

CITY OF BALTIMORE
DEPARTMENT OF PUBLIC WORKS
OFFICE OF ENGINEERING AND CONSTRUCTION

ADDENDUM NO. 5

April 22, 2026

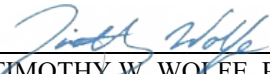
FOR DRAWINGS, SPECIFICATIONS, PROPOSAL, CONTRACT AND BOND


**FOR SANITARY CONTRACT NO. 949RR - STONY RUN WASTEWATER PUMPING STATION
UPGRADES AND BROOKLYN WASTEWATER PUMPING STATION VACUUM PRIMING SYSTEM
MODIFICATIONS**

FOR THE MAYOR AND CITY COUNCIL OF BALTIMORE

TO BIDDERS: PLEASE ATTACH TO YOUR CONTRACT DOCUMENTS. THIS ADDENDUM IS HEREBY MADE A PART OF THE CONTRACT DOCUMENTS ON WHICH THE CONTRACT WILL BE BASED, AND IS ISSUED TO MODIFY, EXPLAIN AND/OR CORRECT THE ORIGINAL DRAWINGS AND SPECIFICATIONS. PLEASE ACKNOWLEDGE THIS ADDENDUM ON THE BID PROPOSAL PAGE WHERE INDICATED. IF THIS DOCUMENT HAS BEEN RECEIVED VIA EMAIL, A CONFIRMATION EMAIL REPLY MUST BE SENT BY BIDDER WITHIN 24 HOURS CONFIRMING RECEIPT OF THE ADDENDUM TO DPWCONTRACTADMIN@BALTIMORECITY.GOV. IF EMAIL ACKNOWLEDGMENT IS NOT RECEIVED BY DPW, YOUR BID MAY BE REJECTED.

APPROVED:


TIMOTHY W. WOLFE, PE, BCEE
CHIEF
OFFICE OF ENGINEERING AND CONSTRUCTION


MATTHEW GARBARK
DIRECTOR
DEPARTMENT OF PUBLIC WORKS

I – REVISIONS TO THE CONTRACT BOOK

00 00 00 COVER SHEET

DELETE “AND BROOKLYN WASTEWATER PUMPING STATION VACUUM PRIMING SYSTEM MODIFICATIONS” from the coversheet title.

00 02 00 NOTICE OF LETTING

DELETE “AND BROOKLYN WASTEWATER PUMPING STATION VACUUM PRIMING SYSTEM MODIFICATIONS” from the project title, .

DELETE “SC 948 BROOKLYN WASTEWATER PUMPING STATION REHABILITATION AND THIOGUARD CHEMICAL FEED FACILITY AT BALTIMORE STREET, NOVEMBER 2017, 82 SHEETS” from the available as-built record drawing list, page 00 02 00-3.

00 02 50 SPECIAL PROVISIONS

Item 2 – Contract Plans, **DELETE** “AND BROOKLYN WASTEWATER PUMPING STATION VACUUM PRIMING SYSTEM MODIFICATIONS” from the project title.

00 10 00 INSTRUCTIONS TO BIDDERS

IB-2 – SCOPE OF WORK, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project title. **DELETE** “Brooklyn Wastewater Pumping Station Priming System Modifications” bullet points and all sub-bullets.

IB-3 – LOCATION OF WORK, **DELETE** “Brooklyn Wastewater Pumping Station, corner of Frankfurst Avenue and South Hanover Street, Baltimore, MD 21225” from the list of locations of work.

00 20 00 SPECIAL CONDITIONS

SUBCONTRACTOR’S ACKNOWLEDGEMENT OF PROGRESS PAYMENT, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project title.

00 30 00 BID OR PROPOSAL

Schedule of Prices, **DELETE** “(BROOKLYN WWPS WORK SHOULD NOT BE PRICED FOR ADDITIONAL MOBILIZATION/DEMobilIZATION)” from Bid Item No. 101.

Schedule of Prices, **DELETE** Bid Item No. 408 in its entirety.

Part C, Baltimore Apprenticeship Training Program, page 00 30 00-32, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project title.

Part C, Baltimore Apprenticeship Training Program, Baltimore Apprentice Trainee Program Trainee Review, page 00 30 00-39, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project name.

Part C, Baltimore Apprenticeship Training Program, Baltimore Apprentice Trainee Program Trainee Review, page 00 30 00-41, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project name.

Part C, Baltimore Apprenticeship Training Program, Baltimore Apprentice Trainee Program Trainee Review, page 00 30 00-42, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project name.

Part F, Bid Bond, page 00 30 00-53, **DELETE** “and Brooklyn Wastewater Pumping Station Priming System Modifications” from the project name.

00 85 00 DRAWING INDEX

DELETE the following drawings from the drawing index:

35	M3.0	Brooklyn PS Existing Levels Plan
36	M3.1	Brooklyn PS Existing Sections
37	M3.2	Brooklyn PS Demolition Levels Plan
38	M3.3	Brooklyn PS Demolition Sections
39	M3.4	Brooklyn PS Proposed Levels Plan
40	M3.5	Brooklyn PS Proposed Sections

01 10 00 SUMMARY OF WORK

DELETE paragraph 1.2.C and all subparagraphs in their entirety.

01 26 13 REQUESTS FOR INFORMATION/INTERPRETATION

DELETE “AND BROOKLYN WASTEWATER PUMPING STATION VACUUM PRIMING SYSTEM MODIFICATIONS” from the section.

01 29 00 PAYMENT PROCEDURES

DELETE paragraph 1.4.J.2 and **REPLACE** with the following:

2. Major work includes, but is not limited to, demolition and removal of existing power distribution and electrical systems including switchgear, transformers, motors, lighting, motor starters, variable frequency drives, panels, conduits, wiring, switches, and miscellaneous electrical systems; provision and installation of new power supply, distribution and electrical systems including switchgear, transformers, motors, motor starters, breakers, panels, conduit, wiring and miscellaneous electrical systems; system integration, commissioning, testing, and training. Sewage Pump motors and variable frequency drives shall be included in Item No. 402.

DELETE paragraph 1.4.P and all subparagraphs in their entirety.

01 74 16.01 BYPASS PUMPING

DELETE paragraph 2.2.A **REPLACE** with the following:

- A. In order to prevent the accidental spillage of flows all discharge systems shall be temporarily constructed of rigid pipe or rigid cargo type hose able to withstand the system pressure. Under

no circumstances will aluminum "irrigation" type piping or glued PVC pipe be allowed. Discharge hose will only be allowed in short sections and by specific permission from the ENGINEER. Allowable piping materials will be fused, high density polyethylene (HDPE) SDR-17 pipe as manufactured by Phillips Drisco Pipe, Inc. or equal, or high pressure cargo hose.

01 75 16 START-UP PROCEDURES FOR SEWAGE PLANTS

DELETE paragraph 1.5.A.9.j and **REPLACE** with the following:

- j. Prior to Final Completion at each pump station, operate and maintain each system or subsystem for not less than thirty (30) days continuously, based on 24 hour/day operation, and at specified capacity to demonstrate that the system performs as specified. The system may include components furnished by the OWNER (if applicable) as well as components furnished by the CONTRACTOR.

01 79 00 O&M TRAINING

DELETE Section 01 79 00 O&M Training and **REPLACE** with the attached Section 01 79 00 O&M Training.

09 91 23 PAINTING AND PROTECTIVE COATINGS

DELETE paragraph 1.5.A **REPLACE** with the following:

- A. Painting of the following items is required under this contract:
 1. All new structural steel and miscellaneous iron work.
 2. All new exposed piping, valves, gates, hangers, insulation, appurtenant equipment and miscellaneous items. Buried ductile iron pipe coatings shall be in accordance with AWWA C151 and are not included in this specification section.
 3. All new equipment and machinery including pumps, instrumentation, etc.
 4. New electrical items, including steel conduits, electrical boxes, brackets, supports and similar items.
 5. New building items including steel, wood, concrete, miscellaneous iron, and carpentry.

13 22 00 ENGINEER'S OFFICE

DELETE paragraph 3.6.F and **REPLACE** with the following:

- F. The Engineer's Office computers are to follow the criteria outlined below. The Contractor shall provide six (6) laptops as specified below:

DELETE paragraph 3.9.D.1.a through 3.9.D.1.h and **REPLACE** with the following:

- 1. Four (4) workstations equipped with the following:
 - a. Desk
 - b. Rolling Chair
 - c. Computer for each workstation/ inspector
 - d. Pencils and pens
 - e. File cabinet (1 file cabinet per every 2 desks)
 - f. Printer paper

- g. Binders (As requested by the inspectors)
- h. Basic office supplies as requested by the inspector

13 35 00 PREFABRICATED ALUMINUM PLATFORM AND STAIRS

DELETE Section 13 35 00 from Section 00 01 00 Table of Contents and **DELETE** Section 13 35 00 in its entirety.

40 50 90 VACUUM PRIMING SYSTEM

DELETE Section 40 50 90 from Section 00 01 00 Table of Contents and **DELETE** Section 40 50 90 in its entirety.

43 21 31 DRY-PIT SUBMERSIBLE SEWERAGE PUMPS

ADD the following paragraph 1.6:

1.6 PUMP WARRANTY

- A. The pump manufacturer shall provide a 5-year non-prorated warranty for the pumps from the date of start-up, not to exceed eighteen months from date of shipment, that the structure and all equipment he provides will be free from defects in material and workmanship.
- B. In the event a pump component fails to perform as specified or is proven defective in service during the warranty period, the Manufacturer shall repair or replace, at his discretion, such defective part. He shall further provide, without cost, such labor as may be required to replace, repair or modify the pumps.

ADD the following paragraph 2.1.E:

E. Coating

- 1. Pump, motor, suction elbow, and base shall be coated according to the following:
 - a. Surface Preparation: SSPC-SP6, Commercial Blast Cleaning
 - b. Coating: two (2) coats, Tnemec Series N140 Pota-Pox Plus
 - c. Dry Film Thickness: manufacturer standard
 - d. Color: 35GR Black

44 31 00 ODOR TREATMENT EQUIPMENT

ADD the following to paragraph 2.8:

E. FAN CONTROL PANEL MOUNTING STAND

- 1. A freestanding fan control panel-mounting stand shall be provided.

F. SKID MOUNTING

1. The structural aluminum skid shall be of one-piece construction capable of supporting the full weight of the fan and canister, without noticeable deflection. The entire skid shall be decked with non-skid aluminum tread plate, or equal. Skid shall be complete with grounding lug to ground the adsorber unit and fan.

II – REVISIONS TO THE CONTRACT DRAWINGS

G2.0 VICINITY MAP, LOCATION MAP AND SHEET INDEX (SHEET 2 OF 94)

DELETE the callout for “BROOKLYN WWPS” from the Vicinity Map.

DELETE the Location Map for BROOKLYN WWPS.

DELETE the following drawings from the drawing index:

35	M3.0	Brooklyn PS Existing Levels Plan
36	M3.1	Brooklyn PS Existing Sections
37	M3.2	Brooklyn PS Demolition Levels Plan
38	M3.3	Brooklyn PS Demolition Sections
39	M3.4	Brooklyn PS Proposed Levels Plan
40	M3.5	Brooklyn PS Proposed Sections

M1.0 PUMP LEVEL DEMOLITION PLAN (SHEET 24 OF 94)

DELETE the following note:

“REMOVE SUCTION PIPING CAST IN WALLS”

M3.0 BROOKLYN WWPS EXISTING LEVELS PLAN (SHEET 35 OF 94)

DELETE drawing M3.0 in its entirety.

M3.1 BROOKLYN WWPS EXISTING SECTIONS (SHEET 36 OF 94)

DELETE drawing M3.1 in its entirety.

M3.2 BROOKLYN WWPS DEMOLITION LEVELS PLAN (SHEET 37 OF 94)

DELETE drawing M3.2 in its entirety.

M3.3 BROOKLYN WWPS DEMOLITION SECTIONS (SHEET 38 OF 94)

DELETE drawing M3.3 in its entirety.

M3.4 BROOKLYN WWPS PROPOSED LEVELS PLAN (SHEET 39 OF 94)

DELETE drawing M3.4 in its entirety.

M3.5 BROOKLYN WWPS PROPOSED SECTIONS (SHEET 40 OF 94)

DELETE drawing M3.5 in its entirety.

III – QUESTIONS FROM BIDDERS – RESPONSE IN BOLD

1. The project specification section 09 91 23 and the contract drawings are not consistent as to what is to be painted on the project. The City needs to provide a painting scheduling for the Stony Run Wastewater Pumping Station and the Brooklyn Wastewater Pumping Station identifying which new and existing components are to be painted.
 - a. **Response: See changes to Section 09 91 23, this addendum.**
2. If the wet well of either station is to be coated, please confirm for bidding purposes, and not providing an advantage to a contractor, that the surface preparation for the well will require the surface to be parged prior to coating the wet well.
 - a. **Response: The wet wells are not required to be coated.**
3. The contract requires a Type 2 Engineer's Office. The standard specifications call for a variable; please provide the length of the single wide trailers. Please consider that there is very limited space available for the engineer's office and the contractors office.
 - a. **Response: The trailer should be sized to accommodate the required desk sizes, drafting table, toilet, closet, and other required furniture per the specifications.**
4. Per the contact specifications a fax machine is required for the engineer's office, please confirm that a scanner/printer can be provided in lieu of this requirement.
 - a. **Response: Confirmed.**
5. Specification section 13 22 00 3.9 D 1 has the requirement for office equipment. For lump sum bidding purposes please provide how many desks, rolling chairs and file cabinets are required.
 - a. **Response: See changes to Section 13 22 00, this addendum.**
6. Please confirm that the number of computers required for the engineer's office is per Specification 13 22 00 3.6 F; (4) desktop and (4) laptop.
 - a. **Response: See changes to Section 13 22 00, this addendum.**
7. Please confirm that the response time for RFI's on the project will be 7 days.
 - a. **Response: Confirmed.**
8. Please confirm that the response time for Submittals on the project will be 21 days.
 - a. **Response: Confirmed.**
9. Please confirm that the response time for proposed change order will not exceed 21 days on the project.
 - a. **Response: Confirmed.**
10. Contact specification 01 29 00 1.4 J states that the VFD's for the project should be included under Bid Item 403. This appears to be incorrect, please clarify.

- a. **Response: See changes to Section 01 29 00, this addendum.**
11. Contract specification 01 32 19 1.1 4a requires proposed construction during the bypass period; please confirm that this can be provided from the CPM Schedule for the project.
 - a. **Response: Confirmed.**
12. Contract specification 01 32 19 1.1 6 states that the contractor may need to remove the bypass pumping system and reinstall at their expense should they not meet the project schedule provided. Please confirm that this would only be the case if the delay associated with this is the contractor's fault; if the delay is due to City the Contractor shall have the right to claim.
 - a. **Response: Confirmed.**
13. Please confirm that all water needed for flushing, cleaning, testing, etc. required by the documents will be provided to the contractor by the City at no cost.
 - a. **Response: Potable water use will be metered and charged to the Contractor.**
14. Please confirm that existing pump station power can be used to temporarily power the onsite engineer and contractors offices as long as the power is metered and paid for by the contractor.
 - a. **Response: Confirmed.**
15. Project specification 01 75 16 1.4a requires a 30-day run period for the pump station and all new systems. Project specification 01 75 16 9 J requires a 14-day period for the same, please clarify which is required 30 or 14 days.
 - a. **Response: See changes to Section 01 75 16, this addendum.**
16. Are 360 Water training modules required for the equipment on this project. If so, please provide a list of the equipment that is required for.
 - a. **Response: Yes. See changes to Section 01 79 00, this addendum.**
17. The contract drawings are not consistent with the existing pipe from the drywell to the wet well in the pump level. One drawing (M 1.0) calls for the removal of the existing suction piping cast in walls and another (M 2.0) calls for the pipe to be capped with a blind flange and grout filled. Please clarify what is to be done with this existing piping.
 - a. **Response: See changes to Drawing M1.0, this addendum.**
18. Contract specification 08 33 23, 2.2.E, states that motors in classified areas shall be explosion proof. Please confirm if the overhead coiling door is located in a classified area requiring the motor to be explosion proof.
 - a. **Response: The specification says: "Motors in classified areas shall be explosion proof according to NFPA Class 1, Division 1." The door motor is not in a classified area and therefore the explosion proof requirement is not required.**
19. Please confirm where the prefabricated aluminum platform and stairs referenced in contract specification 13 35 00 are to be located.
 - a. **Response: See changes to Section 13 35 00, this addendum.**
20. Please confirm the finish coat on the dry submersible pumps.
 - a. **Response: See changes to Section 43 21 31, this addendum.**

21. Per specification section 43 21 31, Part 2 - Product, 2.1 Pumps, A. Manufacturers's, sentence B, "Approved alternative manufacturers' included provided they meet this specification: clarify if the other named manufacturer's listed can be used for approval or they are listed as "Or equals".
- a. **Response: Any of the approved manufacturers can be utilized provided they meet the requirements in the Contract Documents (Drawings and Specifications).**
22. The specified dry-pit submersible manufacturer has payment terms that conflict with the City's Cost Loaded schedule format, due to payments being desired for Submittals, Shipping and Production. How does the City plan to compensate the GC? Sydnor-Hydro Inc. - Net 30%
- a. **Response: The City's Contract is with the General Contractor. The General Contractor must work these terms and conditions out with their vendors.**
23. The specified open-channel grinder manufacturer has payment terms that conflict with the City's Cost Loaded schedule format, due to payments being desired for Submittals, Shipping and Production. How does the city plan to compensate the GC? Geiger - Net 45 days 90%, 10% for startup.
- a. **Response: The City's Contract is with the General Contractor. The General Contractor must work these terms and conditions out with their vendors.**
24. Per spec section 23 34 00-3, "J. Prefabricated Roof Curbs: Refer to Section 23 30 01 for additional requirements.", and reading that section, there is no indication of additional information of prefabricated roof curbs. Please indicate if roof curbs are to be installed on this contract.
- a. **Response: Roof curbs for HVAC are not needed on this project.**
25. Per specification section 23 34 00 -2, HVAC FANS, special requirements, these fans are required to be explosion proof. Indicate if the fans listed in the HVAC fan schedule on sheet H3.0 are specified to be explosion proof.
- a. **Response: Fans shall be as specified on Drawing H3.0, Schedule Note 4.**
26. Specification Section SC-1 references the submission of certified payrolls via mail to both the Wage Commission and the Contracting Agency. Does the City intend to utilize LCPTracker as the platform for certified payroll administration, submission, and review?
- a. **Response: New contract payrolls are ONLY to be submitted through LCP Tracker. All new contracts since July 2024 are to be submitted through the tracker. This is required when a project utilizes Baltimore City capitol funds.**
27. The Contract Documents do not appear to reference Davis-Bacon wage rates or identify the project as being funded through WIFIA. Please confirm that federal Davis-Bacon requirements and WIFIA funding conditions do not apply to this project.
- a. **Response: SC949 has WIFIA funding - Davis Bacon applies.**
28. Per addendum 4, the minority participation is set at MBE/DBE 12% and WBE 4%, are Disadvantaged Business Enterprise (DBE) subcontractors applicable to this contract? The DBE program is in reference to the State certified program.
- a. **Response: No, city goals do not have DBE subcontractors' participation (only state/federally funded projects utilized DBE).**
29. Please indicate if check valves are to be motorized.
- a. **Response: Check valves are not required to be motorized. See plans and specifications.**

30. Per specs 43 21 31 Dry-Pit Submersible Pumps, 1.4 Submittals, 8. - Printed Warranty, there is not a specified warranty for the pumps. Please provide the warranty period for the pumps.
- a. **Response: See changes to Section 43 21 31, this addendum.**
31. Multiple specification sections reference: Warranty: Refer to Division 1. Upon looking for Warranty under division one, there is no section pertaining to the warranty period for multiple pieces of equipment. Indicate if this is referencing the Baltimore City Green book or a missing spec section.
- a. **Response: If a specific section includes this reference, the manufacturers' standard warranty for a given material and/or equipment, is acceptable.**
32. Indicate if the actuators on the 4" and 6" plugs valves are to be motorized.
- a. **Response: These valves are not required to be motorized. See plans and specifications.**
33. Will stored materials be allowed to be billed by the contractor?
- a. **Response: If specified in the Contract.**
34. Per specification section 01 35 43.27, Part 1 - General, Paragraph 1.1.B, which describes the requirements for dewatering the wet well and indicates that liquids encountered during the work will be collected and discharged into the downstream sewer, please clarify the intended discharge point. Specifically, should the collected liquids be returned into the wet well system, or discharged into the downstream sewage manhole?
- a. **Response: The liquids can be discharged through the downstream sewer network, either through the downstream manhole or through the 24" gravity discharge from the station.**
35. Per specification section 01 35 43.27, Part 3 - Execution, Paragraph 3.1.A, states that the Contractor shall pump down the wet well through the 24-inch downstream sewer line. For bidding purposes, the Contractor shall assume the wet well contains wastewater up to elevation 95.50'. Please clarify whether the entire wet well system is intended to be fully drained using the 24-inch downstream sewer line, given that the sewer line's approximate invert elevation at 93'. Based on these elevations, it is unclear whether gravity drainage through the downstream sewer will allow complete dewatering of the wet well.
- a. **Response: The Contractor is required to dewater the entire wet well. The upper channel invert is 95.50 as shown on M2.4, Section B. The Contractor may utilize the 24" gravity drain, which has an invert of approximately 95.40, for dewatering purposes.**
36. Per sheet M3.5, Sequence of construction, item 3 "Coordinate with city staff to determine order of pumps to take out of service", please provide the order in which the pumps are to be sequenced for coordination purposes.
- a. **Response: Order of sequence will be coordinated with the Contractor during the construction phase.**
37. On Sheet M2.3, Indicate if the access floor doors at the slide and sluice gates are to be new or should be brought back to the original condition.
- a. **Response: The Contract Documents do not require refurbishment of access hatches.**
38. On M2.3, the existing odor control system is sitting on a platform, please confirm if the new odor control system can use that existing platform or if a new platform is to be provided.
- a. **Response: See changes to Section 44 31 00, this addendum.**

39. Per sheet M2.5, comment "REUSE INTERMEDIATE STEM GUIDES AND SUPPORT (TYP OF ALL SLIDE GATES AND SLUICE GATES)", clarify the existing conditions of those existing stem guides and supports and if they can support the new equipment being installed.
- a. **Response: The horizontal support beams are in suitable working condition for use as stem guides. There is minimal load transferred to these beams as they only serve to hold the stem in place.**
40. The project schedule is currently 2 years. However, with submittal approvals of approximately 6 months and an additional 12-14 months of lead time, the controllers for the Variable frequency drives are very close to this timeline with the current climate for electrical equipment. The supplier chosen does not change this timeline as they are all similar. The timeline above doesn't take into the account the 30 days of run time required so that window is even smaller. We recommend an additional 6 months for the project.
- a. **Response: noted. Additional time is not being added to the schedule at this time.**
41. The project schedule is currently 2 years. However, with submittal approvals and lead times, the Dry-Pit nsubmersible pump is very close to this timeline with the current climate. We recommend an additional 6 months for the project to mitigate any potential lead time issues for this equipment. This also includes the additional 30 days of run time required.
- a. **Response: noted. Additional time is not being added to the schedule at this time.**
42. Per Section 01 74 16.01 – Temporary Bypass Pumping, the specifications require fused HDPE piping but do not designate an SDR. Please confirm whether HDPE pipe with an SDR-17 or SDR-26 rating would be acceptable for the temporary bypass system.
- a. **Response: See changes to Section 01 74 16.01, this addendum.**
43. Can historical peak or wet-weather flow data for the station be provided to the Contractor? Current temporary bypass pumping assumptions are based on a flow of approximately 1.0 MGD.
- a. **Response: wet-weather flow data are not available for this line. The maximum full flow through the 8" line upstream was determined to be 530 gpm based on the slope of the pipe.**
44. Per Section 01 74 16.01 – Temporary Bypass Pumping, the temporary bypass discharge piping will traverse an area with truck traffic. Will a temporary surface crossing with protective ramping be acceptable, or will a portion of the discharge line be required to be buried?
- a. **Dewberry Response: Protection of the bypass pumping system is means and methods and is up to the contractor to determine.**
45. The project schedule is currently 2 years. However, with submittal approvals of approximately 6 months and an additional 12-14 months of lead time, the plug valves are very close to this timeline. The supplier chosen does not change this timeline as they are all similar in expected lead times. The above doesn't take into the account the 30 days of run time required so that window is even smaller. We recommend an additional 6 months for the project.
- a. **Dewberry Response: noted. Additional time is not being added to the schedule at this time.**
46. The project schedule is currently 2 years. However, with submittal approvals of approximately 6 months and an additional 12-14 months of lead time, the cone valves are very close to this timeline. The supplier chosen does not change this timeline as they are all similar. The above doesn't take

into the account the 30 days of run time required so that window is even smaller. We recommend an additional 6 months for the project.

- a. **Dewberry Response: noted. Additional time is not being added to the schedule at this time.**
47. Per specification section 01 32 19, Part 1 - General, Paragraph 1.2 A.2 note that demolition of existing equipment, structures, and appurtenances may potentially include mercury and lead-based paint materials. Please clarify whether a hazardous materials survey/report will be provided. If no hazardous materials survey/report will be issued, please identify the specific items to contain mercury or lead-based paint so the Contractor can bid accordingly with appropriate safety measures, handling procedures, and disposal.
- a. **Dewberry Response: The Stony Run WWPS does not have hazardous materials. However, there may be areas, specifically at the Brooklyn WWPS, that contain lead-based paint given the age of the facility. A site-specific survey/report is not available. The equipment and materials that the Contractor is demolishing are non-hazardous.**

**SECTION 01 79 00
O&M TRAINING**

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Provide the services of a factory trained specialist to instruct the City's personnel in the operation and maintenance of equipment and system components.
- B. Coordinate training services with the City, with a minimum of 30 days prior notice.
- C. Training for a given piece of equipment shall occur after the equipment has been installed, after the equipment manufacturer has successfully demonstrated all aspects of equipment functionality during startup, and after the manufacture has provided signed certifications required per Specification 01 78 24.
- D. "Hands-on" training for equipment shall be provided as specified herein. Each trainee will demonstrate skill acquisition to the satisfaction of the instructor. Emphasize demonstration of skills to be mastered by all audiences.
- E. Conduct training at the facility where equipment is installed. Provide written Student Handouts for reference during training.
- F. Two identical sessions, no more than four (4) hours in length, one morning and one afternoon (start time to be coordinated with Construction Management), on the same day, shall be provided to accommodate City personnel in different shifts. Different sessions shall be scheduled for each audience for each type of equipment.
- G. Periods of instruction shall not coincide with the supervision of installation or initial operation of equipment by the manufacturer's representatives nor will any of the time spent therewith be credited against the instructional periods specified.
- H. The cost associated with the training described herein shall be included as part of the lump sum cost of the Contract.
- I. The City will not take ownership of a piece of equipment until training for the equipment and associated system has occurred and can be placed fully into service as deemed by the City.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Compliance with this section is required whenever any Specification Section of the Contract Specifications includes a training requirement, whether noted or not.
- B. Additional training requirements may be listed by individual equipment sections and shall be included with all requirements outlined herein.

1.3 DEFINITIONS

- A. Lesson Plan: Outline identifying the training topics and activities for each training session, meeting the requirements specified herein.

- B. Student Handout: Document to be provided to each attendee for reference during each training session. Student Handouts shall meet the requirements specified herein. Student Handouts shall include a copy of the approved Lesson Plan.
- C. Training Aids: Supplementary audio-visual material such as videos, equipment cutaways, etc. utilized during a training session. The use of Training Aids is encouraged but is not required.

1.4 SUBMITTALS

- A. Submit for approval training instructor qualifications. This submittal shall include documentation that details the instructor's general knowledge of the material they will teach, specific knowledge of the application of this equipment and qualifications and history as an adult vocational instructor. Instructor qualifications shall be approved prior to the Contractor issuing the 30-day notice for training.
- B. Submit for approval Lesson Plan, Student Handout, and any proposed supplementary Training Aids in accordance with these specifications for each piece of equipment requiring training. The Lesson Plan and Student Handout shall be approved prior to the Contractor issuing the 30-day notice for training.
- C. Submit a request to schedule training to the Engineer at least 30 days prior to the training sessions.
- D. Within 30 calendar days of the completion of each training event, submit as a final transmittal for record:
 - 1. Five (5) copies of the final Lesson Plan and Student Handout.
 - 2. Two (2) copies of all other audio-visual Training Aids utilized during each training session.
 - 3. Two (2) copies of the attendance rosters.
 - 4. Copies of the final Lesson Plan, Student Handout, and audio-visual Training Aids provided on thumbdrive or CD for future use.

1.5 INSTRUCTION LESSON PLANS AND STUDENT HANDOUTS

- A. A Lesson Plan and Student Handout shall be submitted as outlined in this specification for each piece of equipment requiring training. The Lesson Plans and Student Handouts shall be organized in accordance with "OUTLINE OF CITY PERSONNEL INSTRUCTION LESSON PLAN" below. The Student Handout shall contain all relevant content per "OUTLINE OF CITY PERSONNEL INSTRUCTION LESSON PLAN."
- B. Lesson Plans shall identify all specific instruction topics and activities. The specific "hands-on" demonstrations planned for the training sessions shall be identified and described in the Lesson Plans. Lesson Plans shall cross-reference to Student Handouts and other training aids. Training strategies such as planned blackboard work, instructor questions and discussion points or other planned classroom or field strategies shall be detailed in the Lesson Plan.

- C. Student Handouts for training shall include a copy of the approved Lesson Plan and cross-referenced by section or topic in the Lesson Plan. For each training session, provide Student Handouts for all attendees. The course instructor shall utilize the descriptive Student Handouts during the instruction. Photocopied Student Handouts shall be good quality reproductions. Customized handouts developed especially for the instruction are encouraged.
- D. Indicate the duration of each training topic and activity in the Lesson Plans.

1.6 OUTLINE OF CITY PERSONNEL INSTRUCTION LESSON PLAY

A. Equipment Overview and Operation:

1. Describe equipment's operating (process) function and system theory. List equipment's fundamental operating principles and dynamics. Detail the relationship of the equipment or component to the sub-systems, systems and processes related to this project.
2. Identify and describe in detail equipment's mechanical, electrical and electronic components and features. Review the approved equipment drawings. Identify all support equipment associated with the operation of subject equipment.
3. Describe and demonstrate normal and alternative operating strategies and modes, including procedures for placing equipment into each operating mode.
4. Cite parameters that indicate equipment is operating as expected when in normal mode.
5. Cite parameters that would indicate when alternative mode should be used and when return to normal mode is justified.
6. Description of equipment emergency operation procedures.
7. Describe and demonstrate how to properly shut down the equipment in both normal and alternative operating modes. Describe how to determine that shutdown has been successful.
8. Specify the order of shutdown for upstream and downstream component and/or other systems.
9. Review the approved controls drawings and wiring diagrams.
10. Identify and describe in detail equipment safety features and permissive and controls interlocks.
11. Cite all hazards associated with the operation; or exposure to chemicals associated with the component; or the waste stream handled by the component.
12. Specify the appropriate safety precautions, equipment, and procedures to eliminate, reduce or overcome these hazards.

B. Equipment Preventive Maintenance (PM):

1. List PM inspection procedures required to:

- a. Perform an inspection of the equipment in operation.
 - b. Perform pre-startup inspection.
 - c. Spot potential trouble symptoms (anticipate breakdowns).
 - d. Forecast maintenance requirements (predictive maintenance).
2. Describe all lubrication requirements (e.g., pre-startup, routine maintenance, etc.).
 3. Identify and demonstrate all daily and weekly preventive maintenance.
 4. Describe shutdown inspections and lubrication requirements, if any.
- C. Equipment Troubleshooting:
1. Define recommended systematic troubleshooting procedures for operations personnel.
 2. Provide component specific troubleshooting checklists.
 3. Describe applicable equipment testing and diagnostic procedures to facilitate troubleshooting.
- D. Equipment Corrective Maintenance (CM):
1. Define recommended systematic troubleshooting procedures as they relate to mechanical problems.
 2. Identify and describe the use of any special tools required for maintenance of the equipment.
 3. Demonstrate/describe component removal/installation and disassembly/assembly procedures.
 4. Perform at least two “hands-on” demonstrations of common corrective maintenance repairs. Additional demonstrations may be required by the Engineer.
 5. Describe recommended measuring instruments and procedures, and provide instruction on interpreting alignment measurements, as appropriate.
 6. Define recommended torquing, mounting, calibration and/or alignment procedures and settings, as appropriate.
 7. Demonstrate recommended procedures to check/test equipment following a corrective maintenance repair.
- E. For Division 26 Electrical Equipment training, the following shall also be included:
1. Potential arc flash hazard recognition and labeling definitions.
 2. Actual in-place conduit and cable layouts accurately showing the location, elevation and size of all conduits, boxes and other electrical equipment and the number, identification number size and use of conductors.

3. Layouts of the grounding system and lighting arrangements.
4. A complete integrated control wiring diagram with terminal numbers and all control devices identified.
5. Conduit and wire schedules with each conduit and circuit identified and described,
6. Panel schedules with each circuit associated load identified described.

1.7 TRAINING AIDS

- A. The Contractor shall digitally record each training session in 16:9 widescreen format in .MP4 file format. Each training session shall be turned over to the City along with digital copies of all training aids.
 1. The digital recording shall clearly depict the training material and the audio shall be clearly understood without the use of aids. If record is not legible and audible the Contractor shall be required to reproduce the training.
 2. Digital recordings of trainings shall clearly depict in text at the beginning of each recording the following:
 - a. Project, location, date, and time of recording
 - b. Content of training including:
 - 1) Specification Section
 - 2) Type of Equipment
 - 3) Manufacturer and Model
 3. Digital recordings shall encompass classroom instruction and any hands-on training or site specific training.
- B. The vendor is encouraged to make use of other Training Aids, such as:
- C. Audio-visual aids (e.g., films, slides, videotapes, posters, etc.).
- D. Equipment Cutaways, equipment models, and samples (e.g., spare parts, damaged equipment, etc.).

1.8 HANDS-ON TRAINING

- A. “Hands-on” training for each scheduled session shall include the following, at a minimum. The manufacturer shall provide the tools and equipment to conduct the demonstrations. Requests for supplemental assistance and facilities should be submitted with Contractor’s proposed Lesson Plans. Each trainee will demonstrate skill acquisition to the satisfaction of the instructor.
 1. Proper start-up and shutdown.
 2. Demonstration of normal and alternative operating strategies and modes, including procedures for placing equipment into each operating mode.
 3. Emergency procedures.

4. Demonstration of all daily and weekly preventive maintenance.
 5. Monitoring and troubleshooting.
 6. Demonstrations of at least two (2) common corrective maintenance repairs.
 7. Checking/testing the equipment following a corrective maintenance repair.
- B. For those training situations where personnel will participate in disassembly or assembly of equipment, the Contractor shall be responsible for such disassembly or assembly and, on completion of all hands-on training shall provide written certification of proper equipment operation to Engineer.

1.9 ONLINE TRAINING REQUIREMENTS

- A. As indicated below online learning modules shall be developed; quizzes and a test shall be prepared by the online learning modules provider with the full cooperation of the equipment manufacturers for each training module. Course work, hosting services and programming shall be provided by 360water, Inc. or approved equal. The online learning modules provider shall have provided the platform to a minimum of 10 municipal clients and shall have been in business for a minimum of seven years. The Contractor shall provide a list, with contact phone numbers, of 10 municipal wastewater treatment facility installations which the online learning modules provider has completed technical training similar to this project.
1. The Modules shall be able to evaluate and test the operators on:
 - a. Start-up /Shut down of equipment,
 - b. Basic operations, maintenance and safety, and
 - c. Trouble shooting techniques.
 2. The Online Education Program shall include the following functions for each module.
 - a. Intermittent quizzes and test questions.
 - b. Wrong answer notification.
 - c. Generation of a certificate of completion. 100% proficiency shall be required before a certificate of completion is generated.
 - d. A real time clock on screen that verifies the time spent on the course material.
 - e. The software program shall automatically bookmark when the operator leaves a course (in case of power outage or an emergency in the facility).
 - f. The online learning modules provider shall submit all training modules for the online education program to the Maryland department of the Environment for wastewater operators continuing education credit. Will this be accredited? This is in the event of the facility choosing to apply for CH/CEU credits for their training program.
 - g. The platform shall be browser independent.
 3. The Contractor shall coordinate with his equipment manufacturers to provide all relevant information to the online learning modules provider needed to train a new operator on mandatory procedures.

4. The hosting of this service shall last a minimum of five years. A hard copy and an electronic version of all training modules shall be provided to the City to use for other non-online training programs. The City, at the end of the 5 year period, can continue with the program, by negotiation with the online learning modules provider, or, upon the City's request, the online learning modules provider shall load the operating system and courseware onto a City-owned server and run on the City's intranet.

B. Submittal Requirements for Online Training:

1. Equipment manufacturer supplied submittal material shall include, as a minimum, the following operation and maintenance manual components for the online learning modules provider to use in preparing training course modules for the equipment:
 - a. Brochures,
 - b. Start-up and shut down procedures,
 - c. Operation and maintenance material required to operate and maintain the equipment,
 - d. Troubleshooting guide, and
 - e. Safety
2. Any additional material the equipment manufacture has, which would assist the City to properly operate and maintain the equipment shall be also be furnished to the online learning modules provider.

C. Review of Online Training:

1. The Contractor's equipment manufacturers shall review the courseware written for equipment they are supplying. Comments and corrections will be required within a schedule determined by the Contractor.
2. Following completion of revisions to the courseware to reflect the equipment manufacturers' comments, the Contractor shall submit the draft courseware to the Engineer for review and comments. Upon receipt of the Engineer's comments revisions shall be made to the courseware to reflect the Engineer's review comments.

D. Data Capture:

1. The online learning modules provider shall provide staff at the Stony Run Wastewater Pumping Station for a minimum of 10 days. During these visits the online learning modules provider data capture personnel shall capture digital images and video of equipment manufacturer-furnished operation and maintenance training, for the courseware. During one of the trips the online learning modules provider shall review some of the courseware with the City's training liaison, an operations supervisor and a maintenance supervisor to demonstrate the review process that will be conducted in house by the City.

E. Equipment and Systems Training modules

1. Training modules shall be furnished for the following equipment and systems.

23 34 00	HVAC Fans
23 82 01	Electric Heating Coils
23 82 39	Unit Heaters
26 29 23	Variable Frequency Motor Controllers
26 43 00	Surge Protection Devices
28 42 00	Gas Detection and Alarm
40 05 57	Actuators for Process Valves and Gates
40 04 59.25	Sluice Gates
40 05 59.23	Stainless Steel Slide Gates
40 05 62	Plug Valves
40 05 65.23	Swing Check Valves
40 05 78.29	Combination Air Valves for Wastewater Service
40 63 43	Remote Terminal Units
40 71 00	Flow Measurement
40 72 00	Level Measurement
40 73 00	Pressure Measurement
41 22 13.13	Bridge Crane
43 21 31	Dry Pit Submersible Sewer Pumps
44 31 00	Odor Treatment Equipment
46 24 33	Open Channel Grinder

F. Human Machine Interface (HMI) Training:

1. HMI simulation training modules shall be furnished. The training shall have the capability to simulate the use of the HMI to run basic functions of specified systems.

G. Process Courseware:

1. The City will furnish to the online learning modules provider electronic files of the facility operation and maintenance manual, which will be prepared by the Engineer, for use by the online learning modules provider in preparing four general course training modules. Electronic files of the facility operation and maintenance manual, which will be prepared by the Engineer, will be provided to the online learning modules provider up to six months following the final completion date of the Contract. The online learning modules provider shall furnish four courses based on the facility operation and maintenance manual material within three months following receipt by the online learning modules provider of the electronic files of the facility operation and maintenance manual, which will be prepared by the Engineer.
2. The online learning modules provider shall develop four courses based on the Engineer-prepared operation and maintenance manual material (400 pages of material maximum). The online learning modules provider shall be responsible for taking the content and programming the materials into the online system and making graphics web-ready.
3. Regarding test questions, the Engineer will highlight any information in the facility operation and maintenance manual that is mandatory to know, and the

online learning modules provider shall base his questions on that material. The Engineer will review the questions prior to programming.

H. Face to Face Training Review

1. Online learning modules provider personnel involved in the writing of the courseware shall be responsible for attending two training sessions provided by the equipment manufacturers. The purpose is to document any additional information stated but not captured in the operation and maintenance manual as well as to note any discrepancies or contradictions with the materials.
2. Comments and Notes shall be provided by the online learning modules provider to the Contractor to submit to the Engineer. The Engineer will decide if the contradictions or discrepancies warrant a return visit from manufacturer's representative to clarify comments and/or for correction of equipment manufacturer-furnished operation and maintenance data. Return visits from manufacturer's representative to clarify comments and/or for correction of equipment manufacturer-furnished operation and maintenance data, if required by the Engineer, shall be at the Contractor's expense.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION