

FIRST AMENDMENT TO AGREEMENT

THIS FIRST AMENDMENT TO AGREEMENT (Amendment) made and entered into this 4th day of October 2021 (Effective Date), amends the Agreement entered into between the City of Fresno, a California municipal corporation (City), and Carollo Engineers, Inc., a Delaware corporation (Consultant).

RECITALS

WHEREAS, in May 2020, City's Wastewater Management Division received a Notice to Comply with the requirements of the Nitrate Control Program which was adopted by the Central Valley Regional Water Quality Control Board (Board) in an effort to protect drinking water; and

WHEREAS, City and Consultant entered into an agreement on June 19, 2020, (Agreement) to provide professional consulting services for the preparation of a Nitrate Initial Assessment (NIA) for the Fresno-Clovis Regional Wastewater Reclamation Facility and the North Fresno Wastewater Reclamation Facility as required by the Board for a total fee of \$913,740 which included a contingency of \$83,100; and

WHEREAS, the NIA was completed by Consultant and submitted to the Board in accordance with the Nitrate Control Program; and

WHEREAS, City will be constructing groundwater monitoring wells in accordance with the NIA and desires that Consultant provide ongoing support for construction of the wells and implementation of certain components of the NIA; and

WHEREAS, City and Consultant desire to expand the Scope of Services to include the ongoing support services, and utilize remaining contract funds for said expanded services which will be performed within the current term of the Agreement; and

WHEREAS, with entry into this Amendment, Consultant agrees it has no claim, demand, or dispute against City.

AGREEMENT

NOW, THEREFORE, the parties agree that the Agreement be amended as follows:

1. The Recitals listed above are incorporated by reference herein.
2. **EXHIBIT A** of the Agreement is removed in its entirety and is replaced with the scope of services indicated in **EXHIBIT A1** attached hereto and incorporated herein by reference.
3. Except as otherwise provided herein, the Agreement remains in full force and effect.

IN WITNESS WHEREOF, the Parties have executed this Amendment at Fresno, California, the day and year first above written.

CITY OF FRESNO,
a California municipal corporation

By: DocuSigned by:
Michael Carbajal 10/1/2021
0DA914AF5B8D44B...
Michael Carbajal, Director
Department of Public Utilities

APPROVED AS TO FORM:
DOUGLAS T. SLOAN

City Attorney
DocuSigned by:
By: Pauline Brickey 10/1/2021
90AD386B875E4B9...
Pauline Brickey Date
Deputy City Attorney

ATTEST:
BRIANA PARRA, CMC
Interim City Clerk

DocuSigned by:
By: Marco Martinez 10/4/2021
2F1BC57F778C4E1...
Marco Martinez Date

CAROLLO ENGINEERS, INC.,
a Delaware corporation

DocuSigned by:
By: Kenneth A Wilkins 9/30/2021
EACD800E8EC04CE...
Name: Kenneth A Wilkins
Title: Senior Vice President
(If corporation or LLC., Board Chair,
Pres. or Vice Pres.)

DocuSigned by:
By: Michael Barnes 9/30/2021
89704BBD9A5A4CC...
Name: Michael Barnes
Title: Secretary
(If corporation or LLC., CFO., Treasurer,
Secretary or Assistant Secretary

Attachment: Exhibit A1

EXHIBIT A1

FIRST AMENDMENT TO THE SCOPE OF SERVICES Consultant Service Agreement between the City of Fresno (“City”) and Carollo Engineers, Inc., (“Consultant”) NITRATE INITIAL ASSESSMENT

Under this Scope of Work, Carollo Engineers, Inc. (Carollo), in association with Luhdorff & Scalmanini, Consulting Engineers (LSCE), Penny Carlo Engineering, LLC, and Katz & Associates, will provide professional engineering services to prepare a Nitrate Initial Assessment for the Fresno/Clovis Regional Wastewater Reclamation Facility (RWRF). The Carollo team will deliver the following services under the terms of Professional Engineering Services for the Fresno/Clovis Regional Wastewater Reclamation Facility Nitrate Initial Assessment.

The Scope of Work includes services for the development of a Nitrate Initial Assessment (NIA), using previously collected data. The 2019 Basin Plan Amendment (BPA) for the Tulare Lake Basin contains a new Nitrate Control Program to control and regulate discharges to groundwater. The RWRF is located within the Tulare Lake Basin and is subject to the new requirements. The BPA became effective in 2020. The Basin Plan states that upon receipt of a Notice to Comply (NTC) from the Central Valley Water Board (Water Board), existing permittees shall conduct an initial assessment of their discharge as it relates to nitrate.

The RWRF is located in a Priority 1 Basin, and the City will be required to complete the NIA within 330 days after receiving the NTC. Although the issuance date for the NTC is not known at this time, receipt of the NTC by the City is expected no later than June 1, 2020. The scope of work for the NIA and associated schedule have been developed with a goal to meet the NIA deadline of 330 days following receipt of the NTC.

The NIA for the RWRF is covered under Tasks 1 – 11 in this Scope of Work. As demonstrated below, the NIA, the As/Mn Compliance Assessment, and the Domestic/Agricultural Well Sampling Project are all intertwined, and the work developed in prior tasks inform and provide the foundation for the NIA. Some examples that demonstrate the interconnectivity of the projects are noted below. Coordinating the As/Mn Compliance Assessment with the NIA tasks will be critical to meeting the 330-day time frame for the NIA.

- Build upon the hydrogeologic conceptual model developed for the As/Mn evaluation
- Groundwater levels in the area have previously been developed, and domestic well depths (from construction records) are being evaluated. Together, this information of the water table and domestic well depths will be used to determine impacted beneficial uses and definition of the Shallow Zone for the NIA (for the BPA Path A, the Shallow Zone is the part of the aquifer system in which the shallowest 10% of the domestic wells are constructed).
- Groundwater nitrate data were gathered and analyzed for both RWRF monitoring wells and domestic/agricultural wells. This data will provide the initial foundation for the NIA.
- The As/Mn groundwater flow and transport modeling tools, being designed for the As/Mn evaluation, are also being designed with consideration of the need to assess nitrate conditions, since nitrate quality is an indicator of As and Mn groundwater mobility.

Task 12 in this Scope of Work covers the preparation of a Nitrate Initial Assessment for the North Fresno Wastewater Reclamation Facility (WWRF). As a permitted discharger within the Priority 1 Kings Subbasin, it is expected that the Central Valley Regional Water Board will also issue a Notice to Comply to the City of Fresno for the North Fresno WWRF. Under Pathway A, an initial assessment of the discharge to the shallow zone is required as part of the Initial Assessment/Notice of Intent. Based on previous analyses documented in the 2011 Report of Waste Discharge and along with the Waste Discharge Requirements (WDR) for the North Fresno WWRF, discharge of nitrate from the facility has not impacted shallow groundwater, so an Early Action Plan is not required. In addition, we anticipate the North Fresno WWRF will fall under Category 1 (no degradation) or 2 (*de minimus* impacts) for nitrate discharge categorization; therefore, an Alternative Compliance Project is not needed.

PURPOSE

Consultant to prepare a Nitrate Initial Assessment (NIA) in accordance with the procedures summarized in the 2019 Basin Plan Amendment for the Tulare Lake Basin for existing dischargers. It is assumed the “area of contribution” of nitrate to the groundwater (from the RWRF discharge) will be larger than the geographic area anticipated to be associated with the mobilization of As and Mn due to RWRF operations. However, the initial geographic area for the NIA will utilize the same area as the As and Mn groundwater quality study. The area of contribution is described in the Dom/Ag Sampling Plan using the following as boundaries: Whitesbridge Avenue, Valentine Avenue, Adams Avenue, and South Dickenson Avenue.

The Scope of Work assumes the City will pursue Path A (Individual Permitting Approach). The NIA must be submitted as part of a Notice of Intent and must include the nine elements listed below, unless as otherwise approved by the Central Valley Water Board’s Executive Officer. **For this scope of work, it is assumed all elements will be addressed, unless otherwise noted.**

Upon receipt of a Notice to Comply, existing permittees shall conduct an initial assessment of their discharge as it relates to nitrate. The initial assessment shall be submitted as part of a Notice of Intent and must include the following unless as otherwise approved by the Central Valley Water Board’s Executive Officer:

- (i.) *Estimated impact of discharge of nitrate on the Shallow Zone over a 20-year planning horizon;*
 - *May be estimated based on a simple mass balance calculation assuming 20 years of loading as nitrate reaches the water table.*
- (ii.) *Initial assessment of water quality conditions based on readily available existing data and information.*
 - *May use default information in or referenced by, the Central Valley SNMP (2017) or provide supplemental information that includes water quality conditions in the shallow and upper zones;*
- (iii.) *Survey of the discharge, and determination if the discharge is causing any public water supply or domestic well to be contaminated by nitrate;*
- (iv.) *If causing contamination of a public water supply or domestic well, an Early Action Plan; Identification/summary of current treatment and control efforts, or management practices;*
- (v.) *Identification of any overlying or adjacent Management Zone;*
- (vi.) *Identification of Category of the Discharge, and information to support the categorization;*
- (vii.) *Information necessary to support request for allocation of assimilative capacity, if applicable;*

(viii.) For category 4 dischargers, identification of an Alternative Compliance Project or justification as to why the Central Valley Water Board should not require implementation of an Alternative Compliance Project.

(ix.) For category 5 dischargers, information as required to support an Application for an Exception pursuant to the Exceptions Policy, which would include identification of an Alternative Compliance Project.

CONSULTANT'S SERVICES

Task 1. Initial Assessment of Water Quality Conditions/Estimation of Impact of Discharge of Nitrate on Shallow Zone and Underlying Zones.

This task involves conducting the initial assessment of water quality conditions, based on readily available existing data and information. This task also considers impacts over a 20-year planning horizon. For the NIA, impact may be estimated based on a simple mass balance calculation, assuming 20 years of loading as nitrate reaches the water table. ***This task addresses BPA Items (i) and (ii).***

1.1 Define Shallow Zone. Carollo team to determine what constitutes the Shallow Zone and the extent of area in the vicinity of the RWRF to consider in the area of contribution. The purpose is to represent the portion of the aquifer available for use by the shallowest domestic wells. To determine ambient nitrate concentrations in the Shallow Zone, the following options are available:

- (1) Use readily available data and information to calculate ambient nitrate concentrations for the shallowest ten percent (10%) of the domestic water supply wells in the Upper Zone of a groundwater basin/subbasin as defined and established in *Region 5: Updated Groundwater Quality Analysis and High Resolution Mapping for Central Valley Salt and Nitrate Management Plan (June 2016)*;
- (2) Conduct a site (or area) specific evaluation based on various types of available data and information, including but not limited to, depth and age of domestic wells in the area of contribution, groundwater table, well completion report data, and other available and relevant information; or,
- (3) An equivalent alternative approved by the Central Valley Water Board's Executive Officer.

Carollo team will use approach (2) above for this task. The work will build upon earlier work conducted for the As/Mn evaluation.

1.2 Calculate Ambient Nitrate Concentration in Shallow Zone and Underlying Zones. Carollo team to rely on data compilation and findings from the As/Mn Workplan through 2019 (evaluation of existing nitrate conditions in the vicinity of the RWRF) and select the appropriate well data to include in this assessment of groundwater quality conditions including the Shallow Zone and underlying Zones, using the following data sets:

- Readily available local and regional groundwater quality data of domestic wells, particularly nitrate data but also other water quality parameters as needed to identify the extent of the effect of RWRF operations on underlying groundwater.
- Site specific results of Phase 1 of the domestic/agricultural well sampling.
- Depth and age of domestic wells in the area of contribution, groundwater table, well construction logs, etc.

- Results from monitoring well network evaluation, including depth zones, water quality trend plots, contour maps, etc.

1.3 Estimate impact of discharge of nitrate on the Shallow Zone and Other Zones.

Carollo team to use a mass balance approach for this task and will consider the following:

- Projected wastewater discharge volumes to the percolation ponds, irrigation, and FID canals over the 20-year planning horizon.
 - City to assist in developing assumptions for end uses, volumes, destinations of the effluent from the RWRF over time.
- Projected date of startup of RWRF upgrade to nitrify/denitrify wastewater and anticipated effluent total nitrogen concentration.
 - Assume an effluent total nitrogen concentration of 7.5 mg/L.
- Features established in Hydrogeologic Conceptual Model, including physical features, hydrologic boundaries, aquifer properties, and estimates of water budget components.
 - Area of potential impact will be preliminarily delineated based on seepage analysis and estimated groundwater migration.
- Results (and interpretation) of RWRF groundwater data and the Phase 1 Dom/Ag sampling program, including data for nitrogen species, isotopes, ORP, DO, and other constituents.

The BPA says a mass balance “may” be used. In this proposed scope of work, a mass balance will preliminarily be used, followed later by the use of modeling tools to refine the understanding of the extent of the impact. The models will also be used to evaluate the implementation and effects of approaches to manage or reduce nitrate in the underlying groundwater system. These analyses are implemented in Task 6.4.

1.4 Technical Memorandum

Prepare draft and final technical memorandum (TM) using data through the 2019 evaluations.

Deliverables:

- Technical Memorandum (draft and final, PDF format)

Task 2. Survey of the Discharge Impacts on Water Wells. Determine if the RWRF discharge is causing any public water supply or domestic well to be contaminated by nitrate. ***This task addresses BPA Item (iii).***

Approximately 30 domestic wells were sampled during the Phase 1 Dom/Ag well sampling project, primarily to determine the influence of RWRF discharges on As and Mn groundwater quality in downgradient wells and to inform efforts to identify a point of compliance. The sampling program included nitrogen species, special isotopes, and other constituents identified to help determine potential impact to groundwater and attribution of sources (RWRF or other influencing factors). In addition to the As/Mn Compliance Assessment, the data will be used in this scope of work to inform the assessment of impacts of the RWRF discharge on nitrate concentrations in downgradient domestic wells.

2.1 Phase 1 Survey. Carollo team to review results to assess the extent to which domestic wells in the vicinity of the RWRF tap water with nitrate concentrations exceeding the trigger level of 7.5 mg/L

(Nitrate-N). Carollo team will also evaluate the isotope results and other constituent concentrations for RWRf groundwater data and the Phase 1 Dom/Ag well sampling project to determine if elevated nitrate concentrations can be attributed to the RWRf. Carollo team will identify the affected domestic wells and provide an assessment on nitrate source attribution.

Deliverables:

- Summary Memo – Phase 1 Survey Results and Findings (Draft and Final, PDF format)

Task 3. Early Action Plan (EAP). If causing contamination of a public water supply or domestic well, an Early Action Plan must be submitted with the NIA. ***This task addresses BPA Item (iv).***

This task assumes there will be at least one domestic well tapping groundwater under the influence of the RWRf, with nitrate-N concentrations exceeding the trigger level of 7.5 mg/L. If it is found in Task 2 that the RWRf is not the source of the elevated nitrates in any domestic well water, this task would be eliminated.

The EAP is a plan that identifies specific activities, and a schedule for implementing those activities, that will be undertaken to ensure immediate access to safe drinking water for those who are dependent on wells that provide groundwater with nitrate exceeding the maximum contaminant level (MCL) of 10 mg/L (Nitrate-N). The EAP will include the following tasks:

3.1 Identification of Potentially Affected Groundwater Users and Outreach. Provide process to identify affected residents and the outreach utilized to ensure that impacted groundwater users are informed of and given the opportunity to participate in the development of proposed solutions. The scope assumes the Carollo team will participate in one outreach meeting with local residents in support of this task.

The outreach consultant will assist with strategy planning, logistics and support for one outreach meeting with local residents. For each meeting, the outreach consultant will provide an agenda, distribute and coordinate RSVPs, and meeting summary. This meeting will occur in coordination with the stakeholder outreach and involvement for the Alternative Compliance Project described in Section 6.3

3.2 Coordination. Provide process for coordinating with others that are not dischargers to address drinking water issues, which must include (but would not be limited to) consideration of coordinating with affected communities, domestic well users and their representatives, the State Water Board's Division of Drinking Water, Regional Board, Local Planning Departments, Local Water Districts, Local County Health Officials, Kings River Water Quality Coalition, Groundwater Sustainability Agencies and others as appropriate (coordination with entities that may be engaged in the development of an adjacent Management Zone will be necessary, including coordination related to additional private domestic well sampling that may be required either in the Management Zone or the RWRf area of contribution [there is likely to be some initial overlap between these areas]). The scope assumes the Carollo team will participate in two outreach meetings with the parties described above, in support of this task. Additional outreach meetings are included as options in the budget.

The outreach consultant will assist with development of strategy and participant selection in close coordination with technical team for two outreach meetings with the parties described above. For the meetings, the outreach consultant will provide an agenda, distribute and coordinate RSVPs, and meeting summary.

3.3 Actions and Schedule of Implementation. Propose specific actions and a schedule of implementation that is as short as practicable (pending the Regional Board does not object to the EAP, the EAP must be implemented within 60 days of submittal) to address the immediate drinking water needs of those initially identified in the area of contribution, that are drinking groundwater that exceeds nitrate standards and that do not otherwise have interim replacement water that meets drinking water standards.

3.4 Funding Plan. Provide a funding mechanism for implementing the Early Action Plan, which may include seeking funding from local, state and federal funds that are available for such purposes;

3.5 Preparation of Report. This task involves compilation of the analyses and findings in Tasks 3.1 through 3.3 to produce the EAP as a stand-alone report. The EAP will also include summary discussions from the work conducted in Tasks 1 and 2. Carollo team will prepare a draft and final EAP. The report shall be prepared using current versions of Microsoft Office and GIS software. Copies of the final report shall incorporate City staff comments from the reviewed draft report.

Deliverables:

- Draft EAP Report (PDF)
- Final EAP Report (PDF and 5 hard copies)

3.6 Implementation Support. *The Carollo team will provide ongoing support for implementation of the EAP. This support may include additional outreach, updating and maintaining outreach materials, review of groundwater data collected through the EAP, or other support requested by the City for EAP implementation.*

Task 4. Identification of any overlying or adjacent Management Zone.

This task addresses BPA Item (v).

Task 4.1 Identification and Summary Memo. Carollo team will identify overlying or adjacent Management Zones (MZ) that may become established within the time this NIA is developed for the RWRF. Participants in each MZ will be identified, and the MZ boundaries will be displayed on a map. This information will be included in the NIA report. The MZ involves BPA Path B. The MZs would be identified for purposes of coordination (see Task 3.2 and Task 6). The results of this task also pertain to Task 6. A summary memo with map of MZs will be prepared.

Deliverables:

- Summary Memo (draft and final, PDF format)

Task 5 Identification of Category of the Discharge. Provide information to support the categorization.

This task addresses BPA Item (vi). The Water Board definitions for categories 4 and 5 are provided below.

Category 4 (Degradation Above Trigger): The average nitrate concentration in the Shallow Zone is better than the water quality objective. Though the discharge is reasonably expected to cause the average nitrate concentration in the Shallow Zone to exceed a trigger of 75% of the applicable water quality objective over a 20-year planning horizon, the average nitrate concentration in the Shallow Zone

is expected to remain at or below the applicable water quality objective over the same 20-year planning horizon.

Category 5 (Discharge Above Objective): Either

- The average nitrate concentration in the Shallow Zone is better than the applicable water quality objective, but the discharge may cause the average nitrate concentration in the Shallow Zone to exceed the water quality objective over a 20-year planning horizon; or,
- The average nitrate concentration in the Shallow Zone exceeds the applicable water quality objective and the discharge quality, as it reaches the Shallow Zone, also exceeds the applicable water quality objective.

5.1 Determination of Category. Using the analysis and findings of Tasks 1 and 2, Carollo team will determine the category of the discharge. Provide summary memo for NIA report that supports the characterization. The summary memo will be presented to the RWQCB during the progress meeting scheduled in Task 10.

Deliverables:

- Summary memo, draft and final (PDF format), and supporting information (maps, data tables).

Task 6. Alternative Compliance Project. *This task assumes the discharge will be Category 4 or 5. The BPA requires submittal of an ACP (along with the NIA and Notice of Intent) for Category 4 and 5 dischargers pursuing Path A. If the conclusion of Task 5 is that the discharge is categorized as 1, 2, or 3, this task will be eliminated.*

The ACP must demonstrate consistency with the management goals of the BPA Nitrate Control Program, addressing short-term and long-term drinking water needs affected by nitrates (Management Goal 1), plan for achieving balanced nitrate loadings within the proposed boundaries of the project, where reasonable and feasible (Management Goal 2), and a plan for establishing a managed aquifer restoration program to restore nitrate levels to concentrations at or below the water quality objectives to the extent reasonable, practicable and feasible (Management Goal 3).

The ACP must also identify the process to ensure that drinking water that meets drinking water standards is available to all drinking water users utilizing groundwater within the area of contribution. This component may be met through the development and implementation of an Early Action Plan (Task 3), payment into a mitigation fund, and/or other mechanisms geared toward providing emergency, interim and permanent solutions.

The ACP will be developed to address the guidelines contained in Appendix H of the BPA. The ACP will rely on information and findings developed in the prior tasks (and in conjunction with prior tasks) for the NIA and EAP. Preparation of the ACP will include the following:

6.1 ACP Framework and Area of Contribution. Develop framework to address the overarching goals and objectives of the ACP, as established by the BPA. Identify main project participants.

Identify and describe best estimate of the extent of the area of contribution (refinement of the area of contribution is further informed by work in Task 6.4). Identify locations within the area of contribution that overlap with other management areas/activities and the process to ensure coordination. Identify geologic and hydrologic features that limit or promote groundwater movement.

6.2 Constituents of Concern. Identify any constituents of concern the RWRF may want to address (besides nitrate). Identify current best practicable treatment and control (BPTC) or an approved exception from meeting the nitrate water quality standard.

6.3 Stakeholder Outreach and Involvement. This task will be coordinated with Tasks 3.1 and 3.2 (Early Action Plan Outreach and Coordination). Identify affected stakeholders within the area of contribution, over the 20-year planning horizon. Identify stakeholders within the area of contribution who are not included within the ACP boundary, and why. Provide process to identify affected residents and outreach to ensure stakeholders are informed of and given an opportunity to participate in the development of the ACP.

Provide description of the outreach that has occurred and will continue to occur to ensure stakeholders or affected communities within the area of contribution are informed of, and given opportunity to participate in, the development of any ACP as well as ongoing activities designed to resolve their drinking water concerns.

The outreach consultant will assist with strategy planning, logistics and support for two outreach meetings with local residents. For each meeting, the outreach consultant will provide an agenda, distribute and coordinate RSVPs, and meeting summary. This effort is an extension of the outreach associated with the EAP in Task 3.1.

The scope assumes the Carollo team will participate in two outreach meetings in support of this task. These will be in addition to (and in coordination with) the outreach work and meetings anticipated in Tasks 3.1 and 3.2.

6.4 Nitrate Management Plan (short term and long term). Identify how nitrate conditions will be characterized for use as the basis for refining the extent of effects by RWRF operations and demonstrating how nitrate will be managed over short and long-term periods to meet the nitrate management goals established in the Central Valley Region SNMP and BPA.

Identify short-term (≤ 20 years) and long-term (> 20 years) projects and/or planning activities that will be implemented as part of the ACP to make progress towards attaining each of the water quality-related management goals established by the Central Valley SNMP within the estimated area of contribution.

Identify mechanism(s) to support achievement of the overall Central Valley SNMP's long-term strategy to achieve balanced nitrate loadings and managed aquifer restoration, where reasonable and feasible. Mechanisms may include, but would not be limited to:

- Implementation of management practices that will reduce current nitrate loading to groundwater;
- Use of offsets to help mitigate potential localized impacts, while improving overall basin or subbasin-wide water quality (see Offsets Policy);
- Coordination with adjacent Management Zone(s);
- Coordination among Groundwater Sustainability Agency(ies) to implement GSP water management strategies that achieve multiple objectives, including BPA objectives;
- Managed groundwater recharge;
- Pump and utilize and/or treat and distribute; and

- Payment into a mitigation fund established to develop and implement long-term drinking water solutions, balance and restoration

To estimate the feasibility of these mechanisms, the flow and transport model developed for the As/Mn Compliance Assessment will be utilized. This will involve expanding the focus of the As/Mn flow model and incorporating nitrate into the transport model. This will allow for the simulation of the nitrate transport and determination of the effects that discharged water has had or will in the future have on the Shallow Zone and underlying Zones with planned nitrate management activities (including upgrading nitrogen treatment with increased nitrogen removal) and restoration. This task includes two modeling scenarios to assess nitrate management activities and one restoration scenario. Future nitrate management activities, as described in the NIA and ACP, would examine the performance of those activities.

6.5 Implementation Schedule. Provide a short and long-term schedule for implementation of nitrate management activities with interim milestones and performance measures to assess progress every 5 years during the first 20-year planning horizon and every 10 years thereafter.

Identify alternative procedures or measures to be implemented if the interim milestones or performance measures are not met.

Provide a water quality surveillance and monitoring program that is adequate to ensure that the ACP when implemented is achieving the expected progress towards attainment of water quality-related management goals (coordination with the SNMP's surveillance and monitoring program may be considered as part of efforts to comply with this element).

6.6 Report. This task involves compilation of the analyses and findings in Tasks 6.1 through 6.5 to produce the ACP as a stand-alone report. Carollo team will prepare a draft and final ACP. The report shall be prepared using current versions of Microsoft Office and GIS software. Copies of the final report shall incorporate City staff comments from the reviewed draft report.

Deliverables:

- Draft ACP (PDF)
- Final ACP (PDF and 5 hard copies)

6.7 Implementation Support. *The Carollo team will provide support for implementation of components of the short-term projects included as part of the ACP including drilling and installation of monitoring wells and review of newly collected groundwater data.*

Optional Task 7. Application for an Exception. If the discharge is determined to be Category 5 (Task 5), the City will be required to submit an Application for Exception pursuant to the Exceptions Policy. ***If it is determined in Task 5 that the discharge is not Category 5, this task will be eliminated.***

The exception may apply to the issuance of effluent limitations and/or groundwater limitations that implement water quality objectives (WQO) for nitrate. According to the Exceptions Policy, the term nitrate includes nitrate and other forms of nitrogen speciation (e.g., total inorganic nitrogen, total Kjeldahl nitrogen, etc.) used to address nitrate in groundwater.

The Waste Discharge Requirements (WDR) for the RWRf do not currently include effluent limitations for nitrate or any form of nitrogen, on the secondary effluent discharged to the ponds or irrigation areas. The WDR does include the groundwater limitation for nitrate (as nitrogen) of 10 mg/L.

Authorization by the Central Valley Water Board (Water Board) of an exception from issuance of an effluent limitation, or from enforcement of the groundwater limitation will allow the RWRf to continue to operate and discharge, with relief from potential regulatory action, while progress is made by the City on their Nitrate Control Program. This would include time to implement nitrogen removal at the RWRf to reduce nitrate effluent concentrations below 10 mg/L (as total nitrogen) and attain long term compliance of the nitrate WQO in groundwater. The Water Board will set interim performance-based requirements when the exception is authorized.

An exception may be typically granted for up to 10 years, but the Water Board may have discretion to approve a 50-year exception and subsequent renewal for up to another 50 years.

7.1 Preparation of Application for Exception. Carollo team will prepare the Application for an Exception, per the Exceptions Policy. The application will include the following:

- a. An explanation/justification as to why the exception is necessary, and why the RWRf is unable to ensure consistent compliance with the groundwater limitations associated with nitrate, and why time is needed before issuance of an effluent limitation for nitrate.
- b. A description of the ACP, EAP, or other implementation measures that the City will implement or participate in, consistent with the Nitrate Permitting Strategy of the BPA.
- c. Copies of any documents prepared and certified by another state or local agency pursuant to Public Resources Code Section 21080 et seq.; or, such documents as are necessary for the Water Board to make its decision in compliance with Public Resources Code section 21080 et seq.
- d. A work plan to provide an interim and permanent water supply for any person living in the area adversely affected by the discharge under the requested nitrate exception. The water supply work plan shall include a schedule of milestones and a description of financial commitments to assure completion of the interim and permanent water supply. Performance bonds may be required to assure timely implementation.
- e. A detailed plan of how the proposed implementation measures will further the long-term management goals of the Nitrate Control Program.

7.2 Preparation of Report. Prepare draft and final report.

Deliverables:

- Draft Application (PDF format)
- Final Application (PDF format)

Optional Task 8. Respond to RWQCB Comments on Area of Contribution.

8.1 Respond to Comments. As stated in the PURPOSE, it is assumed the initial geographic area for this NIA will be the same as area determined for the overall As/Mn Compliance Assessment. During the second meeting with the RWQCB (Task 10.2), the City will present the justification for the proposed area

for the NIA (which may be modified pending results of Tasks 1, 2, and 6, and with consideration of results associated with the implementation of the As/Mn Workplan). If the RWQCB does not accept this approach for estimating the area of contribution and requires the City to further expand the area of contribution for the NIA, additional budget will be needed to evaluate and develop an expanded boundary. Since the nature and extent of comments and potential effort needed to address changes cannot be identified at this time, a budget allowance is provided.

The RWQCB may also provide comments regarding the technical analysis of data used to determine the Area of Contribution or for quantification of nitrate conditions within the Area of Contribution. The Carollo team will provide responses to these comments including analysis of additional groundwater data collected after submittal of the NIA.

Task 9. Preparation of NIA Report.

Work completed in Tasks 1-8 will be compiled into the NIA Report. The NIA will also include the formal “Notice of Intent” letter from the City. The EAP and ACP will be included as appendices to the NIA Report. A draft and final NIA will be prepared. The report shall be prepared using current versions of Microsoft Office and GIS software. Copies of the final report shall incorporate City staff comments from the reviewed draft report.

The Carollo team will provide responses to any comments received from the RWQCB on the NIA as part of this task.

Deliverables:

- Notice of Intent (draft and final, PDF format)
- Draft NIA Report including the EAP and ACP (PDF format)
- Final NIA Report (PDF and 5 hard copies)

Task 10. Project Management and Meetings.

Carollo’s project manager shall direct and coordinate the efforts of the project team members in order to deliver all of the components of the project. Project management includes facilitation of a Kick-Off Meeting, periodic meetings, work order administration, monthly progress reports, coordination with RWRF staff, and quality management.

The project manager will make staffing assignments, review work progress, coordinate quality management procedures, manage subconsultants, and communicate monthly progress reports to the City. The project manager shall manage the budget, schedule, and invoicing. The project manager will prepare and maintain decision and action item logs that will record the decisions made by the City throughout the project as well as action items assigned to the Carollo team and City team members.

10.1 Project Kickoff Meeting. Carollo team will facilitate a project Kick-off Meeting with RWRF staff to review the BPA requirements and develop the City’s goals and objectives for the NIA (including plan to pursue Path A). This will be a working meeting with participation from key RWRF staff to discuss the RWRF goals and objectives, preferences, key concerns and project constraints. Additionally, Carollo team will review the overall scope, schedule, and budget, and establish lines of communication between the Carollo team and RWRF staff. Carollo team will provide an initial data request list and list of past

studies and work to review. The list will be updated during the course of the project. Key members of the Carollo team will attend the Kick-Off Meeting.

10.2 Meetings with RWQCB. Three meetings will be held with the RWQCB.

The first meeting will be to review the BPA requirements for the NIA, present the City's objectives (including pursuit of Path A) and schedule, and clarify RWQCB expectations for the NIA.

A second meeting will be scheduled to review progress and key findings related to estimating impact of discharge of nitrate on the Shallow Zone and underlying Zones, the determination of the Shallow Zone and area of contribution, and determination of the category of discharge (Tasks 1, 2, and 6).

A third meeting will be to present the analysis and conclusions of the full NIA at the time of submittal of the NIA (within 330 days of receipt of the NTC).

10.3 Progress meetings. Eight progress meetings will be conducted. The progress meetings will be held approximately monthly following the kick-off meeting. It is assumed that meetings will alternate between Webex and in-person meetings (four of each).

Optional Task 11. Analysis Refinement Tasks

This task identifies work to be conducted during the development of the NIA that is dependent on conclusions and knowledge gained in the core tasks referenced below. Work in the core tasks is needed to advance the study. The follow-up tasks are needed to refine results and enhance validity of findings and conclusions of the NIA.

11.1 Phase 2 Domestic/Agricultural Well Survey. Sampling will be conducted on additional domestic/agricultural wells, not tested in Phase 1, to expand the area of the domestic/agricultural well survey for the As/Mn Study (see Domestic/Agricultural Wells Sampling Plan). Carollo team to review results to determine if any domestic wells tap water with nitrate concentrations exceeding the trigger level of 7.5 mg/L. Carollo team will also evaluate the concentrations of special analytes and/or isotopes to determine if the high nitrate concentrations can be attributed to the RWRF. Carollo team will identify the affected domestic wells and provide an assessment on the source attribution. Groundwater quality conditions will be reassessed based on this additional data combined with updated nitrate sample data from the county and other public entities as available.

Prepare an update to the Phase 1 Survey Summary Memo, to include results and overall findings from this task.

Deliverables:

- Update to Summary Memo (Draft and Final, PDF format)

11.2 Update Calculations of Ambient Nitrate Concentration with Data from Phase 2

Domestic/Agricultural Sampling Project. The ambient nitrate concentration in the Shallow/Upper Zone of groundwater will be refined with new knowledge of the area water quality, obtained from data collected during the Phase 2 domestic/agricultural well sampling. This sampling effort will be conducted in 2020.

Prepare an update to the Task 1 Technical Memorandum.

Deliverables:

- Update to Task 1 Technical Memorandum (PDF format).

Task 12. Preparation of A Nitrate Initial Assessment for the North Fresno Wastewater Reclamation Facility (WWRF)

This task to prepare the Nitrate Initial Assessment for the North Fresno WWRF includes the following tasks specified in the Basin Plan Amendment. It is assumed that discussions relating to the North Fresno WWRF with City staff and with the Regional Board will occur as part of meetings described in Task 10.

12.1 Estimate impact of nitrate discharge on the shallow zone and perform an Initial Assessment of water quality conditions. The assessment will be based on previous analyses and existing data and will incorporate conclusions stated in the Report of Waste Discharge and WDR. This task will evaluate locally specific hydrogeologic conditions related to the definition of the shallow zone. This includes defining the shallow zone specific to 10 percent of the shallowest domestic wells located nearest to the North Fresno WWRF. Well construction logs, as available, will be used to determine the depth and age of wells in the area. The construction of those wells, and any representative publicly available water quality data for those wells, will be considered relative to previous work that identified the presence of a significant clay unit underlying the WWRF site and also the previous understanding (based on WWRF monitoring data) of low nitrate concentrations in groundwater. Based on the WWRF monitoring data, together with publicly available groundwater quality data, this task will evaluate ambient nitrate concentrations in groundwater above and below significant hydrogeologic features (e.g., clay unit) within the locally defined shallow zone.

This task will also include documentation of groundwater protection measures in place (lined storage pond, seasonal/occasional discharges to sewer, irrigation management measures, etc.) that are utilized by the WWRF to achieve best practicable treatment and control (BPTC) for the protection of groundwater quality. If needed, a mass balance of water and nitrogen loadings on the golf course may be developed to estimate historical and projected loadings to the Shallow Zone through irrigation.

12.2 Survey of the discharge, and determination if the discharge is causing any public water supply or domestic well to be contaminated by nitrate. The Carollo team will collect and review any readily available local and regional groundwater quality data of domestic and public supply wells near the North Fresno WWRF, particularly nitrate data. The review will also examine other groundwater quality data to demonstrate differences in groundwater quality above and below the significant clay unit and to further distinguish constituents contributed to groundwater by the WWRF versus constituents contributed to relatively deeper groundwater in the shallow zone (below the clay unit) due to influences from regional land uses and lateral groundwater flow mechanisms.

12.3 Identification of any overlying or adjacent Management Zone. Coordination with nitrate management activities in the larger Kings Subbasin will occur as part of the work for the RWRf and will not be conducted separately for the North Fresno WWRF.

12.4 Categorization of the discharge, expected to be Category 1 (no degradation) or 2 (*de minimus* impacts) based on previous analyses documented in the 2011 Report of Waste Discharge and along with

the Waste Discharge Requirements (WDR) for the North Fresno WWRF. Provide justification for categorization, based on the findings in Tasks 12.1 and 12.2.

12.5 Preparation of an Initial Assessment/Notice to Comply. Work completed in Tasks 12.1-12.4 will be compiled into the NIA Report. The NIA will also include the formal “Notice of Intent” letter from the City. It is assumed that discharge of nitrate from the facility has not impacted, or only minimally impacted, shallow groundwater; therefore, an Early Action Plan and Alternative Compliance Project are not required. A draft and final NIA will be prepared. The NIA will provide the hydrogeologic justification to support the lack of influence from the WWRF on shallow groundwater quality in the vicinity of the plant site. Discharge quality, WWRF historical groundwater quality monitoring records, and other local groundwater quality data will be presented to differentiate effects (or the lack of effects) by the WWRF on the uppermost part of the shallow zone compared to the quality in the deeper part of the shallow zone associated with the groundwater produced for domestic purposes. The report shall be prepared using current versions of Microsoft Office and GIS software. Copies of the final report shall incorporate City staff comments from the reviewed draft report.

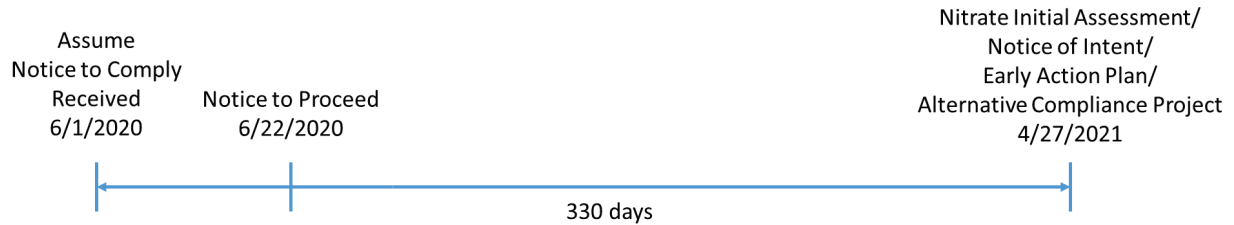
12.6 Response to comments from the Regional Board. Since the nature and extent of comments and potential effort needed to address changes cannot be identified at this time, a budget allowance is provided.

Deliverables:

- Notice of Intent (draft and final, PDF format)
- Draft NIA Report (PDF format)
- Final NIA Report (PDF and 5 hard copies)

TIME OF PERFORMANCE

The work will be completed within 330 days following the City's receipt of the Notice to Comply (NTC) from the Water Board as shown in the project timeline.



Estimated Project Delivery Schedule

The preliminary schedule for completing the tasks is provided in the table below assuming NTC received on June 1, 2020 and Notice to Proceed given on June 22, 2020.

Task	Task Duration (months)	Cumulative Duration (months)	Tentative Completion Date
Task 1. Initial Assessment of Water Quality Conditions and Impact of Discharge on Shallow Zone	3	3	9/30/2020
Task 2. Survey of the Discharge Impacts on Water Wells	2	2	8/31/2020
Task 3. Early Action Plan	4	6	12/31/2020
Task 4. Identification of any overlying or adjacent Management Zone	1	--	
Task 5. Identification of Category of the Discharge.	1	--	
Task 6. Alternative Compliance Project	6	9	4/27/2021
Task 7. Application for Exception	2	--	
Task 8. Respond to RWQCB comments on Area of Contribution (as needed)	2	--	
Task 9. Preparation of NIA Report	2	9	4/27/2021
Task 10. Project Management and Meetings	10	--	
Task 11. Analysis Refinement Tasks	1	--	
Task 12. Nitrate Initial Assessment for the North Fresno WWRF	4	--	3/31/2021