

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the Matter of:

**ELECTRONIC APPLICATION OF)
OHIO COUNTY WATER DISTRICT)
FOR A CERTIFICATE OF PUBLIC) CASE NO. 2023-00192
CONVENIENCE AND NECESSITY)
PURSUANT TO KRS 278.020 AND 807)
KAR 5:001**

VERIFIED APPLICATION

Order Requested by July 31, 2023

Pursuant to KRS 278.020(1) and 807 KAR 5:001, Section 15, Ohio County Water District (“Ohio District”) applies to the Kentucky Public Service Commission (the “Commission”) for an Order granting Ohio District a certificate of public convenience and necessity (the “Certificate”) to rehabilitate its existing raw water intake facilities (the “Project”) at an estimated cost of \$5,943,600. No long-term debt will be incurred. No rate increase will be necessary at this time.

In support of its Application, Ohio District respectfully states:¹

¹ To facilitate the Public Service Commission’s initial review of this Application, Ohio District has attached to this Application a “Filing Requirements List” (**Exhibit 1**). The Filing Requirements List sets forth each relevant statutory and regulatory requirement and identifies the exhibit or paragraph of the Application that satisfies the requirement. In the electronic version of the Application, the listed exhibit or paragraph number is linked to the page location or exhibit and can be immediately accessed and viewed by clicking on the listed page or exhibit number.

General Information

1. The full name and post office address of Ohio District is: Ohio County Water District, P.O. Box 207, 124 East Washington Street, Hartford, Kentucky 42347. Its electronic mail address is: ehickman@ocwdky.org.
2. Ohio District is not a corporation, limited liability company, or limited partnership. It has no articles of incorporation or partnership agreements.
3. Ohio District is a water district organized pursuant to KRS Chapter 74.
4. Ohio District's territory includes all of Ohio County, Kentucky, except for the cities of Beaver Dam, Centertown, Fordsville, and Hartford, and portions of Breckinridge, Daviess, Grayson, and McLean Counties. As of December 31, 2023, Ohio District provided retail water service to 6,111 customers.² It also provides wholesale water service to the cities of Beaver Dam, Centertown, and Fordsville.
5. Pursuant to 807 KAR 5:001, Section 4(8),³ copies of all orders, pleadings, and other communications related to this case should be directed to:

Eric Hickman, P.E.
General Manager
P.O. Box 207
124 East Washington Street
Hartford, KY 42347
(270) 298-7704
ehickman@ocwdky.org

² *Report of Ohio County Water District to the Kentucky Public Service Commission for the Year Ending December 31, 2022* at 49 (Ref Page 27).

³ On May 31, 2023, Ohio District gave notice pursuant to 807 KAR 5:001, Section 8, of its intent to file this application and to use electronic filing procedures.

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6. A copy of the Resolution of Ohio District's Board of Commissioners authorizing the filing of this Application is attached as **Exhibit 2**.

The Project

7. The proposed project is called the Raw Water Intake Rehabilitation and Improvement Project (the "Project"). The Project involves the rehabilitation and improvement of Ohio District's existing raw water intake facilities (the "Intake Facilities"), some of which are located in the Green River, near the community of Cromwell in Ohio County, Kentucky. The Intake Facilities are located at approximate river mile 130.5 of the Green River. Attached as **Exhibit 3** is a vicinity map depicting the location of the Intake Facilities. Attached as **Exhibit 4** is an aerial photograph showing the relative location of the Intake Facilities to Ohio District's

existing Water Treatment Plant (the “WTP”), which is located approximately one (1) mile away on U.S. Highway 231.

8. The Project consists of: (a) constructing two (2) new submerged intake screening structures; (b) installing two (2) new 20-inch diameter ball joint ductile iron pipe raw water supply lines; (c) constructing a new concrete vault set back off the river bank to serve as a wet well and as an elevated valve access platform; (d) connecting to the existing raw water supply line near the existing raw water pump station; (e) stabilizing the river bank; and (f) implementing other erosion control measures.

9. The Project’s total estimated cost will be \$5,943,600. Ohio District is the beneficiary of a **\$2,000,000** Community Development Block Grant from the Commonwealth of Kentucky, Department for Local Government to the Ohio County Fiscal Court (the “CDBG”) for this Project. Attached as **Exhibit 5** is the executed CDBG Grant Agreement. Ohio District will use interim financing to finance the balance of the construction of the Project by issuing a short-term debt [either a Bond Anticipation Note (the “BAN”) or a conventional bank loan] not exceeding twenty-three (23) months. The short-term debt will be refinanced through the issuance of long-term bonds once the Project is nearing completion or shortly thereafter. Ohio

District will apply to the Commission for authorization to issue such bonds prior to the issuance.

Existing Facilities

10. Ohio District's existing Intake Facilities are depicted on the aerial photograph which is attached as **Exhibit 6**. The Intake Facilities were originally constructed in the 1960's. The original raw water lines leading from the screening structures in the river to the main pump wet well were replaced in 1991. The Intake Facilities consist of a main pump wet well set back approximately 225 feet from the bank of Green River with two (2) intake screening structures mounted in the river. The screens are designed to keep rocks, branches, plastic, and other debris from entering the raw water line. Raw water is drawn in through either of the screens into a single 16-inch diameter pipe that discharges to the pump wet well. From there it is pumped to Ohio District's WTP located approximately one mile away.

11. When Ohio District constructed its new four (4) million gallons per day ("MGD") WTP in 2011, the existing raw water intake pumps and electrical gear were replaced, but the existing wet well, raw water piping, and the screening structures in Green River were not modified.

12. All of Ohio District's raw water comes from the Green River and is treated at this single 4.0 MGD WTP. Every gallon of water treated at this WTP comes from the Intake Facilities described above. Ohio District provides potable

water service to customers in portions of five (5) counties. It directly serves over 16,000 people through approximately 6,100 meters and indirectly serves, through wholesale water service to three (3) cities, more than 23,000 people. All these persons, numerous industries, business, schools, and other entities depend on Ohio District to supply them with a dependable and adequate water supply. Ohio District, in turn, relies upon the Intake Facilities.

Need for Project

13. In September 2019, divers from Green River Commercial Diving conducted their normal annual two (2) day inspection of the intake screens and wet well portion of the Intake Facilities. The divers cleaned the screens and dredged areas around the intake screens that had been filled with sediment. They also dewatered the pumping wet well and discovered a significant volume of sand and mud in the bottom of the wet well. In addition, they found a large number of rocks and a significant amount of other debris in the wet well. This was indicative of a hole in the raw water line between the river and the wet well. Later, they discovered this hole.

14. The location of this hole in the raw water supply line presents a serious problem because of the large size of the rocks that were removed from the wet well. Attached as **Exhibit 7** is a photograph of the main pump wet well taken by the Green River Commercial Diving employees during its 2019 inspection. The large rocks

that are in the bottom of the wet well appear to be at least 6 to 8 inches in size. Apparently, these large rocks were originally part of the rip rap that was used for riverbank stabilization. The rocks entered the raw water line through the opening in the line and “flowed” into the wet well by the force of the raw water pumps “pulling” water from the river through the raw water line. Obviously, the hole in the raw water line leading to the pump has gotten larger from the previous inspection to permit rocks of this size to enter the wet well. This problem will worsen over time and could cause pump damage, pump failure, and loss of water supply. In addition, there is a slope failure at the river bank that could cause pipe separation by acting as a pulling force on the pipe. A pipe failure, raw water supply line clog, or pump failure would likely occur very quickly and without advance notice. If this happens, it will mean catastrophic failure in a relatively short time. Ohio District would be required to take extreme, emergency measures to continue supplying water to its customers. For example, it would need to locate and mobilize a diesel powered back-up pump and install a temporary raw water supply line. Estimated costs are \$30,000 per month for rental and operation of the pump.

Alternatives Considered

15. Ohio District engaged the services of J. R. Wauford & Company Consulting Engineers, Inc. of Nashville, Tennessee (“Wauford”) to perform the following activities: (a) to review the findings of Green River Commercial Diving

and other field investigations; (b) to analyze and evaluate the existing Intake Facilities; (c) to detail the existing problems; and (d) to make recommendations for improvements, renovations, or replacement of the existing Intake Facilities.

16. Wauford prepared a detailed Preliminary Engineering Report in March 2020, which was revised in April 2021. A copy of the Preliminary Engineering Report is attached hereto as **Exhibit 8**. The Appendix of the Preliminary Engineering Report contains the complete inspection report of Green River Commercial Diving dated September 2019, including numerous photographs of the rocks and other debris found in the wet well.

17. Wauford recommended two (2) alternatives: (i) replace the Intake Facilities with a conventional concrete intake structure located in or adjacent to the Green River; or (ii) renovate the existing Intake Facilities by constructing two (2) new submerged screening structures, installing two (2) new raw water supply lines, and constructing a new concrete vault set back off the river bank to serve as a wet well and as an elevated valve access platform. Each of these Alternatives and the estimated cost (as of April 2021) are discussed in more detail in the Preliminary Engineering Report, but are summarized below:

a. **Alternative No. 1 – Cost Estimate of \$4,630,000.** Alternate No. 1 consists of the construction of a new cast-in-place multi-level concrete intake structure, access bridge, electrical building, 16-inch diameter ductile iron pipe, and

installing two (2) new vertical turbine pumps. A cofferdam would need to be constructed around the area where the new intake structure would be constructed.

b. **Alternative No. 2. – Cost Estimate of \$2,125,000.** Alternate No. 2 enables Ohio District to utilize the existing wet well and the two (2) existing raw water vertical turbine pumps. It consists of constructing two (2) new submerged screening structures slightly upstream from the existing screening structures, installing two (2) new raw water supply lines, and constructing a new concrete vault set back off the river bank to serve as a wet well and as an elevated valve access platform. The new valve vault wet well will be connected to the existing wet well where the raw water pumps are located. There will be a separate raw water line from each screening structure to the new valve vault wet well. A valve will be installed on each raw water supply line for isolation purposes during cleaning or repair work. This will enable Ohio District to continue to utilize one of the raw water supply lines and screening structures while the other supply line and screening structure are being cleaned or repaired, and vice versa. The screening structures will be located farther into the river closer to the main channel than the existing screening structures. This will reduce the silt and debris that collects on the screens. Also, the screening structures will be in deeper water, which will help ensure that water can be withdrawn from the river in the event of low water levels in the Green River.

18. Either alternative can be constructed without taking the existing Intake Facilities, including the existing raw water pumps, out of service. This will enable Ohio District to continue to pump raw water from the Green River to its WTP during construction.

19. Ohio District's Board of Commissioners considered both alternatives and decided to move forward with Alternative No. 2, which is the more affordable alternative. Ohio District then authorized Wauford to proceed with designing and obtaining the necessary permits for Alternative No. 2.

20. Construction of the Project will not result in wasteful duplication of utility facilities or inefficient investment.

21. The Project will not compete with the facilities of any other public utility.

22. The Project will enable Ohio District to avoid the potential catastrophic failure of its Intake Facilities and resulting disruption of water service to over 23,000 persons in a five (5) county area.

23. For the foregoing reasons, the public convenience and necessity require the Project's construction.

Permits & Procurement

24. The Project will require two (2) permits: one (1) from the United States Army Corps of Engineers (the "USACE") and one (1) from the Kentucky Energy

and Environment Cabinet, Department for Environmental Protection, Division of Water (the “DOW”). Both of these permits have been obtained. The Project does **not** require a franchise.

25. The USACE issued its permit to Ohio District under the provisions of 33 CFR 310 Nationwide Permit (the “NWP”) No. 58, “Utility Line Activities for Water and Other Substances,” and NWP No. 13, “Bank Stabilization” on June 22, 2022. A copy of the USACE permit is attached to this Application as **Exhibit 9**.

26. The DOW permit was issued on September 2, 2021 and is attached to this Application as **Exhibit 10**.

27. Ohio District advertised the Project for construction bids in the *Ohio County Times-News* on February 1, 2023 as required by KRS 424.260. The Affidavit of Publication and Tear Sheet are attached to this Application as **Exhibit 11**.

28. Three (3) bids were received and were opened on February 16, 2023. The bids ranged from \$5,237,000 to \$12,353,150. The low bidder was Garney Companies, Inc. of Nashville, Tennessee (“Garney”). A copy of the Certified Bid Tabulation is attached to this Application as **Exhibit 12**.

29. All of the Bids were significantly higher than the April 2021 estimate of \$2,125,000. Both Wauford and Ohio District expected a substantial increase over the estimate, but were not expecting it to be more than double the previous

estimate. Wauford then proceeded to perform value engineering to determine ways to reduce the construction cost without modifying the Project function. After speaking with each bidder, Wauford made some minor changes to the design and requested a contract deduct for this change. Only the low bidder submitted a deduct. The deduct was in the amount of \$105,000.

30. Wauford prepared a Recommendation of Award letter dated March 27, 2023 and submitted it to Ohio District. Wauford recommended that Ohio District accept the low bid submitted by Garney with a deductive change order in the amount of \$105,000. Thus, the effective amount of the contract with Garney will be for **\$5,132,000**. The Recommendation of Award letter is attached to this Application as **Exhibit 13**.

31. At its regular monthly Board meeting on March 27, 2023, Ohio District's Board of Commissioners, after serious consideration, decided to move ahead with the Project because of its critical importance to ensuring a dependable and adequate supply of water to its customers. The Board adopted Resolution No. 2023-03-02, which declares the Bid submitted by Garney to be the lowest and best bid and awards the construction contract to Garney, contingent upon the Commission issuing a CPCN to enable Ohio District to construct the Project. This Resolution is attached to this Application as **Exhibit 14**.

32. In May 2023, Wauford prepared a Final Engineering Report, which is attached to this Application as **Exhibit 15**. It contains a more detailed explanation of the minor revisions made to the Project following the receipt of the bids on February 16, 2023, the Engineer's Summary and Recommendations, Bid Tabulation Sheet, and the Modified Plan Sheets.

Financing the Project

33. The Project's total estimated cost is \$5,943,600 as shown in **Exhibit 21** to this Application. Ohio District proposes to finance the construction of the Project through a combination of grants and interim financing. Originally, Ohio District was the beneficiary of a \$1,000,000 Community Development Block Grant from the Commonwealth of Kentucky, Department for Local Government to the Ohio Fiscal Court (the "CDBG"). Because the low bid for the Project was more than double the previous estimate, Ohio District and the Ohio Fiscal Court requested that the CDBG Grant be increased from \$1,000,000 to **\$2,000,000**. Their efforts were successful! Attached as **Exhibit 5** is the executed CDBG Grant Agreement for \$2,000,000.

34. In addition, Ohio District has applied for a federal grant of \$2,000,000 to offset the much higher than expected Project cost. Although there is no guarantee that Ohio District will receive the full \$2,000,000 federal grant, Ohio District is optimistic, based on recent communications with federal officials, that it will receive

the full amount requested. Ohio District will not know the exact amount of the federal grant until late September or early October 2023.

35. Ohio District will use short-term interim financing (not exceeding twenty-three (23) months) to finance the balance of the Project cost rather than issuing long-term bonds (the “Bonds”) at this time. There are three (3) primary reasons for this decision. First, the exact amount of the anticipated federal grant is unknown at this time and will not be known for several months. Second, if Ohio District were to issue long-term bonds at this time, it would need to borrow the entire Project cost, less the \$2,000,000 amount to be paid by the CDBG Grant. Third, Ohio District would be required to start paying interest on the entire amount of the Bonds as soon as the Bonds were issued.

36. By issuing a short-term Bond Anticipation Note (the “BAN”) or a conventional bank loan (neither of which will exceed 23 months), Ohio District will only be required to pay interest on the money as it is “drawn down” to pay the monthly pay requests from the contractor. This will enable Ohio District to “have its cake and eat it too.” It can wait until the Project nears completion or shortly after completion to schedule the sale and issuance of the Bonds. The exact amount of the federal grant will be known long before then so it can accurately size the amount of

the Bond issue. Ohio District will apply to the Commission for authorization to issue the Bonds prior to the issuance.

Compliance With 807 KAR 5:001, Section 15

37. A copy of the original Plan Sheets for the Project is attached as **Exhibit 16**. A copy of the revised or modified Plan Sheets for the Project is attached as **Exhibit 17**.

38. The detailed specifications and contract documents are contained in the Project Manual, which is attached as **Exhibit 18**.

39. A description of the Project's location is on the Green River at river mile 130.5 in the Cromwell community of Ohio County. Maps depicting this location are attached as **Exhibits 3, 4 and 6**.

40. Ohio District had to purchase a small parcel of land containing 0.179 acres from the Horn family to gain additional frontage on Green River to install the two (2) new raw water supply lines as part of this Project. A plat of this parcel is attached as **Exhibit 19**. The Deed from the Horn family to Ohio District for this small parcel is dated May 5, 2021, recorded in Deed Book 443, Page 610 in the Ohio County Clerk's office, and attached as **Exhibit 20**.

41. Except for a Certificate of Public Convenience and Necessity, Ohio District has obtained all the necessary permits. See **Exhibits 9 and 10** for a copy of these permits.

42. Ohio District states that there will not be any increase in the annual operating costs of the Intake Facilities because of the construction of the proposed facilities. The existing raw water pumps will still be used to pump raw water from the Green River. None of the existing pumps nor electric motors will be replaced. No pumps or electric motors will be installed as part of the proposed facilities. The approximate annual cost of operating the existing Intake Facilities and the proposed facilities will remain **\$98,000**. A schedule of these costs is set forth in **Exhibit 22** to this Application.

43. Construction of the Project is expected to start approximately one (1) week following the Commission's issuance of the requested Certificate for the Project. The estimated construction time is twelve (12) months.

Bid Extension

44. Garney, the successful bidder on the Project, granted an extension of time and agreed to "hold" its bid prices through June 30, 2023. See **Exhibit 23**. Ohio District is confident that Garney will grant another extension through at least July 15, but it is requesting an extension through July 31. As soon as a bid extension has been obtained, it will be provided to the Commission.

45. Ohio District respectfully requests the Commission to issue an Order **no later than July 31, 2023** granting a Certificate of Public Convenience and Necessity to construct the Project.

Conclusion

WHEREFORE, Ohio District requests that the Commission:

1. **Grant Ohio District a Certificate of Public Convenience and Necessity to construct the Project by no later than July 31, 2023;**
2. Enter an Order granting the requested relief without holding an evidentiary hearing in this proceeding; and
3. Grant any and all other relief to which Ohio District may be entitled.

Dated: June 9, 2023.

Respectfully submitted,



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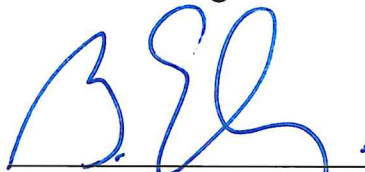
Counsel for Ohio County Water District

VERIFICATION

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF OHIO)

The undersigned, Ben Everley, being duly sworn, deposes and states that he is the Chairman of Ohio County Water District, the Applicant in the above proceedings; that he has read this Application and has noted its contents; that the same is true of his own knowledge, except as to matters which are therein stated on information or belief, and as to those matters, he believes same to be true.

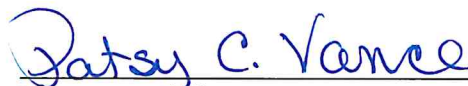
IN TESTIMONY WHEREOF, witness the signature of the undersigned on this 9th day of June 2023.



Ben Everley, Chairman
Ohio County Water District

Subscribed and sworn to before me by Ben Everley in his capacity as Chairman of Ohio County Water District on this 9th day of June 2023.

My Commission expires: Nov. 27, 2025.



Notary Public
Notary ID: KYNP 38834

CERTIFICATE OF SERVICE

In accordance with 807 KAR 5:001, Section 8, and the Public Service Commission's Order of July 22, 2021 in Case No. 2020-00085, I certify that this document was transmitted to the Public Service Commission on June 9, 2023, and that there are currently no parties that the Public Service Commission has excused from participation by electronic means in this proceeding.



Damon R. Talley

EXHIBIT LIST

1. Filing Requirements List
2. Resolution Authorizing Chairman to File PSC Application for CPCN
3. Vicinity Map
4. Aerial Photograph Depicting Intake Facilities and Water Treatment Plant
5. CDBG Grant Agreement
6. Aerial Photo of Existing Intake Facilities
7. Photograph of Rocks in Wet Well
8. Preliminary Engineering Report
9. USACE Permit
10. Division of Water Approval Letter
11. Affidavit of Publication and Tear Sheet
12. Certified Bid Tabulation
13. Engineer's Recommendation of Award Letter
14. Resolution Awarding Bid
15. Final Engineering Report
16. Original Plan Sheets
17. Revised Plan Sheets
18. Detailed Specifications and Contract Documents (Project Manual)

19. Plat of Parcel Showing Location of Proposed Facilities
20. Deed to Parcel Where Proposed Facilities Will Be Constructed
21. Project Cost Summary
22. Estimated Annual Operating Cost of Proposed Facilities
23. Bid Extension

EXHIBITS

FILING REQUIREMENTS

FILING REQUIREMENTS FOR AN APPLICATION FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY

Source Authority	Requirement	Location
807 KAR 5:001, § 14(1)	Applicant's name, mailing address and e-mail address	Page 2, Para 1
807 KAR 5:001, § 14(1)	Statutory Reference – KRS 278.020 and 807 KAR 5:001, §15	Page 1
807 KAR 5:001, § 4(3)	Signature of Applicant's Attorney	Page 17
807 KAR 5:001, § 4(3)	Name, Address, Telephone Number, Fax Number, and e-mail address of Applicant's Attorney	Page 3, Para 5; Page 17
807 KAR 5:001, § 14(2)	If Applicant is corporation: State and date of incorporation, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 14(3)	If Applicant is a limited liability company: State and date of organization, attestation of good standing in state of incorporation, statement regarding authorization to transact business in Kentucky	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 14(4)	If the Applicant is a limited partnership: a certified copy of limited partnership agreement and all amendments or statement identifying prior Commission proceedings in which limited partnership agreement and all amendments filed	Page 2, Para 2 Not Applicable
807 KAR 5:001, § 15(2)(a)	The facts relied upon to show that the public convenience and necessity requires the proposed construction	Pages 3-10, Para 7-23 Exhibits 7 & 8
807 KAR 5:001, § 15(2)(b)	Copies of franchises or permits for the proposed construction or extension	Pages 10-11, Para 24-26 Exhibits 9 & 10
807 KAR 5:001, § 15(2)(c)	A full description of the proposed location, route, or routes of the proposed construction or extension, including a description of the manner in which same will be constructed, and the names of all public utilities, corporations, or persons with whom the proposed construction or extension is likely to compete	Page 3, Para 7 Page 4, Para 8 Page 8, Para 17 Pages 9 & 10, Para 18-21 Exhibits 3, 4, 6, 19 & 20

Source Authority	Requirement	Location
807 KAR 5:001, § 15(2)(d)(1)	Maps to suitable scale showing the location or route of the proposed construction or extension, as well as the location to scale of like facilities owned by others located anywhere within the map area with adequate identification as to the ownership of the other facilities (Only one copy submitted pursuant to Commission order of July 28, 2017)	Page 3, Para 7 Page 10, Para 21 Exhibits 3, 4, 6, and 19
807 KAR 5:001, § 15(2)(d)(2)	Plans and specifications and drawings of the proposed plant, equipment, and facilities	Page 15, Para 37-38 Exhibits 16, 17 and 18
807 KAR 5:001, § 15(2)(e)	The manner in detail in which the Applicant proposes to finance the proposed construction or extension.	Pages 13-14, Para 33-36
807 KAR 5:001, § 15(2)(f)	An estimated annual cost of operation after the proposed facilities are placed into service	Page 16, Para 42 Exhibit 22
KRS 322.340	Engineering plans, specifications, drawings, plats and reports for the proposed construction or extension prepared by a registered engineer, must be signed, sealed, and dated by an engineer registered in Kentucky Every survey plat and physical description prepared by a professional land surveyor and submitted to a any public or governmental agency shall display the certification by the professional land surveyor under whose supervision the plat or description was prepared.	Page 15, Para 37-38 Exhibits 16, 17, and 18 Page 15, Para 40 Exhibits 19 and 20
KRS 323.095	All working drawings, specifications, and reports prepared by, or under the supervision of licensed architect shall be imprinted with the licensed architect's seal	Not Applicable

RESOLUTION NO. 2023-03-01

**A RESOLUTION OF OHIO COUNTY WATER DISTRICT
AUTHORIZING DISTRICT CHAIRMAN TO APPLY TO
THE KENTUCKY PUBLIC SERVICE COMMISSION FOR
A CERTIFICATE OF PUBLIC CONVENIENCE AND
NECESSITY TO CONSTRUCT A RAW WATER
INTAKE IMPROVEMENTS PROJECT**

WHEREAS, Ohio County Water District (the “District”) is a water district created pursuant to KRS Chapter 74;

WHEREAS, KRS 278.015 provides that a water district is a utility and is subject to the jurisdiction of the Kentucky Public Service Commission (the “Commission”) in the same manner and to the same extent as any other utility;

WHEREAS, KRS 278.020(1) prohibits any utility from commencing the construction of any plant or facility or installing any equipment to provide utility service, except for that in the ordinary course of business, until that utility has obtained a certificate of public convenience and necessity (the “CPCN”) from the Commission;

WHEREAS, the District proposes to construct a Raw Water Intake Improvements Project (the “Project”) to better serve its customers by providing a more reliable supply of water;

WHEREAS, the District has engaged the services of J. R. Wauford & Company, Consulting Engineers, Inc. (“Wauford”) to serve as consulting engineers for the Project. Wauford has designed the Project and will perform the usual and customary duties of consulting engineers, including Construction Administration and Inspection Services; and

WHEREAS, the District has, or soon will have, obtained all the necessary approvals to construct the Project, except for a CPCN.

NOW, THEREFORE, IT IS HEREBY RESOLVED BY THE BOARD OF COMMISSIONERS OF OHIO COUNTY WATER DISTRICT AS FOLLOWS:

Section 1. The facts, recitals, and statements contained in the foregoing preamble of this Resolution are true and correct and are hereby affirmed and incorporated as a part of this Resolution.

Section 2. The Chairman is authorized and directed to take any and all actions reasonably necessary to prepare, execute, and submit an application to the Commission for a CPCN to construct the Project.

Section 3. This Resolution shall take effect upon its adoption.

Adopted by the Board of Commissioners of Ohio County Water District at a meeting held on March 27, 2023, signed by the Chairman, and attested by the Secretary.


OHIO COUNTY WATER DISTRICT

By:



Ben Everley, Chairman

ATTEST:


Eddie Embry Sr., Secretary

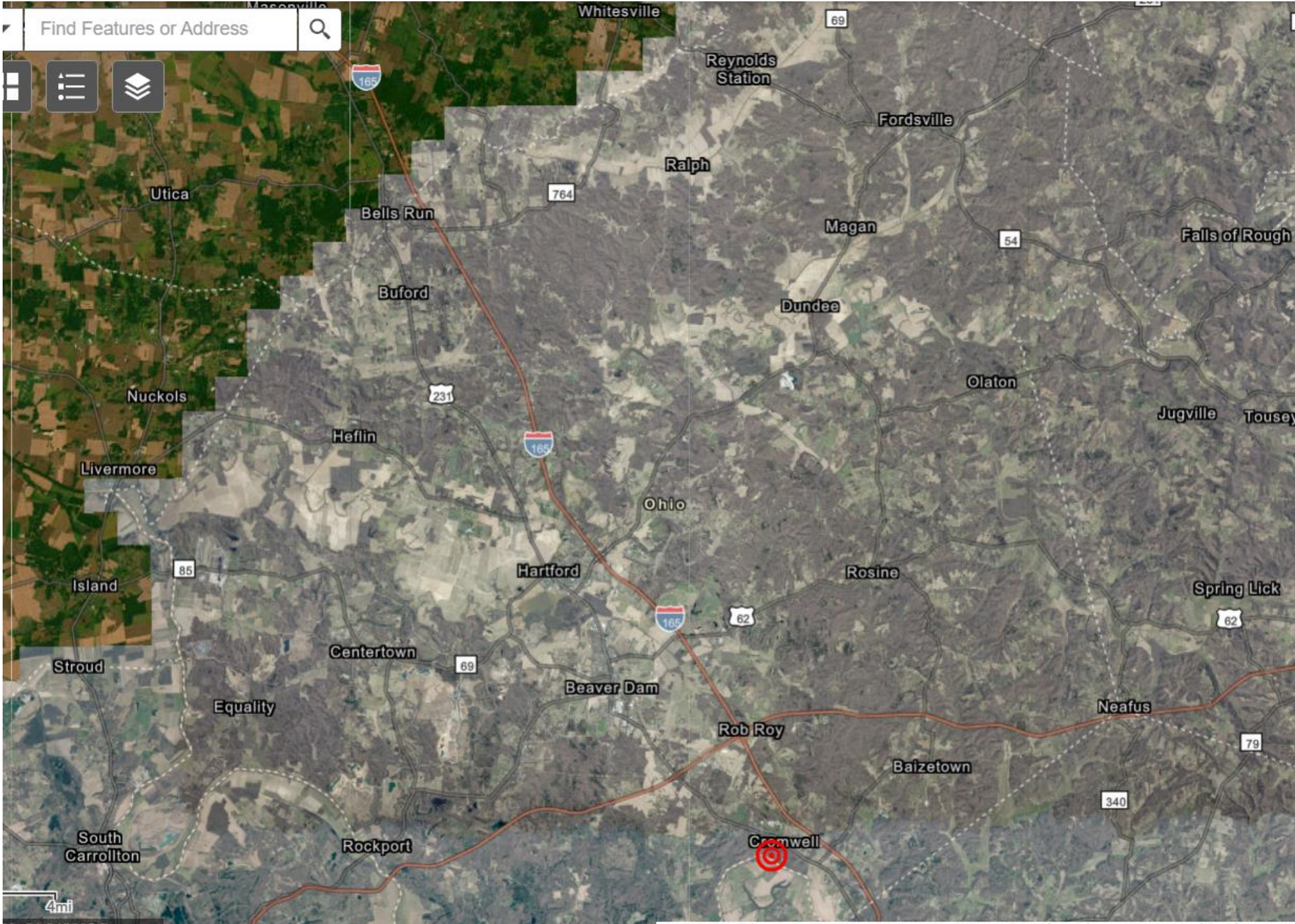
CERTIFICATION

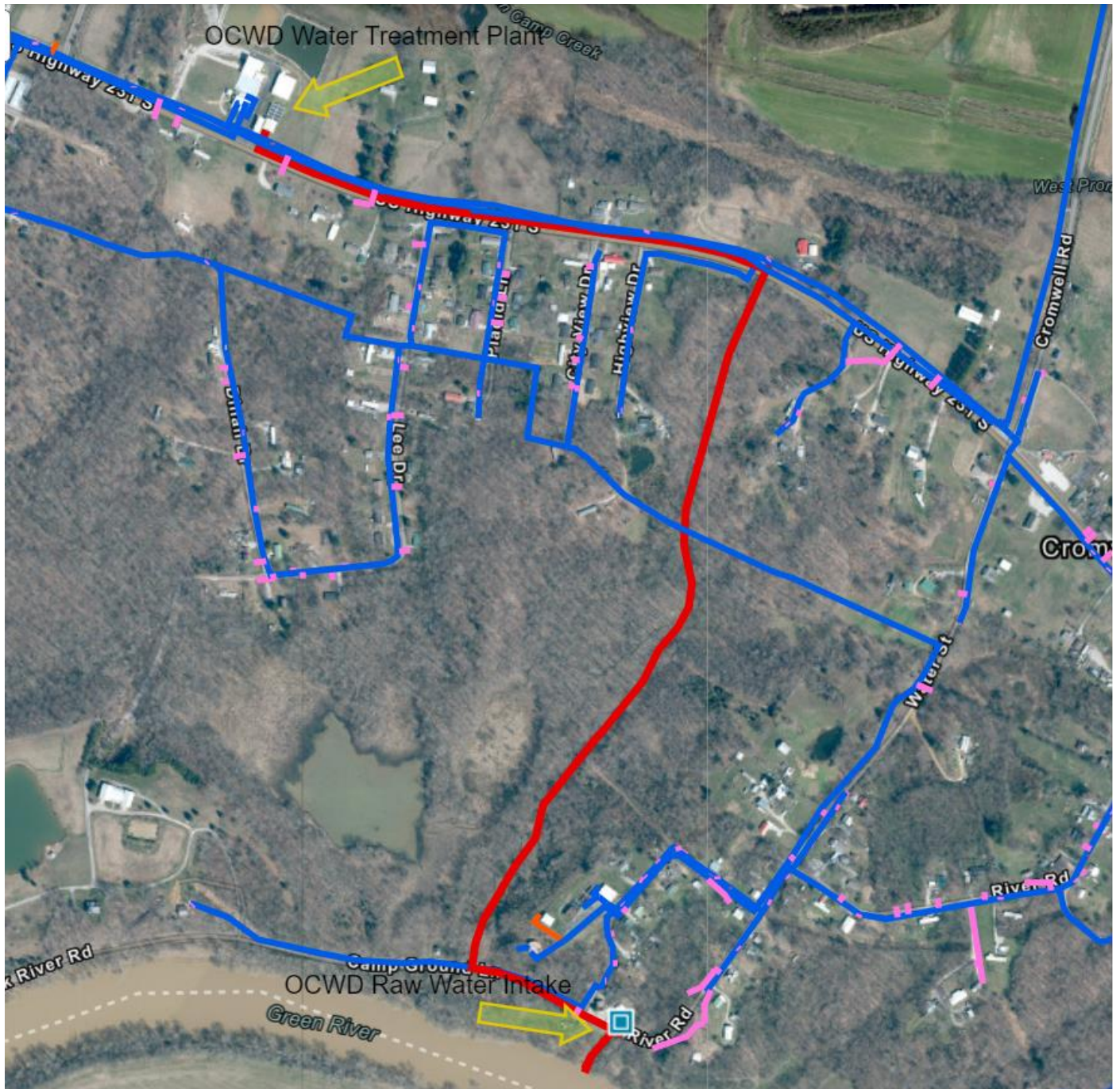
The undersigned Secretary of Ohio County Water District (the "District") does hereby certify that the foregoing is a true copy of a Resolution duly adopted by the District's Board of Commissioners at a meeting properly held on March 27, 2023, signed by the Chairman of the Board of Commissioners, attested by the Secretary of the Board of Commissioners, and now in full force and effect.

WITNESS my hand this 28 day of MARCH, 2023.



Eddie Embry Sr., Secretary







Commonwealth of Kentucky

CONTRACT MODIFICATION

DOC ID NUMBER:

PON2 112 2300000711

Version: 2

Record Date: 05/09/2023

Document Description: Ohio County Water Intake Rehabilitation 21-006

Cited Authority: KRS147A.002
Community Block Grant Program

Reason for Modification: MODIFICATION:
Modification Number: 1
Date: 03/28/2023
Original Contract Amount: \$1,000,000
Amount of Increase / Decrease: \$1,000,000
New Contract Amount: \$2,000,000

Reason for Modification: : Increase contract amount by \$1,000,000 to cover cost overruns due to increased construction costs.

Issuer Contact:

Name: Olivia Clark
Phone: (502) 573-2382
E-mail: olivia.clark@ky.gov

Vendor Name:

OHIO COUNTY FISCAL COURT

130 EAST WASHINGTON STREET STE 215

HARTFORD KY 42347

Vendor No.

KY0035650

Vendor Contact

Name: ANNE MELTON
Phone: 270-298-4493
Email: treasurer@ohiocountyky.gov

Effective From: 10/03/2022

Effective To: 12/31/2025

Line Item	Delivery Date	Quantity	Unit	Description	Unit Price	Contract Amount	Total Price
1		0.00000		Ohio County Water Intake Rehabilitation 21-006	\$0.000000	\$2,000,000.00	\$2,000,000.00

Extended Description:

Modification Number: 1
Date: 03/28/2023
Original Contract Amount: \$1,000,000
Amount of Increase / Decrease: \$1,000,000
New Contract Amount: \$2,000,000

Reason for Modification: : Increase contract amount by \$1,000,000 to cover cost overruns due to increased construction costs.

Location: Ohio County, Kentucky

Scope of Services:

This project consists of the design and construction of two new submerged intake screening structures, installation of 20 -inch ball joint DIP supply lines,

construction of elevated valve access platform, assembly of two intake screening on Green River, construction of Micropile foundation for intake screening assemblies, connection to the existing supply line, rehab approximately 90 LF of existing 16-inch pipe using cured in place pipe (CIPP), rebuilding the current 450 LF of ductile iron intake line at river road in Cromwell Kentucky, erosion control and bank stabilization.

Shipping Information:	Billing Information:
Department for Local Government - Office of Grants 100 Airport Rd, 3rd Fl Frankfort KY 40601	Department for Local Government - Office of Grants 100 Airport Rd, 3rd Fl Frankfort KY 40601

TOTAL CONTRACT AMOUNT:	\$2,000,000.00
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This Grant Agreement (GA) is entered into, by and between the Commonwealth of Kentucky, Department for Local Government (“the Commonwealth”) and the Ohio County Fiscal Court (“the Recipient/Contractor”) to establish an agreement for Ohio Count Water Intake Rehabilitation. The initial GA is effective from September 15, 2022 through December 31, 2025.

Location: Ohio County, KY

Scope of Services:

This project consists of the design and construction of two new submerged intake screening structures, installation of 20 –inch ball joint DIP supply lines, construction of elevated valve access platform, assembly of two intake screening on Green River, construction of Micropile foundation for intake screening assemblies, connection to the existing supply line, rehab approximately 90 LF of existing 16-inch pipe using cured in place pipe (CIPP), rebuilding the current 450 LF of ductile iron intake line at river road in Cromwell Kentucky, erosion control and bank stabilization.

Pricing:

Community Development Block Grant (CDBG) – not to exceed: \$2,000,000

Project costs CDBG: \$1,955,000

Administration Costs CDBG: \$45,000

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GRANT INFORMATION AND IDENTIFICATION

Grant Agreement Number: 21-006
(pass thru)

Subrecipient: Ohio County

Project Name: Ohio County Water Intake Rehabilitation

Federal Agency: U.S. Department of Housing and Urban Development

Pass-Through Agency: Kentucky Department for Local Government

Assistance Listing Title: Community Development Block Grant/State's Program
(Non-Entitlement)

Assistance Listing Number: 14.228
(formerly CFDA)

Award Year: 2021

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1. GENERAL PROVISIONS

A. Contents of Agreement

This Grant Agreement, hereinafter called the "Agreement," shall consist of the following documents which are incorporated by reference as if fully set out herein: (1) the Grant Agreement and all exhibits to which this Grant Agreement refers; (2) the Application, including the Statement of Assurances; (3) all State and Federal Law requirements to which the Application and this Agreement refer or apply; (4) the Kentucky Community Development Block Grant Handbook currently in effect, plus any advisories; (5) The Guide to National Objectives and Eligible Activities for State CDBG Programs; (6) any applicable administrative regulations; and (7) any amendments or modifications to any of the above referenced requirements.

B. General Definitions

Unless specifically provided otherwise or the context otherwise requires, when used in this Agreement:

(1) "Act" means the Housing and Community Development Act of 1974, Pub. L. No. 93-383, as amended.

(2) "Application" means the Commonwealth Small Cities Community Development Block Grant

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(CDBG) Application, and such other submittals, as are specified in Exhibit A of this Grant Agreement.

(3) "CDBG" means a grant guided by Title I of the Housing and Community Development Act of 1974, as amended and those regulations set forth in 24 CFR Part 570, Subpart I, as may be amended from time to time and all other applicable Federal and State regulations and laws and assurances signed by Recipient at the time the Recipient's Application was submitted.

(4) "Commonwealth" when not used to designate the territory of the Commonwealth of Kentucky shall mean the Department for Local Government, its Commissioner, or any other person to whom the Commissioner has delegated authority to act with respect to matters covered by this Agreement.

(5) "Default" means any default set forth in Section 6-A to this Agreement.

(6) "Eligible Costs" means costs for the activities specified in Exhibit B of this Agreement for which grant funds are budgeted as specified in Exhibit C of this Agreement, provided that such costs (i) are incurred in connection with any activity which is eligible under Section 105A of Title I of the Act, and (ii) conform to the requirements of Attachment B of Office of Management and Budget Circular Omni Circular (Cost Principles Applicable to Grants and Contracts with State and Local Government), as may be amended from time to time. For purposes of determining the conformity of costs to said Attachment B, all costs set forth in Section C thereof may be considered eligible without prior approval of the Commonwealth.

(7) "Environmental Conditions" means the condition imposed by law, particularly 24 CFR Part 58, and the provisions of the Agreement which prohibit or limit the commitment and use of grant funds until certain procedural requirements have been completed.

(8) "Environmental Requirements" means the requirements described in 24 CFR Part 58.

(9) "Environmental Studies" means all eligible activities necessary to produce an "environmental document", as that term is defined at Section 1508.10 of 40 CFR Part 1508, or to comply with the requirements of 24 CFR Part 58.

(10) "Grant Funds" means those funds to be provided by the Commonwealth to Recipient pursuant to the terms of this Agreement, as specified in Exhibit A of this Agreement.

(11) "HUD" means the United States Department of Housing and Urban Development.

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(12) "Participating Party" means any person, entity, firm, corporation or funding source identified as such in Exhibit A and/or B to this Agreement.

(13) "Program Income" means the CDBG portion of: (i) any income earned by Recipient, or an agent or agency of Recipient, from the disposition of real or personal property acquired in whole or in part with grant funds; (ii) the repayment proceeds (including principal and interest) of any loan made in whole or part with grant funds; (iii) any other revenues defined as program income in 24 CFR Part 570, Subpart J. The "CDBG portion" means an amount computed by applying the percentage of participation of CDBG funds (i) in the acquisition cost of the property to the total income from the disposition of such property, (ii) in the amount of the loan to the total repayment proceeds of such loan, or, (iii) in the cost of an activity to the total income from such activity.

(14) "Project" means the activities described in the Application and in Exhibits B and C of this Agreement, which are to be carried out to meet the objectives of the CDBG Program.

(15) "Recipient" means the local governmental entity receiving grant funds pursuant to this Agreement, as more particularly identified on the cover page of this Agreement, as well as "contractor" as defined in KRS 45A.030.

(16) "Recipient Activities" means those activities of the Project to be carried out by the Recipient, its agent or agency, which activities are described in Exhibit B of this Agreement and further defined in the Application.

(17) "Subrecipient" means governmental or private nonprofit organizations chosen by the Recipient to undertake certain eligible CDBG activities identified as such in Exhibit A and/or B to this Agreement.

2. AMOUNT AND AUTHORIZED USES OF GRANT FUNDS

A. Grant Assistance Provided

In consideration of the various obligations undertaken by the Recipient pursuant to this Agreement, as represented by the Recipient in the Application, the Commonwealth agrees, subject to the terms and conditions set forth herein, to provide the Recipient with grant funds in the amount specified in Exhibit A of this Agreement.

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B. Authorized Uses of Grant Funds

The grant funds provided to the Recipient pursuant to this Agreement shall be used only for the specific purposes described in Exhibit B of this Agreement and in the amounts budgeted in Exhibit C of this Agreement, subject to the project amendments provisions of the Commonwealth CDBG program.

C. Adjustments to Grant Funds

(1) The amount of grant funds which the Commonwealth has agreed to provide to the Recipient under this Agreement has been determined by the Commonwealth in reliance upon the cost estimates of the Recipient with respect to the activities set forth in the Application. The Commonwealth reserves the right to reduce the grant amount (i) to conform to any revision to which the Recipient and the Commonwealth may agree with respect to Exhibits B or C of this Agreement, (ii) if the actual costs for activities are lower than those set forth in Exhibits B or C of this Agreement, or (iii) if the investment by Participating Parties is less than the amount specified in Exhibits B, C or D.

(2) The parties understand that funding pursuant to this Agreement may be discontinued by the General Assembly in subsequent budgets.

D. Recipient's Use of Program Income

(1)“All Program Income shall be retained by the local governmental Recipient, unless specifically directed otherwise by the Department for Local Government.”

(2) All Program Income which is received by the Recipient, prior to completion of all Recipient Activities shall be used prior to, and in place of, any draw of grant funds to the extent adequate to pay costs so incurred.

(3)Unless otherwise specifically stated in Exhibit B of this Agreement, all Program Income received by the Recipient, after completion of all Recipient Activities shall be used by the Recipient, for community or economic development activities eligible for assistance under Title I of the Act as specified in the Guide to National Objectives and Eligible Activities for State CDBG Programs.

3. DISBURSEMENT OF GRANT FUNDS

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A. Authorization

(1) Promptly after the Commonwealth has received from the Recipient two (2) fully executed copies of this Agreement and has approved evidentiary materials required by Exhibit D of this Agreement that would allow a draw of grant funds pursuant to the terms of Exhibits B and C of this Agreement, the Commonwealth shall authorize the amount of grant funds specified in Exhibit A of this Agreement.

(2) The Recipient is authorized to draw grant funds only in accordance with the provisions of this Agreement and the procedures established by the Commonwealth. No payment by the Commonwealth of an improper or unauthorized draw to the Recipient shall constitute a waiver of the right of the Commonwealth to challenge the validity of said draw, to enforce all rights and remedies set forth in the Agreement, or take corrective or remedial administrative action, which action may include, without limitation, suspension or termination of the Recipient's funding under this Agreement.

(3) The disposition of any grant funds that remain available following completion of the Project, termination of this Agreement by the Commonwealth, or termination of the Project for any cause, shall be in accordance with closeout procedures then in effect or established by the Commonwealth including provisions of OMB Omni Circular and the Recipient shall not have any rights to such grant funds.

B. Incurring Costs for Project Activities

(1) The use of grant funds is conditioned upon the Recipient incurring costs to be paid in accordance with this Agreement or as otherwise approved by the Commonwealth in writing. Except as permitted by 24 CFR Part 58, no costs to be paid out of project funds may be incurred by the Recipient until all Environmental Conditions of 24 CFR Part 58 have been fully satisfied and the Commonwealth has issued the environmental clearance required by 24 CFR Part 58.

(2) The authorization to incur costs in subsection (1) above is not an authorization to reimburse those costs and does not mean or imply that such costs will be reimbursed out of grant funds. The Recipient may voluntarily, at his or her own risk, and upon his or her own credit and expense, incur costs as authorized in subsection (1) above, but his or her authority to reimburse or to be reimbursed out of grant funds shall be governed by the provisions of this Agreement applicable to the payment of costs and the release of funds by the Commonwealth.

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(3) Prior to the issuance by the Commonwealth of the environmental releases required by 24 CFR Part 58, the Recipient may not use any funds, including local funds, to take any action with respect to the Project where such action might have an adverse environmental effect, would limit choices among competing alternatives, or might alter the environmental premises on which the pending clearance is based in such a fashion that the validity of the conclusions to be reached would be affected.

C. Authorization by the Commonwealth for the Recipient to Draw Grant Funds

Recipient's draw of grant funds can occur only after the following has occurred:

- (1) The Commonwealth has issued the environmental clearance required by 24 CFR Part 58,
- (2) The Commonwealth has approved the required evidentiary materials specified in Exhibit D of the Agreement,
- (3) The Commonwealth has authorized, per the executed Notice of Approval of Evidentiary Materials and Release of Funds, the Recipient's ability to draw grant funds,
- (4) Recipient shall have submitted all certifications and materials required as conditions precedent to Recipient's authority to pay costs out of grant funds,
- (5) If authorized by Exhibit D herein and if the Commonwealth finds Recipient has timely and acceptably submitted the evidentiary materials in Exhibit D herein, approved same, and if no default has occurred, as defined in Section 6-A herein, and
- (6) Recipient has not been served by the Commonwealth with notice of Recipient's suspension of authority to so draw the grant funds nor is in breach of its obligation to report a default.

4. REPRESENTATIONS, WARRANTIES, AND OBLIGATIONS

A. Recipient's Representations and Warranties

The Recipient has, by and through consultations among all appropriate members of the Recipient's governing body and its officers, examined each of the following and by its execution of this Agreement the Recipient does, upon information and belief, represent and warrant to the Commonwealth that:

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(1) The Recipient is duly organized and validly existing under the laws of the Commonwealth, and has all the requisite power and authority to enter into this Agreement and to assume the responsibilities for compliance with all Federal and State laws and regulations.

(2) A resolution, motion, order or ordinance has been duly adopted, passed or enacted as an official act of the Recipient's governing body, authorizing the execution and delivery of this Agreement by the Recipient and authorizing and directing the person executing this Agreement to do so for and on behalf of the Recipient, said acts being done in such manner and form as to comply with all applicable laws to make this Agreement the valid and legally binding act and agreement of the Recipient.

(3) There is no action, proceeding, or investigation now pending, nor any basis therefore, known or believed by the Recipient to exist, which (i) questions the validity of this Agreement, or any action taken or to be taken under it, or (ii) is likely to result in any material adverse changes in the authorities, properties, assets, liabilities, or conditions (financial or otherwise) of the Recipient which would materially and substantially impair the Recipient's ability to perform any of the obligations imposed upon the Recipient by this Agreement.

(4) The representations, statements, and other matters contained in the Application were true and complete in all material respects as of the date of filing. The Recipient is aware of no event which would require any amendment to the Application (other than an amendment which has been filed with and approved by the Commonwealth) which would make such representations, statements, and other matters true and complete in all material respects and not misleading in any material respect. The Recipient is aware of no event or other fact, which should have been, and has not been, reported in the Application as material information.

(5) The Recipient has obtained or has reasonable assurances that it will obtain all Federal, State and local government approvals and reviews required by law to be obtained by the Recipient for the Project.

(6) Insofar as the capacity of the Recipient to carry out any obligation under this Agreement is concerned, (i) the Recipient is not in material violation of its Charter, or any mortgage, indenture, agreement, instrument, judgment, decree, order, statute, rule or regulation and (ii) the execution and performance of this Agreement will not result in any such violation.

(7) Except for approved eligible administrative and personnel costs, none of the recipient's designees, agents, members, officers, employees, consultants or members of its governing body

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in which the program is situated, and no other public official of the recipients of such locality or localities who exercises or who has exercised any functions or responsibilities with respect to the project during his or her tenure, or who is in a position to participate in a decision-making process or gain inside information with regard to the project, has or shall have any interest, direct or indirect, in any contract or subcontract or the proceeds thereof for work performed in connection with the project or in any activity, or benefit there from, which is part of this project at anytime during or after such person's tenure unless all procedures for an exception have been documented and submitted in writing to the Department for Local Government and the Department for Local Government has approved such exception.

(8) Anti-Lobbying – The recipient certifies that;

(a) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(b) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying,” in accordance with its instructions.

(c) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

(9) Conflicts of Interest - The procedures for requesting, documenting, and submitting a request for an exception from the Conflict of Interest provisions shall include the applicable procedures delineated in 24 CFR 570.489(h)(4); KRS 99.350(8); KRS 61.252(1); KRS 65.003; and the local community ethics code. This Conflict of Interest provision shall be in addition to the requirements in the "Common Rule," 24 CFR Part 85, 24 CFR 570.489(h), A-110, KRS

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45A.340, KRS 61.210, KRS 61.220 and KRS 61.250 et. seq.

B. Obligation to Complete Recipient Activities as Scheduled

(1) The Recipient shall use its best efforts to assure the completion of the Recipient Activities described in Exhibit B of the Agreement and further defined in the Application.

(2) The Recipient agrees that the foregoing undertaking and assurance means that Recipient shall, to the maximum extent permitted by law, use and apply all of its governmental and proprietary powers for such completion, including but not limited to those powers governing taxes, other revenues, credit, eminent domain and appropriations, if necessary, for the purpose of providing any shortfall between funds available under the grant and funds necessary to complete all of the Recipient Activities described in Exhibit B of this Agreement.

C. Commonwealth Approval of Amendments

The Commonwealth will consider program amendments initiated by the Recipient or by the Commonwealth. The Commonwealth defines a program amendment as a request for change in an approved program which (i) is a new activity in the program, (ii) significantly alters the scope, location, or objective of the approved activities or beneficiaries, and/or (iii) results in a change or cumulative changes of the approved budget. Any amendments will be made in accordance with the procedures set forth in the Kentucky Community Development Block Grant Handbook established by the Commonwealth.

D. Notification and Action upon Default

(1) The Recipient shall promptly give written notice to the Commonwealth upon the discovery by the Recipient of any default involving any Participating Party or Subrecipient, as defined in Section 6-A of this Agreement.

(2) Promptly, upon the discovery of any default involving any Participating Party or Subrecipient, the Recipient shall vigorously pursue, to the fullest extent possible, all remedies available to Recipient to remove or cure such default, or to seek redress or relief from its effects, including reimbursement for any grant funds expended on the Project, and to prevent or mitigate any adverse effects on the Project. Recipient shall keep the Commonwealth fully informed as to the status of such actions.

5. INSPECTION AND REVIEW

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A. Duty to Maintain and Rights to Inspect and Copy, Books, Records and Documents

(1) The Recipient shall keep and maintain such books, records and other documents as shall be required under rules and regulations now or hereafter applicable to grants made under the CDBG Program, and as may be reasonably necessary to reflect and fully disclose the amount and disposition of the grant funds, the total cost of the activities paid for in whole or in part with grant funds, and the amount and nature of all investments relative to such activities which are supplied or to be supplied by other sources.

(2) All such books, records and other documents shall be available at the office of the Recipient for inspection, copying, audit and examination at all reasonable times by any duly authorized representative of the Commonwealth, HUD, the General Accounting Office and the Inspector General of the United States.

B. Site Visits

Any duly authorized representative of the Commonwealth or HUD shall, at all reasonable times, have access to all portions of the Project until completion of all closeout procedures and final settlement and conclusion of all issues arising from this grant.

C. Reports

The Recipient shall promptly furnish to the Commonwealth all reports required to be filed in accordance with any directives of the Commonwealth or any statute, rule or regulation of HUD.

6. DEFAULTS AND REMEDIES

A. Defaults

A default shall consist of any use of grant funds for any purpose other than as authorized in Exhibits B and C of this Agreement; or any breach of any covenant, agreement, provision, or warranty (i) the Recipient made in the Agreement; (ii) the Recipient made in any agreement entered into between the Recipient and any Participating Party or Subrecipient, relating to the Project; (iii) any Participating Party or Subrecipient, made in any agreement specified in Exhibit D of this Agreement, or; (iv) of the time frame specified in Exhibit B of the Agreement.

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B. Remedies Upon Default

(1) Upon occurrence of any default as described in Section 6-A, the Commonwealth may suspend the Recipient's authority to draw grant funds at any time by notice to the Recipient. If a default is not cured within thirty (30) consecutive days from notice of such default by the Commonwealth to the Recipient, the Commonwealth may continue such suspension or by delivery of notice terminate this Agreement. In the event of a termination, the Recipient's authority to draw funds shall have terminated at the date of the notice of termination and the Recipient shall have no right, title or interest in or to any grant funds remaining.

(2) In addition to any other rights or remedies, if a default consists of the Recipient's failure to submit the evidentiary materials described in Exhibit D of this Agreement or in other official written notification, the Commonwealth shall have the right to terminate this Agreement and the award of grant funds to which this Agreement relates by delivery of written notice to the Recipient. Upon such termination, all obligations of the Commonwealth pursuant to this Agreement and such award shall cease and the Recipient shall neither have nor retain any rights whatsoever with respect to the grant funds provided under this Agreement.

(3) The rights and remedies of the Commonwealth shall be deemed to be cumulative and shall be in addition to all those rights afforded the Commonwealth by law or equity. Any election of any right or remedy shall not be deemed to be an election of that right or remedy to the exclusion of any other right or remedy.

(4) The rights and remedies available to the Commonwealth in the event of a suspension or termination of the Agreement shall survive such suspension or termination.

7. EVIDENTIARY MATERIALS

A. Commitments of Participating Parties and Subrecipients

(1) In selecting the Recipient for the award of this grant, the Commonwealth has relied, in material part, upon the representations of the Recipient and Participating Parties or Subrecipients, that the Recipient and the Participating Parties or Subrecipients (i) will carry out certain activities connected with the Project; (ii) will complete those activities; (iii) have, or will have, the financial capability to assure the carrying out of the activities to the completion; and (iv) will invest, or cause to be invested, a specific value amount in the Project.

(2) Evidentiary materials submitted by the Recipient as Exhibit D which have been submitted to

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and approved by the Commonwealth shall not be amended in any material respect without prior written approval of the Commonwealth.

B. Form of Documentary Evidence

All documentary evidence of commitments submitted to the Commonwealth for approval shall be in the form of either (i) a duplicate original, or (ii) a photographic copy of the fully executed original, of the documents.

8. MISCELLANEOUS

A. Notice

(1) All amendments, notices, requests, objections, waivers, rejections, agreements, approvals, disclosures and consents of any kind made pursuant to this Agreement shall be in writing.

(2) Any such communication shall be deemed effective for all purposes as of the date such communication is mailed, postage prepaid, by first class, registered or certified mail, return receipt requested, to be delivered only to the office of the addressee, addressed as follows:

(a) Communications to the Commonwealth shall be mailed to: Office of Federal Grants, Department for Local Government, 100 Airport Rd, Frankfort, Kentucky 40601.

(b) Communications to the Recipient shall be addressed to the Recipient, at the address set forth in Exhibit A of this Agreement, or such other address or representative as may be furnished by the Recipient to the Commonwealth.

B. Assignment

No right, benefit, or advantage inuring to the Recipient under this Agreement and no burden imposed on the Recipient hereunder may be assigned without the prior written approval of the Commonwealth. An authorization by the Commonwealth for the transfer of grant funds by Recipient to a Participating Party or Subrecipient, shall not be deemed an authorization for an assignment, and such Participating Party or Subrecipient shall not succeed to any rights, benefits or advantages of the Recipient hereunder.

C. Successors Bounds

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This Agreement shall bind, and the rights, benefits and advantages shall inure to, the Recipient's successors.

D. Remedies Not Impaired

No delay or omission of the Commonwealth in exercising any right or remedy available under this Agreement shall impair any such right or remedy or constitute a waiver of any default, or an acquiescence therein.

E. Cumulative Remedies

All rights and remedies of the Commonwealth under this Agreement shall be cumulative.

F. Severability

If any article, subsection, clause or provision of this Agreement is held by any court to be unenforceable or prohibited by any law applicable to this Agreement, the rights and obligations of the parties shall be construed and enforced with that part, term or provision limited so as to make it enforceable to the greatest extent allowed by law, or, if it is totally unenforceable, as if this Agreement did not contain that particular part, term or provision.

G. Entire Agreement

This Agreement constitutes the entire agreement between the Commonwealth and the Recipient and supersedes all prior oral and written agreements between the parties hereto with respect to the subject grant. Notwithstanding the provisions of Section 1-A of this Agreement and anything contained in the Application, the provisions of this Agreement shall prevail.

H. Table of Contents; Titles and Headings

Any table of contents and the headings of the sections and subsections set forth herein are not a part of this Agreement and shall not be deemed to affect the meaning or construction of any of its provisions.

I. Amendment of this Agreement

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This Agreement, or any part hereof, may be amended as previously described in Section 4-C from time to time hereafter only in writing executed by the Commonwealth and the Recipient.

J. Governing Law

This Agreement as it may affect the rights, remedies, duties, and obligations of the Commonwealth shall be governed by and construed in accordance with Federal and State law. Insofar as Federal law does not apply, the provisions of this Agreement shall be governed by and construed in accordance with the laws of the Commonwealth.

K. Waiver by the Commonwealth

The Commonwealth reserves and shall have the exclusive right to waive, at the sole discretion of the Commonwealth, and to the extent permitted by law, any requirement or provision under this Agreement. No act by or on behalf of the Commonwealth shall be, or be deemed or construed to be, any waiver of any such requirement or provision, unless the same be in writing, signed by the Commonwealth, and expressly stated to constitute such waiver.

L. Termination of Agreement

This Agreement shall terminate upon the completion of all closeout procedures respecting this grant including provisions of the Single Audit Act, OMB Omni Circular and the final settlement and conclusion between Recipient and the Commonwealth of all issues arising out of this grant. Either party may cancel the contract upon written notice in accordance with Section 9 below. This notice, if tendered by the Commonwealth, may also include the notice to cure provided for in Section 6 B. (1). Upon termination of the agreement pursuant to this provision, the Recipient shall have no right to grant funds remaining to be disbursed. This provision shall in no way impair and shall be in addition to any additional remedies the Commonwealth may have upon a finding of default or other non-compliance according to the terms of this Agreement. Upon termination of this Agreement by either party with or without cause, the Commonwealth may declare this Agreement void from the beginning without further obligation to the recipient. Further, if the Agreement is terminated by the recipient with or without cause or by the Commonwealth with cause, the Commonwealth may recover all funds paid to the recipient hereunder.

M. Enforceability

Recipient agrees that if the Recipient or one of its subrecipients/contractors fails to comply with

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all applicable federal and state requirements governing the use of CDBG funds, the Commonwealth of Kentucky may withhold or suspend, in whole or in part, funds awarded under the program, or recover misspent funds following an audit or other investigation. Recipient shall further agree it will repay funds determined to be misspent by any 3rd party officials such as HUD, Inspectors General, auditors and law enforcement agencies. This provision is in addition to all other remedies available to the Commonwealth of Kentucky under all applicable state and federal laws.

N. Anti-Speculation Provisions-Sale of Real Property

(1) When, in Exhibit D of this Agreement, a document is required to contain a provision for the prevention or discouragement of speculation in the purchase and sale of property by a beneficiary of grant funds, then, unless otherwise specified, such provision shall comply with this Section.

(2) The document shall prohibit the beneficiary of grant funds from selling or otherwise disposing of the property within a period specified in Exhibit D of this Agreement after the date of the purchase, for an amount in excess of the purchase price paid, plus the actual costs of any improvements to the property by the beneficiary. The prohibition against sale shall have the same force and effect as a lis pendens, and shall specify that in the event of any attempted sale in violation of the provision; the Recipient shall be entitled to the ex-parte issuance of an injunction restraining such sale. The document shall be executed and authenticated in such manner and form as may be required under State law to authorize its recordation at the place of recordation of deeds, as if a lis pendens and the document shall be so recorded.

(3) The document may, in conjunction with the foregoing or in lieu thereof, describe a procedure where under, in the event of any sale of the property within the period specified in Exhibit D of the Agreement, the amount of grant funds which benefited the beneficiary shall be repaid by the beneficiary to the Recipient. Such procedure may include a pro-rata reduction of the amount to be repaid, based upon the time elapsing between the date of the initial purchase of the property and its disposition by the beneficiary. The document must either specify the amount of the grant funds which benefited the beneficiary, or set forth a formula or agreed method for determining such amount. The document shall be executed and authenticated in such manner and form as may be required to authorize its recordation, as if a lis pendens and the document shall be so recorded.

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**Memorandum of Agreement Standard Terms and Conditions
Revised December 2019**

1.00 Effective Date:

All Memorandum of Agreements are not effective until the Secretary of the Finance and Administration Cabinet or his authorized designee has approved the agreement and until the agreement has been submitted to the government contract review committee. However, in accordance with KRS 45A.700, memoranda of agreement in aggregate amounts of \$50,000 or less are exempt from review by the committee and need only be filed with the committee within 30 days of their effective date for informational purposes.

KRS 45A.695(7) provides that payments on personal service contracts and memoranda of agreement shall not be authorized for services rendered after government contract review committee disapproval, unless the decision of the committee is overridden by the Secretary of the Finance and Administration Cabinet or agency head, if the agency has been granted delegation authority by the Secretary.

2.00 EEO Requirements

The Equal Employment Opportunity Act of 1978 applies to All State government projects with an estimated value exceeding \$500,000. The contractor shall comply with all terms and conditions of the Act.

3.00 Cancellation clause:

Both parties shall have the right to terminate and cancel this contract at any time not to exceed thirty (30) days' written notice served on the Contractor by registered or certified mail.

4.00 Funding Out Provision:

The state agency may terminate this agreement if funds are not appropriated to the contracting agency or are not otherwise available for the purpose of making payments without incurring any obligation for payment after the date of termination, regardless of the terms of the agreement. The state agency shall provide the Contractor thirty (30) calendar day's written notice of termination of the agreement due to lack of available funding.

5.00 Reduction in Contract Worker Hours:

The Kentucky General Assembly may allow for a reduction in contract worker hours in conjunction with a budget balancing measure for some professional and non-professional

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service contracts. If under such authority the agency is required by Executive Order or otherwise to reduce contract hours, the agreement will be reduced by the amount specified in that document. If the contract funding is reduced, then the scope of work related to the contract may also be reduced commensurate with the reduction in funding. This reduction of the scope shall be agreeable to both parties and shall not be considered a breach of contract.

6.00 Access to Records:

The state agency certifies that it is in compliance with the provisions of KRS 45A.695, "Access to contractor's books, documents, papers, records, or other evidence directly pertinent to the contract." The Contractor, as defined in KRS 45A.030, agrees that the contracting agency, the Finance and Administration Cabinet, the Auditor of Public Accounts, and the Legislative Research Commission, or their duly authorized representatives, shall have access to any books, documents, papers, records, or other evidence, which are directly pertinent to this agreement for the purpose of financial audit or program review. The Contractor also recognizes that any books, documents, papers, records, or other evidence, received during a financial audit or program review shall be subject to the Kentucky Open Records Act, KRS 61.870 to 61.884. Records and other prequalification information confidentially disclosed as part of the bid process shall not be deemed as directly pertinent to the agreement and shall be exempt from disclosure as provided in KRS 61.878(1)(c).

7.00 Violation of tax and employment laws:

KRS 45A.485 requires the Contractor and all subcontractors performing work under the agreement to reveal to the Commonwealth, prior to the award of a contract, any final determination of a violation by the Contractor within the previous five (5) year period of the provisions of KRS chapters 136, 139, 141, 337, 338, 341, and 342. These statutes relate to corporate and utility tax, sales and use tax, income tax, wages and hours laws, occupational safety and health laws, unemployment insurance laws, and workers compensation insurance laws, respectively.

To comply with the provisions of KRS 45A.485, the Contractor and all subcontractors performing work under the agreement shall report any such final determination(s) of violation(s) to the Commonwealth by providing the following information regarding the final determination(s): the KRS violated, the date of the final determination, and the state agency which issued the final determination.

KRS 45A.485 also provides that, for the duration of any contract, the Contractor and all subcontractors performing work under the agreement shall be in continuous compliance

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with the provisions of those statutes, which apply to their operations, and that their failure to reveal a final determination as described above, or failure to comply with the above statutes for the duration of the agreement shall be grounds for the Commonwealth's cancellation of the agreement and their disqualification from eligibility for future state contracts for a period of two (2) years.

[Check box section below need only be included for Contractors that are quasi-governmental entities or 501(c)3 non-profit entities.]

Contractor must check one:

The Contractor has not violated any of the provisions of the above statutes within the previous five (5) year period.

The Contractor has violated the provisions of one or more of the above statutes within the previous five (5) year period and has revealed such final determination(s) of violation(s). Attached is a list of such determination(s) , which includes the KRS violated, the date of the final determination, and the state agency which issued the final determination.

8.00 Discrimination:

This section applies only to agreements disbursing federal funds, in whole or part, when the terms for receiving those funds mandate its inclusion. Discrimination (because of race, religion, color, national origin, sex, sexual orientation, gender identity, age, or disability) is prohibited. During the performance of this agreement, the Contractor agrees as follows:

The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, national origin, sex, sexual orientation, gender identity or age. The Contractor further agrees to comply with the provisions of the Americans with Disabilities Act (ADA), Public Law 101-336, and applicable federal regulations relating thereto prohibiting discrimination against otherwise qualified disabled individuals under any program or activity. The Contractor agrees to provide, upon request, needed reasonable accommodations. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their race, religion, color, national origin, sex, sexual orientation, gender identity, age or disability. Such action shall include, but not be limited to the following; employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensations; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places,

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available to employees and applicants for employment, notices setting forth the provisions of this non-discrimination clause.

In all solicitations or advertisements for employees placed by or on behalf of the Contractor, the Contractor will, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, national origin, sex, sexual orientation, gender identity, age or disability.

The Contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or workers' representative of the Contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance.

The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965 as amended, and of the rules, regulations and relevant orders of the Secretary of Labor.

The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, as amended, and by the rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders.

In the event of the Contractor's noncompliance with the nondiscrimination clauses of this agreement or with any of the said rules, regulations or orders, this agreement may be cancelled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further government contracts or federally-assisted construction contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, as amended, and such other sanctions may be imposed and remedies invoked as provided in or as otherwise provided by law.

The Contractor will include the provisions of paragraphs (1) through (7) of section 202 of Executive Order 11246 in every subcontract or purchase order unless exempted by rules, regulations or orders of the Secretary of Labor, issued pursuant to section 204 of Executive Order No. 11246 of September 24, 1965, as amended, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action

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with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

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Approvals

This contract is subject to the terms and conditions stated herein. By affixing signatures below, the parties verify that they are authorized to enter into this contract and that they accept and consent to be bound by the terms and conditions stated herein. In addition, the parties agree that (i) electronic approvals may serve as electronic signatures, and (ii) this contract may be executed in any number of counterparts, each of which when executed and delivered shall constitute a duplicate original, but all counterparts together shall constitute a single contract.

Commonwealth of Kentucky:

Signature	Commissioner, Department For Local Government
Dennis Keene	Title
Printed Name	Date

Ohio County Fiscal Court

Signature	Judge/Executive
David Johnston	Title
Printed Name	Date

Approved as to form and legality:

Signature	General Counsel Department for Local Government
Brandon Gibson	Title
Printed Name	Date

Signature	County Legal Counsel
Printed Name	Title
Printed Name	Date

	Document Description	Page 25
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Commonwealth of Kentucky:



Signature

Dennis Keene

Printed Name

Commissioner, Department For Local Government

Title

5-5-2023

Date

Ohio County Fiscal Court



Signature

DAVID JOHNSTON
OHIO COUNTY JUDGE EXECUTIVE

David Johnston

Printed Name


Judge/Executive

Title

April 20, 2023

Date

Approved as to form and legality:



Signature

Brandon Gibson

Printed Name

General Counsel
Department for Local Government

Title

5/8/23

Date

County Legal Counsel

Title

Signature

Printed Name

Date





PRELIMINARY ENGINEERING REPORT

RELATED TO

RAW WATER INTAKE IMPROVEMENTS

FOR THE

**OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY**

PROJECT NUMBER 2125

MARCH 2020
REVISED APRIL 2021

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.

2835 Lebanon Pike
Nashville, Tennessee 37214
www.jrwauford.com

PRELIMINARY ENGINEERING REPORT

RELATED TO

RAW WATER INTAKE IMPROVEMENTS

FOR THE

OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

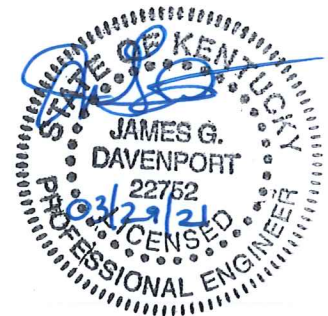
PROJECT NUMBER 2125

MARCH 2020
REVISED APRIL 2021

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.

2835 Lebanon Pike
Nashville, Tennessee 37214
www.jrwauford.com



OFFICIALS
FOR THE
OHIO COUNTY WATER DISTRICT

GENERAL MANAGER

Eric Hickman, P.E.

BOARD MEMBERS

Ben Everley, Chairman
Eddie Embry, Vice Chairman/Secretary
Cletus Greer
Reid Haire
Michael Newman
Lyndon J. Raymond
Carlin Gregory

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OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

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Cost Estimates

<u>Estimate No.</u>	<u>Description</u>	<u>Page No.</u>
1	Conventional Concrete Raw Water Intake	CE-1
2	Submerged Piping and Screens	CE-2

- Navigation Charts – Green River – Louisville District, U.S. Army Corps of Engineers
- Green River Commercial Diving Report, September 13-14, 2019
- Flood Insurance Rate Maps, Ohio County, Kentucky – Map No. 21183C0435D, Revised June 2, 2011

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March 2020
Revised April 2021

Exhibits

<u>Exhibit No.</u>	<u>Description</u>
1	Preliminary Site Plan
2	Preliminary Plans, Sections, and Details

RAW WATER INTAKE IMPROVEMENTS
OHIO COUNTY WATER DISTRICT

I. Purpose and Scope

The purpose of this report is to relate the findings of studies and field investigations related to recommended improvements to the raw water pumping facilities for the Ohio County Water District which currently utilizes the Green River as a source of raw water. The scope of this report includes the analysis of the existing raw water intake facility, current problems, regulatory permitting concerns, and a discussion of proposed alternatives for renovating or replacing the existing intake including cost estimates and exhibits depicting the proposed work.

II. Existing Facilities

A. General

The Ohio County Water District (OCWD) was chartered in 1962 and provides potable water service to customers in Ohio, Davies, Butler, Breckinridge, McLean, and Grayson counties. A new 4.0 MGD membrane type Water Treatment Plant (WTP) was constructed and placed into service in 2011 utilizing the Green River as a source of raw water. The existing raw water intake is located at approximate river mile 130.5 near Cromwell, Kentucky; the Green River level in the vicinity of the intake is generally maintained during normal flow by the dam located near Rochester. According to Navigation Charts published by the Louisville District of the U.S. Army Corps of Engineers (see copy in Appendix), the pool level upstream of Rochester Dam is elevation 379.9 and the pool level downstream of Rochester Dam is elevation 363.0.

The existing intake is located at approximate river mile 130.5 of the Green River and was originally designed in 1991 and consists of a main pump wetwell set back off the riverbank with two intake screens mounted in the

river. As part of the overall plant improvements in 2011, the existing raw water intake pumps and electrical gear were replaced although the existing structure and intake pipes were not modified. Raw water is drawn in through either of the screens into a single 16-inch pipeline that discharges to the pump well which contains two vertical turbine style pumps each with a reported capacity of 2,800 GPM. The screens have a reported capacity of 2,300 GPM each which is less than the reported 2,800 GPM capacity of the raw water pumps. The Green River is the only source of raw water utilized by the OCWD WTP and the existing raw water intake is the only facility that the OCWD can use to transport raw water to the existing WTP. The information related to existing buried raw water pipeline sizes and valves were determined from plans and drawings of previous projects at the raw water intake. This information should be verified during the field survey of the facilities proposed herein.

B. Raw Water Screens and Supply Line

Raw water enters one of two screening structures located off the east bank of the river that are designed to keep rocks, branches, and other debris from entering the supply line. The intake screens are located at invert elevations 370.0 and 375.0 to allow for water withdrawal at differing water levels. According to record drawings, the screens are sized for 2,300 gallons per minute with a velocity of 0.5 feet per second and have 0.125-inch openings. Each screen is connected to a separate 16-inch diameter ductile iron supply pipe. The supply pipes are supported in the river by concrete piers until the pipe enters the riverbank and is subsequently buried. The supply lines combine into a single 16-inch line prior to entering the raw water intake pumping structure which is located approximately 225 feet from the riverbank. Cleaning of the screens is accomplished by forcing compressed air through a single 6-inch diameter backwash line that removes debris and sediment that are clogging the screen. The backwash line is supported in

the river by the same concrete piers that the supply lines rest on. Valves must be manipulated manually to transfer the backwash airflow from one screen to another.

OCWD constructed an elevated valve access platform along the bank of the river to access the isolation valves for the supply and backwash lines when the river level is high. Additionally, a retaining wall consisting of metal sheet piling, beams and cable has been added by the OCWD to increase bank stabilization and reduce erosion directly above the intake pipes.

C. Raw Water Intake Pumping Structure

The raw water intake pumping structure consists of a concrete wetwell, two vertical turbine pumps, valves, a chemical feed system, and associated electrical equipment. Raw water enters the wetwell through the combined 16-inch DIP supply line and one of two vertical turbine pumps, which are operated by variable frequency drives (VFDs) in the nearby electrical and chemical building, pump up to 4.0 MGD (2,800 GPM) each through a 16-inch raw water transmission line to the WTP. The pumps have intake screens at the bottom of the pump column to prevent debris from damaging the pumps during operation. A small enclosure is located over the pump motors and valve controllers on top of the station. Sodium permanganate is injected into the raw water transmission line downstream of the pumps in a chemical feed pit as a preoxidant. Electrical equipment including VFDs is located in the adjacent metal building.

III. Problems with Existing Facilities

On September 13 and 14, 2019, divers from Green River Commercial Diving conducted an inspection of the raw water intake screens and wetwell. A copy of the report produced from this inspection is located in the Appendix. The divers cleaned the screens and dredged areas around the intake that had been filled with sediment. The pumping station wetwell was dewatered in order to remove all

rocks, sand, and mud. A large amount of rocks and other debris was found in significant volume inside the pumping well which indicates there is an opening in the piping system downstream of the screens. The report makes note of an “opening in the underground pipe” that appeared to be larger than in previous inspections due to the size of the large rocks in the bottom of the wetwell. The presence of large rocks in the wetwell is indicative of a serious problem that may continue to worsen over time causing pump damage, pump failure, and/or loss of water supply.

Another serious situation occurring at the intake is the apparent slope failure at the bank which has resulted in the installation of sheet piling and restraint cable to attempt to keep the bank from sliding and eroding. Bank failure will likely cause pipe separation by acting as a pulling force on the pipe. This could lead to catastrophic failure of the intake in a relatively short time period requiring quick action.

The combination of the apparent hole in the intake supply line and bank retaining wall failure warrant action to protect the raw water supply and the customers of the OCWD. A pipe failure, supply line clog, or pump failure caused by any one of these concerns would likely occur very quickly, resulting in the OCWD having to take extreme measures to be able to supply water to its customers. In order to supply raw water to the WTP during an emergency, diesel powered back-up pumps would have to be trucked to the site in order to supply the peak demand of the system. The time required to get these pumps on-site and set up to pump into the raw water transmission line may be longer than the water storage tanks in the distribution system are able to supply water to customers. Additionally, these pumps would have to be moved up and down the riverbank as the Green River water surface elevation increases and decreases, would have to be regularly refueled, and would require continual maintenance to prevent clogging. The rental cost of these pumps would be approximately \$30,000 per month depending on the number of pumps required. There is also a potential that backup pumps may not

be available in a timely manner in an emergency. These pumps would be required until the problem is resolved which could be several months depending on the severity of the issue. A contractor would be required to perform a majority of pipe or equipment repairs to the existing system due to the potential of the work to be in or along the Green River, depth and size of the raw water supply line, and having the necessary equipment and machinery for equipment repairs or installation.

IV. Proposed Raw Water Intake Improvements

A. General

Two alternatives were considered for improving or replacing the existing raw water pumping system with Alternative No. 1 consisting of a new traditional style reinforced concrete intake located in or adjacent to the Green River and Alternative No. 2 consisting of renovation of the existing intake structure with new screens and pipes. Both alternatives are described in greater detail hereinafter. For the existing raw water intake supply line and pumping station to remain in operation, it is proposed to leave the existing intake screens, air backwash system, and supply line in operation while improvements are constructed. This concept would allow existing facilities to remain in operation until the new facilities are complete minimizing time required for change over to the new system.

B. Alternative No. 1 – Conventional Concrete Intake

Alternative No. 1 consists of the construction of a new cast-in-place multi-level take-off concrete intake, access bridge, electrical building, 16-inch DIP water line, and appurtenances. The intake structure is proposed to be constructed in the Green River immediately upstream or downstream of the existing intake screens. A cofferdam, which is a circular structure constructed of steel sheet piling, would be constructed around the area where the intake is proposed to be constructed and concrete would be poured to form a base for the structure. If geotechnical reports indicate a

deep foundation is required, piles will likely have to be driven into the river bottom prior to pouring the concrete base. The intake should have openings at varying elevations allowing water to enter before proceeding through a traveling water screen and into the wetwell. The traveling water screen is designed to prevent debris, rocks, and leaves from entering the wetwell for pump protection.

Two vertical turbine pumps are proposed to pump raw water from the wetwell through a check valve and isolation gate valve to a 16-inch DIP water line which would connect to the existing 16-inch raw water transmission line near the existing raw water intake pumping station. If the capacity and dimensions of the existing raw water pumps are sufficient, they may be able to be reused in the new intake although this will complicate transferring use from the existing intake to the proposed new intake. Provisions for a future third pump and valves should be provided which would allow the use of three – 4.0 MGD pumps for a firm pumping capacity of 8.0 MGD allowing for future growth or additional equipment redundancy. An access bridge is proposed to span from the intake to the bank where OCWD personnel would be able to access the intake during high water levels. The bridge can also be used to transport equipment out to the intake structure without the use of a crane or other lifting device although the bridge is not proposed to be designed for vehicle access. The 16-inch raw water line exiting the intake structure is proposed to be attached to the bottom of the access bridge before proceeding underground and connecting to the existing 16-inch raw water that discharges to the WTP.

An electrical building is proposed to be constructed near the end of the access bridge to house the pump VFDs, control panel, telemetry equipment, and other electrical gear. The electrical building floor and motor floor of the intake should be designed above the 500-year flood level to allow personnel to access the intake during high water levels. According to the latest revised

Flood Insurance Rate Map published by the Federal Emergency Management Agency for Ohio County, Kentucky (see attached copy in the Appendix), the 100-year flood elevation in the vicinity of the intake is approximately elevation 411.50 although no 500-year flood elevation was depicted. Additionally, the take-off ports can be closed if the wetwell must be accessed for any reason such as cleaning or equipment inspection. Alternative No. 1 is estimated to cost \$4,630,000 as shown on Cost Estimate No. 1 and is depicted at Exhibit Nos. 1 and 2 located at the end of this report.

C. Alternative No. 2 – Submerged Piping and Screens

Alternative No. 2 includes the construction of two new submerged intake screening structures, 20-inch ball joint DIP supply lines, elevated valve access platform, connection to the existing supply line, and other miscellaneous improvements. A new valve wetwell and 20-inch butterfly valves should be used to connect to the existing supply line near the pumping station. The purpose of the valves is to be able to construct and test the proposed raw water supply line while still using the existing supply line. The line is proposed to split into two supply lines with a valve located on each supply line for isolation purposes during cleaning or repair work. The valve wetwell is proposed to be constructed with a top elevation at the 100-year flood elevation for valve access during high flow events. Ball joint pipe is proposed to proceed from these valves out into the river where the pipe should be buried until reaching the screening assemblies. The screening assemblies are proposed to be located farther into the river than the existing screens to help reduce the amount of silt and debris that may accumulate as well as provide a deeper location for raw water withdrawal in case of extreme low water levels.

The screening assemblies are proposed to be horizontally mounted atop micropiles for anchoring on the riverbed. Air backwash lines are proposed for independent screen cleaning.

Implementation of Alternative No. 2 should remedy the problems currently experienced in the existing raw water supply line; however, since the location of the hole allowing large rocks to enter the supply line and pumping station wetwell is unknown, it cannot be guaranteed that connecting this existing line will remedy that problem particularly if the hole is near the pumping station. Connecting a new supply line directly into the wetwell carries a risk of a potential collapse of the entire structure due to the uneven backfilling of the pumping station while one or several sides are exposed while the pipe is installed at a depth of almost 40 feet. This Alternative is estimated to cost \$2,125,000 as shown on Cost Estimate No. 2 and depicted at Exhibit Nos. 1 and 2 located at the end of this report.

V. Regulatory and Permitting Considerations

The two regulatory agencies that have approval authority related to either alternative proposed herein consist of the Kentucky Division of Water (DOW) and the U.S. Army Corps of Engineers (COE). The permits required by DOW include a Water Withdrawal Permit, Water Quality Certification, and Form DW-2 which should be able to be obtained in a reasonable time considering there is an existing intake located at the proposed site. DOW also maintains a five-mile rule stating that raw water intakes cannot be located within five miles downstream of a wastewater treatment plant outfall. There are no known wastewater treatment outfalls located five river miles upstream of the raw water intake site.

The COE will require an individual Section 404 permit for the activities proposed herein which will likely require from several months to a year to obtain. There may be some provision that the proposed activities can be classified as maintenance although this will require a decision by the COE District Engineer. The permitting

process could require endangered species or archaeological studies which can further delay the permitting process. The use of federal funds for financing the project can also increase said requirements.

VI. Summary

The raw water intake supply line and pumping station face serious issues that could result in a loss of raw water supply to the OCWD. Due to the presence of large rocks in the intake wetwell, apparent hole in the supply line, and riverbank slope instability, improvements must be made. If improvements are not constructed, a pipe failure, clog, equipment damage, or pump failure could occur in a short amount of time causing an emergency. Backup pumps and equipment may not be available or be able to be transported on site quickly, resulting in the potential loss of water in the OCWD system. Additionally, any repair work due to one of these situations arising is likely to be time consuming and expensive.

The pros and cons of the two alternatives presented hereinbefore are stated in the following table.

Evaluating Factor	Alternative No. 1 – Conventional Concrete Intake	Alternative No. 2 – Submerged Piping and Screens
Lifespan	100 years	25 years
Access during flood events	Yes	Partially
Reliability	High	Medium
Construction Cost	High	Medium
Potential for Catastrophic Failure	Low	Medium to High
Expansion Capabilities for Future Growth	High	Low

2125
March 2020
Revised April 2021

Due to the likely lengthy process required to obtain regulatory permits, it is recommended that the OCWD proceed with the design and permitting phase of the project in an expeditious manner.

APPENDIX

Cost Estimates

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 March 2020
 Revised April 2021

COST ESTIMATE NO. 1
CONVENTIONAL CONCRETE RAW WATER INTAKE
OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY
WAUFORD PROJECT NO. 2125

<u>Item</u>	<u>Description</u>	<u>Cost</u>
1.	Site Development and Cofferdam	\$1,500,000
2.	Structural Concrete including Access Bridge	\$680,000
3.	Suspended 20-inch Pipe from Access Bridge	\$150,000
4.	Interior Piping and Site Piping	\$75,000
5.	Miscellaneous Metals and Fiberglass	\$90,000
6.	Electrical Building	\$55,000
7.	Raw Water Intake Pump Building	\$100,000
8.	Electrical	\$185,000
9.	Equipment Installation	\$70,000
10.	Relocation of Existing Pumps, VFDs, and Accessories	\$100,000
11.	Process Painting and Coating	\$20,000
12.	Miscellaneous Concrete, Paving, and Fencing	\$75,000
13.	Process Equipment	
	Traveling Water Screen	\$275,000
	Valves	\$25,000
	Controls	\$25,000
		<u>\$325,000</u>
	ESTIMATED CONSTRUCTION COST	\$3,425,000
	CONSTRUCTION CONTINGENCIES (20%)	<u>\$675,000</u>
	1. Budgeted for Construction:	\$4,100,000
	Geotechnical Study (by others)	\$15,000
	Permitting	\$50,000
	2. Engineering: Survey and Design	\$275,000
	Bidding and Award	\$10,000
	During Construction (365 days):	<u>\$180,000</u>
	TOTAL ESTIMATED PROJECT COST	\$4,630,000

ENR CONSTRUCTION COST INDEX – 11750 (March 2021)

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 March 2020
 Revised April 2021

COST ESTIMATE NO. 2
SUBMERGED PIPING AND SCREENS
OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY
WAUFORD PROJECT NO. 2125

<u>Item</u>	<u>Quantity</u>	<u>Description</u>	<u>Unit Price</u>	<u>Cost</u>
1.	Lump Sum	Connection to Existing Raw Water Line including Valve Wetwell, Valves, and Fittings	Lump Sum	\$250,000
2.	210 L.F.	20-inch DIP Water Line with Ball Joints	\$700 / L.F.	\$147,000
3.	240 L.F.	20-inch Restrained Joint DIP Water Line	\$400 / L.F.	\$96,000
4.	800 L.F.	4-inch DIP Air Backwash Line with Restrained Joints	\$100 / L.F.	\$80,000
5.	2 Each	Intake Screening Assemblies on Green River	\$60,000 Each	\$120,000
6.	2 Each	Micropile Foundation for Intake Screening Assemblies	\$200,000 / Each	\$400,000
7.	Lump Sum	Mobilization for Marine Work	Lump Sum	\$50,000
8.	Lump Sum	Dewatering	Lump Sum	\$100,000
9.	Lump Sum	Sheeting and Shoring	Lump Sum	\$200,000
10.	Lump Sum	Erosion Control and Bank Stabilization	Lump Sum	<u>\$30,000</u>
ESTIMATED CONSTRUCTION COST				\$1,473,000
CONSTRUCTION CONTINGENCIES (20%)				<u>\$297,000</u>
1. Budgeted for Construction:				\$1,770,000
Geotechnical Study (by others)				\$15,000
Permitting				\$50,000
2. Engineering: Survey and Design				\$145,000
Bidding and Award				\$10,000
During Construction (180 days):				<u>\$135,000</u>
TOTAL ESTIMATED PROJECT COST				\$2,125,000

ENR CONSTRUCTION COST INDEX – 11750 (March 2021)

**Navigation Charts
Green River
Louisville District
U.S. Army Corps of Engineers**

U.S. ARMY CORPS OF ENGINEERS, LOUISVILLE DISTRICT

NAVIGATION CHARTS
GREEN RIVER
LOUISVILLE DISTRICT

U.S. ARMY CORPS OF ENGINEERS
600 DR. MARTIN LUTHER KING, JR. PLACE
LOUISVILLE, KENTUCKY 40202

BRIEF INDEX

GENERAL NOTES.....	SHEET A
GENERAL INFORMATION.....	SHEET B-E
LEGEND, AIDS TO NAVIGATION AND U.S. COAST GUARD INFORMATION	SHEET F MAP
INDEX TO NAVIGATION CHARTS	SHEET G
NAVIGATION CHARTS	NOS. 1 TO 46 INCL.

REVISED JUNE 2011

THESE CHARTS INCLUDE KNOWN NAVIGATIONAL FEATURES, AVAILABLE DATA, AND INFORMATION AS OF THE DATE SHOWN ABOVE. MAJOR CHANGES WHICH OCCUR WILL BE PUBLISHED IN "NOTICES TO NAVIGATION INTERESTS." REVISION OF THE CHARTS IS ANTICIPATED AT THREE-YEAR INTERVALS. ANY INFORMATION CONCERNING CHANGES, CORRECTIONS, OR ADDITIONS TO THIS FOLIO SHOULD BE ADDRESSED TO THE DISTRICT ENGINEER, ATTN: CELRLOP - TM.

NAVIGATION CHARTS

Will be available at Green River Locks 1 and 2, by request from THE LOUISVILLE DISTRICT PUBLIC AFFAIRS OFFICE LRL-pagemaster-pa@rlr02.usace.army.mil, or by download from HTTP://www.lrl.usace.army.mil

NAVIGATION NOTICES

Notices of Navigation Interest, containing data on channel conditions and locations of dredges, are issued as occasions demand. Names of pilots, and others concerned, are placed on mailing list to receive copies of these notices, upon request to the Army Corps of Engineers, 600 Dr. Martin Luther King, Jr. Place, Louisville, Ky 40201-0059.

AUTHORIZED PROJECT

Mouth to mile 103 Green River, Project depth 9 feet, channel width 200 feet.
 Mile 103 Green River to Lock 3 on the Green River, project depth 5.5 feet.

MILE POINTS

Mile points are shown on the charts at one mile intervals, with figures designating mileage above the confluence with the Ohio River, Mile 784.2

BUOYS

Buoys used to mark channels in the Mississippi River System conform to the standard lateral system of buoyage on the Western Rivers of the United States. Generally, the unlighted buoys in the Green River are equipped with radar reflectors. All buoys are equipped with reflective material; buoys on the left descending side of the channel reflect red; buoys on the right descending side of the channel reflect green.

Buoys are set to mark maximum navigation channel available considering channel alignment, the prevailing river stage and obstructions. Due to the ever changing environmental conditions, the location and number of buoys used do not necessarily coincide with these charts. The location of all buoys as printed are only approximate.

Buoys should always be given as wide as berth in passing as possible consistent with the length and width of vessel or tow and the width of the bend crossing.

VERTICAL CLEARANCE

Vertical clearance under bridges and aerial crossings are shown on charts preceding page showing respective features at normal pool stage, and at 1937 high water stage.

NOTES

Elevation shown on charts refer to feet above Mean Sea Level. The lateral scale of the navigation charts is distorted.

Buoys should always be used with caution. They may be carried off position by high water, accumulation of drift, ice, or sunk by collision or other causes. When carried off position, destroyed, or removed to prevent loss, buoys are replaced at the earliest opportunity.

Lights and daybeacons are also shown in approximate locations.

FEDERAL MOORING BUOYS

Federal mooring buoys are for emergency use only, except where noted. These buoys shall not be used for recreational use or fleeing operations. Vessels using emergency buoys shall contact the nearest downstream lock upon mooring and again after departure.

DAMS

The height of the highest fixed points on the various parts of the locks and dams are shown, in feet, above the zero of the pass sill gage, except as otherwise noted on back of charts preceding page on which the dams appear.

PERMITS - JURISDICTION

In the administration of laws enacted by Congress for the protection and preservation of navigation and the navigable waters of the United States, the U.S. Army Corps of Engineers exercises jurisdiction over the Green River and several of its tributary streams. Work or structures in, under, or over the Green River or any navigable tributary, between the limits of the ordinary high water lines on both banks of the stream require prior a authorization. Inquiries regarding permits for such work or structures should be addressed to:

District Engineer
 U.S. Army Engineer District, Louisville
 P.O. Box 59
 Louisville, Kentucky 40201-0059
 ATTN: CELRL - OP - F

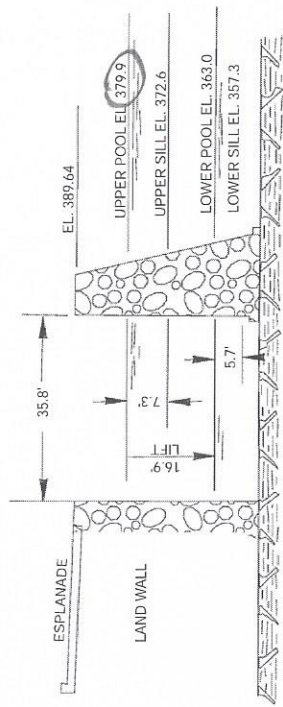
or may be made by telephone to:
 (502) 315-6733

TABLE

1937 H.W. GAGE READINGS

Lower Gage	Readings
Dam 1, Green River	58.9
Dam 2, Green River	54.4
Dam 3, Green River	56.8e
Dam 4, Green River	58.8

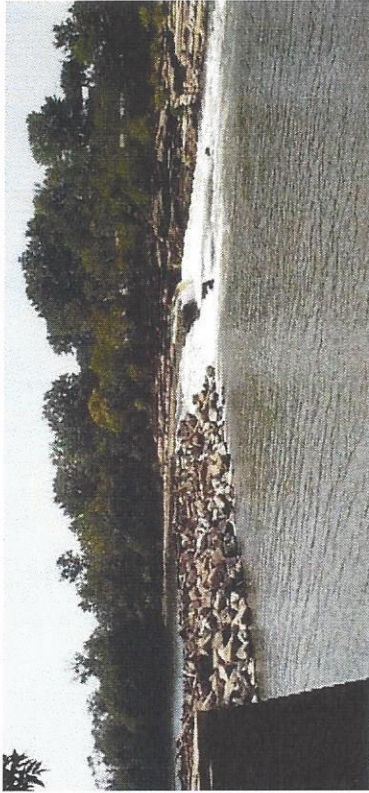
e = estimated gage



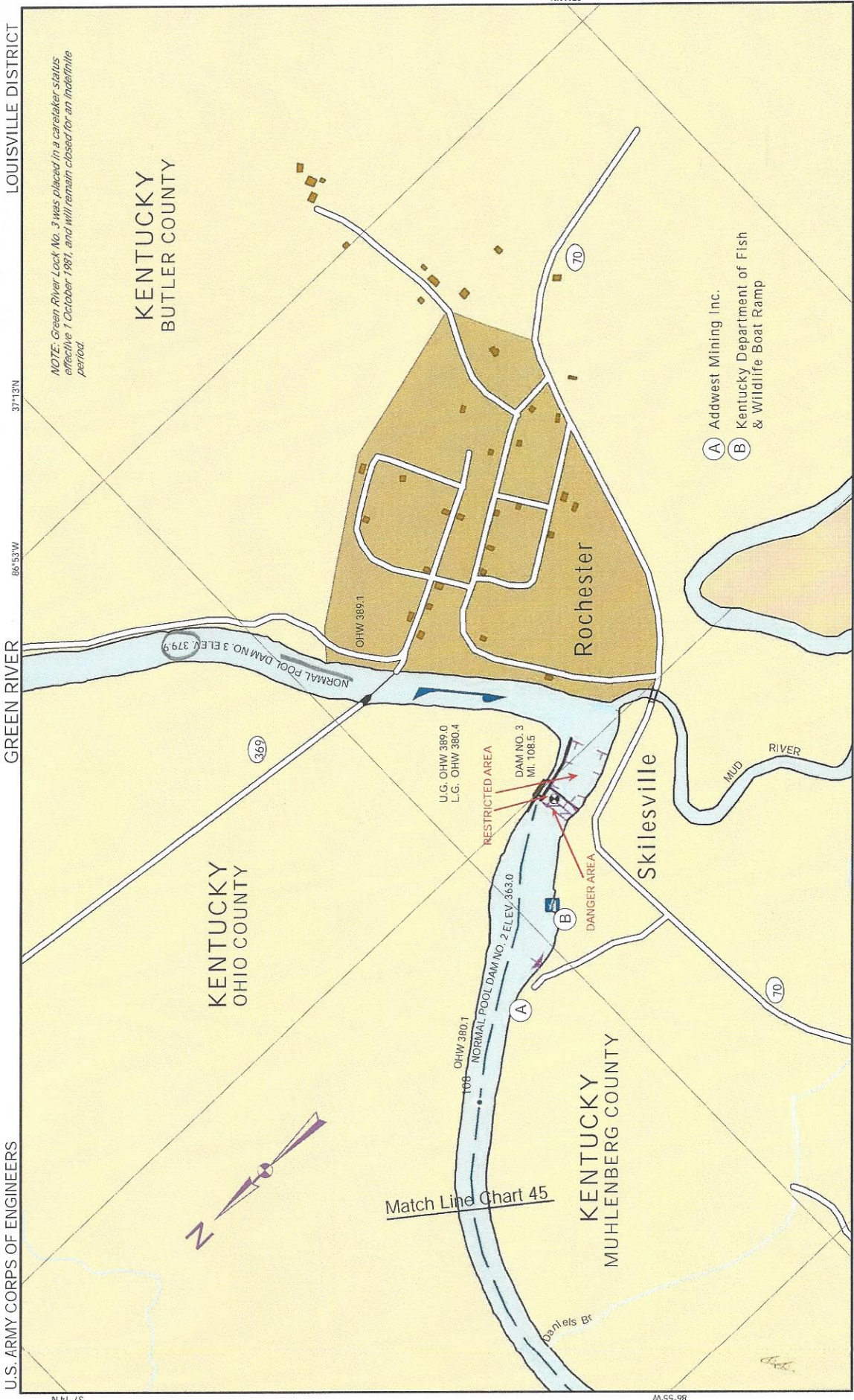
**SECTION THRU LOCK NO. 3
LOCK CHAMBER 35.8' X 137.5'
MILE 108.5**

GAGE LOCK NO. 3	
UPPER GAGE:	
ZERO ELEV =	372.6'
N.P. =	7.3'
LOWER GAGE:	
ZERO ELEV =	357.3'
N.P. =	5.7'

STAGE AT WHICH LOCKING IS
DISCONTINUED = 16.5' UPPER GAGE



NOTE: Green River Lock No. 3 was placed in a caretaker status effective 1 October 1981, and will remain closed for an indefinite period.



LOUISVILLE DISTRICT

37°13'N

86°53'W

GREEN RIVER

U.S. ARMY CORPS OF ENGINEERS

NOTE: Green River Lock No. 3 was placed in a caretaker status effective 1 October 1987, and will remain closed for an indefinite period.

KENTUCKY BUTLER COUNTY

KENTUCKY OHIO COUNTY

KENTUCKY MUHLENBERG COUNTY

37°11'N

86°55'W

CHART NO. 46
RIVER MILE 107.9 - 108.5

37°11'N

86°54'W

SCALE: 1" = 1000'

REVISED JUNE 2011

**Green River
Commercial Diving Report
September 13-14, 2019**

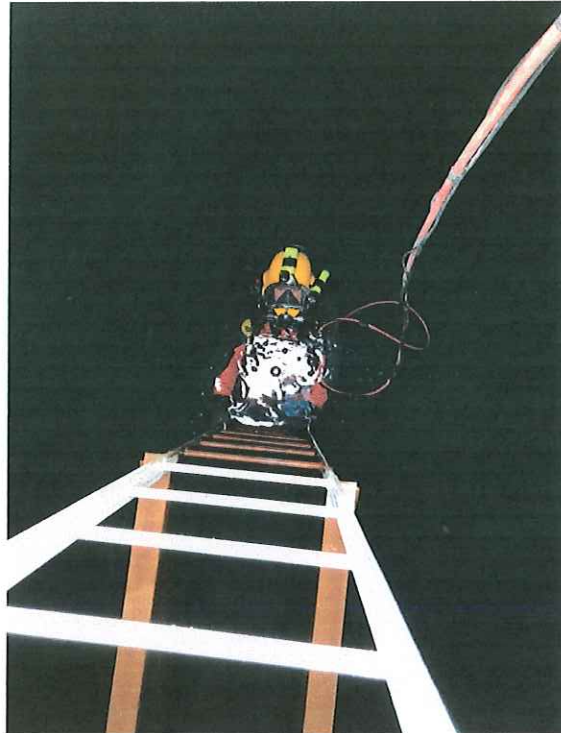
GREEN RIVER COMMERCIAL DIVING INSPECTION REPORT

SEPTEMBER 13TH & 14TH 2019

OHIO COUNTY INTAKE / WET WELL CLEANING

COMPLETED USING TWO NONSANITIZED DIVERS IN WETSUITS WITH KIRBY MORGAN #27 COMMERCIAL DIVING HELMENT AND TWO LINE TENDERS.

This report will include a few pictures of the dredging done on day one and the condition of the wet well before debris was removed and cleaned out on day two.



GREEN RIVER COMMERCIAL DIVING is pleased to provide you with the results of our inspection and work performed on Sept. 13th and 14th 2019 at the Ohio Co. Water Intakes on the green river. The purpose of the inspection was to obtain information pertaining to the current condition of both intakes and clear away as much of the debris as possible during the dive. The wet well cleaning was performed the second day on the 14th. The inspection will be divided into three categories. Each category will have statements listed observed by the diver during the inspection and cleaning.

- **Intake #1 (Intake that is out in deepest water)**

- Intake #1 just like inspections in the past looked the best out of the two intakes having less build up than Intake #2. The #1 intake had some thin algae buildup on the screens.
- The area below intake #1 is mostly rocks as it is in the river channel. Very little to no mud built up in this area.
- The screen was cleaned and all algae was removed with wire brush.
- Intake looks to be in very good condition with all bolts and nuts showing no rust.

- **Intake #2 (Intake in shallow water)**

- Intake #2 had several feet of mud under it but continues to be better each year. The #2 intake had about 3 foot of clearance between the bottom of the screen and the mud.
- After several hours of dredging we had an area of 15-foot by 20-foot around the intake cleared and had around a 6-foot clearance under the intake.
- The screen was cleaned and all algae removed with a wire brush.
- Intake looks to be in very good condition with all bolts and nuts showing no rust.
- Would recommend adding two 45's and a six foot extension to the #2 intake so that this intake could pull from an area of less mud and could be used in low water conditions.

- **Wet Well (Second day)**

- The wet well was dewatered to remove all rock, sand and mud debris.



- After all water was removed from the wet well we noticed that the amount of rock and debris was much greater than last inspection. We ended up pulling out 50 to 60 buckets of rock, sand and mud. Several large rocks had made it into the bottom of the wet well. It looks as if the opening in the underground pipe must be getting larger by the size of some of the rocks found.
- Water visibility during this dive wasn't as good as we had hoped. We used the ROV camera to inspect the opening in the pipe however the size of the opening didn't look to be any larger. The length of the ROV cable only reaches 100 meters, we have checked the pipe from both ends but there is a section we can't see in the middle. This center section needs to be checked. With the size of a few of the rocks in the wet well I feel there is a much larger opening in this center section.

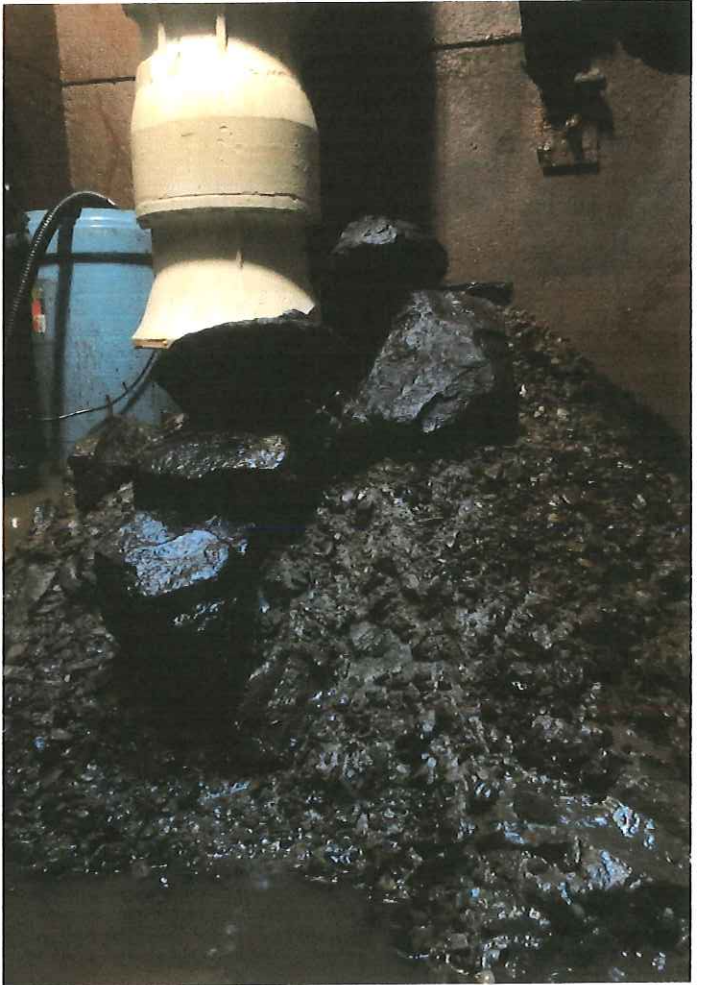
Closure:

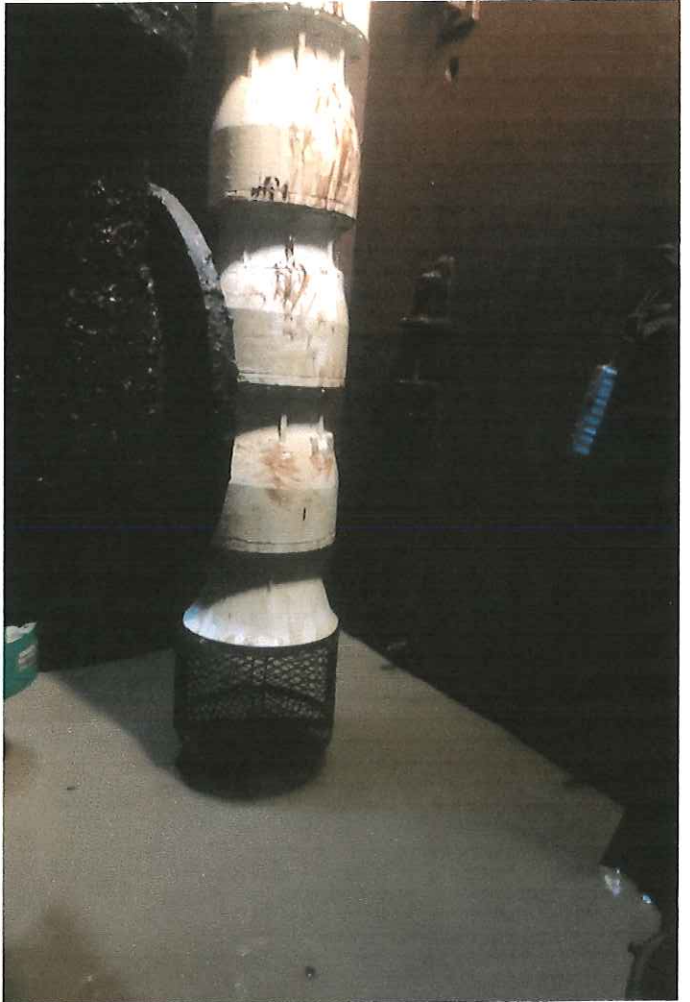
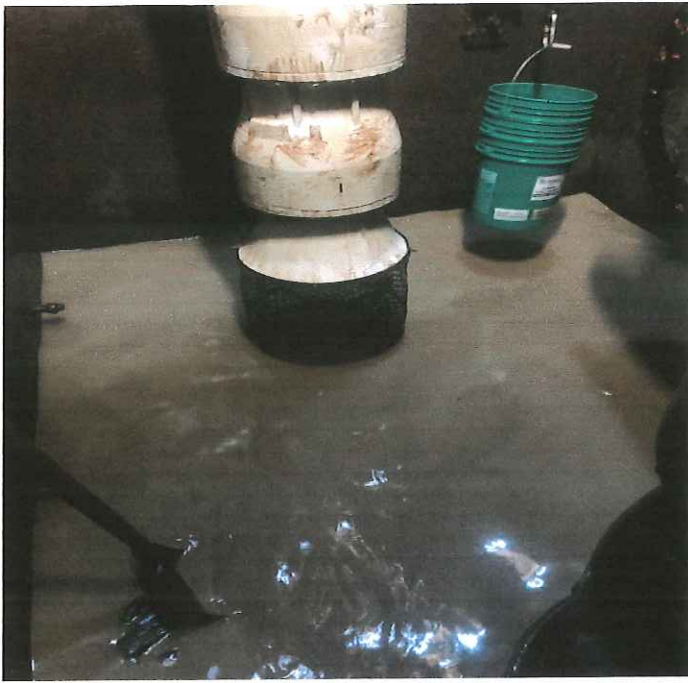
After the cleaning was completed we installed the bottom screen to the new pump that was being installed. This screen must have been knocked off while removing the damaged old pump. The pump hadn't been wired up at this point so no issues with damage of pump running without the screen on the pump.

Thank you for allowing **Green River Commercial Diving** to perform this inspection / Intake cleaning. If you have any questions after reviewing this report, please call me at 270-218-1429 and I will be happy to meet with you and your team to explain our findings.

Kelly Rosser

9/13/19





**Flood Insurance Rate Map
Ohio County, Kentucky**

**Map No. 21183C0435D
Revised June 2, 2011**

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Kentucky State Plane coordinate system (FIPS ZONE 1600). The **horizontal datum** was NAD83, GRS80 spheroid. Differences in datum, spheroid or projection used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov/> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/INGS12
National Geodetic Survey
SSM-C-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov/>.

Base map information was derived from multiple sources. Digital orthophotography shown on this FIRM is provided by Kentucky Division of Geographic Information (KY DGI). These images were originally produced by Photo Science, Inc. in 2006 as 10,000-ft x 10,000-ft blocks with 2-foot pixel resolution and projected to State Plane Kentucky Single Zone with a NAD83 datum. The images have been combined as a mosaic to provide seamless coverage. Road centerlines published in 2006 and political boundary files dated 2008 were provided by the Kentucky Geographic Network. Stream centerlines were downloaded from the National Hydrography Dataset provided by the U.S. Geological Survey. Users of this FIRM should be aware that minor adjustments may have been made to specific base map features.

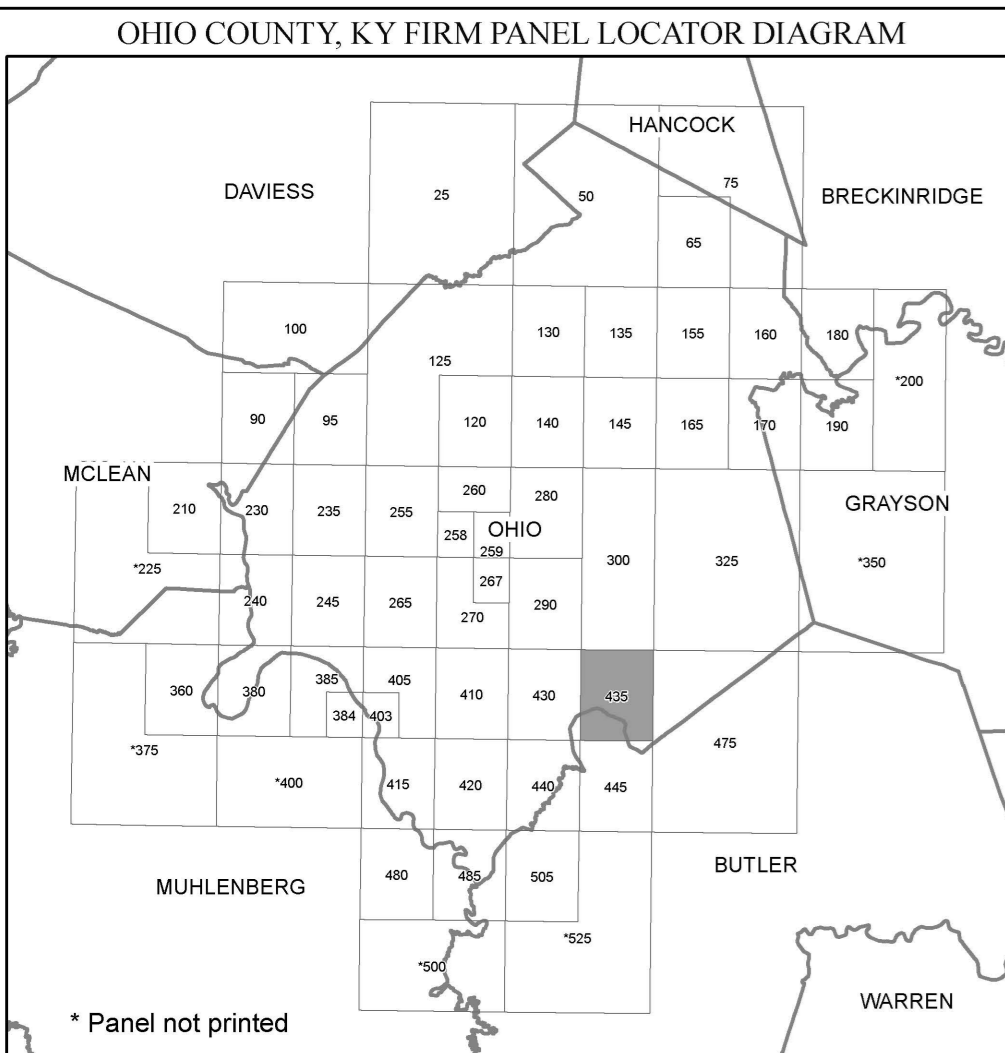
Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unreviewed streams may differ from what is shown on previous maps.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

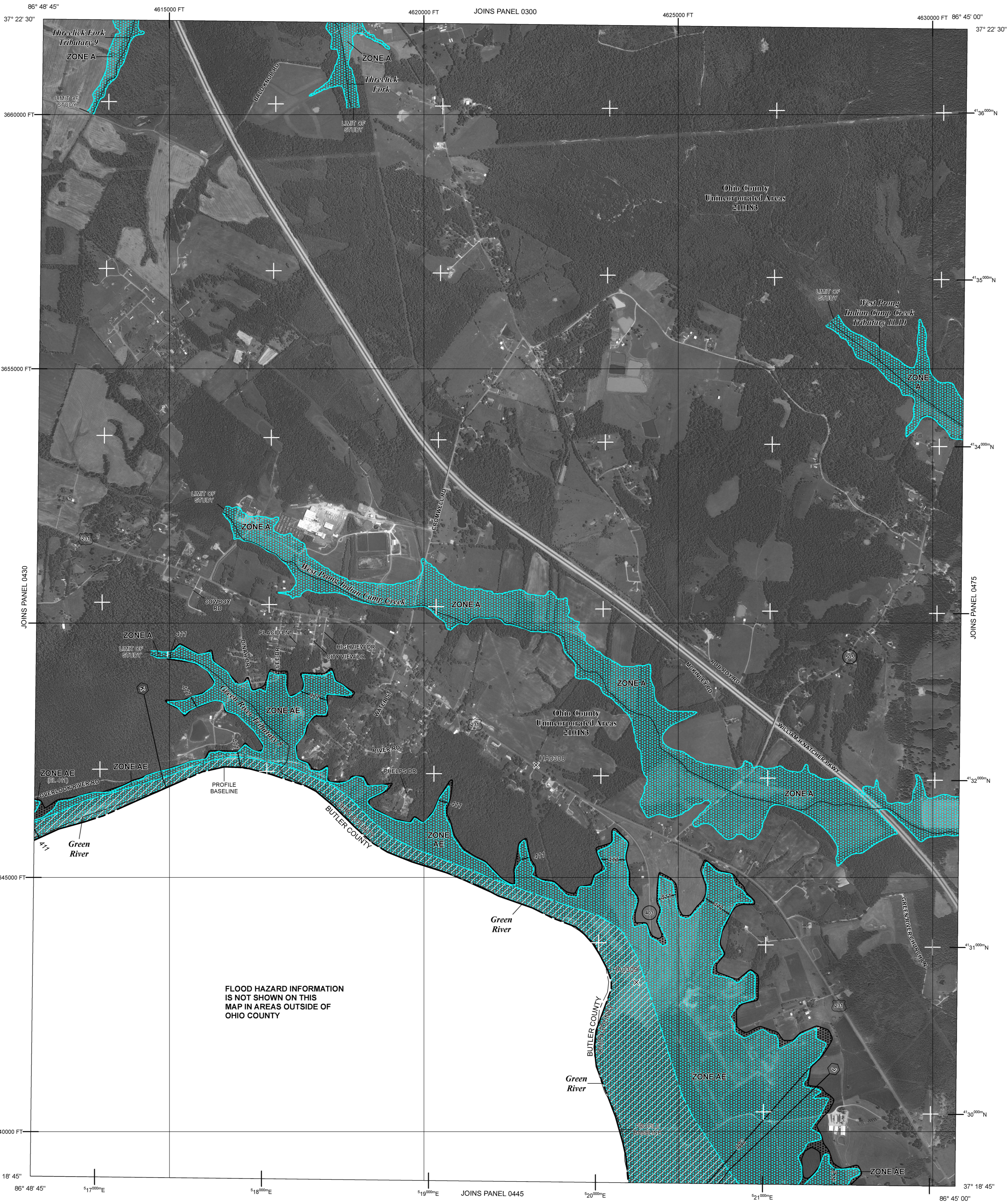
Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Information eXchange (FMIX)** at 1-877-FEMA MAP (1-877-336-2627) for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and for digital versions of this map. The FEMA Map Information eXchange may also be reached by Fax at 1-800-358-9620 and its website at <http://msc.fema.gov/>.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/business/nfp>.



In cooperation with the Federal Emergency Management Agency (FEMA) and local communities in Kentucky, this Flood Insurance Rate Map was developed by the Kentucky Division of Water in a digital statewide format to assist communities in their efforts to minimize the loss of property and life through effectively managing development in flood-prone areas. The State of Kentucky has implemented a long term approach to floodplain management to reduce the impacts of flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As part of this effort, the Kentucky Division of Water is working closely with FEMA as a Cooperating Technical Partner to produce and maintain this digital FIRM.



LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
- The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.
- ZONE A** No Base Flood Elevations determined.
- ZONE AE** Base Flood Elevations determined.
- ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR** Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently described. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99** Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE
- The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.
- OTHER FLOOD AREAS
- ZONE X** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
- OTHER AREAS
- ZONE X** Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D** Areas in which flood hazards are undetermined, but possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS
- OTHERWISE PROTECTED AREAS (OPAS)
- CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
- CBRS and OPA boundary
- International, State, or County boundary
- Corporate, Extrajurisdictional, or Urban Growth boundary
- Area Not Included boundary
- Military Reservation, Native American Lands boundary
- Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*
- * Referenced to the North American Vertical Datum of 1988
- Cross section line
- Transsect line
- Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
- 1000-meter Universal Transverse Mercator grid values, zone 16
- 5000-foot grid ticks: Kentucky State Plane coordinate system (FIPS 1600), Lambert Conformal Conic projection
- Bench mark (see explanation in Notes to Users section of this FIRM panel)
- River Mile
- M 1.5
- Aqueduct, Culvert, Flume, Penstock, or Storm Sewer
- Road or Railroad Bridge

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
SEPTEMBER 29, 1989

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
JUNE 2, 2011 - to update corporate limits, to add Base Flood Elevations, to change Special Flood Hazard Areas, to change zone designations to add roads and road names, to add floodway

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0435D

FIRM
FLOOD INSURANCE RATE MAP

OHIO COUNTY, KENTUCKY AND INCORPORATED AREAS

PANEL 435 OF 525
(SEE LOCATOR DIAGRAM OR MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
OHIO COUNTY 210183 0435 D

Notice to User: The Map Number shown below should be used when placing map orders. The Community Number shown above should be used on insurance applications for the subject community.

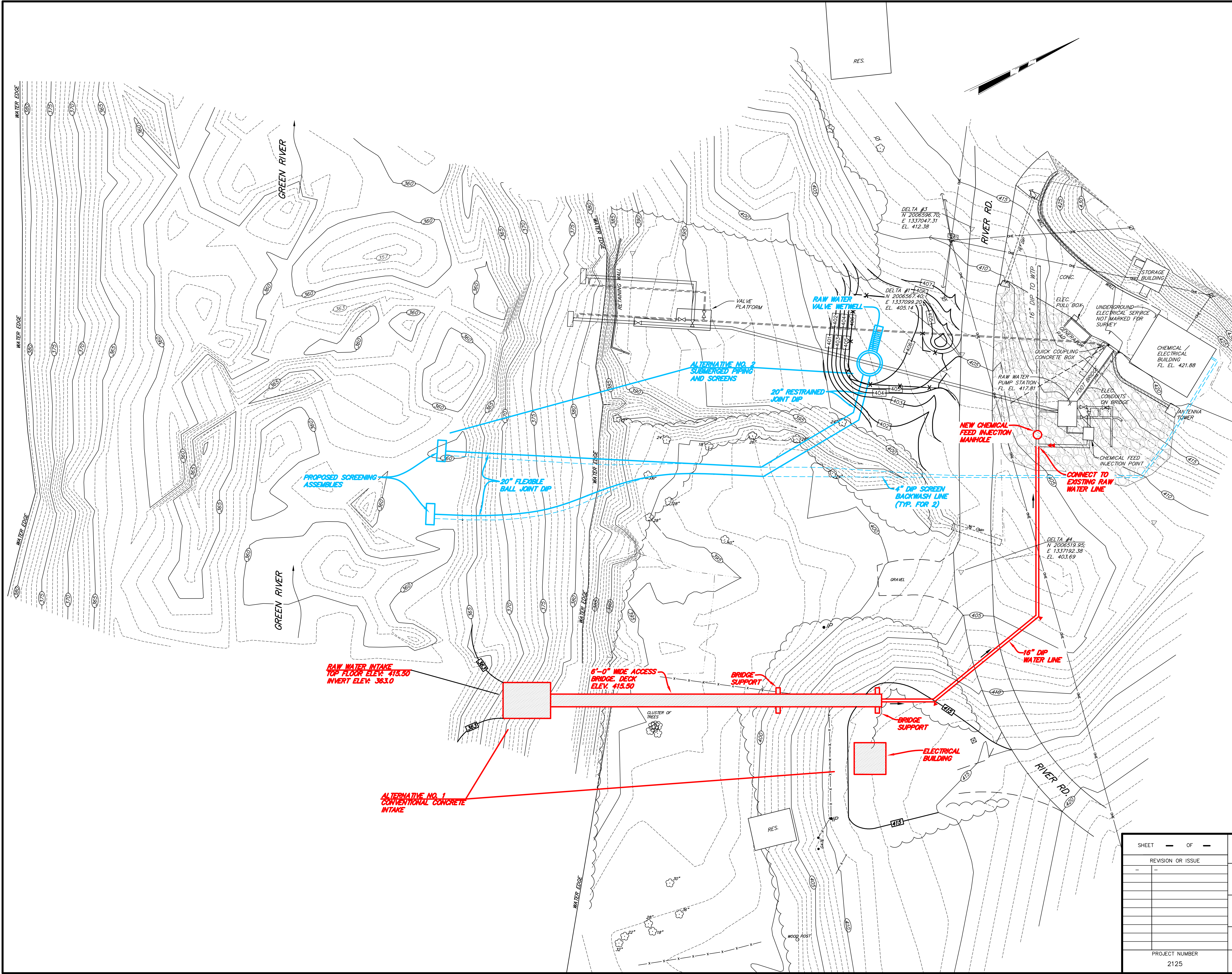
MAP REVISED MAP NUMBER
JUNE 2, 2011 21183C0435D

State of Kentucky
Federal Emergency Management Agency

Exhibits

SITE PLAN LEGEND

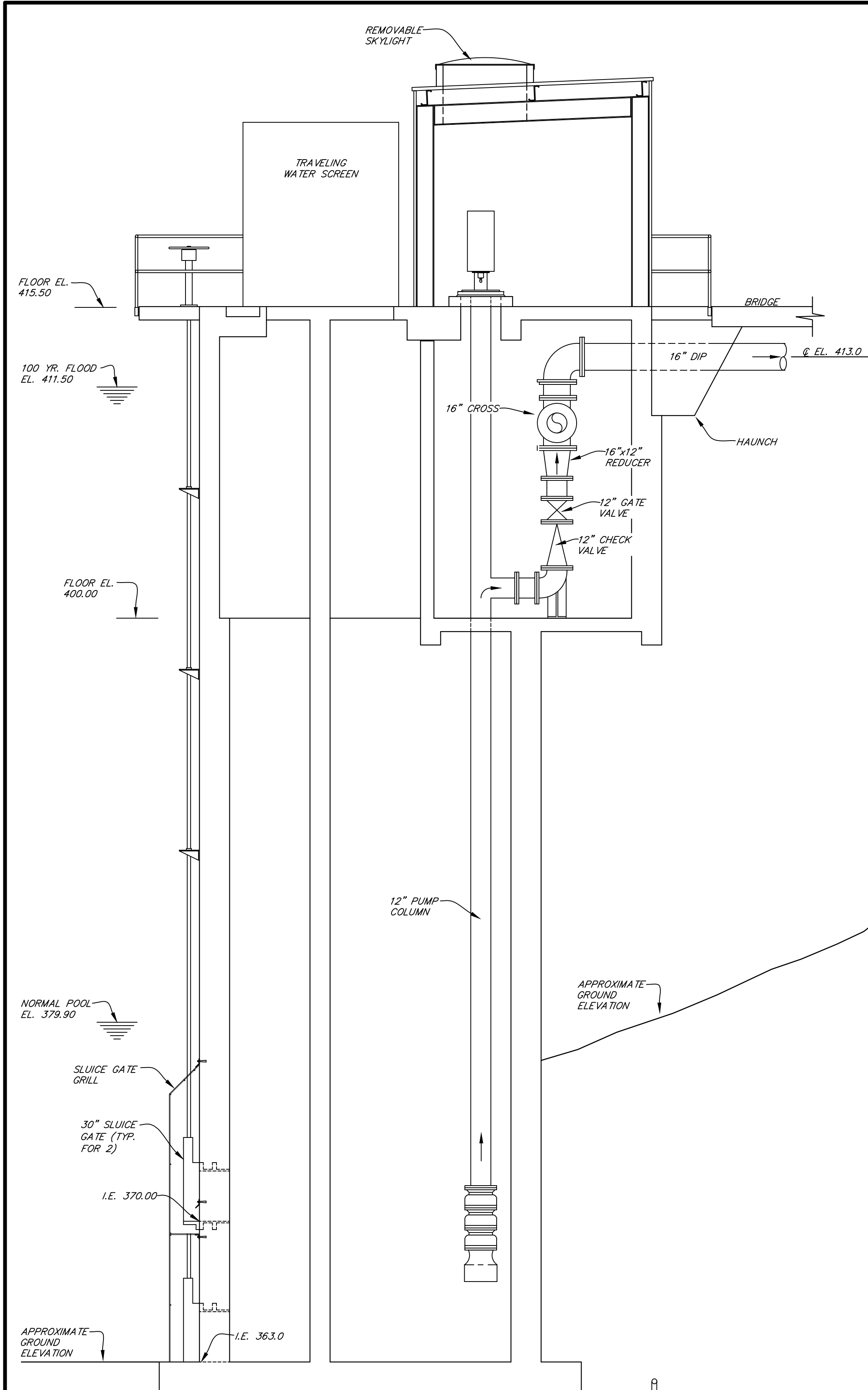
- PROPOSED**
- PROPOSED 6" SCREEN BACKWASH LINE
 - PROPOSED GATE VALVE
 - IMPROVEMENTS ASSOCIATED WITH ALTERNATIVE 1
 - IMPROVEMENTS ASSOCIATED WITH ALTERNATIVE 2
 - PROPOSED STRUCTURE
- EXISTING**
- OVERHEAD ELECTRIC
 - PAVED SURFACE
 - UNPAVED SURFACE
 - TOP / TOE OF BANK
 - DITCH LINE OR CREEK
 - TREE LINE
 - TREE
 - BUSH
 - FENCE LINE
 - ⊗ WATER METER
 - ⊗ VALVES
 - ⊗ POWER POLE & GUY WIRE
- EXISTING**
- CULVERT
 - PROPERTY PIN
 - RIPRAP
 - △ DELTA



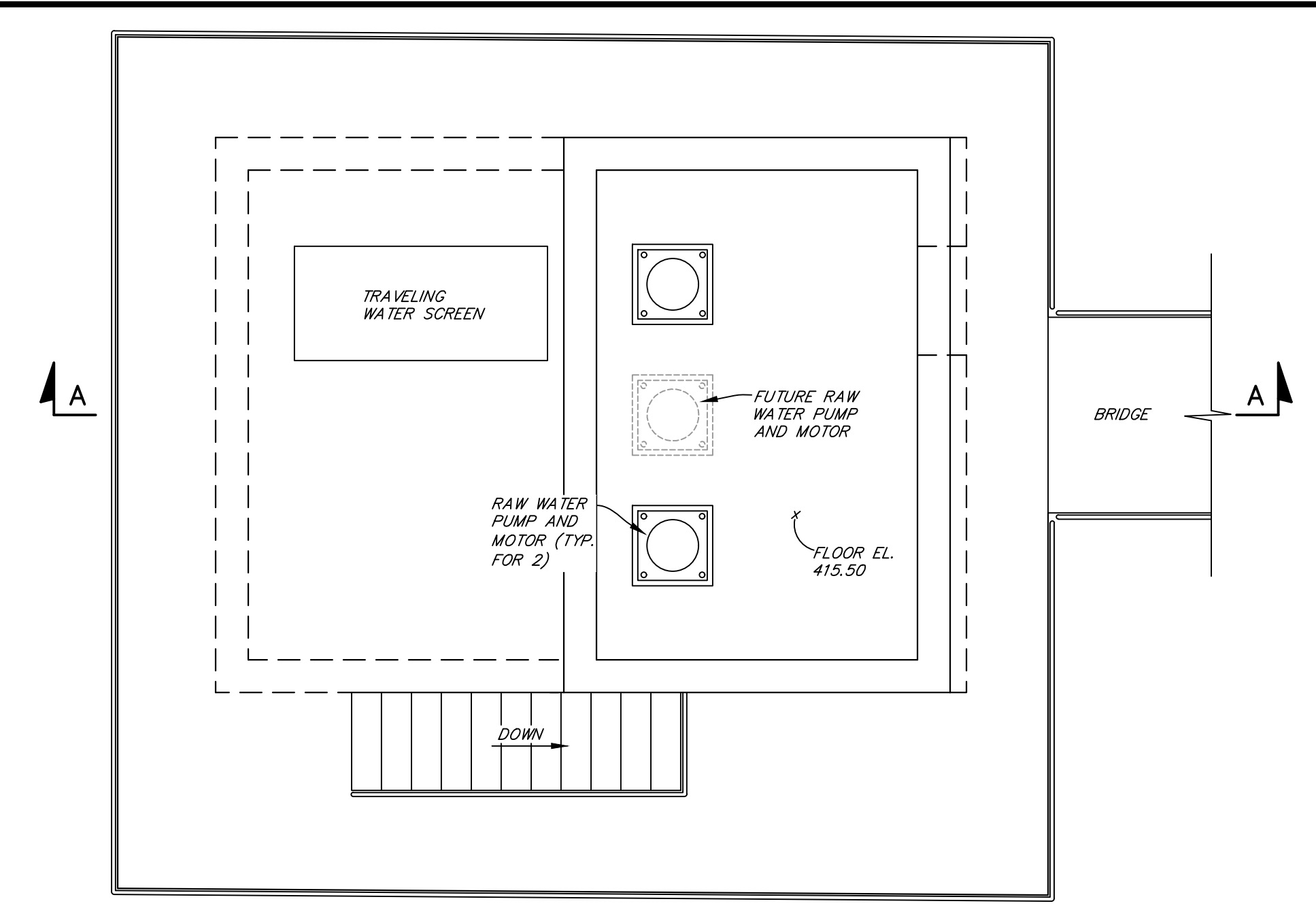
GENERAL NOTES:

1. THE 100 YEAR FLOOD ELEVATION FOR THIS SITE IS APPROXIMATELY 411.50' AS SHOWN ON FEMA MAP 21183C0435D REVISED JUNE 2, 2011.
2. NORMAL POOL ELEVATION = 379.90 ACCORDING TO NAVIGATION CHARTS - GREEN RIVER - LOUISVILLE DISTRICT U.S. ARMY CORPS OF ENGINEERS, REVISED JUNE 2011.
3. LOCATIONS OF EXISTING BURIED PIPE DEPICTED ON THIS SHEET IS FROM RECORD DRAWINGS OF PREVIOUS PROJECTS AND SHOULD BE FIELD VERIFIED BEFORE ADDITIONAL WORK.

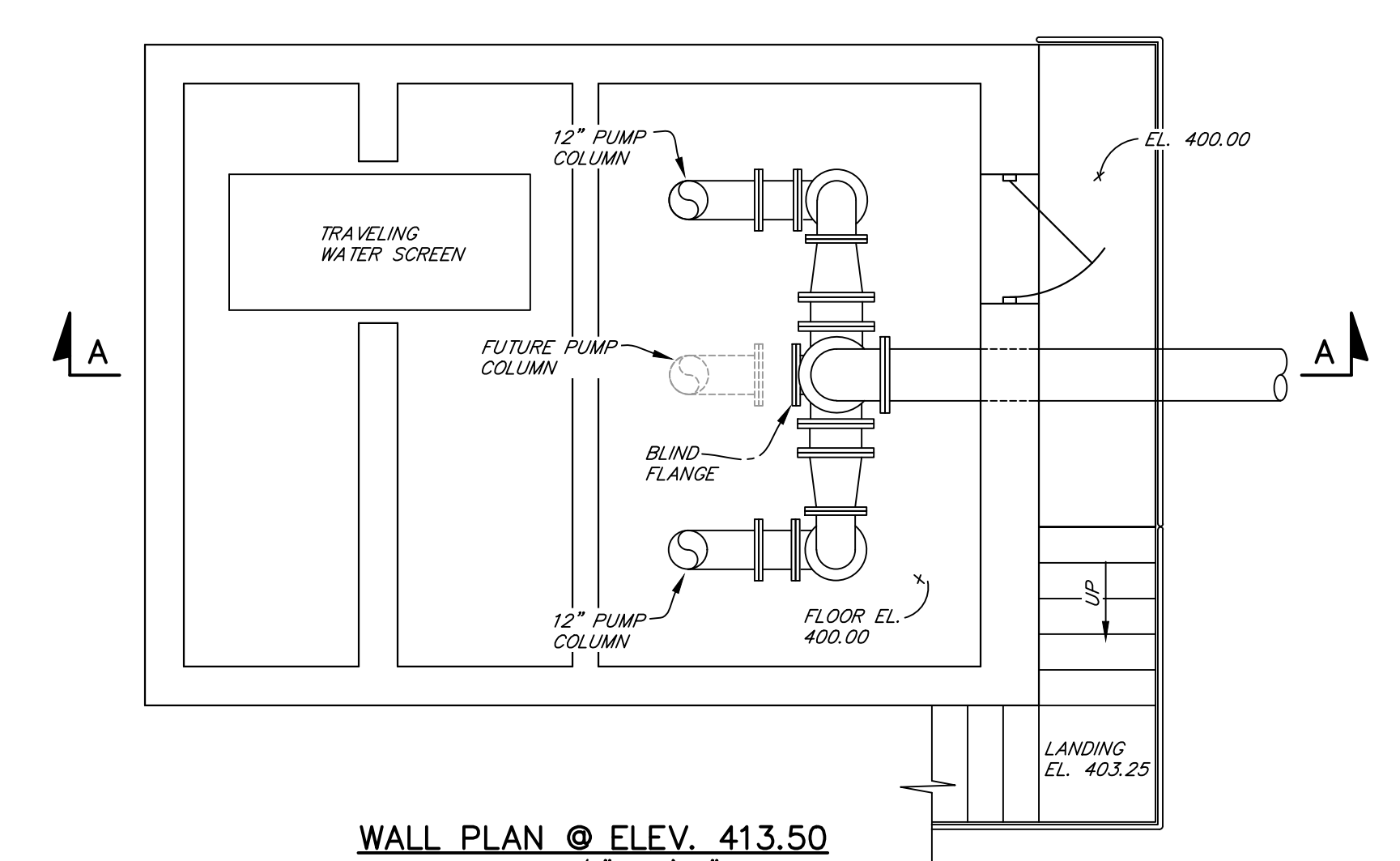
SHEET	OF	WATER SYSTEM IMPROVEMENTS
REVISION OR ISSUE		RAW WATER INTAKE IMPROVEMENTS
		EXHIBIT 1 - PRELIMINARY SITE PLAN
		FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY
SCALE	1" = 20'	WAUFORD J. R. Wauford & Company, Consulting Engineers, Inc. Nashville, Tennessee (615) 883-3343 www.jrwauford.com
DATE	APR. 2021	
PROJECT NUMBER	2125	DESIGNED DGT
		DRAWN JLJ
		CHECKED JGD



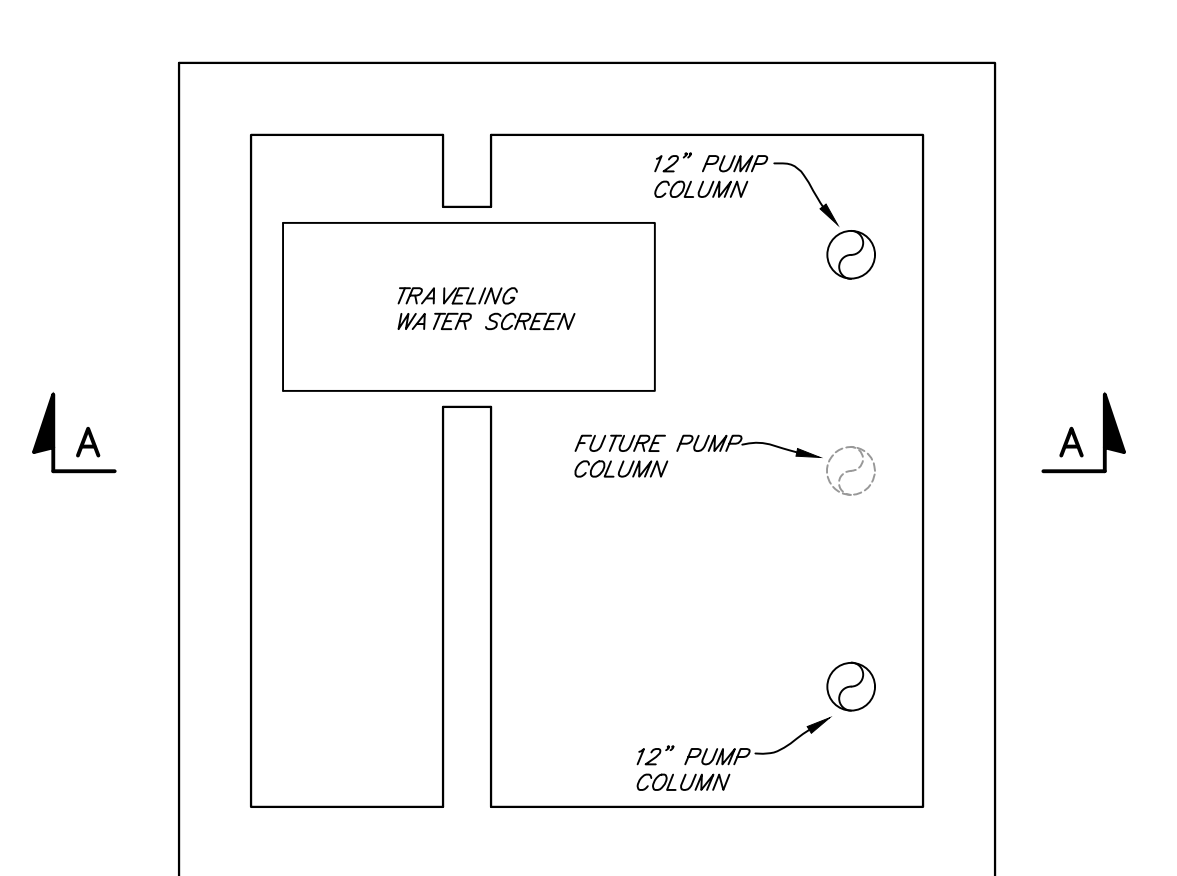
SECTION A
SCALE: 1/4" = 1'-0"



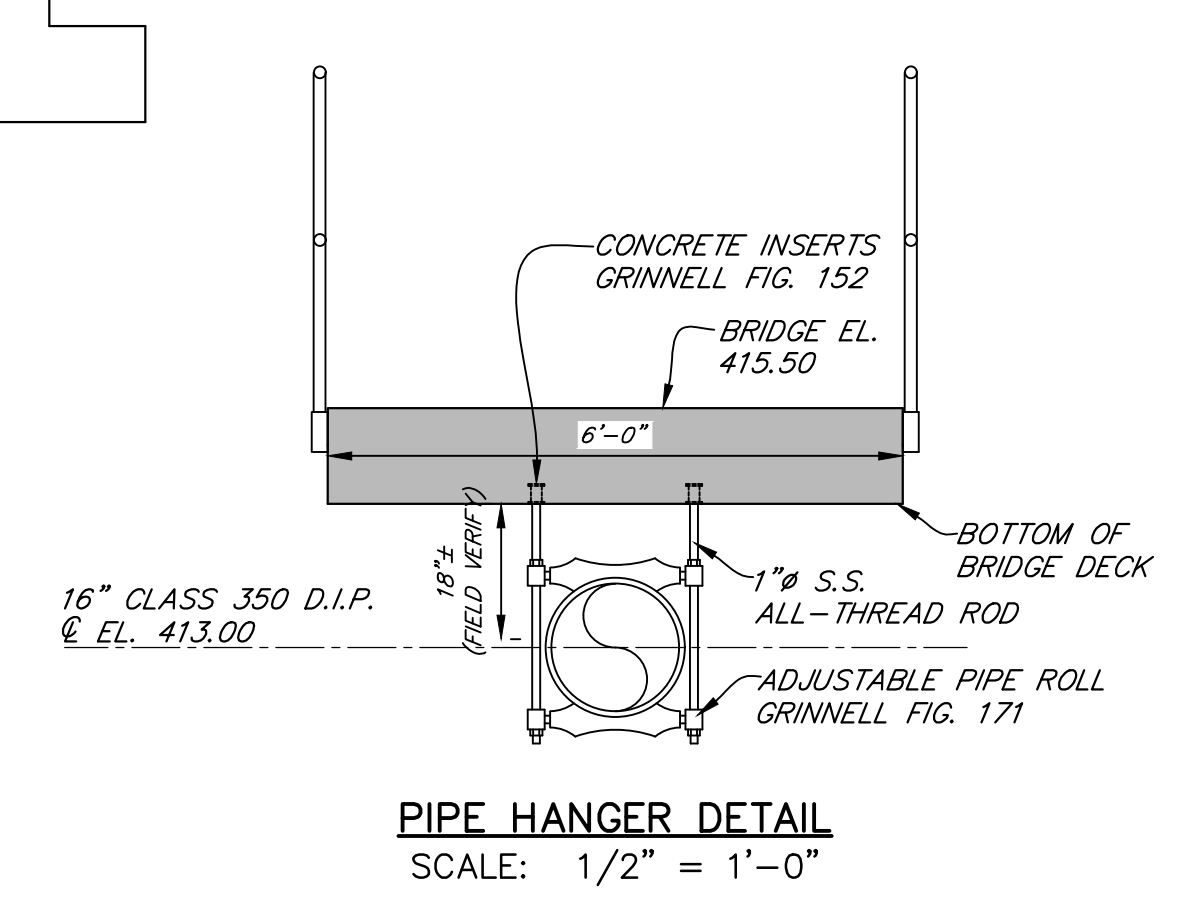
TOP VIEW
SCALE: 1/4" = 1'-0"



WALL PLAN @ ELEV. 413.50
SCALE: 1/4" = 1'-0"

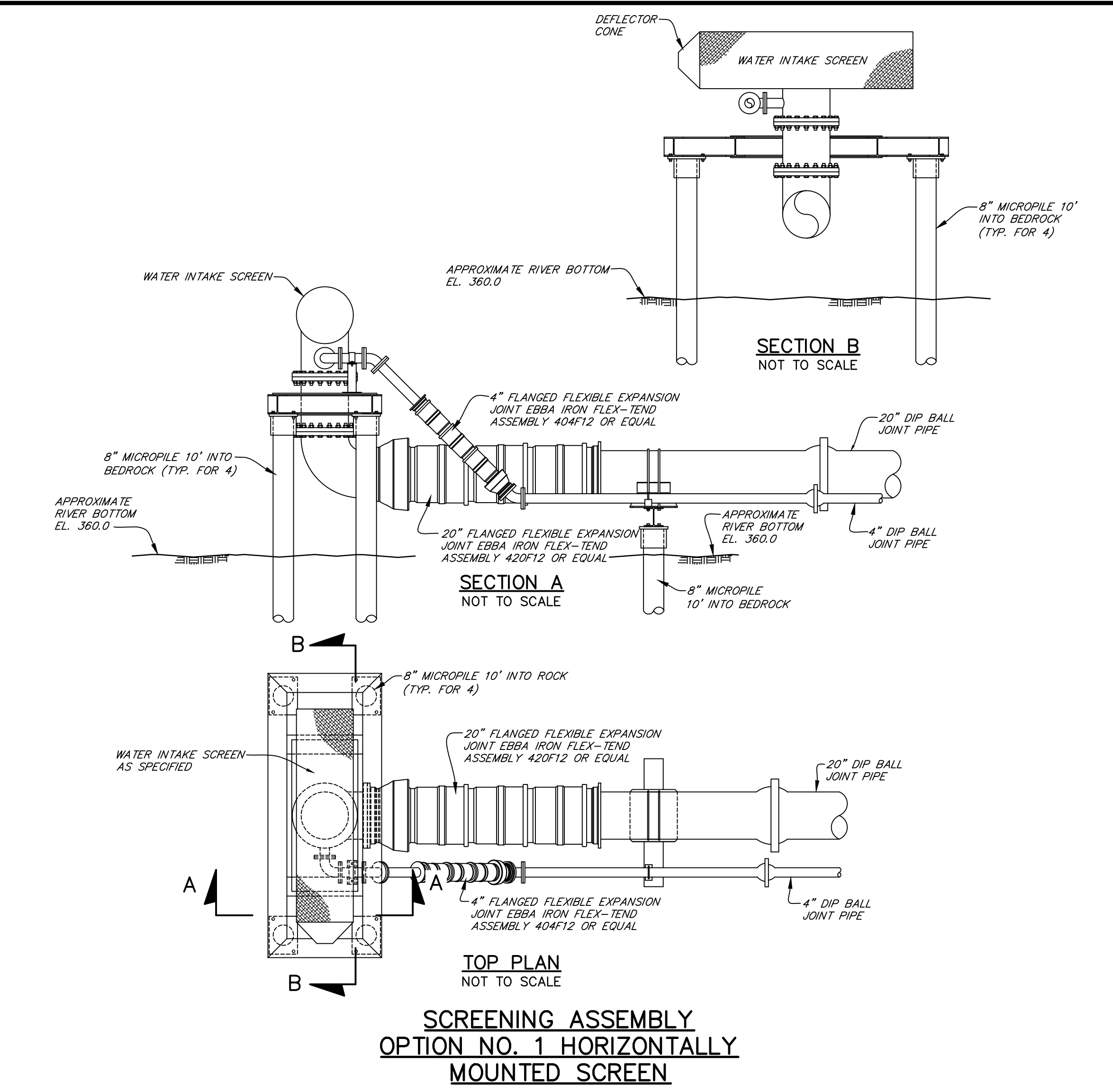


BOTTOM PLAN @ ELEV. 372.0
SCALE: 1/4" = 1'-0"

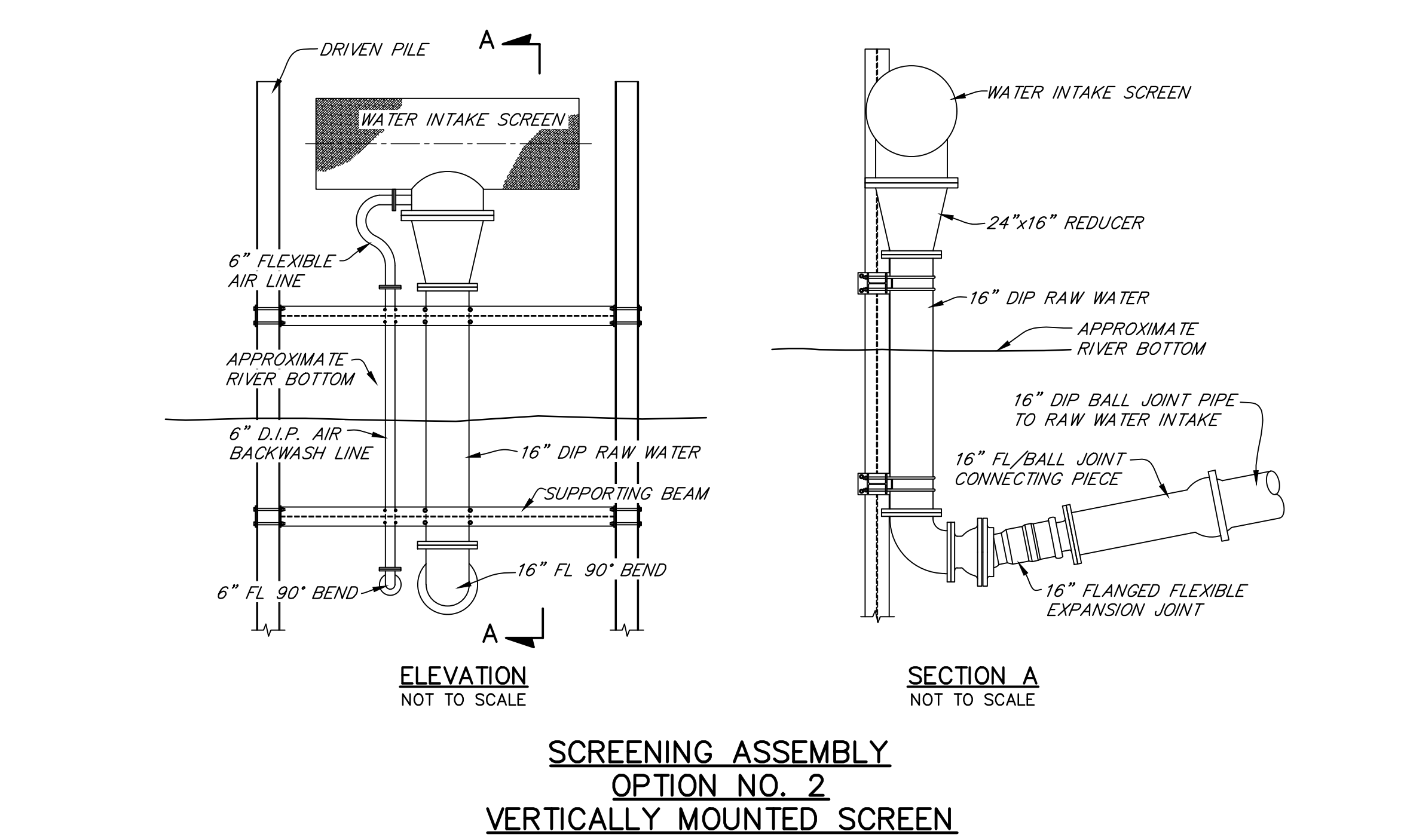


PIPE HANGER DETAIL
SCALE: 1/2" = 1'-0"

ALTERNATIVE NO. 1 PLANS, SECTIONS, AND DETAILS



**SCREENING ASSEMBLY
OPTION NO. 1 HORIZONTALLY
MOUNTED SCREEN**



**SCREENING ASSEMBLY
OPTION NO. 2
VERTICALLY MOUNTED SCREEN**

SHEET	OF	WATER SYSTEM IMPROVEMENTS
REVISION OR ISSUE		RAW WATER INTAKE IMPROVEMENTS
		EXHIBIT 2 - PRELIMINARY PLANS, SECTIONS, AND DETAILS
		FOR
		OHIO COUNTY WATER DISTRICT
		OHIO COUNTY, KENTUCKY
SCALE		DESIGNED
AS SHOWN		DGT
PROJECT NUMBER		DRAWN
2125		JLJ
DATE		CHECKED
APR. 2021		JGD
		WAUFORD
		J. R. Wauford & Company, Consulting Engineers, Inc.
		Nashville, Tennessee
		(615) 883-3343
		www.jrwauford.com



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, LOUISVILLE
CORPS OF ENGINEERS
REGULATORY, SOUTH BRANCH
6855 SR 66
NEWBURGH, IN 47630

June 22, 2022

Regulatory Division
South Branch
ID No. LRL-2021-385-jws

Eric Hickman
Ohio County Water District
124 E. Washington St
Hartford, KY 42347

Dear Mr. Hickman:

This is in response to your request for authorization to install two new water intake structures upstream and adjacent to the existing but failing raw water intake systems in Cromwell, Ohio County, KY- Green River Mile 130.5, right descending bank in the immediate vicinity of Latitude: 37.333977° N, Longitude: -86.793437 ° W. The purpose of the proposed project is to replace the deteriorating raw water intake pipeline with two 20-inch Ball Joint and Restrained Joint Ductile Iron Pipes, associated screen assemblies, two 4-inch Ball Joint and Restrained Joint Ductile Iron Pipes for air backwash, and a valve pit/wet-well. The screen assemblies are proposed to be installed with a Centerline elevation of 368.5 feet MSL. The approximate centerline elevation for the proposed raw water intake pipelines is 362.84 feet MSL. The river bottom elevation is approximately 360.0 feet MSL. The raw water intakes will be approximately 225 linear feet and 237 linear feet to the proposed valve pit/wet-well (upland from the river). The intake structures/pipelines will extend approximately 86 LF from the Ordinary High-Water Mark of the Green River. The valve pit/wet-well bottom (located in uplands) is proposed to have an invert elevation of 367.0 feet MSL. The raw water intake pipelines are proposed to have invert elevations of 368.0 feet MSL ending at the valve pit/wet-well. The air backwash piping will be installed 3 feet underground outside the floodplain to the existing Chemical/Electrical building. Clay check dams or concrete backfill will be installed along the pipeline with micropiles installed into the bedrock in the river. Crushed stone will be installed over the pipe with rip rap along the bank for bank stabilization. Native backfill will be utilized in all dry areas and compacted to prevent erosion. No impact to the surface water is expected due to sediment removal by a silt boom and silt fence as containment during construction. The contractor shall install a silt boom and remove sediment on a regular basis. Silt fencing will be used to trap the sediment removed from the silt boom. Silt fence shall also be placed along the contours of the bank during construction. In some instances, two rows of silt fence shall be placed along the contours of the bank. The impacts to be authorized under NWP 58 are 0.02 acres of open trench excavation which will be backfilled with approximately 108.55 cubic yards of crushed stone around the pipes as well as native fill. The bank will be topped with riprap for bank stabilization. Impacts being authorized under NWP 13 are 72 LF of bank stabilization along The Green River with approximately 110 cubic yards of riprap. A waiver is being requested to allow 1.53 cubic yards per running foot of riprap along the bank.

Temporary Impacts are proposed to the ephemeral drainage within the project area. Approximately 0.02 acres of ephemeral stream will be excavated in order to connect the pipelines from the intake screens in The Green River to the proposed valve wet-well in an upland location within the project area. The contractor will use sheeting and shoring to install the pipelines in order to prevent the excavation from becoming too large and due to the close proximity of The Green River

The information supplied by you was reviewed to determine whether a Department of the Army (DA) permit will be required under the provisions of Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act.

Your project includes a discharge of dredged or fill material into waters of the United States associated with the construction, maintenance, repair, and removal of utility lines for water and other substances. The project is authorized under the provisions of 33 CFR 330 Nationwide Permit (NWP) No. 58, Utility Line Activities for Water and Other Substances, and NWP No. 13, Bank Stabilization, as published in the Federal Register January 13, 2021. Under the provisions of this authorization, you must comply with the enclosed Terms and General Conditions for NWP No. 58 and NWP No. 13, and the following Special Condition(s):

Special Condition 1: IMPERILED BAT CONSERVATION FUND & TREE CLEARING RESTRICTIONS. Tree clearing shall not occur during the occupied timeframe (April 1st through September 30th) to minimize adverse effects to the federally listed northern long-eared bat and the Indiana bat. To mitigate for the loss of 0.24 acres of potential suitable roost trees (riparian zone), the permittee shall follow the process outlined in the Kentucky Field Office's (KFO) 2016 Revised Conservation Strategy for Forest-Dwelling Bats (Conservation Strategy) and provide receipt of an appropriate contribution to the Imperiled Bat Conservation Fund (IBCF). The Permittee shall contact the KFO of the U.S. Fish and Wildlife Service (USFWS) by calling (502) 695-0468 to determine the appropriate mitigation in accordance with the Conservation Strategy. The Permittee shall provide the Corps with a receipt of payment prior to any tree removal. If additional forested areas not previously considered in the DA permit application are to be cleared, the Permittee shall notify the Corps and the USFWS in advance of any additional tree clearing to determine if re-initiation of Endangered Species Act consultation is required.

Special Condition 2: HISTORIC PROPERTIES (Unexpected Discoveries). If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

Special Condition 3: SECTION 401 WATER QUALITY CERTIFICATION. The Permittee shall comply with all conditions of the Section 401 General Water Quality Certification for NWP's 13 & 58, dated October 6, 2021, issued by Kentucky Division of Water, which are incorporated herein by reference.

This verification is valid until the NWP is modified, reissued, or revoked. NWP No. 13 & 58 will be modified, reissued, or revoked on March 14, 2026. It is incumbent upon Ohio County Water District to remain informed of changes to the NWPs. If Ohio County Water District commence or are under contract to commence this activity before the date that the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP. The enclosed Compliance Certification must be submitted to the District Engineer within 30 days of

completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later. Please note that we also perform periodic inspections to ensure compliance with our permit conditions and applicable Federal laws. A copy of this letter will be forwarded to your agent and to the KDOW.

If you have any questions, please contact us by writing to the Newburgh Regulatory Office at 6855 State Road 66, Newburgh, IN 47630-9794, ATTN: CELRL-RDS, or contact me directly at 812-965-6439 or jason.w.saxton@usace.army.mil. Any correspondence on this matter should refer to our ID Number LRL-2021-385-jws.

Sincerely,



Jason W. Saxton
Project Manager
South Branch

Compliance Certification:

Permit Number: LRL-2021-385-jws

Name of Permittee: Eric Hickman, Ohio County Water District

Date of Issuance: 22 June 2022

Upon completion of the activity authorized by this permit and any mitigation required by this permit, sign this certification and return it to the following address:

U.S. Army Corps of Engineers
CELRL-RDS
P.O. Box 59
Louisville, Kentucky 40201

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit has been completed in accordance with the terms and conditions of the said permit, and required mitigation was completed in accordance with the permit conditions.

Signature of Permittee

Date



2021 Nationwide Permit Summary

US Army Corps
of Engineers
Louisville District ®

Issued: February 25, 2022
Expires: March 14, 2026

No. 13. Bank Stabilization (NWP Final Rule, 86 FR 73522)

Bank stabilization activities necessary for erosion control or prevention, such as vegetative stabilization, bioengineering, sills, rip rap, revetment, gabion baskets, stream barbs, and bulkheads, or combinations of bank stabilization techniques, provided the activity meets all of the following criteria:

(a) No material is placed in excess of the minimum needed for erosion protection;

(b) The activity is no more than 500 feet in length along the bank, unless the district engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects (an exception is for bulkheads—the district engineer cannot issue a waiver for a bulkhead that is greater than 1,000 feet in length along the bank);

(c) The activity will not exceed an average of one cubic yard per running foot, as measured along the length of the treated bank, below the plane of the ordinary high water mark or the high tide line, unless the district engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects;

(d) The activity does not involve discharges of dredged or fill material into special aquatic sites, unless the district engineer waives this criterion by making a written determination concluding that the discharge of dredged or fill material will result in no more than minimal adverse environmental effects;

(e) No material is of a type, or is

placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the United States;

(f) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored native trees and treetops may be used in low energy areas);

(g) Native plants appropriate for current site conditions, including salinity, must be used for bioengineering or vegetative bank stabilization;

(h) The activity is not a stream channelization activity; and

(i) The activity must be properly maintained, which may require repairing it after severe storms or erosion events. This NWP authorizes those maintenance and repair activities if they require authorization.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the bank stabilization activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the

district engineer prior to commencing the activity if the bank stabilization activity: (1) Involves discharges of dredged or fill material into special aquatic sites; or (2) is in excess of 500 feet in length; or (3) will involve the discharge of dredged or fill material of greater than an average of one cubic yard per running foot as measured along the length of the treated bank, below the plane of the ordinary high water mark or the high tide line. (See general condition 32.) (Authorities: Sections 10 and 404)

Note: In coastal waters and the Great Lakes, living shorelines may be an appropriate option for bank stabilization, and may be authorized by NWP 54.

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that

serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable

FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild

and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as

well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-

Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition.

The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the

National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field

survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant

adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-

by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the

waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWP, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage

limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge

must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be

attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee

secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a "USACE project"), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not

commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the

proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the "study river" (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) Form of Pre-Construction Notification: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or

economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP

activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines

that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific

modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

F. Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation),

establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be

open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a

former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or

shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds

and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished

aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a “water of the United States.” If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).



2021 Nationwide Permit Summary

US Army Corps
of Engineers
Louisville District ®

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No. 58. Utility Line Activities for Water and Other Substances

(NWP Final Rule, 86 FR 2744)

Activities required for the construction, maintenance, repair, and removal of utility lines for water and other substances, excluding oil, natural gas, products derived from oil or natural gas, and electricity. Oil or natural gas pipeline activities or electric utility line and telecommunications activities may be authorized by NWPs 12 or 57, respectively. This NWP also authorizes associated utility line facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes discharges of dredged or fill material into waters of the United States and structures or work in navigable waters for crossings of those waters associated with the construction, maintenance, or repair of utility lines for water and other substances, including outfall and intake structures. There must be no change in pre-construction contours of waters of the United States. A “utility line” is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose that is not oil, natural gas, or petrochemicals. Examples of activities authorized by this NWP include utility lines that convey water, sewage, stormwater, wastewater, brine, irrigation water, and industrial products that are not petrochemicals. The term “utility line” does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed

in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for above-ground utility lines: This NWP authorizes the construction or maintenance of foundations for above-ground utility lines in all waters of the United States, provided the foundations are the minimum size necessary.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal

waters of the United States. This NWP does not authorize discharges of dredged or fill material into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (see 33 CFR part 322). Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP authorizes, to the extent that Department of the Army authorization is required, temporary structures, fills, and work necessary for the remediation of inadvertent returns of drilling fluids to waters of the United States through sub-soil fissures or fractures that might occur during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines. These remediation activities must be done as soon as practicable, to restore the affected waterbody. District engineers may add special conditions to this NWP to require a remediation plan for addressing inadvertent returns of drilling fluids to waters of the United States during horizontal directional drilling activities conducted for the purpose of installing or replacing utility lines.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After construction, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) a section 10 permit is required; or (2) the discharge will result in the loss of greater than 1/10-acre of waters of the United States. (See general condition 32.) (Authorities: Sections 10 and 404)

Note 1: Where the utility line is constructed, installed, or maintained in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, a copy of the NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: For utility line activities crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. Utility line activities must comply with 33 CFR 330.6(d).

Note 3: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of

the work, in accordance with the requirements for temporary fills.

Note 4: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to the General Bridge Act of 1946. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 5: This NWP authorizes utility line maintenance and repair activities that do not qualify for the Clean Water Act section 404(f) exemption for maintenance of currently serviceable fills or fill structures.

Note 6: For activities that require pre-construction notification, the PCN must include any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings that require Department of the Army authorization but do not require pre-construction notification (see paragraph (b)(4) of general condition 32). The district engineer will evaluate the PCN in accordance with Section D, "District Engineer's Decision." The district engineer may require mitigation to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see general condition 23).

Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification

and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. **Navigation.** (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed

and constructed to minimize adverse effects to aquatic life movements.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWP 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be

constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. Removal of Temporary Structures and Fills. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used

more than once for the same single and complete project.

16. Wild and Scenic Rivers. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: <http://www.rivers.gov/>.

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed

for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless ESA section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of “effects of the action” for the purposes of ESA section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA section 7 regarding “activities that are reasonably certain to occur” and “consequences caused by the proposed action.”

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include

the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it

actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.nmfs.noaa.gov/pr/species/esa/> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are

necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. Historic Properties. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal

representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non-Federal applicant has not heard back from

the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine

monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWP 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWP 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas

may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be

sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety

criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA section 401, a CWA section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of

a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due

to the NWP 39 and 46 activities cannot exceed 1 acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. Activities Affecting Structures or Works Built by the United States. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a “USACE project”), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the section 408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. Pre-Construction Notification. (a) *Timing.* Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the

information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification:* The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not

change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize

the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification:* The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination:* (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided

below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

2021 District Engineer’s Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they

individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of

waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the

NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

2021 Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

2021 Nationwide Permit Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource

function(s). Enhancement does not result in a gain in aquatic resource area.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other

phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding excavation, or drainage because of the regulated activity. The loss of stream bed includes the acres of stream bed that are permanently adversely affected by filling or excavation because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters or wetlands for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States.

Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWP, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: The term ordinary high water mark means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has surface water flowing continuously year-round during a typical year.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources

through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of

ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the

purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities:

Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized jurisdictional stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line.

Tribal lands: Any lands title to which is either: 1) held in trust by the United States for the benefit of any Indian tribe or individual; or 2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a "water of the United States." If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)).



ANDY BESHEAR
GOVERNOR

REBECCA W. GOODMAN
SECRETARY

**ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

General Certification--Nationwide Permit (NWP) 2021

NWP 12 – Oil or Natural Gas Pipeline Activities
NWP 57 – Electrical Utility Line and Telecommunications Activities
NWP 58 – Utility Line Activities for Water and Other Substances

This General Certification is issued **December 18, 2020** in conformity with the requirements of Section 401 of the Clean Water Act of 1977, as amended (33 U.S.C. §1341), as well as Kentucky Statute KRS 224.16-050.

For this General Certification and all General Certifications of Nationwide Permits (NWP), the term 'surface water' is defined pursuant to 401 KAR Chapter 10, Section 1(72): Surface Waters means those waters having well-defined banks and beds, either constantly or intermittently flowing; lakes and impounded waters; marshes and wetlands; and any subterranean waters flowing in well-defined channels and having a demonstrable hydrologic connection with the surface. Lagoons used for waste treatment and effluent ditches that are situated on property owned, leased, or under valid easement by a permitted discharger are not considered to be surface waters of the Commonwealth.

As required by 40 CFR Part 121 – State Certification of Activities Requiring a Federal License or Permit, all conditions include a statement explaining why the condition is necessary to assure that any discharge authorized under the general permit will comply with water quality requirements and a citation to federal, state, or tribal law that authorizes the condition. The statements and citations are included with each condition. The statements are written entirely at the end of the certification under the section *Statements of Necessity*.

Agricultural operations, as defined by KRS 224.71-100(1) conducting activities pursuant to KRS 224.71-100 (3), (4), (5), (6), or 10 are deemed to have certification if they are implementing an Agriculture Water Quality Plan pursuant to KRS 224.71-145.

The Commonwealth of Kentucky hereby certifies under Section 401 of the Clean Water Act (CWA) that it has reasonable assurances that applicable water quality standards under Kentucky Administrative Regulations Title 401, Chapter 10, established pursuant to Sections 301, 302, 303, 306 and 307 of the CWA, will not be violated for the activities covered by the above listed Nationwide Permits, provided that the conditions in

General Certification--Nationwide Permit 12, 57, and 58

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this General Certification are met. Activities that do not meet the conditions of this General Certification require an Individual Section 401 Water Quality Certification.

1. Activities occurring within surface waters assessed by the Kentucky Division of Water as designated Outstanding State Resource Waters, National Resource Waters, Cold Water Aquatic Habitat, Exceptional Waters, or identified as candidate Outstanding State Resource Waters or candidate Exceptional Waters are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(1), Section 1(2), & Section 1(3); and 401 KAR 10:031, Section 4(2) & Section 8]
2. Activities impacting surface waters assessed by the Kentucky Division of Water as impaired for warm water or cold water aquatic habitat where the parameter or source is related to habitat* are not authorized under this General Certification and require an Individual Certification. [Statement B and citations KRS 224.70-110 and 401 KAR 10:031, Section 2 & Section 4]

*These include waters impaired by the parameter 'habitat assessment', 'combined biota/habitat bioassessment' or any parameter from the parameter group 'habitat alterations, and/or waters where the parameter identified as a cause of impairment has a source from the source group 'habitat impacts'.

3. Activities impacting surface waters assessed by the Kentucky Division of Water as full support for warm water or cold water aquatic habitat are not authorized under this General Certification and require an Individual Certification. [Statements A and B and citations KRS 224.70-110 and 401 KAR 10:031, Section 2 & Section 4]
4. The activity will not occur within surface waters identified as perpetually-protected mitigation sites (e.g., deed restriction or conservation easement). [Statement C and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3); and 40 C.F.R. 230.97]
5. Activities with cumulative temporary and permanent impacts greater than 1/2 acre of wetland or 300 linear feet of surface waters are not authorized under this General Certification and require an Individual Certification. This General Certification shall not apply to projects where multiple Nationwide Permits are issued for individual crossings which are part of a single, larger utility projects. Cumulative impacts include utility line crossings, permanent or temporary access roads, headwalls, associated bank stabilization areas, substations, pole or tower foundations, maintenance corridor, and staging areas. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
6. For a single crossing, impacts from the construction and maintenance corridor in surface waters shall not exceed 50 feet of bank disturbance. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

General Certification--Nationwide Permit 12, 57, and 58

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7. Stream impacts under Conditions 5 and 6 of this certification are defined as the length of bank disturbed. For utility line crossings and roads, only one bank length is used in calculation of the totals. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
8. This General Certification is limited to the crossing of surface waters by utility lines. This certification does not authorize the installation of utility lines in a linear manner within the stream channel or below the top of the stream bank. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
9. Stream relocation, realignment, straightening, and/or widening are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
10. Any crossings must be constructed in a manner that does not impede natural water flow. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
11. Blasting of stream channels, even under dry conditions, is not allowed under this General Certification and require and Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
12. Utility lines trenched parallel to the stream shall be located at least 50 feet from an intermittent or perennial stream, measured from the top of the stream bank. Construction within the 50 foot buffer may be authorized if avoidance and minimization efforts are shown and adequate methods are utilized to prevent soil from entering the stream. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
13. Utility line stream crossings shall be constructed by methods that maintain flow and allow for dry excavation. Water pumped from the excavation shall be contained and allowed to settle prior to re-entering the stream. Excavation equipment and vehicles shall operate outside of the flowing portion of the stream. Spoil material from the excavation shall not be allowed to enter the flowing portion of the stream. [Statement A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
14. The activities shall not result in any permanent changes in pre-construction elevation contours in surface waters or stream dimension, pattern or profile. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
15. Utility line activities which impact wetlands shall not result in conversion of the area to non-wetland status. [Statement A and citations KRS 224.70-110, 401 KAR

General Certification--Nationwide Permit 12, 57, and 58

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10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

16. Clearing of forested wetlands for the installation or maintenance of utility lines is not authorized under this certification. [Statement A and citations 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
17. Surface water impacts covered under this General Certification and undertaken by those persons defined as an agricultural operation under the Agricultural Water Quality Act must be completed in compliance with the Kentucky Agricultural Water Quality Plan (KAWQP). [Statements A and F and citations KRS 224.71-145(1), 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
18. The use of creek rock for bank stabilization; grouted rip-rap; unformed, poured grout; unformed, poured concrete; poured asphalt; or asphalt pieces is not authorized under this General Certification and requires an Individual Certification. Poured concrete or grout will be authorized under this General Certification when contained by tightly sealed forms or cells. Equipment shall not discharge waste washwater into surface waters at any time without adequate wastewater treatments. [Statement A and citations 401 KAR 10:030, Section 1(3)(b) & 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
19. New stormwater detention/ retention basins constructed in surface waters or modifications to stormwater detention/ retention basins resulting in the reduction in reach or that cause impairment of flow of surface waters are not authorized under this General Certification and require an Individual Certification. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
20. Erosion and sedimentation pollution control plans and Best Management Practices (BMPs) must be designed, installed, and maintained in effective operating condition at all times during construction activities so that violations of state water quality standards do not occur. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
21. Sediment and erosion control measures, such as check-dams constructed of any material, silt fencing, hay bales, etc., shall not be placed within surface waters, either temporarily or permanently, without prior approval by the Kentucky Division of Water's Water Quality Certification Section. If placement of sediment and erosion control measures in surface waters is unavoidable, design and placement of temporary erosion control measures shall not be conducted in such a manner that may result in instability of streams that are adjacent to, upstream, or downstream of the structures. All sediment and erosion control devices shall be removed and the natural grade restored within the completion timeline of the activities. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

General Certification--Nationwide Permit 12, 57, and 58

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22. Measures shall be taken to prevent or control spills of fuels, lubricants, or other toxic materials used in construction from entering surface waters. [Statements A and D and citations. [KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
23. Removal of riparian vegetation shall be limited to that necessary for equipment access. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
24. To the maximum extent practicable, all in-stream work under this certification shall be performed under low-flow conditions [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
25. Heavy equipment (e.g. bulldozers, backhoes, and draglines), if required for this project, should not be used or operated within the stream channel. In those instances in which such in-stream work is unavoidable, then it shall be performed in such a manner and duration as to minimize turbidity and disturbance to substrates and bank or riparian vegetation. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
26. Any fill shall be of such composition that it will not adversely affect the biological, chemical, or physical properties of the receiving waters and/or cause violations of water quality standards. If rip-rap is utilized, it should be of such weight and size that bank stress or slump conditions will not be created because of its placement. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
27. If domestic water supply intakes are located downstream that may be affected by increased turbidity and suspended solids, the permittee shall notify the operator when such work will be done prior to construction. [Statement E and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
28. Should evidence of stream pollution or jurisdictional wetland impairment and/or violations of water quality standards occur as a result of this activity (either from a spill or other forms of water pollution), the Kentucky Division of Water shall be notified immediately by calling (800) 928-2380. [Statement A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]
29. The Kentucky Division of Water requires submission of a formal application for any federal applicant that is not required to submit a Preconstruction Notification that would typically be required of any non-federal applicant. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

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30. The Kentucky Division of Water may require submission of a formal application for an Individual Certification for any project that has been determined to likely have a significant adverse effect upon water quality or degrade surface waters so that existing uses of the water body or downstream waters are precluded. [Statement A and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

31. If the final issued General Permit for Nationwide Permit # 12, 57, or 58 changes significantly, the Division of Water may opt to deny certification for this permit. [Statements A and D and citations KRS 224.70-110, 401 KAR 10:030, Section 1(3)(b) & Section 1(4)(b); and 401 KAR 10:031, Section 2 & Section 4]

Statements of Necessity:

- A. This condition is necessary to protect waters categorized under the anti-degradation policy to protect the designated and existing uses and to maintain the associated water quality criteria necessary to protect these water resources.
- B. This condition is necessary to protect existing uses and the level of water quality necessary to protect those existing uses shall be assured in impaired water.
- C. This condition is necessary for long-term protection of compensatory mitigation sites.
- D. This condition is necessary to provide for the prevention, abatement, and control of all water pollution and to conserve water resources for legitimate uses, safeguard from pollution the uncontaminated waters, prevent the creation of any new pollution, and abate any existing pollution.
- E. This condition is necessary to protect domestic water supply use.
- F. This condition is necessary to evaluate, develop, and improve best-management practices in conservation plans, compliance plans, and forest stewardship management plans; establish statewide and regional agriculture water quality plans; and otherwise promote soil and water conservation activities that protect surface waters from the adverse impacts of agriculture operations within the Commonwealth.

Violation of Kentucky state water quality standards may result in civil penalties and remediation actions.

For assistance contact the Kentucky Division of Water, Water Quality Certification Section by email (401WQC@ky.gov) or by phone (502)-564-3410.

2021 KENTUCKY REGIONAL GENERAL CONDITIONS

These regional conditions are in addition to, but do not supersede, the requirements in the Federal Register (Volume 86, No. 8 on Date January 13, 2021, pp 2744).

Notifications for all Nationwide Permits (NWP) shall be in accordance with General Condition No. 32.

1. For activities that would result in a loss of Outstanding State or National Resource Waters (OSNRWs), Exceptional Waters (EWs), Coldwater Aquatic Habitat Waters (CAHs) and waters with Designated Critical Habitat (DCH) under the Endangered Species Act for the NWP listed below, a Pre-Construction Notification (PCN) will be required to the Corps. The Corps will coordinate with the appropriate resource agencies (see attached list) on these NWP for impacts to these waters.

NWP 12 (Oil or Natural Gas Pipeline Activities)

NWP 51 (Land-Based Renewable Energy Generation Facilities)

NWP 57 (Electric Utility Line and Telecommunications Activities)

NWP 58 (Utility Line Activities for Water and Other Substances)

2. All applications and requests should be submitted electronically. To submit applications or other requests electronically, all documents should be saved as a PDF document, and then submitted as an attachment in an email to the following email address:

CELRL.Door.To.The.Corps@usace.army.mil

Your email should include the following:

- a) Subject Line with the name of the applicant, type of request, and location (County and State). Example: RE: Doe, John, DA Permit Application, Jefferson County, KY
- b) Brief description of the request and contact information (phone number, mailing address, and email address) for the applicant and/or their agent.
- c) Project Location: Address and Latitude/Longitude in decimal degrees (e.g. 42.927883, -88.362576).

All forms that require signature must be digitally signed or signed manually, scanned and then sent electronically.

Electronic documents must have sufficient resolution to show project details. In order to have the highest quality documents, the original digital documents should be converted to PDF rather than providing scanned copies of original documents.

The electronic application and attached documents must not exceed 10 megabytes (10MB).

3. For all activities, the applicant shall review the U.S. Fish and Wildlife Service's IPaC website: <http://ecos.fws.gov/ipac> to determine if the activity might affect threatened and/or endangered species or designated critical habitat. If federally listed species or designated critical habitat are identified, a PCN in accordance with General Condition 18 and 32 would be triggered and the official species list generated from the IPaC website must be submitted with the PCN.

Further information:

Outstanding State or National Resource Water (OSNRWs), Exceptional Waters (EWs), and Coldwater Aquatic Habitat Waters (CAHs) are waters designated by the Commonwealth of Kentucky, Natural Resources and Environmental Protection Cabinet. The list can be found at the following link: <http://eppcapp.ky.gov/spwaters/>

Designated Critical Habitat (DCH) under the Endangered Species Act is determined within the Commonwealth of Kentucky by the U.S. Fish and Wildlife Service. The current list of Kentucky's Threatened, Endangered, and Federal Candidate Species can be found at the following link: <http://www.fws.gov/frankfort/EndangeredSpecies.html> Information on Pre-Construction Notification (PCN) can be found at NWP General Condition No. 32 in the Federal Register (Volume 86, No. 8 on Date January 13, 2021, pp 2873).

COORDINATING RESOURCE AGENCIES

Chief, Wetlands Regulatory Section
U.S. Environmental Protection Agency
Region IV
Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Supervisor
U.S. Fish & Wildlife Service
JC Watts Federal Building, Room 265
330 West Broadway
Frankfort, Kentucky 40601

Supervisor
401 Water Quality Certification
Kentucky Division of Water
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Commissioner
Department of Fish and Wildlife Resources
#1 Sportsman's Lane
Frankfort, KY 40601

Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
410 High Street
Frankfort, KY 40601

ANDY BESHEAR
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ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION

ANTHONY R. HATTON
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601

September 2, 2021

Eric Hickman
Ohio Co Water District
124 E Washington St
Hartford, KY 42347

RE: Raw Water Intake Improvements
Ohio County, KY
Ohio Co Water District
AI#: 3305, APE20210003
PWSID # 0920332-21-003

Dear Hickman:

We have received the Plans and Specifications for the above referenced project. The project consists of installation of two submerged intake screens with structures, 450 linear feet of 20 inch DI raw water supply line, one valve wet well, and connection of these items to the existing supply line. This project also adds the automated airburst system in the pump station and some miscellaneous improvements. This is to advise that plans and specifications covering the above referenced subject are APPROVED with respect to sanitary features of design as of this date with the following stipulations:

- Water contact materials shall meet ANSI/NSF Standard 61.
- When this project is completed, the owner shall submit a written certification to the Division of Water that the above referenced water supply facilities have been constructed and tested in accordance with the approved plans and specifications and the above stipulations. Such a certification shall be signed by a licensed professional engineer.
- This approval has been issued under the provisions of KRS Chapter 224 and regulations promulgated pursuant thereto. Issuance of this approval does not relieve the applicant from the responsibility of obtaining any other permits or licenses required by this Cabinet and other state, federal and local agencies.
- Unless construction on this project commences within two years from the date of this approval letter, Ohio Co Water District shall re-submit the original plans and specifications for a new comprehensive review.

Based on DOW records, this project is currently not funded by a State Revolving Fund (SRF) loan. Therefore, this approval is for the technical aspects of the project only. Currently, an environmental review

Raw Water Intake Improvements
Ohio Co Water District
PWSID # 0920332-21-003
September 2, 2021
Page 2 of 2

related to this project is not complete and the SRF Plans and Specifications checklist review is not complete. **Therefore, you are NOT authorized to advertise for bids at this time. Should you choose to proceed with the bidding and award a contract prior to DOW approval, this will be at your own risk and payment from the SRF program is not guaranteed.**

If you have any questions concerning this project, please contact Cassie Campbell at 502-782-6909.

Sincerely,



Terry Humphries, P.E.
Supervisor, Engineering Section
Water Infrastructure Branch
Division of Water

TH :CC

Enclosures

c: J R Wauford & Co Consulting Engineers
Ohio County Health Department
Division of Plumbing
Bowling Green Regional Office

Ohio County Times-News

P-O. Box 226 – Hartford, KY 42347
Phone: 270-298-7100 Fax: 270-298-9572

NEWSPAPER AFFIDAVIT

I, Luba Baxter, Manager of the Ohio County Times-News Newspaper published at Hartford and having the largest general circulation of any newspaper in Ohio County, Kentucky do hereby certify that the Legal Notice for Advertisement for Bids on Water System Improvements, Ohio County Water District, Ohio County, Kentucky, CDBG Project No 21-006 was inserted in the Times News on February 1, 2023, Page A-7.

Luba Baxter

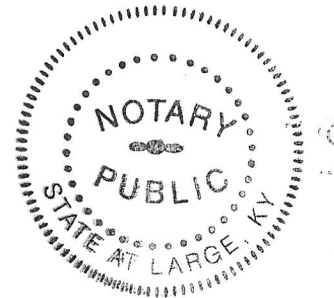
Luba Baxter, Manager

Subscribed And Sworn To Before Me By Luba Baxter this 20th day of February 2023.

My Commission expires May 19, 2025, #KYNP28218.

Deborah Martin Bradley

Deborah Martin Bradley



**ADVERTISEMENT FOR BIDS
WATER SYSTEM IMPROVEMENTS
OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY
CDBG PROJECT NO. 21-006**

Separate sealed BIDS for the construction of Water System Improvements for the Ohio County Water District will be received at 124 East Washington Street, Hartford, Kentucky 42437 until 2:00 p.m. Central Time, Thursday, February 16, 2023, and then will be publicly opened and read aloud. Bids being mailed should be sent to Eric Hickman, P.E., General Manager, Ohio County Water District, Administrative Offices, P.O. Box 207, Hartford, Kentucky 42347, and the bidder shall be responsible for timely delivery.

The work involved is in one (1) contract and consists of the following generally described work:

**CONTRACT 21-01
RAW WATER INTAKE IMPROVEMENTS**

- Two New 20-inch Intake Screening Assemblies
- Two New 20-inch Ball Joint / Restrained Joint DIP Intake Pipes
- New 10'-0" Ø Precast Valve Pit
- Screening Assembly Air Backwash System
- Site Work and Excavation as required

The allotted time for construction of Contract 21-01 is 365 calendar days; liquidated damages for non-completion are \$1,000 per calendar day.

General contractors shall meet the following pre-qualification requirements to be eligible to bid on this Contract:

1. A pre-bid conference will be held for bidders at the Ohio County Water District at 124 East Washington Street, Hartford, Kentucky 42437, at 10:00 a.m. Central Time, Tuesday, February 7, 2023 and must be attended by representatives of each prospective bidder.

2. The prospective bidder shall provide evidence of general ability to perform similar work by submitting the project name, scope of work, and a contact person for three previous projects of this general nature constructed within the past five years.

3. The prospective bidder shall provide evidence of ability to complete similar work in a timely manner by submitting the allowed and actual time of completion on all similar projects performed over the last five years.

The CONTRACT DOCUMENTS may be examined at the following locations:

Ohio County Water District, 124 East Washington Street, Hartford, KY 42437

Kentucky PTAC, One Quality St., Suite 635, Lexington, KY 40507

Office of Civil Rights & Small Business Development, Department of Transportation, 200 Mero Street, Frankfort, KY 40622

J. R. Wauford & Company, Consulting Engineers, Inc., 2835 Lebanon Pike, Nashville, TN 37214

Complete digital project bidding documents are available at www.questcdn.com and/or www.jrwauford.com. Bidders may download the digital plan documents for \$50.00 by inputting Quest project # 8371529 on the QuestCDN project search page. Please contact QuestCDN at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with the digital project informa-

Legal Notices

Legal Notices

Legal Notices

NOTICE

**Ohio County, KY Fiscal Court
Requesting Bids for Rough River Clean Up Sites
Site: 4 and Site: 6**

Bids will be accepted until Friday, February 24, 2023 at 3:00pm Bids will be opened and reviewed at the regular meeting of the Ohio County Fiscal Court held in the Ohio County Community Center, Hartford, KY at 5:00pm Tuesday, February 28, 2023. All bids shall be delivered to the office of the County Judge Executive during regular business hours Mon-Fri 8:00am-4:00pm.

A copy of bid specification may be obtained from the office of Emergency Management, Monday through Friday, 8:00am to 4:00pm, located at 130 E. Washington St. Suite 200, Hartford, KY 42347, 270-298-4412.

The Ohio County Fiscal Court reserves the right to reject any or all Bids.

**DAVID JOHNSTON, JUDGE EXECUTIVE
OHIO COUNTY FISCAL COURT**

BID NOTICE

SECTION 00020- ADVERTISEMENT FOR BIDS

Separate sealed bids for the Contract 5: Water Main and Sanitary Sewer Main Extension, will be received by Judge-Executive David Johnston for the Ohio County Fiscal Court at 130 East Washington St., Ste. 201, Hartford, KY 42347 and at the Hub, by Jason Chinn (270-256-1668), Director for the Ohio County Economic Development Authority (OCEDA) at 300 Peach Alley, Hartford, KY 42347 until 1:30 p.m. (Central time), February 20, 2023. Sealed bids will be publicly opened and read aloud at the Hub, 300 Peach Alley, Hartford, KY 42347 at 2:00p.m. (Central time), February 20, 2023.

The work consists of installation of approximately 3950 feet of 12" PVC Water Mains and related appurtenances and 2215 feet of gravity sewer main installation and 6 manholes for water and sewer service in the Bluegrass Crossings Business Centre (regional industrial park).

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications, and Forms of Bid Bond, Performance and Payment Bond, and other contract documents may be examined at the following locations:

MSE Web Site: mselex.com under Bid Opportunities.

Ohio County Judge Executive's Office, 130 E. Washington St., Ste. 209, Hartford, KY 42347 (270-298-4400)

MSE of Kentucky, Inc., 624 Wellington Way, Lexington, KY (859-223-5694) Builders Exchange of Kentucky, 2300 Meadow Dr., Louisville, KY (502-459-9800)

Copies of the Contract Documents may be obtained at the office of Lynn Imaging, 328 E. Vine St., Lexington, KY 40507, (859) 226-5850 upon receipt of a check made payable to Lynn Imaging in the amount of \$150.00 (non-refundable). All orders must be prepaid. There will be a 24-hour turn-around on all orders.

A certified check or bank draft, payable to Ohio County Fiscal Court, government bonds, or a satisfactory bid bond executed by the bidder and acceptable sureties in an amount equal to five percent of the bid shall be submitted with bid. The successful bidder will be required to furnish and pay for the following: 1) 5% Bid Bond; and 2) A performance and payment bond for 100% of the contract price.

Attention of bidders is particularly called to the requirements as to conditions of employment to be observed and minimum wage rates to be paid under the contract, Section 3, Segregated Facility, Section 109 and E.O. 11246 and Title VI and other requirements. Minority bidders are encouraged to bid.

The Owner may consider informal any bid not prepared and submitted in accordance with the provisions of this advertisement and/or the specifications and may waive any informalities or reject any and all Bids. Any proposal received after the time and date specified shall not be considered and will be returned unopened to the proposer. The owner reserves the right to waive any informalities or to reject any or all bids.

Sealed bid should be labeled "Bid for Contract 5 - Water Main and Sanitary Sewer Main Extension"

BIDS OPENED: 2:00 P.M. CENTRAL TIME
 WEDNESDAY, FEBRUARY 22, 2023
 OHIO COUNTY WATER DISTRICT
 124 EAST WASHINGTON STREET
 HARTFORD, KY 42437

TABULATION OF BIDS
 WATER SYSTEM IMPROVEMENTS
 FOR
 OHIO COUNTY WATER DISTRICT
 OHIO COUNTY, KENTUCKY
 WAUFORD PROJECT 2125 (CONTRACT 21-01 - RAW WATER INTAKE IMPROVEMENTS)

J. R. WAUFORD & CO.
 CONSULTING ENGINEERS, INC.
 NASHVILLE, TENNESSEE

			GARNEY COMPANIES, INC. 200 CRUTCHFIELD AVENUE NASHVILLE, TN 37210		HAREN CONSTRUCTION COMPANY, INC. 1715 HIGHWAY 411 NORTH ETOWAH, TN 37331		MORGAN CONTRACTING, INC. 900 DUTCH VALLEY DRIVE KNOXVILLE, TN 37918	
ITEM NO.	QUANTITY	ITEM DESCRIPTION	UNIT	TOTAL	UNIT	TOTAL	UNIT	TOTAL
NOTE: BIDS SHALL INCLUDE SALES TAX AND ALL OTHER APPLICABLE TAXES AND FEES			THE CONTINENTAL INSURANCE COMPANY		TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA		TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA	
CONTRACT 21-01 - RAW WATER INTAKE IMPROVEMENTS								
1.	LUMP SUM	SCREENING ASSEMBLIES INCLUDING EXCAVATION MICROPILES, SUPPORT FRAME, RAW WATER SCREEN, MOBILIZATION AND DE-MOBILIZATION AND ALL INCIDENTALS AS SHOWN ON THE PLANS, COMPLETE IN PLACE		\$1,635,000.00		\$1,000,000.00		\$2,550,000.00
2.	LUMP SUM	ROCK DRILLING IN RIVER 10 FEET INTO BEDROCK AT EACH SCREEN LOCATION (2) TO DETERMINE SEDIMENT DEPTH AND ROCK ELEVATION AND REPORT TO THE ENGINEER		\$16,500.00		\$10,000.00		\$25,000.00
3.	80 V.F.	ADDITIONAL 8-INCH MICROPILE DEPTH INSTALLED IN SOIL IN EXCESS OF 12 FEET AT EACH MICROPILE LOCATION	\$350.00	\$28,000.00	\$400.00	\$32,000.00	\$505.00	\$40,400.00
4.	LUMP SUM	INSTALLATION OF UNDERGROUND RAW WATER PIPING FROM SCREENING ASSEMBLIES TO VALVE WETWELL AND UNDERGROUND AIR PIPING FROM SCREENING ASSEMBLIES TO AIR COMPRESSOR, INCLUDING EXCAVATION AND BACKFILL AS SHOWN ON THE PLANS, COMPLETE IN PLACE		\$2,000,000.00		\$2,000,000.00		\$6,250,000.00
5.	LUMP SUM	VALVE VAULT INCLUDING VALVES, STRUCTURE, EXCAVATION, BACKFILL, HANDRAIL, AND ALL INCIDENTALS AS SHOWN ON THE PLANS AND SPECIFIED HEREIN		\$1,175,000.00		\$2,000,000.00		\$3,150,000.00
6.	LUMP SUM	INSTALLATION OF SCREENING ASSEMBLY AIR COMPRESSOR, TANK AND RELATED EQUIPMENT INCLUDING ELECTRICAL WORK, COMPLETE IN PLACE AS SHOWN ON THE PLANS AND SPECIFIED HEREIN		\$180,000.00		\$100,000.00		\$175,000.00
7.	LUMP SUM	CLOSED CIRCUIT TELEVISION OF EXISTING 16-INCH PIPELINE BETWEEN EXISTING PUMP WELL AND NEW VALVE VAULT		\$2,500.00		\$10,000.00		\$12,750.00
8.	LUMP SUM	SITE WORK, PAVING, RESTORATION AND ALL INCIDENTALS NOT INCLUDED IN BID ITEM NOS. 1 THROUGH 7 TO COMPLETE ALL WORK SHOWN ON THE PLANS AND SPECIFIED HEREIN		\$200,000.00		\$830,000.00		\$150,000.00
TOTAL BID AMOUNT CONTRACT 21-01 ITEMS 1-8 INCLUSIVE				\$5,237,000.00		\$5,982,000.00		\$12,353,150.00
ADDITIVE ALTERNATIVE NO. 1								
1.	90 L.F.	INSTALLATION OF 16-INCH CURED IN PLACE PIPE AS SHOWN ON THE PLANS AND SPECIFIED HEREIN, COMPLETE IN PLACE		NO BID		\$100,000.00		\$391,500.00
TOTAL BID AMOUNT CONTRACT 21-01				\$5,237,000.00		\$6,082,000.00		\$12,744,650.00
			LOW BIDDER					
FORMS REQUIRED - PROPERLY EXECUTED								
CERTIFICATION OF BIDDER REGARDING SECTION 3				YES		YES		YES
SECTION 3 - BUSINESS CONCERN CERTIFICATION FORM				N/A		N/A		YES
REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS CLAIMING QUALIFIED BIDDER STATUS				YES		YES		YES
REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS CLAIMING RESIDENT BIDDER STATUS				YES		YES		YES
STATEMENT REQUIRED PURSUANT TO KRS 45A.395 NON-COLLUSIVE AFFIDAVIT OF PRIME BIDDER				YES		YES		YES
CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY				YES		YES		YES
CONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS				YES		N/A		N/A

JAMES G.
 DAVENPORT
 22752
 02/23/23
 PROFESSIONAL ENGINEER

I HEREBY CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE BIDS RECEIVED
 J. R. WAUFORD & CO., CONSULTING ENGINEERS, INC.

02/23/23
 J. GREG DAVENPORT - KY PE # 22752

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.
www.jrwauford.com

March 27, 2023

Mr. Eric Hickman
General Manager
Ohio County Water District
124 E. Washington Street
P. O. Box 207
Hartford, Kentucky 42347

RE: Water System Improvements
Raw Water Intake Improvements
Ohio County Water District
Hartford, Kentucky
Wauford Project No. 2125; Contract 21-01

Dear Mr. Hickman:

We have tabulated the three (3) bids received at 2:00 p.m. Central Time on Thursday, February 16, 2023 and find Garney Construction of Nashville, Tennessee is the low bidder at \$5,237,000 as indicated on the attached Bid Tabulation Sheet. Due to the difference between available funding and the low bid price, we examined the plans to determine ways to reduce the bid price without modifying the project function. As a result, we modified the screen support structure design to reduce the depth of the lines from the screening structure to the new valve vault and requested a contract deduct for this change from all bidders. Garney was the only bidder to furnish a deduct which was in the amount of \$105,000.

Garney has successfully performed work on other projects designed by our firm; therefore, we recommend award of the subject contract to Garney Construction at the original bid amount of \$5,237,000. We will prepare a deductive change order for Garney to execute in the amount of \$105,000 which will lower the contract amount to \$5,132,000.

Please do not hesitate to contact me if you have questions or need additional information.

Yours very truly,

J. R. WAUFORD & COMPANY,
CONSULTING ENGINEERS, INC.



J. Gregory Davenport, P.E.
President

JGD:lan

cc: Blake Edge, GRADD

Attachment

60 Volunteer Boulevard
Jackson, Tennessee 38305
(731) 668-1953
Fax (731) 668-6809

2835 Lebanon Pike
P.O. Box 140350 Nashville,
Tennessee 37214
(615) 883-3243
Fax (615) 391-3710

908 West Broadway Avenue
Maryville, Tennessee 37801
(865) 984-9638
Fax (865) 983-4327

RESOLUTION NO. 2023-03-02

**RESOLUTION OF OHIO COUNTY WATER DISTRICT
ACCEPTING LOWEST AND BEST BID AND AWARDING
CONTRACT FOR THE RAW WATER INTAKE
IMPROVEMENTS PROJECT**

WHEREAS, Ohio County Water District (the “District”) caused to be published in the February 1, 2023 edition of *The Ohio County Times-News* an advertisement for bids for the Raw Water Intake Improvements Project (the “Contract” or “Project”) in accordance with the provisions of KRS Chapter 424;

WHEREAS, three firms submitted bids on the Contract in accordance with the terms of the advertisement and the Bid Specifications;

WHEREAS, Garney Companies, Inc. submitted the lowest of the three bids with a bid of \$5,237,000.00; and

WHEREAS, J. R. Wauford & Company, Consulting Engineers, Inc. (“Wauford”) has recommended that the District award the Contract to Garney Companies, Inc.;

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COMMISSIONERS OF OHIO COUNTY WATER DISTRICT AS FOLLOWS:

Section 1. The facts, recitals, and statements contained in the foregoing preamble of this Resolution are true and correct and are hereby affirmed and incorporated as a part of this Resolution.

Section 2. The Board of Commissioners hereby accepts the recommendation of Wauford.

Section 3. The Board of Commissioners hereby declares the bid of Garney Companies, Inc. in the amount of \$5,237,000.00 to be the lowest and best bid.

Section 4. Garney Companies, Inc. is awarded the Contract for the Project in the amount of \$5,237,000.00, contingent upon the Kentucky Public Service

Commission granting a Certificate of Public Convenience and Necessity to construct the proposed Project.

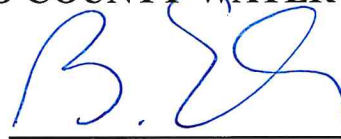
Section 5. The Chairman is authorized and directed as follows: (a) to execute the Notice of Award; (b) to execute the Agreement; (c) to execute the Notice to Proceed; and (d) to take any and all other actions reasonably necessary to implement the award of the Contract to Garney Companies, Inc., including the execution of any and all other documents necessary for such purpose.

Section 6. This Resolution shall take effect upon its adoption.

Adopted by the Board of Commissioners of Ohio County Water District at a meeting held on March 27, 2023, signed by the Chairman, and attested by the Secretary.


OHIO COUNTY WATER DISTRICT

By:



Ben Everley, Chairman

ATTEST:


Eddie Embry Sr., Secretary

CERTIFICATION

The undersigned Secretary of Ohio County Water District (the "District") does hereby certify that the foregoing is a true copy of a Resolution duly adopted by the District's Board of Commissioners at a meeting properly held on March 27, 2023, signed by the Chairman of the Board of Commissioners, attested by the Secretary of the Board of Commissioners, and now in full force and effect.

WITNESS my hand this 28 day of MARCH, 2023.



Eddie Embry Sr., Secretary

FINAL ENGINEERING REPORT

RELATED TO

RAW WATER INTAKE IMPROVEMENTS

FOR THE

**OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY**

PROJECT NUMBER 2125

May 2023

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.

2835 Lebanon Pike
Nashville, Tennessee 37214
www.jrwauford.com

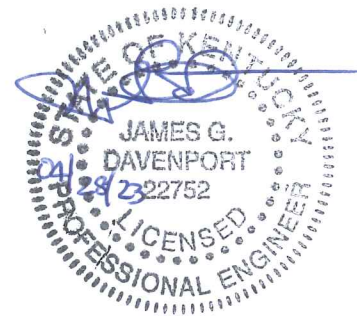
FINAL ENGINEERING REPORT

RELATED TO

RAW WATER INTAKE IMPROVEMENTS

FOR THE

OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY



PROJECT NUMBER 2125

May 2023

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.

2835 Lebanon Pike
Nashville, Tennessee 37214
www.jrwauford.com

OFFICIALS
FOR THE
OHIO COUNTY WATER DISTRICT

GENERAL MANAGER

Eric Hickman, P.E.

BOARD MEMBERS

Ben Everley, Chairman
Eddie Embry, Vice Chairman/Secretary
Cletus Greer
Reid Haire
Michael Newman
Lyndon J. Raymond
Carlin Gregory

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OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

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APPENDIX

Exhibits

- Bid Tabulation Sheet
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RAW WATER INTAKE IMPROVEMENTS
OHIO COUNTY WATER DISTRICT

I. Background

The Ohio County Water District (OCWD) was chartered in 1962 and provides potable water service to customers in Ohio, Davies, Butler, Breckinridge, McLean, and Grayson counties. A new 4.0 MGD membrane type Water Treatment Plant (WTP) was constructed and placed into service in 2011 utilizing the Green River as a source of raw water. Due to the condition of the existing raw water intake, a project was bid February 16, 2023 to replace the existing intake screens in the Green River with two new screens and pipelines and related facilities. Three bids were received as indicated at the attached bid tabulation sheet with Garney Construction of Nashville, Tennessee the low bidder at the lump sum price of \$5,237,000. This report discusses the condition of existing facilities, evaluated alternatives, and recommended course of action.

II. Existing Facilities

A. General

The existing intake is located at approximate river mile 130.5 of the Green River and was originally designed in 1991 and consists of a main pump wetwell set back off the riverbank with two intake screens mounted in the river. As part of the overall plant improvements in 2011, the existing raw water intake pumps and electrical gear were replaced although the existing structure and intake pipes were not modified. Raw water is drawn in through either of the screens into a single 16-inch pipeline that discharges to the pump well which contains two vertical turbine style pumps each with a reported capacity of 2,800 GPM. The screens have a reported capacity of 2,300 GPM each which is less than the reported 2,800 GPM capacity of the raw water pumps. The Green River is the only source of raw water utilized by the OCWD WTP and the existing raw water intake is the only facility that the OCWD can use to transport raw water to the existing WTP.

B. Raw Water Screens and Supply Line

Raw water enters one of two screening structures located off the east bank of the river that are designed to keep rocks, branches, and other debris from entering the supply line. The intake screens are located at invert elevations 370.0 and 375.0 to allow for water withdrawal at differing water levels. According to record drawings, the screens are sized for 2,300 gallons per minute with a velocity of 0.5 feet per second and have 0.125-inch openings. Each screen is connected to a separate 16-inch diameter ductile iron supply pipe. The supply pipes are supported in the river by concrete piers until the pipe enters the riverbank and is subsequently buried. The supply lines combine into a single 16-inch line prior to entering the raw water intake pumping structure which is located approximately 225 feet from the riverbank. Cleaning of the screens is accomplished by forcing compressed air through a single 6-inch diameter backwash line that removes debris and sediment that are clogging the screen. The backwash line is supported in the river by the same concrete piers that the supply lines rest on. Valves must be manipulated manually to transfer the backwash airflow from one screen to another.

OCWD constructed an elevated valve access platform along the bank of the river to access the isolation valves for the supply and backwash lines when the river level is high. Additionally, a retaining wall consisting of metal sheet piling, beams and cable has been added by the OCWD to increase bank stabilization and reduce erosion directly above the intake pipes.

C. Raw Water Intake Pumping Structure

The raw water intake pumping structure consists of a concrete wetwell, two vertical turbine pumps, valves, a chemical feed system, and associated electrical equipment. Raw water enters the wetwell through the combined 16-inch DIP supply line and one of two vertical turbine pumps, which are operated by variable frequency drives (VFDs) in the nearby electrical and chemical building, pump up to 4.0 MGD (2,800 GPM) each through a

16-inch raw water transmission line to the WTP. The pumps have intake screens at the bottom of the pump column to prevent debris from damaging the pumps during operation. A small enclosure is located over the pump motors and valve controllers on top of the station. Sodium permanganate is injected into the raw water transmission line downstream of the pumps in a chemical feed pit as a preoxidant. Electrical equipment including VFDs is located in the adjacent metal building.

D. Problems with Existing Facilities

On September 13 and 14, 2019, divers from Green River Commercial Diving conducted an inspection of the raw water intake screens and wetwell. The divers cleaned the screens and dredged areas around the intake that had been filled with sediment. The pumping station wetwell was dewatered in order to remove all rocks, sand, and mud. A large amount of rocks and other debris was found in significant volume inside the pumping well which indicates there is an opening in the piping system downstream of the screens. The report makes note of an “opening in the underground pipe” that appeared to be larger than in previous inspections due to the size of the large rocks in the bottom of the wetwell. The presence of large rocks in the wetwell is indicative of a serious problem that may continue to worsen over time, causing pump damage, pump failure, and/or loss of water supply.

Another serious situation occurring at the intake is the apparent slope failure at the bank which has resulted in the installation of sheet piling and restraint cable to attempt to keep the bank from sliding and eroding. Bank failure will likely cause pipe separation by acting as a pulling force on the pipe. This could lead to catastrophic failure of the intake in a relatively short time period, requiring quick action.

III. Evaluated Alternatives

A. General

Two alternatives were considered for improving or replacing the existing raw water pumping system with Alternative No. 1 consisting of a new traditional style reinforced concrete intake located in or adjacent to the Green River and Alternative No. 2 consisting of replacement of the existing intake structure with new screens and pipes. Both alternatives are described in greater detail hereinafter. For the existing raw water intake supply line and pumping station to remain in operation, it is proposed to leave the existing intake screens, air backwash system, and supply line in operation while improvements are constructed. This concept would allow existing facilities to remain in operation until the new facilities are complete minimizing time required for change over to the new system.

B. Alternative No. 1 – Conventional Concrete Intake

Alternative No. 1 consists of the construction of a new cast-in-place multi-level take-off concrete intake, access bridge, electrical building, 16-inch DIP water line, and appurtenances. The intake structure is proposed to be constructed in the Green River immediately upstream or downstream of the existing intake screens. A cofferdam, which is a circular structure constructed of steel sheet piling, would be constructed around the area where the intake is proposed to be constructed and concrete would be poured to form a base for the structure. If geotechnical reports indicate a deep foundation is required, piles will likely have to be driven into the river bottom prior to pouring the concrete base. The intake should have openings at varying elevations allowing water to enter before proceeding through a traveling water screen and into the wetwell. The traveling water screen is designed to prevent debris, rocks, and leaves from entering the wetwell for pump protection.

Two vertical turbine pumps are proposed to pump raw water from the wetwell through a check valve and isolation gate valve to a 16-inch DIP water line which would connect to the existing 16-inch raw water transmission line near the existing raw water intake pumping station. If the capacity and dimensions of the existing raw water pumps are sufficient, they may be able to be reused in the new intake although this will complicate transferring use from the existing intake to the proposed new intake. Provisions for a future third pump and valves should be provided which would allow the use of three 4.0 MGD pumps for a firm pumping capacity of 8.0 MGD allowing for future growth or additional equipment redundancy. An access bridge is proposed to span from the intake to the bank where OCWD personnel would be able to access the intake during high water levels. The bridge can also be used to transport equipment out to the intake structure without the use of a crane or other lifting device although the bridge is not proposed to be designed for vehicle access. The 16-inch raw water line exiting the intake structure is proposed to be attached to the bottom of the access bridge before proceeding underground and connecting to the existing 16-inch raw water that discharges to the WTP.

An electrical building is proposed to be constructed near the end of the access bridge to house the pump VFDs, control panel, telemetry equipment, and other electrical gear. The electrical building floor and motor floor of the intake should be designed above the 500-year flood level to allow personnel to access the intake during high water levels. According to the latest revised Flood Insurance Rate Map published by the Federal Emergency Management Agency for Ohio County, Kentucky, the 100-year flood elevation in the vicinity of the intake is approximately elevation 411.50 although no 500-year flood elevation was depicted. Additionally, the take-off ports can be closed if the wetwell must be accessed for any reason such as cleaning or equipment inspection.

C. Alternative No. 2 – Submerged Piping and Screens

Alternative No. 2 includes the construction of two new submerged intake screening structures, 20-inch ball joint DIP supply lines, elevated valve access platform, connection to the existing supply line, and other miscellaneous improvements. A new valve wetwell and 20-inch butterfly valves should be used to connect to the existing supply line near the pumping station. The purpose of the valves is to be able to construct and test the proposed raw water supply line while still using the existing supply line. The line is proposed to split into two supply lines with a valve located on each supply line for isolation purposes during cleaning or repair work. The valve wetwell is proposed to be constructed with a top elevation at the 100-year flood elevation for valve access during high flow events. Ball joint pipe is proposed to proceed from these valves out into the river where the pipe should be buried until reaching the screening assemblies. The screening assemblies are proposed to be located farther into the river than the existing screens to help reduce the amount of silt and debris that may accumulate as well as provide a deeper location for raw water withdrawal in case of extreme low water levels.

The screening assemblies are proposed to be horizontally mounted atop micropiles for anchoring on the riverbed. Air backwash lines are proposed for independent screen cleaning.

Implementation of Alternative No. 2 should remedy the problems currently experienced in the existing raw water supply line; however, since the location of the hole allowing large rocks to enter the supply line and pumping station wetwell is unknown, it cannot be guaranteed that connecting this existing line will remedy that problem particularly if the hole is near the pumping station. Connecting a new supply line directly into the wetwell carries a risk of a potential collapse of the entire structure due to the uneven backfilling of the pumping station while one or several sides are exposed while the pipe is installed at a depth of almost 40 feet.

IV. Selected Alternative and Value Engineering

The OCWD selected Alternative No. 2 – Submerged Piping and Screens due to the lower estimated capital cost when compared to Alternative No. 1 – Conventional Concrete Intake. Bids were received February 16, 2023 with Garney Construction of Nashville, Tennessee the low bidder at the lump sum price of \$5,237,000 as indicated at the attached bid tabulation sheet. Due to the high bid prices, methods were evaluated to lower the project cost without compromising the project function. As a result, the screening facilities were rotated 90 degrees and designed to be installed inside the screen support structures which raised the centerline elevation of the 20-inch lines, thereby reducing the project cost. Revised sheets depicting the changes to the plans are attached. On Thursday, March 16, 2023 revised plans indicating the project modifications were sent to all three bidders requesting revised pricing be submitted Friday, March 24, 2023. Morgan Construction and Haren Construction Company stated they would not be submitting revised pricing because they felt any deduction they offered would not make them the low bidder. Garney Construction submitted a deduct of \$105,000 which lowered the bid price to \$5,132,000.

V. Summary and Recommendations

As previously stated, three bids were received February 16, 2023 for the construction of Contract 21-01 – Raw Water Intake Improvements with Garney Construction of Nashville, Tennessee the low bidder at the lump sum price of \$5,237,000 as depicted at the attached bid tabulation sheet. Garney subsequently submitted a deduct of \$105,000 for changes to the screening facilities revising the contract amount to \$5,132,000. We recommend that the Ohio County Water District proceed with entering into a contract with Garney Construction in the amount of \$5,132,000 for the construction of Contract 21-01 – Raw Water Intake Improvements.

APPENDIX


Bid Tabulation Sheet

BIDS OPENED: 2:00 P.M. CENTRAL TIME
 WEDNESDAY, FEBRUARY 22, 2023
 OHIO COUNTY WATER DISTRICT
 124 EAST WASHINGTON STREET
 HARTFORD, KY 42437

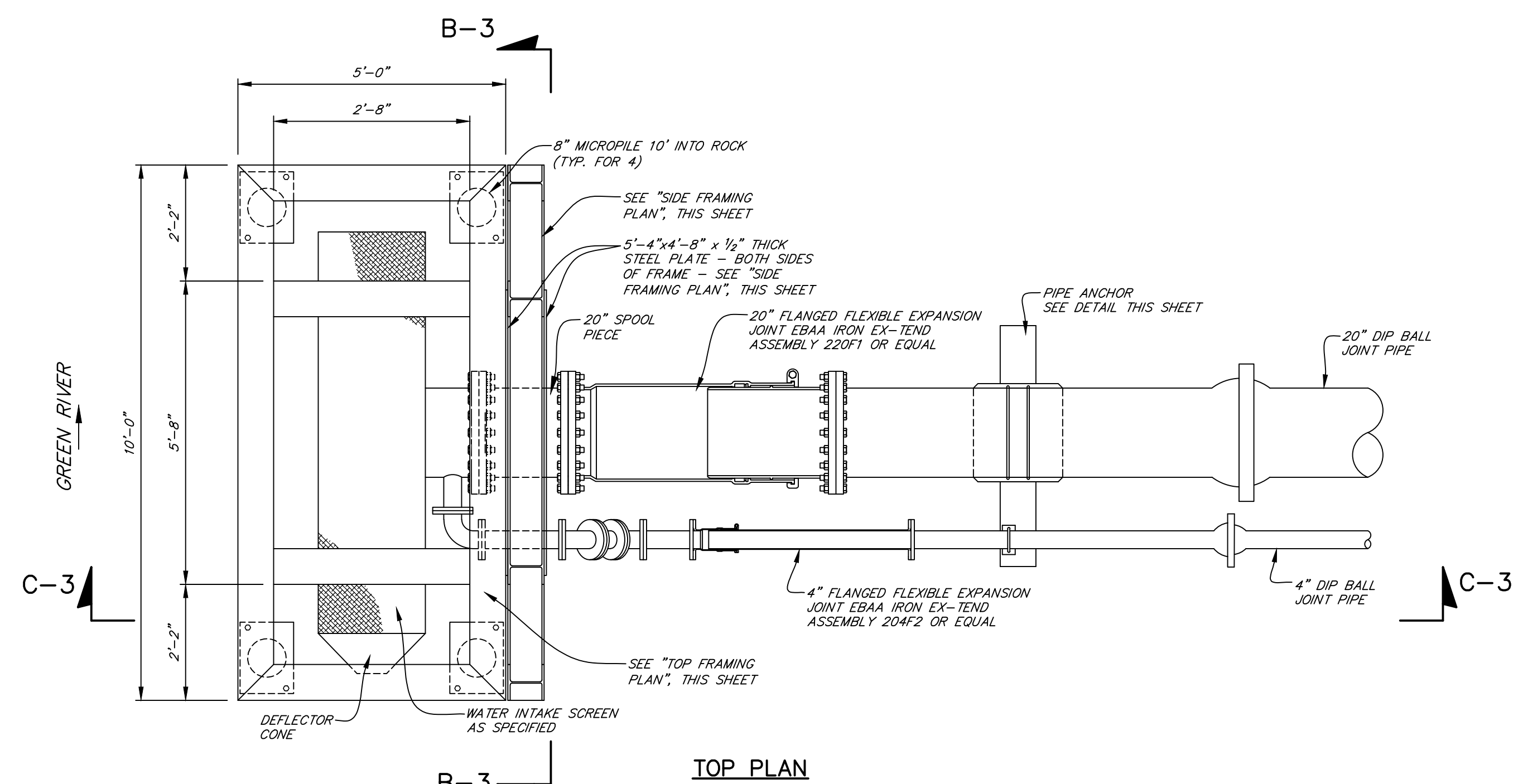
TABULATION OF BIDS
 WATER SYSTEM IMPROVEMENTS
 FOR
 OHIO COUNTY WATER DISTRICT
 OHIO COUNTY, KENTUCKY
 WAUFORD PROJECT 2125 (CONTRACT 21-01 - RAW WATER INTAKE IMPROVEMENTS)

J. R. WAUFORD & CO.
 CONSULTING ENGINEERS, INC.
 NASHVILLE, TENNESSEE

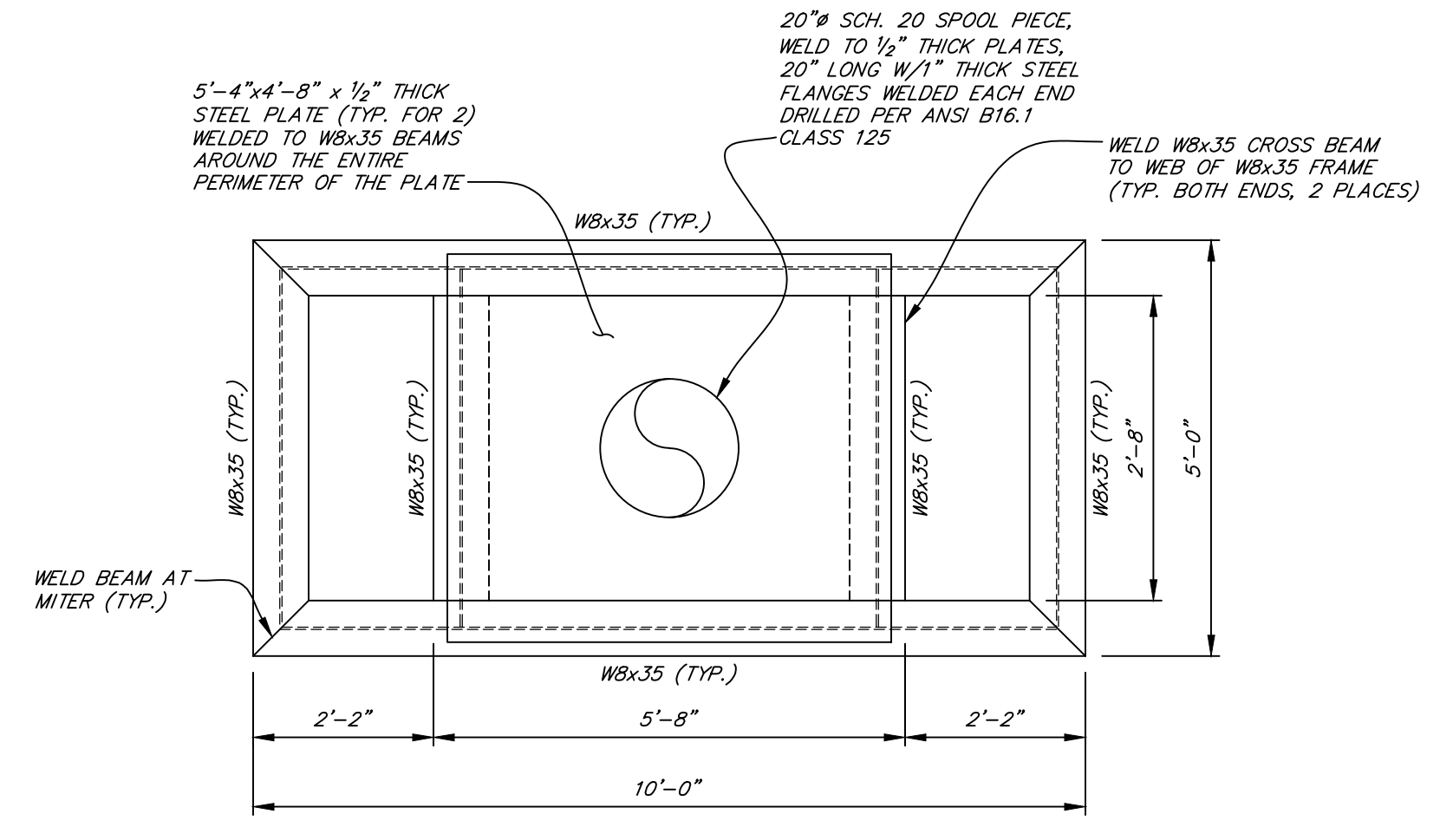
			GARNEY COMPANIES, INC. 200 CRUTCHFIELD AVENUE NASHVILLE, TN 37210		HAREN CONSTRUCTION COMPANY, INC. 1715 HIGHWAY 411 NORTH ETOWAH, TN 37331		MORGAN CONTRACTING, INC. 900 DUTCH VALLEY DRIVE KNOXVILLE, TN 37918	
ITEM NO.	QUANTITY	ITEM DESCRIPTION	UNIT	TOTAL	UNIT	TOTAL	UNIT	TOTAL
		NOTE: BIDS SHALL INCLUDE SALES TAX AND ALL OTHER APPLICABLE TAXES AND FEES						
		CONTRACT 21-01 - RAW WATER INTAKE IMPROVEMENTS						
1.	LUMP SUM	SCREENING ASSEMBLIES INCLUDING EXCAVATION MICROPILES, SUPPORT FRAME, RAW WATER SCREEN, MOBILIZATION AND DE-MOBILIZATION AND ALL INCIDENTALS AS SHOWN ON THE PLANS, COMPLETE IN PLACE		\$1,635,000.00		\$1,000,000.00		\$2,550,000.00
2.	LUMP SUM	ROCK DRILLING IN RIVER 10 FEET INTO BEDROCK AT EACH SCREEN LOCATION (2) TO DETERMINE SEDIMENT DEPTH AND ROCK ELEVATION AND REPORT TO THE ENGINEER		\$16,500.00		\$10,000.00		\$25,000.00
3.	80 V.F.	ADDITIONAL 8-INCH MICROPILE DEPTH INSTALLED IN SOIL IN EXCESS OF 12 FEET AT EACH MICROPILE LOCATION	\$350.00	\$28,000.00	\$400.00	\$32,000.00	\$505.00	\$40,400.00
4.	LUMP SUM	INSTALLATION OF UNDERGROUND RAW WATER PIPING FROM SCREENING ASSEMBLIES TO VALVE WETWELL AND UNDERGROUND AIR PIPING FROM SCREENING ASSEMBLIES TO AIR COMPRESSOR, INCLUDING EXCAVATION AND BACKFILL AS SHOWN ON THE PLANS, COMPLETE IN PLACE		\$2,000,000.00		\$2,000,000.00		\$6,250,000.00
5.	LUMP SUM	VALVE VAULT INCLUDING VALVES, STRUCTURE, EXCAVATION, BACKFILL, HANDRAIL, AND ALL INCIDENTALS AS SHOWN ON THE PLANS AND SPECIFIED HEREIN		\$1,175,000.00		\$2,000,000.00		\$3,150,000.00
6.	LUMP SUM	INSTALLATION OF SCREENING ASSEMBLY AIR COMPRESSOR, TANK AND RELATED EQUIPMENT INCLUDING ELECTRICAL WORK, COMPLETE IN PLACE AS SHOWN ON THE PLANS AND SPECIFIED HEREIN		\$180,000.00		\$100,000.00		\$175,000.00
7.	LUMP SUM	CLOSED CIRCUIT TELEVISION OF EXISTING 16-INCH PIPELINE BETWEEN EXISTING PUMP WELL AND NEW VALVE VAULT		\$2,500.00		\$10,000.00		\$12,750.00
8.	LUMP SUM	SITE WORK, PAVING, RESTORATION AND ALL INCIDENTALS NOT INCLUDED IN BID ITEM NOS. 1 THROUGH 7 TO COMPLETE ALL WORK SHOWN ON THE PLANS AND SPECIFIED HEREIN		\$200,000.00		\$830,000.00		\$150,000.00
		TOTAL BID AMOUNT CONTRACT 21-01 ITEMS 1-8 INCLUSIVE		\$5,237,000.00		\$5,982,000.00		\$12,353,150.00
		ADDITIVE ALTERNATIVE NO. 1						
1.	90 L.F.	INSTALLATION OF 16-INCH CURED IN PLACE PIPE AS SHOWN ON THE PLANS AND SPECIFIED HEREIN, COMPLETE IN PLACE		NO BID		\$100,000.00		\$391,500.00
		TOTAL BID AMOUNT CONTRACT 21-01		\$5,237,000.00		\$6,082,000.00		\$12,744,650.00
		LOW BIDDER						
		FORMS REQUIRED - PROPERLY EXECUTED						
		CERTIFICATION OF BIDDER REGARDING SECTION 3		YES		YES		YES
		SECTION 3 - BUSINESS CONCERN CERTIFICATION FORM		N/A		N/A		YES
		REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS CLAIMING QUALIFIED BIDDER STATUS		YES		YES		YES
		REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS CLAIMING RESIDENT BIDDER STATUS		YES		YES		YES
		STATEMENT REQUIRED PURSUANT TO KRS 45A.395 NON-COLLUSIVE AFFIDAVIT OF PRIME BIDDER		YES		YES		YES
		CERTIFICATION OF BIDDER REGARDING EQUAL EMPLOYMENT OPPORTUNITY		YES		YES		YES
		CONTRACTOR'S CERTIFICATION CONCERNING LABOR STANDARDS AND PREVAILING WAGE REQUIREMENTS		YES		N/A		N/A

I HEREBY CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT COPY OF THE BIDS RECEIVED
 J. R. WAUFORD & CO., CONSULTING ENGINEERS, INC.

 02/23/23
 J. GREG DAVENPORT - KY PE # 22752

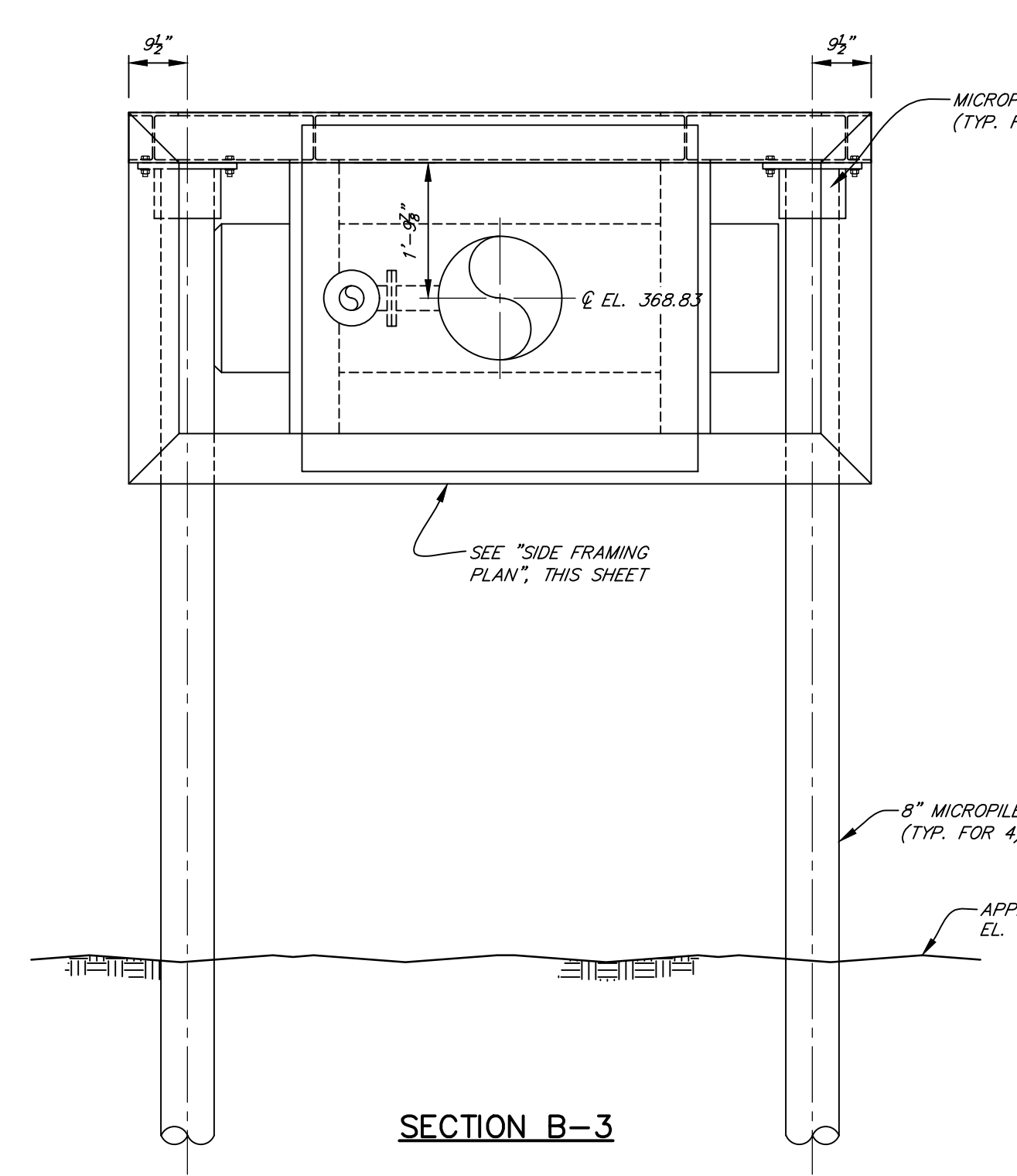
Modified Plans Sheets



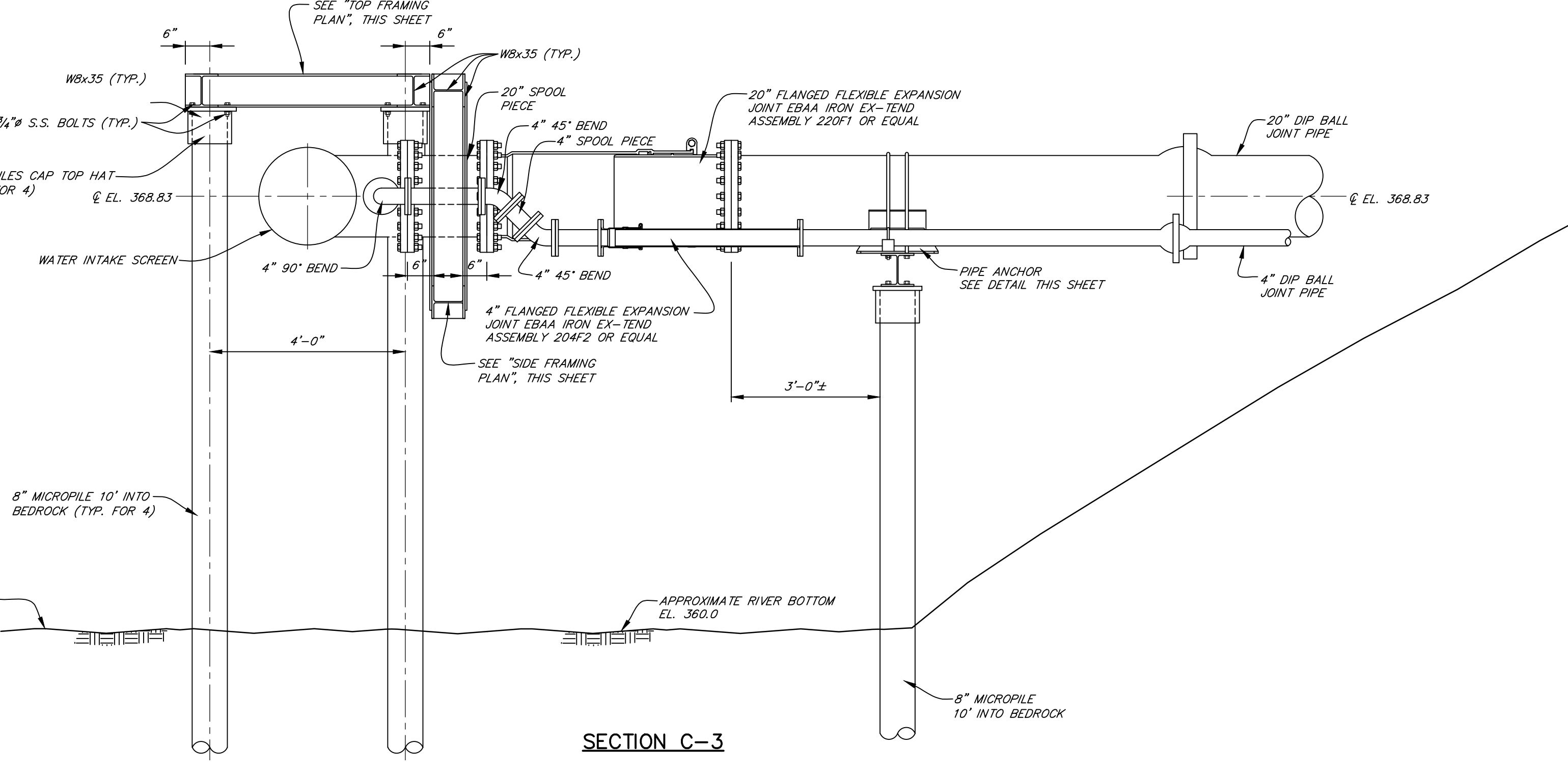
TOP PLAN



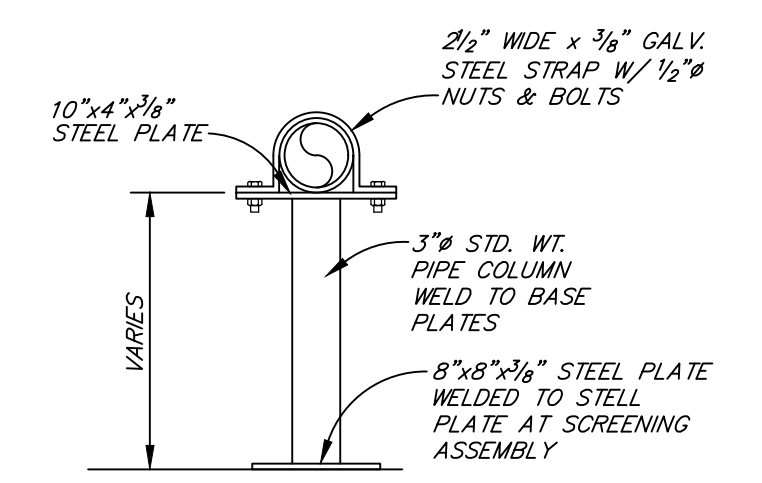
SIDE FRAMING PLAN



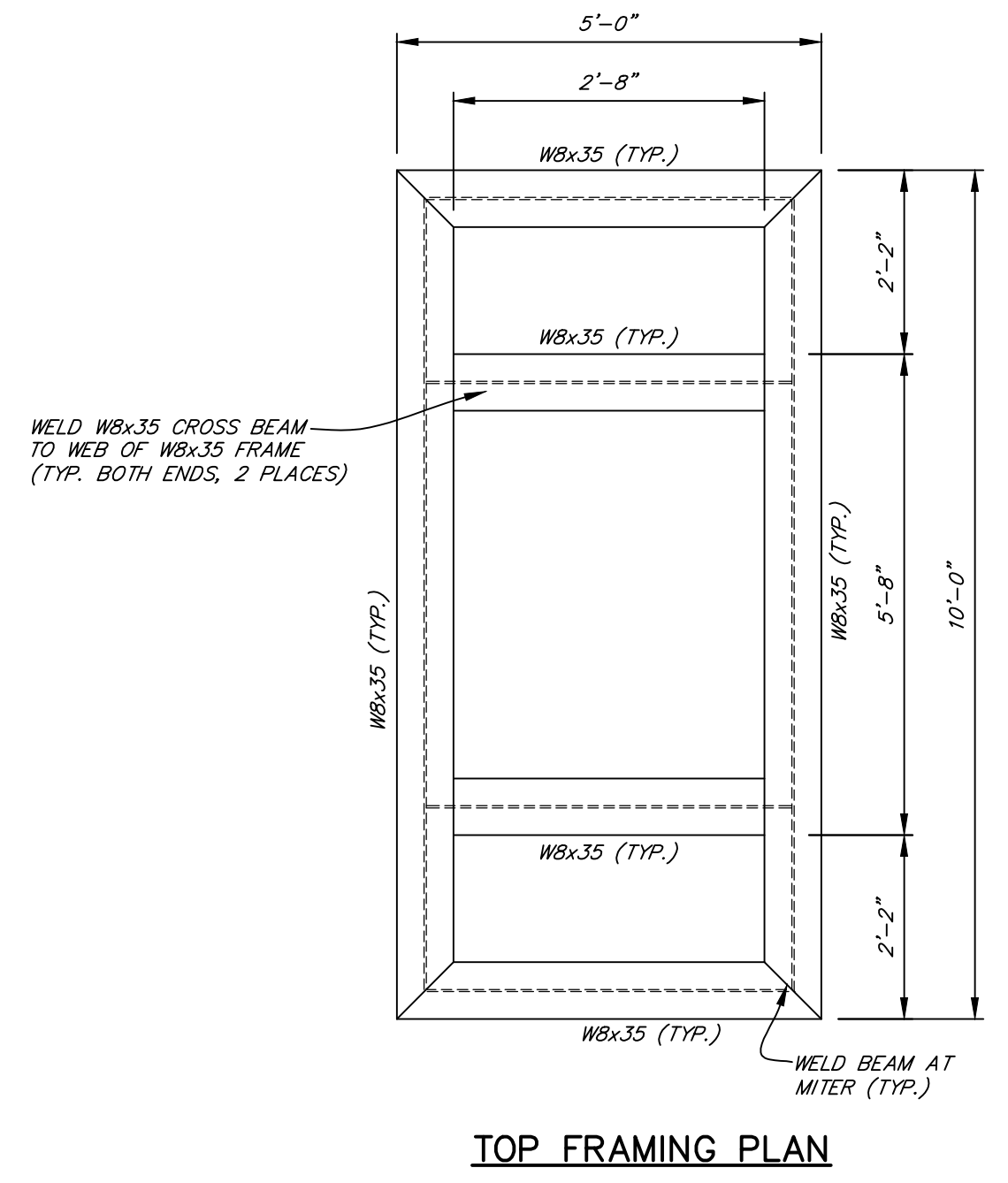
SECTION B-3



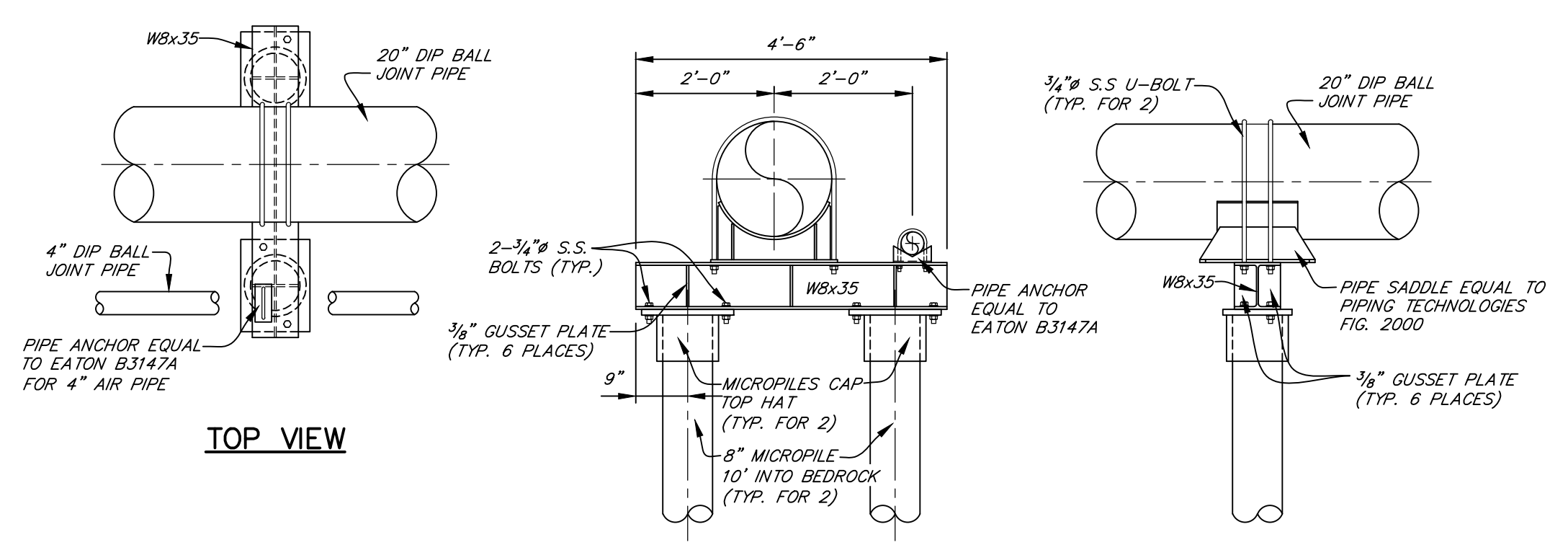
SECTION C-3



PIPE SUPPORT
NO SCALE



TOP FRAMING PLAN



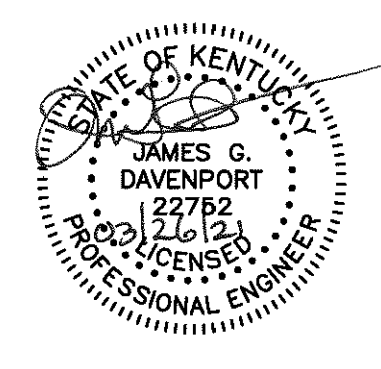
PIPE ANCHOR DETAIL
SCALE: 1/2" = 1'-0"

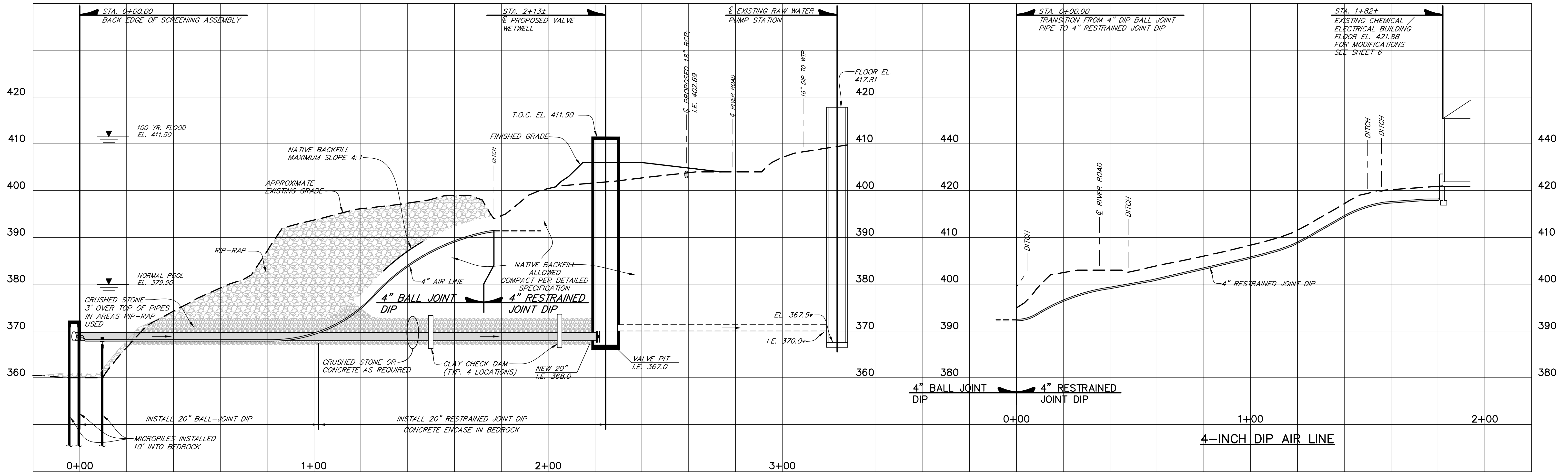
RAW WATER SCREENING ASSEMBLY
SCALE: 1/2" = 1'-0"

CONSTRUCTION NOTES

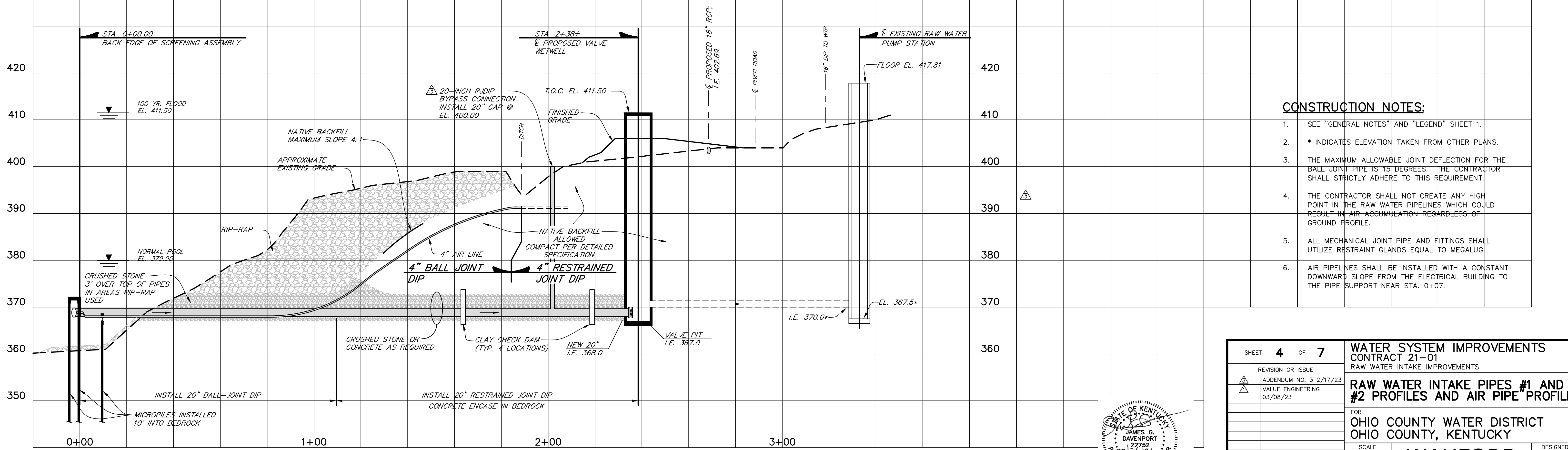
- SEE "GENERAL NOTES" ON SHEET 1.
- ALL WELDS SHALL BE SEAL WELDS 1/16" SMALLER THAN THINNEST WELDED MEMBER.
- PROVIDE DETAILED FABRICATION DRAWINGS IN SHOP DRAWING FORM FOR THE ENGINEER'S APPROVAL.
- ▲ DENOTES INFORMATION WHICH MAY VARY BY MANUFACTURER.

SHEET 3 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS	
REVISION OR ISSUE	VALUE ENGINEERING 03/08/23	RAW WATER SCREENING ASSEMBLIES
FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY		
SCALE	AS SHOWN	DESIGNED JGD
PROJECT NUMBER	DATE MAR. 2021	DRAWN RSS
2125		CHECKED JGD





20-INCH INTAKE PIPE NO. 1

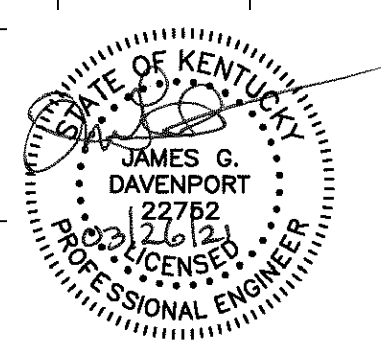


20-INCH INTAKE PIPE NO. 2

CONSTRUCTION NOTES:

1. SEE "GENERAL NOTES" AND "LEGEND" SHEET 1.
2. * INDICATES ELEVATION TAKEN FROM OTHER PLANS.
3. THE MAXIMUM ALLOWABLE JOINT DEFLECTION FOR THE BALL JOINT PIPE IS 15 DEGREES. THE CONTRACTOR SHALL STRICTLY ADHERE TO THIS REQUIREMENT.
4. THE CONTRACTOR SHALL NOT CREATE ANY HIGH POINT IN THE RAW WATER PIPELINES WHICH COULD RESULT IN AIR ACCUMULATION REGARDLESS OF GROUND PROFILE.
5. ALL MECHANICAL JOINT PIPE AND FITTINGS SHALL UTILIZE RESTRAINT GLANDS EQUAL TO MEGALUG.
6. AIR PIPELINES SHALL BE INSTALLED WITH A CONSTANT DOWNWARD SLOPE FROM THE ELECTRICAL BUILDING TO THE PIPE SUPPORT NEAR STA. 0+07.

SHEET 4 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS
REVISION OR ISSUE	RAW WATER INTAKE PIPES #1 AND #2 PROFILES AND AIR PIPE PROFILE
ADDENDUM NO. 3 2/17/23	FOR
VALUE ENGINEERING 03/08/23	OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY
PROJECT NUMBER 2125	SCALE 1"=20' HOR. 1"=10' VER.
	DATE MAR. 2021
	DESIGNED JGD
	DRAWN RSS
	CHECKED JGD



WAUFORD
J. R. Wauford & Company, Consulting Engineers, Inc.
Nashville, Tennessee
(615)883-3343
www.jrwauford.com

WATER SYSTEM IMPROVEMENTS

FOR THE

OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY

CONTRACT 21-01

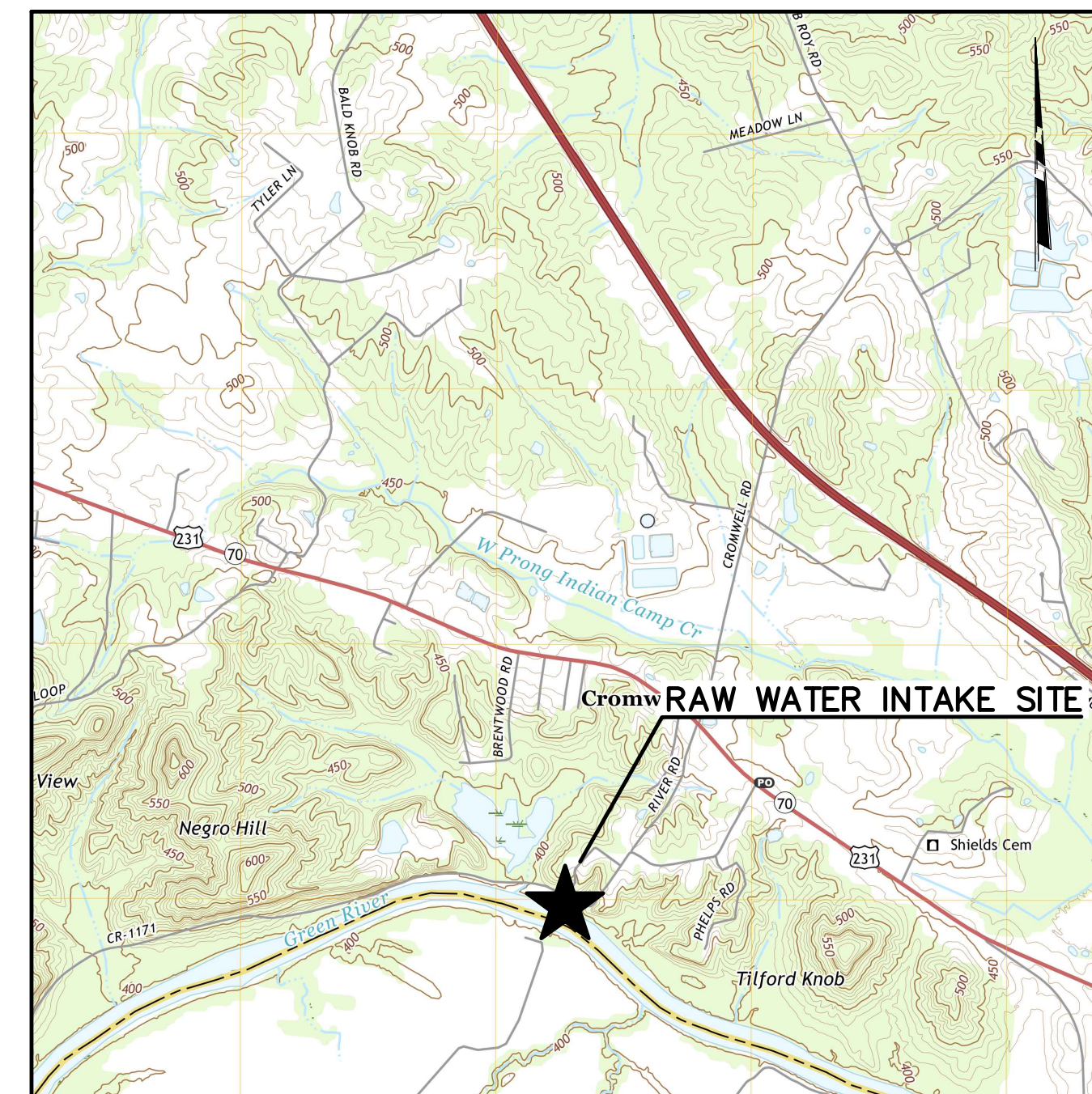
RAW WATER INTAKE IMPROVEMENTS

PROJECT NO. 2125

MARCH, 2021

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.
Nashville, Tennessee
(615)883-3243
www.jrwauford.com



LOCATION MAP
SCALE: 1" = 2,000'

INDEX OF DRAWINGS

SHEET	DESCRIPTION
1.	RAW WATER INTAKE SITE PLAN
2.	RAW WATER VALVE WETWELL
3.	RAW WATER SCREENING ASSEMBLIES
4.	RAW WATER INTAKE PIPES #1 AND #2 PROFILES AND AIR PIPE PROFILE
5.	MISCELLANEOUS DETAILS
6.	ELECTRICAL BUILDING MODIFICATIONS FLOOR PLAN AND INTERIOR ELEVATIONS
7.	ELECTRICAL BUILDING MODIFICATIONS SPECIFICATIONS AND LEGEND

OFFICIALS

GENERAL MANAGER

ERIC HICKMAN, P.E.

CHAIRMAN

BEN EVERLEY

VICE CHAIRMAN

MARK WHITEHOUSE

SECRETARY / TREASURER

EDDIE EMBRY

BOARD MEMBERS

CLETUS GREER

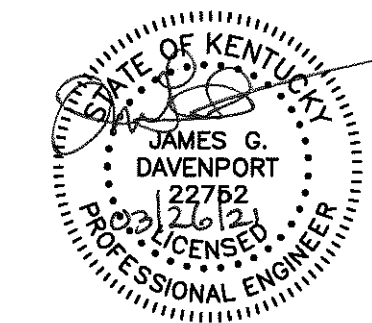
REID HAIRE

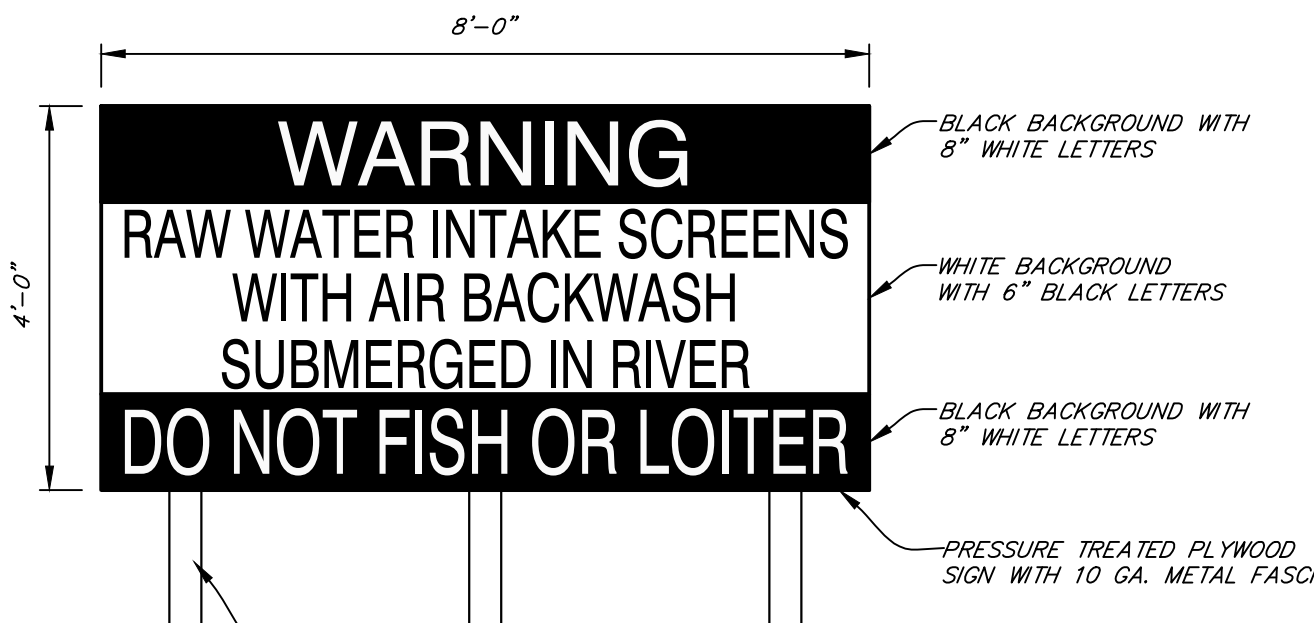
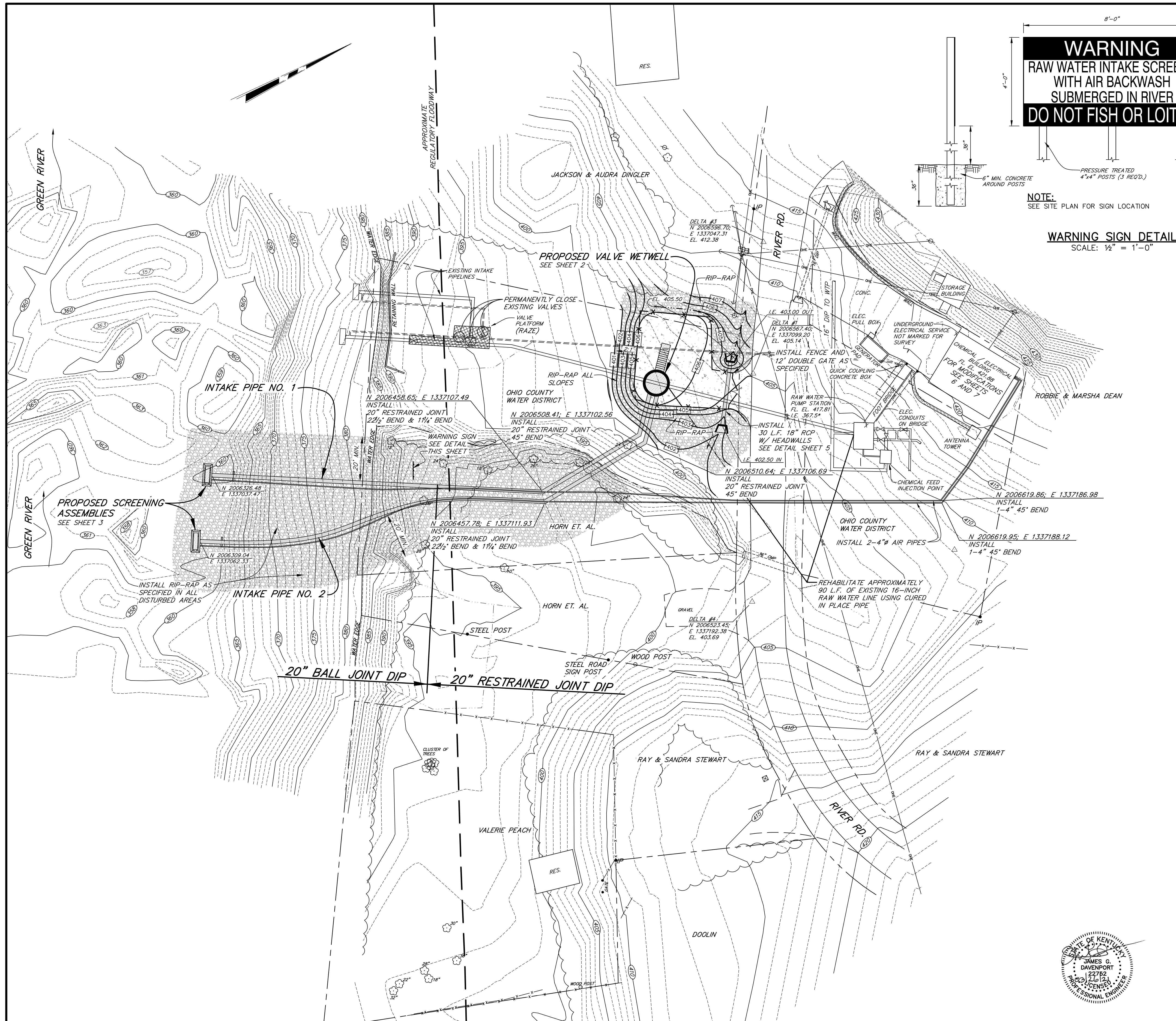
MICHAEL NEWMAN

LYNDON J. RAYMOND



Know what's below.
Call before you dig.





NOTE: SEE SITE PLAN FOR SIGN LOCATION

WARNING SIGN DETAIL
SCALE: 1/2" = 1'-0"

SITE PLAN LEGEND

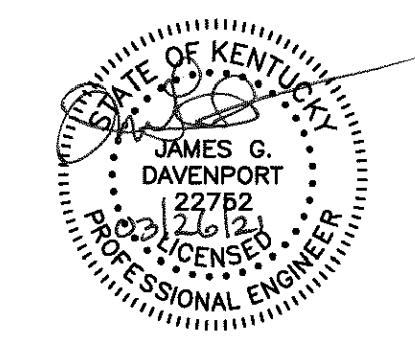
- PROPOSED**
- NEW WORK
 - APPROXIMATE GEOTECHNICAL BORE LOCATION
 - RAZE
- EXISTING**
- OVERHEAD ELECTRIC
 - PAVED SURFACE
 - UNPAVED SURFACE
 - TOP / TOE OF BANK
 - DITCH LINE OR CREEK
 - TREE LINE
 - TREE
 - BUSH
 - FENCE LINE
 - WATER METER
 - VALVES
 - POWER POLE & GUY WIRE
 - CULVERT
 - IRON PIN
 - PROPOSED RIPRAP
 - DELTA
 - PROPOSED GRAVEL PARKING

NOTE:
FASTEN METAL TO PLYWOOD WITH LIQUID ADHESIVE AND 3/4-INCH STAINLESS STEEL SCREWS @ 24" O.C. HORIZONTAL AND VERTICAL.

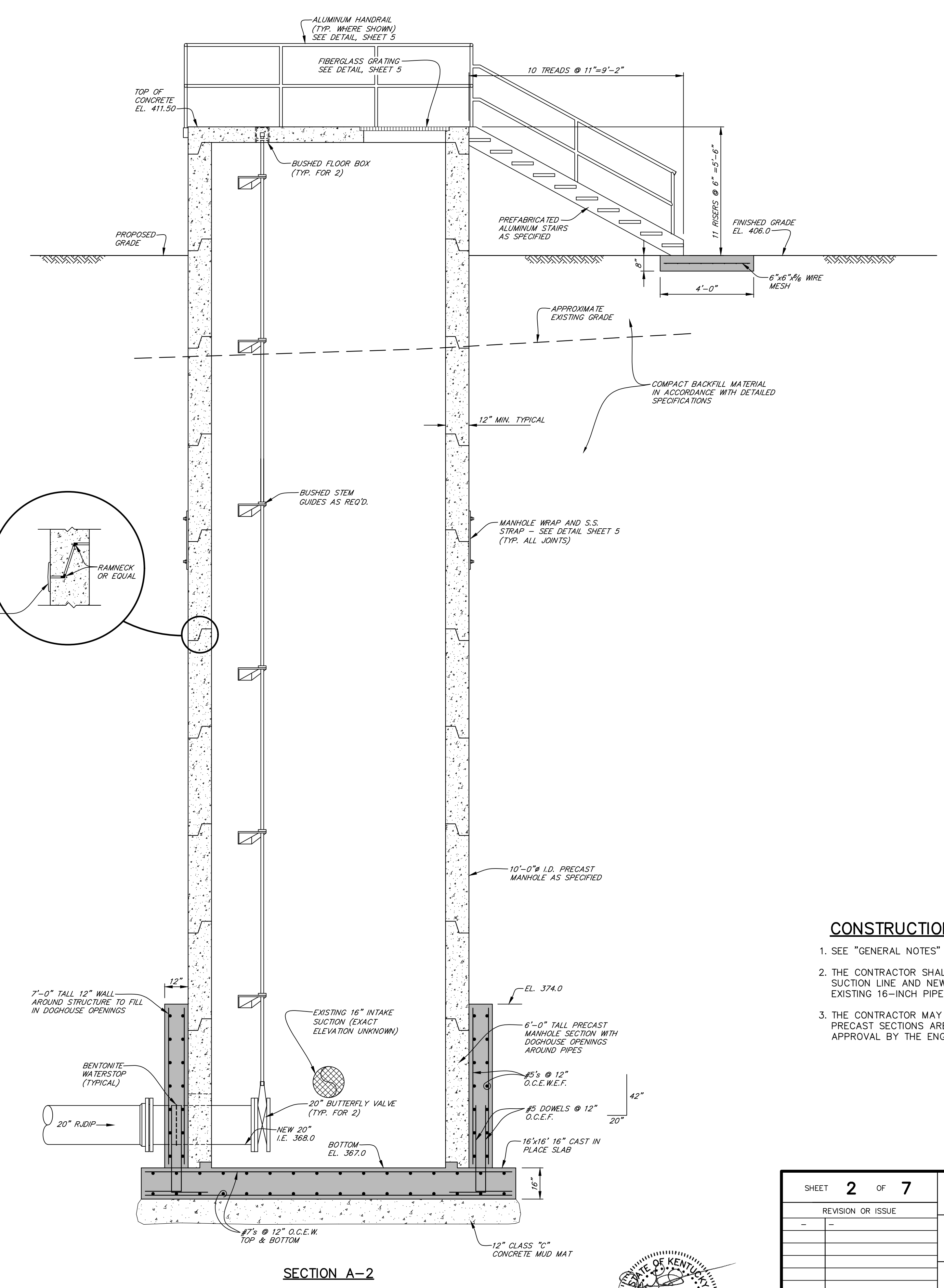
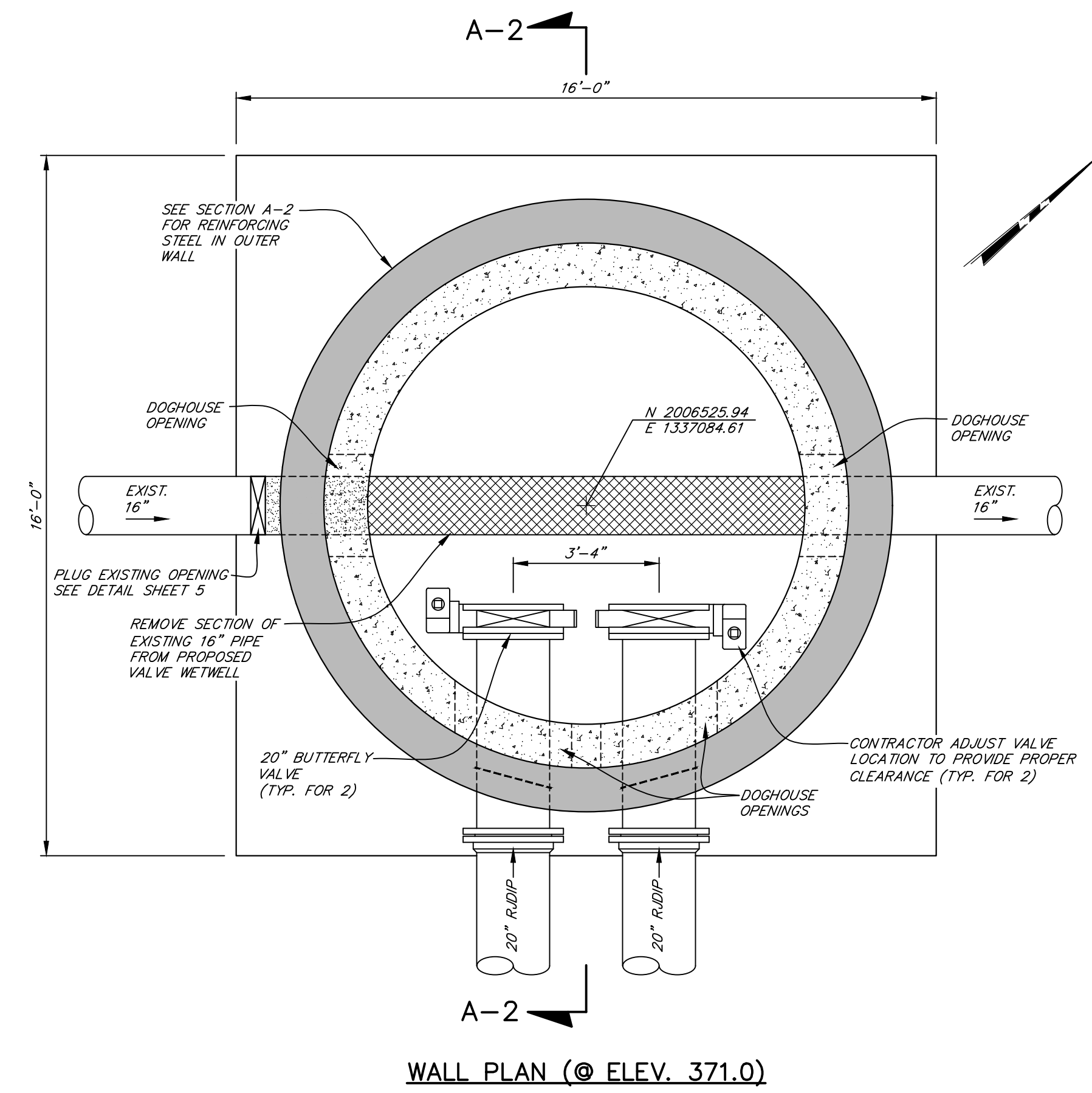
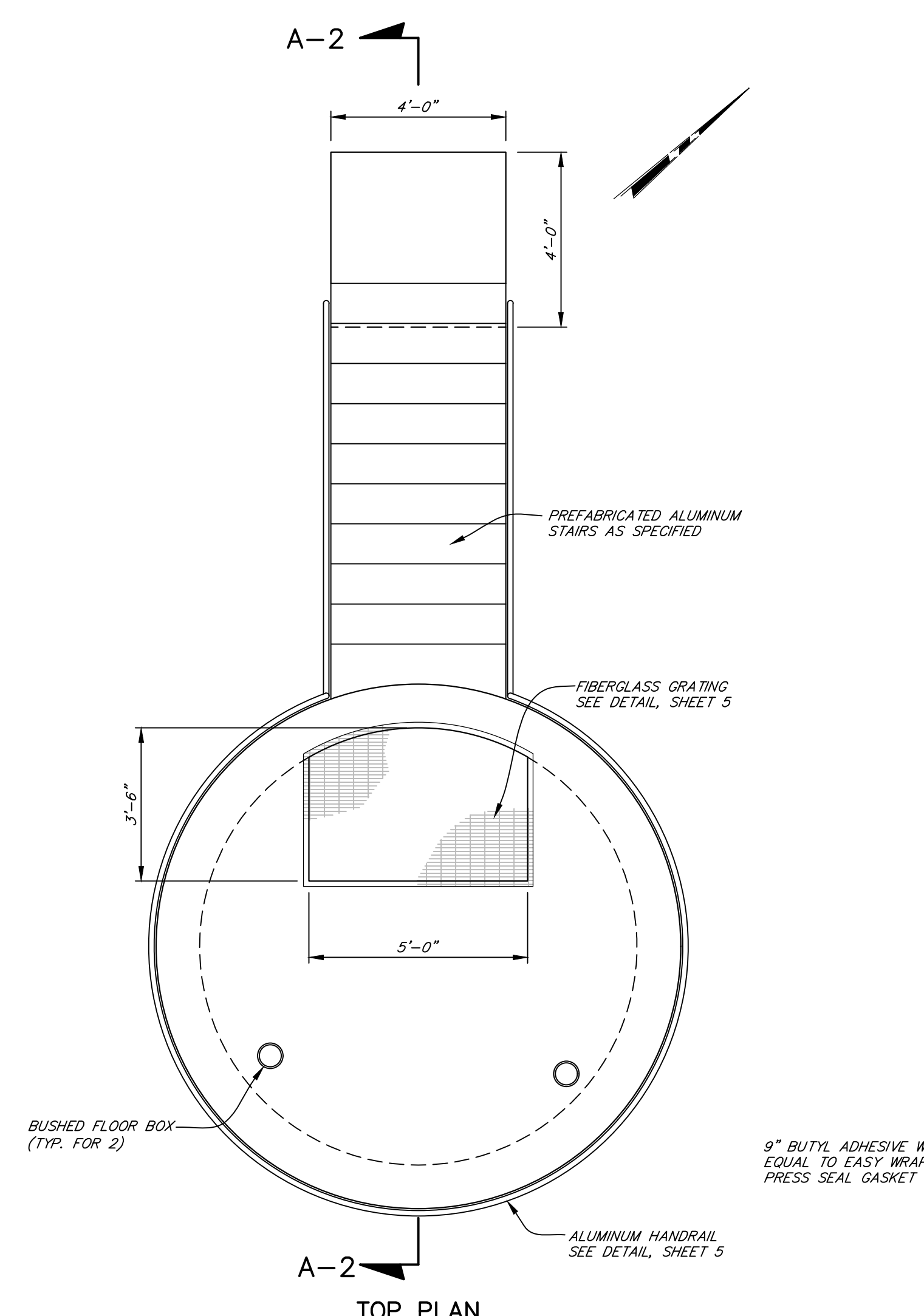
GENERAL NOTES:

1. THE 100 YEAR FLOOD ELEVATION FOR THIS SITE IS APPROXIMATELY 411.50' AS SHOWN ON FEMA MAP 21183C04350 REVISED JUNE 2, 2011.
2. NORMAL POOL ELEVATION = 379.90 ACCORDING TO NAVIGATION CHARTS - GREEN RIVER - LOUISVILLE DISTRICT U.S. ARMY CORPS OF ENGINEERS, REVISED JUNE 2011.
3. LOCATIONS OF EXISTING BURIED PIPE DEPICTED ON THIS SHEET ARE FROM RECORD DRAWINGS OF PREVIOUS PROJECTS AND SHOULD BE FIELD VERIFIED BEFORE PROCEEDING WITH PROPOSED WORK.
4. THE CONTRACTOR SHALL BE AWARE THAT THE PRECISE LOCATION OF THE EXISTING 16-INCH RAW WATER PIPE IS UNKNOWN. THE PROPOSED VALVE WETWELL SHALL BE CENTERED OVER THE EXISTING 16-INCH RAW WATER PIPE REGARDLESS OF LOCATION.
5. THE CONTRACTOR SHALL BE STRICTLY AND SOLELY LIABLE FOR ANY FINES LEVIED BY ANY REGULATORY AGENCY DUE TO VIOLATION OF WATER QUALITY REGULATIONS CAUSED BY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL USE ALL NECESSARY TEMPORARY WATER POLLUTION CONTROL MEANS AS SPECIFIED AT NO ADDITIONAL COST TO THE OWNER.
6. SEE SECTION 1, PARAGRAPH 1 EXECUTION AND COORDINATION OF THE WORK OF THE DETAILED SPECIFICATIONS FOR DESCRIPTION OF REQUIREMENTS FOR OPERATION OF EXISTING FACILITIES DURING CONSTRUCTION.
7. COORDINATES GENERALLY REFER TO OUTSIDE CORNERS AND/OR CENTER OF STRUCTURES. REFER TO PLANS OF EACH STRUCTURE FOR MORE PRECISE LOCATION INFORMATION.
8. ALL SLABS ON GRADE SHALL HAVE A 4 MIL VAPOR BARRIER AS DESCRIBED IN SECTION 3 OF THE DETAILED SPECIFICATIONS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARILY REROUTING ANY EXISTING SITE PIPING HE DISTURBS WHICH IS NECESSARY FOR THE NORMAL OPERATION OF THE EXISTING FACILITIES.
10. THE CONTRACTOR SHALL REPLACE ANY PAVEMENT DAMAGED DURING CONSTRUCTION. SEE DETAIL, SHEET 5.
11. * INDICATES INFORMATION CONTRACTOR SHALL FIELD VERIFY.
12. BACKFILL ALL DITCHES UNDER EXISTING OR PROPOSED PAVEMENT AND SIDEWALKS WITH COMPACTED CRUSHED STONE.
13. LOCATION OF EXISTING FIELD PIPING IS TAKEN FROM EXISTING PLANS AND FROM FIELD SURVEY BUT IS NOT GUARANTEED. THE CONTRACTOR SHALL LOCATE ALL EXISTING PIPING THAT MAY INTERFERE WITH PROPOSED CONSTRUCTION AND SHALL RELOCATE SAME AS REQUIRED AT NO EXTRA COST.
14. THE CONTRACTOR IS PROHIBITED FROM EXCAVATING BY KRS CHAPTER 367 UNTIL EXISTING UNDERGROUND UTILITIES HAVE BEEN LOCATED BY PROPERLY NOTIFIED UTILITY COMPANIES. UTILITY LOCATIONS ARE APPROXIMATE AND BASED ON INFORMATION PROVIDED BY OTHERS. PHONE NUMBERS FOR KNOWN UTILITIES IN THE AREA ARE SHOWN ON THIS SHEET, HOWEVER OTHER UTILITY COMPANIES MAY ALSO HAVE FACILITIES IN THE PROJECT AREA. THE CONTRACTOR SHALL IDENTIFY AND CONTACT ALL UTILITIES PER LEGAL REQUIREMENTS. KENTUCKY BUD 1-800-752-6007.
15. THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF CONSTRUCTION AS SET OUT IN SECTION 1 OF THE DETAILED SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF ALL EXISTING DRAINAGE CULVERTS DISTURBED DURING CONSTRUCTION. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.

SHEET 1 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01	DESIGNED JGD
REVISION OR ISSUE	RAW WATER INTAKE IMPROVEMENTS	DRAWN RSS
	RAW WATER INTAKE SITE PLAN	CHECKED JGD
	FOR	
	OHIO COUNTY WATER DISTRICT	
	OHIO COUNTY, KENTUCKY	
PROJECT NUMBER	SCALE 1"=20'	
2125	DATE MAR. 2021	



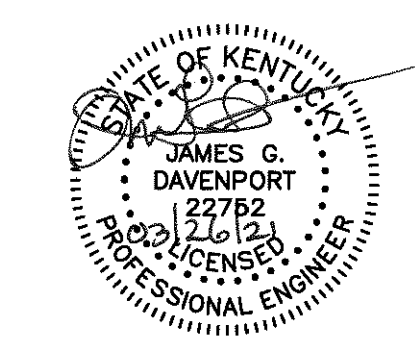
WAUFORD
J. R. Wauford & Company, Consulting Engineers, Inc.
Nashville, Tennessee
(615) 883-3243
www.jrwauford.com

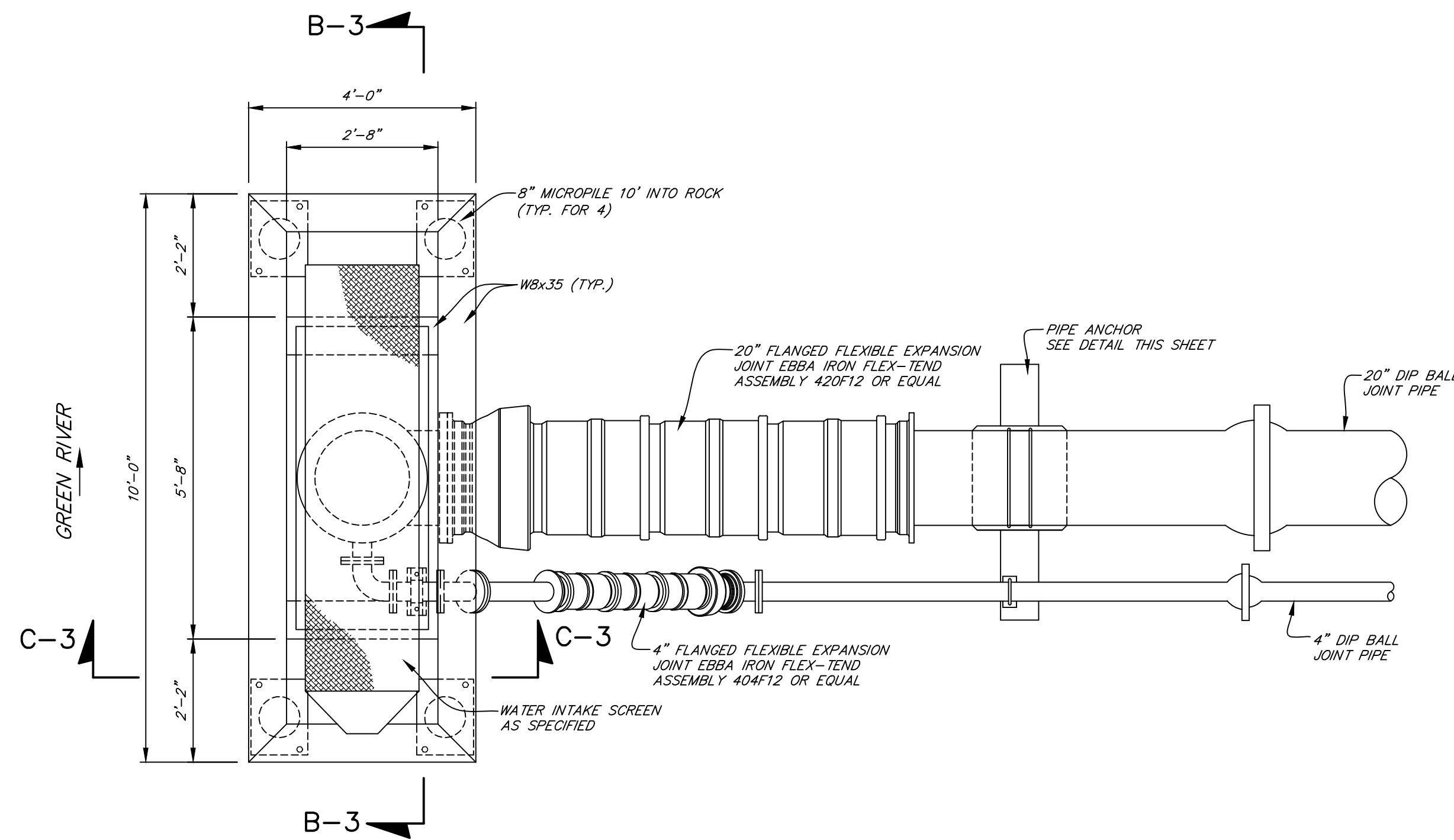


CONSTRUCTION NOTES

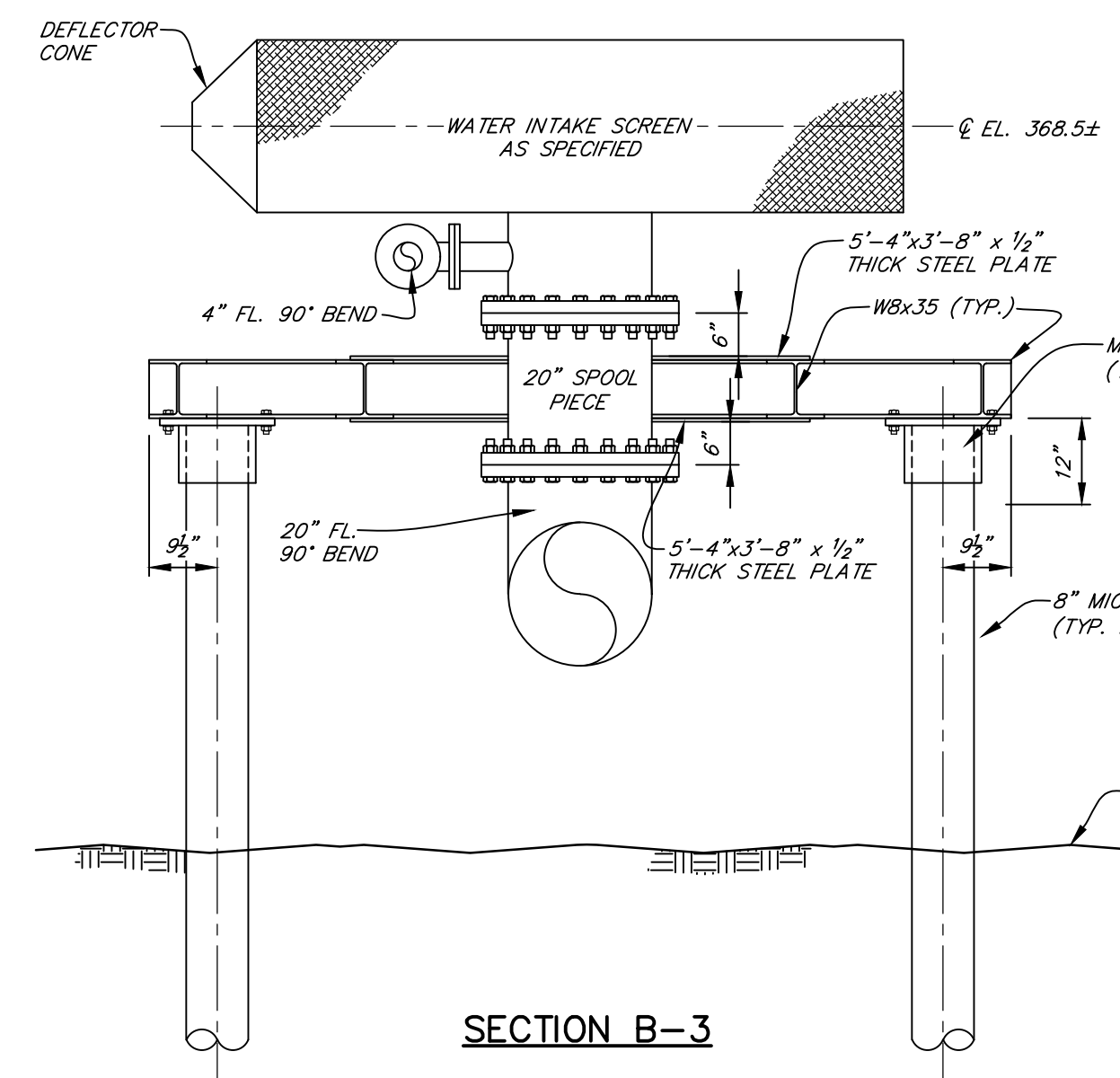
1. SEE "GENERAL NOTES" ON SHEET 1.
2. THE CONTRACTOR SHALL FULLY CONSTRUCT AND TEST THE 20-INCH SUCTION LINE AND NEW VALVE WETWELL PRIOR TO REMOVING THE EXISTING 16-INCH PIPELINE IN THE NEW VALVE WETWELL.
3. THE CONTRACTOR MAY SUBSTITUTE CAST IN PLACE CONCRETE WHERE PRECAST SECTIONS ARE INDICATED AT NO ADDITIONAL CHARGE AFTER APPROVAL BY THE ENGINEER.

SHEET 2 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS	
REVISION OR ISSUE	RAW WATER VALVE WETWELL	
	FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY	
SCALE	3/8"=1'-0"	DESIGNED JGD
PROJECT NUMBER	2125	DRAWN RSS
DATE	MAR. 2021	CHECKED JGD

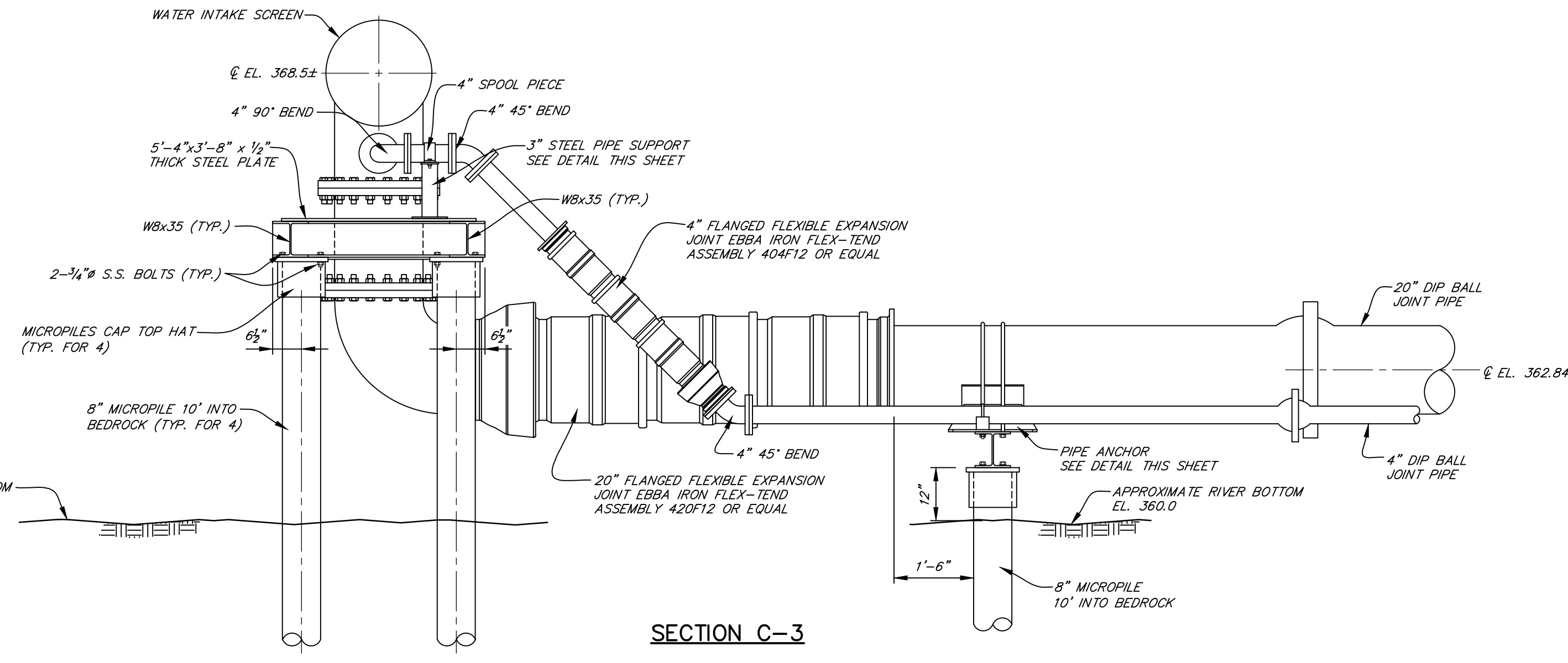




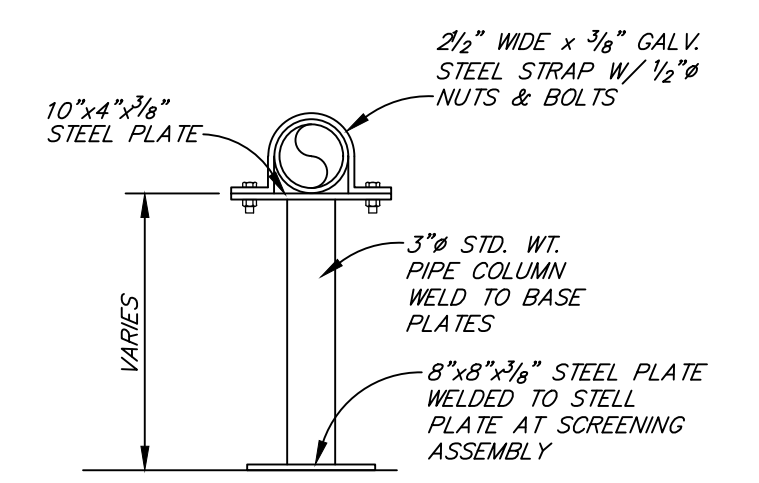
TOP PLAN



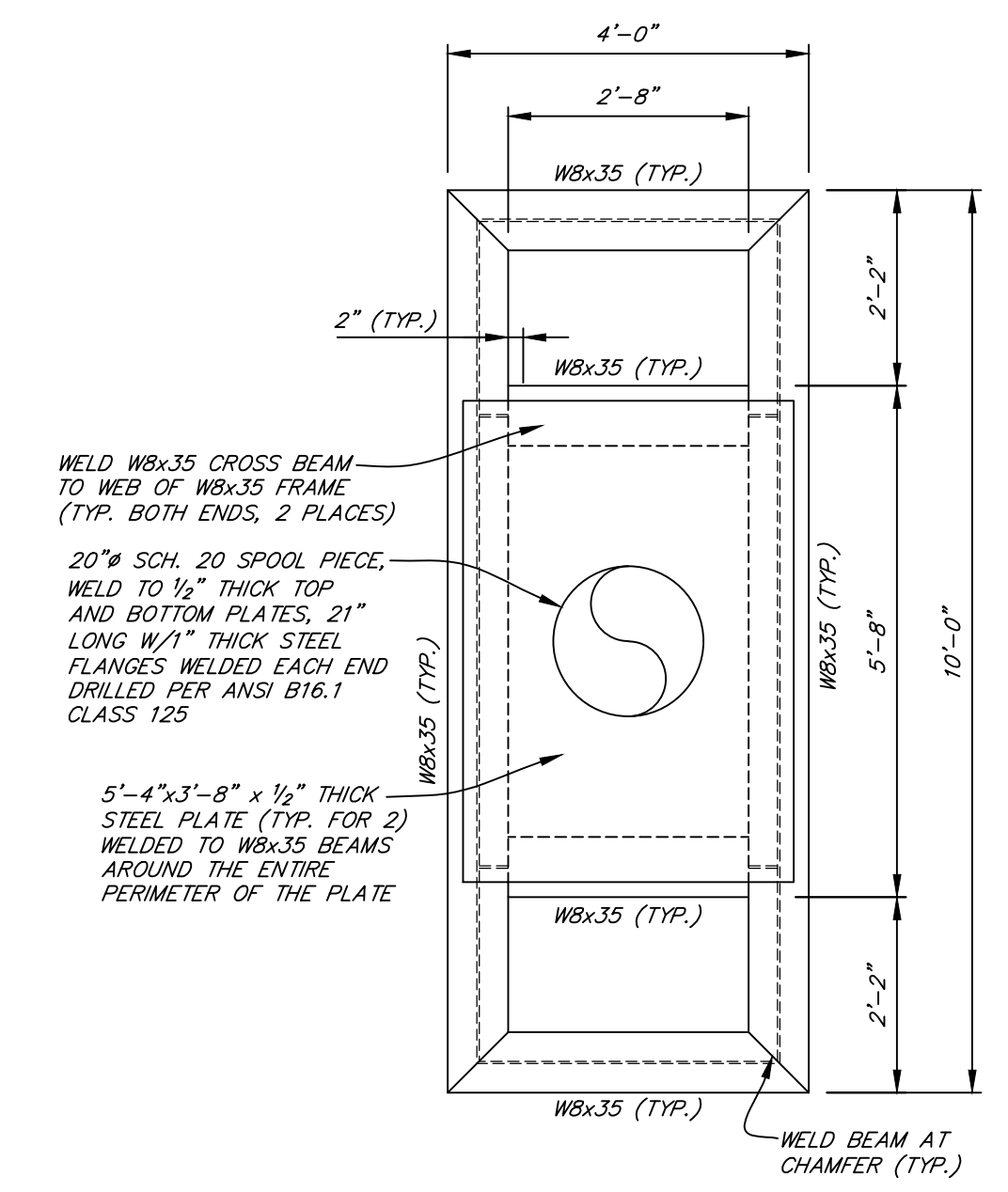
SECTION B-3



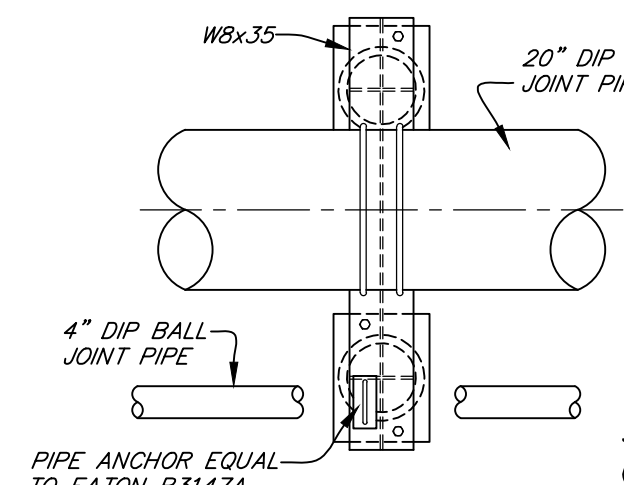
SECTION C-3



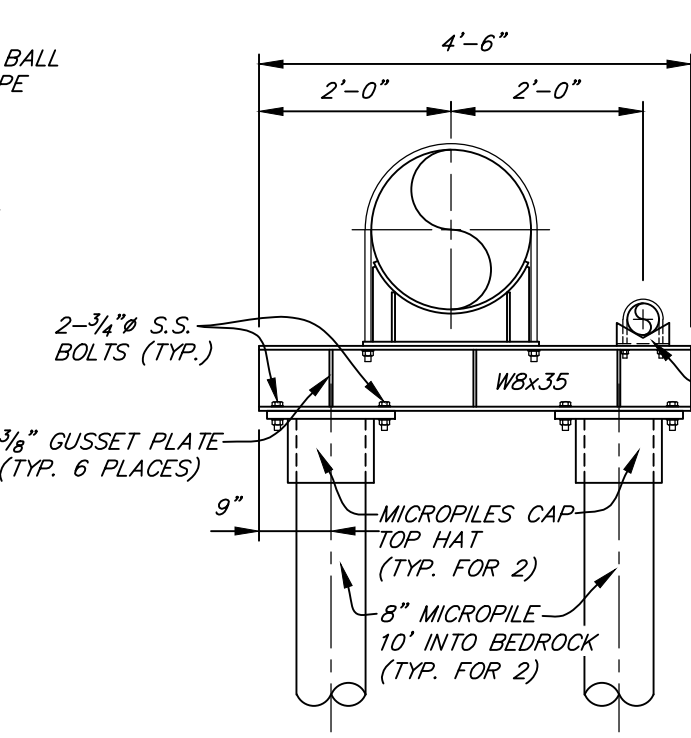
PIPE SUPPORT
NO SCALE



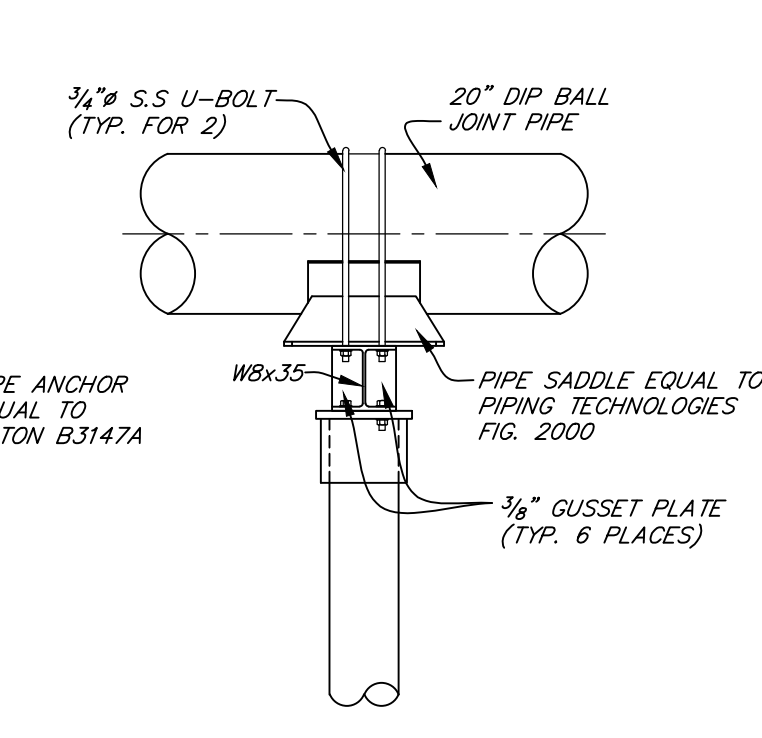
FRAMING PLAN



TOP VIEW



FRONT VIEW
PIPE ANCHOR DETAIL
SCALE: 1/2" = 1'-0"

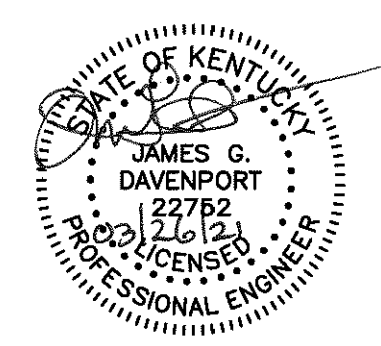


SIDE VIEW

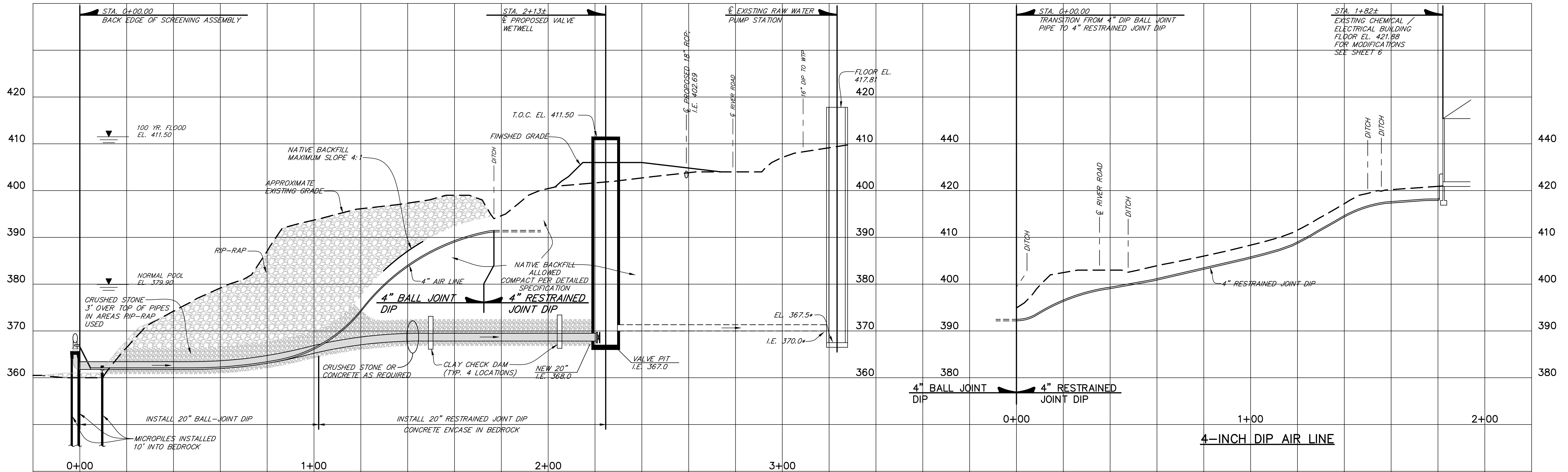
CONSTRUCTION NOTES

- SEE "GENERAL NOTES" ON SHEET 1.
- ALL WELDS SHALL BE SEAL WELDS 1/16" SMALLER THAN THINNEST WELDED MEMBER.
- PROVIDE DETAILED FABRICATION DRAWINGS IN SHOP DRAWING FORM FOR THE ENGINEER'S APPROVAL.
- ▲ DENOTES INFORMATION WHICH MAY VARY BY MANUFACTURER.

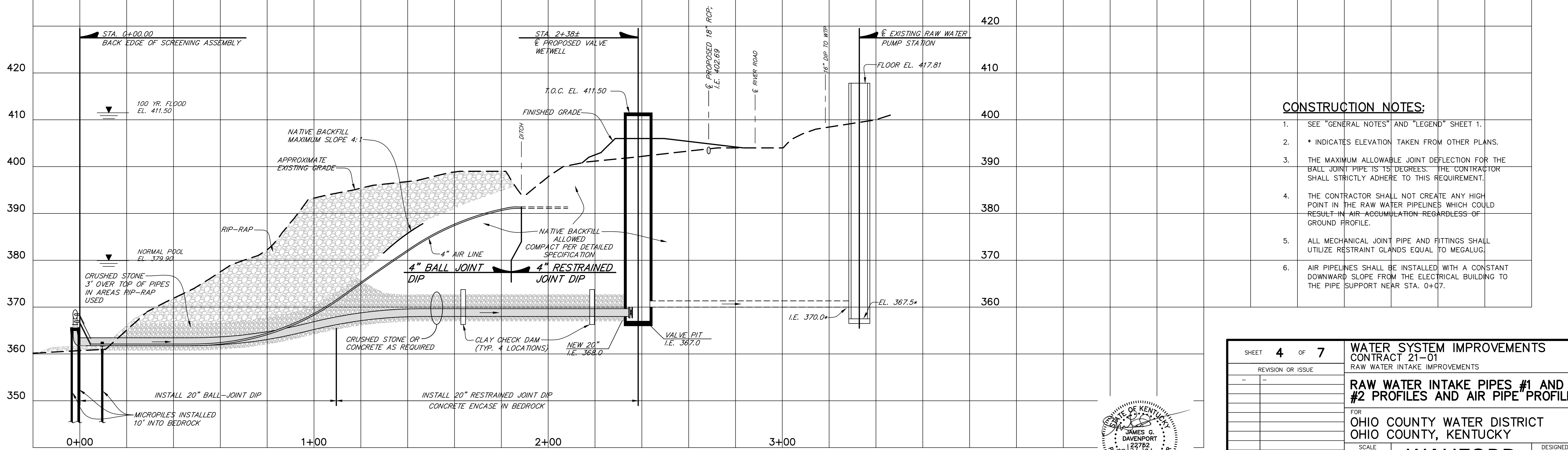
RAW WATER SCREENING ASSEMBLY
SCALE: 1/2" = 1'-0"



SHEET 3 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS	
REVISION OR ISSUE	RAW WATER SCREENING ASSEMBLIES	
FOR	OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY	
SCALE	AS SHOWN	DESIGNED JGD
PROJECT NUMBER	DATE	DRAWN RSS
2125	MAR. 2021	CHECKED JGD
	WAUFORD J. R. Wauford & Company, Consulting Engineers, Inc. Nashville, Tennessee (615) 883-3243 www.jrwauford.com	



20-INCH INTAKE PIPE NO. 1

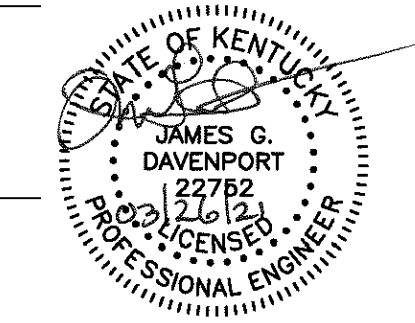


20-INCH INTAKE PIPE NO. 2

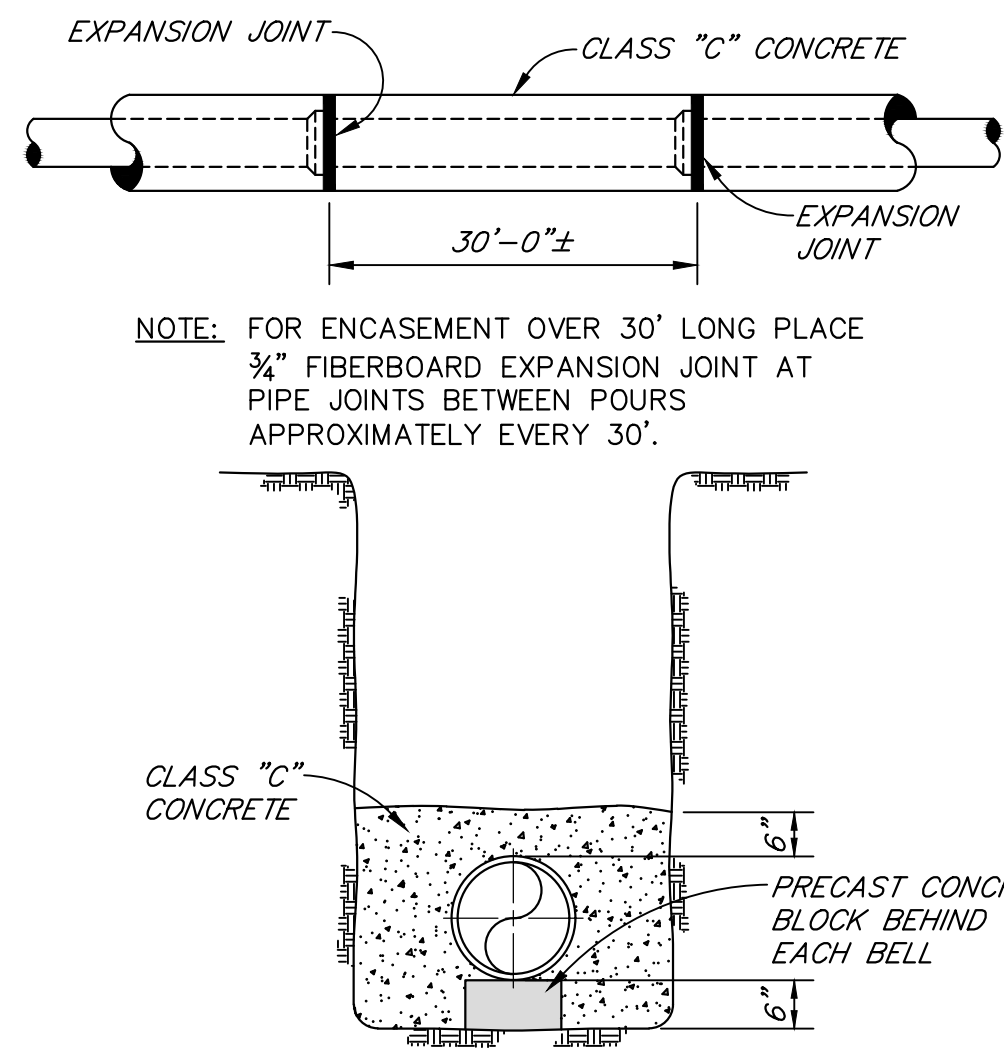
CONSTRUCTION NOTES:

1. SEE "GENERAL NOTES" AND "LEGEND" SHEET 1.
2. * INDICATES ELEVATION TAKEN FROM OTHER PLANS.
3. THE MAXIMUM ALLOWABLE JOINT DEFLECTION FOR THE BALL JOINT PIPE IS 15 DEGREES. THE CONTRACTOR SHALL STRICTLY ADHERE TO THIS REQUIREMENT.
4. THE CONTRACTOR SHALL NOT CREATE ANY HIGH POINT IN THE RAW WATER PIPELINES WHICH COULD RESULT IN AIR ACCUMULATION REGARDLESS OF GROUND PROFILE.
5. ALL MECHANICAL JOINT PIPE AND FITTINGS SHALL UTILIZE RESTRAINT GLANDS EQUAL TO MEGALUG.
6. AIR PIPELINES SHALL BE INSTALLED WITH A CONSTANT DOWNWARD SLOPE FROM THE ELECTRICAL BUILDING TO THE PIPE SUPPORT NEAR STA. 0+07.

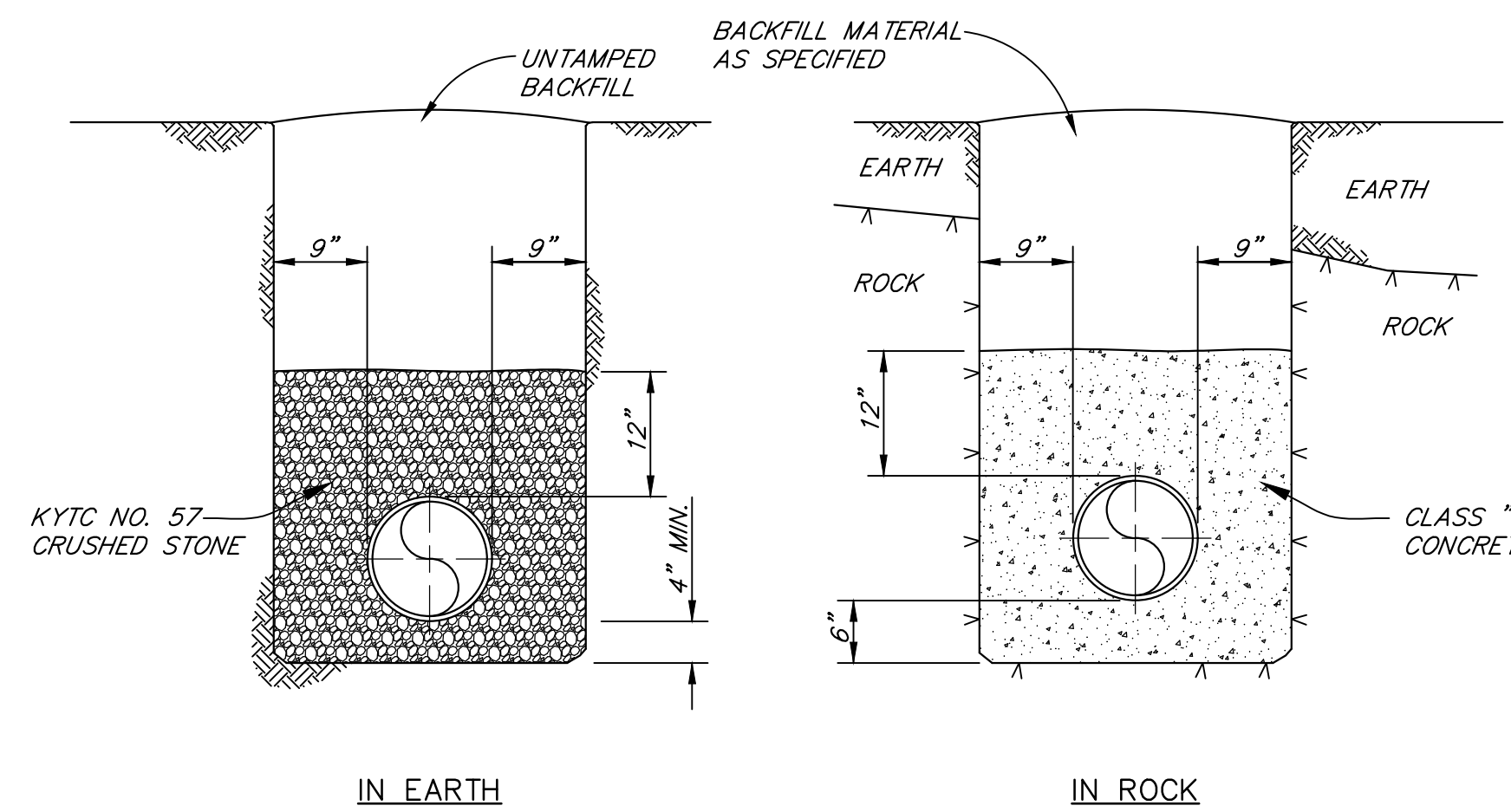
SHEET 4 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS
REVISION OR ISSUE	RAW WATER INTAKE PIPES #1 AND #2 PROFILES AND AIR PIPE PROFILE
	FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY
PROJECT NUMBER	SCALE 1"=20' HOR. 1"=10' VER.
2125	DATE MAR. 2021
	DESIGNED JGD
	DRAWN RSS
	CHECKED JGD



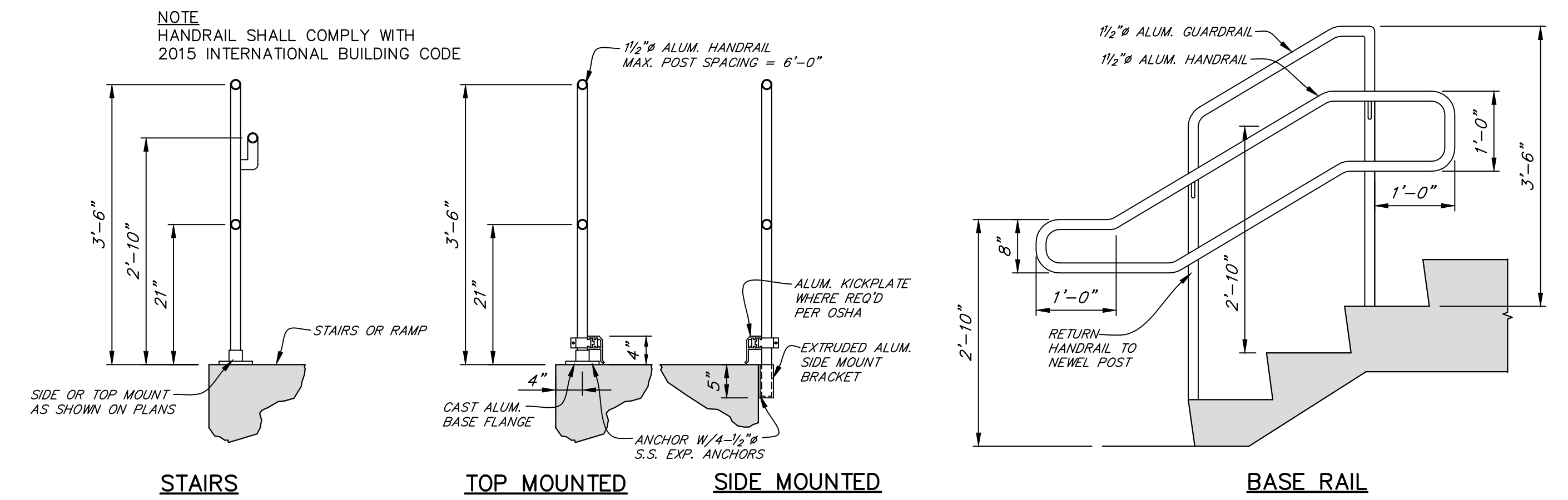
WAUFORD
J. R. Wauford & Company, Consulting Engineers, Inc.
Nashville, Tennessee
(615) 883-3343
www.jrwauford.com



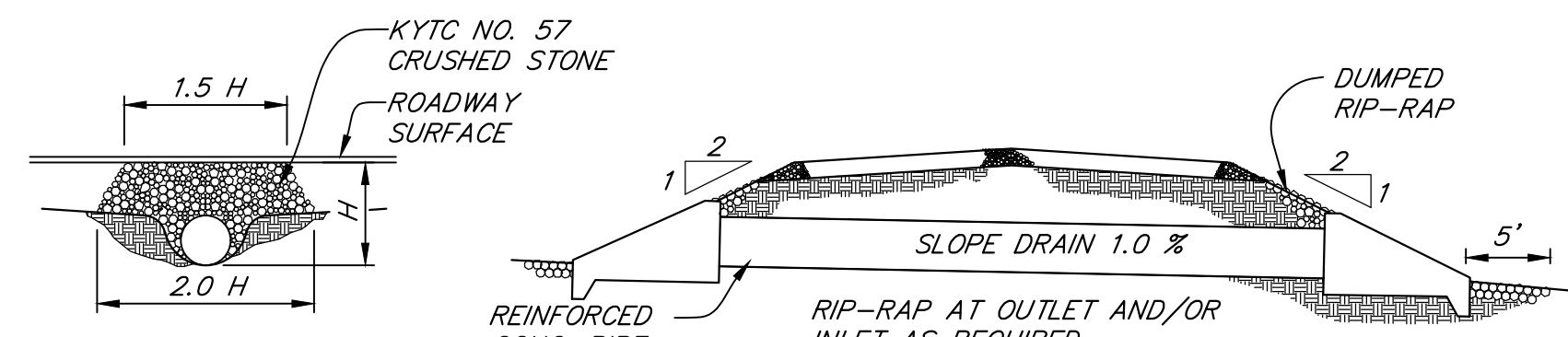
STANDARD CONCRETE ENCASMENT



STANDARD D.I.P. WATER LINE BEDDING

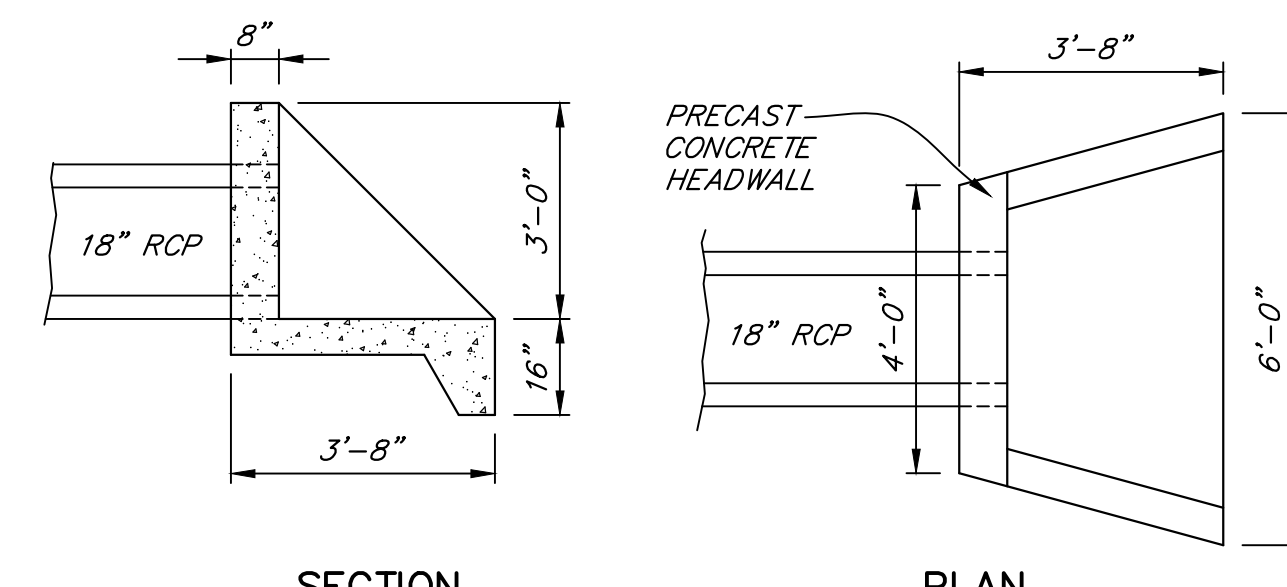


TYPICAL HANDRAIL DETAILS

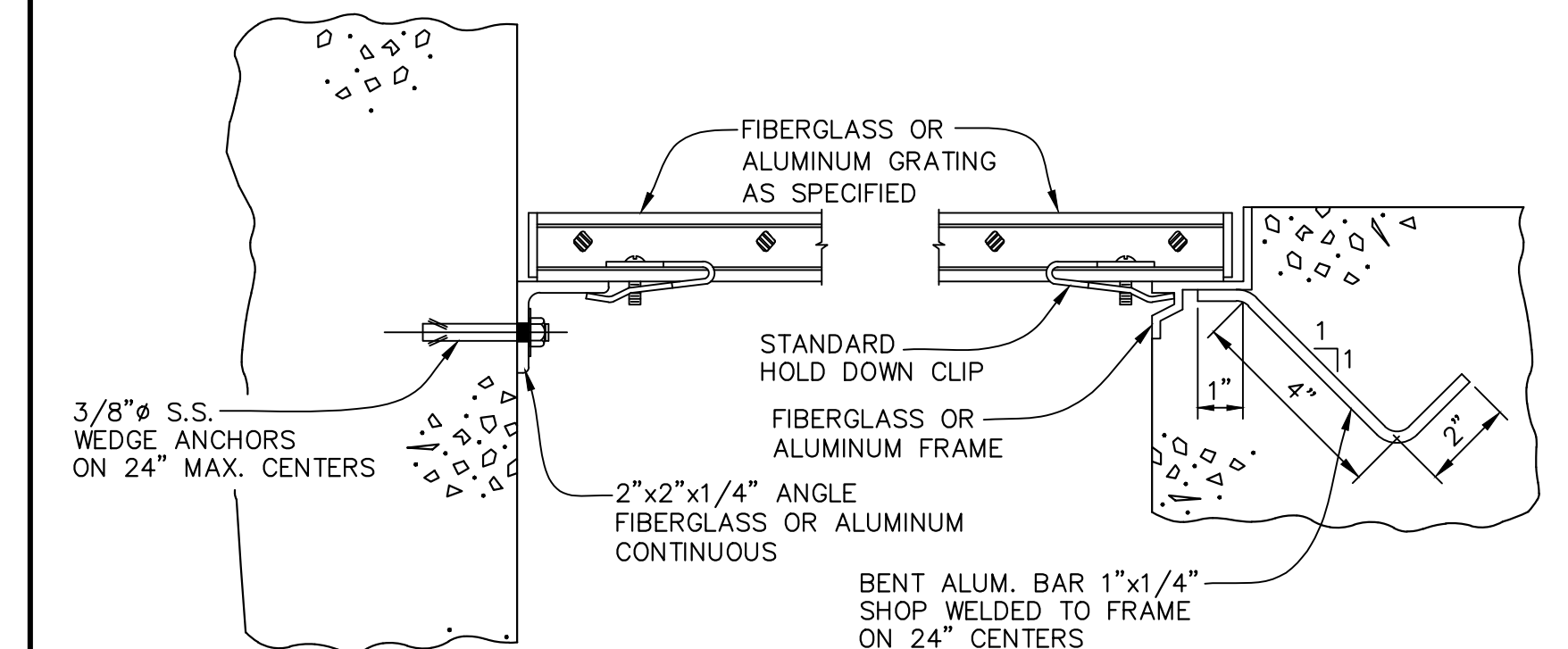


- NOTES
1. ALL CULVERTS SHALL HAVE 12" MIN. COVER UNDER ROADS.
 2. LAY CULVERTS ALONG NATURAL DITCH LINE (MIN. SLOPE = 0.5%).
 3. FOR CULVERT LOCATIONS, SEE SHEET 1.

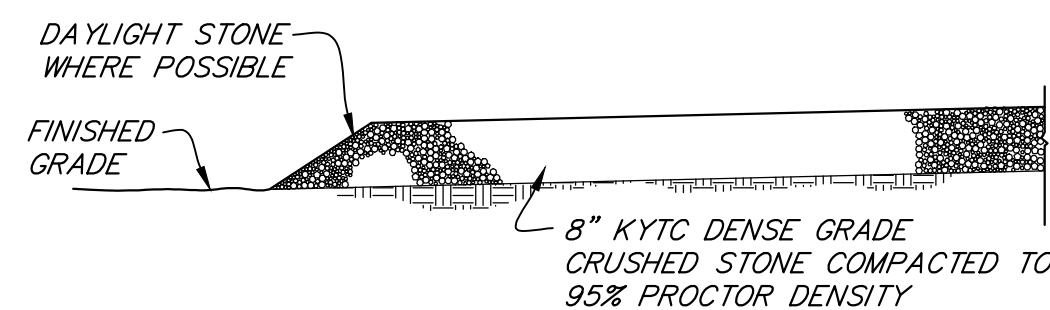
CULVERT DETAIL



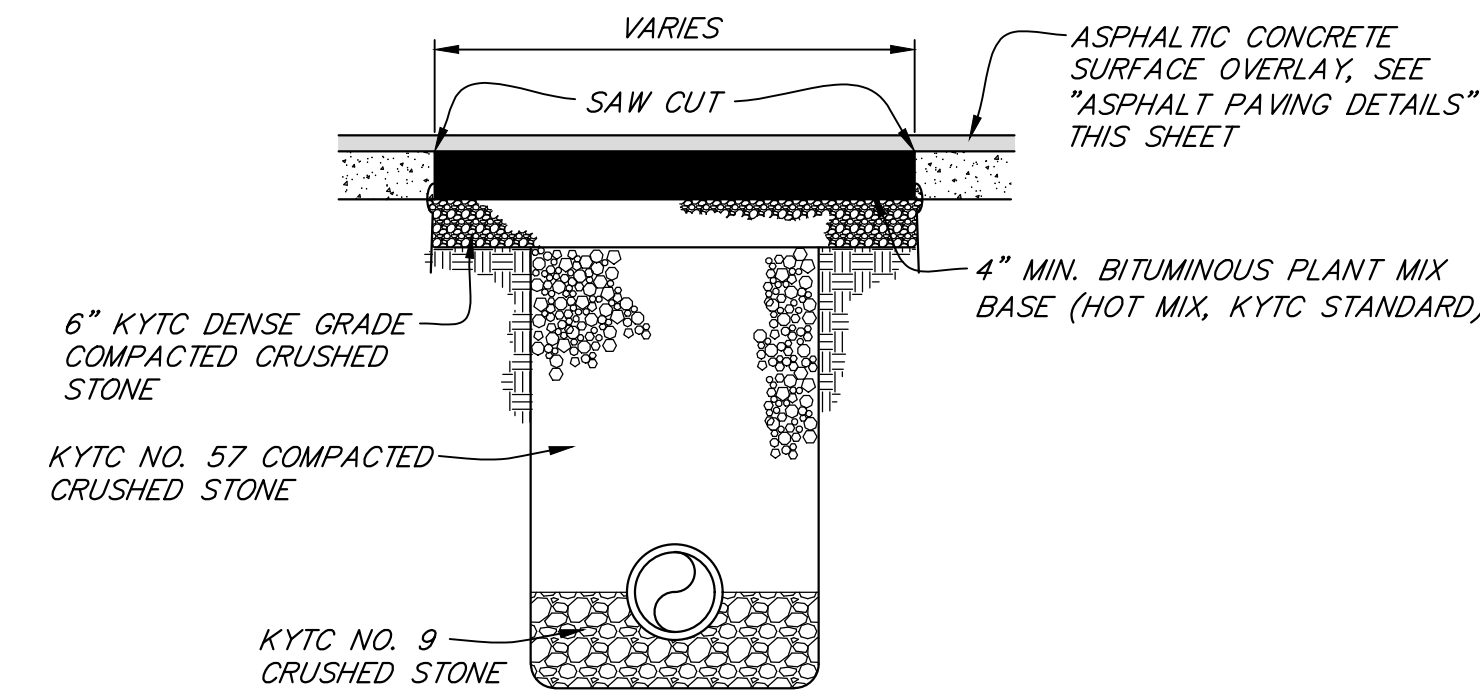
PRECAST CONCRETE HEADWALL DETAIL



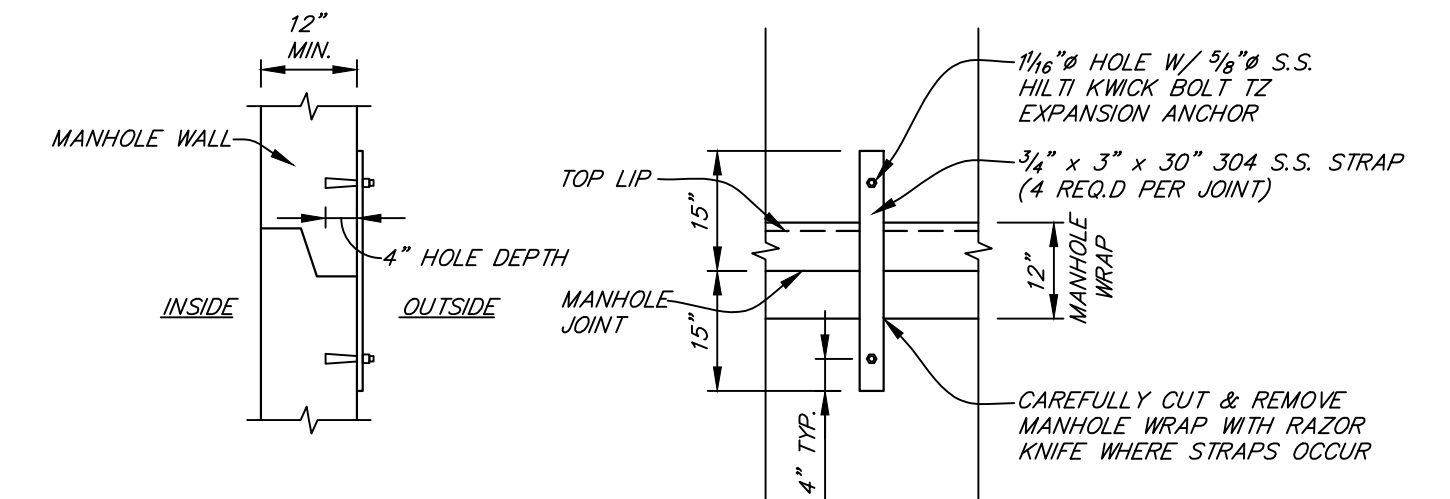
GRATING DETAIL



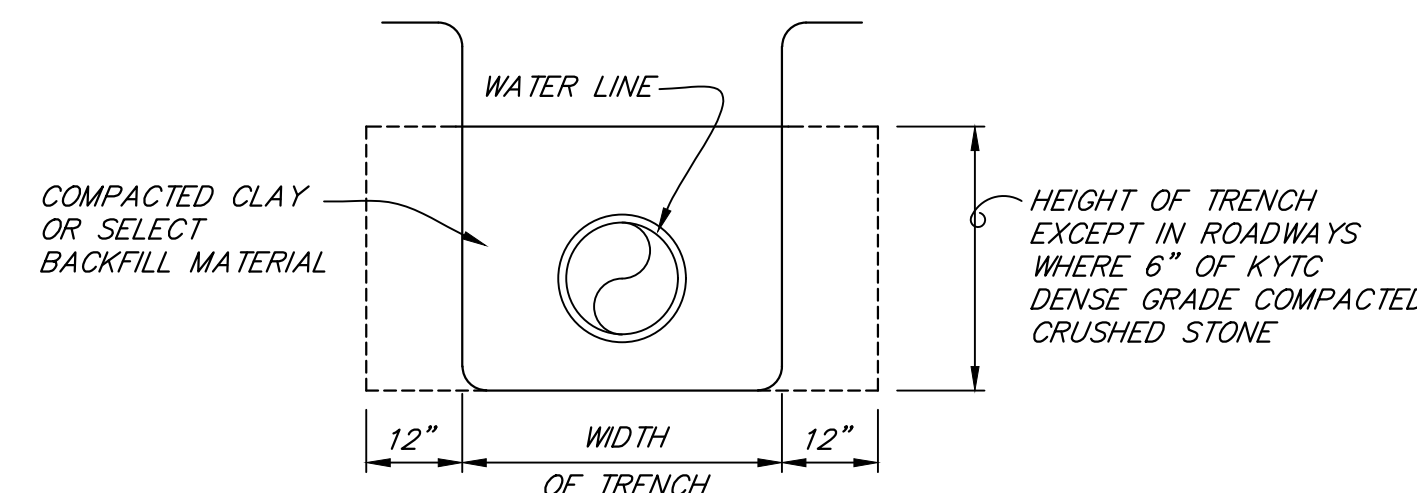
NEW DRIVES & PARKING AREAS GRAVEL PAVING DETAILS



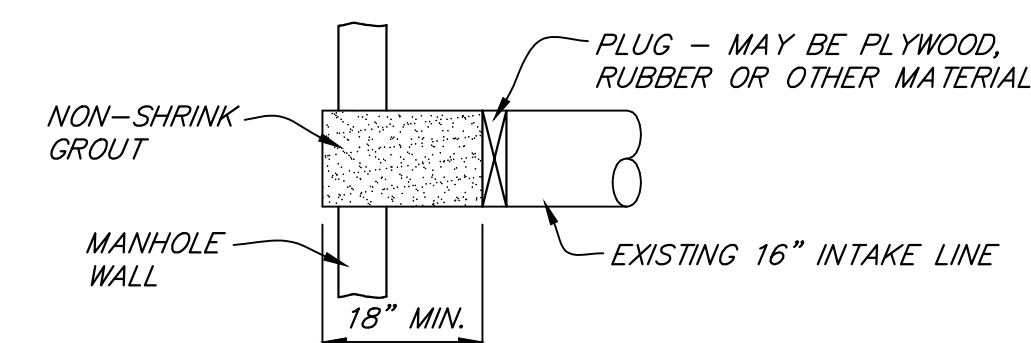
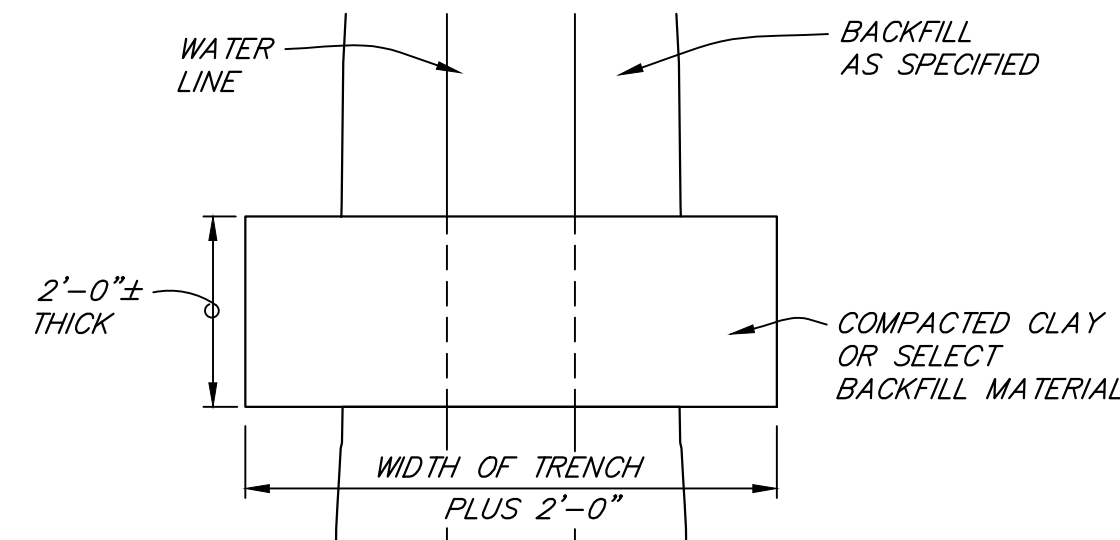
ASPHALT PAVEMENT PATCH DETAIL



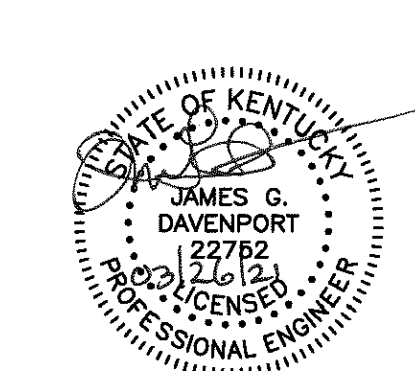
MANHOLE ANCHOR STRAP DETAIL



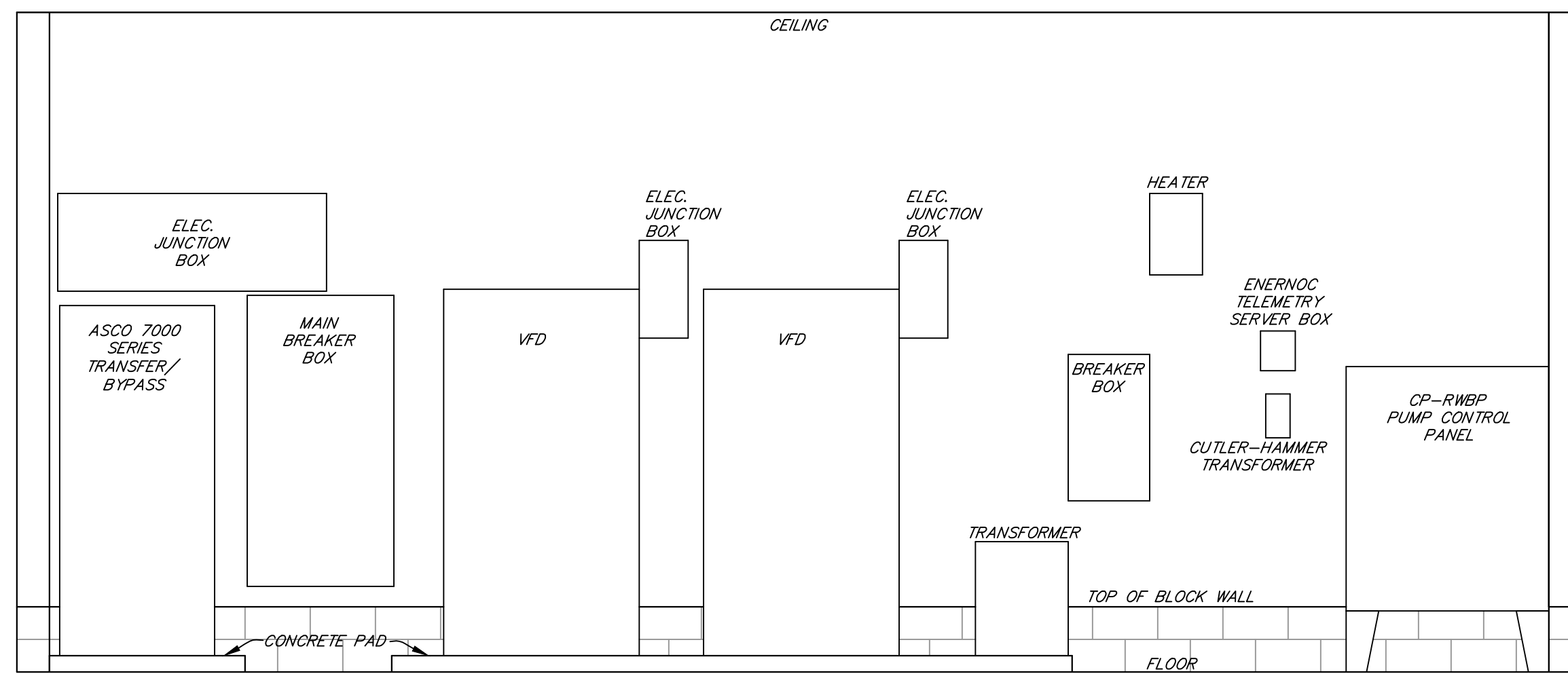
CHECK DAM DETAIL



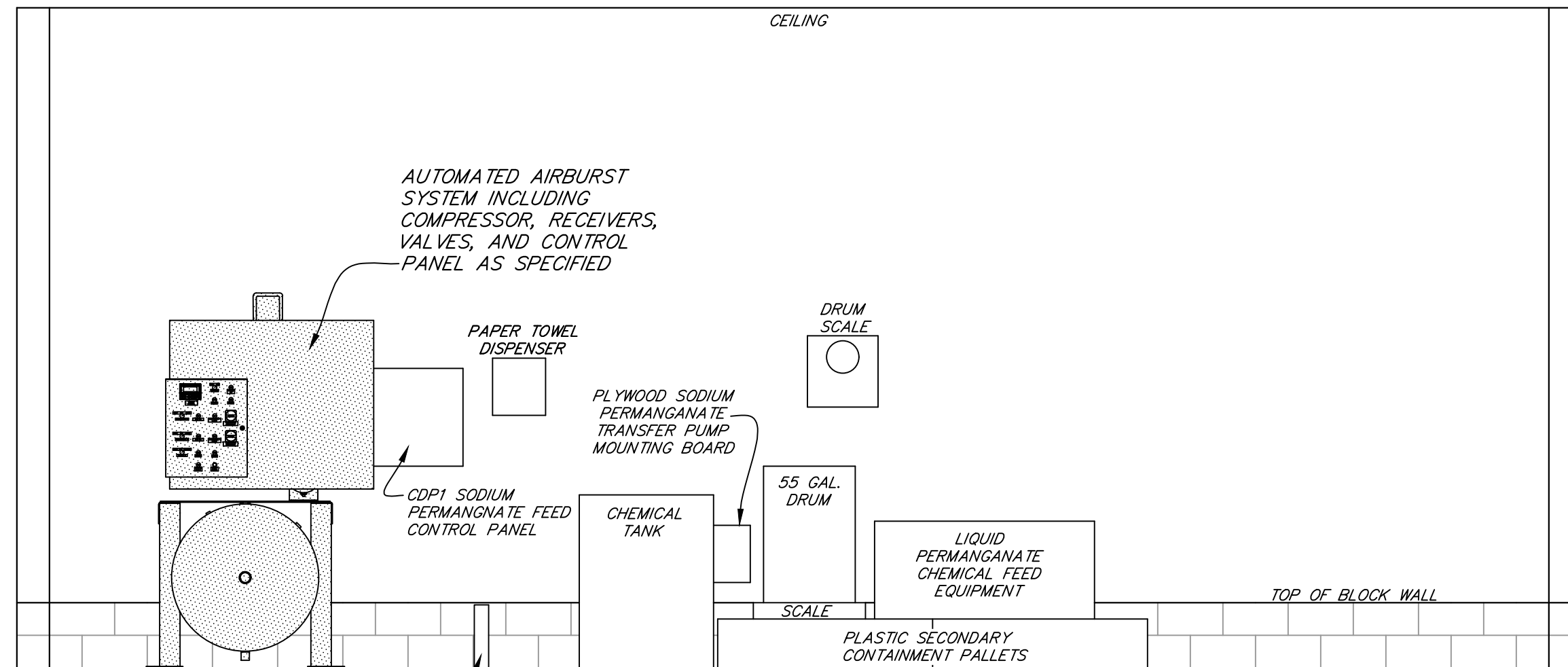
TYPICAL PLUG DETAIL



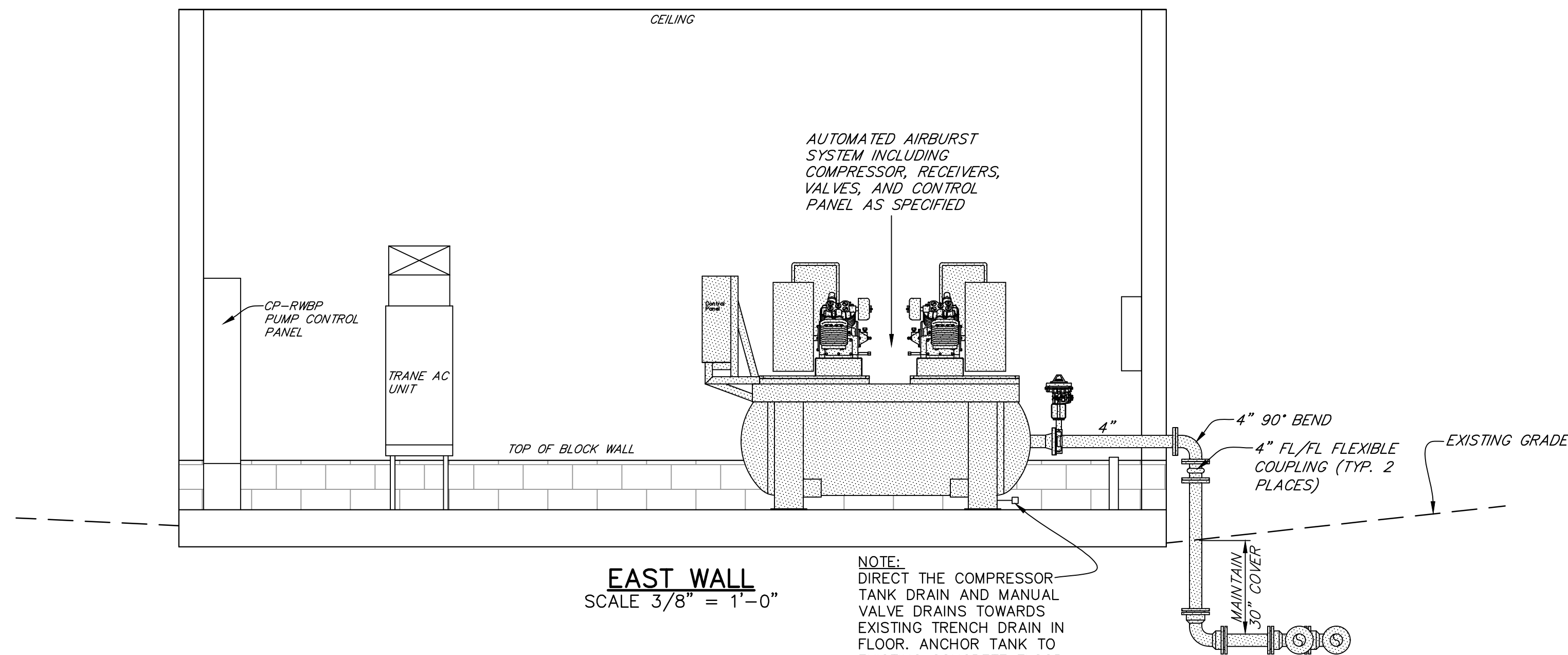
SHEET 5 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01	DESIGNED JGD
REVISION OR ISSUE	RAW WATER INTAKE IMPROVEMENTS	DRAWN RSS
	MISCELLANEOUS DETAILS	CHECKED JGD
	FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY	
PROJECT NUMBER 2125	SCALE AS SHOWN	DATE MAR. 2021
	DATE	DESIGNED BY J. R. Wauford & Company, Consulting Engineers, Inc. Nashville, Tennessee (615)883-3243 www.jrwauford.com



NORTH WALL
SCALE 3/8" = 1'-0"

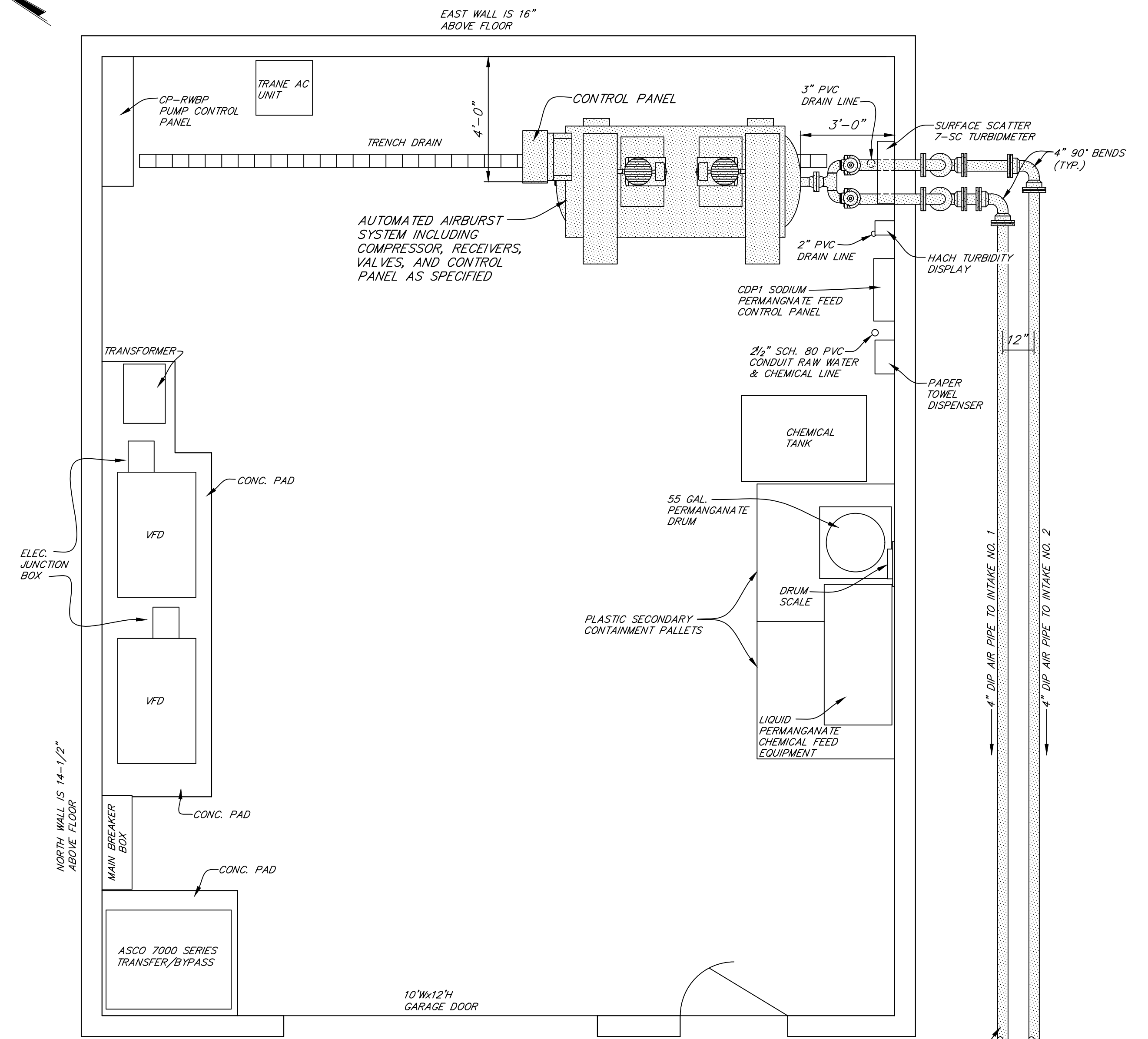


SOUTH WALL
SCALE 3/8" = 1'-0"



EAST WALL
SCALE 3/8" = 1'-0"

NOTE: DIRECT THE COMPRESSOR TANK DRAIN AND MANUAL VALVE DRAINS TOWARDS EXISTING TRENCH DRAIN IN FLOOR. ANCHOR TANK TO EXISTING CONCRETE FLOOR PER MFR. RECOMMENDATIONS.

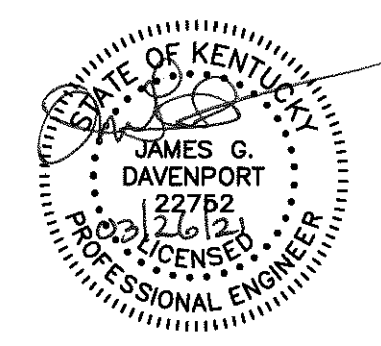


FLOOR PLAN
SCALE 3/8" = 1'-0"

SEE "RAW WATER INTAKE SITE PLAN" FOR ROUTING OF AIR PIPING MAINTAIN MIN. 30" COVER

LEGEND

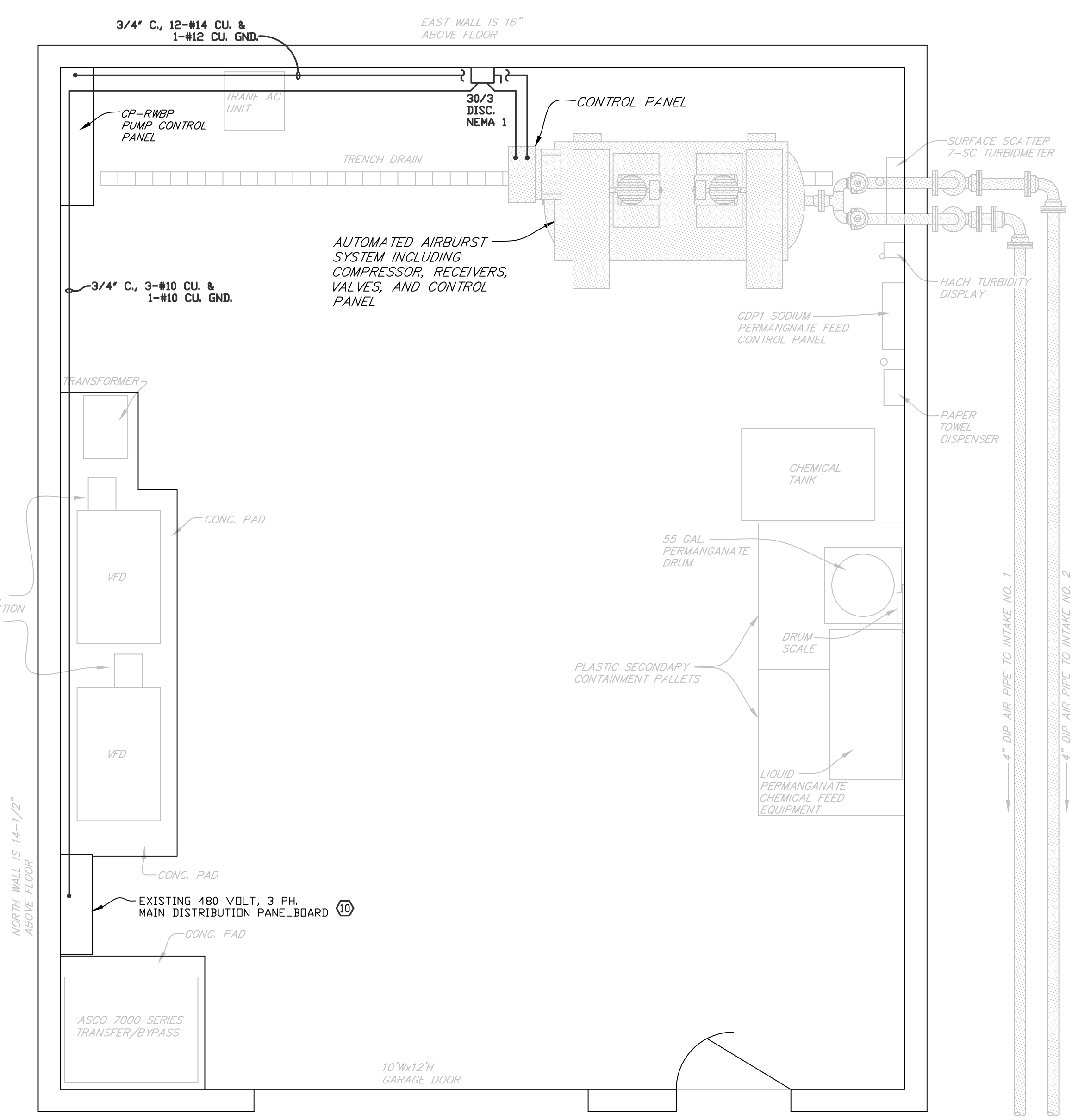
- NEW WORK
- EXISTING TO REMAIN



SHEET 6 OF 7	WATER SYSTEM IMPROVEMENTS		DESIGNED JGD
REVISION OR ISSUE	CONTRACT 21-01		DRAWN RSS
	RAW WATER INTAKE IMPROVEMENTS		CHECKED JGD
	ELECTRICAL BUILDING MODIFICATIONS		
	FLOOR PLAN AND INTERIOR ELEVATIONS		
	FOR		
	OHIO COUNTY WATER DISTRICT		
	OHIO COUNTY, KENTUCKY		
SCALE AS SHOWN	DATE MAR. 2021	PROJECT NUMBER 2125	DESIGNED JGD
		J. R. Wauford & Company, Consulting Engineers, Inc. Nashville, Tennessee (615) 883-3243 www.jrwauford.com	

GENERAL SPECIFICATIONS

- THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF THE PROPOSED WORK. THE CONTRACTOR SHALL NOT SCALE DRAWINGS FOR THE EXACT LOCATION OF EQUIPMENT AND WORK. THE EXACT LOCATION OF ALL PANELS AND EQUIPMENT TO BE CONFIRMED BY THE OWNER. THE CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED WORK TO INSURE PROPER INSTALLATION BEFORE FABRICATING AND INSTALLING ANY WORK.
- ALL WIRING SHALL BE TYPE THHN/THWN (90° C.) COPPER CONDUCTORS.
- PROVIDE COLOR CODED WIRE WITH A DIFFERENT COLOR FOR EACH PHASE, NEUTRAL, AND GROUND AS FOLLOWS: 120/240 VOLT, 1 PHASE CIRCUITS - PHASES A AND B: BLACK AND RED RESPECTIVELY; NEUTRAL: WHITE; GROUND: GREEN; 120/240 VOLT, 3 PHASE CIRCUITS - PHASE A, B, AND C: BLACK, ORANGE AND BLUE RESPECTIVELY; NEUTRAL: WHITE; GROUND: GREEN; 120/208 VOLT, 3 PHASE CIRCUITS - PHASES A, B, AND C: BLACK, RED AND BLUE RESPECTIVELY; NEUTRAL: WHITE; GROUND: GREEN; 277/480 VOLT, 3 PHASE CIRCUITS - PHASES A, B AND C: BROWN, ORANGE AND YELLOW RESPECTIVELY; NEUTRAL: GRAY; GROUND: GREEN. APPROVED COLOR TAPE IS ACCEPTABLE FOR FEEDERS. ALSO PROVIDE COLOR CODED WIRE FOR CONTROL CIRCUITS.
- ALL CONDUITS SHALL BE RIGID GALVANIZED STEEL CONDUIT.
- CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO WALLS, CEILINGS, BEAMS, OR COLUMNS, ETC. CONDUIT SHALL BE ADEQUATELY SUPPORTED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE REQUIREMENTS. NO CONDUIT SHALL BE SUPPORTED BY THE EQUIPMENT TO WHICH IT IS CONNECTED.
- USE CAST METAL CORROSION RESISTANT CONDUIT FITTINGS SIMILAR TO CONDULETS AND UNILETS WITH THREADED HUBS.
- OUTLET BOXES FOR LIGHTING, SWITCHES, AND RECEPTACLES IN AREAS WITH EXPOSED RIGID GALVANIZED STEEL CONDUIT SHALL BE CAST METAL CONDULETS AND UNILETS WITH THREADED HUBS, TYPE FS OR FD.
- ALL JUNCTION BOXES SHALL BE CORROSION RESISTANT, NEMA 4X STAINLESS STEEL.
- ALL ELECTRICAL SUPPORTS AND CONDUIT SUPPORTS, ANCHORS, BOLTS, LOCKNUTS, SCREWS, WASHERS, AND MOUNTING HARDWARE INCLUDING UNISTRUT, ANGLE IRON, AND STRUCTURAL MEMBERS SHALL BE TYPE 316 STAINLESS STEEL IN AREAS WHERE GALVANIZED RIGID STEEL CONDUIT IS USED.
- FINAL CONNECTION TO MOTORS SHALL BE MADE WITH FLEXIBLE STEEL CONDUIT. ALL WIRING SHALL BE COMPLETE TO MOTORS.
- FEEDER CABLES SHALL BE SPLICED ONLY AT TAP POINTS AS INDICATED ON THE DRAWINGS.
- SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, QUICK MAKE, QUICK BREAK WITH INTERLOCKING COVER AS MANUFACTURED BY SQUARE D OR EATON. PROVIDE NEMA 1 ENCLOSURE, NEMA 3R ENCLOSURE OR NEMA 4X-SS ENCLOSURE AS NOTED ON THE PLANS. PROVIDE EQUIPMENT GROUND LUG IN EACH SWITCH.
- PANELBOARDS, POWER PANELS, SAFETY SWITCHES AND OTHER ELECTRICAL EQUIPMENT SHALL BE EQUIPPED WITH ENGRAVED LAMINATED PLATES SECURELY MOUNTED WITH SCREWS.
- PANELBOARDS SHALL BE LABELED PER THE DRAWING IDENTIFYING THE BRANCH CIRCUITS. ALL STARTERS, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES, ETC. SHALL IDENTIFY THE LOAD BEING FED.
- THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL EXISTING MATERIALS AND EQUIPMENT MADE OBSOLETE BY, AND INTERFERING WITH THE ADDITIONS, ALTERATIONS, OR RAZING AS SHOWN ON THE PLANS AND SPECIFIED. MAINTAIN SUCH EXISTING EQUIPMENT AND MATERIALS INTACT AND IN EXISTING CONDITION INSOFAR AS POSSIBLE.
- ALL ELECTRICAL INSTALLATION SHALL BE MADE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND SUPPLEMENTS. ALL MATERIALS SHALL BEAR UNDERWRITER'S OFFICIAL LABELS WHERE SUCH LABELING IS CUSTOMARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND COORDINATION OF REQUIRED ELECTRICAL INSPECTIONS AND ANY FEES AND CHARGES ASSOCIATED WITH THE INSPECTIONS.
- THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROCURE ALL PERMITS, CERTIFICATES AND LICENSE REQUIRED OF HIM BY LAW FOR THE EXECUTION OF HIS WORK. HE SHALL COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS, ORDINANCES OR RULES AND ANY REGULATIONS RELATING TO THE PERFORMANCE OF THE WORK.
- ALL CONDUITS SHALL HAVE INSTALLED A GREEN EQUIPMENT GROUNDING CONDUCTOR WHICH SHALL BE ATTACHED TO ALL FIXTURES, PANELS, DEVICES, ETC.
- THE CONTRACTOR SHALL WARRANT ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE BY THE OWNER.
- THE CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID DATE TO DETERMINE ACTUAL CONDITIONS UNDER WHICH WORK SHALL BE DONE, TO FAMILIARIZE ONESELF WITH PROJECT AND TO VERIFY TOTAL SCOPE OF WORK REQUIRED. FAILURE TO DO SO SHALL NOT CONSTITUTE REASON FOR EXTRA CHARGE.



ELECTRICAL BUILDING MODIFICATIONS
SCALE 3/8" = 1'-0"

ELECTRICAL LEGEND

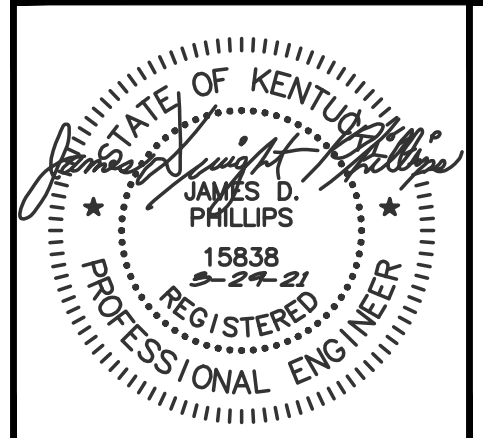
SYMBOL	DESCRIPTION
(---)	CONDUIT CONCEALED IN WALL OR CEILING
(---)	CONDUIT CONCEALED IN FLOOR SLAB OR UNDERGROUND
(---)	CONDUIT EXPOSED ON WALL OR CEILING
(---)	HOME RUN CONDUIT, CKT. W/PHASE(SHORT) & NEUTRAL(LONG)
(---)	CAPPED CONDUIT
(---)	FLEXIBLE CONDUIT
(---)	WEATHERPROOF CABLE
(---)	JUNCTION BOX
(---)	PULL BOX
(---)	SINGLE POLE SWITCH, 20 AMP, MTD. HT. PER SPECS.
(---)	SWITCH - 3 WAY, 20 AMP, MTD. HT. PER SPECS.
(---)	SWITCH - 4 WAY, 20 AMP, MTD. HT. PER SPECS.
(---)	DOUBLE POLE, SINGLE THROW SWITCH, 20 AMP, MTD. HT. PER SPECS.
(---)	DIMMER SWITCH - WALL MTD., 2,000 WATT, U.O.N., MTD. HT. PER SPECS.
(---)	DIMMER SWITCH - 3 WAY, 2,000 WATT, U.O.N., MTD. HT. PER SPECS.
(---)	WEATHERPROOF SWITCH, MTD. HT. PER SPECS.
(---)	MANUAL MOTOR SWITCH W/ THERMAL PROTECTION
(---)	OCCUPANCY SENSOR SWITCH, 20 AMP, MTD. HT. PER SPECS.
(---)	OCCUPANCY SENSOR/DIMMER SWITCH, 20 AMP, MTD. HT. PER SPECS.
(---)	CEILING MTD. OCCUPANCY SENSOR
(---)	CEILING MTD. DAYLIGHT HARVESTER
(---)	PHOTOELECTRIC CELL
(---)	HAND - OFF - AUTO SELECTOR SWITCH
(---)	START - STOP PUSHBUTTON STATIONS
(---)	THERMOSTAT
(---)	SINGLE RECEPTACLE - 20 AMP.
(---)	DUPLEX RECEPTACLE - MTD. HT. PER SPECS.
(---)	DOUBLE DUPLEX RECEPTACLE - MTD. HT. PER SPECS.
(---)	WEATHERPROOF DUPLEX RECEPTACLE
(---)	WEATHER RESISTANT DUPLEX RECEPTACLE
(---)	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPTER TYPE
(---)	DUPLEX RECEPTACLE, MTD. ABOVE COUNTER
(---)	DOUBLE DUPLEX RECEPTACLE, MTD. ABOVE COUNTER
(---)	230 VOLT RECEPTACLE
(---)	WELDING RECEPTACLE - 60 AMP, VOLTAGE, POLES AS INDICATED
(---)	FLOOR RECEPTACLE
(---)	FLOOR TYPE DATA/COMM. OUTLET
(---)	DATA/COMM. OUTLET, 2 GANG BOX, SINGLE PLASTER RING, 3/4" C.
(---)	SPEAKER - FLUSH MOUNTED IN CEILING
(---)	SURFACE MOUNTED LIGHTING FIXTURE
(---)	WALL MOUNTED LIGHTING FIXTURE
(---)	RECESSED LIGHTING FIXTURE
(---)	LIGHTING FIXTURE, SURFACE OR RECESSED, 2X2, 1X4, 2X4
(---)	LIGHTING FIXTURE, OPEN STRIP, SURFACE MTD.
(---)	DISCONNECT SWITCH, FUSIBLE, 30 AMP / 3 POLE
(---)	DISCONNECT SWITCH, NON-FUSIBLE, 30 AMP / 3 POLE
(---)	DISCONNECT SWITCH, NON-FUSIBLE, RAINTIGHT, 30 AMP / 3 POLE
(---)	BUSWAY PLUG, FUSIBLE, 30 AMP/3 POLE
(---)	BUSWAY PLUG, NONFUSIBLE, 30 AMP/3 POLE
(---)	EXHAUST FAN
(---)	DISTRIBUTION PANEL
(---)	LIGHTING OR BRANCH CIRCUIT PANELBOARD
(---)	EMERGENCY LIGHT
(---)	EMERGENCY LIGHT / EXIT LIGHT COMBINATION
(---)	EXIT LIGHT
(---)	OUTSIDE LIGHTING FIXTURE, POLE TYPE
(---)	MOTOR CONTROLLER OR STARTER, MAGNETIC
(---)	MOTOR CONTROLLER OR STARTER, MANUAL
(---)	COMBINATION STARTER AND DISCONNECT
(---)	MOTOR W/ APPROXIMATE HORSEPOWER
(---)	LIGHTING POLE
(---)	ELECTRICAL POLE
(---)	DESIGNATES HEATER TYPE
(---)	DESIGNATES NOTE NUMBER
(---)	DESIGNATES CONDUIT & WIRE DESCRIPTION PER SCHEDULE
(---)	GROUNDING ELECTRODE AND CONDUCTOR SYSTEM
(---)	GROUNDING ELECTRODE SYSTEM

NOTES:

- THIS DRAWING IS DIAGRAMMATIC AND IS INTENDED TO SHOW THE GENERAL EXTENT OF THE PROPOSED MODIFICATIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED MODIFICATIONS AND MEET ALL REQUIREMENTS OF STATE AND LOCAL CODES.
- THE ELECTRICAL CONTRACTOR SHALL REFER TO THE CIVIL, STRUCTURAL AND PIPING PLAN FOR ALL DIMENSIONS, SECTIONS, DETAILS, ELEVATIONS, VOLTAGE REQUIREMENTS AND PHYSICAL SIZE OF ALL EQUIPMENT FURNISHED BY OTHER TRADES. COORDINATE AND ADJUST ALL ELECTRICAL INSTALLATIONS ACCORDINGLY.
- ALL CONDUIT ROUTING SHOWN IS DIAGRAMMATIC. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL OF THE RACEWAY INSTALLATIONS WITH OTHER TRADES TO AVOID INTERFERENCES WITH STRUCTURES AND PIPING. MAINTAIN APPROX. 24" CLEARANCE BETWEEN BURIED CONDUIT AND ALL STRUCTURES.
- ALL PROPOSED POWER, CONTROL, AND SIGNAL WIRING & CABLES SHALL BE PROPERLY IDENTIFIED AND LABELED WITH AN APPROVED MARKING SYSTEM AT ALL LOCATIONS AS CALLED FOR IN THE DETAILED SPECIFICATIONS. ALL POWER AND BRANCH CIRCUIT WIRING SHALL BE TAGGED TO MATCH MOTOR CONTROL CENTER OR PANEL SCHEDULES. ALL MOTOR LEAD WIRING SHALL BE TAGGED TO MATCH MOTOR NUMBERS WITH T1, T2, T3 IDENTIFYING EACH LEAD. ALL CONTROL AND SIGNAL WIRING SHALL BE TAGGED TO MATCH THE EQUIPMENT VENDOR'S DETAILED INTERCONNECTION DRAWINGS.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION AND INTERCONNECTIONS OF ALL AIR COMPRESSOR AND AIR BURST EQUIPMENT WITH EQUIPMENT SUPPLIER.
- ALL ELECTRICAL INSTALLATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE AND THE 2018 KENTUCKY BUILDING CODE.
- ALL ELECTRICAL INSTALLATIONS SHALL CONFORM TO SEISMIC INSTALLATION STANDARDS PER 2018 EDITION OF KENTUCKY BUILDING CODE AND ALL STATE AND LOCAL CODES.
- FURNISH AND INSTALL STAINLESS STEEL UNISTRUT FOR MOUNTING OF ALL ELECTRICAL DEVICES.
- ALL FASTENERS USED TO SECURE ELECTRICAL DEVICES SHALL BE 316 STAINLESS.
- FURNISH AND INSTALL ONE (1) - EACH 30 A., 3 POLE CIRCUIT BREAKER IN EXISTING MAIN DISTRIBUTION PANELBOARD.

LEGEND

- NEW WORK
- EXISTING TO REMAIN



PHILLIPS ENGINEERING, INC.
ELECTRICAL DESIGN
P.O. BOX 585
617 S. FIRST ST.
UNION CITY, TN 38261
(731) 885-9532

SHEET 7 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS
REVISION OR ISSUE	ELECTRICAL BUILDING MODIFICATIONS, SPECIFICATIONS AND LEGEND
FOR	OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY
SCALE	AS SHOWN
PROJECT NUMBER	2125
DATE	MAR. 2021
DESIGNED	JJP
DRAWN	TWR
CHECKED	JDP

WATER SYSTEM IMPROVEMENTS

FOR THE

OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY

CONTRACT 21-01

RAW WATER INTAKE IMPROVEMENTS
FUNDED IN PART BY COMMUNITY DEVELOPMENT BLOCK GRANT
PROJECT NO. CDBG 21-006

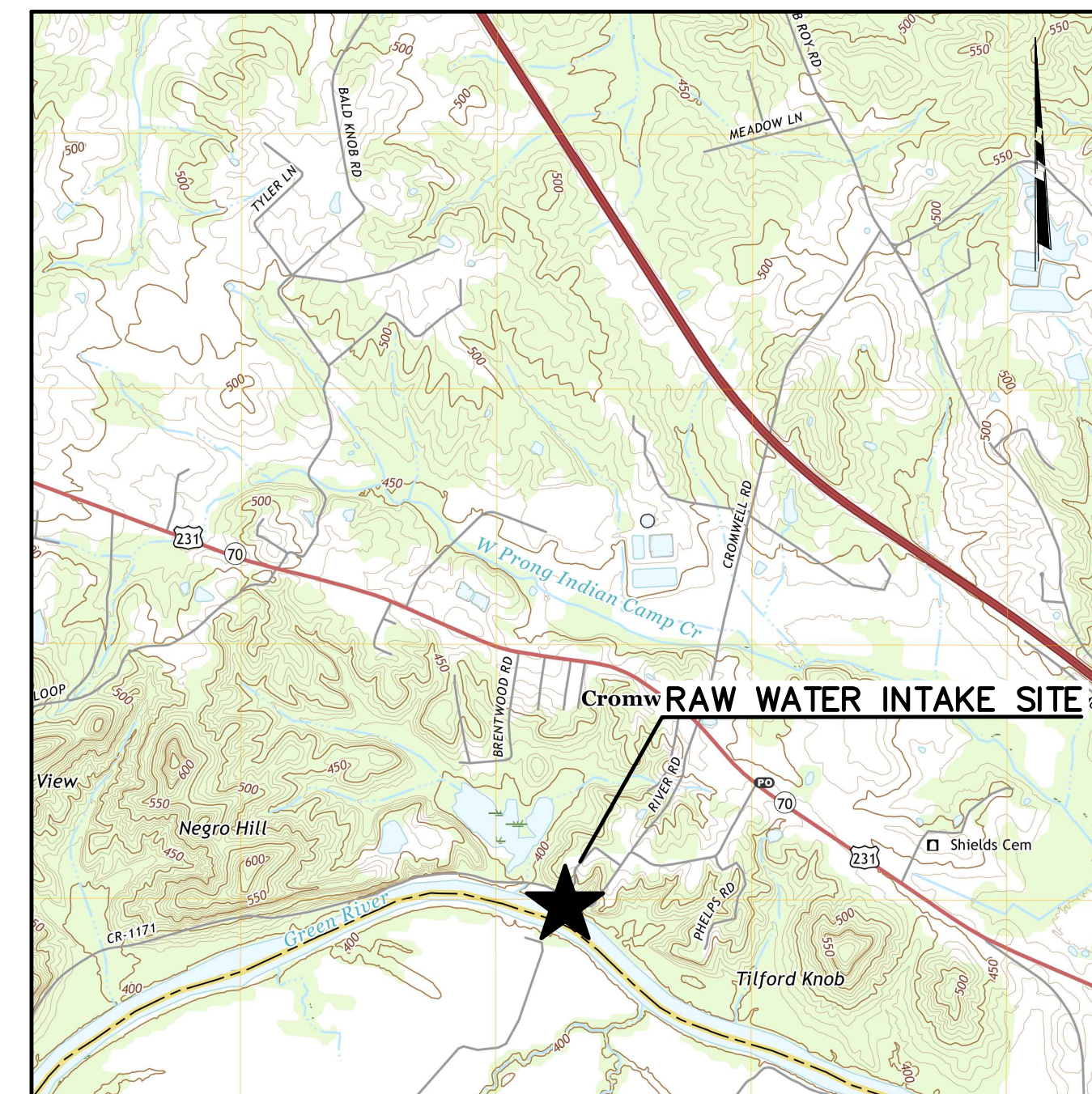
PROJECT NO. 2125

MARCH, 2021

REVISED DECEMBER 2022

WAUFORD

J. R. Wauford & Company, Consulting Engineers, Inc.
Nashville, Tennessee
(615)883-3243
www.jrwauford.com



LOCATION MAP
SCALE: 1" = 2,000'

INDEX OF DRAWINGS

SHEET	DESCRIPTION
1.	RAW WATER INTAKE SITE PLAN
2.	RAW WATER VALVE WETWELL
3.	RAW WATER SCREENING ASSEMBLIES
4.	RAW WATER INTAKE PIPES #1 AND #2 PROFILES AND AIR PIPE PROFILE
5.	MISCELLANEOUS DETAILS
6.	ELECTRICAL BUILDING MODIFICATIONS FLOOR PLAN AND INTERIOR ELEVATIONS
7.	ELECTRICAL BUILDING MODIFICATIONS SPECIFICATIONS AND LEGEND

OFFICIALS

GENERAL MANAGER
ERIC HICKMAN, P.E.

CHAIRMAN
BEN EVERLEY

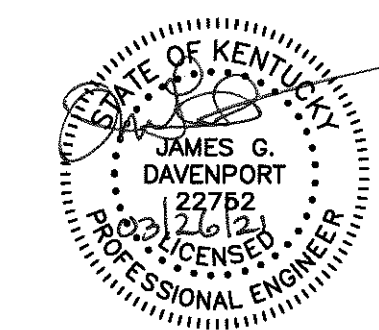
VICE CHAIRMAN
MARK WHITEHOUSE

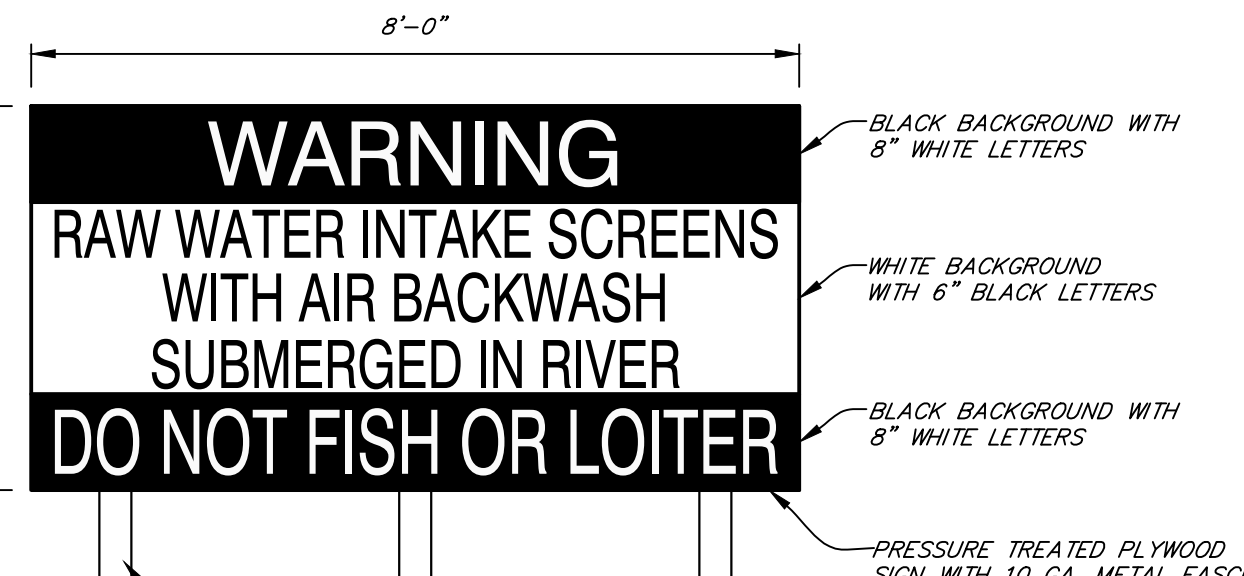
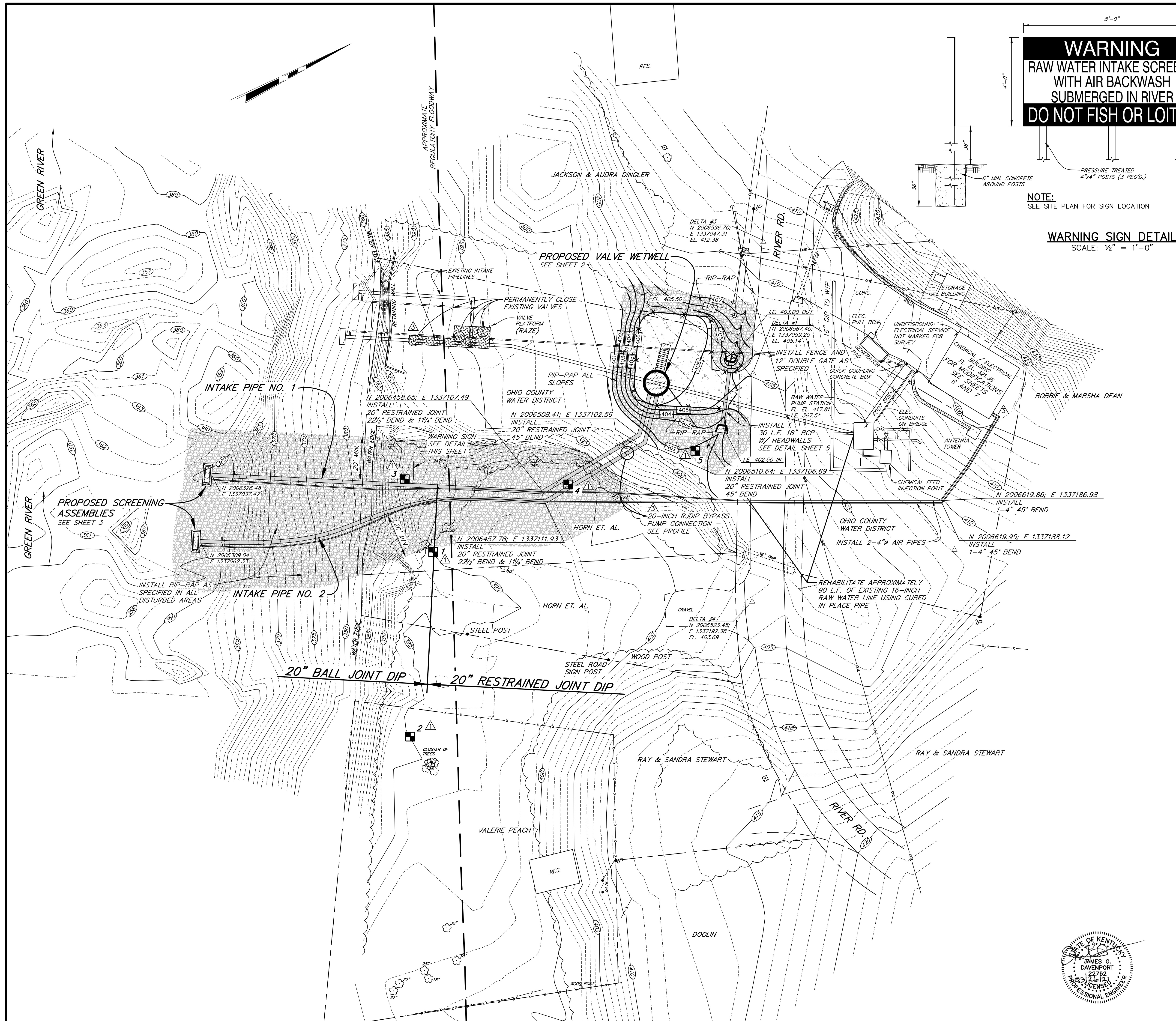
SECRETARY / TREASURER
EDDIE EMBRY

BOARD MEMBERS
CLETUS GREER
REID HAIRE
MICHAEL NEWMAN
LYNDON J. RAYMOND



Know what's below.
Call before you dig.





NOTE:
SEE SITE PLAN FOR SIGN LOCATION

WARNING SIGN DETAIL
SCALE: 1/2" = 1'-0"

SITE PLAN LEGEND

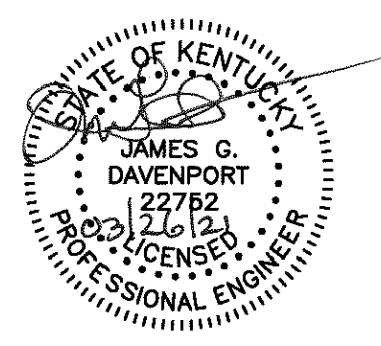
- PROPOSED**
- NEW WORK
 - NEW FENCE
 - APPROXIMATE GEOTECHNICAL BORE LOCATION
 - RAZE
- EXISTING**
- OVERHEAD ELECTRIC
 - PAVED SURFACE
 - UNPAVED SURFACE
 - TOP / TOE OF BANK
 - DITCH LINE OR CREEK
 - TREE LINE
 - TREE
 - BUSH
 - FENCE LINE
 - WATER METER
 - VALVES
 - POWER POLE & GUY WIRE
 - CULVERT
 - IRON PIN
 - PROPOSED RIPRAP
 - DELTA
 - PROPOSED GRAVEL PARKING

NOTE:
FASTEN METAL TO PLYWOOD WITH LIQUID ADHESIVE AND 3/4-INCH STAINLESS STEEL SCREWS @ 24" O.C. HORIZONTAL AND VERTICAL.

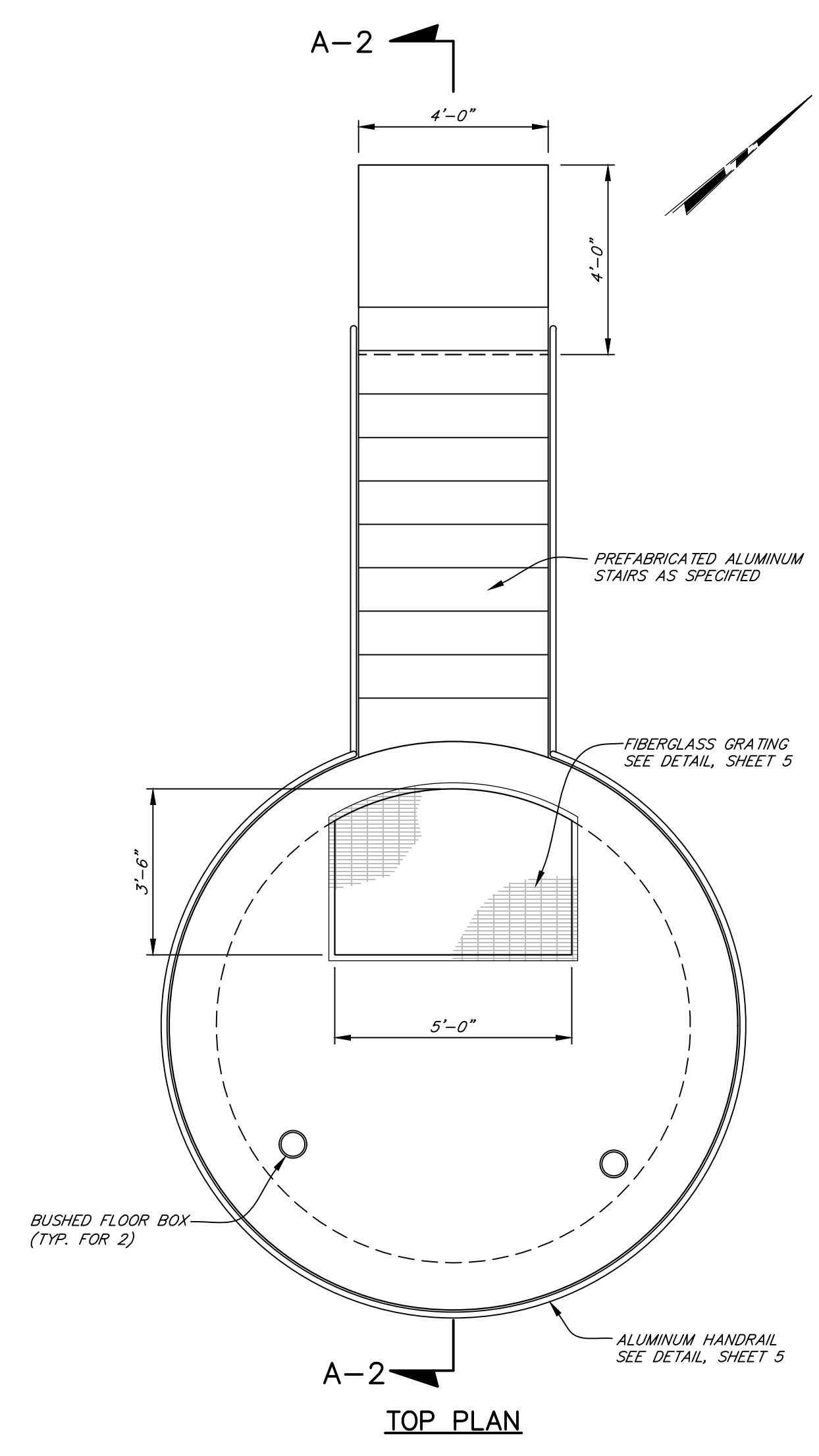
GENERAL NOTES:

1. THE 100 YEAR FLOOD ELEVATION FOR THIS SITE IS APPROXIMATELY 411.50' AS SHOWN ON FEMA MAP 21183C0435D REVISED JUNE 2, 2011.
2. NORMAL POOL ELEVATION = 379.90 ACCORDING TO NAVIGATION CHARTS - GREEN RIVER - LOUISVILLE DISTRICT U.S. ARMY CORPS OF ENGINEERS, REVISED JUNE 2011.
3. LOCATIONS OF EXISTING BURIED PIPE DEPICTED ON THIS SHEET ARE FROM RECORD DRAWINGS OF PREVIOUS PROJECTS AND SHOULD BE FIELD VERIFIED BEFORE PROCEEDING WITH PROPOSED WORK.
4. THE CONTRACTOR SHALL BE AWARE THAT THE PRECISE LOCATION OF THE EXISTING 16-INCH RAW WATER PIPE IS UNKNOWN. THE PROPOSED VALVE WETWELL SHALL BE CENTERED OVER THE EXISTING 16-INCH RAW WATER PIPE REGARDLESS OF LOCATION.
5. THE CONTRACTOR SHALL BE STRICTLY AND SOLELY LIABLE FOR ANY FINES LEVIED BY ANY REGULATORY AGENCY DUE TO VIOLATION OF WATER QUALITY REGULATIONS CAUSED BY CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL USE ALL NECESSARY TEMPORARY WATER POLLUTION CONTROL MEANS AS SPECIFIED AT NO ADDITIONAL COST TO THE OWNER.
6. SEE SECTION 1, PARAGRAPH 1 EXECUTION AND COORDINATION OF THE WORK OF THE DETAILED SPECIFICATIONS FOR DESCRIPTION OF REQUIREMENTS FOR OPERATION OF EXISTING FACILITIES DURING CONSTRUCTION.
7. COORDINATES GENERALLY REFER TO OUTSIDE CORNERS AND/OR CENTER OF STRUCTURES. REFER TO PLANS OF EACH STRUCTURE FOR MORE PRECISE LOCATION INFORMATION.
8. ALL SLABS ON GRADE SHALL HAVE A 4 MIL VAPOR BARRIER AS DESCRIBED IN SECTION 3 OF THE DETAILED SPECIFICATIONS.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARILY REROUTING ANY EXISTING SITE PIPING HE DISTURBS WHICH IS NECESSARY FOR THE NORMAL OPERATION OF THE EXISTING FACILITIES.
10. THE CONTRACTOR SHALL REPLACE ANY PAVEMENT DAMAGED DURING CONSTRUCTION. SEE DETAIL, SHEET 5.
11. * INDICATES INFORMATION CONTRACTOR SHALL FIELD VERIFY.
12. BACKFILL ALL DITCHES UNDER EXISTING OR PROPOSED PAVEMENT AND SIDEWALKS WITH COMPACTED CRUSHED STONE.
13. LOCATION OF EXISTING FIELD PIPING IS TAKEN FROM EXISTING PLANS AND FROM FIELD SURVEY BUT IS NOT GUARANTEED. THE CONTRACTOR SHALL LOCATE ALL EXISTING PIPING THAT MAY INTERFERE WITH PROPOSED CONSTRUCTION AND SHALL RELOCATE SAME AS REQUIRED AT NO EXTRA COST.
14. THE CONTRACTOR IS PROHIBITED FROM EXCAVATING BY KRS CHAPTER 367 UNTIL EXISTING UNDERGROUND UTILITIES HAVE BEEN LOCATED BY PROPERLY NOTIFIED UTILITY COMPANIES. UTILITY LOCATIONS ARE APPROXIMATE AND BASED ON INFORMATION PROVIDED BY OTHERS. PHONE NUMBERS FOR KNOWN UTILITIES IN THE AREA ARE SHOWN ON THIS SHEET. HOWEVER OTHER UTILITY COMPANIES MAY ALSO HAVE FACILITIES IN THE PROJECT AREA. THE CONTRACTOR SHALL IDENTIFY AND CONTACT ALL UTILITIES PER LEGAL REQUIREMENTS. KENTUCKY BUD 1-800-752-6007.
15. THE CONTRACTOR SHALL STAY WITHIN THE LIMITS OF CONSTRUCTION AS SET OUT IN SECTION 1 OF THE DETAILED SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND/OR REPLACEMENT OF ALL EXISTING DRAINAGE CULVERTS DISTURBED DURING CONSTRUCTION. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK.

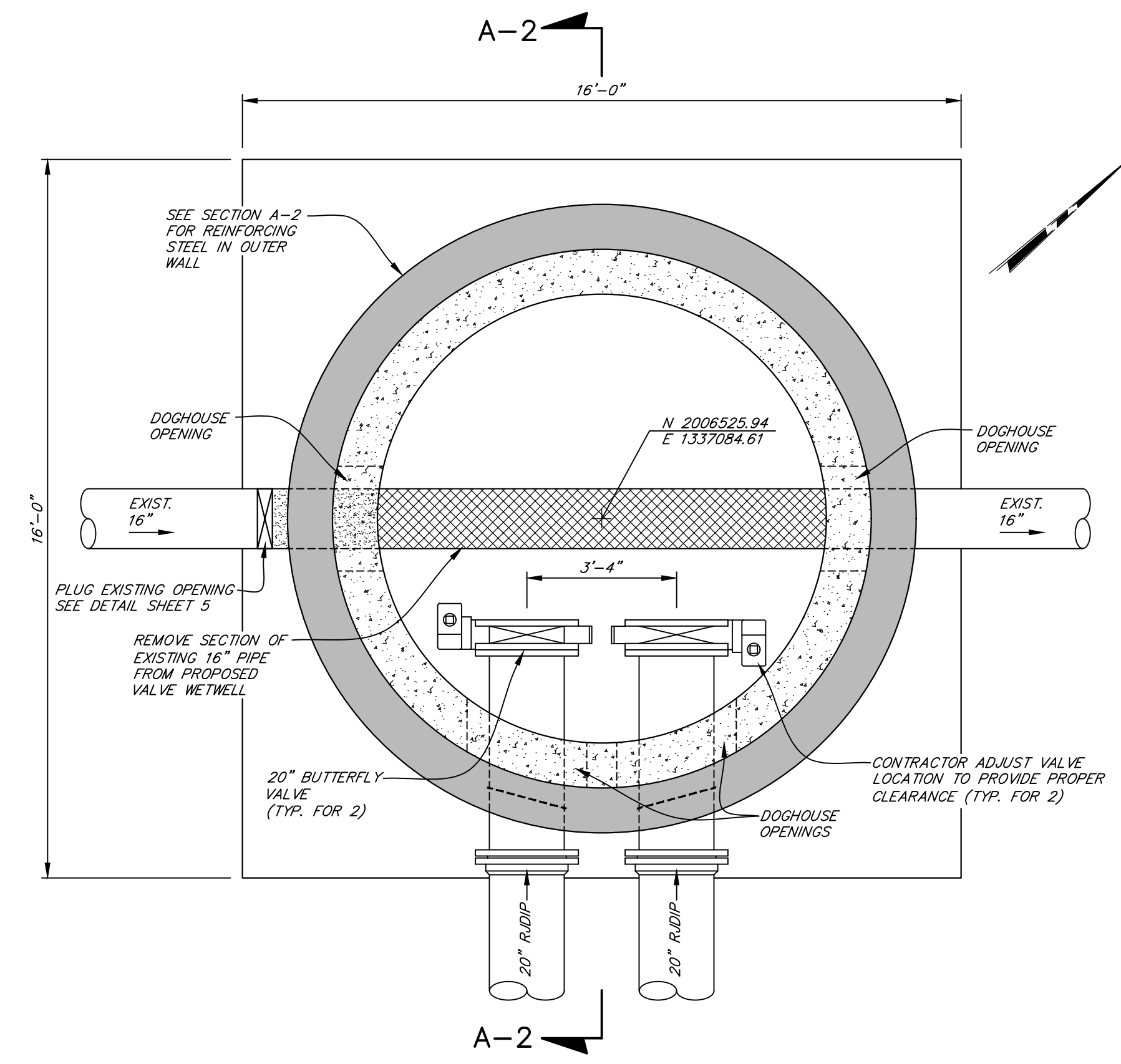
SHEET 1 OF 7		WATER SYSTEM IMPROVEMENTS	
REVISION OR ISSUE		CONTRACT 21-01	
ADDENDUM NO. 1 2/01/23		RAW WATER INTAKE IMPROVEMENTS	
ADDENDUM NO. 3 2/17/23		RAW WATER INTAKE SITE PLAN	
		FOR	
		OHIO COUNTY WATER DISTRICT	
		OHIO COUNTY, KENTUCKY	
PROJECT NUMBER		SCALE	DESIGNED
2125	1" = 20'	JGD	
	DATE	DRAWN	
	MAR. 2021	RSS	
		CHECKED	
		JGD	



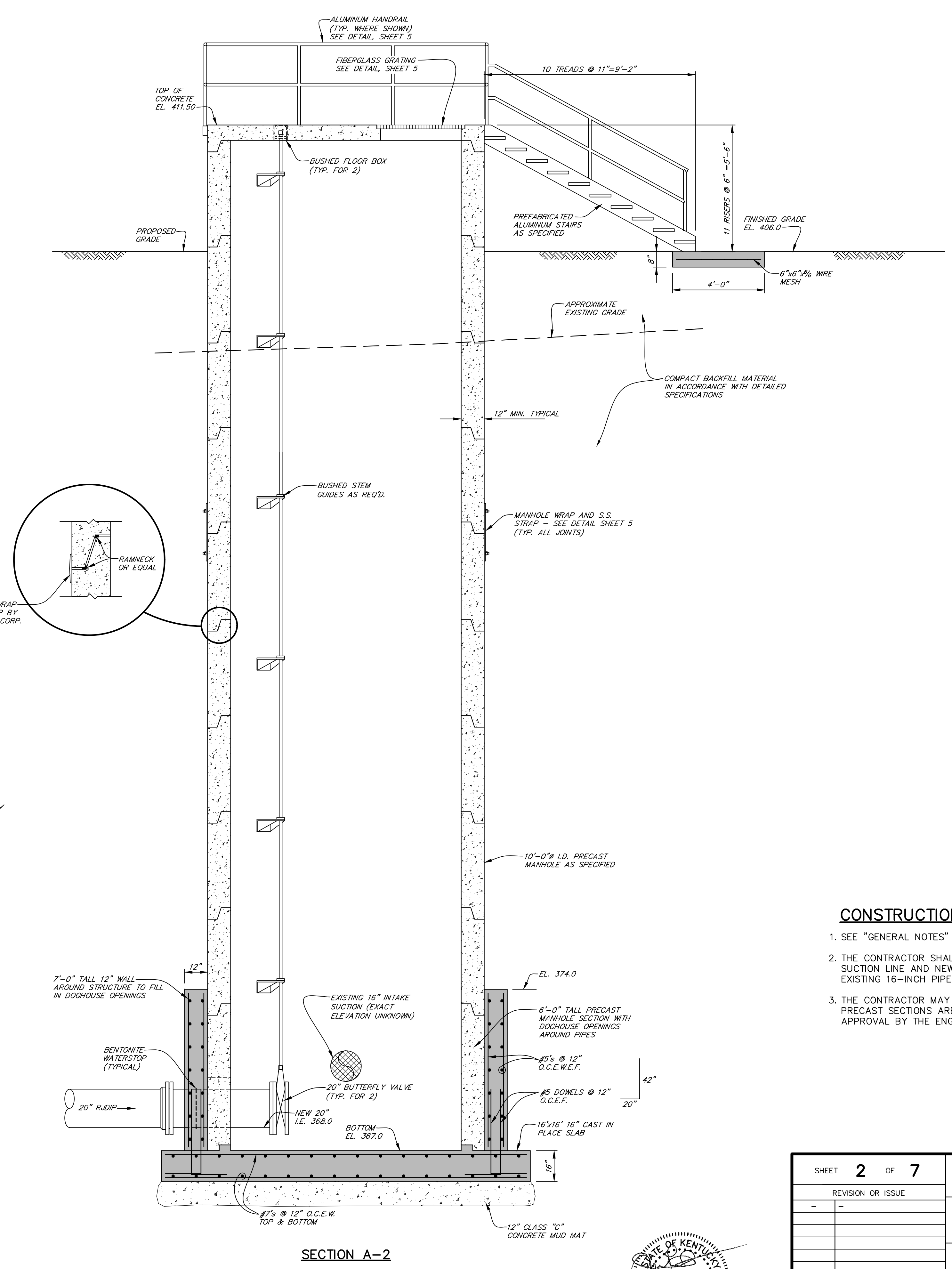
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TOP PLAN



WALL PLAN (@ ELEV. 371.0)

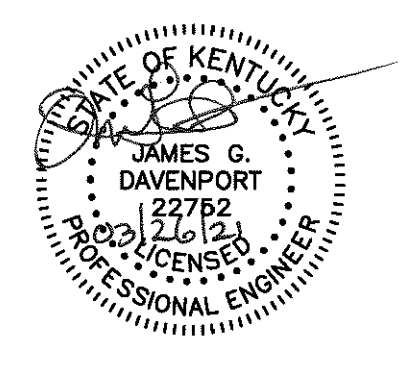


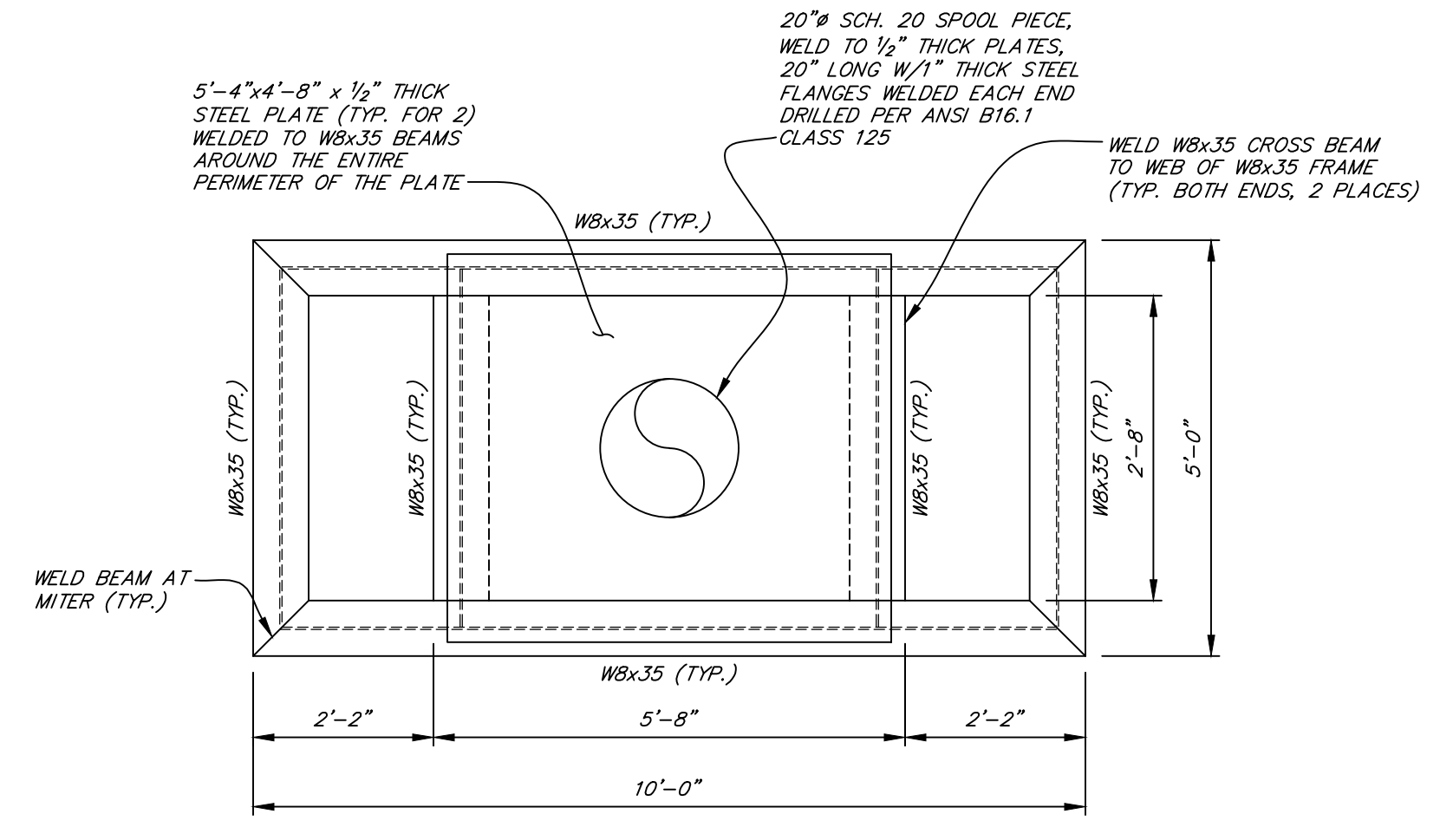
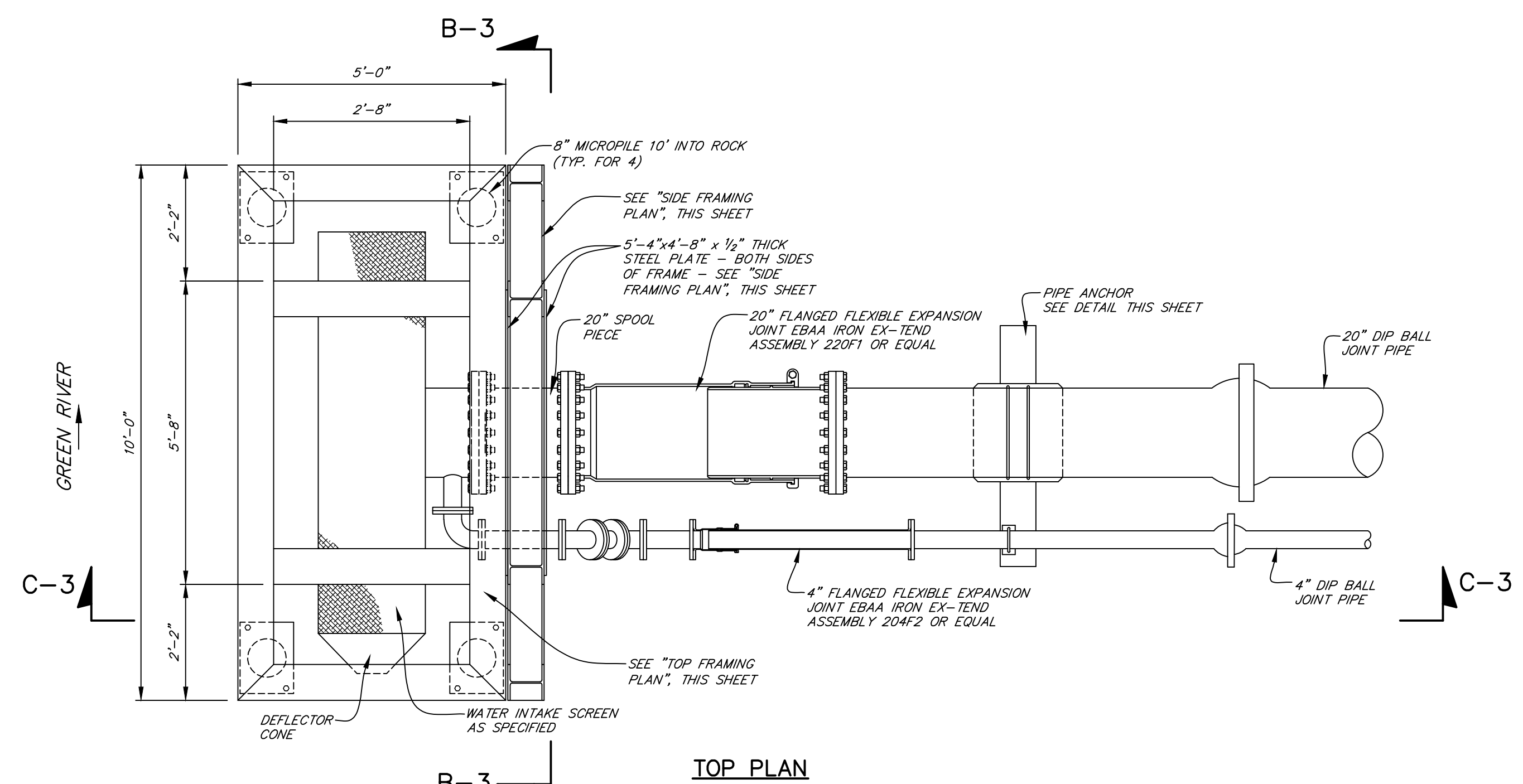
SECTION A-2

CONSTRUCTION NOTES

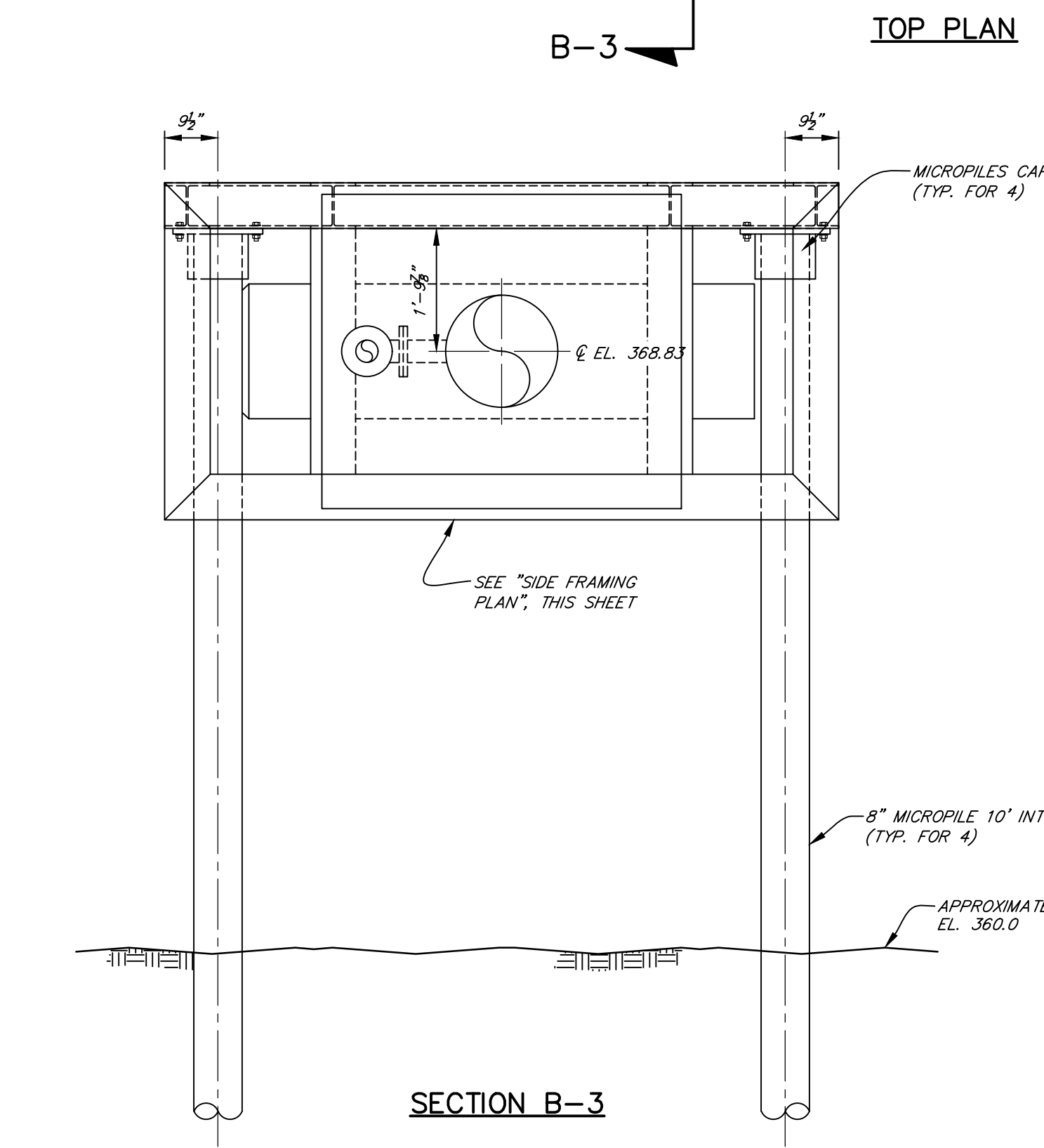
1. SEE "GENERAL NOTES" ON SHEET 1.
2. THE CONTRACTOR SHALL FULLY CONSTRUCT AND TEST THE 20-INCH SUCTION LINE AND NEW VALVE WETWELL PRIOR TO REMOVING THE EXISTING 16-INCH PIPELINE IN THE NEW VALVE WETWELL.
3. THE CONTRACTOR MAY SUBSTITUTE CAST IN PLACE CONCRETE WHERE PRECAST SECTIONS ARE INDICATED AT NO ADDITIONAL CHARGE AFTER APPROVAL BY THE ENGINEER.

SHEET 2 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS	
REVISION OR ISSUE	RAW WATER VALVE WETWELL	
	FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY	
SCALE	3/8"=1'-0"	DESIGNED JGD
DATE	MAR. 2021	DRAWN RSS
PROJECT NUMBER	2125	CHECKED JGD

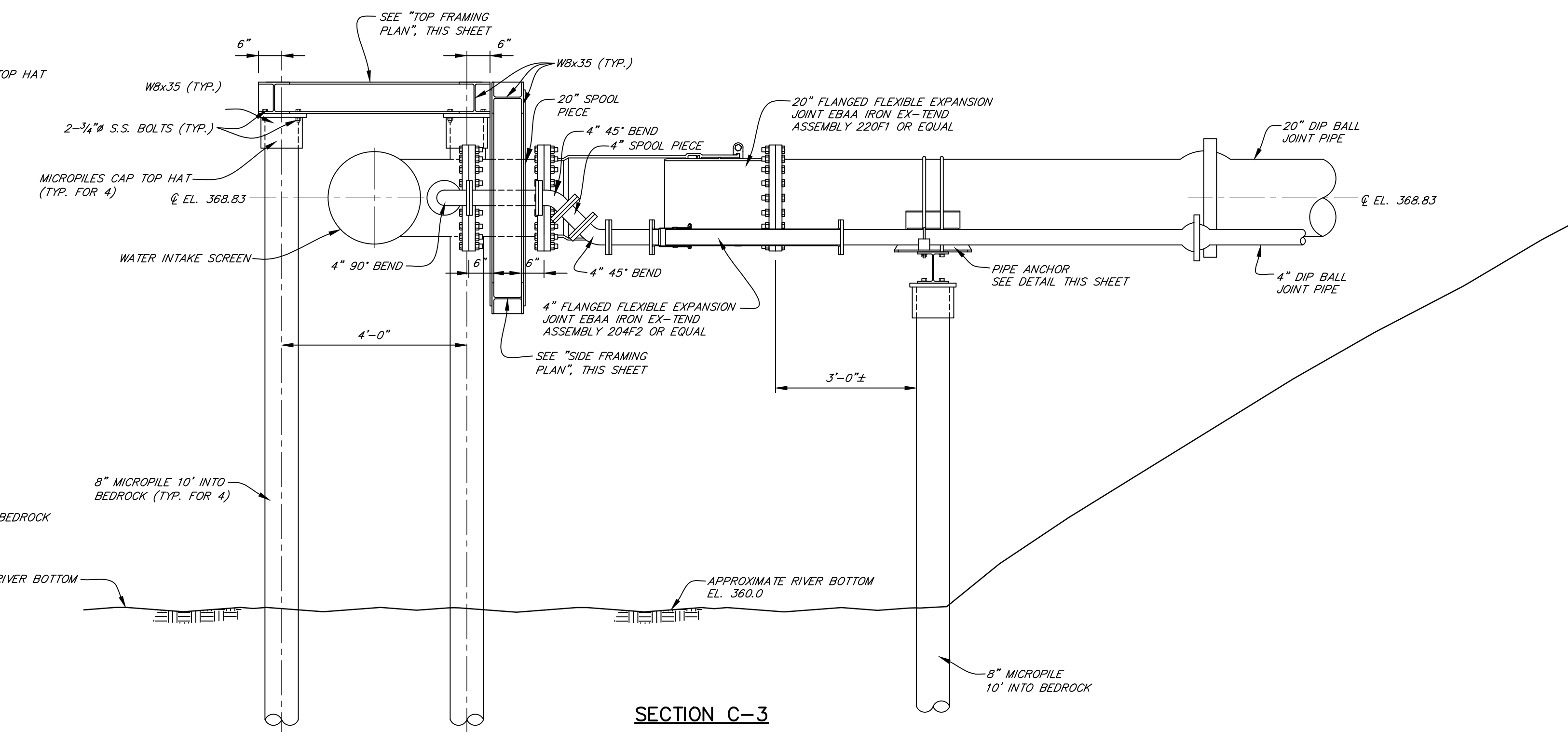




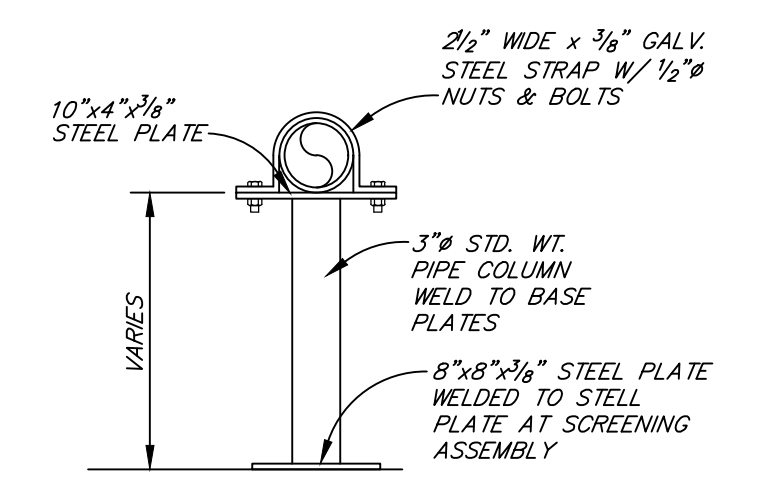
SIDE FRAMING PLAN



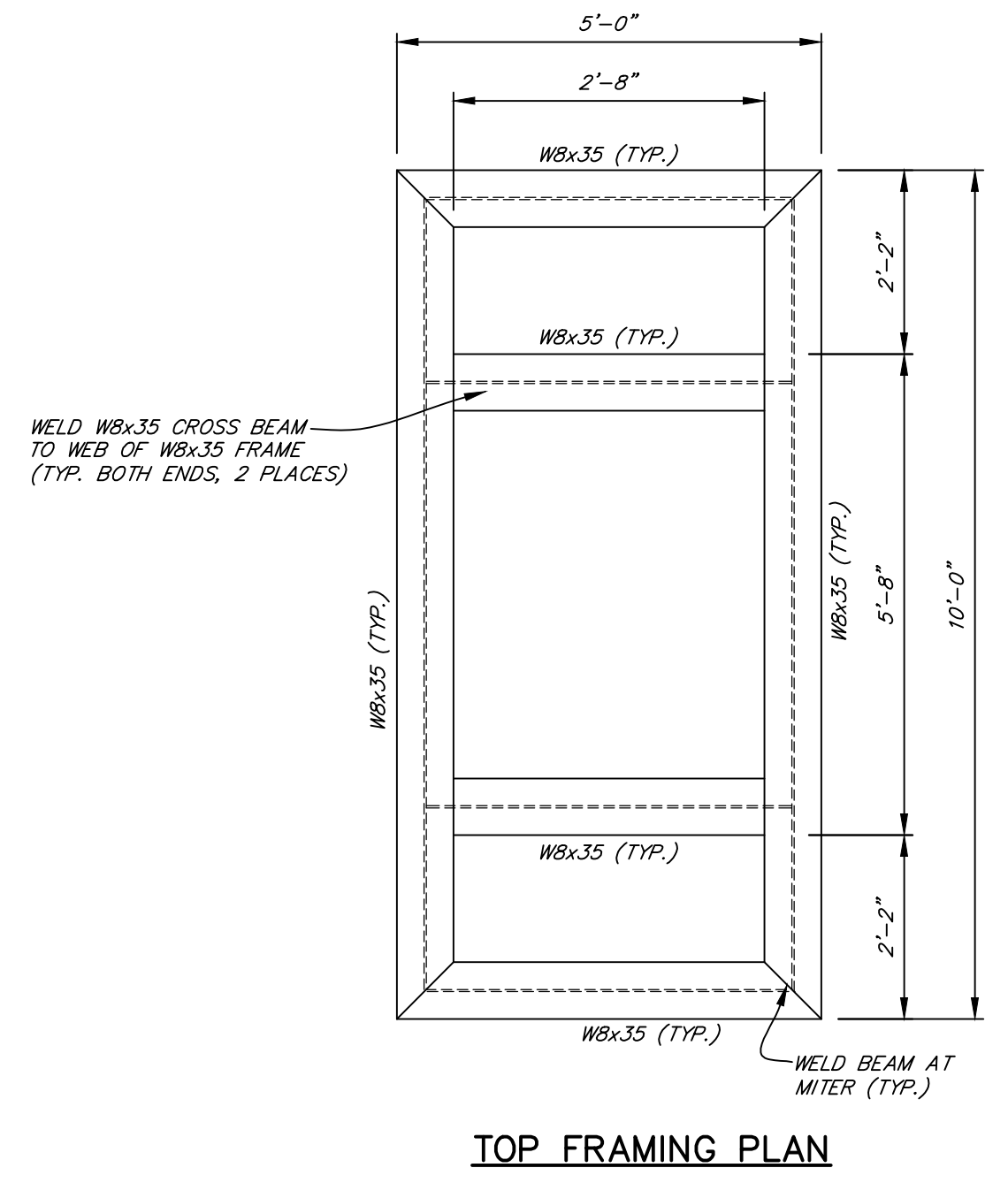
SECTION B-3



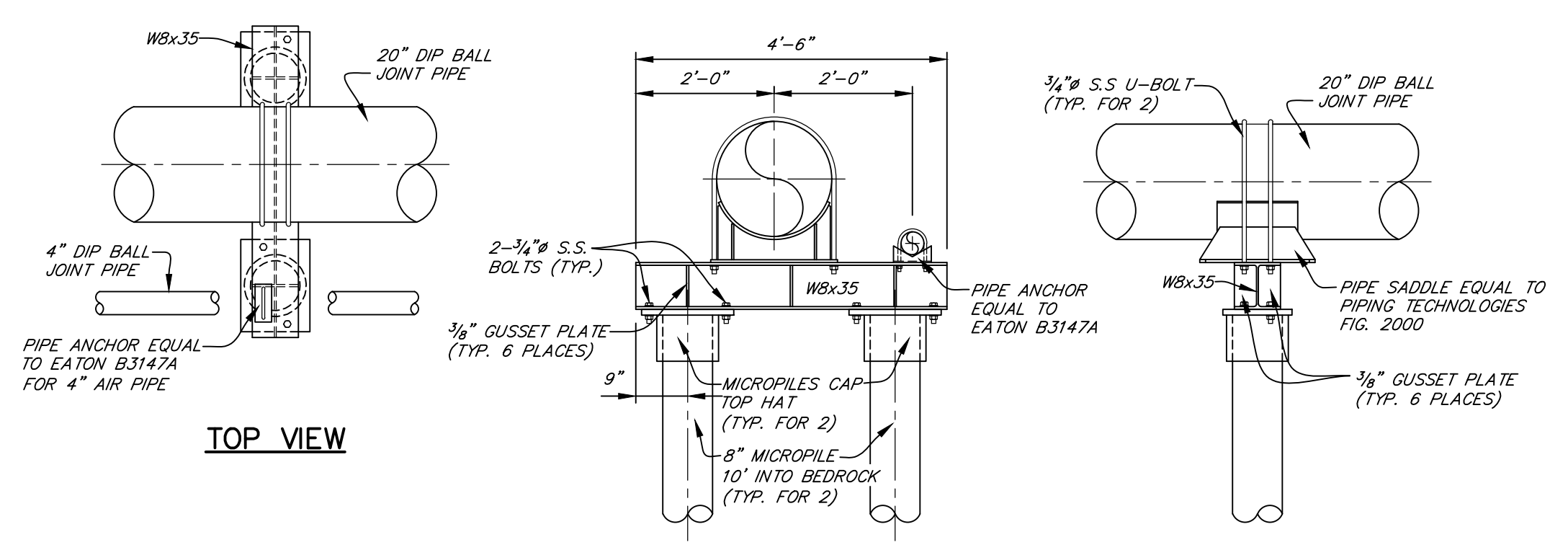
SECTION C-3



PIPE SUPPORT
NO SCALE



TOP FRAMING PLAN



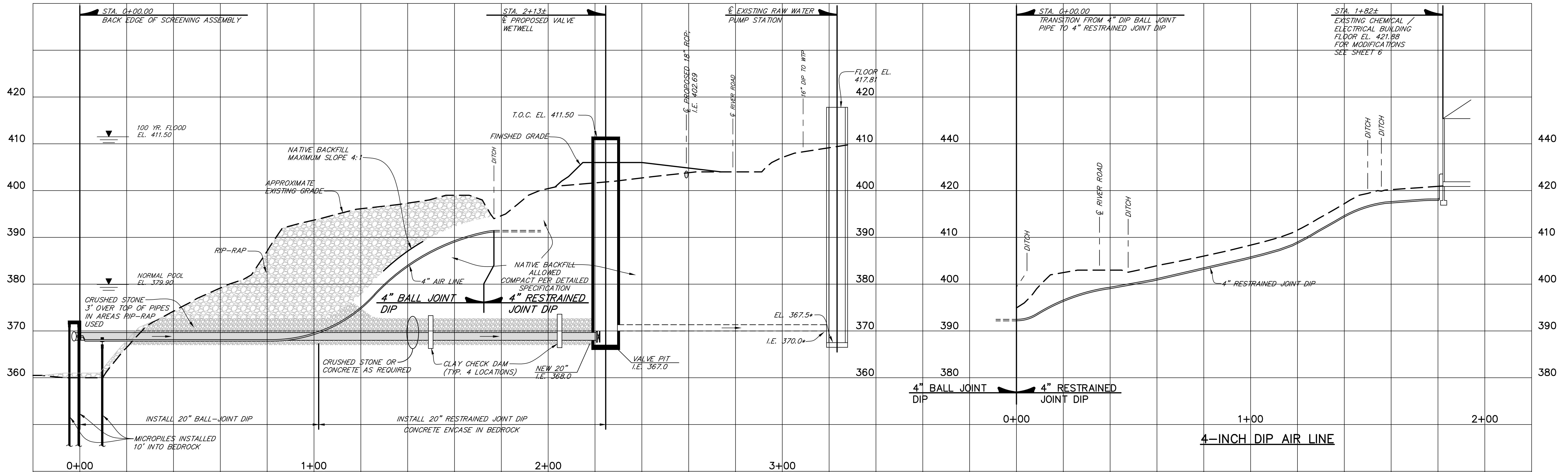
PIPE ANCHOR DETAIL
SCALE: 1/2" = 1'-0"

RAW WATER SCREENING ASSEMBLY
SCALE: 1/2" = 1'-0"

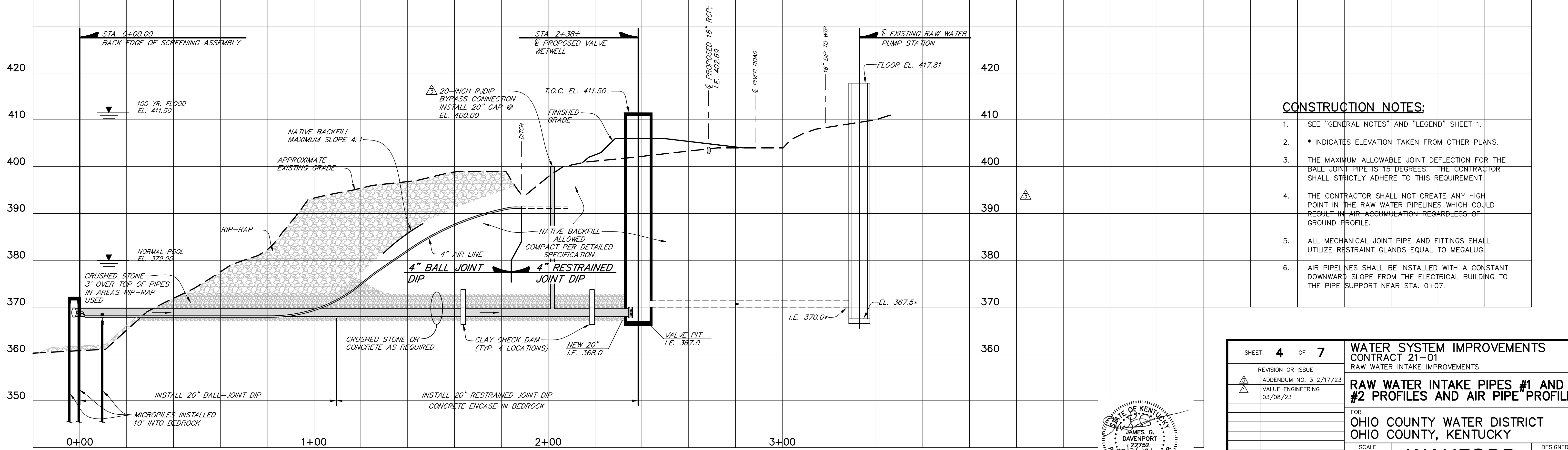
CONSTRUCTION NOTES

1. SEE "GENERAL NOTES" ON SHEET 1.
2. ALL WELDS SHALL BE SEAL WELDS 1/16" SMALLER THAN THINNEST WELDED MEMBER.
3. PROVIDE DETAILED FABRICATION DRAWINGS IN SHOP DRAWING FORM FOR THE ENGINEER'S APPROVAL.
4. ▲ DENOTES INFORMATION WHICH MAY VARY BY MANUFACTURER.

SHEET 3 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS
REVISION OR ISSUE	RAW WATER SCREENING ASSEMBLIES
▲ VALUE ENGINEERING 03/08/23	FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY
SCALE	AS SHOWN
PROJECT NUMBER	DATE
2125	MAR. 2021
DESIGNED JGD	DRAWN RSS
CHECKED JGD	



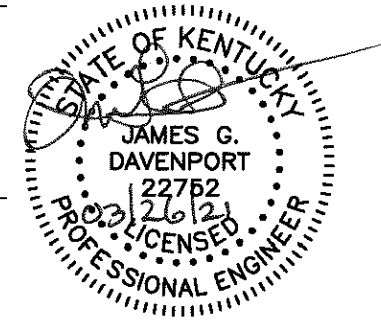
20-INCH INTAKE PIPE NO. 1



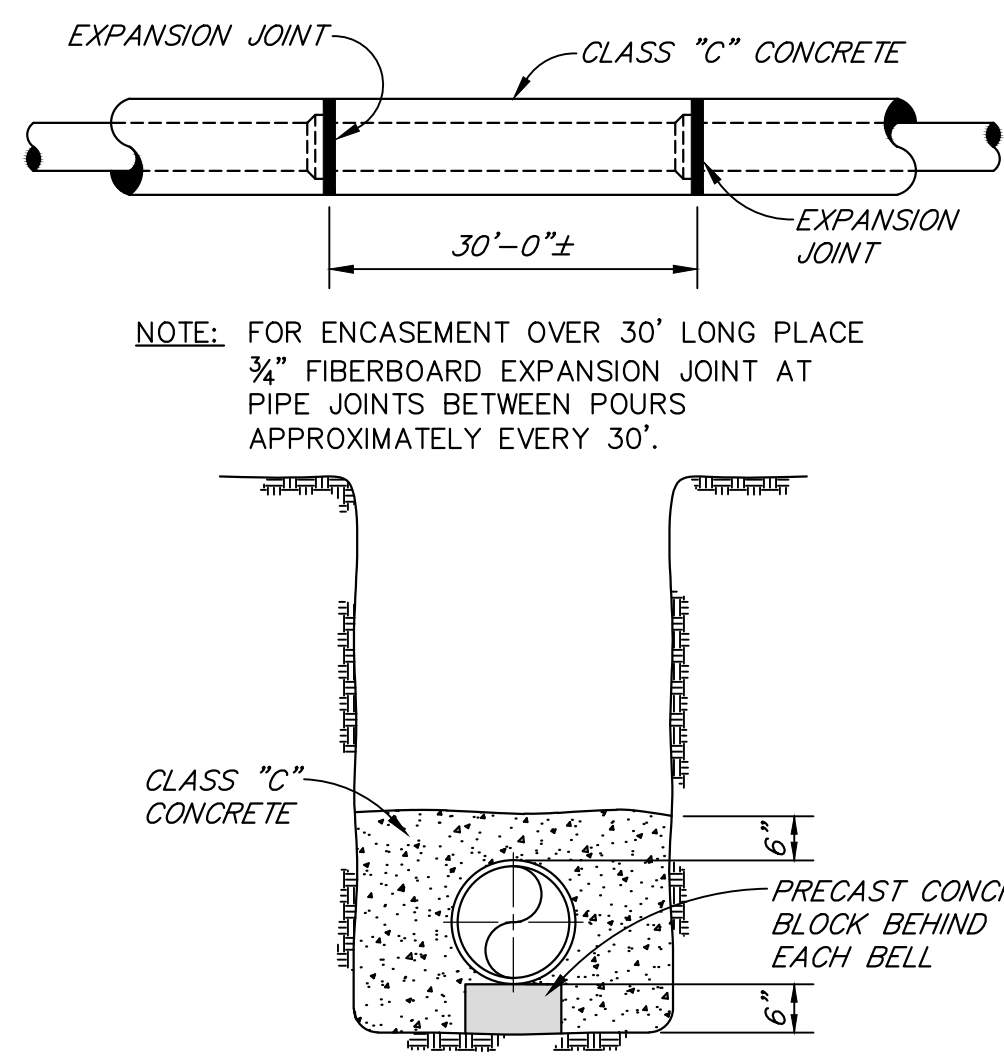
20-INCH INTAKE PIPE NO. 2

- CONSTRUCTION NOTES:**
1. SEE "GENERAL NOTES" AND "LEGEND" SHEET 1.
 2. * INDICATES ELEVATION TAKEN FROM OTHER PLANS.
 3. THE MAXIMUM ALLOWABLE JOINT DEFLECTION FOR THE BALL JOINT PIPE IS 15 DEGREES. THE CONTRACTOR SHALL STRICTLY ADHERE TO THIS REQUIREMENT.
 4. THE CONTRACTOR SHALL NOT CREATE ANY HIGH POINT IN THE RAW WATER PIPELINES WHICH COULD RESULT IN AIR ACCUMULATION REGARDLESS OF GROUND PROFILE.
 5. ALL MECHANICAL JOINT PIPE AND FITTINGS SHALL UTILIZE RESTRAINT GLANDS EQUAL TO MEGALUG.
 6. AIR PIPELINES SHALL BE INSTALLED WITH A CONSTANT DOWNWARD SLOPE FROM THE ELECTRICAL BUILDING TO THE PIPE SUPPORT NEAR STA. 0+07.

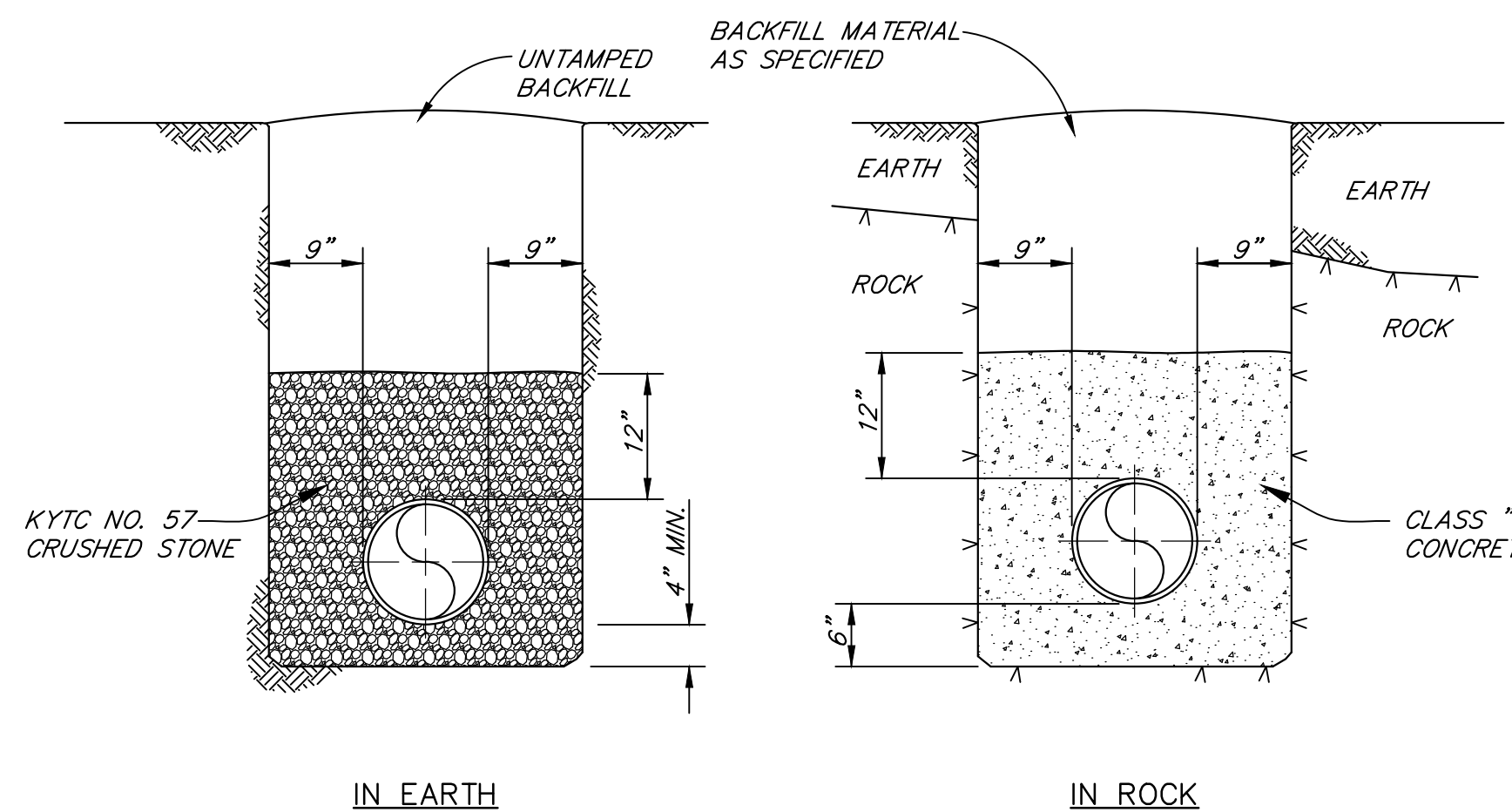
SHEET 4 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS
REVISION OR ISSUE	ADDENDUM NO. 3 2/17/23 VALUE ENGINEERING 03/08/23
<p>RAW WATER INTAKE PIPES #1 AND #2 PROFILES AND AIR PIPE PROFILE</p> <p>FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY</p>	
SCALE 1"=20' HOR. 1"=10' VER.	DATE MAR. 2021
PROJECT NUMBER 2125	DESIGNED JGD DRAWN RSS CHECKED JGD



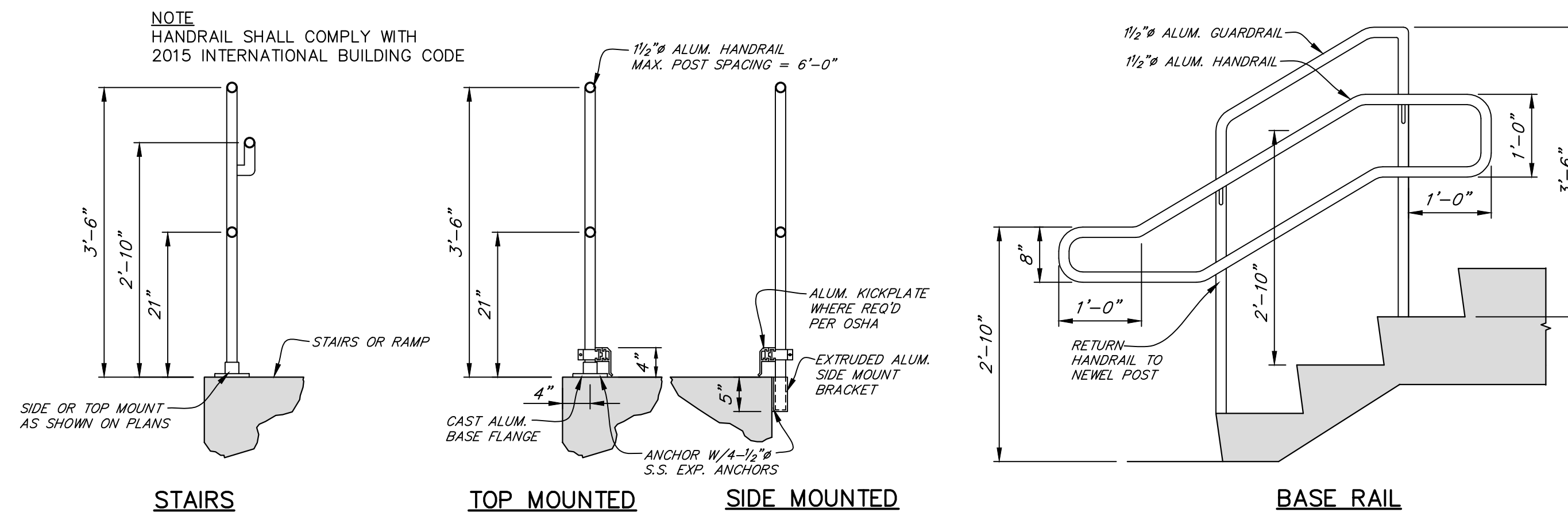
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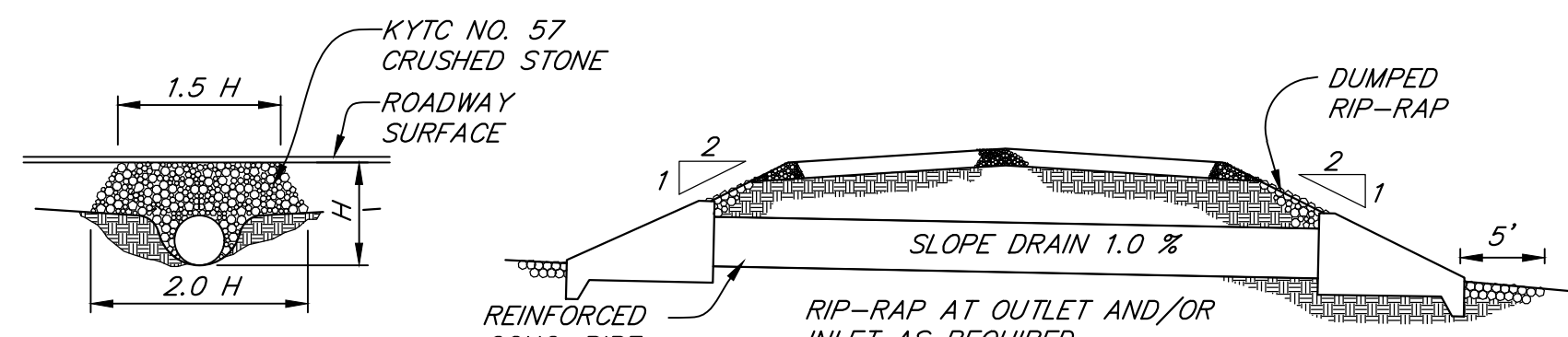
STANDARD CONCRETE ENCASMENT



STANDARD D.I.P. WATER LINE BEDDING

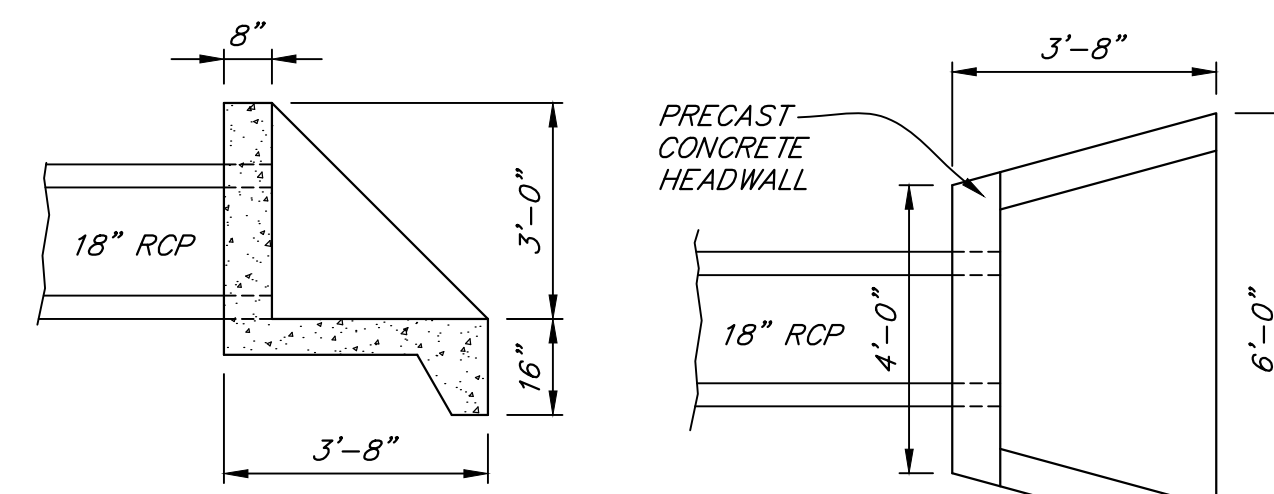


TYPICAL HANDRAIL DETAILS

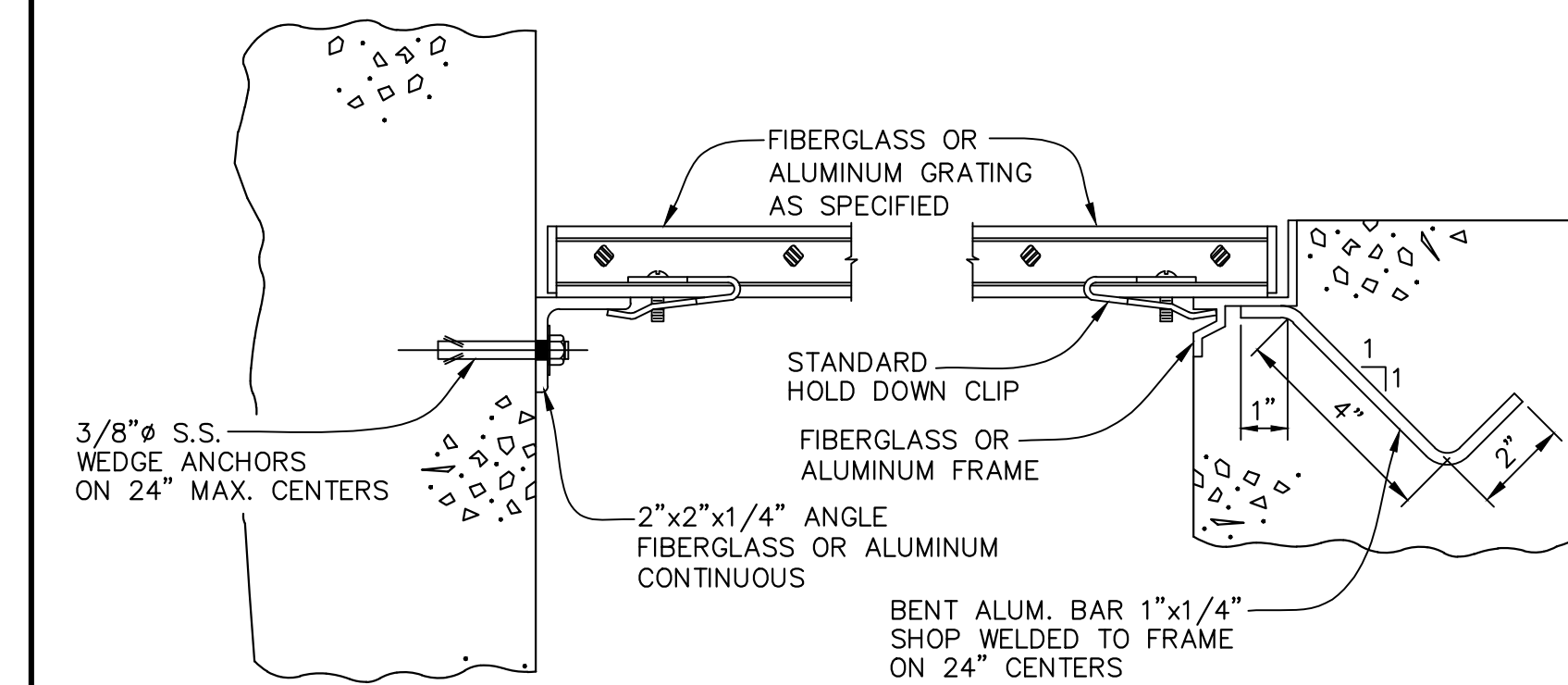


- NOTES
1. ALL CULVERTS SHALL HAVE 12" MIN. COVER UNDER ROADS.
 2. LAY CULVERTS ALONG NATURAL DITCH LINE (MIN. SLOPE = 0.5%).
 3. FOR CULVERT LOCATIONS, SEE SHEET 1.

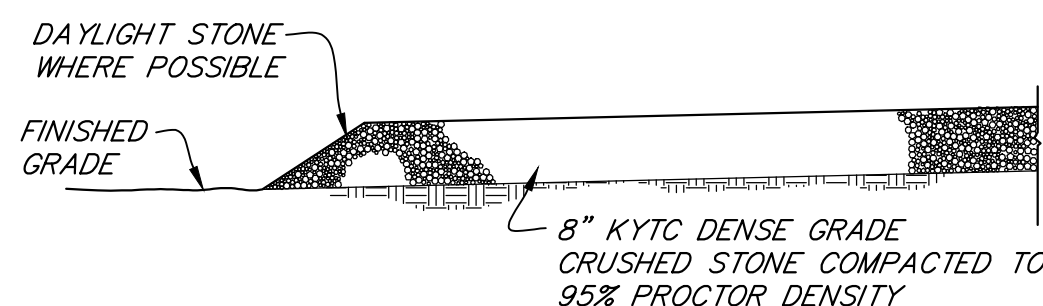
CULVERT DETAIL



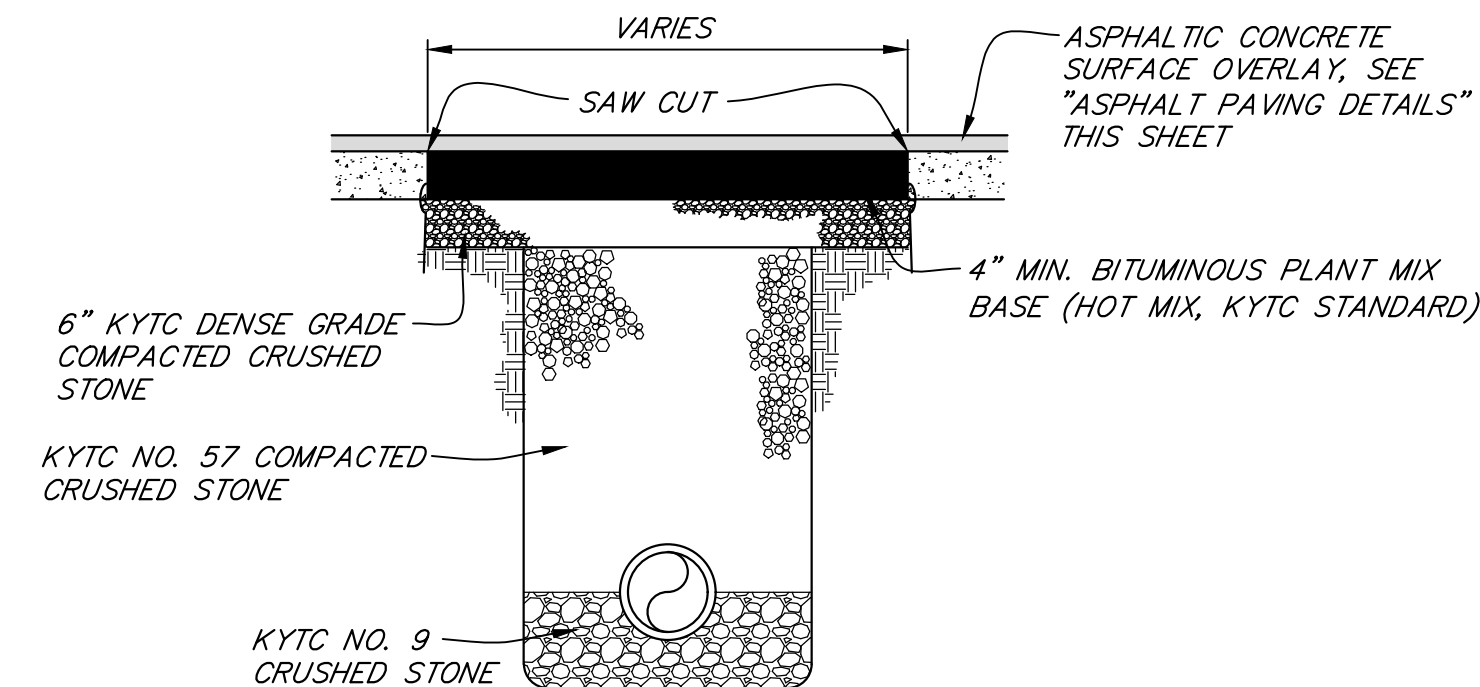
PRECAST CONCRETE HEADWALL DETAIL



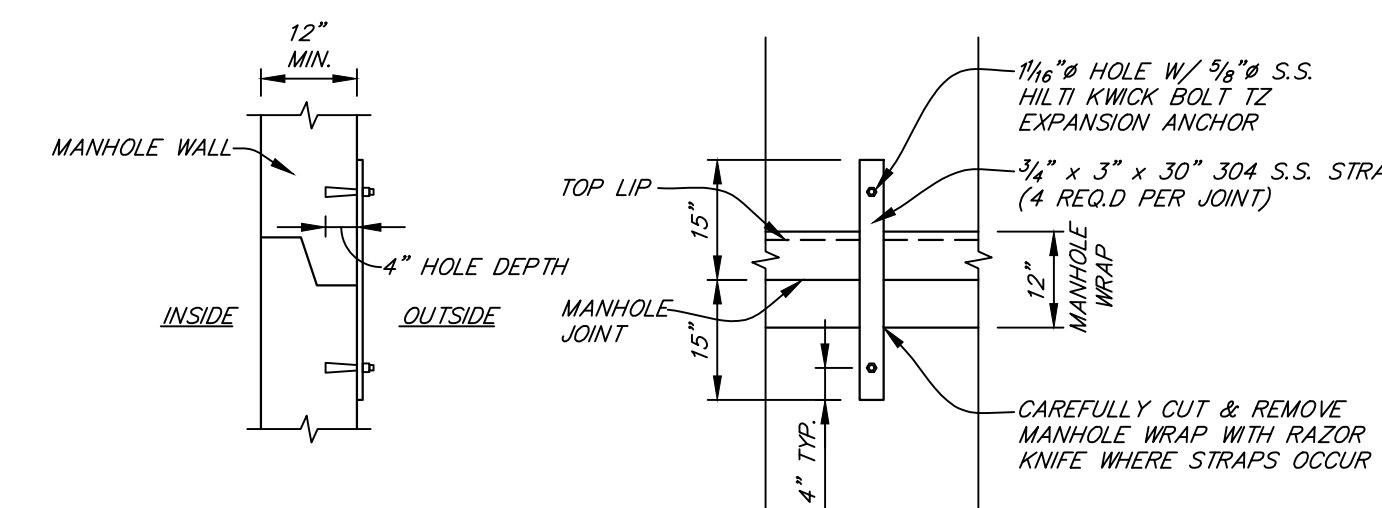
GRATING DETAIL



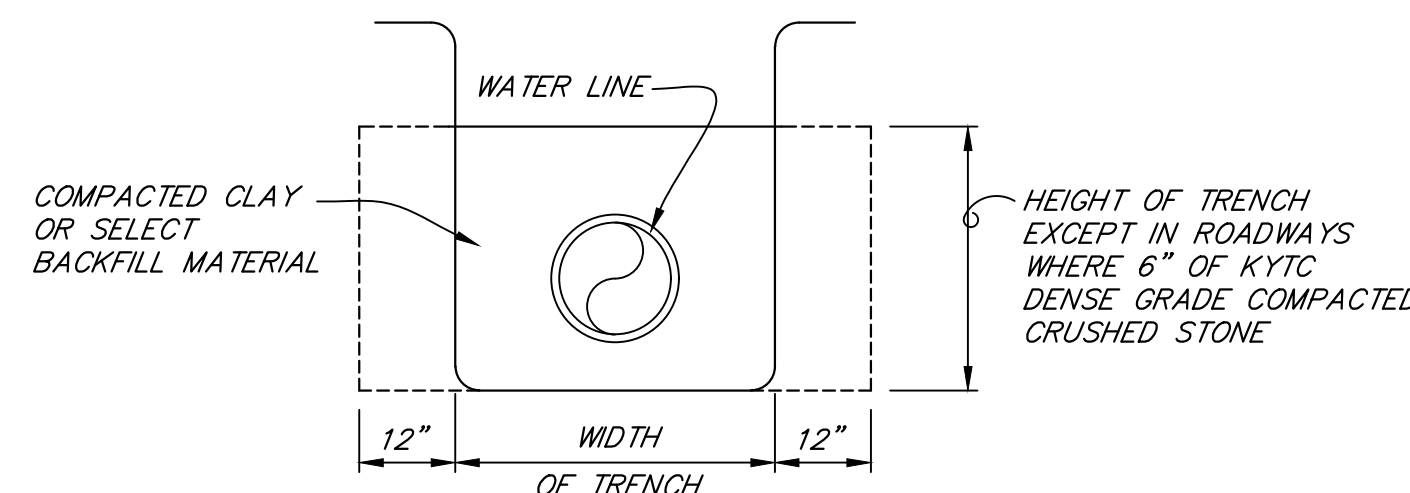
NEW DRIVES & PARKING AREAS GRAVEL PAVING DETAILS



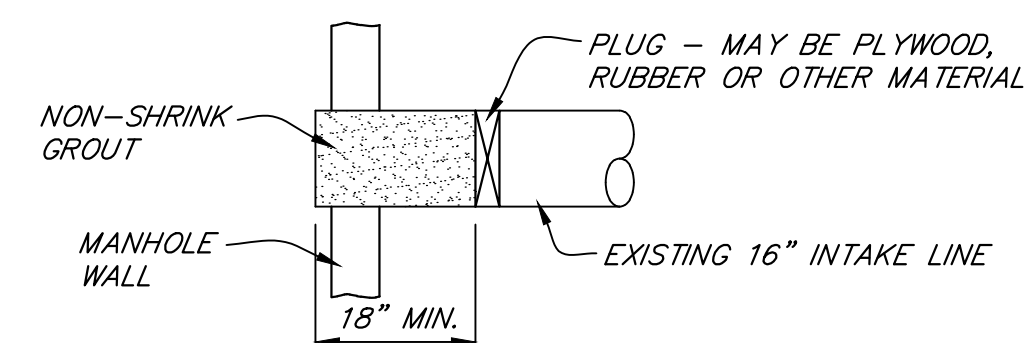
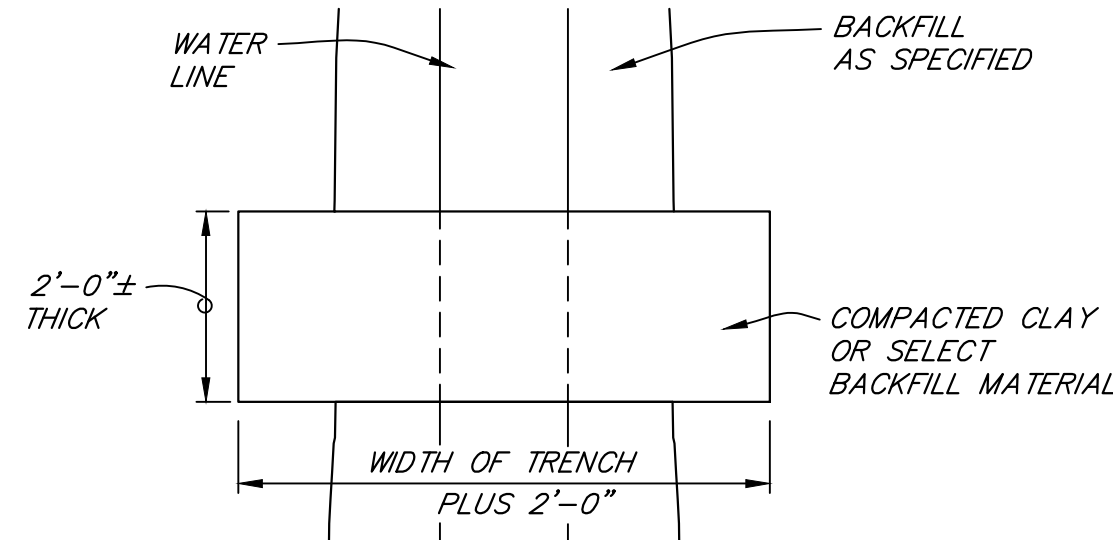
ASPHALT PAVEMENT PATCH DETAIL



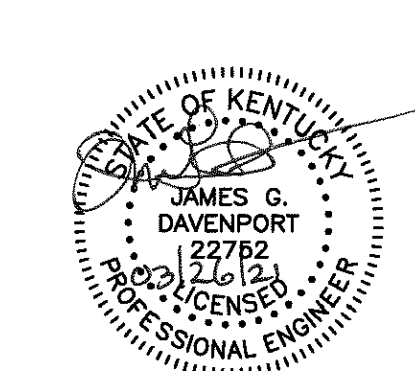
MANHOLE ANCHOR STRAP DETAIL



CHECK DAM DETAIL

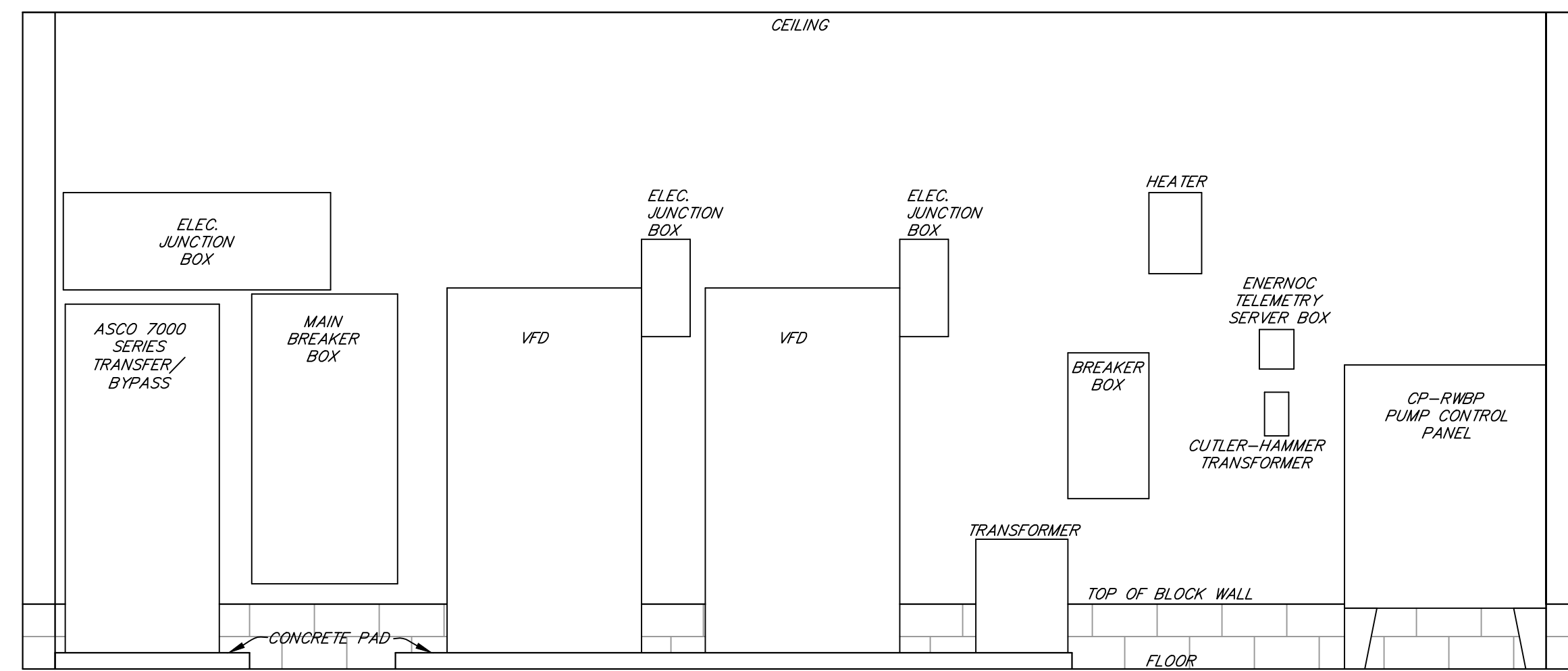


TYPICAL PLUG DETAIL

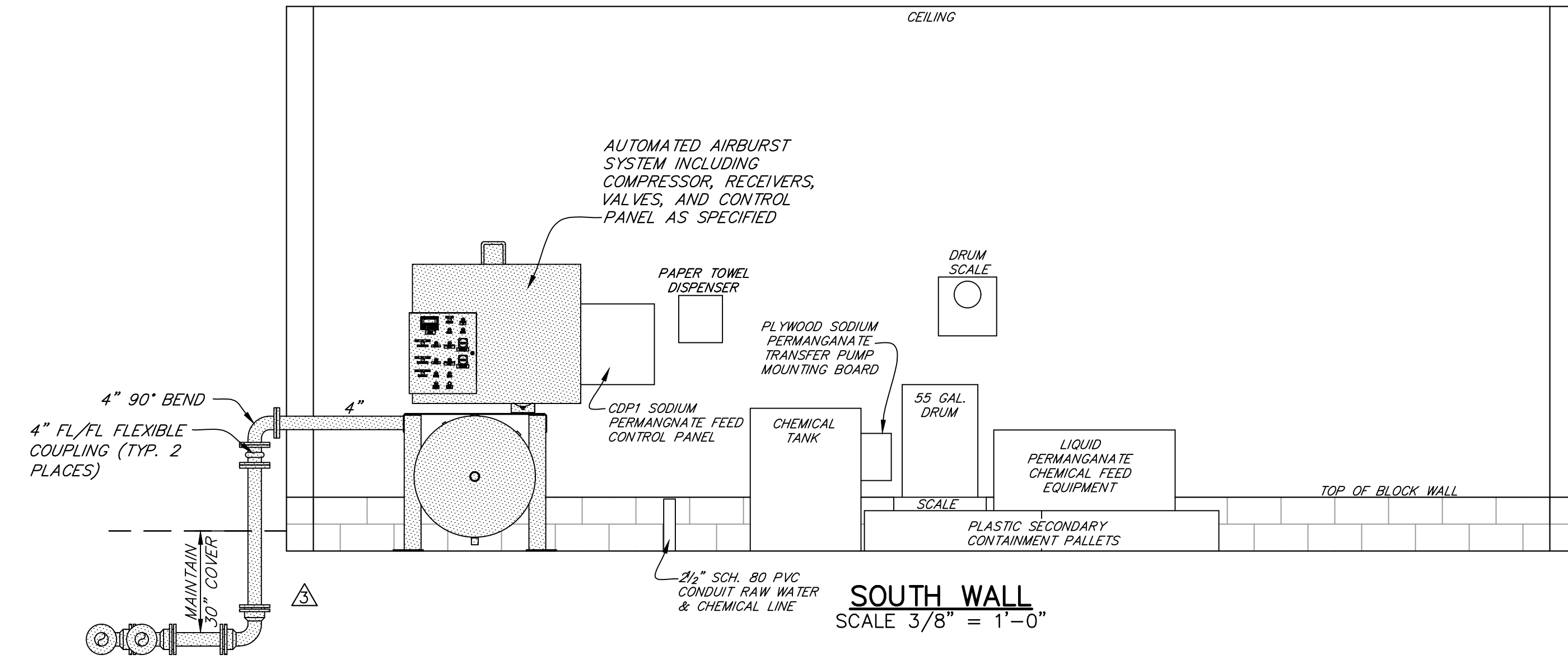


SHEET 5 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01	DESIGNED JGD
REVISION OR ISSUE	RAW WATER INTAKE IMPROVEMENTS	DRAWN RSS
	MISCELLANEOUS DETAILS	CHECKED JGD
	FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY	
PROJECT NUMBER 2125	SCALE AS SHOWN	DATE MAR. 2021
	DATE	DESIGNED BY JGD
	DATE	DRAWN BY RSS
	DATE	CHECKED BY JGD
	DATE	

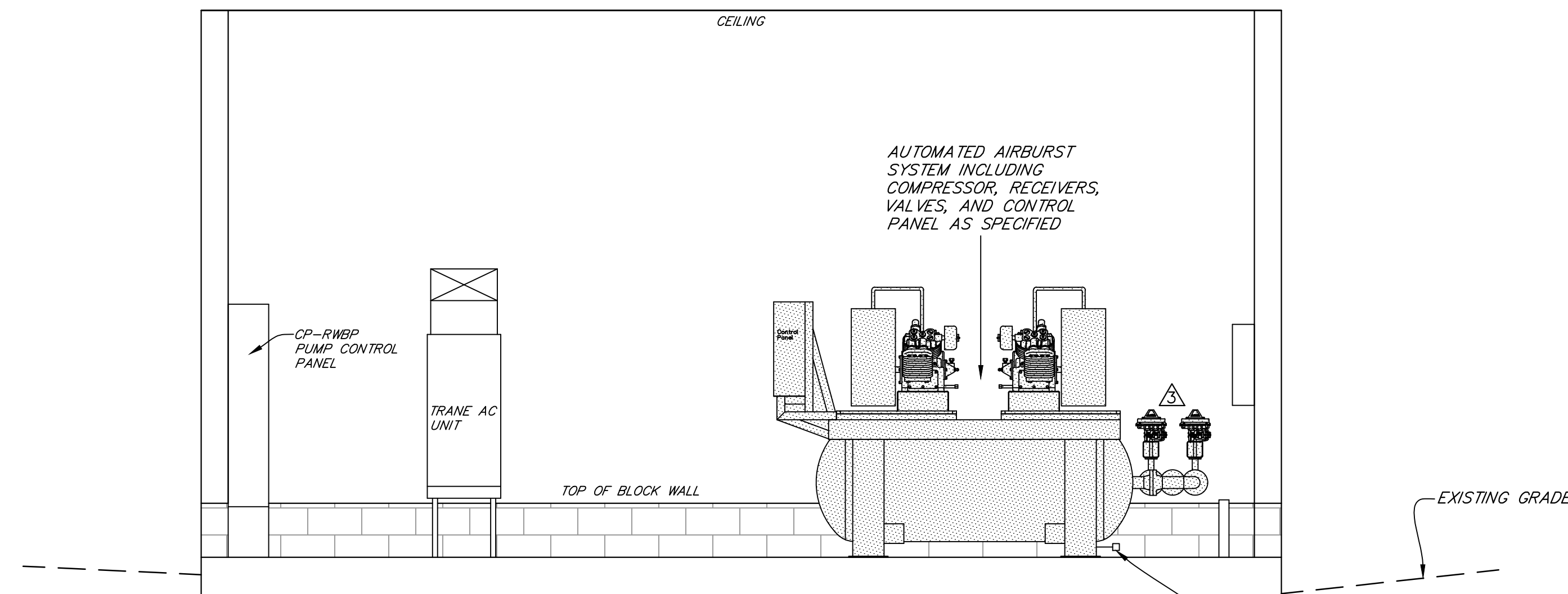
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 Nashville, Tennessee
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NORTH WALL
SCALE 3/8" = 1'-0"

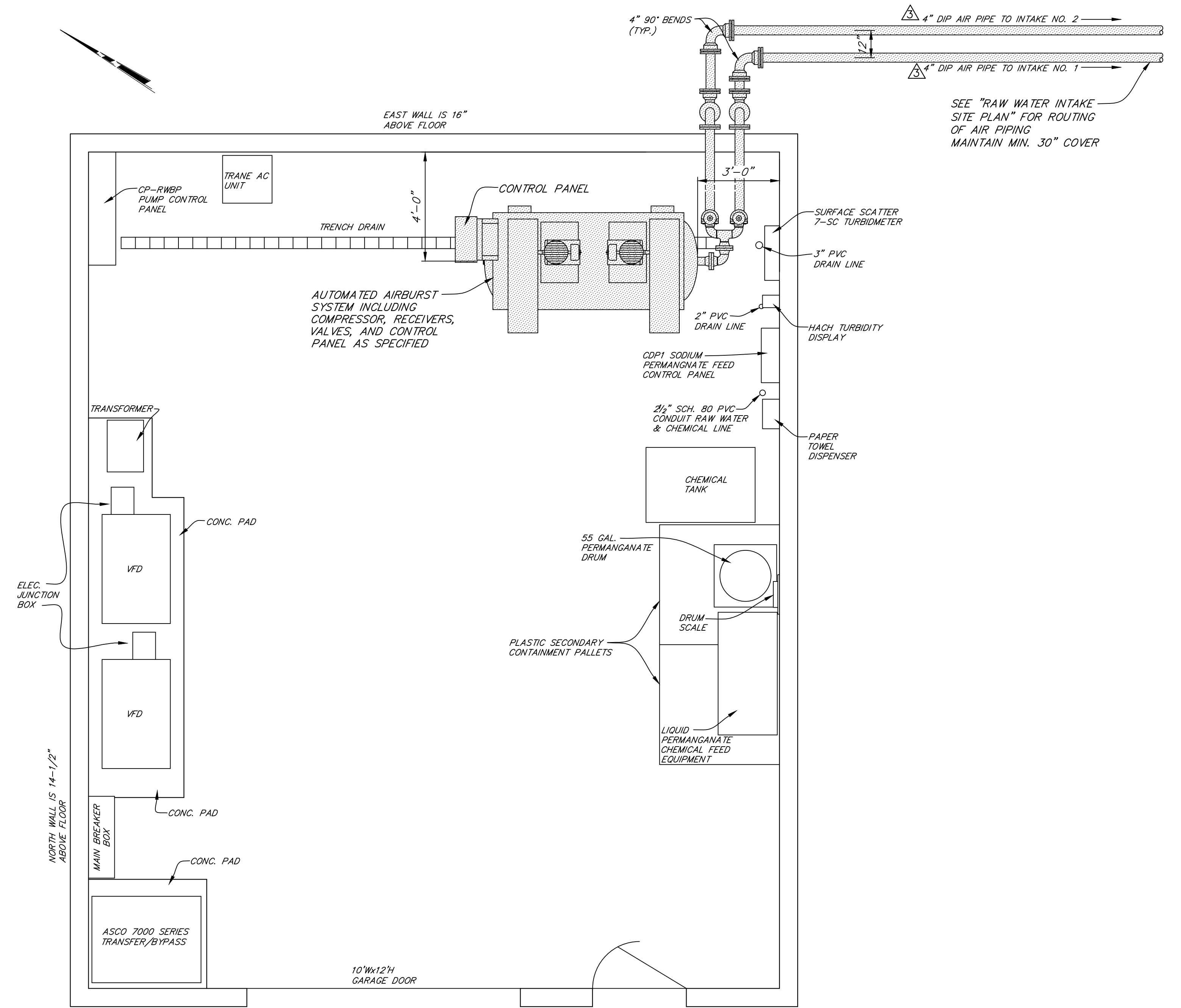


SOUTH WALL
SCALE 3/8" = 1'-0"



EAST WALL
SCALE 3/8" = 1'-0"

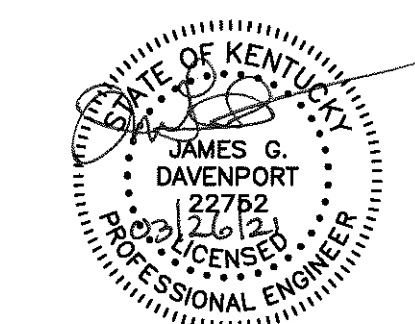
NOTE:
DIRECT THE COMPRESSOR-TANK DRAIN AND MANUAL VALVE DRAINS TOWARDS EXISTING TRENCH DRAIN IN FLOOR. ANCHOR TANK TO EXISTING CONCRETE FLOOR PER MFR. RECOMMENDATIONS.



FLOOR PLAN
SCALE 3/8" = 1'-0"

LEGEND

- NEW WORK
- EXISTING TO REMAIN



SHEET 6 OF 7	WATER SYSTEM IMPROVEMENTS CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS	
REVISION OR ISSUE	ADDENDUM NO. 3 2/17/23	
ELECTRICAL BUILDING MODIFICATIONS FLOOR PLAN AND INTERIOR ELEVATIONS		
FOR OHIO COUNTY WATER DISTRICT OHIO COUNTY, KENTUCKY		
SCALE	AS SHOWN	DESIGNED JGD
PROJECT NUMBER	DATE	DRAWN RSS
2125	MAR. 2021	CHECKED JGD
		WAUFORD J. R. Wauford & Company, Consulting Engineers, Inc. Nashville, Tennessee (615)883-3243 www.jrwauford.com

PROJECT MANUAL

SPECIFICATIONS AND CONTRACT DOCUMENTS

WATER SYSTEM IMPROVEMENTS

FOR

**OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY**

CONTRACT 21-01
RAW WATER INTAKE IMPROVEMENTS

Funded in part by Kentucky Infrastructure Authority Federally
Assisted Drinking Water Revolving Loan Fund #F22-055

PROJECT NUMBER 2125

MARCH 2021

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Nashville, Tennessee 37214
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PROJECT MANUAL

SPECIFICATIONS AND CONTRACT DOCUMENTS

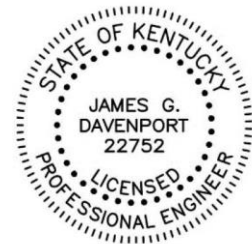
WATER SYSTEM IMPROVEMENTS

FOR

OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

CONTRACT 21-01
RAW WATER INTAKE IMPROVEMENTS

Funded in part by Kentucky Infrastructure Authority Federally
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PROJECT NUMBER 2125

MARCH 2021

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Nashville, Tennessee 37214
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OFFICIALS
FOR THE
OHIO COUNTY WATER DISTRICT

GENERAL MANAGER

Eric Hickman, P.E.

BOARD MEMBERS

Ben Everley, Chairman
Eddie Embry, Vice Chairman/Secretary
Cletus Greer
Reid Haire
Michael Newman
Lyndon J. Raymond
Carlin Gregory

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ADVERTISEMENT FOR BIDS
2125 – March 2021

ADVERTISEMENT FOR BIDS
WATER SYSTEM IMPROVEMENTS
OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

Separate sealed BIDS for the construction of Water System Improvements for the Ohio County Water District will be received at 124 East Washington Street, Hartford, Kentucky 42437 until _____ a.m./p.m. Central Time, _____, 2021, and then will be publicly opened and read aloud. Bids being mailed should be sent to Eric Hickman, P.E., General Manager, Ohio County Water District, Administrative Offices, P.O. Box 207, Hartford, Kentucky 42347, and the bidder shall be responsible for timely delivery.

The work involved is in one (1) contract and consists of the following generally described work:

CONTRACT 21-01
RAW WATER INTAKE IMPROVEMENTS

- Two New 20-inch Intake Screening Assemblies
- Two New 20-inch Ball Joint / Restrained Joint DIP Intake Pipes
- New 10'-0" Ø Precast Valve Pit
- Screening Assembly Air Backwash System
- Site Work and Excavation as required

The allotted time for construction of Contract 21-01 is 365 calendar days; liquidated damages for non-completion are \$1,000 per calendar day.

The CONTRACT DOCUMENTS may be examined at the following locations:

Ohio County Water District, 124 East Washington Street, Hartford, Kentucky 42437

Kentucky Procurement Technical Assistance Center, 200 West Vine Street, Suite 420
Lexington, Kentucky 40588

Office of Civil Rights & Small Business Development, Department of Transportation, 200 Mero Street, Frankfort, KY 40622

J. R. Wauford & Company, Consulting Engineers, Inc., 2835 Lebanon Road, Nashville, TN 37214

Complete digital project bidding documents are available at www.questcdn.com and/or www.jrwauford.com. Bidders may download the digital plan documents for \$50.00 by inputting Quest project # _____ on the QuestCDN project search page. Please contact QuestCDN at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with the digital project information. Inquiries should be directed to J. Gregory Davenport, P.E., Project Manager, gregd@jrwauford.com, 615-883-3243.

The successful bidder or bidders shall be required to furnish both an acceptable performance bond and payment bond each in the amount of one hundred percent (100%) of the contract price.

ADVERTISEMENT FOR BIDS

2125 – March 2021

The Owner reserves the right to reject any and all bids, to waive informalities, and to negotiate with the apparent qualified best bidder or bidders to such extent as may be necessary.

No bidder may withdraw his bid for 90 days, while the Owner considers the bids. Mutually agreed upon time extensions may be made if necessary.

Any contract(s) awarded under this Invitation for Bids are expected to be funded in part by a loan from the Kentucky Infrastructure Authority and/or by a grant from the U.S. Environmental Protection Agency. Neither the United States nor any of its departments, agencies or employees is or will be a party to this Invitation for Bids or any resulting contract. This procurement will be subject to regulations contained in 40 CFR Part 31.36 or with DOW Procurement Guidance including the Davis-Bacon Act.

ALL BIDDERS must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, and the Contract Work Hours Standard Act and 40 CFR 31.36 L (3, 4 & 6).

ALL BIDDERS must comply with the President's Executive Order No. 11246 as amended, which prohibits discrimination in employment regarding race, creed, color, sex or national origin.

ALL BIDDERS, Contractor/Subcontractor will comply with 41 CFR 60-4, in regard to affirmative action, to ensure equal opportunity to females and minorities and will apply the time tables and goal set forth in 41 CFR 60-4 if applicable to the area of the project.

ALL BIDDERS, make positive efforts to use small, minority, women-owned and disadvantaged businesses.

Small and Disadvantaged Business Enterprises are encouraged to bid on this project.

The Ohio County Water District is an Equal Opportunity Employer.

This project is being funded in part with KIA FADWSRF loan and the award will be made to the lowest responsive and responsible bidder.

OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY
/s/

Eric Hickman, P.E.
General Manager

INSTRUCTIONS TO BIDDERS
COMMONWEALTH OF KENTUCKY
October 2019

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INSTRUCTIONS TO BIDDERS
COMMONWEALTH OF KENTUCKY

1. Preparation and Submission of BID FORM

Bidders shall inform themselves fully of all conditions relating to the proposed work. Bids shall be submitted on the separate copy of the BID FORM supplied for that purpose. The BID FORM contained in the Specifications and Contract Documents is for the convenience of the Bidders and is not to be detached from the bound set of documents or filled out or executed unless a separate BID FORM is not furnished to the Bidder.

The BID FORM shall be enclosed in a sealed envelope which shall be clearly labeled with the name of the project, contract number, name, and address of the Bidder, and the date and time of opening (so as to guard against premature opening of any Bid).

BID FORMS that contain any omission, conditions, or limitations, or that show any other irregularity of any kind, may be rejected as informal.

Should the Bidder in preparing his Bid find anything necessary for the construction of the project that is not mentioned in the Specifications or shown on the Plans, or any discrepancy, he shall notify the Engineer so that such items may be included or corrected. Should the Bidder fail to notify the Engineer of such items, it will be assumed that his Bid included everything necessary for the complete construction of an operating facility in the true spirit and intent of the designs shown.

The "Bidder" shall mean all those Contractors submitting BID FORMS. After the acceptance of the BID FORM of the successful Bidder, the said term "Bidder" shall be interchangeable with the term "Contractor" as defined in the General Conditions and all things required of Bidders shall likewise apply to the Contractor.

2. Supplementary Conditions

The Supplementary Conditions contain the special requirements of the Agency which is funding the subject project or clarifications to the General Conditions.

The Supplementary Conditions shall also be considered an extension of the Instructions to Bidders. Executive Orders, Wage Determination, and any and all other items set out in the Supplementary Conditions shall be used in the preparation of the Bid.

INSTRUCTIONS TO BIDDERS
COMMONWEALTH OF KENTUCKY
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3. Discrepancy - Bid Price

In some instances, there will be space in the BID FORM for the bid price to be written in both words and figures. In such cases, the price written in words shall include both dollars and cents and will be considered the correct price in case of a discrepancy between it and the price written in figures. In case of a discrepancy, the correct total bid price will be considered to be the sum total of amounts bid for all items in the BID FORM. The correct product of the quantity listed in the BID FORM for the said item multiplied by the unit price bid shall be used in the total bid.

4. Qualifications of Bidders

The Contractors bidding on the work shall give evidence of their experience in the class of work involved, including at least one job of comparable size and type performed by them as general contractors.

BID FORMS submitted by Contractors who have not, in the opinion of the Engineer and/or Owner, had sufficient experience in the size and type work involved may not be considered.

5. Bid Guaranty

The Bidder shall accompany his BID FORM with the BID BOND in the amount not less than five (5%) percent of the amount of his bid executed on the form furnished as a part of the Contract Documents or with a certified check in the amount not less than five (5%) percent of the amount of his bid. A Power of Attorney of the person signing the Bid Bond shall be included. All such documents are subject to approval by the Owner's attorney and the Agency providing funding, if such funding is involved. It is assumed that the Surety Company executing the Bid Bond will also execute the Contract Bond if the Bid is accepted. If this is not to be the case, the approval of the Owner's attorney will be prerequisite to award of the contract. If a certified check is used as Bid Guaranty, the Bidder shall submit the name of his proposed surety with his BID FORM or in writing within five (5) days after being requested to do so.

6. Contract Surety; Performance and Payment Bonds

The successful Bidder will be required to furnish both a Performance Bond and a Payment Bond executed by a Surety Company duly authorized to do business in the state in which the work is to be performed and acceptable to the Owner's attorney and the Agency providing funds, if such funding is involved, and each in an amount not less than 100% of the Contract price as security for the faithful performance of this Contract and as security for the payment of all persons performing labor and furnishing materials in connection with this Contract.

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THESE BONDS MUST BE EXECUTED IN THE FORM PROVIDED AS PART OF THE CONTRACT DOCUMENTS.

7. Interpretation of Contract Documents

The Project Manual contains the provisions required for the construction of the project. No information obtained from any officer, agent or employee of the Owner on any such matters shall in any way affect the risk or obligation assumed by the Contractor or relieve him from fulfilling any of the conditions of the Contract.

If any Contractor contemplating the submission of a bid for the proposed contract is in doubt as to the true meaning of any part of the Plans, Specifications, or other proposed Contract Documents, he should submit a written request for an interpretation thereof to J. R. Wauford & Company, Consulting Engineers, Inc., P.O. Box 140350, 2835 Lebanon Pike, Nashville, Tennessee 37214, telephone 615-883-3243, fax 615-391-3710. The person making the request will be responsible for its prompt delivery. Any interpretation of the Contract Documents will be made only by written communication and in accordance with the time constraints of Commonwealth law. The Owner and/or the Engineer will not be responsible for explanation or interpretations of the proposed documents except as issued in accordance herewith.

8. Modifications of Bids

Bidders will not be allowed to modify their bids by telegraphic or facsimile communication. A bidder may withdraw a mailed bid prior to the bid opening by contacting the Owner; however, neither the Owner nor the Engineer will be responsible for processing this request.

9. Second Hand and Salvaged Materials

The use of second hand and/or salvaged materials will not be permitted unless specifically provided for in the Specifications.

10. Award of Contract - Kentucky

The Owner reserves the right to reject all bids and to waive informalities. In the event that the lowest Bidder's price overruns the Owner's budget, the Owner reserves the right to negotiate with a portion of or all Bidders. In the event that the low bid is within the Owner's budget, the Contract will be awarded to the lowest responsive and responsible Bidder.

INSTRUCTIONS TO BIDDERS
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The Owner intends to award a Contract to the Contractor whose bid, confirming to the BID FORM, is the most advantageous on the basis of “best value” for all products, services, and requirements contained herein.

An evaluation committee or a designated individual will evaluate the information provided by the Contractor in response to the established measurable criteria contained herein.

Measureable Criteria:

Price 100 Points

TOTAL POINTS 100 Points

Each Contractor is responsible for submitting all relevant, factual and correct information with the Bid to enable the evaluator(s) to afford each Contractor the maximum score based on the available data submitted by the Contractor. The Contractor shall explicitly adhere to the BID FORM which contains adequate space for the Contractor’s pricing.

Bid Price (100 Points)

The bidder with the lowest Bid Price receives the maximum score. The bidder with the next lowest Price receives points by dividing the lowest Price by the next lowest Price and multiplying that percentage by the available points. For Example, 100 points is allocated to the lowest Price criteria for this procurement. Bidder “A” bids \$3.00 as the lowest bidder and receives the maximum 100 points ($\$3.00 / \$3.00 = 1.00 \times 100 = 100$). Assume Bidder “B” is next lowest bidder at \$4.00, then “B” receives 75 points ($\$3.00 / \$4.00 = .75$).

Best Value scoring is subject to **Reciprocal preference for Kentucky resident bidders and Preferences for a Qualified Bidder of the Department of Corrections, Division of Prison Industries (KAR 200 5:410)**.

The Contractor is required to submit a complete copy of the “Required Affidavit for Bidders, Offerors and Contractors Claiming Resident Bidder Status” and “Required Affidavit for Bidders, Offerors and Contractors Claiming Qualified Bidder Status” attached to the BID FORM.

11. **Execution of Contracts**

The construction Contract and Performance and Payment Bond(s) shall be executed by the successful Bidder within the time specified in BID FORM. The number of copies to be executed will be specified in the BID FORM.

INSTRUCTIONS TO BIDDERS
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12. Liquidated Damages for Failure to Enter into Contract

The successful Bidder, upon his failure or refusal to execute and deliver the Contract and Bonds required within ten (10) days after he has been mailed registered notice of the acceptance of his Bid, shall forfeit to the Owner, as liquidated damages for such failure or refusal, the security deposited with his Bid.

13. Insurance, Contractor's Coverage and Cancellation Provision (Also see General Conditions Article 6)

The Contractor will not be permitted to commence work until he has obtained all insurance required by the Contract Documents and such insurance has been approved by the Engineer and/or Owner, nor shall the Contractor allow any Subcontractor to commence work until all similar insurance required of the Subcontractor has been so obtained.

If a Subcontractor does not take out insurance in his own name and his principal Contractor wished to provide insurance protection for such Subcontractor and such Subcontractor's employees, an endorsement must be attached to the principal Contractor's policy which endorsement must identify the persons thereby covered, or else the principal Contractor must take out appropriate policies in the name of the Subcontractor.

Each policy of insurance covering the Contractor's or Subcontractor's operations under the Contract shall provide, either in the body of the policy, or by appropriate endorsement to the policy, that such policy cannot be altered or canceled in less than thirty (30) days after the receipt of written notice of such alteration or cancellation to the assured (insured) and the Owner and Engineer.

Certificates of insurance coverages shall include a statement of the alteration or cancellation provision of the policy, sufficient to show definitely that such provisions comply with the requirements stated herein.

THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR MAINTAINING THE INSURANCE HEREIN REQUIRED AND SHALL SAVE HARMLESS THE OWNER AND/OR ENGINEER IN THE EVENT HE NEGLECTS OR FAILS TO DO SO FOR ANY REASON. IN THE EVENT THAT THE APPROVED INSURER DOES NOT RENEW THE REQUIRED POLICY AT ANY TIME DURING THE TERM OF THIS CONTRACT, THE CONTRACTOR SHALL CEASE ALL WORK ON THE CONTRACT UNTIL NEW INSURANCE IS ACQUIRED AND APPROVED BY THE OWNER.

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14. Insurance: Commercial General Liability, Automobile Liability and Excess Liability (Also see General Conditions Article 6)

The Contractor shall take out and maintain during the life of this contract Commercial General Liability, Automobile Liability, and Excess Liability insurance as shall protect himself and any subcontractor performing work covered under this Contract from claims for damages because of bodily injury, including accidental death, and from claims for property damages that may arise from operations under this Contract, whether such operations be by him or by any subcontractor, or by anyone directly or indirectly employed by either of them.

The Contractor's Commercial or Comprehensive General Liability insurance coverage shall provide coverage on an "occurrence" basis and aggregate limits of insurance on a "per project" basis; and shall specifically include premises and operations; underground, explosion and collapse; products and completed operations maintained two years after completion of the contract; broad form contractual; independent contractors; broad form property damage; and personal injury coverage. If the Comprehensive General Liability Form is used, the policy must include the Broad Form Comprehensive General Liability Endorsement.

Automobile liability insurance must be provided by a Comprehensive Automobile Liability policy covering all owned, hired and non-owned vehicles.

Excess liability insurance must be provided by an Umbrella form on an "occurrence" basis.

The Contractor's Commercial General Liability, Automobile Liability and Excess Liability insurance shall insure the Owner and the Engineer. The insurance coverage of the Owner and the Engineer shall be provided by endorsement that the Owner and the Engineer are additional insureds on the Contractor's General Liability Policy, Automobile Liability Policy and Excess Liability Policy; or by a separate "Owners Protection Policy." If the Owner and the Engineer are listed as additional insureds on the General Liability Policy, this shall be accomplished using the CG 20-10-11-85 or its equivalent. The Owner and the Engineer shall be listed on the endorsement or separate policy using their respective full legal names.

Minimum limits of coverage shall be as follows:

General Liability

(1)	General Aggregate per Project.....	\$2,000,000
(2)	Each Occurrence	\$1,000,000
(3)	Products/Completed Operations Aggregate.....	\$2,000,000
(4)	Medical Expense (any one person).....	\$10,000

Automobile Liability

Combined Single Limit Bodily Injury and Property Damage..... \$1,000,000

Umbrella

Combined Single Limit Bodily Injury and Property Damage \$2,000,000
(Each Occurrence)

The above does not include special insurance requirements of entities whose property or personnel or other interests are involved; these requirements where applicable will be set forth in the Detailed Specifications.

15. Insurance: Workmen's Compensation and Employer's Liability (Also see General Conditions Article 6)

The Contractor shall take out and maintain, during the life of this contract, Workmen's Compensation and Employer's Liability Insurance, including occupational disease provisions, for all of his employees employed at the site of the project, and in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation Insurance and Employer's Liability Insurance, including occupational disease provisions, for all the latter's employees unless such employees are covered by the protection afforded by the Contractor.

In case any class of employees engaged in hazardous work under this contract at the site of the project is not protected under Kentucky statute, the Contractor shall provide, and shall cause each subcontractor to provide, adequate coverage for the protection of his employees not otherwise protected.

Minimum limits of coverage shall be as follows unless required otherwise by prevailing local statute:

Worker's Compensation

Statutory limits required by the Commonwealth of Kentucky

Employer's Liability

Each Accident	\$ 100,000
Disease (policy limit)	\$ 500,000
Disease (each employee)	\$ 100,000

INSTRUCTIONS TO BIDDERS
COMMONWEALTH OF KENTUCKY
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16. Insurance: Builders Risk (Also see General Conditions Article 6)

The Contractor shall provide Builders Risk Insurance (fire and extended coverage) for 100 percent of the insurable portion of all work in place and/or materials stored at the site. Such insurance shall provide coverage at all times for the full cash value of all completed construction and/or materials stored and shall remain in effect until the covered facilities are accepted by the Owner. Unless otherwise noted, all portions of the construction shall be covered on a 100 percent complete value basis. The Builders Risk Insurance provided by the Contractor shall cover damage to materials and equipment occurring during offloading and/or installation, regardless of the entity performing the offloading and/or installation.

The Contractor will be responsible for any losses covered by the Builder's Risk insurance policy up to the per occurrence deductible amount.

17. Certificate of Insurance (Also see General Conditions Article 6)

As a minimum, the Certificate of Insurance shall contain the following information: (1) name of insurance company, (2) policy number and liability limits on all policies, (3) date of expiration of all policies, (4) statement that ten days' notice of cancellation will be given to the Owner and the Engineer, and (5) statement that coverage that will hold the Owner and Engineer harmless for acts of the Contractor is included.

18. Sanitary Facilities

The Contractor shall furnish, install and maintain ample sanitary facilities for the workmen. As the needs arise, enclosed temporary toilets in sufficient number shall be placed as directed by the Engineer. Permanent toilets installed under this Contract shall not be used during construction. Drinking water shall be provided from a proved safe source, so piped or transported as to be kept clean and fresh and served from single service containers of satisfactory types. The inclusion of this article in no way obligates the Owner or the Engineer to make verification of or to inspect the sanitary facilities and the Contractor shall save the Owner and/or Engineer harmless from any claims arising therefrom.

19. Lands and Rights-of-Way

It is anticipated that all easements and land required for the construction of this project will be acquired before the issuance of a Work Order or within the period stipulated in the Advertisement for Bids during which Contractors are not allowed to withdraw their bids. Unless the land(s) and/or easements are obtained or the Contractor agrees to either an extension or a work order stipulating the limitations

INSTRUCTIONS TO BIDDERS
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October 2019

of work or he may withdraw his bid at the end of such period stipulated in the Advertisement for Bids.

20. Commencement and Completion of Work

See General Conditions Article 4.

21. Funds for Partial Payment Estimates

See General Conditions Article 15.

22. Construction Records and Reports

The Contractor shall, upon request, furnish the Owner with proof that all payrolls for services rendered and invoices for materials supplied have been duly paid as herein required and such other pertinent data as the Owner may require.

The Owner or his authorized representatives and agents shall be permitted to inspect all payrolls, records of personnel, invoices of materials, and other relevant data and records.

On projects involving Federal or Commonwealth Funds, the Federal or Commonwealth Agency or Agencies participating in the project shall be considered representatives of the Owner.

23. Payment of Employees

The Contractor and each of his Subcontractors shall pay each of his employees engaged in work on the project in full (less deductions made mandatory by law), in cash (or check), and not less often than once each week.

24. Laws and Regulations

The Bidder's attention is directed to the fact that all applicable Commonwealth laws, municipal ordinances, and the rules and regulations of all authorities having 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.

25. Subcontracts

See General Conditions Article 7.

In addition to the requirements of the laws of the Commonwealth in which the project is located, no Bid will be accepted from any Contractor who does not

INSTRUCTIONS TO BIDDERS
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propose to accomplish the major portion of the work with his own forces and under his own supervision.

26. Wages and Hours and Non-Discrimination

The Contractor shall conform in every respect to applicable rules, regulations and statutes pertaining to wages, hours of work, and non-discrimination. If required, a Wage Determination Decision will be included in these bound documents or may be added by Addendum.

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 Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared By



Endorsed By



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**This document has been altered by
J. R. Wauford & Company, Consulting Engineers, Inc.**

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term's singular and plural forms, will have the meaning indicated in the definitions below. 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, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.
 3. *Application for Payment*—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
 4. *Bid*—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
 5. *Bidder*—An individual or entity that submits a Bid to Owner.
 6. *Bidding Documents*—The Bidding Requirements, the proposed Contract Documents, and all Addenda.
 7. *Bidding Requirements*—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.
 8. *Change Order*—A document 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, or other revision to the Contract, issued on or after the Effective Date of the Contract.
 9. *Change Proposal*—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.
 10. *Claim*
 - a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the

- requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer's decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.
- b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer's decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.
 - c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.
 - d. A demand for money or services by a third party is not a Claim.
11. *Constituent of Concern*—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.
 12. *Contract*—The entire and integrated written contract between Owner and Contractor concerning the Work.
 13. *Contract Documents*—Those items so designated in the Agreement, and which together comprise the Contract.
 14. *Contract Price*—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.
 15. *Contract Times*—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.
 16. *Contractor*—The individual or entity with which Owner has contracted for performance of the Work.
 17. *Cost of the Work*—See Paragraph 13.01 for definition.
 18. *Drawings or Plans*—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.
 19. *Effective Date of the Contract*—The date, indicated in the Agreement, on which the Contract becomes effective.
 20. *Electronic Document*—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital Portable Document Format (PDF).
 21. *Electronic Means*—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions,

including sending and receipt; (c) printing of the transmitted Electronic Document by the recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. *Engineer*—The individual or entity named as such in the Agreement.
23. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.
24. *Hazardous Environmental Condition*—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
 - a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
 - b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
 - c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.
25. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens*—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.
27. *Milestone*—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.
28. *Notice of Award*—The written notice by Owner or the Engineer to a Bidder of Owner's acceptance of the Bid.
29. *Notice to Proceed*—A written notice by Owner or the Engineer at the Owner's discretion to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.
30. *Owner*—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.
31. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor's plan to accomplish the Work within the Contract Times.

32. *Project*—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
- 32a. *Project Manual* - The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes.
33. *Resident Project Representative*—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.
34. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.
35. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.
36. *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.
37. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.
38. *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, and such other lands or areas furnished by Owner which are designated for the use of Contractor.
39. *Specifications*—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.
40. *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.
41. *Submittal*—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals,

Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. *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 of such Work.
43. *Successful Bidder*—The Bidder to which the Owner makes an award of contract.
44. *Supplementary Conditions*—The part of the Contract that amends or supplements these General Conditions.
45. *Supplier*—A manufacturer, fabricator, supplier, distributor, 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 a Subcontractor.
46. *Technical Data*
 - a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.
 - b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.
47. *Underground Facilities*—All active underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.
48. *Unit Price Work*—Work to be paid for on the basis of unit prices.
49. *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; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. *Work Change Directive*—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.

1.02 Terminology

- A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.
- B. *Intent of Certain Terms or Adjectives*: 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 information in the Contract Documents and with the design concept of the 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 Article 10 or any other provision of the Contract Documents.
- C. *Day*: The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.
- D. *Defective*: The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
1. does not conform to the Contract Documents;
 2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
 3. 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 15.03 or Paragraph 15.04).
- E. *Furnish, Install, Perform, Provide*
1. The word “furnish,” when used in connection with services, materials, or equipment, means 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, means 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, means to furnish and install said services, materials, or equipment complete and ready for intended use.
 4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words

“furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.

- F. *Contract Price or Contract Times*: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.
- G. Unless stated otherwise in the Contract Documents, words or phrases that 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

2.01 *Delivery of Performance and Payment Bonds; Evidence of Insurance*

- A. *Performance and Payment Bonds*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).
- B. *Evidence of Contractor’s Insurance*: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.
- C. *Evidence of Owner’s Insurance*: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor two copies of the executed Contract Documents, one of which Contractor shall furnish to Contractor’s Surety.
- B. 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 *Before Starting Construction*

- A. *Preliminary Schedules*: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), 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;
 - 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.

2.04 *Preconstruction Conference; Designation of Authorized Representatives*

- 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 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.
- B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 *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 the schedules submitted in accordance with Paragraph 2.03.A. It is the Contractor's responsibility to request and schedule said meeting or waive right thereto. No progress payment will 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 the component parts of the Work.
 - 4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 *Electronic Transmittals*

- A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.
- B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.
- C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient's use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.

- D. Project Manuals and Drawings issued by the Engineer for bidding purposes may be Electronic Documents or printed copies (also known as hard copies) as determined by the Engineer.
- E. Project Manuals and Drawings issued by the Engineer for construction purposes shall be printed copies (also known as hard copies). At the request of the Contractor, the Engineer may provide Electronic Documents of Project Manuals and Drawings issued by the Engineer for construction purposes; however, said Electronic Documents are provided for the convenience of the receiving party. Any conclusion or information obtained or derived from the Electronic Documents will be at the user's sole risk. If there is a discrepancy between the Electronic Documents and the hard copies, the hard copies shall govern.

ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent

- A. The Contract Documents are complementary; what is required by one Contract Document 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.
- C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
- D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
- E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
- F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
- G. Nothing in the Contract Documents creates:
 - 1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
 - 2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 Reference Standards

- A. *Standards Specifications, Codes, Laws and Regulations*
 - 1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard

specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract 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, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer 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 part of the Contract Documents prepared by or for Engineer.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies*

1. *Contractor's Verification of Figures and Field Measurements:* Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
2. *Contractor's Review of Contract Documents:* If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then 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 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.
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 had actual knowledge thereof.

B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:
 - a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); 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 *Requirements of the Contract Documents*

- A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs) or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
- B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer’s written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.
- C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 *Reuse of Documents*

- A. Contractor and its Subcontractors and Suppliers 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 its consultants, including electronic media versions, or reuse any 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; or
 - 2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner’s express written consent, or violate any copyrights pertaining to such Contract Documents.
- B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 90 days after the Effective Date of the

Contract. The Contractor shall advise the Owner and Engineer related to scheduling and equipment/material delivery dates related to a delayed Notice to Proceed.

4.02 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date unless agreed to in writing by the Owner.

4.03 *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.

4.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 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 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.
 - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.
- B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 *Delays in Contractor's Progress*

- A. If Owner, Engineer, 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 Contract Price or Contract Times.
- B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.
- C. If Contractor's performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor's sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption,

or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;
 2. Abnormal weather conditions;
 3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and
 4. Acts of war or terrorism.
- D. Contractor's entitlement to an adjustment of Contract Times or Contract Price is limited as follows:
1. Contractor's entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.
 2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.
 3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.
- E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:
1. The circumstances that form the basis for the requested adjustment;
 2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;
 3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;
 4. The number of days' increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and
 5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

- F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with

reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

- G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.
- H. Contractor shall submit any Change Proposal seeking adjustment in the Contract Price or Contract Times within 30 days of the commencement of the delaying, disrupting, or interfering event.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

- A. Owner shall furnish the Site. Owner shall notify Contractor in writing 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.
- 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 permanent improvements are to be made 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.

5.02 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

- 1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor's operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.
- 2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and

subcontractors of each and any of them, from and against any such claim, and against all 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 directly or indirectly, in whole or in part by, or based upon, Contractor's performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

- B. *Removal of Debris During Performance of the Work:* During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will 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 and adjacent areas 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 of 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 structures or land to stresses or pressures that will endanger them.

5.03 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
 - 1. Those reports provided by Owner of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;
 - 2. Those drawings provided by Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and
 - 3. Technical Data contained in such reports and drawings.
- B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.
- C. *Reliance by Contractor on Technical Data:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.
- D. *Limitations of Other Data and Documents:* Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their

officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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;
2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;
3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner's archival documents concerning the Site; or
4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.

5.04 *Differing Subsurface or Physical Conditions*

A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
2. is of such a nature as to require a change in the Drawings or Specifications;
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 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer's Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor's resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer's findings, conclusions, and recommendations.

C. *Owner's Statement to Contractor Regarding Site Condition:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating

whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations, in whole or in part.

- D. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- E. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, 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 fall within any one or more of the categories described in Paragraph 5.04.A;
 - 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 Paragraph 13.03; and,
 - c. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D, 4.05.E, and 4.05.H.
 2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:
 - a. Contractor knew of the existence of such condition at the time Contractor made a 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 otherwise;
 - b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such commitment; or
 - c. Contractor failed to give the written notice required by Paragraph 5.04.A.
 3. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the subsurface or physical condition in question.
- F. *Underground Facilities; Hazardous Environmental Conditions*: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 *Underground Facilities*

- A. *Contractor's Responsibilities:* Owner and Engineer do not warrant or guarantee the accuracy or completeness of any such information or data provided by others. Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:
1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;
 2. complying with applicable state and local utility damage prevention Laws and Regulations;
 3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;
 4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and
 5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.
- B. *Notice by Contractor:* If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then 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 7.15), notify Owner and Engineer in writing regarding such Underground Facility.
- C. *Engineer's Review:* Engineer will:
1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;
 2. prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor's resumption of Work in connection with the Underground Facility in question;
 3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and
 4. advise Owner in writing of Engineer's findings, conclusions, and recommendations.
- During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- D. *Owner's Statement to Contractor Regarding Underground Facility:* After receipt of Engineer's written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer's written findings, conclusions, and recommendations in whole or in part.

- E. *Early Resumption of Work*: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer's review or Owner's issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.
- F. *Possible Price and Times Adjustments*
1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:
 - a. 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 Paragraph 13.03;
 - b. Contractor's entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E;
 - c. Contractor gave the notice required in Paragraph 5.05.B; and
 - d. Contractor did not know and could not reasonably have been expected to be aware of or to have anticipated the existence or actual location of the Underground Facility in question.
 2. If Owner and Contractor agree regarding Contractor's entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.
 3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner's issuance of the Owner's written statement to Contractor regarding the Underground Facility in question.
 4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor's remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 *Hazardous Environmental Conditions at Site*

- A. *Reports and Drawings*: The Supplementary Conditions identify:
1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;
 2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.
- B. *Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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;
 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 removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.
- D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.
- E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) 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. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition and impose a set-off against payments to account for the associated costs.
- F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition

- and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.
- G. 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, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner's written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.
 - H. 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, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 8.
 - I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, 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, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
 - J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
 - K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish a performance bond and a payment bond, 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. 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 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the Supplementary Conditions, or other specific provisions of the Contract. Contractor shall also furnish such other bonds as are required by the Supplementary Conditions or other specific provisions of the Contract.
- B. All bonds shall be in the form prescribed by the Contract except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (as amended and supplemented) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.
- C. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds in the required amounts.
- D. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or its right to do business is terminated in any state or jurisdiction where any part of the Project is located, or the surety ceases to meet the requirements above, then 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 bond and surety requirements above.
- E. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner's termination rights under Article 16.
- F. Upon request, Owner shall provide a copy of the payment bond to any Subcontractor, Supplier, or other person or entity claiming to have furnished labor or materials used in the performance of the Work.

6.02 *Insurance—General Provisions*

- A. Owner and Contractor shall obtain and maintain insurance as required in this Article and in the Supplementary Conditions.
- B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

- C. Contractor shall deliver to Owner, with copies to each named insured and additional insured (as identified in this Article, in the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Contractor has obtained and is maintaining the policies, coverages, and endorsements required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Contractor may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- D. Owner shall deliver to Contractor, with copies to each named insured and additional insured (as identified in this Article, the Supplementary Conditions, or elsewhere in the Contract), certificates of insurance establishing that Owner has obtained and is maintaining the policies, coverages, and endorsements required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies and endorsements, and documentation of applicable self-insured retentions and deductibles. Owner may block out (redact) any confidential premium or pricing information contained in any policy or endorsement furnished under this provision.
- E. Failure of Owner or Contractor to demand such certificates or other evidence of the other party's full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, shall not be construed as a waiver of the other party's obligation to obtain and maintain such insurance.
- F. If either party does not purchase or maintain all of the insurance required of such party by the Contract, 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.
- G. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights under Article 16.
- H. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect to obtain equivalent insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and the Contract Price shall be adjusted accordingly.
- I. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor's interests.
- J. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner and other individuals and entities in the Contract.

6.03 *Contractor's Insurance*

- A. *Workers' Compensation:* Contractor shall purchase and maintain workers' compensation and employer's liability insurance for:
 - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts.

2. United States Longshoreman and Harbor Workers' Compensation Act and Jones Act coverage (if applicable).
 3. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees.
 4. Foreign voluntary worker compensation (if applicable).
- B. *Commercial General Liability—Claims Covered:* Contractor shall purchase and maintain commercial general liability insurance, covering all operations by or on behalf of Contractor, on an occurrence basis, against:
1. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees.
 2. claims for damages insured by reasonably available personal injury liability coverage.
 3. 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.
- C. *Commercial General Liability—Form and Content:* Contractor's commercial liability policy shall be written on a 1996 (or later) ISO commercial general liability form (occurrence form) and include the following coverages and endorsements:
1. Products and completed operations coverage:
 - a. Such insurance shall be maintained until the end of the warranty (guarantee) period.
 - b. Contractor shall furnish Owner and each other additional insured (as identified in the Supplementary Conditions or elsewhere in the Contract) evidence of continuation of such insurance until the end of the warranty (guarantee) period.
 2. Blanket contractual liability coverage, to the extent permitted by law, including but not limited to coverage of Contractor's contractual indemnity obligations in Paragraph 7.18.
 3. Broad form property damage coverage.
 4. Severability of interest.
 5. Underground, explosion, and collapse coverage.
 6. Personal injury coverage.
 7. Additional insured endorsements that include both ongoing operations and products and completed operations coverage through ISO Endorsements CG 20 10 10 01 and CG 20 37 10 01 (together); or CG 20 10 07 04 and CG 20 37 07 04 (together); or their equivalent.
 8. For design professional additional insureds, ISO Endorsement CG 20 32 07 04, "Additional Insured—Engineers, Architects or Surveyors Not Engaged by the Named Insured" or its equivalent.
- D. *Automobile liability:* Contractor shall purchase and maintain automobile liability insurance against 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. The automobile liability policy shall be written on an occurrence basis.
- E. *Umbrella or excess liability:* Contractor shall purchase and maintain umbrella or excess liability insurance written over the underlying employer's liability, commercial general liability, and

automobile liability insurance described in the paragraphs above. Subject to industry-standard exclusions, the coverage afforded shall follow form as to each and every one of the underlying policies.

- F. *Contractor's pollution liability insurance:* Contractor shall purchase and maintain a policy covering third-party injury and property damage claims, including clean-up costs, as a result of pollution conditions arising from Contractor's operations and completed operations. This insurance shall be maintained for no less than three years after final completion.
- G. *Additional insureds:* The Contractor's commercial general liability, automobile liability, umbrella or excess, and pollution liability policies shall include and list as additional insureds Owner and Engineer, and any individuals or entities identified in the Supplementary Conditions; include coverage for the respective officers, directors, members, 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 (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Contractor shall obtain all necessary endorsements to support these requirements.
- H. *Contractor's professional liability insurance:* If Contractor will provide or furnish professional services under this Contract, through a delegation of professional design services or otherwise, then Contractor shall be responsible for purchasing and maintaining applicable professional liability insurance. This insurance shall provide protection against claims arising out of performance of professional design or related services, and caused by a negligent error, omission, or act for which the insured party is legally liable. It shall be maintained throughout the duration of the Contract and for a minimum of the end of the warranty (guarantee) period. If such professional design services are performed by a Subcontractor, and not by Contractor itself, then the requirements of this paragraph may be satisfied through the purchasing and maintenance of such insurance by such Subcontractor.
- I. *General provisions:* The policies of insurance required by this Paragraph 6.03 shall:
 - 1. include at least the specific coverages provided in this Article.
 - 2. be written for not less than the limits of liability provided in this Article and in the Supplementary Conditions, or required by Laws or Regulations, whichever is greater.
 - 3. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed, or renewal refused until at least 10 days prior written notice has been given to Contractor. Within three days of receipt of any such written notice, Contractor shall provide a copy of the notice to Owner, Engineer, and each other insured under the policy.
 - 4. remain in effect at least until the end of the warranty (guarantee) period and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract Documents.
 - 5. be appropriate for the Work being performed and provide protection from claims that 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.

- J. *The coverage requirements for specific policies of insurance must be met by such policies, and not by reference to excess or umbrella insurance provided in other policies.*

6.04 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 6.03, 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.
- B. Owner's liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner's liability policies for any of Contractor's obligations to the Owner, Engineer, or third parties.

6.05 *Property Insurance*

- A. *Builder's Risk:* Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder's risk insurance upon the Work on a completed value basis, in the amount of the full insurable 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 Owner and Contractor as named insureds, and all Subcontractors, and any individuals or entities required by the Supplementary Conditions to be insured under such builder's risk policy, as insureds or named insureds. For purposes of the remainder of this Paragraph 6.05, Paragraphs 6.06 and 6.07, and any corresponding Supplementary Conditions, the parties required to be insured shall collectively be referred to as "insureds."
 2. be written on a builder's risk "all risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire; lightning; windstorm; riot; civil commotion; terrorism; vehicle impact; aircraft; smoke; theft; vandalism and malicious mischief; mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; flood; collapse; explosion; debris removal; demolition occasioned by enforcement of Laws and Regulations; water damage (other than that caused by flood); and such other perils or causes of loss as may be specifically required by the Supplementary Conditions. If insurance against mechanical breakdown, boiler explosion, and artificially generated electric current; earthquake; volcanic activity, and other earth movement; or flood, are not commercially available under builder's risk policies, by endorsement or otherwise, such insurance may be provided through other insurance policies acceptable to Owner and Contractor.
 3. cover, as insured property, at least the following: (a) the Work and all materials, supplies, machinery, apparatus, equipment, fixtures, and other property of a similar nature that are to be incorporated into or used in the preparation, fabrication, construction, erection, or completion of the Work, including Owner-furnished or assigned property; (b) spare parts inventory required within the scope of the Contract; and (c) temporary works which are not intended to form part of the permanent constructed Work but which are intended

to provide working access to the Site, or to the Work under construction, or which are intended to provide temporary support for the Work under construction, including scaffolding, form work, fences, shoring, falsework, and temporary structures.

4. cover expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects).
 5. extend to cover damage or loss to insured property while in temporary storage at the Site or in a storage location outside the Site (but not including property stored at the premises of a manufacturer or Supplier).
 6. extend to cover damage or loss to insured property while in transit.
 7. allow for partial occupation or use of the Work by Owner, such that those portions of the Work that are not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
 8. allow for the waiver of the insurer's subrogation rights, as set forth below.
 9. provide primary coverage for all losses and damages caused by the perils or causes of loss covered.
 10. not include a co-insurance clause.
 11. include an exception for ensuing losses from physical damage or loss with respect to any defective workmanship, design, or materials exclusions.
 12. include performance/hot testing and start-up.
 13. be maintained in effect, subject to the provisions herein regarding Substantial Completion and partial occupancy or use of the Work by Owner, until the Work is complete.
- B. *Notice of Cancellation or Change:* All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 6.05 shall contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured.
- C. *Deductibles:* The purchaser of any required builder's risk or property insurance shall pay for costs not covered because of the application of a policy deductible.
- D. *Partial Occupancy or Use by Owner:* If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder's risk policy, or through Contractor) will provide notice of such occupancy or use to the builder's risk insurer. The builder's risk insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy; rather, those portions of the Work that are occupied or used by Owner may come off the builder's risk policy, while those portions of the Work not yet occupied or used by Owner shall remain covered by the builder's risk insurance.
- E. *Additional Insurance:* If Contractor elects to obtain other special insurance to be included in or supplement the builder's risk or property insurance policies provided under this Paragraph 6.05, it may do so at Contractor's expense.

- F. *Insurance of Other Property*: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, such as tools, construction equipment, or other personal property owned by Contractor, a Subcontractor, or an employee of Contractor or a Subcontractor, then the entity or individual owning such property item shall be responsible for deciding whether to insure it, and if so in what amount.

6.06 *Waiver of Rights*

- A. All policies purchased in accordance with Paragraph 6.05, expressly including the builder's risk policy, 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 insureds thereunder, or against Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors. Owner and Contractor waive all rights against each other and the respective officers, directors, members, 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 Engineer, its consultants, all Subcontractors, all individuals or entities identified in the Supplementary Conditions as insureds, and the officers, directors, members, 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 or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, 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 occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 6.06.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, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them.
- D. Contractor shall be responsible for assuring that the agreement under which a Subcontractor performs a portion of the Work contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, 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 builder's risk insurance and any other property insurance applicable to the Work.

6.07 *Receipt and Application of Property Insurance Proceeds*

- A. Any insured loss under the builder's risk and other policies of insurance required by Paragraph 6.05 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.
- B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder's risk and other policies of insurance required by Paragraph 6.05 shall distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.
- C. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the money so received applied on account thereof, and the Work and the cost thereof covered by Change Order, if needed.

ARTICLE 7—CONTRACTOR'S RESPONSIBILITIES

7.01 *Contractor's Means and Methods of Construction*

- A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.
- B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor's expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor's determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 *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.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 *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 maintain good discipline and order at the Site.
- B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor's employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor's own acts and omissions.
- C. 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 will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner's written consent.

7.04 *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, whether or not such items are specifically called for in the Contract Documents.
- B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will 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 must 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.

7.05 *"Or Equals"*

- A. *Contractor's Request; Governing Criteria:* Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item 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 is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.
 - 1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an "or equal" item. For

the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

- a. in the exercise of reasonable judgment Engineer determines that the proposed item:
 - 1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
 - 2) 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) has a proven record of performance and availability of responsive service; and
 - 4) is not objectionable to Owner.
 - b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:
 - 1) there will be no increase in cost to the Owner or increase in Contract Times; and
 - 2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.
- B. *Contractor's Expense:* Contractor shall provide all data in support of any proposed "or equal" item at Contractor's expense.
- C. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each "or-equal" request. Engineer may require Contractor to furnish additional data about the proposed "or-equal" item. Engineer will be the sole judge of acceptability. No "or-equal" item will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an "or-equal," which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.
- D. *Effect of Engineer's Determination:* Neither approval nor denial of an "or-equal" request will result in any change in Contract Price. The Engineer's denial of an "or-equal" request will be final and binding and may not be reversed through an appeal under any provision of the Contract.
- E. *Treatment as a Substitution Request:* If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an "or-equal" item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

- A. *Contractor's Request; Governing Criteria:* Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.
1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for

review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
 3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
 - a. will certify that the proposed substitute item will:
 - 1) perform adequately the functions and achieve the results called for by the general design;
 - 2) be similar in substance to the item specified; and
 - 3) be suited to the same use as the item specified.
 - b. will state:
 - 1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
 - 2) whether 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
 - 3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
 - c. will identify:
 - 1) all variations of the proposed substitute item from the item specified; and
 - 2) available engineering, sales, maintenance, repair, and replacement services.
 - d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.
- B. *Engineer's Evaluation and Determination:* Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer's review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer's determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.
- C. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

- D. *Reimbursement of Engineer's Cost:* Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable 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.
- E. *Contractor's Expense:* Contractor shall provide all data in support of any proposed substitute at Contractor's expense.
- F. *Effect of Engineer's Determination:* If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer's denial of a substitution request will be final and binding and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 *Concerning Subcontractors and Suppliers*

- A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor's retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor's obligation to Owner to perform and complete the Work in accordance with the Contract Documents.
- B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.
- C. Subsequent to the submittal of Contractor's Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.
- D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 10 days.
- E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.
- F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall

initiate a Change Proposal for such adjustment within 30 days of Owner's requirement of replacement.

- G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
- H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.
- I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.
- J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.
- K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.
- L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.
- M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.
- N. Nothing in the Contract Documents:
 - 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
 - shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

7.08 *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 an 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 will be disclosed in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, 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 specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

- C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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.

7.09 *Permits*

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. 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 the submission of Contractor's Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 *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.

7.11 *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. Neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, 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 such Work or other action. It is not Contractor's responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.
- C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor's Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having

an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.

7.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.
- B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.
- C. 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, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.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 at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer 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).
- E. 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.

- F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.
- G. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. Any Owner's safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.
- H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.
- I. Contractor's duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).
- J. Contractor's duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as 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.

7.15 *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 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 by an emergency or are required as a result of Contractor's response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor's response, a Work Change Directive or Change Order will be issued.

7.16 *Submittals*

A. *Shop Drawing and Sample Requirements*

1. Before submitting a Shop Drawing or Sample, Contractor shall:
 - a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
 - b. determine and verify:
 - 1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;

- 2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
 - 3) all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
 - c. confirm that the Submittal is complete with respect to all related data included in the Submittal.
 2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review of that Submittal, and that Contractor approves the Submittal.
 3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.
- B. *Submittal Procedures for Shop Drawings and Samples:* Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.
 1. *Shop Drawings*
 - a. Contractor shall submit the number of copies required in the Specifications.
 - b. Data shown on the Shop Drawings must 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 7.16.C.
 2. *Samples*
 - a. Contractor shall submit the number of Samples required in the Specifications.
 - b. Contractor shall 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 7.16.C.
 3. 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. *Engineer's Review of Shop Drawings and Samples*
 1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. 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, comply with the requirements of 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, or to safety precautions or programs incident thereto.
3. Engineer's review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
4. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.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 will document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.
5. Engineer's review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.
6. Engineer's review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.
7. Neither Engineer's receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.
8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

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.
2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer's time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer's charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.
3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer's charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

- E. *Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs*
1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:
 - a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.
 - b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.
 - c. Engineer's review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
 - d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance and resubmit an acceptable document.
 2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.
- F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 *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 is entitled to rely on Contractor's warranty and guarantee.
- B. Owner's rights under this warranty and guarantee are in addition to, and are not limited by, Owner's rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:
1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and
 2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.
- C. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
1. abuse, or improper modification, 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.
- D. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is

not in accordance with the Contract Documents, a release of Contractor's obligation to perform the Work in accordance with the Contract Documents, or a release of Owner's warranty and guarantee rights under this Paragraph 7.17:

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;
 6. The issuance of a notice of acceptability by Engineer;
 7. The end of the correction period established in Paragraph 15.08;
 8. Any inspection, test, or approval by others; or
 9. Any correction of defective Work by Owner.
- E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor's performance obligations to Owner for the Work described in the assigned contract.

7.18 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (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 from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage 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 officers, directors, members, partners, employees, agents, consultants, or subcontractors, 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 7.18.A will 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.

7.19 *Delegation of Professional Design Services*

- A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.
- B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.
- C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor's design professional when submitted by Contractor to Engineer.
- D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.
- E. Pursuant to this Paragraph 7.19, Engineer's review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
 - 1. Checking for conformance with the requirements of this Paragraph 7.19;
 - 2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
 - 3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.
- F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.
- G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 *Other Work*

- A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner's employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

- B. If Owner performs other work at or adjacent to the Site with Owner's employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.
- C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner's employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.
- D. 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 such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected.
- E. If the proper execution or results of any part of Contractor's Work depends upon work performed by others, 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.
- F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner's employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions, Section 1 of the Project Manual, or provided to Contractor prior to the start of any such other work:
 - 1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;
 - 2. An itemization of the specific matters to be covered by such authority and responsibility; and
 - 3. The extent of such authority and responsibilities.
- B. Unless otherwise provided in Section 1 of the Project Manual, Owner shall have sole authority and responsibility for such coordination.

8.03 *Legal Relationships*

- A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner's employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor's rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor's entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
- B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.
1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner's contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.
 2. When Owner is performing other work at or adjacent to the Site with Owner's employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor's failure to take reasonable and customary measures with respect to Owner's other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.
- C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor's failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor's actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all 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 damage, delay, disruption, or interference.

ARTICLE 9—OWNER’S RESPONSIBILITIES

9.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 *Replacement of Engineer*

A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer’s status under the Contract Documents will be that of the former Engineer.

9.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 *Pay When Due*

A. Owner shall make payments to Contractor in accordance with Paragraph 15.01 D.

9.05 *Lands and Easements; Reports, Tests, and Drawings*

- A. Owner’s duties with respect to providing lands and easements are set forth in Paragraph 5.01.
- B. Owner’s duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
- C. Article 5 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 *Insurance*

A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 *Change Orders*

A. Owner’s responsibilities with respect to Change Orders are set forth in Article 11.

9.08 *Inspections, Tests, and Approvals*

A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 *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.

9.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 *Evidence of Financial Arrangements*

- A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract (including obligations under proposed changes in the Work).

9.12 *Safety Programs*

- A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed.
- B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.

ARTICLE 10—ENGINEER'S STATUS DURING CONSTRUCTION

10.01 *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.

10.02 *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 10.07. 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.

10.03 *Resident Project Representative*

- A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the

responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

- B. If Owner designates an individual or entity who is not Engineer's consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 *Engineer's Authority*

- A. Engineer has the authority to reject Work in accordance with Article 14.
- B. Engineer's authority as to Submittals is set forth in Paragraph 7.16.
- C. Engineer's authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner's delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.
- D. Engineer's authority as to changes in the Work is set forth in Article 11.
- E. Engineer's authority as to Applications for Payment is set forth in Article 15.

10.05 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 10 or under any other provision of the Contract, 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, will 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 Contractor under Paragraph 15.06.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 10.07 also apply to the Resident Project Representative, if any.

10.08 *Compliance with Safety Program*

- A. While at the Site, Engineer's employees and representatives will comply with the specific applicable requirements of Owner's and Contractor's safety programs of which Engineer has been informed.

ARTICLE 11—CHANGES TO THE CONTRACT

11.01 *Amending and Supplementing the Contract*

- A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.
- B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.
- C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer's recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 *Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders covering:
 - 1. Changes in 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;
 - 2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;
 - 3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner's acceptance of defective Work under Paragraph 14.04 or Owner's correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer's recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and
 - 4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

- B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 *Work Change Directives*

- A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive's effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
- B. If Owner has issued a Work Change Directive and:
 - 1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.
 - 2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 *Field Orders*

- A. Engineer may authorize minor changes in the Work if the changes 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. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.
- B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 *Owner-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. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer's recommendation.
- B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.
- C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor's safety obligations under the Contract Documents or Laws and Regulations.

11.06 *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, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 *Change of Contract Price*

- A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.
- B. 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, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);
 - 2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or
 - 3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 11.07.C).
- C. *Contractor's Fee:* When applicable, the Contractor's fee for overhead and profit will 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 13.01.B.1 and 13.01.B.2, the Contractor's fee will be 15 percent;
 - b. For costs incurred under Paragraph 13.01.B.3, the Contractor's fee will be 5 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 Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor's fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;

- d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;
- e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and
- f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor's fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.

11.08 *Change of Contract Times*

- A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.
- B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 *Change Proposals*

- A. *Purpose and Content:* Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.
- B. *Change Proposal Procedures*
 - 1. *Submittal:* Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.
 - 2. *Supporting Data:* The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
 - a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
 - b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. *Engineer's Initial Review:* Engineer will advise Owner regarding the Change Proposal and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.
 4. *Engineer's Full Review and Action on the Change Proposal:* Upon receipt of Contractor's supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor's supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer's inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.
 5. *Binding Decision:* Engineer's decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.
- C. *Resolution of Certain Change Proposals:* If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.
- D. *Post-Completion:* Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 *Notification to Surety*

- A. If the provisions of any bond require notice to be given to a surety 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), 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.

ARTICLE 12—CLAIMS

12.01 *Claims*

- A. *Claims Process:* The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:
1. Appeals by Owner or Contractor of Engineer's decisions regarding Change Proposals;

2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
 3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
 4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.
- B. *Submittal of Claim:* The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor's knowledge and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.
- C. *Review and Resolution:* The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.
- D. *Mediation*
1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.
 2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.
 3. Owner and Contractor shall each pay one-half of the mediator's fees and costs.
- E. *Partial Approval:* If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.
- F. *Denial of Claim:* If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

- G. *Final and Binding Results*: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

13.01 Cost of the Work

- A. *Purposes for Determination of Cost of the Work*: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:
1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
 2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.
- B. *Costs Included*: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:
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 in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will 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 accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will 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, which 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 will be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.
5. Other costs consisting of 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, 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.
 - 1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.
 - c. *Construction Equipment Rental*

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, as 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 builder's risk or other property insurance established in accordance with Paragraph 6.04), 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 include settlements made with the written consent and approval of Owner. No such

losses, damages, and expenses will 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 communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. *Costs Excluded*: The term Cost of the Work does not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals, general 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 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor's fee.
- 2. The cost of purchasing, renting, or furnishing small tools and hand tools.
- 3. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 4. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 5. 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.
- 6. Expenses incurred in preparing and advancing Claims.
- 7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. *Contractor's Fee*

- 1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:
 - a. Contractor's fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.
 - b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor's fee will be determined as follows:
 - 1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.
 - 2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor's fee for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.
- E. *Documentation and Audit*: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors shall establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor's accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor's fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 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*: Contractor agrees that:
1. 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
 2. 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 for any of the foregoing will be valid.
- C. *Owner's Contingency Allowance*: Contractor agrees that an Owner's 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 for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 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. Payments to Contractor for Unit Price Work will be based on actual quantities.
- 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. 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, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. *Adjustments in Unit Price*

Within 30 days of Engineer's written decision under the preceding paragraph, Contractor may submit a Change Proposal, or Owner may file a Claim, seeking an adjustment in the Contract Price if:

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;

there is no corresponding adjustment with respect to any other item of Work; and

Contractor believes that it 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.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 *Access to Work*

- A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 *Tests, Inspections, and Approvals*

- A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.
- B. This item intentionally deleted from these General Conditions. Section 2 – Testing and Control of Materials in the Specifications covers this subject.
- 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, obtaining, and paying for all inspections and tests required:
1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work;
3. by manufacturers of equipment furnished under the Contract Documents;
4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and
5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

- E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.
- F. 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, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor's expense unless Contractor had given Engineer timely notice of Contractor's intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 *Defective Work*

- A. *Contractor's Obligation*: It is Contractor's obligation to assure that the Work is not defective.
- B. *Engineer's Authority*: Engineer has the authority to determine whether Work is defective, and to reject defective Work.
- C. *Notice of Defects*: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.
- D. *Correction, or Removal and Replacement*: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.
- E. *Preservation of Warranties*: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.
- F. *Costs and Damages*: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs, losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 *Acceptance of Defective Work*

- A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer's confirmation that such acceptance is in general accord with the design intent and applicable engineering principles and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 *Uncovering Work*

- A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.
- B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer's observation, and then replace the covering, all at Contractor's expense.
- C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then 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, and provide all necessary labor, material, and equipment.
 - 1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages 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 pending Contractor's full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.
 - 2. 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, 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, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 *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, then 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 will 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.

14.07 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 defective Work as required by Engineer, then Owner may, after 7 days' written notice to Contractor, correct or remedy any such deficiency.
- B. In exercising the rights and remedies under this Paragraph 14.07, 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, 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 incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. 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 14.07.

ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD

15.01 Progress Payments

- A. *Basis for Progress Payments*: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.
- B. *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.
 - 2. 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 must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation establishing full payment by Contractor for the materials and equipment; (b) at Owner's request, documentation warranting that Owner has received the materials and

equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor's legitimate obligations associated with prior Applications for Payment.
4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. *Review of Applications*

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, 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 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, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and 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; or
 - b. 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;
 - b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
 - c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work;
 - d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; 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 15.01.C.2.
 6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer's opinion to protect Owner from loss because:
 - a. the Work is defective, requiring correction or replacement;
 - b. the Contract Price has been reduced by Change Orders;
 - c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
 - e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.
- D. *Payment Becomes Due*
1. The Owner will make payments promptly as funds for such payments become available from funding agencies or as otherwise agreed.
- E. *Reductions in Payment by Owner*
1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
 - a. Claims have been made against Owner based on Contractor's conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor's conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
 - b. Contractor has failed to take reasonable and customary measures to avoid damage, delay, disruption, and interference with other work at or adjacent to the Site;

- c. Contractor has failed to provide and maintain required bonds or insurance;
 - d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible;
 - e. Owner has incurred extra charges or engineering costs related to submittal reviews, evaluations of proposed substitutes, tests and inspections, or return visits to manufacturing or assembly facilities;
 - f. The Work is defective, requiring correction or replacement;
 - g. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
 - h. The Contract Price has been reduced by Change Orders;
 - i. An event has occurred that would constitute a default by Contractor and therefore justify a termination for cause;
 - j. Liquidated or other damages have accrued as a result of Contractor's failure to achieve Milestones, Substantial Completion, or final completion of the Work;
 - k. 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; or
 - l. Other items entitle Owner to a set-off against the amount recommended.
2. If Owner imposes any set-off against payment, whether based on its own knowledge or on the written recommendations of Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and the specific amount of the reduction, 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, if Contractor remedies the reasons for such action. The reduction imposed will be binding on Contractor unless it duly submits a Change Proposal contesting the reduction.
 3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld will be treated as an amount due as determined by Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 *Contractor's Warranty of Title*

- A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished under the Contract will pass to Owner free and clear of (1) all Liens and other title defects, and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the time of payment by Owner.

15.03 *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 and request that Engineer issue a notice of Substantial Completion. Contractor shall at the same time submit to Owner and Engineer an initial draft of punch list items to be completed or corrected before final payment.

- 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 and Contractor a preliminary notice of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the notice a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary notice during which to make written objection to Engineer as to any provisions of the notice or attached punch list. If, after considering the objections to the provisions of the preliminary notice, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary notice to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the notice, or if despite consideration of Owner's objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final notice of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary notice as Engineer believes justified after consideration of any objections from Owner.
- D. At the time of receipt of the preliminary notice of Substantial Completion, Owner and Contractor will confer regarding Owner's use or occupancy of the Work following Substantial Completion, review the builder's risk insurance policy with respect to the end of the builder's risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner's use or occupancy of the Work.
- E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.
- F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 *Partial Use or Occupancy*

- A. Prior to Substantial Completion of all the Work, Owner may use or occupy any part of the Work 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.

15.05 *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, or

agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 *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, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.
 2. The final Application for Payment must be accompanied (except as previously delivered) by:
 - a. all documentation called for in the Contract Documents;
 - b. consent of the surety, if any, to final payment;
 - c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects or will so pass upon final payment.
 - d. a list of all duly pending Change Proposals and Claims; and
 - e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.
 3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, 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, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.
- B. *Engineer's Review of Final Application and Recommendation of Payment:* 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 have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer's opinion to protect Owner from loss for the reasons stated above with respect to progress payments. 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. *Notice of Acceptability*: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.
- D. *Completion of Work*: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer's written recommendation of final payment.
- E. *Final Payment Becomes Due*: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor.

15.07 *Waiver of Claims*

- A. The making of final payment will not constitute a waiver by Owner of claims or rights against Contractor. Owner expressly reserves claims and rights arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 15.05, from Contractor's failure to comply with the Contract Documents or the terms of any special guarantees specified therein, from outstanding Claims by Owner, or from Contractor's continuing obligations under the Contract Documents.
- B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim or appealed under the provisions of Article 17.

15.08 *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 Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor's repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:
 - 1. correct the defective repairs to the Site or such adjacent areas;
 - 2. correct such defective Work;
 - 3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
 - 4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.
- B. Owner shall give written notice that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.
- C. If, after receipt of a notice of defect within 60 days and within the correction period, 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. Contractor shall pay all 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). Contractor's failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

- D. 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.
- E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, 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.
- F. Contractor's obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 *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 written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will constitute a default by Contractor and 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);
 - 2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
 - 3. Contractor's disregard of Laws or Regulations of any public body having jurisdiction; or
 - 4. Contractor's repeated disregard of the authority of Owner or Engineer.

- B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days' written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:
 - 1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
 - 2. enforce the rights available to Owner under any applicable performance bond.
- C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, 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 complete the Work as Owner may deem expedient.
- D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.
- E. If Owner proceeds as provided in Paragraph 16.02.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 the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds 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.
- F. 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, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.
- G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 *Owner May Terminate for Convenience*

- A. Upon 7 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; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.
- B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails to pay the Contractor as provided by Paragraph 15.01.D, then Contractor may, upon 7 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 16.03.
- 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 to pay the Contractor as provided by Paragraph 15.01.D, Contractor may, 7 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 are not intended to preclude Contractor from submitting a Change Proposal 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 17—FINAL RESOLUTION OF DISPUTES

17.01 *Methods and Procedures*

- A. *Disputes Subject to Final Resolution:* The following disputed matters are subject to final resolution under the provisions of this article:
1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
 2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.
- B. *Final Resolution of Disputes:* For any dispute subject to resolution under this article, Owner or Contractor may:
1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
 2. agree with the other party to submit the dispute to another dispute resolution process; or
 3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 *Giving Notice*

- A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
1. in person, by a commercial courier service or otherwise, to the recipient's place of business;
 2. by registered or certified mail, postage prepaid, to the recipient's place of business; or
 3. by e-mail to the recipient.

18.02 *Computation of Times*

- A. When any period of time is referred to in the Contract 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.

18.03 *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. 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.

18.04 *Limitation of Damages*

- A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 *No Waiver*

- A. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 *Assignment of Contract*

- A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 *Successors and Assigns*

- A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SUPPLEMENTARY CONDITIONS – SRF PROJECTS
COMMONWEALTH OF KENTUCKY

1. Subsurface and Physical Conditions (Article 5.03)

As provided by Article 5.03 (page 14) of the General Conditions, no subsurface conditions are known unless included at the end of Section 1 of the Detailed Specifications.

2. Hazardous Environmental Condition at Site (Article 5.06)

Neither the Owner nor the Engineer are aware of any hazardous environmental conditions on this project, however no specific examinations have been performed unless a report of such conditions is included in Section 1 of the Detailed Specifications.

3. Safety and Protection (Article 7.13)

Article 7.13 C refers to an Owner Safety Program, if any. If such program is known to exist to the Engineer, it will be identified in Section 1 of the Detailed Specifications.

4. Coordination (Article 8.02)

Section 1 of the Detailed Specifications and/or the Plans will show any other contracts or contractors which will interface with this work.

5. Progress Payments (Article 15.01)

Article 15.01 (page 61) is hereby amended to allow the Owner 30 days after receipt of the Engineer's approved Application for Payment (also known as Pay Request) in order to make payment to the Contractor.

Add the following as Article 15.01 B.5:

The Contractor affirms by the submission of the second Application for Payment (Pay Request) that the Contractor is discharging all financial obligations pertaining to this Contract in the customary business manner. Before final payment, as per Article 15.06, is made, the Contractor will be required to furnish an affidavit that all financial and other obligations related to this project have been satisfied listing any exceptions.

6. Listing of the Duties, Responsibilities and Limitations of Authority of the Resident Project Representative

A copy of this document as it appears in the Owner-Engineer Agreement is attached to these Supplementary Conditions.

7. Contract Time and Liquidated Damages

The time of completion for this Contract is Three Hundred Sixty-Five (365) calendar days. If the contractor fails to complete the work within the specified time, liquidated damages in the amount of One Thousand Dollars (\$1,000.00) per calendar day will apply.

8. Trees, Vegetation, and Soil Erosion

Reasonable care shall be taken to avoid damage to vegetation during construction. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Damaged trees shall be trimmed to improve appearance of tree. Damaged tree trunks shall be treated with dressing. The Contractor shall take reasonable care to prevent siltation and soil erosion during construction.

9. Work Hours and Safety

The Contractor shall comply with OSHA (P.L. 91-596) and the Contract Work Hours and Safety Standards Act (P.L. 91-54).

10. Change Orders

Change orders for the construction contract shall comply with KIA Procurement Guidance for Construction and Equipment Contracts. Change orders exceeding \$100,000 shall include cost, pricing, and certification as required by Procurement Guidance for Construction and Equipment Contracts.

11. Compliance with Title VI of the Civil Rights Act of 1964

Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, the Contract Work Hours Standard Act, and 40 CFR 31.36 L (3, 4 & 6).

12. Wastewater Bypassing

No wastewater bypassing shall occur during construction unless a schedule has been approved by the Commonwealth and/or EPA/NEPA permit if required.

A LISTING OF THE DUTIES, RESPONSIBILITIES AND
LIMITATIONS OF AUTHORITY OF THE RESIDENT PROJECT REPRESENTATIVE

ENGINEER shall furnish a Resident Project Representative (RPR) to assist ENGINEER in observing performance of the Work of the Contractor.

Through more extensive on-site observations of the Work in progress and field checks of material and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the Work but the furnishing of such services will not make ENGINEER responsible for or give ENGINEER control over construction means, methods, techniques, sequences or procedures, or for safety precautions or programs or responsibility for CONTRACTOR's failure to perform the Work in accordance with the Contract Documents.

The duties and responsibilities of the RPR are limited to those of ENGINEER in ENGINEER's agreement with the OWNER and in the construction Contract Documents, and are further limited and described as follows:

A. General

RPR is ENGINEER's agent at the site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR's actions. RPR's dealings in matters pertaining to the on-site work shall in general be with ENGINEER and CONTRACTOR keeping OWNER advised as necessary. RPR's dealings with subcontractors shall only be through or with the full knowledge and approval of CONTRACTOR. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

B. Duties and Responsibilities of RPR

1. Schedule: Review the progress schedule, schedule of Shop Drawings submittals and schedule of values prepared by CONTRACTOR and consult with ENGINEER concerning acceptability.
2. Conferences and Meetings: Attend meetings with CONTRACTOR, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings.
3. Liaison:
 - a. Serve as ENGINEER's liaison with CONTRACTOR, working principally through CONTRACTOR's superintendent and assist in understanding the intent of the Contract Documents; and assist ENGINEER in serving as OWNER's liaison with CONTRACTOR

- when CONTRACTOR's operations affect OWNER's on-site operations.
- b. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.
4. Shop Drawings and Samples:
- a. Record date of receipt of Shop Drawings and samples.
 - b. Advise ENGINEER and CONTRACTOR of the commencement of any Work requiring a Shop Drawing or sample if the submittal has not been approved by ENGINEER.
5. Review of Work, Rejection of Defective Work, Visiting Inspectors and Tests:
- a. Conduct on-site observations of the Work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to ENGINEER whenever RPR believes that any Work is unsatisfactory, faulty or defective or does not conform to the Contract documents, or has been damaged, or does not meet the requirements of any test or approval required to be made; and advise ENGINEER of Work that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing or approval.
 - c. Verify that tests, equipment and system startups and operating and maintenance training are conducted in the presence of appropriate personnel, and that CONTRACTOR maintains adequate records thereof; and observe, record and report to ENGINEER appropriate details relative to the test procedures and startups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections and report to ENGINEER.
6. Interpretation of Contract Documents: Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to CONTRACTOR clarifications and interpretations as issued by ENGINEER.
7. Modifications: Consider and evaluate CONTRACTOR's suggestions for modifications in Drawings or Specifications and report with RPR's

recommendations to ENGINEER. Transmit to CONTRACTOR decisions as issued by ENGINEER.

8. Records:
 - a. Maintain orderly files for correspondence, reports of job conferences, Shop Drawings and samples, reproductions of original Contract Documents including all Work Directive Changes, Addenda, Change Orders, Field Orders, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, and other Project related documents.
 - b. Keep a diary or log book, recording CONTRACTOR hours on the job site, weather conditions, data relative to questions of Work Directive Changes, Change Orders or changed conditions, list of job site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
 - c. Record names, addresses and telephone numbers of all CONTRACTORS, subcontractors and major suppliers of materials and equipment.
9. Reports:
 - a. Furnish ENGINEER periodic reports as required of progress of the Work and of CONTRACTOR's compliance with the progress schedule and schedule of Shop Drawing and sample submittals.
 - b. Consult with ENGINEER in advance of scheduled major tests, inspections or start of important phases of Work.
 - c. Report immediately to ENGINEER and OWNER upon the occurrence of any accident.
10. Payment Requests: Review applications for payment with CONTRACTOR for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, work completed and materials and equipment delivered at the site but not incorporated in the Work.
11. Certificates, Maintenance and Operation Materials: During the course of the Work, verify that certificates, maintenance and operation manuals and other data required to be assembled and furnished by CONTRACTOR are

applicable to the items actually installed and in accordance with the Contract Documents, and have this material delivered to ENGINEER for review and forwarding to OWNER prior to final payment for the work.

12. Completion:

- a. Before ENGINEER issues a Notice of Substantial Completion, submit to CONTRACTOR a list of observed items requiring completion or correction.
- b. Conduct final observation in the company of ENGINEER, OWNER and CONTRACTOR and prepare a final list of items to be completed or corrected.
- c. Observe that all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance.

C. Limitations of Authority

Resident Project Representative:

1. Shall not authorize any deviation from the Contract Documents or substitution of materials or equipment, unless authorized by ENGINEER.
2. Shall not exceed limitations of ENGINEER's authority as set forth in the Contract Documents.
3. Shall not undertake any of the responsibilities of CONTRACTOR, subcontractors or CONTRACTOR's superintendent.
4. Shall not advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of construction unless such advice or directions are specifically required by the Contract Documents.
5. Shall not advise on, issue directions regarding or assume control over safety precautions and programs in connection with the Work.
6. Shall not accept Shop Drawing or sample submittals from anyone other than CONTRACTOR.
7. Shall not authorize OWNER to occupy the Project in whole or in part.
8. Shall not participate in specialized field or laboratory tests or inspections conducted by others except as specifically authorized by ENGINEER.

The attached instructions and regulations as listed below shall be incorporated into the Specifications and comprise Special Conditions.

	<u>Attachment No.</u>
SRF Special Provisions	1
KRS Chapter 45A Kentucky Model Procurement Code	2
Equal Employment Opportunity (EEO) Documents:	
Notice of Requirement for Affirmative Action	3
Construction Contract Specifications	4
EEO Goals for Region 4 Economic Areas	5
Check List of EEO Documentation for Bidders	6
Employer Information Report EEO-1 (SF 100)	7
Labor Standards Provisions for Federally Assisted Construction	8
Certifications:	
Debarment, Suspension and Other Responsibility Matters	9
Anti-lobbying	10
Disadvantaged Business Enterprise (DBE) Program	11
Bonds and Insurance	12
Storm Water General Permit	13
Davis-Bacon Wage Rate Requirements	14
American Iron and Steel Requirement	15

SRF SPECIAL PROVISIONS

- (a) Line crossings of all roads and streets shall be done in accordance with the Kentucky Transportation Cabinet requirements as may be set forth in the Special Conditions.
- (b) Construction is to be carried out so as to prevent by-passing of flows during construction unless a schedule has been approved by the State or EPA, whichever is applicable. Siltation and soil erosion must be minimized during construction. All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this [webpage](#).

If you have any questions regarding the completion of this form call the Surface Water Permits Branch at (502) 564-3410.
- (c) Restore disturbed areas to original or better condition.
- (d) Use of Chemicals: All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classification, must show approval of either DOW or EPA. Use of all such chemicals and disposal of residues shall be in conformance with instructions on the manufacturer's label.
- (e) The construction of the project, including the letting of contracts in connection therewith, shall conform to the applicable requirements of state, territorial, and local laws and ordinances to the extent that such requirements do not conflict with Federal laws and this subchapter.
- (f) The owner shall provide and maintain competent and adequate supervision and inspection.
- (g) The Kentucky Infrastructure Authority and Kentucky Division of Water shall have access to the site and the project work at all times.
- (h) In the event Archaeological materials (arrowheads, stone tools, stone axes, prehistoric and historic pottery, bottles, foundations, Civil War artifacts, and other types of artifacts) are uncovered during the construction of this project, work is to immediately cease at the location and the Kentucky Heritage Council shall be contacted. The telephone number is (502) 564-7005. Construction shall commence at this location until a written release is received from the Kentucky Heritage Council. Failure to report a find could result in legal action.
- (i) This procurement will be subject to DOW Procurement Guidance including the Davis-Bacon Act.
- (j) Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.
- (k) No wastewater bypassing will occur during construction unless a schedule has been approved by the Kentucky Division of Water.
- (l) Change orders to the construction contract (if required) must be negotiated pursuant to DOW/KIA Procurement Guidance for Construction and Equipment Contracts.

**KRS CHAPTER 45A
KENTUCKY MODEL PROCUREMENT CODE**

45A.075 Methods of awarding state contracts.

Except as otherwise authorized by law, all state contracts shall be awarded by:

- (1) Competitive sealed bidding, pursuant to KRS 45A.080; or
- (2) Competitive negotiation, pursuant to KRS 45A.085 and 45A.090 or 45A.180; or
- (3) Noncompetitive negotiation, pursuant to KRS 45A.095; or
- (4) Small purchase procedures, pursuant to KRS 45A.100.

Effective: June 24, 2003

History: Amended 2003 Ky. Acts ch. 98, sec. 4, effective June 24, 2003. -- Created 1978 Ky. Acts ch. 110, sec. 16, effective January 1, 1979.

45A.080 Competitive sealed bidding.

(1) Contracts exceeding the amount provided by KRS 45A.100 shall be awarded by competitive sealed bidding, which may include the use of a reverse auction, unless it is determined in writing that this method is not practicable. Factors to be considered in determining whether competitive sealed bidding is not practicable shall include:

- (a) Whether specifications can be prepared that permit award on the basis of best value; and
- (b) The available sources, the time and place of performance, and other relevant circumstances as are appropriate for the use of competitive sealed bidding.

(2) The invitation for bids shall state that awards shall be made on the basis of best value. In any contract which is awarded under an invitation to bid which requires delivery by a specified date and imposes a penalty for late delivery, if the delivery is late, the contractor shall be given the opportunity to present evidence that the cause of the delay was beyond his control. If it is the opinion of the purchasing officer that there is sufficient justification for delayed delivery, the purchasing officer may adjust or waive any penalty that is provided for in the contract.

(3) Adequate public notice of the invitation for bids and any reverse auction shall be given a sufficient time prior to the date set forth for the opening of bids or beginning of the reverse auction. The notice may include posting on the Internet or publication in a newspaper or newspapers of general circulation in the state as determined by the secretary of the Finance and Administration Cabinet not less than seven (7) days before the date set for the opening of the bids and any reverse auction. The provisions of this subsection shall also apply to price contracts and purchase contracts of state institutions of higher education.

(4) Bids shall be opened publicly or entered through a reverse auction at the time and place designated in the invitation for bids. At the time the bids are opened, or the reverse auction has ended, the purchasing agency shall announce the agency's engineer's estimate, if applicable, and make it a part of the agency records pertaining to the letting of any contract for which bids were received. Each written or reverse auction bid, together with the name of the bidder and the agency's engineer's estimate, shall be recorded and be open to public inspection. Electronic bid opening and posting of the required information for public viewing shall satisfy the requirements of this subsection.

(5) The contract shall be awarded by written notice to the responsive and responsible bidder whose bid offers the best value.

(6) Correction or withdrawal of written or reverse auction bids shall be allowed only to the extent permitted by regulations issued by the secretary.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 3, effective July 15, 2010. -- Amended 2000 Ky. Acts ch. 509, sec. 1, effective July 14, 2000. -- Amended 1998 Ky. Acts ch. 120, sec. 10, effective July 15, 1998. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 27, effective May 30, 1997. -- Amended 1996 Ky. Acts ch. 60, sec. 2, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 278, sec. 1, effective July 15, 1994. -- Amended 1982 Ky. Acts ch. 282, sec. 1, effective July 15, 1982. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 1, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 17, effective January 1, 1979.

45A.085 Competitive negotiation.

(1) When, under administrative regulations promulgated by the secretary or under KRS 45A.180, the purchasing officer determines in writing that the use of competitive sealed bidding is not practicable, and except as provided in KRS 45A.095 and 45A.100, a contract may be awarded by competitive negotiation, which may include the use of a reverse auction.

(2) Adequate public notice of the request for proposals and any reverse auction shall be given in the same manner and circumstances as provided in KRS 45A.080(3).

(3) Contracts other than contracts for projects utilizing an alternative project delivery method under KRS 45A.180 may be competitively negotiated when it is determined in writing by the purchasing officer that the bids received by competitive sealed bidding either are unreasonable as to all or part of the requirements, or were not independently reached in open competition, and for which each competitive bidder has been notified of the intention to negotiate and is given reasonable opportunity to negotiate.

(4) Contracts for projects utilizing an alternative project delivery method shall be processed in accordance with KRS 45A.180.

(5) The request for proposals shall indicate the relative importance of price and other evaluation factors, and any reverse auction procedures.

(6) Award shall be made to the responsible and responsive offeror whose proposal is determined in writing to be the most advantageous to the Commonwealth, taking into consideration price and the evaluation factors set forth in the request for proposals and the reciprocal preference for resident bidders required under KRS 45A.494.

(7) Written or oral discussions shall be conducted with all responsible offerors who submit proposals determined in writing to be reasonably susceptible of being selected for award. Discussions shall not disclose any information derived from proposals submitted by competing offerors. Discussions need not be conducted:

(a) With respect to prices, where the prices are fixed by law, reverse auction, or administrative regulation, except that consideration shall be given to competitive terms and conditions;

(b) Where time of delivery or performance will not permit discussions; or

(c) Where it can be clearly demonstrated and documented from the existence of adequate competition or prior experience with the particular supply, service, or construction item, that acceptance of an initial offer without discussion would result in fair and reasonable best value procurement, and the request for proposals notifies all offerors of the possibility that award may be made on the basis of the initial offers.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 4, effective July 15, 2010; and ch. 162, sec. 8, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 5, effective June 24, 2003. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 28, effective May 30, 1997. -- Amended 1979 (1st Extra. Sess.) Ky. Acts ch. 9, sec. 2, effective February 10, 1979. -- Created 1978 Ky. Acts ch. 110, sec. 18, effective January 1, 1979.

45A.090 Negotiation after competitive sealed bidding when all bids exceed available funds.

(1) In the event that all bids submitted pursuant to competitive sealed bidding under KRS 45A.080 result in bid prices in excess of the funds available for the purchase, and the chief purchasing officer determines in writing:

(a) That there are no additional funds available from any source so as to permit an award to the responsive and responsible bidder whose bid offers the best value; and

(b) The best interest of the state will not permit the delay attendant to a resolicitation under revised specifications, or for revised quantities, under competitive sealed bidding as provided in KRS 45A.080, then a negotiated award may be made as set forth in subsections (2) or (3) of this section.

(2) Where there is more than one (1) bidder, competitive negotiations pursuant to KRS 45A.085(3) shall be conducted with the three (3) (two (2) if there are only two (2)) bidders determined in writing to be the most responsive and responsible bidders, based on criteria contained in the bid invitation and the reciprocal preference for resident bidders under KRS 45A.494. Such competitive negotiations shall be conducted under the following restrictions:

(a) If discussions pertaining to the revision of the specifications or quantities are held with any potential offeror, all other potential offerors shall be afforded an opportunity to take part in such discussions; and

(b) A request for proposals, based upon revised specifications or quantities, shall be issued as promptly as possible, shall provide for an expeditious response to the revised requirements, and shall be awarded upon the basis of best value.

(3) Where, after competitive sealed bidding, it is determined in writing that there is only one (1) responsive and responsible bidder, a noncompetitive negotiated award may be made with such bidder in accordance with KRS 45A.095.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 162, sec. 9, effective July 15, 2010. -- Amended 2003 Ky. Acts ch. 98, sec. 6, effective June 24, 2003. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 29, effective May 30, 1997. -- Created 1978 Ky. Acts ch. 110, sec. 19, effective January 1, 1979.

45A.095 Noncompetitive negotiation.

(1) A contract may be made by noncompetitive negotiation only for sole source purchases, or when competition is not feasible, as determined by the purchasing officer in writing prior to award, under administrative regulations promulgated by the secretary of the Finance and Administration Cabinet or the governing boards of universities operating under KRS Chapter 164A, or when emergency conditions exist. Sole source is a situation in which there is only one (1) known capable supplier of a commodity or service, occasioned by the unique nature of the requirement, the supplier, or market conditions. Insofar as it is practical, no less than three (3) suppliers shall be solicited to submit written or oral quotations whenever it is determined that competitive sealed bidding is not feasible. Award shall be made to the supplier offering the best value. The names of the suppliers submitting quotations and the date and amount of each quotation shall be placed in the procurement file and maintained as a public record. Competitive bids may not be required:

(a) For contractual services where no competition exists, such as telephone service, electrical energy, and other public utility services;

(b) Where rates are fixed by law or ordinance;

(c) For library books;

(d) For commercial items that are purchased for resale;

(e) For interests in real property;

(f) For visiting speakers, professors, expert witnesses, and performing artists;

(g) For personal service contracts executed pursuant to KRS 45A.690 to 45A.725; and

(h) For agricultural products in accordance with KRS 45A.645.

(2) The chief procurement officer, the head of a using agency, or a person authorized in writing as the designee of either officer may make or authorize others to make emergency procurements when an emergency condition exists.

(3) An emergency condition is a situation which creates a threat or impending threat to public health, welfare, or safety such as may arise by reason of fires, floods, tornadoes, other natural or man-caused disasters, epidemics, riots, enemy attack, sabotage, explosion, power failure, energy shortages, transportation emergencies, equipment failures, state or federal legislative mandates, or similar events. The existence of the emergency condition creates an immediate and serious need for services, construction, or items of tangible personal property that cannot be met through normal procurement methods and the lack of which would seriously threaten the functioning of government, the preservation or protection of property, or the health or safety of any person.

(4) The Finance and Administration Cabinet may negotiate directly for the purchase of contractual services, supplies, materials, or equipment in bona fide emergencies regardless of estimated costs. The existence of the emergency shall be fully explained, in writing, by the head of the agency for which the purchase is to be made. The explanation shall be approved by the secretary of the Finance and Administration Cabinet and shall include the name of the vendor receiving the contract along with any other price quotations and a written determination for selection of the vendor receiving the contract. This information shall be filed with the record of all such purchases and made available to the public. Where practical, standard specifications shall be followed in making emergency purchases. In any event, every effort should be made to effect a competitively established price for purchases made by the state.

Effective: July 15, 2002

History: Amended 2002 Ky. Acts ch. 344, sec. 9, effective July 15, 2002. -- Amended 1997 (1st Extra. Sess.) Ky. Acts ch. 4, sec. 30, effective May 30, 1997. -- Amended 1990 Ky. Acts ch. 496, sec. 4, effective July 13, 1990. -- Created 1978 Ky. Acts ch. 110, sec. 20, effective January 1, 1979

45A.100 Small purchases by state governmental bodies.

(1) Procurements may be made in accordance with small purchase administrative regulations promulgated by the secretary of the Finance and Administration Cabinet, pursuant to KRS Chapter 13A, as follows:

(a) Up to ten thousand dollars (\$10,000) per project for construction and one thousand dollars (\$1,000) for purchases by any state governmental body, except for those state administrative bodies specified in paragraph (b) of this subsection; and

(b) Up to forty thousand dollars (\$40,000) per project for construction or purchases by the Finance and Administration Cabinet, state institutions of higher education, and the legislative branch of government.

(2) Procurement requirements shall not be artificially divided so as to constitute a small purchase under this section. Reverse auctions may be used for small purchase procurements. At least every two (2) years, the secretary shall review the prevailing costs of labor and materials and may make recommendations to the next regular session of the General Assembly for the revision of the then current maximum small purchase amount as justified by intervening changes in the cost of labor and materials.

(3) The secretary of the Finance and Administration Cabinet may grant to any state agency with a justifiable need a delegation of small purchasing authority which exceeds the agency's small purchase limit provided in subsection (1) of this section. Delegations of small purchasing authority shall be granted or revoked by the secretary of the Finance and Administration Cabinet, in accordance with administrative regulations promulgated by the cabinet pursuant to KRS Chapter 13A. These administrative regulations shall establish, at a minimum, the criteria for granting and revoking delegations of small purchasing authority, including the requesting agency's past compliance with purchasing regulations, the level of training of the agency's purchasing staff, and the extent to which the agency utilizes the Kentucky Automated Purchasing System. The administrative regulations may permit the secretary of the Finance and Administration Cabinet to delegate small purchase procurements up to the maximum amount specified in subsection (1)(b) of this section.

Effective: July 15, 2010

History: Amended 2010 Ky. Acts ch. 63, sec. 5, effective July 15, 2010. -- Amended 2002 Ky. Acts ch. 320, sec. 2, effective July 15, 2002. -- Amended 2000 Ky. Acts ch. 225, sec. 1, effective July 14, 2000. -- Amended 1996 Ky. Acts ch. 60, sec. 1, effective July 15, 1996. -- Amended 1994 Ky. Acts ch. 323, sec. 1, effective July 15, 1994. -- Amended 1990 Ky. Acts ch. 496, sec. 5, effective July 13, 1990. -- Amended 1986 Ky. Acts ch. 384, sec. 1, effective July 15, 1986. -- Amended 1984 Ky. Acts ch. 384, sec. 1, effective July 13, 1984. -- Amended 1982 Ky. Acts ch. 282, sec. 2, effective July 15, 1982. -- Amended 1980 Ky. Acts ch. 242, sec. 1, effective July 15, 1980; and ch. 250, sec. 19, effective April 9, 1980. -- Created 1978 Ky. Acts ch. 110, sec. 21, effective January 1, 1979.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)

The following excerpts are from 45 FR 65984 (October 3, 1980):

The minority and female goals apply to Federal and federally assisted construction contractors and subcontractors which have covered contracts. The goals are expressed as a percentage of the total hours worked by such a covered or subcontractor's entire onsite construction workforce, which is working on any construction site within a relevant area. The goal applies to each construction craft and trade in the contractor's entire workforce in the relevant area including those employees working on private non-federally involved projects.

Until further notice, the following goals for minority utilization in each construction craft and trade shall be included in all Federal or federally assisted construction contracts and subcontracts in excess of \$10,000 to be performed in the respective geographic area. The goals are applicable to each nonexempt contractor's total onsite construction workforce, regardless of whether or not part of that workforce is performing work on a Federal, federally assisted or non-federally related project, contract or subcontract.

Construction contractors which are participating in an approved Hometown Plan (see 41 CFR 60-4.5) are required to comply with the goals of the Hometown Plan with regard to construction work they perform in the area covered by the Hometown Plan. With regard to all their other covered construction work, such contractors are required to comply as follows:

- Goals for female participation in each trade.....6.9%
- Goals for minority participation in each trade.....Insert goals for each year
(see Attachment Number 5)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or Federally assisted) performed in the covered area.

The following excerpts are from 45 FR 65977 (October 3, 1980):

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address and telephone number of the subcontractor; employer identification number; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the contract is to be performed.

As used in this Notice, and in the contract resulting from this solicitation, the covered area is (insert description of the geographical areas where the contract is to be performed giving the state, country, and city, if any).

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

EEO Specifications

Following is the standard language, which must be incorporated into all solicitations for offers and bids on all Federal and Federally assisted construction contracts or subcontracts in excess of \$10,000 to be performed in designated geographical areas:

1. As used in these specifications:
 - (a) Covered Area means the geographical area described in the solicitation from which this contract resulted.
 - (b) Director means Director, Office of Federal Contract Compliance Program, United States Department of Labor, or any person to whom the Director delegates authority;
 - (c) Employer identification number means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
 - (d) Minority includes:
 - (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.
3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take a good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7-a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.
5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.
7. The Contractor shall take specific affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensively as the following:
 - a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
 - b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the contractor or its unions have employment opportunities available, and maintain a record of the organizations responses.
 - c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the contractor may have taken.
 - d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligation.
 - e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7-b above.

- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, lay-off, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.
- k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
- l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.
- m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that EEO policy and the Contractor's obligations under these specifications are being carried out.
- n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
- o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
- p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative actions obligations (7 a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7 a through p of these specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be defense for the Contractor's noncompliance.
9. A single goal for minorities and a separate single goal for women have been established. The contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example: even though the Contractor has achieved its goal for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).
10. The Contractor shall not use the goals and timetables for affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and executive Order 11246, as amended.
13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

**EEO GOALS FOR ECONOMIC AREAS IN REGION 4
SOURCE: APPENDIX B-80 IN 45 FR 65984 (OCTOBER 3, 1980)**

Kentucky:

053 Knoxville, TN	
SMSA Counties:	
3840 Knoxville, TN.....	6.6
TN Anderson; TN Blount; TN Knox; TN Union.	
Non-SMSA Counties	4.5
KY Bell; KY Harlan; KY Knox; KY Laurel; KY McCreary; KY Wayne; KY	
Whitley; TN Campbell; TN Claiborne; TN Cocke; TN Cumberland; TN Fentress;	
TN Grainger, TN Hamblen; TN Jefferson; TN Loudon; TN Morgan; TN Roane;	
TN Scott; TN Sevier.	
054 Nashville, TN:	
SMSA Counties:	
1660 Clarksville - Hopkinsville, TN - KY	18.2
KY Christian; TN Montgomery.	
5360 Nashville - Davidson, TN.....	15.8
TN Cheatham, TN Davidson; TN Dickson; TN Robertson; TN Rutherford; TN	
Sumner; TN Williamson; TN Wilson.	
Non-SMSA Counties	12.0
KY Allen; KY Barren; KY Butler; KY Clinton; KY Cumberland; KY Edmonson;	
KY Logan; KY Metcalfe; KY Monroe; KY Simpson; KY Todd; KY Trigg; KY	
Warren; TN Bedford; TN Cannon; TN Clay; TN Coffee; TN DeKalb; TN Franklin;	
TN Giles; TN Hickman; TN Houston; TN Humphreys; TN Jackson; TN Lawrence;	
TN Lewis; TN Macon; TN Marshall; TN Maury; TN Moore; TN Overton; TN	
Perry; TN Pickett; TN Putnam; TN Smith; TN Stewart; TN Trousdale; TN Van	
Buren; TN Warren; TN Wayne; TN White.	
056 Paducah, KY:	
Non-SMSA Counties	5.2
IL Hardin; IL Massac; IL Pope; KY Ballard; KY Caldwell; KY Calloway. KY	
Carlisle; KY Crittenden; KY Fulton; KY Graves; KY Hickman; KY Livingston;	
KY Lyon. KY McCracken; KY Marshall.	
057 Louisville, KY:	
SMSA Counties:	
4520 Louisville, KY-IN	11.2
IN Clark; IN Floyd; KY Bullitt; KY Jefferson; KY Oldham.	
Non-SMSA Counties	9.6
IN Crawford; IN Harrison; IN Jefferson; IN Orange; IN Scott; IN Washington; KY	
Breckinridge; KY Grayson; KY Hardin; KY Hart; KY Henry; KY Larue; KY	
Marion; KY Meade; KY Nelson; KY Shelby; KY Spencer; KY Trimble; KY	
Washington.	

058 Lexington, KY	
SMSA Counties	
4280 Lexington-Fayette, KY	10.8
KY Bourbon; KY Clark; KY Fayette; KY Jessamine; KY Scott; KY Woodford.	
Non-SMSA Counties	7.0
KY Adair KY Anderson; KY Bath; KY Boyle; KY Breathitt; KY Casey; KY Clay;	
KY Estill; KY Franklin; KY Garrard; KY Green; KY Harrison; KY Jackson; KY	
Knott; KY Lee; KY Leslie; KY Letcher; KY Lincoln; KY Madison; KY Magoffin;	
KY Menifee; KY Mercer; KY Montgomery; KY Morgan. KY Nicholas; KY	
Owsley; KY Perry; KY Powell; KY Pulaski; KY Rockcastle; KY Russell; KY	
Taylor; KY Wolfe.	
059 Huntington, WV:	
SMSA Counties:	
3400 Huntington - Ashland, WV-KY-OH	2.9
KY Boyd; KY Greenup; OH Lawrence; WV Cabell; WV Wayne.	
Non-SMSA Counties	2.5
KY Carter; KY Elliott; KY Floyd; KY Johnson; KY Lawrence; KY Martin; KY	
Pike; KY Rowan; OH Gallia; WV Lincoln; WV Logan; WV Mason; WV Mingo.	
067 Cincinnati, OH:	
SMSA Counties:	
1640 Cincinnati, OH-KY-IN	11.0
IN Dearborn; KY Boone; KY Campbell; KY Kenton; OH Clermont; OH Hamilton;	
OH Warren.	
3200 Hamilton - Middletown, OH	5.0
OH Butler.	
Non-SMSA Counties	9.2
IN Franklin; IN Ohio; IN Ripley; IN Switzerland; KY Bracken; KY Carroll; KY	
Fleming; KY Gallatin; KY Grant; KY Lewis; KY Mason; KY Owen; KY	
Pendleton; KY Robertson; OH Adams; OH Brown; OH Clinton; OH Highland.	
080 Evansville, IN:	
SMSA Counties	
2440 Evansville, IN-KY	4.8
IN Gibson; IN Posey; IN Vanderburgh; IN Warrick; KY Henderson.	
5990 Owensboro, KY	4.7
KY Daviess.	
Non-SMSA Counties	3.5
IL Edwards; IL Gallatin; IL Hamilton; IL Lawrence; IL Saline; IL Wabash; IL	
White; IN Dubois; IN Knox; IN Perry; IN Pike; IN Spencer; KY Hancock; KY	
Hopkins; KY McLean; KY Muhlenberg; KY Ohio; KY Union; KY Webster.	

**CHECK LIST OF EEO DOCUMENTATION FOR BIDDERS ON
GRANT/LOAN CONSTRUCTION (EXECUTIVE ORDER 11246 AS AMENDED)**

The low, responsive responsible bidder must forward the following items, in duplicate, to the owner no later than ten (10) days after bid opening. The owner shall have one (1) copy available for inspection by the Office of Federal Contracts Compliance (OFCC) within 14 days after the bid opening. More information can be found on the [OFCC](#) webpage.

1. Project Number. Project Location. Type of Construction.
2. Proof of registration with the Joint Reporting Commission. (See Attachment Number 7.)
3. Copy of Affirmative Action Plan of contractor. Indicate company official responsible for EEO.
4. List of current construction contracts, with dollar amount. List contracting Federal Agency, if applicable.
5. Statistics concerning company percent workforce, permanent and temporary, by sex, race, trade, handicapped, and age. 40 CFR Part 7.
6. List of employment sources for project in question. If union sources are utilized, indicate percentage of minority membership within the union crafts.
7. Anticipated employment needs for this project, by sex, race and trade, with estimate of minority participation in specific trades.
8. List of subcontractors (name, address and telephone) with dollar amount and duration of subcontract. Subcontractor contracts over \$10,000 must submit items 1- 7. The following information must be provided for all supplier contracts regardless of contract size: name of company, contact person, address, telephone number, dollar value of the contract, and a list of the materials to be supplied to the prime contractor.
9. List of any subcontract work yet to be committed with estimate of dollar amount and duration of contract.
10. Contract Price. Duration of prime contract.
11. DBE Documents - See special instructions regarding use of Minority, and Women Owned, and Small Businesses.

EMPLOYER INFORMATION REPORT EEO-1

Under the direction of the US Equal Employment Opportunity Commission, the Joint Reporting Committee is responsible for the full-length, multi-phase processing of employment statistics collected on the Employer Information Report EEO-1. This report, also termed Standard Form 100, details the sex and race/ethnic composition of an employer's work force by job category.

The Employer Information EEO-1 survey is conducted annually under the authority of Public Law 88-352, Title VII of the Civil Rights Act of 1964, as amended by the Equal Employment Opportunity Act of 1972. All employers with 15 or more employees are covered by Public Law 88-352 and are required to keep employment records as specified by Commission regulations. Based on the number of employees and federal contract activities, certain large employers are required to file an EEO-1 Report on an annual basis.

The EEO-1 Report must be filed by:

- (A) All private employers who are: (1) subject to Title VII of the Civil Rights Act of 1964 (as amended by the Equal Employment Opportunity Act of 1972) with 100 or more employees EXCLUDING State and local governments, primary and secondary school systems, institutions of higher education, Indian tribes and tax-exempt private memberships clubs other than labor organizations; OR (2) subject to Title VII who have fewer than 100 employees if the company is owned or affiliated with another company, or there is centralized ownership, control or management (such as central control of personnel policies and labor relations) so that the group legally constitutes a single enterprise and the entire enterprise employs a total of 100 or more employees.
- (B) All federal contractors (private employers), who: (1) are not exempt as provided for by 41 CFR 60-1.5, (2) have 50 or more employees, and (a) are prime contractors or first-tier subcontractors, and have a contract, subcontract, or purchase order amounting to \$50,000 or more; or (b) serve as depository of Government funds in any amount, or (c) is a financial institution which is an issuing an paying agent for U.S. Savings Bonds and Notes.

Only those establishments located in the District of Columbia and the 50 states are required to submit the EEO-1 Report. No Reports should be filed for establishments in Puerto Rico, the Virgin Islands or other American Protectorates.

When filing for the EEO-1 Report for the first time, go to the [U.S. Equal Employment Opportunity Commission](#) webpage and select "First Time Filers". Fill out the electronic questionnaire to enter your company into Joint Reporting Committee (JRC) system. Once you have completed the registration process, you will be contacted on how to proceed with the EEO-1 Report. If you have previously registered with the JRC, follow their instructions to update your information.

**LABOR STANDARDS PROVISIONS FOR
FEDERALLY ASSISTED CONSTRUCTION**

Labor standards provisions applicable to contracts covering federally financed and assisted construction (29 CFR 5.5, Contract Provisions and Related Matters) that apply to EPA State Revolving Fund loans are:

(a)(4)(iii) *Equal employment opportunity.* The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

(a)(5) *Compliance with Copeland Act requirements.* The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

(a)(6) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5 (a)(1) through (10) and such other clauses as the U.S. Environmental Protection Agency may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(a)(7) *Contract termination: debarment.* A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(b) *Contractor Work Hours and Safety Standards Act.* The Administrator, EPA, shall cause or require the contracting officer to insert the following clauses set forth in paragraphs (b)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by §5.5(a) or §4.6 of part 4 of this title. As used in this paragraph, the terms *laborers* and *mechanics* include watchmen and guards.

(b)(1) *Overtime requirements.* No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(b)(2) *Violation; liability for unpaid wages; liquidated damages.* In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for unliquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) *Withholding for unpaid wages and liquidated damages.* The U.S. Environmental Protection Agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime

contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) *Subcontracts.* The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in paragraph (b), in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in section §5.1, the Administrator of EPA shall cause or require the contracting officer to insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Administrator of EPA shall cause or require the contracting officer to insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the U.S. Environmental Protection Agency and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job. (Approved by the Office of Management and Budget under OMB control numbers 1215-0140 and 1215-0017.)

CERTIFICATIONS

Debarred Firms

All prime Construction Contractors shall certify that Subcontractors have not and will not be awarded to any firm that is currently on the EPA Master List of Debarred, Suspended and Voluntarily Excluded Persons in accordance with the provisions of 40 CFR 32.500(c). Debarment action is taken against a firm for noncompliance with Federal Law.

All bidders shall complete the attached certification (Attachment Number 9) and submit to the owner with the bid proposal.

Anti-lobbying Certification

All prime Construction Contractors must certify (Attachment Number 10) that no appropriated funds were or will be expended for the purpose of lobbying the Executive or Legislative Branches of the Federal Government or Federal Agency concerning this contract (contract in excess of \$100,000). If the Contractor has made or agreed to make payment to influence any member of Congress in regard to award of this contract, a Disclosure Form must be completed and submitted to the owner with the bid proposal.

All prime Contractors must require all Subcontractors to submit the certification, which must also be submitted to the owner.

**CERTIFICATION REGARDING DEBARMENT,
SUSPENSION AND OTHER RESPONSIBILITY MATTERS**

The prospective participant certifies to the best of its knowledge and belief that it and its principals:

- (a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- (b) Have not within a three year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
- (c) Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State, or Local) with commission of any of the offenses enumerated in paragraph (1)(b) of this certification; and
- (d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State, or local) terminated for cause or default.

I understand that a false statement on this certification may be grounds for rejection of this proposal or termination of the award. In addition, under 18 USC Sec. 1001, a false statement may result in a fine of up to \$10,000 or imprisonment for up to 5 years, or both.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

_____ I am unable to certify to the above statements. My explanation is attached.

**CERTIFICATION REGARDING LOBBYING
CERTIFICATION FOR CONTRACTS,
GRANTS, LOANS, AND COOPERATIVE AGREEMENTS**

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Typed Name & Title of Authorized Representative

Signature of Authorized Representative

Date

_____ I am unable to certify to the above statements. My explanation is attached.

EPA DISADVANTAGED BUSINESS ENTERPRISE PROGRAM

EPA's Disadvantaged Business Enterprise Program rule applies to contract procurement actions funded in part by EPA assistance agreements awarded after May 27, 2008. The rule is found at Federal regulation Title 40, Part 33. Specific responsibilities are highlighted below.

Loan recipient responsibilities:

- Include in each contract with a primary contractor the following term and condition:

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract.” (*Appendix A to Part 33—Term and Condition*)
- Employ the six Good Faith Efforts during prime contractor procurement (§33.301).
- Require the prime contractor to comply with the following prime contractor requirements of Title 40 Part 33:
 - To pay its subcontractor for satisfactory performance no more than 30 days from the prime contractor's receipt of payment from the recipient (§33.302(a)).
 - To notify recipient in writing prior to any termination of a DBE subcontractor for convenience by the prime contractor (§33.302(b)).
 - To employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason (§33.302(c)).
 - To employ the six Good Faith Efforts described in §33.301 even if the prime contractor has achieved its fair share objectives under subpart D of Part 33 (§33.302(d)).
 - To provide EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* to all DBE subcontractors (§33.302(e)). **NOTE: this requirement has been suspended.**
 - To submit EPA Forms 6100-3 – *DBE Program Subcontractor Performance Form* and 6100-4 *DBE Program Subcontractor Utilization Form* as part of the bid package or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**
 - To employ the six Good Faith Efforts steps in paragraphs (a) through (f) of §33.301 while procuring any subcontracts (§33.302(i)).
- Conduct an Availability Analysis and negotiate fair share objectives with EPA (§33.401), or adopt the fair share objectives of the oversight state agency revolving loan fund for comparable infrastructure (§33.405(b)(3)).
- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its prime contractors', good faith efforts (§33.501(a)).

- Create and maintain a bidders list and require the prime contractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on prime contracts, or bid or quote subcontracts, including both MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all prime and subcontractors:
 - (a) Entity's name with point of contact,
 - (b) Entity's mailing address, telephone number, and email address,
 - (c) The procurement on which the entity bid or quoted, and when, and,
 - (d) Entity's status as an MBE/WBE or non-MBE/WBE.

Prime Contractor Responsibilities:

- Include in each contract with a subcontractor the following term and condition:

“The contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The contractor shall carry out applicable requirements of 40 CFR part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract.” (*Appendix A to Part 33—Term and Condition*)
- Employ the six Good Faith Efforts during subcontractor procurement (§33.301).
- Pay subcontractors for satisfactory performance no more than 30 days from receipt of payment from the recipient (§33.302(a)).
- Notify recipient in writing prior to termination of a DBE subcontractor for convenience (§33.302(b)).
- Employ the six Good Faith Efforts described in §33.301 if soliciting a replacement subcontractor after a DBE subcontractor fails to complete work under the subcontract for any reason. (§33.302(c)).
- Employ the six Good Faith Efforts described in §33.301 even if the fair share objectives have been achieved under subpart D of Part 33 (§33.302(d)).
- Provide EPA Forms 6100-2 – *DBE Program Subcontractor Participation Form* and 6100-3 – *DBE Program Subcontractor Performance Form* to each DBE subcontractor prior to opening of the subcontractor's bid or proposal (§33.302(e) and (f)). **NOTE: this requirement has been suspended.**
- Complete EPA Form 6100-4 – *DBE Program Subcontractor Utilization Form* (§33.302(g)). **NOTE: this requirement has been suspended.**
- Submit to recipient with the bid package or proposal the completed EPA Form 6100-4, plus an EPA Form 6100-3 for each DBE subcontractor used in the bid or proposal (§33.302(f) and (g)). **NOTE: this requirement has been suspended.**
- Maintain all records documenting its compliance with the requirements of Title 40 Part 33, including documentation of its, and its subcontractors', good faith efforts (§33.501(a)).
- Create and maintain a bidders list and require the subcontractor to create and maintain a bidders list (§33.501(b)). This list must include all firms that bid or quote on subcontracts, including both

MBE/WBEs and non-MBE/WBEs. This list must be kept until the project period for the identified loan has ended. The following information must be obtained from all subcontractors:

- (a) Entity's name with point of contact,
- (b) Entity's mailing address, telephone number, and email address,
- (c) The procurement on which the entity bid or quoted, and when, and,
- (d) Entity's status as an MBE/WBE or non-MBE/WBE.

Subcontractor Responsibilities:

- May submit EPA Form 6100-2 – *DBE Program Subcontractor Participation Form* directly to DOW Project Manager (§33.302(e)). **NOTE: this requirement has been suspended.**
- Must complete EPA Form 6100-3 – *DBE Program Subcontractor Performance Form* and submit it to the prime contractor soliciting services prior to the prime contractor opening bids or quotes. **NOTE: this requirement has been suspended.**

DISADVANTAGED BUSINESS ENTERPRISE PARTICIPATION POLICY

PROJECT NAME: _____ **BID DATE:** _____

1. Name, address and telephone number of contact person on all DBE matters:

Prime Contractor's Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Total Contract Amount: _____

2. Total dollar amount/percent of contract of MBE participation: _____

3. Total dollar amount/percent of contract of WBE participation: _____

4. Are certifications* for each MBE/WBE/DBE subcontractor enclosed; if no, please explain: Yes No

5. Are MBE/WBE/DBE subcontracts or letters of intent signed by both parties enclosed; if no, please explain: Yes No

6. List of MBE Subcontractors:

Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

7. List of WBE Subcontractors:

Name: _____
Contact Person: _____
Address: _____
Phone: _____
Cell Phone: _____
Email: _____
Type of Contract: _____
Work to be Done: _____
Amount: _____

Attach Additional Sheets, If Necessary

*Self-certification: Self certification of MBE/WBE/DBE firms will NOT be accepted as a valid form of certification of MBE/WBE/DBE status.

8. Information and documentation concerning efforts taken to comply with EPA’s “six good faith efforts”

(i). Ensure DBE construction firms or material suppliers are made aware of contracting opportunities to the fullest extent practicable through outreach and recruitment activities; including placing DBEs on solicitation lists and soliciting them whenever they are potential sources. A good source for a list of DBEs is the Kentucky Transportation’s [Certified DBE Directory](#) webpage.

The prime contractor certifies that a solicitation list of qualified DBE vendors was developed for current and future solicitations. *Submit a copy of the list as documentation.*

(ii). Make information on forthcoming opportunities available to DBEs and arrange time frames for contracts and establish delivery schedules, where the requirements permit, in a way that encourages and facilitates participation by DBEs in the competitive process; including, whenever possible, posting solicitation for bids or proposals for a sufficient amount of time as to receive a competitive bid or proposal pool.

The prime contractor certifies that every opportunity was provided to a number of DBEs to encourage their participation in the competitive process and that an adequate amount of time was provided for response. Must do at least one of the below.

a. List each DBE construction firm or material supplier to which a solicitation was attempted. *Submit copies of letters, emails, faxes, telecommunication logs, certified mail receipts, returned envelopes, certified mail return receipts, etc. as documentation.*

Company name and phone number: _____

Area of work expertise: _____

Date of any follow-ups and person spoke to: _____

b. Advertisements, if applicable: List each publication in which an announcement or notification was placed. *Submit original advertisement or a copy of the advertisement with an affidavit of publication for each announcement as documentation.*

Name of publication: _____

Date(s) of advertisement: _____

Specific subcontract areas announced: _____

c. Other, if applicable: List each notification method in which an announcement or outreach was used; list serve, public meeting, etc. *Submit applicable information to document effort.*

Method of notification: _____

Date(s) of notification: _____

(iii). Consider in the contracting process whether firms competing for large contracts could subcontract with DBEs; including dividing total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by DBEs in the competitive process.

The prime contractor certifies that the project was broken into its basic elements (i.e., dirt hauling, landscaping, painting, pipe installation, material supplies, etc.) and that a determination was made whether it’s economically feasible to bid the elements separately and that the analysis of this effort was documented with a short memo to the project file.

- (iv). Establishing delivery schedules, where the requirement permits, which encourage participation by small and minority business, and women’s business enterprises.
 - The prime contractor certifies that they established delivery schedules which would allow DBEs to participate in the project and the effort was documented with a short memo to the project file.

- (v). Use the services and assistance of the Small Business Administration (SBA). The easiest way to utilize their services is to visit the [SBA](#) webpage and use the electronic tools available there or you may send the nearest SBA office a certified letter that generally describes the solicitation, the dates it will be open, the types of vendors you are seeking and applicable Standard Industrial Classification (SIC) or North American Industry Classification System (NAIC) codes if known. Or, you may use the services and assistance of the Kentucky Procurement Technical Assistance Center (PTAC) **and** the Kentucky Department of Transportation (KDOT). The easiest way to utilize the services of Kentucky PTAC and KDOT is to send an email to kyptacinfo@kstc.com and Melvin.Bynes2@ky.gov and generally describe the solicitation, the dates it will be open, the types of vendors you are seeking and applicable SIC or NAIC codes if known.
 - The prime contractor certifies that the assistance of the SBA or PTAC **and** KDOT was utilized. *Submit pages printed off the SBA websites which evidence efforts to register a solicitation on the site or submit copies of the letter sent and certified mail receipt as documentation; or submit copies of emails sent to PTAC and DOT as documentation.*

- (vi). If a Prime contractor awards any subcontracts, require the subcontractor to take the steps in numbers (i) through (v) above.
 - The prime contractor certifies that subcontractors used for this project will be required to follow the steps of the “six good faith efforts” as listed above.

9. Signature and date:

To the best of my knowledge and belief, all “six good faith efforts” have been met and the information contained in this document is true and correct; the document has been duly authorized by the legal representative.

Signature

Print name and title

Date

BONDS AND INSURANCE

The minimum requirements shall be as follows:

Bonding requirements for contracts of \$100,000 or less are contained in 40 CFR 31.36(h).

Bond requirements for contracts in excess of \$100,000 are:

- Bid guarantee equivalent to five percent of the bid price. The bid guarantee shall consist of a firm commitment such as a certified check or bid bond submitted with the bid;
- Performance bond equal to 100 percent of the contract price, and
- Payment bond equal to 100 percent of the contract price. Bonds must be obtained from companies holding Certificates of Authority as acceptable sureties, issued by the U.S. Treasury.

Insurance requirements are contained in the General Conditions of the contract. In addition to the other required insurance, the owner or the contractor, as appropriate, must acquire any flood insurance made available by the Federal Emergency Management Agency as required by 44 CFR Parts 59-79, if construction will take place in a flood hazard area identified by the Federal Emergency Management Agency. The owner's requirements on Flood Insurance are contained in the Special Conditions Section of the Contracts Documents.

STORM WATER GENERAL PERMIT

All construction projects with surface disturbance of more than 1 acre during the period of construction must have a KPDES Storm Water General Permit. The permit can be found at this [webpage](#).

If you have any questions regarding the completion of this form call the Surface Water Permits Branch, at (502) 564-3410.

DAVIS-BACON WAGE RATE REQUIREMENTS

CWSRF: The recipient agrees to include in all agreements to provide assistance for the construction of treatment works carried out in whole or in part with such assistance made available by a State water pollution control revolving fund as authorized by title VI of the Federal Water Pollution Control Act (33 U.S.C. 1381 et seq.), or with such assistance made available under section 205(m) of that Act (33 U.S.C. 1285(m)), or both, a term and condition requiring compliance with the requirements of section 513 of that Act (33 U.S.C. 1372) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for the construction of treatment works carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as set forth below titled “Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)”. This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

DWSRF: The recipient agrees to include in all agreements to provide assistance for any construction project carried out in whole or in part with such assistance made available by a drinking water treatment revolving loan fund as authorized by section 1452 of the Safe Drinking Water Act (42 U.S.C. 300j-12), a term and condition requiring compliance with the requirements of section 1450(e) of the Safe Drinking Water Act (42 U.S.C.300j-9(e)) in all procurement contracts and sub-grants, and require that loan recipients, procurement contractors and sub-grantees include such a term and condition in subcontracts and other lower tiered transactions. All contracts and subcontracts for any construction project carried out in whole or in part with assistance made available as stated herein shall insert in full in any contract in excess of \$2,000 the contract clauses as set forth below entitled “Wage Rate Requirements Under The Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)”. This term and condition applies to all agreements to provide assistance under the authorities referenced herein, whether in the form of a loan, bond purchase, grant, or any other vehicle to provide financing for a project, where such agreements are executed on or after October 30, 2009.

Wage Rate Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6)

Preamble

With respect to the Clean Water and Safe Drinking Water State Revolving Funds, EPA provides capitalization grants to each State which in turn provides subgrants or loans to eligible entities within the State. Typically, the subrecipients are municipal or other local governmental entities that manage the funds. For these types of recipients, the provisions set forth under Roman Numeral I, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients’ compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section 3(ii)(A), below and for compliance as described in Section I-5.

Occasionally, the subrecipient may be a private for profit or not for profit entity. For these types of recipients, the provisions set forth in Roman Numeral II, below, shall apply. Although EPA and the State remain responsible for ensuring subrecipients’ compliance with the wage rate requirements set forth herein, those subrecipients shall have the primary responsibility to maintain payroll records as described in Section II-3(ii)(A), below and for compliance as described in Section II-5.

I. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are Governmental Entities:

The following terms and conditions specify how recipients will assist EPA in meeting its Davis-Bacon (DB) responsibilities when DB applies to EPA awards of financial assistance under the FY 2013 Continuing Resolution with respect to State recipients and subrecipients that are governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient. The recipient or subrecipient may also obtain additional guidance from [Department of Labor's](#) webpage.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2013 Continuing Resolution, DB prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the [General Services Administration](#) website weekly to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the [General Services Administration](#) website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(b) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the [General Services Administration](#) website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage

determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's [General Services Administration](#) website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient (s) to the State award official. The State award official will transmit the request, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, provided, that the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s), shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the [Wage and Hour Division's](#) webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under §5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the “Statement of Compliance” required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman’s hourly rate) specified in the contractor’s or subcontractor’s registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice’s level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for

the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (a)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (a)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (a)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient, upon written request of the EPA Award Official or an authorized representative of the Department of Labor, shall withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (a)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (a)(1) through (4) of this section.

(b) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable, the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour [District Office](#).

II. Requirements under the Consolidated and Further Continuing Appropriations Act, 2013 (P.L. 113-6) for Subrecipients that are not Governmental Agencies

The following terms and conditions specify how recipients will assist EPA in meeting its DB responsibilities when DB applies to EPA awards of financial assistance under the FY2013 Continuing Resolution with respect to subrecipients that are not governmental entities. If a subrecipient has questions regarding when DB applies, obtaining the correct DB wage determinations, DB provisions, or compliance monitoring, it may contact the State recipient for guidance. The recipient or subrecipient may also obtain additional guidance from [DOL's](#) webpage.

Under these terms and conditions, the subrecipient must submit its proposed DB wage determinations to the State recipient for approval prior to including the wage determination in any solicitation, contract task orders, work assignments, or similar instruments to existing contractors.

1. Applicability of the Davis- Bacon (DB) prevailing wage requirements.

Under the FY 2013 Continuing Resolution, Davis-Bacon prevailing wage requirements apply to the construction, alteration, and repair of treatment works carried out in whole or in part with assistance made available by a State water pollution control revolving fund and to any construction project carried out in whole or in part by assistance made available by a drinking water treatment revolving loan fund. If a subrecipient encounters a unique situation at a site that presents uncertainties regarding DB applicability, the subrecipient must discuss the situation with the recipient State before authorizing work on that site.

2. Obtaining Wage Determinations.

(a) Subrecipients must obtain proposed wage determinations for specific localities from the U.S. Department of Labor's [General Services Administration](#) website. After the Subrecipient obtains its proposed wage determination, it must submit the wage determination to (insert contact information for State recipient DB point of contact for wage determination) for approval prior to inserting the wage determination into a solicitation, contract or issuing task orders, work assignments or similar instruments to existing contractors (ordering instruments unless subsequently directed otherwise by the State recipient Award Official).

(b) Subrecipients shall obtain the wage determination for the locality in which a covered activity subject to DB will take place prior to issuing requests for bids, proposals, quotes or other methods for soliciting contracts (solicitation) for activities subject to DB. These wage determinations shall be incorporated into solicitations and any subsequent contracts. Prime contracts must contain a provision requiring that subcontractors follow the wage determination incorporated into the prime contract.

(i) While the solicitation remains open, the subrecipient shall monitor the U.S. Department of Labor's [General Services Administration](#) website on a weekly basis to ensure that the wage determination contained in the solicitation remains current. The subrecipients shall amend the solicitation if DOL issues a modification more than 10 days prior to the closing date (i.e. bid opening) for the solicitation. If DOL modifies or supersedes the applicable wage determination less than 10 days prior to the closing date, the subrecipients may request a finding from the State recipient that there is not a reasonable time to notify interested contractors of the modification of the wage determination. The State recipient will provide a report of its findings to the subrecipient.

(ii) If the subrecipient does not award the contract within 90 days of the closure of the solicitation, any modifications or supersedes DOL makes to the wage determination contained in the solicitation shall be effective unless the State recipient, at the request of the subrecipient, obtains an extension of the 90 day period from DOL pursuant to 29 CFR 1.6(c)(3)(iv). The subrecipient shall monitor the U.S. Department of Labor's [General Services Administration](#) website on a weekly basis if it does not award the contract within 90 days of closure of the solicitation to ensure that wage determinations contained in the solicitation remain current.

(c) If the subrecipient carries out activity subject to DB by issuing a task order, work assignment or similar instrument to an existing contractor (ordering instrument) rather than by publishing a solicitation, the subrecipient shall insert the appropriate DOL wage determination from the U.S. Department of Labor's [General Services Administration](#) website into the ordering instrument.

(c) Subrecipients shall review all subcontracts subject to DB entered into by prime contractors to verify that the prime contractor has required its subcontractors to include the applicable wage determinations.

(d) As provided in 29 CFR 1.6(f), DOL may issue a revised wage determination applicable to a subrecipient's contract after the award of a contract or the issuance of an ordering instrument if DOL determines that the subrecipient has failed to incorporate a wage determination or has used a wage determination that clearly does not apply to the contract or ordering instrument. If this occurs, the subrecipient shall either terminate the contract or ordering instrument and issue a revised solicitation or

ordering instrument or incorporate DOL's wage determination retroactive to the beginning of the contract or ordering instrument by change order. The subrecipient's contractor must be compensated for any increases in wages resulting from the use of DOL's revised wage determination.

3. Contract and Subcontract provisions.

(a) The Recipient shall insure that the subrecipient(s) shall insert in full in any contract in excess of \$2,000 which is entered into for the actual construction, alteration and/or repair, including painting and decorating, of a treatment work under the CWSRF or a construction project under the DWSRF financed in whole or in part from Federal funds or in accordance with guarantees of a Federal agency or financed from funds obtained by pledge of any contract of a Federal agency to make a loan, grant or annual contribution (except where a different meaning is expressly indicated), and which is subject to the labor standards provisions of any of the acts listed in § 5.1 or the FY 2013 Continuing Resolution, the following clauses:

(1) Minimum wages.

(i) All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (a)(1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph (a)(1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

Subrecipients may obtain wage determinations from the U.S. Department of Labor's [General Services Administration](#) website.

(ii)(A) The subrecipient(s), on behalf of EPA, shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The State award official shall approve a request for an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(2) The classification is utilized in the area by the construction industry; and

(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the subrecipient(s) agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), documentation of the action taken and the request, including the local wage determination shall be sent by the subrecipient(s) to the State award official. The State award official will transmit the report, to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210 and to the EPA DB Regional Coordinator concurrently. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification request within 30 days of receipt and so advise the State award official or will notify the State award official within the 30-day period that additional time is necessary.

(C) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the and the subrecipient(s) do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the award official shall refer the request, and the local wage determination, including the views of all interested parties and the recommendation of the State award official, to the Administrator for determination. The request shall be sent to the EPA Regional Coordinator concurrently. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt of the request and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs (a)(1)(ii)(B) or (C) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

(2) Withholding. The subrecipient(s) shall upon written request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the (Agency) may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

(3) Payrolls and basic records.

(i) Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the

site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The contractor shall submit weekly, for each week in which any contract work is performed, a copy of all payrolls to the subrecipient, that is, the entity that receives the sub-grant or loan from the State capitalization grant recipient. Such documentation shall be available on request of the State recipient or EPA. As to each payroll copy received, the subrecipient shall provide written confirmation in a form satisfactory to the State indicating whether or not the project is in compliance with the requirements of 29 CFR 5.5(a)(1) based on the most recent payroll copies for the specified week. The payrolls shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on the weekly payrolls. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the [Wage and Hour Division's](#) webpage or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the subrecipient(s) for transmission to the State or EPA if requested by EPA, the State, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the subrecipient(s).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under § 5.5(a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under § 5.5(a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (a)(3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph (a)(3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the State, EPA or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the Federal agency or State may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

(4) Apprentices and trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and

Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

(5) Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

(6) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as the EPA determines may be appropriate, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

(7) Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

(8) Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

(9) Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and Subrecipient(s), State, EPA, the U.S. Department of Labor, or the employees or their representatives.

(10) Certification of eligibility.

(i) By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

4. Contract Provision for Contracts in Excess of \$100,000.

(a) Contract Work Hours and Safety Standards Act. The subrecipient shall insert the following clauses set forth in paragraphs (a)(1), (2), (3), and (4) of this section in full in any contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act.

These clauses shall be inserted in addition to the clauses required by Item 3, above or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The subrecipient shall upon the request of the EPA Award Official or an authorized representative of the Department of Labor, withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (a)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

(c) In addition to the clauses contained in Item 3, above, in any contract subject only to the Contract Work Hours and Safety Standards Act and not to any of the other statutes cited in 29 CFR 5.1, the Subrecipient shall insert a clause requiring that the contractor or subcontractor shall maintain payrolls and basic payroll records during the course of the work and shall preserve them for a period of three years from the completion of the contract for all laborers and mechanics, including guards and watchmen, working on the contract. Such records shall contain the name and address of each such employee, social security number, correct classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. Further, the Subrecipient shall insert in any such contract a clause providing that the records to be maintained under this paragraph shall be made available by the contractor or subcontractor for inspection, copying, or transcription by authorized representatives of the (write the name of agency) and the Department of Labor, and the contractor or subcontractor will permit such representatives to interview employees during working hours on the job.

5. Compliance Verification.

(a) The subrecipient shall periodically interview a sufficient number of employees entitled to DB prevailing wages (covered employees) to verify that contractors or subcontractors are paying the appropriate wage rates. As provided in 29 CFR 5.6(a)(6), all interviews must be conducted in confidence. The subrecipient must use Standard Form 1445 (SF 1445) or equivalent documentation to memorialize the interviews. Copies of the SF 1445 are available from EPA on request.

(b) The subrecipient shall establish and follow an interview schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. Subrecipients must conduct more frequent interviews if the initial interviews or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. Subrecipients shall immediately conduct necessary interviews in response to an alleged violation of the prevailing wage requirements. All interviews shall be conducted in confidence.

(c) The subrecipient shall periodically conduct spot checks of a representative sample of weekly payroll data to verify that contractors or subcontractors are paying the appropriate wage rates. The subrecipient shall establish and follow a spot check schedule based on its assessment of the risks of noncompliance with DB posed by contractors or subcontractors and the duration of the contract or subcontract. At a minimum, if practicable the subrecipient should spot check payroll data within two weeks of each contractor or subcontractor's submission of its initial payroll data and two weeks prior to the completion date the contract or subcontract. Subrecipients must conduct more frequent spot checks if the initial spot check or other information indicates that there is a risk that the contractor or subcontractor is not complying with DB. In addition, during the examinations the subrecipient shall verify evidence of fringe benefit plans and payments thereunder by contractors and subcontractors who claim credit for fringe benefit contributions.

(d) The subrecipient shall periodically review contractors and subcontractors use of apprentices and trainees to verify registration and certification with respect to apprenticeship and training programs approved by either the U.S Department of Labor or a state, as appropriate, and that contractors and subcontractors are not using disproportionate numbers of, laborers, trainees and apprentices. These reviews shall be conducted in accordance with the schedules for spot checks and interviews described in Item 5(b) and (c) above.

(e) Subrecipients must immediately report potential violations of the DB prevailing wage requirements to the EPA DB contact listed above and to the appropriate DOL Wage and Hour [District Office](#) or its successor site.

AMERICAN IRON AND STEEL REQUIREMENT

The Contractor acknowledges to and for the benefit of the _____ (“Purchaser”) and the State of Kentucky (the “State”) that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as “American Iron and Steel;” that requires all of the iron and steel products used in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contractor pursuant to this Agreement.

The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense, or cost (including without limitation attorney’s fees) incurred by the Purchaser or State resulting from any such failure (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser).

While the Contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

Sample Certification

The following information is provided as a sample letter of step certification for AIS compliance. Documentation must be provided on company letterhead.

Date

Company Name
Company Address
City, State Zip

Subject: American Iron and Steel Step Certification for Project (XXXXXXXXXXXX)

I, (company representative), certify that the (melting, bending, coating, galvanizing, cutting, etc.) process for (manufacturing or fabricating) the following products and/or materials shipped or provided for the subject project is in full compliance with the American Iron and Steel requirement as mandated in EPA's State Revolving Fund Programs.

Item, Products and/or Materials:

1. XXXX
2. XXXX
3. XXXX

Such process took place at the following location:

If any of the above compliance statements change while providing material to this project we will immediately notify the prime contractor and the engineer.

Signed by company representative

DAVIS-BACON WAGE RATE

SECTION 1

GENERAL SCOPE AND SPECIAL PROVISIONS

1. Scope

The work to be accomplished under these Detailed Specifications consists of furnishing all labor, materials, equipment and services necessary for the construction of Water System Improvements, Contract 21-01 – Raw Water Intake Improvements for the Ohio County Water District. The work involved is in one (1) contract and consists of the following generally described work:

CONTRACT 21-01 RAW WATER INTAKE IMPROVEMENTS

- Two New 20-inch Intake Screening Assemblies
- Two New 20-inch Ball Joint / Restrained Joint DIP Intake Pipes
- New 10'-0" Ø Precast Valve Pit
- Screening Assembly Air Backwash System
- Site Work and Excavation as required

2. Execution and Coordination of the Work

It is intended that the work covered by this Contract be done so as to cause the minimum interference with the normal operation of the existing facilities of the Ohio County Water District.

The Contractor shall be required to organize and schedule his work so as to keep the existing facilities in full operation during the construction period insofar as is consistent with the nature of the construction work to be performed.

The manner in which shutdowns will be made and the Contractor's work schedule are subject to the approval of the Owner and the Engineer. Although every effort will be made to cause the minimum amount of interference with the Contractor's work, the interest of the Ohio County Water District in regard to the existing facilities must always take precedence over the construction work.

THEREFORE, THE RIGHT IS RESERVED BY THE OWNER TO PUT ANY LINES OR OTHER FACILITIES THAT MAY BE SHUT DOWN FOR THE CONSTRUCTION WORK BACK INTO SERVICE WHEN AN EMERGENCY ARISES.

The Contractor must have sufficient materials, equipment, labor, and supervision available to accomplish the work required in the time allocated for any shutdown of the existing water system.

3. Temporary Traffic Control Plan

When work is conducted within the right-of-way of transportation agencies or city or county roadways, the Contractor shall provide temporary traffic control (TTC) in accordance with the Manual on Uniform Traffic Control Devices (MUTCD). TTC devices shall include but shall not be limited to signs, barricades, flagmen and channelization devices. The Contractor shall provide TTC for all roadway users including motorists, bicyclists and pedestrians. All TTC shall be in accordance with the Americans with Disabilities Act of 1990, Title II, Paragraph 35.130.

4. Time of Completion and Liquidated Damages (see **Article 4** of the General Conditions)

Time is of the essence on this contract and work on this contract shall be prosecuted in a timely manner.

Time of completion after notice to proceed will be as follows:

Contract 21-01 – Three Hundred Sixty-Five (365) consecutive calendar days

If the work is not completed within the time specified, liquidated damages in the amount of \$1,000 per calendar day will be deducted from the compensation otherwise due to the Contractor(s) in accordance with the Contract Documents for each calendar day thereafter, Sundays and holidays included, that the work remains uncompleted.

5. Guarantee

The Contractor(s) shall guarantee all work performed under this contract for a period of one year after the date of Substantial Completion in accordance with requirements of **Article 15.08** of the General Conditions.

6. Engineer's Authority

See **Paragraph 10.04** of the General Conditions.

7. Shop Drawings (See **Paragraph 7.16** of the General Conditions)

The Contractor(s) shall submit shop drawings for all preconstruction submittals, materials, equipment, and services used on this project.

For submittals containing less than 25 pages, the Contractor shall email one (1) digital copy of the submittal to ntoshopdrawings@jrwauford.com. For submittals containing 25 pages or more, the Contractor shall submit one (1) digital copy and

three (3) hard copies to the Engineer for review. Note that all sheets shall be printed at 100% of original size.

THE ENGINEER WILL HOLD ALL SUBMITTED OR REVIEWED SHOP DRAWINGS UNTIL THE CONTRACTOR HAS PROVIDED ACCEPTABLE SUBMITTALS FOR THE CONTRACTOR'S PLANNED ORDER OF WORK, PROGRESS SCHEDULE, PRE-CONSTRUCTION VIDEOS/PICTURES AND SHOP DRAWING LOG. IF REQUESTED BY THE CONTRACTOR, AN ACCEPTABLE TEMPLATE OF THE SHOP DRAWING LOG WILL BE PROVIDED BY THE ENGINEER

REJECTION OF THE SAME SHOP DRAWING ON THREE (3) SEPARATE OCCASIONS WILL CONSTITUTE GROUNDS FOR TOTAL REJECTION OF THE PROPOSED EQUIPMENT MANUFACTURER OR SUPPLIER AS BEING UNABLE OR UNWILLING TO MEET THESE DETAILED SPECIFICATIONS.

Shop drawings submittals shall include a transmittal letter listing the submittal description, project name, project contract number, and project location. Shop drawings shall be checked by the Contractor(s) and evidence of such checking shall be indicated on the transmittal letter. The Contractor(s) shall be completely responsible for accuracy, completeness, compliance with Plans and Detailed Specifications, and compatibility, the Engineer's approval notwithstanding. WORK SHALL BE PERFORMED ONLY BY USE OF APPROVED SHOP DRAWINGS. THE CONTRACTOR(S) SHALL PLAINLY MARK ON HIS SUBMITTAL THE ITEM OR ITEMS IN WHICH HE IS REQUESTING APPROVAL. FAILURE TO DO SO WILL GIVE THE ENGINEER THE RIGHT TO EITHER REJECT THE SUBMITTAL OR SELECT THE ITEM OF HIS CHOICE AT NO ADDITIONAL COST TO THE OWNER.

THE ENGINEER RESERVES THE RIGHT TO TAKE UP TO TWENTY (20) WORKING DAYS FOR ACTION ON ANY GIVEN SHOP DRAWING. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR TIMELY SUBMISSION OF SHOP DRAWINGS BASED ON THE ABOVE AND NO EXTRA FOR TIME OR COSTS WILL BE ACCEPTABLE.

After approval, the Engineer will make the following distribution: one (1) set to the Owner, one (1) set to Engineer's central files, one (1) set to the Engineer's Resident Project Representative, and one (1) digital set to the Contractor. The Contractor shall keep one (1) hard copy of the approved shop drawing at the project site and shall be responsible for providing the document to suppliers and/or manufacturers.

8. Initial Videos, Pictures and Progress Pictures

Before beginning the job, the Contractor shall make videos and pictures showing the status before any construction has begun. The videos and pictures shall be

made, submitted and approved prior to the beginning of work. The Contractor shall submit the videos and pictures in an electronic format suitable to the Engineer.

The Contractor shall furnish digital progress pictures to the Engineer at the end of each month at the time the partial pay estimate is submitted. Pictures shall be of highest quality clearly showing the work and preferably not showing workmen or passersby. The name of the project, the item or scene pictured, Contractor's name, and the date shall be incorporated into the file name for each picture. Five (5) pictures shall be required with each partial pay estimate. Each electronic file should be date and time stamped. REQUESTS BY THE CONTRACTOR FOR PARTIAL PAYMENTS WILL NOT BE CONSIDERED WITHOUT THE REQUIRED PROGRESS PICTURES.

After construction and clean-up are completed, the Contractor shall submit video and pictures showing the cleaned up work and all of the progress pictures for the project in an electronic format suitable to the Engineer.

9. Progress Schedule and Progress Meetings

The Contractor shall furnish five (5) copies of a suitable progress chart or schedule in graphical form showing the estimated schedule for the project as required in **Article 2.03 and 4.04** of the General Conditions. After approval, the Contractor shall update the chart monthly showing the actual progress on the project for each specific item of work in relation to the estimated schedule.

FAILURE TO SUBMIT SAID PROGRESS SCHEDULE AND KEEP IT CURRENT MONTHLY SHALL BE GROUNDS FOR NONPAYMENT OF PARTIAL PAYMENT REQUESTS.

The Engineer and Owner may elect to conduct monthly progress meetings on-site with the Contractor, the Owner and the Engineer to discuss progress, any problems encountered and other appropriate subjects.

10. Utilities Required by Contractor

All electric current and/or utility service required by the Contractor shall be furnished at his own expense.

11. Project Sign

A project sign is not required.

12. Field Office and Supervision

The Contractor shall establish and maintain a field office on the project and have available at that office a responsible representative who can officially receive comments from the Engineer. The Contractor shall have one complete up-to-date set of Plans and Specifications and a Kentucky Division of Water approved set in this office at all times. The office shall be provided with e-mail service, toilet facilities, lights and heat. It shall also contain adequate space and facilities for the use of the Engineer's Resident Project Representative, including desk or table, chair and filing cabinet.

13. Existing Utilities

Special precautions shall be taken by the Contractor to avoid damage to existing overhead and underground utilities owned and operated by the Owner or by public or private utility companies.

The Contractor shall contact Kentucky BUD at 1-800-752-6007 at least 72 business hours in advance of digging. Before proceeding with the work, the Contractor shall confer with all public or private utilities in the vicinity of the construction work. The purpose of the conference or conferences shall be to notify said companies, agencies or departments of the proposed construction schedule, verify the location of and possible interference with the existing utilities, arrange for necessary suspension of service where possible and approved by the Utility, and make arrangements to locate and avoid interference with all utilities. The Engineer and Owner have no objection to the Contractor arranging for said Utility Companies, Agencies or Departments to locate and uncover their own utilities; however, the Contractor shall bear the entire responsibility for locating and avoiding or repairing damage to said existing utilities. **WORK SHALL NOT PROCEED WITHOUT ALL UNDERGROUND UTILITIES BEING LOCATED AND MARKED.**

The Contractor shall locate all unknown metallic hazards, namely buried pipe, metals, *etc.*, by using a pipe locator, or whatever better methods the Contractor may elect to use. All hazards should be located and marked with a stake in such manner as to notify the equipment operator of such hazard.

Where existing utilities or other underground structures are encountered, they shall not be displaced or molested unless necessary and approved by the Owner, and in such case they shall be replaced in as good or better condition than found as quickly as possible. All such utilities that are so damaged or molested shall be replaced at the Contractor's expense, unless in the opinion of the Engineer such damage was caused through no fault of the Contractor.

It is expected that the Contractor will be diligent in his efforts and use every possible means to locate existing utilities. Any claims for unavoidable damage,

based on improper or unknown locations, will be thoroughly examined in light of the Contractor's efforts to locate the said utilities or obstructions prior to beginning construction.

14. Permits, Codes, Agreements and/or Contracts with Private Utilities

The Contractor shall make application for, obtain, and pay for all licenses, permits, agreements, and/or contracts with private utility companies and shall pay all fees and charges in connection therewith.

15. Protection of Roadways On and Off-Site

In the hauling of materials and/or equipment to and from the site of the work, the Contractor shall take care to protect county roads, highways, parking areas and/or city streets. The Contractor shall be responsible for repair of highways, roads, parking areas or streets damaged by his operations (or operations of his subcontractors) and shall repair said damage to the original condition. If repair to the original condition is not practical or possible, the Contractor shall be responsible for obtaining proper release from the owner of the damaged roadway.

16. Lands, Rights-of-Way and Limits of Work (see **Article 5** of the General Conditions)

a. Lands and Easements

In general, the work will be constructed on property or easements held by the Owner or on street rights-of-way owned by the Owner.

The Contractor shall be responsible for obtaining necessary work permits from the Ohio County Water District.

b. Limits of Work

The Contractor shall limit his work area and storage to the Owner's property and/or permanent utility easements shown on the Plans. The Contractor shall not encroach or dump excess or waste materials on property adjacent to the work sites unless **written** permission is first received from the affected property owner and a copy submitted to the Engineer. **Where excess materials are to be dumped off-site, the Contractor shall furnish the Owner written evidence of the property owner's permission.**

In connection with work performed on easements or adjacent to private property, the Contractor shall take all reasonable care to avoid damage to the property owners' buildings, grounds and facilities and shall be completely responsible for the repair of damage to same. It is intended

that when construction is complete, the easements and the private property owners' facilities and grounds shall be restored to as good or better than original condition as possible.

Large trees or other facilities within the actual construction limits that cannot be preserved and replaced shall be removed by the Contractor. THE OWNER WILL ASSUME THE RESPONSIBILITY FOR SETTLING WITH THE PROPERTY OWNER FOR THE LOSS OF SAID TREES OR FACILITIES WITHIN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ALL OTHER DAMAGES.

Reasonable care shall be taken during construction to avoid damage to vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

17. Undesirable Workmen

The Engineer reserves the right, but in so doing does not assume responsibility to make a judgment (the primary responsibility rests upon the Contractor), to remove inept or uncooperative servicemen as "Undesirable Workmen".

18. Work Hours

No night, weekend or Holiday work requiring the presence of the Engineer or Owner representatives will be permitted, except in case of emergency, and then only to the extent such work is necessary for protection of the work, and only with written approval of the Engineer. This clause shall not apply on such work which can only be performed at night.

19. Materials or Equipment to be Furnished (see Paragraph 7.05 of the General Conditions)

Where the specifications state "equal to" followed by a brand name or model, a standard of quality is being set. The naming of a brand or model is a matter of convenience to avoid writing a volume. Other brands or equipment under this category may be submitted at the shop drawing stage of construction. The Engineer will consider other products on the basis of materials of construction, weight, function, size (it must fit the space provided), service history and electrical and mechanical characteristics.

Where the specifications state one or more model numbers and manufacturers followed by the words "or approved equal" the meaning is that the product(s) specified is acceptable and that while there may be other products that are

acceptable the only way to be assured is to submit the desired substitution during the BID PROCESS and receive an affirmative answer in the form of a letter or an addendum. The Engineer will consider the factors previously described in making the determination.

Unless otherwise specified, all materials shall be the best of their respective kinds and shall be in all cases fully equal to approved samples. The Engineer shall have the right to require the use of such specifically designated material, article, or process. The Engineer, where practical, may require submission of actual samples of materials or products.

20. Occupational Safety and Health Act

The Contractor's attention is called to **Paragraph 7.13** of the General Conditions.

21. Noise, Odor and Dust Control

The work hereunder may be performed within a residential area of Ohio County. The Contractor shall be responsible for noise, odor and dust abatement procedures and shall not commence work in these areas before 7:00 a.m. local prevailing time.

22. Chemical Requirements

All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, reactant or of other classifications, must show approval of either EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with the Material Safety Data Sheets.

23. Confined Spaces

During the construction of the facilities to be built under the terms of this contract, it may be necessary for the OWNER'S or the ENGINEER'S representative(s) to enter "confined space(s)", as defined by OSHA Regulations, in order to observe the work of the Contractor and/or in order to determine compliance with the terms of the contract. The Contractor shall provide the proper "Permit", the "Attendant", and/or the "Entry-Supervisor", the testing safety and emergency equipment and all other means of compliance with OSHA regulations. The OWNER or the ENGINEER will provide general training to their respective proposed "authorized Entrant(s)" who are employees of the OWNER or the ENGINEER, however the Contractor shall provide any specialized training required for the equipment furnished, the Contractor's Permit System or any other condition special to the work to be performed. The Contractor shall submit a copy of its written Permit System prior to the commencement of construction and shall be fully responsible for compliance with the appropriate regulations.

24. Lines and Grades

The Engineer has established survey baselines for the work. Benchmarks were set at the time of the original survey, the locations and elevations of which are shown on the Plans. These benchmark elevations were checked and verified at the time of the original survey.

Where tie-ons to existing lines or structures are to be made, the actual inverts of the existing lines or elevations of existing structures shall be field checked for verification before construction begins.

Any apparent discrepancy or error discovered in these benchmark elevations shall be reported to the Engineer immediately at telephone number 615-883-3243. Written approval from the Engineer shall be obtained before any changes are made.

The Contractor's attention is called to **Paragraph 5.05** of the General Conditions.

25. Restoration of Disturbed Areas in Connection with Work on or Adjacent to Private Property

In connection with work performed on or adjacent to private property, the Contractor(s) shall take all reasonable care to avoid damage to the property Owners' buildings, grounds and facilities and shall be completely responsible for the repair of damage to same. Fences, hedges, shrubs, *etc.*, within the construction limits shall be carefully removed, preserved, and replaced when the construction is completed. Where ditches or excavations cross lawns, the sod shall be removed carefully and replaced when the backfilling has been completed. If sod is damaged or not handled properly, it shall be replaced with new sod equal to existing sod at the Contractor's expense. All unpaved areas, other than lawns, shall be graded, fertilized, and seeded when construction is completed in accordance with the requirements set out in Section 4 of these Detailed Specifications. It is intended that when construction is completed, the private property owners' facilities and grounds shall be restored to as near their original condition as possible.

Foundations adjacent to an excavation which is to be carried below the bottom of the foundation shall be supported by shoring, bracing, or underpinning, and the Contractor(s) shall be held strictly responsible for any damage to said foundation.

Work on rights-of-way of the State or Federal Highways, or Ohio County shall be considered work on Private Property. It shall be the Contractor's responsibility to obtain any necessary work permits.

26. Reference to Kentucky Transportation Cabinet, Department of Highways Standard Specifications for Road and Bridge Construction

Where items are referred as being in conformance with Kentucky Transportation Cabinet Specifications, certain materials, equipment and construction methods shall be in accordance with Section 805 of the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, 2008 edition and any revisions or addendum issued for subject specification.

27. References to Standard General Conditions of the Construction Contract

Where references are provided within this Project Manual to the Standard General Conditions of the Construction Contract, they are provided for the benefit of the Contractor. Where conditions may be repeated or expanded in this Section, they shall be in addition to those requirements stated in the Standard General Conditions of the Construction Contract. Where any conflicts may exist with the Standard General Conditions of the Construction Contract and text found elsewhere in the Project Manual, the Standard General Conditions of the Construction Contract shall prevail.

28. Applicability of Governing Standards

The latest version of any standard listed in these Detailed Specifications as of the bid date shall apply. In cases that an incorrect revision year is listed, it shall not apply - the latest version as of the bid date shall apply.

29. Connecting to Existing Lines

The Contractor shall make the required connections to existing lines and structures as shown on the Plans and as specified in these Detailed Specifications. Refer to Paragraph 2. Execution and Coordination of the Work and Paragraph 24. Lines and Grades of this Section of these Detailed Specifications.

The work of connecting new lines to existing lines and new structures to existing structures is the responsibility of the Contractor and is NOT a separate pay item unless indicated otherwise in the BID FORM; it being the intent of these Detailed Specifications to provide a complete operable facility.

30. Water and Uplift

The Contractor(s) shall, by the use of well points, pumps or other approved methods, prevent the accumulation of water in excavated areas. Should water accumulate, it shall be promptly removed. The Contractor(s) shall also provide for dewatering areas adjacent to structures or lines to prevent uplift during

construction operations. The Contractor(s) will be held responsible for any damage due to uplift of such structures or lines and to existing structures during construction operations.

31. Subsurface Conditions/Site Conditions

As provided by **Article 5.03 and 5.04** of the General Conditions, subsurface conditions are unknown unless a Geotechnical Report is included at the end of Section 1.

Neither the Owner nor the Engineer is responsible for subsurface conditions. By executing the Agreement form in the Contract Documents, the Contractor affirms that he/she has made his/her own determination concerning subsurface conditions.

The Geotechnical Engineering Report provides the Owner's information for the Bidder's convenience and is intended to supplement rather than serve in lieu of the Bidder's own investigations. The Geotechnical Engineering Report is made available for the bidder's convenience and information but is not a warranty of existing conditions and is not part of the Contract Documents. The Bidder is responsible for examination of the project site and existing conditions.

32. Blasting

Blasting will not be allowed on this project.

33. Substantial Completion/Delays in Final Completion

See **Paragraph 15.08** of the General Conditions.

In order to allow all outstanding incomplete items to be completed during the initial start-up and operating period, a semi-final inspection will be made upon request by the Contractor after the beginning of the initial start-up period. In no event will the date of substantial completion of the Contract for purposes of determining payment of the liquidated damages be set before the beginning of the initial start-up period.

34. Final Inspection

The final inspection will be conducted after the completion of all work required under this Contract and upon the written request of the Contractor. The date of substantial completion will not be set prior to the final inspection.

35. Final Clean-Up

Before the work is considered as complete, all rubbish and unused material due to or connected with the construction shall be removed and the premises left in a condition satisfactory to the Engineer. Streets, curbs, crosswalks, pavements, sidewalks, fences and other public and private property disturbed or damaged shall be restored to their former condition at the Contractor's expense. Final acceptance will be withheld until such work is completed.

36. Disposal of Demolition Debris

The Contractor is responsible for disposal of all excess materials and debris created by his operation. The Contractor is responsible for the disposal of all debris in accordance with applicable laws including disposal in an appropriate landfill if required by law.

37. Flooding

Some of the work is to be conducted in areas subject to flooding. Obstructions to flow which would cause flooding in the event of heavy rainfall shall be avoided by the Contractor(s). Flood insurance under PL 93-234 is not required.

38. Temporary Project Water Pollution Control (Soil Erosion)

Temporary pollution control provisions shall be taken to avoid damage to embankments and cut slopes and to avoid transport of sediment to adjacent property owners and/or streams.

Pollution and erosion control methods shall include but are not limited to the following:

a. Temporary Berms

Temporary berms shall be constructed of compacted soil with or without a shallow ditch at the top of all excavation and embankment slopes to prevent excessive erosion until the slopes are stabilized.

b. Temporary Slope Drains

Temporary slope drains shall be stone gutters, fiber mats, plastic sheets, concrete or asphalt gutters, half-round pipe, metal pipe, plastic pipe, sod or other material acceptable to the Engineer that may be used to carry water down slopes to reduce erosion.

c. Temporary Silt Fences

Temporary silt fences with baled hay or straw shall be placed on the natural ground, at the bottom of fill slopes, in ditches or other areas where siltation is a problem or where shown on the Plans.

Silt fences are constructed of wire mesh fence with a covering of filter cloth composed of burlap, plastic filter fabric or some other suitable material on the upper grade side of the fence and anchored into the soil.

Bales shall be either hay or straw containing five (5) cubic feet or more of material.

The above listed pollution and erosion control methods shall be used at the discretion of the Contractor or where directed by the Engineer. Temporary pollution control is NOT a separate pay item.

The Contractor shall be solely and strictly liable for any violations of State or Federal water pollution laws, regulations, or standards caused during construction by the Contractor's forces or subcontractors and shall pay any penalties levied by any party due to said violations.

The Contractor shall maintain all areas where excavation and backfill construction operations are being performed or have been performed in order that siltation, erosion and other forms of stormwater pollution caused by construction activities will be kept to a minimum during construction. The Engineer will prepare the Stormwater Pollution Prevention Plan (SWPPP) and obtain approval thereof from the Kentucky Division of Water if required. The Contractor is responsible for complying with said SWPPP.

39. Basis of Payment

The Contractor shall furnish all necessary labor, machinery, tools, apparatus, materials, equipment, service, and other necessary supplies and perform all work at the lump sum or unit prices shown in the BID FORM.

The items listed in the BID FORM constitute all of the pay items of the project. Any other items of work listed in the Specifications or shown on the Plans or required to construct an operable facility shall be considered incidental to the items listed in the BID FORM.

GEOTECHNICAL ENGINEERING REPORTS

**Greenbaum Associates, Inc.
Geotechnical Investigation**

March 26, 2021



GREENBAUM ASSOCIATES, INC.
GEOTECHNICAL & MATERIALS ENGINEERS

994 Longfield Avenue
Louisville, Kentucky 40215
502/361-8447
FAX 502/361-4793

March 26, 2021

Mr. Walt Beasley
Ohio County Water District
124 East Washington Street
Hartford, Kentucky 42347

**SUBJECT: GEOTECHNICAL INVESTIGATION
RAW WATER INTAKE
OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY
PROJECT NUMBER 20-104G**

Dear Mr. Beasley:

Attached is the report of the geotechnical investigation that we carried out for the above referenced raw water intake.

The valve vault will be rock bearing and the screening assemblies will be supported on micropiles socketed into rock. Criteria are provided for the design of these rock bearing foundations and micropiles. These design criteria are included in the body of the report along with discussion of soil-bearing foundations for light structures and other geotechnical considerations.

If you have any questions regarding this report, please call.

Sincerely,

GREENBAUM ASSOCIATES, INC.

Sandor R. Greenbaum

Sandor R. Greenbaum, P.E.
Principal Engineer

GEOTECHNICAL INVESTIGATION

FOR

RAW WATER INTAKE

CROMWELL, KENTUCKY

FOR

OHIO COUNTY WATER DISTRICT

124 EAST WASHINGTON STREET

HARTFORD, KENTUCKY 42347

BY

GREENBAUM ASSOCIATES, INC.

994 LONGFIELD AVENUE

LOUISVILLE, KENTUCKY 40215

MARCH 26, 2021

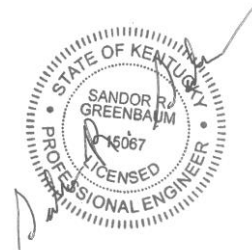


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APPENDIX

Site Location Plan (1 sheet)

Boring Location Plan (1 sheet)

Sediment Thickness Map (1 sheet)

Bedrock Elevation Map (1 sheet)

Soil Description Terminology/Rock Quality Determination (1 sheet)

Test Boring Reports (5 sheets)

Classification of Soils for Engineering Reports (1 sheet)

Grain Size Distribution (1 sheet)

GREENBAUM ASSOCIATES, INC.
GEOTECHNICAL & MATERIALS ENGINEERS

1.0 Introduction

The Ohio County Water District intends to construct a new raw water intake. This water intake is currently planned to be in the Green River near Cromwell, Kentucky. A Boring Location Plan is included in the appendix of this report that shows the proposed location of the raw water intake along with boring locations including those performed prior to selection of this location. A Site Location Plan is also included.

The water intake, as planned, is to consist of two new screening assemblies in the river, bearing on micropiles just above the river bottom, connected via a 20-inch diameter restrained joint ductile iron pipe to a new valve vault to be constructed inland from the riverbank. This valve vault will tie into the existing raw water pump station.

Profiles of the top of the sediment and the bedrock surface were developed by Mundell and Associates, Inc. and were provided to us in their report dated November 10th, 2020. Sediment Thickness and Bedrock Elevation Maps taken from that report are included in the appendix of this report for convenience of the reader. However, the report by Mundell and Associates, Inc. provides detail on the methodology used in developing these maps and provides limits on its accuracy, so this information should not be used without studying that report.

We were contracted by the Ohio County Water District to carry out a geotechnical investigation directed at determining foundation support characteristics of the materials upon which this raw water intake will be supported. Borings B-1 and B-2 were performed near the riverbank, as close as possible to the locations proposed at that time without working from floating equipment. Borings B-3 through B-5 were drilled at predetermined locations staked by others. Work was coordinated through Mr. Greg Davenport, P. E. of J. R. Wauford and Company, Inc., the engineering consultants contracted to design these improvements to the water system.

2.0 General Geology

The soils in the area of this raw water intake are shown by the Kentucky Geological Survey to be alluvium, soils transported and deposited by the Green River. The Geological Survey describes these soils as follows:

Sand, gravel, and silt: Sand, yellowish- brown, fine to coarse quartz, micaceous to non-micaceous, slightly clayey. Gravel, gray to brown subrounded to well-rounded chert pebbles and white well-rounded quartz pebbles, mostly less than 1 ½ inches in diameter. Silt, various shades of brown and gray, micaceous, clayey.

The Geological Survey shows the bedrock to be the Tradewater Formation, which it describes as:

Shale, siltstone, sandstone, limestone, coal, and underclay: Shale, light- to dark-gray, weathers grayish orange to yellowish orange; locally carbonaceous or sandy; commonly interbedded with siltstone. Sandstone, light-gray to white, weathers pale yellowish orange to grayish orange; very fine to medium grained; iron stained, micaceous; very thin to thick bedded. Unnamed limestone, light- to dark-gray, weathers medium gray to brown and gray on smooth surfaces, and medium dark gray on irregular to rubbly surfaces; very fine grained and dense; sparingly fossiliferous; at a few localities is silicified and yields rectangular blocks of chert. Curlew Limestone Member lithology similar to unnamed limestone but more fossiliferous with local concentration of crinoid stems, brachiopods, bryozoans, and horn corals.

3.0 Investigation

Two borings were carried out as part of the preliminary investigation in the footprints of the two, then proposed, raw water intake pipeline alignments by standard penetration procedures to auger refusal with boring B-2 continued 10-feet into rock by rotary coring procedures. Later three more borings, boring B-3 through B-5, were carried out once the alignment was selected. These three borings were drilled by standard penetration procedures to refusal on bedrock, then continued five feet into rock by rotary coring procedures. CME-55 truck-mounted and Diedrich D-25 track-mounted drill rigs were used to carry out the

GREENBAUM ASSOCIATES, INC.
GEOTECHNICAL & MATERIALS ENGINEERS

borings through the use of 3 ¼ inch inside diameter hollow stem augers and automatic hammers. Boring locations were staked in advance of our arrival by others, but borings B-1 and B-2 had to be offset a few feet to avoid obstruction by trees.

The standard penetration procedure involves driving a standard 2-inch diameter split spoon in the formation at selected intervals using a 140-pound hammer falling through 30 inches. The blow counts for each 6 inches of drive, to a total of 18 inches, are recorded and the number of blows for the 12 inches after the first 6 inches is a standard measure of the condition of the soil. As the split spoon is removed from the ground, it retrieves a sample of the soil in a disturbed condition. Nevertheless, this sample is suitable for certain classification tests and is representative of the soils at the depth tested.

An NQ wireline double-tube core barrel with a diamond drill bit was used to core the rock. The double tube core barrel itself minimizes the erosive action of the drilling fluid on the core and thereby improves core recovery. A swivel type double tube core barrel was used. The core barrel consists of a core barrel head, an outer barrel, an inner core recovery tube, a reaming shell, a core lifter and a coring bit. In operation, the inner tube remains stationary while the outer barrel is rotated. This minimizes the possibility of core disturbance through torsional forces and thereby improves recovery. Water passages direct the flow of the drilling fluid into the annular space between the two tubes and vents provide for the exit of the water from the barrel. The inner tube assembly is suspended from the outer tube head in such manner that downward force can be applied to both tubes while only the outer tube is rotated.

Soil samples were returned to the laboratory where a program of testing was carried out. This testing included a washed sieve analysis and a natural moisture determination.

Grain size determination arrives at a curve of grain size against that fraction of the soil that is finer than that particular grain size. It also allows the determination of the clay fraction, silt fraction, sand fraction, etc. in any particular soil sample. Based on this division of grain sizes, the field soils classifications are refined and the boring logs adjusted. Silt and clay grains are so fine that dry sieve analysis alone will not function in this range, therefore, the soil is first washed over a number 200 sieve and the retained portion is dried. This coarse fraction of the sample is run through a nest of sieves in order to further detail the grain size distribution in the coarse range.

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The natural moisture determination arrives at the in-situ moisture content of the soil and is useful for correlating the strength of various samples of like texture and in conjunction with the Atterberg limits, gives a strong measure of the strength range the soils are likely to be found in.

4.0 Findings

4.1 Boring Results

4.1.1 Original Site Alternates

The originally proposed sites are covered by little or no topsoil. Soils are moist, very loose to loose, brown, silt of sandy silt extending all the way to bedrock, with a little silty sand at depth. Occasionally these soils are medium dense, however, soils above and below these denser strata remain loose. Auger refusal was encountered at 26.0- and 27.4-feet depth in the two borings. Boring B-2 was core drilled 10 feet into rock and found bedrock to be interbedded shale and fine-grained sandstone with a thin weathered seam at 30.2 feet depth, but unweathered below that depth, the weathered zone being just under two feet below top of rock. Core recovery in the two core runs was 66- to 90-percent and Rock Quality Designation (RQD) was 18 and 43, listed from shallower run to deeper run.

The table below provides a tabulation of N-values in the borings as determined by the standard penetration test, corrected for the energy of the automatic hammer, along with depth to auger refusal.

Depth	B-1	B-2
2 – 3.5 feet	8	4
5 – 6.5 feet	9	7
10 – 11.5 feet	3	4
15 – 16.5 feet	7	14
20 – 21.5 feet	3	3
25 – 26.5 feet	50/5"	18
Auger Refusal	26.0'	27.4'

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No groundwater was encountered in either of the borings immediately after drilling was complete, but water level will rise and fall with the river level, with some delay. Also, these soils are fine grained, so there can be a delay in water filling the borehole due to the relatively low permeability of the silty soils present.

4.1.2 Proposed Final Alignment

Borings along this alignment found a thin cover of 2- to 3-inches of topsoil. Where soils are in excess of 10 feet deep, the shallow soils are moist, soft to medium stiff, brown lean clay. This is underlain by moist, very loose to loose, brown or brown and gray mottled, silt, but the silt was present just below the crushed stone surface in boring B-5 where rock was found to be shallower. Auger refusal was encountered between 9.5- and 24.5-feet depth in the three borings, deepest near the river and becoming shallower away from the river. The three borings were each core drilled 5 feet into rock and found bedrock to be interbedded shale with minor layers of fine-grained sandstone. Core recovery was in the range of 48- to 67-percent and Rock Quality Designation (RQD) was 23 and 57.

The table below provides a tabulation of N-values in the borings as determined by the standard penetration test, corrected for the energy of the automatic hammer, along with depth to auger refusal.

Depth	B-3	B-4	B-5
2 – 3.5 feet	7	7	18
5 – 6.5 feet	7	4	10
10 – 11.5 feet	4	5	
15 – 16.5 feet	4	27	
20 – 21.5 feet	7		
Auger Refusal	24.5'	21.6'	9.5'

Groundwater was encountered at 13- and 15-feet depth in borings B-3 and B-4. Water may be shallower seasonally and will fluctuate with the river level.

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4.2 Laboratory Results

A sample of soil from depth in boring B-2 was tested and classified and was found to be silty sand. The result of this testing is summarized in the table below with more detailed results provided in the appendix of this report.

Soil Sample	Grain Size Distribution			Atterberg Limits			Soil Classification	
	Percent Sand	Percent Silt	Percent Clay	Liquid Limit	Plastic Limit	Plasticity Index	Unified	AASHTO
B-2 @ 20' – 21.5'	66	34 (silt & clay)		NP	NP	NP	SM	A-4

4.3 Seismicity

The valve vault and screening assemblies will bear on rock. For rock bearing foundations, by the 2018 edition of the Kentucky/ International Building Code, this is a Rock profile, site class B. The Spectral Response Acceleration Coefficients, for this area, as provided by U.S.G.S., FEMA Design Parameters are:

$$\begin{array}{lll}
 S_S = 0.306 \text{ g} & S_{MS} = 0.306 \text{ g} & S_{DS} = 0.204 \text{ g} \\
 S_1 = 0.141 \text{ g} & S_{M1} = 0.141 \text{ g} & S_{D1} = 0.094 \text{ g}
 \end{array}$$

For any soil bearing foundations, by the 2018 edition of the Kentucky/ International Building Code, this is a Very Dense Soil and Soft Rock profile, site class C. The Spectral Response Acceleration Coefficients, for this area, as provided by U.S.G.S., FEMA Design Parameters are:

$$\begin{array}{lll}
 S_S = 0.306 \text{ g} & S_{MS} = 0.397 \text{ g} & S_{DS} = 0.265 \text{ g} \\
 S_1 = 0.141 \text{ g} & S_{M1} = 0.212 \text{ g} & S_{D1} = 0.141 \text{ g}
 \end{array}$$

5.0 Recommendations

5.1 Rock-Bearing Foundations

The design calls for the valve vault to bear on bedrock. The screening assemblies are also to be rock bearing by means of micropiles installed 10 feet into rock with shot-rock backfill underlying the pile cap.

Bedrock encountered in boring B-2, located on the riverbank, was found to be sandstone with layers of shale. In this boring, rock was encountered at about elevation 368 and was sampled to about elevation 358. The screening assemblies will bear deeper than this, at about elevation 353 to 354, but the rock was not sampled at that elevation. We have assumed that rock remains similar to that sampled in boring B-2 even though it is at this somewhat lower elevation.

These structures may be designed based on an allowable net bearing capacity of up to 10,000 pounds per square foot. To avoid punching shear failure, foundations should be no narrower than 18 inches.

Micropiles supporting the screening assemblies must extend at least 10 feet into rock. They may be designed based on an allowable bond strength between rock and grout of up to 35 pounds per square inch. End bearing should be ignored. Piles should be spaced no closer than 5 pile diameters, center to center, to avoid group reduction.

A geotechnical engineer from this office should be present to view all foundation bearing surfaces and monitor micropile installation.

5.2 Soil-Bearing Foundations

Light structures may be supported on spread footings bearing on shallow soil or structural fill placed in accordance with section 5.3 of this report, however, soils at this site are quite loose. These foundations may be designed based on an allowable net bearing capacity of up to 1,500 pounds per square foot. In addition, undercut and refill below structures is anticipated.

Once foundation bearing surfaces are exposed, an engineer or senior engineering technician from this office should be present to view all bearing surfaces to determine the presence of soft soils. Where soft areas are encountered, undercut will need to extend to firm material or to a level determined

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to be acceptable by the geotechnical engineer and should be refilled with either lean concrete ($f_c' = 2,000$ psi) or open-graded stone such as Number 57 stone.

Soil bearing foundations exposed to weather must bear at least 30 inches below finished grade in order to insulate the bearing strata from freezing. Interior foundations protected from freezing are exempt from this requirement. Continuous footings must be at least 16 inches wide and isolated footings must be at least 24 inches wide. Scour must be taken into account in determining depth of foundations.

Settlement of foundations designed based on the above criteria should be below that which is considered acceptable for this type of construction; that is total settlement should be less than one inch and differential settlement should be less than three quarters of an inch.

For shallow foundations, friction along the base of the footing can be used to resist lateral forces. A friction coefficient of 0.35 may be used, which assumes that the footing concrete is placed directly against the natural cut faces. The coefficient of friction value recommended is an ultimate value and a minimum factor of safety of 1.5 must be applied when determining the allowable sliding resistance.

5.3 Site Preparation and Earthwork

For any land-based structures, prior to any fill placement all vegetation and topsoil (soil containing more than 4 percent organic content) must be removed from below the area to be filled. Where trees or bushes have been present, the entire rootball should be removed and the resulting excavation should be refilled with soil compacted as described in this section of the report. Then, prior to placement of fill, the exposed subgrade should be proofrolled by a fully loaded tri-axle truck to delineate any yielding or rutting areas that may require treatment such as undercut and refill or drying.

All fill should be placed in lifts not exceeding 8 inches in uncompacted thickness and must be compacted to at least 98 percent of the soils maximum dry density as determined by the Standard Proctor (ASTM D-698). Soil moisture content should be within 2 percent of optimum as determined from the Standard Proctor.

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Soil from any off-site borrow sources should be tested and approved by this office prior to being used on the site. Satisfactory borrow materials are those falling in one of the following classifications: GC, SM, SC, ML, or CL. Soil types MH, CH and OH soils and peat are unsatisfactory borrow materials.

The site should be maintained in a well-drained condition both during and after construction. Site grading should provide for drainage of surface run-off away from the proposed any structures.

The placement of compacted fill should be carried out by an experienced excavator with the proper materials. The excavator must be prepared to adapt his procedures, equipment and materials to the type of project, to weather conditions, and the structural requirements of the engineer. Methods and materials used in summer may not be applicable in winter; soil used in proposed fill may require wetting or drying for proper placement and compaction. Conditions may also vary during the course of a project or in different areas of this site. These needs should be addressed in the project drawings and specifications.

During freezing conditions, the fill must **not** be frozen when delivered to the site. It also must not be allowed to freeze during or after compaction. Since the ability to work the soil while keeping it from freezing depends in part on the soil type, the specifications should require the contractor to submit a sample of his proposed fill before construction starts, for laboratory testing. If the soil engineer determines that it is not suitable, it should be rejected. In general, silty sand, clayey sand, and cohesive/semi-cohesive soils should not be used as fill under freezing conditions. All frozen soil of any type should be rejected for use as compacted fill.

It is important that compacted fill be protected from freezing after it is placed. The excavator should be required to submit a plan for protecting the soil. The plan should include details on the type and amount of material (straw, blankets, extra loose fill, topsoil, etc.) proposed for use as frost protection. The need to protect the soil from freezing is ongoing throughout construction and applies both before **and** after concrete is placed, until backfilling for final frost protection is completed. Foundations placed on frozen soil can experience heaving and significant settlement, rotation, or other movement as the soil thaws. Such movement can also occur if the soil is allowed to freeze **after** the concrete is placed and then allowed to thaw. The higher the percentage of fines (clay and silt) in the fill, the more critical is the need for protection from freezing.

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The contractor should be required to adjust the moisture content of the soil to within a narrow range near the optimum moisture content (as defined by the applicable Proctor or AASHTO Test). In general, fill should be placed within 2% of optimum moisture. The need for moisture control is more critical as the percentage of fines increases. Naturally occurring cohesive/semi-cohesive soil are often much wetter than the optimum. Placing and attempting to compact such soils to the specified density may be difficult. Even if compacted to the specified density, excessively wet soils may not be suitable as pavement subgrades due to pumping under applied load. This is especially true when wet cohesive/semi-cohesive soil is used as backfill in utility trenches and like situations. Excessively wet soil in thick fill sections may cause post-construction settlement beyond that estimated for fill placed at or near ($\pm 2\%$) the optimum moisture content.

5.4 Excavation

Excavation for the valve vault will require excavation below the water table. Soils at this site have relatively low permeability. Dewatering should take into account this low permeability. It must also take into account changes in the water table with river level. This investigation is not directed at the design of a dewatering system. The contractor should perform additional investigation prior to design of a dewatering system.

5.5 Earth Pressures

Any structure may be designed based on a coefficient of active earth pressure (K_a) of 0.36 and a soil unit weight (γ_w) of 130 pounds per cubic foot (67.6 pcf below the water level). This results in an equivalent fluid pressure of 47 pounds per cubic foot (24.3 pcf plus hydrostatic pressure below the water table). Where granular backfill completely fills the area defined by a plane extending upward from the base of the wall at a 45-degree angle, the structure may be designed based on a coefficient of active earth pressure (K_a) of 0.27 and a soil unit weight (γ_w) of 130 pounds per cubic foot (67.6 pcf below the water level). This results in an equivalent fluid pressure of 35 pounds per cubic foot (18.3 pcf plus hydrostatic pressure below the water table).

However, the walls of these structures are restrained from movement and the wall must be designed based on the "at rest" earth pressure. The coefficient of "at rest" earth pressure (K_0) is 0.47 with a soil unit weight (γ_w) of 130 pounds per cubic foot (67.6 pcf below the water level) resulting in an equivalent fluid of 61 pounds per cubic foot unit weight (31.8 pcf plus hydrostatic pressure below the water table). Where granular backfill completely fills the area defined by a plane

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extending upward from the base of the wall at a 45-degree angle, the retaining wall may be designed based on a coefficient of “at rest” earth pressure (K_0) of 0.43 and a soil unit weight (γ_w) of 130 pounds per cubic foot (67.6 pcf below the water level). This results in an equivalent fluid pressure of 56 pounds per cubic foot (29.1 pcf plus hydrostatic pressure below the water table).

The table below summarizes the design earth pressures, those values in parentheses being for structures below the water table, to which hydrostatic pressure must be added.

	Active Earth Pressure Coefficient (K_a)	Passive Earth Pressure Coefficient (K_p)	Coefficient of Earth Pressure at Rest (K_0)	Equivalent Fluid Pressure on Cantilever Walls	Equivalent Fluid Pressure on Braced Walls
Fill Material/Local Soils	0.36	2.77	0.47	47 (24.3) pcf	61 (31.8) pcf
Granular Backfill	0.27	3.69	0.43	35 (18.3) pcf	56 (29.1) pcf

Any wall design must use appropriate factors of safety.

5.6 Limitations

Analysis of riverbank stability is beyond the scope of this investigation. We can provide this service, if desired.

We strongly recommend that bearing surfaces and compaction be monitored by Greenbaum Associates, Inc. Our technicians will be available to further assist you in providing these and other normally specified quality control services. The report is preliminary until such time as these examinations are completed to confirm conditions consistent with those discovered in the investigation.

The conclusions and recommendations offered in this report are based on the subsurface conditions encountered in the borings. No warranties can be made regarding the continuity of conditions between or beyond borings. If, during construction, soil conditions are encountered that differ from those indicated in this report, a representative of Greenbaum Associates, Inc. should inspect the site to determine if design modification is required.

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This study was directed at specific raw water intake at this location to be constructed within a reasonably short period after this study. These findings are preliminary until such time at an investigation is performed for a specific location. Also, use for any other location, structures or substantial changes in construction period may invalidate the recommendations. The geotechnical engineer should be consulted relative to any substantial change in these.

This study is directed at mechanical properties of the soils and includes no sampling, testing or evaluation for environmental considerations.

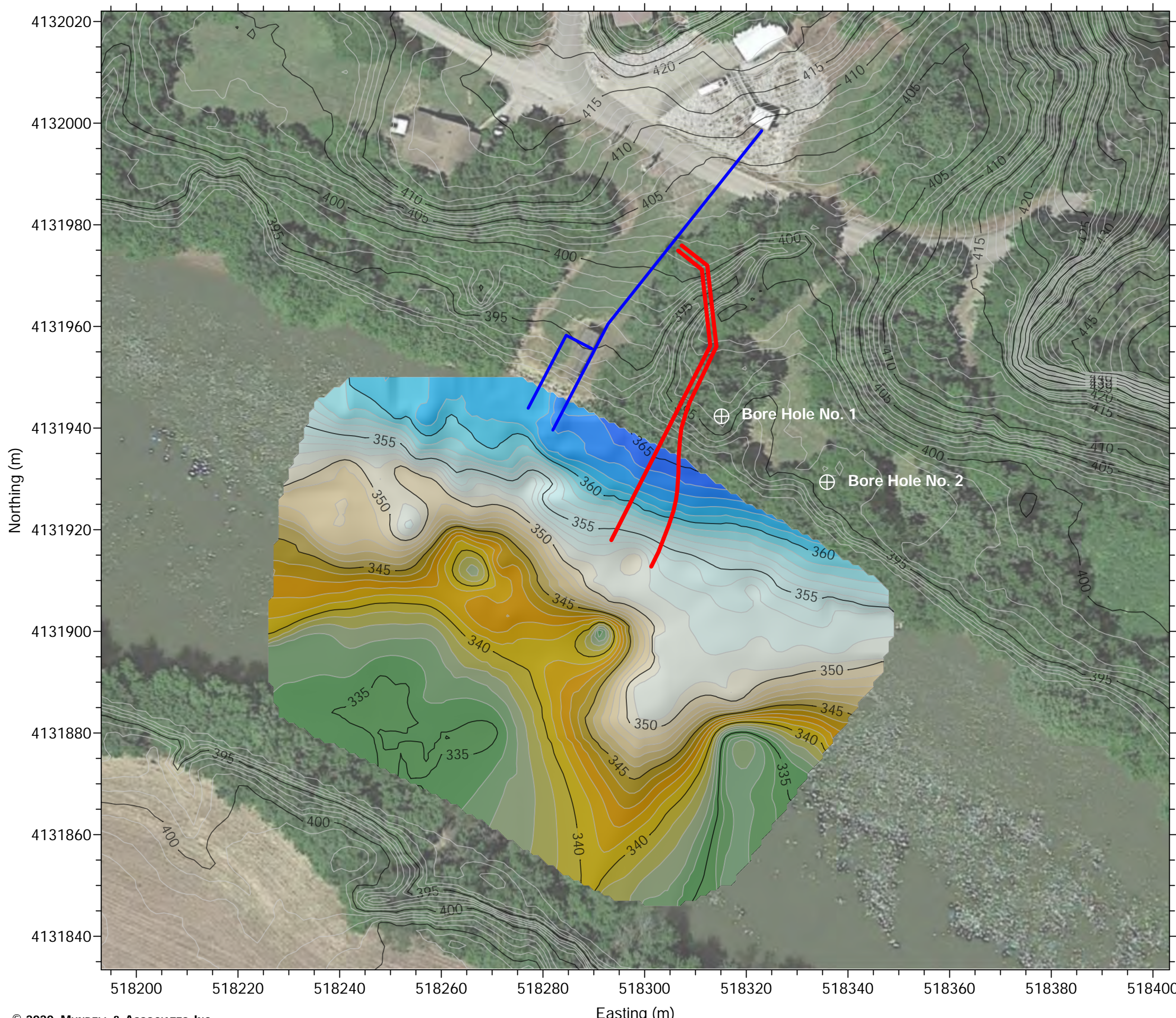


**Ohio County Water
District**

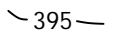





**Greenbaum
Associates, Inc.**

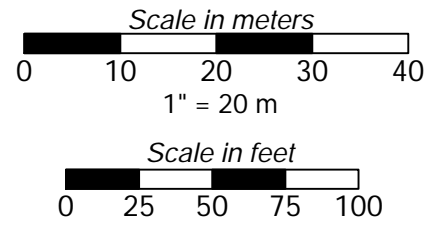
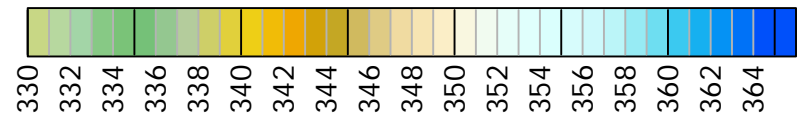
Site Location Plan
Raw Water Intake
Cromwell, Kentucky
Greenbaum Project Number: 20-104G



LEGEND

-  Topographic Contours
-  Borehole Locations
-  Existing Intake Structures
-  Proposed Intake Structures

Bedrock Elevation Contours (ft. AMSL)



NOTES:

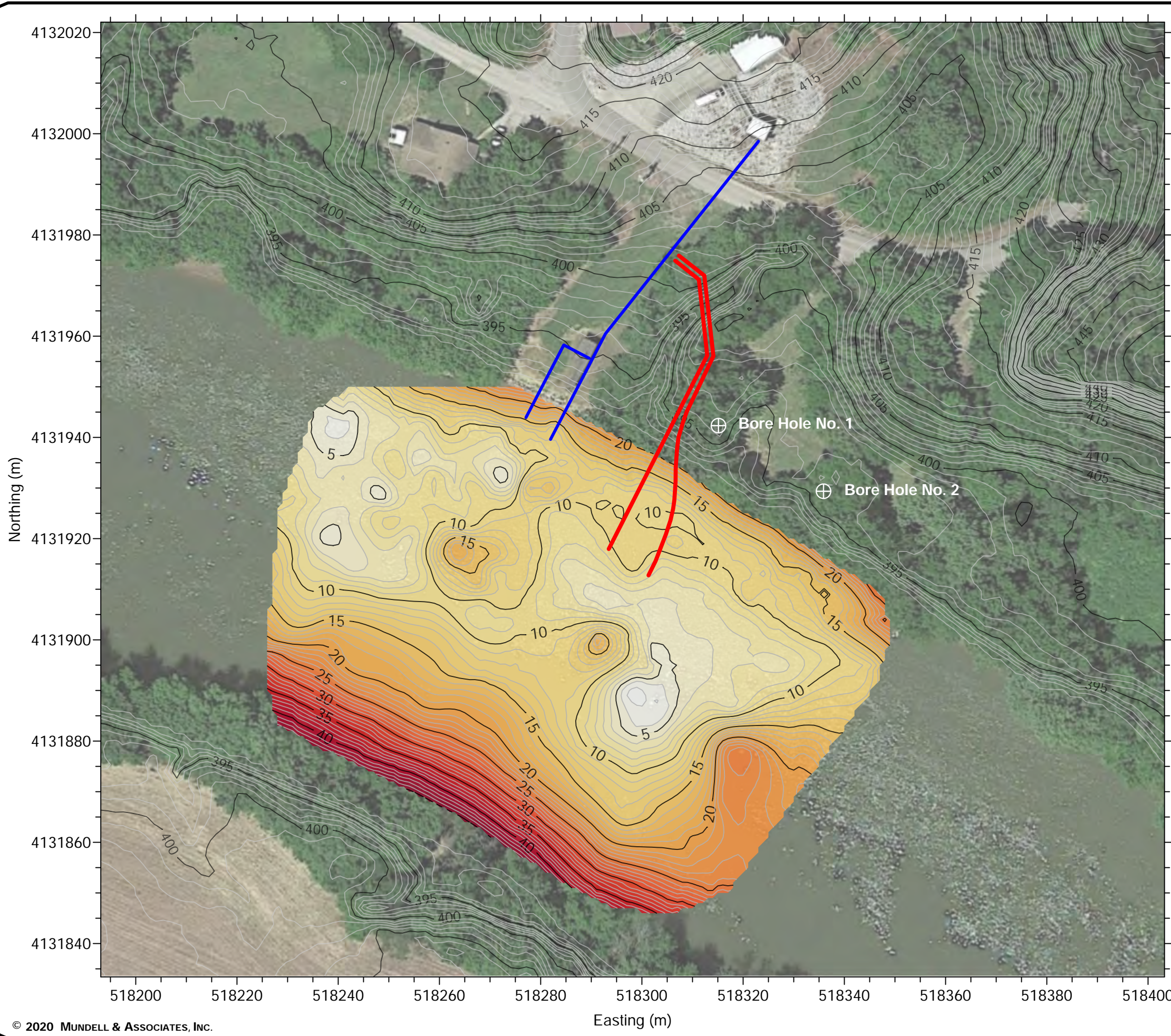
1. Aerial photo is provided for site reference only. No claim is made as to the accuracy or completeness of this information.
2. Coordinates are referenced according to UTM, Zone 16N (meters), WGS84 datum.
3. Topographic contours were gridded using LiDAR data from Kentucky's Aerial Photography & Elevation Data Program.
4. Site Features are approximate and were determined based on "2125 OHIO CO_KY_DRAFT_SET - October 2020," provided by Wauford.
5. The Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (± 2 ft.).

Bedrock Elevation Map





Bedrock Mapping
 Raw Water Intake: Ohio County Water District
 Cromwell, Ohio County, Kentucky 42333
 MUNDELL Project No. M20029



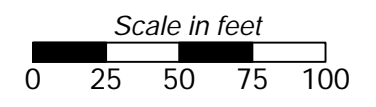
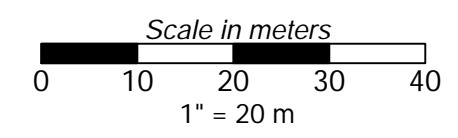
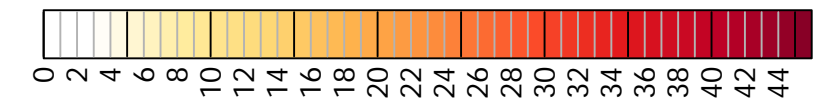
110 South Downey Avenue
 Indianapolis, Indiana 46219
 317-630-9060, fax 317-630-9065
 www.MundellAssociates.com



LEGEND

-  Topographic Contours
-  Bedrock Boring Locations
-  Existing Intake Structures
-  Proposed Intake Structures

Sediment Thickness Contours (ft.)



NOTES:

1. Aerial photo is provided for site reference only. No claim is made as to the accuracy or completeness of this information.
2. Coordinates are referenced according to UTM, Zone 16N (meters), WGS84 datum.
3. Topographic contours were gridded using LiDAR data from Kentucky's Aerial Photography & Elevation Data Program.
4. Site Features are approximate and were determined based on "2125 OHIO CO_KY_DRAFT_SET - October 2020," provided by Wauford.
5. The Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (± 2 ft.).

Sediment Thickness Map

Bedrock Mapping
 Raw Water Intake: Ohio County Water District
 Cromwell, Ohio County, Kentucky 42333
 MUNDELL Project No. M20029

5



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SOIL DESCRIPTION TERMINOLOGY

Soils are identified and classified in this report according to the Unified Classification System with the following modifiers:

RELATIVE DENSITY OF GRANULAR SOILS

<u>Description</u>	<u>Blows/Foot</u>
Very Loose	0 to 4
Loose	5 to 10
Medium Dense	11 to 30
Dense	31 to 50
Very Dense	51 to 80
Extremely Dense	81+

CONSISTENCY OF COHESIVE SOILS

<u>Description</u>	<u>N-value</u>	<u>q_n (tsf)</u>
Very Soft	0 to 2	0 to 0.25
Soft	3 to 4	0.26 to 0.50
Medium Stiff	5 to 8	0.51 to 1.0
Stiff	9 to 15	1.1 to 2.0
Very Stiff	16 to 30	2.1 to 4.0
Hard	>30	4.1 to 8.0
Very Hard		8.1+

PARTICULAR SIZES

<u>Components</u>	<u>Size or Sieve No.</u>
Boulders	over 12 inches
Cobbles	3 to 12 inches
Gravel -	Coarse $\frac{3}{4}$ to 3 inches
	Fine No. 4 to $\frac{3}{4}$ inch
Sand -	Coarse No. 10 to No. 4
	Medium No. 40 to No. 10
	Fine No. 200 to No. 40
Fines (silt and clay)	Finer than No. 200

SOIL MOISTURE

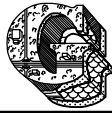
	<u>Descriptive Term</u>
Dry	Dry of Standard Proctor Optimum
Damp	Moist (sand only)
Moist	Near Standard Proctor Optimum
Wet	Wet of Standard Proctor Optimum
Saturated	Free Water in Sample

ROCK DESCRIPTION TERMINOLOGY

The Rock Quality Determination (Deere et. Al., 1969) method of determining rock quality as reported here was obtained by summing up the total length of core recovered in each run, counting only those pieces of core which are four inches (10 cm.) in length or longer and which are hard and sound. The sum is then represented as a percentage over the length of the run. If the core is broken by handling or by the drilling process, the fresh broken pieces are fitted together and counted as one piece provided that they the requisite length of four inches (10 cm.). RQD is reported as a percentage.

RELATIONSHIP BETWEEN RQD AND ROCK QUALITY

<u>RQD (%)</u>	<u>Description of Rock Quality</u>
0 to 25	Very Poor
26 to 50	Poor
51 to 75	Fair
76 to 90	Good
91 to 100	Excellent



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 Louisville, Ky 40215 502-361-8447

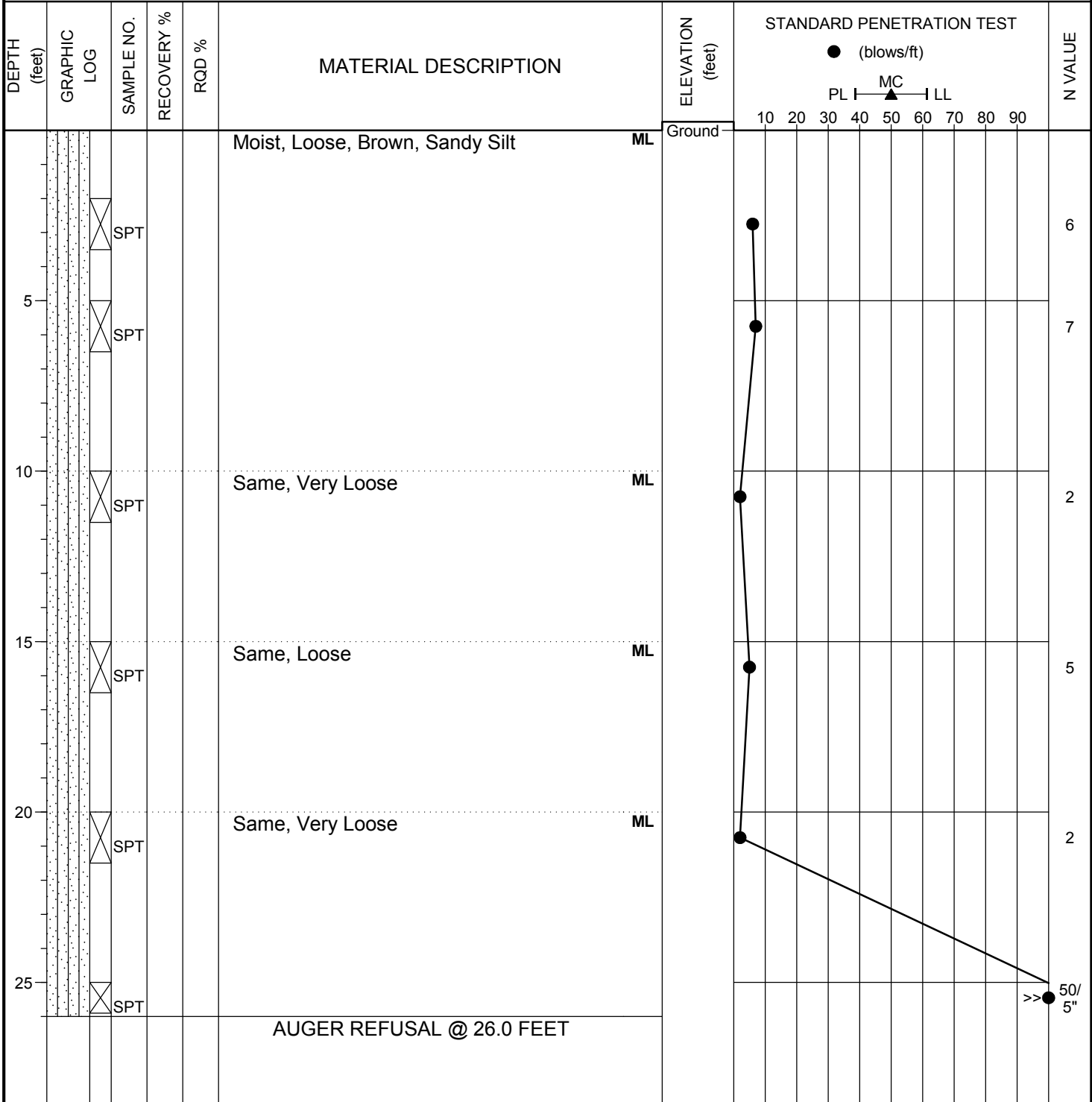
Client:	HOLE No. B-1
Project: Raw Water Intake Cromwell, KY	Sheet 1 of 1
Project No.: 20-104G	

Boring Location: **See Boring Location Plan** Surface Elevation: **Ground** Station: **n/a**

Drilling Equipment: **CME-55 with Automatic Hammer** Drilling Method: **3 1/4 Inch Hollow Stem Auger**

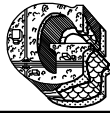
Depth to water immediately: **Dry** Overburden: **26.0** Rock: **0** Total Depth: **26.0**

Logged By: **S. Greenbaum** Driller: **B. Sumler** Date Logged: **6/17/20 - 6/17/20**



LOG WITH WELL AND SPT GRAPH 20-104.GPJ 08-053.GPJ 12/10/20

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube HQ - Rock Core, 2-1/2"	DRILLING METHOD NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: right;">B-1</div>
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Client:	HOLE No. B-3
Project: Raw Water Intake Cromwell, KY	Sheet 1 of 1
Project No.: 20-104G	

Boring Location: **See Boring Location Plan** Surface Elevation: **Ground** Station: **n/a**

Drilling Equipment: **D-25 Track-Mounted Drill w/Auto Hammer** Drilling Method: **3 1/4 Inch Hollow Stem Auger**

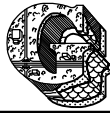
Depth to water immediately: **Dry** Overburden: **29.5** Rock: **0** Total Depth: **29.5**

Logged By: **S. Greenbaum** Driller: **B. Sumler** Date Logged: **11/24/20 - 11/24/20**

DEPTH (feet)	GRAPHIC LOG	SAMPLE NO.	RECOVERY %	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST											N VALUE
							● (blows/ft)											
						Ground	10	20	30	40	50	60	70	80	90			
					Topsoil (2 inches) Moist, Medium Stiff, Brown, Lean Clay													
5																5		
10					Moist, Very Loose, Brown, Silt											3		
15					Moist, Loose, Brown and Gray Mottled, Silty Sand											3		
20					Moist, Loose, Gray and Brown Mottled, Silt											5		
25					AUGER REFUSAL @ 24.5 FEET													
					Brown Shale (soft)													
					TERMINATED @ 29.5 FEET													

LOG WITH WELL AND SPT GRAPH 20-104.GPJ 08-053.GPJ 12/10/20

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube HQ - Rock Core, 2-1/2"	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing	NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	RW - Rotary Wash RC - Rock Core Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-3</div>
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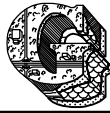
Client:	HOLE No. B-4
Project: Raw Water Intake Cromwell, KY	Sheet 1 of 1
Project No.: 20-104G	

Boring Location: See Boring Location Plan	Surface Elevation: Ground	Station: n/a
Drilling Equipment: D-25 Track-Mounted Drill w/Auto Hammer Drilling Method: 3 1/4 Inch Hollow Stem Auger		
Depth to water immediately: Dry	Overburden: 16.6	Rock: 5 Total Depth: 21.6
Logged By: S. Greenbaum	Driller: B. Sumler	Date Logged: 11/27/20 - 11/27/20

DEPTH (feet)	GRAPHIC LOG	SAMPLE NO.	RECOVERY %	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST		N VALUE
							(blows/ft)		
					Topsoil (3 inches) Moist, Medium Stiff, Brown, Lean Clay	Ground			
5					Same, Soft				5
10					Moist, Loose, Brown, Silt				3
15					Gray Shale				4
20					AUGER REFUSAL @ 16.6 FEET Gray Shale (soft)				21
21.6					TERMINATED @ 21.6 FEET				

LOG WITH WELL AND SPT GRAPH 20-104.GPJ 08-053.GPJ 12/10/20

SAMPLER TYPE SS - Split Spoon ST - Shelby Tube HQ - Rock Core, 2-1/2" NX - Rock Core, 2-1/8" CU - Cuttings CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	Hole No. <p style="text-align: center; font-weight: bold; font-size: 1.2em;">B-4</p>
--	--	---



Greenbaum Associates Inc
 Louisville, Ky 40215 502-361-8447

Client:	HOLE No. B-5
Project: Raw Water Intake Cromwell, KY	Sheet 1 of 1
Project No.: 20-104G	

Boring Location: See Boring Location Plan	Surface Elevation: Ground	Station: n/a
Drilling Equipment: D-25 Track-Mounted Drill w/Auto Hammer Drilling Method: 3 1/4 Inch Hollow Stem Auger		
Depth to water immediately: Dry	Overburden: 9.5	Rock: 5 Total Depth: 14.5
Logged By: S. Greenbaum	Driller: B. Sumler	Date Logged: 11/27/20 - 11/27/20

DEPTH (feet)	GRAPHIC LOG	SAMPLE NO.	RECOVERY %	RQD %	MATERIAL DESCRIPTION	ELEVATION (feet)	STANDARD PENETRATION TEST													N VALUE					
							● (blows/ft) PL ▲ MC LL 10 20 30 40 50 60 70 80 90																		
					Crushed Stone (6 inches)	Ground																			
					Moist, Medium Dense, Brown, Silt	ML																			14
5					Same, Loose	ML																			8
10					AUGER REFUSAL @ 9.5 FEET																				
					Brown Shale (soft)																				
					Gray Sandstone																				
					TERMINATED @ 14.5 FEET																				

SAMPLER TYPE SS - Split Spoon NX - Rock Core, 2-1/8" ST - Shelby Tube CU - Cuttings HQ - Rock Core, 2-1/2" CT - Continuous Tube	DRILLING METHOD HSA - Hollow Stem Auger RW - Rotary Wash CFA - Continuous Flight Augers RC - Rock Core DC - Driving Casing	Hole No. <div style="text-align: center; font-weight: bold; font-size: 1.2em;">B-5</div>
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LOG WITH WELL AND SPT GRAPH 20-104.GPJ 08-053.GPJ 12/10/20

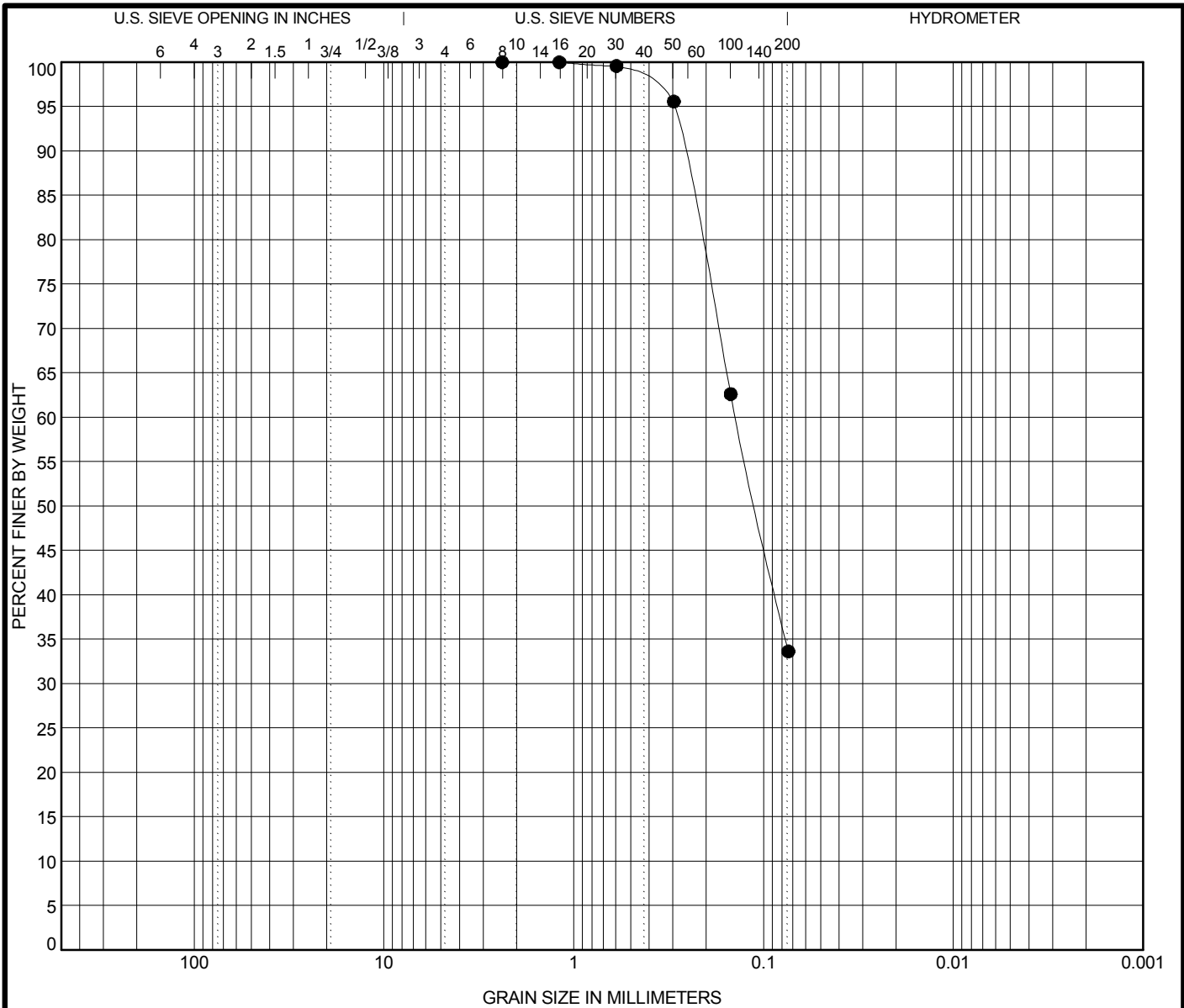
CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES

ASTM D2487 and D2488

Major Divisions		Group Symbols	Typical Names	Laboratory Classification Criteria				
Coarse-grained soils (More than half of material is <i>larger</i> than No. 200 sieve size)	Gravels (More than half of coarse fraction larger than No. 4 sieve)	Clean Gravels (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent More than 12 percent 5 to 12 percent	$C_u = D_{60}/D_{10}$ greater than 4 $C_u = (D_{30})^2 / (D_{10} \times D_{60})$ between 1 and 3		
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW		
		Gravels with fines (Appreciable amount of fines)	GM^a	d		Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line with P. I. less than 4	Above "A" line with P. I. between 4 and 7 are <i>borderline</i> cases requiring use of dual symbols
				u			Atterberg limits below "A" line with P. I. greater than 7	
		GC	Clayey gravels, gravel-sand-clay mixtures	$C_u = D_{60}/D_{10}$ greater than 6 $C_u = (D_{30})^2 / (D_{10} \times D_{60})$ between 1 and 3				
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean Sands (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	Borderline cases requiring dual symbols ^b	Not meeting all gradation requirements for SW		
			SP	Poorly graded sands, gravelly sands, little or no fines				
		Sands with fines (Appreciable amount of fines)	SM^a	d		Silty sands, sand-silt mixtures	Atterberg limits above "A" line or P.I. < 4	Limits plotting in hatched zone with P.I. between 4 and 7 are <i>borderline</i> cases requiring use of dual symbols
				u			Atterberg limits above "A" line with P.I. > 7	
		SC	Clayey sands, sand-clay mixtures	$C_u = D_{60}/D_{10}$ greater than 6 $C_u = (D_{30})^2 / (D_{10} \times D_{60})$ between 1 and 3				
Fine-grained soils (More than half material is smaller than No. 200 sieve)	Silts and clays (Liquid limit less than 50)	ML	Inorganic silts and very fine sands, silty or clayey fine sands, or clayey silts with slight plasticity					
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays					
		OL	Organic silts and organic silty clays of low plasticity					
	Silts and clays (Liquid limit less than 50)	MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils, elastic silts					
		CH	Inorganic clays of high plasticity, fat clays					
		OH	Organic clays of medium to high plasticity, organic silts					
	Highly organic soils	Pt	Peat and other highly organic soils					

^a Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits :suffix d used when L. L. is 28 or less and the P. I. is 6 or less; the suffix u used when L. L. is greater than 28.

^b Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group symbols. For examples: GW-GC, well-graded gravel-sand mixture with clay binder.

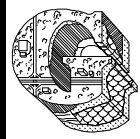


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● B-2 20.0	SILTY SAND(SM)	NP	NP	NP		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-2 20.0	2.38	0.14			0.0	65.8	34.2	

US GRAIN SIZE 20-104.GPJ GREENBAUM.GDT 7/9/20



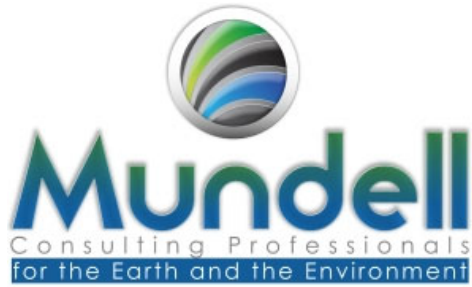
Greenbaum Associates, Inc.
 Louisville, KY 40215
 (502) 361-8447

GRAIN SIZE DISTRIBUTION

Project: Raw Water Intake
 Location: Cromwell, KY
 Number: 20-104G

**Mundell Consulting Professionals
Results of Geophysical Services
Sub-Bottom Profiling Bedrock Mapping**

November 10, 2020



110 South Downey Avenue, Indianapolis, Indiana 46219-6406
Telephone 317-630-9060, Facsimile 317-630-9065
www.MundellAssociates.com

November 10, 2020

Mr. Walt Beasley
General Manager
Ohio County Water District
124 East Washington Street
Hartford, KY 42346

CC: J. Gregory Davenport, P.E.- J.R. Wauford & Company, Consulting Engineers, Inc.

Re: Results of Geophysical Services
Sub-Bottom Profiling Bedrock Mapping
Raw Water Intake: Ohio County Water District
Cromwell, Ohio County, Kentucky 42333
MUNDELL Project No. M20029

Dear Mr. Beasley:

In accordance with MUNDELL Proposal No. P20047, Mundell & Associates, Inc. (MUNDELL) is pleased to present Ohio County Water District (OCWD) with this letter report providing written documentation of the geophysical exploration activities conducted at the above-referenced project site (Site). The fieldwork was performed on October 30, 2020. Documentation of this project is included in the following sections.

Introduction

The Site is located southeast of the intersection between River Road and Lucille Barnes Road in Cromwell, Ohio County, KY (see **Figure 1**). The Site consists of existing municipal water supply intake pipes installed in the Green River with a grass covered and wooded lot on the northern bank of the river. It is our understanding that the existing municipal intake pipes will be replaced with two new suction pipes that will extend approximately 80 feet into the Green River. As such, OCWD contracted MUNDELL to complete a geophysical survey via sub-bottom profiling to characterize the bedrock surface within the Green River surrounding the two proposed suction pipes to support engineering design and construction of the new proposed structures.

Site Geology

Soils at the Site have been mapped by the Kentucky Geologic Survey (KGS) as Quaternary-aged Alluvium consisting of sand, gravel, and silt. The sand is yellowish-

brown, fine to coarse quartz, micaceous to non-micaceous, slightly clayey. Gravel, gray to brown subrounded to well-rounded chert pebbles and white well-rounded quartz pebbles. Silt, various shades of brown and gray, micaceous, clayey.

The Site has been mapped by the Kentucky Geologic Survey (KGS) as being entirely underlain by Middle-Pennsylvanian-aged, Tradewater Formation. The Tradewater Formation is primarily composed of shale, siltstone, sandstone, limestone, coal, and underclay. The shale is light- to dark-gray, weathering to grayish orange to yellowish orange, locally carbonaceous or sandy and commonly interbedded with siltstone. Sandstone in the Tradewater Formation is very fine to medium grained, light gray to white, weathering to pale yellowish orange to grayish orange (Gildersleeve, 1975).

Two borings have been advanced at the Site by Greenbaum Associates, Inc. (see **Figure 1**). Bore Hole No. 1 encountered moist, loose, brown, sandy silt soils before auger refusal at 26.0 feet below ground surface (ft.-bgs.). Bore Hole No. 2 encountered moist, soft, brown, silt and deeper silty fine sand before auger refusal at 27.4 ft.-bgs. Bedrock coring from 27.4 to 37.4 ft.-bgs. in Bore Hole No. 2 encountered gray, fine-grained sandstone interbedded with gray shale.

Technical Background – Geophysical Methodologies

In general, a variety of geophysical techniques can be applied to the mapping of bedrock; however, certain methods, sensitive to a range of contrasting physical properties, can have attributes that make them more suitable than others depending on the site-specific conditions. Contrasting physical properties that typically are found to be useful for mapping bedrock include electrical conductivity or resistivity, acoustic velocity, density, and seismic wave velocity. Of these, acoustic velocity has the highest resolution, greatest range of contrast, and is often applicable to differentiate underwater sediments from underlying bedrock. Given the desired geophysical survey area, sub-bottom profiling (SBP), was selected as the method of choice to characterize the bedrock surface beneath the Green River at the Site.

Sub-Bottom Profiling (SBP)

SBP is often very useful for geophysical explorations such as, sediment investigation campaigns for dredging projects, route surveys for pipeline and cable laying projects, natural resource exploration, archaeological surveys, and locating underwater utilities, within its limit of penetration and layer resolution. SBP can provide a highly accurate and detailed subsurface image, which can greatly help to verify the characteristics (*i.e.*, the size, shape, and depth) of underwater sediment and/or bedrock structures.

SBP data were collected using a Innomar SES-2000 Compact system equipped with a



Trimble ProXRT with OmniSTAR differentially corrected GPS, which enabled continuous data collection with position information. The SES-2000 Compact system has a primary operating frequency of 100 kHz for identifying the depth of water (*i.e.*, bathymetry) and a user selectable secondary low frequency of 4, 5, 6, 8, 10, 12, or 15 kHz to penetrate and identify the bottom sediments. The secondary low frequency can be chosen based on the desired penetration depth (lower frequency yields higher penetration) and the desired sediment layer resolution (higher frequency yields higher resolution). With this range of operating frequencies, the *SES-2000 Compact* is capable of penetrating sediment of up to 40 meters thick and has a maximum sediment layer resolution of approximately 1 cm. During SBP survey set-up at the Site, multiple secondary low frequencies (*i.e.*, 8, 10, and 12 kHz) were tested in order to choose the frequency that maximized both signal resolution and sediment penetration. After testing these frequencies, 10 kHz was selected as the secondary low frequency for data collection. This frequency provided adequate penetration to depths exceeding 15 meters and provided the best resolution for identifying acoustical reflections of the bedrock surface in the SBP dataset. SBP data are collected along lines of profile providing cross-sectional output.

Sub-bottom profilers operate based on principles similar to the seismic reflection method. The SBP's transmitting antenna emits a high frequency acoustic wave pulse or "ping" of short duration (up to 40 pings per second) downward into the water column and bottom sediments. The receiving antenna then records acoustic waves that are moving upward after being reflected from the boundaries between materials that have contrasting acoustical velocities or densities. The acoustic waves recorded by the receiving antenna are then plotted by the computer on an echoplot (or profile). The deeper the density boundary, *i.e.*, sediment layer, the later in time the acoustic reflection will appear on the echoplot. Using knowledge of the propagation velocity of acoustic waves through water and sediments, the SBP echoplot can be presented in terms of depth.

Echoplots, or graphical outputs depicting SBP data, such as those included in this report, illustrate the composite effect of how the environment below the water surface react to the acoustic pulses radiated by the SBP system (see **Figure 2**). Acoustic waves recorded by the receiver include those radiated directly from the transmitter and those reflected from naturally-occurring features within the river. Subsurface reflections are often associated with changes in sediment or rock conditions, such as density, bedding, cementation, and clay content, as well as other aquatic material within the water column such as fish, downed trees or limbs, debris, or submersed vegetation. An interface between two sediment or rock layers having sufficiently different densities will be evident in the SBP echoplot.



Scope and Results of Geophysical Survey Performed

For data control purposes, MUNDELL collected SBP data with an external DGPS connected to maintain the geospatial integrity of the data. The data were collected in the river along 16 profile lines on October 30, 2020 (see **Figure 1**). Individual SBP profiles were oriented in various directions in order to increase data density and to collect data representative of the sediment and subsurface features present in the river.

Raw SBP Echoplots are recorded in terms of depth from the water surface. At the time of the SBP survey, the elevation in feet above mean sea level (ft. AMSL) of the Green River was estimated using USGS stream gage data. In order to estimate the elevation of the Green River in Cromwell, KY at the time of the SBP survey, MUNDELL utilized USGS stream gage at Lock 4 at Woodbury, KY (~18.6 miles upstream from Site) and USGS stream gage at Rockport, KY (~35.7 miles downstream from Site) to interpolate the river elevation at Cromwell, KY using a distance weighted average. Based on the interpolation, the Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (± 2 ft.). It should be noted that all SBP layer data were processed and displayed in **Figures 2** through **4** based on this elevation estimate.

Once the SBP profiles were acquired, individual SBP profile were individually loaded into *SonarWiz Version 7* software and processed for elevation correction and the recognition of acoustical reflectors produced from sediment and bedrock in the river. First the bathymetry was identified, which represents the depth of water in the river. Two representative SBP echoplots are shown in **Figure 2**, which indicate the depth of water (bathymetry) and the depth of the boundary between the riverbed (bathymetry) and deeper acoustical reflectors interpreted to be the top of the bedrock surface. The bathymetry layer data were exported from *SonarWiz* into *Surfer Version 19*, then gridded to generate a bathymetry map (see **Figure 3**) that depicts the elevation contours of the river bottom. The deepest area of the river is near the center of the river axis and gradually becomes shallower toward the northern and southern banks of the river.

Next the profiles were analyzed to identify acoustical reflectors that are characteristic of bedrock beneath the sediment. In order to produce acoustical reflectors in SBP data there has to exist boundaries between materials that have contrasting acoustical velocities or densities. The density boundary between the unconsolidated sandy silt to silty fine sand and weathered shale/sandstone bedrock at the Site made it difficult to identify consistent acoustical reflectors throughout the SBP dataset (see **Figure 2**). Additionally, signal attenuation prevented identification of bedrock structures at deeper survey depths. Acoustic signal attenuation is a normal occurrence in the collection of SBP data. This attenuation is caused by acoustic signals being reflected by sediment layers above the target depth of investigation. In other words, as the acoustic signal penetrates deeper layers of sediment, the signal-to-noise ratio decreases. Despite these challenges, the SBP data indicated acoustical reflectors that have been interpreted to be the top of bedrock at the Site. The bedrock layer data was exported from *SonarWiz* into

MUNDELL & ASSOCIATES, INC.



Surfer Version 19, then gridded to generate a bedrock elevation map (see **Figure 4**) that depicts the elevation contours of the interpreted top of bedrock. The deepest occurrence of bedrock beneath the river is at approximately 335 ft. AMSL in the southwest and southeast portions of the Site. Bedrock elevations near the terminus of the proposed intake structures range from approximately 352 to 353 ft. AMSL.

Additionally, the bedrock elevation layer data was subtracted from the bathymetry layer data to produce a sediment thickness map (see **Figure 5**). In general, sediment becomes thicker toward the southern bank of the Green River. Sediment thickness near the terminus of the proposed intake structures range from approximately 8 to 9 ft. thick.

Conclusions

Based on the sub-bottom profile survey results, MUNDELL concludes the following:

- 1) Sub-bottom profiles were post processed and corrected for elevation using upstream and downstream USGS gage data to interpolate river elevation at Cromwell, KY using distance weighted average method. Based this calculation, the Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (± 2 ft.).
- 2) The sub-bottom profiles collected in the Green River indicate bathymetry with the deepest area near the center of the river axis and gradually becoming shallower toward the northern and southern banks of the river (see **Figure 3**).
- 3) The boundary between unconsolidated sediment and bedrock was interpreted and characterized through acoustical reflectors in the sub-bottom profiles. The bedrock surface generally slopes down toward the southwest and southeast. Bedrock elevations near the terminus of the proposed intake structures range from approximately 352 to 353 ft. AMSL. (see **Figure 4**).
- 4) The bedrock elevation layer data was subtracted from the bathymetry layer data to produce a sediment thickness map. In general sediment becomes thicker toward the southern bank of the Green River. Sediment thickness near the terminus of the proposed intake structures range from approximately 8 to 9 ft. (see **Figure 5**).

Limitations

This study included a limited set of geophysical readings across limited portions of the Site. The results and interpretations of the geophysical survey performed are considered generally reliable and were conducted in a manner generally consistent with practitioners in the field of geophysical engineering. The methods used in this investigation are considered reliable; however, there may exist localized variations in the




subsurface conditions that have not been completely defined at this time. The sub-bottom profiling results are not unique to sediment/bedrock features and more than one geologic feature or model may give similar results. Therefore, properly conducted soil/bedrock test borings and other exploratory techniques are necessary to more completely determine the subsurface conditions at the site.

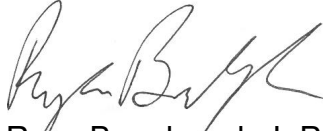
The Site features presented on the Site base map are for informational purposes only and no representation is made as to the accuracy or completeness of this information. It is recommended that a practicing geosciences or geotechnical engineering professional be contacted prior to conducting verification drilling or excavating activities.

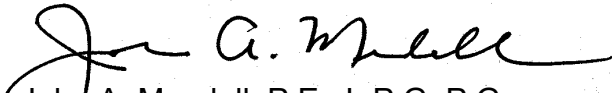
Closing

We appreciate the opportunity to provide geophysical services to you on this project. If you should have any questions regarding the enclosed information, please do not hesitate to contact us at (317-630-9060, jmundell@mundellassociates.com), at your convenience.

Sincerely,
MUNDELL & ASSOCIATES, INC.


Forrest Kunkel, G.I.T.
Project Geophysicist/Geologist


Ryan Brumbaugh, L.P.G.
Senior Geophysicist/Geologist


John A. Mundell, P.E., L.P.G, P.G.
President/Director of Geophysical Services
Kentucky Professional Geologist No. 162945

/fk

Attachments:

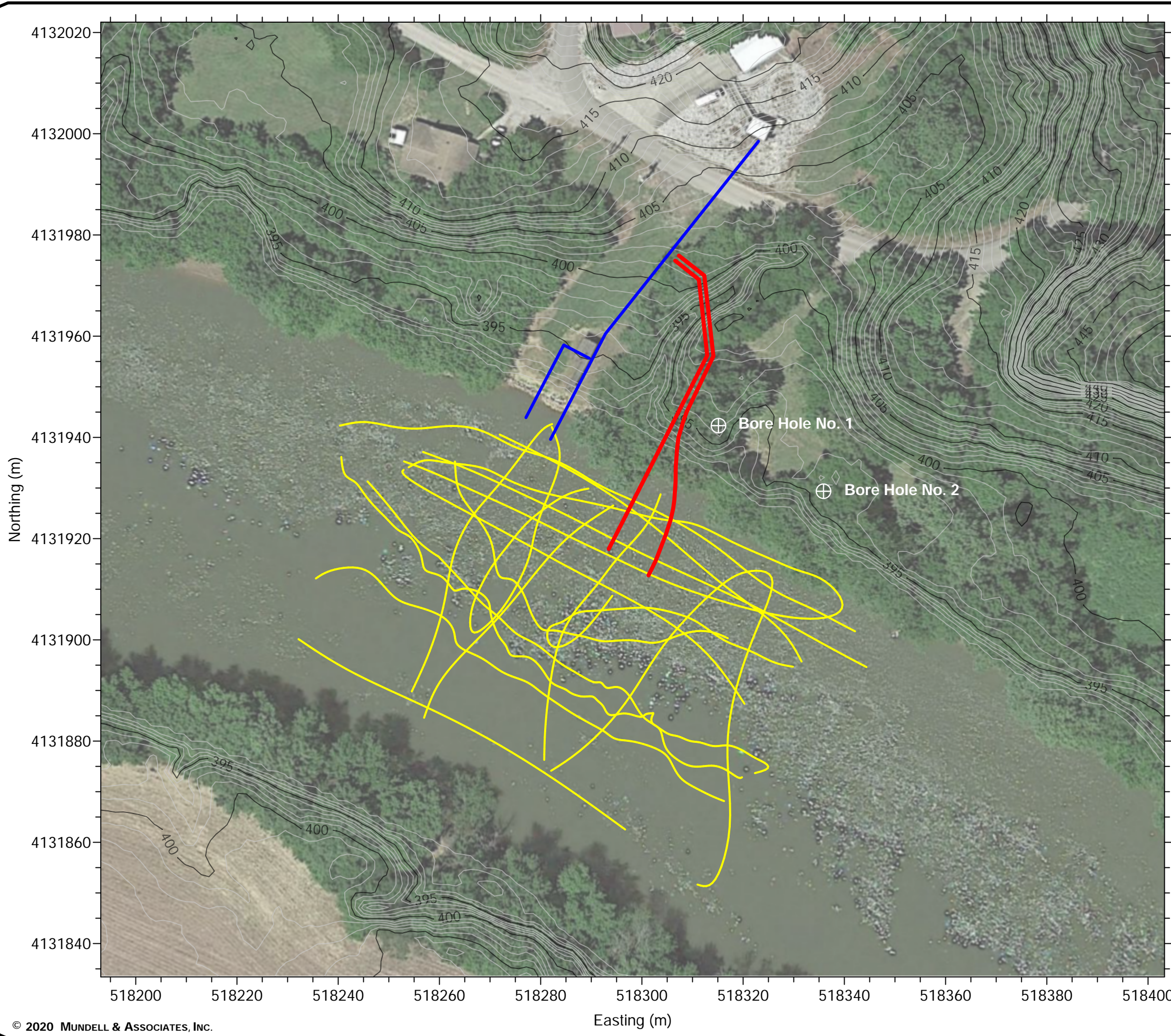
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|-----------|------------------------------|
| Figure 1. | Site Map |
| Figure 2. | Representative SBP Echoplots |
| Figure 3. | Bathymetry Map |
| Figure 4. | Bedrock Elevation Map |
| Figure 5. | Sediment Thickness Map |








REFERENCES

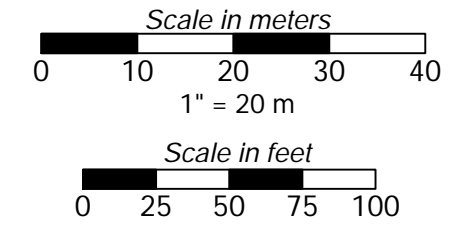
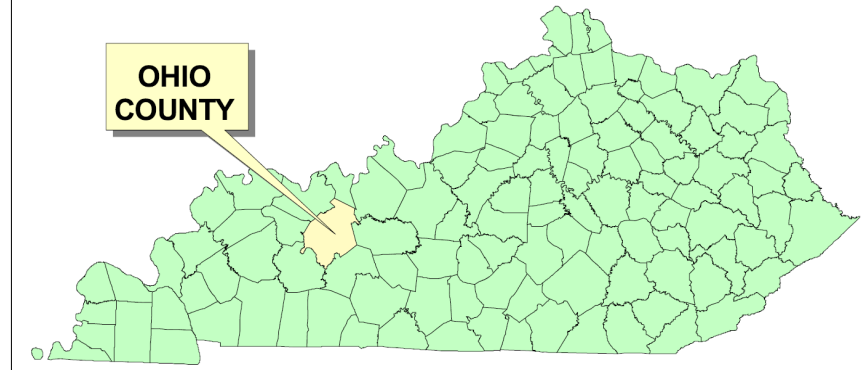
Gildersleeve, Benjamin, 1975. Geologic Map of the Cromwell Quadrangle, Butler and Ohio Bourbon Counties, Kentucky: U.S. Geological Survey Geologic Quadrangle Map GQ-1250, scale 1:24,000.

"Kentucky Geologic Map Information Service." Kentucky Geological Survey. University of Kentucky. Web. <http://kgs.uky.edu/kgsmap/kgsgeoserver/viewer.asp>.



LEGEND

-  Topographic Contours
-  Sub-Bottom Survey Profiles
-  Borehole Locations
-  Existing Intake Structures
-  Proposed Intake Structures



NOTES:

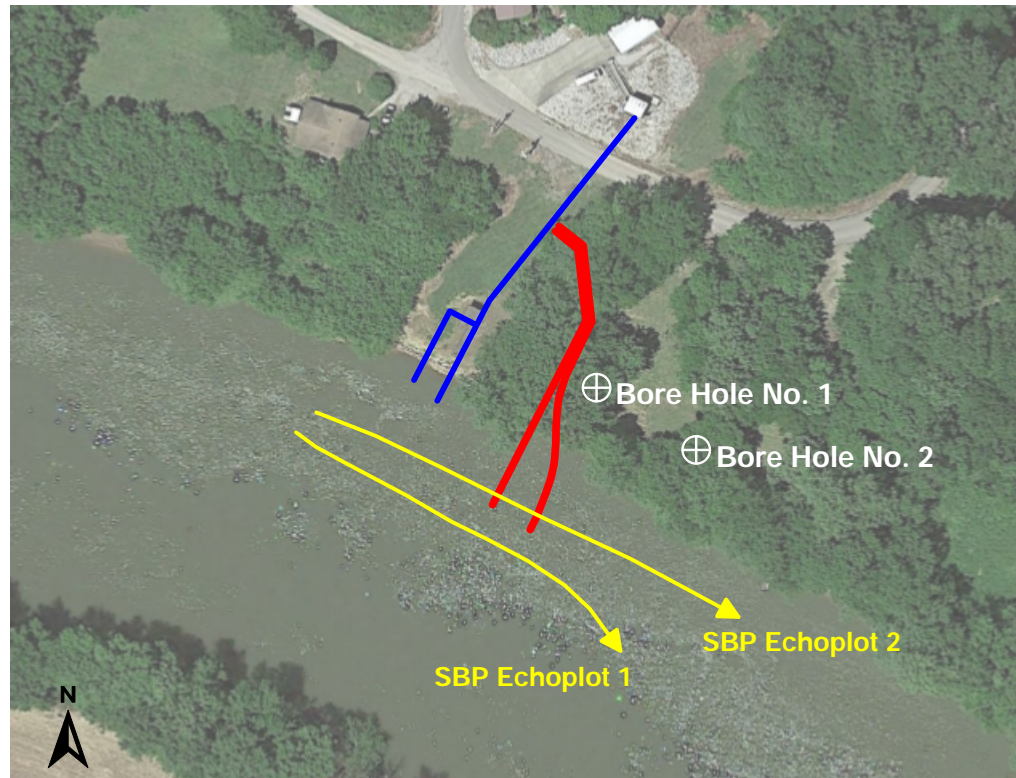
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2. Coordinates are referenced according to UTM, Zone 16N (meters), WGS84 datum.
3. Topographic contours were gridded using LiDAR data from Kentucky's Aerial Photography & Elevation Data Program.
4. Site Features are approximate and were determined based on "2125 OHIO CO_KY_DRAFT_SET - October 2020," provided by Wauford.
5. Ohio County Reference Map provided by "Generalized Geologic Map for Land-Use Planning: Ohio County, Kentucky, 2005" (KGS).

Site Map
 Bedrock Mapping
 Raw Water Intake: Ohio County Water District
 Cromwell, Ohio County, Kentucky 42333
 MUNDELL Project No. M20029

1



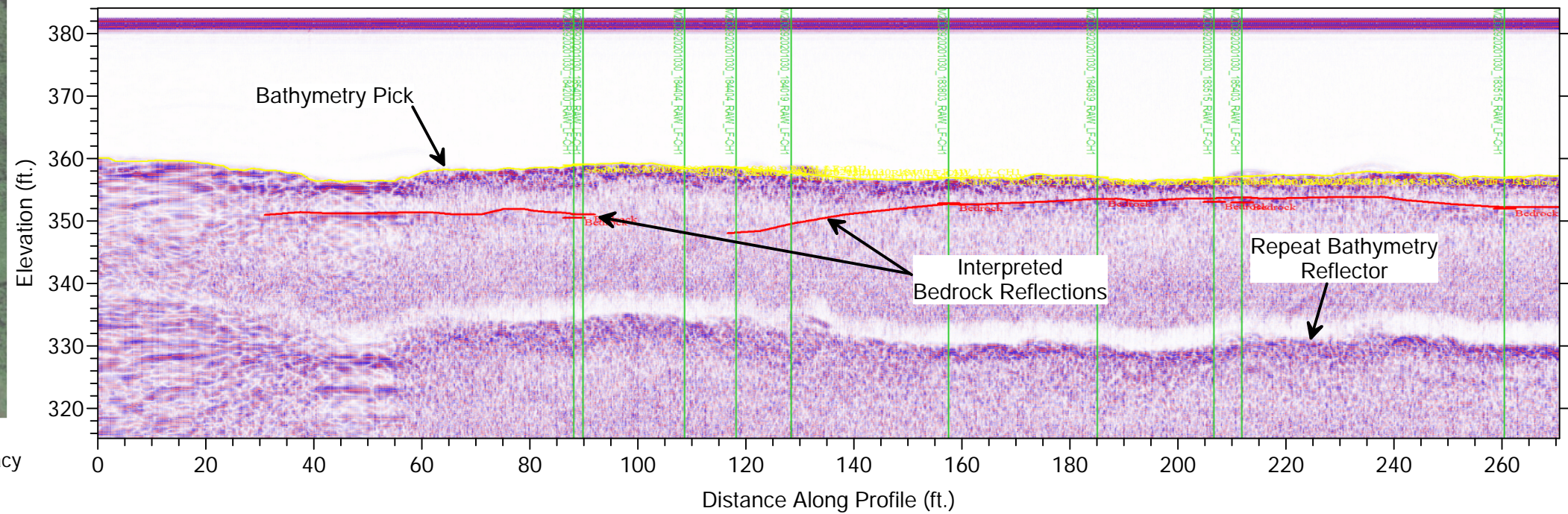
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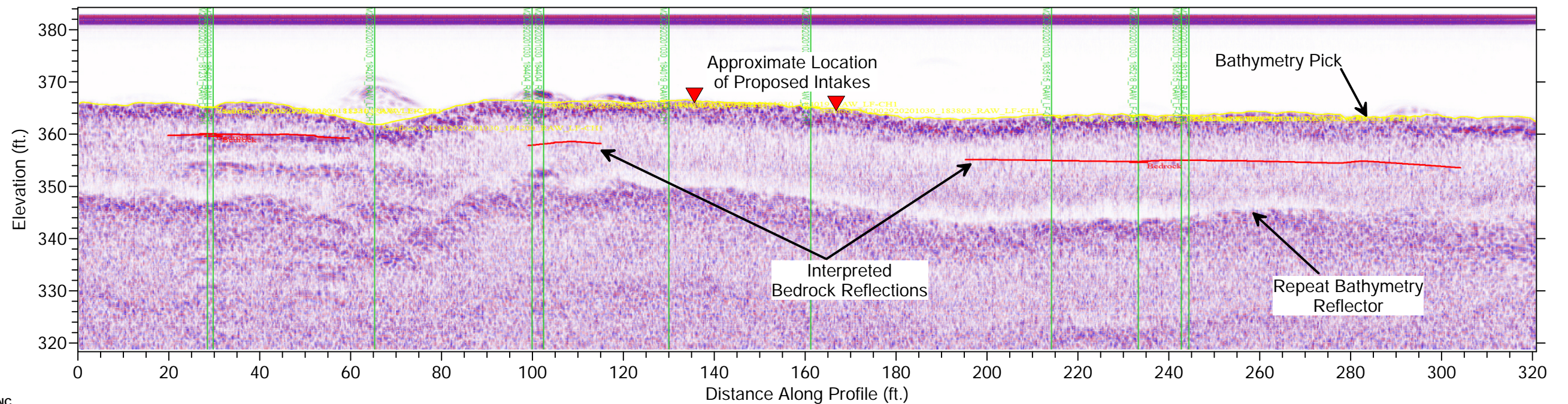
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1. Aerial photo is provided for site reference only. No claim is made as to the accuracy or completeness of this information.
2. Site Features are approximate and were determined based on "2125 OHIO CO_KY_DRAFT_SET - October 2020," provided by Wauford.
3. The Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (\pm 2 ft.).

SBP Echoplot 1



SBP Echoplot 2



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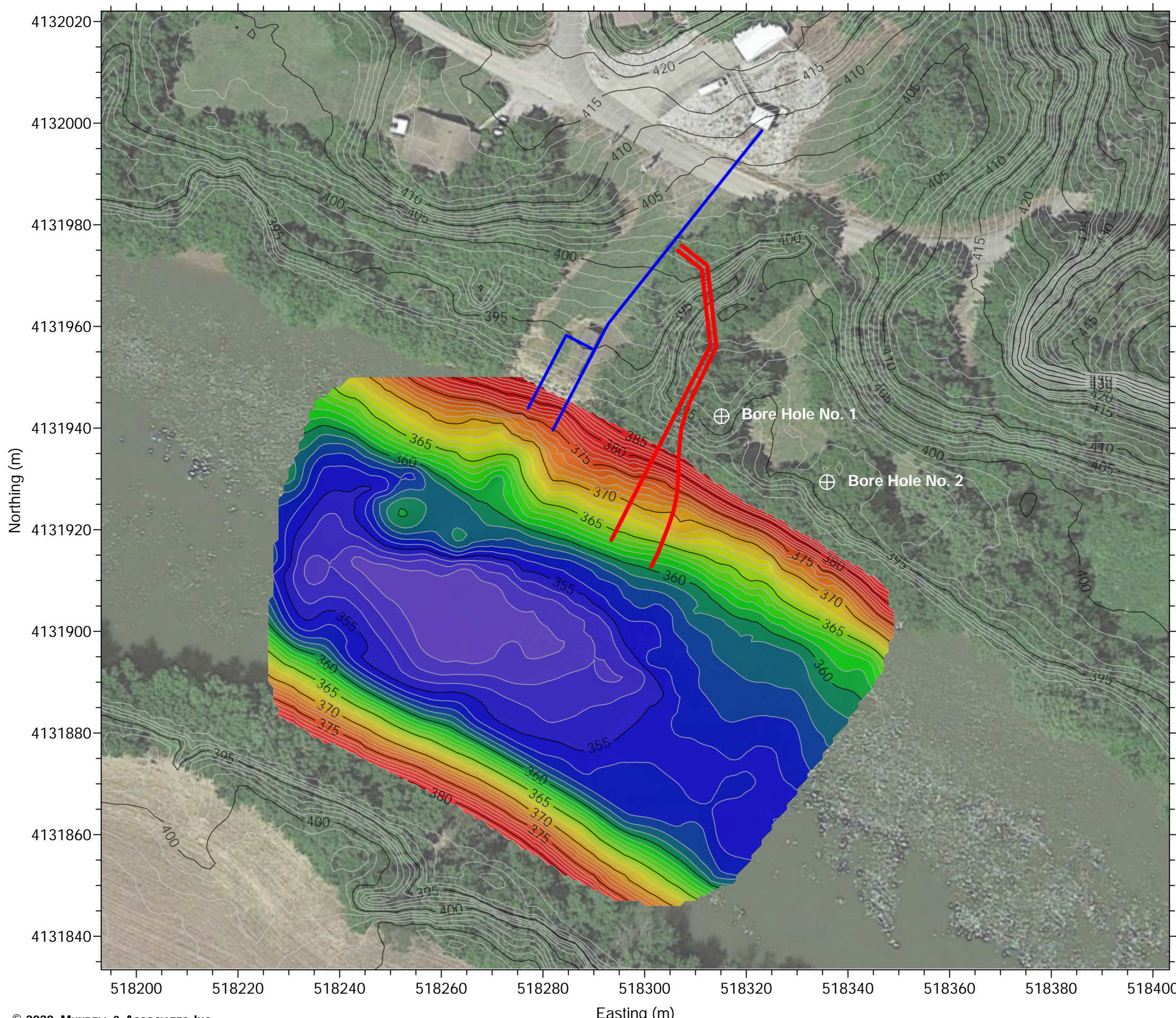
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CHECKED BY: RB	DATE: 11/09/2020
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



Representative SBP Echoplots
Bedrock Mapping
Raw Water Intake: Ohio County Water District
Cromwell, Ohio County, Kentucky 42333
MUNDELL Project No. M20029

FIGURE

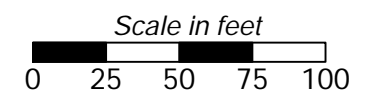
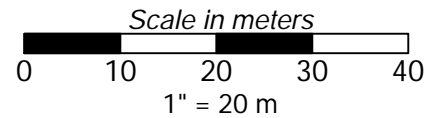
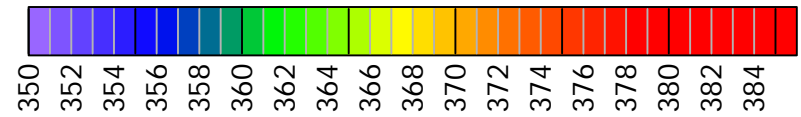
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LEGEND

-  Topographic Contours
-  Bore Hole Locations
-  Existing Intake Structures
-  Proposed Intake Structures

Bathymetry Elevation Contours (ft. AMSL)



NOTES:

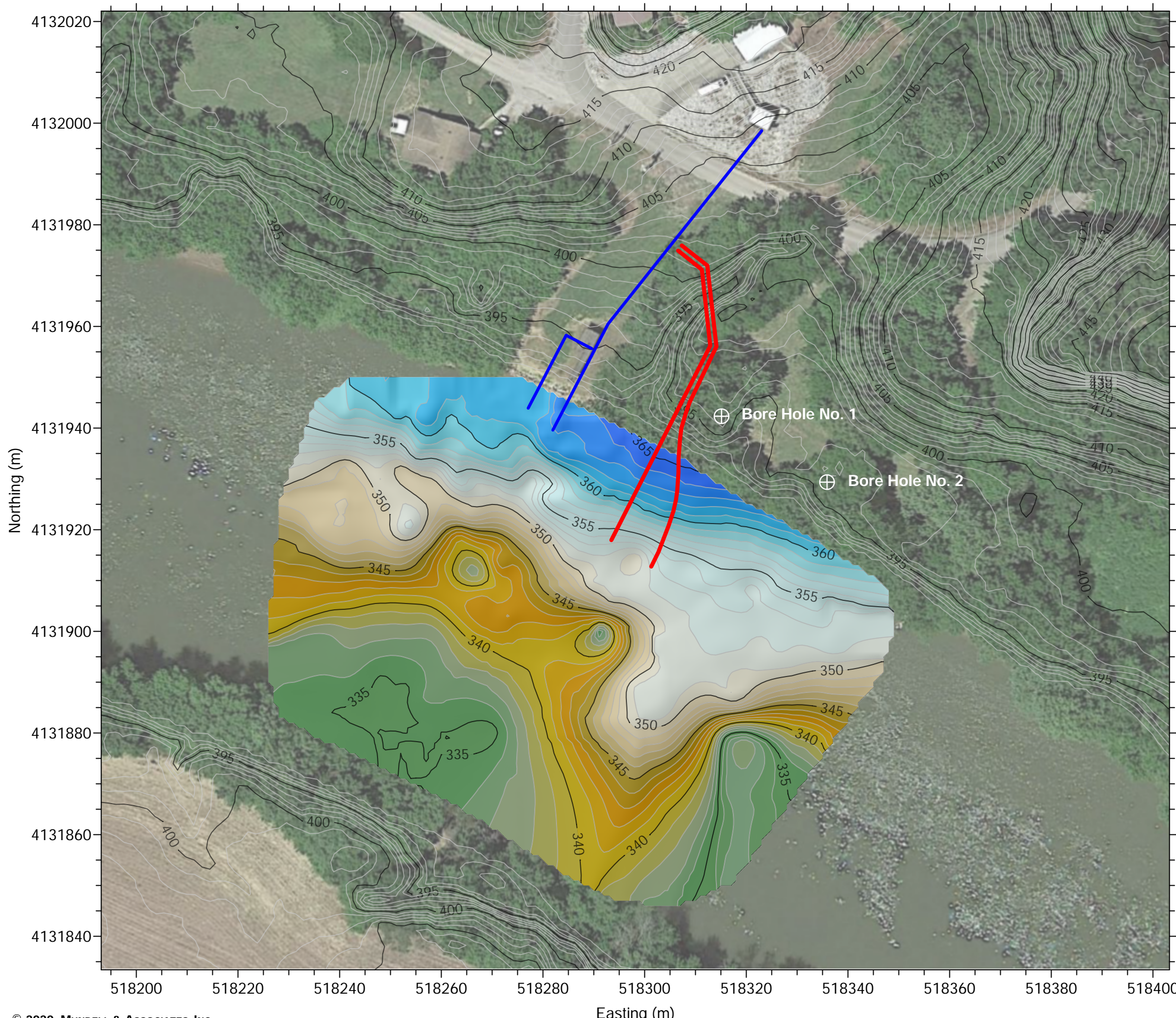
1. Aerial photo is provided for site reference only. No claim is made as to the accuracy or completeness of this information.
2. Coordinates are referenced according to UTM, Zone 16N (meters), WGS84 datum.
3. Topographic contours were gridded using LiDAR data from Kentucky's Aerial Photography & Elevation Data Program.
4. Site Features are approximate and were determined based on "2125 OHIO CO_KY_DRAFT_SET - October 2020," provided by Wauford.
5. The Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (± 2 ft.).

Bathymetry Map

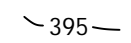



Bedrock Mapping
Raw Water Intake: Ohio County Water District
Cromwell, Ohio County, Kentucky 42333
MUNDELL Project No. M20029



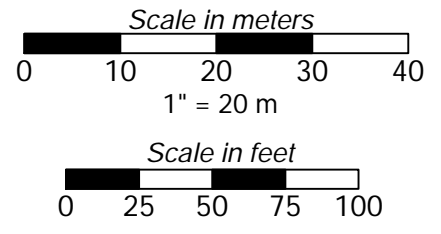
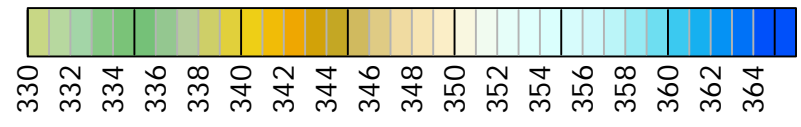
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LEGEND

-  Topographic Contours
-  Borehole Locations
-  Existing Intake Structures
-  Proposed Intake Structures

Bedrock Elevation Contours (ft. AMSL)



NOTES:

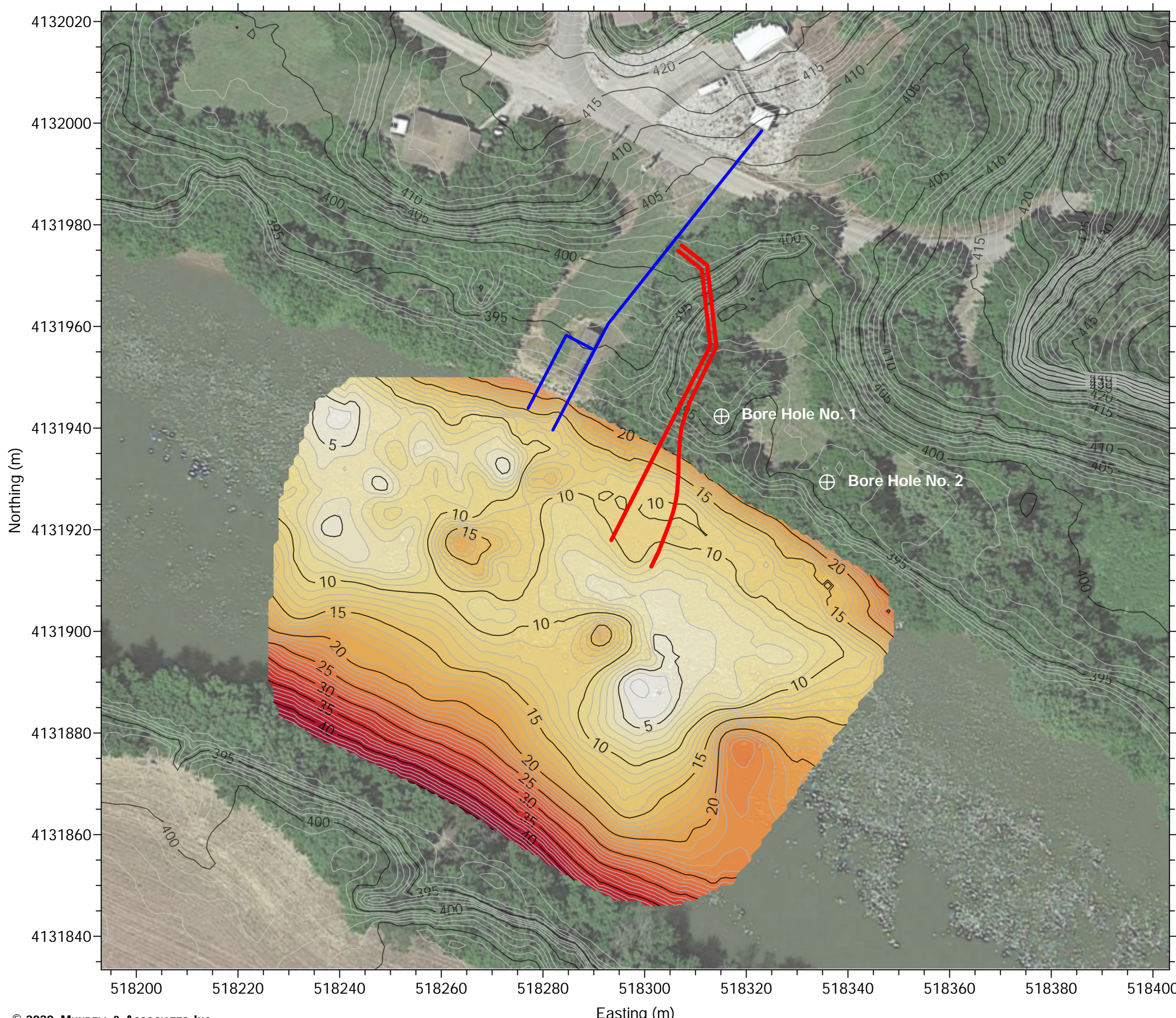
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Bedrock Elevation Map

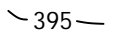



Bedrock Mapping
Raw Water Intake: Ohio County Water District
Cromwell, Ohio County, Kentucky 42333
MUNDELL Project No. M20029



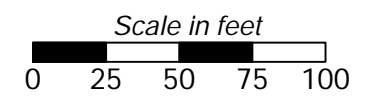
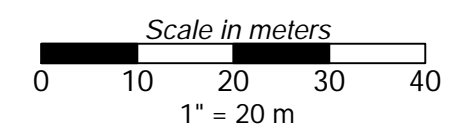
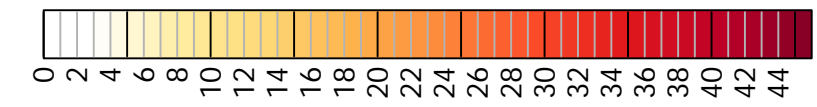
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LEGEND

-  Topographic Contours
-  Bedrock Boring Locations
-  Existing Intake Structures
-  Proposed Intake Structures

Sediment Thickness Contours (ft.)



NOTES:

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3. Topographic contours were gridded using LiDAR data from Kentucky's Aerial Photography & Elevation Data Program.
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5. The Green River elevation at Cromwell, KY during the SBP survey was determined to be approximately 384 ft AMSL (± 2 ft.).

Sediment Thickness Map

Bedrock Mapping
 Raw Water Intake: Ohio County Water District
 Cromwell, Ohio County, Kentucky 42333
 MUNDELL Project No. M20029

5



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**USACE AND KENTUCKY
ENVIRONMENTAL PERMITS
(to be inserted when available)**

SECTION 2

TESTING AND CONTROL OF MATERIALS

1. Scope

This Section together with such additions, deletions, or modifications, if any, as may appear in any other particular Section of these Detailed Specifications shall govern the furnishing and testing of materials to be used in the work.

Materials of construction, particularly those upon which the strength and durability of the structure or the integrity of a pipeline may depend, shall be subject to inspection and testing to establish conformance with specifications and suitability for uses intended.

2. Cost of Tests and Selection of Testing Agencies

All materials and equipment used in the construction of the project shall be subject to adequate review and testing in accordance with accepted standards. The laboratory or inspection agency will be selected by the Contractor subject to the approval of the Engineer and the Owner. THE CONTRACTOR SHALL PAY FOR ALL DULY AUTHORIZED LABORATORY INSPECTION AND/OR TESTING SERVICE.

3. Sources of Supply

The Contractor shall submit a list indicating their proposed sources of supply of all materials including manufactured items and receive the Engineer's approval prior to the placing of orders. The Engineer may require representative samples of any materials prior to approval of the source. The Engineer's approval of the source of any sample shall not be construed to relieve the Contractor of furnishing materials which fully meet all provisions of these Detailed Specifications.

If it is found that sources which have been approved do not furnish uniformly acceptable products, the approval may be withdrawn. The Contractor and his supplier shall afford the Engineer's representative opportunities for inspecting products and materials at any time during their preparation. The Contractor and/or supplier shall furnish shipment thereof, without charge.

These requirements are not intended to stifle or hinder completion but are intended to assure quality and/or performance.

4. Approval of Testing Agencies and Reports

Whenever in these Detailed Specifications review and testing of materials are required, bureaus, laboratories, and/or agencies selected by the Contractor for such inspection and testing service shall be subject to approval by the Engineer.

Documentary evidence, satisfactory to the Engineer, that the material has passed the required inspection and testing must be furnished prior to the incorporation of such materials in the work, and rejected materials must be promptly removed from the premise.

Six (6) copies of all test reports shall be sent to the Engineer's office for checking and distribution.

Test reports shall contain as a minimum (1) the name and location of the supplier's plant, (2) the name of the person gathering the sample, (3) the date of the sampling, and (4) such other like data as may be required by the Engineer.

5. Governing Specifications

It is the intention of the Engineer in the preparation of these General and Detailed Specifications to define properly the kind and quality of materials to be furnished. The standards and tentative standards of the American Society of Testing Materials (ASTM); standards of the American Waterworks Association (AWWA); standards of the American National Standards Institute (ANSI); standards promulgated by the Federal Specification Board (Fed. Spec.); American Association of State Highway and Transportation Officials (AASHTO); the Federal Aviation Agency (FAA); or other such agencies may be referred to in the Detailed Specifications. Where such standards are referred to, said references shall be construed to mean the latest amended and/or revised versions of the said standard or tentative specifications. In the selection of samples and the routine testing of materials, the testing laboratory shall follow the standard procedure as outlined by the ASTM, unless otherwise set out.

6. Extent of Inspection and Testing Service

It is intended that materials of construction, particularly those upon which the strength and durability of structures may depend, shall be inspected and tested to establish conformance with specifications and suitability for uses intended. The following is a schedule showing the extent of testing and requirements and methods of reporting. If it is found that this list does not cover all items that will require testing, then such materials shall be tested as directed by the Engineer.

7. Cement

Cement shall have been shipped from the mill not more than three (3) months prior to receipt on the work. Testing and certification of ASTM C 150 shall apply and shall be supplied by the manufacturer.

8. Fine Aggregate (For Use in Cement Concrete)

Fine aggregate shall consist of natural river sand except that upon request the Engineer may approve manufactured sand. SAND MINED FROM HIGHLAND DEPOSITS WILL NOT BE APPROVED.

Standard tests shall be made in advance of concreting by an approved independent laboratory per ASTM C 33 and ASTM C 40 on each fine aggregate proposed to be used. Other tests being satisfactory, the aggregate may be used pending results of 28-day strength tests.

9. Coarse Aggregate (For Use in Cement Concrete)

Standard tests shall be made in advance of concreting by an approved laboratory on each grading of each coarse aggregate proposed to be used per ASTM C 33.

10. Advance Tests of Concrete Design Mix(es)

Before commencement of concrete placing and after approval of cement and aggregates, an independent laboratory shall make from a single batch for each proposed mix a set of six (6) standard four (4) inch cylinders per ASTM C 31 and test in accordance therewith: Test two (2) cylinders at seven (7) days, two (2) cylinders at fourteen (14) days, and two (2) cylinders at twenty-eight (28) days per ASTM C 39. Two (2) beam flexure tests as per ASTM C 78 shall likewise be made and tested from the design batch if the total requirement exceeds 1,000 cubic yards.

The requirements for tests may be modified at the Engineer's discretion without prejudice to the Engineer later requiring same (if he becomes in doubt about the quality of the concrete) if less than fifty (50) cubic yards are required.

11. Reinforcing Steel

A certificate of origin and affidavit will be required for all reinforcing steel. All reinforcing steel shall be manufactured in the United States unless specifically approved by the Engineer. Reinforcing steel shall be inspected for section, rust, shape and dimension. The manufacturer shall supply test reports depicting inspection results plus heat numbers.

12. Structural Steel

Structural steel shall be evaluated at the mill and shop for each heat number to determine compliance with specification designated in these Detailed Specifications.

13. Steel Bar Joists

The manufacturer shall supply test data proving the efficiency of the design of the proposed joists for the purpose intended and certifies that the joists, as furnished, are in accordance with project requirements and with the Standard Specifications for Steel Joists as given in the current handbook "Steel Joist Construction" published by the Steel Joist Institute or other specifications designated in these Detailed Specifications.

14. Brick

Visual examination for shape, color, soundness, cracks, and other imperfections.

15. Building Stone

Visual examination for shape and color.

16. Concrete Pipe

Visual examination at the site, as practicable, per ASTM or other designated specification together with certified test reports from the supplier.

17. Polyvinyl Chloride (PVC) Pressure Pipe

Examination at the site, as practicable, per AWWA, ASTM or other designated specification plus certified test reports from the supplier as performed by the manufacturer.

The following test results shall be supplied by the manufacturer:

Long-Term Pressure Test (Min.)	1,000 hours at 400 psi
Burst Pressure Short Term (Min.)	630 psi
Impact (Min.)	60 ft/lbs at 72°F. 16 ft/lbs at 0°F.
Acetone	20 minutes no flaking
Crush (Ring Section)	100% crush no cracking
Vacuum Test (Min.)	22 in/HG for 1 hr.

18. Polyvinyl Chloride (PVC) Sewer Pipe

Examination at the site, as practicable, per ASTM or other designated specification plus certified test reports from the supplier. Testing shall be in accordance with the requirements of ASTM D 2412. Minimum "pipe stiffness" (F/Y) at five (5) percent deflection shall be forty-six (46) psi or greater for all pipe sizes. The result of all tests shall be reported to the Engineer.

19. Ductile Iron Pipe and Special Castings

Each piece of pipe shall bear the manufacturer's name or trademark and the date cast. Each piece of pipe should also be certified by the manufacturer to have met the requirements of the governing ASTM or other designated specification. Also, each piece shall be visually inspected in the field for specification conformance.

20. Grey Iron Castings

- a. Field Examination: For dimensions, coating, holes hammer test.
- b. Laboratory Tests: Certified test reports by foundry.

21. Polyethylene Pipe

Examination at the site, as practicable, per ASTM or other designated specification plus certified test reports from the supplier. Testing shall be performed in accordance with the procedure outlined in ASTM D 2513.

SECTION 3

CONCRETE AND REINFORCING STEEL

1. Scope

This Section covers the materials, mixing, transporting, and placing of all concrete and reinforcing steel including all labor, materials, and equipment.

The provisions of Section 2, Paragraph 2. Cost of Tests and Selection of Testing Agencies applies to this Section of these Detailed Specifications.

Where brand names or manufacturers are used in this Section, it is not intended that the use of products of equal quality and function by other manufacturers be prohibited. Concrete admixtures may be as furnished by Master Builders, Grace Construction Materials, SIKA Chemical Corporation, or approved equal. Concrete forms and accessories may be furnished by Universal Form Company, Dayton Sure-Grip and Shore Company, Heckman Building Products, or equal.

2. Reference Codes and Standards

All work covered by this Section of these Detailed Specifications shall be performed in accordance with the applicable portions of the following American Concrete Institute (ACI) and Concrete Reinforcing Steel Institute Standards (CRSI), as modified in this Section.

<u>ACI 224.3R:</u>	“Joints in Concrete Construction”
<u>ACI 301:</u>	“Specifications for Structural Concrete”
<u>ACI 302.1R:</u>	“Guide for Concrete Floor and Slab Construction”
<u>ACI 305R:</u>	“Guide to Hot Weather Concreting”
<u>ACI 306R:</u>	“Guide to Cold Weather Concreting”
<u>ACI 315:</u>	“Manual of Standard Practice for Details and Guide to Presenting Reinforcing Steel Design Details”
<u>ACI 318:</u>	“Building Code Requirements for Structural Concrete”
<u>ACI 347R:</u>	“Guide to Formwork for Concrete”
<u>ACI 350:</u>	“Code Requirements for Environmental Engineering Concrete Structures”
<u>CRSI-MSP:</u>	“Manual of Standard Practice”

The most recent published version (as of the project bid date) of any standard listed in these Detailed Specifications shall apply.

3. Class of Concrete

Concrete shall be two (2) classifications as follows:

CLASS "A" - All concrete shall be Class "A" unless otherwise shown on the Plans. ALL reinforced concrete shall be Class "A". Class "A" concrete shall possess the following characteristics and/or proportions of materials.

Minimum Cement Content: 6.0 bags (564 pounds) per cubic yard.

NO FLY ASH WILL BE ALLOWED

Minimum 28-day compressive strength: 4,000 psi average any three (3) cylinders.

Anticipated 28-day compressive strength: 4,000 psi plus.

Slump: Three and one-half (3½) to six (6) inches in walls and columns and piers. Two and one-half (2½) to five (5) inches in slabs, beams, and footings.

Admixtures: A retardant may be required where slow set is desired; where quick set is desired Portland Cement content of 6.2 bags may be required. Air entraining agents optional and subject to Engineer's approval. Additional special admixtures may be specified in subsequent sections of these Detailed Specifications.

CLASS "C" - Concrete used for anchors, kickers, and encasement for pipe lines, for subfoundations and mass footings, and for fill shall be Class "C". No concrete containing reinforcement shall be Class "C". Class "C" concrete shall possess the following characteristics and/or proportions of materials:

Minimum Cement Content: 5.0 bags (470 pounds) per cubic yard.

Minimum 28 day compressive strength 2,500 psi - average of any three (3) cylinders.

NO FLY ASH WILL BE ALLOWED

Slump: Five (5) to eight (8) inches for encasement. Two (2) to four (4) inches in subfoundations and sealing as per Paragraph 10.d. hereinafter.

Admixtures: None required.

4. Determination of Strength of Concrete

Compressive strength of concrete shall be determined by use of standard four (4) inch diameter by eight (8) inch test cylinders in accordance with ASTM C 39 and C 31.

5. Concrete Design Mixes

An independent commercial testing laboratory, approved by the Engineer, shall prepare a design mix for each Class "A" and Class "C" concrete and submit five (5) copies to the Engineer for general approval of the proportions and materials. The design mix shall be accompanied by the quality tests of the materials which are proposed in accordance with Section 2. Testing and Control of Materials, Paragraphs 5, 8, 9, and 10 of these Detailed Specifications. The sources of supply and the producer of the concrete, if a ready-mix plant, shall be subject to all the requirements of Section 2. Testing and Control of Materials, and particularly to Paragraph 3. Sources of Supply, thereof. After general approval of the materials and proportions the tests required in Paragraph 10. Advance Tests of Concrete Design Mix(es) of Section 2 shall be submitted for approval. No concrete may be placed prior to submission and approval of the design mix and of the test results. The cost of obtaining an approvable concrete mix will be paid for by the Contractor.

6. Materials for Concrete

a. Portland Cement

Portland Cement shall be of American manufacture and shall conform to the "Standard Specifications for Portland Cement" (ASTM C 150), of the American Society for Testing and Materials and shall be Type II with an equivalent alkali ($\text{Na}_2\text{O} + 0.658 \text{K}_2\text{O}$) content of less than 0.60 percent and shall have been shipped from the mill not more than three (3) months prior to incorporating into the work unless specifically waived in writing by the Engineer. For job site mixing all cement shall be in sacks. FLY ASH IS NOT AN ACCEPTABLE SUBSTITUTE FOR PORTLAND CEMENT. PREMIXED BAG CONCRETE IS NOT AN ACCEPTABLE SUBSTITUTE FOR PORTLAND CEMENT.

b. Water

Water used in concrete shall be clear and free from objectionable substances such as oil, acid, alkali, vegetable matter, clay, or silt. Water of doubtful quality shall be tested in briquettes which shall reach a strength

equal to that of similar briquettes made with water of known satisfactory quality.

c. Admixtures

An air entraining admixture equal to Master Builders AE200, Darex A.E.A. or Aermix, meeting the requirements of ASTM C 260 for Air Entraining Admixtures may be used but is not required. Use of such admixtures is subject to the approval of the Engineer.

The amount of air-entraining admixture to be used will be determined by the percent of air entrained in the concrete. The limits of air will be five (5) percent plus or minus one (1) percent.

The concrete when an approved air entraining agent is used shall have a reduction in weight of not more than three (3) to six (6) pounds per cubic foot as compared with concrete of the same consistency and cement content made without the use of the agent. The specified cement factor shall be maintained by adjusting the quantity of aggregate and water used to the satisfaction of the Engineer. Reduction in the twenty-eight (28) day strength as specified will not be permitted. The use of any other admixture will not be permitted without the written consent of the Engineer as to the admixture to be used and its proportion in the mix.

d. Fine Aggregate

Sand for concrete shall consist of clean, hard, durable uncoated particles, free from lumps of clay, soft or flaky material, loam, and organic matter. In no case shall fine aggregate containing lumps of frozen material be used. Fine aggregate containing appreciable quantities of mica, shale, slate, or other soft grains shall not be used. It shall not contain more than two (2) percent by weight of material which may be removed by the elutriation test. Sands which do not pass the standard colorimetric tests shall not be used unless it can be shown that the failure to pass is caused by particles of lignite or coal. Fine aggregate shall conform to ASTM C 33 with gradation as follows:

<u>Screen</u>	<u>Percent Passing</u>
No. 4	95 -100
No. 16	45 - 95
No. 50	10 - 30
No. 100	2 - 10

ONLY NATURAL RIVER SAND OR SPECIALLY APPROVED MANUFACTURED SAND SHALL BE USED.

e. Coarse Aggregate

Unless otherwise specified, coarse aggregate may be either crushed limestone, or crushed gravel. Coarse aggregate shall show no evidence of disintegration, and the weighted percentage of loss shall be not more than ten (10) percent by weight when subjected to five (5) alternations of the sodium sulphate test for soundness. It shall be composed of clean, hard, durable, uncoated particles free from deleterious matter. Except for gradation, coarse aggregate shall conform to the requirements of ASTM C 33. The coarse aggregate shall meet the following grading requirements.

Passing 1 1/2" square laboratory sieve	-	100%
Passing 1" square laboratory sieve	-	90 -100%
Passing 3/4" square laboratory sieve	-	50 - 75%
Passing 3/8" square laboratory sieve	-	10 - 25%
Passing No. 4 square laboratory sieve	-	0 - 5%

7. Proportioning of Materials for Concrete

During formulation of the design mix the proportions of aggregate to cement for the grade of concrete specified shall be such as to produce concrete of proper workability. The proportion by dry weight of fine to combined aggregates shall be controlled between limits of thirty (30) to forty-five (45) percent as directed by the Engineer, but the mix shall be so controlled as to use the minimum fine and the maximum coarse aggregate which will give a satisfactory and workable mix.

Measurement of cement, fine and coarse aggregate for all classes of concrete shall be by direct weight upon an approved type of scales. Water shall be accurately measured in gallons by equipment accurate to plus or minus five (5) percent.

The weight of cement in unopened sacks as packed by the manufacturer will be considered to be ninety-four (94) pounds per sack. The method of measuring the water shall be accurate and readily adjustable so that the proper ratio of water and cement in each batch may be secured. It is the intention of the Engineer to control rigidly the quantity of water in each mix and to get the densest possible concrete. The Engineer may require calibration of weighing equipment. Equipment for measuring water shall be checked and adjusted daily.

8. Source of Supply of Concrete

a. General

Concrete to be placed in the work may be proportioned and mixed by the Contractor on the site of the work or may be proportioned and mixed in a

"Ready-Mix" central plant. Either plant shall be subject to the Engineer's approval of equipment and adequacy prior to the commencement of concrete placement operations. Such approval may be withdrawn by the Engineer if the concrete becomes non-uniform or for other reasons. In the case of such withdrawal of approval the Contractor shall either cause corrections necessary to obtain another approved source.

b. Mixing on Job Site

When small quantities of concrete are required at remote sites or the travel time from a ready-mix plant is deemed excessive or an approvable ready-mix plant is unavailable, the Engineer may approve job site mixing. The Engineer will require what is deemed adequate mixing and quality control equipment.

c. Mixing at a Central Plant

The name and location of the proposed plant and its sources of materials shall be submitted to the Engineer for approval. The Engineer may inspect the plant facilities and proposed mixer trucks and make a determination as to whether they are adequate to meet the quality control required. The Engineer's determination in this case will be FINAL and BINDING. The concrete shall be mixed and handled in accordance with the requirements of ASTM C 94 except as otherwise specified herein. During the period of placing concrete the Engineer shall be afforded free access to the plant for such examinations as the Engineer deem necessary including the stationing of a separate resident project representative at the plant during batching operations if deemed desirable.

(1) Loading Tickets

Loading tickets shall be initialed by the "weight man" stating (1) the Class of concrete, (2) the name of the project, (3) the time of the batching, and (4) the batch weights of each material including water. When the mixer truck arrives on the job site a copy of the ticket shall be given to the resident project representative BEFORE the concrete is placed. Any additional materials added shall be noted.

(2) Transporting

Concrete shall be transported only in approved mixer trucks which will mix the concrete enroute. In extreme hot weather, when approved by the Engineer, the required amount of water may be added upon arrival of the truck at the job site in order to avoid pre-set of the mix enroute. Such approval requires close cooperation

of all concerned and will be given only if equipment to accurately measure the water is available and only if strength and slump tests are found to be uniform; approval may be withdrawn for any reason including lack of cooperation. Concrete which reaches the job in a pre-set condition or fails to meet slump requirements will be rejected and shall be removed from the job site. No retempering with water or any other admixture will be allowed except in special emergencies and under the conditions set in Paragraph 9. Alteration of Concrete Slump (Retempering).

9. Alteration of Concrete Slump (Retempering)

ANY ALTERATION OF CONCRETE IS TOTALLY THE CONTRACTOR'S RESPONSIBILITY.

The concrete shall be mixed only in such quantities as required for immediate use, and shall be used while fresh and before initial set has taken place. The addition of water or some other plasticizer (sometimes called retempering) to a ready-mix truck at the job-site or such addition at any place more than ten (10) minutes after the original water charge has been added and mixing commenced is strictly prohibited except as provided herein. Any concrete which arrives on the job in which initial set has begun shall be wasted and not used in the work.

At the request of the Contractor, the Resident Observer may permit water and Portland cement to be added at the rate of twelve (12) gallons of water per sack of cement. If Portland Cement is not available without too great a time delay the Contractor may add up to one (1) gallon of water per cubic yard at his own risk.

If concrete arrives on the job too wet the slump may be altered by adding Portland cement and thoroughly mixing.

Any concrete which is altered shall have double the specified number of cylinders taken after said alteration and no work shall be added onto the pour in question until the quality is assured.

10. Placing of Concrete

a. General

All concrete shall be placed in daylight or daylight conditions approved by the Engineer and ONLY AFTER the Engineer's representative has been notified and has inspected and approved the placement of reinforcing steel and the general condition of form work.

All water and accumulated debris shall be removed from forms and observation holes shall be left in wall forms near the bottom for such

purpose. For footings and on-grade slabs water shall be diverted or otherwise removed. For walls, beams, columns, and supported slabs the forms shall be wetted with water so as to tighten joints. Runways, where used, shall be independently supported so as to prevent disturbance of the forms.

CONCRETE WITHIN ANY UNIT OF WORK BETWEEN CONSTRUCTION JOINTS SHALL BE PLACED CONTINUOUSLY TO PREVENT "COLD JOINTS". New concrete shall be placed AGAINST each succeeding batch so as to build up a continuous monolithic "pour".

b. Cold Weather Placing of Concrete

No concrete shall be placed when the air temperature in a shaded area away from artificial heat is 40°F and falling. Concrete may be mixed and placed under the conditions set forth herein if the air temperature in the shade is 35°F and rising provided the Contractor makes provisions for heating to maintain 45°F and there is a U. S. Weather Bureau forecast for 45°F or above. When the air in the shade falls below 50°F the mixing water shall be heated (Maximum 140°F) so that the temperature of the concrete when deposited is between 60°F and 75°F. Several thermometers shall be maintained by the Contractor at the site of the work and placed as directed by the Engineer.

The Contractor shall supply such heating equipment as vented stoves and/or salamanders as are necessary to keep the temperature of the air surrounding the concrete from falling below 45°F until test specimens indicate the concrete has attained a compressive strength of 2,500 psi or greater or for a period of five (5) days. The Engineer may require additional heating units to be placed in operation if in the Engineer's opinion the concrete might be endangered by an additional drop in air temperature. When the required heating period has expired the concrete shall not be allowed to cool at a rate faster than 1°F per hour.

c. Hot Weather Placing of Concrete

When the temperature of the air exceeds 90°F or the average temperature for the period of placement exceeds 85°F or is predicted by a U.S. Weather Bureau forecast to exceed said limits special precautions are required. The temperature of the concrete shall not be allowed to exceed 90°F. Ice shall be substituted for mixing water prior to the addition of the other materials to mixer in order to maintain temperature. The ice shall be accurately weighed (8.34 pounds = 1 gallon) prior to its being placed in the mixer and the remaining mixing water reduced correspondingly. The temperature shall not be reduced below 65°F.

The maximum time allowed in the mixer by ASTM C 94 (either three hundred [300] revolutions or one and one-half [1½] hours whichever occurs first) shall be considered the acceptable maximum at air temperatures between +45°F and +70°F. The following maximum allowables shall apply at various temperatures:

<u>Average Air Temperature</u>	<u>Maximum Time or Revolutions</u>
45°F - 70°F	1½ hours or 300
70°F - 80°F	1 hour or 200
80°F - 90°F	45 min. or 150
90°F - 100°F	30 min. or 100
100°F	No placing allowed

Extreme care shall prevail in the pouring of thin slabs and other thin sections. All forms, reinforcing steel, and/or subgrades shall be wet with cool water as shall all mixers, chutes, *etc.* immediately prior to concrete placement. No puddles of water shall be present at the time of placement.

d. Placing Concrete in Foundations

Whenever possible all foundation excavations shall be pumped dry and concrete deposited in the open. If it is not possible to proceed in this manner, a seal of concrete of sufficient thickness to resist any possible uplift shall be deposited under water in accordance with special directions of the Engineer. After the seal has set sufficiently, the foundation shall be pumped out; and the balance of the concrete placed in the dry.

e. Placing Concrete in Forms

Concrete shall be conveyed as soon as possible after mixing to the place in which it is to be deposited. The method and manner of placing shall be such as to avoid the possibility of segregation or separation of the aggregates or the displacement of the reinforcement. The concrete shall be deposited so as to bring the construction up level and during the process, it shall be vibrated, rammed, spaded, or agitated by satisfactory tools so as to produce a compact concrete of maximum density with all spaces or voids filled and presenting a smooth, unbroken surface, free from coarse aggregate to exposed honeycomb spaces when the forms are removed.

f. Pumping or Chuting Concrete

If concrete is conveyed by pumps or chutes, the equipment shall be of such size and design as to insure a practically continuous flow. The slope of the chute or the design of the conveyance tubes shall be such as to

allow concrete of a satisfactorily dry consistency to flow without separation of the ingredients. The chute or tube shall be thoroughly flushed with water before and after each run, discharging outside of the forms. Should stoppage occur in the chute or tube during concreting and the use of water be required to clean it, the water and all material removed from the chute or tube shall be wasted outside the forms. If, in the opinion of the Engineer, the arrangements for placement are such as to preclude the securing of watertight, smooth, dense concrete in any portion of the work, other and satisfactory means of transporting concrete shall be employed by the Contractor.

g. Vibrating Concrete

All concrete shall be vibrated in the forms as it is placed with mechanical internal vibrators maintaining 5,000 impulses per minute and approved by the Engineer. At least one (1) extra vibrator in operating condition shall be maintained at the job site in case of emergency.

11. Curing of Concrete

a. General

All concrete shall be protected from too rapid drying or curing by the covering of surfaces with burlap, curing compound as per ASTM C 309, Type 1, or other suitable means immediately after finishing, concrete shall be kept moist for a sufficient period of time to insure satisfactory curing as directed by the Engineer, normally three (3) consecutive days.

b. Cold Weather Curing

If concrete is placed in cold weather the Contractor shall provide the necessary heat to insure that the temperature of the air immediately surrounding the fresh concrete does not drop below 45°F at any time, at any place, and that the concrete is uniformly kept warm until the concrete has obtained a compressive strength of 2,500 psi or greater for at least five (5) days. The variations in temperature shall not exceed 10°F and no hot air shall be allowed to blow directly upon the fresh or curing concrete. The surfaces shall be protected from frost by covering with suitable blankets at any time the temperature is forecast to drop below 50°F.

c. Hot Weather Curing

During the curing of concrete in hot weather all surfaces shall be kept covered with burlap sacks or polyethylene and kept moist for a period of five (5) days after placing, after which the protective covering shall be allowed to gradually dry out.

The most extreme care shall be exercised to maintain a moist surface on slabs during the first twenty-four (24) hours after placement, and the Engineer, during periods of low humidity compounded by surface winds, may require continual wetting of the surface for a period of twenty-four (24) hours. After the first twenty-four (24) hours the surface shall be wet down when work is begun in the mornings and also at intervals during the day if required by the Engineer and left wet in the evenings.

12. Joints in Concrete

a. General

The placement of concrete shall be as shown on the Plans and/or approved "concrete placing plans" between construction joints. In general a unit shall not exceed thirty (30) feet in each direction nor more than nine hundred (900) square feet although the Engineer may approved larger pours when same are submitted in five (5) copies under the same procedure outlined for shop drawings and are to be considered as a shop drawing.

Vertical construction joints shall be provided at intervals of thirty feet (30') or less from corners and between construction joints on walls enclosing water holding basins above grade and dry spaces below grade. Horizontal construction joints shall be provided at intervals of thirty feet (30') or less in walls enclosing dry spaces below grade. Structural slabs on grade reinforced with deformed bars may be placed in pours of any dimension desired between construction joints.

Where a construction joint is made, laitance, all weak concrete, and foreign matter shall be removed and the concrete roughened.

On all joints except "expansion joints" the reinforcing shall be set to extend into subsequent sections of construction so as to make the work a monolith. JOINTS SHALL NOT BE MADE EXCEPT AS THE ENGINEER MAY INDICATE, APPROVE, OR DIRECT TO PRESERVE THE STRENGTH, FACILITY OF PLACEMENT, OR WATERTIGHTNESS OF THE STRUCTURES. In general, the locations of the joints are shown on the Plans; but these may be changed if the Contractor requests and the Engineer approves. A period of at least forty-eight (48) hours shall elapse between the placement of adjacent concrete units or pours.

b. Watertight Expansion Joints

An expansion joint is defined as a joint specially constructed to allow movement as shown on the Plans. Expansion joints shall be constructed in accordance with the details shown on the Plans utilizing PVC waterstop,

asphalt expansion joint filler, and SIKAFLEX 2c NS sealant or equal, and shall be watertight in water holding structures or dry wells. The expansion joint filler shall be the asphalt type conforming to the requirements of ASTM D 994, W. R. Meadows, Inc. or equal. The exterior sealant shall be a two (2) part polysulfide rubber joint sealant conforming to the requirements of ASTM C 920 for Class 25 sealants. The filler shall be applied so as to prevent "tracking" if accidentally stepped on.

c. Joints in Footings and Walls

Construction joints in footings and walls shall be located across areas of low shearing stress and shall be provided with keyways. Keyway details shall be as shown on the Plans or in special cases as directed. Waterstops shall be provided where shown on the Plans.

Expansion joints shall be located where shown on the Plans using the details of construction shown on the Plans.

d. Joints in Slabs and Beams

Construction joints shall be located near the middle of spans of slabs, beams, or girders; unless a beam intersects a girder at this point, in which case the joints in the girders shall be off-set a distance equal to twice the width of the beam. In this case, provision shall be made for shear by use of inclined reinforcement. Keyways shall be provided as shown on the Plans.

Expansion joints shall be located where shown on the Plans using the details of construction shown on the Plans.

e. Waterstops and Watertightness

Dry wells and structures housing equipment shall be watertight with no visible leaks and no accumulation of water. Any visible leaks shall be repaired to the satisfaction of the Engineer. Waterstops shall be polyvinyl chloride (PVC) and shall be of the configuration/type shown on the Plans. Keyways with eight (8) inch wide PVC waterstops for construction joints shall be used where such joints are shown. All PVC waterstops shall be installed as per the manufacturer's recommendations and shall be welded watertight.

Certain waterstops may be shown on the Plans or other material for special reasons.

f. Mastic Joints

Where joint sealer or mastic joint is noted on the Plans, the joints shall be sealed with the material designated on the Plans. All materials shall be installed in strict accordance with the manufacturer's instructions, and under the supervision of a qualified representative of the manufacturer. All surfaces and slots in concrete shall be provided as required by the manufacturer of the joint material.

g. Control Joints in Non-Reinforced, Non-Structural Slabs on Grade

Control joints in slabs on-grade which are reinforced with welded wire fabric only shall be saw cut and shall be a minimum of one-eighth inch (1/8") wide by one-fourth (1/4) the section in depth. Sawing of control joints shall be completed between twelve (12) and twenty-four (24) hours after finishing of the concrete surfaces. Timing of saw cutting shall be such that the slabs have sufficiently cured where no dislodging of aggregate occurs during the sawing operations.

The spacing of control joints and/or construction joints in slabs on grade shall generally not exceed fifteen feet (15').

Control joints in sidewalks shall be formed by tooling a groove downward from the surface with a one-fourth inch (1/4") edging tool. Spacing of control joints shall be equal to width of sidewalk.

h. Isolation Joints

Isolation joints to separate slabs from column footings, intersecting walls, etc. shall be provided where shown on the Plans. Isolation joint material shall be one-half inch (1/2") thick by the full depth of the slab, unless otherwise noted on the Plans, and shall meet the requirements of ASTM D 1994 for bituminous type performed joint filler.

Isolation joints, where shown on the Plans, separating concrete sidewalks from structures, concrete curbs, etc. shall be one-half inch (1/2") thick by the full depth of the sidewalk.

i. Joint Sealant

Where joint sealant is noted on the Plans and the joint sealant material is not designated, the joint sealant shall conform to the requirements of ASTM C 1516 for cold application type concrete joint sealer.

13. Non-Shrink Grout

Non-shrink grout shall be used where called for on the Plans or required to insure watertightness. The proportions of the non-shrink grout mix shall be:

15 pounds Embecco or equal
100 pounds Portland Cement
100 pounds sand
150 pounds pea gravel (may be omitted)

14. Forms for Concrete Work

a. General

If required by the Engineer, forming plans shall be submitted by the Contractor and approved by the Engineer before the forms are on the work. The Contractor may submit a plan or schedule for forming for the Engineer's consideration. The Engineer's approval of the Contractor's method of forming will be for the benefit of the Contractor and will be based on the acceptability of the finished work; in no case will the Engineer pass on or be responsible for the structural adequacy of the Contractor's forms, false-work, or other construction procedures.

Forms shall be substantial and sufficiently tight to prevent leakage of mortar. They shall be properly placed or tied together so as to maintain position and shape and insure safety to workmen and passersby. Temporary openings shall be provided where necessary to facilitate cleaning and observation immediately before depositing concrete. CONCRETE SHALL NOT BE PLACED IN ANY FORM UNTIL THE FORM AND THE RESTEEL IS OBSERVED BY THE ENGINEER. Such Engineer comment or approval does not apply to the structural integrity of the framework which is the total responsibility of the Contractor. The Contractor shall be completely responsible for the strength and adequacy of the form work and shall save the Owner and/or Engineer harmless from any claims arising therefrom for any reason.

b. False Work

All false work shall be solely the Contractor's responsibility as to strength, line, and grade, etc.; but the Engineer may disapprove work which is unworkmanlike, or in the opinion of the Engineer, will not yield the finished product required.

c. Material for Forms

The forms for the outside face of all exposed surfaces shall be of not less than one and one-half (1½) inch tongue and grooved lumber dressed on both edges and on the face next to the concrete or three-fourths (¾) inch plywood panels unless otherwise shown on the Plans or specifically permitted by the Engineer. Forms for all other concrete work may be constructed with one (1) inch by six (6) inch tongue and grooved sheathing or one (1) inch ship-lap. Where shown on the drawings or required in these Detailed Specifications, or by the Engineer, forms for all exposed walls (both inside and outside) shall be constructed of three-fourths (¾) inch plywood which, in all cases, must be approved by the Engineer.

Moldings and the ornamentation shown on the Plans shall be formed with wood or metal molds. The width of all boards used for such work shall be approved by the Engineer.

d. Unlined Forms

Unlined forms may be used on unexposed surfaces of walls, slabs, columns, and beams unless otherwise specified herein or as shown on the Plans. Form boards shall not be re-used in contact with exposed surfaces unless they are thoroughly cleaned and oiled and approved by the Engineer.

e. Lined Forms

Where specified herein or where shown on the Plans, plywood panel or lined forms will be used for certain portions of concrete masonry structures. Where lined forms are used, the lining shall be of fiber board or plywood which must, in all cases, be approved by the Engineer. All lining materials shall be used in as wide pieces as a single width of fiber board. The lining material shall be nailed to the backing beginning at the center of the board and working toward the edges to prevent buckling. Cigar box nails or similar nails with flat heads shall be used to attach lining material to forms. The edges of the linings shall be butted tight together, and joints between the sheets shall be filled with a compound of litharge or Rutland Patching Plaster, or approved equal. Lining material may be re-used if it is satisfactorily cleaned and approved by the Engineer.

The smooth side of the lining materials shall be placed next to the concrete surface where smooth surfaces are specified; where granular surfaces are indicated or specified, the rough surfaces of the lining materials shall be placed next to the concrete.

f. Steel Forms

The use of steel forms may be used when approved in writing by the Engineer. Ties used with steel forms shall be of the type designed to remain permanently in place and conform to the requirements for form ties hereinafter. Steel forms, if used, shall be placed under the direction of a trained and competent representative of the supplier and the Contractor shall be totally responsible for their structural integrity.

g. Form Ties

Approved form ties shall be used for all wall construction. The ties shall be of the type that snap back in the wall, or permit removal of the tie ends. Ties shall be adjustable to permit tightening of forms, and of such type that will require a minimum amount of pointing with no metal closer than one-half (1/2) inch from face of wall. No ties will be permitted that require more than one and one-half (1½) inch for pointing. REMOVAL OR PULL-OUT TYPE TIES WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. Form ties with three-fourths (3/4) inch wood concrete snap ties shall be as manufactured by the Universal Form Company of Chicago, Illinois, or approved equal.

h. Form Release Agents

All forms that are not restricted by the form manufacturer from application of a form release agent shall receive a volatile organic compound (VOC) compliant, non-staining, reactive, architectural application form release agent. The form release agent shall be applied in accordance with the manufacturer's instructions. Form release agents shall be Duogard as manufactured by W. R. Meadows or equal.

i. Removal of Forms

Forms shall not be removed until the concrete has attained a strength sufficient to support itself and the superimposed loads. Under normal curing conditions (average temperature 50°F or above) the forms may be removed after following minimum time has elapsed.

Floor slabs, beams, and girders	- 10 days
Columns, pedestals, and sections less than 12 inches thick	- 4 days
Wall lifts (12 inches thick) under 10 feet	- 2 days (48 hrs. min.)
Wall lifts (12 inches thick) over 10 feet	- 3 days (72 hrs. min.)

In cold weather forms shall not be removed from any work when the danger exists of freezing the concrete or otherwise damaging the surface. Whenever a question exists as to removal of forms, the forms shall not be removed until a standard cylinder cured on the site in a manner similar to the work represented has attained a compressive strength of 3,000 psi.

The use of the foregoing table shall in no way relieve the Contractor of its responsibility for the safety and integrity of the structure.

15. Floor Drains, Sleeves, and Inserts

The Contractor shall be responsible for placing all sleeves, floor drains (which shall be placed one (1) inch low and the floor sloped thereto), wall castings, step nosing, and other inserts in the concrete walls and floors in their proper positions. If for any reason said sleeves, wall castings, and/or other inserts are not delivered prior to pouring, the Contractor shall box out for same in a manner acceptable to the Engineer. It shall then become the responsibility of the Contractor to place same and make a watertight closure of the openings in a manner satisfactory to the Engineer.

16. Slabs on Grade

a. Subgrade Preparation

Subgrade shall be prepared and constructed in accordance with "Guide for Concrete Floor and Slab Construction", ACI 302.1R and as hereinafter stipulated.

The subgrade shall be compacted in the presence of the Engineer immediately prior to the fine grading operation. All soft or unstable material detected during the final compacting shall be cut out and the area reworked to provide the specified density.

After final compacting, a six inch (6") crushed stone base shall be constructed as required to obtain the specified slab thickness within a tolerance of plus or minus one-fourth inch (1/4"). All ruts and depressions shall be filled to eliminate any abrupt changes in slab thickness.

A SIX (6) MIL POLYETHYLENE VAPOR BARRIER MEETING THE REQUIREMENTS OF ASTM D 2103 SHALL BE PLACED OVER THE PREPARED CRUSHED STONE BASE PRIOR TO PLACING CONCRETE FOR THE SLAB.

b. Slab Placement

Materials and construction requirements relating to slabs on grade shall be in accordance with provisions outlined in this Section of the Specifications, in accordance with the "Guide for Concrete Floor and Slab Construction", ACI 302.1R and as hereinafter stipulated.

Slabs on grade which are not shown to pitch to drain shall be constructed to a uniform plane at the elevation shown on the Plans. Tolerance of dead-level slabs shall be plus or minus one-fourth inch ($\pm 1/4"$) in ten feet (10') (F_F22 and F_L22). Slabs at floor drains shall be finished with a four foot (4') diameter dish with center of dish one inch (1") below floor level.

Reinforcing steel shall be cut at isolation joints and expansion joints. Wire mesh reinforcement and bar reinforcement shall be placed as shown on the Plans.

Slabs shall be constructed in a strip pattern. The width of each strip shall coincide with the distance between column lines. Construction joints shall occur at the column lines in buildings.

Concrete shall be discharged as close to its final position as possible. Concrete shall be screeded with hollow metal straightedges, vibrating screeds or roller screeds. After initial screeding, low spots shall be filled with additional concrete placed by shovel and these areas shall be rescreeded. Screeding must be completed before any excess water or bleeding water is present on the surface of the concrete.

Immediately after screeding and before any excess moisture or bleeding water is present on the surface of the concrete, surfaces shall be bull floated with wood floats to eliminate ridges and fill in voids left by straight-edging operations.

Concrete shall be floated after it has stiffened to the point where foot pressure can be sustained with a maximum of one-fourth inch (1/4") indentation. Floating shall be performed, utilizing power floats or trowelling machines fitted with float shoes. Surfaces inaccessible to power driven machines shall be hand floated, utilizing wood, magnesium or aluminum hand floats.

c. Curing

(1) Interior Floor Slabs

Interior floor slabs shall be cured with a membrane curing compound designed to cure, seal, harden, and dustproof. This

compound shall be applied within one-half ($\frac{1}{2}$) hour after completion of finishing operations and/or immediately after disappearance of the "sheen" of surface moisture. Slab surfaces shall be uniformly coated at the rate recommended by the manufacturer. Application of material shall be by means of a roller or spray gun. If the floor slab is constructed prior to completion of the building envelope, floor surfaces shall be covered with curing sheets meeting the requirements of ASTM C 171. Sheets shall be securely anchored and maintained in place for a minimum of seven (7) days.

(2) Exterior Slabs and Water Holding Basin Floor Slabs

Exterior floor slabs, slabs on grade not requiring special coatings, and floor slabs of water holding basins shall be cured with a membrane curing compound designed to cure and seal. The curing and sealing compound shall be a hydrocarbon, resin-based compound meeting the requirements of ASTM C 309, Type 1, 1D, Class A and Class B. This compound shall be applied within one-half ($\frac{1}{2}$) hour after completion of finishing operations in accordance with the manufacturer's instructions. Slab surfaces shall be uniformly coated at the rate recommended by the manufacturer. Curing and sealing compound shall be CS-309-30 OTC by W. R. Meadows or equal.

As an alternative to use of membrane curing compound, the exterior slab may be completely covered with burlap and continuously soaked for ninety-six (96) hours after placing with a potable water sprinkler system.

17. Aluminum Safety Treads

The Contractor shall furnish and install on the leading edge of stairs, steps and landings nosings which shall be eight (8) inches less than the width of the surface to which said the nosing is attached (four [4] inches each side). The nosings shall be three (3) inches wide of the non-skid type equal to Wooster Products Type 101 alumogrip abrasive cast aluminum. Attachment shall be with concealed anchors on new work (for renovations use stainless steel screws). The installations shall be such that the top of nosing is flush with the top of the slab to which it is attached.

18. Concrete Finish

a. Floor Slabs

The concrete floors of all structures shall be finished monolithically with an allowable variation of one-eighth (1/8) inch in ten (10) feet transversely and longitudinally.

Concrete floor slabs on grade shall be placed over a well tamped and compacted subgrade. Form all recesses for thickened slabs, as shown on the Plans and thoroughly compact stone. Lay vapor barrier of six (6) mil (0.006 in.) thickness polyethylene over fill. Vapor barrier shall follow the contour of the thickness of the slab.

All floor drains shall be set one (1) inch lower than grade and the slab pitched thereto.

Slabs to receive quarry tile shall be finished by tamping the concrete with special tools to force the aggregate away from the surface; then screeded with straight edges and floated to produce a reasonably true and uniform surface.

b. Walls, Beams, Ceilings and Columns

(1) General

All concrete walls, ceilings, and beams shall be pointed; those which are to be exposed permanently to view, including the interior of basins to a point twelve (12) inches below the water line, shall be pointed and rubbed. If the surface is to be painted it shall be left smooth and all loose concrete rubbed away by use of a rough burlap sack or other effective method; if the surface is not to be painted it shall be rubbed as hereinafter specified. Foundation walls shall be rubbed to a point one (1) foot below grade on the outside. All projecting fins shall be removed from the concrete and holes left by form ties shall be pointed up.

(2) Pointing

After the specified curing times have elapsed, forms and form ties shall be removed and all depressions or imperfections inspected by the Engineer. After the Engineer has approved the general integrity of the work, all imperfections shall be wetted and repaired with non-shrink sand-cement mortar.

(3) Rubbing

After pointing has set, all surfaces requiring rubbing shall be kept wetted with water with a brush and rubbed with a No. 20 carborundum stone. The rubbing shall be continued sufficiently long to remove all marks and projections, producing a smooth, even surface without marked irregularities. The final rubbing shall be done with a No. 40 carborundum stone and continued until the entire surface is of smooth texture. After the rubbing has been finished, all excess particles shall be removed by brushing the surface with burlap. The finished surface shall be uniform in color and otherwise satisfactory to the Engineer.

(4) Coating

IF APPROVED by the Engineer in lieu of rubbing concrete, all structural cast-in-place concrete foundations, walls, beams, columns, roofs, ceiling and equipment foundations exposed to view and not identified or depicted on the accompanying Plans to receive any other finish or treatment, including the interior of all water holding structures to an elevation twelve inches (12") below the minimum normal water level and exposed exterior concrete walls to an elevation twelve inches (12") below finished grade, shall be coated as described hereinafter.

The coating shall be MasterSeal 584 or equal combined with water and MasterEmaco A660 or equal, both manufactured by Master Builders Solutions, or approved equal, in the proportions recommended by the product manufacturer for a trowel finish coating approximately one-eighth inch (1/8") to one-fourth inch (1/4") thick. The coating shall be applied according to the manufacturer's printed instructions including a "key coat" cured five (5) to seven (7) days followed by a final coat applied with a steel trowel and finished with a sponge float. All concrete coating described in this Paragraph shall be applied with a trowel finish, except that the coating to the underside of overhanging walkways may be applied with a brush finish. Application by spraying will not be allowed. All products used shall be those manufactured by Harris Specialty Chemicals, Inc., or approved equal.

The color shall be selected by the Owner.

c. Exterior Slabs

All walks, platforms, and exterior floors or slabwork shall have a broomed finish. After screeding to the required grade while the concrete is still

green, but has hardened sufficiently to bear the finisher's weight the surface shall be floated with a wood float to a true and even plane with no coarse aggregate visible. The slab shall then be evenly broomed with all strokes parallel to leave a workmanlike skid resistant finish.

d. Chamfer

All exposed edges shall be chamfered three-fourths (3/4) inch unless otherwise noted.

19. Watertightness

a. General

The Contractor is required to make watertight concrete in all structures holding water or solutions or dry wells or basements. All cracks and imperfections developing at any point in the work shall be thoroughly repaired in a manner satisfactory to the Engineer. When the concrete work has attained sufficient strength, the Contractor shall fill each basin or tank, or each compartment, with water, and shall repair any imperfections which cause the water level to fall more than one-half inch ($\frac{1}{2}$ ") in twenty-four (24) hours. All noticeable leaks in any portion of the work shall be repaired in any case, even if the preceding requirements as to watertightness are satisfied. THE CONTRACTOR MAY CONDUCT THIS WATERTIGHTNESS TEST EITHER BEFORE OR AFTER BACKFILLING EXTERIOR WALLS.

It is expected that with the proper precautions, a dense watertight concrete will be obtained. If concrete which passes the above requirements for watertightness has not been obtained, the Contractor shall, under the direction of the Engineer, furnish all materials and do all work necessary to produce watertight concrete structures.

All treatment of concrete necessary to fulfill these requirements for watertightness shall be done at the Contractor's own expense.

b. Dampproofing

The outer surface of all exterior concrete walls enclosing dry spaces (e.g. pits or structures housing equipment, valves or instruments) that is to be covered by backfill or by brick or decorative block shall be coated with an emulsion type asphalt dampproofing prior to backfilling or laying of brick. The dampproofing shall conform to ASTM D 1227, Type 4 for brush-on application to concrete surfaces. Concrete structures containing water or wastewater do not require dampproofing.

Surfaces to receive dampproofing shall be clean and dry before application of dampproofing. Surfaces shall be primed in accordance with the manufacturer's recommendation. The dampproofing shall be applied uniformly at a rate of not less than thirty (30) pounds per one hundred (100) square feet.

Dampproofing shall be protected from damage until brick or decorative block is laid or backfill is placed. Concrete walls exposed to view after completion of construction shall not be waterproofed.

20. Defective Concrete

Concrete shall be so placed, compacted, finished and cured so as to form a dense, compact, impervious artificial stone with smooth exposed faces. Any part of the work found to be honeycombed, porous, or otherwise defective in the opinion of the Engineer shall be removed or replaced in whole or in part at the expense of the Contractor.

21. Testing of Concrete

In general, Section 2. Testing and Control of Materials of these Detailed Specifications, governs all testing.

The following tests and/or samples shall be taken in the field as work progresses:

a. Standard Slump Tests

Field slump tests shall be made by the Contractor, using an accurately made sheet iron test cone, in accordance with the provision of ASTM C 143. At least one (1) slump test shall be made for each truck; the Engineer may require additional tests if he deems it necessary to insure the desired consistency of the concrete.

b. Concrete Compression Samples

During the progress of the work and for each different mix of concrete, test cylinders shall be made from each day's pour with a minimum of one (1) for each twenty-five (25) cubic yards or a maximum of one (1) from each batch or readymix truck load. The maximum requirement will be imposed only when the Engineer deems necessary due to wide fluctuations in the concrete quality. A minimum of three (3) cylinders will be required for each day's pour if the concrete is used in structures or otherwise in a load carrying capacity. Sidewalks, manholes, etc., may require only one (1) cylinder if less than twenty-five (25) cubic yards per day is placed, and the quality remains sufficiently high in the opinion of the Engineer.

Each cylinder shall be numbered and logged so as to adequately identify the location of the representative concrete in the structure.

The following "break" schedule for cylinders from the same pour will be used:

- | | |
|--|---|
| Where only one (1) cylinder is made | - 28 days |
| Where two (2) cylinders are made | - one at 7 days
- one at 28 days |
| Where three (3) cylinders are made | - one at 7 days
- one at 14 days
- one at 28 days |
| Where four (4) cylinders are made | - one at 7 days
- one at 14 days
- one at 28 days
- one reserved |
| Where over four (4) cylinders are made | - Same as four plus
reserve or as directed |

ASTM C 31 shall govern with curing as required. The testing shall be done per ASTM C 39.

22. Reinforcing Steel

a. General

Bar reinforcement and wire mesh reinforcement shall be furnished and tested in accordance with Section 2. Testing and Control of Materials. CERTIFIED MILL TEST REPORTS SHALL ALSO BE FURNISHED TOGETHER WITH AN AFFIDAVIT INDICATING THE ORIGIN.

b. Bar Reinforcement

Reinforcing steel shall conform to the requirements of ASTM A 615 new billet steel, Grade 60, with deformations conforming with ASTM A 615. An affidavit showing the heat numbers and origin shall be furnished.

All bars shall be lapped a minimum of thirty (30) diameters at splices unless a greater lap is shown on the Plans.

All detailing, fabrication, and erection of reinforcing bars, unless otherwise noted, shall be in accordance with the ACI "Manual of Standard Practice for Details and Guide to Presenting Reinforcing Steel Design Details" (ACI 315).

The Contractor shall furnish the Engineer with five (5) copies of shop drawings of reinforcing bars, and schedules showing all bends and special bars. These shop drawings and schedules must have the approval of the Engineer before shipment is made. The bars shall bear a designation on the drawings and in the schedule and shall be tagged with metal tags for identification. The Engineer's representative shall be afforded free access to the fabricating shops.

c. Wire Mesh Reinforcement

Wire mesh reinforcement shall conform to the requirements of ASTM A 1064.

d. Openings

Openings twelve (12) inches and larger through concrete walls and slabs shall have a minimum of four (4) extra diagonal bars in each face of the wall or slab of the same size as the largest bar in the wall or slab. The length of extra diagonal bars at openings shall engage a minimum of forty (40) bar diameters each side of the opening unless space requires full bond to be developed by means of hooks.

e. Minimum Reinforcing Steel

If through an omission Class "A" concrete walls, slabs, and other concrete work are shown on the Plans to have no reinforcing, a minimum area of steel reinforcing equal to 0.0018 times the cross-sectional area of the concrete work shall be provided.

f. Storage and Protection

Steel reinforcement, either bars or mesh, shall be new stock free from rust scale and shall be stored above the surface of the ground upon platforms, skids, or other supports and protected from the weather. When placed in the work it shall be free from rust, dirt, scale, paint, oil, or other foreign matter which may reduce or destroy bond. A thin coating of red rust resulting from short exposures will not be considered objectionable when bars are placed in the work; but any bars having rust scale or a thick rust coat shall be thoroughly cleaned to the satisfaction of the Engineer, or shall be rejected and removed from the premises if ordered by the Engineer.

g. Placing and Fastening of Reinforcement and Inspection Thereof

Steel reinforcement shall be placed in the exact position as shown on the Plans and held securely in place during the placing of the concrete. All

reinforcement shall be wired together at intersections or as directed by the Engineer. Sheet metal or welded wire bar spacers shall be used for bars in all steps, walls, and beams. Chairs, or approved equal, shall be provided for the support of reinforcement of slabs and flat surfaces. When the reinforcement is placed in the work, it shall have a clean, fresh surface, free from dirt, scaly rust, mill scale, paint, oil or other foreign substances.

BEFORE ANY CONCRETE IS PLACED, THE ENGINEER SHALL HAVE EXAMINED THE PLACING OF THE STEEL REINFORCEMENT AND GIVEN PERMISSION TO DEPOSIT THE CONCRETE. CONCRETE PLACED IN VIOLATION OF THIS PROVISION MAY BE REJECTED AND THEREUPON SHALL BE REMOVED.

23. Concrete Repair Material

Where the repair of existing Portland cement concrete is noted on the accompanying Plans, the following procedures and materials shall be utilized to perform the repair.

All surfaces to be repaired shall be prepared as necessary to make them clean and structurally sound. The surface shall be cleaned by chipping, acid-etching, sandblasting and/or shot-blast cleaning methods to remove all dust, grease, paint, sealers and other foreign materials from the Portland cement concrete surface to be repaired. If acid-etching is used, the surface to be repaired shall be neutralized using a caustic solution and brushed prior to performing the repair. The Portland cement concrete surface to be repaired shall be kept damp for thirty (30) minutes prior to beginning the repair work but standing water shall not be allowed on the surface to be repaired.

The repair material shall be a two (2) component acrylic polymer modified concrete repair material. The material shall be mixed and applied in strict accordance with the manufacturer's written instructions. The concrete repair material shall be Patchcrete® manufactured by Lyons Manufacturing, Inc. or equal.

SECTION 4

SITE PREPARATION AND DEVELOPMENT,
WATER LINES AND APPURTENANCES

1. Scope

The work covered under this section of these Detailed Specifications consists of furnishing all labor, materials, equipment and services necessary for the construction of Water System Improvements, Contract 21-01 – Raw Water Intake Improvements as generally outlined hereinafter and as specifically described in these Detailed Specifications. The work will be delivered under one contract with the approximate quantities and descriptions as follows:

CONTRACT 21-01
RAW WATER INTAKE IMPROVEMENTS

- Two New 20-inch Intake Screening Assemblies
- Two New 20-inch Ball Joint / Restrained Joint DIP Intake Pipes
- New 10'-0" Ø Precast Valve Pit
- Screening Assembly Air Backwash System
- Site Work and Excavation as required

2. Excavation

a. General

Excavation shall consist of excavating and grading the site in reasonably close conformity with the contour lines shown on the Plans.

Site excavation shall be classified as follows:

(1) Common Excavation (Unclassified)

Common excavation shall include all excavation required for site grading, ditching, and construction of structures other than Undercutting.

(2) Undercutting

Undercutting shall consist of removing and disposing of unsatisfactory materials below grade in excavated sections where structures are to be founded and from areas upon which embankments are to be placed. Undercutting does not include the stripping of topsoil. The Contractor shall be paid for undercutting

and filling the undercut volume at the unit prices provided in the BID FORM for excavation in earth for structures and pipelines and for KYTC No. 57 crushed stone for bedding and backfill unless noted otherwise on the Plans.

b. Limits

Excavations shall be made for a sufficient distance outside foundations, piers or walls to allow for inspection and to permit the various trades to install their work.

Unless otherwise specified or shown on the Plans, excavations for piers or walls shall be carried a minimum of six feet outside the piers or walls. Excavation for footings shall be to the footing dimensions.

c. Depth

Care shall be taken that excavation does not extend below the exact lines of the sub-foundations, footings and floor slabs on earth or rock. Should the excavation, through carelessness or negligence on the part of the Contractor be carried below such lines, the Contractor shall fill in the resulting excess excavation with Class "C" concrete, and/or KYTC No. 57 crushed stone, or compacted soil material as directed by the Engineer. This work shall be done at the Contractor's expense.

d. Removal of Water (Dewatering)

The Contractor shall by the use of well points, pumps or other approved methods, prevent the accumulation of water in excavated areas at no additional cost. Should water accumulate, it shall be promptly removed.

e. Shoring, Sheet piling and Bracing

Where unstable materials are encountered or as required by law or government regulations, such as OSHA, the sides of trenches or excavation shall be supported by substantial sheet piling, bracing and/or shoring. The design and installation of all sheet piling, bracing and shoring shall be based on computations of pressure exerted by the materials to be retained. The design and construction of adequate and proper shoring of all excavations shall be the entire responsibility of the Contractor.

Trench sheet piling shall not be removed until sufficient backfill has been placed to protect the pipe.

All sheeting, planking, timbering, bracing and bridging shall be placed, renewed and maintained as long as is necessary to protect adjacent property, existing foundations, and/or utilities.

3. Embankments

Embankment work shall consist of construction of embankments in reasonably close conformity with the contour lines shown on the Plans.

The original ground surface, or the surface of any embankment layer in place, shall not be in frozen condition, and shall be free from quantities of snow, ice and mud when a subsequent layer is placed thereon.

All depressions or holes below the natural ground surface, whether caused by grubbing or otherwise, shall be filled with suitable material and compacted to ground surface before embankment construction is started.

Perishable materials, such as brush, hedge, roots, stumps, parts of trees, *etc.*, shall not be incorporated or buried in the embankments.

Embankments shall be so constructed that adequate surface drainage will be provided at all times. Embankment materials that will not support the foundation for a building or structure shall be placed in horizontal layers not to exceed 10 inches in depth before compaction, and each layer shall be compacted to a density not less than 95 percent of maximum density. Requirements for the construction of embankments that will support the foundation for a building or structure are described in Paragraph 4 of this Section.

Maximum density and optimum moisture will be determined in accordance with ASTM D698, Method A. Each layer of embankment shall be compacted to required density and approved before material for the next succeeding layer is placed. Placing and compacting areas shall be kept separate.

Where an embankment is to be constructed across low swampy ground that will not support the earth moving equipment, the lower part of the fill shall be constructed in a uniformly distributed layer of a thickness not greater than necessary to support the hauling equipment while placing subsequent layers. In the construction of such a lift the density requirement will be waived but the moisture content of the material used shall not exceed the optimum moisture content for that material. Maximum thickness and minimum density requirements will apply to all succeeding layers of the embankment.

The moisture content of the material being compacted shall meet both the following conditions: (1) the moisture content shall be within the range of values at which 98 percent of the maximum density can be obtained as indicated by the

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moisture-density relationship curve and (2) the moisture content shall not exceed the optimum moisture content by more than three percent.

The Contractor shall aerate the soil material used to construct embankments or distribute and incorporate water uniformly therein, as necessary, to control the moisture content within the applicable limits set out above.

Compaction of each layer of embankment shall be accomplished by the use of any type of compacting equipment that will produce the required results. The Contractor shall be responsible for the stability of all embankments and cut slopes until final acceptance and shall replace at his own expense any portions which, in the opinion of the Engineer, have become displaced or damaged due to his carelessness or negligence.

4. Backfilling Around Structures

All backfill around structures shall be of select materials placed in horizontal layers not to exceed 10 inches in depth before compaction. Select material is native soil excavated from the site, free from rocks, foreign materials and frozen earth. The layers shall be thoroughly compacted to a solid homogeneous mass having at least 95 percent of maximum theoretical density as determined by ASTM D698, Method A.

Compaction around structures shall be by use of hand manipulated power tamping equipment. Care shall be taken not to disturb pipelines or damage the structures by reason of unsymmetrical loadings.

5. Location of Lines

Raw Water Lines shall be laid to such lines and grades as shown on the Plans and to ensure appropriate depths of cover and that fire hydrants have sufficient depth and function properly. The final location as constructed may be varied by the Contractor(s) with the approval of the Engineer provided (1) the proposed location is approved by the Owner and any agency or legal entity having jurisdiction, and (2) the effect lessens the project cost. The final location in any event may be varied by necessity due to construction conditions at the direction of the Engineer due to requirements of the Owner, the property owners, or other agency or legal entity having jurisdiction.

6. Pipeline Materials for Water Lines

a. General

The pipe for underground raw water lines shall be ductile iron pipe with ball joints or restrained joints as noted on the Plans.

b. Ductile Iron Pipe

(1) Materials, Manufacture and Joints

Ductile iron pipe shall be centrifugally cast, manufactured and tested in accordance with the ANSI/AWWA C150/A21.50 for Ductile Cast Iron, Grade 60-42. The nominal wall thickness for each pipe size and Pressure Class shall be as follows:

<u>Size</u>	<u>Pressure Class</u>	<u>Wall Thickness (Inches)</u>
4-inch ball joint	250	0.41
20-inch ball joint	250	0.54
20-inch restrained joint	350	0.38

The pipe shall be manufactured and tested in accordance with the requirements of ANSI A21.51.

Pipe shall be push-on type joint incorporating a single molded rubber ring gasket unless otherwise indicated and shall be furnished tar coated outside and the manufacturer's standard cement lined inside to comply with ANSI A21.4.

(2) Joint Lengths and Joint Deflection

Standard joint length shall be 20 feet; however, shorter lengths may be used in order to achieve the alignment or grade required. The maximum allowable joint deflection for DIP pipe is 5 degrees (21 inches per 20-foot length, regardless of the layout shown on the Plans); in order to achieve the alignment or grade, shorter lengths or extra fittings will be required. The maximum joint deflection will be strictly enforced. Bending of the pipe will not be allowed.

(3) Ductile Iron Fittings

All fittings for ductile iron pipe shall be Class 350 mechanical joint single gasket ductile iron conforming to ANSI/AWWA C153/A21.53, and shall meet the current requirements for the manufacturer's standards. Fittings shown on the Plans are intended to convey the general configuration, but the Contractor shall furnish all fittings required.

Each fitting shall be certified by the manufacturer to have been tested and to have met the requirements of the governing standard specifications.

All fittings shall use thrust restraint devices in lieu of the standard glands. Thrust restraint devices shall be Series 1100 Megalug as manufactured by EBAA Iron, Inc. unless otherwise noted.

All fittings shall be furnished tar coated outside and the manufacturer's standard cement lined inside to comply with ANSI A21.4.

(4) Pipe Bedding and Backfill

See Paragraph 8.c. of this Section of these Detailed Specifications.

(5) Testing

See Paragraph 2 of Section 2 of these Detailed Specifications.

(6) Markings

Each length of pipe and fittings shall have the following information plainly marked on the pipe's exterior:

- a. Nominal Size
- b. Class
- c. Manufacturer
- d. Independent Testing Laboratory Stamp
- e. Quality Control Code
- f. NSF (National Sanitation Foundation) Standard 61 Stamp Seal of Approval

(7) Restrained Joint Pipe

Ductile iron pipe with restrained joints shall be Class 350 and conform to the latest revisions of ANSI A21.10, A21.11 and A21.51. The pipe shall be installed where shown on the Plans or directed by the Engineer. Restrained joint ductile iron pipe shall be Flex-Ring Joint Pipe by American Cast Iron Pipe Company or approved equal.

(8) Ball Joint Pipe

Ball joint ductile iron pipe shall conform to the latest revisions of ANSI A21.20, A21.22 and A21.51. Ball joint pipe shall have a minimum allowable deflection of 15 degrees and shall utilize a spherical ball which provides constant compression of the gasket through the entire range of deflection of the joint. Ball joint pipe

shall be Class 250 and shall be by Flex-Lok Joint Pipe by American Cast Iron Pipe Company or approved equal.

7. Raw Water Screening System

a. Scope

The Vendor shall furnish one complete screening system including, but not limited to, two raw water screens, compressors and air tank, anchor bolts, power cables, control valves, local control panel, installation and start-up service by a factory representative, and other accessories specified herein. The materials and devices included with the equipment shall be furnished with all fasteners and fittings necessary for installation at the location shown on the Plans without any additional equipment or materials furnished by others.

b. Pre-Approved Vendors

The raw water intake screens, air backwash system, and accessories shall be provided as an integrated system by:

- Passive Screens, Inc., of Fridley, Minnesota
- Hendrick Screen Company, of Owensboro, Kentucky
- Pre-approved equal as determined by the Engineer

c. Utilities Provided

Electric power provided will be 480 volts, three phase, 60 Hertz alternating current.

d. Performance Requirements

(1) Intake Screens

The capacity of each intake screen assembly shall be 6 MGD (4,167 GPM) at 0.5 FPS maximum through slot velocity. At this rated flow, the pressure drop through the clean screen surface shall not exceed 0.1 PSI; the pressure drop at the connection flange shall not exceed 0.4 PSI. The screen slot opening shall be 1/8 inch. The corresponding open area shall be a minimum of 64%. The screen assembly shall be designed as a unit structure to withstand a hydrostatic differential pressure of 10 feet of water. The screen surface shall be all welded profile wire with continuous slots that widen inwardly from the surface. The 20-inch connection shall be

a ½-inch thick plate flange, drilled per AWWA C207, Table 1, Class D. The 4-inch air backwash connection shall be an ANSI 150# flange. The intake screen assembly shall be fabricated of 304 stainless steel. Each screen shall be equipped with a truncated cone debris deflector on the upstream end.

(2) Air Backwash System

(a) General

The air backwash system shall be skid mounted and consist of the required air receiver, valves, two compressors units, and local control panel to provide a functional screen cleaning system. The system shall be designed to clean a total of two screens with independent cleaning cycles for each screen. The compressor and air tank will be mounted to the floor of an existing building.

(b) Local Control Panel

i. Control Panel

The panel shall be assembled by a listed UL panel shop and include at least the following.

- NEMA TYPE 4 painted steel enclosure
- NEMA TYPE 4 devices
- System ON OFF switch with indicator
- System READY indicator
- Step down transformer
- Valve OPEN & CLOSED indicators for each backwash valve
- Compressor Motor Circuit Protection Breaker with handle through the door
- Compressor Motor starter/overload relay
- TEST OFF AUTO switch for compressor
- Compressor Low Oil Level Indicator and shut down
- Adjustable backwash cycle timer
- Adjustable valve open timer
- AUTO OFF MANUAL switch for each backwash valve
- DELAY indicator

- Dry Contacts for remote SCADA interface
 - Delay Alarm output
 - Airburst Initiation input
 - General alarm
- The backwash timer, delay timer and valve open timer shall be adjustable using an HMI mounted in the door
- Interlock to prevent backwash when receiver does not have adequate pressure
- Programmable Logic Controller for system control and tuning

ii. Compressor Operation

In the AUTO mode, the compressor will be alternating and maintain a maximum 150 psig in the receiver and is controlled by the pressure switch. In the TEST mode (spring return to OFF), each compressor will run momentarily to check for proper rotation. In the OFF mode or low oil, the compressor will not run.

iii. Backwash Operation

- a) In the AUTO mode, the backwash will be controlled by a timer programmed in the PLC, which is adjustable and set to 24 hours, or by a signal from a remote location using the dry contacts provided. When a backwash is initiated (and as long as the receiver is fully charged), there will be a 30 second DELAY, which is adjustable, before opening valve 1 (a dry contact output for alarm or input to SCADA is provided). After the DELAY, the valve will open and remain open for a programmed period of time, initially set at 5 seconds but is also adjustable. After the receiver has recharged, the next valve will cycle with the same DELAY. If a valve is OFF, that valve will not open during the AUTO cycle.
- b) When the valve switch is moved to MANUAL (momentary closure), a backwash will be initiated after the 30 second DELAY.
- c) A programmed interlock will prevent a backwash if the receiver does not have adequate pressure.

(c) Design Conditions

Each screen will be located approximately 400 feet from the air receiver, with a minimum operating depth of 11 feet and a maximum operating depth of 43 feet depending on the water surface elevation of the Green River and the installation elevation of the screen. The maximum recharge time between cleaning cycles shall be 30 minutes. The air backwash system shall reduce the differential headloss across the screen surface to less than 10% of the measured headloss prior to activation, when the differential headloss prior to activation is in the range of 3" to 12" H₂O and is caused by surface-retained debris.

(d) Air Compressors

Two air compressor units shall be provided with a minimum performance of 15 ACFM (5 hp) at 150 psi discharge pressure. They shall be baseplate mounted to the top of the air tank and include a low oil level switch a 10 micron inlet filter. Compressors shall alternate operation during each recharge cycle and isolation valves shall allow one compressor to be taken out of service for maintenance while the other compressor stays in service.

(e) Air Tank and Stand

The receiver tank shall be at least a 400 Gal. ASME Code vessel with a designated working pressure of 200 psig. It shall include a pressure gauge, an automatic drain valve, and all required safety equipment. Tank design shall be a vertical configuration with two top mounted compressor units. All electrical and mechanical components which can be damaged by water shall be mounted to the tank at least 5'0" above the base. One 2-gallon auxiliary receiver shall be provided for valve activation and shall consist of a check valve, pressure gauge, safety valve, filter regulator and mechanical drain.

(f) Air Valves

Air release valves shall be 4 -inch and shall be rated at minimum 175 psi operating pressure. They shall be quick opening butterfly type and designed to produce minimal resistance to air flow when in the fully open position. The

single acting pneumatic valve operator shall include limit switches to indicate full valve travel.

e. Design Calculations

The manufacturer shall submit to the Engineer documentation verifying that equipment to be supplied fully meets the installation and performance criteria of this specification. This submittal shall include:

- (1) Outline drawings for the intake screen showing overall and interface dimensions, general configuration, material, slot, open area, rated capacity, weight and strength.
- (2) Screen element velocity profile, with maximum, average, and minimum values.
- (3) Outline drawings for the air backwash equipment showing overall and interface dimensions, general configuration, power requirements, and finish.
- (4) Process schematic with Bill of Materials indicating the relative location of the components of the backwash system.
- (5) Verification that the air backwash system is consistent with the intake screen manufacturer's criteria relating to screen size, water depth, and connecting pipe length and diameter.
- (6) Installation and Operation Procedure Manual for screen and air backwash system.

f. Startup and Training

A technician that is knowledgeable in the operation and maintenance of the airburst system is required to be on site for one (1) day to inspect installation, start the system and provide training to the end user.

8. Micropiles

a. Scope

The work covered consists of designing, furnishing, constructing and testing micropiles at the locations shown and specified.

The Contractor shall furnish all design, materials, equipment, accessories, tools, services, transportation, labor and supervision, and manufacturing

technique required for installing and testing micropiles and micropile top attachments for this project.

b. Materials

- (1) Cement, admixtures, grout, and reinforcing shall meet the requirements of Section 3, Concrete and Reinforcing Steel of these Detailed Specifications.
- (2) Permanent Casing Pipe: Provide permanent and steel casing/pipe with an 8-inch minimum outside diameter and 0.50-inch wall thickness. Casing pipe shall remain in place and be filled with grout and meet the following requirements:
 - Maximum carbon equivalency (CE) for ASTM A252 Grade 3 material as defined in AWS D1.1, Annex I, Section I 5.1, of 0.45, as demonstrated by mill certifications
 - Maximum sulfur content of 0.05%, as demonstrated by mill certifications

For permanent casing/pipe that will be shop or field welded, weld all seams and splices using complete penetration welds.

For threaded casing joints, provide joints that develop at least the required compressive, tensile, and bending strengths used in the design of the micropile.

- (3) Plates and Shapes: Furnish structural steel plates and shapes for micropile top attachments conforming to ASTM A36 or ASTM A572 Grade 50 and as required to meet the design loads (axial and moment).

c. Micropile Contractor Qualifications

Evidence of the firm's experience in the construction and load testing of micropiles and the successful construction of at least five (5) projects in the last five (5) years involving construction totaling at least 100 micropiles of similar capacity to those required in the Plans and Specifications. Evidence of contractor experience in micropile drilling and grouting in soil/rock materials similar to project conditions. Provide a project reference list for each of the five projects which includes:

- Brief project description with the owner's name and current phone number
- Date of project

- Number, size and capacity of micropiles successfully installed and tested
- Types of soil/rock materials and groundwater conditions encountered in the project

d. Construction

(1) Allowable Tolerances

Install micropiles to within the following tolerances:

- Centerline of piling not more than 3-inches from indicated plan location
- Plumb within 2 percent of total-length plan alignment (vertical piles)
- Top elevation of micropile within plus 1.0-inch or minus 2.0-inches maximum from vertical plan elevation
- Centerline of core reinforcement not more than 0.75-inches from centerline of final pile location

(2) Micropile Installation

Select the drilling method, grouting procedure and grouting pressure used for the installation of the micropiles. Determine the micropile final drillhole diameter, bond length and central reinforcement steel sizing. Estimate the quantify of grout takes.

(3) Grouting

Measure the grout quantity and pumping pressure during the grouting operations. Provide the Engineer with records showing the quantities, test data and grout pressures.

After drilling, flush the hole with water or air to remove drill cuttings. Use a stable neat cement grout or a sand cement grout with a minimum 28-day unconfined compressive strength of 4,000 psi. Ensure that the cement does not contain lumps or other evidence of poor mixing. Mix admixtures, if used, in accordance with manufacturer's recommendations. Use grouting equipment that produces a grout free of lumps and undispersed cement. Equip the pump with a pressure gauge to monitor grout pressures. Place a second pressure gauge at the point of injection. Ensure that the pressure gauges are capable of measuring pressures of at least 150 psi or twice the actual grout pressures used by the Contractor, whichever is greater. Size the grouting equipment to enable the grout to be pumped in one continuous operation.

Inject the grout from the lowest point of the drillhole. The grout may be pumped through grout tubes, casing, hollow-stem augers or drill rods. Control the grout pressures and grout takes to prevent excessive grout take, excessive ground heave and fracturing of rock formations. Fill the entire micropile length with grout containing no voids or inclusions. Upon completion of grouting, the grout tube may remain in the hole. Fill grout tube with grout if left in place.

e. Grout Testing

Ensure the grout within the micropile verification and proof test piles attains the minimum required compressive strength prior to load testing.

During production, test the micropile grout for compressive strength in accordance with AASHTO T106 (ASTM C109) at a frequency of no less than one set of three 2-inch grout cubes from each grout plant each day of operation. Calculate the average of the 3 cubes tested to determine on the compressive strength.

Determine grout consistency, as measured by grout density, per AASHTO T133 (ASTM C188) or API RP-13B-1 at a frequency of at least one test per verification or proof test micropile, conducted just prior to start of grouting. For production micropiles, perform grout density testing at a frequency of at least once per each period of continuous grouting operation or once per day, whichever is more frequent. The Baroid Mud Balance used in accordance with API RP-13B-1 is an approved device for determining the grout density of neat cement grout. Ensure that the measured grout is consistent with the Contractor's approved working drawing construction submittals.

Take grout samples directly from the grout plant. Provide grout cube compressive strength and grout density test results to the Engineer within 24 hours of testing.

f. Load Tests

Perform verification and proof testing of two piles randomly selected by the Engineer as follows:

- Perform 5,000 lb. compression load testing in accordance with ASTM D1143
- Perform 5,000 lb. tension load testing in accordance with ASTM D3689
- Perform 2,000 lb. lateral load testing in accordance with ASTM D3966

When both compression and tension load testing is to be performed on the same pile, test the pile under compression loads prior to testing under tension loads.

g. Installation Records

Prepare and submit to the Engineer full-length Micropile Installation Logs for each micropile installed within 24 hours of micropile installation. Include the following information as a minimum:

- Micropile drilling duration
- Final tip elevation
- Cutoff elevations for the top and bottom of the casing
- Rated load capacities
- Description of unusual installation behavior or conditions
- Grout pressures attained during grouting
- Grout quantities pumped into micropiles
- Micropile material and dimensional properties

h. Micropile Load Test Data Reports

- Project description.
- Description of site and subsurface conditions including information on the subsurface conditions encountered at the load test location.
- A listing of key personnel involved with the testing and production of the micropile including grout plant operator, drill rig operator, on-site supervisor and micropile design engineer.
- Micropile Installation Log.
- Results of the load test, including completed testing field data records for load increments and time periods including appropriate presentation figures, charts and graphs. Record the required load test data and submit to the Engineer for verification.
- Statement of load testing requirements and acceptance criteria.
- Comparison of load testing results and acceptance criteria.
- Summary statement of load test results, including whether the load test met the criteria or failed to meet it.
- Hydraulic jack pressure gauge and load cell calibration report.
- Material certifications for permanent casing (if used), reinforcement and grout compressive strength testing.

9. On-Site Inspection of Pipeline Materials

Before allowing any pipe or fittings to be paid for as "stored materials" the Engineer shall be afforded the opportunity to inspect and mark it on-site.

The inspection shall consist of a visual inspection for obvious cracks, improper markings or other defects and a dimensional inspection. The Contractor(s) shall furnish templates or other means of ascertaining the compliance of the pipe to the dimensional allowances in the governing specifications.

Rejected pipe or fittings will be painted with an orange or red "X" and the date. Such rejected materials shall be immediately segregated from acceptable pipe and shall be removed from the project within 14 days.

10. Lines and Grades

Water lines shall be graded to service lines or fire hydrants so as to prevent accumulation of air. Where extra depth is shown on the Plans or grading of the pipe is required to prevent accumulation of air, elevation shots shall be taken to ensure that the profile is followed and the intent is accomplished.

11. Excavation for Pipeline Trenches and Appurtenances

a. General

Excavation on this project, whether earth or rock, is not a separate pay item but is to be merged into the price of the pipeline shown in the BID FORM. The excavation shall be carried to the depths indicated on the Plans and/or directed by the Engineer to permit proper bedding of the pipe.

The Contractor(s), at his own expense, shall provide adequate facilities for promptly removing water from all excavations.

Unless otherwise indicated trenches shall be excavated in open cut to the depths shown on the Plans. Trenches shall be of the minimum width shown on a Detail on the Plans. Unless specifically authorized by the Engineer, trenches shall not be excavated wider than 1 foot 6 inches plus the outside diameter of the pipe, at the level of the crown of the pipe.

Unless specifically directed otherwise by the Engineer or where required to uncover or determine the presence of underground obstructions, not more than three hundred (300) feet of trench shall be opened ahead of the pipe laying, and not more than two hundred (200) feet of open ditch shall be left behind the pipe laying. Before laying the pipe, the Contractor(s) shall open the trench far enough ahead to reveal obstructions that may necessitate changing the line or grade of the pipeline.

All barricades and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations and other obstructions shall be provided by and at the expense of the Contractor(s).

The trench shall be straight and uniform so as to permit laying pipe to the proper lines and grades.

When so required, by the Owner through the Engineer, one-half of the street crossings and road crossings shall be excavated, then temporary bridges consisting of ½-inch steel plate shall be placed over the side excavated for the convenience of the traveling public; then the remainder of the excavation shall be carried out. All backfilled ditches shall be maintained in such a manner that they offer minimal hazard to the passage of traffic. The convenience of the traveling public and the property owners abutting the improvements shall be taken into consideration. All public or private drives shall be promptly backfilled or bridged.

In excavation for masonry and concrete structures including manholes, the required width shall be such as to permit forms to be constructed in the proper manner and to permit proper backfilling upon completion of the structures. Depth of excavation for footings shall be as shown on the Plans and/or as directed by the Engineer to obtain sufficient bearing.

All excavated material not needed for backfilling purposes shall be disposed of in a manner satisfactory to the Owner.

In all areas along highways or roadways where the pipeline is being laid in the pavement or in the right-of-way of the road, excavation during each day shall be limited to the footage of pipe that can be laid and the trench be backfilled so that minimal ditch is left open overnight in such areas.

All excavation shall be accomplished in accordance with applicable safety laws and regulations; the Engineer, as previously stated, does not assume responsibility of any degree or sort for acts of the Contractor(s).

b. Unstable Trench Bottom Material or Undercutting

If wet, mucky and/or unstable or unsuitable material is encountered in a trench bottom, the Engineer may require additional excavation to insure a firm foundation for the pipe. The quantity of undercutting will be determined by the actual ditch width or a maximum of the diameter of the pipe plus 1.5 feet, multiplied by the difference between the depth of ditch ordered and 6 inches below the invert elevation of the pipe. In such cases, the trench bottom shall be brought back up to proper grade with bedding material as provided herein. Kentucky Department of Highways (KDH) No. 9 crushed stone refill required shall be paid for at the unit price per cubic yard set forth in the BID FORM, including all excavation, if such excavation and refill is directed by the Engineer. If the Contractor(s) has caused the extra work due to failure to properly dewater the ditch, no payment will be made.

The Engineer shall determine when it is necessary to use such material and the Contractor(s) shall be responsible for calling such unstable trench bottom conditions to the attention of the Engineer.

c. Depths of Cover

The excavation for water lines shall be carried to the depths indicated on the Plans and/or directed by the Engineer to permit proper bedding, release of air from the pipe and to prevent "air-locking" or the trapping of air in high points. Unless otherwise shown, trenches shall be opened to a depth so that the top of the pipe shall not be less than thirty six (36) inches below the surface of the ground when laid through wooded areas, fields, and other such areas outside the pavement or traveled surface of highways and roadways. The minimum depth of cover shall not be less than thirty six (36) inches for pipelines laid in the shoulder or traveled surface of any highway and/or roadway. Extra depth of cover is required as shown on the profiles on the Plans. Should the Contractor(s) fail to follow the Plan Profile, the Engineer may require removal and replacement of the pipeline on the planned grade or installation of Fire Hydrant Assemblies, all without additional compensation. The minimum cover over valve operating nuts is 12-inches.

All depths of cover are measured to the top of the pipe by placing a straight edge resting on the surface of the original ground and measuring down to the pipe away from the bell.

d. Excavation on Easements

Excavation of pipeline trenches on easements shall be performed in such a manner that the grounds shall be restored to as near their original condition as possible considering the work performed. The grass cover of the ditches or excavations shall be the same type as the original undisturbed cover.

Before any excavation is begun or before drilling and blasting, a minimum of nine (9) inches of the top soil or the original cover shall be removed and stockpiled in a manner so as not to contaminate the topsoil with other fill or excavated material. Should the depth of excavation require a trench wider than specified in Subparagraph a. General hereinbefore, a minimum of nine (9) inches of topsoil or original cover shall be removed from the additional area and stockpiled as described hereinbefore.

Excavated materials suitable for backfill shall be placed at a distance far enough from the ditch to allow excavated rock to be placed next to the open trench; however, stockpiling outside the easement shall be done only with the property owner's written permission. THE CONTRACTOR'S

ATTENTION IS CALLED TO SECTION 1, PARAGRAPH 16 OF THESE DETAILED SPECIFICATIONS.

e. Removal of Water

The Contractor(s) shall at all times during construction provide and maintain means and devices with which to promptly dispose of all water entering the excavations or other parts of the work and shall keep said excavations dry until the structures to be built therein are completed. No concrete shall be placed in water nor shall water be allowed to rise over structures if there is danger of flotation or of setting up unequal pressures in the concrete, until the concrete has set at least 24 hours and any danger of flotation has been removed.

The Contractor(s) shall dispose of water from the work in a suitable manner without damage to adjacent property or water lines. No water shall be drained into work built or under construction.

During the laying of lines and until the water line has been bedded in place with at least 2 feet of backfill over the pipe, the Contractor(s) shall keep the groundwater table below the bottom of the trench.

No lines will be permitted to be laid except in a dry trench. Running water shall be completely blocked off by dewatering and/or sheathing. The trench must be dry and clean to assure that the hub and spigot of the pipe are perfectly dry before a joint is made.

All removal and handling of water required to maintain dry trenches or other excavations for the construction of lines or other structures in the dry trench shall be at the expense of the Contractor(s).

12. Rock Excavation

ROCK EXCAVATION IS NOT A SEPARATE PAY ITEM.

13. Pipe Laying and Bedding for Water Lines

a. General

The trench shall be excavated to the required depth and width; bell holes and/or jointing holes shall be dug in advance of pipe laying.

The bed of each piece of pipe shall be carefully prepared so that each individual piece of pipe shall have a uniform bearing. Pipes shall be laid in a straight line and grade without kinks or sags, and shall be laid in a workmanlike manner. Bell holes and/or jointing holes shall be large

enough so that the bell or hub will clear the ground and leave ample room for making joint and inspection of joints.

Before each piece of pipe is lowered into the trench, it shall be thoroughly swabbed out to insure its being clean. Each piece of pipe shall be lowered separately unless special permission is given otherwise by the Engineer.

Care shall be taken to prevent injury to the pipe coating both inside and out. No piece of pipe or fitting which is known to be defective shall be laid or placed in the lines.

If any defective pipe or fitting shall be discovered after the pipeline is laid, they shall be removed and replaced with a satisfactory pipe or fitting without additional charge. In case a length of pipe is cut to fit a line, it shall be so cut as to leave a smooth end at right angles to the longitudinal axis of the pipe as required by AWWA C600.

All angles or bends in the pipelines, either vertical or horizontal, shall be satisfactorily braced or anchored against the tendency of movement with joint harness, concrete or equal anchors to the satisfaction of the Engineer and as shown on the Plans.

Open ends of unfinished pipelines shall be securely plugged or closed at the end of each day's work or when the line is left temporarily at any other time. The maximum horizontal or vertical deflection for laying pipe shall be one-half the allowable manufacturer's deflection.

b. Unstable Trench Bottom Material or Undercutting

If wet, mucky and/or unstable or unsuitable material is encountered in the trench bottom, it shall be excavated and backfilled as specified in Paragraph 11.b. Unstable Trench Bottom Material or Undercutting, hereinbefore.

The Engineer shall determine when it is necessary to use such material and the Contractor shall be responsible for calling such unstable trench bottom conditions to the attention of the Engineer.

c. Ductile Iron Pipe

Ductile iron pipe shall be laid on a soil foundation by placing select backfill material on the excavated trench bottom to a depth of not less than four (4) inches as per AWWA C150 Laying Condition 3. Bell holes shall be provided to insure that the pipe is uniformly supported over its entire length. Any unyielding material such as rock within the pipe foundation shall be removed and the foundation shall be brought up to grade as

specified in Sub-paragraph a. General hereinbefore. No rock larger than two (2) inches shall be permitted within twelve (12) inches of the pipe.

14. Unauthorized Excavation and Over-Breakage

Whenever the excavation is carried beyond or below the lines and grades given by the Engineer, the Contractor, at his own expense, shall refill such excavated space with such material and in such a manner as will insure stability of the structure or line involved, including the use of crushed stone or Class "C" concrete.

Over-breakage is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the Engineer, including slides. All over-breakage shall be removed by the Contractor and disposed of as directed. PAYMENT WILL NOT BE MADE FOR REMOVAL AND DISPOSAL OF OVER-BREAKAGE.

15. Crushed Stone for Pipe Bedding in Rock

When rock is encountered, the trench shall be excavated to a depth at least 6 inches below the invert of the pipe and refilled with the bedding material to a sufficient depth to provide a firm bed for the bottom quadrant of the pipe. If a rock trencher is used for excavation, the native materials may be used for bedding if they meet the maximum grading specification for KDH No. 9 crushed stone. Crushed stone or select native materials shall be utilized to the depths as shown on the Plans. The price of such material shall NOT be a separate pay item.

16. Backfilling Pipeline Trenches

a. General

In the backfilling of the trench above the pipe or pipe envelope, material reasonably free from rock and acceptable to the Engineer shall be used; the backfill material shall be carefully and solidly tamped around the pipe up to the point where the pipe is thoroughly covered with at least one (1) foot of material. Walking or working on the completed pipeline, except as may be necessary in tamping or backfilling, shall not be permitted until the trench has been backfilled to a height of at least one (1) foot above the top of the pipe. The filling of the trench shall be carried on simultaneously on both sides of the pipe in such a manner that the completed pipeline will not be disturbed and injurious side pressures do not occur.

In filling the remainder of the trench, the backfill material may be shoveled into the trench without compacting, and heaped over whenever, in the opinion of the Engineer, this method of backfilling may be used without inconvenience to the public. Where street paving or shoulders are to be

replaced, the Contractor will be required to tamp or puddle all backfill as described hereinafter.

In areas where the line is laid in the right-of-way but outside paved areas of a State Highway or when required by the Engineer, the backfill material shall be of select material of the same type as the existing natural material or fill in which the trench is dug. When so required by the Owner of the roadway, the backfill shall be placed in loose layers not exceeding six (6) inches and firmly tamped into place by tampers or rammers. With the approval of the State Department of Transportation, the Engineer may also require puddling wherein, in his opinion, it is also necessary for proper compaction.

BACKFILL MATERIAL IN PAVED STREETS SHALL BE CRUSHED STONE AS SPECIFIED IN PARAGRAPH 17. PIPELINE TRENCHES WITHIN EXISTING ROADWAYS HEREINAFTER.

Whenever, in the opinion of the Engineer, it is necessary, he may require the Contractor to use a combination of any or all of the above-outlined methods for proper compaction of the backfill in the trenches.

Before final acceptance, the Contractor will be required to level off all trenches where backfill material has been piled up, or to bring the trench up to the level of the surrounding street, roadway, or terrain. The Contractor will be required to remove from the streets, roadways, and private property all excess earth or other materials.

b. **Backfilling Operations Conducted on Easements**

Backfilling of trenches or excavations on easements shall be performed in such a manner that the private property owner's facilities and grounds shall be restored to as near as possible their original condition immediately after pipe laying.

After the pipe bedding, pipe, and backfill along the sides of the pipe and over the pipe (if required) as specified hereinbefore has been placed, the excavated rock next to the ditch shall be placed in the ditch. Excavated rock shall not be placed any closer than 18 inches from the finished grade and any excess rock shall be removed by the Contractor and disposed of as directed.

The residue of the stockpiled bedding material shall be cleaned up and placed into the trench, leaving no bedding stone scattered over the area. The previously excavated materials suitable for backfill shall be placed into the ditch only upon clean-up and backfill of the bedding material. The top portion of the trench or excavation shall be filled using the stockpiled top

soil. The ditch shall be left high to allow for settling unless in the opinion of the Engineer this method of backfilling will cause inconvenience to the private property owner. Seeding or sodding shall proceed immediately following backfill.

If the backfilling operation is performed during extremely dry weather, the Contractor should leave some stockpiled topsoil to use later as additional fill after settlement has occurred.

THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE CONDITION OF GRASS COVER AND THE CONDITION OF THE GROUND SURFACE AT THE TIME OF FINAL INSPECTION UNLESS THE PRIVATE OWNER HAS PLOWED OR EXCAVATED THE GROUND.

17. Pipeline Trenches Within Existing Roadways

Where excavation is within the traveled portion of State Highways, the Ohio County roads, all native earth and rock shall be removed and hauled away and disposed of by the Contractor(s) at his own expense. The resulting backfill material shall be compacted KYTC No. 57 crushed stone as shown on the Plans.

18. Inspection of Lines - During Construction

The Contractor shall notify the Engineer when pipe will be received on the job so that arrangements may be made for inspecting and unloading and stringing, as well as inspecting the pipe proper and examining for the stamp of the independent laboratory.

BEFORE THE CONTRACTOR BACKFILLS ANY OF THE LINES, THEY SHALL BE FIRST INSPECTED BY THE ENGINEER, AND THE ENGINEER SHALL GIVE THE CONTRACTOR PERMISSION TO PROCEED WITH THE BACKFILLING. If any joints, pipes, or other workmanship or materials are found to be defective, they shall be removed and replaced by the Contractor without any extra compensation.

19. Testing of Water Lines

Testing of lines shall comply with the provisions of AWWA C600 as summarized below, or similar approved procedures which will insure equal or better results. Leakage shall not exceed the following values at the test pressure shown on the following table:

Allowable Leakage / 1000 Feet

<u>Pipe Size</u>	<u>Test Pressure (psi)</u>	<u>Allowable Leakage</u> (gallons/hour)
20-inch	100	1.35

The Contractor shall furnish all gauges, meters, pumps, and other equipment required and shall maintain said equipment in condition for accurate testing as determined by the Engineer. Where practicable, pipelines shall be tested in lengths between line valves or plugs of no more than three thousand (3,000) feet. Where leaks are visible at exposed joints and/or evident on the surface when joints are covered, the pipe shall be rejoined and leakage minimized regardless of total leakage as shown by test.

Duration of test shall be not less than two (2) hours where joints are exposed and not less than eight (8) hours where joints are covered. The Contractor shall start the eight hour test at 8:00 a.m. local time and stop the test at 4:00 p.m. local time. If requested, the Contractor shall supply a cover, latch, and locking mechanism for the test apparatus to accept a padlock supplied by the Owner. Lines which fail to meet the leakage requirements shall be repaired and retested until test requirements are met. All pipe, fittings, and other materials found to be defective under test shall be removed and replaced at the Contractor's expense.

Pipelines shall be held under normal operating pressures for at least three (3) days before testing.

20. Connections/Disconnections

The Contractor shall make the required connections to existing water lines as shown on the Plans and as specified in these Detailed Specifications. The work of connecting new lines to existing lines is the responsibility of the Contractor and IS NOT a separate pay item unless indicated otherwise in the BID FORM; it being the intent of these Detailed Specifications to provide a complete operable facility.

21. Precast Structures

a. General

A 10'-0" inside diameter precast valve structure shall be supplied as indicated on the Plans.

b. Precast Concrete Structures

Precast structures shall be constructed on a reinforced concrete foundation and shall be wet or dry cast as modified herein. The bottom section shall be precast integrally with the precast ring and shall be the

diameter shown on the Plans. All concrete used in connection with the construction of structures shall be Class "A" concrete as specified in Section 3 of these detailed Specifications. Wet cast precast structures shall be Forterra or equal.

Precast concrete rings shall be constructed using standard forms and shall conform to ASTM C478 except that:

- (1) The concrete mixture shall contain no less than 846 pounds per cubic yard (9.0 bag mix) of Portland Cement.
- (2) All joints shall conform to Section 8 of ASTM C361 end joint wrap; except the Contractor(s) shall utilize a double seal of Ram-Neck as shown on the Plans.

The precast sections shall be manufactured and installed in a manner so that there is no visible leakage. Sections shall be manufactured in lengths such that a finished structure will have the least possible number of joints. One section less than four feet in length will be allowed per structure and that being the section required to bring the structure to grade. **NO HOLES FOR LIFTING WILL BE ALLOWED.** The precast rings shall be of the tongue and groove design sealed watertight, and the joint shall be grouted smooth on the inside and outside of the manhole so that no crack is visible. A-Lok gaskets or Kor-N-Seal connector assemblies shall be utilized in the sewer line to manhole connections.

The outside surface of all precast manholes shall be coated with two layers of bitumastic coating applied at right angles to each other.

22. Wall Sleeves or Wall Pipe

Where ductile iron piping passes through reinforced concrete walls or floors, the Contractor shall furnish and install ductile iron wall pipe with an integral waterstop as shown on the Plans.

Where PVC or other non-ductile iron pipe passes through reinforced concrete walls or floors, the Contractor shall furnish and install a heavy walled hot-dip galvanized steel wall sleeve with an integral waterstop and create a watertight seal around the pipe using an appropriate caulking or mechanical seal.

Where any pipe passes through a masonry wall, the Contractor shall furnish and install a hot dip galvanized steel wall sleeve for use with masonry and create a watertight seal around the pipe using an appropriate caulking or mechanical seal.

23. Gate Valves and Boxes

Valves 12-inches in diameter and smaller shall be gate valves. Gate valves shall conform to AWWA C509 as extended and/or modified herein. All gate valves shall be of the resilient seat type, iron body, non-rising stem, fully bronze mounted, suitable for water working pressure of 200 psi. Valves shall be of a standard manufacture and of the highest quality both as to materials and workmanship. An affidavit of compliance is required. Bolting materials shall be cadmium plated. The stem sealing shall be by an O-ring.

Gate valves shall be furnished with mechanical joint end-connections, unless otherwise shown on the Plans or specified herein. The end-connections furnished shall be suitable for connection to the pipe furnished.

All gate valves shall have the name or monogram of the manufacturer, the year the valve casting was made, the size of the valve, and the working water pressure cast on the body of the valve. Each valve shall be epoxy coated and touched up in the field as required.

Gate valves shall be provided with a 2-inch square operating nut and shall open by turning to the left (counter-clockwise). Gate valves shall be Mueller or an approved equal.

Valve boxes shall be cast iron, THREE (3) PIECE, screw type with drop cover marked "Water". They shall be set vertically and properly adjusted so that the cover shall be in the same plane as the finished surface of the ground or street. For ease of location and identification, a 2'-0" square by 6-inch thick concrete pad with a cast aluminum plaque with raised letters identifying the valve shall be imbedded therein as shown on the Plans.

24. Butterfly Valves and Boxes

Valves 16-inch in diameter and larger shall be butterfly valves. Butterfly valves for pipeline service shall be suitable for 200 psi working pressure, shall be designed for underground service and shall meet the requirements of AWWA C506 as modified hereinafter. Butterfly valves shall be Dezurik or approved equal. Valves may be either of the "short" or "long" laying length type where this meets service conditions.

Butterfly valves shall be furnished with flanged end connections. The end connections shall be suitable for connections to cast or ductile iron pipe. "Slip-on" joints will not be allowed.

Valve operators shall consist of a geared 2-inch square nut and shall conform to the latest revision of AWWA C504 and shall be designed to hold the valve in any intermediate position between fully open and fully closed without creeping or

fluttering. The gear box shall be fully sealed and grease packed. Valve operators shall be capable of resisting without damage an input of at least 300 foot pounds. Valves shall open by turning counter-clockwise. The valve shall be supplied with a THREE (3) PIECE cast iron valve box and a drop cover marked "Water".

25. Valve Stem Extensions, Supports and Accessories

Valve stem extensions shall be provided where shown on the Plans. Stem extensions shall be stainless steel meeting the requirements of ASTM A276, Type 304 with operators as shown on the Plans and shall be securely fastened to the valve stem at the bottom. Stem extensions shall be of the diameter recommended by the manufacturer of the valve and must be of sufficient section to withstand any torsional or other load which will be imposed.

Stem extension guides shall be bronze bushed of the split type construction, machine bored 1/16 inch larger than the stem diameter, held to the wall by stainless steel anchor bolts and adjustable in two directions. Stem guides shall be provided as recommended by the valve and stem manufacturer.

26. Miscellaneous Metals

a. Scope

The work to be performed under this Section consists of furnishing and installing all items of miscellaneous metals shown on the Plans, specified herein, or otherwise incidental to the work.

b. Shop Drawings

The Contractor shall submit to the Engineer seven (7) paper copies and one (1) digital copy of detailed shop drawings for all items of miscellaneous and ornamental metal for approval. The provisions contained in Section 1 of these Detailed Specifications shall apply to the submission of shop drawings, and no fabrication or erection of miscellaneous metals shall be done prior to approval of shop drawings.

c. Stainless Steel

All anchor bolts, structural shapes, plates, bars and fabricated work shown on the Plans or specified in these Detailed Specifications to be stainless steel, shall conform to the requirements of the latest revision of ASTM A276 and/or ASTM A312, for Type 304 or Type 316. All bolts, nuts and fasteners shown on the Plans or specified in these Detailed Specifications to be stainless steel shall conform to the requirements of the latest revision of ASTM F593 and F594, Group 1 or 2. When used with dissimilar metals,

stainless steel shall be furnished with neoprene rubber insulators to prevent corrosion.

d. Fabricated Steel

All connections in fabricated steel miscellaneous metal work shall be welded unless shown otherwise on the Plans. All welding shall be performed in accordance with American Welding Society Standard D1.1. In assembling and during welding, the component parts of built-up members shall be supported and held by sufficient clamps and other adequate means to hold the parts in proper relation for welding. All exposed welds shall be ground smooth. Shop drawings of all items are required.

Unless otherwise noted, all angles, plates, frames, lintels, and miscellaneous structural and bar shapes shall conform to the Standard Specifications of the American Institute of Steel Construction and ASTM A36, latest revision.

W-shapes shall be ASTM A992. Bent or cold-formed steel shall be ASTM A283 Grade C.

Fabricated steel shall be hot-dip galvanized after fabrication as set forth in Sub-paragraph e. Galvanized Steel Items hereinafter.

e. Galvanized Steel Items

Galvanized steel items shall be hot-dip galvanized after fabrication in accordance with:

- | | | |
|-----|----------------------------------|-----------|
| (1) | Iron and steel hardware | ASTM A153 |
| (2) | Rolled steel shapes, <i>etc.</i> | ASTM A123 |
| (3) | Assembled steel items | ASTM A385 |

f. Cast Iron Items

Cast iron items shall be true to pattern, clean and free from injurious flaws and defects, and conform to the requirements of the latest revision of ASTM A48.

g. Aluminum

(1) General

Where items of aluminum are called for on the Plans, the alloy shall be of the type and alloy recommended by the manufacturer for the

purpose or service intended. The alloy used shall be noted on the Submittal.

Any surfaces of aluminum that come in contact with masonry materials or concrete shall be coated with heavy-bodied bituminous paint.

Aluminum which comes in direct contact with stainless steel or other dissimilar metals shall be protected by neoprene rubber insulators to prevent galvanic corrosion of the aluminum.

All aluminum shall be cleaned thoroughly with mild soap and water upon project completion. No abrasive or caustic cleaning shall be used.

(2) Aluminum Frames for Fiberglass Grating and Aluminum Hatches

Frames for all fiberglass grating and aluminum hatches shall be fabricated from aluminum alloy meeting the requirements of the latest revision of ASTM B221. All frames for fiberglass grating shall provide for two-inches bearing and shall be the depth required to match grating or hatch depth. Embedded frames shall be fabricated with concrete anchors.

(3) Pipe Handrails

Handrails shall be designed to meet all requirements of the Year 2018 International Building Code as modified by the Kentucky Building Code. The intent of these specifications is to allow a handrail system using aluminum pipes and aluminum or stainless steel components with stainless steel fasteners and connections which will not loosen in service. Handrails shall be designed for applicable loads including a 20- pound concentrated load applied at any location in any given direction and a 50-pound / L.F. distributed load applied in any given direction (concentrated and distributed loads need not be applied simultaneously). Other or intermediate handrails shall be designed to withstand a 50-pound horizontal load on an area not exceeding 12 inches by 12 inches. Handrails shall be 2-line minimum 1½-inch schedule 40 aluminum pipe, alloy 6063-T6 with toeplates as shown on the plans and/or required by OSHA. Toeplates shall be 4-inch high aluminum extrusions set 1/4-inch above the walking surface. Post spacing shall be a maximum of seven (7) feet or sufficiently close to meet strength requirements. Posts shall not interrupt the continuity of the top rail; the top rail shall be smooth. For welded rail, all welds shall be ground smooth. Openings in the railing shall be guarded by a

self-closing gate or 1¼-inch stainless steel safety chain where shown on the Plans. Aluminum finish shall be M10-C22-A41(215-R1) as per Aluminum Association. Units shall be shipped protected by a removable plastic wrap (which shall be removed during final clean-up and start-up of the facility). Refer to Sub-paragraph h. Protection and Cleaning of Aluminum of this Section hereinafter for protection and cleaning of aluminum. Component handrails shall be equal to TUF Rail as manufactured by Thompson Fabricating Company, Birmingham, Alabama.

h. Protection and Cleaning of Aluminum

All sash and frame members shall receive a uniform temporary protective coating of water clear lacquer after fabrication in accordance with AAMA Specification.

Any surfaces of aluminum that come in contact with masonry materials or concrete shall be coated with heavy-bodied bituminous paint.

Aluminum which comes in direct contact with steel or other dissimilar metals shall be protected to prevent galvanic corrosion of the aluminum. After installation, all aluminum material shall be protected with a coating of suitable wax or similar compound to preserve the finish while other trades are doing their work.

All aluminum shall be cleaned thoroughly with mild soap and water or petroleum product. No abrasive or caustic cleaning shall be used.

i. Concrete Expansion Anchors

Where shown on the Plans to anchor into existing concrete, expansion anchors shall be wedge-type with one-piece wrap around expansion clip meeting the requirements of Federal Specification FF-S325, Group 11, Type 4, Class 1. Carbon steel anchors shall be zinc plated in accordance with Federal Specification QQ-Z-325C, Type 11, Class 3. Stainless steel anchors (including body and expansion clip nut and washer) shall be manufactured from 316 stainless steel. Anchors shall be Red Head wedge anchors or approved equal.

Expansion anchors shall be installed in holes drilled with carbide tipped drill bits conforming to ANSI Specification B94.12-77. Minimum installation depth and method of expansion shall be as recommended by the anchor manufacturer.

Unless noted otherwise, expansion anchors shall be rated for the following values in 4,000 psi concrete:

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<u>Size</u>	<u>Ultimate Pullout (lbs.)</u>	<u>Ultimate Shear (lbs.)</u>
1/4-inch	3,000	1,900
3/8-inch	5,600	4,300
1/2-inch	7,200	7,200
5/8-inch	10,000	13,000
3/4-inch	16,000	18,500
7/8-inch	20,000	25,000
1-inch	30,000	29,000
1 ¼-inch	53,000	46,000

Anchors shall not be spaced closer than the manufacturer's recommended minimum spacing without prior approval of the Engineer.

j. Safety Chain

Chains shall be heavy duty stainless steel or aluminum capable of lifting 1,000 pounds and no less than 1 ¼-inch link.

27. Replacing Streets and Roadways

a. General

The Contractor(s) shall replace all streets, alleys and roadways which may be removed, disturbed, or damaged in connection with his operation under this Contract. The Contractor(s) shall reconstruct same to the original lines and grades and in such manner as to leave all such surfaces in fully as good or better condition as that which existed prior to his operations. The reuse of materials removed in making excavations will be permitted provided said materials will properly compact.

Gravel, crushed limestone, bituminous materials, or other materials used in the resurfacing of streets shall meet the current requirements of the Kentucky Department of Highways.

ANY DISTURBANCE BEYOND THE MAXIMUM ALLOWABLE WIDTH OF FIVE (5) FEET FOR PAY ITEMS WILL BE CONSIDERED CONTRACTOR'S NEGLIGENCE AND SHALL BE REPAIRED AND/OR REPLACED AT THE CONTRACTOR'S EXPENSE.

At least one-half of the traveled portion of any open cut roadways must be open to traffic at all times. Further, the Contractor(s) shall maintain traffic in at least one (1) lane at all times. No gravel trenches shall be open to traffic at any time. The Contractor(s) shall coordinate all work in traveled roadways with the city, police and fire departments. The Contractor(s)

shall furnish all warning signs, barricades, channelization devices, *etc.*, which may be required. The Contractor(s) will provide these services. All traffic control devices shall be in accordance with the manual of uniform traffic control devices, current revision. The Contractor(s) is solely responsible for job safety and he shall hold the Engineer and the Owner harmless from any claims arising thereof.

b. Backfill of Trenches Under Roadways

Replacement of streets and roadways after trenching shall be handled in the following manner:

When stone is used to backfill the trench, it shall be brought to finished grade.

The Contractor(s) shall maintain the trench by adding stone as specified and as shown on the Plans to keep the trench in a safe and passable condition until such time that sufficient settlement has taken place and the trenches are ready for final resurfacing.

c. Traffic-Bound Base Course

After the backfill on Ohio County roads and streets has been compacted to within approximately 10 inches of finished grade as specified hereinbefore and as shown on the Plans, the Contractor(s) shall place approximately 10 inches of crushed stone, KDH dense grade aggregate (DGA), in 5-inch lifts, as a traffic-bound base course at the proper elevation to allow for settlement, but not in such a way as to present a hazard to traffic from using from using the roadway.

The Contractor(s) shall maintain the traffic-bound base course by adding crushed stone as specified above in a safe and passable condition for a period of sixty (60) days if dust control is provided, or until such time as sufficient settlement has taken place so that a base exists at least 6 inches thick; and trenches are ready for final resurfacing. Crushed stone added to ditches for maintenance after initial backfill will not be cause for additional payment. Crushed stone will be paid for at the unit price specified in the BID FORM.

d. Subgrade for Final Resurfacing

The traffic-bound course described above shall comprise the base course for all types of resurfacing.

When in the opinion of the Engineer, the trench has reached a condition of settlement satisfactory for final resurfacing, the Contractor(s) shall first

strip the base course or backfill of crushed stone, size as specified above, to obtain the proper subgrade elevation. The subgrade shall then be rolled with an approved type roller, or tamped until thoroughly compact and 6 inches thick.

Any depressions shall be filled with crushed stone or gravel, as specified, and the process of rolling or tamping continued until the subgrade has a smooth and uniform surface.

e. Surface Restoration

The method of surface restoration shall be in accordance with the Kentucky Department of Highways Surface Restoration Methods, Drawing No. TC 99-13.

28. Pipe Materials for Storm Sewers

a. General

Storm sewer lines shall be constructed of circular reinforced concrete pipe unless otherwise shown on the Plans.

b. Circular Reinforced Concrete Pipe

Reinforced concrete pipe shall conform to the latest revision of ASTM Designation C 76 "Standard Specifications for Reinforced Concrete Culvert, Storm Drain and Sewer Pipe" and shall be constructed of Class "A" concrete as specified in Section 3 of these detailed Specifications. Reinforced Concrete Pipe shall be manufactured by Sherman Dixie or approved equal.

c. Circular Reinforced Concrete Pipe Joints

Reinforced concrete pipe joints shall incorporate rubber gaskets integrally cast into the groove end of each piece of pipe and joints shall conform to the latest revision of ASTM Designation C-443 "Standard Specification for Joints for Circular Concrete Sewer and Concrete Pip Using Rubber Gaskets."

29. Rip-Rap

Rip-rap shall be furnished as shown on the Plans. Rip-rap shall conform to the requirements of 204.03.07(A) of the KYTC Standard Specifications as altered below.

Provide stone so that at least 80 percent, by volume of individual stones range in size from 1/4 to 1 1/2 cubic foot. Use smaller sized stones for filling voids in the upper surface and dressing to the proper slope. The Engineer will accept the size and gradation of the material based on visual inspection. The Engineer may allow material not conforming to the specified size and gradation when it is acceptable for the intended use.

Shape ditches and channels as specified to receive the channel lining. Unless solid rock is encountered, begin the channel lining in a trench 2 feet below the natural ground or 2 feet below the channel flowline when the flowline is not lined. Where encountering solid rock, end the slope protection at the solid rock line.

Rip-rap shall be placed at a depth of 24-inches. Place the stone in a manner to produce a surface not varying more than 6 inches from a true plane.

30. Chain Link Fencing

The Contractor shall provide a complete protection type fence as shown on the Plans. The fence shall be seven (7) feet high overall (6 feet fabric height), consisting of 9 gauge steel woven in 2-inch mesh with a 0.40 ounce aluminum coating per square foot of surface area as per the latest revision of ASTM A-817 and three (3) strands of barbed wire on malleable iron post tops. Aluminized fabric shall be manufactured in accordance with the latest revision of ASTM-491.

Barbed wire shall consist of two (2) strands of 12 ½ gauge twisted galvanized steel wire with an 0.80 ounce zinc coating per square foot of wire surface area conforming to the latest revision of ASTM A121 with 12 ½ gauge galvanized steel point barbs, 5 inches apart.

Line posts shall be 2.5-inch, O.D. Schedule 40 steel pipe (3.65 lbs. per foot) with a 1.80-ounce zinc coating per square foot of surface area conforming to the latest revision of ASTM F1083, Type I steel pipe. End, corner, and gate posts for gates 6 feet wide or less shall be 3-inch O.D. Schedule 40 steel piping (5.79 lbs.) per foot.

For the 16'-0" double gate, posts shall be 4-inch O.D. Schedule 40 steel piping (9.11 lbs. per foot). Top rails for fencing and gates shall be 1-5/8" O.D. Schedule 40 steel piping (2.27 lbs. per foot) with extra-long pressed steel sleeves. Terminal, corner, and gate posts shall have the necessary strut and tie bracing. The double gate shall be equipped with heavy duty latch, gate stops and holders.

Posts shall be set at not more than 10 feet apart full three (3) feet deep in concrete footing POURED THE FULL SIZE of holes as excavated. Post holes shall be a minimum of 6 inches larger than the diameter of the post in earth and at least 3

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inches larger than the diameter of the pipe in rock. Corner and gate posts shall be set 3'-6" deep.

Gate frames shall be of 2-inch O.D. (2.27 lbs. per foot) steel pipe with welded corners with 1-5/8" internal bracing galvanized after welding. All galvanized steel pipe and specials shall meet or exceed the requirements of the latest revision of ASTM A123. Special provisions shall be taken to prevent the entrance of stock or children where the fence crosses ditches or other areas which leave space. The bottom selvage shall be two inches above the ground.

31. Class "C" Concrete for Kickers, Anchors and Encasements

Concrete used for anchors, kickers, and encasement shall be Class "C" concrete as called for on the Plans and Specifications.

32. Finish Grading, Topsoiling, Seeding and Sodding

Finish grading of disturbed areas shall be performed in accordance with the finished elevations and grades shown on the Plans and shall be made to blend into conformation with remaining natural ground surfaces. All finished grading surfaces shall be left smooth and free to drain. The tops of all cuts shall have berm ditches. Selected materials, which have been obtained from stripping the site, shall be spread upon the slopes of fills and other areas inside the fence to a uniform depth and compacted suitable for planting. Excess materials shall be spread and compacted as directed. The top four (4) to six (6) inches of material in areas to be grassed shall be topsoil.

Soil tests shall be performed to determine the seed and fertilizer requirements. For the purpose of bidding, the following grass and fertilizer requirements shall be used:

Annual Rye Grass	application rate	28 lb/acre
Kentucky Fescue #31	application rate	28 lb/acre
Inoculated Clover	application rate	7 lb /acre
Ammonium Nitrate	application rate	200 lb/acre
Lime, if required	application rate	200 lb/acre
Commercial Fertilizer	application rate	400 lb/acre
Straw	application rate	3,000 lb/acre

Seed shall be certified to contain not more than 3 percent weeds.

All graded areas shall be topsoiled with materials stripped from the site. If the Contractor fails to stockpile the topsoil, then material shall be brought in. The topsoil shall be left smooth and, after the fertilizer and/or lime have been distributed, it shall be disced or harrowed into the soil.

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Sod shall be locally available, reasonably free of weeds and approved by the Engineer, carefully cut, transported and laid. Sod shall be so laid that no voids occur between strips. Weed roots shall be removed as the sod is laid. Sod shall be tamped or rolled immediately after it is laid, and the finished surface shall be true to grade, even and equally firm at all points. Well screened topsoil shall be lightly sprinkled over the sodded areas, and shall be raked to insure sealing the sod joints.

33. Final Clean-up

Before the work is considered as complete, all rubbish and unused material due to or connected with the construction shall be removed and the premises left in a condition satisfactory to the Engineer. Final acceptance will be withheld until such work is completed.

34. Temporary Project Water Pollution Control (Soil Erosion)

See Section 1, Paragraph 38. Temporary Project Water Pollution Control (Soil Erosion).

SECTION 5

REHABILITATION OF RAW WATER LINE
USING CURED-IN-PLACE PIPE

1. Scope

The work described under this Section of the Detailed Specifications consists of the furnishing of all labor, materials, equipment and services necessary for the renovation of the existing raw water line as indicated on the Plans and specified herein using the cured-in-place pipe (CIPP) lining system. **CIPP systems shall be manufactured and installed in accordance with NSF/ANSI 61 requirements.**

2. Pre-Installation Preparations

a. Work Plan

The installer of the lining system shall submit a step by step written work plan to the Engineer as a shop drawing for approval prior to beginning work. No pipe lining work shall be undertaken without an approved work plan.

b. Pre-Installation Television Inspection for CIPP

Pre-installation television inspection by the Contractor shall be performed by the Contractor and is required in order to verify existing pipe diameter and that the pipe is ready for the cured-in-place liner.

3. Cured-in-Place Pipe (CIPP)

a. General

The CIPP lining system defined by these Detailed Specifications includes both hot water/steam cured resin-impregnated felt tubes or U.V. cured fiberglass tubes. Systems shall form a tight-fitting cured-in-place liner inside the existing sewer line pipe. The existing pipe type, material, size and depth shown on the Plans are believed to be correct; however, all information shall be verified by the Contractor before CIPP tubes are designed or manufactured. Hot water or steam cured systems shall be equal to Insituform Technologies, Inc. or approved equal. U.V. cured fiberglass systems shall be equal to Reline America, Inc. or approved equal.

All materials shall be accompanied by test reports certifying that the material conforms to the ASTM standards listed herein. Materials shall be shipped, stored, and handled in a manner consistent with the recommendations of the manufacturer.

b. Installer Certification

Installers of the CIPP lining system shall provide written evidence to the Engineer at least 5 business days before the bid date that they are licensed as an installer by the cured-in-place pipe lining system manufacturer whose system is being used.

c. Alternate CIPP Materials

(1) Hot Water or Steam Cured Systems

The fabric Tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216, Section 5.1 or ASTM F1743, Section 5.2.1 or ASTM D 5813, Sections 5 and 6. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections. The wet out Tube shall have a relatively uniform thickness that when compressed at installation pressures will equal or exceed the calculated minimum design CIPP wall thickness. The Tube shall be manufactured to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during installation. The outside layer of the Tube shall be coated with an impermeable, flexible membrane that will contain the resin and allow the resin impregnation (wet out) procedure to be monitored. The Tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 feet. Such markings shall include the Manufacturers name or identifying symbol.

The resin system shall be a corrosion resistant polyester or vinyl ester system including all required catalysts, initiators that when cured within the tube create a composite that satisfies the requirements of ASTM F1216, ASTM D5813 and ASTM F1743, the physical properties herein, and those which are to be utilized in the submitted and approved design of the CIPP for this project. The resin shall produce a CIPP that will comply with the structural and chemical resistance requirements of ASTM F1216.

(2) U.V. Cured Systems

U.V. cured fiberglass shall meet or exceed the requirements of ASTM F2019.

The fiberglass within the Liner shall be non-corrosion (E-CR Glass) material and shall be free from tears, holes, cuts, foreign materials and other surface defects. Its glass fibers must extend in a longitudinal direction to insure no longitudinal stretching during the pull-in process. The Liner shall be constructed to withstand installation pressures and shall be manufactured to a size that when installed will tightly fit the internal circumference and the length of the original pipe. Liners shall have sufficient strength to bridge missing pipe sections, with the use of a canvas sleeve if necessary. The exterior plastic shall be ultra violet light resistant and translucent to allow visual inspection of the impregnation of the resin within the glass fibers. The wall color of the interior pipe surface of CIPP after installation shall be a light reflective color so that a clear detailed examination with CCTV inspection may be made.

The resin used to impregnate the Liner shall produce a cured liner pipe resistant to shrinkage, corrosion, and abrasion. The resin shall be a chemically resistant UV cured isophthalic polyester resin or vinyl ester resin.

d. Structural Design Requirements for All Lining Systems

Structural design of the cured-in-place lining system shall be performed by the lining system manufacturer. The minimum wall thickness of the liner, in place, shall be calculated in accordance with Appendix X1 of ASTM F1216 assuming fully deteriorated pipe; however, the fully cured design thickness of the lines shall not be less than the values shown in the following table. A creep reduction factor of 0.50 shall be applied to the CIPP Modulus for minimum wall thickness design. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections. Design calculations shall be submitted to the Engineer as a "shop drawing" prior to beginning installation of CIPP liner.

The minimum fully cured design CIPP liner thickness for each diameter pipe shall be as follows:

Minimum CIPP Liner Thickness (millimeters)

<u>Diameter (inches)</u>	<u>Hot Water/ Steam Cured System</u>	<u>U.V. Cured System</u>
16	11	8

The following soil and loading conditions are provided by the Engineer as a courtesy. The cured-in-place pipe manufacturer shall conduct his own evaluation of the soil and loading conditions. The cost of any testing required shall be the responsibility of the cured-in-place pipe manufacturer. The following values shall establish a minimum design condition:

Minimum Soil and Loading Conditions for Design

Design Life:	50 Years
Factory of Safety:	2.0
Quality Factor:	2.0%
Soil Depth:	Tabulated on Plans
Ground Water Depth:	Saturated to Surface
Soil Modulus:	700 psi
Soil Density:	130 pcf
Live Load:	H-20 Highway

e. Joints

The main line cured-in-place liner pipe shall be installed continuously from manhole to manhole. Joints between manholes will not be allowed. Joints at branch connections shall have no visible leakage.

4. CIPP Installation Procedures

a. General

The installer of the cured-in-place pipe lining system shall follow the written plan submitted to the Engineer as a shop drawing. CIPP installation shall be in accordance with ASTM F1216 or ASTM 1743 for hot water/steam cured systems or ASTM F2019 for U.V. cured systems as modified hereinafter.

b. CIPP Installation and Curing

(1) Hot Water or Steam Cured Systems

The quantity of resin impregnated in the tube shall be sufficient to fill the volume of air voids in the tube and allow for polymerization shrinkage and potential loss of resin during installation.

The wet out tube shall be positioned in the pipeline using either inversion or a pull-in method as defined within ASTM F1216 or ASTM F1743. If pulled into place, a power winch or its equivalent should be utilized and care should be exercised not to damage the tube as a result of pull-in friction. The tube should be pulled-in or inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point. Temperature gauges shall be placed between the tube and the host pipe's invert position to monitor temperatures during the cure cycle. Curing shall be accomplished by utilizing hot water under hydrostatic pressure or steam pressure in accordance with the manufacturer's recommended cure schedule. A cool-down process shall be conducted that complies with the resin manufacturer's specification.

(2) U.V. Cured Systems

CIPP installation and curing shall be in accordance with applicable ASTM F2019, Section 6.4, Section 6.6, and 6.7 as modified hereinafter.

The fabric tube shall be fully impregnated with resin. The impregnation equipment shall contain devices to secure a proper distribution of the resin. Following the impregnation, the fabric tube shall be exposed to a resin thickening procedure. Certification documentation concerning date, manufacturer, trade name, lot number, resin calculation, and volume of resin used shall be attached to the impregnated fabric tube.

Prior to inserting the Liner, a plastic sheet of 10 mil thick will be pulled into the host pipe to protect the liner from damage as the Liner is pulled in. The Liner shall be pulled-in through an existing manhole or approved access point and fully extend to the next designated manhole or termination point. The pulling speed shall not exceed 15 ft/min. Care shall be exercised not to damage the tube during the pulling phase. The Liner shall then be inflated with air with sufficient pressure to hold the Liner tight to the host pipe wall. The Contractor will video record the Liner prior to commencement of the curing process and make the recording available to the Engineer upon request.

The ultraviolet curing lamps shall operate in a sufficient frequency range to insure the curing of the resin. A camera must be located on the ultraviolet light assembly to enable the video inspection of the Liner and to ensure that the Liner has been properly inflated and any liner problems can be identified before curing begins. The

Contractor will submit a documented record of time, rate of travel of the ultraviolet light assembly, and internal temperatures and pressures during the curing process to the Engineer upon request.

c. Connection of Liner Pipe to Existing Manholes

Connection to existing manholes and the existing sanitary sewer line, and the connection of the liner pipe to existing sewer service lines shall not proceed until the liner has cured. The manufacturer's recommendations as stated in the written work plan approved by the Engineer shall be followed with regard to the time required for the liner to cure.

The liner pipe shall be neatly cut so that approximately one-inch of the liner pipe extends into the manhole. Any damage to the invert bench or flow line in the existing manhole shall be repaired using Class C concrete as specified at no cost to the Owner.

The costs for connecting the liner pipe to existing manholes are not separate pay items and shall be included in the cost for furnishing and installing the liner system.

THE CONTRACTOR SHALL SUBMIT A MANHOLE CONNECTION DETAIL SHOWING PROPOSED MATERIALS AND METHODS USED TO PROVIDE A LEAKPROOF CONNECTION AT THE REPLACEMENT PIPE AND MANHOLE INTERFACE PRIOR TO BEGINNING ANY WORK ON SITE.

BID FORM

- An Individual
A Partnership
A Corporation
A Limited Liability Corporation

Date _____

1. BID for construction of Water System Improvements for the Ohio County Water District as Owner.

TO THE OHIO COUNTY WATER DISTRICT:

I
WE _____
Name of Bidder

Address of Bidder

The undersigned, as bidder, proposes to furnish all necessary labor, machinery, tools, apparatus, materials, equipment, service and other necessary supplies, in strict accordance with the terms and conditions of the Detailed Specifications, Contract Documents and the Plans hereto attached and referred to herein for the construction of Water System Improvements, Contract 21-01 – Raw Water Intake Improvements, and do such other work incidental thereto as may be ordered by the Engineer, at the unit or lump sum prices listed herein.

2. The Bidder declares that he has examined the sites of the work and informed himself fully in regard to all conditions pertaining to the places where the work is to be done; that he has examined these Detailed Specifications and Contract Documents for the work and has read all special provisions furnished prior to the opening of bids; and that he has satisfied himself relative to the work to be performed. The Bidder further declares that he understands the unit price work is subject to increase or decrease, and that should the scope of any of the items of work be changed materially, the undersigned proposes to do the additional work using the unit prices set out herein. Should the quantities be decreased the undersigned will make no claim for anticipated profits.
3. BIDS shall include sales tax and all other applicable taxes and fees.
4. Amounts are to be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.

BID FORM

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5. The unit and lump sum prices shall include all labor, materials, shoring, overhead, profit, insurance, *etc.*, to cover the finished work of the several kinds called for.
6. The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informalities in the bidding.
7. The Bidder agrees that his Bid shall be good and may not be withdrawn for a period of 90 calendar days after the scheduled closing time for receiving bids.

8. CONTRACT 21-01 – RAW WATER INTAKE IMPROVEMENTS

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
1.	Lump Sum	Rock Drilling in River at each screen location to determine sediment depth and rock elevation and report to the Engineer, including mobilization, barges, and de-mobilization if required For _____ _____ Dollars _____ Cents, lump sum		\$ _____
2.	Lump Sum	Screening Assemblies including excavation micropiles, support frame, raw water screen and all incidentals as shown on the Plans, complete in place For _____ _____ Dollars _____ Cents, lump sum		\$ _____
3.	Lump Sum	Installation of underground raw water piping from screening assemblies to valve wetwell and underground air piping from screening assemblies to air compressor, including excavation and backfill as shown on the Plans, complete in place For _____ _____ Dollars _____ Cents, lump sum		\$ _____

8. CONTRACT 21-01 – RAW WATER INTAKE IMPROVEMENTS (cont'd)

ITEM NUMBER	APPROXIMATE QUANTITY	DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS	UNIT PRICE	TOTAL PRICE
4.	Lump Sum	Valve Vault including valves, structure, excavation, backfill, handrail, and all incidentals as shown on the Plans and specified herein For _____ _____ Dollars _____ Cents, lump sum		\$ _____
5.	Lump Sum	Installation of screening assembly air compressor, tank and related equipment including electrical work, complete in place as shown on the Plans and specified herein For _____ _____ Dollars _____ Cents, lump sum		\$ _____
6.	Lump Sum	Site Work, Paving, Restoration and all incidentals not included in Bid Item Nos. 1 through 5 to complete all work shown on the Plans and specified herein For _____ _____ Dollars _____ Cents, lump sum		\$ _____
TOTAL BID AMOUNT CONTRACT 21-01 ITEMS 1 – 6 INCLUSIVE				\$ _____

The Contractor shall be aware that the bid cost for this contract shall be the sum of Bid Items 1 through 6 and no additional payment will be made for work shown on the Plans or specified that is not described in a Bid Item.

9. Time of Commencement and Completion

The Bidder further proposes and agrees hereby to commence the work with adequate force and equipment on a date to be specified in a written order of the Engineer, and complete all work within the calendar days shown:

Contract 21-01 – Within 365 consecutive calendar days

10. Liquidated Damages

The Bidder further understands that if the work is not completed within the time specified, that any additional engineering and resident construction observation costs incurred by the Owner due to the Contractor exceeding the time allowed for completion plus other damages, including the revenue lost from the project's water customers, will be deducted on a per calendar day basis from the compensation otherwise due him in accordance with the General Conditions for each day thereafter, Sundays and holidays included, that work remains uncompleted.

The following sum is agreed by the parties to be liquidated damages:

One Thousand (\$1,000.00) Dollars per calendar day

11. Time Limit for Execution of Documents

The undersigned further agrees that, in case of failure on his part to execute the Contract and the Bond(s) in the six (6) counterparts within ten (10) consecutive calendar days after written notice being given of the award of the Contract, the check or bid bond accompanying this bid and the monies payable thereon shall be paid into the funds of the Ohio County Water District as liquidated damages for such failure; otherwise the check or bid bond accompanying this BID FORM shall be returned to the undersigned.

12. Bid Guaranty

Attached hereto is a certified check on the _____
Bank of _____ or a Bid Bond on the form
provided for the sum of 5% of Bid Dollars (\$_____) made payable to
the Ohio County Water District to insure that the Contractor will enter into
the Construction Contract and Contract Bond.

13. Interested Parties

The undersigned, as Bidder, hereby declares that the only person or persons interested in the BID FORM as principal or principals is or are named herein, and that no other person herein mentioned has any interest in this BID FORM or in the Contract to be entered into; that this BID FORM is made without connection with any other person, company, or parties making a bid or proposal and that it is in all respects fair and in good faith without collusion or fraud.

<u>NAME</u>	<u>ADDRESS</u>
_____	_____
_____	_____
_____	_____

14. Addenda

I hereby certify that I have received, read and examined the following numbered Addenda: _____, _____, _____, _____, _____, _____, _____.

BY: _____
Name of Bidder

Address of Bidder

Signature of Authorized Representative

Title

ATTEST (For Corporations)

(Name)

Title

REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS
CLAIMING QUALIFIED BIDDER STATUS

FOR BIDS AND CONTRACTS IN GENERAL:

I. The bidder or offeror swears and affirms under penalty of perjury that the entity bidding, and all subcontractors therein, meets the requirements to be considered a “qualified bidder” in accordance with 200 KAR 5:410(3); and will continue to comply with such requirements for the duration of any contract awarded. Please identify below the particular “qualified bidder” status claimed by the bidding entity.

_____ A nonprofit corporation that furthers the purposes of KRS Chapter 163

_____ Per KRS 45A.465 (3), a “Qualified nonprofit agency for individuals with severe disabilities” means an organization that:

- (a) Is organized and operated in the interest of individuals with severe disabilities; and
- (b) Complies with any applicable occupational health and safety law of the United States and the Commonwealth; and
- (c) In the manufacture or provision of products or services listed or purchased under KRS 45A.470, during the fiscal year employs individuals with severe disabilities for not less than seventy-five percent (75%) of the man hours of direct labor required for the manufacture or provision of the products or services; and
- (d) Is registered and in good standing as a nonprofit organization with the Secretary of State.

The BIDDING AGENCY reserves the right to request documentation supporting a bidder’s claim of qualified bidder status. Failure to provide such documentation upon request may result in disqualification of the bidder or contract termination.

Signature

Printed Name

Title

Date

Company Name _____

Address _____

Subscribed and sworn to before me by _____ this _____
day of _____, 20____.

Notary Public
[Seal of Notary]

My Commission Expires

Check this box if not claiming Qualified Bidder Status

REQUIRED AFFIDAVIT FOR BIDDERS, OFFERORS AND CONTRACTORS
CLAIMING RESIDENT BIDDER STATUS

FOR BIDS AND CONTRACTS IN GENERAL:

The bidder or offeror hereby swears and affirms under penalty of perjury that, in accordance with KRS 45A.494(2), the entity bidding is an individual, partnership, association, corporation, or other business entity that, on the date the contract is first advertised or announced as available for bidding:

1. Is authorized to transact business in the Commonwealth;
2. Has for one year prior to and through the date of advertisement
 - a. Filed Kentucky income taxes;
 - b. Made payments to the Kentucky unemployment insurance fund established in KRS 341.49; and
 - c. Maintained a Kentucky workers' compensation policy in effect.

The BIDDING AGENCY reserves the right to request documentation supporting a bidder's claim of resident bidder status. Failure to provide such documentation upon request may result in disqualification of the bidder or contract termination.

Signature

Printed Name

Title

Date

Company Name _____

Address _____

Subscribed and sworn to before me by _____ (Affiant) _____ (Title)

of _____ this _____ day of _____, 20____.
(Company Name)

Notary Public
[Seal of Notary]

My Commission Expires

Check this box if not claiming Resident Bidder Status

Statement Required Pursuant to KRS 45A.395
NON-COLLUSIVE AFFIDAVIT OF PRIME BIDDER

State of _____)

County of _____)

_____, being first duly sworn, deposes and says that:

(1) He or she is the owner, partner, officer, representative, or agent of _____, the Bidder that he or she has submitted the attached bid;

(2) He or she is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

(3) Such Bid is genuine and is not a collusive or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached bid has been submitted or to refrain from bidding in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the Ohio County Water District, the City of Hartford or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance, or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Signed

Title

Subscribed and sworn to before me this _____ day of _____, 20__.

Title

My commission expires _____

BID BOND

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

Principal, and _____ as
Surety, are hereby held and firmly bound unto the Ohio County Water District, as Owner,
in the penal sum of:

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

Signed this _____ day of _____, 20_____.

The condition of the above obligation is such that whereas the Principal has
submitted to the Ohio County Water District, a certain BID, attached hereto and made a
part hereof to enter into Contract in writing for the construction of Water System
Improvements, Contract 21-01 – Raw Water Intake Improvements for the Ohio County
Water District, Ohio County, Kentucky.

NOW THEREFORE,

- (a) If said Bid shall be rejected, or in the alternate,
- (b) If said Bid shall be accepted and the Principal shall execute and deliver a
Contract in the Form of Contract attached hereto (properly completed in
accordance with said Bid) and shall furnish a bond for his faithful
performance of said Contract, and for the payment of all persons
performing labor or furnishing materials in connection therewith, and shall
in all other respects perform the agreement created by the acceptance of
said BID, then this obligation shall be void, otherwise the same shall
remain in 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 Surety, for value received, hereby stipulates and agrees that the obligations
of said Surety and its bond shall be in no way impaired or affected by any extension of
the time within which the Owner may accept such BID; and said Surety does hereby
waive notice of any such extension.

BID BOND
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IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal

Firm Name

BY: _____

Signature

Printed Name

ADDRESS: _____

Seal

Surety

Firm Name

BY: _____

Signature

Printed Name

ADDRESS: _____

Seal

BID BOND
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NOTE: A copy of the Power of Attorney of the Surety's Principal is required and the amount of the bond must not be less than five percent (5%) of the amount of bid.

Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State where the project is located.

AGREEMENT

THIS AGREEMENT made and entered into this the ____ day of _____,
20_____, by and between _____
doing business as a _____
(an individual) or (a partnership) or (a corporation)

hereinafter called the Contractor, and the Ohio County Water District, Ohio County,
Kentucky hereinafter called the Owner:

WITNESSETH:

That the Contractor, for the consideration hereinafter fully set out, hereby agrees
with the Owner as follows:

1. Scope of the Work

That the Contractor shall furnish all labor, materials, tools, machinery and service,
to complete the construction of Water System Improvements, Contract 21-01 –
Raw Water Intake Improvements for the Owner, in the manner and form as
provided by the Detailed Specifications and Documents attached hereto and
enumerated as follows:

a. Plans

Ohio County Water District, Water System Improvements, Contract 21-01
– Raw Water Intake Improvements, Sheets 1 through 7.

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b. Specifications and Contract Documents

	<u>Pages</u>
(1) Advertisement for Bids	AB, 1 – 3
(2) Instructions to Bidders	IB, 1 – 10
(3) General Conditions	GC, 1 – 72
(4) Supplementary Conditions SRF – Kentucky	SRF SC, 1 – 2
(5) A Listing of the Duties, Responsibilities and Limitations of Authority of the Resident Project Representative	1 – 4
(6) Supplemental General Conditions – SRF	1 – 49
(7) Davis-Bacon Wage Rate	
(8) Detailed Specifications	
Section 1 – General Scope and Special Provisions	DS 1, 1 – 13
Geotechnical Engineering Reports	
USACE and Kentucky Environmental Permits	
Section 2 – Testing and Control of Materials	DS 2, 1 – 5
Section 3 – Concrete and Reinforcing Steel	DS 3, 1 – 26
Section 4 – Site Preparation and Development, Water Lines and Appurtenances	DS 4, 1 – 36
Section 5 – Rehabilitation of Raw Water Line Using Cured-in-Place Pipe	DS 5, 1 – 6
(9) BID FORM	BF, 1 – 6
Required Affidavit for Bidders, Offerors and Contractors Claiming Qualified Bidder Status	
Required Affidavit for Bidders, Offerors and Contractors Claiming Resident Bidder Status	
Statement Required Pursuant to KRS 45A.395	
Non-Collusive Affidavit of Prime Bidder	
(10) Bid Bond	BB, 1 – 3
(11) Agreement	A, 1 – 8
(12) Performance Bond	PEB, 1 – 2
(13) Payment Bond	PAB, 1 – 2
(14) Addenda _____, _____, _____, _____, _____	

all identified as Water System Improvements for the Ohio County Water District, Contract 21-01 – Raw Water Intake Improvements, Project Number 2125, March 2021 as prepared by the Engineer, J. R. Wauford & Company Consulting Engineers, Inc., Nashville, Tennessee, and shall do everything required by this Agreement, Advertisement for Bids, Instructions to Bidders, General Conditions,

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Detailed Specifications, BID FORM, Payment Bond, Performance Bond, and Addenda.

2. Time for Commencement and Completion

That the Contractor shall commence the work to be performed under this Agreement on written order of the Engineer and shall fully complete all work hereunder within the following number of consecutive calendar days from and including said date.

Contract 21-01 – Three Hundred Sixty-Five (365) calendar days

3. Payments

The Owner hereby agrees to pay to the Contractor for the faithful performance of this Agreement, subject to additions and deductions as provided in the Detailed Specifications and Contract Documents, in lawful money of the United States, as follows:

the full sum of _____ Dollars
Cents (\$_____).

4. Current Estimates

The Owner shall make partial payments to the Contractor on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the Contractor, less ten (10) percent of the amount of such estimate which is to be retained by the Owner until all work has been performed strictly in

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accordance with this Agreement and until such work has been accepted by the Owner. Upon request by the Contractor, total retainage shall be reduced to five (5) percent of the total revised Contract Amount after the Contract is at least 50 percent complete.

5. Final Estimates

Upon submission by the Contractor of evidence satisfactory to the Owner that all payrolls, material bills, and other costs incurred by the Contractor in connection with the construction of the work have been paid in full, final payment on account of this Agreement shall be made after the completion by the Contractor of all work covered by this Agreement, and the acceptance of such work by the Owner.

6. Liquidated Damages

It is mutually agreed between the parties hereto that time is the essence on each and every portion of this Contract. If the said Contractor shall neglect, fail or refuse to complete the work within the time specified within the Contract, or within any proper extension thereof granted by the Owner, then the Contractor does hereby agree to pay, either by means of deduction from the compensation due the Contractor under this Contract or by direct payment by the Contractor to the Owner, not as a penalty, but as liquidated damages, the sum of One Thousand (\$1,000.00) Dollars, per calendar day for each day thereafter, Sundays and Holidays included, that the work remains incomplete. In addition, any fines paid

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as a result of the Contractor's failure to complete the project on time or neglect shall be borne by the Contractor.

7. Additional Bond

It is further mutually agreed between the parties hereto that if, at any time after the execution of this Agreement and the Surety Bond hereto attached for its faithful performance, the Owner shall deem the surety or sureties upon such bond to be unsatisfactory, or if for any reason such bond ceases to be adequate to cover the performance of the work, the Contractor shall, at his expense, within five days after the receipt of notice from the Owner so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Owner. In such event, no further payment to the Contractor shall be deemed to be due under this Agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Owner.

8. Buy American

The Contractor acknowledges to and for the benefit of the Ohio County Water District ("Purchaser") and the Commonwealth of Kentucky (the "State") that it understands the goods and services under this Agreement are being funded with monies made available by the Clean Water State Revolving Fund and/or Drinking Water State Revolving Fund that have statutory requirements commonly known as "American Iron and Steel" that requires all of the iron and steel products used

AGREEMENT
2125 – March 2021

in the project to be produced in the United States (“American Iron and Steel Requirement”) including iron and steel products provided by the Contractor pursuant to this Agreement. The Contractor hereby represents and warrants to and for the benefit of the Purchaser and the State that (a) the Contractor has reviewed and understands the American Iron and Steel Requirement, (b) all of the iron and steel products used in the project will be and/or have been produced in the United States in a manner that complies with the American Iron and Steel Requirement, unless a waiver of the requirement is approved, and (c) the Contractor will provide any further verified information, certification or assurance of compliance with this paragraph, or information necessary to support a waiver of the American Iron and Steel Requirement, as may be requested by the Purchaser or the State. Notwithstanding any other provision of this Agreement, any failure to comply with this paragraph by the Contractor shall permit the Purchaser or State to recover as damages against the Contractor any loss, expense or cost (including without limitation any impairment or loss of funding, whether in whole or in part, from the State or any damages owed to the State by the Purchaser). While the contractor has no direct contractual privity with the State, as a lender to the Purchaser for the funding of its project, the Purchaser and the Contractor agree that the State is a third-party beneficiary and neither this paragraph (nor any other provision of this Agreement necessary to give this paragraph force or effect) shall be amended or waived without the prior written consent of the State.

AGREEMENT
2125 – March 2021

IN WITNESS WHEREOF the parties hereto have executed this Agreement on the day and date first above written in 6 counterparts, each of which shall, without proof or accounting for the other counterparts, be deemed an original contract.

AGREEMENT
2125 – March 2021

CONTRACTOR: _____

BY: _____

NAME: _____

(PLEASE TYPE)

TITLE: _____

(SEAL)

ATTEST OR WITNESS:

NAME: _____

(PLEASE TYPE)

OWNER: OHIO COUNTY WATER DISTRICT
OHIO COUNTY, KENTUCKY

BY: _____

NAME: _____

(PLEASE TYPE)

TITLE: _____

(SEAL)

ATTEST:

NAME: _____

(PLEASE TYPE)

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

Ohio County Water District
(Name of Owner)

124 East Washington Street, Hartford, Kentucky 42437
(Address of Owner)

hereinafter called "Owner", in the penal sum of _____
Dollars _____ Cents (\$_____) 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 _____ day of _____,
20__, a copy of which is hereto attached and made a part hereof for the construction of:

Water System Improvements
Contract 21-01 – Raw Water Intake Improvements
Wauford Project No. 2125

NOW, THEREFORE, if the Principal shall well, truly and faithfully performs 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 if he shall satisfy all
claims and demands incurred under such contract, and shall fully indemnify and save
harmless the Owner from all cost and damages which it may suffer by reason of failure
to do, 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.

PERFORMANCE BOND
2125 – March 2021

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise 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 6 counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

WITNESSES:

Principal

BY: _____

Address

(SEAL)

WITNESSES:

Surety

BY: _____

Attorney-in-Fact

NOTE: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

PAYMENT 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

Ohio County Water District
(Name of Owner)

124 East Washington Street, Hartford, Kentucky 42437
(Address of Owner)

hereinafter called "Owner", in the penal sum of _____
Dollars _____ Cents (\$ _____) 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 _____ day of _____,
20__, a copy of which is hereto attached and made a part hereof for the construction of:

Water System Improvements
Contract 21-01 – Raw Water Intake Improvements
Wauford Project No. 2125

NOW, THEREFORE, if the Principal shall promptly make payment to all persons,
firms, subcontractors, and corporations furnishing materials for or performing labor in
the prosecution of the work provided for in such contract, and any authorized extension
or modification thereof, including all amounts due for materials, lubricants, oil, gasoline,
coal and coke, repairs on machinery, equipment and tools consumed or used in
connection with the construction of such work, and all insurance premiums on said work,
and for all labor, performed in such work whether by subcontractor or otherwise, then
this obligation shall be void; otherwise to remain in full force and effect.

PAYMENT BOND
2125 – March 2021

PROVIDED, FURTHER, that the said surety, for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder or the specifications accompanying the same shall in any wise 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 6 counterparts, each one of which shall be deemed an original, this the _____ day of _____, 20__.

WITNESSES:

Principal

BY: _____

Address

(SEAL)

WITNESSES:

Surety

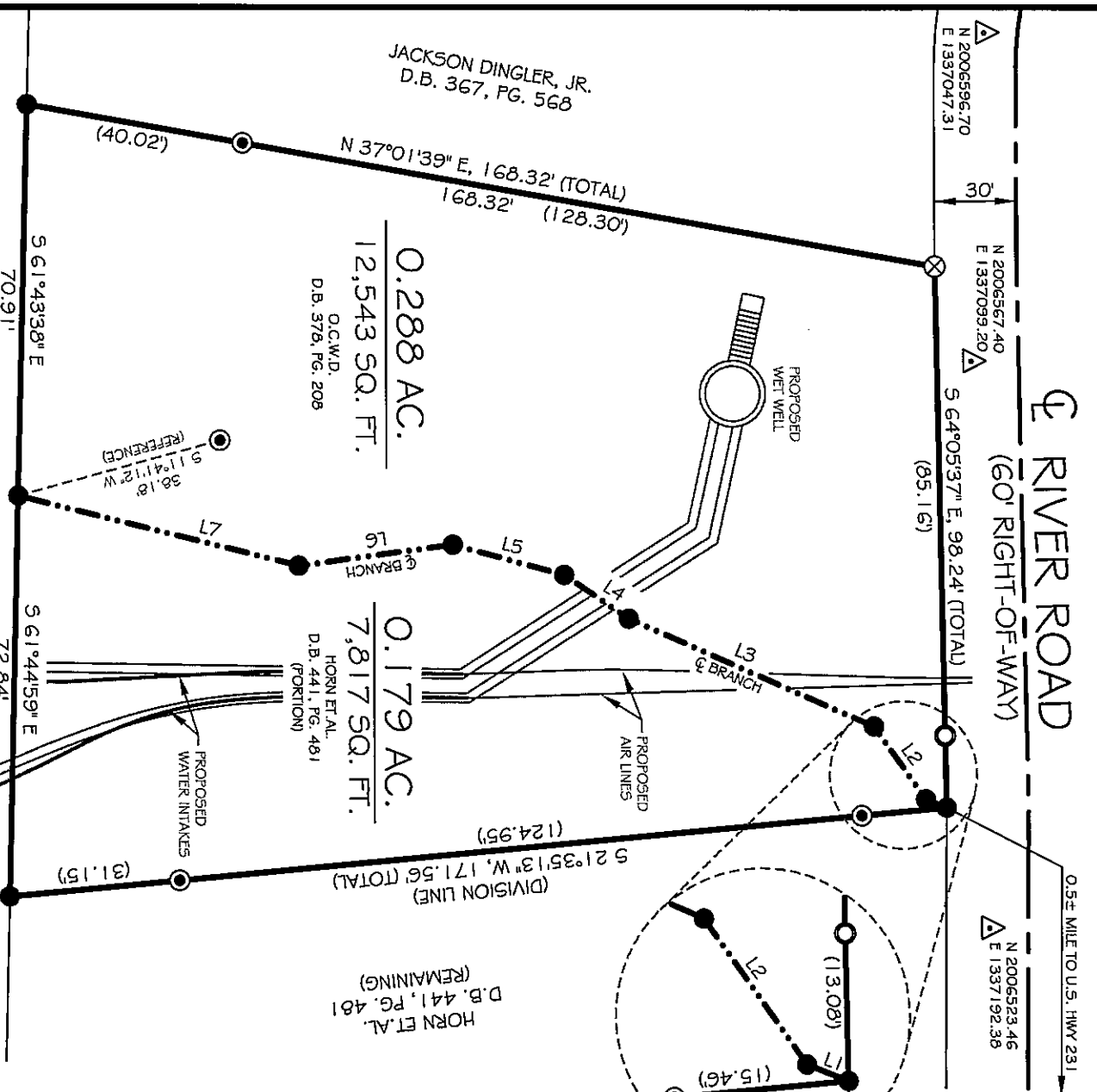
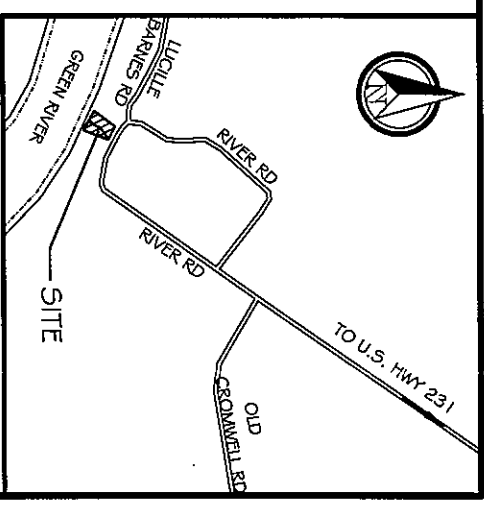
BY: _____
Attorney-in-Fact

NOTE: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where the project is located.

SURVEYOR'S NOTES:

1. THE PROPERTY DESCRIBED HEREON IS SUBJECT TO ALL LEGAL EASEMENTS AND RIGHTS-OF-WAY OF RECORD, AND ALL FACTS WHICH MAY BE DISCLOSED FROM A COMPLETE AND ACCURATE TITLE SEARCH.
2. THIS PLAT AND SURVEY REPRESENTED HEREON COMPLEES WITH 201 K.A.R. 18:150.
3. (GNSS NOTE) THE SURVEY SHOWN HEREON IS BASED ON GNSS DATA COLLECTED USING BOTH STATIC AND RTK METHODS WITH SPECTRA SP80 RECEIVERS. THE ENTIRETY OF THE DATA WAS COLLECTED BY EITHER GNSS OBSERVATION OR BY CONVENTIONAL MEANS FROM GNSS ESTABLISHED CONTROL POINTS. THE GNSS DATA HAS A POSITIONAL TOLERANCE OF 0.05'. THE HORIZONTAL DATUM USED WAS NORTH AMERICAN DATUM 1983, GOID 12B, US SURVEY FEET.
4. THERE APPEARS TO BE A SIGNIFICANT DIFFERENCE IN BEARINGS BETWEEN THIS SURVEY AND THE HORN SOURCE DEED (D.B. 441, PG. 481).

5. THERE IS A LIKELY DISCREPANCY WITH THE SOURCE OF TITLE FOR THE 0.396 ACRE EXCEPTION LISTED IN THE HORN SOURCE DEED AS IT IS LARGER THAN THE PARENT TRACT AND IS SHAPED SUCH THAT IT CANNOT FIT INSIDE THE LISTED PARENT TRACT.
6. HORN IS CLAIMING, USING, AND PAYING PROPERTY TAXES ON THE SUBJECT PROPERTY TO THE EXCLUSION OF ALL OTHERS.
7. THERE IS A POSSIBLE GAP BETWEEN THE HORN PARCEL (D.B. 441, PG. 481) AND THE O.C.W.D PARCEL (D.B. 378, 208) THAT CANNOT BE RECONCILED BY RECORDS RESEARCH.
8. I, E. ALLEN MAY HAVE ONLY CONVEYED A PORTION OF HIS PARCEL RECORDED IN D.B. 120, PG. 271 FORWARD WITH THE CONVEYANCE RECORDED IN D.B. 120, PG. 297.



LEGEND

- 5/8" REBAR SET W/ CAP, KY P.L.S. NO. 3771
- CALCULATED POINT (NO MONUMENT SET OR FOUND)
- IRON PIN FOUND W/ CAP, KY P.L.S. NO. 3862
- 1/2" IRON PIN FOUND
- △ CONTROL POINT (BY OTHERS)

LINE TABLE

LINE	BEARING	LENGTH
L1	N 48°30'46" E	4.08'
L2	N 81°45'08" E	16.23'
L3	N 50°38'39" E	48.83'
L4	N 61°15'00" E	14.13'
L5	N 42°06'55" E	21.07'
L6	N 19°14'39" E	28.38'
L7	N 40°55'35" E	52.71'

RECORD SOURCE
 DEED BOOK 441, PAGE 481
 DEED BOOK 378, PAGE 208

**OHIO COUNTY
 WATER DISTRICT**

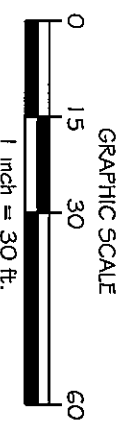
BOUNDARY SURVEY & DIVISION
 LOCATED ON RIVER ROAD
 SOUTHWEST OF CROMWELL
 OHIO COUNTY, KENTUCKY
 DATE: 03-30-2021



SURVEYOR'S CERTIFICATION

I DO HEREBY CERTIFY THAT THIS PLAT DEPICTS A SURVEY PERFORMED UNDER MY DIRECTION. THE UNADJUSTED MATHEMATICAL ERROR OF CLOSURE RATIO OF ALL TRAVERSE LOOPS EXCEEDS 1:5,000 AND WERE NOT ADJUSTED. THE BEARINGS SHOWN HEREON WERE TAKEN FROM A GNSS OBSERVATION. THE SURVEY SHOWN HEREON IS A RURAL SURVEY AND THE ACCURACY AND PRECISION MEET ALL SPECIFICATIONS OF THIS CLASS. THE INFORMATION SHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Cody W. Henderson
 CODY W. HENDERSON, KY P.L.S. NO. 3771
 3/30/21
 DATE



FOR COUNTY CLERK'S USE ONLY

HENDERSON
LAND SURVEYING
 362 Johnie Fleener Road
 Morgantown, Kentucky 42261
270-526-3825

OHIO COUNTY
D443 PG610

THIS DEED, made and entered into this 5th day of May, 2021, by and between **MICHAEL R. HORN, single**, of 2904 Sarah Drive, Bowling Green, Kentucky 42104; **JAMES E. HORN and DEBRA A. HORN, husband and wife**, of 216 Fire Tower Loop, Beaver Dam, Kentucky 42320, parties of the first part, hereinafter referred to as GRANTORS; and **OHIO COUNTY WATER DISTRICT**, of 124 East Washington Street, Hartford, Kentucky 4237, party of the second part, hereinafter referred to as GRANTEE.

The in-care-of tax for the current year should be sent to Ohio County Water District at 124 East Washington Street, Hartford, Kentucky 42347.

WITNESSETH:

The GRANTORS, for and in consideration of the sum of THREE THOUSAND NINE HUNDRED DOLLARS (\$ 3,900.00), cash in hand paid, the receipt of which is hereby acknowledged, hereby grant, bargain, sell and convey unto the GRANTEE, its successors and assigns, the following described property located in Ohio County, Kentucky, and more particularly described as follows:

A certain tract of land located on River Road, approximately 0.5 miles south of its intersection with U. S. Highway 231, community of Cromwell, Ohio County, Kentucky and being more particularly described as follows:

Unless stated otherwise, any monument referred to herein as an "iron pin set" is a 5/8-inch steel reinforcement bar eighteen (18) inches in length, with an orange plastic cap stamped "Cody W. Henderson, PLS 3771."

Beginning at a point in the southwest right-of-way line of River Road, said point lying 30 feet from centerline, said point also lying in the center of a branch, said point also being a corner to Ohio County Water District (D.B. 378, Pg. 208), said point also referenced South 64° 05' 37" East, 13.08 feet from an iron pin found, stamped P.L.S. 3862; thence with a new division line, South 21° 35' 13" West,

RETURN TO
Conway & Keown

OHIO COUNTY
D443 PG611

passing iron pins set on line at 15.46 feet, and 140.41 feet, a total distance of 171.55 feet to a point at the low water mark of Green River; thence down said river North 61° 44' 59" West, 72.84 feet to a point, said point being a corner to said Water District, said point also lying in the center of a branch, said point also referenced South 11° 41' 12" West, 38.18 feet from an iron pin set; thence with said Water District, and up the center of said branch, as follows: North 40° 55' 35" East, 52.71 feet to a point; thence North 19° 14' 39" East, 28.38 feet to a point; thence North 42° 06' 55" Est, 21.07 feet to a point; thence North 61° 15' 00' East, 14.13 feet to a point; thence North 50° 38' 39" East, 48.83 feet to a point; thence North 81° 45' 08" East, 16.23 feet to a point; thence North 48° 30' 46" East, 4.08 feet to the point of beginning, containing 7,817 square feet or 0.179 acre. As per survey by Cody W. Henderson, P.L.S. 3771 of Henderson Land Surveying, LLC on March 30, 2021. The property herein above is subject to all easements and rights-of-way of record.

Being a part of the same property conveyed to Michael R. Horn, et al, by deed from Clarence Ray Stewart and Sandra L. Stewart, husband and wife, dated December 23, 2020, and of record in Deed Book 441, at page 481, in the office of the Ohio County Clerk.

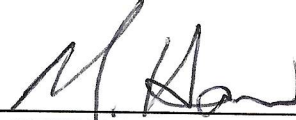
TO HAVE AND TO HOLD the hereinabove described property, together with all improvements thereon and appurtenances thereunto belonging unto the GRANTEE, its successors and assigns, forever, with Covenants of GENERAL WARRANTY, subject to any restrictions and easements of record.

CONSIDERATION CERTIFICATE

We, the GRANTORS and the GRANTEE, do hereby certify, pursuant to KRS Chapter 382, that the above-stated consideration is true, correct and full consideration paid for the property herein conveyed. We further certify our understanding that falsification of the stated consideration or sale price of the property is a Class D felony, subject to one to five years imprisonment and fines up to \$10,000.00.

IN TESTIMONY WHEREOF, witness the signatures of the parties hereto, this day and date first above written.

GRANTOR:




MICHAEL R. HORN

COMMONWEALTH OF KENTUCKY

COUNTY OF Warren

The foregoing Deed and Consideration Certificate were this 4 day of May, 2021,
produced before me, subscribed, sworn to, and acknowledged by **Michael R. Horn, a single
person**, as Grantor, to be his own free act and deed.


NOTARY PUBLIC ID. No. KYNP3830
My Commission Expires: 03-02-2024

OHIO COUNTY
D443 PG613

GRANTORS:

James E. Horn
JAMES E. HORN

Debra A. Horn
DEBRA A. HORN

COMMONWEALTH OF KENTUCKY

COUNTY OF OHIO

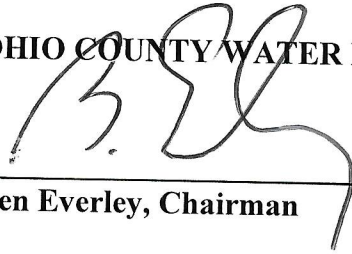
The foregoing Deed and Consideration Certificate were this 4th day of May, 2021,
produced before me, subscribed, sworn to, and acknowledged by **James E. Horn and Debra A.
Horn, husband and wife**, as Grantors, to be their own free act and deed.

Chessa Blacklock
NOTARY PUBLIC ID. No. KYNP3880
My Commission Expires: 03-02-2024

GRANTEE:

OHIO COUNTY WATER DISTRICT


By:


Ben Everley, Chairman

COMMONWEALTH OF KENTUCKY


COUNTY OF OHIO

The foregoing Deed and Consideration Certificate were this 5 day of May, 2021,
produced before me, subscribed, sworn to, and acknowledged by **Ben Everley, as Chairman,**
Ohio County Water District, the Grantee.


NOTARY PUBLIC ID. No. 591072
My Commission Expires: Nov. 27, 2021

**The undersigned and preparer of this instrument
did not perform a title examination on the above
described property, and does not warrant title or
or the description of the property.**

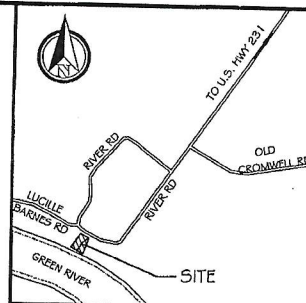
PREPARED BY:


JUSTIN S. KEOWN
CONWAY & KEOWN PSC
124 W. UNION ST. - P. O. BOX 25
HARTFORD KY 42347
(270) 298-3231

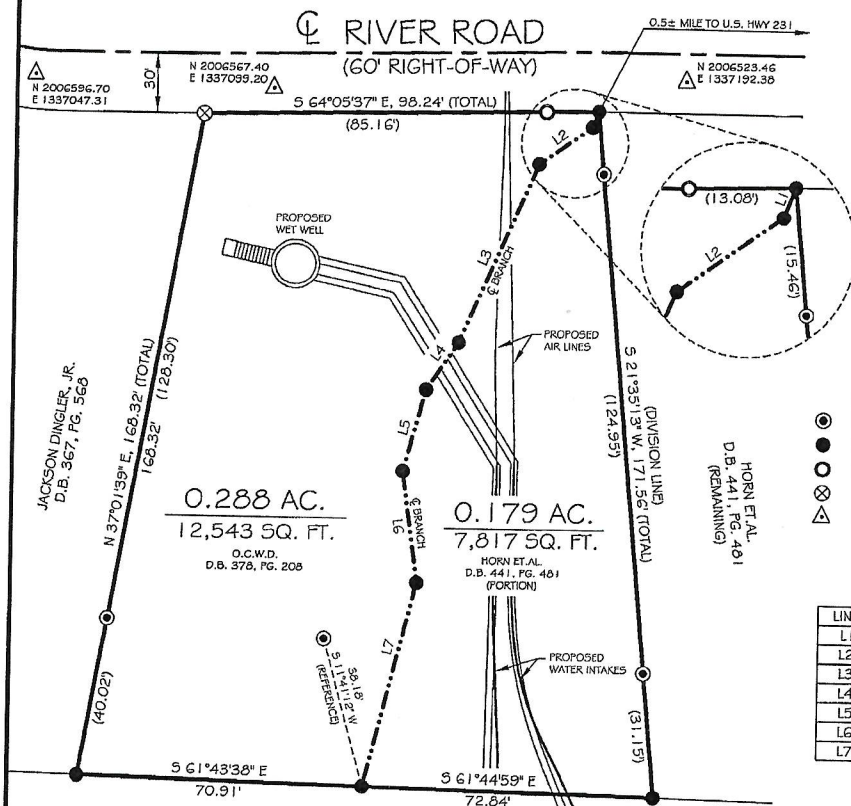
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8. L.E. ALLEN MAY HAVE ONLY CONVEYED A PORTION OF HIS PARCEL RECORDED IN D.B. 120, PG. 271 FORWARD WITH THE CONVEYANCE RECORDED IN D.B. 120, PG. 297.



VICINITY MAP



LEGEND

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- CALCULATED POINT (NO MONUMENT SET OR FOUND)
- IRON PIN FOUND W/ CAP, KY P.L.S. NO. 3862
- ⊗ 1/2" IRON PIN FOUND
- △ CONTROL POINT (BY OTHERS)

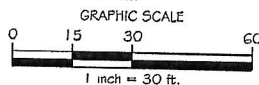
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RECORD SOURCE
DEED BOOK 441, PAGE 481
DEED BOOK 378, PAGE 208

**OHIO COUNTY
WATER DISTRICT**

BOUNDARY SURVEY & DIVISION
LOCATED ON RIVER ROAD
SOUTHWEST OF CROMWELL
OHIO COUNTY, KENTUCKY
DATE: 03-30-2021



SURVEYOR'S CERTIFICATION

I DO HEREBY CERTIFY THAT THIS PLAT DEPICTS A SURVEY PERFORMED UNDER MY DIRECTION. THE UNADJUSTED MATHEMATICAL ERROR OF CLOSURE RATIO OF ALL TRAVERSE LOOPS EXCEEDS 1:5,000 AND WERE NOT ADJUSTED. THE BEARINGS SHOWN HEREON WERE TAKEN FROM A GNSS OBSERVATION. THE SURVEY SHOWN HEREON IS A RURAL SURVEY AND THE ACCURACY AND PRECISION MEET ALL SPECIFICATIONS OF THIS CLASS. THE INFORMATION SHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

Cody W. Henderson
CODY W. HENDERSON, KY P.L.S. NO. 3771
3/30/21
DATE

**HENDERSON
LAND SURVEYING**

362 Johnnie Flener Road
Morgantown, Kentucky 42261
270-526-3825

DOCUMENT NO: 181552
RECORDED: May 12, 2021 10:56:00 AM
TOTAL FEES: \$53.00 TRANSFER TAX: \$4.00
COUNTY CLERK: BESS T RALPH
DEPUTY CLERK: KELLY BAIZE
COUNTY: OHIO COUNTY
BOOK: D443 PAGES: 610 - 615

PROJECT COST SUMMARY

Raw Water Intake Rehabilitation and Improvement Project Ohio County Water District

Project Expense	Amount
1. Construction ¹	\$ 5,132,000
2. Engineering Fees	
A. Design	\$ 145,000
B. Permitting	\$ 50,000
C. Contract Award	\$ 10,000
D. Contract Administration & Construction Observation	\$ 135,000
3. Grant Administration	\$ 45,000
4. Legal	\$ 25,000
5. Interest During Construction	\$ 145,000
6. Contingency (5% of Line 1)	\$ 256,600
Total Project Cost	\$ 5,943,600

¹ The Construction amount shown on Line 1 is based upon the low bid amount of \$5,237,000 less \$105,000 deductive change order which equals an effective construction cost of \$5,132,000.

ESTIMATED ANNUAL COST OF OPERATION
Raw Water Intake Rehabilitation and Improvement Project
Ohio County Water District

EXPENSES & DESCRIPTION

1. Electricity	\$ 72,000
2. Wet Well Cleaning & Inspection	\$ 6,000
3. Pump & Motor Inspections & Repair	\$ 10,000
4. Generator Inspections & Repairs	\$ 2,500
5. Mowing, Bank Stabilization & Debris Removal After Floods	<u>\$ 7,500</u>
TOTAL	\$ 98,000

Note: The estimated annual Operating Costs shown above are the costs of operating the existing Intake Facilities. As stated in the Application, there will not be any additional operating costs as a result of the proposed facilities.



200 Crutchfield Avenue, Nashville, TN 37210
Phone: 615.350.7975
Fax: 615.350.6067
www.garney.com

April 19, 2023

Ohio County Water District
124 E. Washington St
Hartford KY 42347

Subject; Contract 21-01, Raw Water Intake Improvements

Ohio County Water District,

Garney Companies, Inc. is allowing for an extension on the expiration date of its bid for the project named Contract 21-01 Raw Water Intake Improvements, in Ohio County, KY. This bid was submitted on Thursday, February 16, 2023, at 2:00PM CST with an original bid expiration of 90 days from bid opening. Garney agrees to hold the price of \$5,132,000 for the construction of Raw Water Intake Improvements until June 30th, 2023.

Thank you,

A handwritten signature in blue ink, appearing to read "Jeffrey P. Seal". The signature is fluid and cursive, with a long horizontal stroke at the end.

Jeffrey P. Seal
Director