



City of Ketchum

November 21, 2022

Mayor Bradshaw and City Councilors
City of Ketchum
Ketchum, Idaho

Mayor Bradshaw and City Councilors:

Recommendation to Approve Task Order No. 14 (Purchase Order 23037) with HDR Engineering, Inc. for Preliminary Engineering Services for Ketchum / SVWSD Wastewater Treatment Plant – Aeration Blowers and MLE Conversion Tech Memos

Recommendation and Summary

Staff is recommending the Council approve Task Order No. 14 (Purchase Order 23037), Preliminary Engineering Services for improvements at the City of Ketchum and Sun Valley Water & Sewer District Wastewater Treatment Plant and adopt the following motion:

"I move to approve Task Order No. 14 (Purchase Order 23037) with HDR Engineering, Inc. for Preliminary Engineering Services for Ketchum / SVWSD Wastewater Treatment Plant – Aeration Blowers and MLE Conversion Tech Memos."

The reasons for the recommendation are as follows:

- HDR Engineering has been the design engineering firm for the wastewater treatment plant and has a Multiple Project Agreement for Professional Services with the City.
- HDR Engineering will provide technical assistance and necessary engineering functions to the City through this task order.

Analysis

The Ketchum/Sun Valley Water Sewer District (SVWSD) Wastewater Treatment Facility is in the process of upgrading the current facility as part of the near-term improvements identified in a 2022 Facilities Planning Study. HDR Engineering will be providing these services under a Master Services Agreement dated January 21, 2014. This task order would authorize HDR Engineering to provide technical memorandums regarding the phased implementation of aeration system blowers for current/future design conditions and energy reducing process modifications as a technical services supplement to the Master Services Agreement.

Sustainability

The recommended action will further the goals of the 2020 Ketchum Sustainability Action Plan in the following ways:

- Modern, energy efficient equipment will be specified to reduce energy consumption
- Natural and biological removal processes will be designed into the treatment process further reducing the energy necessary for proper treatment

Financial Impact

The FY23 budget includes funds for Wastewater Capital Improvement Projects. This is a capital improvement expense which will be shared equally with the Sun Valley Water and Sewer District.

Attachments:

HDR Task Order 14 Scope of Services

Purchase Order 23037

TASK ORDER # 14

This Task Order pertains to an Agreement by and between City of Ketchum, ID / Sun Valley Water & Sewer District, Sun Valley, ID (“OWNERS”), and HDR Engineering, Inc. (“ENGINEER”), dated January 21, 2014, (“the Agreement”). Engineer shall perform services on the project described below as provided herein and in the Agreement. This Task Order shall not be binding until it has been properly signed by both parties. Upon execution, this Task Order shall supplement the Agreement as it pertains to the project described below.

TASK ORDER NUMBER: Amendment #14

PROJECT NAME:

Ketchum / SVWSD Water Reclamation Facility (WRF) – Aeration Blowers and MLE Conversion Tech Memos

PART 1.0 AMENDMENT DESCRIPTION:

Provide Technical Memorandums regarding the phased implementation of aeration system blowers for current/future design conditions and energy reducing process modifications (conversion to MLE).

PART 2.0 SCOPE OF SERVICES TO BE PERFORMED BY ENGINEER:

See Exhibit A.

PART 3.0 OWNER’S RESPONSIBILITIES:

PART 4.0 PERIOD OF SERVICE:

November 2022 – April 2023

PART 5.0 ENGINEER’S FEE:

See Exhibit A for breakdown.

Amendment #14: Technical Memorandums for Aeration Blowers and MLE

\$ 55,800.00

PART 6.0 OTHER: N/A

This Task Order is executed this _____, 2022.

CITY OF KETCHUM, ID

“OWNER”

BY: _____

NAME: Neil Bradshaw

TITLE: Mayor

ADDRESS: City of Ketchum
P.O. Box 2315 (191 5th St. W.)
Ketchum, ID 83340

SUN VALLEY WATER & SEWER DISTRICT (SVWSD)

“OWNER”

BY: _____

NAME: Jim Loyd

TITLE: Chairman

ADDRESS: SVWSD
P.O. Box 2410
Sun Valley, ID 83353

HDR ENGINEERING, INC.

“ENGINEER”

BY: 

NAME: Kate Eldridge

TITLE: Sr. Vice President

ADDRESS: HDR
412 E. Parkcenter Blvd,
Suite 100
Boise, ID 83706

EXHIBIT A

Scope of Services

Background

The Ketchum/SVWSD Water Reclamation Facility (WRF) treats the wastewater generated by the City of Ketchum and Sun Valley. The WRF is jointly owned by the City of Ketchum and the Sun Valley Water & Sewer District (SVWSD). Treated water is discharged to the Big Wood River per an Idaho Pollutant Discharge Elimination System (IPDES) permit. Future planning for the WRF was submitted in a Wastewater Facility Planning Study (FPS) completed by HDR in 2022 and approved by Idaho Department of Environmental Quality (IDEQ). The scope of services described in this Task Order are the initial projects identified in the FPS implementation schedule.

Technical memorandums provided by this Scope of Services (Task Order) will be used to advance the two biological areas critical to current and future performance: 1) replacing aged and failing blowers and, 2) modifying the activated sludge process to Modified Ludzack-Ettinger (MLE).

The Tech Memo tasks are generally summarized below:

Blower Tech Memo

- Summarize the current, intermediate, and future design conditions (from FPS).
- Review the Sumo biological model for aeration basin minimum and maximum air flows to meet current and future loading demands.
- Select the new blower(s) to replace the failed turbo unit and aged centrifugal unit. Provide room layout. Provide cost opinion for initial blower purchase and install.
- Prepare an Owner Procurement Package for the initial blower replacement.
- Determine the stage of growth (load) when installation of additional blowers is required and the projected timing (year) of each installation.
- Review the blower room layout (building) for the future conditions as larger blowers are required.
- Review the electrical for the current situation and future conditions.

MLE Tech Memo

- Summarize the current, intermediate, and future design conditions (from FPS).
- Review the Sumo biological model for input of mixed liquor recycle, minimum and maximum to meet current and future loading demands.
- Review anoxic mixing methods and make selection.
- Determine the recycle pumping configuration and preliminary layout.
- Provide an opinion of probable construction cost.

- Review the electrical for the current situation and future conditions.

The engineering services described in detail for this Scope of Services are as follows:

TASKS

Task 100 – Project Management:

Budget Status Monitoring: Monitor the project work to complete the overall Project, the budget expended, the estimated cost of the work remaining, and the estimated cost at completion. Inform Ketchum/SVWSD of budget status through the monthly invoices, provide invoice progress reports and progress conference calls. Manage activities within overall total Project budget. Develop and Execute the Quality Assurance/Quality Control (QA/QC) Plan.

Assumptions

- An initial site visit will be arranged to kick-off this scope of work. The content of the Tech Memos will be discussed and communication protocol. This will also be an opportunity to collect detailed analytical and operation data, review manufacturer preferences, review the blower layout, take photos, and discuss electrical. The meeting will be attended by two HDR engineers (PE and EIT) and an electrical engineer.
- Monthly client progress updates (30-minute conference call with HDR project manager)
- Duration of the project – 6 months.
- Monthly invoices over project duration

Task 200 – Aeration Blower Tech Memo

The primary goal of Task 200 is the selection of the replacement blower for the failed turbo unit. This includes review of past operating data to understand the minimum, average, and maximum air flows required during a typical year. Review of the flow and oxygen demand load (BOD and nitrogen) from the past year will be adjusted to match “typical” current conditions. Some of the recent abnormal load data during the pandemic period (2020 – 2022) showed high organic loading resulting in higher required air flows. This recent data will be sorted out to determine how it impacts the design air flow.

The following summarizes the subtasks:

- Establish design flows and loads for the current situation.
- Run SUMO biological computer model to predict air flow for minimum, average, and maximum design conditions (current). Run SUMO model for air flow associated with planned growth in 5, 10, 15 and 20 years. Account for air quantities with and without implementation of the MLE modifications.
- Determine the current blower air flow matching WRF needs over range of possible air flow conditions (min., avg., max. day, max. hr) and meeting DEQ redundancy criteria.

- Make hybrid PD blower selection with manufacturer(s) to determine preliminary blower layout, building piping layout (suction and discharge), and electrical details.
- Prepare layout for new blower in current place of failed turbo blower (and possibly old centrifugal). See diagram below for existing blower building layout shown in FPS Figure 4-3.
- Prepare implementation schedule for new blower purchase and install along with cost opinion (Class 3).
- Determine blower size for future additions (replace remaining turbo blower) and layout in existing or modified blower building (review FPS Figure 4-3 for future layout and possible improvements). Revise previous FPS blower implementation schedule over the 20-year planning period based on any blower size changes (if necessary).

City of Ketchum / Sun Valley Water & Sewer District

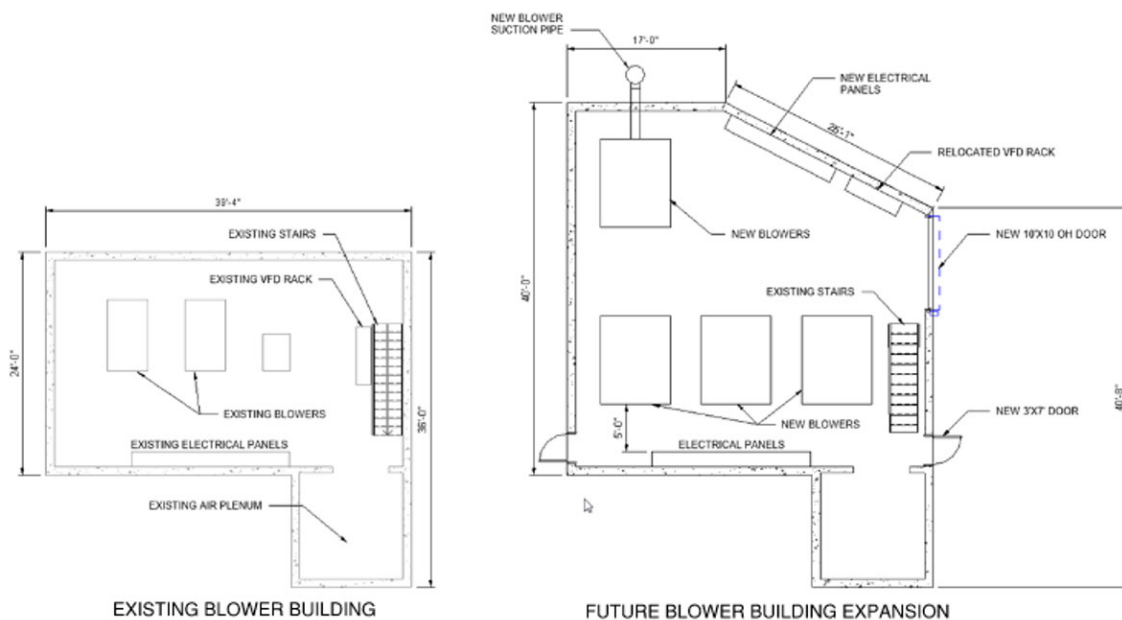


Figure 4-3. Aeration Building Expansion

Deliverables

- Draft - Aeration Blower Technical Memorandum - pdf format for Ketchum/SVWSD review.
- Final - Aeration Blower Technical Memorandum - pdf format

Assumptions

- WRF will supply analytical data (flow, BOD, TSS, NH3-N, TKN) and operational data (air flow) for computer modeling and aid in blower sizing.
- Draft TM review will be completed by web conference call, assumed to be 1 hour duration.

Task 300 – Blower Procurement Package

For timely implementation of the failed turbo blower replacement, Task 300 provides a procurement bid package for a new blower based on the results from the Blower Tech Memo (Task 200).

The subtasks involved are:

- Determine acceptable blower manufacturers with the necessary experience, product quality, and delivery schedule.
- Determine blower manufacturers having equipment fitting in the existing building with little, or minor modifications.
- Provide preliminary drawings of the blower layout for vendor information
- Provide required blower design air flow rate, minimum and maximum air flow and associated pressure.
- Prepare the procurement document.
 - Advertisement for Bid
 - Instructions to Bidders
 - General Conditions of the Contract
 - Agreement
 - Bonding
 - Notice of Award
 - Notice to Proceed
 - Submittal Requirements
 - Special Services during Installation
 - System Startup and Commissioning
 - Blower Technical Specification

Deliverables

- Draft Procurement document for Blower bidding in pdf format for Owner review.
- Final Procurement document for Blower bidding in pdf format.

Assumptions

- Blower procurement documents will be HDR standards using versions of EJCDC formatting.
- Blower technical specification will be structured around an agreed upon manufacturer with “or equal” language for bidding.

Task 400 – MLE Tech Memo

The process flow diagram of the MLE arrangement show the main components are mixing instead of aeration in Zone 1 and mixed liquor recycle (MLR) pumping from Zone 3 to Zone 1.

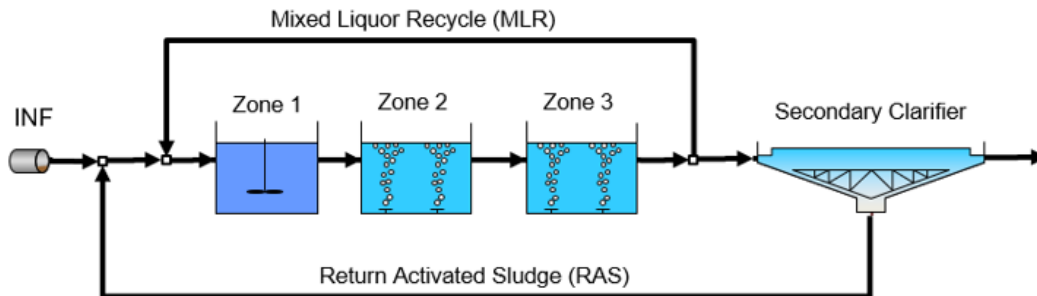


Figure 4-1. MLE process schematic

The following summarizes the subtasks involved in preparation of the MLE Tech Memo:

- Using data collected for Task 200, the SUMO biological model will be run to determine the appropriate recycle rate (MLR).
- Evaluate mixing methods for Zone 1. Methods include floating mixer and submersible blade mixers. Specific equipment selection will be made for the Owner to understand the materials of construction, the maintenance requirements, and motor sizes.
- Provide a mixer layout for basins 3 and 4. Obtain budgetary quotes.
- Determine the recycle pump sizing and layout in Zones 3 of basins 3 and 4. Obtain budgetary quotes.
- Determine the piping arrangement from Zone 3 to Zone 1. Pipe materials, layout, and routing.
- Provide budgetary cost opinion (Class 3) for the MLE conversion to Basins 3 and 4.

Deliverables

- Draft – MLE Conversion Technical Memorandum - pdf format for Ketchum/SVWSD review.
- Final – MLE Conversion Technical Memorandum - pdf format

Additional Services Not Part of this Scope

Additional services can be provided upon request. The following provides a list of exclusions or situations not included in this scope of services:

- No site visits after the kick-off meeting (only web based virtual meetings)
- No bench or pilot testing.

- No updates to the FPS.
- No preliminary engineering report (PER) or detailed design.
- No bidding documents (plans or specifications) for blower installation or MLE conversion only for blower procurement.
- Excludes any other services not otherwise included in the agreement or not customarily furnished in accordance with generally accepted engineering practices.

Anticipated Schedule Summary

The project schedule assumes the following milestones timeline for project completion.

Activity or Milestone	Date
Notice-to-Proceed (NTP)	November 07, 2022
Task 200: Aeration Blower Tech Memo	December 16, 2022
Task 300: Blower Procurement	February 10, 2023
Task 400: MLE Conversion Tech Memo	March 24, 2023
Task 100: Project Management	April 30, 2023

The above schedule will be adjusted based on the actual day the NTP is issued and/or if the City requests additional review time. An additional 30 days has been added to the overall contract period in the Task Order (PM) to allow for project closeout activities.

Fee Summary Table

Subtask	Hours	Cost
100 – Project Management, Project Financials, Monthly Reports, Kick-off Meeting	48	\$9,800
200 – Aeration Blower Tech Memo	112	\$18,600
300 – Aeration Blower Procurement Pkg	48	\$10,100
400 – MLE Tech Memo	97	\$17,300
TOTAL	305	\$55,800

Time and expenses, not to exceed \$55,800 without written authorization.



CITY OF KETCHUM
 PO BOX 2315 * 191 5TH ST. * KETCHUM, ID 83340
 Administration 208-726-3841 (fax) 208-726-8234

PURCHASE ORDER
 BUDGETED ITEM? ___ Yes ___ No

PURCHASE ORDER - NUMBER: 23037

To: 2319 HDR ENGINEERING, INC. BOX 74008202 CHICAGO IL 60674-8202	Ship to: CITY OF KETCHUM PO BOX 2315 KETCHUM ID 83340
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P. O. Date	Created By	Requested By	Department	Req Number	Terms
11/17/2022	Shellie	Shellie	Utilities/Wastewater	0	

Quantity	Description	Unit Price	Total
1.00	TASK ORDER #14 BLOWER PROCUREMENT P67-4350-7815	55,800.00	55,800.00
	SHIPPING & HANDLING		0.00
	TOTAL PO AMOUNT		55,800.00

 Authorized Signature