# RECLAMATION

Managing Water in the West

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#### **Predecisional**

Technical Memorandum No. PUB-8140-APP-2012-02 Appraisal Design Report Supplemental Data - Revised Comanche South

## **Arkansas Valley Conduit**

Fryingpan-Arkansas Project, Colorado Great Plains Region



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## **Mission Statements**

The U.S. Department of the Interior protects America's natural resources and heritage, honors our cultures and tribal communities, and supplies the energy to power our future.

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.

Cover photo: Photo looking upstream at Pueblo Dam. Fish hatchery is in foreground, and Fountain Valley Authority Pump Station is at right.

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Fryingpan-Arkansas Project, Colorado Great Plains Region

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U.S. Department of the Interior Bureau of Reclamation Technical Service Center Denver, Colorado

#### Technical Memorandum No. PUB-8140-APP-2012-02

## Arkansas Valley Conduit Appraisal Design Report

## Supplemental Data - Revised Comanche South Fryingpan-Arkansas Project, Colorado Great Plains Region

Attached is a set of engineering support data for the Arkansas Valley Conduit Revised Comanche South alignment prepared by the Bureau of Reclamation's Technical Service Center (TSC). The engineering data supplement and support the Final Appraisal Design Report. This predecisional data packet is being provided as support documentation for the Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Draft Environmental Impact Statement (EIS). The data package includes a brief description of the alignment and engineering support data (i.e., large- and small-scale maps, facility drawings, hydraulic analysis calculations and profile sheets, pump data sheets, conduit segment outline, and cost estimate sheets).

This Final Appraisal Design Report supplemental data packet was prepared by the U.S. Department of the Interior, Bureau of Reclamation, Technical Service Center, Denver, Colorado.

Steven Robertson PE	8/14/12
Technical Approval: Steven Robertson, P.E.	Date
Civil Engineer, Water Conveyance Group, 86-68140	
P.E.	8-14-12
TSC Team Lead: Rodney Barthel, P.E.	Date
Structural Engineer, Plant Structures Group, 86-68120	8/14/12
Peer Review: David Edwards, P.E.	Date
Civil Engineer, Water Conveyance Group, 86-68140	

	REVISIONS				
Date	Description	Prepared	Checked	Administrative Approval	Peer Review

## Attachment A

## 1. Purpose and Background

The purpose of the proposed Arkansas Valley Conduit (AVC) is to deliver a bulk water supply via pipeline to meet existing and future municipal and industrial water demands of the AVC participants. The study area includes participating entities located in six Colorado counties in the Lower Arkansas River Basin: Pueblo, Crowley, Otero, Bent, Prowers, and Kiowa.

To perform engineering support for the National Environmental Policy Act (NEPA) process, a Final Appraisal Design Report (Bureau of Reclamation, 2012a) was prepared by the Bureau of Reclamation's Technical Service Center (TSC), Denver, Colorado. The Final Appraisal Design Report will be included in the AVC and Long-Term Excess Capacity Master Contract Draft Environmental Impact Statement (EIS) (Bureau of Reclamation, 2012b) as a supporting document. The Final Appraisal Design Report identified five technically feasible construction action alternatives along with cost estimates. The Final Appraisal Design Report is a stepping stone in the planning process into the feasibility level design.

Generally speaking, the AVC will consist of a main pipeline and spurs to convey Pueblo Reservoir water to communities along the Arkansas River corridor east of Pueblo to Lamar, Colorado. The revised Comanche South water treatment plant (WTP) site is located near the Pueblo Dam and Reservoir, which directly influences the requirement for pumping plants. The sites proposed for on-line storage tanks are located in the Fowler and La Junta community areas. The maximum daily flow rate would be approximately 20 million gallons per day (mgd). The approximate pipeline size may range between 36 inches and 16 inches in diameter, with several smaller diameter spurs. The combined main pipeline and spur length would be approximately 231 miles.

The following sections contain brief descriptions of facility components included in the Revised Comanche South alignment. The engineering support data (i.e., large and small scale maps, facility drawings, hydraulic analysis calculations and profile sheets, pump data sheets, conduit segment outline, and cost estimating sheets) included in this brief writeup were prepared by the Bureau of Reclamation's TSC, Denver, Colorado. These data supplement the Final Appraisal Design Report.

Subject to modification during the planning and final design phases, the Revised Comanche South alignment was derived from "mixed and matched" environmental impact considerations, along with direct and indirect construction and operational costs of the various project components of five action alternatives

#### **Revised Comanche South Engineering Support Data**

as presented in the Final Appraisal Design Report. This supplemental engineering data packet only includes items required to describe Revised Comanche South and its associated costs. Therefore, refer to the Final Appraisal Design Report for more descriptions of specific topics related to the AVC action alternatives.

## 2. Facility Components and Options

Specific components and screening criteria were developed as part of the process by an AVC EIS team. Several short-listed options were identified that should be considered during the feasibility level planning phase, including but not limited to the different types of water treatment filtration, use of abandoned railroad right-of-way (ROW), participant delivery locations, individual versus combined spurs, pipeline alignment based on future U.S. Highway 50 corridor realignment between Avondale and Lamar, other factors that may arise as the planning phase continues and design data is collected, and consideration of comments as a result of the AVC Draft EIS review period. Table 1 shows the Revised Comanche South and the major engineering components and options.

Table 1. AVC EIS Revised Comanche South, Major Components and Options

			Compone	ents		
Length of Pipe	Intake/Through Pueblo, then East	Water Treatment Plant Location	Water Treatment Level	Pumping Plant Location	St. Charles Mesa Water	Pueblo Reservoir North/South Interconnect
231 miles	Dam/Comanche Powerplant raw water line route, then southern route	Reclamation property near Pueblo Dam	Filtered	Pueblo Dam, low lift (55 feet) and WTP exit high lift (480 feet)	Raw	Yes

## 2.1 Revised Comanche South Description

The following supplemental engineering data are attached to support the AVC Draft EIS Revised Comanche South:

Attachment B – Large and Small Scale Maps

Attachment C – Facility Drawings

Attachment D – Hydraulic Calculations and Profile Sheets

#### **Revised Comanche South Engineering Support Data**

Attachment E – Pump Data Sheets

Attachment F – Conduit Segment Description

Attachment G – Cost Estimate Sheets

The Revised Comanche South alignment generally follows the existing Comanche Powerplant (Public Service Company of Colorado, an Xcel Energy Company) Raw Water Line route west and south of the City of Pueblo and then follows U.S. Highway 50 south of the Arkansas River from Pueblo to Lamar. The alignment would parallel U.S. Highway 50 to Fowler, east of Pueblo. The alignment would then parallel Highway 96 to a storage tank site north of Fowler. From the storage tank site, the alignment would join back with U.S. Highway 50 and parallel U.S. Highway 50 to east of Manzanola. Then, the alignment would zigzag on county roads (CR) until reaching the south side of Rocky Ford. From Rocky Ford, the alignment would be south along Highway 71 to Highway 10, then east to La Junta. A second storage tank site would be located in eastern La Junta. From La Junta, the alignment would parallel U.S. Highway 50 through Las Animas to near the intersection of U.S. Highway 50 and U.S. Highway 287. From this intersection, the alignment would travel cross country to Lamar's participant tie-in on the south side of Lamar.

Three primary spurs would be the Highway 96 spur, the Eads spur, and the spur loop from Rocky Ford northeast along Highway 266 and then back south along Highway 109 to La Junta.

A high lift pumping plant, located near Pueblo Dam, after the WTP clearwell, would be required to raise the water over high ground up to approximate elevation (El.) 5100 on the southwest edge of the Pueblo route. A regulating tank would be required near the high ground along the route. A booster pumping plant located north of U.S. Highway 50 along CR 34, near the intersection with CR Ss, would be needed to service the Eads spur and May Valley.

The Revised Comanche South alignment would convey filtered water to AVC participants along the route. This alignment would include an Interconnect between the north outlet works and south outlet works at Pueblo Reservoir (attachment C, drawing PA-1).

#### 2.2 Overview of Design Criteria

This section presents additional detail on the design criteria for the selected components and their options including pipeline hydraulics and design requirements, pipeline appurtenances, pipeline surge, pumping plants and associated facilities, water treatment facilities, and on-line storage facilities.

#### **Revised Comanche South Engineering Support Data**

#### 2.2.1 Typical Pipeline Crossings

Typical pipeline crossings of gravel roads, paved roads, major roads, interstates and highways, railroads, and streams were itemized along the route.

Table 2 provides a listing of anticipated crossings, based on available information.

Table 2. Number of Crossings

Type of Crossing	Revised Comanche South
Divided highway (interstate highway)	32 (1)
Major road	26
Paved road (Pueblo streets)	238 (4)
Gravel road	18
Railroad	12
Major river/stream	7
Minor creek/stream (costs are included in design contingencies)	36
Irrigation ditch or small drainage (costs are included in design contingencies)	85

#### 2.2.2 Plants and Associated Facilities

Issues to consider when determining the desirability of a particular site for facilities development include soils, availability of overhead and underground utilities, zoning and nearby land uses, access, and proximity to AVC alignment.

#### 2.2.2.1 Pumping and Booster Plants

Pumping Plant 1 (attachment C, drawing PA-2) would be sited near the base of Pueblo Dam to lift water to the nearby WTP (attachment C, drawings PA-9 and PA-10). Pumping Plant 2 (attachment C, drawing PA-3) would lift filtered water from the WTP over high grounds southwest of Pueblo. Ground near the dam site for Pumping Plant 1 is approximately El. 4755, and ground near the site for Pumping Plant 2 is approximately El. 4810.

Pumping Plant 1 would be of the open sump style, which means that the reservoir water pressure would be reduced to a constant sump water elevation by an inlet altitude pressure reducing valve. The valve pressure drop would vary between approximately 50 feet and 160 feet with Pueblo Reservoir at low and high water surface elevations, respectively. The pumping plant could have bypass piping included, which would be used during periods of medium to high reservoir levels.

#### **Revised Comanche South Engineering Support Data**

During these times, there would be sufficient pressure to directly deliver the water to the WTP facilities. The pumping plant would consist of four vertical turbine type pumps, each rated at 8.310 cubic feet per second (ft<sup>3</sup>/s) (3,730 gallons per minute [gal/min]) and 105 feet of total dynamic head. The pumping units would be driven by 125-horsepower, weather protected Type I, vertical induction electric motors operating at 1,180 revolutions per minute, 480 volts, 3 phase, 60 hertz.

In lieu of vertical turbine type pumps, Pumping Plant 1 could be configured to take advantage of the existing driving/suction head, and a horizontal centrifugal type pumping plant could be considered similar to the existing Fountain Valley Authority Pump Station located near the base of Pueblo Dam.

Pumping Plant 1 pump discharge would deliver water to the beginning of the WTP process train located on higher ground south of the existing fish hatchery site. This site is congested with transmission line alignments that would require coordination and clearance restrictions. WTP inlet basin water surface would be at approximately El. 4820. The WTP basin water level would be used for the pump regulation in lieu of a regulating tank. Filtered water would be pumped from the WTP clearwell, over high ground southwest of City of Pueblo, to the Fowler North water storage tank (attachment C, drawing PA-6).

Pumping Plant 2 would consist of four vertical turbine type pumps, each rated at 7.687 ft<sup>3</sup>/s (3,450 gal/min) and 380 feet of total dynamic head. The pumping units would be driven by 450-horsepower, weather protected Type I, vertical induction electric motors operating at 1,770 revolutions per minute, 4,160 volts, 3 phase, 60 hertz. Pumping Plant 2 could be integrally designed and constructed with the WTP.

The AVC alignment routes around the southwestern edge of Pueblo, with a high point of approximately El. 5100. A regulating tank (attachment C, drawing PA-5) would be located downstream of the WTP and Pumping Plant 2, near the high ground the pipeline is crossing. The Fowler North water storage tank site would be located at approximate ground El. 4525. The La Junta South water storage tank site would be located in eastern La Junta (attachment C, drawing PA-7).

The Eads and May Valley booster plant (attachment C, drawing PA-4) would provide additional pressure necessary to deliver water to the Eads community. The plant would deliver filtered water to the local community for distribution. The booster plant would consist of two units: one operating unit and an additional installed spare unit to maintain system reliability. The pumps would be vertical turbine "can" type pumps, each rated at 1.125 ft<sup>3</sup>/s (505 gal/min) and 317 feet of total dynamic head. The pump can or barrel would act like a sump for providing adequate submergence for the first-stage impeller/bowl assembly of the pump. Each pumping unit would be powered by a 60-horsepower, totally enclosed,

#### **Revised Comanche South Engineering Support Data**

fan-cooled, vertical induction electric motor operating at 1,770 revolutions per minute, 460 volts, 3 phase, 60 hertz.

Pumping Plant 1 and Pumping Plant 2 would include a shallow reinforced concrete "bathtub" type clearwell substructure, and the booster plant would consist of a thickened edge slab-on-grade; plants would include a preengineered metal superstructure. Since no provision is made for overhead cranes, removable roof hatches would be provided to gain access to pumping units for installation and removal purposes.

The layout of the pumping and booster plant service yards would be based on the existing site topography, the submergence requirements of the pumping units, the alignment of the steel pipe, equipment space requirements for the pumps, and access into and around the plants for maintenance vehicles. The pumping and booster plant sites would be surrounded by a perimeter chain link fence and would have gravel surfaced finished grade. Vaults, air chambers, and outdoor type electrical equipment (i.e., breakers, unit substations, transformers) would be located within the fenced perimeter. Since the fenced area would be offset from existing roadways, the construction of an access road would be required.

#### 2.2.3 Water Treatment Plant

The project would be delivering filtered (nonpotable) water, which would be treated at a centralized project facility, to 40 AVC participants. Filtered water meets all requirements of the Surface Water Treatment Rules, except that a disinfectant residual is not provided. If residual disinfection with free-chlorine is provided in a long pipeline, disinfection byproduct standards may be exceeded.

AVC participants would be responsible for adding a disinfectant residual (likely free-chlorine) at the entry point(s) to their distribution system(s). Operation, maintenance, and replacement (OM&R) of AVC turnout disinfection stations would be the responsibility of pertinent AVC participants. Based on conversations thus far with the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD), many of the testing requirements for treated surface water would be performed at the WTP, and the participants would be responsible for distribution system monitoring and reporting requirements for water received from the AVC. The legal framework for testing requirements needs to be fully developed at the time of distribution once the WTP is constructed and operational. Each AVC participant would still be responsible for all monitoring and reporting requirements for other water supplies that were used in addition to their AVC supply per CDPHE Colorado Primary Drinking Water Regulations (CPDWR) (CDPHE, 2011a) and project-specific guidance from Mr. Ron Falco, CDPHE Safe Drinking Water Program Manager (CDPHE, 2011b).

#### **Revised Comanche South Engineering Support Data**

Water would be metered at each participant delivery vault (attachment C, drawing PA-8). In addition to the AVC turnout disinfection stations (if required), each AVC participant delivery location would require a pressure reducing/control valve, flowmeter, and isolation valves. The pressure reducing/control valve would be needed to limit the pressure of water delivered to the participant and to control the flow. The flowmeter would be used to measure the rate of flow and quantity of flow. The rate and quantity of flow would be communicated to a supervisory control and data acquisition central control center, which would likely be located at the AVC WTP. The location of the WTP site is shown in attachment C, drawing PA-10.

For further in-depth discussion of a filtered WTP process, technologies, and components, see pertinent sections of the Final Appraisal Design Report.

## 3. Cost Summary

This section briefly summarizes the appraisal level construction costs and OM&R costs for the Revised Comanche South that will be provided to the AVC EIS team with a consistent level of information. For details regarding construction and OM&R cost estimating, see the Final Appraisal Design Report. Table 3 summarizes total construction costs and present worth OM&R cost for the AVC Draft EIS Revised Comanche South.

Table 3. Summary of Total Construction and Present Worth OM&R Costs (January 2011 Dollars) for Revised Comanche South

Cost Description	Revised Comanche South
Total construction cost	\$505,000,000
Present worth total OM&R costs (less WTP OM&R costs)	\$54,000,000
Present worth total WTP OM&R costs	\$43,000,000
Total costs (50-year period)	\$602,000,000

Data and information provided in this section regarding the WTP feature were provided by Black & Veatch Corporation, located in Centennial, Colorado. The data and information regarding the remaining facilities were prepared by the Reclamation TSC engineering team.

**Revised Comanche South Engineering Support Data** 

#### **Project Cost Summary** 3.1

Costs prepared are those associated with the delivery of maximum day demands. Table 4 summarizes contract cost, field cost, and total construction cost by reach for the AVC Draft EIS Revised Comanche South.

Table 4. Summary of Total Construction Costs for Revised Comanche South

	Components					
	AVC Intake	Pueblo Dam				
	Route through Pueblo	South of Pueblo				
	Route East of Pueblo	U.S. Highway 50				
	Water Treatment	Near Pueblo Reservoir				
	Dam Outlet Works Interconnect	Yes				
Reach 1 and 2 p	pipeline, pumping plant(s), and WTP between er	\$76,368,872				
Reach 3 pipeline La Junta Reach	e and storage tanks between Fowler and 2	\$57,314,945				
Reach 4 pipeline	e between La Junta and Lamar	\$35,543,705				
Highway 96 spu	r pipeline	\$6,669,930				
Eads spur (inclu	des May Valley) pipeline and booster plant	\$9,409,890				
Loop pipeline be	etween Rocky Ford and La Junta	\$6,587,309				
Roadway, railroa	ad, and stream/drainage crossings	\$26,410,000				
Dewatering of so	oil for construction	\$3,710,000				
Dust abatement	during construction	\$4,000,000				
Dam outlet work	s interconnect	\$4,171,227				
WTP <sup>1</sup>		\$25,924,061				
Subtotal		\$256,109,939				
Mobilization (±5°	%)	\$13,000,000				
Design continge	ncies (±12%)	\$30,890,061				
Contract Cost		\$300,000,000				
Construction cor	ntingencies (±25%)	\$80,000,000				
Field Cost		\$380,000,000				
Noncontract cos	sts <sup>2</sup>	\$125,000,000				
Total Construct	tion Cost	\$505,000,000				

<sup>&</sup>lt;sup>1</sup> Costs provided to TSC on April 16, 2012, from subconsultant Black & Veatch.
<sup>2</sup> Noncontract costs were produced and supplied by a joint effort between the Bureau of Reclamation's Eastern Colorado Area Office and Great Plains Region, with input from the TSC.

**Revised Comanche South Engineering Support Data** 

#### 3.2 Operations, Maintenance and Replacement Costs

OM&R for both present worth and annual costs, along with energy costs, are discussed below.

#### 3.2.1 Present Worth and Annual Costs of OM&R Expenses

Estimates include the computation of the total dollar present worth cost of OM&R of a feature(s) over a 50-year timeframe (attachment G includes these cost estimates). OM&R cost estimates are presented in present worth dollars at a January 2011 price level. OM&R periodic costs, which include replacement equipment costs, are calculated in present worth dollars (see table 5).

Table 5. Summary of OM&R Present Worth Costs (January 2011 Dollars) for 50-Year Life Cycle (assuming a discount rate of 4.125%)

Cost Description	Revised Comanche South
Present worth of all future periodic (replacement) costs (less WTP)	\$21,000,000
Present worth of all future WTP periodic (replacement) costs	Included in annual O&M costs below
Present worth of all future annual (O&M) costs (less WTP)	\$33,000,000
Present worth of all future WTP annual (O&M) costs	\$43,000,000
Total OM&R present worth costs <sup>1</sup>	\$97,000,000

<sup>&</sup>lt;sup>1</sup> These life cycle costs do not include overhead expenses (office space, administration, etc.) incurred by the managing authority. These life cycle costs assume that the pipeline operators are based in the WTP building.

OM&R annual costs include daily operational costs and routine maintenance costs. The annual costs are calculated as uniform series present worth costs. Daily operational costs include costs to operate the facility, such as operator wages and benefits, utilities, chemicals, power consumption, etc. (see table 6).

Table 6. Summary of Annualized OM&R Costs<sup>1</sup>

Cost Description	Revised Comanche South
Annual OM&R costs (less annual WTP OM&R costs)	\$2,550,000
Annual WTP OM&R costs	\$2,000,000
Total annual OM&R costs	\$4,550,000

<sup>&</sup>lt;sup>1</sup> These life cycle costs do not include overhead expenses (office space, administration, etc.) incurred by the managing authority. These life cycle costs assume that the pipeline operators are based in the WTP building.

#### **Revised Comanche South Engineering Support Data**

#### 3.2.2 Energy Cost

Energy supply for pumping plants and the WTP, and other appurtenants in the Pueblo area, would be provided by Black Hills Energy. Southeast Colorado Power Association would provide power for the Eads and May Valley booster plant and anything east of La Junta. Rate analyses were performed by the TSC based on the information provided by the two aforementioned power supply companies.

Based on the information from the two power supply companies, table 7 presents the annual energy costs for operation of the pumping plants and booster plant in the Revised Comanche South. The energy costs are for operations of a typical WTP for the year 2010.

**Table 7. Annual Plant Energy Costs** 

	Location	Energy Costs
	Dam to WTP (Pumping Plant 1)	\$90,000
Revised Comanche South	WTP Clearwell (Pumping Plant 2)	\$700,000
	Eads Booster Pumping Plant	\$3,500

### 4. References

Bureau of Reclamation, 2012a. *Final Appraisal Design Report*, Bureau of Reclamation, Civil Engineering Support Division, Technical Service Center, Denver, Colorado, August 7, 2012.

Bureau of Reclamation, 2012b. *Arkansas Valley Conduit and Long-Term Excess Capacity Master Contract Draft Environmental Impact Statement*, U.S. Department of the Interior, Bureau of Reclamation, Great Plains Region, Eastern Colorado Area Office, August 23, 2012.

CDPHE, 2011a. *Colorado Primary Drinking Water Regulations*, Colorado Department of Public Health and Environment, Water Quality Control Division, 5 CCR 1003-1, effective November 30, 2011.

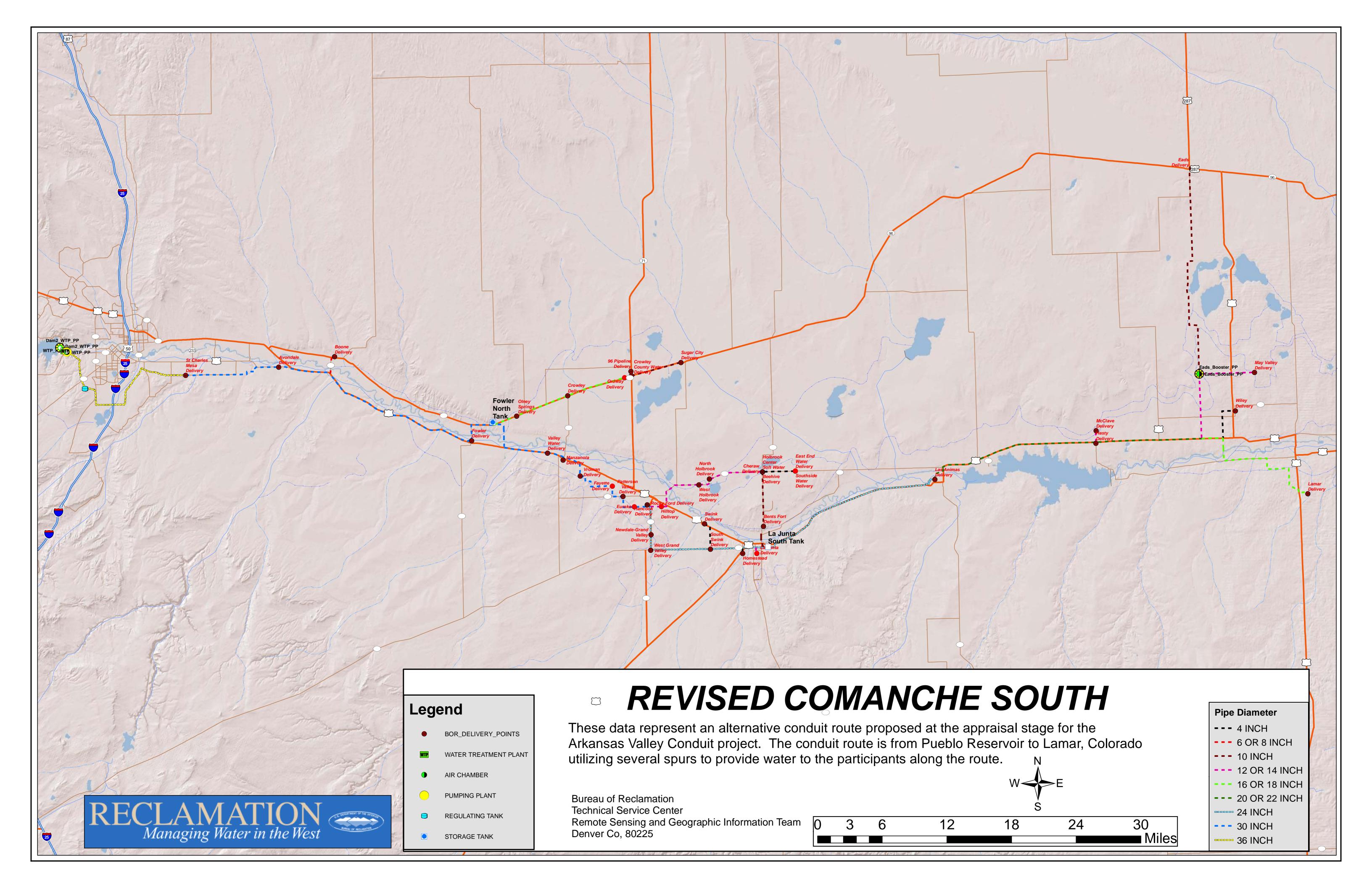
CDPHE, 2011b. Letter from Mr. Ron Falco, CDPHE Safe Drinking Water Program Manager, to Mr. Michael P. Collins, Area Manager, U.S. Department of Interior, Bureau of Reclamation, December 12, 2011.

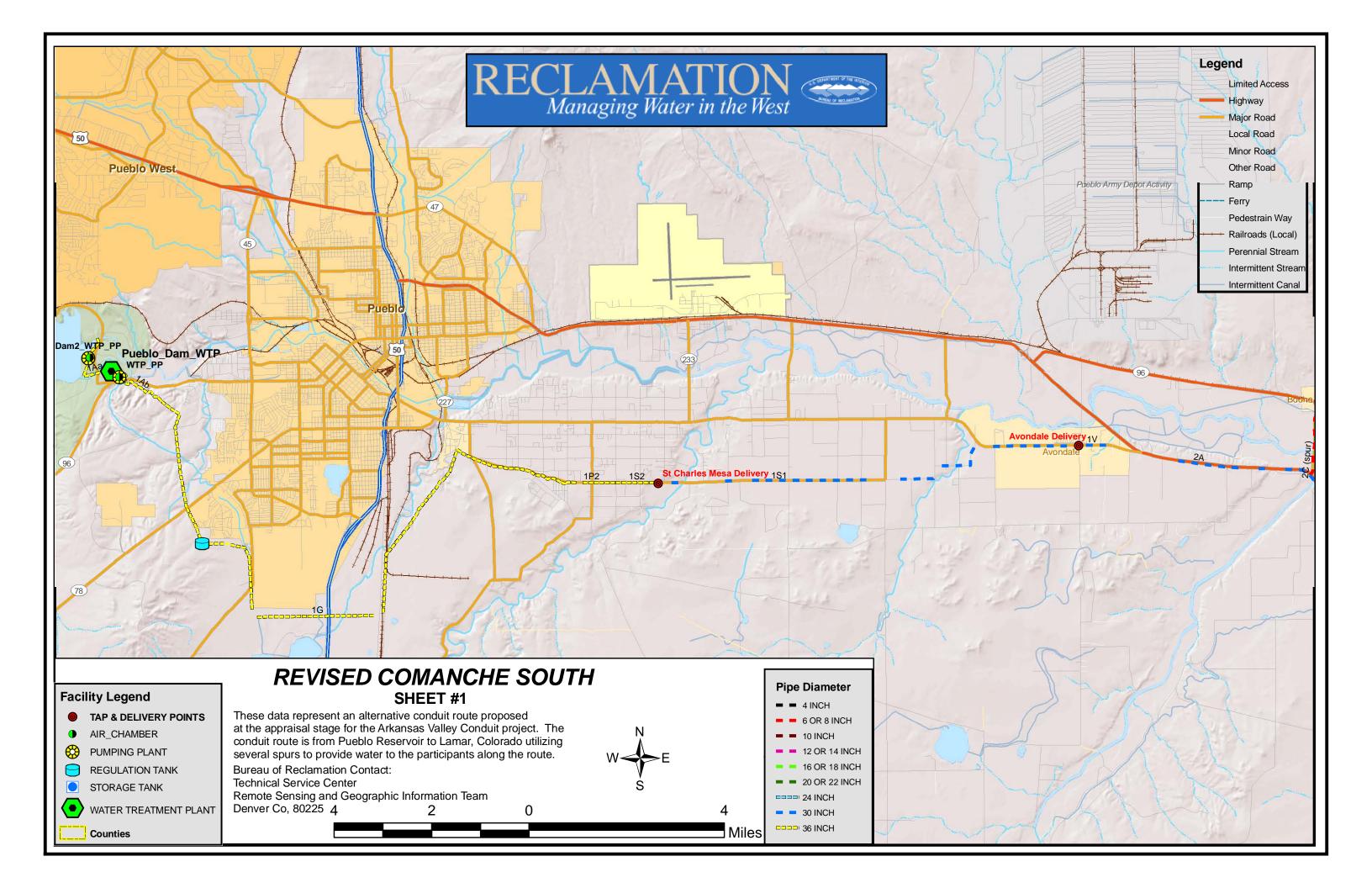
#### ATTACHMENT B

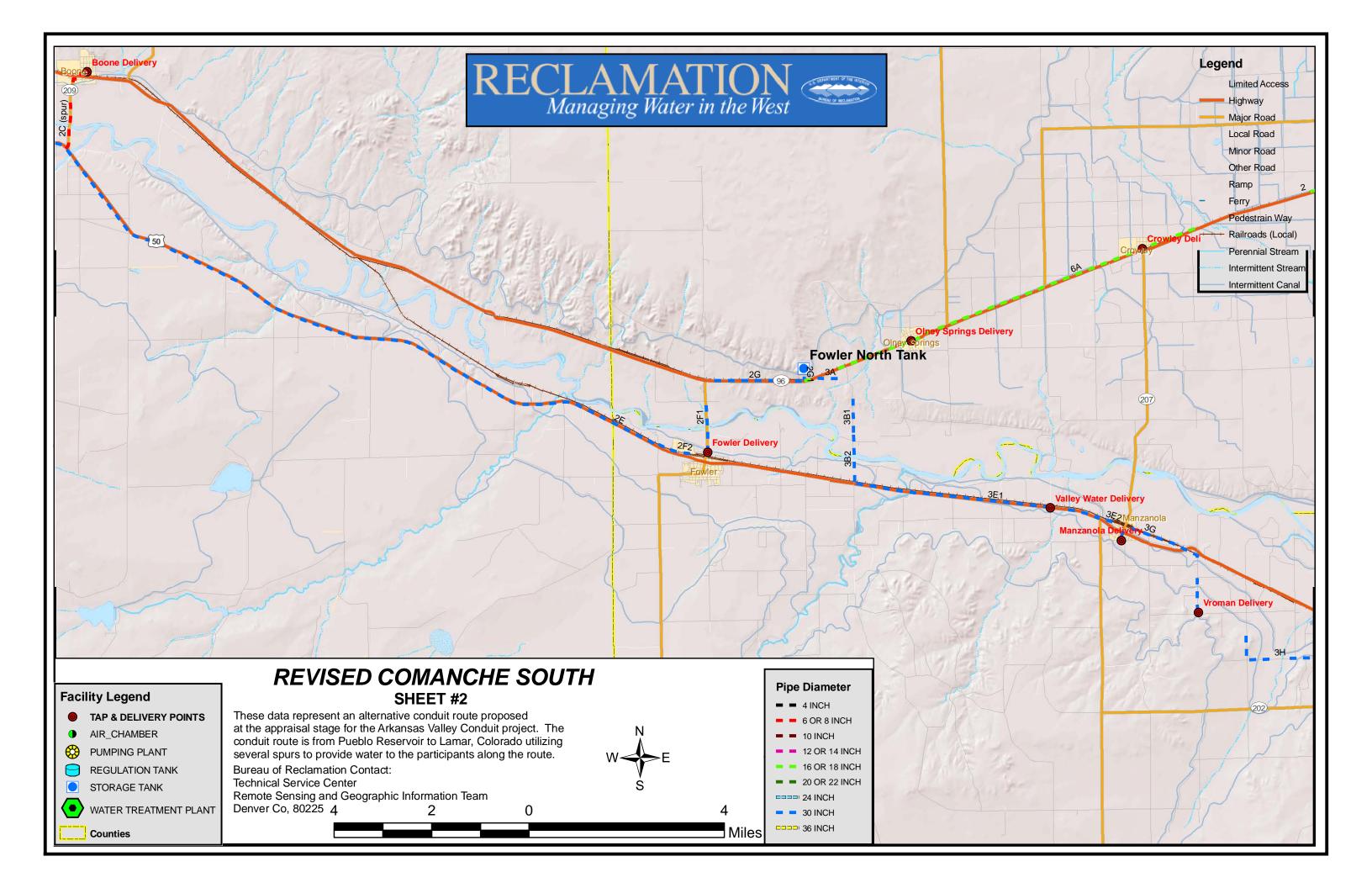
#### REVISED COMANCHE SOUTH ENGINEERING SUPPORT DATA

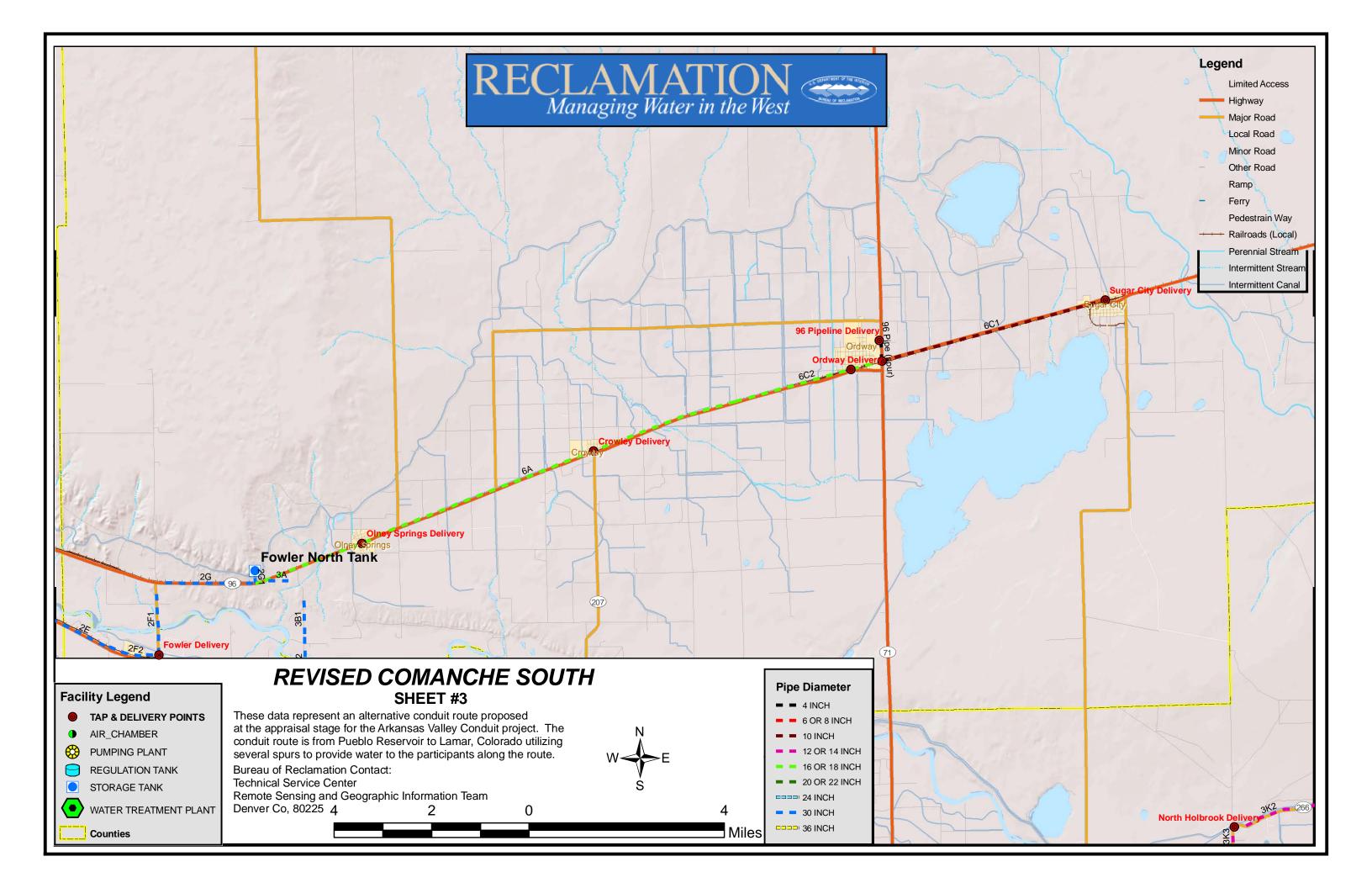
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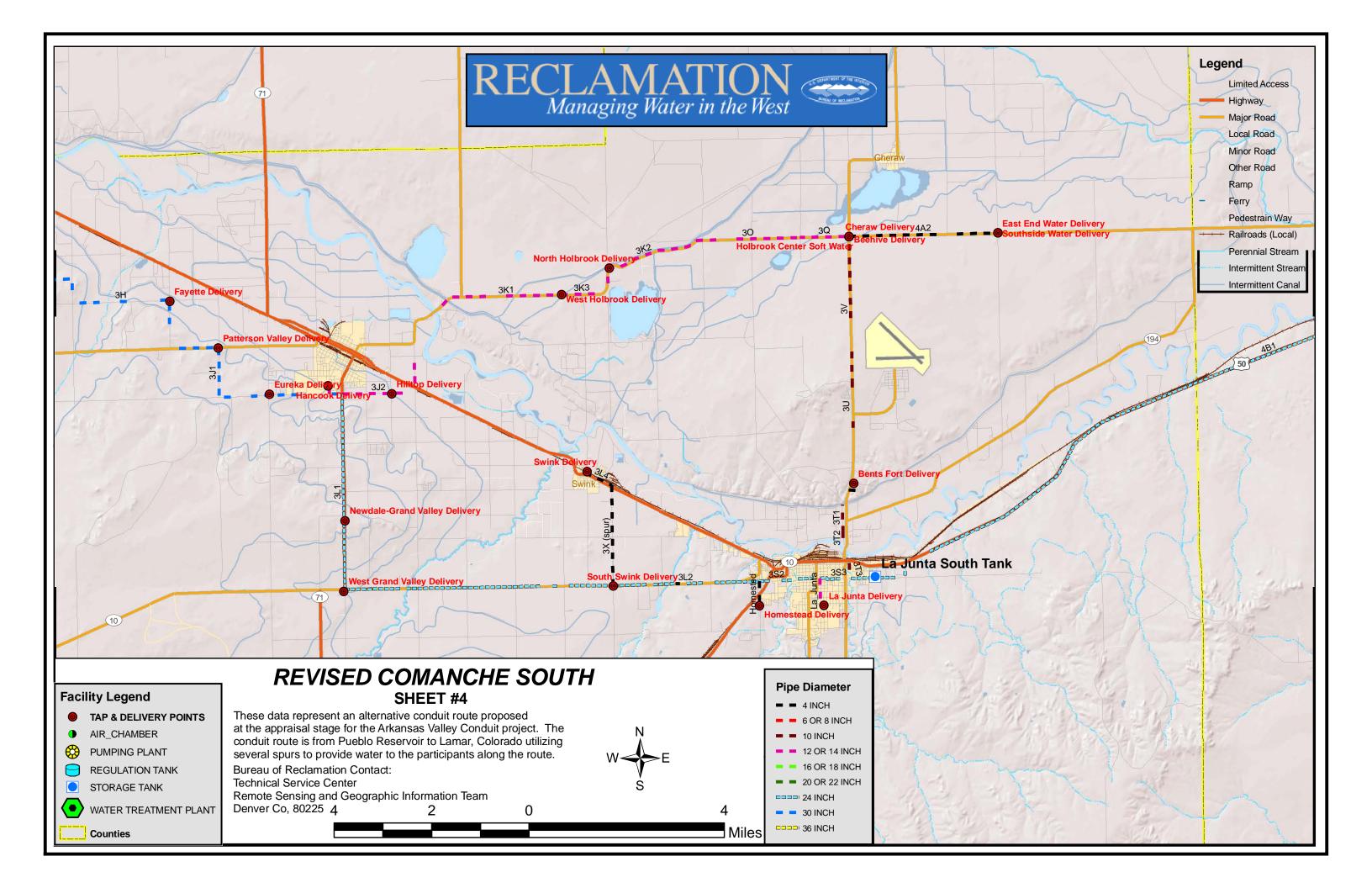
Large and Small Scale Maps

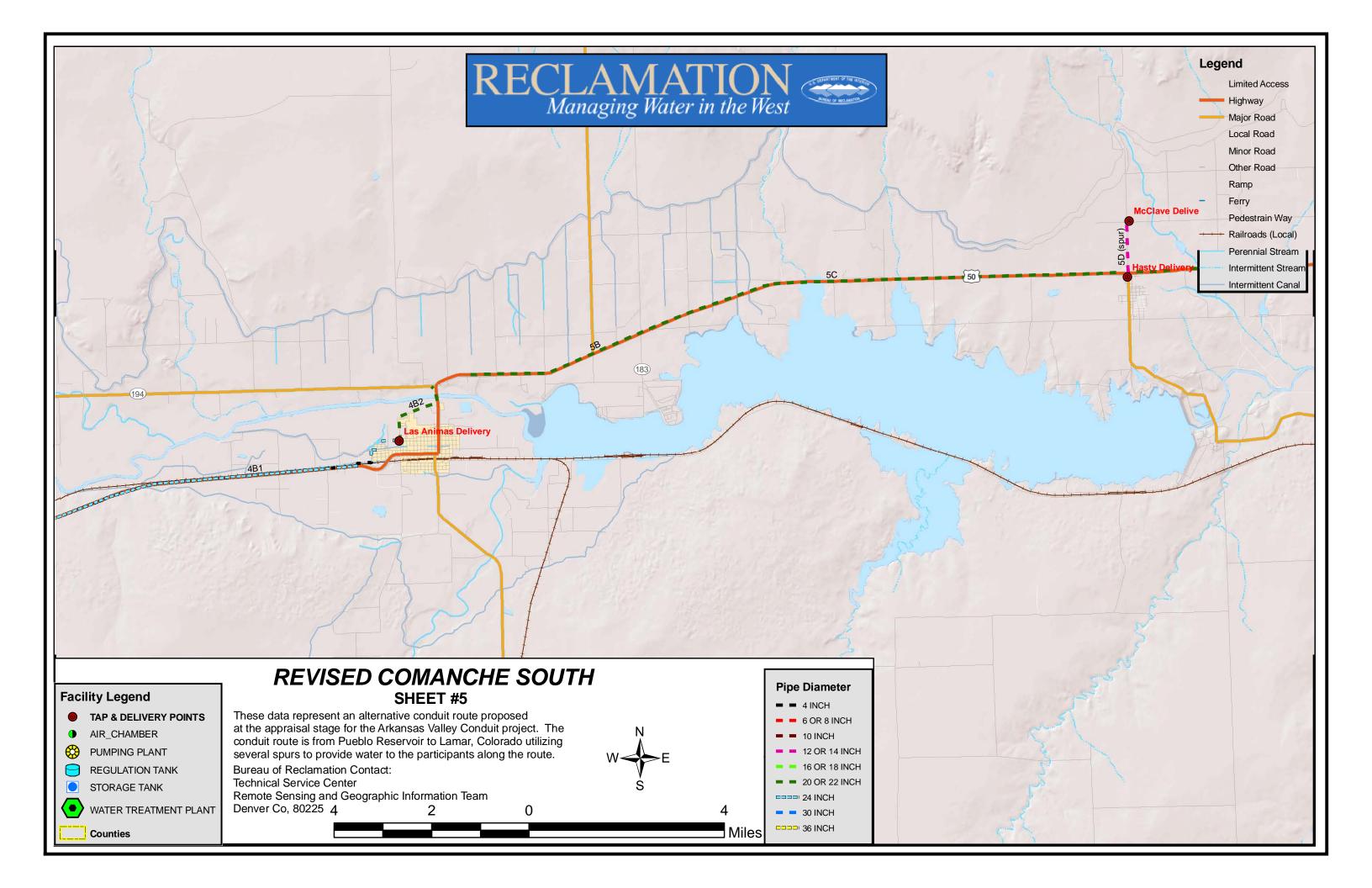


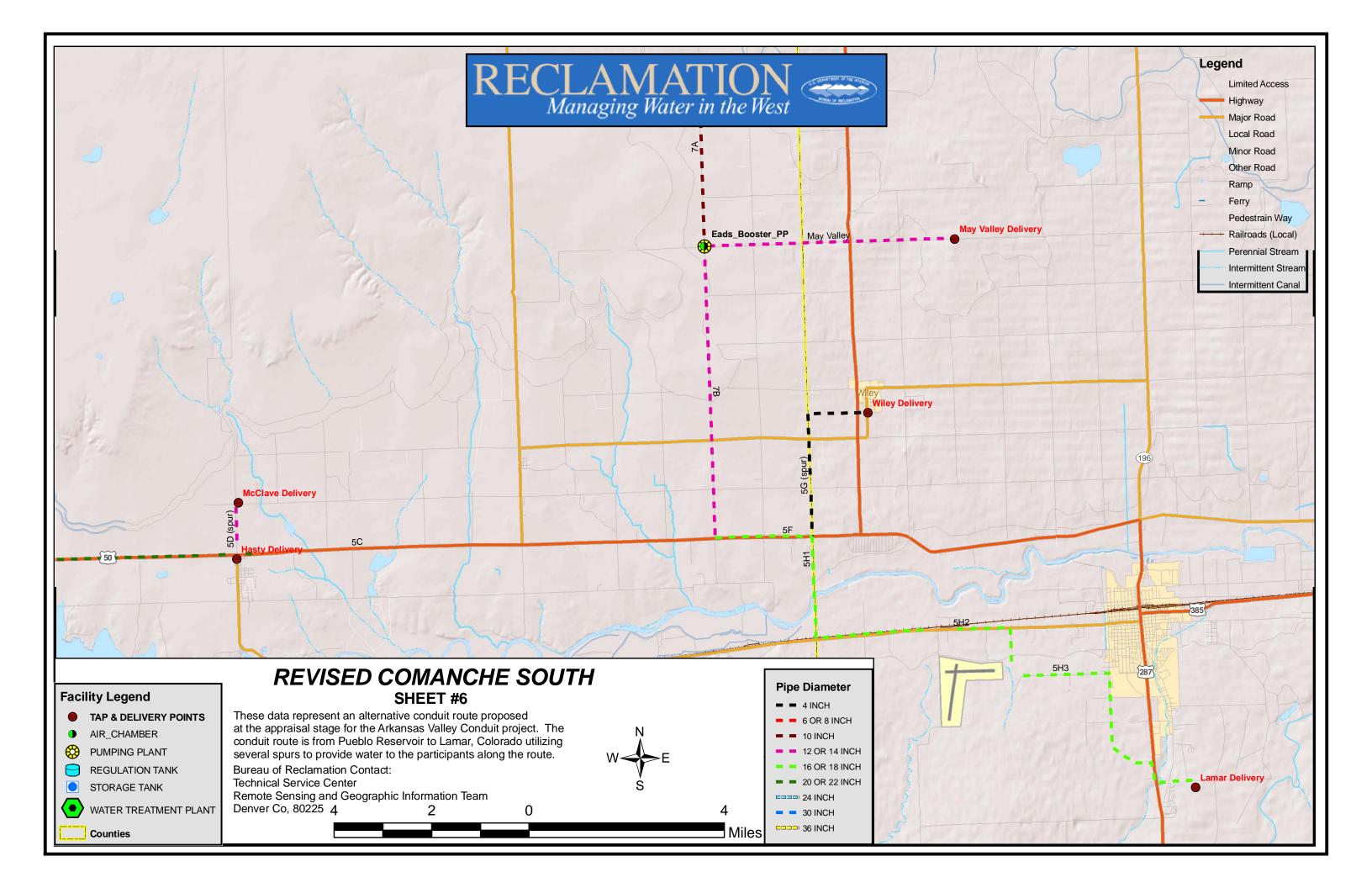


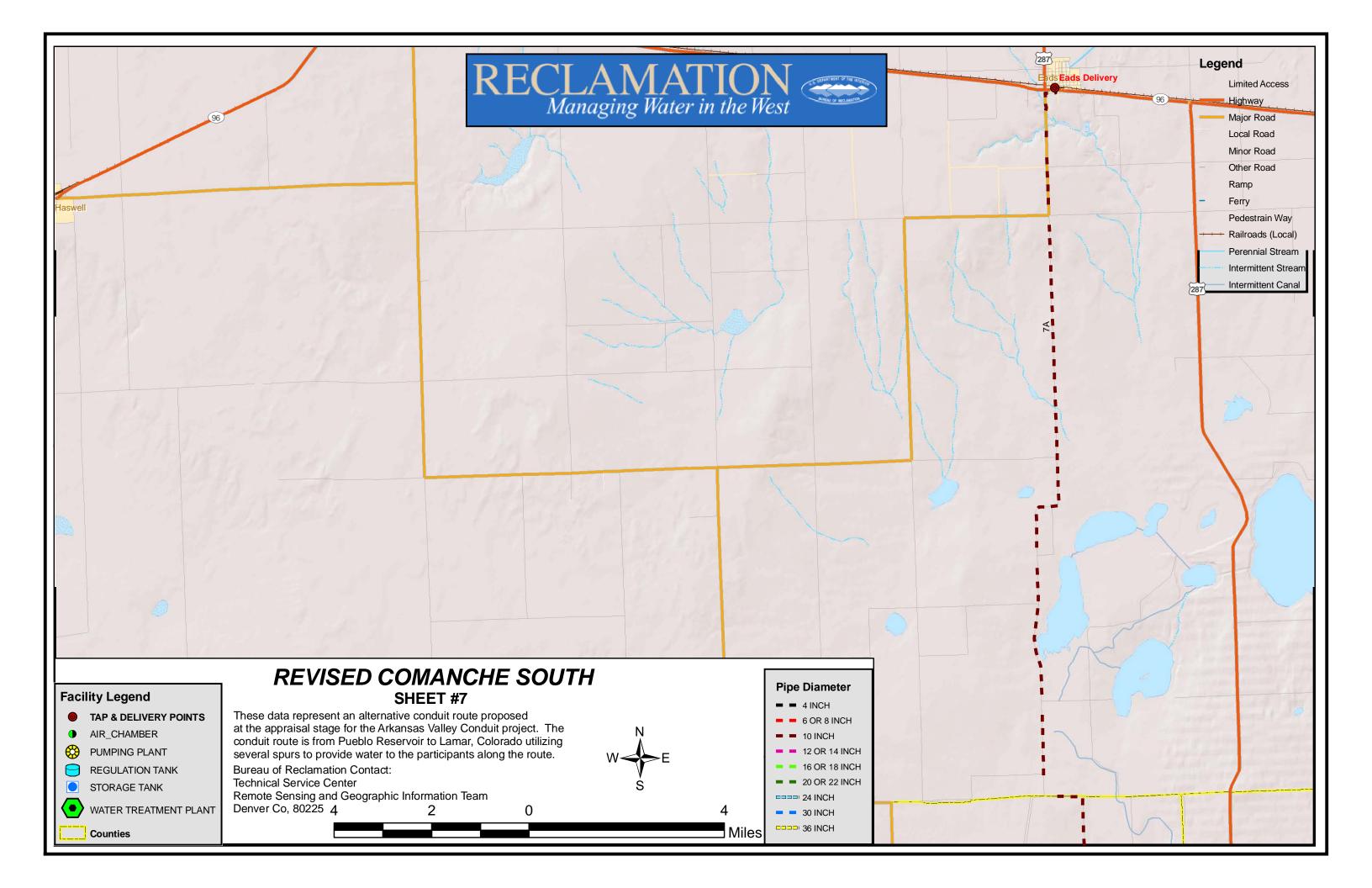












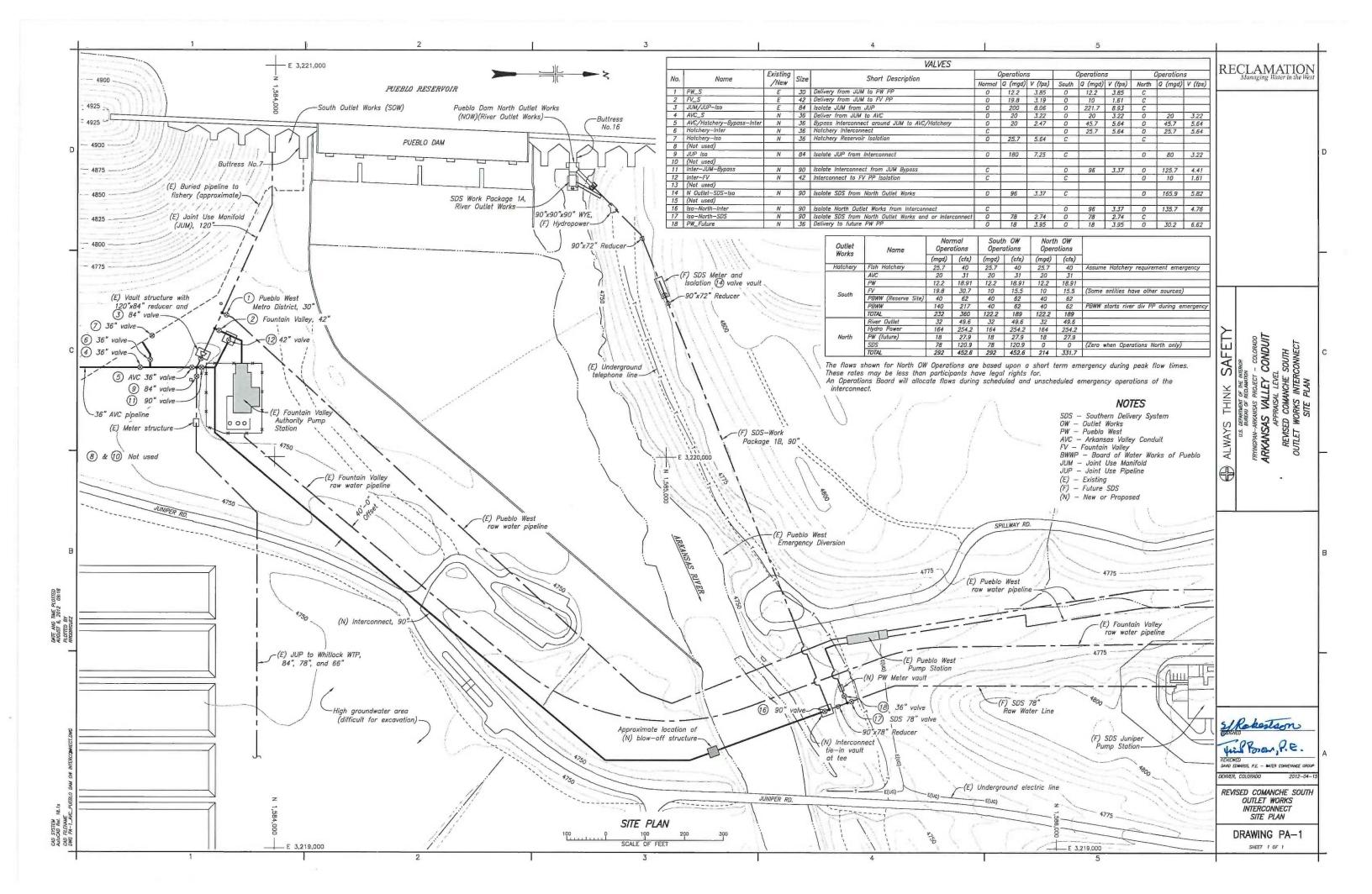
#### ATTACHMENT C

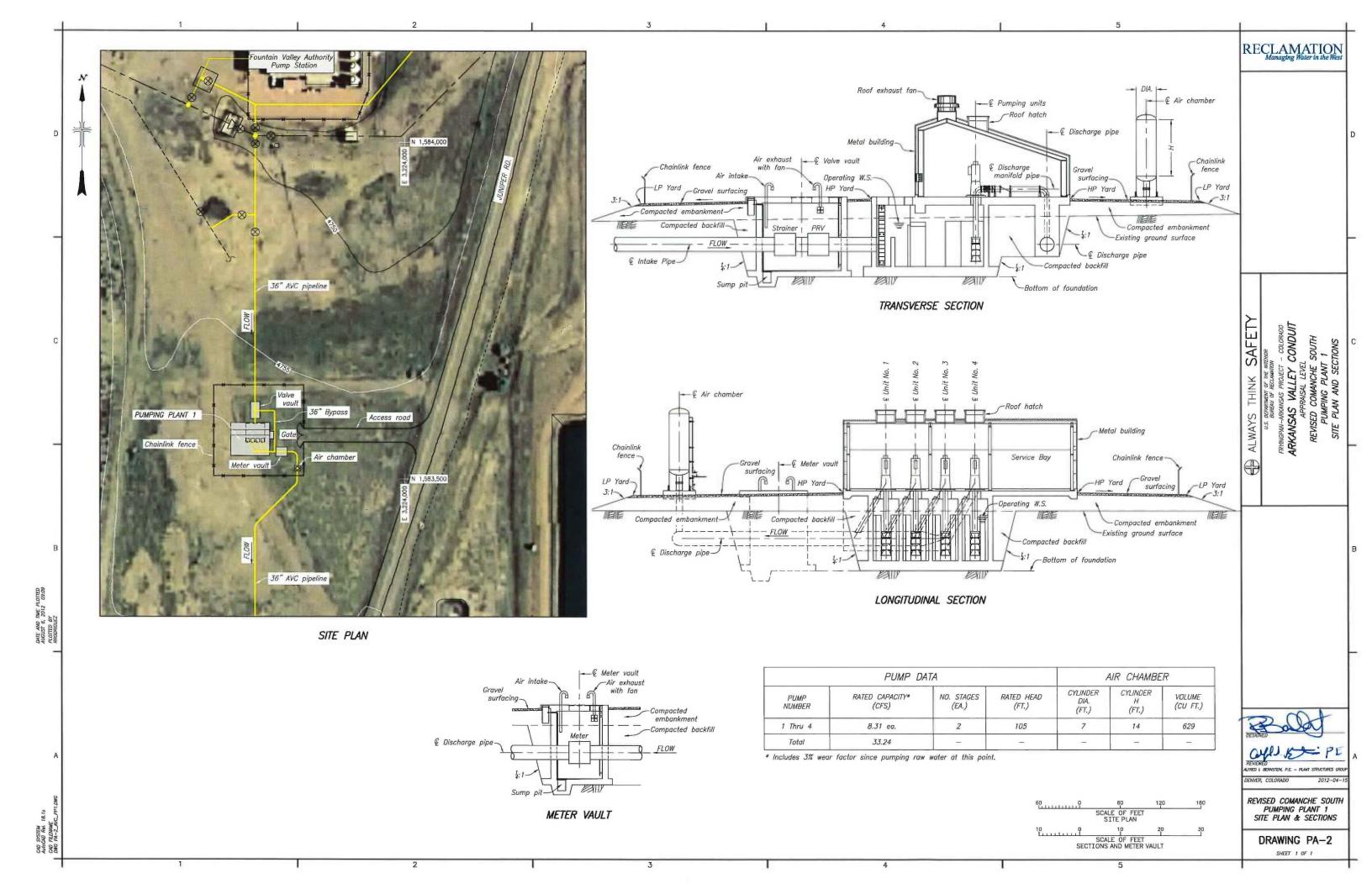
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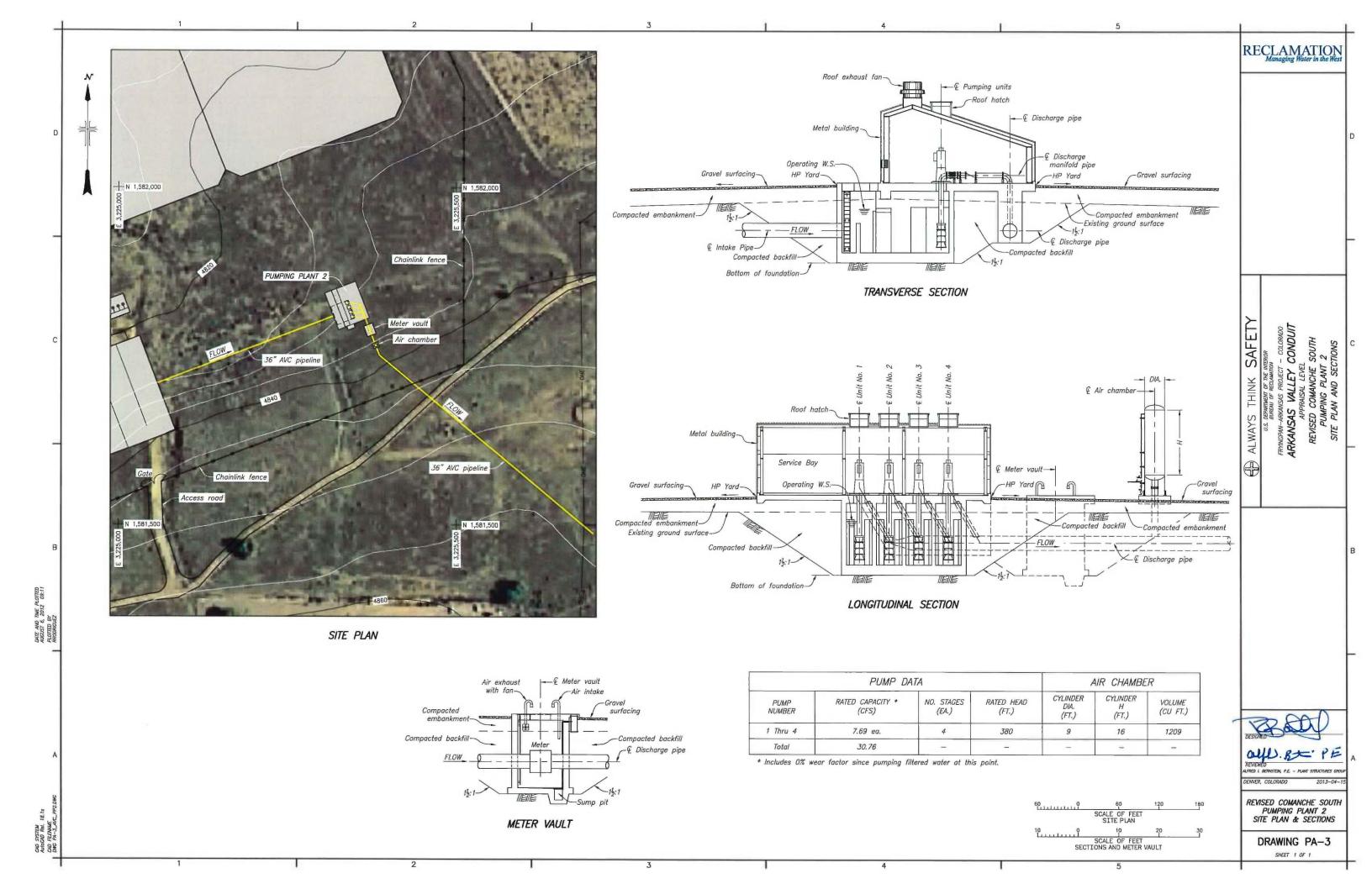
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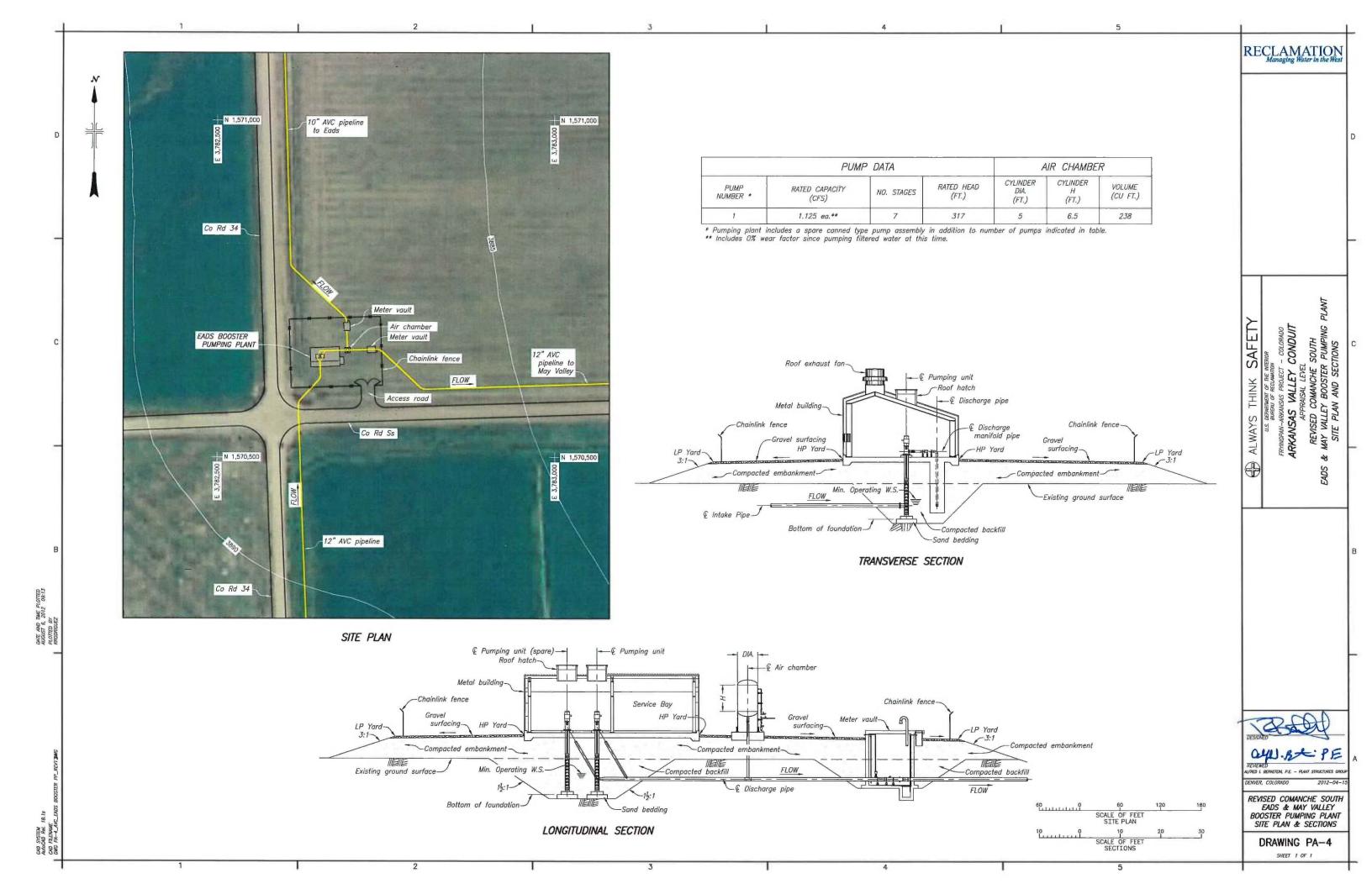
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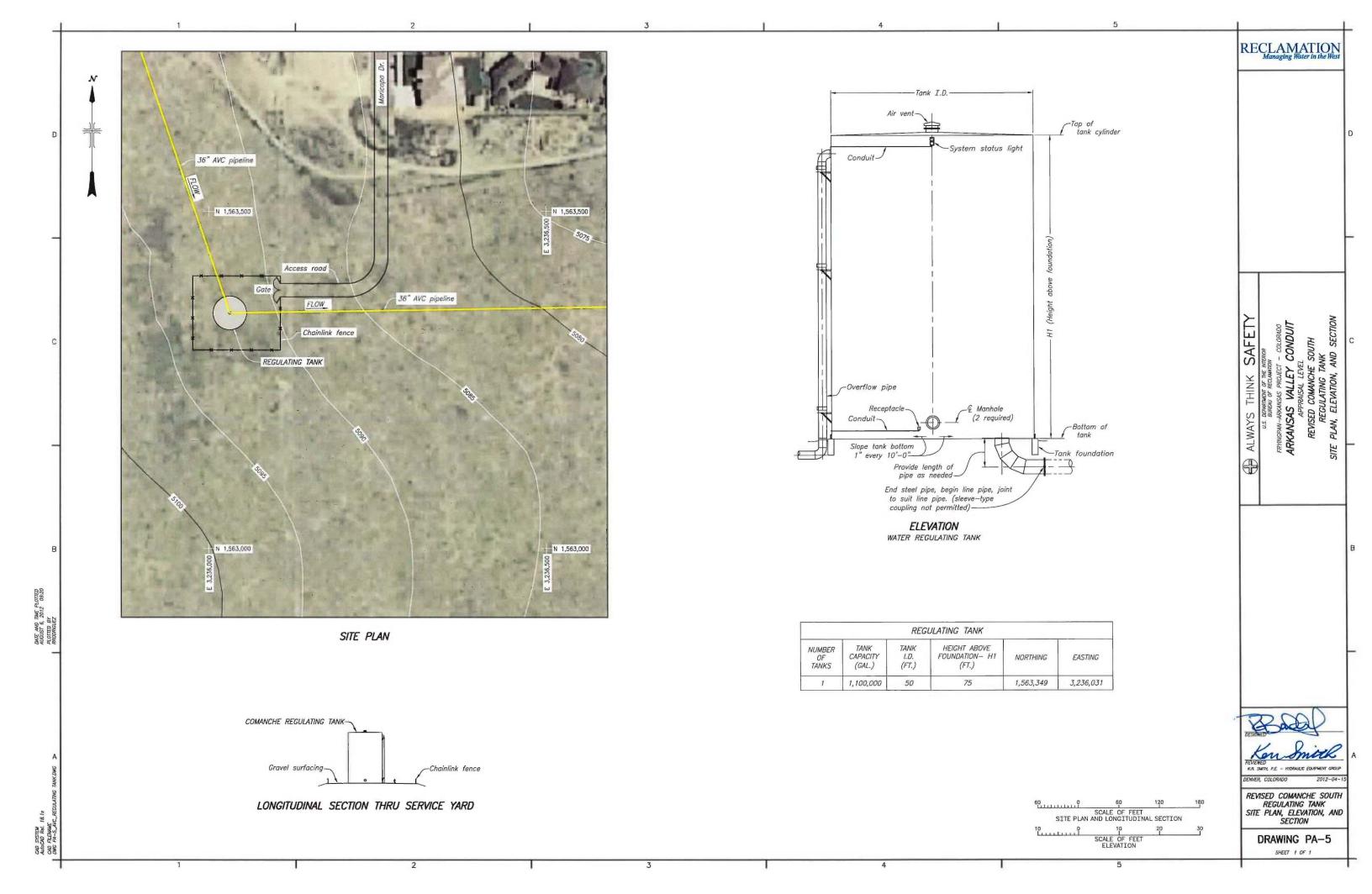
- PA-1 Outlet Works Interconnect Site Plan
- PA-2 Pumping Plant 1 (before WTP) Site Plan & Sections
- PA-3 Pumping Plant 2 (after WTP) Site Plan & Sections
- PA-4 Eads & May Valley Booster Pumping Plant Site Plan & Sections
- PA-5 Regulating Tank
- PA-6 Fowler North Water Storage Tank
- PA-7 La Junta South Water Storage Tank
- PA-8 Participant Delivery Vault Plans & Sections
- PA-9 Water Treatment Facilities Legend
- PA-10 Water Treatment Plant Site Plan

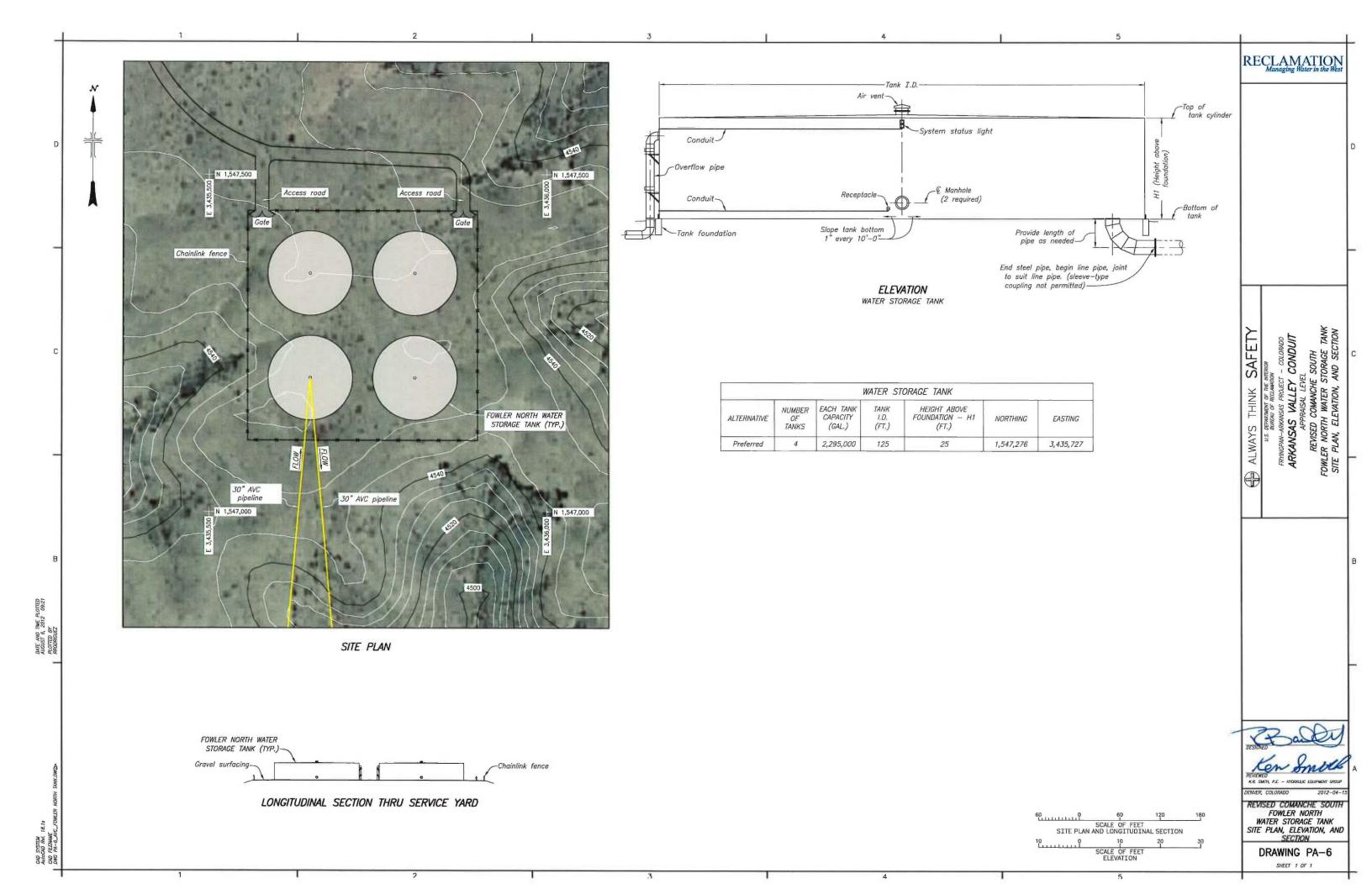


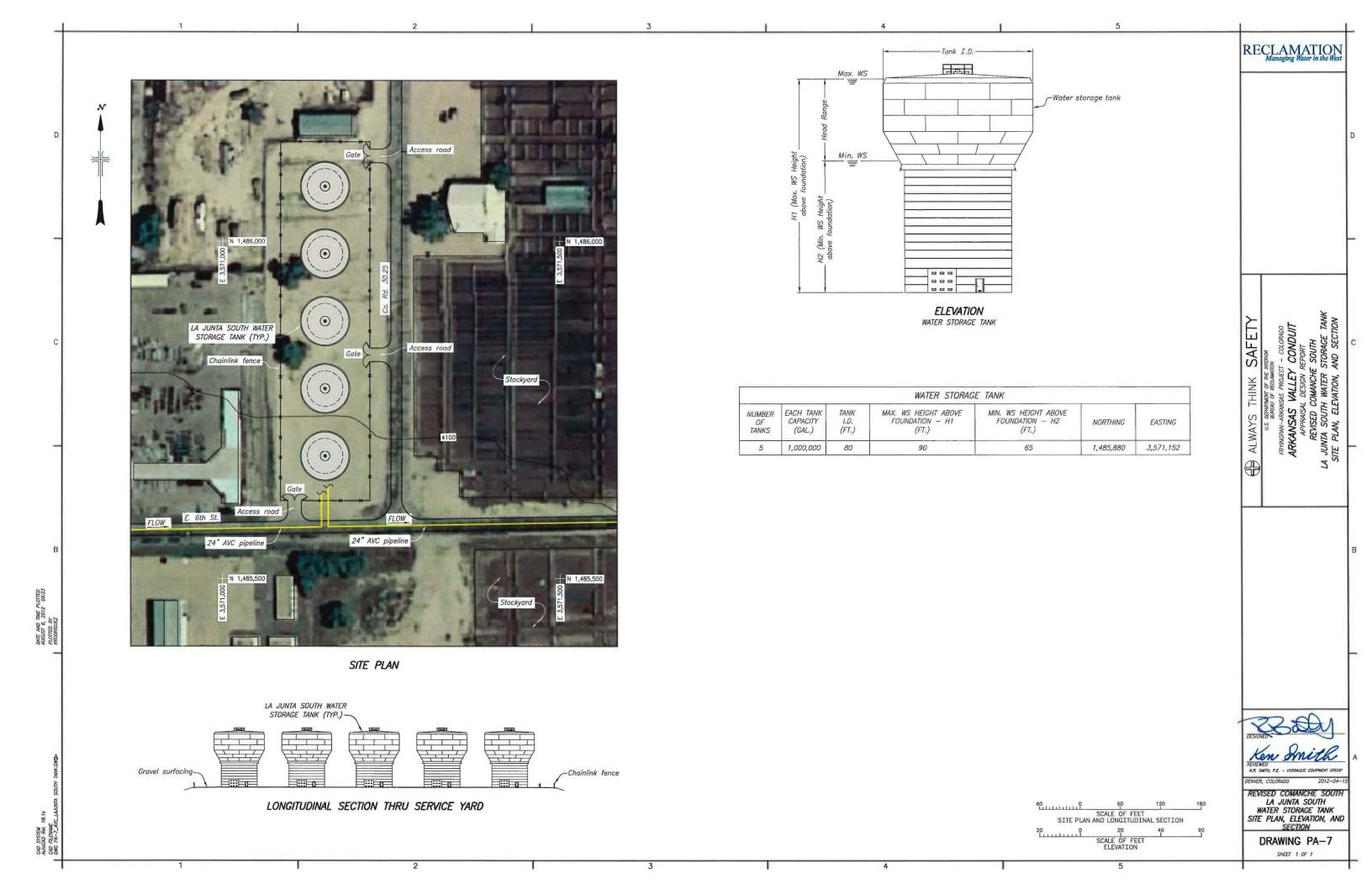


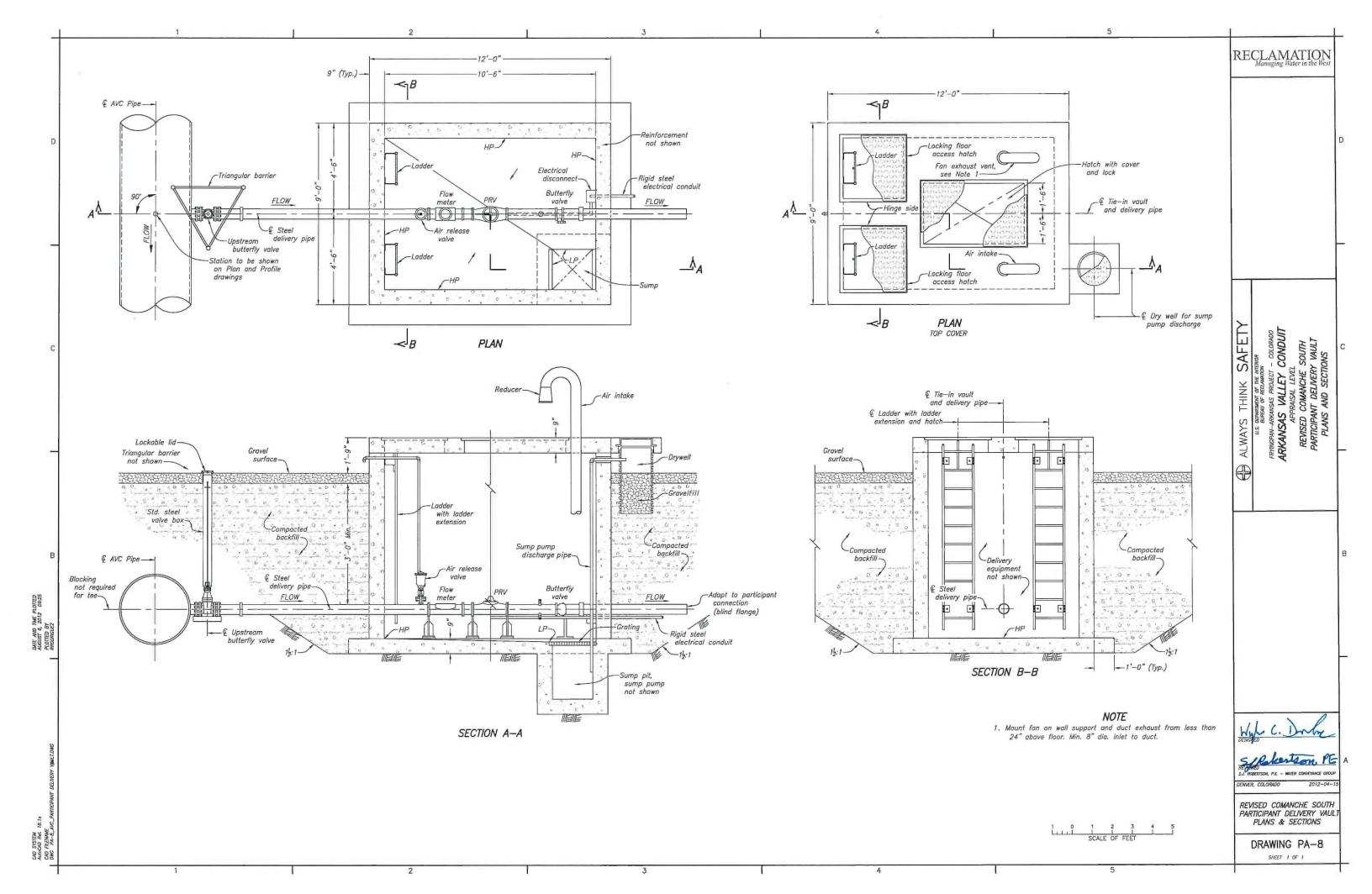


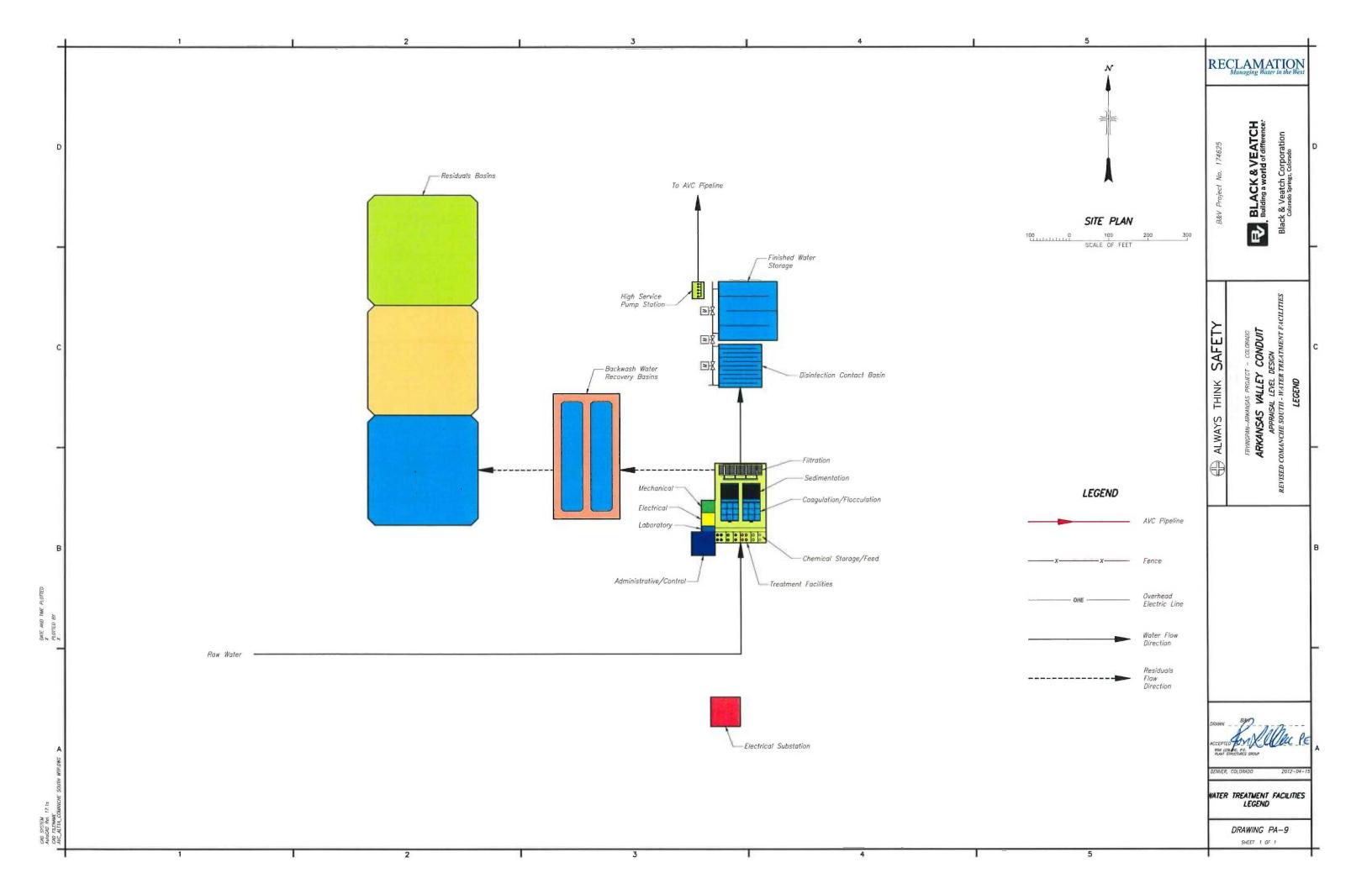


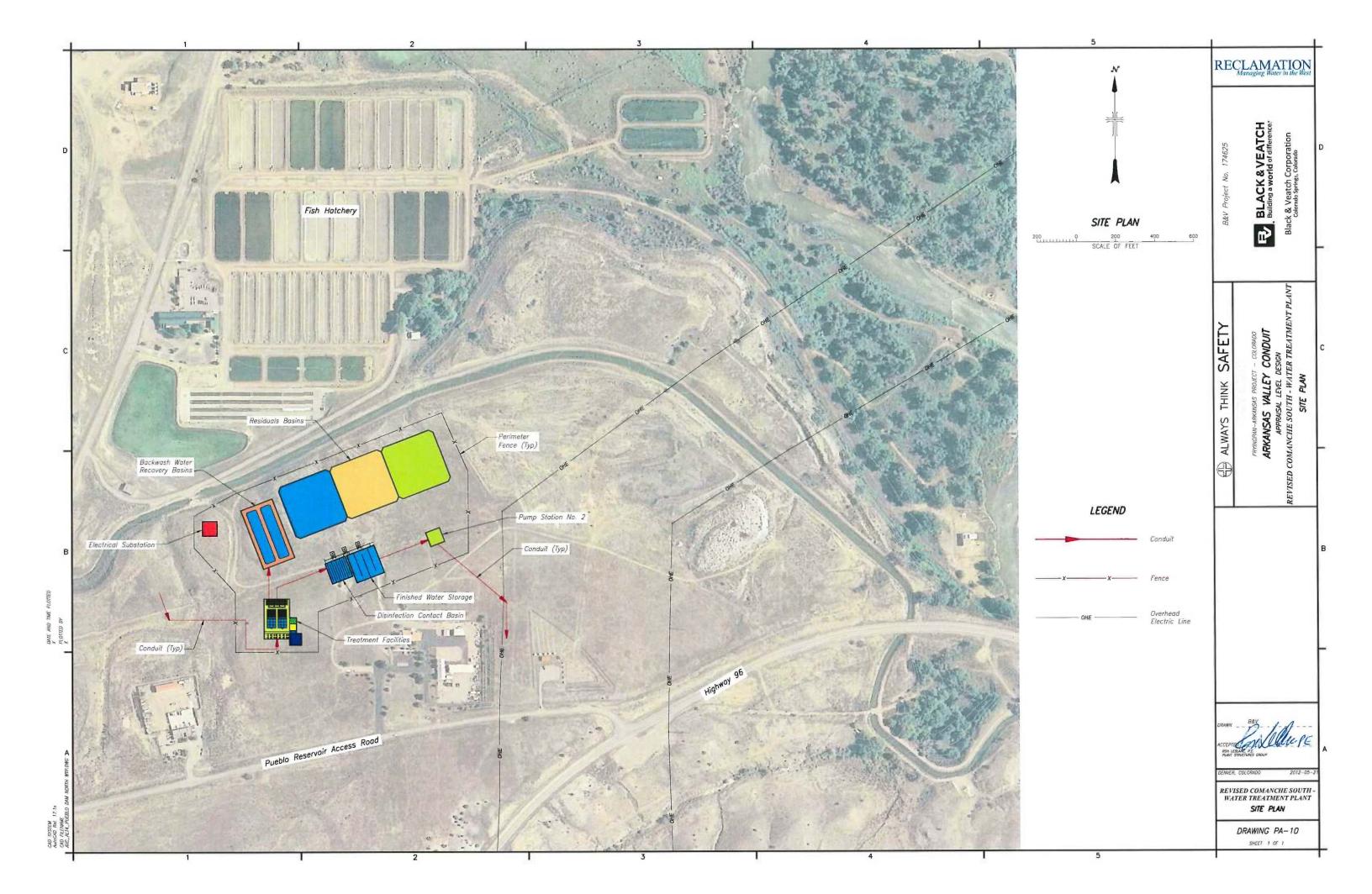












#### ATTACHMENT D

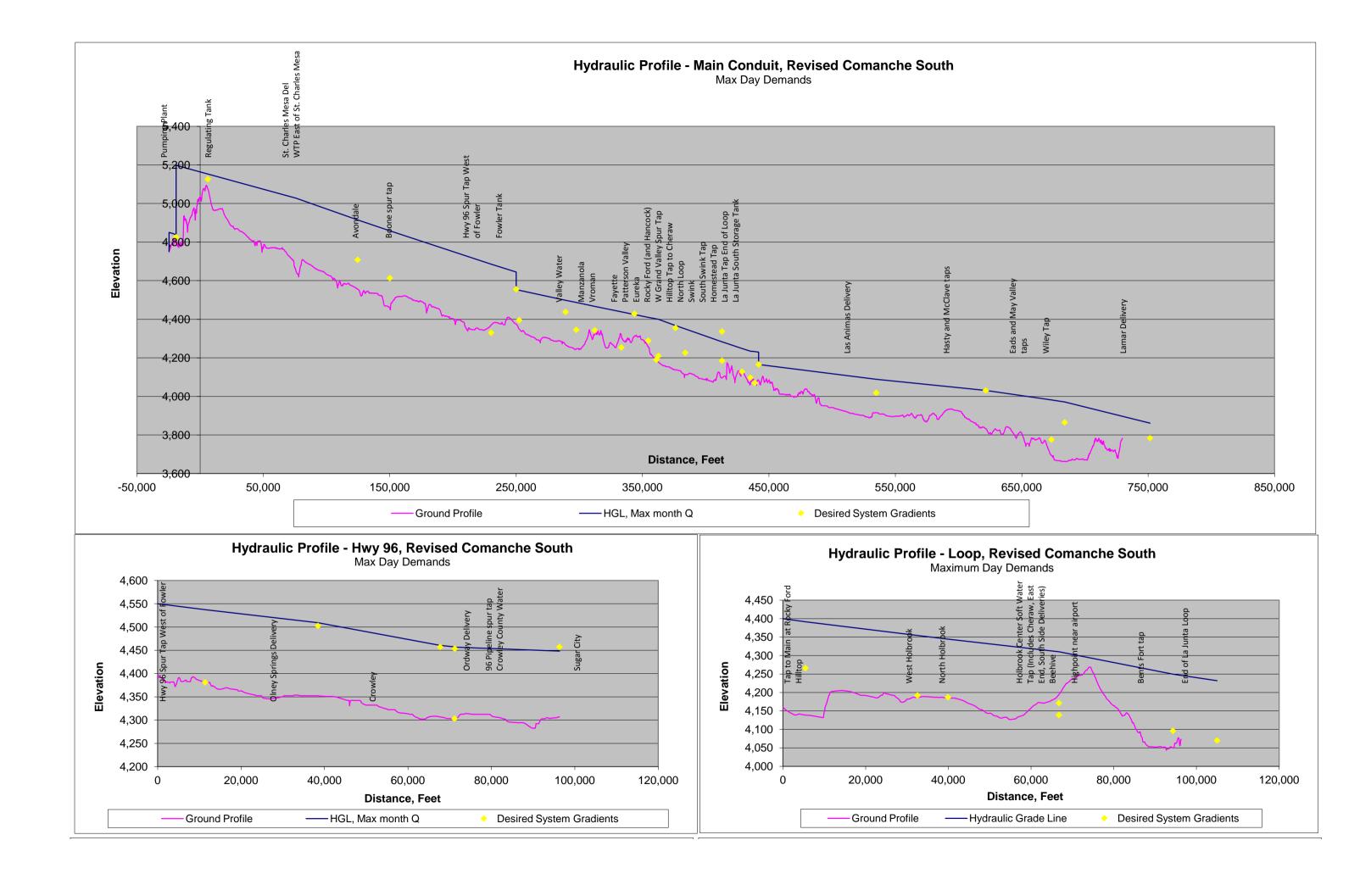
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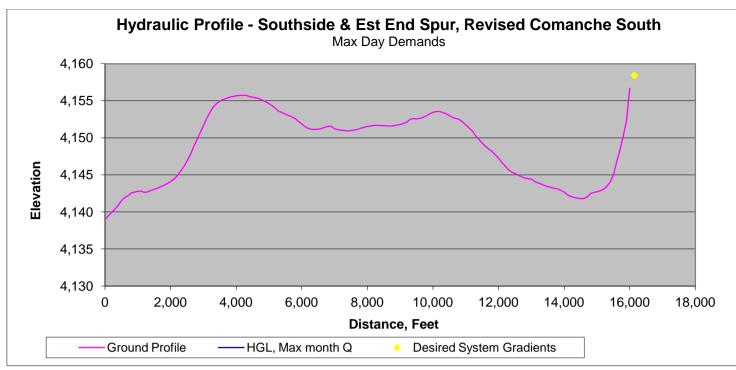
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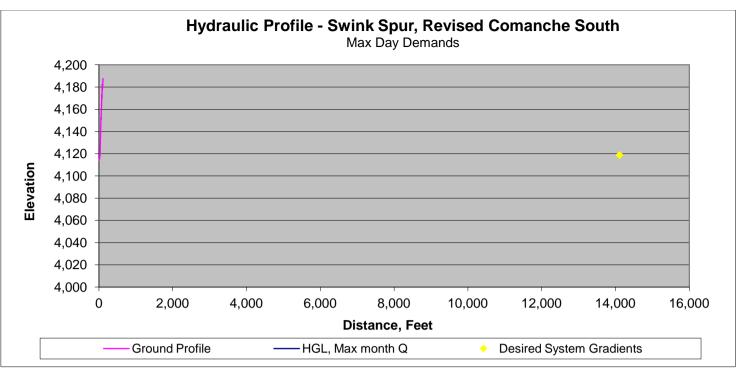
Hydraulic Calculation Sheets

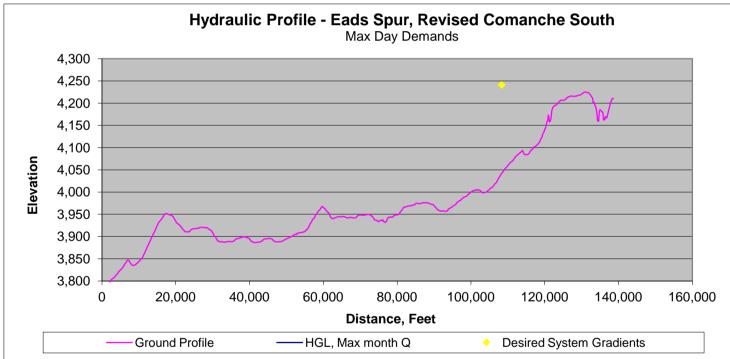
Hydraulic Profile Sheets

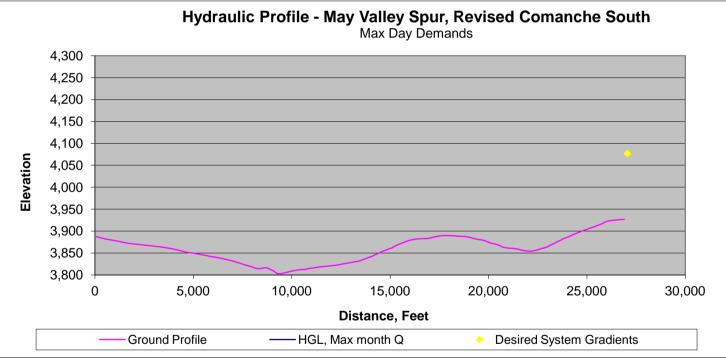
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Arkansas V		nduit atement / Apprasial Level Study	Dam N/S Interconnect		/	= See con = Forced (									,	Max Month Der Max Month De					Participants Being Provided Max Day De East End Water	emands Due to Ra Manzanola		ndition 5)			May 29, 2
Environmenta	ii impaci Sia	atement / Apprasiai Level Study	Intake, PP, WTP, PP near Pueblo Dam		+	= Input	cell									, Max Month De , Min Day Dema					Eureka Water Co	May Valley	Valley Water Vroman				
1			Comanche Power Plant Pipeline route		479		eservoir Min	Nater Surfa	ce (Top of I	nactive Pool)						Max Day Dema					Fayette Water	Patterson Valley					
Hydraulic Ana	llysis		St Charles Mesa gets filtered water							Active Conser	ation Pool)	C	ondition 5 - I	Minimum Pue	blo Reservoir,	Max Month Der	mands (Ex	cept Radionucl	ides		Hancock	South Swink					
6			Southern Route w/ Fowler North and La	aJunta South	475	0 WS EI in F	PP Sump @	bottom of D	am site	4823.04	WTP Cleary	well Elev.	F	Participants E	eing Provided	Max Day)					Holbrook Center Soft Water						
Revised Co	omanche	South	storage tanks				lift to local \			375	Pumping lift	@ WTP C	ondition 4 - S	Selected Con	dition						Homestead Improvement						
3					4850 HGL beginning of pipe to WTP, after Pump 5198.04 Starting HGL From WTP																						
										Inside Pipe	Inside			Friction	Friction			Total							Desired	Pressure	
9		De	scription	Stat	ation	Length	-	Total Flow.	Q		Pipe Area	Velocity		Headloss	Headloss	Minor Hea	adloss	Headloss				Participant Flow	,	Actual Tap	System	Met? Desired	
Overall	Individual			-	T			,	Ī															Pressure,	Pressure	System Gradient	
Pipe	Pipe			Starting	Ending												Minor						Maximum	psi	psi	Gradient	
0 Segment	Segment	Starting Point	Ending Point	Station	Station	ft	mgd	cfs	gpm	in	ft^2	ft/s	C Value	ft	ft/1000 ft	Loss/ft	H <sub>L</sub> , ft	ft	Begin HGL	End HGL	Participant Tap/ Delivey	mgd	Ground Elev				Comments
12 Main	1	Pueblo Reservoir	WTP Inlet @ Pueblo Dam	-246+05		-,		32.20	14,456	36	7.07	4.56	120	11.05	1.960	9.1287E-06	0.00	11.10	4850.00	4838.90	WTP @ near Dam	0.000	4,825	10.82	0		Tie in at WTP.
3 Main	1a	WTP Inlet @ Pueblo Dam	High Point S of Pueblo Reservoir	-189+67		20,001	10.02000	30.67		36	7.07	4.34	120	44.87	1.791	9.1287E-06		45.10	5198.04	5152.94	NA NA		5106	20.32			WTP PP Reg Tank
4 Main 5 Main	1b	High Point S of Pueblo Reservoir St. Charles Mesa	St. Charles Mesa Avondale	60+84 758+82			19.825 14.045	30.67 21.73	13,768 9.753	36	7.07 4.91	4.34 4.43	120 120	125.01 111.86	1.791 2.299	9.1287E-06 9.1287E-06		125.65 112.30	5152.94 5027.30	5027.30 4914.99	St. Charles Mesa Avondale	5.781 0.296	4664 4558	157.25 154.66	65	4664.05 4707.87	St. Charles Mesa
6 Main	4	Avondale	Boone spur tap	1245+46			13.749	21.73	9,548	30	4.91	4.33	120	56.33	2.210	9.1287E-06		56.56	4914.99	4858.43	Boone spur	0.201	4463	171.18	65	4613.15	
7 Main	5	Boone spur tap	Fowler Delivery	1500+37	2301+76	80,139	13.548	20.96	9,408	30	4.91	4.27	120	172.31	2.150	9.1287E-06		173.04	4858.43	4685.39	Fowler	0.304	4330	153.69	0	4330.37	
8 Main	6	Fowler Delivery	North Fowler Tank	2301+76			13.243	20.49	9,197	30	4.91	4.17	120	40.89	2.062	9.1287E-06		41.07	4685.39	4644.32	(Fowler North Tank)	0.000	4555	38.67	0	4555.00	Ground Elev 4555, top of tank elev 4580.
9 Main	7	North Fowler Tank	Hwy 96 spur tap E. of Fowler Tank	2500+09			13.243	20.49	9,197	30	4.91	4.17	120	4.82	2.062	9.1287E-06		4.84	4555.00	4550.16	Hwy 96 spur (Total)	2.500	4395	67.17	0	4395.00 4437.66	DDV2
0 Main 1 Main	9	Hwy 96 spur tap E. of Fowler Tank Valley Water	Valley Water Manzanola spur tap	2890+33	2890+33 2975+41		10.743	16.62 16.49	7,460 7,402	30	4.91 4.91	3.39	120 120	51.33 11.73	1.399 1.379	9.1287E-06 9.1287E-06		51.67 11.81	4550.16 4498.49	4498.49 4486.68	Valley Water Manzanola spur	0.084	4288 4255	91.33 100.29	65 39	4345.09	Tank Spill El. 4375.
2 Main	10	Manzanola spur tap	Vroman		3121+88			16.37	7,102	30	4.91	3.33	120	19.92	1.360	9.1287E-06		20.06	4486.68	4466.62	Vroman	0.079	4342	53.77	0	4342.42	
23 Main	11	Vroman	Fayette		3332+24			16.24		30	4.91	3.31	120	28.22	1.341	9.1287E-06		28.41	4466.62	4438.21	Fayette	0.030	4253	80.02	0	4253.36	
4 Main	12	Fayette	Patterson Valley		3436+07 3544+48	-,	10.471	16.20 16.14		30	4.91	3.30	120	13.85	1.334	9.1287E-06		13.95 14.47	4438.21	4424.26 4409.79	Patterson Valley	0.036	4294	56.19	58		Tank spill El 4435
5 Main 6 Main	13 14	Patterson Valley Eureka	Rocky Ford & Hancock spur tap	3436+07 3544+48		10,011	10.434	16.14 15.86	7,246 7,118	30	4.91 4.91	3.29	120 120	14.37 8.27	1.326 1.283	9.1287E-06 9.1287E-06	0.10	14.47 8.33	4424.26 4409.79	4409.79 4401.46	Eureka Rocky Ford & Hancock spur	0.184 1.273	4289 4190	52.48 91.54	0	4288.56 4190.00	
7 Main	15	Rocky Ford & Hancock spur tap	North Loop tap		3625+41	-,			6,234	30	4.91	2.83	120	1.65	1.003	9.1287E-06		1.67	4401.46	4399.79	(Start of North Loop)	0.375	4210	82.16	0	4210.00	
8 Main	16	North Loop tap	Newdale-Grand Valley	3625+41		13,525	7.957	12.31	5,526	24	3.14	3.92	120	32.18	2.379	9.1287E-06	0.12	32.30	4399.79	4367.49	Newdale-Grand Valley	0.129	4355	5.41	0	4355.00	Highpoint El. 4355 @ delivery from GIS
9 Main	17	Newdale-Grand Valley	West Grand Valley		3837+22			12.11	5,436	24	3.14	3.85	120	17.67	2.308	9.1287E-06		17.74	4367.49	4349.75	West Grand Valley	0.032	4226	53.55	0	4226.05	
Main Main	18 19	West Grand Valley	Swink spur tap South Swink		4128+34 4128+35	29,112	7.796 7.732	12.06 11.96	5,414 5,370	24 24	3.14 3.14	3.84	120 120	66.69	2.291	9.1287E-06 9.1287E-06		66.96 0.00	4349.75 4282.79	4282.79 4282.79	Swink spur South Swink	0.064	4185 4187	42.33 41.67	0	4185.00 -23.3 4336.69	
2 Main	20	Swink spur tap South Swink	Homestead spur tap		4286+52	15.818		11.67	5,239	24	3.14	3.71	120	0.00 34.09	2.256	9.1287E-06			4282.79	4248.56	Homestead spur	0.015	4128	52.19	65 0	4128.00	
33 Main	21	Homestead spur tap	La Junta spur tap		4352+80		7.529	11.65	5,228	24	3.14	3.71	120	14.23	2.147	9.1287E-06		14.29	4248.56	4234.26	La Junta spur	3.717	4097	59.42	0		At La Junta WTP 4374 is max system water e
34 Main	22	La Junta spur tap	End of North Loop		4387+81			5.90	2,647	24	3.14	1.88	120	2.13	0.609	9.1287E-06		2.16	4234.26	4232.10	(End of North Loop)	0.000	4070	70.17	0	4070.00	í
Main	23	End of North Loop	La Junta South Storage Tank		4418+44			6.89			3.14	2.19	120	2.49		9.1287E-06		2.52	4232.10	4229.58	(La Junta South Tank)	0.000	4100	56.10	0	4100.00	
36 Main 37 Main	24 25	La Junta South Storage Tank Las Animas Delivery	Las Animas Delivery Hasty and McClave spur tap		5348+80 6215+37			6.89 4.89	3,095 2,196	22	3.14 2.64	2.19 1.85	120 120	75.65 57.03	0.813 0.658	9.1287E-06 9.1287E-06		76.50 57.82	4165.00 4088.50	4088.50 4030.68	Las Animas Hasty & McClave spurs	1.294 0.174	3903 3880	80.28 65.23	50 65	4018.56 4030.15	65' surface tank, La Junta South Tank
38 Main	26	Hasty and McClave spur tap	Eads and May Valley spur tap		6734+11			4.62		20	2.18	2.12	120	48.91	0.943	9.1287E-06			4030.68	3981.29	Eads & May Valley spurs	0.724	3776	88.87	0	3776.00	
39 Main	27	Eads and May Valley spur tap	Wiley spur tap	6734+11	6839+30	10,519	2.265	3.50	1,573	18	1.77	1.98	120	9.91	0.942	9.1287E-06	0.10	10.01	3981.29	3971.28	Wiley spur	0.034	3715	110.95	65	3865.15	
Main	28	Wiley spur tap	Lamar Delivery	6839+30	7514+41	67,510	2.230	3.45	1,549	16	1.40	2.47	120	109.74	1.626	9.1287E-06	0.62	110.36	3971.28	3860.93	Lamar	2.230	3784	33.36	0	3783.86	Spill El. of tanks = 3819.3
11		Totals			+																	19.825	<del>                                     </del>				
13 Hwv 96	29	Hwy 96 spur tap E. of Fowler Tank	Olney Springs Delivery	0+00	113+68	11.368	2.500	3.87	1.736	18	1.77	2.19	120	12.87	1.132	9.1287E-06	0.10	12.97	4550.16	4537.18	Olney Springs	0.129	4381	67.55	0	4381.14	Tank spill elev of 4486
14 Hwy 96	30	Olney Springs Delivery	Crowley Delivery	113+68	384+09		2.372	3.67	1,647	18	1.77	2.08	120	27.76	1.026	9.1287E-06	0.25	28.00	4537.18	4509.18	Crowley	0.122	4352	67.87	65		System pressure unknown.
15 Hwy 96	31	Crowley Delivery	Ordway Delivery	384+09	677+05			3.48	1,562	16	1.40	2.49	120	48.39	1.652	9.1287E-06			4509.18	4460.53	Ordway	0.604	4307	66.47	65	4457.14	
16 Hwy 96	32	Ordway Delivery	96 Pipeline Co. spur tap	677+05	711+47 712+13		1.646	2.55	1,143	16 10	1.40	1.82	120	3.19 0.57	0.925 8.629	9.1287E-06 9.1287E-06		3.22 0.57	4460.53 4457.31	4457.31 4456.74	96 Pipeline Co. spur CCWA	0.049 1.322	4303 4303	66.80 66.40	0 65	4303.00 4453.51	
17 Hwy 96 18 Hwy 96	34	96 Pipeline Co. spur tap Crowley County Water Assoc.	Crowley County Water Assoc. Sugar City Delivery		963+10		1.596 0.274	2.47 0.42	1,108	10	0.55 0.55	4.53 0.78	120 120	8.30		9.1287E-06			4457.31	4448.21	Sugar City	0.274	4307	61.07	65	-3.9 4457.30	
19		Totals	ougan only contact,		+			****			0.00						0.20				229 2	2.500					
50																											
51							1.000						400			0.100== 00		0.45	1000 70	1001.05		0.074	1170				T. 1.51 4000 TO 1111
52 N. Loop 53 N. Loop	36	North Loop tap Hilltop	West Holbrook	0+00 54+16	54+16 325+33			1.58 1.47	709 659	12	0.79 0.79	2.01 1.87	120 120	8.40 36.81	1.550 1.357	9.1287E-06 9.1287E-06		8.45 37.05	4399.79 4391.35	4391.35 4354.29	Hilltop West Holbrook	0.071 0.019	4178 4192	92.36 70.26	38	4265.78 4192.00	Tank Elev 4266. 72 psi high pressure
54 N. Loop	37	West Holbrook	North Holbrook	325+33				1.47	646	12	0.79	1.83	120	9.65		9.1287E-06		9.72	4354.29	4354.29	North Holbrook	0.019	4187	68.21	0	4192.00	
55 N. Loop	38	North Holbrook	Holbrook Center Soft Water, Cheraw	399+20	667+52		0.915	1.42	636	12	0.79	1.80	120	34.02	1.268	9.1287E-06		34.27	4344.57	4310.30	HCSW, Cheraw	0.101	4139	74.16	14	4171.34	
66 N. Loop	39	Holbrook Center Soft Water, Cherav		667+52	667+52	0	0.815	1.26	566	10	0.55	2.31	120	0.00	2.483	9.1287E-06	0.00	0.00	4310.30	4310.30	Southside & East End spurs	0.039	4139	74.16	0	4139.00	
N. Loop	40	Southside & East End spur tap	Beehive	667+52			0.776	1.20	539	10	0.55	2.20	120	0.00	2.270	9.1287E-06		0.00	4310.30	4310.30	Beehive	0.013	4139	74.16	0	4139.00	
58 N. Loop 59 N. Loop	41 42	Beehive Bent's Fort spur tap	Bent's Fort spur tap End of North Loop	667+53 943+09	943+09 1049+78			1.18	530 448	10	0.55 0.55	2.16 1.83	120 120	60.64 17.21	2.201 1.613	9.1287E-06 9.1287E-06		60.89 17.31	4310.30 4249.41	4249.41 4232.10	Bent's Fort spur (End of North Loop)	0.118	4096 4070	66.41 70.17	0	4096.00	Highpoint El near airport is 4270+/-
50 N. LOOP	42	Totals	End of North Loop	343103	1043+70	10,003	0.043	1.00	440	10	0.55	1.00	120	17.21	1.013	9.1207L-00	0.10	17.51	4243.41	4232.10	(End of North Edop)	0.375	4070	70.17	0	4070.00	
																						0.0.0					
61					316+33	31,633	0.724				0.79										May Valley & Eads @ Booster Plant	0.724		12.23	0	3926.76	
		Main Line Tap	7 7						173		0.55			29.85		9.1287E-06			4272.01	4241.18	Eads	0.249	4215	11.26	10		4215 is tie-in at tank, 4225' max elev@hill
Spur	44	May Valley & Eads Booster plant	Eads	0+00	1083+38						0.70	0.94		10.21		9.1287E-06				4261.56	May Valley Boone	0.476		144.93 157.92			
3 Spur 4 Spur	44 45	May Valley & Eads Booster plant May Valley & Eads Booster plant	Eads May Valley	0+00 0+00	270+56	27,056	0.476	0.74				1.50	120				0.08	20.64	4008.43	4837.79				157.92		4000 45	
3 Spur 4 Spur	44 45	May Valley & Eads Booster plant	Eads	0+00 0+00		27,056	0.476	0.74			0.20	1.59	120	20.56	2.246	9.1207 L-00					200110	0.201	4473		65	4623.15	Manzanola max ground elev is 4285. Tank S
3 Spur 4 Spur	44 45	May Valley & Eads Booster plant May Valley & Eads Booster plant	Eads May Valley	0+00 0+00	270+56	27,056	0.476	0.74				1.59	120	20.56	2.246	9.1287E-06	0.01	4.72	4486.68	4481.95	Manzanola	0.201	4277	88.94	39	4623.15 4366.59	
3 Spur 4 Spur 5 Spur 6 Spur 7 Spur	44 45 46 47 48	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Main Line Tap Main Line Tap	Eads May Valley Boone Manzanola Rocky Ford WTP & Hancock	0+00 0+00 0+00 0+00 0+00	270+56 91+54 16+36 9+60	27,056 9,154 1,636 960	0.476 0.201 0.079 1.273	0.74 0.31 0.12 1.97	140 55 884	6 4 12	0.20 0.09 0.79	1.41 2.51	120 120	4.71 2.24	2.878 2.334	9.1287E-06 9.1287E-06	0.01	2.25	4401.46	4399.21	Manzanola Rocky Ford & Hancock	0.079 1.273	4277 4221	88.94 77.07	39 0	4366.59 4221.17	
Spur	44 45 46 47 48	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Main Line Tap Main Line Tap	Eads May Valley Boone Manzanola	0+00 0+00 0+00 0+00	270+56 91+54 16+36	27,056 9,154 1,636 960	0.476 0.201 0.079 1.273	0.74 0.31 0.12 1.97	140 55 884	6 4	0.20	1.41 2.51	120	4.71	2.878 2.334	9.1287E-06	0.01	2.25			Manzanola	0.079	4277	88.94	39	4366.59	
53 Spur 54 Spur 55 Spur 56 Spur 57 Spur 58 Spur 59	44 45 46 47 48 49	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Main Line Tap Hwy 96 Spur tap	Eads May Valley Boone Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.	0+00 0+00 0+00 0+00 0+00 0+00 0+00	270+56 91+54 16+36 9+60 23+95	27,056 9,154 1,636 960 2,395	0.476 0.201 0.079 1.273 0.049	0.74 0.31 0.12 1.97 0.08	140 55 884 34	6 4 12 4	0.20 0.09 0.79 0.09	1.41 2.51 0.87	120 120 120	4.71 2.24 2.86	2.878 2.334 1.193	9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02	2.25 2.88	4401.46 4457.31	4399.21 4454.43	Manzanola Rocky Ford & Hancock 96 Pipeline Co.	0.079 1.273 0.049	4277 4221 4317	88.94 77.07 59.32	39 0	4366.59 4221.17 4317.41	
3 Spur 4 Spur 5 Spur 6 Spur 7 Spur 8 Spur 9	44 45 46 47 48 49	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Hwy 96 Spur tap  Main Line Tap Main Line Tap	Eads May Valley Boone  Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.  Homestead	0+00 0+00 0+00 0+00 0+00 0+00 0+00	270+56 91+54 16+36 9+60 23+95 26+26	27,056 9,154 1,636 960 2,395	0.476 0.201 0.079 1.273 0.049	0.74 0.31 0.12 1.97 0.08	140 55 884 34	6 4 12 4	0.20 0.09 0.79 0.09	1.41 2.51 0.87	120 120 120 120	4.71 2.24 2.86	2.878 2.334 1.193	9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02 0.02	2.25 2.88 0.37	4401.46 4457.31 4248.56	4399.21 4454.43 4248.19	Manzanola Rocky Ford & Hancock 96 Pipeline Co. Homestead	0.079 1.273 0.049	4277 4221 4317 4134	88.94 77.07 59.32 49.36	39 0 0	4366.59 4221.17 4317.41 4134.17	El 4375.
3 Spur 4 Spur 5 Spur 6 Spur 7 Spur 8 Spur 9 Spur 1 Spur	44 45 46 47 48 49 50 51	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Hwy 96 Spur tap  Main Line Tap Main Line Tap Hwy 96 Main Line Tap Main Line Tap	Eads May Valley Boone  Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.  Homestead La Junta WTP	0+00 0+00 0+00 0+00 0+00 0+00 0+00 0+0	270+56 91+54 16+36 9+60 23+95	27,056 9,154 1,636 960 2,395 2,626 3,154	0.476 0.201 0.079 1.273 0.049 0.015 3.717	0.74 0.31 0.12 1.97 0.08	140 55 884 34 10 2,582	6 4 12 4 4 12	0.20 0.09 0.79 0.09 0.09 0.79	1.41 2.51 0.87	120 120 120 120 120	4.71 2.24 2.86	2.878 2.334 1.193 0.132 16.995	9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02 0.02 0.03	2.25 2.88 0.37 53.63	4401.46 4457.31	4399.21 4454.43	Manzanola Rocky Ford & Hancock 96 Pipeline Co. Homestead La Junta	0.079 1.273 0.049	4277 4221 4317	88.94 77.07 59.32 49.36 13.26	39 0	4366.59 4221.17 4317.41 4134.17	El 4375.  La Junta WTP 4374 = max system water elev
3 Spur 4 Spur 5 Spur 6 Spur 6 Spur 7 Spur 8 Spur 9 Spur 1 Spur 2 Spur 3 Spur	44 45 46 47 48 49 50 51 52 53	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Main Line Tap Hwy 96 Spur tap  Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap	Eads May Valley Boone  Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.  Homestead La Junta WTP Bents Fort Tank East End & South Side	0+00 0+00 0+00 0+00 0+00 0+00 0+00 0+0	270+56 91+54 16+36 9+60 23+95 26+26 31+54 7+15 161+42	27,056 9,154 1,636 960 2,395 2,626 3,154 715 16,142	0.476 0.201 0.079 1.273 0.049 0.015 3.717 0.118 0.039	0.74 0.31 0.12 1.97 0.08 0.02 5.75 0.18 0.06	140 55 884 34 10 2,582 82 27	6 4 12 4 4 12 4 4 4	0.20 0.09 0.79 0.09 0.09 0.79 0.09 0.09 0.09	1.41 2.51 0.87 0.27 7.32 2.09 0.68	120 120 120 120 120 120 120 120	4.71 2.24 2.86 0.35 53.60 4.28 12.23	2.878 2.334 1.193 0.132 16.995 5.996 0.757	9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02 0.02 0.03 0.01 0.15	2.25 2.88 0.37 53.63 4.29 12.37	4401.46 4457.31 4248.56 4234.26 4249.41 4310.30	4399.21 4454.43 4248.19 4180.64 4245.12 4297.93	Manzanola Rocky Ford & Hancock 96 Pipeline Co.  Homestead La Junta Bent's Fort East End & South Side	0.079 1.273 0.049 0.015 3.717 0.118 0.039	4277 4221 4317 4134 4150 4132 4158	88.94 77.07 59.32 49.36 13.26 48.78 60.39	39 0 0 0 0 0 0	4366.59 4221.17 4317.41 4134.17 4150.00 4132.44 4158.44	El 4375.  La Junta WTP 4374 = max system water elev
33 Spur 34 Spur 35 Spur 36 Spur 37 Spur 38 Spur 39 Spur 41 Spur 42 Spur 44 Spur 44 Spur	44 45 46 47 48 49 50 51 52 53 54	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Hwy 96 Spur tap  Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap	Eads May Valley Boone  Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.  Homestead La Junta WTP Bents Fort Tank East End & South Side Swink	0+00 0+00 0+00 0+00 0+00 0+00 0+00 0+0	270+56 91+54 16+36 9+60 23+95 26+26 31+54 7+15 161+42 141+09	27,056 9,154 1,636 960 2,395 2,626 3,154 715 16,142 14,109	0.476 0.201 0.079 1.273 0.049 0.015 3.717 0.118 0.039 0.064	0.74 0.31 0.12 1.97 0.08 0.02 5.75 0.18 0.06 0.10	140 55 884 34 10 2,582 82 27 45	6 4 12 4 4 12 4 4 4 4	0.20 0.09 0.79 0.09 0.09 0.09 0.09 0.09 0.09	1.41 2.51 0.87 0.27 7.32 2.09 0.68 1.14	120 120 120 120 120 120 120 120 120	4.71 2.24 2.86 0.35 53.60 4.28 12.23 27.53	2.878 2.334 1.193 0.132 16.995 5.996 0.757 1.952	9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02 0.02 0.03 0.01 0.15 0.13	2.25 2.88 0.37 53.63 4.29 12.37 27.66	4401.46 4457.31 4248.56 4234.26 4249.41 4310.30 4282.79	4399.21 4454.43 4248.19 4180.64 4245.12 4297.93 4255.13	Manzanola Rocky Ford & Hancock 96 Pipeline Co.  Homestead La Junta Bent's Fort East End & South Side Swink	0.079 1.273 0.049 0.015 3.717 0.118 0.039 0.064	4277 4221 4317 4134 4150 4132 4158 4119	88.94 77.07 59.32 49.36 13.26 48.78 60.39 59.02	39 0 0 0 0 0 0 0 0	4366.59 4221.17 4317.41 4134.17 4150.00 4132.44 4118.44	El 4375.  La Junta WTP 4374 = max system water elev
33 Spur 34 Spur 35 Spur 36 Spur 36 Spur 38 Spur 39 Spur 70 Spur 71 Spur 72 Spur 73 Spur 74 Spur 75 Spur	44 45 46 47 48 49 50 51 52 53 54 55	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Hwy 96 Spur tap  Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap Main Line Tap	Eads May Valley Boone  Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.  Homestead La Junta WTP Bents Fort Tank East End & South Side Swink McClave	0+00 0+00 0+00 0+00 0+00 0+00 0+00 0+0	270+56 91+54 16+36 9+60 23+95 26+26 31+54 7+15 161+42 141+09	27,056 9,154 1,636 960 2,395 2,626 3,154 715 16,142 14,109 5,484	0.476 0.201 0.079 1.273 0.049 0.015 3.717 0.118 0.039 0.064 0.105	0.74 0.31 0.12 1.97 0.08 0.02 5.75 0.18 0.06 0.10	140 55 884 34 10 2,582 82 27 45 73	6 4 12 4 12 4 12 4 4 4 4 6	0.20 0.09 0.79 0.09 0.09 0.79 0.09 0.09 0.09 0.09	1.41 2.51 0.87 0.27 7.32 2.09 0.68 1.14 0.83	120 120 120 120 120 120 120 120 120 120	4.71 2.24 2.86 0.35 53.60 4.28 12.23 27.53 3.69	2.878 2.334 1.193 0.132 16.995 5.996 0.757 1.952 0.672	9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02 0.02 0.03 0.01 0.15 0.13	2.25 2.88 0.37 53.63 4.29 12.37 27.66 3.74	4401.46 4457.31 4248.56 4234.26 4249.41 4310.30 4282.79 4030.68	4399.21 4454.43 4248.19 4180.64 4245.12 4297.93 4255.13 4026.94	Manzanola Rocky Ford & Hancock 96 Pipeline Co.  Homestead La Junta Bent's Fort East End & South Side Swink McClave	0.079 1.273 0.049 0.015 3.717 0.118 0.039 0.064 0.105	4277 4221 4317 4134 4150 4132 4158 4119 3919	88.94 77.07 59.32 49.36 13.26 48.78 60.39 59.02 46.83	39 0 0 0 0 0 0 0 0 0	436.59 4221.17 4317.41 4134.17 4150.00 4132.44 4158.44 4118.80 -18.2 4068.92	El 4375.  La Junta WTP 4374 = max system water elev
33 Spur 34 Spur 35 Spur 36 Spur 37 Spur 38 Spur 39 Spur 39 Spur 41 Spur 42 Spur 43 Spur 44 Spur 45 Spur 46 Spur 47 Spur 47 Spur 48 Spur 49 Spur 40 Spur 40 Spur 40 Spur 41 Spur 42 Spur 43 Spur 44 Spur 46	44 45 46 47 48 49 50 51 52 53 54 55 56	May Valley & Eads Booster plant May Valley & Eads Booster plant Main Line Tap Main Line Tap Main Line Tap Hwy 96 Spur tap Main Line Tap	Eads May Valley Boone  Manzanola Rocky Ford WTP & Hancock 96 Pipeline Co.  Homestead La Junta WTP Bents Fort Tank East End & South Side Swink	0+00 0+00 0+00 0+00 0+00 0+00 0+00 0+0	270+56 91+54 16+36 9+60 23+95 26+26 31+54 7+15 161+42 141+09	27,056 9,154 1,636 960 2,395 2,626 3,154 715 16,142 14,109 5,484 626	0.476 0.201 0.079 1.273 0.049 0.015 3.717 0.118 0.039 0.064 0.105 0.069	0.74 0.31 0.12 1.97 0.08 0.02 5.75 0.18 0.06 0.10 0.16 0.11	140 55 884 34 10 2,582 82 27 45 73 48	4 12 4 12 4 12 4 4 4 4 6	0.20 0.09 0.79 0.09 0.09 0.09 0.09 0.09 0.09	1.41 2.51 0.87 0.27 7.32 2.09 0.68 1.14 0.83 1.22	120 120 120 120 120 120 120 120 120 120	4.71 2.24 2.86 0.35 53.60 4.28 12.23 27.53	2.878 2.334 1.193 0.132 16.995 5.996 0.757 1.952 0.672 2.199	9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06 9.1287E-06	0.01 0.02 0.02 0.03 0.01 0.15 0.13 0.05	2.25 2.88 0.37 53.63 4.29 12.37 27.66 3.74 1.38	4401.46 4457.31 4248.56 4234.26 4249.41 4310.30 4282.79	4399.21 4454.43 4248.19 4180.64 4245.12 4297.93 4255.13	Manzanola Rocky Ford & Hancock 96 Pipeline Co.  Homestead La Junta Bent's Fort East End & South Side Swink	0.079 1.273 0.049 0.015 3.717 0.118 0.039 0.064	4277 4221 4317 4134 4150 4132 4158 4119	88.94 77.07 59.32 49.36 13.26 48.78 60.39 59.02 46.83 65.98	39 0 0 0 0 0 0 0 0	436.59 4221.17 4317.41 4134.17 4150.00 4132.44 4118.80 418.2 4068.92 4027.03	La Junta WTP 4374 = max system water elev











# ATTACHMENT E

### REVISED COMANCHE SOUTH ENGINEERING SUPPORT DATA

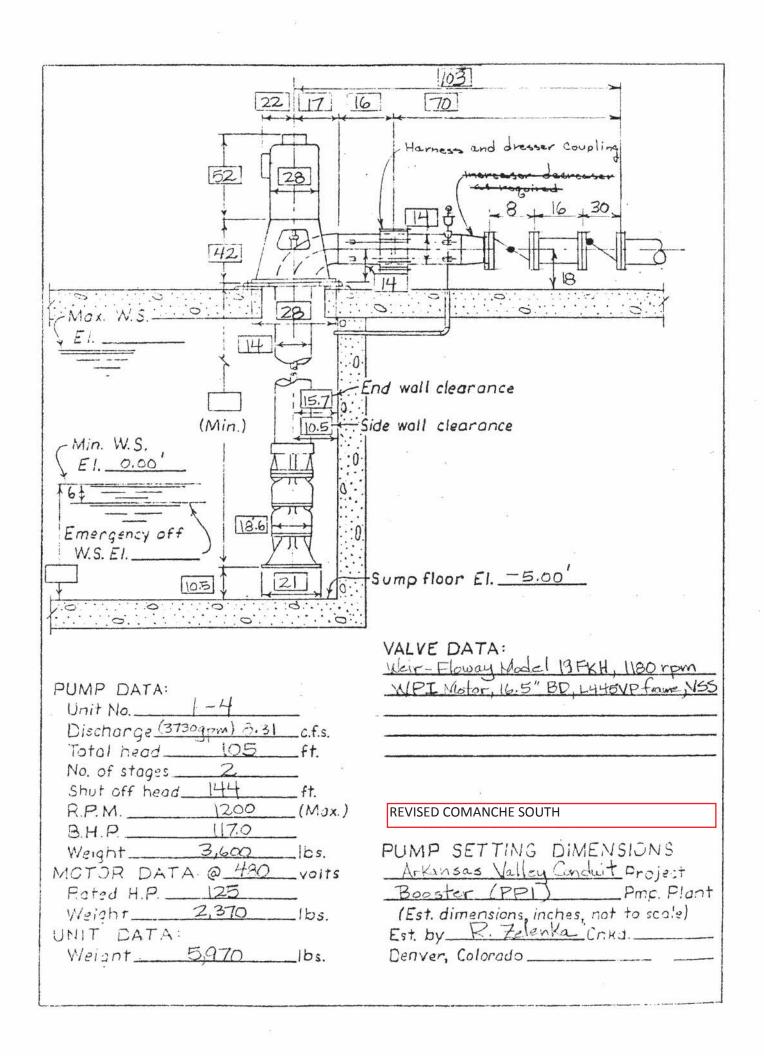
# CONTENTS –

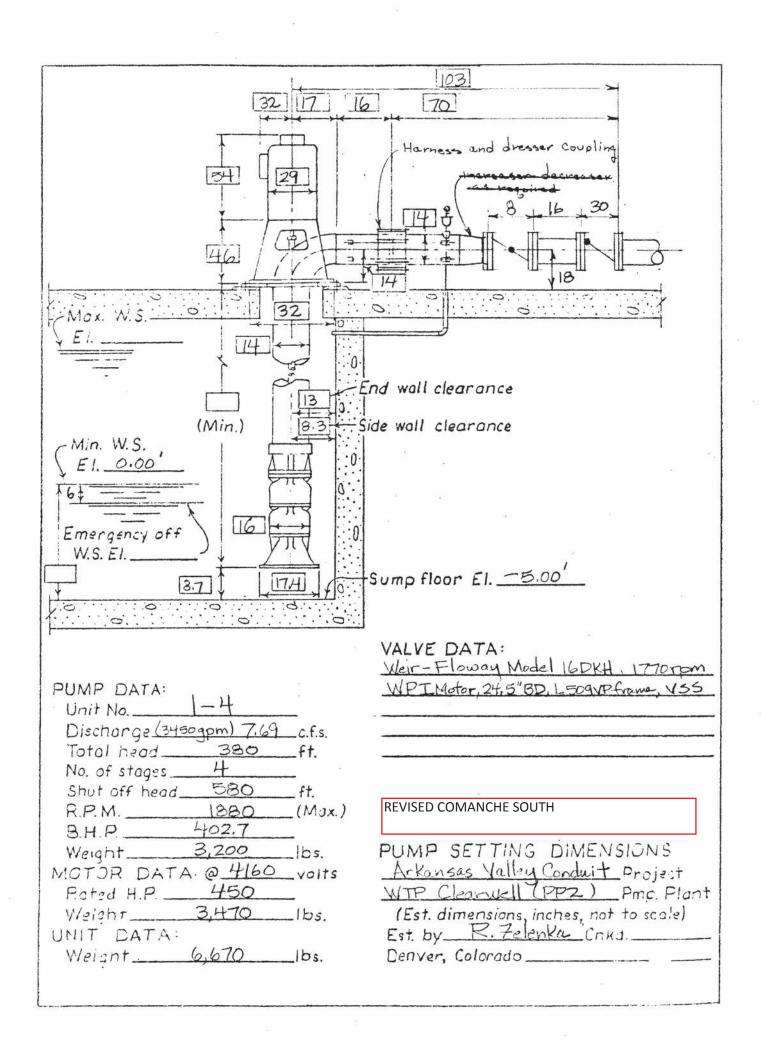
Pump Data Sheets

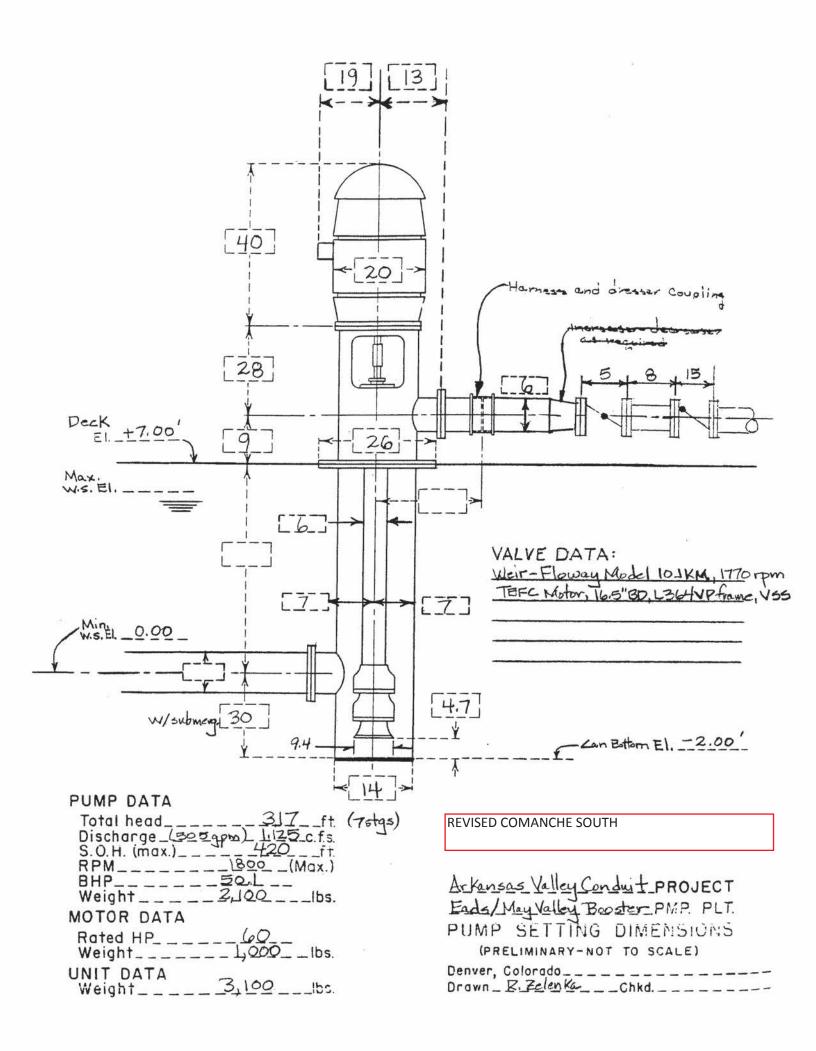
Pumping Plant 1 (before WTP)

Pumping Plant 2 (after WTP)

Eads and May 9 alley Booster Pumping Plant







# ATTACHMENT F

### REVISED COMANCHE SOUTH ENGINEERING SUPPORT DATA

CONTENTS -

Conduit Segment Descriptions

2,103 li 7,666 65,783	1 Interconnect 1Aa 1G	Pueblo Reservoir  Pueblo Dam North Outletworks, Southern Delivery System intake line  Pueblo Reservoir South Outlet Works	Avondale Pueblo Dam South Outlet Works, Joint			
7,666	1Aa	Delivery System intake line	,			
,		Pueblo Reservoir South Outlet Works	Use Pipeline	Reclamation ROW	200	Dam Outlet works inteconnect
65,783	1G		WTP on Reclamation property	Grass/Gravel	200	Alignment is east and south of hatchery
		Junction with Pueblo South Route (Approx. 3,000 feet downstream of Bessemer Ditch (stay on Bessmer) and Hwy 96 Intersection)	Intersection of Bessmer Ditch and South Road	Grass/Gravel	400	Pueblo South Route and adjacent to Comanche pipeline.
18,169	1P.2	Intersection of South Road and Harlem	Intersection of 28th Ln and South Road	Grass/Gravel and Asphalt/Concrete	300	Alignment follows Bessemer Ditch and South Road
4,576	1S.2	Intersection South Road and 28th Ln	St Charles Mesa Delivery	Gravel Road	200	Alignment follows South Road, Grant Road, and Hwy 50 Business
47,995	1S.1	St Charles Mesa Delivery	Intersection of Avondale St and Hwy 50 (Business) in Avondale	Gravel Road	200	Alignment follows South Road, Grant Road, and Hwy 50 Business
8,822	1V	Intersection of Avondale St and Hwy 50 (Business) in Avondale	Intersection of Hwy 50 and Hwy 50 (Business) east of Avondale	Gravel Road	200	Alignment follows Hwy 50 Business
	2	Avondale	Fowler			
17,338	2A	Intersection of Hwy 50 and Hwy 50 (Business) east of Avondale	Intersection of Hwy 50 and Hwy 209 (South of Boone)		600	Alignment is adjacent to Hwy 50
9,154	2C Spur	Intersection of Hwy 50 and Hwy 209 (South of Boone)	Baker Ave and Railroad Street in Boone	Grass/Gravel	600	Spur from Hwy 50 to Boone. Alignment is adjacent to Hwy 209, crosses Arkansas River, and crosses a canal/ditch.
74,386	2E	Intersection of Hwy 50 and Hwy 209 (South of Boone)	Intersection of Hwy 50 and CR 2 (approx. 1 mile west of Fowler)	Grass/Gravel	600	Alignment is adjacent to Hwy 50.
5,753	2F.2	Intersection of Hwy 50 and CR 2 (approx. 1 mile west of Fowler)	Intersection of Cr Ll 5 and Hwy 167 north of Fowler.	Grass/Gravel	600	Alignment is adjacent to railroad to Fowler, then follows LI 5 to Hwy 167, Folwer delivery point
7,765	2F.1	Fowler.	Intersection of Hwy 96 and Hwy 167 north of Fowler.	Grass/Gravel	600	Alignment follows 167 north and crosses a canal and the Arkansas River.
10,734	2G	Intersection of Hwy 96 and Hwy 167 north of Fowler.	Near storage tank north of Fowler on the Main Conduit.	Grass/Gravel	600	Alignment follows Hwy 96 to spur to tank north of Fowler on the bluff.
1,005	2G2 *	Near storage tank north of Fowler on the Main Conduit.	Intersection of Hwy 96 and and the Main Conduit	Grass/Gravel	600	Alignment follows Hwy 96 from spur from tank north of Fowler on the bluff to Hwy 96 spur.
39,275	2H	Intersection of Hwy 50 and CR 2 (approx. 1 mile west of Fowler)	Intersection of CR 6 and Highway 50 (east of Fowler).	Gravel Road	600	Alignment goes straight south to Road Jj 5/10, then east to the tank south of Fowler, north to Road Kk 5/10 (between CR 5 and CR 6), east to CR 6, and north to Hwy 50.
	3	Fowler	La Junta			
6,088	3A	Near tank North of Fowler and at intersection of Hwy 96 Spur and the Main Conduit.	Approx 3,800 feet south of Hwy 96 on CR Ln	Prairie	600	Alignment goes straight east and then south.

Length	Reach	Beginning Point	Ending Point	Corridor Basic Description	Corridor Width, ft	Summary
3,952	3B.1	Approx 3,800 feet south of Hwy 96 on CR Ln	Half mile north of Arkansas River	Prairie	600	Alignment is due south on CR 6
5,266	3B.2	Hall mile north of Arkansas River	Intersection of CR 6 and Highway 50 (east of Fowler).	Prairie	600	Alignment is due south on CR 6 and crosses Arkansas River to Hwy 50.
21,379	3E.1	Intersection of CR 6 and Highway 50 (east of Fowler).	Valley Water Delivery	Grass/Gravel	600	Alignment is adjacent to Hwy 50.
8,508	3E.2	Valley Water Delivery	Center of Manzanola	Grass/Gravel	600	Alignment is adjacent to Hwy 50.
1,636	Manzanola spur	Center of Manzanola	Manzanola Delivery	Grass/Gravel	100	Installed in South St.
8,445	3G	Center of Manzanola	Intersection of Hwy 50 and CR 13 (east of Manzanola)	Grass/Gravel	600	Alignment is adjacent to railroad north of Hwy 50 and then crosses Hwy 50.
27,238	3H	Intersection of Hwy 50 and CR 13 (east of Manzanola)	Intersection of CR 16 and CR Gg (3,500 feet south of Hwy 50).	Grass/Gravel	400	Alignment follows CR 13, CR Hh, CR 135, CR 14, and CR Gg.
29,317	3J.1	Intersection of CR 16 and CR Gg (3,500 feet	Intersection of CR Ee and Hwy 71 (south of Rocky Ford).	Grass/Gravel	400	Alignment follows CR 16, Hwy 202, CR 17, CR Ee straight east to Intersection of Hwy 71
960	RF Spur	Main Line	Rocky Ford delivey box	Asphalt and/or Concrete	200	Spur to WTP
8,594	3J.2		Intersection of Hwy 50 and CR 21 (east of Rocky Ford).	Grass/Gravel	400	Alignment follows CR Ee from Intersection of Hwy 71 straight east to CR 21, north on CR 21 to Hwy 50 (RR and Hwy 50 crossing).
23,939	3K.1		Intersection of Hwy 266 and Ft Lyons Storage Canal	Grass/Gravel	400	Alignment follows CR 21 to Hwy 266 and is then adjacent to Hwy 266. (Alignment crosses 4 canals.)
7,387	3K.3	Intersection of Hwy 266 and Ft Lyons Storage Canal	Intersection of CR 25 and Hwy 266	Grass/Gravel	400	Alignment follows adjacent to Hwy 266. (Alignment crosses 1 canal.)
10,256	3K.2	Intersection of CR 25 and Hwy 266	Approx 700 feet West of Intersection of CR 27 and Hwy 266	Grass/Gravel	400	Alignment follows CR 21 to Hwy 266 and is then adjacent to Hwy 266.
21,181	3L.1	Intersection of CR Ee and Hwy 71 (south of Rocky Ford).	Intersection of Hwy 71 and Hwy 10	Grass/Gravel	200	Alignment is adjacent to Hwy 71.
44,931	3L.2	Intersection of Hwy 50 and CR 21 (east of Rocky Ford).	West Side of La Junta near Intersection of Hwy 10 and Hwy 50	Grass/Gravel	200	Alignment is adjacent to Hwy 50.
3,191	3L.4	Swink Delivery	Intersection of Hwy 50 and CR 25	Grass/Gravel	600	Alignment is adjacent to CR 25. South Swink Delivery
11,244	30	Approx 700 feet West of Intersection of CR 27 and Hwy 266	Intersection of CR 29 and Hwy 266	Grass/Gravel	400	Alignment is adjacent to Hwy 266.
5,332	3Q	Intersection of CR 29 and Hwy 266	Intersection of Hwy 109 and Hwy 266	Grass/Gravel	400	Alignment is adjacent to Hwy 266.
6,628	3S.2	Intersection of CR 28 and 6th St	Intersection of 6th St and Raton	Asphalt and/or Concrete	100	Alignment goes east on 6th St and stops at Raton.
2,626	Homested Spur	Intersection of CR 28 and 6th St	Homested Delivery	Asphalt and/or Concrete	200	Alignment goes south on Raton and stops at La Junta WTP Storage tank.
3,154	La Junta Spur	Intersection of 6th St and Raton	La Junta WTP Storage tank	Asphalt and/or Concrete	100	Alignment goes south on Raton and stops at La Junta WTP Storage tank.
3,501	3S.3	Intersection of 6th St and Raton	La Junta WTP	Asphalt and/or Concrete	100	Alignment goes east on 6th St, crosses RR, and stops at La Junta WTP.
2,031	3T.3	La Junta WTP	King Arroyo to 300 feet south of Hwy 50	Grass/Gravel and Asphalt/Concrete	600	Alignment follows King Arroyo north of WTP to 300 feet south of Hwy 50

Length	Reach	Beginning Point	Ending Point	Corridor Basic Description	Corridor Width, ft	Summary
3,847	3T.2	300 feet south of Hwy 50	Intersection of Elm St and Chalmers St in north La Junta	Grass/Gravel and Asphalt/Concrete	600	Alignment crosses Hwy 50, RR, and Arkansas River, and then follows Elm St to Intersection with Chalmers St
2,919	3T.1	Intersection of Elm St and Chalmers St in north La Junta	Intersection of Canal Rd and Elm St in north La Junta	Grass/Gravel and Asphalt/Concrete	100	Alignment follows Elm St
13,753	3U	La Junta	Intersection of Hwy 109 and CR Ee. Top of hill and west of airport	Prairie	400	Alignment crosses a canal and is adjacent to Hwy 109
15,675	3V	Intersection of Hwy 109 and CR Ee. Top of hill and west of airport	Intersection of Hwy 109 and CR Ee	Prairie	400	Alignment is adjacent to Hwy 109.
10,919	3X Swink Spur	Intersection of Hwy 50 and CR 25 (0.5 miles east of Swink)	Intersection of CR 25 and Hwy 10.	Grass/Gravel	200	Alignment is parallel to CR 25 and is straight south of Hwy 50. This is the spur to South Swink.
715	Bents Fort Spur	Alignment is adjacent to Hwy 109, north for 1500 feet from Canal St	Bents Fort Spur to storage tanks.	Prairie	400	Alignment is adjacent to Hwy 109, north for 1500 feet from Canal StBents Fort Spur to storage tanks.
	4	La Junta	Las Animas			
16,142	4A.2	Intersection of Hwy 109 and Hwy 266	Intersection of CR Hh and Cr 33	Grass/Gravel	600	Alignment is east on CR Hh, to CR 33, Southside Delivery
96,100	4B.1	La Junta WTP	Las Animas Delivery	Grass/Gravel	600	Alignment goes east on 6th St, east on CR Aa, north on CR 31, follows Hwy 50 to Las Animas, crosses a canal and the RR, north on Hurd Ave, east on 6th St, north on Peck Ave, east to 4th and Lois, delivery point.
9,004	4B.2	Las Animas Delivery	Intersection of Hwy 194 and Hwy 50 North of Las Animas	Grass/Gravel	600	Alignment goes from delivery point at east to 4th and Lois, north on Lois Ave, northeast (north of Las Animas) to Hwy 50, north on Hwy 50, and crosses Arkansas River. Flow is in reverse direction for Alternatives 3, 4 and 5, when this becomes the Las Animus Spur.
	5	Las Animas	Lamar			
42,020	5A	Las Animas.	Near Intersection of CR Kk and Hwy 50	Railroad Grade	600	Alignment follows existing railroad grade (RR is abandoned and tracks removed).
39,208	5B	Intersection of Hwy 194 and Hwy 50 North of Las Animas	Near Intersection of CR Kk and Hwy 50	Grass/Gravel	600	Alignment is adjacent to Hwy 50.
90,320	5C	Near Intersection of CR Kk and Hwy 50	Eads Spur at Intersection of Hwy 50 and CR 34	Grass/Gravel	600	Alignment is adjacent to Hwy 50.
5,484	5D Spur	Near Intersection of CR 24 and Hwy 50 in Hasty	McClave Tie-In at Intersection of CR 24 and CR LI (approx. 1 mile north of Hasty)	Grass/Gravel	600	Mc Clave Spur alignment is adjacent to CR 24.
626	5E Spur	Near Intersection of CR 24 and Hwy 50 in Hasty	Hasty Tie-In Approx. 1 block south of Hwy 50	Asphalt and/or Concrete	100	Hasty Spur alignment follows CR 24 south to Hasty tie-in.
10,519	5F	Eads Spur at Intersection of Hwy 50 and CR 34	Intersection of CR 1 and Hwy 50 (1 mile west of intersection of Hwy 287 and Hwy 50)	Grass/Gravel	600	Alignment is adjacent to Hwy 50.

Length	Reach	Beginning Point	Ending Point	Corridor Basic Description	Corridor Width, ft	Summary
19,750	5G Spur	Intersection of CR 1 and Hwy 50 (1 mile west of intersection of Hwy 287 and Hwy 50)	South Side of Wiley	Agriculture	400	Wiley Spur alignment is north on CR 1, and then east across an agricultural field to the south side of Wiley.
4,833	5H.1	Intersection of CR 1 and Hwy 50 (1 mile west of intersection of Hwy 287 and Hwy 50)	Arkansas River crossing	Prairie	600	Alignment goes south to Arkansas River crossing
31,354	5H.2	Arkansas River crossing, north side	Arkansas River crossing, south side	Prairie	600	Alignment goes south and crosses Arkansas River, east on CR Hh, south on CR 5 to 1000 ft south of CR Gg 5 and canal crossing.
31,323	5H.3	Arkansas River crossing, south side	Lamar Tanks south of Lamar	Prairie	600	Alignment goes south on CR 5 from 1000 ft south of CR Gg 5, east on Prairie Dr, south on CR 7, and southeast to Lamar's tanks (route is south of golf course).
	6	Fowler	Sugar City			
54,706	6A	of Hwy 96 Spur and the Main Conduit	Intersection of Hwy 96 and County Line (14,000 feet southwest of Ordway along Hwy 96)	Grass/Gravel	400	Alignment is adjacent to Hwy 96.
16,441	6C.2	1/1/LUDI toot coulthwest of Urdway along Hwy	Intersection of Hwy 96 and Hwy 71, east of Ordway	Grass/Gravel	400	Alignment is adjacent to Hwy 96.
25,163	6C.1	Intersection of Hwy 96 and Hwy 71, east of Ordway	Sugar City	Grass/Gravel	400	Alignment is adjacent to Hwy 96.
2,395	96 Pipeline Co Spur	Intersection of Hwy 96 and Hwy 71, east of Ordway	96 Pipeline Co delivery	Grass/Gravel	200	Alignment is adjacent to Hwy 71.
	7	Intersection of Hwy 50 and CR 34	Eads			
31,633	7B	Eads Spur at Intersection of Hwy 50 and CR 34	Intersection of CR 34 and CR Ss	Grass/Gravel	400	Alignment is north on CR 34 to CR Ss
27,056	May Valley Spur	Intersection of CR 34 and CR Ss	May Valley Delivery	Grass/Gravel	200	Alignment is east on CR Ss to May Valley Deliver near existing storage tank to the south
108,338	7A	Intersection of CR 34 and CR Ss	Eads	Grass/Gravel	400	Alignment is north on CR 34, west on CR Ww, north on CR 40 to Eads, east on Lowell Ave, and north on Maine St.

### ATTACHMENT G

#### REVISED COMANCHE SOUTH ENGINEERING SUPPORT DATA

#### CONTENTS -

Total Construction Cost Estimate Sheets (124 total sheets)

Interconnect OM&R Cost Estimate Sheet

OM&R Cost Summary Sheet

OM&R Cost Estimate Sheets (58 total sheets)

Water Treatment Plant OM&R Costs Summary Sheet

FEATL	EATURE: Arkansas Valley Conduit				T: n-Arkansas	Project					
			Conduit nche South	WOID	AFFOR	Icorus	Tripe 1 printed				
				WOID: REGION:	AF523 GP		TE LEVEL:	Appraisal Jan-11			
				2000	REGION: GP UNIT PRICE LEVEL; Jar						
				FILE:							
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
		Reach 1						\$8,775,20			
		Reach	1 Pipeline					\$1,349,400			
		Pumpin	ng Plant (PP1 before WTP)	77				\$1,500,000			
			ng Plant (PP2 after WTP)					\$2,900,000			
		Regulat	ting Tank (Sum of Civil Sheet + H	lydraulic Sheet)				\$1,561,362			
		Air Chamber PP1 before WTP (Sum of Civil Sheet + Hydraulic Sheet)					\$121,300				
		Air Cha	mber PP2 after WTP (Sum of Ci	vil Sheet + Hydrau	lic Sheet)			\$181,500			
		Valve V	ault PP1 before WTP (Sum of C	ivil Sheet + Mecha	inical Sheet +	Hydraulic S	heet)	\$464,350			
		Meter V	ault PP1 before WTP (Sum of C	ivil Sheet + Mecha	nical Sheet +	Hydraulic S	Sheet)	\$430,995			
	6		/ault PP2 after WTP (Sum of Civi					\$196,995			
4		Particip	ant Tie-In Vaults (Sum of Civil SI	neet + Mechanical	Sheet + Hydr	aulic Sheet)		\$69,300			
		Reach 2						\$67,593,670			
		Reach 2	2 Pipeline					\$67,001,870			
1		Boone S	Spur Pipeline					\$459,200			
		Particip	ant Tie-In Vaults (Sum of Civil St	neet + Mechanical	Sheet + Hydr	aulic Sheet)		\$132,600			
		Reach 3						\$57,314,945			
		Reach 3	3 Pipeline					\$35,221,330			
		Manzan	nola Spur Pipeline					\$101,245			
		S. Swin	k Spur Pipeline					\$567,450			
		Homest	tead Spur Pipeline				316-6	\$146,600			
		LaJunta	Spur Pipeline					\$468,640			
			Water Storage Tank (Sum of Cl					\$10,302,475			
		Fowler	Water Storage Tank (Sum of Civi	il Sheet + Hydrauli	c Sheet)			\$8,800,605			
1 - 1		Fowler	North Tank Access Road				/	\$693,100			
i		Participa	ant Tie-In Vaults (Sum of Civil Sh	neet + Mechanical	Sheet + Hydra	aulic Sheet)		\$1,013,500			
		Reach 4						\$35,543,705			
		Reach 4	1 Pipeline					\$33,940,500			
		Hasty S	pur Pipeline	10				\$56,665			
		McClave	a Spur Pipeline					\$310,790			
		Wiley S	W 1/44					\$773,650			
		Participa	ant Tie-In Vaults (Sum of Civil Sh	eet + Mechanical	Sheet + Hydra	aulic Sheet)		\$462,100			
		Highway 96	-					\$6,669,930			
	(2)	Hwy 96	8 Spur Pipeline					\$6,053,300			
	96 Pipeline Co. Spur Pipeline							\$137,530			
	Participant Tie-In Vaults (Sum of Civil Shee				Sheet + Hydra	aulic Sheet)		\$479,100			
	QUANTITIES					PF	RICES				
BY	CHECKED			BY C	opel	oi.	CHECKED	1			
THE P. LEWIS CO., LANSING, MICH.	SC Design Team TSC Design Team			TSC Estima	ling team		THE 5/3	111			
DATE PR April-12	E PREPARED PEER REVIEW / DATE			DATE PREPARED 05/31/12			PEERREVIEW I DATE Chaple				

FEATU	ATURE:			PROJECT	Γ:				
	Arkar	sas Valley	Conduit	Fryingpan	-Arkansas	Project			
	Revi	sed Coma	nche South Summary Sheet	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal	
			. Alberta Carlotte						
				FILE:		1.00		Jan-11	
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
P. ACC	PAY						OWN TRACE	ORIGINI	
		Eads Spur	(includes May Valley)					\$9,409,890	
135.1		Eads S	pur Pipeline					\$4,954,600	
		Eads ar	nd May Valley Spur Pipeline					\$1,974,400	
	-		lley Spur Pipeline					\$1,836,450	
	A	Eads B	poster Plant					\$340,000	
		Eads ar	nd May Valley Air Chamber (Sum of C	ivil Sheet and	Hydraulic St	neet)		\$90,600	
		Eads ar	nd May Valley Meter Vault (Sum of Civ	il Sheet + Me	chanical She	et + Hydrau	ilic Sheet)	\$213,840	
		Loop						\$6,587,309	
		North Lo	pop Pipeline					\$5,256,650	
	South Side and East End Spur							\$635,300	
		Bent's F	ont Spur Pipeline			***		\$60,608	
		- Rocky F	ord and Hancock Spur Pipeline					\$96,351	
		Participa	ant Tie-In Vaults					\$538,400	
		Crossings					113	\$26,410,000	
		Dewatering	1				1-0-0-0	\$3,710,000	
		Dust Abate	ment	7		19-	3 S S (-0.1)	\$4,000,000	
		Interconne	ct (Sum of Pipe & Valve Sheets + C	ivil Sheets +	Cofferdam S	Sheet)		\$4,171,227	
			tment Plant*				P	\$25,924,061	
		* Costs inc	lude April 16, 2012 costs from sul	o-consultant	B&V (Estin	nate sheet	s dated 12-01-2011	)	
								,	
		-						- V	
			<del></del>						
							1777		
				3					
6									
	QUANTITIES								
	QUANTITIES			1.			RICES		
BY TSC Desi			TSC Estimati	ng Team	49	PEPR REVIEW / DATE	fic		
DATE PR April-12	ATE PREPARED PEER REVIEW / DATE			DATE PREP	ARED		PEER REVIEW / DAT	E stella-	
pin-12			TSC Design Team	05/31/12	-16.		you pa wa	010/10	

FEATU	FEATURE:				PROJECT:							
	Arkar	ısas Valley	Conduit	Fryingpar	n-Arkansas I	Project		-				
100	Revis	sed Coma	nche South Summary Sheet	WOID: AF523 EST			TE LEVEL:	Appraisal				
				REGION:	GP							
				REGION: GP UNIT PRICE LEVEL: Jan-11 FILE:								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRIČE	AMOUNT				
1												
	e- 34-	-					-					
		Subtotal 1	1					\$256,109,939.00				
		Mobiliz	ation	5%	+/-			\$13,000,000.00				
1	Subtotal 1 with Mobili  Design Contingence		with Mobilization					\$269,109,939.00				
			Contingencies	12%	+/-		7	\$30,890,061.00				
-			nce for Procurement Strategles (APS)	0.0%	+/-			\$0.00				
		Тур	e of solicitation assumed is: Full and o	pen sealed l	oid competition	1						
		CONTRAC	TCOST					\$300,000,000.00				
		Constru	uction Contingencies	25%	+/-			\$80,000,000.00				
		FIELD CO	ST					\$380,000,000.00				
		Non-Co	ontract Costs*					\$125,000,000.00				
		CONSTRU	ICTION COST	F				\$505,000,000.00				
		20.20.00	3.7									
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* Non-Contract Costs were produced and suppli input from the Technical Service Center.				d by a joint e	ffort of Eastern	n Colorado A	rea Office and Grea	t Plains Region with				
	Ref.: For appropriate use and terminology, see R			clamation N	lanual, Directiv	es and Star	dards FAC; 09-01,	09-02 and 09-03.				
	QUANTITIES					PR	ICES					
BY	Y CHECKED			BY (	2 w/ou		CHECKED	dul.				
TSC Desi	gn Tear	n	TSC Design Team	TSC Estima	ting Team		10	1.1/1				
DATE PR April-12	ATE PREPARED PEER REVIEW / DATE				PARED		LA Lu les	ATE 6-4-12				
	_			05/31/12	_							

FEAT		nsas Valley (	Conduit ESTIMATE W	PROJEC	T:	Proje	ct - Arkansas Vall	ey Conduit
	Pipel	ine		WOID:	AF523	ESTU	MATE LEVEL:	Appraisal
	Revi	sed Coman	che South, Max Day Condition 4	REGION	GP	-	PRICE LEVEL:	Jan-11
	Reac	h 1 from Pue	blo Res. to WTP	FILE:		Julian	THOSE CLYCL.	- Can-Ti
Civil	0							
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sitework Iter	ns:		-			
	1-, 1	Clearing (3 t	imes trench width)	8140	11	acre	\$1,000.00	\$11,000.00
		Grubbing	9	8140	1.1	acre	\$2,500.00	\$2,750.00
		Stripping (6*	thick)	8140	8,900			
		Seeding		8140			\$4.00	\$35,600.00
			***	6140	11	acre	\$1,500.00	\$16,500.00
		Earthwork Ite	ems;					
		Soil Excavat	on (1.5:1) outside urban area	8140	25,000	СУ	\$6.00	\$150,000.00
		Rock Excava	tion (0.25:1) outside urban area	8140	1,650	су	\$35.00	\$57,750.00
		(20% of leng	pth is assumed partial rock exc.)					
		assume rip	oable material					7
		Pipe Bedding	(Select material, 4" thick)	8140	450	су	\$50.00	\$22,500.00
		Embedment	& Cover Backfill	8140	24,000	су	\$5.00	\$120,000.00
		(does not inc	clude shrink/swell)					
		Compacting	Embedment Backfill	8140	3,000	су	\$14.00	\$42,000.00
								3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
					+			
								-
				- ,				· · · · · · · · · · · · · · · · · · ·
			SUBTOTAL THIS SHEET		-			£450 400 00
	-	Q	JANTITIES JANTITIES			pp	ICES	\$458,100.00
BY Jeremy L	orbera.		CHECKED W. Chris Duke, PE	BY Jeff Morris	Znil	li.	CHECKED/, /	1/12
DATE PR 04/24/12		D	PEER REVIEW / DATE Steven J. Robertson, PE	<b>DATE PREP</b> 05/11/12	ARED	0-	PEER REVIEW / DA	ATE 3/12

PEAI	URE: Arkan	sas Valley	Conduit	PROJEC Fryingpa		Projec	t - Arkansas Vall	ey Conduit		
	Pipeli			WOID:	AF523	ESTIM	IATE LEVEL:	Appraisal		
	154.00		nche South, Max Day Condition 4	MEDIDIA OF DISTINCT PEACE. SHIP!						
Civil	Reach	1 from Pu	eblo Res. to WTP	FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Pipe Items:								
			el, 0.1501" thick (60 #/ft)-mortar lined	8140	5,600	lin ft	\$140.00	\$784,000.00		
		ероху тар	e coated, rubber gaskets, HC=125							
			os total steel		-	7				
						-1		-		
I =			17 mi					1-0		
		-								
*										
			——————————————————————————————————————							
		re-								
		Isolation Va	Ives (Manual operation):		-					
			60 (psig) butterfly valve with operator	8140	1	ea	\$17,000.00	\$17,000.00		
		0.110			-					
								8		
		Isolation Val	lve Manholes (to include):	8140		ea	\$7,000.00	\$7,000.00		
			wall precast flat top with concentric			-	47,550.55	\$7,000.00		
		ring, 36" ac						*		
			wall precast 36" riser		-					
			cast 72" base shell	-	** *					
		36" dia. Cas	t iron manhole cover and ring set					- :		
					-					
	SUBTOTAL THIS SHEET		-				\$808,000.00			
	QUANTITIES					PRI	CES			
3Y leremy	Lorberau		CHECKED W. Chris Duke, PE	Jeff Morris On whis CHECKED 5/31/12				31/12		
OATE P 04/24/12	PEER REVIEW / DATE			DATE PREP 05/11/12			PEER REVIEW / D.	ATE 3/1/2		

FEAT	FEATURE:  Arkansas Valley Conduit			PROJEC Fryingpar		Project	- Arkansas Val	ley Conduit
	Pipel			WOID:	AF523	ESTIM.	ATE LEVEL:	Appraisal
	Revi	sed Comar	nche South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11
	Reac	h 1 from Pu	eblo Res. to WTP	FILE:				-
Civil								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Air Valve St	ructures (to include):		- 1	201	040,000,00	#40 000 00
		1	oncrete Pipe, vertical (10 ft ea)	04.40		ea	\$12,000.00	\$12,000.00
-			avel filter (4cy)	8140	10	lin ft		
	-	_		8140	4	су	0.000	
-	+		Num. Hatch cover (95 lbs ea)	8140	95	íbs		
-		-	ation Air Valve (1ea)	8140	1	ea		
		- 6" Butterily	Valves (1 ea)	8140	1	ea		
		Blowoff Stru	ctures (to include):		1	ea ea	\$8,300.00	\$8,300.00
			el pipe, vertical (8 ft ea)	8140		lin ft	<b>V</b> O[OLINIO	40,000,00
1 -			Concrete Pad (1.18 cy ea)	8140	1.2	су		7
		- ×-	us Materials for Pad (0.33 tons ea)	8140	0.33	tons		
			(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	145	lbs		
			charge stem pipe (2 ft ea)	8140	2	lin ft		
	-		Valve (1 ea)	8140		ea	*******	
			Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft	-	-
		- 6" Tee (1 e		8140	- 10		0	
	_	- 6" Blind Fla		8140	- 19	ea		
-			lum hatch cover (95 lbs ea)	8140	95	ea	- (1)	
		- To didili 7	rain riatori cover (33 lbs 6a)	0140	85	lbs		
		Manholes-Br	uried: (to include)	1	2.00	ea	\$11,500.00	\$23,000.00
		-36" pipe out	llet (1 ea)	8140	2	ea		
e :		-36" blind fla	nge (1 ea)	8140	2	ea		
		Cathodic Pro	etection	8140		is	\$40,000.00	\$40,000.00
82			% of cost for all steel items above	5,40		13	φ40,000.00	φ40,000.00
	****		ntage used is based on detailed field cost es	timater pres	ared for Callet	ntion		
	-		1729 dated August 2009. Soils are assumed			euun	_	
-			at the Weber Siphons and are assumed to I			ntial.	1-1-1	-Bett
	-	1	SUBTOTAL THIS SHEET	-				#ng 500 CT
	-	-	SUBTOTAL REACH 1	-				\$83,300.00 \$1,349,400.00
_	QUANTITIES					PRIC	nee "	\$1,545,400.00
BY	The state of the s			ву				
Jeremy I	eremy Lorberau W. Chris Duke, PE			Jeff Morris	Zpu	his	THE S/31	112
DATE PI 04/24/12	ATE PREPARED PEER REVIEW / DATE //24/12 Steven J. Robertson, PE			DATE PREP 05/11/12	ARED	F	PEER REVIEW / 6	131/12

FEATU		sas Valley Condult	PROJECT Fryington-J	: Arkansas Pr	oject				
		ing Plant (PP1 before WTP)	WOID:	AF523	TESTIM/	ATE LEVEL:	Appraisal		
		sed Comanche South	REGION:						
	Reach	1: Pueblo Reservoir to WTP	REGION: GP UNIT PRICE LEVEL: Jan-11 FILE:						
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Civil/Structural/Electrical/Mechanical:		184					
		Booster P.P. Below Dam (untreated wate	n						
	1	Pumping Plant PP1 (Total Q = 33.24 cfs w/ 3%	wf) 86-68420	1	LS	\$1,500,000.00	\$1,500,000.00		
		Using pumping plant program	- 1/2						
		Plant PP1 - 8.31 cfs each; 105 feet TDH;		· 10					
		Unit Brake HP: 117.0 hp; Motors: 125 hp ea	ch @ 480 volts				-		
		4 pumps; vertical; supply voltage (69 kV)					Will-un		
		Structures And Improvements				1.5			
17		Waterways					1 93 0		
		Pumps and Motors							
		Accessory Electrical							
		Miscellaneous Equipment							
		Switchyards				** ** ***			
					_				
							7517		
							-		
							-		
1-00						-			
	SUBTOTAL PUMPING PLANT (PP1 BEFORE WTP)						\$1,500,000.00		
	QUANTITIES			****	PR	ICES			
BY Bob Zelen	REVIEWED		BY Jeff Morris	Zhul		CHECKED 5/31/	n		
Bob Zelenka         Toby Turnage           DATE PREPARED         PEER REVIEW / DATE           4/19/2012         Toby Turnage         4.20.12			DATE PREPA 05/11/12			PEER REVIEW DATE	131/12		

FEATU		sas Valley Conduit	PROJECT Fryington-/	: Arkansas Pr	oject				
		ing Plant (PP2 after WTP)	WOID:	AF523	IESTIMA	TE LEVEL:	Appraisal		
		sed Comanche South	REGION:	GP		RICE LEVEL:	Jan-11		
	Reach	1: Pueblo Reservoir to WTP	FILE:						
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Civil/Structural/Electrical/Mechanical:							
		WTP Clearwell P.P. (treated water)							
	1	Pumping Plant PP2 (Total Q = 30.76 cfs w/ 0% wf)	86-68420	1	LS	\$2,900,000.00	\$2,900,000.00		
		Using pumping plant program							
		Pumping Plant PP2 - 7.69 cfs each; 380 feet TD	)H;						
		Unit Brake HP: 412.8 hp; Motors: 450 hp each (	@ 4160 volts		***				
		4 pumps; vertical; supply voltage (69 kV)							
		Structures And Improvements							
		Waterways	7 -11						
		Pumps and Motors			1				
		Accessory Electrical							
		Miscellaneous Equipment					- E		
		Switchyards							
				70.5					
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	410								
					0.00		-		
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							****		
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- 13:									
		SUBTOTAL PUMPING PLANT (PP2 AFTER WTP)					\$2,900,000.00		
	QUANTITIES				PRI	CES			
BY Bob Zeleni	ka	REVIEWED	BY Jeff Morris	Zoul	. (	HECKED 5/21	1~		
ATE PRE	Toby Turnage			RED	,	PEER REVIEW / DATE	31/12		

FEATU	ATURE:  Arkansas Valley Conduit  Regulating Tank			PROJECT Fryington-/	: Arkansas Pro	oject			
			onidat,	WOID:	AF523	IESTIMA	TE LEVEL:	Appraisal	
	Revis	sed Comar	nche South	REGION:	GP	-	RICE LEVEL:	Jan-11	
	Reach	1: Pueblo I	Reservoir to WTP	FILE:					
PLANT ACCOUNT	PAY ITEM	Civil/Structural:  Sitework  Stripping (6 incl. Service Yar. Access Road Excavation (tan. (Assume: C. Compacted eng. Gravel Surfacin. Service Yar. Access Road Excavation (tan. (Assume: C. Compacted eng. Gravel Surfacin. Service Yar. Access Road Excavation (tan. (Assume: C. Compacted eng. Gravel Surfacin. Service Yar. Access Road Excavation (tan. (Assume: C. Compacted eng. Gravel Surfacin. Service Yar. Access Road Excavation (tan. (Assume: F. C. Compacted eng. Gravel Surfacin. Service Yar. Access Road Excavation (tan. (Assume: F. C. Compacted Excavation (tan. (Assume: F. C. C. Compacted Excavation (tan. (Assume: F. C.	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	-	Civil/Structu	ıral:						
		Sitework							
-	-		g (6 inch thick layer of soil)						
		-		86-68120 86-68120	265 37	yd <sup>3</sup>	\$6.00 \$6.00	\$1,590,00 \$222.00	
				00 00 120		Ju	\$0.00	\$222.00	
			tion (tank foundation)	86-68120	105	yd <sup>3</sup>	\$25.00	\$2,625.00	
			sume: Common, 1-1/2:1 slope)						
		Compac	cted engineered backfill (tank foundation	86-68120	85	yd <sup>3</sup>	\$25.00	\$2,125.00	
		Gravel S	Surfacing (6 inches thick)						
		Sen	vice Yard	86-68120	228	yd <sup>3</sup>	\$40.00	\$9,120.00	
	_	Acc	ess Roads	86-68120	37	yd <sup>3</sup>	\$40.00	\$1,480.00	
		Chain L	ink Fence	86-68120	480	lin ft	\$40.00	\$19,200.00	
		8.0'	High fence - 7.0' fabric with 3 strands	7					
		of b	arbed wire on top. One 20' wide						
-		doul	ble swing gate						
		Reinforced	Concrete for Pad & Stem Foundation	86-68120	1	Is	\$25,000.00	\$25,000.00	
		(Assume	e: f' <sub>c</sub> =4,500 psi)						
	-		Pueblo, CO 20 miles		1				
	_								
	-		ement (Assume 135 lb/yd3); 3535 lbs		2				
	-	Cement	(Assume: 0.282 ton/yd3): 7.5 tons						
						<u> </u>			
		1		-		-		-	
					+ H				
2.1									
		-	SUBTOTAL THIS SHEET					\$61,362.00	
	QUANTITIES						ICES		
BY R. J. Barth	el			BY Jeff Morris	Zoul	~	CHECKED 5/3	1/12	
DATE PRI 04/16/12	E PREPARED PEER REVIEW / DATE		DATE PREPA 05/11/12			PEER REVIEW / DATE	ila		

FEATU	Arkansas Valley Conduit Regulating Tank		PROJECT FryIngton-/	: Arkansas Pr	oject			
				WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
	Revis	sed Coman	che South	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
	Reach	1: Pueblo R	teservoir to WTP	FILE:				
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic Ed	uipment/Mechanical					
	L	Steel regula	iting tank		-			
	ļ ,	AWWA D10	0-gallon steel regulating tank 0 compliance	86-68420	1	ls	\$1,500,000.00	\$1,500,000.00
-	.—— ———		ht 85 feet meter 50 feet					**(* 45
						- 94		10100
					· · · · · · · · · · · · · · · · · · ·			
					77.54	l o-		
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_			H-1010					
		-						
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0-								
*		-	SUBTOTAL THIS SH	EET				\$1,500,000.00
BY				ВУ	7. 1		CES CHECKED 5	131/12
	Ken Smith         Lucas Adams           DATE PREPARED         PEER REVIEW / DATE           /15/2012         Nathan Nakamato 5/1/12			Jeff Morris  DATE PREPA  05/11/12	Zhul.	Ú3	PEER REVIEW / D.	1 /

FEATU		ısas Valley Co	onduit	PROJECT Fryington-A	: Arkansas Pr	oject		
			before WTP)	WOID:	AF523	TESTIM	ATE LEVEL:	Appraisal
1 -4		sed Comand		REGION:	GP		RICE LEVEL:	Jan-11
11-1	Reach	1: Pueblo R	Reservoir to WTP	FILE:			11177	The state of the s
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structure	ral:					
		D-tud-mand (						
			Concrete for Foundation	86-68120	1	Is	\$4,300.00	\$4,300.00
	-		-grade foundation type)	-			-	
	1 1/9-		e: f' <sub>c</sub> =4,500 psi)	-	-	-		
-			Pueblo, CO 20 miles	-		-		
		Concrete				-		·* : <u> </u>
			ement (Assume 135 lb/yd3): 510 lbs (Assume: 0.282 ton/yd3): 1.1 tons					*** :
							*	
Y								
			**************************************					
						3€8 1		
						,		
								-
						-		
			*					
			SUBTOTAL THIS SHEET				J	\$4,300.00
	QUANTITIES			·	PF	RICES	Ψ-1,000,20	
BY R. J. Barth	nel		REVIEWED	BY Jeff Morris	Zou		CHECKED 5/31/	1/12
	R. J. Barthel Paul Ruchti  DATE PREPARED PEER REVIEW / DATE  14/16/12 Paul Ruchti, P.E.		DATE PREPA 05/11/12		gue	PEER REVIEW / DATE	E	

FEATU	EATURE: Arkansas Valley Conduit		PROJECT: Fryington-Arkansas Project					
		12 41 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	before WTP)	WOID:	AF523	IESTIMA.	TE LEVEL:	Appraisal
1 7		sed Coman		REGION:	GP	The second second	RICE LEVEL:	Jan-11
	Reach	1: Pueblo R	Reservoir to WTP	FILE:				uun 71
				1				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic eq	quipment/Mechanical					
		Air Chambe	н	86-68420	1	ls	\$117,000.00	\$117,000.00
	-	4.702-gallon	1 (629 cubic feet)			-	· ·	
		steel air c		-	-			
			neight 14 feet		*		HARF SILES	
		1 2	diameter 7 feet	-	81			
1		air chamb	ber weight 11,700 pounds					•
	-	mounted	air compressor 5 horsepower					
-			CUDTOTAL THE OUTER					
SUBTOTAL THIS SHEET  QUANTITIES					DD	ICEC	\$117,000.00	
BY				BY	***	PR	ICES	
Ken Smith				Jeff Morris	Zoul		14 5/2	1/12
	ATE PREPARED PEER REVIEW / DATE			Jeff Morris Journes CHECKED 5/71/12  DATE PREPARED PEER REVIEW / DATE 05/11/12				31/12

FEATU	Arkansas Valley Conduit Air Chamber (PP2 after WTP)	PROJECT Fryington-A	: Arkansas Pr	oject					
				WOID:	AF523	TESTIMA	TE I EVEL:	Appraisal	
		sed Comand		REGION:	GP		The state of the s	Jan-11	
			servoir to WTP	FILE:		John TX	PRICES	Jan-11	
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Civil/Structura	l:					-11:	
		Reinforced C	oncrete for Foundation	86-68120	1	ls -	\$6,500,00	\$6,500.00	
			rade foundation type)		-	19	ψο,οσο.οσ	φο,σου.σο	
-			f' <sub>c</sub> =4,500 psl)		_		-	***	
			ueblo, CO 20 miles	-		-			
		Concrete:				1			
			ment (Assume 135 lb/yd3): 760 lbs	1				Ge Str	
			Assume: 0.282 ton/yd3): 1.6 tons						
		-							
	- 400	-							
		OLIAA	SUBTOTAL THIS SHEET						
BY R. J. Barth	QUANTITIES  Y REVIEWED  L. J. Barthel Paul Ruchti			BY Jeff Morris	Znu		HECKED 5/31/	h	
DATE PRE 04/16/12	PARED		PEER REVIEW / DATE Paul Ruchti, P.E.	DATE PREPÁ 05/11/12			EER REVIEW / DATE		

FEATU		sas Valley C	onduit	PROJECT Fryington-/	: Arkansas Pr	oject		
		namber (PP2		WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
		sed Coman		REGION:	GP	UNIT PR	ICE LEVEL:	Jan-11
	Reach	1: Pueblo R	eservoir to WTP	FILE:				
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	-	Hydraulic eq	uipment/Mechanical					
	-	Air Chambe	r	86-68420	. 1	ls	\$175,000.00	\$175,000.00
			(1,209 cubic feet)	-				
		steel air c						
		7	eight 16 feet					4
			iameter 9 feet					
	-		er weight 17,300 pounds air compressor 52 horsepower	-				
								**************************************
			444		<del></del>			
			SUBTOTAL THIS SHEET			1		\$175,000.00
BY Ken Smith	Cen Smith Nathan Nakamoto			BY Jeff Morris DATE PREPA	Zoulo	yes (	CES CHECKED  A 5/31/1	
4/4/2012			Rick Frisz 4/20/12	05/11/12	, claring		PEER REVIEW / DATE	31/12

FEATU	FEATURE:  Arkansas Valley Conduit  Valve Vault (PP1 before WTP)	PROJECT Fryington-	: Arkansas Pr	oject					
				WOID:	AF523	TESTIM.	ATE LEVEL:	Appraisal	
			nche South	REGION:	GP		RICE LEVEL:	Jan-11	
	Reach	1: Pueblo l	Reservoir to WTP	FILE:	T) S				
PLANT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Civil/Structo	DESCRIPTION					**	
	-	Reinforced	Concrete for Vaulte	86-68120	-	-	T400 000 00		
	10			00-08120	1	ls .	\$100,000.00	\$100,000.00	
				-			- C		
V		-					1 127		
						-	-		
7									
							+	-	
		30,110,1	The section of the se						
		Access & S	Service Hatches	86-68120	1	ls	\$36,000.00	\$36,000.00	
Allera		Acce	ss hatch two 3' x3'						
		(Th	e Bilco Co Type Q single leaf)						
		Servi	ce hatch two 5' x 10'						
		(The	e Blico Co Type JD special sizes)						
-		Miscellane	ous Metalwork	86-68120	350	lbs	\$13.00	\$4,550.00	
-		(40-0	-6601, Ladder Type 2)		· + +			p = 10	
							0.3		
					*				
-									
	-						(0000		
			SUBTOTAL THIS SHEET					\$140,550.00	
		QU	ANTITIES			PF	RICES		
BY R. J. Barth	el			BY Jeff Morris	Zhuj	1	CHECKED S/31/15		
DATE PRE 04/18/12	-	)	PEER REVIEW / DATE	DATE PREPA 05/11/12		gues	PEER REVIEW / DATE		
and the term	_		- seer research t alex	OUT ITTE			Mary 3	131100	

FEATU	ATURE:  Arkansas Valley Conduit  Valve Vault (PP1 before WTP)		PROJECT Fryington-	Γ: Arkansas Pr	oject		- Alleria		
				WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
			che South	REGION:	GP	-	RICE LEVEL:	Jan-11	
	Reach 1	: Pueblo R	eservoir to WTP	FILE:		101	7,110-1-11-1	2011   1	
		ical Equipr							
_ ½	N N								
PLANT	PAY ITEM	*	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
			*** *** ***					-	
,		assu	me valve vault size=14'x23'x20'd						
-		assu	me 1 vault @ PP 1						
-		Valva sa	ult ventilation equipment	20 00440					
7***			f equipment per vault:	86-68410	1	ls	\$8,700.00	\$8,700.00	
			1)-steel centrifugal fan, 1000 cfm @	0.035"wasp 1	20 U.s.	1			
			16 ft)-12" diam, 16 ga., galv. steel o		/Z ΠP		+		
7			2)-12" diam, sch 20, galv., L.R. 180	12.0	aturne	-			
		-	2)-12"x16" reducer, sch 20, galv. st		zuilla 	1	+	_	
0 1	733-27		4)-16" dlam, stainless steel bird scr			-		4-	
			2)-12"x16" reducer, 16 ga, galv. ste		-			_	
			2)-12" diam galv steel motor-operat		-1	*			
	1700		1)-fan motor starter for 1/2 Hp			-	1		
	1		1)-fan wall switch and box		-				
	2	Valve va	ult heater	86-68410	2	ea	\$800,00	\$1,600.00	
		3 kW	unit heater						
	-	them	nostatically controlled					••	
÷ +-	3		ate strainer	86-68410	1	ea	\$65,000.00	\$65,000.00	
			d cover design					5. 2000	
			less steel, w/ 1/2" holes						
		flange	ed for 36" pipe					-	
- 6-									
			SUBTOTAL THE CUE		· · · · · · · · · · · · · · · · · · ·			2000000	
	QUANTITIES SHEET		-1	-	Di	DICEC	\$75,300.00		
BY AM Ritt		QUA.	REVIEWED Paul Schlein	BY Jeff Morris	Znul	in .	CHECKED Sylvin		
	ATE PREPARED		PEER REVIEW / DATE Dave Hulse	DATE PREPA 05/11/12		gres.	PEER REVIEW / DATE	131/12	

FEATU	Arkansas Valley Conduit  Valve Vault (PP1 before WTP)			PROJECT Fryington-	PROJECT: Fryington-Arkansas Project					
				WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal		
	Revis	sed Coma	nche South	REGION:	GP	UNIT PR	ICE LEVEL:	Jan-11		
	Reach	1: Pueblo	Reservoir to WTP	FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Hydraulic e	equipment/Mechanical					**		
		Valve Vau	lt	86-68420						
		36-inch pre	essure reducing valve		1	ea	\$200,000.00	\$200,000.00		
		Cla-Val	150-pound		19					
	=0.=- /	2 valves	nually-operated butterfly valve ; 3,425 lbs each Class 150-B		2	ea	\$17,000.00	\$34,000.00		
		30-inch ma 1 valve	nually-operated butterfly valve		1	ea	\$14,500.00	\$14,500.00		
(4)14)		AWWA	Class 150-B							
		P-								
			>							
							-			
31419					-					
	-		SUBTOTAL THIS SHE	ET	(4)			\$240 F00 00		
		QU	ANTITIES			DDI	CES	\$248,500.00		
REVIEWED			BY Jeff Morris	Zorul.		CHECKED 4 6/29	1/2			
0ATE PRE 1/18/2012			PEER REVIEW / DATE Rick Frisz 4/20/12	<b>DATE PREPA</b> 05/11/12			PEER REVIEW / DATE			

FEATU		sas Valley Conduit	PROJECT Fryington-A	: Arkansas Pro	oject		
		Vault (PP1 before WTP)	WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
	Revis	sed Comanche South	REGION:	GP	-	RICE LEVEL:	Jan-11
	Reach	1: Pueblo Reservoir to WTP	FILE:				
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRIČE	AMOUNT
		Civil/Structural:					
		Reinforced Concrete for Vaults	86-68120	1	ls	\$70,000.00	\$70,000.00
		(Assumed: 14' W x 17' L x 18' D)				Y	
		(Assume: f' <sub>c</sub> =4,500 psi)	1.7		1	/	
		Source: Pueblo, CO 20 miles					
		Concrete: 80 yd3			The state of		
		Reinforcement (Assume 135 lb/yd3): 10,900	lbs				
		Cement (Assume: 0.282 ton/yd3): 23 tons	-				
		Access & Service Hatches	86-68120	- 1	ls	\$36,000.00	\$36,000.00
8 (* )		Access hatch two 3' x3'		· · · · · · · · · · · · · · · · · · ·	1	400,000,00	400,000.00
	7.70	(The Bilco Co Type Q single leaf)					
		Service hatch two 5' x 10'		***			
		(The Bilco Co Type JD special sizes)					
		Miscellaneous Metalwork	86-68120	315	lbs	\$13.00	\$4,095.00
		(40-D-6601, Ladder Type 2)					2.0
							× × × × × × × × × × × × × × × × × × ×
						-	
						-	
		*					
				- 10-6-6			
						-114	
1049		SUBTOTAL THIS SHE	ET				\$110,095.00
QUANTITIES					PF	RICES	
BY R. J. Bartl	nel	REVIEWED Paul Ruchti	BY Jeff Morris	Zoul	ned-	CHECKED NA 5	1211-
	TE PREPARED PEER REVIEW / DATE			RED		PEER REVIEW / DATE	-/31/12

FEATL	EATURE:  Arkansas Valley Conduit  Meter Vault (PP1 before WTP)	PROJECT Fryington-	T: Arkansas Pi	oject				
				WOID:	AF523	TESTIM	ATE LEVEL:	Appraisal
V		d Comand	2400 m - 1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	REGION:	GP GP		RICE LEVEL:	Appraisal Jan-11
	Reach 1	: Pueblo Re	servoir to WTP	FILE:		Total 1	NOL ELYLL.	Jen-11
	Mechani	cal Equipm	ent					-
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		15-1-1-			<del></del>			
		assum	ne meter vault size=11.25'x11.25	'x16.7'd		-		<del></del>
			ne 1 vault @ Pueblo PP 1					381.×
-								
	1	Meter vau	It ventilation equipment	86-68410		İs	\$6,600.00	\$6,600.00
		list of	equipment per vault:					
		(1	)-steel centrifugal fan, 450 cfm @	0.25" w.g.s.p., 1/5	Нр			
		(1	6 ft)-8" dlam, 16 ga., galv. steel d	luct				
		(2	)-8" diam, sch 20, galv., L.R. 180	deg. steel pipe ret	ums			
		(2)	)-8"x12" reducer, sch 20, galv. st	eel pipe				
	Abor	(4)	)-12" diam, stainless steel bird so	reens				
		(2)	)-8"x12" reducer, 16 ga, galv. ste	duct				
		(2)	)-8" diam galv steel motor-operat	ed damper	d damper			
	Armene to	(1)	)-fan motor starter for 1/6 Hp					
			)-fan wall switch and box					
	2	Meter vaul	it hester	86-68410	1	ea	\$800,00	\$800.00
4		3 kW (	unit heater			1	-	
		thermo	ostatically controlled					
	3	Flowmeter		86-68410	1	ea	\$65,000.00	\$65,000.00
		8-path	ultrasonic, 36" diam					4.534.5392.5
		16 tran	nsducers with cables and 1 transi	mitter console			-	
			HI >			-		***
			311		770			
	*		\$ - 45 <u></u>					
			SUBTOTAL THIS SH	EET				\$72,400.00
		QUAN	TITIES			P	RICES	
BY AM Ritt			REVIEWED Paul Schlein	BY Jeff Morris	724	0	CHECKED NF 5/	11/n
	DATE PREPARED PEER		PEER REVIEW / DATE Dave Hulse	DATE PREPA 05/11/12	RED		PEER REVIEW / DATE	131/17

FEATU	EATURE:  Arkansas Valley Conduit  Meter Vault (PP1 before WTP)	PROJECT Fryington-	: Arkansas Pro	oject				
				WOID:	AF523	ESTIM	Appraisal	
	Revis	sed Coman	nche South	REGION:	GP		RICE LEVEL:	Jan-11
	Reach	1: Pueblo F	Reservoir to WTP	FILE;		-		
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic ed	qulpment/Mechanical					
	-	Meter Vault		86-68420	-			
		1 valve	ssure reducing valve		1	ea	\$200,000.00	\$200,000.00
			nually-operated butterfly valve		2	ea	\$17,000.00	\$34,000.00
		-	3,425 lbs each Class 150-B					
		30-inch man	ually-operated butterfly valve			ea	\$14,500.00	\$14,500.00
			Class 150-B					
			SUBTOTAL THIS SHEET					\$248,500.00
BY Ken Smith	en Smith Nathan Nakamoto			BY Jeff Morris C	Zpul	ru.	CHECKED NA 5/1	1/12
DATE PRI 4/17/2012	DATE PREPARED PEER REVIEW / DATE		The state of the s	DATE PREPA 05/11/12	RED		PEER REVIEW DATE	1/31/12

FEATURE:  Arkansas Valley Conduit				PROJECT: Fryington-Arkansas Project					
		Vault (PP2 a		WOID: AF523 EST			STIMATE LEVEL; Appraisal		
		sed Coman	40 Oct. 100 Oct. 100 Oct. 100	REGION:	GP	-	RICE LEVEL:	Jan-11	
Reach 1: Pueblo Reservoir to WTP				FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Civil/Structur	ral:				201		
								- 10-	
			Concrete for Vaults	86-68120	1	İs	\$70,000.00	\$70,000.00	
			ed: 14' W x 17' L x 18' D)		444.2			(m. 1-	
			:: f <sub>c</sub> =4,500 psl)			100			
			Pueblo, CO 20 miles						
		Concrete				( = 1			
			ement (Assume 135 lb/yd3): 10,900 lbs					-	
		Cement	(Assume: 0.282 ton/yd3): 23 tons					*	
		Access & Se	ervice Hatches	86-68120	1	Is	\$35,000.00	\$36,000.00	
		Acces	s hatch two 3' x3'						
		(The	Bilco Co Type Q single leaf)						
		Service	e hatch two 5' x 10'					-	
		(The	Bilco Co Type JD special sizes)				40	-	
			us Metalwork	86-68120	315	lbs	\$13.00	\$4,095.00	
-	-	(40-D-6601, Ladder Type 2)					****		
					-				
	_					-		1100-0	
				-					
					-				
		3 3			_				
			71: >						
		+::=					-	*	
			SUBTOTAL THIS SHEET		-			\$110,095.00	
QUANTITIES			PRICES						
REVIEWED				BY CHECKED				1/12	
DATE PREPARED PEER REVIEW / DATE			Paul Ruchti PEER REVIEW / DATE Paul Ruchti, P.E.				PEER REVIEW / DATE,		
7111114			r dur radira, r .E.	00/11/12			N-CO 5/3/1/2		

Arkansa	s Valley Conduit	Fryington-	PROJECT: Fryington-Arkansas Project					
		WOID:	AF523	ESTIMA				
			345 750727					
	the later of the second section with the second	FILE:						
PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		-						
	assume meter vault size=11.2	25'x11.25'x16.7'd				7-190 II - 10		
	assume 1 vault @ Pueblo PP	2	7963					
1	Meter vault ventilation equipment	86-68410	1	Is	\$5,600.00	\$6,600.00		
	list of equipment per vault:							
	(1)-steel centrifugal fan, 4	50 cfm @ 0.25" w.g.s.p., 1/6	Нр			**		
	(16 ft)-8" diam, 16 ga., ga	lv. steel duct						
	(2)-8" dlam, sch 20, galv.,	L.R. 180 deg. steel pipe ret	urns			- : (e-) (e)		
	(2)-8"x12" reducer, sch 20	), galv. steel pipe						
1000	(4)-12" diam, stainless ste	eel bird screens						
					2799000	0-61-0		
	(2)-8" diam galv steel mot	or-operated damper	*					
	(1)-fan wall switch and bo	x						
2	Meter vault heater	86-68410	1	ea	\$800.00	\$800.00		
	3 kW unit heater			1				
	thermostatically controlled			77				
3	Flowmeter	86-68410	1	ea	\$65,000.00	\$65,000.00		
	8-path ultrasonic, 36" diam							
1- m <u></u>	16 transducers with cables an	d 1 transmitter console	-			-		
						2		
			#7 -×					
			-	-		7		
				-				
	SUBTOTAL	THIS SHEET				\$72,400.00		
	QUANTITIES							
-	REVIEWED	ВУ						
PARED	PEER REVIEW / DAT	E DATE PREP		geis	PEER REVIEW/DATE			
	Meter Va Revised Reach 1 Mechani	assume meter vault size=11.: assume 1 vault @ Pueblo PP  1 Meter vault ventilation equipment list of equipment per vault: (1)-steel centrifugal fan, 4 (16 ft)-8" diam, 16 ga., ga (2)-8" diam, sch 20, galv., (2)-8"x12" reducer, sch 20 (4)-12" diam, stainless ste (2)-8"x12" reducer, 16 ga. (2)-8" diam galv steel mot (1)-fan motor starter for 1// (1)-fan wall switch and bo  2 Meter vault heater 3 kW unit heater thermostatically controlled  3 Flowmeter 8-peth ultrasonic, 36" diam 16 transducers with cables an	Meter Vault (PP2 after WTP) Revised Comanche South Reach 1: Pueblo Reservoir to WTP Mechanical Equipment  DESCRIPTION  CODE  assume meter vault size=11.25'x11.25'x16.7'd assume 1 vault @ Pueblo PP 2  1 Meter vault vantilation equipment Bist of equipment per vault: (1)-steel centrifugal fan, 450 cfm @ 0.25" w.g.s.p., 1/6" (16 ft)-8" diam, 16 ga., galv. steel duct (2)-8" diam, sch 20, galv. J.R. 180 deg. steel pipe ret (2)-8"x12" reducer, sch 20, galv. steel pipe (4)-12" diam, stainless steel bid screens (2)-8"x12" reducer, 16 ga., galv. steel duct (2)-8" diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box  2 Meter vault heater 3 kW unit heater thermostatically controlled  3 Flowmeter 86-68410 8-peth ultrasonic, 36" diam 16 transducers with cables and 1 transmitter console  SUBTOTAL THIS SHEET QUANTITIES REVIEWED Paul Schlein PER REVIEW D Paul Schlein PER REVIEW D DATE PREPI	Meter Vault (PP2 after WTP) Revised Comanche South Reach 1: Pueblo Reservoir to WTP Mechanical Equipment  DESCRIPTION  CODE  OUANTITY  assume meter vault size=11.25*x11.25*x16.7d  assume 1 vault @ Pueblo PP 2  1 Meter vault ventilation equipment B6-68410 1 list of equipment per vault (1)-steel centrifugal fan, 450 cfm @ 0.25*w,g.s.p., 1/6 Hp (16 ft)-8* diam, 16 ga., galv. steel duct (2)-8*diam, seh 20, galv. L.R. 180 deg. steel pipe returns (2)-8*x12* reducer, 16 ga. galv. steel pipe (4)-12* diam, stainless steel bird screens (2)-8*x12* reducer, 16 ga. galv. steel duct (2)-8* diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box  Meter vault wentilation equipment 3 kW unit heater thermostatically controlled  8-68410 1 8-peth ultrasonic, 36* diam 16 transducers with cables and 1 transmitter console  SUBTOTAL THIS SHEET  QUANTITIES  REVIEWED Paul Schiein Jeff Morris Jeff Mor	Meter Vault (PP2 after WTP) Revised Comanche South Reach 1: Pueblo Reservoir to WTP Rechanical Equipment  DESCRIPTION  CODE  QUANTITY  DESCRIPTION  CODE  QUANTITY  UNIT  Assume meter vault size=11.25x11.25x16.76  assume 1 vault @ Pueblo PP 2  1 Meter vault ventilation equipment Isis of equipment per vault (1)-see centrifugal fan, 450 cfm @ 0.25* w.g.s.p., 1/6 Hp (16* ft)-8* diam, 16 ga., galv. steel duct (2)-8* diam, sch 20. galv., L.R. 180 deg. steel pipe (4)-12* diam, stainless steel bird screens (2)-8* x12* reducer, sch 20, galv. steel pipe (4)-12* diam, stainless steel bird screens (2)-8* x12* reducer, 16 ga. galv. steel duct (2)-8* diam galv steel motor-operated damper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box  2 Meter vault heater thermostatically controlled  3 Flowmeter 8-psih ultrasonic, 36* diam 16 transducers with cables and 1 transmitter console  REVIEWED Paul Schlein  PF REVIEWED Paul Schlein  PF FRED  REVIEWED PAUL Schlein  PG PAUL Schlein  PF FRED  REVIEWED PAUL Schlein  PF	Meter Vault (PP2 after WTP)  Revised Comanche South Region: GP Unit PRICE LEVEL:  REGION: GP Unit PRICE LEVEL:  REGION: GP Unit PRICE LEVEL:  REGION: GP Unit PRICE LEVEL:  FILE:		

FEATURE:  Arkansas Valley Conduit  Pueblo Meter Vault (PP2 after WTP)				PROJECT: Fryington-Arkansas Project					
				WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal	
Revised Comanche South Reach 1: Pueblo Reservoir to WTP			REGION:	GP	100	UNIT PRICE LEVEL:			
			Reservoir to WTP	REGION: GP UNIT PRICE LEVEL: 1 2011  FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Hydraulic e	quipment/Mechanical		-				
		Meter Vaul		86-68420				*	
		30-inch mai	nually-operated butterfly valve		1	ea	\$14,500.00	\$14,500.00	
0-	·		Class 150-B						
<b>1</b> 11 11 11 11 11 11 11 11 11 11 11 11 1									
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			7.1				6		
- Tr			*						
43100	<b>→</b> +	19-				-0.	-		
			SUBTOTAL THIS SHEE	П				\$14,500.00	
QUANTITIES			PRICES						
Ken Smith A.J. Quinione			REVIEWED A.J. Quiniones	Jeff Morris	Zeju		CHECKED 5/21/12		
DATE PREPARED 4/23/2012			PEER REVIEW / DATE Rick Frisz 4-23-12	05/11/12			PEER REVIEW (DATE DCD 5/31/12		

FEATU		sas Valley 0	Conduit	PROJECT: Fryington-Arkansas Project						
		ipant Tie-In		WOID: AF523 ES1		TESTIMA:	TE LEVEL:	Approinal		
			che South				ICE LEVEL:	Appraisal Jan-11		
	Reach	1: Pueblo B	Res To WTP	FILE:		John Tit	144	Jan-11		
Reach 1: Pueblo Res. To WTP				PILE						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	-	Civil/Structu	ıral:							
-	-	Participant	Tie-In Vaults	86-68120			doc 000 00	41111111		
			ced Concrete for Vaults	00-06120		ea	\$35,000.00	\$35,000.00		
			sumed: 12' W x 9' L x 10'-8" D)							
1			_			-	-			
-	-		sume: f <sub>c</sub> =4,500 psl)							
			rce: 50 miles	-						
		1	crete: 17.5 yd3	j				***		
-	-		nforcement (Assume 135 lb/yd3): 2,360	lbs						
		Cen	nent (Assume: 0.282 ton/yd3): 5 tons	-	-			<u>, , , , , , , , , , , , , , , , , , , </u>		
		Access	& Service Hatches							
		Acce	ess hatch 3' x3': 2 ea							
			(The Bilco Co Type Q single leaf)				-			
		Serv	vice hatch 3' x 5': 1 ea					1		
			(The Bilco Co Type JD special sizes)							
	-	Miscella	neous Metalwork							
		Stee	el (ASTM A36): 150 lbs							
1 10	77	(Ref. 40-D-6601, Ladder Type 2)  Sitework  Stripping (6 inch thick layer of soil)  Service Yard: 12 yd3  Excavation: 195 yd3  (Assume: Common, 1-1/2:1 slope)  Compacted engineered backfill: 155 yd3			- 10					
						-				
	-									
		, , , , , , , , , , , , , , , , , , , ,	vel Surfacing (6 inches thick)							
		Service Yard: 10 yd3						-		
					_		-	19924		
						-				
		-				-	* 13			
			**	-	-	- 11	-			
							-			
		*	SUBTOTAL THIS SHEET	9 99		-		\$35,000.00		
		QUA	ANTITIES	PRICES						
3Y			REVIEWED	BY		7		-		
R. J. Barth	el		Paul Ruchtl,	Jeff Morris	Zbulo		14 5/2	1/2		
DATE PREPARED PEER REVIEW / DATE			DATE PREPARED PEER REVIEW / DATE							
04/18/12			Paul Ruchti, P.E.	05/11/12			17110			
			L. MOLLANDING T. ALS.	OUT 1712			PEER REVIEW / DATE			

FEATL	EATURE:			12-12	PROJECT: FryIngton-Arkansas Project					
		as Valley Co		1000						
	7.1-2.2	ant Tie-In V d Comanc		WOID:	AF523		IATE LEVEL:	Appraisal		
				REGION:	GP	UNIT	PRICE LEVEL:	Jan-11		
		l: Pueblo Re lical Equipm	The same of the sa	FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		assume nartir	cipant tie-in vault size=12' W x 9' L :	10'.8" D	4	-				
		usadino parti	spant te til vadit size- 12 44 x 9 L 1	lio-a D	,			*** = 1		
-							»			
	1	Meter vau	ult ventilation equipment	86-68410		ls	\$5,600.00	\$5,600.00		
1		list of	equipment per vault:		***					
		(1	)-steel centrifugal fan, 200 cfm @ 0	.25" w.g.s.p., 1/6	Нр			=÷ 4.0		
			2 ft)-6" diam, 16 ga., galv. steel dud							
	==:		)-6" diam, sch 20, gaiv., L.R. 180 de		urns			1-0-0-		
			)-6"x8" reducer, sch 20, galv. steel							
			)-8" diam, stainless steel bird scree							
			')-6"x8" reducer, 16 ga, galv. steel d		*					
	1		)-6" diam galv steel motor-operated							
			)-fan motor starter for 1/6 Hp		-10-					
			)-fan wall switch and box							
	2	Meter vau	It heater	86-68410	1	ea	\$800.00	\$800.00		
		3 kW	unit heater							
		therm	ostatically controlled				-			
	3	Flowmete		86-68410	1	ea	\$13,000.00	\$13,000.00		
-		Company of the	meter, microprocessor-based,							
	-		d electro-magnetic flowmeter with		-	-		4		
		3.71	e wall-mounted transmitter							
	-		t= approx 85 lbs				-			
		120 V	olt AC		(-)			<del>7 0</del>		
	386601	-								
						-				
-			SUBTOTAL THIS SHEE	т				\$19,400.00		
	-	QUA	NTITIES	L	2000000	Р	RICES			
BY AM Ritt	Y REVIEWED		BY Jeff Morris	Zen		CHECKED	11/12			
DATE PR 4/18/2012			PEER REVIEW / DATE Dave Hulse	DATE PREPA 05/11/12			PEER REVIEW / DATE			

200		PROJECT								
	Arkan	sas Valley Co	onduit	Fryington-	Arkansas Pr	oject				
		ipant Tie-In V		WOID:	AF523	ESTIM	IATE LEVEL:	Appraisal		
		sed Comano		REGION:	GP	UNIT	PRICE LEVEL:	Jan-11		
	Reach	1: Pueblo R	es. To WTP	FILE:						
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
11-34-		Mechanical/H	dydraulic equipment					**		
		Participant 1	Fie-In Vaults (1 vault)	86-68420						
			ure reducing valve		1	ea	\$7,800.00	\$7,800.00		
			60 lbs each							
			NSI class 150 steel							
		6-Inch manua	ally-operated butterfly valve		1	ea	\$2,800,00	\$2,800.00		
		1 valve, 17	70 lbs each							
		Henry Pra	tt Class 350							
			square-nut operated butterfly			ea	\$3,300.00	\$3,300.00		
		valve with val								
			25 lbs each	-		4		-		
-	-	Henry Prai	tt Class 350							
		1-inch air valv	/A		1	00	\$1,000,00	£4 000 00		
		-	on air valve	-		ea	\$1,000.00	\$1,000.00		
			, 35 lbs each							
		-				-		<del></del>		
					341					
- true								X-3-0-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-X-		
	-									
			SUBTOTAL THIS SHEET					\$14,900.00		
QUANTITIES				P	RICES					
BY Ken Smith	1		REVIEWED Nathan Nakamoto	BY Jeff Morris	Zhal	a.	CHECKED 14 5/	11/12		
DATE PR 4/18/2012		)	PEER REVIEW / DATE Rick Frisz 4/20/12	DATE PREPA 05/11/12			PEER REVIEW / DATE	Izela		

FEAT	ATURE:  Arkansas Valley Conduit  Pipeline			PROJEC Fryingpa		Project	- Arkansas Val	lley Conduit
	Pipel	ine		WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
	Revi	sed Comar	nche South, Max Day Condition 4	REGION	Jan-11			
Civil	Reac	h 2 from W7	P to Fowler N. Tank	FILE:				
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	Appraisal  Jan-11  AMOUNT  \$400,000.0 \$100,000.0 \$100,000.0 \$400,000.0 \$44,200,000.0 \$4,200,000.0 \$4,200,000.0 \$3,150,000.0 \$3,150,000.0 \$3,150,000.0 \$35,700.0 \$35,700.0 \$35,700.0 \$315,000.0 \$315,000.0 \$315,000.0
	-							
-	-	Sitework ite						
-			times trench width)	8140	500	acre	\$800.00	\$400,000.00
		Grubbing		8140	50	acre	\$2,000.00	\$100,000.00
	-	Stripping (6	"thick)	8140	400,000	су	\$2.00	
	-	Seeding		8140	500	acre	\$800.00	\$400,000.00
		Earthwork I	lems;					
		Soil Excava	tion (1.5:1) outside urban area	8140	1,050,000	су	\$4.00	\$4,200,000.00
		Rock Excav	ation (0.25:1) outside urban area	8140	68,000	су	\$25.00	\$1,700,000.00
		(20% of len	gth is assumed partial rock exc.)					
		assume rip	pable material					
		Pipe Beddin	ig (Select material, 4" thick)	8140	20,000	су	\$30.00	\$600,000.00
		Embedment	t & Cover Backfill	8140	1,050,000	су	\$3.00	\$3,150,000.00
		(does not in	nclude shrink/swell)					
	_	Compacting	Embedment Backfill	8140	120,000	су	\$8.00	\$960,000.00
				-	-			-
	-	1						
		Urban Earth	work Items: (Vertical Trench)	150				
	-	-	tion (box w/supports,~10'deep)	8140	6,200	су	\$11.00	\$68 200 00
		-	g (Select material, 4" thick)	8140	280	cy	\$50.00	
			& Cover Backfill	8140	5,100	cy	\$7.00	
	1	1 7	Embedment Backfill	8140	5,100	cy	\$14.00	
		-	th will require traffic control, signage,		24.74.4		- 1,000	4. 1, 100,00
		1	for duration work)					
		(urban trenc	h length of 4123ft of 30" pipe)					
		Troffle Contr	militaria in the Committee					
		1000	ol/Detours Urban Excavation		1	mo	\$15,000.00	
		- Allerton	Base/Remove & Replace Urban Excavation		4,123	lin ft	\$60.00	
	-		ation & Repair Urban Excavation rthwork quantities above are for a straight wa	di Warantana di A	4,123	lin ft	\$30.00	\$123,690.00
		7 III GIDGII GGI	amork quantities above are for a straight wa	ar venicar i	rench.			
					-	-		
			SUBTOTAL THIS SHEET				***	\$12,885,370.00
		C	QUANTITIES			PRI	CES	
BY			CHECKED	ву	$\overline{}$		HECKED	1.1
lererny Lorberau W. Chris Duke, PE		Jeff Morris	Shull	quin	111 5	13/12		
DATE P	ATE PREPARED PEER REVIEW / DATE		DATE PRE	EARED	F	EER REVIEW /	DATE .	
04/24/12			Steven J. Robertson, PE	05/11/12	7-01		Scal	5/31/12

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline			PROJEC Fryingpar		Project	- Arkansas Val	ley Conduit
	Pipel	ine		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal
	Revi	sed Comanche Sout	h, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11
	Reac	2 from WTP to Fowle	er N. Tank	FILE:				
Civil								
_ <u>5</u>	N				****			9
PLANT	PAY ITEM	וס	ESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Pipe Items:		15-51				
		36* dia. steel, 0.1501" th	lick (60 #/ft)-mortar lined	8140	19,000	lin ft	\$140.00	\$2,660,000.00
	7704	epoxy tape coated, rub	ber gaskets, HC=125					
		1,123,740 lbs total stee		-=/1				
		36" dia. steel, 0.250" thic	ck (100 #/ft)-mortar lined	8140	52,000	lin ft	\$155.00	\$8,060,000.00
		epoxy tape coated, rub	ber gaskets, HC=500	1				- 9
		5,227,200 lbs total stee						*
	LE"	36" dia. steel, 0.3125" th	ick (125 #/ft)-mortar lined	8140	23,000	lin ft	\$175.00	\$4,025,000.00
		epoxy tape coated, rub	ber gaskets, HC=625					
		2,843,125 lbs total stee					32,000	
		30" dia. steel, 0.3125" th	ick (106 #/ft)-mortar lined	8140	66,000	lin ft	\$165.00	\$10,890,000.00
		epoxy tape coated, rub	ber gaskets, HC=750					
	Pierri.	6,996,106 lbs total stee					494.0	
		30" dla. steel, 0.375" thic	ck (127 #/ft)-mortar lined	8140	9,500	lin ft	\$195.00	\$1,852,500.00
		epoxy tape coated, rub	ber gaskets, HC=875			17.1		
		1,204,849 lbs total steel						
		30" dia. steel, 0.4375" th	ick (148 #/ft)-mortar lined	8140	11,000	lin ft	\$225.00	\$2,475,000.00
		epoxy tape coated, rubi	ber gaskets, HC=1000					
4		1,588,632 lbs total stee						
		30" dia. steel, 0.4375" th	ick (148 #/ft)-mortar lined	8140	88,000	lin ft	\$225.00	\$19,800,000.00
		epoxy tape coated, rubi	per gaskets, HC=1125					
		13,009,792 lbs total ste	el					
		Isolation Valves (Manual	-					
1,000		36" class 150 (pslg) butte		8140	1	ea	\$17,000.00	\$17,000.00
		36" class 250 (psig) butte	erfly valve with operator	8140	2	ea	\$29,000.00	\$58,000.00
		36" ANSI class 150 (psig		8140	1	ea	\$43,000.00	\$43,000.00
		30" ANSI class 300 (psig	) b-fly valve w/ operator	8140	7	ea	\$65,000.00	\$455,000.00
		Isolation Valve Manholes	(to include):	8140	11	ea	\$7,000,00	\$77.000.00
-	-	60" I.D. x 6" wall precast		- 0.40	3/1	- Ga	\$7,000,00	\$77,000.00
		ring, 36" access	THE TOP THAT GOTTOGICIO					
		60" I.D. x 6" wall precast	36" riser			-	- 1	
		1.D. NO Wall process	SUBTOTAL THIS SHEET			-		\$50,412,500.00
QUANTITIES					*	DDI	CES	\$30, <b>\$</b> 12,300.00
ву	CHECKED			BY		1 0	CHECKED	dul.
	Lorbera		Duke, PE	Jeff Morris (	ppu	PRILLED	- 1	1 -110
	ATE PREPARED PEER REVIEW / DATE		DATE PREF	ARED	P	PEER REVIEW /	DATE	
04/24/12	12 Steven J. Robertson, PE		. Kobertson, PE	05/11/12	op-		NCO :	5/31/12

FEAT	URE:			PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Conduit						
7	Arkar	nsas Valley (	Conduit	Fryingpa	n-Arkansas	Project	- Arkansas Val	ley Conduit		
	Pipeli	ne		WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal		
	Revis	sed Coman	che South, Max Day Condition 4	REGION	GP	UNIT F	PRICE LEVEL:	Jan-11		
Civil	Reaci	n 2 from WT	P to Fowler N. Tank	FILE:						
	2									
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	TINU	UNIT PRICE	AMOUNT		
40.7		Isolation Val	ve Manholes cont'd (to include):							
		60" I.D. pred	ast 72" base shell					N.		
	-	36" dia, Cas	t iron manhole cover and ring set		*****					
24.3		141.177.27				-				
_		-	ructures (to include):		50	ea	\$7,500.00	\$375,000.00		
			ncrete Pipe, vertical (10 ft ea)	8140	500	lin ft				
			avel filter (4cy)	8140	200	су				
			lum. Hatch cover (95 lbs ea)	8140	4,750	lbs				
	-		ation Air Valve (1ea)	8140	50	ea				
-		- 3" Ball Valv	/es (1 ea)	8140	50	ea		-		
			ctures (to include):	*	50	ea	\$8,300.00	\$415,000.00		
		_	el pipe, vertical (8 ft ea)	8140	400	lin ft				
		-	Concrete Pad (1.18 cy ea)	8140	59	су		- 12		
			us Materials for Pad (0.33 tons ea)	8140	16.5	tons				
			(1 layer, #5@12* oc. ew. 143 lbs ea)	8140	7,150	lbs				
		- 6" dia. Disc	charge stern pipe (2 ft ea)	8140	100	lin ft				
		-	Valve (1 ea)	8140	50	ea				
	-		concrete Pipe, vertical (10 ft ea)	8140	500	lìo ft				
		- 6" Tee (1 e	7 10-	8140	.50	ea				
		- 6" Blind Fla		8140	50	ea				
		- 48" diam Al	lum hatch cover (95 lbs ea)	8140	4,750	lbs		-		
		Manholes-Bu	uried: (ta include)		36	ea	\$11,500.00	\$414,000.00		
		-36" pipe out	let (1 ea)	8140	36	ea				
		-36" blind flar	nge (1 ea)	8140	36	ea	1			
		Cathodic Pro		8140	1	İs	\$2,500,000.00	\$2,500,000.00		
		*Assume 5	% of cost for all steel items above							
		** **	tage used is based on detailed field cost es			ation		- Company (Leaf		
			1729 dated August 2009. Soils are assume							
	-	encountered	at the Weber Siphons and are assumed to		corrosion pote	ntial.		-		
			SUBTOTAL THIS SHEET	- 1				\$3,704,000.00		
			SUBTOTAL REACH 2					\$67,001,870.00		
	QUANTITIES					ICES	-			
BY Jeremy	Lorbera	1	CHECKED W. Chris Duke, PE	BY Jeff Morris	Day		CHECKED	Staller		
-	REPAR		PEER REVIEW / DATE	DATE PREI	PAREN	ores	DEED DEVICENT	ATE		
04/24/12	200 200		Steven J. Robertson, PE	05/11/12	- Anda		PEER REVIEW / D	5/31/12		

FEAT	URE:			PROJEC Fryingpa		Project	- Arkansas Valle	ey Condult
	Pipeli			WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal
	Revis	ed Coman	che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Boon	e Spur	*	FILE:				\$1,000.00 \$12,000.00 \$2,500.00 \$3,000.00 \$1,500.00 \$18,000.00 \$45.00 \$27,900.00 \$50.00 \$50.00 \$21,000.00 \$50.00 \$21,000.00 \$314.00 \$21,000.00 \$314.00 \$317,900.00 \$317,900.00
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Citavania Itaa	A2.					
	1	Sitework Iter		2000			- :	one were to
-	-		mes trench width)	8140	12	-		
	-	Grubbing		8140	1.2	acre		
		Stripping (6"	thick)	8140	9,500	су	\$4.00	\$38,000.00
	-	Seading	×	8140	12	acre	\$1,500.00	\$18,000.00
-		Earthwork Ite	ems;			-		
		Soil Excavati	on (1.5:1) outside urban area	8140	16,500	су	\$6.00	\$99,000,00
			tion (0.25:1) outside urban area	8140	620	су	-	
	100		th is assumed partial rock exc.)	100			****	421,000.00
			pable material					
-			(Select material, 4" thick)	8140	330	су	\$50.00	\$16 500 00
			& Cover Backfill	8140	16,500	-		
-			clude shrink/swell)	0,40	10,000	су	\$5.00	φο2,300.00
	-	-	Embedment Backfill	8140	1,500	cy	244.00	#04 000 00
			SUBTOTAL THIS SHEET	1-			190000 (	6247 000 00
		0	UANTITIES			DDI	CES	\$317,900.00
BY Jeremy	Lorberau		CHECKED W. Chris Duke, PE	BY Jeff Marris	Zpu		CHECKED	liv
DATE P 04/24/1	REPAR	ED	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/11/12		-	PEER REVIEW D	

FEAT		sas Valley	Conduit	PROJEC Fryingpar		Project	- Arkansas Valle	ey Conduit
	Pipeli	ne		WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal Jan-11  AMOUNT \$101,200.00  \$2,900.00
	Revis	ed Comar	nche South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Boon	e Spur		FILE:				
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Pipe Items:						
	,	6" DR14 (C	IOD) C900 PVC pipe	8140	9,200	lin ft	\$11.00	\$101,200.00
		-				-		
	100							
-								
	-							
-		-						
-	-	-1551 / <del></del>						0.0
		<b>†</b>						
•		1						
								**
					-			-
			lves (Manual operation):		-		-	
		6" ANSI clas	ss 150 (psig) b-fly valve w/ operator	8140	1	ea	\$2,900.00	\$2,900.00
	-	-						
			· · · · · · · · · · · · · · · · · · ·			-		
						+		· · · · · · · · · · · · · · · · · · ·
								-
								2
		Isolation Va	ve Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00
		-	wall precast flat top with concentric					
	70	ring, 36" ac						
-			wall precast 36" riser					
			ast 72" base shell	-			1940	
-	-	36" dia. Cas	t iron manhole cover and ring set	-		-		100 ×
	-							-
		† · ·	SUBTOTAL THIS SHEET			-	***	\$111,100.00
		0	QUANTITIES		•	PRIC	CES	VIII,100.02
BY		***	CHECKED	BY		-	CHECKED	11.
Jeremy	Lorberau	0	W. Chris Duke, PE	Jeff Morris (	Zou	/	118 5/	up
DATE PREPARED PEER REVIEW / DATE			DATE PREPARED  DER REVIEW / DATE   5/31/12				5/31/12	
							~~~	La Company

FEAT		ısas Valley	Canduit	PROJEC Fryingpar		Projec	t - Arkansas Valle	ey Conduit
	Pipell	100 To 1 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO 100 TO	Conduit	WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal
	Revis	sed Comar	nche South, Max Day Condition 4	REGION	GP		PRICE LEVEL:	Jan-11
P R	Boon	e Spur		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIY	UNIT PRICE	AMOUNT
		Air Valve S	tructures (to include);		2	ea	\$6,800.00	\$13,600.00
		- 48" dla. C	oncrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 3/4 inch g	ravel filter (4cy)	8140	8	су		
		- 48" diam /	Alum. Hatch cover (95 lbs ea)	8140	190			
		- 2" Combin	nation Air Valve (1ea)	8140	2	ea		
		- 2" Ball Va	Ives (1 ea)	8140	2	ea		
_		FI # 01						
-	-	-	actures (to include):	-	2	ea	\$8,300.00	\$16,600.00
-		-	el pipe, vertical (8 ft ea)	8140	16		l	-
		-	Concrete Pad (1.18 cy ea)	8140	2.4	су	-	**
	-	1	ous Materials for Pad (0.33 tons ea)	8140	0.66	tons		
		100000000000000000000000000000000000000	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	. 290	lbs		
	-		charge stem pipe (2 ft ea)	8140	4	lin ft		
-	-		y Valve (1 ea)	8140	2.0	ea		
-	ļ	-	Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		
		- 6" Tee (1	·	8140	2	ea	-	
	-	100	ange (1 ea)	8140	2	ea		
ia.		- 48" diam A	Alum hatch cover (95 lbs ea)	8140	190	lbs		- <u>-</u>
								-
	-	Cathodic Pr	otection	8140	1	ls	Not applicable, no s	steel pipe.
		710777.000	5% of cost for all steel items above			la i		
		Note: Perce	ntage used is based on detailed field cost es	timates prep	ared for Solici	tation		
			1729 dated August 2009. Soils are assume		The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon			
-		encountered	d at the Weber Siphons and are assumed to	have similar	corrosion pote	ential.		
		-			8			
-			SUBTOTAL THIS SHEET SUBTOTAL BOONE SPUR					\$30,200.00
			QUANTITIES SUBTOTAL BOONE SPUR			BB	ioro	\$459,200.00
BY Jeremy	Lorberau		CHECKED W. Chris Duke, PE	BY Jeff Morris	Zhu	4	CHECKED 5/3	Ila
Fig. Falsand	REPARI		PEER REVIEW / DATE Steven J. Robertson, PE	<b>DATE PRE</b> F 05/11/12	ARED	Uraza	PEER REVIEW / D.	5/31/1Z

FEATU	EATURE:  Arkansas Valley Conduit  Participant Tie-In Vaults	PROJECT Fryington-	i: Arkansas Pr	oject				
				WOID:	AF523	IESTIM/	ATE LEVEL:	Appraisal
	Revis	sed Comand	he South	REGION:	GP		RICE LEVEL:	Jan-11
	React	2: WTP to S.	Fowler tank	FILE:				
PLANT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRIČE	AMOUNT
		Civil/Structura	l:					·
		Participant Ti	ie-In Vaulte	86-68120	2	+	£35,000,00	#70 000 00
			d Concrete for Vaults	00-00120		ea	\$35,000.00	\$70,000.00
	1000		med: 12' W x 9' L x 10'-8" D)			<del> </del> -	-	* ***
193		-	me: f' <sub>c</sub> =4,500 psl)	+ -+			<b>/</b>	
že .			e: 50 miles			+		
		-	ete: 17.5 yd3	-				
			proement (Assume 135 lb/yd3): 2,360	lbs			F 1	-
		100	nt (Assume: 0.282 ton/yd3): 5 tons		- 21 -			<del></del>
		Access &	Service Hatches	1				en processor is a second second
		Acces	s hatch 3' x3': 2 ea					
		(T	he Bilco Co Type Q single leaf)					
_		Servic	e hatch 3' x 5': 1 ea					
		(Т	he Bilco Co Type JD special sizes)					-
	9×1	Miscellane	eous Metalwork					
		Steel (	(ASTM A36): 150 lbs			1		
	***	(R	ef. 40-D-6601, Ladder Type 2)					
		Sitework						
			ng (6 inch thick layer of soil)					
		1	ervice Yard: 12 yd3					
10-			ation: 195 yd3					
	-		ssume: Common, 1-1/2:1 slope)					
			acted engineered backfill: 155 yd3					
	-		Surfacing (6 inches thick)		-			
-		Se	ervice Yard: 10 yd3	-				
			(-)-(-)					
		-	***		- 11			
		-	SUBTOTAL THIS SHEET					\$70.000.00
		QUAN	ITITIES			DE	RICES	\$70,000.00
BY R. J. Barth	Y REVIEWED		BY	Zpul		CHECKED Shill	/1-	
DATE PRI		)	Paul Ruchti, PE PEER REVIEW / DATE	Jeff Morris C			PEER REVIEW DATE	-12112
04/18/12			Paul Ruchti, PE 4/18/12	05/11/12			DUN S	151110

FEATU	EATURE:	PROJECT	PROJECT: Fryington-Arkansas Project						
	Arkans	as Valley Co	onduit	Fryington-	Arkansas Pr	oject			
	Particip	pant Tie-In V	Vaults	WOID:	AF523	To Parity	TE LEVEL:	Appraisal	
		ed Comanc		REGION:	GP	UNIT PR	RICE LEVEL:	Jan-11	
		2: WTP to S. nical Equipm	i. Fowler tank	FILE;					
		icai Equipin	ient		-	7			
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	6 10 6	assume parti	icipant tie-in vault size=12' W x 9' L	L x 10'-8" D					
							->-		
- 15+-	1	Meter var	ult ventilation equipment	86-68410	2	2 Is	\$5,600.00	\$11,200.00	
		1	f equipment per vault:		**************************************				
		(1	1)-steel centrifugal fan, 200 cfm @	0.25" w.g.s.p., 1/F	<i>8</i> Нр				
		-	12 ft)-6" diam, 16 ga., galv, steel du						
			2)-6" diam, sch 20, galv., L.R. 180		turns				
			2)-6"x8" reducer, sch 20, galv. stee			1			
			4)-8" dlam, stainless steel bird scre						
			2)-6"x8" reducer, 16 ga, galv. steel						
			2)-6" diam galv steel motor-operate	-	<del></del>				
			1)-fan motor starter for 1/6 Hp						
			1)-fan wall switch and box					***	
	2		<del></del>	86-68410	2	ea	\$800.00	\$1,600.00	
	1		unit heater						
		therm	nostatically controlled						
	3			86-68410	2	ea	\$13,000.00	\$26,000.00	
1	1		ameter, microprocessor-based,					-	
	$\leftarrow$		ed electro-magnetic flowmeter with	V.					
	1		te wall-mounted transmitter						
			ht= approx 85 lbs			1			
		120 Vr	/olt AC						
					****				
			CUSTOTAL TUIS DU						
		OUA	SUBTOTAL THIS SHE	ZET		20		\$38,800.00	
BA		QUAI	NTITIES				ICES	3	
AM Ritt			REVIEWED Paul Schlein	BY Jeff Marris	Zpulo	nie	CHECKED AS 5/31	1/2	
DATE PRE 4/18/2012			PEER REVIEW / DATE Dave Hulse	DATE PREPA 05/11/12	ARED)	F	PEER REVIEW / DATE	5/31/12	

FEATL	EATURE:  Arkansas Valley Conduit  Participant Tie-In Vaults	PROJECT Fryington-/	: Arkansas Pro	oject				
				WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal
100		sed Coman		REGION:	GP		RICE LEVEL:	Jan-11
4.0	Reach	2: WTP to S	. Fowler tank	FILE:		13.01.1		2011-11
PLANT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	-	Mechanical/h	Hydraulic equipment					
		Participant 1	Fie-In Vaults (2 vaults)	86-68420	***			
		2 valves, Cla-Val A	ure reducing valve 160 lbs each NSI class 150 steel		2	ea	\$7,800.00	\$15,600.00
		6-inch manua 2 valves,	ally-operated butterfly valve 90 lbs each lass 150-B		2	ea	\$1,300.00	\$2,600.00
		valve with va	square-nut operated butterfly live box 245 lbs each		2	ea	\$1,800.00	\$3,600.00
		1-inch air val	ve_		2	ea	\$1,000.00	\$2,000.00
		2 air valve	s, 35 lbs each					
		-	÷ ;					
								y-> ;
			SUBTOTAL THIS SHEET		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			\$23,800.00
<b>BY</b> Ken Smitt	QUANTITIES Y REVIEWED		BY Jeff Morris	Zoul	A	CHECKED A	5/31/m	
DATE PR 4/18/2012		)	PEER REVIEW / DATE Rick Frisz 4/20/12	DATE PREPÁ 05/11/12			PEER RENIEW / DATE	5/31/12

FEAT		nsas Valley C	onduit	PROJEC Fryingpa		Projec	t - Arkansas Val	ley Conduit
	Pipeli	ine		WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal
	Revis	sed Comand	che South, Max Day Condition 4	REGION	GP	THE REAL PROPERTY.	PRICE LEVEL:	Jan-11
	Reac	h 3 from Fow	ler N. tank to La Junta S. Tank	FILE:		12.20		
Civil				7.00-				
. 5	3						1 - 2	~
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	-	Sitework Item	<u></u>					-
		Clearing (3 tir	mes trench width)	8140	310	acre	\$800.00	\$248,000.00
		Grubbing		8140	31	acre	\$2,500.00	\$77,500.00
		Stripping (6"	thick)	8140	250,000	су	\$2.00	\$500,000.00
		Seeding		8140	310	acre	\$800.00	\$248,000.00
		Earthwork Ite	ms:					179-177
		Soil Excavation	on (1.5:1) outside urban area	8140	620,000	су	\$4.00	\$2,480,000.00
		Rock Excavat	tion (0.25:1) outside urban area	8140	37,000	су	\$25.00	\$925,000.00
		(20% of leng	th is assumed partial rock exc.)	1				
		assume ripp	able material					
		Pipe Bedding	(Select material, 4" thíck)	8140	11,500	су	\$30.00	\$345,000.00
		Embedment &	& Cover Backfill	8140	610,000	су	\$3.00	\$1,830,000.00
		(does not inc	lude shrink/sweil)					
		Compacting E	Embedment Backfill	8140	62,000	су	\$8.00	\$496,000.00
							1000	
		Urban Earthw	ork items: (Vertical Trench)			171		
		Soil Excavation	on (box w/supports,-10'deep)	8140	18,500	су	\$9.00	\$166,500.00
		Pipe Bedding	(Select material, 4" thick)	8140	900		\$50.00	\$45,000.00
		Embedment 8	Cover Backfill	8140	15,500	су	\$5.00	\$77,500.00
		Compacting E	mbedment Backfill	8140	15,500	су	\$10.00	\$155,000.00
		(Urban trench	will require traffic control, signage,	211		1	1 2 2 2	
		and detours fo	or duration work)					
		(urban trench	length of 18247.11ft of 24" pipe)	7				
			l/Detours Urban Excavation		4	mo	\$15,000.00	\$60,000.00
		Pavement & E	Base/Remove & Replace Urban Excavation		18,247	lin ft	\$60.00	\$1,094,820.00
			ion & Repair Urban Excavation		18,247	lin ft	\$30.00	\$547,410.00
		All urban earti	nwork quantities above are for a straight wa	all "vertical" t	rench.			
						-		
-			SUBTOTAL THIS SHEET					\$9,295,730.00
	-	QI	JANTITIES			PF	RICES	
BY Jeremy I	Lorberau	u	CHECKED W. Chris Duke, PE	BY Jeff Morris	Zhill	2	CHECKEDY 5/5	Iliz
DATE P 04/24/12	REPAR		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/11/12	PARED	Three	PEER REVIEW /	DATE / 21/17

FEAT	Arkansas Valley Conduit Pipeline		Conduit	PROJEC Fryingpa		Project	- Arkansas Va	lley Conduit	
	Pipel	ine		WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
	Revi	sed Coman	nche South, Max Day Condition 4	REGION	GP	- months	RICE LEVEL:	Jan-11	
Civil	Reac	h 3 from Fov	wier N. tank to La Junta S. Tank	FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
-		Pipe Items:	No. of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of	-					
	-		el, 0.1345" thick (45 #/ft)-mortar lined	1 240	0.400	11. 6			
			coated, rubber gaskets, HC=250	8140	8,400	lin ft	\$125.00	\$1,050,000.00	
		The Sant Court Co.	Ibs total steel	(0				· · · · ·	
		1	el, 0.1428" thick (48 #/ft)-mortar lined	04.40				No. of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of Contract of	
				8140	96,000	lin ft	\$125.00	\$12,000,000.00	
	-		coated, rubber gaskets, HC=375 66 lbs total steel	1				0.00	
		-	el, 0.25" thick (84 #/ft)-mortar lined	0440	0.400		243-25		
-	-		coated, rubber gaskets, HC=500	8140	8,100	fin ft	\$145.00	\$1,174,500.00	
			bs total steel	-		-			
-			el, 0.25" thick (68 #/ft)-mortar lined	0440		0.26			
-				8140	29,000	lin ft	\$190.00	\$5,510,000.00	
-		-	coated, rubber gaskets, HC=625			-			
		1,972,090	2 lbs total steel	-					
	-	24" DR25 (C	CIOD) C905 PVC pipe	8140	13,500	iin ft	\$68.00	\$918,000.00	
		24" DR18 (C	CIOD) C905 PVC pipe	8140	37,000		\$90.00	\$3,330,000.00	
							- 44		
		Isolation Val	ves (Manual operation):						
		30" class 15	0 (psig) butterfly valve with operator	8140	4	ea	\$14,500.00	\$58,000.00	
		The latest the second	0 (psig) butterfly valve with operator	8140	2	ea	\$23,000.00	\$46,000.00	
		_	0 (psig) butterfly valve with operator	8140	1	ea	\$15,000.00	\$15,000.00	
	-	24" ANSI da	iss 150 (psig) b-fly valve w/ operator	8140	1	ea	\$27,000.00	\$27,000.00	
	-	Isolation Val	ve Manholes (to include):	8140	8	ea	\$7,000.00	\$56,000.00	
*			wall precast flat top with concentric				\$1,000.00	ψου,οσο.σσ	
		ring, 36" ac							
		60" I.D. x 6"	wall precast 36" riser				_		
,,,		-	ast 72" base shell						
			tiron manhole cover and ring set				-		
	-	-	SUBTOTAL THIS SHEET	-				624 404 500 00	
	QUANTITIES					PRI	CES	\$24,184,500.00	
BY Jeremy	CHECKED			BY Jeff Morris	Zhul	-	CHECKED 5/	siln	
DATE P 04/24/12	ATE PREPARED PEER REVIEW / DATE		DATE PREI 05/11/12	ARED 7	F	PEER REVIEW / I	5/31/12		

FEAT	URE:		*	PROJECT: SHEET_3_OF_3_						
	Arkar	nsas Valley (	Conduit	Fryingpa	n-Arkansas	Project	- Arkansas Va	lley Conduit		
	Pipel			WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal		
			che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11		
Civil	Reac	h 3 from Fov	vier N. tank to La Junta S. Tank	FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		- 48" dia. Cor - 3/4 inch gra - 48" diam Al - 6" Combina - 6" Butterfly Blowoff Struc - 6" dia. Stee	ructures (to include):		37	ea	\$12,000.00	\$444,000.00		
-			ncrete Pipe, vertical (10 ft ea)	8140	370		\$12,000.00	<b>3444</b> ,000.00		
		-	avel filter (4cy)	8140	150		_	<del></del>		
		-	lum. Hatch cover (95 lbs ea)	8140	3,500	-		,		
		-	ation Air Valve (1ea)	8140	3,300					
			Valves (1 ea)	8140	37					
		-								
		Blowoff Stru	ctures (to include):		37	5		0007.400.00		
	4	1	pipe, vertical (8 ft ea)	8140	300	ea	\$8,300.00	\$307,100.00		
		R	Concrete Pad (1.18 cy ea)	8140		iin ft	_			
	100		us Materials for Pad (0.33 tons ea)	-	44	су				
		_	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	12	tons	1			
			harge stem pipe (2 ft ea)	8140	5,300	lbs				
			Valve (1 ea)	8140	74	lin ft	-	*		
			oncrete Pipe, vertical (10 ft ea)	8140	37	ea				
-	-	- 6" Tee (1 e		8140	370	lin ft				
	-	- 6" Blind Fla		8140	37	ea		-		
-0-	-		um hatch cover (95 lbs ea)	8140	37	ea		-		
		- 40 Ulani Al	um naturi cover (95 ibs ea)	8140	3,500	lbs				
		41084			-					
		Cathodic Pro		8140	1	ls	\$990,000.00	\$990,000.00		
	-		% of cost for all steel items above							
-			tage used is based on detailed field cost es			tation		79-7		
	No. 09SP101729 dated August 2009. Soils are assum encountered at the Weber Siphons and are assumed to SUBTOTAL THIS SHEE SUBTOTAL REACH				and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	ntial.				
						-		\$4 744 AND DO		
							-	\$1,741,100.00 \$35,221,330.00		
-	QUANTITIES				-	PDI	CES	900,221,330,00		
3Y Jeremy l			BY Jeff Morris	71	- 1.		5/4/12			
	TE PREPARED PEER REVIEW / DATE			DATE PRES 05/11/12	PARED	ku i	PEER REVIEW /	DATE  21   11		

FEAT	Arkansas Valley Conduit Pipeline			CT: n-Arkansas	Project	- Arkansas Valle	ey Conduit
			WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
	Revi	sed Comanche South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Manz	anola Spur	FILE:				
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sitework Items:					
	1	Clearing (3 times trench width)	8140	2	acre	\$1,000.00	#2 000 po
	-	Grubbing	8140	0.2		\$2,500.00	\$2,000.00
		Stripping (6" thick)	8140	1,650	acre	\$4.00	\$500.00
	1	Seeding .	8140	***	су		\$6,600.00
		Security	6140	2	acre	\$1,500.00	\$3,000.00
		Earthwork Items:		*			- » · ·
		Soil Excavation (1.5:1) outside urban area	B140	2,750	су	\$9.00	\$24,750.00
		Rock Excavation (0.25:1) outside urban area	8140	97	су	\$45.00	\$4,365.00
		(20% of length is assumed partial rock exc.)					12
		assume rippable material				-	0
		Pipe Bedding (Select material, 4" thick)	8140	56	су	\$50.00	\$2,800.00
		Embedment & Cover Backfill	8140	2,800	cy	\$7.00	\$19,600.00
1		(does not include shrink/swell)					4 (-10-4)-4
		Compacting Embedment Backfill	8140	200	су	\$16.00	\$3,200.00
		15					
	24						<del>-</del>
					-		
		SUBTOTAL THIS SHEET					\$66,815.00
		QUANTITIES			PRIC		
BY Jeremy	Lorbera	CHECKED W. Chris Duke, PE	BY Jeff Morris	Zeul	C C	HECKED # 5/	31/12
DATE P 04/24/12	REPAR		DATE PRES 05/11/12			EER REVIEW D	

FEAT	Arkansas Valley Conduit Pipeline			PROJE( Fryingpa		Project	- Arkansas Valle	ey Conduit
				WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal
	Revis	sed Comar	nche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11
Arkansas Valley Conduit Pipeline Revised Comanche South, Max Day Condition 4 Manzanola Spur  Civil  Pipe Items: 4" DR25 (CIOD) C900 PVC pipe  8140  Isolation Valves (Manual operation):								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	it.	Pipe Items:			-			
1		4" DR25 (C	IOD) C900 PVC pipe	8140	1,650	lin ft	\$6.20	\$10,230.00
		***************************************	** 1- 70)()					
			**************************************					
	÷r + S Ster				-			
			* *	-	3-2-			1011
		lantath M-	, , , , , , , , , , , , , , , , , , ,		100			
			(psig) butterfly valve with operator	8140	1	ea	\$2,100.00	\$2,100.00
		<b>-</b>			)(- )4			7171
		Isolation Va	ve Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00
		60" I,D, x 6"	wall precast flat top with concentric					
		ring, 36" ac	ccess					
		60" I.D. x 6"	wall precast 36" riser					
		60" I.D. pred	cast 72" base shell			0.00		
-	Y	36" dia. Cas	t iron manhole cover and ring set				,	
0.4								
	SUBTOTAL THIS SHEET					-	\$19,330.00	
	QUANTITIES					PRIC	CES	
BY	Lorbera		CHECKED	BY	7.	0	HECKED 14 5/	alla
-	REPAR	, reason-m	W. Chris Duke, PE PEER REVIEW / DATE Stoven   Poherton PE	Jeff Morris  DATE PRE	PARED	gris F	PEER REVIEW / D/	ATE /2/10
O-712-41   2			Steven J. Robertson, PE	05/11/12			MU 3	5/31/12

FEAT	Arkansas Valley Conduit Pipeline				PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Conduit					
	Pipeli	ine		WOID:	AF523	ESTI	NATE LEVEL:	Appraisal		
	Revis	sed Coma	nche South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11		
Civil	Manz	anola Spur		FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Air Valve S	itructures (to include):		4	ea	\$6,800.00	\$6,800.00		
			Concrete Pipe, vertical (10 ft ea)	8140	10		\$0,000.00	Ψ0,000.00		
7		_	gravel filter (4cy)	8140	4	су	1			
			Alum. Hatch cover (95 lbs ea)	8140	95					
1			nation Air Valve (1ea)	8140	1	ea	1			
			alves (1 ea)	8140	1	ea				
	-1 %-									
		Blowoff Str	uctures (to include);		*	ea	\$8,300.00	\$8,300.00		
	····		eel pipe, vertical (8 ft ea)	8140	8	lin ft	\$6,500.00	φ6,300.00		
		-	" Concrete Pad (1.18 cy ea)	8140	1.2			-		
			ous Materials for Pad (0.33 tons ea)	8140	0.33	tons	* ****			
	-	1	f. (1 layer, #5@12" oc, ew, 143 lbs ea)	8140	145	lbs		-		
			scharge stem pipe (2 ft ea)	8140	2	lin ft		_		
	- 10-		y Valve (1 ea)	8140	- 4					
-		-	Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft				
	-	- 6" Tee (1		8140	1	7.5.5	-			
-			lange (1 ea)	8140		ea				
		-	Alum hatch cover (95 lbs ea)	8140	95	ea lbs		*10 4 MISS		
						4				
-										
		-				***				
	-	Cathodic Pr		8140	1	ls	Not applicable, no s	teel pipe.		
			5% of cost for all steel items above							
- 4	1		entage used is based on detailed field cost es	1000 mm		tation				
	_		01729 dated August 2009. Soils are assume		the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s					
		encountere	d at the Weber Siphons and are assumed to	have similar (	corrosion pote	ntial.				
0	SUBTOTAL THIS SHEET SUBTOTAL MANZANOLA SPUR			-			\$15,100.00			
							\$101,245.00			
			QUANTITIES			PR	ICES			
BY Jeremy L	.orberal		CHECKED W. Chris Duke, PE	BY Jeff Morris	74.11	1.	CHECKED	31/12		
DATE PREPARED D4/24/12  W. Chris Duke, PE PER REVIEW / DATE Steven J. Robertson, PE			<b>DATE PREP</b> 05/11/12	ARED	aus	PEER REVIEW ( D)	5/31/12			

FEAT	URE:			PROJEC			14 Caretas	A 52-10-15		
		sas Valley (	Conduit	1200	n-Arkansas		- Arkansas Valle	ey Conduit		
	Pipel			WOID:	AF523		ATE LEVEL:	Appraisal		
			che South, Max Day Condition 4	REGION	44.4					
Civil	Swin	Spur		FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		0" 1"								
-	-	Sitework Iter			7000			244.552.525		
	-	~	imes trench width)	8140	17.5	acre	\$1,000.00	\$17,500.00		
-	-	Grubbing		8140	1.8	acre	\$2,500.00	\$4,500.00		
		Stripping (6"	thick)	8140	14,000	су	\$2.00	\$28,000.00		
		Seeding		8140	17.5	acre	\$1,500.00	\$26,250.00		
		Earthwork Ite	ems:				*			
		Soil Excavat	Ion (1.5:1) outside urban area	8140	24,000	су	\$6.00	\$144,000.00		
		Rock Excava	ation (0.25:1) outside urban area	8140	840	cy	\$45.00	\$37,800.00		
		(20% of leng	gth is assumed partial rock exc.)							
		assume rip	pable material							
		Pipe Bedding	g (Select material, 4" thick)	8140	480	су	\$50.00	\$24,000.00		
		Embedment	& Cover Backfill	8140	24,000	су	\$5.00	\$120,000.00		
		(does not in	clude shrink/swell)							
		Compacting	Embedment Backfill	8140	1,800	су	\$14.00	\$25,200.00		
		100	***	1			- 100 t 5			
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	-	×=	SUBTOTAL THIS SHEET	-				6407 050 00		
	QUANTITIES		PRICES \$427,250.00							
BY		19	CHECKED	BY			Territoria de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya del companya del companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya de la companya			
	Lorbera	ı	W. Chris Duke, PE	Jeff Morris	Zpul	1	CHECKED SI	21/12		
DATE P	REPAR		PEER REVIEW / DATE	DATE PRE		rules F	PEER REVIEW / D.	AT5		
04/24/12	4		Steven J. Robertson, PE	05/11/12				5/31/12		

FEAT	URE: Arkan	nsas Valley	Conduit	PROJEC Fryingpar		Project	- Arkansas Valle	ey Conduit
	Pipeli	ine		WOID:	AF523	-	ATE LEVEL:	Appraisal
			nche South, Max Day Condition 4	1401011	GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Swink	k Spur		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Pipe Items:			-			
			CIOD) C900 PVC pipe	8140	14,000	lin ft	\$6.20	\$86,800.00
					95 %			
		-						ct -
	24 (0.40)							
							1-5	538
			1-6				- 141	
-		Isolation Va	alves (Manual operation):					
) (I) (I) (I) (I) (I) (I) (I) (I) (I) (I	*-		0 (psig) butterfly valve with operator	8140	1	ea	\$1,100.00	\$1,100.00
>=								
			0 7					
i		CTC) TO THE REAL PROPERTY.	alve Manholes (to include): " wall precast flat top with concentric	8140	1	ea	\$7,000.00	\$7,000.00
		ring, 36" ac	Armore and a second	the same	-			
		-	" wall precast 36" riser	100				
340	1 1-2		cast 72" base shell					
		-	st iron manhole cover and ring set			-6 -		
			SUBTOTAL TH	HIS SHEET				\$94,900.00
		(	QUANTITIES			PRIC	ES	WW III
BY Jeremy I	Y CHECKED			BY Jeff Morris (	Pull		HECKED	11/12
	remy Lorberau W. Chris Duke, PE  TE PREPARED PEER REVIEW / DATE  24/12 Steven J. Robertson, PE			DATE PREF 05/11/12	11	P	PEER REVIEW / DA	ATE 5/31/12

FEAT		nsas Valley	Conduit	PROJEC Fryingpar		Projec	t - Arkansas Vall	ey Conduit
	Pipeli			WOID:	AF523	PROPERTY.	MATE LEVEL:	Appraisal
			nche South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11
Civil	Swini	Spur		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Air Valve St	ructures (to include):		3	ea	\$6,800.00	\$20,400.00
-		- 48" dia. Co	oncrete Pipe, vertical (10 ft ea)	8140	30	lin ft	1.00	
	-	1	ravel filter (4cy)	8140	12	су	-	
	5-		Alum. Hatch cover (95 lbs ea)	8140	290	lbs		244
		-	ation Air Valve (1ea)	8140	3	ea		
	ļ.,	- 2* Ball Val	999 442 442 442 442 442 442 442 442 442	8140	3	ea		*
					with a tale			
-11-		Blowoff Stru	ectures (to include):		3	ea	\$8,300.00	\$24,900.00
		- 6" dîa. Ste	el pipe, vertical (8 ft ea)	8140	24	lin ft		-
		- 8' x 8' x 6"	Concrete Pad (1.18 cy ea)	8140	3.5	су	**************************************	
		- Cementitio	ous Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinf.	(1 layer, #5@12" oc. ew, 143 lbs ea)	8140	430	lbs		
		- 6" dia. Disc	charge stem pipe (2 ft ea)	8140	6.0	lin ft		
			Valve (1 ea)	8140	3	ea		
		- 48" Diam 0	Concrete Pipe, vertical (10 ft ea)	8140	30	lin ft	-	
1		- 6" Tee (1 e	pa)	8140	3	ea		
	100	- 6" Blind Fla	ange (1 ea)	8140	3	ea		
		- 48" diam A	dum hatch cover (95 lbs ea)	8140	290	lbs		-
	F -				*			
		-		-				
*								
		Cathodic Pro	otection	8140	1	ls	Not applicable, no s	steel pipe.
		*Assume 5	5% of cost for all steel items above					W 274 745
		Note: Perce	ntage used is based on detailed field cost es	timates prep	ared for Solici	tation		
		No. 09SP10	1729 dated August 2009. Soils are assume	d to be simila	er to those			
		encountered	at the Weber Siphons and are assumed to	have similar	corrosion pote	ntial.		· Prémate du la co
							0 0	-
	SUBTOTAL THIS SHEET		-				\$45,300.00	
	SUBTOTAL SWINK SPUR					ik je	1000	\$567,450.00
pv	QUANTITIES					PR	ICES	
<b>BY</b> Jeremy	CHECKED  W. Chris Duke, PE			BY Jeff Morris	Zhul	min	CHECKED 14 5/	31/12
<b>DATE P</b> 04/24/1:	REPAR	ED	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/11/12	ARED !		PEER REVIEW / D	ATE /31/12

FEAT	EATURE:  Arkansas Valley Conduit			PROJEC Fryingpar	PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Conduit					
	Pipeli	ne		WOID:	AF523	ESTIM.	ATE LEVEL:	Appraisal		
			che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11		
Civil	Home	stead Spur		FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Citounds lies			· · · · · · · · · · · · · · · · · · ·					
-	1	Sitework Iten	<del></del>	0440			24 222 22			
		-	mes trench width)	8140	3.3	acre	\$1,000.00	\$3,300.00		
		Grubbing	12.13	8140	0.33		\$2,500.00	\$825.00		
		Stripping (6"	inick)	8140	2,600	су	\$4.00	\$10,400.00		
		Seeding		8140	3.3	acre	\$1,500.00	\$4,950.00		
	-	Earthwork Ite	ems:				-	100		
		-	on (1.5:1) outside urban area	8140	4,400	су	\$9.00	\$39,600.00		
		-	tion (0.25:1) outside urban area	8140	155	су	\$45.00	\$6,975.00		
-			th is assumed partial rock exc.)	-	1,00	~,	• 10.00	ψο,ο,ο.αδ		
			pable material			5 1				
			(Select material, 4" thick)	8140	89	cy	\$50.00	\$4,450.00		
			& Cover Backfill	8140	4,500	cy	\$7.00	\$31,500.00		
		(does not inc	clude shrink/swell)				*	4-11-4-11-4		
			Embedment Backfill	8140	330	су	\$16.00	\$5,280.00		
	100000000000000000000000000000000000000		3-3			F*.	7,412	10,000,00		
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			****	1		1,7		*		
			SUBTOTAL THIS SHEET	-	0			\$107,280.00		
		Q	UANTITIES			PRI	CES			
BY		aller a	CHECKED	BY		4	CHECKED A	last.		
Jeremy	Lorberau		W. Chris Duke, PE	Jeff Morris (	Zhu	louis	10 3	MILL		
	TE PREPARED PEER REVIEW / DATE			DATE PRE		1	PEER REVIEW / D.	ATE / /		
04/24/11	2		Steven J. Robertson, PE	05/11/12			ACA	5/31/12		

FEAT		ısas Valley (	Conduit	PROJEC Fryingpa		Project	- Arkansas Valle	ey Conduit
	Pipeli		Solidalit	WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal
	200		nche South, Max Day Condition 4		GP	Contract of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the last of the la	RICE LEVEL:	Jan-11
Civil	Home	estead Spur		FILE:				
PLANT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Pipe Items:					Les Nove	
			OD) C900 PVC pipe	8140	2,600	lin ft	\$6.20	\$16,120,00
								*
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+11-			WA	· · · · · · · · · · · · · · · · · · ·				
			ves (Manual operation):					
		4" class 150	(psig) butterfly valve with operator	8140	1	ea	\$1,100.00	\$1,100.00
		-	112	-		100000		
				-				
		leolofing Val	ve Manholes (to include):			-		
			wall precast flat top with concentric	8140		0.00	#7 coc co	
		ring, 36" ac		8140	_ 1	ea	\$7,000.00	\$7,000.00
_	(2)M(	-	wall precast 36" riser		-			-
			ast 72" base shell		-			
			tiron manhole cover and ring set			-		
		oo didi oosi	thon their loc sover and thig see	-		-		
	-				-	-	×	
	SUBTOTAL THIS SHEET			·		*	\$24,220.00	
	QUANTITIES					PRIC	CES	φεν,220.00
BY			CHECKED	BY			CHECKED	11
	Lorberau	u .	W. Chris Duke, PE	Jeff Morris	Zhu		14 5	/31/12
	REPAR	10-10-51	PEER REVIEW / DATE	DATE PRE	ARED		PEER REVIEW / D	ATE
)4/24/12			Steven J. Robertson, PE	05/11/12			SCO 5	/31/12

FEAT	EATURE: Arkansas Valley Conduit Pipeline			PROJEC Fryingpa		Projec	ct - Arkansas Vall	ey Condult
	0.10.40		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	WOID:	AF523	Times .	MATE LEVEL:	Appraisal
			nche South, Max Day Condition 4	TEOIOIT	GP	UNIT	PRICE LEVEL:	Jan-11
Civil	Home	estead Spur		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Air Valve St	ructures (to include):		1	ea	\$6,800.00	\$6,800.00
		- 48" dia. Co	oncrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 3/4 inch gr	avel filter (4cy)	8140	4	су		
		- 48" diam A	Jum. Hatch cover (95 lbs ea)	8140	95	lbs		
		- 2" Combin	ation Air Valve (1ea)	8140	1	ea		
		- 2" Ball Val	ves (1 ea)	8140	1	ea		
			<del></del>					
		Blowoff Stru	ctures (to include):			ea	\$8,300.00	\$8,300.00
			el pipe, vertical (8 ft ea)	8140	8.0	lin ft	ψυ,ουσ.ου	φο,σοσ.σο
		_	Concrete Pad (1.18 cy ea)	8140	1.2	су		-
			us Materials for Pad (0.33 tons ea)	8140	0.33	tons		
		4 1	(1 /ayer, #5@12" oc, ew, 143 lbs ea)	8140	145	lbs		
	1 "	-	charge stem pipe (2 ft ea)	8140	2	lin ft		
			Valve (1 ea)	8140	4	ea	+	
	1-41-		>>oncrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 e		8140	1	ea		
		- 6" Blind Fla		8140	1	ea		
			lum hatch cover (95 lbs ea)	8140	95	lbs		
		-		-				
	-	-		-		4)-		
							****	
		Cathodic Pro		8140	1	ls	Not applicable, no s	steel pipe.
		*Assume 5	5% of cost for all steel items above					
		Note: Percer	ntage used is based on detailed field cost es	itimates prep	ared for Solici	tation		
		No. 09SP10	1729 dated August 2009. Soils are assume	d to be simila	r to those			
	_	encountered	at the Weber Siphons and are assumed to	have similar	corrosion pote	ntial.		_
	-	+	SUBTOTAL THIS SHEET	750		-		******
	-		SUBTOTAL HOMESTEAD SPUR	100				\$15,100.00
		- 0	UANTITIES			PE	ICES	\$146,600.00
BY	Y CHECKED			BY	7			14/12
DATE P	Jeremy Lorberau W. Chris Duke, PE  DATE PREPARED PEER REVIEW / DATE  04/24/12 Steven J. Robertson, PE		PEER REVIEW / DATE	Jeff Morris ( DATE PREF 05/11/12	PARED	foris	PEER REVIEW / D.	ATE 5/31/12

FEAT	URE:	nsas Valley	Conduit	PROJEC Fryingpar		Project	- Arkansas Valle	Arkansas Valley Conduit	
	Pipeli	ine		WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
			nche South, Max Day Condition 4	TTO TOTA	GP	UNIT P	PRICE LEVEL:	Jan-11	
Civil	La Ju	inta Spur		FILE:					
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
11 0		Sitework ite	amet				-		
			times trench width)	8140	1.00	aara	\$1,000.00	\$1,000.00	
	100	Grubbing	unes action watery	8140	1.000	1000	\$1,000.00	\$2,500.00	
	-	Stripping (6)	2º thick)	8140	530		\$2,500.00		
		Seeding Seeding	Unch/	8140	1.00		\$6.00 \$1,500,00	\$3,180.00 \$1,500.00	
		Soil Excavate Pipe Beddin Embedment Compacting	hwork Items: (Vertical Trench) ation (box w/supports,~10'deep) ng (Select material, 4" thick) at & Cover Backfill g Embedment Backfill	8140 8140 8140 8140	2,000 115 1,850	су	\$11.00 \$50.00 \$7.00 \$14.00	\$22,000.00 \$5,750.00 \$12,950.00 \$25,900.00	
			ch will require traffic control, signage, s for duration work)			*			
			ch length of 3,153.89 ft of 12" pipe)						
			trol/Detours Urban Excavation		1	mo	\$15,000.00	\$15,000.00	
		HH-	& Base/Remove & Replace Urban Excavation		3,154	lin ft	\$60.00	\$189,240.00	
		Utility Reloc	cation & Repair Urban Excavation		3,154	lin ft	\$30.00	\$94,620.00	
enales (		All urban ea	arthwork quantities above are for a straight wa	ali "vertical" tr	ench.		194		
			SUBTOTAL THIS SHEET					\$373,640.00	
	QUANTITIES					PRI	CES		
BY Jeremy I	CHECKED			BY Jeff Morris <	Phu		CHECKED NA S	131/12	
DATE P	DATE PREPARED  D4/24/12  W. Chris Duke, PE  PEER REVIEW / DATE  Steven J. Robertson, PE		PEER REVIEW / DATE	DATE PREF 05/11/12	ARED()	June	PEER REVIEW / D.	ATE 5/31/12	

FEAT		ann Mallau	C	PROJEC Fryingpar		Project	- Arkansas Valle	y Conduit
	Pipeli	isas Valley ine	Conduit	WOID:	AF523	IESTIM/	ATE LEVEL:	Appraisal
			nche South, Max Day Condition 4	REGION	GP	-	RICE LEVEL:	Jan-11
		nta Spur		FILE:		Joint 1	NOL LLVLL.	
Civil		•						
F K	M			1				311-32-
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
-		Pipe Items:	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			100		
		12" DR25 (0	CIOD) C900 PVC pipe	8140	3,200	lin ft	\$22.00	\$70,400.00
		A la						
			www.i			1, 14		
4		-						
-			Tep-					
_	_	-	3 1					
		-	to the second	-				
		1						
	-	-		-				
			-					
	-		*					-
74		-				-		
		1 10 11						
			Ives (Manual operation):					
	-	12" class 15	60 (psig) butterfly valve with operator	8140	1	68	\$2,500.00	\$2,500.00
			**					
<del>-</del> 7 -	-	-			1			
_								-
		-	- v					
	-	Including Ma	to Manhata Anglabadak	22.40				
			Ive Manholes (to Include): wall precast flat top with concentric	8140		ea	\$7,000,00	\$7,000.00
-		ring, 36" ac		-1		=× ××		
			wall precast 36" riser	-				
	-		wall precast 50 riser cast 72" base shell				- 1	_
			st iron manhole cover and ring set					
		JU VIII. VEU	Chort manning cover and ring ser			-		
-				-	-			
			SUBTOTAL THIS SHEET	- 2			-	\$79,900.00
		0	QUANTITIES			PRIC	^EQ	\$18,800.00
BY	- "	-	CHECKED	ву			CHECKED	11
	Lorberau	r e	W. Chris Duke, PE	Jeff Morris	Zeu	1	MECKED 1H S	5/31/12
	REPARE		PEER REVIEW / DATE	DATE PREF	PAREN	(itus)	CED DEVIEW / D	ATE I I
04/24/12			Steven J. Robertson, PE	05/11/12	7		PEER REVIEW D	5/21/12
-	· · · · · · · · · · · · · · · · · · ·						Alono	2/2//

FEAI	URE:	nsas Valley	Conduit	PROJEC Fryingpa		Projec	t - Arkansas Valle	ey Conduit
	Pipeli			WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal
	Revi	sed Comar	nche South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11
Civil	La Ju	nta Spur		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1		Air Valve St	tructures (to include):		1	ea	\$6,800.00	\$6,800.00
7			oncrete Pipe, vertical (10 ft ea)	8140	10		1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
		-	ravel filter (4cy)	8140	4	cy		
			Alum. Hatch cover (95 lbs ea)	8140	95	lbs		
			ation Air Valve (1ea)	8140	1	ea		
		- 2" Ball Val		8140		ea		
							-	
		Blowoff Stru	ictures (to include):		1.0	ea	\$8,300.00	\$8,300.00
		- 6" dia. Ste	el pipe, vertical (8 ft ea)	8140	8	lin ft		
			Concrete Pad (1.18 cy ea)	8140	1,2	су		
		1	ous Materials for Pad (0.33 tons ea)	8140	0.33	tons		
	-	- Pad Reinf.	(1 layer, #5@12" oc. ew, 143 lbs ea)	8140	145	lbs		
		- 6" dia. Dis	charge stem pipe (2 ft ea)	8140	2	lin ft		
	DE.	10	/ Valve (1 ea)	8140	1	ea		
		- 48" Diam (	Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		
		- 6" Tee (1 e	ea)	8140		ea		
		- 6" Blind Fl	ange (1 ea)	8140	1	ea		
	<u>.</u>	- 48" diam A	Num hatch cover (95 lbs ea)	8140	95	lbs		
-								
							*	* -
		Cathodic Pr	otection	8140	1	ls	Not applicable, no s	steel pipe.
		*Assume	5% of cost for all steel items above					
		Note: Perce	ntage used is based on detailed field cost es	timates prep	ared for Solici	tation		- /ier
	2	No. 09SP10	1729 dated August 2009. Soils are assume	d to be simila	r to those			
		encountered	at the Weber Siphons and are assumed to	have similar	corrosion pote	ntial.		
		* *	SUBTOTAL THIS SHEET		4		0400	\$15,100.00
			SUBTOTAL LA JUNTA SPUR					\$468,640.00
		. (	QUANTITIES			PR	ICES	
	Lorbera	u	CHECKED W. Chris Duke, PE	BY Jeff Morris	Znil	lain	CHECKED 5/	11/12
	REPAR 2	ED	PEER REVIEW / DATE Steven J. Robertson, PE	<b>DATE PRE</b> 05/11/12	ARED)	<i>Q</i> = 27	PEER REVIEW / D.	ATE 5/31/12
	REPAR	u)	CHECKED W. Chris Duke, PE PEER REVIEW / DATE	BY Jeff Morris DATE PREI	Zy U	PR	CHECKED	5/

FEATU	JRE:		PROJECT: Fryington-Arkansas Project						
	Arkan	sas Valley Co	andult	Fryington-	Arkansas Pr	oject			
			ter Storage Tank	WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
	Revis	ed Comano	he South	REGION:	GP		RICE LEVEL:	Jan-11	
	Reach	3: Fowler S.	Tank to La Junta S. Tank	FILE:					
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	\$5,800.00 \$210.00 \$42,675.00 \$32,240.00 \$1,400.00 \$56,400.00	
		Civil/Structura	alt						
		Civil/Sudctura	41;			- :			
		Sitework							
		Stripping	(6 inch thick layer of soil)						
		Service	ce Yard	86-68120	1,450	yd <sup>3</sup>	\$4.00	\$5,800.00	
	-	Acces	ss Roads	86-68120	35	yd <sup>3</sup>	\$6.00	\$210.00	
_		Excavatio	n (tank foundation)	86-68120	2,845	yd <sup>3</sup>	\$15.00	\$42,675.00	
	- 8	(Assu	ime: Common, 1-1/2:1 slope)						
		Compacte	ed engineered backfill (tank foundation	86-68120	2,015	yd <sup>3</sup>	\$16.00	\$32,240.00	
		Gravel Su	rfacing (6 inches thick)			-		10+++1	
			ce Yard	86-68120	1,250	yd <sup>3</sup>	\$35.00	\$43,750.00	
-00-		Acces	ss Roads	86-68120	35	yd <sup>3</sup>	\$40.00		
		Chain Lin	k Fence	86-68120	1,410	lín ft	\$40.00	\$56,400,00	
			igh fence - 7.0' fabric with 3 strands				7.0.00	ψου, τουσο	
		+	bed wire on top. Three 20' wide	1				-	
	_ hereb		e swing gate				7000		
		Reinforced C	oncrete for Pad & Stem Foundation	86-68120	1	ls	\$620,000.00	- 00 000 00	
		-	f' <sub>c</sub> =4,500 psi)	00 00 120		,,,	ψο20,000.00	φ020,000,00	
			ueblo, CO 70 miles						
		Concrete:						- c +	
		Reinforce	ment (Assume 135 lb/yd3): 118,265 lb	s					
			Assume: 0.282 ton/yd3): 247 tons						
			***						
			**************************************					-1	
		<u> </u>							
-			SUBTOTAL THIS SHEET			A. 1		\$802,475.00	
100	-	QUA	NTITIES			P	RICES		
BY R. J. Barth	nel		REVIEWED Paul Ruchti	BY Jeff Morris	Zhu	larie	CHECKED 14 5/	11/12	
DATE PR 04/16/12		)	PEER REVIEW / DATE	DATE PREPA 05/11/12		Jesu.	PEER REVIEW / DATE	Skiliz	
TO/ 1Z			, aut Nuclia, F.L.	03/11/12			747	2/20/1	

FEATU				PROJECT Fryington-	: Arkansas Pro	oject		
	LaJur		ater Storage Tank	WOID;	AF523	ESTIMA	ATE LEVEL:	Appraisal
1000	Revis	ed Coman	che South	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
	Reach	3: S. Fowle	r Tank to La Junta	FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
9=		Hydraulic Ed	quipment/Mechanical		300			**
-		Steel water	storage tanks					
			0-gallon steel water storage tanks 00 gallons combined capacity)	86-68420	1	ls	\$9,500,000.00	\$9,500,000.00
		AWWA D10	0 compliance water surface 65 feet			-		
		(above	foundation)					
			water surface 90 feet			-		
			e foundation) er 80 feet					
	-		SUBTOTAL THIS SHEET				-	\$9,500,000.00
		QUA	ANTITIES			PF	RICES	\$2,200,00u.00
BY Ken Smitt	T		REVIEWED  Nathan Nakamoto	BY Jeff Morris	Zoul	Juis .	PEER REVIEW DATE	bilis
DATE PR 4/15/2012		) ————————————————————————————————————	PEER REVIEW / DATE Rick Frisz 4/20/12	DATE PREPA 05/12/12	RED ()		PEER REXIEW DATE	131/12

FEATU		sas Valley C	onduit	PROJECT Fryington-	Γ: Arkansas Pro	oject		
			er Storage Tank	WOID:	AF523	LESTIM	ATE LEVEL:	Appraisal
		sed Coman	Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Contro	REGION:	GP		PRICE LEVEL:	Jan-11
	Reach	DESCRIPTION  CIVII/Structural:  Sitework  Stripping (6 inch thick layer of soil)  Service Yard  Access Roads  Excavation (tank foundation)  (Assume: Common, 1-1/2:1 slope)  Compacted engineered backfill (tank foundation)	. Tank to La Junta S. Tank	FILE:				
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structur	ral:					
		Sitework						***
		Stripping	(6 inch thick laver of soil)	-		116-44-		
				86-68120	2,145	yd <sup>3</sup>	\$4.00	\$8,580.00
		Acce	ess Roads	86-68120	75	yd <sup>3</sup>	\$6.00	\$450.00
***	-	Excavati	on (tank foundation)	86-68120	1,530	yd <sup>3</sup>	\$15.00	\$22,950.00
				30 00 120	1,000	75	\$10.00	ΨΖΖ,Β30.00
		1	ted engineered backfill (tank foundation	86-68120	1,120	yd <sup>3</sup>	\$25.00	\$28,000.00
		Gravel S	urfacing (6 inches thick)			-	1	
	15/19		ice Yard	86-68120	1,235	yd <sup>3</sup>	\$35.00	\$43,225.00
		Acce	ess Roads	86-68120	75	yd <sup>3</sup>	\$40.00	\$3,000.00
		Chain Lir	nk Fence	86-68120	1,360	lin ft	\$40.00	\$54,400.00
		8.0' H	High fence - 7.0' fabric with 3 strands					
		of ba	rbed wire on top. Two 20' wide					
	-	doub	le swing gate					
		-	Concrete for Pad & Stem Foundation	86-68120	1	ls	\$340,000.00	\$340,000.00
			: f <sub>c</sub> =4,500 psl)					
			Pueblo, CO 40 miles		-			174
e			x: 465 yd3					-
			ement (Assume 135 lb/yd3): 62,835 lbs (Assume: 0.282 ton/yd3): 131 tons					
		-	4304					
	-							
	-		SUBTOTAL THIS SHEET					\$500,605.00
		QUA	NTITIES		W. W.	P	RICES	
BY R. J. Bartl	nel .		REVIEWED	BY	711		CHECKED 14 5	131/12
DATE PR	74	)		Jeff Morris ( ) Julyuis PEER REVIEW / DATE 05/11/12				rhilis
04/16/12			Paul Ruchti, P.E.	05/11/12			Hay	3/3/10

FEATU	Arkansas Valley Conduit Fowler North Water Storage Tank	PROJECT Fryington-	: Arkansas Pro	oject				
	Fowle	r North Wat	er Storage Tank	WOID:	AF523	ESTIMA"	TE LEVEL:	Appraisal
	Revis	sed Comar	nche South	REGION:	GP	UNIT PR	ICE LEVEL:	Jan-11
	Reach	3: Fowler !	S. Tank to La Junta S. Tank	FILE:				
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	JAUCOMA
F-40		Hydraulic E	quipment/Mechanical					
-		Steel water	storage tanks					
			00-gallon steel water storage tank	86-68420	1	ls	\$8,300,000.00	\$8,300,000.00
		***	00 gallons combined capacity)		× 1-4			
			00 compliance					
			water surface 0 feet					
1x29 <del>c</del>			e foundation)					
	572-		m water surface 25 feet					
			e foundation) er 125 feet	-				
					- 10. 0		-	8.7
		na E	SUBTOTAL THIS SHEET					\$8,300,000.00
DV.		QU	ANTITIES				CES	, ,
BY Ken Smith			REVIEWED	BY	7	1 . 0	HECKED NA 5/	21/11-
DATE PRI 4/16/2012	EPARED	)	Nathan Nakamoto PEER REVIEW / DATE Rick Frisz 4/20/12	Jeff Morris  DATE PREPA  05/12/12	Ap uj		PEER REVIEW / DATE	5/31/12

FEAT	TURE:		PROJECT:						
	Arkan	sas Valley (	Conduit	Fryingpan-	-Arkansas F	roject -	Arkansas Valley Con	duit	
	Pipeli			WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal	
	Revis	ed Comanci	he South, Max Day Condition 4	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11	
	Fowle	r North Tan	k Access Road	FILE:					
Civil				1.73					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
-	-	_							
	_		- Maria Maria					· • • • • • · · · · · · · · · · · · · ·	
		1	ss (to include):	20 20172	37.53				
-		Stripping (6'		86-68140	3,100	су	\$4.00	\$12,400.00	
		gravel (6" th		86-68140	3,100	су	\$35.00	\$108,500.00	
		(20' wide a	ccess, 8,300' long)						
-	-			-					
-	1		7						
-	-	1							
	-	A cases Daid	de Hanne			313.00			
	-	Access Brid	ge items: idge (70' Double Span) to include:	-	1	bridge			
			cavation (2200 ea)	86-68140	0.000			Acc not on	
		1	utments (2100 ea)		2,200	су	\$25.00	\$55,000.00	
			backfill (2100 ea)	86-68140	2,100	су	\$30.00	\$63,000.00	
	-	-	pack ramp embankment (85 ea)	86-68140 86-68140	2,100	су	\$30.00	\$63,000.00	
	-	Comp. appr	oach ramp embankmem (ab ea)	00-00140	85	су	\$40.00	\$3,400.00	
		Concrete - h	eridge abutment (85 ea)	86-68140	85	CV	\$1,300.00	\$110,500.00	
-			oridge deck & girders (90 ea)	86-68140	90	cy	\$1,700.00	\$153,000.00	
1			nier & footing (35 ea)	86-68140	35	cy	\$1,500.00	\$52,500.00	
	+	* * * * * * * * * * * * * * * * * * * *	ent (140 #/cy) (30,000 ea)	86-68140	30,000	lbs	\$1.70	\$51,000.00	
			s Materials (6 sack mlx) (60 ea)	86-68140	60	tons	Included in Concrete Ite		
			guardrail (180 ea)	86-68140	180	lin. ft.	\$60.00	\$10,800.00	
			cades & signage	86-68140	1	-	\$10,000.00	\$10,000.00	
			2000 × 091095	00 00 110		IS	φ10,000.00	\$10,000.0D	
-								~	
-	-		K-H-1	-			*		
			· ·						
		-					(0-0)-(1-00-4)-		
						999		*****************	
		-							
			***						
						***			
			SUBTOTAL THIS SHEET					\$693,100.00	
		QUA	INTITIES	1		Р	RICES		
BY	0.4.0		CHECKED	BY		4	CHECKED 44	act.	
	orberau		W. Chris Duke, PE	Jeff Morris	Zhil	Paris	110 5/	11/12	
	REPARE	D	PEER REVIEW / DATE	DATE PREP	AREO )	green	PEER REVIEW / DATE	11	
04/24/12			Steven J. Robertson, PE	05/11/12			ACA .	5/31/12	
	-		***			-	IN THE	7 7	

	IRE:	sas Valley C	onduit	PROJECT Fryington-A	: Vrkansas Pro	oject					
	Partic	ipant Tie-In '	Vaults	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal			
	Revis	ed Coman	che South	REGION:	GP	UNIT PF	RICE LEVEL:	Jan-11			
	Reach	3: S. Fowler	r tank to La Junta	FILE:							
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
	<u>L</u> .	Civil/Structur	ral:								
		Participant	Tie-In Vaults	86-68120	15		\$35,000.00	\$525,000.00			
-			ed Concrete for Vaults	30-08120	10	ea	\$35,000.00	\$625,UUU.UU			
			sumed: 12' W x 9' L x 10'-8" D)								
			ume: f <sub>c</sub> ≈4,500 psi)			-		10)-(+18)-			
			rce: 50 miles				-	-			
	-	-	crete: 17.5 yd3				-				
			forcement (Assume 135 lb/yd3): 2,360	lhe		····	+	******			
			nent (Assume: 0.282 ton/yd3): 5 tons					-			
		Access 8	& Service Hatches					-14461			
			ess hatch 3' x3': 2 ea								
0.00	1		The Bilco Co Type Q single leaf)	7-01-							
			rice hatch 3' x 5': 1 ea			( ) ( ) ( ) ( ) ( ) ( )					
		(	(The Bilco Co Type JD special sizes)								
		Miscellar	neous Metalwork	12							
			(ASTM A36): 150 lbs				· · · · · · · · · · · · · · · · · · ·				
			(Ref. 40-D-6601, Ladder Type 2)								
		Sitework									
		Strip	ping (6 inch thick layer of soil)					·			
			Service Yard: 12 yd3					· ·			
			evation: 195 yd3								
		(	Assume: Common, 1-1/2:1 slope)								
		Com	pacted engineered backfill: 155 yd3								
		Grav	el Surfacing (6 inches thick)								
			Service Yard: 10 yd3								
			V 40								
						- 3 0					
			CURTOTAL THE SHEET					Lance de la Car			
		OUA	SUBTOTAL THIS SHEET			-	1050	\$525,000.00			
BY	* * * * * * * * * * * * * * * * * * * *	QUA	REVIEWED	PV			ICES	,			
Bı R. J. Bartl	hel		Paul Ruchti, PE	BY Jeff Morris	Zaul		CHECKED 5/31/	12			
DATE PR 04/18/12		5	PEER REVIEW / DATE Paul Ruchti, PE 4/18/12	DATE PREPA	1/4	my	PEER REVIEW / DATE	5/31/12			

FEATL		s Valley Co	nduit	PROJECT Fryington-	: Arkansas Pro	oject		
	Participa	ant Tie-In Va	aults	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
	Revised	d Comanci	he South	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
		S. Fowler cal Equipm	Tank to La Junta ent	FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume partic	sipant tie-in vault size=12' W x 9' L x	10'-8" D				÷
	1		It ventilation equipment	85-68410	15	ls	\$5,600.00	\$84,000.00
			equipment per vault	n=1 479		-		
		-	)-steel centrifugal fan, 200 cfm @ 0 2 ft)-6" diam, 16 ga., galv. steel duc	1	нр			
			)-6" diam, sch 20, galv., L.R. 180 de		in a		<del>- 161</del> 0 - 1	1411
			)-6"x8" reducer, sch 20, galv. steel ;	7	uiris		***	
			)-8" diam, stainless steel bird scree					
	† <del>-</del>		)-6"x8" reducer, 16 ga, galv. steel d				1	
			)-6" diam galv steel motor-operated			-		
			)-fan motor starter for 1/6 Hp	Language				
			)-fan wall switch and box		;			
	2	Meter vaul	It heater	86-68410	15	ea	\$800.00	\$12,000.00
	-		unit heater					
		thermo	ostatically controlled					
	3	Flowmeter	r system	86-68410	15	ea	\$13,000.00	\$195,000.00
		6" diar	meter, microprocessor-based,					
		flange	d electro-magnetic flowmeter with					7000
		remote	e wall-mounted transmitter					
			t= approx 85 lbs					
		120 V	olt AC	+				
		V 1-80%					_	4-4
						-		5.001 -2.5
			SUBTOTAL THIS SHEE	T	-			\$291,000.00
		QUAN	NTITIES				ICES	
BY AM Ritt		21.01	REVIEWED Paul Schlein	BY Jeff Morris	Zpul	gus	CHECKED -NA S	1/31/12
DATE PR 4/15/2012	EPARED		PEER REVIEW / DATE Dave Hulse	DATE PREPA 05/12/12			PEER REVIEW / DATE	131/12

FEATU	FEATURE:  Arkansas Valley Conduit  Participant Tie-In Vaults	pnduit	PROJECT Fryington-	: Arkansas Pro	oject			
				WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
		ed Coman		REGION:	GP	- Val. 1 1 1 2 2 2 2	RICE LEVEL:	Jan-11
	Reach	3: S. Fowler	tank to La Junta	FILE:				
PLANT ACCOUNT	РАУ ГГЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
. ov	å							
-22.0		Mechanical/h	-lydraulic equipment		-			-
,		Participant	Tie-in Vaults (15 vaults)	86-68420				
10		6-inch pressu	ure reducing valve		15	ea	\$7,800.00	\$117,000.00
1 = -1			, 160 lbs each				1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,	
			NSI class 150 steel					
		(285 p	si rated)					
		6-inch manus	ally-operated butterfly valve					
-			, 90 lbs each		13	ea	\$1,300.00	\$16,900.00
			lass 150-B	2 2	- 25	-	7.11-112-1	* * * * * * * * * * * * * * * * * * * *
			130 lbs each		2	ea	\$2,300.00	\$4,600.00
	1.	1-090,10	lass 250-B				V-100.000	
		6-inch buried	I square-nut operated butterfly					
		valve with va	Ive hox					
		13 valves	, 245 lbs each		13	ea	\$2,800.00	\$36,400.00
		AWWA C	lass 150-B					
		2 valves,	285 lbs each		2	ea	\$3,800.00	\$7,600.00
		AWWA C	lass 250-B					
	-							
		1-inch air val	ve					
		combinati	on air valve					
		15 air valv	es, 35 lbs each		15	ea	\$1,000.00	\$15,000.00
			***************************************					
-								
_								
					4 X 22 K			nerimination and the
	15-2		SUBTOTAL THIS SHEET					\$197,500.00
		QUA	NTITIES	40.0	- 50	PF	RICES	
BY Ken Smith			REVIEWED Nathan Nakamoto	Jeff Morris	Zkul	1	CHECKED AN S	131/12
DATE PR		)	PEER REVIEW / DATE	DATE PREP				
4/18/2012			Rick Frisz 4/20/12	05/12/12			PEER REVIEW / DATE	5/3//12

FEAT		nsas Valley Conduit	PROJEC Fryingpa		Project	- Arkansas Vall	ey Conduit	
	Pipel		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal	
	Revis	sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
Civil	Reac	h 4 from La Junta S. Tank to Lamar	FILE:					
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	TAUOMA	
		Sitework items:	-					
		Clearing (3 times trench width)	8140	490	acre	\$800.00	\$392,000.00	
==	-	Grubbing	8140	49		\$2,500.00	\$122,500.00	
		Stripping (6" thick)	8140	390,000		-		
		Seeding		1-10	су	\$2.00	\$780,000.00	
		Jeeding	8140	490	acre	\$800.00	\$392,000.00	
		Earthwork Items:		- 1 Augus			**	
		Soil Excavation (1.5:1) outside urban area	8140	870,000	су	\$4.00	\$3,480,000.00	
		Rock Excavation (0.25:1) outside urban area	8140	45,000	су	\$25.00	\$1,125,000.00	
	-	(20% of length is assumed partial rock exc.)					4. 1.	
		assume rippable material					-3 )	
		Pipe Bedding (Select material, 4" thick)	8140	15,900	cy	\$30.00	\$477,000.00	
		Embedment & Cover Backfill	8140	880,000	су	\$3.00	\$2,640,000.00	
		(does not include shrink/swell)			1	- C		
				65,000	су	\$8.00	\$520,000.00	
							••••••••••••••••••••••••••••••••••••••	
		SUBTOTAL THIS SHEET				-	\$9,928,500.00	
BY Jeremy I	Y CHECKED W. Chris Duke, PE			Zhu	PRI	CES CHECKED AF S	/21/12	
<b>DATE P</b> 04/24/12	ATE PREPARED PEER REVIEW / DATE			PAREO .	F	PEER REVIEW / D	5/31/12	

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline	PROJEC Fryingpar		Project	- Arkansas Valley Conduit			
	E. C. S. S. S. S.	8F 7/		WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
	Revis	sed Coman	che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Reach	1 4 from La	Junta S. Tank to Lamar	FILE:				
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Pipe Items:						
		24" DR25 (C	CIOD) C905 PVC pipe	8140	93,000	lin ft	\$68.00	\$6,324,000.00
		22" dia. stee	el, 0.1345" thick (33 #/ft)-mortar lined	8140	87,000	lin ft	\$95.00	\$8,265,000.00
	100	epoxy tape	coated, rubber gaskets, HC=375			-		
		2,859,657.	57 lbs total steel					
		18" dia. stee	al. 0.1442" thick (30 #/ft)-mortar lined	8140	10,500	lin ft	\$75.00	\$787,500.00
		epoxy tape	coated, rubber gaskets, HC=625					
		315,561.3	bs total steel		90-35			
		16" dia. stee	H, 0.1345" thick (25 #/ft)-mortar lined	8140	36,000	lin ft	\$70.00	\$2,520,000.00
		epoxy tape	coated, rubber gaskets, HC=625		* *			
		904,686.25	i lbs total steel					
		20" DR18 (C	NOD) C905 PVC pipe	8140	52,000	lin ft	\$60.00	\$3,120,000.00
-			CIOD) C905 PVC pipe	8140	31,000	lin ft	\$40.00	\$1,240,000.00
		Isolation Val	ves (Manual operation):				0.00	-0
			0 (psig) butterfly valve with operator	8140	4	ea	\$15,000.00	\$60,000.00
		1 100	0 (psig) butterfly valve with operator	8140	4	ea	\$15,000.00	\$60,000.00
		-	0 (psig) butterfly valve with operator	8140	2	ea	\$10,500.00	\$21,000.00
		1	iss 150 (psig) b-fly valve w/ operator	8140	1	ea	\$12,500.00	\$12,500.00
	- 36		0 (psig) butterfly valve with operator	8140	2	ea	\$6,200.00	\$12,400.00
		16" ANSI cla	ss 150 (psig) b-fly valve w/ operator	8140	2	ea	\$9,400.00	\$18,800.00
		-	ve Manholes (to include);	8140	15	ea	\$7,000.00	\$105,000.00
			wall precast flat top with concentric					
	-	ring, 36" ac		1 1				
		_	wall precast 36" riser					
			ast 72" base shell					
		36" dia. Casi	tiron manhole cover and ring set SUBTOTAL THIS SHEET		- 8-			\$22,546,200.00
QUANTITIES				-	PRI	CES		
BY Jeremy I				BY Jeff Morris (	The	- 1	CHECKED	Bilin
-	ATE PREPARED PEER REVIEW / DATE			DATE PRES 05/12/12	ARED	F	PEER REVIEW	DATE /31/12

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline			PROJEC Fryingpa		Project	ect - Arkansas Valley Conduit		
	11,000			WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
	Revis	sed Coman	che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11	
Civil	Reac	h 4 from La J	Junta S. Tank to Lamar	FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRIČE	TAUOMA	
		Air Valve Str	uctures (to include):	1	58	ea	\$6,800.00	\$394,400.00	
		- 48" dia. Co	ncrete Pipe, vertical (10 ft ea)	8140	580	lin ft			
		- 3/4 inch gra	vel filter (4cy)	8140	230	су		*	
		- 48" diam Al	um. Hatch cover (95 lbs ea)	8140	5,500	lbs			
		- 2" Combina	tion Air Valve (1ea)	8140	58	ea			
		- 2" Ball Valv	es (1 ea)	8140	58	ea		76	
					3. 35				
		Blowoff Struc	tures (to include):		58	ea	\$8,300.00	\$481,400.00	
			I pipe, vertical (8 ft ea)	8140	460	iin ft	32/522/22	* 14 17 144144	
		1	Concrete Pad (1.18 cy ea)	8140	68	су	<del></del>		
		-	s Materials for Pad (0.33 tons ea)	8140	19	tons			
			(1 layer, #5@12" oc. ew, 143 lbs ea)	8140	8,300	lbs			
			harge stern pipe (2 ft ea)	8140	115	lin ft	- 2		
		- 6* Butterfly		8140	58	ea	-		
			oncrete Pipe, vertical (10 ft ea)	8140	580	lin ft			
1-3		- 6" Tee (1 ea	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	8140	58	ea			
		- 6" Blind Fla	nge (1 ea)	8140	58	ea			
_		- 48" díam Al	um hatch cover (95 lbs ea)	8140	5,500	lbs			
				- n.					
		Cathodic Pro	tection % of cost for all steel items above	8140	1	ls	\$590,000.00	\$590,000.00	
			tage used is based on detailed field cost es	timates prer	pared for Solici	tation	***************************************		
			729 dated August 2009. Soils are assume					32 54	
			at the Weber Siphons and are assumed to	the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RESERVE TO THE RE	ntial.			
			SUBTOTAL THIS SHEET		_			\$1,465,800.00	
			SUBTOTAL REACH 4	-	-01	+ + + - +		\$33,940,500.00	
	QUANTITIES					PR	ICES	• • • • • • • • • • • • • • • • • • • •	
BY Jeremy	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		BY Jeff Morris	Olm		CHECKED	5/21/12		
	ATE PREPARED PEER REVIEW / DATE		DATE PRE 05/12/12		June	PEER REVIEW /	DATE /21/17		

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline			CT: n-Arkansas	Project	oject - Arkansas Valley Conduit			
	Pipeli	ne	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal		
	Revis	sed Comanche South, Max Day Condition 4	REGION	GP	UNIT PRICE LEVEL:		Jan-11		
Civil	Hasty	Spur	FILE:						
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	-	Sitework Items:							
		Clearing (3 times trench width)	8140	1.00		\$1,000.00	#4 000 00		
	*****	Grubbing					\$1,000.00		
-	-		8140	1.000		\$2,500.00	\$2,500.00		
į.	-	Stripping (6" thick)	8140	630	1	\$6.00	\$3,780.00		
		Seeding	8140	1.00	acre	\$1,500.00	\$1,500.00		
		Earthwork Items:							
		Soil Excavation (1.5:1) outside urban area	8140	1,050	су	\$9.00	\$9,450.00		
		Rock Excavation (0.25:1) outside urban area	8140	37.0	су	\$45.00	\$1,665.00		
		(20% of length is assumed partial rock exc.)							
		assume rippable material			-				
		Pipe Bedding (Select material, 4" thick)	8140	21	су	\$50.00	\$1,050.00		
		Embedment & Cover Backfill	8140	1,050	су	\$7.00	\$7,350.00		
		(does not include shrink/swell)							
	(In the later)			***					
							×		
		SUBTOTAL THIS SHEET					\$29,559.00		
	QUANTITIES				PRI	CES			
BY Jeremy	Lorbera	U W. Chris Duke, PE	BY Jeff Morris	Zoal	uis	THECKED SI	11/12		
DATE P 04/24/1:		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/12/12	PARED '	1	PEER REVIEW/D	5/31/12		

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline	0	PROJEC Fryingpa		Project	- Arkansas Valley Conduit			
1		A 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	Conduit	WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal	
			nche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
	Hasty			FILE:	- Or	DIAIT P	NOE LEVEL:	Dall-11	
Civil		76-11							
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Pipe Items:				100			
			IOD) C900 PVC pipe	8140	630	lin ft	\$6.20	\$3,906.00	
	- n ,						44.25	<b>\$0,000.0</b>	
	-0-								
		-						*	
			N (1894)						
				200		13-1			
								-	
		Isolation Va	Ives (Manual operation):						
		4" class 150	(psig) butterfly valve with operator	8140	1	ea	\$1,100.00	\$1,100.00	
								160	
	* **								
			ve Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00	
		-	wall precast flat top with concentric						
		ring, 36" a							
			wall precast 36* riser			Z 1			
-		Si Ore	cast 72" base shell						
	-	36" dia. Cas	st Iron manhole cover and ring set			-6-		yn-1	
	-	-		1					
			SUBTOTAL THIS SHEET					#40 000 00	
	QUANTITIES QUANTITIES				_	PRIC	ree .	\$12,006.00	
BY			CHECKED	BY		-	EASTER VIEW		
Jeremy I	orbera	ı	W. Chris Duke, PE	Jeff Monts	7,011	1	HECKED 5/	31/12	
DATE PI 04/24/12	REPAR		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/12/12	201	F	PEER REVIEW D	ATE /31/12	
- NA 71 12			Otover a moderaum, FE	00/12/12			NIN	2/3/11/1	

FEAT	Arkansas Valley Conduit Pipeline			PROJEC Fryingpa		Projec	ject - Arkansas Valley Conduit		
	100			WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal	
	Revi	sed Coman	che South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11	
Civil	Hasty	Spur		FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Air Valve Str	ructures (to include):		1	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Co	oncrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 3/4 inch gra	avel filter (4cy)	8140	4	су			
		- 48" dlam A	lum. Hatch cover (95 lbs ea)	8140	95				
1		- 2" Combina	ation Air Valve (1ea)	8140	1	ea			
	10-	- 2" Ball Valv	ves (1 ea)	8140	1	ea			
		Blowoff Stru	ctures (to include):		1	ea	\$8,300.00	\$8,300.00	
1		- 6" dia. Stee	el pipe, vertical (8 ft ea)	8140	- 8	lin ft			
		-8' x 8' x 6"	Concrete Pad (1.18 cy ea)	8140	1.2	су			
		- Cementitio	us Materials for Pad (0.33 tons ea)	8140	0.33	tons			
		- Pad Reinf.	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	145	lbs			
			charge stem pipe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly	Valve (1 ea)	8140	1	ea		The contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract of the contract o	
		- 48" Diam C	Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft	- 1	Police -	
		- 6" Tee (1 e		8140	1	ea			
		- 6" Blind Fla	inge (1 ea)	8140	1	ea		*	
		- 48" diam A	lum hatch cover (95 lbs ea)	8140	95	lbs			
		+		-			-		
		Cathodic Pro	ptection	8140		ls	Not applicable, no s		
	-	-	5% of cost for all steel items above				Trot application, no	otoo, pipe,	
			ntage used is based on detailed field cost es	timates pren	ared for Solici	tation			
		-	1729 dated August 2009. Soils are assume			- Con	-		
	-	×-22	at the Weber Siphons and are assumed to	-		ential.			
		-	SUBTOTAL THIS SHEET					\$15,100.00	
			SUBTOTAL HASTY SPUR					\$56,865.00	
		Q	UANTITIES		enem.	PR	ICES		
BY Jeremy	Lorbera		CHECKED . W. Chris Duke, PE	BY CHECKED				selv-	
10.7	REPAR	-	PEER REVIEW / DATE Steven J. Robertson, PE	Jeff Morris ( DATE PREI 05/12/12	PARED	nus	PEER REVIEW / D	ATE /31/12	

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline			CT: n-Arkansas	Project	ect - Arkansas Valley Conduit		
	Pipeli	ne	WOID:	AF523	ESTIMATE LEVEL:		Appraisal	
	Revis	sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
Civil	McCla	ave Spur	FILE:					
PLANT	PAY (TEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNITPRICE	AMOUNT	
		Sitework Items:		-				
		Clearing (3 times trench width)	8140	7.0	acre	\$1,000.00	\$7,000.00	
		Grubbing	8140	1.00	acre	\$2,500.00	\$2,500.00	
	-	Stripping (6" thick)	8140	5,700		\$4.00	\$22,800.00	
	1	Seeding (6 thick)		7.70	су	-		
		accoming	8140	7.0	acre	\$1,500.00	\$10,500.00	
		Earthwork Items:						
		Soil Excavation (1.5:1) outside urban area	8140	9,900	су	\$9.00	\$89,100.00	
		Rock Excavation (0.25:1) outside urban area	8140	370	су	\$45.00	\$16,650.00	
		(20% of length is assumed partial rock exc.)			100			
		assume rippable material						
	Section.	Pipe Bedding (Select material, 4" thick)	8140	200	су	\$50.00	\$10,000.00	
	12.	Embedment & Cover Backfill	8140	10,000	су	\$5.00	\$50,000.00	
7 4000		(does not Include shrink/swell)			7	40.00	400,000.00	
		Compacting Embedment Backfill	8140	890	су	\$16.00	\$14,240.00	
							· (1)) · · · · ( **)	
				=04				
		331 4.1			20-00			
		SUBTOTAL THIS SHEET		40 1 2			\$222,790.00	
		QUANTITIES			PRI	CES		
<b>BY</b> Jeremy			BY Jeff Morris	- 14/ A	main	CHECKED 5	31/12	
DATE P 04/24/12		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/12/12			PEER REVIEW D	5/31/12	

FEAT	Arkansas Valley Conduit Pipeline			PROJEC Fryingpar		Project	Arkansas Valley Conduit		
		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal	
	Revis	sed Coman	nche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
	McCla	ave Spur		FILE:				D 000	
Civil									
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Pipe Items:							
			OD) C900 PVC pipe	8140	5,500	lin ft	\$9.00	\$49,500.00	
		7 5/1		-		700 15		A.ininasira	
			19-11						
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v - 1		-			-		-		
		leafation Val	ves (Manual operation):	+					
-	_	-				H- 9-1			
O-		p. ciass 150	(psig) butterfly valve with operator	8140	1	ea	\$1,300.00	\$1,300.00	
		-				-			
		-		-	494 B			-	
					-				
		1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		ļ <u>+</u>					
			ve Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00	
			wall precast flat top with concentric						
	-	ring, 36" ac							
			wall precast 36" riser						
			ast 72" base shell						
		36" dla. Cas	t fron manhole cover and ring set						
						1			
					-2				
			SUBTOTAL THIS SHEET	A			1	\$57,800.00	
		G	QUANTITIES		206.03	-	CES		
BY			CHECKED	ВУ	0 1	1	CHECKED	-hil.	
Jeremy L	orbera	J	W. Chris Duke, PE	Jeff Morris Ly Clours WX 5/21/12				pilis	
<b>DATE PF</b> 04/24/12		ED	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/12/12	FARED		PEER REVIEW D	5/31/12	

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline  Revised Comanche South, Max Day Conditio			PROJEC Fryingpar		Projec	act - Arkansas Valley Conduit			
				WOID:	AF523		MATE LEVEL:	Appraisal		
			nche South, Wax Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11		
Civil	McCla	ave Spur		FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Air Valve S	tructures (to include):		2	ea	\$6,800.00	\$13,600.00		
	-	- 48" dia. C	oncrete Pipe, vertical (10 ft ea)	8140	20	lin ft				
			ravel filter (4cy)	8140	8	су				
			Alum. Hatch cover (95 lbs ea)	8140	190			-		
1		- 2" Combin	nation Air Valve (1ea)	8140	2	ea				
	-	- 2" Ball Val	ves (1 ea)	8140	2	ea		- X		
							-			
1		Blowoff Stru	uctures (to include):		2	ea	\$8,300.00	\$16,600.00		
			el pipe, vertical (8 ft ea)	8140	16	lin ft		V.0,000.00		
		- 8' x 8' x 6"	Concrete Pad (1.18 cy ea)	8140	2.4	су				
			ous Materials for Pad (0.33 tons ea)	8140	0.66	tons				
			(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	290	ibs	1 -			
	11.3		charge stem pipe (2 ft ea)	8140	4	lin ft	1			
		Total Passer	/ Valve (1 ea)	8140	2	63				
			Concrete Pipe, vertical (10 ft ea)	8140	20	lin ft		220- 0		
	-	- 6" Tee (1 e	****	8140	2	ea				
		- 6" Blind Fl	ange (1 ea)	8140	2	ea	-			
		- 48" dlam A	Num hatch cover (95 lbs ea)	8140	190	lbs		*(		
	ly s-				-0					
-			-							
		ets s						On C		
		Cathodic Pr		8140	1	Is	Not applicable, no	steel pipe.		
		*Assume	5% of cost for all steel items above							
		Note: Perce	ntage used is based on detailed field cost es	timates prep	ared for Solici	tation				
			1729 dated August 2009. Soils are assumed	THE PERSON NAMED IN T	A STATE OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PAR					
		encountered	at the Weber Siphons and are assumed to	have similar	corrosion pote	ntial.				
-			SUBTOTAL THIS SHEET			-	1	\$30,200.00		
			SUBTOTAL McCLAVE SPUR					\$310,790.00		
- 10		(	QUANTITIES			PR	ICES			
BY Jeremy				BY Jeff Morris	Zocal			121/12		
-	REPAR		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/12/12	PARED	Linker	PEER REVIEW / D	ATE 5/31/12		

FEAT	Arkansas Valley Conduit			CT: n-Arkansas	Project	- Arkansas Valle	ey Conduit
	Pipeli		WOID:	AF523	ESTUM/	ATE LEVEL:	Appraisal
		sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11
	Wiley	Spur	FILE:				
Civil							
-	S	****					
PLANT	PAY ITEM	DESCRIPTIÓN	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sitework Items:					
		Clearing (3 times trench width)	8140	24	acre	\$1,000.00	\$24,000.00
-		Grubbing	8140	3.0		\$2,500.00	\$7,500.00
-		Stripping (6" thick)	8140	19,500	40.00	\$2,00	\$39,000.00
	-	Seeding	8140	24		\$1,500.00	\$36,000.00
		Security	0140	24	- 4014	φ1,300.00	400,000.00
		Earthwork Items:					
		Soil Excavation (1.5;1) outside urban area	8140	33,000	су	\$6.00	\$198,000.00
		Rock Excavation (0.25:1) outside urban area	8140	1,150	су	\$35.00	\$40,250.00
		(20% of length is assumed partial rock exc.)					
		assume rippable material					
	1	Pipe Bedding (Select material, 4" thick)	8140	670	су	\$50.00	\$33,500.00
		Embedment & Cover Backfill	8140	34,000	су	\$5.00	\$170,000.00
		(does not include shrink/swell)			7 3		
3 (mm ÷ 1 × 1		Compacting Embedment Backfill	8140	2,500	су	\$14.00	\$35,000.00
					7		
							Para 20 10 =
			,	-			S(n)
	SUBTOTAL THIS SHEET						\$583,250.00
		QUANTITIES			PR	ICES	
BY Jeremy	Lorbera	CHECKED  W. Chris Duke, PE	BY Jeff Morris	Quu,	Juis	CHECKED 5	131/12
	REPAR		DATE PRI 05/12/12			PEER REVIEW /	5/31/12

FEAT		sas Valley (	Conduit	PROJEC Fryingpar		Project	- Arkansas Valle	ey Conduit		
	Pipell	ne		WOID:	AF523	ESTIMATE LEVEL:		Appraisal		
	Revis	ed Coman	che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11		
Civil	Wiley	Spur		FILE:						
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Pipe Items:								
		4" DR25 (CI	OD) C900 PVC pipe	8140	19,500	lin ft	\$6.20	\$120,900.00		
								75.77		
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				101 0		-				
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			H			-				
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				-		-	-	-		
		-	ves (Manual operation):	2440						
		4" class 250	(psig) butterfly valve with operator	8140	- 1	ea	\$2,100.00	\$2,100.00		
		<del></del>	-×-		-	-				
	P   C   P   P	-						*****		
	-				-					
		Isolation Val	ve Manholes (to include):	8140		ea	\$7,000.00	\$7,000.00		
		-	wall precast flat lop with concentric	0140	e - 1	- ca	Φ7,000,10	Ψ1,000.00		
		ring, 36" ac	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s					-		
	-		wall precast 36" riser							
			ast 72" base shell							
		-	tiron manhole cover and ring set							
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	-		16-40-					-100000		
			SUBTOTAL THIS SHEET					\$130,000.00		
		C	UANTITIES			PRI	CES			
BY			CHECKED	BY			CHECKED	, 1		
Jeremy	Lorbera	i	W. Chris Duke, PE	Jeff Morris	Thu		7M 51	31/12		
DATE F	REPAR	ED	PEER REVIEW / DATE	DATE PREPARED  05/12/12  DEER REVIEW / DATE  05/12/12				ATE,		
04/24/1	2 .		Steven J. Robertson, PE	05/12/12			NCO	5/3/12		

FEAT	ATURE:  Arkansas Valley Conduit  Pipeline			PROJEC Fryingpar		Projec	t - Arkansas Valle	ey Conduit		
				WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal		
11	1		he South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11		
Civil	Wiley	Spur		FILE:	FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Air Valve Stru	ictures (to include):		4	ea	\$6,800.00	\$27,200.00		
	v +-		crete Pipe, vertical (10 ft ea)	8140	40	277	22.000			
,		-	vel filter (4cy)	8140	16			-		
		40 1000	ım. Hatch cover (95 lbs ea)	8140	380	-				
-	-		tion Air Valve (1ea)	8140	4	ea				
		- 2" Ball Valve		8140	4	ea				
		-						*		
			tures (to include):		4	12-4-	\$8,300.00	\$33,200.00		
			pipe, vertical (8 ft ea)	8140	32			-		
			Concrete Pad (1.18 cy ea)	8140	4.7	100				
			s Materials for Pad (0.33 tons ea)	8140	1.33					
			1 layer, #5@12" oc, ew, 143 lbs ea)	8140	570					
		- 6" dia. Disch	narge stem pipe (2 ft ea)	8140	8	lin ft				
11		- 6" Butterfly	2	8140	4	68				
		- 48" Diam Co	oncrete Pipe, vertical (10 ft ea)	8140	40	lin ft				
		- 6" Tee (1 ea	1)	8140	4	ea				
		- 6" Blind Flar	nge (1 ea)	8140	4	ea				
		- 48" diam Ali	um hatch cover (95 lbs ea)	8140	380	lbs				
					12-0-20-1					
					<u> </u>		2-1500			
		Cathodic Pro	tection	8140	1	Is	Not applicable, no	steel pipe.		
		*Assume 5	% of cost for all steel items above							
		Note: Percen	tage used is based on detailed field cost e	stimates pre	pared for Solid	citation		9014		
		No. 09SP101	729 dated August 2009. Soils are assume	ed to be simil	lar to those					
	-	encountered	at the Weber Siphons and are assumed to	have similar	corrosion pot	tential.				
<del></del>			SUBTOTAL THIS SHEE	Т				\$60,400.00		
			SUBTOTAL WILEY SPUR	3				\$773,650.00		
		Q	UANTITIES		4,5-3,11	PF	RICES			
BY Jeremy	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			BY Jeff Morris	John	larin	CHECKED S	131/12		
	REPA	···	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/12/12	-	كالمتعادي	PEER REVIEW /	DATE /3//12		

FEATU	EATURE:  Arkansas Valley Conduit  Participant Tie-In Vaults	PROJECT Fryington-A	: Arkansas Pro	oject				
				WOID:	AFFOR	ECTIM!	ATE LEVEL:	Appraisal
		ed Comanch			AF523		RICE LEVEL:	Jan-11
				REGION: FILE:	GP	ואטן	RICE LEVEL:	Jan-11
	Reach	4: La Junta to	Lamar	nice:				
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structural	14					
.,.		Participant Ti	o.ln Vaulte	86-68120	7	ea	\$35,000.00	\$245,000.00
1	-		Concrete for Vaults	00.00120		1	***************************************	,=,
								—644 Sec
-	-	1	med: 12' W x 9' L x 10'-8" D)					
			me: f <sub>c</sub> =4,500 psi)		<del></del>			
	-		e: 50 miles	- 4		-	-	
		+	ete: 17.5 yd3				-	
		~	rcement (Assume 135 lb/yd3): 2,360 i	bs				
-		Ceme	nt (Assume: 0.282 ton/yd3): 5 tons			-	-	
		Access &	Service Hatches					-
		Acces	s hatch 3' x3': 2 ea			46		
		(Т	he Bilco Co Type Q single leaf)					
		Service	e hatch 3' x 5': 1 ea					
		(т	he Bilco Co Type JD special sizes)					-
_		Miscellane	eous Metalwork					
		Steel	(ASTM A36): 150 lbs					
		(R	tef. 40-D-6601, Ladder Type 2)					
		Sitework	3.1X					
		Stripp	ing (6 inch thick layer of soil)					
		Se	ervice Yard: 12 yd3					
	7	_	ation: 195 yd3					
iei		(A	ssume: Common, 1-1/2:1 slope)					
1			acted engineered backfill: 155 yd3					
45			Surfacing (6 inches thick)					
	90m-)1	1111	ervice Yard: 10 yd3					11+ 0
3+3-+								
								-
-	-							
				( + x )   ( + x + + + + + + + + + + + + + +				
			SUBTOTAL THIS SHEET					\$245,000.00
		QUA	NTITIES			P	RICES	,
BY B   Bart	hel		REVIEWED	BY Jeff Morris	Zhals		CHECKED S/31/	12
DATE PR	. J. Barthel Paul Ruchti, PE ATE PREPARED PEER REVIEW / DATE		DATE PREP	ARED	(202)	PEER REVIEW DATE	rhilin	
04/18/12			Paul Ruchti, PE 4/18/12	05/12/12			Nut.	>/3/110

FEATU		PROJECT:						
	Arkansa	s Valley Con	duit	Fryington-A	Arkansas Pro	ject		
		ant Tie-In Va		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal
		d Comanch		REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
		: La Junta to ical Equipme		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume partici	pant tie-in vault size=12' W x 9' L x 10	D'-8" D				
							1042	
	1		t ventilation equipment	86-68410	7	İs	\$5,600.00	\$39,200.00
	-		equipment per vault	<u>.                                    </u>		-		
		-	-steel centrifugal fan, 200 cfm @ 0.25	5" w.g.s.p., 1/6	Нр	-		
			2 ft)-6" diam, 16 ga., galv. steel duct					
	1		-6" diam, sch 20, galv., L.R. 180 deg.		urns	-		
			-6"x8" reducer, sch 20, galv. steel pip	1			1	
	1		-8" diam, stainless steel bird screens					1-1-2-00
39900		7.21	-6"x8" reducer, 16 ga, galv. steel duc					
			-6" dlam galv steel motor-operated d	amper		-		
			-fan motor starter for 1/6 Hp					
-		(1)	-fan wall switch and box					- <del>v</del> +
	2	Meter vaul		86-68410	7	ea	\$800.00	\$5,600.00
-			unit heater	V		-0		
		thermo	statically controlled					5
×,	3	Flawmeter		86-68410	7	ea	\$13,000.00	\$91,000.00
			meter, microprocessor-based,	-		-		
			d electro-magnetic flowmeter with		-	<del> </del>		
	-		e wall-mounted transmitter			-		
		weight 120 Ve	= approx 85 lbs					
							-	
			<del></del>					
			SUBTOTAL THIS SHEET					\$135,800.00
	<u> </u>	QUAI	NTITIES			P	RICES	
BY AM Ritt		-4	REVIEWED Paul Schlein	BY Jeff Morris	Ziu	,	Annual Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the	31/12
-	REPARED		PEER REVIEW / DATE Dave Hulse	DATE PREP 05/12/12	ARED	arma	PEER REVIEW DATE	5/31/12

FEATU	Arkansas Valley Conduit		PROJECT Fryington-A	: Arkansas Pro	oject					
				WOID:	AF523	ESTIM	MATE LEVEL: Appraisal			
				REGION:	GP	Annual Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the	RICE LEVEL:	Jan-11		
	Arkansas Valley Conduit Participant Tie-In Vaults Revised Comanche South Reach 4: La Junta to Larnar    Mechanical/Hydraulic equipment		to Lamar	FILE:		12:00				
		40.5 et 40.5 et 20.5 e								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Mechanical/h	Hydraulic equipment							
		Participant '	Tie-In Vaults (7 vaults)	86-68420			0.00	-		
		6-inch press	ure reducing valve		7	ea	\$7,800.00	\$54,600.00		
	DAMES IN	7 valves,	160 lbs each							
		Cla-Val A	NSI class 150 steel					V-4		
		(285 p	osi rated)			-				
	-	6-inch manu	ally-operated butterfly valve							
		5 valves,	90 lbs each		5	ea	\$1,300.00	\$6,500.00		
	57.5	AWWA C	Class 150-B		0.00					
		2 valves,	130 lbs each	7435	2	ea	\$2,300.00	\$4,600.00		
		AWWA C	Class 250-B							
		6-inch buried	d square-nut operated butterfly							
		valve with va	live box							
		5 valves,	245 lbs each		5	ea	\$1,800.00	\$9,000.00		
		AWWA	Class 150-B							
		2 valves,	285 lbs each		2	ea	\$2,800.00	\$5,600.00		
		AWWA C	Class 250-B							
		1-inch air va	lve			ea	\$1,000.00	\$1,000.00		
- 1.10		combinat	ilon air valve							
		7 air valv	es, 35 lbs each							
					10000	1-		_		
				****	0110	ļ.,				
			_ in the 1999				-			
			AXX-					80		
-	V4	-	SUBTOTAL THIS SHEET			-		\$81,300.00		
	QUANTITIES					P	RICES			
ВҮ		7.52	REVIEWED	ВУ	<u></u>		CHECKED 5/31/	2		
Ken Smit	-		Nathan Nakamoto	Jeff MorrisC	Zhaj	rus	1 /			
DATE PF 4/18/201:		D	PEER REVIEW / DATE Rick Frisz 4/20/12	<b>DATE PREP</b> 05/12/12	ARED	- Defense	PEER REVIEW / DAT	5/31/10		

FEAT	Arkansas Valley Conduit Pipeline		onduit	PROJEC Fryingpa		Project	- Arkansas Valle	/ Conduit	
			34	WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal	
			che South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
Civil	Highv	ay 96 Spur		FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT .	
		Sitework Item	ns:						
		Clearing (3 ti	mes trench width)	8140	140	асге	\$800.00	\$112,000.00	
	1	Grubbing		8140	14	acre	\$2,500.00	\$35,000.00	
	1	Stripping (6"	thick)	8140	115,000	су	\$2.00	\$230,000.00	
		Seeding		8140	140		\$800.00	\$112,000.00	
		Earthwork Ite	ms:						
	100	Soil Excavati	on (1.5:1) outside urban area	8140	230,000	су	\$4.00	\$920,000.00	
		Rock Excava	tion (0.25:1) outside urban area	8140	11,000	су	\$25.00	\$275,000.00	
		(20% of leng	th is assumed partial rock exc.)						
		assume ripp	pable material			(L)			
	1	Pipe Bedding	(Select material, 4" thick)	8140	4,500	су	\$40.00	\$180,000.00	
		Embedment	& Cover Backfill	8140	230,000	су	\$3.00	\$690,000.00	
		(does not inc	clude shrink/swell)					\$175,000.00	
da major major jaroj					7:				
			SUBTOTAL THIS SHEET					\$2,729,000.00	
	20.00	Q	UANTITIES			PR	ICES		
	Y CHECKED eremy Lorberau W. Chrls Duke, PE		BY Jeff Morris		guin	CHECKED 5/3	1/12		
04/24/1	PREPAR 12	EO	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/12/12	PARED		PEER REVIEW / D	5/31/12	

FEAT	Arkansas Valley Conduit Pipeline Revised Comanche South, Max Day Conditio			PROJEC Fryingpai		Projec	ect - Arkansas Valley Conduit		
				WOID:	AF523	ESTIN	ATE LEVEL:	Appraisal	
	Revis	sed Coman	che South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11	
Civil	Highv	vay 96 Spur		FILE:	a si calif y				
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Pipe Items:				- diam-			
		18" DR25 (C	CIOD) C905 PVC pipe	8140	38,000	lin ft	\$40.00	\$1,520,000.00	
		16" DR25 (C	CIOD) C905 PVC pipe	8140	33,000	lin ft	\$32.00	\$1,056,000.00	
		10" DR25 (C	CIOD) C900 PVC pipe	8140	25,000	lin ft	\$16.00	\$400,000.00	
->+<	-		***						
			**************************************	P					
	1	Isolation Val	ves (Manual operation):			-		7	
>-	(1)		0 (psig) butterfly valve with operator	8140	2	ea	\$5,500.00	\$11,000.00	
		16" class 25	0 (psig) butterfly valve with operator	8140	2	ea	\$6,200.00	\$12,400.00	
		10" class 25	0 (psig) butterfly valve with operator	8140	1	ea	\$3,000.00	\$3,000.00	
		Isolation Val	ve Manholes (to include):	8140	5	ea	\$7,000.00	\$35,000.00	
			wall precast flat top with concentric	1		18.0	4.,,,,,,		
		ring, 36" ac	xess				× 500		
		60" I.D. x 6"	wall precast 36" riser				1		
		60" I.D. prec	ast 72" base shell						
		36" dia. Cas	t iron manhole cover and ring set						
	-		April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April - April						
			SUBTOTAL THIS SHEET	-		-		\$3,037,400.00	
-11	QUANTITIES					P	RICES	-,,,,	
BY Jeremy	Y CHECKED			Jeff Morris 7 Ja Ways CHECKED 5/31/12					
	eremy Lorberau ATE PREPARED 4/24/12		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/12/12			PEER REVIEW / D	5/31/12	

FEAT	Arkansas Valley Conduit Pipeline			PROJE0 Fryingpa		Projec	ct - Arkansas Vall	ey Conduit
				WOID:	AF523	ESTI	MATE LEVEL:	Appraisal
0.00	Revis	sed Comar	iche South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11
Civil	Highv	vay 96 Spur		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Air Valve St	ructures (to include):		19	ea	\$6,800.00	\$129,200,00
	11 7 2	- 48" dia. Co	oncrete Pipe, vertical (10 ft ea)	8140	190	lin ft	1	
			avel filter (4cy)	8140	76	су		*
		-	lum. Hatch cover (95 lbs ea)	8140	1,800	2007 100	100	
1			ation Air Valve (1ea)	8140	19		1	
	-	- 2" Ball Val	ves (1 ea)	8140	19	ea		(resp.
	2							
		Blowoff Stru	ctures (to include):		19	ea	\$8,300.00	\$157,700.00
		- 6" dia. Ste	el pipe, vertical (8 ft ea)	8140	150	lin ft		
		- 8' x 8' x 6"	Concrete Pad (1.18 cy ea)	8140	140	су		
		- Cementitio	us Materials for Pad (0.33 tons ea)	8140	6.3	tons		
		- Pad Reinf.	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	2,700	lbs		
		- 6" dia. Disc	charge stem pipe (2 ft ea)	8140	38	lin ft		
		- 6" Butterfly	Valve (1 ea)	8140	19	ea		
	-	- 48" Diam C	Concrete Pipe, vertical (10 ft ea)	8140	190	lin ft		
		- 6" Tee (1 e	ea)	8140	19	ea		
		- 6" Blind Fla	ange (1 ea)	8140	19	ea		
		- 48" diam A	Jum hatch cover (95 lbs ea)	8140	1,800	lbs		
					(44) (47) (47) (48) (48) (48) (48) (48) (48) (48) (48			
		Cathodic Pro	otection 5% of cost for all steel items above	8140	1	ls	Not applicable, no	steel pipe.
			ntage used is based on detailed field cost es	timates prer	pared for Solici	tation		
			1729 dated August 2009. Soils are assumed					
	<u> </u>	100	at the Weber Siphons and are assumed to			ential.		10 10 10 10 10 10 10 10 10 10 10 10 10 1
			SUBTOTAL THIS SHEET					\$286,900.00
	SUBTOTAL HWY 96 SPU							\$6,053,300.00
		C	QUANTITIES			pi	RICES	1-1-4-14-0-140
BY Jeremy I	- A			BY Jeff Morris	7,40		CHECKED 10	5/31/12
DATE PI 04/24/12	REPAR		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/12/12	7	un	PEER REVIEW D	ATE /21/12

FEAT	ATURE:  Arkansas Valley Conduit  Pipeline			T: n-Arkansas	Project	- Arkansas Valle	as Valley Conduit	
			WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal	
Н.	Revis	sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
	96 Pi	peline Co. Spur	FILE:				***	
Civil								
_ <del>5</del>	2		1					
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Sitework Items:						
		Clearing (3 times trench width)	8140	3	acre	\$1,000.00	\$3,000.00	
		Grubbing	8140	1.0	acre	\$2,500.00	\$2,500.00	
		Stripping (6" thick)	8140	2,400	-	\$4.00	\$9,600.00	
		Seeding	8140	3	acre	\$1,500.00	\$4,500.00	
		Earthwork Items:						
		Soil Excavation (1.5:1) outside urban area	8140	4,000	су	\$9.00	\$36,000.00	
	-	Rock Excavation (0.25:1) outside urban area	8140	140	су	\$45.00	\$6,300.00	
		(20% of length is assumed partial rock exc.)						
		assume rippable material						
		Pipe Bedding (Select material, 4" thick)	8140	81	су	\$50.00	\$4,050.00	
		Embedment & Cover Backfill	8140	4,100	су	\$7.00	\$28,700.00	
		(does not include shrink/swell)			1			
		Compacting Embedment Backfill	8140	300	су	\$16.00	\$4,800.00	
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	-	<u> </u>		- 110				
	4	SUBTOTAL THIS SHEET					\$99,450.00	
		QUANTITIES		246	PRIC	CES		
BY		CHECKED	BY	7.	, 0	CHECKED	11/2	
Jeremy			Jeff Morris	popul	nuis	11 3/	1/2	
DATE P			DATE PRE	PARED	F	PEER REVIEW ! D.	ATE / /	
04/24/12	2	Steven J. Robertson, PE	05/12/12			NCO	5/31/12	

FEAT				PROJEC Fryingpar		Project	t - Arkansas Valley Conduit			
	Pipeli	ısas Valley ne	Gonauit	WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal		
			nche South, Max Day Condition 4	REGION	GP	-	RICE LEVEL:	Jan-11		
Civil	96 Pip	eline Co. S	pur	FILE:						
	7	1	THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE S					-		
PLANT	РАҮ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Pipe Items:								
		4" DR25 (C	IOD) C900 PVC pipe	8140	2,400.0	lin ft	\$6.20	\$14,880.00		
				إولالت						
						THE WAY				
(-0)										
				-	PIP: -					
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			198				00/0000			
			lves (Manual operation):							
		4" class 150	(psig) butterfly valve with operator	8140	1	ea	\$1,100.00	\$1,100.00		
					-					
		-				eie .				
-	-									
	-		ve Manholes (to include):	8140	. 1	ea	\$7,000.00	\$7,000.00		
- 4	-		wall precast flat top with concentric	-						
		ring, 36" at	n — n	-						
			wall precast 36" riser	-						
			cast 72" base shell		-	-				
-		36 dia. Cas	t iron manhole cover and ring set					-		
	-	9-	Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Contro			-				
			SUBTOTAL THIS SHEET		-			£00 000 00		
			QUANTITIES			PRIC	TEO I	\$22,980.00		
BY			CHECKED	ву				1		
	Lorberau	i	W. Chris Duke, PE	Jeff Morris	Zhulo		HECKED 5/3	1/12		
	REPAR	*	PEER REVIEW / DATE	DATE PREI	APPO		PEER REVIEW / D.	ATE		
04/24/1			Steven J. Robertson, PE	05/12/12	outin.		ACO.	Ehilin		
10 mm	-		Table and a second of the	VMI 121 12		الحصيد	MILL	717116		

FEAT		sas Valley (	Conduit	PROJEC Fryingpar		Projec	Fryingpan-Arkansas Project - Arkansas Valley Conduit				
	Pipeli			WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal			
	Revis	sed Coman	che South, Max Day Condition 4	REGION	REGION GP UNIT PRICE LEVEL:						
Civil	96 Pip	eline Co. Sp	our	FILE:							
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
		Air Valve Str	uctures (to include):		1	ea	\$6,800.00	\$6,800.00			
		- 48" dia. Co	ncrete Pipe, vertical (10 ft ea)	8140	10	lin ft					
		- 3/4 inch gra	evel filter (4cy)	8140	4	су					
		- 48* diam A	lum. Hatch cover (95 lbs ea)	8140	95	lbs					
		4	ation Air Valve (1ea)	8140	1	ea					
		- 2" Ball Valv	res (1 ea)	8140	- 1	ea					
								× * · ·			
	-	Blowoff Struc	ctures (to include):		1	ea	\$8,300.00	\$8,300.00			
		- 6" dla. Stee	el pipe, vertical (8 ft ea)	8140	8	lin ft					
		- 8' x 8' x 6" (	Concrete Pad (1.18 cy ea)	8140	1.2	cy					
123		- Cementitio	us Materials for Pad (0.33 tons ea)	8140	0.33	tons	9.9.5, 45.0				
		- Pad Reinf.	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	145	Ibs					
		- 6" dia. Disc	harge stem pipe (2 ft ea)	8140	2	lin ft					
			Valve (1 ea)	8140	1	ea	155				
		- 48" Diam C	oncrete Pipe, vertical (10 ft ea)	8140	10	lin ft.					
		- 6" Tee (1 e	a)	8140	1	ea					
		- 6" Blind Fla	nge (1 ea)	8140	1	ea	1				
		- 48" diam Al	um hatch cover (95 lbs ea)	8140	95	lbs					
-								1-111			
		Cathodic Pro	itection	8140	1	İs	Not applicable, no	steel pipe.			
		*Assume 5	% of cost for all steel items above	1 - 01							
		Note: Percer	rtage used is based on detailed field cost as	timates prep	ared for Solici	tation					
		No. 09SP101	1729 dated August 2009. Solls are assume	d to be simila	ar to those						
		encountered	at the Weber Siphons and are assumed to	have similar	corrosion pote	ential.					
		SUBTOTAL THIS SHEE		-				\$15,100.00 \$137,530.00			
	SUBTOTAL 96 PIPELINE COUNTY SPUR QUANTITIES					DE	RICES	\$137,530.00			
BY				BY		FR	CUECUED	, ,			
Jeremy	eremy Lorberau W, Chris Duke, PE		Jeff Morris John Checked 5/11/12			1/31/12					
<b>DATE</b> P 04/24/12	ATE PREPARED P		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREPARED 05/12/12			PEER REVIEW / DATE /31/12				

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	Arkans	sas Valley Cor	nduit	Fryington-A	Arkansas Pro	oject		
		pant Tie-In Va		WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
	Revis	ed Comanch	ne South	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
	HWY 9	6 Spur		FILE:				
PLANT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		61.4161						-
-	-	Civil/Structural	<u> </u>					
		Participant Tie	e-In Vaults	86-68120	7	ea	\$35,000.00	\$245,000.00
			Concrete for Vaults	35 55 125		-	133,000,000	3,30,31,52,53,53
		-	ned: 12' W x 9' L x 10'-8" D)				0	
		-	ne: f <sub>c</sub> =4,500 psi)				150	
			e: 50 miles		***			
+			ete: 17.5 yd3			<u> </u>		
			rcement (Assume 135 lb/yd3): 2,360	lbs				
			nt (Assume: 0.282 ton/yd3): 5 tons					
		Access &	Service Hatches					
		Acces	s hatch 3' x3': 2 ea					
		(Π)	he Bilco Co Type Q single leaf)					
		Servic	e hatch 3' x 5': 1 ea				, -	
		<u>(m</u>	ne Bilco Co Type JD special sizes)					
		Miscellane	eous Metalwork					
			ASTM A36): 150 lbs					
- W. F. S		(R	ef. 40-D-6601, Ladder Type 2)					
200		Sitework						
			ng (6 inch thick layer of soil)			++	-	~
			ervice Yard: 12 yd3					
		1-1	ation: 195 yd3					
			ssume: Common, 1-1/2:1 slope)	-			-	
4	-		acted engineered backfill: 155 yd3		(1) <del>-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-</del>			
	-		Surfacing (6 inches thick)		)÷ +=	3 - Norman		
		Se	ervice Yard: 10 yd3					
-								
			SUBTOTAL THIS SHEE					\$245,000.00
-	14 -	OLIAN	NTITIES			PI	RICES	***************************************
BY R. J. Bar	thel	QUAI	REVIEWED Paul Ruchti	BY Jeff Morris	Zoulo			131/12
DATE PI 04/18/12	ATE PREPARED		PEER REVIEW / DATE Paul Ruchti, P.E.	DATE PREP 05/12/12	ARED .		PEER REVIEW / DATE	5/31/12

FEATU		ae Valley C	orach uit	Fryington-A	: Arkansas Pro	ject				
				WOID:	AF523	EST(M)	ATE LEVEL:	Appraisal		
				REGION:	GP	_	RICE LEVEL:	Jan-11		
	Arkansas Valley Conduit Participant Tie-In Vaults Revised Comanche South, Max Dry Conditio HWY 96 Spur Mechanical Equipment  DESCRIPTION   1 Meter vault ventilation equipment Ilst of equipment per vault (1)-steel centrifugal fan, 200 cfm (12 ft)-6" diam, 16 ga., galv. steel (2)-6" diam, sch 20, galv., L.R. 1: (2)-6"x8" reducer, sch 20, galv. st (2)-6"x8" reducer, 16 ga, galv. st (2)-6"x8" reducer, 16 ga, galv. st (2)-6"diam galv steel motor-oper (1)-fan motor starter for 1/6 Hp (1)-fan wall switch and box  Meter vault heater 3 kW unit heater			FILE:						
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRIČE	AMOUNT		
er ten		assume parti	icipant tie-in vault size=12' W x 9' L x	10'-8" D						
	1			86-68410	7	ls	\$5,600.00	\$39,200.00		
	+				0110		-			
	+		The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa		нр		N	****		
		6 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 10 to 1			1000					
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		,	Trial Wall Switch and Dox	-						
	2	Meter va	ault heater	86-68410	7	ea	\$800.00	\$5,600.00		
++	1			00 00 110			1333	13)		
	-		mostatically controlled		-					
1										
***	3	Flowmet	ter system	86-68410	7	ea	\$13,000.00	\$91,000.00		
			ameter, microprocessor-based,	angles (in the control of						
		1	ged electro-magnetic flowmeter with					<del></del>		
		remo	ote wall-mounted transmitter							
	1	welg	ht= approx 85 lbs							
		120	Volt AC							
						-				
			SUBTOTAL THIS SHEE	Т				\$135,800.00		
		QUA	ANTITIES			P	RICES			
BY AM Riti	REVIEWED		Jeff Morris Chellows CHECKED No 5/31/12				11/12			
DATE P	AM Ritt  DATE PREPARED  4/18/2012		PEER REVIEW / DATE Dave Huise	DATE PREP 05/12/12	ARED		PEER REVIEW / DATE	PEER REVIEW   DATE /31/12		

FEATU	11,21,21	PROJECT:						
		sas Vallev C	onduit	Fryington-A	Arkansas Pro	oject		
				WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
				REGION:	GP		RICE LEVEL:	Jan-11
	QUANTITIES		FILE:					
							T	
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Mechanical/	Hydraulic equipment					
	\(\frac{1}{2} \)	Participant	Tie-In Vaults (7 vaults)	86-68420				
y- 3 <del></del>		6-inch press	sure reducing valve		-	-		- +
					7	ea	\$7,800.00	\$54,500.00
		-						
		(285 p	osi rated)					
		6-inch manu	ually-operated butterfly valve					
					6	ea	\$2,300.00	\$13,800.00
		7						
		1 valve,	170 lbs each		1	ea	\$2,800.00	\$2,800.00
			11 11					
	-	6-inch burie	d square-nut operated butterfly	- >=				
		valve with v	alve box					
		6 valves,	285 lbs each		8	ea	\$2,800.00	\$16,800.00
		AWWA	Class 250-B					
		1 valve,	325 lbs each		1	ea	\$3,300.00	\$3,300.00
-	4	Henry Pr	att Class 350			<u> </u>		-
		1-inch air va	alve					-11 - <del>}</del>
		combina	tion air valve		10	1		
		7 air valv	res, 35 lbs each		7	ea	\$1,000.00	\$7,000.00
			A66	1.4				li contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario de la contrario d
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			SUBTOTAL THIS SHEET	r				\$98,300.00
1		QU	ANTITIES			P	RICES	
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Ken Smit			Rick Frisz, PE	Jeff Morris	Louf	Jus		- / /
DATE PR		:n	PEER REVIEW / DATE	DATE PREP 05/12/12	AREM		PEER REVIEW DATE	5/31/12
4/18/2013	4		Nathan Nakamoto 4/20/12	00/12/12			Now	111

FEAT	EATURE:  Arkansas Valley Conduit			CT: n-Arkansas	Project	- Arkansas Val	ley Conduit
	Pipel	ine	WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal
	Revi	sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11
Civil	Eads	Spur	FILE:				
	- X						1500
PLANT	PAYITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
-		Sitework Items:		= 00+0 =			
		Clearing (3 times trench width)	8140	150	acre	\$800.00	\$120,000.00
		Grubbing	8140	15		\$2,500.00	\$37,500.00
		Stripping (6" thick)	8140	120,000	су	\$2.00	\$240,000.00
		Seeding	8140	150		\$800.00	\$120,000.00
		Earthwork Items:					
	-	Soil Excavation (1.5:1) outside urban area	8140	220,000	су	\$4.00	\$880,000.00
		Rock Excavation (0,25:1) outside urban area	8140	9,200	су	\$35.00	\$322,000.00
		(20% of length is assumed partial rock exc.)					
		assume rippable material	N. Committee				
		Pipe Bedding (Select material, 4" thick)	8140	4,300	су	\$40.00	\$172,000.00
		Embedment & Cover Backfill	8140	230,000	су	\$3.00	\$690,000.00
		(does not include shrink/swell)					
	129						
						7	
		SUBTOTAL THIS SHEET				050	\$2,841,500.00
	Lorbera		BY Jeff Morris	Zpul		CES CHECKED 5/3	yn
	A/24/12 PEER REVIEW / DATE Steven J. Robertson, PE		DATE PREE 05/12/12	PARED		PEER REVIEW / CO	S/31/12

FEAT	EATURE:	PROJECT:							
	Arkar	nsas Valley	Conduit	Fryingpa	n-Arkansas	Project	ject - Arkansas Valley Conduit		
	Pipel		oonaan	WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal	
	Revi	sed Comar	nche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
-	Eads	Spur		FILE:					
Civil						da Esca			
- 12	N. M.		***						
PLANT ACCOUNT	PAY ITEM	1	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Pipe Items:		1	*				
			CIOD) C900 PVC pipe	8140	110,000	lin ft	\$16.00	\$1,760,000.00	
	1			1	1101000		ψ10.00	\$1,700,000.00	
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				1-3					
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					*	5		31	
								Mark and	
								*****	
	-					1 = 1	34,7.		
						11			
								21	
		-	ives (Manual operation):						
		10" class 15	io (psig) butterfly valve with operator	8140	4	ea	\$2,000.00	\$8,000.00	
-				1			-		
		0							
			****						
	-								
	1	-	9.75						
	-	tantan - O					2000		
			lve Manholes (to include):	8140	4	ea	\$7,000.00	\$28,000.00	
4		ring, 36" ad	wall precast flat top with concentric						
	-	_	wall precast 36" riser						
-			vast 72" base shell		-				
			t iron manhole cover and ring set	-					
	-	JU Gla. Qaa	t indifficie cover and fing set		**************************************				
-	0.3-	1	-35					-	
			SUBTOTAL THIS SHEET					\$1,796,000.00	
	QUANTITIES				PRI	CES	<b>\$1,700,000.00</b>		
BY			CHECKED	BY				11	
	Lorbera	u	W. Chris Duke, PE	Jeff Morris	Phiel	Jan 1	CHECKED 5/	31/12	
100	REPAR		PEER REVIEW / DATE	Jeff Morris 1 Checked 5/34  DATE PREPARED PEER REVIEW / DATE 05/12/12			DATE /		
04/24/1	2		Steven J. Robertson, PE	05/12/12	V		Da	5/31/12	

FEAT	ATURE:  Arkansas Valley Conduit  Pipeline			PROJEC Fryingpar		Projec	t - Arkansas Vall	ey Conduit	
			- Consult	WOID:	AF523	ESTIN	ATE LEVEL:	Appraisal	
			che South, Max Day Condition 4	REGION	GP	-	PRICE LEVEL:	Jan-11	
Civil	Eads	Spur		FILE:					
PLANT	PAY ITEM		DESCRIPTIÓN	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
-		Air Valua Str	ructures (to include);		21	ea	\$6,800.00	\$142,800.00	
			oncrete Pipe, vertical (10 ft ea)	8140	210		ψο,ουσ.σσ	φ142,000.00	
-		-	avel filter (4cy)	8140	84		+	100	
						-			
189-	-		ium. Hatch cover (95 lbs ea)	8140	2,000	1.557			
			ation Air Valve (1ea)	8140	21	ea			
		- 2" Ball Valv	ves (1 ea)	8140	21	ea			
					-		354		
1		Blowoff Stru	ctures (to include):		21	ea	\$8,300.00	\$174,300.00	
			el pipe, vertical (8 ft ea)	8140	170	70.7	***************************************	***************************************	
	-	A CONTRACTOR OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF TH	Concrete Pad (1.18 cy ea)	8140	25				
			us Materials for Pad (0.33 tons ea)	8140	7.0		-		
	10		(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	3,000				
			charge stem pipe (2 ft ea)	8140	42			***	
		-	Valve (1 ea)	8140	21	ea			
	-		Concrete Pipe, vertical (10 ft ea)	8140	210	-			
		(-		8140	21	ea		-	
		- 6" Tee (1 s	_: n			-		-	
	-	- 6" Blind Fla		8140	21			-	
		- 48" diam A	alum hatch cover (95 lbs ea)	8140	2,000	lbs			
		Cathodic Pr	otection	8140	85	Is	Not applicable, no	steel pipe.	
		*Assume	5% of cost for all steel items above						
		Note: Perce	ntage used is based on detailed field cost ea	stimates prej	pared for Solic	itation			
			1729 dated August 2009. Soils are assume				4		
		encountered	d at the Weber Siphons and are assumed to	have similar	corresion pot	ential.	-		
			SUBTOTAL THIS SHEET	r				\$317,100.00	
	SUBTOTAL EADS SPU		SUBTOTAL EADS SPUR	₹				\$4,954,600.00	
	QUANTITIES				PF	RICES			
BY Jeremy	Lorbera	au	CHECKED W. Chris Duke, PE	BY Jeff Morris	Zhu	Prair	CHECKED 14	1/11/12	
DATE F 04/24/1	REPAR	2 1. 2	PEER REVIEW / DATE Steven J. Robertson, PE	<b>DATE PRE</b> 05/12/12	PARED	10000	PEER REVIEW /	5/31/12	

FEAT	URE:	sas Valley Conduit	Fryingpa		Project	- Arkansas Valle		
	Pipeli	ne	WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
	Revis	sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
Civii	Eads	and May Valley Spur	FILE:					
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Sitework Items:						
÷		Clearing (3 times trench width)	8140	44	acre	\$1,000.00	\$44,000.00	
	*	Grubbing	8140	4.4	acre	\$2,500.00	\$11,000.00	
***		Stripping (6" thick)	8140	36,000	су	\$2.00	\$72,000.00	
		Seeding	8140	44		\$1,500.00	\$66,000.00	
-	-	Earthwork Items:						
		Soil Excavation (1.5:1) outside urban area	8140	69,000	су	\$6.00	\$414,000.00	
		Rock Excavation (0.25:1) outside urban area	8140	3,000	су	\$35.00	\$105,000.00	
		(20% of length is assumed partial rock exc.)						
		assume rippable material						
1		Pipe Bedding (Select material, 4" thick)	8140	1,350	су	\$40.00	\$54,000.00	
		Embedment & Cover Backfill	8140	70,000	су	\$5.00	\$350,000.00	
		(does not include shrink/swell)						
		Compacting Embedment Backfill	8140	3,200	су	\$14.00	\$44,800.00	
							1	
ori -								
				W + 8	-0			
-	-	19						
		SUBTOTAL THIS SHEET					\$1,160,800.00	
	QUANTITIES				PR	ICES		
BY Jeremy	Lorbera	U W. Chris Duke, PE	BY Jeff Morris	Qhui	laria.	CHECKED 14 5	pila	
	TE PREPARED PEER REVIEW / DATE		DATE PRE 05/12/12	PARED	رسي	PEER REVIEW /	5/31/12	

FEAT		sas Valley C	onduit	PROJEC Fryingpar		Project	- Arkansas Valle	ey Conduit	
	Pipeli		- Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Control of the Cont	WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal	
			che South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11	
Civil	Eads	and May Vall	ey Spur	FILE:					
PLANT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Pipe Items:	1. 11.11.2						
		12" DR25 (CI	OD) C900 PVC plpe	8140	32,000	lin ft	\$22.00	\$704,000.00	
						Scal			
						-		-	
			· · · · · · · · · · · · · · · · · · ·						
		7	***						
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			(-)-(-)-(-)-(-)-(-)-(-)-(-)-(-)-(-)-(-)						
		1							
			**************************************		:				
		Isolation Valv	/es (Manual operation):						
		12" class 150	(psig) butterfly valve with operator	8140	2	ea	\$2,500.00	\$5,000.00	
								× 494+	
							=		
-			ve Manholes (to include):  wall precast flat top with concentric	8140	2	ea	\$7,000.00	\$14,000.00	
1 1		ring, 36" acc						77	
-	-		wall precast 36" riser						
	1		ast 72" base shell						
			iron manhole cover and ring set			-			
		ou dia. Gast	and my out						
-	-		SUBTOTAL THIS SHEET					\$723,000.00	
	•	Q	UANTITIES			PR	ICES		
ВУ	- خارج ا		CHECKED	BY Jeff Morris	7	1	CHECKED SI	11/12	
DATE	remy Lorberau W. Chris Duke, PE TE PREPARED PEER REVIEW / DATE			DATE PREPARED PEER REVIEW DATE				DATE In 1	
04/24/1	12		Steven J. Robertson, PE	05/12/12			NW	al 5/31/12	

FEAT		sas Valley Conduit	PROJEC Fryingpa		Project	t - Arkansas Vall	ey Conduit
	Pipeli	ne	WOID:	AF523	ESTIM	IATE LEVEL:	Appraisal
	Revis	sed Comanche South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11
	Eads	and May Valley Spur	FILE:				
Civil							
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	-	Air Valve Structures (to include):		. 6	ea	\$6,800.00	\$40,800.00
		- 48" dia, Concrete Pipe, vertical (10 ft ea)	8140	60		ψο,οσσ.σσ	\$10,000.00
		- 3/4 inch gravel filter (4cy)	8140	24	-		
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570			*-
2		- 2" Combination Air Valve (1ea)	8140	6			-
		-2" Ball Valves (1 ea)	8140	6.0			~
-=	-	- Z Ball Valves (1 ca)	0140	5.0	40		
		Blowoff Structures (to include):		6	ea	\$8,300.00	\$49,800.00
	42 -	- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	lin ft		
		- 8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7.1			
		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	-		
		- Pad Reinf. (1 layer, #5@12" oc. ew, 143 lbs ea)	8140	860	lbs		
		- 6" dia. Discharge stem pipe (2 ft ea)	8140	12	-		
		- 6" Butterfly Valve (1 ea)	8140	6	ea		
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft		
		- 6" Tee (1 ea)	8140	6	ea		
	0	- 6" Blind Flange (1 ea)	8140	6	ea		
		- 48" diam Alum hatch cover (95 lbs ea)	8140	570	lbs		
					-		
	1940						
		Cathodic Protection	8140	1	ls	Not applicable, no	steel pipe.
n i		*Assume 5% of cost for all steel items above					
		Note: Percentage used is based on detailed field cost es	stimates pre	pared for Solid	citation		
		No. 09SP101729 dated August 2009. Soils are assume	ed to be simi	lar to those			
		encountered at the Weber Siphons and are assumed to	have similar	r corrosion pot	ential.		
		SUBTOTAL THIS SHEET					\$90,600.00
	SUBTOTAL EADS AND MAY VALLEY SPU		2				\$1,974,400.00
11.00	QUANTITIES				PR	RICES	
BY Jeremy	Lorbera	CHECKED	BY Jeff Morris	Thul.	recis	CHECKED S	121/12
	PEER REVIEW / DATE		DATE PREPARED PEER REVIEW / D			DATE /31/12	

FEAT		sas Valley Conduit	PROJEC Fryingpar		Project	- Arkansas Valle	ey Conduit			
	Pipeli		WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal			
		sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11			
Civil	May V	alley Spur	FILE:							
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
		Sitework Items:			-					
		Clearing (3 times trench width)	8140	38	acre	\$1,000,00	\$38,000.00			
_		Grubbing	8140	4.0	асте	\$2,500.00	\$10,000.00			
		Stripping (6" thick)	8140	31,000	су	\$2,00	\$62,000.00			
		Seeding	8140	38		\$1,500.00	\$57,000.00			
	-	Earthwork Items:								
		Soil Excavation (1.5:1) outside urban area	8140	59,000	су	\$6.00	\$354,000.00			
		Rock Excavation (0.25:1) outside urban area	8140	2,550	су	\$35.00	\$89,250.00			
		(20% of length is assumed partial rock exc.)								
		assume rippable material								
		Pipe Bedding (Select material, 4" thick)	8140	1,150	су	\$40.00	\$46,000.00			
		Embedment & Cover Backfill	8140	60,000	су	\$5.00	\$300,000.00			
		(does not include shrink/swell)	753							
		Compacting Embedment Backfill	8140	2,700	су	\$14.00	\$37,800.00			
				415		***				
			-							
		** ***								
		14:								
		14 (14) (*) - 1 (*) (*)								
							3.93			
		Poster and other								
		SUBTOTAL THIS SHEET					\$994,050.00			
		QUANTITIES			PR	ICES				
BY Jeremy	Lorbera	CHECKED  W. Chris Duke, PE	BY Jeff Morris	Zou	Min	CHECKED 14	5/31/12			
DATE	PREPAR	RED PEER REVIEW / DATE	DATE PRE 05/12/12	RAFED		PEER REVIEW /				
04/24/1	4	Steven J. Robertson, PE	00/12/12		_	MAG	2/11/10			

FEAT	Arkansas Valley Conduit			Fryingpa	y Conduit			
			onduit	MARKET TO	Acres	I-c	Company part years	Augusta 7
	Pipeli		he South, Max Day Condition 4	WOID:	AF523		ATE LEVEL:	Appraisal
			ne South, Wax Day Condition 4	REGION	GP	ONIT P	RICE LEVEL:	Jan-11
Civii	May V	alley Spur		FILE:				
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
y_1000-100		Pipe Items:		-			\$27.00	
-			DD) C900 PVC pipe	8140	27,000	lin ft		\$729,000.00
	-1							
To the second								
							-	
			as (Manual operation):				L	7.03/8 00
		12* class 250	(psig) butterfly valve with operator	8140	2	ea	\$4,400.00	\$8,800.00
			14,941-7-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-3-					4 01-15-200
		Isolation Valve	e Manholes (to include):	8140	2	ea.	\$7,000.00	\$14,000.00
		60" I.D. x 6" w	all precast flat top with concentric					
1		ring, 36" acc	ess					
		60" I.D. x 6" w	all precast 36" riser					
		60" I.D. preca	st 72" base shell					
		36" dia. Cast	ron manhole cover and ring set				42111	
	+ A	+						
			SUBTOTAL THIS SHEET					\$751,800.00
	QUANTITIES					PR	CES	
<b>BY</b> Jeremy	1			BY Jeff Morris		1 -	CHECKED NA S	131/12
<b>DATE</b> 04/24/	ATE PREPARED PEER REVIEW / DATE			DATE PREMARED  05/12/12  DESCRIPTION OF THE PREMARED PEER REVIEW / DATE   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2   1/2				

FEAT	, y, x	sas Valley Conduit	PROJEC Fryingpar		Project	t - Arkansas Valle	ey Conduit			
	Pipell	ne	WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal			
	Revis	sed Comanche South, Max Day Condition 4	REGION	GP	UNIT F	PRICE LEVEL:	Jan-11			
	May V	'alley Spur	FILE:	FILE:						
Civil										
. 5	3									
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
		Air Valve Structures (to include);		6	ea	\$6,800.00	\$40,800.00			
		- 48" dia. Concrete Pipe, vertical (10 ft ea)	8140	60	lin ft					
		- 3/4 inch gravel filter (4cy)	8140	24	су		2			
		- 48" diam Alum. Hatch cover (95 lbs ea)	8140	570	Ibs					
		- 2" Combination Air Valve (1ea)	8140	6	ea					
		- 2" Ball Valves (1 ea)	8140	6	ea					
							- 7			
		* **					***			
		Blowoff Structures (to Include):		6	68	\$8,300.00	\$49,800.00			
	-	- 6" dia. Steel pipe, vertical (8 ft ea)	8140	48	-	434.55	* *********			
		-8' x 8' x 6" Concrete Pad (1.18 cy ea)	8140	7.1	-		*			
980 <b>490<del>40</del> 3</b>		- Cementitious Materials for Pad (0.33 tons ea)	8140	2	tons					
	-	- Pad Reinf. (1 layer, #5@12" oc, ew, 143 lbs ea)	8140	860						
+ ··-	-	- 6" dia. Discharge stem pîpe (2 ft ea)	8140	12	-					
		- 6" Butterfly Valve (1 ea)	8140	6						
		- 48" Diam Concrete Pipe, vertical (10 ft ea)	8140	60			-			
-	1		8140	6						
	-	- 6" Tee (1 ea) - 6" Blind Flange (1 ea)	8140	6						
	-	***	8140	570	-0 -1 -		-			
	-	- 48" diam Alum hatch cover (95 lbs ea)	6140	570	IDS					
-		-			161.41					
					-					
	-				-					
	-	-0	+							
	-									
			-			-				
			57130			1	Ontrod Atria			
		Cathodic Protection	8140	1	ls	Not applicable, no	steel pipe.			
1 4	) <del>-</del>	*Assume 5% of cost for all steel items above			5.4 77	-				
	-	Note: Percentage used is based on detailed field cost ea			itation					
	-	No. 09SP101729 dated August 2009. Soils are assume								
		encountered at the Weber Siphons and are assumed to	have similar	corrosion pot	ential.		>= Up			
		SUBTOTAL THIS SHEET	r			*	\$90,600.00			
		SUBTOTAL MAX VALLEY SPUF	₹ .				\$1,836,450.00			
		QUANTITIES			PF	RICES	W. Alexandre			
BY	Lorbera	CHECKED  W. Chris Duke, PE	BY Jeff Mokris	764		CHECKED 5	121/12			
_	PREPAR		DATE PRE		nus	DEED DEVIEW	DATE			
04/24/1		Steven J. Robertson, PE	05/12/12	a Alfan		PEER REVIEW /	5/31/12			

FEAT	ATURE:	PROJECT: Fryington-Arkansas Project							
	Arkans	as Valley C	Conduit	Fryington-A	Arkansas Pro	oject			
			y Booster Plant - 10-inch Spur	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal	
		The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	che South	REGION:	GP	UNIT PR	RICE LEVEL:	Jan-11	
	Eads S	ipur		FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	TINU	UNIT PRICE	AMOUNT	
		A. 110.				-			
-			ural/Electrical/Mechanical:			-			
		10- & 1	2-Inch spur						
	-	2		44.55.000			An / 0 000 00	***********	
	-	Booster Pla		86-68420	1	LS	\$340,000.00	\$340,000.00	
	-		oumping plant program						
-	-		Plant - 1.125 cfs each, 317 feet TDH;					481-	
	4		ake HP; 18.0 hp; Motors: 20 hp each @	480 volts				0	
	1	-	Plant - (1 + 1 installed spare)	1 1 1 1					
	-		s; vertical can; supply voltage (69 kV)						
	-	-	uctures And improvements						
			terways	-	-				
			nps and Motors			-		4 -	
		-	cessory Electrical						
		0.00	cellaneous Equipment						
		Swi	tchyards						
			- ***						
-			11.00						
				3/					
1		77.5						7.5	
				No.					
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			****						
			New 1: 10-0-0						
	1						0)		
						-		4	
	9 14		****						
	+		SUBTOTAL THIS SHEE	T				\$340,000.00	
		OU	ANTITIES			PF	RICES		
BY	R. Zele		REVIEWED	BY			CHECKED	chil	
			Toby Turnage	Jeff Morris	2h who		765	7/1/10	
DATE	REPARE	ń	PEER REVIEW / DATE	DATE PREF		ica-y	PEER REVIEW / DAT	E -/ /	
Act Title	4/20/2012		Toby Tumage 4.20.12	05/12/12	U		HCD	5/31/12	
			The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s				V - I		

FEATU	EATURE: Arkansas Valley Conduit		PROJECT Fryington-	PROJECT: Fryington-Arkansas Project						
		sas valley Conduit & May Valley Air Chamber	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal			
ľ	Revis	sed Comanche South	REGION:	GP '		RICE LEVEL:	Jan-11			
	Eads &	& May Valley Spur	FILE:							
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
		Civil/Structural:								
		Reinforced Concrete for Foundation	86-68120	1	Is	\$2,600.00	\$2,600.00			
		(slab-on-grade foundation type)					- 4			
	-	(Assume: fc=4,500 psi)								
		Source: Pueblo, CO 85 miles								
		Concrete: 2.3 yd3	-							
		Reinforcement (Assume 135 lb/yd3): 310 lbs								
		Cement (Assume: 0,262 ton/yd3): 0.6 tons		<del></del>						
		1		44						
							2			
-	-									
			1	(*)	-					
							757			
			1							
				- a-		35	-			
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		SUBTOTAL THIS SHE	ET				\$2,600.00			
-	-	QUANTITIES			PI	RICES	42,000,000			
вү		REVIEWED	ву	7.	4	CHECKED No 5/	131/12			
R. J. Bar DATE P	thel	Paul Ruchti D PEER REVIEW / DATE	Jeff Morris C	Zhul ARED	Aus.					
04/15/12	?	Paul Ruchti, P.E.	05/12/12			PEER REVIEW DATE	5/51/12			

FEATL	EATURE:  Arkansas Valley Conduit  Eads & May Valley Air Chamber			PROJECT Fryington-	: Arkansas Pr	oject		
11.11	Eads	& May Valley	Air Chamber	WOID:	AF523	-	TE LEVEL:	Appraisal
		ed Comano		REGION:	GP	UNIT PR	ICE LEVEL:	Jan-11
	Eads &	& May Valley	Spur	FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Hydraulic equ	ipment/Mechanical					
		Air Chamber		86-68420	1	ls	\$88,000.00	\$88,000.00
			(238 cubic feet)				3111111	
-		steel air ch						0+
	-		sight 6 feet 6 inches					
	-		ameter 5 feet	-10				
			er weight 8,800 pounds ir compressor 8 horsepower					
		)						
			SUBTOTAL THIS SHEE	_		1		202.002.00
-		OHAI				PDI	OFR	\$88,000.00
BY Ken Smith DATE PR			BY Jeff Morris  DATE PREPA	Teff up	lacis (	CES CHECKED 5/3 PEER REVIEW / DATE	1/12	
4/4/2011			Rick Frisz 4/20/12	05/12/12	U		NGD	5/31/12

FEAT	EATURE:  Arkansas Valley Conduit  Eads & May Valley Meter Vault			PROJECT FryIngton-	; Arkansas Pro	oject		1
				WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal
	Revis	ed Comano	he South	REGION:	GP		RICE LEVEL:	Jan-11
	Eads	& May Valley	Spur	FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structure	al:					
	-	Bainfarand (	Concrete for Vaults	00 00400			***********	
-			d: two 12' W x 14' L x 16' D)	86-68120	1	Is	\$100,000.00	\$100,000.00
			: f <sub>c</sub> =4,500 psi)					
	1000		Pueblo, CO 85 miles			-		
		Concrete					+	4-50
			ement (Assume 135 lb/yd3): 15,650 lbs			1		
			Assume: 0.282 ton/yd3): 33 tons			-0-		
		Access & Se	rvice Hatches	86-68120	. 1	ls	\$41,000.00	\$41,000.00
		Access	s hatch four 3' x3'				C	4
		(The	Bilco Co Type Q single leaf)					
		Service	e hatch two 5' x 10'					
	× .	(The	Blico Co Type JD special sizes)	-				
h			us Metalwork	86-68120	280	lbs	\$13.00	\$3,640.00
		(40-D-6	6601, Ladder Type 2)					
								-X+ , p
		*	( a = 3 s + 4)			t ×-		
								-
							-	
-								
-			SUBTOTAL THIS SHEET					\$144,640.00
	QUANTITIES					Р	RICES	
BY R. J. Bart	Y REVIEWED			BY Jeff Morris	Zpul		CHECKED 5/31/	1/2
<b>DATE PR</b> 04/17/12	EPAREI	)	PEER REVIEW / DATE Paul Ruchti, P.E.	DATE PREPA 05/12/12	(RED)	ive)	PEER REVIEW / DATE	

FEATU	Arkansas Valley Conduit Eads and May Valley Meter Vaults Revised Comanche South	PROJECT Fryington-	ī: Arkansas Pro	oject				
Y 1	Eads and	d May Valle	v Meter Vaults	WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
	Revised	d Comanc	he South	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
		d May Valle cal Equipm		FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	ТІМП	UNIT PRICE	AMOUNT
-			ne meter vault size=11.25'x11.2	El-de Vil				
			ne 2 vaults @ Eads	5X10.7 U				
	1	Meter vau	It ventilation equipment	86-68410	2	ls	\$6,600.00	\$13,200.00
			equipment per vault:					
			)-steel centrifugal fan, 450 cfm	@ 0.25" w.g.s.p., 1/6	Нр			
		-(1	6 ft)-8" diam, 16 ga., galv. steel	dust				
per———		(2	)-8" diam, sch 20, galv., L.R. 18	0 deg. steel pipe ret	ums			
		(2	)-8"x12" reducer, sch 20, galv. s	steel pipe				
7		(4	)-12" diam, stainless steel bird s	screens				
		(2	)-8"x12" reducer, 16 ga, galv. si	teel duct				
		(2	)-8" diam galv steel motor-opera	ated damper	ed damper			
		(1	)-fan motor starter for 1/6 Hp					
	- 1	(1	)-fan wall switch and box			1		
	2	Meter vau	It heater	86-68410	2	ea	\$800.00	\$1,600.00
		3 kW	unit heater					
		thermo	ostatically controlled			_		
	3	Flowmeter	,	86-68410	1	ea	\$25,000.00	\$25,000.00
		Single	-path ultrasonic, 12" diam	100			1	
			sducers with cables and 1 trans	mitter console				
	4	Flowmeter		86-68410	1	ea	\$22,000.00	\$22,000.00
1		Single	-path ultrasonic, 10" dlam		1	-	442,000,00	422,000,00
			sducers with cables and 1 trans	mitter console				
	-	+-			000 - 2			
			<del></del>					
			9/5/4*** <u>; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;</u>			-		
r 6-			SUBTOTAL THIS S	UEET				\$61,800.00
	-	OHAN	NTITIES	(ILL)		DE	DICES .	\$01,000.00
BY AM Ritt		Ø0AI	REVIEWED Paul Schlein	BY Jeff Morris	Thul	PI	CHECKED W 5	14/12
100	EPARED		PEER REVIEW / DATE Dave Hulse	DATE PREPA	ARED	July	PEER REVIEW / DATE	5/31/12

FEATU	EATURE:  Arkansas Valley Conduit  Eads & May Valley Meter Vault			PROJECT: Fryington-Arkansas Project							
	Eads 8	May Valley	Meter Vault	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal			
	Revise	ed Coman	che South	REGION:	GP		ICE LEVEL:	Jan-11			
	Eads 8	k May Valley	/ Spur	FILE:							
PLANT	РАУ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PR(CE	AMOUNT			
		Hydraulic Ec	quipment/Mechanical								
		Meter Vault		86-68420							
-	1		nually-operated butterfly valves		1	ea	\$3,000.00	\$3,000.00			
			Class 250-B								
	2		ually-operated butterfly valves		1	ea	\$4,400,00	\$4,400.00			
			300 lbs each Class 250-B								
7											
			6 18								
					-			*			
		-	-10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0 \$ -10-0								
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		9-8-8-61-	SUBTOTAL THIS SHEET			0-		07 400 DO			
	QUANTITIES QUANTITIES					PR	ICES	\$7,400.00			
BY Ken Smith			REVIEWED Nathan Nakamoto	BY Jeff Morris	Zbul		CHECKED 14 5/31	1/2			
<b>DATE PRI</b> 4/17/2012	E PREPARED PEER REVIEW / DATE		DATE PREPA 05/12/12			PEER REVIEW / DATE	5/31/12				

FEAT		nsas Valley (	Conduit	PROJEC Fryingpar		Project	t - Arkansas Valle	alley Conduit	
	Pipel			WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal	
	Revis	sed Coman	nche South, Max Day Condition 4	REGION	GP	UNIT F	PRICE LEVEL:	Jan-11	
Civil	North	Loop		FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Sitework Ite							
				21.10			2220.00		
(*)**			times trench width)	8140	145	-	\$800.00	\$116,000.00	
		Grubbing	a a s a s	8140	14.5		\$2,500.00	\$36,250.00	
		Stripping (6"	thick)	8140	120,000		\$2.00	\$240,000.00	
		Seeding	-	8140	145	acre	\$800.00	\$116,000.00	
		Earthwork It	The second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon		· ·				
		Soil Excavat	tion (1.5:1) outside urban area	8140	220,000	су	\$4.00	\$880,000.00	
			ation (0.25:1) outside urban area	8140	9,600	су	\$35.00	\$336,000.00	
		(20% of len	gth Is assumed partial rock exc.)						
			pable material						
1		Pipe Beddin	g (Select material, 4" thick)	8140	4,300	су	\$40.00	\$172,000.00	
			& Cover Backfill	8140	230,000	су	\$3.00	\$690,000.00	
			clude shrink/swell)						
		Compacting	Embedment Backfill	8140	16,000	су	\$10.00	\$160,000.00	
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	1			James II.				One of Calling	
						12			
			SUBTOTAL THIS SHEET			7 17		\$2,746,250.00	
		C	UANTITIES	16.5.5		PRI	CES		
BY Jeremy	Lorbera	Nr.	CHECKED W. Chris Duke PE	BY Jeff Morris	7	1	CHECKED	5/31/12	
	remy Lorberau W. Chris Duke, PE  ATE PREPARED PEER REVIEW / DATE  //24/12 Steven J. Robertson, PE			DATE PREF	PARED	1964	PEER REVIEW (D.	ATE /3//12	
		-			1000		NY	2/1/10	

FEAT	JRE:			PROJEC				
	Arkar	nsas Valley (	Conduit	Fryingpar	n-Arkansas	Project	- Arkansas Valle	ey Conduit
	Pipeli			WOID:	AF523	TESTIM/	ATE LEVEL:	Appraisal
	Revis	sed Comar	nche South, Max Day Condition 4		GP	_	RICE LEVEL:	Jan-11
	North	Loop		FILE:		*****		
Civil	NAME OF TAXABLE PARTY.	200						
F.S.	EM		A CALANA				o for the	
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Pipe Items:						u min
		12" DR25 (f	CIOD) C900 PVC pipe	8140	40,000	lin ft	\$22.00	\$880,000.00
	-	12" DR25 (C	CIOD) C900 PVC pipe	8140	27,000	lin ft	\$22.00	\$594,000.00
		10" DR25 (f	CIOD) C900 PVC pipe	8140	15,500		\$16.00	\$248,000.00
		10" CR18 (0	CIOD) C900 PVC pipe	8140	23,000		\$19.00	\$437,000.00
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		-		-	h 1			
			× 1 s-					
		-	mini jut					
								-
							(414)	-
		Isolation Va	alves (Manual operation):	-				
*		_	50 (psig) butterfly valve with operator	8140	2	ea	\$2,500.00	\$5,000.00
44		-	50 (psig) butterfly valve with operator	8140	1	62	\$4,400.00	\$4,400.00
		-	50 (psig) butterfly valve with operator	8140		68	\$2,000.00	\$2,000.00
			50 (psig) butterfly valve with operator	8140	1	- 62	\$3,000.00	\$3,000.00
			F 1 1					
			alve Manholes (to include):	8140	5	ea	\$7,000.00	\$35,000.00
		-	wall precast flat top with concentric					
	,_	ring, 36" ac	ccess					
		60" l.D. x 6"	wall precast 36" riser					
		-	cast 72" base sheli					
		36" dia. Cas	st iron manhole cover and ring set		-			
	-						-	
			SUBTOTAL THIS SHEET		9		*****	\$2,208,400.00
		(	QUANTITIES			PRIC	CES	
BY			CHECKED	BY	7.1		CHECKED 5/3	ilis-
Jeremy I			W. Chris Duke, PE	Jeff Morris	74 Us	aus	-11	112
DATE PI 04/24/12		ED	PEER REVIEW / DATE Steven J. Robertson, PE	<b>DATE PREI</b> 05/13/12	ARED	F	PEER REVIEW / D	5/31/12
				A CONTRACTOR OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF TH			1212	-1110

Revised Comanche South, Max Day Condition 4 REGION G North Loop FILE:	523 SP	-	IATE LEVEL:	- 14 A. J. L. C. C. C. C. C. C. C. C. C. C. C. C. C.				
North Loop  Civil  DESCRIPTION  CODE QUAI  Air Valve Structures (to include):  - 48" dia. Concrete Pipe, vertical (10 ft ea)  - 3/4 Inch gravel filter (4cy)  - 48" diam Alum. Hatch cover (95 lbs ea)  8140	SP	UNIT F		Appraisal				
Civil  DESCRIPTION  CODE QUAI  Air Valve Structures (to include):  - 48" dia. Concrete Pipe, vertical (10 ft ea)  - 3/4 Inch gravel filter (4cy)  - 48" diam Alum. Hatch cover (95 lbs ea)  8140			PRICE LEVEL:	Jan-11				
Air Valve Structures (to include):  - 48" dia. Concrete Pipe, vertical (10 ft ea) 8140  - 3/4 Inch gravel filter (4cy) 8140  - 48" diam Alum. Hatch cover (95 lbs ea) 8140		FILE:						
- 48" dia. Concrete Pipe, vertical (10 ft ea) 8140 - 3/4 Inch gravel filter (4cy) 8140 - 48" diam Alum. Hatch cover (95 lbs ea) 8140	NTITY	UNIT	UNIT PRICE	AMOUNT				
- 3/4 Inch gravel filter (4cy) 8140 - 48" diam Alum. Hatch cover (95 lbs ea) 8140	20	ea	\$6,800.00	\$136,000.00				
- 48" diam Alum. Hatch cover (95 lbs ea) 8140	200	lin ft						
	80	cy		e/ 9/9/				
- 2" Combination Air Valve (1ea) 8140	1,900	lbs						
	20	ea						
- 2" Ball Valves (1 ea) 8140	20	ea						
			0-					
Blowoff Structures (to include):	20	ea	\$8,300.00	\$166,000.00				
- 6" dia. Steel pipe, vertical (8 ft ea) 8140	160	lin ft	<b>\$0,000.00</b>	ψ100,000.00				
- 8' x 8' x 6" Concrete Pad (1.18 cy ea) 8140	24	cy	· ·					
- Cementitious Materials for Pad (0.33 tons ea) 8140	6.7	tons						
- Pad Reinf. (1 layer, #5@12" oc. ew, 143 lbs ea) 8140	2,900	Ibs						
- 6" dia. Discharge stern pipe (2 ft ea) 8140	40	lin ft						
- 6" Butterfly Valve (1 ea) 8140	20	ea						
- 48" Diam Concrete Pipe, vertical (10 ft ea) 8140	200	lin ft						
- 6" Tee (1 ea) 8140	20	ea						
- 6" Blind Flange (1 ea) 8140	20	ea						
- 48" diam Alum hatch cover (95 lbs ea) 8140	1,900	lbs						
			-					
* * 1				***				
Cathodic Protection 8140	1	ls	Not applicable, no	steel pipe.				
*Assume 5% of cost for all steel Items above	Ĉ.							
Note: Percentage used is based on detailed field cost estimates prepared for	or Solici	tation						
No. 09SP101729 dated August 2009. Soils are assumed to be similar to the			***					
encountered at the Weber Siphons and are assumed to have similar corros	-	ntial.						
SUBTOTAL THIS SHEET				\$302,000.00				
SUBTOTAL NORTH LOOP				\$5,258,650.00				
QUANTITIES		PR	ICES					
BY CHECKED BY  Jeremy Lorberau W. Chris Duke, PE Jeff Mords	111	gives	CHECKED 5/31/	CHECKED (/31/1)-				
DATE PREPARED PEER REVIEW / DATE DATE PREPARE 04/24/12 Steven J. Robertson, PE 05/13/12	-	1142	PEER REVIEW D	ATE //2				

FEATURE:		PROJECT:								
	Arkan	sas Valley C	Conduit	Fryingpai	n-Arkansas	Project	- Arkansas Valle	ey Conduit		
	Pipeli			WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal		
	Revis	ed Coman	che South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11		
Civil	South	Side and E	ast End Spur	FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	-	Sitework Iten	ani							
2.0	C 12		mes trench width)	0440	00.0	3220	#4 000 00	#nd non no		
	<del></del>	-	mes denon widdi)	8140	20.0	acre	\$1,000.00	\$20,000.00		
		Grubbing	#:J3	8140	2	acre	\$2,500.00	\$5,000.00		
	1	Stripping (6"	utck)	8140	16,000	су	\$2.00	\$32,000.00		
		Seeding		8140	20	acre	\$1,500.00	\$30,000.00		
		Earthwork Ite	ems:			****	×			
		Soil Excavati	on (1.5:1) outside urban area	8140	27,000	су	\$6.00	\$162,000.00		
		Rock Excava	tion (0.25:1) outside urban area	8140	960	су	\$45.00	\$43,200.00		
		(20% of leng	jth is assumed partial rock exc.)							
		assume ripp	pable material							
		Pipe Bedding	(Select material, 4" thick)	8140	550	су	\$50.00	\$27,500.00		
		Embedment	& Cover Backfill	8140	27,000	су	\$5.00	\$135,000.00		
		(does not in	clude shrink/swell)							
		Compacting	Embedment Backfill	8140	2,000	су	\$14.00	\$28,000.00		
		- No. 1			-					
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			SUBTOTAL THIS SHEET					\$482,700.00		
		Q	UANTITIES			PRI	CES			
3Y	1.20		CHECKED	ВУ	7. 1		CHECKED (/2	di		
	Lorbera		W. Chris Duke, PE	Jeff Morris	Znulo	Lin	1/1 3/2	116		
DATE P 04/24/1:	REPAR	ED	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREI 05/13/12	PARED		PEER REVIEW O	5/31/12		
-							NVN	-10111		

FEAT		sas Valley	Conduit	PROJEC Fryingpar		Project	- Arkansas Valle	ey Conduit		
	Pipeli	пе		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal		
			nche South, Max Day Condition 4	REGION	GP	UNIT P	RICE LEVEL:	Jan-11		
Civil	South	Side and E	ast End Spur	FILE:						
PLANT	PAYITEM	15	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Pipe Items:								
1		4" DR25 (C	IOD) C900 PVC pipe	8140	16,000	lin ft	\$6.20	\$99,200.00		
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	-	-								
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		**	#(*)#*(********************************					***		
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	7	Isolation Va	Ives (Manual operation):					-		
			(psig) butterfly valve with operator	8140	1	ea	\$1,100.00	\$1,100.00		
								N. 51 CO. 20 CO.		
			7.0	P = 1						
		Isolation Va	lve Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00		
		60" I.D. x 6"	wall precast flat top with concentric							
		ring, 36" a								
			wall precast 36" riser							
			cast 72* base shell							
		36" dia. Cas	st iron manhole cover and ring set							
		-	A.M. A.M. A.M. A.M. A.M. A.M. A.M. A.M.				Y.	2122 222 22		
-	SUBTOTAL THIS SHEET					BBI	CEC	\$107,300.00		
BY			QUANTITIES	DV			CES	-		
	Lorbera		CHECKED	BY Jeff Morris	Zun		CHECKED	1/12		
	REPAR		W. Chris Duke, PE PEER REVIEW / DATE	DATE PRE				1		
04/24/1			Steven J. Robertson, PE	05/13/12	MED		PEER REVIEW / D	5/31/12		
- 4 - H	-		SISTER FRENCH SOUTH THE	10/12			1000	-1-1-		

FEAT	ATURE:  Arkansas Valley Conduit  Pipeline			PROJEC Fryingpa		Projec	t - Arkansas Val	ley Conduit
				WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal
	Revis	sed Coman	che South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11
	South	Side and E	ast End Spur	FILE:	on h			
Civil								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
ACA	P.							
		Air Valve Str	uctures (to include):		3	ea	\$6,800.00	\$20,400.00
		- 48" dia. Co	ncrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
		- 3/4 inch gra	evel filter (4cy)	8140	12	су	1	*
		- 48" diam A	lum. Hatch cover (95 lbs ea)	8140	290			
		1	ation Air Valve (1ea)	8140	3	_		
		- 2" Ball Valv		8140	3	-		
			**************************************					
								- d- c ape
		Blowoff Struc	ctures (to include):		3	ea	\$8,300.00	\$24,900.00
		- 6" dia. Stee	l pipe, vertical (8 ft ea)	8140	24	lin ft		
		- 8' x 8' x 6" (	Concrete Pad (1.18 cy ea)	8140	3.5	су		
		- Cementition	us Materials for Pad (0.33 tons ea)	8140	1	tons		
		- Pad Reinf.	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	430	lbs		
		- 6" dia. Disc	harge stem pipe (2 ft ea)	8140	6	lin ft		
		- 6" Butterfly	Valve (1 ea)	8140	3	ea		
!		- 48" Diam C	oncrete Pipe, vertical (10 ft ea)	8140	30	lin ft		
1 = = 1		- 6" Tee (1 e	a)	8140	3	ea		-
		- 6" Blind Fla	nge (1 ea)	8140	3	ea		
		- 48" diam Al	um hatch cover (95 lbs ea)	8140	290	lbs		
		1				-		
						-		
-								
		Cathodic Pro	tection	8140	1	Is	Not applicable, no	steel pipe.
		*Assume 5	% of cost for all steel items above		1111		7.00	4
		Note: Percen	tage used is based on detailed field cost es	timates pred	ared for Solici	tation		
			1729 dated August 2009. Soils are assumed	-				
	-	-	at the Weber Siphons and are assumed to		The second second	entlal.		
		*****	SUBTOTAL THIS SHEET					\$45,300.00
		SUBTO	TAL SOUTH SIDE AND EAST END SPUR			-	10-10-10-10-10-10-10-10-10-10-10-10-10-1	\$635,300.00
	QUANTITIES				pp	ICES	\$500,000.00	
BY			BY		rn	CHECKED /	1	
Jeremy I	eremy Lorberau W. Chris Duke, PE			Jeff Morns	1 1/2	pris	WA 5/3	1/12
<b>DATE</b> PI 04/24/12	ATE PREPARED PEER REVIEW / DATE W24/12 Steven J. Robertson, PE			DATE PRE 05/13/12	ÉARÉD		PEER REVIEW / I	5/31/12

FEAT	EATURE:  Arkansas Valley Conduit  Pipeline			PROJE Fryingp		s Projec	t - Arkansas Val	ley Conduit
	Pipeli	ne		WOID:	AF523	ESTIM	ATE LEVEL:	Appraisal
	Revis	sed Comand	the South, Max Day Condition 4	REGIO	GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Bents	Fort Spur		FILE:				
PLANT	PAY (TEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
-	-	Sitewark Item	s:			155		
			nes trench width)	8140	1.00	acre	\$1,000.00	\$1,000.00
V = -		Grubbing		8140	1.000	acre	\$2,500.00	\$2,500.00
		Stripping (6" to	hick)	8140	710	су	\$6.00	\$4,260.00
		Seeding		8140	1.00		\$1,500.00	\$1,500.00
		Earthwork Iter	<u>ть:</u>					*
		Soil Excavation	on (1.5:1) outside urban area	8140	1,200	су	\$9.00	\$10,800.00
		Rock Excavat	ion (0.25:1) outside urban area	8140	42	су	\$45.00	\$1,890.00
		(20% of lengt	th is assumed partial rock exc.)					
		assume ripp	able material					
		Pipe Bedding	(Select material, 4" thick)	8140	24	су	\$50.00	\$1,200.00
		Embedment 8	A Cover Backfill	8140	1,200	су	\$7.00	\$8,400.00
		(does not incl	lude shrink/swell)	4.7.1				
		Compacting E	mbedment Backfill	8140	91	cy	\$16.00	\$1,456.00
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			An was					
			SUBTOTAL THIS SHEET					\$33,006.00
		Ql	JANTITIES			PR	RICES	
BY Jeremy	Lorbera	u	CHECKED W. Chris Duke, PE	BY Jeff Morti	Shul	Orie	CHECKED 14	5/31/12
-	ATE PREPARED PEER REVIEW / DATE			EPARED		PEER REVIEW / D.		

FEAT	EATURE:		PROJECT:							
	Arkan	sas Valley	Conduit	Fryingp	an-Arkansa	s Proje	ect - Arkansas Val	ley Conduit		
	Pipeli			WOID:	AF523	ESTIN	ATE LEVEL:	Appraisal		
	Revis	sed Comar	nche South, Max Dry Condition 4	REGIO	GP		PRICE LEVEL:	Jan-11		
	Bents	Fort Spur		FILE:						
Civil		_					,			
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Pipe Items:								
			(OD) C900 PVC pipe	8140	710	lin ft	\$6.20	\$4,402.00		
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			78 -77 -77				7			
			de (Certical City page 27)							
			* * **********************************				1	\$6.00 · · · · · · · · · · · · · · · · · ·		
								-		
		Isolation Va	Ives (Manual operation):				*****			
			(psig) butterfly valve with operator	8140	1	ea	\$1,100.00	\$1,100.00		
		1, 4,000,000	(-3,	0.10				<b>\$11,100,00</b>		
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			*****	1			100			
700										
		Isolation Va	Ive Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00		
			wall precast flat top with concentric				1	7.4		
		ring, 36" ac		1000			-	<del></del>		
			wall precast 36" riser							
		-	cast 72" base shell							
	+00 1		et iron manhole cover and ring set							
		1								
			-			-				
	Carre 1	1	SUBTOTAL THIS SHEET		*			\$12,502.00		
		(	QUANTITIES		-	P	RICES			
BY			CHECKED	BY		0.	7	11		
	Lorbera	u	W. Chris Duke, PE	Jeff Morri	5 Thill	oris	1/10	مرارد/د		
	REPAR		PEER REVIEW / DATE	DATE PR		0007	PEER REVIEW / D	ATE,		
04/24/1			Steven J. Robertson, PE	05/13/12			ara	5/31/12		
		_	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	PARK CHECK		_	1000	1		

FEAT		nsas Valley	Conduit	PROJE	Fryingpan-Arkansas Project - Arkansas Valley Conduit						
	Pipel			WOID:	AF523	ESTIN	MATE LEVEL:	Appraisal			
	Revis	sed Comar	nche South, Max Day Condition 4	REGIO	GP	UNIT	PRICE LEVEL:	Jan-11			
Civil	Bents	Fort Spur		FILE:	FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
		Air Valve S	tructures (to include):	-	1	ea	\$6,800.00	\$6,800.00			
		- 48" dia. Ci	oncrete Pipe, vertical (10 ft ea)	8140	10		737733	* - /			
			ravel filter (4cy)	8140	4	cy		1 100			
	1		Alum, Hatch cover (95 lbs ea)	8140	95						
			nation Air Valve (1ea)	8140	1	-					
		- 2" Ball Val		8140	1	ea					
					-						
		Blowoff Str.	uctures (to include):	-	1	ea	\$8,300.00	\$8,300.00			
		- 6" dia. Ste	el pipe, vertical (8 ft ea)	8140	8	lin ft					
		- 8' x 8' x 6"	Concrete Pad (1.18 cy ea)	8140	1.2	су					
		- Cementitio	ous Materials for Pad (0.33 tons ea)	8140	0.33	tons					
		- Pad Reinf.	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	145	Ibs					
		- 6" dia. Dis	charge stem pipe (2 ft ea)	8140	2	lin ft		-			
		- 6" Butterfly	y Valve (1 ea)	8140	1	ea					
		- 48" Diam (	Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft					
		- 6" Tee (1	ea)	8140	1	ea					
		- 6" Blind Fl	ange (1 ea)	8140	1	ea					
-394		- 48" dlam /	Alum hatch cover (95 lbs ea)	8140	95	lbs					
		Cathodic Pr	otection	8140	1	İs	Not applicable, no s	steel pipe.			
		*Assume	5% of cost for all steel items above								
		Note: Perce	ntage used is based on detailed field cost es	itimates pro	epared for Soli	citation					
		No. 09SP10	1729 dated August 2009. Soils are assume	d to be sim	ilar to those						
		encountered	d at the Weber Siphons and are assumed to	have simila	ar corrosion po	tential.					
		<u> </u>	SUBTOTAL THIS SHEET					\$15,100.00			
	SUBTOTAL BENT'S FORT SPUR							\$60,608.00			
			QUANTITIES			P	RICES				
BY	Loghorn		CHECKED	BY	74.	1.	CHECKED S	131/0_			
	ATE PREPARED PEER		W. Chris Duke, PE PEER REVIEW / DATE Steven J. Robertson, PE	Jeff Morris DATE PR 05/13/12		guis	PEER REVIEW / D	ATE 5/31/12			

FEAT	ATURE:  Arkansas Valley Conduit  Pipeline			CT: n-Arkansas	Project	- Arkansas Vali	ey Conduit
			WOID:	AF523	ESTIM.	ATE LEVEL:	Appraisal
	Revi	sed Comanche South, Max Day Condition 4	REGION	GP		RICE LEVEL:	Jan-11
	Rock	y Ford & Hancock Spur	FILE:				
Civil							
. 5	2				= = 1		
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
*		Sitework Items:		100			
277		Clearing (3 times trench width)	8140	1.00	acre	\$1,000.00	\$1,000.00
	-	Grubbing	8140	1.000		\$2,500.00	\$2,500.00
		Stripping (6" thick)	8140	1,100		\$4.00	\$4,400.00
		Seeding	8140	1.00		\$1,500.00	\$1,500.00
					2020.4	***************************************	47,1441.14
		Earthwork Items:					
		Soil Excavation (1.5:1) outside urban area	8140	2,100	су	\$9.00	\$18,900.00
7		Rock Excavation (0.25:1) outside urban area	8140	91	су	\$45.00	\$4,095.00
		(20% of length is assumed partial rock exc.)			-7		T /1-1-1-1
		assume rippable material					100
		Pipe Bedding (Select material, 4" thick)	8140	40	су	\$50.00	\$2,000.00
		Embedment & Cover Backfill	8140	2,100	су	\$7.00	\$14,700.00
		(does not Include shrink/swell)					4111.001.00
		Compacting Embedment Backfill	8140	96	су	\$16.00	\$1,536.00
			2			4.0.00	41,000.00
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		SUBTOTAL THIS SHEET			44 44		\$50,631.00
_		QUANTITIES			DDI	CES	JU.120,026
ву	_	CHECKED	BY				7
Jeremy	Incham			Zhula	à	CHECKED 5/34	112
DATE P		27 1 100 -	Jeff Morkis			100 //	
04/24/12		Steven J. Robertson, PE	DATE PRE 05/13/12	PARED		PEER REVIEW / D	AIE I
U-112-11 12	•	Staven J. Robertson, PE	05/13/12			MU.	151/10

FEAT	ATURE: Arkansas Valley Conduit			PROJEC Fryingpa		Project	- Arkansas Valle	ey Conduit		
	Pipeli	ine		WOID:	AF523	-	ATE LEVEL:	Appraisal		
			nche South, Max Day Condition 4	14201011	GP	UNIT P	RICE LEVEL:	Jan-11		
Civil	Rock	y Ford & Ha	incack Spur	FILE:						
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Pipe Items:								
		12" DR25 (	CIOD) C900 PVC pipe	8140	960	lin ft	\$22.00	\$21,120.00		
						14 140				
	-		* · · · · · · · · · · · · · · · · · · ·							
<u>—</u>								-		
							()			
		Isolation Va	lves (Manual operation):			)3 <del>(      </del>				
			50 (psig) butterfly valve with operator	8140	1	ea	\$2,500.00	\$2,500.00		
	* * *				-					
- 1	() () = 0 <del> </del>	Isolation Va	Ive Manholes (to include):	8140	1	ea	\$7,000.00	\$7,000.00		
	*		wall precast flat top with concentric	40.0	*		ψ1,000.22	#1,1000.00		
		ring, 36" a		10-10-1						
	2.3		wall precast 36" riser				77			
		1	cast 72" base shell							
			st iron manhole cover and ring set							
	Jan 24						,			
			SUBTOTAL THIS SHEET					\$30,620.00		
			QUANTITIES	-		PRI	Name at a second			
BY Jeremy			BY Jeff Motris	Zarlo	via (	CHECKED 51	131/12			
DATE P 04/24/12	ATE PREPARED PEER REVIEW / DATE			Jeff Morris of Morris  DATE PREPARED  05/13/12  CHECKED  15/31/12  PEER REVIEW / DATE  15/31/12						

FEAT	URE:	sas Valley	Conduit	PROJEC Fryingpai		Projec	t - Arkansas Vall	ey Conduit	
	Pipeli			ESTIN	MATE LEVEL:	Appraisal			
	Revis	sed Comar	nche South, Max Day Condition 4	REGION	GP	UNIT	PRICE LEVEL:	Jan-11	
Civil	Rocky	Ford & Ha	ncock Spur	FILE:					
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Air Valve St	ructures (to include):		9	ea	\$6,800.00	\$6,800.00	
		- 48" dia. Co	oncrete Pipe, vertical (10 ft ea)	8140	10	lin ft			
		- 3/4 inch gr	avel filter (4cy)	8140	4	су		- 30-4-	
12.01		- 48" diam A	Num. Hatch cover (95 lbs ea)	8140	95	lbs		-	
		- 2" Combin	ation Air Valve (1ea)	8140	1	ea			
		- 2" Bali Val		8140	1	ea			
						-			
-							3332		
		Blowoff Stru	ctures (to include):		1	ea	\$8,300.00	\$8,300.00	
		- 6" dia. Ste	el pipe, vertical (8 ft ea)	8140	8	lin ft			
		- 8' x 8' x 6"	Concrete Pad (1.18 cy ea)	8140	1.2	су			
		- Cementitio	us Materials for Pad (0.33 tons ea)	8140	0.33	tons			
		- Pad Reinf.	(1 layer, #5@12" oc, ew, 143 lbs ea)	8140	145	lbs			
Ú.		- 6" dia. Dise	charge stem plpe (2 ft ea)	8140	2	lin ft			
		- 6" Butterfly	Valve (1 ea)	8140	1	ea		3 - 5 : - 497-2019	
		- 48" Diam (	Concrete Pipe, vertical (10 ft ea)	8140	10	lin ft		>	
		- 6" Tee (1 e	pa)	8140	1	ea		8	
	-	- 6" Blind Fla	ange (1 ea)	8140	1	ea			
		- 48" diam A	lum hatch cover (95 lbs ea)	8140	95	lbs			
			**						
-	-			-			-	1,44	
			19-11-			-			
-			** . *		e				
			-		-				
iere l		Cathodic Pro	otection	8140	1	İs	Not applicable, no	steel pipe.	
			5% of cost for all steel items above						
			ntage used is based on detailed field cost es			tation			
5		No. 09SP10	1729 dated August 2009. Soils are assume	d to be simila	ar to those				
		encountered	at the Weber Siphons and are assumed to	have similar	corrosion pote	intial.	1		
			SUDTOTAL TURS SUFET		-			A45 485 00	
		SUBTO	SUBTOTAL THIS SHEET TAL ROCKY FORD AND HANCOCK SPUR		-		1	\$15,100.00	
		1000	QUANTITIES			DD	ICES	\$96,351.00	
BY			CHECKED	BY		FR	<b></b>		
200	Lorbera		W. Chris Duke, PE	Jeff Morris	2011		CHECKED 5/3	1/12	
	ATE PREPARED PEER REVIEW / DATE			DATE PRE	PARED	ub	PEER REVIEW / D	ATE //12	

FEATU	TO A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE	PROJECT Fryington-A	: Arkansas Pro	oject				
		sas Valley Co ipant Tie-in \		WOID:	AF523		TE LEVEL:	Appraisal
		ed Coman		REGION:	GP		RICE LEVEL:	Jan-11
	Loop			FILE:				9311 1
PLANT	РАУ ПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Civil/Structur	ral:					
D. 6 5 W. 1 (14 1 0 mm)		Participant	Tle-in Vaults	86-68120	8	ea	\$35,000.00	\$280,000.00
		Reinforc	ed Concrete for Vaults	N/4-,				
		(Ass	umed: 12' W x 9' L x 10'-8" D)					
			ume: f'c=4,500 psi)					
			ce: 50 miles					
		Cond	crete: 17.5 yd3					
		Rein	forcement (Assume 135 lb/yd3): 2,360	ibs				
			ent (Assume: 0.282 ton/yd3): 5 tons					va 19
-61-0-5		Access 8	Service Hatches					
		Acce	ess hatch 3' x3': 2 ea					
		(	The Bilco Co Type Q single leaf)					
		Servi	ice hatch 3' x 5': 1 ea					
		2	The Bilco Co Type JD special sizes)					
		Miscellar	neous Metalwork					
		Stee	I (ASTM A36): 150 lbs					
		(	Ref. 40-D-6601, Ladder Type 2)					
		Sitework						
		Strip	ping (6 inch thick layer of soil)					
		8	Service Yard: 12 yd3					
		Exca	vation: 195 yd3					
		(	Assume: Common, 1-1/2:1 slope)					
		Com	pacted engineered backfill: 155 yd3					
		Grav	el Surfacing (6 inches thick)					
			Service Yard: 10 yd3					
		1					THE CO.	
		,						
		1						
	-	1						
3877			SUBTOTAL THIS SHEET					\$280,000.00
-	QUANTITIES					DD	ICES	\$200,UUU.UU
BY	_	C(U)	REVIEWED	BY		FR		-
R. J. Bart	hal		Paul Ruchti		Mulou	3	CHECKED THE	5/21/12
DATE PR		)	PEER REVIEW / DATE	DATE PREPA			DEED DEVIEW ( DAT	
04/18/12	-1.701-1		Paul Ruchti, P.E.	05/13/12	N DATE	-	PEER REVIEW / DAT	5/31/12

FEATU	ATURE:  Arkansas Valley Conduit  Participant Tie-In Vaults	Fryington-	: Arkansas Pro	oject				
				WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal
	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	d Comand		REGION:	GP	_	RICE LEVEL:	Jan-11
	Loop			FILE:				
		ical Equipm	ent	A PERSONAL PROPERTY OF THE PERSON NAMED IN COLUMN 1				- CH44
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		assume partic	ipant tie-in vault size=12' W x 9' L x	10'-8" D				
-								- 40
	1		It ventilation equipment equipment per vault:	86-68410	8	ls	\$5,600.00	\$44,800.00
	-		)-steel centrifugal fan, 200 cfm @ 0.	25" wasn 1/6	s Hn			230003120021_4
			2 ft)-6" diam, 16 ga., galv. steel duc	1	7 T ID			
			)-6" diam, sch 20, galv., L.R. 180 de		uras			
			)-6"x8" reducer, sch 20, galv. steel p		31,13			
			)-8" diam, stainless steel bird screer	1				
			)-6"x8" reducer, 16 ga, galv. steel de					
14			)-6" dlam galv steel motor-operated					
			)-fan motor starter for 1/6 Hp					
res er er e			)-fan wall switch and box					440-1047-0-1
	2	Meter vau	It heater	86-68410	8	ea	\$800.00	\$6,400.00
		3 kW	unit heater					
		therm	ostatically controlled					
	3	Flowmete		86-68410	8	ea	\$13,000.00	\$104,000.00
	-		meter, microprocessor-based,			1		
		remot	ed electro-magnetic flowmeter with e wall-mounted transmitter		e381 X -		¥4	:
			t≂ approx 85 lbs					
h-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		120 V	olt AC		10)			
				:			- · · · · ·	A40.140
								+
			SUBTOTAL THIS SHEE	т				\$155,200.00
		QUA	NTITIES			P	RICES	
BY AM Ritt			REVIEWED Paul Schlein	BY Jeff Morris	Zaulan	io	CHECKED AL 5/	1/n
	DATE PREPARED 1/18/2012		PEER REVIEW / DATE Dave Hulse	DATE PRÉP. 05/13/12	ARED		PEER REVIEW ( DATE	5/31/12

FEATU	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	PROJECT:						
	Arkan	sas Valley Co		Fryington-A	Arkansas Pro	ject		
		pant Tie-in V		WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal
100	Revis	ed Comano	he South	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11
	Loop			FILE:				
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
*	۵.					-		
		Mechanical/h	ydraulic equipment					
-		Participant 1	Fie-In Vaults (8 vaults)	86-68420				- ** - *
		6-inch presso	ure reducing valve		8	ea	\$7,800.00	\$62,400.00
		8 valves,	160 lbs each					
		Cla-Val A	NSI class 150 steel		1 - 3			
		(285 p	si rated)					
		6-inch manu	ally-operated butterfly valve	÷ -			/	
		4 valves,	90 lbs each		4	ea	\$1,300.00	\$5,200.00
		AWWA C	lass 150-B					
		4 valves,	130 lbs each		4	ea	\$2,300.00	\$9,200.00
		AWWA C	lass 250-B				-	
e)e >		6-inch buried	square-nut operated butterfly				→ → → → ( (/a)	
		valve with va	lve box		8115			
		4 valves,	245 lbs each		4	ea	\$1,800.00	\$7,200.00
	146	AWWA C	lass 150-B					
		4 valves,	285 lbs each		4	ea	\$2,800.00	\$11,200.00
enemic .		AWWA C	lass 250-B					
		1-inch air val						
								* = ===================================
+		-	on air valve es, 35 lbs each		8	ea	\$1,000.00	\$8,000.00
					1815			
				1				
						(;		
		-			w the two offs	e		V. 5.2
			SUBTOTAL THIS SHEET					\$103,200.00
QUANTITIES				0.30	P	RICES		
BY Ken Smit	**************************************			BY Jeff Morris	Zuelo		CHECKED S	131/12
DATE PR	PATE PREPARED PEER REVIEW / DATE		DATE PREP			PEER REVIEW DATE	1	
4/18/2012	4		Rick Frisz 4/20/12	05/13/12			DUF	2/21/10

FEAT	URE:	nsas Valley	Conduit	PROJECT Fryingpan-		oject - Arka	ansas Valley Co	ndult
	Pipel	line	v v	WOID:	AF523	ESTIMATE	LEVEL:	Appraisal
	Revis	sed Comanci	he South, Max Day Condition 4	REGION:	GP	UNIT PRIC	E LEVEL:	Jan-11
	Road	lway, Rail, R	iver Crossings	FILE:			5-5-7-	
Civil								
PLANT	PAY ITEM	*	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMQUNT
		Gravel Road	Crossings (to include):		16	ea	\$10,000.00	\$160,000.00
		4	backfill for road base (192 cy each)	8140	3,100	су		
			ase Course (6" thick) (22 cy each)	8140	350	cy		
			ging (6" thick) (23 cy each)	8140	370	cy		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
			arricades & signage (1 each)	8140	16	ls	~ 8	
			oq'd for 2 days per crossing)					
	-	Paved Road	Crossings, 2 lane (to include):		214	ea	\$25,000.00	\$5,350,000.00
			backfill for road base (194 cy each)	8140	41,500	су		
			course (6" thick) (23 cy each)	8140	4,900	су	1.00	
	E		acing (6" thick) (23 cy each)	8140	4,900	cy	1	
		*	arricades & signage ( 1 each)	8140	214	ls		
te-11(3)   44			aved and reg'd for 5 days ea)					1-10-21-31-41
		Major Road (	Orossings, 4 lanes (to include);		27	ea	\$60,000.00	\$1,620,000.00
			backfill for road base (341 cy each)	8140	9,200	cy	000,000.00	01,020,000.00
	1		course (6" thick) (39 cy each)	8140	1,050	cy		
-	4		acing (6" thick) (40 cy each)	8140	1,100	су		
	1		r, barricades, & signage (1000')	8140	27	İs		
		1	aved and reg'd for 10 days ea)	0.10				
		Interstate and	d Highway Crossings (to Include):		32	ea	\$300,000.00	\$9,600,000.00
	-	-	rectional Drilling, 36" dia carrier	8140	16,000		\$000,000.00	wa,000,000
			over depth is 20 ft, 500 lin. ft. each	0140	10,000	III IL III	-	
	1	1200	g pipe, welded steel 1/4" thick	8140	16,000	lin. ft.		
-			en borehole & casing pipe (290 cy)	8140	9,300			
10 H (m)			25 - 6 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -				0400 000 00	A. 200 000 000
	1		ssing (to include):	0.10	2.400		\$120,000.00	\$1,680,000.00
			rectional Drilling, 36" dia carrier ver depth is 20 ft, 150 lln. ft. each	8140	2,100	lin. ft.		10 10
		48" dia casin	ng pipe, welded steel 1/4" thick	8140	2,100	lin. ft.		
		Grout between	en borehole and casing pipe	8140	1,250	су	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-
			SUBTOTAL THIS SHEE	т				\$18,410,000.00
77.7	QUANTITIES				PRIC	ES		
BY	Y CHECKED		ВУ	711 1		CHECKED	uli.	
2 6 5 7	eremy Lorberau W. Chris Duke, PE		Jeff Morris 24 Nais 1 5/31/12				11-	
1200	ATE PREPARED PEER REVIEW / DATE 4/24/12 Steven J. Robertson, PE		05/13/12	KRED		PEER REVIEW	DATE /31/12	

FEAT	Arkansas Valley Conduit Pipeline Crossings		Conduit	PROJECT:		oject				
	Pipe	line Crossin	gs	WOID:	AF523	ESTIMATE	LEVEL:	Appraisal		
N 2	Revi	sed Comanc	he South, Max Day Condition 4	REGION:	GP	UNIT PRIC	E LEVEL:	Jan-11		
Civil	Cros	sings		FILE:						
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Major River	Crossing (to include):		8	ea	\$1,000,000.00	\$8,000,000.00		
7.	1.		irectional Drilling, 36" dia. Pipe, 48"	8140	8,000	lin ft				
		(1000 lin. ft e	ea)							
		48" dia. Cas	ing pipe, 1/4" thick (1000 lin. ft ea)	8140	8,000	lin ft				
	1.73	average cov	ver depth is 20 ft							
	1									
					7					
					1		3.00 4 14 3 4 10 10 10 10			
			× 5 500×							
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	-		-							
	-	-	SUBTOTAL THIS SHEET					\$8,000,000.00		
_						PRIC	`Ee	\$0,000,000.00		
FOZ	QUANTITIES			lav.	-	PRIC		9		
BY	1 2 2	240	CHECKED	BY	Zhu	1.	CHECKED S	131/12		
Jeremy			W. Chris Duke, PE	Jeff Morris  DATE PREP		Jours				
DATE I 04/24/1		ARED	PEER REVIEW / DATE Steven J. Robertson, PE	05/13/12	AKEU[/		PEER REVIEW I	5/31/12		
U4/24/1	4		Steven J. Robertson, PE	100/10/1Z			1700	13/15/12		

FEATU	RE:			PROJEC	T:			T
	Arkan	sas Valley C	Conduit	Fryingpan	-Arkansas F	Project - A	rkansas Valley Con	duit
	Pipeli	ne		WOID:	AF523	ESTIMAT	TE LEVEL:	Appraisal
	Revis	ed Comanch	ne South, Max Day Condition 4	REGION:	GP	UNIT PR	ICE LEVEL:	Jan-11
	Dewat	tering		FILE:				
Civil		C 155						
PLANT	РАУ ГТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	-	Moll Cat Lin	(to include):					
			/Demobilization					·
	-		System- Power for dewatering					-
	-		all be sufficient to handle power for			1		
-			system at the same time				4 (=14) ( * 4-2)	
			of 15' deep wells, Pump 100 gpm			-		*
-			5 ft long slotted well screens					
		8 inch dia.		0				
e e s stra			ch dia. monitoring well	1.2			*	
	-	Well Develo						
			letion pumping test 4 hr					
-			riping if no settling pond needed					
		check valve		-				
		flow meters					·	
:	-	sampling p					and a second of the large-	
		Power			-			-
	-		ary generators, wiring, connections					
-	-	_	enance, rentals, etc. to provide	· · · · · · · · · · · · · · · · · · ·		-		
911 999			ewatering system	2:	3-1	****		
-	_	-	ral and Decommissioning					. 0 +<
		Well Rolliev	at and Decommissioning			*		_
		Well Set Up	s per Reach/Spur:					
			f operation is approximately 2					
			erating time per well					
		Reaches 1 t	7	8140	720	ea	\$3,500.00	\$2,520,000.00
			s in saturated areas requiring 1 well					2000
	-		pipe trench		77.	-		
	100	Spurs		8140	340	88	\$3,500.00	\$1,190,000.00
		6.49 miles	in saturated areas requiring 1 well					
		-	pipe trench					
ļ —								
			# F + F ********************************					
1						Letter 1		
Conversal.			SUBTOTAL THIS SHEET	-				\$3,710,000.00
QUANTITIES					PI	RICES		
BY CHECKED			BY			CHECKED	1.	
Jeremy I	Lorberau		W. Chris Duke, PE	Jeff Morris	J.hu	love	NA 5/31/	112
	DATE PREPARED PEER REVIEW / DATE			DATE PRE 05/13/12	PARED	6	PEER REVIEW / DATE	5/31/12
Q 7/4-1/12	_		Stores of topolisms FE	Total Inter			11/10	1

FEAT		ısas Valley Conduit	PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Conduit				
	Pipeli		WOID:	AF523		TE LEVEL:	Appraisal
ģ.		sed Comanche South, Max Day Condition 4		GP	UNIT P	RICE LEVEL:	Jan-11
Civil	Dust	Abatement	FILE:	10000	<del> </del>		
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Dust Abatement (to include):	344				,
		4 Water wagons, 4 drivers, 2-4 passes per day	8140	400,000	Mgai	\$10.00	\$4,000,000.00
-		per driver, 0.0625" application per pass, 5-75 ft					
		width		-1127			
		(Duration estimated 6 years using 4 crews)					
				_			-
		** 8					
	4					on a secondary of the	
		202					
		modul.		× × × × × × × × × × × × × × × × × × ×			
	100 11 1000						
*0	95-1-			-			
+0		SUBTOTAL THIS SHEE	т				\$4,000,000.00
		QUANTITIES	1000		PRI	CES	
BY Jeremy	CHECKED  eremy Lorberau W. Chris Duke, PE			Znu	lois	MA 5/	11/12
<b>DATE F</b> 04/24/1	PREPAR 2	PEER REVIEW / DATE Steven J. Robertson, PE	<b>DATE PRE</b> 05/13/12			PEER REVIEW /	DATE /3//12

	ATURE:  Arkansas Valley Conduit  Dam N/S Interconnect			PROJECT		Arkansas	s Project - Arkansas	Valley Conduit	
			3.75% Dr	WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal	
	Revis	sed Comand	che South, Max Day	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11	
Civil	Piping	9		FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Sitework Ite	ms:	2 - 5		1			
		Clearing (3 ti	mes trench width)	B140	6.1	acre	\$1,000.00	\$6,100.00	
		Grubbing (10	0% of clearing area)	8140	0.61	acre	\$2,500.00	\$1,525.00	
		Unwatering t	rench (Soil to avg. depth of 6', rock	8140	1	ls	Included in Cofferdam	Worksheets	
		from 6' to 15	5.5', sandstone w/ minor fractures,						
1.0		groundwater	r el varies from surface to over 15')			20.			
		Water for dua	st abatement	8140	310	Mgal	\$20.00	\$6,200.00	
		Stripping (3 t	times width, 6" thick)	8140	1650	су	\$4.00	\$6,600.00	
		Seeding		8140	6.1	acre	\$1,500.00	\$9,150.00	
		Earthwork if	tems:						
		Soil excavati	on (1.5:1 slopes, avg. 6' deep)	8140	15500	су	\$6.00	\$93,000.00	
	L.	Rock excava	tion (sandstone, 0.25:1 slopes, 4.4' t	8140	5200	су	\$35.00	\$182,000.00	
		13' deep, gr	oundwater varies in depth, blast						
		& excavator	removal)						
		Pipe Bedding	g 4" < 54" dia., 6" > 54" dia.)	8140	450	су	\$50.00	\$22,500.00	
		Backfill		8140	17000	су	\$5.00	\$85,000.00	
		Compacted I	Backfill (Embedment)	8140	2600	су	\$14.00	\$36,400.00	
		Pipe Items:						(-),-3	
		90" ID Steel	pipe, 0.375" thick, mortar lined &	8140	770000	lbs	\$1,90	\$1,463,000.00	
		epoxy coate	ed, Class 250 ft, (L=2109.6 ft)						
		48" ID Steel	pipe, 0.25" thick, mortar lined &	8140	15500	lbs	\$2.30	\$35,650.00	
		epoxy coate	ed, Class 125 ft, (L=117.6 ft)					) - <u></u>	
/		42" ID Steel	pipe, 0.175" thick, mortar lined &	8140	7300	lbs	\$2.35	\$17,155.00	
1000		epoxy coate	ed, Class 125 ft, (L=90.3 ft)						
		36" ID Steel	plpe, 0.1501" thick, mortar lined &	8140	13000	lbs	\$2.40	\$31,200.00	
		epoxy coate	ed, Class 125 ft, (L=215.99 ft)					×	
		30" ID Steel	pipe, 0.1345" thick, mortar lined &	8140	2700	lbs	\$2.80	\$7,560.00	
2 2		epoxy coats	ed, Class 125 ft, (L=60 ft)	11000					
1		Cathodic Pro	otection (5% of steel pipe cost)	8140	- 4	ls	\$78,000.00	\$78,000.00	
		Cofferdam:	See Estimate done by 8312	8312					
			SUBTOTAL THIS SHEET					\$2,081,040.00	
QUANTITIES					F	PRICES			
BY	CHECKED			BY	7.	1	CHECKED 15/	11/12	
Jeremy I	Lorberau	J .	W. Chris Duke, PE	Jeff Morris	Lopey	aris	1. 7	1	
<b>DATE PI</b> 04/25/12		ED	PEER REVIEW / DATE Steven J. Robertson, PE	05/13/12	PARED		PEER REVIEW / DAT	5/31/12	

FEATU	EATURE:  Arkansas Valley Conduit  Dam N/S Interconnect			PROJEC		Arkansas	s Project - Arkansas	alley Conduit	
				WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal	
	Revis	sed Coman	che South, Max Day	REGION:	GP	UNIT P	RICE LEVEL:	Jan-11	
Cívil	Pipe A	Appurtenand	ces	FILE:					
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		Pipe Appur	tenances:						
		90 x 30 x 90		8140	1	ea	\$9,300.00	\$9,300.00	
		90 x 36 x 90		8140	1	ea	\$10,500.00	\$10,500.00	
		30 x 30 x 30	· P —	8140	1	ea	\$9,000.00	\$9,000.00	
-	-	90 x 90 x 90		8140	1	ea	\$52,500.00	\$52,500.00	
		90 x 90 x 42		8140	1	ea	\$15,750.00	\$15,750.00	
		42 x 42 x 42		8140	1	ea	\$15,000.00	\$15,000.00	
		48 x 36 x 42		8140	1	ea	\$28,500.00	\$28,500.00	
		36 x 36 x 36		8140	1	ea	\$10,950.00	\$10,950.00	
		84 x 90 x 84	x 42 Cross	8140	1	ea	\$135,000.00	\$135,000.00	
		Isolation Va	alve Manholes (to include);						
		48" ID x 6" v	wall precast flat top with concentric	8140	13	68	\$4,500.00	\$58,500.00	
		ring, 36" ac	ocess						
		48" ID x 6" v	wall precast 36" riser						
		48" ID preca	ast 72" base shell			7.55		0+0+0	
		36" dia. cas	tiron manhole cover and ring set						
					w) x				
		Cathodic Pr	otection (5% of steel cost)	8140	11	ls	\$14,325.00	\$14,325.00	
	e+ - x	a (4	SUBTOTAL THIS SHEET		-			\$359,325.00	
QUANTITIES					P	RICES			
BY Jeremy L				BY Jeff Morris	Znul		CHECKED N 5/	131/12	
DATE PREPARED PER REVIEW / DATE 04/25/12 Steven J. Robertson, PE			DATE PREI 05/13/12		erres	CHECKED W 5/	5/31/12		

FEATU	EATURE:  Arkansas Valley Conduit  Dam N/S Interconnect		PROJEC	Service Control	Arkansas I	Project - Arkansas	Valley Conduit	
/	Dam I	V/S Intercons	nect	WOID:	AF523	ESTIMAT	E LEVEL:	Appraisal
)	Revis	sed Coman	che South, Max Day	REGION:	GP	UNIT PRI	CE LEVEL:	Jan-11
	Valve	2 - Civil Item	าร	FILE:				
Civil							10.00	
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
								- min - m
		Sitework Iten						
		Stripping (6"		8140	160.00	cy	\$6.00	\$960.00
			ire disturbed area)	8140	1.00	ac	\$1,500.00	\$1,500.00
		Dewatering (	24-7 operation, water surface at	8140	1	ls	\$15,000.00	\$15,000.00
	-	5 feet belov	v grade)					
		Earthwork Its	ems: (rock assumed to be 5 feet below	ow surface)				
			ion (2:1 slopes)	8140	230	су	\$25.00	\$5,750.00
		Rock Excava	ation (0.25:1 slopes)	8140	230	cy	\$60.00	\$13,800.00
		Structural Co	ompacted Backfill	8140	240	су	\$25.00	\$6,000.00
	-					1		
	-		Construction;	4.00	1	ea .	\$80,000.00	\$80,000.00
	-	Concrete (45		. 8140	93	cy		
		Rebar (#7 @	× <del></del>	8140	12000	lbs		
	-	Cemendrous	Materials (6 sacks/cy)	8140	26	tons		-
		Blowoff Struc	ctures (to include):		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Stee	ol pipe, vertical (8 ft each)	8140	8	lin ft		
		- 8' x 8' x 6" c	concrete pad, 4500 psi, 1.18 cy/ea	8140	1	су		
		- Cementition	us materials (0.33 tons each)	8140	0	tons		
		- Pad reinfor	cement (1 layer, #5 @ 1' o.c., ew,	8140	141	lbs		
		141 lbs/eac	sh)					
		- 6" dia. Disc	harge stem pipe (2 feet each)	8140	2	lin ft		
		- 6" butterfly	valve (1 each)	. 8140	1	ea	į.	
		- 48" dia, Co	ncrete pipe, vertical (10 ft each)	8140	10	lin ft		
		- 6" Tee (1 e	ach)	8140	1	ea		
		- 6" blind flar	nge (1 each)	8140	1	ea		
		- 48" dia. Alu	m. Hatch cover (95 lbs each)	8140	95	ea		VI :
	-							
	4950			1		1-1		
	-		CHRISTAL WAS COME					0404 040 05
	QUANTITIES SHEET				DD	ICES	\$131,310.00	
BY Jeremy L	Y CHECKED		BY Jeff Morris	Zool		CHECKED 1/31	11-	
DATE PI 04/25/12	REPARE		PEER REVIEW / DATE Steven J. Robertson, PE	DATE PREP 05/13/12		F	PEER REVIEW / DATE	5/31/12

FEAT	Arkansas Valley Conduit  Dam N/S Interconnect				i: Fryingpan- <i>l</i>	Arkansas	Project - Arkansas	Valley Conduit
	Dam I	N/S Interconi	nect	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
	Revis	sed Coman	che South, Max Day	REGION:	GP	UNIT PR	RICE LEVEL:	Jan-11
Civil	Valve	11 and 12 - (	Civil Items	FILE:				
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		Sitework Item	në:					
-	-	Stripping (6"		8140	170.00	ou.	\$6.00	\$1,020.00
	+		ire disturbed area)	8140	1.00	cy ac	\$1,500.00	\$1,500.00
			24-7 operation, water surface at	8140	1.00	ls	\$15,000.00	\$15,000.00
		5 feet belov		0140		15	\$13,000.00	ψ10,000.00
-								
	-		ems: (rock assumed to be 5 feet bel		226		201.00	
	+		ion (2:1 slopes)	8140	240		\$25.00	\$6,000.00
			tion (0.25:1 slopes)	8140	240	су	\$60.00	\$14,400.00
	-	Structural Co	empacted Backfill	8140	240	су	\$25.00	\$6,000.00
		Valve Vault (	Construction;		1	ea	\$87,000.00	\$87,000.00
		Concrete (45	600 psi min.)	8140	99	су		
		Rebar (#7 @	6" o.c.)	8140	13000	lbs		
	4	Cementitious	s Materials (6 sacks/cy)	8140	28	tons		
		Blowoff Struc	ctures (to include):		1	ea	\$8,300.00	\$8,300.00
		- 6" dia. Stee	l pipe, vertical (8 ft each)	8140	8	lin ft		
		- 8' x 8' x 6" d	concrete pad, 4500 psi, 1.18 cy/ea	8140	1	cy		153
57		- Cementition	us materials (0.33 tons each)	8140	D	-		
		- Pad reinfor	cement (1 layer, #5 @ 1' o.c., ew,	8140	141	lbs		
		141 lbs/eac	h)	11-2-5				
		- 6" dia. Disc	harge stem pipe (2 feet each)	8140	2	lin ft		
		- 6" butterfly	valve (1 each)	8140	1	ea		
		- 48" dla. Co	ncrete pipe, vertical (10 ft each)	8140	10	lin ft		
		- 6" Tee (1 e	ach)	8140	1	ea		
2		- 6" blind flar	nge (1 each)	8140	1	ea		
		- 48" dia. Alu	m. Hatch cover (95 lbs each)	8140	95	ea		- ( (i) ÷
-				-	_	-		
			SUBTOTAL THIS SHEE	_				\$139,220.00
	QUANTITIES					P	RICES	\$ (05,E25.00
BY Jeremy				BY Jeff Mortis	Zhille	Huis	CHECKED S	1/12
	ATE PREPARED PEER REVIEW / DATE		DATE PREF 05/13/12	1 11	20,3	PEER REVIEW / DATI	5/31/12	

FEATU	EATURE: Arkansas Valley Conduit			PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Conduit					
111		V/S Interconn		WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal	
			he South, Max Day	REGION:	GP	100	RICE LEVEL:	Jan-11	
	Valve	s 13 and 14 -	Civil Items	FILE:					
Civil							100	191	
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
-		Sitework Item	,						
-		Stripping (6" c		8140	190.00	су	\$6.00	\$1,140.00	
			re disturbed area)	8140	1.00		\$1,500.00	\$1,500.00	
			24-7 operation, water surface at	8140	1.00	ls	\$15,000.00	\$15,000.00	
		5 feet below		0140		10	V10,030,13	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
			ms: (rock assumed to be 5 feet bek	1					
			on (2:1 slopes)	8140	310	1	\$25.00	\$7,750.00	
			tion (0.25:1 slopes)	8140	330	1 - A	\$60.00	\$19,800.00	
- 0		Structural Co	mpacted Backfill	8140	270	су	\$25.00	\$6,750.00	
		Valve Vault C	Construction:	1 1	1	ea	\$125,000.00	\$125,000.00	
		Concrete (45)	00 psi min.)	8140	144	су			
		Rebar (#7 @	6" o.c.)	8140	18500	lbs			
	F	Cementitious	Materials (6 sacks/cy)	8140	41	tons			
		Blowoff Struc	tures (to include):		1	ea	\$8,300.00	\$8,300.00	
			pipe, vertical (8 ft each)	8140	8	2 10 4			
			oncrete pad, 4500 psi, 1.18 cy/ea	8140	1	-		***	
			s materials (0.33 tons each)	8140	0	-		-	
			ement (1 layer, #5 @ 1' o.c., ew,	8140	141				
		141 lbs/eacl							
			narge stem pipe (2 feet each)	8140	2	lin ft			
		- 6" butterfly v	valve (1 each)	8140	1	ea			
		- 48" dia. Cor	ocrete pipe, vertical (10 ft each)	8140	10	lin ft			
	X	- 6" Tee (1 ea	ach)	8140	1	ea		4	
		- 6" blind flan	ge (1 each)	8140	1	ea		- X	
	, 	- 48" dia. Alui	m. Hatch cover (95 lbs each)	8140	95	ea			
	<u></u>								
		-	SUBTOTAL THIS SHEET	n e				\$185,240.00	
		QUA	NTITIES			P	RICES		
ву		7-12	CHECKED	ВУ		1	CHECKED CA	ul.	
Jeremy !	orbera	1	W. Chris Duke, PE	Jeff Morris	Muli	ous	10 2/2	// -	
DATE PI 04/25/12		ED	PEER REVIEW / DATE Steven J. Robertson, PE	DATE PRE 05/13/12	PARED		PEER REVIEW / DATE	PEER REVIEW / DATE 5/3//12	

it	kansas Valley Cond	roject - Arl	: Arkansas Pi	Arkansas Valley Conduit	FEATU			
Appraisal	E LEVEL:	ESTIMATI	AF523	WOID:		I/S Interconne		
Jan-2011	CE LEVEL:		GP	REGION:	he South, Max Day	ed Comanch	Revis	
				FILE:	NA CANAL STREET			J
						مب منسم	ical	Mechan
AMOUNT	UNIT PRICE	UNIT	QUANTITY	CODE	DESCRIPTION		PAY ITEM	PLANT
					d Valves:	Steel Pipe and		
		-				Steel Pipe:		
\$6,300.00	\$180.00	lin ft	35	8420	el pipe	8º Sch. 20 stee		
						(23 lb/ft)		
\$5,040.00	\$90.00	lin ft	56	8420	eel pipe	4" Std. wall ste		
						(11 lb/ft)		
144944	-+ 2							
				10		Clanner		
					*-	Flanges		
\$59,904.00	\$4.00	lbs	14,976	8420	Dia: 8 AWWA class D flanges	90-inch pipe D		
						1,872 lbs ea		1
\$13,168.00	\$4.00	lbs	3,292	8420	Dia: 2 AWWA class D flanges	84-inch pipe D		
					each	1,646 lbs ea	J.	-
\$4,600.00	\$5.00	lbs	920	8420	Dia: 2 AWWA class D flanges	48-inch pipe D		
					ch	460 lbs eac		
\$7,280.00	\$5.00	lbs	1,456	8420	Dia: 4 AWWA class D flanges	42-inch pipe D		
					ch	364 lbs eac		
\$7,830.00	\$5.00	lbs	1,566	8420	Dia: 6 AWWA class D flanges	36-inch pipe D		
					ch	261 lbs eac		
\$3,280.00	\$5.00	lbs	656	8420	Dia: 4 AWWA class D flanges	30-inch pipe D		
					ch	164 lbs eac		
\$750.00	\$5.00	lbs	150	8420	a: 10 AWWA class D flanges	8-inch pipe Dia		
				11111	n .	15 lbs each		1 1
\$640.00	\$5.00	lbs	128	8420	a: 16 AWWA class D flanges	4-inch pipe Dia	V.	
						8 lbs each		
								7.
_, ,-								
-				A				
144								
\$108,792.00					SUBTOTAL THIS SHEET	-		
4.00,102.00	ICES	PR	-			QUAN		
1				BY		ZUAN		BV
1/12	14 5/		7/11/10	-			n .	No. of the second
, 1	PEER REVIEW / DATE		7	7		:D		
1/31/11-	NGA							A
\$1	ICES CHECKED S/	PR	Znulo	BY Jeff Morris DATE PREP		8 lbs each	EPARE	BY Ken Smit DATE PF 4/26/2012

FEATU	RE:			PROJEC	PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Conduit				
	Frying	pan-Arkans	sas Project	Fryingpar	n-Arkansas	Project - A	rkansas Valley Con	duit	
		sas Valley		WOID:	AF523	ESTIMAT	E LEVEL:	Appraisal	
100	Interto	connect		REGION:	GP	UNIT PRI	CE LEVEL:	Jan-2011	
	Revis	ed Comar	nche South	FILE:					
Mechan	ical								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
1		Valves							
		90" Dia.: A	WWA class 150B	8420	4	ea	\$150,000.00	\$600,000.00	
		4 butterf	ly valves manually-operated						
	, televanije t	19,700 li	bs each						
,		84" Dia: AV	VWA class 150B	8420	1	еа	\$130,000.00	\$130,000.00	
		1 butterf	ly valves manually-operated						
		16,400 II	bs each						
		48" Dia. AW	/WA class 150B	8420	1	98	\$36,000.00	\$36,000.00	
		1 butterf	ly valves manually-operated						
		6,925 lbs	s each			7-11			
		42" Dia. AV	/WA class 150B	8420	2	ea	\$26,000.00	\$52,000.00	
		2 butterf	ly valves manually-operated			1			
14.		4,544 lbs	s each						
		36" Dia. AW	VWA class 150B	8420	3	ea	\$17,000.00	\$51,000.00	
To a		3 butterf	ly valve manually-operated						
		3,425 lbs	s each						
		30" Dia. AV	VWA dass 150B	8420	2	ea	\$14,500.00	\$29,000.00	
		2 butterf	ly valves manually-operated					**	
		2,435 lbs	s each						
			WA class 150B	8420	5	62	\$1,900.00	\$9,500.00	
		5 butterf	ly valves manually-operated						
		125 lbs (							
1		3 (35,45,44)	WA class 150B	8420	8	ea	\$1,100.00	\$8,800.00	
		1	ly valves manually-operated					<del></del>	
		71 lbs ea	ach						
		-				1 1			
		+		- (4)		1			
-		( a) 3 (a) - 3	9 # 9 # 8 # 8 # 8 # B # 8 # 8 # 8 # 8 # 8 # 8			1	()	1 + 9	
			V × V × V + V + V + V + V + V + V + V +	_					
	-		SUBTOTAL THIS SHE	CT				\$916,300.00	
-		OU	ANTITIES			DE	ICES	φο ι υ, συσ. συ	
BY		QQ.	CHECKED	BY			CHECKED	11	
Ken Smi	th		Lucas Adams	Jeff Morris	This	Poeces	CHECKED NY 5/	31/12	
DATE PR		-n	PEER REVIEW / DATE	DATE PRE		racus	PEER REVIEW / DATE	1 1	
4/26/201			Nathan Nakamoto 4/26/12	05/13/12	- MIEN		PEER REVIEW DATE	731/12	
11201201	-	_	- 34 C. 114 C. 114 C. 1720/12	100112			N-v-	1 - 1 -	

FEAT	EATURE:  Arkansas Valley Conduit  Dam N/S Interconnect  Pavious Companyle South May Day			PROJECT: Fryingpan-Arkansas Project - Arkansas Valley Condui					
	Revis	ed Comar	nche South, Max Day	WOID:	AF641	ESTIMATE	LEVEL:	Appraisal	
	Sandb	ag Cofferda	am	REGION:	GP	UNIT PRICE	E LEVEL: Jan-11		
			4	FILE:					
PLANT	РАУПЕМ		DESCRIPTION	CODE	OUANTITY	UNIT	UNIT PRICE	THUOMA	
	-							4	
	3	* Foundation	Preperation		1	LS	\$30,000.00	\$30,000.00	
		remove -33	00 yds of river bottom sedimer	nt 1		(000			
		* Fumish and	I install 914 - 3.5x3.5x3.5 ft Sa	Indbags	. 1	LS	\$110,000.00	\$110,000.00	
*			gs with common excavation so ilable in the common exe.	oils.	1,450	yd <sup>3</sup>	Included in lump	sum above	
		* Furnish and	I install 40 mil PVC membrane	as	810	yd <sup>2</sup>	Included in furnis	h and install	
		the sand ba	gs are being erected.(1st half	of river excavation)			sand bag item ab	ove	
		100	naintain 2 sump pumps for 1 i	months		LS	\$35,000.00	\$35,000.00	
			d relocate 910 sandbags		1	LS	\$75,000.00	\$75,000,00	
		to the other	side of river						
-			i install 40 mil PVC membrane		810	yd²	Included in removes		
			gs are being erected. (2nd ha ing 1st half membrane will no				sand day item ac	2000	
		<u> </u>		956-					
			SUBTOTAL THIS SHEET					\$250,000.00	
		QUAN'				PRICES	3		
BY	Paul C		CHECKED Ryan Davidson	BY Jeff Morris	2 Ulsi		CHECKED	Spiliz	
DATE PREPARED 01/21/11		ED .	PEER REVIEW Allen Kiene	DATE PREPARED 05/13/12			PEER REVIEW (DATE / 3/1/12		

FEATURE:	PROJECT:	Environan-Ar	kansas Project	
Arkansas Valley Conduit	WOID:	AF523	ESTIMATE LEVEL:	Annaciael
Preferred Alternative - Interconnect	REGION:	GP	UNIT PRICE LEVEL:	Appraisal
OM&R Costs Summary Sheet			Morris/Arkansas Valley Conduit Appra	Jan-11
(Present Worth Without Escalation to NTP)	FILE:	Atternative\OM&R Co	st Estimate\[OM&R Calcs-Preferred A	Alt Interconnect Only-without
		, , , , , , , , , , , , , , , , , , ,	Estimated	Present Worth
Periodic (Replacement) Costs		P/F Factor	Periodic Costs	Costs (Jan 2011)
Year 5	PW Factor	0.81701	\$0	\$0
Year 10	PW Factor	0.66750	\$0	\$0
Year 15	PW Factor	0.54535	\$0	\$0
Year 20	PW Factor	0.44555	\$0	\$0
Year 25	PW Factor	0.36402	\$0	\$0
Year 30	PW Factor	0.29741	\$0	\$0
Year 35	PW Factor	0.24298	\$0	\$0
Year 40	PW Factor	0.19852	\$0	\$0
Year 45	PW Factor	0.16219	\$0	\$0
Year 50	PW Factor	0.13251	\$137,445	\$18,213
Subtotal Periodic (Replacement) Costs		*AAAAAAAA		\$18,213
Mobilization (+/- 5%)				\$910
Subtotal 1 with Mobilization				\$19,123
Escalation to NTP		AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PARTIES AND PA		\$0
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to	NTP			\$19,123
Design Contingencies (+/- 15%)				\$2,877
Contract Cost				\$22,000
Construction Contingencies (+/- 25%)				\$5,000
Field Cost				\$27,000
Non-Contract Costs (+/- 25%)				\$7,000
Total Periodic (Replacement) Present Worth Co			and the second second	\$34,000
Total Periodic (Replacement) Present Worth Co Annual Periodic (Replacement) Costs Roun			e pas e More e e e e e e e e e e e e e e e e e e	\$34,000 \$1,600
			Estimated Annual	\$1,600
			Estimated Annual Costs	\$1,600 Present Worth
Annual Periodic (Replacement) Costs Roun		1)		\$1,600
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs	ded (Jan-201	1) P/A Factor	Costs	\$1,600 Present Worth Costs (Jan 2011)
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs	ded (Jan-201	P/A Factor 21.03006	Costs \$0	\$1,600 Present Worth Costs (Jan 2011) \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs  Operations Costs	PWA Factor PWA Factor	P/A Factor 21.03006 21.03006	\$0 \$0	\$1,600 Present Worth Costs (Jan 2011) \$0 \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs  Operations Costs  Energy Costs for Pumping	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011)  \$0  \$0  \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs  Operations Costs  Energy Costs for Pumping Other Annual O&M Misc. Costs	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011) \$0 \$0 \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs  Operations Costs  Energy Costs for Pumping  Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0
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Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011)  \$0  \$0  \$0  \$0  \$0  \$0  \$0  \$0  \$0  \$
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%)	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%) Subtotal 3 = Subtotal 2 + Design Contingencies	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011)  \$0  \$0  \$0  \$0  \$0  \$0  \$0  \$0  \$0  \$
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%) Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0 \$0	\$1,600  Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%) Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%) Total (Annual Operation and Maintenance) Pres Annual (Operation and Maintenance) Costs - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n)) = Uniform	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor Company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the comp	P/A Factor 21.03006 21.03006 21.03006 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$1,600  Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%) Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%) Total (Annual Operation and Maintenance) Pres Annual (Operation and Maintenance) Costs - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniforance) - PW Factor = P/F = 1/(1+i)^n = Single Payment Prese	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor Company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the company of the comp	P/A Factor 21.03006 21.03006 21.03006 21.03006 21.03006 21.03006	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	\$1,600  Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%) Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%) Total (Annual Operation and Maintenance) Pres Annual (Operation and Maintenance) Costs - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniforance) - PW Factor = P/F = 1/(1+i)^n = Single Payment Prese Notes:	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor	P/A Factor 21.03006 21.03006 21.03006 21.03006 21.03006  sts Rounded an-2011) nt Worth Factor 1.125%)	(Jan-2011)	\$1,600 Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
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Annual Periodic (Replacement) Costs Roun  Annual (Operations and Maintenance) Costs  Maintenance Costs Operations Costs Energy Costs for Pumping Other Annual O&M Misc. Costs  Subtotal Annual (Operation and Maintenance) Costs Escalation to NTP Subtotal 1 with Escalation to NTP Design Contingencies (+/- 10%) Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total (Annual Operation and Maintenance) Pres Annual (Operation and Maintenance) Costs - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Unifor-PW Factor = P/F = 1/(1+i)^n = Single Payment Prese Notes: These life cycle costs do not include OM&R of the wate etc.) incurred by the managing authority.	PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor PWA Factor  ent Worth Cor Rounded (Jam Series Present Worth (P/F, 4	P/A Factor 21.03006 21.03006 21.03006 21.03006 21.03006 1.03006 21.03006 21.03006  tor overhead example of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 (Jan-2011)	\$1,600 Present Worth Costs (Jan 2011) \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0
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FEATURE:	PROJECT:	Fryingpan-Arkansas Project			
Arkansas Valley Conduit	WOID:	AF523	ESTIMATE LEVEL:	Appraisal	
Preferred Alternative OM&R Costs Summary Sheet	REGION:	GP	UNIT PRICE LEVEL:	Jan-11	
(Present Worth Without Escalation to NTP)	FILE:		n\JMorris\Arkansas Valley Conduit Apprais: Cost Estimate\[OM&R Calcs-Preferred Alt- Costs		

Periodic (Replacement) Costs		P/F Factor	Estimated Periodic Costs	Present Worth Costs (Jan
Year 5	PW Factor	0.81701	\$390,000	\$318,634
Year 10	PW Factor	0.66750	\$390,000	\$260,325
Year 15	PW Factor	0.54535	\$1,050,000	\$572,618
Year 20	PW Factor	0.44555	\$9,500,000	\$4,232,725
Year 25	PW Factor	0.36402	\$2,300,000	\$837,246
Year 30	PW Factor	0.29741	\$7,000,000	\$2,081,870
Year 35	PW Factor	0.24298	\$390,000	\$94,762
Year 40	PW Factor	0.19852	\$9,500,000	\$1,885,940
Year 45	PW Factor	0.16219	\$1,050,000	\$170,300
Year 50	PW Factor	0.13251	\$2,700,000	\$357,777
Subtotal Periodic (Replacement) Costs				\$10,812,196
Mobilization (+/- 5%)				\$540,000
Subtotal 1 with Mobilization				\$11,352,196
Escalation to NTP				\$0
Subtotal 2 = Subtotal 1 with Mobilization +	Escalation to NTP			\$11,352,196
Design Contingencies (+/- 15%)				\$1,647,804
Contract Cost				\$13,000,000
Construction Contingencies (+/- 25%)				\$3,500,000
Field Cost				\$16,500,000
Non-Contract Costs (+/- 25%)				\$4,500,000
<b>Total Periodic (Replacement) Prese</b>	nt Worth Costs Rounded (	Jan-2011)		\$21,000,000
<b>Annual Periodic (Replacement) Cos</b>	ts Rounded (Jan-2011)		THE THE PROPERTY IN	\$1,000,000

Annual (Operations and Maintenance) Costs		P/A Factor	Estimated Annual Costs	Present Worth Costs (Jan 2011)
Maintenance Costs	PWA Factor	21.03006	\$160,000	\$3,364,810
Operations Costs	PWA Factor	21.03006	\$340,000	\$7,150,220
Energy Costs for Pumping	PWA Factor	21.03006	\$790,000	\$16,613,747
Subtotal Annual (Operation and Maintenance) Costs				\$27,128,777
Escalation to NTP				\$0
Subtotal 1 with Escalation to NTP				\$27,128,777
Design Contingencies (+/- 10%)				\$2,871,223
Subtotal 3 = Subtotal 2 + Design Contingencies				\$30,000,000
Non-Contract Costs (+/- 10%)				\$3,000,000
Total (Annual Operation and Maintenance) Pres	ent Worth Cos	ts Rounded (	Jan-2011)	\$33,000,000

\$1,550,000 Annual (Operation and Maintenance) Costs Rounded (Jan-2011)

- FY2011 planning interest rate 4.125% per year for 50 years.

- PWA Factor =  $P/A = ((1+i)^n(n-1))/(i^*((1+i)^n)) = Uniform Series Present Worth Factor (P/A, 4.125%, 50)$
- PW Factor = P/F = 1/(1+ i)^n = Single Payment Present Worth (P/F, 4.125%)

## Notes:

These life cycle costs do not include OM&R of the water treatment plant or overhead expenses (office space, administration, etc.) incurred by the managing authority.

These life cycle costs assume that the pipeline operators are based in the WTP building.

Ref.: For appropriate use and terminology, see Reclamation Manual, Directives and Standards FAC; 09-01, 09-02 and 09-03.

	QUANTITIES	PRICES				
BY	CHECKED	BY	CHECKED 21 -1			
Jeff Morris	TSC Design Team	Jim Jetton	13/12			
DATE PREPARED	PEER REVIEW / DATE	DATE PREPARED	PEER REVIEW / DATE			
06/22/12	TSC Design Team 6/12	07/02/12	Apulging 7/5/12			

FEAT	URE:			PROJEC	:Т:			T_1_ OF _
	Arkan	sas Valley Co	nduit	Fryingpa	n-Arkansas	Project		
	Pipeli	ne (ALL)		WOID:	AF523	ESTIM	ATE LEVEL	· Annraice
	Prefer	red Alternativ	<del>e</del>	REGION:	GP	UNIT P	RICE LEVE	l Jan-11
Civil OM&F		Costs (Estim	ated Costs)	FILE:	Estimate/Preferre	Individual Savarias variey Conduit Appraisar d Alternative\OM&R Cost Estimate\Cost eets for Designers\[AVC Life cycle Cost eets 4840 Costs 07-24-2012 ytsyPhoeline		
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	PVC Pipe Repa	ir	86-68140				
		Replace one jo	nt (2 sticks of pipe) Every 50 Years	00-08140		Year 50	\$10,000.00	\$10,000.00
~ .			ent to 18" dia. Pipe iles of PVC Pipe					
• •	2	Steel Pipe Rep		86-68140	1	Year 50	\$20,000.00	\$20,000.00
		Repair Equivale	nt (2 sticks of pipe) Every 50 Years nt to 36" dia. Pipe		/	W		
		Alt 1 has 104 m	iles of Steel Pipe					
	3A	Cathodic Protect		86-68140	1	Annual	\$76,000.00	\$76,000.00
		Annual Costs of	Maintenance		- Valley of the control of a second			
	3B 	Cathodic Protect Annual Costs of		86-68140	1	Annual	\$27,000.00	\$27,000.00
	3C	Cathodic Protection		86-68140	1	Annual	\$610.00	\$610.00
	•				لو و و د الماسية . . الو و و د المستد			
	4	Cathodic Protec Replace Vertica	Anodes and Rectifiers	86-68140	1	2	\$905,000.00 \$905,000.00	
		Once Every 20 y	ears					9903,000.00
	5		Manually Operated)  Ty valve costs for repair and replacement	86-68140	1	Year 50	\$324,500.00	\$324,500.00
			Subtotal this she	eet		Year 20		\$905,000.00
			THE COLUMN TWO IS NOT THE WORLD THE THE THE THE THE THE THE THE THE THE			Year 40		\$905,000.00
						Year 50 Annual		\$354,500.00 \$103,610.00
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·		QUA	ANTITIES			RICES		
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	/ Jeff Mo		avid Edwards	Jim Jetton	('8')		11	
	EPARED		ER REVIEW / DATE	DATE PREP	ARED		PEER REVI	W / DATE
3/2012		[D:	avid Edwards	07/02/12		<		- 7/27/

FEATU	EATURE:			PROJECT:				
			•	Fryingpa	an-Arkansa	as Project	:	
	Arkans	as Valley Co	nduit					
	Pipelin			WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
	Preferre	ed Alternativ	e	REGION			ICE LEVEL:	Jan-11
	Entire S	=		FILE:	Estimate\Prefer	red Alternative\	OM&R Cost Estimat	e\Cost Estimate
Civil	OM&R	Costs (Estim	ated Costs)		Morksheets for 8140 Costs 07-2		C Life cycle Cost Es peline (ALL)	imate Worksneets
PLANT ACCOUNT	PAÝ ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Maintenance C	Costs for Consultant Inspections	86-68140	1	Annual	\$45,000.00	\$45,000.00
			years (Annualized)		0.2	LS	\$45,000.00	\$9,000.00
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	2	Annual Operat	ions Cost for Operating the System	86-68140	1	Annual	\$300,062.34	\$300,062.34
		Assume 3 Ope	erators, 2 pickup trucks and 1 mower					
		Full time for er	ntire year					
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	n / Jeff M		David Edwards	Jim Jetto			1	AL ( DATE
DATE PF 6/6/2012		J	PEER REVIEW / DATE David Edwards	DATE PR 07/02/12	EPAKED		PEER REVIE	W/DATE Auts 7/17/12
01012012			Lavia Lawarus	01/02/12	<del> </del>		Ligur	AUS 1/27/12

FEATL	EATURE:		PROJECT:						
				Fryingpan	-Arkansas	Project			
		sas Valley Co	nduit						
	Pipelin			WOID:	AF523		TE LEVEL:	Appraisal	
		red Alternativ	re	REGION:	GP		UNIT PRICE LEVEL: Jan-11		
<b> </b>	Reach		1-10-(-)	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Preferred Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\[AVC Life cycle					
Civil	OM&R	Costs (Estin	nated Costs)		Cost Estimate We	orksheets - 8140	Costs 07-24-2012.xlsx]Pipelin	e (ALL)	
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT .	
	1	6" Combinatio	n Air Mahaa	06 601/0	1	Voor 25	\$7,500,00	¢7 500 00	
	1	6" Combinatio Replace Every		86-68140	1 1	Year 25 Year 50	\$7,500.00 \$7,500.00	\$7,500.00 \$7,500.00	
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PLANT ACCOUNT PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	211 Carabination	- Ai-Maha	00 004 40			00.500.00	A475 000 00		
1	3" Combination		86-68140	50	Year 25	\$3,500.00	\$175,000.00		
	Replace Every	25 Years		50	Year 50	\$3,500.00	\$175,000.00		
2	3" Ball Valve		86-68140	50	Year 25	\$500.00	\$25,000.00		
	Replace Every	25 Vegre	00-00140	50	Year 50	\$500.00	\$25,000.00		
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	2" Combinatio	n Air Valve	86-68140	2	Year 25	\$2,875.00	\$5,750.00	
		Replace Every			2	Year 50	\$2,875.00	\$5,750.00	
		O'l Dall Vetra		00 00440	2	V 05	#27F 00	#750.00	
	2	2" Ball Valve Replace Every	, 25 Vage	86-68140	2	Year 25 Year 50	\$375.00 \$375.00	\$750.00 \$750.00	
			Subtotal this sheet			Year 25 Year 50		\$6,500.00 \$6,500.00	
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PLANŤ ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
***************************************	1	6" Combinat	tion Air Valve	86-68140	37	Year 25	\$7,500.00	\$277,500.00		
		-[	ery 25 Years		37	Year 50	\$7,500.00	\$277,500.00		
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Civil	OM&R	Costs (Estima	ated Costs)	Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\ Cost Estimate Worksheets - 8140 Costs 07-24-2012.xisx]Pipeline (ALL)						
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	2" Combination	Ale Volvo	00 00140	4	V 05	#0.07F.00	<b>#0.075.00</b>		
		Replace Every		86-68140	11	Year 25	\$2,875.00	\$2,875.00		
		Replace Every	zo reals		1	Year 50	\$2,875.00	\$2,875.00		
	2	2" Ball Valve		86-68140	1	Year 25	\$375.00	\$375.00		
		Replace Every	25 Years		1	Year 50	\$375.00	\$375.00		
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			Subtotal this sheet			Year 25		\$3,250.00		
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## **ESTIMATE WORKSHEET**

SHEET \_8\_ OF \_58\_

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			Fryingpan	Arkansas F	roject				
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PLANT ACCOUNT PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
1	2" Combinati	on Air Valve	86-68140	3	Year 25	\$2,875.00	\$8,625.00		
	Replace Eve			3	Year 50	\$2,875.00	\$8,625.00		
2	2" Ball Valve		86-68140	3	Year 25	\$375.00	\$1,125.00		
	Replace Eve	ry 25 Years		3	Year 50	\$375.00	\$1,125.00		
		Subtotal this sheet			Year 25		\$9,750.00		
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combinatio	n Air Valve	86-68140	1	Year 25	\$2,875.00	\$2,875.00
		Replace Every		00 001 10	1	Year 50	\$2,875.00	\$2,875.00
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	2	2" Ball Valve		86-68140	1	Year 25	\$375.00	\$375.00
		Replace Every	y 25 Years		1	Year 50	\$375.00	\$375.00
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combination	on Air Valve	86-68140	1	Year 25	\$2,875.00	\$2,875.00
		Replace Ever		00 00110	1	Year 50	\$2,875.00	\$2,875.00
	2	2" Ball Valve Replace Ever		86-68140	1	Year 25 Year 50	\$375.00 \$375.00	\$375.00 \$375.00
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PLANT ACCOUNT ACCOUNT PAY ITEM	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT				
1 2" Combination Air Valve ·	86-68140	58	Year 25	\$2,875.00	\$166,750.00				
Replace Every 25 Years	00-00170	58	Year 50	\$2,875.00	\$166,750.00				
Tropiaso Crary 20 Todas			T cur oo	Ψ2,570.00	Ψ100,700.00				
2 2" Ball Valve	86-68140	58	Year 25	\$375.00	\$21,750.00				
Replace Every 25 Years		58	Year 50	\$375.00	\$21,750.00				
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combina	tion Air Valve	86-68140	1	Year 25	\$2,875.00	\$2,875.00
		······································	ery 25 Years		1	Year 50	\$2,875.00	\$2,875.00
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	2	2" Ball Valve	9	86-68140	1	Year 25	\$375.00	\$375.00
		-	ery 25 Years		1	Year 50	\$375.00	\$375.00
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PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combinati	on Air Valve	86-68140	2	Year 25	\$2,875.00	\$5,750.00
		Replace Eve			2	Year 50	\$2,875.00	\$5,750.00
-	2	2" Ball Valve		86-68140	2	Year 25	\$375.00	\$750.00
		Replace Ever	ry 25 Years	-	2	Year 50	\$375.00	\$750.00
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			Subtotal this sheet			Year 25		\$6,500.00
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## **ESTIMATE WORKSHEET**

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PLANT ACCOUNT	РАУ ІТЁМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combinatio		86-68140	4	Year 25	\$2,875.00	\$11,500.00
		Replace Every	/ 25 Years		4	Year 50	\$2,875.00	\$11,500.00
	2	2" Ball Valve		86-68140	4	Year 25	\$375.00	\$1,500.00
		Replace Every	/ 25 Years		4	Year 50	\$375.00	\$1,500.00
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Replace Every 25 Years 19 Year 50 \$375.00 \$7,125.	FEATL	IRE:			PROJEC <sup>*</sup>	Γ:			
Pipeline   Preferred Alternative   HWV 96 Spur   FILE:   REGION: GP   Unit PRICE LEVEL: Jan 1-1		Arkans	as Valley Co	nduit	Fryingpan	-Arkansas F	Project		
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DESCRIPTION   CODE   QUANTITY   UNIT   UNIT   UNIT   UNIT   FRICE   AMOUNT	Civil			nated Costs)	· · · · · ·	Designers\(AVC Life cycle			
1 2" Combination Air Valve		T				COST EDMINATO TTO	1	2, 20 (2, 3, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	
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Replace Every 25 Years		1	2" Combinatio	n Air Valve	86-68140	10	Year 25	\$2.875.00	\$54 625 <b>0</b> 0
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combinatio	n Air Valve	86-68140	1	Year 25	\$2,875.00	\$2,875.00
		Replace Every	/ 25 Years		1	Year 50	\$2,875.00	\$2,875.00
	2	2" Ball Valve		86-68140	1	Year 25	\$375.00	\$375.00
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Civil	OM&R	Costs (Estir	nated Costs)				Costs 07-24-2012.xlsx]Pipelin	
PLANT ACCOUNT	РАУ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	2" Combination	on Air Valve	86-68140	21	Year 25	\$2,875.00	\$60,375.00
	'	Replace Ever		00-001-0	21	Year 50	\$2,875.00	\$60,375.00
			, 20 Touro			100,00	42,01010	
	2	2" Ball Valve		86-68140	21	Year 25	\$375.00	\$7,875.00
		Replace Ever	y 25 Years		21	Year 50	\$375.00	\$7,875.00
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THE THE BURNISH SAFEET		· · · · · · · · · · · · · · · · · · ·						
			Subtotal this shee	t		Year 25		\$68,250.00
						Year 50		\$68,250.00
Checker	l / Peor 5	Paviou signatur	re indicates that the pay items and o	descriptions of	ven above co	near to be r	easonable	manufacture de la constitución d
CHECKEL	. / 1 GGI P		NTITIES	zoscriptions y	-cii above ap		RICES	
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ŧ	on / Jeff N	Morris	David Edwards	Jim Jetton	The state of the s	<i>)</i>	W	
	REPARE		PEER REVIEW / DATE	DATE PRE	PARED		PEER/REVIEW /.DAT	<u> </u>
6/6/2012			David Edwards	07/02/12			PEER REVIEW , DAT	7/27/12

Arkansas Valley Conduit Pipeline Preferred Alternative Eads & May Valley Spur Pipeline OM&R Costs (Estimated Costs)  DESCRIPTION  1 2" Combination Air Valve Replace Every 25 Years  2 2" Ball Valve  Fixed Alternative WOID: AF523 ESTIMATE LEVEL: REGION: GP UNIT PRICE LEVEL: H:\D8170\Common\JMoris\Arkansas Valley Conduit Appra Alternative\OM&R Cost Estimate Worksheet Cost Estimate Worksheets - 8140 Costs 07-24-2012.xlsx F  CODE QUANTITY UNIT UNIT PRICE  4 2" Combination Air Valve Replace Every 25 Years  5 2-875.0	AMOUNT  AMOUNT  300 \$17,250.00  \$17,250.00  \$2,250.00
Pipeline Preferred Alternative Eads & May Valley Spur Pipeline OM&R Costs (Estimated Costs)  DESCRIPTION  1 2" Combination Air Valve Replace Every 25 Years  WOID: AF523 ESTIMATE LEVEL: REGION: GP UNIT PRICE LEVEL: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appra Alternative\OM&R Cost Estimate\Cost Estimate\Worksheet Cost Estimate Worksheet Cost Estimate Worksheets - 8140 Costs 07-24-2012.xlsx F  CODE QUANTITY UNIT UNIT PRICE  1 2" Combination Air Valve Replace Every 25 Years 6 Year 25 \$2,875.0	Jan-11  aisal Estimate\Preferred  aits for Designers\[AVC Life cycle  Pipeline (ALL)  AMOUNT  300 \$17,250.00  300 \$17,250.00  300 \$2,250.00
Preferred Alternative Eads & May Valley Spur Pipeline Civil OM&R Costs (Estimated Costs)  DESCRIPTION  CODE  1 2" Combination Air Valve REGION: GP UNIT PRICE LEVEL: H\(\text{Alternative\OM\&R}\) Cost Estimate\(\text{Cost Estimate\Cost Simate\Ost Oorton Only Morris\Arkansas Valley Conduit Appra Alternative\OM\&R Cost Estimate\(\text{Worksheets}\) - 8140 Costs 07-24-2012.xlsx F  CODE  QUANTITY  UNIT  UNIT PRICE  4 QUANTITY  UNIT PRICE  1 2" Combination Air Valve Replace Every 25 Years  6 Year 25 \$2,875.0	Jan-11  aisal Estimate\Preferred  aits for Designers\[AVC Life cycle  Pipeline (ALL)  AMOUNT  300 \$17,250.00  300 \$17,250.00  300 \$2,250.00
Eads & May Valley Spur Pipeline OM&R Costs (Estimated Costs)  DESCRIPTION  CODE  QUANTITY  UNIT  UNIT PRICE  1 2" Combination Air Valve Replace Every 25 Years  FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit AppraAlternative\toM&R Cost Estimate Worksheet Cost Estimate Worksheets - 8140 Costs 07-24-2012.xlsx]F  QUANTITY  UNIT  UNIT PRICE  86-68140  6 Year 25 \$2,875.0	aisal Estimate\Preferred tts for Designers\(AVC Life cycle Pipeline (ALL)  AMOUNT  00 \$17,250.00 00 \$17,250.00 00 \$2,250.00
Alternative\OM&R Costs (Estimate\Costs)   Alternative\OM&R Cost Estimate\Cost Estimate\Vorksheets - 8140 Costs 07-24-2012.xlsxJF	AMOUNT  AMOUNT  300 \$17,250.00  \$17,250.00  \$2,250.00
Civil OM&R Costs (Estimated Costs)  Cost Estimate Worksheets - 8140 Costs 07-24-2012.xlsx/F  DESCRIPTION  CODE  QUANTITY  UNIT  UNIT PRICE  1 2" Combination Air Valve  Replace Every 25 Years  6 Year 50 \$2,875.0	AMOUNT  300 \$17,250.00  300 \$17,250.00  300 \$2,250.00
1 2" Combination Air Valve 86-68140 6 Year 25 \$2,875.0 Replace Every 25 Years 6 Year 50 \$2,875.0	\$17,250.00 \$17,250.00 \$17,250.00 00 \$2,250.00
1 2" Combination Air Valve 86-68140 6 Year 25 \$2,875.0 Replace Every 25 Years 6 Year 50 \$2,875.0	\$17,250.00 \$17,250.00 \$17,250.00 00 \$2,250.00
Replace Every 25 Years   6 Year 50 \$2,875.0	\$17,250.00 \$00 \$2,250.00
Replace Every 25 Years   6 Year 50 \$2,875.0	\$17,250.00 \$00 \$2,250.00
	00 \$2,250.00
2 2" Ball Valve 86-68140 6 Year 25 \$375.0	
Replace Every 25 Years   6 Year 50 \$375.0	Ψ2,200.00
Subtotal this sheet Year 25	\$19,500.00
Year 50	\$19,500.00
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Jim Jetton / Jeff Morris David Edwards Jim Jetton	
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	TAUOMA
	1	2" Combin	ation Air Valve	86-68140	6	Year 25	\$2,875.00	\$17,250.00
			very 25 Years		6	Year 50	\$2,875.00	\$17,250.00
	2	2" Ball Val	<u>ve</u>	86-68140	6	Year 25	\$375.00	\$2,250.00
		Replace E	very 25 Years		6	Year 50	\$375.00	\$2,250.00
			Subtotal this shee	et		Year 25		\$19,500.00
						Year 50		\$19,500.00
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	Pipelin	· ·	induit	WOID:	AF523	ESTIMAT	E LEVEL:	Appraisal	
		ed Alternativ	e	REGION:	GP	<del></del>	CE LEVEL:	Jan-11	
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Civil		Costs (Estim	ated Costs)		Alternative\OM&R	Cost Estimate\0	Cost Estimate Worksheets for Costs 07-24-2012.xlsx]Pipeli	r Designers\{AVC Life cycle	
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	2" Combination	n Air Valve	86-68140	20	Year 25	\$2,875.00	\$57,500.00	
	<b></b>	Replace Every		00-001-0	20	Year 50	\$2,875.00	\$57,500.00	
		Treplace Every	20 (60)			1681 00	Ψ2,070.00	Ψον, σου.σο	
	2	2" Ball Valve		86-68140	20	Year 25	\$375.00	\$7,500.00	
		Replace Every	25 Years		20	Year 50	\$375.00	\$7,500.00	
			Subtotal this sheet			Year 25		\$65,000.00	
		V-17				Year 50		\$65,000.00	
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	on / Jeff N		David Edwards	Jim Jetton			<u> </u>		
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## **ESTIMATE WORKSHEET**

SHEET \_21\_ OF \_58\_

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			<b>.</b>	Fryingpan	-Arkansas I	Project				
		sas Valley Co	nduit				<u></u>			
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	2" Combinatio	n Air Valva	86-68140	3	Year 25	\$2,875.00	\$8,625.00		
	1	Replace Every		00-00140	3	Year 50	\$2,875.00	\$8,625.00		
		Replace Every	7 23 Teals		3	real 50	\$2,075.00	\$6,623.00		
	2	2" Ball Valve		86-68140	3	Year 25	\$375.00	\$1,125.00		
		Replace Every	/ 25 Years	00-00140	3	Year 50	\$375.00	\$1,125.00		
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			Subtotal this sheet			Year 25 Year 50		\$9,750.00 \$9,750.00		
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		Fort Spur		FILE:			nsas Valley Conduit Appraisal E ACost Estimate Worksheets for D		
Civil	OM&R	Costs (Estin	nated Costs)				0 Costs 07-24-2012.xlsxjPipelin		
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	2" Combinatio	n Air Valve	86-68140	1	Year 25	\$2,875.00	\$2,875.00	
	-	Replace Every		00 007.10	1	Year 50	\$2,875.00	\$2,875.00	
						700700	<b>VL</b> ,010.00	<b>V2,070.00</b>	
	2	2" Ball Valve		86-68140	1	Year 25	\$375.00	\$375.00	
		Replace Every	/ 25 Years		1	Year 50	\$375.00	\$375.00	
			Subtotal this sheet			Year 25		\$2.250.00	
	-		Subjuidi (IIIS SNee	-	······	Year 50		\$3,250.00 \$3,250.00	
						Teal 50		\$3,230.00	
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i	n / Jeff M	lorris	David Edwards	Jim Jetton	W	$\geq$			
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Preferred Alternative   RegION: 6P   UNIT PRICE LEVEL	FEATU	EATURE:		PROJECT:							
Pipeline Preferred Alternative Rocky Ford and Hancock Spur CIVII OM&R Costs (Estimated Costs)  OBSCRIPTION  OBSCRIPTION  OBSCRIPTION  CODE  QUANTITY  UNIT PRIOE LEVEL: Apprair  REGION: GP UNIT PRIOE LEVEL: Apprair  FILE: HISTOTYCOmenous Verositance Vero Level Appraised Estimated Professor  Atternative/MAR Ace Les Estimated Cost (Estimated Costs)  OBSCRIPTION  CODE  QUANTITY  UNIT UNIT FRIOE  AMOUNT  AMOUNT  AMOUNT  1 2 Combination Air Valve  Replace Every 25 Years  1 Year 50 \$2,875.00 \$2  2 Pail Valve  Replace Every 25 Years  1 Year 50 \$375.00 \$  Replace Every 25 Years  1 Year 50 \$375.00 \$  Subtotal this sheet  Year 25 \$375.00 \$  Subtotal this sheet  Year 25 \$3  Year 50 \$3  CHECKED BY  CHECKED					Fryingpan	-Arkansas F	Project				
Preferred Alternative Rocky Ford and Hancock Spur Citvil OM&R Costs (Estimated Costs)  DESCRIPTION  DESCRIPTION  DESCRIPTION  1 2 Combination Air Valve Replace Every 25 Years  2 2 2 Ball Valve Replace Every 25 Years  1 Year 50 \$2,875.00 \$2  Replace Every 25 Years  1 Year 50 \$375.00 \$  Substitute Benefit of the service o			· ·	nduit							
Recky Ford and Hancock Spur   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Costs   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Costs   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Costs   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Costs   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   AMADUM   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   FILE:   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty   MIDST/950mmer/Meansax Volty Contil Approach Estimated Volty Contil Approach Estimated Volty Contil Approach Estimated Volty Contil Approach Estimated Volty Contil Approach Estimated Volty Contil Approach Estimated Volty Contil Approach Estimated Volty Contil Approach Estimated V								<del> </del>	Appraisal		
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DESCRIPTION   CODE   GUANTITY   UNIT   UNIT   UNIT   FRICE   AMOUNT	a			•	FILE:	Alternative\OM&R	Cost Estimate	Cost Estimate Worksheets for	Designers\(AVC Life cycle		
1   2° Combination Air Valve   88-68140   1   Year 25   \$2,875.00   \$2     Replace Every 25 Years   1   Year 25   \$2,875.00   \$2     2   2° Ball Valve   86-88140   1   Year 25   \$375.00   \$3     Replace Every 25 Years   1   Year 50   \$375.00   \$3     Replace Every 25 Years   1   Year 50   \$375.00   \$3     Replace Every 25 Years   1   Year 50   \$375.00   \$3     Subtotal this sheet   Year 50   \$375.00   \$3     Subtotal this sheet   Year 25   \$3   \$3     Year 50   \$3   \$3     Year 50   \$3     Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.     Substitute   PRICES   PRICES     BY   CHECKED   BY   CHECKED   CHECKED   CHECKED     CHECKED   CHECK		OM&R	Costs (Estin	nated Costs)	<u> </u>	Cost Estimate Wo	rksheets - 814	0 Costs 07-24-2012.xtsx}Pipeli	ne (ALL)		
Replace Every 25 Years	PLANT ACCOUNT	РАУ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
Replace Every 25 Years		1	2" Combinatio	n Air Valve	86-68140	1	Year 25	\$2,875,00	\$2,875.00		
2 2"Ball Valve 86-88140 1 Year 25 \$375.00 \$ Replace Every 25 Years 1 Year 50 \$375.00 \$  Subtotal this sheet Year 25 Year 50 \$3  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES PRICES  BY CHECKED BY CHECKED  PRICES  CHECKED  CHECKED  PRICES  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  CHECKED  REGION S375.00  S375.00									\$2,875.00		
Replace Every 25 Years 1 Year 50 \$375.00 \$  Subtotal this sheet Year 25 \$3  Year 50 \$375.00 \$  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES PRICES  CHECKED BY Review Signature indicates that the pay items and descriptions given above appear to be reasonable.  PRICES  CHECKED BY Review Signature indicates that the pay items and descriptions given above appear to be reasonable.											
Replace Every 25 Years 1 Year 50 \$375.00 \$  Subtotal this sheet Year 25 \$3  Year 50 \$375.00 \$  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES PRICES  CHECKED BY Review Signature indicates that the pay items and descriptions given above appear to be reasonable.  PRICES  CHECKED BY Review Signature indicates that the pay items and descriptions given above appear to be reasonable.		2	2" Ball Valve		86-68140	1	Year 25	\$375.00	\$375.00		
Subtotal this sheet  Subtotal this sheet  Year 25  Year 50  Sa  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  BY  CHECKED  BY  CHECKED  BY  CHECKED  CHECKE				/ 25 Years					\$375.00		
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Film toward towards in the community of				CHECKED		TOTAL	No.	7			
				David Edwards	Jim Jetton	$\mathcal{C}$	<u>/</u>				
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	86-681	40		REGION:	GP	UNIT PR	RICE LEVEL:	Jan-11
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
							Estimated Costs	
		Periodic Cost	s - Year 5				\$0	
		Periodic Cost	s - Year 10				\$0	
		Periodic Cost	s - Year 15				\$0	
		Periodic Cost	s - Year 20				\$905,000	
-		Periodic Cost	s - Year 25		***************************************		\$975,750	
		Periodic Cost					\$0	
		Periodic Cost					\$0	
		Periodic Cost					\$905,000	
		Periodic Cost					\$0	
		Periodic Cost	s - Year ou			-	\$1,330,250	
		Annual Costs					\$412,672	
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DATE P	REPAREI		PEER REVIEW / DATE	DATE PRE	ARED		PEER BEVIEW / DA	re
Feb-June	2011		TSC Team	DATE PREPARED PEER REVIEW / DATE 07/02/12 PEER REVIEW / DATE			2/30/12	

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	OM&R	Costs (Estim	nated Costs)				for Designers\[AVC Life cycle Cost - 8410 - Costs 07-24-2012 xisx\[R1 - Met]		
PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	9 Dath Ultrac	onic Flowmeter System 36"	86-68410	1	V205 20	694 250 00	\$81,250.00	
	<b>'</b>		s with cables and 1 transmitter console	00-00410	1		\$81,250.00	\$81,250.00	
		· · · · · · · · · · · · · · · · · · ·	m Every 20 Years			1 Gal 40	φοτ,250.00	φ61,230.00	
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			Subtotal this shee	:		Year 20		\$81,250.00	
						Year 40		\$81,250.00	
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	8 - Path Ultrasonic Flowmeter System 36"	86-68410	1	Voor 20	\$81,250.00	\$81 2E0 00		
•		16 transducers with cables and 1 transmitter console	00-00410	1	-	\$81,250.00	\$81,250.00		
	ļ	Replace System Every 20 Years	-	I	1 Gai 40	φ61,230.00	\$61,230.00		
		Treplace System Every 20 Fears			-				
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		Subtotal this sheet			Year 20		\$81,250.00		
					Year 40		\$81,250.00		
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t		= =	leter & Valve Vaults	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal		
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	OM&R	Costs (Estim	ated Costs)				Life cycle Cost Estim - Meter Vault PP1 8			
PLANT ACCOUNT	РАУПЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		Cinal- D- " 1"		00.00446		Va 00	#00 07E 00	\$50.750.00		
	1		trasonic Flowmeter System	86-68410	2	Year 20	\$29,375.00	\$58,750.00		
		Replace Syste	m Every 20 Years		2	Year 40	\$29,375.00	\$58,750.00		
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			Subtotal this sheet			Year 20		\$58,750.00		
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PLANT ACCOUNT	РАҮ ІТЕМ	•	DESCRIPTION	CODE	QUANTITY	TINU	UNIT PRICE	AMOUNT	
	1	6" Electro-Mac	netic Flowmeter System	86-68410	1	Year 15	\$16,250.00	\$16,250.00	
			System Every 15 Years	00 00 110	1	Year 30	\$16,250.00	\$16,250.00	
			-magnetic flowmeter with		1	Year 45		\$16,250.00	
			ounted transmitter			100.10	<b>\$10,200.00</b>	ψ10, <b>2</b> 00.00	
		····	x 85 lbs 120 Volt AC		·///				
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			Subtotal this sheet			Year 15		\$16,250.00	
						Year 30		\$16,250.00	
				***************************************	***************************************	Year 45		\$16,250.00	
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
######################################	1	6" Electro-Mac	netic Flowmeter System	86-68410	2	Year 15	\$16,250.00	\$32,500.00
			System Every 15 Years		2	Year 30	\$16,250.00	\$32,500.00
			-magnetic flowmeter with	***************************************	2	Year 45	\$16,250.00	\$32,500.00
		I	ounted transmitter			1		40-10-00-00
			x 85 lbs 120 Volt AC					
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			Subtotal this sheet			Year 15		\$32,500.00
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	6" Electro-Magnetic Flowmeter System	86-68410	15	Year 15	\$16,250.00	\$243,750.00		
	1	Replace Entire System Every 15 Years		15	Year 30	\$16,250.00	\$243,750.00		
	-	flanged electro-magnetic flowmeter with		15	Year 45	\$16,250.00	\$243,750.00		
		remote wall-mounted transmitter			100, 10	<b>V.O.MOO.OO</b>	<b>42</b> 10,7 00.00		
		weight= approx 85 lbs, 120 Volt AC							
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	-	Subtotal this shee	et		Year 15		\$243,750.00		
	-				Year 30		\$243,750.00		
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PLANT ACCOUNT	РАУІТЕМ	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	6" Electro-Magnetic Flowmeter System	86-68410	7	Year 15	\$16,250.00	\$113,750.00
į <del></del>		Replace Entire System Every 15 Years		7	Year 30	\$16,250.00	\$113,750.00
***************************************		flanged electro-magnetic flowmeter with		7	Year 45	\$16,250.00	\$113,750.00
		remote wall-mounted transmitter					
		weight= approx 85 lbs, 120 Volt AC			<u> </u>		
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	1	Subtotal this shee	t		Year 15		\$113,750.00
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Arkansas Valley Conduit Participant Tie-In Vaults Preferred Alternative HWY 95 Spur OM&R Costs (Estimated Costs)  PELE: Administrative Set Indiana William (Costs)  PELE: Administrative William (Costs)  PELE: Ad	FEATU	IRE:		**	PROJEC.	Γ:			
Participant Tie-In Vaults				•	Fryingpan	-Arkansas I	Project		
Preferred Alternative HWY 96 Spur OMSR Costs (Estimated Costs)  DESCRIPTION  DESCRIPTION  DESCRIPTION  CODE  GUANTITY  UNIT PRICE LEVEL: ARCHITECT Alternative Technique Techniq			-						
HWY 96 Spur OMAR Cotsts (Estimated Costs)    FILE:						AF523	<del>-</del>		Appraisal
THY 19 SUPPLY COSTS (Estimated Costs)  PELE: Alternative/CMR Cost Estimate Workshoes - 1419 - Costs to 7-24-3974-1-Merit Vaul Costs Costs (Estimated Costs)  DESCRIPTION  CODE OUANTITY UNIT UNIT UNIT PRICE AMOUNT  1 6" Electro-Magnesic Flowmeter System Replace Entire System Every 15 Years 7 Year 15 \$16,250.00 \$113,750.00  1 In a supply of the supply o				ve					
DESCRIPTION   CODE   QUANTITY   UNIT   UNIT PRICE   AMOUNT					FILE:	Alternative\OM&F	Cost Estimat	e\Cost Estimate Worksheets f	or Designers\(AVC Life
1 6" Electro-Magnetic Floxmeter System		1	Costs (Estil	nated Costs)			I TO THE RECE,	- 0410 - 00013 01 24 20 (Z.A.	SAJI CE - MOIO! YOUR
Replace Entire System Every 15 Years 7 Year 30 \$16,250.00 \$113,750.00 flanged electro-magnetic flowmeter with 7 Year 45 \$18,250.00 \$113,750.00 remote wall-mounted transmitter    weight= approx 85 lbs, 120 Volt AC	PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
Replace Entire System Every 15 Years 7 Year 30 \$16,250.00 \$113,750.00 flanged electro-magnetic flowmeter with 7 Year 45 \$18,250.00 \$113,750.00 remote wall-mounted transmitter    weight= approx 85 lbs, 120 Volt AC		1	6" Flectro-Ma	onetic Flowmeter System	86-68410	7	Vear 15	\$16.250.00	\$113 750 00
flanged electro-magnetic flowmeter with remote wall-mounted transmitter   7   Year 45   \$16,250.00   \$113,750.00		<u> </u>			00-00410		<u> </u>		
remote wall-mounted transmitter  weight= approx 85 lbs. 120 Volt AC  Subtotal this sheet  Subtotal this sheet  Year 15  Subtotal this sheet  Year 30  Year 30  Year 45  Subtotal this sheet  QUANTITIES  PRICES  BY  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  PRICES  BY  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  PRICES  BY  CHECKED  DIJIN Jetton / Jeff Morris  DATE PREPARED  DEER BEVIEW / DATE  DATE PREPARED  DATE									• • • • • • • • • • • • • • • • • • • •
weight= approx 85 lbs, 120 Volt AC			· · · · · · · · · · · · · · · · · · ·				1641 43	\$10,230.00	\$113,730.00
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PLANT	РАУ ІТЕМ	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	6" Electro-Magnetic Flowmeter System	86-68410	8	Year 15	\$16,250.00	\$130,000.00
		Replace Entire System Every 15 Years	00-00410	8	Year 30	\$16,250.00	\$130,000.00
	<del></del>	flanged electro-magnetic flowmeter with		8	Year 45	\$16,250.00	\$130,000.00
		remote wall-mounted transmitter	<u> </u>		1001 40	ψ10,200.00	ψ100,000.00
		weight= approx 85 lbs, 120 Volt AC					
		Subtotal this sheet			Year 15 Year 30 Year 45		\$130,000.00 \$130,000.00 \$130,000.00
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	86-684	10		REGION:	GP	UNIT PR	ICE LEVEL:	Jan-11
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
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		Periodic Costs	s - Year 10				\$0	
		Periodic Costs	s - Year 15			ļ	\$650,000	
	ļ	Periodic Costs					\$221,250	
		Periodic Costs					\$0	
		Periodic Costs					\$650,000	
	-	Periodic Costs	*** · · · · · · · · · · · · · · · · · ·			-	\$0	
		Periodic Costs					\$221,250	· · · · · · · · · · · · · · · · · · ·
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	<u> </u>	Annual Costs	· · · · · · · · · · · · · · · · · · ·			1	\$0	
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		QUA	ANTITIES			P	RICES	
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TSC Tea	am		TSC Team	Jim Jetton		)	1	
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	Arkans	as Valley Conduit	ryingpan	-Arkansas F	roject		
		ng Plant (PP1 before WTP)	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
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	OM&R	Costs (Estimated Costs)				Life cycle Cost Estima L - Pumo Plant/PP1 he	
PLANT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
P.L. ACC	PAY	•					
	1	Pumping Plant PP1 Maintenance & Replacement	86-68420	1	Annual	\$22,000.00	\$22,000.00
		33.24 cfs capacity; 105 feet TDH; 20 week operation pe	eriod;				
		Unattended plant					
		Use PMPOM. OUT Program to develop OM&R.		THE RESERVE OF THE PARTY OF THE			
	2	Pumping Plant PP1 Operations	86-68420	1	Annual	\$5,200.00	\$5,200.00
		Use PMPOM. OUT Program tp develop OM&R.	00 00 120			40,200.00	
·*************************************	·						
	3	Pumping Plant PP1 Energy Costs	86-68420	1	Annual	\$90,000.00	\$90,000.00
		Use Black Hills Energy Rate Analysis					
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	ramanianananamianania	Subtotal this sheet			Annual		\$117,200.00
	TOTAL PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY	MARKATA AND AND AND AND AND AND AND AND AND AN					
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FEATU		nan Wallau Ca	un du té	PROJEC* Fryingpan	T: -Arkansas I	Project		
		sas Valley Co no Plant (PP	2 before WTP)	WOID:	AF523	FSTIM/	ATE LEVEL:	Appraisal
	-	red Alternativ	•	REGION:	GP		RICE LEVEL:	Jan-11
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	OM&R	Costs (Estin	nated Costs)		Worksheets for De	esigners\[AVC	Life cycle Cost Estim 1 - Pump Plant/PP2 a	ate Worksheets -
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	דואט	UNIT PRICE	AMOUNT
	1	Pumping Plan	t PP2 Maintenance & Replacement	86-68420	1	Annual	\$52,000.00	\$52,000.00
		30.76 cfs cap	acity; 380 feet TDH; 20 week operation pe	riod;				
	·	Unattended pl						
		Use PMPOM.	OUT Program to develop OM&R.				_	
	2	Pumping Plan	ut PP2 Operations	86-68420	1	Annual	\$9,000.00	\$9,000.00
		Use PMPOM.	OUT Program tp develop OM&R.					
	3	Pumping Plan	at PP2 Energy Costs	86-68420	1	Annual	\$700,000.00	\$700,000.00
			ls Energy Rate Analysis	00-00420		Ailiuai	Ψ700,000.00	\$700,000.00
			Subtotal this sheet			Annual		\$761,000.00
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			ANTITIES			PRIC		
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FEATU	JRE:			PROJEC <sup>*</sup> Fryingpan	Γ: -Arkansas l	Project		
		sas Valley ( Booster Pla		WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
	Prefer	red Alterna	tive	REGION:	GP	UNIT PI	RICE LEVEL	Jan-11
	Eads :	-	timated Costs)	FILE:	Estimate\Preferre Worksheets for D	d Alternative\C esigners\(AVC	msas variey cond DM&R Cost Estima: Life cycle Cost Est 4-2012 visy) Fads:	te\Cost Estimate timate
PLANT	РАУ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Fada Paga	tor Maintenance & Depleasment	96 69490	4		£4 270 00	\$4.070.00
	1		ter Maintenance & Replacement apacity; 317 feet TDH; 22 week operation period;	86-68420	1	Annual	\$1,270.00	\$1,270.00
		Unattended						
		-	M. OUT Program to develop OM&R.		***************************************		er evenuer	
	2	Eads Boos	ter Plant Operations	86-68420	1	Annual	\$1,710.00	\$1,710.00
<del></del>		Use PMPO	M. OUT Program to develop OM&R.					
	3	Fade Boos	ter Plant Energy Costs	86-68420	1	Annual	\$3,500.00	\$3,500.00
	1 -		east Colorado Power Association Energy Rate	00-00420		Ailidai	Ψ0,000.00	ψυ,υυυ.υυ
		Analysis	ast Colorado i Gwal Association Lifetgy Nate				***************************************	
					***************************************			
	-							
			Subtotal this shee	**		Annual	The second secon	\$6,480.00
	-					7.110100		
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J0000	- , . <del></del> .		QUANTITIES	-on above app		PRICES		<u> </u>
BY			CHECKED	BY	- Junes	<del></del>	CHECKED	
	on/Jeff N	lorris	Dan Drake	Jim Jetton	No.	<b>)</b>	0	
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	Arkan	sas Valley Conduit	Fryingpan	ı-Arkansas F	Project		
		ating Tank	WOID:	AF523	ESTIMA	ATE LEVEL:	Annraisal
	_	red Alternative	REGION:	GP	·	RICE LEVE	
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	Ĩ	Costs (Estimated Costs)		Worksheets - 842			
PLANT ACCOUNT	PAY ITEM	. DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	4	Description Tools labories Observe	00.00400		V5	<b>***</b>	004.000.00
	1	Regulating Tank Interior Cleaning	86-68180	1	Year 5	\$34,600.00	\$34,600.00
		Clean once every 5 years (1-Tank) except		1	Year 10		\$34,600.00
		when interior re-coating is performed		1	Year 15	- <del></del>	\$34,600.00
		1,250,000 gallons; height = 85 feet;		11	Year 25		\$34,600.00
		Inside diameter = 50 feet		1	Year 30	\$34,600.00	\$34,600.00
***************************************				1	Year 35	\$34,600.00	\$34,600.00
				1	Year 45	\$34,600.00	\$34,600.00
·····				1	Year 50	\$34,600.00	\$34,600.00
<del></del>	2	Regulating Tank Exterior Re-Coating	86-68180	1	Year 30	\$459,450.00	\$459,450.00
		Apply Exterior Coating once every 30 years					
***************************************						varant in the same of the same	
<del></del>	3	Regulating Tank Interior Re-Coating	86-68180	1	· · · · · · · · · · · · · · · · · · ·	\$622,800.00	\$622,800.00
		Apply Interior Coating once every 20 years		1	rear 40	\$622,800.00	\$622,800.00
		Subtotal this sheet			Year 5		\$34,600.00
		Oubtotal this sheet			<del>                                     </del>		\$34,600.00
					Year 10		ļ
				ļ	Year 15		\$34,600.00
					Year 20	<del> </del>	\$622,800.00
					Year 25		\$34,600.00
			<b></b>		Year 30		\$494,050.00
					Year 35		\$34,600.00
	ļ		ļ		Year 40		\$622,800.00
			ļ		Year 45	***************************************	\$34,600.00
<del></del>					Year 50		\$34,600.00
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		QUANTITIES			PRICES		
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Jim Jetto			Jim Jetton	(1)	<u> </u>	CY	
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	Arlean	oos Valley O	n meli vid	Fryingpan	-Arkansas I	Project		
		sas Valley Ce amber PP1		WOID:	AF523	IESTIM/	ATE LEVEL Appra	
		red Alternati		REGION:	GP		RICE LEVE	Appraisal 11-Jan
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			mated Costs)	Tilete.	Worksheets for D	esigners\[AVC	I Alternative\OM&R Cost Estimate\Cost E esigners\[AVC Life cycle Cost Estimate V 24-2012 visyIR1 - Pump Plant(PP1 befor	
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Air Chambar	Interior Clanning	00.00400	4	V	£770.00	#774 AA
			Interior Cleaning	86-68180	1	Year 5	\$770.00	\$770.00
			very 5 years (1-Tank) except re-coating is performed		1	Year 10	\$770.00	\$770.00
	ļ		; height = 14 feet;		1	Year 15 Year 25	\$770.00	\$770.00
	<u> </u>	Inside diamet			1	-	\$770.00	\$770.00
		moide diame	er – 7 leet		1	Year 30	\$770.00	\$770.00
					1	Year 35 Year 45	\$770.00	\$770.00
					1	Year 50	\$770.00 \$770.00	\$770.00 \$770.00
			**************************************					4.75755
·····	2	Air Chamber	Exterior Re-Coating	86-68180	1	Year 30	\$17,350.00	\$17,350.00
		Apply Exterio	r Coating once every 30 years					
	3	Air Chamber	Interior Re-Coating	86-68180	1	Voor 20	\$23,100.00	\$22 400 00
			Coating once every 20 years	80-08180	1	-	\$23,100.00	\$23,100.00 \$23,100.00
						ANT PROPERTY AND AND AND AND AND AND AND AND AND AND		
			Subtotal this sh	eet		Year 5		\$770.00
						Year 10		\$770.00
						Year 15		\$770.00
						Year 20	***************************************	\$23,100.00
						Year 25		\$770.00
						Year 30		\$18,120.00
						Year 35	-	\$770.00
						Year 40		\$23,100.00
					· · · · · · · · · · · · · · · · · · ·	Year 45		\$770.00
						Year 50		\$770.00
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iecked	/ Peer R		e indicates that the pay items and desc JANTITIES	riptions given ab	ove appear to	be reasor PRICE:		
		W		DV		FRICE		
	n/Jeff M	orris	CHECKED  Daryl Little	Jim Jetton	To you		CHECKED	
ATE PREPARED PEER REVIEW / DATE			DATE PRE	ARED	<del></del>	PEER/REVIE	W / DATE	
6/2012 Daryl Little			DATE PREPARED PEER REVIEW / DATE 07/02/12 PEER REVIEW / DATE					

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				Fryingpan	-Arkansas I	roject		
	Arkans	sas Valley Co	onduit					
		amber PP2 a		WOID:	AF523	ESTIMA	ATE LEVEL	Appraisal
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FI	EM							
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	Air Chamber I	nterior Cleaning	86-68180	1	Year 5	\$1,160.00	\$1,160.00
		Clean once ev	very 5 years (1-Tank) except		1	Year 10	\$1,160.00	\$1,160.00
		when interior	re-coating is performed		1	Year 15	\$1,160.00	\$1,160.00
		9,042 gallons:	height = 16 feet;		1	Year 25	\$1,160.00	\$1,160.00
		Inside diamet	er = 9 feet		1	Year 30	\$1,160.00	\$1,160.00
					1	Year 35	\$1,160.00	\$1,160.00
					1	Year 45	\$1,160.00	\$1,160.00
					1	Year 50	\$1,160.00	\$1,160.00
	2	Air Chamber	Exterior Re-Coating	86-68180	1	Year 30	\$25,800.00	\$25,800.00
		Apply Exterior	Coating once every 30 years					
	3	Air Chamber I	nterior Re-Coating	86-68180	1	Year 20	\$34,800.00	\$34,800.00
			Coating once every 20 years	00 00 100	1		\$34,800.00	\$34,800.00
		A						
			Subtotal this sheet			Year 5		\$1,160.00
	***************************************					Year 10		\$1,160.00
						Year 15		\$1,160.00
						Year 20		\$34,800.00
				***************************************		Year 25		\$1,160.00
						Year 30		\$26,960.00
				MARAGEMENT PROPERTY MARKET PROPERTY AND AND AND AND AND AND AND AND AND AND	***************************************	Year 35		\$1,160.00
			**************************************			Year 40	***************************************	\$34,800.00
<b> </b>						Year 45		\$1,160.00
		-			· · · · · · · · · · · · · · · · · · ·	Year 50		\$1,160.00
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	Arkans	as Valley Co	onduit	Fryingpar	ı-Arkansas l	Project		
		ta Water Sto		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal
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F					Sazit - Unsis 117-	A-ZITZ VISVIB	- PUMB PLABREP	Delare W (P)
PLANT ACCOUNT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
	1	LaJunta Wate	er Storage Tank Interior Cleaning	86-68180	5	Year 5	\$38,000.00	\$190,000.00
		Clean once e	very 5 years except		5	Year 10	\$38,000.00	\$190,000.00
		1	re-coating is performed		5	Year 15	\$38,000.00	\$190,000.00
		(5) - 1,000,00			5	Year 25		\$190,000.00
		min water sur	face elev = 65 feet;		5	Year 30	\$38,000.00	\$190,000.00
		max water su	rface elev = 90 feet; Diameter = 80 feet		5	Year 35	\$38,000.00	\$190,000.00
					5	Year 45	\$38,000.00	\$190,000.00
					5	Year 50	\$38,000.00	\$190,000.00
	2	LaJunta Wate	er Storage Tank Exterior Re-Coating	86-68180	5	Year 30	\$620,004.00	\$3,100,020.00
		Apply Exterio	r Coating once every 30 years					
	3	l a lunta Wate	er Storage Tank Interior Re-Coating	86-68180	5	Vear 20	\$653 600 00	\$3,268,000.00
			Coating once every 20 years	00-00100	5			\$3,268,000.00
			Subtotal this she	et		Year 5		\$190,000.00
						Year 10		\$190,000.00
			700 TO TO TO TO TO TO TO TO TO TO TO TO TO			Year 15		\$190,000.00
						Year 20		\$3,268,000.00
						Year 25		\$190,000.00
***************************************						Year 30		\$3,290,020.00
			VIII/VIII III II II II II II II II II II II I			Year 35	******************************	\$190,000.00
						Year 40		\$3,268,000.00
						Year 45		\$190,000.00
						Year 50		\$190,000.00
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FEATU	RE:			I	- "		PROJECT: Fryingpan-Arkansas Project						
	Automo	V-II O-	and detail	Fryingpan	ı-Arkansas	Project	:						
		sas Valley Co r Water Stora		WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal					
:		red Alternati		REGION:	GP	<del></del>	RICE LEVEL:	11-Jan					
	Reach	3		FILE:		TIONWINDING	Arkansas valley Conu ve\OM&R Cost Estima	uit Appraisai					
	OM&R	Costs (Estir	nated Costs)		Worksheets for	Designers\(A	AVC Life cycle Cost Es AVC Life cycle Cost Es AVR1 - Pump Plant(PP	timate Worksheets -					
T INŤ	M												
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT					
	1	Fowler Water	Storage Tank Interior Cleaning	86-68180	4	Year 5	\$41,500.00	\$166,000.00					
			very 5 years except		4	Year 10	\$41,500.00	\$166,000.00					
		when interior	re-coating is performed		4	Year 15	\$41,500.00	\$166,000.00					
		(4) - 2,295,00	0 gallons;		4	Year 25	\$41,500.00	\$166,000.00					
		min water sur	face elev = 0 feet;		4	Year 30	\$41,500.00	\$166,000.00					
		max water su	rface elev = 25 feet; Diameter = 125 feet		4	Year 35	\$41,500.00	\$166,000.00					
		-			4	Year 45	\$41,500.00	\$166,000.00					
	***************************************				4	Year 50	\$41,500.00	\$166,000.00					
<del></del>	2	Fowler Water	Storage Tank Exterior Re-Coating	86-68180	4	Year 30	\$596,700.00	\$2,386,800.00					
		Apply Exterior	r Coating once every 30 years										
	3		Storage Tank Interior Re-Coating	86-68180	4		\$1,100,000.00	\$4,400,000.00					
		Apply interior	Coating once every 20 years		4	Year 40	\$1,100,000.00	\$4,400,000.00					
			Subtotal this sheet			Year 5		\$166,000.00					
						Year 10		\$166,000.00					
						Year 15		\$166,000.00					
						Year 20		\$4,400,000.00					
						Year 25		\$166,000.00					
		PRI TOTAL LANGUAGE ALL COLOR				Year 30		\$2,552,800.00					
	<i></i>					Year 35		\$166,000.00					
						Year 40	-	\$4,400,000.00					
						Year 45		\$166,000.00					
					~~~~~	Year 50		\$166,000.00					
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Jim Jetton/Jeff Morris Daryl Little			Jim Jetton	10	)	0	***************************************						
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FEATU		sas Valley Co		PROJECT: Fryingpan-Arkansas Project					
		sas valley Col & May Valley A		WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal	
		red Alternativ		REGION:	GP		RICE LEVEL:	11-Jan	
	Eads \$	Spur Costs (Estim		FILE: Estimate\Preferred Alternative\OM&R Cost Estimate\Cost Estimate\ Worksheets for Designers\[AVC Life cycle Cost Estimate Worksheets - 8420 - Costs 07-24-2012 xlsx\R1 - Pump Plant\(PP1\) before WTP\					
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	Eads & May V	alley Air Chamber Interior Cleaning	86-68180	4	Year 5	\$70.00	\$280.00	
		Clean once ev	ery 5 years except		4	Year 10	\$70.00	\$280.00	
		when interior re	e-coating is performed		4	Year 15	\$70.00	\$280.00	
		1,200 gallons;	Height = 6.5 feet; Diameter = 5 feet		4	Year 25	\$70.00	\$280.00	
					4	Year 30	\$70.00	\$280.00	
					4	Year 35	\$70.00	\$280.00	
					4	Year 45	\$70.00	\$280.00	
					4	Year 50	\$70.00	\$280.00	
	2	Eads & May V	alley Air Chamber Exterior Re-Coating	86-68180	4	Year 30	\$1,562.50	\$6,250.00	
		Apply Exterior	Coating once every 30 years						
	3	Eads & May V	alley Air Chamber Interior Re-Coating	86-68180	4	Year 20	\$2,100.00	\$8,400.00	
		Apply Interior	Coating once every 20 years		4	Year 40	\$2,100.00	\$8,400.00	
				o Production and Administrative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicative Communicativ					
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						Year 10		\$280.00	
						Year 15		\$280.00	
						Year 20		\$8,400.00	
						Year 25		\$280.00	
						Year 30		\$6,530.00	
						Year 35		\$280.00	
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						Year 45		\$280.00	
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	6/2012 Daryl Little						Cipil	; / ( <del>*</del> / /) <b>*</b>	

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				Fryingpan	-Arkansas I	Project			
		sas Valley Co & Valve Vaul		MOID	45500	leorus.	. T	<del>.</del>	
		red Alternativ		WOID: REGION:	AF523 GP	+	ATE LEVEL:	Appraisal Jan-11	
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		≀ . R Costs (Estin	nated Costs)	Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\[A\]  cycle Cost Estimate Worksheets - 8420 - Costs 07-24-2012.xlsx\[R1 - Pump Plant(PP1 hefore WTP)					
ㄴ 분					PIANTEPT NEIGH	VIES			
PLANT	PAY ITEM	:	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	_	Meter Vault P	P1 Before WTP						
	1	36" Pressure	Reducing Valve	86-68420	1	Year 25	\$250,000.00	\$250,000.00	
<u> </u>		Replace Ever			1	Year 50		\$250,000.00	
		Cla-Val class			-				
		Cla-Val distrib	outor estimates 20-30 year life expe	ctancy					
		Meter Vault P	P2 After WTP						
	1	No PRV		86-68420	***************************************		\$0.00	\$0.00	
		Valve Vault							
		0.0% D		50 00 100					
······	1	Replace Ever	Reducing Valve	86-68420	1	Year 25 Year 50		\$250,000.00	
		Cla-Val class				1 ear 50	\$250,000.00	\$250,000.00	
			outor estimates 20-30 year life expe	tancy					
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	TNUOMA	
		Meter Vault							
·	1	No PRV		86-68420			\$0.00	\$0.00	
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			Subtotal this sheet			Year 25		\$0.00	
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		as Valley Conduit	WOIS		lectro-	TE I EVE	Aurino (*)		
		pant Tie-In Vaults	WOID:	AF523	_	ATE LEVEL:	Appraisal		
		red Alternative	REGION:		RUMORIS VALKE	RICE LEVEL:			
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PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
		C inch propure and taken volume	06 60400	4	V077.05	<b>60 750 00</b>	<b>40.750.00</b>		
	1	6-inch pressure reducing valve	86-68420	1 1	Year 25	\$9,750.00	\$9,750.00		
	<del> </del>	Replace Every 25 Years	<u> </u>	1	Year 50	\$9,750.00	\$9,750.00		
		Cla-Val ANSI class 150 steel			···		ramentermakko kontrolaria, umusiki 11 ki musika kan diasan, kakontar diasan memeri hamber		
		(285 psi rated)							
	2	1-inch air valve	86-68420	1	Year 25	\$1,250.00	\$1,250.00		
***************************************		Replace Every 25 Years		1	Year 50	\$1,250.00	\$1,250.00		
		35 lbs							
							W-2004 (M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M. 2.2.4. M.		
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		6.44-414.			V 07		\$44.000.00		
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		red Alternativ		REGION:	GP	+	RICE LEVEL:	Appraisal Jan-11	
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PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
	1	6 inch propour	o raduaina valua	86-68420	2	Year 25	<b>40.750.00</b>	\$10 E00 00	
		Replace Every	e reducing valve	00-00420	2	Year 50	\$9,750.00	\$19,500.00	
		2 valves, 160	· · · · · · · · · · · · · · · · · · ·			Teal 30	\$9,750.00	\$19,500.00	
			class 150 steel						
		(285 psi rated)							
	-			***************************************			Market 14 and 15 and 16		
	2	1-inch air valve	2	86-68420	2	Year 25	\$1,250.00	\$2,500.00	
		Replace Every	25 Years		2	Year 50	\$1,250.00	\$2,500.00	
		2 air valves, 3	5lbs each						
							The state of the s		
			Subtotal this sheet			Year 25		\$22,000.00	
						Year 50		\$22,000.00	
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	on/Jeff M	orris	Dan Drake	Jim Jetton	1	5	ONE CRED		
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		pant Tie-In V		WOID:	AF523	ESTIMA	ATE LEVEL:	Appraisal		
		red Alternativ		REGION:	GP		RICE LEVEL:	Jan-11		
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PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	6-inch pressur	re reducing valve	86-68420	15	Year 25	\$9,750.00	\$146,250.00		
		Replace Every		00-00-20	15	Year 50	\$9,750.00	\$146,250.00		
		15 valves, 16				1.50.55	401.00.00	Ţ 1.0jm00,00		
			class 150 steel			<del>                                     </del>				
		(285 psi rated						The second secon		
	2	1-inch air valv	Δ	86-68420	15	Year 25	\$1,250.00	\$18,750.00		
		Replace Every		00-00420	15	Year 50	\$1,250.00	\$18,750.00		
	ļ	15 air valves,	······································		13	Teal 30	\$1,250.00	ψ10,700.00		
			Subtotal this sheet			Year 25		\$165,000.00		
						Year 50		\$165,000.00		
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		pant Tie-In Va		WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal
		ed Alternativ		REGION:	GP	UNIT PE	RICE LEVEL:	Jan-11
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		Costs (Estim	ated Costs)			le Worksheets	s - 8420 - Costs 07-24-2012.x	
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
		C inch	a radusing valva	86-68420	<del></del>	Year 25	\$0.750.00	\$60 0E0 00
	1	I	e reducing valve	86-68420	7	-	\$9,750.00	\$68,250.00
		Replace Every	***************************************	<del></del>	7	Year 50	\$9,750.00	\$68,250.00
······································		7 valves, 160	*** ** ** ** ** ** **			<u> </u>		<del> </del>
			class 150 steel	***************************************		-		The state of the s
		(285 psi rated)						
	2	1-inch air valve	<u> </u>	86-68420	7	Year 25	\$1,250.00	\$8,750.00
		Replace Every			7	Year 50	\$1,250.00	\$8,750.00
		7 air valves, 3						
						1		
			Subtotal this sheet			Year 25		\$77,000.00
7. I ONE INTERNATIONAL PROPERTY OF						Year 50		\$77,000.00
			Manuscript and the second seco					
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6/6/2012			Dan Drake	07/02/12			2/20/00	n 7/27/12
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Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  PRICES  BY Jim Jetton/Jeff Morris  Dan Drake  S77,000.00  \$77,000.00  \$777,000.00  \$777,000.00  \$777,000.00  \$777,000.00  \$77,000.00  \$77	FEAT	EATURE: Arkansas Valley Conduit			PROJECT: Fryingpan-Arkansas Project					
REGION:			_		worn		I	A Trept 1 mm (m)		
New Year 25   Super   Content   Co			~		<b>—</b> -	<del> </del>				
Description   Description				ve		ansas valley Corlouit Apprais	ai EstimaterPreieneo			
1   6-inch pressure reducing valve				nated Costs)	i i haber	cycle Cost Estima	te Worksheet			
Replace Every 25 Years   7	PLANT ACCOUNT	PAY ITEM		DESCRIPTION	, CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
Replace Every 25 Years   7		1	6-inch pressu	re reducing valve	86-68420	7	Vear 25	\$9.750.00	\$69.250.00	
7 valves, 160 lbs each   Cla-Val ANSI class 150 steel   (285 psi rated)		- <del> </del>			80-08-420			[		
Cla-Val ANSI class 150 steel (285 psi rated)						F	100,00	Ψ0,1 00.00	Ψοσ,200.00	
2 1-Inch air valve										
Replace Every 25 Years 7 Year 50 \$1,250.00 \$8,750.00 7 air valves, 35lbs each  Subtotal this sheet Year 25 \$77,000.00 Year 50 \$			(285 psi rated	)			7 T			
Replace Every 25 Years 7 Year 50 \$1,250.00 \$8,750.00 7 air valves, 35lbs each  Subtotal this sheet Year 25 \$77,000.00 Year 50 \$		2	1-inch air valv	re	86-68420	7	Year 25	\$1.250.00	\$8 750 00	
7 air valves, 35lbs each  Subtotal this sheet  Year 25  Year 50  \$77,000.00  Year 50  \$77,000.00  The company indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  PRICES  BY  CHECKED  Dan Drake  Jim Jetton/Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris  CHECKED  Jim Jetton /Jeff Morris		<del></del>			00 00 120					
Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  PRICES  BY  CHECKED  Dan Drake  Dan Drake  S77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00			7 air valves, 3	5lbs each						
Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  PRICES  BY CHECKED Dan Drake  Dan Drake  S77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00										
Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  PRICES  BY  CHECKED  Dan Drake  Dan Drake  S77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00										
Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.  QUANTITIES  PRICES  BY  CHECKED  Dan Drake  Dan Drake  S77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00  \$77,000.00										
QUANTITIES  BY  CHECKED  Jim Jetton/Jeff Morris  Dan Drake  Dan Drake  PRICES  CHECKED  Jim Jetton  A  CHECKED  Jim Jetton				Subtotal this sheet					\$77,000.00 \$77,000.00	
QUANTITIES  BY  CHECKED  Jim Jetton/Jeff Morris  Dan Drake  Dan Drake  PRICES  CHECKED  Jim Jetton  A  CHECKED  Jim Jetton										
QUANTITIES  BY  CHECKED  Jim Jetton/Jeff Morris  Dan Drake  Dan Drake  PRICES  CHECKED  Jim Jetton  A  CHECKED  Jim Jetton		_	-				_			
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Jim Jetton/Jeff Morris Dan Drake Jim Jetton			QUAN	Transmission			PF	1		
						A PARTON	) )	CHECKED		
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6/6/2012 Dan Drake 07/02/12 The Word 7/27/12	6/6/2012	2		Dan Drake	07/02/12			Is Wou	7/27/12	

FEATU	EATURE:			PROJECT:					
				Fryingpan	-Arkansas	Project			
	Arkans	sas Valley Co	nduit						
	Partici	pant Tie-In V	aults	WOID:	AF523	ESTIM/	ATE LEVEL:	Appraisal	
	Prefer	red Alternativ	<i>r</i> e	REGION:	GP		RICE LEVEL:	Jan-11	
	Loop OM&R	Costs (Estin	nated Costs)	FILE: Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\[AVC Life cycle Cost Estimate Worksheets - 8420 - Costs 07-24-2012.xlsx]R1 - Pump Plant/PP1 before WTP)					
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		~ .							
	1		re reducing valve	86-68420	8	Year 25	\$9,750.00	\$78,000.00	
<u></u>		Replace Every			8	Year 50	\$9,750.00	\$78,000.00	
	TO A THE SECOND SECOND	8 valves, 160		<del></del>	 	-		evine viene venilina cinema cinema .	
			class 150 steel						
		(285 psi rated	)						
	2	1-inch air valv	<u>e</u>	86-68420	8	Year 25	\$1,250.00	\$10,000.00	
		Replace Every	y 25 Years		8	Year 50	\$1,250.00	\$10,000.00	
		8 air valves, 3							
			Subtotal this sheet					\$88,000.00	
**************************************						rear 50		\$88,000.00	
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Jim Jetto	n/Jeff M	orris	Dan Drake	Jim Jetton /	/ WY	)	CX		
DATE PI 6/6/2012	DATE PREPARED PEER REVIEW / DATE				PARED		PEER REVIEW / DA	TE フレット・	
3,0,2012			Dan Diake	01/02/12	ptions given above appear to be reasonable.  PRICES  CHECKED  Jetton  PERPARED  PERREVIEW / DATE				

FEATU	EATURE:				PROJECT:						
	Arkana	as Valley Co	nduit	Fryingpar	ı-Arkansas I	Project					
		& Valve Vault		WOID:	AF523	ESTIMAT	E LEVEL:	Appraisal			
		ed Alternativ		REGION:	GP	<del></del>	ICE LEVEL:	Jan-11			
Civil		Costs (Estim		FILE:	H:\D8170\Commo Alternative\OM&R	nUMorns\Arkans Cost Estimate\C	sas Valley Conduit Appraisal I Cost Estimate Worksheets for - Costs 07-24-2012.xlsx]R1 -	stimate\Preferred Designers\[AVC Life cycle			
. 5	N.		·								
PLANT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
	1	Butterfly Valve	es (Manually Operated)	86-68420	1	Year 50	\$10,560.00	\$10,560.00			
		15% of all butt	terfly valve costs on Meter & Valve	Vaults							
		for repair and	replacement								
***************************************							V2000000000000000000000000000000000000				
			Subtotal this shee	t		Year 50		\$10,560.00			
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u	QUANTITIES				, above ap		RICES				
ВҮ				ВУ			CHECKED,				
Jim Jetto	n/Jeff Mo	orris	Dan Drake	Jim Jetton	100						
DATE PE		D	PEER REVIEW / DATE	DATE PRE 07/02/12	PARED		PEER REVIEW DAT				
6/6/2012	/6/2012 Dan Drake						Co Main	, 7127/12			

## **ESTIMATE WORKSHEET**

SHEET \_53\_ OF \_58\_

Preferred Alternative	FEATU	RE:		PROJECT:						
Preferred Alternative		Arkans	as Valley Conduit	Fryingpai	n-Arkansas P	Project				
FILE:				WOID:	AF523	ESTIMA"	TE LEVEL:	Appraisal		
Civil OM&R Costs (Estimated Costs)    Cost		Preferr	ed Alternative	REGION:						
1 Butterfly Valves (Manually Operated) 86-68420 1 Year 50 \$25,950.00 \$25,95  15% of all butterfly valve costs on Participant Tie-Ins  for repair and replacement	Civil	OM&R	Costs (Estimated Costs)	FILE:	Alternative\OM&R Cost Estimate Wor	Cost Estimate\	Cost Estimate Worksheets for	Designers\[AVC Life cycle		
15% of all butterfly valve costs on Participant Tie-Install	PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
15% of all butterfly valve costs on Participant Tie-IIII		4	Dutterfly Volvos /Menually Operated	96 69420	1	Voor E0	\$2E 050 00	#7E 0E0 00		
for repair and replacement  Subtotal this sheet  Subtotal this sheet  Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.		•			1	real 50	\$20,930.00	Ψ20,950.00		
Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.				110-1113						
Subtotal this sheet Year 50 \$25,95										
Subtotal this sheet Year 50 \$25,95										
Subtotal this sheet Year 50 \$25,95						M				
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Checked / Peer Review signature indicates that the pay items and descriptions given above appear to be reasonable.										
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Subtotal this she				Year 50		\$25,950.00		
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DATE PREPARED  PEER REVIEW / DATE  6/6/2012  Dan Drake  DATE PREPARED  PEER REVIEW / DATE  07/02/12  PEER REVIEW / DATE	DATE PR		PEER REVIEW / DATE	DATE PRE	PARED	<i></i>	PEER BEVIEW / DAT	re 、フロフル		
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FEATL	EATURE:			PROJECT:					
			Fryingpan	-Arkansas l	Project				
	Arkans	as Valley Conduit							
	Pipelin	e	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal		
	Prefer	ed Alternative	REGION:	GP		RICE LEVEL:	Jan-11		
	Interco	nnect	FILE:	Alternative\OM&F	Cost Estimate	nsas Valley Conduit Appraisal \Cost Estimate Worksheets for	r Designers\[AVC Life cycle		
Civil	OM&R	Costs (Estimated Costs)		Cost Estimate Wo WTP)	orksheets - 842	0 - Costs 07-24-2012.xlsx]R1 -	Pump Plant(PP1 before		
PLANT ACCOUNT	PAY ITEM	DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT		
	1	Puttoffy Valvas (Manually Operated)	00 00 400			0407.445.00	DAGT 445.00		
<b> </b>		Butterfly Valves (Manually Operated)  15% of all butterfly valve costs on Interconnect	86-68420	1	Year 50	\$137,445.00	\$137,445.00		
***************************************		for repair and replacement		, , , , , , , , , , , , , , , , , , , ,					
		To repair and replacement			-				
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<u> </u>		Subtotal this sheet			Year 50		\$137,445.00		
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Į.	lim Jetton/Jeff Morris Dan Drake		Jim Jetton /	NEW	)				
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6/6/2012		Dan Drake	07/02/12	- 1144		PEER REVIEW / DAT	7/27/12		
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	Arkans	sas Valley Co	onduit	Fryingpan	-Arkansas I	Project			
		·	e OM&R Costs Summary Sheet	WOID:	AF523	ESTIMA	TE LEVEL:	Appraisal	
	86-684		,	REGION:	GP		RICE LEVEL:	Jan-11	
				FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Preferred Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\Preferred Alternative Life Cycle Costs Summary Worksheet.xis EW SUM_Construction Cost					
PLANT ACCOUNT	РАҮ ІТЕМ		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
							Estimated Costs		
	ļ	Periodic Costs			TOTAL TOTAL PROPERTY AND ADMINISTRATION	_	\$392,810		
	ļ	Periodic Costs	s - Year 10				\$392,810		
		Periodic Costs					\$392,810	. '	
		Periodic Costs			***************************************	<u> </u>	\$8,357,100		
		Periodic Costs				-	\$1,332,810	-	
	-	Periodic Costs					\$6,388,480		
	<del> </del>	Periodic Costs				-	\$392,810	-	
	<b>-</b>	Periodic Costs					\$8,357,100	· · · · · · · · · · · · · · · · · · ·	
		Periodic Costs - Year 45 Periodic Costs - Year 50 *					\$392,810		
	-	1 enouic costs	s - rear ov		<del> </del>	-	\$1,332,810		
		Annual Costs					\$884,680	THE STATE OF THE S	
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		* Thosa actim	poted costs do not include Short E2 E	3 8 54 55-	at 4. Day the sa	<u> </u>	45		
	<u> </u>	mese esum	nated costs do not include Sheet 52, 5	3, & 54. She	et 1, Pay item	5 includes	tnese costs.		
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QUANTITIES				PRICES					
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TSC Tea	m		TSC Team	Jim Jetton	75	1	CA		
DATE PI	REPARE	D	PEER REVIEW / DATE	DATE PREF	ARED		PEER REVIEW / PATE	Ξ ,	
Feb-June	e 2011		TSC Team	07/02/12			PEER REVIEW / DATE	7/33/12	

FEATURE:			PROJECT:					
	Arkan	sas Valley Condi	nit	Fryingpan	ı-Arkansas f	Project		
	Arkansas Valley Conduit Preferred Alternative OM&R Costs Summary Sheet				WOID: AF523 EST		TE LEVEL:	Appraisal
		•			GP		RICE LEVEL:	Jan-11
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				. ,,			NCost Estimate Worksheets for nmary Worksheet.xis]O&M Su	
Ϋ́	EM							
PLANT ACCOUNT	PAY ITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT
						***************************************	Estimated Costs	Estimated Costs (Rounded)
		Sheet 24 Summai	ry (86-68140)					
		Periodic Costs - Y	'ear 5			_	\$0	
		Periodic Costs - Y	ear 10				\$0	
		Periodic Costs - Y	'ear 15				\$0	
	_	Periodic Costs - Y	ear 20				\$905,000	
		Periodic Costs - Y					\$975,750	
	_	Periodic Costs - Y	ear 30				\$0	
	ļ	Periodic Costs - Y	'ear 35		-		\$0	
	_	Periodic Costs - Y					\$905,000	
		Periodic Costs - Y					\$0	
	<b></b>	Periodic Costs - Y	'ear 50				\$1,330,250	
		Annual Costs			***************************************		\$412,672	\$410,00
	-	Charl 34 Comme	(00.00440)			-		
	-	Sheet 34 Summa Periodic Costs - Y	······································			-		
		Periodic Costs - Y				- <b> </b>	\$0	
	<u> </u>	Periodic Costs - Y				_	\$0 \$650,000	
	<b>-</b>	Periodic Costs - Y					\$221,250	
	-	Periodic Costs - Y		-			\$221,230	
	-	Periodic Costs - Y					\$650,000	·
	-	Periodic Costs - Y					\$0	
	-	Periodic Costs - Y				<b>-</b>	\$221,250	
		Periodic Costs - Y				-	\$650,000	
		Periodic Costs - Y					\$0	
		Annual Costs			***************************************		\$0	\$
	-					<b>_</b>		
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DV		QUANT		DV.	<del>///</del>	<u> </u>	RICES	· · · · · · · · · · · · · · · · · · ·
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TSC Tea			C Team	Jim Jetton		)	DEED DE	
i	DATE PREPARED         PEER REVIEW / DATE           Feb-June 2011         TSC Team			DATE PRE	PARED		PEER REVIEW / PA	
rep-Jun	& ZU11	118	oo ream	07/02/12			MADULAC	5 87/30/12

FEATURE:				PROJECT:							
	اس۵	W-U C	_ 4!4	Fryingpan	-Arkansas P	roject					
E .		sas Valley Co		WOID	4 7 4 4 4		<del></del>				
	Preferred Alternative OM&R Costs Summary Sheet			WOID: REGION:	AF523 GP	<del></del>	TE LEVEL:	Appraisal			
		/Dropont W		<u> </u>		<u></u>	RICE LEVEL:	Jan-11			
	(Present Worth)				FILE: H:\D8170\Common\UMorris\Arkansas Valley Conduit Appraisal Estimate\Preferred Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\\Preferred Alternative Life Cycle Costs Summary Worksheet.xls\O&M Summary Cost						
	5				Atemative Life Cyt	cie Costs Suit	illary Worksheet.xisjOalis 30	minary Cost			
PLANT ACCOUNT	PAYITEM		DESCRIPTION	CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT			
							Estimated Costs	Estimated Costs (Rounded)			
		Sheet 55 Sum	mary (86-68420)								
		Periodic Costs	s - Year 5				\$392,810.00				
		Periodic Costs	s - Year 10				\$392,810.00				
		Periodic Costs	s - Year 15				\$392,810.00				
		Periodic Costs				<b> </b>	\$8,357,100.00				
		Periodic Costs					\$1,332,810.00				
	***************************************	Periodic Costs					\$6,388,480.00	***************************************			
		Periodic Costs		-			\$392,810.00				
		Periodic Costs					\$8,357,100.00				
		Periodic Costs					\$392,810.00				
		Periodic Costs	s - Year 50				\$1,332,810.00				
	***************************************	Annual Costs					\$884,680.00	\$880,000			
					P/F Factor		Estimated Costs (Rounded)	Periodic Costs			
		Shee 24, 34 8	55 Total Summary								
		Periodic Costs			0.81701		\$390,000.00	\$318,634			
	***************************************	Periodic Costs			0.66750		\$390,000.00	\$260,325			
		Periodic Costs			0.54535		\$1,050,000.00	\$572,618			
		Periodic Costs	***************************************		0.44555		\$9,500,000.00	\$4,232,725			
	<del></del>	Periodic Costs			0.36402		\$2,300,000.00	\$837,246			
		Periodic Costs			0.29741		\$7,000,000.00	\$2,081,870			
		Periodic Costs			0.24298		\$390,000.00	\$94,762			
		Periodic Costs			0.19852		\$9,500,000.00	\$1,885,940			
		Periodic Costs Periodic Costs			0.16219 0.13251		\$1,050,000.00 \$2,700,000.00	\$170,300 \$357,777			
					011020		42,100,000.00	0001,111			
		Annual Costs			21.03006		\$1,290,000.00	\$27,128,777			
					Andal Baulaut			040.040.4==			
					total Periodic			\$10,812,196 \$27,128,777			
				30	biotal Allitual	management of the second		\$21,120,171			
		QUA	NTITIES			PI	RICES				
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TSC Tean	n		TSC Team	Jim Jetton		<u>)                                    </u>					
DATE PR		D	PEER REVIEW / DATE	DATE PREPARED PEER REVIEW / DATE			E , ,				
Feb-June	2011		TSC Team	07/02/12 Pp Upis 7/3			is 7/36/12				

FEATURE:			PROJECT:						
				Fryingpan	-Arkansas F	Project			
		as Valley Co							
	Preferr	ed Alternativ	e OM&R Costs Summary Sheet		AF523		TE LEVEL:	Appraisal	
				REGION:	GP		RICE LEVEL:	Jan-11	
		(Present Wo	orth)	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Preferred Alternative\OM&R Cost Estimate\Cost Estimate Worksheets for Designers\[Preferred Alternative Life Cycle Costs Summary Worksheet.xls]O&M Summary Cost					
PLANT ACCOUNT	PAYITEM	DESCRIPTION		CODE	QUANTITY	UNIT	UNIT PRICE	AMOUNT	
		D							
	***************************************	Periodic Cost Subtotal 1	<u>s</u>			<u> </u>		\$10,812,196.00	
		Mobilizatio	n	5%	+/-	_		\$540,000.00	
		Subtotal 1 with		370	'17	_		\$11,352,196.00	
			to Notice to Proceed (NTP)			-		\$0.00	
<del></del>	·····		ubtotal 1 with Mobilization + Escalation	L				\$11,352,196.00	
			ntingencies	15%	+/-			\$1,647,804.00	
		CONTRACT C						\$13,000,000.00	
		Construction	on Contingencies	25%	+/-	· · · · ·		\$3,500,000.00	
		FIELD COST						\$16,500,000.00	
		Non-Contra	act Costs	25%	+/-			\$4,500,000.00	
	* * * * * *	CONSTRUCTI	ION COST					\$21,000,000.00	
		Annual Costs	<u> </u>						
		Subtotal 1						\$27,128,777.00	
		Mobilizatio	on	0%	+/-			\$0.00	
		Subtotal 1 with	n Mobilization				,	\$27,128,777.00	
		Escalation	to Notice to Proceed (NTP)		74.74.11.74.			\$0.00	
		Subtotal 2 = S	ubtotal 1 with Mobilization + Escalation	to NTP				\$27,128,777.00	
		ļ <u></u>	ntingencies	10%	+/-			\$2,871,223.00	
		CONTRACT C						\$30,000,000.00	
			on Contingencies	0%	+/-			\$0.00	
	·	FIELD COST						\$30,000,000.00	
			act Costs**	10%	+/-			\$3,000,000.00	
		CONSTRUCT	ION COST					\$33,000,000.00	
								<u></u>	
			opriate use and terminology, see Recla	amation Man	ual, Directives			2 and 09-03.	
		QUA	NTITIES	ļ		P	RICES		
BY			CHECKED	BY			CHECKED		
TSC Tea			TSC Team	Jim Jetton					
DATE PREPARED PEER REVIEW / DATE			DATE PREPARED PEER-REVIEW / DATE			TE			
Feb-June 2011			TSC Team	07/02/12			Maulain 7/30/12		

FEATURE:	PROJECT:	Fryingpan-Ark	kansas Project				
Arkansas Valley Conduit	WOID:	Appraisal					
Water Treatment Plant OM&R Costs Summary Sheet	REGION:	GP	UNIT PRICE LEVEL: Jan-11				
(Present Worth)	FILE: H:\D8170\Common\JMorris\Arkansas Valley Conduit Appraisal Estimate\Life Cycle Costs\WTP\[OM&R Calcs-						
Costs Provided by Black & Veatch	***	WTP-with escalation.x	dsx]Periodic Costs				
Periodic (Replacement) Costs		P/F Factor	Estimated Periodic Costs	Present Worth Costs			
Year 5	PW Factor	0.81701	\$0	\$0			
Year 10	PW Factor	0.66750	\$0	\$0			
Year 15	PW Factor	0.54535	\$0	\$0			
Year 20	PW Factor	0.44555	\$0	\$0			
Year 25	PW Factor	0.36402	\$0	\$0			
Year 30	PW Factor	0.29741	\$0	\$(			
Year 35	PW Factor	0.24298	\$0	\$0			
Year 40	PW Factor	0.19852	\$0	\$0			
Year 45	PW Factor	0.16219	\$0	\$0			
Year 50	PW Factor	0.13251	\$0	\$0			
Subtotal Periodic (Replacement) Costs		****		\$0			
Mobilization (+/- 5%)				\$0			
Subtotal 1 with Mobilization				\$0			
Escalation to NTP				\$0			
Subtotal 2 = Subtotal 1 with Mobilization + Escalation to	NTP			\$0			
Design Contingencies (+/- 15%)				\$0			
Contract Cost				\$0			
Construction Contingencies (+/- 25%)				\$0			
Field Cost				\$0			
Non-Contract Costs (+/- 25%)				\$0			
Total Periodic (Replacement) Present Worth	Costs Roun	ded (Jan-20	011)	\$0			
Annual Periodic (Replacement) Costs Round			The Mark State Control of the Contro				
	71. 24						
Annual (Operation and Maintenance) Costs	DIMA E	21.03006	Estimated Annual Costs				
Maintenance	PWA Factor		\$63,480				
Operations Costs	PWA Factor	21.03006	\$840,000				
Chemical Costs	PWA Factor	21.03006	\$535,000				
Residuals Costs	PWA Factor	21.03006	\$130,000	\$2,733,908			
Energy Costs for Pumping	PWA Factor	21.03006	\$99,300	\$2,088,285			
Subtotal Annual (Operation and Maintenance) Costs				\$35,073,513			
Escalation to NTP				\$0			
Subtotal 1 with Escalation to NTP			1	ሮሳድ ስማሳ <i>E</i> 4 ሳ			
Design Contingencies (+/- 10%)				\$3,926,488			
Subtotal 3 = Subtotal 2 + Design Contingencies				\$3,926,488 \$39,000,000			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)				\$3,926,488 \$39,000,000			
Subtotal 3 = Subtotal 2 + Design Contingencies	Present Wortl	n Costs Rou	inded (Jan-2011)	\$3,926,488 \$39,000,000 \$4,000,000			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)			unded (Jan-2011)	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F			inded (Jan-2011)	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs	Rounded (Ja		inded (Jan-2011)	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y	<b>Rounded (Ja</b> years.	n=20111)		\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniform	<b>Rounded (Ja</b> years. m Series Presen	n-2011) It Worth Factor		\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniform - PW Factor = P/F = 1/(1+i)^n = Single Payment Preser	<b>Rounded (Ja</b> years. m Series Presen	n-2011) It Worth Factor		\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniform - PW Factor = P/F = 1/(1+i)^n = Single Payment Preser Notes:	Rounded (Ja years. m Series Presen nt Worth (P/F, 4.	n-2011) It Worth Factor 125%)	r (P/A, 4.125%, 50)	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b> <b>\$2,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniform - PW Factor = P/F = 1/(1+ i)^n = Single Payment Preser Notes: Ref.: For appropriate use and terminology, see Reclama	Rounded (Ja years. m Series Presen nt Worth (P/F, 4.	n-2011) It Worth Factor 125%)	r (P/A, 4.125%, 50) andards FAC; 09-01, 09-02 ar	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b> <b>\$2,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Uniform - PW Factor = P/F = 1/(1+i)^n = Single Payment Preser Notes:	Rounded (Ja years. m Series Presen nt Worth (P/F, 4.	n-2011) It Worth Factor 125%)	r (P/A, 4.125%, 50)	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b> <b>\$2,000,000</b>			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Unifon - PW Factor = P/F = 1/(1+ i)^n = Single Payment Preser Notes: Ref.: For appropriate use and terminology, see Reclama QUANTITIES	Rounded (Ja years. m Series Presen nt Worth (P/F, 4.	n-2011) It Worth Factor 125%)	r (P/A, 4.125%, 50) andards FAC; 09-01, 09-02 an	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b> <b>\$2,000,000</b> ad 09-03.			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Unifon - PW Factor = P/F = 1/(1+ i)^n = Single Payment Preser Notes: Ref.: For appropriate use and terminology, see Reclama QUANTITIES	years. m Series Present Worth (P/F, 4.	n-2011)  It Worth Factor 125%)  ectives and Sta	r (P/A, 4.125%, 50) andards FAC; 09-01, 09-02 an	\$3,926,488 \$39,000,000 \$4,000,000 <b>\$43,000,000</b> <b>\$2,000,000</b> ad 09-03.			
Subtotal 3 = Subtotal 2 + Design Contingencies Non-Contract Costs (+/- 10%)  Total Annual (Operation and Maintenance) F Annual (Operation and Maintenance) Costs  - FY2011 planning interest rate 4.125% per year for 50 y - PWA Factor = P/A = ((1+i)^(n - 1))/(i*((1+i)^n) = Unifon - PW Factor = P/F = 1/(1+ i)^n = Single Payment Preser Notes: Ref.: For appropriate use and terminology, see Reclama QUANTITIES  BY  CHECKED	years. m Series Present Worth (P/F, 4.	n-2011)  It Worth Factor 125%)  ectives and Sta	r (P/A, 4.125%, 50) andards FAC; 09-01, 09-02 an	\$35,073,512 \$3,926,488 \$39,000,000 \$4,000,000 \$43,000,000 \$2,000,000 dd 09-03.			