

## Memorandum

**To:** Papio-Missouri River Natural Resources District  
Programs Projects and Operations Subcommittee

**From:** Paul W. Woodward PE, Groundwater Management Engineer

**Date:** September 2, 2015

**Re:** Review and Recommendation of Bids Received for Test Hole Drilling and Monitoring Well Construction

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Groundwater monitoring wells are used by the District in strategic locations to obtain groundwater samples for analysis and to monitor groundwater levels in specific aquifers. Many of the NRD's monitoring wells are located in or directly adjacent to community wellhead protection areas (WHPA). These monitoring wells in or near wellhead protection areas are designed to detect water quality problems or contamination issues before they reach the community's water source. Existing community wellhead protection areas monitored by the District include Lincoln, MUD west well field, Tekamah, Walthill, and Homer.

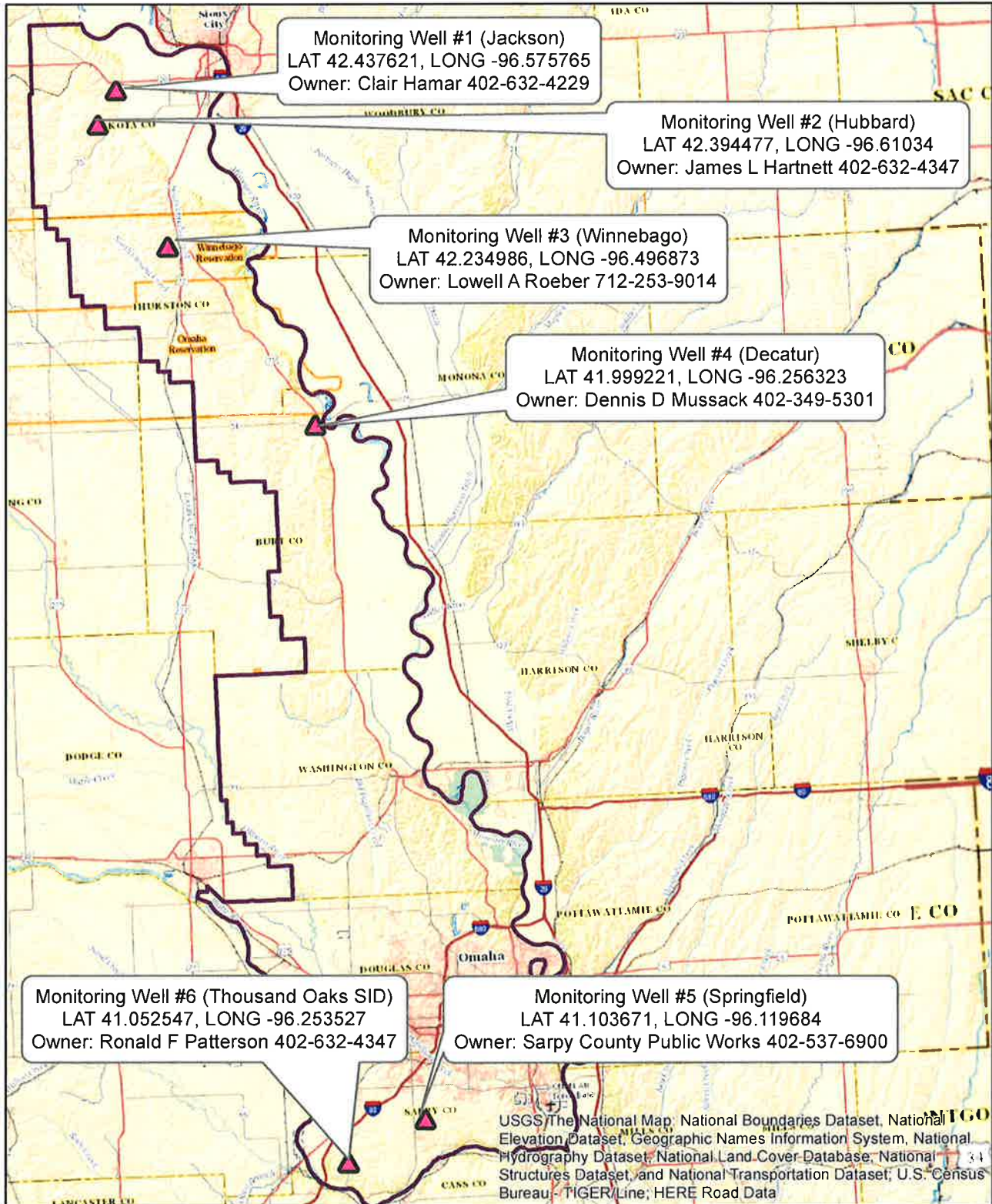
In the past few years, the Nebraska Department of Environmental Quality has placed a priority on better monitoring WHPAs with dedicated monitoring wells. Last year, they funded a statewide construction contract. The P-MRNRD had requested as many as 10 different well sites, however, due to available funding, NDEQ was only able to complete the installation of a 3 well monitoring nest near Arlington's WHPA and a test hole near Jackson, NE. District staff previously anticipated this funding shortage and were able to secure a Nebraska Environmental Trust grant in 2014 for \$82,000 for the installation of more monitoring wells.

With this additional funding, the District prioritized 6 of the remaining 9 monitoring well sites for both their location near WHPAs and their geologic importance in terms of no existing geologic test holes in the area and their proximity to the recent Aerial Electromagnetic (AEM) flight lines completed by ENWRA. With assistance from ENWRA and the University of Nebraska Conservation and Survey Division, the District solicited test hole drilling and monitoring well construction bids for these 6 sites, shown on the enclosed map. The bid was divided into a Group A (Wells 1-4 on the map) and a Group B (Wells 5 and 6) to see if local drillers would give preferred pricing for closer mobilization.

Sealed bids were received from three qualified well drillers on August 31, 2015 at 2:00 PM. The apparent low bidder for both Group A and Group B is Sargent Irrigation Company with a total bid based on estimated well depths of \$195,918.20, see bid summary attached. The District's current FY 16 budget for this construction is \$131,000. After considering the unit costs in the bid, it is recommended that all the test holes be completed as planned, but that the monitoring well near Hubbard not be installed at this time due to the close proximity of the Jackson well site. This would reduce the anticipated cost to \$137,347.00, see Change Order No. 1 attached, which after subtracting the NET grant of 82,000 and direct ENWRA funding for test holes of \$9,145, would leave the District a total cost of \$46,202.

**Management recommends that the Subcommittee recommend to the Board that the General Manager be authorized to execute a contract with Sargent Irrigation Company for test hole drilling and monitoring well construction in the bid amount of \$195,918.20, along with Change Order No. 1 to remove the Hubbard monitoring well site thus reducing the total contract cost to \$137,347.00, subject to changes deemed necessary by the General Manager and approval as to form by District Legal Counsel.**

## Attachment #2 - Monitoring Wells - Location Map



# **TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION BID SUMMARY**

**BID OPENING: AUGUST 31, 2015 AT 2:00 P.M.**

				<b>BIDDER 1</b>		<b>BIDDER 2</b>		<b>BIDDER 3</b>	
				Cahoy Pump Service		Layne Water Resources		Sargent Irrigation Co.	
Bid Item	Bid Item Description	Qty	Unit	Unit Price	Bid Price (Quantity x Unit Price)	Unit Price	Bid Price (Quantity x Unit Price)	Unit Price	Bid Price (Quantity x Unit Price)
1A	TEST HOLE DRILLING	1200	LF	\$51.00	\$ 61,200.00	\$37.00	\$ 44,400.00	\$3.25	\$ 3,900.00
2A	MONITORING WELL DRILLING AND CONSRUCTION	3225	LF	\$56.00	\$180,600.00	\$42.00	\$135,450.00	\$42.90	\$138,352.50
3A1	PVC - PLAIN CASING 2.5" ID	3125	LF	\$7.00	\$ 21,875.00	\$8.00	\$ 25,000.00	\$3.35	\$ 10,468.75
3A2	PVC - SLOTTED SCREED 2.5" ID	100	LF	\$8.00	\$ 800.00	\$9.00	\$ 900.00	\$4.46	\$ 446.00
4A	WELL DEVELOPMENT	4	EA	\$2,160.00	\$ 8,640.00	\$564.00	\$ 2,256.00	\$425.00	\$ 1,700.00
5A	PROTECTIVE CASING INSTALLATION AND PAD	4	EA	\$900.00	\$ 3,600.00	\$489.00	\$ 1,956.00	\$345.00	\$ 1,380.00
6A	STAND-BY TIME FOR LOGGING	20	HR	\$325.00	\$ 6,500.00	\$282.00	\$ 5,640.00	\$295.00	\$ 5,900.00
<b>GROUP A TOTAL</b>					<b>\$283,215.00</b>		<b>\$215,602.00</b>		<b>\$162,147.25</b>
1B	TEST HOLE DRILLING	400	LF	\$49.00	\$ 19,600.00	\$44.00	\$ 17,600.00	\$4.35	\$ 1,740.00
2B	MONITORING WELL DRILLING AND CONSRUCTION	595	LF	\$54.00	\$ 32,130.00	\$43.00	\$ 25,585.00	\$42.90	\$ 25,525.50
3B1	PVC - PLAIN CASING 2.5" ID	575	LF	\$7.00	\$ 4,025.00	\$9.00	\$ 5,175.00	\$3.35	\$ 1,926.25
3B2	PVC - SLOTTED SCREED 2.5" ID	20	LF	\$8.00	\$ 160.00	\$9.00	\$ 180.00	\$4.46	\$ 89.20
4B	WELL DEVELOPMENT	2	EA	\$2,160.00	\$ 4,320.00	\$564.00	\$ 1,128.00	\$425.00	\$ 850.00
5B	PROTECTIVE CASING INSTALLATION AND PAD	2	EA	\$900.00	\$ 1,800.00	\$482.00	\$ 964.00	\$345.00	\$ 690.00
6B	STAND-BY TIME FOR LOGGING	10	HR	\$325.00	\$ 3,250.00	\$282.00	\$ 2,820.00	\$295.00	\$ 2,950.00
<b>GROUP B TOTAL</b>					<b>\$ 65,285.00</b>		<b>\$ 53,452.00</b>		<b>\$ 33,770.95</b>
<b>GROUP A AND B TOTAL BID</b>					<b>\$348,500.00</b>		<b>\$269,054.00</b>		<b>\$195,918.20</b>

\*APPARENT LOW BIDDER Sargent Irrigation Co.

301204MC (a) FILE THE BIDDER'S PROJECT

# TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION BID SUMMARY

## Change Order No. 1 - Remove Hubbard Monitoring Well

				<b>BIDDER 3</b> Sargent Irrigation Co	
<b>Bid Item</b>	<b>Bid Item Description</b>	<b>Qty</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Bid Price (Quantity x Unit Price)</b>
1A	TEST HOLE DRILLING	1200	LF	\$3.25	\$ 3,900.00
2A	MONITORING WELL DRILLING AND CONSRUCTION	1975	LF	\$42.90	\$ 84,727.50
3A1	PVC - PLAIN CASING 2.5" ID	1905	LF	\$3.35	\$ 6,381.75
3A2	PVC - SLOTTED SCREED 2.5" ID	80	LF	\$4.46	\$ 356.80
4A	WELL DEVELOPMENT	3	EA	\$425.00	\$ 1,275.00
5A	PROTECTIVE CASING INSTALLATION AND PAD	3	EA	\$345.00	\$ 1,035.00
6A	STAND-BY TIME FOR LOGGING	20	HR	\$295.00	\$ 5,900.00
<b>GROUP A TOTAL</b>					<b>\$103,576.05</b>
1B	TEST HOLE DRILLING	400	LF	\$4.35	\$ 1,740.00
2B	MONITORING WELL DRILLING AND CONSRUCTION	595	LF	\$42.90	\$ 25,525.50
3B1	PVC - PLAIN CASING 2.5" ID	575	LF	\$3.35	\$ 1,926.25
3B2	PVC - SLOTTED SCREED 2.5" ID	20	LF	\$4.46	\$ 89.20
4B	WELL DEVELOPMENT	2	EA	\$425.00	\$ 850.00
5B	PROTECTIVE CASING INSTALLATION AND PAD	2	EA	\$345.00	\$ 690.00
6B	STAND-BY TIME FOR LOGGING	10	HR	\$295.00	\$ 2,950.00
<b>GROUP B TOTAL</b>					<b>\$ 33,770.95</b>
<b>GROUP A AND B TOTAL BID</b>					<b>\$137,347.00</b>

\*APPARENT LOW BIDDER \_\_\_\_\_

31134MC.plt FILE 511 (SEWER PROJECT



**INVITATION TO BIDDERS  
FOR  
TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION  
PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT**

The Board of Directors of the Papio-Missouri River Natural Resources District is requesting sealed bids from qualified parties for a test hole drilling and monitoring well construction project in accordance with adopted purchasing regulations in Chapter 15 of the Director's Policy Manual on file in the principal office of the District or at <http://www.papionrd.org/wp-content/uploads/Directors-Policy-Manual-June-2015.pdf>.

The bid documents are enclosed with this invitation or are on file at the Papio-Missouri River Natural Resources District office located at 8901 S. 154<sup>th</sup> Street, Omaha, NE. Any additional copies of these contract documents may be obtained at the same address, by mail, or electronically upon request. Questions may be directed to Paul Woodward, Groundwater Management Engineer, at 402.315.1772 or [pwoodward@papionrd.org](mailto:pwoodward@papionrd.org).

**Sealed bids addressed to General Manager, Papio-Missouri River Natural Resources District, 8901 S. 154<sup>th</sup> Street, Omaha, NE 68138-3621, and marked "Bid Enclosed – Monitoring Well Construction", must be received and on file in such office on or before 2:00 PM on Monday, August 31, 2015. The bids to be opened and read by District staff before bidders and the public commencing at 2:00 PM on that same date at the before mentioned address.**

Bidders are requested to submit a Bid Form which is directly responsive to the items, conditions, specifications and other documents referred to in the bid documents. Bidders are to respond to all requests for information and questions as listed in the bid documents. Bidders failing to provide required information will be deemed non-responsive and their proposals will not be considered for award.

**I N D E X**

BID FORM .....	Page 3
SPECIFICATIONS FOR TEST HOLE DRILLING AND INSTALLATION OF MONITORING WELLS.....	Pages 8
ATTACHMENT #1 TEST HOLE AND WELL DEPTH ESTIMATES.....	Page 14
ATTACHMENT #2 PROPOSED WELL SITES.....	Page 15
ATTACHMENT #3 TYPICAL MONITORING WELL SCHEMATIC .....	Page 16
ATTACHMENT #4 PROPOSED CONTRACT DOCUMENT .....	Page 17

## **BID FORM**

**PROJECT IDENTIFICATION:** Test Hole Drilling and Monitoring Well Construction

**THIS BID IS SUBMITTED TO:**

Papio-Missouri River Natural Resources District, Nebraska (P-MRNRD) hereinafter referred to as OWNER.

**1. Enter Into Agreement.**

The undersigned BIDDER proposes and agrees, if this Bid is accepted, to enter into an Agreement with OWNER in the form (see Attachment #4) included in the Contract Documents to perform and furnish all Work as specified or indicated in the Contract Documents for the Bid Price and within the Bid Times indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.

**2. BIDDER Accepts.**

BIDDER accepts all of the terms and conditions of the Advertisement or Invitation to Bid and Instruments to Bidders. This Bid will remain subject to acceptance for 40 days after the day of Bid opening. BIDDER will sign and deliver the required number of counterparts of the Agreement with the Bonds and other documents required by the Bidding Requirements within 10 days after the date of OWNER's Notice of Award.

**3. BIDDER's Representations.**

In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

- a. BIDDER has examined and carefully studied the Bidding Documents
- b. BIDDER has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, performance and furnishing of the Work.
- c. BIDDER is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect costs, progress, performance and furnishing of the Work.
- d. BIDDER does not consider any examinations, investigations, explorations, tests, studies or data to be necessary for the determination of this Bid for performance and furnishing of the Work in accordance with the times, price and other terms and conditions of the Contract Documents.
- e. BIDDER is aware of the general nature of Work to be performed by OWNER and others at the site that relate to Work for which this Bid is submitted as indicated in the Contract Documents.
- f. BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Contract Documents, and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- g. BIDDER has given OWNER written notice of all conflicts, errors, ambiguities or discrepancies in the Contract Documents and the written resolution thereof by OWNER, if any, is acceptable to BIDDER, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performing and furnishing the Work for which this Bid is submitted. Where conflicts, errors, ambiguities or discrepancies have been discovered in or between Contract Documents and/or other related documents, and where said conflicts, etc., have not been resolved through the interpretations or clarifications by OWNER as described in the Instructions to Bidders, BIDDER has included in the Bid the greater quantity or better quality of Work, or compliance with the more stringent requirement resulting in a greater cost.
- h. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm or corporation or other entity and is not submitted in conformity with any agreement or rules of any group,

**TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION**  
**REVISED PER ADDENDUM NO. 1**

**August 20, 2015**

association, organization, corporation or other entity; BIDDER has not directly or indirectly induced or solicited any other BIDDER to submit a false or sham Bid; BIDDER has not solicited or induced any person, firm, corporation or other entity to refrain from bidding; and BIDDER has not sought by collusion to obtain for itself any advantage over any other BIDDER or over OWNER.

i. BIDDER acknowledges that no part of the Work will be performed on any of the following federal holidays:

New Year's Day  
Veterans' Day  
Memorial Day

Labor Day  
President's Day  
Christmas Day

Martin Luther King's Birthday  
Thanksgiving Day  
Independence Day

The maximum workweek for performance of the Work is 10 hours per day, Monday through Friday.

4. Bid Prices. BIDDER must bid all items in Group A or Group B, or both and will complete the Work in accordance with the Contract Documents for the following price(s):

A. GROUP A - Monitoring Wells Locations #1 thru #4 (as depicted in Attachment 2)

Item	Description	Unit	Qty	Unit Price	Total
1A	TEST HOLE DRILLING	LF	1200	\$ _____	\$ _____
2A	MONITORING WELL DRILLING AND CONSRUCTION	LF	3225	\$ _____	\$ _____
3A1	PVC - PLAIN CASING 2.5" ID	LF	3125	\$ _____	\$ _____
3A2	PVC - SLOTTED SCREED 2.5" ID	LF	100	\$ _____	\$ _____
4A	WELL DEVELOPMENT	EA	4	\$ _____	\$ _____
5A	PROTECTIVE CASING INSTALLATION AND PAD	EA	4	\$ _____	\$ _____
6A	STAND-BY TIME FOR LOGGING	HR	20	\$ _____	\$ _____
<b>Group A TOTAL</b>					<b>\$ _____</b>

B. GROUP B - Monitoring Wells Locations #5 and #6 (as depicted in Attachment 2)

Item	Description	Unit	Qty	Unit Price	Total
1B	TEST HOLE DRILLING	LF	400	\$ _____	\$ _____
2B	MONITORING WELL DRILLING AND CONSRUCTION	LF	595	\$ _____	\$ _____
3B1	PVC - PLAIN CASING 2.5" ID	LF	575	\$ _____	\$ _____
3B2	PVC - SLOTTED SCREED 2.5" ID	LF	20	\$ _____	\$ _____
4B	WELL DEVELOPMENT	EA	2	\$ _____	\$ _____



**TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION**  
**REVISED PER ADDENDUM NO. 1**

August 20, 2015

5B	PROTECTIVE CASING INSTALLATION AND PAD	EA	2	\$		\$	
6B	STAND-BY TIME FOR LOGGING	HR	10	\$		\$	
Group B TOTAL						\$	
Group A and B TOTAL						\$	

ADDENDUM NO.	DATE RECEIVED	BIDDER INITIAL

BIDDER acknowledges that quantities are not guaranteed and final payments will be based on actual quantities determined as provided in the Contract Documents. **No bid price shall include Nebraska State Sales Tax, as the OWNER is Sales Tax Exempt.**

The OWNER reserves the right to evaluate bids in detail, as provided in this Bid Form, and to award a contract for purchase which the OWNER determines, in its sole discretion, to be in its best interest. The OWNER reserves the right to reject any or all proposals, wholly or in part; to waive any technicalities, informalities, or irregularities in any proposal which does not materially affect the integrity or effectiveness of the competitive bid process; and unless otherwise specified by the BIDDER on their proposal, to accept any item or group of items in the proposal. The OWNER reserves the right to conduct discussions with any or all respondents to this request for the purpose of clarification and modification. Discussion and negotiations may include, but are not limited to scope of work, schedule, and price.

5. Completion

BIDDER agrees that the Work will be substantially completed and ready for final payment within 120 calendar days from the issuance of the Notice to Proceed by the OWNER.

BIDDER accepts the provisions of the Contract Documents as to liquidated damages in the event of failure to complete the Work within the times specified in the Agreement.

6. Attached Documents.

The following documents are attached to and made a condition of this Bid, to-wit:

- A. Corporate surety bid bond in the amount of 5% of this Bid, with at least one corporate surety authorized to do business in the State of Nebraska, conditioned upon execution of the Contract in accordance with the BIDDER's Bid, to be in such form acceptable to OWNER in OWNER's sole discretion.
- B. Performance bond(s), with at least one corporate surety authorized to do business in the State of Nebraska, having a penalty amount equal to the amount of the Bid and conditioned upon the faithful performance of the transaction contemplated by the Contract Documents and upon payment of labor and materials furnished in connection therewith, to be in such form acceptable to the OWNER at the OWNER's sole discretion.

**TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION**  
**REVISED PER ADDENDUM NO. 1**

**August 20, 2015**

**8. Address for Communications.**

Communications concerning this Bid shall be addressed to (provide name, address and telephone number for communications concerning this bid):

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Phone No.: (     )     -     

**9. Defined Terms.**

Terms used in this Bid which are defined in the General Conditions or Instructions will have the meanings indicated in the General Conditions or Instructions.

SUBMITTED on \_\_\_\_\_, 20\_\_.

If BIDDER is:

An Individual

\_\_\_\_\_  
(Individual's name)

doing business as: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: (     )     -     

A Partnership

\_\_\_\_\_  
(Firm name)

\_\_\_\_\_  
(General Partner)

Business address: \_\_\_\_\_

Phone No.: (     )     -

**TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION  
REVISED PER ADDENDUM NO. 1**

**August 20, 2015**

A Corporation

\_\_\_\_\_  
(Corporation Name)

\_\_\_\_\_  
(State of Incorporation)

By \_\_\_\_\_  
(Name of Person Authorized to Sign)

\_\_\_\_\_  
(Title)

Attest \_\_\_\_\_  
(Secretary)

Business Address: \_\_\_\_\_

Phone No.: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

A Joint Venture

\_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

By \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Address)

Phone No.: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_

47306 MC:pb file 504

**SPECIFICATIONS FOR TEST HOLE DRILLING AND  
INSTALLATION OF MONITORING WELLS**

**Purpose:**

To construct approximately fifteen (15) monitoring wells at approximately six (6) locations in the Papio-Missouri River Natural Resources District (District). The exact number of sites and wells will be determined by the District as construction proceeds based on actual costs. The primary objectives are to obtain quality geologic samples and construct and develop monitoring wells to be utilized for water level measurements and water quality sampling. The wells will be installed in alluvial and/or glacial sand and gravel, and the Dakota Group.

**Drilling Sites:**

Attachment 1 lists estimated total depths, screened intervals, and water levels. Attachment 2 shows the potential locations of the monitoring wells. Locations and subsurface data are noted for reference purposes only. The exact location and specific depth of each monitoring well may be changed at the discretion of the District.

**All test holes will be completed prior to the installation of monitoring wells. The District will provide a University of Nebraska-Lincoln – Conservation and Survey Division Geologist (hereinafter referred to as UNL-CSD representative) to complete geological logs and geophysical testing for each test hole. The UNL-CSD representative will analyze the geologic log and geophysical data and provide a well depth and individual specifications for each monitoring well. Each monitoring site will be comprised of a nest of 1 to 3 monitoring wells (see anticipated screen depths in Attachment 1). This design will allow the Contractor to determine required amounts of well installation supplies and materials.**

Sites may vary at the discretion of the District to any accessible site within the area indicated. The exact location of the test wells and well site(s) will be determined by the District and the UNL-CSD representative prior to the commencement of drilling. An attempt will be made to place monitoring wells in protected areas which may include fence lines. The Contractor will be responsible for the site preparation for the drilling equipment.

If upon examination of the exact drilling site the Contractor finds any condition that prevents drilling to the specifications of this Contract, the Contractor shall promptly notify the District or UNL-CSD representative and a new site may be selected.

**Test-Hole Drilling and Sampling Procedures:**

Test holes shall be drilled by direct rotary method using a minimum of 4.5-inch diameter drill bit. The Contractor will construct or furnish mud retention pits of sufficient volume to accomplish the required drilling procedures. The quality and flow rate of the drilling fluid shall be maintained to insure proper sample return and borehole stability.

A representative sample will be collected for each 5-foot interval or whenever a significant change in lithology occurs. The cuttings from the current 5-foot interval must be removed from the borehole before the next interval is drilled. The Contractor will be responsible for the proper removal of all excess cuttings from the test hole site and disposal at a location pre-approved by the District and UNL-CSD representative.

The test hole shall be drilled to a depth specified by the UNL-CSD representative. In most cases this will be at least 15 feet into bedrock or a lower confining layer.

The Contractor shall insure the test hole is straight and clear so that geophysical logging equipment can access the total borehole depth. The downhole logging procedure generally requires 60 minutes.

Actual location of well construction will be determined after drilling a test hole(s). All test holes must be properly abandoned and reclaimed by the Contractor.

**Monitoring Well Installation Procedures:**

All construction material and methods will meet the requirements set by the Nebraska Department of Health and Human Services in Article 12 "Water Well Standards", specifically Title 178 NAC 12.003 and 12.005 (dated August 26, 2014). Attachment 3, is a typical observation well schematic.

The observation well borehole shall be sufficiently straight and of sufficient diameter to allow for installation of 2 ½-inch ID casing and tremie pipe required for slurry grout placement. Nominal 2 ½-inch ID Schedule 40 threaded and flush-joint PVC casing and commercially slotted 0.010-inch screen will be installed in the wells. All screens will have flush ended plugs at the bottom. No glue or solvents are allowed. Centralizers will be set above each screen. All materials required for well completion will be supplied by the Contractor.

A filter pack consisting of *graded silica sand (16/35 mesh)* will be used for all wells. The top of the filter pack shall be measured frequently with the end of the tremie pipe or a weighted tape, after allowing adequate time for settling. The filter pack shall be placed from the borehole bottom to about 2 – 3 feet above the top of the screen.

A 5- foot minimum bentonite chip or pellet primary aquifer seal shall be placed above the gravel pack. The annular fill (178 Ch12-003.08B) above the primary aquifer seal will be either:

- 1) Non-slurry bentonite grout, or
- 2) Non-slurry bentonite grout mixed with gravel pack in a 1:1 ratio by weight, or
- 3) High solids bentonite slurry as defined in 12-003.06 item 6.

Non-slurry grouts will be placed slowly to avoid bridging and checked frequently with a weighted tape or tremie pipe. Non-slurry bentonite with gravel pack will be mixed prior to placement. The slurry grout will be mixed in a grout mixer according to the manufacturers' recommendations and pumped through a tremie pipe. Annular fill material will be placed from the top of the primary aquifer seal to 10 to 15 feet below the ground surface. If slurry (#3 above) is used for the annular fill, it shall be allowed to cure sufficiently prior to installation of the surface seal. The surface seal will be a 5 foot chip or pellet bentonite seal within 10 to 15 feet below the ground surface.

The upper 3 feet of the borehole will be enlarged to allow for placement of the protective steel casing. The steel pipe or tubing will be centered around the PVC riser and native backfill will be tamped around the steel to ensure the stability of the protective cover. The protective casing shall consist of an 8-inch diameter steel pipe or tube with a locking cap at the top. The total length will be 5-foot long. The steel cover shall be tamped in place using native soil and the

finish grade shall be sloping away from the casing so that surface water will flow away from the well.

The borehole depth shall be specified by the CSD representative. The anticipated depths of the wells are presented in Attachment 1. The wells shall be screened as directed by the UNL-CSD representative based on the log of the hole as it is drilled. All screens will have flush ended plugs at the bottom. No glue or solvents are allowed. Centralizers will be set above each screen. All screens will be 10-foot in length.

**Well Development:**

The Contractor shall develop the monitoring wells using compressed air. The bentonite grout shall be allowed to set for 24 hour before development takes place. The well shall be considered adequately developed when water produced by the well contains no sediment or unnaturally occurring chemicals and a good connection exists between the formation and the well.

**Permission to Drill:**

The District will obtain permission from the property owners to drill at each site.

**Site Preservation and Restoration:**

After completion of all other work described herein, the site shall be restored as nearly as possible to its original condition. Such restoration will include, but is not limited to, the following:

1. All Contractor's equipment shall be removed from the site.
2. Holes, depressions, and tire tracks shall be smoothed out.
3. Any fences removed or damaged will be reset or replaced.
4. Debris and cuttings associated with the drilling shall be removed.
5. Reseeding as necessary to establish pre-existing vegetation.

The work specified in this Contract shall not be considered complete, nor shall the final invoice for the work be approved, until site restoration is completed to the satisfaction of the District.

**Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements:**

The Contractor shall preserve and protect all structures, equipment, and vegetation on or adjacent to the work site which are not to be removed and which do not unreasonably interfere with the work required under this contract. The contractor shall repair any damage to structures, equipment, or vegetation associated with the drilling operations.

**Supervision:**

At least one District or UNL-CSD representative will normally be present at all times during the drilling and installation of the monitoring wells. These District or UNL-CSD representatives will act as inspector, supervise the sampling operation, describe samples, perform computer borehole logging, and supervise well construction and material placement. These representatives will issue the necessary orders to accomplish the goals of the program as provided by these specifications.

The presence or absence of these representatives from the drilling site will in no way relieve the Contractor of the responsibility for prosecuting all work diligently and thoroughly as specified in this Contract.



## TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION

REVISED PER ADDENDUM NO. 1

August 20, 2015

### **Inspection and Acceptance:**

All inspections and acceptance will take place at the drill site(s). Inspection of final products will be conducted by the District or UNL-CSD representative and will consist of examination for 1) compliance with these specifications; 2) thoroughness with respect to content; and 3) quality with respect to generally acceptable professional standards.

### **Representative of the Contractor:**

The Contractor shall have an experienced foreman or driller, with full authority to act on behalf of the Contractor directing all field operations (Contractor Representative). This Contractor Representative shall be experienced in the operation and maintenance of their equipment, installation of casing, and well development as described herein. This Contractor Representative must be acceptable to the District and UNL-CSD representative. In the event that the Contractor Representative becomes unacceptable, the Contractor shall receive written notice and shall replace him/her with an acceptable Contractor Representative within five (5) working days of receipt of the notice.

### **Contractor:**

The Contractor must understand the geology and the type of material (lithology) of the area in order to provide the necessary and proper drilling tools, sampling tools, etc. The drilling unit and equipment shall be in good working condition and of such capacity as to drill a hole of sufficient depth and diameter to accommodate the required 2-1/2-inch ID casing and tremie pipe for grout placement.

The Contractor will furnish all necessary equipment, tools, supplies, fuel, labor, materials, and anything else necessary for drilling, sampling, well construction, well development, and site restoration involved with this program.

The Contractor shall maintain all equipment in satisfactory operating condition for the duration of the Contract. If based on the work completed as of a particular date, the equipment is considered unsatisfactory by the District and UNL-CSD representative, thus endangering performance under this Contract, the Contractor shall be notified of such in writing, and a copy of such notification shall be sent to the contracting officer for corrective action. The Contractor shall then cease work immediately and within ten (10) days of receipt of notice, replace the unsatisfactory equipment with equipment approved by the representative.

The Contractor shall assume all responsibility for damage to their equipment, whether from the elements, vandalism, operation under the Contract, or movement to, from or between drilling locations.

The Contractor shall provide all water for drilling. The water used for drilling must be fresh water and must be approved by the District and UNL-CSD representative. No contaminated or polluted water shall be used in the drilling process. Suitable water generally is not available at the drill site.

Contractor's personnel shall be experienced in operation and maintenance of their equipment, the installation of casing and screen, and well development as described herein.

All work except sample description and collecting computerized downhole geophysical data will be performed by the Contractor.

## TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION

REVISED PER ADDENDUM NO. 1

August 20, 2015

### **Abandoned Hole:**

A satisfactory well that is acceptable under these specifications shall be completed to the depth designated by the District and UNL-CSD representative and sufficiently straight to allow for installation of monitoring equipment. Any hole that does not satisfy the requirements described herein and which cannot be made acceptable shall be declared an abandoned hole. Any hole in which the Contractor voluntarily stops work and/or fails to complete in a satisfactory manner shall be considered as abandoned by the Contractor.

No payment will be made for the drilling, casing and completion materials, or development of any abandoned well. Any abandoned well shall be filled according to Nebraska State Health Department rules and regulations and all applicable state laws of Nebraska by the Contractor at the Contractor's sole expense. The Contractor shall then move to another UNL-CSD designated location and drill a second hole in accordance with these specifications.

### **Accidents:**

The Contractor will be liable for any and all accidents or damage to persons, equipment, or property incurred during the execution of and consummation of the transactions contemplated by this Contract.

### **Insurance:**

Contractor's Certificate of Insurance – (Attachment #4, Section 14) successful Bidders will be required to furnish a certificate of insurance with coverages for bodily injury/personal injury/liability coverage, property damage liability coverage, and workman's compensation coverage in accordance with the Contract requirements (included as Attachment X). This certificate must be on file prior to any commencement of work. It is absolutely necessary that the phrase "**The Papio-Missouri River Natural Resource District is listed as an additional insured**" be added to the face of the certificate for all coverage except worker's compensation. The above statement must be worded in this exact manner.

### **Laws To Be Observed:**

The Contractor will be responsible for being familiar with and complying with all federal, state, and local laws, ordinances, and regulations in any manner affecting the conduct of this work, and will at all times observe and comply with the applicable requirements.

### **Licenses:**

The successful Contractor or Contractors must be currently licensed in the State of Nebraska for the drilling and installation of wells.

### **Site Investigation:**

All interested Contractors should satisfy themselves on the surface and subsurface conditions, which can affect the progress of work or associated costs. The Contractor will be responsible for examining the vicinity of the drilling sites in order to acquaint themselves with local conditions in general and the drilling sites in particular. No allowance will be made after award for any errors regarding accessibility to the sites, site condition, or location.

### **Working Schedule:**

All drilling shall be done during daylight hours of a 5-day work week (Monday through Friday) unless otherwise mutually agreed upon by the District, UNL-CSD representative and Contractor representative. If it is necessary to continue into hours of darkness, sufficient lighting shall be provided by the Contractor so that work may be carried out in a safe and efficient manner.

**Commencement of Project:**

All work must start by October 12, 2015, and will continue as scheduled until all test holes are drilled and logged. Within 30 days of test-hole drilling completion, monitoring well construction and development will begin and continue as scheduled until all wells are completed and the drill sites are restored according to the terms of the Contract.

Upon award of the Contract a drilling schedule will be mutually agreed upon by the District, UNL-CSD representative and the Contractor.

**Period of Performance:**

The period of performance shall not exceed 120 working days from the issuance of the Notice to Proceed.

## ATTACHMENT #1

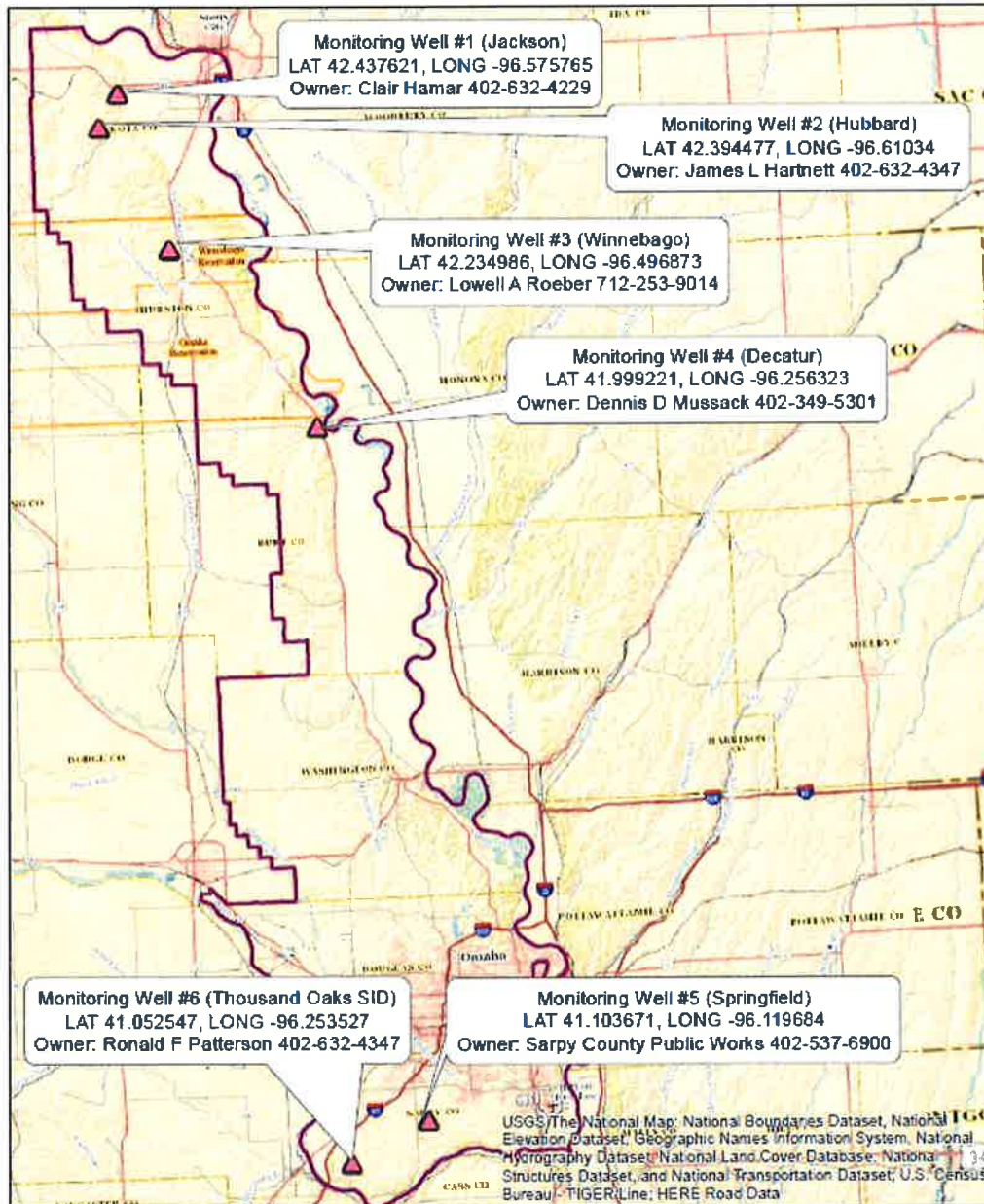
### Test-Hole and Well Depth Estimates

Site Number	Bedrock Depth-ft	Test-Hole Depth-ft	Water Level Depth-ft	Well Target Unit	Screen Depth-ft
Jackson	93-112.5 (Kd)	NA	73	Dakota Sand/Sandstone	140-150
				Dakota Sand/Sandstone	270-280
				Dakota Sand/Sandstone	460-470
					Present?
Hubbard	60? (Kc/Kgg)	550	240	Upper Aquifer Unit	between 240-250 and 310-320
				Dakota Sand/Sandstone	370-380
				Dakota Sand/Sandstone	540-550
Winnebago	33 (Kgg)	400	45	Dakota Sand/Sandstone	Present? 130-140
				Dakota Sand/Sandstone	225-235
				Dakota Sand/Sandstone	390-400
Decatur	80 (Kd)	250	40	Alluvial Sand/Gravel	70-80
				Dakota Sand/Sandstone	210-220
Springfield #1	70-120 (Kd)	250	50	Dakota Sand/Sandstone	150-160
				Dakota Sand/Sandstone	215-225
Springfield #2	110 (Kd)	150	30-45	Alluvial Sand/Gravel	50-60
				Dakota Sand/Sandstone	Present? 140-150

Note: Kd = Dakota Group, Kc = Carlile, Kgg = Greenhorn/Graneros

ATTACHMENT #2

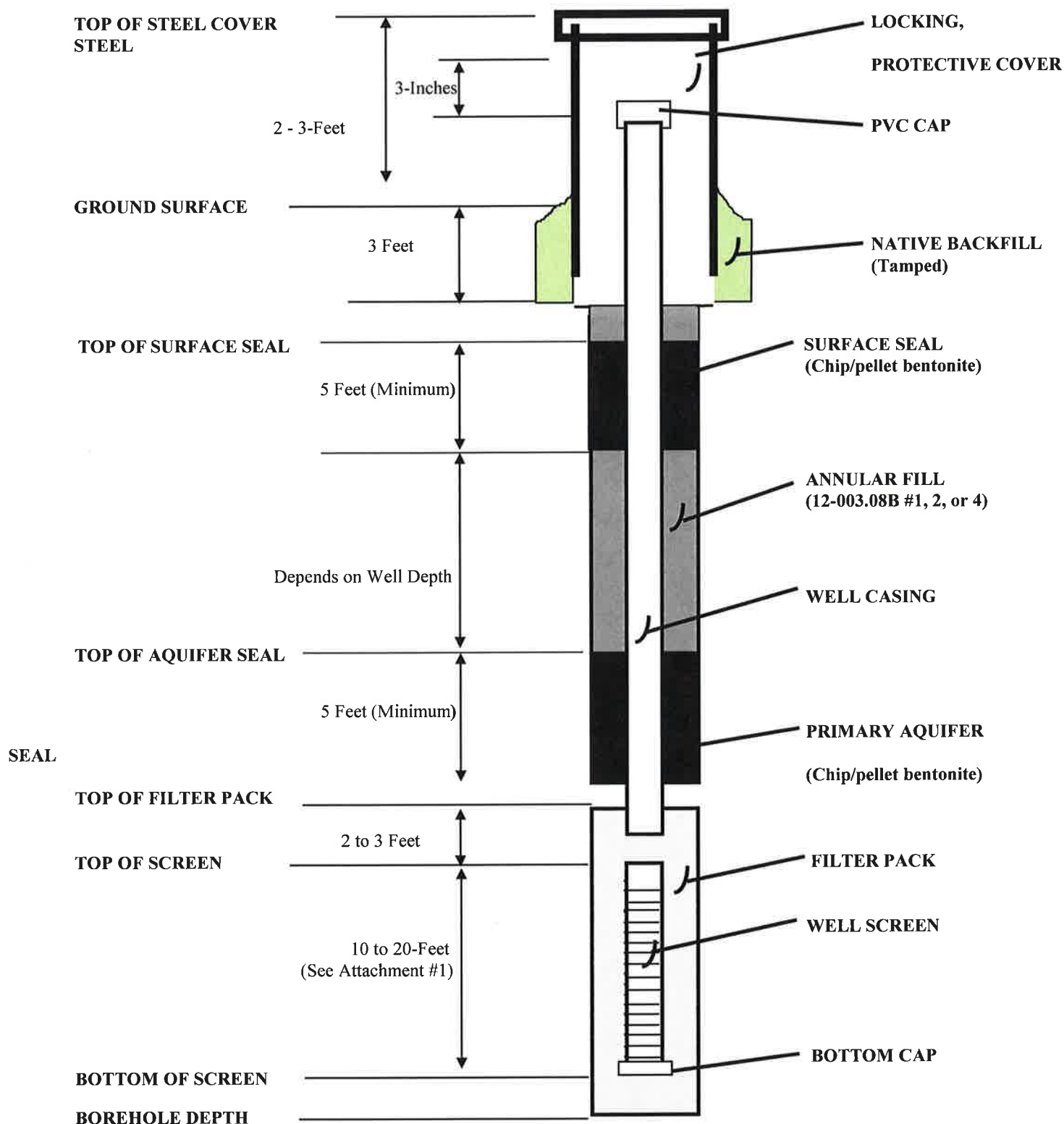
Proposed Well Sites



0 6.25 12.5 25 Miles



### ATTACHMENT #3 Typical Observation Well Schematic





## ATTACHMENT # 4

### CONTRACT

THIS CONTRACT is made this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ between \_\_\_\_\_ ("CONTRACTOR") and PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT ("DISTRICT").

1. **CONTRACTOR** will provide necessary equipment, labor and materials to complete "THE WORK" as described in the "Specifications for Test Hole Drilling and Installation of Monitoring Wells", hereby attached and incorporated into this CONTRACT as Exhibit "A", in return for payment by the District based upon the prices (**CONTRACT PRICE**) submitted by the Contractor in their "Bid Form", a copy of which is hereby attached and incorporated into this CONTRACT as Exhibit "B".
2. **CONTRACTOR** will commence THE WORK within 30 days of the date hereof, and in any event no later than October 12, 2015, and will complete the WORK within 120 days of the Notice to Proceed issued by the **DISTRICT**, unless the time for performance is extended by **DISTRICT**. Time is of the essence of this Contract.
3. Monthly invoices from the **CONTRACTOR** based on the **CONTRACT PRICE** will be payable within 40 days from the date of acceptance by the **DISTRICT**.
4. Permits, licenses and easements of a temporary nature necessary for prosecution of THE WORK shall be secured and paid for by the **CONTRACTOR**, and those for permanent structures or permanent changes in existing structures shall be secured and paid for by **DISTRICT**.
5. The following listed documents are attached to and made a part of this Contract by reference:
6. **CONTRACTOR** shall perform THE WORK in a good and workmanlike manner, THE WORK shall be of good quality, and all materials and equipment used therein shall be of good and merchantable quality and fit for their intended purpose, and shall comply with all plans and specifications in all respects.
7. **DISTRICT** will have access to THE WORK at all times for inspection, and **CONTRACTOR** shall not cover THE WORK until the **DISTRICT** has been afforded a reasonable opportunity for inspection.
8. **CONTRACTOR** shall not subcontract THE WORK or any part thereof, or assign this Contract, without the **DISTRICT's** prior written consent.
9. **CONTRACTOR** is an independent contractor, solely responsible for the risk of loss of THE WORK prior to the **DISTRICT's** acceptance of THE WORK, solely responsible for the means, methods, techniques, sequences and procedures required for THE WORK, and solely responsible for the supervision and safety of persons and property employed in THE WORK. **CONTRACTOR** will indemnify and hold the **DISTRICT** harmless from all liability, causes of action or claims for loss, injury or damage to any persons or property caused by **CONTRACTOR**, any permitted subcontractor, or anyone employed by either of them or any of its other agents.
10. **DISTRICT** reserves the right to make changes in the scope of THE WORK, by written change order signed by the General Manager of the **DISTRICT**. If any such change increases or decreases the value or **CONTRACTOR's** actual cost of THE WORK, or the time required for performing THE WORK, the change order shall result in an equitable adjustment of the **CONTRACT PRICE** or the time for performance or both, any such equitable adjustment to the **CONTRACT PRICE** required by the issuance of a change order not to exceed the **CONTRACTOR's** actual cost, plus 10 percent for overhead and profit.
11. If **CONTRACTOR** shall not complete THE WORK within the time specified for performance, **CONTRACTOR** shall pay to **DISTRICT**, as liquidated damages and not as a penalty, the sum of \$100.00 per day for each

calendar day such default in completion of THE **WORK** shall continue beyond the day specified for completion.

12. **DISTRICT** may terminate this Contract with or without cause upon 7 days notice to **CONTRACTOR**, whereupon **CONTRACTOR** shall be paid for all parts of THE **WORK** performed in accordance with this Contract and any expense sustained plus the percentage specified above for overhead and profit.
13. **CONTRACTOR** shall promptly pay all persons furnishing materials for or performing labor in the prosecution of THE **WORK**, and indemnify and save the **DISTRICT** harmless from all claims of subcontractors, material men, mechanics and workmen. At all times requested, **CONTRACTOR** shall submit satisfactory evidence that all such obligations have been paid or waived. In the absence of such evidence being submitted, **DISTRICT** may withhold from **CONTRACTOR's** compensation a sum of money sufficient to satisfy such claims, until **CONTRACTOR** shall submit such evidence.
14. **CONTRACTOR** shall purchase and maintain during the performance of THE **WORK**, and prior to commencement of THE **WORK** shall submit certificates in form acceptable to **DISTRICT** showing, the following policies of insurance with minimum requirements as shown ("O"-Occurrence, "A"-Aggregate, "P"-Person, "B.I."-Bodily Injury, "P.D."-Property Damage):

A. Workmens Compensation and Employers Liability

1. Workers' Compensation: statutory minimum
2. Longshore and Harbor Workers' Compensation Act endorsement and Admiralty Law endorsements required if the work involves maritime operations.
3. Employer's Liability: \$100,000.00 per accident

B. Comprehensive General Liability (including Premises-Operations, Independent Contractors' Protection, Products Liability and Completed Operations, Broad Form Property Damage, and Contractual Liability):

1. Bodily Injury      \$1,000,000.00 each occurrence  
                             \$2,000,000.00 aggregate
2. Property Damage      \$1,000,000.00 each occurrence  
                                     \$2,000,000.00 aggregate
3. Policy form for General Liability coverages shall be Comprehensive General Liability only.
4. General Liability coverages shall be provided on a occurrence basis only.
5. Products Liability and Completed Operations coverages shall be maintained for two (2) years after final payment.
6. Broad Form Property Damage coverage shall include X, C and U coverage.
7. Broad Form Property Damage coverage shall include completed operations coverage.

C. Contractual Liability:

1. Bodily Injury      \$1,000,000.00 each occurrence  
                             \$2,000,000.00 aggregate
2. Property Damage      \$1,000,000.00 each occurrence  
                                     \$2,000,000.00 aggregate

- D. Personal Liability: (Employment Exclusion deleted)  
\$2,000,000.00 aggregate
- E. Business Auto Liability (including owned, non-owned and hired vehicles):
1. Bodily Injury \$1,000,000.00 per person  
\$2,000,000.00 per accident
  2. Property Damage \$1,000,000.00 each occurrence  
\$2,000,000.00 aggregate
- F. General Provisions: (a) Limits may be covered with a combination of primary and excess policies. (b) All Policies shall be endorsed to have any annual aggregate apply on a per-project basis, and to provide for 30-days written notice to the District prior to termination or change in the coverage provided. (c) The District reserves the right to approve the Contractor's insurers.
15. **CONTRACTOR** shall obtain and deliver one or more performance bonds to the **DISTRICT** in such form approved by the **DISTRICT** in its sole discretion. Such bond(s) shall be issued by at least one corporate surety authorized to do business in the State of Nebraska, having a penalty amount equal to the amount of the **CONTRACT PRICE** conditioned upon the faithful performance of this Contract and upon payment of labor and materials furnished in connection therewith.
16. **CONTRACTOR** guarantees that, for a period of 6 months after final completion, that **THE WORK** is free from all defects in labor or materials, and that **CONTRACTOR** shall promptly make such corrections as necessary by reason of such defects.
17. During the performance of this Contract, **CONTRACTOR** agrees that **CONTRACTOR** and its subcontractors shall not discriminate against any employee or applicant for employment, to be employed in the performance of this Contract, with respect to his hire, tenure, terms, conditions, or privileges of employment, because of his or her race, color, religion, sex, disability, or national origin.
18. **DISTRICT** and **CONTRACTOR** are required and hereby agree to use a federal immigration verification system to determine the work eligibility status of new employees physically performing services under this Contract within Nebraska. A federal immigration verification system means the electronic verification of the work authorization program authorized by the Illegal Immigration Reform and Immigrant Responsibility Act of 1996, 8 U.S.C. 1324a, known as the E-verify Program, or equivalent federal program designated by the United States Department of Homeland Security or other federal agency authorized to verify the work eligibility of newly hired employees.
19. **CONTRACTOR** shall comply with all applicable Federal, State and local laws, ordinances and regulations, will not unlawfully discriminate.
20. The duties, obligations, rights and remedies herein expressed shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

**TEST HOLE DRILLING AND MONITORING WELL CONSTRUCTION  
REVISED PER ADDENDUM NO. 1**

**August 20, 2015**

**PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT**

By \_\_\_\_\_  
General Manager

\_\_\_\_\_  
Contractor's Name

By \_\_\_\_\_

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