



## **HOPKINSVILLE WATER ENVIRONMENT AUTHORITY**

### Bid Packet:

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Sewage Pumping Station Rehabilitation

### Bid Opening:

Thursday, March 23, 2023 @ 2:00 P.M. CST  
401 East 9<sup>th</sup> Street, Hopkinsville, KY, 42240  
HWEA Boardroom

# **BID PACKET**

A.	Invitation to Bid	Page 3
B.	General Conditions	Page 4-7
C.	Specifications	Page 8-42
D.	Acknowledgement of Receipt	Page 43
E.	Bid Form	Page 44-45

IMPORTANT: In the event any of the documents are not enclosed, please advise the Purchasing Officer immediately.



## **INVITATION TO BID**

Sealed bids for furnishing and delivering the following:

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Sewage Pumping Station Rehabilitation

will be received at HWEA's Main Office, 401 East 9<sup>th</sup> Street, P. O. Box 628, Hopkinsville, Kentucky, until 2:00 pm, CST, on Thursday March 23, 2023, at which time the bids will be opened and read aloud publicly in the HWEA Board Room, at the same address.

The Bid Packet contains the Invitation to Bid, General Conditions, Specifications, and Detailed Specifications.

# **GENERAL CONDITIONS**

## 1. INSTRUCTIONS, SPECIFICATIONS AND FORMS

Instructions, specifications, and forms may be obtained via the HWEA website, in person, or by email from the HWEA Purchasing Officer at 401 East 9<sup>th</sup> Street, Hopkinsville, KY, 42240. Telephone number 270-887-2782, email [jrenshaw@hwea-ky.com](mailto:jrenshaw@hwea-ky.com), or see our website at [www.hwea-ky.com](http://www.hwea-ky.com).

- (a) All bids shall be submitted on and in accordance with the attached Bid Form. The form shall be signed and dated in the appropriate space.
- (b) Each bid shall be submitted in a sealed envelope and clearly marked on the outside of the envelope with the following:

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Pumping Station Rehabilitation

- (c) If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope: FY 2022 - 2023 - SEALED BID # 2223-15 - US-41 SOUTH SEWAGE PUMPING STATION REHABILITATION and shall be mailed to the HWEA Purchasing Officer, P.O. Box 628 Hopkinsville, KY 42241, allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for receipt of bids.
- (d) Additional information or clarifications of any of the instructions or information contained herein may be obtained from the Purchasing Officer.
- (e) Any bidder or bidders finding any discrepancy in or omission from the specifications, in doubt as to their meaning, or believing that the specifications are discriminatory, shall notify the Purchasing Officer in writing within 5 days of the scheduled opening of bids. Exceptions as taken in no way obligates HWEA to change the specifications. The Purchasing Officer will notify all bidders in writing, of any interpretations made of specifications or instructions.
- (f) HWEA will assume no responsibility for oral instructions or suggestions. All official correspondence regarding the specifications should be directed to and will be issued by the Purchasing Officer.

- (g) The successful bidder may have to purchase a City of Crofton vendor's license prior to the official award of the bid, in order to meet the requirements of City of Crofton ordinances.
- (h) Any bidder may withdraw their bid either in person or in writing at any time prior to the scheduled time for the receipt for bids. Withdrawals after the scheduled time for the receipt of bids will not be permitted.

## 2. AWARD OF CONTRACTS

- (a) The HWEA Board may award the contract to the bidder it finds to be the most responsive (considering price, time of delivery, compliance with specifications and past experiences) and not necessarily the lowest price. HWEA reserves the right to reject any and all bids.
- (b) All bids will be awarded based on the most current edition of HWEA's Purchasing Policy, as amended.
- (c) All bids will be judged on the basis of best buy to HWEA and compliance with the General Conditions and conformance with the bid specifications. HWEA reserves the right to reject any and all bids.
- (d) Any other considerations or basis for judgment will be stated in the specifications.
- (e) Unless otherwise stated, the Purchasing Officer reserves the right to award contracts or place orders to a single source or divide awards and orders or enact such combination which in his judgment, shall be in the best interest of HWEA.

## 3. DELIVERY

- (a) Item(s) shall be delivered F.O.B. destination with delivery costs and applicable charges to be included in the bid.

#### 4. COMPETITION

In order to assure fair competition and to permit determination of the best bid:

- (a) The Detailed Specifications, which may include a name of any manufacturer, trade name, or manufacturer or vendor catalog number mentioned in the specifications or Bid Form is to designate a standard of quality and type and for no other reason.
- (b) Bids which show any omission, irregularity, alteration of forms, additions not called for, conditional or unconditional unresponsive bids, or bids obviously unbalanced may be rejected.
- (c) All bids shall be accompanied by such descriptive literature and documents as may be called for by the specifications or Bid Form.
- (d) Specifications provided are based on HWEA needs and uses, estimated costs of operation and maintenance, and other significant and / or limiting factors to meet HWEA requirements and shall be consistent with HWEA's policies. Minimum or maximum specifications where included, are not established arbitrarily to limit competition or to exclude otherwise competitive bidders.

#### 5. DISPUTES

In cases of disputes, as to whether or not an item or service quoted or delivered meets specifications, the decision of the Purchasing Officer, or authorized representative shall be final and binding on all parties. The Purchasing Officer may request written recommendation of the head of the Department using the item.

#### 6. EXCEPTIONS

The submission of a bid shall be considered an agreement to all the terms, conditions and specifications provided herein as listed in the various bid documents, unless specifically noted otherwise in the space provided on the Bid Form.

#### 7. BID BINDING

Unless otherwise specified, all formal bids submitted shall be firm and irrevocable for a period of sixty (60) calendar days from the date of opening.

8. UNIT PRICING

Unless clearly shown on the Bid Form that it is the intent of the bidder that a reduced total price is being offered on the basis of receiving an award of all items covered by the total, any totals should be the actual sum of the extension of unit price(s), extended price(s), and/or total price(s). If a mistake is observed in arithmetic, unit prices govern and the bid will be refigured accordingly.

9. DELIVERY TIME

The bidder is to indicate on the Bid Form the approximate lead time on delivery.

10. WARRANTY

All materials provided by the Contractor under this contract shall be warranted for a period of at least one (1) year from the date of final certificate of payment. The Contractor will be required to sign a Warranty for their workmanship performed under this Contract warranting said work for a period of one (1) year.

# **SPECIFICATIONS**

## 1. GENERAL SPECIFICATIONS

- (a) The work shall include the furnishing of all labor, materials, equipment, tools, supervision, Shop Drawings, traffic control, bypass pumping of sewage and related items, as required and specified, to rehabilitate / upgrade existing sewage pumping station (SPS) for the Hopkinsville Water Environment Authority (HWEA), of Hopkinsville, KY.
- (b) BID FORMS submitted by Contractors who have not, in the opinion of HWEA, had sufficient experience in the size and type of work involved may not be considered.
- (c) Prior to work commencement, the Contractor shall schedule and coordinate all work with HWEA.
- (d) The Contractor shall comply with all Federal and State OSHA regulations and HWEA Safety Policies that apply to work associated with this project.
- (e) The Contractor shall comply with all Environmental Protection Agency (EPA) regulations which apply to the work associated with the project.
- (f) Payment will be made in a single lump-sum, inclusive of any Change Orders, within 30 days of Contractor invoicing and HWEA's acceptance.
- (g) The work shall be completed during the Contract Times specified in the Notice to Proceed.
- (h) Liquidated Damages shall be assessed for each day in excess of the Contract Times, should the Contractor not make readiness for Final Payment as stipulated in the Notice to Proceed. Contract Time extensions may be requested for reasonable delays outside the Contractor's control (unexpected material lead times, inclement weather, employee quarantine orders, etc.). Approved Contract Time Extensions will be implemented with a Change Order.
- (i) The Contractor shall be responsible for removing and disposing of all materials which are scheduled to be removed including any construction debris. Any item designated as salvage will be made available to HWEA in as best condition as possible.



- (j) No part of the work shall be sub-contracted out without written approval from HWEA.
- (k) The use of second hand or salvaged construction materials will not be permitted by HWEA.
- (l) The work space within the structures and within excavations shall be considered Confined Space Entry and the Contractor shall be responsible to ensure that all OSHA requirements and HWEA Safety Policies with regards to such shall be strictly followed and enforced.
- (m) The Contractor shall make all efforts necessary in order to ensure that sewage does not overflow any HWEA's sewer manholes or back up on of HWEA's customers.
- (n) The Contractor shall be responsible for surface restoration of all areas disturbed by construction. All work shall meet HWEA's standards for seeding and mulching requirements.
- (o) Partial payment may be requested by the Contractor upon ordering the pumps. The partial payment amount will be equal to the cost of the pump package less 10% retainage. The pumps will be considered Stored Materials and HWEA property.
- (p) The Contract Times for the project shall be ninety (90) calendar days. The Notice to Proceed will not be issued until after the pumps have been delivered.
- (q) Liquidated Damages shall be assessed at \$250 per calendar day.
- (r) Subcontracting out electrical work, wet-well lining and fence repairs is allowed.
- (s) The HWEA Standards Manual is incorporated into this bid package as the Technical Specifications for this project. A digital copy (PDF) of the HWEA Standards Manual is available upon request.
- (t) The attached Construction Plans and Specification Documents should be used to define the scope of the work and specify construction materials.
- (u) HWEA will provide judgement concerning any discrepancies between the construction plans, the specifications, the HWEA Standards Manual and all other supporting documents associated with project.

- (v) The Contractor shall make any necessary field measurements in order to ensure that work is properly completed. The Contractor shall coordinate all work and materials to ensure that appurtenances work as intended.
- (w) All work shall be completed to HWEA's satisfaction. All methods and installation shall be coordinated with HWEA to ensure a timely and professional job.

2. INFORMATION TO BE FURNISHED BY BIDDER

- (a) Contractor bidding on the work shall give evidence of their experience in the class of work involved, including at least three jobs of comparable size and type performed by as general contractors.
- (b) Contractor shall, at his own expense, procure all permits, certificates and licenses required of them by law for the execution of their work. Contractor shall comply with all federal, state, and local laws, ordinances, or rules and regulations relating to the performance of the work.
- (c) Contractor shall provide a list of proposed subcontractors, pump supplier and estimated lead time of materials.
- (d) A copy of contractor's Certificate of Insurance which names HWEA as a certificate holder insured in the amounts listed below:

<b>Worker's Compensation</b>	Statutory
<b>Employer's Liability</b>	
Bodily Injury by Accident	\$500,000 Each Accident
Bodily Injury by Disease	\$500,000 Each Employee
Bodily Injury by Disease	\$500,000 Policy Limit
<b>Automotive Liability</b>	
Bodily Injury & Property Damage	\$1,000,000 Each Accident
<b>Commercial General Liability</b>	
Bodily Injury & Property Damage	\$1,000,000 Per Occurrence
Bodily Injury & Property Damage	\$2,000,000 Aggregate
<b>Commercial Umbrella</b>	\$5,000,000 Per Occurrence

Failure to provide any of the above information could result in dismissal of bid

3. HWEA SUPPLIED SERVICES / MATERIALS

- (a) HWEA will provide Resident Inspection / Observation during construction.
- (b) HWEA shall be responsible for Shop Drawing review and approval.
- (c) HWEA will not furnish any construction materials for this project.
- (d) HWEA will provide electric power and water for tests, including SPS startup operation.

4. SITE VISIT

- (a) Site Visit is not required but is encourage, contact Travis Barnett, [tbarnett@hwea-ky.com](mailto:tbarnett@hwea-ky.com) or T # 270-881-1396, to schedule a site visit.

5. EXCEPTIONS

- (a) Major exceptions to these specifications or failure to submit requested information may be considered cause for rejection of the bid.

DETAILED SPECIFICATIONS

The following are minimum specifications for;

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Sewage Pumping Station Rehabilitation

BIDDER SPECIFICATIONS

Bidder is requested to indicate either by writing "Comply" or "Exceptions" whether his product meets the minimum specifications as listed on this opposite side. If "Exception" is written, please indicate in the space providing the deviation or include a detailed "EXCEPTIONS PAGE" with the bid packet.

**ANY AND ALL BIDS WHICH ARE RETURNED MUST HAVE THE FOLLOWING PAGES COMPLETED AND RETURNED OR BID MAY NOT BE CONSIDERED.**

## **DETAILED SPECIFICATIONS**

The work shall include the following tasks. The following tasks is a general description of the work to be completed and are not meant to be all-inclusive. The complete project includes the installation of any and all construction materials and work that is necessary in order for a turn-key pump station that operates for the intended purposes.

1. Demo existing piping, pumps, hardware and pump controls; salvage and return pumps and pump controls to HWEA.
2. Construct sloped concrete floor in valve vault with drain line to wet-well.
3. Furnish and install new piping, pumps, hardware, and controls.
4. Rehabilitate wet-well and valve vault, apply approved coating to walls.
5. Furnish and install a new, permanent bypass connection outside valve vault.
6. Furnish and install fence around lot.
7. Kill vegetation and ensure minimum of 6" compacted DGA inside fence.
8. As outlined in HWEA Standards, submit Shop Drawings for the required material and equipment to be incorporated into the Project to HWEA for review and approval prior to purchasing or shipping.
9. The Shop Drawing process is iterative. Initially, the Contractor shall submit one (1) hard copy and one (1) digital copy of all shop drawings for review and comment by HWEA. After HWEA's review, one (1) digital copy will be returned to the Contractor with comments, with the process continuing until all Shop Drawings are approved.
10. The Contractor shall provide all temporary traffic control devices as required by Kentucky Transportation Cabinet (KYTC), the Manual of Uniform Traffic Control Devices (MUTCD), and the City of Crofton. These devices are to remain in service for the duration of the project.

11. Provide a temporary bypass pumping system for the SPS for the duration of the project capable of pumping wastewater flows during normal and wet-weather flow conditions.
12. With the bypass pump in operation, remove pumps, piping, valves, and the electric pump controls at / in the wet-well and valve vault.
13. The tops will be allowed to be removed to acquire dimensions for the replacement tops, but shall be replaced that same day to safeguard both the public and work crews until replaced with new tops.
14. Once the replacement tops are on site, the change out shall be during one work period without interruption without pause to continue to safeguard public safety.
15. The Contractor is to provide information through a Shop Drawing on the means, methods, and materials for how the wet-well and valve vault walls will be extended and prepared for new structure tops, and how those new tops will be sealed and installed.
16. There is a Parrott, Ely, and Hurt, dated October 1981, plan sheet 6-of-12 included with Exhibits to describe, by red strike-through lines, the existing wet-well and valve vault and the equipment and materials to be removed. Details on that sheet referring to wet-well and valve vault construction and other related matters have also been struck through and are not part of this project.
17. Make any new concrete core penetrations and structural repairs to the wet-well and valve vault. This will include, but not limited to, the new 4" drain line from the valve vault to the wet-well and the 6" outlet from the valve vault.
18. The Contractor shall construct sloped reinforced concrete floor in valve vault, sloped to drain the valve vault to the wet-well.

19. The bases of both existing structures are to be incorporated into the rehabilitated SPS. It is expected that the tops and hatched for each structure will be newly manufactured. The tops will be allowed to be removed to acquire dimensions for the replacement tops, but shall be replaced that same day to safeguard both the public and work crews until replaced with new tops. Once replacement tops are onsite, the change out shall be during one work period without interruption without pause to continue to safeguard public safety.
20. Shop Drawings describing the means and materials for joining / connecting the existing wet-well and valve vault with the riser section will be required.
21. Furnish and install the new control panel and connect to the existing power system via underground conduits.
22. Furnish and install the approved pump control system to operate the duplex pump station.
23. Once the wet-well structure has been refurbished, line the interior with the approved protective coating.
24. Conduct start-up and draw down tests witnessed by HWEA and appropriate representatives of the pump supplier. HWEA will provide water and electric power for these tests.
25. The existing underground electrical service from PRECC is to be replaced along the route shown on Exhibit J. The Contractor shall provide an underground 4" PVC (Schedule 80) conduit for this new electrical feed. This conduit shall have large radius bends to facilitate pulling conductors.
26. The on-site electrical from the PRECC service connection to the pump station control cabinet shall be replaced.
27. The Contractor shall inspect the existing underground conduits to assure they are able to be utilized.

28. The Contractor shall replace conduits if they are not in serviceable condition.
29. Construct and connect the piping within the wet-well and valve vault, the piping connecting the two structures, and the piping from the valve vault to the existing force main.
30. HWEA purchased the water utility and sanitary sewer utility from the City of Crofton July, 2000.
31. The property where the sewer pump station is located is owned by Arleigh P. Parrott, 229 South Madisonville Street, Crofton, KY 42217. There is no record of the property being secured by the City of Crofton for the sewage pump station.
32. During ownership of the sewer utility by the City of Crofton, and per a Parrott, Ely, and Hurt, Consulting Engineers, Inc. plan sheet 5-of-11, dated October 1981, the SPS lot is fenced at 50' wide x 50' deep with a parallelogram shape. To HWEA's knowledge, no property corners were set, or have any easement documents have been located.
33. HWEA will coordinate with the current property owner and the Contractor to provide a route for accessing the SPS lot and adjoining sewer lines.
34. HWEA does have design drawings of the original SPS, though these drawings have not been completely field verified. Therefore, the Contractor is fully liable for collecting all measurements, site specific data and other pertinent information for the rehabilitation / upgrade of the SPS in these documents.
35. All construction materials and methods provided on this project shall conform to the Construction Plans, HWEA Standards Manual, all Permits required for the construction of the project, HWEA approved Shop Drawings and Specifications and Special Provisions assigned to this project.

36. Should circumstances exist where the construction materials and / or methods are not specifically referenced, the Contractor shall adhere to decisions made by HWEA.
37. It shall be the Contractor's responsibility to incorporate all applicable Contract Documents, construction plans, specifications, and other supporting documents as a unit. Any omissions, deletions, or conflicts arising as a result of failure to incorporate all documents which apply shall be corrected by the Contractor at no added cost to HWEA.
38. Efforts have been made to indicate the most accurate locations of existing structures, piping, and utilities. The Contractor shall familiarize themselves with the site, and notify HWEA of any discrepancies between information depicted by the drawings and actual field conditions, which would alter the intent of Contract Documents prior to ordering construction materials and commencing the construction operations.
39. Prior to excavation, the Contractor shall contact Kentucky BUD (811) and any other applicable utility agency which may have underground utilities on, or contiguous to, the project site. Note that Kentucky BUD requires a 48-hour notice.
40. The Contractor shall excavate (by hand within 6" of utility) and locate, for physical reference, under the supervision of a service person from the respective utility, any existing utility that crosses or is adjacent to the pipeline construction. The Contractor will be responsible for contacting the respective utilities 72-hours prior to excavation to develop a timely and coordinated utility location plan. Utility agencies not wishing to witness the excavation will need to state so in a written waiver and provide such to the Contractor. The Contractor shall provide HWEA with a copy of the utility location plan accompanied by any utility agency waivers 48-hours prior to location. No payment will be allowed for search or exploration for existing utilities.
41. The location and depth of all existing underground utilities shall be field verified prior to the Contractor commencing construction. HWEA is not responsible for the location or depth of existing utilities. The Contractor shall notify HWEA, in writing, of any required modifications immediately.



42. Evident existing underground utilities have been shown in their approximate location(s) as indicated by the utility owner. All existing underground utilities within the construction areas shall be accurately located by the Contractor prior to construction.
43. Existing Easements, property lines, and right-of-way (R/W) lines as depicted on the drawings were derived from the existing field surveys and / or public records, and are not guaranteed to be accurate and all inclusive.
44. Generally, the limits of construction shall be the R/W and easement lines as shown on drawings. Any additional Temporary Construction Easements (TCE) required for construction shall be acquired by the Contractor at no additional expense to HWEA prior to construction operations.
45. The Contractor shall comply with OSHA regulations that apply to work associated with this project. The Contractor shall submit a Safety Plan describing how the work will be completed as well as Confined Space Entry Methods. The Safety Plan shall be reviewed and approved by HWEA's Safety Officer prior to commencement of work.
46. The Contractor shall provide and install barricades to prevent highway vehicles and pedestrians from entering open excavations. Barriers are to be removed upon completion of the contracted work.
47. The Contractor shall provide written notification to HWEA, five (5) working days prior to beginning construction.
48. The Contractor is responsible for managing storm water runoff and erosion during construction as required by ordinances set forth by the Kentucky Division of Water, City of Crofton, and any other responsible agencies.
49. Resident Inspection / Observation shall be provided by HWEA. No trenches shall be backfilled until HWEA has verified the grade and alignment of the pipeline or related appurtenances.

50. The field layout of the work shall be the responsibility of the Contractor.
51. All PVC gravity sewer pipe, 4" through 15" diameter, supplied for use on this project shall be type PSM Polyvinyl Chloride (PVC) Sewer Pipe as specified per ASTM D 3034. All ductile iron pipe, 4" through 15", supplied for use on this project shall comply with the provisions of ANSI / ASTM A746.
52. All ductile iron pipe and fittings for gravity sewer service shall have bituminous coating on the outside according to ANSI / AWWA C151 / A21.51-81 for pipe and ANSI / AWWA C110 / A21.10-82 for fittings.
53. All ductile iron pipe and fittings shall for gravity sewer service shall be cement mortar lined with a seal coat according to ANSI / AWWA C104 / A21.4-80.
54. The interior of the pipe shall be cleaned of all dirt, jointing material, and superfluous material of every description. Upon completion, the Contractor shall thoroughly flush all manholes and pipelines taking care not to flush the foreign matter into the downstream collection system of HWEA. Flushed water shall be screened to remove foreign debris that could be detrimental to HWEA's pumping equipment.
55. Pipe crossings of all proposed and / or existing driving surfaces shall be backfilled with # 57 crushed stone to the top of the trench surface. The crushed stone shall be mechanically compacted in 6" lifts to 95% density at optimum moisture content.
56. The final 6" of crushed stone shall be DGA compacted in place.
57. Debris, frozen material, organic material, or other unstable materials shall not be used for backfill.
58. No sewage shall be discharged to streams, ditches, or on the ground. It will be the Contractor's responsibility to provide all pumps, hoses, labor, and equipment necessary to bypass wet-wells, sewer manholes or sections of line.

59. Any bypass pumping required to perform this work shall be the sole responsibility of the Contractor. Bypass pumping is not a separate pay item.
60. Contractor shall install pumps, install electrical components, and install control panels per the Manufacturer's instructions.
61. All anchor bolts, nuts, turnbuckles, fabricated work, and hardware shall be 316 stainless-steel conforming to the requirements of ASTM Designation A 276, latest revision.
62. All structure wall / slab penetrations of new piping shall be made with GPT Link Seal® penetration seals.
63. The wet-well and the valve vault shall be clean and free of debris, dirt, and water at the time of final inspection. The interior of the wet-well and the last manhole(s) discharging to the wet-well shall be lined using Spectra-Shield® or HWEA approved equal.
64. Working cooperatively with HWEA, the lining manufacturer shall specify the level of cleaning of the interior walls that is required for the lining product to adhere. The manufacturer will inspect and determine if this level of cleaning has been attained before authorizing product application.
65. Discharge piping in the wet-well and valve vault shall be flanged ductile iron pipe - pressure class 350. The discharge piping shall be coated on the interior and exterior with 3M™ Scotchkote™ Liquid Epoxy Coating 323+.
66. The Contractor shall provide a 1" chamfer / bevel to top edge of replacement tops for wet-well and valve vault.
67. The proposed 4" drain from the existing valve vault to the existing wet-well shall be ductile iron pipe. The Contractor shall furnish and install a 4" ductile iron MJ gate valve in the mid-point of the pipe segment. The drain shall have 6" of fall from the existing valve vault to the existing wet-well.

68. The floor is to be modified as outlined below:
- a. Maintain a minimum of 6" compacted crushed stone base.
  - b. Pour a concrete floor minimum of 6" thick with #5 reinforcing steel on 12" centers each way.
    - i. The reinforcing steel is to be centered vertically withing the concrete.
    - ii. The floor shall provide a minimum of 12" between the floor and pipe flanges above.
  - c. The floor shall be sloped on both axis.
    - i. On the long axis, slope towards the proposed 4" drain outlet to the pump station with a fall of 6" across the floor.
    - ii. From the short axis from two side-walls to centerline, slope 2" across each half to the center of the valve vault.
  - d. From this lower sump, install a 4" drain line from the existing valve vault to the existing wet-well with DI pipe. The drain shall be sloped 1/2" per foot from the valve vault to the wet-well.
    - i. The drain line shall have a 4" MJ gate valve with valve box approximately equidistance between the wet-well and valve vault.
    - ii. The gate valve shall be supported with a concrete pad.
69. The area within the perimeter of the security fence currently has a crushed stone surface. The Contractor shall restore the surface within the fenced area, and also restore the access drive from US-41 at the conclusion of the project to provide a six-inch (6") depth of # 57 crushed stone. All areas shall be graded and compacted.
70. The Contractor shall furnish and install direct taps on each discharge pipe in the valve vault. Each assembly shall also include brass piping, a brass ball valve, and a stainless steel quick-connect fitting. HWEA will furnish liquid filled pressure gauges during testing.
71. All grout used on the project shall be non-shrink grout.

72. The Contractor shall verify the sizes of the proposed access hatch in the wet-well to confirm there is adequate clearance to install and remove pumps.
73. No Meg-A-Lug type fittings will be allowed in the wet-well or valve vault. All ductile iron pipe in the wet-well and valve vault shall be flanged fittings.
74. Gate valves and check valves shall be manufactured by Mueller®.
75. The Contractor will be required to furnish and install a line-stop in the existing sewer force main to prevent return flow.
76. The Contractor will be required to furnish and install all equipment and construction materials to bypass the wastewater flows for the duration of the rehabilitation project.
77. Minimum cover over valve operating nuts is to be 12" and maximum cover is to be 24" (No extra pay for required extensions).
78. The drawings are diagrammatic and indicate the general design and arrangement of the proposed work. The Contractor shall not scale drawings for the exact location of the equipment and work. The exact location of all panels and equipment to be confirmed by HWEA. The Contractor shall verify all existing and proposed work to ensure proper installation before fabrication and installing any work.
79. Electrical Panel - The Contractor shall furnish and install explosion proof soft starts with Level controller, a level transducer within a PVC Still-well, with backup floats in separate conduits. Pump cable junction boxes shall be located underneath the control panel for easy access.
80. All electrical power cables and sensor cables within the wet-well shall be replaced with new cables per the equipment manufacturers recommendations.
81. All wiring shall be type THHN/THWN (90\* C) copper conductors.

82. Provide color coded wire and with a different color for each phase and neutral and ground shall be per the National Electric Code.
  - i. Neutral - White
  - ii. Ground - Green
  - iii. Approved color tap is acceptable for feeders
83. Provide color coded wire for control circuits. Identify colors on Shop Drawings and Record Drawings.
84. All conduit shall be rigid aluminum metal except where noted otherwise on the construction plans or specified herein.
85. Where rigid conduit is used in concrete slabs or underground applications, the Contractor at his option may use Scheduled 80 PVC rigid plastic conduit with ground wire as required by National Electric Code. All Conduit turn-ups out of slabs shall be made with prefabricated aluminum elbows.
86. All conduit penetrating the wet-well or valve vault shall incorporate an appropriate conduit sealing fitting with sealing compound as manufactured by Eaton Corporation or approved equal.
87. Feeder cables shall be spliced only at tap points as indicated on drawings.
88. Panelboards shall be factory assembled, dead front type with copper bus, lugs, NEMA 4X enclosure and bolt on thermal-magnetic molded case circuit breakers of frame and trip ratings shown on the plans as manufactured by Square D®, or HWEA approved equal.
89. Panelboards, power panels, safety switched and other electrical equipment shall be equipped with engraved laminated plates securely mounted with screws.
90. Panelboards shall be labeled per the drawings identifying the branch circuits, all starters, circuit breakers, and disconnect switches, etc., shall identify the load being fed.

91. The Electrical Contractor shall remove all existing materials and equipment made obsolete by and interfering with the additions, alteration or razing as shown on the construction plans and specifications. Maintain such existing equipment and material intact and in existing condition.
92. All electrical installations shall be made in accordance with the National Electrical Code and supplements. All materials shall bear Underwriters official labels where such labeling is customary.
93. The Contractor shall be responsible for obtaining and coordinating the required Electrical Inspections and any fees or charges associated with the inspections.
94. All conduits shall have installed a green equipment grounding conductor which shall be attached to all fixtures, panels, devices, etc.
95. All circuits shall be installed with separate full-size neutrals.
96. The Contractor shall construct the sewer force mains from the locations shown on the Construction Plans to the Sewer Pumping Station structures.
97. Sewer force mains shall be constructed in locations identified on the Construction Plans and shall be constructed in accordance with the Construction Documents.
98. Sewer pumping station piping shall be installed as shown on the plans.
99. The valve vault shall be equipped with at least one (1) gate valve and one (1) check valve on the discharge side of each pump.
100. Valves shall have manufacturers' standard shop painting.
101. The suction piping, the SPS and valve vault piping, and the discharge piping to the solid sleeve connecting the SPS piping to the force main shall be flanged ductile iron pipe.

102. Flanged ductile iron pipe shall be thickness class 53 with ANSI class 350, 125lb. flanges.
103. All ductile iron pipe shall be furnished with the manufacturer's standard cement lining inside in compliance with the last revision of ANSI Specification A21.4.
104. A seal coat of asphaltic material, approximately one (1) mil coat, shall be shop applied to the cement lining in accordance with the pipe manufacturer's standard practice.
105. All ductile iron piping, in addition to cement lining and an asphaltic seal coat inside, shall be epoxy coated outside with 3M™ Scotchkote™ Liquid Epoxy Coating 323+.
106. Fittings shall be ANSI class 350, 125 lb. flanged cast iron or ductile iron conforming to the requirements of the latest revision of ANSI Specification A21.10.
107. Inside of all fittings shall be cement lined and sealed with one (1) mil coat of asphaltic material in accordance with the manufacturer's standard practice.
108. The outside of fitting shall be epoxy coated.
109. Compact fittings will be allowed.
110. Valves inside the structure shall be painted (shop coated) by the manufacturer and other valves shall be coated outside with the epoxy coating in accordance with AWWA Standards.
111. Gate valves of the sizes, classes and types required shall be furnished as shown on the Construction Plans.
112. Gate valves shall be cast iron body.
113. Gate valves shall conform to the latest revision of AWWA C515 or C509



114. Gate valves shall be suitable for 350 PSIG maximum working pressure unless otherwise noted.
115. Gate valves shall be hydrostatically tested at double their working pressure.
116. Gate valves shall be equipped with hand-wheel operators and shall open by turning to the left (counter-clockwise).
117. Gate valves shall be equipped with 2" square operating nut.
118. Gate valve shall be covered with a slide type valve box with cover incased with a 2' x 2' square concrete anchor pad.
119. Gate valves in valve vault shall be Mueller® 2360 Series Resilient Wedge Gate Valves - FL x FL or equivalent.
120. Gate valves in drain lines shall be Mueller® 2300 Series Resilient Wedge Gate Valves - MJ x MJ.
121. Non-rising stem gate valves shall be cast iron body, bronze mounted in accordance with standard practice with O-ring stem seals.
122. Non-rising stem valves shall be Mueller® NRS or equivalent.
123. Valve operators should be as indicated on the Construction Plans.
124. Check valves shall be swing type lever check valves with iron body, bronze mounted with seat rings, faces and hinge pins suitable for operation in horizontal or vertical lines.
125. Check valve operation shall be by means of an outside lever with weight.
126. Swing check valves shall Mueller® Swing Type Lever and Weight Valve - FL x FL with optional stainless-steel nuts and bolts or equivalent.
127. The pumping station shall be equipped with complete dual pumping units including two (2) pumps

128. The valves for controlling the submersible pumps shall be located in a reinforced concrete valve vault complete with drain line
129. The submersible pumps shall have a semi-open, multi-vane, self-cleaning impeller designed to transport wastewater with fibrous material.
130. The submersible pumps shall be complete with submersible electric motors.
131. The hydraulics of the pump shall be capable of handling raw domestic wastewater and storm water with fibrous material.
132. The pumps shall be fitted with a stainless-steel chain for each pump, of adequate strength and length to permit raising the pump for inspection and removal.
133. The stator casing, oil casing and impeller shall be wear resistant against sand and grit and made of high chromium cast iron with at least 24% chrome.
134. All parts encountering sewage shall be protected by a coat of rubber-asphalt paint.
135. Impellers that have surface hardening (by thermal, coating, etc.) will not be allowed.
136. All external nuts and bolts shall be stainless-steel.
137. The wear ring between impeller and pump housing shall be stainless-steel or bronze with nitrile rubber O-ring or neoprene O-ring at the inlet of the pump.
138. The impeller shall be non-clog designed, capable of passing solids, fibrous material, and heavy sludge.

139. The impeller blades shall be self-cleaning upon each rotation as they pass across a sharp relief groove in the insert ring and shall keep the impeller blades clear of debris.
140. The insert ring shall have a guide pin which moves axially upwards to allow larger debris to pass through and immediately return to normal operating position.
141. The clearance between the insert ring and the impeller leading edges shall be adjustable.
142. Each pump shall be provided with a tandem double mechanical seal running in an oil reservoir, composed of two separate lapped face seals, each consisting of one stationary and one rotating ring with each pair held in contact by a separate spring.
143. The lower seal shall be tungsten carbide on tungsten carbide, or silicon carbide on silicon carbide.
144. The upper seal shall be either tungsten carbide, silicone carbide, or tool steel on carbon.
145. The compression spring shall be protected against exposure to the pumped liquid.
146. The pumped liquid shall be sealed from the oil reservoir by one face seal and the oil reservoir from the motor chamber by the other.
147. The seals shall require neither maintenance nor adjustment, and shall be easily replaced.
148. Seal failure detection shall be provided and wired to an indicator light in the control panel.
149. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter.

150. The grommet shall be compressed by the body containing a strain relief function, separate from the function of sealing the cable.
151. The assembly shall provide ease of changing the cable when necessary, using the same entry seal.
152. The cable entry junction chamber and motor shall be separated by a stator lead sealing gland or terminal board, which shall isolate the interior from foreign material gaining access through pump top.
153. The pump shall be supported by a discharge base elbow with clean out and flush connections.
154. The discharge base shall support the full weight of the pump and motor.
155. The constant speed motors shall be as specified in the Shop Drawings.
156. The Sewer Pumping Station shall be furnished with two (2) submersible sewage pumps with the following criteria:
  - i. Design Capacity - 100GPM
  - ii. Static Head - 26.08 feet
  - iii. Design Total Dynamic Head - 31.39 feet
  - iv. Minimum Shutoff Head - 47.5 Feet
  - v. Maximum Speed - 1750 RPM
  - vi. Horsepower - 4.3hp
  - vii. Discharge Pipe Size - 4 inch
  - viii. Minimum Efficiency - 44.7 percent
  - ix. Discharge Type - Sliding Bracket
  - x. Power Available - 240/460 V, 3 Ø
157. Pre-approved submersible wastewater pumps are Flygt & HOMA or approved equal pumps.
158. The control level settings are shown on the drawings.
159. Lower guide holders shall be an integral part of the discharge connection.

160. Guide rails shall be 316 stainless-steel pipe, continuous and without joints or union, a minimum of two inches in diameter.
161. The Contractor shall furnish two (2) hard copies and one (1) digital copy of complete Shop Drawings, descriptive drawings and bulletins with characteristic performance curves showing the operation of the equipment under the conditions set forth on the Construction Plans for approval.
162. HWEA will provide pressure gauges out of inventory.
163. Gauges will be two glycerin-filled pressure gauges complete with shut-off valve, stainless-steel quick connects, and isolation dampener mounted as shown on the Construction Plans.
164. All piping for gauges shall be stainless-steel.
165. The pumps shall be fully tested at the manufacturer's production facility before shipment, at its rated speed, capacity, head, and other such conditions of head and capacity to establish properly that it has met all guarantees on the characteristic curves.
166. Two (2) certified copies of the results of these tests shall be sent to the Engineer and two (2) certified copies shall be sent to HWEA.
167. A witnessed pump test is not required.
168. The pumping units will be accepted upon basis of the certified copies of the Start-up Report.
169. If determined Start-up Report does not indicate a close correlation with the Shop Tests, a complete Start Up procedure will be made under the standards of the Hydraulic Institute.
170. The Start-up procedures will be witnessed by the Manufacturer, the Engineer, and HWEA.

171. The Manufacturer shall furnish all necessary tools, materials, equipment and supervision for the tests.
172. Any defects in the equipment or failure to meet guaranteed requirements of these specifications shall be corrected by the Manufacturer by replacement or otherwise.
173. The pumps shall come with a warranty against defects in workmanship and materials for five (5) years.
174. The pump manufacturer shall guarantee clog-free operation for a period of 12 months from date of start-up.
175. The sewage pump control system shall be automatic control for two (2) pumps by variation in level in the wet-well determined by an adjustable wet-well probe with backup mercury free float-switches with break resistant cable.
176. Pre-approved level transmitters are Level Rat manufactured by Keller America, Inc.
177. Pre-approved float type level transmitter is KwikSwitch.
178. Pump control equipment shall be mounted a NEMA 4X stainless-steel enclosure.
179. The portion of the cabinet housing the pump control switches shall be separated from the remainder of the control cabinet by a steel lockable cover.
180. The control panel shall be provided by the pump manufacturer as part of the complete pumping and control system.
181. The control panel shall be equipped with an opening handle.
182. The control panel shall not contain lockdown screws.

183. The control panel manufacturer shall supply a transient voltage surge protection device for the 240 volt, three phase, four wire, 60 hertz electrical power supply.
184. The transient voltage surge protection device shall be connected to a 30 amp, 3 pole circuit breaker and in a NEMA 4X stainless-steel cabinet.
185. Pre-approved control panel manufacturers are Saginaw and Control Works.
186. The control system shall be provided with the following:
  - i. Starter with overload protection
  - ii. HOA switches for both pumps
  - iii. High water level alarm lights (Visual Alarm Only), one located in the control panel and one suitable for remote mounting on the side of the cabinet
  - iv. Motor seal failure alarm
  - v. Motor heat sensor system
  - vi. Level control system
  - vii. Main circuit breaker on outside of cabinet
  - viii. Utility circuit breakers
  - ix. Utility outlets
  - x. Condensation prevention heater
  - xi. Low voltage, phase loss and phase reversal cutouts
  - xii. Test push buttons for level control system
  - xiii. Elapsed time meter and amp meter for pump
  - xiv. Automatic pump alternation
  - xv. Lighting Protection / Arrestors
187. A bar graph level readout controller shall be provided to indicate level in the wet-well.
188. The controller shall provide multiple LED indicators to indicate pump operation, pump faults, alternation sequence, alarm conditions, and all other conditions stated.

189. A key board shall be mounted onto the dead front door that will program the following:
  - i. Pump activation and de-activation points
  - ii. Alternation sequence
  - iii. Time delays for pump on sequence
  - iv. Monitor seal failure and temperature failure
  - v. Monitoring of critical and non-critical faults
  - vi. Reset all alarm fault indications
190. Pre-approved controller unit is a Provu Series Model PD6000 manufactured by Precision Digital.
191. The pump motor shall have routine tests and the efficiency and power factor at 100%, 75%, and 50% loading shall be reported with pump shop drawings.
192. Motor windings shall have a special Class H insulation system with a tough moisture resistant flexible varnish on each conductor, reliable slot insulation and the ends of coils shall be securely braced.
193. Pump motors shall have a 1.15 service factor.
194. Pump motors shall a automatic reset thermal overloads provided.
195. Pump motors shall have an accurate nameplate firmly attached.
196. Nameplate shall at a minimum display manufacturer, HP, phase, Hz, frame, voltage and amps, rpm, continuous rating, design and Service Factor, and serial number.
197. The pump motors shall be designed for continuous operation and shall be high efficiency (87% minimum) and high-power factor (85% minimum or furnish capacitors) design.



198. The pump motors shall be capable of no less than 30 evenly spaced starts per hour and be able to operate throughout the entire pump performance curve from shut-off through run-out even when the motor is not submerged.
199. The pump motors shall be completely sealed explosion proof and submersible
200. The pump motors shall be sized to be non-overloading at any point on the pump curve.
201. The pump motors shall be designed for Class I, Groups C and D, Division I hazardous location as defined by the National Electric Code.
202. The pump motors shall be UL listed.
203. The motor shaft shall be stainless-steel, impervious to liquid and sewage.
204. All external hardware, including the motor nameplate, shall be stainless-steel.
205. The stator windings shall be insulated with moisture resistant Class H insulation rated for 180°C (356°F).
206. The stator shall be insulated by the trickle impregnation method using Class H monomer-free polyester resin resulting in a winding fill factor of at least 95%.
207. The motor shall be inverter rated in accordance with NEMA MG1, Part 31.
208. The stator shall be heat-shrink fitted into cast iron stator housing.
209. Oil used shall be able to be disposed of as non-hazardous waste.
210. The motor shall be equipped with double shaft seals to prevent leakage between the motor and pump.

211. The seals shall consist of two totally independent seal assemblies.
212. The seals shall operate in a lubricant reservoir that hydrodynamically lubricates the lapped seal faces at a constant rate.
213. The material of construction shall be carbon for the rotating faces and ceramic for the stationary faces, lapped and polished to a tolerance of one light band, with 300 stainless-steel hardware, with all elastomer parts of Buna-N.
214. Protection against excessive temperature shall be provided by a heat sensor thermostat attached to the stator windings and connected in series with the contactor coil in the control panel.
215. The cable entry seal design shall include specific torque requirements to insure a watertight and submersible seal.
216. The cable entry shall consist of a single cylindrical elastomer grommet, flanked by washers, all having a close tolerance fit against the cable outside diameter and the entry inside diameter and compressed by the body containing a strain relief function, separate from the function of sealing the cable.
217. The assembly shall provide ease of changing the cable when necessary using the same entry seal.
218. The Contractor will be required to furnish and install an all-weather access drive from a developed public R/W to the SPS lot.
219. The access drive and SPS lot shall be constructed according to the route and elevation shown on the Construction Plans.
220. The Contractor shall construct all necessary drainage appurtenances as shown on the Construction Plans.
221. The construction and surfacing of all access road and SPS lot on this project shall be in accordance with the KYTC - Department of Highways Specifications.

222. Clearing and excavation for the subgrade for the access road shall be in accordance with KY Transportation Cabinet Specifications.
223. All fill sections shall be laced in a maximum of 6" lifts / layers and compacted by conventional means to at least 95% density at optimum moisture content of the fill material's maximum theoretical density as determined by the latest revision of Method A, ASTM Specification D 698.
224. All areas within the perimeter of the proposed security fence shall receive a crushed stone surface, compacted in place. The draft proposed fence is shown on Exhibit J, Site Plan w/ Fencing.
225. Crushed stone for the SPS lot shall meet the requirements of KY Department of Highways.
226. For the base, the Contractor shall use No. 57 stone, compacted.
227. The final lift of crushed stone shall be DGA, compacted to a minimum depth of six (6) inches.
228. The fencing layout is shown on Exhibit J is conceptual. The Contractor shall coordinate an on-site meeting with the Fencing Sub-Contractor and HWEA to refine the layout as shown on Exhibit J.
  - i. Issues to be reviewed and confirmed include the extent of the fence enclosure, the gate location, and the gate size. An increase in areal extent is not expected.
  - ii. Privacy slats, both material used and installation orientation.
  - iii. Inclusion of a separate personnel gate.
229. The Contractor shall furnish all labor, materials, equipment, and services required to install fencing as specified.
230. The fencing shall be furnished and installed by a manufacturer and supplier who are reputable and qualified in the design, fabrication and installation of fencing in accordance with the best practices and methods.

231. Shop drawings and other items needed to establish compliance with these specifications shall be submitted to the Engineer and HWEA for review and approval.
232. Fencing shall be woven wire, chain-link type, and shall be 8-feet high overall.
233. Fabric shall be 7-feet with colored vinyl slats.
234. All fittings necessary to make a complete installation shall be malleable iron, pressed steel, aluminum, or forgings.
235. All ferrous materials shall be thoroughly galvanized by the hot dip method as specified in ASTM A525-81.
236. Chain Link Framework shall be the following:
  - a. Schedule 40
    - i. 1 5/8" OD Pipe Size - 2.27lbs per ft.
    - ii. 2" OD Pipe Size - 2.72lbs per ft.
    - iii. 2 1/2" OD Pipe Size - 3.65lbs per ft. - 30" Depth - 10" Concrete Diameter
    - iv. 3" OD Pipe Size - 5.79lbs per ft. - 3' Depth - 12" Concrete Diameter
    - v. 4" OD Pipe Size - 9.11lbs per ft. - 3' Depth - 12" Concrete Diameter
    - vi. 6 5/8" OD Pipe Size - 18.02lbs per ft. - 4' Depth - 14" Concrete Diameter
    - vii. 8 5/8" OD Pipe Size - 27.12lbs per ft. - 4' Depth - 16" Concrete Diameter
237. Corner, terminal, and pull post shall be hot dipped galvanized inside and outside at a rate of 2.0 oz. per square foot of actual surface area.
238. The 3" outside diameter seamless steel pipe shall weigh 5.79 pounds per foot and extend 3' below ground level.
239. The post shall extend high enough to allow attachment of barbed wire by three tension bands equally spaced to give a uniform appearance.

240. All posts shall be capped with a heavy malleable iron top, of bullet-type construction, to exclude moisture.
241. Line posts shall be 2 ½" diameter high carbon seamless steel pipe, hot galvanized inside and outside at a rate of 2.0oz per square foot of actual surface.
242. The 2 ½" outside diameter seamless steel pipe shall weigh 3.65 pounds per foot and extend 30" below ground level.
243. All line posts shall be capped with a barbed wire extension arm as specified.
244. The posts shall be in conformance with the "Gate Post Schedule" and shall be capped with a heavy malleable iron top, bullet-type construction to exclude moisture.
245. Gate Post shall be coated inside and outside with hot galvanized at a rate of 2.0oz per square foot of actual surface area.
246. Posts shall extend high enough to allow attachment of barbed wire by three tension bands equally spaced to give uniform appearance.
247. Gate Post Schedule shall be the following:
  - a. Schedule 40
    - i. Single Gates – Up to 5' – 3" OD Pipe Size
    - ii. Single Gates – Over 5' thru 8' – 4" OD Pipe Size
    - iii. Double Gates – Up to 10' – 3" OD Pipe Size
    - iv. Double Gates – Over 10' thru 16' – 4" OD Pipe Size
248. For US-41 South SPS, the vehicle gate shall be a double gate with two 7' panels, providing a minimum of 14' clear opening, as shown on the plans.
249. Fence shall have a personnel gate installed with size approved by HWEA before installation.

250. Top rails and brace rails shall have a 1 5/8" outside diameter seamless steel tubing, weighing 2.27lbs per foot, hot galvanized at a rate of 2.0oz per square foot of actual surface area.
251. Rails shall be not less than 20 feet in length joined with extra-long pressed steel sleeved as specified.
252. The fabric shall be aluminum coated steel to meet ASTM A 491-80 composed of individual wire pickets, helically wound, and interwoven from No. 9 gauge steel wire to form a continuous chain link fabric having a 2" mesh.
253. Both the top and bottom edges shall have a twist connection.
254. Basic steel wire shall conform to the following:
  - i. Carbon - .18 - .31
  - ii. Manganese - .60 - .90
  - iii. Phosphorous - .040 Max
  - iv. Sulphur - .050 Max
255. The aluminum coating weight shall be a minimum of 0.40oz per square foot of wire surface.
256. The breaking strength of the aluminum coated wire shall be a minimum of 1,290 ft-lbs.
257. Privacy slats shall be installed in the fabric with HWEA designating the color.
258. Swing frames shall be 2" OD galvanized seamless steel pipe weighing 2.72 lbs. per foot, corners fitted with rigid watertight heavy malleable iron castings or electrically welded joints.
259. Internal bracing shall be 1 5/8" OD galvanized seamless steel pipe weighing 2.27 lbs. per foot.

260. Gate hinges shall be double clamping offset type allowing gates to swing back parallel with line of fence.
261. Hinges shall be of malleable iron and forged steel heavily galvanized.
262. All gate panels 6' or more shall have three (3) hinges.
263. Gate latches shall be eccentric double locking type which engage a heavy malleable iron non-freezing gate stop anchored in concrete footing.
264. Latches shall be equipped for locking with padlock.
265. Gates shall be installed level and smoothly.
266. Gate keepers shall be furnished with each gate frame to automatically engage gate frame when swung to open position.
267. Each line post shall be equipped with a hot dipped galvanized barbed wire extension arm capable of passing top rail.
268. The arm shall be pressed steel riveted to a malleable iron base at a 45-degree angle carrying three strands of barbed wire.
269. Brace and tension bands shall be beveled edge type fabricated from pressed steel or aluminum.
270. Steel bands shall be hot dipped galvanized with a minimum of 1.2oz of zinc coating per square foot of surface area.
271. Brace bands shall be a minimum of 12 gauge of thickness and a minimum width of  $\frac{3}{4}$ " or 19.05 mm.
272. Tension bands shall be a minimum of 14 gauge with a minimum of  $\frac{3}{4}$ " or 19.05 mm in width.
273. All post caps and end rails shall be designed to fit snugly over post and prevent moisture from entering the inside of the tube.

274. Post caps shall be fabricated from malleable iron, pressed steel of aluminum.
275. Line post caps shall be designed to allow top rail to pass through.
276. All ferrous materials shall be thoroughly galvanized by the hot dip method with a minimum of 1.2oz of zinc per square foot of surface area.
277. Top rail shall be fabricated from pressed steel or round steel tubing.
278. Sleeve shall be hot dipped galvanized with a minimum of 1.2oz of zinc coating per square foot of surface area.
279. The design of the sleeve shall be such that no movement along the rail shall take place upon installation.
280. Tension bars for attached fabric to terminal post shall be a minimum of 3/16" thickness by 3/4" in width.
281. The length shall be a minimum of 2" less than the full height of the chain link fabric.
282. Truss rods shall be a minimum of 5/16" in diameter fabricated from merchant quality steel rod and hot dip galvanized with a minimum of 1.2oz of zinc coating per square foot of surface area.
283. All rods shall be design and equipped with a truss tightener.
284. Aluminum ties shall be used for attaching fabric to top rail, brace rails, and line post.
285. The aluminum ties shall be 9 gauge round wire of Alloy 1100-H 14 or equal.
286. Carriage bolts shall be hot dip galvanized or aluminum, 5/16" x 1 1/4", with nut and shall be used in conjunction with brace and tension bands.
287. Galvanized bolts and nuts shall be coated in accordance with ASTM A153-80.



288. Larger bolts required at gates and latches shall be galvanized coated in accordance with ASTM A153-80.
289. Prior to construction, the Contractor shall locate and flag all underground utilities in or about the fence construction.
290. Adequate clearing and grading shall be done prior to fence construction.
291. Fence corners shall be set one (1) foot inside the property line.
292. All posts shall be set 10' or less on centers equally spaced between pull posts in a hole filled with concrete as specified.
  - i. Posts shall be accurately lined and plumbed.
  - ii. All concrete shall be left 2" above grade at the post and taper to final grade to enhance drainage.
293. A center rail is required with horizontal braces and truss rods to adjacent line post, securely fastened with adequate adjustment.
294. The top rail shall run through the openings in the line post tops on a continuous grade uniformly parallel with the ground surface.
295. Connection to the corner, gate, terminal, and pull posts shall be with brace bands and rail ends.
296. Offset at corners will not be permitted.
297. Two stretcher bars shall be threaded through the fabric from top to bottom at a location in the center of the fence section to be stretched.
298. The bars shall be adequately spaced such that when stretched, the installer has room to thread a loose picket link down through the meshing links of the two ends to make a perfect jointing.
299. The stretching shall be done with two (2) blocks and when released, the fabric shall be taut along any point of the fence line.

300. The top selvage shall be dressed about the top tail and the fabric secured with tie wire spaced not more than 24" apart and uniformly tied.
301. The fabric shall be fastened to the line post with specified tie wires spacing not more than 14" on center uniformly tied.
302. Galvanized surfaces damaged by welding or other reasons shall be repaired according to Federal Specification MIL-P-21035 (Galvanized Repair Spec.) as follows:
  - i. Remove foreign matter from both damaged and contiguous undamaged area by wire brushing and cleaning with metal conditioner recommended by cold galvanizing coating manufacturer.
  - ii. Apply two (2) coats of cold galvanized coating to damage area, ensuring an overlap of the surrounding undamaged galvanizing for continuity of galvanic protection.
  - iii. Cold galvanized coating shall ZRC Chemical Products Company, AZ.R.C. Cold Galvanizing®, or Galvicon Corp., "Cold Galvanizing", or HWEA approved equal.
303. The Contractor shall be responsible for removal of all excess material, earth, etc. due to fence construction.



## RECEIPT OF BID PACKET

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Sewage Pumping Station Rehabilitation

I hereby acknowledge receipt of the subject bid packet.

---

Company Authorized Signature

---

Date

# BID FORM

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Sewage Pumping Station Rehabilitation

Item #	Item	Qty.	Unit	Unit Price	Total
1	Place in operation a By-Pass Pumping System to enable the SPS Rehabilitation to proceed	1	LS		
2	Demolitions, restoration, and improvements of concrete structures as shown on Exhibits to allow installation of new equipment	1	LS		
3	Pump Package Base Bid - Flygt	1	LS		
4	Add / Deduct Pump Package for HOMA or Approved Equal	1	LS		
5	Furnish and install new piping, pumps, and pump controls	1	LS		
6	Furnish and install site fencing	1	LS		
7	Clean-up and Start-up	1	LS		

TOTAL BID, ITEMS 1 THROUGH 7, INCLUSIVE                    \$ \_\_\_\_\_

*Please circle add or deduct in Item # 4 depending on charge and provide documentation of pump package with bid documents*



## BID FORM

FY 2022 - 2023  
Sealed Bid # 2223-15  
US-41 South Sewage Pumping Station Rehabilitation

Company Name: \_\_\_\_\_

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

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

<u>DESCRIPTION</u>	<u>BIDDER DESCRIPTION</u>	<u>TOTAL COST</u>
SPS Rehabilitation	Lump Sum	\$_____

I, the undersigned, do hereby certify that I am a duly authorized representative of \_\_\_\_\_ and I have carefully examined the Invitation to Bid, General Conditions, Specifications and Bid Form and agree to all terms and conditions as set forth therein.

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

Acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 2023

NOTARY PUBLIC: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_