City of Fernley
Planning for Surface Water Treatment Modifications
Attachment A - Scope of Work Version 3.0 (03 AUG 2018)

Task 1: Water Treatment Facilities Planning

Objectives: Identify and document the major modifications to implement surface water treatment at the City of Fernley Water Treatment Facility. The preferred treatment approach selected by the City will include infrastructure to treat groundwater and surface water concurrently in separate conventional treatment process trains.

Anticipated Activities:

1.01 Meet with City staff to discuss project objectives, design concepts, and operating strategies.
1.02 Update planning level capital and operating cost estimates from Surface Water Treatment Analysis (CDM Smith, 2016).
1.03 Prepare Draft TM Identification of Proposed Modifications to Treat Surface Water at the Drinking Water Treatment Facility
1.04 Conduct Draft TM Review Workshop with City via conference call or at the plant
1.05 Prepare Final TM Identification of Proposed Modifications to Treat Surface Water at the Drinking Water Treatment Facility

Deliverables:

- Draft TM; electronic file only
- Final TM; electronic file only
- Presentation from Draft TM Review Workshop; electronic file only
- Notes from Draft TM Review Workshop; electronic file only

Level of Effort and Budget: 40 hours; $14,000; includes labor and travel expenses for up to 2 trips from Concord, California to Fernley, Nevada.

Assumptions:

- Meeting with City will be held at City Hall or the plant; and will not exceed 4 hours duration; CDM Smith Project Manager/Technical Director will attend.
- Technical Memorandum will be approximately 10 pages in length, including tables and figures.
- Analysis will be limited to adding the following processes and/or components:
  - Pre-Sedimentation:
    - New Basins (new- for solids removal prior to treatment);
    - Bypass to Stormwater/Overflow Percolation Pond and future Pre-sedimentation Basin(s);
    - No additions (existing Flash Mix/Flocculation/Sedimentation/Strainers are sufficient to protect membranes);
  - Flash Mix System (similar to existing but with new pumps);
  - Chemical Metering Pumps;

    - Filtered Water Reservoir (similar to existing);
    - Yard Piping and Site Work (similar to existing);
    - Sludge Disposal (Surface Water Treatment Residuals Only):
        - Sludge Drying Ponds (new- for solids dewatering);
        - Discharge to Sanitary Sewer
    - Electrical and Control System Upgrades.
- CDM Smith will not prepare detailed estimates consisting of quantities take-offs, equipment quotes and related information; comparative/planning level estimates will be consistent with AACE Class 4 with expected range of accuracy of -50% to + 100% (i.e., a point estimate of $10 million would be presented as a range of $5 to $20 million).
- Alternatives assume all associated costs to permit, plan, design, construct and operate facilities to convey raw surface water to the existing plant site will be developed separate from this analysis and such costs are not included in CDM Smith's estimates.
- Capital costs for planning, design, engineering services during construction, construction management, legal, financing and administrative/management costs will be estimated as percentages of the estimated construction cost; and the City will provide percentages for legal, financing and administrative costs.
- CDM Smith will estimate annual operating costs for the surface water treatment improvements based on experience and the following information provided by the City:
    - O&M Labor
    - Chemicals consumption and costs
    - Power consumption and costs
    - Solids production and disposal costs
    - Membrane replacement costs
    - CDM Smith will prepare present-worth costs based on criteria provided by the City (e.g., 20-year project life, inflation rate of 3% per year and interest rate of 6% per year, etc.).
    - All cost information will be prepared in tabular format with text limited to the documentation of major assumptions used in the analyses.
- City will provide written comments on the Draft TM within 14 days of receiving
- Draft TM Review Workshop will be conducted via conference call and will not exceed 1-hour duration.
- Work will be conducted from August 15, 2018 through June 30, 2019.

Task 2: Coordination with Surface Water Supply Project

Objectives: Review work by the City and its consultants related to the design of facilities to convey raw surface water from the Truckee Canal to the City's Drinking Water Treatment Plant.

Activities:

2.01 Review reports and design documents prepared by the City and AECOM for the raw water conveyance facilities.

2.02 Coordinate with the City and AECOM to provide information related to the anticipated design, construction, and operation to treat surface water at the Drinking Water Plant.

Deliverables:

- Emails and other information will be exchanged electronically as needed.

Level of Effort and Budget: 8 hours; $2,600

Assumptions:

- Coordination will occur via conference calls, except for workshops and meeting identified in Task 1.
- CDM Smith will review the proposed raw water conveyance facilities (currently being designed by AECOM) to familiarize the CDM Smith team with the proposed design, and coordinate design and operations intent for the plant.
- CDM Smith reviews of the proposed raw water conveyance facilities will not be for quality control/quality assurance, code compliance, calculation checking, or other responsibilities of the engineer of record.

Task 3: Coordination with Regulators

Objectives: Coordinate monitoring and regulatory requirements for implementing a new surface water supply at the Drinking Water Treatment Plant. Identify regulatory requirement to use new solids drying ponds (when only surface water is treated) for residuals handling and dewatering prior to disposal at the landfill in Lockwood, Nevada.

Activities:

3.01 Attend meeting or consult via phone with Nevada Division of Environmental Protection (NDEP) Bureau of Safe Drinking Water (BSDW) to initiate discussions on surface water treatment requirements.

3.02 Attend meeting or consult via phone with Bureau of Water Pollution Control (BWPC) to initiate discussions on solids drying pond requirements.

3.03 Revise water treatment plant classification to include surface water and confirm operator certification requirements.

3.04 Develop preliminary schedule for anticipated source water monitoring, and treated water monitoring (at the plant and distribution system).

Deliverables:

- Notes from Meeting with NDEP BSDW; electronic file only
- None; estimates for treatment systems/facilities will be summarized in tabular format in the Draft TM and Final TM.

Level of Effort and Budget: 8 hours; $3,000; includes labor and travel expenses for up to 1 trip from Concord to Fernley (or Carson City).

Assumptions:

- Meeting with NDEP BSDW will be held in Carson City or City of Fernley; and will not exceed 4 hours duration; CDM Smith Project Manager/Technical Director will attend.

- Meeting with NDEP BWPC will be held in Carson City or City of Fernley; and will not exceed 4 hours duration; CDM Smith Project Manager/Technical Director will attend.

Task 4: Miscellaneous As-Needed Activities

Objectives: Address out of scope issues identified during the project, within the project scope and budget.

Activities:

Additional or out of scope work to be identified during the project.

Deliverables:

To be determined.

Level of Effort and Budget: 8 hours; $2,600

Assumptions:

To be determined.

Task 5: Project Management

Objectives: Communicate with City and manage the scope, schedule and budget to deliver a successful project.

Activities:

5.01 Prepare Project Management Plan
5.02 Setup document management account in ProjectWise
5.03 Prepare up to two invoices

Deliverables:

- Up to two (2) invoices and progress reports; electronic copy only.

Level of Effort and Budget: 8 hours; $1,600

Assumptions:

- Project will be billed on time and materials basis per task with a not to exceed upper limit of $25,000.
- CDM Smith can move hours and/or budgets between tasks without authorization by the City.
- Project will be initiated in August 15, 2018 and completed by June 30, 2019.
- Michael Zafer, P.E. will serve as Project Manager/Technical Director; project engineers will assist as needed.

Task 6: Quality Management

Objectives: Provide technical review of deliverables and implement CDM Smith's Quality Management Plan to the project.

Deliverables:

- None.

Activities:

6.01 Conduct Technical Reviews
6.02 Implement Quality Management Practices and Project Closeout

Level of Effort and Budget: 6 hours; $1,200

Assumptions:

- Senior water treatment engineer and senior cost estimator will provide technical review of deliverables.