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Kim K. Kock, P.E.

JN 12 008 06
Date May 22, 2017

Pueblo Conservancy District
c/o Kidd Engineering, Inc.
1001 East Evans Avenue
Pueblo, CO 81004

Attn: Rick Kidd, P.E., District Administrator and Conservancy District Board Members

Re: Construction Support Services in Furtherance of Levee Certification in Accordance with FEMA 65.10 as Publically Advertised Sept. 28, 2013 through October 12, 2013 including preparation of final Phase 4 Bidding Documents, and Phase 4 Bid and Construction Administration, Construction Observations, Geotechnical and Materials Testing including Observation of Fill Materials, Construction Staking, and Quantity Verification/"As-built" Surveys. This Proposal is an extension of the November 20, 2013 Contract between NorthStar and the Pueblo Conservancy District for Preliminary Data Acquisition as well as the April 23, 2014 Contract between NorthStar and the Pueblo Conservancy District for Engineering Design Services. The Services of this Proposal are intended to allow the Project Design Team to field address unknown site conditions behind/under the existing Concrete Levee Facing Panels and provide for a cost effective Contractor response to those unknown conditions. The Services of this Proposal are also intended to document "as-constructed" conditions, materials, and quantities as required for Final Levee Certification to FEMA and for import into the "as-constructed" Levee G.P.S. Database. Additionally, Services of this Proposal provide the Pueblo Conservancy District with detailed documentation regarding Project Compliance with Regulatory Agency and Contract Document requirements. Fees stated here-in are in addition to the Task A through Task C total fees detailed in the referenced November 20, 2013 Contract and the Task D fees detailed in the referenced April 23, 2014 Contract (Task E provided for Phase 1 Construction Support Services and was authorized on October 22, 2014). The above referenced Services are identified in Task D.7 of the April 23, 2014 Contract with a note indicating that a detailed Proposal would be prepared for those services prior to each of the intended construction seasons. The Phase 4 Project continues Arkansas River Levee facing panel removal and replacement from a point immediately downstream of the last kayak course drop structure (sta. 180+50±) to a point immediately upstream of the existing railroad bridge (sta. 207+50±). This Proposal also includes similar services as required for remediation of the HARP Diversion Structure.

We are pleased to present this Proposal for performing Professional Engineering and Surveying services with regard to the above referenced project. Please find a list below of the services that are to be provided:

TASK G: PREPARATION OF PHASE 4 BIDDING DOCUMENTS AND PHASE 4 CONSTRUCTION SUPPORT SERVICES INCLUDING BID AND CONSTRUCTION ADMINISTRATION, CONSTRUCTION OBSERVATIONS,

GEOTECHNICAL AND MATERIALS TESTING INCLUDING OBSERVATION OF FILL MATERIALS, CONSTRUCTION STAKING, AND QUANTITY VERIFICATION/"AS-BUILT" SURVEYS TO SUPPORT FINAL LEVEE CERTIFICATION (FEMA 65.10) as detailed herein:

1. Phase 4 of the Arkansas River Levee Improvements Project is anticipated to run from approximately November 13, 2017 to March 18, 2018. That period includes 126 calendar days. Excluding weekends, the anticipated construction period includes 90 work days. Fees for services herein are based on 90 (single shift) work days. An increase or decrease in actual work days will result in fee adjustments based on the actual extent of work performed each work day.
2. Prepare final Bidding and Construction Documents for the Phase 4 Project including final drawings, specifications, request for contractor qualification documents including bidding documents, and construction cost estimates. Now that the Arkansas River Levee has been lowered by approximately 12' (Phase 2 of Project), the Design documents for the overall Project must be modified to convey the work of Phase 2 as existing conditions. Improvement details and notes must be modified to address revised conditions. Also, all Project quantities must be modified to reflect current conditions. Accommodations will also be required in the updated design documents for future pedestrian (including ADA), bicycle, and maintenance vehicle crossing beneath the existing railroad bridge. In addition, knowledge gained from Phase 1, 2, and 3 construction (i.e. joint placement/concrete placement techniques, subsurface conditions, subgrade drains, dewatering/sheet pile requirements, etc.) must be incorporated into the Phase 4 construction documents. Also, all modified construction documents must be incorporated into the "Request for Contractor Qualifications" package. The "Request for Contractor Qualifications" package must also be modified to accurately reflect the qualifications and quantities which will be required by the Phase 4 Project.

Principal:	20.0 Hrs. @ \$145.00 =	\$2,900.00
Proj.Mgr./P.E.:	48.0 Hrs. @ \$125.00 =	\$6,000.00
Proj. Engineer:	118.0 Hrs. @ \$100.00 =	\$11,800.00
AutoCAD:	120.0 Hrs. @ \$65.00 =	\$7,800.00
Clerical:	32.0 Hrs. @\$45.00 =	<u>\$1,404.00</u>
TOTAL:		\$29,940.00

3. Geotechnical and Materials Testing Services shall include: testing and observation of fill materials associated with void filling and any embankment reconstruction; testing of fresh, site-cast concrete for embankment facing; and engineering consultation during reconstruction as required. Fees for testing are based on estimated quantities only and are subject to change based on actual testing performed.
 - a. Testing of fresh, site-cast concrete: Technician will sample fresh concrete to perform physical properties testing and produce five, 4-inch diameter by 8-inch long specimens for compressive strength tests. Physical properties testing will include slump, air content, unit weight, and mix temperature and will be performed for every 50 yards± of concrete placed for concrete slope paving each day. One specimen will be tested at 7 days and three specimens

at 28 days. The remaining specimen may be tested at 56 days if testing indicates below specified strength at 28 days. Reports will be prepared summarizing the results of field testing after each compressive strength age test is conducted. Additional site visits may be required for cylinder pickup when other testing has not been scheduled on the same day.

1) Technician (testing-slope paving)		
60 visits x 4 hrs x \$65/hr		\$15,600.00
2) Technician (cylinder pickup)		
60 visits x 1 hrs x \$65/hr		\$3,900.00
3) Compressive Strength of Test Cylinders		
120 sets x 5 cyls x \$15/cyl		\$9,000.00
4) Review and Report		
60 reports x \$50/report		<u>\$3,000.00</u>
5) Subtotal Task G.3.a:		\$31,500.00

b. Geotechnical testing and observation of fill materials: Field density tests will be performed at depths and locations of the Engineer's choosing. The Contractor will be notified on-site, at the time of testing, of the compaction test results, when possible. Proctor moisture-density relationships will be prepared on major fill materials to establish maximum dry density and optimum moisture content. The materials will be classified utilizing grain size analysis and Atterberg Limits. Laboratory testing will be conducted as Engineer deems appropriate or as requested by the Owner to evaluate conformance of fill materials with Project Specifications. During fill observation and testing, daily reports summarizing the location, depth, and results of field density testing will be prepared. The reports will summarize the conditions observed, equipment being used by the Contractor to construct fills, and the Contractor's progress and procedures, when appropriate.

1) Technician (Density Testing, etc.)		
15 visits x 3 hrs x \$70/hr		\$3,150.00
2) Review and Report		
15 reports x \$50/report		\$750.00
3) Project Engineer (Site Visits/Meetings)		
7 visits x 5 hrs x \$130/hr		\$4,550.00
4) Proctor Moisture/Density Curve		
2 tests x \$125/test		\$250.00
5) Grain Size Analysis		
2 tests x \$55/test		\$110.00
6) Atterberg Limits		
2 tests x \$75/test		<u>\$150.00</u>
7) Subtotal Task G.3.b:		\$8,960.00

4. Construction Staking and Quantity Verification/"As-built" Surveys as required to document "as-constructed" conditions, materials, and quantities for: import into Final Levee G.P.S database; for Final Levee Certification Documents for submittal to FEMA; and for verification of Contractor payment quantities.

a. On-time construction staking of toes and tops of levee embankment at 50' intervals for 2700' length of Phase 4 Project. Also, one-time construction staking of subgrade for concrete levee facing panels at 25' x 25' grid for entire 2700' length of Phase 4 Project. Also includes one time staking of top of embankment centerline with grades for placement of crushed concrete surfacing.		
1) Office calculations and coordination	40 hours x \$95/hr	\$3,800.00
2) 2 Man crew with GPS equipment as needed	112 hours x \$145/hr	<u>\$16,240.00</u>
3) Subtotal Task G.4.a:		\$20,040.00
b. Quantity verification/"As-built" surveys including conditions: after removal of any given existing material; and after installation of replacement material. Includes import of all data into Final Levee G.P.S. database.		
1) 2 man crew with GPS equipment	38 days x 3 hrs x \$145/hr	\$16,530.00
2) G.I.S. technician	38 days x 1.5 hrs x \$75/hr	<u>\$4,275.00</u>
3) Subtotal Task G.4.b:		\$20,805.00
5. Bid and Construction Administration and Construction Observations including: evaluation of Proposals received and recommendations regarding Contract Award; general administration of the Contract between the Owner and the Contractor; administration of preconstruction conference and weekly on-site construction progress meetings; review of schedules, shop drawings, pay applications, and other Contractor submittals; review and recommendations regarding field orders and change orders; engineering consultations during reconstruction regarding alternative materials and techniques; and construction observations/Resident Project Representative (RPR) services as detailed in the Engineers Joint Contract Documents Committee Standard General Conditions of the Construction Contract (EJCDC C-700) and Supplementary Conditions (EJCDC C-800), Article 9.		
a. RFQ Administration and Evaluation and Contract Processing	32 Hrs. x \$145/hr =	\$4,640.00
b. Resident Project Representative	90 days x 6 hrs x \$100/hr	\$54,000.00
c. Prepare Reports	90 reports x \$50/report	\$4,500.00
d. Principal (Site Visits/Meetings)	30 visits x 4 hrs x \$145/hr	<u>\$17,400.00</u>
e. Subtotal Task G.5		\$80,540.00
TOTAL TASKS G.2, G.3.a, G.3.b, G.4.a, G.4.b, and G.5:		\$191,785.00

TASK H: PREPARATION OF FINAL BIDDING AND CONSTRUCTION DOCUMENTS FOR REMEDIATION OF THE “HARP DIVERSION STRUCTURE” to include:

1. Prepare final Bidding and Construction Documents for “HARP Diversion Structure” between the riverside inlet/gate wall reconstructed during Project Phase 3 and the point of connection to the existing dual outlet piping system.
2. Anticipated improvements include: installation of new dual pipe system into existing concrete flume through the structure, backfilled in place; new manual/electrical valve/valve controls on each new pipe; operating platform for valve controllers; backfill of area between existing structure wingwalls; demolition/removal of existing components (i.e. gates, operators, etc.) as required; new stairways with handrail and gates as required; closure facilities as required for flood protection; power supply (design to be furnished by utility provider).
3. Improvements to be designed to convey not less than 90 cubic feet/second with a maximum capacity of 200 cubic feet/second at peak river flows.
4. Coordination with Client and Pueblo Board of Water Works as it is currently assumed that: 1) the Pueblo Conservancy District will own the structure as it creates a penetration through a flood protection levee under its jurisdiction; and 2) the Board of Water Works will be responsible for daily operation and maintenance of the facility.
5. Design Service fees are as listed below. If construction of the “HARP Diversion Structure” improvements occurs at the same time as Phase 4 of the Arkansas River Levee Improvements Project, construction administration, inspections, staking/surveying, and materials testing will be included in Task G of this Proposal.

Principal:	48.0 Hrs. @ \$145.00 =	\$6,960.00
Proj. Mgr./P.E.	48.0 Hrs. @ \$125.00 =	\$6,000.00
Proj. Engineer:	110.0 Hrs. @ \$100.00 =	\$11,000.00
AutoCAD:	120.0 Hrs. @ \$65.00 =	\$7,800.00
Clerical:	30.0 Hrs. @ \$45.00 =	\$1,350.00
TOTAL:		\$33,110.00

We will perform the above listed services on a Time and Materials basis. Our fees for providing these services will be as shown above. Any item or service not specifically listed in the scope of services given above is not included in this contract. Any extra services which may be required to complete the job will be billed per our current time and material rates. Any extra work that is required by NorthStar or by the client to complete the project shall be in writing, acknowledged and made a portion of the Agreement.

Please note that any City, County, utility company, or title company fees are the responsibility of the client and are not included in this budget. Also, all direct reimbursable expenses incurred in performance of this project will be invoiced at cost plus ten percent.

Our company policy is to send an invoice to the address listed above no later than the 1st day of every month; payment is due on receipt of invoice and to be received no later than the 30th day of that month. Should you require a different submittal date, please so advise. Payment not received by NorthStar by the 30th may cause all work to stop on the project, and an assessment of two percent monthly.

NorthStar agrees to assign to the District all intellectual property rights in all data gathered, analysis made and work product of Providers concerning this project.

NorthStar agrees that the District may use as the District deems necessary or desirable all information provided to the District by NorthStar which shall become the exclusive property of the District.

This Contract however shall not be construed to give to NorthStar any right beyond the rights set forth in this Contract and should District choose to use third parties for additional services relative to completing the project, the District shall have the right to do so.

NorthStar agrees to comply with all applicable local, State and Federal laws concerning NorthStar's services to Conservancy.

This Agreement may not be assigned by NorthStar without the written consent of Conservancy.

In the event the client wishes to terminate the services of NorthStar, the client shall pay NorthStar time and materials rates up to the date of termination.

Please review this proposal carefully, for it represents a binding contract when signed. If this proposal is acceptable, please have a duly authorized representative sign on the space provided below and return the original to us as notice of authorization to proceed. We appreciate the opportunity to be of service to you.

NorthStar Engineering and Surveying, Inc.

Kim Kock

Kim Kock, P.E.
President/Principal

Accepted By: *Paul Willemstad*

Title: *Board President*

Date: *5/24/2017*