

# **WATERSMART GRANT APPLICATION**

**FOR A**

**NEW GATE INSTALLATION – COCOPAH CANAL**

**SMALL-SCALE WATER EFFICIENCY PROJECT FY 2018**

**BOR-DO-18-F009**

Submitted To:

**Bureau of Reclamation Mail Services**

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**07/26/18**

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## **1. Technical Proposal and Evaluation Criteria**

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### **1.1 Executive Summary**

This application is being submitted by:

Bard Water District  
1473 Ross Road  
Winterhaven, Imperial County  
California

The Bard Water District proposes to construct a new “drop leaf” gate and check structure in the Cocopah Canal just past the Ute Lateral for better water management. This new “drop leaf” gate and check structure will significantly reduce the quantity of water lost by preventing the flow of water from the Ute lateral (upstream delivery) 0.7 miles downstream to the next gate (check gate at Picacho Rd) or even further when water is provided to the Ute lateral; because when this check gate is closed is unable to adequately reduce further losses downstream because of its distance from Ute Lateral, lower elevation of Cocopah canal sidewalls, and proximity to the Tribal cemetery, new Indian Health Services Medical Complex, two major roads, new subdivision, and a few scattered homes). The “drop leaf” gate and check structure has been selected rather than the traditional gate because it provides better water management by controlling the actual water height from the top, rather than from the bottom. Other ancillary water losses that occur with distribution such as seepage, evaporation, and overflow will also decrease.

The funds received from this grant will be used for the fabrication and installation of this new “drop leaf” gate and associated structures. We will accomplish the goals established for the WaterSMART program by conserving water and increasing efficiency of our system.

We plan to complete the project in a two-week period and would begin installation in late July and end in early August. Since the primary use of the water is agricultural, this is the best time interval because there is less demand (quantity and time). We would schedule our work as to accommodate them.

This project is located on a Federal facility.

### **1.2 Background Data**

Map attached on page 12.

**1. Technical Proposal and Evaluation Criteria (Continued)**

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**1.2 Background Data (Continued)**

**Source of Water Supply:**

Colorado River  All American Canal  Cocopah Canal  Ute Lateral

**Total Quantity of Water Supplied:** Bard Unit: 50,000 acre ft/yr Indian Unit: 49,000 acre ft/yr

**Quantity of Water Supplied Cocopah/Ute:** 1,000 acre feet **Water Rights Involved:** 2<sup>nd</sup> Priority

**Current Users and Number Served:** Agricultural Cocopah Canal: 35 Ute Lateral: 1

**Current Water Demand:** 17 cfs **Projected Water Demand:** 17 cfs

**Estimated Water Loss Reduction if New "Drop Leaf" Gate and Check Structure installed:**  
100 – 250 acre feet/year

**Major Crops:** Wheat, Sudan Grass, Produce and Cotton (Listed by water demand: High  Low)

**Total Acres Served:** Cocopah Canal: 3,120 Acres Ute Canal: 200 Acres

**Potential Shortfalls in Water Supply:** If drought continues, quantities could be reduced. Increased demand from new users. Water conservation measures are critical. Farmers here have already been encouraged to implement seasonal fallowing, use drip irrigation methods, eliminate crops that require large quantities of water (i.e. wheat or Sudan grass – Estimated total of 16-acre feet (48 hours @ 4-6 intervals).

**Bard Water District Water Delivery or Distribution System:** Agricultural Use only.

**Type and Approximate Total Lengths of Canals, Laterals and Pipes:** 67 Miles 353,760 LF  
**Concrete Lined/Pipe:** 25 Miles 132,000 LF (37%) **Unlined:** 42 Miles or 221,760 LF (63%)

<b>Type and Approximate Total Lengths of Canals:</b>	13 Miles	36,640 LF
<b>Concrete Lined:</b>	7 Miles 36,960 LF	<b>Unlined:</b> 6 Miles 31,680 LF

<b>Type and Approximate Total Lengths of Laterals:</b>	50 Miles	264,000 LF
<b>Concrete Lined:</b>	12 Miles 63,360 LF	<b>Unlined:</b> 36 Miles 190,080 LF

**Fragmented/Deteriorated Concrete Lined Lateral:** 1 Mile 5,280 LF

**Type and Approximate Total Lengths of Pipes:** 3 Miles 15,840 LF

**Number of Irrigation Turn-outs:** 450

## 1. Technical Proposal and Evaluation Criteria (Continued)

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### 1.2 Background Data (Continued)

**Significant Irrigation Improvements:** Automated Controls Structures: 0 SCADA: 0  
Remote Monitoring Devices: 5

**Other:** 3 Ram type Cipolletti weirs, 2 Long-throated flumes.

A North American Development Bank grant with 25% Tribal and 25% Bard Water District matching funds Lined 12 miles of canals (2004) for a total of 8 million dollars. And \$225,000 from the BOR for Water Conservation for Measuring Devices. BWD also Initiated a two-year pilot seasonal land fallowing project in 2016 (MWD) which we expanded threefold (approximately 500 acres initially to 1,500 acres in 2017 and 2018 with BOR, CAWCD, MWD, DW, and SNWA). The Bard Water District maintains a continuous working relationship with the Bureau of Reclamation's office in Yuma.

### 1.3 Project Description

The Bard Water District proposes to construct a new "drop leaf" gate and check structure in the Cocopah Canal just past the Ute Lateral for better water management. This new check gate structure will significantly reduce the quantity of water lost (approximately 150 - 250 acre feet/year, based on type of crop and growth cycle, irrigation distribution method, and frequency and length of water delivery). The installation of the new gate structure will prevent the loss of water from the Cocopah Canal **when it is delivered to the Ute Lateral**, by stopping the unrestricted flow downstream to the next check gate before Picacho Road (terminus of the Cocopah Canal) a distance of 0.7 miles (5,000 LF) and even further downstream because of the factors listed below.

- 1) The Cocopah Canal sidewalls/bank and structures are at a lower elevation downstream from the Ute Lateral, so the existing check structure will spill over during the irrigation of the 120 acres served by the Ute Lateral. It is not feasible to raise the sidewalls (access roads, location and costs).
- 2) There is loss from excess flow, seepage and evaporation of the water not entering the Ute Lateral and passing downstream (0.7 miles to check structure) and then continuing past the opened drain. The elevation is at the spill level which is the terminus of the Cocopah system and difficult to maintain causing overflows resulting in excess water flow to Mexico.
- 3) If the downstream gate is closed during delivery (high flows) to Ute Lateral, the water would overflow causing flooding and erosion of the canal sidewalls.
- 4) The Cocopah Canal (Ute Lateral Area) is bounded by agricultural fields to the North, but the South (downstream) by the new subdivision, a few scattered homes, two major roads, the Quechan cemetery, and the new Indian Health Services Medical Complex, so the area cannot be flooded.

## **1. Technical Proposal and Evaluation Criteria (Continued)**

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### **1.3 Project Description (continued)**

The “drop leaf” gate and check structure also provides better water management by controlling the actual water height from the top, rather than from the bottom as traditional gates do. Safety is another factor (victims would not get trapped below the water level like traditional gates). Also, while maintaining the desired elevation in the event of uncontrolled releases, the extra flow would pass over the gate and structure.

The expected outcomes of the project are as follows:

- 1) Better Water Management for water delivery and distribution from the Cocopah Canal.
- 2) Reduction in quantity of water loss when water is delivered from the Cocopah Canal to the Ute Canal (Ranging from 100 -250 acre feet/year).
- 3) Accomplish WaterSMART goals of conservation and efficiency.
- 4) Accomplish WaterSMART goal of preventing possible water-related crisis (shortfalls or flooding).
- 5) Improvement to our overall system.

### **1.4 Evaluation Criteria**

#### **A. Planning Efforts Supporting the Project**

This project entitled “New Drop Gate and Check Structure Installation” is part of our overall goals to save water and increase efficiency. Our existing “Reservation Improvement Project Plan” mandates that we periodically assess our water delivery system and identify problems or needs as we continue to mature and adapt to meet changing conditions as well as identifying new technologies and strategies.

Each year, we identify and prioritize our system needs and problems and projects not addressed in the previous year are added. Our criteria include:

- 1) Can the problem or need be remedied with existing resources and funds?
- 2) What benefits will occur from the corrective action taken (water/monetary savings, efficiency, sustainability, annual maintenance, acre foot savings).
- 3) Are additional resources and funds available if the existing funds are not available?

This project has been second on our priority for the last 10 years, but we have not had the funds. Our priority was to line the six miles of the Cocopah Canal, but this was cost prohibitive (50% matching) so we chose this.

**1. Technical Proposal and Evaluation Criteria (Continued)**

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**1.4 Evaluation Criteria (continued)**

**B. Project Benefits**

Improve water delivery system (efficiency, control, flow, less water lost) reducing excess flow to Mexico.

Improve overall reliability (Control overflow/flooding, water flow/quantity).

Positive impact to entire system by reducing significant water loss ranging from 150 to 250 acre ft/yr (Based on type of crop and growth cycle, irrigation distribution method, and frequency and length of water delivery).

Positive impact to the local area (Below Cocopah Canal and Ute Lateral) by reducing the unrestricted discharge downstream, subsequent overflow, seepage and evaporation.

This project demonstrates collaboration between our water district, BOR, the Quechan Indian Tribe, and our agricultural users. It can be used as an example to other water managers reflecting how assessment, planning, usage, need, and corrective measures can be achieved to benefit a district.

**Local or economic positive impacts /benefits:**

Agriculture – economic (less water needed, less restriction on crops types). Reduce O&M cost to BWD so funding can be used for other deteriorating structures and sites.

Environmental – health (less mosquito habitat, less noxious and invasive weeds ,including aquatic safer structure).

Recreation/Tourism – Cocopah Canal transverses reservation provides a jogging, walking, biking trail. It connects three Quechan subdivisions, the elementary, middle and high schools, the Quechan Cemetery, Tribal Store and Barber shop and the new Indian Health Services Medical Center.

Safety – cost or human life or injury by reducing drowning risk (no chance of being trapped under gate because of the design - water flows over the exposed top, not from below like the traditional gate). Less residual flooding from overflow and spillage resulting in unsafe driving conditions and erosion of road and ditch banks.

**C. Project Implementation**

**Project Schedule (Four Months):**

**Award:** December

Pre-Construction: Sub, Equipment and Materials/Supplies May - June

Construction/Installation (Foundation/Gates) July (last 2 weeks)

Completion August (first 2 week)

**Permits:** None

**1. Technical Proposal and Evaluation Criteria (Continued)**

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**1.4 Evaluation Criteria (continued)**

**Engineering or Design Work:** Will be performed by Subcontractor.

**No new policies/administrative actions are required to implement this project.**

**D. Nexus to Reclamation**

This project is connected to the Reclamation activity of improving efficiency and conservation of our water systems and the Indian Unit.

This project will help reduce excess water flows to Mexico.

This project will help Reclamation meet their trust responsibilities to the Quechan Indian Tribe

The Bard Water District receives Reclamation Water via the All-American Canal.

Project on Reclamation lands or facilities: Yes

Project in same basin as Reclamation project or activity: Yes

Project contributes water to a basin where a Reclamation project is located: Yes

## **2. Environmental and Cultural Resources Compliance**

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### **2.1 Impact to Surrounding Environment**

No significant impact, all earth-disturbing work will occur within existing canal and sidewalls.

### **2.2 Threatened or Endangered Species, or Designated Critical Habitat**

This area is greatly disturbed and in constant agricultural use. There are no threatened or endangered species present or critical habitat.

### **2.3 Wetlands or Other Surface Waters (CWA) – Waters of the United States**

There are no wetlands within the project boundary.

### **2.4 Water Deliver System Date of Construction**

The Cocopah Canal was constructed in 1909.

### **2.5 Modifications or Effects to Individual Features of a Delivery System (i.e., head gates, canals, or flumes)**

There will be no effect on the existing delivery system.

### **2.6 Features in the Bard Water District Listed or Eligible for Listed on the National Register of Historic Places**

These include The All- American Canal, USBR Dams, Head Gates, and Retention Areas, Old Southern Pacific Rail Line and Bridges, Fort Yuma, Potholes, Petroglyphs. None will be impacted by this project.

### **2.7 Archaeological Sites in Proposed Project Area**

There are no archaeological sites in the project area.

### **2.8 Disproportionately High or Adverse Effects on Low Income or Minority Populations**

No disproportionally high or adverse effects on low income or minority populations.

### **2.9 16-Limit Access to and Ceremonial Use of Indian Sacred Sites or Impact on Tribal Lands**

Not limit access to and ceremonial use of sacred sites or impact Tribal lands.

### **2.10 Contribution to Introduction, Continued Existence, or Spread of Noxious Weeds or Non-Native Invasive Species**

This project will reduce noxious weeds and non-native invasive species, including aquatic vegetation.

**3. Required Permits or Approvals**

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There are no permits or approval required for this project.

**4. Official Resolution**

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Resolution is attached.

**5. Project Budget**

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**5.1 Funding Plan and Letters of Commitment**

The non-Federal share of this project (50%) will be provided by the following:

50% Bard Water District Indian Unit                      In-kind Contributions: Equipment

This in-kind contribution will be provided by the Bard Water District during new "drop leaf" gate and check structure design, fabrication, and installation. We will utilize our staff and heavy equipment. The unit will be installed by a contractor, but Bard will prepare the site, provide support during installation and construction and remove debris and material at completion.

**Costs incurred before start date:** Final planning (design/fabrication, scheduling/coordination with farmers, acquiring materials/supplies).

**Personnel Costs:**

Bard Staff will be utilized for specific tasks during this four-week project (July-August). This will include Project Management, administration, on-site installation/construction (5 personnel, range of 8 to 24 hrs each). By using our own staff costs will be greatly reduced because less hours will be required, and they will utilize our own equipment as discussed below.

**Non-Federal Entities**

1. Bard Water District Indian Unit	
Equipment – Bard Heavy Equipment, Vehicles	\$ 24,872.50
Contingency (96% of 15% Total)	\$ 8,368.22

**5. Project Budget**

**Funding Plan and Letters of Commitment**

**Non-Federal Entities**

Tasks	Labor	Matls & Supplies	Equipment	Total Direct Costs
Build Drop Leaf Gate			\$6,855.00	\$6,855.00
Build Operating Mechanism			\$4,375.00	\$4,375.00
Build Walk Board & Rails			\$3,732.50	\$3,732.50
Install Drop Leaf Gate			\$4,290.00	\$4,290.00
Install Operating Mechanism			\$2,990.00	\$2,990.00
Install Walk Board and Rails			\$2,630.00	\$2,630.00
Subtotal			\$24,872.50	\$24,872.50
Indirect Costs 40%				
Contingency of 15% Total			\$8,368.22	\$8,368.22
Total				
In-Kind Matching %			100%	100%
Total Matching			\$33,240.72	\$33,240.72

**Other Federal – None**

**Requested Reclamation Funding** **\$33,240.71**

Contractor – Drop Leaf Gate and Check Structure	\$ 7,500.00
Salaries/Fringe – Project Mgr, EQ Operators, Fabricators	\$15,669.60
Materials & Supplies – Concrete and Safety	\$ 3,500.00
Indirect Costs 40%	\$ 6,267.84
Contingency 15% (4% allotted)	\$ 303.27

5. **Project Budget (continued)**

5.2 Budget Proposal

BUDGET ITEM DESCRIPTION	COMPUTATION		Quantity Type	TOTAL COST
	\$/Limit	Quantity		
<b>Salaries and Wages</b>				
Project Manager	\$55.00	128	Hrs	\$7,040.00
Equipment Operator 1	\$30.00	87	Hrs	\$2,610.00
Gate Fabricator	\$28.00	48	Hrs	\$1,344.00
Gate Fabricator Helper	\$18.00	48	Hrs	\$864.00
Administrative Asst.	\$25.00	48	Hrs	\$1,200.00
<b>Total</b>		<b>359</b>		<b>\$13,058.00</b>
<b>Fringe Benefits</b>				
Full-Time Employees		5	20%	\$2,611.60
<b>Total</b>				<b>\$15,669.60</b>
<b>Equipment (Bard Water District)</b>				
Front End Loader CAT 938G	\$150.00	56	Hrs	\$8,400.00
Rubber Tired Excavator CAT M318F	\$155.00	14	Hrs	\$2,170.00
Dump Truck – Kenworth	\$135.00	6	Hrs	\$810.00
Water Truck – GMC	\$85.00	10.5	Hrs	892.50
Service Truck 1 Ton 2000 Ford	\$90.00	98	Hrs	\$8,820.00
Project Manager Truck	\$35.00	108	Hrs	\$3,780.00
<b>Total</b>		<b>292.5</b>		<b>\$24,872.50</b>
<b>Supplies and Materials</b>				
Safety Supplies		1	LS	\$500
Concrete				\$3,000
<b>Contractual/Construction</b>				
Heimbach Construction				\$7,500.00
David Welding				
<b>Other</b>				
<b>Environmental and Regulatory Compliance</b>				
To be taken from contingency				
<b>TOTAL DIRECT COSTS</b>				
<b>Indirect Costs</b>				
Type of Rate	40%	\$ 15,669.60		\$6,287.84
Contingency 15%				\$8,671.49
<b>TOTAL ESTIMATED PROJECT COSTS</b>				<b>\$66,481.43</b>

## 5. Project Budget (continued)

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### 5.3 Budget Narrative

#### Salaries and Wages:

Project Manager: Ron Derma/Manager, 108 Hrs@ \$55/Hr  
Key Personnel: Name/Equipment Operator, 87 Hrs @ \$30/Hr  
Gate Fabricator 48 Hrs@ \$28/Hr  
Gate Fabricator Helper 48 Hrs @ \$18/Hr  
Name/Administrative Asst. 48 Hrs @ \$25/Hr

The Bard Water District certifies that the labor rates included in the budget proposal represent the actual labor rates of the identified personnel.

**Fringe:** 20%, \$ \$2,611.60, Fixed for all work done by Bard Employees.

**Travel:** No Travel Required

**Equipment:** Will use Bard equipment (Bard Schedule)

Front End Loader – site preparation and final cleanup, installation  
Rubber Tired Excavator – site preparation and final cleanup, installation  
Dump Truck – Haul away construction debris and material  
Water Truck – Dust Control  
Service Truck – used in support of Bard Crew on-site  
Project Manager Truck – project management at site

#### Materials and Supplies:

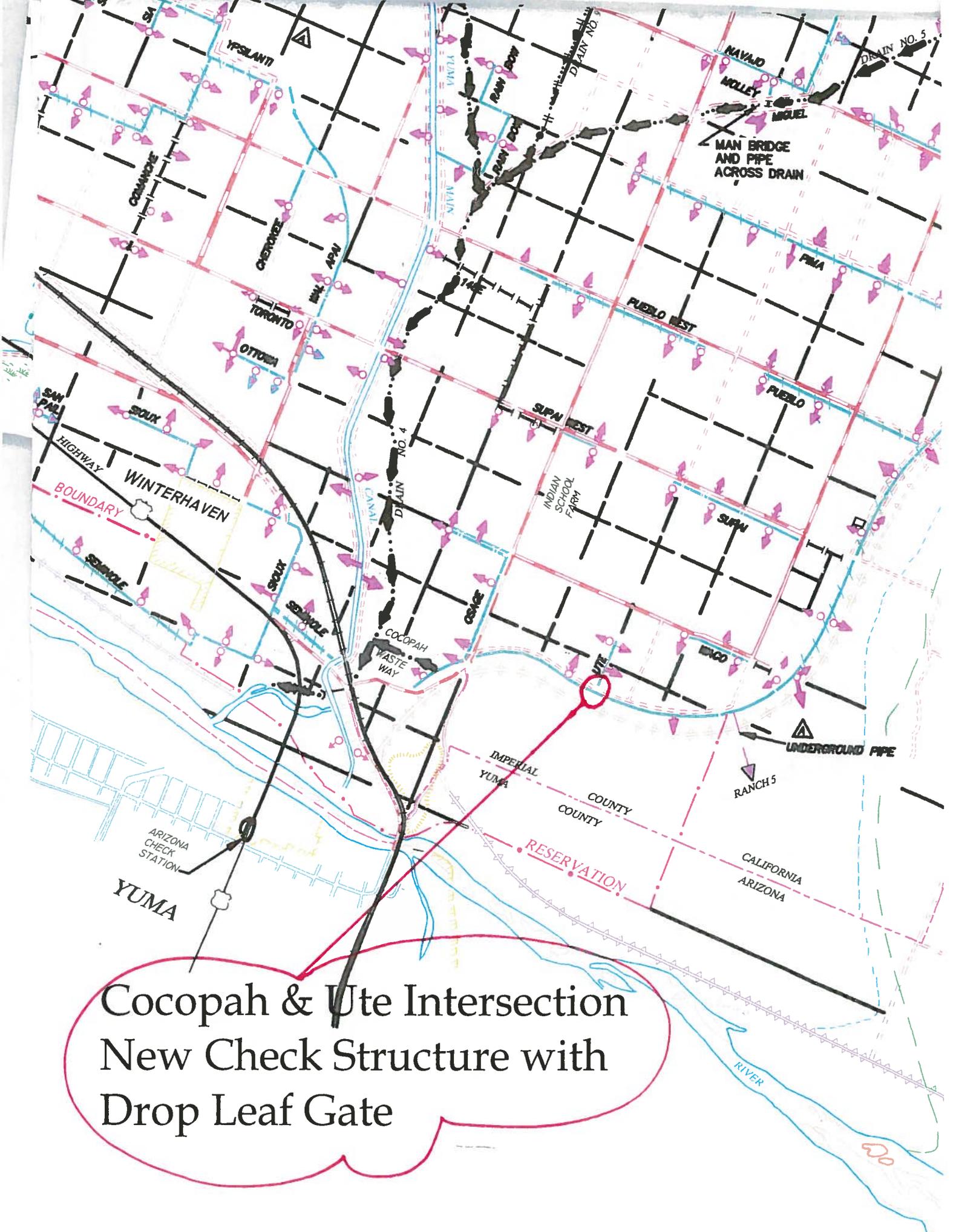
Safety: Barriers, Level D Personal Vests, glasses, hard hats, gloves; Drinking Water  
Concrete 30 cu yds for support structures

#### Contractual:

This work will be performed by Bard Water District Personnel & Equipment and augmented by  
David Welding: Fabricate "Drop Leaf" Gate  
Heimbach Construction: Check Structure

#### Other:

**Environmental Regulatory Compliance Costs:** Earth disturbing activities done in partnership with BOR  
Responses to Environmental Compliance Questions to determine what needed and preparation of  
Environmental compliance documents as required



Cocopah & Ute Intersection  
New Check Structure with  
Drop Leaf Gate

# Cocopah & Ute Intersection - New Check Structure with Drop Leaf Gate

Legend

Ute Check Structure at Cocopah Canal



1000 ft

Google Earth

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