

December 20, 2004

RECEIVED

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Roger C. Huff, P.E.
Technical Support Manager, Supply Group
City of Columbus
Division of Water
910 Dublin Road
Columbus, Ohio 43215

Re: Dublin Road Water Plant
Contract No. 966 - Chlorine Storage Improvements
Additional Engineering Services

Dear Mr. Huff:

We have prepared the enclosed scope of work, cost proposal and project schedule to provide additional engineering services on the Dublin Road Water Plant Chlorine Storage Improvements project. Our total estimated additional engineering cost for this work is \$1,107,000. A summary of the engineering services completed under our current contract and the proposed additional engineering services are presented below.

CURRENT ENGINEERING SERVICES CONTRACT

The scope of services provided under our current engineering services contract can be broken down into four primary work activities.

- Process Hazard Analyses (PHAs) were conducted and Risk Management Plans (RMPs) were prepared for each of the City's three water plants; Dublin Road, Hap Cremean and Parsons Avenue.
- Condition survey and evaluation of the Sedimentation Basin concrete walls and slabs were performed.
- Design of a Chlorine Storage Facility was completed, which included the preparation of contract documents for bidding and constructing a new chlorine building, chlorine unloading and storage facilities, chlorine feed equipment and piping, and other miscellaneous plant improvements.
- Bidding assistance for the Chlorine Storage Facility was provided, which included services during the bid advertisement period through bid opening, bid tabulation, recommendation of award, responses to bid protests, and preparation of contract documents for signature and contract award.

After the receipt of bids and prior to contract award, the City decided to investigate other disinfection alternatives and ultimately rescinded the award of the Chlorine Storage Facility construction contract. Therefore, the services during construction included in our current engineering contract for the Chlorine Storage Facility were non-performed. Following is a summary of the original scope and cost of services completed and non-performed under our current engineering contract:

CURRENT ENGINEERING CONTRACT COST SUMMARY

Current Engineering Contract Amount	\$2,062,010
Completed Scope of Services	
• Process Hazard Analyses/Risk Management Plans	\$152,636
• Concrete Condition Survey and Evaluation	\$16,157
• Chlorine Storage Facility Design Services	\$917,207
• Chlorine Storage Facility Bidding Services	<u>\$60,010</u>
Subtotal - Completed Scope of Services Amount	<u>\$1,146,010</u>
Non-Performed Scope of Services Amount	
• Chlorine Storage Facility Services During Construction	<u>\$916,000</u>

ADDITIONAL ENGINEERING SERVICES

The proposed scope of our additional engineering services on this project includes detailed design services and services during construction for the following three separate construction contracts:

- Part 1 - Sedimentation Basin and Clearwell Rehabilitation
- Part 2 - Disinfection (Sodium Hypochlorite) Facility
- Part 3 - Temporary Emergency Chlorine Scrubber

The proposed scope of services for each of these construction contracts, a preliminary list of drawings, the total estimated cost for these additional services, and a preliminary project schedule are presented in attachments to this letter. Following is a summary of the estimated cost of these additional services:

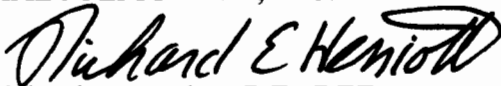
ADDITIONAL ENGINEERING SERVICES COST SUMMARY

Part 1 - Sedimentation Basin and Clearwell Rehabilitation	
• Detailed Design Services and	
• Services During Construction	\$430,000
Part 2 - Disinfection (Sodium Hypochlorite) Facility	
• Preliminary Engineering	\$60,000
• Detailed Design Services	\$595,000
• Services During Construction	\$850,000
Part 3 - Temporary Emergency Chlorine Scrubber	
• Detailed Design Services and	
• Services During Construction	<u>\$88,000</u>
Subtotal - Additional Engineering Scope of Services Amount	\$2,023,000
Non-Performed Scope of Services Amount (Deduct)	<u>(\$916,000)</u>
Additional Engineering Contract Amount	<u>\$1,107,000</u>

We appreciate the opportunity to provide these services to the City and look forward to continuing our work on this project. Please call us if you should have any questions or need additional information regarding the scope or estimated cost of these services.

Very truly yours,

MALCOLM PIRNIE, INC.



Richard E. Herriott, P.E., DEE
Vice President

Enclosures: Additional Engineering Scope of Services
Preliminary List of Drawings
Estimated Labor Distribution and Cost Breakdown
Preliminary Project Schedule

DUBLIN ROAD WATER PLANT
CHLORINE STORAGE IMPROVEMENTS
PROJECT NO. 690379 – CONTRACT NO. 966
ENGINEERING SERVICES CONTRACT NO. EA025110-002

ADDITIONAL ENGINEERING SCOPE OF SERVICES

The proposed scope of our additional engineering services on this project can be broken down under the following three separate construction contracts:

- Part 1 - Sedimentation Basin and Clearwell Rehabilitation
- Part 2 - Disinfection (Sodium Hypochlorite) Facility
- Part 3 - Temporary Emergency Chlorine Scrubber

A summary of our proposed scope of services to be included under each of the three construction contracts is presented below.

PART 1 - SEDIMENTATION BASIN AND CLEARWELL REHABILITATION

The scope of our engineering work on this project includes detailed design services and services during construction as described below:

- Detailed Design Services: The scope of this redesign effort will include preparation of construction contract drawings and specifications for use in bidding and constructing the followings work items:
 1. Sedimentation basin concrete rehabilitation.
 2. Clearwell rehabilitation.
 3. Sedimentation basin railing replacement.
 4. Rectangular butterfly valve seat replacement.
 5. Administration Building stair addition.
 6. Plant-wide fire alarm and intercom system installation.

The construction contract documents will be based on the previously completed Chlorine Storage Improvements and Clearwell Rehabilitation contract documents. The previously completed drawings and specifications will be reconfigured and modified as necessary to define the revised scope of work. A preliminary list of the drawings required to define the work is attached. The documents will also be updated to incorporate any previously issued addenda changes. A construction cost estimate will be prepared upon completion of the final design documents. Assistance will be provided to the City during the bidding phase for this project. The scope of the bidding assistance will include distributing copies of the Contract Documents for bidding purposes, preparing addendums, tabulating and reviewing the bids and making a recommendation of award. A bid advertisement period of five weeks is anticipated.

ADDITIONAL ENGINEERING SCOPE OF SERVICES

(Continued)

- **Services During Construction:** The scope of services to be provided during the construction phase of this project will be as outlined in our original engineering services contract. Our estimated level of effort on this project is based on taking reasonable steps to safeguard the City against defects and deficiencies in the construction work and to advise the City as to the acceptability of the work. Malcolm Pirnie will function as the day-to-day administrator of the construction work on behalf of the City and coordinate the construction activities between the City and the construction contractor. The duration of the construction phase services is estimated to be 20 months, which includes a 3 month preconstruction planning and scheduling period. In an effort to limit the cost of our services, one part-time resident project representative (a resident at an average of half time) will be furnished throughout active construction periods, which is anticipated to be 17 months. The scope of the services during construction will include providing clarifications, issuing change orders, reviewing partial payment requests, reviewing and processing submittals, making periodic site visits, observing the progress and quality of the work, conducting inspections, conducting project meetings, and preparing record drawings.

PART 2 - DISINFECTION (SODIUM HYPOCHLORITE) FACILITY

The scope of our engineering work on this project includes preliminary engineering services, detailed design services and services during construction as described below:

- **Preliminary Engineering Services:** The scope of the preliminary engineering effort will include an evaluation and conceptual approach to utilizing sodium hypochlorite in lieu of gaseous chlorine at the Dublin Road Water Plant. Upon completion of the preliminary evaluation, a presentation will be made to the City that addresses other utilities experience using sodium hypochlorite, sizing and layout considerations, and safety, operational and cost issues. The preliminary engineering services will also include evaluation of disinfection alternatives to assure that the City invests in the most appropriate disinfection technology. A report will be prepared that evaluates a number of disinfection alternatives and discusses the applicability of each of the technologies to the City's disinfection goals, regulatory requirements, and safety concerns.
- **Detailed Design Services:** The scope of the detailed design effort will include preparation of construction contract drawings and specifications for use in bidding and constructing a new disinfection facility for the Dublin Road Water Plant that utilizes sodium hypochlorite. This phase of the project will include preparation of the detailed design drawings and a project manual that includes the City's standard front-end documents and the technical specifications (Divisions 1

ADDITIONAL ENGINEERING SCOPE OF SERVICES

(Continued)

through 16). A preliminary list of the drawings required to define the work is attached. A project kickoff meeting and periodic design review meetings will be held with the City throughout the detailed design phase. A construction cost estimate will be prepared upon completion of the detailed design documents, and the contract documents will be submitted to the City and Ohio EPA for review and approval. Assistance will be provided to the City during the bidding phase for this project. The scope of the bidding assistance will include distributing copies of the contract documents for bidding purposes, preparing addendums, tabulating and reviewing the bids and making a recommendation of award. A bid advertisement period of five weeks is anticipated.

- **Services During Construction:** The scope of services to be provided during the construction phase of this project will be as outlined in our original engineering services contract. Our estimated level of effort on this project is based on taking reasonable steps to safeguard the City against defects and deficiencies in the construction work and to advise the City as to the acceptability of the work. Malcolm Pirmie will function as the day-to-day administrator of the construction work on behalf of the City and coordinate the construction activities between the City and the construction contractor. The duration of the construction phase services is estimated to be 21 months, which includes a 3 month preconstruction planning and scheduling period. One full-time resident project representative will be furnished throughout active construction periods, which is anticipated to be 18 months. The scope of the services during construction will include providing clarifications, issuing change orders, reviewing partial payment requests, reviewing and processing submittals, making periodic site visits, observing the progress and quality of the work, conducting inspections, conducting project meetings, and preparing record drawings. An operation and maintenance (O&M) manual will also be prepared for the new facilities. The O&M manual will be prepared as a guidance document in language which will be understood by the plant operators. Ten copies of the O&M manual will be provided to the City.

PART 3 - TEMPORARY EMERGENCY CHLORINE SCRUBBER

The scope of our engineering work on this project includes detailed design services and services during construction as described below:

- **Detailed Design Services:** The scope of this design effort will include preparation of construction contract drawings and specifications for the City's use in bidding and constructing a temporary emergency chlorine scrubber installation to serve the existing chlorine feed and storage rooms at the Dublin

ADDITIONAL ENGINEERING SCOPE OF SERVICES

(Continued)

Road Water Plant. A preliminary list of the drawings required to define the work is attached. A construction cost estimate will be prepared upon completion of the detailed design documents, and the contract documents will be submitted to the City and Ohio EPA for review and approval. Following approval of the contract documents, a reproducible copy will be provided for the City's use in finalizing the standard front-end documents and bidding the project.

Concurrent with the detailed design phase, near-term process safety and risk management consulting services related to the chlorine facilities at the Dublin Road Water Plant will be provided by Unwin Company working as a subconsultant to Malcolm Pirnie. This work will include preparing for and facilitating a process hazard analysis (PHA) of the existing chlorine facilities as modified by the addition of a temporary emergency chlorine scrubber. Additional technical safety and programmatic issues relate to the Risk Management Program (RMP) and Process Safety Management (PSM) requirements will be provided, such as RMP resubmittal, management of change procedures, operating and preventive maintenance procedures and safety-related issues arising during the final design of the temporary chlorine scrubber system. Participation in the PHA by a representative from Severn Trent Services, the EST scrubber manufacturer, has been included for a half day segment of the PHA.

- **Services During Construction:** The scope of the services during construction will be limited to providing clarifications, reviewing and processing submittals, and making periodic site visits to observing the progress and quality of the work, attending project meetings, conducting inspections and preparing punchlists. Our estimated effort on this project is based on providing a reasonable level of assistance to the City during construction and to advise the City as to the acceptability of the work. However, it is our understating that the City will perform the day-to-day construction administration on this project including resident project representation.