# CITY OF SANTA ROSA TRANSPORTATION AND PUBLIC WORKS
# PROJECT WORK ORDER NO. A010014-2011-09C

PROJECT NAME: **LAGUNA TREATMENT PLANT DISINFECTION IMPROVEMENTS**

CITY PROJECT MANAGER: **TRACY DUENAS**

CONSULTANT PROJECT MANAGER: **DOUG WING**

SCOPE OF SERVICE: See Consultant's Scope of Services/Proposal for Services and Fee Schedule dated **August 11, 2021**, attached as Exhibit B-1.

START DATE: **SEPTEMBER 2021** COMPLETION DATE: **DECEMBER 2024**

| | | | |
|---|---|---|---|
| CHARGE NUMBER FOR PAYMENT: | **86638** | **75%** | **$562,500.00** |
| | **86639** | **25%** | **$187,500.00** |
| NOT-TO-EXCEED AMOUNT FOR THIS PROJECT: | | | **$750,000.00** |

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TERMS AND CONDITIONS: This Project Work Order is issued and entered into as of the last date written below in accordance with the terms and conditions set forth in the "Master Professional Services Agreement with Carollo Engineers, Inc., Agreement No. A010014," dated November 1, 2011, and "Project Work Order No. A010014-2011-09", dated January 21, 2016, and "Project Work Order No. A010014-2011-9A", dated September 30, 2019, and "Project Work Order No. A010014-2011-09B", dated November 19, 2020, which are hereby incorporated and made part of this Project Work Order. In the event of a discrepancy or conflict between the terms and conditions of the Project Work Order and the Master Agreement, the Master Agreement shall govern.

PROJECT WORK ORDER HISTORY

| | | |
|---|---|---|
| Original Project Work Order No. A010014-2011-09 | Amount: | $2,803,599.00 |
| Amendment No. A010014-2011-09A | Amount: | $1,584,655.00 |
| Amendment No. A010014-2011-09B | Amount: | $2,131,132.00 |
| Amendment No. A010014-2011-09C | Amount: | $ 750,000.00 |
| | Total: | $7,269,386.00 |

CITY OF SANTA ROSA,
A Municipal Corporation

By: _____ Date: _____
Daniel J. Galvin III
Board of Public Utilities Chair

CAROLLO ENGINEERS, INC.,
A Delaware Corporation

By: Ken Wilkins (Aug 31, 2021 05:37 PDT) Date: Aug 31, 2021

Name: Ken Wilkins

Title: Senior Vice President

By: _____ Date: Aug 30, 2021

Name: Michael Barnes

Title: Secretary

APPROVED AS TO FORM:

By: Jessica Mullan (Sep 1, 2021 11:09 PDT)
Santa Rosa City Attorney's Office

Attachments: Exhibit B-1 - Consultant's proposal and fee for services for this Project Work Order

**Exhibit B-1**

carollo
Engineers...Working Wonders With Water®

2795 Mitchell Drive, Walnut Creek, California 94598
P. 925.932.1710 F. 925.930.0208

August 11, 2021

08871G10

Tracy Duenas
Supervising Engineer
Transportation and Public Works Department
City of Santa Rosa
69 Stoney Circle
Santa Rosa 95401

Subject: Laguna Treatment Plant Disinfection Improvements Project
PWO A010014-2011-09
Amendment No. 3 Final Design Closeout

Dear Mr. Duenas:

The Amendment No. 3 for the Disinfection Improvements Project is attached for your review and approval. The amendment is required for the following tasks:

- Task 1 Project Management
- Task 5 Hypochlorite and Diversion Final Design
- Task 6 Final Design

The design budget for these tasks was exceeded based on several unanticipated factors. The major items are noted on the attached Amendment No. 3 Scope Summary and outlined below.

- Design changes beyond those based on revised UV design criteria.
- Coordination with the flood protection project
- UV equipment supplier submittal review and design coordination
- Buildability and constructability review and response

The project budget status is provided in the attached Budget Summary table. It presents the billed and unbilled charges to date, unbilled after our proposed write off, contract budget and remaining budget, proposed amendment and amended budget for each task. The requested budget amendment is $750,000. This will allow for completion of the design documents and will preserve budget for the remaining post construction tasks.

If you have any questions regarding the amended scope or proposed budget for Amendment No. 3 please call or email.

Sincerely,
CAROLLO ENGINEERS, INC.

Douglas Wing, P.E.
Associate Vice President

DW:

CC:
Emma Walton, City of Santa Rosa
Marc Solomon, Hazen & Sawyer

Attachments: Amendment No. 3 Scope

Amendment No. 3 Budget Summary Table

**City of Santa Rosa**

**Laguna Treatment Plant**

**Disinfection Improvements Project**

**PWO A010014-2011-09**

# Final Design Amendment No. 3

The Santa Rosa Laguna Treatment Plant (LTP) Disinfection Improvements Project has been the subject of multiple reviews since it was started in December 2015. In April 2017, the final design was put on hold while the City performed a value engineering (VE) review to verify the UV replacement design approach. The review was based on the predesign report and the 35% final design submittal. The objective of the review was to confirm the project provided the best value project for the City. In September 2019 the project was restarted based on the results of the VE review. The project design criteria were revised to reflect the results for the 2017 value engineering study review and required new design submittals. Since the project was restarted, several unforeseen factors have contributed to the evolution of the final design and required unforeseen effort. The changes have impacted the tasks outlined below.

## TASK 1 PROJECT MANAGEMENT

The effort for the project management task was greater than anticipated based on the project duration. The final design project management budget was based on an approximately 1 ½ year duration and the project duration has been extended for over 2 years.

## TASK 5 HYPOCHLORITE AND DIVERSION DESIGN and TASK 6 UV FINAL DESIGN

The final design tasks were impacted by more revisions to the project scope than anticipated. The revisions were based on the following.

**Design Changes Not Associated with Revised UV Design Criteria.** The project was restarted in 2019 based on the project review and the 35% design provided in 2017. The subsequent design submittals were completely revised for the restarted final design and could not utilize the original submittals as much as expected. In addition, a majority of the LTP staff that provided direction and reviewed the 35% design submittal had retired or left the City by the time the project was restarted. The current LTP staff provided revised input on the design. The staff requested changes included:

a. Additional design submittals based on the overall change in project design criteria, and UV process layout. The revised design reduced the number of channels from six to five and increased the length of each channel to accommodate high flows per channel. Design submittals for 75, 90, 100 percent were completed, per contract. In addition, a bid set submittal for city review was prepared and a final bid set submittal is anticipated for bidding. In general, an extra submittal was required due to the restart and staff turnover.
b. Sodium hypochlorite system layout especially the type of pump to be included in the design. The original design was based on a diaphragm pump and was revised to a progressive cavity type pump. The change in pump also required changes to pump electrical power and

instrumentation design piping inside the containment area was revised based on the change in pump and staff preferences. Structural design of the hypochlorite canopy was revised from a full canopy to a partial canopy at the staff request. Finally, the hypochlorite dose points, and yard piping was also modified. The yard piping was modified to a specific double containment that will match the existing plant piping system.

c. Instrumentation design was revised to meet City standards including, PLC programming standards, 24-volt DC power requirements for field devices, and other control revisions. The project specification was also revised to include programming by a contractor provided integrator or programmer rather than by City staff.
d. Connection to the plant PLC and SCADA system was identified and added to the project.
e. Typical detail referencing was added to the drawings.
f. Extent of existing fiber and communication utilities was more than originally included and impacted the demolition and yard piping design.
g. City trailer layouts were revised based on staff input after layout was finalized due to new Covid-19 workspace requirements.
h. Overall height of the UV process area canopy was revised to lower the building height at the city request. This also included revisions to the overhead crane.
i. Temporary construction power duct bank and connection point was added the site plans at City request.
j. Power distribution from switchgear M-2 was revised, including use of existing spare breakers, and relocation of microgrid battery charger feed.
k. Storm water pump station was revised to include screening.

The changes resulted in additional submittals to City, review workshops and additional response to City comments.

**Coordination with the Flood Protection Project.** Coordination with the City flood protection project was required after the restart, since the two project schedules overlapped. The extent of the design services required to address the project coordination was greater than anticipated at the restart.

a. The construction schedules and sequences were revised based on the timing for the flood project which now overlaps with the UV project construction. The flood project is estimated to start about a year after the disinfection improvements project starts.
b. The project design concept for stormwater collection was revised several times based on coordination with the flood protection project. The storm water drain system design was originally based on connecting the existing storm drain outfalls to the storm drain pump. The revised design split most the storm drains collection lines off to the flood project, although the disinfection project yard piping was designed to accommodate the flood project storm drain design.
c. The original storm water pump station discharge design concept was revised based on coordination with the City flood project. The original discharge design was based on using the western most outfall for stormwater discharge. The discharge was revised to allow the disinfection project to provide a pumped discharge using the existing plant emergency effluent outfall. Once the flood project is implemented, it will add a gravity discharge to the pumped discharge, using the second emergency effluent outfall. The new pumped system required an increase in the pump head, and revised pump sizing.

d. The flood project required coordination and redesign of the main plant entrance improvement, including deferral of improvement to the flood project construction.
e. The flood project coordination required additional coordination meetings to discuss and finalize the design revisions noted above.

**UV Equipment Supplier Submittal Review and Design Coordination.** The UV equipment supplier coordination was started in 2016/2017 and stopped while the project was on hold. Although the project restart identified that a new UV equipment submittal was required, it was not envisioned that a second resubmittal would be included. Changes in the first resubmittal were incorporated into the design, especially the addition of the individual channel communication cabinets and revised instrumentation details. Overall additional time was spent in coordination with the equipment supplier.

**Buildability and Constructability Review and Response.** The Buildability and Constructability review by the City-selected construction manager was not included in the original project. It added addition coordination meetings and resulted in additional work including:

a. Preparation of response to comments.
b. Additional geotechnical investigation for micropile foundation.
c. Additional meeting to review work restriction, construction sequence and construction milestones.
d. The CM review included comments on the City Bidding and Contract documents that resulted in the use of Carollo and CM hybrid Division 0 and 1 document.
e. These documents were also reviewed by outside counsel (and City attorney) which resulted in additional revisions.

## Budget Impacts:

The budget impact is outlined on the attached budget status table. The requested budget amendment is $ 750,000. Note that the Consultant has unbilled labor and expenses and proposed to take a $300,000 write off to cover a portion of the unbilled labor and expenses. The write off acknowledges a portion of the budget impact was due to factors that were outside the control of the City, and not anticipated by the Consultant.

**PROJECT BILLING SUMMARY** August 11, 2021

## City of Santa Rosa
## Laguna Treatment Plant Disinfection Improvements Project - Final Design Amendment No. 3

| Carollo Tasks | Task Description | Overall Billed to Date | Unbilled to Date (5) | Unbilled after Write-off (5) | Total Spent to Date | Contract Budget (1)(2) | Budget Used % | Budget Remaining | Requested Amendment No. 3 | Revised Budget (6) | Revised Budget Used % | Revised Budget Remaining |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | Project Management | $ 431,335.64 | $ 59,527.20 | $ 9,527.20 | $ 440,862.84 | $ 376,951.00 | 114.4% | $ (63,911.84) | $ 75,000.00 | $ 451,951.00 | 97.55% | $ 11,088.16 |
| 002 | Background Information Review | $ 204,265.34 | | | $ 204,265.34 | 189,015.00 | 108.1% | $ (15,250.34) | | $ 189,015.00 | 108.07% | $ (15,250.34) |
| 003 | Preliminary Design | $ 254,367.25 | $ 1,153.75 | $ 1,153.75 | $ 255,521.00 | 254,113.00 | 100.1% | $ (1,408.00) | | $ 254,113.00 | 100.55% | $ (1,408.00) |
| 004 | UV Equipment Procurement | $ 182,975.25 | $ 5,890.50 | $ 5,890.50 | $ 188,865.75 | 172,313.00 | 106.2% | $ (16,552.75) | | $ 172,313.00 | 109.61% | $ (16,552.75) |
| 005 | Hypo and Diversion Final Design | $ 1,413,115.63 | $ 89,979.33 | $ 14,979.33 | $ 1,428,094.96 | 1,088,794.00 | 129.8% | $ (339,300.96) | $ 375,000.00 | $ 1,463,794.00 | 97.56% | $ 35,699.04 |
| 006 | UV Design | $ 1,567,690.84 | $ 190,221.38 | $ 15,221.38 | $ 1,582,912.22 | 1,267,102.00 | 123.7% | $ (315,810.22) | $ 300,000.00 | $ 1,567,102.00 | 101.01% | $ (15,810.22) |
| 007 | Final Design Meetings | $ 99,364.83 | $ 12,837.75 | $ 12,837.75 | $ 112,202.58 | 93,741.00 | 106.0% | $ (18,461.58) | | $ 93,741.00 | 119.69% | $ (18,461.58) |
| 008 | Bid Period Services | $ - | | | $ - | 124,368.00 | 0.0% | $ 124,368.00 | | $ 124,368.00 | 0.00% | $ 124,368.00 |
| 009 | Regulatory Compliance | $ 27,900.70 | $ 1,704.00 | $ 1,704.00 | $ 29,604.70 | 92,900.00 | 30.0% | $ 63,295.30 | | $ 92,900.00 | 31.87% | $ 63,295.30 |
| 010 | Commissioning | $ 306.00 | | | $ 306.00 | 173,918.00 | 0.2% | $ 173,612.00 | | $ 173,918.00 | 0.18% | $ 173,612.00 |
| 011 | O&M Training | $ - | | | $ - | 98,548.00 | 0.0% | $ 98,548.00 | | $ 98,548.00 | 0.00% | $ 98,548.00 |
| 012 | Geyers Pipeline Prechlorination | $ - | | | $ - | - | | $ - | | $ - | | $ - |
| 013 | Contingency | $ - | $ 99,363.07 | $ 99,363.07 | $ 99,363.07 | 250,000.00 | 0.0% | $ 150,636.93 | | $ 250,000.00 | 39.75% | $ 150,636.93 |
| 014 | VE Review (3) | $ 117,075.00 | | | $ 117,075.00 | 117,075.00 | 100.0% | $ - | | $ 117,075.00 | 100.00% | $ - |
| 015 | Hypo Testing Assistance (4) | $ 89,416.13 | | | $ 89,416.13 | 89,416.00 | 100.0% | $ (0.13) | | $ 89,416.00 | 100.00% | $ (0.13) |
| | **Total as of July 2021 (4)** | **$ 4,387,812.61** | **$ 460,676.98** | **$ 160,676.98** | **$ 4,548,489.59** | **$ 4,388,254.00** | **100.0%** | **$ (160,235.59)** | **$ 750,000.00** | **$ 5,138,254.00** | **88.52%** | **$ 589,764.41** |

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Notes for budget / expended adjustments
1. Updated budget based on PWO No A010014-2011-09A dated September 30, 2019
2. Does not include PWO No A010014-09B dated November 2020 for Engineering Services During Construction, for the amount of $2,131,132.00.
3. Total spent through Oct 2017 originally billed to task 12.
4. Budget spent through November 2018.
5. Unbilled costs are $460,676.98 July 31, 2021. Consultant write-off of $300,000 will reduce unbilled to $160,676.98
6. Contingency will be redistributed to task budget to balance task budgets.

# A010014-2011-09C LTP Disinfection Improvements

Final Audit Report 2021-08-30

| | |
|---|---|
| Created: | 2021-08-30 |
| By: | Joyce Brandvold (JBrandvold@srcity.org) |
| Status: | Approved |
| Transaction ID: | CBJCHBCAABAAu-sz-FLfnnvojWSRuopaFy1sKDxPJcY8 |

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Document approved by Tracy Duenas (Tduenas@srcity.org)
Approval Date: 2021-08-30 - 9:46:49 PM GMT - Time Source: server- IP address: 67.174.224.179

Agreement completed.
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# A010014-2011-09C LTP Disinfection Improvements

Final Audit Report 2021-08-31

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|---|---|
| Created: | 2021-08-30 |
| By: | Joyce Brandvold (JBrandvold@srcity.org) |
| Status: | Signed |
| Transaction ID: | CBJCHBCAABAABPaQ0r9TO8mivFgrg9vpx3_vj-6hJl_g |

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# A010014-2011-09C LTP Disinfection Improvements

Final Audit Report 2021-09-01

| | |
|---|---|
| Created: | 2021-08-31 |
| By: | Joyce Brandvold (JBrandvold@srcity.org) |
| Status: | Signed |
| Transaction ID: | CBJCHBCAABAA4InHq5CBVFTt3PlfdcPAFl9QCDY_EOet |

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