AMENDMENT NO. 3 TO THE AGREEMENT BETWEEN THE CITY OF SAN MATEO AND TRUSSELL TECHNOLOGIES, INC. FOR THE WWTP NUTRIENT REMOVAL AND WET WEATHER FLOW MANAGEMENT UPGRADE AND EXPANSION PROJECT ENGINEERING PROFESSIONAL SERVICES

WHEREAS, the City of San Mateo ("City"), a municipal corporation of the State of California, and TRUSSELL TECHNOLOGIES, INC. ("CONSULTANT"), entered into an Agreement for engineering design services ("Agreement") for the WWTP Nutrient Removal and Wet Weather Flow Management Upgrade and Expansion Project on August 5, 2019; and

WHEREAS, City and CONSULTANT, wish to amend the Agreement to add scope.

NOW, THEREFORE, the parties agree as follows:

1. Section 1 - Scope of Project of the Agreement is amended to reference "Exhibits A, A1, A2, and A3." Exhibit A3 to the Agreement is attached and incorporated by reference.
2. Section 7 – Term, Progress and Completion of the Agreement is amended to reference "Exhibits B, B1, B2, and B3". Exhibit B3 to the Agreement is attached and incorporated by reference.
3. Section 8 – Payment of the Agreement is amended to reference "Exhibits C, C1, C2, and C3". The fee schedule set forth in Exhibit C3 to the Agreement is attached and incorporated by reference.
4. The remaining terms of the Agreement remain in full force and effect.

Exhibits:
Exhibit A3, Scope of Services
Exhibit B3, Project Schedule
Exhibit C3, Fee and Rate Schedule

CITY OF SAN MATEO	TRUSSELL TECHNOLOGIES, INC.
_____	_____
Brad Underwood, Public Works Director	Shane Trussell, President
Date: _____	Date: _____

Exhibit A3

Scope of Services

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PROTECTING THE BAY FOR A SUSTAINABLE FUTURE

Draft Scope of Services for City of San Mateo

Title-22 Disinfected Tertiary Recycled Water Support Services: Phase 2

The City of San Mateo (City) is improving the San Mateo/Estero Municipal Improvement District Wastewater Treatment Plant (WWTP). Significant changes are being made for wet weather flow and nutrient removal, including a new membrane bioreactor (MBR) process and wet-weather BioActiflo. The City also has goals for producing disinfected tertiary recycled water for non-potable reuse. However, the City's chlorine contact basins (CCBs) have insufficient detention time to produce disinfected tertiary recycled water following the Recycled Water Criteria of a 90-minute modal contact time and a minimum CT of 450 mg-min/L. As an alternative to building another CCB or installing ultraviolet (UV) light facilities, Trussell Technologies (Trussell Tech) is helping the City implement an alternative disinfection approach using free chlorine.

A phased approach has been outlined to accomplish the steps required to produce disinfected tertiary recycled water using low-CT free chlorine disinfection. The first phase involved communication with DDW to obtain conditional approval to use the CT tables from WaterVal in lieu of a site-specific demonstration study and development of a Conceptual Design Report. The second phase is described in this scope of work and includes support for the development of the 100% design and preparation of the Title-22 Engineering Report. Phase 3 will include engineering services during construction, preparation of the Operations Plan, and permitting support.

TASK 1: Support the Development of the Final Title-22 Recycled Water Design

Trussell Tech will support the development of the low-CT free chlorine design through the final design stages. The 100% design submittals, with the exception of the design for disinfection of recycled water, were submitted by HDR in March 2020. Trussell Tech will review these design drawings, specifications, and the Schematic Design Report with a focus on the systems that impact recycled water production (e.g., MBR, piping, chemical storage and chemical feed). Trussell Tech will document any additional design revisions that are required for compatibility with the recycled water design beyond what was documented in the Conceptual Design Report submitted in Phase 1. Trussell Tech will participate in a design meeting with the City and HDR to discuss review comments.

It is assumed that HDR will use the Conceptual Design Report that Trussell Tech submitted in February 2020 as the basis to develop the 30%, 90%, and 100% design for disinfection of recycled water. In parallel with HDR's effort to develop the 30% design for recycled water disinfection, Trussell Tech will describe the recycled water design in the Schematic Design Report: Trussell Tech will prepare a new chapter in the Schematic Design Report that includes information from a) the February 2020 Conceptual Design Report, b) the March 2020 Water Quality Evaluation Technical Memo, and c) changes resulting from the development of the final design. A draft of the Schematic Design Report recycled water disinfection chapter will be provided to HDR and the City at the same time as HDR's 30% design submittals and finalized in time for the 90% design submittals.

Trussell Tech will review the 30% and 90% design submittals for disinfection of recycled water, including the design drawings, specifications, and control narratives, to ensure that the final design meets all Title-22 non-potable reuse regulations. Trussell Tech will provide written comments and drawing markups, as needed, to document all findings from both the 30% and 90% design submittal reviews. After each submittal (30% and 90%), Trussell Tech will participate in a design meeting with the City and HDR to discuss review comments.

Task 1 will include the following deliverables:

- Provide written comments and drawing markups, as needed, to convey additional required design revisions during design submittal reviews (100% design of the WWTP, excluding the design for disinfection of recycled water)
- Prepare the chapter on recycled water disinfection in the Schematic Design Report
- Provide written comments and drawing markups, as needed, to convey required design revisions during 30% design submittal reviews
- Provide written comments and drawing markups, as needed, to convey required design revisions during 90% design submittal reviews
- Participate in up to three in-person or web-based meetings with the City and HDR to discuss design review comments

TASK 2: Develop an Engineering Report for Production of Title-22 Recycled Water

Trussell Tech will develop an Engineering Report for the production of disinfected tertiary recycled water using the low-CT free chlorine disinfection approach. The Engineering Report will include a description of the WWTP treatment processes, including the MBR and low-CT free chlorine disinfection, MBR and low-CT free chlorine design criteria, control strategies and analyzers needed to meet Title-22 requirements, and reliability features to ensure compliance with the regulations. The draft Engineering Report will be submitted to the City for review, and a revised draft will be submitted to DDW for review. After incorporating all comments received, Trussell Tech will finalize the Engineering Report and re-submit it to the City and DDW. Trussell Tech will correspond with DDW to discuss the Engineering Report and assist DDW in their review, as needed.

The completion of this task is dependent on DDW's turnaround time. The schedule is based on the assumption that DDW will complete their review and provide their approval in six months or less.

Task 2 will include the following deliverables:

- Develop a Title-22 Engineering Report for DDW's review and approval, which will include submittal of a draft report to the City for review and finalization prior to submittal to DDW
- Participate in up to one meeting and two conference calls with the City and HDR
- Participate in up to one meeting and two conference calls with the City and DDW

Proposed Fee and Schedule

Trussell Tech's proposed engineering consultant fee for the Phase 2 scope of work outlined above is $192,850. The following figure provides the cost associated with each proposed task of this project. The subsequent figure presents a preliminary schedule for achieving this project. If any unforeseen responses from DDW or the RWQCB are received, Trussell Tech will contact the City to determine the impact on the project budget and schedule.

Exhibit B3

Project Schedule

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Trussell TECHNOLOGIES INC

Task	Task Description	2020					2021					
		A	S	O	N	D	J	F	M	A	M	J
	Support the Development of the 100% Title-22 Recycled Water Design		☆		☆		☆					
1	Review of 100% design drawings, specifications, and schematic design reports from submitals related to the MBR, piping, and disinfection systems; Provide written comments and drawing markups, as needed, to document all findings from design submittal review. Participate in one design review meeting to discuss review comments.		★									
	Prepare the chapter on recycled water disinfection in the Schematic Design Report. Submit a draft to the City and finalize based on comments from the City		★		★							
	Review of 30% design drawings and specifications for the disinfection of Title-22 recycled water; Provide written comments and drawing markups, as needed, to document all findings from design submittal review. Participate in one design review meeting to discuss review comments			★								
	Review of 90% design drawings and specifications for the disinfection of Title-22 recycled water; Provide written comments and drawing markups, as needed, to document all findings from design submittal review. Participate in one design review meeting to discuss review comments					★						
2	**Develop an Engineering Report for Production of Title-22 Recycled Water**											
	Develop a Title-22 Engineering Report: Submit a draft to the City and finalize based on comments; Submit final draft to DDW, respond to comments, and obtain approval			★	★						●	
	Participate in up to one meeting and two conference calls with the City and HDR											
	Participate in up to one meeting and two conference calls with the City and DDW											

★ Indicates Deliverables Submitted
☆ HDR Design Submittals (30%, 90%, 100%)
● Indicates Estimated RWRCB/DDW Approval

Exhibit C3

Fee and Rate Schedule

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PROTECTING THE BAY FOR A SUSTAINABLE FUTURE

Trussell TECHNOLOGIES INC

SCOPE		Budget						
Task	Description	Sen. Co. Off.	Principal Engineer II	Supervising Engineer II	Engineer I	Labor Cost	ODCs	Total Cost
		$ 345	$ 290	$ 235	$ 170			
1	**Support the Development of the 100% Title-22 Recycled Water Design**	**16**	**64**	**136**	**344**	**$114,520**	**$0**	**$114,520**
	Review of 100% design drawings, specifications, and schematic design reports from submitals related to the MBR, piping, and disinfection systems; Provide written comments and drawing markups, as needed, to document all findings from design submittal review. Participate in one design review meeting to discuss review comments.	4	12	20	64	$20,440		$20,440
	Prepare the chapter on recycled water disinfection in the Schematic Design Report. Submit a draft to the City and finalize based on comments from the City	4	12	20	80	$23,160		$23,160
	Review of 30% design drawings and specifications for the disinfection of Title-22 recycled water; Provide written comments and drawing markups, as needed, to document all findings from design submittal review. Participate in one design review meeting to discuss review comments.	4	20	48	100	$35,460		$35,460
	Review of 90% design drawings and specifications for the disinfection of Title-22 recycled water; Provide written comments and drawing markups, as needed, to document all findings from design submittal review. Participate in one design review meeting to discuss review comments.	4	20	48	100	$35,460		$35,460
2	**Develop an Engineering Report for Production of Title-22 Recycled Water**	**4**	**38**	**98**	**250**	**$77,930**	**$400**	**$78,330**
	Develop a Title-22 Engineering Report: Submit a draft to the City and finalize based on comments; Submit final draft to DDW, respond to comments, and obtain approval	4	24	80	210	$62,840		$62,840
	Participate in up to one meeting and two conference calls with the City and HDR		6	6	16	$5,870	$200	$6,070
	Participate in up to one meeting and two conference calls with the City and DDW		8	12	24	$9,220	$200	$9,420
Total Hours for Scope of Services		**20**	**102**	**234**	**594**			
Total Fee for Scope of Services						**$192,450**	**$400**	**$192,850**