A.L. FRANKS ENGINEERING

101 W. Main, Ste. 413
El Dorado, AR 71730
PHONE 870.444.5160 • FAX 870.444.5161

ADDENDUM NO. 2

TO: ALL PLAN HOLDERS

RE: City of Eudora, Arkansas
Tank and Well Improvements

ADDENDUM DATE: October 19, 2023

The Plans, Specifications and Contract Documents for the above referenced project are hereby modified as follows:

1. **Bid Proposal:** See attached.
   Remove and Replace Bid Proposal A and Bid Proposal B with the Attached Pages.

2. **Contract Documents:** See attached.
   Special Conditions have been revised. Liquidated Damages are revised to be $800/day.

3. **Technical Specifications:** See attached.
   Remove and Replace Section 2, Section 7, and Section 09875 with the Attached Pages.

4. **Plans:** See attached.
   Remove and Replace Plans Sheet 3-8, Plan Sheets 15-17, and Plan Sheets E1 with the Attached Plan Sheets.

5. **Clarification:** Cody Stringer, P.E. is the Project Manager. Please email him with any questions regarding the project at cstringer@alfranksengineering.com.

ADDENDUM NO.2 ISSUED BY:

A.L. FRANKS ENGINEERING

Cody Stringer, P.E.
Project Manager

10/19/2023

Bid Proposal

CITY OF EUDORA, ARKANSAS

TANK REHABILITATION

BID PROPOSAL "A"

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	1	L.S.	Sandblast and re-coat interior of Baker St. 150,000-gallon Elevated Storage tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.F		
2	1	L.S.	Sandblast and re-coat exterior (including logo) of Baker St. 150,000-gallon Elevated Storage tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
3	120	L.F.	Provide and install 6” schedule 80 PVC riser pipe, Including check valves, bracing, and appurtenances, on Baker St. Tank per plans and specifications for the unit price of _____ _____ Dollars and Cents/L.F	$ _____	$ _____
4	1	L.S.	Provide and install 6” Overflow Pipe, including concrete Splash pad, #24 S.S. mesh screen, and flap valve on Baker St. Tank per plans and specifications for the unit price of _____ _____ Dollars and Cents/L.S.	$ _____	$ _____

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
5	1	L.S.	Provide and install new interior ladder and safety climb system on Baker St tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		
6	480	L.F.	Remove and replace 6' tall chain link fence and double 8' gate around Baker St. Tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.F		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
7	1	L.S.	Provide and install #24 S.S. mesh screen, flap valve, and concrete splash pad on Existing 6” overflow pipe on Cashion St. Tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		
8	1	L.S.	Provide and install 8” schedule 80 PVC riser pipe, Including check valves, bracing, and appurtenances, on Cashion St. Tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
9	400	L.F.	Provide and install 6' tall chain link fence and double 8' gate around Cashion St. Tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ _____ Dollars and Cents/L.F		
10	1	L.S.	Sandblast and re-coat interior of Downtown 500,000-gallon Elevated Storage tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ _____ Dollars and Cents/L.S.		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
11	1	L.S.	Sandblast and re-coat exterior (including logo) of Downtown 500,000-gallon Elevated Storage tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S		
12	1	L.S.	Provide and install 12” schedule 80 PVC riser pipe, Including check valves, bracing, and appurtenances, on Downtown Tank per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
13	3	EA	Furnish and Install new roof vent on **all** tanks per plans and specifications including all labor and materials for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/EA		
14	3	EA	Furnish and Install new roof access hatch on **all** tanks per plans and specifications including all labor and materials for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/EA		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT	TOTAL
15	3	EA	Furnish and Install new riser access hatch on **all** tanks per plans and specifications including all labor and materials for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/EA		
16	3	EA.	Provide and install safety climb system on existing exterior Ladder and new locking ladder gate on **all** tanks per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/EA.		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT	TOTAL
17	1	L.S.	Remove and dispose of all brush and vegetation around all tank sites per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		
18	1	L.S.	Provide full containment for all exterior blasting and painting for the lump sum price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "A" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT	TOTAL
19	1	L.S.	Lead abatement and disposal per federal and State Regulations for the lump sum price of (To be used if lead test is positive)	$ _____	$ _____

_____ Dollars and
_____ Cents/L.S.

TOTAL BASE BID OF PROPOSAL "A" $ _____

NOTES: 1) Miscellaneous items, directed work, connections, etc., not specifically listed but required to complete the proposed improvements to a complete and operational system shall be included in the Bid under the most appropriate Bid Item.

2) Any damage to the tanks or wells caused by proposed work shall be repaired per coating manufacturer's recommendations at no additional cost to the owner.

3) All fittings, valves and appurtenances must be lead free in accordance with public law 111-380

4) Time required to complete work shall be 120 calendar days.

5) Contractor shall provide a lead test, conducted by a certified lab, of the interior and exterior coatings that are to be blasted, prior to beginning work.

6) Contractor is responsible for ensuring any and all applicable local, state and federal laws for abatement, containment and disposal of all lead contaminated materials are followed.

CITY OF EUDORA, ARKANSAS

REPLACEMENT WELL

BID PROPOSAL "B"

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	1	L.F.	Re-grout and seal the top of the casing at well head #3 per plans and specifications for the lump sum price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.F		
2	1	L.S.	Provide and install a vent on Water Well #3, including #24 S.S. mesh screen per plans and specifications for the lump sum price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "B" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
3	1	L.S.	Re-grout and seal the top of the casing at well head #4 per plans and specifications for the lump sum price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		
4	1	L.S.	Provide and install a vent on Water Well #4, including #24 S.S. mesh screen per plans and specifications for the lump sum price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "B" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
5	1	EA	Furnish and Install Water Well #6 to an estimated depth of 360 feet including, but not limited to 12” I.D. production casing, 8” stainless steel wire wrapped screen, 8” blank liner, 16” diameter under reamed gravel packed hole, pump and motor for a complete and operational well per plans and specifications for the unit price of _____ Dollars and _____ Cents/EA	$ _____	$ _____
6	1	EA	For Furnishing all necessary labor, tools, materials, Equipment and incidentals necessary for the Construction of one (1) Test Hole to an estimated depth of 360 feet including sitework, drillers log, and one (1) aquifer test per plans and specifications for the unit price of _____ Dollars and _____ Cents/EA	$ _____	$ _____

BID PROPOSAL "B" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
7	140	L.F.	Furnish and Install 6” C-900 PVC Water Main and tie in to existing 6" PVC water main per plans and specifications for the unit price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.F		
8	1	L.S.	Furnish and Install Well Discharge Piping, including Valves, Fittings, Piping, Supports, and 2” Water Meter per plans and specifications for the lump sum price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.S.		

BID PROPOSAL "B" CONTINUED

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
9	200	L.F.	Furnish and Install 6' tall Chain Link Fence with 2-Dbl. 8' Gates per plans and specifications for the unit price of	$ _____	$ _____
			_____ _____ Dollars and Cents/L.F		
10	1	EA	Furnish and Install all Electrical Material and Equipment per plans and specifications for the unit price of	$ _____	$ _____
			_____ _____ Dollars and Cents/EA		
			TOTAL BASE BID PROPOSAL "B"		$ _____

NOTES: 1) Miscellaneous items, directed work, connections, etc., not specifically listed but required to complete the proposed improvements to a complete and operational system shall be included in the Bid under the most appropriate Bid Item.

2) Any damage to the tanks or wells caused by proposed work shall be repaired per coating manufacturer's recommendations at no additional cost to the owner.

3) All fittings, valves and appurtenances must be lead free in accordance with public law 111-380

4) Time required to complete work shall be 120 calendar days.

5) Contractor shall provide a lead test, conducted by a certified lab, of the interior and exterior coatings that are to be blasted, prior to beginning work.

6) Contractor is responsible for ensuring any and all applicable local, state and federal laws for abatement, containment and disposal of all lead contaminated materials are followed.

ADD OR DEDUCT ITEMS

ITEM	QTY	UNIT	DESCRIPTION	UNIT PRICE	TOTAL PRICE
1	PER	L.F.	Add or Deduct Over or Under 423' ft. of 12" Casing and Cement Grout per plans and specifications for the Add or Deduct price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.F.		
2	PER	L.F.	Add or Deduct Over or Under 31' ft. of 8" Stainless Steel Screening per plans and specifications for the Add or Deduct price of	$ _____	$ _____
			_____ Dollars and _____ Cents/L.F		

Contract Documents

7. BASIS FOR BID AWARD. If no alternates are specified in the bid proposal, award will be made to the lowest responsible, responsive bidder. However, the Owner reserves the right to reject any and all bids and to waive any irregularities as may be deemed best and in the Owner's interest.

8. TIME FOR COMPLETION. The time allowed for completion of all items of work shall be **One Hundred Twenty** (120) consecutive calendar days, which time shall begin the tenth (10th) day after issuance of the Work Order. The Work Order shall consist of a written request by the Engineer for the Contractor to proceed with the construction of the project. Extensions due to weather days shall be based on delay above the normal rain days specified by the Corps of Engineers.

9. LIQUIDATED DAMAGES FOR DELAY. The Contractor agrees that time is the essence of this Contract, and that for each day of delay beyond the number of calendar days herein agreed upon for the completion of the work herein specified and contracted for (after due allowance for such extension of time as is provided for in the General Conditions of Agreement) the Owner may withhold, permanently from the Contractor's total compensation, the sum of Eight Hundred Dollars ($800.00) per calendar day or an amount equal to actual damages incurred by the Owner, whichever is greater, as stipulated damages for such delay.

10. RIGHTS OF VARIOUS INTERESTS. Wherever work being done by the Owner's employees or by other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work in general harmony.

11. CORPORATE CONTRACTS. Corporate contractors to be eligible to enter into contract with the Owner shall be qualified to do business in the State or States where the work is to be performed. All licensing requirements shall be complied with. Foreign corporations which have not domesticated or otherwise become licensed in the State or States where work will be performed shall obtain a permit to do business in such State or States pursuant to the State's requirements.

12. PROPOSALS. **Proposals must be submitted on forms purchased from the Owner's Engineer, A.L. Franks Engineering** and endorsed as provided in the Contract Documents.

Proposals must be submitted filled out with ink or typewriter and without erasure, interlineations or changes, and if not made in accordance with the General Conditions and other contract documents, will be subject to rejection as irregular, yet the Owner reserves the right to waive any irregularities.

Proposals will be made in the name of the principal and, in a co-partnership, the names of all partners shall be given. Exact post office address shall be given in all cases. If proposals are submitted by an agent, satisfactory evidence of agency authority must accompany the proposal.

Technical Specifications

SECTION 2

DEEP WELL #6

2.01 GENERAL: The well to be constructed under this section is to be approximately 360 feet deep and shall be comprised of the following principal items:

360 feet of 12 I.D. inch surface casing
35 feet of 8 inch stainless steel blank liner
50 feet of 8 inch stainless steel wire wrapped screen
40 feet of 16 inch diameter under-reamed, gravel packed hole

2.02 TEST HOLE:

A. GENERAL: The Contractor shall drill a test hole at the proposed site to the approximate depth of 360 feet.

B. Well Log: The Contractor shall keep an accurate radioactivity log of the well and shall give a daily report of the materials passed through and the thickness of the various sands. Copies of all logs and daily reports are to be submitted to the Engineer and the Arkansas Geological Commission for evaluation. The Contractor shall provide all reasonable facilities for the inspection of the work by the Engineer or his representative.

Also, the Contractor shall run an electric log of the well, with three resistivity curves made on a 50 OHM scale and the spontaneous potential curve made on a 10 MV scale and with the vertical scale to be with both 2" and 5" per 100 feet. The Contractor shall make recommendation of the material settings to the Engineer based on the logs.

C. Sieve Analyses of Drill Cuttings: The Drill contractor shall collect cutting samples every ten (10) feet. The samples shall be washed and dried before bagging. The sample bags shall be properly identified and labeled by the driller and sent to the following person for review:

Mr. Bill Prior, P.G.
Arkansas Geological Survey
3815 West Roosevelt Road
Little Rock, AR 72204 Ph: (501) 296-1877

The Drill Contractor shall have standard sieve analyses run on all drill cutting samples of water-bearing sands obtained from the pilot hole. Prior to the making of the analysis, the Contractor shall obtain approval by the Owner of the laboratory and method and sieve sizes selected for the analysis. Three copies of the results shall be furnished the Owner.

D. Alignment: As the drilling of the test hole progresses, a straight line test of the well each 30 feet shall be made. The hole shall not vary from a plumb line by more than one degree. The Contractor shall furnish the necessary equipment and bear all the expenses of making the test under the supervision of the Engineer. Should the test show the well to have a greater variation than herein specified, the Contractor will be required to straighten the old hole or to drill a new one. An Eastman single shot instrument or equivalent will be acceptable for making the alignment test.

E. Aquifer Tests: One aquifer test shall be performed at no additional cost to Owner for the purpose of evaluation of aquifer yield and water quality. Tests shall consist of installation of a section of well screen and a pump in the aquifer, isolating of the aquifer from adjacent aquifers, and pumping to obtain a water sample for analysis. Care shall be taken to insure that the water sample is as free of drilling mud and other drilling residue as possible. Water analyses shall include as a minimum the testing for the following constituents:

1.	Color	*20.	CO2
* 2.	pH	*21.	H_2S
3.	Alkalinity $CaCO_3$	22.	Barium
* 4.	Total hardness	23.	Mercury
*5.	Iron	24.	Nitrate
6.	Manganese	25.	Selenium
7.	Turbidity SiO_2	26.	Silver
8.	Acidity $CaCO_3$	27.	Calcium
9.	Chloride	28.	Magnesium
10.	Sodium	*29.	Temperature
11.	Potassium	*30.	Conductivity
12.	Fluoride	31.	Antimony
13.	Arsenic	32.	Beryllium
14.	Cadmium	33.	Cyanide
15.	Chromium	34.	Nickel
16.	Cooper	35.	Thallium

17. Lead
18. Zinc
*19. Dissolved Oxygen
36. Gross Alpha and Beta Radiochemistry

* To be chemically analyzed in field by Contractor immediately upon collection of sample results being submitted to the Engineer.

F. Abandonment of Well Due to Water Quality: In the event the above analysis indicates that the proposed well will not produce water of the required quality, the Contractor shall abandon the test hole and proceed with a second test hole at a second location provided by the Owner. The abandoned hole shall be plugged in accordance with AWWA A100-06.

2.03 DEEP WATER WELL:

A. General: After the analysis of the test holes has indicated that water of adequate quality will be available, the Engineer will direct the Contractor to proceed with the setting of permanent casing and completion of the well with under ream, gravel pack, and installation of blank liner and screen.

B. Casing: Casing shall be standard seamless steel or lapweld casing, furnished with standard couplings or welded joints. The casing shall be 12" I.D. with a wall thickness of 0.375 inches and 853 Grade B casing.

C. Setting Casing: The 12" I.D. casing shall be placed with the top set as directed by the Engineer. The bottom of the casing shall be fitted with a substantial and appropriate float shoe. The Contractor shall demonstrate the straightness of the hole by turning the entire string of casing 360 degrees before cementing.

D. Cementing: The annular space between the inner or protective casing and the outer casing or hole shall be filled with cement grout. Grout shall be proportioned of cement and the minimum quantity of water (not over 6 gallons per cubic foot of cement) required to give a mixture of such consistency that it can be forced through the grout pipes. The mixture, method of mixing, and consistency of grout shall be approved by the Engineer.

The grouting shall be done continuously and in such a manner as will insure the entire filling of the annular space in one operation. No drilling operations or other work in the well will be permitted

within 72 hours after the grouting of casings. If quick-setting cement is used, this period may be reduced to 24 hours.

E. Under-Reaming: The casing shall be drilled out and the Contractor shall then drill and under-ream the entire area to be developed to a diameter of not less than 16 inches. The hole shall be drilled to the usual tolerance that is customary for holes of this size and depth. A Caliper Log shall be made, by a company approved by the Engineer, of the entire under-reamed section to determine whether or not it meets these specifications.

All drilling through the water-bearing sand shall, insofar as practicable, be done with water as clear as possible.

F. Screens and Blank Liner: An inner casing consisting of screen and blank liner shall be set centrally through the guide hole in the under-reamed section. The blank liner shall be 8" I.D.

The screens shall be set opposite the water-bearing sections. All screens shall be of all welded continuous slot construction with inlet slots that widen inwardly from the surface as manufactured by Johnson Division, UDP, St. Paul Minn., or approved equal.

The size of opening shall be determined in accordance with the effective size and uniformity coefficient of the sands in the water-bearing strata. The openings shall be so designed as to prevent clogging and shall be free of jagged edges, irregularities or anything which will accelerate or contribute to clogging or corrosion.

The rods and internal structure will be designed to provide adequate strength to resist external forces applied to it after installation and to minimize the likelihood of damage during installation. The screen and internal support structure shall be completely fabricated of AISI Type 304 stainless steel.

The joints of blank liner and screen shall be connected by threaded couplings or by welded connections and shall be set in one continuous string, and shall be fitted with a suitable number of centering guides approved by the Engineer. If welding connections the welding rod shall be of equal quality to the most noble metal. The joint shall be watertight, straight and as strong as the screen.

The bottom of the liner shall be closed with a suitable back pressure valve.

G. Graveling: After setting the liner and screen, the annular space between the under-reamed walls and the liner shall be completely filled with a well-graded, specially selected, washed and screened filter gravel.

The gravel shall be deposited under hydraulic pressure through a pipe line first extending to the base of the sand being screened and then gradually raised as the gravel is deposited in the under-reamed section. The method of graveling shall be such that all sand is removed from this under-reamed section and replaced with the filtering gravel, and in such manner as to insure the complete filling of the section and the giving of adequate support to the sand walls. Gravel shall extend in the magazine between the blank liner and outer casing to within 5 feet of the top of the inner casing.

H. Gravel Type: The type and size of the gravel to be used shall be determined and selected by the contractor from the character and sieve analysis of the water bearing formation. The gravel shall be washed, screened, and without sharp edges. The gravel shall be free of all dirt, trash, clay, or other foreign substances. Crushed gravel shall not be used. Not more than five percent (5%) of the gravel shall be soluble in hydrochloric acid. If requested by the Owner, a sample of the gravel and the sieve analysis of the gravel shall be delivered to the Owner prior to placement by the Contractor. The Owner's approval of the gravel shall in no way, however, relieve the Contractor of meeting all the Well performance guarantees required by these specifications and other contract documents.

The gravel shall be sterilized by mixing at least 50 pounds of approximately 70 percent granulated calcium hypochlorite with the gravel as it is placed in the well.

I. Developing: On completion of the graveling process, the well shall be washed, agitated and developed until water is free of mud and sand. Gravel shall be added as required during development and/or test, and on completion of test, the gravel level shall be checked and additional gravel added if necessary to bring the magazine level back to required level.

The Contractor shall furnish all necessary pumps, compressors, plungers, bailing or other needed equipment and shall develop the well by such approved methods as shall be necessary to give the maximum yield of water per foot of drawdown and extract from the water-bearing formation the maximum practical quantity of such sands as may, during the life of the well, be drawn through the

screen when the well is pumped under maximum conditions of drawdown.

J. Production Tests:

1. Test No. 1: After the well has been developed and cleared to the satisfaction of the Engineer, a test run of 36 hours duration shall be made, during which test hourly readings of water produced and depth to the water level in the well shall be measured by the representatives of the Contractor and of the Engineer. The average of the last 12 hourly readings shall be taken as the official capacity of the well.

   This test shall run with the space between the test pump column and liner open to atmosphere. The test pump shall be capable of pumping 500 gpm at the required pump setting.

2. Test No. 2: After Test No. 1 has been completed, the recovery of the water level will be recorded for a minimum period of 12 hours or until near the maximum recovery is reached.

   Extreme care shall be taken in accurately recording the capacity and water levels during both tests. Data to be recorded will be as directed by the Engineer. The Contractor may be required to repeat a test if he does not obtain and record accurate readings acceptable to the Engineer.

   The capacity at which the well is to be pumped under this test will be directed by the Engineer. The Contractor, at his own expense, shall provide all pumping equipment required for testing the well and standard devices for both discharge and water depth measurement. Power for test shall be provided by the Contractor.

K. Testing for Plumbness and Alignment: All holes shall be constructed and all casing and liners set round, plumb and true to line as defined herein. To demonstrate the compliance of his work with this requirement, the Contractor shall furnish all labor, tools, and equipment and shall make the tests described herein in the manner prescribed by, and to the satisfaction of the Engineer. Tests for plumbness and alignment must be made after the complete construction of the well and before its acceptance. Tests are to conform to the A100-06 Edition of the AWWA Standard, Section 8. Additional tests, however, may be made by the

Contractor during the performance of the work. No specific payments shall be made by the Owner for making these tests.

An alternate test for plumbness and alignment may be used by the Contractor if approved by the Engineer.

L. Water Analysis: A chemical analysis of water produced during the production test shall be performed by a commercial laboratory at no additional expense to the Owner to determine if water with acceptable quality is produced from the well. The analysis shall include testing for all constituents outlined below L1 and bacteriological testing in conformance with Arkansas Department of Health Requirements.

L1. Aquifer Tests: One aquifer test shall be performed at no additional cost to Owner for the purpose of evaluation of aquifer yield and water quality. Tests shall consist of installation of a section of well screen and a pump in the aquifer, isolating of the aquifer from adjacent aquifers, and pumping to obtain a water sample for analysis. Care shall be taken to insure that the water sample is as free of drilling mud and other drilling residue as possible. Water analyses shall include as a minimum the testing for the following constituents:

1.	Color	* 19.	Dissolved Oxygen
* 2.	pH	* 20.	CO_2
3.	Alkalinity $CaCO_3$	* 21.	H_2S
* 4.	Total hardness	22.	Barium
* 5.	Iron	23.	Mercury
6.	Manganese	24.	Nitrate
7.	Turbidity SiO_2	25.	Selenium
8.	Acidity $CaCO_3$	26.	Silver
9.	Chloride	27.	Calcium
10.	Sodium	28.	Magnesium
11.	Potassium	* 29.	Temperature
12.	Fluoride	* 30.	Conductivity
13.	Arsenic	31.	Antimony
14.	Cadmium	32.	Beryllium
15.	Chromium	33.	Cyanide
16.	Cooper	34.	Nickel
17.	Lead	35.	Thallium
18.	Zinc	36.	Gross Alpha and Beta Radiochemistry

* To be chemically analyzed in field by Contractor immediately upon collection of sample results being submitted to the Engineer.

M. Modification of Well Due to Water Quality: In the event that the above analysis indicates that the completed well will not produce water of the quality demonstrated by the prior test, the well shall be modified by the Contractor at his own expense. Should the Contractor fail to correct such inadequate quality, the Engineer may refuse to accept the well. The Engineer may waive the requirements of this paragraph if, in his judgment: 1) the water quality will improve with continuous use in the future, 2) the cost of the modifications will be excessive.

N. Disinfection: After the well has been completely constructed, it shall be thoroughly cleaned of all foreign substances, including tools, timbers, rope, debris of any kind, cement, oil, grease, joint dope and scum. The casing pipe shall be thoroughly swabbed, using alkalis, if necessary, to remove oil, grease, or joint dope. The well shall then be disinfected with a chlorine solution.

The chlorine solution used for disinfecting the well shall be of such volume and strength and shall be so applied that a concentration of at least 50 ppm of chlorine shall be obtained in all parts of the well. Chlorine solution shall be prepared and applied in accordance with the directions of, and to the satisfaction of the Engineer, and shall remain in the well for a period of at least two hours.

O. Well Closure: After testing, sterilization, and approval by the Engineer, the Contractor shall furnish and install a temporary cap on the well to prevent contamination of the well prior to installation of the well pump.

P. Well Guarantee: The Contractor shall guarantee the well to produce 500 gpm of clean water with the sand content not exceeding 1 oz. per 160 gallons of water pumped and shall also guarantee the well against all defective materials and workmanship for a period of one year, agreeing to make good any defects that may develop during this one year period without cost to the Owner.

Q. Well Completion Report: Upon completion of the well, the Contractor shall furnish the Owner four bound Completion Reports including a complete written log of the well showing the formations encountered, the type and location of all material setting, the water quality analysis, the production test data, the caliper log, well pump setting and design data, and all other pertinent information required to complete properly detailed records of the well.

R. Measurement and Payment: Payment will be made based on the unit prices listed in the bid schedule for the appropriate items. All items necessary for a complete installation and not listed on the bid schedule shall be considered subsidiary to other bid items.

SECTION 7

DEEP WELL SUBMERSIBLE PUMP

7.01 GENERAL PUMP REQUIREMENTS: A complete submersible motor driven deep well turbine pump shall be furnished and installed by the Contractor. The pump shall comply with the conditions set forth herein. The pump shall be crown submersible pump or approved equal.

7.02 DESIGN CONDITIONS:

WELL #6

Design Capacity: 500gpm @ 55 psi. Discharge Pressure @ Well Head
Maximum Allowable Speed: 1770 rpm

7.03 MOTOR: Shall conform to the latest National Electrical Manufacturers Association (NEMA) Specifications for submersible motors. The motor thrust bearing shall be sized to carry the weight of all rotating parts plus the hydraulic thrust of the pump regardless of the direction of rotation. The thrust bearing shall have sufficient capacity to permit the pump to operate momentarily with the discharge valve closed.

The motor shall be of the squirrel cage induction type, suitable for "across the line" starting. The motor shall be capable of continuous operation under water at the conditions specified. The power output shaft shall be 416 stainless steel or equivalent. All fastenings exposed to well water shall be of stainless steel or equivalent corrosion resistant material. The motor shall be rated 50 hp, 240/480v, 3-phase, 60 HZ connected for 480v operation for Well #6.

7.04 MOTOR COUPLING: Shall be a large stainless steel coupling, accurately machined for perfect alignment, balance and power transmission.

7.05 PUMP BOWL ASSEMBLY: The motor adapter, intermediate bowls, and discharge manifold shall be rigidly constructed of Ni-Resist Type I or cast iron free form blow holes, sand holes, or other detrimental defects, with a tensile strength of 30,000 psi. Intermediate bowls shall be of flanged construction using s.s. bolting.

7.06 BEARINGS: The motor adapter and grease packed discharge manifold bearings shall be SAE 660 bronze, intermediate bowl bearings shall be cutless rubber which lend resistance to sand abrasion wear on shaft bearing surface.

7.07 SHAFT: Shall be polised and precision straightened and or 316 s.s. or 17-4PH materials.

7.08 IMPELLER: Shall be precision cast, machined and balanced for maximum efficiency and vibration-free operation. Material shall be Ni-Resist Type I or Bronze. Each impeller shall be securely fastened to the shaft with a split taper collet, of s.s. or bronze material. Top bearing plug not only seals grease packed shaft bearing, it restricts excessive vertical upthrust on pump shaft during startup, imposed hydraulically or by positive suction pressures.

7.09 SUCTION SCREEN: Shall be of s.s. material and have a net open area at least four times the area of the impeller eye.

7.10 SURFACE PLATE: (Pump Base) shall be made of cast iron, or fabricated steel. It shall rigidly support the total weight of the motor, bowl assembly, column pipe, cable and column of water. The cable outlet shall be designed to prevent entry of foreign matter into the well and (optional) shall be equipped with a cable seal.

7.11 DROP PIPE: Threaded and coupled, shall conform to American standard tapered pipe thread specifications. The pipe shall be sized so that flow velocities are not less than 4 feet per second nor more than 15 feet per second. The drop pipe may be furnished in random lengths.

7.12 SUBMERSIBLE CABLE: Shall be sized to limit the voltage drop to 5% at the motor's terminals. Three separate conductors shall be furnished. Each conductor shall be jacketed or the conductors may be included in a single jacketed assembly. The conductor insulation shall be water and oil resistant, suitable for continuous immersion.

The length of the cable to be furnished shall be the sum of (a) total pump setting, including bowl unit, (b) plus one foot for each 50 feet of setting to compensate for possible twist or sag during installation, (c) plus ten feet, to extend from the surface plate to the above grade junction box. The cable will be suitably supported from the column. All cable fittings and terminals shall be water tight at the pressure encountered in the application.

7.13 EMERGENCY LOW LEVEL CUT-OFF: The Contractor shall furnish and install in the well, two well-type shielded wire suspended electrodes, one for low-level cut-off located at the top of the pump bowls, the other for reset located 50 feet above the low-level cut-off electrode. Installation of the electrodes in the well shall be accomplished at the same time as installation of the permanent pump, motor and airline. It shall be complete in every respect including necessary electrodes, suspension wire and cord

grip holders. The suspension wire shall be secured to the column pipe by suitable non-corrosive means at intervals not to exceed 15 feet.

The associated induction relay shall be furnished in the well pump control panel.

7.14 PAYMENT: Payment will be made on a per each basis for the deep well submersible pump. All other items for a complete installation per the plans and specifications shall be considered subsidiary to the deep well submersible pump.

Section 09875
Water Tank Paint System

PART 1 - GENERAL

1.01 SCOPE

150,000 Gallon EST – Baker St. Tank #2 Eudora, Arkansas

- **A.** Blast/Re-coat Interior
- **B.** Blast/Re-coat Exterior
- **C.** Furnish and install 6" sch. 80 PVC riser pipe with wafer outlet valves and tideflex inlet valves (or engineer approved equivalent)
- **D.** Install Overflow extension and concrete splash pad
- **E.** Install new mesh screen on all vents and openings, including the overflow. (Mesh screen to be #24 Stainless Steel Mesh)
- **F.** Furnish and Install new roof vent
- **G.** Furnish and Install New 30"X30" flanged roof access hatch
- **H.** Install New 32" diameter access hatch
- **I.** Furnish and install confined space entry signs on all access hatches
- **J.** Furnish and install new interior ladder and safety climb system
- **K.** Furnish and install safety climb system on exterior ladder including a new locking ladder gate
- **L.** Replace existing fence with new 6' chain link fence and double 8' gate
- **M.** Provide lead abatement (as necessary) and full containment
- **N.** Should the existing Interior and exterior coatings contain lead and all proper local, state, and federal laws shall be followed during removal and disposal. Contractor is solely responsible to ensure the lead contaminated paint is properly collected and disposed of
- **O.** Provide Full Containment

250,000 Gallon EST – Cashion St. Tank #3 Eudora, Arkansas

- **A.** Furnish and install 8" sch. 80 PVC riser pipe with wafer outlet valves and tideflex inlet valves (or engineer approved equivalent)
- **B.** Install concrete splash pad on existing overflow
- **C.** Install new mesh screen on all vents and openings, including the overflow. (Mesh screen to be #24 Stainless Steel Mesh)
- **D.** Furnish and Install new roof vent
- **E.** Furnish and Install New 30"X30" flanged roof access hatch
- **F.** Install New 32" diameter access hatch
- **G.** Furnish and install confined space entry signs on all access hatches
- **H.** Replace existing fence with new 6' chain link fence and double 8' gate
- **I.** Furnish and install safety climb system on exterior ladder including a new locking ladder gate
- **J.** Provide lead abatement (as necessary) and full containment

K. Should the existing Interior and exterior coatings contain lead and all proper local, state, and federal laws shall be followed during removal and disposal. Contractor is solely responsible to ensure the lead contaminated paint is properly collected and disposed of

L. Provide Full Containment

500,000 Gallon EST – Downtown Tank #4 Eudora, Arkansas

A. Blast/Re-coat Interior

B. Blast/Re-coat Exterior

C. Furnish and install 12” sch. 80 PVC riser pipe with wafer outlet valves and tideflex inlet valves (or engineer approved equivalent)

D. Install concrete splash pad on existing overflow

E. Install new mesh screen on all vents and openings, including the overflow. (Mesh screen to be #24 Stainless Steel Mesh)

F. Furnish and Install new roof vent

G. Furnish and Install New 30”X30” flanged roof access hatch

H. Install New 32” diameter access hatch

I. Furnish and install confined space entry signs on all access hatches

J. Furnish and install new interior ladder and safety climb system

K. Furnish and install safety climb system on exterior ladder including a new locking ladder gate

L. Provide lead abatement (as necessary) and full containment

M. Should the existing Interior and exterior coatings contain lead and all proper local, state, and federal laws shall be followed during removal and disposal. Contractor is solely responsible to ensure the lead contaminated paint is properly collected and disposed of

N. Provide Full Containment

1.02 REFERENCE SPECIFICATIONS AND STANDARDS

A. Without limiting the general aspects of other requirements of these specifications, all surface preparation, coating and painting, and disinfection of interior surfaces and inspection shall conform to the applicable requirements of the Steel Structures Painting Council, NACE International, ASTM (American Society for Testing and Materials), AWWA standards D102-21 and C652-19, and the manufacturer's printed instructions.

B. The Engineer's decision shall be final as the interpretation and/or conflict between any of the referenced specifications and standards contained herein.

C. All referenced standards shall be understood to be referencing the latest version of that standard.

1.03 CONTRACTOR

A. The Contractor shall have three years practical experience and successful history in the application of specified product to surfaces of steel water tanks. Upon request, he shall substantiate this requirement by furnishing a list of references and job completions.

B. The Contractor shall submit with his bid a written statement by the coatings manufacturer stating that the Contractor is familiar with the materials specified and has workers capable of performing the work specified herein.

C. The personnel performing the work shall be knowledgeable and have the required experience and skill to adequately perform the work for this project, in accordance with SSPC-PA1, “Shop, Field and Maintenance Painting”.

1.04 QUALITY ASSURANCE

A. **General:** Quality assurance procedures and practices shall be utilized to monitor all phases of surface preparation, application and inspection throughout the duration of the project. Procedures or practices not specifically defined herein may be utilized provided they meet recognized and accepted professional standards and are approved by the Engineer.

B. **Surface Preparation:** Surface preparation will be based upon comparison with: "Pictorial Surface Preparation Standards for Painting Steel Surfaces: SSPC-VIS 1-89”, ASTM Designation D2200-95, "Standard Methods of Evaluating Degree of Rusting on Painted Surfaces”, ASTM D 4417-91, Method A and/or Method C or NACE Standard RP0287-87, and ASTM Designation D610 “Visual Standard for Surfaces of New Steel Airblast Cleaned with Sand Abrasive". In all cases the written standard shall take precedence over the visual standard. In addition, NACE Standard RP0178-91, along with the Visual Comparator, shall be used to verify the surface preparation of welds.

C. **Application:** No coating or paint shall be applied when:

1) the surrounding air temperature or the temperature of the surface to be coated or painted is below the minimum surface temperature for the products specified herein,
2) rain, snow, fog or mist is present,
3) the temperature is less than 5 degrees F above the dew point,
4) the air temperature is expected to drop below the minimum temperature for the products specified within six hours after

application of coating. Dewpoint shall be measured by use of an instrument such as a Sling Psychrometer in conjunction with U.S. Department of Commerce Weather Bureau Psychometric Tables. If any of the above conditions are prevalent, coating or painting shall be delayed or postponed until conditions are favorable. The day's coating or painting shall be completed in time to permit the film sufficient drying time prior to damage by atmospheric conditions.

D. **Thickness and Holiday Checking:** Thickness of coatings and paint shall be checked with a non-destructive, magnetic-type thickness gauge, as per SSPC-PA 2 “Measurement of Dry Film Thickness with Magnetic Gages”. References in PA 2 which allow 80% of the minimum thickness specified are not acceptable. Use an instrument such as a Tooke Gauge if a destructive test is deemed necessary by the Engineer.
The integrity of interior coated surfaces shall be checked with a low voltage holiday detector in accordance with NACE Standard RP0188. Non-destructive holiday detector shall not exceed 67.5 volts, nor shall destructive holiday detector exceed the voltage recommended by the manufacturer of the coating system. A solution of 1 ounce non-sudsing type wetting agent, such as Kodak Photo-Flo, and 1 gallon of tap water shall be used to perform the holiday testing. All pinholes and/or holidays shall be marked and repaired in accordance with the manufacturer's printed recommendations and retested. No pinholes or other irregularities will be permitted in the final coating.

E. **Inspection Devices:** The contractor shall furnish, until final acceptance of coating and painting is accepted, inspection devices in good working condition for detection of holidays and measurement of dry film thickness of coating and paint. The Contractor shall also furnish U.S. Department of Commerce, National Bureau of Standards certified thickness calibration plates and/or plastic shims, depending upon the thickness gauge used, to test the accuracy of dry film thickness gauges and certified instrumentation to test the accuracy of holiday detectors. Dry film gauges and holiday detectors shall be made available for the Engineer's use at all times until final acceptance of application. Holiday detection devices shall be operated in the presence of the Engineer.

F. **Inspection:** Inspection for this project shall consist of ‘hold point’ inspections. The Engineer or his representative shall inspect the surface prior to abrasive blasting, after abrasive blasting but prior to application of coating materials, and between subsequent coats of material. Final inspection shall take place after all coatings are applied, but prior to placing the tank in service. Contractor will insure that sufficient rigging is in place so that the Engineer or his representative shall be able to conduct the required inspections.

G. **Warranty Inspection:** Warranty inspection shall be conducted during the eleventh month following acceptance of all coating and painting work. All defective work shall be repaired in accordance with this specification and to the satisfaction of the Engineer and Owner.

1.05 SAFETY AND HEALTH REQUIREMENTS

A. **General:** In accordance with requirements set forth by regulatory agencies applicable to the construction industry and manufacturer's printed instructions and appropriate technical bulletins and manuals, the Contractor shall provide and require use of personal protective lifesaving equipment for persons working on or about the project site.

B. **Head and Face Protection and Respiratory Devices:** Equipment shall include protective helmets which shall be worn by all persons while in the vicinity of the work. In addition, workers engaged in or near the work during sandblasting shall wear eye and face protection devices and air purifying halfmask or mouthpiece respirators with appropriate filters. Barrier creams shall be used on any exposed areas of skin.

C. **Ventilation:** Where ventilation is used to control hazardous exposure, all equipment shall be explosion-proof. Ventilation shall reduce the concentration of air contaminants to a degree a hazard does not exist. Air circulation and exhausting of solvent vapors shall be continued until coatings have fully cured for immersion service.

D. **Sound Levels:** Whenever the occupational noise exposure exceeds maximum allowable sound levels, the Contractor shall provide and require the use of approved ear protection devices.

F. **Illumination:** Adequate illumination shall be provided while work is in progress, including explosion-proof lights and electrical equipment. Whenever required by the Engineer, the Contractor shall provide additional illumination and necessary supports to cover all areas to be inspected. The level of illumination for inspection purposes shall be determined by the inspector.

G. **Temporary Ladders and Scaffolding:** All temporary ladders and scaffolding shall conform to applicable safety requirements. They shall be erected where requested by the Engineer to facilitate inspection and be moved by the Contractor to locations requested by the Engineer.

1.06 PRODUCT DELIVERY, STORAGE & HANDLING

A. All materials shall be brought to the jobsite in original sealed containers. They shall not be used until the Engineer has inspected the contents and obtained data from information on containers or label. Labels should provide the following information: material name, coating manufacturer, color name and number, batch or lot number, date of manufacture, mixing and thinning instructions. Materials exceeding storage life recommended by the manufacturer shall be rejected.

B. All coatings and paints shall be stored in enclosed structures to protect them from weather and excessive heat or cold. Flammable coatings and paints must be stored to conform with City, County, State and Federal safety codes for flammable coating or paint materials. At all times coatings and paints shall be protected from freezing.

PART 2 - MATERIALS

2.01 ACCEPTABLE MANUFACTURERS

A. Materials specified are those that have been evaluated for the specific service. Products of the Induron Coatings, Inc., Birmingham, AL are listed to establish a standard of quality. Equivalent materials of other manufacturer's may be submitted on written approval of the Engineer. As part of the proof of equality, the Engineer will require at the cost of the Contractor, certified test reports from a nationally known, reputable and independent testing laboratory conducting comparative tests as directed by the Engineer between the product specified and the requested substitution.

B. Requests for substitution shall include manufacturer's literature for each product giving name, product number, generic type, descriptive information, solids by volume, recommended dry film thickness and certified lab test reports showing results to equal the performance criteria of the products specified herein

C. All requests for product substitution shall be made at least 10 days prior to the bid date. Proposed substitute products and systems must have a minimum of 5 years satisfactory service in the field. Included with above information, provide a list of 5 projects satisfactorily completed by the contractor of similar size and scope utilizing proposed substitute systems and products.

D. Any material savings gained as a result of using substitute products shall be passed to the owner in the form of a contract dollar reduction.

E. Manufacturer's color charts shall be submitted to the Engineer at least 30 days prior to coating and/or paint application. General Contractor and Painting Contractor shall coordinate work so as to allow sufficient time (normally seven to ten days) for paint to be delivered to the job site.

2.02 GENERAL REQUIREMENTS

A. All materials shall be lead-free as defined by the Consumer Product Safety Act, Part 1303.

B. All zinc dust pigment contained in any zinc-rich material shall meet the requirements of ASTM D 520 Type III as regards zinc content and purity.

C. All materials for the interior wetted portion of the tank shall be ANSI/NSF Standard 61certified for potable water contact.

D. All clear coat products shall incorporate the use of a fugitive dye to aid in the proper application and coverage of such coats.

2.03 MATERIAL PREPARATION

A. Mix and thin materials according to manufacturer's latest printed instructions.

B. Do not use materials beyond manufacturer's recommended shelf life.

C. Do not use mixed materials beyond manufacturer's recommended pot life.

2.04 TANK INTERIOR COATING SYSTEM

A. Steel Interior Coating: (Or Engineer Approved Equal)

1. **Surface Preparation Prior to Abrasive Blast Cleaning**: Weld flux and spatter shall be removed by power tool cleaning. Sharp projections shall be ground to a smooth contour. All welds shall be ground to a smooth contour as per NACE Standard RP0178 and herein.

2. **Surface Preparation:** SSPC-SP10 Near-White Metal Blast Cleaning. Anchor profile shall be 1.5 to 2.0 mils as per ASTM D 4417, Method C or NACE Standard RP0287. No steel grit or steel shot shall be used as final surface preparation. All rust holes shall be filled with EFS-707 Epoxy filler surfacer per manufacturer's

recommendations. Should there be seams or joints not welded, the un-welded seam shall be filled with Sikaflex-1A after the final coat of paint is applied and cured per manufacturers recommendations.

3. Coating System:

Primer: Indurazinc MC-67 applied to achieve 2.0 to 3.0 Mils DFT Color: Gray/Green

2nd Coat: Ceramapure TL-70 applied to achieve 8.0 to 10.0 Mils DFT; Color: Tan

Stripe Coat: Induron PE-70 applied by brush to achieve 3.0 – 4.0 dry mils. Color: White

3rd Coat: Induron PE-70 applied by brush to achieve 4.0 – 6.0 dry mils. Color: White

Total dry film thickness shall be a minimum of 14.0 mils per SSPC-PA 2 dry film inspection standards, with exception as noted in this specification.

A. The ceramic epoxy shall meet the following requirements.
    1) Taber abrasion (ASTM D4060) 0.195 gr.Avg loss / 1000 cycles
    2) Pull-off Adhesion (ASTM D4551) 900 PSI at AVG. of 4 pulls.
    3) Freeze/thaw (ASTM 3059) passed at 10 cycles.
    4) Fresh Water immersion 5 years no effect
    5) Permeability (ASTM D1653) 1.82 metric perms, AVG, one 15 mil coat
    6) Direct Impact (ASTM) 120 in. LB.
    7) Recoatability pass after 9 months (with itself) @ 5A
    8) Film build 40 mils DFT unreduced, 35 mils DFT red. 5%
    9) Cure time (to handle) 9 hours @ 80f
B. The ceramic epoxy must be a non-ablative bactericide and be independently tested by a reputable testing laboratory to ASTM G22 90 standard practice for determining resistance of synthetic polymeric materials to bacteria. Minimum of 3 test samples for ASTM G22 90 growth of Acidithiobacillus Ferroxidans for a duration of 7 days at 30 degrees Celsius. Test Results: Minimal growth of bacteria on specimen.
C. Ceramic Epoxy must be able to build 15 mils in a single coat.

D. Ceramic epoxy must contain a minimum of 20 % by volume ceramic quartz pigment

E.

B. Steel Interior – Cleaning - Touch-up/Repair

1. **Surface Cleaning**: SSPC-SP12 WJ-4 Method of cleaning shall be low pressure cleaning at a minimum 3500 psig and maximum 5000 psig to remove all chalk, dust, dirt, loose paint, and any other foreign matter. All areas of peeling, flaking, or otherwise failing paint shall be cleaned and coated per the surface preparation and coating system specified in Items 2 and 3.

2. **Surface Preparation:** Weld flux and spatter shall be removed by power tool cleaning. Sharp projections shall be ground to a smooth contour. All welds shall be ground to a smooth contour as per NACE Standard RP0178 and herein. All areas to be repaired/painted shall be cleaned in accordance with SSPC-SP3 Power Tool Cleaning or SSPC-SP2 Hand Tool Cleaning. All edges shall be feathered.

3. **Coating System:**

Prime/Finish Coat: Induron Permaclean 100 applied at 15.0 to 18.0 mils DFT.

Total dry film thickness for the interior touch-up/repair shall be a minimum of 15.0 mils per SSPC-PA 2 dry film inspection standards, with exception as noted in this specification.

The Color of coating used for repairs and touch-up shall match the color of the coating that is currently on the tank, and shall be approved from the manufacturers color chart by the owner, prior to ordering or application.

2.05 TANK EXTERIOR COATING SYSTEM

A. Steel Exterior Coating – Field Blast

1. **Surface Preparation Prior to Abrasive Blast Cleaning**: Weld flux and spatter shall be removed by power tool cleaning. Sharp projections shall be ground to a smooth contour. All welds shall be ground to a smooth contour as per NACE Standard RP0178 and herein.

2. **Surface Preparation:** SSPC-SP6 Commercial Blast Cleaning. Anchor profile shall be 1.5 to 2.0 mils as per ASTM D 4417, Method C or NACE Standard RP0287.

3. **Coating System:**

Primer: Indurazinc MC67 applied to achieve 2.5-3.5 dry mils. Color: Green/Gray

2nd Coat (Intermediate): Induron Permaclean II applied at 3.0-6.0 dry mils. Color: As selected by the owner.

3rd Coat: Indurathane 6600 Plus applied at 2.0-3.0 dry mils. Color: As selected by the owner.

Total dry film thickness shall be a minimum of 7.5 mils per SSPC-PA 2 dry film inspection standards, with exception as noted in this specification.

Lettering/Logos: Permagloss Fluorourethane applied to achieve 2.0-3.0 dry mils. Color: As selected by owner

The Color of the tank and logo shall be selected by the Owner from the manufacturer's color chart.

The tank logo shall be painted on two, opposite, sides, as selected by the owner. See plans for logo size.

B. Steel Exterior Coating – Touch-up/Repair

1. **Surface Preparation Prior to Abrasive Blast Cleaning**: Weld flux and spatter shall be removed by power tool cleaning. Sharp projections shall be ground to a smooth contour. All welds shall be ground to a smooth contour as per NACE Standard RP0178 and herein.

2. **Surface Preparation:** All areas to be repaired/painted shall be cleaned in accordance with SSPC-SP3 Power Tool Cleaning or SSPC-SP@ hand tool cleaning. All edges shall be feathered.

3. **Coating System:**

Primer: Induron Induramastic 85 Epoxy applied at 3.0 to 4.0 Mils DFT.

Intermediate/Finish Coat: Induron Indurathane 6600 Plus applied at 2.0 to 3.0 Mils DFT

Total dry film thickness shall be a minimum of 5.0 mils per SSPC-PA 2 dry film inspection standards, with exception as noted in this specification.

The Color of coating used for repairs and touch-up shall match the color of the coating that is currently on the tank, and shall be approved from the manufacturers color chart by the owner, prior to ordering or application.

PART 3 – EXECUTION

3.01 GENERAL

A. All surface preparation, coating and painting shall conform to applicable standards of the Steel Structures Painting Council, NACE International and the manufacturer's printed instructions. Materials applied to the surface prior to the approval of the Engineer shall be removed and re-applied to the satisfaction of the Engineer at the expense of the contractor.

B. All work shall be performed by skilled craftsmen qualified to perform the required work in a manner comparable with the best standards of practice. Continuity of personnel shall be coordinated with the Engineer.

C. The Contractor shall provide a supervisor at the work site during cleaning and application operations. The supervisor shall have the authority to sign and change orders, coordinate work and make decisions pertaining to the fulfillment of the contract.

D. Dust, dirt, oil, grease or any foreign matter that will affect the adhesion or durability of the coating or paint must be removed by washing with clean rags dipped in an approved cleaning solvent and wiped dry with clean rags.

E. Coating and painting systems include surface preparation, prime coating and finish coatings. Unless otherwise approved in writing by the Engineer, prime coating shall be field applied. Where prime coatings are shop applied, the Contractor shall instruct suppliers to provide the prime coat compatible with the specified finish coat. Any off-site work which does not conform to this specification is subjected to damage during transportation, construction or installation shall be thoroughly cleaned and touched-up in the field as directed by the Engineer. The Contractor shall use repair

procedures which insure the complete protection of all adjacent primer. The specified repair method and equipment may include wire brushing, hand or power tool cleaning, or dry air blast cleaning. In order to prevent injury to surrounding painted surfaces, blast cleaning may require use of lower air pressure, smaller nozzle and/or abrasive blast particles, or shorter blast nozzle distances from surface shielding and masking. If damage is too extensive or uneconomical to touch-up, the entire item shall be blasted and then coated or painted as directed by the Engineer.

F. The Contractor's coating and painting equipment shall be designed for application of materials specified and shall be maintained in first class working condition. Compressors shall have suitable traps and filters to remove water and oils from the air. Contractor's equipment shall be subject to approval of the Engineer.

G. Application of the first coat shall follow immediately after surface preparation and cleaning and stripe coat, if applicable, before rust bloom occurs or the same day, whichever is less. Any cleaned areas not receiving first coat within this period shall be recleaned prior to application of first coat. Use of dehumidification equipment shall be first reviewed by the Engineer and coatings manufacturer prior to deviating from this provision.

H. Prior to assembly, all surfaces made inaccessible after assembly shall be prepared as specified herein and shall receive the coating or paint system specified.

3.02 SURFACE PREPARATION

A. The latest revision of the following surface preparation specifications of the Steel Structures Painting Council (SSPC) shall form a part of this specification. The summaries listed below are for informational purposes; consult the actual SSPC specification for full detail.

1. **Solvent Cleaning (SSPC-SP1):** Removal of oil, grease, soil and other contaminants by use of solvents, emulsions, cleaning compounds, steam cleaning or similar materials and methods which involve a solvent or cleaning action.

2. **Hand Tool Cleaning (SSPC-SP2):** Removal of loose rust, loose mil scale and other detrimental foreign matter to a degree specified by hand chipping, scraping, sanding and wirebrushing

3. **Power Tool Cleaning (SSPC-SP3):** Removal of loose rust, loose mil scale and other detrimental foreign matter by power wirebrushing, power impact tools or power sanders.

4. **White Metal Blast Cleaning (SSPC-SP5/NACE No. 1):** Air blast cleaning to a gray-white uniform metallic color until each element of surface area is free of all visible residues.
5. **Commercial Blast Cleaning (SSPC-SP6 NACE No. 3):** Air blast cleaning until at least two-thirds of each element of surface area is free of all visible residues.
6. **Brush-Off Blast Cleaning (SSPC-SP7 NACE No. 4):** Air blast cleaning to remove loose rust, loose mil scale and other detrimental foreign matter to a degree specified.
7. **Near-White Metal Blast Cleaning (SSPC-SP10 NACE No. 2):** Air blast cleaning until at least 95% of each element of surface area is free of all visible residues.
8. **Power Tool Cleaning to Bare Metal (SSPC-SP11):** Differs from SSPC-SP3 in that it requires more thorough cleaning and a surface profile not less than 1 mil.

B. Slag, weld metal accumulation and spatters not removed by the Fabricator, Erector or Installer shall be removed by chipping and/or grinding. All sharp edges shall be peened, ground or otherwise blunted as required by the Engineer. All grinding and finishing of welds, edges, etc. shall be performed prior to solvent cleaning and abrasive blasting. Welds shall be prepared as per NACE Standard RP0178 for all interior surfaces:

1. **Butt Welds:** Shall be ground smooth and free of all defects, designation “D”.

2. **Lap Welds:** Shall be ground smooth and blended., designation “D”,excepting that visual imperfections and ripples are allowable.

3. **Fillet Welded Tee Joint**: Shall be ground smooth and blended, designation “D”

C. Field blast cleaning for all surfaces shall be by dry method unless otherwise directed. Blast nozzles shall be venturi-type nozzles with a minimum pressure at the nozzle of 90 psi.

D. Particle size of abrasives used in blast cleaning shall be that which will produce a 1.5 - 2.5 mil (37.5 microns - 65.0 microns) surface profile or in accordance with recommendations of the manufacturer of the specified coating or paint system to be applied.

E. Abrasive used in blast cleaning operations shall be new, washed, graded and free of contaminants that would interfere with adhesion of coating or paint and shall not be reused unless specifically approved in writing by the Engineer.

F. During blast cleaning operations, caution shall be exercised to insure that existing coatings or paint are not exposed to abrasion from blast cleaning.

G. The Contractor shall keep the area of his work and the surrounding environment in a clean condition. He shall not permit blasting materials to accumulate as to constitute a nuisance or hazard to the accomplishment of the work, the operation of the existing facilities or to the surrounding environment.

H. Blast cleaned surfaces shall be cleaned prior to application of specified coatings or paint. All surfaces shall be free of dust, dirt, and other residue resulting from the abrasive blasting operation. No coatings or paint shall be applied over damp or moist surfaces.

I. All welds shall be neutralized with a suitable chemical compatible with the specified coating or paint.

J. **Specific Surface Preparation:** Surface preparation for the specific system shall be as noted in Section 2.04 and Section 2.05.

3.03 APPLICATION, GENERAL

A. Coating and paint application shall conform to the requirements of the Steel Structure Painting Council Paint Application Specification SSPC-PA1, latest revision, for "Shop, Field and Maintenance Painting".

B. Thinning shall be permitted only as recommended by the manufacturer and approved by the Engineer, and utilizing the thinners stated in Sections 2.04 and 2.05.

C. Each application of coating or paint shall be applied evenly, free of brush marks, sags, runs, with no evidence of poor workmanship. Care shall be exercised to avoid lapping on glass or hardware. Coatings and paints shall be sharply cut to lines. Finished surfaces shall be free from defects or blemishes.

D. Protective coverings or drop cloths shall be used to protect floors, fixtures and equipment. Care shall be exercised to prevent coatings or paints from being spattered onto surfaces which are not to be coated or painted. Report to the Engineer surfaces from which materials cannot be satisfactorily removed.

E. When two coats of coating or paint are specified, where possible, the first coat shall contain sufficient approved color additive to act as an indicator of coverage or the two coats must be of contrasting color.

F. Film thickness per coat as specified in Sections 2.04 and 2.05 are the minimum required. If roller application is deemed necessary, the Contractor shall apply additional coats as to achieve the specified thickness.

G. All material shall be as specified.

3.04 COATING SYSTEMS APPLICATION

A. After completion of surface preparation as specified for the specific system, materials shall be applied as noted in Section 2.04 and Section 2.05

B. After all coating systems have properly cured, and and all unwelded seams shall be properly sealed using Sikaflex-1A per the Engineers direction and manufacturers specifications.

3.05 DISINFECTION/TESTING

A. Disinfection of interior surfaces shall be performed in the presence of the Engineer in accordance with all the requirements of applicable AWWA Standards and regulatory agencies.

B. Disinfection shall be performed after protective coatings have been applied to the interior surfaces and allowed to thoroughly cure.

C. Prior to disinfecting, the complete interior shall be washed down with clean water and thoroughly flushed out.

D. All interior surfaces shall be thoroughly washed with a solution having a minimum chlorine content of 200 PPM, per AWWA C652. Chlorine solution accumulated on the bottom shall be drained to waste. Rinsing with clean water is not required.

E. Contractor shall be required to furnish all equipment, labor and materials necessary to perform the Arkansas Health Department required testing to approve the tank to be back in service. Contractor shall take the water samples to a state approved lab and report the results to the Owner and Engineer.

3.06 SOLVENT VAPOR REMOVAL

A. All solvent vapors shall be completely removed by suction-type exhaust fans and blowers before placing tank in operating service.

B. All solvent vapors will be exhausted both during and after coating application at a minimum rate of one air change every four hours to allow the proper curing of the coating material. High rates of production may require an increase in ventilation.

C. Forced ventilation as noted above shall be continued for 7 days or until such time as the coating has reached “full cure to immersion” as specified by the coating manufacturer.

3.07 CONTAINMENT, COLLECTION AND DISPOSAL OF LEAD PAINT DEBRIS AND/OR OTHER CONTROLLED SUBSTANCES

A. The CONTRACTOR shall provide a containment system to prevent the migration of any hazardous blast media, dust and paint residue onto or form the property of the OWNER. The containment system shall meet SSPC, Class 1A and include the cover panels, screens, tarps, scaffolds, supports and shrouds used to enclose an entire work area. The purpose is to prevent the debris generated during surface preparation from entering into the environment, and to facilitate the controlled collection of the debris for disposal. Refer to SSPC-Guide 6 (CON) **Guide for Containing Debris Generated During Paint Removal Operations.** Containment and collection shall be in accordance with applicable federal, state and local requirements.

B. The CONTRACTOR shall place waterproof plastic sheeting on the ground surrounding the exterior of the tank which is bermed to a sufficient depth to contain all debris generated in the cleaning process.

C. For disposal of surface preparation debris, refer to SSPC-Guide 7 (DIS) Guide for the Disposal of Lead-Contaminated Surface Preparation Debris. All surface preparation debris must be disposed of in accordance with applicable federal, state and local regulations.

D. The CONTRACTOR shall be responsible for all cost associated with containment and waste disposal that may result from the execution of this project.

E. The CONTRACTOR shall be responsible for removing, handling and disposal of any soil that is contaminated with lead from his operations and replacement with uncontaminated soil.

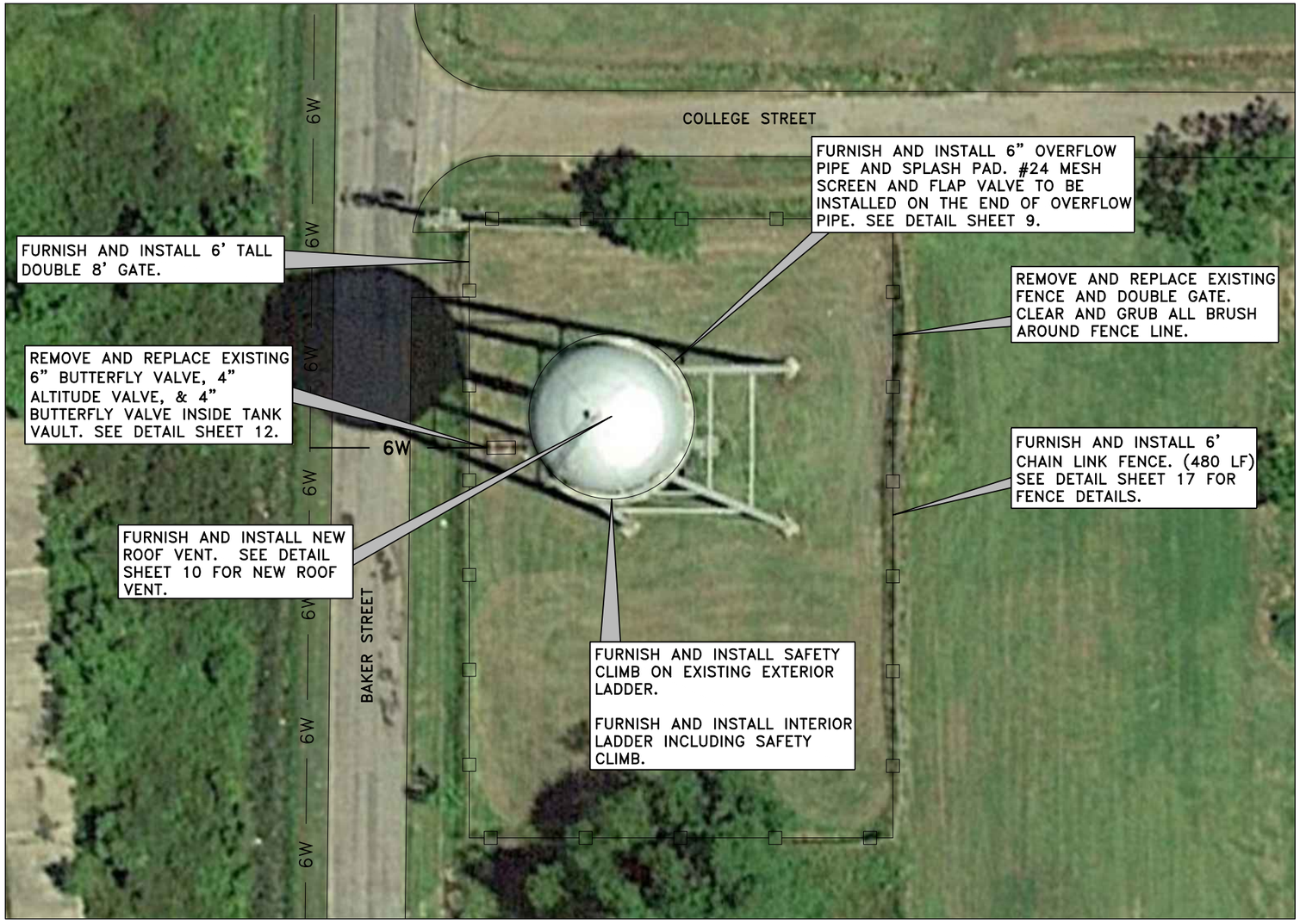
F. All expenses associated with the soil sampling and lead analysis shall be included in the base price to clean and paint the tank.

3.08 CLEAN UP

A. Upon completion of the work, all staging, scaffolding and containers shall be removed from the site or destroyed in a manner approved by the Engineer. Coating or paint spots or oil stains upon adjacent surfaces shall be removed and the jobsite cleaned. All damage to surfaces resulting from the work of this section shall be cleaned, repaired or refinished to the satisfaction of the Engineer at no cost to the Owner.

END OF SPECIFICATION

Plans



ABRASIVE BLAST TO BARE METAL ON THE EXTERIOR AND INTERIOR OF TANK. REPAINT THE EXTERIOR AND INTERIOR OF THE TANK.

CONTRACTOR TO PROVIDE NECESSARY CURTAIN AND DISPOSAL OF BLASTED MATERIAL DUE TO LEAD CONTAMINATION.

CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING TANK AND APPURTENANCES AND SHALL REPAIR OR REPLACE ANY DAMAGE MATERIAL AT THEIR OWN EXPENSE.

CONTRACTOR TO FURNISH AND INSTALL PVC RISER PIPE (INLET/OUTLET) AND MIXING SYSTEM.

TANK ELEVATION – 260'
OVERFLOW ELEVATION – 253'
GROUND ELEVATION – 130'
VOLUME – 150,000 GALLONS

BAKER STREET TANK #2

HOR. SCALE: 1"=30'-0"

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

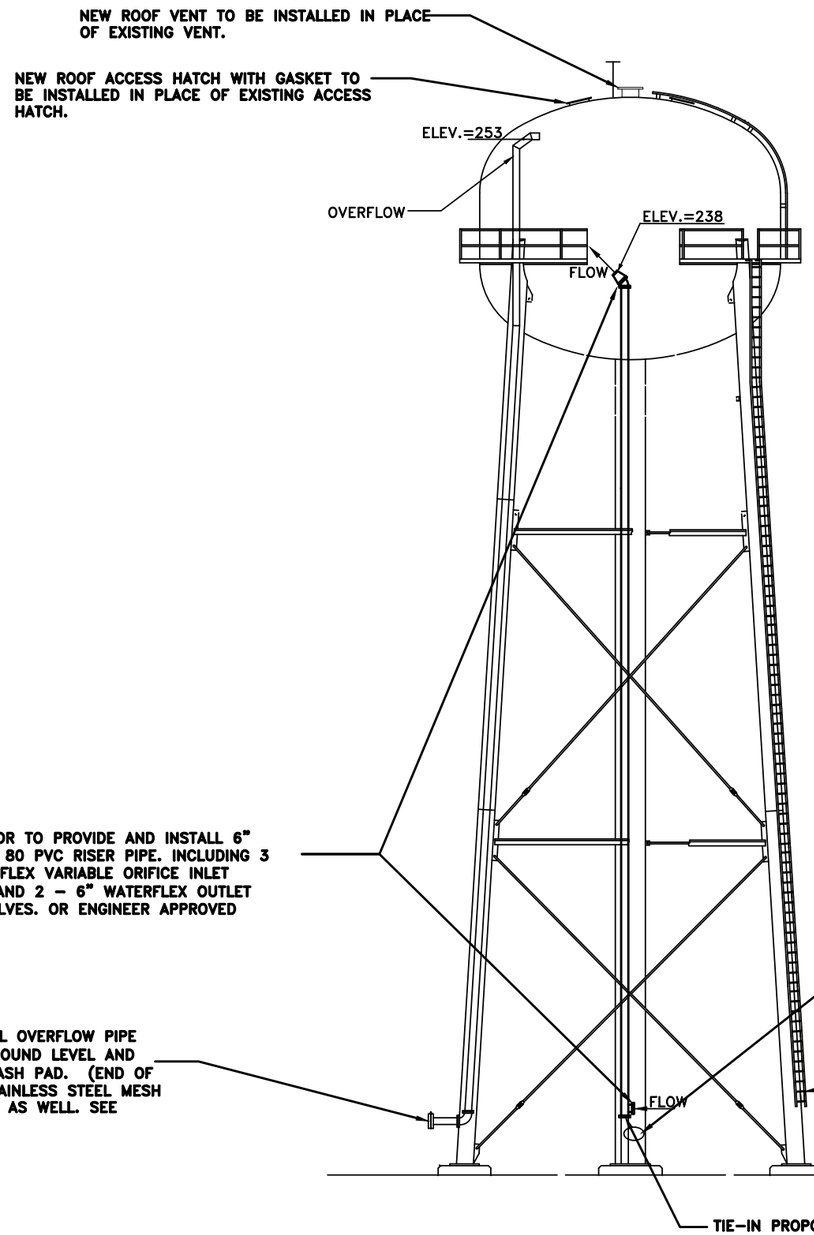
A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
BAKER STREET TANK #2
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU-02-20
Scale: 1"=30'
Date: JANUARY 2021



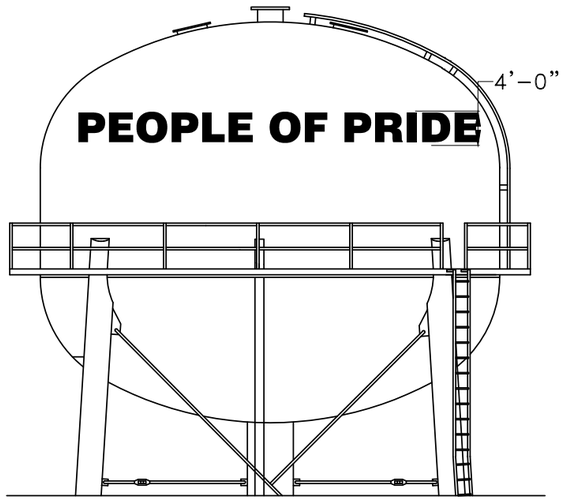
ELEVATION – BAKER ST TANK #2

NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL PIPE SIZES AND MATERIALS PRIOR TO SUBMITTAL APPROVALS.

2. RISER PIPE SUPPORTS SHALL BE INSTALLED, AS NECESSARY, PER MANUFACTURER RECOMMENDATIONS.

3. CONTRACTOR SHALL COMPLETE ALL WORK ON ONE TANK AT A TIME. BACTI–SAMPLES SHALL BE APPROVED AND TANK PUT BACK INTO SERVICE BEFORE TANKING THE NEXT TANK OUT OF SERVICE.



LOGO

NOTES:

1. CONTRACTOR TO VERIFY VERTICAL FACE OF TANK HEIGHT AND MODIFY LOGO AS NECESSARY. MODIFICATION TO LOGO SHALL NOT WARRANT EXTRA PAYMENT.

2. CONTRACTOR SHALL SUBMIT A LOGO PLAN SHOWING THE HEIGHT AND WIDTH OF THE LETTERS TO THE ENGINEER FOR APPROVAL.

3. COLORS TO BE SELECTED BY OWNER.

4. LOGO SHALL BE PAINTED ON TWO (2) OPPOSING SIDES OF THE TANK, AS SELECTED BY THE OWNER.

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

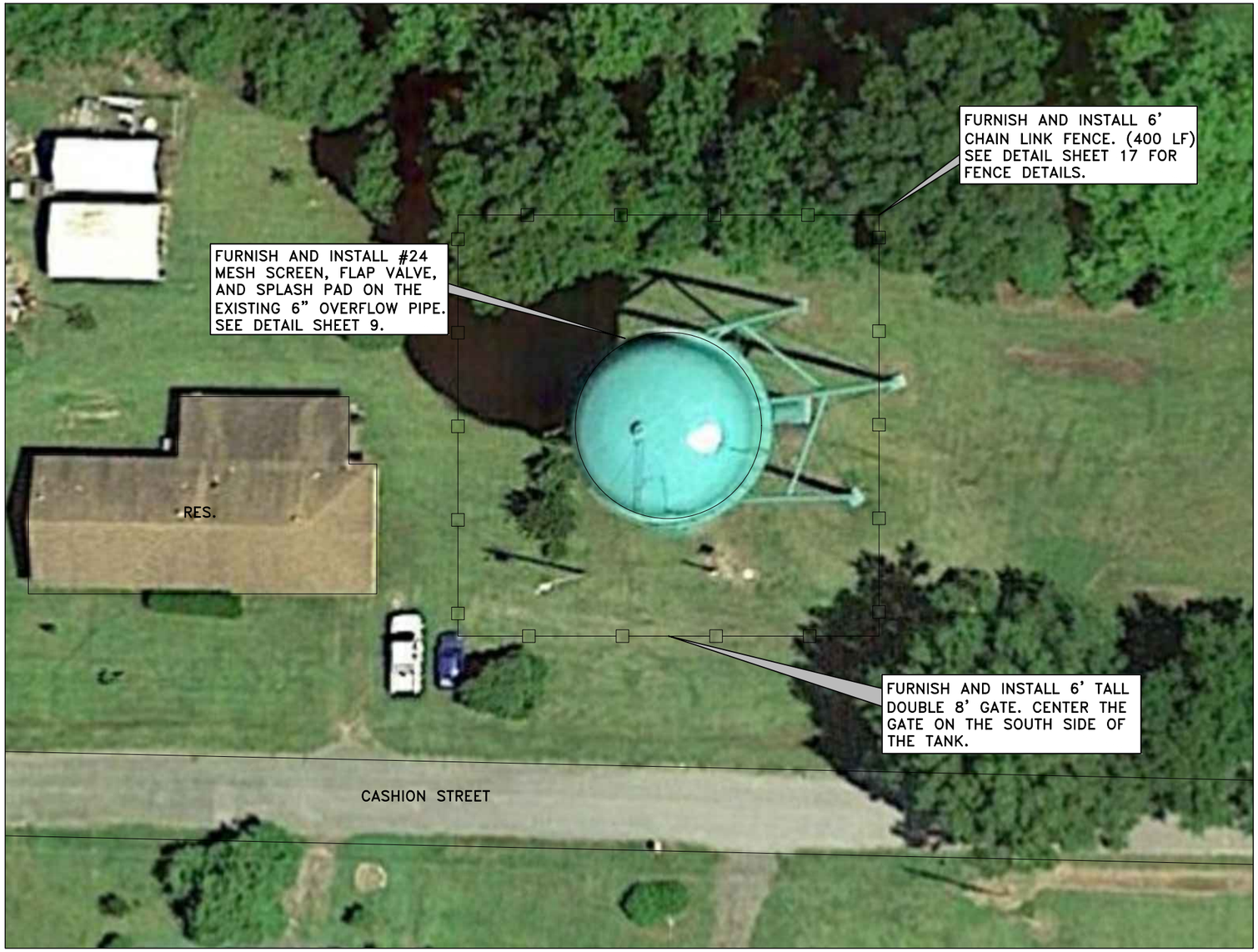
A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
BAKER STREET TANK #2 ELEVATION
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU–02–20
Scale: N.T.S.
Date: JANUARY 2021
Sheet 4 OF 18



CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING TANK AND APPURTENANCES AND SHALL REPAIR OR REPLACE ANY DAMAGE MATERIAL AT THEIR OWN EXPENSE.

CONTRACTOR TO FURNISH AND INSTALL PVC RISER PIPE (INLET/OUTLET) AND MIXING SYSTEM.

TANK ELEVATION – 260'
OVERFLOW ELEVATION – 253'
GROUND ELEVATION – 141'
VOLUME – 250,000 GALLONS

CASHION STREET TANK #3

HOR. SCALE: 1"=30'-0"

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

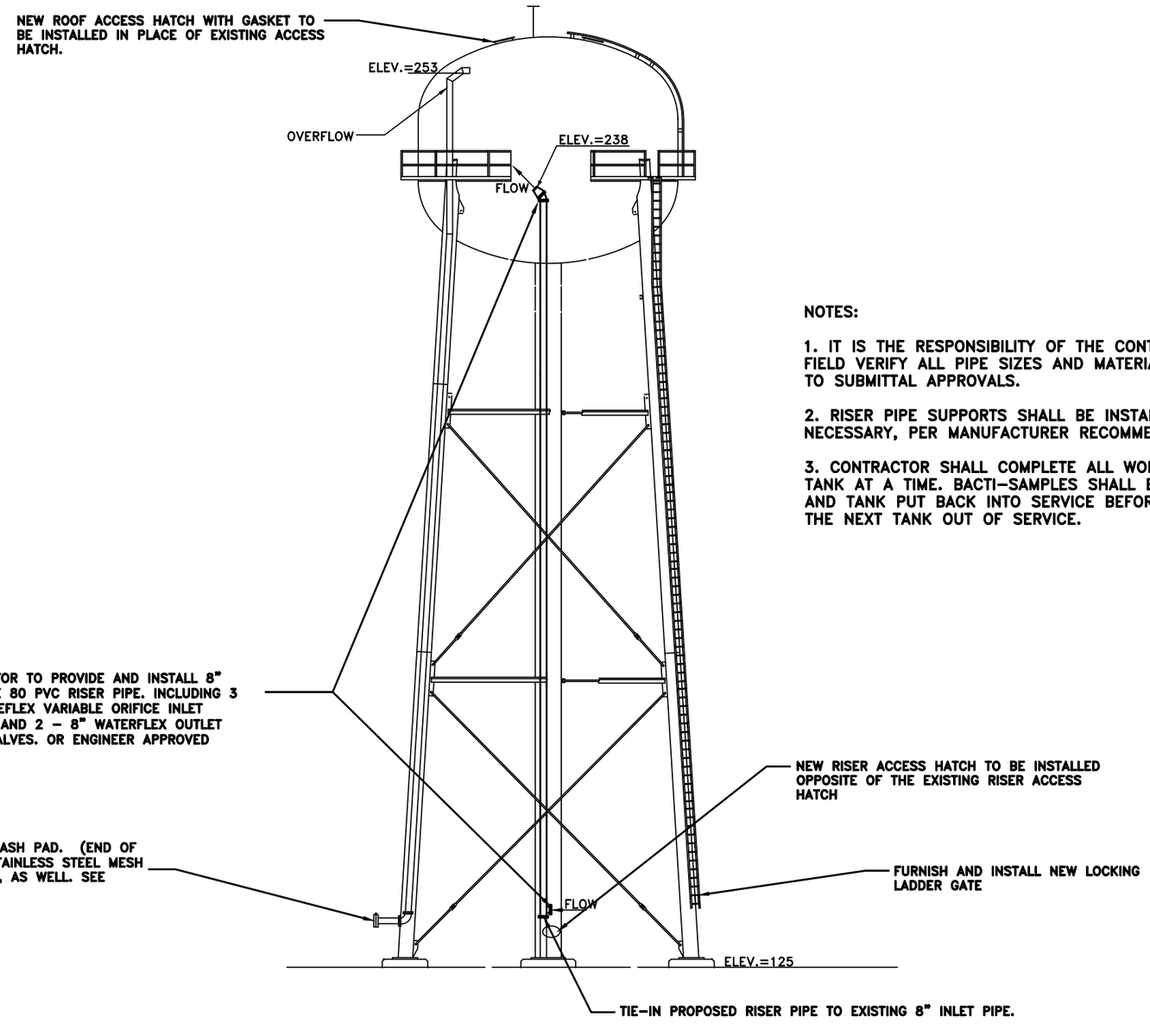
A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
CASHION STREET TANK #3
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU-02-20
Scale: 1"=30'
Date: JANUARY 2021



NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL PIPE SIZES AND MATERIALS PRIOR TO SUBMITTAL APPROVALS.

2. RISER PIPE SUPPORTS SHALL BE INSTALLED, AS NECESSARY, PER MANUFACTURER RECOMMENDATIONS.

3. CONTRACTOR SHALL COMPLETE ALL WORK ON ONE TANK AT A TIME. BACTI–SAMPLES SHALL BE APPROVED AND TANK PUT BACK INTO SERVICE BEFORE TANKING THE NEXT TANK OUT OF SERVICE.

ELEVATION – CASHION ST. TANK #3

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

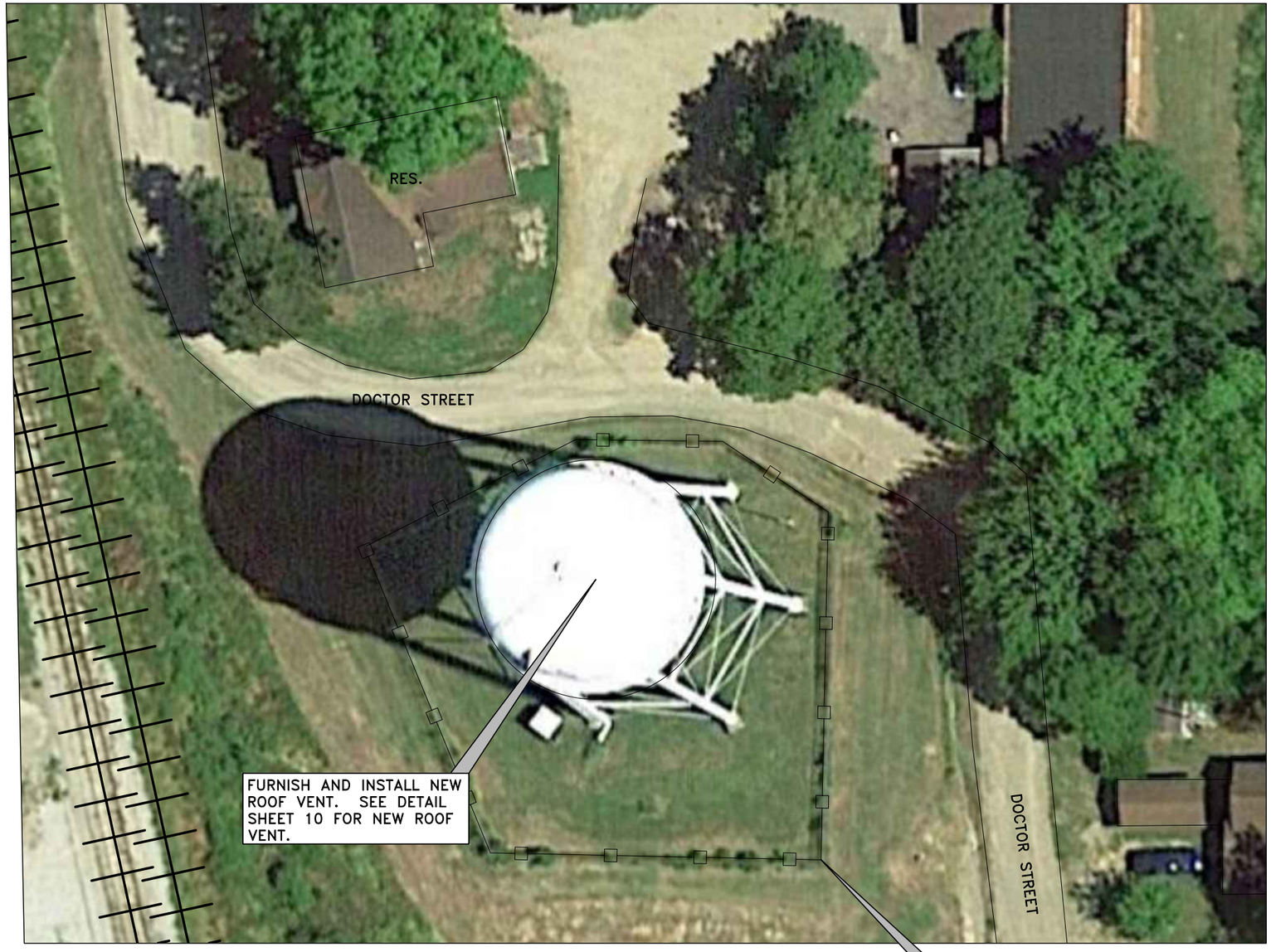
A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
CASHION STREET TANK #3 ELEVATION
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU–02–20
Scale: N.T.S.
Date: JANUARY 2021
Sheet 6 OF 18



ABRASIVE BLAST TO BARE METAL ON THE EXTERIOR AND INTERIOR OF TANK. REPAINT THE EXTERIOR AND INTERIOR OF THE TANK.

CONTRACTOR TO PROVIDE NECESSARY CURTAIN AND DISPOSAL OF BLASTED MATERIAL DUE TO LEAD CONTAMINATION.

CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING TANK AND APPURTENANCES AND SHALL REPAIR OR REPLACE ANY DAMAGE MATERIAL AT THEIR OWN EXPENSE.

CONTRACTOR TO FURNISH AND INSTALL PVC RISER PIPE (INLET/OUTLET) AND MIXING SYSTEM.

TANK ELEVATION – 260'
OVERFLOW ELEVATION – 253'
GROUND ELEVATION – 125'
VOLUME – 500,000 GALLONS

DOWNTOWN TANK #4

HOR. SCALE: 1"=30'-0"

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

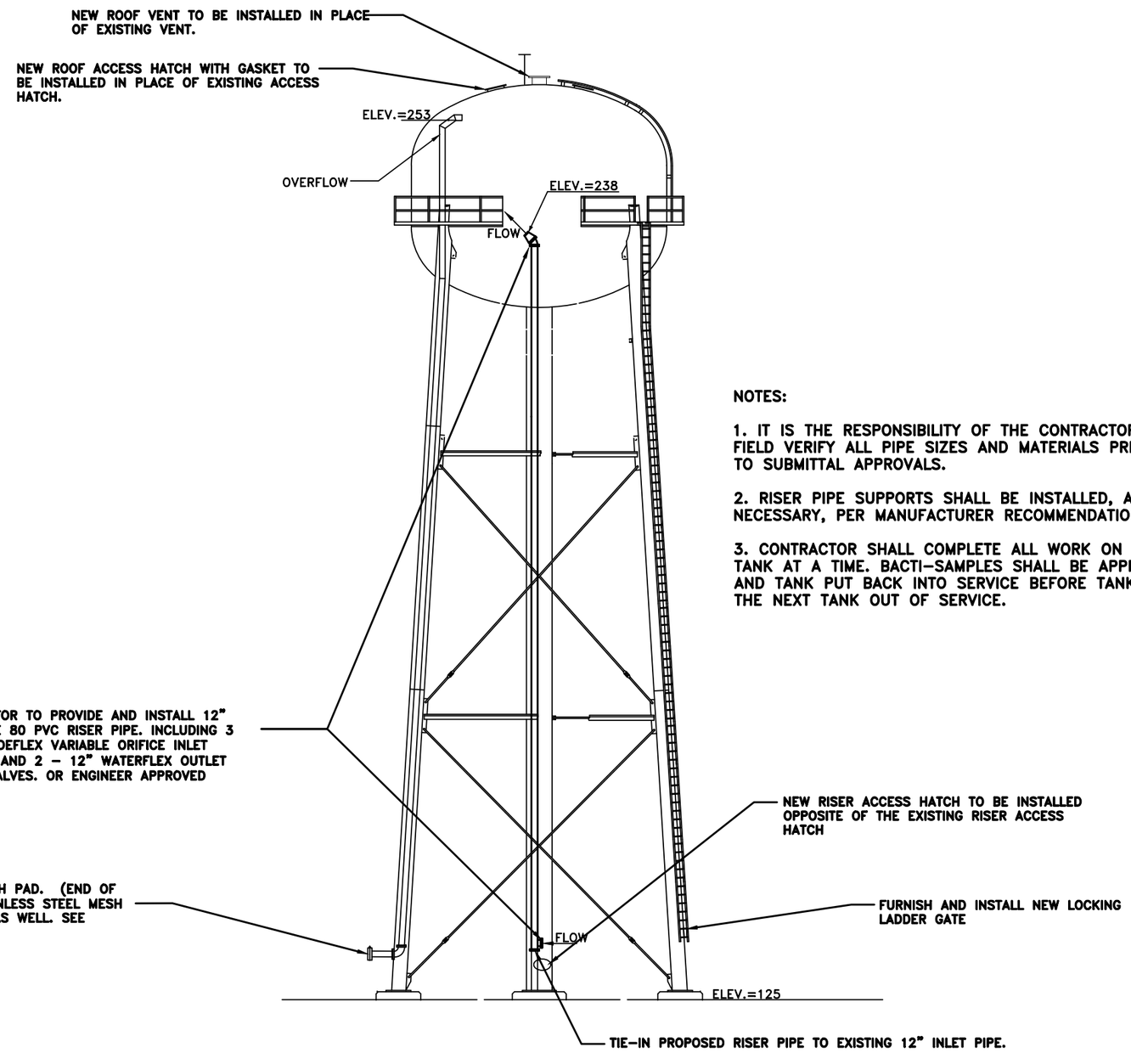
A-L-FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
DOWNTOWN TANK #4
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU-02-20
Scale: 1"=30'
Date: JANUARY 2021
Sheet 7 OF 18



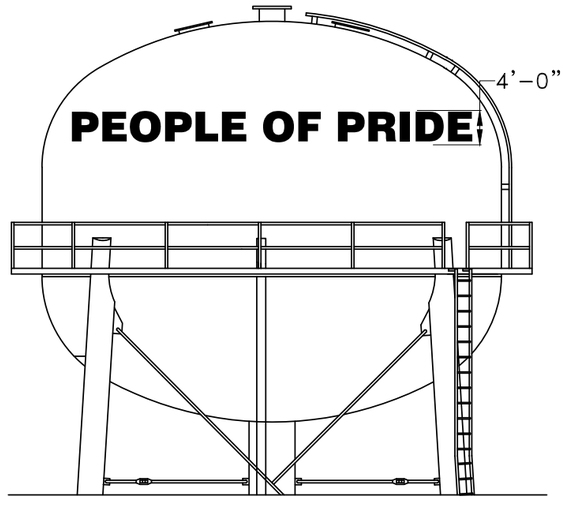
ELEVATION – DOWNTOWN TANK #4

NOTES:

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL PIPE SIZES AND MATERIALS PRIOR TO SUBMITTAL APPROVALS.

2. RISER PIPE SUPPORTS SHALL BE INSTALLED, AS NECESSARY, PER MANUFACTURER RECOMMENDATIONS.

3. CONTRACTOR SHALL COMPLETE ALL WORK ON ONE TANK AT A TIME. BACTI–SAMPLES SHALL BE APPROVED AND TANK PUT BACK INTO SERVICE BEFORE TANKING THE NEXT TANK OUT OF SERVICE.



LOGO

NOTES:

1. CONTRACTOR TO VERIFY VERTICAL FACE OF TANK HEIGHT AND MODIFY LOGO AS NECESSARY. MODIFICATION TO LOGO SHALL NOT WARRANT EXTRA PAYMENT.

2. CONTRACTOR SHALL SUBMIT A LOGO PLAN SHOWING THE HEIGHT AND WIDTH OF THE LETTERS TO THE ENGINEER FOR APPROVAL.

3. COLORS TO BE SELECTED BY OWNER.

4. LOGO SHALL BE PAINTED ON TWO (2) OPPOSING SIDES OF THE TANK, AS SELECTED BY THE OWNER.

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

A-L FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
DOWNTOWN #4 ELEVATION
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU–02–20
Scale: N.T.S.
Date: JANUARY 2021

NOTE:
ALL COMPONENTS IN THE WELL SYSTEM WILL BE NSF CERFIFIED.

PROPOSED WELL SHALL COMPLY WITH THE CONDITIONS SET FORTH HEREIN AND WITH THE AMERICAN WATER WORKS SPECIFICATION A100.

NOTE:
CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE WELL HEAD DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE CITY.

CONTRACTOR TO GROUT AND SEAL THE WELL AS NEEDED AT THE OPINION OF THE ENGINEER.

WATER WELL #5

HOR. SCALE: 1"=30'-0"

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

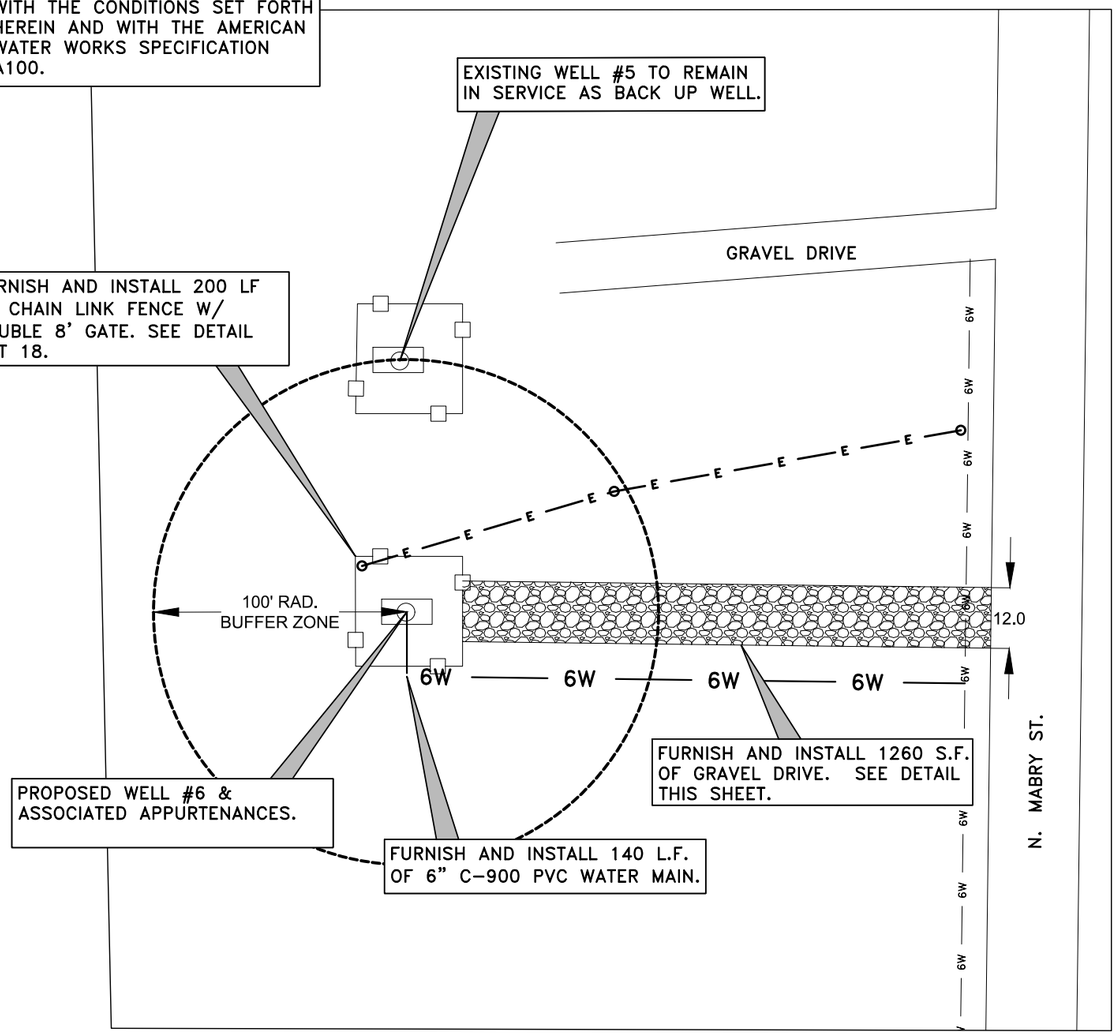
REPLACEMENT WELL & TANK REHAB
EXISTING WATER WELL #5
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU-02-20
Scale: 1"=30'
Date: JANUARY 2021

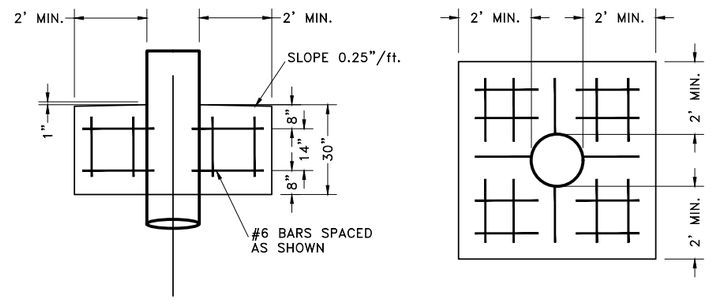
NOTE:
ALL COMPONENTS IN THE WELL SYSTEM WILL BE NSF CERFIFIED.

PROPOSED WELL SHALL COMPLY WITH THE CONDITIONS SET FORTH HEREIN AND WITH THE AMERICAN WATER WORKS SPECIFICATION A100.



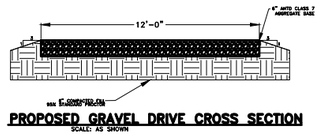
WATER WELL #6

HOR. SCALE: 1"=30'-0"



SIDE **TOP**

PUMP FOUNDATION DETAIL



PROPOSED GRAVEL DRIVE CROSS SECTION

SCALE: AS SHOWN

LEGEND

- EXISTING FENCE
- EXISTING SANITARY SEWER
- EXISTING 6" WATER LINE
- PROPOSED FENCE
- OVERHEAD ELECTRICAL
- PROPOSED 6" WATER LINE
- 100' SANITARY BUFFER
- PROPOSED GRAVEL DRIVE
- EXISTING TREE
- POWER POLE

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

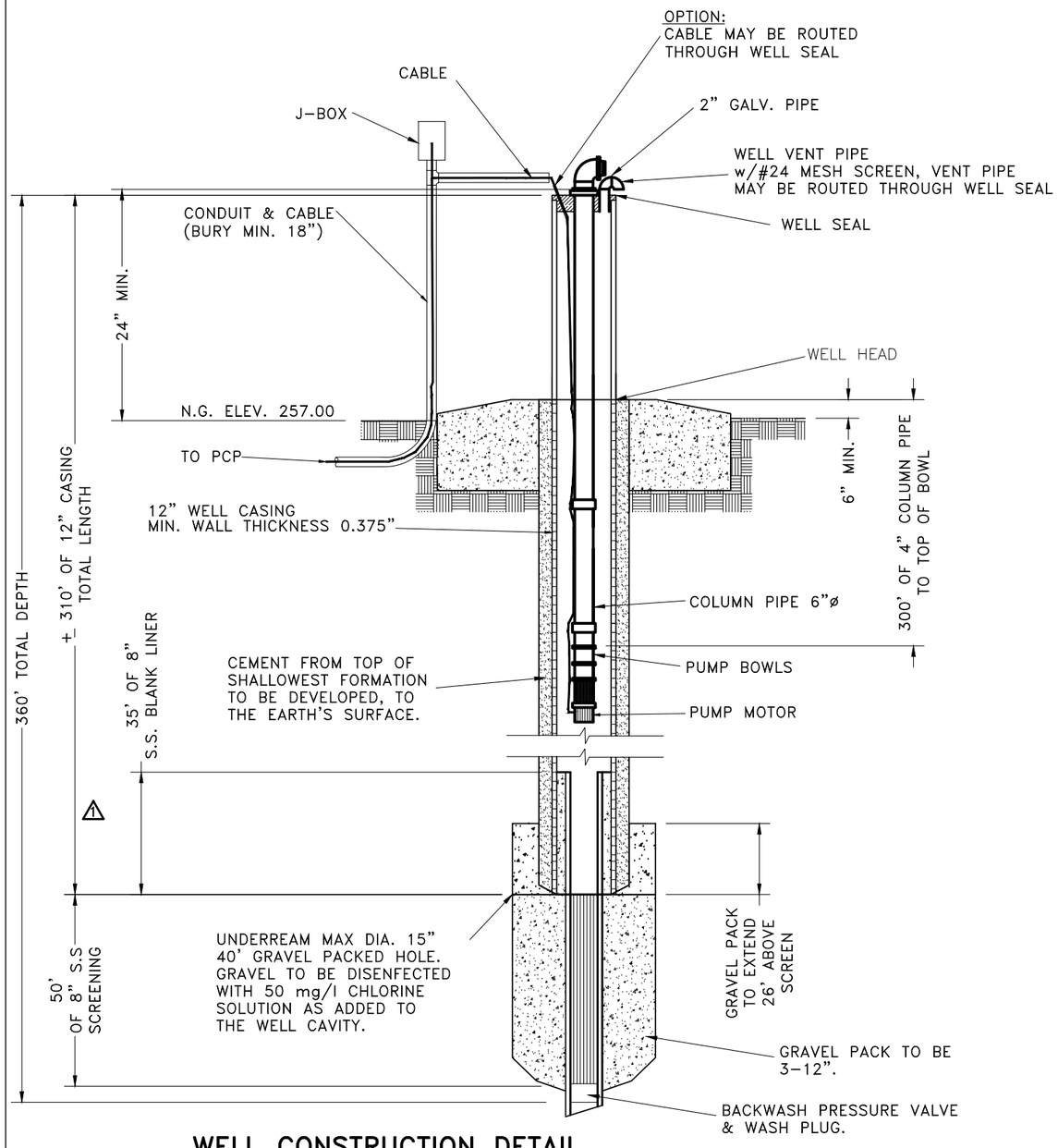
A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
PROPOSED WATER WELL #6
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

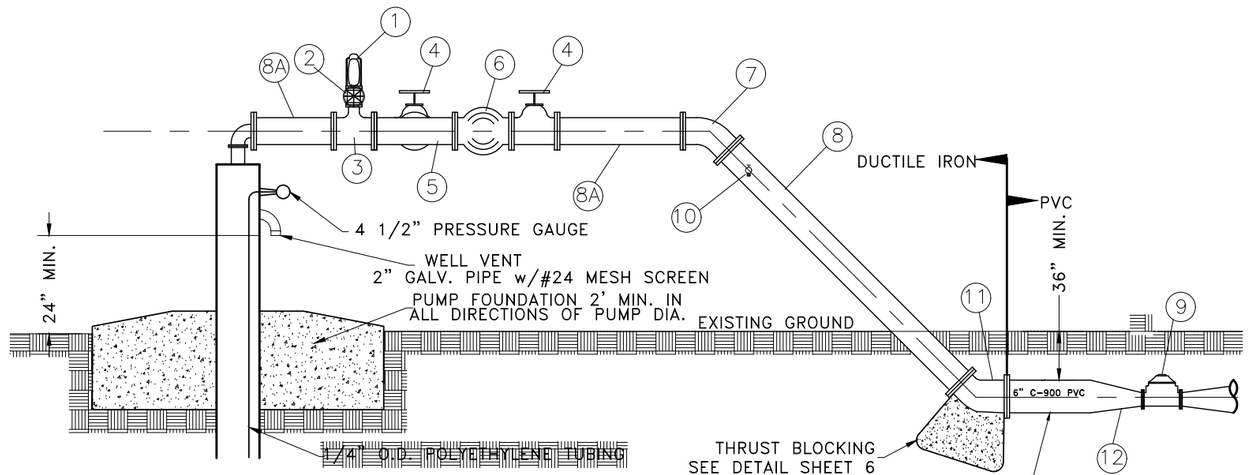
Job No.: EU-02-20
Scale: 1"=30'
Date: JANUARY 2021
Sheet 16 OF 18



WELL CONSTRUCTION DETAIL

PIPING SCHEDULE

1. 2" VAL-MATIC MODEL 102-WS COMB. AIR RELEASE VALVE
2. 2" M & H MODEL 450-02 BUTTERFLY VALVE W/HAND WHEEL FxF
3. 6" X 2" TEE FxF
4. 6" M & H MODEL 850-02 BUTTERFLY VALVE W/HAND WHEEL FxF
5. 6" X 6" TEE FxF
6. 6" VAL-MATIC MODEL 1808 GLOBE CHECK VALVE FxF
7. 6" 45° BEND FxF
8. 6" D.I. SPOOL – MIN. LENGTH 80" FxPE
8A. 6" D.I. SPOOL – FxF (MIN. LENGTH 36")
9. EXISTING 2" METER
10. 3/4" HOSE BIB
11. 6" 45° BEND MJxMJ
12. 6"x2" REDUCER FxF



WELL DISCHARGE PIPING

NOTE:

1. ALL EXPOSED PIPING IS TO BE DUCTILE IRON & INSULATED IN ACCORDANCE WITH THE SPECIFICATIONS.
2. PROVIDE PAINTED STEEL PIPE SUPPORTS AS NECESSARY.
3. WELL #6 PUMP CONTROL PANEL (PCP) SHALL BE PROVIDED BY AND INSTALLED BY CONTRACTOR.
4. CONTRACTOR SHALL CONTACT CODY STRINGER, ENGINEER, 870-444-5160 NO LESS THAN TWO (2) DAYS PRIOR TO DRILLING THE WELL.

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

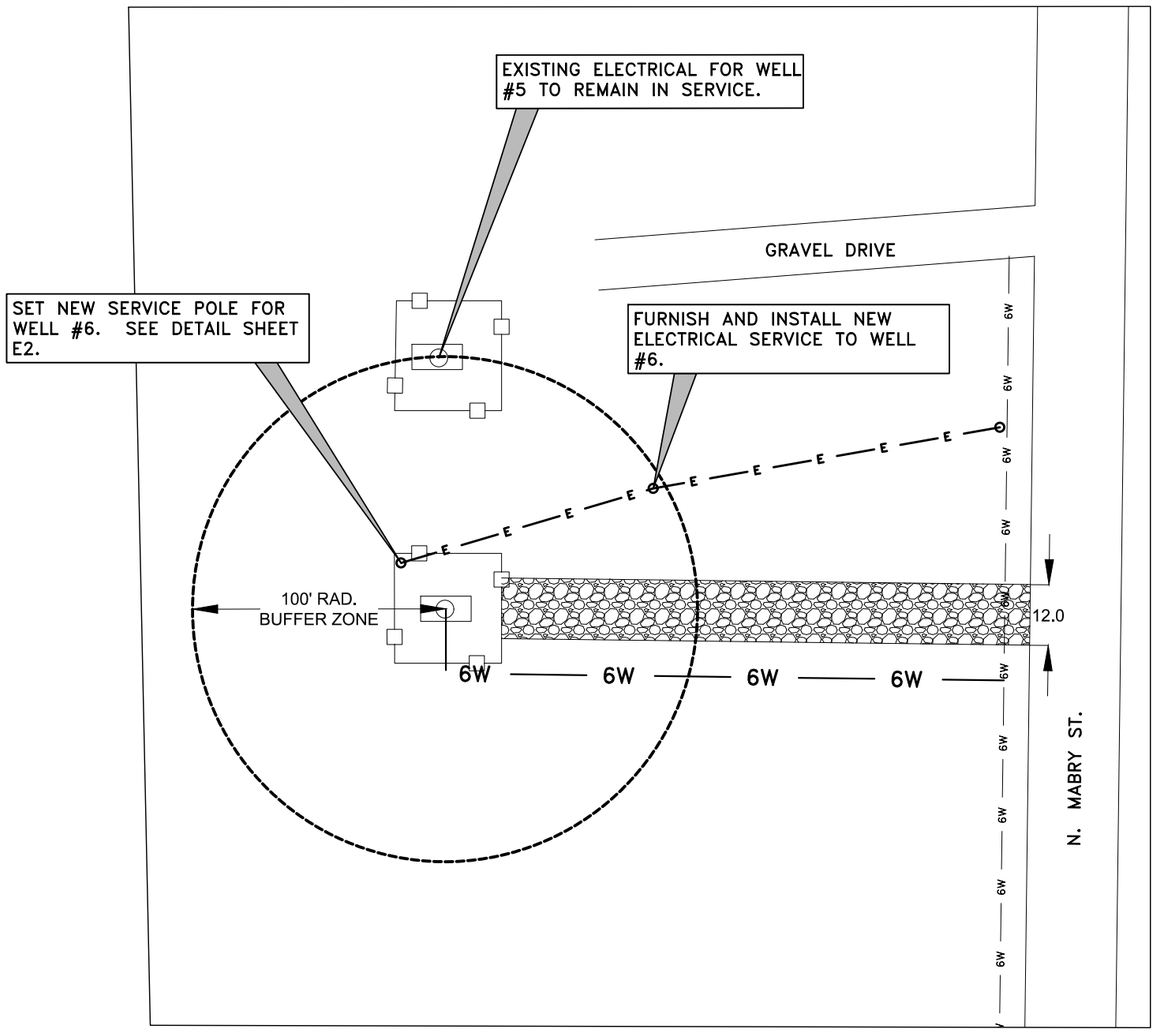
A-L-FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
WELL HEAD #6 DETAILS
EUDROA, ARKANSAS

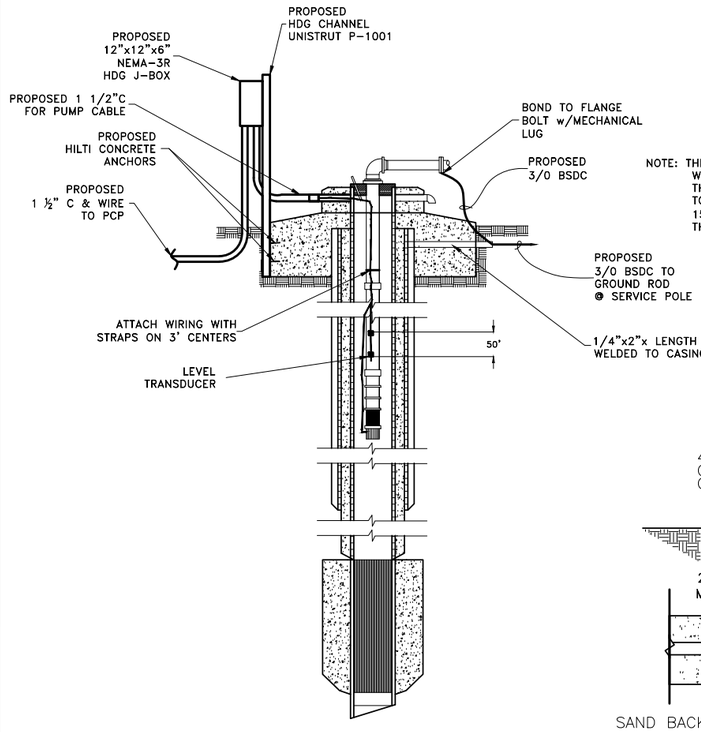
STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU-02-20
Scale: N.T.S.
Date: JANUARY 2021
Sheet 17 OF 18



WATER WELL #6

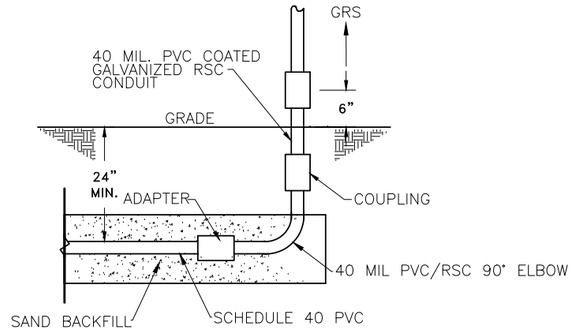
HOR. SCALE: 1"=30'-0"



WELL ELECTRICAL DETAIL

N.T.S.

NOTE: THE LEVEL TRANSDUCER SHALL BE FURNISHED COMPLETE WITH ARMORED SHIELD. THE LT SHALL BE LOCATED NEAR THE TOP OF THE PUMP. THE CABLE SHALL BE ATTACHED TO THE COLUMN PIPE WITH STAINLESS STEEL CLAMPS ON 15' CENTERS. THE CABLE SHALL BE LONG ENOUGH TO REACH THE VFD. THE LEVEL TRANSDUCER SHALL BE AMETEK MOD.#375



TYPICAL CONDUIT DETAIL

NTS

NOTE:
MINIMUM REQUIREMENTS ONLY ARE SHOWN ON THIS AND ARE NOT INTENDED AS A CONFLICT WITH ANY LOCAL CODES WHICH MAY REQUIRE MORE THAN THE MINIMUM INDICATED ON THIS DRAWING.

ELECTRICAL CONSTRUCTION NOTES:

1 FURNISH AND INSTALL PROPOSED SERVICE POLE PER DETAIL. COORDINATE EXACT LOCATION WITH OWNER AND ENTERGY POWER COMPANY.

2 COORDINATE WITH POWER COMPANY FOR PROPOSED 240/480V, 3-PHASE, 4-WIRE UNDERGROUND SERVICE TO PROPOSED TRANSFORMER/SERVICE POLE.

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION
A	METAL HALIDE, HEAVY DUTY FLOOD LIGHT, 400W, 120V, TRUNION MOUNT, AND HDG POLE MOUNTING BRACKET. 1) HUBBELL CATA# MVK-0400H-268-4040-4010 OR EQUAL

Date	Revision	By

Designed CJS
Checked ALF
Drawn CJS
Approved ALF

A.L. FRANKS ENGINEERING
118 East Broad Street
Texarkana, Arkansas 71854
Phone (870) 216-1906
Fax (870) 216-1907

239 S. Main
Eudora, AR 71640
Phone (870) 355-4436

REPLACEMENT WELL & TANK REHAB
PROPOSED ELECTRICAL WATER WELL #6
EUDROA, ARKANSAS

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No.9192 ANTHONY L. FRANKS

Job No.: EU-02-20
Scale: 1"=30'
Date: JANUARY 2021
Sheet E1 OF E4