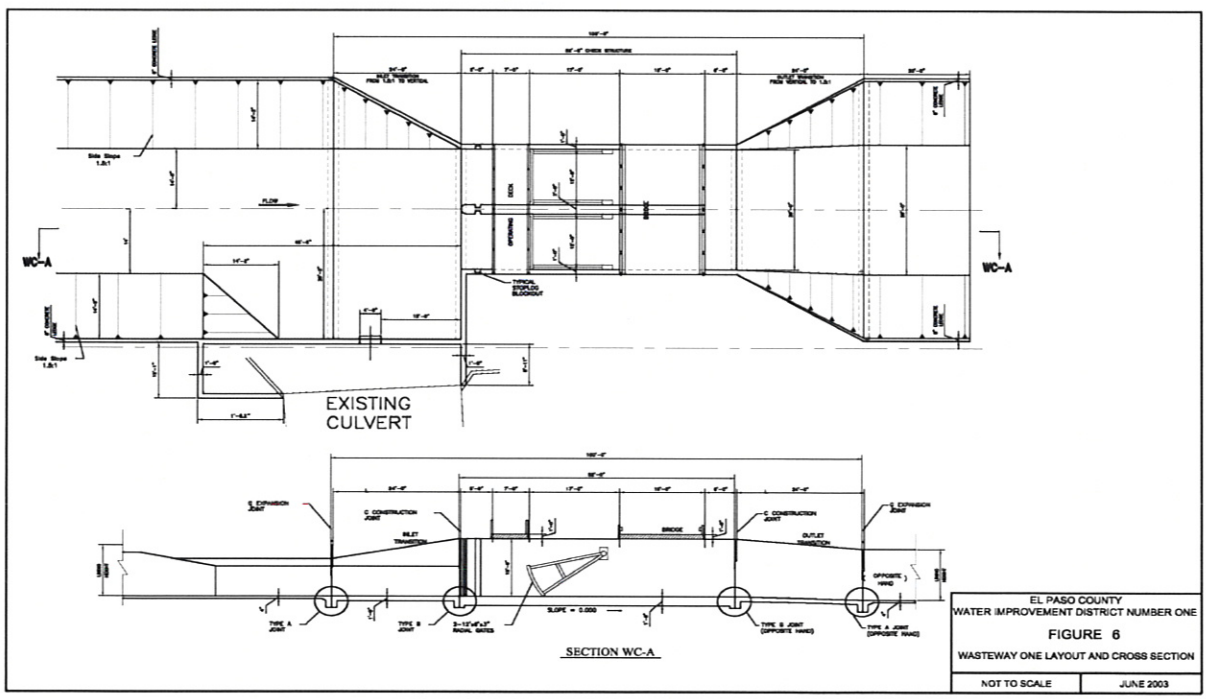




EL PASO COUNTY
WATER IMPROVEMENT DISTRICT NUMBER ONE

FIGURE 5
SCHEMATIC CHECK STRUCTURE LAYOUT

NOT TO SCALE | JUNE 2003



EL PASO COUNTY
WATER IMPROVEMENT DISTRICT NUMBER ONE

FIGURE 6
WASTEWAY ONE LAYOUT AND CROSS SECTION

NOT TO SCALE | JUNE 2003

2.5. Summary Comparison of the Alternatives, the Predicted Achievement of the Project Objectives, and the Predicted Environmental effects of Reasonable Alternatives.

Reasonable Alternatives	Affected Resources	Predicted Impacts (Issues section 1.6) of the Alternatives on the Resources	Predicted Achievement of objective criteria listed in section 1.4 and section 2.4.1 to fulfill the need.
No Action A	Vegetation	None	None
	Wildlife	None	None
	Wetlands	None	None
	Water Resources	Continued seepage from the unlined canal.	None
	Environmental Justice	None	None
	Indian Trust Assets	None	None
	Cultural Resources	None	None
	Air Quality and Noise	None	None
Proposed Action Alternative B	Vegetation	Impacts vegetation during construction and on the concrete lined area. Vegetation will return on open soil areas.	Not applicable (N/A)
	Wildlife	No impacts to threatened & endangered species Other wildlife species may be temporarily displaced to nearby unlined canals, though most species disturbed during construction are expected to return.	N/A
	Wetlands	Eliminating seepage from the canal would not affect the Rio Bosque Park.	None
	Water Resources	Eliminating seepage from the canal would have no permanent affect on the Rio Grande Alluvium.	Improvement in deliveries and diversion of water to the canal. Nearly eliminates seepage losses to the groundwater.
	Environmental Justice	None	None
	Indian Trust Assets	None	None
	Cultural Resources	The canal would be lined and the check structures would be replaced. Traditional Cultural Resources will not be impacted.	None
	Air Quality and Noise	During construction temporary increase in dust and noise above existing levels.	N/A

3.0 Affected Environment

3.1. Introduction

The relevant resources described in this chapter are those that would have the potential to be affected by the proposed Project. The effects (impacts or issues) to these resources created by the alternatives if implemented are discussed in Chapter 4.

3.2. Description of Relevant Resources (see issues from 1.6 of Chapter 1)

3.2.1. Wildlife

Approximately 20 mammal and 216 bird species occur on or near the proposed Project site. No federal Threatened and Endangered species or their habitat exists on or near the Project.

The Pecos River Muskrat which is on the Texas Parks and Wildlife (TPW) species of concerned list has been sighted 3 to 4 miles southeast of the Project site in irrigation ditches. In addition, the Pecos River Muskrat is also known to live in canal systems and around hydraulic structures (Prevention and Control of Animal Damage to Hydraulic Structures, Hegdal and Harbour USDA, BOR, US Government Printing Office, April 1991. page 51.). Muskrats are found in wet environments, favoring locations with four to six feet of water. While muskrats are found in ponds, lakes, and swamps, their favorite locations are marshes, where the water level stays constant. Marshes provide the best vegetation for muskrats. The nests of the muskrats are formed by piles of vegetation placed on top of a good base, for example a tree stump, generally in 15 to 40 inches of water (Newell, T. 2000).

3.2.2. Cultural Resources (Issue #2 Historic Features of the Riverside Canal)

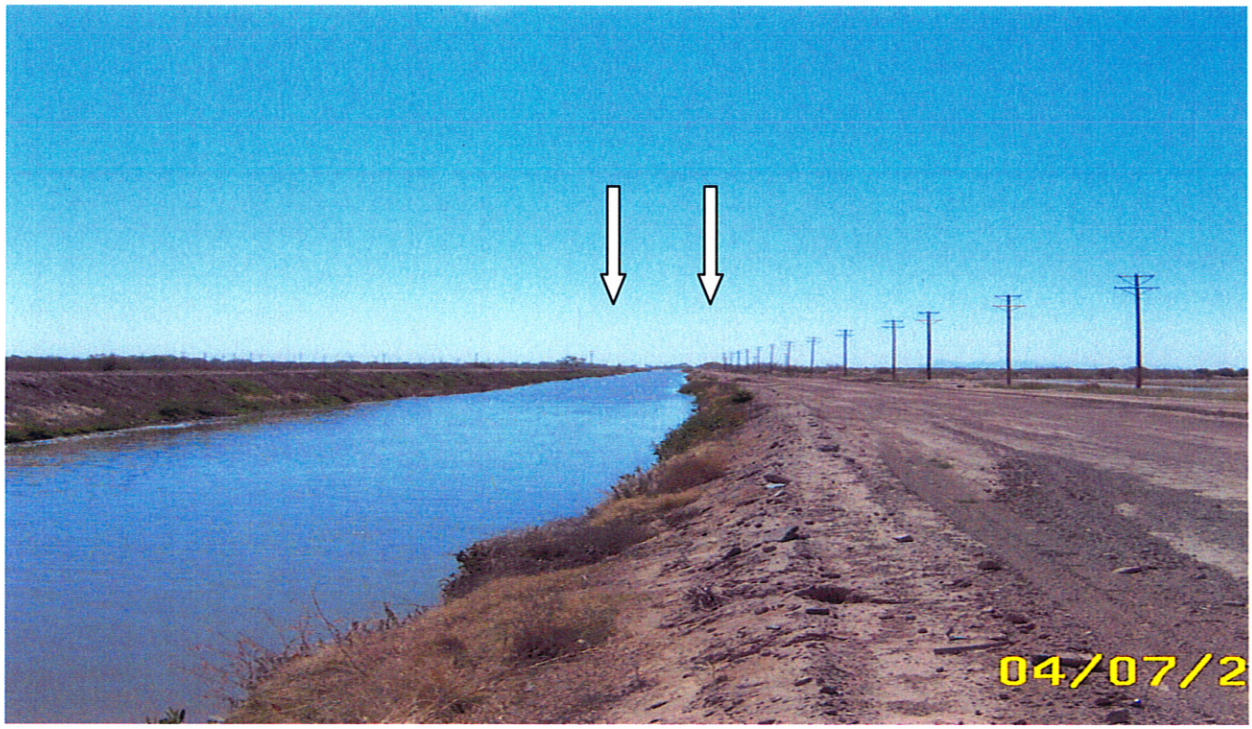
The proposed Project takes place entirely within the District, which is included on the NRHP. Three hydraulic structures in excess of 50 years of age would be replaced in the Project. These structures include the Franklin, Partidor, and Wasteway One Check structures. In addition, the width of the Canal in the Project will be modified. Pages 13 and 14 show pictures of the existing structures on the NRHP.

In addition to the Canal, the Pueblo has designated the Park as a Traditional Cultural Resource. The resources are traditional plants (see page 16) that are necessary for the Pueblo to carry on their cultural events.

View of the upstream side of Franklin Check Structure (on the left) and the Partidor Check Structure (on the right).

View of the existing Wasteway One and Check Structure on the left.

Typical view of the width of the Riverside Canal as it currently exists



3.2.3. Water Resources

The groundwater level of the area under the Park is controlled by the elevation of the bottom of the Rio Grande, the Riverside Intercepting Drainage Canal, and the River Intercepting Drainage Canal. Currently, the groundwater level is greater than the bottom elevation of the drainage canals, and therefore the groundwater level is not controlled by the amount of seepage from the Canal. As long as these drains have flow, the elevation of the bottom of the drains controls the groundwater level in the park area. Furthermore, when excess water is available, the District has voluntarily made treated effluent water available to UTEP for application on the lands of the Park. Typically, approximately 45 cfs of water is provided to the Park from October to February of each year. This equals a volume greater than 10,000 acre-feet per year which exceeds by several times the amount of water that recharges the alluvium aquifer (under the Park) as a result of seepage from the portion of the Canal adjacent to the Park.

3.2.4. Wetlands

A shallow water emergent wetland (30 acres) located on the west side of the Park adjacent to the Canal was created as a mitigation measure to replace acreage lost as a result of the Rio Grande American Canal Extension Project. Federal agencies involved with this project are the Service and the IBWC.

The emergent wetland and the Park was planted with riparian vegetation that is being enhanced by water donated by the District during the non-irrigation season from a wastewater treatment plant nearby. The Project has been identified as a source of water (contingent upon water rights) to enhance the establishment of the emergent wetland. In addition, the District has made provisions for the Friends and the UTEP to acquire water rights so that they may apply for a turn out for additional water during the irrigation season.

3.2.5. Vegetation

The following is a table provided by the Pueblo listing traditional plants that are located in or near the proposed Project:

Common Name	Scientific Name (Genus)	Existing in the Riverside Canal
Cottonwood	**Populus**	**No**
Grass	**Poaceae**	**Yes**
Jaras	**Salix**	**Yes**
Jaria	**Asteraceae**	**Yes**
Jimson Weed	**Datura**	**No**
La lengua de vaca	**Rumex/Rheum**	**No**
Quelites	**Chenopodium**	**No**
Quelites	**Amaranthus**	**No**
Sunflower	**Helianthus**	**No**
Te de abuela	**Polygonum**	**No**
Tornillo	**Prosopis**	**No**
Toritos	**Tribulus**	**No**
Trompillo	**Solanum**	**No**
Varas	**Salix**	**Yes**

Plant species listed in the previous table represents vegetation in and along the Canal, the Park, and the Rio Grande. In addition, vegetation in and along the Canal is regularly mowed by the District as part of normal Canal O&M to allow carriage of water.

3.2.6. Environmental Justice

Federal agencies are required to identify and address disproportionately high and adverse human health or environmental effects of its activities on minority and low-income populations. The proposed Project site was selected based on the need to reduce seepage and evaporation from the Canal.

3.2.7. Indian Trust Assets

Indian trust assets (ITAs) are legal interests in property held in trust by the U.S. for Indian tribes or individuals. For example, ITAs include land, minerals, hunting and fishing rights, and water rights.

3.2.8. Air Quality and Noise

3.2.8.1. Air Quality

EPA Region 6 describes areas along the U.S.-Mexican border that do not meet National Ambient Air Quality Standards (NAAQS). El Paso County is designated as non-attainment for PM-10 (dust). The project area is in an area that fails to meet or attain NAAQS for particulate matter or PM-10. High particulate levels have been attributed to the many unpaved streets and roads in the lower valley (Parkhill, Smith & Cooper, Inc. and CH2M Hill 1997).

3.2.8.2. Noise

Typical noise levels in the Project area may normally range from 25 to 60 dBA (A-weighted decibels) and is caused by existing nearby industrial facilities.

4.0 Environmental Consequences

4.1. Introduction

This chapter discusses the scientific and analytical basis for the summary comparison of effects in section 2.4 of Chapter 2. Included in the chapter are predicted effects of each alternative on selected environmental resources.

4.2. Predicted Effects on Each Relevant Issue and Resources

4.2.1. Wildlife

No Action A

Lining the Canal with concrete, replacement of leaky gates and check structures would not occur. As a result, wildlife such as the Pecos River Muskrat would not be affected.

Proposed Action B

The Service has stated in a letter (see attached Appendix A) that habitat for federally listed threatened and endangered wildlife species is not known to exist on or near the proposed Project.

The Pecos River Muskrat known to exist in canals similar to the Canal was listed by the TPW as a as a species of concern; but not a threatened and endangered species by the Service. A presence or absence survey was conducted by the TPW within the proposed Project area and the adjacent Park. The survey identified muskrat fecal matter in the Canal and the Park, however, the fecal matter was not specifically identified with the Pecos River Muskrat.

Construction activities would only temporarily displace muskrat within the proposed Project site. After construction, the species would return to areas of the Canal not lined with concrete or relocate to the adjacent Park, the Rio Grande or nearby unlined canals.

Although construction activities will temporarily displace existing wildlife (20 mammal and 216 bird species), most would be able to return after Project completion. Wildlife species habitat may only be affected by relining the canal; however, these species would relocate to other easily accessible habitat nearby in the Park, the Rio Grande or nearby unlined canals.

Secondary and Cumulative Effects

Canal lining would exclude that area for the Pecos River Muskrat by preventing burrows in the banks. However, since only a small portion of the Canal would be lined with concrete, the proposed action would not permanently affect the muskrat in the area which can move to another unlined portion of the Canal.

4.2.2. Cultural Resources

No Action A

There would be no change to the existing conditions and cultural resources like the Canal and check structures would continue to age.

Proposed Action B

The proposed Project to line the Canal with concrete will affect its historical features. However, the Texas Historical Commission responded to a description of the proposed action in a letter to Mr. Allen Rhames of Axiom-Blair Engineering from Lawerence Oaks the State Historic Preservation Officer, determining that the proposed Improvements to the Canal would have no adverse effects with two conditions that would be required as follows:

4.2.2.1. The section of the Canal proposed to be lined would be required to be the same width (or as close to the same width as possible) as the current historic canal.
4.2.2.2. As any future improvements to the Canal are made, a representative section shall be maintained in its original appearance and condition.

In addition to the Canal, the Pueblo has designated the Park as a Traditional Cultural Resource. The resources are traditional plants that are necessary for the Pueblo to carry on their cultural events. The lining of the Canal would not affect the traditional resources in the Park; however, the District has made provisions to enhance the establishment of wetland species in the Park, which include drilling a well for year round use, providing a .turnout at the Bustamante Wastewater Treatment Plant, and helping the Friends to

acquire water rights. Water rights will provide the Friends an opportunity to apply for an additional turnout for water during the irrigation season would benefit the Park.

Secondary and Cumulative Effects

The purpose of the Canal would not change. However, the appearance of the Canal would change within the Project area; but would not change outside of the Project area and as a result the historical look of the Canal would be preserved.

4.2.3. Water Resources

No Action A

There would be no change to the existing conditions. Existing conditions regarding leaky gates, check structures, and inefficient delivery would continue.

Proposed Action B

The groundwater level of the area under the Park is controlled by the elevation of the bottom of the Rio Grande, the Riverside Intercepting Drainage Canal, and the River Intercepting Drainage Canal. Currently, the groundwater level is greater than the bottom elevation of the drainage canals, and therefore the groundwater level is not controlled by the amount of seepage from the Canal. As long as these drains have flow, the elevation of the bottom of the drains controls the groundwater level in the Park area.

Furthermore, when excess water is available, the District has voluntarily made treated effluent water available to UTEP for application on the lands of the Park. Typically, approximately 45 cfs of water is provided to the Park from October to February of each year. This equals a volume greater than 10,000 acre-feet per year which exceeds by several times the amount of water that recharges the alluvium aquifer as a result of seepage from the portion of the Canal adjacent to the Park. Any decrease in the seepage from the Canal is more than offset by the application of water in excess to the plant needs during the winter. Much of this excess water infiltrates into the alluvium aquifer and will offset any reduction in seepage.

The UTEP operates the Park. UTEP or any other entity has several option for obtaining water during the summer months to help address plant sustainability. The City owns the land and the associated water rights associated with the park. The City can on a temporary or permanent basis assign rights that would allow UTEP order and receive irrigation water during the summer months. The construction of the proposed conservation project will have no effect or impact on status of the water rights associated with the park. In addition to obtaining water or water rights from the City, UTEP has received donations towards construction and operation of an irrigation well in the alluvium aquifer. During the drought of 2003 and 2004 many of the alluvium wells were operated with little decline in the water levels in the alluvium aquifer. The proposed

project will have no impact on UTEP alternatives for obtain irrigation water for use in sustaining plant life during the summer.

As mentioned in the Axiom-Blair report (See Appendix B) and above, the groundwater level in the region of the Park is controlled by elevation of the water flowing in the nearby drainage canals and not by the amount of water that seeps from the Canal. The amount of water that recharges the Hueco must flow through the clay confining layer at the bottom of the alluvium aquifer, and varies from location to location. However, in general the amount of recharge to the Hueco from the alluvium aquifer in the flood plain of the Rio Grande is small. Furthermore, because of the fluvial origins of the alluvium aquifer, the vertical conductivity is estimated to be be only 1 to 5% of the horizontal conductivity. Any decrease in the groundwater elevation in the Park will have minimal effect on recharge (vertical flow of water) and cause water to flow horizontally towards the Park from the surrounding portions of the alluvium aquifer. UTEP's recharging of the alluvium aquifer using treated effluent offsets any possible reduction in recharge to the Hueco by keeping the groundwater levels in the alluvium aquifer greater than the bottom elevation of the nearby drainage canals. The proposed conservation project will have no or negligible reduction in the recharge of the Hueco from the alluvium aquifer in the vicinity of the Park.

Secondary and Cumulative Effects

Elimination of seepage within the boundaries of the Project site would occur. However, this would have negligible effect to the Rio Grande alluvial aquifer. The purpose of the project would be to conserve water and improve delivery efficiency. As a result, increased water in the Canal would be available for farmers downstream of the Project site. Improvements to the Canal would help the District reduce the need for pumping water from the Hueco to provide irrigation water and provide efficient delivery of water to the City and farmers downstream.

4.2.4. Wetlands

No Action A

There would be no change to the existing conditions and no effects to any wetland resources.

Proposed Action B

The emergent wetland and the Park was planted with riparian vegetation that is being enhanced by water donated by the District during the non-irrigation season from a wastewater treatment plant nearby. The Project has been identified as a source of water (contingent upon water rights) to enhance the establishment of the emergent wetland.

If seepage were to be eliminated or significantly reduced as a result of lining the canal with concrete, the Park would not be affected because the aquifers would maintain the groundwater level. Pump tests have shown that the rate of recovery from pumping wells installed within a few feet of the Canal is very high (Axiom-Blair, 2007). Since recovery rate of water is very high, this shows that the aquifers would rapidly replace any water lost from Canal seepage.

The emergent wetland and the Park was planted with riparian vegetation that is being enhanced by water donated by the District during the non-irrigation season. In addition, District has made provision to enhance the establishment of wetland species in the Park. These enhancements include a well, a turnout at the Bustamante Wastewater Treatment Plant, and provisions for the Friends to acquire water rights. Water rights would provide the Friends an opportunity to apply for an additional turnout for water during the irrigation season that would enhance riparian and emerging wetland species.

No jurisdictional wetlands exist along or near the canal in the Park.

Secondary and Cumulative Effects

None

4.2.5. Vegetation

No action A

There would be no change to the existing conditions and no effects to Vegetation.

Proposed Action B

With in the proposed project site, little vegetation exists as a result of being disturbed from the operation of the Canal. Reconstruction and lining of the Canal with concrete would temporarily impact vegetation. However, after construction plants are expected to be rapidly reintroduced to open soil areas from adjacent undisturbed plants.

Secondary and Cumulative Effects

Only the area of the concrete lining would prevent plant growth, while plants would be reintroduced to open soil areas.

4.2.6. Environmental Justice

No Action A

There would be no effects expected of any kind to the local population. No adverse effects to low-income or minority populations are anticipated.

Proposed Action B

The Proposed Action would result in a variety of environmental effects that do not disproportionately affect minority populations or low-income communities. The Pueblo is concerned about potential effects that the Project may have on the Park, which is a Traditional Cultural Resource of special significance to the Pueblo. If the Project were to impact the Park, then that would be considered a disproportionate impact to a minority population. However, because water level within the Park is influenced by groundwater level which is not affected by canal seepage, the loss of seepage will have no effect on the Park. Thus, no environmental justice implications are anticipated.

Secondary and Cumulative Effects

None

4.2.7. Indian Trust Assets

No Action A

There would be no effects to ITAs.

Proposed Action B

Although these are resources of special significance to the Pueblo, there are no ITAs (Assets held in trust by the Federal Government) within the Project area or within the vicinity to be affected.

Secondary and Cumulative Effects

As a result of no effects to ITAs, there would be no cumulative effects.

4.2.8. Air Quality and Noise

No Action A

There would be no change to the existing conditions and no effects to air quality or noise.

Proposed Action B

During the reconstruction of the Canal and the placement of the new check structures, the construction equipment, as trucks and bulldozers, will cause an increase to the existing dust (PM10) and noise levels: dust from the unlined Canal and noise from nearby industrial facilities. Nearby houses and others will be impacted by this increase in dust and noise, which will return to normal levels after construction ends. During the Project, the times of construction will be restricted to avoid interfering with religious ceremonies of the Pueblo.

Secondary and Cumulative Effects

Upon completing the Project, dust and noise from construction would be eliminated. As a result, no cumulative effects are expected in the future.

4.3. Irreversible and Irretrievable Commitment of Resources.

Seepage to the regional aquifer from the lined Canal would decrease. Vegetation currently existing on the banks of the Canal would be impacted but should return on open soil areas. Federal and District funds would be committed towards construction of the Project.

5.0 Environmental Commitments

5.1. Construction activities would be coordinated with the Pueblo so as not to interfere with their religious ceremonies.

5.2. Reclamation is committed to ongoing government to government relations with the Pueblo.

5.3. A letter from the THC can be found at Appendix A. The letter lists a few conditions if the project were to be implemented.

The THC requires that the section of the Canal that would be lined should be the same width (or as close to the same width as possible) as the current historic canal. In addition, the THC requires that a representative section of the canal shall be maintained in its original appearance and condition in the event of any future improvements to the Canal.

5.4. Should evidence of possible scientific, prehistorical, historical, or archeological data be discovered during the course of this action, work shall cease at that location and the Area archaeologist shall be notified by phone immediately, with the location and nature of the findings. Care shall be exercised so as not to disturb or damage artifacts or fossils uncovered during operations, and the proponents shall provide such cooperation and assistance as may be necessary to preserve the findings for removal or other disposition by the Government.

Any person who knows or has reason to know that he or she has inadvertently discovered human remains on Federal or tribal lands, must provide immediate telephone notification of the inadvertent discovery, with written confirmation, to the responsible Federal agency official with respect to Federal lands, and, with respect to tribal lands, to the responsible Indian tribe official. The requirement is prescribed under the Native American Graves Protection and Repatriation Act (P.L. 101-601; 104 Stat. 3042) of November 1990 and National Historic Preservation Act, Section 110(a)(2)(E)(iii) (P.L. 102-575, 106 Stat. 4753) of October 1992.

6.0 Consultation and Coordination

Consultation took place with the U.S. Army Corps of Engineers, TPW, the Service, Friends, Pueblo, THC, UTEP, District, and several private individuals who attended the public meeting.

A public meeting was held September 10, 2003 to present the proposed Project and receive comments from those who attended.

Additional meetings have taken place with the Friends, to share Project information, identify their concerns about the Project, and describe how the Project would not affect groundwater or the Park's vegetation.

The following is a series of technical and formal meetings undertaken with the Pueblo as part of the government to government process:

- September 25, 2003, to brief the Governor and his staff regarding the proposed Project. During that time, the Pueblo provided their concerns regarding air quality and noise during religious ceremonies, and impacts of lining the Canal. They requested that construction be scheduled to avoid conflicts with religious ceremonies.

- May 24, 2004, follow-up meeting in the field with the War Captain to discuss sacred plants.

- July 28, 2004, to continue government to government consultation with the Governor. This discussion included sacred plants and issues regarding potential impacts to the Park.

- August 1, 2007, to continue government to government consultation with the Governor. It had been three years since communication took place regarding the proposed Project, and therefore helped to reconfirm the Pueblo's concerns and issues. Several informal field trips were conducted with the Pueblo to consult further and understand their needs.

- March 19, 2008, a meeting to brief Governor Paiz and his staff regarding the proposed Project. The Lt. Governor, War Captain, and Environmental Manager were present.

- May 22, 2008, to continue government to government consultation with Governor Paiz and his staff. The meeting centered on Pueblo consultation policies and the draft EA.

- February 28, 2009, a meeting with Governor Paiz, the District, and Reclamation personnel to update the progress of the Project and EA.

- Previous issues and letters submitted by the Pueblo since 2003 have been addressed through all the meetings listed above and in the final EA for the Project.

- April 15, 2009, letter from the Governor to Reclamation providing comments after additional review of another draft revision of the EA (see Appendix C addressing comments in the letter).

7.0 List of Preparers

NAME	JOB TITLE	EA RESPONSIBILITY	COMMENTS
Robert Maxwell	NEPA team leader for the project	Author of the EA	Consulted with the Pueblo on environmental issues and ITAs
Woodrow Irving	Project Engineer	Coordinated issues with the Pueblo, reviewed design for Reclamation requirements	Reviewed and commented on EA
Al Blair	Lead Project Engineer and EP #1 Engineering Consultant	Supervised the Design of project proposed action	Reviewed and commented on EA, Provided Aquifer Test Analysis and Technical Report and Water Resources Section
Jeff Hanson	Archaeologist	Reviewed cultural resources section EA for accuracy	Provided SHPO letter and comments for EA

8.0 References

Alvarez, Henry and Wayne Bucker, 1980, Report 246, Groundwater Development in the El Paso Region, Texas with Emphasis on the Resources of the Lower El Paso Valley, Texas Water Development Board.

International Boundary and Water Commission (IBWC), 1993, Final Environmental Assessment Rio Grande American Canal Extension, El Paso, Texas, Ground Water Resources, page 17.

El Paso County Water Improvement District Number One. Project Report. May 2003.

New Mexico-Texas Water Commission 1998, 1999. El Paso-Las Cruces Regional Sustainable Water Project. Community Newsletter. 1:1 and 1:4.

U.S. Bureau of Reclamation. Prevention and Control of Animal Damage to Hydraulic Structures. U.S. Government Printing Office. April 1991.

U.S. Environmental Protection Agency. 1997. *Jonathon Rogers Water Treatment Plant Expansion Project Environmental Assessment.* December 1997.

Axiom-Blair Engineering, L.P. September 2007. El Paso County Water Improvement District No. 1, Water Conservation Program, Aquifer Test Analysis for the Riverside Canal Improvement Project.

Newell, T. 2000. "Ondatra zibethicus" (On-line), Animal Diversity Web. http://animaldiversity.ummz.umich.edu/site/accounts/information/Ondatra_zibethicus.html

APPENDIX A
General Information

AGREEMENT NO. 05-CF-40-2101

AGREEMENT

between

UNITED STATES OF AMERICA

and

EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER 1

for

PRELIMINARY COORDINATION AND CONSULTATION BY THE UNITED STATES FOR FEDERAL COMPLIANCE ISSUES AND FOR REVIEW OF PROJECT PLAN AND PROJECT REPORT

This AGREEMENT is made pursuant to the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (P.L. 106-576), hereinafter referred to as "the Act", and is between the UNITED STATES OF AMERICA, acting through the Bureau of Reclamation, Department of Interior, hereinafter referred to as "Reclamation" and, EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER 1, hereinafter referred to as the "District", a Water Improvement District organized and existing under and by virtue of Article XVI, Section 59, of the Texas Constitution, and governed in part by Chapters 49 and 55 of the Texas Water Code.

RECITALS

WHEREAS, as the District has identified an opportunity to improve the District's supply of water within the program area by project for canal lining and water conservation project for the Riverside Canal, El Paso County, Texas;

WHEREAS, the District desires that Reclamation review a document to be prepared by the District and entitled "El Paso County Water Improvement District No. 1 Draft of its Project Plan" for determination that the project could qualify for funding under the "Guidelines for Preparing and Reviewing Proposals for Water Conservation and Improvements Projects under Public Law 106-576" (June 2001), hereinafter referred to as "Guidelines" and prepare a Preliminary Review of the Project Plan. In addition the District desires that Reclamation begin coordination

AGREEMENT NO. 03-CF-40-210

with the District as regards the National Environmental Protection Act (NEPA) and other federal requirements for compliance and consultation;

WHEREAS, after Reclamation has determined that the Project Plan is sufficient to qualify under the Act, the District shall prepare a report (the "Project Report"), containing detailed descriptions, assessments, cost estimates, feasibility level engineering designs, and documentation of environmental and cultural resource compliance must be prepared and submitted by the District to Reclamation for review. District desires that Reclamation meet with and advise the District as to requirements and course of action during the preparation of this report. District desires that Reclamation review the Project Report, and complete all other requirements in the process, including the final step of prioritizing under the Act; and

WHEREAS, the District has entered into a contract with the Texas Water Development Board dated July 16, 2003 and labeled TWDB CONTRACT NO. G18500 (attached to this AGREEMENT as Exhibit B and made a part herein) for a grant for engineering services which includes conditions under which the Texas Water Development Board will reimburse the District for all cost considered under this AGREEMENT due from the District to Reclamation.

NOW, THEREFORE, the parties agree as follows:

A. Reclamation agrees that this AGREEMENT is subject to the conditions and provisions of the TWDB CONTRACT NO. G18500, and that any payment by the District to Reclamation under this AGREEMENT is subject to approval by the Texas Water Development Board.

B. Activities to be performed under this AGREEMENT by Reclamation shall include, but are not limited to:

1. Designation of a Reclamation representative responsible for coordinating with District as regards the project. The designated representative will be the principal contact for this AGREEMENT and any modifications.

2. Review of the Project Plan, as required under the Act. On or before sixty days after the date of the last signature on this AGREEMENT, and receipt by Reclamation of advance funds provided for herein, Reclamation will complete a review of the Project Plan. If the Project Plan can be qualified for federal funding, a letter so stating will be forwarded to the District and the project will be accepted

AGREEMENT NO. 03-CF-40-2101

into the program under the Guidelines. If there are changes, additions or corrections required in the Project Plan, Reclamation will notify District and make arrangements for further discussions and delivery of written suggestions as to such changes, additions or corrections. Within thirty (30) days of the re-submittal of the amended Project Plan, Reclamation will complete a review of the amended Project Plan. If the Project Plan, as amended, can be qualified, a letter accepting the document as the Final Project Plan will then be forwarded to the District.

3. Preliminary coordination with District for the purpose of discussion of anticipated environmental and cultural resource compliance requirements under all applicable federal and state laws, and necessary documentation required in the Project Report. Such compliance activities shall be commensurate with the requirements of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). Work items and costs necessary in order to achieve environmental and cultural compliance for the project will be negotiated.

4. Conducting any site visits and attending any meetings as necessary and appropriate with District and/or other agencies and interested groups regarding the development of the proposed Project Report.

5. Review of the Project Report, as required under the Act. With the advance of the necessary funds, and the completion of the review and qualification of the Project Plan, District will begin work on the Project Report. Within 45 days of submittal by District to Reclamation, Reclamation will complete a review of the Project Report. Once the Project Report is approved by Reclamation, a determination of financial capability will be made by Reclamation, and a cost share AGREEMENT for construction will be prepared for signature by Reclamation and the District. A letter will be given to the District stating that all requirements of the Act have been met and showing the prioritization of this project under the Guidelines.

6. Provide District with regular reports of actual expenditures and services required to accomplish the terms of this AGREEMENT until such activities and expenditures are complete.

7. Accept advance funding. Provide District with timely requests for additional advance funding in order that no hiatus may occur in the tasks enumerated above. Refund to District, after completion of the tasks enumerated in this AGREEMENT, any funds not expended or obligated. Reclamation has provided District an estimate of $20,000 for the review of the Project Plan and Report and

AGREEMENT NO. 03-C4-40-2101

completion of coordination and environmental compliance activities. Such payment of $20,000 by the District to Reclamation shall be in accordance with all provision of the contract between the District and the Texas Water Development Board dated July 16, 2002 (Exhibit B of this AGREEMENT).

8. Review comments and requirements by the Texas Water Development Board that might require changes and amendments to this AGREEMENT between Reclamation and the District, to the Project Plan or the Project Report. Reclamation will coordinate with the District's Representative and Engineer-of-Record in its attempt to satisfy such comments and requirements.

9. Reclamation shall schedule any meetings regarding work performed under this AGREEMENT with the District's Representative and the Engineer-of-Record.

10. Reclamation shall provide to the District Representative and the Engineer-of-Record at least copy, each, of all correspondence, reports, reviews, or any other work products prepared by Reclamation under this AGREEMENT.

C. Activities to be performed under this AGREEMENT by District shall include, but are not limited to:

1. Provide a sum not to exceed $20,000 for the tasks to be performed by Reclamation as regards the review of the Project Plan and Report and the coordination and environmental compliance activities described in this document. Exhibit A of this AGREEMENT, attached and made apart itemizes the Reclamation estimate An AGREEMENT signed by Reclamation and the District, evidence of approval by the District's Board of the signatures on the AGREEMENT, and an advance of $20,000 will be made prior to any work by Reclamation. After this AGREEMENT has been signed and funds advanced, such funds will be used by Reclamation for its costs, expenses, obligations and services related to the tasks enumerated in this AGREEMENT or any amendment thereof. Additional funds will be advanced by District when notified by Reclamation that such additional funds are needed for continuation of the activities under the AGREEMENT, and if District desires Reclamation to continue the tasks under this AGREEMENT, District will advance the requested funds within fifteen days of such notification.

2. Provide arrangements and assistance to Reclamation personnel during any site visits or meetings.

AGREEMENT NO. 03-CF-40-2101

3. Notify Reclamation of any problems that may change the plan for the project.

DISTRICT'S REPRESENTATIVE

Greg Lane, Maintenance Supervisor
El Paso County Water Improvement District No. 1
294 Candelaria St.
El Paso, Texas 79907
Office: 915-859-4186
Fax: 915-860-1038
E-mail: glane5698@aol.com

DISTRICT'S ENGINEER-OF-RECORD FOR PROJECT

A.W. Blair, P.E.
Axiom-Blair Engineering, L.P.
3933 Steck Avenue Suite B-119
Austin, Texas 78759
Office: 512-349-0117
Direct: 512-858-1997
Fax: 512-349-0385
E-mail: awblair@texas.net

TERMINATION

This AGREEMENT may be modified or terminated upon written mutual AGREEMENT of the parties hereto. The AGREEMENT may be terminated or suspended, at Reclamation's option, if District elects not to advance monies within fifteen days of notification by Reclamation of the need for additional advance funds. If Reclamation elects to suspend the AGREEMENT, all work by Reclamation will cease until it is in receipt of the next required start-up funds. The AGREEMENT, unless amended, will in any event terminate upon completion and transmittal to District of the letter approving and prioritizing the Project Report. All duties and obligation of the parties under this AGREEMENT will cease at that time except as to provisions related to accounting and reimbursing and refunding of funds.

AGREEMENT NO. 03-CF-40-210

GENERAL PROVISIONS

No member of or delegate to Congress, or resident Commissioner, shall be admitted to any share or shall be a part of this AGREEMENT or receive any benefit that may arise from this AGREEMENT other than as a water user or landowner in the same manner as other water users or landowners.

This AGREEMENT shall become effective on the date of the last signature hereto.

IN WITNESS WHEREOF, THE PARTIES HAVE EXECUTED THIS AGREEMENT in duplicate.

THE UNITED STATES OF AMERICA

By: _____ Date: 6/19/03

EL PASO COUNTY WATER IMPROVEMENT DISTRICT NUMBER 1

By: _____ Date: 6/11/03

Attn: Robt. Maxwell

NOTICE OF PUBLIC MEETING

to be held at

El Paso County Water Improvement District No. 1
294 Candelaria
El Paso, Texas 79907

A public meeting will be conducted to present the proposed ***El Paso County Water Improvement District No. 1 - 2003 Water Conservation Project.*** The El Paso County Water Improvement District No. 1 (the District) is proposing a project consisting of canal rehabilitation and the possible modification of the Socorro Effluent Holding Ponds for use as a regulating reservoir, which will temporarily store irrigation water.

The proposed project includes the renovation of selected sections of the District's Riverside Canal with an impervious lining. A significant reduction of seepage and loss of water can be accomplished by the lining of the canals.

A copy of the Project Plan is available for review at the El Paso County Water Improvement District No. 1 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday or on the Internet at www.axiomblairengineering.com.

Public Meeting
Wednesday, September 10, 2003 at 5:30 p.m.

The public meeting on the proposed project will include a briefing of the various aspects of the project and a hearing of public comments.

All those interested in the District are invited to attend this meeting and express their views. Oral and written comments may be presented at this Public Meeting. For further information, contact Deborah Schaefer at 512/394-1011.

APPENDIX 2

PUBLIC LAW 102-575

TITLE XXIII-ELEPHANT BUTTE IRRIGATION DISTRICT, NEW MEXICO

SEC. 3301. TRANSFER.

The Secretary is authorized to transfer to the Elephant Butte Irrigation District, New Mexico, and El Paso County Water Improvement District No. 1, Texas, without cost to the respective district, title to such easements, ditches, laterals, canals, drains, and other rights-of-way, which the United States has acquired on behalf of the project, that are used solely for the purposes of serving the respective district's lands and which the Secretary determines are necessary to enable the respective district to carry out operation and maintenance with respect to that portion of the Rio Grande project to be transferred. The transfer of the title to such easements, ditches, laterals, canals, drains, and other rights-of-way located in New Mexico, which the Secretary has that are used for the purpose of jointly serving Elephant Butte Irrigation District and El Paso County Water Improvement District No. 1, may be transferred to Elephant Butte Irrigation District and El Paso County Water Improvement District No. 1 jointly, upon agreement by the Secretary and both districts. Any transfer under this section shall be subject to the condition that the respective district assume responsibility for operating and maintaining their portion of the project.

SEC. 3302. LIMITATION.

Title to and responsibility for operation and maintenance of Elephant Butte and Caballo dams, and Percha, Leasburg, and Mesilla diversion dams and the works necessary for their protection and operation shall be unaffected by this title.

SEC. 3303. EFFECT OF ACT ON OTHER LAWS.

Nothing in this title shall effect any right, title, interest or claim land or water, if any, of the Ysleta del Sur Pueblo, a federally recognized Indian Tribe.

TEXAS HISTORICAL COMMISSION
The State Agency for Historic Preservation

RICK PERRY, GOVERNOR
JOHN L. NAU, III, CHAIRMAN
F. LAWERENCE OAKS, EXECUTIVE DIRECTOR

July 7, 2003

Mr. Allen Rhames
Axiom-Blair Engineering, L.P.
2711 W. Anderson Lane, Suite 210
Austin, Texas 78757

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966*
Proposed Changes to Riverside Canal, El Paso County. (Bureau of Reclamation)

Dear Mr. Rhames:

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

The review staff, led by Pam Opiela, has completed its review of the project documentation provided. The proposed improvements to the Riverside Canal will have no adverse effect on this section of the National Register Listed El Paso County Water Improvement District #1 under the following conditions:

1. The section of the canal that you propose to line with concrete will be of the same width (or as close to the same width as possible) as the current historic canal.
2. Proposed new ponds will be located outside the listed boundaries of the Riverside Canal and any other sections of the listed district.
3. As any future improvements to the Riverside Canal are made, a representative section shall be maintained in its original appearance and condition.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Pam Opiela at 512/463-6218.**

Yours truly,

for: F. Lawerence Oaks, State Historic Preservation Officer

cc. Will DeBusk, El Paso CHC Chair

P.O. BOX 12276 · AUSTIN, TX 78711-2276 · 512/463-6100 · FAX 512/475-4872 · TDD 1-800/735-2989
www.thc.state.tx.us

United States Department of the Interior

FISH AND WILDLIFE SERVICE
10711 Burnet Road, Suite 200
Austin, Texas 78758
(512) 490-0057

JUN 3 0 2003

Janis J. Smith, EIT
Axiom-Blair Engineering
2711 West Anderson Lane #210
Austin, Texas 78757

Consultation # 02-15-03-I-0364

Dear Ms. Smith:

The U.S. Fish and Wildlife Service (Service) has reviewed the Environmental Summary for the El Paso County Water Improvement District Number One (District), Canal, Structure, Pond, and Pumping Improvements Project. The Project is located in the city of El Paso, west of Socorro, along the Rio Grande River at the U.S./ Mexico border. The project is to be constructed using Texas Water Development Board funds under the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (PL-106-576). The District is also seeking a federal grant to share half the cost. The purpose of the project is to decrease water loss in an existing canal system.

The existing irrigation system includes about 16,000 feet of earthen-lined canal and a check structure at the downstream outlet of the canal system. Three new canal sections totaling about 16,000 feet are proposed. The new canals will be concrete lined with side slopes of 1.5:1 and will be about 11 feet deep. Two check structures (Partidor and Franklin) are proposed to deliver water to the canals and feed the Socorro Ponds. The Socorro Ponds will be off-line, earthen storage ponds for water diverted during peak river flows. A third structure, Wasteway One, will be constructed to allow water to return to the Rio Grande River in the event of an emergency or for maintenance needs. Our comments and recommendations follow.

Threatened and Endangered Species

The following federally listed endangered, threatened, and candidate species are known to occur in El Paso County:

Least tern	(E ~)	*Sterna antillarum*
Northern aplomado falcon	(E)	*Falco femoralis septentrionalis*
Southwestern willow flycatcher	(E‡)	*Empidonax traillii extimus*
Sneed pincushion cactus	(E)	*Coryphantha sneedii (=Escobaria=Mammillaria) var. sneedii*
Mexican spotted owl	(T‡)	*Strix occidentalis lucida*
Black-tailed prairie dog	(C)	*Cynomys ludovicianus*
Yellow-billed cuckoo	(C)	*Coccyzus americanus*

The Service does not believe that habitat for any of the above species occurs in the project area. Therefore, we do not anticipate impacts to the species by the proposed project.

Wetlands

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks, and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, or major construction. Construction activities near such areas should be carefully designed to minimize impacts. The installation and maintenance of Socorro Ponds should greatly increase the availability of open water habitat which should mitigate the impacts to existing wetlands.

If vegetation clearing is needed in riparian areas, please revegetate these areas with native wetland and riparian vegetation to prevent erosion and loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental reestablishment of herbaceous vegetation at the proposed work sites. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711.

Other Fish and Wildlife Resources

A total of about 340 acres of soil disturbance is anticipated for the construction activities; however, all of the land used for construction has been previously disturbed. No significant long-term impact on the distribution, diversity, and coverage of vegetation is anticipated. Vegetation is expected to be rapidly reintroduced by adjacent undisturbed areas of plants. Since the adjacent areas are described as consisting of scattered grasses and weedy annuals, the Service recommends that the area be planted in native grasses once construction is completed. These grasses may need to be irrigated to become properly established.

Overall, it is anticipated that water withdrawals from the Rio Grande will be lessened by the proposed project. The more efficient system should reduce the current amount of pumping from the river. This will benefit wildlife species along the river. Any construction impacts should be minimal and of relatively short duration.

We appreciate the opportunity to comment on the proposed project and appreciate your support of fish and wildlife habitat management. If you have any further questions or comments please contact Matthew Lechner at (512) 490-0057, extension 234.

Sincerely,

Robert T. Pine
Supervisor

TEXAS PARKS & WILDLIFE

July 2, 2003

Ms. Janis Smith
Axiom-Blair Engineering
2711 Anderson Lane, Suite 210
Austin, Texas 78757

Dear Ms. Smith:

This letter is in response to your review request, dated May 7, 2003, for potential impacts to rare, threatened, and endangered species from the proposed concrete lined canals, three check structures, and Socorro ponds within the El Paso Water Improvement District No. 1 in El Paso County.

Given the small proportion of public versus private land in Texas, the TPWD Biological and Conservation Data System (BCD) does not include a representative inventory of rare resources in the state. Although it is based on the best data available to TPWD regarding rare species, the data from the BCD do not provide a definitive statement as to the presence, absence, or condition of special species, natural communities, or other significant features in your project areas. These data cannot substitute for an on-site evaluation by your qualified biologists. The BCD information is intended to assist you in avoiding harm to species that may occur on your sites.

Based on the project description, when suitable habitat is present, the following species could potentially be impacted by the proposed activities:

State Listed Threatened
Chihuahuan Mud Turtle (*Kinosternon hirtipes murrayi*)

Species of Concern
Pecos River Muskrat *(Ondatra zibethicus ripensis*)

As noted in the text the Pecos River Muskrat is known to inhabit the El Paso canal system. Concrete lining of the canal would negatively impact this species, if it is currently burrowing into the earthen sides for its dens. Conversely, allowing the muskrat access into and out of the ponds could potentially provide habitat suitable for floating dens/lodges. A printout for this occurrence record is included for your planning reference. **Please do not include this species occurrence printout in your draft or final documents. Because some species are especially sensitive to collection or harassment, this record is for your reference only.**

200 SMITH SCHOOL ROAD
USTIN, TEXAS 78744-3291
512-389-4800

www.tpwd.state.tx.us

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

elpaWID1Canals&SocorroPonds.doc

Also, please review the entire county list, as other rare species could be present depending upon habitat availability. If during construction, the project area is found to contain rare species, natural plant communities, or special features, TPWD recommends that precautions be taken to avoid impacts to them.

Excluding bank-clearing activities during the breeding season for migratory bird species will help minimize impacts to this group. The Migratory Bird Treaty Act (MBTA) implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except when authorized under a US Fish and Wildlife (FWS) permit. Additional information regarding the MBTA may be obtained through the Southwest Regional Office (Region 2) Division of Migratory Birds, FWS, at (505) 248-7882.

This letter does not constitute a review of general fish and wildlife habitat impacts for this project. Should you need such a review, contact Kathy Boydston of the Wildlife Habitat Assessment Program, Wildlife Division (512/389-4571).

Thank you for the opportunity to comment on this project. Please contact me if you have any questions or need additional assistance (512/912-7021).

Sincerely,

Celeste Brancel, Environmental Review Coordinator
Wildlife Habitat Assessment Program, Wildlife Division
Threatened and Endangered Species

Enclosures (3)

APPENDIX B
Groundwater Information

Technical Memorandum

El Paso County Water Improvement District No. 1

Water Conservation Program

Aquifer Test Analysis for the Riverside Canal Improvement Project

Prepared for

United States Department of Interior

Bureau of Reclamation – El Paso, Texas

September 7, 2007

Prepared by:

Axiom-Blair Engineering, L.P.
P.O. Box 150069
Austin, TX 78715
(512) 394-1011

September 7, 2007

TABLE OF CONTENTS

1. Scope of Work

This technical memorandum was prepared to provide supplemental information regarding the characteristics of the shallow aquifer near the heading of the Riverside Canal at the request of the Bureau of Reclamation staff. No funds were available or budgeted for this work and as such the scope of the work was limited to a single test using hand measured data. An aquifer test was performed to estimate the transmissivity and storage coefficient of the aquifer (Boonstra 1999, and Driscoll 1987). Two existing irrigation wells were used in the test. Water was pumped from one well (CW6) for approximately 15 hours and the change in water level was observed in the other well (CW7). No water was pumped from the second well.

1.1. Location of Test

Figure 1 is a USGS map showing the location of the test wells. Figure 2 is an aerial photograph of the test area.

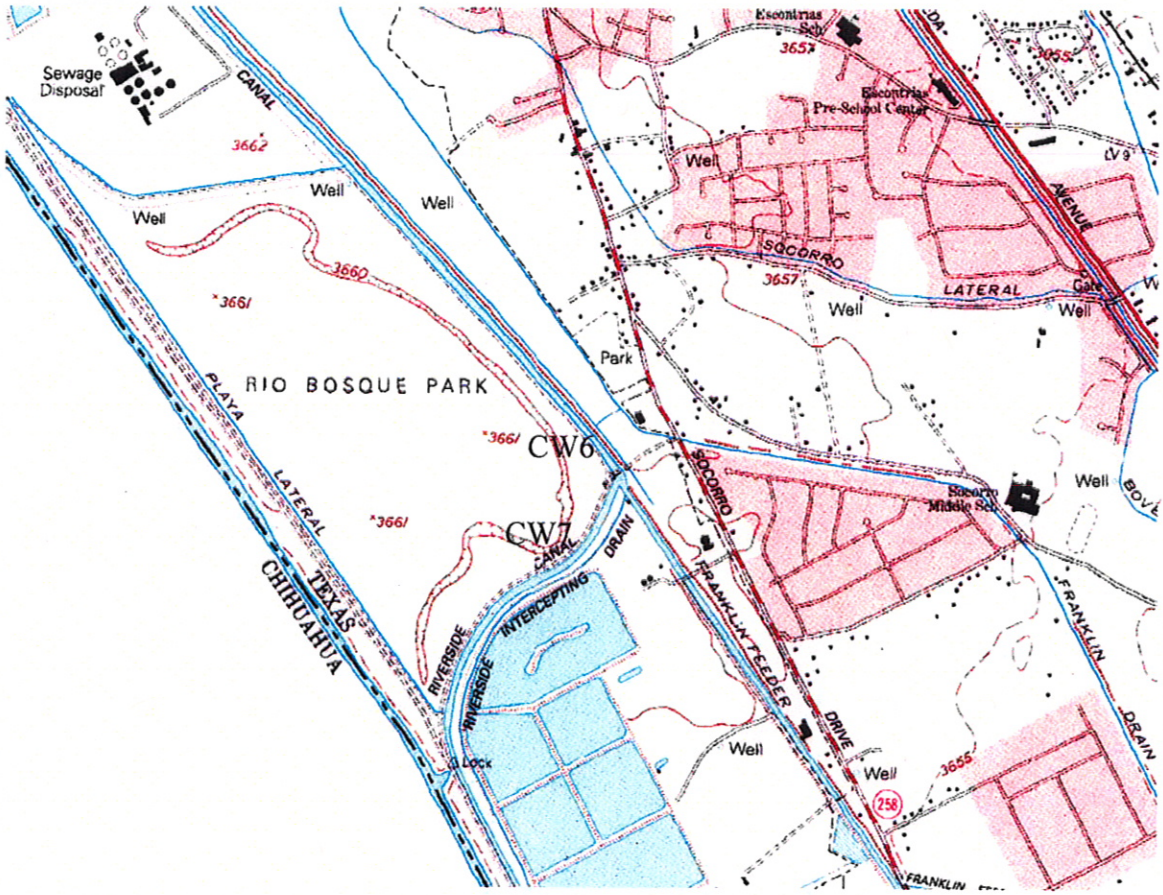


Figure 1 – USGS Topographic Map of Aquifer Test Area

Figure 2 – Aerial Photograph of Aquifer Test Area

1.2. Depth to Water Measurements

Table 1 list the depth to the groundwater surface measured from the top of the well casing. The estimated pumping rate was 750 gpm from Well CW6. At the start of the test the depth to groundwater was approximately 15 to 16 feet below the surrounding ground surface. After 15 hours of pumping, the measured draw down of the in well CW7 was 0.10 feet. Well CW7 is approximately 750 feet south of well CW6. After approximately 6 hours after the pumping was stopped, the water level in CW6 had recovered to 0.80 feet below the original water level.

The specific capacity of the well was approximately 28 gpm per foot of draw down. The total volume of water pumped was 675,000 gallons or 2.1 acre-feet.

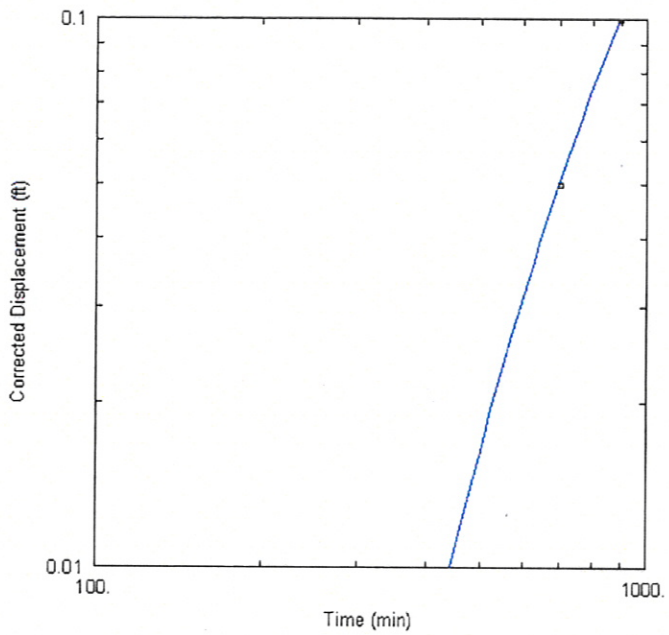
Table 1 : Depth to Groundwater

	Well ID	
Elapsed Time	CW6	CW7
minutes	feet	feet
0	17.50	18.70
5	43.00	
700	44.00	18.75
900	44.50	
905	23.00	
906	22.00	
912	21.50	
917	21.50	18.80
1245	18.30	

1.3. Analysis

Based on the measurements made during the draw down and recovery period of the aquifer test and the assumption that the shallow aquifer is unconfined, AQTESOLV, 2002, software estimated transmissivity is be 8,200 sq.ft/day and the specific yield of approximately 0.06 (see Figure 3). Alvarez (1980) reported transmissivity values of 4,010 sq.ft/day and specific yield of 0.15 to 0.20, and a saturated thickness of 190 feet. The hydraulic conductivity for these values is approximately 21 feet per day.

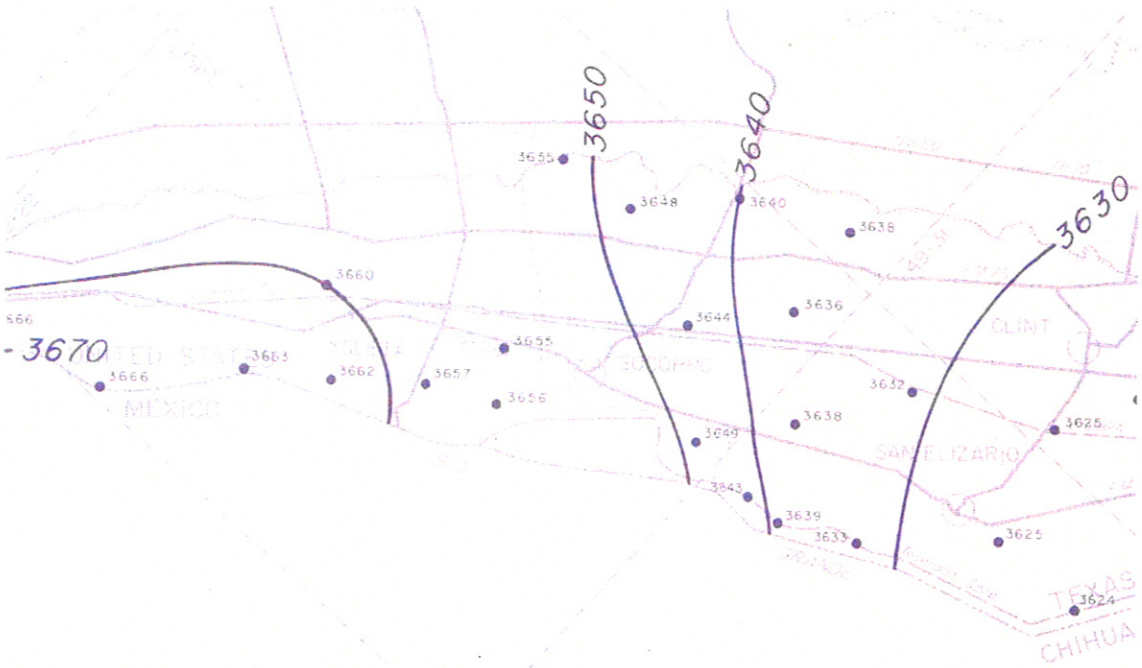
Figure 3 – Theis Curve for Well CW7



Alvarez reported a groundwater elevation in 1973 near the test area of approximately 3,650 feet or about 15 below the ground elevation of the Riverside Canal bank (see Figure 4). The current groundwater elevation is approximately the same as it was in 1973. This is because the shallow groundwater elevation is primarily controlled by the elevation of the water in the nearby agricultural drainage canal system. Any increase in the amount of water pumped in Texas and Mexico from the shallow aquifer or decrease in the amount of recharge from irrigation or canal seepage would have to be greater that the current drain flow to change the elevation of the groundwater. Furthermore, the high transmissivity of the aquifer allows water to readily flow horizontally from other locations to the recharge any loss due to a pumping well.

Van der Heijde's THWELLS computer program was used to simulate the pumping of 300 acre-feet of water per year from the test well during the primary irrigation season. The simulation results predicted a decline on the shallow aquifer at a distance of 2,500 feet from the irrigation well equal of approximately 1 foot after 122 days after pumping stopped (243 days of pumping and 122 days of recovery. The model assumed no recharge to the aquifer. If the flow in the nearby drains is greater than 300 acre-feet per year, then the groundwater removed by the well would be offset by similar reduction of flow in the drains. Also, any irrigation or other water applied to nearby lands would help reduce or stabilize the amount of decline cause by the pumping.

Figure 4 – 1973 Groundwater Elevations from Alvarez (1980)



2. References

Alvarez, Henry and Wayne Bucker, 1980, Report 246, Groundwater Development in the El Paso Region, Texas with Emphasis on the Resources of the Lower El Paso Valley, Texas Water Development Board.

AQTESOLV, 2002, Software User's Manual, Hydrosolve, Inc. Reston Virginia.

Boonstra, J., 1999, Well Hydraulics and Aquifer Tests, in J.W. Delleur (Ed.), The Handbook of Groundwater Engineering. Boca Raton, Florida: CRC.

Driscoll, F.G., 1987, Collection and Analysis of Pumping Test Data. in F.G. Driscoll (Ed.), Groundwater and Wells (pp 534-579). St. Paul, Minnesota: Johnson Division.

Van der Heijde, P.K.M., THWELLS, Image Well Analysis Software, International Groundwater Modeling Center, Colorado School of Mines, Golden, Colorado.

The Aquifer that may be affected by the proposed project is called the Rio Grande Alluvium (Alluvium). This aquifer is located unconfined on top of the Hueco Bolson aquifer and hydraulically connected (IBWC 1993). The Hueco Bolson is the principal aquifer for the Lower El Paso Valley and the Juarez areas. It occupies the majority of El Paso County.

The water table of the Alluvium in 1993 was approximately 12 feet. During an aquifer test in 2007 (Axiom-Blair 2007), the Alluvium water table was about 16 feet as compared to 15 feet measured by Alvarez (Alvarez 1980).

Axiom-Blair refers to the shallow unconfined water table during a pump test of wells (CW6 and CW7) located on the access road of the Riverside Canal. The following table (prepared by Reclamation Staff as a result of field observations and well measurements along the canal) is additional data regarding the depth to ground water at other wells along the access road adjacent to the Park:

Location map for Rio Grande aquifer and Hueco Bolson aquifer, showing El Paso and Fabens, Texas; Juarez, Ciudad Juarez, and location of nested groundwater monitoring wells.

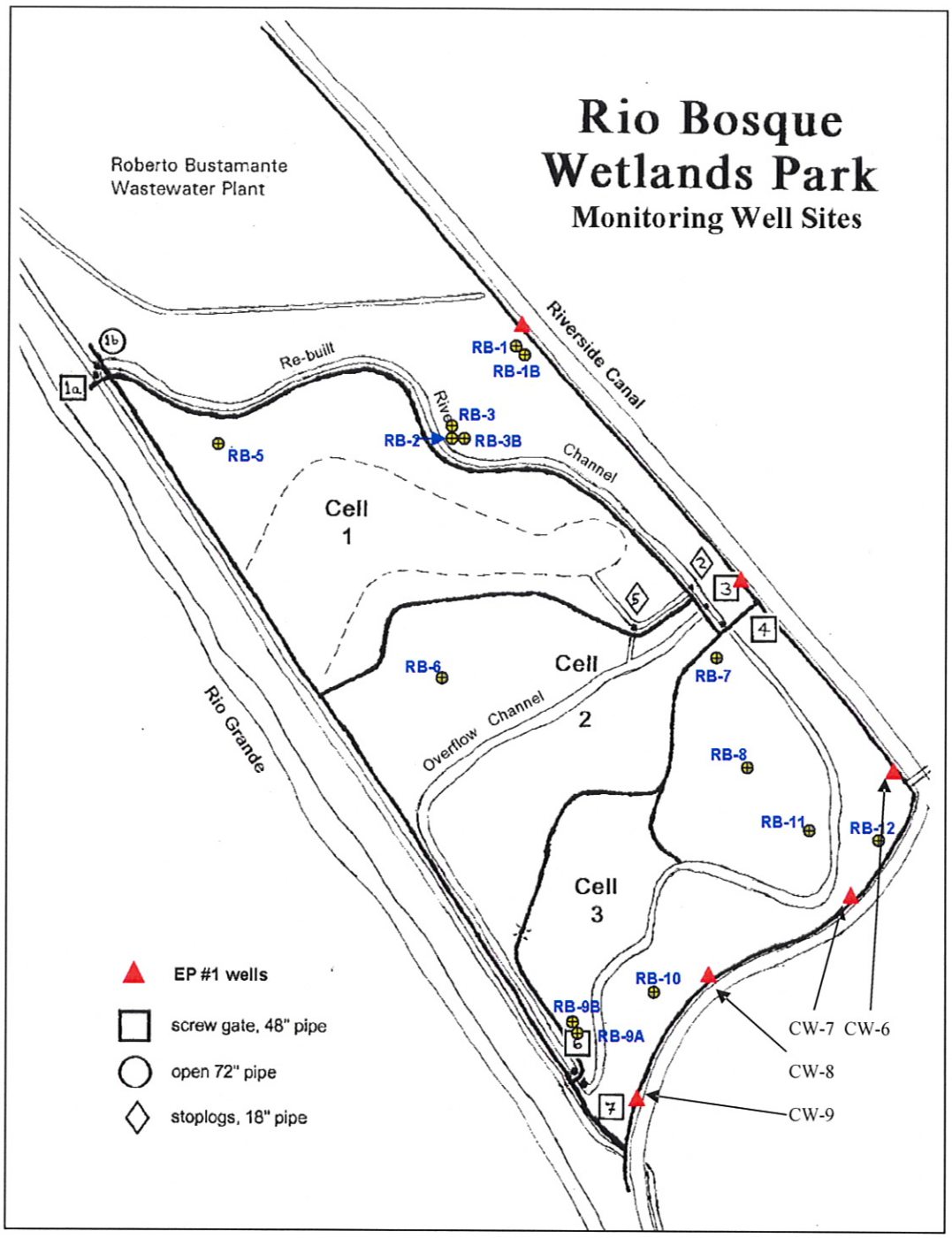
WELL MEASUREMENTS ALONG THE CANAL REPRESENTING THE ALLUVIUM WATER TABLE PREPARED BY RECLAMATION STAFF		
Well Number	April 11, 2007	April 30, 2007
CW-3	16.3	16.4
CW-4	16.8	17
CW-5	15.8	16
CW-6	17.6	17.4
CW-7	20	19.7

CW-8	17.5	17.1
CW-9	19.6	18.2
Socorro Pond Well	16.1	No measurement

WELL MEASUREMENTS IN THE BOSQUE PARK NEXT TO THE CANAL PROVIDED BY UTEP STAFF	
RB-1	9.3
RB-3	8
RB-5	10.2
RB-6	10.4
RB-7	10.4
RB-8	10
RB-9A	15.3
RB-9B	15.4
RB-10	11.5
RB-11	10.9

Notice in the table wells labeled "RB". These are groundwater meaurement wells in the Bosque Park next to the canal. RB-11 (water table at 10.9 feet) is close to CW-6 (water table at 16 feet) used as the well for the pump test (Axiom-Blair). However, the groundwater table in either case is at the same elevation of 3650 feet above sea level.

The pump test of CW-6, referred to in the previous paragraph, was conducted by Axiom-Blair in July of 2007. Results indicate that after 15 hours of pumping, the CW-6 and CW-7 recovered from the pumping to near the original elevation 6 hours after the pumping stopped. Since wells RB-10 and 11 in the Bosque Park are adjacent to the test wells, recovery of water in those wells are expected to be the same.


Rio Bosque
Wetlands Park
Monitoring Well Sites
Roberto Bustamante
Wastewater Plant
Riverside Canal
Re-built
River
Channel
RB-1
RB-1B
RB-2
RB-3
RB-3B
RB-5
Cell
1
RB-6
Cell
2
Overflow Channel
Rio Grande
RB-7
RB-8
RB-11
RB-12
Cell
3
RB-10
RB-9B
RB-9A
CW-7
CW-6
CW-8
CW-9
1a
1b
2
3
4
5
6
7
EP #1 wells
screw gate, 48" pipe
open 72" pipe
stoplogs, 18" pipe

APPENDIX C

Ysleta del Sur Pueblo Letter and Comments

Ysleta del Sur Pueblo
119 South Old Pueblo Road • P.O. Box 17579 • El Paso, Texas 79917 • (915) 859-7913 • Fax (915) 859-2988

April 15, 2009

Mr. Robert Maxwell
Bureau of Reclamation
55 Broadway NE Ste 100 (ALB-184)
Albuquerque, NM 87102

Dear Mr. Maxwell:

This letter serves to highlight and discuss the Ysleta del Sur Pueblo's stance on the Environmental Assessment Conducted by the Bureau of Reclamation titled Finding of No Significant Impact and Draft Environmental Assessment for El Paso County Riverside Canal and Structure Improvement Project. The YDSP has exercised its right to comment on past iterations of this Assessment. Concerns submitted in behalf of the Pueblo have been recorded in the appendix portion of the Assessment. As submitted to the Pueblo's office, April 12, 2009, the newest version of this document is still very much in draft form, missing key elaborations and talking points that the Pueblo has identified in previous comments. It is unclear how these key points of discussion have not been elaborated in the Assessment when they appear in the appendix. Hopefully the final draft will reconcile comments submitted and their representation in the final draft.

The YDSP has been asked to comment on a document whose previous drafts have been commented on. This task presents a challenge as the most recent version of the Assessment has been through minimal substantive changes. Many of the concerns previously submitted by way of comment still remain unaddressed. Many of the concerns expressed in previous comments related to questions of habitat sustainability have not been well developed. The purposes of the project are presented and discussions of water loss due to seepage and evaporation are well developed talking points. The same care and elaboration does not exist in the sections presenting water resources and habitat sustainability as it relates to Rio Bosque vegetation. The Assessment suffers from blanket statements that in many cases go un-cited and can be determined by the reader as biased inferences.

Attached to this letter is a brief inventory of exceptions identified by Environmental Management staff. The core principle that has guided the review of this Assessment has been to demonstrate best practices and environmental stewardship for a wetland that while not a Tribal Asset, still holds important cultural significance. To further this existing concern for the Rio Bosque, the newly erected border fence will work to frustrate and strain the ecology of the wetland. This new factor has also been neglected in the newest version of the Assessment.

In conclusion, the Assessment's appendix has many entities with shared concerns, but the Assessment is incomplete in dispelling concerns over the future of the Rio Bosque. It is unclear why the Assessment has been revised without meaningful discussion with this concern in mind. This deficiency within the Assessment has made it difficult to change previous unfavorable comments when the content and tone within the Assessment remains largely unchanged.

We hope that these comments will help develop a document that closely models the concerns of the Pueblo and of the community at large. In continuing the process of government to government consultation we are sure that the Assessment will improve and become a benefit to all parties involved. Should you require additional information please do not hesitate to contact the Director of Environmental Management, Evaristo Cruz at 915-859-7913.

Thank you for your time and consideration on this critical matter.

Sincerely,

Frank Paiz
Tribal Governor

Enclosures:

1. Comments on the El Paso Riverside Canal and Structure Improvement Project

Comments on the El Paso County Riverside Canal and Structure Improvement Project

pg 1 – **Wildlife**

See revision of the Wildlife section page 2 of the FONSI and Pages 12 and 17 of the EA.

The Pecos River Muskrat, as stated, are indicated to be "living along the canal" and it is stated that the "Project would only temporarily impact" the species. I believe that with the construction the displacement will be an indefinite impact. These animals, after construction, could return to an area that has been changed significantly. The assessment should be reviewed in light of the erected border fence. The construction of this fence will have impacts that have not been reviewed and may have a synergistic adverse effect on wildlife in the area.

The border fence has been completed and would not be in the proposed Project area of analysis; therefore, it is a separate issue not to be included in this EA.

pg 2 – **Culture Resources**

Wording does not include cultural resource as it relates to the Pueblo. This section should include some description of the utility the Rio Bosque and cultural link to the Pueblo. There is no consideration taken into account on behave of the Tribes cultural resources that will be affected. I believe that this concern has been brought up in past letters from the Tribe.

See Page 2 of the FONSI and Page 18 of the EA for a revision of this section.

Wetlands

The statement made that the Rio Bosque Wetlands "would not be affected" by the project is incorrect. The second sentence implies that there is a potential for a wetland, therefore if the canal is lined the potential for the protection or having an effect on the wetland is misleading. This is where some sort of statement regarding how this wetland came to be could be addressed. Somewhere it has to be said that this wetland was a mitigation practice on behalf of the Bureau of Reclamation in a previous irrigation project. More elaboration is needed as to why the BOR has determined the Rio Bosque's status as not being a mitigated wetland and why federal protection is no being applied.

See Page 4 of the FONSI and Pages 15 and 20 of the EA for revisions. Also see Water Resources Page 19 of the EA for additional discussion regarding the Park.

Water Resources

How could lining the canal not affect the shallow alluvium aquifer? The Historical data given in the assessment is not interpreted into a clear summation stating that water resources should not be a concern. The cited source (Axiom-Blair 2007) survey and inventory of information was not used to make a final summary statement as to the relationship groundwater resources have with the Rio Bosque. The professional opinion as to the relationship between the Rio Bosque is inferred meaning that perhaps the (Axiom-Blair 2007) document was developed with another purpose in mind. Do these test wells then say that the Rio Bosque is not dependent on groundwater, what is the conclusion on the data surveyed in this section? Please cite (Axiom-Blair 2007) and include it in the references section.

See Page 2 of the FONSI, and Pages 15 and 19 of the EA.

Vegetation

The vegetation within the canal is controlled with scheduled vegetation control. The sides of the canal are bladed on a regular schedule so the issue is closer related to vegetation within the Rio Bosque. The fact that "very little vegetation exists" is a primary reason why we need to protect what little is left. To say that the little that exists "would reseed after the Project" is conjecture.

Environmental Justice

See Page 4 of the FONSI, and Pages 16 and 21 of the EA for some

To state that by "implementing the proposed action will not create any unsuitable affects to low-income or minorities" is misleading. The Tribe is considered a minority and the proposed action will affect the existence of the Tribe's cultural practices.

1.6.1

See Page 4 of the FONSI and Pages 16 and 21 of the EA.

The Pecos River Muskrat is stated that it was "sighted 3 to 4 miles southeast in irrigation ditches." This is not concurrent with what is said by the Texas Parks and Wildlife statement, and contradicts what is said under the headline wildlife on page 1.

2.3.2

See Page 2 of the FONSI and Pages 12 and 17 of the EA.

In the table under the no action alternative under the third column, to say that it is not cost effective is misleading. The use of *cost effective* must be qualified as it relates to impact to a mitigated wetland.

3.2.1

See Page 6 for a cost analysis of the table in the EA under 2.3.3.

Again the issue with the Muskrat being "sighted 3 to 4 miles southeast of the irrigation ditches" is incorrect. My office went out with the Texas Parks and Wildlife and sighted the existence of the Muskrat in the project area. See comment under wildlife.

3.2.3

See Page 2 of the FONSI and Pages 12 and 17 of the EA.

The park is currently receiving water during the winter months but it is known that water for plants to thrive is needed more during the growing season which is in the summer months. During this time no water is being funneled through the wetlands. This is detrimental to the existence of the wetland. Discussion needed on water resources available during growing season, as there will most likely always be surplus water during winter months.

Axiom-Blair 2007 is a study that is cited often in this document but does this study relate directly to plant life sustainability or is it inferred that transmissivity is directly related to plant life sustainability? Is it valid to make plant life sustainability assumptions based on a cited study that does not appear in the works cited section of this document?

3.2.4

See Water Resources on Page 2 of the FONSI, and Water Resources and Wetlands on Pages 15, 19, and 20 of the EA.

The first sentence states that the "shallow aquifer that may be affected is called the Rio Grande Alluvium" and goes on to say that it is "hydraulically connected" to the Hueco Bolson Aquifer which is an important aquifer as it "is the principal aquifer for the Lower El Paso Valley and Juarez areas." Therefore, lining of the canal will have an impact on the shallow Rio Grande Alluvium which can also have an impact on the Hueco Bolson. Furthermore, the test pump test done on CW- 6, CW- 7, and RB- 11 has to be misleading. According to figure 8, the Rio Bosque Wetlands Park Monitoring Wells Sites map, there is a closer Rio Bosque well, numbered RB-12 that is not in the chart. By just looking at the map this well seems to be the closest to CW-6 and CW-7 which can only imply similar results. The last sentence in this section illustrates the connection between the canals, shallow Rio Grande Alluvium, and the larger,

See Water Resources on Page 2 of the FONSI and Page 19 of the EA.

more important Hueco Bolson. "Sources of water in the shallow alluvium come from nearby irrigation, canal systems, and as a result of the hydrologic connection to the deeper Aquifer known as the Hueco Bolson." The dates of the tests are with in 15 days of each other, which gives the impression that it takes just about that time to recharge.

4.2.1 Wildlife

Under ***Proposed Action B*** – it is stated that "a survey was conducted by Texas Parks and Wildlife and indicated that Muskrat occur in the project area." It is misleading and incorrect to say that "it may not be the Pecos River Muskrat" and "the project would temporarily displace the species, when in fact if the preferred alternative is chosen the canal will be lined with concrete therefore not allowing the species to return to its burrows under water and in the banks of the canal. By the same token, it is also misleading that other species will not be affected by the lining of the canal. Secondly, it is stated in the ***Secondary and Cumulative Effects*** that "the Pecos River Muskrat habitat along the banks of the canal will be permanently destroyed," and that "since only a small portion (3 miles to be exact) of the canal will be lined with concrete, the proposed action will not permanently affect the Muskrat in the area. It is assumed that the "Muskrat would simply move to another location on the banks of the canal that would not be disturbed by the project." The American Canal extension project that has already been lined 15 miles upstream is not suitable and the 3 miles of the proposed project, put the species disproportionally far from their habitat.

See Page 12 for a discussion on Muskrat habitat. See Page 17 for additional discussion on the effects of the Project on the Muskrat.

4.2.3 Wetlands

Under ***Proposed Action B*** – reference is made to the pump tests that were performed stating that "the aquifers would maintain the groundwater level much the same as before lining of the canal." We believe the test to be inconclusive due to the time they were performed and the area performed. Wells tested were done so during the irrigation season and on pumps near the canal. During this time the canals are carrying water adding to the recharge time showing that there is a relative fast recharge of the aquifer. It is evident that there is a connection between the two, and the canals, the shallow alluvium aquifer and the much larger Hueco Bolson.

See Water Resources section on Page 2 and Page 19 of the EA.

4.2.5 Vegetation

Under ***Proposed Action B*** – the statement is made that "lining the canal with concrete would eliminate any remaining vegetation including those listed in the table on page 15,"and it is contradictory to say in the next sentence that "after construction, plants would reseed themselves and reappear on areas affected by construction."

See Page 4 of the FONSI and Pages 16 and 21 of the EA.

After reading through this document, I noticed that I could not find any statements on behalf of the Corps of Engineers. I feel that they can speak to the question of the status of the wetland. Are they given the chance to comment on this EA?

See Page 4 of the FONSI and Pages 15 and 20 of the EA for revisions. Also see Water Resources Page 19 of the EA for additional discussion regarding the Park.

Additional Thoughts on EA

- The Bureau of Reclamation (BOR), authors of the EA have stayed away from commenting on why the Rio Bosque should not be considered a mitigated wetland, deserving federal protection. The responsibility should fall on them to justify why this would be so.

See Coordination Page 6 of the FONSI and Page 23 of the EA. The Corps of Engineers has determined that a Department of the Army Permit is not required for the Project.

See Page 4 of the FONSI and Pages 15 and 20 of the EA for revisions. Also see Water Resources Page 19 of the EA for additional discussion regarding the Park.

See Appendix B for Al Blair's Study Report

- Assurances that the Rio Bosque is not at risk from the lining project are based on an aquifer study/test that did not specifically look at plant habitat sustainability. So inferences are made from these tests that may not have been the original intent of the study. Also this study/test is not included in the references (peer review?)
- The EA is project heavy, including discussions from the project point of view and does not discuss needs for the habitat. The EA needs to elaborate on water needs to sustain a wetland. This discussion should reference water demands of the park and possible delivery of water to ensure wetland status
- References are made to water availability during the winter season but no mention is made as to the water resources during the growing season.
- An inventory of the work done to promote sustainability has not been included which is a disservice to EP#1 and its effort. These upgrades should be documented and included in the EA
- The EA should include new data now that the border fence has been erected. This new construction may add environmental stressors to the Rio Bosque and its natural resources.

See Page 4 of the FONSI and Page 20 of the EA.

See Page 2 of the FONSI and Page 19 of the EA.

The border fence has been completed and would not be in the proposed Project area of analysis; therefore, it is a separate issue not to be included in this EA.