NESBITT ENGINEERING, INC.

SERVING DEVELOPERS, INDUSTRY, BUSINESS AND GOVERNMENT BY PROVIDING PROVEN SOLUTIONS SINCE 1976

BREATHITT COUNTY WATER DISTRICT

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION PROJECT

CONTRACT 2 - WATER STORAGE TANK

DECEMBER 2023

WATER COMMISSIONERS

BOBBY THORPE JR - CHAIRMAN

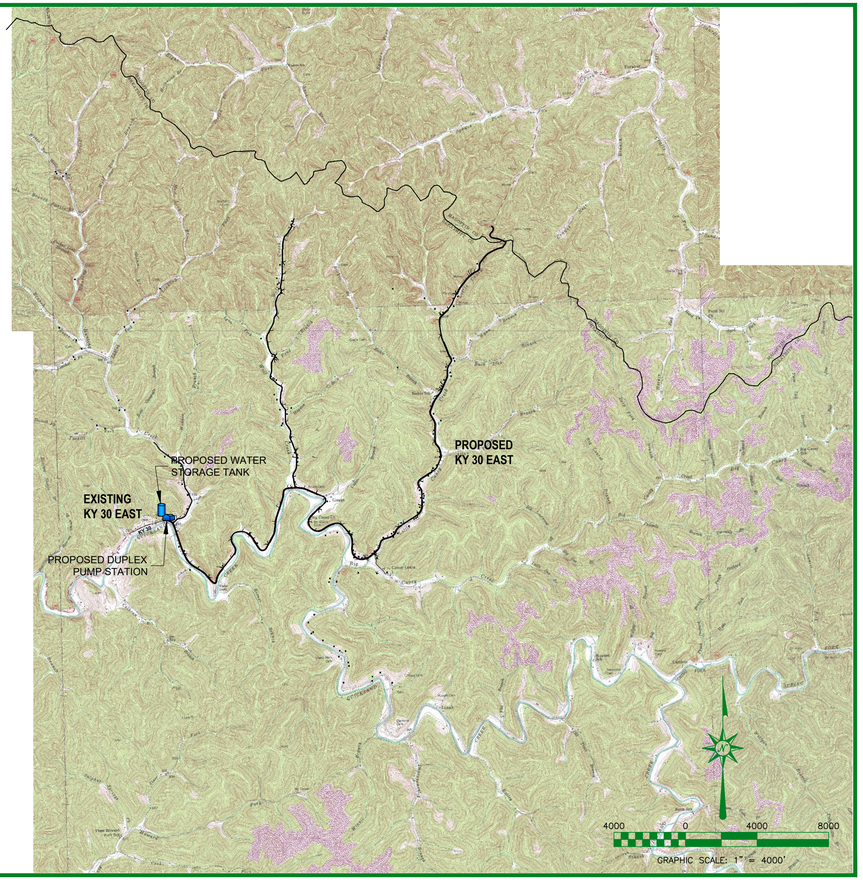
SAMMIE TURNER - VICE CHAIRMAN

EVA FUGATE - SECRETARY

CHERYL CAMPBELL - TREASURER

DAVID INGRAM - MEMBER

MAP OF
KENTUCKY



VICINITY MAP
SCALE: 1" = 4000'

SHEET INDEX

NUMBER	DESCRIPTION
C-1	GROUND WATER STORAGE TANK SITE PLAN (27,000 GALLONS)
C-2	GROUND WATER STORAGE TANK DETAILS
C-3	GROUND WATER STORAGE TANK FOUNDATION DETAILS
C-4	STANDARD DETAILS
C-5	STANDARD DETAILS 2

GENERAL NOTES:

1. DIMENSIONS OF EXISTING STRUCTURES, EQUIPMENT, ETC. SHALL BE FIELD CONFIRMED BY THE CONTRACTOR. WHERE CRITICAL DIMENSIONS FOR INSTALLATION OF PROPOSED EQUIPMENT ARE INDICATED ON THE DRAWINGS, THE CONTRACTOR SHALL CONFIRM THESE DIMENSIONS FOR ACTUAL EQUIPMENT FURNISHED. ALL KNOWN DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER.
2. THE CONTRACTOR SHALL USE ALL POSSIBLE CARE DURING EXCAVATION ON THIS PROJECT SO AS NOT TO DISTURB ANY EXISTING UTILITY WHETHER SHOWN ON PLANS OR NOT. ANY UTILITY DISTURBED OR DAMAGED BY THE CONTRACTOR DURING HIS CONSTRUCTION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
3. THE CONTRACTOR SHALL CONFINE ALL CONSTRUCTION ACTIVITY TO THE AREA WITHIN EXISTING EASEMENTS AND CONSTRUCTION LIMITS, UNLESS OTHERWISE APPROVED IN WRITING BY THE OWNER.
4. THE CONTRACTOR WILL BE SOLELY LIABLE FOR ANY WORK HE PERFORMS OUTSIDE OF LEGAL EASEMENTS OR CONSTRUCTION LIMITS.
5. THE CONTRACTOR MUST CONTACT ALL UTILITY OWNERS AND HAVE THEM FIELD LOCATE THEIR EXISTING LINES PRIOR TO ANY CONSTRUCTION ACTIVITY.
6. EFFORTS HAVE BEEN MADE TO INDICATE ACCURATE LOCATIONS OF SOME EXISTING STRUCTURES, PIPING AND UTILITIES. HOWEVER THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE AND OTHER EXISTING CONDITIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN INFORMATION DEPICTED BY THE CONSTRUCTION DRAWINGS AND ACTUAL FIELD CONDITIONS WHICH WOULD SIGNIFICANTLY ALTER THE DESIGN INTENT OF THE CONSTRUCTION DRAWINGS PRIOR TO COMMENCING HIS CONSTRUCTION OPERATIONS. DIMENSIONS OF EXISTING STRUCTURES AND/OR SITE RESTRICTIONS ARE APPROXIMATE, IT IS THE CONTRACTORS RESPONSIBILITY TO OBTAIN AND CONFIRM ALL DIMENSIONS AND ELEVATIONS OF EXISTING STRUCTURES AND TOPOGRAPHY IN THE FIELD NECESSARY FOR HIS CONSTRUCTION OPERATION.
7. THE CONTRACTOR SHALL USE ALL POSSIBLE CARE DURING EXCAVATION ON THIS PROJECT SO AS NOT TO DISTURB OR DAMAGE ANY EXISTING UTILITY OR STRUCTURE NOT SCHEDULED FOR DEMOLITION WHETHER DEPICTED OR NOT IN THE CONSTRUCTION DRAWINGS. ANY DAMAGE TO THE AFORE MENTIONED ITEMS CAUSED DIRECTLY OR INDIRECTLY BY THE CONTRACTOR SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO BEING DAMAGED.
8. THE CONTRACTOR SHALL CONTACT AND OBTAIN THE PERMISSION OF EXISTING UTILITY OWNERS 48 HOURS (MIN.) PRIOR TO ANY CONSTRUCTION ACTIVITY INTERRUPTING OPERATION OF SAID UTILITY.
9. UNLESS OTHERWISE NOTED, ALL BURIED PIPES SHALL HAVE 30" (MIN.) COVER AS MEASURED FROM FINISHED GRADE TO THE OUTSIDE SURFACE OF THE PIPE.
10. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO WORK ALL APPLICABLE DRAWINGS AND THE APPROPRIATE SPECIFICATIONS AS A UNIT. ANY OMISSIONS, DELETIONS, OR CONFLICT'S ARISING AS A RESULT OF FAILURE TO INCORPORATE ALL DRAWINGS AND SPECIFICATIONS WHICH APPLY SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDED COST TO THE OWNER.

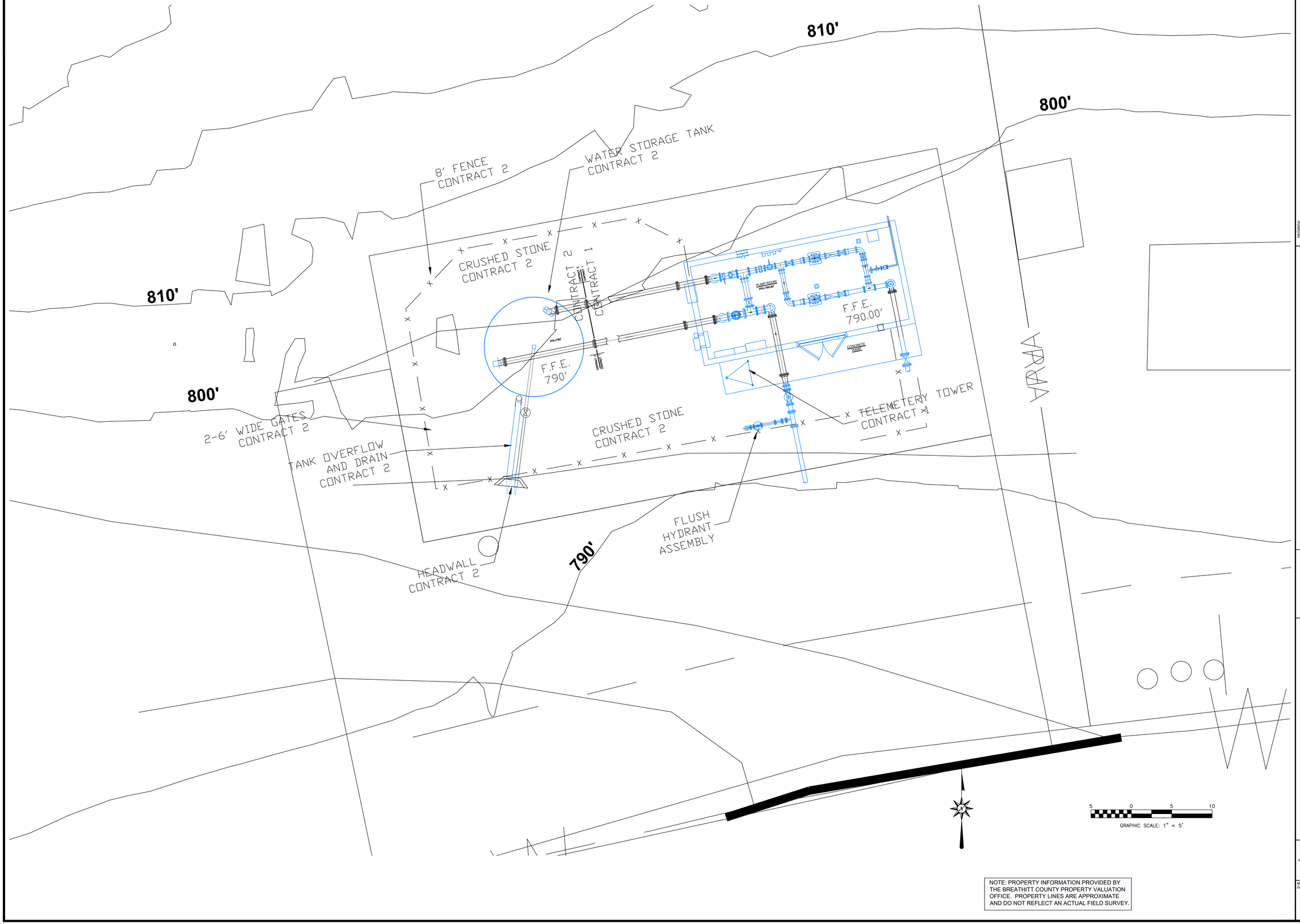
Kentucky 811

CALL THE KENTUCKY ONE CALL BEFORE DIGGING:
KENTUCKY UNDERGROUND PROTECTION, INC. 1-800-752-6007
A FEDERAL LAW NOW IN EFFECT STATES THAT ANY PERSON WHO ENGAGES IN EXCAVATION ACTIVITIES WITHOUT FIRST USING AN AVAILABLE ONE-CALL NOTIFICATION SYSTEM TO DETERMINE LOCATIONS OF UNDERGROUND FACILITIES; OR WITHOUT HEEDING LOCATION INFORMATION OR MARKINGS AND SUBSEQUENTLY DAMAGES A PIPELINE FACILITY SHALL BE SUBJECT TO A FINE, IMPRISONMENT, OR BOTH. THE LAW ALSO STATES THAT OSHA MAY BE NOTIFIED OF ANY ACCIDENT CAUSED BY AN EXCAVATOR.
NATIONAL ONE-CALL REFERRAL NUMBER 1-800-258-0808

nesbitt engineering, inc.

227 N. Upper Street
Lexington, Kentucky
40507-1016
Tel (859) 233-3111
Fax (859) 259-2717

STATE OF KENTUCKY
PAUL D. NESBITT 9382
LICENSED PROFESSIONAL ENGINEER



NOTE: PROPERTY INFORMATION PROVIDED BY THE BREATHITT COUNTY PROPERTY VALUATION OFFICE. PROPERTY LINES ARE APPROXIMATE AND DO NOT REFLECT AN ACTUAL FIELD SURVEY.

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION
CONTRACT 2 WATER STORAGE TANK
BREATHITT COUNTY WATER DISTRICT
BREATHITT COUNTY, KY

LOCAL TANK SITE

revisions:

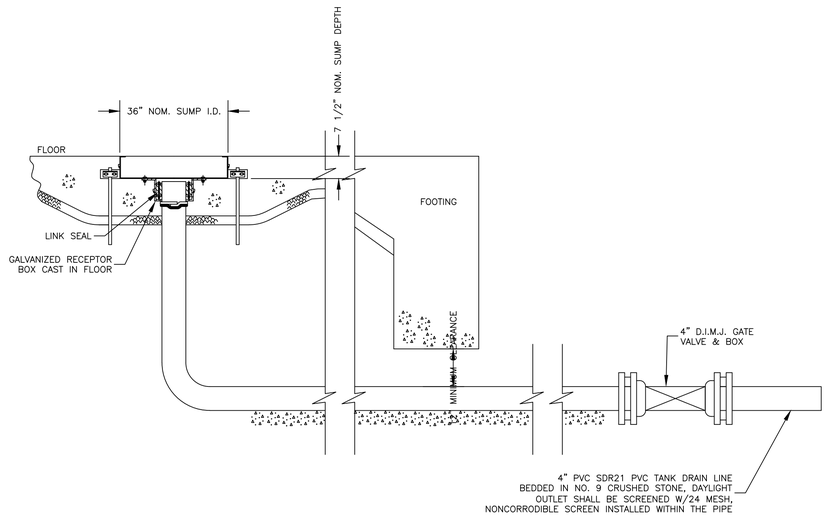
STATE OF KENTUCKY
PAUL D. NESBITT
9382
LICENSED PROFESSIONAL ENGINEER

nesbitt engineering, inc.
providing proven solutions since 1976

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION
BREATHITT COUNTY WATER DISTRICT

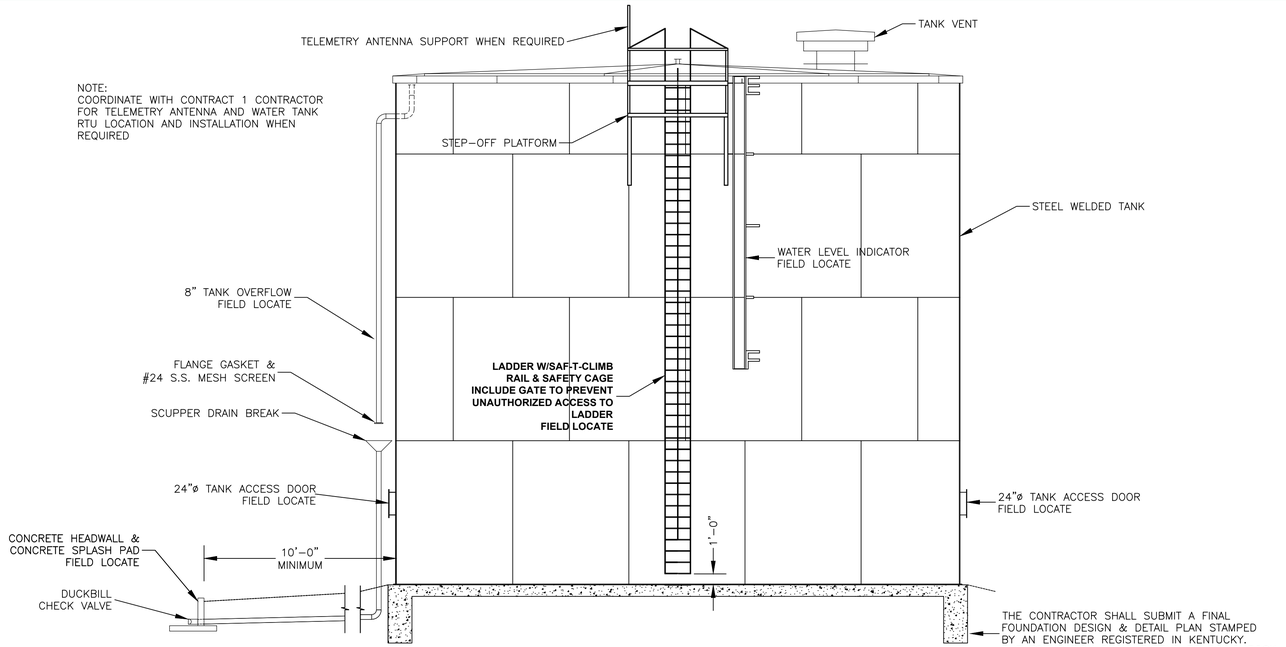
job no.: 998-48
scale: NTS
drawn by: MMS
date: NOVEMBER 17, 2022

sheet no.
C-1



SUMP & DRAIN PIPE (TYPICAL)

NOT TO SCALE



ELEVATION

NOTES

GENERAL

A. THE TANK AND TANK FOUNDATION ARE TO BE DESIGNED IN ACCORDANCE WITH AWWA STANDARD FOR THE SPECIFIC WATER STORAGE TANK BEING PROPOSED.

DESIGN CRITERIA

THIS STRUCTURE IS TO BE DESIGNED ACCORDING TO THE [2002] KENTUCKY BUILDING CODE AND FOR THE SPECIFIC LOADS THAT ARE LISTED BELOW.

ROOF LOADS

1. DEAD LOAD = ACTUAL WEIGHTS OF MATERIALS & CONSTRUCTION
2. LIVE LOAD = 20 PSF
3. SNOW LOADS:
   GROUND SNOW LOAD (PG) = 15 PSF
   FLAT-ROOF SNOW LOAD (PF) = 15 PSF
   EXPOSURE FACTOR (CE) = 1.0
   IMPORTANCE FACTOR (IS) = 1.2
   THERMAL FACTOR (CT) = 1.2

LIVE LOAD

1. SLAB ON GRADE = 3000 PSF

LATERAL LOADS

1. WIND LOADS:
   BASIC WIND SPEED = 100 MPH
   IMPORTANCE FACTOR (IW) = 1.15
   BUILDING CATEGORY = III
   EXPOSURE = B
   MAIN WINDFORCE DESIGN PRESSURE (P) = 22 PSF
   COMPONENTS AND CLADDING DESIGN PRESSURE PER 2002 KBC FIGURE 1609.6(2):

   ZONE 1 = +10.0 PSF OR – 13.3 PSF
   ZONE 2 = +10.0 PSF OR – 15.8 PSF
   ZONE 3 = +10.0 PSF OR – 15.8 PSF
   ZONE 4 = +12.4 PSF OR – 13.6 PSF
   ZONE 5 = +12.4 PSF OR – 15.1PSF

2. SEISMIC LOADS:
   SEISMIC USE GROUP = III
   SEISMIC DESIGN CATEGORY = B (ROCK SEAT); C (SOIL FOUNDATION SEAT)
   SITE CLASS TYPE = B (ROCK SEAT); D (SOIL FOUNDATION SEAT)

UPLIFT LOADING

1. INSTALL AND ANCHOR ROOF DECK UNITS TO RESIST GROSS UPLIFT LOADING OF 35 LBS. PER SQUARE FOOT AT EAVE OVERHANG AND 20 LBS. PER SQUARE FOOT FOR OTHER ROOF AREAS.

FOUNDATION, FILLING, AND EXCAVATION

1. ALL FILL BELOW SLABS ON GRADE SHALL BE COMPACTED TO 98% OF STANDARD PROCTOR DENSITY, ASTM D698, AT +/– 2% OF OPTIMUM MOISTURE CONTENT (O.M.C.). ALL FILL IN THE BEARING ZONE BELOW FOOTINGS SHALL BE COMPACTED TO 100% OF S.P.D. +/– 2% OF O.M.C.
2. A MINIMUM OF ONE FIELD DENSITY TEST SHOULD BE PERFORMED FOR EACH 5,000 SQUARE FEET/THE SLAB AREA WITH A MINIMUM OF TWO TESTS FOR EACH LAYER OF FILL. FOR BACKFILL OF DITCHES OR TRENCHES, ONE DENSITY TEST SHOULD BE PERFORMED FOR EACH 10 CUBIC YARDS (IN PLACE) OF BACKFILL MATERIAL, UNLESS OTHERWISE NOTED.
3. FOUNDATIONS ARE DESIGNED FOR AN INTERIOR MINIMUM BEARING PRESSURE OF 3000 PSF. THE ENTIRE RINGWALL MUST BE FOUNDED ON SOLID ROCK, WITH A MINIMUM ALLOWABLE LOADING OF 5000 PSF (MIN.). APPROVAL OF THE BEARING PRESSURE MUST BE OBTAINED FROM A GEOTECHNICAL ENGINEER (REPORT TO BE SUPPLIED BY CONTRACTOR) FAMILIAR WITH THE CONDITIONS OF THE SITE BEFORE PROCEEDING WITH CONSTRUCTION.

CAST IN PLACE CONCRETE

1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'C = 4000 PSI AT 28 DAYS.
2. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60.
3. REINFORCING STEEL FOR CONCRETE CAST AGAINST EARTH SHALL HAVE A MINIMUM COVER OF 3". ALL OTHER REINF STEEL SHALL HAVE A MINIMUM COVER OF 2". LAP SPLICES FOR #5 CONTINUOUS BARS SHALL BE STAGGERED AND SHALL BE A MINIMUM OF 2'–0".
4. PRIOR TO FABRICATION, SUBMIT SHOP DRAWINGS FOR FABRICATION, BENDING AND PLACEMENT OF CONCRETE REINFORCEMENT. COMPLY WITH ACI 315 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" SHOWING BAR SCHEDULES, STIRRUP SPACING, DIAGRAMS OF BENT BARS, AND ARRANGEMENT OF CONCRETE REINFORCEMENT. INCLUDE SPECIAL REINFORCEMENT REQUIRED AND OPENINGS THROUGH CONCRETE STRUCTURES.
5. SUBMIT LAB TEST REPORTS FOR CONCRETE MATERIALS AND MIX DESIGN TEST AS SPECIFIED.

STEEL MATERIALS

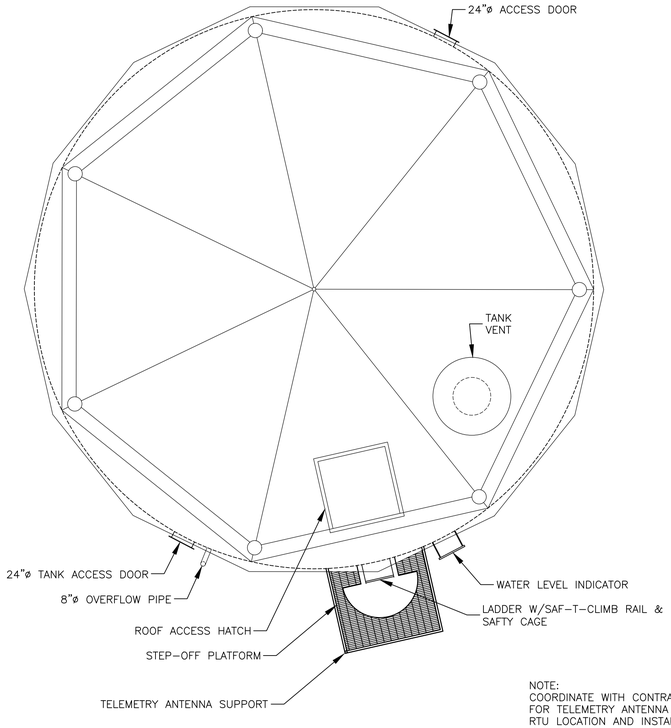
1. PLATE MATERIAL FOR TANK SHELL AND TANK BOTTOM SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36. ALL WELDS TO BE MADE WITH E70XX RODS AND WELDING IS TO CONFORM TO LATEST AWS CODE.
2. ANCHOR BOLTS SHALL BE THREADED RODS CONFORMING TO THE REEQUIREMENTS OF ASTM–A307.

GROUND STORAGE TANK INFORMATION

TANK	STORAGE CAPACITY (GALLONS)	NOMINAL DIAMETER (FEET)	NOMINAL HEIGHT (FEET)	FLOOR ELEVATION (FEET)	OVERFLOW (FEET)
PUMP STATION (LOCAL)	27,000	14'	25'	790'	814'
NOTE: TANK SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. TANK TO BE CONSTRUCTED AS STATED IN THE ABOVE TABLE.					

NOTES

1. All work shall be performed in accordance with AWWA Standard for Welded Steel Tanks for WATER STORAGE (ANSI-AWWA D100-96).
2. This Drawing is Not to Scale and shows a Welded Steel Water Storage Tank Foundation. Glass Lined, Bolted Steel, Water Storage Tank Foundation information may be Submitted as an Alternate, as Required.
3. The Contractor shall submit a Final Foundation Design and Detail Plan Stamped by an ENGINEER REGISTERED IN KENTUCKY.
4. **A Geotech Investigation and Report has been conducted for the pump station tank site by the owner and is included in the bid documents. The contractor shall conduct a geotech investigation for the cemetery tank site.**



TANK PLAN

LAST PLOTTED:
LAST SAVED:

revisions

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION
CONTRACT 2 – WATER STORAGE TANKS
BREATHITT COUNTY WATER DISTRICT
BREATHITT COUNTY, KENTUCKY

GROUND WATER STORAGE TANK DETAILS

STATE OF KENTUCKY
PAUL D. NESBITT 9382 LICENSED PROFESSIONAL ENGINEER

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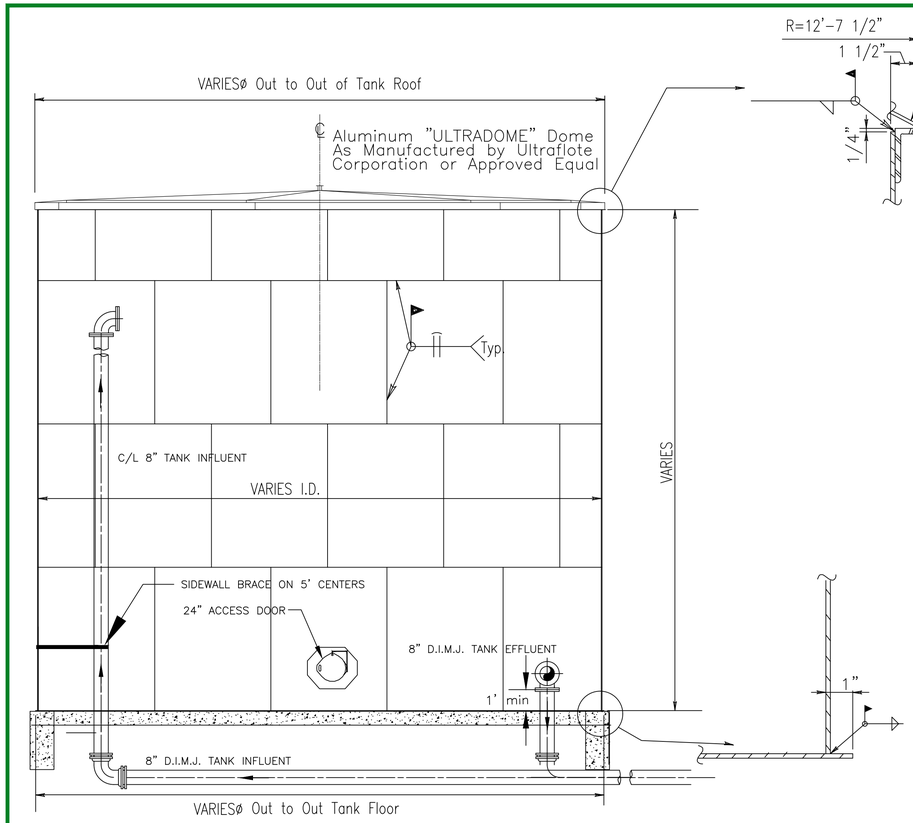
providing proven solutions since 1976

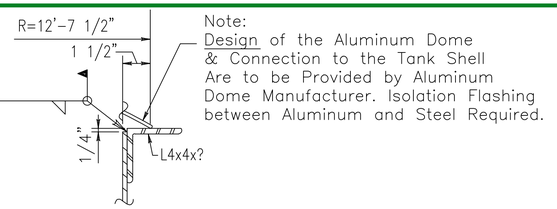
BREATHITT COUNTY WATER DISTRICT
KY 30 EAST & WOLF CREEK WATERLINE EXTENSION

job no.: 998.48
scale: AS SHOWN
file name:
drawn by: MMS
date: 2/1/2023

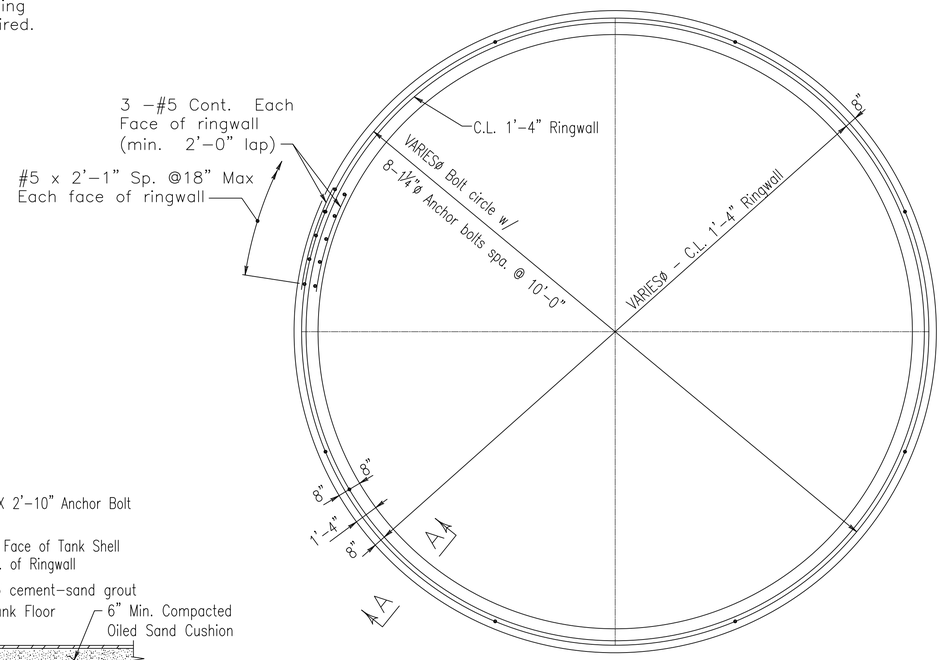
sheet no.
C-2



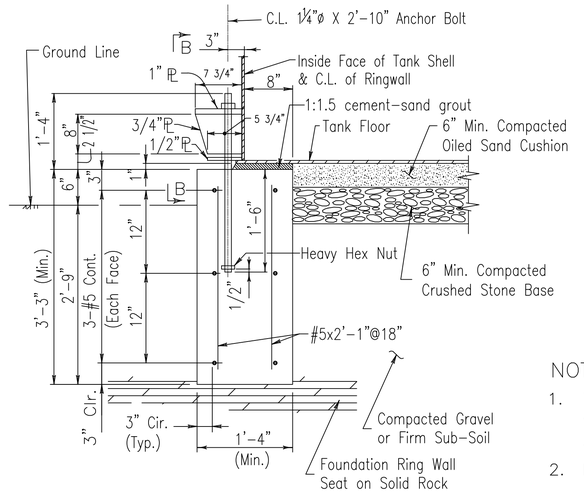
ELEVATION



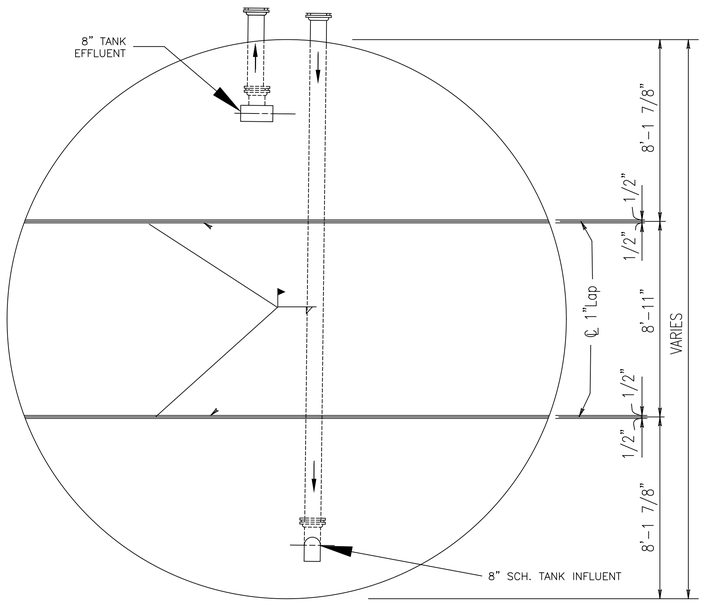
Note:
Design of the Aluminum Dome & Connection to the Tank Shell Are to be Provided by Aluminum Dome Manufacturer. Isolation Flashing between Aluminum and Steel Required.



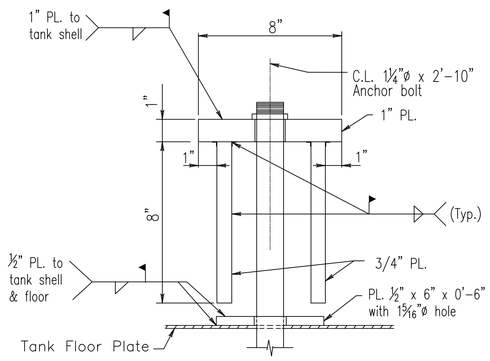
RINGWALL FOUNDATION PLAN



SECTION A-A



PLAN TANK BOTTOM



VIEW B-B

NOTES

1. The tank and tank foundation are designed in accordance with AWWA STANDARD for WELDED STEEL TANKS FOR WATER STORAGE; (ANSI/AWWA D-100-96). The design wind loads are based on a 100 mile per hour wind and Zone 1 earthquake.
2. Plate material for tank shell and tank bottom shall conform to the requirements of ASTM A36.
3 Concrete shall have a minimum compressive strength of f'c=4000 psi at 28 days.
4. Reinforcing steel shall be ASTM A615, A616 or A617, Grade 60.
5. Reinforcing steel for concrete cast against earth shall have a minimum cover of 3". All other reinf. steel shall have a min. cover of 2".
6. Lap splices for #5 continuous bars shall be staggered and shall be a minimum of 2'-0".
7. Foundations are designed for a max. bearing pressure of 3000 psf. If any portion of the footing is founded on solid rock the entire footing must be founded on solid rock. Approval of the bearing pressure must be obtained from a Geotechnical Engineer familiar with the conditions of the site before proceeding with construction.
8. All work shall be performed in accordance with AWWA Standard for Welded Steel Tanks for WATER STORAGE (ANSI-AWWA D100-96).
9. Anchor Bolts shall be used and shall be threaded rods conforming to the requirements of ASTM-A36.
10. This Drawing is Not to Scale and shows a Welded Steel Water Storage Tank Foundation. Glass Lined, Bolted Steel, Water Storage Tank Foundation information may be Submitted as an Alternate, as Required.
11. The Contractor shall submit a Final Foundation Design and Detail Plan Stamped by an ENGINEER REGISTERED IN KENTUCKY.

LAST PLOTTED:
LAST SAVED:

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION
CONTRACT 2 - WATER STORAGE TANKS
BREATHITT COUNTY WATER DISTRICT
BREATHITT COUNTY, KENTUCKY

GROUND STORAGE TANK FOUNDATION DETAILS

PAUL D. NESBITT 9382 LICENSED PROFESSIONAL ENGINEER
STATE OF KENTUCKY

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providing proven solutions since 1970
BREATHITT COUNTY WATER DISTRICT
KY 30 EAST & WOLF CREEK WATERLINE EXTENSION

job no.: 998.48
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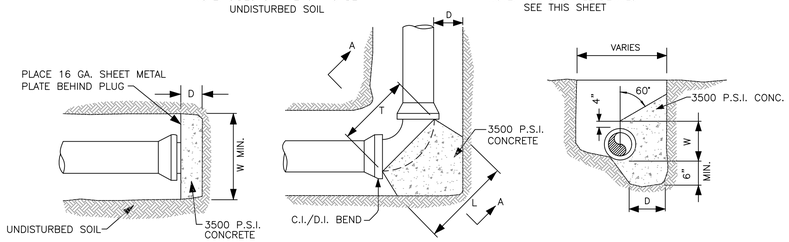
drawn by: MMS
date: 2/1/2023
file name:

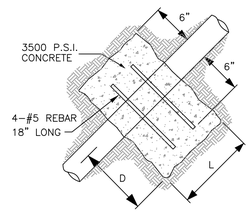
sheet no.
C-3

NOTE: SIDES OF TRENCH TO BE UNDISTURBED SOIL

NOTE: FOR BACKFILL DETAILS SEE THIS SHEET



PLUGS BENDS SECTION A–A

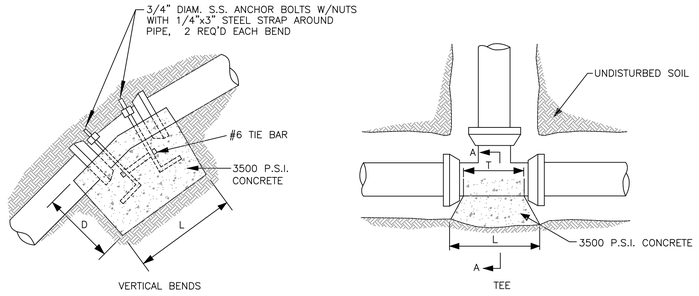


STRAIGHT PIPE

NOTE: DEPTH (D) MAY NOT BE SMALLER THAN SPECIFIED TO ALLOW FOR WORKING SPACE, PIERS SHALL BE PLACED AGAINST UNDISTURBED SOIL, PLACE CONCRETE ANCHORS 25'–0" c/c.

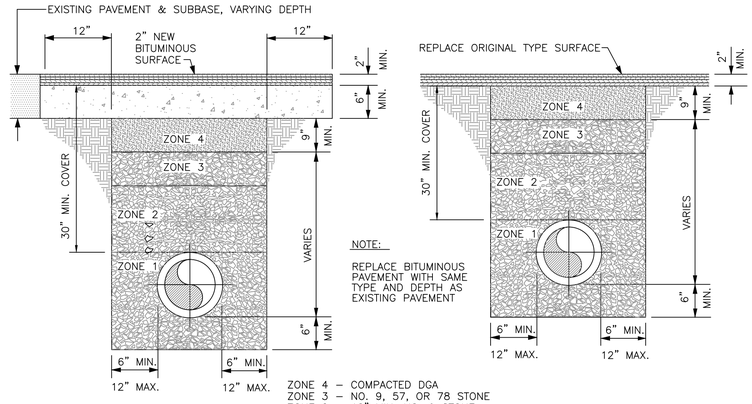
DIMENSIONS FOR THRUST AND ANCHOR BLOCKS									
PIPE SIZE	3"	4"	6"	8"	10"	12"	14"	18"	24"
PLUGS									
D	6"	6"	6"	6"	6"	6"	6"	6"	6"
L&W	16"	18"	20"	22"	24"	26"	28"	32"	38"
EIGHT BEND (45°), 1/16 BEND (22–1/2°)									
D	6"	6"	6"	6"	6"	6"	6"	6"	6"
L	14"	16"	18"	20"	22"	24"	26"	30"	36"
T	12"	14"	16"	18"	20"	22"	24"	28"	34"
W	6"	8"	12"	14"	16"	18"	20"	24"	30"
QUARTER BEND (90°)									
D	6"	6"	8"	10"	10"	10"	12"	12"	14"
L	18"	21"	24"	27"	30"	33"	36"	38"	44"
T	12"	14"	16"	18"	20"	22"	24"	28"	34"
W	6"	8"	12"	16"	18"	20"	22"	26"	32"
VERTICAL BEND & STRAIGHT PIPE									
D	12"	12"	15"	15"	18"	18"	20"	24"	30"
L	18"	18"	24"	24"	30"	30"	32"	36"	42"
T	12"	14"	16"	18"	20"	22"	24"	28"	34"

NOTE: SEE PLAN SHEETS FOR SIZE AND LOCATION OF PIPE



VERTICAL BENDS TEE

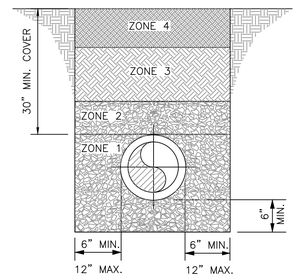
CONCRETE ANCHOR BLOCKS



ZONE 4 – COMPACTED DGA
ZONE 3 – NO. 9, 57, OR 78 STONE
ZONE 2 – 12" MIN. NO. 9 STONE
ZONE 1 – NO. 9 STONE

ORIGINAL BITUMINOUS SURFACING OVER 2"

ORIGINAL BITUMINOUS SURFACING 2" OR LESS AND TRAFFIC BOUND MACADAM



PIPE LAID IN ROCK OR EARTH TRENCH

NOTES:

1. COVER UP TO AND INCLUDING ZONE 4 SHALL BE ESTABLISHED BEFORE TRENCH EXCAVATION.

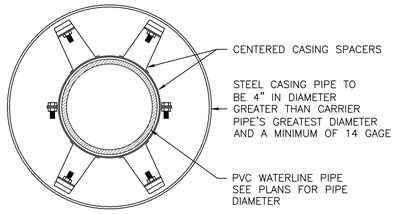
2. ZONE 4 – 6" MIN. CONSOLIDATION EARTH BACKFILL INCLUDING TOPSOIL, NO ROCK ALLOWED.

3. ZONE 3 – CONSOLIDATED SOIL, (NO ROCK GREATER THAN 6" DIAMETER) NO. 9, 57 OR 78 STONE

4. ZONE 2 – FROM THE SPRINGLINE OF THE PIPE TO A DISTANCE 12 INCHES ABOVE THE PIPE, THE CONTRACTOR SHALL USE THE SAME MATERIAL AS SPECIFIED FOR BEDDING. COMPACTION IS REQUIRED IN AREAS SUBJECT TO TRAFFIC.

5. ZONE 1 – BEDDING MATERIAL, IN EARTH EXCAVATION AREAS, SHALL BE CLEAN EARTH, FREE FROM ROCKS, DEBRIS OR OTHER FOREIGN MATERIAL. THE CONTRACTOR SHALL USE CRUSHED STONE, SAND OR GRAVEL AS BEDDING MATERIAL WHERE ROCK EXCAVATION IS ENCOUNTERED.

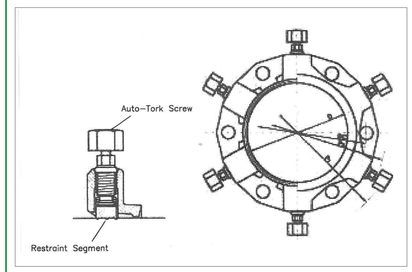
NOTE: RAILROAD BORE CASING PIPE SHALL BE A 16" DIAMETER, API 5L – GRADE B STEEL PIPE WITH A MINIMUM WALL THICKNESS OF 0.25" AS SHOWN ON THE PLANS.



NOTE: CARRIER PIPE SHALL BE INSTALLED WITHIN CASING PIPE USING MODEL CI POLYETHYLENE CASING SPACERS AS MANUFACTURED BY ADVANCE PRODUCT & SYSTEMS, INC. OR ENGINEER APPROVED EQUAL. SIZE AND SPACING PER MANUFACTURERS RECOMMENDATIONS.

END SEALS SHALL BE MODEL AC PULL–ON OR AW WRAP–AROUND END SEALS AS MANUFACTURED BY ADVANCE PRODUCT & SYSTEMS, INC. OR ENGINEER APPROVED EQUAL.

CASING SPACER DETAIL



MJ Retainer Gland Joint Restraint

NOTE:
1. MJ RETAINER GLAND JOINT RESTRAINTS SHALL BE USED ALONG WITH CONCTETE ANCHOR BLOCKS AT ALL FITTINGS AS REQUIRED

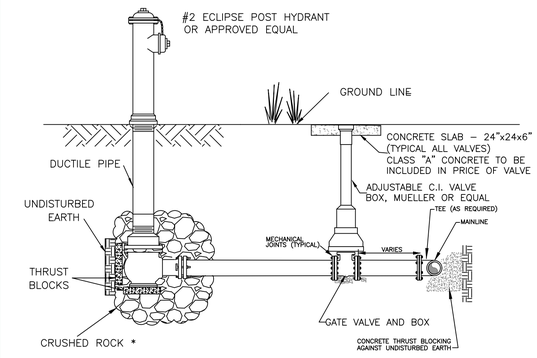
Hydrants shall be self–draining, non–freezing, compression type with 2–3/16" main valve opening. Outlet shall be 2–1/2"

Hydrants shall have a ductile iron pipe riser with a cast iron stock top, and non–turning operating rod. Principal interior operating parts shall be brass and removable from the hydrant for servicing without excavating the hydrant.

Hydrants shall be set in 4 cubic feet of crushed stone to allow for proper drainage of the hydrant. Recommendations of the AWWA should be followed when installing the hydrants.

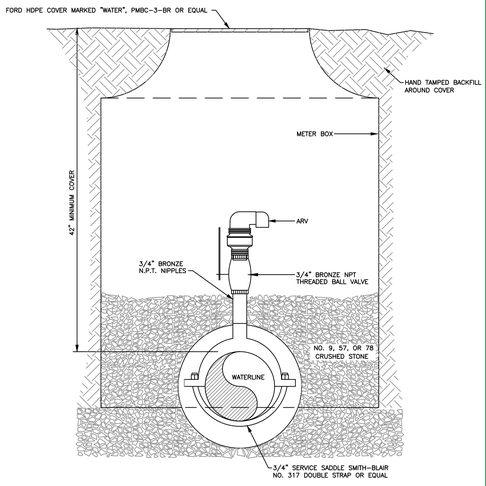
Post hydrants shall be Eclipse No. 2 Post Hydrants as manufactured by John C. Kupferle Foundry Company, St. Louis, MO. OR APPROVED EQUAL.

HYDRANT SHALL INCLUDE A SECURITY LOCKING DEVICE COMPATIBLE WITH THE INSTALLED HYDRANT. THE LOCK IS TO BE KEYED THE SAME AS THE DISTRICT'S EXISTING LOCKS.



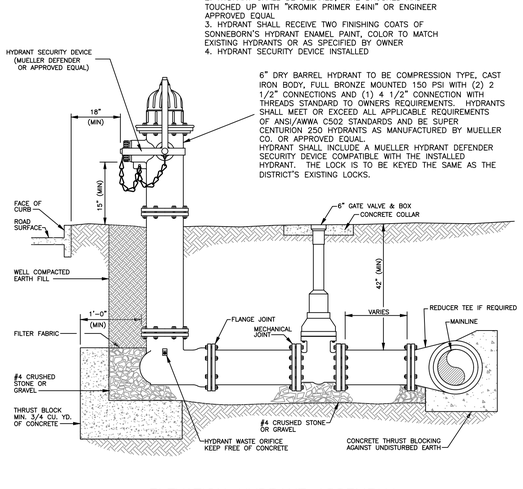
FLUSHING HYDRANT ASSEMBLY

ARV	¾" A.R.I. FLOW CONTROL MODEL D–040 COMBINATION AIR VALVE "BARAK" OR APRROVED EQUAL

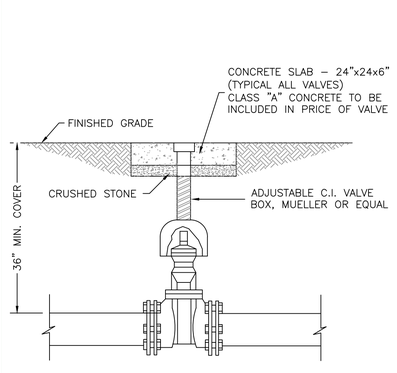


TYPICAL AIR RELIEF VALVE ASSEMBLY

NOTE: BEFORE FINAL INSPECTION
1. ENSURE ADEQUATE VOLUME OF OIL AS SHIPPED BY THE MANUFACTURER
2. HYDRANT SHALL BE CLEANED, WIRE BRUSHED AND TOUCHED UP WITH "KROMIK PRIMER E4IN" OR ENGINEER APPROVED EQUAL
3. HYDRANT SHALL RECEIVE TWO FINISHING COATS OF SONNEBORN'S HYDRANT ENAMEL PAINT, COLOR TO MATCH EXISTING HYDRANTS OR AS SPECIFIED BY OWNER
4. HYDRANT SECURITY DEVICE INSTALLED



ELEVATION HYDRANT ASSEMBLY



NOTE: SEE TYPICAL BACKFILL DETAILS FOR BEDDING

TYPICAL GATE VALVE ASSEMBLY

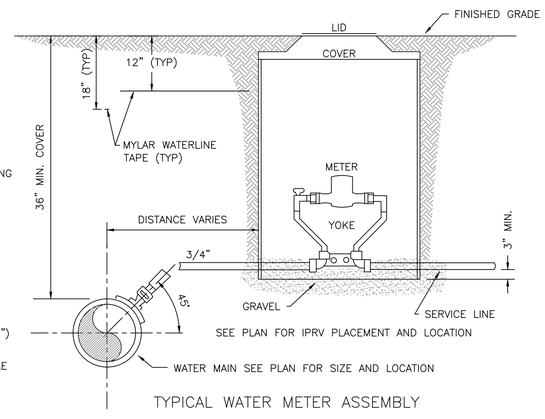
METER SETTING

1. YOKE–5/8"x3/4" MUELLER H–1400 WITH METER STOP OR APPROVED EQUAL
2. METER BOX–18"ø x36" DEEP, MID–STATE PLASTICS, INC. ROUND METER BOX, B SERIES OR APPROVED EQUAL
3. COVER–18"ø FORD HDPE PMBC–3–BR LOCKING LID OR APPROVED EQUAL
4. METER–SEE SPECIFICATIONS
5. INDIVIDUAL PRESSURE REDUCING VALVE (IPRV) WATTS MODEL 25AUB(2"), WILKENS MODEL 600 (¾"–1") BOTH W/S.S. STRAINER, ADJUSTABLE PRESSURE RANGE 25–75 P.S.I., OUTLET PRESSURE SET AT 50 P.S.I. OR APPROVED EQUAL

TIE TO WATER MAIN

GROUND KEY CORPORATION STOP–MUELLER H–15000 (⅝"x¾") OR APPROVED EQUAL

SERVICE SADDLE–BRONZE DOUBLE STRAP MUELLER H–16000 OR APPROVED EQUAL



TYPICAL WATER METER ASSEMBLY

LAST PLOTTED:
LAST SAVED:

REVISIONS:

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION
CONTRACT 2 – WATER STORAGE TANKS
BREATHITT COUNTY WATER DISTRICT
BREATHITT COUNTY, KENTUCKY

STANDARD DETAILS

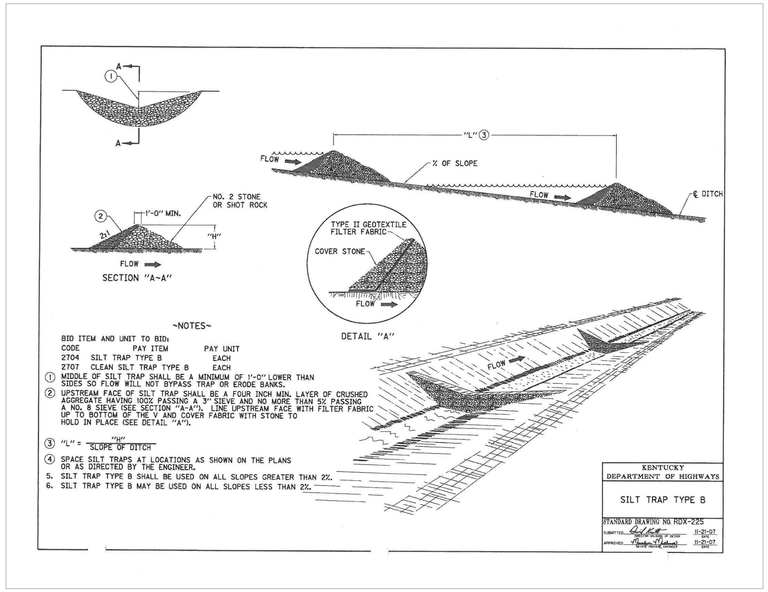
STATE OF KENTUCKY
PAUL D. NESBITT
9382
LICENSED PROFESSIONAL ENGINEER

nesbitt engineering, inc.
providing proven solutions since 1976

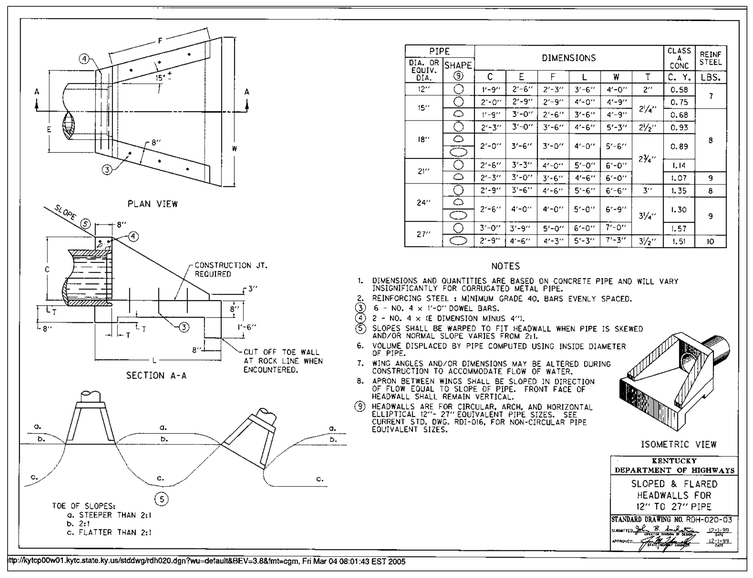
BREATHITT COUNTY WATER DISTRICT
KY 30 EAST & WOLF CREEK WATERLINE EXTENSION

scale: NTS
job no.: 998.48
file name:
drawn by: MMS
date: 2/1/2023

sheet no.
C–4



ROCK CHECK DAM DETAIL

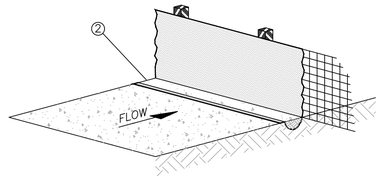


PIPE DIA. OR EQUIV. DIA.	SHAPE (3)	DIMENSIONS C	E	F	L	W	T	CLASS A CONC C. Y.	REINF STEEL LBS.
12"	○	1'-9"	2'-6"	2'-3"	3'-6"	4'-0"	2"	0.58	7
15"	○	2'-0"	2'-9"	2'-9"	4'-0"	4'-9"	2¼"	0.75	
	⬭	1'-9"	3'-0"	2'-6"	3'-6"	4'-9"		0.68	
18"	○	2'-3"	3'-0"	3'-6"	4'-6"	5'-3"	2½"	0.93	8
	⬭	2'-0"	3'-6"	3'-0"	4'-0"	5'-6"		0.89	
21"	○	2'-6"	3'-3"	4'-0"	5'-0"	6'-0"	2¾"	1.14	
	⬭	2'-3"	3'-0"	3'-6"	4'-6"	6'-0"		1.07	9
24"	○	2'-9"	3'-6"	4'-6"	5'-6"	6'-6"	3"	1.35	8
	⬭	2'-6"	4'-0"	4'-0"	5'-0"	6'-9"	3¼"	1.30	9
27"	⬭	3'-0"	3'-9"	5'-0"	6'-0"	7'-0"	3½"	1.67	
	⬭	2'-9"	4'-6"	4'-3"	5'-3"	7'-3"		1.51	10

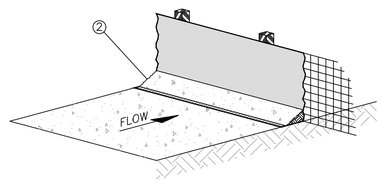
NOTES

1. DIMENSIONS AND QUANTITIES ARE BASED ON CONCRETE PIPE AND WILL VARY INSIGNIFICANTLY FOR CORRUGATED METAL PIPE.
2. REINFORCING STEEL : MINIMUM GRADE 40, BARS EVENLY SPACED.
(3) 6 - NO. 4 × 1'-0" DOWEL BARS.
(4) 2 - NO. 4 × IE DIMENSION MINUS 4".
(5) SLOPES SHALL BE WARPED TO FIT HEADWALL WHEN PIPE IS SKEWED AND/OR NORMAL SLOPE VARIES FROM 2:1.
6. VOLUME DISPLACED BY PIPE COMPUTED USING INSIDE DIAMETER OF PIPE.
7. WING ANGLES AND/OR DIMENSIONS MAY BE ALTERED DURING CONSTRUCTION TO ACCOMMODATE FLOW OF WATER.
8. APRON BETWEEN WINGS SHALL BE SLOPED IN DIRECTION OF FLOW EQUAL TO SLOPE OF PIPE. FRONT FACE OF HEADWALL SHALL REMAIN VERTICAL.
(9) HEADWALLS ARE FOR CIRCULAR, ARCH, AND HORIZONTAL ELLIPTICAL 12"- 27" EQUIVALENT PIPE SIZES. SEE CURRENT STD. DWG. RDI-016, FOR NON-CIRCULAR PIPE EQUIVALENT SIZES.

KTC STANDARD DRAWING RDH-020-03



ALTERNATE NO. 1



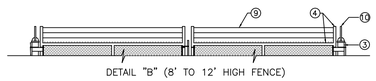
ALTERNATE NO. 2

NOTES

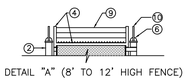
1. MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
2. THE BOTTOM 12 INCHES OF FABRIC SHALL BE BURIED IN A 6 INCH TRENCH CUT INTO THE GROUND OR COVERED BY 6 INCHES OF FILL MATERIAL, TO PREVENT SEDIMENT ESCAPING UNDER FENCE. ALL EARTHWORK SHALL BE ON THE UPSTREAM SIDE OF FENCE.

SILT CHECK FENCE SEDIMENTATION CONTROL

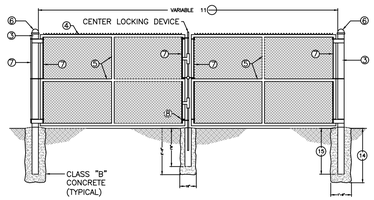
NOT TO SCALE



DETAIL "B" (8' TO 12' HIGH FENCE)

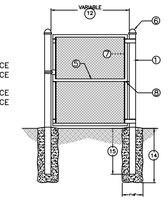


DETAIL "A" (8' TO 12' HIGH FENCE)



VEHICULAR GATE (4' AND 6' HIGH FENCE)

(14) 3'-0" FOR 4' FENCE
3'-6" FOR 6' FENCE
(15) 2'-6" FOR 4' FENCE
3'-0" FOR 6' FENCE



PEDESTRIAN GATE (4' AND 6' HIGH FENCE)

NOTES

ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWINGS.

VEHICULAR AND PEDESTRIAN GATES SHALL HAVE HEAVY PRESSED STEEL CORNERS SECURELY RIVETED OR SHALL BE MACHINE NOTCHED, AND ELECTRICALLY WELDED SO AS TO RIGID AND WATER TIGHT; AND EQUIPPED WITH PADLOCKING DEVICE AND GROUND STOP.

ALL WELDED JOINTS SHALL BE CLEANED AND PAINTED WITH TWO (2) COATS OF ALUMINUM PAINT.

4' HIGH GATES SHALL HAVE 4' FABRIC HEIGHT. 6' HIGH GATES SHALL HAVE 6' FABRIC HEIGHT.
8' HIGH GATES SHALL HAVE 8' FABRIC HEIGHT. 9' HIGH GATES SHALL HAVE 9' FABRIC HEIGHT.
10' HIGH GATES SHALL HAVE 10' FABRIC HEIGHT. 11' HIGH GATES SHALL HAVE 11' FABRIC HEIGHT.
12' HIGH GATES SHALL HAVE 12' FABRIC HEIGHT.

BARBED WIRE IS REQUIRED ON 8' TO 12' HIGH GATES. SEE DETAIL "A" AND "B" FOR INSTALLATION.

THE CONTRACTOR IS NOT TO ORDER GATES UNTIL THEIR NECESSITY AND LOCATION HAVE BEEN CERTIFIED BY THE ENGINEER.

O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL – ASTM F 1083 SHALL GOVERN.

ALL FENCE FITTINGS SHALL COMPLY WITH ASTM F 626.

(1) 6' TO 13' WIDTH FOR SINGLE GATE OR 12' TO 26' WIDTH FOR DOUBLE GATE.

(2) 4' TO 6' WIDTH.

THE CONTRACT UNIT PRICE FOR CHAIN LINK GATES SHALL BE:

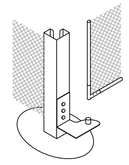
(11) FEET WIDE SINGLE VEHICULAR CHAIN LINK GATE (13) HIGH.

(11) FEET WIDE DOUBLE VEHICULAR CHAIN LINK GATE (13) HIGH.

(12) FEET WIDE PEDISTRIAN CHAIN LINK GATE 13 HIGH.

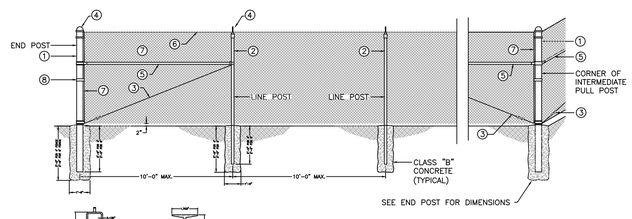
(13) AS SHOWN ON PLANS.

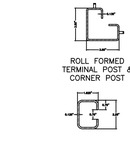
LEGEND – (ALTERNATIVES)		
	TUBULAR	ROLL FORMED
1	END POST 2 1/2" OD @ 3.65#/LF	3.5"x3.5" @ 5.10#/LF
2	END POST 3" OD @ 5.79#/LF	3.5x3.5" @ 5.10#/LF
3	GATE POST 4" OD@ 9.1#/LF	NO ALTERNATIVE
4	GATE FRAME 2" OD @ 2.72#/LF	NO ALTERNATIVE
5	1 5/8" OD @ 2.27#/LF	NO ALTERNATIVE
6	APPROVED CAPS	NOT REQUIRED
7	FLAT TENSION BAR	NOT REQUIRED
8	BRACE BAND AND TENSION BAND	NOT REQUIRED
9	BARBED WIRE	BARBED WIRE
10	BARBED WIRE ARMS	BARBED WIRE ARMS



ROLL FORMED HINGE DETAIL

CHAIN LINK GATE DETAIL



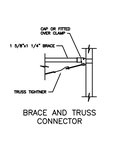


ROLL FORMED TERMINAL POST & CORNER POST

HOT ROLLED LINE POST H-COLUMN

LINE POST HEAVY "C" ROLL FORMED

HOT ROLLED TOP & BRACE RAIL



BRACE AND TRUSS CONNECTOR

LEGEND – (ALTERNATIVES)		
	TUBULAR	ROLL FORMED
1	2 1/2" OD @ 3.65#/LF	3.5"3.5" @ 5.10#/LF
2	2" OD @ 2.72#/LF	2.25" H-COL @ 3.26#/LF OR 2.25" C-COL @ 2.70#/LF
3	3/8" DIA TRUSS ROD AND TIGHTNER	.375" DIA. TRUSS ROD AND TIGHTNER
4	APPROVED CAPS	NOT REQUIRED
5	1 5/8" BRACE @ 2.27#/LF	1.25"x1.625" @ 1.40#/LF
6	1 5/8" OD @ 2.27#/LF	NOT REQUIRED
7	FLAT TENSION BAR	NOT REQUIRED
8	BRACE BAND AND TENSION BAND	

NOTES

ALL POSTS SHALL BE SET IN CONCRETE TO THE DIMENSIONS AS INDICATED ON THIS DRAWINGS.

4' HIGH FENCE SHALL HAVE 4' FABRIC HEIGHT. 6' HIGH FENCE SHALL HAVE 6' FABRIC HEIGHT.

ALL FENCE FITTINGS SHALL COMPLY WITH ASTM F 626.

POST CAPS AND SOCKET TYPE BRACE END CONNECTIONS SHALL BE GALVANIZED PRESSED STEEL, CAST IRON OR OTHER TYPE AS APPROVED BY THE ENGINEER. THEY SHALL BE DESIGNED IN A MANNER TO EXCLUDE MOISTURE FROM INSIDE POSTS AND RAILS.

O.D. DEPICTED FOR TUBULAR POSTS IS NOMINAL – ASTM F 1083 SHALL GOVERN.

STRUCTURAL SHAPES SHALL CONFORM TO STD. SPEC. B16.07.01 EXCEPT YIELD SHALL BE A MIN. 45,000 PSI.

INDISCRIMINATE MIXING OF POSTS WILL NOT BE PERMITTED.

TENSION WIRE COMPLYING WITH ASTM A 824 SHALL BE SUBSTITUTED FOR THE TOP RAIL WHEN THE FENCE IS TO BE INSTALLED IN THE PATH OF AN ERRANT VEHICLE.

CHAIN LINK FENCE DETAIL

LAST PLOTTED:
LAST SAVED:

KY 30 EAST & WOLF CREEK WATERLINE EXTENSION
CONTRACT 2 – WATER STORAGE TANKS
BREATHITT COUNTY WATER DISTRICT
BREATHITT COUNTY, KENTUCKY

STANDARD DETAILS 2

STATE OF KENTUCKY PAUL D. NESBITT 9382 LICENSED PROFESSIONAL ENGINEER

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BREATHITT COUNTY WATER DISTRICT
KY 30 EAST & WOLF CREEK WATERLINE EXTENSION

drawn by: MMS
date: 2/1/2023
scale: NTS
job no.: 998.48
file name:

sheet no.
C-5