

November 29, 2023

Castulo Estrada
Utilities Manager
City of Coachella
87075 Avenue 54
Coachella, California 92236

Subject: Proposal for Coachella Sanitary District Headworks Screenings Improvements Project

Dear Mr. Estrada,

Dudek is pleased to submit this proposal to the City of Coachella (City) for design of headworks screenings improvements. Dudek is familiar with the headworks facility having completed the original design in 2004. We understand the headworks facility to be a concrete structure with capability to distribute influent sewage to the different process trains at the Coachella Treatment Plant. The headworks facility includes three incline 58-inch Archimedean screw pumps, powered by 75 horsepower motors. The headworks lift station handles a flow range between 0.3 - 14 MGD, lifting influent flows 40 feet to flow distribution channel, feeding into 3 screening channels. The northernmost channel includes a WesTech CleanFlow Monoscreen (model RSM20-140-6) with washer compactor, the center channel is an auxiliary channel which is currently not in use, and the southernmost channel is a bypass channel with a bar rack (**Figure 1**). All channels have slots for stop gates on both upstream and downstream ends of the channel to allow for isolation.

The City previously worked with Misco to obtain a proposal to install a like-kind and sole source redundant bar screen at the headworks facility. The proposal was a turnkey project including a bar screen with control panel, level transducers, screenings washer compactor and conveyor and control panel, integration into the existing SCADA system, professional installation and facility trained technician start-up and training. The proposal came in at over eight-hundred and fifty thousand dollars (\$850,000), which is of a size and complexity that the City would typically require an engineered design and contractor bid package. In addition to what was initially proposed by Misco, there may be additional scope to consider, including:

- **WesTech discontinued new sales in most of their headworks equipment line, 2021.** WesTech announced that they will no longer produce municipal headworks equipment. The license for the CleanFlow Monoscreen has been transferred to Nordic Water. The Nordic Water CleanFlow Monoscreen model RSM20-140-5 is identical to the existing WesTech CleanFlow Monoscreen that is currently existing at the headworks facility.
- **Washer Compactor Drain Line.** The drain on the washer compactor can be routed to the influent channel via a 3" drain pipe, mounted to the north-wall of the headworks facility.
- **Process Water Connection.** The washer compactor requires a connection to process water. There is an existing 2" 2W pipe on the north-side of the facility that can be connected to and routed to the washer compactor.
- **Power and Control Conduits.** Additional conduits are required to provide power and control wiring to the washer compactor.

Dudek understands that the District is looking for a simple and efficient screening system design. Project funding must be allocated by year-end 2024, with the goal to have the design completed by mid-2024 and award the project to a contractor in the third quarter of 2024. Our team has recently performed design services for other

similar headworks system projects. Our proposed project approach is borne of these experiences and the lessons learned with other clients.

Project goals include the following:

- **Installation of a New Mechanical Bar Screen.** Nordic Water CleanFlow Monoscreen (Model RSM20-140-5) installed in the auxiliary channel with new level transducers.
- **Consolidation of Controls into Single Control Panel.** A new control panel for existing and proposed mechanical bar screens installed on the control panel shade structure.
- **Demolition of the Existing Washer Compactor.** The existing bar screen is paired with a washer compactor that must be demolished and removed prior to installation of the screenings conveyor.
- **Installation of a New Screenings Conveyor.** The new screenings conveyor (JWC Environmental - IPEC ULB 9264) receives screenings from both existing and proposed bar screens. The conveyor moves screenings via an 8.5” diameter, 264” long spiral assembly with a 3” drain that routes excess fluid back to the screenings channels. The conveyor deposits screenings into the proposed washer compactor via the existing vertical pipe on the north side of the facility.
- **Installation of a New Washer Compactor.** A new washer compactor (Monster Wash Press - MWP0018 SS), installed on-grade, on the north-side of the headworks facility. A 4” drain conveys drain water back to the inlet channel. Process water supply to the washer compactor is provided from the existing 2” 2W pipe on the north-side of the headworks facility. Washer Compactor controls via new NEMA 4X 304 Stainless Steel control panel (PC2361), located nearby to the washer compactor.

Figure 1. Existing Headworks Platform



Project Approach

Our approach to this project will focus on speed and efficiency. Coachella is eager to implement this project, allocate grant funds, and install important redundancy in the headworks for process reliability. The project schedule can be compressed by working closely with the equipment vendors and their representatives who have already put together equipment packages and quotes for the expected improvements. Our approach will be to use the vendor-developed improvements as a baseline starting point, vet the proposed improvements for issues or fatal flaws, and then proceed to final design.

We will streamline project delivery by consolidating the kick-off meeting with the initial site visit. The goal of the initial site visit is to confirm the following key design parameters:

- Proposed equipment locations
- Measurements of existing control panel shade structure
- Points of connection for drain and process water
- Existing plant electrical system capacity for new equipment
- I/O connection into existing plant PLC for new control panels
- Field verification of existing bar screen for connections into the new bar screen control panel
- Availability and routing of spare conduits

The site visit provides an opportunity to discuss project constraints and assumptions with Coachella staff, confirming design expectations. The coordination with staff focuses on considerations for maintenance within the existing layout, strategies for construction phasing and bypassing, outage times for the installation of the new screen, and discussions about operational needs for the new mechanical bar screen.

After the site visit, our team reviews the collected data, photographs, and field measurements which serve as the basis for subsequent design decisions. The design phase incorporates collaboration with Misco to confirm equipment selection and sizing. We then develop 50% specifications, drawings, and cost estimate for staff to review. Following the 50% design submittal and City review, we facilitate an in-person 50% design review meeting to go over the design and comments in detail and confirm changes to be incorporated into the final design package.

Following the 50% design review meeting, Dudek refines the specifications, drawings, and cost estimate to address comments and prepare 100% specifications, drawings, and cost estimate. During the design phase, monthly virtual progress meetings are held to update the City on design progress, review the schedule, and discuss outstanding action/decision and information items.

Scope of Work

Task 1: Project Management and Meetings

- Preparation of monthly invoices and progress reports.
- Monthly budget and schedule tracking.
- Regular communication between the Dudek project manager, City, and project team.
- Facilitate quality control reviews of deliverables.
- Meetings:
 - Kickoff Meeting: In-Person kickoff meeting including key members of the Dudek project team and appropriate City engineering, management, and operations staff. Dudek prepares an agenda and minutes for the meeting.
 - 50% Design Review Meeting: In-Person meeting including key members of the Dudek project team and appropriate City engineering, management, and operations staff. Dudek prepares an agenda and minutes for the meeting.
 - 100% Design Review Meeting: Zoom/Teams meeting including key members of the Dudek project team and appropriate City engineering, management, and operations staff. Dudek prepares an agenda and minutes for the meeting.
 - Monthly progress meetings: Zoom/Teams meetings monthly to review work progress, outstanding action items, and discuss budget and schedule status, as appropriate.

Task 2: Data Request and Review

- One, four-hour site investigation to photograph existing conditions and take measurements, and walk the site with City staff to confirm proposed equipment locations, locating points of connection for drains and process water, investigate a connection point to existing plant electrical system and its available capacity for new equipment, investigate ethernet and/or I/O connection into existing plant PLC for new control panels, field verify the existing bar screen for connections into the new bar screen control panel, and investigation of spare conduits and potential new conduit routing.
- Review and verify as-built drawings and key project constraints.
- Coordination with Misco to confirm the cost, delivery forecast, and installation requirements.

Task 3: Design Phase

- Prepare 50% design package including 50% progress drawings for general, demo, mechanical, electrical, and instrumentation drawings. Provide updated cost estimate based on vendor quotes.
- Prepare 100% design package including complete construction drawings, technical specifications, and cost estimates.
- Prepare final design package with signed and stamped specifications and drawings incorporating minor City comments and/or editorial fixes. See Table 1 for anticipated drawing list:

Table 1. Anticipated Drawing List

No.	Sheet No.	Sheet Name
1	G-1	Title Sheet, Vicinity Map
2	G-2	General Notes and Drawing Index
3	G-3	Symbols, Abbreviations, and Schedules
4	G-4	Overall Site Plan and Contractor Staging Area
5	D-1	Headworks Demolition Plan
6	M-1	Mechanical General Notes, Symbols, and Schedules
7	M-2	Headworks Mechanical Plan
8	M-3	Headworks Mechanical Sections
9	M-4	Washer Compactor Mechanical Sections
10	E-1	Legend and Notes
11	E-2	Single Line Diagram
12	E-3	Headworks Electrical Demolition Plan
13	E-4	Headworks Screening Area Electrical and Controls Plan
14	E-5	Headworks Compactor Electrical and Controls Plan
15	E-6	Power and Control Conduit Block Diagram
16	I-1	Instrumentation legends and symbols
17	I-2	Process and Instrumentation Diagram (P&ID)
18	I-3	Communication Architecture Drawing

Project Team

Dudek proposes the following team for the proposed project. Resumes for all proposed staff are available upon request.

- Project Manager: Phil Giori, PE
- Senior Electrical Engineer: Joe Schneider, PE
- Senior Mechanical Engineer: Sam Hawkinson, EIT
- Project Engineer: Agata Bugala, EIT
- QA/QC: Brian Robertson, PE

Schedule

Dudek proposes a draft project schedule with kickoff in January 2024 and completion in June 2024. See attached GANNT schedule for detailed schedule broken out by task.

Fee

Dudek estimates a fee of \$144,825 for the above proposed scope of work. Detailed fee estimate breakdown by task, staff, and hours is shown in the table below.

Dudek Labor Hours and Rates												
		Senior										
Project Team Role:		QA/QC	Project Manager	Senior Engineer	Electrical Engineer	Project Engineer	CAD Designer	Admin				
Team Member:		BR	PG	SH	JS	AB	NH	MK	TOTAL DUDEK	DUDEK LABOR	OTHER DIRECT	TOTAL FEE
Billable Rate :		\$250	\$255	\$240	\$280	\$200	\$195	\$150	HOURS	COSTS	COSTS	TOTAL FEE
Task 1	Project Management and Meetings											
1.1	Project Management and Invoicing		8					8	16	\$ 3,240		\$ 3,240
1.2	Kickoff Meeting (In-Person)		8	8	8	8	8		40	\$ 9,360	\$ 1,300	\$ 10,660
1.3	50% Submittal Review Meeting (In-Person)		8	8		8			24	\$ 5,560	\$ 900	\$ 6,460
1.4	100% Submittal Review Meeting (Virtual)		2	1	1	1			5	\$ 1,230		\$ 1,230
1.5	Monthly Progress Meetings (Virtual)		4	4	4	4			16	\$ 3,900		\$ 3,900
	Subtotal Task 1		30	21	13	21	8	8	101	\$ 23,290	\$ 2,200	\$ 25,490
Task 2	Data Request and Review											
2.1	Data Request and Review			8	8	4	4		24	\$ 5,740		\$ 5,740
	Subtotal Task 2			8	8	4	4		24	\$ 5,740	\$ -	\$ 5,740
Task 3	Plans and Specifications											
3.1	50% Design Package	3	4	24	35	30	140		236	\$ 50,630		\$ 50,630
3.2	100% Design Package	3	4	16	20	20	135		198	\$ 41,535		\$ 41,535
3.3	Prepare Project Specifications	4	2	16	16	24		4	66	\$ 15,230		\$ 15,230
3.4	Prepare Cost Estimate	1	1	2	4	8			16	\$ 3,705		\$ 3,705
3.5	Final PS&E and Comment Log		1	2	2	6			11	\$ 2,495		\$ 2,495
	Subtotal Task 3	11	12	60	77	88	275	4	527	\$ 113,595	\$ -	\$ 113,595
Total Hours and Fee		11	42	89	98	113	287	12	652	\$ 142,625	\$ 2,200	\$ 144,825

Closing

We appreciate the Coachella Sanitary District's consideration of the above proposal. Should you have any questions please reach out to Phil Giori at 760.479.4173 or pgiori@dudek.com. We look forward to continuing our work with the District.

Sincerely,

Phil Giori, P.E.
Project Manager
Dudek

ID	Task Name	Duration	Start	Finish	Nov	Dec	Qtr 1, 2024			Qtr 2, 2024			Qtr 3, 2024
							Jan	Feb	Mar	Apr	May	Jun	Jul
1	Task 1 Project Management and Meetings	105 days	Tue 1/9/24	Mon 6/3/24			[Task 1 Summary Bar]						
2	Kick-Off Meeting (In-Person)	0 days	Tue 1/9/24	Tue 1/9/24			1/9						
3	Submittal Review Meetings	41 days	Fri 4/5/24	Mon 6/3/24						[Submittal Review Meetings Summary Bar]			
4	50% Design Review Meeting (In-Person)	0 days	Fri 4/5/24	Fri 4/5/24						4/5			
5	100% Design Review Meeting (Virtual)	0 days	Mon 6/3/24	Mon 6/3/24								6/3	
6	Task 2 Data Request and Review	22 days	Tue 1/9/24	Wed 2/7/24			[Task 2 Summary Bar]						
7	Records Review	7 days	Tue 1/9/24	Wed 1/17/24									
8	Confirmation of Equipment	7 days	Thu 1/18/24	Fri 1/26/24									
9	Coordination with Equipment Vendor	15 days	Thu 1/18/24	Wed 2/7/24									
10	Task 3 Plans and Specifications	100 days	Thu 2/8/24	Wed 6/26/24			[Task 3 Summary Bar]						
11	Task 3a 50% Submittal	37 days	Thu 2/8/24	Fri 3/29/24			[Task 3a Summary Bar]						
12	Drawings, Specs, Cost Estimate, Calculations, Schedule	30 days	Thu 2/8/24	Wed 3/20/24									
13	District Review	7 days	Thu 3/21/24	Fri 3/29/24									
14	Task 3b 100% Submittal	37 days	Tue 4/9/24	Wed 5/29/24			[Task 3b Summary Bar]						
15	Drawings, Specs, Cost Estimate, Calculations, Schedule	30 days	Tue 4/9/24	Mon 5/20/24									
16	District Review	7 days	Tue 5/21/24	Wed 5/29/24									
17	Task 3c Final Submittal	16 days	Wed 6/5/24	Wed 6/26/24			[Task 3c Summary Bar]						
18	Drawings, Specs, Cost Estimate, Calculations, Schedule	16 days	Wed 6/5/24	Wed 6/26/24									