



**HMB Professional Engineers, Inc.**  
 3 HMB Circle, US 460  
 Frankfort, KY 40601  
 Phone: 502/695-9800  
 Fax: 502/695-9810

**LETTER OF TRANSMITTAL**

DATE	12/29/2011	JOB NO.	4162
ATTENTION	Jeff Derouen, Executive Director		
RE:	Case No. 2011-00519		
	Bracken County Water District		
	Short Roads Water Project		

TO Public Service Commission

\_\_\_\_\_

**HAND DELIVERED**

\_\_\_\_\_

WE ARE SENDING YOU  Attached  Under Separate Cover Via: \_\_\_\_\_ the following items:

Shop Drawings  Prints  Plans  Samples  Specifications

Copy of Letter  Change Order  \_\_\_\_\_

COPIES	DATE	NO.	DESCRIPTION
2			Plans
2			Specifications
			<b>RECEIVED</b>
			<b>DEC 29 2011</b>
			<b>PUBLIC SERVICE COMMISSION</b>

THESE ARE TRANSMITTED as checked below:

- For Approval
- For Your Use
- As Requested
- For Review and Comment
- FOR BIDS DUE \_\_\_\_\_
- Approved as Submitted
- Approved as Noted
- Returned for Corrections
- \_\_\_\_\_
- PRINTS RETURNED AFTER LOAN TO US

REMARKS

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

If you have any questions, please call.

COPY TO Bracken County Water District

SIGNED: Jeff Reynolds, P.E.

*If enclosures are not as noted, kindly notify us at once*

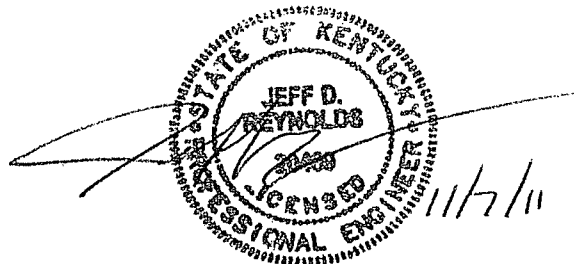


RECEIVED

DEC 29 2011

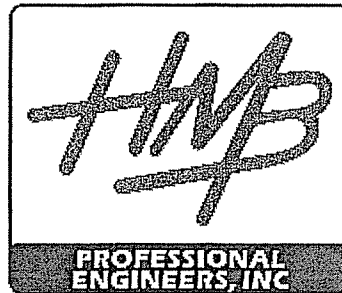
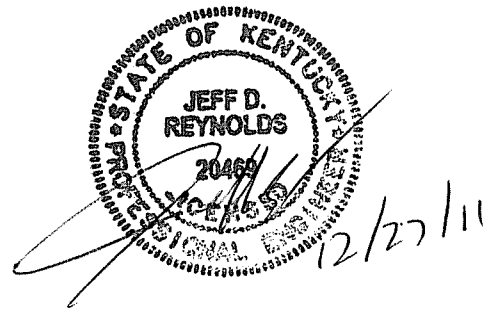
PUBLIC SERVICE  
COMMISSION

SHORT ROADS WATER PROJECT  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY



NOVEMBER 2011

Prepared By:



3 HMB Circle, US 460  
Frankfort, Kentucky 40601  
(502) 695-9800

1977

1978

1979



## TABLE OF CONTENTS

1.	Advertisement for Bids .....	AD-1 to AD-2
2.	Information for Bidders .....	IB-1 to IB-3
3.	General Conditions .....	GC-1 to GC-33
4.	General Conditions-EJCDC.....	GC-EJCDC-1 to GC-EJCDC-55
5.	Labor Regulations .....	LR-1 to LR-17
6.	Performance Bond .....	PB-1 to PB-2
7.	Payment Bond.....	PB-3 to PB-4
8.	Contract Agreement .....	CON-1 to CON-2
9.	Certificate of Owner's Attorney .....	CON-3
10.	Notice of Award.....	NA-1
11.	Notice to Proceed.....	NP-1
12.	Special Conditions .....	SC-1 to SC-11
13.	Technical Specification	

### DIVISION 1 - GENERAL REQUIREMENTS

Section	01010	Summary of Work.....	01010-1
	01020	Videotaping.....	01020-1 to 01020-6
	01150	Measurement and Payment.....	01150-1 to 01150-8
	01340	Shop Drawings, Product Data and Samples .....	01340-1 to 01340-8
	01562	Dust Control.....	01562-1
	01720	Record Documents.....	01720-1 to 01720-4

### DIVISION 2 - SITE WORK

Section	02255	Crushed Stone and Dense Grade Aggregate .....	02255-1 to 02255-2
	02513	Bituminous Concrete Paving .....	02513-1 to 02513-5
	02665	Water Mains and Accessories.....	02665-1 to 02665-30
	02933	Seeding.....	02933-1 to 02933-5
	02957	Erosion Control and Stabilization.....	02957-1 to 02957-3

### DIVISION 3 - CONCRETE

Section	03300	Cast-in-place Concrete.....	03300-1 to 03300-26
	03310	Flowable Fill Concrete.....	03310-1 to 03310-2

### 14. Appendices

#### A. DOT Permit

15.	Bid Schedule .....	BS-1 to BS-8
16.	Bid Bond .....	BS-9 to BS-10



ADVERTISEMENT FOR BIDS

SHORT ROADS WATER PROJECT  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

NOVEMBER 2011

Sealed proposals for the following work will be received by the Bracken County Water District at 1324 Brooksville-Germantown Road, Brooksville, Kentucky 41004 until 10:00 a.m. (local time) December 2, 2011, for furnishing labor and materials and performing all work as set forth in this Advertisement for Bids, General Conditions, Specifications and/or Drawings prepared by HMB Professional Engineers, Inc., 3 HMB Circle, US 460, Frankfort, Kentucky 40601.

Immediately following the scheduled closing time for the reception of bids, all proposals which have been submitted in accordance with the above conditions will be publicly opened and read aloud.

The work to be bid upon is described as follows:

- Approximately 41,000 l.f. of 2-inch to 12-inch water line extension and upgrade, including appurtenances

Drawings, Specifications and Contract Documents may be examined at the following places:

F.W. Dodge Corporation  
One Paragon Centre-Suite 230  
2525 Harrodsburg Road  
Lexington, KY 40504

HMB Professional Engineers, Inc.  
3 HMB Circle, US 460  
Frankfort, KY 40601

Builder's Exchange of Louisville  
2300 Meadow Drive  
P.O. Box 5398  
Louisville, KY 40205

Associated General Contractors  
2321 Fortune Drive, Suite 112  
Lexington, KY 40505

F.W. Dodge/ABC Planroom  
1812 Taylor Avenue  
Louisville, KY 40213

Bracken County Water District  
1324 Brooksville-Germantown Road  
Brooksville, KY 41004

or may be obtained from Lynn Imaging, 328 Old East Vine Street, Lexington, KY 40507 upon receipt of a non-refundable payment as follows:

Bracken County Water District – Short Roads Project

\$150.00 per set

After award of a contract, the General Contractor will be furnished, without charge, a reasonable number of plans and specifications needed to prosecute the work. Subcontractors and manufacturers and

suppliers shall obtain plans and specifications from the General Contractor.

Sealed proposals for the Contract shall be clearly marked on the outside of the container as follows:

"Sealed proposal for Bracken County Water Distrit – Short Roads Water Project

Not to be opened until 10:00 a.m.(local time), December 2, 2011  
(time and date of bid opening)

"The following addenda have been received and considered in the enclosed proposal:"

Addendum No.\_\_\_\_ Addendum No.\_\_\_\_ Addendum No.

Time allowed for completion is 150 calendar days.

If forwarded by mail, the sealed envelope containing the proposal must be enclosed in another envelope and mailed to the Bracken County Water District, 1324 Brooksville-Germantown Road, Brooksville, KY 41004 allowing sufficient time for such mailing to reach this address prior to the scheduled closing time for the receipt of proposals.

Bids shall be accompanied by a certified check or bid bond payable to the Bracken County Water District in an amount not less than five percent (5%) of the base bid. No bidder may withdraw his bid for a period of ninety (90) days after the date bids are opened. He may, however, withdraw his bid at any time prior to the time and date scheduled for opening of same or any authorized postponement thereof. Any bid received after the time and date specified will not be considered and will be returned unopened to the bidder.

The Bracken County Water District reserves the right to reject any and all bids and to waive formalities and any bid that is obviously unbalanced may be rejected.

Bidders must comply with the President's Executive Order Nos. 11246 and 11375, which prohibit discrimination in employment regarding race, creed, color, sex, or national origin. Bidders must comply with Title VI of the Civil Rights Act of 1964, the Anti-Kickback Act, Section 3 Segregated Facilities, Section 109 and the Contract Work Hours Standard Act. The bidder will make a positive effort to use small, minority, women owned and disadvantaged businesses.

Bidders must certify that they do not, and will not, maintain or provide for their employees any facilities that are segregated on the basis of race, color, creed or national origin.

Federal law prohibits discrimination on the grounds of race, color, national origin, religion, age, handicap, and sex in this project. Minority firms are particularly encouraged to participate.

Anthony Habermehl, Chairman



## INSTRUCTION TO BIDDERS

BIDS will be received by See Advertisement (herein called the "OWNER"), at See Advertisement until See Advertisement 20\_\_\_\_\_, and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to See Advertisement at \_\_\_\_\_. Each sealed envelope containing a BID must be plainly marked on the outside as BID for \_\_\_\_\_ and the envelope should bear on the outside the BIDDER'S name, address, and license number if applicable, and the name of the project for which the BID is submitted. If forwarded by mail, the sealed envelope containing the BID must be enclosed in another envelope addressed to the OWNER at \_\_\_\_\_ See Advertisement \_\_\_\_\_.

All BIDS must be made on the required BID form. All blank spaces for BID prices must be filled in, in ink or typewritten, and the BID form must be fully completed and executed when submitted. Only one copy of the BID form is required.

The OWNER may waive any informalities or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within 90 days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period, the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID Schedule by examination of the site and a review of the drawings and specifications including ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS prior to BIDDING, all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent, or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the contractor from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID bond payable to the OWNER for five percent of the total amount of the BID. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three lowest responsible BIDDERS. When the Agreement is

executed the bonds of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the payment BOND and performance BOND have been executed and approved, after which it will be returned. A certified check may be used in lieu of a BID BOND.

A performance BOND and a payment BOND each in the amount of 100 percent of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or payment BONDS and performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the Agreement and obtain the performance BOND and payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary Agreement and BOND forms. In case of failure of the BIDDER to execute the Agreement, the OWNER may consider the BIDDER in default, in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER within ten (10) days of receipt of acceptable performance BOND, payment BOND and Agreement signed by the party to whom the Agreement was awarded shall sign the Agreement and return to such party an executed duplicate of the Agreement. Should the OWNER not execute the Agreement within such period, the BIDDER may by WRITTEN NOTICE withdraw the signed Agreement. Such notice of withdrawal shall be effective upon receipt of the notice by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the Agreement by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period, the time may be extended by mutual agreement between the OWNER AND CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the Agreement without further liability on the part of either party.

The OWNER may make such investigations as deemed necessary to determine the ability of the BIDDER to perform the WORK, and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the Agreement and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted.

Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances, and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

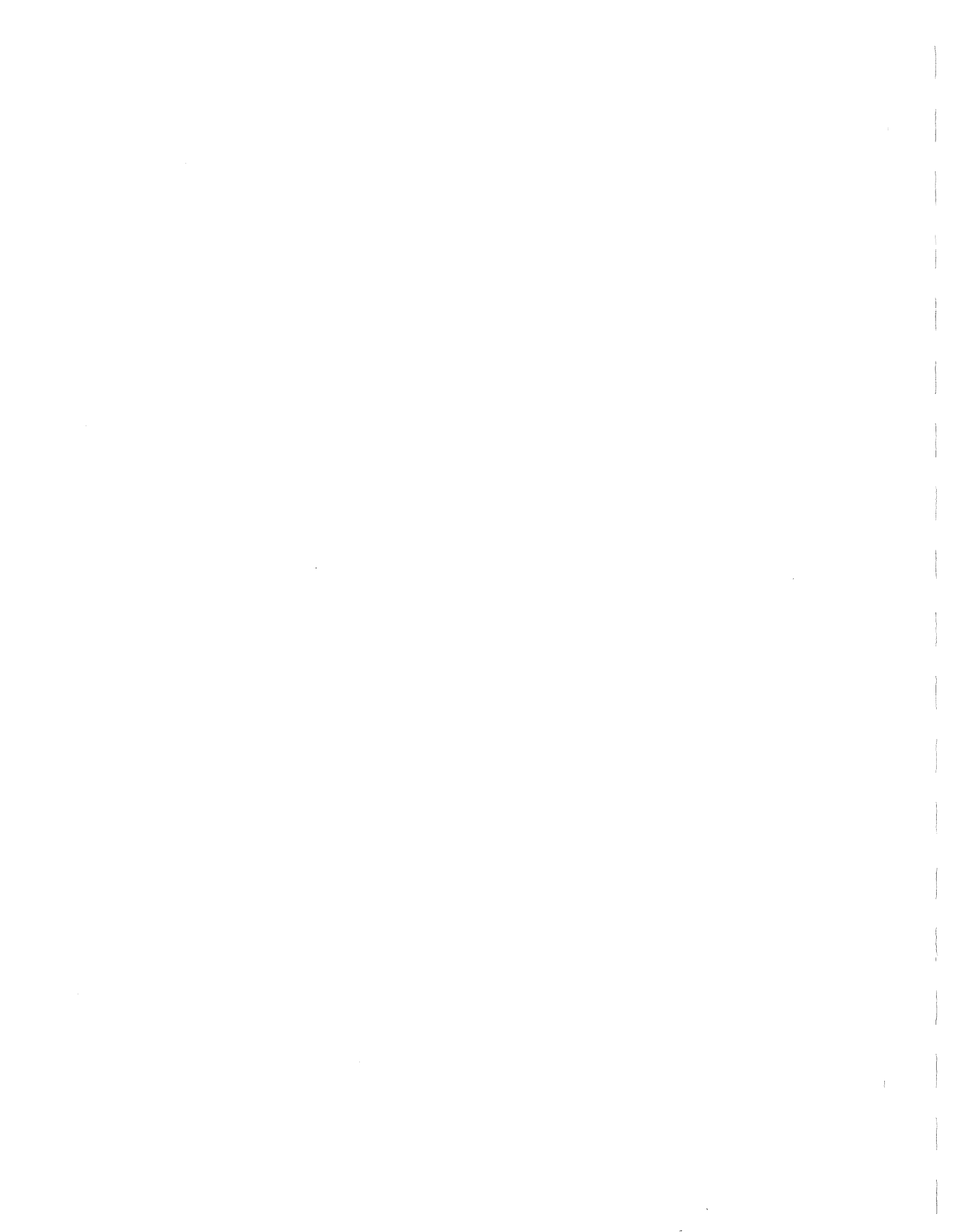
Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to its BID.

Further, the BIDDER agrees to abide by the requirements under Executive Order No. 11246, as amended, including specifically the provisions of the equal opportunity clause set forth in the SUPPLEMENTAL GENERAL CONDITIONS.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when required to do so by the OWNER.

Inspection trips for prospective BIDDERS will leave from the office of the none scheduled at \_\_\_\_\_.

The ENGINEER is HMB Professional Engineers, Inc.. The ENGINEER'S address is 3 HMB Circle, US 460, Frankfort, KY 40601.



## GENERAL CONDITIONS

1. DEFINITIONS
2. CONTRACT AND CONTRACT DOCUMENTS
3. SCHEDULES, REPORTS AND RECORDS
4. ADDITIONAL INSTRUCTIONS AND DETAILED DRAWINGS
5. DRAWINGS AND SPECIFICATIONS
6. SHOP OR SETTING DRAWINGS
7. MATERIALS, SERVICES AND FACILITIES
8. CONTRACTOR'S TITLE TO MATERIALS
9. INSPECTION AND TESTING
10. SUBSTITUTIONS
11. PATENTS
12. SURVEYS, PERMITS, AND REGULATIONS
13. PROTECTION OF WORK, PROPERTY AND PERSONS
14. CONTRACTOR'S OBLIGATION FOR SUPERVISION
15. CHANGES IN WORK
16. CHANGES IN CONTRACT PRICE
17. TIME FOR COMPLETION AND LIQUIDATED DAMAGES
18. CORRECTION OF WORK
19. SUBSURFACE CONDITIONS
20. SUSPENSION OF WORK, TERMINATION AND DELAY
21. PAYMENTS TO CONTRACTOR
22. PAYMENTS BY CONTRACTOR
23. ACCEPTANCE OF FINAL PAYMENT AS RELEASE
24. CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE
25. CONTRACT SECURITY

26. ASSIGNMENTS
27. INDEMNIFICATION
28. SEPARATE CONTRACTS
29. SUBCONTRACTING
30. ENGINEERS AUTHORITY
31. LAND AND RIGHTS-OF-WAY
32. GUARANTEE
33. ARBITRATION
34. TAXES
35. USE OF PREMISES AND REMOVAL OF DEBRIS
36. QUANTITIES OF ESTIMATES
37. CONFLICTING CONDITIONS
38. NOTICE AND SERVICE THEREOF
39. REQUIRED PROVISIONS DEEMED INSERTED
40. SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION
41. LABOR STANDARDS
42. INTEREST OF FEDERAL, STATE OR LOCAL OFFICIALS
43. OTHER PROHIBITED INTERESTS
44. EXISTING UTILITIES
45. STANDARD SPECIFICATIONS
46. SANITARY FACILITIES
47. SUPERVISION OF INSTALLATION
48. AIR AND WATER POLLUTION CONTROL
49. USE OF CHEMICALS
50. DAMAGE TO EXISTING LANDSCAPING, PAVEMENT, STRUCTURES, SIDEWALKS, CURBS, ETC.

## 1. DEFINITIONS

- 1 The following terms used in the Contract Documents shall be applicable to both the singular and plural and be defined as follows:
- 2 Addenda - Instructions, either written or graphic issued prior to the execution of the Agreement or portions thereof which modify or interpret the Contract Documents, Drawings, and Specifications, by deletions, additions, clarifications or corrections.
- 3 Bid - The proposal or offer submitted by the Bidder on prescribed forms setting forth prices for work to be performed.
- 4 Bidder - A person, firm or corporation submitting a Bid for the proposed work.
- 5 Bonds - Instruments of Security in the form of Bid, Performance or Payment Bonds, furnished by the Contractor and surety in accordance with Contract Documents.
- 6 Change Order - A written order to the Contractor authorizing revisions, deletions, or additions to the work within the general scope of the Contract Documents, or authorizing an adjustment in the Contract Price or Contract Time.
- 7 Contract Documents - The Contract and all other instruments associated with the Contract including Advertisement For Bids, Information For Bidders, Bid, Bid Bond, Agreement, Payment Bond, Performance Bond, Notice of Award, Notice To Proceed, Change Orders, Drawings, Specifications and Addenda.
- 8 Contract Price - The total sum of monies payable to the Contractor under the conditions and terms set forth in the Contract Documents.
- 9 Contract Time - The number of calendar days set forth in the Contract Documents for completion of the work.
- 10 Contractor - A person, firm or corporation with whom the Owner has executed a Contract or Agreement.

- 11 Drawings - A portion of the Contract Documents that illustrate the characteristics and scope of Work to be performed and which have been prepared and approved by the Engineer and appropriate Regulatory Agencies.
- 12 Engineer - The person, firms or corporations named as such in the Contract Documents.
- 13 Field Order - A written notice or order issued by the Engineer effecting a change in the Work that does not result in an amendment in Contract Price or Contract Time.
- 14 Notice of Award - A written notice issued by the Owner to the Bidder accepting his Bid.
- 15 Notice to Proceed - A written document issued by the Owner to the Contractor authorizing initiation of the Work and firmly establishing the date of initiation of such Work.
- 16 Owner - The public body or authority for whom the Work is being performed.
- 17 Project - A task to be performed as set forth in the Contract Documents.
- 18 Resident Project Representative - An authorized representative of the Owner that is assigned to the Project site or any portion thereof.
- 19 Shop Drawings - Diagrams, brochures, schedules, drawings, and other data that have been prepared by the Contractor, Subcontractor, manufacturers, suppliers, or distributors, that illustrates installations or fabrication of specific portions of the Work.
- 20 Specifications - A portion of the Contract Documents that contains written descriptions concerning materials, equipment, construction methods, standards, and workmanship.
- 21 Subcontractor - An individual, firm or corporation having a direct contract with the Contractor or with any other Subcontractor for the performance of the Work.



- 22 Substantial Completion - The date certified by the Engineer that construction on the Project or any portion thereof is sufficiently complete, in accordance with Contract Documents to permit the Project or portions thereof to be utilized for the purpose intended.
- 23 Supplemental General Conditions - Modifications to the General Conditions that may be required by the Federal, State, or Local agencies for participation in the Project and approved in writing by the agency prior to inclusion in the Contract Documents or such requirements that may be imposed by applicable state law.
- 24 Supplier - Any person, firm or organization that supplies material or equipment for accomplishing the Work, including fabrication, but does not perform labor at the Work site.
- 25 Work - Labor, materials, and equipment necessary to satisfy the construction requirements by the Contractor in accordance with the Contract Documents.
- 26 Written Notice - A written communication to any party of the Agreement. Such notices will be considered delivered when posted by certified or registered mail to the last known address of the addressee or when hand delivered to addressee or his authorized representative.

## 2. CONTRACT AND CONTRACT DOCUMENTS

Plans, Specifications and Addenda shall form a part of the contract and the provisions thereof shall be as binding upon the parties hereto as if they were fully set forth herein. Tables of Content, Titles, and Headings contained in said documents are solely for the purpose of reference and have no limiting effect of the interpretation of the provisions to which referenced.

## 3. SCHEDULES, REPORTS AND RECORDS

- 3.1 The Contractor shall submit to the Owner such schedules of quantities, costs, progress reports, estimates, record and other information as may be requested by the Owner.
- 3.2 The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Owner/Engineer,

prepare and submit to the Owner/Engineer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Owner/Engineer may withhold approval of progress payments until the Contractor submits the required schedule.

- 3.3 The Contractor shall enter the actual progress on the chart as directed by the Owner/Engineer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Owner/Engineer. If, in the opinion of the Owner/Engineer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Owner/Engineer without additional cost to the Owner. In this circumstance, the Owner/Engineer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount to construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Owner/Engineer deems necessary to demonstrate how the approved rate of progress will be regained.
- 3.4 The Contractor shall also furnish on forms supplied by the Owner (a) a detailed estimate giving a complete breakdown of the Contract Price and (b) periodic itemized estimates of Work done for the purpose of making partial payments thereon. The cost employed in making up any of these schedules will be used only for determining the basis of partial payments and will not be considered as fixing a basis for additions to or deductions from the Contract Price.
- 3.5 The Contractor will also submit dates for submission of Shop Drawings, the beginning of manufacture, testing and installation of materials, equipment and supplies. The Contractor shall also submit dates that special detail drawings will be required, if any, by the Engineer.
- 3.6 Failure of the Contractor to comply with the requirements of the Owner/Engineer under this clause shall be grounds for a determination by the Owner/Engineer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the

contract. Upon making this determination, the Owner/Engineer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the terms of this contract.

#### 4. ADDITIONAL INSTRUCTIONS AND DETAILED DRAWINGS

- 4.1 The Contractor will be provided with additional instructions and detailed small letters Drawings as necessary to carry out the Work set forth in the Contract Documents.
- 4.2 Additional drawings and instructions supplied to the Contractor will become a part of the Contract Documents. In the event of conflict between additional drawings and instructions and the Contract Documents, the Contractor shall notify the Engineer immediately in writing.

#### 5. DRAWINGS AND SPECIFICATIONS

- 5.1 The Drawings, Specifications, and Addenda shall become a part of the Contract Documents and are provided with the intent that the Contractor shall furnish all labor, materials, tools, equipment and transportation necessary for proper execution of the Work in accordance with the Contract Documents and all other incidental work necessary to complete the project in an acceptable manner, ready for use, occupancy or operation by the Owner.
- 5.2 The Engineer, without charge, will furnish to the Contractor not more than eight (8) sets of the Plans and Specifications. If additional sets of documents are required by the Contractor for the proper handling of the Work, such documents will be furnished to the Contractor at cost.
- 5.3 Should there be conflict between Drawings and Specifications, the Specifications shall govern and detailed Drawings shall govern over general Drawings. Figure dimensions on Drawings shall govern over scale dimensions.
- 5.4 All work or materials shown on the Plans and not mentioned in the Specifications or any work specified and not shown on the Plans, shall be furnished, performed, and done by the Contractor as if the same were both mentioned in the Specifications and shown on the Plans.

- 5.5 Should the Contractor 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 find any other discrepancy in the Specifications, Plans or Contract Documents, he shall notify the Engineer so that such discrepancies may be corrected by addendum prior to the letting. Should the Contractor fail to notify the Engineer of such discrepancies, it will be assumed that his Bid included everything necessary for the complete construction in the spirit and intent of the designs shown.
- 5.6 In the event the Contractor should note discrepancies between the Drawings and the Specifications, and site conditions or any other inconsistencies, or ambiguities, such inconsistencies or ambiguities shall be reported immediately to the Engineer in writing. The Engineer shall promptly correct such inconsistencies or ambiguities in writing. Any Work done by the Contractor subsequent to his discovery of such inconsistencies or ambiguities shall be done at the Contractor's risk.
- 5.7 The Contractor shall, during the course of the construction, maintain an updated set of plans, marked by the Contractor, showing all deviations from the original and such notes as required to clarify the cause of such deviations and showing final locations of underground utilities such as sewer service connections and buried valves by giving offset distances to surface improvements such as building corners, curbs, manholes, etc. The purpose of these updated plans are to facilitate the completion of the record drawings by the Engineer after the completion of the Work. Nothing in this section shall be construed to relieve the Contractor from obtaining the Engineer's prior written approval for any deviation from the Plans or Specifications.

## 6. SHOP OR SETTING DRAWINGS

- 6.1 The Contractor shall promptly submit to the Engineer four (4) copies of each shop Drawing regarding proposed materials and equipment to be supplied for the project. Subsequent to examination of such Shop Drawings by the Engineer and the return thereof, the Contractor shall make such corrections to the Shop Drawings as have been indicated and shall furnish the Engineer with two (2) corrected copies. Regardless of corrections made on or review given to such Shop Drawings by the Engineer, any Shop Drawing which substantially deviates from the requirements of the Contract Documents shall be evidenced by a Change Order. Review of Shop Drawings by the Engineer shall in no way relieve the Contractor from

responsibility for deviations from the Contract Documents unless specifically stated in writing by the Engineer.

6.2 Work requiring the submission of a Shop Drawing by the Contractor shall not be initiated until the Shop Drawing has been submitted to and reviewed by the Engineer. The Contractor shall certify to the Engineer that he has checked and approved the Shop Drawings and that they are in accordance with the requirements of the Contract Documents.

## 7. MATERIALS, SERVICES AND FACILITIES

7.1 Except as otherwise stated in the Contract Documents, the Contractor shall furnish any pay for all materials, labor, tools, equipment, utilities, transportation, supervision, temporary construction and all other services and facilities required in the execution, completion and delivery of the Work in accordance with the Contract Documents.

7.2 Storage of materials and equipment to be used in the Project shall be accomplished in a manner to insure security, preservation of quality, and suitability for incorporation in the Work.

7.3 Manufactured equipment and materials shall be installed, constructed and erected by the Contractor in strict accordance with the manufacturer's direction unless specifically directed otherwise in writing by the Engineer.

7.4 Manufactured equipment and materials to be used in the Project shall be the same as samples submitted to and approved by the Engineer. Second hand or salvaged materials will not be permitted unless specifically provided for in the Contract Documents.

7.5 Any Work necessary to be performed after regular hours, on Sundays or Legal Holidays, shall be performed without additional expense to the Owner.

## 8. CONTRACTOR'S TITLE TO MATERIALS

No manufactured equipment, materials, or supplies to be used in the Work shall be purchased by the Contractor or Subcontractor subject to any chattel mortgage, conditional sales contract or other agreement by which an interest is retained by the Seller. The Contractor and Subcontractor shall warrant that he has good title to

all materials and supplies used by him in the Work, free of all liens, claims or encumbrances.

## 9. INSPECTION AND TESTING

- 9.1 All manufactured equipment, materials and supplies used in the construction of the Project shall be subject to inspection, testing, and observation in accordance with generally accepted standards as required and defined in the Contract Documents.
- 9.2 The cost of testing and inspection services required by the Contract Documents shall be borne by the Contractor unless otherwise specified.
- 9.3 All other inspection and testing services not required by the Contract Documents, shall be borne by the Owner.
- 9.4 In the event that Contract Documents, laws, ordinances, regulations, rules, orders or other directions of any public authority having jurisdiction over the Work requires specific inspection, testing or approval of someone other than the Contractor, the Contractor shall provide the Engineer timely notice of readiness and the Contractor shall furnish the Engineer with the required certificates of inspection, testing or approval as appropriate.
- 9.5 Neither observation by the Engineer nor inspections, tests, or approvals by others relieve the Contractor of his obligations to perform the Work as required in the Contract Documents.
- 9.6 The Engineer, Owner and their representatives shall have access to the Work at all times. In addition, representatives and agents of Federal, State and Local governments having jurisdiction of any portion of the Work shall be permitted to inspect the Work, materials, payrolls, records of personnel, invoices of materials and other relevant data and records, in accordance with Federal laws. Proper facilities shall be provided by the Contractor for such access, observation, inspection and testing of the Work.
- 9.7 Should any Work be covered contrary to the written instructions of the Engineer, such Work shall be uncovered for observation and replaced at the Contractor's expense.

9.8 Should any Work be covered which the Engineer has not specifically requested to observe prior to its being covered, or should the Engineer consider it necessary that such Work be inspected or tested by others, the Contractor, shall, at the Engineer's written request, uncover or otherwise expose the Work in question for observation, inspection or testing. The Contractor, shall furnish all labor, materials and equipment necessary to accomplish this purpose. If the Engineer determines that such work is defective or in conflict with the Contract Documents, the Contractor shall bear all expenses of such uncovering, exposure, observation, inspection or testing as well as satisfactory reconstruction. If such work is found not to be defective, the Contractor shall be allowed an increase in Contract Price or an extension of Contract Time or both, attributable to such uncovering, exposure, observation, and inspection. An appropriate Change Order shall be prepared and issued by the Engineer.

## 10. SUBSTITUTIONS

Whenever a material, article or equipment is identified on the Drawings or in the Specifications by brand name, manufacturer's name or catalog number, it shall be understood that such reference is for defining the performance, requirements, quality, capacity and other salient features of that being specified. The Contractor may recommend substitution, by brand name or catalog number, for materials, articles, or equipment provided it is of equal substance and function to that referred to in the Contract Documents. If, in the opinion of the Engineer, recommended alternates are of equal substance, function and capacity as that specified, the Engineer may approve the substitution and use by the Contractor. Any cost differential shall be adjusted in the Contract Price and the Contract Documents shall be modified by a Change Order. The Contractor shall warrant that if substitutions are approved, no major changes in function or general design of the Project will result. Incidental changes or extra component parts required to accommodate the substitute requested by the Contractor, shall be made by the Contractor without a change in Contract Time or Contract Price.

## 11. PATENTS

11.1 The Contractor shall hold and save the Owner and its officers, agents and employees harmless, from liability of any type, including cost and expenses for or on account of, any type, including cost and expenses for or on account of, any patented or unpatented inventions, process, or article manufactured and used in the performance of the Work and its intended use thereafter, unless otherwise stipulated in the Contract Documents.

11.2 If the Contractor uses any device, materials or designs covered by patent, copyright or letters, he shall provide for such use by obtaining a suitable agreement with the Owner of such patented or copyrighted material, device or design. It shall be understood and agreed by the Contractor that, without exception, the Contract Price shall include all royalties or costs arising from the use of such materials, devices and designs used in the Work. The Contractor or his Sureties shall indemnify and save harmless the Owner from any and all claims for infringement by reason of use of such patented or copyrighted device, materials, or design or any trademark in connection with the Work to be performed within the scope of the Contract Documents and shall indemnify the Owner for any costs, expenses or damage which by reason of infringement may be due and payable after completion of the Work.

## 12. SURVEYS, PERMITS, AND REGULATIONS

- 12.1 Land surveys and/or base lines for locating principal structures associated with the Project together with a suitable number of bench marks near the Work site will be furnished by the Owner and shown in the Contract Documents. Utilizing information provided by the Owner, the Contractor shall develop all detail surveys needed for construction, unless specified otherwise in the Contract Documents, including but not limited to slope stakes, batter boards, stakes for pile location, working points, line elevations and cut sheets.
- 12.2 The Contractor shall assure preservation of bench marks, and other reference points. In the event of willful or careless destruction, he shall be charged with the resulting expense and shall be held responsible for any errors or mistakes resulting from such loss of bench marks or other reference points.
- 12.3 Permits and licenses of a temporary nature necessary for the prosecution of the Work shall be secured and paid for by the Contractor unless otherwise stated in the Supplemental General Conditions or Special Conditions. Permits, licenses and easements for permanent changes in existing facilities shall be secured and paid for by the Owner, unless otherwise specified. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the Work as drawn and specified. If the Contractor observes that the Contract Documents are at variance therewith, he shall promptly notify the Engineer in writing, and any



necessary changes shall be adjusted as provided in Section 15, Changes In Work.

### 13. PROTECTION OF WORK, PROPERTY AND PERSONS

- 13.1 The Contractor will be responsible for initiating, maintaining and supervising all safety precaution and programs in connection with the Work. He will take all necessary precaution for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the Work and other persons who may be affected thereby, all the Work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.
- 13.2 The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction. He will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection. He will notify owners of adjacent utilities when prosecution of the Work may affect them. The Contractor will remedy all damage, injury or loss to any property caused directly or indirectly in whole or in part by the Contractor, and subcontractor or anyone for whose acts any of them be liable.
- 13.3 In emergencies affecting the safety of persons or the Work or property at the site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer or Owner, shall act to prevent threatened damage, injury or loss. He will give the Engineer prompt Written Notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved.

### 14. CONTRACTOR'S OBLIGATION FOR SUPERVISION

The Contractor will supervise and direct the Work. He will be solely responsible for the means, methods, techniques, sequences and procedures of construction. The Contractor will employ and maintain on the Work a qualified supervisor or superintendent who shall have been designated by the Contractor as the

Contractor's representative at the site. The supervisor shall have full authority to act on behalf of the Contractor and all communications given to the supervisor shall be as binding as if given to the Contractor. The supervisor shall be present on the site at all times as required to perform adequate supervision and coordination of the Work.

15. CHANGES IN WORK

15.1 The Owner may at any time, as the need arises, order changes within the scope of the Work without invalidating the Agreement. If such changes increase or decrease the amount due under the Contract Documents, or in the time required for performance of the Work, an equitable adjustment shall be authorized by Change Order.

15.2 The Engineer, also, may at any time, by issuing a Field Order, make changes in the details of the Work. The Contractor shall proceed with the performance of any changes in the Work so ordered by the Engineer unless the Contractor believes that such Field Order entitles him to a change in Contract Price or Time or both, in which event he shall give the Engineer written notice thereof within seven (7) days after receipt of the ordered change. Thereafter, the Contractor shall document the basis for the change in Contract Price or Time within thirty (30) days. The Contractor shall not execute such changes pending the receipt of an executed Change Order or further instruction from the Owner.

16. CHANGES IN CONTRACT PRICE

The Contract Price may be changed only by a Change Order. The value of any Work covered by a Change Order or of any claim for increase or decrease in the Contract Price shall be negotiated and determined by one or more of the following methods in the order of precedence listed below:

- 1 An agreed lump sum
- 2 The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete to Work. In addition, there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the Work to cover the cost of general overhead and profit.

17. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

17.1 The date of beginning and the time for completion of the Contract

Documents and the Work embraced shall be commenced on a date specified in the Notice to Proceed.

17.2 The Contractor will proceed with the Work at such a rate of progress to insure full completion within the Contract Time. It is expressly understood and agreed by and between the Contractor and the Owner that the Contract Time for the completion of the Work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the Work.

17.3 If the Contractor shall fail to complete the Work within the Contract Time, or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages as specified in the Bid for each calendar day that the Contractor shall be in default after the time stipulated in the Contract Documents.

17.4 The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due to the following and the Contractor has within seven calendar days given Written Notice of such delay to the Owner or Engineer.

17.4.1 To any preference priority or allocation order duly issued by the Owner.

17.4.2 To unforeseeable causes beyond the control and without the fault or negligence of the Contractor including but not restricted to acts of God or of the public enemy, acts of the Owner, acts of another Contractor in the performance of contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather.

17.4.3 To any delays of Subcontractors occasioned by any of the causes specified in paragraphs 17.4.1 and 17.4.2 of this article.

## 18. CORRECTION OF WORK

18.1 The Contractor shall promptly remove from the premises all Work rejected by the Engineer for failure to comply with the Contract Documents, whether incorporated in the construction or not, and the Contractor shall promptly replace and re-execute the Work in accordance with the Contract Documents and without expense to the Owner and shall bear the expense of

making good all Work of other Contractors destroyed or damaged by such removal or replacement.

- 18.2 All removal and replacement Work shall be done at the Contractor's expense. If the Contractor does not take action to remove such rejected Work within ten (10) days after receipt of Written Notice, the Owner may remove such Work and store the materials at the expense of the Contractor.

## 19. SUBSURFACE CONDITIONS

- 19.1 The Contractor shall promptly, and before such conditions are disturbed, except in the event of an emergency, notify the Owner by Written Notice of:

19.1.1 Subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents: or

19.1.2 Unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract Documents.

- 19.2 The Owner shall promptly investigate the conditions, and if he finds that such conditions do so materially differ and cause an increase or decrease in the cost of, or in the time required for, performance of the Work, and equitable adjustment shall be made and the Contract Documents shall be modified by a Change Order. Any claim of the Contractor for adjustment hereunder shall not be allowed unless he has given the required Written Notice; provided that the Owner may, if he determines the facts so justify, consider and adjust any such claims asserted before the date of final payment.

- 19.3 Information such as rock soundings or soil borings shown on the plans depicting subsurface conditions are thought to be representative but cannot be guaranteed accurate. It is the Contractor's responsibility to make any additional investigations necessary to ascertain or verify subsurface conditions. If subsurface conditions different from those indicated on the plans are encountered during construction, there will be no increase in Contract Price unless provided by unit prices listed on the Bid Form or by Change Order.

## 20. SUSPENSION OF WORK, TERMINATION AND DELAY

- 20.1 The Owner may suspend the Work or any portion thereof for a period of not more than ninety (90) days or such further time as agreed upon by the Contractor, by Written Notice to the Contractor and the Engineer. Such Written Notice shall fix the date on which Work shall be resumed. The Contractor will resume that Work on the date so fixed. The Contractor will be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to any suspension.
- 20.2 If the Contractor is adjudged as bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to subcontractors or for labor, materials, equipment, or if he disregards laws, ordinances, rules, regulations, or orders of any public body having jurisdiction of the Work or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and his Surety a minimum of ten (10) days from delivery of a Written Notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the Work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such cost incurred by the Owner will be determined by the Engineer and incorporated in a Change Order.
- 20.3 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any right of the Owner against the Contractor then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor from compliance with the Contract Documents.

6.10	Taxes.....	_____
6.11	Use of Site and Other Areas.....	_____
6.12	Record Documents.....	_____
6.13	Safety and Protection.....	_____
6.14	Safety Representative.....	_____
6.15	Hazard Communication Programs.....	_____
6.16	Emergencies.....	_____
6.17	Shop Drawings and Samples.....	_____
6.18	Continuing the Work.....	_____
6.19	Contractor's General Warranty and Guarantee.....	_____
6.20	Indemnification.....	_____
6.21	Delegation of Professional Design Services.....	_____
Article 7 – Other Work at the Site.....		_____
7.01	Related Work at Site.....	_____
7.02	Coordination.....	_____
7.03	Legal Relationships.....	_____
Article 8 – Owner's Responsibilities.....		_____
8.01	Communications to Contractor.....	_____
8.02	Replacement of Engineer.....	_____
8.03	Furnish Data.....	_____
8.04	Pay When Due.....	_____
8.05	Lands and Easements; Reports and Tests.....	_____
8.06	Insurance.....	_____
8.07	Change Orders.....	_____
8.08	Inspections, Tests, and Approvals.....	_____
8.09	Limitations on Owner's Responsibilities.....	_____
8.10	Undisclosed Hazardous Environmental Condition.....	_____
8.11	Evidence of Financial Arrangements.....	_____
Article 9 – Engineer's Status During Construction.....		_____
9.01	Owner's Representative.....	_____
9.02	Visits to Site.....	_____
9.03	Project Representative.....	_____
9.04	Authorized Variations in Work.....	_____
9.05	Rejecting Defective Work.....	_____
9.06	Shop Drawings, Change Orders and Payments.....	_____
9.07	Determinations for Unit Price Work.....	_____
9.08	Decisions on Requirements of Contract Documents and Acceptability of Work.....	_____
9.09	Limitations on Engineer's Authority and Responsibilities.....	_____
Article 10 – Changes in the Work; Claims.....		_____
10.01	Authorized Changes in the Work.....	_____
10.02	Unauthorized Changes in the Work.....	_____
10.03	Execution of Change Orders.....	_____
10.04	Notification to Surety.....	_____
10.05	Claims.....	_____
Article 11 – Cost of the Work; Allowances; Unit Price Work.....		_____
11.01	Cost of the Work.....	_____
11.02	Allowances.....	_____
11.03	Unit Price Work.....	_____
Article 12 – Change of Contract Price; Change of Contract Times.....		_____
12.01	Change of Contract Price.....	_____
12.02	Change of Contract Times.....	_____

12.03	Delays .....	40
Article 13	– Tests and Inspections; Correction, Removal or Acceptance of Defective Work.....	41
13.01	Notice of Defects.....	41
13.02	Access to Work.....	41
13.03	Tests and Inspections.....	41
13.04	Uncovering Work.....	41
13.05	Owner May Stop the Work .....	42
13.06	Correction or Removal of Defective Work.....	42
13.07	Correction Period .....	42
13.08	Acceptance of Defective Work.....	43
13.09	Owner May Correct Defective Work.....	43
Article 14	– Payments to Contractor and Completion .....	44
14.01	Schedule of Values.....	44
14.02	Progress Payments.....	44
14.03	Contractor’s Warranty of Title.....	46
14.04	Substantial Completion.....	46
14.05	Partial Utilization.....	47
14.06	Final Inspection .....	47
14.07	Final Payment.....	47
14.08	Final Completion Delayed.....	48
14.09	Waiver of Claims.....	49
Article 15	– Suspension of Work and Termination .....	49
15.01	Owner May Suspend Work.....	49
15.02	Owner May Terminate for Cause.....	49
15.03	Owner May Terminate For Convenience.....	50
15.04	Contractor May Stop Work or Terminate.....	50
Article 16	– Dispute Resolution .....	51
16.01	Methods and Procedures .....	51
Article 17	– Miscellaneous.....	51
17.01	Giving Notice .....	51
17.02	Computation of Times.....	51
17.03	Cumulative Remedies.....	51
17.04	Survival of Obligations.....	52
17.05	Controlling Law.....	52
17.06	Headings.....	52
Article 18	– Federal Requirements.....	52
18.01	Agency Not a Party.....	52
18.02	Contract Approval .....	52
18.03	Conflict of Interest.....	52
18.04	Gratuities.....	52
18.05	Audit and Access to Records.....	53
18.06	Small, Minority and Women’s Businesses.....	53
18.07	Anti-Kickback.....	53
18.08	Clean Air and Pollution Control Acts .....	53
18.09	State Energy Policy .....	53
18.10	Equal Opportunity Requirements.....	53
18.11	Restrictions on Lobbying.....	54
18.12	Environmental Requirements .....	54

# GENERAL CONDITIONS

## ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

### 1.01 *Defined Terms*

- A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.
1. *Addenda* – Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.
  2. *Agency* – The Federal or state agency named as such in the Agreement.
  3. *Agreement* – The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.
  4. *Application for Payment* – The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.
  5. *Asbestos* – Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.
  6. *Bid* – The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.
  7. *Bidder* – The individual or entity who submits a Bid directly to Owner.
  8. *Bidding Documents* – The Bidding Requirements and the proposed Contract Documents (including all Addenda).
  9. *Bidding Requirements* – The Advertisement or Invitation to Bid, Instructions to Bidders, bid security of acceptable form, if any, and the Bid Form with any supplements.
  10. *Change Order* – A document recommended by Engineer which is signed by Contractor and Owner and Agency and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.
  11. *Claim* – A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.
  12. *Contract* – The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.
  13. *Contract Documents* – Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor's submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.



14. *Contract Price* – The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).
15. *Contract Times* – The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any, (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.
16. *Contractor* – The individual or entity with whom Owner has entered into the Agreement.
17. *Cost of the Work* – See Paragraph 11.01.A for definition.
18. *Drawings* – That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.
19. *Effective Date of the Agreement* – The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.
20. *Engineer* – The individual or entity named as such in the Agreement.
21. *Field Order* – A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.
22. *General Requirements* – Sections of Division 1 of the Specifications. The General Requirements pertain to all sections of the Specifications.
23. *Hazardous Environmental Condition* – The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto in connection with the Work.
24. *Hazardous Waste* – The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.
25. *Laws and Regulations; Laws or Regulations* – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.
26. *Liens* – Charges, security interests, or encumbrances upon Project funds, real property, or personal property.
27. *Milestone* – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.
28. *Notice of Award* – The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.
29. *Notice to Proceed* – A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.
30. *Owner* – The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.
31. *PCBs* – Polychlorinated biphenyls.

32. *Petroleum* – Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.
33. *Progress Schedule* – A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor’s plan to accomplish the Work within the Contract Times.
34. *Project* – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.
35. *Project Manual* – The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.
36. *Radioactive Material* – Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.
37. *Related Entity* – An officer, director, partner, employee, agent, consultant, or subcontractor.
38. *Resident Project Representative* – The authorized representative of Engineer who may be assigned to the Site or any part thereof.
39. *Samples* – Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.
40. *Schedule of Submittals* – A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.
41. *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.
42. *Shop Drawings* – All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.
43. *Site* – Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.
44. *Specifications* – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.
45. *Subcontractor* – An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.
46. *Substantial Completion* – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion thereof.
47. *Successful Bidder* – The Bidder submitting a responsive Bid to whom Owner makes an award.

48. *Supplementary Conditions* – That part of the Contract Documents which amends or supplements these General Conditions.
49. *Supplier* – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or any Subcontractor.
50. *Underground Facilities* – All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.
51. *Unit Price Work* – Work to be paid for on the basis of unit prices.
52. *Work* – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.
53. *Work Change Directive* – A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and Agency upon recommendation of the Engineer ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

## 1.02 *Terminology*

- A. The following words or terms are not defined but, when used in the Bidding Requirements or Contract Documents, have the following meaning.
- B. *Intent of Certain Terms or Adjectives*
  1. The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action or determination will be solely to evaluate, in general, the Work for compliance with the requirements of and information in the Contract Documents and conformance with the design concept of the completed Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.
- C. *Day*
  1. The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective*

1. The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:
  - a. does not conform to the Contract Documents, or
  - b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents, or
  - c. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide*

1. The word “furnish,” when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.
4. When “furnish,” “install,” “perform,” or “provide” is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, “provide” is implied.

- F. Unless stated otherwise in the Contract Documents, words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

**ARTICLE 2 - PRELIMINARY MATTERS**

2.01 *Delivery of Bonds and Evidence of Insurance*

- A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.
- B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

- A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

- A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement.

2.04 *Starting the Work*

- A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

- A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:
  - 1. a preliminary Progress Schedule;
  - 2. a preliminary Schedule of Submittals; and
  - 3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference*

- A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, Agency, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

2.07 *Initial Acceptance of Schedules*

- A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.
  - 1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work nor interfere with or relieve Contractor from Contractor's full responsibility therefor.
  - 2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.
  - 3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

**ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE**

3.01 *Intent*

- A. The Contract Documents are complementary; what is required by one is as binding as if required by all.
- B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that may reasonably be inferred from the Contract Documents or from prevailing custom or trade usage

as being required to produce the intended result will be provided whether or not specifically called for at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

### 3.02 *Reference Standards*

#### A. *Standards, Specifications, Codes, Laws, and Regulations*

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
2. No provision of any such standard, specification, manual or code, or any instruction of a Supplier shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, or Engineer, or any of their Related Entities, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

### 3.03 *Reporting and Resolving Discrepancies*

#### A. *Reporting Discrepancies*

1. *Contractor's Review of Contract Documents Before Starting Work:* Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.
2. *Contractor's Review of Contract Documents During Performance of Work:* If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents or between the Contract Documents and any provision of any Law or Regulation applicable to the performance of the Work or of any standard, specification, manual or code, or of any instruction of any Supplier, Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.
3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor knew or reasonably should have known thereof.

#### B. *Resolving Discrepancies*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
  - a. the provisions of any standard, specification, manual, code, or instruction (whether or not specifically incorporated by reference in the Contract Documents); or
  - b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

- A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.
- B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:
  - 1. A Field Order;
  - 2. Engineer's approval of a Shop Drawing or Sample; (Subject to the provisions of Paragraph 6.17.D.3) or
  - 3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

- A. Contractor and any Subcontractor or Supplier shall not:
  - 1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or Engineer's consultants, including electronic media editions; or
  - 2. reuse any of such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaption by Engineer.
- B. The prohibition of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

- A. Copies of data furnished by Owner or Engineer to Contractor or Contractor to Owner or Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.
- B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.
- C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

**ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS**

4.01 *Availability of Lands*

- A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any,

of any adjustment in the Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

- B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.
- C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

#### 4.02 *Subsurface and Physical Conditions*

- A. *Reports and Drawings:* The Supplementary Conditions identify:
  - 1. those reports of explorations and tests of subsurface conditions at or contiguous to the Site that Engineer has used in preparing the Contract Documents; and
  - 2. those drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site (except Underground Facilities) that Engineer has used in preparing the Contract Documents.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or
  - 3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

#### 4.03 *Differing Subsurface or Physical Conditions*

- A. *Notice:* If Contractor believes that any subsurface or physical condition at or contiguous to the Site that is uncovered or revealed either:
  - 1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or
  - 2. is of such a nature as to require a change in the Contract Documents; or
  - 3. differs materially from that shown or indicated in the Contract Documents; or
  - 4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb



such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review:* After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

- a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and
- b. with respect to Work that is paid for on a Unit Price Basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

- a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or
- b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or
- c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, Owner and Engineer, and any of their Related Entities shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data; and
2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:
  - a. reviewing and checking all such information and data,
  - b. locating all Underground Facilities shown or indicated in the Contract Documents,

- c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction, and
- d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated*

- 1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
- 2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

- A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

- A. *Reports and Drawings:* Reference is made to the Supplementary Conditions for the identification of those reports and drawings relating to a Hazardous Environmental Condition identified at the Site, if any, that have been utilized by the Engineer in the preparation of the Contract Documents.
- B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the general accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their Related Entities with respect to:
  - 1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or
  - 2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.
- C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.
- D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any.
- E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered to Contractor written notice: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.
- F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.
- G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06. H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.
- I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

## ARTICLE 5 – BONDS AND INSURANCE

### 5.01 *Performance, Payment, and Other Bonds*

- A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.
- B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the current list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent must be accompanied by a certified copy of the agent's authority to act.
- C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

### 5.02 *Licensed Sureties and Insurers*

- A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

### 5.03 *Certificates of Insurance*

- A. Contractor shall deliver to Owner, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.
- B. Owner shall deliver to Contractor, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

### 5.04 *Contractor's Liability Insurance*

- A. Contractor shall purchase and maintain such liability and other insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:
  - 1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;
  - 2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;
4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:
  - a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or
  - b. by any other person for any other reason;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and
6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;
2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;
3. include completed operations insurance;
4. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;
5. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);
6. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and
7. with respect to completed operations insurance, and any insurance coverage written on a claims-made basis, remain in effect for at least two years after final payment.
  - a. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

- A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (Contractor shall be responsible for any deductible or self-insured retention.). This insurance shall:
1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured;
  2. be written on a Builder's Risk "all-risk" or open peril or special causes of loss policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions;
  3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);
  4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;
  5. allow for partial utilization of the Work by Owner;
  6. include testing and startup; and
  7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other additional insured to whom a certificate of insurance has been issued.
- B. Contractor shall purchase and maintain such boiler and machinery insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as an insured or additional insured.
- C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.
- D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

5.07 *Waiver of Rights*

- A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or additional insureds thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insured or additional insured (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Contractor as trustee or otherwise payable under any policy so issued.
- B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them for:
  - 1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and
  - 2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.
- C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery against Contractor, Subcontractors, or Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

- A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Contractor and made payable to Contractor as fiduciary for the insureds, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Contractor shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof.
- B. Contractor as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Contractor's exercise of this power. If such objection be made, Contractor as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Contractor as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Contractor as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

- A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of

non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

- A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

**ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES**

6.01 *Supervision and Superintendence*

- A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.
- B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances. The superintendent will be Contractor's representative at the Site and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

6.02 *Labor; Working Hours*

- A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.
- B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.



- B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.
- C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

6.04 *Progress Schedule*

- A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.
  - 1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.
  - 2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

- A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.
  - 1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:
    - a. in the exercise of reasonable judgment Engineer determines that:
      - 1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
      - 2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;
      - 3) it has a proven record of performance and availability of responsive service; and
    - b. Contractor certifies that, if approved and incorporated into the Work:
      - 1) there will be no increase in cost to the Owner or increase in Contract Times, and
      - 2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

- E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.
- F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.
- G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as an additional insured on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, and Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or additional insureds (and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

6.07 *Patent Fees and Royalties*

- A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if to the actual knowledge of Owner or Engineer its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.
- B. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

- A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

- A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's primary responsibility to make certain

that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

- C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

- A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.
2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.
3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work, Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

- A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved

Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

#### 6.13 *Safety and Protection*

- A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
  - 1. all persons on the Site or who may be affected by the Work;
  - 2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
  - 3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.
- C. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or , or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).
- D. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

#### 6.14 *Safety Representative*

- A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

#### 6.15 *Hazard Communication Programs*

- A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

#### 6.16 *Emergencies*

- A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract

Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

- A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the acceptable Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.
  - 1. *Shop Drawings*
    - a. Submit number of copies specified in the General Requirements.
    - b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.
  - 2. *Samples*
    - a. Submit number of Samples specified in the Specifications.
    - b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.
- B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.
- C. *Submittal Procedures*
  - 1. Before submitting each Shop Drawing or Sample, Contractor shall have determined and verified:
    - a. all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;
    - b. the suitability of all materials with respect to intended use, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work;
    - c. all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto; and
    - d. shall also have reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents.
  - 2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.
  - 3. With each submittal, Contractor shall give Engineer specific written notice of any variations, that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.
2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.
3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

- A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

- A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its Related Entities shall be entitled to rely on representation of Contractor's warranty and guarantee.
- B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:
  1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or
  2. normal wear and tear under normal usage.
- C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:
  1. observations by Engineer;
  2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;
4. use or occupancy of the Work or any part thereof by Owner;
5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;
6. any inspection, test, or approval by others; or
7. any correction of defective Work by Owner.

6.20 *Indemnification*

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable.
- B. In any and all claims against Owner or Engineer or any of their respective consultants, agents, officers, directors, partners, or employees by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers' compensation acts, disability benefit acts, or other employee benefit acts.
- C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, partners, employees, agents, consultants and subcontractors arising out of:
  1. the preparation or approval of, or the failure to prepare or approve, maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or
  2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

- A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.
- B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

- C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.
- D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.
- E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

## ARTICLE 7 – OTHER WORK AT THE SITE

### 7.01 *Related Work at Site*

- A. Owner may perform other work related to the Project at the Site with Owner's employees, or via other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:
  - 1. written notice thereof will be given to Contractor prior to starting any such other work; and
  - 2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.
- B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and shall properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering their work and will only cut or alter their work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.
- C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

### 7.02 *Coordination*

- A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:
  - 1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;
  - 2. the specific matters to be covered by such authority and responsibility will be itemized; and
  - 3. the extent of such authority and responsibilities will be provided.



- B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

7.03 *Legal Relationships*

- A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.
- B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's actions or inactions.
- C. Contractor shall be liable to Owner and any other contractor for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's action or inactions.

**ARTICLE 8 – OWNER'S RESPONSIBILITIES**

8.01 *Communications to Contractor*

- A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

- A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

- A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

- A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

- A. Owner's duties in respect of providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Site that have been utilized by Engineer in preparing the Contract Documents.

8.06 *Insurance*

- A. Owner's responsibilities, if any, in respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

- A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

8.08 *Inspections, Tests, and Approvals*

- A. Owner's responsibility in respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

- A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

- A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

- A. If and to the extent Owner has agreed to furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents, Owner's responsibility in respect thereof will be as set forth in the Supplementary Conditions.

**ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION**

9.01 *Owner's Representative*

- A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents and will not be changed without written consent of Owner and Engineer.

9.02 *Visits to Site*

- A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.
- B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

- A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

- A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

- A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

- A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.
- B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.
- C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.
- D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

- A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

- A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.
- B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believe that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.
- C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

- D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

- A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.
- B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.
- C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.
- D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with the Contract Documents.
- E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

**ARTICLE 10 – CHANGES IN THE WORK; CLAIMS**

10.01 *Authorized Changes in the Work*

- A. Without invalidating the Contract and without notice to any surety, Owner may, subject to written approval by Agency at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).
- B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

- A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.B.

10.03 *Execution of Change Orders*

- A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:
1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;
  2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and
  3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

- A. If notice of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times) is required by the provisions of any bond to be given to a surety, the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

- A. *Engineer's Decision Required:* All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.
- B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Time shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).
- C. *Engineer's Action:* Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:
1. deny the Claim in whole or in part,
  2. approve the Claim, or
  3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.
- D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

- E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.
- F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

## ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

### 11.01 *Cost of the Work*

- A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall include only the following items, and shall not include any of the costs itemized in Paragraph 11.01.B.
  - 1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time at the Site. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.
  - 2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.
  - 3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.
  - 4. Costs of special consultants (including but not limited to Engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.
  - 5. Supplemental costs including the following:
    - a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.
    - b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are

consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

- c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.
- d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, imposed by Laws and Regulations.
- e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.
- f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.
- g. The cost of utilities, fuel, and sanitary facilities at the Site.
- h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, expressages, and similar petty cash items in connection with the Work.
- i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

- 1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expeditors, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.
- 2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.
- 3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.
- 4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.
- 5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A and 11.01.B.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:
  - a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.7;
  - b. consent of the surety, if any, to final payment;
  - c. a list of all Claims against Owner that Contractor believes are unsettled; and
  - d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.
3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner or Owner's property might in any way be responsible have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

*B. Engineer's Review of Application and Acceptance*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

*C. Payment Becomes Due*

1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

*14.08 Final Completion Delayed*

- A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims. The remaining balance of any sum included in the final Application for Payment but held by OWNER for Work not fully completed and accepted will become due when the Work is fully completed and accepted.



14.09 *Waiver of Claims*

- A. The making and acceptance of final payment will constitute:
1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and
  2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

**ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION**

15.01 *Owner May Suspend Work*

- A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

- A. The occurrence of any one or more of the following events will justify termination for cause:
1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);
  2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;
  3. Contractor's disregard of the authority of Engineer; or
  4. Contractor's violation in any substantial way of any provisions of the Contract Documents.
- B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:
1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion),
  2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and
  3. complete the Work as Owner may deem expedient.
- C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by

Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph Owner shall not be required to obtain the lowest price for the Work performed.

- D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.
- E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.
- F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B, and 15.02.C.

#### 15.03 *Owner May Terminate For Convenience*

- A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):
  - 1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
  - 2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;
  - 3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and
  - 4. reasonable expenses directly attributable to termination.
- B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

#### 15.04 *Contractor May Stop Work or Terminate*

- A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.
- B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

## ARTICLE 16 – DISPUTE RESOLUTION

### 16.01 *Methods and Procedures*

- A. Owner and Contractor may mutually request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association. Timely submission of the request shall stay the effect of Paragraph 10.05.E.
- B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.
- C. If the claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:
  - 1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions, or
  - 2. agrees with the other party to submit the Claim to another dispute resolution process, or
  - 3. gives written notice to the other party of their intent to submit the Claim to a court of competent jurisdiction.

## ARTICLE 17 – MISCELLANEOUS

### 17.01 *Giving Notice*

- A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:
  - 1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or
  - 2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

### 17.02 *Computation of Times*

- A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

### 17.03 *Cumulative Remedies*

- A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

- A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

- A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

- A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

**ARTICLE 18 – FEDERAL REQUIREMENTS**

18.01 *Agency Not a Party*

- A. This Contract is expected to be funded in part with funds provided by Agency. Neither Agency, nor any of its departments, entities, or employees is a party to this Contract.

18.02 *Contract Approval*

- A. Owner and Contractor will furnish Owner's attorney such evidence as required so that Owner's attorney can complete and execute the following "Certificate of Owner's Attorney" (Exhibit GC-A) before Owner submits the executed Contract Documents to Agency for approval.
- B. Concurrence by Agency in the award of the Contract is required before the Contract is effective.

18.03 *Conflict of Interest*

- A. Contractor may not knowingly contract with a supplier or manufacturer if the individual or entity who prepared the plans and specifications has a corporate or financial affiliation with the supplier or manufacturer.
- B. Owner's officers, employees, or agents shall not engage in the award or administration of this Contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when: (i) the employee, officer or agent; (ii) any member of their immediate family; (iii) their partner or (iv) an organization that employs, or is about to employ, any of the above, has a financial interest in Contractor. Owner's officers, employees, or agents shall neither solicit nor accept gratuities, favors or anything of monetary value from Contractor or subcontractors.

18.04 *Gratuities*

- A. If Owner finds after a notice and hearing that Contractor, or any of Contractor's agents or representatives, offered or gave gratuities (in the form of entertainment, gifts, or otherwise) to any official, employee, or agent of Owner or Agency in an attempt to secure this Contract or favorable treatment in awarding, amending, or making any determinations related to the performance of this Contract, Owner may, by written notice to Contractor, terminate this Contract. Owner may also pursue other rights and remedies that the law or this Contract provides. However, the existence of the facts on which Owner bases such findings shall be an issue and may be reviewed in proceedings under the dispute resolution provisions of this Contract.
- B. In the event this Contract is terminated as provided in paragraph 18.04.A, Owner may pursue the same remedies against Contractor as it could pursue in the event of a breach of this Contract by Contractor. As a penalty, in addition to any other damages to which it may be entitled by law, Owner may pursue exemplary damages in an

amount (as determined by Owner) which shall not be less than three nor more than ten times the costs Contractor incurs in providing any such gratuities to any such officer or employee.

18.05 *Audit and Access to Records*

- A. For all negotiated contracts and negotiated modifications (except those of \$10,000 or less), Owner, Agency, the Comptroller General, or any of their duly authorized representatives, shall have access to any books, documents, papers, and records of the Contractor, which are pertinent to the Contract, for the purpose of making audits, examinations, excerpts and transcriptions. Contractor shall maintain all required records for three years after final payment is made and all other pending matters are closed.

18.06 *Small, Minority and Women's Businesses*

- A. If Contractor intends to let any subcontracts for a portion of the work, Contractor shall take affirmative steps to assure that small, minority and women's businesses are used when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall consist of: (1) including qualified small, minority and women's businesses on solicitation lists; (2) assuring that small, minority and women's businesses are solicited whenever they are potential sources; (3) dividing total requirements when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses; (4) establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority and women's businesses; (5) using the services and assistance of the Small Business Administration and the Minority Business Development Agency of the U.S. Department of Commerce; (6) requiring each party to a subcontract to take the affirmative steps of this section; and (7) Contractor is encouraged to procure goods and services from labor surplus area firms.

18.07 *Anti-Kickback*

- A. Contractor shall comply with the Copeland Anti-Kickback Act (18 USC 874 and 40 USC 276c) as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Buildings or Public Works Financed in Whole or in Part by Loans or Grants of the United States"). The Act provides that Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public facilities, to give up any part of the compensation to which they are otherwise entitled. Owner shall report all suspected or reported violations to Agency.

18.08 *Clean Air and Pollution Control Acts*

- A. If this Contract exceeds \$100,000, Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 USC 7401 *et seq.*) and the Federal Water Pollution Control Act as amended (33 USC 1251 *et seq.*). Contractor will report violations to the Agency and the Regional Office of the EPA.

18.09 *State Energy Policy*

- A. Contractor shall comply with the Energy Policy and Conservation Act (P.L. 94-163). Mandatory standards and policies relating to energy efficiency, contained in any applicable State Energy Conservation Plan, shall be utilized.

18.10 *Equal Opportunity Requirements*

- A. If this Contract exceeds \$10,000, Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."
- B. Contractor's compliance with Executive Order 11246 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative active obligations required by the Standard Federal Equal Employment

Opportunity Construction Contract Specifications, as set forth in 41 CFR Part 60-4 and its efforts to meet the goals established for the geographical area where the Contract 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 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 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.

- C. 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 subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the Contract is to be performed.

18.11 *Restrictions on Lobbying*

- A. Contractor and each subcontractor shall comply with Restrictions on Lobbying (Public Law 101-121, Section 319) as supplemented by applicable Agency regulations. This Law applies to the recipients of contracts and subcontracts that exceed \$100,000 at any tier under a Federal loan that exceeds \$150,000 or a Federal grant that exceeds \$100,000. If applicable, Contractor must complete a certification form on lobbying activities related to a specific Federal loan or grant that is a funding source for this Contract. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 USC 1352. Each tier shall disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Certifications and disclosures are forwarded from tier to tier up to the Owner. Necessary certification and disclosure forms shall be provided by Owner.

18.12 *Environmental Requirements*

- A. When constructing a project involving trenching and/or other related earth excavations, Contractor shall comply with the following environmental constraints:
  - 1. Wetlands – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert wetlands.
  - 2. Floodplains – When disposing of excess, spoil, or other construction materials on public or private property, Contractor shall not fill in or otherwise convert 100 year floodplain areas delineated on the latest Federal Emergency Management Agency Floodplain Maps, or other appropriate maps, i.e., alluvial soils on NRCS Soil Survey Maps.
  - 3. Historic Preservation – Any excavation by Contractor that uncovers an historical or archaeological artifact shall be immediately reported to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the State Historic Preservation Officer (SHPO).
  - 4. Endangered Species – Contractor shall comply with the Endangered Species Act, which provides for the protection of endangered and/or threatened species and critical habitat. Should any evidence of the presence of endangered and/or threatened species or their critical habitat be brought to the attention of Contractor, Contractor will immediately report this evidence to Owner and a representative of Agency. Construction shall be temporarily halted pending the notification process and further directions issued by Agency after consultation with the U.S. Fish and Wildlife Service.

EXHIBIT GC-A

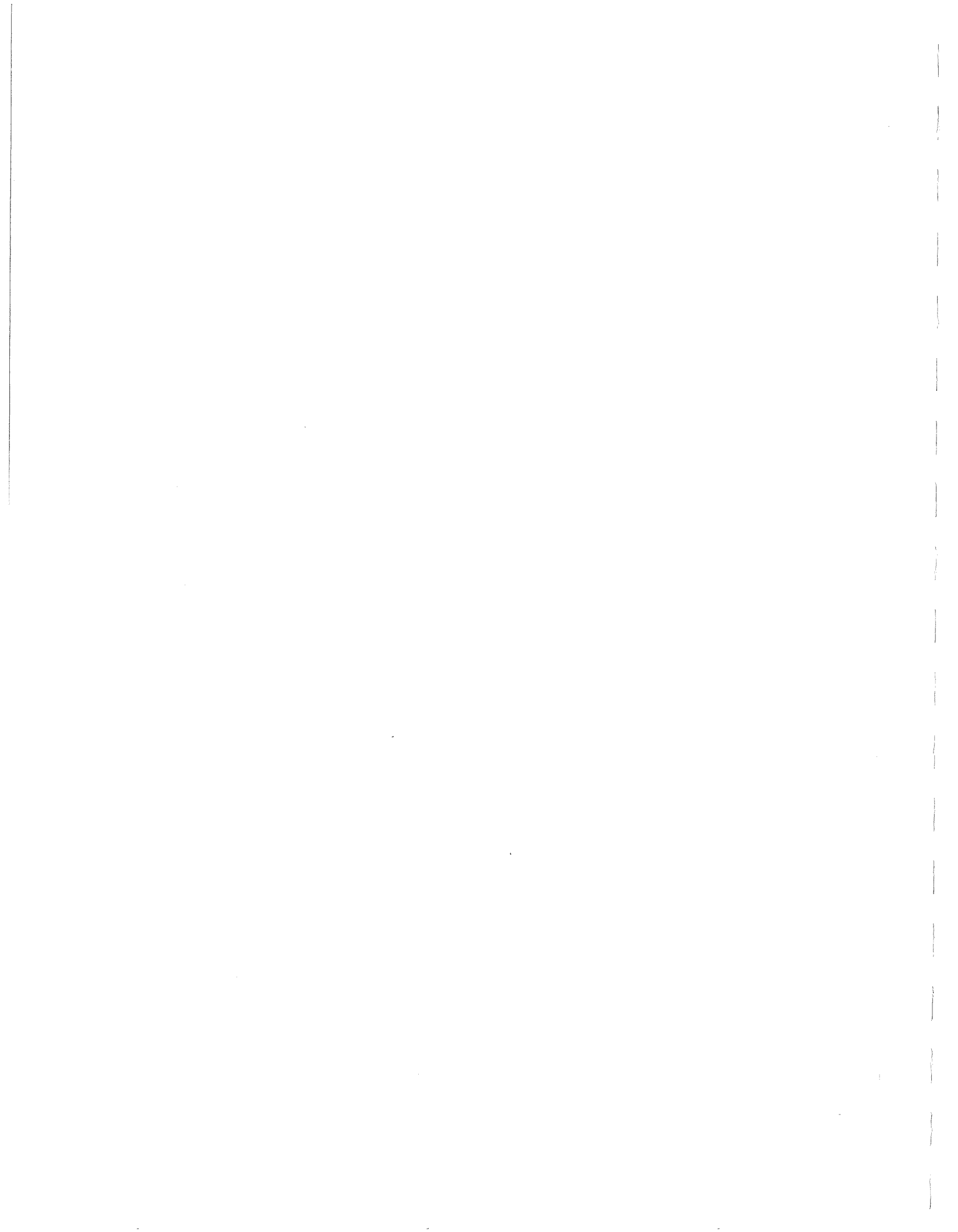
Certificate of Owner's Attorney

I, the undersigned, \_\_\_\_\_, the duly authorized and acting legal representative of \_\_\_\_\_, do hereby certify as follows:

I have examined the attached Contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements is adequate and has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with the terms, conditions, and provisions thereof.

\_\_\_\_\_

Date: \_\_\_\_\_







Steven L. Beshear  
Governor

Daniel Mongiardo  
Lieutenant Governor

**KENTUCKY LABOR CABINET**  
DEPARTMENT OF WORKPLACE STANDARDS  
DIVISION OF EMPLOYMENT STANDARDS,  
APPRENTICESHIP & MEDIATION

1047 US Hwy 127 S - Suite 4  
Frankfort, Kentucky 40601  
Phone: (502) 564-3534  
Fax (502) 564-2248  
[www.labor.ky.gov](http://www.labor.ky.gov)

Mark S. Brown  
Secretary

Michael L. Dixon  
Commissioner

November 9, 2011

JEFF REYNOLDS  
HMB PROFESSIONAL ENGINEERS INC  
3 HMB CIRCLE  
FRANKFORT KY 40601

Re: BRACKEN CO WATER DIST, SHORT RDS WATER PROJ

Advertising Date as Shown on Notification: November 15, 2011

Dear JEFF REYNOLDS:

This office is in receipt of your written notification on the above project as required by KRS 337.510 (1).

I am enclosing a copy of the current prevailing wage determination number CR 4-020, dated October 24, 2011 for BRACKEN County. This schedule of wages shall be attached to and made a part of the specifications for the work, printed on the bidding blanks, and made a part of the contract for the construction of the public works between the public authority and the successful bidder or bidders.

The determination number assigned to this project is based upon the advertising date contained in your notification. There may be modifications to this wage determination prior to the advertising date indicated. In addition, if the contract is not awarded within 90 days of this advertising date or if the advertising date is modified, a different set of prevailing rates of wages may be applicable. It will be the responsibility of the public authority to contact this office and verify the correct schedule of the prevailing rates of wages for use on the project. Your project number is as follows: 012-H-00030-11-4, Heavy/Highway

Sincerely,

A handwritten signature in black ink that reads "Michael L. Dixon".

Michael L. Dixon  
Commissioner

**KENTUCKY LABOR CABINET  
PREVAILING WAGE DETERMINATION  
CURRENT REVISION  
LOCALITY NO. 20**

**BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES**

Determination No. CR-4-020 2011

Date of Determination: October 24, 2011

**PROJECT 012-H-00030-11-4 HEAVY HIGHWAY**

**BRACKEN CO WATER DIST  
SHORT RDS WATER PROJECT**

This schedule of the prevailing rate of wages for Bracken, Carter, Greenup, Lewis, Mason & Robertson Counties has been determined in accordance with the provisions of KRS 337.505 to 337.550. This determination shall be referred to as Prevailing Wage Determination Number CR-4-020 2011.

Apprentices shall be permitted to work as such subject to Administrative Regulations adopted by the Commissioner of Workplace Standards. Copies of these regulations will be furnished upon request to any interested person.

Overtime is to be computed at not less than one and one-half (1 1/2) times the indicated BASE RATE for all hours worked in excess of eight (8) hours per day, and/or in excess of forty (40) hours per week. However, KRS 337.540 permits an employee and employer to agree, in writing, that the employee will be compensated at a straight time base rate for hours worked in excess of eight (8) hours in any one calendar day, but not more than ten (10) hours worked in any one calendar day, if such written agreement is prior to the over eight (8) hours in a calendar day actually being worked, or where provided for in a collective bargaining agreement. The fringe benefit rate is to be paid for each hour worked at a straight time rate for all hours worked.

Fringe benefit amounts are applicable for all hours worked except when otherwise noted. Welders will receive rate for craft in which welding is incidental.

NOTE: The type of construction shall be determined by applying the following definitions:

**BUILDING CONSTRUCTION**

Building construction is the construction of sheltered enclosures with walk-in access for the purpose of housing persons, machinery, equipment, or supplies. It includes all construction of such structures, the installation of utilities and the installation of equipment, both above and below grade level, as well as incidental grading, utilities and paving.

**HIGHWAY CONSTRUCTION**

Highway construction includes the construction, alteration or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction. It includes all incidental construction in conjunction with the highway construction project.

**HEAVY CONSTRUCTION**

Heavy projects are those projects that are not properly classified as either "building" or "highway". For example, dredging projects, water and sewer line projects, dams, flood control projects, sewage treatment plants and facilities, and water treatment plants and facilities are considered heavy.



Michael L. Dixon, Commissioner  
Department of Workplace Standards  
Kentucky Labor Cabinet

Determination No. CR-4-020 2011  
October 24, 2011

**ASBESTOS/INSULATION WORKERS:**

BRACKEN, MASON & ROBERTSON COUNTIES:

(Including duct (hot/cold), Pipe Insulator & Pipe Wrapping):

BASE RATE	\$28.38
FRINGE BENEFITS	12.64

Hazardous Material Handlers: (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems):

BASE RATE	\$23.60
FRINGE BENEFITS	9.80

**ASBESTOS/INSULATION WORKERS:**

CARTER, GREENUP & LEWIS COUNTIES:

(Including duct (hot/cold), Pipe Insulator & Pipe Wrapping):

BASE RATE	\$30.00
FRINGE BENEFITS	16.17

Hazardous Material Handlers: (Includes preparation, wetting, stripping, removal, scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems):

BASE RATE	\$21.00
FRINGE BENEFITS	9.72

**BOILERMAKERS:**

BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES:

BASE RATE	\$35.79
FRINGE BENEFITS	16.71

**BRICKLAYERS:**

MASON & ROBERTSON COUNTIES:

Bricklayers:	BUILDING	BASE RATE	\$26.57
		FRINGE BENEFITS	10.26

Refractory:	BUILDING	BASE RATE	\$26.62
		FRINGE BENEFITS	9.73

Tile Setters:	BUILDING	BASE RATE	\$26.43
		FRINGE BENEFITS	9.78

Bricklayers:	HEAVY & HIGHWAY	BASE RATE	\$26.57
		FRINGE BENEFITS	10.26

**BRICKLAYERS:**

BRACKEN & GREENUP COUNTIES:

	BUILDING	BASE RATE	\$21.86
		FRINGE BENEFITS	4.75

**TILE FINISHER**

BRACKEN COUNTY	BUILDING	BASE RATE	\$21.99
		FRINGE BENEFITS	9.78

**TILE SETTER**

BRACKEN COUNTY	BUILDING	BASE RATE	\$26.43
		FRINGE BENEFITS	9.78

**TILE SETTERS:**

GREENUP COUNTY:	BUILDING	BASE RATE	\$27.01
		FRINGE BENEFITS	16.80

**MARBLE FINISHERS:**

BRACKEN, LEWIS & MASON COUNTIES:		BASE RATE	\$21.99
Finishers:	BUILDING	FRINGE BENEFITS	9.78

Marble Sanders, Polishers, Waxers & Sawyers:  
 BUILDING

BASE RATE	\$22.02
FRINGE BENEFITS	9.62

Terrazzo Base Grinders (While operating base grinding machine):  
 BUILDING

BASE RATE	\$22.37
FRINGE BENEFITS	9.62

**BRICKLAYERS:**

CARTER & LEWIS COUNTIES:

Bricklayers, Caulkers, Cleaners, Marble Setters, Pointers, Stonemasons, Terrazzo Workers, & *Tile Setters (*except Greenup County):	BUILDING	BASE RATE	\$27.01
		FRINGE BENEFITS	16.80

HEAVY & HIGHWAY

BASE RATE	\$28.29
FRINGE BENEFITS	16.80

**MARBLE FINISHERS:**

CARTER & GREENUP COUNTIES:

Marble, Terrazzo & Tile Finishers:	BUILDING	BASE RATE	\$19.09
		FRINGE BENEFITS	4.96

Terrazzo Base Grinders: BUILDING

BASE RATE	\$19.51
FRINGE BENEFITS	4.96

Marble Sanders & Polishers: BUILDING

BASE RATE	\$19.16
FRINGE BENEFITS	4.96

**CARPENTERS:**

BRACKEN COUNTY:

Carpenters (Drywall Hanging Only):	BUILDING	BASE RATE	\$21.47
		FRINGE BENEFITS	10.67

All Other Work: BUILDING

BASE RATE	\$19.24
FRINGE BENEFITS	6.83

Carpenters: HEAVY & HIGHWAY

BASE RATE	\$25.95
FRINGE BENEFITS	13.26

Piledrivermen: HEAVY & HIGHWAY

BASE RATE	\$26.20
FRINGE BENEFITS	13.26

Divers: HEAVY & HIGHWAY

BASE RATE	\$39.30
FRINGE BENEFITS	13.26

**CARPENTERS:**

CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES:

Carpenters: (Form Work & Scaffold Building):

BUILDING	BASE RATE	\$27.63
	FRINGE BENEFITS	14.84

Carpenters	HEAVY & HIGHWAY	BASE RATE	\$25.95
		FRINGE BENEFITS	13.26

Piledrivermen:	HEAVY & HIGHWAY	BASE RATE	\$26.20
		FRINGE BENEFITS	13.26

Divers:	HEAVY & HIGHWAY	BASE RATE	\$39.30
		FRINGE BENEFITS	13.26

**CARPENTERS:**

MASON COUNTY:

Drywall Hanging Only:	BUILDING	BASE RATE	\$14.52
		FRINGE BENEFITS	2.91

**CARPENTERS:**

CARTER COUNTY:

Drywall Hanging & Form Work:	BUILDING	BASE RATE	\$15.99
		FRINGE BENEFITS	4.10

**CARPENTERS:**

LEWIS & ROBERTSON COUNTIES:

All Other Work:	BUILDING	BASE RATE	\$15.58
		FRINGE BENEFITS	4.28

Drywall Hanging Only:	BUILDING	BASE RATE	\$14.52
		FRINGE BENEFITS	2.91

Form Work:	BUILDING	BASE RATE	\$17.96
		FRINGE BENEFITS	10.32

**CEMENT MASON / CONCRETE FINISHERS:**

BRACKEN COUNTY:	BUILDING	BASE RATE	\$22.25
		FRINGE BENEFITS	10.90

**CEMENT MASON / CONCRETE FINISHERS:**

GREENUP COUNTY:	BUILDING	BASE RATE	\$28.42
		FRINGE BENEFITS	16.16

**CEMENT MASON / CONCRETE FINISHERS:**

CARTER, LEWIS, MASON & ROBERTSON COUNTIES:	BUILDING	BASE RATE	\$13.87
		FRINGE BENEFITS	2.63

**ELECTRICIANS:**  
 BRACKEN COUNTY:  
 Electricians:

BASE RATE	\$26.11
FRINGE BENEFITS	14.94

Sound & Communication Technician:

BASE RATE	\$20.45
FRINGE BENEFITS	6.95

**LINE CONSTRUCTION:**  
 BRACKEN COUNTY:

Linemen: BUILDING

BASE RATE	\$30.50
FRINGE BENEFITS	11.15

Equipment Operator: BUILDING

BASE RATE	\$27.45
FRINGE BENEFITS	10.51

Groundmen: BUILDING

BASE RATE	\$19.83
FRINGE BENEFITS	8.92

Electrical Sign & Luminous Building Installer  
 BUILDING

BASE RATE	\$12.88
FRINGE BENEFITS	1.03

**ELECTRICIANS:**  
 CARTER COUNTY:  
 Electricians:

BASE RATE	\$23.18
FRINGE BENEFITS	8.16

Cable Splicers:

BASE RATE	\$32.68
FRINGE BENEFITS	18.13

**LINE CONSTRUCTION:**  
 CARTER, GREENUP & LEWIS COUNTIES:  
 Linemen/Cable Splicers/Technician:

BUILDING

BASE RATE	\$31.45
FRINGE BENEFITS	12.38

Groundman/Truck Driver: BUILDING

BASE RATE	\$15.35
FRINGE BENEFITS	12.38

Equipment Mechanic: BUILDING

BASE RATE	\$22.29
FRINGE BENEFITS	12.38

Equipment Operator A: (John Henry Rock Drill, D6 (or equivalent) and above, Trackhoe Digger, Cranes (greater than 25 tons and less than 45 tons):

BUILDING

BASE RATE	\$28.00
FRINGE BENEFITS	12.38

Equipment Operator B: Cranes (6-25 tons) Backhoes, Road Tractor, Dozer up to D5, Pressure Digger Wheeled or Tracked and all Tension Wire Stringing Equipment:

BUILDING

BASE RATE	\$24.52
FRINGE BENEFITS	12.38

Equipment Operator C: Trencher, Vibratory Compactor, Ground Rod Driver, Boom Truck (6 ton or below) & Skid Steer Loaders: BUILDING

BASE RATE	\$19.33
FRINGE BENEFITS	12.38

**ELECTRICIANS:**

LEWIS & ROBERTSON COUNTIES:

Electricians:	BASE RATE	\$23.18
	FRINGE BENEFITS	8.16

LINE CONSTRUCTION:

Cable Splicer:	BASE RATE	\$32.19
	FRINGE BENEFITS	11.88

Equipment Operator A: John Henry Rock Drill, D6 (or equivalent) and above, Trackhoe Digger, Cranes (greater than 25 tons and less than 45 tons):

BASE RATE	\$28.81
FRINGE BENEFITS	11.13

Equipment Operator B: Cranes (6-25 tons), Backhoes, RoadTractor, Dozer up to D5, Pressure Digger-Wheeled or Tracked, all Tension Wire Stringing Equipment:

BASE RATE	\$25.42
FRINGE BENEFITS	10.38

Equipment Operator C: Trencher, Vibratory Compactor, GroundRod Driver, Boom Truck (6 ton or below), Skid Steer Loaders:

BASE RATE	\$20.33
FRINGE BENEFITS	9.25

Groundman:

BASE RATE	\$17.12
FRINGE BENEFITS	8.55

Lineman and Technician:

BASE RATE	\$29.36
FRINGE BENEFITS	11.25

Cranes 45 tons or larger paid 100% of journeyman lineman's rate.

**ELECTRICIANS:**

GREENUP & MASON COUNTIES:

Electricians:	BASE RATE	\$30.69
	FRINGE BENEFITS	12.48

SOUND & COMMUNICATIONS:

Installer:	BASE RATE	\$19.63
	FRINGE BENEFITS	7.42

Cable Puller:	BASE RATE	\$10.38
	FRINGE BENEFITS	6.75

**GLAZIERS:**

MASON & ROBERTSON COUNTIES:

BUILDING	BASE RATE	\$23.70
	FRINGE BENEFITS	11.40

**GLAZIERS:**

CARTER, GREENUP & LEWIS COUNTIES:

BUILDING	BASE RATE	\$28.50
	FRINGE BENEFITS	5.70

**GLAZIERS:**

BRACKEN COUNTY:

BUILDING	BASE RATE	\$15.45
	FRINGE BENEFITS	0.00

**IRONWORKERS:**

BRACKEN, MASON (80% western part of Mason County) & ROBERTSON COUNTIES:

Structural, & Ornamental:	BASE RATE	\$25.50
	FRINGE BENEFITS	17.20

Fence Erector:	BASE RATE	\$23.55
	FRINGE BENEFITS	16.72

REINFORCING:	BASE RATE	\$26.50
	FRINGE BENEFITS	17.40

**IRONWORKERS:**

CARTER & MASON (20% eastern part of Mason County) COUNTIES:

Up to 10-mile radius of Union Hall, Ashland Kentucky:	BASE RATE	\$30.96
	FRINGE BENEFITS	18.07

10 to 50 mile radius of Union Hall, Ashland Kentucky:	BASE RATE	\$31.36
	FRINGE BENEFITS	18.07

50 mile radius & over of Union Hall, Ashland Kentucky:	BASE RATE	\$32.96
	FRINGE BENEFITS	18.07

**IRONWORKERS:**

LEWIS & GREENUP

Ornamental, Reinforcing, Structural:	BASE RATE	\$ 30.96
	FRINGE BENEFITS	18.07

**LABORERS / BUILDING:**

BRACKEN COUNTY:

Common or General & Landscape Laborer:	BUILDING	BASE RATE	\$19.56
		FRINGE BENEFITS	9.54

Grade Checker, Mason Tender-Cement/Concrete, Mason Tender-Brick-Hod, Pipelayer & Screw Operator:	BUILDING	BASE RATE	\$19.96
		FRINGE BENEFITS	9.54

Mason Tender-Brick:	BUILDING	BASE RATE	\$17.42
		FRINGE BENEFITS	7.17

**LABORERS / BUILDING:**

MASON COUNTY:

Common or General & Grade Checker:	BASE RATE	\$19.56
	FRINGE BENEFITS	9.54

Mason Tender-Brick:	BASE RATE	\$18.23
	FRINGE BENEFITS	7.08

Mason Tender-Cement/Concrete:	BASE RATE	\$11.46
	FRINGE BENEFITS	0.00



**LABORERS / BUILDING:**

LEWIS & ROBERTSON COUNTIES:

Common or General:	BUILDING	BASE RATE	\$14.73
		FRINGE BENEFITS	5.52

Mason Tender-Brick:	BUILDING	BASE RATE	\$18.23
		FRINGE BENEFITS	7.08

Mason Tender-Cement/Concrete:	BUILDING	BASE RATE	\$11.46
		FRINGE BENEFITS	0.00

ROBERTSON COUNTY:			
Grade Checker Only:	BUILDING	BASE RATE	\$19.56
		FRINGE BENEFITS	9.54

LEWIS COUNTY:			
Grade Checker Only:	BUILDING	BASE RATE	\$25.74
		FRINGE BENEFITS	13.10

**LABORERS / BUILDING:**

CARTER COUNTY:

Grade Checker Only:	BUILDING	BASE RATE	\$25.74
		FRINGE BENEFITS	13.10

Common or General:	BUILDING	BASE RATE	\$14.73
		FRINGE BENEFITS	5.52

Mason Tender-Brick:	BUILDING	BASE RATE	\$18.23
		FRINGE BENEFITS	7.08

Mason Tender-Cement/Concrete:	BUILDING	BASE RATE	\$11.46
		FRINGE BENEFITS	0.00

**LABORERS / BUILDING:**

GREENUP COUNTY:

Common or General, Landscape Laborer & Pipelayer:	BUILDING	BASE RATE	\$25.74
		FRINGE BENEFITS	13.10

Grade Checker, Mason Tender-Brick, Mason Tender-Cement/Concrete, Mason Tender-Brick (Hod) & Screw Operator:	BUILDING	BASE RATE	\$25.89
		FRINGE BENEFITS	13.10

**LABORERS / HEAVY/HIGHWAY:**

BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES

GROUP 1: Aging & Curing of Concrete; Asbestos Abatement Worker; Asphalt Plant; Asphalt; Batch Truck Dump; Carpenter Tender; Cement Mason Tender; Cleaning of Machines; Concrete; Demolition; Dredging; Environmental – Nuclear, Radiation, Toxic & Hazardous Waste – Level D; Flagperson; Grade Checker; Hand Digging & Hand Back Filling; Highway Marker Placer; Landscaping, Mesh Handler & Placer; Puddler; Railroad; Rip-rap & Grouter; Right-of-Way; Sign, Guard Rail & Fence Installer; Signal Person; Sound Barrier Installer; Storm & Sanitary Sewer; Swamper; Truck Spotter & Dumper; & Wrecking of Concrete Form & General Cleanup:

HEAVY & HIGHWAY	BASE RATE	\$20.81
	FRINGE BENEFITS	10.85

GROUP 2: Batter Board Man (Sanitary & Storm Sewer); Brickmason Tender; Mortar Mixer Operator; Scaffold Builder; Burner & Welder; Bushhammer; Chain Saw Operator; Hand Held or Walk Behind Concrete Saw Operator; Deckhand Scow Man; Dry Cement Handler; Environmental – Nuclear, Radiation, Toxic & Hazardous Waste – Level C; Forklift Operator for Masonry; Form Setter; Green Concrete Cutting; Hand Operated Grouter & Grinder Machine Operator; Jackhammer; Pavement Breaker; Paving Joint Machine; Pipelayer; Plastic Pipe Fusion; Power Driven Georgia Buggy & Wheel Barrow; Power Post Hole Digger; Precast Manhole Setter; Walk-Behind Tamper; Walk-Behind Trencher; Sand Blaster; Concrete Chipper; Surface Grinder; Vibrator Operator; & Wagon Driller:

HEAVY & HIGHWAY	BASE RATE	\$21.06
	FRINGE BENEFITS	10.85

GROUP 3: Asphalt Luteman & Raker; Gunnite Nozzleman; Gunnite Operator & Mixer; Grout Pump Operator; Side Rail Setter; Rail Paved Ditch; Screw Operator; Tunnel (Free air); & Water Blaster:

HEAVY & HIGHWAY	BASE RATE	\$21.11
	FRINGE BENEFITS	10.85

GROUP 4: Caisson Worker (Free Air); Cement Finisher; Environmental - Nuclear, Radiation, Toxic & Hazardous Waste - Levels A & B; Miner & Driller (Free Air); Tunnel Blaster; & Tunnel Mucker (Free Air); Directional & Horizontal Boring; Air Track Driller (all types); Powderman & Blaster; Troxler & Concrete Tester if Laborer is Utilized:

HEAVY & HIGHWAY	BASE RATE	\$21.71
	FRINGE BENEFITS	10.85

**MILLWRIGHTS:**

BRACKEN COUNTY:

BASE RATE	\$27.55
FRINGE BENEFITS	15.39

**MILLWRIGHTS:**

GREENUP COUNTY:

BASE RATE	\$30.60
FRINGE BENEFITS	13.78

**MILLWRIGHTS:**

CARTER & MASON COUNTIES:

BASE RATE	\$31.77
FRINGE BENEFITS	15.73

**MILLWRIGHTS:**

LEWIS & ROBERTSON COUNTIES:

BASE RATE	\$23.73
FRINGE BENEFITS	15.02

**OPERATING ENGINEERS / BUILDING:**

CARTER, LEWIS, MASON & ROBERTSTON COUNTIES:  
 Cable Crane (50 tons and over), hydraulic crane (100 tons and over):

BUILDING	BASE RATE	\$29.21
	FRINGE BENEFITS	13.00

Cherry Picker, Crane, Forklift, Grader/Blade, Trackhoe:

BUILDING	BASE RATE	\$28.42
	FRINGE BENEFITS	13.00

Oiler:

BUILDING	BASE RATE	\$22.98
	FRINGE BENEFITS	13.00

**CRANES WITH BOOM 150 FEET AND OVER INCLUDING JIB SHALL RECEIVE \$.50 ABOVE RATES**

Backhoe/Excavator:

BUILDING	BASE RATE	\$21.36
	FRINGE BENEFITS	0.00

Bobcat/Skid Loader:

BUILDING	BASE RATE	\$23.54
	FRINGE BENEFITS	0.00

Bulldozer:

BUILDING	BASE RATE	\$21.40
	FRINGE BENEFITS	0.00

Loader:

BUILDING	BASE RATE	\$24.24
	FRINGE BENEFITS	9.15

**OPERATING ENGINEERS / BUILDING:**

BRACKEN & GREENUP COUNTIES:

GROUP 1: Bituminous paver, crane (including truck & tower), elevating grader and all types of loaders, hoist (1 drum), hoisting engine (2 or more drums), motor scraper, bulldozer, mechanic, power blade, motor grader, roller (bituminous), forklift (regardless of lift height and except when used for masonry construction), core drill, concrete paver, hoist, rotary drill, kecal loader, backhoe, backhoe track, trackhoe:

BUILDING	BASE RATE	\$28.42
	FRINGE BENEFITS	13.00

GROUP 2: Cable crane (50 tons and over), hydraulic crane (100 tons and over):

BUILDING	BASE RATE	\$29.21
	FRINGE BENEFITS	13.00

GROUP 3: Form grader, roller (rock), tractor (50 hp and over), truck crane oiler, farm tractor with attachments, except backhoe, highlift and endloader, elevator (when used for hoisting), hoisting engine (1 drum or buck hoist), forklift (when used for masonry construction):

BUILDING	BASE RATE	24.20
	FRINGE BENEFITS	13.00

GROUP 4: Roller (earth), tractor (under 50 hp), oiler:

BUILDING	BASE RATE	\$22.98
	FRINGE BENEFITS	13.00

**CRANES WITH BOOM 150 FEET AND OVER INCLUDING JIB SHALL RECEIVE \$.50 ABOVE RATES.**

**OPERATING ENGINEERS / BUILDING:**

**GREENUP COUNTY**

Bobcat/Skid Loader	BUILDING	BASE RATE	\$19.51
		FRINGE BENEFITS	5.38
Compactor:	BUILDING	BASE RATE	\$24.53
		FRINGE BENEFITS	0.00
Excavator	BUILDING	BASE RATE	\$19.18
		FRINGE BENEFITS	5.16
Highlift:	BUILDING	BASE RATE	\$25.00
		FRINGE BENEFITS	0.00

**OPERATING ENGINEERS / BUILDING:**

**BRACKEN COUNTY**

Bobcat/Skid Loader:	BUILDING	BASE RATE	\$20.77
		FRINGE BENEFITS	5.38
Compactor:	BUILDING	BASE RATE	\$24.53
		FRINGE BENEFITS	0.00
Excavator:	BUILDING	BASE RATE	\$19.18
		FRINGE BENEFITS	5.16
Highlift:	BUILDING	BASE RATE	\$25.00
		FRINGE BENEFITS	0.00

**OPERATING ENGINEERS / HEAVY/HIGHWAY:**

**BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES:**

GROUP 1: A-Frame Winch Truck; Auto Patrol; Backfiller; Batcher Plant; Bituminous Paver; Bituminous Transfer Machine; Boom Cat; Bulldozer; Mechanic; Cableway; Carry-all Scoop; Carry Deck Crane; Central Compressor Plant; Clamshell; Concrete Mixer (21 cu. ft. or Over); Concrete Paver; Truck-Mounted Concrete Pump; Core Drill; Crane; Crusher Plant; Derrick; Derrick Boat; Ditching & Trenching Machine; Dragline; Dredge Operator; Dredge Engineer; Elevating Grader & Loaders; Grade-All; Gurries; Heavy Equipment Robotics Operator/Mechanic; High Lift; Hoe-Type Machine; Hoist (Two or More Drums); Hoisting Engine (Two or More Drums); Horizontal Directional Drill Operator; Hydrocrane; Hyster; KeCal Loader; LeTourneau; Locomotive; Mechanic; Mechanically Operated Laser Screed; Mechanic Welder; Mucking Machine; Motor Scraper; Orangepeel Bucket; Piledriver; Power Blade; Pumpcrete; Push Dozer; Rock Spreader, attached to equipment; Rotary Drill; Roller (Bituminous); Scarifier; Scoopmobile; Shovel; Side Boom; Subgrader; Tailboom; Telescoping Type Forklift; Tow or Push Boat; Tower Crane (French, German & other types); Tractor Shovel; Truck Crane; Tunnel Mining Machines, including Moles, Shields or similar types of Tunnel Mining Equipment:

HEAVY & HIGHWAY	*BASE RATE	\$26.50
	FRINGE BENEFITS	13.00

GROUP 2: Air Compressor (Over 900 cu. ft. per min.); Bituminous Mixer; Boom Type Tamping Machine; Bull Float; Concrete Mixer (Under 21 cu. ft); Dredge Engineer; Electric Vibrator; Compactor/Self-Propelled Compactor; Elevator (One Drum or Buck Hoist); Elevator (when used to Hoist Building Material); Finish Machine; Firemen & Hoist (One Drum); Flexplane; Forklift (Regardless of Lift Height); Form Grader; Joint Sealing Machine; Outboard Motor Boat; Power Sweeper (Riding Type); Roller (Rock); Ross Carrier; Skid Mounted or Trailer Mounted Concrete Pump; Skid Steer Machine with all Attachments; Switchman or Brakeman; Throttle Valve Person; Tractair & Road Widening Trencher; Tractor (50 HP or Over); Truck Crane Oiler; Tugger; Welding Machine; Well Points; & Whirley Oiler:

HEAVY & HIGHWAY	*BASE RATE	\$24.08
	FRINGE BENEFITS	13.00

**OPERATING ENGINEERS / HEAVY/HIGHWAY: CONTINUED**

BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES:

GROUP 3: All Off Road Material Handling Equipment, Including Articulating Dump Trucks; Greaser on Grease Facilities servicing Heavy Equipment:

HEAVY & HIGHWAY	*BASE RATE	\$24.46
	FRINGE BENEFITS	13.00

GROUP 4: Bituminous Distributor; Burlap & Curing Machine; Cement Gun; Concrete Saw; Conveyor; Deckhand Oiler; Grout Pump; Hydraulic Post Driver; Hydro Seeder; Mud Jack; Oiler; Paving Joint Machine; Power Form Handling Equipment; Pump; Roller (Earth); Steersman; Tamping Machine; Tractor (Under 50 HP); & Vibrator:

HEAVY & HIGHWAY	*BASE RATE	\$23.82
	FRINGE BENEFITS	13.00

\*Cranes with booms 150 ft. & over (including jib) \$1.00 premium.  
 Employees assigned to work below ground level are to be paid 10% above basic wage rate.  
 This does not apply to open cut work.

**PAINTERS / BUILDING:**

BRACKEN COUNTY:

Brush & Roller Only:	BUILDING	BASE RATE	\$21.52
		FRINGE BENEFITS	5.30

Spray Only:	BUILDING	BASE RATE	\$22.85
		FRINGE BENEFITS	8.10

**PAINTERS / BUILDING:**

GREENUP COUNTY:

Brush & Roller Only:	BUILDING	BASE RATE	\$17.93
		FRINGE BENEFITS	4.98

**PAINTERS / BUILDING:**

CARTER, LEWIS, MASON & ROBERTSON COUNTIES:

Brush & Roller Only:	BUILDING	BASE RATE	\$21.48
		FRINGE BENEFITS	3.90

Spray:	BUILDING	BASE RATE	\$21.80
		FRINGE BENEFITS	5.90

**PAINTERS:**

BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES:

Sign Painter & Erector:	BUILDING	BASE RATE	\$20.23
		FRINGE BENEFITS	3.25

**PAINTERS / HEAVY & HIGHWAY:**

BRACKEN & MASON COUNTIES:

BRIDGES – GUARDRAILS – LIGHTPOLES – STRIPING:

Bridge Equipment Tender and/or Containment Builder:

HEAVY & HIGHWAY	BASE RATE	\$20.27
	FRINGE BENEFITS	8.10

**PAINTERS / HEAVY & HIGHWAY: CONTINUED**

BRACKEN & MASON COUNTIES:

BRIDGES – GUARDRAILS – LIGHTPOLES – STRIPING:

Brush & Roller:	HEAVY & HIGHWAY	BASE RATE	\$22.85
		FRINGE BENEFITS	8.10

Spray:	HEAVY & HIGHWAY	BASE RATE	\$23.35
		FRINGE BENEFITS	8.10

Sandblasting & Water Blasting:	HEAVY & HIGHWAY	BASE RATE	\$23.60
		FRINGE BENEFITS	8.10

Elevated Tanks, Steeplejack Work, Bridges & Lead Abatement:	HEAVY & HIGHWAY	BASE RATE	\$23.85
		FRINGE BENEFITS	8.10

**PAINTERS / HEAVY & HIGHWAY:**

ROBERTSON COUNTY:

Bridge/Equipment Tender and/or Containment Builder:

HEAVY & HIGHWAY	BASE RATE	\$18.90
	FRINGE BENEFITS	5.90

Brush & Roller:	HEAVY & HIGHWAY	BASE RATE	\$21.30
		FRINGE BENEFITS	5.90

Spray:	HEAVY & HIGHWAY	BASE RATE	\$21.80
		FRINGE BENEFITS	5.90

Sandblasting & Water Blasting:	HEAVY & HIGHWAY	BASE RATE	\$22.05
		FRINGE BENEFITS	5.90

Elevated Tanks, Steeplejack Work, Bridges & Lead Abatement:	HEAVY & HIGHWAY	BASE RATE	\$22.30
		FRINGE BENEFITS	5.90

**PAINTERS / HEAVY & HIGHWAY:**

CARTER, GREENUP & LEWIS COUNTIES:

Bridges/Locks/Dams/Tension Towers & Energized Substations:

HEAVY & HIGHWAY	BASE RATE	\$29.03
	FRINGE BENEFITS	11.90

Power Generating Facilities:	HEAVY & HIGHWAY	BASE RATE	\$25.79
		FRINGE BENEFITS	11.90

**PLASTERERS:**

BRACKEN & ROBERTSON COUNTIES:

BASE RATE	\$22.00
FRINGE BENEFITS	10.10

**PLASTERERS/CEMENT MASONS:**

CARTER, GREENUP, LEWIS & MASON COUNTIES:

BASE RATE	\$27.58
FRINGE BENEFITS	14.00

**PIPEFITTERS & PLUMBERS:**

BRACKEN, MASON & ROBERTSON COUNTIES:  
(Including HVAC Pipe Installation)

BASE RATE	\$29.30
FRINGE BENEFITS	15.74

**PIPEFITTERS & PLUMBERS:**

CARTER, GREENUP & LEWIS COUNTIES:

BASE RATE	\$32.00
FRINGE BENEFITS	16.24

---

**ROOFERS:**

BRACKEN COUNTY:  
(Including Built Up, Modified Bitumen, Rubber, Shake & Shingle & Single Ply, excluding Metal Roofs):

BASE RATE	\$26.31
FRINGE BENEFITS	11.32

**ROOFERS:**

CARTER, LEWIS, MASON & ROBERTSON COUNTIES:

BASE RATE	\$16.42
FRINGE BENEFITS	1.50

**ROOFERS:**

GREENUP COUNTY:  
(Including built up, modified bitumen, rubber & single ply roofs):

BASE RATE	\$27.00
FRINGE BENEFITS	10.96

Shake & Shingle Roof:

BASE RATE	\$19.31
FRINGE BENEFITS	6.25

---

**SHEETMETAL WORKERS:**

BRACKEN & ROBERTSON COUNTIES:  
(including metal roofs):  
(HVAC System Installation)

BASE RATE	\$28.15
FRINGE BENEFITS	15.72

**SHEETMETAL WORKERS:**

CARTER, GREENUP, LEWIS & MASON COUNTIES:  
(including metal roofs):  
(HVAC System Installation)

BASE RATE	\$25.76
FRINGE BENEFITS	17.19

**SHEETMETAL WORKERS:**

CARTER, LEWIS, MASON & ROBERTSON COUNTIES:  
(HVAC Duct Installation)

BASE RATE	\$25.76
FRINGE BENEFITS	17.19

---

**SPRINKLER FITTERS:**

CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES:

BASE RATE	\$29.50
FRINGE BENEFITS	15.85

**SPRINKLER FITTERS:**

BRACKEN COUNTY:

BASE RATE	\$29.00
FRINGE BENEFITS	16.50

**TRUCK DRIVERS / BUILDING:**

MASON & ROBERTSON COUNTIES:

3 Tons & Under, Greaser, Tire Changer, & Mechanic Tender:

BUILDING	BASE RATE	\$19.57
	FRINGE BENEFITS	12.17

Over 3 Tons, Semi-Trailer or Pole Trailer, Dump Tandem Axles, Farm Tractor (When used to pull building material & equipment):

BUILDING	BASE RATE	\$19.68
	FRINGE BENEFITS	12.17

Concrete Mixer (Hauling on jobsites), & Truck Mechanic:

BUILDING	BASE RATE	\$19.75
	FRINGE BENEFITS	12.17

Euclid's & Other Heavy Moving Equipment, Lowboy, Winch, A-Frame & Monorail Truck (To transport building materials):

BUILDING	BASE RATE	\$19.85
	FRINGE BENEFITS	12.17

**Building Truck Drivers on hazardous or toxic waste sites, add \$4.00 to base rate.**

**TRUCK DRIVERS / BUILDING:**

CARTER & LEWIS COUNTIES:

Pickup, Station Wagon, Panel, Flatboy Material Truck (Straight job), Dump (Up to 5 cu. yds.):

BUILDING	BASE RATE	\$29.57
	FRINGE BENEFITS	12.84

Tank (Straight), Dump (5 cu. yds. & over), Agitator or Mixer (Up to 5 cu. yds.), & Flat Bed Tandem:

BUILDING	BASE RATE	\$30.10
	FRINGE BENEFITS	12.84

Agitator or Mixer (5 cu. yds. & Over):

BUILDING	BASE RATE	\$30.27
	FRINGE BENEFITS	12.84

Mechanic, Tri-Axle Dump, Hydraulic Lift Tailgate, Truck & Farm-type Tractor, End Dumpster, Turnarocker, Ross Carrier, Athey Wagon, Semi-dump, Semi-trailer, Semi-tank, & Lowboy Trailer:

BUILDING	BASE RATE	\$30.75
	FRINGE BENEFITS	12.84

Master Mechanic:

BUILDING	BASE RATE	\$31.17
	FRINGE BENEFITS	12.84

Winch, Fork, Distributor (Front End and Back End), Truck Crane, & Monorail:

BUILDING	BASE RATE	\$31.39
	FRINGE BENEFITS	12.84

**TRUCK DRIVERS / BUILDING:**

BRACKEN & GREENUP COUNTIES:

10 Yard Truck:

BUILDING	BASE RATE	\$16.27
	FRINGE BENEFITS	1.50

Dump Truck:

BUILDING	BASE RATE	\$18.63
	FRINGE BENEFITS	6.00



**TRUCK DRIVERS / HEAVY/HIGHWAY:**

BRACKEN, CARTER, GREENUP, LEWIS, MASON & ROBERTSON COUNTIES

Mobile Batch Truck Tender:	HEAVY & HIGHWAY	BASE RATE	\$16.57
		FRINGE BENEFITS	7.34

Greaser, Tire Changer, & Mechanic Tender:	HEAVY & HIGHWAY	BASE RATE	\$16.68
		FRINGE BENEFITS	7.34

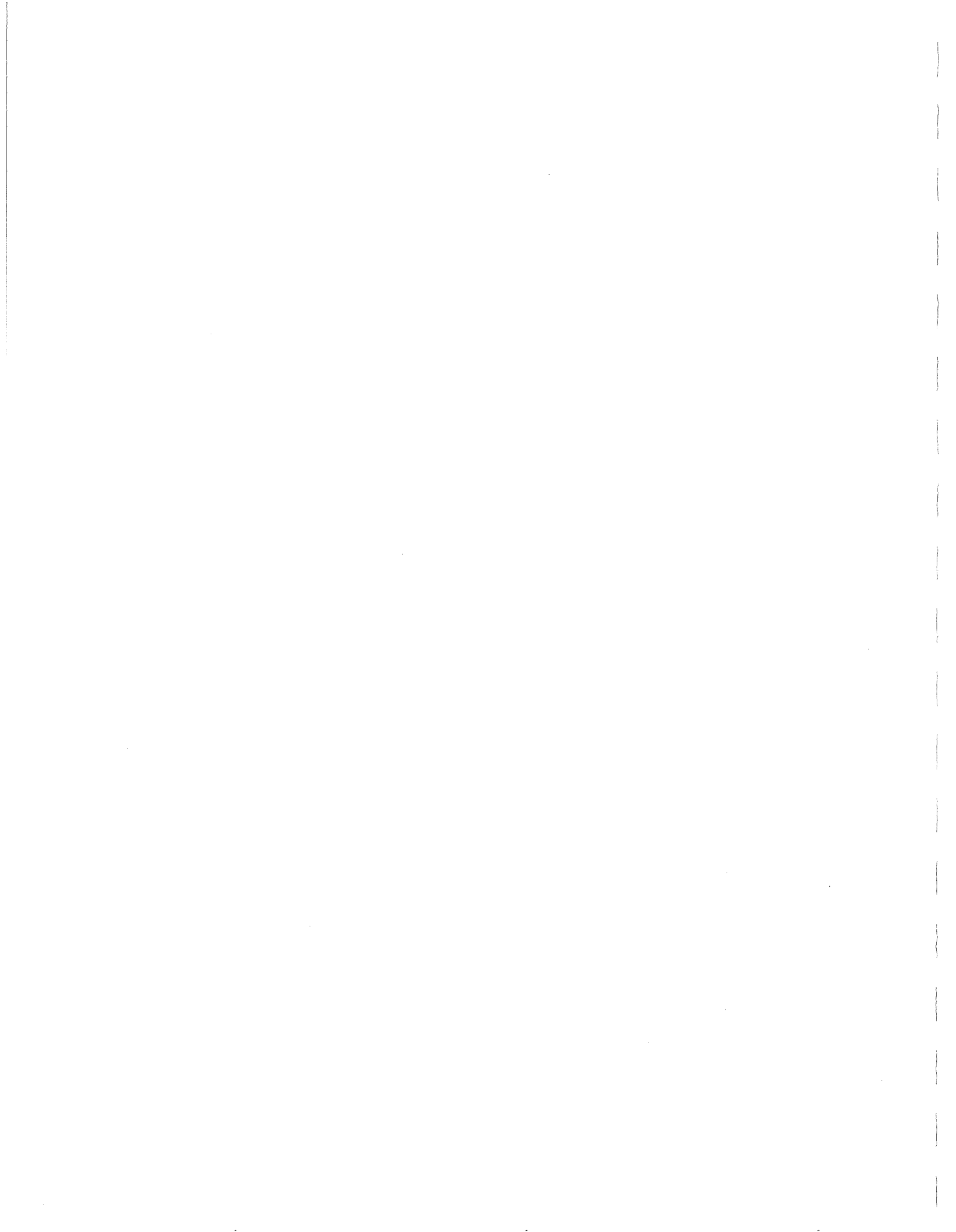
Single Axle Dump & Flatbed; Semi-Trailer or Pole Trailer when used to pull building materials & equipment; Tandem Axle Dump; Distributor; Mixer & Truck Mechanic:	HEAVY & HIGHWAY	BASE RATE	\$16.86
		FRINGE BENEFITS	7.34

Euclid, Other Heavy Earthmoving Equipment & Lowboy; Articulator Cat Truck, 5 Axle Vehicle; Winch & A-Frame when used in transporting materials; Ross Carrier; Forklift when used to transport building materials; & Pavement Breaker:

HEAVY & HIGHWAY	BASE RATE	\$16.96
	FRINGE BENEFITS	7.34

---

**END OF DOCUMENT**  
**CR-4-020 2011**  
**October 24, 2011**



# PERFORMANCE BOND

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

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):  
Bracken County Water District  
P.O. Box 201  
Brooksville, KY 41004

## CONTRACT

Date:

Amount: \$

Description (Name and Location): Short Roads Water Project – Bracken County Water District

## BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount: \$

Modifications to this Bond Form:

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

### CONTRACTOR AS PRINCIPAL

Company: South Shore Construction Co., Inc.

Signature: \_\_\_\_\_ (Seal)

Name and Title:

### SURETY

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

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

Signature and Title

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_

Signature and Title

### CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

### SURETY

\_\_\_\_\_  
(Seal)

Surety's Name and Corporate Seal

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

Signature and Title

(Attach Power of Attorney)

Attest: \_\_\_\_\_

Signature and Title:

EJCDC No. C-610 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.
2. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 3.1.
3. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
  - 3.1. Owner has notified Contractor and Surety, at the addresses described in Paragraph 10 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
  - 3.2. Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 3.1; and
  - 3.3. Owner has agreed to pay the Balance of the Contract Price to:
    1. Surety in accordance with the terms of the Contract;
    2. Another contractor selected pursuant to Paragraph 4.3 to perform the Contract.
4. When Owner has satisfied the conditions of Paragraph 3, Surety shall promptly and at Surety's expense take one of the following actions:
  - 4.1. Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
  - 4.2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
  - 4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and Contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 6 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
  - 4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
    1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
    2. Deny liability in whole or in part and notify Owner citing reasons therefor.
5. If Surety does not proceed as provided in Paragraph 4 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 4.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.
6. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To a limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:
  - 6.1. The responsibilities of Contractor for correction of defective Work and completion of the Contract;
  - 6.2. Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions or failure to act of Surety under Paragraph 4; and
  - 6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.
7. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.
8. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.
9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
10. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.
11. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom: provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.
12. Definitions.
  - 12.1. Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
  - 12.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
  - 12.3. Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
  - 12.4. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY – Name, Address and Telephone  
 Surety Agency or Broker  
 Owner's Representative (engineer or other party)

# PAYMENT BOND

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

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place of Business):

OWNER (Name and Address):  
Bracken County Water District  
P.O. Box 201  
Brooksville, KY 41004

## CONTRACT

Date:

Amount: \$

Description (Name and Location): Short Roads Water Project – Bracken County Water District

## BOND

Bond Number:

Date (Not earlier than Contract Date):

Amount: \$

Modifications to this Bond Form:

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

### CONTRACTOR AS PRINCIPAL

Company: South Shore Construction Co., Inc.

Signature: \_\_\_\_\_ (Seal)

Name and Title:

### SURETY

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

Attest: \_\_\_\_\_  
Signature and Title

### CONTRACTOR AS PRINCIPAL

Company:

Signature: \_\_\_\_\_ (Seal)

Name and Title:

### SURETY

\_\_\_\_\_  
Surety's Name and Corporate Seal (Seal)

By: \_\_\_\_\_  
Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_  
Signature and Title:

EJCDC No. C-615 (2002 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to Owner, this obligation shall be null and void if Contractor:
  - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2. Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.
3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.
4. Surety shall have no obligation to Claimants under this Bond until:
  - 4.1. Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the addresses described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2. Claimants who do not have a direct contract with Contractor:
    1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to Surety and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.
5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.
6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:
  - 6.1. Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2. Pay or arrange for payment of any undisputed amounts.
7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.
8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use the funds for the completion of the Work.
9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS
  - 15.1. Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.
  - 15.2. Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
  - 15.3. Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

**FOR INFORMATION ONLY – Name, Address and Telephone**  
**Surety Agency or Broker:**  
**Owner's Representative (engineer or other party):**

CONTRACT AGREEMENT

THIS AGREEMENT, made this \_\_\_\_\_ day of \_\_\_\_\_, 2011

by and between Bracken County Water District  
(Owner)  
acting through its Chairman hereinafter called  
(Mayor, Utility Commission, Chairman)

the OWNER and \_\_\_\_\_ doing business as  
(Contractor)

\_\_\_\_\_ of the city of \_\_\_\_\_,  
(an individual) (partnership) (a corporation)

\_\_\_\_\_ County, State of \_\_\_\_\_ hereinafter called the CONTRACTOR.

WITNESSETH: That for and in consideration of the payments and agreements hereinafter mentioned:

The CONTRACTOR will commence and complete the construction of

Short Roads Water Project – Bracken County Water District

The CONTRACTOR will furnish all of the materials, supplies, tools, equipment, labor and other services necessary for the construction and completion of the project described herein.

The CONTRACTOR will commence work under this contract on or before the date to be specified by the Owner, in a written "Notice to Proceed" and will fully complete the project within 150 consecutive calendar days thereafter. The CONTRACTOR further agrees to pay as liquidated damages, the sum of \$ 500.00 for each consecutive calendar day that the work remains incomplete after the expiration date of this contract, as modified by Change Order.

The CONTRACTOR agrees to perform all of the WORK described in the CONTRACT DOCUMENTS for the sum of \$ \_\_\_\_\_, or as shown in the Bid Schedule.

The term "CONTRACT DOCUMENTS" means and includes the SPECIFICATIONS prepared or issued by HMB Professional Engineers, Inc.

The Advertisement for Bid, Information to Bidders, the signed copy of the Bid Schedule, the Bid Bond, the fully executed Performance Bond and Payment Bond, the General Conditions, Supplemental General Conditions, Specifications, the General Requirements, the Drawings and other Contract Documents are hereby referred to and by reference made a part of this CONTRACT as fully and completely as if the same were fully set forth herein and are mutually cooperative therewith.

The following ADDENDA are included as part of this Contract:

ADDENDUM NO. 1                      ADDENDUM NO. 2                      ADDENDUM NO. 3

DATE: \_\_\_\_\_                      DATE: \_\_\_\_\_                      DATE: \_\_\_\_\_

The OWNER shall make progress payments as the work is completed, in accordance with the appropriate Articles of the General Conditions.

Final payment shall be due thirty (30) days after completion and acceptance of the work.

Before issuance of final certificate, the Contractor shall submit evidence satisfactory to the Owner that all payrolls, material bills, and other indebtedness connected with the work have been paid.

If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Engineer so certifies, the Owner shall, upon certificate of the Engineer and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in five (5) copies each of which shall be deemed an original on the date first above written.

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

\_\_\_\_\_  
CONTRACTOR

ATTEST:

\_\_\_\_\_  
Title  
(SEAL)

By \_\_\_\_\_  
President

Bracken County Water District  
OWNER

ATTEST:

\_\_\_\_\_  
Title

By \_\_\_\_\_  
Chairman



CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, \_\_\_\_\_, the duly authorized and acting legal representative of Bracken County Water District, do hereby certify as follows:

I have examined the attached contract(s) and performance and payment bond(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements has been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions, and provisions thereof.

\_\_\_\_\_  
Date: \_\_\_\_\_



NOTICE OF AWARD

TO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

PROJECT Description: Short Roads Water Project – Bracken County Water District

The OWNER has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids dated \_\_\_\_\_ 20 11, and Instructions to Bidders.

You are hereby notified that your BID has been accepted for items in the amount of \$ \_\_\_\_\_, in accordance with the Bid Schedule.

You are required by the Instructions to Bidders to execute the Agreement and furnish the required Contractor's Performance Bond and Payment Bond within ten calendar days from the date of this Notice to you.

If you fail to execute said Agreement and to furnish said bonds within ten days from the date of this Notice, said OWNER will be entitled to consider all your rights arising out of the OWNER'S acceptance of your BID as abandoned and as a forfeiture of your Bid Bond. The OWNER will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the OWNER.

Dated this \_\_\_\_\_ day of \_\_\_\_\_, 20 11.

\_\_\_\_\_  
Bracken County Water District  
Owner

By \_\_\_\_\_

Title Chairman

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE OF AWARD is hereby acknowledged by

\_\_\_\_\_ this the \_\_\_\_\_ of  
\_\_\_\_\_, 20 11.

\_\_\_\_\_  
Contractor Title



NOTICE TO PROCEED

TO \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DATE: \_\_\_\_\_

PROJECT: Short Roads Water Project  
Bracken County Water District  
\_\_\_\_\_

You are hereby notified to commence work in accordance with the Agreement dated \_\_\_\_\_, 20 11, on or before \_\_\_\_\_, 20 11, and you are to complete the WORK within \_\_\_\_\_ consecutive calendar days thereafter. The date of completion of all WORK is therefore \_\_\_\_\_, 20 11.

\_\_\_\_\_  
Bracken County Water District  
OWNER

By \_\_\_\_\_  
Title Chairman \_\_\_\_\_

ACCEPTANCE OF NOTICE

Receipt of the above NOTICE TO PROCEED is hereby acknowledged by \_\_\_\_\_, this the \_\_\_\_\_ day of \_\_\_\_\_, 20 11

By \_\_\_\_\_  
Title \_\_\_\_\_



## SPECIAL CONDITIONS

### 1. PROJECT FUNDING

CONTRACTORS bidding the project should be aware that funding is provided by a KIA Fund B Loan and a KIA Fund C Loan.

### 2. PROJECT CONSTRUCTION OBSERVATION

The construction observation services shall be provided by the ENGINEER. The Observer shall be on the project as much as possible; however, due to meetings, etc. there may be times when he is not with the crew. Therefore, the CONTRACTOR shall not backfill any water main and/or appurtenances until the Observer has seen and accepted it for payment.

Any work backfilled without the Observer's knowledge and consent shall not be allowed for payment to the CONTRACTOR and shall be uncovered for inspection at no additional cost to the OWNER or ENGINEER.

### 3. UNCLASSIFIED EXCAVATION

All excavation is unclassified. No extra payment will be allowed for solid rock excavation. It is the CONTRACTOR's responsibility to make any additional investigations.

### 4. CONFLICTING SECTIONS/STATEMENTS IN CONTRACT DOCUMENTS

#### a. General

It shall be noted that if any provisions in these Contract Documents is in conflict and/or is inconsistent with any other section or provisions, then the most stringent shall apply per the interpretation of the ENGINEER and/or OWNER.

#### b. Hold Period on Bids

All bids shall remain valid for a period of 90 days. Any reference to a lesser period of time is incorrect.

### 5. CONTRACTOR'S INSURANCE CERTIFICATE

The following wording for the cancellation clause on the insurance certificate is required:

"Should any of the above described policies be canceled before the expiration date thereof, the issuing company will mail 15 days written notice to the certificate holder named to the left."

6. FEDERAL/STATE/LOCAL REGULATIONS

The CONTRACTOR shall abide by all local and state laws or ordinances to the extent that such requirements do not conflict with federal laws or regulations. Compliance with any and all applicable laws and/or regulations is strictly the CONTRACTOR's responsibility.

7. SILTATION AND SOIL EROSION

The CONTRACTOR shall make every effort during construction to minimize siltation and soil erosion and comply with all local and state codes that pertain to this project. Any applicable permits shall be the CONTRACTOR's responsibility to obtain.

8. PRIORITY OF CONSTRUCTION

The CONTRACTOR shall proceed from the beginning point of a line and/or road and start installing water line and appurtenances and placing sections of line in service continuing to the end of the line.

Jumping or skipping around laying scattered sections of water lines shall not be permitted. When a road is completed, cleanup must commence immediately. The OWNER will hold payment on sections due to skipping; the intent is to proceed toward the end of the line.

9. ROUGH CLEAN UP

- a. Rough clean up shall be performed on a daily basis concurring with the daily rate of production for pay items, amounts and/or quantities listed in the schedule of values.
- b. The CONTRACTOR is to provide sufficient labor and equipment for clean up as to not impede production schedules.
- c. Rough clean up shall be defined as follows:
  1. All open ditches shall be backfilled on a daily basis.
  2. Debris (rocks, roots, timber, etc.) shall be removed from the job site on a daily basis. This material may be stockpiled with the consent of the OWNER and the ENGINEER in designated



locations. Any such locations shall be arranged by the CONTRACTOR with the written consent of the property owner.

3. Remaining backfill material (soil) shall be windrowed back on top of the ditch line, compacted and leveled giving consideration for settlement.

d. At the direction of the ENGINEER, OWNER, or their appointed representatives, the CONTRACTOR shall readdress areas if identified as not being adequate in the initial rough clean up process.

10. QUANTITIES OF MATERIALS

The quantities of materials listed on the Bid Schedule are estimates only and are subject to changes in the field. The CONTRACTOR shall verify these quantities before ordering materials. In the event of an under run or over run of materials, the CONTRACTOR shall be responsible for any shipping and/or restocking fees.

11. CONSTRUCTION PERIOD – ADVERSE WEATHER DAYS

The CONTRACTOR is to note that there are adverse weather days included within the allotted construction time. The number of days per month already included in the Construction Period is listed below. Adverse weather conditions should be expected to be equal to or less than those listed below per month, as these would be considered normal conditions and not subject to additional time for construction due to adverse weather. Any documented adverse weather conditions beyond the amount listed below may be considered, at the request of the CONTRACTOR, for additional construction time. Adverse weather for the purposes of this Contract shall be defined as days in which precipitation exceeds 0.1” and/or the average temperature is below 32 degrees F. The normal adverse weather days are calculated using data from the National Oceanic and Atmospheric Administration and are as follows:

<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
15	12	9	8	8	7	8	7	6	5	7	11

12. ROADWAY/DRIVEWAY CROSSINGS

All roadways or driveways crossed by water lines shall be bored if the surface is not gravel. All State or County maintained roads shall have steel casing pipe installed by bore, unless otherwise shown on the plans. All private driveways with non-gravel surfaces shall be free bored without casing pipe, if possible.

The CONTRACTOR shall attempt to bore all non-gravel private driveways without casing pipe. If it is not possible to bore the driveway without casing pipe and with

OWNER'S approval, the CONTRACTOR may then utilize steel casing pipe for the driveway bore. If the CONTRACTOR does not first attempt to bore without casing pipe, the CONTRACTOR shall be paid for a driveway bore without casing pipe, regardless of whether casing pipe was installed, or not.

Asphalt or concrete driveways shall be bored in all instances, unless prior approval is given, in writing, by the property owner and the OWNER.

County Roads may not be open cut nor the paving disturbed in any way without prior written approval from the Fiscal Court.

Under no circumstances shall any State roads be disturbed, crossed or cut without prior written approval from the Kentucky Transportation Cabinet.

Any gravel driveway or roadway crossed shall be backfilled entirely with crushed stone and compacted accordingly to prevent future settlement. The CONTRACTOR will be responsible for making any requested repairs to any driveway or roadway crossed on the Project throughout the one-year warranty period, to the satisfaction of the property owner and the OWNER.

13. ITEMS DELETED, REDUCED AND/OR INCREASED

The OWNER reserves the right to delete any bid item or, in the case of unit price items, delete, reduce or increase the quantities involved. Bidders shall be aware of this possibility and shall base their bids accordingly.

14. SPECIAL PROVISIONS - CLEANUP

The CONTRACTOR shall take particular notice of sections of the Contract Documents pertaining to project cleanup. It is the OWNER's intent to strictly enforce these items.

15. VIDEOTAPING

The CONTRACTOR shall not mobilize any equipment to the site prior to presenting the ENGINEER and OWNER with fully functional DVD copies of the project area conditions prior to construction activities, per the technical specifications. Failure of the CONTRACTOR to provide a satisfactory video shall not prevent the construction time to start and shall not be cause for a time extension to the CONTRACTOR.

Any construction work prior to video approval by the CONTRACTOR shall not be eligible for payment to the CONTRACTOR.

16. BUILDER'S RISK INSURANCE

The CONTRACTOR shall secure "All Risk" type Builder's Risk Insurance for Work to be performed. Unless specifically authorized by the OWNER, the amount of such insurance shall not be less than the Contract Price totaled in the awarded Bid. The policy shall cover not less than the losses due to fire, flood, explosion, hail, lightning, vandalism, malicious mischief, wind, collapse, riot, aircraft and smoke during the Contract Time, and until the Work is accepted by the OWNER. The policy shall name as the insured the CONTRACTOR, the ENGINEER and the OWNER. If the Builder's Risk Insurance secured by the CONTRACTOR excludes coverage for flood damage, the CONTRACTOR shall secure the maximum amount of Federal Flood Insurance available for the Contract.

17. MBE/WBE REQUIREMENTS AS IT PERTAINS TO ALL FUNDING AGENCIES

The CONTRACTOR shall note that the OWNER intends to expedite the Award of this Contract after the lowest responsible Bidder is determined. Therefore, any and all paperwork that may be required, of the CONTRACTOR and/or any Subcontractors on the Project, with regard to MBE/WBE, or similar, requirements shall be expedited and commenced immediately upon being notified that they are the lowest responsible Bidder.

18. APPROVED EQUAL CLAUSE

- a. Any reference to a specific equipment brand name within the Specifications or Drawings shall be deemed to include "or approved equal".
- b. Delete any statement such as "No other manufacturers are acceptable" within the Specifications.

19. DISPOSAL OF TRENCH WATER

The CONTRACTOR shall not dispose of any trench water by allowing it to enter any sanitary sewer system without first obtaining written permission to do so from the owner of said system. Documentation of written permission must be provided to the ENGINEER and OWNER.

20. ELECTRICAL SERVICE(S)

The OWNER shall be responsible for providing all electrical service for the Project. The CONTRACTOR shall be responsible for power pole and inspections. Contractor shall also be responsible for making sure all electrical components, wiring, etc, meets electrical code.

21. PERMIT COMPLIANCE

Compliance with any and all permits related to the Project is strictly the responsibility of the CONTRACTOR. This includes, but is not limited to, Transportation Cabinet Encroachment Permits, Railroad Permits, Division of Water Permits and/or NPDES Permits that may apply to the Work. Copies of Permits previously obtained for the Project are either included in applicable Appendices of the Contract Documents, or are available from the OWNER and/or ENGINEER for review upon request.

22. PREVAILING WAGE RATES

Prevailing wage rates may apply to this Project and are included in the Contract Documents, if so. It is strictly the CONTRACTOR's responsibility to comply with Wage Rates requirements and to provide written documentation of compliance upon request. The ENGINEER is not responsible for monitoring compliance by the CONTRACTOR.

23. GENERAL

- a. Reasonable care shall be taken by the CONTRACTOR during construction to avoid damage to existing vegetation. Ornamental shrubbery and tree branches shall be temporarily tied back, where appropriate, to minimize damage. Trees that 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.
- b. CONTRACTOR shall implement Best Management Practices as described in the Kentucky Best Management Practices for Construction Activities prepared by Division of Conservation and Division of Water, Natural Resources and Environmental Protection Cabinet.

24. RECORD DRAWINGS

The CONTRACTOR shall maintain a set of plans with current mark ups showing any changes made in the field to the location, orientation, etc. of any element of the project during construction. This set of plans shall be provided to the ENGINEER at the conclusion of the project and shall be used by the ENGINEER in developing the most accurate set of construction Record Drawings possible for the OWNER. Upon request by the CONTRACTOR, the set of plans shall be returned.

25. PIPELINE TESTING

CONTRACTOR shall pressure test sections of water line or force main no greater than 3,500 feet in length. Gravity sewers shall be tested in sections between manholes. The

pipe shall be tested in accordance with the pressures listed in the table below and the contents of the technical specifications.

<u>Pipe Classification</u>	<u>Test Pressure</u>
PVC SDR-21, Cl. 200	185 psi
PVC SDR-17, Cl. 250	215 psi
PVC C-900 DR14, Cl. 200	250 psi
Ductile Iron, Cl. 350	350 psi

26. EXISTING MATERIALS

Any existing item or material removed by the Contractor shall remain the property of the Bracken County Water District and shall be delivered to the District.

27. PROJECT REQUIREMENTS

All Contractors bidding this project should be aware of the following requirements; while not all inclusive, the list is representative of those items that will be enforced by the Engineer during this project.

- A. Installation of Trace Wire-Contractor to install #14 AWG THWN Insulated Copper Wire along all water main. Trace Wire shall be attached to the top of pipe. Tracer wire shall also be run up into meter boxes and valve boxes. All splices shall be made with silicone filled wire connectors.
- B. METER SETTER: MUELLER model B-2577-2
- C. TANDEM SETTER: MUELLER model B-2577-R208
- D. PRESSURE REGULATOR for tandem setter: WILKINS #600 LUSC and shall include the necessary fittings and "S" tube and shall be installed in setter.
- E. METER: BADGER Model 25 – 5/8"x3/4" with Orion RTR Transmitter.
- F. CORP. STOP: MUELLER H-15008 with inlet tapered thread & CTS compression fitting.
- G. SERVICE LINE: CTS 200 psi
- H. TAPPING SADDLES: MUELLER brass series S-1300 with AWWA tapered threads.
- I. METER BOXES: 18"x24" Hancore
- J. METER LIDS: 18" raised type with transponder hole.

- K. All gate valves on branch line of tees and fire hydrant tees shall be mechanically restrained in addition to thrust blocking and shall be sized appropriately for the line used.
- L. Flush hydrants shall be Eclipse No. 2 Post Hydrant. Hydrant shoe and isolation valve shall be the same size as the water main.
- M. Fire hydrants shall be Mueller Super Centurion A423 with a 6" shoe.

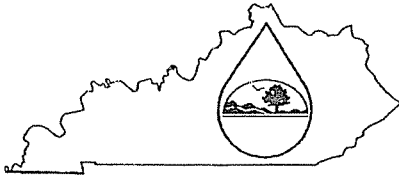
28. DUTCH RIDGE VALVE VAULT

The Contractor shall furnish the services of a factory representative for one, eight hour day during the installation phase of the equipment. The factory representative shall have full knowledge and experience in the installation of the type of equipment being installed. Three (3) copies of Operation and Maintenance manuals for all equipment shall also be provided to the Owner.

29. NOTICE OF INTENT

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 contractor must complete and submit the attached form at least 48 hours prior to start of construction to the address below:

Section Supervisor  
Permits Support Section  
Surface Water Permits Branch  
Kentucky Division of Water  
200 Fair Oaks  
Frankfort, Kentucky 40601



Kentucky Pollutant Discharge Elimination System  
(KPDES)  
Notice of Intent (NOI)  
for Storm Water Discharges  
Associated with Industrial Activity Under the  
KPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a KPDES permit issued for storm water discharges associated with industrial activity. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit.

ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM (See Instructions on back)

**I. Facility Operator Information**

Name:		Phone:	
Address:		Status of Owner/Operator:	
City, State, Zip Code:			

**II. Facility/Site Location Information**

Name:			
Address:			
City, State, Zip Code:			
County:			
Site Latitude: (degrees/minutes/seconds)		Site Longitude: (degrees/minutes/seconds)	

**III. Site Activity Information**

MS4 Operator Name:				
Receiving Water Body:				
Are there existing quantitative data?	Yes <input type="checkbox"/>	If Yes, submit with this form.		
	No <input type="checkbox"/>			
SIC or Designated Activity Code Primary		2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>
If this facility is a member of a Group Application, enter Group Application Number:				
If you have other existing KPDES Permits, enter Permit Numbers:				

**IV. Additional Information Required FOR CONSTRUCTION ACTIVITIES ONLY**

Project Start Date:		Completion Date:	
Estimated Area to be disturbed (in acres):			
Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans?	Yes <input type="checkbox"/> No <input type="checkbox"/>		

Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Printed or Typed Name:			
Signature:		Date:	

Kentucky Pollutant Discharge Elimination System (KPDES)  
Instructions

Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity  
To Be Covered Under The KPDES General Permit

**WHO MUST FILE A NOTICE OF INTENT (NOI) FORM**

Federal law at 40 CFR Part 122 prohibits point source discharges of stormwater associated with industrial activity to a water body of the Commonwealth of Kentucky without a Kentucky Pollutant Discharge Elimination System (KPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the KPDES Storm Water General Permit. If you have questions about whether you need a permit under the KPDES Storm Water program, or if you need information as to whether a particular program is administered by the state agency, call the Storm Water Contact, Industrial Section, Kentucky Division of Water at (502) 564-3410.

NOIs must be sent to the following address:

Section Supervisor  
Permits Support Section  
Surface Water Permits Branch, Division of Water  
200 Fair Oaks  
Frankfort, KY 40601

**COMPLETING THE FORM**

Type or print legibly in the appropriate areas only. If you have any questions regarding the completion of this form call the Storm Water Contact, Industrial Section, at (502) 564-3410.

**SECTION I - FACILITY OPERATOR INFORMATION**

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal                      M = Public (other than federal or state)  
S = State                        P = Private

**SECTION II - FACILITY/SITE LOCATION INFORMATION**

Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code.

**SECTION III - SITE ACTIVITY INFORMATION**

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)



If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges.

If data is available submit with this form.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other KPDES permits presently issued for the facility or site listed in Section II, list the permit numbers.

#### SECTION IV - ADDITIONAL INFORMATION REQUIRED FOR CONSTRUCTION ACTIVITIES ONLY

Construction activities must complete Section IV in addition of Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

#### SECTION V - CERTIFICATION

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

*For a corporation:* by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

*For a partnership or sole proprietorship:* by a general partner or the proprietor; or

*For a municipality, state, Federal, or other public facility:* by either a principal executive officer or ranking elected official.



---

---

**SECTION 01010**  
**Summary of Work**

**PART 1 GENERAL**

**1.1 DESCRIPTION**

- A. The Work to be performed under this Contract shall consist of furnishing all labor, materials, tools, equipment and incidentals and performing all Work required to construct complete in place and ready to operate:
  - 1. 40,750 L.F. of Extension, Replacement and Upgrade of Various Size Water Line and Appurtenances
- B. All Work described above shall be performed as shown on the Drawings and as specified.

**1.2 PROJECT LOCATION**

The equipment and materials to be furnished will be installed at the locations shown on the Drawings.

**1.3 QUANTITIES**

The Owner reserves the right to alter the quantities of work to be performed or to extend or shorten the improvements at any time when and as found necessary, and the Contractor shall perform the work as altered, increased or decreased. Payment for such increased or decreased quantity will be made in accordance with the Instructions to Bidders. No allowance will be made for any change in anticipated profits nor shall such changes be considered as waiving or invalidating any conditions or provisions of the Contract and Bond.

END OF SECTION



**PART 1 GENERAL**

**1.1 DESCRIPTION OF WORK**

This Section covers the provision for the CONTRACTOR to provide all labor, materials, equipment, services and perform all operations necessary to furnish to the OWNER and ENGINEER a complete, color audio-video record of the surface features within the proposed construction's zone of influence. This record shall include, but not be limited to, all audio-video tape storage cases, tape logs and indexes. The purpose of this coverage shall be to accurately document the pre-construction condition of these features within the project area.

**PART 2 MATERIALS**

**2.1 GENERAL**

The total audio-video recording system and the procedures employed in its use shall be such as to produce a finished product that will fulfill the technical requirements of the project, as well as those more subjective requirements of high quality audio and video production. The video portion of the recording shall reproduce bright, sharp, clear pictures with accurate colors and shall be free from distortion, tearing, rolls, or any other form of picture imperfection. The audio portion of the recording shall reproduce the commentary of the camera operator with proper volume, clarity and be free from distortion. Recording speed shall be compatible for playback in SP mode.

The recording system shall utilize EIA standard video and NTSC compatible color (American TV Standard), and shall utilize digital technology.

**2.2 VIDEO TAPE**

The video tape furnished to the OWNER and ENGINEER shall be high energy extended still frame capable, color, DVD. The video shall be new and thus shall not have been used for any previous recording. The CONTRACTOR shall provide the ENGINEER a copy of the DVD.

**2.3 VIDEO TAPE PLAYBACK COMPATIBILITY**

The recorded video tapes shall be compatible for playback with any American TV Standard DVD player, or VHS player if approved.

**PART 3 EXECUTION**

**3.1 VIDEO CONTENT**

**A. General**

The recording shall contain coverage of all surface features located within the construction's zone of influence. The construction's zone of influence

shall be defined (1) as the area within the permanent and temporary easements, and areas adjacent to these easements which may be affected by routine construction operations; and (2) by the direction of the ENGINEER and/or OWNER. The surface features within the construction's zone of influence shall include, but not be limited to, all roadways, pavements, curbs, driveways, sidewalks, culverts, headwalls, retaining walls, buildings, landscaping, trees, shrubbery and fences. Of particular concern shall be the existence or non-existence of any faults, fractures or defects prior to construction.

B. Streets

Where construction will extend in or adjacent to a street, the full width of the construction's zone of influence including the street right-of-way shall be recorded, unless otherwise authorized by the ENGINEER. The term street shall be understood to mean a highway, road, street, avenue, boulevard, lane, circle, alley, etc.

C. Easements

Where construction will extend through easement areas, the permanent and temporary easements and all other adjacent areas lying within the construction's zone of influence shall be recorded. The term easement shall be understood to mean all areas not defined as streets.

### 3.2 ALPHA-NUMERIC DISPLAYS

All video recordings must, by electronic means, display continuously and simultaneously generated, transparent, alpha-numeric information to include the following:

A. Video Tape Index, Number, Project Title and General Project Location

Each video tape shall begin with a single, multi-line, alpha-numeric display indicating the video tape index number, project title and general location of the project.

B. Time and Date

During the entire duration of the recordings, the time (in hours, minutes and seconds separated by colons) and date (consisting of month, day and year separated by slashes) of recording must appear in the upper left-hand corner of the picture.

C. Name and Side of Street or Easement

During the entire duration of the recordings, the name and side of the street or easement being recorded must appear across the bottom of the

picture.

D. Camera Position

During the entire duration of the recordings, the position of the camera, accurately referenced and displayed in terms of the construction's engineering stationing, shall be displayed (in standard stationing format) in the lower left-hand corner of the picture. Where no stationing appears on the engineering plans, an appropriate stationing system, acceptable to the ENGINEER and OWNER, shall be established and utilized.

**3.3 AUDIO CONTENT**

Accompanying the video recording of each video tape shall be corresponding and simultaneously recorded audio. This audio recording, exclusively containing the commentary of the camera operator, shall assist in the maintenance of viewer orientation and in any needed identification, differentiation, clarification or objective description of the structures being shown in the video portion of the recording. The audio recording also shall be free from any conversations between the camera operator and the other production technicians.

**3.4 VIDEO TAPE INDEXING**

A. Video Tape Identification

All video tapes and their vinyl storage cases shall be properly identified by video tape index number, project title, and general project location.

B. Video Tape Logs

Displayed on the storage case of each video tape shall be a log of that video tape's contents. That log shall describe the various segments of coverage contained on that video tape in terms of the names and sides of the streets or easements, coverage beginning and endpoints, directions of coverage and video tape player counter numbers.

C. Cumulative Index

A cumulative alphabetical index correlating the various segments of coverage to their corresponding video tapes shall be supplied to the OWNER and ENGINEER.

**3.5 PROCEDURAL REQUIREMENTS**

A. General

The following procedures shall be implemented in the production of pre-construction color audio-video tape documentation. Above all, the documentation shall be executed in a conscientious and professional

manner to assure the end product's maximum usefulness to the OWNER and ENGINEER.

B. Time of Execution

- a. Recording Schedule - The recording shall be performed prior to the placement of any construction materials or equipment on the proposed construction site.
- b. Visibility - All recording shall be performed during times of good visibility. No recording shall be done during periods of significant precipitation, mist or fog. The recording shall only be done when sufficient sunlight is present to properly illuminate the subjects of recordings, and to produce bright, sharp video recordings of those subjects.

C. Coverage Continuity

The recording shall commence at Station 0+00 of each line, and run continuously uninterrupted to its end. If hand held walking is necessary, it shall be done to insure a complete uninterrupted record.

D. Coverage Rates

The average rate of travel during a particular segment of coverage (e.g. coverage of one side of a street) shall be indirectly proportional to the number, size and value of the surface features within that construction area's zone of influence. The following table, which characterizes typical areas and sets the maximum average rates of travel in those areas, shall be used to establish approximate limits on actual average rates of travel:

	<u>Area</u>	<u>Typically Characterized By</u>	<u>Avg. Rate Max.</u>
a.	High Density (e.g. developed subdivisions)	Hard Surface Streets, Curbs, Drives & Sidewalks; 50 Ft. Lots; Very Few Empty Lots	30 Ft./Min.
b.	Med. Density (e.g. partially developed)	Gravel Roads, Hard & Soft Surface Drives, No sidewalks, Culverts & Headwalls, 100 Ft. Lots; Few Empty Lots	60 Ft./Min.
c.	Low Density (e.g. suburban or woods, occasional houses, fringe)	Gravel Roads, Small Fields	90 Ft./Min.



- d. Extra Low Density Gravel Roads, Large Fields, Sparse 120 Ft./Min.  
(e.g. rural) Number of Houses

### 3.6 CAMERA POSITIONING AND STABILITY

- a. Camera Height and Stability - When conventional wheeled vehicles are used as conveyances for the recording system, the distance between the camera lens and the ground shall not be more than 12 feet. The camera shall be firmly mounted, such that transport of the camera during the recording process will not cause an unsteady picture.
- b. Camera Control - Camera pan, tilt, zoom-in and zoom-out rates shall be sufficiently controlled such that recorded objects will be clearly viewed during video tape playback. In addition, all other camera and recording system controls, such as lens focus and aperture, video level, pedestal, chroma, white balance and electrical focus, shall be properly controlled or adjusted to maximize recorded picture quality.
- c. Viewer Orientation Techniques - The audio and video portions of the recording shall maintain viewer orientation. To this end, overall establishing views and visual displays of all visible house and building addresses shall be utilized. In easements where the proposed construction location will not be readily apparent to the video tape viewer, highly visible yellow flags shall be placed in such fashion as to clearly indicate the proposed center line of construction.

### 3.7 ENTERING PRIVATE PROPERTY

When planning on entering private property, the CONTRACTOR shall notify the owner of such property to obtain his/her permission to do so. Should the owner of the property refuse to give his permission for said entry, the CONTRACTOR shall immediately notify the OWNER and ENGINEER, who will obtain the right to enter the property through the legal powers vested in the OWNER as a public entity. The CONTRACTOR is advised that he shall not enter any private property before permission is granted to do so, or the OWNER has notified the CONTRACTOR that he has gained the legal right to do so. The CONTRACTOR shall be liable for entry made other than as stated above.

## PART 4 OWNER'S OPTIONS

### 4.1 Documentation Additions and Omission

The OWNER and/or ENGINEER shall have the authority to designate what areas may be added to or omitted from the video tape documentation.

### 4.2 Specification Deviations

Any deviation from the above specifications must have the written approval of the

OWNER.

**PART 5 QUALIFICATIONS**

- 5.1 The video tape documentation shall be performed by a responsible firm known to be skilled and regularly engaged in the business of pre-construction color audio-video tape documentation. The firm shall furnish such information as the OWNER and ENGINEER deem necessary to determine the ability of that firm to perform the work in accordance with the contract specifications, including a list of former clients served in the last five (5) years.

**PART 6 COORDINATION**

- 6.1 The CONTRACTOR shall coordinate the video tape recording with the construction schedule so that those portions of the construction that will be completed first will be recorded first. Construction shall not begin in an area until acceptable video tapes have been delivered to the OWNER and ENGINEER.

**PART 7 VIDEO TAPE DELIVERY**

- 7.1 The CONTRACTOR shall deliver the video tape recordings to the OWNER and ENGINEER upon their completion as a whole, or upon request by the OWNER or ENGINEER, deliver specific video tape recordings to the OWNER and ENGINEER upon their completion. Upon delivery and acceptance of the video tapes, transfer of ownership of those video tapes shall be made to the OWNER.

**PART 8 UNACCEPTABLE DOCUMENTATION**

- 8.1 The OWNER or ENGINEER shall have the authority to reject all or any portion of the video tape documentation not conforming to specifications. Those rejected portions shall be redone by the CONTRACTOR at no additional cost to the OWNER.

END OF SECTION

## PART 1 GENERAL

- 1.1 The CONTRACTOR shall provide all necessary labor, materials, tools, equipment, insurances, and permits, etc., and perform all other related work, as may be required for the work in accordance with the applicable terms of these Specifications and other pertinent documents, etc.
- 1.2 The cost associated with the preparation of submittal and the preparation for and attendance at all project meetings shall be incidental to the work.
- 1.3 Items shown in the plan but not expressly described herein shall be considered incidental to the work.
- 1.4 Lump sum items shall be paid upon completion and acceptance of all work covered by the item. However, CONTRACTOR may submit an application for partial payment of lump sum items. Such application shall be in writing and shall define and provide justification for desired break down of the lump sum items. The application will be reviewed by the ENGINEER in a timely manner and any concerns will be discussed with the CONTRACTOR prior to issuing written agreement with the partial payment scheme. It is recommended that Partial Payment Applications be submitted and approval sought prior to the submission of the first invoice for the project.
- 1.5 The quantities shown are estimated. Only the actual quantities required, furnished, and installed and/or removed, will be eligible for payment. No minimum(s) is/are guaranteed.
- 1.6 The CONTRACTOR will NOT be paid for any items herein in excess of the estimated quantities or for any items not contained in the proposal(s) unless the CONTRACTOR has obtained WRITTEN authorization from the ENGINEER before proceeding with the work.
- 1.7 The various phases of contractual work that are required to complete the subject project must be performed in a most expeditious manner and to the satisfaction of the ENGINEER

## PART 2 PAY ITEMS

### 2.1 WATER LINES

- A. Measurement - Measurement for the length of pipe to be included for payment at the unit prices bid shall be the actual length laid in the trench measured along the centerline of the pipe and including the lengths of and fittings in the line. Measurement shall begin at the ends of existing pipes, valves or fittings to which the new pipe is connected or such other point as may be designated on the plans.
- B. Payment - Payment for installing only water pipe lines complete will be made at the contract unit price bid per linear foot for water pipe of the various sizes and classifications. No pay item has been established for fittings or restraint joints. These

---

**Measurement and Payment**

are considered incidental and shall be included in the unit price bid per linear foot for water pipe. Payment for installing water pipe shall constitute full compensation for trenching, installation of pipe and tracer wire, backfill, disinfecting and testing for the water line, together with other incidental and related work necessary for the completion of the water main installation except that valves, valve boxes, pavement replacement and such other items shall be paid for separately, if included as a pay item on the bid proposal.

**2.2 VALVES**

- A. Measurement - Valves will be measured by actual count on each size and type of valve installed in the completed system.
- B. Payment - Payment for installing only valves of the various sizes and classifications, accessories, adapters, extension stems, valve boxes with lids, concrete collar or other required appurtenances, shall be made on the basis of the contract unit prices bid. Such payment shall constitute full compensation for installing the valves complete in full accordance with the Plans and Specifications.

**2.3 ROCK EXCAVATION**

Excavation is unclassified, therefore, separate measurement or payment will not be made.

**2.4 BITUMINOUS/CONCRETE PAVEMENT REPLACEMENT**

- A. Measurement - Measurement for pavement replacement shall be equal to the length of the pavement installed, as measured along the centerline of the water main. Minimum width shall be equal to the nominal pipe diameter plus 3'-6" centered over the pipeline. For pavement replacement on State or Federal Highways where concrete base is required, the minimum width will be increased to 7'-6".
- B. Payment - Payment for pavement replacement shall be made on the basis of the unit prices bid for various classifications of pavements indicated in the proposal form. Such payment shall constitute full compensation for furnishing all labor, material, and equipment and replacing the damaged pavement, including the crushed stone base and crushed stone backfill as required. The CONTRACTOR is advised that although the limits of payment shall be as described under paragraph A, above he shall be responsible for replacing all pavement damaged during construction, at no additional cost, so that the paved area is left in a condition as good as or better than before the start of construction.

Payment for pavement replacement shall also include compensation for providing temporary pavement patches as required by the specifications and for maintaining the patches until such time as the permanent pavement is placed inasmuch as no separate payment will be made for this work.

## 2.5 CRUSHED STONE

- A. Measurement - Measurement of crushed stone for payment shall be based on linear feet of gravel replaced on driveways and shall be full depth of trench. This item will be paid for based upon amount disturbed and only a one time payment. Crushed stone used for bedding water mains in rock excavation or in backfill around fire hydrants and valves shall not be measured for payment. Payment shall be included in the unit price for pipe, valves or fire hydrant.

Crushed stone used as base material or backfill for pavement replacement also will not be measured for payment inasmuch as payment for this material will be included in the payment for pavement replacement.

- B. Payment - Payment for crushed stone, measured as provided above, which payment shall constitute full compensation for furnishing, hauling, placing and compacting the stone as specified.

## 2.6 CASING PIPE BY BORE & JACK

- A. Measurement - Measurement of casing pipe installed under pavement, railroad tracks, structures or other places by bore and jack shall be by the linear foot and shall be the centerline length of the casing installed and accepted.

- B. Payment - Payment shall be made on the basis of the contract unit price bid for various diameters. This price shall constitute payment for furnishing and installing casing pipe by boring and jacking and spacers; including all labor, tools and equipment. Payment for the water line to be installed in the casing pipe shall be paid for at applicable unit price bid.

## 2.7 CONNECTIONS TO EXISTING LINES

No additional compensation will be made for connections to existing lines as shown on drawings. Only those items employed in such connections and appear in this Section will be paid for separately.

## 2.8 STANDARD BLOW-OFF

- A. Measurement - Standard blow-offs shall be sized as shown on plans and include gate valve, restraints and fittings. This item will be measured by an actual count of blow-offs installed, tested, sterilized and accepted.

- B. Payment - Standard blow-off assemblies, installed and accepted will be paid for on the basis of the unit price per each and payment shall constitute full compensation for furnishing, hauling, installing complete, testing and sterilizing, for excavation, preparation of bed and backfilling, and for the furnishing of all equipment, tools and incidentals necessary to complete the item.

---

**Measurement and Payment****2.9 FIRE HYDRANTS / FLUSH HYDRANTS**

- A. Measurement - Measurement of hydrants for payment shall be made by actual count of type of hydrant provided in the completed installation.
- B. Payment - Payment for hydrants complete shall be based on the contract unit prices bid. Such payment shall constitute compensation in full for hydrants complete with the necessary barrel and stem extensions, concrete base and kicker, valve, valve box and the required crushed stone for drainage as shown in the standard details in drawing package.

**2.10 AIR RELEASE VALVE ASSEMBLY**

- A. Measurement - Air release valve assemblies will be measured by an actual count of each size and type installed and accepted. The unit price bid for this item shall include tapping the main saddle, corporation stop, bronze gate valve, air release valve, meter box and cover, crushed stone and other fittings as covered by Specifications and Plans.
- B. Payment - Air release valve assemblies installed and accepted will be paid on the basis of the unit price per each and payment shall constitute full compensation for furnishing all materials and supplies, and installing complete, testing, excavation and for the furnishing of all equipment, tools and incidentals necessary to complete the item.

**2.11 TYPE "B" CREEK CROSSING**

- A. Measurement - Measurement of creek crossing for payment shall be made by the actual length of creek crossing provided in the complete installation.
- B. Payment - Payment for installing creek crossing complete will be made at the contract unit price bid per linear foot. Payment for installing creek crossing shall constitute full compensation for fittings, trenching, concrete, casing pipe, spacers, backfill, disinfecting and testing together with other incidental and related work necessary for the completion of the creek crossing. Payment for the water line to be installed in the creek crossing shall be paid for at the applicable unit price.

**2.12 TYPE "C" CREEK CROSSING**

- A. Measurement - Measurement of "C" Creek Crossing for payment shall be made by the actual length of creek crossing provided in the complete installation
- B. Payment - Payment for installing creek crossing complete will be made at the contract unit price bid per linear foot. Payment for installing creek crossing shall constitute full compensation for water line or where indicated ball and socket water line, fittings, trenching, installation, backfill, concrete anchors, typical meter setting, disinfecting and testing together with other incidental and related work necessary for the completion of the creek crossing.

**2.13 OPEN CUT WITH STEEL CASING OR PLASTIC CASING**

- A. Measurement - Measurement of casing pipe installed by open cut shall be by the linear foot and shall be by the linear foot and shall be in the casing installed and accepted
- B. Payment - Payment shall be made on the basis of the contract unit price bid for the various diameters. The price shall constitute payment for furnishing and installing casing pipe by open cut and spacers; including all labor, tools, and equipment. Payment for the water line to be installed in the casing shall be paid for at applicable unit price bid.

**2.14 FLOWABLE FILL CONCRETE**

- A. Measurement - Measurement of flowable fill concrete for payment shall be based on linear feet installed in the trench measured along the centerline of the pipe.
- B. Payment - Payment for installing flowable fill concrete will be made at the contract unit price bid per linear foot. Payment for installing flowable fill concrete shall constitute full compensation for flowable fill concrete, sand, mechanical tamping and related work necessary to complete in accordance with the plans and specifications. Pavement replacement and gravel replacement shall be paid for separately.

**2.15 SERVICE CONNECTIONS**

- A. Measurement - Service connections will be measured by an actual count of each size and type of service installed, tested, disinfected and accepted. The unit price bid for this item shall include saddles, corporation stop, curb stops, yoke, meter, meter box lid driller for transponder, meter box, pressure regulator, as required, service tubing or copper service tubing, as required, etc., as covered by Specifications and Plans.
- B. Payment - Service connections assemblies placed and accepted, measured as provided above, will be paid for at the contract unit price per each, which price and payment shall constitute full compensation for furnishing, hauling and installing complete, testing and disinfection, for excavation, preparation of bed and backfilling, and for the furnishing of all equipment, tools, and incidentals necessary to complete the item.

**2.16 EXISTING SERVICE CONNECTION TO PROPOSED LINE**

- A. Measurement - Existing service connections to proposed line will be measured by the actual count of each size and type of service installed, tested, disinfected and accepted. The unit price bid for this item shall include saddles, corporation stop, new meter (where indicated), meter box lid drilled for transponder (where indicated), connection to exist service line, service tubing or copper service tubing, as required, etc., as covered by Specifications and Plans.
- B. Payment - Existing service connections to proposed line assemblies placed and accepted, measured as provided above, will be paid for at the contract unit price per each, which price and payment shall constitute full compensation for furnishing, hauling and

---

**Measurement and Payment**

installing complete, testing and disinfection, for excavation, preparation of bed and backfilling, and for the furnishing of all equipment, tools, and incidentals necessary to complete the item.

**2.17 REPLACE EXISTING SERVICE CONNECTIONS**

- A. Measurement – Replacement of existing service connections will be measured by an actual count of each size and type of service installed, tested, disinfected and accepted. The unit price bid for this item shall include saddles, corporation stop, curb stops, yoke, meter, meter box lid driller for transponder, meter box, pressure regulator, as required, service tubing or copper service tubing, as required, etc., as covered by Specifications and Plans.
- B. Payment – Replacement of existing service connections placed and accepted, measured as provided above, will be paid for at the contract unit price per each, which price and payment shall constitute full compensation for furnishing, hauling and installing complete, testing and disinfection, for excavation, preparation of bed and backfilling, and for the furnishing of all equipment, tools, and incidentals necessary to complete the item. Payment shall also include connecting existing service line from the house to the proposed meter and any fees, inspections and permits that may be required. Replacement of existing service connection also includes removal of existing meter box, meter, saddle etc.

**2.18 SERVICE PIPE**

- A. Measurement - Measurement for the length of service pipe used for service installations included for payment at the unit prices bid shall be the actual length installed over and above the 10 feet and 70 feet of service tubing that is to be included in the price bid for meter settings and existing service connection to proposed line.
- B. Payment - Payment for installing only water service lines completed will be made at the contract unit price bid per linear foot for water service pipe of the various sizes, types and classifications. Payment for installing service pipe shall constitute full compensation for excavation, installation, backfill, disinfecting, testing and other incidentals and related work necessary for the completion of the bid item.

**2.19 REMOVAL OF EXISTING FIRE HYDRANTS / FLUSH HYDRANTS**

- A. Measurement - Measurement for payment of hydrant removal shall be made by actual count of hydrants removed.
- B. Payment - Payment for hydrant removal shall be based on the contract unit prices bid. Such payment shall constitute compensation in full for hydrant removal including isolation valve removal.



**2.20 REMOVAL OF EXISTING GATE VALVE BOXES**

- A. Measurement - Measurement for payment of gate valve box removal shall be made by actual count removed.
- B. Payment - Payment for gate valve box removal shall be based on the contract unit prices bid. Such payment shall constitute compensation in full for gate valve box removal and cleanup.

**2.21 CUT AND CAP WATER LINE**

- A. Measurement – Cutting and capping of water lines will be measured by actual count of installed in the completed system.
- B. Payment - Payment for cutting and capping of all size water lines shall be made on the basis of the contract unit price bid. Such payment shall constitute full compensation for capping, concrete, restraints etc. to complete in full accordance with the Plans and Specifications

**2.22 DUTCH RIDGE VALVE VAULT**

- A. Measurement - This is a Lump Sum Bid Item and measurement will not be required.
- B. Payment – Payment for the Dutch Ridge Valve Vault shall be made on the basis of the Lump Sum Price Bid and shall constitute full compensation for valves, strainers, meter, control valve, sump pump, piping, fitting, power pole, electrical, and concrete vault with access hatch, as shown on plans and described in the specifications, complete in place.

**2.23 BY-PASS METER**

- A. Measurement – By-pass meters will be measured by an actual count of each size and type installed, tested, disinfected and accepted. The unit price bid for this item shall include saddles, corporation stop, curb stops, yoke, meter, meter box lid, meter box, pressure regulator, service tubing or copper service tubing, as required, etc., as covered by Specifications and Plans.
- B. Payment – By-pass meters placed and accepted, measured as provided above, will be paid for at the contract unit price per each, which price and payment shall constitute full compensation for furnishing, hauling and installing complete, testing and disinfection, for excavation, preparation of bed and backfilling, and for the furnishing of all equipment, tools, and incidentals necessary to complete the item.

**2.24 CRUSHED STONE ENCASEMENT OF PIPE**

- A. Measurement - Measurement of crushed stone encasement of pipe for payment shall be based on linear feet of encasement installed. Crushed stone used for bedding water mains in rock excavation or in backfill around fire hydrants and valves shall not be measured for payment. Payment shall be included in the unit price for pipe, valves or fire hydrant. Crushed stone encasement of pipe will only be paid for in areas indicated on the plans or areas specifically requested by the Owner.

Crushed stone used as base material or backfill for pavement replacement also will not be measured for payment inasmuch as payment for this material will be included in the payment for pavement replacement.

- B. Payment - Payment for crushed stone encasement of pipe, measured as provided above, which payment shall constitute full compensation for furnishing, hauling, placing and compacting the stone as specified. It shall also include removal and hauling of left over excavated material.

---

---

**SECTION 01340**  
**Shop Drawings, Product Data and Samples**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. The work under this Section includes submittal to the ENGINEER of shop drawings, product data and samples required by the various sections of these Specifications.
- B. Submittal Contents: The submittal contents required are specified in each section.
- C. The following forms shall be used for all major components of the work:
  - 1. Typical Maintenance Summary Form
  - 2. Notice of Start of Manufacturing
  - 3. Notice of Shipment of Equipment
  - 4. Notice of Schedule Impact

The forms are included at the back of this section.

- D. Definitions: Submittals are categorized as follows:
  - 1. Shop Drawings
    - a. Shop drawings shall include technical data, drawings, diagrams, procedure and methodology, performance curves, schedules, templates, patterns, test reports, calculations, instructions, measurements and similar information as applicable to the specific item for which the shop drawing is prepared.
    - b. Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated) or appropriate number of prints hereof, with name or preparer (firm name) indicated. The Contract Drawings shall not be traced or reproduced by any method for use as or in lieu of detail shop drawings. Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action" markings by the ENGINEER to be used in connection with the Work.
    - c. Drawings shall be presented in a clear and thorough manner. Details shall be identified by reference to sheet and detail, specification section, schedule or room numbers shown on the Contract Drawings.

- d. Minimum assembly drawings sheet size shall be 24 x 36-inches.
  - e. Minimum detail sheet size shall be 8-1/2 x 11-inches.
  - f. Minimum Scale:
    - (1) Assembly Drawings Sheet, Scale: 1-inch = 30 feet.
    - (2) Detail Sheet, Scale: 1/4-inch = 1 foot.
2. Product Data
- a. Product data includes standard printed information on materials, products and systems, not specially prepared for this Project, other than the designation of selections from among available choices printed therein.
  - b. Collect required data into one submittal for each unit of work or system, and mark each copy to show which choices and options are applicable to the Project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked and special coordination requirements.
3. Samples
- a. Samples include both fabricated and un-fabricated physical examples of materials, products and units of work, both as complete units and as smaller portions of units of work, either for limited visual inspection or, where indicated, for more detailed testing and analysis.
  - b. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples, not less than three units, where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where the ENGINEER'S selection is required. Prepare samples to match the ENGINEER'S sample where indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by the ENGINEER. ENGINEER will note "test" samples, except as otherwise indicated, for other requirements, which are the exclusive responsibility of the CONTRACTOR.
4. Miscellaneous submittals related directly to the Work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, statements of applicability, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance

materials, overrun stock, security/protection/safety keys and similar information, devices and materials applicable to the Work but not processed as shop drawings, product data or samples.

## 1.2 SPECIFIC CATEGORY REQUIREMENTS

- A. General: Except as otherwise indicated in the individual work sections, comply with general requirements specified herein for each indicated category of submittal. Submittals shall contain:
1. The date of submittal and the dates of any previous submittals.
  2. The Project title.
  3. Numerical submittal numbers, starting with 1.0, 2.0, etc. Revisions to be numbered 1.1, 1.2, etc.
  4. The Names of:
    - a. Contractor
    - b. Supplier
    - c. Manufacturer
  5. Identification of the product, with the Specification section number, permanent equipment tag numbers and applicable Drawing No.
  6. Field dimensions, clearly identified as such.
  7. Relation to adjacent or critical features of the Work or materials.
  8. Applicable standards, such as ASTM or Federal Specification numbers.
  9. Notification to the ENGINEER in writing, at time of submissions, of any deviations on the submittals from requirements of the Contract Documents.
  10. Identification of revisions on resubmittals.
  11. An 8 x 3-inch blank space for CONTRACTOR and ENGINEER stamps.
  12. CONTRACTOR'S stamp, initialed or signed, certifying to review of submittal, verification of products, field measurements and field construction criteria and coordination of the information within the submittal with requirements of the Work and of Contract Documents.
  13. Submittal sheets or drawings showing more than the particular item under consideration shall have all but the pertinent description of the item for which

review is requested crossed out.

### 1.3 ROUTING OF SUBMITTALS

- A. Submittals and routine correspondence shall be routed as follows:
1. Supplier to CONTRACTOR (through representative if applicable)
  2. CONTRACTOR to ENGINEER
  3. ENGINEER to CONTRACTOR and OWNER
  4. CONTRACTOR to Supplier

### 1.4 ADDRESS FOR COMMUNICATIONS

Engineer: Raymond C. Bascom, P.E.  
HMB Professional Engineers, Inc.  
3 HMB Circle  
Frankfort, KY 40601  
OFFICE (502) 695-9800  
FAX (502) 695-9810

## PART 2 PRODUCTS

### 2.1 SHOP DRAWINGS

- A. Unless otherwise specifically directed by the ENGINEER, make all shop drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the Work.
- B. Submit all shop assembly drawings, larger than 11 x 17-inches, in the form of one reproducible transparency with two opaque prints or bluelines.
- C. Submit all shop drawings, 11 x 17-inches and smaller, in the form of six opaque prints or bluelines.
- D. One reproducible for all submittals larger than 11 x 17-inches and no more than three prints of other submittals will be returned to the CONTRACTOR.

### 2.2 MANUFACTURER'S LITERATURE

- A. Where content of submitted literature from manufacturers includes data not pertinent to this submittal, clearly indicate which portion of the contents is being submitted for the ENGINEER'S review.
- B. Submit the number of copies which are required to be returned (not to exceed three)

plus three copies which will be retained by the ENGINEER.

### 2.3 SAMPLES

- A. Samples shall illustrate materials, equipment or workmanship and established standards by which completed work is judged.
- B. Unless otherwise specifically directed by the ENGINEER, all samples shall be of the precise article proposed to be furnished.
- C. Submit all samples in the quantity which is required to be returned plus one sample which will be retained by the ENGINEER.

### 2.4 COLORS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, wherever a choice of color or pattern is available in a specified product, submit accurate color charts and pattern charts to the ENGINEER for review and selection.
- B. Unless all available colors and patterns have identical costs and identical wearing capabilities, and are identically suited to the installation, completely describe the relative costs and capabilities of each.

## PART 3 EXECUTION

### 3.1 CONTRACTOR'S COORDINATION OF SUBMITTALS

- A. Prior to submittal for the ENGINEER'S review, the CONTRACTOR shall use all means necessary to fully coordinate all material, including the following procedures:
  - 1. Determine and verify all field dimensions and conditions, catalog numbers and similar data.
  - 2. Coordinate as required with all trades and all public agencies involved.
  - 3. Submit a written statement of review and compliance with the requirements of all applicable technical Specifications as well as the requirements of this Section.
  - 4. Clearly indicate in a letter or memorandum on the manufacturer's or fabricator's letterhead, **all deviations** from the Contract Documents.
- B. Each and every copy of the shop drawings and data shall bear the CONTRACTOR'S stamp showing that they have been so checked. Shop drawings submitted to the ENGINEER without the CONTRACTOR'S stamp will be returned to the

CONTRACTOR for conformance with this requirement.

- C. The Owner may backcharge the CONTRACTOR for costs associated with having to review a particular shop drawing, product data or sample more than two times to receive a "No Exceptions Taken" mark.
- D. Grouping of Submittals
  - 1. Unless otherwise specifically permitted by the ENGINEER, make all submittals in groups containing all associated items.
  - 2. No review will be given to partial submittals of shop drawings for items which interconnect and/or are interdependent. It is the CONTRACTOR'S responsibility to assemble the shop drawings for all such interconnecting and/or interdependent items, check them and then make one submittal to the ENGINEER along with CONTRACTOR'S comments as to compliance, non-compliance or features requiring special attention.
- E. Schedule of Submittals: Within 30 days of Contract award and prior to any shop drawing submittal, the CONTRACTOR shall submit a schedule showing the estimated date of submittal and the desired approval date for each shop drawing anticipated. A reasonable period shall be scheduled for review and comments. Time lost due to unacceptable submittals shall be the CONTRACTOR'S responsibility and some time allowance for resubmittal shall be provided. The schedule shall provide for submittal of items which relate to one another to be submitted concurrently.

### **3.2 TIMING OF SUBMITTALS**

- A. Make all submittals far enough in advance of scheduled dates for installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
- B. In scheduling, allow sufficient time for the ENGINEER'S review following the receipt of the submittal.

### **3.3 REVIEWED SHOP DRAWINGS**

- A. ENGINEER Review
  - 1. Allow a minimum of 14 days for the ENGINEER'S initial processing of each submittal requiring review and response, except allow longer periods where processing must be delayed for coordination with subsequent submittals. The ENGINEER will advise the CONTRACTOR promptly when it is determined that a submittal being processed must be delayed for coordination. Allow a minimum of two weeks for reprocessing each submittal. Advise the ENGINEER on each submittal as to whether processing time is critical to progress of the Work, and therefore the Work would be expedited if processing time could be foreshortened.



2. Acceptable submittals will be marked "No Exceptions Taken". A minimum of three copies will be retained by the ENGINEER for ENGINEER'S and the OWNER'S use and the remaining copies will be returned to the CONTRACTOR.
  3. Submittals requiring minor corrections before the product is acceptable will be marked "Make Corrections Noted". The CONTRACTOR may order, fabricate and ship the items included in the submittals, provided the indicated corrections are made. Drawings must be resubmitted for review and marked "No Exceptions Taken" prior to installation or use of products.
  4. Submittals marked "Amend and Resubmit" must be revised to reflect required changes and the initial review procedure repeated.
  5. The "Rejected - See Remarks" notation is used to indicate products which are not acceptable. Upon return of a submittal so marked, the CONTRACTOR shall repeat the initial review procedure utilizing acceptable products.
  6. Only two copies of items marked "Amend and Resubmit" and "Rejected - See Remarks" will be reviewed and marked. One copy will be retained by the ENGINEER and the other copy with all remaining unmarked copies will be returned to the CONTRACTOR for resubmittal.
- B. No work or products shall be installed without a drawing or submittal bearing the "No Exceptions Taken" notation. The CONTRACTOR shall maintain at the job site a complete set of shop drawings bearing the ENGINEER'S stamp.
- C. Substitutions: In the event the CONTRACTOR obtains the ENGINEER'S approval for the use of products other than those which are listed first in the Contract Documents, the CONTRACTOR shall, at the CONTRACTOR'S own expense and using methods approved by the ENGINEER, make any changes to structures, piping and electrical work that may be necessary to accommodate these products.
- D. Use of the "No Exceptions Taken" notation on shop drawings or other submittals is general and shall not relieve the CONTRACTOR of the responsibility of furnishing products of the proper dimension, size, quality, quantity, materials and all performance characteristics, to efficiently perform the requirements and intent of the Contract Documents. The ENGINEER'S review shall not relieve the CONTRACTOR of responsibility for errors of any kind on the shop drawings. Review is intended only to assure conformance with the design concept of the Project and compliance with the information given in the Contract Documents. The CONTRACTOR is responsible for dimensions to be confirmed and correlated at the job site. The CONTRACTOR is also responsible for information that pertains solely to the fabrication processes or to the technique of construction and for the coordination of the work of all trades.

### 3.4 RESUBMISSION REQUIREMENTS

#### A. Shop Drawings

1. Revise initial drawings as required and resubmit as specified for initial submittal, with the resubmittal number shown.
2. Indicate on drawings all changes which have been made other than those requested by the ENGINEER.

#### B. Project Data and Samples: Resubmit new data and samples as specified for initial submittal, with the resubmittal number shown.

END OF SECTION

---

---

## **SECTION 01562**

### **Dust Control**

#### **PART 1 GENERAL**

##### **1.1 SCOPE**

Limit blowing dust caused by construction operations by applying water or employing other appropriate means or methods to maintain dust control, subject to the approval of the OWNER. As a minimum, this may require the use of a water wagon twice a day to suppress dusty conditions.

##### **1.2 PROTECTION OF ADJACENT PROPERTY**

- A. The Bidders shall visit the site and note the buildings, landscaping, roads, parking areas and other facilities near the Work site that may be damaged by their operations. The CONTRACTOR shall make adequate provision to fully protect the surrounding area and will be held fully responsible for all damages resulting from CONTRACTOR'S operations.
- B. Protect all existing facilities (indoors or out) from damage by dust, fumes, spray or spills (indoors or out). Protect motors, bearings, electrical gear, instrumentation and building or other surfaces from dirt, dust, welding fumes, paint spray, spills or droppings causing wear, corrosion, malfunction, failure or defacement by enclosure, sprinkling or other dust palliatives, masking and covering, exhausting or containment.

END OF SECTION



**PART 1 GENERAL**

**1.1 SCOPE**

- A. The work under this Section includes, but is not necessarily limited to, the compiling, maintaining, recording and submitting of project record documents as herein specified.
- B. Record documents include, but are not limited to:
  - 1. Drawings;
  - 2. Specifications;
  - 3. Change orders and other modifications to the Contract;
  - 4. ENGINEER field orders or written instructions, including Requests for Information (RFI) and Clarification Memorandums;
  - 5. Reviewed shop drawings, product data and samples;
  - 6. Test records.
- C. The CONTRACTOR shall maintain on the Project site throughout the Contract Time an up to date set of Record Drawings.

**1.2 MAINTENANCE OF DOCUMENTS AND SAMPLES**

- A. Storage
  - 1. Store documents and samples in the CONTRACTOR'S field office, apart from documents used for construction.
  - 2. Provide files and racks for storage of documents.
  - 3. Provide locked cabinet or secure storage space for storage of samples.
- B. File documents and samples in accordance with format of these Specifications.

C. Maintenance

1. Maintain documents in a clean, dry, legible condition and in good order.
2. Do not use record documents for construction purposes.
3. Maintain at the site for the OWNER one copy of all record documents.

D. Make documents and samples available at all times for inspection by Engineer.

E. Failure to maintain the Record Documents in a satisfactory manner may be cause for withholding of a certificate for payment.

**1.3 QUALITY ASSURANCE**

A. Unless noted otherwise, Record Drawings shall provide dimensions, distances and coordinates to the nearest 0.1 foot.

B. Unless noted otherwise, Record Drawings shall provide elevations to the nearest 0.01 foot for all pertinent items constructed by the CONTRACTOR.

**1.4 RECORDING**

A. Label each document "PROJECT RECORD" in neat, large printed letters.

B. Recording

1. Record information concurrently with construction progress.
2. Do not conceal any work until required information is recorded.

**1.5 RECORD DRAWINGS**

A. Record Drawings shall be reproducible, shall have a title block indicating that the drawings are Record Drawings, the name of the company preparing the Record Drawings, and the date the Record Drawings were prepared. The CONTRACTOR will be provided paper sepias of the Drawings, or it may elect to provide reproducible drawings via another method. Reproducible shall be defined as being translucent so as to allow a blue-line print to be produced.

B. Legibly mark drawings to record actual construction, including:

1. All Construction
  - a. Changes of dimension and detail.

- 
- b. Changes made by Requests for Information (RFI), field order, clarification memorandums or by change order.
  - c. Details not on original Drawings.
2. Site Improvements, Including Underground Utilities
- a. Horizontal and vertical locations of all exposed and underground utilities and appurtenances, both new facilities constructed and those utilities encountered, referenced to permanent surface improvements.
  - b. Location of and dimensions of roadways and parking areas, providing dimensions to back of curb when present.
  - c. The locations shall be referenced to at least two easily identifiable, permanent landmarks (e.g., power poles, valve markers, etc.) or benchmarks.
  - d. The Record Drawings shall include the horizontal angle and distance between manhole covers.
3. Structures
- a. Depths of various elements of foundation in relation to finish first floor datum or top of wall.
  - b. Location of internal and buried utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

## 1.6 SPECIFICATIONS

- A. Legibly mark each section to record:
- 1. Manufacturer, trade name, catalog number, and supplier of each product and item of equipment actually installed.
  - 2. Changes made by Requests for Information (RFI), field order, clarification memorandums, or by change order.

**1.7 SUBMITTAL**

- A. At contract closeout, deliver Record Documents to the ENGINEER for the OWNER.
- B. Accompany submittal with transmittal letter, in duplicate, containing:
  - 1. Date
  - 2. Project title and number
  - 3. CONTRACTOR'S name and address
  - 4. Title and number of each record document
  - 5. Signature of CONTRACTOR or CONTRACTOR'S authorized representative

END OF SECTION



---

---

**SECTION 02255**  
**Crushed Stone and Dense Graded Aggregate**

**PART 1 GENERAL**

**1.1 SCOPE**

- A. Furnish and install crushed stone for miscellaneous uses as shown on the Drawings, as called for in the Specifications.
- B. Sizes, types, and quality of crushed stone are specified in this Section, but its use for replacement of unsuitable material, pavement base, and similar uses is specified in detail elsewhere in the Specifications. The ENGINEER may order the use of crushed stone for purposes other than those specified in other sections, if, in his opinion, such use is advisable. Payment for same will be subject to negotiation.

**PART 2 PRODUCTS**

**2.1 MATERIALS**

- A. When referred to in these Specifications, crushed stone shall be Number 57 graded in accordance with the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Latest Edition, unless otherwise noted.
- B. When referred to in these Specifications, dense graded aggregate (DGA) shall be crushed stone classified by the Kentucky Transportation Cabinet, Department of Highways, Standard Specifications for Road and Bridge Construction, Latest Edition, and conforming to the following requirements:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 inch	100
3/4 inch	70-100
3/8 inch	50-80
#4	35-65
#10	25-50
#40	15-30
#200	5-12

## **PART 3 EXECUTION**

### **3.1 INSTALLATION**

- A. Crushed stone shall be placed in uniform layers not greater than 6 inches deep and shaped by power equipment to required lines, grades, cross sections, and depths. No minimum compacted density, method of compaction, or compaction equipment is required since a nominal amount of compaction effort with vibration can establish the desired intergranular locking of the aggregate under controlled placement depth. Acceptable compaction can be achieved with pneumatic-tired and tracked equipment and rollers.
- B. All compaction operation shall be performed to the satisfaction of the ENGINEER.
- C. Crushed stone shall be placed in those areas as shown on the Drawings, as may be directed by the ENGINEER and as required by the Contract Documents.

END OF SECTION

---

---

**SECTION 02513**  
**Bituminous Concrete Paving**

**PART 1 GENERAL**

**1.1 GENERAL**

**A. RELATED DOCUMENTS**

1. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

**B. DESCRIPTION OF WORK**

1. Extent of bituminous concrete paving work is shown on drawings and described in the Contract Documents
2. Prepared aggregate subbase is specified in earthwork sections.

**C. SUBMITTALS**

1. Material Certificates: Provide copies of materials certificates signed by material producer and CONTRACTOR, certifying that each material item complies with, or exceed, specified requirements.

**D. QUALITY ASSURANCE**

1. Codes and Standards: Comply with Kentucky Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition, and with local governing regulations if more stringent than herein specified.

**E. SITE CONDITIONS**

1. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50 deg. F (10 deg. C), and when temperature has not been below 35 deg. F (1 deg. C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

## Bituminous Concrete Paving

2. Construct asphalt concrete surface course when atmospheric temperature is above 40 deg. F (4 deg. C), and when base is dry. Base course may be placed when air temperature is above 30 deg. F (-1 deg. C) and rising.
3. Grade Control: Establish and maintain required lines and elevations.

**1.2 PRODUCTS****A. MATERIALS**

1. General: Use locally available material and gradations which exhibit a satisfactory record of previous installations.
2. Base Course Aggregate: Sound, angular crushed stone, crushed gravel, or crushed slag, sand, stone or slag screenings.
3. Surface Course Aggregate: Crushed stone, crushed gravel, crushed slag, and sharp-edged natural sand.
4. Mineral Filler: Rock or slag dust, hydraulic cement, or other inert material complying with AASHTO M 17 (ASTM D 242).
5. Asphalt Cement: AASHTO M 226 (ASTM D 3381) for viscosity-graded material.
6. Prime Coat: Cut-back asphalt type; AASHTO M 82 (ASTM D 2027) MC-30, MC-70 or MC-250.
7. Tack Coat: Emulsified asphalt; AASHTO M 140 (ASTM D 977) or M 208 (D 2397); SS-1, SS-1h, CSS-1 or CSS-1h, diluted with one part water to one part emulsified asphalt.
8. Lane Marking Paint: Chlorinated rubber-alkyd type, AASHTO M 248 (FS TT-P-115), Type III.

**B. ASPHALT-AGGREGATE MIXTURE**

1. Provide plant-mixed, hot-laid asphalt-aggregate mixture complying with Kentucky State Specification Section 400.

**1.3 EXECUTION**

Bituminous Concrete Paving

A. SURFACE PREPARATION

1. Remove loose material from compacted subbase surface immediately before applying prime coat.
2. Proof roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.
3. Notify CONTRACTOR of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.
4. Prime Coat: Apply at rate of 0.20 to 0.50 gal. per sq. yd., over compacted subgrade. Apply material to penetrate and seal, but not flood, surface. Cure and dry as long as necessary to attain penetration and evaporation of volatile.
5. Tack Coat: Apply to contact surfaces of previously constructed asphalt or portland cement concrete and surfaces abutting or projecting into asphalt concrete pavement. Distribute at rate of 0.05 to 0.15 gal. per sq. yd. of surface.
6. Allow to dry until at proper condition to receive paving.
7. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

B. PLACING MIX

1. General: Place asphalt concrete mixture on prepared surface, spread and strike-off. Spread mixture a minimum temperature of 225 deg. F (107 deg. C). Place inaccessible and small areas by hand. Place each course to required grade, cross-section, and compacted thickness.
2. Paver Placing: Place in strips not less than 10' wide, unless otherwise acceptable to Architect. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before place in surface course.

Bituminous Concrete Paving

3. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density and smoothness as other sections of asphalt concrete course. Clean contact surfaces and apply tack coat.

C. ROLLING

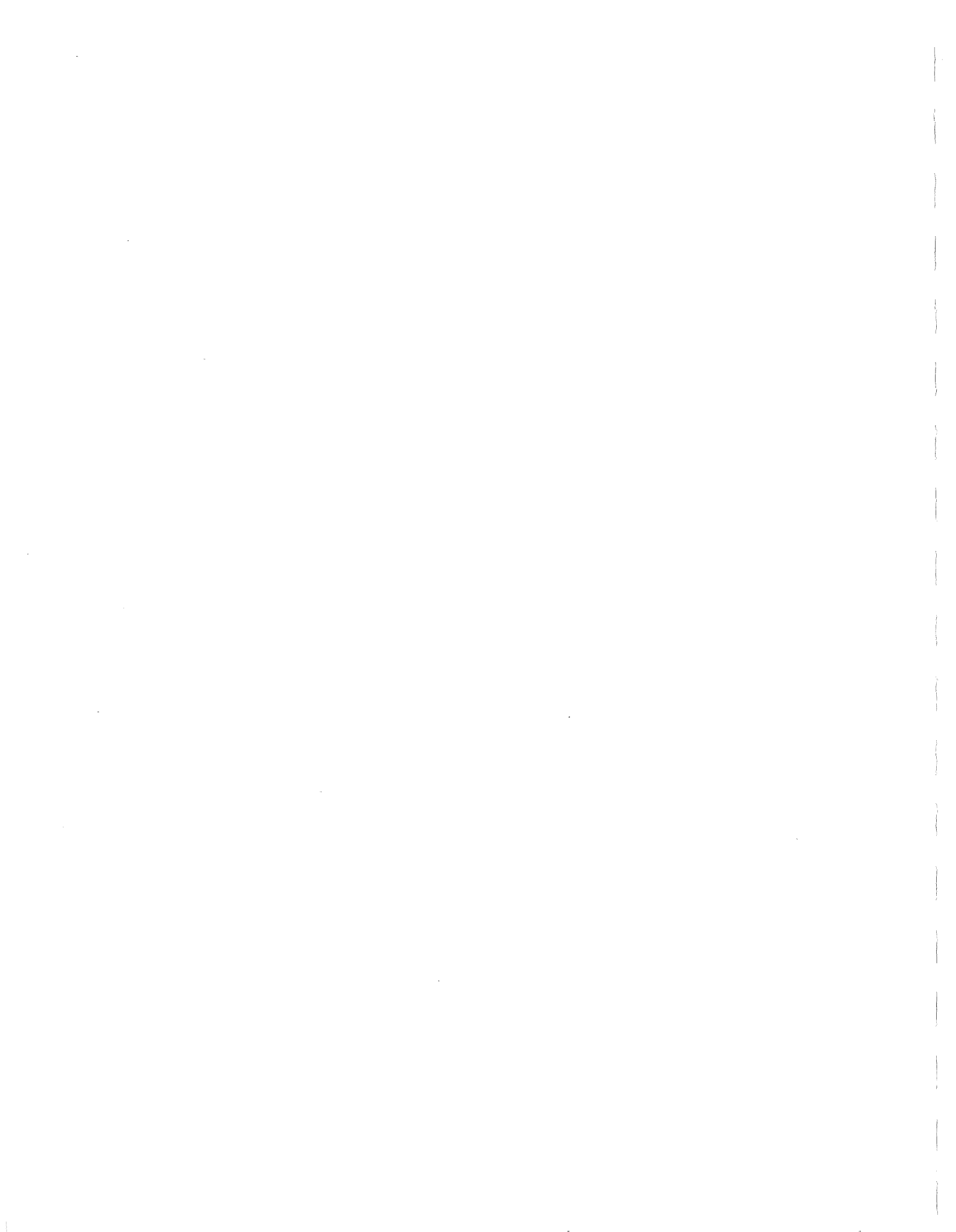
1. General: Begin rolling when mixture will bear roller weight without excessive displacement.
2. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.
3. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling, and repair displaced areas by loosening and filling, if required, with hot material.
4. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been thoroughly compacted.
5. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained maximum density.
6. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut-out such areas and fill with fresh, hot asphalt concrete. Compact by rolling to maximum surface density and smoothness.
7. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
8. Erect barricades to prevent paving from traffic until mixture has cooled enough not to become marked.

E. FIELD QUALITY CONTROL

Bituminous Concrete Paving

1. General: Test in-place asphalt concrete courses for compliance with requirements for thickness and surface smoothness. Repair or remove and replace unacceptable paving as directed by Architect.
2. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness:
  - a. Base Course: 1/2", plus or minus.
  - b. Surface Course: 1/4", plus or minus.
3. Surface Smoothness: Test finished surface of each asphalt concrete course for smoothness, using 10' straightedge applied parallel with, and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness.
  - a. Base Course Surface: 1/4".
  - b. Wearing Course Surface: 3/16".
  - c. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template, 1/4".
4. Check surface areas at intervals as directed by Architect.

END OF SECTION





---

---

**SECTION 02665**  
**Water Mains and Accessories**

**PART 1 GENERAL**

**1.01 SCOPE**

- A. This Section describes products to be incorporated into the water mains and requirements for the installation and use of these items. Furnish all products and perform all labor necessary to fulfill the requirements of these Specifications.
- B. General: Supply all products and perform all work in accordance with applicable American Society for Testing and Material (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), or other recognized standards. Latest revisions of all standards are applicable.

**1.02 QUALIFICATIONS**

If requested by the ENGINEER, submit evidence that manufacturers have consistently produced products of satisfactory quality and performance for a period of at least two years.

**1.03 SUBMITTALS**

Complete shop drawings and engineering data for all products shall be submitted to the ENGINEER in accordance with the requirements of Section 01340 of these Specifications.

**1.04 TRANSPORTATION AND HANDLING**

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Do not drop or dump materials. Any materials dropped or dumped will be subject to rejection without additional justification. Pipe handled on skids shall not be rolled or skidded against the pipe on the ground.
- B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front end loader. Do not use material damaged in handling. Slings, hooks or pipe tongs shall be padded and

used in such a manner as to prevent damage to the exterior coatings or internal lining of the pipe.

#### **1.05 OWNER FURNISHED MATERIALS (Not Used)**

#### **1.06 STORAGE AND PROTECTION**

- A. Store all pipe which cannot be distributed along the route. CONTRACTOR shall make arrangements for the use of suitable storage areas.
- B. Stored materials shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt or foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.
- C. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tier shall be kept off the ground on timbers, rails or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. At least two rows of timbers shall be placed between tiers and chocks, affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipe in adjacent tiers.
- D. Stored mechanical and push-on joint gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.
- E. Mechanical-joint bolts shall be handled and stored in such a manner that will ensure proper use with respect to types and sizes.

#### **1.07 QUALITY ASSURANCE**

The manufacturer shall provide written certification to the ENGINEER that all products furnished comply with all applicable requirements of these Specifications.

### **PART 2 PRODUCTS**

#### **2.01 PIPING MATERIALS AND ACCESSORIES**

- A. Ductile Iron Pipe (DIP)
  - 1. Ductile iron pipe shall be manufactured in accordance with AWWA C151 (latest edition). All pipe, except specials, shall be furnished in nominal

lengths of 18 to 20 feet. Sizes will be as shown on the Drawings. All pipe shall have a minimum pressure rating as indicated in the following table, and corresponding minimum wall thickness, unless otherwise specified or shown on the Drawings:

Pipe Sizes (inches)	Pressure Class (psi)
4 - 12	350
14 - 18	250
20	250
24	200
30 - 54	250
60 - 64	200

2. Flanged pipe minimum wall thickness shall be equal to Special Class 53. Flanges shall be furnished by the pipe manufacturer.
3. Pipe and fittings shall be cement lined in accordance with AWWA C104 (latest edition). Pipe and fittings shall be furnished with a bituminous outside coating.
4. Fittings shall be ductile iron and shall conform to AWWA C110 or AWWA C153 (latest edition) with a minimum rated working pressure of 250 psi or as indicated on plans.
5. Joints
  - a. Unless shown or specified otherwise, joints shall be push-on or restrained joint type for pipe and standard mechanical, push-on or restrained joints for fittings. Push-on and mechanical joints shall conform to AWWA C111 (latest edition). Restrained joints for pipe and fittings shall be American "FLEX-RING" or "LOK-RING", Clow "SUPER-LOCK", or U.S. Pipe "TR FLEX". No field welding of restrained joint pipe will be permitted. No mega lug type restraints are allowed on 24" and 30" water line.
  - b. Restrained joint pipe (RJP) on supports shall have bolted joints and shall be specifically designed for clear spans of at least 36 feet.
  - c. Flanged joints shall meet the requirements of ANSI B16.1, Class 125.

6. Provide the appropriate gaskets for mechanical and flange joints. Gaskets for flange joints shall be made of 1/8-inch thick, cloth reinforced rubber; gaskets may be ring type or full face type.
7. Provide the necessary bolts for mechanical, restrained and flange connections. Bolts for flange connections shall be steel with American Regular unfinished square or hexagon heads. Nuts shall be steel with American Standard Regular hexagonal dimensions, all as specified in ANSI B17.2. All bolts and all nuts shall be threaded in accordance with ANSI B1.1, Coarse Thread Series, Class 2A and 2B fit. Mechanical joint glands shall be ductile iron.
8. Acceptance will be on the basis of the ENGINEER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards.

B. Polyvinyl Chloride Pipe (PVC)

1. All PVC pipe shall have belled ends for push-on type jointing and shall conform to ASTM D 2241. The pipe shall have a Standard Dimension Ratio as indicated on the plans. Pipe shall be supplied in minimum lengths of 20 feet.
2. All fittings shall be of cast or ductile iron meeting the requirements of AWWA C110 or AWWA C153 (latest edition) with a minimum rated working pressure of 250 psi. Fittings shall be cement lined in accordance with AWWA C104. Fittings shall be furnished with a bituminous outside coating. Special adapters shall be provided as recommended by the manufacturer to adapt the PVC pipe to mechanical jointing with cast or ductile iron pipe, fittings, or valves.
3. Detection tape shall be provided over all PVC water mains.
4. Acceptance will be on the basis of the ENGINEER'S or OWNER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards, including the National Sanitation Foundation. Additionally, each piece of pipe shall be stamped "NSF Approved".

C. Polyvinyl Chloride Pipe (PVC) - (C-900)

1. All PVC pipe shall have belled ends for push-on type jointing and shall conform to AWWA C900, ductile iron pipe equivalent outside diameters. The pipe shall have a Dimension Ratio (DR) of **14** and shall be capable of withstanding a working pressure of **200** psi. Pipe shall be supplied in minimum lengths of 20 feet.
2. All fittings shall be of cast or ductile iron meeting the requirements of AWWA C110 or AWWA C153 with a minimum rated working pressure of **250** psi. Fittings shall be cement lined in accordance with AWWA C104. Fittings shall be furnished with a bituminous outside coating. Special adapters shall be provided, as recommended by the manufacturer, to adapt the PVC pipe to mechanical jointing with cast or ductile iron pipe, fittings or valves.
3. Detection tape shall be provided over all PVC water mains.
4. Acceptance will be on the basis of the ENGINEER'S inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards, including the National Sanitation Foundation. Additionally, each piece of pipe shall be stamped "NSF Approved".

D. Polyethylene Pipe and Fittings

1. The CONTRACTOR shall furnish and install high density polyethylene pipe meeting these Specifications at the locations indicated on the Plans and in other sections of these Specifications.
  - a. High Density polyethylene pipe shall be manufactured and tested in conformance to the requirements of the latest revision of the American Society for Testing and Materials designation ASTM D-3350 "Polyethylene Plastic Pipe and Fittings Materials".
  - b. High density Polyethylene pipe shall have a grade designation of PE 3406 and a cell classification designation of P 355434C.
  - c. High density polyethylene pipe shall be joined by means of butt fusion.
  - d. Fittings for high density polyethylene pipe shall be manufactured of the same materials as the pipe. Unless otherwise indicated, all fittings shall be joined to the pipe by butt fusion techniques.

E. Ball and Socket River Crossing Pipe

1. Joints for ductile iron river crossing pipe shall be flexible, ball and socket type, boltless joints with rubber gaskets conforming to the ANSI specification for "Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings", A 21.11 (AWWA C11), Latest Revision.

2.02 VALVES

A. Gate Valves (GV)

1. 3-Inches in Diameter and Smaller: Gate valves shall be bronze, heavy duty, rising stem, wedge type with screwed or union bonnet. Valve ends shall be threaded or solder type as appropriate. Valves shall have a minimum 200 psi working pressure for water (125 psi working pressure for steam). Valves shall be made in the U.S.A. Gate valves shall be equal to Crane No. 428 (threaded) or Crane No. 1334 (solder end).
2. 4-Inches Through 12-Inches in Diameter: Gate valves 4-inches through 12-inches shall be resilient wedge type conforming to the requirements of AWWA C509 rated for 200 psi working pressure.
  - a. Valves shall be provided with two O-ring stem seals with one O-ring located above and one O-ring below the stem collar. The area between the O-rings shall be filled with lubricant to provide lubrication to the thrust collar bearing surfaces each time the valve is operated. At least one anti-friction washer shall be utilized to further minimize operating torque. All seals between valve parts, such as body and bonnet, bonnet and bonnet cover, shall be flat gaskets or O-rings.
  - b. The valve gate shall be made of cast iron having a vulcanized, synthetic rubber coating, or a seat ring attached to the disc with retaining screws. Sliding of the rubber on the seating surfaces to compress the rubber will not be allowed. The design shall be such that compression-set of the rubber shall not affect the ability of the valve to seal when pressure is applied to either side of the gate. The sealing mechanism shall provide zero leakage at the water working pressure when installed with the line flow in either direction.
  - c. All internal ferrous surfaces shall be coated with epoxy to a minimum thickness of 4 mils. The epoxy shall be non-toxic, impart no taste to the water and shall conform to AWWA C550, latest revision.

- d. Gate valves 4 through 12-inches shall be manufactured by American-Darling, Mueller or M & H Valve.

B. Butterfly Valves (BV)

1. Butterfly valves shall be resilient seated, short body design, and shall be designed, manufactured, and tested in accordance with all requirements of AWWA C504, and as modified below. Valves shall be designed for a rated working pressure of 250 psi. Class B, AWWA C504 Section 5.2 testing requirements are modified as follows:
  - a. the leakage test shall be performed at a pressure of 250 psi;
  - b. the hydrostatic test shall be performed at a pressure of 500 psi; and
  - c. proof of design tests shall be performed and certification of such proof of design test shall be provided to the Engineer.
2. Valve bodies shall be ductile iron conforming to ASTM A 536, Grade 65-45-12 or ASTM A 126, Grade B cast iron. Shafts and shaft hardware shall be ASTM A 564, Type 630 stainless steel, machined and polished. Valve discs shall be ductile iron, ASTM A 536, Grade 65-45-12. The resilient valve seat shall be located either on the valve disc or in the valve body and shall be fully field adjustable and field replaceable.
3. Valves shall be installed with the valve shafts horizontal. Valves and actuators shall have seals on all shafts and gaskets on valve actuator covers to prevent the entry of water. Actuator mounting brackets shall be totally enclosed and shall have gasket seals.
4. Actuators
  - a. Valves shall be equipped with traveling nut, self-locking type actuators designed, manufactured and tested in accordance with AWWA C504. Actuators shall be capable of holding the disc in any position between full open and full closed without any movement or fluttering of the disc.
  - b. Actuators shall be furnished with fully adjustable mechanical stop-limiting devices. Actuators that utilize the sides of the actuator housing to limit disc travel are unacceptable.
  - c. Valve actuators shall be capable of withstanding a minimum of 450 foot pounds of input torque in either the open or closed position without damage.

5. Operators: Valves for buried service shall have a nut type operator and shall be equipped with a valve box and stem extension, as required.
6. Valve ends shall be mechanical joint type, except where flanged or restrained joint ends are shown. Flange joints shall meet the requirements of ANSI B16.1, Class 125. MJ Joint ends shall be restrained were called for using American MJ coupled joint or approved equal.
7. Butterfly valves shall be manufactured by Mueller, M & H Valve, DeZurik, or Pratt.

#### C. Check Valves

1. Check valves shall be iron body, bronze mounted. They shall be outside weight and lever type (unless specified otherwise by the ENGINEER or indicated as such on the Plans) with bronze seat, hinge and guide busting. Unless other wise indicated, check valves for interior use shall be flanged and those for exterior use shall be mechanical joint.

#### D. Blowoff Assemblies

1. Blowoff assemblies shall be installed in accordance with the details and Specifications at the locations shown on the Plans or as directed by the ENGINEER for the purpose of removing any obstacles or impurities from the main. The piping shall be the size indicated on the Plans PVC with a standard gate valve sized as indicated and 2 piece cast iron valve box and lid marked "Water". The lid shall be secured with a pentagon lock nut.

### 2.03 FIRE HYDRANTS (FH)

- A. All fire hydrants shall conform to the requirements of AWWA C502 for 250 psi working pressure. Hydrants shall be the compression type, closing with line pressure. The valve opening shall not be less than [5-1/4-inches].
- B. In the event of a traffic accident, the hydrant barrel shall break away from the standpipe at a point above grade and in a manner which will prevent damage to the barrel and stem, preclude opening of the valve, and permit rapid and inexpensive restoration without digging or cutting off the water.
- C. The means for attaching the barrel to the standpipe shall permit facing the hydrant a minimum of eight different directions.



- D. Hydrants shall be fully bronze mounted with all working parts of bronze. Valve seat ring shall be bronze and shall screw into a bronze retainer.
- E. All working parts, including the seat ring shall be removable through the top without disturbing the barrel of the hydrant.
- F. The operating nut shall match those on the existing hydrants. The operating threads shall be totally enclosed in an operating chamber, separated from the hydrant barrel by a rubber O-ring stem seal and lubricated by a grease or an oil reservoir.
- G. Hydrant shall be a non-freezing design and be provided with a simple, positive, and automatic drain which shall be fully closed whenever the main valve is opened.
- H. Hose and pumper connections shall be breech-locked, pinned, or threaded and pinned to seal them into the hydrant barrel. Each hydrant shall have two 2-1/2-inch hose connections and one 4-1/2-inch pumper connection, all with National Standard threads and each equipped with cap and non-kinking chain.
- I. Hydrants shall be furnished with a mechanical joint connection to the spigot of the 6-inch hydrant lead.
- J. Minimum depth of bury shall be 4.5 feet. Provide extension section where necessary for proper vertical installation and in accordance with manufacturer's recommendations.
- K. All outside surfaces of the barrel above grade shall be painted with enamel equal to Koppers Glamortex 501 in a color to be selected by the Owner.
- L. Hydrants shall be traffic model and shall be Mueller Super Centurion or approved equal.

#### **2.04 VALVE BOXES (VB) AND EXTENSION STEMS**

- A. All valves shall be equipped with valve boxes. The valve boxes shall be cast iron two-piece screw type with drop covers. Valve boxes shall have a 5.25-inch inside diameter. Valve box covers shall weigh a minimum of 13 pounds. The valve boxes shall be adjustable to 6-inches up or down from the nominal required cover over the pipe. Valve boxes shall be of sufficient length that bottom flange of the lower belled portion of the box is below the valve operating nut. Ductile or cast iron extensions shall be provided as necessary. Covers shall have "WATER

VALVE" or "WATER" cast into them. Valve boxes shall be manufactured in the United States.

- B. All valves shall be furnished with extension stems, as necessary, to bring the operating nut to within 30-inches of the top of the valve box. Connection to the valve shall be with a wrench nut coupling and a set screw to secure the coupling to the valve's operating nut. The coupling and square wrench nut shall be welded to the extension stem. Extension stems shall be equal to Mueller A-26441 or M & H Valve Style 3801.
- C. All Valve Boxes shall be installed with Concrete Collars as Indicated on the Detail Sheet.

#### **2.05 VALVE MARKERS (VM)**

The CONTRACTOR shall provide a concrete valve marker as detailed on the Drawings for each valve installed. Valve markers shall be stamped "Water".

#### **2.06 TAPPING SLEEVES AND VALVES (TS&V)**

Tapping sleeves shall be cast or ductile iron of the split-sleeve, mechanical joint type. The CONTRACTOR shall be responsible for determining the outside diameter of the pipe to be connected to prior to ordering the sleeve. Valves shall be gate valves furnished in accordance with the specifications shown above, with flanged connection to the tapping sleeve and mechanical joint connection to the branch pipe. The tapping sleeve and valve shall be supplied by the valve manufacturer. Tapping sleeves shall be equal to American-Darling, Mueller or M & H Valve.

#### **2.07 TAPPING SADDLES**

Tapping saddles shall be ductile iron body type with O-ring gasket and alloy steel straps. Connection shall be flanged or mechanical joint as detailed on the Drawings. Tapping saddles shall be equal to ACIPCO A-10920.

#### **2.08 CORPORATION COCKS AND CURB STOPS**

Corporation cocks and curb stops shall be ground key type, shall be made of bronze conforming to ASTM B 61 or B 62, and shall be suitable for the working pressure of the system. Ends shall be suitable for flared tube compression type joint. Threaded ends for inlet and outlet of corporation cocks shall conform to AWWA C800; coupling nut for connection to flared copper tubing shall conform

to ANSI B16.26. Corporation cocks and curb stops shall be manufactured by Mueller or Ford or approved equal.

## 2.09 AIR VALVES

- A. Air Release Valves: Air release valves shall be one of the following types:
1. The air release valve shall automatically release air accumulations from the pipeline due to the action of the float. When the air valve body fills with air, the float falls freely from the orifice to allow the air to escape to the atmosphere. When all the air has been exhausted from the valve body, the float will be buoyed up to seat against the orifice and prevent water from being exhausted from the valve. The valve body and cover shall be constructed of cast iron (ASTM A 126-B). A synthetic orifice button shall be affixed to the valve cover to provide a non-corrosive seat for the float. The float shall be constructed of stainless steel. A resilient, Buna-N seat shall be attached to the float for drop-tight closure. The float shall be free floating within the valve body. Valve orifice size shall be as shown on the Drawings.
  2. The air release valve shall automatically release air accumulations from the pipeline due to the action of the float and lever mechanism. When the air valve body fills with air, the float falls. Through the leverage mechanism, this causes the resilient seat to open the orifice and allow the air to escape to the atmosphere. When all the air has been exhausted from the valve body, the float will be buoyed up. Through the leverage mechanism, this will cause the resilient seat to close the orifice, preventing water from being exhausted from the valve. The valve body and cover shall be constructed of cast iron (ASTM A 126-B). The float shall be constructed of stainless steel and attached to a stainless steel lever mechanism. A resilient, Buna-N seat shall be attached to the lever mechanism for drop-tight closure. Valve orifice size shall be as shown on the Drawings.
- B. Air/Vacuum Valve: The air/vacuum valve shall discharge large amounts of air as the pipeline fills and allow air to enter the pipeline as it drains or in the event of vacuum conditions. The valve shall operate by means of a non-collapsible stainless steel float which seals an orifice. As air enters the valve the float shall drop from the orifice and allow the air to escape. As water rises in the valve, the float will again seal the orifice. The valve will be of such design that the float cannot blow shut at any air velocity. All working parts shall be of stainless steel. The inside of the valve body shall be epoxy coated. Valve inlet size shall be as shown on the Drawings.

- C. **Combination Air Valves:** Combination air valves shall combine the features of an air release valve and an air/vacuum valve and shall be of one of the following types:
1. Valve shall consist of an air/vacuum valve described in paragraph B. above, with an air release valve described in A. above tapped into its body. The valve shall be of two-piece body design with an isolation gate valve separating the two valves.
  2. Valve shall be single body, double orifice, allowing large volumes of air to escape out the larger diameter air and vacuum orifice when filling a pipeline and closes watertight when the liquid enters the valve. During large orifice closure, the smaller diameter air release orifice will open to allow small pockets of air to escape automatically and independently of the large orifice. The large air/vacuum orifice shall also allow large volumes of air to enter through the orifice during pipeline drainage to break the vacuum. The Buna-N seats must be fastened to the valve, without distortion, for drop-tight shut-off. The float shall be stainless steel. Valve sizes shall be as shown on the Drawings.
- D. **Surge Check Valve:** Where shown on the Drawings or specified, provide a surge check valve on the inlet of the air/vacuum valve. The surge check valve shall be normally open, spring loaded valve consisting of a body, seat and plug bolted to the inlet of the air/vacuum valve. The surge check shall operate on the interphase between the kinetic energy and relative velocity flows of air and water, allowing air to pass through but water shall close the surge check, reducing the rate of water flow by means of throttling orifices in the plug to prevent shock closure of the air/vacuum valve. The surge check orifices must be an adjustable type to suit operating conditions in the field.
- E. All air valves and accessories shall be supplied by a single manufacturer and shall be G.A. Industries, APCO, Crispin or Val-Matic.

## 2.10 METER SETTERS

The meter setter shall be a tandem coppersetter as shown on the standard detail drawings with 3/4" double purpose ends and be 15" high with padlock wing. It shall be all purpose, designed for 5/8" x 3/4" meter and be of sufficient height to raise meters above the bottom of the meter box. The meter setter shall be Ford, or equal. Meter setters shall have an inverted key inlet valve.

Setters shall be installed so that the meters are centered in the meter box.

The water service line shall be extended a minimum of 18" beyond the meter box on the customer end. The end of the extension shall be capped or plugged to prevent entry of foreign material until the connection is made.

## **2.11 WATER METERS**

Water meter shall be cold water displacement type meeting all requirement of AWWA C700-77. The meter sizes shall be 5/8-inch x 3/4-inch meters for 3/4" service rated at a flow of 20 gpm and 1" meters for 1" service rated at a flow of 50 gpm. Meters shall be of frost-proof design and be rotating disk type. The meters shall be equipped with a straight-reading register recording in U.S. Gallons hermetically sealed to prevent fogging and with a removable corrosion resistant strainer screen between the outer case and measuring chamber. Register shall be equipped with a device to afford capability for accurately testing each meter according to AWWA Standards. The body case shall have the manufacturer's serial number imprinted thereon and have raised markings to indicate the direction of flow.

## **2.12 HYDRANT TEES (Not Used)**

## **2.13 ANCHOR COUPLINGS (Not Used)**

## **2.14 VALVE KEYS**

The CONTRACTOR shall provide to the OWNER one valve key for every five valves provided, but no more than three and not less than one valve key. Valve keys shall be 72-inches long with a tee handle and a 2-inch square wrench nut. Valve keys shall be furnished by the valve manufacturer. Valve keys shall be equal to Mueller A-24610 or ACIPCO No. 1303.

## **2.15 CONCRETE**

Concrete shall have a compressive strength of not less than 3000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5-inches. For job mixed concrete, submit the concrete mix design for approval by the Engineer. Ready-mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

## **PART 3 EXECUTION**

### **3.01 EXISTING UTILITIES AND OBSTRUCTIONS**

- A. The Drawings indicate utilities or obstructions that are known to exist according to the best information available to the OWNER. The CONTRACTOR shall call the agencies or departments that own and/or operate utilities in the vicinity of the construction work site at least 72 hours (three business days) prior to construction to verify the location of the existing utilities.
  
- B. Existing Utility Location: The following steps shall be exercised to avoid interruption of existing utility service.
  - 1. Provide the required notice to the utility owners and allow them to locate their facilities. Field utility locations are valid for only 10 days after original notice. The CONTRACTOR shall ensure, at the time of any excavation, that a valid utility location exists at the point of excavation.
  
  - 2. Expose the facility, for a distance of at least 200 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have repaired, any damage to utilities resulting from locating or exposing their true location.
  
  - 3. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.
  
  - 4. Maintain a log identifying when phone calls were made, who was called, area for which utility relocation was requested and work order number issued, if any. The CONTRACTOR shall provide the ENGINEER an updated copy of the log bi-weekly, or more frequently if required.
  
- C. Conflict with Existing Utilities
  - 1. Horizontal Conflict: Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed water main does not permit safe installation of the water main by the use of sheeting, shoring, tying-back, supporting, or temporarily suspending service of the parallel or crossing facility. The CONTRACTOR may change the proposed alignment of the water main to avoid horizontal conflicts if the new alignment remains within the available right-of-way or easement, complies with regulatory agency requirements and after a written request to and subsequent approval by the ENGINEER or OWNER. Where such relocation of the water main is denied by the ENGINEER or OWNER, the CONTRACTOR shall arrange to have the utility, main, or service relocated.

2. Vertical Conflict: Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed water main does not permit the crossing without immediate or potential future damage to the utility, main, service, or the water main. The CONTRACTOR may change the proposed grade of the water main to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the ENGINEER or OWNER. Where such relocation of the water main is denied by the ENGINEER or OWNER, the CONTRACTOR shall arrange to have the utility, main, or service relocated.
- D. Electronic Locator: Have available at all times an electronic pipe locator and a magnetic locator, in good working order, to aid in locating existing pipe lines or other obstructions.
- E. Water and Sewer Separation
1. Water mains should maintain a minimum 10 foot edge-to-edge separation from sewer lines, whether gravity or pressure. If the main cannot be installed in the prescribed easement or right-of-way and provide the 10 foot separation, the separation may be reduced, provided the bottom of the water main is a minimum of 18-inches above the top of the sewer. Should neither of these two separation criteria be possible, the water main shall be installed below the sewer with a minimum vertical separation of 18-inches.
  2. The water main, when installed below the sewer, shall be encased in concrete with a minimum 6-inch concrete depth to the first joint in each direction. Where water mains cross the sewer, the pipe joint adjacent to the pipe crossing the sewer shall be cut to provide maximum separation of the pipe joints from the sewer.
  3. No water main shall pass through, or come in contact with, any part of a sanitary sewer manhole.

### **3.02 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS**

- A. Install pipe lines and appurtenances along highways, streets and roadways in accordance with the applicable regulations of, and permits issued by, the Department of Transportation, local county and city with reference to construction operations, safety, traffic control, road maintenance and repair.

## B. Traffic Control

1. The CONTRACTOR shall provide, erect and maintain all necessary barricades, suitable and sufficient lights and other traffic control devices; provide qualified flagmen where necessary to direct traffic; take all necessary precautions for the protection of the work and the safety of the public.
2. Construction traffic control devices and their installation shall be in accordance with the current Manual On Uniform Traffic Control Devices for Streets and Highways and the Department of Highways Specifications, latest edition.
3. Placement and removal of construction traffic control devices shall be coordinated with the Department of Transportation, local county and city, a minimum of 48 hours in advance of the activity.
4. Placement of construction traffic control devices shall be scheduled ahead of associated construction activities. Construction time in street right-of-way shall be conducted to minimize the length of time traffic is disrupted. Construction traffic control devices shall be removed immediately following their useful purpose. Traffic control devices used intermittently, such as "Flagmen Ahead", shall be removed and replaced when needed.
5. Existing traffic control devices within the construction work zone shall be protected from damage. Traffic control devices requiring temporary relocation shall be located as near as possible to their original vertical and horizontal locations. Original locations shall be measured from reference points and recorded in a log prior to relocation. Temporary locations shall provide the same visibility to affected traffic as the original location. Relocated traffic control devices shall be reinstalled in their original locations as soon as practical following construction.
6. Construction traffic control devices shall be maintained in good repair and shall be clean and visible to affected traffic for daytime and nighttime operation. Traffic control devices affected by the construction work zone shall be inspected daily.
7. Construction warning signs shall be black legend on an orange background. Regulatory signs shall be black legend on a white background. Construction sign panels shall meet the minimum reflective requirements of the Department of Transportation, local county and city. Sign panels shall be of durable materials capable of maintaining their color, reflective character and legibility during the period of construction.



8. Channelization devices shall be positioned preceding an obstruction at a taper length as required by the current Manual On Uniform Traffic Control Devices for Streets and Highways, as appropriate for the speed limit at that location. Channelization devices shall be patrolled to insure that they are maintained in the proper position throughout their period of use.

C. Construction Operations

1. Perform all work along highways, streets and roadways to minimize interference with traffic.
2. Stripping: Where the pipe line is laid along road right-of-way, strip and stockpile all sod, topsoil and other material suitable for right-of-way restoration.
3. Trenching, Laying and Backfilling: Do not open the trench any further ahead of pipe laying operations than is necessary. Backfill and remove excess material immediately behind laying operations. Complete excavation and backfill for any portion of the trench in the same day.
4. Shaping: Reshape damaged slopes, side ditches, and ditch lines immediately after completing backfilling operations. Replace topsoil, sod and any other materials removed from shoulders.
5. Construction operations shall be limited to 400 feet along areas within KYDOT jurisdiction, including clean-up and utility exploration.

- D. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner which obstructs traffic. Sweep all scattered excavated material off of the pavement in a timely manner.

- E. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.

1. The CONTRACTOR shall make provisions for handling all flows in existing creeks, ditches, sewers and trenches by pipes, flumes or other approved methods at all times when his operations would, in any way, interfere with the natural functioning of said creeks, ditches, sewers and drains. The CONTRACTOR shall at all times during construction provide and maintain sufficient equipment for the disposal of all water which enters the excavation,

both in open cut trenches and in tunnels, to render such excavation firm and dry, until the structures to be built thereon are completed.

- F. Landscaping Features: Landscaping features shall include, but are not necessarily limited to: fences; property corners; cultivated trees and shrubbery; manmade improvements; subdivision and other signs within the right-of-way and easement. The CONTRACTOR shall take extreme care in moving landscape features and promptly re-establishing these features.
- G. Maintaining Highways, Streets, Roadways and Driveways
1. Maintain streets, highways, roadways and driveways in suitable condition for movement of traffic until completion and final acceptance of the Work. All excavation shall be conducted in a manner to the last interruption to traffic.
  2. During the time period between pavement removal and completing permanent pavement replacement, maintain highways, streets and roadways by the use of steel running plates. Running plate edges shall have asphalt placed around their periphery to minimize vehicular impact. The backfill above the pipe shall be compacted as specified elsewhere up to the existing pavement surface to provide support for the steel running plates.
  3. Furnish a road grader or front-end loader for maintaining highways, streets, and roadways. The grader or front-end loader shall be available at all times.
  4. Immediately repair all driveways that are cut or damaged. Maintain them in a suitable condition for use until completion and final acceptance of the Work. Driveways and other private and public access routes shall not be kept blocked or closed by the CONTRACTOR for more than a reasonable period of time without prior written approval from the property owner or controlling authority.
  5. Maintenance of all traffic shall be in accordance with any requirements of the local road department(s) and/or the Kentucky Department of Transportation. It is the responsibility of the CONTRACTOR to coordinate all work with and notify the above-named agencies, and to provide all necessary signs, barricades, lights, flagmen, and other items for maintenance of traffic.

Public travel shall be maintained, unrestricted, wherever and whenever possible. Detours shall be provided when so directed by the appropriate agency. Adequate precautions shall be taken to provide for the safety of both vehicular and pedestrian traffic. Emergency vehicles shall be provided access to construction area at all times.

Unless specifically directed otherwise by the ENGINEER, not more than five hundred (500') feet of trench shall be opened ahead of the pipe laying, and not more than five hundred (500') feet of open ditch shall be left behind the pipe laying. All barricades, lanterns, watchmen, 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.

When so required, or when directed by the ENGINEER, only one-half (1/2) of the street crossing and road crossings shall be excavated before placing temporary bridges over the side excavated for the convenience of the traveling public.

All backfilled ditches shall be maintained in such manner that they will offer no hazard to 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 bridges at the direction of the ENGINEER. Excavated materials shall be disposed of so as to cause the least interference, and in every case the deposition of excavated materials shall be satisfactory to the ENGINEER.

#### H. Property Protection

1. Extreme care shall be taken to protect trees, fences, poles, crops and all other property from damage unless their removal is authorized by the ENGINEER. Any damaged property shall be restored to as good or better than original condition and shall meet with the approval of the ENGINEER and OWNER.
2. The CONTRACTOR has the right to fully utilize the easement unless specifically stated otherwise on the plans or by the ENGINEER. If any irreplaceable trees, fences, poles or crops, such as tobacco, corn, soy beans and such (excluding pasture land), occur on the easement the CONTRACTOR shall obtain the ENGINEER's and OWNER's approval prior to removing or otherwise causing damage to any of these items.
3. Beyond the limits of the easement the CONTRACTOR shall be responsible for any damage caused by his operations and/or his personnel.

**3.03 PIPE DISTRIBUTION**

- A. Pipe shall be distributed and placed in such a manner that will not interfere with traffic.
- B. No pipe shall be strung further along the route than 1000 feet beyond the area in which the CONTRACTOR is actually working without written permission from the OWNER.
- C. No street or roadway may be closed for unloading of pipe without first obtaining permission from the proper authorities. The CONTRACTOR shall furnish and maintain proper warning signs and obstruction lights for the protection of traffic along highways, streets and roadways upon which pipe is distributed.
- D. No distributed pipe shall be placed inside drainage ditches.
- E. Distributed pipe shall be placed as far as possible from the roadway pavement, but no closer than five feet from the roadway pavement, as measured edge-to-edge.

**3.04 LOCATION AND GRADE**

- A. The Drawings show the alignment of the water main and the location of valves, hydrants and other appurtenances.
- B. Construction Staking
  - 1. The base lines for locating the principal components of the work and a bench marks adjacent to the work are shown on the Drawings if Available. Base lines shall be defined as the line to which the location of the water main is referenced, i.e., edge of pavement, road centerline, property line, right-of-way or survey line. The CONTRACTOR shall be responsible for performing all survey work required for constructing the water main, including the establishment of base lines and any detail surveys needed for construction. This work shall include the staking out of permanent and temporary easements to insure that the CONTRACTOR is not deviating from the designated easements.
  - 2. The level of detail of survey required shall be that which the correct location of the water main can be established for construction and verified by the ENGINEER or OWNER. Where the location of components of the water main, e.g. tunnels and fittings, are not dimensioned, the establishment on the location of these components shall be based upon scaling these locations

from the Drawings with relation to readily identifiable land marks, e.g., survey reference points, power poles, manholes, etc.

C. Reference Points

1. The CONTRACTOR shall take all precautions necessary, which includes, but is not necessarily limited to, installing reference points, in order to protect and preserve the centerline or baseline established by the ENGINEER.
2. Reference points shall be placed, at or no more than three feet, from the outside of the construction easement or right-of-way. The location of the reference points shall be recorded in a log with a copy provided to the ENGINEER and OWNER for use, prior to verifying reference point locations. Distances between reference points and the manhole centerlines shall be accurately measured to 0.01 foot.
3. The CONTRACTOR shall give the ENGINEER reasonable notice that reference points are set. The reference point locations must be verified by the ENGINEER prior to commencing clearing and grubbing operations.

- D. After the CONTRACTOR locates and marks the water main centerline or baseline, the CONTRACTOR shall perform clearing and grubbing.
- E. Construction shall begin at a connection location and proceed without interruption. Multiple construction sites shall not be permitted without written authorization from the ENGINEER for each site.
- F. The CONTRACTOR shall be responsible for any damage done to reference points, base lines, center lines and temporary bench marks, and shall be responsible for the cost of re-establishment of reference points, base lines, center lines and temporary bench marks as a result of the operations.

**3.05 LAYING AND JOINTING PIPE AND ACCESSORIES**

- A. Lay all pipe and fittings to accurately conform to the lines and grades established by the ENGINEER.
- B. Pipe Installation
1. Proper implements, tools and facilities shall be provided for the safe performance of the Work. All pipe, fittings, valves and hydrants shall be lowered carefully into the trench by means of slings, ropes or other suitable

tools or equipment in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.

2. All pipe, fittings, valves, hydrants and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the ENGINEER, who may prescribe corrective repairs or reject the materials.
3. All lumps, blisters and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and free from dirt, sand, grit or any foreign materials before the pipe is laid. No pipe containing dirt shall be laid.
4. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. No debris, tools, clothing or other materials shall be placed in the pipe at any time.
5. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
6. It is not mandatory to lay pipe with the bells facing the direction in which work is progressing.
7. Applying pressure to the top of the pipe, such as with a backhoe bucket, to lower the pipe to the proper elevation or grade, shall not be permitted.
8. Detection tape shall be buried 4 to 10-inches deep. Should detection tape need to be installed deeper, the CONTRACTOR shall provide 3-inch wide tape. In no case shall detection tape be buried greater than 20-inches from the finish grade surface.

C. Alignment and Gradient

1. Lay pipe straight in alignment and gradient or follow true curves as nearly as practicable. Do not deflect any joint more than the maximum deflection recommended by the manufacturer.
2. Maintain a transit, level and accessories on the job to lay out angles and ensure that deflection allowances are not exceeded.

- D. Expediting of Work: Excavate, lay the pipe, and backfill as closely together as possible. Do not leave unjointed pipe in the trench overnight. Backfill and compact the trench as soon as possible after laying and jointing is completed. Cover the exposed end of the installed pipe each day at the close of work and at all other times when work is not in progress. If necessary to backfill over the end of an uncompleted pipe or accessory, close the end with a suitable plug, either push-on, mechanical joint, restrained joint or as approved by the ENGINEER.
- E. Joint Assembly
1. Push-on, mechanical, flange and restrained type joints shall be assembled in accordance with the manufacturer's recommendations.
  2. The CONTRACTOR shall inspect each pipe joint within 200 feet on either side of main line valves to insure 100 percent seating of the pipe spigot, except as noted otherwise.
  3. Each restrained joint shall be inspected by the CONTRACTOR to ensure that it has been "homed" 100 percent.
  4. The CONTRACTOR shall internally inspect each pipe joint to insure proper assembly for pipe 24-inches in diameter and larger after the pipe has been brought to final alignment.
- F. Cutting Pipe: Cut ductile iron pipe using an abrasive wheel saw. Cut PVC pipe using a suitable saw; remove all burrs and smooth the end before jointing. The CONTRACTOR shall cut the pipe and bevel the end, as necessary, to provide the correct length of pipe necessary for installing the fittings, valves, accessories and closure pieces in the correct location. Only push-on or mechanical joint pipe shall be cut.
- G. Polyethylene Encasement: Installation shall be in accordance with AWWA C105 and the manufacturer's instructions. All ends shall be securely closed with tape and all damaged areas shall be completely repaired to the satisfaction of the Engineer.
- H. Valve and Fitting Installation
1. Prior to installation, valves shall be inspected for direction of opening, number of turns to open, freedom of operation, tightness of pressure-containing bolting and test plugs, cleanliness of valve ports and especially seating surfaces, handling damage and cracks. Defective valves shall be corrected or held for inspection by the ENGINEER. Valves shall be closed before being installed.

2. Valves, fittings, plugs and caps shall be set and joined to the pipe in the manner specified in this Section for cleaning, laying and joining pipe, except that 12-inch and larger valves shall be provided with special support, such as treated timbers, crushed stone, concrete pads or a sufficiently tamped trench bottom so that the pipe will not be required to support the weight of the valve. Valves shall be installed in the closed position.
  3. A valve box shall be provided on each underground valve. They shall be carefully set, centered exactly over the operating nut and truly plumbed. The valve box shall not transmit shock or stress to the valve. The bottom flange of the lower belled portion of the box shall be placed below the valve operating nut. This flange shall be set on brick, so arranged that the weight of the valve box and superimposed loads will bear on the base and not on the valve or pipe. Extension stems shall be installed where depth of bury places the operating nut in excess of 30-inches beneath finished grade so as to set the top of the operating nut 30-inches below finished grade. The valve box cover shall be flush with the surface of the finished area or such other level as directed by the ENGINEER.
  4. In no case shall valves be used to bring misaligned pipe into alignment during installation. Pipe shall be supported in such a manner as to prevent stress on the valve.
  5. A valve marker shall be provided for each underground valve. Unless otherwise detailed on the Drawings or directed by the ENGINEER, valve markers shall be installed 6-inches inside the right-of-way or easement.
- I. Hydrant Installation
1. Prior to installation, inspect all hydrants for direction of opening, nozzle threading, operating nut and cap nut dimensions, tightness of pressure-containing bolting, cleanliness of inlet elbow, handling damage and cracks. Defective hydrants shall be corrected or held for inspection by the ENGINEER.
  2. All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the roadway, with pumper nozzle facing the roadway, except that hydrants having two-hose nozzles 90 degrees apart shall be set with each nozzle facing the roadway at an angle of 45 degrees.



3. Hydrants shall be set to the established grade, with the centerline of the lowest nozzle at least 12-inches above the ground or as directed by the ENGINEER.
4. Each hydrant shall be connected to the main with a 6-inch branch controlled by an independent 6-inch valve. When a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand from the bottom of the trench to at least 6-inches above the drain port opening in the hydrant to a distance of 12-inches around the elbow.
5. When a hydrant is set in clay or other impervious soil, a drainage pit 2 x 2 x 2 feet shall be excavated below each hydrant and filled with coarse gravel or crushed stone mixed with coarse sand under and around the elbow of the hydrant and to a level of 6-inches above the drain port.
6. Hydrants shall be located as shown on the Drawings or as directed by the ENGINEER. In the case of hydrants that are intended to fail at the ground-line joint upon vehicle impact, specific care must be taken to provide adequate soil resistance to avoid transmitting shock moment to the lower barrel and inlet connection. In loose or poor load bearing soil, this may be accomplished by pouring a concrete collar approximately 6-inches thick to a diameter of 24-inches at or near the ground line around the hydrant barrel.

### 3.06 CONNECTIONS TO WATER MAINS

- A. Make connections to existing pipe lines with tapping sleeves and valves, unless specifically shown otherwise on the Drawings.
- B. Location: Before laying pipe, locate the points of connection to existing water mains and uncover as necessary for the ENGINEER or OWNER to confirm the nature of the connection to be made.
- C. Interruption of Services: Make connections to existing water mains only when system operations permit. Operate existing valves only with the specific authorization and direct supervision of the Owner.
- D. Tapping Saddles and Tapping Sleeves
  1. Holes in the new pipe shall be machine cut, either in the field or at the factory. No torch cutting of holes shall be permitted.

2. Prior to attaching the saddle or sleeve, the pipe shall be thoroughly cleaned, utilizing a brush and rag, as required.
  3. Before performing field machine cut, the watertightness of the saddle or sleeve assembly shall be pressure tested. The interior of the assembly shall be filled with water. An air compressor shall be attached, which will induce a test pressure as specified in this Section. No leakage shall be permitted for a period of five minutes.
  4. After attaching the saddle or sleeve to an existing main, but prior to making the tap, the interior of the assembly shall be disinfected. All surfaces to be exposed to potable water shall be swabbed or sprayed with a one percent hypochlorite solution.
- E. Connections Using Solid Sleeves: Where connections are shown on the Drawings using solid sleeves, the CONTRACTOR shall furnish materials and labor necessary to make the connection to the existing pipe line.
- F. Connections Using Couplings: Where connections are shown on the Drawings using couplings, the CONTRACTOR shall furnish materials and labor necessary to make the connection to the existing pipe line, including all necessary cutting, plugging and backfill.

**3.07 VALVE BOX ADJUSTMENT (Not Used)**

**3.08 THRUST RESTRAINT**

- A. Provide restraint at all points where hydraulic thrust may develop.
- B. Concrete Blocking
1. Provide concrete blocking for all bends, tees, valves, and other points where thrust may develop, except where other exclusive means of thrust restraint are specifically shown on the Drawings.
  2. Concrete shall be as specified in this Section.
  3. Form and pour concrete blocking at fittings as shown on the Drawings and as directed by the ENGINEER. Pour blocking against undisturbed earth. Increase dimensions when required by over excavation.

### 3.09 INSPECTION AND TESTING

#### A. Pressure and Leakage Test

1. All sections of the water main subject to internal pressure shall be pressure tested in accordance with AWWA C600. A section of main will be considered ready for testing after completion of all thrust restraint and backfilling.
2. Each segment of water main between main valves shall be tested individually.
3. Test Preparation
  - a. For water mains less than 24-inches in diameter, flush sections thoroughly at flow velocities, greater than 2.5 feet per second, adequate to remove debris from pipe and valve seats. For water mains 24-inches in diameter and larger, the main shall be carefully swept clean, and mopped if directed by the ENGINEER. Partially open valves to allow the water to flush the valve seat.
  - b. Partially operate valves and hydrants to clean out seats.
  - c. Provide temporary blocking, bulkheads, flanges and plugs as necessary, to assure all new pipe, valves and appurtenances will be pressure tested.
  - d. Before applying test pressure, air shall be completely expelled from the pipeline and all appurtenances. Insert corporation cocks at highpoints to expel air as main is filled with water as necessary to supplement automatic air valves. Corporation stops shall be constructed as detailed on the Drawings with a meter box.
  - e. Fill pipeline slowly with water. Provide a suitable pump with an accurate water meter to pump the line to the specified pressure.
  - f. The differential pressure across a valve or hydrant shall equal the maximum possible, but not exceed the rated working pressure. Where necessary, provide temporary backpressure to meet the differential pressure restrictions.
  - g. Valves shall not be operated in either the opening or closing direction at differential pressures above the rated pressure.

4. **Test Pressure:** Test the pipeline at 50 psi above the rated working pressure measured at the lowest point for at least two hours. Maintain the test pressure within 5 psi of the specified test pressure for the test duration. Should the pressure drop more than 5 psi at any time during the test period, the pressure shall be restored to the specified test pressure. Provide an accurate pressure gage with graduation not greater than 5 psi.
5. **Leakage**
  - a. Leakage shall be defined as the sum of the quantity of water that must be pumped into the test section, to maintain pressure within 5 psi of the specified test pressure for the test duration plus water required to return line to test pressure at the end of the test. Leakage shall be the total cumulative amount measured on a water meter.
  - b. The OWNER assumes no responsibility for leakage occurring through existing valves.
6. **Test Results:** No test section shall be accepted if the leakage exceeds the limits determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

Where:	L	=	allowable leakage, in gallons per hour
	S	=	length of pipe tested, in feet
	D	=	nominal diameter of the pipe, in inches
	P	=	average test pressure during the leakage test, in pounds per square inch (gauge)

As determined under Section 4 of AWWA C600.

If the water main section being tested contains lengths of various pipe diameters, the allowable leakage shall be the sum of the computed leakage for each diameter. The leakage test shall be repeated until the test section is accepted. All visible leaks shall be repaired regardless of leakage test results.

7. **Completion:** After a pipeline section has been accepted, relieve test pressure. Record type, size and location of all outlets on record drawings.

### 3.10 DISINFECTING PIPELINE

- A. After successfully pressure testing each pipeline section, disinfect in accordance with AWWA C651 for the continuous-feed method and these Specifications.

- B. Specialty Contractor: Disinfection shall be performed by an approved specialty contractor. Before disinfection is performed, the CONTRACTOR shall submit a written procedure for approval before being permitted to proceed with the disinfection. This plan shall also include the steps to be taken for the neutralization of the chlorinated water.
- C. Chlorination
  - 1. Apply chlorine solution to achieve a concentration of at least 50 milligrams per liter free chlorine in new line. Retain chlorinated water for 24 hours.
  - 2. Chlorine concentration shall be recorded at every outlet along the line at the beginning and end of the 24 hour period.
  - 3. After 24 hours, all samples of water shall contain at least 25 milligrams per liter free chlorine. Re-chlorinate if required results are not obtained on all samples.
- D. Disposal of Chlorinated Water: Reduce chlorine residual of disinfection water to less than one milligram per liter if discharged directly to a body of water or to less than two milligrams per liter if discharged onto the ground prior to disposal. Treat water with sulfur dioxide or other reducing chemicals to neutralize chlorine residual. Flush all lines until residual is equal to existing system.
- E. Bacteriological Testing: After final flushing and before the main is placed into service, the CONTRACTOR shall assist the OWNER in collecting samples from the line to have tested for bacteriological quality. Testing shall be performed by the OWNER at a laboratory certified by the State of Kentucky. Re-chlorinate lines until the required results are obtained.

### **3.11 PROTECTION AND RESTORATION OF WORK AREA**

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.
  - 1. The CONTRACTOR shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.
  - 2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is

completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.

3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.
  4. The Department of Transportation's engineer shall be authorized to stop all work by the CONTRACTOR when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man-Made Improvements: Protect, or remove and replace with the ENGINEER'S approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the Work.
- C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the ENGINEER. Any such trees or shrubbery which must be removed shall be heeled in and replanted under the direction of an experienced nurseryman.
- D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3-inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the CONTRACTOR. No stumps, wood piles, or trash piles will be permitted on the work site.
- E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the Project in accordance with the applicable codes and rules of the appropriate county, state and federal regulatory agencies.

### **3.12 ABANDONING EXISTING WATER MAINS (Not Used)**

END OF SECTION

**PART 1 GENERAL**

**1.1 SCOPE**

- A. The work covered by this section shall include the establishment of all ground cover including areas to be seeded and sodded. This work shall include the supply of all materials, labor, superintendence and maintenance as outlined in these specifications.
- B. The part of the site not covered by roads, walks, building, etc. shall be seeded according to these specifications. The areas to be sodded shall include a three foot strip immediately adjacent to all roads, walks, and structures, etc.
- C. Before final acceptance of the work, the CONTRACTOR shall satisfactorily clean all areas within the limits of his operations including the street surfaces, walks, gutters, fences, lawns, private property and structures, leaving them in as neat, clean and usable condition as originally found. He shall remove all machinery, tools, surplus materials, temporary buildings and other structures from the site of work. He shall so remove all organic matter and materials containing organic matter from all areas and places used by him during construction. All sewers, manholes, inlets, etc., shall be cleared of all scaffolding, sedimentation, debris, rubbish and dirt.

Where the CONTRACTOR's operations have resulted in filling existing ditches, clogging existing culverts, damaging existing bridges, ground surfaces, sidewalks, driveways, etc., the Contract shall reditch, clean culverts, repair or replace bridges, ground surfaces, sidewalks, driveways, etc., so as to return them to a condition as good as or better than existed prior to the beginning of his operations.

The CONTRACTOR's cleanup operations, which include repair, restoration or replacement of ground surfaces and existing improvements and the removal of rock, shall be performed continuously during the construction operations.

Following installation of the pipeline, "rough cleanup" work shall be performed. This shall consist of grading the trench to create a neat, low mound of backfill material and disposing of any excavated material, rubbish, etc. Crushed stone shall be added to driveways where necessary and fences repaired to the satisfaction of the property owners. After trenches have had adequate time to settle, final grade work and seeding shall be performed.

Rough Grade Work and Cleanup (Rough Cleanup) shall be defined to include the final backfill and windrowing of the ditch line, filling and leveling street and

driveway cuts, cleaning up and removal of rubbish, repair of fences and structures, and any other such work that may be required to result in a neat, orderly project area. Rough Cleanup shall be performed as other construction progresses and must be completed immediately after the adjacent pipeline construction.

Rough Cleanup is not a separate pay item. The cost for this work shall be included in the unit bid price for waterlines. If Rough Cleanup is not performed as specified, the OWNER will require deductions from partial payment estimates.

Final cleanup, grade work and seeding shall be performed on each line when backfilled trenches have had adequate time to settle, but at least within 2 months from the date each line is constructed. Final grade work and seeding on Kentucky Bureau of Highways rights-of-way shall be done in accordance with said Bureau's specifications and the permit granted to the OWNER specifically for this project.

Where work was performed on private property in lawns, earth of good quality, free from rock shall be spread over the disturbed area and graded and compacted to match adjacent ground contours. The graded area shall be hand raked until smooth and free from rock, potholes, and humps. The disturbed area shall then be seeded with the seed variety used on the original lawn (e.g., a bluegrass lawn shall be reseeded with bluegrass seed) and the seed raked in lightly. The seeded area shall be fertilized and then uniformly covered with straw to a depth of approximately 1-1/2 inches.

Where work was performed on private property and not in lawns the trench line shall be graded and filled if necessary to match adjacent contours. All rock larger than 1-1/2" in diameter shall be removed from the disturbed area. In general, pasture and fallow land shall be fertilized and seeded with Kentucky 31 Fescue and plowed fields shall be left unseeded, however, the desire of each property owner shall govern regarding seeding.

In all cases on private property the rate of seed and fertilizer application shall be that recommended by the University of Kentucky Cooperative Extension Service for new plantings of the variety of grass seed used.

If the trench line settles following final grade work or if grass seed fails to germinate within a reasonable time, the CONTRACTOR shall regrade or reseed the area in question as specified above and as directed by the ENGINEER.

The OWNER reserves the right to require the CONTRACTOR to obtain a signed Release from each property owner affected by the work. Said Release shall indicate that the property owner is satisfied with the restoration of his land. However, the execution of such a release shall not relieve the CONTRACTOR from any of his



contractual obligations or other claims that may arise at a later date. The widths of construction easements obtained by the OWNER from property owners is normally 20 feet and the CONTRACTOR shall confine his activities to the area within the limits of the easements unless specific permission is obtained by the CONTRACTOR from property owners.

## **PART 2 PRODUCTS**

### **2.1 LIME**

- A. Agriculture lime shall be spread over the entire area to be planted at an average rate of one (1) ton per acre. One tillage operation shall incorporate both the lime and the fertilizer into the soil to a depth of four inches (4").

### **2.2 FERTILIZER**

- A. Two fertilizer materials shall be applied to all areas to be seeded. The first shall be complete commercial fertilizer with 1:2:2 ratio of nitrogen, phosphorus, and potassium. Eight hundred pounds (800 lbs) per acre of a 6-12-12 fertilizer, or equivalent amount of another 1:2:2 ratio fertilizer shall be used.
- B. In addition to a complete fertilizer, a slowly available nitrogen fertilizer shall be applied. Two hundred fifty pounds (250 lbs.) per acre of area formaldehyde (38-0-0) shall be used.
- C. Both fertilizer materials shall be free flowing and suitable for application with approved equipment. Each material shall conform to State fertilizer laws. Bagged fertilizer shall be delivered in sealed standard containers and shall bear the name, trademark, and warranty of the producer. The fertilizers shall be incorporated into the surface four inches (4") by tillage.

### **2.3 SEED**

- A. Grass seed shall be fresh, clean and new crop seed composed of the following varieties mixed in the proportion by weight as shown and shall be certified as to varietal purity. All seed shall be mixed by a dealer furnished in sealed standard containers, and tagged with the dealer's guaranteed statement of composition of mixture and percentage of purity and germination. All areas disturbed by construction activity shall be seeded within the following blend at a rate of two hundred pounds (200 lbs.) per acre (4.6 pounds per 1000 square feet).

- B. The quality of seed shall conform to or exceed the minimum requirement for seed quality of the Kentucky Seed Improvement Association and shall meet or exceed the following standards for purity and germination:

Variety	Min% Purity/Germ	Wt.%	Seeding Rate Pounds Per Acre
Kentucky Bluegrass-Kenblue	98/80	20	40
Creeping Red Fescue-Pennlawn	98/85	70	140
Perennial Ryegrass	95/90	10	20

## 2.4 MULCH

- A. Mulch for hydroseeding shall be natural wood cellulose fiber or wood pulp which disperses readily in water and which has no toxic effect when combined with seed or other materials. It shall be a commercially available product made for use in spray applicators. Wood cellulose mulch shall be applied at a rate of 1000 lbs. per acre when work is done in the spring or fall season as defined below and 1500 pounds per acre when work is done during summer months.

## 2.5 SOD

- A. Sod shall be bluegrass sod strongly rooted and free of pernicious weeds. It shall be a uniform thickness of not more than 1 1/2" and shall have not less than 3/4" of soil. All sod shall be grown on a commercial turf farm and no pasture sod shall be acceptable. The source of the sod must be approved by the Engineer before it is cut for delivery.

# PART 3 EXECUTION

## 3.1 PLANTING SEASON

- A. The normal seasonal dates for seeding mixtures containing Kentucky Bluegrass or tall fescue shall be August 15 to October 15 and from the time the soil is workable in the spring to May 1. Seeding of a specified grass variety at times other than the normal seasonal dates must be approved by the ENGINEER. Seeding shall not be done during windy weather or when the ground is excessively wet, frozen or otherwise untillable.

## 3.2 SOIL PREPARATION

- A. All areas shall be graded to surface drain as shown on the plans. The lime and fertilizer shall be applied at the rates specified above and tilled into the surface 4

inches with approved tillage equipment to provide a reasonably firm, but friable seedbed.

- B. All areas to be seeded or sodded shall meet the specified grades, and be free of any weed or undesirable plant growth or debris.
- C. Lime and fertilizer for all areas shall be applied at the rate specified and incorporated into the top four inches by approved tillage equipment. The seed and wood cellulose mulch shall then be mixed with adequate water to produce a slurry and then applied uniformly with a hydroseeder at the rates specified above. Any area inadequately covered shall be redone as directed by the ENGINEER.

### **3.3 MAINTENANCE OF SEEDED AREAS:**

- A. The CONTRACTOR shall maintain seeded areas until they have been mowed two times and then he shall repair eroded areas one time after the second mowing. Each mowing shall be when the grass is about four inches (4") high and cut back to about 2 1/2". After the second mowing, the CONTRACTOR shall notify the ENGINEER that he is ready to repair erosion damage so that an inspection can be scheduled when the erosion repair work is complete. Once the erosion areas have been filled with topsoil, fertilized, seeded and mulched and the work has been inspected and approved by the ENGINEER, the work under this section is complete. Any further erosion repair work necessary will be treated as an extra and shall be done only when authorized by the ENGINEER.

### **3.4 CARE DURING CONSTRUCTION**

- A. The CONTRACTOR shall be responsible for repair to turf areas damaged by his equipment or men until all work is accepted. Temporary haul roads and storage areas shall be tilled to depth of four inches (4") and fertilized, seeded and mulched as specified above.

END OF SECTION



---

---

**SECTION 02957**  
**Erosion Control and Stabilization**

**PART 1 GENERAL**

**1.1 SUMMARY**

- A. This Section includes provisions for erosion control and stabilization.

**PART 2 PRODUCTS**

**2.1 EROSION CONTROL**

- A. All drainage paths and swales to be cut, graded, and seeded prior to any utilities trenching.
- B. All drainage paths and excavated areas to be mulched upon completion of seeding. Straw bales are to be staked perpendicular to flow in bottom of swale every 100 feet along drainage swale route. Straw bales to remain in swale route until a substantial growth of grass has been established. Straw bales are to be staked around all inlet rims where swale lines are excavated to route storm water flow into inlet.
- C. Erosion control requires immediate seeding and mulching of any stripped and unvegetated areas, including unpaved right-of-ways.

**2.2 SEEDING**

- A. A leguminous inoculated seed mixture shall be used for all seed areas. Class of seeding as follows:

1. Mixture A: shall be used for all drainage paths, swales, side slopes, and all other areas where existing lawn is disturbed during construction.

Seed mixture shall be as follows:

2 lbs./1000 sq. ft. - Chewings Fescue  
2 lbs./1000 sq. ft. - Kentucky Bluegrass  
2 lbs./1000 sq. ft. - Perennial Rye

Seed shall be sown at a rate of 6 lbs. per 1000 sq. ft. of area.

2. Mixture B: shall be for all areas disturbed by excavation and re-grading as seasonal or temporary cover in bare areas.

Erosion Control and Stabilization

Seed mixture shall be as follows:

1 lb./1000 sq. ft. - Perennial Rye  
1 lb./1000 sq. ft. - Annual Rye

Seed shall be sown at a rate of 4 lbs. per 1000 sq. ft. of area.

3. Mixture C: shall be used for all lake or pond banks.

Seed mixture shall be as follows:

20% Perennial Ryegrass  
15% Kentucky Bluegrass  
15% Creeping Red Fescue  
50% Nutri-Kote plus Apron fungicide seed coating.

Seed shall be sown at a rate of 5 lbs. per 1000 sq. ft. of area.

**2.3 FERTILIZER**

- A. Apply a minimum of 600 lbs. of 12-12-12 fertilizer per acre.

**2.4 MULCH**

- A. Mulch shall consist of clean, seed-free threshed straw of wheat, rye, oats, or barley. Spread mulch uniformly to form a continuous blanket not less than 1.5 inches loose measurement over "Mixture A" and "Mixture C" seeded areas.
- B. The mulch shall be held in place by being mechanically crimped into the soil, tackified with a bio-degradable tackifier, or netted and stapled to the soil with degradable netting. The mulch should be applied at a minimum rate of 1500 lbs. per acre.

**2.5 STRAW TACKIFIER - MULCH TACKIFIER**

- A. The tackifier shall be a naturally derived product from all organic sources resulting in a strong resilient muciloid, non-bitumen M-Binder. The product can be used in a hydro-seeder with both 100% Virgin Wood Fiber or Paper Wood Cellulose mulch and can be sprayed on 100% Wheat Straw Mulch for stabilization from the wind. Application rates vary between 60-140 lbs. per acre depending upon the existing conditions. The product shall be packed in 40 lbs. fiber bags.

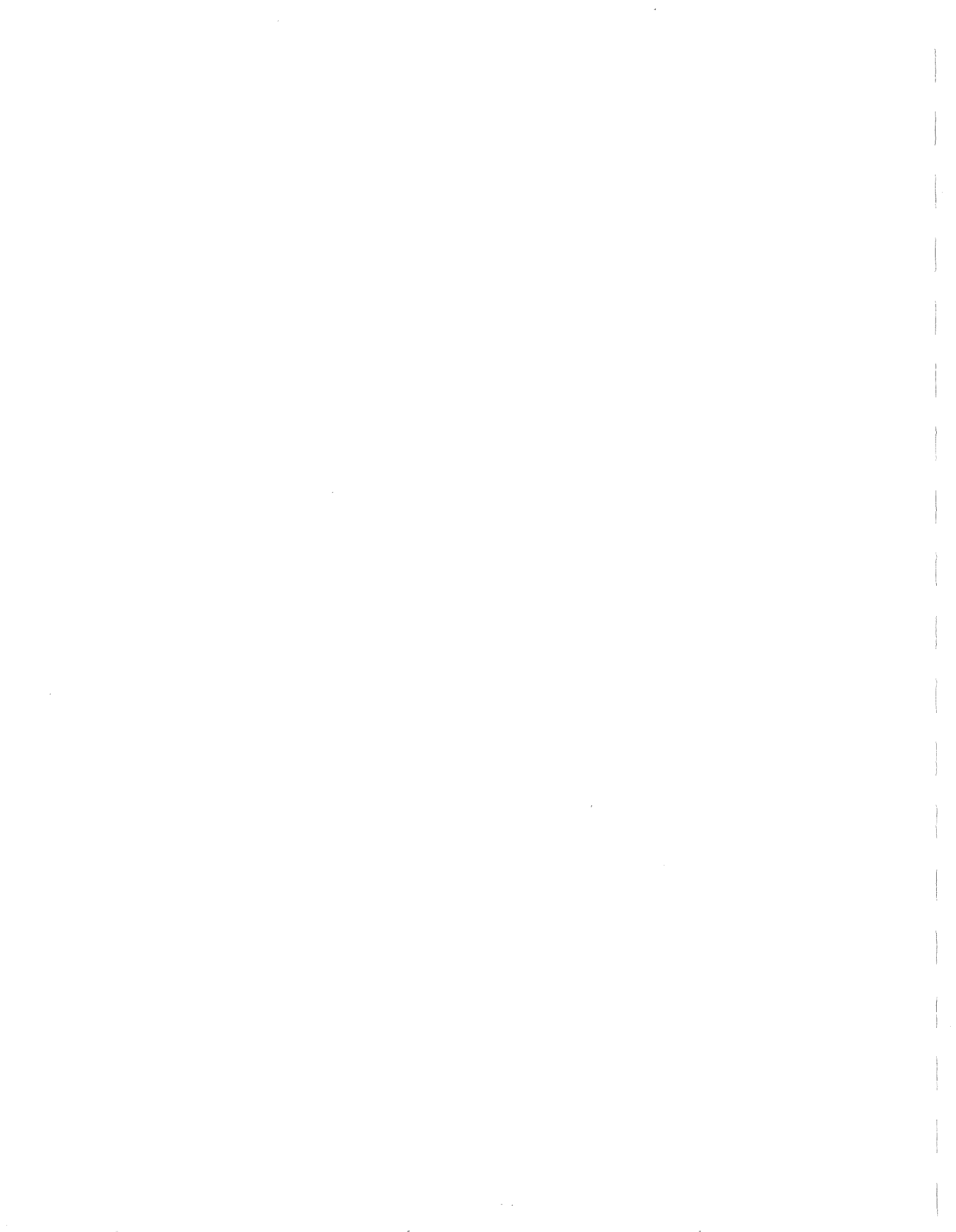
Technical Specifications:

Protein Content	1.62
Ash Content	2.7
Fiber	4.0
pH of 1% Solution	6.8
Settleable Solids	5.0

- B. Erosion control requires immediate seeding and mulching of any stripped and un-vegetated areas, including unpaved right-of-ways.

**PART 3 (NOT USED)**

END OF SECTION





---

---

**SECTION 03300**  
**Cast-in-place Concrete**

**PART 1 GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.
- B. Cast-in-place concrete includes the following:
  - 1. Foundations and footings.
  - 2. Slabs-on-grade.
  - 3. Fill for steel deck.
  - 4. Foundation walls.
  - 5. Shear walls.
  - 6. Load-bearing building walls.
  - 7. Building frame members.
  - 8. Equipment pads and bases.
  - 9. Fill for steel pan stairs.

**1.3 SUBMITTALS**

- A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others if requested by ENGINEER.
- C. Shop drawings for reinforcement detailing fabricating, bending, and placing concrete reinforcement. Comply with ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures" showing bar schedules, stirrup spacing, bent bar diagrams, and arrangement of concrete reinforcement. Include special reinforcing required for openings through concrete structures.
- D. Shop drawings for formwork indicating fabrication and erection of forms for specific finished concrete surfaces. Show form construction including jointing, special form joints

---

**Cast-in-place Concrete**

or reveals, location and pattern of form tie placement, and other items that affect exposed concrete visually.

1. ENGINEER's review is for general applications and features only. Designing formwork for structural stability and efficiency is CONTRACTOR's responsibility.
- E. Samples of materials as requested by ENGINEER, including names, sources, and descriptions, as follows:
1. Color finishes.
  2. Normal weight aggregates.
  3. Fiber reinforcement.
  4. Reglets.
  5. Waterstops.
  6. Vapor retarder/barrier.
  7. Form liners.
- F. Laboratory test reports for concrete materials and mix design test.
- G. Material certificates in lieu of material laboratory test reports when permitted by ENGINEER. Material certificates shall be signed by manufacturer and CONTRACTOR, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

#### **1.4 QUALITY ASSURANCE**

- A. Codes and Standards: Comply with provisions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified:
1. American Concrete Institute (ACI) 301, "Specifications for Structural Concrete for Buildings."
  2. ACI 318, "Building Code Requirements for Reinforced Concrete."
  3. Concrete Reinforcing Steel Institute (CRSI) "Manual of Standard Practice."
- B. Concrete Testing Service: Engage a testing agency acceptable to ENGINEER to perform material evaluation tests and to design concrete mixes.
- C. Materials and installed work may require testing and retesting at any time during progress of Work. Tests, including retesting of rejected materials for installed Work, shall be done at CONTRACTOR's expense.

## **PART 2 - PRODUCTS**

### **2.1 FORM MATERIALS**

- A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.
- B. Forms for Unexposed Finish Concrete: Plywood, lumber, metal, or another acceptable material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Textured Finish Concrete: Units of face design, size, arrangement, and configuration to match control sample. Provide solid backing and form supports to ensure stability of textured form liners.
- D. Forms for Cylindrical Columns and Supports: Metal, glass-fiber-reinforced plastic, or paper or fiber tubes that will produce smooth surfaces without joint indications. Provide units with sufficient wall thickness to resist wet concrete loads without deformation.
- E. Pan-Type Forms: Glass-fiber-reinforced plastic or formed steel, stiffened to support weight of placed concrete without deformation.
- F. Carton Forms: Biodegradable paper surface, treated for moisture-resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.
- G. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 g/L volatile organic compounds (VOCs) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
- H. Form Ties: Factory-fabricated, adjustable-length, stainless steel, removable or snap-off metal form ties designed to prevent form deflection and to prevent spalling of concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches (38 mm) to the plane of the exposed concrete surface.
  - 1. Provide ties that, when removed, will leave holes not larger than 1 inch (25 mm) in diameter in the concrete surface. Use only stainless material.

### **2.2 REINFORCING MATERIALS**

- A. Reinforcing Bars: ASTM A 615 Grade 60 (ASTM A 615M Grade 400), deformed.
- B. Galvanized Reinforcing Bars: ASTM A 767 (ASTM A 767M), Class II [2.0 oz. zinc psf

---

**Cast-in-place Concrete**

- (610 g/sq. m)], hot-dip galvanized after fabrication and bending.
- C. Epoxy-Coated Reinforcing Bars: ASTM A 775 (ASTM A 775M).
  - D. Steel Wire: ASTM A 82, plain, cold-drawn steel.
  - E. Welded Wire Fabric: ASTM A 185, welded steel wire fabric.
  - F. Deformed-Steel Welded Wire Fabric: ASTM A 497.
  - G. Epoxy-Coated Welded Wire Fabric: ASTM A 884, Class A.
  - H. Supports for Reinforcement: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire bar-type supports complying with CRSI specifications.
    - 1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
    - 2. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

**2.3 CONCRETE MATERIALS**

- A. Portland Cement: ASTM C 150, Type I.
  - 1. Use one brand of cement throughout Project.
- B. Fly Ash: ASTM C 618, Type F.
- C. Normal-Weight Aggregates: ASTM C 33 and as specified. Provide aggregates from a single source for exposed concrete.
  - 1. For exposed exterior surfaces, do not use fine or coarse aggregates that contain substances that cause spalling.
  - 2. Local aggregates not complying with ASTM C 33 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Engineer.
- D. Lightweight Aggregates: ASTM C 330.
- E. Water: Potable.
- F. Fiber Reinforcement: Polypropylene fibers engineered and designed for secondary reinforcement of concrete slabs, complying with ASTM C 1116, Type III, not less than 3/4

inch long.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
  - a. Gilco Fibers, Cormix Construction Chemicals.
  - b. Durafiber, Durafiber Corp.
  - c. Fiberstrand 100, Euclid Chemical Co.
  - d. Fibermesh, Fibermesh Co., Div. Synthetic Industries, Inc.
  - e. Forta, Forta Corp.
  - f. Grace Fibers, W.R. Grace & Co.
  - g. Polystrand, Metalcrete Industries
  
- G. Admixtures, General: Provide concrete admixtures that contain not more than 0.1 percent chloride ions.
  
- H. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.
  1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Air-Tite, Cormix Construction Chemicals.
    - b. Air-Mix or Perma-Air, Euclid Chemical Co.
    - c. Darex AEA or Daravair, W.R. Grace & Co.
    - d. MB-VR or Micro-Air, Master Builders, Inc.
    - e. Sealtight AEA, W.R. Meadows, Inc.
    - f. Sika AER, Sika Corp.
  
- I. Water-Reducing Admixture: ASTM C 494, Type A.
  1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Chemtard, ChemMasters Corp.
    - b. PSI N, Cormix Construction Chemicals.
    - c. Eucon WR-75, Euclid Chemical Co.
    - d. WRDA, W.R. Grace & Co.
    - e. Pozzolith Normal or Polyheed, Master Builders, Inc.
    - f. Metco W.R., Metalcrete Industries.
    - g. Prokrete-N, Prokrete Industries.
    - h. Plastocrete 161, Sika Corp.
  
- J. High-Range Water-Reducing Admixture: ASTM C 494, Type F or Type G.

---

Cast-in-place Concrete

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
  - a. Super P, Anti-Hydro Co., Inc.
  - b. Cormix 200, Cormix Construction Chemicals.
  - c. Eucon 37, Euclid Chemical Co.
  - d. WRDA 19 or Daracem, W.R. Grace & Co.
  - e. Rheobuild or Polyheed, Master Builders, Inc.
  - f. Superslump, Metalcrete Industries.
  - g. PSPL, Prokrete Industries.
  - h. Sikament 300, Sika Corp.
  
- K. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.
  1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Q-Set, Conspec Marketing & Manufacturing Co.
    - b. Lubricon NCA, Cormix Construction Chemicals.
    - c. Accelguard 80, Euclid Chemical Co.
    - d. Daraset, W.R. Grace & Co.
    - e. Pozzutec 20, Master Builders, Inc.
    - f. Accel-Set, Metalcrete Industries.
  
- L. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.
  1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. PSI-R Plus, Cormix Construction Chemicals.
    - b. Eucon Retarder 75, Euclid Chemical Co.
    - c. Daratard-17, W.R. Grace & Co.
    - d. Pozzolith R, Master Builders, Inc.
    - e. Protard, Prokrete Industries.
    - f. Plastiment, Sika Corporation.

## 2.4 RELATED MATERIALS

- A. Reglets: Where sheet flashing or bituminous membranes are terminated in reglets, provide reglets of not less than 0.0217- inch- (0.46-mm-) thick galvanized sheet steel. Fill reglet or cover face opening to prevent intrusion of concrete or debris.
  
- B. Dovetail Anchor Slots: Hot-dip galvanized sheet steel, not less than 0.0336 inch thick (0.76 mm) with bent tab anchors. Fill slot with temporary filler or cover face opening to

- prevent intrusion of concrete or debris.
- C. Waterstops: Provide flat, dumbbell-type or centerbulb-type waterstops at construction joints and other joints as indicated. Size to suit joints.
- D. Rubber Waterstops: Corps of Engineers CRD-C 513.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
    - a. The Burke Co.
    - b. Progress Unlimited.
    - c. Williams Products, Inc.
- E. Polyvinyl Chloride Waterstops: Corps of Engineers CRD-C 572.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
    - a. The Burke Co.
    - b. Greenstreak Plastic Products Co.
    - c. W.R. Meadows, Inc.
    - d. Progress Unlimited.
    - e. Schlegel Corp.
    - f. Vinylex Corp.
- F. Sand Cushion: Clean, manufactured or natural sand.
- G. Vapor Retarder: Provide vapor retarder that is resistant to deterioration when tested according to ASTM E 154, as follows:
1. Polyethylene sheet not less than 8 mils (0.2 mm) thick.
- H. Vapor Barrier: Premolded seven-ply membrane consisting of reinforced core and carrier sheet with fortified bitumen layers, protective weathercoating, and plastic antistick sheet. Water vapor transmission rate of 1 perm when tested according to ASTM E 96, Method B. Provide manufacturer's recommended mastics and gusset tape.
1. Product: Subject to compliance with requirements, provide Sealtight Premoulded Membrane by W.R. Meadows, Inc. or approved equal.
- I. Nonslip Aggregate Finish: Provide fused aluminum oxide granules or crushed emery as the abrasive aggregate for a nonslip finish, with emery aggregate containing not less than 50

---

Cast-in-place Concrete

percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rustproof, nonglazing, and unaffected by freezing, moisture, and cleaning materials.

- J. Colored Wear-Resistant Finish: Packaged dry combination of materials consisting of portland cement, graded quartz aggregate, coloring pigments, and plasticizing admixture. Use coloring pigments that are finely ground nonfading mineral oxides interground with cement. Color as selected by OWNER from manufacturers' standards, unless otherwise indicated.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Conshake 600 Colortone, Conspec Marketing & Mfg. Co.
    - b. Floorcron, Cormix Construction Chemicals.
    - c. Quartz Tuff, Dayton-Superior.
    - d. Surfex, Euclid Chemical Co.
    - e. Colorundum, A.C. Horn, Inc.
    - f. Quartz Plate, L&M Construction Chemicals, Inc.
    - g. Colorcron, Master Builders, Inc.
    - h. Floor Quartz, Metalcrete Industries
    - i. Lithochrome Color Hardener, L.M. Scofield Co.
    - j. Harcol Redi-Mix, Sonneborn-Chemrex.
    - k. Hard Top, Symons Corp.
- K. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m), complying with AASHTO M 182, Class 2.
- L. Moisture-Retaining Cover: One of the following, complying with ASTM C 171.
1. Waterproof paper.
  2. Polyethylene film.
  3. Polyethylene-coated burlap.
- M. Liquid Membrane-Forming Curing Compound: Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.55 kg/sq. m when applied at 200 sq. ft./gal (4.9 sq. m/L).
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. A-H 3 Way Sealer, Anti-Hydro Co., Inc.
    - b. Spartan-Cote, The Burke Co.
    - c. Conspec #1, Conspec Marketing & Mfg. Co.
    - d. Sealco 309, Cormix Construction Chemicals.



- e. Day-Chem Cure and Seal, Dayton Superior Corp.
  - f. Eucocure, Euclid Chemical Co.
  - g. Horn Clear Seal, A.C. Horn, Inc.
  - h. L&M Cure R, L&M Construction Chemicals, Inc.
  - i. Masterkure, Master Builders, Inc.
  - j. CS-309, W.R. Meadows, Inc.
  - k. Seal N Kure, Metalcrete Industries.
  - l. Kure-N-Seal, Sonneborn-Chemrex.
  - m. Stontop CS2, Stonhard, Inc.
- N. Water-Based Acrylic Membrane Curing Compound: ASTM C 309, Type I, Class B.
- 1. Provide material that has a maximum volatile organic compound (VOC) rating of 350 g/L.
  - 2. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Highseal, Conspec Marketing and Mfg. Co.
    - b. Sealco - VOC, Cormix Construction Chemicals.
    - c. Safe Cure and Seal, Dayton Superior Corp.
    - d. Aqua-Cure, Euclid Chemical Co.
    - e. Dress & Seal WB, L&M Construction Chemicals, Inc.
    - f. Masterkure 100W, Master Builders, Inc.
    - g. Vocomp-20, W.R. Meadows, Inc.
    - h. Metcure, Metalcrete Industries.
    - i. Stontop CS1, Stonhard, Inc.
- O. Evaporation Control: Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Aquafilm, Conspec Marketing and Mfg. Co.
    - b. Eucobar, Euclid Chemical Co.
    - c. E-Con, L&M Construction Chemicals, Inc.
    - d. Confilm, Master Builders, Inc.
    - e. Waterhold, Metalcrete Industries.
- P. Underlayment Compound: Free-flowing, self-leveling, pumpable, cement-based compound for applications from 1 inch (25 mm) thick to feathered edges.
- 1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

---

Cast-in-place Concrete

- a. K-15, Ardex, Inc.
- b. Self-Leveling Wear Topping, W.R. Bonsal Co.
- c. Conflow, Conspec Marketing and Mfg. Co.
- d. Corlevel, Cormix Construction Chemicals.
- e. LevelLayer II, Dayton Superior Corp.
- f. Flo-Top, Euclid Chemical Co.
- g. Gyp-Crete, Gyp-Crete Corp.
- h. Levelex, L&M Construction Chemicals, Inc.
- i. Underlayment 110, Master Builders, Inc.
- j. Stoncrete ULI, Stonhard, Inc.
- k. Concrete Top, Symons Corp.
- l. Thoro Underlayment Self-Leveling, Thoro System Products.

Q. Bonding Agent: Polyvinyl acetate or acrylic base.

1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:

- a. Polyvinyl Acetate (Interior Only):

- 1) Superior Concrete Bonder, Dayton Superior Corp.
- 2) Euco Weld, Euclid Chemical Co.
- 3) Weld-Crete, Larsen Products Corp.
- 4) Everweld, L&M Construction Chemicals, Inc.
- 5) Herculox, Metalcrete Industries.
- 6) Ready Bond, Symons Corp.

- b. Acrylic or Styrene Butadiene:

- 1) Acrylic Bondcrete, The Burke Co.
- 2) Strongbond, Conspec Marketing and Mfg. Co.
- 3) Day-Chem Ad Bond, Dayton Superior Corp.
- 4) SBR Latex, Euclid Chemical Co.
- 5) Daraweld C, W.R. Grace & Co.
- 6) Hornweld, A.C. Horn, Inc.
- 7) Everbond, L&M Construction Chemicals, Inc.
- 8) Acryl-Set, Master Builders Inc.
- 9) Intralok, W.R. Meadows, Inc.
- 10) Acrylpave, Metalcrete Industries.
- 11) Sonocrete, Sonneborn-Chemrex.
- 12) Stonlock LB2, Stonhard, Inc.
- 13) Strong Bond, Symons Corp.

- R. Epoxy Adhesive: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material type, grade, and class to suit Project requirements.
1. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
    - a. Burke Epoxy M.V., The Burke Co.
    - b. Spec-Bond 100, Conspec Marketing and Mfg. Co.
    - c. Resi-Bond (J-58), Dayton Superior.
    - d. Euco Epoxy System #452 or #620, Euclid Chemical Co.
    - e. Epoxitite Binder 2390, A.C. Horn, Inc.
    - f. Epabond, L&M Construction Chemicals, Inc.
    - g. Concesive Standard Liquid, Master Builders, Inc.
    - h. Rezi-Weld 1000, W.R. Meadows, Inc.
    - i. Metco Hi-Mod Epoxy, Metalcrete Industries.
    - j. Sikadur 32 Hi-Mod, Sika Corp.
    - k. Stonset LV5, Stonhard, Inc.
    - l. R-600 Series, Symons Corp.

## 2.5 PROPORTIONING AND DESIGNING MIXES

- A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. For the trial batch method, use an independent testing agency acceptable to Engineer for preparing and reporting proposed mix designs.
1. Do not use the same testing agency for field quality control testing.
  2. Limit use of fly ash to not exceed 25 percent of cement content by weight.
- B. Submit written reports to ENGINEER of each proposed mix for each class of concrete prior to start of Work. Do not begin concrete production until proposed mix designs have been reviewed.
- C. Design mixes to provide normal weight concrete with the following properties as indicated on drawings and schedules:
1. 4000 psi (27.6 MPa), 28-day compressive strength; water-cement ratio, 0.44 maximum (non-air-entrained), 0.35 maximum (air-entrained).
- D. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:
1. Subjected to freezing and thawing: W/C 0.45.
  2. Subjected to deicers/watertight: W/C 0.40.

---

Cast-in-place Concrete

3. Subjected to brackish water, salt spray, or deicers: W/C 0.40.
- E. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:
1. Ramps, slabs, and sloping surfaces: Not more than 3 inches (75 mm).
  2. Reinforced foundation systems: Not less than 1 inch (25 mm) and not more than 3 inches (75 mm).
  3. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches (200 mm) after adding admixture to site-verified 2 - 3 inch (50 - 75 mm) slump concrete.
  4. Other concrete: Not more than 4 inches (100 mm).
- F. Lightweight Structural Concrete: Lightweight aggregate and concrete shall conform to ASTM C 330. Proportion mix to produce concrete with a minimum compressive strength of 3000 psi (20.7) at 28 days and a calculated equilibrium unit weight of 110 pcf (1762 kg/cu. m) plus or minus 3 pcf (48.1 kg/cu. m) as determined by ASTM C 567. Concrete slump at the point of placement shall be the minimum necessary for efficient mixing, placing, and finishing. Maximum slump shall be 6 inches (150 mm) for pumped concrete and 5 inches (125 mm) elsewhere. Air entrain concrete exposed to weather according to ACI 301 requirements.
- G. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by ENGINEER. Laboratory test data for revised mix design and strength results must be submitted to and accepted by ENGINEER before using in Work.
- H. Fiber Reinforcement: Add at manufacturer's recommended rate but not less than 1.5 lb/cu. yd. (0.9 kg/cu. m).

## 2.6 ADMIXTURES

- A. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
- B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).
- C. Use high-range water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs, architectural concrete, parking structure slabs, concrete required to be watertight, and concrete with water-cement ratios below 0.50.
- D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of

placement having total air content with a tolerance of plus or minus 1-1/2 percent within the following limits:

1. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:
    - a. 4.5 percent (moderate exposure); 5.5 percent (severe exposure) for 1-1/2 inch (38 mm) maximum aggregate.
    - b. 4.5 percent (moderate exposure); 6.0 percent (severe exposure) for 1 inch (25 mm) maximum aggregate.
    - c. 5.0 percent (moderate exposure); 6.0 percent (severe exposure) for 3/4 inch (19 mm) maximum aggregate.
    - d. 5.5 percent (moderate exposure); 7.0 percent (severe exposure) for 1/2 inch (13 mm) maximum aggregate.
  2. Other concrete not exposed to freezing, thawing, or hydraulic pressure, or to receive a surface hardener: 2 to 4 percent air.
- E. Use admixtures for water reduction and set accelerating or retarding in strict compliance with manufacturer's directions.

## 2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Comply with requirements of ASTM C 94, and as specified.
1. When air temperature is between 85 deg F (29 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 GENERAL

- A. Coordinate the installation of joint materials, vapor retarder/barrier, and other related materials with placement of forms and reinforcing steel.

### 3.2 FORMS

- A. General: Design, erect, support, brace, and maintain formwork to support vertical, lateral, static, and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances and surface irregularities complying with the following ACI 347 limits:

---

Cast-in-place Concrete

1. Provide Class A tolerances for concrete surfaces exposed to view.
  2. Provide Class C tolerances for other concrete surfaces.
- B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in the Work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent cement paste from leaking.
- C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like for easy removal.
- D. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.
- F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

### 3.3 VAPOR RETARDER/BARRIER INSTALLATION

- A. General: Place vapor retarder/barrier sheeting in position with longest dimension parallel with direction of pour.
- B. Lap joints 6 inches (150 mm) and seal with manufacturer's recommended mastic or pressure-sensitive tape.
1. Cover vapor retarder/barrier with sand cushion and compact to depth indicated.

### 3.4 PLACING REINFORCEMENT

- A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as specified.
  - 1. Avoiding cutting or puncturing vapor retarder/barrier during reinforcement placement and concreting operations. Repair damages before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved.
- D. Place reinforcement to maintain minimum coverages as indicated for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

### 3.5 JOINTS

- A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure.
- B. Provide keyways at least 1-1/2 inches (38 mm) deep in construction joints in walls and slabs and between walls and footings. Bulkheads designed and accepted for this purpose may be used for slabs.
- C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.
- D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.
- E. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Support and protect exposed waterstops during progress of Work. Field-fabricate joints in waterstops according to manufacturer's printed instructions.
- F. Isolation Joints in Slabs-on-Grade: Construct isolation joints in slabs-on-grade at points of

---

**Cast-in-place Concrete**

contact between slabs-on-grade and vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

- G. **Contraction (Control) Joints in Slabs-on-Grade:** Construct contraction joints in slabs-on-grade to form panels of patterns as shown. Use saw cuts 1/8 inch (3 mm) wide by one-fourth of slab depth or inserts 1/4 inch (6 mm) wide by one-fourth of slab depth, unless otherwise indicated.
1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.
  2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.
  3. If joint pattern is not shown, provide joints not exceeding 15 ft. (4.5 m) in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
  4. Provide joint fillers and sealants.

### **3.6 INSTALLING EMBEDDED ITEMS**

- A. **General:** Set and build into formwork anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached.
- B. Install reglets to receive top edge of foundation sheet waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.
- C. Install dovetail anchor slots in concrete structures as indicated on drawings.
- D. **Forms for Slabs:** Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

### **3.7 PREPARING FORM SURFACES**

- A. **General:** Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before placing reinforcement.
- B. Do not allow excess form-coating material to accumulate in forms or come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply according to manufacturer's instructions.



1. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

### 3.8 CONCRETE PLACEMENT

- A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.
- B. General: Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation at its final location.
- D. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers no deeper than 24 inches (600 mm) and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.
  1. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidation of concrete complying with ACI 309.
  2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix to segregate.
- E. Placing Concrete Slabs: Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until completing placement of a panel or section.
  1. Consolidate concrete during placement operations so that concrete is thoroughly worked around reinforcement, other embedded items and into corners.
  2. Bring slab surfaces to correct level with a straightedge and strike off. Use bull floats or darbies to smooth surface free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.
  3. Maintain reinforcing in proper position on chairs during concrete placement.
- F. Cold-Weather Placement: Comply with provisions of ACI 306 and as follows. Protect

---

**Cast-in-place Concrete**

- concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
- G. When air temperature has fallen to or is expected to fall below 40 deg F (4 deg C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
1. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  2. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- H. Hot-Weather Placement: When hot weather conditions exist that would impair quality and strength of concrete, place concrete complying with ACI 305 and as specified.
1. Cool ingredients before mixing to maintain concrete temperature at time of placement to below 90 deg F (32 deg C). Mixing water may be chilled or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedding in concrete.
  3. Fog spray forms, reinforcing steel, and subgrade just before placing concrete. Keep subgrade moisture uniform without puddles or dry areas.
  4. Use water-reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions.

**3.9 FINISHING FORMED SURFACES**

- A. Rough-Formed Finish: Provide a rough-formed finish on formed concrete surfaces not exposed to view in the finished Work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched, and fins and other projections exceeding 1/4 inch (6 mm) in height rubbed down or chipped off.
- B. Smooth-Formed Finish: Provide a smooth-formed finish on formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or another similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.

- C. Smooth-Rubbed Finish: Unless otherwise shown or scheduled, provide smooth-rubbed finish on all exposed, vertical concrete surfaces that have received smooth-formed finish treatment not later than 1 day after form removal.
1. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
- D. Grout-Cleaned Finish: Provide grout-cleaned finish on scheduled concrete surfaces that have received smooth-formed finish treatment.
1. Combine one part portland cement to one and one-half parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to form the consistency of thick paint. Blend standard portland cement and white portland cement in amounts determined by trial patches so that final color of dry grout will match adjacent surfaces.
  2. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.
- E. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.10 MONOLITHIC SLAB FINISHES

- A. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and where indicated.
1. After placing slabs, finish surface to tolerances of F(F) 15 (floor flatness) and F(L) 13 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.
- B. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as specified; slab surfaces to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo; and where indicated.
1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, or when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Finish

---

Cast-in-place Concrete

surfaces to tolerances of F(F) 18 (floor flatness) and F(L) 15 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

- C. Trowel Finish: Apply a trowel finish to monolithic slab surfaces exposed to view and slab surfaces to be covered with resilient flooring, carpet, ceramic or quarry tile, paint, or another thin film-finish coating system.
1. After floating, begin first trowel-finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and finish surfaces to tolerances of F(F) 20 (floor flatness) and F(L) 17 (floor levelness) measured according to ASTM E 1155 (ASTM E 1155M). Grind smooth any surface defects that would telegraph through applied floor covering system.
- D. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply a trowel finish as specified, then immediately follow by slightly scarifying the surface with a fine broom.
- E. Nonslip Broom Finish: Apply a nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with before application.
- F. Nonslip Aggregate Finish: Apply nonslip aggregate finish to concrete stair treads, platforms, ramps, sloped walks, and where indicated.
1. After completing float finishing and before starting trowel finish, uniformly spread dampened nonslip aggregate at a rate of 25 lb per 100 sq. ft. (12 kg/10 sq. m) of surface. Tamp aggregate flush with surface using a steel trowel, but do not force below surface. After broadcasting and tamping, apply trowel finishing as specified.
  2. After curing, lightly work surface with a steel wire brush or an abrasive stone, and water to expose nonslip aggregate.

### 3.11 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.

- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.
- D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp, and trowel-finish concrete surfaces.

### 3.12 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before power floating and troweling.
- B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.
- C. Curing Methods: Cure concrete by curing compound, by moist curing, by moisture-retaining cover curing, or by combining these methods, as specified.
- D. Provide moisture curing by the following methods:
  - 1. Keep concrete surface continuously wet by covering with water.
  - 2. Use continuous water-fog spray.
  - 3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with a 4 inch (100 mm) lap over adjacent absorptive covers.
- E. Provide moisture-retaining cover curing as follows:
  - 1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches (75 mm) and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

---

Cast-in-place Concrete

- F. Apply curing compound on exposed interior slabs and on exterior slabs, walks, and curbs as follows:
  - 1. Apply curing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
  - 2. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
- G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for the full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
- H. Curing Unformed Surfaces: Cure unformed surfaces, including slabs, floor topping, and other flat surfaces, by applying the appropriate curing method.
  - 1. Final cure concrete surfaces to receive finish flooring with a moisture-retaining cover, unless otherwise directed.

### 3.13 SHORES AND SUPPORTS

- A. General: Comply with ACI 347 for shoring and reshoring in multistory construction, and as specified.
- B. Extend shoring from ground to roof for structures four stories or less, unless otherwise permitted.
- C. Extend shoring at least three floors under floor or roof being placed for structures over four stories. Shore floor directly under floor or roof being placed, so that loads from construction above will transfer directly to these shores. Space shoring in stories below this level in such a manner that no floor or member will be excessively loaded or will induce tensile stress in concrete members where no reinforcing steel is provided. Extend shores beyond minimums to ensure proper distribution of loads throughout structure.
- D. Remove shores and reshore in a planned sequence to avoid damage to partially cured concrete. Locate and provide adequate reshoring to support work without excessive stress or deflection.
- E. Keep reshores in place a minimum of 15 days after placing upper tier, or longer, if required, until concrete has attained its required 28-day strength and heavy loads due to construction operations have been removed.

### 3.14 REMOVING FORMS

- A. General: Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 75 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of concrete location or members.
- C. Form-facing material may be removed 4 days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

### 3.15 REUSING FORMS

- A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable.

### 3.16 CONCRETE SURFACE REPAIRS

- A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable.
- B. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh (1.2 mm) sieve, using only enough water as required for handling and placing.
  - 1. Cut out honeycombs, rock pockets, voids over 1/4 inch (6 mm) in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1 inch (25 mm). Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.

---

Cast-in-place Concrete

2. For surfaces exposed to view, blend white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- C. Repairing Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Owner. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
1. Repair concealed formed surfaces, where possible, containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.
1. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
  2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
  3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable.
  4. Repair defective areas, except random cracks and single holes not exceeding 1 inch (25 mm) in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4 inch (19 mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.



- E. Repair isolated random cracks and single holes 1 inch (25 mm) or less in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Place dry-pack before bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- F. Perform structural repairs with prior approval of ENGINEER for method and procedure, using specified epoxy adhesive and mortar.
- G. Repair methods not specified above may be used, subject to acceptance of ENGINEER.

### 3.17 QUALITY CONTROL TESTING DURING CONSTRUCTION

- A. General: The CONTRACTOR will employ a testing agency to perform tests and to submit test reports, at no additional cost to the OWNER.
- B. Sampling and testing for quality control during concrete placement may include the following, as directed by ENGINEER.
  - 1. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.
    - a. Slump: ASTM C 143; one test at point of discharge for each day's pour of each type of concrete; additional tests when concrete consistency seems to have changed.
    - b. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
    - c. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F (4 deg C) and below, when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.
    - d. Compression Test Specimen: ASTM C 31; one set of four standard cylinders for each compressive-strength test, unless otherwise directed. Mold and store cylinders for laboratory-cured test specimens except when field-cured test specimens are required.
    - e. Compressive-Strength Tests: ASTM C 39; one set for each day's pour exceeding 5 cu. yd. (4 cu. m) plus additional sets for each 50 cu. yd. (38 cu. m) more than the first 25 cu. yd. (19 cu. m) of each concrete class placed in any one day; one specimen tested at 7 days, two specimens tested at 28 days, and one specimen retained in reserve for later testing if required.
  - 2. When frequency of testing will provide fewer than five strength tests for a given class of concrete, conduct testing from at least five randomly selected batches or from each

---

Cast-in-place Concrete

- batch if fewer than five are used.
3. When total quantity of a given class of concrete is less than 50 cu. yd. (38 cu. m), ENGINEER may waive strength testing if adequate evidence of satisfactory strength is provided.
  4. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.
  5. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength and no individual strength test result falls below specified compressive strength by more than 500 psi (3.4 MPa).
- C. Test results will be reported in writing to ENGINEER within 3 days. Reports of compressive strength tests shall contain the Project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-day tests and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted but shall not be used as the sole basis for acceptance or rejection.
- E. Additional Tests: The testing agency will make additional tests of in-place concrete when test results indicate specified concrete strengths and other characteristics have not been attained in the structure. Testing agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed.

END OF SECTION

---

**SECTION 03310**  
**FLOWABLE FILL CONCRETE**

**PART 1 GENERAL**

**1.1 DESCRIPTION**

Flowable fill is a low strength mixture of portland cement, sand, Class F fly ash, and water. It is proportioned to flow under and around the pipe requiring no compaction and little or no finishing. Flowable fill may be used by the CONTRACTOR as backfill material for pipe. When using flowable fill with aluminum pipe, an approved means of separation must be provided, such as bituminous coating.

**PART 2 PRODUCT**

**2.2 MATERIALS**

Ingredient materials shall meet the requirements specified in the following sections of the Standard Specifications:

Portland Cement, Type I	801
Sand	804
Fly Ash, Class F	844
Water	803

The flowable fill shall be initially mixed in the following proportions per cubic yard:

Cement (Minimum)	40 lbs.
Fly Ash	300 lbs.
Sand (SSD)	3000 lbs.
Water (Maximum)	550 lbs.

To expedite settlement of the flowable fill it will be necessary for bleed water to appear on the surface within 5 to 10 minutes after placement. A delay in bleeding indicates there are too many fines in the mixture or insufficient water. If the maximum water was added, the fly ash quantity shall be reduced in increments of 50 lbs. until mixture is bleeding freely. Approximately 60 lbs. of sand shall be added to replace each 50 lbs. increment of fly ash to maintain the original yield. The flowable fill is too dry when cracks develop as it flows into place.

A set of test cylinders shall be cast for each 300 cubic yards of flowable fill. Cylinders shall not be rodded, but the sides of the mold shall be tapped lightly after each layer. The test cylinders should be allowed to bleed for about 30 minutes, refilled, and then covered

with a sheet of tough durable impervious plastic. Secure the plastic in place around the mold, within one inch of the top, with a rubber band or string prior to covering with wet burlap. Remove the burlap after 24 hours and cure at 60° F to 90° F, in the shade, until 28 days old. Then remove the plastic covering and mold and perform compressive strength test. The average of the 28 days compressive strength tests is expected to be approximately 50 PSI.

## **PART 3 EXECUTION**

### **3.3 CONSTRUCTION**

Flowable fill shall be delivered in a revolving drum truck mixer conforming to Section 601 to insure that the mixture is in suspension when placed. Agitation is required during transportation and waiting time. Subsidence may occur if the mixture is not agitated. Normally, a trench can be backfilled directly from the truck chute or a pump may be used.

The flowable fill may extend from the top of the compacted bedding to the bottom of the pavement structure. Flowable fill shall be a minimum of 2 hours of age prior to the addition and compaction of any material above it.

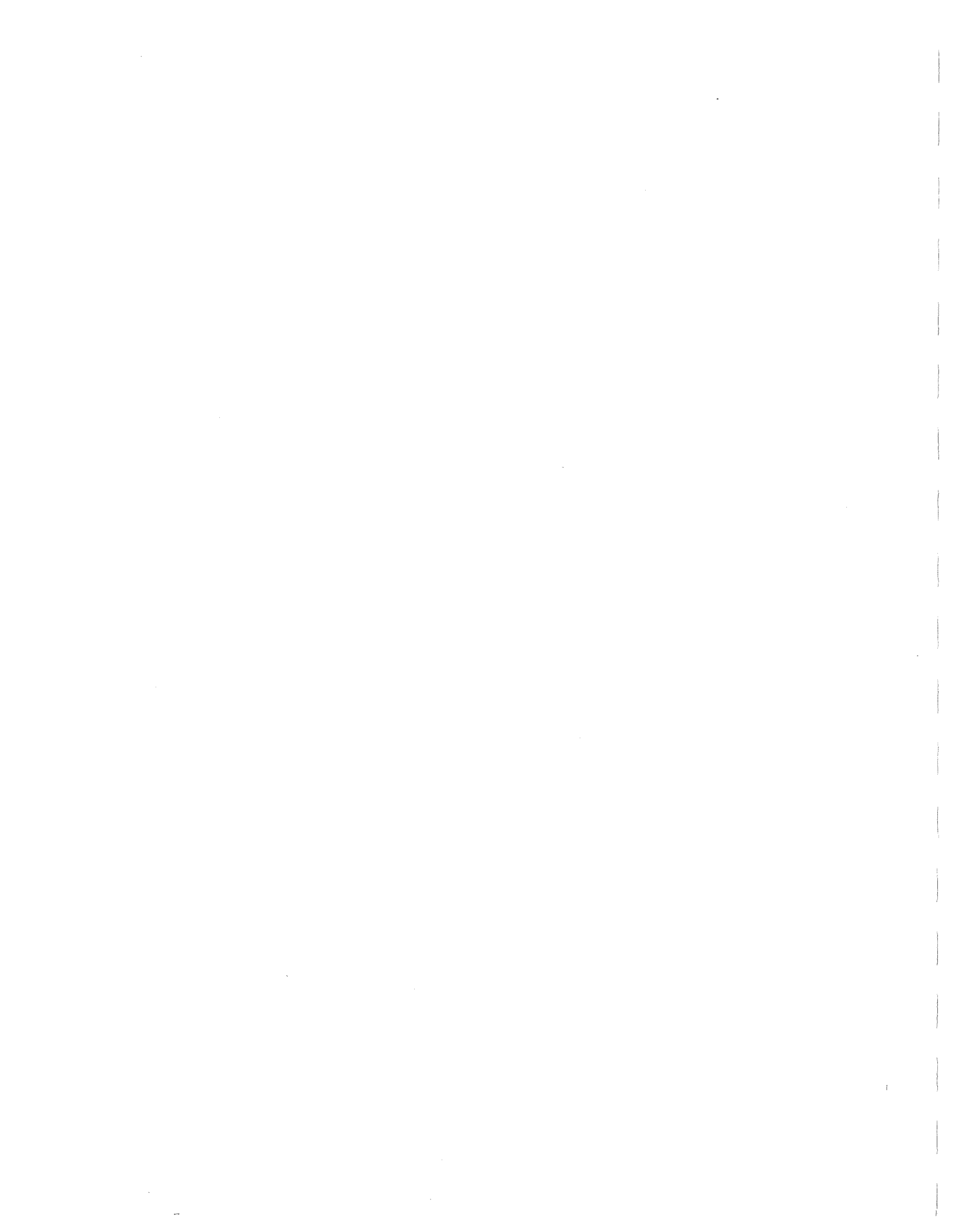
When flowable fill is used, the CONTRACTOR may reduce the trench width to a minimum of 6 inches clear on each side of the pipe. Standing water in the trench does not have to be pumped out before backfilling with flowable fill.

Certain types of pipe may float, therefore backfilling may have to be done in lifts or else the pipe will need to be anchored. Backfilling in lifts is generally more applicable to long lines of pipe, allowing time for a substantial amount of the water to dissipate prior to applying the next lift. Anchors can be made of small lumber, metal straps, and must be adequately spaced. For larger diameter pipe, it may be possible to maintain a surge of flowable fill on top of the pipe to help prevent floating. Generally floating is not a problem after the level of the backfill is above the springline of the pipe. The CONTRACTOR is responsible to take whatever action is necessary to insure that the pipe remains in the correct horizontal position and at the specified elevation.

END OF SECTION

**APPENDIX A**

**DOT PERMIT**





**TRANSPORTATION CABINET**

**Steven L. Beshear**  
Governor

Department of Highways District 6 Office  
421 Buttermilk Pike  
Covington, KY 41017  
(859) 341-2700

**Michael W. Hancock, P.E.**  
Secretary

UMG Professional  
Engineers, Inc.

OCT 24 2011

CAS  
JG  
JP

October 13, 2011

BRACKEN COUNTY WATER DISTRICT NO. 1  
P.O. BOX 201  
BROOKSVILLE, KY 41004

SUBJECT: Bracken County, -12-9-2.05  
KY 9 (AA HIGHWAY)  
Permit Number 06-0645-11

Dear MICHAEL BROTHERS:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your record files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than July 1, 2012. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as notification for final inspection.

If there are any questions regarding this permit, please do not hesitate to contact James Minckley at 859-341-2700 or fax number 859-341-6729.

Sincerely,

Robert Hans, P.E.  
Chief District Engineer  
Department of Highways  
District 6 -Covington  
421 Buttermilk Pike  
Covington, KY 41017



SEP 15 2011

JL  
JB  
LAS

KENTUCKY TRANSPORTATION CABINET  
Department of Highways  
Permits Branch

TC 99-1E  
Rev  
04/2008

Released Date \_\_\_\_\_ ENCROACHMENT PERMIT PERMIT NO. 96-0645-11

<b>APPLICANT IDENTIFICATION:</b> NAME <u>Bracken County Water District</u> CONTACT PERSON: <u>Michael Brothers</u> ADDRESS: <u>P.O. Box 201</u> CITY: <u>Brooksville</u> STATE: <u>KY</u> ZIP CODE: <u>41004</u> PHONE: area code ( <u>606</u> ) <u>735-3513</u>		<b>PROJECT IDENTIFICATION:</b> ACCESS CONTROL: <input checked="" type="checkbox"/> By Permit <input type="checkbox"/> Partial <input type="checkbox"/> Full COUNTY <u>Bracken</u> PRIORITY ROUTE NO <u>KY 9</u> MILEPOINT <u>2.05</u> <input type="checkbox"/> Left <input checked="" type="checkbox"/> Right <input type="checkbox"/> X-ing PROJECT STATUS <input type="checkbox"/> Maint. <input checked="" type="checkbox"/> Const. <input type="checkbox"/> Design PROJECT # STATE: _____ PROJECT # FEDERAL: _____ ROAD/STREET NAME <u>AA Highway</u>	
--	--	--	--

<b>TYPE OF ENCROACHMENT:</b> <input type="checkbox"/> COMMERCIAL ENTRANCE - BUSINESS* <input type="checkbox"/> PRIVATE ENTRANCE <input type="checkbox"/> Single Family <input type="checkbox"/> Farm <input checked="" type="checkbox"/> UTILITY <input type="checkbox"/> Overhead <input checked="" type="checkbox"/> Underground <input type="checkbox"/> GRADE <input type="checkbox"/> Fill <input type="checkbox"/> Landscape on R/W <input type="checkbox"/> AIRSPACE <input type="checkbox"/> Agreement <input type="checkbox"/> Lease <input type="checkbox"/> OTHER (Specify) _____ <small>*Electronic PDF file required of final plans and specifications</small>	<b>ATTACHMENTS:</b> <input type="checkbox"/> Standard Drawings (List on TC 99-21 under Misc.) <input checked="" type="checkbox"/> Applicant's Plans <input type="checkbox"/> Highway Plan and Profile Sheets <input type="checkbox"/> TC 99-3 (Ponding Encroachment Specs. and Conditions) <input type="checkbox"/> TC 99-4 (Rest Area Usage Specs. and Conditions) <input type="checkbox"/> TC 99-5 (Tree Cutting/Trimming Specs. and Conditions) <input type="checkbox"/> TC 99-6 (Chemical Use of Specs. and Conditions) <input type="checkbox"/> TC 99-10 (Typical Highway Boring Crossing Detail) <input type="checkbox"/> TC 99-12 (Overhead Utility Encroachment Diagram) <input type="checkbox"/> TC 99-13 (Surface Restoration Methods) <input type="checkbox"/> TC 99-21 (Encroachment Permit General Notes and Specs.) <input type="checkbox"/> TC 99-22 (Agreement for Services to be Performed) <input type="checkbox"/> TC 99-23 (Mass Transit Shelter Specs. and Conditions) <input type="checkbox"/> Other Attachments (Specify): _____
--	---

<b>TYPE OF INDEMNITY:</b> <input checked="" type="checkbox"/> Bond <input type="checkbox"/> Cash <input checked="" type="checkbox"/> SELF-INSURED AMOUNT ENCUMBERED \$ <u>10,000</u> <input type="checkbox"/> OTHER _____ NAME AND ADDRESS OF LOCAL INSURANCE AGENCY OR SELF-INSURED REPRESENTATIVE _____
--

**APPROVED**  
10-13-11

**INDEMNITY** The applicant, in order to secure this obligation, has deposited with the Transportation Cabinet as a guarantee of conformance with the Department's Encroachment Permit requirements, an indemnity in the amount of \$ \_\_\_\_\_ as determined by the Department. It shall be the responsibility of the applicant or permittee, his heirs and assignees to keep all indemnities in full force until construction or reconstruction has been completed and duly accepted by an authorized agent of the Transportation Cabinet, Department of Highways.

<b>BRIEF DESCRIPTION OF WORK TO BE DONE</b> BCWD proposes to extend water line that encroach on right of way. <u>Parallel from MP 2.05 to MP 2.80</u> Applicant certifies project area <input type="checkbox"/> does <input checked="" type="checkbox"/> does not exceed one acre. Projects disturbing more than one acre require a KPDES KYR 10 permit.
---

**IMPORTANT (PLEASE READ):** Applicant  does  does not intend to apply for excess R/W

When the work is completed in accordance with the terms of this encroachment permit, your indemnity will be released. However, the permit is effective until revoked by the Transportation Cabinet and the terms on the permit accompanying permit documents and drawings remain in effect as long as the encroachment exists. **FUTURE MAINTENANCE OF THE ENCROACHMENT IS THE RESPONSIBILITY OF THE PERMITEE.** It is important that you understand the requirements of this encroachment permit application and accompanying documents. If you have not done so, it is suggested that you review these documents and place the permit package in a safe place for future reference.

A copy of this permit and all documents shall be given to your contractor and shall be readily available at the work site for the encroachment permit inspector to review at all times. Failure to meet this requirement may result in cancellation of this permit.

IN THE EVENT THIS APPLICATION IS APPROVED THIS DOCUMENT SHALL CONSTITUTE A PERMIT FOR THE APPLICANT TO USE THE RIGHT-OF-WAY. BUT ONLY IN THE MANNER AUTHORIZED BY THIS DOCUMENT AND REGULATIONS OF THE DEPARTMENT AND THE DRAWINGS, PLANS, ATTACHMENTS, AND OTHER PERTINENT DATA ATTACHED HERETO AND MADE A PART HEREOF.





## ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 06-0645-11

### I. SAFETY

#### A. General Provisions

- All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.
- All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.
- No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.
- When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 8:30 am and 4:00 pm
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.
- The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

#### B. Explosives

- No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

#### C. Other Safety Requirements

### II. UTILITIES \*Applies to Fully Controlled Access Highways ONLY

- \*All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.
- \*The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.
- \*All vents, valves, manholes, etc., shall be located outside of the right-of-way.
- \*Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.
- The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

Permit No. 06-0645-11

**II. UTILITIES (Continued)**

- Encasement pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.
- Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 30-inch cover above top of pipe or conduit.
- All pavement cuts shall be restored per Kentucky Transportation Cabinet form TC 99-13.
- Aerial crossing of this utility line shall have a minimum clearance of \_\_\_\_\_ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Fahrenheit).
- The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.
- Special requirements:

Proposed water main shall be maintain a minimum 100' setback from the centerline of KY 9 (AA Highway).

**III. GENERAL**

**A. OSHA**

- Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

**B. Archaeological**

- Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

**C. Utilities in the Work Areas**

- The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.
- All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

**D. Environmental**

- If the activity to which this permit relates disturbs one acre or more of land, you must obtain a KPDES KYR10 permit.

Websites

<http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/>

Inspectors for KPDES KYR10 at [www.KEPSC.org](http://www.KEPSC.org)

**IV. RIGHT OF WAY RESTORATION**

- All disturbed portions of the right of way shall be restored to grass as per Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition). A satisfactory turf, as determined by the Department, shall be established by the permittee prior to release of indemnity. Sodding or seeding shall be as follows:

Lawn or High Maintenance Situation	70% Lawn Fescue (e.g., variety - Falcon) 30% Bluegrass <b>or</b>
------------------------------------	---

70% Lawn Rye (e.g., variety - Derby) 30% Bluegrass
---

Right of Way Lawn Maintenance Situation	70% KY 31 Fescue 30% Perennial Rye Grass <b>or</b>
---	---

100% KY Fescue
----------------

- Two tons of clean straw mulch per acre of seeding.
- Prior to seeding, the ground shall be prepared in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- Substitutes for sod such as artificial turf, rocked mulch, or paved areas may be acceptable if they are aesthetically pleasing.
- All ditch-flow lines and all ditch-side slopes shall be sodded.
- Existing concrete right of way markers shall not be disturbed, but if damaged in any way, they shall be entirely replaced by the permittee, with new concrete markers to match the original markers, in accordance with Kentucky Department of Highways Standard Drawings. Markers that are entirely removed shall be re-established in the proper locations by the permittee and to the satisfaction of the Department.
- Other right of way restoration requirements are as follows:

**V. DRAINAGE**

- All pipe shall be laid in a straight alignment, to proper grades, and with all materials and methods of installation including bedding and joint seating in accordance with Department Standard Specifications for Road and Bridge Construction (latest edition). Pipe shall not be covered until inspected by the Department and express permission obtained to make backfill.
- All gutter lines at the base of new curbs shall be on continuous grades, and pockets of water along with curbs or in entrance areas or other paved areas within the right of way shall not be acceptable.
- All drainage structures and appurtenances (manholes, catch basins, curbing, inlet basins, etc.) shall conform to Department specifications and shall be constructed in accordance with the Department Standard Drawings. Type required:

---



---

Permit No. 06-0645-11

**VI. Paving**

No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Farenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.

Paving within the right of way shall be as follows:

Base (Type) \_\_\_\_\_ (Thickness) \_\_\_\_\_

Surface Base (Type) \_\_\_\_\_ (Thickness) \_\_\_\_\_

Finished Surface (Type) \_\_\_\_\_ (Thickness) \_\_\_\_\_

Existing pavement and shoulder material shall be removed to accomodate the above paving specifications.

The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.

All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

24 hours notice to the Department is required prior to beginning paving operations.

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

To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.

Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

**VII. SIDEWALKS SPECIFICATIONS** This dimension should be equal to the width of the sidewalk.

**A. New Sidewalks**

Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be \* \_\_\_\_\_ feet in width, 6 inches in thickness across the bituminous entrance, and 4 inches in thickness across the remaining sections.

Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals\*, and 1/2 premolded expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.

All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

**B. Existing Sidewalks**

**(Applicable if existing sidewalks are being relocated)** Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.

All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

Permit No. 06-0645-11

### VIII. DENSE GRADED SHOULDERS

- Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.
- All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, 2<sup>1/2</sup> pounds per square yard of calcium chloride.
- All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

### IX. CURBING

#### A. Bituminous Curbs

- Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.
- The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.
- All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.
- All bituminous curbs shall be rolled curb, with a minimum base width of 8 inches and a minimum height of \_\_\_\_\_ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

#### B. Concrete Curbs

- All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- All concrete curbs shall be 6 inches in width, extend \_\_\_\_\_ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.
- All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.
- The last \_\_\_\_\_ feet of all concrete curbs are to be tapered down to finished grade.

Permit No. 06-0645-11

**X RIGHT-OF-WAY FENCE REPLACEMENT**

- The replacement fence shall be a height of at least 48 inches and shall be of sufficient density to contain all animals (if applicable).
- The replacement fence shall be a minimum of 1 foot and a maximum of 2 feet outside the right-of-way line.
- The fence materials and design shall meet accepted industry standards and be treated as paintable.
- The permittee shall be required to maintain the fence in a high state of repair.
- The existing fence shall be removed by permittee and stored at the Department's maintenance storage yard for future reuse by the Department.
- The control of access shall not be diminished as a result of replacement of the fence.
- Miscellaneous:

**NOTICE TO PERMITTEE**

THE PERMITTEE AGREES THAT ALL WORK WITHIN THE EXISTING RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE PLANS AS APPROVED AND PERMITTED BY AN ENCROACHMENT PERMIT. ANY CHANGES OR VARIANCES MADE AT THE TIME OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENT OF HIGHWAYS SHALL BE REMOVED BY THE PERMITTEE AT NO EXPENSE TO THE DEPARTMENT OF HIGHWAYS AND SHALL BE REDONE BY THE PERMITTEE TO CONFORM WITH THE APPROVED PLANS.

# IMPORTANT NOTICE

Federal law requires that High visibility Class 2 or Class 3 retroreflective safety apparel that meets ANSI/ISEA 107-2004 Standards shall be worn at all times by anyone working within the KYTC R/W limits.

Class 3 apparel is required for flaggers after dark.

If any questions, please contact James Minckley at (859) 341-2700.

# IMPORTANT NOTICE

Federal law requires that traffic control shall be implemented in accordance with MUTCD Standards and KYTC Specifications under the supervision of a Work Zone Traffic Control Supervisor.

A Work Zone Traffic Control Technician shall be available on the jobsite to ensure that the work zone is in compliance with the applicable standards.

If any questions, please contact James Minckley at (859) 341-2700.

---





## TRANSPORTATION CABINET

**Steven L. Beshear**  
Governor

Department of Highways District 6 Office  
421 Buttermilk Pike  
Covington, KY 41017  
(859) 341-2700

**Michael W. Hancock, P.E.**  
Secretary

October 13, 2011

BRACKEN COUNTY WATER DISTRICT NO. 1  
P.O. BOX 201  
BROOKSVILLE, KY 41004

SUBJECT: Bracken County, -12-1011-3.26  
KY 1011 (PERKINS RIDGE ROAD)  
Permit Number 06-0646-11

Dear BRACKEN COUNTY WATER DISTRICT NO. 1:

Your application for an encroachment permit has been approved by the Department of Highways. We are returning two copies of the approved permit so one may be kept in your record files. The other copy must be given to the party responsible for completing the project and must be kept at the jobsite at all times.

Please see that the work is done in strict conformity with the permit and any other applicable conditions (See Form TC99-21 and any other attached documents, conditions or specifications). The work should be completed no later than July 1, 2012. When the permitted work and any necessary restoration have been completed please notify this office by using the attached form which will serve as notification for final inspection.

If there are any questions regarding this permit, please do not hesitate to contact James Minckley at 859-341-2700 or fax number 859-341-6729.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert Hans".

Robert Hans, P.E.  
Chief District Engineer  
Department of Highways  
District 6 -Covington  
421 Buttermilk Pike  
Covington, KY 41017



KENTUCKY TRANSPORTATION CABINET  
 Department of Highways  
 Permits Branch

TC 99-1E  
 Rev  
 04/2008

Released Date \_\_\_\_\_ ENCROACHMENT PERMIT PERMIT NO. 06-0646-11

APPLICANT IDENTIFICATION NAME: <u>Bracken County Water District</u> CONTACT PERSON: <u>Michael Brothers</u> ADDRESS: <u>P. O. Box 201</u> CITY: <u>Brooksville</u> STATE: <u>KY</u> ZIP CODE: <u>41004</u> PHONE: area code ( <u>606</u> ) <u>735-3513</u>	PROJECT IDENTIFICATION: ACCESS CONTROL: <input checked="" type="checkbox"/> By Permit <input type="checkbox"/> Partial <input type="checkbox"/> Full COUNTY: <u>Bracken</u> PRIORITY ROUTE NO: <u>KY 1011</u> MILEPOINT: <u>3.26</u> <input type="checkbox"/> Left <input checked="" type="checkbox"/> Right <input checked="" type="checkbox"/> X-ing PROJECT STATUS: <input type="checkbox"/> Maint. <input checked="" type="checkbox"/> Const. <input type="checkbox"/> Design PROJECT # STATE: _____ PROJECT # FEDERAL: _____ ROAD/STREET NAME: <u>Perkins Ridge Rd.</u>
--	---

TYPE OF ENCROACHMENT

COMMERCIAL ENTRANCE - BUSINESS\*

PRIVATE ENTRANCE  Single Family  Farm

UTILITY  Overhead  Underground

GRADE  Fill  Landscape on R/W

AIRSPACE:  Agreement  Lease

OTHER: (Specify) \_\_\_\_\_

\*Electronic PDF file required of final plans and specifications

ATTACHMENTS

Standard Drawings (List on TC 99-21 under Misc )

Applicant's Plans

Highway Plan and Profile Sheets

TC 99-3 (Ponding Encroachment Specs. and Conditions)

TC 99-4 (Rest Area Usage Specs. and Conditions)

TC 99-5 (Tree Cutting/Trimming Specs. and Conditions)

TC 99-6 (Chemical Use of Specs. and Conditions)

TC 99-10 (Typical Highway Boring Crossing Detail) *Part of plans*

TC 99-12 (Overhead Utility Encroachment Diagram)

TC 99-13 (Surface Restoration Methods)

TC 99-21 (Encroachment Permit General Notes and Specs.)

TC 99-22 (Agreement for Services to be Performed)

TC 99-23 (Mass Transit Shelter Specs. and Conditions)

Other Attachments (Specify) \_\_\_\_\_

TYPE OF INDEMNITY  Bond  Cash

SELF-INSURED AMOUNT ENCUMBERED \$ 5,000

OTHER \_\_\_\_\_

NAME AND ADDRESS OF LOCAL INSURANCE AGENCY OR SELF-INSURED REPRESENTATIVE

**APPROVED**  
 10-13-11

INDEMNITY: The applicant, in order to secure this obligation, has deposited with the Transportation Cabinet as a guarantee of conformance with the Department's Encroachment Permit requirements, an indemnity in the amount of \$ \_\_\_\_\_ as determined by the Department. It shall be the responsibility of the applicant or permittee, his heirs and assignees to keep all indemnities in full force until construction or reconstruction has been completed and duly accepted by an authorized agent of the Transportation Cabinet, Department of Highways.

BRIEF DESCRIPTION OF WORK TO BE DONE.

BCWD proposes to extend water line that encroach on right of way. *35 LF bore to MP 3.53  
 15 LF bore to MP 3.26  
 40 LF bore to MP 5.26  
 Parallel from MP 4.97 to MP 5.02*

Applicant certifies project area  does  does not exceed one acre. Projects disturbing more than one acre require a KPDES KYR 10 permit.

IMPORTANT (PLEASE READ): Applicant  does  does not intend to apply for excess R/W.

When the work is completed in accordance with the terms of this encroachment permit, your indemnity will be released. However, the permit is effective until revoked by the Transportation Cabinet and the terms on the permit accompanying permit documents and drawings remain in effect as long as the encroachment exists. **FUTURE MAINTENANCE OF THE ENCROACHMENT IS THE RESPONSIBILITY OF THE PERMITEE.** It is important that you understand the requirements of this encroachment permit application and accompanying documents. If you have not done so, it is suggested that you review these documents and place the permit package in a safe place for future reference.

A copy of this permit and all documents shall be given to your contractor and shall be readily available at the work site for the encroachment permit inspector to review at all times. Failure to meet this requirement may result in cancellation of this permit.

IN THE EVENT THIS APPLICATION IS APPROVED, THIS DOCUMENT SHALL CONSTITUTE A PERMIT FOR THE APPLICANT TO USE THE RIGHT-OF-WAY, BUT ONLY IN THE MANNER AUTHORIZED BY THIS DOCUMENT AND REGULATIONS OF THE DEPARTMENT AND THE DRAWINGS, PLANS, ATTACHMENTS, AND OTHER PERTINENT DATA ATTACHED HERETO AND MADE A PART HEREOF.

Permit No. \_\_\_\_\_

The permittee agrees to the following terms and conditions

- 1 The permittee shall comply with and is bound by the requirements of the Department's Permits Manual as revised to and in effect on the date of the issuance of this permit which is made a part hereof by reference
- 2 Permittee agrees that if the Department determines that vehicular capacity deficiencies or over capacity conditions develop as a result of the installation and use of this facility the permittee shall adjust, relocate, or reconstruct the facilities and/or provide and bear the expenses for signs, auxiliary lanes, or other corrective measures reasonably deemed necessary by the Department and as set forth in the Department's Permit Manual within a reasonable length of time after receipt of written notice regarding such adjustments, relocation, additions, modifications, and/or corrective measures, such time to be specified in the notice. In cases where traffic signals are permitted or required, as determined by the Department, the costs for signal equipment and installation(s) shall be borne by the permittee and/or the Department in accordance with Department policy then in force as set forth in the Traffic Manual. Any modifications to the permittee's entrances necessary to accommodate signalization (including necessary easement(s) on private property) shall be the responsibility of the permittee at no expense to the Department. (This applies only to Entrance Permits)
- 3 The said encroachment will not infringe on the frontage rights of an abutting owner without written consent of the said owner as hereto. "If we consent to the granting of attached permit" \_\_\_\_\_  
Date \_\_\_\_\_ (This does not apply to utilities which serve the general public.)
- 4 Any permit granted hereunder shall be with the full understanding that it shall not interfere with any similar rights or permits heretofore granted to any other party except as otherwise provided by law
- 5 A plan prepared by HMB Professional Engineers and dated April 2011 is attached hereto and made a part hereof which describes the facilities to be constructed by the permittee for which facilities this permit is granted. The permittee agrees as a condition to the issuance of the permit to construct and maintain such facilities in accordance with said plan, and the permittee shall not use the facilities authorized herein in any manner contrary to that prescribed by this permit and plan. Normal usage and routine maintenance only are authorized under this permit.
- 6 Permittee shall comply with the Manual on Uniform Traffic Control Devices as revised to and in effect on the date of the issuance of this permit which is made a part hereof by reference.
- 7 Permittee shall at all times from date when work is first commenced and until such time as all facilities are removed from the right-of-way premise, defend, protect, and save harmless the Department from all liability, claims, and demands arising out of work undertaken by the permittee pursuant to this permit, due to any negligent act or omission by the permittee, its servants, agents, employees, or contractors. This provision shall not inure to the benefit of any third party or operate to enlarge any liability of the Department beyond that existing at common law if this right to indemnity did not exist.
- 8 Upon a violation of any of the provisions of this permit, the Department may revoke the permit by giving notice to the permittee in writing to remove from the right-of-way any facilities placed thereon within a reasonable time as set forth in the notice, and in the event said facilities are not so removed, and the right-of-way restored the Department may cause same to be removed, and the costs thereof shall be charged to the permittee.
- 9 The permittee, his successors and assigns shall use the encroachment premises in compliance with all Federal requirements impose pursuant to the provisions of the Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000-1) and regulations of the U.S. Department of Transportation as set forth in Title 49 C.F.R., Part 21, and as said regulations may be amended.
- 10 Permittee agrees that in the event it should become necessary, as may be reasonably determined by the Department, for the facilities covered by this permit to be removed or relocated in connection with the reconstruction, relocation, or improvement of the abutting highway, the Department may revoke this permit and require removal or relocation by the permittee at his own expense according and pursuant to the procedures provided in Paragraph 2 above except in those cases where the Department is required by law to pay any or all the same.
- 11 The permittee understands and agrees that this permit is personal to the permittee and shall not inure to his successors and assigns without the written approval of the Department that he is bound by the provisions of this permit as long as the encroachment exists unless a written release has been obtained from the Department. (Does not apply to utilities serving the general public.)
- 12 If the work authorized by this permit is on a project in the construction phase, it shall be the responsibility of the permittee to make personal contact with \_\_\_\_\_ Resident Engineer on the project to coordinate the permitted work with the State's prime contractor on the project.
- 13 This permit does not alleviate any requirements of any other government agency.
- 14 Permittee agrees to keep the priority route in which this permit was issued clear of dirt, mud, and debris during construction and for the life of this permit.

**ANY ATTEMPT TO ALTER THIS FORM CONSTITUTES A VOID PERMIT.**

THE UNDERSIGNED APPLICANT (being duly authorized representative/owner) DOES AGREE TO ALL TERMS AND CONDITIONS SET FORTH HEREIN

<input type="checkbox"/> January 1st 20	<input checked="" type="checkbox"/> July 1st, 2012	<input checked="" type="checkbox"/> 9-12-2011	<input checked="" type="checkbox"/> Michael Brothers
Completion Date	Date	Date	Signature

RECOMMENDED FOR APPROVAL <input checked="" type="checkbox"/>		
TEBM-ES	Signature	Chief District Engineer
Title	Signature	Date

PRIVATE ENTRANCE TO BE COMPLETED BY PERSONNEL INSTALLING FACILITY

Installed By _____	_____	_____	_____
Title	Signature	Signature	Date

**ANY ATTEMPT TO ALTER THIS FORM CONSTITUTES A VOID PERMIT.**



### ENCROACHMENT PERMIT GENERAL NOTES & SPECIFICATIONS

Permit No. 06-0646-11

**I. SAFETY**

**A. General Provisions**

- All signs and control of traffic shall be in accordance with the Manual on Uniform Traffic Control Devices for Streets and Highways, latest edition, Part VI, and safety requirements shall comply with the Permits Manual.
- All work necessary in shoulder or ditch line areas of a state highway shall be scheduled to be promptly completed so that hazards adjacent to the traveled way are kept to an absolute minimum.
- No more than one (1) traveled-lane shall be blocked or obstructed during normal working hours. All signs and flaggers during lane closure shall conform to the Manual on Uniform Traffic Control Devices.
- When necessary to block one (1) traveled-lane of a state highway, the normal working hours shall be as directed by the Department. No lanes shall be blocked or obstructed during adverse weather conditions (rain, snow, fog, etc.) without specific permission from the Department. Working hours shall be between 8:30 am and 4:00 pm
- The traveled-way and shoulders shall be kept clear of mud and other construction debris at all times during construction of the permitted facility.
- No nonconstruction equipment or vehicles or office trailers shall be allowed on the right of way during working hours.
- The right of way shall be left free and clear of equipment, material, and vehicles during non-working hours.

**B. Explosives**

- No explosive devices or explosive material shall be used within state right of way without proper license and approval of the Kentucky Department of Mines and Minerals, Explosive Division.

**C. Other Safety Requirements**

**II. UTILITIES - Applies to Fully Controlled Access Highways ONLY**

- \*All work necessary within the right of way shall be performed behind a temporary fence erected prior to a boring operation.
- \*The temporary woven wire fence shall be removed immediately upon completion of work on the right of way, and the control of access immediately restored to original condition, in accordance with applicable Kentucky Department of Highways Standard Drawings.
- \*All vents, valves, manholes, etc., shall be located outside of the right-of-way.
- \*Encasement pipe shall extend from right-of-way line to right-of-way line and shall be one continuous run of pipe. The encasement pipe shall be welded at all joints.
- The boring pit and tail ditch shall extend past the existing toe of slope or bottom of ditch line and shall be a minimum of 42 inches deep.

Permit No. 06-0646-11

**II. UTILITIES (Continued)**

- Encasement pipe shall conform to current standards for highway crossings in accordance with the Permits Manual.
- Parallel lines shall be constructed between back slope of ditch line and right-of-way line and shall have a minimum of 30-inch cover above top of pipe or conduit.
- All pavement cuts shall be restored per Kentucky Transportation Cabinet form TC 99-13.
- Aerial crossing of this utility line shall have a minimum clearance of \_\_\_\_\_ feet from the high point of the roadway to the low point of the line (calculated at the coefficient for expansion of 120 degrees Fahrenheit).
- The 30-foot clear zone requirement shall be met to the extent possible in accordance with the Permits Manual.
- Special requirements:

**III. GENERAL**

**A. OSHA**

- Kentucky Occupational Safety and Health Standards for the construction industry, which has the effect of law, states in part: (Page 52, 1926.651, Specific Excavation Requirements) "Prior to opening an excavation, effort shall be made to determine whether underground installations, (sewer, telephone, water, fuel, electric lines, etc.) will be encountered, and if so, where such underground installations are located. When the excavation approaches the estimated location of such an installation, the exact location shall be determined, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation."

**B. Archaeological**

- Whenever materials of an archaeological nature are discovered during the course of construction work or maintenance operations, contact shall be made immediately with the Division of Environmental Analysis, which maintains an archaeologist on staff, or with the Office of the State Archaeologist located at the University of Kentucky. Following this consultation, further action shall be decided on a case-by-case basis by the State Highway Engineer or the Transportation Planning Engineer or their designated representative.

**C. Utilities in the Work Areas**

- The permittee shall be responsible for any damage to existing utilities, and any utility modifications or relocations within state right of way necessary, as determined by the Department or by the owner of the utility, shall be at the expense of the permittee and subject to the approval of the Department.
- All existing manholes and valve boxes shall be adjusted to be flush with finished grade.

**D. Environmental**

- If the activity to which this permit relates disturbs one acre or more of land, you must obtain a KPDES KYR10 permit.

Websites

<http://www.water.ky.gov/permitting/wastewaterpermitting/KPDES/storm/>

Inspectors for KPDES KYR10 at [www.KEPSC.org](http://www.KEPSC.org)



Permit No. 06-0646-11

**VI. Paving**

- No bituminous pavement shall be installed within the right of way between November 15 and April 1, nor when the temperature is below 40 degrees Farenheit, without the express consent of the Department. No bituminous pavement shall be installed when the underlying course is wet.
- Paving within the right of way shall be as follows:
  - Base (Type) \_\_\_\_\_ (Thickness) \_\_\_\_\_
  - Surface Base (Type) \_\_\_\_\_ (Thickness) \_\_\_\_\_
  - Finished Surface (Type) \_\_\_\_\_ (Thickness) \_\_\_\_\_
- Existing pavement and shoulder material shall be removed to accomodate the above paving specifications.
- The finished surface of all new pavement within the right of way shall be true to the required slope and grade, uniform in density and texture, free of irregularities, and equivalent in riding qualities to the adjacent highway pavement or as determined by the Department of Highways.
- All materials and methods of construction, including base and subgrade preparation, shall be in accordance with Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- 24 hours notice to the Department is required prior to beginning paving operations.  
Phone: \_\_\_\_\_ Name: \_\_\_\_\_
- To ensure proper surface drainage, the new pavement shall be flush with the edge of existing highway pavement and shall slope away from the existing edge of the pavement as specified in drawings.
- Existing edge of pavement shall be saw-cut to provide a straight and uniform joint for new pavement. An approved joint sealer, in accordance with Kentucky Department of Highways Standard Specifications (latest edition), shall be applied between new and existing pavements.

**VII. SIDEWALKS SPECIFICATIONS** This dimension should be equal to the width of the sidewalk.

**A. New Sidewalks**

- Sidewalks shall be constructed of Class A concrete (3,500 p.s.i. test), shall be \*\_\_\_\_\_ feet in width, 6 inches in thickness across the bituminous entrance, and 4 inches in thickness across the remaining sections.
- Sidewalks shall have tooled joints not less than 1 inch in depth at four foot intervals\*, and 1/2 premolded expansion joints extending entirely through the sidewalk at intervals not to exceed 50 feet.
- All materials and methods of construction, including curing, shall be in accordance with the Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).

**B. Existing Sidewalks**

- (Applicable if existing sidewalks are being relocated)** Use of the sidewalk shall not be blocked or obstructed, and a usable walkway shall be maintained across the construction area at all times.
- All damaged sections of the sidewalks shall be entirely replaced to match existing sections.

**VIII. DENSE GRADED SHOULDERS**

- Any existing dense-graded aggregate shoulders in the entire frontage within the construction area, which have been disturbed or damaged or on which dirt has been placed or mud has been deposited or tracked, shall be restored to original condition by removal of all contaminated material and replaced to proper grade with new dense-graded aggregate.
- All new aggregate shoulders as specified in the plan shall consist of 5 inches of compacted dense-graded aggregate, 2<sup>1/2</sup> pounds per square yard of calcium chloride.
- All dense-graded aggregate shoulders shall slope away from the new edge of pavement at the rate of 3/4 inch per foot.

**IX. CURBING**

**A. Bituminous Curbs**

- Bituminous concrete curbs shall be given a paint coat of asphalt emulsion.
- The surface under the bituminous concrete curb shall be tacked with asphalt emulsion.
- All bituminous concrete curbs shall be constructed of a Class I bituminous concrete mixture as specified by official Department of Highways specifications.
- All bituminous curbs shall be rolled curb, with a minimum base width of 8 inches and a minimum height of \_\_\_\_\_ inches. The top of the curb shall be constructed in such a manner as to guarantee a uniform rolled effect throughout the entire run.

**B. Concrete Curbs**

- All curbs or curb and gutter shall be constructed of Class A concrete (3,500 p.s.i. test) and shall be uniform in height, width, and alignment, true to grade, and satisfactory in finish and appearance as determined by the Department. All materials and methods of construction, including curing, shall be in accordance with Department of Highways Standard Specifications for Road and Bridge Construction (latest edition).
- All concrete curbs shall be 6 inches in width, extend \_\_\_\_\_ inches above finished grade and 12 inches below finished grade, with all visible edge rounded to 1/2 inch radii.
- All concrete curbs shall have expansion joints constructed at intervals of not more than 30 feet, and 1/2 inch premolded expansion joint material (cut to conform to the curb or to the curb and gutter section) shall be used in each expansion joint.
- The last \_\_\_\_\_ feet of all concrete curbs are to be tapered down to finished grade.



Permit No. 06-0646-11

**X. RIGHT-OF-WAY FENCE REPLACEMENT**

- The replacement fence shall be a height of at least 48 inches and shall be of sufficient density to contain all animals (if applicable).
- The replacement fence shall be a minimum of 1 foot and a maximum of 2 feet outside the right-of-way line.
- The fence materials and design shall meet accepted industry standards and be treated as paintable.
- The permittee shall be required to maintain the fence in a high state of repair.
- The existing fence shall be removed by permittee and stored at the Department's maintenance storage yard for future reuse by the Department.
- The control of access shall not be diminished as a result of replacement of the fence.
- Miscellaneous:

**NOTICE TO PERMITTEE**

THE PERMITTEE AGREES THAT ALL WORK WITHIN THE EXISTING RIGHT OF WAY SHALL BE DONE IN ACCORDANCE WITH THE PLANS AS APPROVED AND PERMITTED BY AN ENCROACHMENT PERMIT. ANY CHANGES OR VARIANCES MADE AT THE TIME OF CONSTRUCTION WITHOUT WRITTEN APPROVAL FROM THE DEPARTMENT OF HIGHWAYS SHALL BE REMOVED BY THE PERMITTEE AT NO EXPENSE TO THE DEPARTMENT OF HIGHWAYS AND SHALL BE REDONE BY THE PERMITTEE TO CONFORM WITH THE APPROVED PLANS.

# IMPORTANT NOTICE

Federal law requires that High visibility Class 2 or Class 3 retroreflective safety apparel that meets ANSI/ISEA 107-2004 Standards shall be worn at all times by anyone working within the KYTC R/W limits.

Class 3 apparel is required for flaggers after dark.

If any questions, please contact James Minckley at (859) 341-2700.

# IMPORTANT NOTICE

Federal law requires that traffic control shall be implemented in accordance with MUTCD Standards and KYTC Specifications under the supervision of a Work Zone Traffic Control Supervisor.

A Work Zone Traffic Control Technician shall be available on the jobsite to ensure that the work zone is in compliance with the applicable standards.

If any questions, please contact James Minckley at (859) 341-2700.

		<u>BASE BID</u>		<u>Unit</u>	
<u>Item</u>		<u>Quantity</u>	<u>Unit</u>	<u>Price</u>	<u>Total</u>
<u>No.</u>	<u>Item</u>				
10	4" Steel Casing by Bore & Jack under State, County and City Roads (Water Line Not Included)	25	LF	\$ _____	\$ _____
11	12" Unclassified Bore and/or Jack under improved surfaces, including driveways, no casing required (Water Pipe Not Included)	25	LF	\$ _____	\$ _____
12	4" or Smaller Unclassified Bore and/or Jack under improved surfaces, including driveways, no casing required (Water Pipe Not Included)	250	LF	\$ _____	\$ _____
13	12" CI AWWA NRS Gate Valve and Box, Concrete Pad, Complete in Place	5	EA	\$ _____	\$ _____
14	4" CI AWWA NRS Gate Valve and Box, Concrete Pad, Complete in Place	11	EA	\$ _____	\$ _____
15	2" CI AWWA NRS Gate Valve and Box, Concrete Pad, Complete in Place	1	EA	\$ _____	\$ _____
16	Install 4" Gate Valve in Existing Water Line, including Valve Box, Concrete Pad, Complete in Place	2	EA	\$ _____	\$ _____
17	Install 2" Gate Valve in Existing Water Line, including Valve Box, Concrete Pad, Complete in Place	3	EA	\$ _____	\$ _____
18	Furnish & Install 4"x4" Tapping Tee and Valve	5	EA	\$ _____	\$ _____
19	Furnish & Install 4"x3" Tapping Tee and Valve	1	EA	\$ _____	\$ _____
20	Customer Service with Pressure Regulator, Tandom Copper Setter, Meter Box, Lid, Opposite Side of Road as Main, 70 feet service tubing (maximum)	4	EA	\$ _____	\$ _____

		<u>BASE BID</u>			
<u>Item</u>			<u>Unit</u>	<u>Price</u>	<u>Total</u>
<u>No.</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Price</u>	<u>Total</u>
21	Customer Service with Pressure Regulator, Tandom Copper Setter, Meter Box, Lid, Same Side of Road as Main, 10 feet service tubing (maximum)	2	EA	\$ _____	\$ _____
22	Customer Service, including Copper Setter, Meter Box, Lid, Opposite Side of Road as Main, 70 feet service tubing (maximum)	1	EA	\$ _____	\$ _____
23	Customer Service, including Copper Setter, Meter Box, Lid, Same Side of Road as Main, 10 feet service tubing (maximum)	10	EA	\$ _____	\$ _____
24	Existing Service Connection to Proposed Water Line, including New Meter and Lid, Opposite Side of Road as Main, 70' of Service Tubing (Max.)	7	EA	\$ _____	\$ _____
25	Existing Service Connection to Proposed Water Line, including New Meter and Lid, Same Side of Road as Main, 10' of Service Tubing (Max.)	8	EA	\$ _____	\$ _____
26	Existing Service Connection to Proposed Water Line, Opposite Side of Road as Main, 70' of Service Tubing (Max.) No New Meter	15	EA	\$ _____	\$ _____
27	Existing Service Connection to Proposed Water Line, Same Side of Road as Main, 10' of Service Tubing (Max.) No New Meter	16	EA	\$ _____	\$ _____
28	Existing 1" Service Connection to Proposed Water Line, Opposite Side of Road as Main, 70' of Service Tubing (Max.) No New Meter	1	EA	\$ _____	\$ _____
29	Replace Existing Customer Service with New Meter, Pressure Regulator, Tandom Copper Setter, Meter Box, Lid, Opposite Side of Road, 70 feet Service Tubing (Max.)	3	EA	\$ _____	\$ _____

		<u>BASE BID</u>			
Item			Unit		
<u>No.</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Price</u>	<u>Total</u>
30	Replace Existing Customer Service with New Meter, Pressure Regulator, Tandom Copper Setter, Meter Box, Lid, Same Side of Road, 10 feet Service Tubing (Max.)	4	EA	\$ _____	\$ _____
31	Additional 3/4" Service Tubing, Furnishing, Laying, Trenching and Backfilling. Where Required in Addition to Maximum Lengths	1,500	LF	\$ _____	\$ _____
32	Fire Hydrant Assembly Including Tee, valve, Valve Box, Mechanical Joint Anchoring, Pipe and Fittings. Complete in Place	3	LF	\$ _____	\$ _____
33	Single Nozzle Blowoff Hydrant Assembly, Including Tee, valve, Valve Box, Mechanical Joint Anchoring, Pipe and Fittings. Complete in Place	16	EA	\$ _____	\$ _____
34	#57 Crushed Stone on Trench Surface at Driveways, Roadway Crossings and Streets, Full Depth of Ditch	2,500	LF	\$ _____	\$ _____
35	Bituminous Paving Replacement on State Maintained Roads, County Roads and Driveways. Including gravel backfill.	250	LF	\$ _____	\$ _____
36	Concrete Paving Replacement, 6" Thick, including gravel backfill	150	LF	\$ _____	\$ _____
37	Cut and Cap Existing Water Line, All Sizes	8	EA.	\$ _____	\$ _____
38	4" Type "B" Creek Crossing Including Fittings, Concrete Casing, Casing Pipe, Complete in Place as shown on the detail	245	LF	\$ _____	\$ _____
39	Automatic Air Release Valve Assembly and Box, Complete in Place	7	EA	\$ _____	\$ _____

		<u>BASE BID</u>			
Item			Unit		
<u>No.</u>	<u>Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Price</u>	<u>Total</u>
40	1" By-Pass Meter, including Pressure Regulator, Tandom Copper Setter, Meter Box, Lid, Service Tubing	6	EA	\$ _____	\$ _____
41	Videotape Entire Work Area Prior to Start of Construction	1	LS	\$ _____	\$ _____
42	Existing Hydrant Removal, Including Isolation Valve	3	EA	\$ _____	\$ _____
43	Existing Gate Valve Box Removal	10	EA	\$ _____	\$ _____
44	Dutch Ridge Valve Vault, including but limited to meter, valves, fitting, power pole, vault as shown on plans, (Complete in Place)	1	LS	\$ _____	\$ _____
45	Crushed Stone Encasement of Pipe, where indicated on plans and as shown on details	500	LF	\$ _____	\$ _____
TOTAL BASE BID PRICE (Items 1 through 45)			\$	_____	
				(figures)	
				Dollars &	Cents
(WORDS)					

\*Contractor shall note that apparent low bidder shall be determined by the Total Bid Price of Items 1 through 45.

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance, etc., to cover the finished work of the several kinds called for complete in place.

\_\_\_\_\_  
(Contractor) (Date)

By \_\_\_\_\_

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_  
(Phone Number)

\_\_\_\_\_  
(Email Address)



BID BOND

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

\_\_\_\_\_ as Principal, and \_\_\_\_\_

as Surety, are hereby held and firmly bound unto \_\_\_\_\_

\_\_\_\_\_ as OWNER in the penal sum of \_\_\_\_\_

\_\_\_\_\_ for the payment of which, well and truly

to be made, we hereby jointly and severally bind ourselves, successors and assigns. Signed, this

day of \_\_\_\_\_, 20 \_\_\_\_.

The Condition of the above obligation is such that whereas the Principal has submitted to \_\_\_\_\_

\_\_\_\_\_ a certain BID, attached hereto and hereby made a part hereof to enter into a contract in writing,

for the \_\_\_\_\_

NOW, THEREFORE,

- (a) If said BID shall be rejected, or
- (b) If said BID shall be accepted and the Principal shall execute and deliver a contract in the Form of Contract attachment hereto (properly completed in accordance with said BID) and shall furnish a BOND for faithful performance of said contract, and for the payment of all persons performing labor, 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.

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.

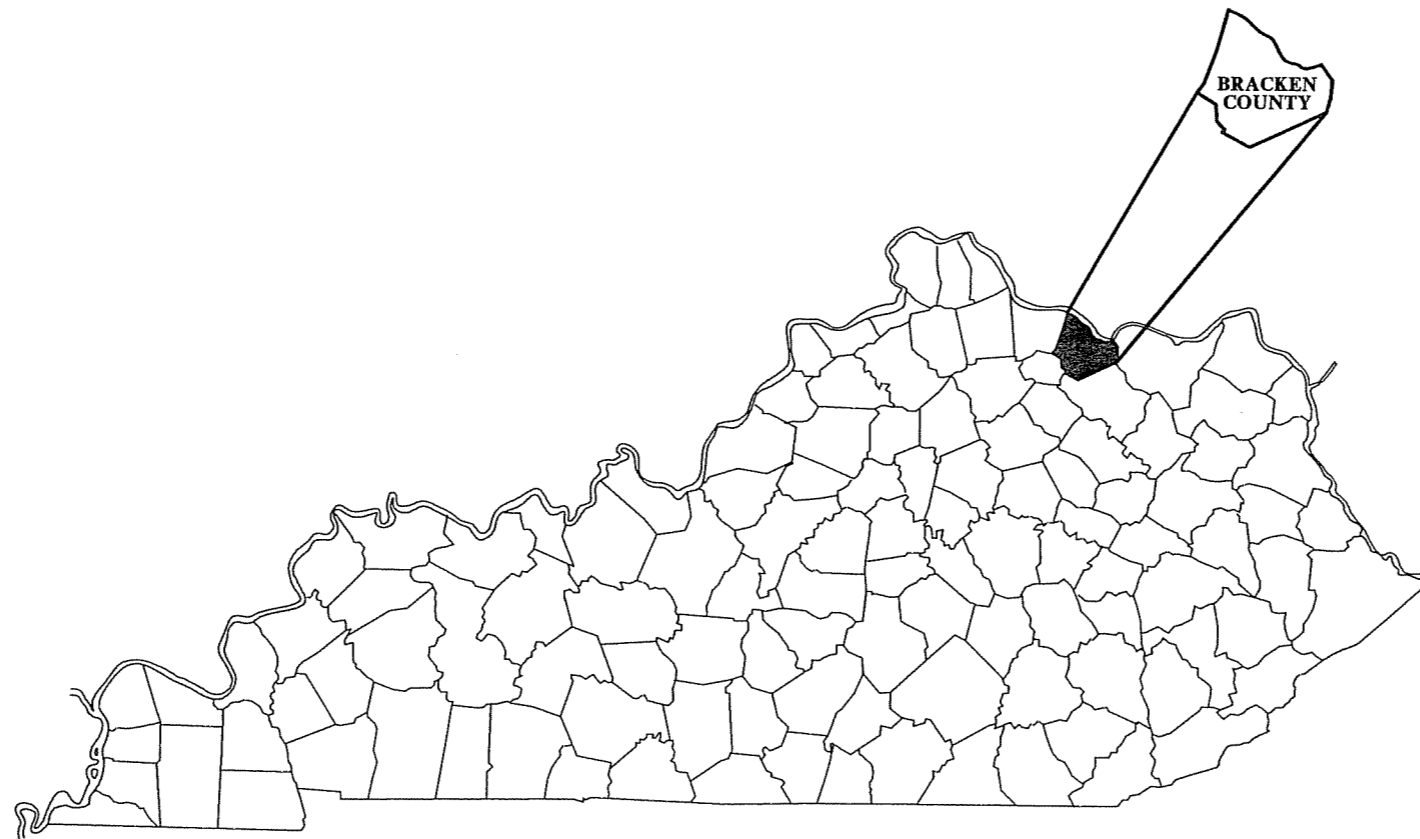
\_\_\_\_\_(L.S.)  
Principal

\_\_\_\_\_  
Surety

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

IMPORTANT - 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.

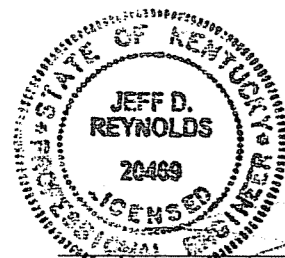
# SHORT ROADS PROJECT BRACKEN COUNTY WATER DISTRICT BRACKEN COUNTY, KENTUCKY



## INDEX OF SHEETS

1 - 5	"AA" HIGHWAY (KY 9)
6 - 7	OLD PEA RIDGE ROAD
8 - 11	AUGUSTA-BERLIN ROAD
12 - 10	AUGUSTA-BERLIN ROAD (12" D.I.)
20 - 22	BADGER ROAD
23 - 25	CASE RIDGE ROAD
26 - 29	KY 1011
30 - 32	KY 1011 @ KY 1159
33 - 36	MINI FARM ROAD

**NOVEMBER 2011**



JEFF D. REYNOLDS, P.E.  
KENTUCKY REGISTRATION NO. 20,469

*[Signature]* 12/27/11

RECEIVED

DEC 29 2011

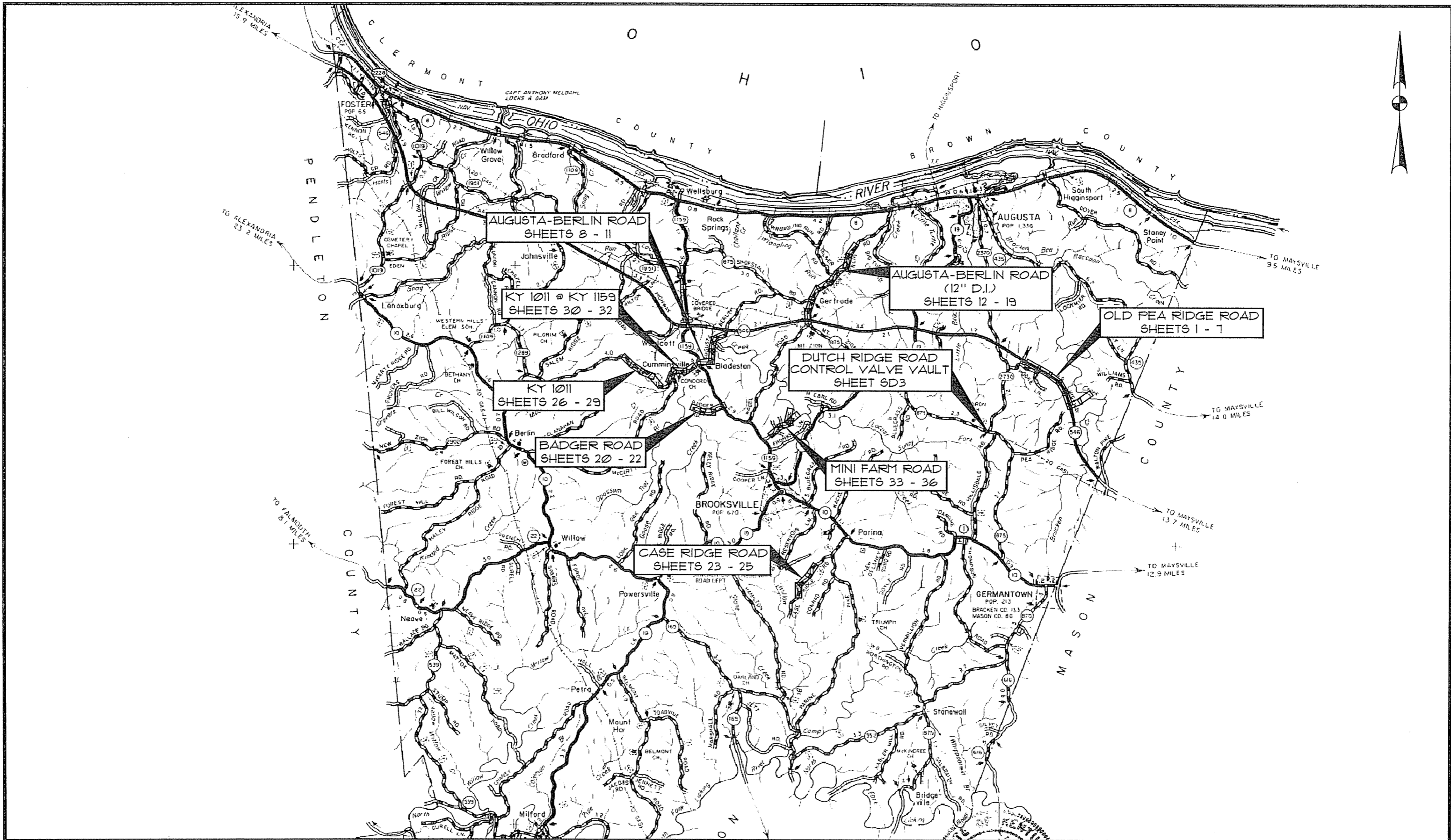
PUBLIC SERVICE  
COMMISSION

Plans Prepared By:



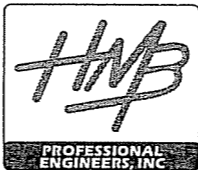
3 HMB Circle (502)895-9800  
Frankfort, Kentucky Fax (502)895-9810

2011-00519

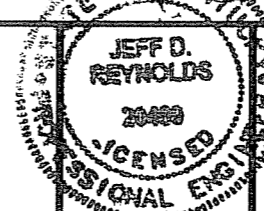


PROJECT: 416200 DATE: APRIL 2011  
SCALE: N.T.S.

DESIGNED BY	NAME	DATE
JDR <td>JDR <td></td> </td>	JDR <td></td>	
DRAWN BY <td>SAB <td></td> </td>	SAB <td></td>	
CHECKED BY <td>JDR <td></td> </td>	JDR <td></td>	
RECORD DRG'S. <td></td> <td></td>		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

PROJECT LOCATION MAP

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

SHEET  
I

## GENERAL NOTES

UNLESS OTHERWISE NOTED, A SEPARATE BID ITEM HAS NOT BEEN ESTABLISHED FOR FITTINGS. THE FITTINGS INVOLVED, BUT NOT LIMITED TO, TEES, BENDS, PLUGS, REDUCERS, SADDLES, CROSSES, COUPLINGS, ETC. CONTRACTOR SHALL INCLUDE THE COST OF THESE ITEMS IN THE UNIT PRICE FOR THE PIPE.

NO SEPARATE PAY ITEM HAS BEEN ESTABLISHED FOR CONNECTION TO EXISTING LINES. THE COST FOR CONNECTING TO EXISTING LINES SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PIPE.

NO PAY ITEM FOR EXTRA TRENCH DEPTH HAS BEEN SET UP. CONTRACTOR SHALL INCLUDE THE COST OF THE ADDITIONAL DEPTH IN HIS UNIT PRICE WHEN THE WATER PIPE CROSSES UNDER AN EXISTING UTILITY, CULVERT OR DRAINAGE DITCH.

FINAL LOCATION OF SERVICES, GATE VALVES AND OTHER APPURTENANCES ARE TO BE FIELD LOCATED DURING CONSTRUCTION AND APPROVED BY THE ENGINEER.

EXISTING UTILITIES, ESPECIALLY GAS LINES AND OIL LINES, MAY BE CATHODICALLY PROTECTED, THEREFORE, DUCTILE IRON PIPE, FITTINGS GATE VALVES, AND/OR BOXES LAID WITHIN 100' OF THESE LINES WITH CATHODIC PROTECTION SHALL MEET THE REQUIREMENTS OF AWWA C-105, LATEST REVISION. A SEPARATE PAY ITEM HAS NOT BEEN ESTABLISHED. ALL COSTS FOR LABOR AND MATERIALS MUST BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.

ALL DAMAGE TO EXISTING UTILITIES CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION ACTIVITY TO THE AREA WITHIN THE EXISTING EASEMENTS AND CONSTRUCTION LIMITS, UNLESS OTHERWISE APPROVED IN WRITING BY THE OWNER.

THE CONTRACTOR WILL BE SOLELY LIABLE FOR ANY WORK HE PERFORMS OUTSIDE OF LEGAL EASEMENTS OR CONSTRUCTION LIMITS.

IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO ASCERTAIN THE LOCATIONS OF ANY AND ALL UTILITIES ENCOUNTERED BY THE FINAL ALIGNMENT OF WATERLINE. THE CONTRACTOR SHALL USE CAUTION WHEN EXCAVATING AND SHALL TAKE THE NECESSARY MEASURES TO PROTECT THE EXISTING UTILITIES TO KEEP THEM IN SERVICE. IF UTILITIES ARE SHOWN, THE INFORMATION IS GENERAL IN NATURE AND NOT TO BE TAKEN AS AS-BUILTS. CONTRACTOR SHALL CONTACT REPRESENTATIVES OF LOCAL UTILITIES A MINIMUM OF 48 HOURS BEFORE COMMENCING WORK ON THE PROJECT.

ALL WATER MAINS SHALL BE PVC CLASS 200 SDR 21 UNLESS OTHERWISE NOTED ON THE PLANS.

AT THE CONTRACTORS OPTION, CLASS 350 DUCTILE IRON PIPE MAY BE SUBSTITUTED FOR ANY PIPE PARTICULARLY SPECIFIED, BUT AT NO ADDITIONAL COST TO THE OWNER.

PROVIDE 40" MINIMUM COVER FOR ALL WATER MAINS PLACED WITHIN UNPAVED COUNTY ROADS OR IN DITCH LINES.

THE CONTRACTOR SHALL NOTIFY PROPERTY OWNERS PRIOR TO PERFORMING DRIVEWAY CUTS IN ORDER TO PROVIDE PROPERTY OWNER ACCESS TO THE PUBLIC RIGHT-OF-WAY. THE CONTRACTOR SHALL INSTALL THESE DRIVEWAY CROSSINGS WITH EXPEDIENCE AND SHALL RESTORE THE DRIVEWAY AS SOON AS POSSIBLE.

ALL PAVED AND CONCRETE SURFACES, INCLUDING DRIVEWAYS, CROSSED BY THE PROPOSED WATER MAINS SHALL BE BORED AND JACKED (UNCASED).

ALL TEES AND BENDS SHALL BE THRUST BLOCKED AS DETAILED ON THE THRUST BLOCK DETAIL SHEET. COST TO BE INCLUDED IN THE UNIT PRICE BID FOR PIPE.

ALL EXISTING WATER LINES THAT ARE TO BE ABANDONED SHALL BE PLUGGED WITH CONCRETE. ALL COSTS INCLUDING LABOR AND MATERIALS SHALL BE INCLUDED IN THE UNIT PRICE FOR PLUGGING EXISTING WATER LINES.

SEPTIC SYSTEMS NOTED WHERE PROPERTY OWNER NOTIFIED US. ALL MAY NOT BE SHOWN. CONTRACTOR TO USE CAUTION IN THESE AREAS. WATER MAIN TO BE ENCASED IN CONCRETE WHEN LAID WITHIN 10' OF DRAIN LINES OR FIELD. SEE DETAIL AND NOTE ON STANDARD DETAIL SHEET.

UNLESS OTHERWISE NOTED, A SEPARATE BID ITEM HAS NOT BEEN ESTABLISHED FOR CONNECTIONS TO EXISTING SYSTEM. CONTRACTOR SHALL INCLUDE COST OF CONNECTIONS TO EXISTING SYSTEM IN THE UNIT PRICE FOR THE PIPE.

THE CONTRACTOR SHALL BE REQUIRED TO CLEAN IMMEDIATELY AFTER INSTALLING WATER LINE WHERE MAIN IS TO BE LAID ON STATE RIGHT-OF-WAY.







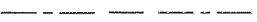


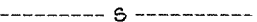
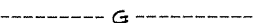




THE FOLLOWING GENERAL NOTES ARE REQUIREMENTS OF THE COMMONWEALTH OF KENTUCKY TRANSPORTATION CABINET PERMIT ENGINEERS. THESE NOTES APPLY WHEN LAYING WATER LINE IN STATE RIGHT-OF-WAY:

ALL WATER LINES BEING PLACED ABOVE CROSS DRAINS NEED TO HAVE AT LEAST ONE (1) FOOT OF SOIL MATERIAL AS A CUSHION BETWEEN LINE AND THE CROSS DRAIN CULVERT. SEE UTILITY CROSSING DETAIL.

ALL PROPOSED WATER LINES TO BE PLACED BEHIND ALL PRIVATE AND COMMERCIAL ENTRANCE CULVERTS.

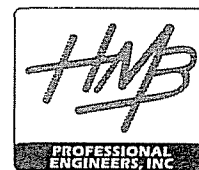
ALL PROPOSED WATER LINES TO BE PLACED AT BACK OF DITCH LINE IN TIGHT AREAS.

### LEGEND

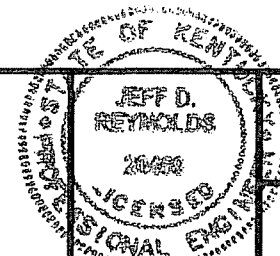
PROPOSED WATERLINE	
EXISTING WATERLINE	
PROPOSED BUTTERFLY VALVE	
EXISTING GATE OR BUTTERFLY VALVE	
AUTOMATIC AIR RELEASE VALVE	
FIRE HYDRANT	
PROPERTY LINE	
BLOWOFF ASSEMBLY	
STREAM	
EXISTING SANITARY SEWER	
EXISTING GAS LINE	
PLUG	
FENCE	
PVA MAP - PARCEL NUMBER	
POWER POLE	

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200 DATE: APRIL 2011	
SCALE: N.T.S.	
DESIGNED BY	JDR
DRAWN BY	SAB
CHECKED BY	JDR
RECORD DUGS.	



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



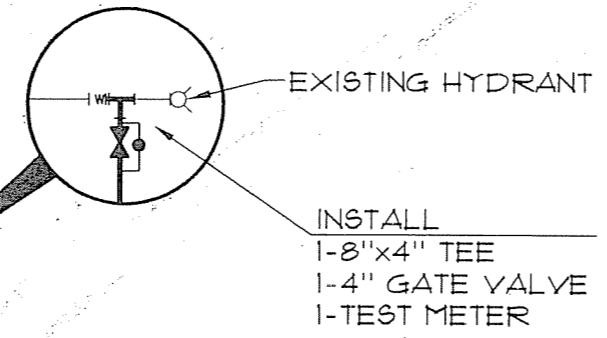
**WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY**

STANDARD DETAILS

SHEET  
II

EXISTING 8" WATER LINE

INDUSTRIAL PARK No. 2



PROPOSED 4" SDR-21, CL. 200 WATER LINE.

EXISTING R/W FENCE

INDUSTRIAL PARK TB

5+00

10+00

100' FROM CL.

100' FROM CL.

AA HIGHWAY (KY 9)

LAY PROPOSED WATER LINE ON STATE R/W

SEE SHEET 2  
MATCH LINE STA. 11+00

HOOK LANE

SOUTH HOOK LANE

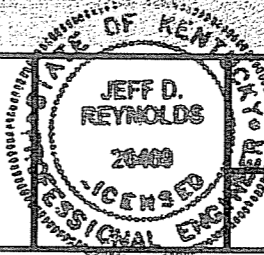
P:\engr\m\4162\CAD\AA HIGHWAY.dwg, 11/3/2011 8:57:22 AM, ENV\_X854e

PROJECT: 4162.00 DATE: DEC. 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



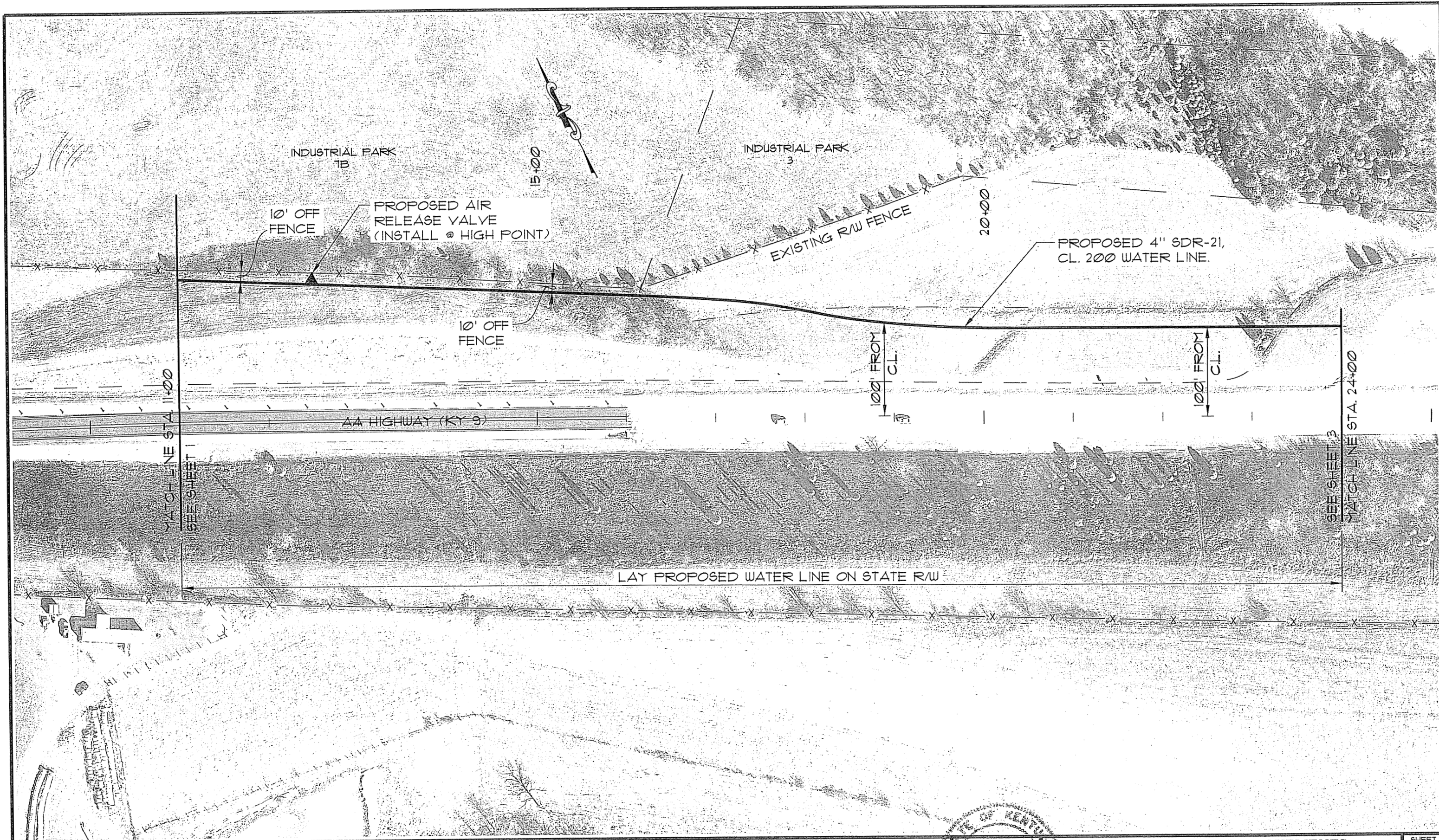
WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

"AA" HIGHWAY (KY 9) - STA. 0+00 TO STA. 11+00

SHEET  
1  
OF  
36

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

P:\engr\m\162\CAD\AA HIGHWAY.dwg, 11/3/2011 8:59:17 AM, ENV\_X854e



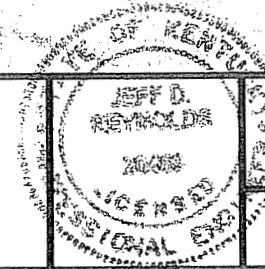
NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200 DATE: DEC 2010  
SCALE: 1"=100'

	NAME	DATE
DESIGNED BY	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

"AA" HIGHWAY (KY 9) - STA. 11+00 TO STA. 24+00

SHEET  
2  
OF  
36



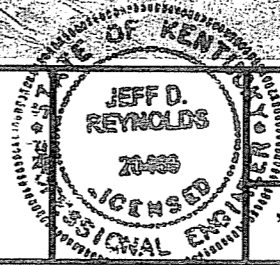
P:\engr\m\4162\CAD\AA HIGHWAY.dwg, 11/3/2011 9:00:46 AM, ENV\_XB54e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	JDR	
CHECKED BY	SAB	
RECORD DWS.	JDR	



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX

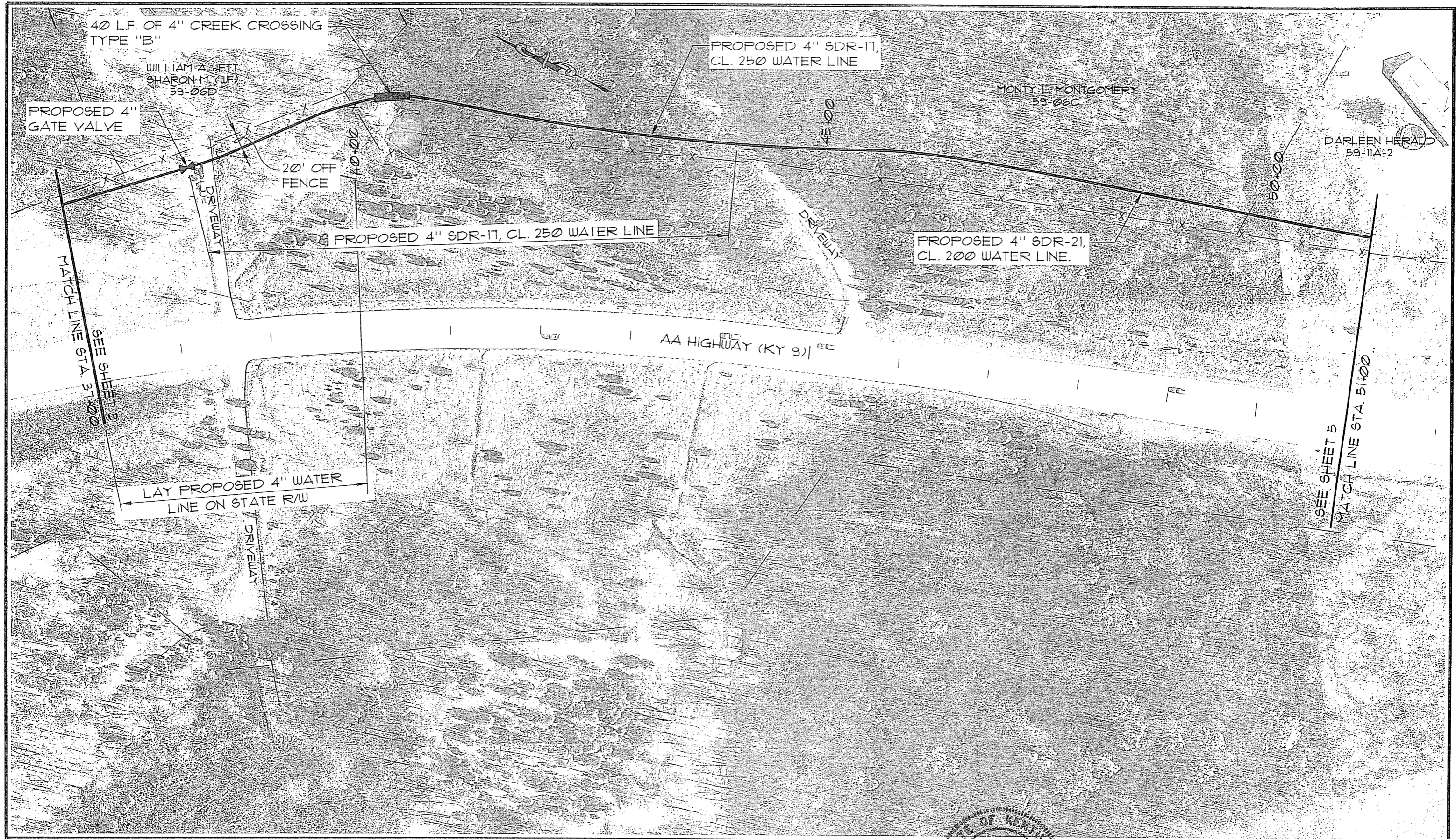


**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

"AA" HIGHWAY (KY 9) - STA. 24+00 TO STA. 37+00

SHEET  
3  
OF  
36

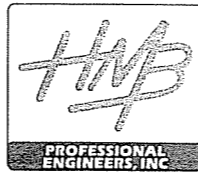




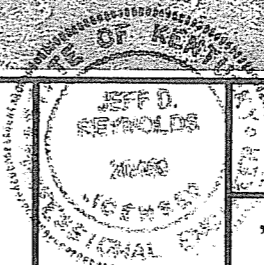
P:\engr\env\162\CAD\AA HIGHWAY.dwg, 11/3/2011 9:03:39 AM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	JDR	
CHECKED BY	SAB	
RECORD DUGS.	JDR	



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX

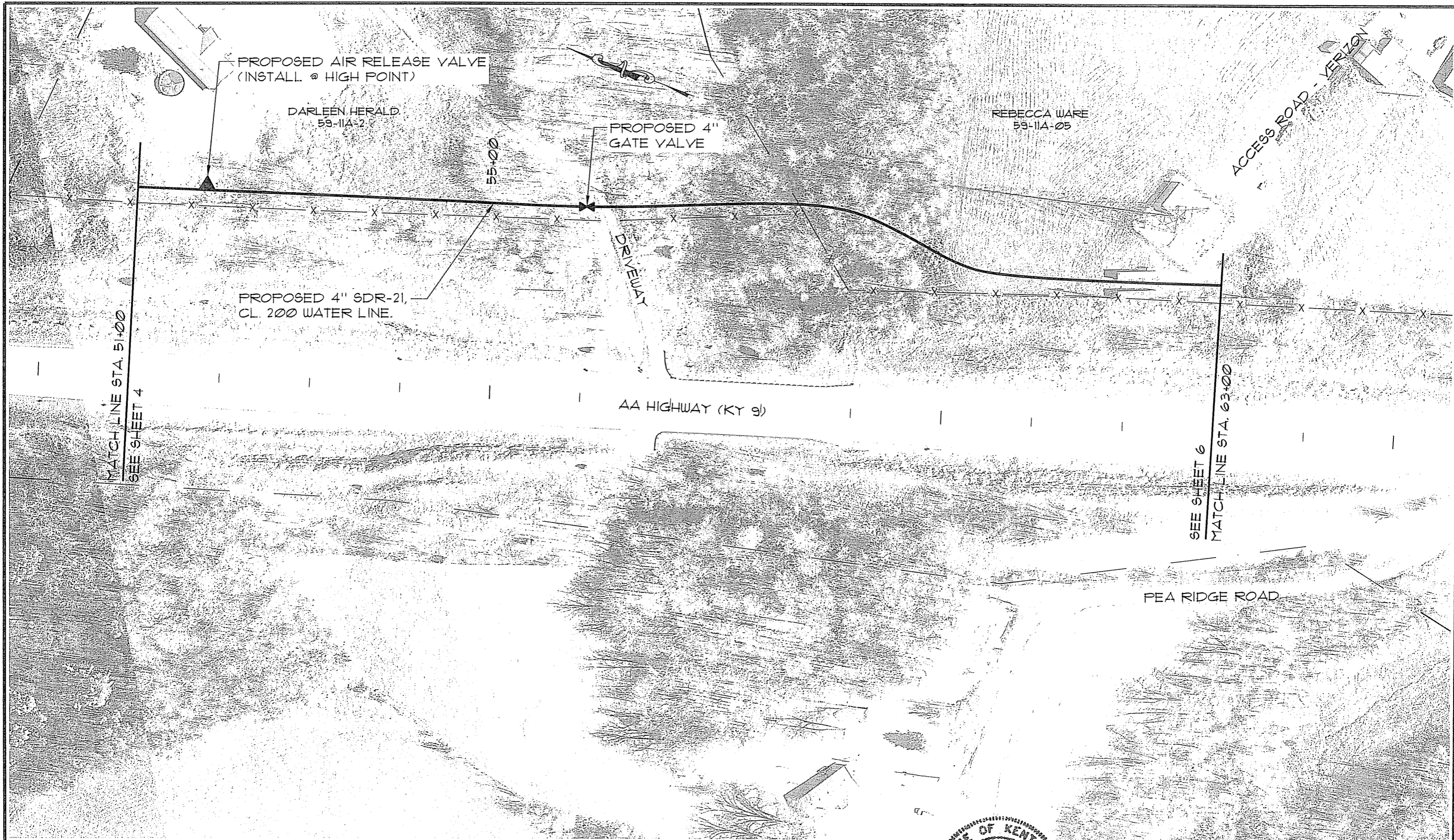


**WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY**

"AA" HIGHWAY (KY 9) - STA. 37+00 TO STA. 51+00

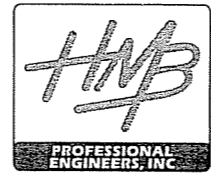
SHEET	4
OF	36

P:\engr\m\4162\CAD\AA HIGHWAY.dwg, 11/2/2011 9:10:11 AM, ENV\_X854e

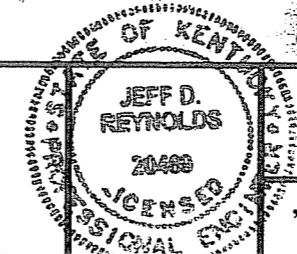


NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	JDR	
CHECKED BY	SAB	
	JDR	
RECORD DUGS.		



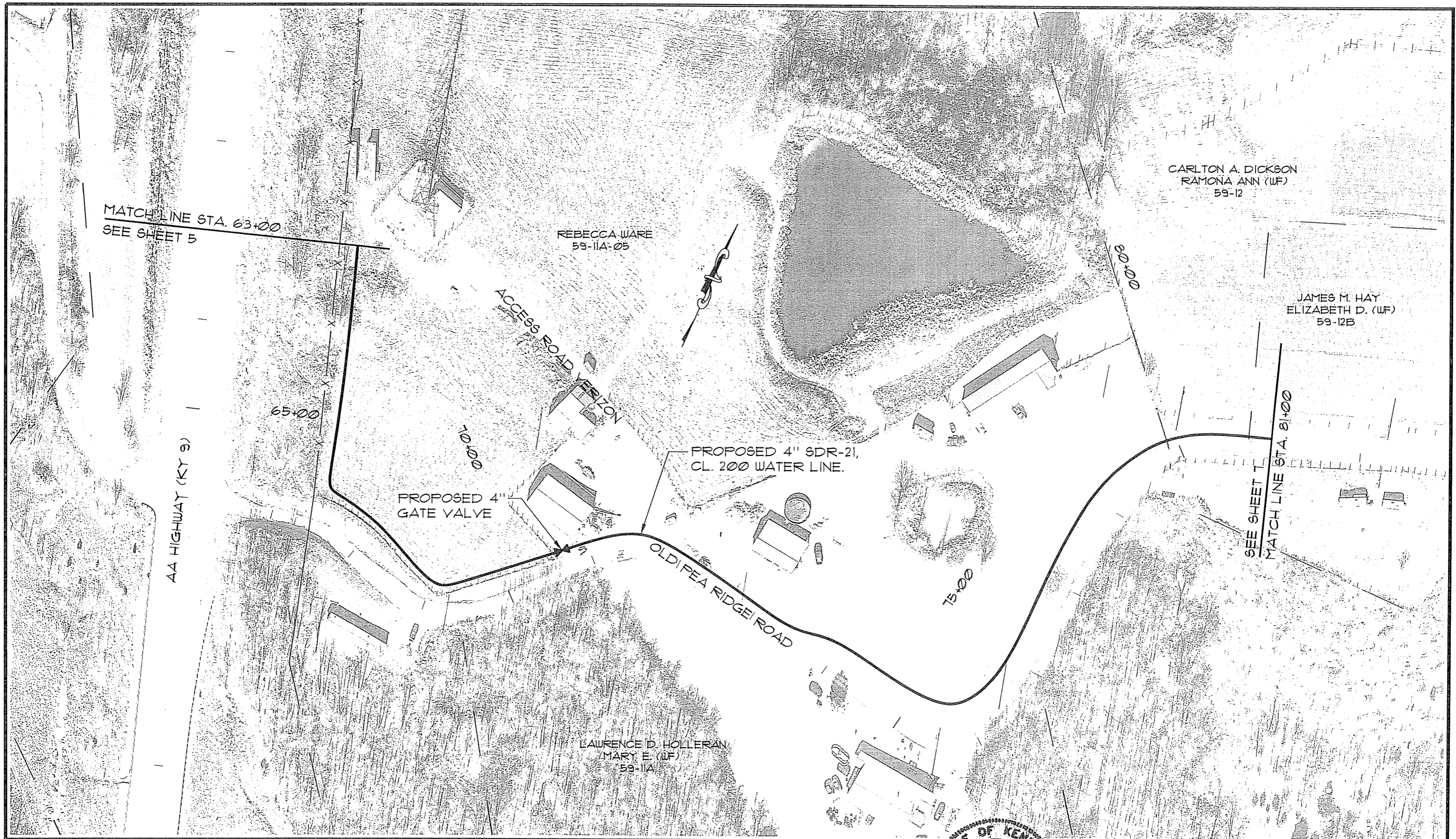
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

"AA" HIGHWAY (KY 9) - STA. 51+00 TO STA. 63+00

SHEET  
5  
OF  
36



CARLTON A. DICKSON  
 RAMONA ANN (WF)  
 59-12

JAMES M. HAY  
 ELIZABETH D. (WF)  
 59-12B

REBECCA WARE  
 59-11A-05

LAURENCE D. HOLLERAN  
 MARY E. (WF)  
 59-11A

MATCH LINE STA. 63+00  
 SEE SHEET 5

SEE SHEET 7  
 MATCH LINE STA. 81+00

AA HIGHWAY (KY 9)

65+00

70+00

PROPOSED 4" SDR-21,  
 CL. 200 WATER LINE.

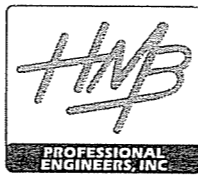
PROPOSED 4"  
 GATE VALVE

OLD PEA RIDGE ROAD

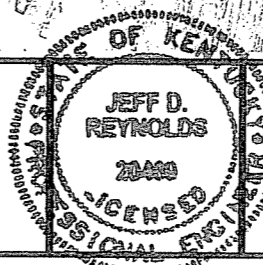
75+00

PROJECT: 4162.00 DATE: DEC. 2010  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



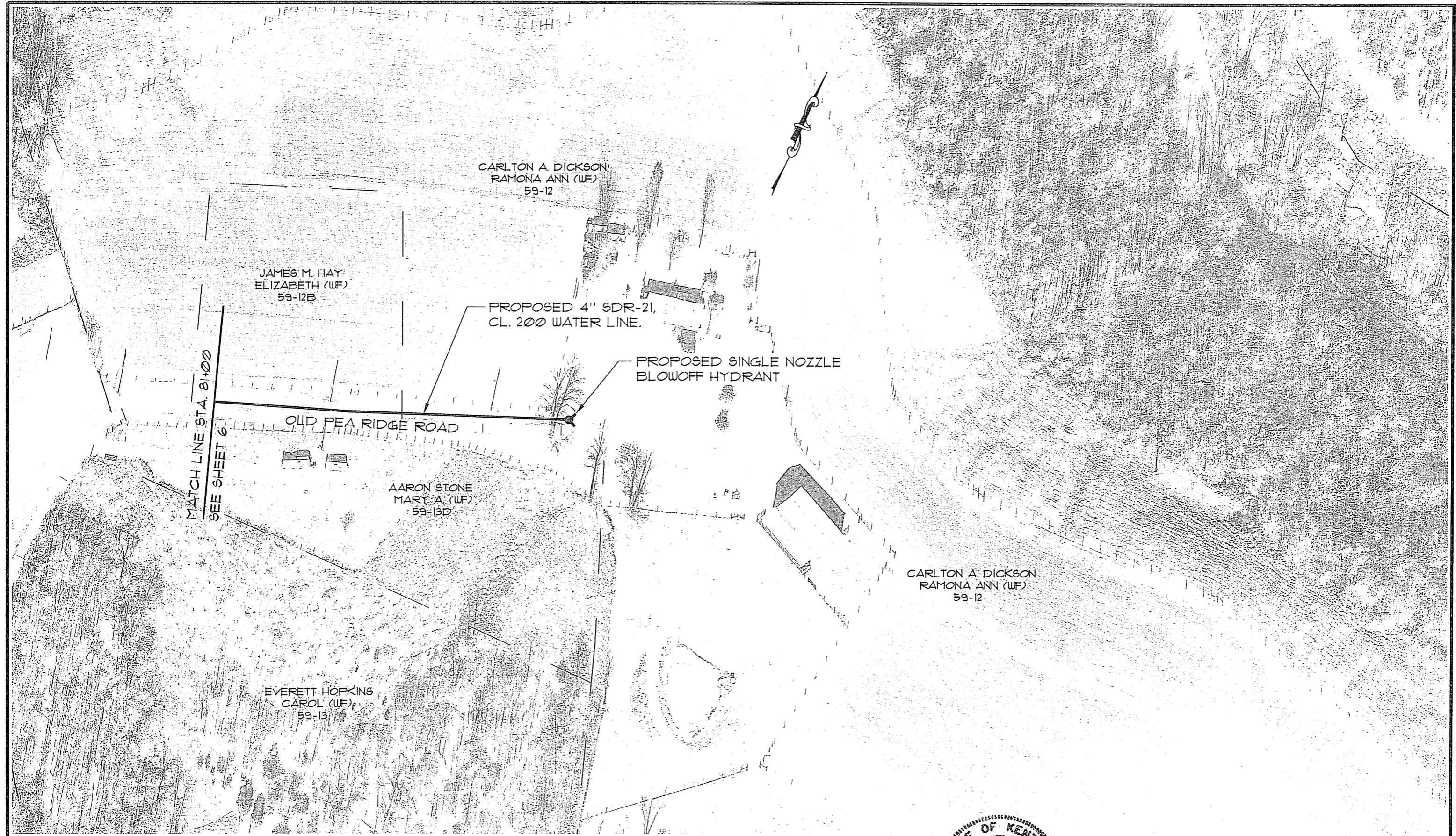
3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
 BRACKEN COUNTY WATER DISTRICT  
 BRACKEN COUNTY, KENTUCKY

OLD PEA RIDGE ROAD - STA. 63+00 TO STA. 81+00

SHEET	6
OF	36



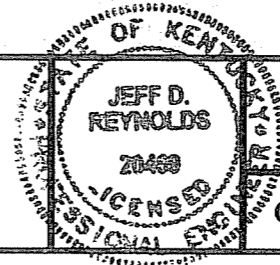
MATCH LINE STA. 81+00  
SEE SHEET 6

PROJECT: 4162.00 DATE: DEC. 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
SAB	SAB	
JDR	JDR	
RECORD DUGS.		



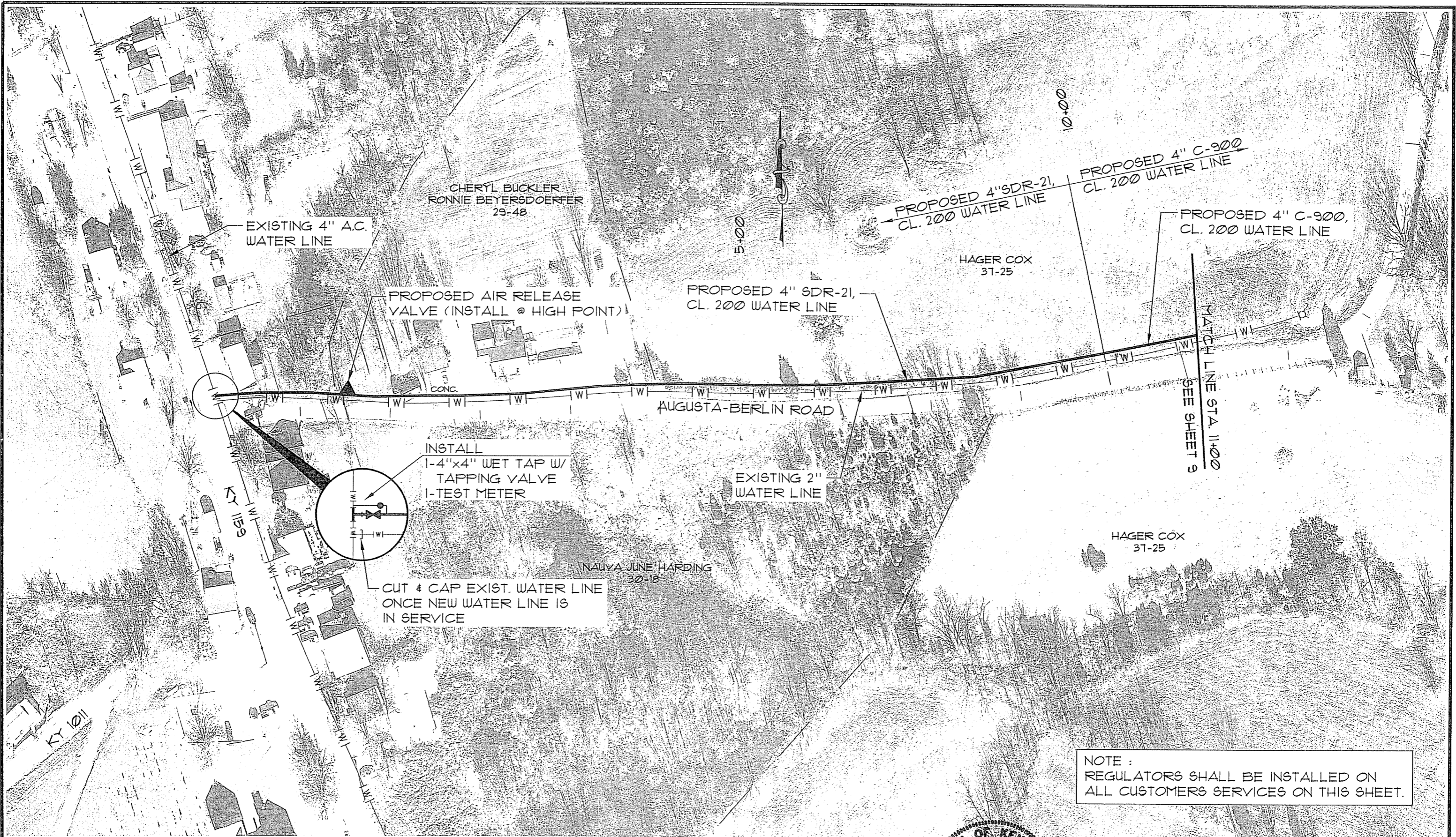
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

OLD PEA RIDGE ROAD - STA. 81+00 TO STA. 86+12

SHEET  
7  
OF  
36



EXISTING 4" A.C. WATER LINE

CHERYL BUCKLER  
RONNIE BEYERSDOERFER  
29-48

PROPOSED AIR RELEASE VALVE (INSTALL @ HIGH POINT)

PROPOSED 4" SDR-21, CL. 200 WATER LINE

PROPOSED 4" SDR-21, CL. 200 WATER LINE

PROPOSED 4" C-900 CL. 200 WATER LINE

PROPOSED 4" C-900, CL. 200 WATER LINE

HAGER COX  
37-25

AUGUSTA-BERLIN ROAD

MATCH LINE STA. 11+00  
SEE SHEET 9

INSTALL 1-4"x4" WET TAP W/ TAPPING VALVE I-TEST METER

EXISTING 2" WATER LINE

CUT & CAP EXIST. WATER LINE ONCE NEW WATER LINE IS IN SERVICE

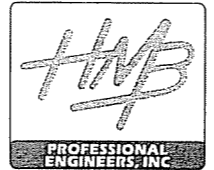
NALVA JUNE HARDING  
30-18

HAGER COX  
37-25

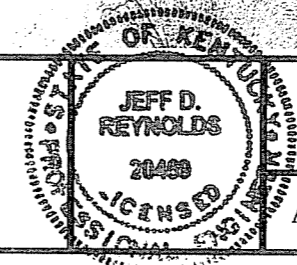
NOTE : REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

PROJECT: 416200 DATE: DEC 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR		
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



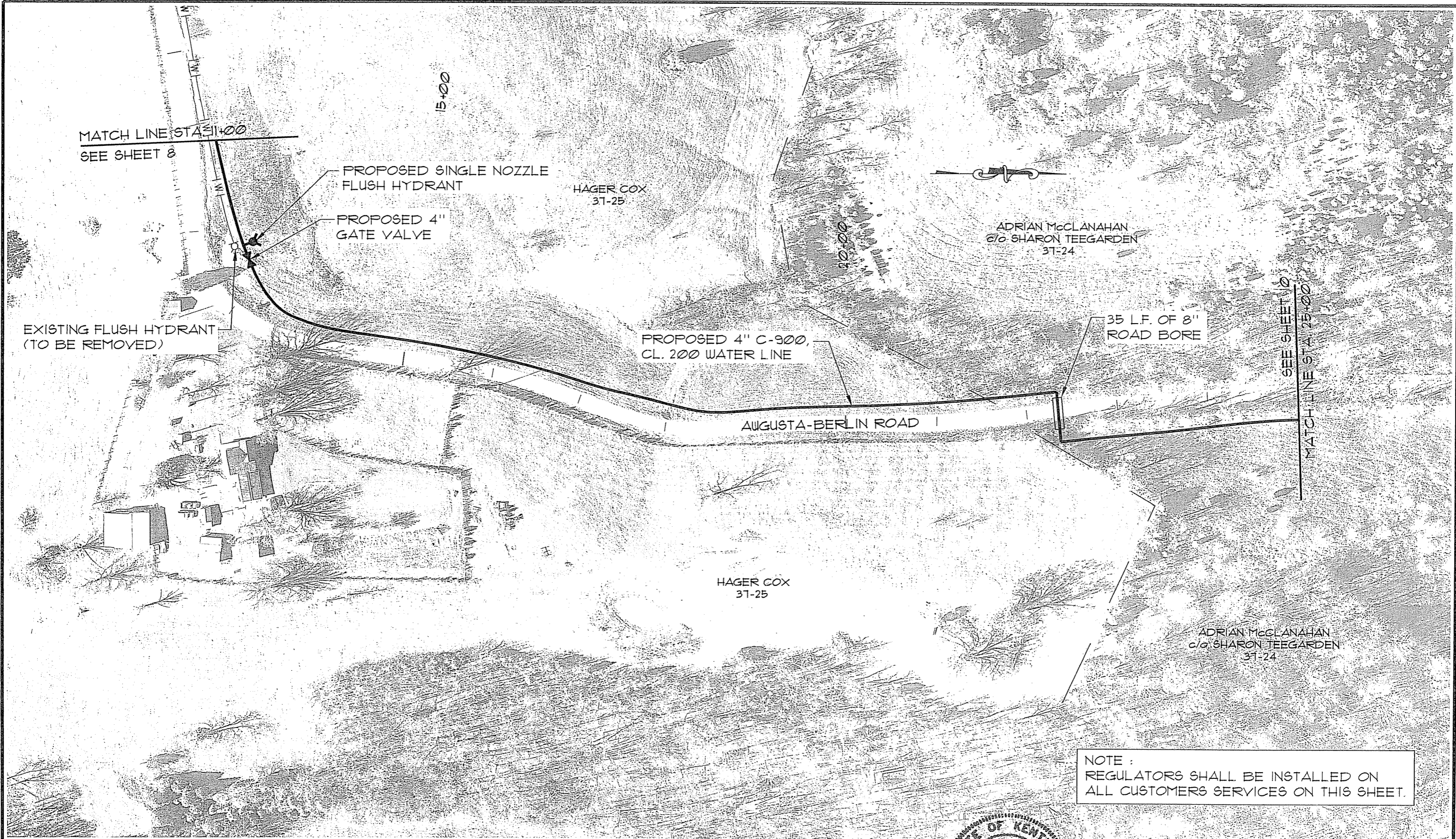
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

AUGUSTA-BERLIN ROAD - STA. 0+00 TO STA. 11+00

SHEET  
8  
OF  
36



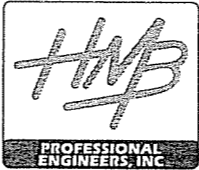
NOTE :  
REGULATORS SHALL BE INSTALLED ON  
ALL CUSTOMERS SERVICES ON THIS SHEET.

P:\engr\env\4162\CAD\AUGUSTA\_BERLIN ROAD.dwg, 11/3/2011 9:35:45 AM, ENV\_X854e

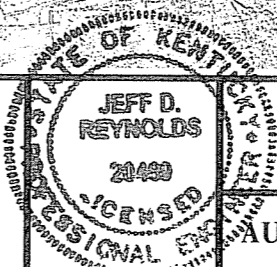
NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX

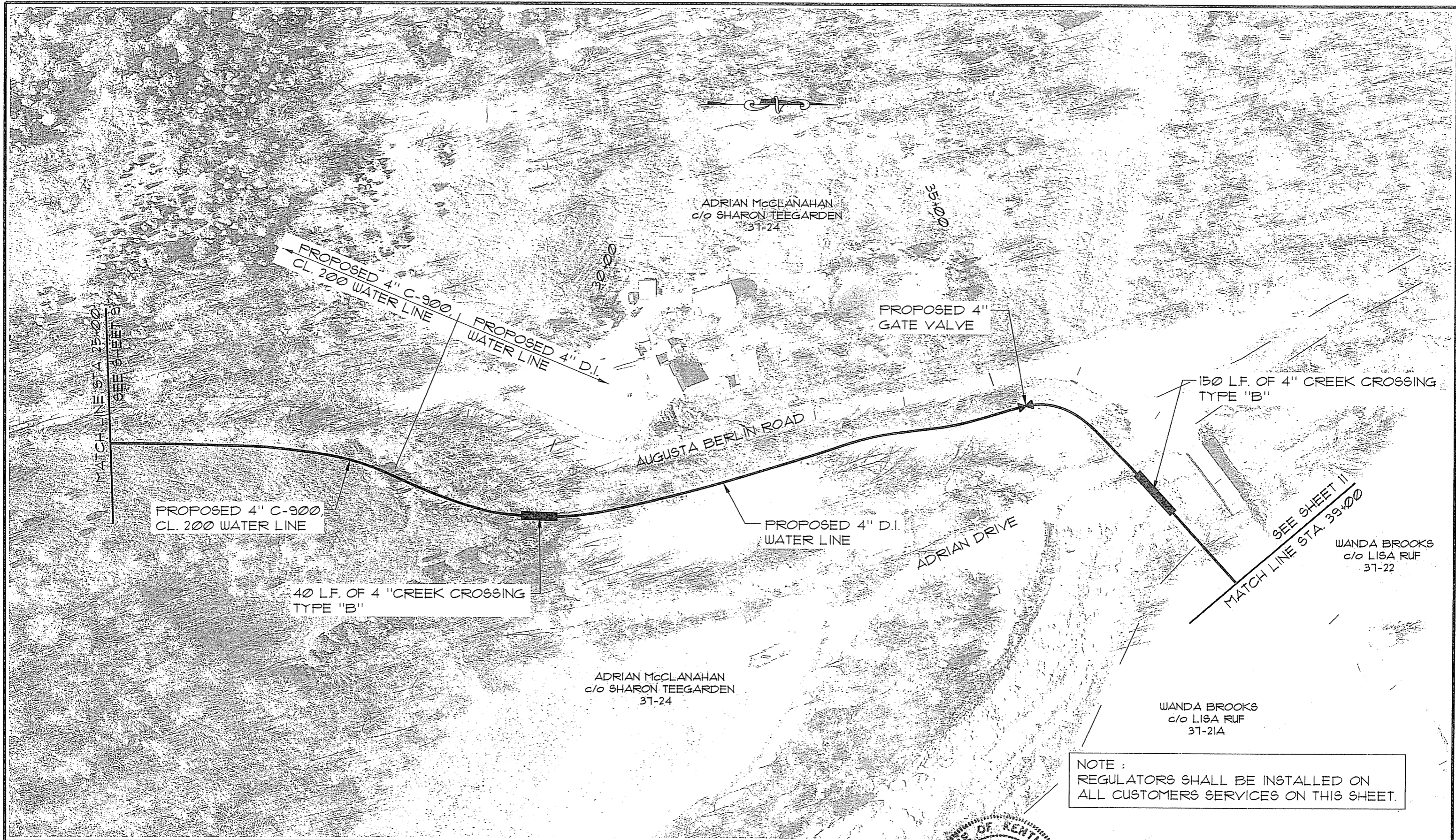


**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

AUGUSTA-BERLIN ROAD - STA. 11+00 TO STA. 25+00

SHEET  
9  
OF  
36

P:\engr\env\4162\CAD\4162\UGUSTA\_BERLIN ROAD.dwg, 11/3/2011 9:47:18 AM, ENV\_X854e



ADRIAN McCLANAHAN  
c/o SHARON TEEGARDEN  
31-24

35+00

30+00

PROPOSED 4" C-900  
CL. 200 WATER LINE

PROPOSED 4" D.I.  
WATER LINE

PROPOSED 4"  
GATE VALVE

150 L.F. OF 4" CREEK CROSSING  
TYPE "B"

MATCH LINE STA. 25+00  
SEE SHEET I

PROPOSED 4" C-900  
CL. 200 WATER LINE

AUGUSTA BERLIN ROAD

PROPOSED 4" D.I.  
WATER LINE

ADRIAN DRIVE

SEE SHEET II  
MATCH LINE STA. 39+00

40 L.F. OF 4 "CREEK CROSSING  
TYPE "B"

WANDA BROOKS  
c/o LISA RUF  
31-22

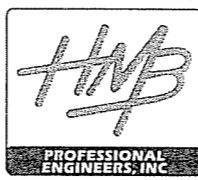
ADRIAN McCLANAHAN  
c/o SHARON TEEGARDEN  
31-24

WANDA BROOKS  
c/o LISA RUF  
31-21A

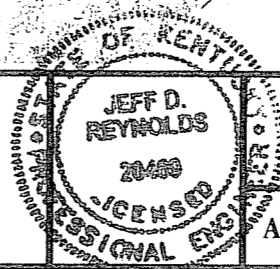
NOTE :  
REGULATORS SHALL BE INSTALLED ON  
ALL CUSTOMERS SERVICES ON THIS SHEET.

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRGS.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

AUGUSTA-BERLIN ROAD - STA. 25+00 TO STA. 39+00

SHEET  
10  
OF  
36

WANDA BROOKS  
c/o LISA RUF  
37-22

LAY PROPOSED 4" D.I.  
WATER LINE ON STATE R/W

45+00

SEE SHEET 10  
MATCH LINE STA. 39+00

PROPOSED 4" D.I.  
WATER LINE

PROPOSED SINGLE NOZZLE  
BLOWOFF HYDRANT

AUGUSTA-BERLIN ROAD

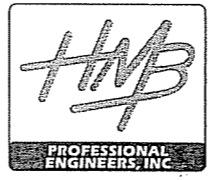
ADRIAN DRIVE

WANDA BROOKS  
c/o LISA RUF  
37-21A

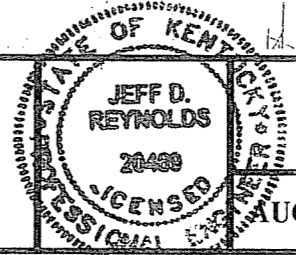
NOTE :  
1. REGULATORS SHALL BE INSTALLED ON  
ALL CUSTOMERS SERVICES ON THIS SHEET.

PROJECT: 4162.00 DATE: DEC 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRGGS.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

AUGUSTA-BERLIN ROAD - STA. 39+00 TO STA. 46+15

SHEET  
11  
OF  
36



P:\engr\env\4162\CAD\UGUSTA-BERLIN ROAD-12" D.I.dwg, 11/3/2011 9:59:00 AM, ENV\_X854e

INSTALL  
 12"x12" TEE  
 1-12" GATE VALVE  
 1-AIR RELEASE VALVE  
 CUT & CAP EXISTING WATER LINE  
 ONCE NEW WATER LINE IS IN SERVICE

EXISTING AIR  
 RELEASE VALVE

ROBERT T. JONES  
 KAREN S. (WF)  
 43-16A

EXISTING 12" PVC  
 WATER LINE

MATCH LINE STA. 13+00  
 SEE SHEET 13

EXISTING AIR  
 RELEASE VALVE

PROPOSED 12" D.I.  
 WATER LINE

EXISTING 12" D.I. WATER LINE

EXISTING 12" PVC WATER LINE

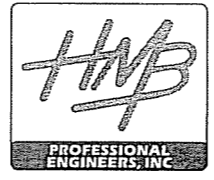
STANFORD BOSTER TRUST  
 43-16

STANFORD BOSTER TRUST  
 43-09

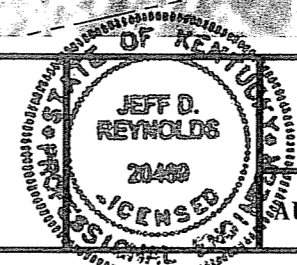
NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE LAID IN THE EXISTING EASEMENT WHEN LAID PARALLEL TO THE EXISTING WATER LINE.

PROJECT: 416200 DATE: MARCH 2011  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



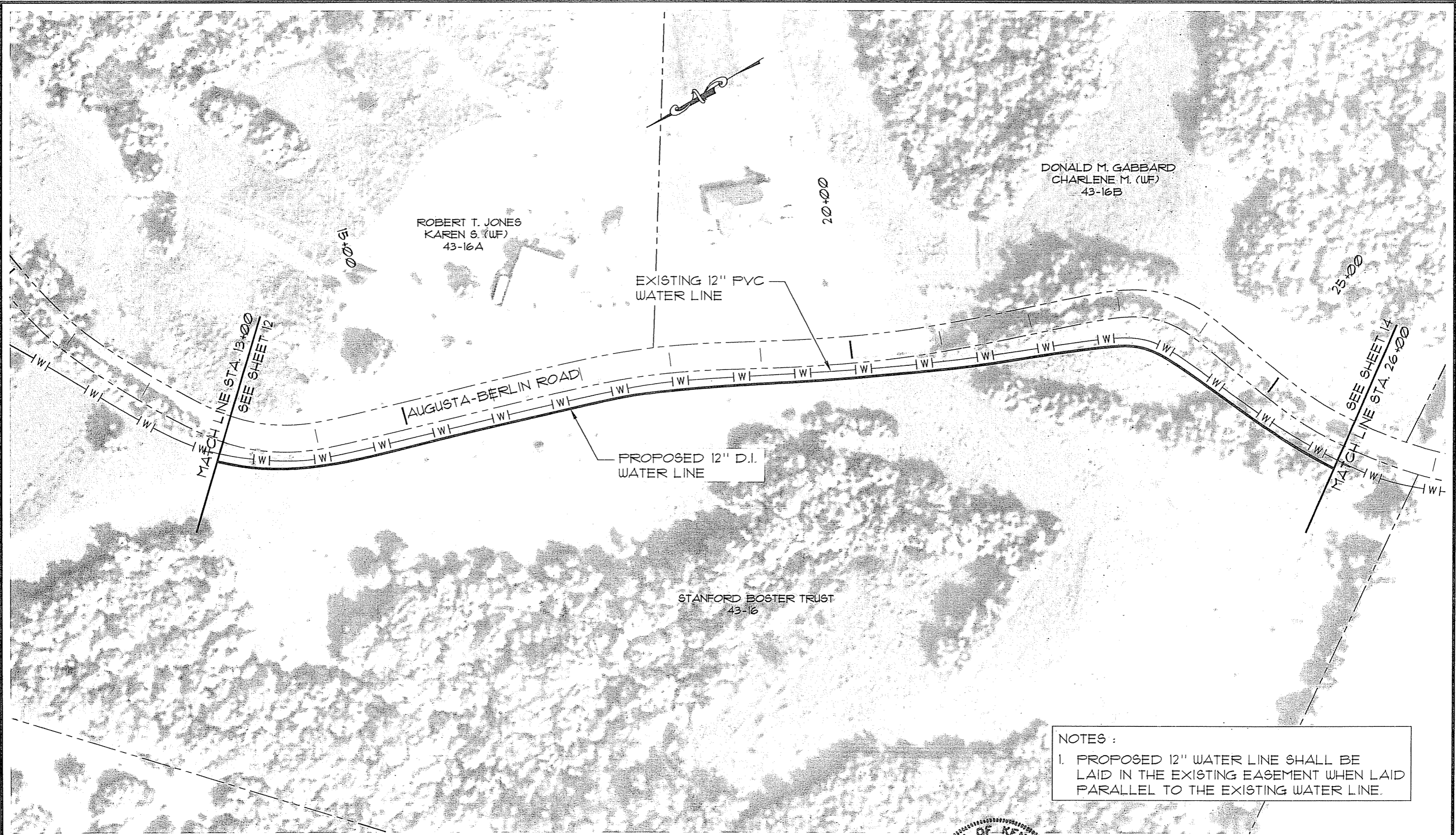
**WATER SYSTEM IMPROVEMENTS  
 BRACKEN COUNTY WATER DISTRICT  
 BRACKEN COUNTY, KENTUCKY**

UGUSTA-BERLIN ROAD (12" D.I.) - STA. 0+00 TO STA. 13+00

SHEET  
 12  
 OF  
 36

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

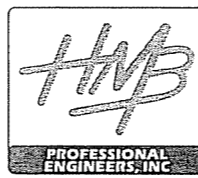
P:\engr\env\4162\CAD\UGUSTA-BERLIN ROAD-12".D.I.dwg, 11/3/2011 10:03:51 AM, ENV\_X854e



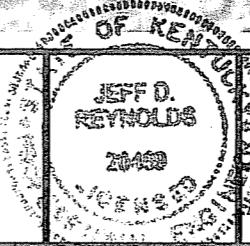
NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE LAID IN THE EXISTING EASEMENT WHEN LAID PARALLEL TO THE EXISTING WATER LINE.

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200		DATE: MARCH 2011	
SCALE: 1"=100'			
DESIGNED BY	NAME	DATE	
DRAIN BY	JDR		
CHECKED BY	SAB		
RECORD DWGS.	JDR		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX

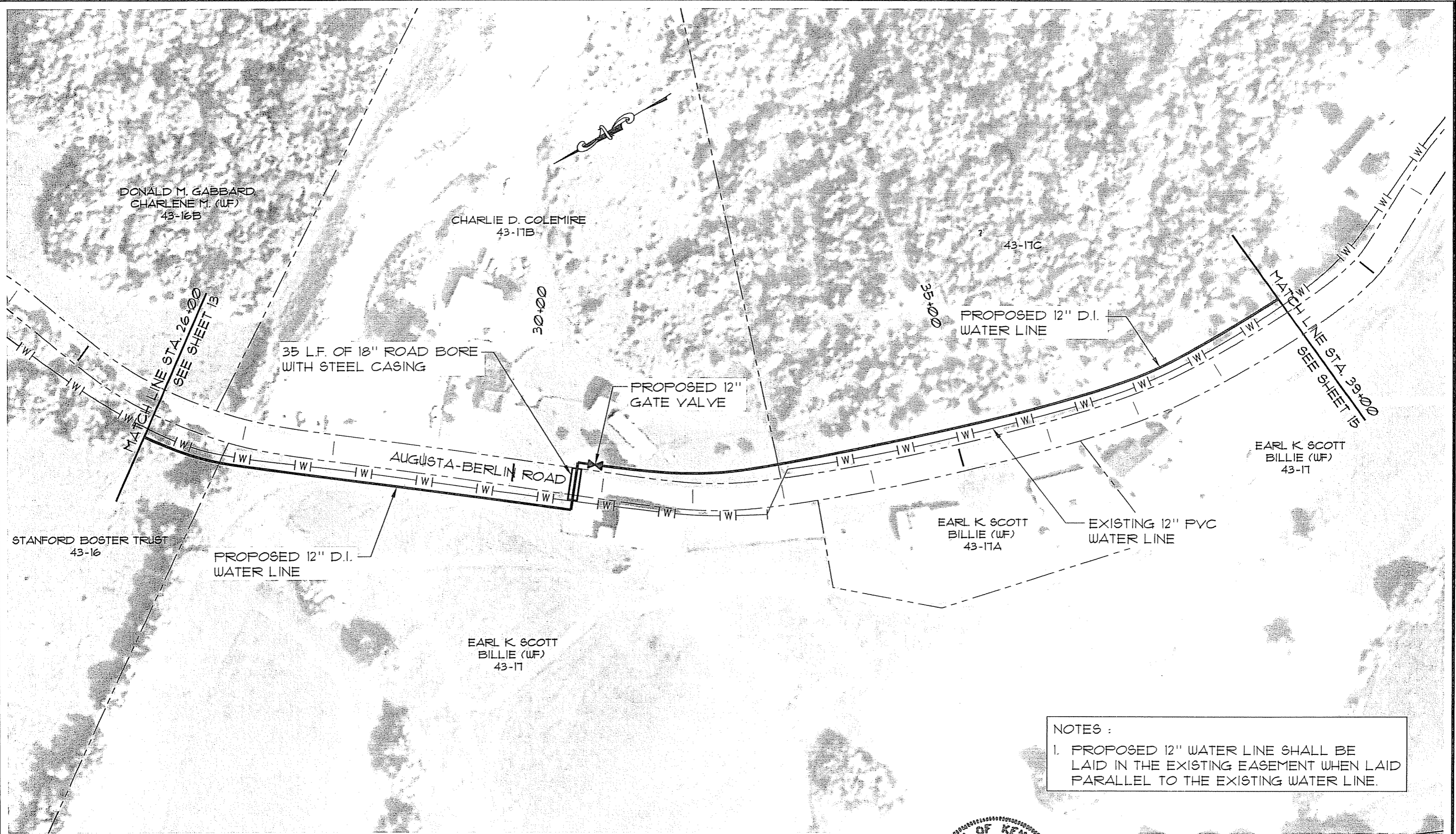


**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

AUGUSTA-BERLIN ROAD (12" D.I.) - STA. 13+00 TO STA. 26+00

SHEET  
 13  
 OF  
 36

P:\engr\env\4162\CAD\4\UGUSTA-BERLIN ROAD-12" D.I.dwg, 11/3/2011 10:05:42 AM, ENV\_X854e



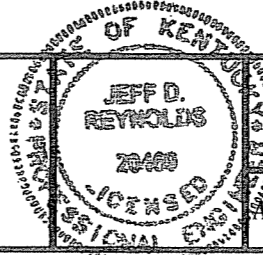
NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE LAID IN THE EXISTING EASEMENT WHEN LAID PARALLEL TO THE EXISTING WATER LINE.

PROJECT: 4162.00 DATE: MARCH 2011  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX

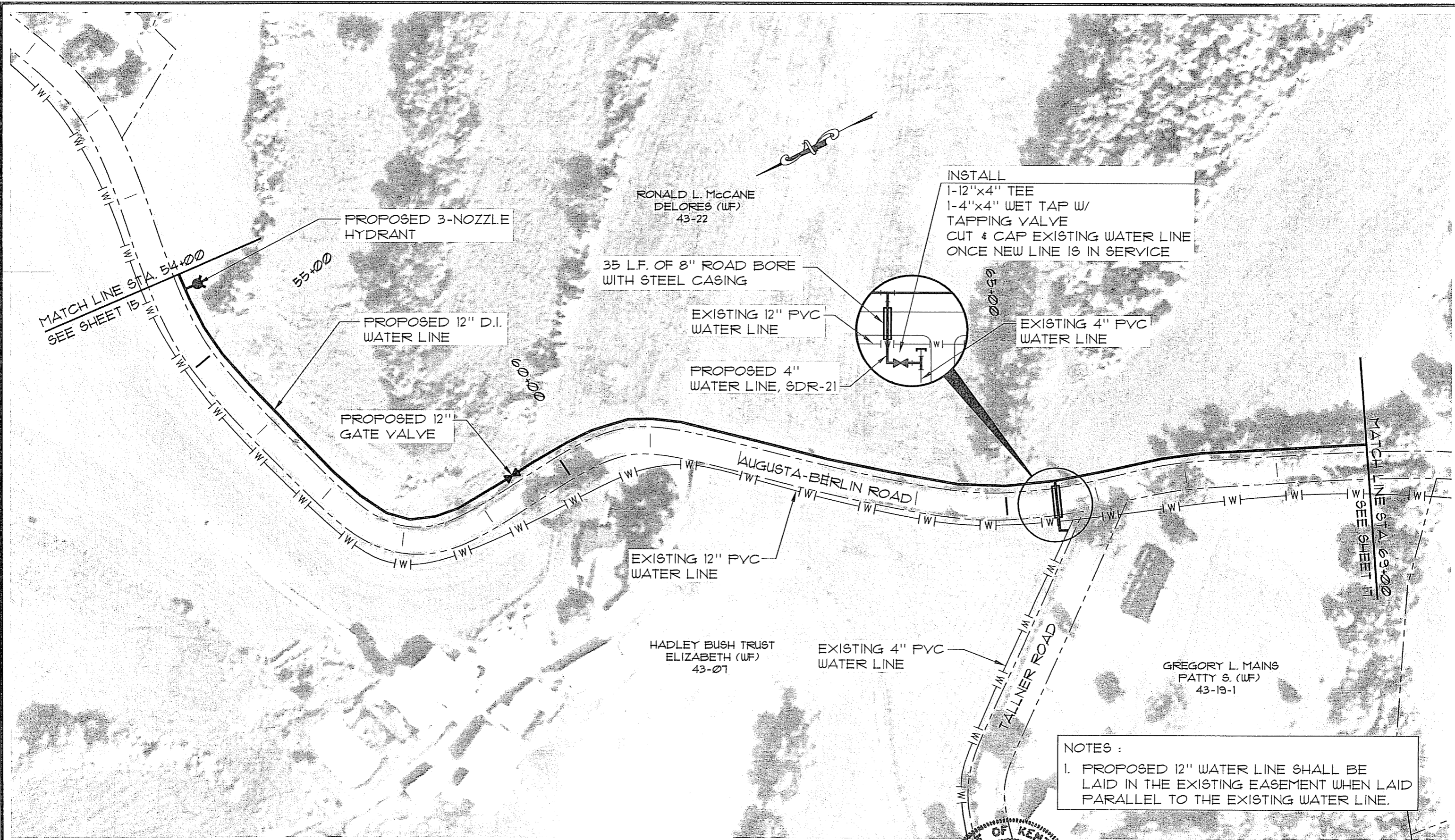


**WATER SYSTEM IMPROVEMENTS  
 BRACKEN COUNTY WATER DISTRICT  
 BRACKEN COUNTY, KENTUCKY**

AUGUSTA-BERLIN ROAD (12" D.I.) - STA. 26+00 TO STA. 39+00

SHEET  
 14  
 OF  
 36

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE



INSTALL  
 1-12"x4" TEE  
 1-4"x4" WET TAP W/  
 TAPPING VALVE  
 CUT & CAP EXISTING WATER LINE  
 ONCE NEW LINE IS IN SERVICE

RONALD L. McCANE  
 DELORES (WF)  
 43-22

35 L.F. OF 8" ROAD BORE  
 WITH STEEL CASING

EXISTING 12" PVC  
 WATER LINE

PROPOSED 4"  
 WATER LINE, SDR-21

EXISTING 4" PVC  
 WATER LINE

PROPOSED 3-NOZZLE  
 HYDRANT

PROPOSED 12" D.I.  
 WATER LINE

PROPOSED 12"  
 GATE VALVE

EXISTING 12" PVC  
 WATER LINE

HADLEY BUSH TRUST  
 ELIZABETH (WF)  
 43-07

EXISTING 4" PVC  
 WATER LINE

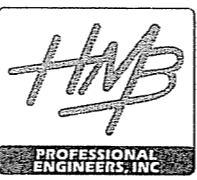
GREGORY L. MAINS  
 PATTY S. (WF)  
 43-19-1

NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE  
 LAID IN THE EXISTING EASEMENT WHEN LAID  
 PARALLEL TO THE EXISTING WATER LINE.

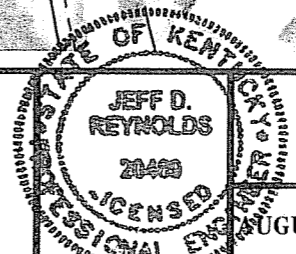
NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200 DATE: MARCH 2011  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAIN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



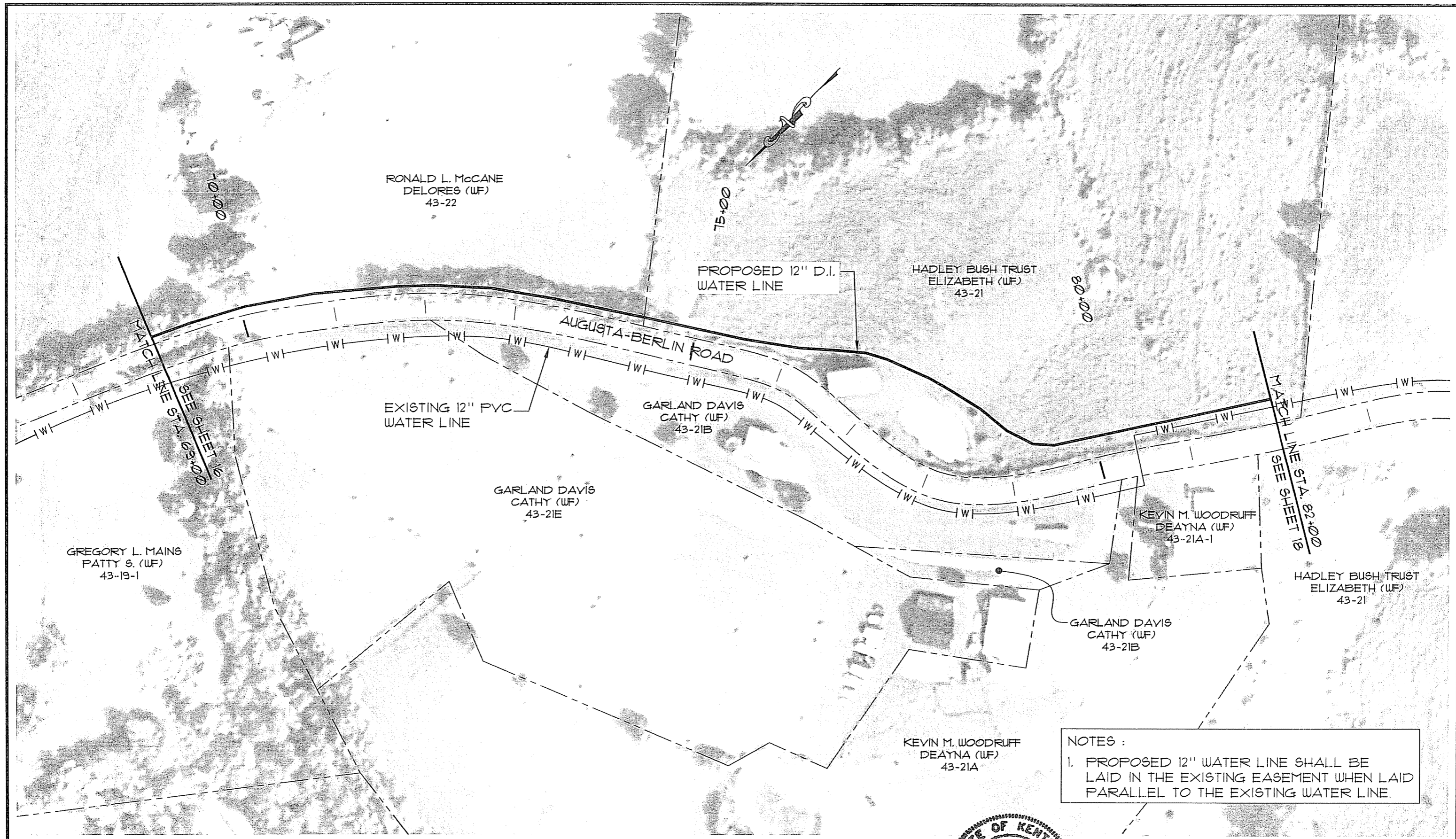
**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

16  
 OF  
 36

AUGUSTA-BERLIN ROAD (12" D.I.) - STA. 54+00 TO STA. 69+00

P:\engr\env\4162\CAD\AUGUSTA-BERLIN ROAD-12" D.I.dwg, 11/3/2011 10:09:25 AM, ENV\_X854e

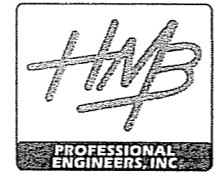
P:\engr\env\4162\CAD\AUGUSTA-BERLIN ROAD-12" D.I.dwg, 11/3/2011 10:16:10 AM, ENV\_X854e



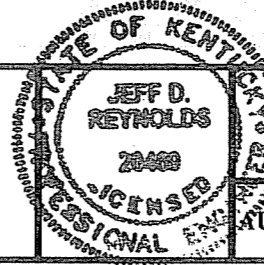
NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE LAID IN THE EXISTING EASEMENT WHEN LAID PARALLEL TO THE EXISTING WATER LINE.

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00		DATE: MARCH 2011	
SCALE: 1"=100'			
DESIGNED BY	NAME	DATE	
DRAWN BY	SAB		
CHECKED BY	JDR		
RECORD DWGS.			

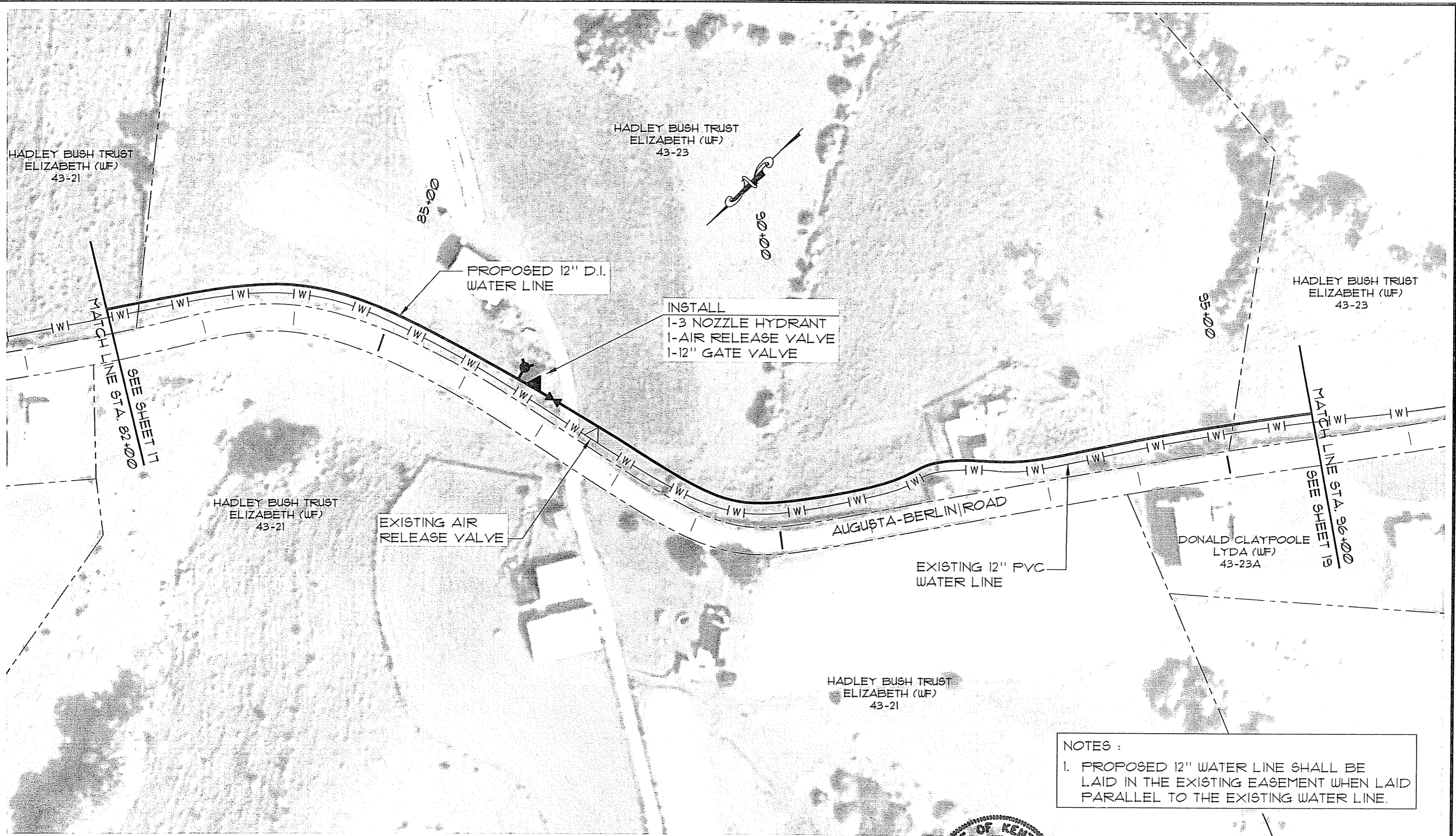


3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**  
 AUGUSTA-BERLIN ROAD (12" D.I.) - STA. 69+00 TO STA. 82+00

SHEET 17 OF 36



INSTALL  
 1-3 NOZZLE HYDRANT  
 1-AIR RELEASE VALVE  
 1-12" GATE VALVE

EXISTING AIR  
 RELEASE VALVE

EXISTING 12" PVC  
 WATER LINE

NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE LAID IN THE EXISTING EASEMENT WHEN LAID PARALLEL TO THE EXISTING WATER LINE.

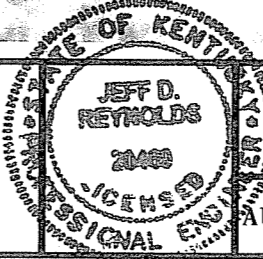
P:\engr\m\162\CAD\AUGUSTA-BERLIN ROAD-12" D.I.dwg, 11/3/2011 10:20:37 AM, ENV\_X854e

PROJECT: 416200 DATE: MARCH 2011  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAIN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



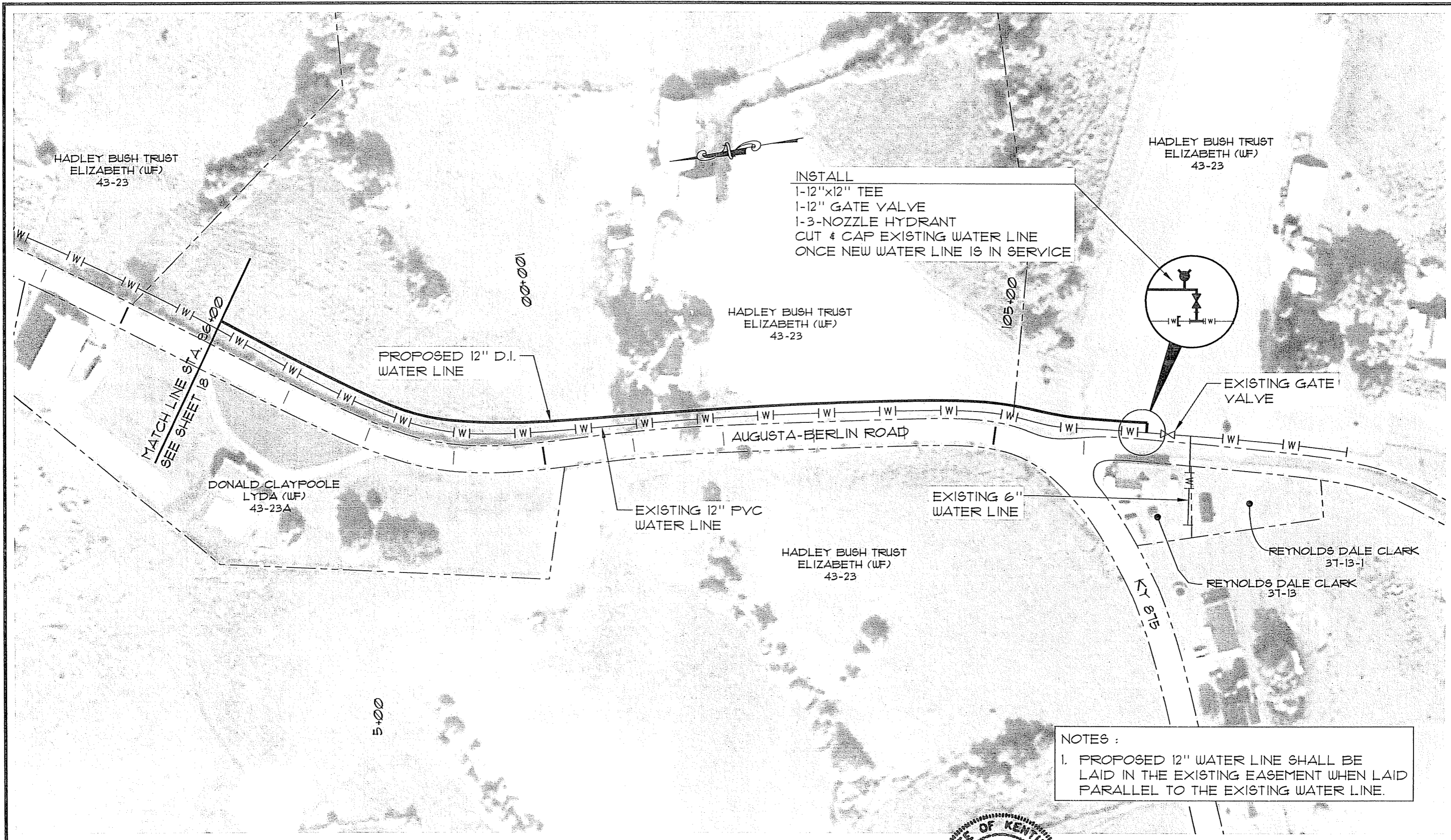
WATER SYSTEM IMPROVEMENTS  
 BRACKEN COUNTY WATER DISTRICT  
 BRACKEN COUNTY, KENTUCKY

AUGUSTA-BERLIN ROAD (12" D.I.) - STA. 82+00 TO STA. 96+00

SHEET  
 18  
 OF  
 36

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

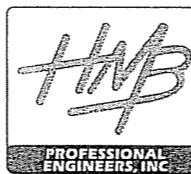
P:\engr\env\4162\CAD\AUGUSTA-BERLIN ROAD-12" D.I.dwg, 11/3/2011 10:22:54 AM, ENV\_X854e



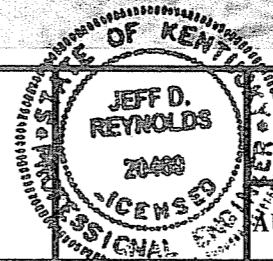
NOTES :  
 1. PROPOSED 12" WATER LINE SHALL BE LAID IN THE EXISTING EASEMENT WHEN LAID PARALLEL TO THE EXISTING WATER LINE.

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200		DATE: MARCH 2011	
SCALE: 1"=100'			
DESIGNED BY	JDR	NAME	DATE
DRAWN BY	SAB		
CHECKED BY	JDR		
RECORD DWSG.			



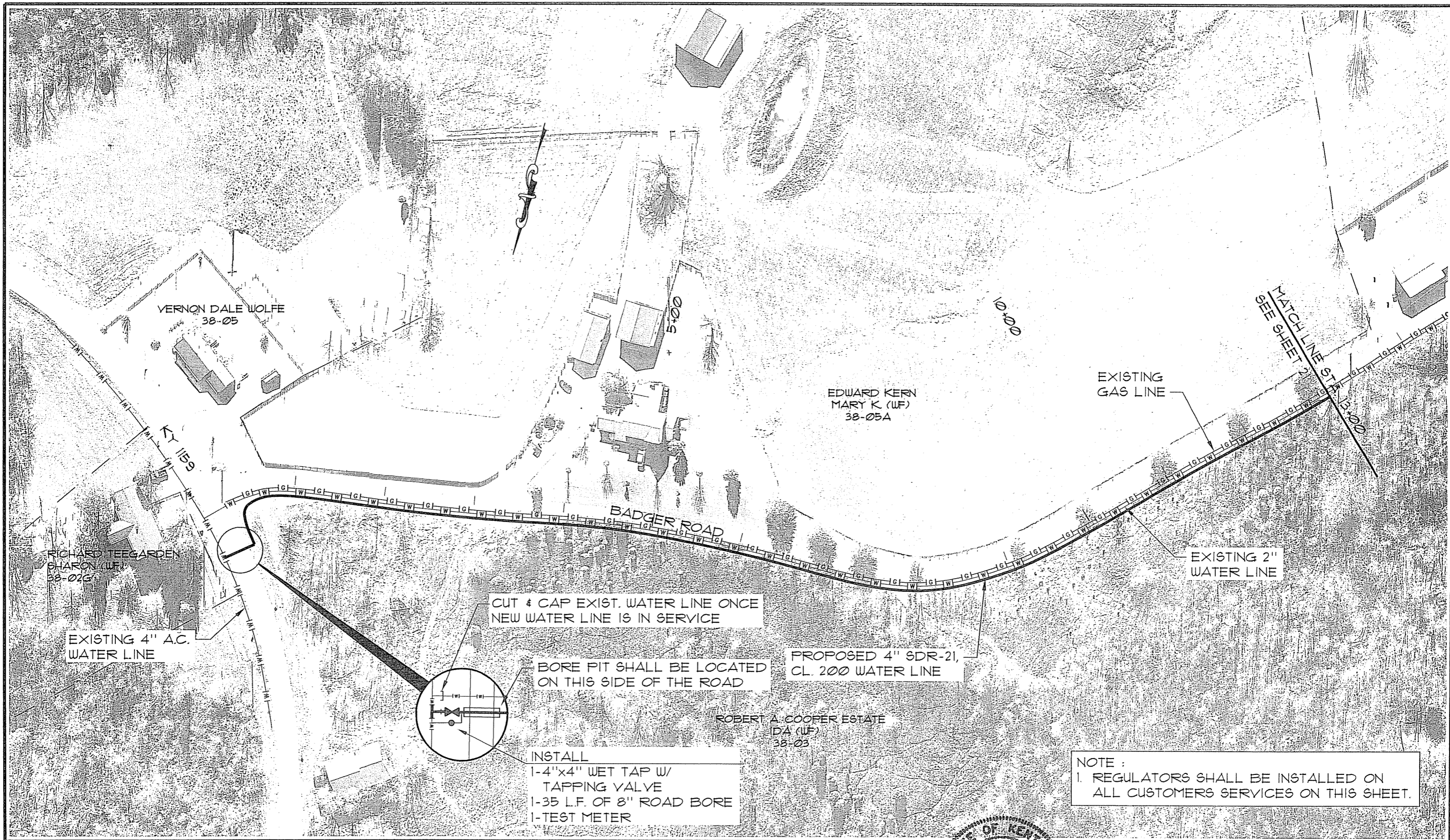
3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS  
 BRACKEN COUNTY WATER DISTRICT  
 BRACKEN COUNTY, KENTUCKY**

AUGUSTA-BERLIN ROAD (12" D.I.) - STA. 96+00 TO STA. 106+70

SHEET  
 19  
 OF  
 36

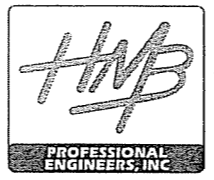


NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

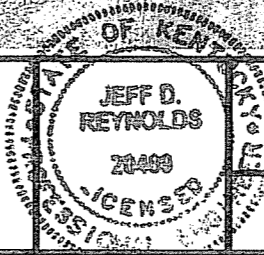
P:\engr\env\4162\CAD\16\BADGER ROAD.dwg, 11/3/2011 10:29:01 AM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	JDR	
CHECKED BY	SAB	
RECORD DUGS.	JDR	



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX

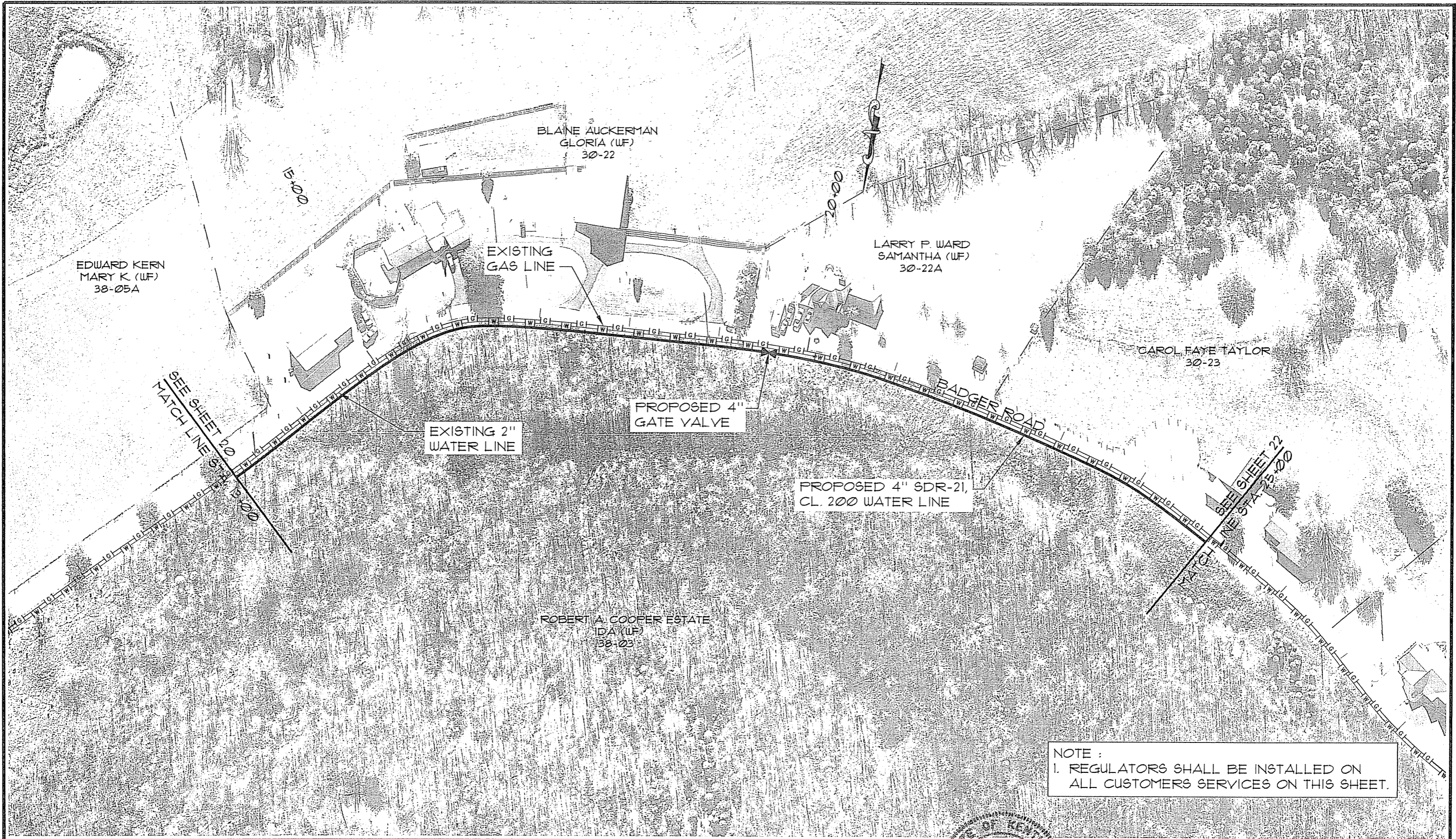


**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

BADGER ROAD - STA. 0+00 TO STA. 13+00

SHEET  
 20  
 OF  
 36





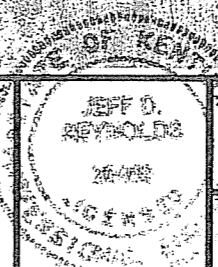
NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

PROJECT: 416200 DATE: DEC 2010  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	NAME	DATE
SAB	SAB	
CHECKED BY	NAME	DATE
JDR	JDR	
RECORD DUGS.	NAME	DATE



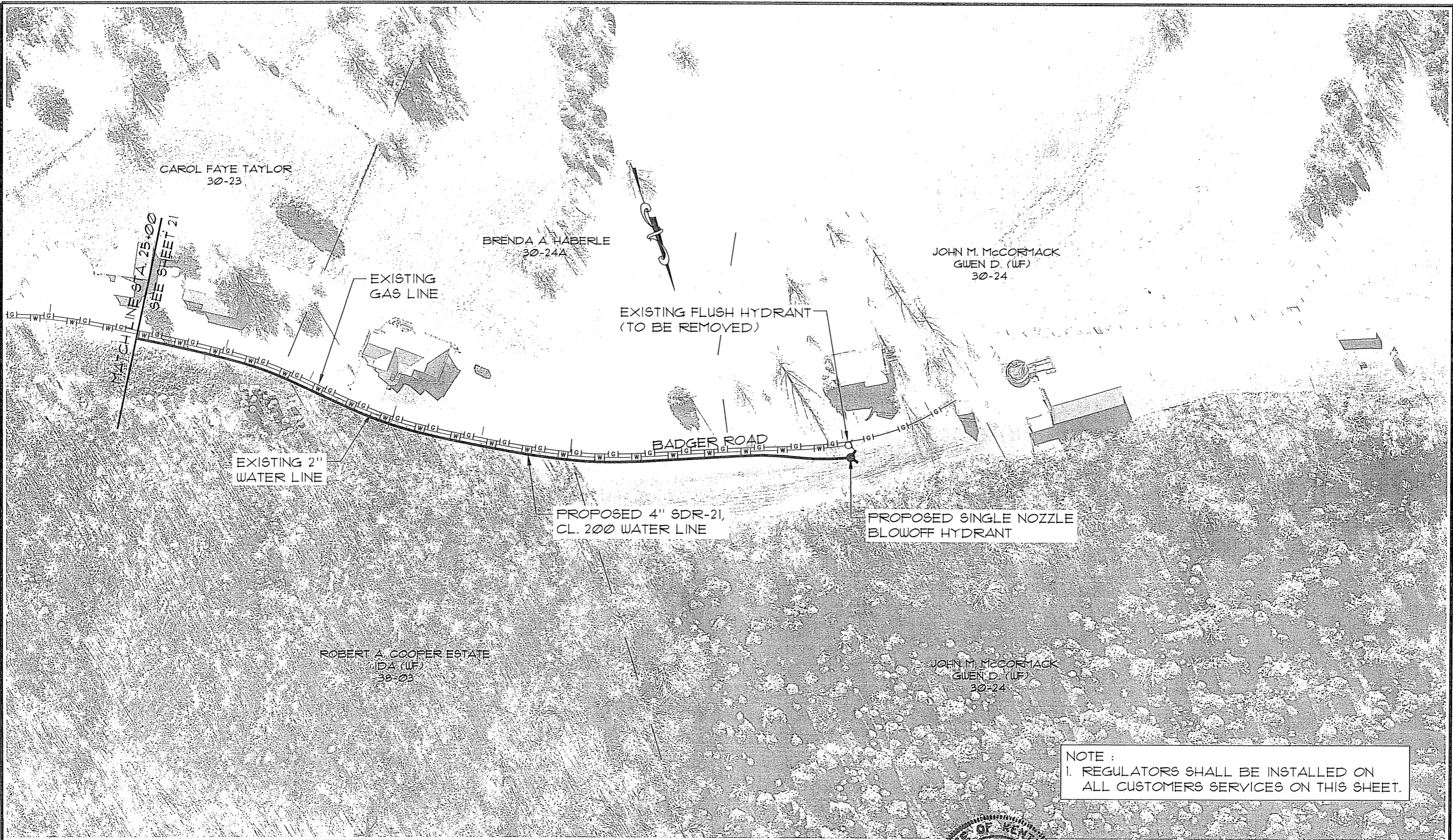
3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

**BADGER ROAD - STA. 13+00 TO STA. 25+00**

SHEET  
 21  
 OF  
 36

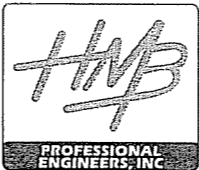


NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

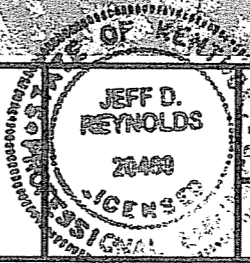
P:\engr\env4162\CAD\18BADGER ROAD.dwg, 11/9/2011 10:57:22 AM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APP'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRGGS.		



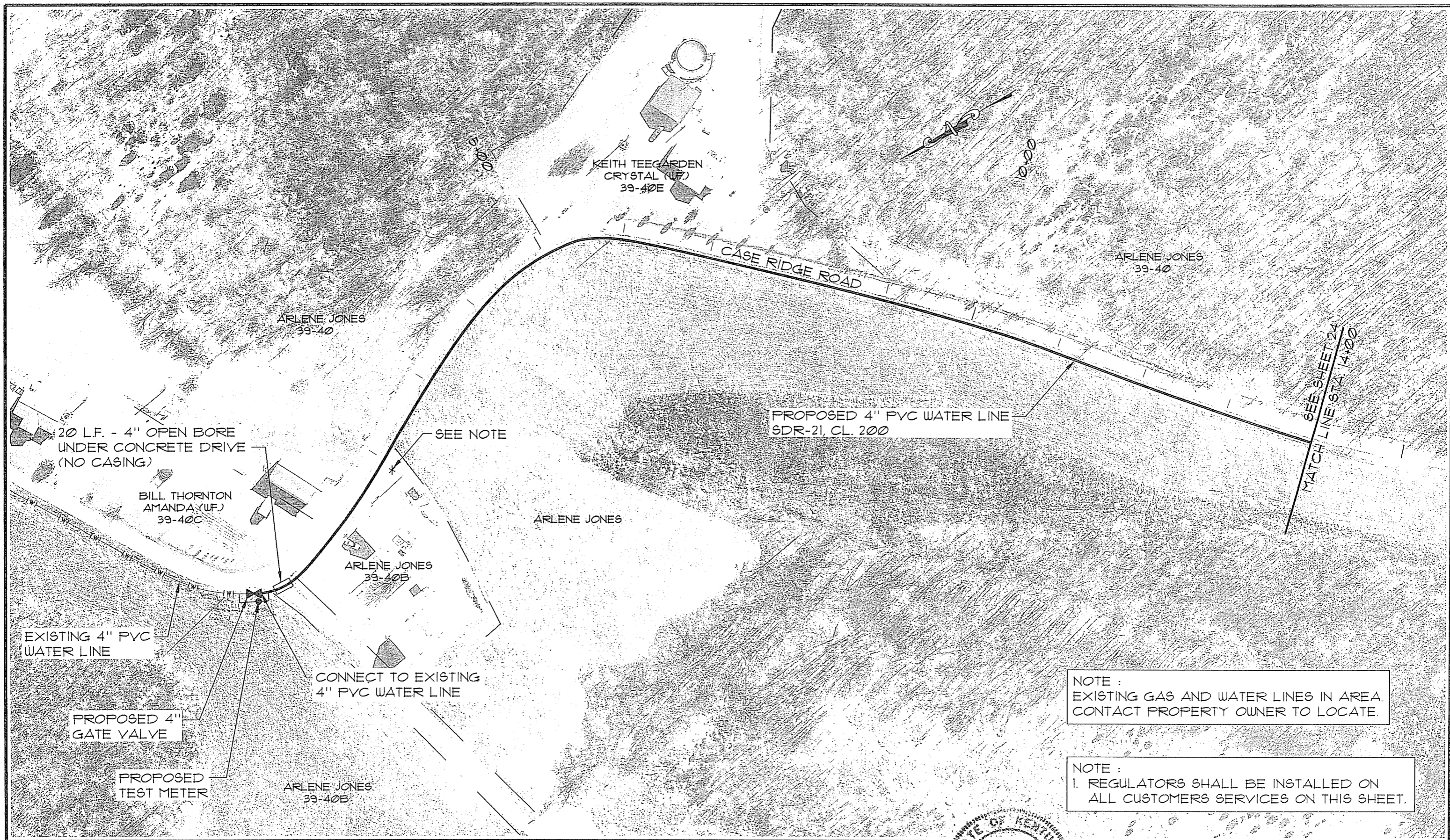
3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

**BADGER ROAD - STA. 25+00 TO STA. 33+00**

SHEET  
 22  
 OF  
 36



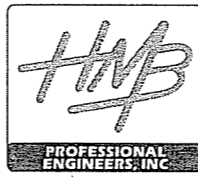
NOTE :  
EXISTING GAS AND WATER LINES IN AREA CONTACT PROPERTY OWNER TO LOCATE.

NOTE :  
1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

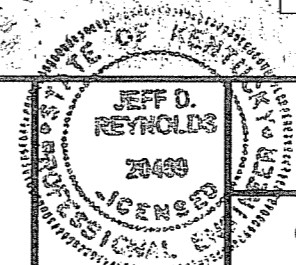
P:\engr\env4162\CAD\CASE RIDGE ROAD.dwg, 11/3/2011 11:10:29 AM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRGGS.		



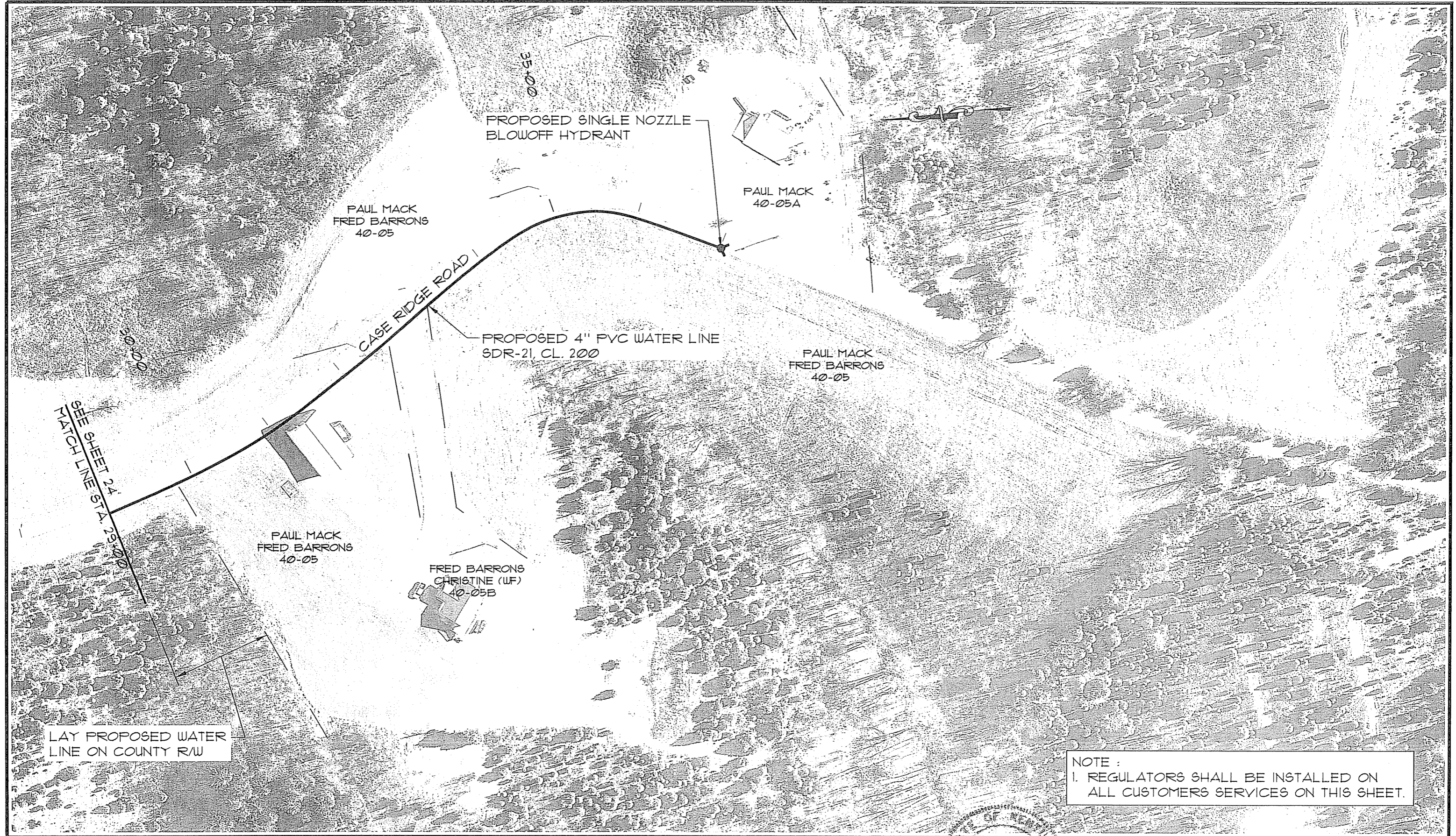
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

CASE RIDGE ROAD - STA. 0+00 TO STA. 14+00

SHEET  
23  
OF  
36



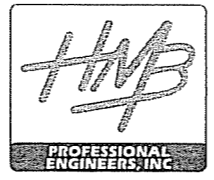
LAY PROPOSED WATER LINE ON COUNTY RAW

NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

P:\engr\env4162\CAD\CASE RIDGE ROAD.dwg, 11/3/2011 11:19:23 AM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	JDR	
CHECKED BY	SAB	
RECORD DRGGS.	JDR	



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

CASE RIDGE ROAD - STA. 29+00 TO STA. 37+00

SHEET  
 25  
 OF  
 36

P:\engr\m4162\CAD\KY 1011 ADDITIONAL.dwg, 11/3/2011 11:22:44 AM, ENV\_X854e

VERONA SHARP  
29-31

EXISTING 4" A.C.  
WATER LINE

KY 1011

EXISTING PUMP STATION  
(NOT IN USE)

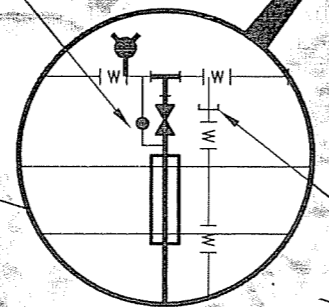
BOBBY JEFFERSON, SR.  
29-38

5+00

EXISTING 4" A.C.  
WATER LINE

MATCH LINE STA 8+00  
SEE SHEET 27

INSTALL  
1-4"x4" WET TAP W/  
TAPPING VALVE  
1-35 L.F. OF 8" ROAD BORE  
1-TEST METER  
1-SINGLE NOZZLE BLOWOFF  
HYDRANT



STEVEN CROPPER  
29-31B

PROPOSED 4" SDR-21,  
CL. 200 WATER LINE

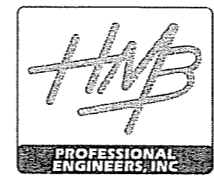
CUT & CAP EXIST. WATER LINE ONCE  
NEW WATER LINE IS IN SERVICE

WALTER CLEON REDDEN  
30-01

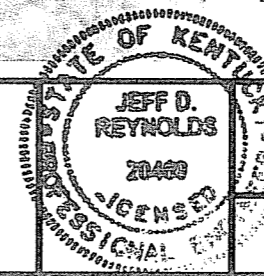
NOTE :  
1. REGULATORS SHALL BE INSTALLED ON  
ALL CUSTOMERS SERVICES ON THIS SHEET.

PROJECT: 4162000 DATE: FEB 2011  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	NAME	DATE
SAB	SAB	
CHECKED BY	NAME	DATE
JDR	JDR	
RECORD DUGS.	NAME	DATE



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX

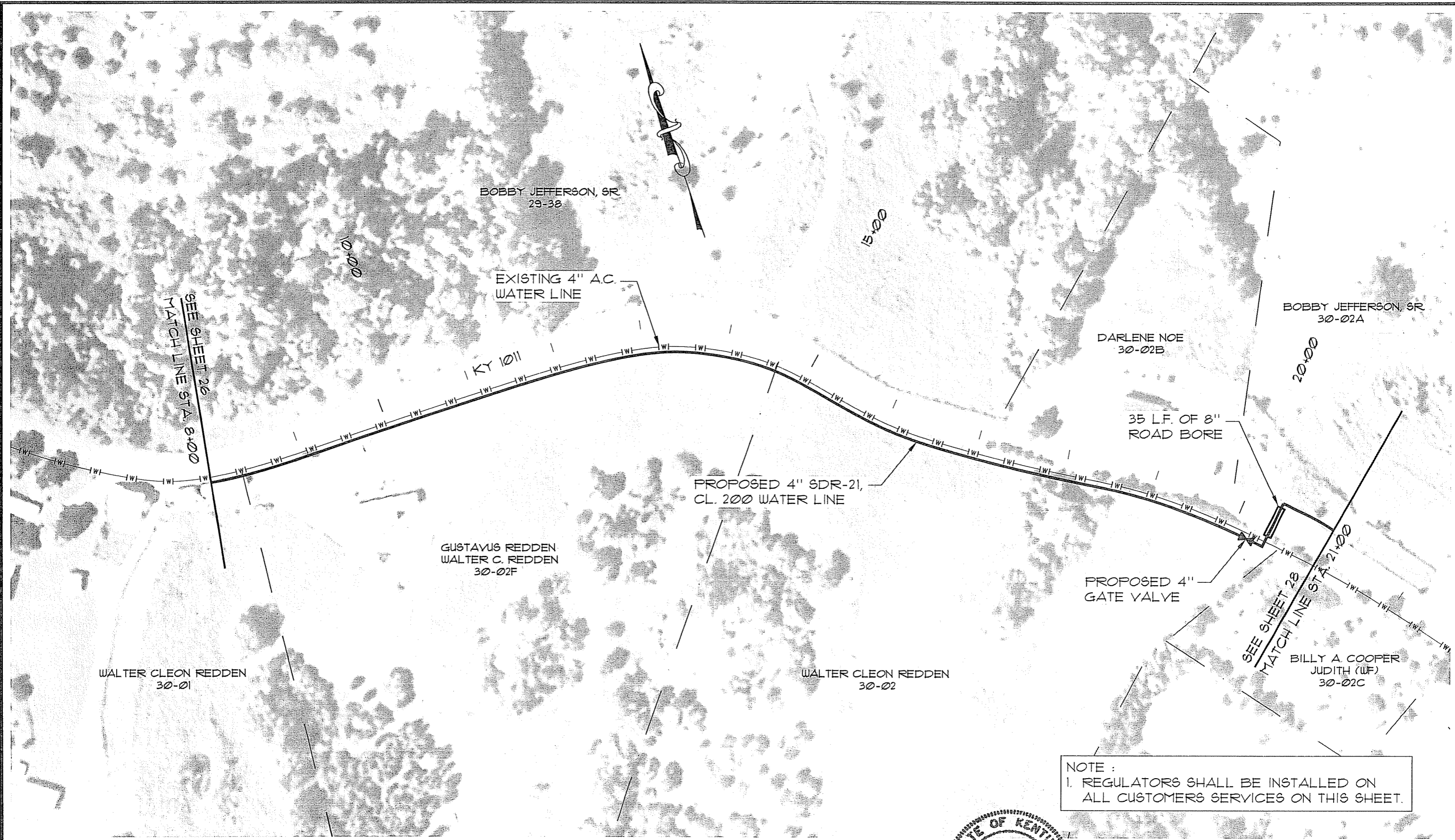


WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

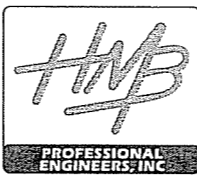
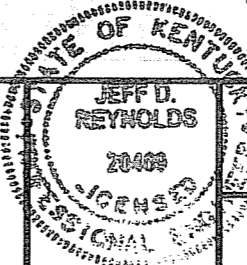
KY 1011 - STA. 0+00 TO STA. 8+00

SHEET  
26  
OF  
36

NO.	DATE	REVISIONS	CHK'D	APP'D	DATE



NOTE :  
1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 635-9800  
(502) 635-9810 FAX

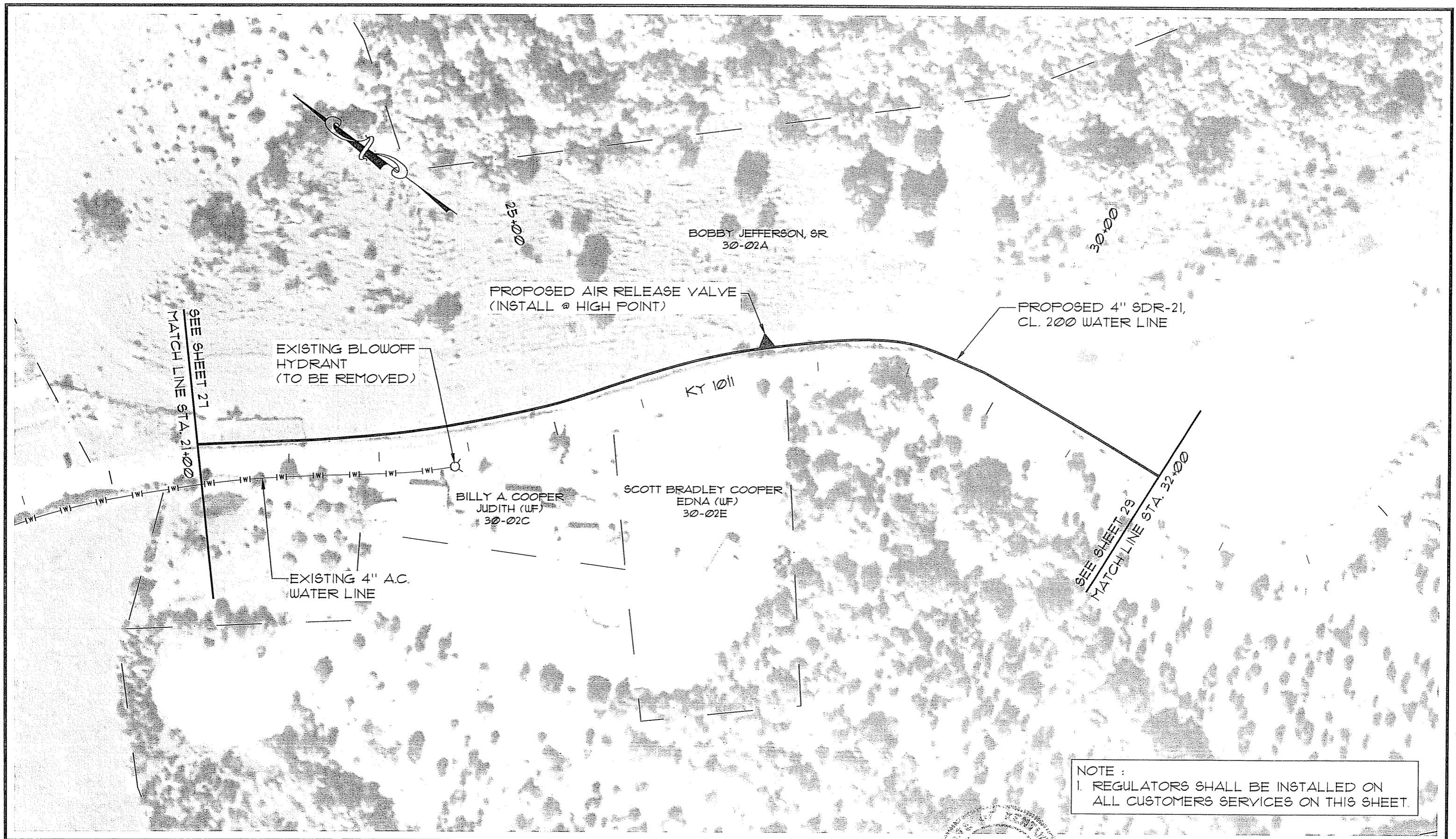
**WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY**

KY 1011 - STA. 8+00 TO STA. 21+00

SHEET  
27  
OF  
36

PROJECT: 4162.00 DATE: FEB 2011		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRG.		

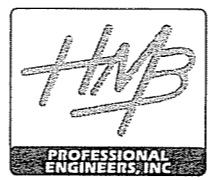
NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE



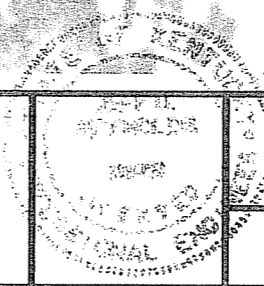
NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 416200		DATE: FEB 2011
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



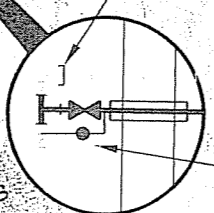
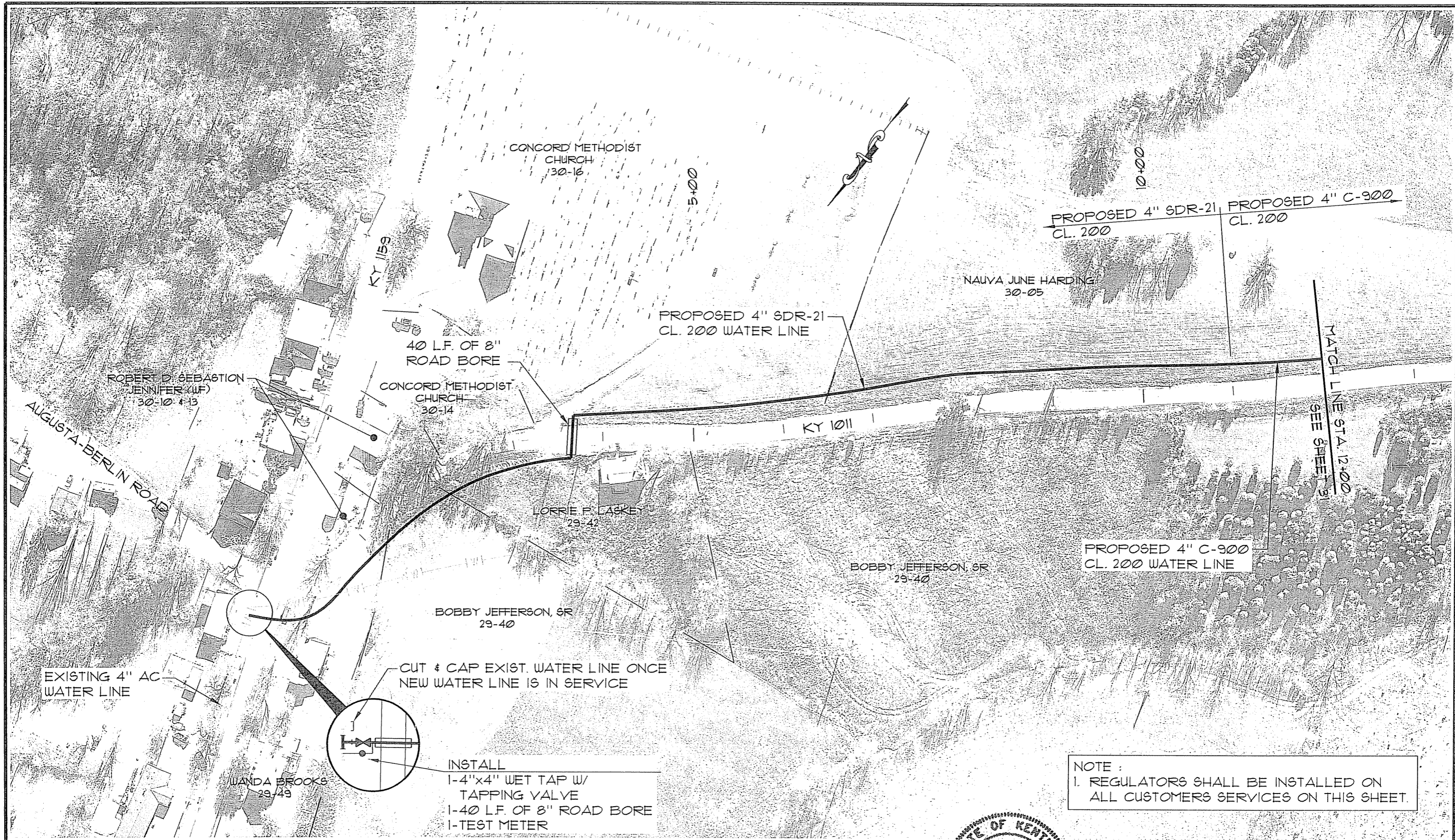
3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

KY 1011 - STA. 21+00 TO STA. 32+00

SHEET  
 28  
 OF  
 36



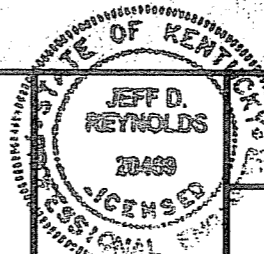
NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMER SERVICES ON THIS SHEET.

PROJECT: 4162.00 DATE: DEC. 2010  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRGGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
 BRACKEN COUNTY WATER DISTRICT  
 BRACKEN COUNTY, KENTUCKY

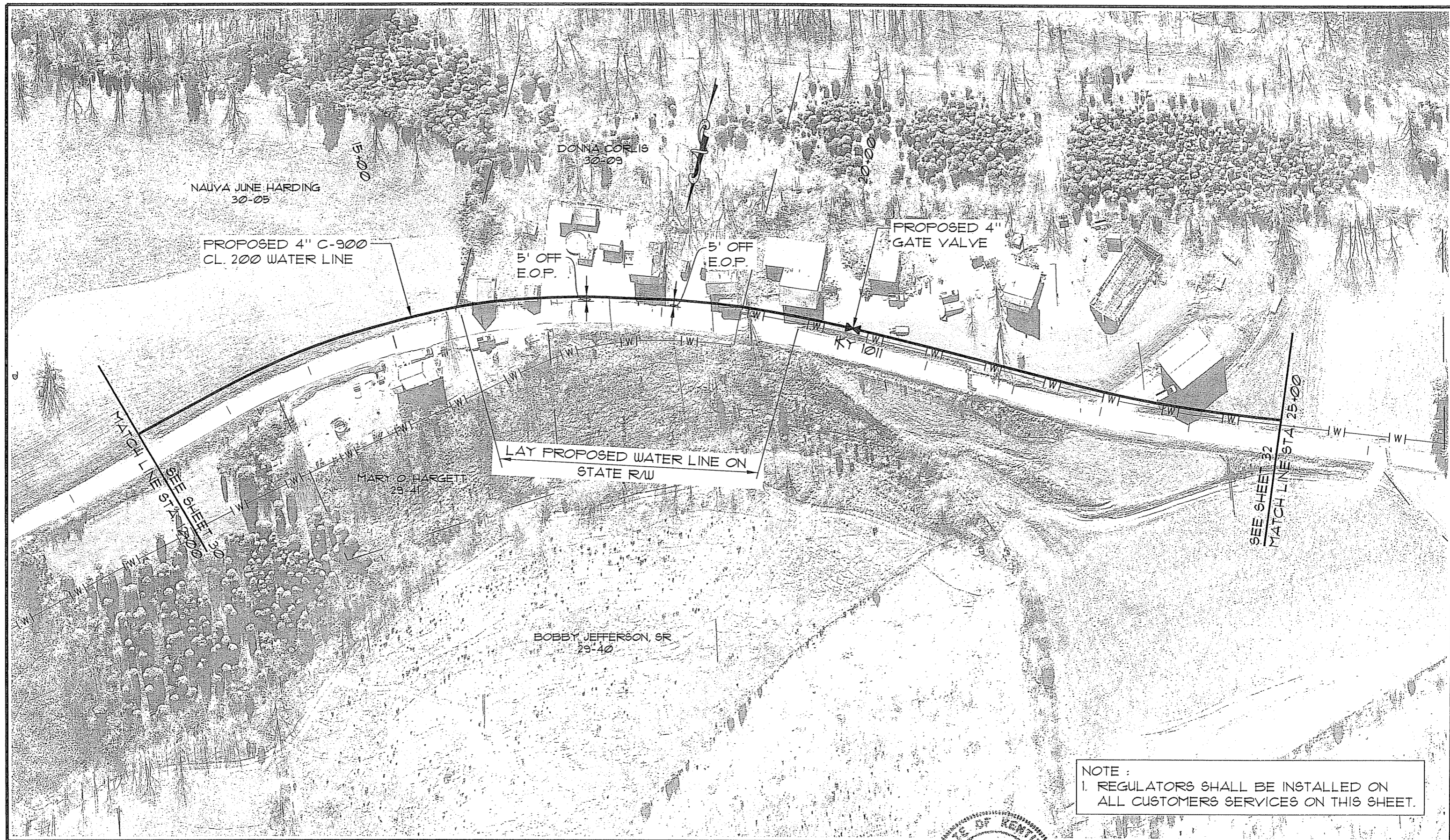
KY 1011 @ KY 1159 - STA. 0+00 TO STA. 12+00

SHEET  
 30  
 OF  
 36

P:\engr\env4162\CAD\KY 1011 @ KY 1159.dwg, 11/4/2011 1:45:13 PM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE





NAIYA JUNE HARDING  
30-05

DONNA CORLIS  
30-09

PROPOSED 4" C-900  
CL. 200 WATER LINE

5' OFF  
E.O.P.

5' OFF  
E.O.P.

PROPOSED 4"  
GATE VALVE

LAY PROPOSED WATER LINE ON  
STATE R/W

MARY O HARGETT  
28-41

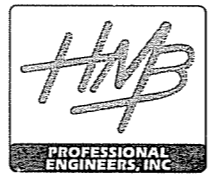
BOBBY JEFFERSON, SR  
29-40

NOTE :  
1. REGULATORS SHALL BE INSTALLED ON  
ALL CUSTOMERS SERVICES ON THIS SHEET.

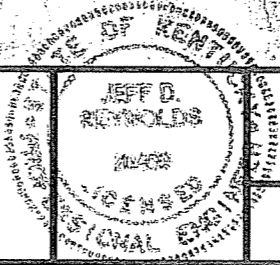
P:\engr\env4162\CAD\KY 1011@ KY 1159.dwg, 11/3/2011 11:41:35 AM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	JDR	
CHECKED BY	SAB	
RECORD DRGGS.	JDR	



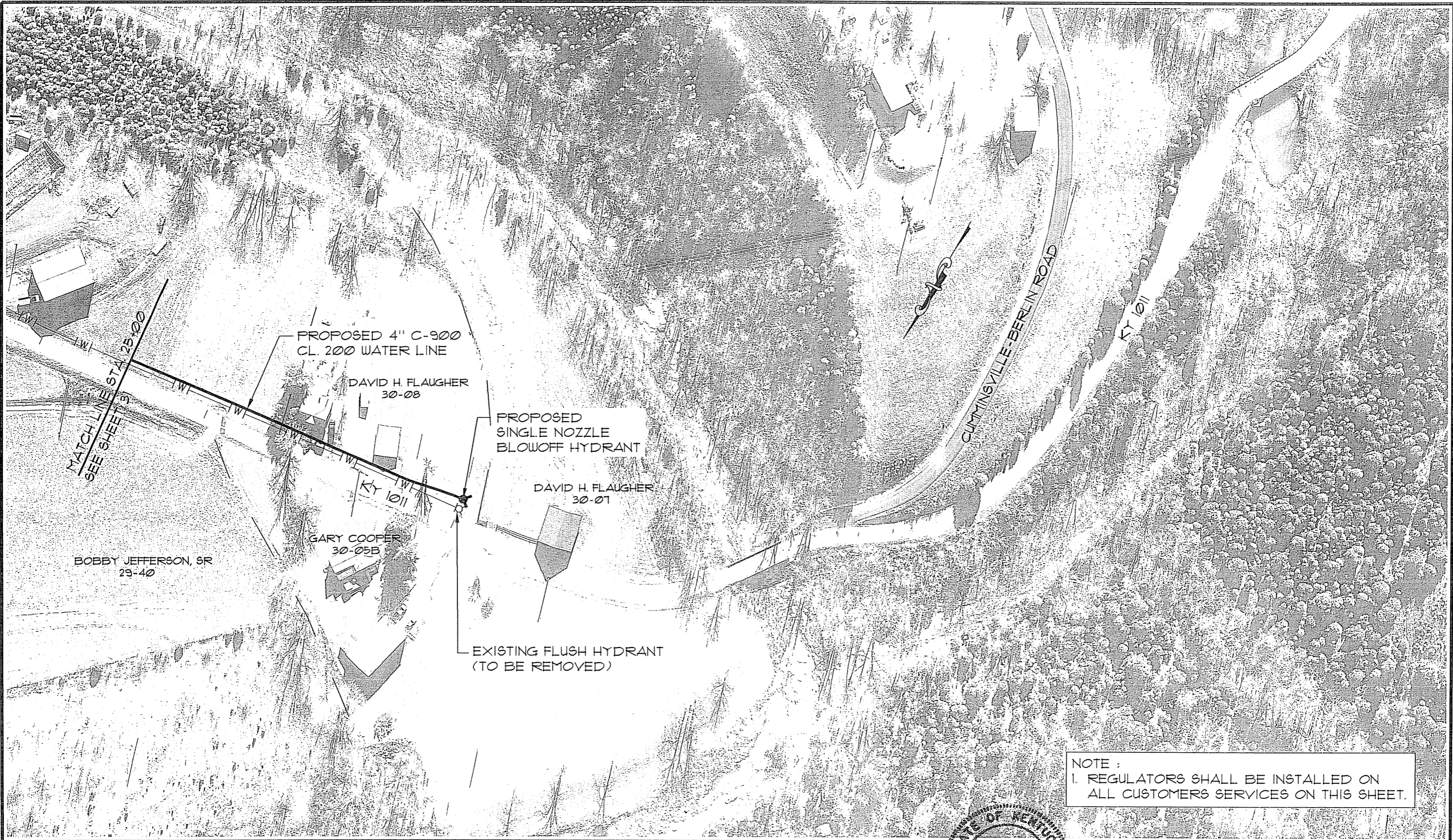
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

KY 1011 @ KY 1159 - STA. 12+00 TO STA. 25+00

SHEET  
31  
OF  
36



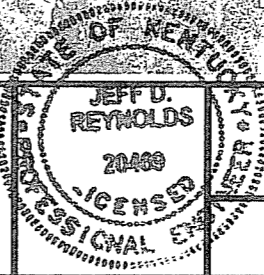
NOTE :  
 1. REGULATORS SHALL BE INSTALLED ON ALL CUSTOMERS SERVICES ON THIS SHEET.

PROJECT: 416200 DATE: DEC. 2010  
 SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DRGGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX



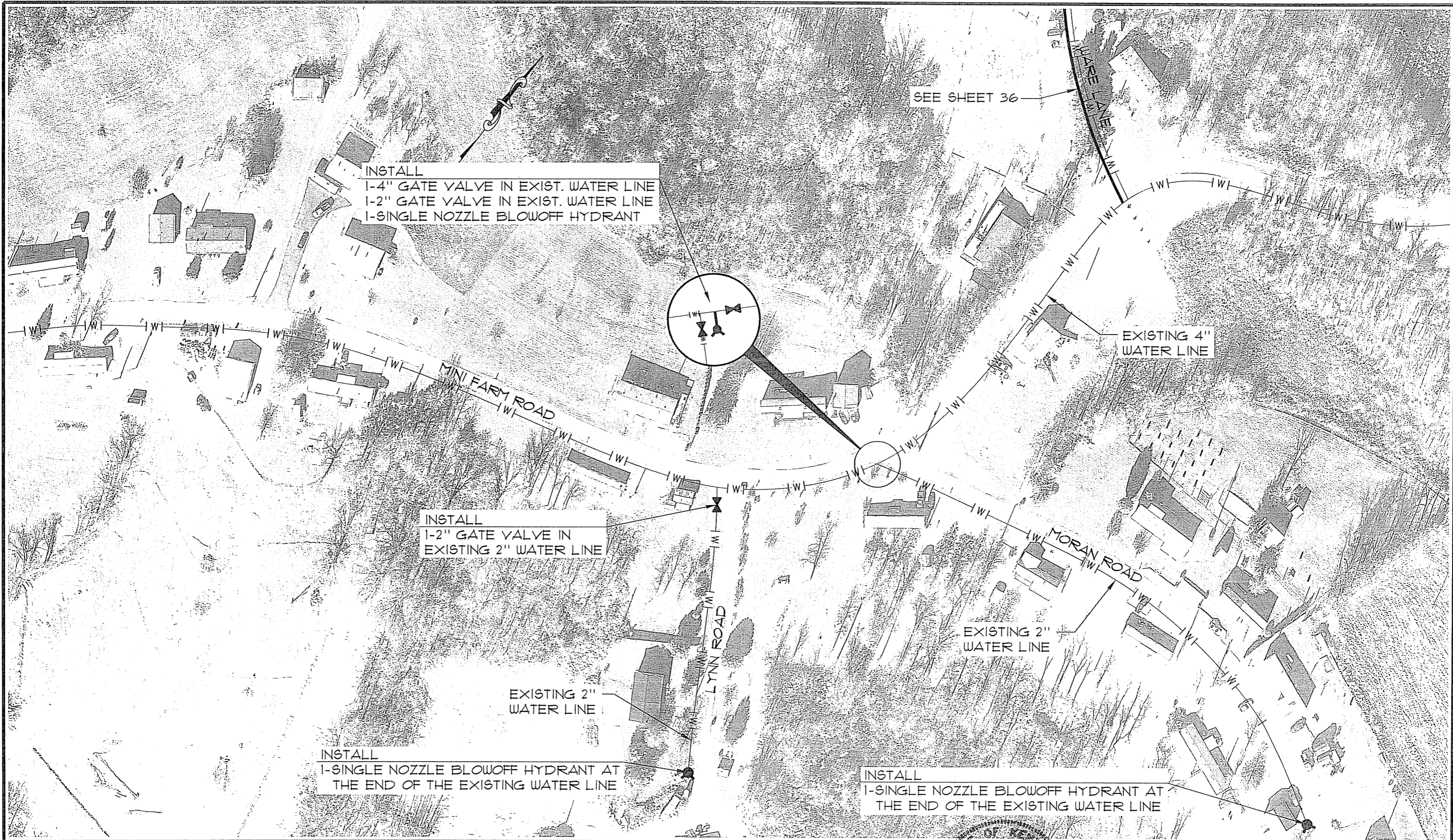
**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

KY 1011 @ KY 1159 - STA. 25+00 TO STA. 29+00

SHEET  
 32  
 OF  
 36

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

P:\engr\env\4162\CAD\MINI FARM ROAD.dwg, 11/9/2011 11:454 PM, ENV\_X854e



INSTALL  
 1-4" GATE VALVE IN EXIST. WATER LINE  
 1-2" GATE VALVE IN EXIST. WATER LINE  
 1-SINGLE NOZZLE BLOWOFF HYDRANT

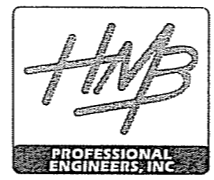
INSTALL  
 1-2" GATE VALVE IN  
 EXISTING 2" WATER LINE

INSTALL  
 1-SINGLE NOZZLE BLOWOFF HYDRANT AT  
 THE END OF THE EXISTING WATER LINE

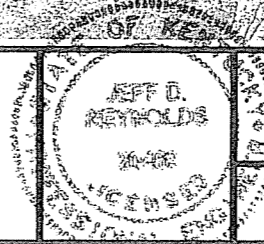
INSTALL  
 1-SINGLE NOZZLE BLOWOFF HYDRANT AT  
 THE END OF THE EXISTING WATER LINE

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



3 HMB CIRCLE  
 FRANKFORT, KENTUCKY  
 (502) 695-9800  
 (502) 695-9810 FAX

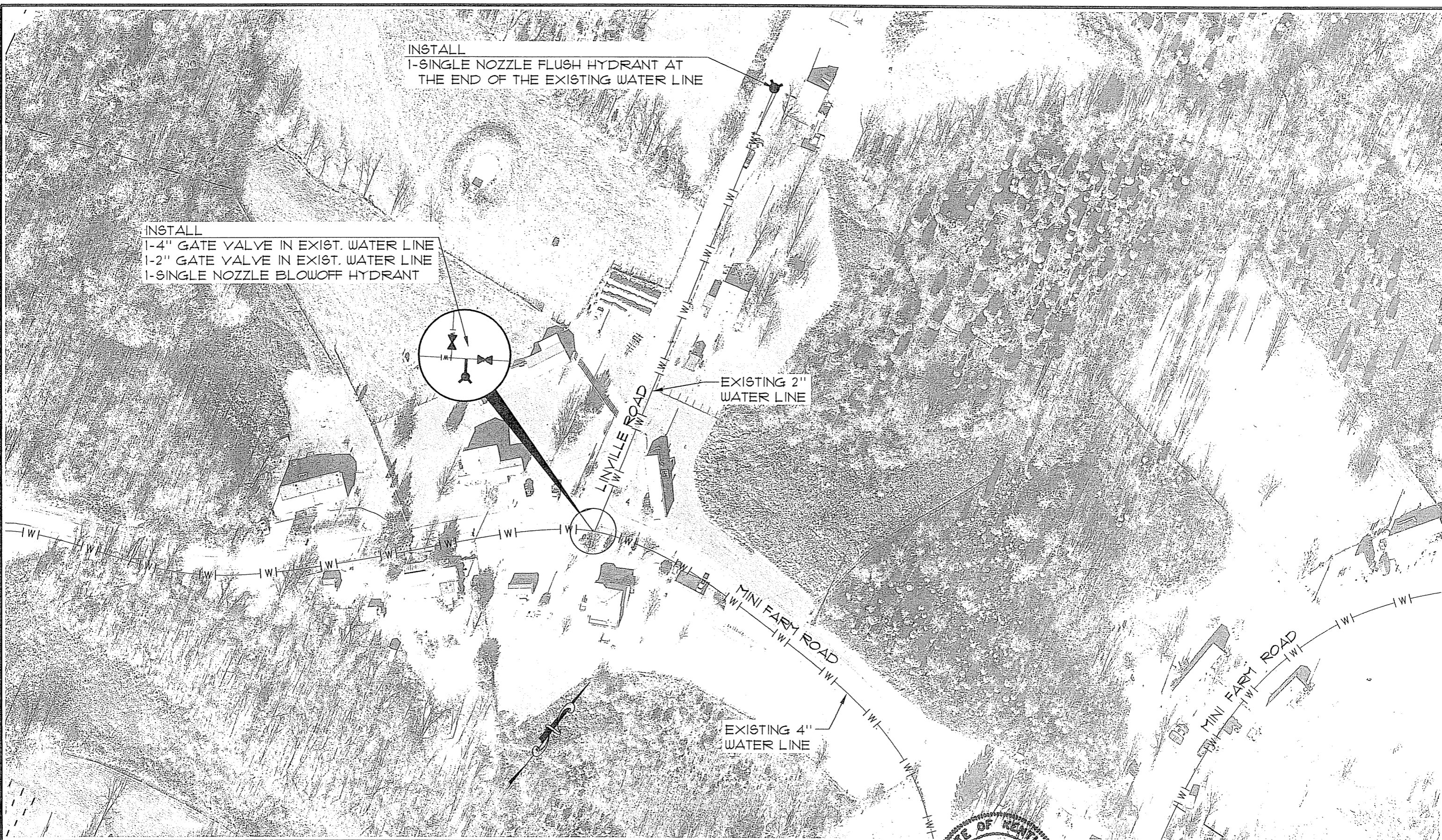
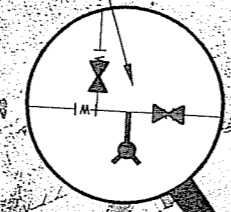


**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**  
 MINI FARM ROAD @ LYNN ROAD  
 MINI FARM ROAD @ MORAN ROAD

SHEET  
 33  
 OF  
 36

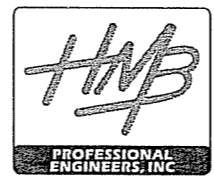
INSTALL  
1-SINGLE NOZZLE FLUSH HYDRANT AT  
THE END OF THE EXISTING WATER LINE

INSTALL  
1-4" GATE VALVE IN EXIST. WATER LINE  
1-2" GATE VALVE IN EXIST. WATER LINE  
1-SINGLE NOZZLE BLOWOFF HYDRANT

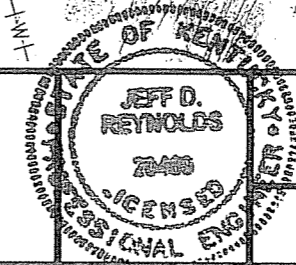


PROJECT: 416200 DATE: DEC. 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWSG.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

MINI FARM ROAD @ LINVILLE ROAD

SHEET  
34  
OF  
36

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

INSTALL  
1-SINGLE NOZZLE BLOWOFF HYDRANT AT  
THE END OF THE EXISTING WATER LINE

EXISTING 2"  
WATER LINE

NOTE :  
WATER LINE SHALL BE ENCASED WITH CRUSHED  
STONE AS SHOWN ON BEDDING/BACKFILL DETAIL.  
ENCASEMENTS SHALL BE PAID FOR BY THE UNIT  
PRICE FOR CRUSHED STONE ENCASEMENT.

EXISTING 4"x2"  
REDUCER

PERRY L. POE  
KARIN POE  
MFB-24

GLEN D. COOPER  
MFB-25B

INSTALL  
1-2" GATE VALVE IN  
EXIST. WATER LINE

SHIRLEY TUCKER JR.  
MFB-23-3

EXISTING 2"  
WATER LINE

RECONNECT 3 EXISTING  
WATER METERS TO  
PROPOSED WATER LINE

INSTALL  
1-4"x3" WET TAP W/  
TAPPING VALVE

EXISTING 4"  
WATER LINE

PROPOSED 3" SDR-21  
WATER LINE (SEE NOTE)

CUT & CAP EXIST. WATER  
LINE ONCE NEW WATER LINE  
IS IN SERVICE

JASON BOTKIN  
MFB-22A

PROPOSED SINGLE NOZZLE  
BLOWOFF HYDRANT

WILLIAM J. RECKERS  
AMBER D. (UF)  
MFB-21B

JIM MOORE  
C/O BILL MOORE, SR  
MFB-22B

P:\engr\4162\CAD\MINI FARM ROAD.dwg, 11/3/2011 2:40:45 PM, ENV\_X854e

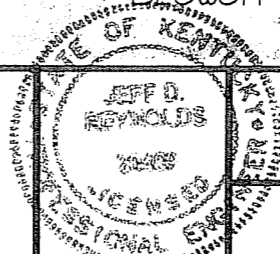
No.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC 2010  
SCALE: 1"=100'

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



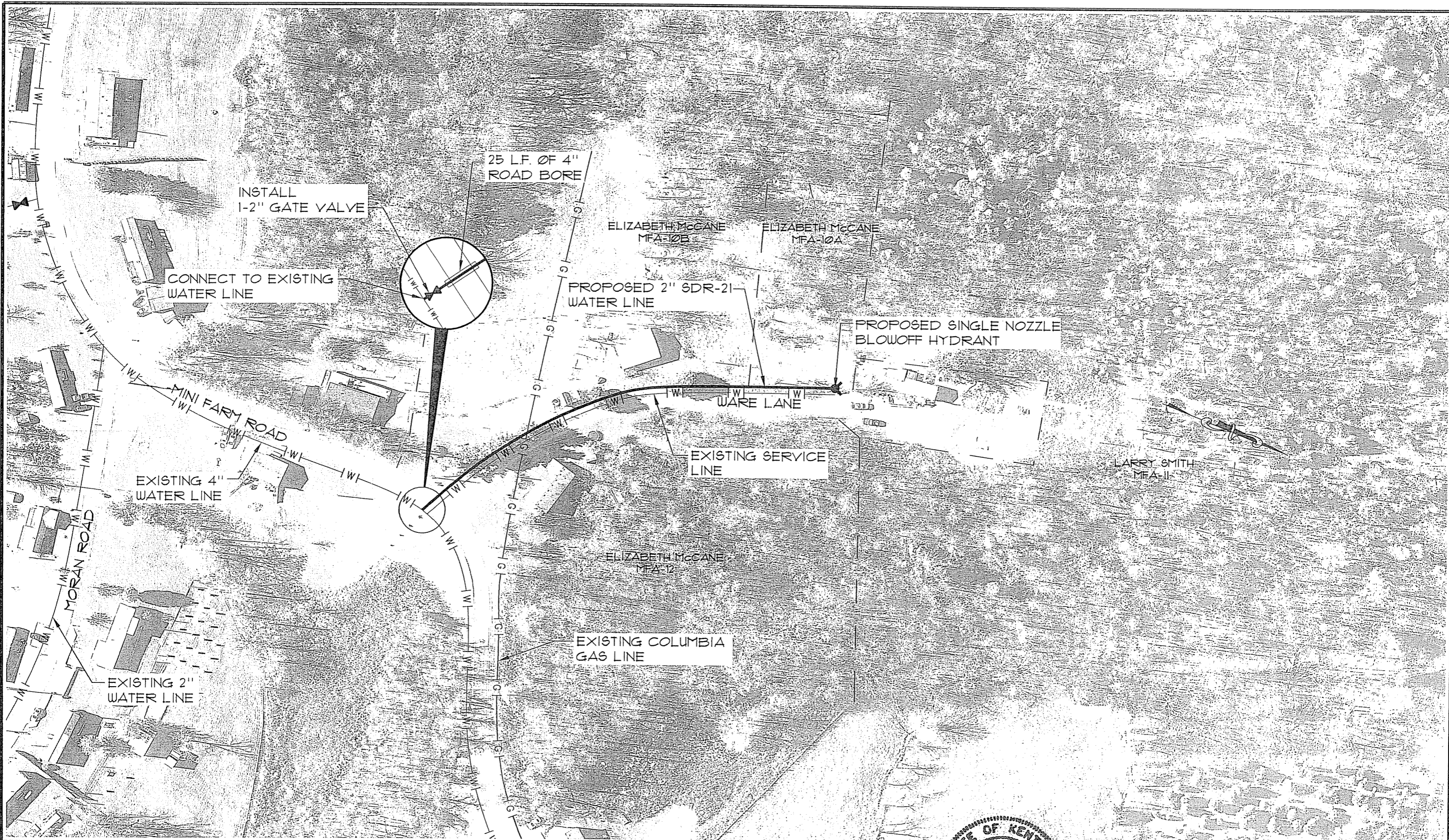
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY**

MINI FARM ROAD @ TONI MAC LANE

SHEET  
35  
OF  
36



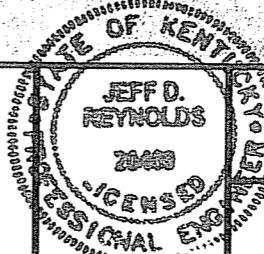
P:\engr\env\4162\CAD\MINI FARM ROAD.dwg, 11/3/2011 3:00:06 PM, ENV\_X854e

NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: DEC. 2010		
SCALE: 1"=100'		
DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DUGS.		



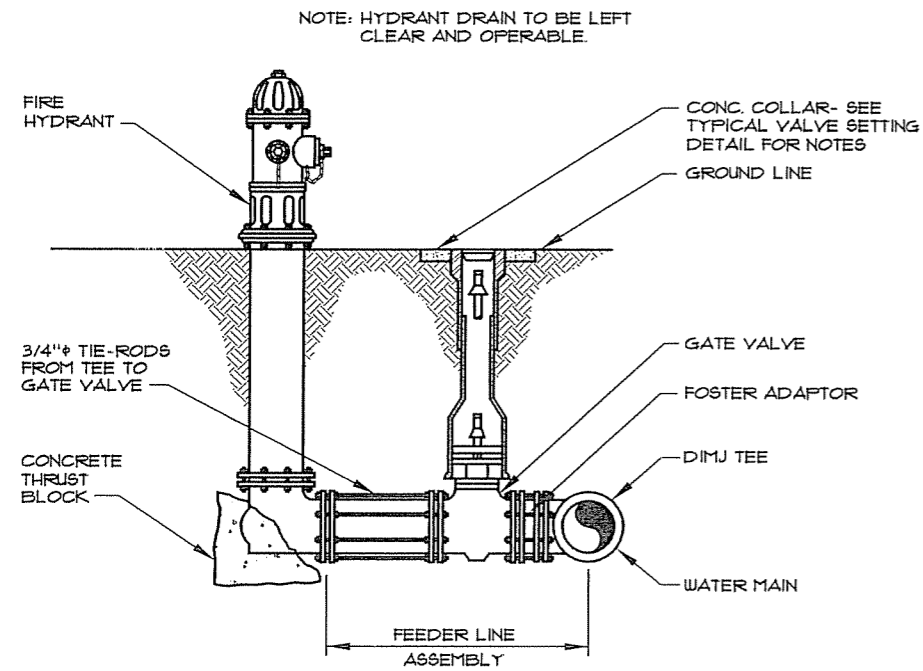
3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

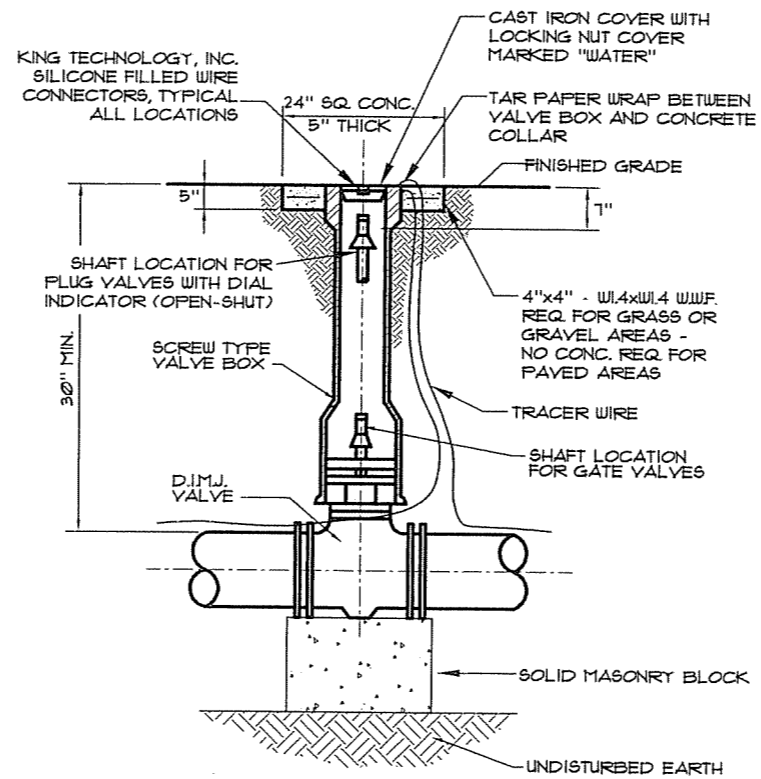
MINI FARM ROAD @ WARE LANE

SHEET  
36  
OF  
36



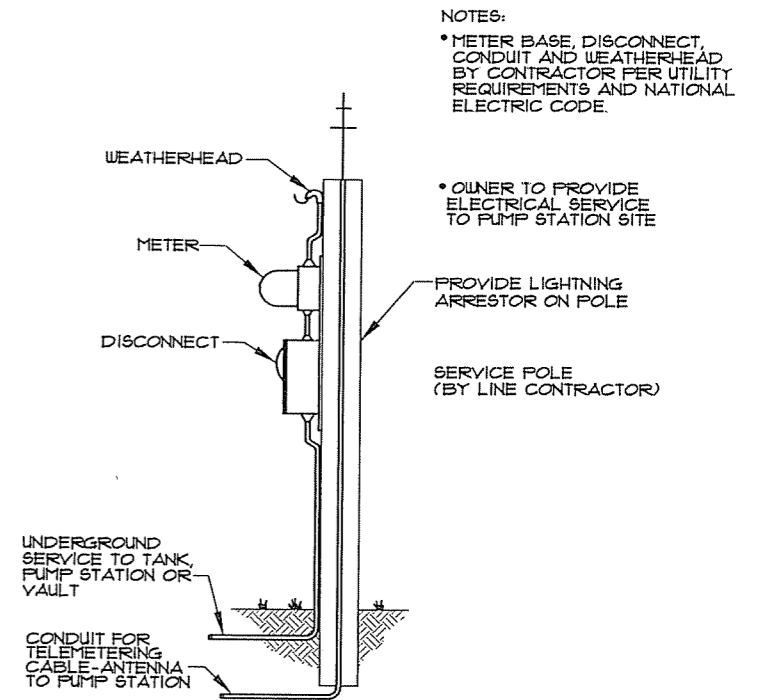
FIRE HYDRANT (3 NOZZLE) OR SINGLE NOZZLE BLOW-OFF HYDRANT (1 NOZZLE)

SCALE : N.T.S.



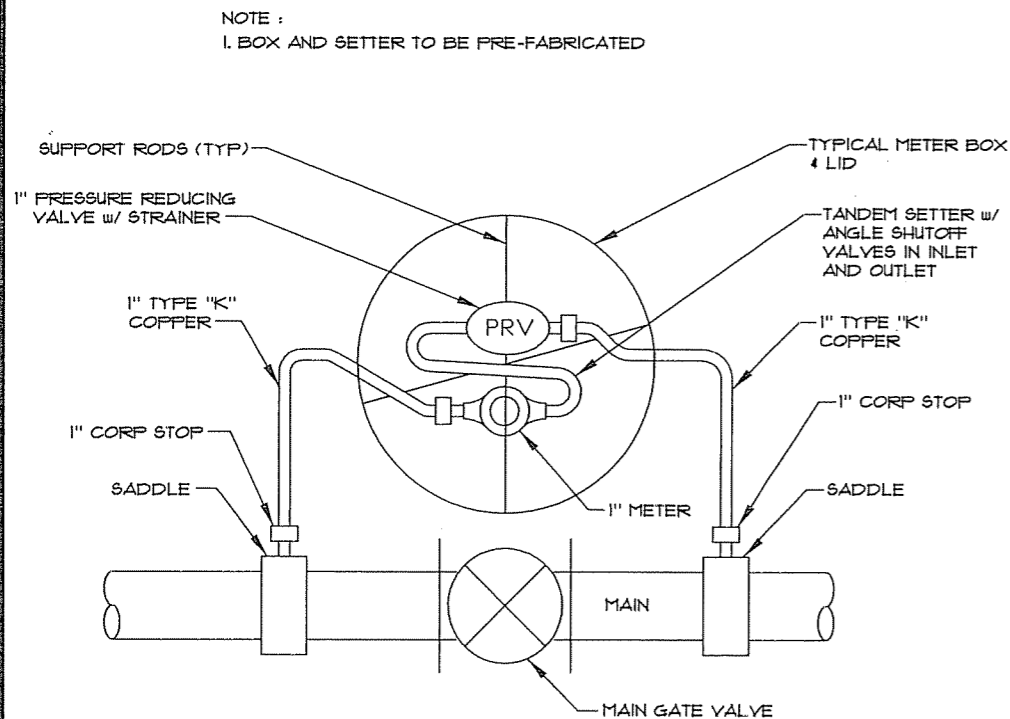
VALVE & VALVE BOX

SCALE : N.T.S.



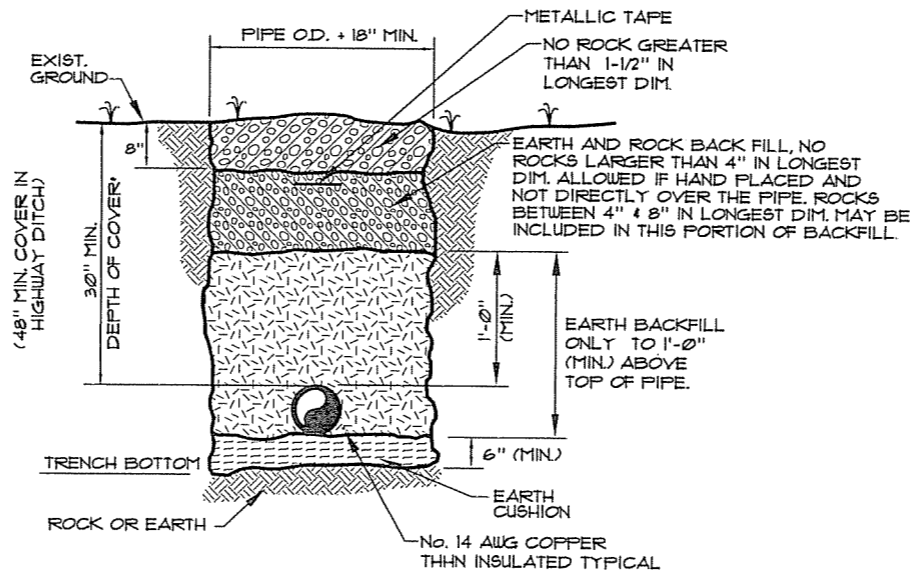
POWER POLE

SCALE : N.T.S.



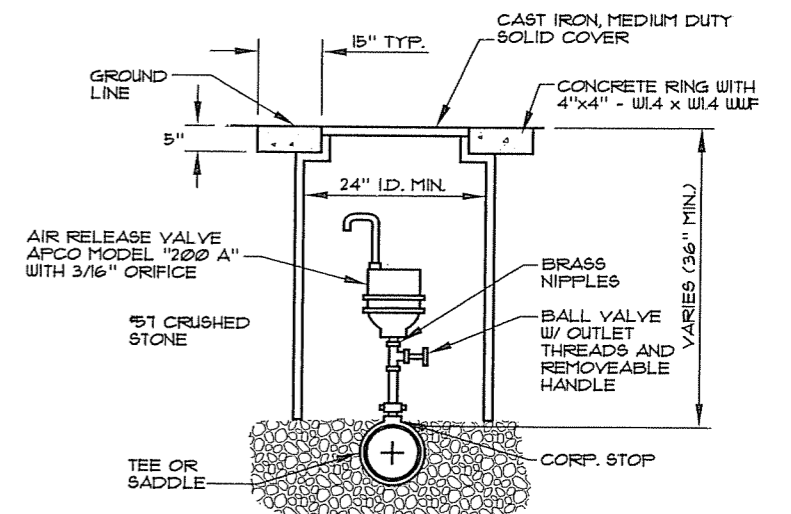
TEST METER AT GATE VALVE

SCALE : N.T.S.



BEDDING / BACKFILL

SCALE : N.T.S.

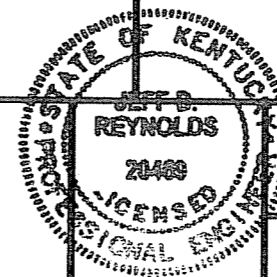
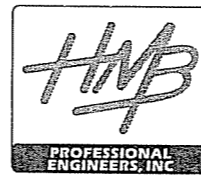


AUTOMATIC AIR RELEASE VALVE

SCALE : N.T.S.

PROJECT: 416200 DATE: APRIL 2011  
SCALE: N.T.S.

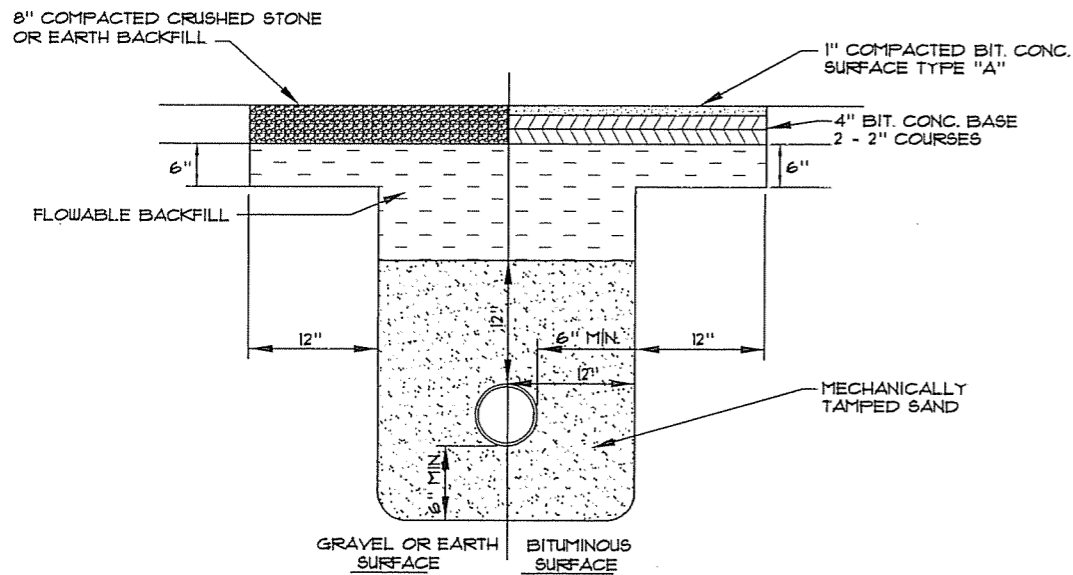
DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWGS.		



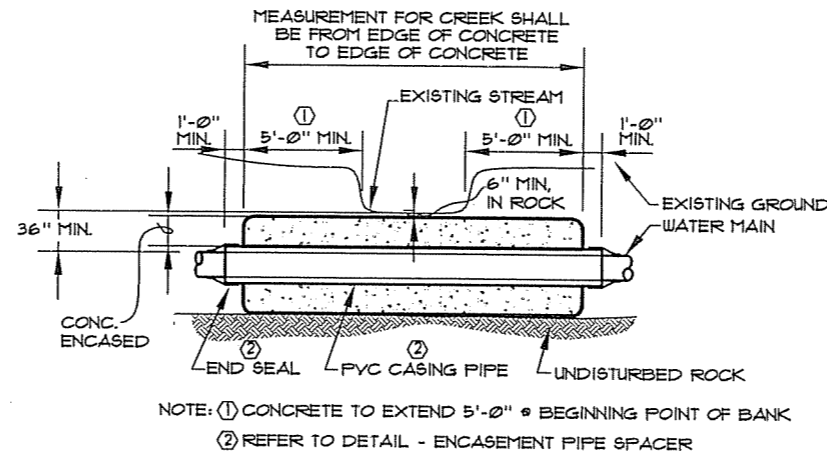
WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

STANDARD DETAILS

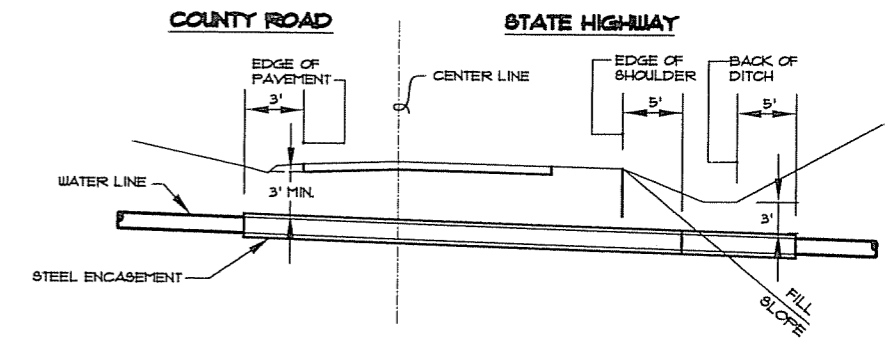
SHEET  
SD1  
OF  
SD4



**FLOWABLE FILL**  
SCALE: N.T.S.



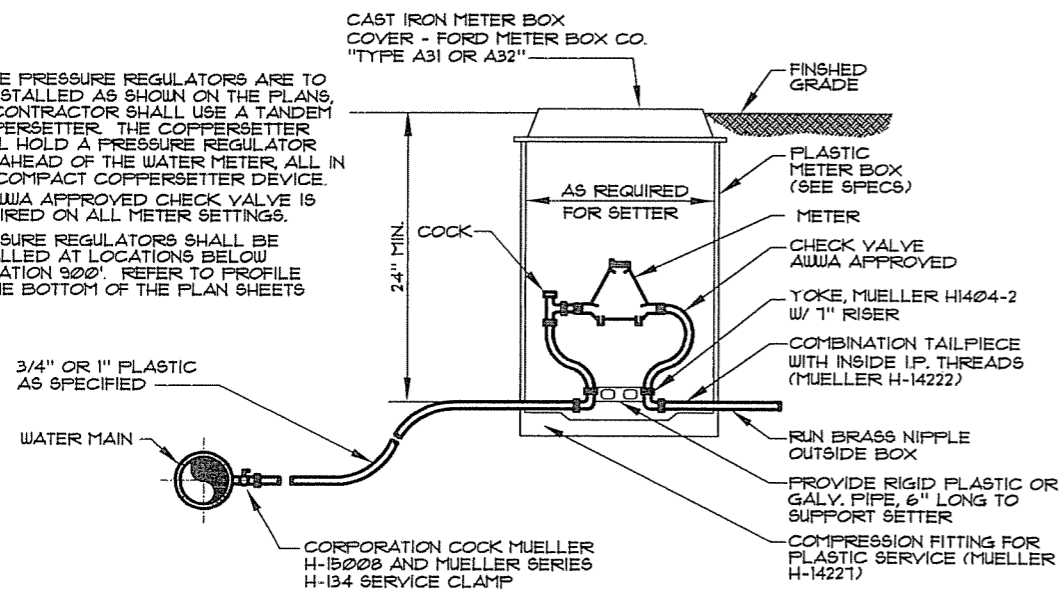
**TYPE "B" STREAM CROSSING**  
SOLID ROCK BOTTOM WITH CONC. CAP  
SCALE: N.T.S.



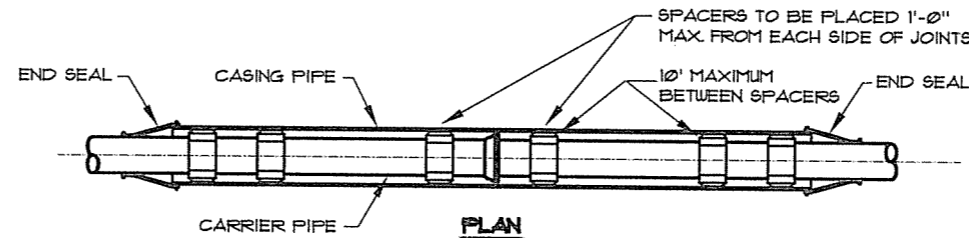
**TYPICAL ROAD CROSSING**  
SCALE: N.T.S.

**NOTES:**

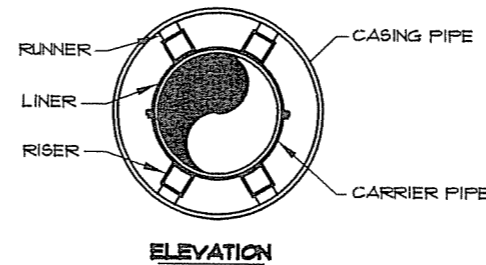
- WHERE PRESSURE REGULATORS ARE TO BE INSTALLED AS SHOWN ON THE PLANS, THE CONTRACTOR SHALL USE A TANDUM COPPERSETTER. THE COPPERSETTER SHALL HOLD A PRESSURE REGULATOR JUST AHEAD OF THE WATER METER, ALL IN ONE COMPACT COPPERSETTER DEVICE.
- AN AWWA APPROVED CHECK VALVE IS REQUIRED ON ALL METER SETTINGS.
- PRESSURE REGULATORS SHALL BE INSTALLED AT LOCATIONS BELOW ELEVATION 900'. REFER TO PROFILE AT THE BOTTOM OF THE PLAN SHEETS



**TYPICAL METER SETTING**  
5/8" x 3/4" & 1" SERVICES  
SCALE: N.T.S.



**PLAN**



**ELEVATION**

**ENCASEMENT PIPE SPACER**  
SCALE: N.T.S.

**TYPICAL ROAD CROSSING NOTES:**

- ALL JOINTS SHALL BE SOLIDLY WELDED. END OF CASING SHALL BE SEALED AFTER LINE HAS BEEN INSTALLED AND TESTED.
- MINIMUM DEPTHS MAY INCREASE IN AREAS WHICH REQUIRE MINIMUM SEPARATION WITH OTHER FACILITIES.
- OPEN TRENCH NO CLOSER THAN THE DITCH LINE OR TOE OF FILL FROM THE EDGE OF THE PAVEMENT OR AS DIRECTED BY STATE, COUNTY OR MUNICIPAL SPECIFICATIONS.
- HIGHWAY CROSSINGS SHALL UTILIZE STEEL CASING PIPE. STEEL CASING PIPES 4" AND LESS SHALL BE NEW SCHEDULE 40. STEEL CASING PIPES LARGER THAN 4" SHALL HAVE MINIMUM WALL THICKNESS OF 0.25". ALL BORED AND JACKED ENCASEMENT PIPE SHALL BE INSTALLED IN BORE HOLES NO LARGER THAN THE OUTSIDE DIAMETER OF THE ENCASEMENT PIPE.
- SDR-21 SHALL BE USED FOR PVC CASING FOR COUNTY ROADS, WHERE PVC CASING PIPE IS REQUIRED.

**TYPICAL STREAM CROSSING NOTES:**

- END CASING SHALL BE SEALED AFTER LINE HAS BEEN INSTALLED AND TESTED.
- CONCRETE CAP SHALL END A MINIMUM OF ONE FOOT FROM EDGE OF CASING PIPE.
- STREAM CROSSINGS SHALL UTILIZE PVC SDR 35 CASING PIPE.

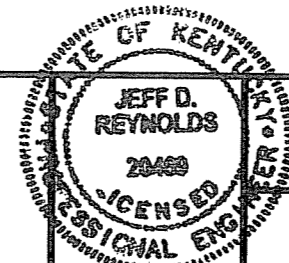
P:\eng\renv\4162\CAD\SD2.dwg, 11/4/2011 8:57:01 AM, ENV\_X854E

PROJECT: 416200 DATE: APRIL 2011  
SCALE: N.T.S.

DESIGNED BY	NAME	DATE
JDR	JDR	
DRAWN BY	SAB	
CHECKED BY	JDR	
RECORD DWSG.		



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



**WATER SYSTEM IMPROVEMENTS**  
**BRACKEN COUNTY WATER DISTRICT**  
**BRACKEN COUNTY, KENTUCKY**

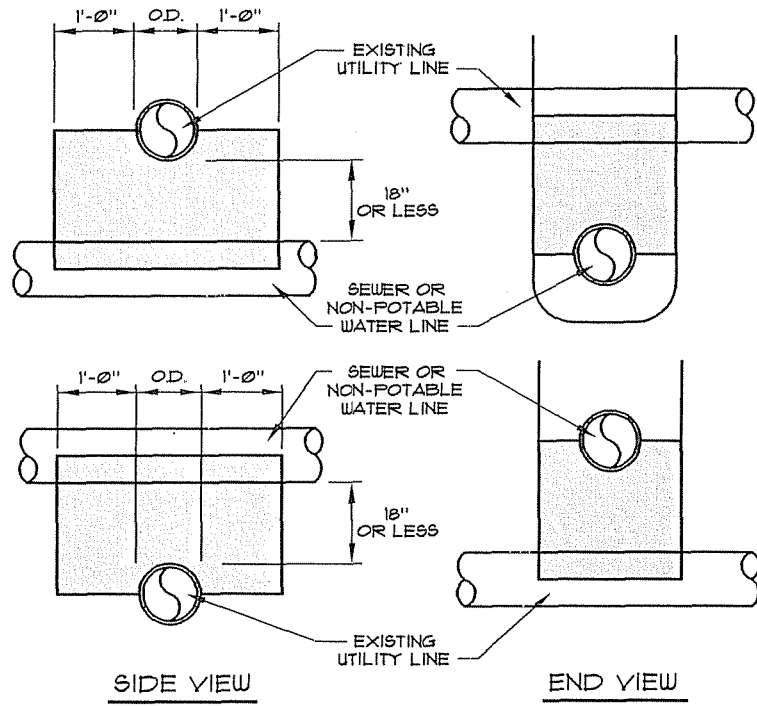
**STANDARD DETAILS**

SHEET  
SD2  
OF  
SD4



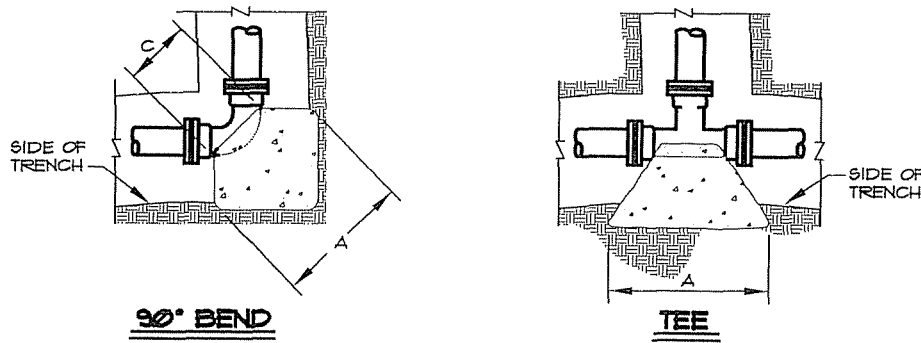
NOTES :

1. CONCRETE ENCASUREMENT SHALL BE USED WHEN CLEARANCE BETWEEN SEWER OR NON-POTABLE WATER LINE AND UTILITY LINE IS 18" OR LESS.
2. WHEN ENCOUNTERING UTILITY LINE WITH SEPARATION LESS THAN 18" VERTICAL OR 10'-0" HORIZONTAL, CONCRETE ENCASUREMENT SHALL BE USED. FULL SECTION OF SEWER OR NON-POTABLE WATER LINE SHALL BE CENTERED UNDER UTILITY LINE TO ACHIEVE MAXIMUM JOINT DISPLACEMENT.
3. CONCRETE ENCASUREMENT IS NOT A SEPARATE PAY ITEM.



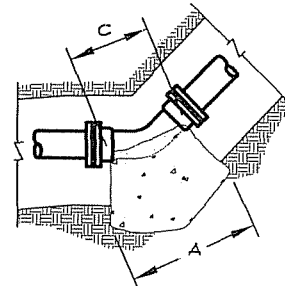
UTILITY CROSSING / ENCASUREMENT

SCALE : N.T.S.



90° BEND

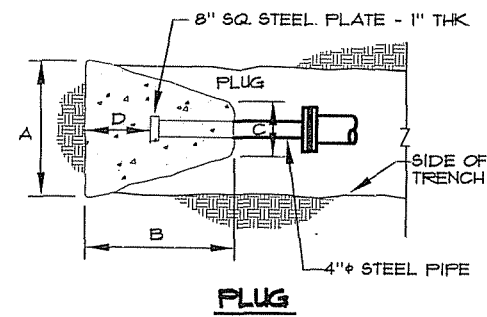
TEE



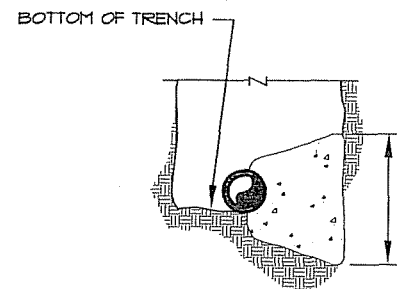
45°-22 1/2°-11 1/4° BEND

NOTES:

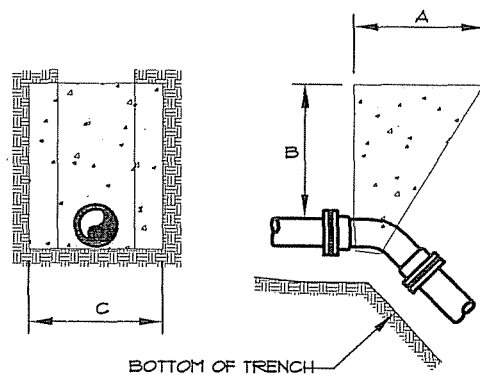
1. THRUST BLOCKS DESIGNED FOR 100 PSI PRESSURE AND 1000 PSF SOIL BEARING. FOR GREATER PRESSURE OR LESS SOIL BEARING, QUANTITIES WILL HAVE TO BE RECALCULATED.
2. THRUST BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
3. IF EXACT SIZE PIPE BLOCKING IS NOT SHOWN, USE NEXT LARGER SIZE.
4. THRUST BLOCKING TO BE POURED IN PLACE CLASS B CONC.



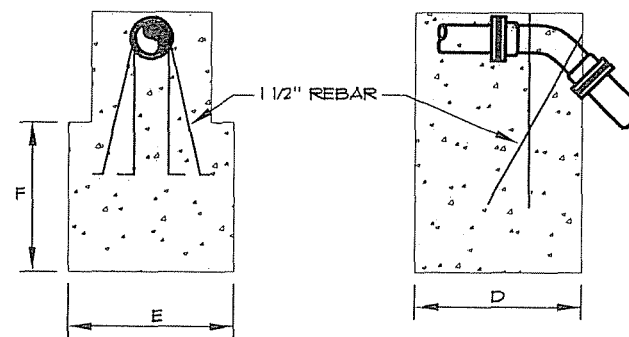
PLUG



TYPICAL SECTION



45° VERTICAL BEND



45° VERTICAL BEND

THRUST BLOCKING

SCALE : N.T.S.

90° BEND										
SIZE	24"	20"	18"	16"	12"	10"	8"	6"	4"	2"
A	88	80	72	64	50	40	33	26	16	16
B	88	80	72	64	50	40	33	24	16	16
C	45	38	32	30	16	15	12	12	9	9
D	48	40	36	32	25	20	16	12	8	9

45° BEND										
SIZE	24"	20"	18"	16"	12"	10"	8"	6"	4"	2"
A	72	60	54	48	37	31	24	18	12	12
B	72	60	54	48	37	31	24	18	12	12
C	22	20	16	18	16	14	12	12	8	8
D	32	28	25	22	18	15	12	9	6	6

45° VERTICAL BEND										
SIZE	24"	20"	18"	16"	12"	10"	8"	6"	4"	2"
A	72	60	60	45	36	36	36	36	24	24
B	60	48	48	45	36	36	36	36	24	24
C	36	84	84	72	60	60	60	60	48	48
D	84	72	72	60	48	48	48	48	36	36
E	84	72	72	60	48	48	48	48	36	36
F	84	72	72	60	48	48	48	48	36	36

22 1/2° BEND										
SIZE	24"	20"	18"	16"	12"	10"	8"	6"	4"	2"
A	50	42	38	34	26	23	18	13	9	9
B	50	42	38	34	26	23	18	13	9	9
C	22	20	16	18	16	14	12	10	8	8
D	26	22	18	16	13	11	9	6	4	4

11 1/4° BEND										
SIZE	24"	20"	18"	16"	12"	10"	8"	6"	4"	2"
A	36	30	27	24	18	16	13	11	9	9
B	36	30	27	24	18	16	13	11	9	9
C	22	20	16	18	16	14	12	10	8	8
D	22	18	14	12	9	8	6	5	4	4

PLUG										
SIZE	24"	20"	18"	16"	12"	10"	8"	6"	4"	2"
A	80	66	60	54	52	43	34	26	26	26
B	80	66	60	54	52	43	34	26	26	26
C	12	12	12	12	12	12	12	12	12	12
D	72	60	54	44	32	22	15	11	11	11

TEE												
SIZE	MAIN	24"	20"	18"	16"	12"	12"	12"	8"-10"	8"-10"	8"-12"	2"-6"
A	BRANCH	24"	20"	18"	16"	12"	12"	12"	8"-10"	8"-10"	8"-12"	2"-6"
B		80	66	60	54	52	42	26	43	26	26	
C		80	66	60	54	52	43	26	43	26	26	
D		45	36	32	30	12	12	12	12	12	12	
		48	40	36	30	26	21	13	21	13	13	

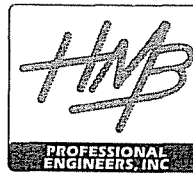
DIMENSIONS ARE IN INCHES

P:\engr\env\4162\CAD\SD3.DWG, 11/4/2011 9:06:50 AM, ENV\_X854e

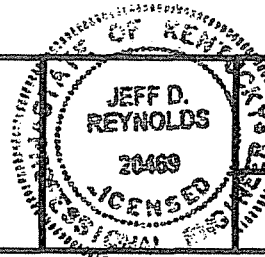
NO.	DATE	REVISIONS	CHK'D	APPR'D	DATE

PROJECT: 4162.00 DATE: APRIL 2011  
SCALE: N.T.S.

DESIGNED BY	NAME	DATE
JDR	JDR	
SAB	SAB	
JDR	JDR	



3 HMB CIRCLE  
FRANKFORT, KENTUCKY  
(502) 695-9800  
(502) 695-9810 FAX



WATER SYSTEM IMPROVEMENTS  
BRACKEN COUNTY WATER DISTRICT  
BRACKEN COUNTY, KENTUCKY

STANDARD DETAILS

SHEET  
SD3  
OF  
SD4

