

TO: City Council
FROM: Doug Monn, Public Works Director
SUBJECT: Preliminary Design of Recycled Water Production Facilities
DATE: April 15, 2014

NEEDS: For the City Council to consider amending a contract with Black & Veatch to provide preliminary design services for recycled water production facilities.

FACTS:

1. In 2008, after a comprehensive selection process, the City awarded a contract to the engineering firm Black & Veatch to plan and design a major upgrade of City's wastewater treatment plant (WWTP) at 3200 Sulphur Springs Road. In 2012, the City amended its contract with Black & Veatch to provide engineering services during construction.
2. The WWTP Upgrade is presently under construction and will likely be completed for \$2 million less than originally budgeted.
3. The City has a draft master plan to produce recycled water at the WWTP for use in east Paso Robles, to offset pumping from the Paso Robles Groundwater Basin.
4. The WWTP Upgrade is designed to facilitate future production of up to 4.9 million gallons per day (MGD) recycled water. Additional facilities such as a filtration process and disinfection system must be built to produce recycled water that meets California Department of Public Health requirements.
5. Due to the ongoing drought, the State Legislature is considering placing a multi-billion dollar water bond measure on the November 2014 ballot. The bond measure would allocate several hundred million dollars to grants and/or very low (0%) interest loans for recycled water projects.
6. City staff requested a fee proposal from Black & Veatch for preliminary design of recycled water production facilities. A preliminary design would:
 - Prepare the City to compete for possible grant funding;
 - Better define total project costs for financial planning purposes;
 - Position the City to move forward with construction of the facilities if demand for recycled water moves faster than anticipated.
7. Black & Veatch's detailed scope of work and fee are attached. Tasks include preliminary engineering, two design changes to the ongoing WWTP Upgrade to better facilitate recycled water production, a design report that may be used to pursue low interest loans and grants, an estimate of construction costs, and assistance with pursuing grant funding. The fee is \$794,792. This fee covers

some additional services requested by the City during bidding and construction of the WWTP Upgrade.

**ANALYSIS &
CONCLUSION:**

Black & Veatch has demonstrated good performance, time management, and cost control during all phases of the WWTP Upgrade.

Black & Veatch is well qualified to design recycled water production facilities. Black & Veatch is already very familiar with the WWTP, thus can design recycled water production facilities more efficiently than other engineering firms.

If demand for recycled water is such that recycled water production facilities will not be built for many years to come, the preliminary design would remain relevant, and could be used to develop construction documents in the future.

Note: the proposed expenditure is for preliminary design of recycled water production (treatment) facilities only. The piping network and pumping systems needed to deliver recycled water to various users will be developed as a separate project, when the various users of recycled water are established.

POLICY

REFERENCE: Integrated Water Resources Plan, Recycled Water Master Plan

FISCAL

IMPACT: The proposed expenditure of \$794,762 will not have an adverse impact on the Sewer Fund. The WWTP Upgrade project is likely going to be completed for \$48 million, which is \$2 million less than the City originally budgeted for the project. Sewer Fund reserves are currently greater than projected by the 2011 sewer rate study. Due to lower than expected interest rates on the State Revolving Fund loan, annual debt payments for the WWTP Upgrade will be much less than anticipated, so Sewer Fund reserves are projected to remain healthy (see February 2014 Financial Forecast). If the City finances construction of the recycled water facilities through another SRF loan, these design costs may be incorporated into the loan.

OPTIONS:

- a. Adopt Resolution No. 14-XX, to amend an existing contract with Black & Veatch for preliminary design of recycled water production facilities for an amount not to exceed \$794,762 and establish a new capital improvement budget number for recycled water production facilities.
- b. Amend, modify or reject the above option.

ATTACHMENTS:

1. Black & Veatch's scope of work and fee
2. Resolution No. 14-xxx

Report prepared by Matt Thompson, Wastewater Division Manager



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March 7, 2014

City of Paso Robles
 WWTP Upgrade

B&V Project 904015.0003

To: Mr. Matt Thompson, P.E.
 Wastewater Division Manager
 City of Paso Robles
 100 Spring Street
 Paso Robles, CA 93446

Subject: Proposal for the Paso Robles WWTP Recycled Water Production Preliminary Design

Dear Matt:

In response to your request, we are submitting a scope and fee proposal for preparing a preliminary design for the recycled water production facilities planned for at the City's existing WWTP. This proposal reflects our understanding of the project based on several discussions with you during the scope preparation.

1. SCOPE OF WORK – RECYCLED WATER PRODUCTION FACILITIES PRELIMINARY DESIGN

A detailed scope of work is included as an attachment (Attachment A) to this letter. The new recycled water production facilities will be designed to treat the secondary effluent from the secondary clarifiers (downstream of the BNR basins) to produce a Title 22 compliant effluent. For the purposes of developing the scope of work, the new Recycled Water Production Facilities are assumed to consist of the following components:

- The new facilities will be master planned to accommodate, the initial, intermediate, and ultimate operational scenarios outlined in the RFP. The facilities will be sized to handle the current WWTP avg. flow capacity of 4.9 mgd.
- Modifications to existing flow control structure downstream of the secondary clarifiers to achieve flow control to the tertiary facilities
- Equalization (EQ) of secondary clarifier effluent.
- New membrane Feed Pump Station, assuming a low pressure, pressurized membrane system similar to the Pall Microfiltration System at City's water treatment plant.
- New Low Pressure Membrane Filtration System, approved by CDPH.
- New Disinfection Facilities
- Convert the existing earthen pond No. 2 to the reclaimed water storage.
- New Reclaimed Water Pump Station with approximately 3,400 gpm (4.9 mgd) capacity to deliver recycled water to use areas.

Mr. Matt Thompson

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A summary of tasks and deliverables is included below in Table 1.

Table 1 – Summary of Tasks and Deliverables

PROJECT ADMINISTRATION	DELIVERABLES
Task 1 – Project Management	<ul style="list-style-type: none"> - Meeting agenda and minutes - Monthly progress report - Project schedule update
PRELIMINARY ENGINEERING	DELIVERABLES
Task 2 – Preliminary Engineering	<ul style="list-style-type: none"> - Draft and Final Technical Memoranda - Internal QA/QC review
Task 3 – Contract Design Changes	<ul style="list-style-type: none"> - Two contract design changes for ongoing construction
Task 4 – Recycled Water Production Facilities Preliminary Design Report	<ul style="list-style-type: none"> - Draft and Final Report - Draft and Final Preliminary Drawings - Internal QA/QC review
Task 5 – Preliminary Opinion of Probable Construction Cost (OPCC) and O&M Costs	<ul style="list-style-type: none"> - Preliminary OPCC and O&M Costs in Report
Task 6 – Grant Support	<ul style="list-style-type: none"> - Grant Supporting Documentation

2. ESTIMATED FEE – PRELIMINARY DESIGN OF RECYCLED WATER PRODUCTION FACILITIES

A summary of estimated fee for the tasks presented in the Scope of Work is presented in Table 2 below. A detailed breakdown of the hours and expenses is included in the Attachment A.

Mr. Matt Thompson

Table 2 – Summary of Estimated Fee

TASKS	ESTIMATED FEE
PROJECT ADMINISTRATION	
Task 1 – Project Management	\$88,758
PRELIMINARY ENGINEERING	
Task 2 – Preliminary Engineering	\$124,126
Task 3 – Contract Design Changes	\$40,236
Task 4 – Recycled Water Production Facilities Preliminary Design Report	\$252,166
Task 5 – Preliminary Opinion of Probable Construction Cost (OPCC) and O&M Costs	\$31,476
Task 6 – Grant Support	\$20,000
TOTAL ESTIMATED FEE	\$556,762

3. WWTP UPGRADES PROJECT AMENDMENT REQUEST

City’s existing WWTP is currently undergoing improvements and process upgrades to meet the new effluent regulations that will be imposed by the Regional Water Quality Control Board in the near future. The project design was completed by B&V in April 2011 and the project was put on hold till July 2012. In July 2012, the City issued an amendment to B&V’s existing design services contract for B&V to perform the design refinements, bid phase services, and engineering services during construction, start-up, and commissioning.

The design refinements and bid phase services are complete and B&V has been providing engineering services during construction since the construction began in April 2014. Under the current amendment, B&V has performed additional work activities that are not included in the amendment scope of work. A brief description of these additional activities is presented as an attachment to this letter (Attachment B). Table 3 below presents the effort spent on these activities.

Mr. Matt Thompson

Table 3 – Summary of Additional Costs

ACTIVITIES	HOURS	COST
Design Refinements Phase		
1. Revise Front End Documents.	130	\$24,900
2. Additional Refinements to Bid Documents.	170	\$30,900
3. Investigate 2G Cynergy Cogeneration and Standby Generator Systems for incorporation in the specifications.	88	\$17,500
4. New Junction Box Design.	144	\$18,150
5. New Chlorine Analyzer Control System Design.	44	\$7,650
Bid Phase		
6. Preparation of Addenda and Responses to Questions from Bidders.	137	\$28,700
Engineering Services During Construction		
7. Redesign of Cogeneration System.	650	\$80,250
8. Blower Layout Changes.	186	\$20,350
9. Standby Generator Load Verification.	65	\$9,600
TOTAL ADDITIONAL BUDGET REQUESTED	1,614	\$238,000

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SUMMARY

Table 4 below summarizes the fees presented above:

Table 4. Summary of Proposed Fee

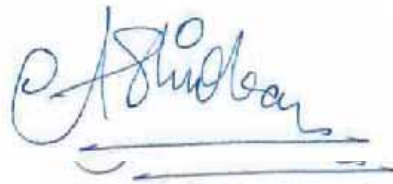
	Proposed Fee
Proposal for Preliminary Design of Recycled Water Production Facilities	\$ 556,762
Additional Budget Request for Ongoing WWTP Upgrade Project	\$ 238,000
TOTAL AMENDMENT REQUEST	\$794,762

B&V requests that the current contract amount be increased by \$794,762 to cover the scope of work presented above. We are available to meet with you to discuss this request at your convenience.

Please contact us if you have questions or require additional information.

Very truly yours,

BLACK & VEATCH



Ashu Shirolkar, P.E.
Project Manager

Cc: Steve Foellmi, B&V
Feng-Ying Chang, B&V
B&V File

Enclosure[s]



ATTACHMENT A – SCOPE OF WORK AND FEE ESTIMATE



SCOPE OF WORK

Background

See attached RFP from the City of Paso Robles. The City has requested a fee proposal from B&V to perform the preliminary design of the recycled water production facilities at the City's existing Wastewater Treatment Plant (WWTP).

Existing WWTP Upgrades

The WWTP is currently undergoing treatment process improvements under which new BNR basins are being constructed to replace the existing trickling filters.

Proposed Recycled Water Production Facilities Project Description

The new recycled water production facilities will be designed to treat the secondary effluent from the secondary clarifiers (downstream of the BNR basins) to produce a Title 22 compliant effluent. For the purposes of developing the scope of work, the new Recycled Water Production Facilities are assumed to consist of the following components:

- The new facilities will be master planned to accommodate, the initial, intermediate, and ultimate operational scenarios outlined in the RFP. The facilities will be sized to handle the current WWTP avg. flow capacity of 4.9 mgd.
- Modifications to existing flow control structure downstream of the secondary clarifiers to achieve flow control to the tertiary facilities
- Equalization (EQ) of secondary clarifier effluent. This may include either providing new EQ basin or converting the existing Secondary Clarifiers to reuse as the EQ basin.
- New Membrane Feed Pump Station (Assuming a pressurized membrane system (similar to the Pall Microfiltration System at City's water treatment plant). It is assumed that the new membrane feed pump station will be located outdoors on a concrete slab on grade or on top of a wetwell. Pumps will be provided with the VFDs.
- New Low Pressure Membrane Filtration System (pressure and submerged PVDF membrane systems), approved by CDPH.
- It is assumed that a high pressure (RO) membrane filtration system is not needed at this time. The need to master plan space for a high pressure RO filtration system will be reviewed at the beginning of this project.
- Automatic backwash strainers will be provided upstream of the membranes.
- New Disinfection Facilities (The existing CCB should be kept for the disinfection of secondary effluent for river discharge, since only a small portion of the secondary effluent flow will be diverted to the Recycled Water Production facilities at least under in the initial scenario.) The new disinfection facilities will be sized to achieve disinfection to comply with



- Title 22 recycled water requirements. Sodium hypochlorite will be used for disinfection to match the current disinfection method.
- Convert the existing earthen pond No. 2 to the reclaimed water storage.
 - New Reclaimed Water Pump Station with approximately 3,400 gpm (4.9 mgd) capacity to deliver recycled water to use areas. This pump station will be located outdoors on top of a stilling wetwell located inside the reclaimed water storage pond. Pumps will be provided with VFDs.
 - Filtrate from the membrane filtration system will be use to backwash the membranes. Backwash supply pumps will be used for backwashing the membranes. Pumps will be provided with VFDs.
 - Spent backwash will be returned to the primary effluent pump station wetwell.
 - The membrane filtration system will be located inside a new pre-engineered metal building with slab on grade foundation. Membrane Building will have a wall finish similar to the adjacent facilities (e.g. Cogen Building). It is assumed that a building permit will be needed to construct the membrane building.
 - Chemical feed systems will consist of the following:
 - o Sodium hypochlorite and acid system required for Clean-in-Place (CIP) for membranes
 - o Sodium bisulfite and sodium hydroxide systems required for neutralization.
 - o New PACL system for filtration facility
 - o The existing chemical feed systems will be reviewed to see if spare capacity is available. Alternatively, new facilities will be required.
 - o CIP and neutralization chemicals will be located outside/inside the membrane building. Day tanks/totes will be provided with pre-assembled pump skids.
 - Electrical
 - o The existing service at the WWTP site will be reviewed to determine if it could support the new facilities. Improvements to existing service and electrical equipment will be recommended and reflected on the preliminary drawings
 - I&C System
 - o The Title 22 reliability requirements will be reviewed and SCADA and I&C system related improvements will be identified.
 - o Recommendations will be reviewed with the existing systems to ensure consistency and compatibility.
 - All drawings will be completed using AutoCAD latest version. The drawings will be prepared on 22x34-inch sheets and in accordance with B&V standards.

The following paragraphs present the tasks involved and the anticipated deliverables:



PROJECT ADMINISTRATION

Task 1 – Project Management

PRELIMINARY ENGINEERING

Task 2 – Preliminary Engineering

Task 3 – Contract Design Changes

Task 4 – Recycled Water Production Facilities Plan Report

Task 5 – Preliminary Opinion of Probable Construction and Operations and Maintenance (O&M) Costs

Task 6 – Grant Support

Task 1 Project Management

Task 1.1 Project Kickoff Meeting. A project kickoff meeting will be conducted at City offices or at the plant site. The kickoff meeting will be attended by B&V Project Manager, Design Lead, and Project Director. 8 hours are budgeted for the kickoff meeting.

Deliverable: Meeting Agenda and Minutes (PDF)

Task 1.2 Progress Meetings. Consultant will attend progress meetings at City offices. An agenda and meeting minutes will be prepared and distributed to all attendees for each meeting. B&V Project Manager, Design Lead, and Project Director will attend the meetings. 8 hours are budgeted for each progress meeting. The following meetings are anticipated:

- TM Review Meetings (3)
- Draft Facilities Plan Progress Review Meeting (3). These meetings will include review of the layouts and information prepared as part of the facilities plan. These meetings will be conducted at City’s offices and via online meeting for remote participants. BV will submit concept drawings prior to these meetings for City review.

Deliverable: Meeting Agenda and Minutes (PDF)

Task 1.3 Project Administration. Project Administration will include the following activities;

- **Invoicing and Progress Report.** Monthly progress reports summarizing the status of the work will be prepared. Progress reports will include (1) a brief summary of each task that is completed, in-progress, or pending during the reporting period, (2) explanation of significant deviations from the approved scope or schedule, (3) progress relative to schedule and corrective action (if necessary) to be taken by Consultant and/or City, and (4) summary of activities planned for the next reporting period. The monthly progress report will be submitted with the monthly invoices. Each invoice and associated progress report shall be submitted as a combined PDF via email.



Deliverable: Monthly progress report and invoicing

- **Monitor Project Schedule.** An initial project schedule will be prepared using Microsoft Project software including activities through the preliminary design phase of the project. City staff will be advised on the schedule impact of project technical decisions, and the project schedule will consistently be updated, to reflect current project status, with emphasis given to meeting milestones associated with major deliverable products. The project schedule will be included in the Facilities Plan and will include estimated time durations for the detailed design, bid phase, and construction phase activities.

Deliverable: Monthly project schedule update in the progress report and project schedule in Facilities Plan.

- **Project Quality Plan** A Quality Assurance/Quality Control (QA/QC) plan will be prepared which will define the procedures to be followed to ensure a high quality product. The QA/QC plan will identify the schedule and planned for internal quality review.

Deliverable: None.

- **Project Document Log and File.** A formal record of the project shall be established and maintained in the Consultant's office. This record shall contain products and calculations, minutes of meetings and/or workshops, correspondence, memorandum, a detailed list of references used, and other pertinent information pertaining to this scope of services.

Deliverable: None

- **Coordination with City.** Consultant will coordinate with the City as required to provide progress updates, address project issues, gather information, and conduct general coordination activities.

Deliverable: None

Task 2 – Preliminary Engineering

Task 2.1 – Identification and Collection of Background Information

Task 2.2 – Technical Memoranda (TM)

Task 2.2.1 – TM1 - Evaluate Repurposing the Existing Secondary Clarifiers

Task 2.2.2 – TM2 – Membrane Filtration System Evaluation (Review pressurized membrane systems)

Task 2.2.3 – TM3 – Disinfection Facilities Evaluation (Review and evaluate UV, chlorine disinfection, and APTwater's ozone-based advanced oxidation technology called HiPOx)



Each TM will undergo an independent internal QA/QC review prior to submitting to the City. Comments received from the QA/QC team will be incorporated and addressed prior to submitting the deliverable to the City.

Deliverables:

- *Draft TMs in electronic format (PDF)*
- *A conference call/meeting will be held to review each Draft TM.*
- *Final TMs will be Incorporated in the BDR.*

Task 3 – Contract Design Changes

The City WWTP is currently undergoing construction and upgrades to BNR treatment process. The existing plant configuration will be reviewed and contract design change (CDC) documents will be prepared to master plan for the future recycled water production facilities. The following CDCs are anticipated:

- ***CDC 1 – Investigate Plant Utility Requirements and Identify Modifications***

Investigate the requirements for the utilities that will be required for the proposed facilities including the following:

- Water
- Electrical Power
- Natural Gas (if required)
- Sanitary Waste
- Chemical Wastes

- ***CDC 2 - Conversion of Existing Facilities to Accommodate Future Tertiary Treatment***

This effort will involve:

- Revise the WWTP Upgrade Project Phase II demolition and yard piping drawings to keep the existing facilities listed below for the future tertiary treatment system.
 - Convert the existing secondary clarifiers to the EQ basins
 - Evaluate the feasibility of converting the existing primary recirculation pump station to the membrane feed pump station
 - Consider reuse the existing PTFE pipe.
- The electrical components (MCCs and ductbanks) associated with the equipment (Drives and Sludge Pumps) at the 2nd Clarifiers should be removed as shown on the current demolition drawings. The new power supply to the equipment is not be included in the CDC and will be part of the tertiary treatment design in the future.



Deliverables:

- *Draft CDCs in electronic format (PDF)*
- *A conference call will be held to review each Draft CDC as needed.*
- *Final CDC will be issued to the Contractor for the ongoing construction project.*

Task 4 – Recycled Water Production Facilities Plan Report

Prepare a Recycled Water Production Facilities Plan including preliminary drawings. The report will be formatted to satisfy the State's Clean Water Revolving Fund loan requirements. The Facilities Plan will include the following chapters:

EXECUTIVE SUMMARY (Include Project Description)

1.0 PROJECT NEEDS AND REGULATORY REQUIREMENTS

- 1.1 Purpose and Objectives
- 1.2 Background, Project Needs, and Benefits
- 1.3 State Revolving Fund Project Report Requirements
- 1.4 Rules and Regulations
 - 1.4.1 Effluent Disposal Background
 - 1.4.2 Title 22 Requirements

2.0 TREATMENT PROCESS SELECTION

- 2.1 Overview
- 2.2 Current Water Quality
- 2.3 Alternatives Evaluation
 - 2.3.1 Equalization Tank
 - 2.3.2 Membrane Filtration
 - 2.3.3 Disinfection
- 2.4 Recycled Water Storage
- 2.5 Selected Treatment Process and Storage
- 2.6 Process Flow Diagram

3.0 HYDRAULICS

- 3.1 Existing Plant Hydraulic
- 3.2 Tertiary Treatment Hydraulic

4.0 TERTIARY TREATMENT FACILITY LAYOUT

- 4.1 General
- 4.2 Facility Layout and Site Plan
- 4.3 Site Yard Piping and Tie Ins
- 4.4 Modifications to the Existing Facilities

5.0 PRELIMINARY DESIGN CRITERIA

- 5.1 Overview



- 5.2 Treatment Capacity
- 5.3 Membrane Filtration System
 - 5.3.1 Membrane Feed/Filtrate Pumps
 - 5.3.2 Membrane Filtration System
 - 5.3.3 Flow and Filtrate Quality
 - 5.3.4 Membrane Cleaning Process
 - 5.3.5 Membrane Integrity Testing
 - 5.3.6 Ancillary Equipment
- 5.4 Disinfection System
 - 5.4.1 Chlorine Contact Basin
- 5.5 Recycled Water Storage
 - 5.5.1 Storage (Pond) Sizing
 - 5.5.2 Storage (Pond) Layout
 - 5.5.3 Recycled Water Pumps Sizing

6.0 PRELIMINARY DESIGN – CHEMICAL FACILITIES

- 6.1 Overview
- 6.2 Coagulant (PACL) System
- 6.3 Sodium Hypochlorite (NOCL) System
- 6.4 Sodium Hydroxide (NAOH) System
- 6.5 Acid System
- 6.6 Sodium Bisulfite (SBS) System

7.0 PLANT RELIABILITY FEATURES (Sections 60333-60355 of the Title 22)

- 7.1 Flexibility of Design
- 7.2 SCADA System Alarms
- 7.3 Emergency Storage and Disposal

8.0 PROJECT IMPLEMENTATION

- 8.1 Overview
- 8.2 Procurement Plan
- 8.3 Construction Schedule
- 8.4 Estimated Construction Cost and O&M Cost

The Facilities Plan will also include the following preliminary drawings

- i. Process Schematic
- ii. Hydraulic Profile
- iii. Site Layout
- iv. Yard Piping Layout
- v. Membrane Facility Plan
- vi. Chlorine Contact Basin Plan
- vii. Recycled Water Storage Pond and Pump Station Plan
- viii. Architectural Elevations of Membrane Building



ix. Architectural Rendering of the Membrane Building (2 Renderings)

A draft Facilities Plan Report will be prepared and presented to the City in a one day technical review workshop held at the City's offices. The comments obtained from the City will be documented in minutes and incorporated into the final report.

The report and preliminary drawings will undergo an independent internal QA/QC review prior to submitting to the City. Comments received from the QA/QC team will be incorporated and addressed prior to submitting the deliverable to the City.

Deliverables:

Five (5) copies of the draft Facilities Plan will be submitted to City for review. Following receipt and resolution of review comments, Five (5) copies of the final Facilities Plan and 1 electronic (PDF) copy of Facilities Plan and half size drawings will be prepared and distributed to City.

Task 5 - Preliminary Opinion of Probable Construction and Operations and Maintenance (O&M) Costs

Prepare an initial opinion of probable construction cost at the completion of the facilities plan including construction costs, engineering costs, contingencies, and an allowance for administrative costs. The cost estimate will incorporate the engineer's experience with similar projects. Contact will be made with equipment suppliers and manufacturers to obtain budget pricing for major equipment items.

The initial construction cost estimate will be provided at the completion of the preliminary design phase and will also be included as a chapter in the Facilities Plan.

Prepare an initial opinion of Operations and Maintenance (O&M) costs for the plant considering, energy, labor, chemical usage, membrane replacement costs and miscellaneous maintenance cost. The preliminary O&M costs will be included in the Facilities Plan.

Deliverable: OPCC and Opinion of O&M Costs in Facilities Plan

Task 6 Grant Support

City plans to apply for recycled water program grant for funds to help implement the project. City will be preparing a grant application for this purpose and consultant shall provide supporting documentation needed to create a complete grant application package. This documentation may include preparing project description and exhibit drawings or presentations as necessary. For budgeting purposes, \$20,000 is included as an allowance to cover this effort. As more details are known about the grant application requirements, this effort can be detailed and expanded to meet the City needs.



Proposed Project Schedule

The work will be performed using the following proposed schedule:

	Weeks after Kickoff	Milestone Dates
NTP		12-May-2014
Kickoff		19-May- 2014
TM 1	6	30-Jun-2014
TM 2	10	28-Jul-2014
TM 3	14	25-Aug-2014
Progress Meeting #1	22	20-Oct-2014
Progress Meeting #2	29	8-Dec-2014
Draft Report	38	9-Feb-2015
City Review	40	23-Feb-2015
Final Report	44	23-Mar-2015

Project Team:

Project Director – Steve Foellmi

Project Manager – Ashu Shirolkar

Engineering Manager – Feng-Ying Chang

Process – Mark Steichen

Notes:

- It is assumed that the available survey and geotech data is sufficient for preliminary design purposes and additional information is not needed.

Black Veatch Corporation
 Owner: CITY OF PASO ROBLES
 Project: RECYCLED WATER PRODUCTION FACILITIES PLAN - HOURS AND FEE ES

PHASE/TASK (Billing Rate, \$\$ Hr.)	PHASE	EXPENSES			Auto / Travel	SUBTOTAL, EXPENSES w/o MULTIPLIER	SUBTOTAL, EXPENSES MULTIPLIER	SUBTOTAL, SUBCONTRACTS w/o MULTIPLIER	SUBTOTAL, SUBCONTRACTS	SUBTOTAL, SUBCONTRACTS	TOTAL COST
		Expenses (Computer, Printing, Copies, etc.) \$	Other (Special Equipment, Rental, etc)	Motor Repro- duction expenses							
PHASE 100 - PROJECT ADMINISTRATION		\$ 6.00									
TASK 1 - PROJECT MANAGEMENT											
Task 1.1. Project Kickoff Meeting	100	\$ 288			\$ 1,200	\$ 1,488	\$ -	\$ -	\$ -	\$ 8,208	
Task 1.2. Progress Meetings	100										
TM Review Meetings (3)	100	\$ 792			\$ 3,000	\$ 3,792	\$ -	\$ -	\$ -	\$ 21,312	
Progress Meetings (2)	100	\$ 576			\$ 1,200	\$ 1,776	\$ -	\$ -	\$ -	\$ 13,800	
Draft Facilities Plan Review Meeting (1)	100	\$ 396			\$ 600	\$ 996	\$ -	\$ -	\$ -	\$ 9,444	
Task 1.3. Project Administration	100										
Includes - Project Invoicing and Progress Report	100	\$ 504				\$ 504	\$ -	\$ -	\$ -	\$ 8,184	
- Monitor Project Schedule	100	\$ 180				\$ 180	\$ -	\$ -	\$ -	\$ 3,780	
- Project Quality Plan	100	\$ 90				\$ 90	\$ -	\$ -	\$ -	\$ 1,838	
- Project Document Log and File	100	\$ 432				\$ 432	\$ -	\$ -	\$ -	\$ 5,904	
- Coordination with City	100	\$ 648				\$ 648	\$ -	\$ -	\$ -	\$ 16,288	
Subtotal, Hours		\$ 3,906	\$ -	\$ -	\$ 6,000	\$ 9,906	\$ -	\$ -	\$ -	\$ 88,768	
Subtotal, Billings		\$ 3,906	\$ -	\$ -	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	
PHASE 200 - PRELIMINARY ENGINEERING											
TASK 2 PRELIMINARY ENGINEERING	200										
Task 2.1 Identification and Collection of Background Information	200	\$ 648				\$ 648	\$ -	\$ -	\$ -	\$ 11,040	
Task 2.2 Technical Memoranda	200										
TM1 - Evaluate Repurposing of Existing Secondary Clarifiers	200	\$ 1,404				\$ 1,404	\$ -	\$ -	\$ -	\$ 24,952	
TM2 - Membrane Filtration System Evaluation	200	\$ 2,232				\$ 2,232	\$ -	\$ -	\$ -	\$ 44,124	
TM3 - Disinfection Facilities Evaluation	200	\$ 2,070				\$ 2,070	\$ -	\$ -	\$ -	\$ 44,010	
TASK 3 - CONTRACT DESIGN CHANGES	200										
CDC 1 - Investigate Plant Utility Requirements	200	\$ 1,026				\$ 1,026	\$ -	\$ -	\$ -	\$ 17,034	
CDC 2 - Conversion of Existing Facilities for Future Treatment	200	\$ 1,386				\$ 1,386	\$ -	\$ -	\$ -	\$ 23,202	
TASK 4 - RECYCLED WATER PRODUCTION FACILITIES PLAN REPORT	200										
Prepare Draft Facilities Plan Report	200	\$ 6,642		\$ 3,000		\$ 9,642	\$ -	\$ -	\$ -	\$ 131,630	
Prepare Final Facilities Plan Report	200	\$ 1,314		\$ 3,000		\$ 4,314	\$ -	\$ -	\$ -	\$ 26,514	
Prepare Draft Preliminary Drawings	200	\$ 4,626		\$ 2,000		\$ 6,626	\$ -	\$ -	\$ -	\$ 77,710	
Prepare Final Preliminary Drawings	200	\$ 936		\$ 2,000		\$ 2,936	\$ -	\$ -	\$ -	\$ 16,312	
TASK 5 - PREL. OPINION OF PROBABLE CONSTRUCTION & O&M COST	200										
Prepare Draft OPCC and O&M Cost	200	\$ 1,080				\$ 1,080	\$ -	\$ -	\$ -	\$ 21,816	
Prepare Final OPCC and O&M Cost	200	\$ 468				\$ 468	\$ -	\$ -	\$ -	\$ 9,660	
TASK 6 - GRANT SUPPORT	200										
Prepare Final OPCC and O&M Cost	200	\$ -	\$ 20,000			\$ 20,000	\$ -	\$ -	\$ -	\$ 20,000	
Subtotal, Hours		\$ 23,832	\$ 20,000	\$ 10,000	\$ -	\$ 53,832	\$ -	\$ -	\$ -	\$ 468,004	
Subtotal, Billings		\$ 23,832	\$ 20,000	\$ 10,000	\$ -	\$ 53,832	\$ -	\$ -	\$ -	\$ 468,004	
Total, Hours		\$ 27,738	\$ 20,000	\$ 10,000	\$ 6,000	\$ 63,738	\$ -	\$ -	\$ -	\$ 566,762	
Total, Billings		\$ 27,738	\$ 20,000	\$ 10,000	\$ 6,000	\$ 63,738	\$ -	\$ -	\$ -	\$ 566,762	

3/7/2014

ATTACHMENT B – TABLE OF ADDITIONAL ACTIVITIES

WWTP Upgrades Project - Description of Additional Activities

ADDITIONAL ACTIVITIES	ACTIVITY DESCRIPTION
Design Refinements Phase	
1. Revise Front End Documents.	The original scope of work included making minor modifications to the front end documents. The front end documents were replaced by the front end documents proposed by the Covello Group (CM). These documents were reviewed jointly with the City and CM and finalized. This effort also included meetings and discussions with CM and City.
2. Additional Refinements to Bid Documents.	The bid documents were revisited to incorporate comments received from the City and CM. These comments included review and analysis of several ideas related to construction sequencing, staging, tie-in, temporary facilities, temporary access road, construction schedule, etc.
3. Investigate 2G Cynergy Cogeneration and Standby Generator Systems for incorporation in the specifications.	SOW included adding 2G Cynergy to the specifications as approved equal. Extensive coordination with 2G Cynergy was required to understand the details of their system. 2G Cynergy's system was significantly different than the Kraft Energy System specified in the bid documents. This required detailed review of the design to ensure compatibility with 2G's system, and multiple conversations with the vendor, and coordination with the City.
4. New Junction Box Design.	The original design included tying of existing sewer lines into the new headworks structure. An alternate design was proposed which included a new junction box upstream of the headworks structure. This required preparation of design drawings and tie-in and sequencing requirements.
5. New Chlorine Analyzer Control System Design.	The design was based on reusing the existing ORP system at the plant. The existing ORP system was discontinued by Siemens and vendor support was not available. Therefore, the design needed to be changed to a chlorine

ADDITIONAL ACTIVITIES	ACTIVITY DESCRIPTION
	analyzer based system.
Bid Phase	
<p>6. Preparation of Addenda and Responses to Questions from Bidders.</p>	<p>Original SOW included preparation of two addenda and answering questions from the bidders as part of the addenda. A total of four addenda were issued during the bid phase. The number of questions received from the bidders significantly exceeded the budget allotted in the original SOW. Additional equipment evaluations were performed including HSI, Inc., the blower manufacturer, and Parkson Aquaguard Screen Equipment. The design was reviewed and modified to incorporate this equipment in the specifications. The Opinion of Probable Construction Cost was updated to capture the cost impact of the refinements made to the project design.</p>
Engineering Services During Construction	
<p>7. Redesign of Cogen System.</p>	<p>The design was based on a customized cogeneration system offered by Kraft Energy Systems, Inc. The contractor proposed to use 2G Cynergy System in their bid. In lieu of the specified system design, 2G Cynergy offered their standard containerized system. Therefore, the cogen system was redesigned to allow the 2G Cynergy containerized system. This also required coordination with 2G Cynergy and changes to the Cogen System Facility layout.</p>
<p>8. Blower Layout Changes.</p>	<p>The design layout was based on ABS blowers. Changes to the blower layout were needed to accommodate the Neuros Blower Equipment. These equipment specific changes included general arrangement, piping, and intake modifications as well as revision to the pipe stress analysis and support calculations.</p>
<p>9. Standby Generator Load Verification.</p>	<p>The specifications called for the generator manufacturer to perform a load analysis to verify that their equipment can withstand the load sequence under the specified design</p>

ADDITIONAL ACTIVITIES	ACTIVITY DESCRIPTION
	conditions. B&V reviewed the information provided by 2G and verified the design to determine if any changes to the load sequence are needed.

RESOLUTION NO. 14-xxx

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF EL PASO DE ROBLES
AMENDING A CONTRACT WITH BLACK & VEATCH TO PROVIDE PRELIMINARY DESIGN
SERVICES FOR RECYCLED WATER PRODUCTION FACILITIES

WHEREAS, in 2008, after an exhaustive selection process, the City awarded a contract to the engineering firm Black & Veatch to plan and design a major upgrade of the City's wastewater treatment plant (WWTP) at 3200 Sulphur Springs Road. In 2012, the City amended its contract with Black & Veatch to provide engineering services during construction.

WHEREAS, Black & Veatch has demonstrated good performance, time management, and cost control during all phases of the WWTP Upgrade.

WHEREAS, the City has a master plan to produce recycled water at the WWTP for use in east Paso Robles, to offset pumping from the Paso Robles Groundwater Basin. Additional facilities such as a filtration process and expanded disinfection system must be added to the WWTP to produce recycled water that meets California Department of Public Health requirements.

WHEREAS, Black & Veatch is well qualified to design recycled water production facilities. Black & Veatch is already very familiar with the WWTP, thus can design recycled water production facilities more efficiently than other engineering firms.

WHEREAS, the City requested Black & Veatch prepare a scope of work and fee proposal for preliminary design of recycled water production facilities, to prepare the City to compete for possible grant funding, define total project costs for financial planning purposes, and position the City to move forward with construction if demand for recycled water moves faster than anticipated.

WHEREAS, Black & Veatch's proposed fee of \$794,762 is appropriate, and the expenditure would not adversely impact the Sewer Enterprise Fund.

THEREFORE, BE IT RESOLVED AS FOLLOWS:

SECTION 1. The City Council hereby approves amend of a contract with Black & Veatch for preliminary design of recycled water production facilities, for an amount not to exceed \$794,762, and authorizes the City Manager to execute the contract amendment.

SECTION 2. The City Council hereby establishes a new capital improvement budget number, to be determined after launch of new Finance System, for Recycled Water Production Facilities.

PASSED AND ADOPTED by the City Council of the City of El Paso de Robles this 1st day of April 2014, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

ATTEST:

Duane Picanco, Mayor

Caryn Jackson, Deputy City Clerk