



---

# **PROJECT 2022-07**

# **RELIEF WELL TESTING AND INSPECTION**

- **UPPER WOOD RIVER**
- **LOWER WOOD RIVER**

**CONSTRUCTION SPECIFICATIONS**

**JULY 2022**

---

DOCUMENT 00 22 13.00 20

INSTRUCTIONS TO OFFERORS  
**02/14**

PART 1 GENERAL

1.1 Bid Notice

Notice is hereby given that the Wood River Drainage and Levee District (WRDLD), the OWNER, will receive bids delivered via email to Kevin Williams at KWilliams@wrldd.org until 10:00 a.m. local time on Friday August 05, 2022, for Project 2022-07 RELIEF WELL TESTING AND INSPECTION. **Bids will not be opened publicly.**

1.2 Pre-Bid Conference

A **MANDATORY** pre-bid conference will be held at 10:00 a.m. local time on Friday July 22, 2022 at the District Office. The Owner will transmit to all prospective bidders such Addenda as Owner considers necessary in response to questions arising at the conference. Oral statements may not be relied upon and will not be binding or legally effective.

A site visit will be held immediately following the pre-bid meeting.

1.3 Bidding Documents

Plans and Specifications may be obtained after 10:00 a.m. local time on Friday June 17, 2022 by submitting the following information to Kevin Williams (kwilliams@wrldd.org):

Contact Name:  
Company Name:  
Company Address:  
Company Phone:  
Mobile Phone:  
Email Address:  
Contractor Type:

Or by downloading the specifications from the District's website:  
www.wrldd.org ==> Public Notices ==> Bids and RFPs ==> Project 2022-07.

1.4 CONTRACT LINE ITEMS

The terms Offeror and Bidder and versions thereof (offer/bid) have the same definition as used within this contract.

The District will present the Contractor with a list of wells to be tested and inspected each fiscal year (October 01 - September 30). The number of wells will vary based on available budget each fiscal year. No fewer than 10 relief wells will be tested and inspected in any given fiscal year. Unit pricing shall be provided per the schedule below.

Pricing shall be held by the contractor from October 01, 2022 through September 30, 2027. Provide the Contract Line Item (CLIN) unit pricing for the following items:

CLIN	NUMBER OF WELLS TO BE TESTED/INSPECTED	UNIT PRICE (EACH)
0001	10 - 15	\$ /EACH
0002	16 - 20	\$ /EACH
0003	21 - 25	\$ /EACH
0004	26 - 30	\$ /EACH
0005	31 - 35	\$ /EACH
0006	36 - 40	\$ /EACH
0007	41 - 45	\$ /EACH
0008	46 - 50+	\$ /EACH

CLIN	UNIT	ABANDONMENT OF EXISTING RELIEF WELL
0009	LF	\$ / LF

**When all current or proposed projects are complete by 2024, the District will have 420 active relief wells.**

1.5 GENERAL BID NOTES

a. **820 ILCS 130 - Prevailing Wage Act**

**It is the policy of this District that a wage of no less than the general prevailing hourly rate as paid for work of a similar character in the locality in which the work is performed, shall be paid to all laborers, workers and mechanics employed by or on behalf of any contractor engaged in public works.**

**Certified Payroll shall be submitted in accordance with 820 ILCS 130/5.**

- b. Award will be based on best value. Along with unit pricing, contractors shall submit a proposal (limited to 5 total pages) that summarizes past experience on similar projects as well as key personnel.
- c. The District may reject an offer as nonresponsive if it is materially unbalanced. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

1.6 BID SECURITY

1.6.1 Bid Bond

Each Bid must be accompanied by Bid security made payable to OWNER in an amount of five percent of Bidder's maximum Bid price and in the form of a certified or bank check or a Bid Bond issued by a surety.

The Bid security of Successful Bidder will be retained until such Bidder has executed the Agreement, furnished the required contract security and

met the other conditions of the Notice of Award, whereupon the Bid security will be returned.

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER: (Name and Address)	
SURETY: (Name and Address)	
OWNER: (Name and Address)	
BID DUE DATE:	
DESCRIPTION: (Name and Location)	
BOND NUMBER:	
BOND DATE:	
PENAL SUM:	\$
(Words)	(Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER		SURETY	
(Seal)		(Seal)	
Bidder's Name and Corporate Seal		Surety's Name and Corporate Seal	
By:		By:	
	Signature		Signature (Attach POA)
	Print Name		Print Name
	Title		Title
Attest:		Attest:	
	Signature		Signature

BIDDER		SURETY	
	Print Name		Print Name
	Title		Title

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

1.6.1.1 Bid Bond Notes

- a. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.
- b. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.
- c. This obligation shall be null and void if:
  - 1. Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
  - 2. All Bids are rejected by Owner, or
  - 3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).
- d. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
- e. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
- f. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default is received by Bidder and Surety and in no case later than one year after Bid due date.

- g. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
- h. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
- i. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.
- j. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
- k. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

1.7 CONTRACT SECURITY

1.7.1 Performance Bond

When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR: (Name and Address)	
SURETY: (Name and Address)	
OWNER: (Name and Address)	
CONTRACT DATE:	
CONTRACT AMOUNT:	
CONTRACT DESCRIPTION: (Name and Location)	
BOND NUMBER:	

CONTRACTOR: (Name and Address)	
BOND DATE:	
BOND AMOUNT:	
MODIFICATION TO THIS BOND FORM:	

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL		SURETY	
(Seal)		(Seal)	
Contractor's Name and Corporate Seal		Surety's Name and Corporate Seal	
By:		By:	
	Signature		Signature (Attach POA)
	Print Name		Print Name
	Title		Title
Attest:		Attest:	
	Signature		Signature
	Print Name		Print Name
	Title		Title

1.7.1.1 Performance Bond Notes

- a. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
- b. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences.
- c. If there is no Owner Default, Surety's obligation under this Bond shall

arise after:

1. Owner has notified Contractor and Surety that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice; and
  3. Owner has agreed to pay the Balance of the Contract Price to:
    - i. Surety in accordance with the terms of the Contract;
    - ii. Another contractor selected to perform the Contract.
- d. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
    - i. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefore to Owner; or
    - ii Deny liability in whole or in part and notify Owner citing reasons therefore.
- e. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
- f. After Owner has terminated Contractor's right to complete the Contract,



and if Surety elects to act as noted above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

1. The responsibilities of for correction of defective Work and completion of the Contract;
  2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph D; and
  3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
- g. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.
- h. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
- i. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
- j. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
- k. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond
- l. Definitions.
1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.

2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

1.7.2 Payment Bond

When the Successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by the required performance and payment Bonds.

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR: (Name and Address)	
SURETY: (Name and Address)	
OWNER: (Name and Address)	
CONTRACT DATE:	
CONTRACT AMOUNT:	
CONTRACT DESCRIPTION: (Name and Location)	
BOND NUMBER:	
BOND DATE:	
BOND AMOUNT:	
MODIFICATION TO THIS BOND FORM:	

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	SURETY
(Seal)	(Seal)

CONTRACTOR AS PRINCIPAL		SURETY	
Contractor's Name and Corporate Seal		Surety's Name and Corporate Seal	
By:		By:	
	Signature		Signature (Attach POA)
	Print Name		Print Name
	Title		Title
Attest:		Attest:	
	Signature		Signature
	Print Name		Print Name
	Title		Title

1.7.2.1 Payment Bond Notes

- a. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
- b. With respect to Owner, this obligation shall be null and void if Contractor:
  - 1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
- c. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

- d. Surety shall have no obligation to Claimants under this Bond until:
1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  2. Claimants who do not have a direct contract with Contractor:
    - i. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    - ii. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    - iii. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
- e. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
- f. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  2. Pay or arrange for payment of any undisputed amounts.
- g. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
- h. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
- i. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
- j. Surety hereby waives notice of any change, including changes of time,

to the Contract or to related Subcontracts, purchase orders and other obligations.

- k. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
- l. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
- m. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted here from and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
- n. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
- o. Definitions
  - 1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
  - 2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
  - 3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Document --

SECTION 33 26 00.00 10

RELIEF WELLS  
04/08

PART 1 GENERAL

1.1 DESCRIPTION OF RELIEF WELLS

Relief wells are in place to provide underseepage relief during high water events. They accomplish this by tapping into the substratum, and provide pressure relief in a controlled manner, with low flow resistance and prevent uncontrolled piping and erosion of the foundation soils.

Well construction is essentially the same from the ground surface to the total depth. Wells are constructed with a riser pipe (solid pipe) and screened sections. Screened sections are sometimes interspersed with blanks, to block out layers unacceptable for screening. The well construction material types that could be encountered are creosote-impregnated wood stave, PVC, mild steel and stainless steel.

Wells installed between 1950-1970 are generally constructed of creosote-impregnated wood stave risers and screens. Wells constructed in the 1970s thru the 1980s will have either PVC or mild steel as their construction materials. Finally, wells constructed in the 1990s to present, utilized stainless steel risers and screened sections as the construction material. It is important to know which type of material was used in the construction of the wells to select the correct pump test method and mechanical rehabilitation to use, should it become necessary.

Relief wells shall be maintained in accordance with the levee system Operations and Maintenance (O&M) Manual. This includes regular inspection and soundings to identify damages, debris accumulation or obstructions and pump testing to determine the specific capacity of the well (gpm/drawdown). Loss of specific capacity indicates loss of open area in the well and gravel pack. This loss increases the pressure gradient during high water events; and this can cause uncontrolled piping and erosion in the foundation soils. Results of these activities may indicate a need for mechanical rehabilitation of the well.

1.2 UNIT PRICES

1.2.1 Relief Wells Testing and Inspection

1.2.1.1 Payment

Payment will be made for costs associated with testing and inspecting existing relief wells. Wells ordered abandoned by the Owner due to excessive sanding will be paid per linear foot of well to be abandoned. Wells ordered abandoned by the Owner due to neglect by the Contractor or damage caused by the contractor will be abandoned at no additional cost to the owner. A replacement well will also be constructed at no additional cost to the owner under the direction of the District and the U.S. Army Corps of Engineers. No separate payment will be made for inspecting appurtenant relief well items and reporting on the same.

1.2.1.2 Measurement

Relief wells testing and inspection will be measured for payment per relief well. Wells ordered abandoned by the Owner, due to no fault of the Contractor, will be measured for payment per linear foot of relief well.

1.3 SUBMITTALS

Owner approval is required for all submittals.

SD-01 Preconstruction Submittals

Relief Well Pump Testing and Inspection Work Plan

Relief Well Abandonment Procedure

1.4 QUALITY ASSURANCE

The table at the end of this section provides pertinent information on each relief well to be tested.

1.4.1 Dimensions of Well

The length of well screen, length of riser pipe and the well discharge elevation are based on as-built information provided by the U.S. Army Corps of Engineers, and shall therefore be assumed to be approximate. Contractor shall field verify the depth of each well and compare to as-built information prior to mobilizing. If a significant discrepancy exists, the owner shall be contacted immediately. No additional payment will be made for delays caused by such discrepancies.

1.5 PROJECT/SITE CONDITIONS

1.5.1 Location

The location of each well is shown on the plans. Contractor shall become familiar with the District and well locations. No additional payment will be made for wells requiring special access considerations.

1.6 PERSONNEL

The testing and inspection crew shall consist of the number of personnel necessary to adequately and efficiently operate the testing equipment. The supervisor of said crew shall have performed a minimum of 100 relief well pump tests on U.S. Army Corps of Engineers levee systems. The supervisor (or approved alternate) shall be present at all times during testing and inspection operations.

PART 2 PRODUCTS

2.1 PUMP

The Contractor shall provide a deep-well submersible pump capable of producing the specified discharge of 500 gallons per minute. The Contractor shall also provide the necessary electrical power, control box, wiring, etc. at no additional cost to the Owner.



## 2.2 FLOW METER

The Contractor shall furnish a calibrated flow meter of standard design for measuring the discharge from the well during the pumping test. The calibration of the flow meter shall be checked annually. The meter shall be in strict accordance with the manufacturer's recommendations and shall be accurate to within 2% of the measured flow.

## 2.3 ROSSUM SAND SAMPLER

The Contractor shall furnish an approved Rossum centrifugal sand sampler and appurtenant piping and valving for accurate determination of the discharge sand content. <http://www.rossumsandtester.com>

## 2.4 DISCHARGE PIPING

The Contractor shall furnish and construct the necessary discharge piping to convey the discharge water to the riverside toe of the levee. Where discharge over the top of the levee cannot be achieved, the flow shall be directed to an appropriate, pre-approved, area in which the District has right of way or maintains flowage easements and in accordance with applicable environmental regulations. The discharge line shall be turned upward in a saxophone-like outlet to dissipate the energy/pressure through free fall. Plastic sheeting, 6 mil minimum, shall be placed under the discharge outlet so the flow does not damage the levee turf. Any damage shall be repaired by the Contractor at no additional cost to the Owner.

## 2.5 WELL ABANDONMENT MATERIALS

Materials for wells directed to be abandoned by the owner shall be in strict accordance with Part 920 of the Illinois Water Well Construction Code.

# PART 3 EXECUTION

## 3.1 PUMP TESTING STAINLESS STEEL RELIEF WELLS

Relief wells shall be pump tested to determine the specific capacity of the well (gpm/drawdown) at the frequency identified in the system Operations and Maintenance Manual. Loss of specific capacity indicates loss of open area in the well and gravel pack. This loss increases the pressure gradient during high water events and this can cause uncontrolled piping and erosion in the foundation soils. Pump testing should be performed by contractors or levee sponsor personnel with experience in the pump testing and maintenance of relief wells. Contractor shall use a water level indicator or an alternative device capable of accurately determining the water level in wells to the nearest 0.10-foot.

### 3.1.1 Pump Test Procedure

1. Prior to mobilization, measure the static water level(s) in the relief wells to be tested to ensure that the groundwater is at an appropriate elevation to cover the screen throughout the pump test.
2. Measure and record the depth of the relief well to be tested.
3. Measure and record the static water level in the well to be tested and the four (4) closest relief wells or monitoring wells.

4. Install submersible pump, discharge piping/hoses, generator, Rossum Sand Tester, and all associated appurtenances.
5. Turn on the pump and regulate by opening or closing valves to 500 g.p.m. +/- 10 g.p.m.
6. Measure and record the water level within the well, instantaneous flow rate, and totalizer reading at the following minute intervals: 1, 2, 3, 4, 5, 10, 15, 20, 25, 30, 45, 60, 75, 90, 105, and 120.
7. Measure and record the sanding rate with the Rossum Sand Tester at the following minute intervals: 15, 30, 45, 60, 75, 90, 105, and 120. Flow rate through the Rossum Sand Tester shall be checked at EVERY interval.
8. Each relief well shall be pumped at 500 g.p.m. +/- 10 g.p.m. until the relief well reaches a static water level but no fewer than 120 minutes. For the purposes of this specification, "static water level" shall be defined as less than 0.10' of water level change in a 15-minute interval.

Under no circumstances shall a relief well be pumped below the top of screen elevation.

Under no circumstances shall a relief well be pumped concurrently with drilling or pumping of another relief well within a radius of 500 feet.

In the event that the test is interrupted prior to the completion of the specified period of continuous operations, the water level in the well shall be allowed to recover to the original static level and the test shall be re-run at no additional expense to the Owner.

9. Just prior to ending the test, the static water level in the four (4) adjacent relief wells or monitoring wells shall be measured and recorded.

### 3.1.2 Pump Test Reports

All measurements during the pumping test shall be record on the WES Form 797 (KW Modified). Hand-written or typed hard copies of the report shall be submitted to the Owner within 2 working days of completion of the pump test. The Owner will transcribe measurements and notes into digital format.

### 3.2 RELIEF WELL INSPECTION

Following the completion of the pumping test, Contractor shall record and take pictures documenting the condition of the housing or manhole, check valve, lid, bolts, outlet works and the area immediately surrounding the relief well. Please note that the outlet works may be up to 100-ft away from the relief well. Conditions shall be documented on the form provided.

### 3.3 ABANDONMENT OF RELIEF WELLS

Should the Contractor be directed by the Owner to abandon an existing relief well due to excessive sanding, the well shall be abandoned in strict accordance with Part 920 of the Illinois Water Well Construction Code.

-- End of Section --