



# City of Grand Island

Tuesday, February 12, 2002

## Council Session

### Item G13

#### **#2002-46 - Approving Engineering Services for Water Reservoirs**

*The Water Department has two concrete reservoirs, one is 76 years old, the other is 62. PINE STREET RESERVOIR was constructed in 1925 and had a capacity of approximately 1,000,000 gallons. That reservoir is located on the same property as the Water Shop (the old power plant). In 1997 that reservoir was abandoned to water system use because of extensive cracking and sloughing of the concrete walls and ceiling. KIMBALL RESERVOIR was constructed in 1939 and has a capacity of 3,500,000 gallons. It remains in normal service. However, approximately one third of the concrete slab roof and associated supporting columns are in need of repair and the sidewalls have cracking.*

*During their water system engineering evaluation, CH2MHill conducted a preliminary inspection of the deteriorated reservoirs. It is recommended that the Pine Reservoir not be repaired but be permanently abandoned. It is recommended that the Kimball Reservoir, being much larger and in generally better condition, be repaired.*

*It is the recommendation of the Utilities Department that CH2MHill be authorized to proceed with the engineering required to develop specifications and provide engineering assistance to demolish the Pine Reservoir and repair the Kimball Reservoir.*

*The attached Proposed Scope of Services report from CH2MHill places the cost of engineering at \$108,152.*

*Since this project must be done during the winter months when water demand is at its lowest, the cost of the actual demolition and repair project will be included in the '02-'03 budget, Water Fund 525. See attached RESOLUTION.*

Staff Contact: Gary R. Mader; Dale Shotkoski



## **Proposed Scope of Services and Fee Estimate for the City of Grand Island Kimball Street Reservoir Repair & Pine Street Reservoir Demolition Project.**

TO: City of Grand Island  
FROM: CH2M HILL  
DATE: January 10, 2002

### **Project Understanding**

The City of Grand Island (City) operates the Kimball Street Reservoir as part of its water distribution system. Structural damage to portions of the reservoir roof and a number of supporting columns has occurred requiring repair to ensure the structural integrity of the reservoir roof. As part of this scope of services, CH2M HILL representatives conducted a site visit with City Staff on November 13, 2001 to further assess the damage. Results of this evaluation were summarized in a technical memorandum provided to the City on December 3, 2001. Additional scope items were identified during the site visit including an evaluation of the overflow structure and improved access into the Kimball Street Reservoir. The anticipated repair consists of partial removal and replacement of the roof slab, drop panels, column and wall sections, and roofing and insulation in the affected areas. Minor repairs to brick facade will also be made. Additionally, preparation of a demolition plan of the abandoned Pine Street Reservoir was identified for inclusion within this scope of services.

The scope of services and fee estimate that are provided as part of this memorandum outline: 1) preparation of engineering contract documents, consisting of drawings and specifications, to allow the City to bid and construct the Kimball Street Reservoir Repair and Pine Street Reservoir Demolition Project, 2) additional engineering services including design of water seepage control alternatives and services during bidding and construction. It is anticipated that drawings and specifications will be submitted at the 90% design phase for City review and comment prior to issuing final drawings and specifications.

Several assumptions were made during the preparation of this scope of services:

1. The site visit inside of the reservoir on November 13, 2001, will be sufficient for the design team and fee is based on information contained within the technical memorandum provided to the City on December 3, 2001. No other site visit to either reservoir is anticipated during design.
2. The City will provide survey data at both the Kimball Street Reservoir and the Pine Street Reservoir.
3. The City will provide storm drain information at the Kimball Street Reservoir for use in

4. CH2M HILL standard specifications, CAD standards, and standard details will be used in the preparation of bid documents.
5. Five copies of the design packages will be submitted for review at the 90% design stage. Initially 20 copies (10 full size and 10 half size) of the Bid Documents will be prepared. Additional Bid Document copies will be reproduced as needed.
6. During demolition of the affected parts of the roof, columns and walls, additional damage may be discovered. Allowances may be provided should additional damage be discovered during the demolition and construction period.

## **Proposed Scope of Services**

CH2M HILL, Inc. (CONSULTANT) shall provide design services related to the preparation of contract documents for the partial replacement of Kimball Street Reservoir roof and affected columns, drop panels, and walls as illustrated in the Technical Memorandum dated December 3, 2001, and the demolition of the Pine Street Reservoir, hereafter referred to as the Kimball Street Reservoir Repair & Pine Street Reservoir Demolition Project. The following details the tasks to be completed as part of this project.

### **Task 1: Project Management**

- 1.1 CONSULTANT shall provide routine project management services including, but not limited to, budget and schedule tracking, project team coordination, progress updates for the CITY, and preparation of invoices.

### **Task 2: Design Services**

- 2.1 CONSULTANT shall review and evaluate data that pertain to the Kimball Street Reservoir, such as structural, site, and electrical drawings, operational and other data as required. This will include existing design drawings and data gathered during the November 2001 site visit.
- 2.2 CONSULTANT will identify, if necessary, additional data and information required for structural evaluation of the Kimball Street Reservoir and for the Pine Street Reservoir demolition.
- 2.3 CONSULTANT will prepare contract documents consisting of drawings and specifications to allow the CITY to bid and construct the Kimball Street Reservoir Repair and Pine Street Reservoir Demolition Project. Engineering services will include:
  - 2.3.1 Development of a title drawing sheet and structural and site work legend drawing sheets.
  - 2.3.2 Development of structural plans, sections, and details for the removal of affected section of the existing roof, drop panels, columns, and walls at the Kimball Street Reservoir.
  - 2.3.3 Development of structural plans, sections, and details for the installation of new sections of roof, drop panels, columns, and walls at the Kimball Street Reservoir.
  - 2.3.4 Development of structural and mechanical plans, sections, and details for the installation of over-fill protection at the Kimball Street Reservoir.

- 2.3.5 Development of structural plans, sections, and details for the installation of a new access ladder into the Kimball Street Reservoir to improve access and meet Federal OSHA standards for fixed ladders.
- 2.3.6 Development of demolition plans for the removal of the Pine Street Reservoir.
- 2.3.7 Development of restoration site plans for the removal of the Pine Street Reservoir.
- 2.3.8 Preparation of an engineering cost estimate.
- 2.3.9 Development of appropriate specifications for items listed under Tasks 2.3.1 through 2.3.7.
- 2.3.10 Quality Assurance/Quality Control through Senior Review of all submittals.
- 2.4 Deliverables:
  - 2.4.1 CITY will provide the information listed under Task 2.1.
  - 2.4.2 CONSULTANT shall prepare, if necessary, a list of additional information requirements to be provided by the CITY.
  - 2.4.3 CONSULTANT shall submit five copies of the design package at the 90-percent design stage to the CITY to include those items listed under Task 2.3.
  - 2.4.4 CONSULTANT shall submit ten copies of the final design package to the CITY to include those items listed under Task 2.3.

## **Optional Services**

### **Task 3: Water Seepage Control Alternatives**

- 3.1 CONSULTANT shall evaluate options to repair wall leaks resulting from a leaking reservoir and prepare the following:
  - 3.1.1 CONSULTANT shall design the repair of leaks based on independent or combination of independent options to limit seepage from the reservoir. These include: Rout and seal all visible cracks, epoxy or chemical grout inject all visible cracks, coat/line wetted surfaces, and coat concrete with penetrating crystallizing sealer.
  - 3.1.2 Specifications for those items listed under Task 3.1.1.

### **Task 4: Services during Bidding and Construction**

- 4.1 CONSULTANT shall provide up to three man-days of assistance during the bidding phase to answer questions from bidders.
- 4.2 CONSULTANT shall attend a pre-construction meeting in Grand Island to discuss the approach with the construction contractor and answer any initial questions.
- 4.3 CONSULTANT shall provide up to three man weeks assistance to review submittals and answer questions during the construction period. It is assumed that no as-built drawings will be prepared as part of this scope of services.



Fee Estimate

Task Description	Project Manager	Design Manager	Senior Project Engineer	Structural Engineer	Senior Review	Senior Technician	Technician	Clerical	Accounting/Office	Labor	Expenses	Total
<b>Task 1 - Project Management</b>												
1.1 Project Management	8	20							20	\$4,112	\$309	\$4,421
<b>Task 1 - Subtotal</b>	8	20	0	0	0	0	0	0	20	\$4,112	\$309	\$4,421
<b>Task 2 - Design Services</b>												
2.1 Data Review and Site Visit		20		32	18		8		2	\$8,766	\$2,165	\$10,921
2.2 Identification of Additional Data Requirements			4							\$436	\$28	\$462
2.3 Preparation of contract documents		20								\$1,780	\$129	\$1,909
2.3.1 Title Sheet, Structural Legend, and Site Work Legend				32			20			\$4,928	\$335	\$5,263
2.3.2 Structural Plans, Sections and Details (Demolition) - Kimball Reservoir				32			16			\$4,996	\$335	\$5,331
2.3.3 Structural Plans, Sections and Details (Installation) - Kimball Reservoir				84			4			\$8,484	\$541	\$9,025
2.3.4 Structural Plans, Sections and Details Overflow - Kimball Reservoir			32	32			4			\$2,380	\$180	\$2,560
2.3.5 Structural Plans, Sections and Details Access - Kimball Reservoir				8			4			\$4,996	\$335	\$5,331
2.3.6 Demolition Plan - Pine Street Reservoir				32			4			\$4,996	\$335	\$5,331
2.3.7 Restoration Site Plans - Pine Street Reservoir				32			4			\$4,996	\$335	\$5,331
2.3.8 Engineering Cost Estimate					12							
2.3.9 Specifications			8	16						\$2,616	\$154	\$2,770
2.3.10 Quality Assurance/Quality Control					4					\$920	\$26	\$946
2.4 Plans and Specifications			8	16	8		40	40		\$9,176	\$1,271	\$10,447
<b>Task 2 - Subtotal</b>	0	40	52	295	42	24	164	40	2	\$92,648	\$6,370	\$99,018
<b>Task 3 - Construction Services</b>												
3.1 Evaluation of water seepage control alternatives				24						\$2,616	\$814	\$3,430
3.2 Design of wall repairs				20						\$2,180	\$129	\$2,309
3.3 Plans and Specifications				20	2		20	20		\$5,150	\$399	\$5,549
<b>Task 3 - Subtotal</b>	0	0	0	64	2	0	20	20	0	\$9,946	\$1,342	\$11,288
<b>Task 4 - Services During Bidding and Construction</b>												
4.1 Bidding services		8		16						\$2,456	\$154	\$2,610
4.2 Attend construction meeting		16		16						\$3,168	\$1,528	\$4,694
4.3 SDC		20		100				20		\$13,900	\$2,221	\$16,121
<b>Task 4 - Subtotal</b>	0	44	0	132	0	0	0	20	0	\$19,524	\$3,901	\$23,425
<b>Total for Tasks 1 and 2</b>	8	60	52	295	42	24	164	40	22	\$96,760	\$6,679	\$103,439
<b>Total for Tasks 1, 2 and 3</b>	8	60	52	360	44	24	184	60	22	\$106,284	\$9,021	\$115,305
<b>Total for Tasks 1, 2 and 4</b>	8	104	52	428	42	24	184	60	22	\$116,284	\$10,590	\$126,874
<b>Total for Tasks 1, 2, 3 and 4</b>	8	104	52	492	44	24	184	80	22	\$126,284	\$11,922	\$138,206

RESOLUTION 2002-46

WHEREAS, Pine Street Reservoir was constructed in 1925 and had a capacity of approximately 1,000,000 gallons; and

WHEREAS, the Pine Street Reservoir was abandoned to water system use in 1997 based on extensive cracking and sloughing of the concrete walls and ceiling; and

WHEREAS, Kimball Reservoir was constructed in 1939 and has a capacity of 3,500,000 gallons; and

WHEREAS, although the sidewalks have cracking and approximately one-third of the concrete slab roof and associated supporting columns of the Kimball Reservoir are in need of repair, it remains in normal service as part of its water distribution system; and

WHEREAS, during their water engineering evaluation, CH2M Hill conducted a preliminary inspection of the deteriorated reservoirs; and

WHEREAS, based on their preliminary inspection, CH2M Hill recommends that the Pine Street Reservoir be permanently abandoned and the Kimball Reservoir be repaired; and

WHEREAS, due to CH2M Hill's inspection and assessment of the property, and its experience and knowledge working on this project, it is recommended that CH2M Hill be authorized to provide the engineering services required to develop specifications and provide engineering assistance to demolish the Pine Street Reservoir and to repair the Kimball Street Reservoir.

NOW, THEREFORE, BE IT RESOLVED BY THE MAYOR AND COUNCIL OF THE CITY OF GRAND ISLAND, NEBRASKA, that CH2M Hill is hereby authorized to proceed with the engineering services required to develop specifications and provide engineering assistance to demolish the Pine Street Reservoir and to repair the Kimball Street Reservoir in accordance with the Scope of Services provided by such contractor.

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Adopted by the City Council of the City of Grand Island, Nebraska on February 12, 2002.

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RaNae Edwards, City Clerk

Approved as to Form ? _____ February 7, 2002     ?     City Attorney
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