



**BOARD OF COUNTY COMMISSIONERS**  
**WARREN COUNTY, OHIO**

406 Justice Drive, Lebanon, Ohio 45036

[www.co.warren.oh.us](http://www.co.warren.oh.us)

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Telephone (513) 695-1250

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**TOM GROSSMANN**  
**SHANNON JONES**  
**DAVID G. YOUNG**

**INVITATION TO BIDDERS**

Sealed bids will be received by the Clerk of the County Commissioners, Warren County, Ohio, 406 Justice Drive, Lebanon, Ohio 45036, until 11:00 AM, Thursday May 26, 2022 at the Office of the Warren County Commissioners, and then at said time bids will be opened and read aloud for the 2022 Well Redevelopment Project.

Bid documents including terms, general conditions, supplemental conditions, and specifications are available on the Warren County Website at <https://www.co.warren.oh.us/Commissioners/Bids/Default.aspx>. Questions regarding the technical specifications should be directed to Kathryn Gilbert at the Warren County Water and Sewer Department, (513) 695-1645. Each bid shall contain the full name of each person or company submitting the bid and be accompanied by a bid bond for the full amount of the bid or a certified check in the amount equal to ten (10) percent of the bid.

The project generally consists of the rehabilitation of five drinking water production wells located at two different well fields in Warren County. The work generally consists of pump removal, video inspection of the well screen and casing, chemical and mechanical redevelopment of the wells, and hydraulic testing of the wells. **A non-mandatory Pre-Bid Meeting will be held at 9:00am on Thursday, May 12, 2022 at the Richard A. Renneker Water Treatment Plant, 6193 Striker Road, Hamilton Township, Ohio.**

Contact the Warren County Commissioner's Office at (513) 695-1250 should you need assistance in accessing the bidding information on the County's website. All contract addenda will be posted to the website prior to the bid opening. Bidders should check the website regularly to stay updated on any changes to the project.

**Please be aware that if you are downloading this document to bid this project, and in order to stay updated on any change, please email Krystal Powell in the Commissioners' Office at [krystal.powell@co.warren.oh.us](mailto:krystal.powell@co.warren.oh.us) with your contact information.**

A Bid guaranty, as required by Ohio Revised Code, Section 153.54, shall accompany each proposal submitted, as follows:

1. A Certified check, cashier's check, or letter of credit equal to ten (10) percent of the bid. A letter of credit may only be revocable by the Owner. Upon entering into a contract with the Owner, the contractor must file a performance bond for the amount of the contract, and the bid guaranty will then be returned to the successful and unsuccessful bidders upon contract execution.

**OR**

2. A form of bid guaranty bond (attached) for the full amount of the bid. Such bond is retained for the successful bidder but returned to unsuccessful bidders after the contract is executed.

Attention of bidders is called to all of the requirements contained in the bid packet. No bidder may withdraw his/her bid within sixty (60) days after the actual date of the opening thereof. All bids shall be properly signed by an authorized representative of the bidder.

All bids shall be sealed and plainly marked "**Bid Opening – 2022 Well Redevelopment Project, May 26, 2022 @ 11:00 a.m.**"

Warren County reserves the right to reject any or all bids submitted, to waive any irregularities in bids, and enter into a contract with the Bidder who in Warren County's consideration offered the lowest and best bid.

By order of the Board of County Commissioner, County of Warren, State of Ohio.

\_\_\_\_\_  
Tina Osborne, Clerk

CONTRACT DOCUMENTS

**2022 WELL REDEVELOPMENT PROJECT**

WARREN COUNTY WATER & SEWER DEPARTMENT

WARREN COUNTY BOARD OF COMMISSIONERS  
406 JUSTICE DRIVE  
LEBANON, OHIO 45036  
(513) 695-1250

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**SECTION 00 10 10**  
**INVITATION TO BIDDERS**

Separate sealed bids for the 2022 Well Redevelopment Project will be received by the Warren County Board of Commissioners at the Office of the Warren County Commissioners, 406 Justice Drive, Lebanon, Ohio 45036, until 11:00 a.m. May 26, 2022 and then at said time publicly be opened and read aloud.

Bid documents, including terms, general conditions, supplemental conditions, drawings and specifications are available online at the Warren County's Website at <https://www.co.warren.oh.us/Commissioners/Bids/Default.aspx>. Questions regarding the technical specifications should be directed to Kathryn Gilbert at the Warren County Water and Sewer Department, (513) 695-1645. **A non-mandatory Pre-Bid Meeting will be held at 9:00 am on Thursday, May 12, 2022 at the Richard A. Renneker Water Treatment Plant, 6193 Striker Road, Hamilton Township, Ohio.**

The project consists of the rehabilitation of five drinking water production wells located at two different well fields in Warren County. The work generally consists of pump removal, video inspection of the well screen and casing, chemical and mechanical redevelopment of the wells, hydraulic and plumbness/alignment testing of wells. The Engineer's Opinion of probable construction cost is \$382,000.00.

A bid guaranty, as required by Ohio Revised Code, Section 153.54, shall accompany each proposal submitted, as follows:

1. A Certified check, cashier's check, or letter of credit equal to ten (10) percent of the bid. A letter of credit may only be revocable by the Owner. Upon entering into a contract with the Owner, the contractor must file a performance bond for the amount of the contract, and the bid guaranty will then be returned to the successful and unsuccessful bidders upon contract execution.

**OR**

2. A form of bid guaranty bond (attached) for the full amount of the bid. Such bond is retained for the successful bidder, but returned to unsuccessful bidders after the contract is executed.

Warren County reserves the right to reject any or all bids submitted, to waive any irregularities in bids, and enter into a contract with the Bidder who in Warren County's consideration offered the lowest and best bid. By order of the Board of County Commissioner, County of Warren, State of Ohio.

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Tina Osborne, Clerk

**SECTION 00 10 20  
BID PROPOSAL**

The undersigned declares that the only persons or parties in this Bid are as stated; that the Bid is made without any collusion with other persons, firms, or corporations; that all the Contract Documents as prepared have been carefully examined; that the undersigned is fully informed in regard to all conditions pertaining to the Work and the place where it is to be done, and from them the undersigned makes this bid. The undersigned do hereby propose to furnish all labor, materials, tools, equipment, etc., necessary to complete the work in Deerfield Township in Warren County and that the bid include all costs including, permit fees, taxes, insurance, overhead, and profit. All material and equipment must comply with the specifications and contract drawings that comprise the Contract Documents.

The premiums for all Bonds required shall be paid by the Contractor and shall be included in the Contract Price. The undersigned Bidder further agrees that the Bid Security accompanying this Bid shall become the property of the County if the Bidder fails to execute the Agreement.

If any addenda are published on Warren County's website at <https://www.co.warren.oh.us/Commissioners/Bids/Default.aspx>, pursuant to SECTION 00 20 00, Paragraph 7, the undersigned acknowledges receipt of the following Addenda:

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_

No. \_\_\_\_\_, dated \_\_\_\_\_, 20\_\_

The Bid shall include the following:

Items 1, 8, 15, 22, and 29 – Video Inspection – Pre and Post Development. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work to complete the video inspection of the respective production wells.

Items 2, 9, 16, 23, and 30 – Removal of well pump; well pump disassemble, inspection and evaluation; sand blast and epoxy painting of column and pump; and well pump installation. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the removal of the well pump, disassembling, inspecting and evaluating the well pump, sand blasting and epoxy painting the column and pump, reinstalling the well pump and replacing any disturbed insulation on discharge piping of the respective production wells.

Items 3, 10, 17, 24, and 31 – Replace Column Pipe. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the replacement of the column pipe of the respective production wells.

Items 4, 11, 18, 25, and 32 – Well Redevelopment. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the well redevelopment of the respective production wells.

Items 5, 12, 19, 26, and 33 – Hydraulic Testing of Well. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the hydraulic testing of the respective production wells including the step-down testing, 24-hour testing, interference testing, and recovery testing.

Items 6, 13, 20, 27, and 35 – Replace Level Sensor. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the replacement of the level sensor of the respective production wells.

Items 7, 14, 21, 28, and 36 – Plumbness/Alignment Testing. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the plumbness/alignment testing of the respective production wells.

Item 34 – Procure and Install new Mag Meter. These Bid items shall include furnishing all materials, labor, tools, and equipment necessary to perform all the work associated to the procurement and installation of new Mag meters for the respective production wells including replacing all disturbed insulation.

Alternate Bid Items No. 1, 10, 19, 36 – Replace Pump and Motor. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing the pump and motor of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 2, 11, 20, 28, 37 – Replace Pump and Reusing Existing Motor. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing the pump and and reusing the existing motor of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 3, 12, 13, 29, 38 – Replace the motor and reuse existing pump. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing the motor and reusing the existing pump of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 4, 13, 22, 30, 39 – Replace Line Shafts from Motor to Pump Including Couplings and Bearings. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing the line shafts from the motor to the pump, including all couplings and bearings of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 5, 14, 23, 31, 40 – Replace All Wear Rings (Impeller and Bowl). These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing all of the ware rings on the impeller and bowl of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 6, 15, 24, 32, 41 – Replace All Impellers & Collets. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing all of the impellers and collets of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 7, 16, 25, 33, 42 – Replace Pump Shaft. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing the pump shaft of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 8, 17, 26, 34, 43 – Replace All Pump Bearings. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing all of the pump bearings in the pump shaft, sleeve, bowl, and suction base of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

Alternate Bid Items No. 9, 18, 27, 35, 44 – Replace Motor Bearings. These Alternate Bid items shall include funning all materials, labor, tools, and equipment necessary to perform all the work associated to replacing the motor bearings of the respective production wells. A material cost and a labor cost should be listed for each of these alternate bid items.

The written/typed Total Bid price is for the convenience of the Owner in comparing bids. Any discrepancy between the actual sum of the line item totals and the written/typed total bid price shall be resolved in favor of the actual sum of the correct individual line item.

The undersigned hereby certifies under the penalty of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person or entity. The bid proposals shall remain in full force and effect for sixty (60) days after the date of opening bids. The full name and address of all persons and parties interested in the foregoing bids as principals are as follows:

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Individual, Partnership, or Corporation

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Signature of Corporate Officer, President, or Owner

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Date



Notice of acceptance should be mail or delivered to the following:

COMPANY NAME: \_\_\_\_\_

CHIEF EXECUTIVE OFFICER: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

FAX NUMBER: \_\_\_\_\_

PROJECT CONTACT PERSON: \_\_\_\_\_

PHONE NUMBER: \_\_\_\_\_

E-MAIL ADDRESS: \_\_\_\_\_

FEDERAL ID #: \_\_\_\_\_

WEBSITE ADDRESS: \_\_\_\_\_

NOTE: The firm, corporate or individual name of the bidder must be signed in ink in the space provided for the signatures on the proposed blanks. In the case of a corporation, the title of the officer signing must be stated and such officer must be thereunto duly authorized and the seal of said corporation duly affixed. In the case of a partnership, the signature of at least one of the partners must follow the firm name, using the term "member of the firm." In the case of an individual, use the terms "doing business as", or "sole owner."

**SECTION 00 10 30  
BID FORM**

BIDDER agrees to perform all the work described in the Contract Documents for the following prices:

ITEM	DESCRIPTION	QTY	UNITS	UNIT PRICE	TOTAL COST
<b>Revis Well Field Production Well No. 1 (PWR-1)</b>					
1	Video Inspection – Pre and Post Development	1	L.S.		
2	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
3	Replacement of Column Pipe	1	L.S.		
4	Well Redevelopment	1	L.S.		
5	Hydraulic testing of well	1	L.S.		
6	Replace Level Sensor	1	L.S.		
7	Plumbness/Alignment Testing	1	L.S.		
<b>Revis Well Field Production Well No. 2 (PWR-2)</b>					
8	Video Inspection – Pre and Post Development	1	L.S.		
9	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
10	Replacement of Column Pipe	1	L.S.		
11	Well Redevelopment	1	L.S.		
12	Hydraulic testing of well	1	L.S.		
13	Replace Level Sensor	1	L.S.		
14	Plumbness/Alignment Testing	1	L.S.		
<b>Revis Well Field Production Well No. 3 (PWR-3)</b>					
15	Video Inspection – Pre and Post Development	1	L.S.		
16	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
17	Replacement of Column Pipe	1	L.S.		
18	Well Redevelopment	1	L.S.		
19	Hydraulic testing of well	1	L.S.		
20	Replace Level Sensor	1	L.S.		
21	Plumbness/Alignment Testing	1	L.S.		

North Well Field Production Well No. 3 (PWN-3)					
22	Video Inspection – Pre and Post Development	1	L.S.		
23	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of column and pump; and well pump installation	1	L.S.		
24	Replacement of Column Pipe	1	L.S.		
25	Well Redevelopment	1	L.S.		
26	Hydraulic testing of well	1	L.S.		
27	Replace Level Sensor	1	L.S.		
28	Plumbness/Alignment Testing	1	L.S.		
North Well Field Production Well No. 4 (PWN-4)					
29	Video Inspection – Pre and Post Development	1	L.S.		
30	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of column and pump; and well pump installation	1	L.S.		
31	Replacement of Column Pipe	1	L.S.		
32	Well Redevelopment	1	L.S.		
33	Hydraulic testing of well	1	L.S.		
34	Procure and install new Mag Meter.	1	L.S.		
35	Replace Level Sensor	1	L.S.		
36	Plumbness/Alignment Testing	1	L.S.		

**Total of Bid Items 1 through 36**    \$ \_\_\_\_\_

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**Total Bid Items 1 through 36 (In Words)**

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**Bidder's Name**

L.S. = Lump Sum

QTY = Quantity

**SECTION 00 10 40  
ALTERNATE BID FORM**

ITEM	DESCRIPTION	QTY	UNITS	MATERIAL COST	LABOR COST	TOTAL COST
Revis Well Field Production Well No. 1 (PWR-1)						
1	Replace pump and motor	1	L.S.			
2	Replace pump and reuse existing motor	1	L.S.			
3	Replace the motor and reuse the exiting pump	1	L.S.			
4	Replace line shafts from motor to pump including couplings and bearings	1	L.S.			
5	Replace all ware rings (impeller and bowl)	1	L.S.			
6	Replace all impellers & Collets	1	L.S.			
7	Replace pump shaft	1	L.S.			
8	Replace all pump bearings (shaft, sleeve, bowl, suction base)	1	L.S.			
9	Replace motor bearings	1	L.S.			
Revis Well Field Production Well No. 2 (PWR-2)						
10	Replace pump and motor	1	L.S.			
11	Replace pump and reuse existing motor	1	L.S.			
12	Replace the motor and reuse the exiting pump	1	L.S.			
13	Replace line shafts from motor to pump including couplings and bearings	1	L.S.			
14	Replace all ware rings (impeller and bowl)	1	L.S.			
15	Replace all impellers & Collets	1	L.S.			
16	Replace pump shaft	1	L.S.			
17	Replace all pump bearings (shaft, sleeve, bowl, suction base)	1	L.S.			
18	Replace motor bearings	1	L.S.			
Revis Well Field Production Well No. 3 (PWR-3)						
19	Replace pump and motor	1	L.S.			
20	Replace pump and reuse existing motor	1	L.S.			
21	Replace the motor and reuse the exiting pump	1	L.S.			
22	Replace line shafts from motor to pump including couplings and bearings	1	L.S.			

ITEM	DESCRIPTION	QTY	UNITS	MATERIAL COST	LABOR COST	TOTAL COST
23	Replace all ware rings (impeller and bowl)	1	L.S.			
24	Replace all impellers & Collets	1	L.S.			
25	Replace pump shaft	1	L.S.			
26	Replace all pump bearings (shaft, sleeve, bowl, suction base)	1	L.S.			
27	Replace motor bearings	1	L.S.			
North Well Field Production Well No. 3 (PWN-3)						
28	Replace pump and reuse existing motor	1	L.S.			
29	Replace the motor and reuse the exiting pump	1	L.S.			
30	Replace line shafts from motor to pump including couplings and bearings	1	L.S.			
31	Replace all ware rings (impeller and bowl)	1	L.S.			
32	Replace all impellers & Collets	1	L.S.			
33	Replace pump shaft	1	L.S.			
34	Replace all pump bearings (shaft, sleeve, bowl, suction base)	1	L.S.			
35	Replace motor bearings	1	L.S.			
North Well Field Production Well No. 4 (PWN-4)						
36	Replace pump and motor	1	L.S.			
37	Replace pump and reuse existing motor	1	L.S.			
38	Replace the motor and reuse the exiting pump	1	L.S.			
39	Replace line shafts from motor to pump including couplings and bearings	1	L.S.			
40	Replace all ware rings (impeller and bowl)	1	L.S.			
41	Replace all impellers & Collets	1	L.S.			
42	Replace pump shaft	1	L.S.			
43	Replace all pump bearings (shaft, sleeve, bowl, suction base)	1	L.S.			
44	Replace motor bearings	1	L.S.			

L.S. = Lump Sum

QTY = Quantity

**SECTION 00 10 50  
EXCEPTION SHEET**

Exceptions: Exceptions to any bid specification must be clearly stated on this sheet. This sheet must be submitted with each bid. If there are no exceptions, please indicate “none” below.

1. \_\_\_\_\_  
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6. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**SECTION 00 20 00**  
**GENERAL INSTRUCTION TO BIDDERS**

1. **Receipt and Opening of Bids:** The Warren County Board of Commissioners (herein referred to as “Owner”), invites bids on the form attached hereto, all blanks of which must be appropriately filled in. Bids will be received by the Owner at the Office of the Warren County Board of Commissioners until 11:00 a.m. May 26, 2022 and then at said office publicly opened and read aloud. The envelopes containing the bids must be sealed, addressed to Warren County Board of Commissioners at 406 Justice Drive, Lebanon, Ohio 45036, and shall be clearly marked as follows:

**BID OPENING**  
**2022 WELL REDEVELOPMENT PROJECT**  
**11:00 AM MAY 26, 2022**

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered.

2. **Description of Project:** The project consists of the rehabilitation of five drinking water production wells located at two different well fields in Warren County. The work generally consists of pump removal, video inspection of the well screen and casing, chemical and mechanical redevelopment of the wells, hydraulic and plumbness/alignment testing of wells.

3. **Construction Cost:** The Engineer’s opinion of probable construction cost for the base bid work is \$382,000.

4. **Project Funding/Financing:** The project shall be financed only through the Owner’s reserved funds and does not receive financing through any State of Ohio or Federal funding.

5. **Time of Completion and Liquidated Damages:** The Bidder hereby agrees that the Contract Time shall commence on the date stipulated in the Notice to Proceed which will be issued by the Owner within 14 days of contract execution and to complete the work in accordance with the terms as stated in the Contract, and in accordance with the following schedule milestones:

**Substantial Completion:** 180 Days from Notice to Proceed.

**Final Completion:** Site restoration work completed, and Contract Closeout shall be within 210 days from Notice to Proceed.

Any delays in substantial completion of the work that are within the control of the Contractor, their Subcontractor, or Supplier shall be subject to liquidated damages in the sum of \$200.00 for each consecutive calendar day that the project extends beyond the substantial completion deadline. See the General Conditions and Supplemental Conditions for the definition and requirements of substantial completion.

6. **Bid Documents:** Bid documents, including terms, general conditions, supplemental conditions, drawings, addenda, and other information are available online, free of charge, at the Warren County’s Website at <https://www.co.warren.oh.us/Commissioners/Bids/Default.aspx>. No planholder list will be maintained by the Owner. All Addenda will be posted on the website and shall not be mailed to bidders.

7. **Addenda and Interpretations:** No interpretations of the meaning of the plans, specifications, or other pre-bid documents will be made to any bidder orally. Every request for such interpretation must be in writing to Kathryn Gilbert at [Kathryn.Gilbert@co.warren.oh.us](mailto:Kathryn.Gilbert@co.warren.oh.us). To be given consideration all questions must be received by 4:00 pm on Thursday, May 19, 2022. All such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be posted on the Warren County Commissioners’ website <https://www.co.warren.oh.us/Commissioners/Bids/Default.aspx>, no later than three days prior to the date fixed for opening of bids. Failure of any bidder to monitor the website and download any such addendum or interpretations shall not relieve such bidder from any obligation under his/her bid as submitted. All addenda so issued shall become part of the contract documents. Bidders shall be responsible for checking the website prior to submitting their bid.

8. **Required Forms:** Each bid must be submitted on the forms contained in the Contract Documents herein. All blank spaces for bid prices must be completed, in ink or typewritten, in both words and figures, and the foregoing certifications must be fully completed and executed when submitted. Each Bidder shall complete and submit the following forms with his/her bid:

Section 00 10 20	BID PROPOSAL
Section 00 10 30	BID FORM
Section 00 10 50	EXCEPTION SHEET
Section 00 30 10	NONCOLLUSION AFFIDAVIT – FORM 1
Section 00 30 20	NONCOLLUSION AFFIDAVIT – FORM 2
Section 00 30 30	AFFIDAVIT OF NON-DELINQUENCY OF REAL AND/OR PERSONAL PROPERTY TAX
Section 00 30 40	FINDINGS FOR RECOVERY AFFIDAVIT
Section 00 30 50	EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS, BID CONDITIONS, NON-DISCRIMINATION, AND EQUAL EMPLOYMENT OPPORTUNITY AFFIDAVIT
Section 00 40 00	BONDING REQUIREMENTS
Section 00 40 10	BID GUARANTY AND CONTRACT BOND

9. **Modification or Withdraw of Bid:** Bids may be modified or withdrawn by any appropriate document duly executed (in the manner that a bid must be executed) and delivered to the place where bids are to be submitted at any time prior to the opening of bids.

After opening, a Bidder may withdraw their bid from consideration if the price bid was substantially lower than the other bids, provided the bid was submitted in good faith and the reason for the price being substantially lower was a clerical mistake as opposed to a judgment mistake and was actually due to an unintentional omission of a substantial quantity of work, labor or material made directly in the compilation of the bid. Request to withdraw such bid must be made in writing and filed with the Owner within two business days after the opening of bids and prior to the acceptance thereof.



10. **Method of Award:** The Owner may reject all bids or may award the contract on the base bid or on the base bid combined with additions or deductible alternates, to the lowest and best bidder, as produces a net amount which is within the available funds.

To determine lowest and best bidder, the price of the bid will be given equal weight against the totality of the following factors: 1.) the bidder's information provided in the Section 00 50 10 Experience Statement which shall be used to judge responsibility, experience, skill, financial standing, feedback from references or prior clients—which may include Owner; 2.) the Section 00 10 30 Exception Sheet; 3.) availability.

If the total price received from the lowest and best bidder exceeds the amount of funds available to finance the contract, the Owner may:

- a. Reject all bids;
- b. Augment the funds available in the amount sufficient to enable award to the lowest and best bidder or bidders;
- c. Reduce the scope of the work by eliminated certain items of work to produce a total bid which is within the available funds;
- d. Reduce the scope of work by reducing the quantities of certain items of work to produce a total bid which is within the available funds;
- e. Reduce the scope of work by a combination of adjustments as outlined in “c” and “d” above to produce a total bid which is within available funds.
- f. The Owner may reject all bids or may award the contract on the base bid or on the base bid combined with additions or deductible alternative as produces a net amount which is within the available funds.

The Owner may consider informal and may reject any bid not prepared and submitted in accordance with the provisions hereof. The Owner reserves the right to reject all bids, to waive any informalities or irregularities in the bids received, and to accept any bid which is deemed lowest and best.

11. **Qualification of Bidder:** The Owner any make such investigations as he/she deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated herein; conditional bids will not be accepted.

12. **Conditions of Work:** Each bidder must inform him/herself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his/her obligation to furnish all material and labor necessary to carry out the provisions of his/her contract. Insofar as possible the contractor, in carrying out the work, must employ such methods or means or will not cause any interruption of or interference with the work of any other contractor. No plea of ignorance of conditions that exist or that may hereafter exist, or of conditions or difficulties that may be encountered in the execution of the work as the result of failure to make such examination and investigation, will be

accepted as an excuse for any failure or omission on the part of the Contractor to fulfill in every respect, all the requirements of the Contract, nor will the same be accepted as a basis for any claim whatsoever for extra compensation or for an extension of time.

13. **Obligation of Bidder:** Each bidder shall, and is hereby directed to inspect the entire site of the proposed work and judge for him/herself as to all the circumstances affecting the cost and progress of the work and shall assume all patent and latent risks in connection therewith. At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect of his/her bid.

14. **Non-Collusion Affidavit:** The successful bidder will be required to submit non-collusion affidavit on the form included in these Bid/Contract Documents (SECTION 00 30 10 and 00 30 20). These affidavits shall be dated and executed as part of this bid.

15. **Real and/or Personal Property Tax Affidavit:** All bidders must complete the Real and/or Personal property tax affidavit (Section 00 30 30) and submit with your bid. This section should be fully completed whether or not you as a vendor/contractor own property in Warren County, Ohio.

16. **EEO Compliance:** Equal Employment Opportunity (EEO) compliance requirements and affidavits are contained in SECTION 00 30 50. Owner contracts that receive state or federal funding including, but not limited to, grants, loans, and debt forgiveness shall not be executed unless the Contractor possesses a current Certificate of Compliance issued by the State EEO Coordinator.

Every contract for or on behalf of the County for the construction, alteration, or repair of any public building or public work shall include an affidavit certifying the contractor complies with EEO requirements specified in Ohio Revised Code Section 153.59.

17. **Bid Security:**

A bid guaranty, as required by Ohio Revised Code, Section 153.54, shall accompany each proposal submitted, as follows:

1. A Certified check, cashier's check, or letter of credit equal to ten (10) percent of the bid. A letter of credit may only be revocable by the Owner. Upon entering into a contract with the Owner, the contractor must file a performance bond for the amount of the contract, and the bid guaranty will then be return to the successful and unsuccessful bidders upon request.

**OR**

2. A form of bid guaranty bond (attached) for the full amount of the bid. Such bond is retained for the successful bidder, but returned to unsuccessful bidders after the contract is executed.

Such cash, checks or bid bonds will be returned to bidders after the Owner has awarded the bid and has executed the contract, or, if no award has been made within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, so long as he/she has not been notified of the acceptance of his/her bid.

Attorneys-in-fact who sign bid bonds or contract bonds must file with each bond a certified and effectively dated copy of their power of attorney.

18. **Liquidated Damages for Failure to Enter into Contract:** The successful bidder, upon his/her failure or refusal to execute and deliver the contract and bonds required within 10 working days after he/she has received the documents, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the bid security.

19. **Security for Faithful Performance:** Simultaneously with his/her delivery of the executed contract, the Contractor shall furnish a performance (surety) bond as security for faithful performance of this contract and for the payment of all persons performing labor on project under this contract and furnishing materials in connection with the contract. The surety on such bond or bonds shall be duly authorized surety company satisfactory to the Owner. Please note that upon execution of the Contract if a Bid Guaranty/Contract Bond was submitted with your original bid a Performance Bond will not be required.

20. **Required Insurance:** In accordance with the specifications and the Supplemental Conditions, the Contractor, without restricting the obligations and liabilities assumed under the Contract Documents, shall at his own cost and expense purchase and maintaining in force until final acceptance of his work, the forms of insurance coverage as described in Section 00 80 10 Supplemental Conditions 1.2.C. Article 5 – Bonds and Insurance.

Certificates from the insurance carrier stating the limits of liability and expiration date shall be filed with the Owner before operations are begin. Such certificates shall not merely name the types of policy provided, but shall specifically refer to this Contract and shall name the Board of Warren County Commissioners as additionally insured.

All policies as hereinafter required shall be so written that the Owner will be notified of cancellation or restrictive amendment at least sixty days prior to the effective date of such cancellation or amendment.

If any part of the work is sublet, insurance of the same types and limits as required shall be provided by or on behalf of the Subcontractors to cover that part of the work they have contracted to perform including Property Damage Liability Special Hazards coverage if so required by this contract.

21. **Additional Obligations Upon Contract Award:** Upon award of the bid but prior to execution of the final agreement and notice to proceed, the Contractor shall submit all of the following documents, completed as required:

1. Contract
2. Performance Bond
3. Certificates of Insurance

22. **Wage Rates:** In the event that the rate of wages paid for any trade or occupant in the locality where such work is being performed are under current collective agreements or understandings between bona fide organizations of labor and employer, then the wages to be paid shall be not less than such agreed wage rates, nor less than the minimum rates compiled by the Federal Labor Standard Act. Copies of these prevailing wage rates have been included in these specifications. Every Contractor and Subcontractor who is subject to Ohio Revised Code,

Chapter 4115 shall, as soon as he begins performance under his contract with the Owner, supply the Prevailing Wage Coordinator for the Owner a schedule of the dates on which he is required to pay wages to employees. He shall also deliver to the Prevailing Wage Coordinator within three weeks after each pay date, a certified copy of his payroll which shall exhibit for each employee paid any wages, name, current address, social security number, number of hours worked each day of the pay period and the total for each week, hourly rate of pay, job classification, fringe payments, and deductions from wages. The certification of each payroll shall be executed by the Contractor, Subcontractor, or duly appointed agent thereof and shall recite that the payroll is correct and complete and that the wage rate shown is not less than those required by the contract.

In case the Owner orders the Contractor to perform extra or additional work which may make it necessary for the Contractor or any Subcontractor under this contract to employ a person not herein specified, the Contractor will include in the contract change order for such extra or additional work, a minimum wage rate for such trade or occupation, and insofar as such extra or additional work is concerned, there shall be paid to each employee engaged in work of such trade or occupation, not less than the wage so included. Insofar as possible, local labor shall be employed on this work.

23. **Laws and Regulations:** The bidder's attention is directed to the fact that all applicable State laws, municipal ordinances, and the rules and regulations of all authorities have jurisdiction over construction of the project shall apply to the contract throughout, and they will be deemed to be included in the contract the same as though herein written out in full.

24. **Foreign Corporation and Contractors:** "Foreign Corporations" means a corporation incorporated under the laws of another state. No contract shall be entered into with a foreign corporation until the Secretary of State has certified that such corporation is authorized to do business in Ohio: and until, if the bidder so awarded the Contract is a person or partnership, it has filed with the Secretary of State a Power of Attorney designating the Secretary of State as its agent for the purpose of accepting service of summons in any action brought under Ohio Revised Code, Section 153.05 or under Sections 4123.01 to 4123.94, inclusive.

25. **Safety Standards and Accident Prevention:** With respect to all work performed under this Contract, the Contractor shall:

- a. Comply with the safety standards provisions of applicable laws, building and construction codes and the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of America, the requirements of the Occupational Safety and Health Act of 1970 (Public Law 91-596), and the requirements of title 29 of the code of Federal Regulations, Section 1518 as published in the "Federal Register", Volume 36, N. 75, Saturday, April 17, 1971.
- b. Exercise every precaution at all times for the prevention of accidents and the protection of persons (including employees) and property.
- c. Maintain at his/her office or other well known place at the job site, all articles necessary for giving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or doctor's care of persons (including employees) who may be injured at the job site. In no case shall employees be permitted to work

at a job site before the employer has made a standing arrangement for removal of injured persons to a hospital or a doctor's care.

26. **Permits:** No permits are required for the proposed work.

27. **Subcontracts:** Contractor shall provide upon request of the Owner a list of all subcontractors intended to be used in performance of the work. In the event the Owner does not object, Contractor may have such work performed by a subcontractor. Contractor shall bind every subcontractor to, and every subcontractor must agree to be bound by the terms of the Agreement, as far as applicable to the subcontractor's work particularly pertaining to Prevailing Wages and EEO requirements. Nothing contained in the Agreement shall create any contractual relationship between any subcontractor and Owner, nor create any obligations on the part of the Owner to pay or see to the payment of any sums to any subcontractor.

28. **Subletting of Contract:** The Contractor shall not sublet, sell, transfer or assign any portion of the contract without written consent of the Owner or his designated agent. When such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his own organization, work amounting to no less than fifty percent of the total contract cost, except that any time designated in the contract before computing the amount of work required to be performed by the Contractor with his own organization, no subcontract, or transfer of contract, shall in any way release the Contractor of his liability under the contract and bonds.

29. **CONFIDENTIAL DOCUMENTS & INFORMATION:** Do not submit confidential documents or documents of any type that contain trade secrets. All materials submitted become public records once opened and may be copied upon request to anybody including competitive bidders.

END OF SECTION

**SECTION 00 30 10  
NONCOLLUSION AFFIDAVIT – FORM 1**

State of \_\_\_\_\_  
\_\_\_\_\_

BID Identification \_\_\_\_\_

CONTRACTOR \_\_\_\_\_ being first duly sworn, deposes and says that he is \_\_\_\_\_ (sole owner, a partner, president, secretary, etc.) of \_\_\_\_\_, the party making the foregoing BID; that such BID is not made in the interest of or on behalf of any undisclosed person, partnership, company, association, organization, or corporation; that such BID is genuine and not collusive or sham; that said BIDDER has not directly or indirectly colluded, conspired, connived or agreed with any BIDDER or any one else to put in a sham BID, or that any one shall refrain from Bidding; that said BIDDER has not in any manner, directly or indirectly, sought by agreement, communication or conference with any one to fix the BID price of said BIDDER or of any other BIDDER, or to fix any overhead, profit, or cost element of such BID price, or of that of any other BIDDER, or to secure any advantage against the OWNER awarding the contract or anyone interested in the proposed contract; that all statement contained in such BID are true; and, further, that said BIDDER has not, directly or indirectly, submitted his BID price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid and will not pay any fee in connection therewith, to any corporation, partnership, company, association, organization, BID depository, or to any member or agent thereof, or to any other individual except to such person or persons who have a partnership or other financial interest with said BIDDER in his general business.

Signed:

\_\_\_\_\_

Subscribed and sworn to before

me this \_\_\_ day of \_\_\_\_\_, 2022.

Seal of Notary

\_\_\_\_\_

**SECTION 00 30 20**  
**NONCOLLUSION AFFIDAVIT – FORM 2**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_

I, \_\_\_\_\_, holding the title and position of \_\_\_\_\_ at the firm \_\_\_\_\_, affirm that I am authorized to speak on behalf of the company, board directors and owners in setting the price on the contract, bid or proposal. I understand that any misstatements in the following information will be treated as fraudulent concealment of true facts on the submission of the contract, bid or proposal.

I hereby swear and depose that the following statements are true and factual to the best of my knowledge:

The contract, bid or proposal is genuine and not made on the behalf of any other person, company or client, INCLUDING ANY MEMBER OF THE WARREN COUNTY BOARD OF COMMISSIONERS.

The price of the contract, bid or proposal was determined independent of outside consultation and was not influenced by other companies, clients or contractors, INCLUDING ANY MEMBER OF THE WARREN COUNTY BOARD OF COMMISSIONERS.

No companies, clients or contractors, INCLUDING ANY MEMBER OF THE WARREN COUNTY BOARD OF COMMISSIONERS have been solicited to propose a fake contract, bid or proposal for comparative purposes.

No companies, clients or contractors, INCLUDING ANY MEMBER OF THE WARREN COUNTY BOARD OF COMMISSIONERS have been solicited to refrain from bidding or to submit any form of noncompetitive bidding.

Relative to sealed bids, the price of the bid or proposal has not been disclosed to any client, company or contractor, INCLUDING ANY MEMBER OF THE WARREN COUNTY BOARD OF COMMISSIONERS, and will not be disclosed until the formal bid/proposal opening date.

\_\_\_\_\_  
AFFIANT

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_ 2022.

\_\_\_\_\_  
(Notary Public),

\_\_\_\_\_ County.

My commission expires \_\_\_\_\_ 20\_\_

**SECTION 00 30 30**  
**AFFIDAVIT OF NON-DELINQUENCY OF REAL AND/OR**  
**PERSONAL PROPERTY TAX**

THIS SECTION SHOULD BE FULLY COMPLETED WHETHER OR NOT YOU AS A VENDOR/CONTRACTOR OWN PROPERTY IN WARREN COUNTY, OHIO. MAKING A FALSE STATEMENT ON THIS AFFIDAVIT MAY BE PUNISHABLE BY A FINE AND/OR IMPRISONMENT.

STATE OF \_\_\_\_\_ )

SS:

COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ being duly cautioned and sworn, states as follows:

1. That he/she is \_\_\_\_\_ of  
(Title)

\_\_\_\_\_  
(Name of Contracting Party)

2. That \_\_\_\_\_ is not presently charged with any  
(Name of Contracting Party)  
delinquent Real and/or Personal property taxes on the general tax list of Real and/or  
Personal property of Warren County.

-OR-

1. That \_\_\_\_\_ is charged with delinquent Real and/or  
(Name of Contracting Party)

Personal property tax on the general tax list of Real and/or Personal property of Warren  
County. The amount of delinquent Real and/or Personal property tax due and unpaid  
including any due and unpaid penalty and interest is:

\$ \_\_\_\_\_

Further, affiant states not.

\_\_\_\_\_  
Affiant

Sworn to and subscribed in my presence this \_\_\_\_ day of \_\_\_\_\_ 2022.

\_\_\_\_\_  
Notary Public

This instrument was prepared by \_\_\_\_\_.

Note to Fiscal Office: If any Real and/or Personal property taxes are delinquent, you must send a copy of this statement to the County Treasurer within 30 days of the date it is submitted.



**SECTION 00 30 40  
FINDINGS FOR RECOVERY AFFIDAVIT**

STATE OF \_\_\_\_\_

COUNTY OF \_\_\_\_\_, SS:

\_\_\_\_\_, upon being duly cautioned and sworn, hereby states the following based on personal knowledge:

- 1) That he/she is \_\_\_\_\_ (title), of \_\_\_\_\_ (name of bidder) and authorized to execute this affidavit; and,
- 2) That \_\_\_\_\_ (name of bidder) is not a person or entity against whom a finding for recovery has been issued by the Auditor of State, which finding for recovery is unresolved as defined in Ohio Revised Code [General Provisions] Section 9.24 (B); and,
- 3) That \_\_\_\_\_ (name of bidder) does not appear in the database of unresolved findings of recovery maintained by the Auditor of State pursuant to Ohio Revised Code [General Provisions] Section 9.24 (D).

\_\_\_\_\_  
Affiant

Sworn to and subscribed in my presence this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

\_\_\_\_\_  
Notary Public

My Commission expires: \_\_\_\_\_

**SECTION 00 30 50**  
**EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS, BID CONDITIONS,**  
**NON-DISCRIMINATION, AND EQUAL EMPLOYMENT OPPORTUNITY AFFIDAVIT**

Bidders shall submit a copy of a valid Certificate of Compliance issued by the State EEP Coordinator for Owner projects that received state or federal funding. The source of financing and funding for this project is specified in SECTION 00 20 00 – INSTRUCTION TO BIDDERS. Bidders may contact the State of Ohio, Department of Administrative Services, Equal Opportunity Division for information on how to apply online for a certification using the Ohio Business Gateway.

Every contract for or on behalf of the County for the construction, alteration, or repair of any public building or public work shall include an affidavit certifying the contractor complies with EEO requirements specified in Ohio Revised Code Section 153.59. In addition to the affidavit, all bidders agree to the following State of Ohio standard conditions of contract for construction:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex. Such action shall include, but is not limited to, the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will in all solicitations or advertisements for employees placed by or on behalf of the prime contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex.
3. The Contractor agrees to fully cooperate with the County, the State Equal Employment Opportunity Coordinator and with any other official or agency, or the State or Federal government which seeks to eliminate unlawful employment discrimination, and with all other State and Federal efforts to assure equal employment practices under its contract and the contractor shall comply promptly with all requests and directions from the County, the State Equal Opportunity Coordinator and any of the State of Ohio officials and agencies in this regard, both before and during construction.
4. Full cooperation as expressed in clause (3), above, shall include, but not be limited to, being a witness and permitting employees to be witnesses and complainants in any proceedings involving questions of unlawful employment practices, furnishing all information requested by the County and the State Equal Employment Opportunity Coordinator, and permitting access to its books, records, and accounts by the County and the State Equal Employment

Opportunity Coordinator for purposes of investigation to ascertain compliance with applicable rules, regulations and orders.

5. In the event of the Contractor's noncompliance with the nondiscrimination clauses of its contract or with any of the said rules, regulations, or orders, its contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further County construction contracts.
6. The Contractor will require the inclusion of language reflecting these same six covenants within every subcontract or purchase order it executes in the performance of its contract unless exempted by rules, regulations or orders of the State Equal Employment Opportunity Coordinator so that these provisions will be binding upon each subcontractor or vendor. The contractor will take such as the County may direct as a means of enforcing such provisions, including sanctions for noncompliance; provided, however, that in any litigation with a subcontractor, vendor or other party as a result of such direction by the County, the contractor may be requested to protect the interests of the County.

The bidder hereby adopts the foregoing covenants?

\_\_\_\_\_ Yes    \_\_\_\_\_ No

PLEASE NOTE: The bidder's failure to adopt the Bidder's EEO Covenants, will cause the bidder's proposal to be rejected as being non-responsive.

CERTIFICATE OF COMPLIANCE NON-DISCRIMINATION AND EQUAL EMPLOYMENT  
OPPORTUNITY AFFIDAVIT (CONTRACTOR)

STATE OF \_\_\_\_\_ )

SS:

COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ being first duly sworn, deposes and

says that he/she is \_\_\_\_\_ of \_\_\_\_\_

the party who made the foregoing proposal; that such party as bidder does not and shall not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex. If awarded the bid and contract under this proposal, said party shall take affirmative action to insure that applicants are employed and that employees are treated, during employment, without regard to their race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex.. If successful as the lowest and best bidder under the foregoing proposal, this party shall post non-discrimination notices in conspicuous places available to employees and applicants for employment setting forth the provisions of this affidavit.

Furthermore, said party agrees to abide by the assurances found in Section 153.54 of the Ohio Revised Code in the Contract Provisions with the Owner if selected as the successful bidder by the Owner.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Affiant

\_\_\_\_\_  
Company/Corporation

\_\_\_\_\_  
Address

\_\_\_\_\_  
City/State/Zip Code

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

(seal)

\_\_\_\_\_  
Notary

CERTIFICATE OF COMPLIANCE NON-DISCRIMINATION AND EQUAL EMPLOYMENT  
OPPORTUNITY AFFIDAVIT (SUB-CONTRACTOR)

STATE OF \_\_\_\_\_ )

SS:

COUNTY OF \_\_\_\_\_ )

\_\_\_\_\_ being first duly sworn, deposes and

says that he/she is \_\_\_\_\_ of \_\_\_\_\_

the party who made the foregoing proposal; that such party as bidder does not and shall not discriminate against any employee or applicant for employment because of race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex. If awarded the bid and contract under this proposal, said party shall take affirmative action to insure that applicants are employed and that employees are treated, during employment, without regard to their race, color, religion, national origin, age, disability, Vietnam era Veteran status, ancestry or sex.. If successful as the lowest and best bidder under the foregoing proposal, this party shall post non-discrimination notices in conspicuous places available to employees and applicants for employment setting forth the provisions of this affidavit.

Furthermore, said party agrees to abide by the assurances found in Section 153.54 of the Ohio Revised Code in the Contract Provisions with the Owner if selected as the successful bidder by the Owner.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Affiant

\_\_\_\_\_  
Company/Corporation

\_\_\_\_\_  
Address

\_\_\_\_\_  
City/State/Zip Code

Sworn to and subscribed before me this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

(seal) \_\_\_\_\_  
Notary

**SECTION 00 40 00**  
**BONDING REQUIREMENTS**

**Bid guaranty**, as required by Ohio Revised Code, Section 153.54, shall accompany each proposal submitted, as follows, either:

1. A Certified check, cashier's check, or letter of credit equal to ten (10) percent of the bid. A letter of credit may only be revocable by the Owner.

OR

2. A form of bid guaranty and contract bond (attached) for the full amount of the bid. Such bond is retained for the successful bidder, but returned to unsuccessful bidders after contract is executed.

**Performance bond** is required upon entering into a contract with the Owner for 100 percent of the contract price when the bid guaranty is a certified check, cashier's check, or letter of credit equal to ten percent. Otherwise the bid guaranty and contract bond shall secure the performance of the contract with a penal sum of 100% of the bid. A "performance bond" is one executed in connection with a contract to secure fulfillment of all the contractor's obligations under such contract.

**SECTION 00 40 10**  
**BID GUARANTY AND CONTRACT BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, the undersigned,

---

(Insert full name or legal title of Contractor and Address)

as Principal and

---

(Insert full name or legal title of Surety)

as Surety, are hereby held and firmly bound unto the Warren County Board of Commissioners hereinafter called the Oblige, in the penal sum of the dollar amount of the bid submitted by the Principal to the Oblige on \_\_\_\_\_ to undertake the project known as:

**2022 WELL REDEVELOPMENT PROJECT**

The penal sum referred to herein shall be the dollar amount of the Principal's bid to the Oblige, incorporating any additive or deductive alternate proposals made by the Principal on the date referred to above to the Oblige, which are accepted by the Oblige, In no case shall the penal sum exceed the amount of \_\_\_\_\_ DOLLARS, \$ \_\_\_\_\_. If this item is left blank, the penal sum will be the full amount of the Principal's bid, including alternates. Alternatively, if completed, the amount stated must not be less than the full amount of the bid, including alternates in dollars and cents. A percentage is not acceptable.

For the payment of the penal sum well and truly to be made we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above named Principal has submitted a bid on the above referred to project;

NOW, THEREFORE, if the Oblige accepts the bid of the Principal and the Principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the Principal pays to the Oblige the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid and such larger amount for which the Oblige may in good faith contract with the next lowest bidder to perform the work covered by the bid; or in the event the Oblige does not award the contract to the next lowest bidder and resubmits the project for bidding, the Principal will pay the Oblige the difference not to exceed ten percent of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising, and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect.

If the Obligee accepts the bid of the Principal and within TEN days after the awarding of the contract, enters into a proper contract in accordance with the bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein; and

IF THE SAID PRINCIPAL SHALL well and faithfully perform each and every condition of such contract; and indemnify the Obligee against all damage suffered by failure to perform such contract according to the provisions thereof and in accordance with the plans, details, specifications, and bills of material therefore; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract: we agreeing and assenting that this undertaking shall be for benefit of any materialman or laborer having a just claim, as well as for the Obligee herein; THEN THIS OBLIGATION SHALL be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

THE SAID surety hereby stipulates and agrees that no modifications, omissions, or additions, in or to the terms of said contract or in or to the plans and specifications therefor shall in any wise affect the obligations of said surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

SIGNED AND SEALED this \_\_\_\_ day of \_\_\_\_\_ 2022.

\_\_\_\_\_  
PRINCIPAL

\_\_\_\_\_  
SURETY

By: \_\_\_\_\_

By: \_\_\_\_\_

Attorney-in-fact

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

Surety Agent's Name and Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**SECTION 00 40 20**  
**PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS: that

\_\_\_\_\_  
(Name of Contractor)

\_\_\_\_\_  
(Address of Contractor)

a \_\_\_\_\_, hereinafter called  
(Corporation, Partnership or Individual)

Principal, and \_\_\_\_\_  
(Name of Surety)

\_\_\_\_\_  
(Address of Surety)

hereinafter called Surety, are held and firmly bound unto

WARREN COUNTY OHIO, BOARD OF COMMISSIONERS  
406 Justice Drive  
Lebanon, OH 45036

hereinafter called OWNER, in the penal sum of \_\_\_\_\_ Dollars, \$(\_\_\_\_\_) in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the OWNER, dated the \_\_\_\_\_ day of \_\_\_\_\_, 2022, a copy of which is hereto attached and made a part hereof for the construction of:

**2022 WELL REDEVELOPMENT PROJECT**

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform its duties, all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term thereof, and any extensions thereof which may be granted by the OWNER, with or without notice to the Surety and during the guaranty period(s), and if he shall satisfy all claims and demands incurred under such contract, and shall fully indemnify and save harmless the OWNER from all costs and damages which it may suffer by reason of failure to do so, and shall reimburse and repay the OWNER all outlay and expense which the OWNER may incur in making good any default, then this obligation shall be void; otherwise to remain in full force and effect.

PROVIDED, FURTHER, that the said surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration or addition of the terms of the contract or the WORK to be performed thereunder or the SPECIFICATIONS accompanying the same shall in

any way affect its obligation on this BOND, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the WORK or to the SPECIFICATIONS.

PROVIDED, FURTHER, that no final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in counterparts, each one of which shall be deemed an original, this the \_\_\_\_\_ day of \_\_\_\_\_ 2022.

ATTEST: \_\_\_\_\_  
(Principal)

\_\_\_\_\_  
(SEAL) By \_\_\_\_\_

\_\_\_\_\_

ATTEST: \_\_\_\_\_

\_\_\_\_\_  
(SEAL) (Surety)

\_\_\_\_\_

\_\_\_\_\_

IMPORTANT: Pursuant to Ohio Revised Code §122.87(A) defines surety company as, “. . . a company that is authorized by the department of insurance to issue bonds as a surety”.

**SECTION 00 50 10**  
**EXPERIENCE STATEMENT**

The Bidder is required to state in detail in the space provided below, what work they have completed of a character similar to that included in the proposed contract, to give references and such other detailed information as will enable the Owner to judge their responsibility, experience, skill and financial standing. Completion of this statement is required and must be submitted with the Bid in order to qualify for consideration for award of contract.

SUBMITTED FOR:

**2022 WELL REDEVELOPMENT PROJECT**

SUBMITTED BY:

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

(Print or Type Name of Bidder)  
(A Corporation / A Partnership / An Individual)  
[Bidder to strike out inapplicable terms.]

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

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter.

(Note: Attach Separate Sheets as Required)

1.0 How many years has your organization been in business as a construction contractor?

\_\_\_\_\_

2.0 How many years has your organization been in business under its present name?

\_\_\_\_\_

3.0 Has any construction contracts to which you have been a party been terminated by the owner; have you ever terminated work on a construction project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contract for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name, address, phone number, and contact person of owner, engineer, and surety, and name and date of project.

No \_\_\_\_\_ Yes \_\_\_\_\_, If yes, attach details described above.

4.0 Has any officer or partner of your organization ever been an officer or partner of another organization that had construction contracts terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name, address, phone number, and contact person of owner, engineer, and surety, and name and date of project.

No \_\_\_\_\_ Yes \_\_\_\_\_, If yes, attach details described above.

5.0 Provide a list of water and wastewater construction projects, their owners, contract amounts, percent complete, short description of work, and scheduled completion that your organization has in process on this date.

6.0 Provide a list of water and wastewater construction projects, their owners, contract amounts, short description of work, and dates of completion that your organization has completed in the past five years.

7.0 Have you personally inspected the site of the proposed work? Describe any anticipated problems with the site and your proposed solutions.

8.0 List name, address and telephone number of a reference for each project listed under Items 5.0 and 6.0, above.

9.0 List name and experience of the principal individuals of your organization.

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10.0 List the states in which your organization is legally qualified to do business.

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11.0 List name, address and telephone number of an individual who represents each of the following and whom OWNER may contact for a financial reference:

11.1 A surety:

Name \_\_\_\_\_

Contact \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Phone No. \_\_\_\_\_

Financial Reference \_\_\_\_\_

11.2 A bank:

Name \_\_\_\_\_

Contact \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_ Phone No. \_\_\_\_\_

Financial Reference \_\_\_\_\_

11.3 A major material supplier:

Name \_\_\_\_\_

Contact \_\_\_\_\_

Address \_\_\_\_\_

Phone No. \_\_\_\_\_

Financial Reference \_\_\_\_\_

12.0 Dated at \_\_\_\_\_ this \_\_\_ day of \_\_\_\_\_, 2022.

(Print or Type Name of Bidder)

By: \_\_\_\_\_

(Seal, if corporation)

------(Affidavit for Individual)-----

\_\_\_\_\_, being duly sworn, deposes and says that all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Partnership)-----

\_\_\_\_\_, being duly sworn, deposes and says that he/she is a member of the partnership of \_\_\_\_\_ and that all of the foregoing qualification information is true, complete, and accurate.

------(Affidavit for Corporation)-----

\_\_\_\_\_, being duly sworn, deposes and says that he/she is \_\_\_\_\_ of \_\_\_\_\_, and that all of the (Full name of Corporation)

foregoing qualification information is true, complete, and accurate.

------(Affidavit for Joint Venture)-----

\_\_\_\_\_ and \_\_\_\_\_, being duly sworn, deposes and says that they are members of \_\_\_\_\_ (Full Name of Joint Venture)

, and that all of the foregoing qualification information is true, complete, and accurate.

------(Acknowledgment) -----

\_\_\_\_\_, being duly sworn, deposes and says that he/she is  
of \_\_\_\_\_;  
(Name of Bidder)

affidavit and that he/she makes it on behalf of ( ) himself/herself; ( ) said partnership; ( )  
said corporation.

Sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 2022, in the County  
of \_\_\_\_\_, State of \_\_\_\_\_.

(Notary Public)

My commission expires \_\_\_\_\_

(Seal)

**SECTION 00 60 10  
CONTRACT**

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 2022, with the Warren County Board of Commissioners, 406 Justice Drive, Lebanon, Ohio, hereinafter called "Owner" and **CONTRACTOR NAME AND ADDRESS HERE** doing businesses as (an individual, partner, a corporation) hereinafter called "Contractor."

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned, to be made and performed by the Owner, the Contractor hereby agrees with the Owner to commence and complete the construction described as follows:

**2022 WELL REDEVELOPMENT PROJECT**

hereinafter called the project, for the sum of \$**AMOUNT AND WRITE IT OUT HERE**, and all work in connection therewith, under the terms as stated in the General Conditions and Supplemental Conditions of the Contract; and as his (its or their) own proper cost and expense furnish all the materials, supplies, machinery, equipment, tools, superintendence, labor insurance, and other accessories and services necessary to complete the said project in accordance with the conditions and prices stated in Contract Documents. "Contract Documents" means and includes the following:

- Addendum
- Division 00 – Contract Requirements
- Division 01 to 48 – Technical Specifications
- General Conditions
- Supplemental Conditions
- Any and All Bid Documents
- Construction Drawings

CONTRACTOR hereby agrees to commence work under this contract on or before a date to be specified in a Written "Notice to Proceed" of the OWNER and shall complete all work within the following requirements:

Substantial completion: 180 days from Notice to Proceed.

Final completion: Site restoration work completed, and Contract Closeout shall be completed within 210 from Notice to Proceed.

Any delays in substantial completion of the work that are within the control of the Contractor, their Subcontractor, or Supplier shall be subject to liquidated damages in the sum of \$200.00 for each consecutive calendar day that the project extends beyond the substantial completion deadline.

This Agreement may be terminated by either party upon written notice in the event of substantial failure by the other party to perform in accordance with the terms of this Agreement. The nonperforming party shall have fifteen calendar days from the date of the termination notice to cure or to submit a plan for cure acceptable to the other party.



OWNER may terminate or suspend performance of this Agreement for OWNER'S convenience upon written notice to the CONTRACTOR. CONTRACTOR shall terminate or suspend performance of the services/work on a schedule acceptable to the OWNER.

The CONTRACTOR will indemnify and save the OWNER, their officers and employees, harmless from loss, expenses, costs, reasonable attorneys fees, litigation expenses, suits at law or in equity, causes of action, actions, damages, and obligations arising from (a) negligent, reckless or willful and wanton acts, errors or omissions by CONTRACTOR, its agents, employees, licensees, consultants, or subconsultants; (b) the failure of the CONTRACTOR, its agents, employees, licensees, consultants or subconsultants to observe the applicable standard of care in providing services pursuant to this agreement; (c) the intentional misconduct of the CONTRACTOR, its agents, employees, licensees, consultants, or subconsultants that result in injury to persons or damage to property. for which the OWNER may be held legally liable.

The CONTRACTOR does hereby agree to indemnify and hold the OWNER harmless for any and all sums for which the OWNER may be required to pay or for which the OWNER may be held responsible for failure of the CONTRACTOR or any subcontractors to pay the prevailing wage upon this project.

The OWNER agrees to pay the CONTRACTOR in the manner and at such times as set forth in the General Conditions and as amended in the Supplemental Conditions and in such amounts as required by the Contract Documents.

This Contract shall be construed under the laws of the State of Ohio, and the parties hereby stipulate to the venue for any and all claims, disputes, interpretations, litigation of any kind arising out of this Contract being exclusively in the Warren County, Ohio Court of Common Pleas (unless both parties mutually agree in writing to alternate dispute resolution), as well as waiving any right to bring or remove such matters in or to any other state or federal court.

This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

Contractor shall bind every subcontractor to, and every subcontractor must agree to be bound by the terms of, this Agreement, as far as applicable to the subcontractor's work particularly pertaining to Prevailing Wages and EEO requirements. Nothing contained in this Agreement shall create any contractual relationship between any subcontractor and Owner, nor create any obligations on the part of the Owner to pay or see to the payment of any sums to any subcontractor.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in two counterparts, each of which shall be deemed an original on the date first above written.

WARREN COUNTY BOARD OF COMMISSIONERS  
(Owner)

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David G. Young, President

ATTEST:

\_\_\_\_\_  
Tom Grossmann, Vice President

\_\_\_\_\_  
Name

\_\_\_\_\_  
Shannon Jones

(Seal)

ATTEST:

**CONTRACTOR NAME HERE**  
(Contractor)

By: \_\_\_\_\_  
Name

\_\_\_\_\_  
Title

Approved as to Form:

\_\_\_\_\_  
Assistant Prosecutor

**SECTION 00 70 10**  
**WAGE RATE DETERMINATION**

Prevailing wage rates for the State of Ohio apply to this project. Contractors and Subcontractor(s) shall conform to the State of Ohio Department of Labor requirements, guidelines, and laws. Included in this section is a list of the Ohio Prevailing Wage Rates available at the time of publication. It is the responsibility of the Contractor and Subcontractor(s) to verify the wage rates prior to bidding and throughout the project. A complete list of Ohio Prevailing Wage Rates is available at the Ohio Wage and Hour website or from the Ohio department of Commerce Wage and Hour Bureau.



**Mike DeWine**  
Governor

**Sheryl Maxfield**  
Director

# **PREVAILING WAGE GUIDE**

## **WARREN COUNTY**

### **OHIO DEPARTMENT OF COMMERCE**

Division of Industrial Compliance  
Bureau of Wage and Hour Administration  
6606 Tussing Road, PO Box 4009  
Reynoldsburg, Ohio 43068-9009  
Phone: 614-644-2239  
Fax: 614-728-8639  
[www.com.ohio.gov](http://www.com.ohio.gov)  
TTY/TDD: 1-800-750-0750

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This packet of information is provided as a summary of the Prevailing Wage guidelines and responsibilities. The Ohio Revised Code, Chapter 4115 should be referred to for the exact wording of the law. Also included are references and forms which should be helpful in the compliance of the Prevailing Wage Law.

## PACKET INFORMATION INDEX

### A. The Ohio Department of Commerce-Division of Industrial Compliance, Wage and Hour Administration Investigators and their assigned counties

1. The Wage and Hour Investigators for the State of Ohio are listed with their contact information.
  - a. If you have questions or need assistance pertaining to Prevailing Wage, you can contact the Investigator in your area.

### B. Prevailing Wage Guide for Public Authorities

1. Notice of change of the Prevailing Wage Threshold Level.
  - a. A notification will be sent to you when there is a change of the Prevailing Wage threshold level
2. Outline of the Public Authority's responsibilities for Prevailing Wage.
3. Public Authority's Compliance Checklist form.
  - a. A form for tracking the progress of a Prevailing Wage project
4. Request form for Prevailing Wage Rates.
  - a. Prevailing Wage Rates can be obtained on the website [www.com.ohio.gov](http://www.com.ohio.gov)
    - (1) Prevailing Wage Determination Schedule of wages must be attached to and made part of the specifications for the project, and must be printed on the bidding blanks where the work is done by contract.
5. Bid Tabulation form
  - a. A form to be completed and returned to ODOC-DIC-Bureau of Wage and Hour Administration when the contract has been awarded.
6. Prevailing Wage Bonds form
  - a. Information needed to be kept on file by the Prevailing Wage Coordinator when bonds from the Public Authority are used for a project.

### C. Prevailing Wage Guidelines for the Public Authority's Coordinator

1. Guideline for the Prevailing Wage Coordinator
  - a. The Prevailing Wage complaint form and instructions can be obtained on the website [www.com.ohio.gov](http://www.com.ohio.gov)
2. Record of the Certified Payroll Reports Received form
  - a. Helpful form for recording the Certified Payroll Reports and the dates received from the contractors and subcontractors.
3. Employee Interview form
  - a. Helpful form for the use by the Prevailing Wage Coordinator when making on-site visits.
4. Employee vs. Independent Contractor
  - a. Helpful questions when determining if a person is an Employee or an Independent Contractor.

### D. Prevailing Wage Guide for Contractors

(Incorporate this section in the Specifications or supply copies for the pre-construction meeting.)

1. Outline of responsibilities for the Prevailing Wage Contractor
2. Notification form from the Contractor to the Employee
  - a. The contractor must submit to employees a completed and signed notification form.
  - b. Some Prevailing Wage Coordinators may require a copy of the completed Notification to the Employee form be submitted with the Certified Payroll Reports.
3. Certified Payroll Report form
  - a. The contractor can use any form/format he chooses as long as **ALL** the information has been provided.
4. Certified Payroll Report form instruction sheet
5. Corrected Certified Payroll Report Example
6. Affidavit of Compliance form
  - a. No Public Authority shall make final payment unless the **Final Affidavits** have been filed by the contractors and subcontractors.



**Mike DeWine**  
Governor

**Sheryl Maxfield**  
Director

# **INVESTIGATORS CONTACT INFORMATION**

## **OHIO DEPARTMENT OF COMMERCE**

Division of Industrial Compliance  
Bureau of Wage and Hour Administration  
6606 Tussing Road, PO Box 4009  
Reynoldsburg, Ohio 43068-9009  
Phone: 614-644-2239  
Fax: 614-728-8639  
[www.com.ohio.gov](http://www.com.ohio.gov)  
TTY/TDD: 1-800-750-0750

The Ohio Department of Commerce is an Equal Opportunity Employer and Service Provider

<p><b>OHIO DEPARTMENT OF COMMERCE</b>  <b>Division of Industrial Compliance</b>  <b>Bureau of Wage and Hour Administration</b>  <b>Chief, Stephen Clegg</b></p>	<p><b>6606 Tussing Road, PO Box 4009</b>  <b>Reynoldsburg, Ohio 43068-9009</b>  <b>614-644-2239</b>  <b>fax: 614-728-8639</b>  <b><a href="http://www.com.ohio.gov">http://www.com.ohio.gov</a></b></p>
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## INVESTIGATORS and THEIR HEADQUARTER COUNTY

<p><b>#48 Dave Horvath</b>          PO Box 1512          Lima, Ohio 45802-1512          Voice: (419) 302-1200          Fax: (614) 728-8639  <a href="mailto:Dave.Horvath@com.state.oh.us">Dave.Horvath@com.state.oh.us</a></p>	<p><b>Allen *</b></p>
<p><b>#30 Mike McKee</b>          P.O. Box 1342          Cambridge, Ohio 43725-2247          Voice/Fax: (740) 432-1987  <a href="mailto:Michael.McKee@com.state.oh.us">Michael.McKee@com.state.oh.us</a></p>	<p><b>Guernsey*</b></p>
<p><b>#56 Shawn Miles</b>          P.O. Box 2547          North Canton, Ohio 44720          Voice/Fax: (614) 496-9076  <a href="mailto:Shawn.Miles@com.state.oh.us">Shawn.Miles@com.state.oh.us</a></p>	<p><b>Stark *</b></p>
<p><b>#37 David Rice</b>          P.O. Box 41241          Dayton, Ohio 45441          Voice: (740) 502-0883          Fax: (614) 995-7768  <a href="mailto:Dave.Rice@com.state.oh.us">Dave.Rice@com.state.oh.us</a></p>	<p><b>Montgomery *</b></p>
<p><b>#35 Sean Seibert</b>          P.O. Box 422          Painesville, Ohio 44077-3938          Voice: (614) 557-8662          Fax: (614) 232-9541  <a href="mailto:Sean.Seibert@com.state.oh.us">Sean.Seibert@com.state.oh.us</a></p>	<p><b>Lake *</b></p>
<p><b>#11 Kela D. Thompson</b>          6606 Tussing Rd, PO Box 4009          Reynoldsburg, Ohio 43068-9009          Voice: (614) 728-5007          Fax: (614) 232-9537  <a href="mailto:Kela.Thompson@com.state.oh.us">Kela.Thompson@com.state.oh.us</a></p>	<p><b>Franklin *</b></p>

**\* Headquarter County**

<p><b>Stephen Clegg, Chief</b>          6606 Tussing Road, PO Box 4009          Reynoldsburg, Ohio 43068-9009          Voice: (614) 728-8686          Fax: (614) 728-8639  <a href="mailto:Stephen.Clegg@com.state.oh.us">Stephen.Clegg@com.state.oh.us</a></p>	<p><b>#90 Jackie Clark, Supervisor</b>          6606 Tussing Rd, PO Box 4009          Reynoldsburg, Ohio 43068-9009          Voice: (614) 728-5019          Fax: (614) 222-2357  <a href="mailto:Jackie.Clark@com.state.oh.us">Jackie.Clark@com.state.oh.us</a></p>
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**Mike DeWine**  
Governor

**Sheryl Maxfield**  
Director

# **PREVAILING WAGE GUIDE FOR PUBLIC AUTHORITIES**

## **OHIO DEPARTMENT OF COMMERCE**

Division of Industrial Compliance  
Bureau of Wage and Hour Administration  
6606 Tussing Road, PO Box 4009  
Reynoldsburg, Ohio 43068-9009  
Phone: 614-644-2239  
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TTY/TDD: 1-800-750-0750

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# PREVAILING WAGE THRESHOLD LEVELS

## IMPORTANT NOTICE

Before advertising for bids, contracting, or undertaking construction with its own forces, to construct a public improvement, the Public Authority shall have the Ohio Department of Commerce-Division of Industrial Compliance, Bureau of Wage and Hour Administration determine the prevailing rates of wages for workers employed on the public improvement. The wage determination must be included in the project specifications and printed on the bidding blanks where work is done by contract.

<b>“New” construction threshold for <i>Building Construction</i>:</b>	<b>\$250,000</b>
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<b>“Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting” threshold level for <i>Building Construction</i>:</b>	<b>\$75,000</b>
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<b>As of January 1, 2022:</b>
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<b>“New” construction that involves <i>roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction</i> threshold level has been adjusted to:</b>	<b>\$96,091</b>
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<b>“Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting” that involves <i>roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction</i> threshold level has been adjusted to:</b>	<b>\$28,789</b>
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- A) Thresholds are to be adjusted biennially by the Director of the Ohio Department of Commerce.
- B) Biennial adjustments to threshold levels are made according to the Building Cost for Skilled Labor Index published by McGraw-Hill’s Engineering News-Record, but may not increase or decrease more than 3% for any year.

If there are questions concerning this notification, please contact:

Ohio Department of Commerce  
Division of Industrial Compliance  
Bureau of Wage and Hour Administration  
6606 Tussing Road, PO Box 4009  
Reynoldsburg, Ohio 43068-9009  
Phone: 614-644-2239  
Fax: 614-728-8639  
[www.com.ohio.gov](http://www.com.ohio.gov)

**Public Authority Responsibilities**  
**ORC Chapter 4115: Wages and Hours on Public Works**  
**(Prevailing Wage Coordinator)**

1. Before advertising for bids, contracting, or undertaking construction with its own forces, to construct a public improvement, the public authority shall have the Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration determine the prevailing rates of wages for workers employed on the public improvement. The wage determination must be included in the project specifications and printed on the bidding blanks where work is done by contract.
  - a) "New" construction has a threshold level of **\$250,000**.
  - b) "Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting" has a threshold level of **\$75,000**.
  - c) "New" construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction has a threshold level of **\$93,292**.
  - d) "Reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting" that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction has a threshold of **\$27,950**.
    - i.) Thresholds are to be adjusted biennially by the Director of Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage and Hour Administration.
    - ii.) Biennial adjustments to threshold levels are made according to the Price Deflator for Construction Index, United States Department of Commerce, Bureau of the Census, but may not increase or decrease more than 3% for any year.
2. Every contract for public work shall contain a provision that each worker employed by the contractor or subcontractor, or other person about or upon the public work, must be paid the prevailing rate of wages.
3. If contracts are not awarded or construction undertaken within ninety days (90) from the date of the determination of the prevailing wage there shall be a re-determination of the wage rates before the contract is awarded.
4. Within **seven (7) working days** after the receipt of notification of a change in the prevailing wage rates, the public authority shall notify all affected contractors and subcontractors. If it is determined that a contractor or subcontractor has violated sections 4115.03 to 4115.16 of the Ohio Revised Code because they were not notified as required, **the public authority is liable** for any back wages, fines, damages, court costs and attorney's fees for the period of time covering the receipt of wage changes, until they give the required notice.
5. No public authority shall award a contract for a public improvement to any contractor or subcontractor whose name appears on the list of debarred contractors. This list is filed with the Secretary of State by the Ohio Department of Commerce-Division of Industrial Compliance & Labor-Bureau of Wage and Hour Administration **The filing of the notice of conviction with the secretary of state constitutes notice to all public authorities**. These contractors are prohibited from working on public improvements for periods ranging from one to three years. The list of debarred contractors can be located on the website [www.com.ohio.gov/laws](http://www.com.ohio.gov/laws)
6. A public authority must designate and appoint **one of its own employees** to serve as the Prevailing Wage Coordinator during the life of the contract for constructing the public improvement. A Prevailing Wage Coordinator must be appointed no later than ten days before the first payment of wages by contractors to employees working on the public improvement.

## PUBLIC AUTHORITY'S COMPLIANCE CHECKLIST FOR PREVAILING WAGE

Project:		Number:
Department:		Phone#:
PW Coordinator:		Phone#:
Architect/Engineer:		Phone#:
Contractor:		Phone#:
Contact Person:		Title:
General Contractor:		Prime Contractor:
		Construction Mgr:
<b>Date Completed</b>		<b>Compliance Item Description</b>
	1.	Request Prevailing Wage Determination Schedule from ODOC-DIC-Wage & Hour
	2.	Received Prevailing Wage Determination Schedule
	3.	Incorporate Determination Schedule in Specs./Bidding Blanks
	4.	Incorporate notice of Prevailing Wage requirements in Invitation for Bids/Notice to Bidders
	5.	Incorporate Prevailing Wage requirements in Contract
	6.	Submit complete Invitation for Bid to ODOC-DIC-Wage & Hour
	7.	Invitation for Bids
	8.	Bid Opening
	9.	Check Listing of Violators
	10.	Award of Contract. (see note)
	11.	Submit Bid Tabulation/Award to ODOC-DIC-WAGE & HOUR
	12.	Notice to Successful Bidder
	13.	Work Commenced...(see note)
	14.	Appoint Prevailing Wage Coordinator
	15.	Received list of Subcontractors' names, addresses, phone #'s & email's
	16.	Received Payroll Date Schedule
	17.	Received Registered Apprenticeship Agreement Certifications
	18.	Received Deduction Agreements
	19.	Received Payroll Reports with Certification...(see attachment)
	20.	Visited project site
	21.	Received Changes to Determination Schedule
	22.	Notice to Contractors of Determination Schedule change
	23.	Request Final Compliance Affidavit from contractors & subcontractors
	24.	Received Final Affidavits from all contractors & subcontractors
	25.	Certify Final Payment

**Note:** If contract is not awarded or construction undertaken within 90 days from the date of establishment of the Prevailing Wage Rates, a re-determination of the Prevailing Wage Rates is required.

**REQUEST FOR STATE OF OHIO PREVAILING WAGE RATES**

Date		(Mark (X) One) <input type="checkbox"/> ~ Residential <input type="checkbox"/> ~ Construction	
Project Information (only one project and one county per request form please)			
County of Project	Project Name	This form <b>MUST</b> be filled out <b>COMPETELY &amp; CORRECTLY</b> for us to process your request. Forms not completed correctly will be <b>RETURNED TO THE SENDER.</b>	
Site Address	City		
Owner/Public Authority			
Address		Telephone Number	<b>ODOC-DIC-WAGE &amp; HOUR DATE STAMP</b>
City	Zip Code		
PW Coordinator	Telephone Number		
Issuing Authority of Bonds	Type of Financing		
Estimated Total Overall Project Cost		PLEASE MAIL THIS REQUEST TO: Ohio Department of Commerce Division of Industrial Compliance Bureau of Wage & Hour Administration 6606 Tussing Road, PO Box 4009 Reynoldsburg, Ohio 43068-9009  PHONE: (614) 644-2239 FAX: (614) 728-8639	
<input type="checkbox"/> New Construction <input type="checkbox"/> "Old" Construction *  A copy of this form will be returned to you with your wage rates. You must send that copy to us with your bid tabulations once the contract has been awarded.			
Expected Date of Contract Award	Projected Completion Date		
Send Wage Rates to: (contractors are charged \$5.00 per county)		<b>ODOC-DIC-W&amp;H DATE STAMP (bid tab)</b>	
<input type="checkbox"/> Mail <input type="checkbox"/> Pick Up <input type="checkbox"/> Federal Express Account Number			
Name	Company or Public Authority		
Address			
City	Zip	Telephone Number	
* "Old" construction is reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting.			

# BID TABULATION SHEET

Please attach a copy of your original dated and stamped **“Request for Prevailing Wage Rates”** with this **Bid Tabulation**. Please check mark which company was awarded the contract for the project.  
**(Note: DO NOT SEND UNTIL THE CONTRACT HAS BEEN OFFICIALLY AWARDED.)**

Ohio Department of Commerce  
 Division of Industrial Compliance, Bureau of Wage & Hour  
 6606 Tussing Road, PO Box 4009  
 Reynoldsburg, Ohio 43068-9009  
 (Phone) 614-644-2239, (Fax) 614-728-8639 [www.com.ohio.gov](http://www.com.ohio.gov)

**Contracting Public Authority:**

**Project Name:**

**Project #:**

**Bid Date:**

**Estimate:**

**Contract Description:**  General  HVAC  Electrical  Plumbing  Asbestos  Other:

AWARDED TO (CHECK)	LIST OF THE BIDDING CONTRACTORS	TOTAL BID AMOUNT
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

### SUBMITTED BY

**Print Name:**

**Title:**

**Telephone Number:** (       )

**FAX #:**

**EMAIL:**

**Signature:**

**Date:**

## INDUSTRIAL DEVELOPMENT BONDS

<b>Bond Projects require the Public Authority to keep the following information on file</b>			
1. Type of Bonds issued:	Amount:		
2. The total cost of the Project:			
3. The other type of financing involved in the project:			
4. Portion of the project being constructed with each type of financing:			
5. Are Prevailing Wage Rates being applied to all construction on the project: <input type="checkbox"/> Yes <input type="checkbox"/> No			
6. The name of the political subdivision who issued the bonds:			
7. When were the bonds issued:			
8. For what purpose were the bonds issued:			
9. Who handles the funds once the bonds are sold:			
10. Who is the lending institution that purchased the bonds:			
11. How are the funds to be paid out:			
12. When are the funds to be paid out:			
13. Who is the Bond Council:			
14. Who has been appointed as the Prevailing Coordinator:			
PWC Address:			
City:	OHIO	Zip:	Telephone #:
15. Obtain a copy of the inducement and other official documents for the issuance of the bonds.			



**Mike DeWine**  
Governor

**Sheryl Maxfield**  
Director

# **PREVAILING WAGE GUIDELINES**

## **FOR THE**

### **PUBLIC AUTHORITY'S**

### **PW COORDINATOR**

**OHIO DEPARTMENT OF COMMERCE**

Division of Industrial Compliance and Labor

Bureau of Wage and Hour Administration

6606 Tussing Road, PO Box 4009

Reynoldsburg, Ohio 43068-9009

Phone: 614-644-2239

Fax: 614-728-8639

[www.com.ohio.gov](http://www.com.ohio.gov)

TTY/TDD: 1-800-750-0750

The Ohio Department of Commerce is an Equal Opportunity Employer and Service Provider

## Prevailing Wage Coordinator Guidelines

For more detailed information please refer to Chapter 4115 of the Ohio Revised Code

- A. Attend any pre-bid and/or pre-construction meetings.
  - 1. To explain the prevailing wage rate requirements.
  - 2. To explain the contractor's responsibilities.
- B. Set up and maintain files containing all contractors' and subcontractors' payroll reports, affidavits, and related documents. These files must be available for public inspection.
- C. Obtain from each contractor a list of their subcontractors' names, addresses, telephone numbers, and email addresses.
- D. Require each contractor and subcontractor to provide their project dates. This will be used to make a time schedule for receiving their certified payrolls.
- E. Obtain from each contractor, the name and address of their Bonding\Surety Company.
- F. Obtain from out-of-state corporations, the name and address of their Statutory Agent. (This agent must be located in the State of Ohio and registered with the Ohio Secretary of State.)
  - 1. Records made in connection with the public improvement must not be removed from the State of Ohio for the period of one year following the completion of the project.
- G. Supply contractors with any changes in the Prevailing Wage Rates.
- H. Within two weeks after the first pay, obtain a certified payroll report from each contractor. A certified report is one that is sworn to and signed by the contractor.
  - 1. If the job will exceed four months, all reports after the initial report can be filed once per month. (The initial report must be filed within two weeks.)
  - 2. If the job will last less than four months, all reports are to be filed weekly after the initial report.
- I. Establish and follow procedures to monitor compliance by contractors and subcontractors.
  - 1. Visit project to verify posting requirements and job classifications.
  - 2. Review certified payroll reports to ensure they are submitted in a timely fashion and complete with the following information for each employee:
    - a) Name, current address, and their social security number or last 4 when permitted
    - b) Classification (must be specific for laborers and operators, including level)
    - c) Hours worked on the project
    - d) Hourly rate
    - e) Fringe benefits, if applicable
    - f) Total hours worked for the week (all jobs)
    - g) Gross wages, all deductions, net pay
  - 3. Compare rates and fringes reported to rates in prevailing wage schedule.
- J. Upon completion of the project and prior to the final payment, require an affidavit of compliance from each contractor and subcontractor. **No public authority shall make final payment to any contractor or subcontractor unless the final affidavits have been filed by the respective contractor and subcontractor. (O.R.C. section 4115.07)**
- K. Report any non-compliance to Ohio Department of Commerce, Division of Industrial Compliance, Bureau of Wage & Hour Administration. The PW complaint form and instructions can be obtained on the website [www.com.ohio.gov](http://www.com.ohio.gov).



## RECORD OF THE CERTIFIED PAYROLL REPORTS RECEIVED

<b>Project:</b>		<b>Number:</b>
<b>Contractor:</b>		<b>Phone #:</b> <b>Email:</b>
<b>General Contractor:</b>	<b>Prime Contractor:</b>	<b>Subcontractor:</b>
<b>Date work commenced:</b>	<b>Completed:</b>	<b>Final Affidavit:</b>

Payroll	Payroll Date	Date Received		Payroll	Payroll Date	Date Received
1				33		
2				34		
3				35		
4				36		
5				37		
6				38		
7				39		
8				40		
9				41		
10				42		
11				43		
12				44		
13				45		
14				46		
15				47		
16				48		
17				49		
18				50		
19				51		
20				52		
21				53		
22				54		
23				55		
24				56		
25				57		
26				58		
27				59		
28				60		
29				61		
30				62		
31				63		
32				64		

## PREVAILING WAGE INVESTIGATION\EMPLOYEE INTERVIEW

Failure to complete this interview form may reduce our ability to recover back wages which may be owed to you.

Project:		Case #:	
Address:		City:	
		County:	
Employee Name:		Last 4 digits of the SS#:	
Address:		City:	
		State:	
Telephone #: (Home)		(Work)	
Email:		Best time to be reached:	
Another source by which we can contact you. (Someone not living at your address):			
Name:		Relationship:	
		Telephone #:	
Contractor's Name:		Telephone #:	
Address:		City:	
		State:	
		Zip:	
Date hired:		Date started on this project :	
		Approximate hours - Straight time:	
		Overtime:	
Method of recording hours: <input type="checkbox"/> Time Card		<input type="checkbox"/> Called into office	
Recorded by: <input type="checkbox"/> Employee		<input type="checkbox"/> Foreman	
Did you keep a personal record of your hours worked on this project? <input type="checkbox"/> Yes <input type="checkbox"/> No		Do you have check stubs? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Did anyone else keep a personal record ? <input type="checkbox"/> Yes <input type="checkbox"/> No		If yes, who:	
List your job classification(s):		<input type="checkbox"/> Journeyman <input type="checkbox"/> Helper	
		<input type="checkbox"/> Apprentice - Level	
List your specific job duties:		List tools\equipment used:	
Hourly rate of pay for this project:		Your regular rate of pay:	
Fringe benefits paid by contractor: <input type="checkbox"/> None <input type="checkbox"/> Health Insurance <input type="checkbox"/> Life Insurance <input type="checkbox"/> Pension <input type="checkbox"/> Bonus		<input type="checkbox"/> Vacation - Amount _____ <input type="checkbox"/> Holidays - Amount _____ <input type="checkbox"/> Apprenticeship training <input type="checkbox"/> Profit Sharing	
~ Other (list):			
Did you work overtime? <input type="checkbox"/> Yes <input type="checkbox"/> No		Were hours over 40 per week paid at time and one half? <input type="checkbox"/> Yes <input type="checkbox"/> No	
When is your pay day?		Method of payment: <input type="checkbox"/> Check <input type="checkbox"/> Cash <input type="checkbox"/> Direct Deposit	
List names of co-workers on this project:			
Comments:		Please provide a detailed list of the dates, times and hours worked within each classification that may apply to the work performed on a separate sheet.	
<b>SIGNATURE AND NOTARY</b>			
Affiant is further informed that Section 2921.13 of the Ohio Revised Code provides a penalty of a misdemeanor of the first degree and that prosecution will be pursued of those persons who "knowingly swear or affirm the truth of a false statement when ...the statement is sworn or affirmed before a notary public..." Sworn to before me and subscribed by the said:		I hereby certify that this is a true statement to the best of my knowledge and belief.	
_____		Signature _____ Date _____	
in my presence this _____ day of _____, 20_____.		Return to: Ohio Department of Commerce Division of Industrial Compliance & Labor Bureau of Wage and Hour Administration 6606 Tussing Road P.O. Box 4009 Reynoldsburg, Ohio 43068-9009 (614) 644-2239 <a href="http://www.com.ohio.gov">www.com.ohio.gov</a>	
_____ Notary Public			
Signature of PW Coordinator:		Date:	

## EMPLOYEE VS. INDEPENDENT CONTRACTOR

EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Does the employer have the right to control and direct worker?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Does the worker receive instructions about how and where the work is to be done instead of the employer merely specifying the desired result?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Is payment based on time spent rather than a set price for the work to be performed?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Does the worker devote virtually all his working time to the employer rather than offering services to the general public?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Does the worker performing services make their services available to the general public and/or other businesses?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Is there a continuing relationship between employer and worker?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Can the worker be discharged at will?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Did the employer train the worker for the job?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR
EMPLOYEE	↔	<input checked="" type="checkbox"/> YES	Does the employer have employees performing the same work as the independent contractor?	<input type="checkbox"/> NO	↔	INDEPENDENT CONTRACTOR

## EMPLOYEE VS. INDEPENDENT CONTRACTOR-continued

EMPLOYEE ↔  YES Does the worker perform services personally rather than delegating them to others?  NO ↔ INDEPENDENT CONTRACTOR

---

EMPLOYEE ↔  YES Does the employer set a specific time when the individual services are to be performed?  NO ↔ INDEPENDENT CONTRACTOR

---

EMPLOYEE ↔  YES Does the employer furnish the tools and materials used by the worker performing services?  NO ↔ INDEPENDENT CONTRACTOR

---

EMPLOYEE ↔  YES Is the employer assuming all the financial risk, rather than the worker making a significant financial investment in the job and having the opportunity to realize a profit or loss from the work?  NO ↔ INDEPENDENT CONTRACTOR

---

EMPLOYEE ↔  NO Does the individual performing the services publicly advertise these services in for example, the newspaper or yellow pages ?  YES ↔ INDEPENDENT CONTRACTOR

---

EMPLOYEE ↔  NO Does the individual performing the services have a business license?  YES ↔ INDEPENDENT CONTRACTOR

---

EMPLOYEE ↔  NO Does the individual performing the services operate d.b.a. or under a tradename?  YES ↔ INDEPENDENT CONTRACTOR



**Mike DeWine**  
Governor

**Sheryl Maxfield**  
Director

# **PREVAILING WAGE GUIDE FOR CONTRACTORS**

## **OHIO DEPARTMENT OF COMMERCE**

Division of Industrial Compliance  
Bureau of Wage and Hour Administration  
6606 Tussing Road, PO Box 4009  
Reynoldsburg, Ohio 43068-9009  
Phone: 614-644-2239  
Fax: 614-728-8639  
[www.com.ohio.gov](http://www.com.ohio.gov)  
TTY/TDD: 1-800-750-0750

The Ohio Department of Commerce is an Equal Opportunity Employer and Service Provider

OHIO DEPARTMENT OF COMMERCE  
 Division of Industrial Compliance  
 Bureau of Wage and Hour Administration  
 Chief, Stephen Clegg

6606 Tussing Road, PO Box 4009  
 Reynoldsburg, Ohio 43068-9009  
 614-644-2239  
 fax: 614-728-8639  
<http://www.com.ohio.gov>

## INVESTIGATORS and THEIR HEADQUARTER COUNTY

<p><b>#48 Dave Horvath</b>          PO Box 1512          Lima, Ohio 45802-1512          Voice: (419) 302-1200          Fax: (614) 728-8639  <a href="mailto:Dave.Horvath@com.state.oh.us">Dave.Horvath@com.state.oh.us</a></p>	<p>Allen *</p>
<p><b>#30 Mike McKee</b>          P.O. Box 1342          Cambridge, Ohio 43725-2247          Voice/Fax: (740) 432-1987  <a href="mailto:Michael.McKee@com.state.oh.us">Michael.McKee@com.state.oh.us</a></p>	<p>Guernsey*</p>
<p><b>#56 Shawn Miles</b>          P.O. Box 2547          North Canton, Ohio 44720          Voice/Fax: (614) 496-9076  <a href="mailto:Shawn.Miles@com.state.oh.us">Shawn.Miles@com.state.oh.us</a></p>	<p>Stark *</p>
<p><b>#37 David Rice</b>          P.O. Box 41241          Dayton, Ohio 45441          Voice/Fax: (740) 502-0883  <a href="mailto:Dave.Rice@com.state.oh.us">Dave.Rice@com.state.oh.us</a></p>	<p>Montgomery *</p>
<p><b>#35 Sean Seibert</b>          P.O. Box 422          Painesville, Ohio 44077-3938          Voice: (614) 557-8662          Fax: (614) 232-9541  <a href="mailto:Sean.Seibert@com.state.oh.us">Sean.Seibert@com.state.oh.us</a></p>	<p>Lake *</p>
<p>#11 Kela D. Thompson          6606 Tussing Rd, PO Box 4009          Reynoldsburg, Ohio 43068-9009          Voice: (614) 728-5007          Fax: (614) 232-9537  <a href="mailto:kela.thompson@com.state.oh.us">kela.thompson@com.state.oh.us</a></p>	<p>Franklin *</p>

**\* Headquarter County**

<p><b>Stephen Clegg, Chief</b>          6606 Tussing Road, PO Box 4009          Reynoldsburg, Ohio 43068-9009          Voice: (614) 728-8686          Fax: (614) 728-8639  <a href="mailto:Stephen.Clegg@com.state.oh.us">Stephen.Clegg@com.state.oh.us</a></p>	<p><b>#90 Jackie Clark, Supervisor</b>          6606 Tussing Rd, PO Box 4009          Reynoldsburg, Ohio 43068-9009          Voice: (614) 728-5019          Fax: (614) 222-2357  <a href="mailto:Jackie.Clark@com.state.oh.us">Jackie.Clark@com.state.oh.us</a></p>
---	---



## PREVAILING WAGE CONTRACTOR RESPONSIBILITIES

**This is a summary of prevailing wage contractors' responsibilities. For more detailed information please refer to Chapter 4115 of the Ohio Revised Code**

### General Information

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than \$250,000 for new construction or \$75,000 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting.

Ohio's prevailing wage laws apply to all public improvements financed in whole or in part by public funds when the total overall project cost is fairly estimated to be more than \$91,150 for new construction that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction or \$27,309 for reconstruction, enlargement, alteration, repair, remodeling, renovation, or painting of a public improvement that involves roads, streets, alleys, sewers, ditches and other works connected to road or bridge construction.

- a) Thresholds are to be adjusted biennially by the Administrator of Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration
- b) Biennial adjustments to threshold levels are made according to the Price Deflator for Construction Index, United States Department of Commerce, Bureau of the Census\*, but may not increase or decrease more than 3% for any year

### Penalties for violation

Violators are to be assessed the wages owed, plus a penalty of 100% of the wages owed.

### Intentional Violations

If an intentional violation is determined to have occurred, the contractor is prohibited from contracting directly or indirectly with any public authority for the construction of a public improvement. Intentional violation means "a willful, knowing, or deliberate disregard for any provision" of the prevailing wage law and includes but is not limited to the following actions:

- Intentional failure to submit payroll reports as required, or knowingly submitting false or erroneous reports.
- Intentional misclassification of employees for the purpose of reducing wages.
- Intentional misclassification of employees as independent contractors or as apprentices.
- Intentional failure to pay the prevailing wage.
- Intentional failure to comply with the allowable ratio of apprentices to skilled workers as required by the regulations established by Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration.
- Intentionally employing an officer, of a contractor or subcontractor, that is known to be prohibited from contracting, directly or indirectly, with a public authority.



## Responsibilities

- A. Pay the prevailing rate of wages as shown in the wage rate schedules issued by the Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration, for the classification of work being performed.
  1. Wage rate schedules include all modifications, corrections, escalations, or reductions to wage rates issued for the project.
  2. Overtime must be paid at time and one-half the employee's base hourly rate. Fringe benefits are paid at straight time rate for all hours including overtime.
  3. Prevailing wages must be paid in full without any deduction for food, lodging, transportation, use of tools, etc.; unless, the employee has voluntarily consented to these deductions in writing. The public authority and the Director of Ohio Department of Commerce, Division of Industrial Compliance and Labor, Bureau of Wage and Hour Administration - must approve these deductions as fair and reasonable. Consent and approval must be obtained before starting the project.
  
- B. Use of Apprentices and Helpers cannot exceed the ratios permitted in the wage rate schedules.
  1. Apprentices must be registered with the U.S. Department of Labor Bureau of Apprenticeship and Training.
  2. Contractors must provide the Prevailing Wage Coordinator a copy of the Apprenticeship Agreement for each apprentice on the project.
  
- C. Keep full and accurate payroll records available for inspection by any authorized representative of the Ohio Department of Commerce, Division of Industrial Compliance, and Labor, Bureau of Wage and Hour Administration or the contracting public authority, including the Prevailing Wage Coordinator. Records should include but are not limited to:
  1. Time cards, time sheets, daily work records, etc.
  2. Payroll ledger\journals and canceled checks\check register.
  3. Fringe benefit records must include program, address, account number, & canceled checks.
  4. Records made in connection with the public improvement must not be removed from the State for one year following the completion of the project.
  5. Out-of-State Corporations must submit to the Ohio Secretary of State the full name and address of their Statutory Agent in Ohio.
  
- D. Prevailing Wage Rate Schedule must be posted on the job site where it is accessible to all employees.
  
- E. Prior to submitting the initial payroll report, supply the Prevailing Wage Coordinator with your project dates to schedule reporting of your payrolls.
  
- F. Supply the Prevailing Wage Coordinator a list of all subcontractors including the name, address, and telephone number for each.
  1. **Contractors are responsible for their subcontractors' compliance with requirements of Chapter 4115 of the Ohio Revised Code.**





- G. Before employees start work on the project, supply them with written notification of their job classification, prevailing wage rate, fringe benefit amounts, and the name of the Prevailing Wage Coordinator for the project. A copy of the completed signed notification should be submitted to Prevailing Wage Coordinator.
- H. Supply all subcontractors with the Prevailing Wage Rates and changes.
- I. Submit certified payrolls within two (2) weeks after the initial pay period. Payrolls must include the following information:
  - 1. Employees' names, addresses, and social security numbers.
    - a. Corporate officers/owners/partners and any salaried personnel who do physical work on the project are considered employees. All rate and reporting requirements are applicable to these individuals.
  - 2. Employees' work classification.
    - a. Be specific about the laborers and/or operators (Group)
    - b. For all apprentices, show level/year and percent of journeyman's rate
  - 3. Hours worked on the project for each employee.
    - a. The number of hours worked in each day and the total number of hours worked each week.
  - 4. Hourly rate for each employee.
    - a. The minimum rate paid must be the wage rate for the appropriate classification. The Department's Wage Rate Schedule sets this rate.
    - b. All overtime worked is to be paid at time and one-half for all hours worked more than forty (40) per week.
  - 5. Where fringes are paid into a bona fide plan instead of cash, list each benefit and amount per hour paid to program for each employee.
    - a. When the amount contributed to the fringe benefit plan and the total number of hours worked by the employee on all projects for the year are documented, the hourly amount is calculated by dividing the total contribution of the employer by the total number of hours worked by the employee.
    - b. When the amount contributed to the fringe benefit is documented but not the total hours worked, the hourly amount is calculated by **dividing the total yearly contribution by 2080**.
  - 6. Gross amount earned on all projects during the pay period.
  - 7. Total deductions from employee's wages.
  - 8. Net amount paid.
- J. The reports shall be certified by the contractor, subcontractor, or duly appointed agent stating that the payroll is correct and complete; and that the wage rates shown are not less than those required by the O.R.C. 4115.
- K. Provide a Final Affidavit to the Prevailing Wage Coordinator upon the completion of the project.

## PREVAILING WAGE NOTIFICATION to EMPLOYEE

4115.05...the contractor or subcontractor shall furnish each employee **NOT covered by a collective bargaining agreement** written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed.

Project Name:	Job Number:
Contractor:	
Project Location:	
Prevailing Wage Coordinator	Employee
Public Authority:	Name:
Name of PWC:	Street:
Street:	City:
City:	State/Zip:
State/Zip:	Phone:
	Email:
Phone:	Last 4 Digits of SS #:

You will be performing work on this project that falls under these classifications. You will be paid the appropriate rate for the type of work you are performing.

Classification:	Prevailing Wage Rate Total Package:	Minus your fringe benefits *:	Your hourly base rate and overtime:
			/
			/
			/
			/
			/
			/

Hourly fringe benefits paid on your behalf by this company (Yearly amount the **company pays** divided by 2080):

Fringe	Amount	Fringe	Amount
Health Insurance		Vacation	
Life Insurance		Holiday	
Pension		Sick Pay	
Other (Specify)		Training	
Other (Specify)		<b>Total Hourly Fringes *</b>	

Contractor's Signature:	Date:
Employee's Signature:	Date:

# INSTRUCTIONS FOR PREPARING CERTIFIED PAYROLL REPORTS

## General

Contractors and subcontractors are required by law to submit certified payroll reports for work on projects covered by Ohio's Prevailing Wage Law. This form meets the reporting requirements established by Ohio Revised Code Chapter 4115. The use of this form is not mandatory; employers may submit their own forms provided that all of the required information is included. This form may be reproduced, or additional copies obtained from:

Ohio Department of Commerce  
Division of Industrial Compliance and Labor  
Bureau of Wage & Hour Administration  
6606 Tussing Rd, P. O. Box 4009  
Reynoldsburg, OH 43068-9009  
Phone: (614) 644-2239  
www.com.ohio.gov

## Certified Payroll Heading

**Employer name and address:** Company's full name and address... Indicate if the company is a subcontractor.

**Subcontractor:** Check and list the name of the General Contractor or Prime.

**Project:** Name and location of the project, including county.

**Contracting Public Authority:** Name and address of the contracting public authority... (Owner of the project).

**Week Ending:** Month, day, and year for the last day of the reporting period.

**Payroll #:** Indicate first, second, third, etc. payroll filed by the company for the project.

**Page Indicator:** number of pages included in the report.

**Project Number:** Determined by the public authority... if there is no number leave it blank.

## Payroll Information by Column

- Employee Name, Address and Social Security number:** This information must be provided for all employees that perform physical labor on the project. Corporate officers, partners, and salaried employees are considered employees and must be paid the prevailing rate. Individual sole proprietors do not have to pay themselves prevailing rate but must report their hours on the project.
- Work Class:** List classification of work actually performed by employee. If unsure of work classification, consult the Ohio department of Commerce, Wage and Hour Bureau. Employees working more than one classification should have separate line entries for each classification. Indicate what year/level for Apprentices. Be specific when using laborer and operator classifications; for example, Backhoe Operator or Asphalt Laborer.
- Hours Worked, Day & Date:** In the first row of column 3 enter days of pay period example; M T W T H F S S. The second row is for the date that corresponds with each day for the pay period. In the employee information section enter the number of hours worked on the prevailing wage project and which day the hours were worked. Separate rows are labeled for (ST) straight time hours and (OT) overtime hours. All hours worked after 40, must be paid at the appropriate overtime rate.
- Project Total Hours:** Total the hours entered for pay period.
- Base Rate:** Enter actual rate per hour paid to the employee. The overtime hourly rate is time and one-half the base rate listed in the prevailing wage schedule plus fringe benefits at straight time rate. The prevailing wage schedule lists the base rate plus fringe benefit amounts. These amounts added together equal the total prevailing wage rate. Employers must pay this total amount in one of three ways.
  - Total rate may be paid in entirety in the base rate to the employee; in which case, the cash designation will be checked for fringe benefits.
  - Total rate may be paid as listed in prevailing wage rate schedule with total fringe amounts paid approved plans.
  - Total rate may be paid with a combination of base rate and fringe payments to approved plans in amounts other than those listed in schedule.
- Project Gross:** Enter total gross wages earned on the project for straight time and overtime. Project hours X base rate should equal project gross.
- Fringes:** If fringe benefits are paid in the hourly base rate, indicate this by marking the **Cash** space. If fringe benefits are paid to approved plans as listed in the prevailing wage rate schedule, mark the space **Approved Plans**. If fringe benefits are paid partially in the base rate and partially to approved plans, mark the space **Cash & Approved plans**. List the hourly amount paid to approved plans for each fringe. If payments are not made on a per hour basis, **calculate the hourly fringe credit by dividing the yearly employer contribution by** the lesser of: hours actually worked in the year (these must be documented) or **2080**. Fringe benefits include: **Employer's share** of health insurance, life insurance, retirement plan, bonus/profit sharing, sick pay, holiday pay, personal leave, vacation, and education/training programs. If unsure of a possible fringe benefit, contact the Ohio Department of Commerce - Division of Industrial Compliance and Labor - Bureau of Wage & Hour Administration.
- Total Hours All Jobs:** Total all hours worked during the pay period including non-prevailing wage jobs.
- Total Gross All Jobs:** Gross amount earned in the pay period for all hours worked.
- Self explanatory.
- Self explanatory.

# Certified Payroll Report

**Report for:**  Check if Subcontractor<sup>1)</sup> Contract No: \_\_\_\_\_ Payroll No: \_\_\_\_\_  
 Company:<sup>1)</sup> \_\_\_\_\_ If Sub, GC/Prime Contractor Name: \_\_\_\_\_  
 Address: \_\_\_\_\_ Project Name & Location: \_\_\_\_\_ Week Ending: \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_ Public Authority (Owner): \_\_\_\_\_  
 Phone No: \_\_\_\_\_ Sheet:<sup>2)</sup> \_\_\_\_\_ of \_\_\_\_\_

1. Employee Name, Address, & SS# (Last 4 digits if permitted)	2. Work Class <sup>3)</sup>	3. Prevailing Wage Project Hours Worked - Day & Date							4. Total Hours	5. Base Rate	6. Project Gross	7. Fringes: <input type="checkbox"/> Cash <input type="checkbox"/> Approved Plans <input type="checkbox"/> Cash & Approved Plans						Weekly Payroll Amount			
		Fringe Rate Your Company Pays Per Hour						8. Total Hrs for all Jobs				9. Total Gross on All Jobs	10. Total Deductions	11. Net Pay on All Jobs							
		H&W	Pens	Vac	Hol	Other	Total														
	OT																				
	ST																				
	OT																				
	ST																				
	OT																				
	ST																				
	OT																				
	ST																				

1) By signing below, I certify that: (1) I pay, or supervise the payment of the employees shown above; (2) during the pay period reported on this form, all hours worked on this project have been paid at the appropriate prevailing wage rate for the class of work done; (3) the fringe benefits have been paid as indicated above; (4) no rebates or deductions have been or will be made, directly or indirectly from the total wages earned, other than permissible deductions as defined in ORC Chapter 4115; and (5) apprentices are registered with the U.S. Dept. of Labor, Bureau of Apprenticeship and Training. I understand that the willful falsification of any of the above statements may subject the Contractor or Subcontractor to civil or criminal prosecution.

Type or Print Name and Title \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

**DO NOT REDO FORM AND CHANGE RATES IF AN ERROR HAS BEEN MADE! SUBMIT A CORRECTED REPORT**

Fill out all other areas of the form as usual

**\*\*\* CORRECTED \*\*\***  
**Certified Payroll Report**

Total Hours being corrected for this indiv.

Difference in base rate & corrected base rate if applicable

**Report for:**  Check if Subcontractor<sup>1)</sup> Contract No: \_\_\_\_\_ Payroll No: \_\_\_\_\_  
 Company:<sup>1)</sup> \_\_\_\_\_ If Sub, GC/Prime Contractor Name: \_\_\_\_\_  
 Address: \_\_\_\_\_ Project Name & Location: \_\_\_\_\_ Week Ending: \_\_\_\_\_  
 City, State, Zip \_\_\_\_\_ Public Authority (Owner): \_\_\_\_\_ Sheet<sup>2)</sup> \_\_\_\_\_ of \_\_\_\_\_  
 Phone No: \_\_\_\_\_

1. Employee Name, Address, & SS# (Last 4 digits if permitted)	2. Work Class <sup>3)</sup>	3. Prevailing Wage Project Hours Worked - Day & Date	4. Total Hours	5. Base Rate	6. Project Gross	7. Fringes: <input type="checkbox"/> Cash <input type="checkbox"/> Approved Plans <input type="checkbox"/> Cash & Approved Plans							Weekly Payroll Amount			
						Fringe Rate Your Company Pays Per Hour							8. Total Hrs for all Jobs	9. Total Gross on All Jobs	10. Total Deductions	11. Net Pay on All Jobs
						H&W	Pens	Vac	Hol	Other	Total					
Name Address Last 4 SSN	Class	OT														
		ST														
		OT														
		ST														
		OT														
		ST														
		OT														
		ST														

Put the period that is being corrected, i.e.: Oct 26 to Nov 02, not individual weekly dates

Difference in fringes & corrected fringes if applicable.

The net paid will be the total of difference paid and the total hours being corrected. Provide check # in the margin.

1 ) By signing below, I certify that: (1) I pay, or supervise the payment of the employees shown above; (2) during the pay period reported on this form, all hours worked on this project have been paid at the appropriate prevailing wage rate for the class of work done; (3) the fringe benefits have been paid as indicated above; (4) no rebates or deductions have been or will be made, directly or indirectly from the total wages earned, other than permissible deductions as defined in ORC Chapter 4115; and (5) apprentices are registered with the U.S. Dept. of Labor, Bureau of Apprenticeship and Training. I understand that the willful falsification of any of the above statements may subject the Contractor or Subcontractor to civil or criminal prosecution.

Type or Print Name and Title \_\_\_\_\_ **Complete** Signature \_\_\_\_\_ **Sign** Date \_\_\_\_\_ **Date**

11/14 jc <sup>2)</sup>Attach additional sheets as necessary. <sup>3)</sup>Type in continuous line, text will wrap.

Send cover letter stating what happened along with a signed letter from the employee acknowledging that they were underpaid, received payment, check or transaction number. Contractor provided cancelled endorsed bank check.

**IMPORTANT NOTICE** - This process may be different if the Public Authority is using **LCPtracker** or some other online system to collect Certified Payroll Report from the contractors.



Affidavit of Compliance

Prevailing Wages

I, \_\_\_\_\_ (Name of person signing affidavit) (Title)

do hereby certify that the wages paid to all employees of

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

for all hours worked on the

\_\_\_\_\_ (Project name and location)

project, during the period from \_\_\_\_\_ to \_\_\_\_\_ are in (Project Dates)

compliance with prevailing wage requirements of Chapter 4115 of the Ohio Revised Code. I further certify that no rebates or deductions have been or will be made, directly or indirectly, from any wages paid in connection with this project, other than those provided by law.

\_\_\_\_\_ (Signature of Officer or Agent)

Sworn to and subscribed in my presence this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_.

\_\_\_\_\_ (Notary Public)

The above affidavit must be executed and sworn to by the officer or agent of the contractor or subcontractor who supervises the payment of employees. This affidavit must be submitted to the owner (public authority) before the surety is released or final payment due under the terms of the contract is made.

## Prevailing Wage Determination Cover Letter

County: WARREN      ▼  
Determination Date: 04/27/2022  
Expiration Date: 07/27/2022

THE FOLLOWING PAGES ARE PREVAILING RATES OF WAGES ON PUBLIC IMPROVEMENTS FAIRLY ESTIMATED TO BE MORE THAN THE AMOUNT IN O.R.C. SEC. 4115.03 (b) (1) or (2), AS APPLICABLE.

Section 4115.05 provides, in part: "Where contracts are not awarded or construction undertaken within ninety days from the date of the establishment of the prevailing wages, there shall be a redetermination of the prevailing rate of wages before the contract is awarded." The expiration date of this wage schedule is listed above for your convenience only. This wage determination is not intended as a blanket determination to be used for all projects during this period without prior approval of this Department.

Section 4115.04, Ohio Revised Code provides, in part: "Such schedule of wages shall be attached to and made a part of the specifications for the work, and shall be printed on the bidding blanks where the work is done by contract..."

The contract between the letting authority and the successful bidder shall contain a statement requiring that mechanics and laborers be paid a prevailing rate of wage as required in Section 4115.06, Ohio Revised Code.

The contractor or subcontractor is required to file with the contracting public authority upon completion of the project and prior to final payment therefore an affidavit stating that he has fully complied with Chapter 4115 of the Ohio Revised Code.

The wage rates contained in this schedule are the "Prevailing Wages" as defined by Section 4115.03, Ohio Revised Code (the basic hourly rates plus certain fringe benefits). These rates and fringes shall be a minimum to be paid under a contract regulated by Chapter 4115 of the Ohio Revised Code by contractors and subcontractors. The prevailing wage rates contained in this schedule include the effective dates and wage rates currently on file. In cases where future effective dates are not included in this schedule, modifications to the wage schedule will be furnished to the Prevailing Wage Coordinator appointed by the public authority as soon as prevailing wage rates increases are received by this office.

"There shall be posted in a prominent and accessible place on the site of work a legible statement of the Schedule of Wage Rates specified in the contract to the various classifications of laborers, workmen, and mechanics employed, said statement to remain posted during the life of such contract." Section 4115.07, Ohio Revised Code.

Apprentices will be permitted to work only under a bona fide apprenticeship program if such program exists and if such program is registered with the Ohio Apprenticeship Council.

Section 4115.071 provides that no later than ten days before the first payment of wages is due to any employee of any contractor or subcontractor working on a contract regulated by Chapter 4115, Ohio Revised Code, the contracting public authority shall appoint one of his own employees to act as the prevailing wage coordinator for said contract. The duties of the prevailing wage coordinator are outlined in Section 4115.071 of the Ohio Revised Code.

Section 4115.05 provides for an escalator in the prevailing wage rate. Each time a new rate is established, that rate is required to be paid on all ongoing public improvement projects.

A further requirement of Section 4115.05 of the Ohio Revised Code is: "On the occasion of the first pay date under a contract, the contractor shall furnish each employee not covered by a collective bargaining agreement or understanding between employers and bona fide organizations of Labor with individual written notification of the job classification to which the employee is assigned, the prevailing wage determined to be applicable to that classification, separated into the hourly rate of pay and the fringe payments, and the identity of the prevailing wage Coordinator appointed by the public authority. The contractor or subcontractor shall furnish the same notification to each affected employee every time the job classification of the employee is changed."

Work performed in connection with the installation of modular furniture may be subject to prevailing wage.

**THIS PACKET IS NOT TO BE SEPARATED BUT IS TO REMAIN COMPLETE AS IT IS SUBMITTED TO YOU. (Reference guidelines and forms are included in this packet to be helpful in the compliance of the Prevailing Wage law.)**

wh1500

# Prevailing Wage Rate Skilled Crafts

Name of Union: Asbestos Local 8 Heat & Frost Insulators

Change # : LCN01-2022sksAsbLoc8

Craft : Asbestos Worker Effective Date : 03/30/2022 Last Posted : 03/30/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>												
Asbestos Insulators	\$32.33		\$7.39	\$9.35	\$0.45	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$52.52	\$68.68
<b>Apprentice</b>	<b>Percent</b>											
1st year	46.58	\$15.06	\$7.39	\$5.10	\$0.45	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$31.00	\$38.53
2nd year	53.39	\$17.26	\$7.39	\$6.65	\$0.45	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$34.75	\$43.38
3rd year	58.03	\$18.76	\$7.39	\$6.65	\$0.45	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$36.25	\$45.63
4th year	62.67	\$20.26	\$7.39	\$6.65	\$0.45	\$0.00	\$3.00	\$0.00	\$0.00	\$0.00	\$37.75	\$47.88

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

- 1 Journeymen to 1 Apprentice
- 2 Journeymen to 2 Apprentice
- 3 Journeymen to 3 Apprentice
- 3 Journeymen to 1 Apprentice there After

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, BROWN, BUTLER\*, CLERMONT, HAMILTON, HIGHLAND, WARREN\*

**Special Jurisdictional Note :** In Butler County: townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, St. Clair, Union & Wayne. In Warren County: Townships of Deerfield, Hamilton, Harlan, Salem, Union & Washington

**Details :**

All work in connection with Asbestos Removal, Abatement, Encapsulation, Lead Abatement, Hazardous Materials and Fire Stopping which is performed by employees in the Mechanic or Apprentice Classification shall be covered under the terms of this Agreement.



# Prevailing Wage Rate Skilled Crafts

Name of Union: Asbestos Local 50 Zone 1

**Change # : LCN01-2022sksLoc50**

**Craft : Asbestos Worker Effective Date : 03/09/2022 Last Posted : 03/09/2022**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Asbestos Insulation Mechanic	\$34.26		\$7.95	\$7.85	\$0.50	\$0.00	\$2.90	\$0.05	\$0.00	\$0.00	\$53.51	\$70.64
Firestop Technician	\$34.26		\$7.95	\$7.85	\$0.50	\$0.00	\$2.90	\$0.05	\$0.00	\$0.00	\$53.51	\$70.64
<b>Apprentice</b>												
	<b>Percent</b>											
1st year	53.88	\$18.46	\$7.71	\$0.00	\$0.44	\$0.00	\$0.25	\$0.05	\$0.00	\$0.00	\$26.91	\$36.14
2nd year	65.28	\$22.36	\$7.95	\$0.95	\$0.44	\$0.00	\$0.50	\$0.05	\$0.00	\$0.00	\$32.25	\$43.44
3rd year	75.95	\$26.02	\$7.95	\$2.38	\$0.44	\$0.00	\$0.75	\$0.05	\$0.00	\$0.00	\$37.59	\$50.60
4th year	83.75	\$28.69	\$7.95	\$2.38	\$0.44	\$0.00	\$0.75	\$0.05	\$0.00	\$0.00	\$40.26	\$54.61

**Special Calculation Note :** \*other is Labor Mgt Training Fund

**Ratio :**

1 Journeymen to 1 Apprentice  
4 Journeymen to 1 Apprentice thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ATHENS, AUGLAIZE, BUTLER\*, CLINTON, CRAWFORD, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GUERNSEY, HARDIN, HOCKING, KNOX, LICKING, LOGAN, MADISON, MARION, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, ROSS, SHELBY, UNION, VINTON, WARREN\*

**Special Jurisdictional Note :** Township of Butler County-Townships of Lemon and Madison. Warren County-Township of Clear Creek, Franklin, Massie, Turtle Creek and Wayne

**Details :**

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Asbestos Local 207 OH

Change # : LCN01-2018fbLoc207OH

Craft : Asbestos Worker Effective Date : 08/23/2018 Last Posted : 08/23/2018

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>											
Asbestos Abatement	\$25.50	\$7.25	\$6.45	\$0.65	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$39.92	\$52.67
Trainee	\$16.50	\$7.25	\$1.50	\$0.65	\$0.00	\$0.00	\$0.07	\$0.00	\$0.00	\$25.97	\$34.22

### Special Calculation Note :

#### Ratio :

3 Journeymen to 1 Trainee

#### Jurisdiction ( \* denotes special jurisdictional note ) :

ADAMS, ASHLAND, ASHTABULA\*, ATHENS, AUGLAIZE, BROWN, BUTLER\*, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARDIN, HARRISON, HIGHLAND, HOCKING, HOLMES, HURON, KNOX, LAKE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MIAMI, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PORTAGE, PREBLE, RICHLAND, ROSS, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN\*, WAYNE

**Special Jurisdictional Note :** Butler County:( townships of Fairfield, Hanover, Liberty, Milford, Morgan, Oxford, Ripley, Ross, StClair, Union & Wayne.) (Lemon & Madison) Warren County: (townships of: Deerfield, Hamilton, Harlan, Salem, Union & Washington). ( Clear Creek, Franklin, Mossie, Turtle Creek & Wayney). Ashtabula County: (post offices & townships of Ashtabula, Austinburg, Geneva, Harperfield, Jefferson, Plymouth & Saybrook) (townships of Andover, Cherry Valley, Colbrook, Canneaut, Denmark, Dorset, East Orwell, Hartsgrove, Kingville, Lenox, Monroe, Morgan, New Lyme, North Kingsville, Orwell, Pierpoint, Richmond Rock Creek, Rome, Sheffield, Trumbull, Wayne, Williamsfield & Windsor) Erie County: (post offices & townships of Berlin, Berlin Heights, Birmingham, Florence ,Huron, Milan, Shinrock & Vermilion)

**Details :**

Asbestos & lead paint abatement including, but not limited to the removal or encapsulation of asbestos & lead paint, all work in conjunction with the preparation of the removal of same & all work in conjunction with the clean up after said removal. The removal of all insulation materials, whether they contain asbestos or not, from mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) is recognized as being the exclusive work of the Asbestos Abatement Workers.

On all mechanical systems (pipes, boilers, ducts, flues, breaching, etc.) that are going to be demolished, the removal of all insulating materials whether they contain asbestos or not shall be the exclusive work of the Laborers.

An Abatement Journeyman is anyone who has more than 300 hours in the Asbestos Abatement field.

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Boilermaker Local 105

Change # : LCN02-2013fbLoc 105

Craft : Boilermaker Effective Date : 10/01/2013 Last Posted : 09/25/2013

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification												
Boilermaker	\$35.26		\$7.07	\$13.28	\$0.89	\$0.00	\$3.00	\$0.55	\$0.00	\$0.00	\$60.05	\$77.68
Apprentice	Percent											
1st 6 months	70.03	\$24.69	\$7.07	\$11.30	\$0.89	\$0.00	\$2.10	\$0.55	\$0.00	\$0.00	\$46.60	\$58.95
2nd 6 months	75.02	\$26.45	\$7.07	\$11.30	\$0.89	\$0.00	\$2.25	\$0.55	\$0.00	\$0.00	\$48.51	\$61.74
3rd 6 months	80.00	\$28.21	\$7.07	\$11.30	\$0.89	\$0.00	\$2.40	\$0.55	\$0.00	\$0.00	\$50.42	\$64.52
4th 6 months	85.02	\$29.98	\$7.07	\$11.30	\$0.89	\$0.00	\$2.55	\$0.55	\$0.00	\$0.00	\$52.34	\$67.33
5th 6 months	87.52	\$30.86	\$7.07	\$13.28	\$0.89	\$0.00	\$2.63	\$0.55	\$0.00	\$0.00	\$55.28	\$70.71
6th 6 months	90.03	\$31.74	\$7.07	\$13.28	\$0.89	\$0.00	\$2.70	\$0.55	\$0.00	\$0.00	\$56.23	\$72.11
7th 6 months	92.50	\$32.62	\$7.07	\$13.28	\$0.89	\$0.00	\$2.78	\$0.55	\$0.00	\$0.00	\$57.19	\$73.49
8th 6 months	95.00	\$33.50	\$7.07	\$13.28	\$0.89	\$0.00	\$2.85	\$0.55	\$0.00	\$0.00	\$58.14	\$74.89

**Special Calculation Note :** Other is Supplemental Health and Welfare

**Ratio :**

5 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ATHENS, BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GREENE, GUERNSEY, HAMILTON, HIGHLAND, HOCKING, JACKSON, LAWRENCE, LICKING, MADISON, MEIGS, MIAMI, MONTGOMERY, MORGAN, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PREBLE, ROSS, SCIOTO, VINTON, WARREN

**Special Jurisdictional Note :**

**Details :**

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Boilermaker Local 154

Change # : LCN01-2012kpLoc 154

Craft : Boilermaker Effective Date : 03/22/2012 Last Posted : 03/22/2012

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Boilermaker	\$36.17		\$8.57	\$11.28	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$62.56	\$80.65
Trainee 60%	\$23.25		\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$41.95	\$53.57
Trainee 70%	\$27.13		\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$45.83	\$59.40
Trainee 80%	\$31.00		\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$49.70	\$65.20
Trainee 90%	\$34.88		\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$53.58	\$71.02
Apprentice Registered After 11/01/2005	Percent											
1st 6 months	60.00	\$21.70	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$40.40	\$51.25
2nd 6 months	65.00	\$23.51	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$42.21	\$53.97
3rd 6 months	70.00	\$25.32	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$44.02	\$56.68
4th 6 months	75.00	\$27.13	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$45.83	\$59.39
5th 6 months	80.00	\$28.94	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$47.64	\$62.10
6th 6 months	85.00	\$30.74	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$49.44	\$64.82
7th 6 months	90.00	\$32.55	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$51.25	\$67.53
8th 6 months	95.00	\$34.36	\$8.57	\$3.59	\$0.55	\$0.00	\$4.25	\$0.34	\$0.00	\$1.40	\$53.06	\$70.24

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

5 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BUTLER, COLUMBIANA, FAYETTE,  
JEFFERSON, LAWRENCE, MERCER, WARREN,  
WASHINGTON

**Special Jurisdictional Note :**

**Details :**

Work includes but not limited to: boiler making, acetylene burning, riveting, chipping, caulking, rigging, fitting-up, grinding, reaming, impact machine operating, unloading, and handling of boilermaker's material and equipment. Boilermakers, Blacksmiths, Forgers, Iron Shipbuilders

# Prevailing Wage Rate Skilled Crafts

Name of Union: **Bricklayer Local 18**

**Change # : LCN01-2021fbLoc18**

**Craft : Bricklayer Effective Date : 06/01/2021 Last Posted : 05/26/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Bricklayer	\$30.87		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.74	\$62.17
Stone Mason	\$30.87		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.74	\$62.17
Pointer Caulker Cleaner	\$30.87		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.74	\$62.17
Refractory Workers	\$31.87		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.74	\$63.67
Refractory Worker Hot Pay	\$33.87		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$49.74	\$66.67
Sawman	\$31.12		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.99	\$62.55
Layout Man	\$31.12		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.99	\$62.55
Free Standing Chimney	\$31.37		\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.24	\$62.92
<b>Apprentice</b>	<b>Percent</b>											
1st 6 months	60.00	\$18.52	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.39	\$43.65
2nd 6 months	65.00	\$20.07	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.94	\$45.97
3rd 6 months	70.00	\$21.61	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.48	\$48.28
4th 6 months	75.00	\$23.15	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.02	\$50.60
5th 6 months	80.00	\$24.70	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.57	\$52.91
6th 6 months	85.00	\$26.24	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.11	\$55.23
7th 6 months	90.00	\$27.78	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.65	\$57.54
8th 6 months	95.00	\$29.33	\$9.45	\$5.79	\$0.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.20	\$59.86
MASON FINISHER 1st 180 Days	45.00	\$13.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$13.89	\$20.84
1st Year H&W after 6 months	45.00	\$13.89	\$9.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.34	\$30.29
2nd Year	50.00	\$15.44	\$9.45	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.88	\$32.60

**Special Calculation Note :** \*\*In order to utilize a Pre-Apprentice, you must have 1 Registered Apprentice in your employ.

**Ratio :**

- 1-2 Journeyman to 1 Apprentice
- 3-4 Journeyman to 2 Apprentice
- 5-6 Journeyman to 2 Apprentice
- 7-10 Journeyman to 3 Apprentice

- 1 Apprentice permits 1 Mason Trainee
- 2 Apprentice permits 1 Mason Trainee
- 3 Apprentice permits 2 Mason Trainees
- 4 Apprentice permits 2 Mason Trainees

For each additional 5 Journeyman to 1 Apprentice,  
for every 3 additional Apprentices, 1 Mason Finisher may  
be added

**Special Jurisdictional Note :** In Preble County the following townships are included: (Dixon, Gasper, Graits, Israel, Lanier and Somers)

**Details :**

MASON FINISHER:duties shall be to work in all aspects of Masonry construction taking direction from the employer and the Journeyman Bricklayer & Stone Mason's working on the job. Mason Finisher's may work on job site only when a registered apprentice is on job and the ratios in table above will strictly be enforced.

Refractory work is classified as working with any of the following materials:  
Acid brick, carbon black brick or carbon black block, firebrick grinding, plastics (with a gun)  
and any resinous cement.

Fifty cents (\$0.50) per hour above scale shall be paid to employees working on free standing industrial or institutional chimneys which are completely detached from any building structure.

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CLERMONT, HAMILTON,  
PREBLE\*, WARREN



# Prevailing Wage Rate Skilled Crafts

Name of Union: Bricklayer Local 18 Tile Finisher

Change # : LCN01-2020fbLoc18

Craft : Bricklayer Effective Date : 09/01/2020 Last Posted : 08/20/2020

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Bricklayer Tile Marble Terrazzo Finisher	\$25.74		\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.01	\$53.88
Terrazzo Base Grinder	\$26.24		\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.51	\$54.63
Marble Sander Polisher	\$25.84		\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.11	\$54.03
<b>Apprentices</b>	<b>Percent</b>											
1st 6 months 0-600 hrs	60.00	\$15.44	\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.71	\$38.44
2nd 6 months 601-1200 hrs	65.00	\$16.73	\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.00	\$40.37
3rd 6 months 1201-1800 hrs	70.00	\$18.02	\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.29	\$42.30
4th 6 months 1801-2400 hrs	75.00	\$19.30	\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.57	\$44.23
5th 6 months 2401-3000 hrs	80.00	\$20.59	\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.86	\$46.16
6th 6 months 3001-3600	90.00	\$23.17	\$9.47	\$5.29	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.44	\$50.02
1-30 Days Prior to Entering Apprenticeship	50.00	\$12.87	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$12.87	\$19.30

**Special Calculation Note :** Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Note that the classification description is clarified after the local union number at the top of the page. \*\*In order to utilize a Pre-Apprentice, you must have 1 Registered Apprentice in your employ.\*\*

**Ratio :**

- 1 Journeyman to 1 Apprentice
- 5 Journeymen to 1 Apprentice
- 10 Journeymen to 2 Apprentices
- 15 Journeymen to 3 Apprentices
- 20 Journeymen to 4 Apprentices
- 25 Journeymen to 5 Apprentices

**Jurisdiction ( \* denotes special jurisdictional note ) :**

- ADAMS, BROWN, BUTLER, CLERMONT, GALLIA,
- HAMILTON, LAWRENCE, PREBLE\*, SCIOTO,
- WARREN, WARREN\*

**Special Jurisdictional Note :** Warren in the townships of Dixon, Gasper, Isrsel, Somers & Gratis in Prebble County

**Details :**

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Bricklayer Local 18 Tile Mechanic

Change # : LCN01-2020fbLoc18

Craft : Bricklayer Effective Date : 09/01/2020 Last Posted : 08/20/2020

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Bricklayer Tile Terrazzo Marble Mason Mechanic	\$30.28		\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.60	\$60.74
Marble Layout Work	\$30.78		\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.10	\$61.49
Swing Scaffold Worker	\$31.78		\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.10	\$62.99
Apprentice after 2 years (2400 hrs) as Apprentice Finisher												
5th/6 Months 0-600 hrs.	70.00	\$21.20	\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.52	\$47.11
6th/6 months 601-1200 hrs.	75.00	\$22.71	\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.03	\$49.39
7th/6 months 1201-1800 hrs.	80.00	\$24.22	\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.54	\$51.66
8th/6 months 1801-2400 hrs.	90.00	\$27.25	\$9.47	\$5.29	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.57	\$56.20

**Special Calculation Note :** Classification title contains "Bricklayer" because contract originates within the Bricklayer Local.

Note that the classification description is clarified after the local union number at the top of the

page.

**Ratio :**

1 Journeyman to 1 Apprentice  
5 Journeymen to 1 Apprentice  
10 Journeymen to 2 Apprentices  
15 Journeymen to 3 Apprentices  
20 Journeymen to 4 Apprentices  
25 Journeymen to 5 Apprentices

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, BROWN, BUTLER, CLERMONT,  
GALLIA, HAMILTON, LAWRENCE, PREBLE\*,  
SCIOTO, WARREN

**Special Jurisdictional Note :** In Preble County the Townships of Dixon, Israel, Gasper, Lanier, Somers and Gratis.

**Details :**

\*\*In order to utilize a Pre-Apprentice, you must have 1 Registered Apprentice in your employ.\*\*

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Carpenter & Pile Driver SW District HevHwy

Change # : LCN01-2021fbLoc126

Craft : Carpenter Effective Date : 06/17/2021 Last Posted : 06/17/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Carpenter	\$31.62		\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$50.49	\$66.30
Pile Driver	\$29.34		\$6.63	\$6.95	\$0.40	\$0.00	\$1.97	\$0.10	\$0.00	\$0.00	\$45.39	\$60.06
Apprentice	Percent											
1st 6 Months	60.00	\$18.97	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$37.84	\$47.33
2nd 6 Months	65.00	\$20.55	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$39.42	\$49.70
3rd 6 Months	70.00	\$22.13	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$41.00	\$52.07
4th 6 Months	75.00	\$23.71	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$42.59	\$54.44
5th 6 Months	80.00	\$25.30	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$44.17	\$56.81
6th 6 Months	85.00	\$26.88	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$45.75	\$59.19
7th 6 Months	90.00	\$28.46	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$47.33	\$61.56
8th 6 Months	95.00	\$30.04	\$8.09	\$6.95	\$0.40	\$0.00	\$3.30	\$0.13	\$0.00	\$0.00	\$48.91	\$63.93

**Special Calculation Note :** Other is UBC National Fund.

### Ratio :

1 Journeymen to 1 Apprentice

An employer shall have the right to employ one (1) Apprentice for one (1) Journeyman Carpenter in its employment for the first Apprentice employed, and 1 (1) Apprentice for two (2) Journeyman Carpenter for additional Apprentices employed.

Thereafter, every third additional carpenter hired shall be an apprentice, if available, and if practical for the type of work being performed.

### Special Jurisdictional Note :

### Jurisdiction ( \* denotes special jurisdictional note ) :

BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY, WARREN

**Details :**

Highway Construction, Airport Construction, Heavy Construction but not limited to: (tunnels,subways,drainage projects,flood control,reservoirs). Railroad Construction,Sewer Waterworks & Utility Construction but not limited to: (storm sewers, waterlines, gaslines). Industrial & Building Site, Power Plant, Amusement Park, Athletic Stadium Site, Sewer and Water Plants.

When the Contractor furnishes the necessary underwater gear for the Diver, the Diver shall be paid one and one half (1&1/2) times the journeyman rate for the time spent in the water.

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Carpenter & Pile Driver  
SW Zone 2

Change # : LCN01-2021fbLoc126

Craft : Carpenter Effective Date : 07/14/2021 Last Posted : 07/14/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Carpenter	\$28.67		\$7.88	\$6.95	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$45.97	\$60.31
Pile Driver	\$25.84		\$6.62	\$6.95	\$0.40	\$0.00	\$0.91	\$0.10	\$0.00	\$0.00	\$40.82	\$53.74
Apprentice	Percent											
1st 3 Months	60.00	\$17.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.20	\$25.80
2nd 3 Months	60.00	\$17.20	\$7.88	\$0.00	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$27.55	\$36.15
2rd 6 Months	60.00	\$17.20	\$7.88	\$0.00	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$27.55	\$36.15
3rd 6 Months	65.00	\$18.64	\$7.88	\$0.00	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$28.99	\$38.30
4th 6 Months	65.00	\$18.64	\$7.88	\$0.00	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$28.99	\$38.30
5th 6 Months	70.00	\$20.07	\$7.88	\$6.95	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$37.37	\$47.40
6th 6 Months	75.00	\$21.50	\$7.88	\$6.95	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$38.80	\$49.55
7th 6 Months	80.00	\$22.94	\$7.88	\$6.95	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$40.24	\$51.70
8th 6 Months	85.00	\$24.37	\$7.88	\$6.95	\$0.43	\$0.00	\$1.91	\$0.13	\$0.00	\$0.00	\$41.67	\$53.85

**Special Calculation Note :** Other is for UBC National Fund.

### Ratio :

After employing 1 Journeymen, the next carpenter employed may be an Apprentice. After the first apprentice is employed, the ratio of Apprentice to Journeymen shall not exceed 2 Journeymen for 1 Apprentice.

### Jurisdiction ( \* denotes special jurisdictional note ) :

BROWN, BUTLER, CLERMONT, CLINTON, HAMILTON, WARREN

### Special Jurisdictional Note :

### Details :

Carpenter duties shall include but not limited to: Pile driving, milling, fashioning, joining, assembling, erecting, fastening, or dismantling of all material of wood, plastic, metal, fiber, cork, and composition, and all other substitute materials: pile driving, cutting, fitting, and placing of lagging, and the handling, cleaning, erecting, installing, and dismantling of machinery, equipment, and erecting pre-engineered metal buildings.

Pile Drivers work but not limited to: unloading, assembling, erection, repairs, operation, signaling, dismantling, and reloading all equipment that is used for pile driving including pile butts. pile butts is defined as sheeting or scrap piling. Underwater work that may be required in connection with the installation of piling. The diver and his tender work as a team and shall arrive at their own financial arrangements with the contractor. Any configuration of wood, steel, concrete, or composite that is jetted, driven, or vibrated onto the ground by conventional pile driving equipment for the purpose of supporting a future load that may be permanent or temporary.

Driving bracing, plumbing, cutting off and capping of all piling whether wood, metal, pipe piling or composite. loading, unloading, erecting, framing, dismantling, moving, and handling of pile driving equipment. piling used in the construction and repair of all wharves, docks, piers, trestles, caissons, cofferdams, and the erection of all sea walls and breakwaters. All underwater and marine work on bulkheads, wharves, docks, shipyards, caissons, piers, bridges, pipeline work, viaducts, marine cable and trestles, as well as salvage and reclamation work where divers are employed.

Rate shall include carpenters, acoustic, and ceiling installers, drywall installers, pile drivers, and floorlayers.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Floorlayer SW District G

Change # : LCN01-2021sksLocSWDayton

Craft : Carpenter Effective Date : 10/06/2021 Last Posted : 10/06/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Carpenter Floorlayer	\$27.12		\$7.93	\$6.95	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$44.51	\$58.07
Apprentice	Percent											
1st 3 months	65.00	\$17.63	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$17.63	\$26.44
2nd 3 months	65.00	\$17.63	\$7.93	\$0.00	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$28.07	\$36.88
2nd 6 months	65.00	\$17.63	\$7.93	\$0.00	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$28.07	\$36.88
3rd 6 months	70.00	\$18.98	\$7.93	\$0.00	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$29.42	\$38.92
4th 6 months	75.00	\$20.34	\$7.93	\$0.00	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$30.78	\$40.95
5th 6 months	80.00	\$21.70	\$7.93	\$6.95	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$39.09	\$49.93
6th 6 months	85.00	\$23.05	\$7.93	\$6.95	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$40.44	\$51.97
7th 6 months	90.00	\$24.41	\$7.93	\$6.95	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$41.80	\$54.00
8th 6 months	95.00	\$25.76	\$7.93	\$6.95	\$0.43	\$0.00	\$1.95	\$0.13	\$0.00	\$0.00	\$43.15	\$56.04

**Special Calculation Note :** Other fs for UBC National Fund and Install

**Ratio :**

1 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, LOGAN, MIAMI, MONTGOMERY, PREBLE, SHELBY, WARREN

**Special Jurisdictional Note :**

**Details :**

Scope of work shall include, but not be limited to: receiving,unloading,handling,distribution and installation of all carpeting materials,carpet padding or matting materials and all resilient materials whether for use on walls,



## Carpenter Floorlayer SW District G

floors, counter, sink, table and all preparation work necessary in connection therewith, including sanding work. the installation of nonstructural under-layment and the work of removing, cleaning waxing of any of the above. Carpeting shall include any floor covering composed of either natural or synthetic fibers that are made in breadths to be sewed, fastened or directly glued to floors or over cushioning sound-proofing materials. Resilient Floors shall consist of and include the laying of all special designs of wood, wood block, wood composition, cork, linoleum, asphalt, mastic, plastic, rubber tile, whether nailed or glued.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Carpenter Millwright Local 1090 SW Zone I

Change # : LCN01-2021sksLoc1066

Craft : Carpenter Effective Date : 09/22/2021 Last Posted : 09/22/2021

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>												
Carpenter Millwright	\$31.68		\$7.93	\$6.95	\$0.49	\$0.00	\$6.94	\$0.16	\$0.00	\$0.00	\$54.15	\$69.99
<b>Apprentice</b>	<b>Percent</b>											
1st 6 months	60.00	\$19.01	\$7.93	\$4.27	\$0.49	\$0.00	\$4.16	\$0.16	\$0.00	\$0.00	\$36.02	\$45.52
2nd 6 months	65.00	\$20.59	\$7.93	\$4.61	\$0.49	\$0.00	\$4.51	\$0.16	\$0.00	\$0.00	\$38.29	\$48.59
3rd 6 months	70.00	\$22.18	\$7.93	\$4.94	\$0.49	\$0.00	\$4.86	\$0.16	\$0.00	\$0.00	\$40.56	\$51.64
4th 6 months	75.00	\$23.76	\$7.93	\$5.28	\$0.49	\$0.00	\$5.21	\$0.16	\$0.00	\$0.00	\$42.83	\$54.71
5th 6 months	80.00	\$25.34	\$7.93	\$5.61	\$0.49	\$0.00	\$5.55	\$0.16	\$0.00	\$0.00	\$45.08	\$57.76
6th 6 months	85.00	\$26.93	\$7.93	\$5.95	\$0.49	\$0.00	\$5.90	\$0.16	\$0.00	\$0.00	\$47.36	\$60.82
7th 6 months	90.00	\$28.51	\$7.93	\$6.28	\$0.49	\$0.00	\$6.25	\$0.16	\$0.00	\$0.00	\$49.62	\$63.88
8th 6 months	95.00	\$30.10	\$7.93	\$6.62	\$0.49	\$0.00	\$6.59	\$0.16	\$0.00	\$0.00	\$51.89	\$66.93

**Special Calculation Note :** Other (\$0.16) \$0.11 National Fund and National Millwright Fund \$0.05

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CLERMONT, CLINTON, HAMILTON, WARREN

**Special Jurisdictional Note :**

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Carpenter NE District Industrial Dock & Door**

**Change # : LCN01-2014fbCarpNEStatewide**

**Craft : Carpenter Effective Date : 03/05/2014 Last Posted : 03/05/2014**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Carpenter	\$19.70		\$5.05	\$1.00	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.90	\$35.75
<b>Trainee</b>												
	<b>Percent</b>											
1st Year	60.00	\$11.82	\$5.05	\$1.00	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.02	\$23.93
2nd Year	80.20	\$15.80	\$5.05	\$1.00	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$22.00	\$29.90

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

1 Journeymen to 1 Trainee

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

**Special Jurisdictional Note :** Industrial Dock and Door is the installation of overhead doors, roll up doors and dock leveling equipment

**Details :**

10/27/10 New Contract jc

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Cement Mason Bricklayer Local 97 HevHwy A**

**Change # : LCN01-2021fbHvyHwy**

**Craft : Bricklayer Effective Date : 06/01/2021 Last Posted : 05/26/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Cement Mason Bricklayer Sewer Water Works A	\$30.40		\$9.50	\$7.57	\$0.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$47.95	\$63.15
Apprentice	Percent											
1st year	50.00	\$15.20	\$9.50	\$7.57	\$0.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.75	\$40.35
2nd year	70.00	\$21.28	\$9.50	\$7.57	\$0.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.83	\$49.47
3rd year	90.00	\$27.36	\$9.50	\$7.57	\$0.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.91	\$58.59

**Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.**

**Ratio :**

- 3 Journeymen to 1 Apprentice
- 6 Journeymen to 2 Apprentice
- 9 Journeymen to 3 Apprentice
- 12 Journeymen to 4 Apprentice
- 15 Journeymen to 5 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

- ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEauga, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN

WERT, VINTON, WARREN, WASHINGTON,  
WAYNE

**Special Jurisdictional Note :**

**Details :**

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Cement Mason Bricklayer Local 97 HevHwy B**

**Change # : LCN01-2021fbHvyHwy**

**Craft : Bricklayer Effective Date : 06/01/2021 Last Posted : 05/26/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Cement Mason Bricklayer Power Plants Tunnels Amusement Parks B	\$31.39		\$9.50	\$7.57	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$48.95	\$64.64
Apprentice	Percent											
1st year	50.00	\$15.70	\$9.50	\$7.57	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$33.26	\$41.10
2nd year	70.00	\$21.97	\$9.50	\$7.57	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.53	\$50.52
3rd year	90.00	\$28.25	\$9.50	\$7.57	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.81	\$59.94

**Special Calculation Note : NOT FOR BUILDING CONSTRUCTION.**

**Ratio :**

- 3 Journeymen to 1 Apprentice
- 6 Journeymen to 2 Apprentice
- 9 Journeymen to 2 Apprentice
- 12 Journeymen to 4 Apprentice
- 15 Journeymen to 5 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

- ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN

WERT, VINTON, WARREN, WASHINGTON,  
WAYNE

**Special Jurisdictional Note :**

**Details :**

(A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site Heavy Construction, Airport Construction Or Railroad Construction Work.

(B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Local 132 (Cincinnati)

**Change # : LCN01-2021fbLoc132**

**Craft : Cement Effective Date : 07/14/2021 Last Posted : 07/14/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Cement Mason	\$28.00		\$7.15	\$6.50	\$0.65	\$0.00	\$0.10	\$0.00	\$0.00	\$0.00	\$42.40	\$56.40
<b>Apprentice</b>												
	<b>Percent</b>											
1st yr	70.00	\$19.60	\$7.15	\$6.50	\$0.65	\$0.00	\$0.10	\$0.00	\$0.00	\$0.00	\$34.00	\$43.80
2nd yr	80.00	\$22.40	\$7.15	\$6.50	\$0.65	\$0.00	\$0.10	\$0.00	\$0.00	\$0.00	\$36.80	\$48.00
3rd yr	90.00	\$25.20	\$7.15	\$6.50	\$0.65	\$0.00	\$0.10	\$0.00	\$0.00	\$0.00	\$39.60	\$52.20

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

- 1 Journeymen to 1 Apprentice
- 4 Journeymen to 2 Apprentice
- 7 Journeymen to 3 Apprentice
- 10 Journeymen to 4 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CLERMONT, HAMILTON, HIGHLAND, WARREN

**Special Jurisdictional Note :**

**Details :**

- \*Cement Masons working on silo & slip form work shall receive \$.50 per hour over Journeyman scale.
- \*Cement Masons working on swinging scaffolds shall receive \$.50 per hour over Journeyman scale.
- \*Cement Masons working on high lifts from 20' and above shall receive \$.50 per hour over Journeyman scale.



# Prevailing Wage Rate Skilled Crafts

Name of Union: Cement Mason Statewide HevHwy

Change # : LCN01-2022sksCementHevHwy

Craft : Cement Mason Effective Date : 05/01/2022 Last Posted : 04/27/2022

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>												
Cement Mason	\$32.49		\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$51.26	\$67.50
<b>Apprentice</b>	<b>Percent</b>											
1st Year	70.00	\$22.74	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$41.51	\$52.88
2nd Year	80.00	\$25.99	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$44.76	\$57.76
3rd Year	90.00	\$29.24	\$8.45	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$48.01	\$62.63

**Special Calculation Note :** Other \$0.07 is for International Training Fund

**Ratio :**

1 Journeymen to 1 Apprentice  
2 to 1 thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BLEMONT, BROWN, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, HARRISON, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LORAIN, LOGAN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WYANDOT

**Special Jurisdictional Note :** (A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site, Heavy Construction, Airport Construction Or Railroad Construction Work.

**Details :**

This rate replaces the previous Cement Mason Heavy Highway Statewide Rates (Exhibit A and Exhibit B rates), except for Cement Mason Heavy Highway Exhibit A Dist 1. sks

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Cement Mason Statewide HevHwy Exhibit A District II**

**Change # : OCN01-2021fbCementHevHwy**

**Craft : Cement Mason Effective Date : 05/01/2021 Last Posted : 04/23/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Cement Mason	\$31.15		\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$49.72	\$65.29
<b>Apprentice Percent</b>												
1st Year	70.00	\$21.80	\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$40.37	\$51.28
2nd Year	80.00	\$24.92	\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$43.49	\$55.95
3rd Year	90.00	\$28.03	\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$46.60	\$60.62

**Special Calculation Note :** Other \$0.07 is for International Training Fund

**Ratio :**

1 Journeymen to 1 Apprentice  
2 to 1 thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ALLEN, AUGLAIZE, BROWN, BUTLER, CARROLL, CLERMONT, COLUMBIANA, DEFIANCE, ERIE, HAMILTON, HARDIN, HIGHLAND, HOLMES, HURON, LOGAN, LORAIN, MAHONING, MEDINA, MERCER, OTTAWA, PAULDING, PORTAGE, SANDUSKY, SENECA, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, VAN WERT, WARREN, WAYNE, WILLIAMS

**Special Jurisdictional Note :** (A) Highway Construction, Sewer, Waterworks And Utility Construction, Industrial & Building Site, Heavy Construction, Airport Construction Or Railroad Construction Work.

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Cement Mason Statewide HevHwy Exhibit B District II**

**Change # : OCN01-2021fbCementHevHwy**

**Craft : Cement Mason Effective Date : 05/01/2021 Last Posted : 04/23/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Cement Mason	\$32.02		\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$50.59	\$66.60
<b>Apprentice Percent</b>												
1st Year	70.00	\$22.41	\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$40.98	\$52.19
2nd Year	80.00	\$25.62	\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$44.19	\$56.99
3rd Year	90.00	\$28.82	\$8.25	\$7.35	\$0.65	\$0.00	\$2.25	\$0.07	\$0.00	\$0.00	\$47.39	\$61.80

**Special Calculation Note :** Other \$0.07 is for International Training Fund.

**Ratio :**

1 Journeymen to 1 Apprentice  
2 to 1 thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ALLEN, AUGLAIZE, BROWN, BUTLER, CARROLL, CLERMONT, COLUMBIANA, DEFIANCE, ERIE, HAMILTON, HARDIN, HIGHLAND, HOLMES, HURON, LOGAN, LORAIN, MAHONING, MEDINA, MERCER, OTTAWA, PAULDING, PORTAGE, SANDUSKY, SENECA, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, VAN WERT, WARREN, WAYNE, WILLIAMS

**Special Jurisdictional Note :** (B) Power Plant, Tunnels, Amusement Park, Athletic Stadium Site Work ,Pollution Control,Sewer Plant, Waste Plant, & Water Treatment Facilities, Construction.

**Details :**

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Electrical Local 71 High Tension Pipe Type Cable**

**Change # : LCN01-2021fbLoc7**

**Craft : Lineman Effective Date : 03/16/2021 Last Posted : 03/16/2021**

Classification		BHR	Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Electrical Lineman	\$45.61	\$6.75	\$1.37	\$0.46	\$0.00	\$10.95	\$0.60	\$0.00	\$0.00	\$65.74	\$88.54	
Certified Lineman Welder	\$45.61	\$6.75	\$1.37	\$0.46	\$0.00	\$10.95	\$0.60	\$0.00	\$0.00	\$65.74	\$88.54	
Certified Cable Splicer	\$45.61	\$6.75	\$1.37	\$0.46	\$0.00	\$10.95	\$0.60	\$0.00	\$0.00	\$65.74	\$88.54	
Operator A	\$40.88	\$6.75	\$1.23	\$0.41	\$0.00	\$9.81	\$0.60	\$0.00	\$0.00	\$59.68	\$80.12	
Operator B	\$36.20	\$6.75	\$1.09	\$0.36	\$0.00	\$8.69	\$0.60	\$0.00	\$0.00	\$53.69	\$71.79	
Operator C	\$29.12	\$6.75	\$0.87	\$0.29	\$0.00	\$6.99	\$0.60	\$0.00	\$0.00	\$44.62	\$59.18	
Groundman 0-12 months Exp	\$22.81	\$6.75	\$0.68	\$0.23	\$0.00	\$5.47	\$0.60	\$0.00	\$0.00	\$36.54	\$47.94	
Groundman 0-12 months Exp w/CDL	\$25.09	\$6.75	\$0.75	\$0.25	\$0.00	\$6.02	\$0.60	\$0.00	\$0.00	\$39.46	\$52.01	
Groundman 1 yr or more	\$25.09	\$6.75	\$0.75	\$0.25	\$0.00	\$6.02	\$0.60	\$0.00	\$0.00	\$39.46	\$52.01	
Groundman 1 yr or more w/CDL	\$29.65	\$6.75	\$0.85	\$0.28	\$0.00	\$6.50	\$0.60	\$0.00	\$0.00	\$44.63	\$59.46	
Equipment Mechanic A	\$36.20	\$6.75	\$1.09	\$0.36	\$0.00	\$8.69	\$0.60	\$0.00	\$0.00	\$53.69	\$71.79	
Equipment Mechanic B	\$32.66	\$6.75	\$0.98	\$0.33	\$0.00	\$7.84	\$0.60	\$0.00	\$0.00	\$49.16	\$65.49	
Equipment Mechanic C	\$29.12	\$6.75	\$0.87	\$0.29	\$0.00	\$6.99	\$0.60	\$0.00	\$0.00	\$44.62	\$59.18	
X-Ray Technician	\$45.61	\$6.75	\$1.37	\$0.46	\$0.00	\$10.95	\$0.60	\$0.00	\$0.00	\$65.74	\$88.54	
<b>Apprentice</b>	<b>Percent</b>											
1st 1000 hrs	60.00	\$27.37	\$6.75	\$0.82	\$0.27	\$0.00	\$6.57	\$0.60	\$0.00	\$0.00	\$42.38	\$56.06
2nd 1000 hrs	65.00	\$29.65	\$6.75	\$0.89	\$0.30	\$0.00	\$7.12	\$0.60	\$0.00	\$0.00	\$45.31	\$60.13

# Electrical Local 71 High Tension Pipe Type Cable

3rd 1000 hrs	70.00	\$31.93	\$6.75	\$0.96	\$0.32	\$0.00	\$7.66	\$0.60	\$0.00	\$0.00	\$48.22	\$64.18
4th 1000 hrs	75.00	\$34.21	\$6.75	\$1.03	\$0.34	\$0.00	\$8.21	\$0.60	\$0.00	\$0.00	\$51.14	\$68.24
5th 1000 hrs	80.00	\$36.49	\$6.75	\$1.09	\$0.36	\$0.00	\$8.76	\$0.60	\$0.00	\$0.00	\$54.05	\$72.29
6th 1000 hrs	85.00	\$38.77	\$6.75	\$1.16	\$0.39	\$0.00	\$9.30	\$0.60	\$0.00	\$0.00	\$56.97	\$76.35
7th 1000 hrs	90.00	\$41.05	\$6.75	\$1.23	\$0.41	\$0.00	\$9.85	\$0.60	\$0.00	\$0.00	\$59.89	\$80.41

**Special Calculation Note :** Other is Health Retirement Account

## Operator "A"

John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater than 25 tons and less than 45 tons).

## Operator "B"

Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger-wheeled or tracked, all Tension wire Stringing equipment.

## Operator "C"

Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

\*All Operators of cranes 45 ton or larger shall be paid the journeyman rate of pay. \$0.30 is for Health Retirement Account.

## Ratio :

1 Journeyman to 1 Apprentice

## Jurisdiction ( \* denotes special jurisdictional note ) :

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

## Special Jurisdictional Note :

### Details :

Heli - Arc Welding will be paid \$.30 above Journeyman rate. Additional compensation of 10% over the Journeyman Lineman and Journeyman Technician for performing work on structures outside of buildings such as water towers, smoke stacks, radio and television towers, more than 75' above the ground.

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Electrical Local 71 Outside Cincinnati**

**Change # : LCN01-2021fbLoc71Cincinnati**

**Craft : Lineman Effective Date : 03/16/2021 Last Posted : 03/16/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrical Lineman	\$40.31		\$6.75	\$1.21	\$0.40	\$0.00	\$7.66	\$0.06	\$0.00	\$0.00	\$56.39	\$76.54
Traffic Signal & Lighting Journeyman	\$38.77		\$6.75	\$1.16	\$0.39	\$0.00	\$7.37	\$0.06	\$0.00	\$0.00	\$54.50	\$73.89
Equipment Operator	\$35.41		\$6.75	\$1.06	\$0.35	\$0.00	\$6.73	\$0.06	\$0.00	\$0.00	\$50.36	\$68.06
Groundman 0-12 months (W/O CDL)	\$21.47		\$6.75	\$0.64	\$0.21	\$0.00	\$4.08	\$0.06	\$0.00	\$0.00	\$33.21	\$43.95
Groundman 0-21 Months (W/CDL)	\$23.46		\$6.75	\$0.70	\$0.23	\$0.00	\$4.46	\$0.06	\$0.00	\$0.00	\$35.66	\$47.39
Groundman 1 Year or More (W/CDL)	\$25.45		\$6.75	\$0.76	\$0.25	\$0.00	\$4.84	\$0.06	\$0.00	\$0.00	\$38.11	\$50.83
Traffic Signal Apprentices												
1st 1,000 hours	\$23.26		\$6.75	\$0.70	\$0.23	\$0.00	\$4.42	\$0.06	\$0.00	\$0.00	\$35.42	\$47.05
2nd 1,000 hours	\$25.20		\$6.75	\$0.76	\$0.25	\$0.00	\$4.79	\$0.06	\$0.00	\$0.00	\$37.81	\$50.41
3rd 1,000 hours	\$27.14		\$6.75	\$0.81	\$0.27	\$0.00	\$5.16	\$0.06	\$0.00	\$0.00	\$40.19	\$53.76
4th 1,000 hours	\$29.08		\$6.75	\$0.87	\$0.29	\$0.00	\$5.53	\$0.06	\$0.00	\$0.00	\$42.58	\$57.12
5th 1,000 hours	\$31.01		\$6.75	\$0.93	\$0.31	\$0.00	\$5.89	\$0.06	\$0.00	\$0.00	\$44.95	\$60.46
6th 1,000 hours	\$34.89		\$6.75	\$1.05	\$0.35	\$0.00	\$6.63	\$0.06	\$0.00	\$0.00	\$49.73	\$67.17
<b>Apprentice Lineman</b>	<b>Percent</b>											
1st 1,000 Hours	60.00	\$24.19	\$6.75	\$0.73	\$0.24	\$0.00	\$4.60	\$0.06	\$0.00	\$0.00	\$36.57	\$48.66
2nd 1,000 Hours	65.00	\$26.20	\$6.75	\$0.79	\$0.26	\$0.00	\$4.98	\$0.06	\$0.00	\$0.00	\$39.04	\$52.14

Electrical Local 71 Outside Cincinnati

3rd 1,000 Hours	70.00	\$28.22	\$6.75	\$0.85	\$0.28	\$0.00	\$5.36	\$0.06	\$0.00	\$0.00	\$41.52	\$55.63
4th 1,000 Hours	75.00	\$30.23	\$6.75	\$0.91	\$0.30	\$0.00	\$5.74	\$0.06	\$0.00	\$0.00	\$43.99	\$59.11
5th 1,000 Hours	80.00	\$32.25	\$6.75	\$0.97	\$0.32	\$0.00	\$6.13	\$0.06	\$0.00	\$0.00	\$46.48	\$62.60
6th 1,000 Hours	85.00	\$34.26	\$6.75	\$1.03	\$0.34	\$0.00	\$6.51	\$0.06	\$0.00	\$0.00	\$48.95	\$66.09
7th 1,000 Hours	90.00	\$36.28	\$6.75	\$1.09	\$0.36	\$0.00	\$6.89	\$0.06	\$0.00	\$0.00	\$51.43	\$69.57

**Special Calculation Note :** Other is Safety & Education Fund.

**Ratio :**  
1 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**  
BROWN, BUTLER, CLERMONT, HAMILTON, WARREN

**Special Jurisdictional Note :**

**Details :**

A groundman when directed shall assist a Journeyman in the performance of his/her work on the ground, including the use of hand tools. A Groundman under no circumstances shall climb poles, towers, ladders, or work from an elevated platform or bucket truck.

No more than three (3) Groundmen shall work alone. Jobs with more than three Groundmen shall be supervised by a Groundcrew Foreman, Journeyman Lineman, Journeyman Traffic Signal Technician or an Equipment Operator.

Scope of Work: installation and maintenance of highway and street lighting, highway and street sign lighting, electronic message boards and traffic control systems, camera systems, traffic signal work, substation and line construction including overhead and underground projects for private and industrial work as in accordance with the IBEW Constitution. This Agreement includes the operation of all tools and equipment necessary for the installation of the above projects.

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Electrical Local 71 Outside Utility Power**

**Change # : LCN01-2021fbLoc7**

**Craft : Lineman Effective Date : 03/16/2021 Last Posted : 03/16/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrical Lineman	\$43.22		\$6.75	\$1.30	\$0.43	\$0.00	\$10.37	\$0.60	\$0.00	\$0.00	\$62.67	\$84.28
Substation Technician	\$43.22		\$6.75	\$1.30	\$0.43	\$0.00	\$10.37	\$0.60	\$0.00	\$0.00	\$62.67	\$84.28
Cable Splicer	\$45.26		\$6.75	\$1.36	\$0.45	\$0.00	\$10.86	\$0.60	\$0.00	\$0.00	\$65.28	\$87.91
Operator A	\$38.75		\$6.75	\$1.16	\$0.39	\$0.00	\$9.30	\$0.60	\$0.00	\$0.00	\$56.95	\$76.32
Operator B	\$34.27		\$6.75	\$1.03	\$0.34	\$0.00	\$8.22	\$0.60	\$0.00	\$0.00	\$51.21	\$68.34
Operator C	\$27.54		\$6.75	\$0.83	\$0.28	\$0.00	\$6.61	\$0.60	\$0.00	\$0.00	\$42.61	\$56.38
Groundman 0-12 months Exp	\$21.61		\$6.75	\$0.65	\$0.22	\$0.00	\$5.19	\$0.60	\$0.00	\$0.00	\$35.02	\$45.82
Groundman 0-12 months Exp w/CDL	\$23.77		\$6.75	\$0.71	\$0.24	\$0.00	\$5.70	\$0.60	\$0.00	\$0.00	\$37.77	\$49.66
Groundman 1 yr or more	\$23.77		\$6.75	\$0.71	\$0.24	\$0.00	\$5.70	\$0.60	\$0.00	\$0.00	\$37.77	\$49.66
Groundman 1 yr or more w/CDL	\$28.09		\$6.75	\$0.84	\$0.28	\$0.00	\$6.74	\$0.60	\$0.00	\$0.00	\$43.30	\$57.35
Equipment Mechanic A	\$34.27		\$6.75	\$1.03	\$0.34	\$0.00	\$8.22	\$0.60	\$0.00	\$0.00	\$51.21	\$68.34
Equipment Mechanic B	\$30.91		\$6.75	\$0.93	\$0.31	\$0.00	\$7.42	\$0.60	\$0.00	\$0.00	\$46.92	\$62.38
Equipment Mechanic C	\$27.54		\$6.75	\$0.83	\$0.28	\$0.00	\$6.61	\$0.60	\$0.00	\$0.00	\$42.61	\$56.38
Line Truck w/uuger	\$30.44		\$6.75	\$0.91	\$0.30	\$0.00	\$7.31	\$0.60	\$0.00	\$0.00	\$46.31	\$61.53
<b>Apprentice</b>												
	<b>Percent</b>											
1st 1000 hrs	60.00	\$25.93	\$6.75	\$0.78	\$0.26	\$0.00	\$6.22	\$0.60	\$0.00	\$0.00	\$40.54	\$53.51
2nd 1000 hrs	65.00	\$28.09	\$6.75	\$0.84	\$0.28	\$0.00	\$6.74	\$0.60	\$0.00	\$0.00	\$43.30	\$57.35
3rd 1000 hrs	70.00	\$30.25	\$6.75	\$0.91	\$0.30	\$0.00	\$7.26	\$0.60	\$0.00	\$0.00	\$46.07	\$61.20



Electrical Local 71 Outside Utility Power

4th 1000 hrs	75.00	\$32.42	\$6.75	\$0.97	\$0.32	\$0.00	\$7.78	\$0.60	\$0.00	\$0.00	\$48.84	\$65.04
5th 1000 hrs	80.00	\$34.58	\$6.75	\$1.04	\$0.35	\$0.00	\$8.30	\$0.60	\$0.00	\$0.00	\$51.62	\$68.90
6th 1000 hrs	85.00	\$36.74	\$6.75	\$1.10	\$0.37	\$0.00	\$8.82	\$0.60	\$0.00	\$0.00	\$54.38	\$72.75
7th 1000 hrs	90.00	\$38.90	\$6.75	\$1.17	\$0.39	\$0.00	\$9.34	\$0.60	\$0.00	\$0.00	\$57.15	\$76.60

**Special Calculation Note :** Other is Health Retirement Account

**Operator "A"**

John Henry Rock Drill, D-6 (or equivalent) and above, Trackhoe Digger, (320 Track excavator), Cranes (greater than 25 tons and less than 45 tons).

**Operator "B"**

Cranes (greater than 6 tons and up to 25 tons), Backhoes, Road Tractor, Dozer up to D-5, Pressure Digger-wheeled or tracked, all Tension wire Stringing equipment.

**Operator "C"**

Trench, Backhoe, Riding type vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton & below), Skid Steer Loaders, Material Handler.

**Ratio :**

(1) Journeyman Lineman to (1) Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

**Special Jurisdictional Note :** 0.30 is for Health Retirement Account.

**Details :**

Heli - Arc Welding will be paid \$.30 above Journeyman rate. Additional compensation of 10% over the Journeyman Lineman and Journeyman Technician for performing work on structures outside of buildings such as water towers, smoke stacks, radio and television towers, more than 75' above the ground.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 71 Voice Data Video Outside

Change # : LCR01-2017fbLoc71VDV

Craft : Voice Data Video Effective Date : 10/18/2017 Last Posted : 10/18/2017

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Electrical Installer Technician I	\$23.46	\$5.50	\$0.70	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$29.96	\$41.69
Installer Technician II	\$22.37	\$5.50	\$0.67	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$28.84	\$40.03
Equipment Operator I	\$22.37	\$5.50	\$0.67	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$28.84	\$40.03
Equipment Operator II	\$18.43	\$5.50	\$0.55	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$24.78	\$33.99
Installer /Repair Outside	\$22.37	\$5.50	\$0.67	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$28.84	\$40.03
Ground Driver W/CDL	\$15.83	\$5.50	\$0.47	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$22.10	\$30.01
Groundman	\$13.24	\$5.50	\$0.40	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$19.44	\$26.06
Cable Splicer	\$23.46	\$5.50	\$0.70	\$0.00	\$0.00	\$0.30	\$0.00	\$0.00	\$0.00	\$29.96	\$41.69

**Special Calculation Note :**

**Ratio :**

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, GALLIA, GEAUGA, GREENE, GUERNSEY, HAMILTON, HARRISON, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, RICHLAND, ROSS, SCIOTO, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VINTON, WARREN, WASHINGTON, WAYNE

## **Special Jurisdictional Note :**

### **Details :**

**Cable Splicer:** Inspect and test lines or cables, analyze results, and evaluate transmission characteristics. Cover conductors with insulation or seal splices with moisture-proof covering. Install, splice, test, and repair cables using tools or mechanical equipment. This will include the splicing of fiber.

**Journeyman Technician I:** Must know all aspects of telephone and cable work. This is to include aerial, underground, and manhole work. Must know how to climb and run bucket. Must have all the tools required to perform these tasks. Must be able to be responsible for the safety of the crew at all times. Must also have CDL license and have at least 5 years experience.

**Installer/Repairman:** Perform tasks of repairing, installing, and testing phone and CATV services.

**Technician II:** Have at least three years of telephone and CATV experience. Must have the knowledge of underground, aerial, and manhole work. Must be able to climb and operate bucket. Must have CDL. Must have all tools needed to perform these tasks.

**Equipment Operator I:** Able to operate a digger derrick or bucket truck. Have at least 5 years of experience and must have a valid CDL license.

**Equipment Operator II:** Able to operate a digger derrick or bucket truck. Have at least 3 years of experience and must have a valid CDL license.

**Groundman W/CDL:** Must have a valid CDL license and be able to perform tasks such as: climbing poles, pulling downguys, making up material, and getting appropriate tools for the job. Must have at least 5 year's experience.

**Groundman:** Perform tasks such as: climbing poles, pulling downguys, making up material, and getting appropriate tools for the job. Experience 0-5 years.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 82 Inside

**Change # : LCN01-2021sksLoc82in**

**Craft : Electrical Effective Date : 11/29/2021 Last Posted : 11/24/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrician	\$33.25		\$7.45	\$9.35	\$0.57	\$0.00	\$3.50	\$0.00	\$0.00	\$0.00	\$54.12	\$70.74
Apprentice	Percent											
1st period 0 - 1000 hrs	42.00	\$13.97	\$4.07	\$0.62	\$0.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.89	\$25.88
2nd period 1001-2000 hrs	42.00	\$13.97	\$4.07	\$0.62	\$0.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.89	\$25.88
3rd period 2001-3500 hrs	47.00	\$15.63	\$6.92	\$4.39	\$0.27	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$28.86	\$36.67
4th period 3501-5000 hrs	52.00	\$17.29	\$6.97	\$4.86	\$0.29	\$0.00	\$1.82	\$0.00	\$0.00	\$0.00	\$31.23	\$39.88
5th period 5001-6500 hrs	62.03	\$20.62	\$7.07	\$5.80	\$0.35	\$0.00	\$2.17	\$0.00	\$0.00	\$0.00	\$36.01	\$46.33
6th period 6501-8000 hrs	77.00	\$25.60	\$7.22	\$7.20	\$0.44	\$0.00	\$2.70	\$0.00	\$0.00	\$0.00	\$43.16	\$55.96

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

1 to 3 Journeymen to 3 Apprentices  
4 to 6 Journeymen to 6 Apprentices  
per job site

**Jurisdiction ( \* denotes special jurisdictional note ) :**

CLINTON, DARKE, GREENE, MIAMI,  
MONTGOMERY, PREBLE, WARREN\*

**Special Jurisdictional Note :** The following townships in Warren County are included: Clearcreek, Franklin and Wayne.

**Details :**

Only correction made on 6-19-19 was the 5th year Apprentice fb.

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Electrical Local 82 Inside Lt Commercial South West**

**Change # : LCNO1-2021sksLoc82in**

**Craft : Electrical Effective Date : 03/30/2022 Last Posted : 03/30/2022**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>												
Electrician	\$33.25		\$6.47	\$9.35	\$0.72	\$0.00	\$3.50	\$0.00	\$0.00	\$0.00	\$53.29	\$69.91
CE-3 12,001-14,000	\$24.66		\$6.47	\$0.74	\$0.72	\$0.00	\$0.74	\$0.00	\$0.00	\$0.10	\$33.43	\$45.76
CE-2 10,001-12,000 Hrs	\$19.56		\$6.47	\$0.59	\$0.72	\$0.00	\$0.59	\$0.00	\$0.00	\$0.10	\$28.03	\$37.81
CE-1 8,001-10,000 Hrs	\$17.86		\$6.47	\$0.54	\$0.72	\$0.00	\$0.54	\$0.00	\$0.00	\$0.10	\$26.23	\$35.16
CW-4 6,001-8,000 Hrs	\$16.16		\$6.47	\$0.48	\$0.72	\$0.00	\$0.48	\$0.00	\$0.00	\$0.10	\$24.41	\$32.49
CW-3 4,001-6,000 Hrs	\$14.46		\$6.47	\$0.43	\$0.72	\$0.00	\$0.43	\$0.00	\$0.00	\$0.10	\$22.61	\$29.84
CW-2 2,001-4,000 Hrs	\$13.61		\$6.47	\$0.41	\$0.72	\$0.00	\$0.41	\$0.00	\$0.00	\$0.10	\$21.72	\$28.52
CW-1 0-2,000 Hrs	\$12.76		\$6.47	\$0.38	\$0.72	\$0.00	\$0.38	\$0.00	\$0.00	\$0.10	\$20.81	\$27.19
<b>Apprentice</b>	<b>Percent</b>											
1st period 0 - 1000 hrs	42.00	\$13.97	\$4.07	\$0.62	\$0.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.89	\$25.88
2nd period 1001-2000 hrs	42.00	\$13.97	\$4.07	\$0.62	\$0.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18.89	\$25.88
3rd period 2001-3500 hrs	47.00	\$15.63	\$6.92	\$4.39	\$0.27	\$0.00	\$1.65	\$0.00	\$0.00	\$0.00	\$28.86	\$36.67
4th period 3501-5000 hrs	52.00	\$17.29	\$6.97	\$4.86	\$0.29	\$0.00	\$1.82	\$0.00	\$0.00	\$0.00	\$31.23	\$39.88
5th period 5001-6500 hrs	62.00	\$20.61	\$7.07	\$5.80	\$0.35	\$0.00	\$2.17	\$0.00	\$0.00	\$0.00	\$36.01	\$46.31
6th period 6501-8000 hrs	77.00	\$25.60	\$7.22	\$7.20	\$0.44	\$0.00	\$2.70	\$0.00	\$0.00	\$0.00	\$43.16	\$55.96

**Special Calculation Note :** \*Misc amount is Administrative Fees

**Ratio :**

1 to 3 Journeymen to 3 Apprentices  
4 to 6 Journeymen to 6 Apprentices  
per job site

**Jurisdiction ( \* denotes special jurisdictional note ) :**

CLINTON, DARKE, GREENE, MIAMI,  
MONTGOMERY, PREBLE, WARREN\*

**Construction Electrician and Construction Wireman Ratio**

There shall be a minimum ratio of one inside Journeyman to every (4) employees of different classification per jobsite. An inside Journeyman Wireman is required on the project as the fifth (5th) worker or when apprentices are used.

**Special Jurisdictional Note :** The following townships in Warren County are included: Clearcreek, Franklin and Wayne.

The scope of work for the light commercial agreement shall apply to the following facilities not to exceed 200,000 square feet; office buildings, shopping centers, auto sales agencies and garages, churches, funeral homes, nursing homes, hotels, retail and wholesale facilities, small stand-alone manufacturing facilities when free standing and not part of a larger facility (not to exceed 50,000 square fee), solar projects (500 panels or less) unless otherwise covered under the agreement, lighting retrofits (when not associated with remodels involving branch re-circuiting) lighting retrofits shall be defined as the changing of lamps and ballasts in existing light fixtures and shall also include the one for one replacement of existing fixtures, warehouses, gas stations, food service centers, restaurants, entertainment facilities, hospitals, clinics, motels, residential buildings.

**Details :**

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 82 Lightning Rod

**Change # : LCR01-2022sksLoc82**

**Craft : Electrical Effective Date : 01/05/2022 Last Posted : 01/05/2022**

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Electrical Lightning Rod Technican	\$31.79	\$7.45	\$9.30	\$0.00	\$0.00	\$3.50	\$0.00	\$0.00	\$0.00	\$52.04	\$67.93

**Special Calculation Note :** No Apprentice approved by OSAC.

**Ratio :**

**Jurisdiction ( \* denotes special jurisdictional note ) :**

CLINTON, DARKE, GREENE, MIAMI,  
MONTGOMERY, PREBLE, WARREN\*

**Special Jurisdictional Note :** The following townships in Warren County are included: (Clearcreek, Franklin and Wayne)

**Details :**

.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 82 Voice Data Video

Change # : LCN01-2021sksLoc82VDV

Craft : Voice Data Video Effective Date : 11/29/2021 Last Posted : 11/24/2021

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Electrical Installer Technician A	\$25.95	\$6.60	\$0.78	\$0.49	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$38.22	\$51.20
Electrical Installer Technician B	\$24.65	\$6.60	\$0.74	\$0.47	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$36.86	\$49.18
JW Installer Technician	\$23.36	\$6.60	\$0.70	\$0.44	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$35.50	\$47.18
NON BICSI Installer	\$16.87	\$3.00	\$0.51	\$0.32	\$0.00	\$2.00	\$0.00	\$0.00	\$0.00	\$22.70	\$31.14
Apprentice Indentured Before 09-03-2018											
1st Period 0-1000 Hrs	\$12.98	\$6.60	\$0.39	\$0.25	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$20.47	\$26.96
2nd Period 1001-2000 Hrs	\$12.98	\$6.60	\$0.39	\$0.25	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$20.47	\$26.96
3rd Period 2001-3000 Hrs	\$15.57	\$6.60	\$0.47	\$0.30	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$27.34	\$35.13
4th Period 3001-4000Hrs	\$16.87	\$6.60	\$0.51	\$0.32	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$28.70	\$37.14
5th Period 4001-5000 Hrs	\$18.17	\$6.60	\$0.55	\$0.35	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$30.07	\$39.16
6th Period 5001-6000 Hrs	\$19.46	\$6.60	\$0.58	\$0.37	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$31.41	\$41.14
Cable Puller	\$12.98	\$3.00	\$0.39	\$0.25	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$16.87	\$23.36



Electrical Local 82 Voice Data Video

Apprentice Indentured After 09-04-2018	Percent											
1st 0-1000 hours	55.00	\$14.27	\$3.00	\$0.43	\$0.27	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$18.22	\$25.36
2nd 1001-2000 hours	55.00	\$14.27	\$3.00	\$0.43	\$0.27	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$18.22	\$25.36
3rd 2001-3000 hours	65.00	\$16.87	\$6.50	\$0.51	\$0.32	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$28.60	\$37.03
4th 3001-4000 hours	65.00	\$16.87	\$6.50	\$0.51	\$0.32	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$28.60	\$37.03
5th 4001-5000 hours	75.00	\$19.46	\$6.53	\$0.58	\$0.37	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$31.34	\$41.07
6th 5001-6000 hours	75.00	\$19.46	\$6.53	\$0.58	\$0.37	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$31.34	\$41.07
7th 6001-7000 hours	80.00	\$20.76	\$6.54	\$0.62	\$0.39	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$32.71	\$43.09
8th 7001 hours	80.00	\$20.76	\$6.54	\$0.62	\$0.39	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$32.71	\$43.09
Cable Puller	50.00	\$12.98	\$3.00	\$0.39	\$0.25	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$16.86	\$23.35

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

1 Journeymen to 2 Apprentice  
(Indentured After 9-4-2018)

1 Journeymen to 2 Apprentice  
(Indentured Before 9--03-2018)

**Jurisdiction ( \* denotes special jurisdictional note ) :**

CLINTON, DARKE, GREENE, MIAMI, MONTGOMERY, PREBLE, WARREN\*

**Special Jurisdictional Note :** The following townships in Warren County are included: (Clearcreek, Franklin and Wayne)

**Details :**

Work covered but not limited to: installation which utilize transmission and/or transference of voice, sound, vision or digital for commercial, education, security and entertainment purposes for the following:

TV monitoring and surveillance, background-foreground music, intercom and telephone interconnect, inventory control systems, microwave transmission, multimedia, multiplex, nurse call system, radio page, school intercom, sound and low voltage master clock systems.

Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit.

All HVAC control work is not covered by this wage rate but by the Inside Electrical wage rate.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 648 Inside

**Change # : LCN01-2021sksLoc648in**

**Craft : Electrical Effective Date : 09/15/2021 Last Posted : 09/15/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Electrician	\$32.00		\$7.25	\$8.05	\$0.48	\$0.00	\$4.05	\$0.96	\$0.00	\$0.00	\$52.79	\$68.79
<b>Apprentice</b>												
	<b>Percent</b>											
1st period 0-1000 hrs	45.00	\$14.40	\$4.22	\$0.00	\$0.22	\$0.00	\$2.82	\$0.43	\$0.00	\$0.00	\$22.09	\$29.29
2nd period 1001- 2000 hrs	47.00	\$15.04	\$4.22	\$0.00	\$0.23	\$0.00	\$2.83	\$0.45	\$0.00	\$0.00	\$22.77	\$30.29
3rd period 2001- 3500 hrs	51.00	\$16.32	\$7.25	\$4.11	\$0.24	\$0.00	\$3.29	\$0.49	\$0.00	\$0.00	\$31.70	\$39.86
4th period 3501- 5000 hrs	55.00	\$17.60	\$7.25	\$4.43	\$0.26	\$0.00	\$3.36	\$0.53	\$0.00	\$0.00	\$33.43	\$42.23
5th period 5001- 6500 hrs	62.00	\$19.84	\$7.25	\$4.99	\$0.30	\$0.00	\$3.46	\$0.60	\$0.00	\$0.00	\$36.44	\$46.36
6th period 6501- 8000 hrs	71.00	\$22.72	\$7.25	\$5.72	\$0.34	\$0.00	\$3.61	\$0.68	\$0.00	\$0.00	\$40.32	\$51.68

**Special Calculation Note : Other is NEBF (Natioanl Electrical Benifit Fund.)**

**Ratio :**

3 Journeyman to 2 Apprentices or fraction thereof:  
 1-3 Journeymen to 2 Apprentice  
 4-6 Journeymen to 4 Apprentice  
 7-9 Journeymen to 6 Apprentice  
 first person assigned to any job site shall be a journeyman

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BUTLER, WARREN\*

**Special Jurisdictional Note :** In Warren County the following townships are included: (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union, and Washington)

**Details :**

Electricians while splicing cable shall receive \$.50 an hour above the regular electrical rate.

All work that requires the use of gas masks or respirators, shall be paid 50% above the appropriate rate of pay. Work up to & including 40 feet shall be paid \$.50 over the journeyman rate. All work from a Boatswain Chair, Swinging Scaffold, or Barrel shall be at double the Journeyman rate. Workmen required to work 50 feet or more below the surface of the earth will be paid 50% above the Journeyman rate.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 648 Lt Commercial South West

Change # : LCN01-2021sksLoc648in

Craft : Electrical Effective Date : 01/01/2022 Last Posted : 12/22/2021

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Electrician	\$32.00	\$7.25	\$8.05	\$0.48	\$0.00	\$4.05	\$0.12	\$0.00	\$0.00	\$51.95	\$67.95
CE-3 12,001- 14,000 Hrs	\$24.66	\$6.47	\$0.74	\$0.72	\$0.00	\$0.74	\$0.12	\$0.00	\$0.00	\$33.45	\$45.78
CE-2 10,001- 12,000 Hrs	\$19.56	\$6.47	\$0.59	\$0.72	\$0.00	\$0.59	\$0.12	\$0.00	\$0.00	\$28.05	\$37.83
CE-1 8,001- 10,000 Hrs	\$17.86	\$6.47	\$0.54	\$0.72	\$0.00	\$0.54	\$0.12	\$0.00	\$0.00	\$26.25	\$35.18
CW-4 6,001- 8,000 Hrs	\$16.16	\$6.47	\$0.48	\$0.72	\$0.00	\$0.48	\$0.12	\$0.00	\$0.00	\$24.43	\$32.51
CW-3 4,001- 6,000 Hrs	\$14.46	\$6.47	\$0.43	\$0.72	\$0.00	\$0.43	\$0.12	\$0.00	\$0.00	\$22.63	\$29.86
CW-2 2,001- 4,000 Hrs	\$13.61	\$6.47	\$0.41	\$0.72	\$0.00	\$0.41	\$0.12	\$0.00	\$0.00	\$21.74	\$28.54
CW-1 0- 2,000 Hrs	\$12.76	\$6.47	\$0.38	\$0.72	\$0.00	\$0.38	\$0.12	\$0.00	\$0.00	\$20.83	\$27.21

**Special Calculation Note :** Other is for NEBF (National Electrical Benefit Fund)

## Ratio :

Construction Electrician and Construction Wireman  
Ratio

There shall be a minimum ratio of one inside  
Journeyman to every (4) employees of different  
classification per jobsite. An inside Journeyman  
Wireman is required on the project as the fifth (5th)  
worker or when apprentices are used

## Jurisdiction ( \* denotes special jurisdictional note ) :

BUTLER, WARREN\*

**Special Jurisdictional Note :** In Warren County the following townships are included: (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union, and Washington)

The scope of work for the light commercial agreement shall apply to the following facilities not to exceed 200,000 square feet; office buildings, shopping centers, auto sales agencies and garages, churches, funeral homes, nursing homes, hotels, retail and wholesale facilities, small stand-alone manufacturing facilities when free standing and not part of a larger facility (not to exceed 50,000 square fee), solar projects (500 panels or less) unless otherwise covered under the agreement, lighting retrofits (when not associated with remodels involving branch re-circuiting) lighting retrofits shall be defined as the changing of lamps and ballasts in existing light fixtures and shall also include the one for one replacement of existing fixtures, warehouses, gas stations, food service centers, restaurants, entertainment facilities, hospitals, clinics, motels, residential buildings.

**Details :**

Electricians while splicing cable shall receive \$.50 an hour above the regular electrical rate.

All work that requires the use of gas masks or respirators, shall be paid 50% above the appropriate rate of pay. Work up to & including 40 feet shall be paid \$.50 over the journeyman rate. All work from a Boatswain Chair, Swinging Scaffold, or Barrel shall be at double the Journeyman rate. Workmen required to work 50 feet or more below the surface of the earth will be paid 50% above the Journeyman rate.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Electrical Local 648 Voice Date Video

**Change # : LCR01-2021sksLoc648VDV**

**Craft : Voice Data Video Effective Date : 12/22/2021 Last Posted : 12/22/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Electrical Installer Technician A	\$25.95		\$6.60	\$0.78	\$0.49	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$38.22	\$51.20
Electrical Installer Technician B	\$24.65		\$6.60	\$0.74	\$0.47	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$36.86	\$49.18
JW Installer Technician B	\$23.36		\$6.60	\$0.70	\$0.44	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$35.50	\$47.18
Non BICSI Installer	\$16.87		\$3.00	\$0.51	\$0.32	\$0.00	\$2.40	\$0.00	\$0.00	\$0.00	\$23.10	\$31.53
<b>Apprentice</b>	<b>Percent</b>											
1st period 0-800 hrs	55.00	\$14.27	\$3.00	\$0.43	\$0.27	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$18.22	\$25.36
2nd period 801-1600 hrs	55.00	\$14.27	\$3.00	\$0.43	\$0.27	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$18.22	\$25.36
3rd period 1601-2400 hrs	65.00	\$16.87	\$6.50	\$0.51	\$0.32	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$28.60	\$37.03
4th period 2401-3200 hrs	65.00	\$16.87	\$6.50	\$0.51	\$0.32	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$28.60	\$37.03
5th period 3201-4000 hrs	75.00	\$19.46	\$6.53	\$0.58	\$0.37	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$31.34	\$41.07
6th period 4001-4800 hrs	75.00	\$19.46	\$6.53	\$0.58	\$0.37	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$31.34	\$41.07
7th period 4801-4900hr	80.00	\$20.76	\$6.54	\$0.62	\$0.39	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$32.71	\$43.09
8th period 4901-5000hrs	80.00	\$20.76	\$6.54	\$0.62	\$0.39	\$0.00	\$4.40	\$0.00	\$0.00	\$0.00	\$32.71	\$43.09
Cable Puller	50.00	\$12.98	\$3.00	\$0.39	\$0.25	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$16.86	\$23.35

**Special Calculation Note :**

**Ratio :**

1 Technician to 2 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note )**

:

BUTLER, WARREN\*

**Special Jurisdictional Note :** The following townships In Warren County are included: (Deerfield, Hamilton, Harlan, Massie, Salem, Turtle Creek, Union, and Washington)

**Details :**

The following work is excluded from the Teledata Technician work scope:

\*The installation of computer systems in industrial applications such as assembly lines, robotics, computer controller manufacturing systems.

\*The installation of conduit and/or raceways shall be installed by Inside Wireman. On sites where there is no Inside Wireman employed, the

Teledata Technician may install raceway or conduit not greater than 10 ft.

\*Fire Alarm work is excluded on all new construction sites or wherever the fire alarm system is installed in conduit

\*All HVAC control work.

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Elevator Local 11

Change # : LCN01-2020fbLoc11

Craft : Elevator Effective Date : 01/05/2021 Last Posted : 01/05/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Elevator Mechanic	\$48.82		\$15.88	\$10.46	\$0.64	\$3.91	\$8.85	\$1.56	\$0.00	\$0.00	\$90.12	\$114.53
Probationary Apprentice	50.00	\$24.41	\$0.00	\$0.00	\$0.00	\$1.46	\$0.00	\$0.78	\$0.00	\$0.00	\$26.65	\$38.86
1st year	55.00	\$26.85	\$15.88	\$10.46	\$0.64	\$1.61	\$8.85	\$0.86	\$0.00	\$0.00	\$65.15	\$78.58
2nd year	65.00	\$31.73	\$15.88	\$10.46	\$0.64	\$1.90	\$8.85	\$1.02	\$0.00	\$0.00	\$70.48	\$86.35
3rd year	70.00	\$34.17	\$15.88	\$10.46	\$0.64	\$2.05	\$8.85	\$1.09	\$0.00	\$0.00	\$73.14	\$90.23
4th year	80.00	\$39.06	\$15.88	\$10.46	\$0.64	\$2.34	\$8.85	\$1.25	\$0.00	\$0.00	\$78.48	\$98.00
Helper	70.00	\$34.17	\$15.88	\$10.46	\$0.64	\$2.05	\$8.85	\$1.09	\$0.00	\$0.00	\$73.14	\$90.23
Assistant Mechanic	80.00	\$39.06	\$15.88	\$10.46	\$0.64	\$2.34	\$8.85	\$1.25	\$0.00	\$0.00	\$78.48	\$98.00

**Special Calculation Note :** Other is Holiday Pay. Vacation calculated at 6%.

### Ratio :

The total number of Helpers & Apprentices employed shall not exceed the number of Mechanics on any one job, except on jobs where (2) teams or more are working, (1) extra Helper or Apprentice may be employed for the first (2) teams and an extra Helper or Apprentice for each additional (3) teams.

- 1 Journeymen to 1 Apprentice
- 2 Journeymen to 5 Apprentice
- 3 Journeymen to 6 Apprentice

### Special Jurisdictional Note :

### Details :

### Jurisdiction ( \* denotes special jurisdictional note ) :

ADAMS, BROWN, BUTLER, CLERMONT, CLINTON, DARKE, GREENE, HAMILTON, HIGHLAND, MIAMI, MONTGOMERY, PREBLE, SCIOTO, SHELBY, WARREN



# Prevailing Wage Rate Skilled Crafts

Name of Union: Glazier Local 387

**Change # : LCN01-2020fbLoc387**

**Craft : Glazier Effective Date : 11/01/2020 Last Posted : 10/28/2020**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)		
Classification											
Glazier	\$27.93	\$5.67	\$10.10	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.95	\$57.92
Apprentice	Percent										
1st 6 months	53.70	\$15.00	\$5.67	\$0.00	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$20.92	\$28.42
2nd 6 months	65.00	\$18.15	\$5.67	\$6.19	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$30.26	\$39.34
3rd 6 months	70.00	\$19.55	\$5.67	\$6.71	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$32.18	\$41.96
4th 6 months	75.00	\$20.95	\$5.67	\$6.85	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$33.72	\$44.19
5th 6 months	80.00	\$22.34	\$5.67	\$7.43	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$35.69	\$46.87
6th 6 months	85.00	\$23.74	\$5.67	\$7.57	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$37.23	\$49.10
7th 6 months	90.00	\$25.14	\$5.67	\$8.09	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$39.15	\$51.72
8th 6 months	95.00	\$26.53	\$5.67	\$8.68	\$0.25	\$0.00	\$0.00	\$0.00	\$0.00	\$41.13	\$54.40

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

Each employer may employ and train Apprentices in the following ratio to journeymen workers employed.  
1 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, BROWN, BUTLER, CHAMPAIGN, CLARK, CLERMONT, CLINTON, DARKE, FAYETTE\*, GREENE, HAMILTON, HIGHLAND, MIAMI, MONTGOMERY, PREBLE, SHELBY\*, WARREN

**Special Jurisdictional Note :** Fayette County: Eastern portion of route #41 being the dividing line between locals 372 and 387. Local 387 has jurisdiction of projects built on property which borders route #41 East. Shelby County: Southern portion of routes #47 & 29.

**Details :**

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Ironworker Local 44

Change # : LCNO1-2021fbLoc44

Craft : Ironworker Effective Date : 06/24/2021 Last Posted : 06/24/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Ironworker Reinforcing	\$31.82		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.62	\$69.53
Structural	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
Ornamental	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
Machine Mover/Rigger	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
Conveyer Mechanic	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
Maintenance/Heavy Hwy	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
Welder A	\$31.57		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.37	\$69.15
Welder B	\$31.82		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.62	\$69.53
Sheeter	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
Fence Erector	\$29.75		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$51.55	\$66.42
Ironworker	\$31.32		\$8.50	\$9.50	\$0.60	\$0.00	\$3.00	\$0.20	\$0.00	\$0.00	\$53.12	\$68.78
<b>Apprentice</b>	<b>Percent</b>											
Apprentice												
1st yr A	60.00	\$19.09	\$8.50	\$9.50	\$0.60	\$0.00	\$0.75	\$0.20	\$0.00	\$0.00	\$38.64	\$48.19
1st yr B	65.00	\$20.68	\$8.50	\$9.50	\$0.60	\$0.00	\$0.75	\$0.20	\$0.00	\$0.00	\$40.23	\$50.57
2nd yr A	70.00	\$22.27	\$8.50	\$9.50	\$0.60	\$0.00	\$0.75	\$0.20	\$0.00	\$0.00	\$41.82	\$52.96
2nd yr B	75.00	\$23.87	\$8.50	\$9.50	\$0.60	\$0.00	\$0.75	\$0.20	\$0.00	\$0.00	\$43.42	\$55.35
3rd yr A	80.00	\$25.46	\$8.50	\$9.50	\$0.60	\$0.00	\$1.50	\$0.20	\$0.00	\$0.00	\$45.76	\$58.48
3rd yr B	85.00	\$27.05	\$8.50	\$9.50	\$0.60	\$0.00	\$1.50	\$0.20	\$0.00	\$0.00	\$47.35	\$60.87
4th yr A	90.00	\$28.64	\$8.50	\$9.50	\$0.60	\$0.00	\$2.25	\$0.20	\$0.00	\$0.00	\$49.69	\$64.01
4th yr B	95.00	\$30.23	\$8.50	\$9.50	\$0.60	\$0.00	\$2.25	\$0.20	\$0.00	\$0.00	\$51.28	\$66.39
4th yr C	100.00	\$31.82	\$8.50	\$9.50	\$0.60	\$0.00	\$2.25	\$0.20	\$0.00	\$0.00	\$52.87	\$68.78

**Special Calculation Note :** Other is Impact Fund Training

**Ratio :**

1 Journeymen to 1 Apprentice  
 2 Journeymen to 2 Apprentices  
 10 Journeymen to 4 Apprentices

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS\*, BROWN, BUTLER\*, CLERMONT,  
 CLINTON\*, HAMILTON, HIGHLAND\*,  
 WARREN\*

**Special Jurisdictional Note :** Adams County Twps included: Bratton, Scott, Winchester, Wayne. Butler County Twps included: Oxford, St. Clair, Fairfield, Morgan, Liberty, Union, Ross, Reily, Hanover. West Chester. In Clinton County, Manchester and South West Borrow. Highland County Twps included: Dotson, Salem, Clay, White Oak, Hamer, New Market, Concord, Jackson, Washington. Warren County Twps included: Harlan, Deerfield, Hamilton.

**Details :**

Structural Iron Work but not limited to:field fabrication, all loading to and including the erecting,rigging,assembly,dismantling, placing, temporary and permanent securing by any means of all structural iron,steel,ornamental lead,bronze,brass,copper,aluminum,glass all ferrous and non ferrous metal and composite material, precast prestressed and post-stressed concrete structures. Bridges and bridge rails,bridge viaducts,bucks bulkheads,bumper and bumper post,canopies and unistrut canopies,corrugated ferrous and non ferrous sheets when attached to steel frames,columns,beams,bar-joists,trusses,grinders,roof decking,electrical supports,elevator cars,elevator fronts and enclosures,erection of steel towers,flag poles, gymnasium equipment,stadium and arena seating,jail cell work,jail cell beds,benches,bunks,chairs,tables,mirrors,jail cell access doors,rigging and installation of machinery and equipment(erecting,aligning,anchoring and dismantling, erection and dismantling of tower cranes,derrick monorail systems, Chicago booms,overhead cranes,gantries,material and personnel hoists,tanks,hoppers and conveyors. All pre-engineered metal buildings and their entirety including siding,roofing, gutters, downspouts and erection of all.

Ornamental Iron Work but not limited to:all work in connection with field fabrication,handling including loading/off loading,sorting,cutting,fastening,anchoring,bending,hoisting,placing,burning,welding,and tying,dismantling of all materials used in miscellaneous iron or steel, for stairs,hand railings,rolling doors, rolling gates,rolling shutters,fence,windows,curtain wall,erection and welding of all metal, sash,architectural and ornamental treatments, but not necessarily limited to all sizes and types of ornamental,steel iron,lead,bronze,brass,copper,aluminum,all ferrous and non ferrous metals and composite materials

Fence Erector Iron Worker but not limited to: All work in connection with the field fabrication and erection of chain link fence,which includes but not limited to the loading and of the fence fabric and posts also the installation of the above.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Ironworker Local 290

**Change # : LCN01-2021fbLoc290**

**Craft : Ironworker Effective Date : 01/27/2021 Last Posted : 01/27/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Ironworker Structural	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Welder	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Fence Erector	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Reinforcing Rods	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Machinery Mover	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Sheeter	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Metal Building Erector	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
Rigger & Erector	\$29.68		\$8.30	\$9.50	\$0.65	\$0.00	\$4.45	\$0.02	\$0.00	\$0.00	\$52.60	\$67.44
<b>Apprentice</b>	<b>Percent</b>											
1st year	65.05	\$19.31	\$8.30	\$9.50	\$0.65	\$0.00	\$2.95	\$0.02	\$0.00	\$0.00	\$40.73	\$50.38
2nd year	75.07	\$22.28	\$8.30	\$9.50	\$0.65	\$0.00	\$2.95	\$0.02	\$0.00	\$0.00	\$43.70	\$54.84
3rd year	85.05	\$25.24	\$8.30	\$9.50	\$0.65	\$0.00	\$2.95	\$0.02	\$0.00	\$0.00	\$46.66	\$59.28
4th year	95.05	\$28.21	\$8.30	\$9.50	\$0.65	\$0.00	\$2.95	\$0.02	\$0.00	\$0.00	\$49.63	\$63.74

**Special Calculation Note :** Other is for Industry Fund.

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ALLEN\*, AUGLAIZE, BUTLER\*, CHAMPAIGN\*, CLARK, CLINTON, DARKE, FAYETTE\*, GREENE, HARDIN\*, HIGHLAND\*, LOGAN\*, MADISON\*, MERCER\*, MIAMI, MONTGOMERY, PREBLE, SHELBY, VAN WERT\*, WARREN\*

**Special Jurisdictional Note :** Allen County Twps included are: Auglaize, Perry, Shawnee, Amanda, Spencer, Marion, Sugar Creek, American, Bath, Jackson. Butler County Twps included are: Milford, Wayne, Madison, Lemon. Champaign Cnty Twps included are: Union, Urbana, Jackson, Concord, Salem, Mad River, Johnson, Harrison, Adams. Fayette County Twps included are: Green, Jasper, Concord, Jefferson. Hardin County Twps included are: Round Head, Marion,

Liberty. Highland County Twps included are: Fairfield, Penn, Union, Marshall, Liberty, Paint, Brush Creek. Logan County Twps included are: Richland, Stokes, Bloomfield, Washington, Harrison, McArthur, Lake, Liberty, Pleasant, Miami. Madison County Twps included are: Stokes. Mercer County Twps included are: Dublin, Washington, Jefferson, Recovery, Gibson, Union, Liberty, Butler, Granville, Center, Hopewell, Franklin, Marion. VanWert County Twps included are: Jennings. Warren County Twps included are: Franklin, Clear Creek, Turtle Creek, Wayne, Massie, Washington, Salem, Union.

**Details :**

Structural Iron Work but not limited to:field fabrication, all loading to and including the erecting,rigging,assembly,dismantling, placing, temporary and permanent securing by any means of all structural iron,steel,ornamental lead,bronze,brass,copper,aluminum,glass all ferrous and non ferrous metal and composite material, precast prestressed and post-stressed concrete structures. Bridges and bridge rails,bridge viaducts,bucks bulkheads,bumper and bumper post,canopies and unistrut canopies,corrugated ferrous and non ferrous sheets when attached to steel frames,columns,beams,bar-joists,trusses,grinders,roof decking,electrical supports,elevator cars,elevator fronts and enclosures,erection of steel towers,flag poles, gymnasium equipment,stadium and arena seating,jail cell work,jail cell beds,benches,bunks,chairs,tables,mirrors,jail cell access doors,rigging and installation of machinery and equipment(erecting,aligning,anchoring and dismantling, erection and dismantling of tower cranes,derrick monorail systems, Chicago booms,overhead cranes,gantries,material and personnel hoists,tanks,hoppers and conveyors. All pre-engineered metal buildings and their entirety including siding,roofing, gutters, downspouts and erection of all.

Ornamental Iron Work but not limited to:all work in connection with field fabrication,handling including loading/off loading,sorting,cutting,fastening,anchoring,bending,hoisting,placing,burning,welding,and tying,dismantling of all materials used in miscellaneous iron or steel, for stairs,hand railings,rolling doors, rolling gates,rolling shutters,fence,windows,curtain wall,erection and welding of all metal, sash,architectural and ornamental treatments, but not necessarily limited to all sizes and types of ornamental,steel iron,lead,bronze,brass,copper,aluminum,all ferrous and non ferrous metals and composite materials

Fence Erector Iron Worker but not limited to: All work in connection with the field fabrication and erection of chain link fence,which includes but not limited to the loading and of the fence fabric and posts also the installation of the above.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Labor HevHwy 3

Change # : LCN01-2021fbLocalHevHwy3

Craft : Laborer Group 1 Effective Date : 05/01/2021 Last Posted : 04/21/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Laborer Group 1	\$33.27		\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$45.22	\$61.86
Group 2	\$33.44		\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$45.39	\$62.11
Group 3	\$33.77		\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$45.72	\$62.61
Group 4	\$34.22		\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$46.17	\$63.28
Watch Person	\$26.00		\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$37.95	\$50.95
Apprentice	Percent											
0-1000 hrs	60.00	\$19.96	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$31.91	\$41.89
1001-2000 hrs	70.00	\$23.29	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$35.24	\$46.88
2001-3000 hrs	80.00	\$26.62	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.57	\$51.87
3001-4000 hrs	90.00	\$29.94	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.89	\$56.86
More than 4000 hrs	100.00	\$33.27	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$45.22	\$61.86

**Special Calculation Note :** Watchmen have no Apprentices. Tunnel Laborer rate with air-pressurized add \$1.00 to the above wage rate.

**Ratio :**

- 1 Journeymen to 1 Apprentice
- 3 Journeymen to 1 Apprentice thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

- ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SCIOTO, SENECA, SHELBY, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WYANDOT

**Special Jurisdictional Note :** Hod Carriers and Common Laborers - Heavy, Highway, Sewer, Waterworks, Utility, Airport, Railroad, Industrial and Building Site, Sewer Plant, Waste Water Treatment Facilities Construction

**Details :**

Group 1

Laborer (Construction); Plant Laborer or Yardman, Right-of-way Laborer, Landscape Laborer, Highway Lighting Worker, Signalization Worker, (Swimming) Pool Construction Laborer, Utility Man, \*Bridge Man, Handyman, Joint Setter, Flagperson, Carpenter Helper, Waterproofing Laborer, Slurry Seal, Seal Coating, Surface Treatment or Road Mix Laborer, Riprap Laborer & Grouter, Asphalt Laborer, Dump Man (batch trucks), Guardrail & Fence Installer, Mesh Handler & Placer, Concrete Curing Applicator, Scaffold Erector, Sign Installer, Hazardous Waste (level D), Diver Helper, Zone Person and Traffic Control.

\*Bridge Man will perform work as per the October 31, 1949, memorandum on concrete forms, by and between the United Brotherhood of Carpenters and Joiners of America and the Laborers' International Union of North America, which states in; "the moving, cleaning, oiling and carrying to the next point of erection, and the stripping of forms which are not to be re-used, and forms on all flat arch work shall be done by members of the Laborers' International Union of North America."

Group 2

Asphalt Raker, Screwman or Paver, Concrete Puddler, Kettle Man (pipeline), All Machine-Driven Tools (Gas, Electric, Air), Mason Tender, Brick Paver, Mortar Mixer, Skid Steer, Sheeting & Shoring Person, Surface Grinder Person, Screedperson, Water Blast, Hand Held Wand, Power Buggy or Power Wheelbarrow, Paint Striper, Plastic fusing Machine Operator, Rodding Machine Operator, Pug Mill Operator, Operator of All Vacuum Devices Wet or Dry, Handling of all Pumps 4 inches and under (gas, air or electric), Diver, Form Setter, Bottom Person, Welder Helper (pipeline), Concrete Saw Person, Cutting with Burning Torch, Pipe Layer, Hand Spiker (railroad), Underground Person (working in sewer and waterline, cleaning, repairing and reconditioning). Tunnel Laborer (without air), Caisson, Cofferdam (below 25 feet deep), Air Track and Wagon Drill, Sandblaster Nozzle Person, Hazardous Waste (level B), \*\*\*Lead Abatement, Hazardous Waste (level C)

\*\*\*Includes the erecting of structures for the removal, including the encapsulation and containment of Lead abatement process.

Group 3

Blast and Powder Person, Muckers will be defined as shovel men working directly with the miners, Wrencher (mechanical joints & utility pipeline), Yarnier, Top Lander, Hazardous Waste (level A), Concrete Specialist, Curb Setter and Cutter, Grade Checker, Concrete Crew in Tunnels. Utility pipeline Tappers, Waterline, Caulker, Signal Person will receive the rate equal to the rate paid the Laborer classification for which the Laborer is signaling.

Group 4

Miner, Welder, Gunite Nozzle Person

A.) The Watchperson shall be responsible to patrol and maintain a safe traffic zone including but not limited to barrels, cones, signs, arrow boards, message boards etc.

The responsibility of a watchperson is to see that the equipment, job and office trailer etc. are secure.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Labor Local 534 Building

**Change # : LCNO1-2021fbLoc534**

**Craft : Laborer Effective Date : 06/03/2021 Last Posted : 06/03/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Laborer Group 1	\$29.39	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.34	\$56.04	
Laborer Group 2	\$29.49	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.44	\$56.19	
Laborer Group 3	\$29.59	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.54	\$56.34	
Laborer Group 4	\$29.72	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.67	\$56.53	
Laborer Group 5	\$29.97	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.92	\$56.91	
Laborer Group 6	\$29.74	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.69	\$56.56	
Laborer Group 7	\$28.94	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$40.89	\$55.36	
Apprentice	Percent											
0-1000 hrs	60.00	\$17.63	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$29.58	\$38.40
1001-2000 hrs	70.00	\$20.57	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$32.52	\$42.81
2001-3000 hrs	80.00	\$23.51	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$35.46	\$47.22
3001-4000	90.00	\$26.45	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$38.40	\$51.63
4001	100.00	\$29.39	\$7.50	\$3.90	\$0.45	\$0.00	\$0.00	\$0.00	\$0.10	\$0.00	\$41.34	\$56.04

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

1 Journeyman to 1 Apprentice  
3 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BUTLER, WARREN

**Special Jurisdictional Note :**

**Details :**

Note:



## Labor Local 534 Building

Group 1: Building & Common Laborer; All general laborers work including all forms of landscaping, Rough Rider - all pump's 4 inch or smaller, Small Pump Portable Generators-Bobcat to Cleanup, Firewatch and Monitor, (Safety Person)

Group 2: Asphalt Raker, Tamper, Smoother, Hand Air Pump, Hand air Tamper, Chisel, Power Tamper, Operator, Switch, Assemblies, Handling & Laying Precast Concrete Floors & Deck Tool Repairman.

Group 3: Concrete Specialist; Skid Steers (with attachments to perform Laborer's duties) Jack Hammer \* Concrete Busterman, Barco Tamper Man, Power Georgia Buggy Man, Power Sweeper Man, Vibrator, Concrete Saw Man, Rail Spikers, Acetylene Burner, Pipelayers, Bos'n Cradleman, Bottom Man, Chipping Hammer Grade Checker, Radio Operator, Form Cleanout & blowout Man, Red Concrete Coloring Man (Electrical Safety)

Group 4: Mason Tender, Mortar Mixers & Scaffold Builders

Group 5: Fork Lift for Mason, all work involving Refractory Materials Including Demolition of Refractory Materials.

Asbestos Removal and Hazardous Waste Removal (handling, control, removal abatement, encapsulation or disposal of asbestos & hazardous waste),

Group 6: Gunnite Man, Sand Blaster, Concrete & Grout Pump & Hose Man, Blast Trac, Miners & Muckers, Free Air, Powderman or Blaster, Mortar or Gypsum Machineman, Welder, Scuba Diver.

Group 7: Watchman & Tool Checker/Toolroom Man

# Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - Building Local 18 - Zone III

Change # : LCN01-2021sksLoc18zone3

Craft : Operating Engineer Effective Date : 08/13/2021 Last Posted : 08/13/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Group A	\$39.14		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$55.09	\$74.66
Group B	\$39.02		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$54.97	\$74.48
Group C	\$37.98		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$53.93	\$72.92
Group D	\$36.80		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$52.75	\$71.15
Group E	\$31.34		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$47.29	\$62.96
Master Mechanic	\$39.39		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$55.34	\$75.03
Cranes 150'-180'	\$39.64		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$55.59	\$75.41
Cranes 180'-249'	\$40.14		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$56.09	\$76.16
Cranes 249' and over	\$40.39		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$56.34	\$76.53
<b>Apprentice</b>	<b>Percent</b>											
1st Year	50.00	\$19.57	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$35.52	\$45.31
2nd Year	60.00	\$23.48	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$39.43	\$51.18
3rd Year	70.00	\$27.40	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.35	\$57.05
4th Year	80.00	\$31.31	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$47.26	\$62.92
Field Mechanic Trainee			\$8.76	\$6.25	\$0.85			\$0.09				
1st Year	50.00	\$19.57	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$35.52	\$45.31
2nd Year	60.00	\$23.48	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$39.43	\$51.18
3rd Year	70.00	\$27.40	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.35	\$57.05
4th Year	80.00	\$31.31	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$47.26	\$62.92

**Special Calculation Note :** Other: Education & Safety \$0.09

**Ratio :**

For every (3) Operating Engineer Journeymen employed by the company there may be employed (1) Registered Apprentice or trainee Engineer through the referral when they are available. An apprentice, while employed as part of a crew per Article VIII, paragraph 78, will not be subject to the apprenticeship ratios in this collective bargaining agreement

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, TUSCARAWAS, UNION,

VAN WERT, VINTON, WARREN, WASHINGTON,  
WAYNE, WILLIAMS, WYANDOT

### Special Jurisdictional Note :

#### Details :

Note: There will be a 10% increase for the apprentices on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% increase if required to have CDL

Group A- Barrier Moving Machines; Boiler Operators or Compressor Operators, when compressor or boiler is mounted on crane (Piggyback Operation); Boom Trucks (all types); Cableways Cherry Pickers; Combination - Concrete Mixers & Towers; All Concrete Pumps with Booms; Cranes (all types); Compact Cranes, track or rubber over 4,000 pounds capacity; Cranes self-erecting, stationary, track or truck (all configurations); Derricks (all types); Draglines; Dredges (dipper, clam or suction) 3-man crew; Elevating Graders or Euclid Loaders; Floating Equipment; Forklift (rough terrain with winch/hoist); Gradalls; Helicopter Operators, hoisting building materials; Helicopter Winch Operators, Hoisting building materials; Hoes (All types); Hoists (with two or more drums in use); Horizontal Directional Drill; Hydraulic Gantry (lift system); Laser Finishing Machines; Laser Screed and like equipment; Lift Slab or Panel Jack Operators; Locomotives (all types); Maintenance Operator/Technician(Mechanic Operator/Technician and/or Welder); Mixers, paving (multiple drum); Mobile Concrete Pumps, with booms; Panelboards, (all types on site); Pile Drivers; Power Shovels; Prentice Loader; Rail Tamper (with automatic lifting and aligning device); Rotary Drills (all), used on caissons for foundations and sub-structure; Side Booms; Slip Form Pavers; Straddle Carriers (Building Construction on site); Trench Machines (over 24" wide); Tug Boats.

Group B - Articulating/end dumps (minus \$4.00/hour from Group B rate); Asphalt Pavers; Bobcat-type and/or skid steer loader with hoe attachment greater than 7000 lbs.; Bulldozers; CMI type Equipment; Concrete Saw, Vermeer-type; Endloaders; Hydro Milling Machine; Kolman-type Loaders (Dirt Loading); Lead Greasemen; Mucking Machines; Pettibone-Rail Equipment; Power Graders; Power Scoops; Power Scrapers; Push Cats; Rotomills (all), grinders and planers of all types.

Group C - A-Frames; Air Compressors, Pressurizing Shafts or Tunnels; All Asphalt Rollers; Bobcat-type and/or Skid Steer Loader with or without attachments; Boilers (15 lbs. pressure and over); All Concrete Pumps (without booms with 5 inch system); Fork Lifts (except masonry); Highway Drills - all types (with integral power); Hoists (with one drum); House Elevators (except those automatic call button controlled), Buck Hoists, Transport Platforms, Construction Elevators; Hydro Vac/Excavator (when a second person is needed, the rate of pay will be "Class E"); Man Lifts; Material hoist/elevators; Mud Jacks; Pressure Grouting; Pump Operators (installing or operating Well Points or other types of Dewatering Systems); Pumps (4 inches and over discharge); Railroad Tie (Inserter/Remover); Rotovator (Lime-Soil Stabilizer); Submersible Pumps (4"and over discharge); Switch & Tie Tampers (without lifting and aligning device); Trench Machines (24" and under); Utility Operators.

Group D - Backfillers and Tampers; Ballast Re-locator; Batch Plant Operators; Bar and Joint Installing Machines; Bull Floats; Burlap and Curing Machines; Clefplanes; Compressors, on building construction; Concrete Mixers, more than one bag capacity; Concrete Mixers, one bag capacity (side loaders); All Concrete Pumps (without boom with 4" or smaller system); Concrete Spreader; Conveyors, used for handling building materials; Crushers; Deckhands; Drum Fireman (in asphalt plants); Farm type tractors pulling attachments; Finishing Machines; Form Trenchers; Generators: Gunite Machines; Hydro-seeders; Pavement Breakers (hydraulic or cable); Post Drivers; Post Hole Diggers; Pressure Pumps (over 1/2") discharge); Road Widening Trenchers; Rollers (except asphalt); Self-propelled sub-graders; Shotcrete Machines; Tire Repairmen; Tractors, pulling sheepsfoot post roller or grader; VAC/ALLS; Vibratory Compactors, with integral power; Welders.

Group E – Allen Screed Paver (concrete); Boilers (less than 15 lbs. pressure); Cranes-Compact, track or rubber (under 4,000 pounds capacity); Directional Drill "Locator"; Fueling and greasing +\$3.00; Inboard/outboard Motor Boat Launches; Light Plant Operators; Masonry Fork Lifts; Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson, Submersible Pumps (under 4" discharge).

Master Mechanics - Master Mechanic

Cranes 150' – 180' - Boom & Jib 150 - 180 feet

Cranes 180' – 249' - Boom & Jib 180 - 249 feet

Cranes 250' and over - Boom & Jib 250-feet or over

# Prevailing Wage Rate Skilled Crafts

Name of Union: Operating Engineers - HevHwy Zone II

Change # : LCN01-2021sksLoc18hevhwyl

Craft : Operating Engineer Effective Date : 08/13/2021 Last Posted : 08/13/2021

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
<b>Classification</b>												
Class A	\$39.14		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$55.09	\$74.66
Class B	\$39.02		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$54.97	\$74.48
Class C	\$37.98		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$53.93	\$72.92
Class D	\$36.80		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$52.75	\$71.15
Class E	\$31.34		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$47.29	\$62.96
Master Mechanic	\$39.39		\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$55.34	\$75.03
<b>Apprentice Percent</b>												
1st Year	50.00	\$19.57	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$35.52	\$45.31
2nd Year	60.00	\$23.48	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$39.43	\$51.18
3rd Year	70.00	\$27.40	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.35	\$57.05
4th Year	80.00	\$31.31	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$47.26	\$62.92
<b>Field Mech Trainee Class 2</b>												
1st year	50.00	\$19.57	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$35.52	\$45.31
2nd year	60.00	\$23.48	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$39.43	\$51.18
3rd year	70.00	\$27.40	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$43.35	\$57.05
4th year	80.00	\$31.31	\$8.76	\$6.25	\$0.85	\$0.00	\$0.00	\$0.09	\$0.00	\$0.00	\$47.26	\$62.92

**Special Calculation Note :** Other: Education & Safety Fund is \$0.09 per hour.

**Ratio :**

For every (3) Operating Engineer Journeymen employed by the company, there may be employed (1) Registered Apprentice or Trainee Engineer through the referral when they are available. An Apprentice, while employed as part of a crew per Article VIII, paragraph 65 will not be subject to the apprenticeship ratios in this collective bargaining agreement

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MARION, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA,

SHELBY, STARK, TUSCARAWAS, UNION, VAN  
WERT, VINTON, WARREN, WASHINGTON, WAYNE,  
WILLIAMS, WOOD, WYANDOT

## Special Jurisdictional Note :

### Details :

\*\*Apprentices will receive a 10% increase on top of the percentages listed above provided they are operating mobile equipment. Mechanic Trainees will receive 10% increase if they are required to have CDL.

Class A - Air Compressors on Steel Erection; Asphalt Plant Engineers (Cleveland District Only); Barrier Moving Machine; Boiler Operators, Compressor Operators, or Generators, when mounted on a rig; Boom Trucks (all types); Cableways; Cherry Pickers; Combination- Concrete Mixers & Towers; Concrete Plants (over 4 yd capacity); Concrete Pumps; Cranes (all types); Compact Cranes track or rubber over 4,000 pounds capacity; Cranes self-erecting stationary, track or truck; Derricks (all types); Draglines; Dredges dipper, clam or suction; Elevating Graders or Euclid Loaders; Floating Equipment (all types); Gradalls; Helicopter Crew (Operator- hoist or winch); Hoes (all types); Hoisting Engines; Hoisting Engines, on shaft or tunnel work; Hydraulic Gantry (lifting system); Industrial-type Tractors; Jet Engine Dryer (D8 or D9) diesel Tractors; Locomotives (standard gauge); Maintenance Operators/Technicians (class A); Mixers, paving (single or double drum); Mucking Machines; Multiple Scrapers; Piledriving Machines (all types); Power Shovels, Prentice Loader; Quad 9 (double pusher); Rail Tamper (with automatic lifting and aligning device); Refrigerating Machines (freezer operation); Rotary Drills, on caisson work; Rough Terrain Fork Lift with winch/hoist; Side Booms; Slip Form Pavers; Survey Crew Party Chiefs; Tower Derricks; Tree Shredders; Trench Machines (over 24" wide); Truck Mounted Concrete Pumps; Tug Boats; Tunnel Machines and /or Mining Machines; Wheel Excavators.

Class B - Asphalt Pavers; Automatic Subgrade Machines, self-propelled (CMI-type); Bobcat-type and /or Skid Steer Loader with hoe attachment greater than 7000 lbs.; Boring Machine Operators (more than 48 inches); Bulldozers; Concrete Saws, Vermeer type; Endloaders; Horizontal Directional Drill (50,000 ft. lbs. thrust and over); Hydro Milling Machine; Kolman-type Loaders (production type-dirt); Lead Greasemen; Lighting and Traffic Signal Installation Equipment includes all groups or classifications; Maintenance Operators/Technicians, Class B; Material Transfer Equipment (shuttle buggy) Asphalt; Pettibone-Rail Equipment; Power Graders; Power Scrapers; Push Cats; Rotomills (all), Grinders and Planners of all types, Groovers (excluding walk-behinds); Trench Machines (24 inch wide and under).

Class C - A-Frames; Air Compressors, on tunnel work (low Pressure); Articulating/straight bed end dumps if assigned (minus \$4.00 per hour); Asphalt Plant Engineers (Portage and Summit Counties only); Bobcat-type and/or skid steer loader with or without attachments; Drones; Highway Drills (all types); HydroVac/Excavator (when a second person is needed, the rate of pay will be "Class E"); Locomotives (narrow gauge); Material Hoist/Elevators; Mixers, concrete (more than one bag capacity); Mixers, one bag capacity (side loader); Power Boilers (over 15 lbs. pressure); Pump Operators (installing or operating well Points); Pumps (4 inch and over discharge); Railroad Tie Inserter/Remover; Rollers, Asphalt; Rotovator (lime-soil Stabilizer); Switch & Tie Tampers (without lifting and aligning device); Utilities Operators, (small equipment); Welding Machines and Generators.

Class D – Backfillers and Tampers; Ballast Re-locator; Bar and Joint Installing Machines; Batch Plant Operators; Boring Machine Operators (48 inch or less); Bull Floats; Burlap and Curing Machines; Concrete Plants (capacity 4 yds. and under); Concrete Saws (multiple); Conveyors (highway); Crushers; Deckhands; Farm type tractors, with attachments (highway); Finishing Machines; Firemen, Floating Equipment (all types); Fork Lifts (highway), except masonry; Form Trenchers; Hydro Hammers; Hydro Seeders; Pavement Breakers (hydraulic or cable); Plant Mixers; Post Drivers; Post Hole Diggers; Power Brush Burners; Power Form Handling Equipment; Road Widening Trenchers; Rollers (brick, grade, macadam); Self-Propelled Power Spreaders; Self-Propelled Sub-Graders; Steam Firemen; Survey Instrument men; Tractors, pulling sheepsfoot rollers or graders; Vibratory Compactors, with integral power.

Class E - Compressors (portable, Sewer, Heavy and Highway); Cranes-Compact, track or rubber under 4,000 pound capacity; Drum Firemen (asphalt plant); Fueling and greasing (Primary Operator with Specialized CDL Endorsement Add \$3.00/hr); Generators; Inboard-Outboard Motor Boat Launches; Masonry Fork Lifts; Oil Heaters (asphalt plant); Oilers/Helpers; Power Driven Heaters (oil fired); Power Scrubbers; Power Sweepers; Pumps (under 4 inch discharge); Signalperson; Survey Rodmen or Chairmen; Tire Repairmen; VAC/ALLS.

Master Mechanic - Master Mechanic

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Painter Locals 123 & 238

Change # : LCR01-2021fbLoc123-238

Craft : Drywall Finisher Effective Date : 05/01/2021 Last Posted : 04/21/2021

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Drywall Finisher	\$25.89	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.85	\$50.80
Tapers and Finishers	\$25.89	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.85	\$50.80
Apprentice											
1st Year	\$14.83	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.23	\$30.64
2nd Year	\$17.63	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$26.03	\$34.85
3rd Year	\$20.43	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.83	\$39.05
4th Year	\$21.84	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.24	\$41.16

**Special Calculation Note :** Apprentices shall be paid the proper % of the classification above.

### Ratio :

1 Journeyman to 1 Apprentice per job

### Jurisdiction ( \* denotes special jurisdictional note ) :

BROWN, BUTLER, CLERMONT, CLINTON, HAMILTON, WARREN

### Special Jurisdictional Note :

### Details :

Industrial Work paid as commercial work above for each class which includes, Industrial Plants, repair garages, processing plants, storage tanks, warehouses, skeletons structures, bridges unless highest point of clearance is 60 feet or more whether new or old construction offices and office buildings in industrial sites are at industrial rates. Heavy & Highway Bridges-Guard Rails- Light Poles. A hazardous steeplejack rate shall apply on radio towers, stacks, light towers, water towers, steeples, skeleton steel, and exterior industrial conveyors over 25 feet, where such items require steeplejack methods and the rate of pay shall be a \$1.00 per hour above the industrial rate. Steeplejack rate to apply to bridges where highest point of clearance is 60 feet.

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Painter Locals 123 & 238  
Commercial & Industrial

Change # : LCR01-2021fbLoc123

Craft : Painter Effective Date : 05/01/2021 Last Posted : 04/21/2021

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Brush Roll	\$25.89	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.85	\$50.80
Paper Hanger	\$25.89	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.85	\$50.80
Spray Painter	\$26.39	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.35	\$51.55
Sand Blaster Water Blaster	\$26.64	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.60	\$51.92
Elevated Tanks	\$26.89	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.85	\$52.30
Apprentice											
1st Year	\$14.82	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$23.22	\$30.63
2nd Year	\$17.63	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$26.03	\$34.85
3rd Year	\$20.43	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.83	\$39.05
4th Year	\$21.84	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.24	\$41.16

**Special Calculation Note :** Apprentices shall be paid the proper % of the classification above.

**Ratio :**

(1) Journeymen to (1) Apprentice per jobsite

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CLERMONT, CLINTON,  
HAMILTON, WARREN

**Special Jurisdictional Note :**

**Details :**

Industrial Work paid as commercial work above for each class which includes, Industrial Plants, repair garages, processing plants, storage tanks, warehouses, skeletons structures, bridges unless highest point of clearance is 60 feet or more whether new or old construction offices and office buildings in industrial sites are at industrial rates. Heavy & Highway Bridges-Guard Rails- Light Poles. A hazardous steeplejack rate shall apply on radio towers, stacks, light towers, water towers, steeples, skeleton steel, and exterior industrial conveyors over 25 feet, where such items require steeplejack methods and the rate of pay shall be a \$1.00 per hour above the industrial rate. Steeplejack rate to apply to bridges where highest point of clearance is 60 feet.

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Painter Local 123 & 238 Hvy Hwy

Change # : LCR01-2021fbLoc123

Craft : Painter Effective Date : 05/01/2021 Last Posted : 04/21/2021

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Bridge Class 1	\$36.28	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$48.24	\$66.38
Bridge Painter, Rigger, Containment Builder, Spot Blaster Class 2	\$29.28	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.24	\$55.88
Equipment Operator/Field Mechanic, Grit Reclamation, Paint Mixer, Traffic Control, Boat Person Class 3	\$29.28	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.24	\$55.88
Concrete Sealing, Concrete Blasting/Power Washing, Etc. Class 4	\$29.28	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.24	\$55.88
Quality Control/Quality Assurance, Traffic Safety, Competent Person Class 5	\$29.28	\$5.79	\$5.86	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.24	\$55.88
Apprentice											
1st Year	\$20.58	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.98	\$39.27
2nd Year	\$24.21	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.61	\$44.71
3rd Year	\$27.84	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.24	\$50.16
4th Year	\$29.65	\$5.79	\$2.30	\$0.31	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.05	\$52.87

**Special Calculation Note :** Apprentices shall be paid proper % of the classification above..

**Ratio :**

1 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CLERMONT, CLINTON, HAMILTON, WARREN



## **Special Jurisdictional Note :**

### **Details :**

Industrial Work paid as commercial work above for each class which includes, Industrial Plants, repair garages, processing plants, storage tanks, warehouses, skeletons structures, bridges unless highest point of clearance is 60 feet or more whether new or old construction offices and office buildings in industrial sites are at industrial rates. Heavy & Highway Bridges-Guard Rails- Light Poles. A hazardous steeplejack rate shall apply on radio towers, stacks, light towers, water towers, steeples, skeleton steel, and exterior industrial conveyors over 25 feet, where such items require steeplejack methods and the rate of pay shall be a \$1.00 per hour above the industrial rate. Steeplejack rate to apply to bridges where highest point of clearance is 60 feet.

Class 1 – Abrasive blasting of any kind.

Class 2 – Bridge painting, coating application of any kind. All steel surface preparation other than abrasive blasting. All necessary rigging and containment building. All remedial/ spot blasting.

Class 3 – Tend to all equipment including but not limited to abrasive blasting, power washing, spray painting, forklifts, hoists, trucks, etc. Load and unload trucks, handle materials, man safety boats, handle traffic control, clean up/ vacuum abrasive blast materials and related tasks.

Class 4 – All aspects of concrete coating/ sealing including but not limited to preparation, containment, etc.

Class 5 – Verify and record that all work is completed according to job specifications. Assure that all health and safety standards are adhered to. Assure all traffic is safely handled.

# Prevailing Wage Rate

## Skilled Crafts

Name of Union: Painter Local 639

Change # : LCNO1-2015fbLoc639

Craft : Painter Effective Date : 06/10/2015 Last Posted : 06/10/2015

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>											
Painter Metal Finisher/Helpers											
Top Helper Class A	\$19.09	\$3.65	\$0.00	\$0.00	\$0.66	\$0.00	\$0.00	\$0.00	\$0.00	\$23.40	\$32.94
Top Helper Class B	\$19.09	\$3.65	\$0.65	\$0.00	\$1.03	\$0.00	\$0.37	\$0.00	\$0.00	\$24.79	\$34.33
Top Helper Class C	\$19.09	\$3.65	\$1.00	\$0.00	\$1.76	\$0.00	\$0.37	\$0.00	\$0.00	\$25.87	\$35.41
Helper Class A	\$14.69	\$3.65	\$0.00	\$0.00	\$0.51	\$0.00	\$0.00	\$0.00	\$0.00	\$18.85	\$26.19
Helper Class B	\$14.69	\$3.65	\$0.65	\$0.00	\$0.79	\$0.00	\$0.28	\$0.00	\$0.00	\$20.06	\$27.40
Helper Class C	\$14.69	\$3.65	\$1.00	\$0.00	\$1.64	\$0.00	\$0.28	\$0.00	\$0.00	\$21.26	\$28.60
New Hire 90 Days	\$11.00	\$3.65	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.65	\$20.15

**Special Calculation Note** : Other is Sick and Personal Time**Ratio** :**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, CUYAHOGA, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GEauga, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAKE, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

## **Special Jurisdictional Note :**

### **Details :**

Top Helper: Shall perform the responsibilities of a Helper and be responsible for the setup, break down, safety and quality of the company's product.

Helper : Shall be responsible for performing tasks in refinishing, compliance with safety procedures, setting up and breaking down job sites, scaffolding and swing stages and preparing surfaces for refinishing including but not limited to, masking and stripping and cleaning, oxidizing, polishing and scratch removal on various surfaces

Class A Workers: Less than 1 Year of Service.

Class B Workers: More than 1 and less than 8 Years of Service.

Class C Workers: More than 8 Years of Service.

Metal Polisher Scope of Work: Polishing, buffing, stripping, coloring, lacquering, spraying, cleaning and maintenance of ornamental and architectural metals, iron, bronze, nickel, aluminum and stainless steel and in metal specialty work, various stone finishes, stone specialty work and any other work pertaining to the finishing of metal, stones, woods, and any window washing/cleaning done in conjunction with this work, using chemicals, solvents, coatings and hand applied lacquer thinner, removing scratches from mirror finished metals, burnishing of bronze, statuary finishes on exterior and interior surfaces and the use of all tools required to perform such work, including but not limited to polishes, spray equipment and scaffolding.

Swing State Rate: All work on scaffold 4 sections or higher, including any boom lifts and swing stage scaffolds including the rigging and derigging of hanging/suspended swing stage systems and rappelling/bolson chair work, ADD \$1.50 per hour.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Painter Local 639 Zone 2 Sign

Change # : LCN01-2016fbLoc639

Craft : Painter Effective Date : 08/03/2016 Last Posted : 08/03/2016

	BHR	Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
		H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
Classification											
Painter Sign Journeyman Tech/Team Leader Class A	\$21.25	\$1.33	\$0.14	\$0.00	\$0.00	\$0.00	\$0.57	\$0.00	\$0.00	\$23.29	\$33.92
Painter Sign Journeyman Tech/Team Leader Class B	\$21.25	\$1.33	\$0.14	\$0.00	\$0.41	\$0.00	\$0.57	\$0.00	\$0.00	\$23.70	\$34.32
Painter Sign Journeyman Tech/Team Leader Class C	\$21.25	\$1.33	\$0.14	\$0.00	\$0.82	\$0.00	\$0.57	\$0.00	\$0.00	\$24.11	\$34.74
Painter Sign Journeyman Tech/Team Leader Class D	\$21.25	\$1.33	\$0.14	\$0.00	\$1.23	\$0.00	\$0.57	\$0.00	\$0.00	\$24.52	\$35.14
Sign Journeyman Class A	\$20.98	\$1.33	\$0.14	\$0.00	\$0.00	\$0.00	\$0.56	\$0.00	\$0.00	\$23.01	\$33.50
Sign Journeyman Class B	\$20.98	\$1.33	\$0.14	\$0.00	\$0.40	\$0.00	\$0.56	\$0.00	\$0.00	\$23.41	\$33.90
Sign Journeyman Class C	\$20.98	\$1.33	\$0.14	\$0.00	\$0.81	\$0.00	\$0.56	\$0.00	\$0.00	\$23.82	\$34.31
Sign Journeyman Class D	\$20.98	\$1.33	\$0.14	\$0.00	\$1.21	\$0.00	\$0.56	\$0.00	\$0.00	\$24.22	\$34.71
Tech Sign Fabrication/Erector Class A	\$15.90	\$1.33	\$0.14	\$0.00	\$0.00	\$0.00	\$0.43	\$0.00	\$0.00	\$17.80	\$25.75
Tech Sign Fabrication/Erector Class B	\$15.90	\$1.33	\$0.14	\$0.00	\$0.31	\$0.00	\$0.43	\$0.00	\$0.00	\$18.11	\$26.06
Tech Sign Fabrication/Erector Class C	\$15.90	\$1.33	\$0.14	\$0.00	\$0.61	\$0.00	\$0.43	\$0.00	\$0.00	\$18.41	\$26.36
Tech Sign Fabrication/Erector Class D	\$15.90	\$1.33	\$0.14	\$0.00	\$0.92	\$0.00	\$0.43	\$0.00	\$0.00	\$18.72	\$26.67

**Special Calculation Note :** Other is for paid holidays.

**Ratio :**

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, AUGLAIZE, BROWN, BUTLER, CARROLL,  
CHAMPAIGN, CLARK, CLERMONT, CLINTON,  
COLUMBIANA, COSHOCTON, CRAWFORD, DARKE,  
DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE,  
FRANKLIN, FULTON, GREENE, HAMILTON, HANCOCK,  
HARDIN, HENRY, HIGHLAND, HOLMES, HURON, JACKSON,  
KNOX, LICKING, LOGAN, LORAIN, LUCAS, MADISON,  
MAHONING, MARION, MERCER, MIAMI, MONTGOMERY,  
MORROW, MUSKINGUM, OTTAWA, PAULDING, PERRY,  
PICKAWAY, PIKE, PREBLE, PUTNAM, ROSS, SANDUSKY,  
SCIOTO, SENECA, SHELBY, STARK, TRUMBULL,  
TUSCARAWAS, UNION, VAN WERT, WARREN, WAYNE,  
WILLIAMS, WOOD, WYANDOT

**Special Jurisdictional Note :**

**Details :**

Class A: less than 1 year.

Class B: 1-3 years.

Class C: 3-10 years.

Class D: More than 10 years.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Plasterer Local 132 (Cincinnati)

**Change # : LCN02-2021fbLoc132**

**Craft : Plasterer Effective Date : 07/14/2021 Last Posted : 07/14/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Plasterer	\$26.65		\$5.80	\$8.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$42.40	\$55.72
<b>Apprentice</b>	<b>Percent</b>											
1st 900 hours	70.00	\$18.65	\$5.80	\$0.00	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$26.15	\$35.48
2nd 900 hours	74.00	\$19.72	\$5.80	\$0.00	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$27.22	\$37.08
3rd 900 hours	78.00	\$20.79	\$5.80	\$7.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$35.54	\$45.93
4th 900 hours	82.00	\$21.85	\$5.80	\$7.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$36.60	\$47.53
5th 900 hours	86.00	\$22.92	\$5.80	\$7.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$37.67	\$49.13
6th 900 hours	90.00	\$23.98	\$5.80	\$7.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$38.74	\$50.73
7th 900 hours	94.00	\$25.05	\$5.80	\$7.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$39.80	\$52.33
8th 900 hours	98.00	\$26.12	\$5.80	\$7.25	\$0.70	\$0.00	\$1.00	\$0.00	\$0.00	\$0.00	\$40.87	\$53.93

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

- 1 Journeyman to 1 Apprentice
- 4 Journeyman to 2 Apprentice
- 7 Journeyman to 3 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

BROWN, BUTLER, CLERMONT, HAMILTON, HIGHLAND, WARREN

**Special Jurisdictional Note :**

**Details :**

Apprentice and Shop Hand Pension are \$1.00 less than Journeyman.

# Prevailing Wage Rate Skilled Crafts

Name of Union: Plumber Pipefitter Local 392

Change # : LCR01-2022sksLoc392

Craft : Plumber/Pipefitter Effective Date : 02/16/2022 Last Posted : 02/16/2022

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>												
Plumber Pipefitter	\$35.01		\$8.58	\$13.59	\$0.54	\$0.00	\$0.00	\$0.48	\$0.00	\$0.00	\$58.20	\$75.71
Plumber Helper	\$21.33		\$7.30	\$6.59	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.72	\$46.38
<b>Apprentice</b>	<b>Percent</b>											
1st yr	45.00	\$15.75	\$8.38	\$0.95	\$0.54	\$0.00	\$0.00	\$0.48	\$0.00	\$0.00	\$26.10	\$33.98
2nd yr	50.02	\$17.51	\$8.38	\$0.95	\$0.54	\$0.00	\$0.00	\$0.48	\$0.00	\$0.00	\$27.86	\$36.62
3rd yr	55.00	\$19.26	\$8.38	\$7.47	\$0.54	\$0.00	\$0.00	\$0.48	\$0.00	\$0.00	\$36.13	\$45.75
4th yr	60.00	\$21.01	\$8.38	\$7.47	\$0.54	\$0.00	\$0.00	\$0.48	\$0.00	\$0.00	\$37.88	\$48.38
5th yr	75.00	\$26.26	\$8.38	\$13.59	\$0.54	\$0.00	\$0.00	\$0.48	\$0.00	\$0.00	\$49.25	\$62.38

**Special Calculation Note :** OTHER IS: SUPPLEMENTAL UNEMPLOYMENT BENEFITS.

## Ratio :

1 Journeymen to 1 Apprentice  
4 Journeymen to 2 Apprentices  
6 Journeymen to 3 Apprentices  
10 Journeymen to 4 Apprentices  
16 Journeymen to 5 Apprentices

## Jurisdiction ( \* denotes special jurisdictional note ) :

BROWN, BUTLER, CLERMONT, HAMILTON,  
WARREN

When more than Sixteen (16) Journeymen are employed additional apprentices may be acquired at a ratio of one (1) apprentice to four (4) journeymen.

## Special Jurisdictional Note :

## Details :

Helpers shall be permitted to work on ONLY , Exterior Sewers, Concrete, Vitrified Clay or PVC Pipe and Digging and Backfilling for Piping Work. The ratio shall not exceed 2 helpers to 1 Journeymen when performing the scope of work listed above

# Prevailing Wage Rate Skilled Crafts

Name of Union: Roofer Local 42

**Change # : LCNO1-2021sksLoc42**

**Craft : Roofer Effective Date : 12/15/2021 Last Posted : 12/15/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Roofer	\$28.85		\$8.02	\$7.95	\$0.32	\$0.00	\$1.25	\$0.06	\$0.00	\$0.00	\$46.45	\$60.88
Tradesmen	\$23.08		\$8.02	\$6.36	\$0.00	\$0.00	\$1.25	\$0.03	\$0.00	\$0.00	\$38.74	\$50.28
Apprentice	Percent											
1st period	60.00	\$17.31	\$8.02	\$4.77	\$0.03	\$0.00	\$1.25	\$0.00	\$0.00	\$0.00	\$31.38	\$40.03
2nd period	70.00	\$20.19	\$8.02	\$5.56	\$0.03	\$0.00	\$1.25	\$0.00	\$0.00	\$0.00	\$35.06	\$45.15
3rd period	80.00	\$23.08	\$8.02	\$6.36	\$0.03	\$0.00	\$1.25	\$0.00	\$0.00	\$0.00	\$38.74	\$50.28

**Special Calculation Note :** Other is for Training Fund

**Ratio :**

Employer may employ 1 apprentice for every 2 journeymen in his employment.

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, BROWN, BUTLER, CLERMONT, HAMILTON, HIGHLAND, WARREN

**Special Jurisdictional Note :**

**Details :**

Any Tradesman Worker completing 2,000 hours in (2) years may move to Journeyman status by utilizing the Training Yard to improve their skills. Tradesman Workers will be tested at these yards to determine their competency for Journeyman status. Tradesman Workers must schedule and successfully complete the industry test battery in order to gain journeyman status.



# Prevailing Wage Rate Skilled Crafts

Name of Union: Sheet Metal Local 24 (Dayton)

**Change # : LCR01-2021fbLoc24(Day)**

**Craft : Sheet Metal Worker Effective Date : 07/14/2021 Last Posted : 07/14/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Sheet Metal Worker	\$29.30	\$9.00	\$15.00	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$54.15	\$68.80
<b>Apprentice</b>	<b>Percent</b>											
Apprentice												
5th Year B	85.00	\$24.91	\$8.76	\$11.51	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$46.03	\$58.48
5th Year A	80.00	\$23.44	\$8.68	\$10.35	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.32	\$55.04
4th Year B	75.00	\$21.98	\$8.60	\$9.18	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$40.61	\$51.59
4th Year A	70.00	\$20.51	\$8.52	\$8.03	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$37.91	\$48.17
3rd year B	65.00	\$19.05	\$8.45	\$6.85	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$35.20	\$44.72
3rd Year A	60.00	\$17.58	\$8.37	\$5.69	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$32.49	\$41.28
2 Year B	57.52	\$16.85	\$8.33	\$5.11	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.14	\$39.57
2 Year A	55.00	\$16.12	\$8.29	\$4.52	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$29.78	\$37.83
Probationary 1 Year	52.50	\$15.38	\$8.25	\$3.95	\$0.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.43	\$36.12

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

1 Journeyman to 1 Apprentice then,  
1 Apprentice for every 2 Journeymen thereafter

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ALLEN, AUGLAIZE, BUTLER, CHAMPAIGN, CLARK, CLINTON, DARKE, GREENE, HARDIN, LOGAN, MERCER, MIAMI, MONTGOMERY, PREBLE, SHELBY, VAN WERT, WARREN, WYANDOT

**Special Jurisdictional Note :**

**Details :**

# Prevailing Wage Rate Skilled Crafts

Name of Union: Sprinkler Fitter Local 669

Change # : LCN01-2022sksLoc669

Craft : Sprinkler Fitter Effective Date : 04/06/2022 Last Posted : 04/06/2022

	BHR		Fringe Benefit Payments						Irrevocable Fund		Total PWR	Overtime Rate
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)	MISC (*)		
<b>Classification</b>												
Sprinkler Fitter	\$43.75		\$10.99	\$7.10	\$0.52	\$0.00	\$5.12	\$0.00	\$0.00	\$0.00	\$67.48	\$89.35
<b>Apprentice Indentured after April 1, 2013</b>												
	<b>Percent</b>											
CILASS 1	45.00	\$19.69	\$7.85	\$0.00	\$0.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.06	\$37.90
CLASS 2	50.02	\$21.88	\$7.85	\$0.00	\$0.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.25	\$41.20
CLASS 3	54.43	\$23.81	\$10.99	\$7.10	\$0.52	\$0.00	\$1.15	\$0.00	\$0.00	\$0.00	\$43.57	\$55.48
CLASS 4	59.43	\$26.00	\$10.99	\$7.10	\$0.52	\$0.00	\$1.15	\$0.00	\$0.00	\$0.00	\$45.76	\$58.76
CLASS 5	64.43	\$28.19	\$10.99	\$7.10	\$0.52	\$0.00	\$1.40	\$0.00	\$0.00	\$0.00	\$48.20	\$62.29
CLASS 6	69.43	\$30.38	\$10.99	\$7.10	\$0.52	\$0.00	\$1.40	\$0.00	\$0.00	\$0.00	\$50.39	\$65.57
CLASS 7	74.43	\$32.56	\$10.99	\$7.10	\$0.52	\$0.00	\$1.40	\$0.00	\$0.00	\$0.00	\$52.57	\$68.85
CLASS 8	79.42	\$34.75	\$10.99	\$7.10	\$0.52	\$0.00	\$1.40	\$0.00	\$0.00	\$0.00	\$54.76	\$72.13
CLASS 9	84.43	\$36.94	\$10.99	\$7.10	\$0.52	\$0.00	\$1.40	\$0.00	\$0.00	\$0.00	\$56.95	\$75.42
CLASS 10	89.44	\$39.13	\$10.99	\$7.10	\$0.52	\$0.00	\$1.40	\$0.00	\$0.00	\$0.00	\$59.14	\$78.70

**Special Calculation Note :**

**Ratio :**

1 Journeyman to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW,

MUSKINGUM, NOBLE, OTTAWA, PAULDING,  
PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE,  
PUTNAM, RICHLAND, ROSS, SANDUSKY,  
SCIOTO, SENECA, SHELBY, STARK, SUMMIT,  
TRUMBULL, TUSCARAWAS, UNION, VAN WERT,  
VINTON, WARREN, WASHINGTON, WAYNE,  
WILLIAMS, WOOD, WYANDOT

**Special Jurisdictional Note :**

**Details :**

Sprinkler Fitter work shall consist of the installation, dismantling, maintenance, repairs, adjustments, and corrections of all fire protection and fire control systems including the unloading, handling by hand, power equipment and installation of all piping or tubing, appurtenances and equipment pertaining thereto, including both overhead and underground water mains, fire hydrants and hydrant mains, standpipes and hose connections to sprinkler systems used in connection with sprinkler and alarm systems. Also all tanks and pumps connected thereto, also included shall be CO-2 and Cardox Systems, Dry Chemical Systems, Foam Systems and all other fire protection systems.

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Truck Driver Bldg & HevHwy Class 1  
Locals 20,40,92,92b,100,175,284,438,377,637,908,957**

**Change # : LCRO1-2021fbBldgHevHwy**

**Craft : Truck Driver Effective Date : 05/21/2021 Last Posted : 05/21/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Truck Driver CLASS 1 4 wheel service, dump, and batch trucks, Oil Distributor - Asphalt Distributor-Tandems	\$29.24		\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.44	\$60.06
Apprentice	Percent											
First 6 months	80.00	\$23.39	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.59	\$51.29
7-12 months	85.00	\$24.85	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.05	\$53.48
13-18 months	90.00	\$26.32	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.52	\$55.67
19-24 months	95.00	\$27.78	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$43.98	\$57.87
25-30 months	100.00	\$29.24	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.44	\$60.06

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN,

HARRISON, HENRY, HIGHLAND, HOCKING,  
HOLMES, HURON, JACKSON, JEFFERSON,  
KNOX, LAWRENCE, LICKING, LOGAN,  
LORAIN, LUCAS, MADISON, MAHONING,  
MARION, MEDINA, MEIGS, MERCER, MIAMI,  
MONROE, MONTGOMERY, MORGAN,  
MORROW, MUSKINGUM, NOBLE, OTTAWA,  
PAULDING, PERRY, PICKAWAY, PIKE,  
PORTAGE, PREBLE, PUTNAM, RICHLAND,  
ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY,  
STARK, SUMMIT, TRUMBULL, TUSCARAWAS,  
UNION, VAN WERT, VINTON, WARREN,  
WASHINGTON, WAYNE, WILLIAMS, WOOD,  
WYANDOT

**Special Jurisdictional Note :**

**Details :**

\*\* Asphalt - Oil spray bar man when operating from cab shall receive \$0.20 cents per hour above their Basic Hourly Rate.

# Prevailing Wage Rate Skilled Crafts

**Name of Union: Truck Driver Bldg & HevHwy Class 2  
Locals 20,40,92,92b,100,175,284,438,377,637,908,957**

**Change # : LCRO1-2021fbBldgHevHwy**

**Craft : Truck Driver Effective Date : 05/21/2021 Last Posted : 05/21/2021**

	BHR		Fringe Benefit Payments					Irrevocable Fund		Total PWR	Overtime Rate	
			H&W	Pension	App Tr.	Vac.	Annuity	Other	LECET (*)			MISC (*)
Classification												
Truck Driver CLASS 2 Tractor Trailer-Semi Tractor Trucks-Pole Trailers-Ready Mix Trucks-Fuel Trucks-Asphalt-Oil Spray bar men- 5 Axle & Over -Belly Dumps-End Dumps-Articulated Dump Trucks-Low boys-Heavy duty Equipment (irrespective of load carried) when used exclusively for transportation-Truck Mechanics (when needed)	\$29.66		\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.86	\$60.69
<b>Apprentice</b>	<b>Percent</b>											
First 6 months	80.00	\$23.73	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$39.93	\$51.79
7-12 months	85.00	\$25.21	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$41.41	\$54.02
13-18 months	90.00	\$26.69	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$42.89	\$56.24
19-24 months	95.00	\$28.18	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$44.38	\$58.47
25-30 months	100.00	\$29.66	\$7.50	\$8.50	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$45.86	\$60.69

**Special Calculation Note :** No special calculations for this skilled craft wage rate are required at this time.

**Ratio :**

3 Journeymen to 1 Apprentice

**Jurisdiction ( \* denotes special jurisdictional note ) :**

ADAMS, ALLEN, ASHLAND, ASHTABULA, ATHENS, AUGLAIZE, BELMONT, BROWN, BUTLER, CARROLL, CHAMPAIGN, CLARK, CLERMONT, CLINTON, COLUMBIANA, COSHOCTON, CRAWFORD, DARKE, DEFIANCE, DELAWARE, ERIE, FAIRFIELD, FAYETTE, FRANKLIN, FULTON, GALLIA, GREENE, GUERNSEY, HAMILTON, HANCOCK, HARDIN, HARRISON, HENRY, HIGHLAND, HOCKING, HOLMES, HURON, JACKSON, JEFFERSON, KNOX, LAWRENCE, LICKING, LOGAN, LORAIN, LUCAS, MADISON, MAHONING, MARION, MEDINA, MEIGS, MERCER, MIAMI, MONROE, MONTGOMERY, MORGAN, MORROW, MUSKINGUM, NOBLE, OTTAWA, PAULDING, PERRY, PICKAWAY, PIKE, PORTAGE, PREBLE, PUTNAM, RICHLAND, ROSS, SANDUSKY, SCIOTO, SENECA, SHELBY, STARK, SUMMIT, TRUMBULL, TUSCARAWAS, UNION, VAN WERT, VINTON, WARREN, WASHINGTON, WAYNE, WILLIAMS, WOOD, WYANDOT

**Special Jurisdictional Note :**

**Details :**

\*\* Asphalt - Oil spray bar man when operating from cab shall receive \$0.20 cents per hour above their Basic Hourly Rate.

**SECTION 00 70 30**  
**STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT**

The Warren County Water and Sewer Department has adopted the Standard General Conditions of the Construction Contract prepared by the Engineers Joint Contract Documents Committee and issued and published by the American Consulting Engineers Council, the National Society of Professional Engineers, and the American Society of Civil Engineers. This document, contained herein, shall be made part of the Contract and shall be used during the performance of the work, except as modified by the following SECTION 00 80 10 Supplemental Conditions.



This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the Controlling Law.

# STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

**ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE**

and

Issued and Published Jointly By



PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE  
*a practice division of the*  
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

AMERICAN COUNCIL OF ENGINEERING COMPANIES

AMERICAN SOCIETY OF CIVIL ENGINEERS

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The Associated General Contractors of America



Construction Specifications Institute

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American Society of Civil Engineers  
1801 Alexander Bell Drive, Reston, VA 20191-4400

These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor Nos. C-520 or C-525 (2002 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the EJCDC Construction Documents, General and Instructions (No. C-001) (2002 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (No. C-800) (2002 Edition).

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## GENERAL CONDITIONS

### ARTICLE 1 - DEFINITIONS AND TERMINOLOGY

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#### 1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*--Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*--The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*--The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*--Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*--The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*--The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*--The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*--The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*--A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*--A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*--The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

12. *Contract Documents*-- Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*--The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*--The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*--The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*--See Paragraph 11.01.A for definition.

17. *Drawings*--That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*--The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*--The individual or entity named as such in the Agreement.

20. *Field Order*--A written order issued by Engineer which requires minor changes in the Work but which does

not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*--Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.

22. *Hazardous Environmental Condition*--The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.

23. *Hazardous Waste*--The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*--Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*--Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*--A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

27. *Notice of Award*--The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*--A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*--The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*--Polychlorinated biphenyls.

31. *Petroleum*--Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*--A schedule, prepared and maintained by Contractor, describing the sequence and

duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*--The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*--The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*--Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Related Entity* -- An officer, director, partner, employee, agent, consultant, or subcontractor.

37. *Resident Project Representative*--The authorized representative of Engineer who may be assigned to the Site or any part thereof.

38. *Samples*--Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

39. *Schedule of Submittals*--A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

40. *Schedule of Values*--A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

41. *Shop Drawings*--All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

42. *Site*--Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

43. *Specifications*--That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

44. *Subcontractor*--An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

45. *Substantial Completion*--The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

46. *Successful Bidder*--The Bidder submitting a responsive Bid to whom Owner makes an award.

47. *Supplementary Conditions*--That part of the Contract Documents which amends or supplements these General Conditions.

48. *Supplier*--A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.

49. *Underground Facilities*--All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

50. *Unit Price Work*--Work to be paid for on the basis of unit prices.

51. *Work*--The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

52. *Work Change Directive*--A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by

Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 Terminology

A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.

### B. Intent of Certain Terms or Adjectives

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered", "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

### C. Day

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

### D. Defective

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents, or

b. does not meet the requirements of any applicable inspection, reference standard, test, or



approval referred to in the Contract Documents, or

c. has been damaged prior to Engineer's - recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

#### E. *Furnish, Install, Perform, Provide*

1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

## ARTICLE 2 - PRELIMINARY MATTERS

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### 2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which

Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

### 2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

### 2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

### 2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

### 2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule; indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

### 2.06 *Preconstruction Conference*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other

submittals, processing Applications for Payment, and maintaining required records.

### 2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.

2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

## ARTICLE 3 - CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

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### 3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

### 3.02 *Reference Standards*

#### A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of, their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. Reporting Discrepancies

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

#### B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

- a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
- b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

#### 3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;
2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3); or
3. Engineer's written interpretation or clarification.

#### 3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier or other individual or entity performing or furnishing all of the Work under a direct or indirect contract with Contractor, shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or

2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

#### 3.06 *Electronic Data*

A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

#### ARTICLE 4 - AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

#### 4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor

may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and
2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
2. is of such a nature as to require a change in the Contract Documents; or
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

#### C. Possible Price and Times Adjustments

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
- b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

#### 4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data,

b. locating all Underground Facilities shown or indicated in the Contract Documents,

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

#### B. *Not Shown or Indicated*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

*A. Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.

*B. Limited Reliance by Contractor on Technical Data*

*Authorized:* Contractor may rely upon the general accuracy of the “technical data” contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such “technical data” is identified in the Supplementary Conditions. Except for such reliance on such “technical data,” Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or
3. any Contractor interpretation of or conclusion drawn from any “technical data” or any such other data, interpretations, opinions or information.

*C.* Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

*D.* If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.

*E.* Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice:

(i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

*F.* If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner’s own forces or others in accordance with Article 7.

*G.* To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

*H.* To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 - BONDS AND INSURANCE

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### 5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence

of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

### 5.04 *Contractor's Liability Insurance*

A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
  - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
  - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insured (subject to any customary exclu-

sion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include completed operations insurance;

4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.

a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

#### 5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

#### 5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;

2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, false work, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage, (other than caused by flood) and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and



any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

#### 5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and,

in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

#### 5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make

settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

#### 5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

#### 5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

### ARTICLE 6 - CONTRACTOR'S RESPONSIBILITIES

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#### 6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques,

sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

#### 6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

#### 6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. "*Or-Equal*" Items: If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole,

3) it has a proven record of performance and availability of responsive service; and

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times, and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

2. Substitute Items

a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

b. Contractor shall submit sufficient information as provided below to allow Engineer to determine that the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented in the General Requirements and as Engineer may decide is appropriate under the circumstances.

d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

1) shall certify that the proposed substitute item will:

a) perform adequately the functions and achieve the results called for by the general design,

b) be similar in substance to that specified, and

c) be suited to the same use as that specified;

2) will state:

a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time;

- b) whether or not use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
  - c) whether or not incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;
- 3) will identify:
- a) all variations of the proposed substitute item from that specified, and
  - b) available engineering, sales, maintenance, repair, and replacement services;
- 4) and shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change,

*B. Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

*C. Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by either a Change Order for a substitute or an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

*D. Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

*E. Engineer's Cost Reimbursement:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute

item so proposed or submitted by Contractor, Contractor shall reimburse Owner for the charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

*F. Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

#### 6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

- 1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity, nor

2. shall anything in the Contract Documents create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

#### 6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or

royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

#### 6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

#### 6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on

entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

#### 6.10 Taxes

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

#### 6.11 Use of Site and Other Areas

##### A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the

Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

#### 6.12 Record Documents

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

#### 6.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or

indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

#### 6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

### 1. Shop Drawings

a. Submit number of copies specified in the General Requirements.

b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples*: Contractor shall also submit Samples to Engineer for review and approval in accordance with the acceptable schedule of Shop Drawings and Sample submittals.

a. Submit number of Samples specified in the Specifications.

b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

### C. Submittal Procedures

1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:

a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;

c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and

d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the

requirements of the Work and the Contract Documents.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawing's or Sample Submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

#### D. Engineer's Review

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

#### E. Resubmittal Procedures

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to

revisions other than the corrections called for by Engineer on previous submittals.

#### 6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

#### 6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;
2. recommendation by Engineer or payment by Owner of any progress or final payment;
3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.



## 6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.

C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

## 6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures.

Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## ARTICLE 7 - OTHER WORK AT THE SITE

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### 7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and
2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

#### 7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
2. the specific matters to be covered by such authority and responsibility will be itemized; and
3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

#### 7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and

disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.

C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

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## ARTICLE 8 - OWNER'S RESPONSIBILITIES

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### 8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

### 8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

### 8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

### 8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

### 8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

### 8.06 *Insurance*

A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

### 8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

ARTICLE 9 - ENGINEER'S STATUS DURING CONSTRUCTION

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9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to

check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the

Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

#### 9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

#### 9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

#### 9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

#### 9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to, the Resident Project Representative, if any, and assistants, if any.

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part,
2. approve the Claim, or
3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## ARTICLE 11 - COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

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### 11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All

cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

- a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

- b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.

- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone

directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expresses, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

**B. Costs Excluded:** The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

**C. Contractor's Fee:** When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

**D. Documentation:** Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

#### 11.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

#### B. Cash Allowances

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

#### C. Contingency Allowance

ARTICLE 12 - CHANGE OF CONTRACT PRICE;  
CHANGE OF CONTRACT TIMES

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1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
2. there is no corresponding adjustment with respect any other item of Work; and
3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or
2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or
3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or
2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:
  - a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;
  - b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;
  - c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraph 12.01.C.2.a is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier



Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

## 12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

## 12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer and the Related Entities of each of them shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of Engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

## ARTICLE 13 - TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

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### 13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. All defective Work may be rejected, corrected, or accepted as provided in this Article 13.

### 13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspecting, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's Site safety procedures and programs so that they may comply therewith as applicable.

### 13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections,

tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;
2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in said Paragraph 13.04.C; and
3. as otherwise specifically provided in the Contract Documents.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

#### 13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If, the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

#### 13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

#### 13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

#### 13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or
2. correct such defective Work; or
3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

#### 13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

#### 13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors, and Engineer and Engineer's consultants access to the Site to enable Owner to exercise the rights and remedies under this Paragraph.

C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to

an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

## ARTICLE 14 - PAYMENTS TO CONTRACTOR AND COMPLETION

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### 14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

### 14.02 *Progress Payments*

#### A. Applications for Payments

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

#### B. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations on the Site of the executed Work as an experienced and qualified design professional and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

a. the Work has progressed to the point indicated;

b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, to a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and to any other qualifications stated in the recommendation); and

c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

b. that there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment,

including final payment, will impose responsibility on Engineer:

- a. to supervise, direct, or control the Work, or
- b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or
- c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or
- d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or
- e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

- a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;
- b. the Contract Price has been reduced by Change Orders;
- c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or
- d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

#### C. *Payment Becomes Due*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

#### D. *Reduction in Payment*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

- a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;
- b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;
- c. there are other items entitling Owner to a set-off against the amount recommended; or
- d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor corrects to Owner's satisfaction the reasons for such action.

3. If it is subsequently determined that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1.

#### 14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

#### 14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, , Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will within 14 days after submission of the tentative certificate to Owner notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will within said 14 days execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to complete or correct items on the tentative list.

#### 14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions.

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor will certify to Owner and Engineer that such part of the Work is substantially complete and request Engineer to issue

a certificate of Substantial Completion for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

#### 14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

#### 14.07 *Final Payment*

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

- a. all documentation called for in the Contract Documents, including but not limited to the

evidence of insurance required by Paragraph 5.04.B.7;

b. consent of the surety, if any, to final payment;

c. a list of all Claims against Owner that Contractor believes are unsettled; and

d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

#### B. Engineer's Review of Application and Acceptance

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

#### C. Payment Becomes Due

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and , will be paid by Owner to Contractor.

#### 14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

#### 14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

### ARTICLE 15 - SUSPENSION OF WORK AND TERMINATION

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#### 15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
3. Contractor's disregard of the authority of Engineer; or
4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),
2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and
3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment



within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

## ARTICLE 16 - DISPUTE RESOLUTION

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### 16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or
2. agrees with the other party to submit the Claim to another dispute resolution process, or

3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

## ARTICLE 17 - MISCELLANEOUS

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### 17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or
2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### 17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### 17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

### 17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

### 17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

**SECTION 00 80 10  
SUPPLEMENTAL CONDITIONS**

**PART 1 GENERAL**

**1.1 GENERAL**

- A. These Supplementary Conditions shall modify and supplement the Standard General Conditions of the Construction Contract (Section 00 70 30, EJCDC C-700), and shall govern whenever they conflict. All provisions which are not so amended or supplemented remain in full force and effect.

**1.2 MODIFICATIONS TO ARTICLES OF THE GENERAL CONDITIONS**

**A. ARTICLE 1 – DEFINITIONS**

1. Paragraph 1.01.A.19 is supplemented with the following: Where the term “Engineer” is used in the Specification for the approval of materials or work, it shall be understood to mean Warren County Water & Sewer. Contractor acknowledges that Engineer is a full-time employee appointed by Owner, and Engineer is not an independent third party, rather is a department of the governmental entity of Owner (Warren County Board of Commissioners) a political subdivision of Ohio.
2. Paragraph 1.01.A.29 is supplemented with the following: Whenever the term “Owner” is used in the Contract Documents, it shall refer to Warren County Board of Commissioners on behalf of Warren County Water & Sewer, or its authorized representative.

**B. ARTICLE 2 – PRELIMINARY MATTERS**

1. Paragraph 2.03 – Commencement of Contract Time: Notice to Proceed is amended as follows: Delete the last sentence.

**C. ARTICLE 4 – AVAILABILITY OF LANDS; SURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

1. Paragraph 4.06(G) shall be deleted.

**D. ARTICLE 5 – BONDS AND INSURANCE**

1. Paragraph 5.01.A – Amend the second sentence to read: “ ...These bonds shall remain in effect not less than one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents ....”
2. Paragraph 5.01.D – Add the following paragraph:

“D. If the Contractor provided a certified or cashier’s check or letter of credit as Bid Security, he shall furnish a Performance Bond in an amount at least equal to 100% of the Contract Price as security for the faithful performance of this agreement.”

3. Paragraph 5.04.C – Add the following new paragraph immediately after 5.04.B:

“C. The Contractor shall, at his own expense, purchase and maintain the following minimum coverage:

1. Workers Compensation, for claims for bodily injury, sickness, disease or death as follows:
  - a. Coverage A Statutory Benefits as described by the applicable law.
  - b. Coverage B Employer’s Liability
    - i. \$500,000 Bodily Injury by Accident – each employee
    - ii. \$500,000 Bodily Injury by disease – each employee
    - iii. \$500,000 Bodily Injury by disease – policy limit

The Contractor shall provide a copy of a certificate of premium payment from the Industrial Commission and Bureau of Workers Compensation, State of Ohio, for the period of time specified during which construction commences and copies of renewal certificates for subsequent periods, so long as the project continues.

2. Comprehensive General Liability Coverage for Bodily Injury and Property Damage – occurrence form.

General Aggregate	\$2,000,000	Each occurrence, combined single limit for Bodily Injury and Property Damager
Products – Completed Operations	\$1,000,000	Each occurrence
Aggregate	\$2,000,000	
Personal and Advertising Liability per Occurrence	\$1,000,000	Combined Single Limit for Bodily Injury and Property Damager

Coverage shall be extended to include the following:

- a. Per project and per location aggregate.
- b. Premises and operations coverage.
- c. Coverage for liability and independent contractors.
- d. Products and completed operations.
- e. Coverage for explosion, collapse and underground hazards.

- f. Stop-Gap Liability: All monopolistic states - \$1,000,000.
- g. Owner as additional insureds.
- h. Waiver of Subrogation against Owner
- i. 60-Day Notice of Cancellation or material change.

3. Comprehensive Automobile Liability Insurance – Occurrence Form

Any Automobile	\$1,000,000	Bodily Injury and Property Damage, Combined Single Limit
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Borrowed, Non-Owned	\$1,000,000	Bodily Injury and Hired Automobile Property Damage, Combined Single Limit
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Coverage shall be extended to include:

- a. Contractual liability for assumed liability.
- b. Owner as additional insureds.
- c. Waiver of Subrogation against Owner
- d. 60 Day Notice of Cancellation or material change.
- e. Motor Carrier Act Endorsement MCS-90
- f. Extra Wide/Extra Heavy Hauling Permit Endorsement

4. Any Umbrella Liability or Excess Liability Policy over primary comprehensive General and Automobile Liability shall be carried in a minimum amount of:

\$5,000,000 Each Occurrence  
 \$5,000,000 Aggregate

The Umbrella or Excess Policy shall be following the form of:

- a. Any Additional Insured under primary policy.
- b. Per project and per location aggregates.
- c. Explosion, Collapse, or Underground Hazards
- d. Stop-Gap Liability
- e. Waiver of Subrogation against Owner.
- f. Watercraft (when employed to perform the work).
- g. Aircraft (when employed to perform the work).
- h. 60-Day Notice of Cancellation or material change.

4. Paragraph 5.06 – *Property Insurance* – shall be DELETED in its entirety.

D. ARTICLE 6 – CONTRACTOR’S RESPONSIBILITIES

1. Paragraph 6.01.A – After the first sentence add: “Contractor’s Work shall be performed according to the standards of care normally exercised by construction organizations within Ohio that are engaged in performing comparable services devoting such attention thereto and applying such skills as may be necessary to perform the work in accordance with the Contract Documents.”
2. Paragraph 6.02.C – Add a new paragraph as follows:
  - “C. If the Contractor does not perform the work in accordance with the Contractor’s construction schedule and the project construction schedule, and it becomes apparent that the work may not be completed within the contract times, the Contractor shall, at no additional cost to the Owner, as necessary to improve the Contractor’s progress: (a) increase the number of employees in such crafts as will regain lost scheduled progress; and (b) increase the number of working hours per shift, shifts per work day, working days per week, the amount of equipment, or any combination of the foregoing measures to regain lost scheduled progress. Contractor shall furnish such employees, materials, facilities, and equipment, and shall work such hours, including extra shifts, overtime operations, and Sundays and holidays, as may be necessary to insure the prosecution and completion of the work in accordance with the Contractor’s construction schedule and the project construction schedule.”
3. Paragraph 6.02.D – Add a new paragraph as follows:
  - “D. Contractor shall at all times maintain good discipline and order at the site. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. If the Owner deems any employee of the Contractor or a subcontractor unsatisfactory, the Contractor must transfer or require its subcontractor to transfer such employee from the project immediately.”
4. Paragraph 6.05(E) - shall be deleted.
5. Paragraph 6.08 – Replace this Paragraph with the following:
  - “A. Permit requirements are specified in Section 0020 00 – INSTRUCTIONS TO BIDDERS, and 00 70 20 – PERMITS.
6. Paragraph 6.10 – Taxes, is amended as follows:
  - “A. OWNER, being a public body, is exempt from taxes on material incorporated into the work. CONTRACTOR, therefore, is not

required to pay such materials taxes. The OWNER will provide the tax exemption forms. These forms are to contain all necessary information required by the State. CONTRACTOR shall be responsible for payment of any applicable commercial activity tax.

- B. Owner's exemption does not apply to construction tools, machinery, equipment, or other property purchased by or leased by Contractor, or to supplies or materials not incorporated to the Work.
- C. Contractor is specifically required to abide by all local tax requirements, if any, including income tax requirements to withhold at source. Contractor acknowledges that the Contract work may take place in various cities and taxing districts, and further acknowledges different tax burdens may be imposed by each. Contractor shall indemnify, defend, and hold Owner harmless for any federal, state, or local tax liabilities incurred as a result of Contractor performing the Work."

- 6. Paragraphs 6.13 and 6.14 – Safety and Protection, are supplemented with the following: "All construction work under this Agreement is subject to Chapter XVII of Title 29, Code of Federal Regulations (CFR) Part 1926 (formerly Chapter XVII of Title 29, Part 1518) titled, "Safety and Health Regulations for Construction" and subsequent amendments."

E. ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

- 1. Paragraph 9.01 – Add the following sentence: The parties acknowledge and agree that ENGINEER is a full time employee of OWNER and is not an independent third party, however, ENGINEER shall perform any duties under this agreement in good faith and adhere to a standard of professional care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same time and in the same locality.

F. ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

- 1. Paragraph 10.03.A.4 – Add the following paragraph:
  - "4. In no event is the Contractor entitled to reserve any rights or take other similar action with respect to a change order if the effect or intent of such reservation or action would be to accommodate a further adjustment in the contract times, contract price, or both, after the Contractor executes the change order. By executing a change order, the Contractor irrevocably certifies that the elements of the change order described are completely satisfied and waives all rights to seek further adjustment of the contract times, contract price, or both, at a later date with respect to the associated change in the work."

E. ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

1. Paragraph 11.01(A)(3) – Amend the Second Sentence as follows: DELETE the phrase “If required by Owner”. Add Sentence OWNER requires CONTRACTOR to competitively bid work from subcontractors.

2. Paragraph 11.01(D) Add the following Sentence: This agreement shall be subject to open book pricing, CONTRACTOR shall make any all bids, invoices, receipts, any and all documentation for expenses and costs available for inspection by OWNER immediately upon request.

Paragraph 11.01.B.1 – Add project manager and project executive to the list of excluded compensation and payroll costs.

E. ARTICLE 12 – CHANGE OF CONTRACT PRICE, CHANGE OF CONTRACT TIMES

1. Paragraph 12.01.C.2.e – Add the following to the end of paragraph 12.01.C.2.e: “Any change that results in a net decrease in cost shall include the appropriate overhead and profit added thereto calculated as set forth in ARTICLE 12 of the General Conditions.”

2. Paragraph 12.01.D – Insert new paragraph as follows: “D. In no event shall Contractor be entitled to any increase in the Contract Price on account of any adverse weather.”

3. Paragraph 12.02.B – Replace Paragraph 12.02.B with the following:

“B. If the Contractor wishes to make a claim for an increase in contract times, prompt written notice as provided herein shall be given. The Contractor’s claim shall include an estimate of cost and of probable effect of delay on progress of the work, a detailed schedule which indentifies the critical portions of the work impacted by the delaying event and the dates of such impact, and a statement from Contractor that the increase requested is the entire increase in the contract time associated with the claim. The failure to provide such information and statement within the time period established in Paragraph 10.05.B shall constitute an irrevocable waiver of the claim. In the case of a continuing delay occurring on consecutive days, only one claim is necessary, provided, however, that within ten (10) days of the cessation of the cause of the continuing delay, the Contractor shall notify the Owner in writing that the cause of the delay has ceased. The failure to give notice of the cessation of the cause of the continuing delay shall constitute an irrevocable waiver of any claim based upon the continuing delay.”

4. Add the following paragraph as Paragraph 12.02.C:

“In addition to the requirements of Paragraph 12.02.B, if adverse weather conditions are the basis for a claim for additional time, the contractor shall



support such claim with data acceptable to the Owner and Engineer that substantiates that weather conditions were significantly abnormal for the period of time and could not have reasonably been anticipated and that weather conditions had an adverse effect on a critical element of the scheduled construction. Notwithstanding any other provisions of the Contract Documents to the contrary, the project times will not be adjusted on account of the impact of an normal adverse weather or any of the work or on account of the impact of any abnormal adverse weather on non-critical elements of the work. The support for the evaluation of all adverse-weather claims resulting in lost work days shall be based upon criteria as provided for in the State of Ohio Department of Transportation (ODOT) Construction and Material Specifications dated January 1, 2013. ODOT Specification 108.06.C lists the number of days that the Contractor may expect to be lost due to weather as follows:

<b>Month</b>	<b>Number of Days Lost Due to Weather</b>
January	8
February	8
March	7
April	6
May	5
June	5
July	4
August	4
September	5
October	6
November	6
December	6

5. Paragraph 12.03.F – Add new paragraph as follows:

“F. Any proposed time extensions for delays requested because of abnormal weather conditions shall be subject to Paragraph 12.02.C.”

6. Paragraph 12.03.G. – Add new paragraph as follows:

“G. Delays beyond the substantial completion date attributable to and within the control of the Contractor, their Subcontractor, or Supplier shall be subject to liquidated damages in the amounts specified in SECTION 00 60 10 – CONTRACT.”

F. ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

1. Paragraph 15.01.A. – Delete the sentence that states: “Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

REPLACE the above sentence with the following: Contractor shall be granted an extension of the Contract Times directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

2. Paragraph 15.03.A(3) – shall be DELETED in its entirety.

G. ARTICLE 14 – PAYMENT TO CONTRACTOR AND COMPLETION

1. Add new Paragraph 14.02.A.4 as follows:

“4. In accordance with ORC Section 153.12 partial payments to the Contractor for labor performed under either a unit or lump sum price contract shall be made at the rate of ninety-two per cent of the estimates prepared by the Contractor and approved by the Engineer. All labor performed after the job is fifty percent completed shall be paid for at the rate of one hundred per cent of the estimates submitted by the Contractor and approved by the Engineer. A Contract shall be considered 50 percent complete when the Contractor has been paid an amount equal to 50 percent of the total cost of the labor of the Contract and 50 percent of the total cost of the material of the Contract.

All materials furnished and delivered but not actually included in the construction and approved by the Owner, after the work under this contract is 50 percent complete, shall be paid for at the rate of 92 percent of the invoiced value of the materials. The balance of such estimates shall be paid when the material is incorporated into and becomes a part of the building construction.

When the major portion of the project is substantially completed and occupied, or in use, or otherwise accepted, and there exists no other reason to withhold retainage, the retained percentages held in connection with such portion shall be released and paid to the contractor, withholding only that amount necessary to assure completion.

All retained payments shall be deposited into an escrow account at the 1<sup>st</sup> National Bank, 1160 E. Main Street, Lebanon Ohio (513) 932-3221, Contact: Gail Haines. The Contractor may waive their right to deposit the payments in an escrow account by written request to the Owner. Retained payments not deposited into an escrow account will be held by the Owner for future payment to the Contractor.”

2. Amend Paragraph 14.02.C to read: “Thirty days after presentation .....”

G. ARTICLE 16 – DISPUTE RESOLUTION

1. Delete Paragraphs 16.01.A, 16.01.B, and 16.01.C and replace with the following:

“1. This Contract shall be construed under the laws of the State of Ohio, and the parties hereby stipulate to the venue for any and all claims, disputes, interpretations, litigation of any kind arising out of this Contract being exclusively in the Warren County, Ohio Court of Common Pleas (unless both parties mutually agree in writing to alternate dispute resolution), as well as waiving any right to bring or remove such matters in or to any other state or federal court.”

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

**SECTION 01 11 00**

**SUMMARY OF WORK**

**PART 1 – GENERAL**

**1.1 LOCATION OF WORK**

A. The work of this Contract is located in Warren County, Ohio at the following two wellfield locations:

<b>Wellfield Name</b>	<b>City/Village</b>	<b>Address</b>	<b>Parcel No.</b>
Revis Wellfield	South Lebanon	SR 48 south of the Little Miami River	12 01 255 003
North Wellfield	Franklin	8093 Franklin-Trenton Road	02 07 226 001

B. Access to the sites can be gained by contacting Kathryn Gilbert, Warren County Project Manager, phone (513) 695-1645.

**1.2 SCOPE OF WORK**

A. Furnish all materials, labor, equipment, and incidentals required to redevelop and test existing wells in the East and Thompson Wellfields as shown in the Contract Documents and/or specified herein.

B. The Work includes, but is not limited to, the following:

1. Redevelop and test Production Wells No. 1, 2, and 3 located at the Revis Well Field.
2. Redevelop and test Production Wells No. 3 and 4 located at the North Well Field.
3. Perform pumping tests on all redeveloped wells. The testing shall be in accordance with Ohio Administrative Code Section 3745-9-09 and shall include both step-drawdown and 24-hour constant rate pumping.
4. Replacement of column pipe on Production Wells No. 1, 2, and 3 located at the Revis Well Field.
5. Replacement of column pipe on Production Wells No. 3 and 4 located at the North Well Field.
6. Drill a new port in the pump discharge head for the level probe on Production Wells No. 1, 2, and 3 located at the Revis Well Field and plug old port.
7. Drill a 3/4" NTP tap on the pump discharge head and install a 3/4" NTP bolt on Production Wells No. 1, 2, and 3 located at the Revis Well Field.
8. Drill a 3/4" NTP tap on the discharge piping and install a 3/4" NTP bolt on Production Well No. 3 located at the North Well Field.
9. Drill a 3/4" NTP tap on the pump discharge head and install a 3/4" NTP bolt on Production Well No. 4 located at the North Well Field.

<b>Revis Well Field</b>		
Production Well 1	Production Well 2	Production Well 3
<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill new port for level probe (location as directed by County).</li> <li>• Drill ¾" NTP tap on pump discharge head and install ¾" NTP bolt (location as directed by County).</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill new port for level probe (location as directed by County).</li> <li>• Drill ¾" NTP tap on pump discharge head and install ¾" NTP bolt (location as directed by County).</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill new port for level probe (location as directed by County).</li> <li>• Drill ¾" NTP tap on pump discharge head and install ¾" NTP bolt (location as directed by County).</li> </ul>

<b>North Well Field</b>	
Production Well 3	Production Well 4
<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill ¾" NTP tap on discharge piping and install ¾" NTP bolt.</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Install new 8-inch flow meter</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill ¾" NTP tap on pump discharge head and install ¾" NTP bolt.</li> </ul>

C. All materials, equipment, skills, tools, and labor which is reasonably and properly inferable and necessary for the proper completion of the Work in a substantial manner and in compliance with the requirements stated or implied by these Specifications or Drawings shall be furnished and installed by the Contractor without additional compensation, whether specifically indicated in the Contract Documents or not.

### 1.3 CONTRACTOR'S USE OF PREMISES

- A. Contractor shall limit the use of the premises for his/her work and for storage to allow for Owner occupancy and daily operation.
- B. Coordinate use of premises with Owner.
- C. If directed by the Owner, move any stored items, which interfere with operations.

### 1.4 PLANS AND SPECIFICATIONS

A. **Specifications.** The General Condition Section (No. 00700) contains requirements which govern the work. The Technical Specifications consist of three parts: General, Products, and Execution. Products and Execution modify and supplement these by detailed requirements of the work and shall always govern whenever there appears to be a conflict.

### 1.5 CONTINUOUS TREATMENT PROVISIONS

A. The Contractor shall comply with all laws, ordinances, rules, orders, and regulations relating to the performance of the work required to complete the Contract.

**PART 2 – PRODUCTS**

Not Used.

**PART 3 – EXECUTION**

Not Used.

**END OF SECTION**

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## SECTION 01 26 27

### CHANGE ORDER PROCEDURES

#### PART 1 – GENERAL

##### 1.1 CHANGE TO CONTRACT

- A. If the Contractor must undertake additional work occurring after the execution of the Contract, the Contractor, prior to the start of additional work, shall issue a change order request setting forth the additional work that must be undertaken and requesting authorization for additional cost. Any change order issued during the work shall not invalidate the Contract. The cost of such a change order shall be the contractor's actual costs including wages, labor costs other than wages, wage taxes, materials, equipment costs and rentals, insurance, and subcontracts attributable to the additional activity, plus an overhead and profit fee.
1. An overhead and profit fee of 15% shall be permitted for all payroll costs for employees in the direct employment of the Contractor and for all materials and equipment furnished and incorporated into change order work.
  2. An overhead and profit fee of 5% shall be permitted for all change order work performed by subcontractors.
- B. Contractor shall not perform work outside of the Contract without written authorization. Should disputes regarding change order work arise between the Contractor and Owner that cannot be amiably resolved, the venue for any disputes hereunder shall be the Warren County Court of Common Pleas.

##### 1.2 REQUIREMENTS INCLUDED

- A. Promptly implement change order procedures.
1. Provide full written data required to evaluate changes.
  2. Maintain detailed records of work done on a time-and-material/force account basis.
  3. Provide full documentation to Engineer on request.
- B. Designate in writing the member of Contractor's organization:
1. Who is authorized to accept changes in the work?
  2. Who is responsible for informing others in the Contractor's employment of the authorization of changes in the work?
- C. Owner will designate in writing the person who is authorized to execute Change Orders.

##### 1.3 RELATED REQUIREMENTS

- A. Standard General Conditions of the Construction Contract are included in Section 00700.



## **1.4 PRELIMINARY PROCEDURES**

- A. Owner may initiate changes by submitting a Request for Proposal (RFP) to Contractor. Request will include:
1. Detailed description of the Change, Products and location of the change in the project.
  2. Supplementary or revised Drawings and Specifications.
  3. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized.
  4. A specific period of time during which the requested price will be considered valid.
  5. Such request is for information only and is not an instruction to execute the changes, nor to stop work in progress.
- B. Contractor may initiate changes by submitting a written notice to Owner, containing:
1. Description of the proposed changes.
  2. Statement of the reason for making the changes.
  3. Statement of the effect on the Contract Sum and the Contract Time.
  4. Statement of the effect on the work of separate Contractors.
  5. Documentation supporting any change in Contract Sum or Contract Time, as appropriate.

## **1.5 DOCUMENTATION OF PROPOSALS AND CLAIMS**

- A. Support each quotation for a lump sum proposal and for each unit price which has not previously been established, with sufficient substantiating data to allow Owner to evaluate the quotation.
- B. On request, provide additional data to support time and cost computations
1. Labor required.
  2. Equipment required.
  3. Products required.
    - a. Recommended source of purchase and unit cost.
    - b. Quantities required.
  4. Taxes, insurance and bonds.
  5. Credit for work deleted from Contract, similarly documented.
  6. Overhead and profit.
  7. Justifications for any change in Contract Time.
- C. Support each claim for additional costs and for work done on a time-and-material/force account basis, with documentation as required for a lump sum proposal, plus additional information.

1. Name of the Owner's authorized agent who ordered the work and date of the order.
2. Dates and times work was performed and by whom.
3. Time record, summary of hours worked, and hourly rates paid.
4. Receipts and invoices for:
  - a. Equipment used, listing dates and times of use.
  - b. Products used, listing of quantities.
  - c. Subcontracts.

## **1.6 PREPARATION OF CHANGE ORDERS**

- A. Owner will prepare each Change Order.
- B. Change Order will describe changes in the work, both additions and deletions, with attachments of revised Contract Documents to define details of the change.
- C. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

## **1.7 CORRELATION WITH CONTRACTOR'S SUBMITTALS**

- A. Periodically revise Schedule of Values and Request for Payment forms to record each change as a separate item of work, and to record the adjusted Contract Sum.
- B. Periodically revise the Construction Schedule to reflect each change in Contract Time.
  1. Revise subschedules to show changes for other items of work affected by changes.
- C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

## **PART 2 –PRODUCTS**

Not Used.

## **PART 3 –EXECUTION**

Not Used.

**END OF SECTION**

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## **SECTION 01 29 76**

### **PAYMENT PROCEDURES**

#### **PART 1 – GENERAL**

##### **1.1 REQUIREMENTS INCLUDED**

- A. Submit Applications for Payment to the Owner in accordance with the project schedule contained in the Contract between the Owner and Contractor.
- B. The Contractor shall submit a Schedule of Values to be used as the basis for the Contractor's Application for Payment.

##### **1.2 SUBMITTALS**

- A. Submit to the Owner applications with itemized data typed on 8-½-in by 11-in paper.
- B. Provide itemized data on continuation sheet.
  - 1. The Schedule of Values format, line items and monetary values shall be reviewed and approved by the Owner.

##### **1.3 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT**

###### **A. Application Form**

- 1. Partial payment to the Contractor for work performed under a lump sum project shall be based on a schedule prepared by the Contractor and approved by the Owner who shall apportion the lump sum price to the major components entering into or forming a part of the work under the lump sum price.
- 2. Fill in required information, including that for Change Orders executed prior to date of submittal of application.
- 3. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
- 4. Execute certification with signature of a responsible officer of Contract firm.

###### **B. Continuation Sheets**

- 1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
- 2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
  - a. Round off values to nearest dollar, or as specified for Schedule of Values.
- 3. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
  - a. List by Change Order Number and description, as for an original component item of work.

4. To receive approval for payment on component material stored on site, submit copies of the original paid invoices with the application for payment.

C. Prevailing Wage and Subcontractor Payments

1. Prior to the first pay request the Contractor shall submit completed Prevailing Wage Notification to Employee Forms for all employees that will work under the Contract.
2. Each pay request shall be accompanied by a notarized Affidavit of Compliance certifying that the Contractor has complied with prevailing wage requirements of Chapter 4115 of the Ohio Revised Code and that no rebates or deductions have been or will be made, directly or indirectly from any wages paid in connection with this project, other than those provided by law.
3. Each pay request shall be accompanied by certified weekly payroll reports documenting the number of hours worked by employee, net pay, tax withholdings, and other deducted amounts provided by law.
4. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

D. Retainage

1. In accordance with ORC Section 153.12 partial payments to the Contractor for labor performed under either a unit or lump sum price contract shall be made at the rate of ninety-two per cent of the estimates prepared by the Contractor and approved by the Engineer. All labor performed after the job is fifty per cent completed shall be paid for at the rate of one hundred per cent of the estimates submitted by the Contractor and approved by the Engineer.
2. When the major portion of the project is substantially completed and occupied, or in use, or otherwise accepted, and there exists no other reason to withhold retainage, the retained percentages held in connection with such portion shall be released and paid to the contractor, withholding only that amount necessary to assure completion.

#### **1.4 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS**

- A. When the Owner requires substantiating data, submit suitable information, with a cover letter identifying.
1. Project
  2. Application number and date.
  3. Detailed list of enclosures.
  4. For stored products:
    - a. Item number and identification as shown on application.
    - b. Description of specific material.

## **1.5 SUBMITTAL PROCEDURE**

- A. Submit Applications for Payment to the Owner at the times stipulated in the Agreement.
- B. Number: Two copies of each Application.
- C. When the Owner finds Application properly completed and correct, he/she will transmit certificate for payment to Owner, with copy to Contractor.

## **PART 2 –PRODUCTS**

Not Used.

## **PART 3 –EXECUTION**

Not Used.

**END OF SECTION**

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## **SECTION 01 31 00**

### **COORDINATION**

#### **PART 1 – GENERAL**

##### **1.1 UTILITIES**

- A. Coordinate Work with various utilities within Project limits in accordance with Section 00700.
- B. Ohio Utilities Protection Service
  - 1. Telephone: 1-800-362-2764
  - 2. Notify at least 48 hours in advance of construction.

##### **1.2 PROJECT MEETINGS**

- A. Preconstruction Meeting:
  - 1. To be held at Richard A. Renneker Water Treatment Plant.
  - 2. Contractor shall provide to the Owner the following items at or before the Preconstruction Conference:
    - a. List and contact information for Subcontractors
    - b. Schedule of Values
    - c. Preliminary Project Schedule
    - d. Prevailing Wage Employee Notification Forms
  - 3. Contractor shall be prepared to discuss the following items, as a minimum:
    - a. Status of Bonds and Insurance
    - b. Sequencing of critical path work items.
    - c. Project changes and clarification procedures.
    - d. Use of site, access, office and storage areas, security and temporary facilities.
    - e. Major product delivery and priorities.
    - f. Contractor's safety plan and representative.
  - 4. Attendees may include, but not limited to:
    - a. Owner.
    - b. Contractor's office representative.
    - c. Contractor's resident superintendent.
    - d. Subcontractors' representatives whom Contractor may desire or Engineer may request to attend.



e. Others as appropriate.

### **1.3 OWNER'S OCCUPANCY REQUIREMENTS**

A. Owner shall occupy the premises during the entire Contract period to conduct its normal operations. Cooperate with Owner in all operations to minimize conflict and to facilitate Owner usage.

### **1.4 OWNER FACILITIES**

A. Operation and Shutdown of Existing Facilities:

1. The operation of any County owned valves or County owned equipment is strictly prohibited. Valves and County owned equipment shall only be operated by County personnel. For safety purposes, lock-out/tag-out procedures shall be followed for all valves isolating the wells.
2. Due to the nature of the project, work may be performed on weekends and weekdays, excluding County recognized holidays. Work shall occur between the hours of 7:00 AM to 5:00 PM. Work conducted outside of regular hours shall occur only with prior written consent of Owner and shall only be approved to meet the project schedule and/or to avoid undesirable weather conditions.
3. Do not proceed with Work affecting the operation without obtaining the Owner's advance approval of the need for and duration of such Work.

### **PART 2 – PRODUCTS**

Not Used.

### **PART 3 – EXECUTION**

Not Used.

**END OF SECTION**

## **SECTION 01 33 00**

### **SUBMITTALS**

#### **PART 1 – GENERAL**

##### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specifications, apply to this section.

##### **1.2 SUMMARY**

- A. This Section specifies the general methods and requirements of submissions applicable to Shop Drawings, Product Data, Samples, Mock Ups, and Schedules. Additional general submission requirements are contained in Paragraphs 6.24 and 6.25 of the General Conditions. Detailed submittal requirements are specified in the technical Sections.
- B. All submittals shall be clearly identified by reference to Section Number, Paragraph, Drawing Number or Detail as applicable. Submittals shall be clear and legible and of sufficient size for presentation of data.

##### **1.3 SHOP DRAWINGS, PRODUCT DATA, SAMPLES**

- A. Shop Drawings
  1. Contractor shall submit complete information by each specification section. A complete submittal shall include all items listed under the submittal heading for each specification section.
  2. Shop drawings as specified in individual Sections shall include, but is not limited to, manufacture data, drawings, and technical data sheets; color charts and samples; manufacture instructions; warranties; applicator and employee experience and certifications; scheduled in information; actual shop work manufacturing instructions; custom templates; coordination drawings; individual system or equipment inspection and test reports; including performance curves and certifications; as applicable to the work.
  3. All submittals shall be by the General Contractor. Information prepared by subcontractors shall be sent directly to the General Contractor for checking and submission.
  4. Check all shop drawings regarding measurements, size of members, materials and details to make sure that they conform to the intent of the Drawings and related Sections. Return shop drawings found to be inaccurate or otherwise in error to the subcontractors for correction before submission thereof.
  5. All details on shop drawings shall show clearly the relation of the various parts to the main members and lines of the structure and where correct fabrication of the work depends upon field measurements, such measurements shall be made and noted on the drawings before being submitted.

## B. Product Data

1. Product data as specified in individual Sections include, standard prepared data for manufactured products (sometimes referred to as catalog data), such as the manufacturer's product specification and installation instructions, availability of colors and patterns, manufacturer's printed statements of compliances and applicability, roughing in diagrams and templates, catalog cuts, product photographs, standard wiring diagrams, printed performance curves and operational range diagrams, production or quality control inspection and test reports and certifications, mill reports, product operating and maintenance instructions and recommended spare parts listing and printed product warranties, as applicable to the work.

## C. Samples

1. Samples specified in individual Sections include, physical examples of the work such as sections of manufactured or fabricated work, small cuts or containers of materials, complete units of repetitively used products, color/texture/pattern swatches and range sets, specimens for coordination of visual effect, graphic symbols and units of work to be used by the Owner for independent inspection and testing, as applicable to the work.

## 1.4 CONTRACTOR'S RESPONSIBILITIES

- A. Review shop drawings, product data and samples, including those by subcontractors, prior to submission to determine and verify the following:
  1. Field measurements
  2. Filed construction criteria.
  3. Catalog numbers and similar data.
  4. Conformance with related Sections.
- B. Notify the Owner in writing, at the time of submittal, of any deviations in the submittals from the requirements of the Contract Documents.
- C. The review and approval of shop drawings, samples or product data by the Owner shall not relieve the Contractor from the responsibility for the fulfillment of the terms of the Contract. All risks of error and omission are assumed by the Contractor and the Owner will have no responsibility therefore.
- D. No portion of the work requiring a shop drawing, sample, or product data shall be started nor shall any materials be fabricated or installed prior to the approval or qualified approval of such item. Fabrication performed, materials purchased or on site construction accomplished which does not conform to approved shop drawings and data shall be at the Contractor's risk. The Owner will not be liable for any expense or delay due to corrections or remedies required to accomplish conformity.
- E. Project work, materials, fabrication, and installation shall conform with approved shop drawings, applicable samples, and product data.

## 1.5 SUBMITTAL PROCEDURES

### A. Submittal Schedule:

1. Prepare and submit a Submittal schedule that identifies the following for each Submittal:
  - a. Submittal Number
  - b. Submittal Description
  - c. Projected date Submittal will be submitted.

### B. Submittal Identification Numbering – The Contractor shall utilize an 8-character submittal identification numbering Format SSSSS-NN-V in the following manner:

1. SSSSS shall be the applicable Section Number.
2. NN shall be the number 01 to 99 to sequentially number each initial separate item or drawing submitted under each specific Section Number.
3. V, the last character shall be a letter, A to Z, indicating the submission, or resubmission of the same Drawing, i.e., “A”=1st submission, “B”=2nd submission, “C”=3rd submission, etc. A typical submittal number would be as follows:

03 30 00 – 08 – B

03 30 00     =     Section for Concrete

08            =     The eighth initial submittal under this section

B             =     The second submission (first resubmission) of that particular shop drawing

### C. Delivery Method:

1. Submittals may be delivered as paper copies or electronic files at Contractor’s option.
2. Advise Engineer of delivery method to be used at the preconstruction meeting.
3. Paper Copies:
  - a. Unless otherwise indicated, submit 2 copies of each Submittal.
  - b. One copy of each Action Submittal will be returned to Contractor.
  - c. Extra copies submitted by Contractor will be discarded.
4. Electronic Files:
  - a. Unless otherwise indicated, submit 1 copy of each Submittal in PDF format.
  - b. Scanned Submittals shall be produced in such a way as to not compromise the graphic quality or accuracy of scale, where applicable; and text shall be searchable.
  - c. One copy of each Action Submittal will be returned to the Contractor.
  - d. Submittals may be transmitted via electronic mail (e-mail) or on a CD or DVD. Submittals that are transmitted electronically may be returned electronically at the Engineer’s discretion.
5. Transmit Submittals to party and address identified by Engineer at preconstruction meeting.

- D. **Coordination and Timing:** Coordinate preparation and processing of Submittals with performance of construction activities. Contractor is responsible for cost of delays caused by lack of coordination or tardiness of Submittals. Incomplete submittals will be rejected.
1. Coordinate each Submittal with fabrication, purchasing, testing, delivery, other Submittals, and related activities that require sequential activity.
  2. Coordinate transmittal of different types of Submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. Engineer reserves the right to withhold action on a Submittal requiring coordination with other Submittals until related Submittals are received.
- E. **Processing Time:** Allow 15 full working days for Engineer to review each Submittal, including Resubmittals. Time for review shall commence on Engineer's receipt of Submittal. No extension of the Contract Time will be authorized because of failure to transmit Submittals enough in advance of the Work to permit processing, including Resubmittals. Engineer will advise Contractor when a Submittal being processed must be delayed for coordination.
- F. **Identification:** Place a permanent label on each Submittal or generate a separate cover sheet.
1. Indicate the name of firm or entity that prepared Submittal.
  2. Provide space to record Contractor's review and approval markings and action taken by Engineer.
  3. Include the following information:
    - a. Project Name.
    - b. Date
    - c. Name and address of Engineer.
    - d. Name and address of Contractor.
    - e. Name and address of Subcontractor(s).
    - f. Name and address of Supplier(s).
    - g. Name of Manufacturer.
    - h. Submittal Number (as specified in article 1.4.B of this Section)
    - i. Drawing Number and detail references, as applicable.
    - j. Location(s) where product is to be installed, as applicable.
    - k. Other necessary identification
- G. **Deviations:** Encircle or otherwise specifically identify deviations from the Contract Documents on Submittals. Submittals that include deviations that are not identified may be rejected. Engineer may or may not consider deviations. Deviations are not substitutions.
- H. **Transmittal:** Package each Submittal individually and appropriately for transmittal and handling. Transmit each Submittal using a transmittal form. Engineer will reject Submittal(s) received from sources other than Contractor.

- I. Resubmittals: Make Resubmittals in same form and number of copies as initial Submittal.
  - 1. Note date and content of previous Submittal.
  - 2. Clearly identify additions and revisions.
  - 3. Resubmit Submittals until they are marked, “Approved” or “Approved with Changes Noted.”
- J. Distribution: Furnish copies of Submittals with mark indicating “Approved” or “Approved with Changes Noted” to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities.
- K. Use for Construction: Unless otherwise indicated by Engineer, use only Submittals with mark indicating, “Approved” or “Approved with Changes Noted.”

## **PART 2 – PRODUCTS**

### **2.1 ACTION SUBMITTALS**

- A. General: Prepare and submit project specific Action Submittals required by individual Specification Sections. Do not use highlighting that would not be reproducible.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale where appropriate. Scale shall be sufficiently large to indicate pertinent features of the item and its methods of connection to the Work.
  - 1. Preparation: Fully illustrate requirements of the Contract Documents. Including the following information, as applicable:
    - a. Dimensions.
    - b. Identification of products.
    - c. Fabrication and installation drawings.
    - d. Colors and materials as applicable.
    - e. Roughing-in and setting diagrams.
    - f. Wiring diagrams showing field-installed wiring, including power, signal, control, and communication wiring. Differentiate between Manufacturer-installed and field-installed wiring.
    - g. Manufacturing instructions
    - h. Templates and patterns.
    - i. Schedules.
    - j. Calculations.
    - k. Compliance with specified standards.
    - l. Notation of coordination requirements.
    - m. Notation of dimensions established by field measurement.
    - n. Relationship to adjoining construction clearly indicated.

2. Sheet Size: Submit Shop Drawings on sheets at least 8-1/2-inches by 11-inches but no larger than 36- inches by 48-inches.
  3. Maintain copy of returned Submittal for Project records.
- C. Product Data: Collect information into a single Submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for Submittal because standard printed data are not suitable for use, submit as Shop Drawings and, not as Product Data.
  2. Mark each copy of each Submittal to indicate which products and options are applicable.
  3. Include the following information, as applicable:
    - a. Manufacturer's written recommendations.
    - b. Manufacturer's product specifications.
    - c. Manufacturer's installation instructions.
    - d. Color charts as required by individual Specification Sections.
    - e. Manufacturer's catalog cuts.
    - f. Wiring diagrams showing factory-installed wiring.
    - g. Printed performance curves.
    - h. Operational range diagrams.
    - i. Mill reports.
    - j. Standard product operation and maintenance manuals.
    - k. Compliance with specified reference standards.
    - l. Testing by recognized testing agency.
    - m. Application of testing agency labels and seals.
    - n. Notation of coordination requirements.
  4. Submit Product Data before or concurrent with Samples.
  5. Maintain copy of returned Submittal for Project Records.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements, and for a comparison of these characteristics between Submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components, such as accessories, together in one Submittal package.
  2. Identification: On unexposed side of Samples, attach label that includes the following:
    - a. Generic description of Sample.
    - b. Product name and name of Manufacturer
    - c. Sample source
    - d. Number and title of appropriate Specification Section.
  3. Samples from Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner

specified, physically identical with material or product proposed for use, and that show full range of color and texture variations expected.

4. Samples include, but are not limited to, the following: Partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
5. Number of Samples: Unless otherwise indicated, submit 2 sets of Samples. Engineer will retain 1 Sample Set; remainder will be returned.
  - a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
  - b. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
6. Disposition: Maintain sets of approved Samples at Site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used by Engineer to determine final acceptance of construction associated with each set.
  - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples shall be in an undamaged condition at the time of Substantial Completion.
  - b. Samples not incorporated into the Work, or otherwise designated to become Owner's property, are the property of the Contractor.

## **2.2 INFORMATIONAL SUBMITTALS**

- A. General: Prepare and submit Informational Submittals required by individual Specification Sections. Do not use highlighting that would not be reproducible.
- B. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
- C. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects/engineers and owners, and other information specified.
- D. Installer Certificates: Prepare written statements on Manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by Manufacturer for this Project.
- E. Manufacturer Certificates: Prepare written statements on Manufacturer's letterhead certifying that Manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.



- F. Product Certificates: Prepare written statements on Manufacturer's letterhead certifying that product complies with requirements in the Contract documents.
- G. Material Certificates: Prepare written statements on Manufacturer's letterhead certifying that material complies with requirements in the Contract documents.
- H. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- I. Product Test Results: Prepare written reports indicating current product produced by Manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of test performed by Manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by qualified testing agency.
- J. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
  - 1. Name of evaluation organization.
  - 2. Date of evaluation.
  - 3. Time period when report is in effect.
  - 4. Product and manufacturers' names.
  - 5. Description of product.
  - 6. Test procedures and results.
  - 7. Limitations of use.
- K. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- L. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- M. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- N. Manufacturer's Instructions: Prepare written or published information that documents Manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of Manufacturer. Include the following, as applicable:
  - 1. Preparation of substrates.

2. Required substrate tolerances.
  3. Sequence of installation or erection.
  4. Required installation tolerances.
  5. Required adjustments.
  6. Recommendations for cleaning and protection.
- O. Manufacturer's Field Reports: Prepare written information documenting tests and inspections of factory authorized service representative. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
  2. Statement of substrate condition and acceptability of substrate for installation or application of product.
  3. Statement that products at Site comply with requirements.
  4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
  5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
  6. Statement whether conditions, products, and installation will affect warranty.
  7. Document settings in writing.
  8. Other required items indicated in individual Specification Sections.
- P. Safety Data Sheets (SDSs): Submit information directly to Owner; do not submit to Engineer.
1. Engineer will not review Submittals that include SDSs and will return the entire Submittal for Resubmittal.

## **PART 3 – EXECUTION**

### **3.1 CONTRACTOR'S REVIEW**

- A. Review each Submittal and check for coordination with other work of the Contract and for compliance with the Contract Documents. Verify field dimensions and conditions; note corrections as necessary. Mark with approval stamp before submitting to Engineer.
1. Approval Stamp: Stamp each Submittal with an approval stamp. Use the same stamp format for each Submittal. Include Project name and location, Submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that Submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
- B. Submittals that are not approved and stamped by Contractor will be rejected.

## **3.2 ENGINEER'S REVIEW**

- A. Action Submittals: Engineer will review Action Submittals, make marks to indicate corrections or modifications required, and return Submittal. Engineer will stamp each Submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. Approved: Submittal appears to conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  2. Approved with Changes Noted: Upon incorporation of review comments, it appear that Submittal will conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
  3. Revise and Resubmit: Submittal has one or more specific segments that are incomplete, do not appear to conform to the information given in the Contract Documents, or are incompatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Contractor shall resubmit information for review to demonstrate understanding of comments and portions of Work to be provided. Except as noted, Contractor shall not proceed with work related to Submittal.
  4. Rejected: Submittal as a whole is incomplete, does not appear to conform to the information given in the Contract Documents, or is incompatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Contractor shall resubmit information for review to demonstrate understanding of comments and portions of Work to be provided. Contractor shall not proceed with work related to Submittal.
- B. Informational Submittals: Other Submittals required by the Contract Documents for information only. Engineer will acknowledge receipt of Information Submittals. Such Submittals include, but are not limited to:
1. Qualifications Data.
  2. Certificates.
  3. Test Reports
  4. Manufacturer's Instructions.
  5. Maintenance Data.
  6. Field Reports.
- C. Submittals not required by the Contract Documents will be returned without being reviewed.
- D. Partial Submittals are not acceptable, will be considered non-responsive, and will be rejected.

**END OF SECTION**

**SECTION 01 77 00**  
**CLOSEOUT PROCEDURES**

**PART 1 – GENERAL**

**1.1 SCOPE OF WORK**

- A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
  - 1. Closeout procedures.
  - 2. Final cleaning.
  - 3. Adjusting.
  - 4. Project record documents.
  - 5. Spare parts and maintenance materials.

**1.2 RELATED WORK**

- A. Warranties and Bonds are included in Section 01 78 00.

**1.3 RECORD DOCUMENTS**

- A. Maintain on site, one set of the following documents; actual revisions to the work shall be recorded in these documents:
  - 1. Contract Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other Modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress.
- D. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and Modifications.
- E. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.

2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.
3. Field changes of dimension and detail.
4. Details not on original Contract Drawings.

F. Submit documents to Owner with Application for Final Payment.

#### **1.4 CLOSEOUT PROCEDURES**

- A. Submit written certification that Contract Documents have been reviewed, work has been inspected and that work is complete in accordance with Contract Documents and ready for Owners' inspection.
- B. Provide submittals to Owner that are required by governing or other authorities.
- C. Submit Application for Final Payment identifying total adjusted Contract Sum, previous payments and sum remaining due.

#### **1.5 FINAL CLEANING**

- A. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
  1. Clean the site of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

#### **1.6 ADJUSTING**

- A. Adjust operating products and equipment to ensure smooth and unhindered operation.

#### **PART 2 – PRODUCTS**

Not Used.

#### **PART 3 – EXECUTION**

Not Used.

**END OF SECTION**

## SECTION 01 78 00

### WARRANTIES AND BONDS

#### PART 1 – GENERAL

##### 1.1 SCOPE OF WORK

- A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer's standard warranties on products and special warranties.

##### 1.2 RELATED WORK

- A. General closeout requirements are included in Section 01 77 00 Closeout Procedures.
- B. Specific requirements for warranties for the work, products, and installations that are specified to be warranted are included in the individual sections

##### 1.3 SUBMITTALS

- A. Submit written warranties to the Owner prior to the date fixed by the Engineer for Substantial Completion. If the Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the work, or a designation portion of the work, submit written warranties upon request of the Owner.
- B. When a designated portion of the work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Owner within 15 days of completion of that designated portion of the work.
- C. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Engineer for approval prior to final execution.
- D. Refer to individual Sections for specific content requirements for submittal of special warranties.
- E. At Final Completion compile two copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- F. Bond warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl covered loose-leaf binders, thickness as necessary to accommodate contents and sized to receive 8-1/2-inch by 11-inch paper.
- G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project

Manual, with each item identified with the number and title of the Section in which specified and the name of the product or work item.

- H. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the products and the name, address and telephone number of the installer, supplier, and manufacturer.
- I. Identify each binder on the front and the spine with the typed title “Warranties and Bonds”, the project title or name and the name, address, and telephone number of the Contractor.
- J. When operating and maintenance manuals are required for warranted construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

#### **1.4 WARRANTY REQUIREMENT**

- A. **Related Damages and Losses:** When correcting warranted work that has failed, remove and replace other work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted work.
- B. **Reinstatement of Warranty:** When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- C. **Replacement Cost:** Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited for use of the work through a portion of its anticipated useful service life.
- D. **Owner’s Recourse:** Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
- E. **Rejection of Warranties:** The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the contract Documents.
- F. **Disclaimers and Limitations:** Manufacturer’s disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers and subcontractors required to countersign special warranties with the Contractor.
- G. **Separate Prime Contracts:** Each Prime Contractor is responsible for warranties related to its own Contract.

## **1.5 DEFINITIONS**

- A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
- B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend the time limits provided by standard warranties or to provide greater rights to the Owner.

## **PART 2 – PRODUCTS**

Not Used.

## **PART 3 – EXECUTION**

Not Used.

**END OF SECTION**



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**SECTION 33 01 10**

**WELL REDEVELOPMENT**

**PART 1 – GENERAL**

**1.1 SCOPE OF WORK**

- A. Provide the labor, tools, equipment, chemicals, and materials necessary for the rehabilitation of four (4) drinking water production wells located at two different well fields in Warren County.
- B. The work general consists of pump removal, video inspection of the well screen and casing before and after cleaning, chemical and mechanical redevelopment of the wells, step down and 24-hour pump testing, flow meter replacement/installation, level sensor replacement, and motor replacement.
- C. The following work shall be performed on each of the wells:

<b>Revis Wellfield</b>		
Production Well 1	Production Well 2	Production Well 3
<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill new port for level probe (location as directed by County).</li> <li>• Drill ¾” NTP tap on pump discharge head and install ¾” NTP bolt (location as directed by County).</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill new port for level probe (location as directed by County).</li> <li>• Drill ¾” NTP tap on pump discharge head and install ¾” NTP bolt (location as directed by County).</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill new port for level probe (location as directed by County).</li> <li>• Drill ¾” NTP tap on pump discharge head and install ¾” NTP bolt (location as directed by County).</li> </ul>

<b>North Wellfield</b>	
Production Well 3	Production Well 4
<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill ¾” NTP tap on discharge piping and install ¾” NTP bolt.</li> </ul>	<ul style="list-style-type: none"> <li>• Pre-cleaning video inspection</li> <li>• Pump tear down &amp; inspection</li> <li>• Well Rehabilitation</li> <li>• Post-cleaning video inspection</li> <li>• Drawdown pump testing</li> <li>• Plumbness and alignment test</li> <li>• Replace Column Pipe</li> <li>• Install new 8-inch flow meter</li> <li>• Disinfection of well and discharge piping</li> <li>• Drill ¾” NTP tap on pump discharge head and install ¾” NTP bolt.</li> </ul>

**1.2 SCHEDULE OF WORK**

- A. Perform the Work in accordance with the time for completion stated in the Contract.
- B. Notify the Owner one work week in advance of initiating well rehabilitation activities.
- C. Comply with the following sequencing conditions:

1. Only two wells may be removed from service by the Contractor at any one time.
2. North Wellfield Production Well 3 (PWN-3) cannot be removed from service until October 1, 2022.
3. Only one well at the North Wellfield may be removed from service at any one time.

### **1.3 QUALITY ASSURANCE**

**A. General.** Perform all work in conducting the well redevelopment in compliance with Ohio Administrative Code (OAC) 3745-9-09, American Water Works Association (AWWA) A-100 Water Well Standard, and other appropriate codes and standards, applicable requirements of governing agencies having jurisdiction, and according to the information specified herein.

### **1.4 EXISTING WELL INFORMATION**

1. The following table contains information on the wells, screens, and pumps. Additional data, including the ODNR Well Log and Drilling Reports and the construction drawings are including in Appendix B.

County Well ID	Date Drilled	ODNR Log #	Casing Material	Casing Length (ft)	Casing Diameter (in)	Screen Length (ft)	Well Depth (ft)	Screen Material	Pump (gpm)	Pump Type	Pump Make & Model	Pump Depth of Placement (ft)
<b>Revis Well Field</b>												
PWR-1	8/16/2005	2004841	Steel	41	16	20	59	Stainless Wire Wrapped .10"	900 @ 283'	Vertical Turbine	Peerless, Model 12 MB / 6 stage	48.2
PWR-2	10/10/2006	2004136	Steel	42.5	16	15	56	Stainless Wire Wrapped .12"	900 @ 283'	Vertical Turbine	Peerless, Model 12 MB / 6 stage	50.2
PWR-3	2/22/2006	2004135	Steel	41.5	12	15	55	Stainless Wire Wrapped .12"	900 @ 283'	Vertical Turbine	Peerless, Model 12 MB / 6 stage	49.2
<b>North Well Field</b>												
PWN-3	3/22/1995	798069	Steel	45	18	54	99	Stainless Wire Wrapped .09"	3,300 @ 190'	Submersible	Peerless, Model 12 MB / 4 stage	37.4
PWN-4	3/2/2005	978903	Steel	32	18	20	49	Stainless Wire Wrapped .08"	796 @ 179'	Vertical Turbine	Peerless, Model 12 MB / 4 stage	34.7

## 1.5 SUBMITTALS

- A. Submit information regarding the proposed rehabilitation procedures including equipment, methods, and chemicals to be utilized.
- B. Submit Safety Data Sheets for all chemicals to be stored onsite and used during the work.
- C. Provide the manufacture pump curve for the pump used for redevelopment and draw down testing.
- D. Provide shop drawings and product data for level probes.
- E. Provide Operation and Maintenance Manuals for level probes.
- F. Provide digital video and written report of the camera downhole well inspections.
- G. Provided final report for each well documenting the redevelopment work at each site and the test pump results.

## 1.6 DELIVERY, STORAGE, AND HANDLING

- A. **Packaging and Shipping.** The well rehabilitation materials and chemicals shall be packed, shipped, and delivered to the project site in a clean, undamaged, and environmentally safe condition. Take all precautions necessary in order to adhere to applicable manufacturer's and supplier's recommendations and requirements.
- B. **Acceptance at site.** The well rehabilitation materials and chemicals shall be accepted for use at the site by the Owner only if they have been properly packed, shipped and delivered to the project site.
- C. **Storage.** Store the well rehabilitation materials and chemicals in a clean, dry, and environmentally safe condition, out of flood prone areas. Provide and maintain these conditions until the materials and chemicals are used.

## 1.7 PRIVATE AND STATE LAND

- A. The Contractor shall not enter or occupy private and outside of easements, except by permission of the land owner.

## 1.8 HISTORIC WELL PRODUCTION TEST RESULTS

Date	Well #	Actual GPM	Static Level (ft)	Draw Down Level (ft)	Draw Down (ft)	Specific Capacity (gpm/ft)
6/16/2005	PWR-1	700	13.87	20.45	6.58	106.4
6/16/2005	PWR-1	1022	13.87	24.07	10.2	100.2
6/16/2005	PWR-1	1750	13.87	32.65	18.78	93.2
6/16/2005	PWR-1	1750	13.87	33.77	19.9	87.9
4/17/2006	PWR-2	450	9.026	16.796	7.77	57.9
4/17/2006	PWR-2	900	9.026	25.726	16.7	53.9
4/17/2006	PWR-2	1350	9.026	35.326	26.3	51.3
4/17/2006	PWR-2	1350	9.026	35.426	26.4	51.1
4/10/2006	PWR-3	450	12.06	21.26	9.2	48.9
4/10/2006	PWR-3	900	12.06	31.26	19.2	46.9
4/10/2006	PWR-3	1350	12.06	43.01	30.95	43.6
4/10/2006	PWR-3	1350	12.06	42.56	30.5	44.3
3/1/2005	PWN-4	354	10.4	11.58	1.18	300.0
3/1/2005	PWN-4	708	10.4	13.96	3.56	198.9
3/1/2005	PWN-4	1107	10.4	16.61	6.21	178.3
3/1/2005	PWN-4	1208	10.4	17.32	6.92	174.6

## 1.9 WELL PROTECTION

- A. All well holes shall be adequately safeguarded by providing temporary barricades, covering, caution signs, lights, and other means to prevent accidents to persons, contamination of the well, damage to property, and keep wildlife from entering the wells.
- B. The Contractor shall take precautions to prevent injury to the public due to open well holes. All exposed well holes shall be mechanically sealed when Contractor is not on site. All equipment, chemicals, or other hazards which could be dangerous to the public, shall be locked and secured away from the public.
- C. The Contractor shall provide night lighting when 24-hour pump testing is performed.

## 1.10 SITE INVESTIGATION

- A. The Contractor confirms that a site investigation/visit has been preformed to observe the existing conditions at the site of work, the type of equipment required to perform the work, the quality and quantity of the materials furnished insofar as this information is reasonably ascertainable from the inspection of the site, as well as from information presented herein. Any failure of the Contractor to acquaint themselves with available information will not relieve them from the responsibility for estimating properly the

difficulty or cost of successfully performing the work. The Owner assumes no responsibility for any conclusion or interpretation made by the Contractor on the basis of the information made available by the owner.

## **1.11 UTILITIES**

- A. **Electricity** – Electricity may not be readily accessible at all well sites. Temporary electric service may be available from the local power panels at each well. Contractor shall be responsible for all temporary connections. Provide temporary electric service as required if sufficient service is not available.
- B. **Water** – Untreated production water is available at each well field. When connecting to the Owner’s facilities the Contractor shall install a double check backflow prevention assembly (ASSE 1015). The Owner shall not charge the Contractor for water usage. Water can be obtained from the following locations:
  - 1. **Revis Well Field** – Water can be obtained from the 4-inch flushing connections within well structures.
  - 2. **North Well Field** – Water can be obtained from the 4-inch flushing connections within well structures.
- C. **Sanitary** – Sanitary facilities are not available at any of the well sites. Contractor shall provide temporary bathroom facilities. Temporary facilities shall be located a minimum of 300-feet from any and all well structures.

## **1.12 USE AND STORAGE OF CHEMICALS**

- A. Set up necessary supply and neutralization tanks adjacent to the wells or other convenient location acceptable to the Owner. Tanks shall be provided with secondary containment provisions with approved setback distance from existing wells and the Little Miami River.
- B. All equipment, such as the neutralization tank and any hose or piping which traverses over land, must also be delineated with caution tape, cones, signs, or sawhorses. If possible, where a hose or piping may cross a path or access road, it shall be covered by boards or suitable materials as to prevent punctures or leaks.
- C. Review Safety Data Sheets (SDS) for all chemicals intended for use in redevelopment work with workers prior to delivery. Maintain copies of the SDS at designated locations in accordance with regulatory agency requirements. Review SDS with workers at appropriate intervals.

## **1.13 PROTECTION OF PROPERTY AND UTILITIES**

- A. The Contractor shall be responsible for the preservation of all public and private property and utilities (including poles, signs, service to buildings, gas pipes, water pipes, electrical cable, hydrants, sewers, drains, communication cables, etc.), and shall

use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property or utilities by any account of any act, omission, neglect, or misconduct in the execution of the work on the part of the Contractor, such property or utility shall be restored by the Contractor, at their expense, to a condition similar or equal to that existing before the damage was done, or they shall make good the damage in another manner acceptable to the County.

- B. The Contractor shall be responsible for repairing any damage to public and private access drives and roadways leading to and from the well fields caused by their activities. Access drives and roadways shall be repaired to a condition similar or equal to that existing before the damage was done.

#### **1.14 CLEANUP AND DISPOSAL OF EXCESS MATERIAL**

- A. During the course of the Work, the Contractor shall keep the work site in as clean and neat a condition as is possible. Dispose of all residue and, at the conclusion of the work, remove and haul away any other refuse remaining from the work and leave the entire site of the work in a neat and orderly condition.

#### **1.15 PROCESS WATER DISPOSAL**

- A. Contractor shall provide all licenses and permits required for the Work. All Work shall be performed in accordance with permit limitations, and all Federal, State, and Local regulatory requirements.
- B. Dispose of test pump water, chemical cleaning water, and other discharge water in accordance with regulatory requirements.

#### **1.16 WARRANTY**

- A. All labor and materials supplied under this Section shall be warranted for a period of one (1) year by the Contractor and material manufacturers. The manufacturer's warranty period shall run concurrently with the Contractor's warranty period and shall commence on the Substantial Completion Date of each well.
- B. The materials shall be warranted to be free from defects in workmanship and design. Any materials that fail during the warranty period shall be replaced and the unit(s) restored to service at no expense to the County.

### **PART 2 – PRODUCTS**

#### **2.1 WELL REHABILITATION CHEMICALS**

- A. Chemicals, admixtures, and products used during rehabilitation shall be suitable for use in water supply wells. Redevelopment of wells can be accomplished using acid or chemical dispersants that have standard ANSI/NSF60 certification. Contractor shall procure all licenses and permits required for the Work.



- B. Dispersants that contain phosphorous compounds shall not be permitted.
- C. Chemical cleaning shall be accomplished through mechanical surging of commercial grade muriatic acid (industrial grade hydrochloric acid) at a 31% concentration. Sufficient quantities shall be supplied to clean the well screen slits, gravel pack, and well column. Provide sufficient quantities of muriatic acid to completely fill the screen volume of each well. Provide the following quantities for rehabilitation purposes:

Well No	Gallons	55 Gallon Drums
PWR-1	209	4
PWR-2	157	3
PWR-3	157	3
PWN-3	714	13
PWN-4	264	5

- D. Chemical cleaning shall be accomplished through mechanical surging of commercial grade sodium hypochlorite at a 12.5% concentration. Sufficient quantities shall be supplied to clean the well screen slits, gravel pack, and well column. Provide sufficient quantities of sodium hypochlorite to fill half the screen volume of each well. Provide the following quantities for rehabilitation purpose:

Well No	Gallons	55 Gallon Drums
PWR-1	104	2
PWR-2	78	1.5
PWR-3	78	1.5
PWN-3	357	6.5
PWN-4	132	2.5

- E. Sufficient quantities of commercial grade soda ash, sodium thiosulfate, or other chemicals approved by Warren County shall be provided to neutralize and dechlorinate water that is pumped from the well during redevelopment.
- F. Base bids shall include those chemicals listed above and in the quantities specified herein. The use of alternate chemicals including acids, surfactants, polymers, or chelating agents can be proposed as alternate bids.

## 2.2 VIDEO CAMERA EQUIPMENT

- A. Video camera equipment shall be submersible, closed circuit television (CCTV) camera, full color, lighting with lens that rotates 360 degrees for inspection in any field of view within well casing.
- B. Recording equipment shall be above ground with computer link for data entry recording in DVD and thumb drive format, full color, video display with on screen footage display, capable of producing full color still photographs.

## **2.3 PUMPS AND WELL FLOW TESTING**

- A. Provide submersible or vertical turbine pumps for constant rate and step-drawdown testing.
- B. Any electric generator used for the test pumping shall have the necessary capacity fuel to adequately power the selected test pump through the pumping period.
- C. Discharge pipe shall be of a diameter and length adequate to transfer water from the test site to discharge points located away from the wellfield and adjacent to the Great Miami River, Turtle Creek, or Twin Creek. Provide matting, energy dissipaters, or rip rap to minimize erosion at the discharge points. Discharge pipe shall be in good condition and shall not have any significant leaks. Discharging water into the wellfield shall not be permitted.
- D. Hoses and piping shall be rated for required operating pressures and chemical solution concentrations.
- E. The flow rate shall be measured using an orifice weir and manometer, or equivalent method acceptable to the County and Ohio EPA.
- F. Provide a gate valve suitable for controlling discharge through the discharge pipe. Valve size shall match discharge pipe size.
- G. Provide portable calibrated electric water level probes for water level measurements during testing. Probes shall be installed at the test well and monitoring wells identified in Section 3.3. Probes shall read and record data every minute and data shall be stored as a comma separated value (.csv) file.
- H. Provide portable direct readout monitors with sensors for pH, chlorine residual, and chemical solution concentrations.

## **2.4 WELL LEVEL PROBES**

- A. Remove and reinstall the level probes on all five wells.
  - 1. Give Warren County 1 day notice before removing each level probe. Warren County will disconnect cable at the control cabinet.
- B. The transducer shall consist of a piezoresistive sensing element, encased in a 316 SS housing. It shall come equipped with a 270-pound tensile strength, shielded, vented cable. Ventilation tube in the cable must automatically compensate for changes in atmospheric pressure. The vent must be protected with a maintenance free filter eliminating particulate or water droplets from entering the transducer. The unit must incorporate lightning and surge protection utilizing dual arrestor technology, grounded to case, eliminating both power supply surges and lightning ground strike transients.
- C. The sensing element shall be capable of fitting through the existing ports.

- D. Range for all probes is 0 to 50 ft., shall be accurate to +/-0.25%, and provide a 4 to 20 mA DC output signal.
- E. Level probes shall read gauge pressure.
- F. Probes shall be equipped with a cable that extends a range of 100 feet. Field verify the required cable length.
- G. Install probes at the depths shown in Appendix. These depths may be different than depths of existing probes. Contractor shall measure length required for installation and not rely on existing probe lengths.
- H. Probe shall be GE Druck PTX1830, Dwyer Instruments Model SBLT2, or approved equal.

## **2.5 COLUMN PIPE**

- A. Column pipe shall be furnished in interchangeable sections not over 10 feet in length and shall be connected with threaded sleeve type couplings
- B. The friction loss in the column shall not exceed 5 feet per 100 feet of column, based on the rated capacity of the pump.
- C. The weight and size of the column shall be no less than required in AWWA Spec 101-1.
- D. Column shall be coated with epoxy paint.
- E. The column assembly shall have bronze bearing retainers retained by the butted pipe ends. Each bearing retainer shall contain a water-lubricated, cutless rubber bearing designed for vertical pump service.

## **PART 3 – EXECUTION**

### **3.1 VIDEO SURVEY**

- A. A downhole video survey shall be conducted upon removal of the County’s pump and prior to conducting well rehabilitation. This video survey shall be conducted only when turbidity level allow a clear visual inspection of the interior of the well. It is likely that the water within the well casing and careen will be made cloudy by the removal activities. The well shall remain idle for a minimum period of 12 hours prior to video inspection unless otherwise approved by the County.
- B. The particular goals of the inspection activities include, but are not limited to, the following:
  - 1. To visually determine the structural integrity of the well casing and screen and to assess the condition of the screen including quantifying the amount of debris and buildup along the screen slots.

2. To verify well construction information including depth to top of screen, screen length, and actual well depth.
- C. Provide two copies of all recordings, in color, to the County for review and permanent records. Specific measurements including the depth of the top of the well screen and comments on the screen conditions including description of any biofilm and/or encrustation observed, shall be made at the time the inspection is conducted in a manner clearly audible upon subsequent playing of the recording.
- D. Submit to the County a letter outlining the finding of the video survey including deficiencies or variations from available well records, structural damage to the well or well screen, and any required remedies. Subsequent redevelopment work shall not commence until the County has discussed the results of the inspection work with the Contractor and has given approval to proceed.
- E. The Contractor shall lower and raise the camera at a sufficient rate of speed to avoid disturbance and suspension of sediment within the well. If the rate of speed creates turbidity within the well, the equipment shall be removed. Reconduct the test and inspection after suspended sediment has settled. The additional test and inspection shall be conducted at the Contractor's expense.
- F. Upon completion of the well redevelopment a repeat of the video inspection, as described above, shall be conducted to show the results of the redevelopment work and any well condition that was not readily identifiable in the initial video.

### **3.2 WELL PUMP INSPECTION**

- A. Once removed from the well, the Contractor shall disassemble the pumping system for inspection. This includes the bowl assembly, column pipe, discharge head, and motor. Insulation resistance reading of the motor shall be taken and recorded to determine if the resistance is within manufacturer's parameters. A detailed written report shall be prepared outlining conditions of the well system components and recommending for needed repairs/replacement.
- B. Prior to reinstalling the pump, Contractor shall sand blast and epoxy paint the pump discharge head and motor. Contractor shall sand blast, paint, and rebuild the stuffing box with new packing and adjust the gland to form a tight seal.
- C. The County may authorize and direct the Contractor to replace worn and malfunctioning items pending the recommendations contained in the detailed report. Well pump and motor repairs are beyond the scope of this project and if needed shall be performed as a change order to the Contract, at the pricing identified in the Alternate Bids.

### 3.3 WELL REDEVELOPMENT

- A. The general methods to be used for the redevelopment procedures are as follows for each well:
1. The reconditioning procedures shall combine the physical surging of the well screen area using dual disc surge tools along with chemical treatment. The total time of surging each well shall be based on 1.5 hours of surging per foot of screen length. The surge tool shall contain two surge discs, each consisting of a rubber disc sized to within one half inch of the screen inside diameter sandwiched between two smaller diameter discs to attain an adequate rigidity. The discs shall be located no further than 4 feet apart if fixed, but can be less if methods are employed to raise and lower only the bottom disc in a repetitive cycle. Minimum equipment requirements are that the equipment shall be capable of producing a rhythmic stroking action (as associated with standard percussion type drilling rigs). The equipment to be utilized shall provide a 30-inch vertical stroke or longer and be capable of operating through an adjustable range from 20 to 40 strokes per minute. The surge tool itself, shall be capable of being lowered into the well screen with a complete string of pipe attached to the surface, to facilitate its required up and down movement.
  2. After removal of the existing pumping equipment, video inspection of the existing well, and wire brush cleaning of the screen, the development tools will be assembled and set into the well.
  3. Injection of the proposed redevelopment chemicals will be done through the development tools once they are set to depth within the well.
  4. The existing electrical power at each of the respective well locations may be used to perform the work. If electric power is not available at the well site, the Contractor shall be responsible to provide portable power supply to operate equipment.
  5. Upon completion of the chemical surging efforts, all spent chemicals, dissolved minerals, fine sediments, and other foreign matter shall be removed from well by airlifting procedure while simultaneous continuous surging. Flow from the well shall be discharged into a 1,500 gallon temporary holding tank(s) and neutralized prior to being discharged.
  6. The Contractor shall provide all materials required for the neutralization of chemicals including the holding tank(s), neutralization chemicals, pH and chlorine test kits, and sufficient discharge hose to transfer the waste water away from each site to the designated point of discharge.
  7. Once the development effort is complete, the development tools will be removed from the well and the well disinfected by the addition of chlorine into the well casing and screen. The wellhead will then be secured to prevent foreign matter from entering the well.

8. Upon completion of all work, a written report will be prepared and submitted to the County. The report will contain all information regarding the redevelopment procedures, chemical solutions used, results of the cleaning efforts, and test pumping results.

B. The chemical treatment and well redevelopment steps shall be as follows.

1. **Step 1 – Video Inspection & Pretreatment**

- a. Video Inspection – After removal of the pump and prior to any rehabilitation work, perform a down hole video survey.
- b. Pretreatment – Pretreat the well screen by wire brushing the screen with approximately twelve passes along the entire screen length. The diameter of the brush shall be sized approximately for the diameter of each well screen. All material that has settled to the bottom of the screen and in suspension within the well shall be removed by pump or air lift and disposed using appropriate methods according to Federal, State, and local requirements.

2. **Step 2 – Surging with Muriatic Acid**

- a. Injection of Acid Solution and Surging – Inject a volume of hydrochloric/ muriatic acid into the well to create a strong acid solution within the screened section of the well. Add acid throughout the surging process in quantities identified in Paragraph 2.1.C to maintain a strong solution within the well screen and surrounding gravel pack.

Work the acid solution through the formation materials surrounding the well screen by straight surging (without removal of the materials from the well) using the double agitator surge blocks. Continue the surging operation during which time the surge blocks will be moved throughout the screened section of the well. Surge evenly throughout the length of the screen. Allow the chemicals to remain in the well overnight.

Removal of the acid shall be accomplished by blowing the chemical with compressed air while continuously surging the well. This blow out process shall progress continuously throughout the screen section of the well.

The chemical surging and blow out removal of the acid solution shall occur over the following periods:

<b>Well No</b>	<b>Chemical Addition &amp; Surge</b>	<b>Chemical Removal &amp; Blow Out</b>
PWR-1	7.5 Hours	7.5 Hours
PWR-2	6 Hours	6 Hours
PWR-3	6 Hours	6 Hours
PWN-3	20.25 Hours	20.25 Hours
PWN-4	7.5 Hours	7.5 Hours

- b. Chemical Disposal – Spent acid solution from the well shall be discharged into a temporary holding tank. Neutralize solution to a pH between 6.5 and 7.5 by the addition of hydrated lime, and discharge to waste. Continue pumping until

the water pumped from the well has a pH level of approximately 6.5.

3. **Step 3 – Surging with Sodium Hypochlorite**

- a. Inject Chlorine Solution and Surging – Inject a volume of sodium hypochlorite solution into the well to create a strong solution within the screen section of the well. Add chlorine throughout the surging process in quantities identified in Paragraph 2.1.D to maintain a strong oxidizing solution within the well screen and surrounding gravel pack.

Work the chlorine solution through the formation materials surrounding the well screen by straight surging the well using the double agitator surge blocks in the same manner, method, and time as described in STEP 2.

- b. Chemical Disposal – Spent chlorine solution from the well shall be discharged into the temporary holding tank. Dechlorinate the solution by adding sodium bisulfate or sodium thiosulfate, and discharge to waste. Continue the pumping operation until the water pumped from the well has a negligible chlorine concentration.

4. **Step 4 – Post Cleaning TV Inspection**

- a. Post Cleaning TV Inspection – Remove the development tools from the well and perform a post cleaning TV inspection. The equipment to be used for this task will be the same used for the initial verification of well data. Record the post-cleaning inspection on DVD and/or thumb drive and provide to the County.

5. **Step 5 – Final Well Capacity Testing** – Perform step drawdown and 24-hour pump testing to obtain sufficient hydrogeological information to evaluate potential pump upgrades at each well site. The step down test shall conform to the following:

- a. Record the depth at which the pump used for the test is set.
- b. Each step shall be run at a constant pumping rate for no less than one hour. Step pumping rates (gallons per minute) for each well shall be as follows. Step pumping shall cease if water levels drop to the screen.
- c. Step Test pumping rates:

PWR-1	PWR-2	PWR-3	PWN-3	PWN-4
500	500	500	1200	500
900	900	900	2475	900
1100	1100	1100	3300	1100
1750	1350	1350	4950	1500

- d. Constant 24-hour pump testing rates for each well shall be established by the County after the completion of the step draw down testing.
- e. During both the step drawdown and constant rate pumping test, water levels measurements shall be taken from the well being pumped and from the surrounding monitoring wells starting from the static water level and continuing during drawdown to the nearest 0.1 foot, as measured from an identified datum.

- f. Water level measurements shall be collected at 1-minute intervals throughout the well testing and at the following locations:

<b>PWR-1</b>	<b>PWR-2</b>	<b>PWR-3</b>	<b>PWN-3</b>	<b>PWN-4</b>
MW 10D	MW12	Revis OW	MW2	MW5 (north)
MW11	Revis OW	MW9S	MW3	MW5 (south)
Revis OW			MW4 (south)	MW4 (north)

- g. Immediately after completion of the 24-hour test, additional pump testing shall occur to determine aquifer levels with multiple pumps in operation. During this 2-hour testing the County shall turn on production wells as the test well continues to operate, water level measurements shall be collected at 1-minute intervals throughout this test period.
- h. Recovery water level measurements shall be taken immediately after termination of the constant rate pumping at 1-minute time intervals until the water level has recovered to at least ninety percent of the drawdown caused by the pumping test, twenty-four hours after the completion of the pumping test, or recovery is interrupted by pumping of another well, whichever occurs first.
6. **Step 6 – Plumb Testing** – Well casing and screen shall be tested for plumbness and alignment in accordance with Appendix D of standard “AWWA A100-97 Water Wells”, February 1, 1998, catalog number 41100, r alternative procedures acceptable to the County.
7. **Step 7 – Well Disinfection** – After the well has been rehabilitated, modifications completed, the Owner’s pump and motor reinstalled, and mag meter installation, disinfect the well with chlorine. Inject chlorine solution creating a 500 ppm concentration within all parts of the well in accordance with Chapter 119, Section 6111.42 of the Ohio Revised Code and Chapter 3745-9-08 of the Ohio Administrative Code.
- a. Prepare and apply chlorine solution in accordance with the requirements of AWWA standards. Using the installed pump, surge the well to insure proper distribution of the disinfectant.
- b. After a minimum of 24 hours and before 48 hours has elapsed, the well shall be pumped free of chlorine as indicated by a negligible chlorine residual, and in preparation for water quality sampling to be performed by the County. Dechlorinate the solution prior to discharge to waste, as required by the Ohio EPA.
- c. The County shall collect and test bacteriological samples from the wells. Should the wells fail to pass bacteriological testing the Contractor shall perform the disinfection process again and/or perform extended flushing of the wells until two series of bacteriological samples collected in 24 hours yield negative test results for the presence of bacteria.



### 3.4 FINAL REPORT

- A. Upon completion of the redevelopment procedures at each well installation, prepare and submit in duplicate a written report to the County for permanent records. The report shall contain all procedure and results of the redevelopment effort, including all pumping and water level data recorded throughout the testing. Include copies of the well inspection video with the final report. The report should contain the following:
1. Map showing the location of the pumping wells and the location of the other wells used to observe drawdown. The map shall, at a minimum, include the names of the wells as used in the report and the distance between the pumping wells and other wells used to observe drawdown.
  2. Graphs must be submitted for the pumping well and any other well used to observe drawdown and recovery during the pumping and recovery tests. A minimum of four (4) graphs for each redevelopment well shall be submitted including the following:
    - a. One graph for the step test with drawdown measurements on the arithmetic scale and time on the arithmetic scale. Graph shall include the pumping well and any other wells used to observe drawdown and recovery for the test.
    - b. One graph for the 24-hour pumping test with drawdown measurements on the arithmetic scale and time on the logarithmic scale. Graph shall include the pumping well and any other wells used to observe drawdown and recovery for the test.
    - c. One graph for the multiple well interference test with drawdown measurements on the arithmetic scale and time on the arithmetic scale. Graph shall include the pumping well and any other wells used to observe drawdown and recovery for the test. Graph shall call out when additional wells are turned on in the well field.
    - d. One graph for the recovery period with drawdown measurements on the arithmetic scale and time on the arithmetic scale. Graph shall include the pumping well and any other wells used to observe drawdown and recovery for the test.
  3. Table that summarizes the step down test results listing the flows, drawdown, and specific capacities.
  4. Determine pump upgrades that will increase the permanent pumping capacity of the wells while at a minimum maintaining the operational capacity of the well field and without degrading the water quality of any well in the well field.
  5. Based on the well pump test, include an analysis of the effects of interference drawdown from other wells owned by the County and the effects of interference on the recommended permanent design pumping rates.

6. Recommendation on the maximum capacity the well can be sized for based on the following:
  - a. Screen Rating in accordance with Ohio Administrative Code 3745-9.
  - b. Drawdown Limits
  - c. Largest practical pump that can fit in well.
  - d. Include a table that summarizes the maximum rated capacity of the well for each of the above components.

**END OF SECTION**

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## SECTION 40 71 13

### MAGNETIC FLOW METERS

#### PART 1 – GENERAL

##### 1.1 SCOPE

A. Contractor shall provide all labor, materials, equipment, and incidentals as specified and required to complete all Electromagnetic Flow Meter Work. This Work includes, but is not limited to, the following:

1. Furnish and install new electromagnetic flow meters and signal converter on the listed below and shown in Appendix A. Contractor to field verify all flow meter sizes and cable lengths.

Well	Flow Meter Size	Cable Kit for Remote Mount: Length*
PWN-4	8-inch	33-feet

2. Furnish and install potting kit for electromagnetic flow meters.
3. Calibration of new electromagnetic flow meters.
4. Work affecting existing piping.

##### 1.2 Coordination

A. Review installation procedures under this and other Sections and coordinate installation of items that must be installed with, or before the Electromagnetic Flow Meter Work.

##### 1.3 REFERENCE

A. All applicable requirements of other portions of the Contract Documents apply to the Work of this Section, including but not limited to Division 01 General Requirements.

##### 1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. The equipment manufacturer shall have been engaged in the manufacture of the equipment being supplied for the past five (5) years and able to show evidence of at least five installations in satisfactory operation for at least five (5) years.

B. Component Supply and Compatibility:

1. Obtain all equipment included in this Section regardless of the component manufacturer from a single electromagnetic flow meter and appurtenances manufacturer.
2. The electromagnetic flow meter and appurtenances equipment manufacturer shall review and prepare all Shop Drawings and other submittals for all components

furnished under this Section.

3. All components shall be specifically constructed for the specified service conditions and shall be integrated into the overall assembly by the electromagnetic flow meter and appurtenances equipment manufacturer.

C. Regulatory Requirements:

1. Perform all work associated with electromagnetic flow meter in compliance with applicable requirements of governing agencies having jurisdiction.
  - a. NEMA – National Electrical Manufacturers Association.
  - b. NEC – National Electrical Code.
  - c. UL – Underwriters’ Laboratories, Inc.

## 1.5 SUBMITTALS

A. Provide technical submittals in accordance with Section 01 33 00 “Submittals”, demonstrating that all equipment provided conforms completely to the requirements of this Section.

B. Shop Drawings and Product Data:

1. Submit for approval the following:
  - a. System shall be submitted as a complete submittal including all external connections and internal details.
  - b. Complete description in sufficient detail to permit comparison with the technical specifications.
  - c. Weights and performance data.
  - d. Wiring diagrams and specifications for all electrical equipment.
  - e. Affidavits of compliance with referenced standards and codes.
  - f. Manufacturer’s literature, including:
    - i. Dimensions.
    - ii. Materials.
    - iii. Size.
    - iv. Weight.
  - g. Confirm that equipment and piping shown is suitable for service conditions specified.
  - h. Show locations and sizes for all connections to associated equipment and utilities.
  - i. List of spare parts and optional equipment.

2. Operation and Maintenance Data:

a. Operation and Maintenance Manuals:

- i. Submit complete installation, operation, and maintenance manuals including copies of all approved Shop Drawings.

b. Required Operation Data:

- i. Complete, detailed operating instructions for each piece of equipment with moving parts.
- ii. Explanations for all safety considerations relating to operations.
- iii. Recommended spare parts list.

c. Required Maintenance Data:

- i. Maintenance data shall include all information and instructions required by maintenance personnel to keep equipment properly lubricated and adjusted so that it functions economically throughout its full design life.
- ii. Explanation with illustrations, as necessary, for each maintenance task.
- iii. Recommended schedule of maintenance tasks.
- iv. Lubrication charts and tables of alternate lubricants.
- v. Trouble shooting instructions.
- vi. List of maintenance tools and equipment.
- vii. Name, address, and phone number of manufacturer and manufacturer's local service representative.

C. Guarantee and Warranty:

1. Provide a 1-year complete parts and service warranty for the electromagnetic flow meter as described below:

- a. The electromagnetic flow meter and all of its components shall be guaranteed against mechanical failure due to materials, workmanship, or wear under the original specified operating conditions for a period of one (1) year from the date of Substantial Completion.
- b. If any defect is found within this period, the electromagnetic flow meter manufacturer at its option and expense shall either repair the meters or furnish and install replacement components.
- c. The meter manufacturer shall be responsible for paying all costs associated with the repair or replacement of the equipment.
- d. After repair, the meter warranty shall remain in effect for the residual periods of the initial warranty.
- e. The Owner may make routine preventative maintenance and repairs without voiding the meter warranty. Other repairs and modifications shall not void the warranty when approved by the meter manufacturer.
- f. Long-term storage shall not void the warranty when stored in conformance with the meter manufacturer's recommendations.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

### **A. Packing, Shipping, Handling, and Unloading:**

1. All equipment and materials shall be inspected against approved Shop Drawings at time of delivery.
2. Equipment and materials damaged or not meeting requirements of the approved Shop Drawings shall be immediately returned to the manufacturer for replacement or repair.
3. Equipment and materials shall on delivery, storage, and installation be handled in an approved manner according to manufacturer's instructions.

### **B. Storage of Materials:**

1. All equipment and materials after inspection shall be carefully prepared for storage and labeled.
2. Equipment and materials shall be stored in a dry location and protected from harm according to manufacturer's instructions.

### **C. Acceptance at Site:**

1. All boxes, crates and packages shall be inspected by Contractor upon delivery to the Site.
2. Contractor shall notify Owner, in writing, if any loss or damage exists to equipment or components.
3. Replace loss and repair damage to new condition in accordance with manufacturer's instructions.

## **PART 2 – PRODUCTS**

### **2.1 GENERAL**

- A. The electromagnetic flow meter shall consist of a flow sensor based on Faraday's Law of Electromagnetic Induction and microprocessor-based signal converter.

### **2.2 MATERIALS**

#### **A. Sensor:**

1. Operating Principle: Utilizing Faraday's Law of Electromagnetic Induction, the flow of liquid through the sensor induces an electrical voltage that is proportional to the velocity of the flow.
2. Construction:
  - a. The sensor flow tube shall be 304 stainless steel surrounded by two coils.
  - b. Linear material shall be hard rubber (Ebonite).

- c. Measurement and grounding electrodes shall be Hastelloy C-276.
  - d. Connecting flanges shall be carbon steel.
3. Installation: A minimum of five (5) pipe diameters upstream (30-inches) and three (3) pipe diameters downstream (18-inches) of any fitting.
  4. Operating Temperature: -4°F to 158°F
  5. Size: 4" Diameter
- B. Signal Converter:
1. Type: NEMA 4X enclosure
  2. Display: Background illumination with alphanumeric 3-lin, 20-character display to indicate flow rate, totalized values, settings, and faults.
  3. Power Supply: 115/230 VAC or 11-24 VCD.
  4. Operating Temperature: -4°F to 140°F
  5. Outputs: 0-20 mA or 4-20mA into 800 ohms max. One relay rated at 42 VAC/SA, 24DC1A.
  6. All programming shall be accomplished through an integral keypad with press buttons. Programming through the use of a magnetized screwdriver shall not be allowed.
- C. Sensor and Signal Converter Performance:
1. Flow Range: 0.1 m/s (0.3 ft/s) to 12 m/s (39 ft/s)
  2. Accuracy: MAG 6000: ±0.2% (±1 mm/s); MAG 5000: ±0.4% (±1 mm/s)
  3. Bi-directional flow capabilities shall be standard.
- D. Totalizer:
1. Two eight-digit counters for forward, net, or reverse flow.
- E. Manufacturer / Model:
1. Siemens Model MAG 5100W with a Siemens Model MAG 5000 or MAG 6000 signal converter.
  2. Insertion type flow meters will not be accepted.
- F. Potting Kit: Provide and install a USM Potting Kit, Siemens Model FDK:085U0220.

## 2.3 CALIBRATION

### A. SENSORPROM<sup>®</sup> Memory Unit

1. Each flow sensor shall be wet calibrated and all of the calibration information and



factory settings matching the sensors shall be stored in an integrally mounted SENSORPROM<sup>®</sup> memory unit.

2. The SENSORPROM<sup>®</sup> shall store sensor calibration data and signal converter setting for the lifetime of the product.
  3. At initial commissioning, the flow meter commences measurement without any initial programming.
  4. Any customer specified settings are downloaded to the SENSORPROM<sup>®</sup>.
  5. Should the signal converter need to be replaced, the new signal converter shall be able to upload all previous settings and resume measurement without any need for reprogramming or rewiring.
- B. A certificate of calibration shall accompany each flow sensor.
- C. Programming of the transmitter must be performed by pressing buttons on a keypad. A device that uses a magnetized screwdriver or other magnetized object for programming shall not be permitted.

## **2.4 SIGNAL CONVERTER FUNCTION**

- A. The following functions shall be provided with the signal converter:
1. All programming shall be accomplished through an integral keypad with press buttons. Programming through the use of a magnetized screwdriver or other magnetized object shall not be permitted.
  2. All programming shall be protected by a user-defined password.
  3. The signal converter shall be integrally mounted or remotely mounted using a remote-mount kit provided by the manufacturer.
  4. The signal converter shall provide a 0/4-20 mA DC signal proportional to flow rate into 800 ohms max. output shall be selectable as unidirectional or bi-directional.
  5. The relay shall be programmable as error indicator, limit alarm, or pulsed output.
  6. The signal converter system shall be equipped with an error and status log with four groups of information:
    - a. Information without a functional error involved.
    - b. Warnings which may cause malfunction in the application.
    - c. Permanent errors, which may cause malfunction in the application.
    - d. Fatal error, which is essential for the operation of the flow meter.
  7. A system error shall be indicated by a flashing icon on the display or activation of the relay when set as an error alarm.
  8. The first nine standing errors shall be stored in the error pending log. A corrected

error is removed from the error pending log. A status log shall be provided to store the last nine error messages received for 180 days regardless of corrections.

## **2.5 SPARE PARTS**

- A. Spare parts for the equipment shall include the following, unless otherwise noted:
  - 1. One set of manufacturer's recommended spare parts.
  - 2. Extra operation manuals as required.

## **PART 3 – EXECUTION**

### **3.1 GENERAL**

- A. Contractor shall inspect the area in which the equipment is to be installed and verify that the equipment is ready for installation.
- B. Contractor shall notify Owner of any discrepancies.
- C. Contractor shall make all necessary field connections required to place the electromagnetic flow metering systems in proper operation in accordance with manufacturer's instructions and recommendations.

### **3.2 INSPECTION**

- A. Contractor shall verify that pipes and equipment are compatible.
- B. Contractor shall make adjustments required to place system in proper operating condition.

### **3.3 INSTALLATION**

- A. The Mag Meter display is to be mounted on top of the well platform, away from any control cabinet, and the swing of its door.
- B. Mag Meter display unit is to be mounted to a backplane in a NEMA 4 rated fiberglass Display Box with a window, dimensions 18"x14"x9", large enough to fit transmitter and associated equipment.
  - 1. Manufacturer: Hoffman Catalog Number A18149JFGQRPWR or equal.
- C. Located in the Line in Power Junction Box
  - 1. 120 VAC Line power will come from the lighting circuit that's located in the Power Feed Cable J Box (wire nutted to a 3 conductor #8 stranded cable, with ground) to the left of the control cabinet.
  - 2. Use Din Rail mounted terminal blocks to land the feed circuit in the Power Feed cable J box.

3. Connect the light pole circuit to the bottom of the terminal blocks.
4. Run new feed for flow meter from terminal blocks in step 3 to a din rail mounted 120v 1 amp filter, Eaton Aegis series powerline filter, 120 VAC, 1-phase, 1A, 35mm DIN rail mount, EMI/RFI filtering, LED indication, 5kA SCCR or equivalent. Permissible to locate equipment in NEMA 4 fiberglass box.
5. Install wiring from filter in step 4 to a 1 amp breaker, Eaton PART# FAZ-C1-1-NA-S or equivalent, with #12 THNN stranded, contractor to verify breaker size.
6. Install appropriate power wiring from breaker in step 5 to the Flow meter display unit.
7. 16 AWG shielded twisted single pair wire, 4 to 20 mA signal wire, ran from flow meter display to control cabinet sufficient length to connect at designated terminal blocks. Warren County Personnel will terminate connection to terminal blocks.
8. Power wires and 4 to 20 mA wires to be ran in separate conduit. Permissible to use existing conduit as long as wire runs have been identified as power or signal, and approval from owner.

D. Display to Flow Tube Signal Wire

1. All conduits are ¾-inch unless permission is given from the Owner in writing.
2. The Conduit run is mounted below the platform grating to prevent a trip hazard.
3. No conduit supports are permitted to be mounted to the vertical pipe.
4. All new conduit connections are on bottom side.
5. All lengths of wire are to be verified by the Contractor.

### 3.4 FIELD QUALITY CONTROL

A. All equipment shall be given running tests by Contractor at the job Site following installation of the equipment and controls. Should the tests indicate any malfunction, the Contractor shall make any necessary repairs and adjustments. Such tests and adjustments shall be repeated until, in the opinion of the Owner, the installation is complete and the equipment is functioning properly and accurately, and is ready for permanent operation.

B. Verification:

1. Procedure:
  - a. Verification using stand-alone Siemens MAGFLO Vericator to measure a number of selected parameters in the flow sensor and signal converter, which affects the integrity of the flow measurement, shall be available through a factory verification service.
2. Parameters:
  - a. Verification of the Flow Meter shall consist of the following test routines:

- i. Installation test of the entire flow meter system and cables.
  - ii. Test of sensor magnetic properties.
  - iii. Signal converter gain, linearity, and zero point tests.
  - iv. Digital output test.
  - v. Analog output test.
3. Certificate:
- a. A certificate of verification shall be issued when the flow meter passes all of the tests within 2% of the original factor test parameters.

**END OF SECTION**

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# **PRODUCTION WELL REVIS #1**

# WELL LOG AND DRILLING REPORT

Well Log Number

DNR 7802.05e

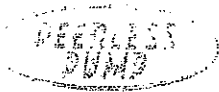
Ohio Department of Natural Resources  
Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605  
Voice (614) 265-6740 Fax (614) 265-6767

2004841

Page 1 of 1 for this record.

WELL LOCATION	CONSTRUCTION DETAILS																																																																	
County <u>WARREN</u> Township <u>UNION</u>  Owner/Builder <u>WARREN COUNTY</u> Address of Well Location <u>E MAIN ST</u> City <u>SOUTH LEBANON</u> Zip Code +4 <u>45036</u> Permit No. _____ Section; _____ and/or Lot No. _____ Use of Well <u>MUNICIPAL</u> Coordinates of Well (Use only one of the below coordinate systems) State Plane Coordinates N <input type="checkbox"/> X _____ +/- _____ ft. S <input type="checkbox"/> Y _____ +/- _____ ft. Latitude, Longitude Coordinates Latitude: <u>39.368333</u> Longitude: <u>84.220278</u> Elevation of Well in feet: <u>627</u> +/- _____ ft. Datum Plane: <input type="checkbox"/> NAD27 <input checked="" type="checkbox"/> NAD83 Elevation Source <u>GPS</u> Source of Coordinates: <u>GPS</u> Well location written description: <div style="border: 1px solid black; padding: 5px; font-family: cursive; font-size: 1.2em;">PWR-1</div>	Drilling Method: <u>CABLE TOOL</u> <b>BOREHOLE/CASING</b> (Measured from ground surface) 1 { Borehole Diameter <u>24</u> inches Depth <u>59</u> ft. { Casing Diameter <u>16</u> in. Length <u>41</u> ft. Thickness <u>0.375</u> in. 2 { Borehole Diameter _____ inches Depth _____ ft. { Casing Diameter _____ in. Length _____ ft. Thickness _____ in. Casing Height Above Ground <u>3</u> ft. Type { 1: <u>Steel</u> { 2: _____ Joints { 1: <u>Welded</u> { 2: _____ <b>SCREEN</b> Diameter <u>16</u> in. Slot Size <u>0.1</u> in. Screen Length <u>20</u> ft. Type <u>CONTINUOUS WIRE WOUND</u> Material <u>STAINLESS STEEL</u> Set Between <u>39</u> ft. and <u>59</u> ft. <b>GRAVEL PACK</b> (Filter Pack) Material/Size <u>Parry Number 2</u> Vol/Wt. Used <u>4150 Pounds</u> Method of Installation <u>Poured (gravity)</u> Depth: Placed From: <u>30</u> ft. To: <u>59</u> ft. <b>GROUT</b> Material <u>Neat cement</u> Vol/Wt. Used <u>4 Cubic Yards</u> Method of Installation <u>Poured (gravity)</u> Depth: Placed From: <u>0</u> ft. To: <u>30</u> ft.																																																																	
Comments on water quality/quantity and well construction:  	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="5" style="text-align: center;">DRILLING LOG*</th> </tr> <tr> <th colspan="5" style="text-align: center;">FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.</th> </tr> <tr> <th style="width: 15%;">Color</th> <th style="width: 15%;">Texture</th> <th style="width: 20%;">Formation</th> <th style="width: 10%;">From</th> <th style="width: 10%;">To</th> </tr> </thead> <tbody> <tr> <td>BROWN</td> <td>DRY</td> <td>SILT AND CLAY</td> <td>0</td> <td>5</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE SAND AND GRAVEL</td> <td></td> <td>5</td> <td>25</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM SAND</td> <td></td> <td>25</td> <td>26</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE SAND AND GRAVEL</td> <td></td> <td>26</td> <td>29</td> </tr> <tr> <td>BROWN</td> <td>FINE SAND</td> <td></td> <td>29</td> <td>31</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE SAND AND GRAVEL</td> <td></td> <td>31</td> <td>39</td> </tr> <tr> <td>BROWN</td> <td>COARSE GRAVEL AND BOULDERS</td> <td></td> <td>39</td> <td>43</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE SAND AND GRAVEL</td> <td></td> <td>43</td> <td>55</td> </tr> <tr> <td>BROWN</td> <td>MEDIUM SAND</td> <td></td> <td>55</td> <td>59</td> </tr> <tr> <td colspan="3" style="text-align: center;">Water Encountered At</td> <td>39</td> <td>59</td> </tr> </tbody> </table>	DRILLING LOG*					FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.					Color	Texture	Formation	From	To	BROWN	DRY	SILT AND CLAY	0	5	BROWN	FINE TO COURSE SAND AND GRAVEL		5	25	BROWN	MEDIUM SAND		25	26	BROWN	FINE TO COURSE SAND AND GRAVEL		26	29	BROWN	FINE SAND		29	31	BROWN	FINE TO COURSE SAND AND GRAVEL		31	39	BROWN	COARSE GRAVEL AND BOULDERS		39	43	BROWN	FINE TO COURSE SAND AND GRAVEL		43	55	BROWN	MEDIUM SAND		55	59	Water Encountered At			39	59
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center;">PUMP/PITLESS</th> </tr> </thead> <tbody> <tr> <td>Type of pump _____ Capacity _____ gpm</td> <td></td> </tr> <tr> <td>Pump set at _____ ft. Pitless Type _____</td> <td></td> </tr> <tr> <td colspan="2">Pump installed by _____</td> </tr> <tr> <td colspan="2">I hereby certify the information given is accurate and correct to the best of my knowledge.</td> </tr> <tr> <td>Drilling Firm <u>H.D. WATER SERVICE</u></td> <td></td> </tr> <tr> <td>Address <u>5650-2 GROVEPORT RD</u></td> <td></td> </tr> <tr> <td>City, State, Zip <u>GROVEPORT OH 43125</u></td> <td></td> </tr> <tr> <td>Signed <u>BOB HARDIN</u> Date <u>9/1/2006</u></td> <td></td> </tr> <tr> <td colspan="2" style="text-align: center;">(Filed Electronically)</td> </tr> <tr> <td>ODH Registration Number <u>1504</u></td> <td></td> </tr> </tbody> </table>	PUMP/PITLESS		Type of pump _____ Capacity _____ gpm		Pump set at _____ ft. Pitless Type _____		Pump installed by _____		I hereby certify the information given is accurate and correct to the best of my knowledge.		Drilling Firm <u>H.D. WATER SERVICE</u>		Address <u>5650-2 GROVEPORT RD</u>		City, State, Zip <u>GROVEPORT OH 43125</u>		Signed <u>BOB HARDIN</u> Date <u>9/1/2006</u>		(Filed Electronically)		ODH Registration Number <u>1504</u>		Aquifer Type (Formation producing the most water.) <u>SAND AND GRAVEL</u> Date of Well Completion <u>8/16/2005</u> Total Depth of Well <u>59</u> ft.																																											
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Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.  
Distribute copies of this record to Customer, and Local Health Department.



Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

**Corporate Equipment Company**

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 1

Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007



Item: PWR-1  
 Model : Peerless Vertical - 12MB

Flow (US gpm)	Head (ft)	Eff. (%)	Power (hp)	Speed (RPM)
866	286	83	77.27	1770
Liquid	Temp. (°F)	Sp. Gravity	Visc. (cSt)	Dia. (Inch)
Water	68	1.000	1.007	8.42

**Summary Quotation:**

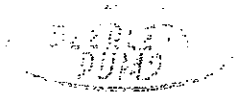
Item No	Description	Weight (lb)	Qty
1	12MB, 6 Stage Bowl Assembly, Material Group A , Threaded Column 8/1.5. L4, Suction Bell, Threaded Discharge Bowl, OLS	0	1
2	Adapter, Bottom Column	0	1
3	Top Bowl	106	1
4	Bowl, Intermediate	530	5
5	Collar, Sand, lower and upper	0	2
6	Bushing, Taper Lock (Collet) - Material 316ss	0	6
7	Fastener, Bowl, Material 316ss	0	72
8	Gasket, Bowl	0	5
9	Dynamic Balanced Impeller	0	6
10	Charge for Polishing (Premium Efficiency)	0	6
11	Ring, Seal, Lateral	0	6
12	Ring, Wear, Bowl, Material 63 Bronze	0	6
13	Suction	226	1
14	Plug, Pipe (Suction)	0	1
15	Impeller, trimmed, surface finish Ra75, vane exit Std. Fig 1-0.188	0	6
16	Shaft, Pump, D = 1.50 inch, L = 75.2 inch, T.Lock, Material 416ss	0	1
17	Coupling, Threaded, Shaft, Steel, 1215 CD	1.53	1
18	Strainer, Basket, Material 316Lss	16.98	1
19	OLS Threaded column 8.0 inch / 1.50 inch shaft / 10ft bearing spacing, length base to bowl 756 inch	0	1
20	Pipe, column threaded T&C 8.0 inch, bottom, length 120 inch, Material plain steel	282.21	1

1006.  
 Quote valid for 30 days

Peerless Pump Company - RAPID v8.25.1 - 13th February 2007.







Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

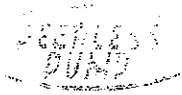
Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
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Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 2  
 Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

21	Pipe, column threaded T&C 8.0 inch, intermediate 1, length 120 inch, Material plain steel	1411.05	5
22	Pipe, column threaded TBE 8.0 inch, top, code length to base 36 inch, Material plain steel	84.66	1
23	No Shaft critical speed analysis	0	1
24	Shaft-Group of Column	0	1
25	Shaft, line, bottom, threaded . D = 1 50 inch, length 120 inch, Material 416ss	59.38	1
26	Shaft, line, intermediate 1, threaded D = 1 50 inch, length 120 inch, Material 416ss	296.9	5
27	Shaft, line, top, threaded , <2-Piece-Top-Shaft>. D=1 50 inch, L=51 00 inch, Material 416ss	25.23	1
28	Bearing, Open Line Shaft	0	6
29	Retainer, Bearing, Open Line Shaft	34.08	6
30	Coupling, Threaded, Shaft, 410ss	9.18	6
31	Shaft, Head (Top shaft for VHS motor), <2-Piece-Top-Shaft>. Assembly	0	1
32	Coupling, Shaft, Line, Top, Standard, Material Steel, 1215 CD	1.53	1
33	Shaft, Head, VHS motor, D=1.50 inch, L=48.50 inch, Mat. 416ss	24	1
34	Shaft, Line, Diameter 1.50 inch, Material 416ss	0	1
35	Stuffing Box, Register 5.562, Assembly	0	1
36	Stuffing box	0	1
37	Gland, Stuffing box, Material 316ss	0	1
38	T-Bolt, Gland, Material 316ss	0	2
39	Nut, Gland	0	2
40	Clamp, Gland	0	2
41	Washer, Packing	0	1
42	Packing	0	6
43	Gasket, Stuffing Box	0	1
44	Ring, Seal	0	1
45	Fastener, Stuffing Box	0	4
46	Fitting grease	0	1
47	Discharge head assembly 8x8x16.5FA, steel	0	1
48	Pump operates at Constant Speed	0	1
49	Head, Discharge 8x8x16.5FA, Motor Base Diameter BD=20 inch	413	1





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**Corporate Equipment Company**

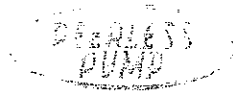
607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
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Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 3  
 Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

50	Discharge Flange 150 lb	30	1
51	Name Plate, Pump Data	0	1
52	Name Plate, pp Data Screws	0	4
53	Name Plate, Rotation Direction	0	1
54	Name Plate, Warning	0	1
55	Wedge, Leveling	0	4
56	Plug 1, Discharge Head	0	5
57	Plug 2, Discharge Head	0	1
58	Guard 1, Coupling	0	1
59	Guard 2, Coupling	0	1
60	Screw, Guard	0	8
61	Washer, Guard	0	8
62	Flange, Top	0	1
63	Stud, Flange, Top, Material 304ss, Standard	0	8
64	Nut, Flange, Top, Material 304ss, Standard	0	8
65	Gasket, Flange, Top	0	1
66	Nut, Top	0	1
67	Screw, Nut, Top	0	2
68	Bolt, Motor	0	4
69	Motor-electric, 100hp-1783rpm, 575/460/230/200V, 3Ph, 60Hz, Frame 405TP, VHS, Encl. TEFC, Eff. premium, Modified, TUS, USEM	1350	1
70	Winding thermal protection Thermostats (without control module)	0	1
71	Inverter duty	0	1
72	Service Factor 1.15	0	1
73	Ground lug in conduit box (non - explosion proof)	0	1
74	Non reverse ratchet	0	1
75	Starting Method at Voltage 460V: Full Voltage (standard)	0	1
76	Space heater, voltage 115V	0	1
77	Testing: Standard Commercial Test	0	1

1006.  
 Quote valid for 30 days





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Corporate Equipment Company

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Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 4  
 Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

78	Freight of electric motor from motor vendor to the 1st domestic destination (North America) included	0	1
79	Dimensions of connection: Line Shaft Diameter= 1.50 inch, Motor Base Diameter BD=20 inch	0	1
80	Plate, Sole, Material steel 056	157	1
81	Bolt, Base / Sole Plate	0	4
82	Painting - Coating	0	1
83	Painting of discharge head, PEERLESS blue, enameled	0	1
84	Surface of column: assembled pump - painted PEERLESS blue, enameled; unassembled pump - black as received	0	1
85	Painting of bowl, PEERLESS blue, enameled	0	1
86	Laboratory Performance Test, non-witnessed (increases lead time of bowl assembly by 1 week!)	0	1
87	Tolerance Type: Hyd Inst-Peerless Std	0	1
88	Test Data Sheets	0	1
89	Curve Approval (customer approval prior shipping)	0	1
90	Test Units US	0	1
91	Hydrostatic Pressure Test (details as selected)	0	1
92	Hydrostatic Pressure Test of Bowls, non-witnessed (add 1 week lead time to Bowls)	0	1
93	Shipping Condition: Pump DISSASSEMBLED	0	1
94	Add for SS sand collars (LCS)	0	2
95	Add for drill and tap 1.5" dia. hole in head base (LCS)	0	1

Freight Payment: Allowed  
 Estimated Schedule (week[s]): 16 to 18 weeks after approval  
 Net Weight Total (lb): 5058.73

Total (\$):





## HYDRAULIC PERFORMANCE TOLERANCE

The conditions of service can only be guaranteed within the following tolerances, which are consistent with those standards as established by the Hydraulic Institute.

HEAD - Under 200 ft. at 2999 gpm and under		+8% - 0%
HEAD - Under 200 ft. at 3000 gpm and over		+5% - 0%
HEAD - 200 ft To 500 ft at any flow		+5% - 0%
HEAD - Over 500 ft. at any flow		+3% - 0%
or		
At Rated Head	=	10% - 0% Capacity
Efficiency	=	- 0% of Contracted Pump Efficiency (Job factory guaranteed pump efficiency)
Bhp at Rated Condition =		+ 8% ( As per above Head Tolerances) + 5% + 3%

This guarantee applies to only one set of conditions as specified. A second Head-Capacity point or Shut-Off Head cannot be guaranteed within these tolerances. When **Hydraulic Institute-Peerless Standard Tolerance Type** is selected in **Rapid** criteria screen the above tolerances are used in selecting pump at input head and capacity points.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order.

The plus 8%, 5% or 3% in HEAD tolerances at the rated capacity could result in a plus 8%, 5% or 3% greater horsepower load. Motors must be selected so that they can safely carry a load 8%, 5% or 3% greater than that calculated at the rated capacity. For specifications that specify that the motor size to be non - overloading over the entire pump curve, the 8%, 5% or 3% tolerance must be added to the expected horsepower at the low HEAD or maximum horsepower condition.

With the total HEAD tolerance described above, for centrifugal pumps, be sure and take into consideration, the plus 8%, 5% or 3% tolerance on the horsepower when selecting a pump from a standard sales manual curve.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order as directed by information in Sections 10 and 15.

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 Miamisburg, Ohio  
 45342

**Corporate Equipment Company**

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 Fax 513 771 0334

Project : Warren County Dearfield Hamilton Well Field  
 Quote No. : US-3245-242

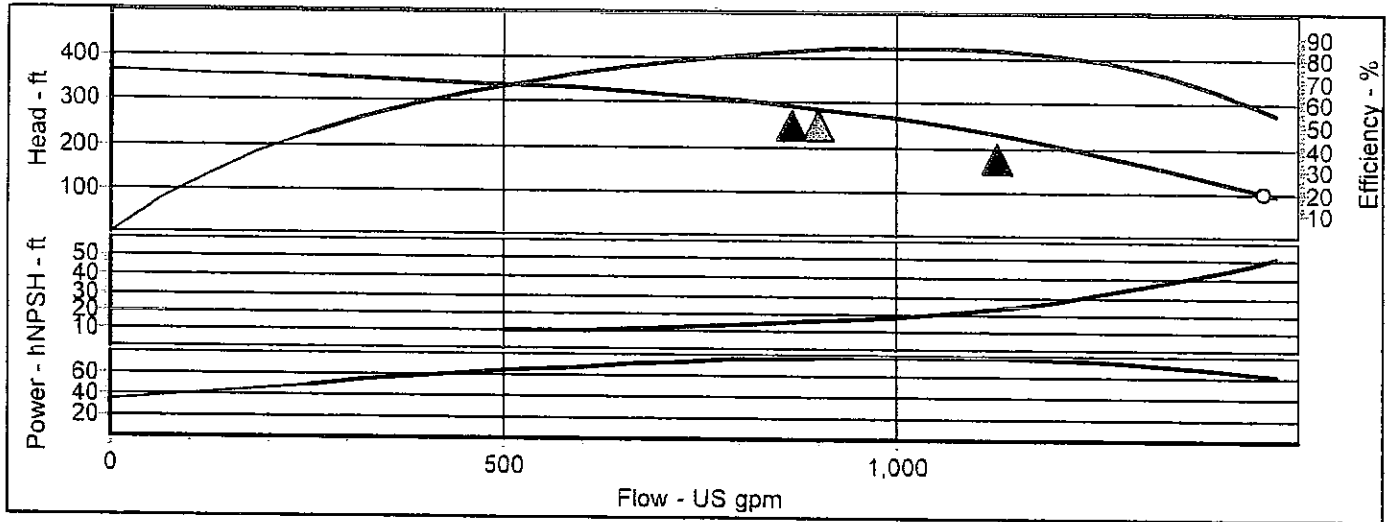
Page No : 5

Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

Pump Model:	<b>Peerless Vertical - 12MB 6 Stages</b>		Imp. Dia. (inch)
Nom. Speed	<b>1770 RPM, 60 Hz Electric</b>		Stage No. Trim Status D2-in x D2-out
Market	<b>Vertical Turbine Pump</b>		---- Full ----
Impeller No.	<b>2624332 / MC</b>		---- Full 3.88 x 3.88
Material Spec. Group.	<b>A - B: CIE; I: Brz = Standard</b>		1 - 6 Trimmed P 3.42 x 3.42
Item	<b>PWR-1</b>	Fluid: <b>Water</b>	Flow rate Q 866 US gpm
Your Ref		Temperature: <b>68 °F</b>	Bowl Total Head 286 ft
		Viscosity: <b>1.007 cSt</b>	Bowl Efficiency: <b>83 %</b>
		Sp. Gravity: <b>1.000 (base temp. 68 °F)</b>	Bowl Power Required: <b>77.27 hp</b>
			NPSH Required <b>15.116 ft</b>

Performance curve according to Hyd Inst-Peerless Std

○ Up-Thrust



**Comments**

Refer to factory for all single point bowl performance guarantees. Pumps must be selected with Hydraulic Institute-Peerless Std. See Std Hydraulic Performance document in RAPID for testing tolerances & contractual guarantees.

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)	Thrust (lb)
0.0	365.0	0.0	33.9		5197.57
184.0	356.1	36.2	45.7		4903.99
368.1	346.5	56.9	56.6		4499.47
552.1	333.5	70.2	66.2	10.3	4111.10
736.1	313.6	79.1	73.7	12.7	3473.26
920.2	282.7	84.0	78.2	16.3	2561.70
1104.2	237.3	84.2	78.6	22.5	1630.03
1288.2	174.5	77.0	73.7	33.6	804.87
1472.2	93.2	55.3	62.7	51.2	-57.32



Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 6

Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

Item: PWR-1  
 Model : Peerless Vertical - 12MB

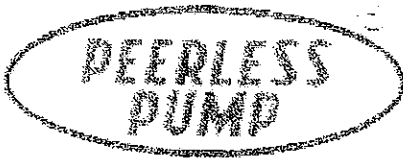
Flow (US gpm)	Head (ft)	Eff. (%)	Power (hp)	Speed (RPM)
866	286	83	77.27	1770
Liquid	Temp. (°F)	Sp. Gravity	Visc. (cSt)	Dia. (inch)
Water	68	1.000	1.007	8.42

**Technical Information:**

Technical Information: 12MB

Material Code of Suction	040 = Cast Iron, CL30 - ASTM A48, CLASS 30
Material Code of Case	XXX = Item not available in this configuration
Material Code of Intermediate Bowl	041 = Cast Iron, CL30 ENAMELED - ASTM A48, CLASS 30
Material Code of Top Bowl	041 = Cast Iron, CL30 ENAMELED - ASTM A48, CLASS 30
Material Code of Impeller	023 = BRONZE, ALUMINUM - ASTM B148
Maximum allowed pressure of bowl	357 psi = 24 bar
Diameter of Pump (Bowl) Shaft in inches	1.5
Diameter of Line Shaft (Column) in inches	1.5000
Pump as Submersible?	Not Applicable
Is Enclosed Line Shaft (ELS) possible?	Not Applicable
Is Flanged Column possible?	Not applicable
Is Threaded Column possible?	Yes
Hub Stick Down in inches	0.12
Lateral setting, best in inches	0.1875
Lateral adjustment, standard in inches	0.469
Lateral adjustment, maximum in inches	0.916
Net Area of Impeller Inlet	17.868 inch <sup>2</sup> =11527.719 mm <sup>2</sup> ;
Sphere Size	0.8125 inch = 20.637 mm
Stick up of pump shaft	10.00 inch = 254.000 mm
Moment of Inertia of 1 Impeller WR <sup>2</sup>	188 lbs*inch <sup>2</sup> = 0.055 kg*m <sup>2</sup>
Moment of Inertia of rotor (all impellers + bowl shaft + line shaft) WR <sup>2</sup>	1658.921 lbs*inch <sup>2</sup> = 0.485 kg*m <sup>2</sup>





Peerless Pump Company, - Indianapolis, IN 46207-7026

## RAPID Technical Data Verification Sheet (TDS)

Pump Application (Service)	Well Water
Project Name	Warren County Deerfeld Hamilton Well Field
Project Quote Number	US-3245-242
Your Reference Number	
Customer Name	Danis Industrial Construction Co.
Customer Purchase Order Number	4007-12
Pump Manufacturer & Pump Model	Peerless Vertical 12MB 6 Stages
Pump Speed	1770 RPM
Testing Tolerance	Hyd Inst-Peerless Std
NPSH available at Rated Condition & Head	0 ft at 866 US gpm & 286 ft
NPSH required at Rated Condition & Head	15.116 ft at 866 US gpm & 286 ft
Static Suction Pressure PSI -	Not applicable
Total Shut Off Pressure PSI	157.912
Pump to operate at shut off?	No
Site Ambient Temperature & Altitude	68 °F & 609 ft
Fluid Type & Solids Size & Content	Water & 0.00 inch & 0%
Pump Construction	Material Group A
Efficiency (Typical Performance) See terms for guarantees.	83% (Bowl)
BHP at Condition Point	77.27 hp
Maximum BHP	79 hp
BHP at Shut Off	33.93 hp
Maximum BHP of Motor Loaded to Full Service Factor	
Pump Rotation Viewed from Driver End	Counter Clockwise
Replacement of Pump Serial Number (if applicable)	



# Losses of Head and Power in Pump

## Hydraulic Head Losses

In Column due to Friction	1.393 ft
In Tapered Bottom Column Pipe	0.000 ft
In Discharge Head	0.713 ft
<i>Losses Total</i>	2.106 ft

## Power Losses

In Column due to Friction of Line Shaft with Water	0.733 hp
In Thrust Bearing	0.380 hp
<i>Losses Total</i>	1.113 hp

## Efficiency of BOWL and Efficiency of PUMP

Efficiency of Bowl in Duty Point	82.98%
Efficiency of Pump / Field in Duty Point (approximately), reduction caused by losses of head and power	81.20%





**EMERSON MOTOR COMPANY**

8100 WEST FLORISSANT AVE.  
P.O. BOX 3946 \* BLDG. K \* ST. LOUIS, MO 63136  
FAX (314) 553-1101

DATE: 4/20/07

P.O. NO.:  
USEM  
Order/Line NO.: 20063912 SO 100

TO: Sterling Fluid Systems  
ATTN: Accounts Payable  
PO Box 7026  
Indianapolis, IN, 46207-7026  
ATTN: FELIX HIPOLITO

Model Number: NA  
Catalog Number: NA  
VHS TEFC Configuration  
CONF, MOTOR, VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705040-02 FOR 705040VJ

**ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.**

**Features:**

Horsepower ..... 00100.00-00000.00 ~ KW: 74.6  
Quantity..... 5  
Enclosure ..... TEFC  
Poles ..... 04-00 ~ RPM: 1800-0  
Frame Size ..... 405-TPA  
Phase/Frequency/Voltage.. 3-060-230/460 ~ Random Wound  
Service Factor ..... 1.15  
Insulation Class ..... Class "F" ~ Insulife 2000  
Altitude In Feet (Max) .. 3300 Ft.(1000 M) ~ +40 C  
Efficiency Class ..... Premium Efficiency  
Application ..... Centrifugal Pump  
Customer Part Number .... 705040VJ  
20" Base ~ Coupling Size: 1-1/2" Bore, 3/8" Key  
Non-Reverse Ratchet ~ Steady Bushing Not Requested  
Pricebook Thrust Value (lbs).. 7000  
Customer Down Thrust (lbs) ... 7000  
Customer Shutoff Thrust (lbs).  
Up Thrust (lbs): ~  
Inverter Duty Rating:  
Load Type (Base Hz & Below) .. Variable Torque  
Speed Range (Base Hz & Below). 10:1  
Temperature Rise (Sine Wave): "F" Rise @ SF (Resist)  
Starting Method ..... Direct-On-Line Start  
Duty Cycle ..... Continuous Duty  
Load Inertia (lb-ft<sup>2</sup>): NEMA ~ NEMA Inertia: 441.00 ~ 1.00  
Number Of Starts Per Hour: NEMA  
Motor Type Code ..... TUI  
Rotor Inertia (LB-FT<sup>2</sup>) ..... 24.3 LB-FT<sup>2</sup>  
Qty. of Bearings PE (Shaft) 1  
Qty. of Bearings SE (OPP) 1  
Bearing Number PE (Shaft) 6218-J/C3  
E nber SE (OPP) 7222 BEM



Emerson Motor Company is a division of Emerson Electric Co.  
The Emerson logo is a trademark and service mark of Emerson Electric Co.



**EMERSON MOTOR COMPANY**

8100 WEST FLORISSANT AVE  
P.O. BOX 3946 \* BLDG. K \* ST. LOUIS. MO 63136  
FAX (314) 553-1101

DATE: 4/25/07

P.O. NO.:  
USEM  
Order/Line NO.: 20063912 SO 100

TO: Sterling Fluid Systems  
ATTN: Accounts Payable  
PO Box 7026  
Indianapolis, IN, 46207-7026  
ATTN: FELIX HIPOLITO

Model Number: NA  
Catalog Number: NA  
VHS TEFC Configuration  
CONF,MOTOR,VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705040-02 FOR 705040VJ

ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.

**Accessories:**

Counter CW Rotation FODE  
Ground Lug In Conduit Box  
115 Volt Space Heaters  
Thermostats - Normally Closed  
VFD Duty

USE THE DATA PROVIDED BELOW TO SELECT THE APPROPRIATE DIMENSION PRINT

Horsepower	100
Pole(s)	04
Voltage(s)	460-230
Frame Size	405TPA
Outlet Box AF	3.38
Outlet Box AA	3.00



Emerson Motor Company is a division of Emerson Electric Co.  
The Emerson logo is a trademark and service mark of Emerson Electric Co.

# NAMEPLATE DATA

CATALOG NUMBER. _____		NAMEPLATE PART #: <span style="border: 1px solid black; padding: 2px;">422707-005</span>	
MODEL _____	FR <span style="border: 1px solid black; padding: 2px;">405TPA</span>	TYPE <span style="border: 1px solid black; padding: 2px;">TUI</span>	ENCL <span style="border: 1px solid black; padding: 2px;">TE</span>
SHAFT END BRG <span style="border: 1px solid black; padding: 2px;">6218-J/C3 - QTY 1</span>		OPP END BRG <span style="border: 1px solid black; padding: 2px;">7222 BEM - QTY 1</span>	
PH <span style="border: 1px solid black; padding: 2px;">3</span>	MAX AMB <span style="border: 1px solid black; padding: 2px;">40 C</span>	ID# <span style="border: 1px solid black; padding: 2px;">(ref: Order#: 20063912, Type: SO, Line#: 100)</span>	
INSUL CLASS <span style="border: 1px solid black; padding: 2px;">F</span>	Asm. Pos _____	DUTY <span style="border: 1px solid black; padding: 2px;">CONT</span>	
HP <span style="border: 1px solid black; padding: 2px;">100</span>	RPM <span style="border: 1px solid black; padding: 2px;">1785</span>	HP _____	RPM _____
VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>	VOLTS _____	FL AMPS <span style="border: 1px solid black; padding: 2px;">113.0</span> <span style="border: 1px solid black; padding: 2px;">227.0</span>	FL AMPS _____
SF AMPS <span style="border: 1px solid black; padding: 2px;">130.0</span> <span style="border: 1px solid black; padding: 2px;">260.0</span>	SF AMPS _____	SF _____	SF _____
SF <span style="border: 1px solid black; padding: 2px;">1.15</span> DESIGN <span style="border: 1px solid black; padding: 2px;">B</span> CODE <span style="border: 1px solid black; padding: 2px;">G</span>	SF _____ DESIGN _____ CODE _____	NEMA NOM EFFICIENCY <span style="border: 1px solid black; padding: 2px;">94.5</span> NOM PF <span style="border: 1px solid black; padding: 2px;">87.3</span> KiloWatt <span style="border: 1px solid black; padding: 2px;">74.6</span>	NEMA NOM EFFICIENCY _____ NOM PF _____
GUARANTEED EFFICIENCY <span style="border: 1px solid black; padding: 2px;">93.6</span> MAX KVAR _____ HZ <span style="border: 1px solid black; padding: 2px;">60</span>	GUARANTEED EFFICIENCY _____ MAX KVAR _____ HZ _____		

**UL DATA (IF APPLICABLE):**

DIVISION _____	CLASS I _____	GROUP I _____
TEMP CODE _____	CLASS II _____	GROUP II _____

**VFD DATA (IF APPLICABLE):**

VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>	TORQUE 2 _____
AMPS <span style="border: 1px solid black; padding: 2px;">118.7</span> <span style="border: 1px solid black; padding: 2px;">238.4</span>	VFD LOAD TYPE 2 _____
TORQUE 1 <span style="border: 1px solid black; padding: 2px;">294.6</span>	VFD HERTZ RANGE 2 _____
VFD LOAD TYPE 1 <span style="border: 1px solid black; padding: 2px;">VT/PWM</span>	VFD SPEED RANGE 2 _____
VFD HERTZ RANGE 1 <span style="border: 1px solid black; padding: 2px;">6-60</span>	
VFD SPEED RANGE 1 <span style="border: 1px solid black; padding: 2px;">180-1800</span>	
SERVICE FACTOR <span style="border: 1px solid black; padding: 2px;">1.00</span>	FL SLIP _____
NO. POLES _____	MAGNETIZING AMPS _____
VECTOR MAX RPM _____	Encoder PPR _____
Radians / Seconds _____	Encoder Volts _____

**TEAO DATA (IF APPLICABLE):**

HP (AIR OVER) _____	HP (AIR OVER M/S) _____	RPM (AIR OVER) _____	RPM (AIR OVER M/S) _____
FPM AIR VELOCITY _____	FPM AIR VELOCITY M/S _____	FPM AIR VELOCITY SEC _____	

ADDITIONAL NAMEPLATE DATA:

Decal / Plate	WD=109145	Customer PN	705040VJ
Notes		Non Rev Ratchet	NRR
Max Temp Rise		OPP/Upper Oil Cap	5.5 QT/5.2 L
Thermal (WDG)	OVER TEMP PROT 2	SHAFT/Lower Oil Cap	GREASE
Altitude			
EPACT Note		EPACT Compliance	
COS		Marine Duty	
Balance	0.08 IN/SEC	Arctic Duty	
3/4 Load Eff.	94.8	Inrush Limit	
Motor Weight	1500	Direction of Rotation	
Sound Level		Special Note 1	
Vertical Thrust	7000	Special Note 2	
Thrust Percentage	100% HT	Special Note 3	
Bearing Life		Special Note 4	
Starting Method		Special Note 5	
Number of Starts		Special Note 6	
200/208V 60Hz Max Amps		SH Max. Temp.	
190V 50 hz Max Amps		SH Voltage	SH VOLTS=115V
380V 50 Hz Max Amps		SH Watts	SH WATTS=192W
NEMA Inertia		Load Inertia	
Sumpheater Voltage		Sumpheater Wattage	
Special Accessory Note 1		Special Accessory Note 16	
Special Accessory Note 2		Special Accessory Note 17	
Special Accessory Note 3		Special Accessory Note 18	
Special Accessory Note 4		Special Accessory Note 19	
Special Accessory Note 5		Special Accessory Note 20	
Special Accessory Note 6		Special Accessory Note 21	
Special Accessory Note 7		Special Accessory Note 22	
Special Accessory Note 8		Special Accessory Note 23	
Special Accessory Note 9		Special Accessory Note 24	
Special Accessory Note 10		Special Accessory Note 25	
Special Accessory Note 11		Special Accessory Note 26	
Special Accessory Note 12		Special Accessory Note 27	
Special Accessory Note 13		Special Accessory Note 28	
Special Accessory Note 14		Special Accessory Note 29	
Special Accessory Note 15		Special Accessory Note 30	



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



TYPICAL NAMEPLATE DATA  
ACTUAL MOTOR NAMEPLATE LAYOUT MAY VARY  
SOME FIELDS MAY BE OMITTED

# MOTOR PERFORMANCE

MODEL NO.	CATALOG NO.	PHASE	TYPE	FRAME
NA	NA	3	TUI	405TPA

ORDER NO.	20063912	LINE NO.	100
-----------	----------	----------	-----

MPI:	31204	44647
HP:	100	100
POLES:	4	4
VOLTS:	460	230
HZ:	60	60
SERVICE FACTOR:	1.15	1.15
EFFICIENCY (%):		
S.F.	94.4	94.4
FULL	94.5	94.5
3/4	94.8	94.8
1/2	94	94
1/4	90.4	90.4
POWER FACTOR (%):		
S.F.	87.6	87.6
FULL	87.3	87.3
3/4	85.3	85.3
1/2	79.1	79.1
1/4	60.6	60.6
NO LOAD	6.6	6.6
LOCKED ROTOR	27.8	27.8
AMPS:		
S.F.	130	260
FULL	113	227
3/4	87	174
1/2	63	126
1/4	43	86
NO LOAD	32.7	65.3
LOCKED ROTOR	725	1406
NEMA CODE LETTER	G	F
NEMA DESIGN LETTER	B	B
FULL LOAD RPM	1785	1785
NEMA NOMINAL EFFICIENCY (%)	94.5	94.5
GUARANTEED EFFICIENCY (%)	93.6	93.6
MAX KVAR	22.1	22.1
AMBIENT (°C)	40	40
ALTITUDE (FASL)	3300	3300
SAFE STALL TIME-HOT (SEC)	30	30
SOUND PRESSURE (DBA @ 1M)	75	75
TORQUES:		
BREAKDOWN{% F.L.}	231	231
LOCKED ROTOR{% F.L.}	161	161
FULL LOAD{LB-FT}	294.6	294.6

The Above Data Is Typical, Sinewave Power Unless Noted Otherwise



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



Emerson Motor Company is a division of Emerson Electric Co.  
The Emerson logo is a trademark and service mark of Emerson Electric Co.

## SILICONE RUBBER SPACE HEATERS

Electric motors frequently have space heaters installed to prevent moisture condensation in the motor during times the motor is not running.

Many motor manufacturers use metallic or ceramic cartridge heaters for this purpose. Because such heaters are small they must operate at a high surface watt density and consequently high temperature. The high temperature causes rapid heater failure, often within the first year.

To combat this high failure rate, many smart users specify that space heaters are to be operated at one-half their rated voltage. This lowers the surface watt density to one-fourth the value with rated voltage, and increases the heater life more than proportionally.

U. S. Electrical Motors has another, better, solution to heater failure rate - the use of silicone rubber space heaters. The heaters are manufactured by sandwiching a resistance wire network between two pieces of high-temperature silicone rubber and bonding the silicone rubber pieces together. The silicone rubber heaters are designed for low surface watt density by providing a large surface area (a heater measuring 45" X 2.5" is rated at 169 watts, or 1.5 watts per square inch). The life of these heaters typically exceeds the life of the motor.

Silicone rubber heaters enjoy another advantage over metallic or ceramic heaters. Because they are applied directly to the winding end turns, it is usually possible to achieve the required condensation prevention with a lower power consumption.

These silicone rubber heaters are used, when specified, on all U. S. Electrical Motors motors. It is not necessary for the user to specify operation at one-half rated voltage to get the long heater life that is desired.

\* Space heaters must be operated at +/- 10% rated voltage to be effective.

DR# 587-9358  
H.E. Barr  
1/8/81  
\*Revision: 3/11/03  
Mike Cullen

# RENEWAL PARTS

FRAMES 324 THRU 447 - TOTALLY ENCLOSED AND EXPLOSION PROOF MOTORS  
 TYPES: JU JUE JJS LU LUC LUE LUEI LUS LV4 LV9 LVC9 LVC1 LVC5 LVC59 LVE4 LVS4 NVC4 NVC9 TU TJC TUCE TUC1  
 OS TUE TUI TJS TV TV4 TV9 TVC TVC4 TVC9 TVCE TVCE4 TVCE9 TVC1 TVC14 TVC19 TVCN9 TVC5 TVC54 TVC59 TVE  
 TVE4 TVE9 TVEI TVI TV14 TV19 TVN9 TV5 TV54 TV59  
 HOLLOSHAFT AND SOLIDSHAFT MOTORS

ITEM NO.	QTY	NAME OF PART
30	1	Upper Bracket Assembly
31	1	Special Plug
32	1	Sight Gauge Window
33	1	Special Housing
34	1	Reflector Disc
35	2	Gasket
36	4	Screws
37	1	Pipe Nipple
38	1	Gasket
39	1	Drain Cap
40	1	Bearing Mounting
41-45	-	NOT USED IN THIS ASSEMBLY
46	1	Oil Baffle
47	3	Screws
48	3	Split Lockwashers
49	1	Dust Ring (Not Illustrated)
50	1	Gasket (Not Illustrated)
51	4	Screws (Not Illustrated)
52	4	Split Washers (Not Illustrated)
53	1	Ball Bearing (Upper) (Refer to section 775)
54	1	Bearing Spacer
55	2	Ball Bearing (Not Illustrated) (Refer to section 775)
56	1	Air Deflector
57	8	Hex Head Screws
58	8	Lockwashers

ITEM NO.	QTY	NAME OF PART
59	16	Hex Head Screws (Bracket to Stator)
60	16	Lockwashers
61-65	-	NOT USED IN THIS ASSEMBLY
66	1	Wound Stator Assembly
67	1	Rotor Assembly (includes items 68 - 70)
68	1	Rotor Core
69	1	Rotor Shaft
70	1	Square Key
71	1	Pulley End Bracket
72	1	Bearing Cap
73	1	Ball Bearing (Pulley End) (Refer to section 775)
74	1	Snap Ring
75	1	Grease Fitting
76	1	Pipe Plug
77	3	Screws (Bearing Cap)
78	3	Lockwashers
79	1	Water Deflector
80	1	Stabilizer Bushing
81	1	Outlet Box Base
82	4	Screws
83-87	-	NOT USED IN THIS ASSEMBLY
88	1	Outlet Box Cover
89	4	Screws
90	1	Gasket (TU only)
91	1	Gasket (TU only)

**WARNING:**

Any disassembly or repair work on explosionproof motors will void the Underwriters Laboratories, Inc. label unless done by the manufacturer, or a facility approved by the Underwriters Laboratories, Inc. Refer to your nearest U.S. Electrical Motors office for assistance.

**BEARINGS:**

Refer to motor nameplate for the bearing numbers.

**PRICES:**

Parts stocking distributors: refer to USEM renewal parts numerical index. All Others: refer to your nearest USEM parts distributor.

reference: Renewal Parts Section 700, Pages 157 & 158

# TYPICAL REED CRITICAL FREQUENCY DATA

JSEM MODEL NO: NA  
JSEM CATALOG NO: NA

Frame: 405TPA Type: TUI

REED CRITICAL FREQUENCY	52	HZ
CENTER OF GRAVITY	17	IN
DEFLECTION @ CENTER OF GRAVITY:	0.004	IN
UNIT WEIGHT:	1300	LBS
BASE DIAMETER:	ALL	IN
MAXIMUM MOTOR DIAMETER:	24.31	IN.
DATE:	1/10/2007	



[Home](#) [Email](#)

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## PRODUCT DATA SHEET

Vertical A.C. Motors  
Open & Enclosed  
Holloshaft® & Solidshaft  
Varidyne® Inverter Duty

- Weather Protected Type I Totally Enclosed Fan Cooled and Explosionproof
- High and Normal Thrust Solid Shaft and Holloshaft®
- Premium Efficient Design with Inverter Grade® Insulation System
- Meets NEMA Parts 30 and 31
- Low and Medium Voltage
- 3 through 4000 Horsepower



### Product Overview

Significant operational cost savings are possible in many pumping systems with the use of process control. U.S. Electrical Motors' Vertical Inverter Duty Motor is specifically designed for application in process control of variable torque loads through the use of a variable frequency drive (VFD). The evolution of drive technology provides today's user with a reliable, cost effective product. However, this same pulse width modulation (PWM) drive expects the motor will successfully operate in a harsh electrical environment.

U.S. Motors was the first motor company to recognize the need for a special inverter duty insulation system by introducing the first formal Inverter Grade® Insulation System. Our Varidyne® vertical motors offer an insulation system with superior pulse endurance to withstand the stresses produced by the PWM waveform.

It takes more than a pulse resistance magnet wire substitution to become a Varidyne vertical motor. Varidyne vertical motors feature a series of enhancements specifically addressing the reliability concerns arising out of motors operated in tough electrical environments created by VFDs. The Inverter Grade protection system is coupled with a carefully designed mechanical package that provides superior product performance under VFD power. This system meets the stringent requirements outlined in NEMA MG-1, Part 31 (and Part 30).

You can count on U.S. Motors to continue our design efforts aimed at maintaining a compatible product in light of advancing drive technology. We will automatically upgrade our Varidyne® inverter duty product offering as technology advancements become available.

As standard, the Inverter Duty Vertical Motor features premium efficiency, 1.15 service factor, 40° C ambient operation, "P" base, NEMA design B, and low mechanical component stress levels. We recommend our motor with any drive on the market today.

### A Look at Inverter Power

Industrial, municipal and agricultural users recognize the need to maximize productivity, reliability and cost savings in light of today's economic climate. System inefficiencies are no longer acceptable.

The application of vertical motors to variable torque pump loads is an ideal candidate for process control through the use of a variable frequency drive (VFD).

Today's VFD products are technically very different from those introduced just a few years ago. Early generations of drives claimed to be compatible with any induction motor. While the claim may have been true, the industry soon found that the use of a Variable Frequency Drive caused thermal problems within the motor. Because the drives adulterated sinewave output and increased the temperature rise in the motors, most applications resulted in early winding failures.

Once the thermal problems were recognized, it became popular to specify a premium efficiency motor for VFD applications. A premium efficiency motor was an easy solution since they were readily available. In addition, they featured a low temperature rise thanks to the additional active materials used to achieve the higher efficiency rating, so they performed better under inverter power than standard efficiency motors. Energy savings through process control and premium efficiency motors provided the optimum payback.

At the time, the use of a premium efficient motor solved the thermal problem in many motor and drive system combinations. While drive technology continued to evolve, many engineers and users became comfortable with this motor solution.

### Inverter Grade Insulation System

Recently a shift in drive technology once again has caused an increase in motor failures. Today advances in microprocessors and power semiconductor technology has evolved to improve the performance, reliability and cost attributes of VFD's. This evolution has occurred over a 20 year period. With each power semiconductor milestone achieved, drive switching frequency increased.

Increased switching frequency created new challenges for existing insulation systems. Electric motor insulation systems have, for the most part, not changed in 50 years. Today it is no longer accurate to think that inverter driven motors have only a thermal problem, one which can be solved by using a premium efficient motor. Drives now produce high rate-of-rise voltage waveforms that impose high impulse electrical stress on the motor insulation. Unfortunately, most current insulation life standards do not specify the maximum repetitive voltage transients, the switching frequency (kHz) or the rate of rise that the winding should be able to withstand and still maintain normal life expectations. Standard insulation systems are not designed to operate in this new electrical environment. When they are, unpredictable motor performance is the result.

U.S. Electrical Motors was the first to recognize the need for a special inverter duty insulation system by introducing the our original Inverter Grade<sup>®</sup> Insulation System. This early system provided protection against the effects of IGBT power devices through the use of additional phase paper end-turn bracing as well as triple film polyester overcoated magnet wire. The benefit was clear that under inverter fed applications a significant improvement in winding life was achieved. However, increased insulation material reduced the copper content, therefore reducing motor efficiencies. The new challenge in engineering design became maintaining or improving the winding integrity under VFD power while also regaining lost efficiency.

USEM teamed with Phelps Dodge to develop a new and improved insulation system. The result is the first major advancement in magnet wire technology and motor insulation systems specifically designed and tested for VFD applications. This new pulse resistant (TZ-QS Quantumshield) magnet wire along with U.S. Motors' patented insulation system is at the heart of the current Inverter Grade<sup>®</sup> product.

You can count on USEM to continue our design efforts aimed at maintaining a compatible product for the advancing drive technology.

### Pulse Endurance Test

To validate the Inverter Grade magnet wire, we developed the Pulse Endurance Test. This test has become the standard basis for comparing various types of insulation under VFD power. The result is USEM's Inverter Grade<sup>®</sup> Insulation System which meets the stringent requirements outlined in NEMA MG-1, 1993, Part 30 and 31.

#### Part 30 = Level 1

General Purpose product capable of reliable performance in Inverter installations where peak transients do not exceed 1000V and/ or rise times are not shorter than 2 microseconds.

#### Part 31 = Level 2

Definite purpose product capable of reliable performance in Inverter installations where peak voltages do not exceed 1600V and/ or rise times are not shorter than .1 microsecond.

Motor failures have been random in nature due to uncontrolled transient pulse conditions from the inverters. A magnet wire test device that reproducibly simulates the electrical environment found in inverter-fed motors has been built to study insulation failures through the Pulse Endurance Test.

#### Inverter Characteristics

Switching Frequency from 1 to 20 kHz  
Switching Transient Voltage Rise Times  
Transient Voltage 2-3 pu (line to ground)

#### Test Device Capability

60 Hz to 20 kHz Pulse Frequency  
10 to 100 kV/msec Rise Time  
1000 to 5000 V Peak to Peak (square wave)

The testing parameters for the Pulse Endurance Test have been determined by examining the actual inverter characteristics and determining the worst case pulse condition that a motor would experience.

#### Pulse Endurance Test Method

Dielectric twists of 18 AWG wire coated with the test insulation are aged in a forced air oven at 90 degrees C under the electrical stress condition of 0.025 msecond pulse rise time, 2kV peak voltage, 20 kHz pulse frequency, 50% duty cycle square wave. The time to failure of the product is recorded in seconds. The Pulse Endurance Index (PEI) is a ratio of the endurance life of the sample under test in comparison to 18 AWG wire using heavy build MW35 insulation.

*Pulse Endurance Index (PEI) = Endurance Life of Test Sample / Endurance Life of Heavy Build MW35 Sample*

#### Stock & Custom Motors Available

Varidyne<sup>®</sup> Vertical Motors with our patented Inverter Grade<sup>®</sup> insulation system are available from stock or conversion. We can customer engineer a product as well to help you take advantage of our extensive modification capabilities.

- Altitude above 3300 ft
- Ambient above 40°C
- Bearing Thermal Protection
- Capacitors
- Current Transformers

- Extra High Torque
- Space Heaters
- Special Balance
- Surge Protection
- Thermostats
- Thermistors
- Winding RTDs

Vardyne<sup>®</sup> Vertical Motors - providing you reliable performance under VFD power and greater peace of mind

PDS544-193

# **PRODUCTION WELL REVIS #2**

# WELL LOG AND DRILLING REPORT

DNR 7802.05e

Ohio Department of Natural Resources  
Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605  
Voice (614) 265-6740 Fax (614) 265-6767

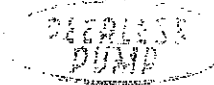
Well Log Number

2004136

Page 1 of 1 for this record.

WELL LOCATION	CONSTRUCTION DETAILS																																			
County <u>WARREN</u> Township <u>UNION</u> <u>WARREN CO.</u> Owner/Builder <u>ST. RT. 48</u> Address of Well Location City <u>SOUTH LEBANON</u> Zip Code +4 <u>45036</u> Permit No. _____ Section; _____ and/or Lot No. _____ Use of Well <u>MUNICIPAL</u> <b>Coordinates of Well</b> (Use only one of the below coordinate systems) State Plane Coordinates N <input type="checkbox"/> X _____ +/- _____ ft. S <input type="checkbox"/> Y _____ +/- _____ ft. Latitude, Longitude Coordinates Latitude: <u>39.36828</u> Longitude: <u>84.21926</u> Elevation of Well in feet: <u>613.74</u> +/- <u>0</u> ft. Datum Plane: <input type="checkbox"/> NAD27 <input checked="" type="checkbox"/> NAD83 Elevation Source <u>TERRESTRIAL</u> Source of Coordinates: <u>GPS</u> Well location written description: <u>FWR-2</u> Comments on water quality/quantity and well construction:	Drilling Method: <u>AIR ROTARY</u> <b>BOREHOLE/CASING</b> (Measured from ground surface) 1 { Borehole Diameter <u>24</u> inches Depth <u>56</u> ft. { Casing Diameter <u>16</u> in. Length <u>42.5</u> ft. Thickness <u>0.375</u> in. 2 { Borehole Diameter _____ inches Depth _____ ft. { Casing Diameter _____ in. Length _____ ft. Thickness _____ in. Casing Height Above Ground <u>1.5</u> ft. Type { 1: <u>Steel</u> 2: _____ Joints { 1: <u>Welded</u> 2: _____ <b>SCREEN</b> Diameter <u>16</u> in. Slot Size <u>0.12</u> in. Screen Length <u>15</u> ft. Type <u>CONTINUOUS WIRE WOUND</u> Material <u>STAINLESS STEEL</u> Set Between <u>41</u> ft. and <u>56</u> ft. <b>GRAVEL PACK</b> (Filter Pack) Material/Size <u>Global # 3</u> Vol/Wt. Used <u>4,550 #</u> Method of Installation <u>Poured (gravity)</u> Depth: Placed From: <u>28</u> ft. To: <u>56</u> ft. <b>GROUT</b> Material <u>Neat cement</u> Vol/Wt. Used <u>3,900 #</u> Method of Installation <u>Pumped w/ Tremie pipe</u> Depth: Placed From: <u>0</u> ft. To: <u>28</u> ft. <b>DRILLING LOG*</b> FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th>Color</th> <th>Texture</th> <th>Formation</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>BROWN</td> <td>DRY</td> <td>CLAY</td> <td>0</td> <td>6</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE SAND AND GRAVEL</td> <td></td> <td>6</td> <td>35</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE SAND</td> <td></td> <td>35</td> <td>40</td> </tr> <tr> <td>GRAY</td> <td>COARSE</td> <td>GRAVEL</td> <td>40</td> <td>50</td> </tr> <tr> <td>GRAY</td> <td>COARSE</td> <td>SAND</td> <td>50</td> <td>56</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Water Encountered At</td> <td>6</td> <td>56</td> </tr> </tbody> </table>	Color	Texture	Formation	From	To	BROWN	DRY	CLAY	0	6	BROWN	FINE TO COURSE SAND AND GRAVEL		6	35	BROWN	FINE TO COURSE SAND		35	40	GRAY	COARSE	GRAVEL	40	50	GRAY	COARSE	SAND	50	56			Water Encountered At	6	56
Color	Texture	Formation	From	To																																
BROWN	DRY	CLAY	0	6																																
BROWN	FINE TO COURSE SAND AND GRAVEL		6	35																																
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GRAY	COARSE	GRAVEL	40	50																																
GRAY	COARSE	SAND	50	56																																
		Water Encountered At	6	56																																
<b>WELL TEST *</b> Pre-Pumping Static Level <u>9</u> ft. Date _____ Measured from <u>TOP OF CASING</u> Pumping test method _____ Test Rate _____ gpm Duration of Test _____ hrs. Feet of Drawdown _____ ft. Sustainable Yield _____ gpm *(Attach a copy of the pumping test record, per section 1521.05, ORC) Is Copy Attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Flowing Well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <b>PUMP/PITLESS</b> Type of pump _____ Capacity _____ gpm Pump set at _____ ft. Pitless Type _____ Pump installed by _____ I hereby certify the information given is accurate and correct to the best of my knowledge. Drilling Firm <u>KELLEY CONTRACT DEWATERING</u> Address <u>5175 SW CLAY AVE</u> City, State, Zip <u>WYOMING MI 49548</u> Signed <u>CLIFFORD GRIEVES</u> Date <u>7/27/2006</u> (Filed Electronically) ODH Registration Number <u>02571</u>	Aquifer Type (Formation producing the most water.) <u>SAND AND GRAVEL</u> Date of Well Completion <u>2/15/2006</u> Total Depth of Well <u>56</u> ft.																																			

Completion of this form is required by section 1521.05, Ohio Revised Code - file within 30 days after completion of drilling.  
Distribute copies of this record to Customer, and Local Health Department.



Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

Corporate Equipment Company  
 607 Redna Terrace. No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 1

Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24. 2007



Item: PWR-2  
 Model : Peerless Vertical - 12MB

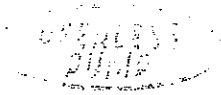
Flow (US gpm)	Head (ft)	Eff. (%)	Power (hp)	Speed (RPM)
873	285	83.1	77.48	1770
Liquid	Temp. (°F)	Sp. Gravity	Visc. (cSt)	Dia. (inch)
Water	68	1.000	1.007	8.42

**Summary Quotation:**

Item No	Description	Weight (lb)	Qty
1	12MB, 6 Stage Bowl Assembly, Material Group A , Threaded Column 8/1.5, L4, Suction Bell, Threaded Discharge Bowl, OLS	0	1
2	Impeller, trimmed, surface finish Ra75, vane exit Std. Fig 1-0.188	0	6
3	Adapter, Bottom Column	0	1
4	Top Bowl	106	1
5	Bowl, Intermediate	530	5
6	Collar, Sand, lower and upper	0	2
7	Bushing, Taper Lock (Collet) - Material 316ss	0	6
8	Fastener, Bowl, Material 316ss	0	72
9	Gasket, Bowl	0	5
10	Dynamic Balanced Impeller	0	6
11	Charge for Polishing (Premium Efficiency)	0	6
12	Ring, Seal, Lateral	0	6
13	Ring, Wear, Bowl, Material 63 Bronze	0	6
14	Suction	226	1
15	Plug, Pipe (Suction)	0	1
16	Shaft, Pump, D = 1.50 inch, L = 75.2 inch, T.Lock, Material 416ss	0	1
17	Coupling, Threaded, Shaft, Steel, 1215 CD	1.53	1
18	Strainer, Basket, Material 316Lss	16.98	1
19	OLS Threaded column 8.0 inch / 1.50 inch shaft / 10ft bearing spacing, length base to bowl 780 inch	0	1
20	Pipe, column threaded T&C 8.0 inch, bottom, length 120 inch, Material plain steel	282.21	1

1006.  
 Quote valid for 30 days





Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

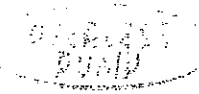
Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 2  
 Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

21	Pipe, column threaded T&C 8.0 inch, intermediate 1. length 120 inch, Material plain steel	1411.05	5
22	Pipe, column threaded TBE 8.0 inch, top, code length to base 60 inch, Material plain steel	141.11	1
23	No Shaft critical speed analysis	0	1
24	Shaft-Group of Column	0	1
25	Shaft, line, bottom, threaded, D = 1.50 inch, length 120 inch, Material 416ss	59.38	1
26	Shaft, line, intermediate 1. threaded, D = 1.50 inch, length 120 inch, Material 416ss	296.9	5
27	Shaft, line, top, threaded, <2-Piece-Top-Shaft>, D=1.50 inch, L=75.00 inch, Material 416ss	37.11	1
28	Bearing, Open Line Shaft	0	6
29	Retainer, Bearing, Open Line Shaft	34.08	6
30	Coupling, Threaded, Shaft, 410ss	9.18	6
31	Shaft, Head (Top shaft for VHS motor), <2-Piece-Top-Shaft>, Assembly	0	1
32	Coupling, Shaft, Line, Top, Standard, Material Steel, 1215 CD	1.53	1
33	Shaft, Head, VHS motor, D=1.50 inch, L=48.50 inch, Mat. 416ss	24	1
34	Shaft, Line, Diameter 1.50 inch, Material 416ss	0	1
35	Stuffing Box, Register 5.562, Assembly	0	1
36	Stuffing box	0	1
37	Gland, Stuffing box, Material 316ss	0	1
38	T-Bolt, Gland, Material 316ss	0	2
39	Nut, Gland	0	2
40	Clamp, Gland	0	2
41	Washer, Packing	0	1
42	Packing	0	6
43	Gasket, Stuffing Box	0	1
44	Ring, Seal	0	1
45	Fastener, Stuffing Box	0	4
46	Fitting grease	0	1
47	Discharge head assembly 8x8x16.5FA, steel	0	1
48	Pump operates at Constant Speed	0	1
49	Head, Discharge 8x8x16.5FA, Motor Base Diameter BD=20 inch	413	1





Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

**Corporate Equipment Company**

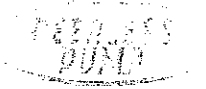
607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 3  
 Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

50	Discharge Flange 150 lb	30	1
51	Name Plate, Pump Data	0	1
52	Name Plate, pp Data Screws	0	4
53	Name Plate, Rotation Direction	0	1
54	Name Plate, Warning	0	1
55	Wedge, Leveling	0	4
56	Plug 1, Discharge Head	0	5
57	Plug 2, Discharge Head	0	1
58	Guard 1, Coupling	0	1
59	Guard 2, Coupling	0	1
60	Screw, Guard	0	8
61	Washer, Guard	0	8
62	Flange, Top	0	1
63	Stud, Flange, Top, Material 304ss, Standard	0	8
64	Nut, Flange, Top, Material 304ss, Standard	0	8
65	Gasket, Flange, Top	0	1
66	Nut, Top	0	1
67	Screw, Nut, Top	0	2
68	Bolt, Motor	0	4
69	Motor-electric, 100hp-1783rpm, 575/460/230/200V, 3Ph, 60Hz, Frame 405TP, VHS, Encl. TEFC, Eff. premium, Modified, TUS, USEM	1350	1
70	Winding thermal protection Thermostats (without control module)	0	1
71	Inverter duty	0	1
72	Service Factor 1.15	0	1
73	Ground lug in conduit box (non - explosion proof)	0	1
74	Non reverse ratchet	0	1
75	Starting Method at Voltage 460V: Full Voltage (standard)	0	1
76	Space heater, voltage 115V	0	1
77	Testing: Standard Commercial Test	0	1







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 45342

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Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 4

Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

78	Freight of electric motor from motor vendor to the 1st domestic destination (North America) included	0	1
79	Dimensions of connection: Line Shaft Diameter= 1.50 inch, Motor Base Diameter BD=20 inch	0	1
80	Plate, Sole, Material steel 056	157	1
81	Bolt, Base / Sole Plate	0	4
82	Painting - Coating	0	1
83	Painting of discharge head, PEERLESS blue, enameled	0	1
84	Surface of column: assembled pump - painted PEERLESS blue, enameled; unassembled pump - black as received	0	1
85	Painting of bowl, PEERLESS blue, enameled	0	1
86	Laboratory Performance Test, non-witnessed (increases lead time of bowl assembly by 1 week!)	0	1
87	Tolerance Type: Hyd Inst-Peerless Std	0	1
88	Test Data Sheets	0	1
89	Curve Approval (customer approval prior shipping)	0	1
90	Test Units US	0	1
91	Hydrostatic Pressure Test (details as selected)	0	1
92	Hydrostatic Pressure Test of Bowls, non-witnessed (add 1 week lead time to Bowls)	0	1
93	Shipping Condition: Pump DISSASSEMBLED	0	1
94	Add for SS sand collars (LCS)	0	2
95	Add for drill and tap 1.5" dia. hole in base head (LCS)	0	1

**Terms of Payment:**

Freight Payment: Allowed

**Total (\$):**

Estimated Schedule (week[s]): 16 to 18 weeks after approval

Net Weight Total (lb): 5127.06



Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

Corporate Equipment Company

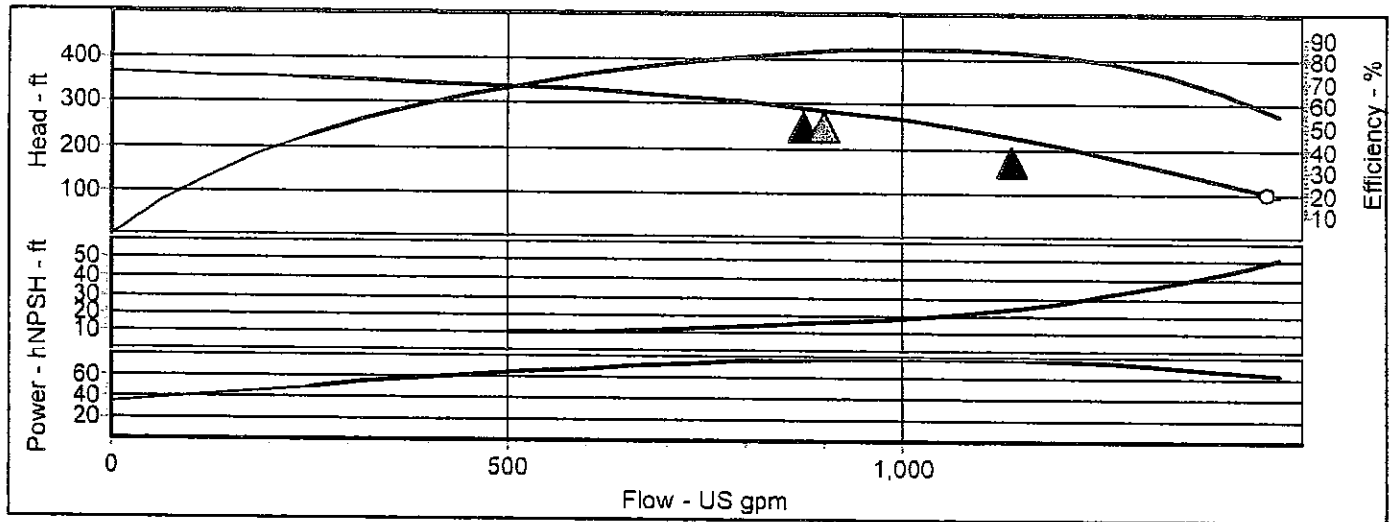
607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242

Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Page No : 5 Date : Tuesday, April 24, 2007

Pump Model:	Peerless Vertical - 12MB 6 Stages				Imp. Dia. (inch)
Norm. Speed	1770 RPM, 60 Hz Electric			Stage No.	Trim Status
Market	Vertical Turbine Pump			-----	Full
Impeller No.	2624332 / MC			-----	Full
Material Spec. Group.	A - B: CIE; I: Brz = Standard			1 - 6	Trimmed P
Item	PWR-2	Fluid:	Water	Flow rate Q:	873 US gpm
Your Ref.		Temperature:	68 °F	Bowl Total Head:	285 ft
		Viscosity:	1.007 cSt	Bowl Efficiency:	83.1 %
		Sp. Gravity:	1.000 (base temp. 68 °F)	Bowl Power Required:	77.48 hp
				NPSH Required:	15.264 ft

Performance curve according to Hyd Inst-Peerless Std  
 o Up-Thrust



Comments

Refer to factory for all single point bowl performance guarantees. Pumps must be selected with Hydraulic Institute-Peerless Std. See Std Hydraulic Performance document in RAPID for testing tolerances & contractual guarantees.

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)	Thrust (lb)
0.0	365.2	0.0	33.9		5200.39
184.1	356.3	36.2	45.7		4906.55
368.2	346.7	56.9	56.6		4501.98
552.3	333.7	70.3	66.2	10.3	4113.41
736.4	313.8	79.1	73.8	12.7	3474.82
920.5	282.9	84.0	78.3	16.3	2562.32
1104.6	237.5	84.2	78.7	22.5	1630.04
1288.6	174.7	77.0	73.8	33.7	804.08
1472.7	93.3	55.3	62.7		-60.04





## HYDRAULIC PERFORMANCE TOLERANCE

The conditions of service can only be guaranteed within the following tolerances, which are consistent with those standards as established by the Hydraulic Institute.

HEAD - Under 200 ft. at 2999 gpm and under		+8% - 0%
HEAD - Under 200 ft. at 3000 gpm and over		+5% - 0%
HEAD - 200 ft To 500 ft at any flow		+5% - 0%
HEAD - Over 500 ft. at any flow		+3% - 0%
Or		
At Rated Head	=	10% - 0% Capacity
Efficiency	=	- 0% of Contracted Pump Efficiency (Job factory guaranteed pump efficiency)
Bhp at Rated Condition =		+ 8% ( As per above Head Tolerances) + 5% + 3%

This guarantee applies to only one set of conditions as specified. A second Head-Capacity point or Shut-Off Head cannot be guaranteed within these tolerances. When **Hydraulic Institute-Peerless Standard Tolerance Type** is selected in **Rapid** criteria screen the above tolerances are used in selecting pump at input head and capacity points.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order.

The plus 8%, 5% or 3% in HEAD tolerances at the rated capacity could result in a plus 8%, 5% or 3% greater horsepower load. Motors must be selected so that they can safely carry a load 8%, 5% or 3% greater than that calculated at the rated capacity. For specifications that specify that the motor size to be non - overloading over the entire pump curve, the 8%, 5% or 3% tolerance must be added to the expected horsepower at the low HEAD or maximum horsepower condition.

With the total HEAD tolerance described above, for centrifugal pumps, be sure and take into consideration, the plus 8%, 5% or 3% tolerance on the horsepower when selecting a pump from a standard sales manual curve.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order as directed by information in Sections 10 and 15.

Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 6

Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24, 2007

Item: PWR-2  
 Model : Peerless Vertical - 12MB

Flow (US gpm)	Head (ft)	Eff. (%)	Power (hp)	Speed (RPM)
873	285	83.1	77.48	1770
Liquid	Temp. (°F)	Sp. Gravity	Visc. (cSt)	Dia. (inch)
Water	68	1.000	1.007	8.42

**Technical Information:**

Technical Information: 12MB

Material Code of Suction

040 = Cast Iron, CL30 - ASTM A48, CLASS 30

Material Code of Case

XXX = Item not available in this configuration

Material Code of Intermediate Bowl

041 = Cast Iron, CL30 ENAMELED - ASTM A48, CLASS 30

Material Code of Top Bowl

041 = Cast Iron, CL30 ENAMELED - ASTM A48, CLASS 30

Material Code of Impeller

023 = BRONZE, ALUMINUM - ASTM B148

Maximum allowed pressure of bowl

357 psi = 24 bar

Diameter of Pump (Bowl) Shaft in inches

1.5

Diameter of Line Shaft (Column) in inches

1.5000

Pump as Submersible?

Not Applicable

Is Enclosed Line Shaft (ELS) possible?

Not Applicable

Is Flanged Column possible?

Not Applicable

Is Threaded Column possible?

Yes

Hub Stick Down in inches

0.12

Lateral setting, best in inches

0.1875

Lateral adjustment, standard in inches

0.469

Lateral adjustment, maximum in inches

0.916

Net Area of Impeller Inlet

17.868 inch<sup>2</sup> = 11527.719 mm<sup>2</sup>

Sphere Size

0.8125 inch = 20.637 mm

Stick up of pump shaft

10.00 inch = 254.000 mm

Moment of Inertia of 1 Impeller WR<sup>2</sup>

188 lbs\*inch<sup>2</sup> = 0.055 kg\*m<sup>2</sup>

Moment of Inertia of rotor (all impellers + bowl shaft + line shaft) WR<sup>2</sup>

1672.455 lbs\*inch<sup>2</sup> = 0.489 kg\*m<sup>2</sup>



## Speed vs. Torque

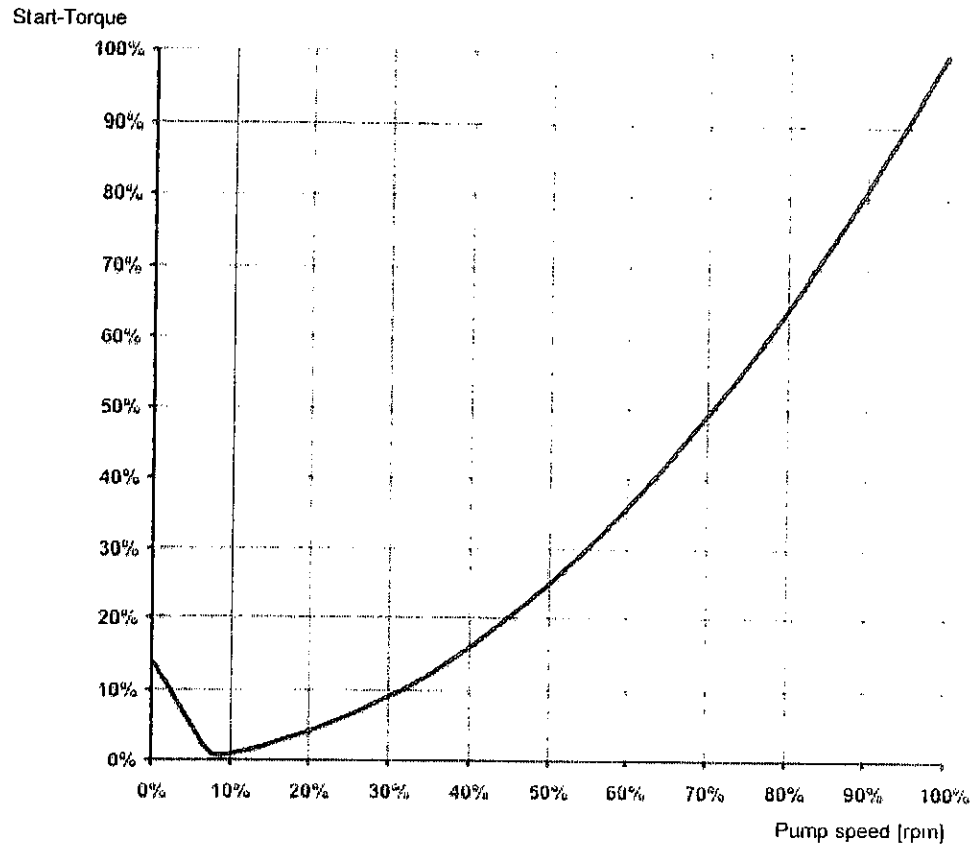
Start at OPEN valve:

100% of Torque = 311 Nm = 229 lbf\*ft

Start at CLOSED valve:

100% of Torque = 136 Nm = 100 lbf\*ft

100% of Speed = 1770 RPM



Dimensions in (inch)

<b>Project :</b> Warren County Deerfield Hamilton	<b>Capacity:</b> 873 (US gpm)	<b>Frame/Model:</b> 405TP
<b>Customer:</b> Danis Industrial Construction Co.	<b>Total Head:</b> 285 (ft)	<b>Elec. Spec.:</b> 3/60/460V
<b>Item No.:</b> PWR-2	<b>Pump Speed:</b> 1770 (RPM)	<b>Service Factor:</b> 1.15
<b>Quote No. :</b> US-3245-242	<b>Impeller Dia.:</b> 8.42 (inch)	<b>Rotation:</b> counter-clockwise
<b>Pump Model:</b> Peerless Vertical - 12MB	<b>Power:</b> 100 (hp)	<b>Enclosure/Type:</b> TEFC

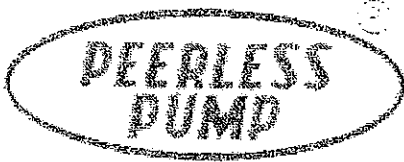
Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215

Lou Salvina  
Phone 513 771 6696 ext. 116

Date : Tuesday, April 24, 2007

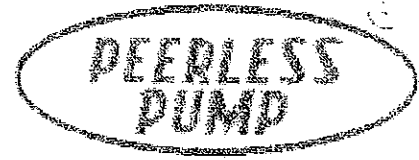
Page No : 11



Peerless Pump Company. - Indianapolis, IN 46207-7026

## RAPID Technical Data Verification Sheet (TDS)

Pump Application (Service)	Well Water
Project Name	Warren County Deerfield Hamilton Well Field
Project Quote Number	US-3245-242
Your Reference Number	
Customer Name	Danis Industrial Construction Co
Customer Purchase Order Number	4007-12
Pump Manufacturer & Pump Model	Peerless Vertical 12MB 6 Stages
Pump Speed	1770 RPM
Testing Tolerance	Hyd Inst-Peerless Std
NPSH available at Rated Condition & Head	0 ft at 873 US gpm & 285 ft
NPSH required at Rated Condition & Head	15.264 ft at 873 US gpm & 285 ft
Static Suction Pressure PSI	Not Applicable
Total Shut Off Pressure PSI	158.000
Pump to operate at shut off?	No
Site Ambient Temperature & Altitude	68 °F & 610.5 ft
Fluid Type & Solids Size & Content	Water & 0.00 inch & 0%
Pump Construction	Material Group A
Efficiency (Typical Performance) See terms for guarantees.	83.1% (Bowl)
BHP at Condition Point	77.48 hp
Maximum BHP	79.08 hp
BHP at Shut Off	33.95 hp
Maximum BHP of Motor Loaded to Full Service Factor	
Pump Rotation Viewed from Driver End	Counter Clockwise
Replacement of Pump Serial Number (if applicable)	



# Losses of Head and Power in Pump

## Hydraulic Head Losses

In Column due to Friction	1.459 ft
In Tapered Bottom Column Pipe	0.000 ft
In Discharge Head	0.724 ft
<i>Losses Total</i>	2.183 ft

## Power Losses

In Column due to Friction of Line Shaft with Water	0.756 hp
In Thrust Bearing	0.370 hp
<i>Losses Total</i>	1.126 hp

## Efficiency of BOWL and Efficiency of PUMP

Efficiency of Bowl in Duty Point	83.13%
Efficiency of Pump / Field in Duty Point (approximately), reduction caused by losses of head and power	81.31%



**EMERSON MOTOR COMPANY**

8100 WEST FLORISSANT AVE.  
P.O. BOX 3946 \* BLDG. K \* ST. LOUIS, MO 63136  
FAX (314) 553-1101

DATE: 4/20/07

P.O. NO.:  
USEM  
Order/Line NO.: 20063912 SO 100

TO: Sterling Fluid Systems  
ATTN: Accounts Payable  
PO Box 7026  
Indianapolis, IN, 46207-7026  
ATTN: FELIX HIPOLITO

Model Number: NA  
Catalog Number: NA  
VHS TEFC Configuration  
CONF,MOTOR,VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705040-02 FOR 705040VJ

ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.

**Features:**

Horsepower ..... 00100.00-00000.00 ~ KW: 74.6  
Quantity..... 5  
Enclosure ..... TEFC  
Poles ..... 04-00 ~ RPM: 1800-0  
Frame Size ..... 405-TPA  
Phase/Frequency/Voltage.. 3-060-230/460 ~ Random Wound  
Service Factor ..... 1.15  
Insulation Class ..... Class "F" ~ Insulife 2000  
Altitude In Feet (Max) .. 3300 Ft.(1000 M) ~ +40 C  
Efficiency Class ..... Premium Efficiency  
Application ..... Centrifugal Pump  
Customer Part Number .... 705040VJ  
20" Base ~ Coupling Size: 1-1/2" Bore, 3/8" Key  
Non-Reverse Ratchet ~ Steady Bushing Not Requested  
Pricebook Thrust Value (lbs).. 7000  
Customer Down Thrust (lbs) ... 7000  
Customer Shutoff Thrust (lbs).  
Up Thrust (lbs): -  
Inverter Duty Rating:  
Load Type (Base Hz & Below) .. Variable Torque  
Speed Range (Base Hz & Below). 10:1  
Temperature Rise (Sine Wave): "F" Rise @ SF (Resist)  
Starting Method ..... Direct-On-Line Start  
Duty Cycle ..... Continuous Duty  
Load Inertia (lb-ft<sup>2</sup>): NEMA ~ NEMA Inertia: 441.00 ~ 1.00  
Number Of Starts Per Hour: NEMA  
Motor Type Code ..... TUI  
Rotor Inertia (LB-FT<sup>2</sup>) ..... 24.3 LB-FT<sup>2</sup>  
Qty. of Bearings PE (Shaft) ..... 1  
Qty. of Bearings SE (OPP) ..... 1  
Bearing Number PE (Shaft) ..... 6218-J/C3  
E umber SE (OPP) ..... 7222 BEM



Emerson Motor Company is a division of Emerson Electric Co.  
The Emerson logo is a trademark and service mark of Emerson Electric Co.





**EMERSON MOTOR COMPANY**

8100 WEST FLORISSANT AVE.  
P.O. BOX 3946 \* BLDG. K \* ST LOUIS, MO 63136  
FAX (314) 553-1101

DATE: 4/25/07

P.O. NO.:  
USEM  
Order/Line NO.: 20063912 SO 100

TO: Sterling Fluid Systems  
ATTN: Accounts Payable  
PO Box 7026  
Indianapolis, IN, 46207-7026  
ATTN: FELIX HIPOLITO

Model Number: NA  
Catalog Number: NA  
VHS TEFC Configuration  
CONF,MOTOR,VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705040-02 FOR 705040VJ

**ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.**

**Accessories:**

Counter CW Rotation FODE  
Ground Lug In Conduit Box  
115 Volt Space Heaters  
Thermostats - Normally Closed  
VFD Duty

**USE THE DATA PROVIDED BELOW TO SELECT THE APPROPRIATE DIMENSION PRINT**

Horsepower	100
Pole(s)	04
Voltage(s)	460-230
Frame Size	405TPA
Outlet Box AF	3.38
Outlet Box AA	3.00



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The Emerson logo is a trademark and service mark of Emerson Electric Co.

# NAMEPLATE DATA

CATALOG NUMBER. _____		NAMEPLATE PART #: <span style="border: 1px solid black; padding: 2px;">422707-005</span>	
MODEL _____	FR <span style="border: 1px solid black; padding: 2px;">405TPA</span>	TYPE <span style="border: 1px solid black; padding: 2px;">TUI</span>	ENCL <span style="border: 1px solid black; padding: 2px;">TE</span>
SHAFT END BRG <span style="border: 1px solid black; padding: 2px;">6218-J/C3 - QTY 1</span>		OPP END BRG <span style="border: 1px solid black; padding: 2px;">7222 BEM - QTY 1</span>	
PH <span style="border: 1px solid black; padding: 2px;">3</span>	MAX AMB <span style="border: 1px solid black; padding: 2px;">40 C</span>	ID# <span style="border: 1px solid black; padding: 2px;">(ref: Order#: 20063912, Type: SO, Line#: 100)</span>	
INSUL CLASS <span style="border: 1px solid black; padding: 2px;">F</span>	Asm. Pos. _____	DUTY <span style="border: 1px solid black; padding: 2px;">CONT</span>	
HP <span style="border: 1px solid black; padding: 2px;">100</span>	RPM <span style="border: 1px solid black; padding: 2px;">1785</span>	HP _____	RPM _____
VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>		VOLTS _____	
FL AMPS <span style="border: 1px solid black; padding: 2px;">113.0</span> <span style="border: 1px solid black; padding: 2px;">227.0</span>		FL AMPS _____	
SF AMPS <span style="border: 1px solid black; padding: 2px;">130.0</span> <span style="border: 1px solid black; padding: 2px;">260.0</span>		SF AMPS _____	
SF <span style="border: 1px solid black; padding: 2px;">1.15</span>	DESIGN <span style="border: 1px solid black; padding: 2px;">B</span>	CODE <span style="border: 1px solid black; padding: 2px;">G</span>	
NEMA NOM EFFICIENCY <span style="border: 1px solid black; padding: 2px;">94.5</span>	NOM PF <span style="border: 1px solid black; padding: 2px;">87.3</span>	KiloWatt <span style="border: 1px solid black; padding: 2px;">74.6</span>	
GUARANTEED EFFICIENCY <span style="border: 1px solid black; padding: 2px;">93.6</span>	MAX KVAR _____	HZ <span style="border: 1px solid black; padding: 2px;">60</span>	

**UL DATA (IF APPLICABLE):**

DIVISION _____	CLASS I _____	GROUP I _____
TEMP CODE _____	CLASS II _____	GROUP II _____

**VFD DATA (IF APPLICABLE):**

VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>	
AMPS <span style="border: 1px solid black; padding: 2px;">118.7</span> <span style="border: 1px solid black; padding: 2px;">238.4</span>	
TORQUE 1 <span style="border: 1px solid black; padding: 2px;">294.6</span>	TORQUE 2 _____
VFD LOAD TYPE 1 <span style="border: 1px solid black; padding: 2px;">VT/PWM</span>	VFD LOAD TYPE 2 _____
VFD HERTZ RANGE 1 <span style="border: 1px solid black; padding: 2px;">6-60</span>	VFD HERTZ RANGE 2 _____
VFD SPEED RANGE 1 <span style="border: 1px solid black; padding: 2px;">180-1800</span>	VFD SPEED RANGE 2 _____
SERVICE FACTOR <span style="border: 1px solid black; padding: 2px;">1.00</span>	FL SLIP _____
NO. POLES _____	MAGNETIZING AMPS _____
VECTOR MAX RPM _____	Encoder PPR _____
Radians / Seconds _____	Encoder Volts _____

**TEAO DATA (IF APPLICABLE):**

HP (AIR OVER) _____	HP (AIR OVER M/S) _____	RPM (AIR OVER) _____	RPM (AIR OVER M/S) _____
FPM AIR VELOCITY _____	FPM AIR VELOCITY M/S _____	FPM AIR VELOCITY SEC _____	

ADDITIONAL NAMEPLATE DATA:

Decal / Plate	WD=109145	Customer PN	705040VJ
Notes		Non Rev Ratchet	NRR
Max Temp Rise		OPP/Upper Oil Cap	5.5 QT/5.2 L
Thermal (WDG)	OVER TEMP PROT 2	SHAFT/Lower Oil Cap	GREASE
Altitude			
EPACT Note		EPACT Compliance	
COS		Marine Duty	
Balance	0.08 IN/SEC	Arctic Duty	
3/4 Load Eff.	94.8	Inrush Limit	
Motor Weight	1500	Direction of Rotation	
Sound Level		Special Note 1	
Vertical Thrust	7000	Special Note 2	
Thrust Percentage	100% HT	Special Note 3	
Bearing Life		Special Note 4	
Starting Method		Special Note 5	
Number of Starts		Special Note 6	
200/208V 60Hz Max Amps		SH Max. Temp.	
190V 50 hz Max Amps		SH Voltage	SH VOLTS=115V
380V 50 Hz Max Amps		SH Watts	SH WATTS=192W
NEMA Inertia		Load Inertia	
Sumpheater Voltage		Sumpheater Wattage	
Special Accessory Note 1		Special Accessory Note 16	
Special Accessory Note 2		Special Accessory Note 17	
Special Accessory Note 3		Special Accessory Note 18	
Special Accessory Note 4		Special Accessory Note 19	
Special Accessory Note 5		Special Accessory Note 20	
Special Accessory Note 6		Special Accessory Note 21	
Special Accessory Note 7		Special Accessory Note 22	
Special Accessory Note 8		Special Accessory Note 23	
Special Accessory Note 9		Special Accessory Note 24	
Special Accessory Note 10		Special Accessory Note 25	
Special Accessory Note 11		Special Accessory Note 26	
Special Accessory Note 12		Special Accessory Note 27	
Special Accessory Note 13		Special Accessory Note 28	
Special Accessory Note 14		Special Accessory Note 29	
Special Accessory Note 15		Special Accessory Note 30	



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



TYPICAL NAMEPLATE DATA  
ACTUAL MOTOR NAMEPLATE LAYOUT MAY VARY  
SOME FIELDS MAY BE OMITTED

# MOTOR PERFORMANCE

MODEL NO.	CATALOG NO.	PHASE	TYPE	FRAME
NA	NA	3	TUI	405TPA

ORDER NO.	20063912	LINE NO.	100
-----------	----------	----------	-----

MPI:	31204	44647
HP:	100	100
POLES:	4	4
VOLTS:	460	230
HZ:	60	60
SERVICE FACTOR:	1.15	1.15
EFFICIENCY (%):		
S.F.	94.4	94.4
FULL	94.5	94.5
3/4	94.8	94.8
1/2	94	94
1/4	90.4	90.4
POWER FACTOR (%):		
S.F.	87.6	87.6
FULL	87.3	87.3
3/4	85.3	85.3
1/2	79.1	79.1
1/4	60.6	60.6
NO LOAD	6.6	6.6
LOCKED ROTOR	27.8	27.8
AMPS:		
S.F.	130	260
FULL	113	227
3/4	87	174
1/2	63	126
1/4	43	86
NO LOAD	32.7	65.3
LOCKED ROTOR	725	1406
NEMA CODE LETTER	G	F
NEMA DESIGN LETTER	B	B
FULL LOAD RPM	1785	1785
NEMA NOMINAL EFFICIENCY (%)	94.5	94.5
GUARANTEED EFFICIENCY (%)	93.6	93.6
MAX KVAR	22.1	22.1
AMBIENT (°C)	40	40
ALTITUDE (FASL)	3300	3300
SAFE STALL TIME-HOT (SEC)	30	30
SOUND PRESSURE (DBA @ 1M)	75	75
TORQUES:		
BREAKDOWN(% F.L.)	231	231
LOCKED ROTOR(% F.L.)	161	161
FULL LOAD(LB-FT)	294.6	294.6

The Above Data Is Typical, Sinewave Power Unless Noted Otherwise



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



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The Emerson logo is a trademark and service mark of Emerson Electric Co.

## SILICONE RUBBER SPACE HEATERS

Electric motors frequently have space heaters installed to prevent moisture condensation in the motor during times the motor is not running.

Many motor manufacturers use metallic or ceramic cartridge heaters for this purpose. Because such heaters are small they must operate at a high surface watt density and consequently high temperature. The high temperature causes rapid heater failure, often within the first year.

To combat this high failure rate, many smart users specify that space heaters are to be operated at one-half their rated voltage. This lowers the surface watt density to one-fourth the value with rated voltage, and increases the heater life more than proportionally.

U. S. Electrical Motors has another, better, solution to heater failure rate - the use of silicone rubber space heaters. The heaters are manufactured by sandwiching a resistance wire network between two pieces of high-temperature silicone rubber and bonding the silicone rubber pieces together. The silicone rubber heaters are designed for low surface watt density by providing a large surface area (a heater measuring 45" X 2.5" is rated at 169 watts, or 1.5 watts per square inch). The life of these heaters typically exceeds the life of the motor.

Silicone rubber heaters enjoy another advantage over metallic or ceramic heaters. Because they are applied directly to the winding end turns, it is usually possible to achieve the required condensation prevention with a lower power consumption.

These silicone rubber heaters are used, when specified, on all U. S. Electrical Motors motors. It is not necessary for the user to specify operation at one-half rated voltage to get the long heater life that is desired.

\* Space heaters must be operated at +/- 10% rated voltage to be effective.

DR# 587-9358  
H.E. Barr  
1/8/81  
\*Revision: 3/11/03  
Mike Cullen

## RENEWAL PARTS

FRAMES 324 THRU 447 - TOTALLY ENCLOSED AND EXPLOSION PROOF MOTORS  
 TYPES: JU JUE JJS LV LUC LUE LUEI LUS LV4 LV9 LVC9 LVCI LVCS LVCS9 LVE4 LVS4 MVC4 MVC9 TJ TJC TUC TUCI  
 CS TUE TUI TUS TV TV4 TV9 TVC TVC4 TVC9 TVCE TVCE4 TVCE9 TVCI TVCI4 TVCI9 TVCN9 TVCS TVCS4 TVCS9 TVE  
 TVE4 TVE9 TVEI TVI TVI4 TVI9 TVN9 TVS TVS4 TVS9  
 HOLLOSHAFT AND SOLIDSHAFT MOTORS

ITEM NO.	QTY	NAME OF PART
30	1	Upper Bracket Assembly
31	1	Special Plug
32	1	Sight Gauge Window
33	1	Special Housing
34	1	Reflector Disc
35	2	Gasket
36	4	Screws
37	1	Pipe Nipple
38	1	Gasket
39	1	Drain Cap
40	1	Bearing Mounting
41-45	-	NOT USED IN THIS ASSEMBLY
46	1	Oil Baffle
47	3	Screws
48	3	Split Lockwashers
49	1	Dust Ring (Not Illustrated)
50	1	Gasket (Not Illustrated)
51	4	Screws (Not Illustrated)
52	4	Split Washers (Not Illustrated)
53	1	Ball Bearing (Upper) (Refer to section 775)
54	1	Bearing Spacer
55	2	Ball Bearing (Not Illustrated) (Refer to section 775)
56	1	Air Deflector
57	8	Hex Head Screws
58	8	Lockwashers

ITEM NO.	QTY	NAME OF PART
59	16	Hex Head Screws (Bracket to Stator)
60	18	Lockwashers
61-65	-	NOT USED IN THIS ASSEMBLY
66	1	Wound Stator Assembly
67	1	Rotor Assembly (includes items 68 - 70)
68	1	Rotor Core
69	1	Rotor Shaft
70	1	Square Key
71	1	Pulley End Bracket
72	1	Bearing Cap
73	1	Ball Bearing (Pulley End) (Refer to section 775)
74	1	Snap Ring
75	1	Grease Fitting
76	1	Pipe Plug
77	3	Screws (Bearing Cap)
78	3	Lockwashers
79	1	Water Deflector
80	1	Stabilizer Bushing
81	1	Outlet Box Base
82	4	Screws
83-87	-	NOT USED IN THIS ASSEMBLY
88	1	Outlet Box Cover
89	4	Screws
90	1	Gasket (TU only)
91	1	Gasket (TU only)

**WARNING:**

Any disassembly or repair work on explosionproof motors will void the Underwriters Laboratories, Inc. label unless done by the manufacturer, or a facility approved by the Underwriters Laboratories, Inc. Refer to your nearest U.S. Electrical Motors office for assistance.

**BEARINGS:**

Refer to motor nameplate for the bearing numbers.

**PRICES:**

Parts stocking distributors: refer to USEM renewal parts numerical index. All Others: refer to your nearest USEM parts distributor.

reference: Renewal Parts Section 700, Pages 157 & 158

## TYPICAL REED CRITICAL FREQUENCY DATA

USEM MODEL NO: NA  
USEM CATALOG NO: NA

Frame: 405TPA Type: TUI

REED CRITICAL FREQUENCY	52	HZ
CENTER OF GRAVITY	17	IN
DEFLECTION @ CENTER OF GRAVITY:	0.004	IN
UNIT WEIGHT:	1300	LBS.
BASE DIAMETER.	ALL	IN
MAXIMUM MOTOR DIAMETER:	24.31	IN.
DATE:	1/10/2007	



[Home](#) [Email](#)

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## PRODUCT DATA SHEET

Vertical A.C. Motors  
Open & Enclosed  
Holloshaft® & Solidshaft  
Varidyne® Inverter Duty

- Weather Protected Type I Totally Enclosed Fan Cooled and Explosionproof
- High and Normal Thrust Solid Shaft and Holloshaft®
- Premium Efficient Design with Inverter Grade® Insulation System
- Meets NEMA Parts 30 and 31
- Low and Medium Voltage
- 3 through 4000 Horsepower



### Product Overview

Significant operational cost savings are possible in many pumping systems with the use of process control. U.S. Electrical Motors' Vertical Inverter Duty Motor is specifically designed for application in process control of variable torque loads through the use of a variable frequency drive (VFD). The evolution of drive technology provides today's user with a reliable, cost effective product. However, this same pulse width modulation (PWM) drive expects the motor will successfully operate in a harsh electrical environment.

U.S. Motors was the first motor company to recognize the need for a special inverter duty insulation system by introducing the first formal Inverter Grade® Insulation System. Our Varidyne® vertical motors offer an insulation system with superior pulse endurance to withstand the stresses produced by the PWM waveform.

It takes more than a pulse resistance magnet wire substitution to become a Varidyne vertical motor. Varidyne vertical motors feature a series of enhancements specifically addressing the reliability concerns arising out of motors operated in tough electrical environments created by VFDs. The Inverter Grade protection system is coupled with a carefully designed mechanical package that provides superior product performance under VFD power. This system meets the stringent requirements outlined in NEMA MG-1, Part 31 (and Part 30).

You can count on U.S. Motors to continue our design efforts aimed at maintaining a compatible product in light of advancing drive technology. We will automatically upgrade our Varidyne® inverter duty product offering as technology advancements become available.

As standard, the Inverter Duty Vertical Motor features premium efficiency, 1.15 service factor, 40° C ambient operation, "P" base, NEMA design B, and low mechanical component stress levels. We recommend our motor with any drive on the market today.

### A Look at Inverter Power

Industrial, municipal and agricultural users recognize the need to maximize productivity, reliability and cost savings in light of today's economic climate. System inefficiencies are no longer acceptable.

The application of vertical motors to variable torque pump loads is an ideal candidate for process control through the use of a variable frequency drive (VFD).

Today's VFD products are technically very different from those introduced just a few years ago. Early generations of drives claimed to be compatible with any induction motor. While the claim may have been true, the industry soon found that the use of a Variable Frequency Drive caused thermal problems within the motor. Because the drives adulterated sinewave output and increased the temperature rise in the motors, most applications resulted in early winding failures.

Once the thermal problems were recognized, it became popular to specify a premium efficiency motor for VFD applications. A premium efficiency motor was an easy solution since they were readily available. In addition, they featured a low temperature rise thanks to the additional active materials used to achieve the higher efficiency rating, so they performed better under inverter power than standard efficiency motors. Energy savings through process control and premium efficiency motors provided the optimum payback.

At the time, the use of a premium efficient motor solved the thermal problem in many motor and drive system combinations. While drive technology continued to evolve, many engineers and users became comfortable with this motor solution.

### inverter Grade Insulation System

Recently a shift in drive technology once again has caused an increase in motor failures. Today advances in microprocessors and power semiconductor technology has evolved to improve the performance, reliability and cost attributes of VFD's. This evolution has occurred over a 20 year period. With each power semiconductor milestone achieved, drive switching frequency increased.



Increased switching frequency created new challenges for existing insulation systems. Electric motor insulation systems have, for the most part, not changed in 50 years. Today it is no longer accurate to think that inverter driven motors have only a thermal problem, one which can be solved by using a premium efficient motor. Drives now produce high rate-of-rise voltage waveforms that impose high impulse electrical stress on the motor insulation. Unfortunately, most current insulation life standards do not specify the maximum repetitive voltage transients, the switching frequency (kHz) or the rate of rise that the winding should be able to withstand and still maintain normal life expectations. Standard insulation systems are not designed to operate in this new electrical environment. When they are unpredictable motor performance is the result.

U.S. Electrical Motors was the first to recognize the need for a special inverter duty insulation system by introducing the our original Inverter Grade<sup>®</sup> Insulation System. This early system provided protection against the effects of IGBT power devices through the use of additional phase paper and-turn bracing as well as triple film polyester overcoated magnet wire. The benefit was clear that under inverter fed applications a significant improvement in winding life was achieved. However, increased insulation material reduced the copper content, therefore reducing motor efficiencies. The new challenge in engineering design became maintaining or improving the winding integrity under VFD power while also regaining lost efficiency.

USEM teamed with Phelps Dodge to develop a new and improved insulation system. The result is the first major advancement in magnet wire technology and motor insulation systems specifically designed and tested for VFD applications. This new pulse resistant (TZ-QS Quantumshield) magnet wire along with U.S. Motors' patented insulation system is at the heart of the current Inverter Grade<sup>®</sup> product.

You can count on USEM to continue our design efforts aimed at maintaining a compatible product for the advancing drive technology.

### Pulse Endurance Test

To validate the Inverter Grade magnet wire, we developed the Pulse Endurance Test. This test has become the standard basis for comparing various types of insulation under VFD power. The result is USEM's Inverter Grade<sup>®</sup> Insulation System which meets the stringent requirements outlined in NEMA MG-1, 1993 Part 30 and 31.

#### Part 30 = Level 1

General Purpose product capable of reliable performance in Inverter installations where peak transients do not exceed 1000V and/ or rise times are not shorter than 2 microseconds.

#### Part 31= Level 2

Definite purpose product capable of reliable performance in inverter installations where peak voltages do not exceed 1600V and/ or rise times are not shorter than .1 microsecond.

Motor failures have been random in nature due to uncontrolled transient pulse conditions from the inverters. A magnet wire test device that reproducibly simulates the electrical environment found in inverter-fed motors has been built to study insulation failures through the Pulse Endurance Test.

#### Inverter Characteristics

Switching Frequency from 1 to 20 kHz  
Switching Transient Voltage Rise Times  
Transient Voltage 2-3 pu (line to ground)

#### Test Device Capability

60 Hz to 20 kHz Pulse Frequency  
10 to 100 kV/msec Rise Time  
1000 to 5000 V Peak to Peak (square wave)

The testing parameters for the Pulse Endurance Test have been determined by examining the actual inverter characteristics and determining the worst case pulse condition that a motor would experience.

#### Pulse Endurance Test Method

Dielectric twists of 18 AWG wire coated with the test insulation are aged in a forced air oven at 90 degrees C under the electrical stress condition of 0.025 msecond pulse rise time, 2kV peak voltage, 20 kHz pulse frequency, 50% duty cycle square wave. The time to failure of the product is recorded in seconds. The Pulse Endurance Index (PEI) is a ratio of the endurance life of the sample under test in comparison to 18 AWG wire using heavy build MW35 insulation.

*Pulse Endurance Index (PEI) = Endurance Life of Test Sample/ Endurance Life of Heavy Build MW35 Sample*

#### Stock & Custom Motors Available

Varidyna<sup>®</sup> Vertical Motors with our patented Inverter Grade<sup>®</sup> insulation system are available from stock or conversion. We can customer engineer a product as well to help you take advantage of our extensive modification capabilities.

- Altitude above 3300 ft
- Ambient above 40°C
- Bearing Thermal Protection
- Capacitors
- Current Transformers

- Extra High Torque
- Space Heaters
- Special Balance
- Surge Protection
- Thermostats
- Thermistors
- Winding RTDs

Vardyne® Vertical Motors - providing you reliable performance under VFD power and greater peace of mind

PDS544-193

**PRODUCTION WELL REVIS #3**

# WELL LOG AND DRILLING REPORT

Ohio Department of Natural Resources  
Division of Water, 2045 Morse Road, Columbus, Ohio 43229-6605  
Voice (614) 265-6740 Fax (614) 265-6767

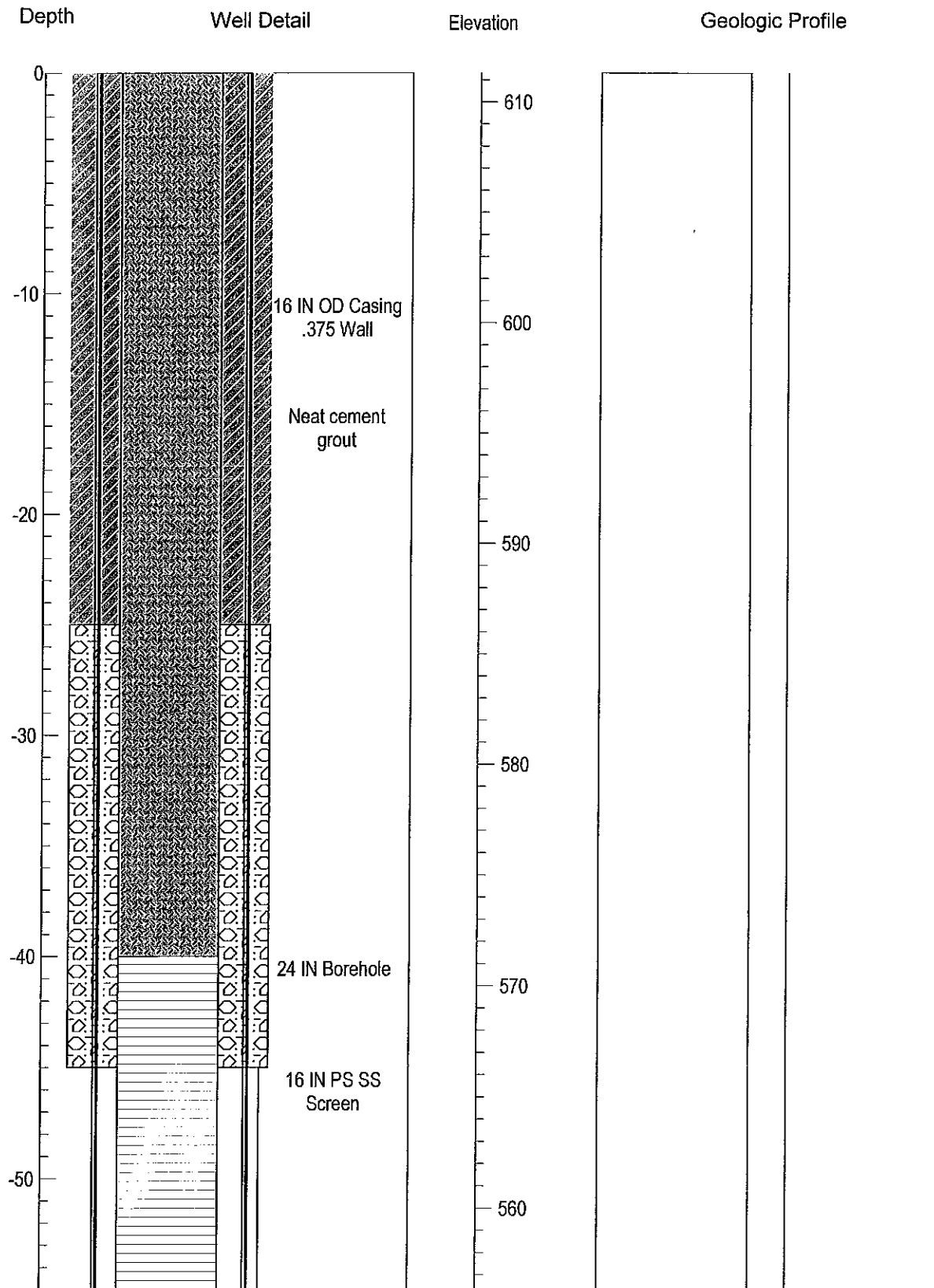
WELL LOCATION	CONSTRUCTION DETAILS																														
County <u>WARREN</u> Township <u>UNION</u>	Drilling Method: <u>AIR ROTARY</u>																														
Owner/Builder <u>WARREN CO.</u>	<b>BOREHOLE/CASING</b> (Measured from ground surface)																														
Address of Well Location <u>ST RT 48</u>	1 { Borehole Diameter <u>24</u> inches Depth <u>55</u> ft. Casing Diameter <u>16</u> in. Length <u>41.5</u> ft. Thickness <u>0.375</u> in.																														
City <u>SOUTH LEBANON</u> Zip Code +4 <u>45036</u>	2 { Borehole Diameter _____ inches Depth _____ ft. Casing Diameter _____ in. Length _____ ft. Thickness _____ in.																														
Permitt No. _____ Section; _____ and/or Lot No. _____	Casing Height Above Ground <u>1.5</u> ft.																														
Use of Well <u>MONITOR</u>	Type { 1: <u>Steel</u> 2: _____																														
<b>Coordinates of Well</b> (Use only one of the below coordinate systems) State Plane Coordinates	Joints { 1: <u>Welded</u> 2: _____																														
N <input type="checkbox"/> X _____ +/- _____ ft.	<b>SCREEN</b> Diameter <u>16</u> in. Slot Size <u>0.12</u> in. Screen Length <u>15</u> ft.																														
S <input type="checkbox"/> Y _____ +/- _____ ft.	Type <u>CONTINUOUS WIRE WOUND</u> Material <u>STAINLESS STEEL</u>																														
Latitude, Longitude Coordinates Latitude: <u>39.3683</u> Longitude: <u>84.22256</u>	Set Between <u>40</u> ft. and <u>55</u> ft.																														
Elevation of Well in feet: <u>614.75</u> +/- <u>0</u> ft.	<b>GRAVEL PACK</b> (Filter Pack) Material/ Size <u>Global #3</u> Vol/Wt. Used <u>4,725 #</u>																														
Datum Plane: <input type="checkbox"/> NAD27 <input checked="" type="checkbox"/> NAD83 Elevation Source <u>TERRESTRIAL</u>	Method of Installation <u>Poured (gravity)</u> Depth: Placed From: <u>28</u> ft. To: <u>55</u> ft.																														
Source of Coordinates: <u>GPS</u>	<b>GROUT</b> Material <u>Neat cement</u> Vol/Wt. Used <u>3,900 #</u>																														
Well location written description: <u>PWR-3</u>	Method of Installation <u>Pumped w/Tremie pipe</u> Depth: Placed From: <u>0</u> ft. To: <u>28</u> ft.																														
Comments on water quality/quantity and well construction:	<b>DRILLING LOG*</b>																														
	FORMATIONS INCLUDE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.																														
<b>WELL TEST *</b>	<table border="1"> <thead> <tr> <th>Color</th> <th>Texture</th> <th>Formation</th> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>BROWN</td> <td>DRY</td> <td>CLAY</td> <td>0</td> <td>10</td> </tr> <tr> <td>GRAY</td> <td>COARSE</td> <td>GRAVEL</td> <td>10</td> <td>28</td> </tr> <tr> <td>BROWN</td> <td>FINE TO COURSE</td> <td>SAND AND GRAVEL</td> <td>28</td> <td>46</td> </tr> <tr> <td>GRAY</td> <td>COARSE</td> <td>GRAVEL</td> <td>46</td> <td>55</td> </tr> <tr> <td></td> <td></td> <td>Water Encountered At</td> <td>10</td> <td>55</td> </tr> </tbody> </table>	Color	Texture	Formation	From	To	BROWN	DRY	CLAY	0	10	GRAY	COARSE	GRAVEL	10	28	BROWN	FINE TO COURSE	SAND AND GRAVEL	28	46	GRAY	COARSE	GRAVEL	46	55			Water Encountered At	10	55
Color	Texture	Formation	From	To																											
BROWN	DRY	CLAY	0	10																											
GRAY	COARSE	GRAVEL	10	28																											
BROWN	FINE TO COURSE	SAND AND GRAVEL	28	46																											
GRAY	COARSE	GRAVEL	46	55																											
		Water Encountered At	10	55																											
Pre-Pumping Static Level <u>12.3</u> ft. Date _____																															
Measured from <u>TOP OF CASING</u>	Aquifer Type (Formation producing the most water.) <u>SAND AND GRAVEL</u>																														
Pumping test method _____	Date of Well Completion <u>2/22/2006</u> Total Depth of Well <u>55</u> ft.																														
Test Rate _____ gpm Duration of Test _____ hrs.																															
Feet of Drawdown _____ ft. Sustainable Yield _____ gpm																															
* (Attach a copy of the pumping test record, per section 1521.05, ORC)																															
Is Copy Attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Flowing Well? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No																															
<b>PUMP/PITLESS</b>																															
Type of pump _____ Capacity _____ gpm																															
Pump set at _____ ft. Pitless Type _____																															
Pump installed by _____																															
I hereby certify the information given is accurate and correct to the best of my knowledge.																															
Drilling Firm <u>KELLEY CONTRACT DEWATERING</u>																															
Address <u>5175 SW CLAY AVE</u>																															
City, State, Zip <u>WYOMING MI 49548</u>																															
Signed <u>CLIFFORD GRIEVES</u> Date <u>7/27/2006</u>																															
(Filed Electronically)																															
ODH Registration Number <u>02571</u>																															

# Kelley Dewatering & Construction Co. Inc

## Well Construction Drawing

Job: Warren Co. OH  
Contractor: KDCC  
Engineer: Tetra-Tech EM

Well Name: PWR-3  
Drilling Method: Dual Rotary / Air  
Date of completion: 10-10-06





Customer : Davis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg Ohio  
 45342

Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 8696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield - Hamilton Well Field  
 Quote No. : US-3245-242

Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday, April 24 2007

Page No : 1



Item : PWR-3  
 Model : Peerless Vertical - 12MB

Flow (US gpm)	Head (ft)	Eff. (%)	Power (hp)	Speed (RPM)
880	283	83.3	77.42	1770
Liquid	Temp. (°F)	Sp. Gravity	Visc. (cSt)	Dia. (inch)
Water	68	1.000	1.007	8.41

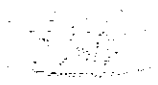
Summary Quotation:

Item No	Description	Weight (lb)	Qty
1	12MB, 6 Stage Bowl Assembly, Material Group A Threaded Column 8/1.5, L4, Suction Bell, Threaded Discharge Bowl, OLS	0	1
2	Impeller, trimmed, surface finish Ra75, vane exit Std Fig 1-0.188	0	6
3	Adapter, Bottom Column	0	1
4	Top Bowl	106	1
5	Bowl, Intermediate	530	5
6	Collar, Sand, lower and upper	0	2
7	Bushing, Taper Lock (Collet) - Material 316ss	0	6
8	Fastener, Bowl, Material 316ss	0	72
9	Gasket, Bowl	0	5
10	Charge for Polishing (Premium Efficiency)	0	6
11	Ring, Seal, Lateral	0	6
12	Ring, Wear, Bowl, Material 63 Bronze	0	6
13	Suction	226	1
14	Plug, Pipe (Suction)	0	1
15	Shaft, Pump, D = 1.50 inch, L = 75.2 inch, T.Lock, Material 416ss	0	1
16	Coupling, Threaded, Shaft, Steel, 1215 CD	1.53	1
17	Strainer, Basket, Material 316Lss	16.98	1
18	OLS Threaded column 8.0 inch / 1.50 inch shaft / 10ft bearing spacing, length base to bowl 768 inch	0	1
19	Pipe, column threaded T&C 8.0 inch, bottom, length 120 inch, Material plain steel	282.21	1
20	Pipe, column threaded T&C 8.0 inch, intermediate 1, length 120 inch, Material plain steel	1411.05	5

1006.  
 Quote valid for 30 days

Peerless Pump Company - RAPID v8.25.1 - 13th February 2007.





Customer Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg, Ohio  
 45342

Corporate Equipment Company  
 607 Redna Terrace, No. 100 Cincinnati, Ohio 45216  
 Lou Salvina  
 Phone 513 771 9696 ext. 116  
 Fax 513 771 0334

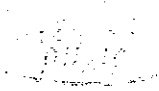
Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242 Page No : 2  
 Contact : Mr Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday April 24 2007

21	Pipe, column threaded TBE 8.0 inch, top, code length to base 48 inch, Material plain steel	112.89	1
22	No Shaft critical speed analysis	0	1
23	Shaft-Group of Column	0	1
24	Shaft, line, bottom, threaded D = 1.50 inch, length 120 inch, Material 416ss	59.38	1
25	Shaft, line, intermediate 1 threaded, D = 1.50 inch, length 120 inch, Material 416ss	296.9	5
26	Shaft, line, top threaded <2-Piece-Top-Shaft>, D=1.50 inch, L=63.00 inch, Material 416ss	31.17	1
27	Bearing, Open Line Shaft	0	6
28	Retainer, Bearing, Open Line Shaft	34.08	6
29	Coupling, Threaded, Shaft, 410ss	9.18	6
30	Shaft, Head (Top shaft for VHS motor), <2-Piece-Top-Shaft>, Assembly	0	1
31	Coupling, Shaft, Line, Top, Standard, Material Steel, 1215 CD	1.53	1
32	Shaft, Head, VHS motor, D=1.50 inch, L=48.50 inch, Mat. 416ss	24	1
33	Shaft, Line, Diameter 1.50 inch, Material 416ss	0	1
34	Stuffing Box, Register 5.562, Assembly	0	1
35	Stuffing box	0	1
36	Gland, Stuffing box, Material 316ss	0	1
37	T-Bolt, Gland, Material 316ss	0	2
38	Nut, Gland	0	2
39	Clamp, Gland	0	2
40	Washer, Packing	0	1
41	Packing	0	6
42	Gasket, Stuffing Box	0	1
43	Ring, Seal	0	1
44	Fastener, Stuffing Box	0	4
45	Fitting grease	0	1
46	Discharge head assembly 8x8x16.5FA, steel	0	1
47	Pump operates at Constant Speed	0	1
48	Head, Discharge 8x8x16.5FA, Motor Base Diameter BD=20 inch	413	1
49	Discharge Flange 150 lb	30	1

1306  
 Quote valid for 30 days

Peerless Pump Company - RAPID v8.25.1 - 13th February 2007.





Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg Ohio  
 45342

Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3243-242 Page No : 3  
 Contact : Mr. Steve Brown  
 Phone : 937 228 1225 Fax : 937 228 7443  
 Date : Tuesday April 24, 2007

50	Name Plate, Pump Data	0	1
51	Name Plate, pp Data Screws	0	4
52	Name Plate, Rotation Direction	0	1
53	Name Plate, Warning	0	1
54	Wedge Leveling	0	4
55	Plug 1 Discharge Head	0	5
56	Plug 2, Discharge Head	0	1
57	Guard 1 Coupling	0	1
58	Guard 2, Coupling	0	1
59	Screw Guard	0	8
60	Washer Guard	0	8
61	Flange, Top	0	1
62	Stud, Flange, Top, Material 304ss, Standard	0	8
63	Nut, Flange, Top, Material 304ss, Standard	0	8
64	Gasket, Flange, Top	0	1
65	Nut, Top	0	1
66	Screw, Nut, Top	0	2
67	Bolt, Motor	0	4
68	Motor-electric, 100hp-1783rpm, 575/460/230/200V, 3Ph, 60Hz, Frame 405TP, VHS, Encl. TEFC, Eff. premium, Modified, TUS, USEM	1350	1
69	Winding thermal protection Thermostats (without control module)	0	1
70	Inverter duty	0	1
71	Service Factor 1.15	0	1
72	Ground lug in conduit box (non - explosion proof)	0	1
73	Non reverse ratchet	0	1
74	Starting Method at Voltage 460V: Full Voltage (standard)	0	1
75	Space heater, voltage 115V	0	1
76	Testing: Standard Commercial Test	0	1
77	Freight of electric motor from motor vendor to the 1st domestic destination (North America) included	0	1

Q 1005.  
 Quote valid for 30 days

Peerless Pump Company - RAPID v8.25.1 - 13th February 2007.





Customer : Danis Industrial Construction Co  
3233 Newmark Drive  
Miamisburg, Ohio  
45342

Corporate Equipment Company

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
Lou Salvina  
Phone 513 771 6696 ext. 116  
Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
Quote No. : US-3245-242 Page No : 4  
Contact : Mr Steve Brown  
Phone : 937 228 1225 Fax : 937 228 7443  
Date : Tuesday April 24, 2007

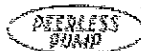
78	Dimensions of connection: Line Shaft Diameter= 1 50 inch, Motor Base Diameter BD=20 inch	0	1
79	Plate, Sole, Material steel 056	157	1
80	Bolt, Base / Sole Plate	0	4
81	Painting - Coating	0	1
82	Painting of discharge head, PEERLESS blue, enameled	0	1
83	Surface of column: assembled pump - painted PEERLESS blue enameled; unassembled pump - black as received	0	1
84	Painting of bowl, PEERLESS blue, enameled	0	1
85	Laboratory Performance Test, non-witnessed (increases lead time of bowl assembly by 1 week!)	0	1
86	Tolerance Type: Hyd Inst-Peerless Std	0	1
87	Test Data Sheets	0	1
88	Curve Approval (customer approval prior shipping)	0	1
89	Test Units US	0	1
90	Hydrostatic Pressure Test (details as selected)	0	1
91	Hydrostatic Pressure Test of Bowls, non-witnessed (add 1 week lead time to Bowls)	0	1
92	Shipping Condition: Pump DISSASSEMBLED	0	1
93	Add for SS sand collars (LCS)	0	2
94	Add for drill and tap 1.5" dia. hole in head base (LCS)	0	1

Freight Payment: Allowed

Total (\$):

Estimated Schedule (week(s)): 16 to 18 weeks after approval

Net Weight Total (lb): 5092.9





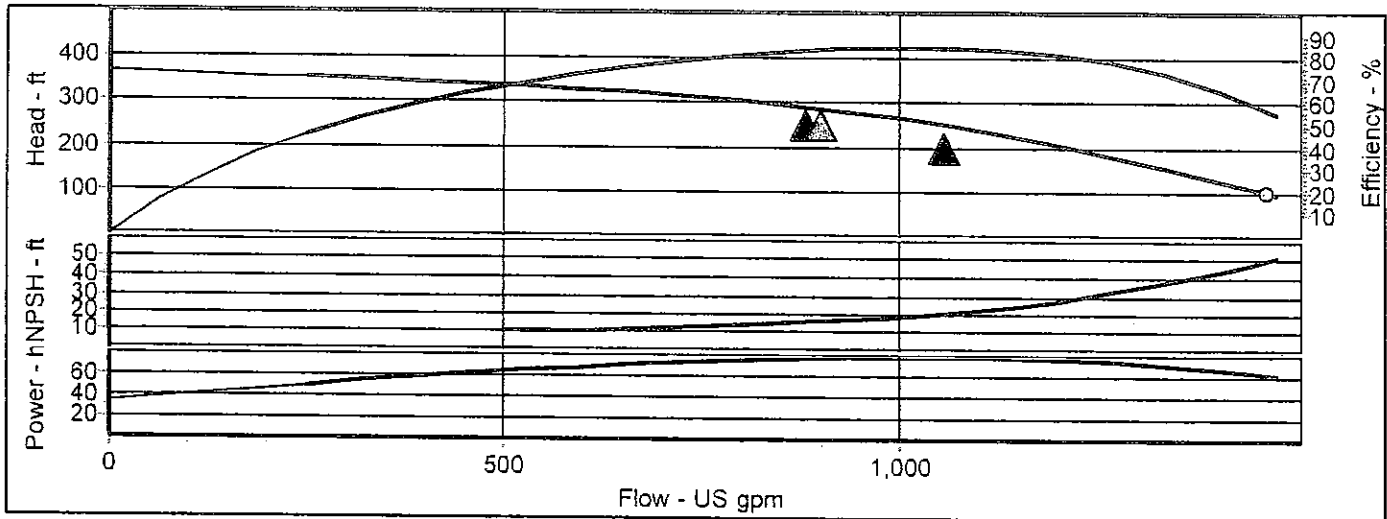
Customer : Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg Ohio  
 45342

Corporate Equipment Company  
 607 Redna Terrace. No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

Project : Warren County Deerfield Hamilton Well Field  
 Quote No. : US-3245-242  
 Page No. : 1  
 Contact : Mr Steve Brown  
 Phone : 937 228 1225  
 Date : Wednesday April 25 2007  
 Fax : 937 223 7443

Pump Model: Peerless Vertical - 12MB 6 Stages  
 Nom. Speed 1770 RPM, 60 Hz Electric  
 Market Vertical Turbine Pump  
 Impeller No 2624332 / MC  
 Material Spec. Group A - B: CIE; I: Brz = Standard  
 Item PWR-3 Fluid: Water  
 Your Ref  
 Temperature 68 °F  
 Viscosity 1.007 cSt  
 Sp Gravity 1.000 (base temp 68 °F)  
 Stage No Trim Status Imp. Dia. (inch) D2-in x D2-out  
 ---- Full ----  
 ---- Full 8.88 x 8.88  
 1 - 6 Trimmed P 8.41 x 8.41  
 Flow rate Q 880 US gpm  
 Bowl Total Head 283 ft  
 Bowl Efficiency 83.3 %  
 Bowl Power Required 77.42 hp  
 NPSH Required 15.416 ft

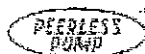
Performance curve according to Hyd Inst-Peerless Std  
 ○ Up-Thrust



Comments

Refer to factory for all single point bowl performance guarantees. Pumps must be selected with Hydraulic Institute-Peerless Std. See Std Hydraulic Performance document in RAPID for testing tolerances & contractual guarantees.

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)	Thrust (lb)
0.0	364.6	0.0	33.9		5192.14
183.9	355.7	36.2	45.7		4899.05
367.8	346.1	56.9	56.5		4494.64
551.7	333.1	70.2	66.1	10.3	4106.64
735.7	313.1	79.0	73.6	12.7	3470.24
919.6	282.3	84.0	78.1	16.3	2560.52
1103.5	237.0	84.2	78.4	22.4	1630.01
1287.4	174.3	77.0	73.6	33.6	806.37
1471.3	93.0	55.2	62.6	51.2	-52.12



## HYDRAULIC PERFORMANCE TOLERANCE

The conditions of service can only be guaranteed within the following tolerances, which are consistent with those standards as established by the Hydraulic Institute.

HEAD - Under 200 ft. at 2999 gpm and under	+8% - 0%
HEAD - Under 200 ft. at 3000 gpm and over	+5% - 0%
HEAD - 200 ft To 500 ft at any flow	+5% - 0%
HEAD - Over 500 ft. at any flow	+3% - 0%

or

At Rated Head = 10% - 0% Capacity

Efficiency = - 0% of Contracted Pump Efficiency  
(Job factory guaranteed pump efficiency)

Bhp at Rated Condition = + 8% ( As per above Head Tolerances)  
+ 5%  
+ 3%

This guarantee applies to only one set of conditions as specified. A second Head-Capacity point or Shut-Off Head cannot be guaranteed within these tolerances. When **Hydraulic Institute-Peerless Standard Tolerance Type** is selected in **Rapid** criteria screen the above tolerances are used in selecting pump at input head and capacity points.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order.

The plus 8%, 5% or 3% in HEAD tolerances at the rated capacity could result in a plus 8%, 5% or 3% greater horsepower load. Motors must be selected so that they can safely carry a load 8%, 5% or 3% greater than that calculated at the rated capacity. For specifications that specify that the motor size to be non - overloading over the entire pump curve, the 8%, 5% or 3% tolerance must be added to the expected horsepower at the low HEAD or maximum horsepower condition.

With the total HEAD tolerance described above, for centrifugal pumps, be sure and take into consideration, the plus 8%, 5% or 3% tolerance on the horsepower when selecting a pump from a standard sales manual curve.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order as directed by information in Sections 10 and 15.

**Corporate Equipment Company**

607 Redna Terrace, No. 100 Cincinnati, Ohio 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116  
 Fax 513 771 0334

**Customer** Danis Industrial Construction Co  
 3233 Newmark Drive  
 Miamisburg Ohio  
 45342

**Project :** Warren County Deerfield Hamilton Well Field  
**Quote No. :** US-3245-242

**Page No. :** 5

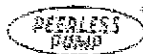
**Contact :** Mr. Steve Brown  
**Phone :** 937 228 1225 **Fax :** 937 228 7443  
**Date :** Tuesday April 24 2007

<b>Item:</b> PWR-3 <b>Model :</b> Peerless Vertical - 12MB	<b>Flow (US gpm)</b>	<b>Head (ft)</b>	<b>Eff. (%)</b>	<b>Power (hp)</b>	<b>Speed (RPM)</b>
	380	283	83.3	77.42	1770
	<b>Liquid</b>	<b>Temp. (°F)</b>	<b>Sp. Gravity</b>	<b>Visc. (cSt)</b>	<b>Dia. (inch)</b>
	Water	68	1.000	1.007	3.41

**Technical Information:**

**Technical Information: 12MB**

Material Code of Suction	040 = Cast Iron, CL30 - ASTM A48, CLASS 30
Material Code of Case	XXX = Item not available in this configuration
Material Code of Intermediate Bowl	041 = Cast Iron, CL30 ENAMELED - ASTM A48, CLASS 30
Material Code of Top Bowl	041 = Cast Iron, CL30 ENAMELED - ASTM A48, CLASS 30
Material Code of Impeller	023 = BRONZE, ALUMINUM - ASTM B148
Maximum allowed pressure of bowl	357 psi = 24 bar
Diameter of Pump (Bowl) Shaft in inches	1.5
Diameter of Line Shaft (Column) in inches	1.5000
Pump as Submersible?	Not Applicable
Is Enclosed Line Shaft (ELS) possible?	Not Applicable
Is Flanged Column possible?	Not Applicable
Is Threaded Column possible?	Yes
Hub Stick Down in inches	0.12
Lateral setting, best in inches	0.1875
Lateral adjustment, standard in inches	0.469
Lateral adjustment, maximum in inches	0.916
Net Area of Impeller Inlet	17.868 inch <sup>2</sup> = 11527.719 mm <sup>2</sup> ;
Sphere Size	0.8125 inch = 20.637 mm
Stick up of pump shaft	10.00 inch = 254.000 mm
Moment of Inertia of 1 Impeller WR <sup>2</sup>	188 lbs*inch <sup>2</sup> = 0.055 kg*m <sup>2</sup>
Moment of Inertia of rotor (all impellers + bowl shaft + line shaft) WR <sup>2</sup>	1665.694 lbs*inch <sup>2</sup> = 0.487 kg*m <sup>2</sup>

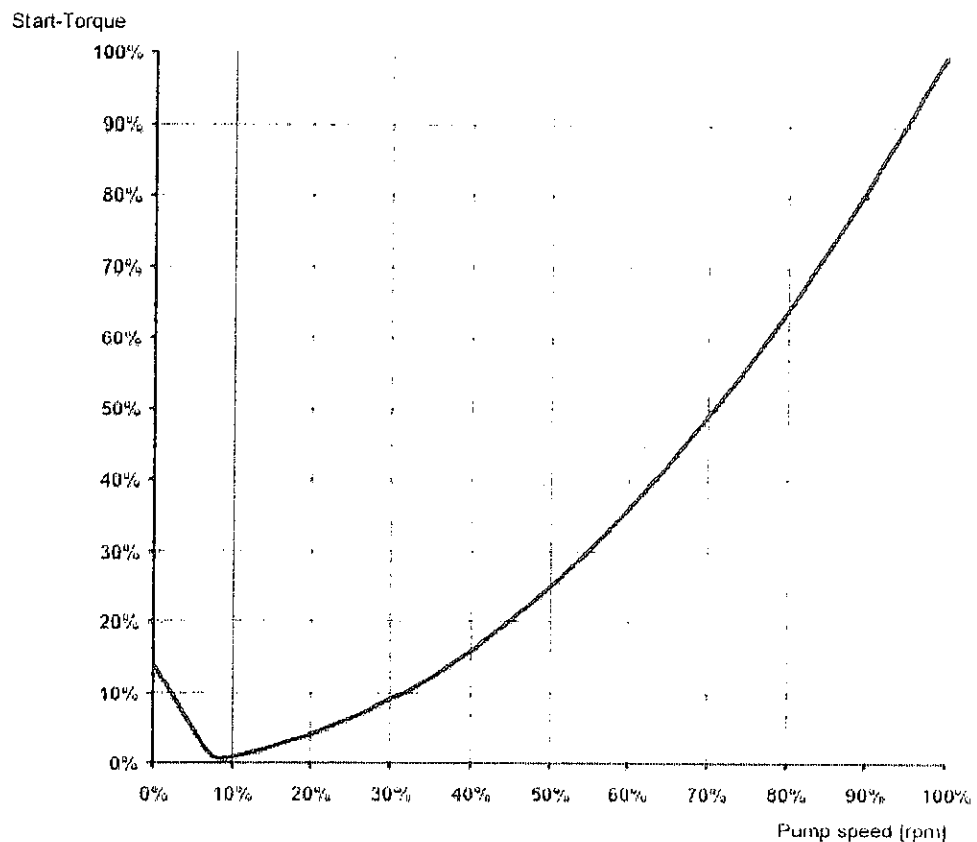


## Speed vs. Torque

Start at OPEN valve:  
100% of Torque = 311 Nm = 229 lbf\*ft

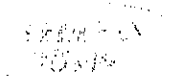
Start at CLOSED valve:  
100% of Torque = 136 Nm = 100 lbf\*ft

100% of Speed = 1770 RPM



Dimensions in (inch)

<b>Project :</b> Warren County Deerfield Hamilton W	<b>Capacity:</b> 880 (US gpm)	<b>Frame/Model:</b> 405TP
<b>Customer:</b> Danis Industrial Construction Co.	<b>Total Head:</b> 283 (ft)	<b>Elec. Spec.:</b> 3/60/460V
<b>Item No.:</b> PWR-3	<b>Pump Speed:</b> 1770 (RPM)	<b>Service Factor:</b> 1.15
<b>Quote No. :</b> US-3245-242	<b>Impeller Dia.:</b> 8.41 (inch)	<b>Rotation:</b> counter-clockwise
<b>Pump Model:</b> Peerless Vertical - 12MB	<b>Power:</b> 100 (hp)	<b>Enclosure/Type:</b> TEFC

  
**Peerless Pump Company**  
 607 Redna Terrace, No. 100 Cincinnati, Ohio  
 45215  
 Lou Salvina  
 Phone 513 771 6696 ext. 116

Date : Tuesday, April 24, 2007  
Page No : 10



Peerless Pump Company, - Indianapolis IN 46207-7025

## RAPID Technical Data Verification Sheet TDS

Pump Application (Service)	Well Water
Project Name	Warren County Deerfeld Hamilton Well Field
Project Quote Number	US-3245-242
Your Reference Number	
Customer Name	Danis Industrial Construction Co
Customer Purchase Order Number	4007-12
Pump Manufacturer & Pump Model	Peerless Vertical 12MB 6 Stages
Pump Speed	1770 RPM
Testing Tolerance	Hyd Inst-Peerless Std
NPSH available at Rated Condition & Head	0 ft at 880 US gpm & 283 ft
NPSH required at Rated Condition & Head	15.416 ft at 880 US gpm & 283 ft
Static Suction Pressure PSI	Not Applicable
Total Shut Off Pressure PSI	157.743
Pump to operate at shut off?	No
Site Ambient Temperature & Altitude	68 °F & 610.1 ft
Fluid Type & Solids Size & Content	Water & 0.00 inch & 0%
Pump Construction	Material Group A
Efficiency (Typical Performance) See terms for guarantees.	83.3% (Bowl)
BHP at Condition Point	77.42 hp
Maximum BHP	78.85 hp
BHP at Shut Off	33.89 hp
Maximum BHP of Motor Loaded to Full Service Factor	
Pump Rotation Viewed from Driver End	Counter Clockwise
Replacement of Pump Serial Number (if applicable)	



# Losses of Head and Power in Pump

## Hydraulic Head Losses

In Column due to Friction	1.459 ft
In Tapered Bottom Column Pipe	0.000 ft
In Discharge Head	0.736 ft
<i>Losses Total</i>	2.195 ft

## Power Losses

In Column due to Friction of Line Shaft with Water	0.745 hp
In Thrust Bearing	0.370 hp
<i>Losses Total</i>	1.115 hp

## Efficiency of BOWL and Efficiency of PUMP

Efficiency of Bowl in Duty Point	83.28%
Efficiency of Pump / Field in Duty Point (approximately), reduction caused by losses of head and power	81.47%



**EMERSON MOTOR COMPANY**  
 3100 WEST FLORISSANT AVE  
 P O BOX 3946 \* BLDG K \* ST LOUIS MO 63136  
 FAX 314 553-1101

DATE: 4/20/07

P.O. NO.:  
 USEM  
 Order/Line NO.: 20063912 SO 100

TO: Sterling Fluid Systems  
 ATTN: Accounts Payable  
 PO Box 7026  
 Indianapolis, IN, 46207-7026  
 ATTN: FELIX HIPOLITO

Model Number: NA  
 Catalog Number: NA  
 VHS TEFC Configuration  
 CONF,MOTOR,VHS TEFC

REVISIONS:  
 (NONE)

MARKS: PN 705040-02 FOR 705040VJ

ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
 THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.

**Features:**

Horsepower ..... 00100.00-00000.00 ~ KW: 74.6  
 Quantity..... 5  
 Enclosure ..... TEFC  
 Poles ..... 04-00 ~ RPM: 1800-0  
 Frame Size ..... 405-TPA  
 Phase/Frequency/Voltage.. 3-060-230/460 ~ Random Wound  
 Service Factor ..... 1.15  
 Insulation Class ..... Class "F" ~ Insulife 2000  
 Altitude In Feet (Max) .. 3300 Ft.(1000 M) ~ +40 C  
 Efficiency Class ..... Premium Efficiency  
 Application ..... Centrifugal Pump  
 Customer Part Number .... 705040VJ  
 20" Base ~ Coupling Size: 1-1/2" Bore, 3/8" Key  
 Non-Reverse Ratchet ~ Steady Bushing Not Requested  
 Pricebook Thrust Value (lbs).. 7000  
 Customer Down Thrust (lbs) ... 7000  
 Customer Shutoff Thrust (lbs).  
 Up Thrust (lbs): ~  
 Inverter Duty Rating:  
 Load Type (Base Hz & Below) .. Variable Torque  
 Speed Range (Base Hz & Below). 10:1  
 Temperature Rise (Sine Wave): "F" Rise @ SF (Resist)  
 Starting Method ..... Direct-On-Line Start  
 Duty Cycle ..... Continuous Duty  
 Load Inertia (lb-ft<sup>2</sup>): NEMA ~ NEMA Inertia: 441.00 ~ 1.00  
 Number Of Starts Per Hour: NEMA  
 Motor Type Code ..... TUI  
 Rotor Inertia (LB-FT<sup>2</sup>) 24.3 LB-FT<sup>2</sup>  
 Qty. of Bearings PE (Shaft) 1  
 Qty. of Bearings SE (OPP) 1  
 Bearing Number PE (Shaft) 6218-J/C3  
 E nber SE (OPP) 7222 BEM



Emerson Motor Company is a division of Emerson Electric Co.  
 The Emerson logo is a trademark and service mark of Emerson Electric Co.





**EMERSON MOTOR COMPANY**

8100 WEST FLORISSANT AVE  
P O BOX 3946 \* BLDG K \* ST LOUIS MO 63136  
FAX /314/ 553-1101

DATE: 4/25/07

P.O. NO.:  
USEM  
Order/Line NO.: 20063912 SO 100

TO: Sterling Fluid Systems  
ATTN: Accounts Payable  
PO Box 7026  
Indianapolis, IN, 46207-7026  
ATTN: FELIX HIPOLITO

Model Number: NA  
Catalog Number: NA  
VHS TEFC Configuration  
CONF,MOTOR,VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705040-02 FOR 705040VJ

ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.

**Accessories:**

- Counter CW Rotation FODE
- Ground Lug In Conduit Box
- 115 Volt Space Heaters
- Thermostats - Normally Closed
- VFD Duty

USE THE DATA PROVIDED BELOW TO SELECT THE APPROPRIATE DIMENSION PRINT

Horsepower	100
Pole(s)	04
Voltage(s)	460-230
Frame Size	405TPA
Outlet Box AF	3.38
Outlet Box AA	3.00



Emerson Motor Company is a division of Emerson Electric Co.  
The Emerson logo is a trademark and service mark of Emerson Electric Co.

# NAMEPLATE DATA

CATALOG NUMBER _____		NAMEPLATE PART # <span style="border: 1px solid black; padding: 2px;">422707-005</span>	
MODEL _____	FR <span style="border: 1px solid black; padding: 2px;">405TPA</span>	TYPE <span style="border: 1px solid black; padding: 2px;">TUI</span>	ENCL <span style="border: 1px solid black; padding: 2px;">TE</span>
SHAFT END BRG <span style="border: 1px solid black; padding: 2px;">6218-J/C3 - QTY 1</span>		OPP END BRG <span style="border: 1px solid black; padding: 2px;">7222 BEM - QTY 1</span>	
PH <span style="border: 1px solid black; padding: 2px;">3</span>	MAX AMB <span style="border: 1px solid black; padding: 2px;">40 C</span>	ID# <span style="border: 1px solid black; padding: 2px;">(ref: Order#: 20063912, Type: SO, Line#: 100)</span>	
NSJL CLASS <span style="border: 1px solid black; padding: 2px;">F</span>	Asm Pos _____	DUTY <span style="border: 1px solid black; padding: 2px;">CONT</span>	
HP <span style="border: 1px solid black; padding: 2px;">100</span>	RPM <span style="border: 1px solid black; padding: 2px;">1785</span>	HP _____	RPM _____
VOLTS <span style="border: 1px solid black; padding: 2px;">480</span> <span style="border: 1px solid black; padding: 2px;">230</span>	VOLTS _____	VOLTS _____	VOLTS _____
FL AMPS <span style="border: 1px solid black; padding: 2px;">113.0</span> <span style="border: 1px solid black; padding: 2px;">227.0</span>	FL AMPS _____	FL AMPS _____	FL AMPS _____
SF AMPS <span style="border: 1px solid black; padding: 2px;">130.0</span> <span style="border: 1px solid black; padding: 2px;">260.0</span>	SF AMPS _____	SF AMPS _____	SF AMPS _____
SF <span style="border: 1px solid black; padding: 2px;">115</span> DESIGN <span style="border: 1px solid black; padding: 2px;">B</span> CODE <span style="border: 1px solid black; padding: 2px;">G</span>	SF _____ DESIGN _____ CODE _____	SF _____ DESIGN _____ CODE _____	SF _____ DESIGN _____ CODE _____
NEMA NOM EFFICIENCY <span style="border: 1px solid black; padding: 2px;">94.5</span> NOM PF <span style="border: 1px solid black; padding: 2px;">87.3</span> KiloWatt <span style="border: 1px solid black; padding: 2px;">74.6</span>	NEMA NOM EFFICIENCY _____ NOM PF _____ KiloWatt _____	NEMA NOM EFFICIENCY _____ NOM PF _____ KiloWatt _____	NEMA NOM EFFICIENCY _____ NOM PF _____ KiloWatt _____
GUARANTEED EFFICIENCY <span style="border: 1px solid black; padding: 2px;">93.6</span> MAX KVAR _____ HZ <span style="border: 1px solid black; padding: 2px;">60</span>	GUARANTEED EFFICIENCY _____ MAX KVAR _____ HZ _____	GUARANTEED EFFICIENCY _____ MAX KVAR _____ HZ _____	GUARANTEED EFFICIENCY _____ MAX KVAR _____ HZ _____

**UL DATA (IF APPLICABLE):**

DIVISION _____	CLASS I _____	GROUP I _____
TEMP CODE _____	CLASS II _____	GROUP II _____

**VFD DATA (IF APPLICABLE):**

VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>	TORQUE 1 <span style="border: 1px solid black; padding: 2px;">294.6</span>	TORQUE 2 _____
AMPS <span style="border: 1px solid black; padding: 2px;">118.7</span> <span style="border: 1px solid black; padding: 2px;">238.4</span>	VFD LOAD TYPE 1 <span style="border: 1px solid black; padding: 2px;">VT/PWM</span>	VFD LOAD TYPE 2 _____
VFD HERTZ RANGE 1 <span style="border: 1px solid black; padding: 2px;">6-60</span>	VFD HERTZ RANGE 2 _____	VFD HERTZ RANGE 2 _____
VFD SPEED RANGE 1 <span style="border: 1px solid black; padding: 2px;">180-1800</span>	VFD SPEED RANGE 2 _____	VFD SPEED RANGE 2 _____
SERVICE FACTOR <span style="border: 1px solid black; padding: 2px;">1.00</span>	FL SLIP _____	FL SLIP _____
NO. POLES _____	MAGNETIZING AMPS _____	MAGNETIZING AMPS _____
VECTOR MAX RPM _____	Encoder PPR _____	Encoder PPR _____
Radians / Seconds _____	Encoder Volts _____	Encoder Volts _____

**TEAO DATA (IF APPLICABLE):**

HP (AIR OVER) _____	HP (AIR OVER M/S) _____	RPM (AIR OVER) _____	RPM (AIR OVER M/S) _____
FPM AIR VELOCITY _____	FPM AIR VELOCITY M/S _____	FPM AIR VELOCITY SEC _____	FPM AIR VELOCITY SEC _____

ADDITIONAL NAMEPLATE DATA:

Decal / Plate	WD=109145	Customer PN	705040VJ
Notes		Non Rev Ratchet	NRR
Max Temp Rise		OPP/Upper Oil Cap	5.5 QT/5.2 L
Thermal (WDG)	OVER TEMP PROT 2	SHAFT/Lower Oil Cap	GREASE
Altitude			
EPACT Note		EPACT Compliance	
COS		Marine Duty	
Balance	0.08 IN/SEC	Arctic Duty	
3/4 Load Eff.	94.8	Inrush Limit	
Motor Weight	1500	Direction of Rotation	
Sound Level		Special Note 1	
Vertical Thrust	7000	Special Note 2	
Thrust Percentage	100% HT	Special Note 3	
Bearing Life		Special Note 4	
Starting Method		Special Note 5	
Number of Starts		Special Note 6	
200/208V 60Hz Max Amps		SH Max. Temp.	
190V 50 hz Max Amps		SH Voltage	SH VOLTS=115V
380V 50 Hz Max Amps		SH Watts	SH WATTS=192W
NEMA Inertia		Load Inertia	
Sumpheater Voltage		Sumpheater Wattage	
Special Accessory Note 1		Special Accessory Note 16	
Special Accessory Note 2		Special Accessory Note 17	
Special Accessory Note 3		Special Accessory Note 18	
Special Accessory Note 4		Special Accessory Note 19	
Special Accessory Note 5		Special Accessory Note 20	
Special Accessory Note 6		Special Accessory Note 21	
Special Accessory Note 7		Special Accessory Note 22	
Special Accessory Note 8		Special Accessory Note 23	
Special Accessory Note 9		Special Accessory Note 24	
Special Accessory Note 10		Special Accessory Note 25	
Special Accessory Note 11		Special Accessory Note 26	
Special Accessory Note 12		Special Accessory Note 27	
Special Accessory Note 13		Special Accessory Note 28	
Special Accessory Note 14		Special Accessory Note 29	
Special Accessory Note 15		Special Accessory Note 30	



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



TYPICAL NAMEPLATE DATA  
ACTUAL MOTOR NAMEPLATE LAYOUT MAY VARY  
SOME FIELDS MAY BE OMITTED

# MOTOR PERFORMANCE

MODEL	CATALOG NO	POLES	TYPE	FRAME
NA	NA	3	TUI	405TPA

SERIAL NO	20063912	SPEED	100
-----------	----------	-------	-----

MPI:	31204	44647
HP:	100	100
POLES:	4	4
VOLTS:	460	230
HZ:	60	60
SERVICE FACTOR:	1.15	1.15
EFFICIENCY (%):		
S.F.	94.4	94.4
FULL	94.5	94.5
3/4	94.8	94.8
1/2	94	94
1/4	90.4	90.4
POWER FACTOR (%):		
S.F.	87.6	87.6
FULL	87.3	87.3
3/4	85.3	85.3
1/2	79.1	79.1
1/4	60.6	60.6
NO LOAD	6.6	6.6
LOCKED ROTOR	27.8	27.8
AMPS:		
S.F.	130	260
FULL	113	227
3/4	87	174
1/2	63	126
1/4	43	86
NO LOAD	32.7	65.3
LOCKED ROTOR	725	1406
NEMA CODE LETTER	G	F
NEMA DESIGN LETTER	B	B
FULL LOAD RPM	1785	1785
NEMA NOMINAL EFFICIENCY (%)	94.5	94.5
GUARANTEED EFFICIENCY (%)	93.6	93.6
MAX KVAR	22.1	22.1
AMBIENT (°C)	40	40
ALTITUDE (FASL)	3300	3300
SAFE STALL TIME-HOT (SEC)	30	30
SOUND PRESSURE (DBA @ 1M)	75	75
TORQUES:		
BREAKDOWN(% F.L.)	231	231
LOCKED ROTOR(% F.L.)	161	161
FULL LOAD(LB-FT)	294.6	294.6

The Above Data Is Typical. Sinewave Power Unless Noted Otherwise



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



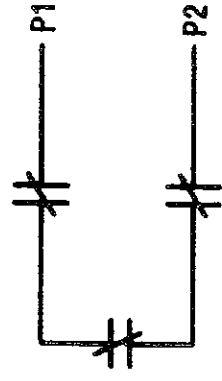
Emerson Motor Company is a division of Emerson Electric Co.  
The Emerson logo is a trademark and service mark of Emerson Electric Co

C 834066 | A

**THERMOSTATS**

- 1. MOTOR IS EQUIPPED WITH QTY-3 (1 PER PHASE) NORMALLY CLOSED THERMOSTATS. THERMOSTATS ARE SET TO OPEN AT HIGH TEMPERATURE.
- 2. THERMOSTATS MUST NOT BE USED TO SWITCH ABOVE 18 AMPS AT 24 VDC OR 12 AMPS AT 230 VAC.

**N. C. THERMOSTATS**



**ACCESSORY LISTING**

QTY-3 N.C. THERMOSTATS

CHANGE NOTICE NO.	DESCRIPTION OF CHANGE	U.S. ELECTRICAL MOTORS DIVISION OF EMERSON ELECTRIC CO. ST. LOUIS, MISSOURI	U.S. ELECTRICAL MOTORS DIVISION OF EMERSON ELECTRIC CO. ST. LOUIS, MISSOURI	CUSTOMER CONNECTION DIAGRAM
A	REDRAWN ON CAD 10/28/91	NONE	ORWIN 24-APR-80, DLH RVSD 6-JUN-00, RWK APPD 6-JUN-00, REP	---
B	8-NOV-95 UPDATE TEXT	---	---	---
C	6-JUN-00 UPDATED	---	---	---

ALTY: C 834066 | A

## SILICONE RUBBER SPACE HEATERS

Electric motors frequently have space heaters installed to prevent moisture condensation in the motor during times the motor is not running.

Many motor manufacturers use metallic or ceramic cartridge heaters for this purpose. Because such heaters are small they must operate at a high surface watt density and consequently high temperature. The high temperature causes rapid heater failure, often within the first year.

To combat this high failure rate, many smart users specify that space heaters are to be operated at one-half their rated voltage. This lowers the surface watt density to one-fourth the value with rated voltage, and increases the heater life more than proportionally.

U. S. Electrical Motors has another, better, solution to heater failure rate - the use of silicone rubber space heaters. The heaters are manufactured by sandwiching a resistance wire network between two pieces of high-temperature silicone rubber and bonding the silicone rubber pieces together. The silicone rubber heaters are designed for low surface watt density by providing a large surface area (a heater measuring 45" X 2.5" is rated at 169 watts, or 1.5 watts per square inch). The life of these heaters typically exceeds the life of the motor.

Silicone rubber heaters enjoy another advantage over metallic or ceramic heaters. Because they are applied directly to the winding end turns, it is usually possible to achieve the required condensation prevention with a lower power consumption.

These silicone rubber heaters are used, when specified, on all U. S. Electrical Motors motors. It is not necessary for the user to specify operation at one-half rated voltage to get the long heater life that is desired.

\* Space heaters must be operated at +/- 10% rated voltage to be effective.

DR# 587-9358  
H.E. Barr  
1/8/81  
\*Revision: 3/11/03  
Mike Cullen

# RENEWAL PARTS

FRAMES 324 THRU 447 - TOTALLY ENCLOSED AND EXPLOSION PROOF MOTORS

TYPES: TU, TUE, TUS, TV, TVC, TVE, TVE4, TVE9, TVC9, TVC, TVC8, TVC8S, TVC8S9, TVE4, TVS4, TVC4, TVC9, TVC, TVC8, TVC8S, TVC8S9, TVE4, TVE9, TVE, TV, TV4, TV9, TVN9, TVS, TVS4, TVS9  
 HOLLOSHAFT AND SOLIDSHAFT MOTORS

ITEM NO.	QTY	NAME OF PART
30	1	Upper Bracket Assembly
31	1	Special Plug
32	1	Sight Gauge Window
33	1	Special Housing
34	1	Reflector Disc
35	2	Gasket
36	4	Screws
37	1	Pipe Nipple
38	1	Gasket
39	1	Drain Cap
40	1	Bearing Mounting
41-45	-	NOT USED IN THIS ASSEMBLY
46	1	Oil Baffle
47	3	Screws
48	3	Split Lockwashers
49	1	Dust Ring (Not Illustrated)
50	1	Gasket (Not Illustrated)
51	4	Screws (Not Illustrated)
52	4	Split Washers (Not Illustrated)
53	1	Ball Bearing (Upper) (Refer to section 775)
54	1	Bearing Spacer
55	2	Ball Bearing (Not Illustrated) (Refer to section 775)
56	1	Air Deflector
57	8	Hex Head Screws
58	8	Lockwashers

ITEM NO.	QTY	NAME OF PART
59	16	Hex Head Screws (Bracket to Stator)
60	16	Lockwashers
61-65	-	NOT USED IN THIS ASSEMBLY
66	1	Wound Stator Assembly
67	1	Rotor Assembly (includes items 68 - 70)
68	1	Rotor Core
69	1	Rotor Shaft
70	1	Square Key
71	1	Pulley End Bracket
72	1	Bearing Cap
73	1	Ball Bearing (Pulley End) (Refer to section 775)
74	1	Snap Ring
75	1	Grease Fitting
76	1	Pipe Plug
77	3	Screws (Bearing Cap)
78	3	Lockwashers
79	1	Water Deflector
80	1	Stabilizer Bushing
81	1	Outlet Box Base
82	4	Screws
83-87	-	NOT USED IN THIS ASSEMBLY
88	1	Outlet Box Cover
89	4	Screws
90	1	Gasket (TU only)
91	1	Gasket (TU only)

**WARNING:**

Any disassembly or repair work on explosionproof motors will void the Underwriters Laboratories, Inc. label unless done by the manufacturer or a facility approved by the Underwriters Laboratories, Inc. Refer to your nearest U.S. Electrical Motors office for assistance.

**BEARINGS:**

Refer to motor nameplate for the bearing numbers.

**PRICES:**

Parts stocking distributors: refer to USEM renewal parts numerical index. All Others: refer to your nearest USEM parts distributor

reference: Renewal Parts Section 700, Pages 157 & 158

# TYPICAL REED CRITICAL FREQUENCY DATA

JSEM MODEL NO. NA  
JSEM CATALOG NO. NA

Frame 425TFA Type TL

REED CRITICAL FREQUENCY	52	HZ
CENTER OF GRAVITY	17	IN
DEFLECTION @ CENTER OF GRAVITY	0.004	IN
UNIT WEIGHT	1300	LBS
BASE DIAMETER	ALL	IN
MAXIMUM MOTOR DIAMETER	24.31	IN
DATE	1/10/2007	



Home Email

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## PRODUCT DATA SHEET

Vertical A.C. Motors  
Open & Enclosed  
Holloshaft<sup>®</sup> & Solidshaft  
Vardyne<sup>®</sup> Inverter Duty

- Weather Protected Type, Totally Enclosed Fan Cooled and Explosion-proof
- High and Normal Thrust Solid Shaft and Holloshaft<sup>®</sup>
- Premium Efficient Design with Inverter Grade<sup>®</sup> Insulation System
- Meets NEMA Parts 30 and 31
- Low and Medium Voltage
- 3 through 4000 Horsepower



### Product Overview

Significant operational cost savings are possible in many pumping systems with the use of process control. U.S. Electrical Motors Vertical Inverter Duty Motor is specifically designed for application in process control of variable torque loads through the use of a variable frequency drive (VFD). The evolution of drive technology provides today's user with a reliable, cost-effective product. However, this same pulse width modulation (PWM) drive expects the motor will successfully operate in a harsh electrical environment.

U.S. Motors was the first motor company to recognize the need for a special inverter duty insulation system by introducing the first formal Inverter Grade<sup>®</sup> Insulation System. Our Vardyne<sup>®</sup> vertical motors offer an insulation system with superior pulse endurance to withstand the stresses produced by the PWM waveform.

It takes more than a pulse resistance magnet wire substitution to become a Vardyne vertical motor. Vardyne vertical motors feature a series of enhancements specifically addressing the reliability concerns arising out of motors operated in tough electrical environments created by VFDs. The Inverter Grade protection system is coupled with a carefully designed mechanical package that provides superior product performance under VFD power. This system meets the stringent requirements outlined in NEMA MG-1 Part 31 (and Part 30).

You can count on U.S. Motors to continue our design efforts aimed at maintaining a compatible product in light of advancing drive technology. We will automatically upgrade our Vardyne<sup>®</sup> inverter duty product offering as technology advancements become available.

As standard, the Inverter Duty Vertical Motor features premium efficiency, 1.15 service factor, 40° C ambient operation, "P" base, NEMA design B, and low mechanical component stress levels. We recommend our motor with any drive on the market today.

### A Look at Inverter Power

Industrial, municipal and agricultural users recognize the need to maximize productivity, reliability and cost savings in light of today's economic climate. System inefficiencies are no longer acceptable.

The application of vertical motors to variable torque pump loads is an ideal candidate for process control through the use of a variable frequency drive (VFD).

Today's VFD products are technically very different from those introduced just a few years ago. Early generations of drives claimed to be compatible with any induction motor. While the claim may have been true, the industry soon found that the use of a Variable Frequency Drive caused thermal problems within the motor. Because the drives adulterated sinewave output and increased the temperature rise in the motors, most applications resulted in early winding failures.

Once the thermal problems were recognized, it became popular to specify a premium efficiency motor for VFD applications. A premium efficiency motor was an easy solution since they were readily available. In addition, they featured a low temperature rise thanks to the additional active materials used to achieve the higher efficiency rating, so they performed better under inverter power than standard efficiency motors. Energy savings through process control and premium efficiency motors provided the optimum payback.

At the time, the use of a premium efficient motor solved the thermal problem in many motor and drive system combinations. While drive technology continued to evolve, many engineers and users became comfortable with this motor solution.

### Inverter Grade Insulation System

Recently a shift in drive technology once again has caused an increase in motor failures. Today advances in microprocessors and power semiconductor technology has evolved to improve the performance, reliability and cost attributes of VFD's. This evolution has occurred over a 20 year period. With each power semiconductor milestone achieved, drive switching frequency increased.

insulation system. The use of a special inverter duty insulation system is not the only solution. Total motor life expectancy is not the only concern. A motor can be solved by using a more efficient motor. Drives now produce high rate-rise voltage waveforms that impose high impulse electrical stress on the motor insulation. Unfortunately, most current insulation life standards do not specify the maximum repetitive voltage transients, the switching frequency (kHz) or the rate of rise that the winding should be able to withstand and still maintain normal life expectations. Standard insulation systems are not designed to operate in this new electrical environment. When they are, unpredictable motor performance is the result.

U.S. Electrical Motors was the first to recognize the need for a special inverter duty insulation system by introducing the our original Inverter Grade<sup>®</sup> Insulation System. This early system provided protection against the effects of GBT power devices through the use of additional phase paper and turn bracing as well as triple "m" polyester overcoated magnet wire. The benefit was clear that under inverter fed applications a significant improvement in winding life was achieved. However, increased insulation material reduced the copper content, therefore reducing motor efficiencies. The new challenge in engineering design became maintaining or improving the winding integrity under VFD power while also regaining lost efficiency.

USEM teamed with Phelps Dodge to develop a new and improved insulation system. The result is the first major advancement in magnet wire technology and motor insulation systems specifically designed and tested for VFD applications. This new pulse resistant, TZ-QS QuantumShield magnet wire along with U.S. Motors' patented insulation system is at the heart of the current Inverter Grade<sup>®</sup> product.

You can count on USEM to continue our design efforts aimed at maintaining a compatible product for the advancing drive technology.

### Pulse Endurance Test

To validate the Inverter Grade magnet wire, we developed the Pulse Endurance Test. This test has become the standard basis for comparing various types of insulation under VFD power. The result is USEM's Inverter Grade<sup>®</sup> Insulation System which meets the stringent requirements outlined in NEMA MG-1, 1993, Part 30 and 31:

#### Part 30 = Level 1

General Purpose product capable of reliable performance in inverter installations where peak transients do not exceed 1000V and/or rise times are not shorter than 2 microseconds.

#### Part 31 = Level 2

Definite purpose product capable of reliable performance in inverter installations where peak voltages do not exceed 1600V and/or rise times are not shorter than 1 microsecond.

Motor failures have been random in nature due to uncontrolled transient pulse conditions from the inverters. A magnet wire test device that reproducibly simulates the electrical environment found in inverter-fed motors has been built to study insulation failures through the Pulse Endurance Test.

### Inverter Characteristics

Switching Frequency from 1 to 20 kHz  
Switching Transient Voltage Rise Times  
Transient Voltage 2-3 pu (line to ground)

### Test Device Capability

60 Hz to 20 kHz Pulse Frequency  
10 to 100 kV/msec Rise Time  
1000 to 5000 V Peak to Peak (square wave)

The testing parameters for the Pulse Endurance Test have been determined by examining the actual inverter characteristics and determining the worst case pulse condition that a motor would experience.

### Pulse Endurance Test Method

Dielectric twists of 18 AWG wire coated with the test insulation are aged in a forced air oven at 90 degrees C under the electrical stress condition of 0.025 msecond pulse rise time, 2kV peak voltage, 20 kHz pulse frequency, 50% duty cycle square wave. The time to failure of the product is recorded in seconds. The Pulse Endurance Index (PEI) is a ratio of the endurance life of the sample under test in comparison to 18 AWG wire using heavy build MW35 insulation.

*Pulse Endurance Index (PEI) = Endurance Life of Test Sample / Endurance Life of Heavy Build MW35 Sample*

### Stock & Custom Motors Available

Varidyne<sup>®</sup> Vertical Motors with our patented Inverter Grade<sup>®</sup> insulation system are available from stock or conversion. We can customer engineer a product as well to help you take advantage of our extensive modification capabilities.

- Altitude above 3300 ft
- Ambient above 40°C
- Bearing Thermal Protection
- Capacitors
- Current Transformers

- Heating Traps
- Space Heaters
- Space Balancers
- Surge Protection
- Thermostats
- Thermostats
- Air Conditioning RTDs

Hardyne® Vertical Motors - producing you reliable performance under full load and greater peace of mind.

FD5544.193

## **NORTH WELL FIELD INFORMATION**

# **PRODUCTION WELL NORTH #3**

# WELL LOG AND DRILLING REPORT

798069 X

Ohio Department of Natural Resources  
 Division of Water, 1939 Fountain Square Drive  
 Columbus, Ohio 43224 Phone (614) 265-6739

Permit Number \_\_\_\_\_

COUNTY WARREN TOWNSHIP FRANKLIN SECTION/6X No. 7  
 (Circle One)

OWNER/BUILDER WARREN COUNTY SEWER & WATER PROPERTY ADDRESS FRANKLIN TRENTON RD @ TWIN CREEK, FRANKLIN  
 (Circle One or Both) First Last (Address of well location) Number Street City

LOCATION OF PROPERTY SOUTH OF FRANKLIN TRENTON ROAD EAST OF TWIN CREEK Zip Code + 4 \_\_\_\_\_

## CONSTRUCTION DETAILS

**CASING** (Length below grade) Borehole Diameter 30 in. 28"

Diameter 18 in. Length 45 ft. Wall Thickness .375 in. Material CEMENT Volume used 93 CU FT

Diameter \_\_\_\_\_ in. Length \_\_\_\_\_ ft. Wall Thickness \_\_\_\_\_ in. Method of installation TREMMIE

Type:  Steel  Galv.  PVC  Other \_\_\_\_\_

Joints:  Threaded  Welded  Solvent  Other \_\_\_\_\_

Liner: Length \_\_\_\_\_ Type \_\_\_\_\_ Wall Thickness \_\_\_\_\_ in. Depth: placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**SCREEN**

Type (wire wrapped, louvered, etc.) WIRE WRAP Material \_\_\_\_\_

Length 53.5' ft. Diameter 18" TELESCOPE (16) in.  Rotary  Cable  Augered  Driven  Dug  Other \_\_\_\_\_

Set between 45' ft. and 98.5' ft. Slot BLANK-.090 Date of Completion 01/20/95

**GROUT**

Depth: placed from 28 ft. to 0 ft.

**GRAVEL PACK** (Filter Pack)

Material NONE Volume used \_\_\_\_\_

Method of installation \_\_\_\_\_

Depth: placed from \_\_\_\_\_ ft. to \_\_\_\_\_ ft.

**Pitless Device**  Adapter  Preassembled unit

Use of Well PUBLIC WATER SUPPLY

## WELL LOG\*

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.	From	To
CLAY & GRAVEL BROWN	0	14
COARSE SAND & GRAVEL	14	52'
SAND & GRAVEL	52'	60'
SAND & GRAVEL WITH CLAY	60'	61.5'
COARSE SAND & GRAVEL	61.5	99
CLAY	99	

## WELL TEST

Bailing  Pumping\*  Other \_\_\_\_\_

Test rate 2107 gpm Duration of test 24 hrs.

Drawdown 4' - 10 1/4" ft.

Measured from:  top of casing  ground level  Other \_\_\_\_\_

Static Level (depth to water) 10'-3" ft. Date: 01/17/95

Quality (clear, cloudy, taste, odor) CLEAR

\*(Attach a copy of the pumping test record, per section 1521.05, ORC)

## PUMP

Type of pump NONE NOW Capacity \_\_\_\_\_ gpm

Pump set at \_\_\_\_\_ ft.

Pump installed by \_\_\_\_\_

## WELL LOCATION

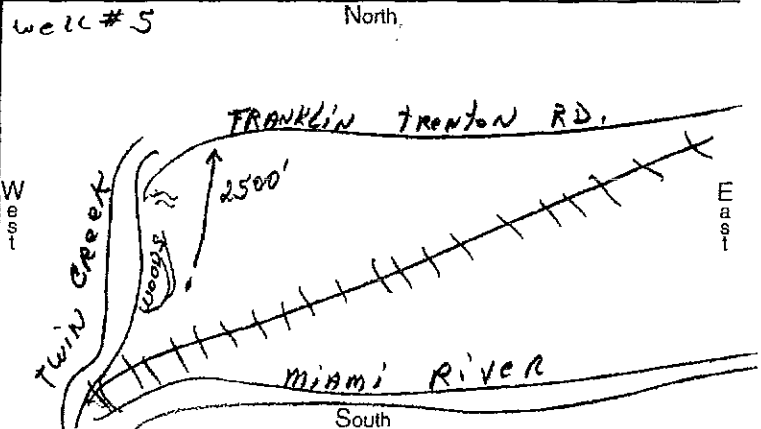
Location of well in State Plane coordinates, if available:

Zone \_\_\_\_\_ x \_\_\_\_\_ y \_\_\_\_\_

Elevation of well \_\_\_\_\_ ft./m. Datum plain:  NAD27  NAD83

Source of coordinates:  GPS  Survey  Other \_\_\_\_\_

Sketch a map showing distance well lies from numbered state highways, street intersections, county roads, buildings or other notable landmarks.



(If additional space is needed to complete well log, use next consecutively numbered form.) I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm REYNOLDS, INC. Signed E.S. Schlaack E.S. SCHLAACK

Address 6451 GERMANTOWN ROAD Date 03/22/95

City, State, Zip MIDDLETOWN, OHIO 45042 ODH Registration Number \_\_\_\_\_

# **PRODUCTION WELL NORTH #4**

**WELL LOCATION** **CONSTRUCTION DETAILS**

County **WARREN** Township **RSE, TIN SE 10 7**

Owner/Builder **Warren Co. Water & Sewer**  
(One or Both) First Last

Address of Well Location **8093 Franklin-Trenton Rd.**  
Number Street Name

City **Franklin** Zip Code +4 **45005**

Permit No. Section/Lot No. (Circle One or Both)

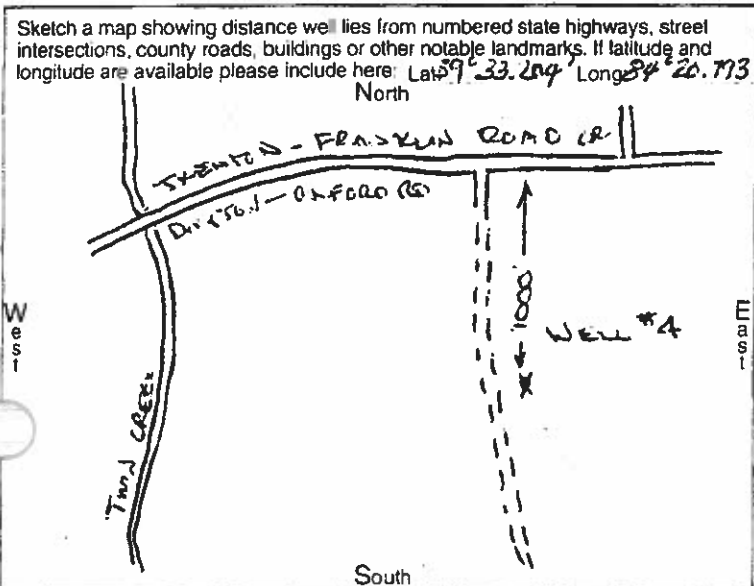
Location of Well in State Plane coordinates, if available: Use of Well **PWS**

N  X ft. or m  
 S  Y ft. or m

Elevation of Well **660'** ft. or m

Datum Plain: **NAD27** **NAD83** Elevation Source **MAP**

Source of Coordinates:  GPS  Survey  Other



**WELL TEST\***

Pre-Pumping Static Level **10.4** ft. Date **3-2-05**

Measured from:  Top of Casing  Ground Level  Other

Air Bailing  Pumping\*  Other

Test Rate **1208** gpm Duration of Test **24** hrs.

Feet of Drawdown **6.62** ft. Sustainable Yield \_\_\_\_\_ gpm

(Attach a copy of the pumping test record, per section 1521.05, ORC)

Is Copy Attached?  Yes  No Flowing Well?  Yes  No

Quality **Clear**

**PUMP/PITLESS**

Type of pump **n/a** Capacity \_\_\_\_\_ gpm

Pump set at \_\_\_\_\_ ft. Pileless Type \_\_\_\_\_

Pump installed by \_\_\_\_\_

I hereby certify the information given is accurate and correct to the best of my knowledge.

Drilling Firm **REYNOLDS INC.**

Address **6451 GREENMANTOWN RD.**

City, State, Zip **MIDDLETOWN, OH 45042**

Signed **[Signature]** Date **4/25/05**

Registration Number **002289**

Rotary  Cable  Augered  Driven  Other \_\_\_\_\_

**BOREHOLE/CASING** (measured from ground surface)

1  Borehole Diameter **24** inches Depth **50** ft.

Casing Diameter **18** in. Length **32** ft. Thickness **.375** in.

2 Borehole Diameter \_\_\_\_\_ inches Depth \_\_\_\_\_ ft.

Casing Diameter \_\_\_\_\_ in. Length \_\_\_\_\_ ft. Thickness \_\_\_\_\_ in.

Casing Height Above Ground **2'**

Type  Steel  Galv  PVC  Other

1  Joints  Threaded  Welded  Solvent  Other

**SCREEN**

Diameter: **18" P.S.** Slot Size **.080** Screen Length **20** ft.

Type **WIRED MESH** Material **316 STAINLESS**

Set Between **30** ft. and **50** ft.

**GRAVEL PACK (Filter Pack)**

Material/Size **PARQUET 4 GR.** Volume/Weight Used **1.7 tons**

Method of Installation **TRENIED**

Depth: Placed FROM **26** ft. TO **50** ft.

**GROUT**

Material **Dantonic chips** Volume/Weight Used **5.5 ft.<sup>3</sup>**

Method of Installation **POURED**

Depth: Placed FROM **22** ft. TO **26** ft.

**Concrete/sand mix grout. 12-22' BGS**

**DRILLING LOG\***

INDICATE DEPTH(S) AT WHICH WATER IS ENCOUNTERED.

Show color, texture, hardness, and formation: sandstone, shale, limestone, gravel, clay, sand, etc.

	From	To
Clay, TOPSOIL	0	2
SOFT, SILTY CLAY	2	3.5
SAND	3.5	7
SANDY, LARGE GRAVELS	7	28
COARSE GRAVEL & SAND WITH LARGE COBBLES	28	33
COARSE GRAVEL & SAND	33	38
MEDIUM TO COARSE GRAVEL		
WET SAND & LARGE COBBLES	38	48
SILTY, FINE TO MEDIUM GRAVEL		
SAND W/ SOME FINE GRAVELS	48	50.5
GRAY CLAY	53	60

Water @ 10.8 Ft.

(If more space is needed to complete drilling log, use next consecutively numbered form.)

Date of Well Completion **3-2-05** Total Depth of Well **50** ft.





Reynolds, Inc.

6451 Germantown Road \* Middletown, Ohio 45042 \* Phone: (513) 424-7287

Date: 3/1/2005

Job No.: 67994

### PRODUCTION TEST

Owner: Warren County Water City: Lebanon State: Ohio

Well No.: PW-4 Location: North Well Field

Measured from Ground Level: Total Depth 50' Inside Diam. 17.25" Static Level / Standing Water Level 10.40'

Type Well: Gravel Wall X Tubular Rock New X

Old Cleaned Gravel Wall Diam. 24"

Screen: Length 20' Diam. 18 P.S. Slot Size .080"

Type Wire Wound Depth to top 30'

Driven By: Electric Engine Pump Bowl Stages

Length Suction Pipe Well Top to Bottom of Suction

Orifice Size 8 By 6 Water Discharged 200 Feet from Well into Open Field

Well Top to Bottom of Air Line N/A Gauge Reads: Feet Pounds

TIME	INCHES ON ORIFICE	G.P.M.	P.S.I.	AMPS	PUMPING LEVEL	DRAW DOWN	SPECIFIC CAPACITY	COMMENTS
9:30	5	354			11.59'	1.19'		
9:45	5	354			11.59'	1.19'		Step #1
9:50	5	354			11.59'	1.19'		
10:00	5	354			11.60'	1.20'		
10:10	5	354			11.58'	1.18'		
10:20	5	354			11.58'	1.18'		
10:30	5	354			11.59'	1.19'		
10:45	5	354			11.57'	1.17'		
10:55	5	354			11.57'	1.17'		
11:10	5	354			11.58'	1.18'	300 gpm/ft.	
11:30	20	708			13.92'	3.52'		Step #2
11:50	20	708			13.92'	3.52'		
12:00	20	708			13.92'	3.52'		
12:10	20	708			13.93'	3.53'		

Tested and Witnessed By

Witnessed By For Purchaser

TIME	INCHES ON ORIFICE	G.P.M.	P.S.I.	AMPS	PUMPING LEVEL	DRAW DOWN	SPECIFIC CAPACITY	COMMENTS
12:20	20	708			13.94'	3.54'		
12:30	20	708			13.94'	3.54'		
12:45	20	708			13.96'	3.56'		
1:00	20	708			13.96'	3.56'		
1:15	20	708			13.96'	3.56'		
1:30	20	708			13.96'	3.56'	199 gpm/ft.	
1:45	48.5	1107			16.64'	6.24'		Step #3
2:00	48.5	1107			16.61'	6.21'		
2:15	48.5	1107			16.61'	6.21'		
2:30	48.5	1107			16.61'	6.21'		
2:45	48.5	1107			16.61'	6.21'		
3:00	48.5	1107			16.61'	6.21'		
3:15	48.5	1107			16.61'	6.21'		
3:30	48.5	1107			16.61'	6.21'	178 gpm/ft.	
3:45	48.5	1107						Pump Off
4:00	48.5	1107						Recovery
5:00	48.5	1107						
6:00	58	1208			17.29'	6.89'		Begin 24 Hr. Test
7:00	58	1208			17.29'	6.89'		
8:00	58	1208			17.29'	6.89'		
10:00	58	1208			17.32'	6.92'		
11:00	58	1208			17.34'	6.94'		
12:00	58	1208			17.34'	6.94'		
1:00	58	1208			17.34'	6.94'		
2:00	58	1208			17.31'	6.91'		
3:00	58	1208			17.31'	6.91'		
4:00	58	1208			17.34'	6.94'		
5:00	58	1208			17.34'	6.94'		
6:00	58	1208			17.31'	6.91'		
7:00					17.31'	6.91'		



# **CORPORATE EQUIPMENT COMPANY**

SALES AND SERVICE OF ENGINEERED PUMPING EQUIPMENT SINCE 1948



WARREN COUNTY NORTH WELL FIELD

OPERATION AND MAINTENANCE MANUALS

FOR

WELL PUMPS AND MOTORS  
PW4, PW5, PW6 AND PW7

January 11, 2007



2 Rosewood Drive  
Wilder, KY 41076  
Ph : (859)781-9500

**Submittal**

**Job:** 0522  
WC North Wellfield Expansion  
8093 Franklin Trenton Road  
Franklin, OH 45005

**Spec Section No:** 01600  
**Submittal No:** 002  
**Revision No:** 002  
**Sent Date:** 3/30/2007

**Submittal Title:** 11214 - Vertical Turbine Pumps O&M

**Contractor:**  
Building Crafts, Inc.

**Contractor's Stamp**

Exception Noted  
 Revise & Resubmit Noted Items  
 No Exceptions Taken  
 Rejected - See Remarks

This review is for conformance with the Design Concept General Requirements and does not relieve subcontractor or supplier from compliance with the requirements of the drawings and specifications. The subcontractor or supplier is responsible for confirming and correlating all quantities and dimensions, coordination with other trades and performance of work in a safe and satisfactory manner.

**BUILDING CRAFTS, INC.**

Date 3/30/07 By [Signature] # \_\_\_\_\_

Mike Powell

**Engineer's Stamp**



Corporate Equipment Company  
 607 Redna Terrace, No.100 Cincinnati, OH 45215  
 Lou Salvina  
 Phone 513 771 6696 ext 116  
 Fax 513 771 0334

Customer : Building Crafts, Inc.

Project Address: 8093 Franklin Trenton Road  
 Franklin, Ohio 45005

Project: Warren County Well Field

Contact : Mr. Darryl Geiman  
 Phone : 859 781 9500 Fax : 859 781 9505  
 Date : Saturday, July 22, 2006

Page No : 1

Item: PW-4 North Well Field  
 Model : Peerless Vertical - 12MB

Flow (US gpm)	Head (ft)	Eff. (%)	Power (hp)	Speed (RPM)
796	179	82	45.04	1770
Liquid	Temp. (°F)	Sp. Gravity	Visc. (cSt)	Dia. (inch)
Water	68	1.000	1.007	8.59

**Summary Quotation:**

Item No	Description	Weight (lb)	Qty
1	12MB, 4 Stage Bowl Assembly, Material Group A , Threaded Column 8/1.5, L1, Threaded Suction, Threaded Discharge Bowl, OLS	0	1
2	Adapter, Bottom Column	0	1
3	Top Bowl	106	1
4	Bowl, Intermediate	318	3
5	Collar, Sand, lower and upper	0	2
6	Bushing, Taper Lock (Collet) - Material 316ss	0	4
7	Fastener, Bowl, Standard Material	0	48
8	Dynamic Balanced Impeller	0	4
9	Charge for Polishing (Premium Efficiency)	0	4
10	Ring, Seal, Lateral	0	4
11	Ring, Wear, Bowl, Material 63 Bronze	0	4
12	Suction	226	1
13	Plug, Pipe (Suction)	0	1
14	Impeller, trimmed, surface finish Ra75, vane exit Std. Deburr	0	4
15	Shaft, Pump, D = 1.50 inch, L = 62.5 inch, T.Lock, Material 416ss	0	1
16	Coupling, Threaded, Shaft, Steel, 1215 CD	1.53	1
17	Strainer, Basket, Material 316Lss	16.98	1
18	OLS Threaded column 8.0 inch / 1.50 inch shaft / 10ft bearing spacing, length base to bowl 447 inch	0	1
19	Pipe, column threaded T&C 8.0 inch, bottom, length 120 inch, Material plain steel	282.21	1
20	Pipe, column threaded T&C 8.0 inch, intermediate 1, length 120 inch, Material plain steel	564.42	2
21	Pipe, column threaded T&C 8.0 inch, intermediate 2, length 60 inch, Material plain steel	141.11	1

Quote valid for 30 days

Peerless Pump Company - RAPID v8.14.3 - 31st March 2006.





Customer : Building Crafts, Inc.

Corporate Equipment Company

607 Redna Terrace, No.100 Cincinnati, OH 45215  
Lou Salvina  
Phone 513 771 6696 ext 116  
Fax 513 771 0334

Project : Warren County North Wellfield  
Quote No. : US-3245-217  
Page No : 2  
Contact : Mr. Darryl Geiman  
Phone : 859 781 9500  
Date : Saturday, July 22, 2006  
Fax : 859 781 9505

22	Pipe, column threaded TBE 8.0 inch, top, code length to base 27 inch, Material plain steel	63.5	1
23	No Shaft critical speed analysis	0	1
24	Shaft-Group of Column	0	1
25	Shaft, line, bottom, threaded , D = 1.50 inch, length 120 inch, Material 416ss	59.38	1
26	Shaft, line, intermediate 1, threaded , D = 1.50 inch, length 120 inch, Material 416ss	118.76	2
27	Shaft, line, intermediate 2, threaded , D = 1.50 inch, length 60 inch, Material 416ss	29.69	1
28	Shaft, line, top, threaded , <2-Piece-Top-Shaft>, D=1.50 inch, L=42.00 inch, Material 416ss	20.78	1
29	Bearing, Open Line Shaft	0	4
30	Retainer, Bearing, Open Line Shaft	22.72	4
31	Coupling, Threaded, Shaft, 410ss	6.12	4
32	Shaft, Head (Top shaft for VHS motor), <2-Piece-Top-Shaft>, Assembly	0	1
33	Coupling, Shaft, Line, Top, Standard, Material Steel, 1215 CD	1.53	1
34	Shaft, Head, VHS motor, D=1.50 inch, L=37.50 inch, Mat. 416ss	18.56	1
35	Shaft, Line, Diameter 1.50 inch, Material 416ss	0	1
36	Stuffing Box, Register 5.562, Assembly	0	1
37	Stuffing box	0	1
38	Discharge head assembly 8x8x16.5FA, steel	0	1
39	Pump operates at Constant Speed	0	1
40	Head, Discharge 8x8x16.5FA, Motor Base Diameter BD=16.5 inch	413	1
41	Discharge Flange 150 lb	30	1
42	Name Plate, Pump Data	0	1
43	Name Plate, pp Data Screws	0	4
44	Name Plate, Rotation Direction	0	1
45	Name Plate, Warning	0	1
46	Wedge, Leveling	0	4
47	Plug 1, Discharge Head	0	5
48	Plug 2, Discharge Head	0	1
49	Guard 1, Coupling	0	1
50	Guard 2, Coupling	0	1

Quote valid for 30 days

Peerless Pump Company - RAPID v8.14.3 - 31st March 2006.





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Project : Warren County North Wellfield  
Quote No. : US-3245-217

Page No : 3

Contact : Mr. Darryl Geiman  
Phone : 859 781 9500 Fax : 859 781 9505  
Date : Saturday, July 22, 2006

51	Screw, Guard	0	8
52	Washer, Guard	0	8
53	Flange, Top	0	1
54	Stud, Flange, Top, Material 304ss, Standard	0	8
55	Nut, Flange, Top, Material 304ss, Standard	0	8
56	Gasket, Flange, Top	0	1
57	Nut, Top	0	1
58	Screw, Nut, Top	0	2
59	Bolt, Motor	0	4
60	Motor-electric, 50hp-1781rpm, 575/460/230/200V, 3Ph, 60Hz, Frame 326TP, VHS, Encl. TEFC, Eff. premium, Modified, TUS, USEM	720	1
61	Winding thermal protection Thermostats	0	1
62	Inverter duty	0	1
63	Service Factor 1.15	0	1
64	Ground lug in conduit box (non - explosion proof)	0	1
65	Non reverse ratchet	0	1
66	Starting Method at Voltage 460V: Full Voltage (standard)	0	1
67	Space heater, voltage 115V	0	1
68	Freight of electric motor from motor vendor to the 1st domestic destination (North America) included	0	1
69	Dimensions of connection: Line Shaft Diameter= 1.50 inch, Motor Base Diameter BD=16.5 inch	0	1
70	Plate, Sole, Material steel 056	157	1
71	Bolt, Base / Sole Plate	0	4
72	Painting - Coating	0	1
73	Painting of discharge head, PEERLESS blue, enameled	0	1
74	Painting of column, PEERLESS blue, enameled	0	1
75	Painting of bowl, PEERLESS blue, enameled	0	1
76	Laboratory Performance Test, non-witnessed (increases lead time of bowl assembly by 1 week!)	0	1
77	Test Data Sheets	0	1
78	Curve Approval (customer approval prior shipping)	0	1

Quote valid for 30 days

Peerless Pump Company - RAPID v8.14.3 - 31st March 2006.







Customer : Building Crafts, Inc.

Corporate Equipment Company

607 Redna Terrace, No.100 Cincinnati, OH 45215

Lou Salvina

Phone 513 771 6696 ext 116

Fax 513 771 0334

Project : Warren County North Wellfield  
Quote No. : US-3245-217

Page No : 4

Contact : Mr. Darryl Geiman  
Phone : 859 781 9500 Fax : 859 781 9505  
Date : Saturday, July 22, 2006

79	Test Units US	0	1
80	Hydrostatic Pressure Test (details as selected)	0	1
81	Hydrostatic Pressure Test of Bowls, non-witnessed (add 1 week lead time to Bowls)	0	1
82	Shipping Condition: Pump DISSASSEMBLED	0	1
83	Add for SS sand collars	0	1
84	Add for drill and tap discharge head base flange	0	1

Estimated Shipping Weight: 3318 lbs. (dry) Leadtime: 14 to 16 weeks after approval and release to manufacture

Start up and field testing to include vibration test with report. A second test with report furnished after 10 months of operation.





Customer : Building Crafts, Inc.

Corporate Equipment Company

607 Redna Terrace, No.100 Cincinnati, OH 45215  
 Lou Salvina  
 Phone 513 771 6696 ext 116  
 Fax 513 771 0334

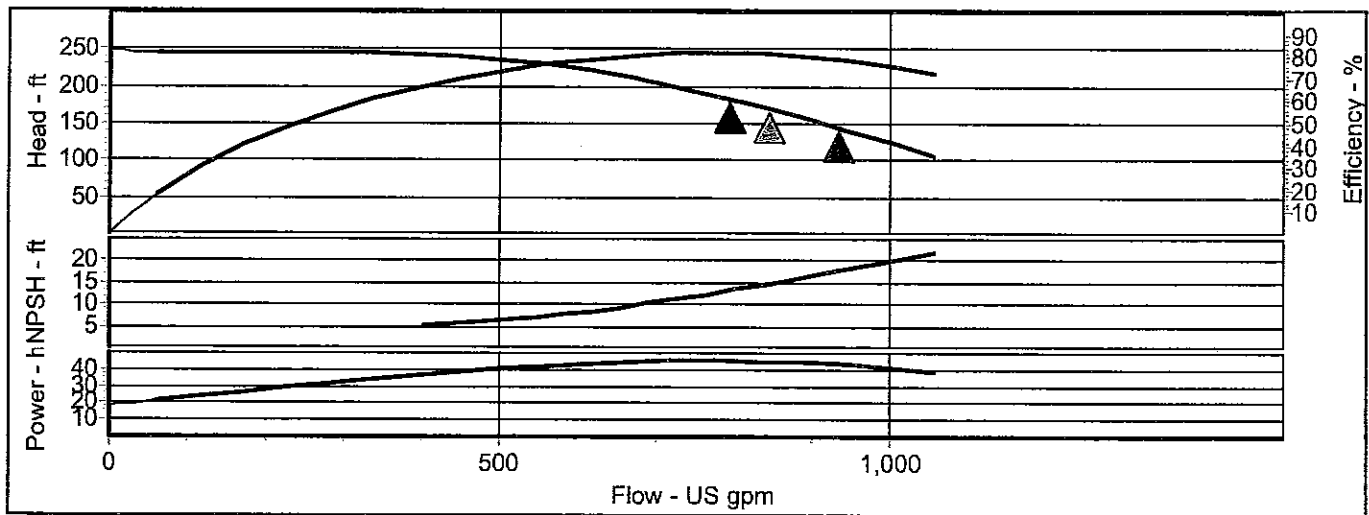
Project : Warren County North Wellfield  
 Quote No. :

Page No : 5

Contact : Mr. Darryl Geiman  
 Phone : 859 781 9500 Fax : 859 781 9505  
 Date : Saturday, July 22, 2006

Pump Model: **Peerless Vertical - 12MB 4 Stages** Imp. Dia. (inch)  
 Nom. Speed: **1770 RPM, 60 Hz Electric** Stage No. Trim Status D2-in x D2-out  
 Market : **Vertical Turbine Pump** ----- Full -----  
 Impeller No.: **2626936 / LC** ----- Full 8.88 x 8.88  
 Material Spec. Group: **A - B: CIE; I: Brz = Standard** 1 - 4 Trimmed P 8.59 x 8.59  
 Item : **PW-4 North Well Field** Fluid: **Water** Flow rate Q: **796 US gpm**  
 Your Ref. : Temperature: **68 °F** Bowl Total Head: **179 ft**  
 Viscosity: **1.007 cSt** Bowl Efficiency: **82 %**  
 Sp. Gravity: **1.000 (base temp. 68 °F)** Bowl Power Required: **45.04 hp**  
 NPSH Required **13.259 ft**

Performance curve according to Hyd Inst-Peerless Std



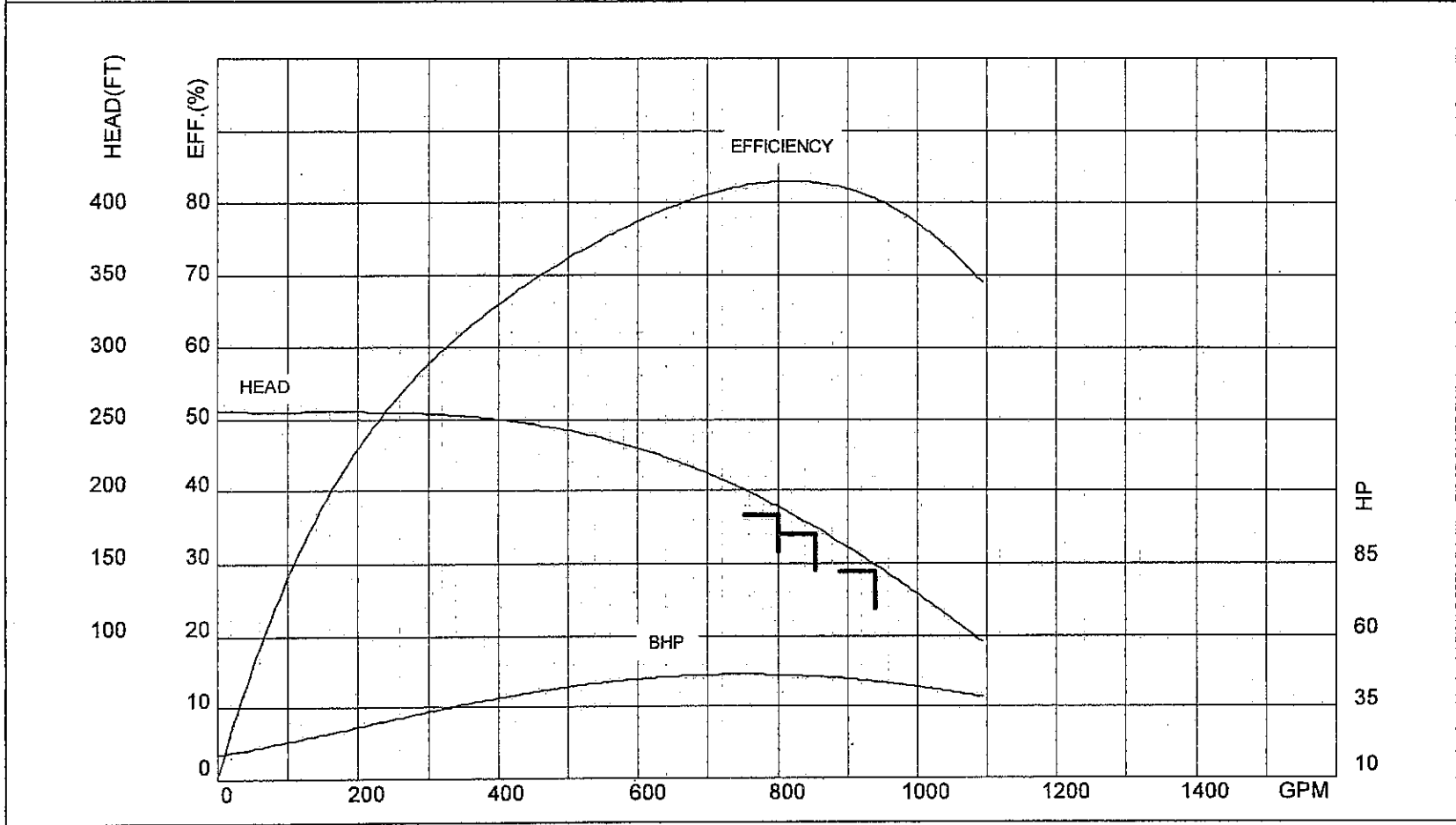
Comments

Refer to factory for all single point bowl performance guarantees. Pumps must be selected with Hydraulic Institute-Peerless Std. See Std Hydraulic Performance document in RAPID for testing tolerances & contractual guarantees.

Flow (US gpm)	Head (ft)	Efficiency (%)	Power Required (hp)	NPSH Required (ft)	Thrust (lb)
0.0	247.6	0.0	18.5		2708.66
132.1	246.4	33.3	24.7		2657.47
264.2	246.9	53.1	31.0		2597.93
396.3	243.7	66.1	36.9		2483.79
528.4	233.1	74.9	41.5	6.7	2278.06
660.5	213.3	80.2	44.4	9.5	1955.06
792.5	184.3	81.9	45.1	13.2	1510.20
924.6	147.5	79.6	43.3	17.4	976.62
1056.7	105.3	72.4	38.8	21.9	440.69



HYDRAULIC PERFORMANCE WARRANTY GUARANTEED AT DESIGNED POINT ONLY AND IS CONTINGENT ON: 1. PROPER NPSH OR SUBMERGENCE AVAILABLE. 2. PROPER AND ADEQUATE FLOW TO PUMP SUCTION. 3. FLUID FREE OF GAS, AIR, AND ABRASIVE MATTER. 4. IMPELLER WITH PROPER LATERAL ADJUSTMENT (VERTICAL PUMP ONLY).	<b>PEERLESS PUMPS</b>	PUMP: 12 MB IMP. NO.: 2626936-023 SHOP ORDER: 705037 V STAGES: 4 IMP. DIA1: (4) @ 8.59X8.59 IMP. DIA2: 0 IMP. DIA3: 0	Rated GPM: 796.00 Rated Hd(ft): 179.00 Rated RPM: 1781 Rated HP: 45.04 Rated Eff %: 82.00 Spec. Gravity: 1.000
	TEST SITE: Lubbock TX BY: LS DATE: 1/26/2007 CUSTOMER: Corporate Equipment Co. North Well Field - PW-4		



CERTIFIED BOWL PERFORMANCE TEST CURVE

**PERFORMANCE CURVE PLOTTING PROGRAM**

*PEERLESS PUMP*

Test No. <b>705037A-1</b>	Pump: <b>12 MB</b>	Impeller Dia. 1 : (4) @ 8.59X8.59	Rated GPM: 796.00	Peerless Pump Co. 1802 E 50th St Suite 102 Lubbock TX, 79404 Ph. 806-747-0002 FAX 806-747-9630
Test Date: 1/26/2007	No. of Stage : 4	Impeller Dia. 2 : 0	Rated Head (ft): 179.00	
By: LS	Impeller No. 1 : 2626936-023	Impeller Dia. 3 : 0	Rated RPM: 1781	
Test Standard: HI	Impeller No. 2 : 0	Imp. Filing 1 : Debur Only	Rated EFF % 82.00	
Shop Order: 705037 V	Impeller No. 3 : 0	Imp. Filing 2 : 0	Rated NPSHR 13.3	
Serial No: 705037-A	Top Bowl No : 2622993-041	Imp. Filing 3 : 0	Rated Temp 68.0	
Customer Name Corporate Equipment Co	Std.Bowl No : T-84506-041	Imp. Polish : 75 Ra	Rated SG 1.0000	
		Lateral Set(in): 0.188	Tested NPSHA 33.3	
			Tested SG 1.0009	
			Reference Temp 68	
			Note:	

**TEST DATA:**      Number Of Test Points :      14      Minimum Plot Capacity (gpm) :      0      Units:      us

**PERFORMANCE CORRECTED TO      1781      RPM**

Capacity	TDH	BHP	Efficiency	As Run Speed	No.	Capacity	TDH	BHP	Efficiency
(GPM)	(FT)	(HP)	( % )	(RPM)		GPM	FT	HP	%
1102.97	98.088	39.424	69.34	1797.0	1	1093.15	96.349	38.347	69.34
1062.45	108.102	40.641	71.41	1797.0	2	1052.99	106.186	39.530	71.41
1003.13	138.517	43.953	79.88	1796.0	3	994.75	136.213	42.824	79.88
927.60	157.311	45.537	80.97	1796.0	4	919.85	154.694	44.367	80.97
847.85	178.467	46.698	81.87	1796.0	5	840.77	175.498	45.498	81.87
776.54	200.670	47.624	82.68	1795.0	6	770.48	197.552	46.478	82.68
673.13	220.808	46.951	79.99	1796.0	7	667.51	217.136	45.744	79.99
557.41	240.324	44.529	76.01	1796.0	8	552.75	236.327	43.385	76.01
419.96	253.627	40.032	67.23	1796.0	9	416.45	249.408	39.003	67.23
283.82	258.944	33.792	54.95	1797.0	10	281.29	254.354	32.869	54.95
171.98	259.785	27.650	40.83	1798.0	11	170.35	254.896	26.850	40.83
95.48	258.916	22.889	27.29	1798.0	12	94.58	254.043	22.227	27.29
91.59	259.119	22.828	26.27	1799.0	13	90.67	253.959	22.130	26.27
2.12	260.415	19.050	0.73	1799.0	14	2.10	255.230	18.467	0.73

## Speed vs. Torque

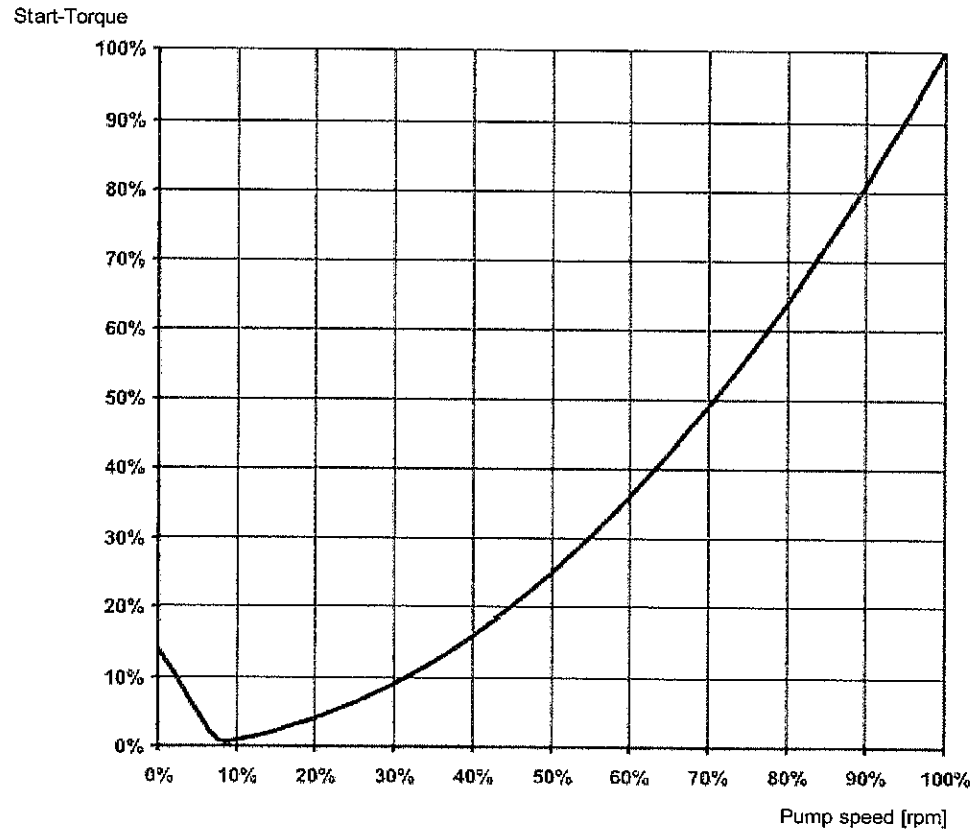
Start at OPEN valve:

100% of Torque = 181 Nm = 133 lbf\*ft

Start at CLOSED valve:

100% of Torque = 74 Nm = 54 lbf\*ft

100% of Speed = 1770 RPM



Dimensions in (inch)

<b>Project :</b> Warren County North Wellfield	<b>Capacity:</b> 796 (US gpm)	<b>Frame/Model:</b> 326TP
<b>Customer:</b> Building Crafts, Inc.	<b>Total Head:</b> 179 (ft)	<b>Elec. Spec.:</b> 460 / 3
<b>Item No.:</b> PW-4 North Well Field	<b>Pump Speed:</b> 1770 (RPM)	<b>Service Factor:</b> 1.15
<b>Quote No. :</b> US-3245-217	<b>Impeller Dia.:</b> 8.59 (inch)	<b>Rotation:</b> counter-clockwise
<b>Pump Model:</b> Peerless Vertical - 12MB	<b>Power:</b> 50 (hp)	<b>Enclosure/Type:</b> TEFC



Corporate Equipment Company  
607 Redna Terrace, No.100 Cincinnati, OH  
45215

Lou Salvina  
Phone 513 771 6696 ext 116

Date : Saturday, July 22, 2006

Page No : 13



Peerless Pump Company. - Indianapolis, IN 46207-7026

## RAPID Technical Data Verification Sheet (TDS)

Pump Application (Service)	Raw Well Water
Project Name	Warren County North Wellfield
Project Quote Number	US-3245-217
Your Reference Number	
Customer Name	Building Crafts, Inc.
Customer Purchase Order Number	0552 - P02
Pump Manufacturer & Pump Model	Peerless Vertical 12MB 4 Stages
Pump Speed	1770 RPM
Testing Tolerance	Hyd Inst-Peerless Std
NPSH available at Rated Condition & Head	0 ft at 796 US gpm & 179 ft
NPSH required at Rated Condition & Head	13.259 ft at 796 US gpm & 179 ft
Static Suction Pressure PSI	
Total Shut Off Pressure PSI	107.138
Pump to operate at shut off?	No
Site Ambient Temperature & Altitude	68 °F & 0 ft
Fluid Type & Solids Size & Content	Water & 0.00 inch & 0%
Pump Construction	Material Group A
Efficiency (Typical Performance) See terms for guarantees.	82% (Bowl)
BHP at Condition Point	45.04 hp
Maximum BHP	45.11 hp
BHP at Shut Off	18.48 hp
Maximum BHP of Motor Loaded to Full Service Factor	
Pump Rotation Viewed from Driver End	Counter Clockwise
Replacement of Pump Serial Number (if applicable)	

\*CDS FORM required if you have special COMMERCIAL TERMS, PENALTIES, ETC.

\*If DDS or CDS information applies to your order please include the form and make a note on the RAPID detailed quotation form as an individual line item referencing the requirement. This information will be required on the RAPID detailed quotation for the documentation/requirements to be supplied.

For use with RAPID detailed quotation form and RAPID Order Header Forms for order entry. Pricing to be set to distributor net upon submission.



# Losses of Head and Power in Pump

## Hydraulic Head Losses

In Column due to Friction	0.505 ft
In Tapered Bottom Column Pipe	0.000 ft
In Discharge Head	0.602 ft
<i>Losses Total</i>	1.107 ft
<i>Head of Pump (Head of Bowl + Losses Total)</i>	180.107 ft

## Power Losses

In Column due to Friction of Line Shaft with Water	0.43 hp
In Thrust Bearing	0.20 hp
<i>Losses Total</i>	0.63 hp

## Efficiency of BOWL and Efficiency of PUMP

Efficiency of <b>Bowl</b> in Duty Point	82%
Efficiency of <b>Pump / Field</b> in Duty Point (approximately), reduction caused by losses of head and power	80.41%



Peerless Pump Company. - Indianapolis, IN 46207-7026

**ELECTRIC MOTOR DRIVER  
Performance and Data Sheet**

Manufacturer	USEM	Phase / Frequency	3 / 60Hz
Availability Type	Modified	Enclosure	TEFC
Motor Hp	50 hp	Full Load speed	1781 rpm
Synchronous speed	1800 rpm	Type of Motor Efficiency	premium
Weight	720 lbs	NEMA Motor Design / Class	B / F
Motor Frame Number	326TP	Insulation	
Voltages No 1 / No 2 / No 3 / No 4 (see below for Utilized Voltage)	575 / 460 / 230 / 200 V	Model Number	RTF
Full Load Amps at Voltage 1 / 2 / 3 / 4	45.0 / 57.9 / 115.8 / 141.3 A	Maximum Altitude	3300 ft
Motor built for Utilized Voltage	460 V	Rotation (seen from above)	counter-clockwise
Motor Type (VHS = Vertical Hollow Shaft, VSS = Vertical Solid Shaft)	VHS	Max Down Thrust 100% / 175% extra high thrust / 300% extra high thrust	4700 / 8225 / 0 lbs
Service Factor 1.15 available (0=No, 1=Yes)	1	175% / 300% extra high thrust Selected (0=No, 1=Yes)	175%: 0 / 300%: 0
Service Factor 1.15 or Corro Duty incl.SF1.15 selected (0=No, 1=Yes)	1	Reed Critical Frequency Line / BDStd / BD1 / BD2	120 / 82 / 82 / 82 Hz
Service Factor 1.15 utilized by Pump	Pump does NOT utilize Service Factor 1.15. Peak HP of pump is 0.902 x Name Plate HP of motor	Rotor Inertia	8.07 lb*ft <sup>2</sup>
Type of Starting	Starting Method at Voltage 460V: Full Voltage (standard)	Ambient Temperature	40 °C
Efficiency at 100% / 75% / 50% Load	94.5% / 95.2% / 95.1%	Temperature Rise at Service Factor 1.00	80°C
Efficiency Reduction at 175% / 300% Thrust	0.4 / 0 %-point	Connection Type	RTF
Power Factor 100% / 75% / 50% Load	85.6 / 83.3 / 76.4 %	Dimension Print Number	RTF
Base Diameter Standard BD / Alternate BD1 / Alternate BD2 (see below for Utilized BD)	16.5 / 12 / 0 inches	VHS Shaft: length CD / max diameter BX	CD=28.5 / BX= 1.501 inches
		VSS Shaft diameter U / alternative U	0 / 0 inches
		VSS Shaft length AH	0 inches
		VSS dimensions	EU=0, EW=0, EX=0 inches
		VSS Shaft key dimensions	depth R=0, size S=0 inches
		Motor height AG	35.625 inches
		Center of Gravity at BD-Std / BD1 / BD2	12 / 12 / 12 inches



Utilized BD and Line Shaft for connection with Discharge Head  
Line Shaft Diameter= 1.50 inch, Motor Base Diameter BD=16.5 inch

Conduit box - dimensions

AC=10.6875, AF=3.25,  
BV=11.9375 inches

**ELECTRIC MOTOR DRIVER**  
Performance and Data Sheet

**OPTIONS not listed above (0=Not selected, 1=selected)**

		Witness Testing: Standard Commercial Test	0
TITAN II - USMotors next generation of large frame Vertical Motors	0	Steady bushing	0
Winding thermal protection Thermistors	0	Ground lug in conduit box (non - explosion proof)	1
Winding thermal protection Therma-sentry standard	0	Ground lug on frame (non - explosion proof)	0
Winding thermal protection Thermostats	1	Ground lug in conduit box and on frame explosion proof	0
Space heater, voltage 115V	1	Resistance Temperature Detector at thrust & radial bearing, copper	0
Space heater, voltage 230V	0	Resistance Temperature Detector at thrust & radial bearing, nickel	0
Space heater, voltage 460V	0	Resistance Temperature Detector at thrust & radial bearing, platinum	0
Space heater, voltage 575V	0	Resistance Temperature Detector at thrust bearing, copper	0
Starting Method at Voltage 460V: Full Voltage (standard)	1	Resistance Temperature Detector at thrust bearing, nickel	0
Starting Method at Voltage 460V: Part Winding Start (PWS)	0	Resistance Temperature Detector at thrust bearing, platinum	0
Starting Method at Voltage 460V: Star-Delta (WYE delta)	0	Exp Proof Class I, Group D, T Code: T2B	0
Inverter duty	1	Ground lug in conduit box explosion proof	0
Corro duty (inclusive Service Factor 1.15)	0	Freight of electric motor from motor vendor to the 1st domestic destination (North America) included	1
Service Factor 1.15	1	Premium Efficiency Adder	0
Non reverse ratchet	1	UL / NFPA20 Fire Pump Specification	0
Self-release coupling	0	Price Adder for change from 60Hz to 50Hz	0
Testing: Complete Initial Test	0	Inverter duty (includes efficiency upgrade to premium, RTF for electrical data / Efficiencies)	0
Testing: Sound test	0	Explosion Proof Standard (0=No, 1=Yes)	0
Testing: Standard Commercial Test	0		
Witness Testing: Complete Initial Test	0		
Witness Testing: Sound test	0		

The above information is not certified because the data has been extracted from motor manufacturer's published catalog.

## WARRANTY

New equipment manufactured by Peerless Pump Company. (Seller) is warranted to be free from defects in material and workmanship under normal use and service for a period of one year from date of shipment, Seller's obligation under this warranty being limited to repairing or replacing at its option any part found to be so defective provided that such part is, upon request, returned to Seller's factory from which it was shipped, transportation prepaid.

This warranty does not cover parts damaged by decomposition from chemical action or wear caused by abrasive materials, nor does it cover damage resulting from misuse, accident, neglect, or from improper operation, maintenance, installation, modification or adjustment.

This warranty does not cover parts repaired outside Seller's factory without prior written approval. Seller makes no warranty as to starting equipment, electrical apparatus or other material not of its manufacture, since the same are usually covered by warranties of the respective manufacturers thereof.

In the event, notwithstanding the terms of this agreement, it is determined by a court of competent jurisdiction that an express warranty has been given by Seller to Purchaser with respect to the head, capacity or other like performance characteristics of said equipment, Seller's liability for breach of the same shall be limited to accepting return of such equipment F.O.B. plant of manufacture, refunding any amount paid thereon by Purchaser (less depreciation at the rate of 15% per year if Purchaser has used equipment for more than thirty (30) days) and canceling any balance still owing on the equipment.

**Peerless Pump Company. in no event will be liable for indirect or consequential damages.**

**This warranty is expressly in lieu of any other warranties, expressed or implied, and seller specifically disclaims any implied warranty of merchantability or fitness for a particular purpose.**



Peerless Pump Company  
 2005 Dr. Martin Luther King Jr. Street  
 P. O. Box 7026  
 Indianapolis, Indiana 46207-7026  
 Phone (317) 925-9661      Fax (317) 924-7388



### HYDRAULIC PERFORMANCE TOLERANCE

The conditions of service can only be guaranteed within the following tolerances, which are consistent with those standards as established by the Hydraulic Institute.

HEAD - Under 200 ft. at 2999 gpm and under	+8% - 0%
HEAD - Under 200 ft. at 3000 gpm and over	+5% - 0%
HEAD - 200 ft To 500 ft at any flow	+5% - 0%
HEAD - Over 500 ft. at any flow	+3% - 0%

or

At Rated Head	=	10% - 0% Capacity
Efficiency	=	- 0% of Contracted Pump Efficiency (Job factory guaranteed pump efficiency)
Bhp at Rated Condition =		+ 8% ( As per above Head Tolerances) + 5% + 3%

This guarantee applies to only one set of conditions as specified. A second Head-Capacity point or Shut-Off Head cannot be guaranteed within these tolerances. When **Hydraulic Institute-Peerless Standard Tolerance Type** is selected in **Rapid** criteria screen the above tolerances are used in selecting pump at input head and capacity points.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order.

The plus 8%, 5% or 3% in HEAD tolerances at the rated capacity could result in a plus 8%, 5% or 3% greater horsepower load. Motors must be selected so that they can safely carry a load 8%, 5% or 3% greater than that calculated at the rated capacity. For specifications that specify that the motor size to be non - overloading over the entire pump curve, the 8%, 5% or 3% tolerance must be added to the expected horsepower at the low HEAD or maximum horsepower condition.

With the total HEAD tolerance described above, for centrifugal pumps, be sure and take into consideration, the plus 8%, 5% or 3% tolerance on the horsepower when selecting a pump from a standard sales manual curve.

A contractual guarantee of one point performance requires the factory application department's written approval prior to placing an order as directed by information in Sections 10 and 15.



**EMERSON MOTOR COMPANY**

8100 WEST FLORISSANT AVE.  
P.O. BOX 3946 \* BLDG. K \* ST. LOUIS, MO 63136  
FAX (314) 553-1101

DATE: 1/10/2007

P.O. NO.: 00220834  
USEM  
Order/Line NO.: 20063914 SO 100

TO: Sterling Fluid Systems  
ATTN: Accounts Payable  
PO Box 7026  
Indianapolis, IN, 46207-7026  
ATTN: FELIX HIPOLITO

Model Number: NA  
Catalog Number: NA  
VHS TEFC Configuration  
CONF,MOTOR,VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705037-02 FOR 705037VJ

**ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.**

**Features:**

Horsepower ..... 00050.00~00000.00 ~ KW: 37.3  
Enclosure ..... TEFC  
Poles ..... 04~00 ~ RPM: 1800~0  
Frame Size ..... 326~TP  
Phase/Frequency/Voltage.. 3~060~230/460 ~ Random Wound  
Service Factor ..... 1.15  
Insulation Class ..... Class "F" ~ Insulife 2000  
Altitude In Feet (Max) .. 3300 Ft.(1000 M) ~ +40 C  
Efficiency Class ..... Premium Efficiency  
Application ..... Centrifugal Pump  
Customer Part Number .... 705037VJ  
16.5" Base ~ Coupling Size: 1-1/2" Bore, 3/8" Key  
Non-Reverse Ratchet ~ Steady Bushing Not Requested  
Pricebook Thrust Value (lbs).. 4500  
Customer Down Thrust (lbs) ... 4500  
Customer Shutoff Thrust (lbs).  
Up Thrust (lbs): ~  
Inverter Duty Rating:  
Load Type (Base Hz & Below) .. Variable Torque  
Speed Range (Base Hz & Below). 10:1  
Temperature Rise (Sine Wave): "F" Rise @ SF (Resist)  
Starting Method ..... Direct-On-Line Start  
Duty Cycle ..... Continuous Duty  
Load Inertia (lb-ft<sup>2</sup>): NEMA ~ NEMA Inertia: 232.00 ~ 1.00  
Number Of Starts Per Hour: NEMA  
Motor Type Code ..... TUI  
Rotor Inertia (LB-FT<sup>2</sup>) ..... 9.27 LB-FT<sup>2</sup>  
Qty. of Bearings PE (Shaft) 1  
Qty. of Bearings SE (OPP) 1  
Bearing Number PE (Shaft) 7312 BEP  
Bearing Number SE (OPP) 6212-J/C3



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CONF,MOTOR,VHS TEFC

REVISIONS:  
(NONE)

MARKS: PN 705037-02 FOR 705037VJ

ALL DOCUMENTS HEREIN ARE CONSIDERED CERTIFIED BY US ELECTRICAL MOTORS.  
THANK YOU FOR YOUR ORDER AND THE OPPORTUNITY TO SERVE YOU.

**Accessories:**

Counter CW Rotation FODE  
Ground Lug In Conduit Box  
115 Volt Space Heaters  
Thermostats - Normally Closed  
VFD Duty

USE THE DATA PROVIDED BELOW TO SELECT THE APPROPRIATE DIMENSION PRINT

Horsepower	50
Pole(s)	04
Voltage(s)	460-230
Frame Size	326TP
Outlet Box AF	3.25
Outlet Box AA	2.00



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# NAMEPLATE DATA

CATALOG NUMBER: _____		NAMEPLATE PART #: <span style="border: 1px solid black; padding: 2px;">422707-005</span>	
MODEL _____	FR <span style="border: 1px solid black; padding: 2px;">326TP</span>	TYPE <span style="border: 1px solid black; padding: 2px;">TUI</span>	ENCL <span style="border: 1px solid black; padding: 2px;">TE</span>
SHAFT END BRG <span style="border: 1px solid black; padding: 2px;">7312 BEP - QTY 1</span>		OPP END BRG <span style="border: 1px solid black; padding: 2px;">6212-J/C3 - QTY 1</span>	
PH <span style="border: 1px solid black; padding: 2px;">3</span>	MAX AMB <span style="border: 1px solid black; padding: 2px;">40 C</span>	ID# <span style="border: 1px solid black; padding: 2px;">(ref: Order#: 20063914, Type: SO, Line#: 100)</span>	
INSUL CLASS <span style="border: 1px solid black; padding: 2px;">F</span>	Asm. Pos. _____	DUTY <span style="border: 1px solid black; padding: 2px;">CONT</span>	
HP <span style="border: 1px solid black; padding: 2px;">50</span>	RPM <span style="border: 1px solid black; padding: 2px;">1780</span>	HP _____	RPM _____
VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>	VOLTS _____	VOLTS _____	
FL AMPS <span style="border: 1px solid black; padding: 2px;">57.0</span> <span style="border: 1px solid black; padding: 2px;">114.0</span>	FL AMPS _____	FL AMPS _____	
SF AMPS <span style="border: 1px solid black; padding: 2px;">66.0</span> <span style="border: 1px solid black; padding: 2px;">132.0</span>	SF AMPS _____	SF AMPS _____	
SF <span style="border: 1px solid black; padding: 2px;">1.15</span>	DESIGN <span style="border: 1px solid black; padding: 2px;">B</span>	CODE <span style="border: 1px solid black; padding: 2px;">G</span>	CODE _____
NEMA NOM EFFICIENCY <span style="border: 1px solid black; padding: 2px;">94.5</span>	NOM PF <span style="border: 1px solid black; padding: 2px;">86.9</span>	KiloWatt <span style="border: 1px solid black; padding: 2px;">37.3</span>	NEMA NOM EFFICIENCY _____
GUARANTEED EFFICIENCY <span style="border: 1px solid black; padding: 2px;">93.6</span>	MAX KVAR _____	HZ <span style="border: 1px solid black; padding: 2px;">60</span>	GUARANTEED EFFICIENCY _____

**UL DATA (IF APPLICABLE):**

DIVISION _____	CLASS I _____	GROUP I _____
TEMP CODE _____	CLASS II _____	GROUP II _____

**VFD DATA (IF APPLICABLE):**

VOLTS <span style="border: 1px solid black; padding: 2px;">460</span> <span style="border: 1px solid black; padding: 2px;">230</span>	TORQUE 1 <span style="border: 1px solid black; padding: 2px;">147.4</span>	TORQUE 2 _____
AMPS <span style="border: 1px solid black; padding: 2px;">59.9</span> <span style="border: 1px solid black; padding: 2px;">119.7</span>	VFD LOAD TYPE 1 <span style="border: 1px solid black; padding: 2px;">VT/PWM</span>	VFD LOAD TYPE 2 _____
VFD HERTZ RANGE 1 <span style="border: 1px solid black; padding: 2px;">6-60</span>	VFD HERTZ RANGE 2 _____	VFD HERTZ RANGE 2 _____
VFD SPEED RANGE 1 <span style="border: 1px solid black; padding: 2px;">180-1800</span>	VFD SPEED RANGE 2 _____	VFD SPEED RANGE 2 _____
SERVICE FACTOR <span style="border: 1px solid black; padding: 2px;">1.00</span>	FL SLIP _____	FL SLIP _____
NO. POLES _____	MAGNETIZING AMPS _____	MAGNETIZING AMPS _____
VECTOR MAX RPM _____	Encoder PPR _____	Encoder PPR _____
Radians / Seconds _____	Encoder Volts _____	Encoder Volts _____

**TEAO DATA (IF APPLICABLE):**

HP (AIR OVER) _____	HP (AIR OVER M/S) _____	RPM (AIR OVER) _____	RPM (AIR OVER M/S) _____
FPM AIR VELOCITY _____	FPM AIR VELOCITY M/S _____	FPM AIR VELOCITY SEC _____	FPM AIR VELOCITY SEC _____

ADDITIONAL NAMEPLATE DATA:

Decal / Plate	WD=109145	Customer PN	705037VJ
Notes		Non Rev Ratchet	NRR
Max Temp Rise		OPP/Upper Oil Cap	GREASE
Thermal (WDG)	OVER TEMP PROT 2	SHAFT/Lower Oil Cap	GREASE
Altitude			
EPACT Note		EPACT Compliance	
COS		Marine Duty	
Balance	0.08 IN/SEC	Arctic Duty	
3/4 Load Eff.	95.3	Inrush Limit	
Motor Weight	690	Direction of Rotation	
Sound Level		Special Note 1	
Vertical Thrust	4500	Special Note 2	
Thrust Percentage	100% HT	Special Note 3	
Bearing Life		Special Note 4	
Starting Method		Special Note 5	
Number of Starts		Special Note 6	
200/208V 60Hz Max Amps		SH Max. Temp.	
190V 50 hz Max Amps		SH Voltage	SH VOLTS=115V
380V 50 Hz Max Amps		SH Watts	SH WATTS= 96W
NEMA Inertia		Load Inertia	
Sumpheater Voltage		Sumpheater Wattage	
Special Accessory Note 1		Special Accessory Note 16	
Special Accessory Note 2		Special Accessory Note 17	
Special Accessory Note 3		Special Accessory Note 18	
Special Accessory Note 4		Special Accessory Note 19	
Special Accessory Note 5		Special Accessory Note 20	
Special Accessory Note 6		Special Accessory Note 21	
Special Accessory Note 7		Special Accessory Note 22	
Special Accessory Note 8		Special Accessory Note 23	
Special Accessory Note 9		Special Accessory Note 24	
Special Accessory Note 10		Special Accessory Note 25	
Special Accessory Note 11		Special Accessory Note 26	
Special Accessory Note 12		Special Accessory Note 27	
Special Accessory Note 13		Special Accessory Note 28	
Special Accessory Note 14		Special Accessory Note 29	
Special Accessory Note 15		Special Accessory Note 30	



EMERSON MOTOR COMPANY  
ST. LOUIS, MO



TYPICAL NAMEPLATE DATA  
ACTUAL MOTOR NAMEPLATE LAYOUT MAY VARY  
SOME FIELDS MAY BE OMITTED

## MOTOR PERFORMANCE

MODEL NO.	CATALOG NO.	PHASE	TYPE	FRAME
NA	NA	3	TUI	326TP

ORDER NO.	20063914	LINE NO.	100
-----------	----------	----------	-----

MPI:		50863	50864
HP:		50	50
POLES:		4	4
VOLTS:		460	230
HZ:		60	60
SERVICE FACTOR:		1.15	1.15
EFFICIENCY (%):			
	S.F.	94	94
	FULL	94.5	94.5
	3/4	95.3	95.3
	1/2	95.1	95.1
	1/4	92.7	92.7
POWER FACTOR (%):			
	S.F.	86.9	86.9
	FULL	86.9	86.9
	3/4	85.3	85.3
	1/2	79.8	79.8
	1/4	62.1	62.1
	NO LOAD	5.1	5.1
	LOCKED ROTOR	37.3	37.3
AMPS:			
	S.F.	66	132
	FULL	57	114
	3/4	43	86
	1/2	31	62
	1/4	20.3	41
	NO LOAD	15.1	30.2
	LOCKED ROTOR	361	722
NEMA CODE LETTER		G	G
NEMA DESIGN LETTER		B	B
FULL LOAD RPM		1780	1780
NEMA NOMINAL EFFICIENCY (%)		94.5	94.5
GUARANTEED EFFICIENCY (%)		93.6	93.6
MAX KVAR		10.2	10.2
AMBIENT (°C)		40	40
ALTITUDE (FASL)		3300	3300
SAFE STALL TIME-HOT (SEC)		30	30
SOUND PRESSURE (DBA @ 1M)		70	70
TORQUES:			
	BREAKDOWN(% F.L.)	242	242
	LOCKED ROTOR(% F.L.)	198	198
	FULL LOAD(LB-FT)	147.4	147.4

The Above Data Is Typical, Sinewave Power Unless Noted Otherwise



EMERSON MOTOR COMPANY  
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## **SILICONE RUBBER SPACE HEATERS**

Electric motors frequently have space heaters installed to prevent moisture condensation in the motor during times the motor is not running.

Many motor manufacturers use metallic or ceramic cartridge heaters for this purpose. Because such heaters are small they must operate at a high surface watt density and consequently high temperature. The high temperature causes rapid heater failure, often within the first year.

To combat this high failure rate, many smart users specify that space heaters are to be operated at one-half their rated voltage. This lowers the surface watt density to one-fourth the value with rated voltage, and increases the heater life more than proportionally.

U. S. Electrical Motors has another, better, solution to heater failure rate - the use of silicone rubber space heaters. The heaters are manufactured by sandwiching a resistance wire network between two pieces of high-temperature silicone rubber and bonding the silicone rubber pieces together. The silicone rubber heaters are designed for low surface watt density by providing a large surface area (a heater measuring 45" X 2.5" is rated at 169 watts, or 1.5 watts per square inch). The life of these heaters typically exceeds the life of the motor.

Silicone rubber heaters enjoy another advantage over metallic or ceramic heaters. Because they are applied directly to the winding end turns, it is usually possible to achieve the required condensation prevention with a lower power consumption.

These silicone rubber heaters are used, when specified, on all U. S. Electrical Motors motors. It is not necessary for the user to specify operation at one-half rated voltage to get the long heater life that is desired.

\* Space heaters must be operated at +/- 10% rated voltage to be effective.

DR# 587-9358  
H.E. Barr  
1/8/81  
\*Revision: 3/11/03  
Mike Cullen

## RENEWAL PARTS

FRAMES 324 THRU 447 - TOTALLY ENCLOSED AND EXPLOSION PROOF MOTORS

TYPES: JU, JUE, JUS, LU, LUC, LUE, LUEI, LUS, LV4, LV9, LVC9, LVCI, LVCS, LVCS9, LVE4, LVS4, NVC4, NVC9, TU, TUC, TUCE, TUCI, TCS, TUE, TUI, TUS, TV, TV4, TV9, TVC, TVC4, TVC9, TVCE, TVCE4, TVCE9, TVCI, TVCI4, TVCI9, TVCN9, TVCS, TVCS4, TVCS9, TVE, TVE4, TVE9, TVEI, TVI, TVI4, TVI9, TVN9, TVS, TVS4, TVS9  
HOLLOSHAFT AND SOLIDSHAFT MOTORS

ITEM NO.	QTY	NAME OF PART
30	1	Upper Bracket Assembly
31	1	Special Plug
32	1	Sight Gauge Window
33	1	Special Housing
34	1	Reflector Disc
35	2	Gasket
36	4	Screws
37	1	Pipe Nipple
38	1	Gasket
39	1	Drain Cap
40	1	Bearing Mounting
41-45	-	NOT USED IN THIS ASSEMBLY
46	1	Oil Baffle
47	3	Screws
48	3	Split Lockwashers
49	1	Dust Ring (Not Illustrated)
50	1	Gasket (Not Illustrated)
51	4	Screws (Not Illustrated)
52	4	Split Washers (Not Illustrated)
53	1	Ball Bearing (Upper) (Refer to section 775)
54	1	Bearing Spacer
55	2	Ball Bearing (Not Illustrated) (Refer to section 775)
56	1	Air Deflector
57	8	Hex Head Screws
58	8	Lockwashers

ITEM NO.	QTY	NAME OF PART
59	16	Hex Head Screws (Bracket to Stator)
60	16	Lockwashers
61-65	-	NOT USED IN THIS ASSEMBLY
66	1	Wound Stator Assembly
67	1	Rotor Assembly (includes items 68 - 70)
68	1	Rotor Core
69	1	Rotor Shaft
70	1	Square Key
71	1	Pulley End Bracket
72	1	Bearing Cap
73	1	Ball Bearing (Pulley End) (Refer to section 775)
74	1	Snap Ring
75	1	Grease Fitting
76	1	Pipe Plug
77	3	Screws (Bearing Cap)
78	3	Lockwashers
79	1	Water Deflector
80	1	Stabilizer Bushing
81	1	Outlet Box Base
82	4	Screws
83-87	-	NOT USED IN THIS ASSEMBLY
88	1	Outlet Box Cover
89	4	Screws
90	1	Gasket (TU only)
91	1	Gasket (TU only)

**WARNING:**

Any disassembly or repair work on explosionproof motors will void the Underwriters Laboratories, Inc. label unless done by the manufacturer, or a facility approved by the Underwriters Laboratories, Inc. Refer to your nearest U.S. Electrical Motors office for assistance.

**BEARINGS:**

Refer to motor nameplate for the bearing numbers.

**PRICES:**

Parts stocking distributors: refer to USEM renewal parts numerical index. All Others: refer to your nearest USEM parts distributor.

reference: Renewal Parts Section 700, Pages 157 & 158

## TYPICAL REED CRITICAL FREQUENCY DATA

USEM MODEL NO: NA  
USEM CATALOG NO: NA

Frame: 326TP Type: TUI

REED CRITICAL FREQUENCY:	82	HZ
CENTER OF GRAVITY:	12	IN
DEFLECTION @ CENTER OF GRAVITY:	0.001	IN
UNIT WEIGHT:	700	LBS.
BASE DIAMETER:	ALL	IN.
MAXIMUM MOTOR DIAMETER:	17.00	IN.
DATE:	1/10/2007	



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## PRODUCT DATA SHEET

Vertical A.C. Motors  
Open & Enclosed  
Holloshaft® & Solidshaft  
Varidyne® Inverter Duty

- Weather Protected Type I, Totally Enclosed Fan Cooled and Explosionproof
- High and Normal Thrust Solid Shaft and Holloshaft®
- Premium Efficient Design with Inverter Grade® Insulation System
- Meets NEMA Parts 30 and 31
- Low and Medium Voltage
- 3 through 4000 Horsepower

### Product Overview

Significant operational cost savings are possible in many pumping systems with the use of process control. U.S. Electrical Motors' Vertical Inverter Duty Motor is specifically designed for application in process control of variable torque loads through the use of a variable frequency drive (VFD). The evolution of drive technology provides today's user with a reliable, cost effective product. However, this same pulse width modulation (PWM) drive expects the motor will successfully operate in a harsh electrical environment.



U.S. Motors was the first motor company to recognize the need for a special inverter duty insulation system by introducing the first formal Inverter Grade® Insulation System. Our Varidyne® vertical motors offer an insulation system with superior pulse endurance to withstand the stresses produced by the PWM waveform.

It takes more than a pulse resistance magnet wire substitution to become a Varidyne vertical motor. Varidyne vertical motors feature a series of enhancements specifically addressing the reliability concerns arising out of motors operated in tough electrical environments created by VFDs. The Inverter Grade protection system is coupled with a carefully designed mechanical package that provides superior product performance under VFD power. This system meets the stringent requirements outlined in NEMA MG-1, Part 31 (and Part 30).

You can count on U.S. Motors to continue our design efforts aimed at maintaining a compatible product in light of advancing drive technology. We will automatically upgrade our Varidyne® inverter duty product offering as technology advancements become available.

As standard, the Inverter Duty Vertical Motor features premium efficiency, 1.15 service factor, 40° C ambient operation, "P" base, NEMA design B, and low mechanical component stress levels. We recommend our motor with any drive on the market today.

### A Look at Inverter Power

Industrial, municipal and agricultural users recognize the need to maximize productivity, reliability and cost savings in light of today's economic climate. System inefficiencies are no longer acceptable.

The application of vertical motors to variable torque pump loads is an ideal candidate for process control through the use of a variable frequency drive (VFD).

Today's VFD products are technically very different from those introduced just a few years ago. Early generations of drives claimed to be compatible with any induction motor. While the claim may have been true, the industry soon found that the use of a Variable Frequency Drive caused thermal problems within the motor. Because the drives adulterated sinewave output and increased the temperature rise in the motors, most applications resulted in early winding failures.

Once the thermal problems were recognized, it became popular to specify a premium efficiency motor for VFD applications. A premium efficiency motor was an easy solution since they were readily available. In addition, they featured a low temperature rise thanks to the additional active materials used to achieve the higher efficiency rating, so they performed better under inverter power than standard efficiency motors. Energy savings through process control and premium efficiency motors provided the optimum payback.

At the time, the use of a premium efficient motor solved the thermal problem in many motor and drive system combinations. While drive technology continued to evolve, many engineers and users became comfortable with this motor solution.

### Inverter Grade Insulation System

Recently a shift in drive technology once again has caused an increase in motor failures. Today advances in microprocessors and power semiconductor technology has evolved to improve the performance, reliability and cost attributes of VFD's. This evolution has occurred over a 20 year period. With each power semiconductor milestone achieved, drive switching frequency increased.

Increased switching frequency created new challenges for existing insulation systems. Electric motor insulation systems have, for the most part, not changed in 30 years. Today it is no longer accurate to think that inverter driven motors have only a thermal problem - one which can be solved by using a premium efficient motor. Drives now produce high rate-of-rise voltage waveforms that impose high impulse electrical stress on the motor insulation. Unfortunately, most current insulation life standards do not specify the maximum repetitive voltage transients, the switching frequency (kHz) or the rate of rise that the winding should be able to withstand and still maintain normal life expectations. Standard insulation systems are not designed to operate in this new electrical environment. When they are, unpredictable motor performance is the result.

U.S. Electrical Motors was the first to recognize the need for a special inverter duty insulation system by introducing the our original Inverter Grade<sup>®</sup> Insulation System. This early system provided protection against the effects of IGBT power devices through the use of additional phase paper end-turn bracing as well as triple film polyester overcoated magnet wire. The benefit was clear that under inverter fed applications a significant improvement in winding life was achieved. However, increased insulation material reduced the copper content, therefore reducing motor efficiencies. The new challenge in engineering design became maintaining or improving the winding integrity under VFD power while *also* regaining lost efficiency.

USEM teamed with Phelps Dodge to develop a new and improved insulation system. The result is the first major advancement in magnet wire technology and motor insulation systems specifically designed and tested for VFD applications. This new pulse resistant (TZ-QS Quantumshield) magnet wire along with U.S. Motors' patented insulation system is at the heart of the current Inverter Grade<sup>®</sup> product.

You can count on USEM to continue our design efforts aimed at maintaining a compatible product for the advancing drive technology.

### **Pulse Endurance Test**

To validate the Inverter Grade magnet wire, we developed the Pulse Endurance Test. This test has become the standard basis for comparing various types of insulation under VFD power. The result is USEM's Inverter Grade<sup>®</sup> Insulation System which meets the stringent requirements outlined in NEMA MG-1, 1993, Part 30 and 31.

#### **Part 30 = Level 1**

General Purpose product capable of reliable performance in Inverter installations where peak transients do not exceed 1000V and/ or rise times are not shorter than 2 microseconds.

#### **Part 31= Level 2**

Definite purpose product capable of reliable performance in Inverter installations where peak voltages do not exceed 1600V and/ or rise times are not shorter than .1 microsecond.

Motor failures have been random in nature due to uncontrolled transient pulse conditions from the inverters. A magnet wire test device that reproducibly simulates the electrical environment found in inverter-fed motors has been built to study insulation failures through the Pulse Endurance Test.

#### Inverter Characteristics

Switching Frequency from 1 to 20 kHz  
Switching Transient Voltage Rise Times  
Transient Voltage 2-3 pu (line to ground)

#### Test Device Capability

60 Hz to 20 kHz Pulse Frequency  
10 to 100 kV/msec Rise Time  
1000 to 5000 V Peak to Peak (square wave)

The testing parameters for the Pulse Endurance Test have been determined by examining the actual inverter characteristics and determining the worst case pulse condition that a motor would experience.

### **Pulse Endurance Test Method**

Dielectric twists of 18 AWG wire coated with the test insulation are aged in a forced air oven at 90 degrees C under the electrical stress condition of 0.025 msecond pulse rise time, 2kV peak voltage, 20 kHz pulse frequency, 50% duty cycle square wave. The time to failure of the product is recorded in seconds. The Pulse Endurance Index (PEI) is a ratio of the endurance life of the sample under test in comparison to 18 AWG wire using heavy build MW35 insulation.

*Pulse Endurance Index (PEI) = Endurance Life of Test Sample/ Endurance Life of Heavy Build MW35 Sample*

### **Stock & Custom Motors Available**

Varidyne<sup>®</sup> Vertical Motors with our patented Inverter Grade<sup>®</sup> insulation system are available from stock or conversion. We can customer engineer a product as well to help you take advantage of our extensive modification capabilities.

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Varidyne® Vertical Motors - providing you reliable performance under VFD power and greater peace of mind.

*PDS544-193*

**PLAN HOLDERS LIST**

**2022 Well Redevelopment Project**

Individuals or companies can be added to the plan holders list by contacting Krystal Powell at [krystal.powell@co.warren.oh.us](mailto:krystal.powell@co.warren.oh.us)

Name	Company	Phone Number	E-mail Address
Bob Curley	Granite Construction, Inc.	513-424-7287	<a href="mailto:Bob.curley@gcinc.com">Bob.curley@gcinc.com</a>



May 16, 2022

**ADDENDUM #1**

**2022 WELL REDEVELOPMENT PROJECT**

**7 PAGES TOTAL**

This Addendum No. 1 is issued to make certain revisions, additions, and clarifications to the original Contract Documents and shall be incorporated into the original Specifications. This Addendum takes precedence over any and all information previously issued. No other revisions to the Specifications are to be inferred.

**BID/CONTRACT DOCUMENTS:**

- 1) SECTION 00 10 30 – BID FORM.

This Section is being revised and reissued as an attachment to this addendum.

- 2) SECTION 01 11 00 – SUMMARY OF WORK, Page 01 11 00 – 1, Part 1.2.B.3:

**Delete** the words:

“Perform pumping tests on all redeveloped wells. The testing shall be in accordance with Ohio Administrative Code Section 3745-9-09 and shall include both step-drawdown and 24-hour constant rate pumping.”

and **Replace** with the following:

“Perform pumping tests on all redeveloped wells. The testing shall be in accordance with Ohio Administrative Code Section 3745-9-09 and shall include both step-drawdown and 48-hour constant rate pumping.”

- 3) SECTION 01 11 00 – SUMMARY OF WORK, Page 01 11 00 – 2, Part 1.2, in the North Well Field Table under Production Well 4

**Delete** the words “Install new 8-inch flow meter.”

- 4) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 1, Part 1.1.B

**Delete** the words:

“The work general consists of pump removal, video inspection of the well screen and casing before and after cleaning, chemical and mechanical redevelopment of the wells, step down and 24-hour pump testing, flow meter replacement/installation, level sensor replacement, and motor replacement.”

and **Replace** with the following:

“The work general consists of pump removal, video inspection of the well screen and casing before and after cleaning, chemical and mechanical redevelopment of the wells, step down and 48-hour pump testing, flow meter replacement/installation, level sensor replacement, and motor replacement.”

- 5) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 2 Part 1.2.C.2

**Delete** the words:

“North Wellfield Production Well 3 (PWN-3) cannot be removed from service until October 1, 2022.”

and **Replace** with the following:

“North Wellfield Production Well 3 (PWN-3) can from service until October 1, 2022 and shall be back in operation by April 1, 2023.”

- 6) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 1 in the North Well Field Table under Production Well 4

**Remove** the paragraph “Install new 8-inch flow meter.”

- 7) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 5, Part 1.9.C

**Delete** the words:

“The Contractor shall provide night lighting when 24-hour pump testing is performed.”

and **Replace** with the following:

“The Contractor shall provide night lighting when 48-hour pump testing is performed.”

- 8) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 14, Part 3.3.B.5:

**Delete** the words:

“Perform step drawdown and 24-hour pump testing to obtain sufficient hydrogeological information to evaluate potential pump upgrades at each well site. The step down test shall conform to the following:”

and **Replace** with the following:

“Perform step drawdown and 48-hour pump testing to obtain sufficient hydrogeological information to evaluate potential pump upgrades at each well site. The step down test shall conform to the following:”

- 9) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 14, Part 3.3.B.5.d:

**Delete** the words:

“Constand 24-hour pump testing rates for each well shall be established by the County after completion of the step draw down testing.”

and **Replace** with the following:

“Constand 48-hour pump testing rates for each well shall be established by the County after completion of the step draw down testing.”

- 10) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 15, Part 3.3.B.5.g:

**Delete** the words:

“Immediately after completion of the 24-hour test, additional pump testing shall occur to determine aquifer levels with multiple pumps in operation. During this 2-hour testing the County shall turn on production wells as the test well continues to operate, water level measurements shall be collected at 1-minute intervals throughout this test period.”

and **Replace** with the following:

“Immediately after completion of the 48-hour test, additional pump testing shall occur to determine aquifer levels with multiple pumps in operation. During this 2-hour testing the County shall turn on production wells as the test well continues to operate, water level measurements shall be collected at 1-minute intervals throughout this test period.”

11) Section 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 16, Part 3.4.A.2.b:

**Delete** the words:

“One graph for the 24-hour pumping test with drawdown measurements on the arithmetic scale and time on the logarithmic scale. Graph shall include the pumping well and any other wells used to observe drawdown and recovery for the test.”

and **Replace** with the following:

“One graph for the 48-hour pumping test with drawdown measurements on the arithmetic scale and time on the logarithmic scale. Graph shall include the pumping well and any other wells used to observe drawdown and recovery for the test.”

12) Section 33 01 10 – WELL REDEVELOPMENT, Appendix A, Figure 9.

This Figure is being revised and Reissued as an attachment to this addendum.

13) Section 33 01 10 – WELL REDEVELOPMENT, Appendix A, Figure 10.

This Figure is being revised and Reissued as an attachment to this addendum.

14) SECTION 40 71 13 – MAGNETIC FLOW METERS

**Delete** Section 40 71 13 – Magnetic Flow Meters, in its entirety.

**CLARIFICATIONS:**

1) SECTION 01 1100 – SUMMARY OF WORK and SECTION 33 01 10 – WELL REDEVELOPMENT of the contract documents call out a 24-hour constant rate pumping test, this Addendum #1 changes the length of this constant rate pumping test to 48-hours.

THIS ADDENDUM MUST BE SIGNED AND ATTACHED TO YOUR BID.

\_\_\_\_\_  
Acknowledged by

\_\_\_\_\_  
Date

**SECTION 00 10 30**  
**BID FORM**  
**REVISED AS PART OF ADDENDUM NO. 1**

BIDDER agrees to perform all the work described in the Contract Documents for the following prices:

ITEM	DESCRIPTION	QTY	UNITS	UNIT PRICE	TOTAL COST
Revis Well Field Production Well No. 1 (PWR-1)					
1	Video Inspection – Pre and Post Development	1	L.S.		
2	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
3	Replacement of Column Pipe	1	L.S.		
4	Well Redevelopment	1	L.S.		
5	Hydraulic testing of well	1	L.S.		
6	Replace Level Sensor	1	L.S.		
7	Plumbness/Alignment Testing	1	L.S.		
Revis Well Field Production Well No. 2 (PWR-2)					
8	Video Inspection – Pre and Post Development	1	L.S.		
9	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
10	Replacement of Column Pipe	1	L.S.		
11	Well Redevelopment	1	L.S.		
12	Hydraulic testing of well	1	L.S.		
13	Replace Level Sensor	1	L.S.		
14	Plumbness/Alignment Testing	1	L.S.		
Revis Well Field Production Well No. 3 (PWR-3)					
15	Video Inspection – Pre and Post Development	1	L.S.		
16	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
17	Replacement of Column Pipe	1	L.S.		
18	Well Redevelopment	1	L.S.		
19	Hydraulic testing of well	1	L.S.		
20	Replace Level Sensor	1	L.S.		
21	Plumbness/Alignment Testing	1	L.S.		

North Well Field Production Well No. 3 (PWN-3)					
22	Video Inspection – Pre and Post Development	1	L.S.		
23	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of column and pump; and well pump installation	1	L.S.		
24	Replacement of Column Pipe	1	L.S.		
25	Well Redevelopment	1	L.S.		
26	Hydraulic testing of well	1	L.S.		
27	Replace Level Sensor	1	L.S.		
28	Plumbness/Alignment Testing	1	L.S.		
North Well Field Production Well No. 4 (PWN-4)					
29	Video Inspection – Pre and Post Development	1	L.S.		
30	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of column and pump; and well pump installation	1	L.S.		
31	Replacement of Column Pipe	1	L.S.		
32	Well Redevelopment	1	L.S.		
33	Hydraulic testing of well	1	L.S.		
34	Replace Level Sensor	1	L.S.		
35	Plumbness/Alignment Testing	1	L.S.		

**Total of Bid Items 1 through 35**    \$ \_\_\_\_\_

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**Total Bid Items 1 through 35 (In Words)**

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**Bidder's Name**

L.S. = Lump Sum                      QTY = Quantity

May 20, 2022

**ADDENDUM #2**

**2022 WELL REDEVELOPMENT PROJECT**

**13 PAGES TOTAL**

This Addendum No. 1 is issued to make certain revisions, additions, and clarifications to the original Contract Documents and shall be incorporated into the original Specifications. This Addendum takes precedence over any and all information previously issued. No other revisions to the Specifications are to be inferred.

**BID/CONTRACT DOCUMENTS:**

- 1) SECTION 00 10 30 – BID FORM.  
This Section is being revised and reissued as an attachment to this addendum.
- 2) SECTION 01 11 00 – SUMMARY OF WORK, Page 01 11 00 – 2, Part 1.2 in the summary of work tables  
**Delete** the words “Plumbness and alignment test.”
- 3) SECTION 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 1, Part 1.1.C, in the summary of work tables  
**Delete** the words “Plumbness and alignment test.”
- 4) SECTION 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 5, Part 1.8  
**Delete** the table and **Replace** with the following table

Date	Well #	Actual GPM	Static Level (ft)	Draw Down Level (ft)	Draw Down (ft)	Specific Capacity (gpm/ft)
6/16/2005	PWR-1	700	13.87	20.45	6.58	106.4
6/16/2005	PWR-1	1022	13.87	24.07	10.2	100.2
6/16/2005	PWR-1	1750	13.87	32.65	18.78	93.2
6/16/2005	PWR-1	1750	13.87	33.77	19.9	87.9
4/17/2006	PWR-2	450	9.026	16.796	7.77	57.9
4/17/2006	PWR-2	900	9.026	25.726	16.7	53.9
4/17/2006	PWR-2	1350	9.026	35.326	26.3	51.3
4/17/2006	PWR-2	1350	9.026	35.426	26.4	51.1
4/10/2006	PWR-3	450	12.06	21.26	9.2	48.9
4/10/2006	PWR-3	900	12.06	31.26	19.2	46.9
4/10/2006	PWR-3	1350	12.06	43.01	30.95	43.6
4/10/2006	PWR-3	1350	12.06	42.56	30.5	44.3
3/30/2005	PWN-3	1800	5	9.3	4.3	418.6

3/30/2005	PWN-3	3750	5	14.5	9.5	394.7
3/30/2005	PWN-3	5000	5	19.3	14.3	349.6
3/31/2005	PWN-3	5000	5	20.1	15.1	331.1
3/1/2005	PWN-4	354	10.4	11.58	1.18	300.0
3/1/2005	PWN-4	708	10.4	13.96	3.56	198.9
3/1/2005	PWN-4	1107	10.4	16.61	6.21	178.3
3/1/2005	PWN-4	1208	10.4	17.32	6.92	174.6

5) SECTION 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 14, Part 3.3.B.5.c

**Delete** the table and **Replace** with the following table

<b>PWR-1</b>	<b>PWR-2</b>	<b>PWR-3</b>	<b>PWN-3</b>	<b>PWN-4</b>
500	500	500	100	500
900	900	900	1800	900
1100	1100	1100	2500	1100
1750	1350	1350	3300	1350

6) SECTION 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10 – 14, Part 3.3.B.6

**Delete** the paragraph in its entirety.

7) SECTION 33 01 10 – WELL REDEVELOPMENT, Page 33 01 10, Appendix B

**Add** the enclosed “North Wellfield Expansion” report to the end of the “Production Well North #3” section.

**QUESTIONS**

1) **Question:** Is there a specific reason the constant rate testing was changed to 48 hour constant rate from 24 hours?

**Answer:** As part of modeling of the County’s wellfield, it was recommended that the constant rate testing length be increased to 48 hours to allow the drawdown in the wells to stabilize.

**CLARIFICATIONS:**

- 1) The Existing Well Information Table incorrectly lists the casing diameter of PWR-3 as 12-inches. The correct casing diameter is 16-inches.
- 2) No plumbness and alignment tests will be required on any of the wells for this project.

THIS ADDENDUM MUST BE SIGNED AND ATTACHED TO YOUR BID.

\_\_\_\_\_  
Acknowledged by

\_\_\_\_\_  
Date

**SECTION 00 10 30**  
**BID FORM**  
**REVISED AS PART OF ADDENDUM NO. 2**

BIDDER agrees to perform all the work described in the Contract Documents for the following prices:

ITEM	DESCRIPTION	QTY	UNITS	UNIT PRICE	TOTAL COST
<b>Revis Well Field Production Well No. 1 (PWR-1)</b>					
1	Video Inspection – Pre and Post Development	1	L.S.		
2	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
3	Replacement of Column Pipe	1	L.S.		
4	Well Redevelopment	1	L.S.		
5	Hydraulic testing of well	1	L.S.		
6	Replace Level Sensor	1	L.S.		
<b>Revis Well Field Production Well No. 2 (PWR-2)</b>					
7	Video Inspection – Pre and Post Development	1	L.S.		
8	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
9	Replacement of Column Pipe	1	L.S.		
10	Well Redevelopment	1	L.S.		
11	Hydraulic testing of well	1	L.S.		
12	Replace Level Sensor	1	L.S.		
<b>Revis Well Field Production Well No. 3 (PWR-3)</b>					
13	Video Inspection – Pre and Post Development	1	L.S.		
14	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of pump; access ports; and well pump installation	1	L.S.		
15	Replacement of Column Pipe	1	L.S.		
16	Well Redevelopment	1	L.S.		
17	Hydraulic testing of well	1	L.S.		
18	Replace Level Sensor	1	L.S.		



North Well Field Production Well No. 3 (PWN-3)					
19	Video Inspection – Pre and Post Development	1	L.S.		
21	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of column and pump; and well pump installation	1	L.S.		
22	Replacement of Column Pipe	1	L.S.		
23	Well Redevelopment	1	L.S.		
24	Hydraulic testing of well	1	L.S.		
25	Replace Level Sensor	1	L.S.		
North Well Field Production Well No. 4 (PWN-4)					
26	Video Inspection – Pre and Post Development	1	L.S.		
27	Removal of well pump; well pump disassemble, inspection, and evaluation; sand blast and epoxy painting of column and pump; and well pump installation	1	L.S.		
28	Replacement of Column Pipe	1	L.S.		
29	Well Redevelopment	1	L.S.		
30	Hydraulic testing of well	1	L.S.		
31	Replace Level Sensor	1	L.S.		

**Total of Bid Items 1 through 31**    \$ \_\_\_\_\_

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**Total Bid Items 1 through 31 (In Words)**

---

**Bidder's Name**

L.S. = Lump Sum

QTY = Quantity

## 5.0 EXISTING WELL PRODUCTION INCREASE

Warren County requested that the three existing production wells (PW-1, PW-2, and PW-3) be tested to determine if and how much their yields could be increased. Prior to testing the existing wells, Reynolds performed the following tasks:

- Removed existing pumps, piping, and associated equipment from the wells;
- Inspected and cleaned the pumps, piping, and associated equipment;
- Video taped the interior of the wells and well screens using a downhole video camera prior to redevelopment;
- Redeveloped the wells by mechanical surging and brushing and/or scraping the inside of the well screens; and
- Video taped the interior of the wells and well screens using a downhole video camera after the wells were redeveloped.

### 5.1 Step-drawdown Testing

A step-drawdown test was conducted at each of existing production wells. Each test consisted of three steps conducted at pumping rates of 0.5, 1.0, and 1.5 times the anticipated target pumping rate of each existing well. The anticipated target pumping rates were 2,300 gpm, 1,400 gpm, and 3,500 gpm for wells PW-1, PW-2, and PW-3, respectively.

Step-drawdown testing was conducted at PW-1 on January 27, 2005. The saturated thickness in the vicinity of PW-1 during testing was 68 ft. The well screen of PW-1 is 36.5 ft long with 32 ft of available drawdown above the well screen. Step-drawdown testing was conducted at pumping rates of 1,168 gpm, 2,309 gpm, and 3,377 gpm. Drawdown in the well during testing was 5.0 ft, 9.5 ft, and 16.2 ft, respectively. A time-drawdown plot of PW-1 step-drawdown test data is provided as Figure 4-1.

Step-drawdown testing was conducted at PW-2 on February 23, 2005. The saturated thickness in the vicinity of PW-2 during testing was approximately 52 ft. The well screen of PW-2 is 22.5 ft long with 29.5 ft of available drawdown above the well screen. Step-drawdown testing was conducted at pumping rates of 704 gpm, 1,413 gpm, and 2,120 gpm. Drawdown in the well during testing was 2.9 ft, 6.6 ft, and 11.1 ft, respectively. A time-drawdown plot of PW-2 step-drawdown test data is provided as Figure 4-2.

Step drawdown testing was conducted at PW-3 on March 30, 2005. The saturated thickness in the vicinity of PW-3 during testing was approximately 91 ft. The well screen of PW-3 is 53.5 ft long with 40 ft of available drawdown above the top of the well screen. Step-drawdown testing was conducted at pumping rates of 1,800 gpm, 3,750 gpm, and 5,000 gpm. Drawdown in the well during each of the three steps was 4.3 ft, 9.5 ft, and 14.3 ft, respectively. A time-drawdown plot of PW-3 step-drawdown test data is provided as Figure 4-3.

## 5.2 24-Hour Pump Testing

The 24-hour pumping test was conducted at PW-1 on January 31, 2005 and February 1, 2005. Based on the results of the step-drawdown test at PW-1, a 24-hour pumping test was conducted at a pumping rate of 3,450 gpm. Drawdown in the pumping well was approximately 16.3 ft. Drawdown stabilized in the pumping well within 20 minutes of initiating pumping. Drawdown was also measured in monitoring wells P2S, P2D, WCTC008, and MW-5. Groundwater withdrawal at PW-1 appears to have had little or no effect on groundwater levels at MW-5. P2D is located approximately 470 ft from PW-1. Drawdown at monitoring well P2D during the 24-hour pumping test was approximately 0.8 ft. Thus, it is anticipated that some well interference will occur at the higher pumping rate.

Well yield is limited to 2,300 gpm as a consequence of Ohio regulations governing well construction. That is, the entrance velocity of the screen must be 6 ft/min or less at the design pumping rate. The 24-hour pumping test indicates that well PW-1 is capable of producing a permitted production rate of 2,300 gpm. A time-drawdown plot of PW-1 24-hour pump test data is provided as Figure 4-4.

The 24-hour pumping test was conducted at PW-2 on February 23 and 24, 2005. Based on the results of the step-drawdown test at PW-2, a 24-hour pumping test was conducted at a rate of 2,120 gpm. Drawdown in the pumping well was approximately 11.8 ft. Drawdown stabilized in the pumping well within 10 minutes of initiating pumping. Drawdown was also measured in pumping wells PW-1 and PW-3 during the 24-hr test. Groundwater elevations in those wells fluctuated a few tenths of a foot or less. Drawdown at monitoring well MW-5 was approximately 0.4 ft.

Ohio EPA regulations requiring an entrance velocity of 6 ft/min or less limit the design rate of PW-2 to 1,400 gpm. The 24-hour pumping test indicates that well PW-2 is capable of producing a permitted production rate of 1,400 gpm. A time-drawdown plot of PW-2 24-hour pump test data is provided as Figure 4-5.

The 24-hour pumping test was conducted at PW-3 on March 30 and 31, 2005. Based on the results of the step-drawdown test at PW-3, a 24-hour pumping test was conducted at 5,000 gpm, which was the maximum pumping rate achievable by the pump. Drawdown in the pumping well at the end of the 24-hour test was approximately 15.1 ft. Drawdown did not stabilize during the 24-hour pumping period. It is likely that it would have taken 3 to 5 days for drawdown to stabilize. Drawdown in pumping wells PW-1 and PW-2 was measured at 1.14 and 1.23 ft, respectively. Drawdown at monitoring well MW-5 was approximately 0.96 ft. The 24-hr pumping test indicates that well PW-3 is capable of producing a permitted production rate of 3,300 gpm. A time-drawdown plot of PW-3 24-hour pump test data is provided as Figure 4-6.

A summary of the North Wellfield pumping rates is provided as Table 3-1.

### **5.3 Total Coliform Bacteria Sampling**

Two total coliform bacteria samples were collected from existing production wells PW-1, PW-2, and PW-3. The bacteria samples were collected after the wells were disinfected and the original pumps installed, and at least 24 hours apart. The samples were collected and analyzed by Warren County personnel. Wells PW-1, PW-2, and PW-3 tested negative for total coliform bacteria.

## 7.0 SUMMARY OF RESULTS

Four 18-inch gravel pack production wells (PW-4, PW-5, PW-6, and PW-7) were installed and tested at Warren County's North Wellfield. In addition, the three existing production wells (PW-1, PW-2, and PW-3) were tested to determine if and how much the yield of the existing wells could be increased. The following conclusions can be drawn based on the testing:

### PW-1

- The 24-hour pumping test indicates that well PW-1 is capable of producing a permitted production rate of 2,300 gpm.
- PW-1 should be able to sustain a daily pumping rate of 2,300 gpm on a year to year basis with the possible exception of times of drought.

### PW-2

- The 24-hour pumping test indicates that well PW-2 is capable of producing a permitted production rate of 1,400 gpm.
- At a pumping rate of 1,400 gpm, PW-2 uses less than one-half of its available drawdown. PW-2 should be able to sustain a daily pumping rate of 1,400 gpm on a year to year basis with the possible exception of times of drought.

### PW-3

- The 24-hour pumping test indicates that well PW-3 is capable of producing a permitted production rate of 3,300 gpm.
- At a pumping rate of 5,000 gpm, PW-3 uses slightly more than one-third of its available drawdown. PW-3 should be able to sustain a daily pumping rate of 3,300 gpm on a year to year basis.

### PW-4

- The 24-hour pumping test indicates that well PW-4 is capable of producing a permitted production rate of 800 gpm.
- PW-4 uses slightly more than one-third of its available drawdown at a pumping rate of 1,200 gpm. PW-4 should be able to sustain a daily pumping rate of 800 gpm on a year to year basis.

### PW-5

- The 24-hour pumping test indicates that well PW-5 is capable of producing a permitted production rate of 670 gpm. The maximum allowable pumping rate for this particular well configuration is 720 gpm.

- An analysis of the comprehensive drawdown at the North Wellfield indicates that the water level at PW-5 during seasonal low conditions will be below the top of the well screen. Measures should be taken to prevent this from occurring.

#### **PW-6**

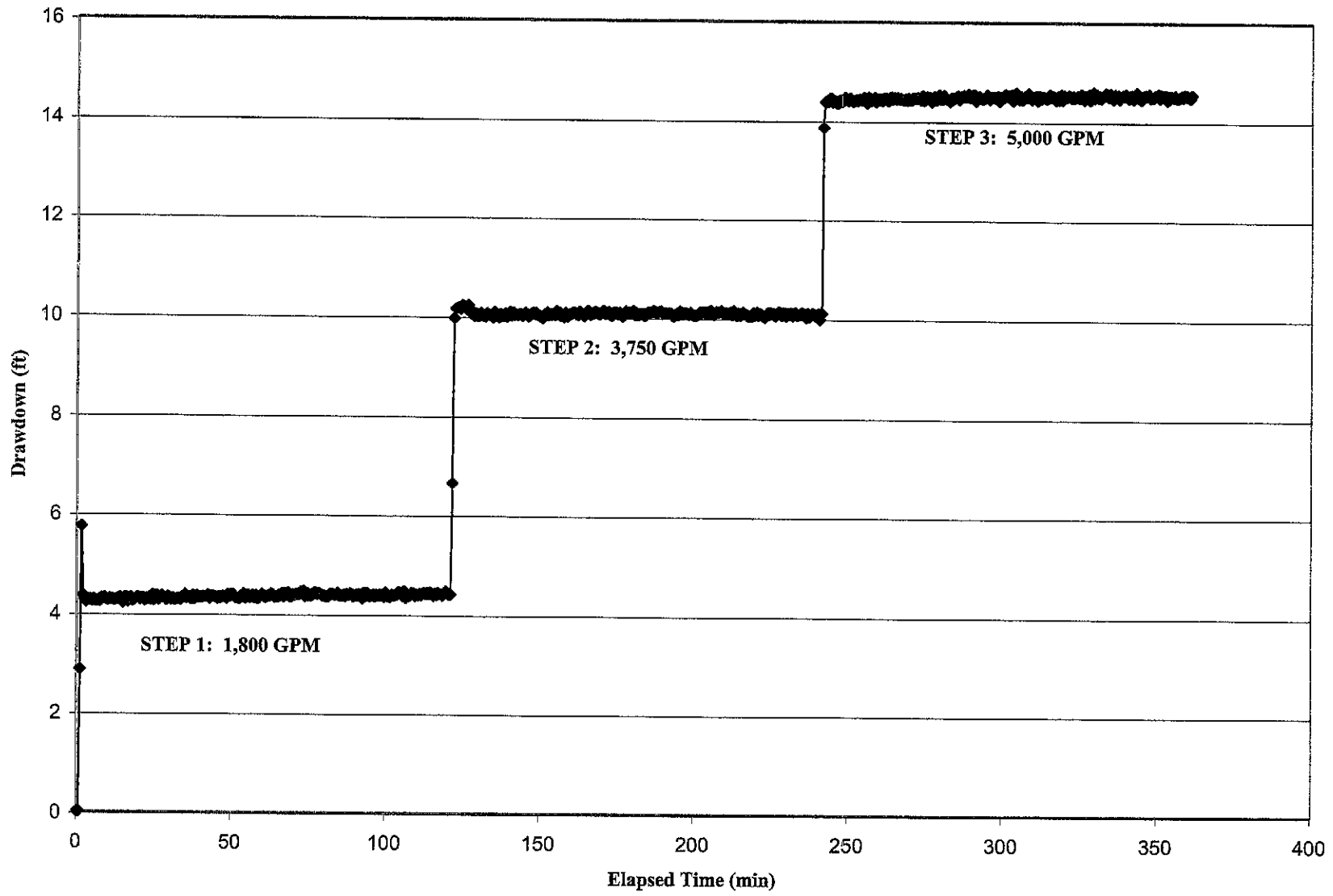
- The 24-hour pumping test indicates that well PW-6 is capable of producing a permitted production rate of 1,000 gpm.
- Accounting for long-term pumping and seasonal water table fluctuations, PW-6 should be able to sustain a pumping rate of 1,000 gpm with the possible exception of times of drought.

#### **PW-7**

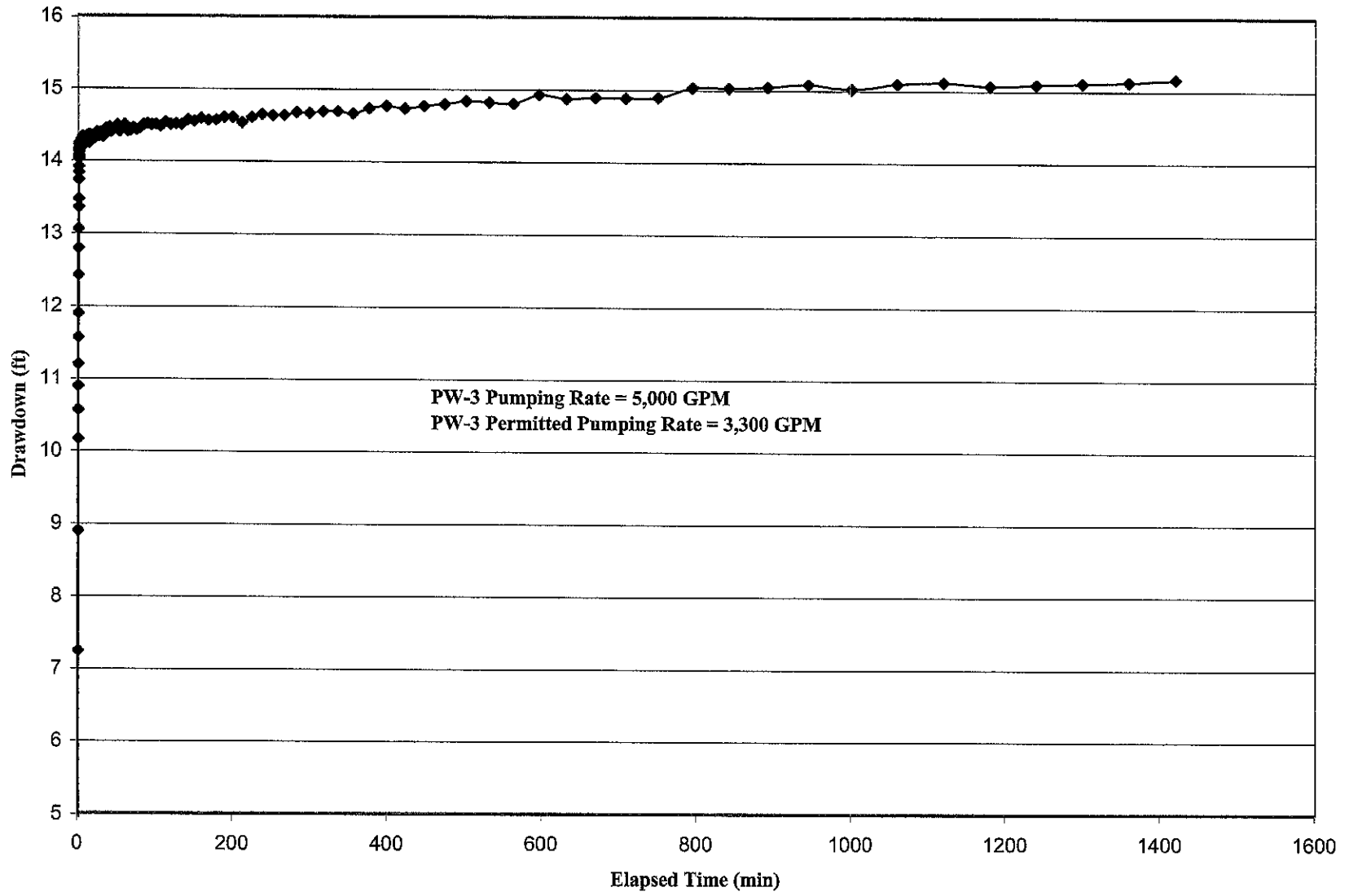
- The 24-hour pumping test indicates that well PW-7 is capable of producing a permitted production rate of 1,470 gpm.
- The permitted pumping rate at PW-7 is limited to 1,350 gpm by Ohio regulations which require that the ground water entrance velocity to the well screen be 6 ft/min.
- Accounting for long-term pumping and seasonal water table fluctuations, PW-7 should be able to sustain a pumping rate of 1,350 gpm. However, the predicted water level during seasonal low conditions is near the top of the well screen. Measures should be taken to monitor this situation and prevent the water levels from dropping below the top of the screen.

Collectively the four new production wells are capable of producing 5.5 mgd. If well PW-5 is not used, the increased water production amounts to 4.5 mgd. Testing of the three existing wells indicates they are capable of producing an Ohio EPA permitted rate of 10 mgd. Thus, the wellfield is capable of producing 14.5 to 15.5 mgd. It should be noted that the existing wellhead protection plan is based on a wellfield production rate of 8.0 mgd. An increase above the 8.0 mgd will require re-delineation of the time-of-travel zones.

FIGURE 4-3  
PW-3 STEP-DRAWDOWN TEST



**FIGURE 4-6**  
**PW-3 24-HOUR PUMPING TEST**





**TABLE 3-1**  
**SUMMARY OF PUMPING RATES**  
**North Wellfield**  
**Warren County, Ohio**

	PW-1	PW-2	PW-3	PW-4	PW-5	PW-6	PW-7
Step Test 1 Rate	1200	700	1800	350	300	1300	1300
Step Test 2 Rate	2300	1413	3750	700	700	1500	1500
Step Test 3 Rate	3400	2100	5000	1100	1000	1800	2200
24-hr Test Pumping Rate (gpm)	3450	2100	5000	1200	1000	1500	2200
Hydraulic Rate <sup>(1)</sup> (gpm)	2300	1400	3300	800	667	1000	1467
Screen Length (ft)	36.2	22.5	51	20	11	16	16
Screen Slot (in)	0.080	0.080	0.090	0.080	0.080	0.080	0.100
Open Area	0.34	0.34	0.37	0.35	0.35	0.35	0.40
Diameter (in)	16	16	16	18	18	18	18
Well Construction Rate <sup>(2)</sup>	2313	1437	3546	1480	814	1184	1353
Permitted Rate <sup>(3)</sup>	2300	1400	3300	800	670	1000	1350
<b>Total Wellfield Pumping Rate (gpm):</b>						<b>10,820</b>	
<b>Total Wellfield Pumping Rate (gpd):</b>						<b>15,580,800</b>	

Notes:

in - Inches

ft - Feet

gpm - Gallons per minute

gpd - Gallons per day

1 - Hydraulic rate is defined two-thirds of 24-hour pump testing rate.

2 - Based on entrance velocity of 6 ft/min or less.

3 - Rate based on the lesser of hydraulic and well construction rates.



**BOARD OF COUNTY COMMISSIONERS  
WARREN COUNTY, OHIO**

*406 Justice Drive, Lebanon, Ohio 45036*

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*Telephone (513) 695-1250*

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***TOM GROSSMANN  
SHANNON JONES  
DAVID G. YOUNG***

**BID OPENING**

May 26, 2022

**BID OPENING –**

Bids were closed at 11:00 a.m. this 26<sup>th</sup> day of May and the following bids were received, opened, and read aloud for the 2022 Well Redevelopment Project for the Warren County Water and Sewer Department.

National Water Services Paoli, IN	\$402,689.00
Moody's of Dayton Dayton, OH	\$410,000.00
Layne Water Resources Middletown, OH	\$429,665.00

Kathryn Gilbert, Staff Engineer, will review bids for a recommendation at a later date.

cc: Bid File

OMB

W/S (file)



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**TOM GROSSMANN**  
**SHANNON JONES**  
**DAVID G. YOUNG**

22-0814

June 07, 2022

**REJECT BIDS AND ADVERTISE FOR RE-BID FOR THE 2022 WELL REDEVELOPMENT PROJECT**

WHEREAS, on May 26, 2022, a bid opening was held for the 2022 Well Redevelopment Project for the Warren County Water and Sewer Department; and

WHEREAS, a wellfield production analysis determined wells originally included in the scope of work for the project will not be used due to the lack of production capacities and cost of maintenance; and

NOW THEREFORE BE IT RESOLVED, to reject all bids received for the 2022 Well Redevelopment Project; and

BE IT FURTHER RESOLVED, to advertise for re-bid for the 2022 Well Redevelopment Project, bid opening to be July 21, 2022 @ 11:00 a.m.

Mrs. Jones moved for adoption of the foregoing resolution being seconded by Mr. Young. Upon call of the roll, the following vote resulted:

Mr. Grossmann – yea  
Mr. Young – yea  
Mrs. Jones – yea

Resolution adopted this 7<sup>th</sup> day of June 2022.

BOARD OF COUNTY COMMISSIONERS

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Tina Osborne, Clerk

KP

cc: Water/Sewer (file)  
OMB Bid file