



Colorado River Aqueduct Pumping Plant Improvement Projects

Engineering and Operations Committee

Item 7-2

February 7, 2022

Current Action

- Award three professional services agreements for design to support rehabilitation projects at the Colorado River Aqueduct pumping plants
 - Parsons Transportation Group Inc. to replace utilities at Iron Mountain and Gene pumping plants (Project 1)
 - Jacobs Engineering Group, Inc. to improve physical security at six locations along the CRA (Project 2)
 - Tetra Tech, Inc. to replace the station power and lighting switchrack at Iron Mountain Pumping Plant (Project 3)

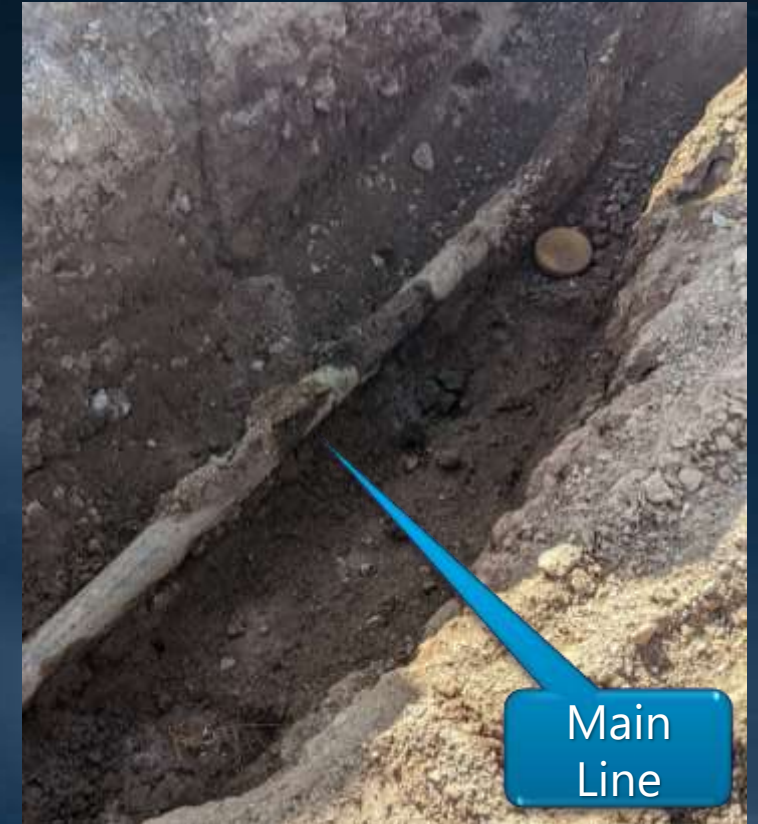
Location Map



1. Utility Replacement – Iron Mountain & Gene Pumping Plants

● Background

- Water distribution and wastewater systems
 - 80+ years old
 - Aged and deteriorated components
 - Recurring leaks & breaks
- Asphalt pavement
 - 30+ years old
 - Cracks, potholes, uneven surfaces
- Closely coordinated with District Housing & Domestic Water Treatment Improvements



Corroded wastewater pipe at
Gene Pumping Plant

1. Utility Replacement – Planned work

- Replace water distribution system lines, & wastewater collection main lines & laterals
- Replace septic tanks & leach fields
- Replace asphalt pavement
- Grading & drainage improvements and site restoration as needed



Deteriorated asphalt pavement
at Gene Pumping Plant

1. New Agreement

Parsons Transportation Group Inc.

- Prequalified under RFQ 1131
- Scope of work
 - Conduct site & utility investigations
 - Perform hydraulic analyses for potable water, non-potable water, and wastewater piping systems & sizing of septic system components
 - Prepare drawings & specs and permitting support
 - Develop constr. cost est. & bid support
- SBE participation level: 19%
- NTE amount: \$2,650,000

1. Metropolitan Scope

- Conduct field & geotechnical investigations
- Prepare environmental documentation
- Conduct constructability workshops
- Coordinate permitting process with local jurisdictions
- Provide technical oversight & review consultant work
- Perform project controls & project management

2. Security Improvements – CRA Pumping Plants

- Background
 - Desert facilities constructed in remote locations over 80 years ago
 - Significant development in the vicinity of pumping plants
 - Staff/consultant study recommends enhancement of physical security to protect critical infrastructure



Typical site:
Eagle Mountain Pumping Plant

2. Security Improvements – Planned work

- Construct permanent guard stations at pump plants entrances
- Upgrade facility signage, access control, and entrance roads
- Upgrade perimeter fencing
- Install cameras, motion detectors, remote speakers, lights and card readers



Existing Guard Shack and Entrance at Gene PP:
Typical of planned improvements

2. New Agreement

Jacobs Engineering Group, Inc.

- Prequalified under RFQ 1131
- Scope of work
 - Conduct site & utility investigations
 - Assess existing security measures
 - Evaluate proposed security improvement options
 - Prepare preliminary design drawings & report
 - Develop a Class 3 construction cost estimate
- SBE participation level: 10%
- NTE amount: \$650,000

2. Metropolitan Scope

- Conduct field & geotechnical investigations
- Perform topographic surveying/mapping
- Prepare environmental documentation
- Conduct value engineering workshop
- Provide technical oversight & review consultant work
- Perform project controls & project management

3. Switchrack Rehabilitation – Iron Mountain Pumping Plant

- Background

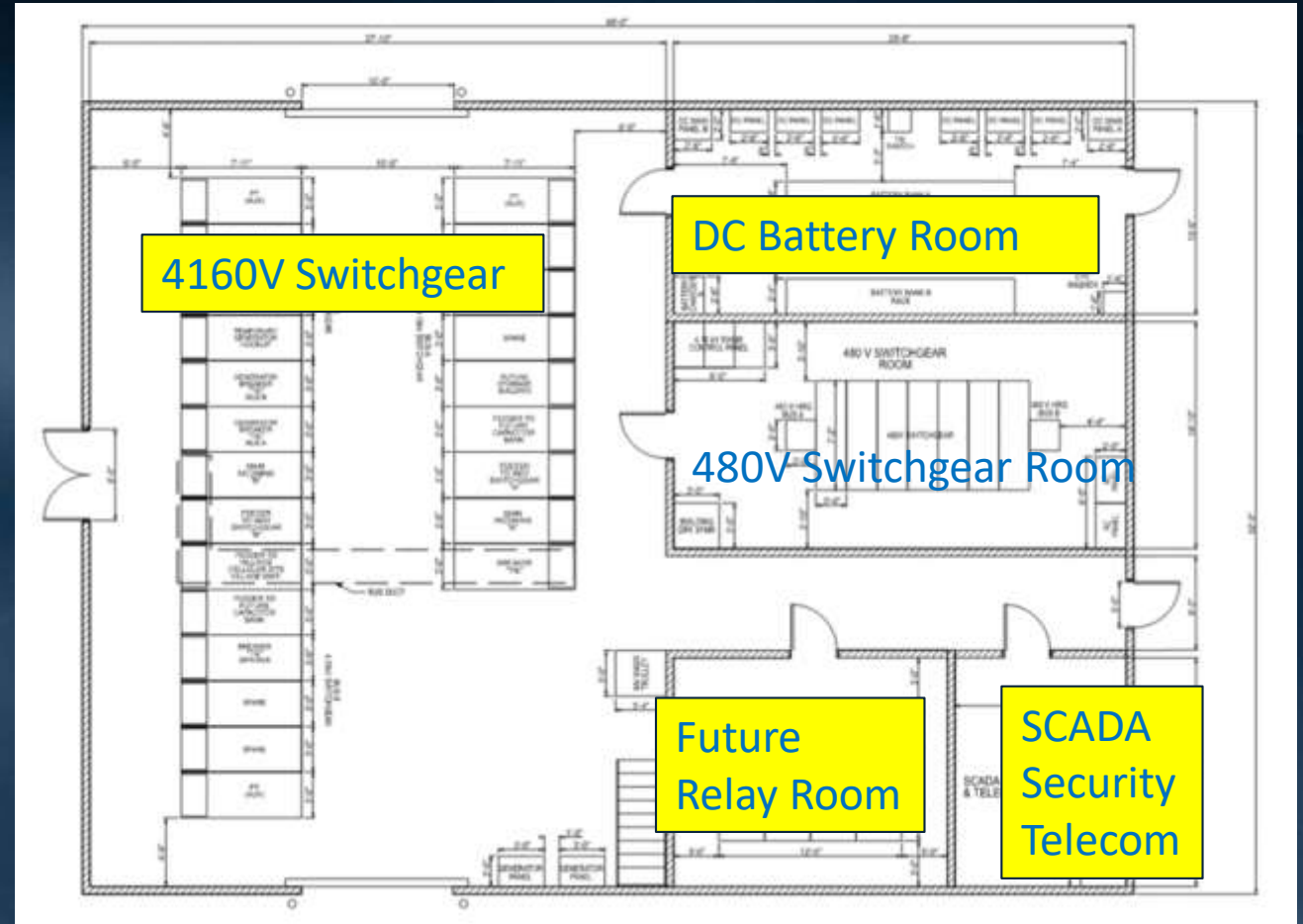
- Station lighting and power switchrack was built in 1939
- Central distribution center for low and medium voltage
- Provides power for critical equipment
- Equipment lacks modern safety features
- Spare parts not available



Existing switchrack at
Iron Mountain Pumping Plant

3. Switchrack Rehabilitation – Planned work

- Site grading & drainage improvements
- Replace station power and lighting switchrack with modern switchgear
- Construct climate-controlled building to house new equipment



Proposed New Iron Mountain
Switchgear Building

3. New Agreement

Tetra Tech, Inc.

- Prequalified under RFQ 1215
- Scope of work
 - Develop design criteria
 - Prepare power load calculations
 - Develop interconnection to existing system
 - Prepare equipment layouts
 - Identify outage requirements
 - Plan construction sequencing
- SBE participation level: 15%
- NTE amount: \$650,000

3. Metropolitan Scope

- Conduct field & geotechnical investigations
- Integrate project with other electrical projects
 - Standby generator replacement
 - Auxiliary power upgrades
- Perform topographical surveying/mapping
- Prepare environmental documentation
- Conduct value engineering workshop
- Provide technical oversight & review consultant work
- Perform project controls & project management

Alternatives Considered

- Assess Metropolitan staff availability
 - Staff workloads exceed immediate available resources
 - Specialized technical expertise required
- Selected option
 - Professional services agreement for the subject projects
 - Consultant and staff work as a hybrid team

Allocated Funds

	1. Utility Replacement	2. Security Improvements	3. Switchrack Rehabilitation
Metropolitan Labor			
Preliminary Investigations	\$ 150,000	\$ 196,000	\$ 354,000
Final Design	458,000		
Owner Costs	362,000	224,000	307,000
Professional/Technical Services			
Parsons Transportation Group Inc.	2,650,000		
Jacobs Engineering Group, Inc.		650,000	
Tetra Tech, Inc.			650,000
Specialized Geotechnical Services	100,000	40,000	50,000
Specialized Environmental Services	25,000	100,000	10,000
VE Consultant	70,000	60,000	65,000
Incidental Expenses	10,000	7,000	10,000
Remaining Budget	275,000	153,000	154,000
	Total	\$4,100,000	\$1,430,000
			\$1,600,000

Total amount: \$7,130,000

Project Schedules



Board Options

- Option#1

- a. Authorize an agreement with Parsons Transportation Group Inc. for a not-to-exceed amount of \$2,650,000 for design to replace the utilities at Iron Mountain and Gene pumping plants.
- b. Authorize an agreement with Jacobs Engineering Group Inc. for a not-to-exceed amount of \$650,000 for preliminary design to improve physical security at the CRA pumping plants.
- c. Authorize an agreement with Tetra Tech, Inc. in an amount not to exceed \$650,000 for preliminary design to rehabilitate the station power and lighting switchrack at the Iron Mountain pumping plant.

Board Options

● Option#2

- a. Authorize an agreement with Parsons Transportation Group Inc. for a not-to-exceed amount of \$2,650,000 for design to replace the utilities at Iron Mountain and Gene pumping plants;
- b. Do not authorize an agreement with Jacobs Engineering Group Inc. for a not-to-exceed amount of \$650,000 for preliminary design to improve physical security at the CRA pumping plants; and
- c. Do not authorize an agreement with Tetra Tech, Inc. in an amount not to exceed \$650,000 for preliminary design to rehabilitate the station power and lighting switchrack at the Iron Mountain pumping plant.

Board Options

- Option#3
 - Do not proceed with the projects at this time.

Staff Recommendation

- Option #1

