



cetec@rushmore.com

AUTHORIZATION AND AGREEMENT FOR SERVICES

Date: May 5, 2004

CLIENT - OWNER - INFORMATION

Name: City of Rapid City

Billing Address: 300 6th Street City/State/Zip Code: Rapid City, South Dakota, 57701-2724

Contact Person/Title: Dave LaFrance, PE Phone: 605-394-5377 Ext. 220 Fax: 605-394-6636

Project Date: May 18, 2004

Project Title: Mallridge Lift Station, City of Rapid City Project 50376, SS03-1255

Scope of Services: Preliminary design phase services per Attachments 1 and 2

Job Location - City: Rapid City, SD County: Pennington

Estimated Completion Date: August 20, 2004

Contract Amount: Maximum Limiting Fee of \$37,336 per Attachment 2.

CLIENT AGREES TO THE GENERAL TERMS AND CONDITIONS ATTACHED WHICH ARE A PART OF THIS AGREEMENT. PLEASE READ, SIGN AND RETURN ONE COPY TO CETEC ENGINEERING AT THE ADDRESS BELOW. WORK WILL NOT COMMENCE OR BE SCHEDULED UNTIL SIGNED AND COPIES RETURNED. THIS INSTRUMENT SHALL NOT CONSTITUTE AN AGREEMENT OR CONTRACT BETWEEN THE PARTIES UNTIL EXECUTED BY CETEC ENGINEERING SERVICES, INC.

I HEREBY APPROVE AND ACCEPT THIS AGREEMENT AND HAVE RECEIVED COPY OF SAME.

Accepted: City of Rapid City, South Dakota

By: _____ Date: _____
Mayor

Attested: _____ Date: _____
City Finance Officer

Accepted: Engineering Division

By: *Dave LaFrance* Date: 5-5-04
Project Manager

Accepted by CETEC: *Greg Wierenga* Date: 5-5-04
Greg Wierenga, P.E. - Principal

GENERAL TERMS AND CONDITIONS

PAYMENT FOR SERVICES

Method of payment shall be as identified elsewhere. CETEC Engineering Services, Inc. (CETEC) will bill the Client (Owner) monthly or as otherwise determined applicable, as work progresses. Invoice amounts are due and payable in full within thirty (30) days of the invoice date.

Accounts unpaid after said 30-day period shall be in default and shall be subject to a default or late payment charge computed at the rate of one percent (1%) per month, based upon the unpaid balance of the account dating from the invoice date, and accrued and compounded monthly.

CETEC may give notice by regular mail and suspend services on all projects for any Client whose account is in default; and materials and information relating to such work will not be released until all amounts owing, including service charges, collection costs/fees, etc., are paid in full. CETEC will not be responsible for any penalty, damages or hardship that may result from such suspension of work. Accounts remaining unpaid for a period of forty five (45) days after the invoice date will be subject to a mechanics lien and collection action by any legal action deemed appropriate. The expense of collection, including attorney's fees, CETEC personnel time and/or collection will be added to accounts in default.

Work performed on an hourly basis will normally be billed at the current hourly charge rate established for each employee providing services. Actual expenses times 1.10 shall be added to all hourly work, except for those applicable items where established charges may apply, such as for reproduction, mileage, postage, etc.

GENERAL CONDITIONS

Where applicable, proposed fees constitute our best estimate of the charges required to perform the services as defined. Except as provided otherwise, the project will not be reduced without written mutual agreement. Where project scope is expanded by Client/Owner (or agent), Client will be responsible for payment for services resulting therefrom. For those projects involving conceptual or process development services, activities often cannot be fully defined during initial planning. As the project progresses, if facts are uncovered which reveal a change in direction which may alter the scope, CETEC will inform the Client of such situation so that changes in scope can be negotiated as required.

CETEC will provide all services in accordance with generally accepted professional practices. Cancellation of this project by the Client shall be effective seven (7) days after notice to CETEC. The written notice shall include the reasons and details for cancellation. A final invoice will be prepared for all charges incurred through the date of cancellation; and payment will be due as stated elsewhere herein.

If the Client violates any of the agreements entered into between CETEC and the Client, or if the Client fails to carry out any of the duties contained in these terms and conditions, CETEC may, upon seven (7) days written notice to the Client, suspend its services and/or terminate this agreement with the Client, without further obligation or liability to CETEC, unless within such seven (7) day

period, the Client remedies such violation to the reasonable satisfaction of CETEC.

The Client agrees to provide such legal, accounting and insurance counseling services as may be required for the project.

Re-use of any documents pertaining to this project by the Client on extensions of this project or on any other project shall be at the Client's risk and the Client agrees to defend, indemnify and hold harmless CETEC from all claims, damages and expenses, including attorneys' fees, arising out of such re-use of the documents by the Client or by others acting through the Client. Nothing in this agreement shall be construed to subject or extend to CETEC the responsibility or authority to direct or supervise construction means, methods, techniques, sequence or procedures of construction selected by contractors or subcontractors or the safety precautions and programs incidental to the work of the contractors or subcontractors.

NEITHER party shall be responsible or held liable to the other for consequential damages, including loss of profit, loss of investment, loss of product or business interruption. The obligations and remedies provided herein are exclusive and in lieu of any other rights or remedies available at law or in equity.

Indemnifications, releases from liability and limitations of liability shall apply notwithstanding the fault or negligence of the party indemnified, released or whose liability is limited.

INSURANCE

CETEC will maintain insurance coverage in the following amounts:

Workers Compensation -	Statutory
Professional Liability -	\$1,000,000

If the Client requires coverages or limits in addition to the above stated amounts, premiums for additional insurance shall be paid by the Client.

TIME AND PERIOD OF PERFORMANCE - ASSIGNMENT OF CONTRACT

CETEC shall perform the described work as expeditiously as is consistent with professional skill and care and the orderly progress of the work. The anticipated schedule is based upon a reasonable estimate of the time required to perform the work and does not include allowances for periods of time required for the Client's review and approval of submissions and for approvals of authorities having jurisdiction over the project. The schedule shall be adjusted as required as the work proceeds in the event there are delays in any required approvals, for any other delays beyond the control of CETEC, in the event the scope of the work is changed in any respect or if more time is required to perform the work than was originally estimated or anticipated by CETEC.

Client (Owner) shall not assign this agreement without the authorized written consent of CETEC. This agreement shall extend to and be binding upon the respective heirs, personal representatives, successors and assigns of the parties hereto.

**ATTACHMENTS TO
AUTHORIZATION AND AGREEMENT FOR SERVICES**

FOR

**MALLRIDGE LIFT STATION
PROJECT NO. 50376, SS01-1052**

- 1. Request for Proposals by City of Rapid City.**
- 2. Fee Proposal.**
- 3. Labor Rate Schedule.**

ATTACHMENT 1

**MALLRIDGE LIFT STATION
PROJECT NO. 50376, SS01-1052**

REQUEST FOR PROPOSALS

REQUEST FOR PROPOSALS
for
Mall Ridge Lift Station Improvements
PROJECT NO. 50376
SS03-1255

PROJECT DESCRIPTION

The City of Rapid City proposes to design and construct a new lift station in the vicinity of Country Road and Nike Road, on land bordering the recently constructed Northbrook Subdivision at the northernmost boundary of the Rapid City limits. Design services shall include, as a first phase, an analysis and recommendations on whether it is best to reconstruct the existing station at its current location or to reconstruct a new station further downstream in the drainage basin to provide additional service area.

This project will improve the regional lift station capacity, reliability, and odor control necessary to adequately and reliably provide sewer service for this rapidly expanding area of Rapid City. Currently, there is no safe overflow capacity to handle the sewage if a pump failure should occur. Also, the station has reached its design capacity. The project could include a mile or more of new sewer and force main depending on the final location selected for a new lift station site. The final location selection, together with its expanded service area, will largely be dependent on capacity limitations associated with the existing sewer mains located southward, closer to the center of the City, off of Haines Boulevard, and with the existing 8 inch force main and the proposed 8 inch force main to be constructed later in 2005. Inflow and infiltration analysis must also be performed to assess the impacts of non-sewage flows entering the system and impacting the hydraulic capacity of the system.

The scope of services will also include Sewer Odor Mitigation for the lift station and force main. Several manholes and several hundred feet of sewer main have previously been replaced due to the extreme corrosion potential associated with H₂S generation on the Mall Ridge force main. The ultimate fix to the source of odors and its corrosivity effects will likely involve specialty equipment and processes installed at the lift station to provide adequate controls to eliminate this problem. Also related, and to

be included in the specialty scope of services contract, will be to provide recommendations, final designs and specifications to mitigate odor problems within developed areas associated with the existing lift stations and force mains adjacent to Hwy. 16 South and Elk Vale Road (Visitor Information Center (VIC) and Rushmore Business Park) corridor developments. The City has recently seen a large increase in customer complaints associated with odors generated from all three lift station operations.

The design basis will be for a 20 to 25 year design life (2025) for the lift station and 75 to 100 years for the gravity sewer and force main system. By this time, it is estimated that the Northeast Sewer Interceptor will be installed and functioning down to the VIC Lift Station. The station should be designed to operate efficiently during initial, interim, and design year average flows. Pumping equipment should be sized for an interim peak flow to be reached in the first 10 years of operation. Once the interim peak flow has been reached, the station should allow for minimal modifications to accommodate the final design peak flow. Initial minimum flows shall be as established through flow monitoring to establish existing diurnal patterns and rates, after evaluating and allowing for an acceptable infiltration and inflow component of flow. A maximum retention time of 30 minutes at average flow shall be considered to reduce the potential for odors and septic wastewater. A minimum 2:1 pumping capacity turndown ratio option should be considered and evaluated. At design pumping rates a cleansing velocity of 2 fps shall be maintained. Other options to be considered and evaluated at a minimum should include the utilization of dual wet wells, or dry wells, properly interconnected to facilitate repairs and cleaning and/or overflow basins to best balance the variables of hydraulic operation/performance of pumping system, force main, hydrogen sulfide generation concerns, and maintenance needs. Plans shall include future expansion capabilities to allow for the addition of storage capacity to handle higher peak flows at a later date.

It is anticipated that design will occur in 2004 and construction in 2005. Coordination with adjacent property owners and/or Developer's will be encouraged to select the best lift station site and align the sewer mains corresponding to future streets wherever possible, in locations that will best serve the build out of the area.

Design criteria for the project shall include the "City of Rapid City Standard Specifications, 2002 Edition"; "Recommended Standards for Wastewater Facilities" (Ten State Standards, latest edition); "Design Criteria Manual for Water Distribution Systems and Sanitary Sewer Collection Systems for the

City of Rapid City” (Draft); “Water Environment Federation Manual of Practice for Water Pollution Control, Design of Wastewater and Stormwater Pumping Stations” (latest edition); Hydraulic Institute Standards (latest edition), Design of Municipal Wastewater Treatment Plants (1992). Manual of Practice No. 8, Water Pollution Control Federation, Washington, D.C.; ASCE Manuals and Rep. on Eng. Practice No. 76, Am. Soc. Civ. Eng., New York, N.Y.; “Odor and Corrosion Control in Sanitary Sewerage Systems and Treatment Plants”, Design Manual by U.S. EPA Technology Transfer EPA/625/1-85/018; “Odor Control for Wastewater Facilities (1979). Manual of Practice No. 22, Water Pollution Control Federation, Washington, D.C.; Design and Construction of Sanitary and Storm Sewers (1969). Manual of Practice No. 9, Water Pollution Control Federation, Washington, D.C. , Manual of Engineering Practice No. 37, Am. Soc. Civ. Eng., New York, N.Y.; “Recommended Design Criteria Manual, Wastewater Collection and Treatment Facilities”, SD Dept of Environment and Natural Resources (1991); FEMA and City Flood Plain Regulations.

Justification: The existing Mall Ridge lift station has reached its design life and is undersized for the existing and future flows. Continued development in the area of the existing lift station necessitates abandonment of an existing overflow pond and construction of new and higher capacity improvements to allow uninterrupted service during maintenance and to more effectively handle power outages and equipment failures. The existing lift station was constructed prior to 1979 and has undergone at least two upgrades since then. Additional capacity and reliability is now required to handle the demand in this rapidly growing area of the City. Based upon a survey of Building Permits issued, growth rate of the service area has been at an annual 13.5% rate since 2001 (4.5% overall since 1995). Also, property owners adjacent to Haines Ave. have experienced serious odor problems since acquiring property. The City of Rapid City Utility Maintenance Group has attempted several fixes over the past couple years to mitigate odor problems. Other areas of the City are experiencing similar odor problems and complaints from citizens. Preliminary indications are that odor complaints are originating from locations at or near force main discharge points into the gravity system. A long term solution is still needed.

SCOPE OF SERVICES REQUESTED

PRELIMINARY/FINAL DESIGN OVERVIEW

The preliminary phase of design will consist of 3 deliverable steps. (A) Initial Alternative Development (Draft Form), (B) Detailed Alternative Evaluation (Draft Form), and (C) Final Project Recommendation and Selection (Final Design Report) which will be regarded as the sewer master plan for the overall service area. A minimum of two primary options are to be evaluated and compared as part of this phase, to recommend reconstructing the existing station in place or to construct a new station further down stream in the basin at a new site location with its corresponding gravity and force main additions. The cost/risk factors associated with the reconstruction option that comes with attempting to rebuild over and around an operating lift station should be a part of the comparison. The Detailed Alternative Evaluation (B) step shall include sufficient detail and presentation information for City Public Works Staff to take to Council the recommendation and selection of the preferred option. The Consultant will be expected to make the actual presentation to Council. The third step (C) of the Preliminary phase can then be completed by the Consultant before entering into the Final Design stage.

The Force Main/Gravity Sewer Addition portion of the project scope shall be summarized as a separate add-on segment to the overall project, and be integrated into a final design and construction plans package if selected. The proposal shall include the addition of approximately one mile of expanded mains located eastward from the existing station location. The feasibility of installing both of these lines in a common trench should be investigated. The alignment of the sewer mains shall coincide with the future expansion of streets in the area, to the greatest extent possible, and consistent with the latest City of Rapid City Major Street Plan adopted by Council and other Master Plans submitted for review and comment. The dismantling, abandonment, and reclamation of the existing lift station site also needs to be included in the project scope. Sufficient study shall be performed and summarized at the Detailed Alternative Evaluation step (B) to be able to attach a probable cost associated with this work. Any other off-site project or capacity limitations should also be identified at this time.

- The Hydraulic investigation portion of the project to characterize and summarize all wastewater flows, including inflow and infiltration (I&I) into the system, shall be performed during Step (A) of the preliminary design. An action, no action, recommendation shall be provided to staff for consideration based upon whether the I&I is beyond published acceptable limits. A summary of the findings and recommendations will be required in draft form, and may be taken by Public Works staff to Council for discussion, before the next step in the preliminary design stage can be taken.

The proposed siting of the lift station shall include the requirement to protect the equipment from physical damage by the 100 year flood from any source. The entire station must be located and accessible during a 25 year flood at a minimum. Portions of the area to be evaluated for the lift station are within the FEMA designated flood plain and as such will be required to meet all Federal, state, and local ordinances including municipal code 15.32 "Flood Area Construction Regulations".

The proposed structure to house all the lift station equipment and controls shall be sized to provide necessary clearances for maintenance and operation on both an interim and final design build-out basis. It shall also include adequate safety provisions to protect health and safety of operating and maintenance personnel and facilitate the cleaning of the area. Provisions for hoisting of pumps and equipment shall be provided. Building and electrical features provided shall include the ability to quickly, safely, and easily park and hook up a portable emergency generator (on trailer) which may be transported, housed, and connected to the system by City personnel within the structure to provide emergency power to all components during a power outage. A properly designed ventilation system and emergency lighting will be required. An all weather access road and provision for turn-around shall also be a part of the site plan. The facility shall be sited and configured so as not to be located immediately adjacent to homes where unavoidable odors may present a problem. Proper security measures and controls shall be designed and specified for the operations and site, to include remote monitoring of critical operating parameters at the energy plant.

The Odor Control portion of the project scope shall be summarized as a separate add-on segment to the project, but be integrated into a final design and construction plans package if approved. A combined construction plans package for the VIC-Elk Vale and Hwy 16 South force main odor problems should be anticipated. Provide an odor control design report which shall include evaluation/recommendations in order of the preferences listed below for each of the 3 separate locations (VIC-Elk Vale, Hwy 16 South, and Mall Ridge-Haines Ave):

- A. Odor prevention by eliminating/reducing anaerobic conditions.
- B. Odor mitigation through add-on equipment and/or operation/maintenance procedures for flushing/pigging of lines and equipment, air/oxygen injection, or chemical addition.
- C. Odor treatment using wet chemical scrubbing or adsorption.
- D. Odor modification, counteraction, or masking.

The odor control survey shall be conducted in two phases to measure and characterize the wastewater quality, odor-generating constituents, and their locations; (1) A preliminary sampling survey and a (2) detailed evaluation. The preliminary survey shall identify those areas for further study and sampling, testing, and evaluation. The detailed evaluation shall include sampling at max/min conditions with discrete hourly samples taken over 24 hours for 2-5 days and shall include both field and laboratory analysis of the key components pointing to the source of H₂S generation in the system. The Design Report shall include not only a first cost analysis for any new equipment proposed but a life-cycle cost considering expected expenses relating to maintenance, power, chemicals and supplies, specialty operator training or certification, and design life of components and equipment.

1.0 PRELIMINARY DESIGN

- 1.1. Review information provided: Mall Ridge Sewer Lift Station Proj. No. SS93-368 Plans and Specs.; FMG, Inc. memo dated December 11, 2003 Re: Lemmon Avenue Reconstruction; Northbrook Village Subdivision, July 23, 2001 Design Summary (including plans for 8 inch force main) by Dream Design International; Northeast Area Sanitary Sewer Interceptor-

Preliminary Engineering Study, 1996, Ferber Engineering Company, Inc.; Northeast Area Analysis – Final Report- Sanitary Sewer, 2002, Alliance of Architects and Engineers/HDR; Preliminary Design Report for East Mall Drive, 2004, Ferber Engineering Company, Inc. Viking Drive Reconstruction Project (including 8 inch force main), TSP; Auburn Hills Subdivision, March 28, 2002 Design Summary by Dream Design International; (also refer to Hwy. 16 lift station and Force Main Plans & Elk Vale Road (VIC) force main and lift station plans; Specifications for Portable Emergency Generator, City of Rapid City)

- 1.2. Perform the following investigative tasks: Call for design locates, perform surveying as necessary to complete preliminary design, for all potential sewer easements and/or where construction easements may be necessary, perform alternative alignment analysis, determine location of connections to existing systems and proposed design points for future sewer collection network, and perform hydraulic measurement, modeling and analysis as necessary to determine preliminary piping, wet well, and pumping system sizes based on a minimum of (2) service area alternative scenarios. Perform H2S generation analysis of existing wastewater streams and systems at the (3) odor problem project locations identified above. Submit results of the investigative efforts and initial alternative development plan (**Step A**) for review and comment by City staff, and conduct a review meeting with City staff.
- 1.3. Recommend a preferred lift station site and building layout plan and provide a preliminary scope of work for all improvements, including structural, mechanical, electrical and control components, based upon an engineering assessment of the selected alternatives and prepare Engineer's preliminary opinion of probable construction cost for those alternatives. Analysis of proposed force main /gravity sewer alignments shall consider and address the impacts on drainage, driveways, number of street utility cuts, probable locations for future streets, manhole locations and maintenance access considerations at a minimum. Provide detailed alternative evaluation submittal including site and building sizes and preliminary specifications, prepare preliminary opinion of probable construction cost for the alternative scenarios (**Step B**) to the project team for review and comment by City staff, and conduct a review meeting with City staff. Presentation before Council and Planning Commission (11-6-19) review will be required which will involve building and landscaping aesthetics.

- 1.4. Identify easement exhibits/agreements for property owner signature that will be necessary. Meet with City of Rapid City representatives and property owners to identify issues with proposed locations and alignments. Identify any flood plain and/or special permitting requirements for proposed sewer main and lift station site or building issues. Select final lift station site.
- 1.5. Assist the City with property acquisition, perform legal survey for lift station site property, and prepare plats and/or easement exhibits.
- 1.6. Perform hydraulic analysis to determine optimum pumping system configuration(s), wet well sizing and configuration, preliminary selection of pumps and appurtenances, and recommended method(s) of hydrogen sulfide control considering each phase of the lift station design life (using initial, interim, and final design flows) which shall include at a minimum the following:
 - A. Pump curve for pumps on system curves under different operating conditions assumptions, both for interim sizing as well as ultimate design capacity
 - B. Pump curves with HP, amp draw and efficiency shown (interim and final)
 - C. Wet well sizing criteria and assumptions for future expansion capability
 - D. Catalog cuts for major equipment items (pumps, motors, valves, compressor, gauges, regulators, controls)
 - E. Surge pressure and cycle time calculations, and surge protection criteria and design
 - F. Calculations and assumptions used in sizing H₂S generation control equipment
 - G. Results of investigation of potential problems with negative pressure at dry well pump location as it may affect pump operation (start and stop) and seal performance and selection
- 1.7. Provide Building, sitework, and landscaping scope of work for detailed design.
- 1.8. Define the scope of geotechnical investigations as may be necessary for final design, assist the City in negotiation of an agreement for geotechnical engineering services, and coordinate with geotechnical engineer.
- 1.9. Prepare Design Report with final recommendations including an opinion of probable construction cost for the project (**Step C**) and project schedule for review and comment by City staff, and conduct a review meeting with City staff. Consultant to take minutes of all meetings.

2. FINAL DESIGN

- 2.1. Provide complete plans and specifications for a unit price construction contract. Plan sheets shall be prepared utilizing the latest City of Rapid City Drafting Standards.
- 2.2. Provide route and topo survey, establish land ties and bench marks, locate property corners, and field locate all existing utilities. At least two control points at each end of the project shall be tied vertically and horizontally to the existing City of Rapid City Area Monuments Control utilizing the state plane coordinate system. Topographic survey and design layout shall utilize a local datum tied to at least one of the Rapid City Area Monuments tied control points. Scale of plan & profile sheets, 1" = 20' Horiz., 1" = 5' Vert. Construction staking information shall include either of the following formats:

2.2.1. On the Plans

- Station, offset and coordinates of all PC's, PI's, PT's, and any angle points
- Curve data
- Station, offsets and coordinates for all items of work requiring field staking
- Coordinates and description of intervisible control points

2.2.2. In tabular format on a plan sheet

- Coordinates and description of intervisible control points
- Curve data
- Coordinates of all items of work requiring field staking

Benchmark information shall be provided on each sheet.

- 2.3. Provide project layout plan to include lot lines, front, rear, or side where appropriate and addresses, including owner's name and address, of all properties adjacent to construction.
- 2.4. Coordinate directly with utility companies' engineering divisions to ensure that all existing utilities are completely and accurately located in the field; that pertinent information regarding depth, material, size, etc. are noted on the plans; and that conflicts requiring relocation of utilities or special construction techniques are fully specified in the contract documents.

5. MEETINGS AND SUBMITTALS

5.1. Project team members will include:

5.1.1. The consultant

5.1.2. City Engineering Division staff

- Project management
- Public Works Staff
- Construction coordination

5.2. Meetings requiring the Consultant's participation will include:

- Kick-off Meeting
- Preliminary Design (3 step process) Report Presentation and Discussion
- Property owners/easement negotiations meeting
- Utility companies coordination meeting
- 35% Plans and Specifications Review
- 65% Plans and Specifications Review
- 95% Plans and Specifications Review
- Prebid Conference
- Preaward consultation meeting
- Preconstruction Conference
- Construction Progress Meetings

5.3. Submittals required during the design phase include:

- Preliminary (in 3 steps) Design Report
- 35% Plans and Specifications
- 95% Plans and Specifications
- 65% Plans and Specifications
- 100% Plans and Specifications

PROJECT SCHEDULE

(subject to revision based upon findings of preliminary design report)

Contract Negotiations Complete	April 13, 2004
Notice to Proceed with Design	May 4, 2004
Preliminary Design (Step A) Submittal	June 4, 2004
Preliminary Design (Step B) Submittal	June 28, 2004
Preliminary Design (Step C) Submittal	July 23, 2004
Easement Exhibits Submittal	July 23, 2004
35% Plans Submittal	August 20, 2004
65% Plans Submittal	September 24, 2004
95% Plans Submittal	October 22, 2004
100% P&S Submittal	November 8, 2004
Open Bids	December 15, 2004
Begin Construction	January 3, 2005
Complete Construction (Substantial)	May 13, 2005
Start Up Complete and Formal Acceptance	May 27, 2005

PROPOSAL SUBMISSION

Please submit a minimum of 6 copies of your proposal.

ATTACHMENT 2

**MALLRIDGE LIFT STATION
PROJECT NO. 50376, SS01-1052**

FEE PROPOSAL

- **Fee Proposal Spreadsheet**
- **LPS / Malone fee proposal (Subconsultant)**
- **Flowmeter cost documentation**

Fee Proposal

Project: Mallridge Lift Station
 Project No. 50376. SS03-1255
 City of Rapid City, SD

Prepared By: Greg Wierenga, P.E.
 CETEC Engineering Services, Inc.

Date: April 30, 2004

Preliminary Design Phase

T a s k	Project Engineer	CAD Technician	Surveyor	Survey Assistant	Field Technician	Clerical	Subconsultants	Totals
Background <ul style="list-style-type: none"> Review references Assemble site background information, maps, ownership 	10	10	-	-	-	5	-	
Collection System Flow Study <ul style="list-style-type: none"> Data collection plan Meter set-up, rotation, download data Data analysis Summary report and documentation 	20	10	-	-	80	5	-	
Flow Criteria Development <ul style="list-style-type: none"> Review development growth rates, land uses, meet with Growth Management Forecast design flows (2005, 2015, 2030) Summary report and documentation 	15	10	-	-	-	5	-	
Odor Control Study <ul style="list-style-type: none"> Coordinate services of one or more studies by odor equipment suppliers Summarize findings in report format 	15	-	-	-	10	5	-	
Lift Station Site Alternatives (Step A) <ul style="list-style-type: none"> Screen alternative sites Schematic level designs each site Service area analysis for contributing flows each site Force main hydraulic analysis each alternative Flood plain impacts and mitigation needs Budgetary costs Initial alternatives summary report Meetings (kick-off, Growth Management, property owners, staff review) 	40	20	-	-	-	10	-	

Task	Project Engineer	CAD Technician	Surveyor	Survey Assistant	Field Technician	Clerical	Subconsultants	Totals
Detailed Alternatives Evaluation (Step B) <ul style="list-style-type: none"> Define viable alternatives for detailed study (2 sites) Site survey for selected alternatives (2) Preliminary lift station design (civil) Preliminary mechanical and electrical designs, including odor control equipment Preliminary design of off-site gravity sewer and force main Downstream gravity sewer capacity analysis Cost analysis, including capital costs and operating costs Summary report with preliminary plans Review meetings and Council presentation 	80	40	20	20	-	10	\$1,750	
	Final Recommendation and Selection of Alternative (Step C) <ul style="list-style-type: none"> Solicit and summarize input and comment from staff and City Council Incorporate odor mitigation selection into project scope Refine designs and costs for selected alternative Issue final Preliminary Design Report Review meeting and scope definition for final design 	20	20	-	-	-	10	-
Labor Hours	200	110	20	20	90	50		
Labor Rate	\$85	\$50	\$60	\$35	\$35	\$30		
TOTAL	\$17,000	\$5,500	\$1,200	\$700	\$3,150	\$1,500	\$1,750	\$30,800

Reimbursable Expenses							
Vehicle Mileage (25 trips @ 20 miles = 500 miles @ \$.45/mile)							\$225
Flow meter charges (CETEC equipment, 4 weeks @ \$150/week)							\$600
Flow meter system purchase (City takes possession after project)							\$5,711
TOTAL							\$6,536

Total Fee \$37,336

- Notes:
- Odor study is to be performed without cost to City (confirmation from US Filter attached).
 - Subconsultant fee proposal from LPS and Malone Engineering is attached.
 - Flow meter equipment recommendations, product data and price quotation are attached. Ownership of the flowmeter equipment will be the City of Rapid City upon completion of contract work.

LPS ENGINEERING, INC.
823 QUINCY STREET
RAPID CITY, SD 57701
605.341.6939
605.341.6883 (Fax)

FAX TRANSMITTAL

April 28, 2004

Number of pages - 1

To: CETEC
Fax No. 341.7864
Attn: Greg

Project: Mall Ridge Lift Station
4139

Greg,

We propose to provide mechanical and electrical engineering services for the preliminary phase of the project as described in paragraph 1.3 of the RFP as follows:

Mechanical Engineering	\$ 750
Electrical Engineering	\$1,000

This is really my first time doing this, so if we are too high or too low, please call and let us know.

Thanks.

Bill Wold

Bill Wold, PE

Greg Wierenga

From: "Overton, Brady" <OvertonB@USFilter.com>
To: "Greg Wierenga" <greg_cetec@rushmore.com>; "Overton, Brady"
Cc: "Feist, Darin" <dfeist@vessco.com>; "McQuade, Brett" <McQuadeB@USFilter.com>
Sent: Monday, April 26, 2004 2:08 PM
Subject: RE: Rapid City Odor Study

Greg,

Part of what we do is help to solve odor concerns, it is so refreshing that you and Rapid City are being pre-impressive in this regard that I am excited to travel your way Pro bono! I will send all the testing equipment that we will need ahead of time to your attention to hold prior to my arrival, since I can not fly with much of this equipment.

Basically we will be surveying dissolved and atmospheric hydrogen sulfide at the wet wells and downstream transition manholes and for the systems yet to be installed we will be modeling the expected sulfide levels based on a modeling program. (I will put a more detailed plan together as we know more). From this we can recommend the best fit odor control approach to your customer, which may include vapor phase, liquid phase or a combination. Also, I will have our advanced dosing product manager Brett McQuade (Process Engineer) discuss the advanced dosing of liquid phase product and how to tie that into the overall approach to optimize dosing (Brett has some very impressive packages / approaches). We will package this survey work into a very tidy bundle for your exclusive use as part of your overall proposal.

We can discuss this further as we go so we can produce an intelligent outline. In the mean time let me know approximately when you would need me out in Rapid City.

> Thanks,

>

> Brady Overton

> Sales Representative

> USFilter/Davis Process

> * 800.345.3982x388

> Fax: 941.351.4756

> Mobile: 920.540.3223

> * overtonb@usfilter.com

>

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> -----Original Message-----

> From: Greg Wierenga [SMTP:greg_cetec@rushmore.com]

QUOTATION

ATTN: GREG_CETEC@RUSHMORE.COM
 CETEC ENGINEERING SERVICES I
 1830 WEST FULTON STREET
 RAPID CITY SD 57702



Be Right™

DATE: 4/29/04

HACH COMPANY
 P.O. Box 608, Loveland, CO 80539-0608
 Phone: 800-227-4224, FAX: 970-669-2932
 E-Mail: quotes@hach.com
 Web: www.hach.com

Quotation Bid Reference Number: Q2995226 Project Ref. No.: QUOTE 910
 (USE QUOTATION Bid Reference number to ensure you receive prices quoted)

GORDON PETERSEN
 REGIONAL SALES MANAGER
 (800) 227-4224

Customer Phone: 6053417800
 Customer Fax: 6053417864

We are pleased to quote on your inquiry.

CATALOG NUMBER	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENDED PRICE
4900910	910 Area x Velocity Flow Meter Pkg. Includes part numbers 4900-910 Area x Velocity Flow Meter, 88000 Submerged Depth Velocity Probe, 25 ft 3564 Cable for Submerged Depth Velocity Probe, and 4920 Suspension Cable	1	3,248.00000	3,248.00
3766	Mounting band set for 15-42 in pipes (includes (1) #1473 extension bands, (2) #1525 extension bands, (3) #1759 extension bands, (1) #1318 extension band, and (1) #3719 scissor jack assembly)	1	515.00000	515.00
3516	DTU II with #1726 DTU-to-sampler/ flowmeter cable, #3513 DTU-to PC cable, 115 VAC	1	615.00000	615.00
5254	Insight for Windows If connecting to PC std cable 1727 OR IS cable 4087 required	1	.00000	.00
1727	Cable, sampler or flowmeter-to-PC	1	57.00000	57.00

SHIPPING FROM:
 LOVELAND, COLORADO, USA
 Prices firm for orders received by JUNE 28, 2004
 Shipment within 30 days after the receipt of
 firm order.
 PAYMENT TERMS: NET 30 DAYS FROM INVOICE DATE

PAYMENT TERMS ARE SUBJECT TO CREDIT REVIEW,
 REFER TO CONDITIONS ON REVERSE SIDE.
 SALES/USE TAXES ARE NOT INCLUDED IN QUOTATION.
 Taxes will be added to invoice unless valid resale/exemption
 certificate is provided. Freight charge schedule attached.
 Send confirming purchase order for orders \$25,000 or more to
 address or fax number above.

Goya Nakaya
 Signed: HACH COMPANY



800-635-4567



Environmental Test Systems

800-548-4381



800-454-0263



800-949-3766



800-247-7613



800-227-2648



800-998-8110

QUOTATION

ATTN: GREG CETEC@RUSHMORE.COM
CETEC ENGINEERING SERVICES I
1830 WEST FULTON STREET
RAPID CITY SD 57702



Be Right™

DATE: 4/30/04

HACH COMPANY
P.O. Box 608, Loveland, CO 80539-0608
Phone: 800-227-4224, FAX: 970-669-2932
E-Mail: quotes@hach.com
Web: www.hach.com

Quotation Bid Reference Number: Q2996732

Project Ref. No.: QUOTE BANDS

(USE QUOTATION Bid Reference number to ensure you receive prices quoted)

GORDON PETERSON
REGIONAL SALES MANAGER
(800) 227-4224

Customer Phone: 6053417800
Customer Fax: 6053417864

We are pleased to quote on your inquiry.

CATALOG NUMBER	DESCRIPTION	QUANTITY	UNIT PRICE	EXTENDED PRICE
1361	Mounting ring for 6 in. dia. pipe	1	123.60000	123.60
3263	AV mounting clip	1	38.15000	38.15
1362	Mounting ring for 8 in. dia. pipe	1	133.90000	133.90
1363	Mounting ring for 10 in. dia. pipe	1	149.35000	149.35
1364	Mounting ring for 12 in. dia. pipe	1	169.95000	169.95
914	Battery charger, 115 VAC for 1416 nickel cadmium battery	1	118.00000	118.00
1416	Battery, nickel cadmium, 12 VDC 4 Amp-hr	1	206.00000	206.00

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ONE OPERATIONS MAINTENANCE MANUAL IS SHIPPED WITH EACH OF THE ABOVE INSTRUMENTS. THERE IS A CHARGE FOR ANY ADDITIONAL MANUALS ORDERED. ONLY STANDARD OEM MANUALS PROVIDED.

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SHIPPING FROM:

LOVELAND, COLORADO, USA

Prices firm for orders received by JUNE 29, 2004
Shipment within 30 days after the receipt of firm order.

PAYMENT TERMS: NET 30 DAYS FROM INVOICE DATE

PAYMENT TERMS ARE SUBJECT TO CREDIT REVIEW, REFER TO CONDITIONS ON REVERSE SIDE. SALES/USE TAXES ARE NOT INCLUDED IN QUOTATION. Taxes will be added to invoice unless valid resale/exemption certificate is provided. Freight charge schedule attached. Send confirming purchase order for orders \$25,000 or more to address or fax number above.

Greg Peterson
Signed: HACH COMPANY



800-635-4567



800-548-4381



800-454-0263



800-949-3766



800-247-7613



800-227-2648



800-898-8110



SIGMA

Flow and Level

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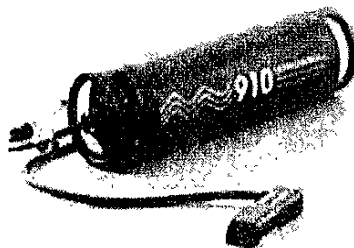
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Sigma 910 Area Velocity Flow Meter



Product Specifications

The Hach Sigma 910AV uses an ultrasonic 1 MHz Doppler sensor, providing unparalleled accuracy and range performance from low flows to surge conditions.

The Sigma 910AV measures average velocity directly without the need for time consuming flow profiling, significantly reducing the cost of installation and operation. With a compact 4 1/2" x 4 1/2" x 4 1/2" design, weighing less than 8 lbs (with battery), the 910AV is one of your best options for remote environments. This meter will log level and velocity data for more than 30 days without charging battery, and its sealed design provides superior system protection against surcharge conditions.

- Advanced, ultrasonic one-MHz Doppler technology avoids signal dropouts and ensures high levels of accuracy in low-flow, full-pipe or reversed-flow conditions, without the need for calibration.
- A higher level of accuracy, since the 910 automatically corrects the effects of temperature on level measurement.
- Patented Drawdown Correction feature to correct the effects of velocity on accurate level measurement.
- Easy Installation with a small, 4 1/2" diameter and no velocity calibration required.
- NEMA 6P sealed to withstand submergence and prolonged surcharge conditions.
- Low Profile, Non-Fouling Probe reduces your need for maintenance and is detachable/interchangeable for ultimate flexibility.

Ideal for:

- Short Term Flow Studies
- Sanitary Sewer Evaluation Studies

Sigma's Patented Drawdown Correction and the Bernoulli Principle

The Bernoulli* Principle states that as the velocity of a fluid increases, its pressure decreases. The Bernoulli Principle simply describes the relationship between the velocity of a fluid and its pressure.

If a measurement of the pressure of the moving fluid is taken at a point just forward of the leading edge of the shape, and another measurement is taken at the apex, of the upper curved surface, you will notice that the pressure at the apex is lower than the pressure at the leading edge. It is this principle that is responsible for the lift on an airplane wing. Level measurement using a submersible depth sensor is similarly affected by increases in fluid velocity.

Integral Submerged Depth/ Velocity Sensor Accuracy

- Level Measurement (non-linearity and hysteresis): Standard - .018 to 11.5 ft. \pm . 023 m - 3.5 m \pm .007 m). Extended - .018 to 34.6 ft \pm .07 ft. (.005 - 10.5 m \pm .021 m).
- Maximum Allowable Level: 3x over pressure.
- Operating Temperature Range: 32 to 160°F (0-71°C).
- Compensated Temperature Range: 32 to 86°F (0-30°C).
- Temperature Error: .018 - 34.6 ft. \pm .012 ft./°F (.018-10.5 m \pm .006 m/°C). .018 - 3- \pm .012 ft./°F (.018-10.5 m \pm .006 m/°C) (maximum error within compensated temperature range - per degree of change).
- Velocity Induced Error on Depth (patent pending): 0 to 10 ft./sec. (0 to 3.05 m/s) = .1 reading.
- Air Intake: Atmospheric pressure reference is desiccant protected.
- Material: Polymer body with stainless steel diaphragm.
- Cable: Urethane sensor cable with air vent. Cable Length: 25' (7.6 m) standard. 250' maximum.
- Dimensions (combination sensor): .8" H x 1.5" W x 5" L (2 cm x 3.8 cm x 12.7 cm).

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SIGMA

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ATTACHMENT 3

**MALLRIDGE LIFT STATION
PROJECT NO. 50376, SS01-1052**

LABOR RATE SCHEDULE

ATTACHMENT 3

LABOR RATE SCHEDULE - 2004

CETEC Engineering Services, Inc.

Labor Rates

Greg Wierenga, P.E.	\$85.00/hr.
Randy Sauter, P.E.....	\$85.00/hr.
Ted Schultz, P.E.....	\$85.00/hr.
Keith Peterson, RLS	\$60.00/hr.
Engineering Technician.....	\$50.00/hr.
CAD Technician I	\$45.00/hr.
CAD Technician II	\$50.00/hr.
Construction Observer.....	\$50.00/hr.
Survey Crew Chief	\$55.00/hr.
Survey Crew (2 man)	\$90.00/hr.
Survey Assistant / Field Technician	\$35.00/hr.
Clerical	\$30.00/hr.

Reimbursable Expenses

Project Travel	\$0.45/mile
Telephone, Perdiem.....	Non-Reimbursable
Blueline Printing	Actual Cost
Outside Printing.....	Actual Cost
Subconsultants.....	Cost plus 10%