



City of Ketchum

December 21, 2020

Mayor Bradshaw and City Councilors
City of Ketchum
Ketchum, Idaho

Mayor Bradshaw and City Councilors:

Recommendation to Approve Contract #20576 titled, HDR Task Order No. 13 – Engineering Services, Wastewater Facility Planning Study, City of Ketchum and Sun Valley Water & Sewer District, Ketchum-Sun Valley, Idaho

Recommendation and Summary

Staff recommends the Council approve Contract #20576 and adopt the following motion:

"I move to approve Contract #20576 titled, HDR Task Order No. 13 - Engineering Services, Wastewater Facility Planning Study, City of Ketchum and Sun Valley Water & Sewer District, Ketchum-Sun Valley, Idaho, with a not-to-exceed cost of \$144,800.00 and authorize the Mayor to sign it."

Introduction and History

The City of Ketchum/Sun Valley Water and Sewer District Wastewater Treatment Plant is continually modifying and upgrading its current infrastructure and operations to meet regulatory requirements and keep up with the growth of the population it serves. Idaho Department of Environmental Quality Rule 58.01.16 Section 410 requires municipal wastewater treatment facilities undergoing material modification or expansion to have a current facility plan. The purpose of the plan is to document the upgrades and expansions expected or needed by the treatment plant. The current facilities plan being used was developed in 2009. Since then, regulatory requirements and technologies have changed sufficiently that an updated facilities plan is necessary. The new facility plan will be the basis for identifying and scheduling future capital improvement projects.

Analysis

This task order would authorize HDR Engineering to prepare a facility plan to assist with options for handling wastewater at the treatment plant.

- This project will satisfy IDEQ wastewater treatment facility planning document requirements.
- HDR Engineering has a Master Services Agreement with the City of Ketchum and the Sun Valley Water and Sewer District for projects related to the wastewater treatment facility.
- The project manager for this task order is very familiar with the wastewater treatment facility and managed many of the treatment plant's recent upgrades.

Sustainability

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

- HDR Engineering will be provided a copy of the Ketchum Sustainability Action Plan and be instructed to use it in making energy efficiency and sustainability a key focus in their evaluation of necessary modifications.
- Natural and biological removal processes will be given priority in the development of this facility plan.

Financial Impact

HDR Engineering estimates a not to exceed professional services fee of \$144,800.00. The cost for this contract will be divided equally with the Sun Valley Water and Sewer District as this is a capital improvement project. Funding for the task order will come from the FY 20/21 Wastewater Capital Improvement Fund.

Sincerely,



Mick Mummert
Wastewater Dept. Supervisor

Attachment(s):

HDR Task Order No. 13 - Engineering Services, Wastewater Facility Planning Study, City of Ketchum and Sun Valley Water & Sewer District, Ketchum-Sun Valley, Idaho
Multiple Project Agreement with HDR Engineering, Inc.



TASK ORDER NO. 13

**ENGINEERING SERVICES
WASTEWATER FACILITY PLANNING STUDY
CITY OF KETCHUM AND SUN VALLEY WATER & SEWER DISTRICT
KETCHUM-SUN VALLEY IDAHO**

This Task Order pertains to a Master Services Agreement by and between City of Ketchum and Sun Valley Water & Sewer District (SVWSD), Ketchum-Sun Valley, Idaho ("Ketchum-SVWSD"), and HDR Engineering, Inc. ("HDR"), dated January 21, 2014 ("the Agreement"). HDR shall perform services on the project described below and in the Agreement. This Task Order shall not be binding until it has been properly signed by both parties (EXHIBIT A). Upon execution, this Task Order shall supplement the Agreement as it pertains to the technical services described below.

Wastewater Facility Planning Study

Scope of Work

100 – Project Management

Project management is required for efficient implementation of project tasks and business related work. The subtasks below define the efforts required to execute the contract and produce the final deliverable for the project, a wastewater facility planning study approved by the Idaho Department of Environmental Quality (IDEQ).

Sub Tasks

101 – Meetings with staff

This task includes regular meetings with key members of the HDR team to review the status of the work and coordinate work activities, document meeting decisions and action items, assign activities to team members, and follow up for timely resolution. In person meetings with Ketchum-SVWSD staff will be limited to the initial project kick-off meeting and the final presentation of the draft FPS. Workshops shall be conducted using internet-based meeting platforms capable of media presentation.

102 – Project management

The ongoing project management activities will include:

- **Budget Status Monitoring:** Monitor the project work remaining 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, invoice progress reports and monthly progress conference calls. Manage activities within overall total Project budget.
- **Schedule Status Monitoring:** Monitor progress of work tasks and compare progress to overall Project Schedule. Estimate the time to complete remaining work tasks and update the Project Schedule. Inform Ketchum-SVWSD of schedule status through the monthly progress conference calls. Manage activities within overall Project Schedule.



- Change Management - Monitor project activities for potential changes, anticipate changes when possible, and with Ketchum-SVWSD approval, modify project tasks, and approach to keep the overall project within budget and on schedule.
- Invoicing - Prepare and submit a monthly invoice and progress report.
- Develop and Execute the Quality Assurance/Quality Control (QA/QC) Plan: Manage the quality review of all work activities and project deliverables by developing and distributing a QA/QC plan to the Project staff that outlines the QA/QC review process for the Project. Manage the quality control review of all work activities and project deliverables. Identify senior technical reviewers for the various technical disciplines and oversee the adherence to the plan during the execution of all Tasks. Draft and final deliverables are reviewed according to the QA/QC Plan prior to submittal to Ketchum-SVWSD for review.

Assumptions

- Budget status monitoring is a monthly activity for the duration of the project, 12 months.
- Schedule status monitoring is a monthly activity for the duration of the project, 12 months.
- Project coordination meetings for key internal staff are conducted bi-monthly for 12 months
- 12 monthly invoices and progress reports will be prepared
- Execution of the QA/QC Plan will be completed under the appropriate tasks.
- Ketchum-SVWSD will develop a workshop team to be involved in all three workshop sessions for continuity. The workshop shall conclude with a consensus of action items and changes.

Deliverables

- Monthly invoices and progress reports that include budget and schedule updates, as well as change management summary.

200 - Initial Technical Analyses; Planning Criteria, Development of Flows and Loads, and Current Treatment Capacity. Workshop #1

The Task 200 work develops the first three chapters of the Facilities Planning Study (FPS). The chapters are:

- Chapter 1 - Planning Criteria: Service Area, Population Projections and Effluent Criteria
- Chapter 2 - Wastewater Flows / Loads (Current and Future) and Effluent Criteria
- Chapter 3 - Current Plant Capacity and Performance

Sub Tasks

201 – Planning criteria

HDR will develop a data and information request and submit it to Ketchum-SVWSD. Once the data are received, HDR will compile and review the data and documents in order to:

- Describe the local conditions
- Define the planning area and impact areas
- Review of existing data and facility information
- Determine critical data gaps/needs



- Recommend additional wastewater characterization/sampling to be conducted by Ketchum-SVWSD
- Review socioeconomic profile and population statistics
- Review Ketchum-SVWSD's Comprehensive Plans

202 – Wastewater characterization, current flows and loads, residential and commercial sources and permit requirements

HDR will characterize the current wastewater and influent flows and loads as follows:

- Review basic wastewater historical data collected since the previous FPS (2010 – present) with emphasis on last three years. The data review parameters will be for: flow, BOD, TSS, TKN, NH₃-N, and TP. The current design basis will be developed from the most recent years for both concentration and mass.
- Review treatment plant recent process monitoring data (last 3 years or 2018 to present) to establish historical influent wastewater characteristics and trends including the parameters above and others such as temperature and alkalinity.
- Merge data from different sources or periods and clean text entries, error messages, or notes from source data.
- Calculate mass loadings and moving averages.
- Estimate the probability of occurrence of peak influent loads using Microsoft Excel.
- Estimate relationships between maximum month, maximum week, maximum day, and annual average conditions using a statistical analysis method. The following percentiles apply to select the loading conditions:
 - Annual average = 50th percentile
 - Maximum month = 91.7th percentile (11/12th percentile)
 - Maximum week = 98.1st percentile (51/52nd percentile)
 - Maximum day = 99.7th percentile (364/365th percentile)
- In some instances, the design flows and loads will be augmented using a moving average method.
- If treatment plant process monitoring data are not available for key constituent loads (e.g., monitoring has not yet been established for a constituent), reference values will be used from comparable facilities, HDR's internal best practice guidelines, or published references, as determined by HDR.
- Compile historical treatment plant process monitoring data for use in calibrating mass balance model.
- Develop the transitory population impact by pillow counts of 2nd homes, hotels, vacation rentals.
- Major commercial source loads (if any) will be based on pretreatment program or other applicable data provided by Ketchum-SVWSD.
- Review of Total Maximum Daily Load (TMDL) information for the discharge into the Big Wood River. The existing temperature data collected by Ketchum-SVWSD will be reviewed and compared to anticipated temperature criteria. The implications of temperature on the treatment process will be considered in the alternative analysis.
- Review Idaho Pollutant Discharge Elimination System (IPDES) requirements and discuss any trends in future water quality criteria that might impact facility processes such as TMDL related items or other state-wide (or Federal) initiatives.
- Review of current City-wide Class A permit and the water quality for such use.

203 - Review of existing process performance

This subtask provides the evaluation of Ketchum-SVWSD's existing treatment facility and associated programs. Information developed in this task will define the existing facility

configuration and operating conditions from which all follow-on treatment alternative configurations are based and developed. HDR will review available data provided by Ketchum-SVWSD regarding the performance of key unit treatment processes and overall plant performance. This evaluation will be used to develop the treatment process model and inform the development of treatment alternatives in later tasks.

204 – BioWin model and Hydraulic Analysis

HDR will set up a BioWin model for the Ketchum-SVWSD Wastewater Treatment Plant (WWTP). The BioWin model will be calibrated using available treatment process data provided by Ketchum-SVWSD and HDR's professional experience. The model will include existing treatment biological and chemical treatment processes and associated solids generation, treatment and handling facilities. Special emphasis will be on the biological impact of an anoxic basin and basin recycle incorporated into the activated sludge process model for improved total nitrogen removal and promoting biological phosphorus.

The plant hydraulics will be modeled to review the existing hydraulic profile. A survey of the plant control by local survey crew will provide the basis for the model as well as drawings from past projects. The model will be set up based on WWTP drawings and other hydraulic profile information provided by Ketchum-SVWSD. The model will include existing treatment processes and be important in evaluating the system under future flow conditions.

205 – Population and land use forecasts

Population estimates and land use forecasts will be evaluated using information from current and past planning documents and recent trends in growth. The population trends will be analyzed and an agreed upon growth rate established based upon projected land use and impact areas.

206 – Project future flows and loads

HDR will project future flows and loads as follows:

- Project future average loads for BOD, TSS, NH₃-N (and TKN if data are available), and TP for the following time periods:
 - Near-term (5-year, to 2026)
 - Long-term (both 10-year to 2031, and 20-year to 2041)
- Base flow projections on future population estimates from Task 205 and expected future flows from domestic sources. HDR will also review flow projections developed from past studies and planning documents.
- Consider recorded growth trends, service area build out, changes to service area zoning, planned annexations, and anticipated commercial growth.
 - Use the historical flow and load analysis to establish historical peaking factors for the existing service area.
 - Based on historical flows and loads, calculate the per capita average flow and load for the existing service area.
 - If no changes in land use are anticipated for the existing or future service area, then load projections will be proportional to flow increases.
 - Commercial loads will be accounted for separately from the per capita loads.
 - If changes are anticipated in the land use for the future service area, estimate the per capita average flow and loads for the future service area.
 - Apply the per capita flows and loads to the population projection for the design year to establish average flows and loads at the design year.

- Multiply the annual average flows and loads by the peaking factors to establish maximum month, maximum day, maximum week, and peak hour for the design period.

207 – Develop draft design treatment criteria

Level of treatment criteria will be identified for key parameters. Critical existing permit limitations for TSS and TP will provide the basis for these criteria. Other parameters may be considered in relation to water quality driven issues in the future such as subsequent phases of the TMDLs, specifically temperature and ammonia nitrogen. Task 300 will define the treatment levels, if any, appropriate to consider for these parameters.

208 – Draft Facility Plan Chapters 1, 2 and 3

Draft of Facility Plan chapters 1, 2 and 3 will be made available for Ketchum-SVWSD review and comment including the sections covered in Task 200. This will include relevant items from sections A, B, and C as identified in the IDEQ's Form 5-A which are: Introduction, Existing Conditions, and Future Conditions respectively.

209 – Workshop #1

Anticipated topics for this workshop are:

- Review of planning criteria
- Population and land use forecasts
- Review non-economic criteria
- Watershed and water quality
- Assessment of current WW treatment asset conditions (Ketchum-SVWSD-led)
- Review existing process performance
- Effluent requirements
- Future regulatory considerations
- Wastewater characterization
- Flows and loads
- BioWin and hydraulic modeling for current system
- Design criteria
- Biosolids treatment, handling and disposal
- Cost basis (e.g., capital, O&M and net present value)

Task 200 Assumptions

- Ketchum-SVWSD will provide facility influent, effluent, commercial or industrial pretreatment (if any), and process performance data in electronic format (Excel) within two (2) weeks of request from HDR.
- One draft of FP chapters 1, 2 and 3 will be prepared for Ketchum-SVWSD's review and comment.
- Ketchum-SVWSD will review the draft chapters with the objective of producing one (1) consolidated set of comments for HDR to consider after a review period of no more than two (2) weeks.
- Flow and load projections will be based on a review of treatment plant data.
- Three years of historical data will be used to complete the flow and load analysis.
- Ketchum-SVWSD will provide the numbers of residential, commercial and industrial connections for each of the past three years

- Maximum flows and loads will be used as the basis of design for process sizing of the wastewater treatment facilities components per design guidelines from EPA, IDEQ, Metcalf & Eddy's textbook *Wastewater Engineering*, Water Environment Federation Manual of Practice No. 8, or Recommended Standards for Wastewater Facilities (Ten States Standards).
- Ketchum-SVWSD will provide historical flows and loads and anticipated flows and loads from non-domestic sources, such as commercial and industrial users. If data are not available, HDR will assume typical values based on published references.
- Topographic survey of the plant is by others and not included in this scope of services.
- The workshop will be held via web-based conferencing after HDR has had a minimum of one (1) week to address Ketchum-SVWSD review comments of the written draft chapters.
- The workshop duration will be no more than three (3) hours.
- Any changes resulting from the workshop will be reflected in meeting notes and incorporated into the final version, to be delivered with Workshop #3 (draft final document).

Task 200 Deliverables

- Draft Facility Plan chapters 1, 2 and 3 (PDF)
- Workshop #1
 - Agenda
 - Key information presentation in electronic format (PDF)
 - Summary workshop meeting minutes in electronic format (PDF)

Task 300 - Initial Treatment Alternatives and Workshop #2

Task 300 of the Facility Planning Study addresses chapters 4, 5 and 6 with the following titles:

- Chapter 4 – Treatment Upgrades Alternatives for Liquids and Solids Streams
- Chapter 5 – Sustainability: Water Reuse and Energy Conservation
- Chapter 6 - Support facilities

The objective of this task is to identify an array of initial treatment alternatives that address near-term and long-term facilities needs for both regulatory and capacity triggered facility improvements. It is anticipated that alternatives will be considered to address flows and loads identified in Task 200. The alternatives will focus on deficiencies of existing treatment to meet the near-term (5 year) and long-term (10 and 20 year) planning period criteria (flows, load or regulatory criteria).

Each area of the plant shall be examined including:

1. Primary Treatment (Headworks): screening, pumping, grit removal, and odor control.
2. Secondary Treatment (Biological): aeration basins, blowers, diffusers, and clarifiers; biological and chemical phosphorus removal.
3. Tertiary Treatment: final pumping and filtration
4. Disinfection: UV disinfection for direct discharge or reuse; reuse pump station and associated distribution to Weyakkin and Elkhorn Golf Course.

5. Sludge Handling: aerobic digestion, thickening, dewatering (drying beds), and biosolids disposal.

301 – Develop alternatives for each area of the treatment process

Review of each area of treatment will be based upon the following criteria:

- Older equipment replacement
- Existing hydraulic bottleneck
- Redundancy
- Operability
- Capacity
- Sustainability

Some options may be more pertinent for the near-term time frame (i.e., the next 5 years), while others may be more pertinent for the long-term horizon (10 or 20 years). This array of options will be combined into high-level alternatives or hybrid alternatives, and some options may be subject to a more confined or narrow decision/evaluation.

Certain areas of the plant have been substantially upgraded during the last 20 years. This includes screening (2018), effluent reuse (2013), aeration basins (2008), filtration (2007), disinfection (2003), and clarifiers (2000 and 2004). Other areas that have not been addressed and require specific attention are related to the solids handling. These components include aerobic digester, thickening, dewatering and final biosolids disposal. The areas needing more immediate attention will be detailed more thoroughly.

The alternatives will consider sustainability issues such as energy usage, recycled water and beneficial use of biosolids.

The workshop at the conclusion of Task 300 will serve to narrow the alternatives that will be further developed and evaluated in subsequent tasks.

302 – Develop PFDs for each major alternative

HDR will develop simplified process flow diagrams (PFDs) for each of the major alternatives or alternatives packages.

303 – Modeling to develop sizes and configurations of each major alternative

Each of the major alternatives or alternatives packages will be evaluated with respect to process performance goals (BOD₅, TSS, ammonia, total phosphorus, temperature, disinfection). This evaluation will be completed by HDR using the BioWin process model. The modeling will be used as a tool to assist with developing rough estimates of major equipment sizing and help define configurations to be used for cost estimating.

304 – Water Reuse, Sludge Disposal and Energy Efficiency

Ultra-low TSS mass loadings will pose a problem with compliance as flows increase. Fortunately, the mass TSS loading limits are applied on an annual basis and this provides incentive for treated water reuse during irrigation months. This reduces TSS discharge to the



river in the summer to irrigated turf and allows additional effluent TSS discharge during the high-water flows in the fall, winter and spring.

The Cities of Ketchum and Sun Valley operate under a City-wide Class A reuse permit. This provides many outlets for reuse water throughout the community. Reuse is so popular in the Ketchum/Sun Valley area that reuse water is split between Ketchum and SVWSD and all available water is used during the irrigation season. But when supplies increase with flow, other reuse outlets may be possible. A list of possible alternative reuse locations will be identified.

The remaining outlet for reuse is winter snow-making but the only outlet for such reuse water is through the Sun Valley Company and there is no current economic drivers to encourage reuse water snow-making. The reuse section will address the potential for non-economic drivers in an effort to promote winter reuse.

Dewatered sludge is currently disposed into drying beds at the Ohio Gulch transfer station. This is currently the most economical method of disposal. The agreement for use of the drying beds expired in 2019. This subtask will evaluate the renewal of the agreement, the alternatives for sludge disposal including land application, composting, and landfilling. Composting pilot study planning is currently underway for the municipalities sharing the Ohio Gulch Transfer Station drying beds. The compost related information from this pilot study will be included in this section with features specific to the Ketchum-SVWSD plant.

Energy efficiency is an important aspect of wastewater treatment and Ketchum-SVWSD has been at the forefront of energy conservation. The largest part of energy usage is in the aerobic biological process consisting of blowers and diffusers. About 15 years ago new aeration basins were constructed with new fine bubble diffusers and about 10 years ago the plant installed cutting edge energy efficient turbo blowers. One area that will be explored within the alternatives chapters will be denitrification and the benefit for oxygen recovery from converting nitrate-nitrogen to nitrogen gas. This simple process can be accommodated by implementing an anoxic step in the activated sludge process along with an internal mixed liquor recycle system. The logistics of adding this step will be an important part of the energy efficiency section. Other energy savings measures will also be explored.

305 – Support Facilities

This task will evaluate the existing and future needs for support facilities. Support facilities include space for operations staff, laboratory, and maintenance. The current wastewater facility site houses the Ketchum Water Department in a separate building, the wastewater department operations/lab staff in a separate building, and a joint administrative building for both Water and Wastewater Superintendents. The wastewater areas will be evaluated to determine if additional space is required. It is understood that any new structures proposed for the site be constructed meeting the criteria of the local neighborhood association agreement.

Future facilities may include space for any additional operations/maintenance staff, space for additional solids handling equipment/vehicles, space for an environmental center (educational center and/or public awareness) and perhaps space for a small employee fitness area.



Other support areas include; existing electrical facilities by Idaho Power, standby electrical power, and spare diesel fuel supply.

306 – Draft Facility Plan Chapters 4, 5 and 6

Draft of Facility Plan chapters 4, 5 and 6 for Ketchum-SVWSD review and comment will include the sections covered in this task. This will include item D as identified in the IDEQ's Form 5-A which is Development and Initial Screening of Alternatives.

307 – Workshop #2: Treatment Process Analysis/Results

This workshop will be focused on:

- Reviewing process model results and calibration
- Identifying bottlenecks with operations staff
- Water reuse considerations and opportunities
- Sludge disposal alternatives
- Energy conservation and sustainability
- Support facilities options
- Identifying alternatives to eliminate
- Screening the list of alternatives identified in Sub-tasks into a short-list of viable alternatives for further consideration and final decision-making in Task 400
- Optimizing primary treatment, secondary treatment, disinfection, side-stream management, and biosolids management.

Task 300 Assumptions

- No more than four (4) BioWin simulations will be run, all at steady-state conditions.
- One draft of chapters 4, 5 and 6 will be prepared for Ketchum-SVWSD's review and comment.
- Ketchum-SVWSD will review the draft chapters with the objective of producing one (1) consolidated set of applicable comments for HDR to consider after a review period of no more than two (2) weeks.
- The workshop will be attended by web-based conference call by up to two (2) HDR staff, with up to two (2) additional HDR staff joining remotely by videoconference. The workshop duration will be no more than three (3) hours long. The workshop will conclude with a consensus of action items and changes.
- Ketchum-SVWSD's attendees at the workshop will be the same as those who attended Workshop #1 for consistency and continuity.
- At the conclusion of the workshop, the alternatives will be short-listed to no more than two (2) upgrade improvement alternatives per segment of treatment process (headworks, secondary, tertiary, disinfection and sludge handling).
- Changes resulting from the workshop will be reflected in meeting notes and incorporated into final FPS version, to be delivered with Workshop #3 (draft final document).

Task 300 Deliverables

- Draft Facility Plan chapters 4, 5 and 6 (PDF)
- Workshop #2
 - Agenda
 - Key information presentation in electronic format (Powerpoint or PDF)

- Summary workshop meeting minutes in electronic format (PDF)

Task 400 - Development of Final Alternatives, Opinion of Probable Construction Cost, Implementation Schedule and Workshop #3

The objective of this task is further refinement and evaluation of the short-list of viable alternatives agreed to at the conclusion of Workshop #2.

Task 400 of the Facility Planning Study addresses chapters 7 and 8 with the following titles:

- Chapter 7 – Final Alternative
- Chapter 8 – Implementation Plan

Chapter 7 provides a Detailed Evaluation of the Final Alternatives and includes opinion of probable construction cost (OPCC), operation and maintenance (O&M) costs, and a present worth (or annualized) cost comparison. Along with non-economic criteria, the improvements can then be selected for implementation (with concurrence from Ketchum-SVWSD).

Chapter 8 provides the Implementation Plan that takes the costs from chapters 4, 5, 6 and 7 to develop an estimate of the additional annual review required to improve the system based on the implementation plan. The costs and implementation schedule combine into a capital improvement plan (CIP). Assumptions will be made regarding loan rates for projects financing, the value of money with time (inflation) along with escalation of sewer rates to provide a balance in revenue with spending. This is not a comprehensive rate study which is outside the scope of a wastewater facility planning study. It merely provides an initial basis for a more detailed future study on how best to successfully implement the upgrade projects over the course of the 20-year planning period.

This task includes a workshop at which decisions will be made to select the preferred alternative for treatment processes based on economic and non-economic factors and production of the final draft of the facility plan and subsequent submission to IDEQ for review and comment.

Sub Tasks

401 - Refine PFDs, sizing and configurations for final alternatives

The PFDs, sizing and configurations will be refined based on the outcome of Task 300. Additional BioWin simulations will be performed, as constrained under the Assumptions section of this Task below.

402 – Provide cost estimates for final alternatives

Cost estimates (opinion of probable construction cost or OPCC) for the short-list of final alternatives will be prepared. Total life-cycle costs will be used, incorporating total capital and annual operation and maintenance costs. Where appropriate, this cost-estimating will be supplemented with vendor quotes or similar cost estimating information.



During future design phases, contractor markups and contingencies can be refined and reduced as additional design details become available which are captured in the cost estimate detail. These estimates allow comparison of initial conceptual alternatives to short-list the alternatives to a single alternative, or in some cases two alternatives.

This estimating effort adopts the classification of estimates as defined by the Association for the Advancement of Cost Engineering (AACE). The industry classification system is Recommended Practice-17R-97: “Cost Estimate Classification System” and 18R-97: “Cost Estimating Classification System as Applied in Engineering, Procurement, and Construction for the Process Industries.”

The capital costs for this report are defined as order-of-magnitude-level (Class 4) estimate as defined in the AACE International Recommended Practice No. 18R-97, *Cost Estimate Classification System As Applied in Engineering, Procurement, and Construction for the Process Industries*. The level of project definition for a Class 4 opinion is 1 percent to 15 percent. An estimate of this type is typically expected to be within +40 percent or -20 percent of the actual construction cost. The final cost of the projects will depend on actual labor and materials costs, actual site conditions, productivity, competitive market conditions, bid dates, seasonal fluctuations, final project scope, final project schedule, and other variables. As a result, the final project costs will vary from the estimates presented in this report.

The objective of the life-cycle cost evaluation (annualized capital cost plus annual operating cost) is to provide a comparison between the alternatives. This comparison can be presented as either present worth or annualized cost. Given the conceptual level of the alternative evaluation, the cost opinion includes contingencies and markups for each alternative.

403 – Provide decision matrix for final alternatives

Using the information on construction and operations cost opinions for the preferred alternative, a decision matrix will be generated for treatment processes. This will include both economic and non-economic factors. A pair-wise evaluation will compare the alternatives based on non-monetary factors. This evaluation allows judgment in terms of risk to be evaluated for each alternative.

404 – Examine the implementation plan for selected alternatives

The selected alternatives will be based on both near-term and long-term needs based on the age of equipment, reliability, redundancy or capacity. When all things are considered, the near-term and long-term improvements can be placed on a 20-year calendar. Once these improvements are placed into the implementation schedule along with capital cost opinions, increased customer revenue scenarios can be developed by City staff, HDR, or other consultants.

The estimated annual revenue to construct the improvements over the planning period will be based on the growth rate established in Task 200. Capital projects for wastewater treatment upgrades typically are funded with revenue based upon monthly charges for residential and commercial customers. Other tools at the disposal of the City include impact and/or connection fees. Setting of rates can be a complex matrix of fees and charges. Our efforts will focus on a



simplified approach using future residential connections numbers and increases in annual cost required to support the improvements over time.

405 – Facility Plan Final Draft Preparation

A draft of Facility Plan chapters 7 and 8 for Ketchum-SVWSD review and comment will be provided, as well as the previous six chapters from Tasks 200 and 300. The chapter 7 and 8 work includes the addition of items E., F., and H. as identified in the IDEQ's Form 5-A which are: final Screening of Principal Alternatives and Facility Plan Adoption, Recommended Alternative Description and Implementation Arrangements, and Appendices.

406 – Workshop #3 Final Draft Facility Plan Review

Anticipated workshop agenda topics include:

- Review final alternatives
- Develop and reach consensus for each alternative's economic and non-economic values
- Review cost estimates
- Select preferred treatment alternative
- Implementation schedule and capital investment plan
- Review draft report

407 – Final Facility Plan Review with City Staff

After incorporating the comments from the final workshop meeting, a final version of the FPS will be provided to Ketchum-SVWSD City staff members by electronic format (PDF). After a review period of approximately three (3) weeks, a final PowerPoint presentation will be given at a council meeting. Notice of the meeting for public comment will be provided by Ketchum-SVWSD staff. The publicly noticed meeting will be an opportunity for public comment before official adoption by the Ketchum SVWSD.

Upon Ketchum-SVWSD review/comment of the draft Facility Plan after workshop #3 a final copy will be submitted to IDEQ for approval.

408 – Respond to DEQ Comments and Address Changes

IDEQ review of FPS studies results in a review letter with questions, comments, and concerns. This task will officially respond to the questions and resolve concerns to allow DEQ to approve the FPS document. An approval letter from DEQ officially concludes the FPS scope of work.

409 – Environmental Information Document

An Environmental Information Document (EID) is not included in this scope of work. Even though the environmental impacts are anticipated to be minor and potentially addressed by Categorical Exclusion, the extent of this document is difficult to judge until the alternatives analysis is complete. In addition, it is only necessary if imminent project work is pending. Therefore, we propose to delay preparation of the EID until further project definition so an accurate scope and fee can be developed.

Assumptions for Task 400

- The workshop will be held at Ketchum-SVWSD City Hall.



- The workshop will be attended in person by up to two (2) HDR staff, with up to two (2) additional HDR staff by phone or videoconference. The workshop duration will be no more than three (3) hours long plus travel. If state, county, city, or HDR guidance or rules do not allow in-person meetings due to Covid-19 the workshop will be held virtually.
- Ketchum-SVWSD’s attendees at the workshop will be the same as those who attended Workshops #1 and #2 for consistency and continuity.
- One draft Facility Planning Study report will be prepared for Ketchum-SVWSD’s review and comment.
- -SVWSD review is assumed to be completed in two (2) weeks.
- Ketchum-SVWSD will review the draft report with the objective of producing one (1) consolidated set of applicable Ketchum-SVWSD comments for HDR to consider.
- A final FPS presentation by HDR to both the Ketchum City Council and SVWSD Board will be made formally to request approval of Facility Plan submittal to IDEQ.
- Response to IDEQ review will be by phone and letter. A face to face visit with the IDEQ reviewer will not be required.
- EID preparation will be completed at a later date (not included in this scope) and submitted as an amendment to the completed FPS.

Deliverables

- Electronic Microsoft Word file and PDF of the draft FPS for Ketchum-SVWSD’s review e-mailed to Ketchum-SVWSD’s project manager.
- Workshop #3
 - Agenda
 - Key information presentation in electronic format (PDF)
 - Summary workshop meeting minutes in electronic format (PDF)
- Two copies of the Final FPS (after workshop #3) delivered to the Public Works Director and Wastewater Superintendent. The FPS will also be delivered in PDF format for distribution electronically to Ketchum-SVWSD City Council.
- After authorization to submit to IDEQ, a final FPS will be submitted on behalf of Ketchum-SVWSD to IDEQ (as PDF).
- Response to IDEQ comments.
- Final corrected copies to IDEQ for final approval.

Project Schedule

See attached Project schedule.

The project schedule for performing the task order is as follows:

Task	Schedule (weeks after NTP)
Task 100 – Project Management	Continuous
Task 200 – FPS Chapters 1, 2, and 3	16
Task 300 – FPS Chapters 4, 5, and 6	40
Task 400 – FPS Chapters 7 and 8	52



Compensation

The estimated cost to complete this Scope of Services is presented in the table below.

Task	Budget
Project Management	\$20,800
FPS Chapters 1, 2, and 3	\$38,800
FPS Chapters 4, 5, and 6	\$51,100
FPS Chapters 7 and 8	\$34,100
TOTAL	\$144,800



EXHIBIT A

TASK ORDER NO. 13

This Task Order pertains to an Agreement by and between **City of Ketchum-SVWSD**, (“KETCHUM-SVWSD”), and **HDR Engineering, Inc.** (“HDR”), dated *January 21, 2014*, (“the Agreement”). HDR 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: 13

PROJECT NAME: Ketchum-SVWSD Wastewater Facility Planning Study

PART 1.0 PROJECT DESCRIPTION:

A Wastewater Facility Planning Study (FPS) will be prepared following the guidelines of Idaho DEQ. The FPS will assist Ketchum-SVWSD in meeting the water quality objectives of the Clean Water Act by providing information regarding system improvements. The plan will consider equipment age, system capacity, system redundancy, and sustainability. The comprehensive solutions will assist Ketchum-SVWSD in prioritizing capital investments.

PART 2.0 SCOPE OF SERVICES TO BE PERFORMED BY HDR ON THE PROJECT:

The FPS scope of services is fully described in Exhibit A to this Task Order. The work is summarized below in four tasks;

Tasks

Task 100 – Project Management

- Budget Monitoring
- Schedule Monitoring
- Change Management
- Invoicing
- Quality Control

Task 200 – FPS Chapters 1-3

- Chapter 1 – Planning Criteria
- Chapter 2 – Wastewater Flows/Loads (Current and Future) and Effluent Criteria
- Chapter 3 – Current Plant Capacity and Performance
- Workshop #1 – Review of chapters 1 – 3

Task 300 – FPS Chapters 4 – 6

- Chapter 4 – Treatment Upgrade Alternatives for Liquids and Solids Streams
- Chapter 5 – Sustainability: Reuse and Energy Conservation
- Chapter 6 – Support Facilities
- Workshop #2 – Review of chapters 4 – 6



Task 400 – FPS Chapters 7 and 8

- Chapter 7 – Summary of Final Alternative(s)
- Chapter 8 – Implementation Plan
- Workshop #3
 - Review of chapters 7 and 8
 - Review of draft FPS document
- Presentation to Ketchum City Council (and public) and Sun Valley Water & Sewer District Board (and public)
- Addressing DEQ review
- Submittal of Final FPS to City and District

Task Budget Breakdown

Task	Budget
Task 100 – Project Management	\$20,800
Task 200 – FPS Chapters 1, 2, and 3	\$38,800
Task 300 – FPS Chapters 4, 5, and 6	\$51,100
Task 400 – FPS Chapters 7 and 8	\$34,100
TOTAL	\$144,800

PART 3.0 OWNER’S RESPONSIBILITIES:

1. Provide access to plant site, files, lab SOP, lab equipment and system controls.
2. Provide information on planning area, projected growth rates, I/I flows, and commercial/industrial customer information.
3. Provide information on previous planning studies, previous design documents, O&M manuals, etc.
4. Provide document reviews in timely manner (to maintain project schedule)
5. Assign a review team for workshop consistency and continuity.

PART 4.0 PERIODS OF SERVICE:

January 4, 2021 to December 31, 2021.

PART 5.0 PAYMENTS TO HDR:

Tasks 100 – 400: Time and expenses, not to exceed \$144,800 without written authorization.

PART 6.0 OTHER: NA

This Task Order is executed this _____ day of _____, 2020.



CITY OF KETCHUM, IDAHO

SUN VALLEY WATER & SEWER
DISTRICT

“KETCHUM”

“SVWSD”

BY: _____

BY: _____

NAME: _____

NAME: _____

TITLE: Mayor

TITLE: President

ADDRESS: City of Ketchum-
Ketchum, ID

ADDRESS: Sun Valley Water & Sewer
District
Sun Valley, ID

HDR ENGINEERING, INC.

“HDR”

BY: 

NAME: Kate Eldridge

Vice President

HDR Engineering, Inc.
412 E Parkcenter Blvd,
Suite 100
Boise, ID 83706

End of Task Order

MULTIPLE PROJECT AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT is made as of this 21 day of January, 2014, between City of Ketchum and Sun Valley Water & Sewer District (SVWSD), hereinafter referred to as "OWNER", and HDR Engineering, Inc., hereinafter referred to as "ENGINEER," for engineering services as described in this Agreement.

WHEREAS, OWNER desires to retain ENGINEER, a professional engineering firm, to provide professional engineering, consulting and related services ("Services") on one or more projects in which the OWNER is involved; and

WHEREAS, ENGINEER desires to provide such services on such projects as may be agreed, from time to time, by the parties;

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

SECTION I. PROJECT TASK ORDER

- 1.1 This Agreement shall apply to as many projects as OWNER and ENGINEER agree will be performed under the terms and conditions of this Agreement. Each project ENGINEER performs for OWNER hereunder shall be designated by a "Task Order." A sample Task Order is attached to this Agreement and marked as Exhibit "A". No Task Order shall be binding or enforceable unless and until it has been properly executed by both OWNER and ENGINEER. Each properly executed Task Order shall become a separate supplemental agreement to this Agreement.
- 1.2 In resolving potential conflicts between this Agreement and the Task Order pertaining to a specific project, the terms of the Task Order shall control.
- 1.3 ENGINEER will provide the Scope of Services as set forth in Part 2 of each Task Order.

SECTION II. RESPONSIBILITIES OF OWNER

In addition to the responsibilities described in paragraph 6 of the attached "HDR Engineering, Inc. Terms and Conditions for Professional Services," OWNER shall have the responsibilities described in Part 3 of each Task Order.

EXHIBIT A
TASK ORDER

This Task Order pertains to an Agreement by and between _____, (“OWNER”), and HDR Engineering, Inc. (“ENGINEER”), dated _____, 20____, (“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:
PROJECT NAME:

PART 1.0 PROJECT DESCRIPTION:

PART 2.0 SCOPE OF SERVICES TO BE PERFORMED BY ENGINEER ON THE PROJECT:

PART 3.0 OWNER’S RESPONSIBILITIES:

PART 4.0 PERIODS OF SERVICE:

PART 5.0 PAYMENTS TO ENGINEER:

PART 6.0 OTHER:

This Task Order is executed this _____ day of _____, 20____.

“OWNER”

HDR ENGINEERING, INC.
“ENGINEER”

BY: _____

BY: _____

NAME: _____

NAME: _____

TITLE: _____

TITLE: _____

ADDRESS: _____

ADDRESS: _____
