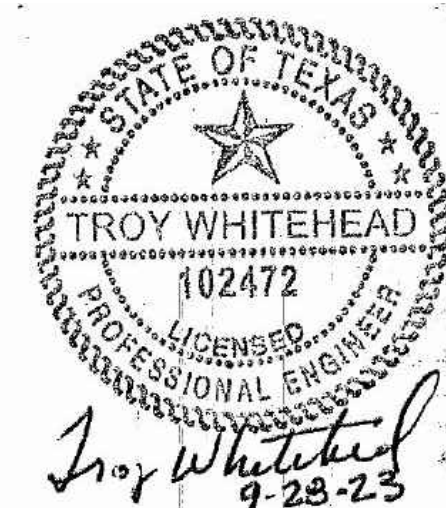
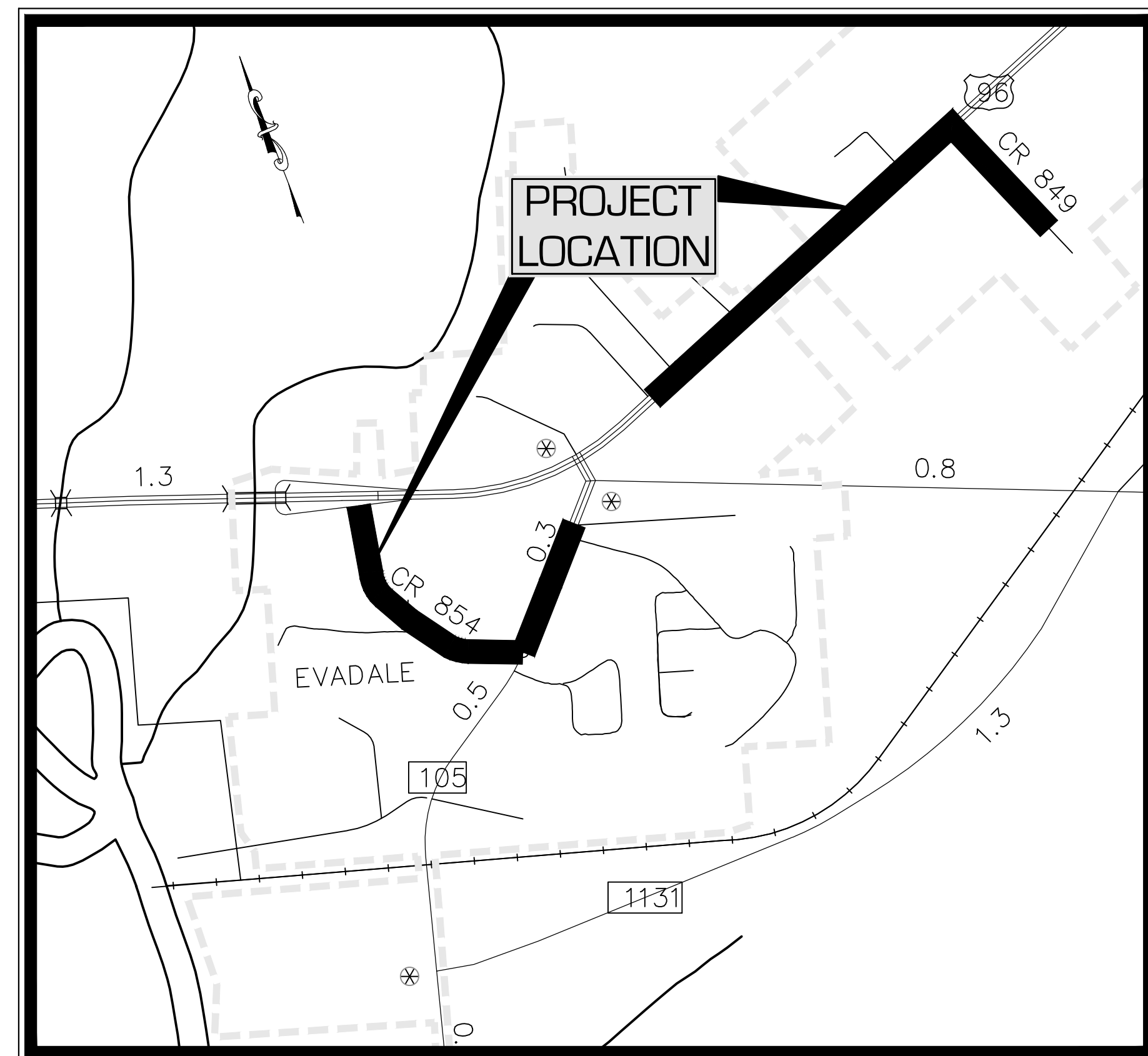


CONSTRUCTION PLANS
FOR
EVADALE WCID #1
WATER SYSTEM IMPROVEMENTS
TWDB DWSRF PROJECT No. 62873
SEPTEMBER 2023

BOARD MEMBERS

MICHAEL NASH	PRESIDENT
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KELLIE MURPHY	BOARD MEMBER

-VICINITY MAP-
N.T.S.



TROY WHITEHEAD, P.E.
REGISTERED PROFESSIONAL ENGINEER No. 102472

PREPARED BY:
SPI SCHAUMBURG & POLK, INC.
Firm Registration # F-000520
8865 College Street, Beaumont, Texas 77707
409.866.0341 P - 409.866.0337 F
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Texas Water Development Board

Approved: _____

Date: _____

SHEET DRAWING NAME

1	COVER SHEET
2	GENERAL NOTES
3	CR 849 & HWY 96 - STA.0+00 TO 10+00
4	HWY 96 - STA.10+00 TO 19+98
5	FM 105 STA.0+00 TO 3+00
6	FM 105 - STA.3+00 TO 5+50
7	FM 105-DIRECTIONAL DRILL - STA.5+50 TO 8+00
8	FM 105 - STA.8+00 TO 14+24 CR 854 - STA. 0+00 TO 4+50
9	CR 854 - STA.4+50 TO 14+50
10	CR 854 - STA. 14+50 TO 15+62 - DETAILS
11	MISCELLANEOUS DETAILS
12	MISCELLANEOUS DETAILS

TRAFFIC CONTROL SHEETS

13	TRAFFIC CONTROL SHEET TCP (2-1)-18
14	TRAFFIC CONTROL SHEET TCP (2-2)-18

DATE	SYM	BY	REVISIONS

GENERAL CONSTRUCTION NOTES

- 1. Water lines shall be constructed and tested in strict accordance with manufacturer and Owner standards unless otherwise noted and approved on these plans.
2. The Contractor shall be fully responsible for any and all damage to the existing public or private utility lines, including but not limited to water lines, wastewater collection systems and storm sewer during construction. All damages shall be repaired in accordance with the Owner, with no cost to the public.
3. Contractor shall be responsible for obtaining all applicable, County, State and Federal Permits.
4. Contractor shall be responsible for controlling traffic in immediate vicinity of construction. All work shall be performed in such a manner and sequence as to provide maximum protection to traffic and pedestrians. Control shall be consistent with type of work being performed. Contractor shall be fully responsible for maintaining safe project site 24 hours a day minimally, guidelines set forth in "Manual on Uniform Traffic Control Devices" shall be observed.
5. Contractor shall be responsible for removal and lawful disposal of all waste material generated during construction. Waste material must be removed from work site and disposed of in such manner as to not DAMAGE owner or other persons.
6. The Contractor must clean mud, dirt, or debris tracked onto existing streets by any vehicle that exits site. Condition of road and/or right-of-way upon completion of job shall be as good or better than prior to starting work.
7. All areas disturbed by construction which are not re-paved or otherwise covered shall be Hydro-Mulch Seeded.
8. Contractor shall coordinate his construction schedule with Owner prior to commencing work.
9. Contractor shall notify all utility companies in the area 48 hours prior to commencing work in any right-of-way or existing easement.
10. Contractor shall be responsible for providing required security to protect his own property, equipment and work in progress.
11. Drawings show as much information as can be reasonably obtained from an on ground observation, survey and existing construction drawings regarding topographic features, elevations and location and nature of pipelines, natural gas lines, underground cables, utilities, etc. However, accuracy or completeness of such information is not guaranteed. The contractor shall verify all elevations, dimensions and conditions in the field before commencing any work. Changes in horizontal and vertical alignment are to be approved by the engineer. It shall be the contractor's responsibility to report any conflicts or discrepancies to engineer in a timely manner.
12. All work in public right-of-way shall be performed to standards of governing authority.
13. Any existing facilities disturbed during construction, including but not limited to ditch grade and section, manholes including stack, frame and cover, driveways including pavement, culvert and curbs, shall be restored to its original condition by contractor.
14. Notify all property owners a minimum of twenty four (24) hours prior to blockage of driveways or entering of utility easements.
15. The contractor will be responsible to maintain an updated redline "DRAWINGS" set of plans on site for inspection by the authorized inspector.
16. Contractor to take necessary precautions to protect root systems of shrubs, plants and trees along the area of excavation.
17. Contractor shall comply with OSHA Regulations and State of Texas Law concerning excavation, trenching and shoring.
18. All iron and steel products and/or materials incorporated into the construction of the completed project must comply with the American Iron and Steel requirements of Section 608 of the Federal Water Pollution Control Act (33 U.S.C. §1388). This shall include, but not limited to: -Municipal castings, such as manhole ring & covers

TRAFFIC NOTES

- 1. If contractor chooses to use a traffic control plan that differs from what is shown in the plans, contractor shall submit a traffic control plan sealed by a licensed professional engineer in the State of Texas to the Engineer and Owner for review and approval.
2. Contractor shall provide and install traffic control devices in conformance with part VI of the Texas Manual on Uniform Traffic Devices (Texas MUTCD, most recent edition with revisions) during construction.
3. Lane closure permits are to be obtained when required.
4. Contractor shall cover excavations with steel plates, anchored properly, during non-work hours and open lanes for traffic flow.
5. Approved copies of "Traffic Control Plans" and Lane/Sidewalk closure Permits" shall be available for inspection at job site at all times.

SEPARATION DISTANCE NOTES

- 1. Separation distances between new water line or sanitary sewer line shall be in strict accordance with TCEQ Chapter 290.44.(e).
2. Minimum horizontal clear distance between sanitary sewer line and new water line to be nine (9) feet. Minimum vertical clear distance to be twelve (12) inches with sewer line located at lower elevation than water line. Wherever new water lines cross sanitary sewer lines with less than nine (9) feet of vertical clearance, the sewer line shall be constructed of continuous ductile iron pipe for a distance of nine (9) feet each side of the water line.
3. Where a sanitary sewer parallels a water line, the sewer shall be constructed of cast iron, ductile iron or pvc meeting ASTM Specifications with a pressure rating for both the pipe and joints of 150 PSI, the vertical separation shall be a minimum of two (2) feet between outside diameters. The horizontal separation shall be a minimum of four (4) feet between outside diameters. the sewer shall be located below the water line.
4. Where a water line crosses another utility other than a sanitary sewer, a minimum of 12 inches of vertical clearance must be maintained between the outside wall of the water line and the outside wall of the utility.
5. When a water line is placed parallel to another utility line, other than a sanitary sewer, the water line shall have a minimum of four (4) feet horizontal clearance from outside wall of the water line to outside wall of the existing utility.

STORM WATER POLLUTION PREVENTION NOTES

- 1. Contractor to ensure that the storm water pollution prevention (SWPPP) meets applicable Texas Pollutant Discharge Elimination System (TPDES) Standards and regulations.
2. Contractor to submit a notice of intent (NOI) to Texas Commission on Environmental Quality (TCEQ) and obtain all necessary permits.
3. Contractor to submit a Storm Water Pollution Prevention Management Plan (SWPPMP) to TCEQ and obtain all necessary permits.
4. Contractor to ensure that existing drainage systems remain in an operable condition during construction. Contractor shall not allow clogging of the existing drainage systems from silt or debris. Ensure positive drainage.
5. A copy of the signed (NOI) must be posted at the construction in a location where it is readily available for viewing by the General Public, Local, State and Federal Authorities prior to commencing construction activities, and must maintain the (NOI) in that location until completion of construction activities.
6. Contractor to ensure all control measures are properly installed and maintained according to the SWPPP and applicable specifications.
7. Contractor shall minimize to the extent practicable, off-site vehicle tracking of sediments and the generation of dust.
8. All protective measures identified in the SWPPP must be maintained in effective operating condition. If, through inspections or other means, the permittee determines that BMP'S are not operating effectively, then the permittee shall perform maintenance as necessary to maintain the continued effectiveness of storm water controls, and prior to the next rain event if feasible. If maintenance prior to the next anticipated storm event is impracticable, the reason shall be documented in the SWPPP and maintenance must be scheduled and accomplished as soon as possible, erosion and sediment controls that have been intentionally disabled, run-over, removed, or otherwise rendered ineffective must be replaced or corrected immediately upon discovery.
9. If periodic inspections or other information indicates a control has been used incorrectly, is performing inadequately, or is damaged then the operator must replace or modify the control as soon as practical after making the discovery.
10. Sediment must be removed from sediment traps and/or sedimentation ponds no later than the time that design capacity has been reduced by 50% for perimeter controls such as silt fence, berms, etc. The trapped sediment must be removed before it reaches 50% of the above-ground height.
11. If sediment escapes the site, accumulations must be removed at a frequency that minimizes off-site impacts, and prior to the next rain event, if feasible, if the permittee does not own or operate the off-site conveyance, then the permittee must work with the owner or operator of the property to remove the sediment.

ARCHAEOLOGICAL DISCOVERIES and CULTURAL RESOURCES

- 1. If Archaeological sites or historic structures which may qualify for designation as a State Archaeological Landmark according to the criteria in 13 TAC 41.6-41.10, or that may be eligible for listing on the National Register of Historic places in accordance with 36 CFR Part 800, are discovered after construction operations are begun, the contractor shall immediately cease operations in that particular area and notify the Owner, the TWDB, and the Texas Historical Commission, 1511 N. Colorado St., P.O. Box 12276, Capital Station, Austin Texas 78711-2276. The contractor shall take reasonable steps to protect and preserve the discoveries until they have been inspected by the Owner's Representative and the TWDB. The owner will promptly coordinate with the State Historical Preservation Officer and any other appropriate agencies to obtain any necessary approvals or permits to enable the work to continue. The contractor shall not resume work in the area of the discovery until authorized to do so by the owner.

ENDANGERED SPECIES

- 1. If a threatened or endangered species is encountered during construction, the contractor shall immediately cease work in the area of the encounter and notify the owner. Who will immediately implement actions in accordance with the ESA and applicable state statutes. These actions shall include reporting the encounter to the TWDB, The U.S. Fish and Wildlife Service, and the Texas Parks and Wildlife Department, obtaining any necessary approvals or permits to enable the work to continue, or implement other mitigation ACTIONS. The contractor shall not resume construction in the area of the encounter until authorized to do so by the owner.

GENERAL NOTES FOR WATER:

- 1. All water line pipe shall be ASTM D2241 Class 160 (SDR-21) PVC pipe.
2. Existing utilities are shown for informational purposes only. Contractor to verify location and depth of all utilities prior to any construction. Contractor shall be responsible for coordination for utility locates/onecall. The contractor is fully responsible for any damages caused by his failure to exactly locate and preserve these underground facilities.
3. Contractor to expose and verify location and depth of all existing water lines at proposed connection locations prior to any construction.
4. Proposed water line to be installed with solid strand 12 gauge tracer wire and a minimum of three feet of cover over top of pipe (in TXDOT R.O.W. proposed water line will have a minimum of four feet of cover).
5. All water line fittings to be ductile iron with mechanical joints (megalug type).
6. Contractor shall be responsible for restoration of all property corners and/or r.o.w. markers disturbed during construction.
7. Contractor shall avoid disturbing all fences. Any fences disturbed shall be restored to original quality by the contractor at the contractor's expense.
8. Thrust blocking to be used at all fittings per details.
9. Backhoe/Trackhoe or other machinery, shall not be used to join spigot joints. Bell shall be properly braced to protect previous completed joints from moving. A pry bar may be used if a wood plank is placed between the bar and pipe to protect the pipe. Joints that have been inserted beyond the reference mark shall be replaced and discarded.
10. Where fittings, casings and connections are indicated, contractor to install by open-cut methods. Contractor to restore surface to existing or better conditions.
11. Contractor may install bore and pull pits as needed to install proposed water line. Pull pits may be located at or near fitting, casing or connection locations to minimize disturbance to surface. Contractor to bore concrete driveways.
12. Contractor to install fittings and/or deflect pipe as necessary to negotiate offset during construction. Pipe deflection shall be in strict accordance with manufacturers recommendation.

LEGEND

- --SS --- --SS --- EXISTING SANITARY SEWER
--- --W --- --W --- EXISTING WATER
--- W --- W --- PROPOSED WATER

Table with 10 columns and 1 row for REVISIONS, with sub-columns for DATE, SYM, and BY.

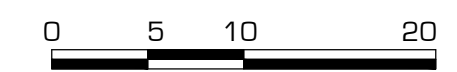
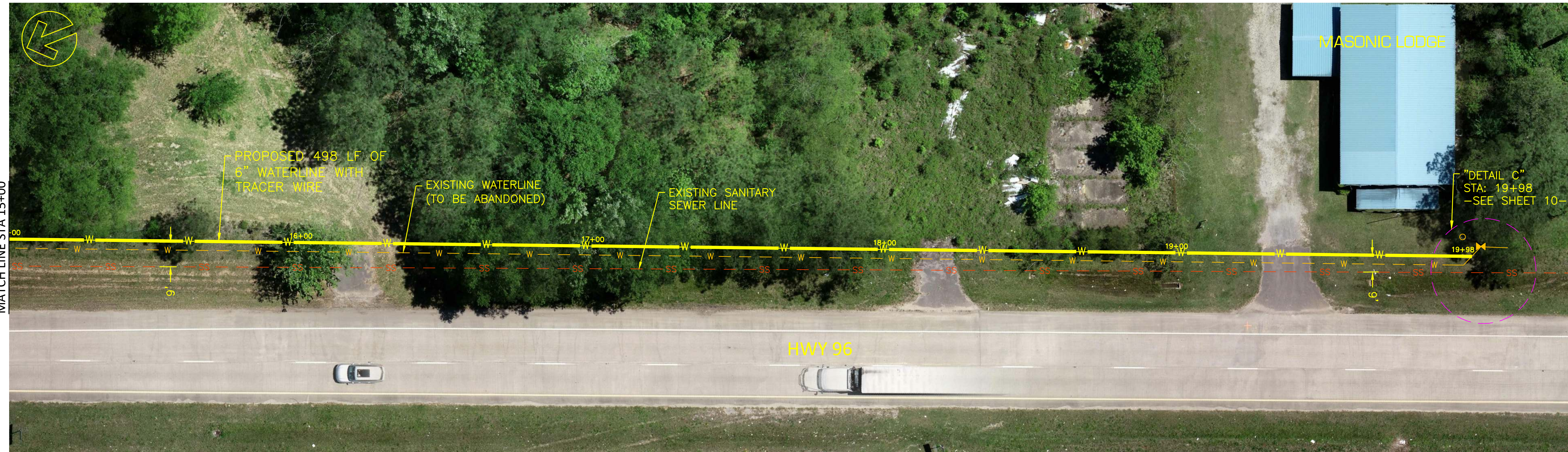
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CONSTRUCTION PLANS FOR EVADALE WCID#1 WATER SYSTEM IMPROVEMENTS TWDB DWSRF PROJECT No.62873 GENERAL NOTES AND LEGEND

STATE OF TEXAS
TROY WHITEHEAD
102472
LICENSED PROFESSIONAL ENGINEER
Troy Whitehead
9-28-23

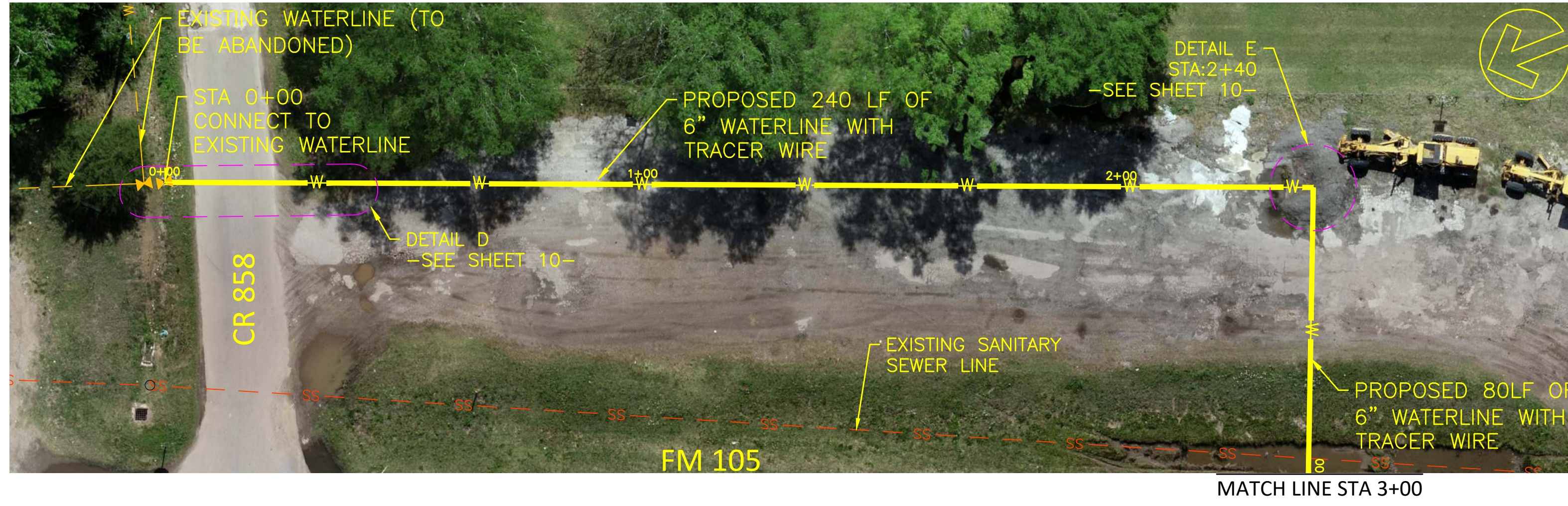
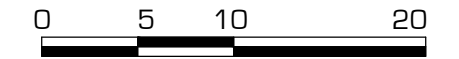
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DRAWN BY: JV
DESIGNED BY: PJ
CHECKED BY: TW
SHEET: 2 OF 14

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NOTE:
Contractor to field locate existing waterlines prior to construction.

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<p>CONSTRUCTION PLANS FOR EVADALE WCID#1 WATER SYSTEM IMPROVEMENTS TWD DB DWSRF PROJECT No.62873</p>		<p>HWY 96 STA. 10+00 TO 19+98</p>
<p><i>Troy Whitehead</i> 9-28-23</p>		<p>DATE: SEPTEMBER 2023</p> <p>SCALE: AS SHOWN</p> <p>DRAWN BY: JV</p> <p>DESIGNED BY: PJ</p> <p>CHECKED BY: TW</p> <p>SHEET: 4 OF 14</p>

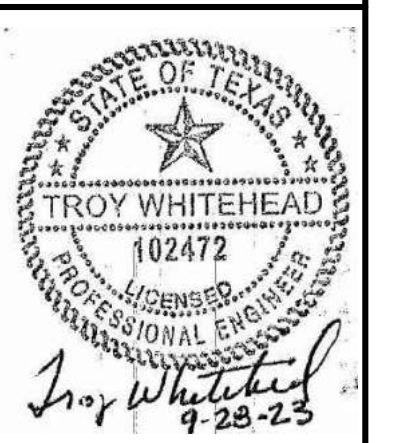


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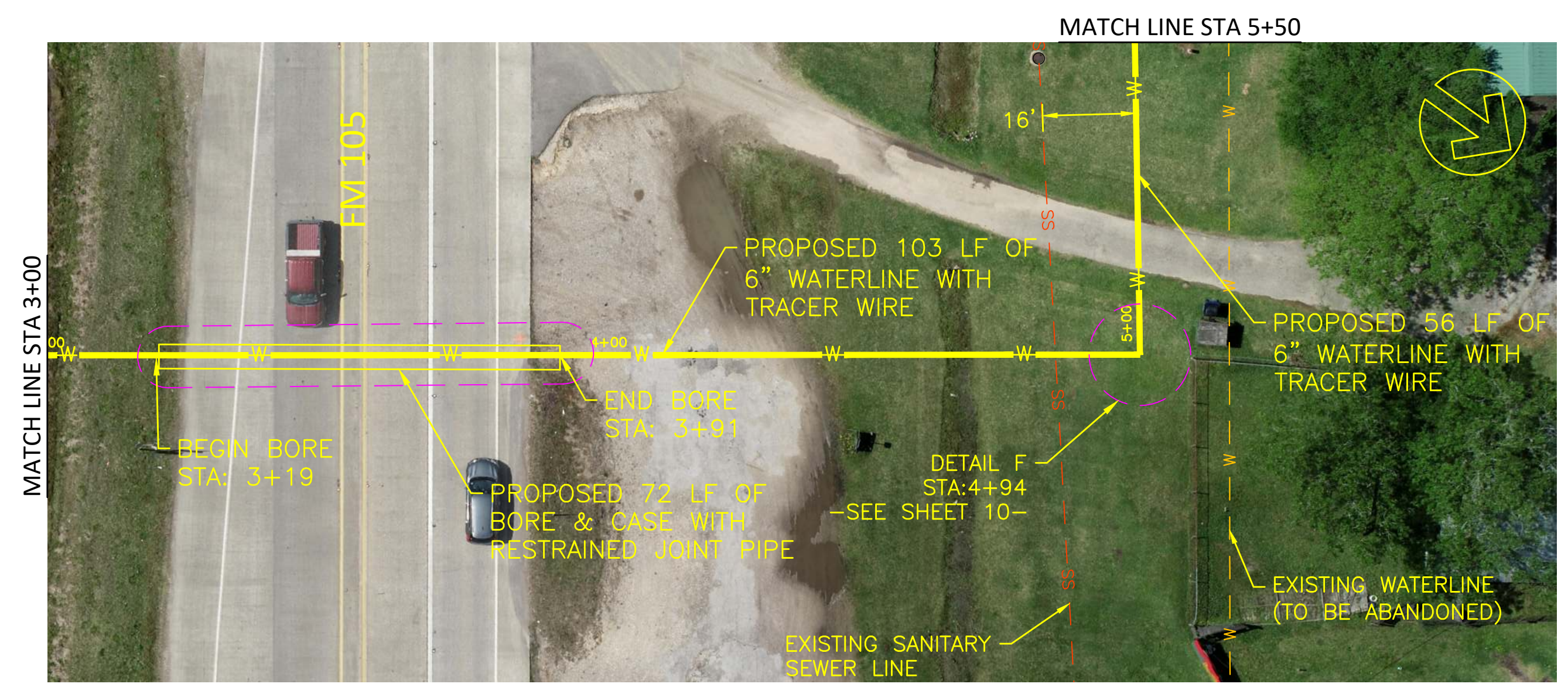
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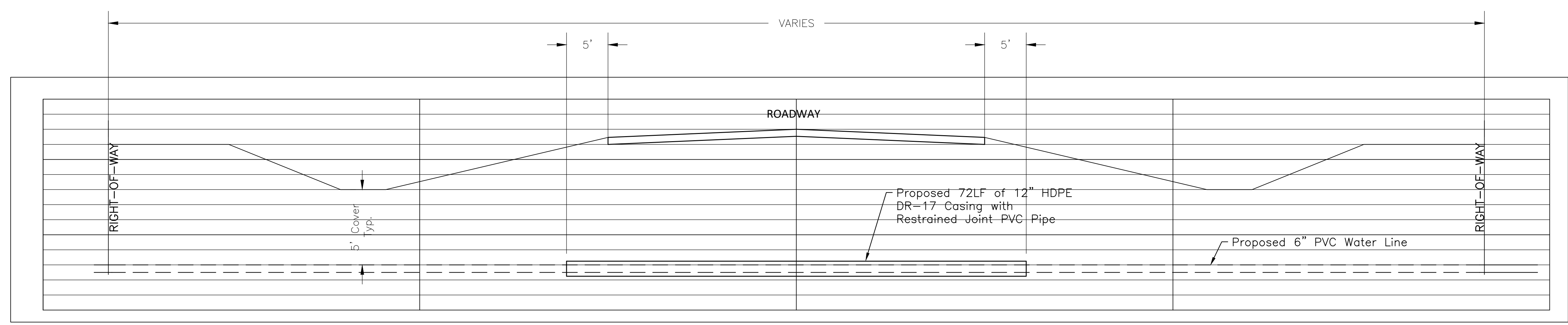
CONSTRUCTION PLANS
 FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
TWDB DWSRF PROJECT No.62873
 FM 105
 STA. 0+00 TO 3+00



DATE: SEPTEMBER 2023
 SCALE: AS SHOWN
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 DESIGNED BY: PJ
 CHECKED BY: TW
 SHEET: 5 OF 14



NOTE:
Contractor to field locate existing waterlines prior to construction.

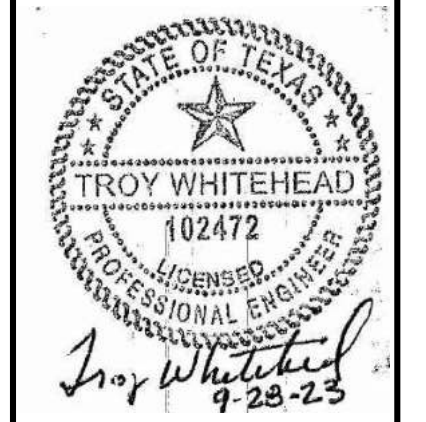


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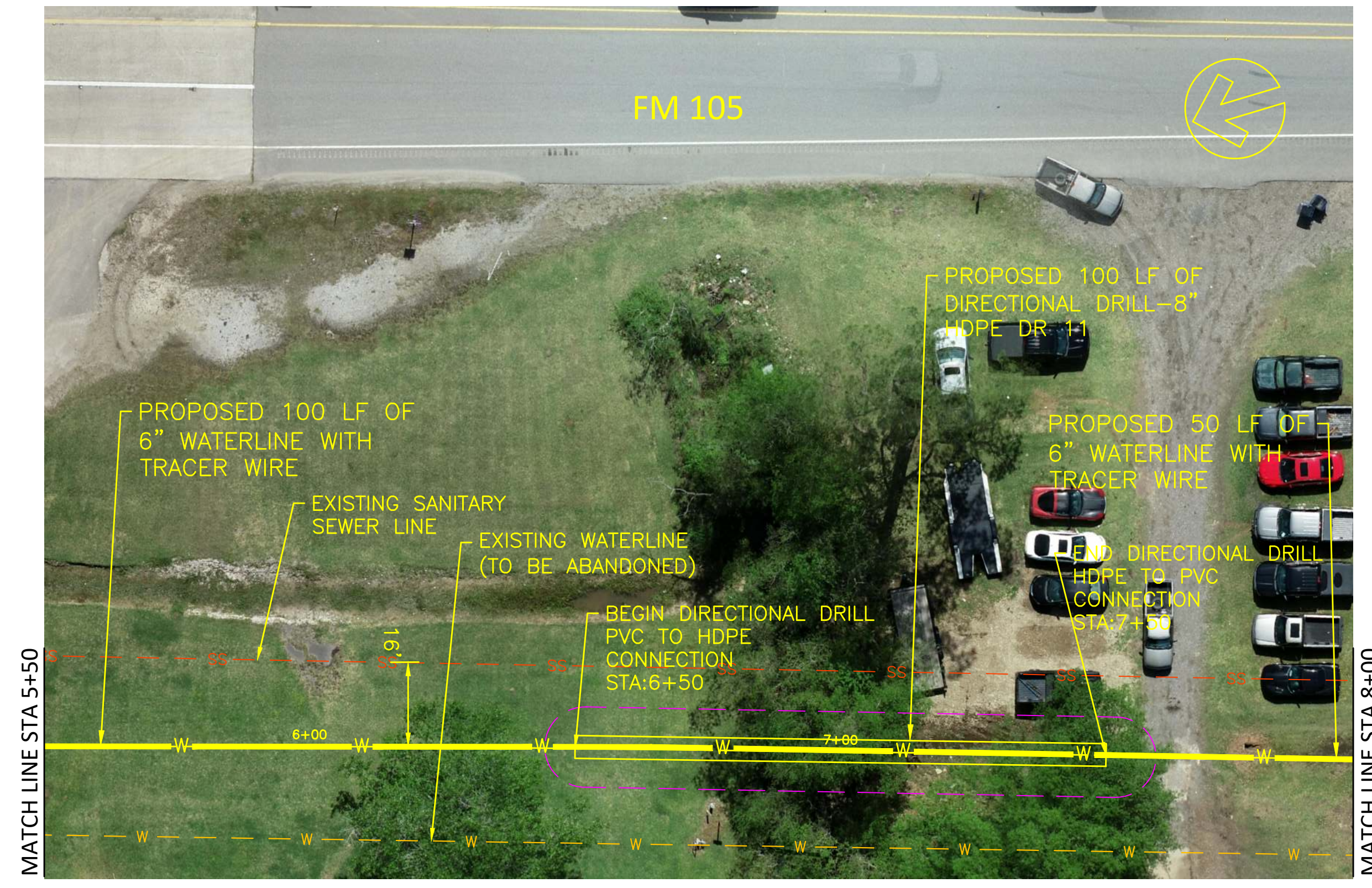
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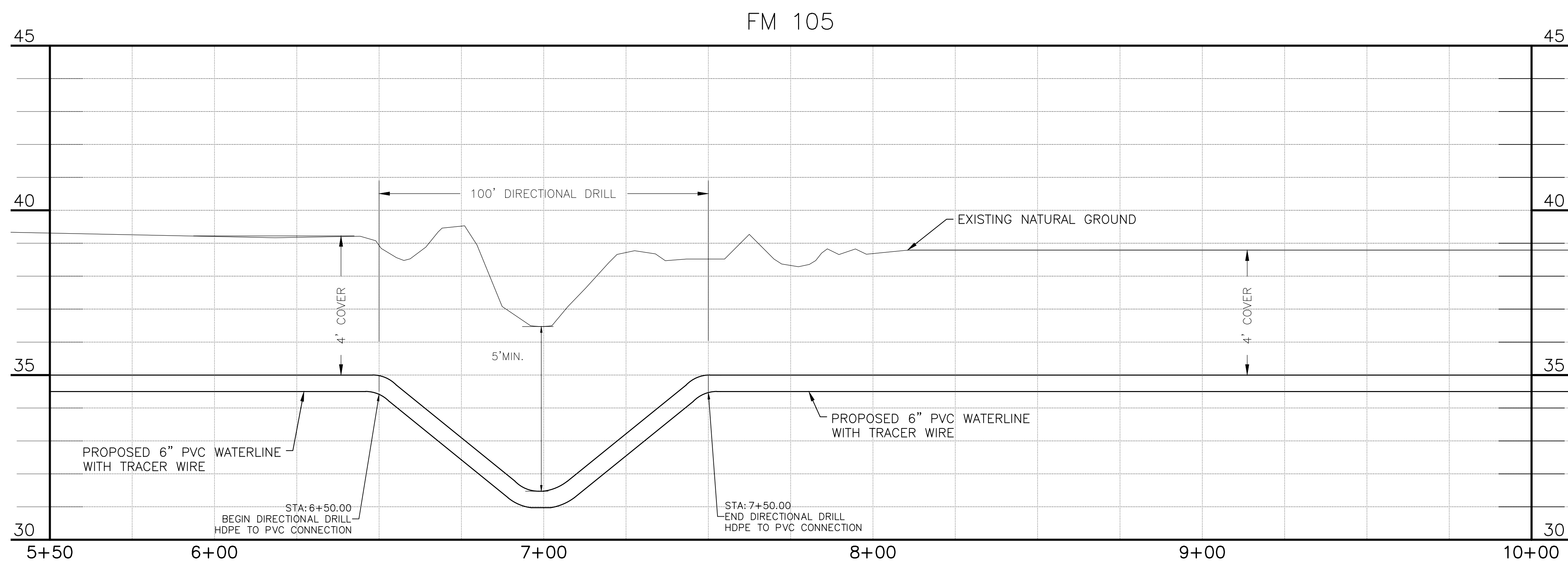
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EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
 TWDB DWSRF PROJECT No.62873
 FM 105
 STA. 3+00 TO 5+50



DATE: SEPTEMBER 2023
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NOTE:
Contractor to field locate existing waterlines prior to construction.



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NO.	DATE	BY	SYM	REVISIONS

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CONSTRUCTION PLANS
 FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
 TWD DB DWSRF PROJECT No. 62873
 FM 105 - DIRECTIONAL DRILL
 STA. 5+50 TO 8+00

STATE OF TEXAS
 TROY WHITEHEAD
 102472
 LICENSED PROFESSIONAL ENGINEER
Troy Whitehead
 9-28-23

DATE: SEPTEMBER 2023
 SCALE: AS SHOWN
 DRAWN BY: JV
 DESIGNED BY: PJ
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 SHEET:



NOTE:
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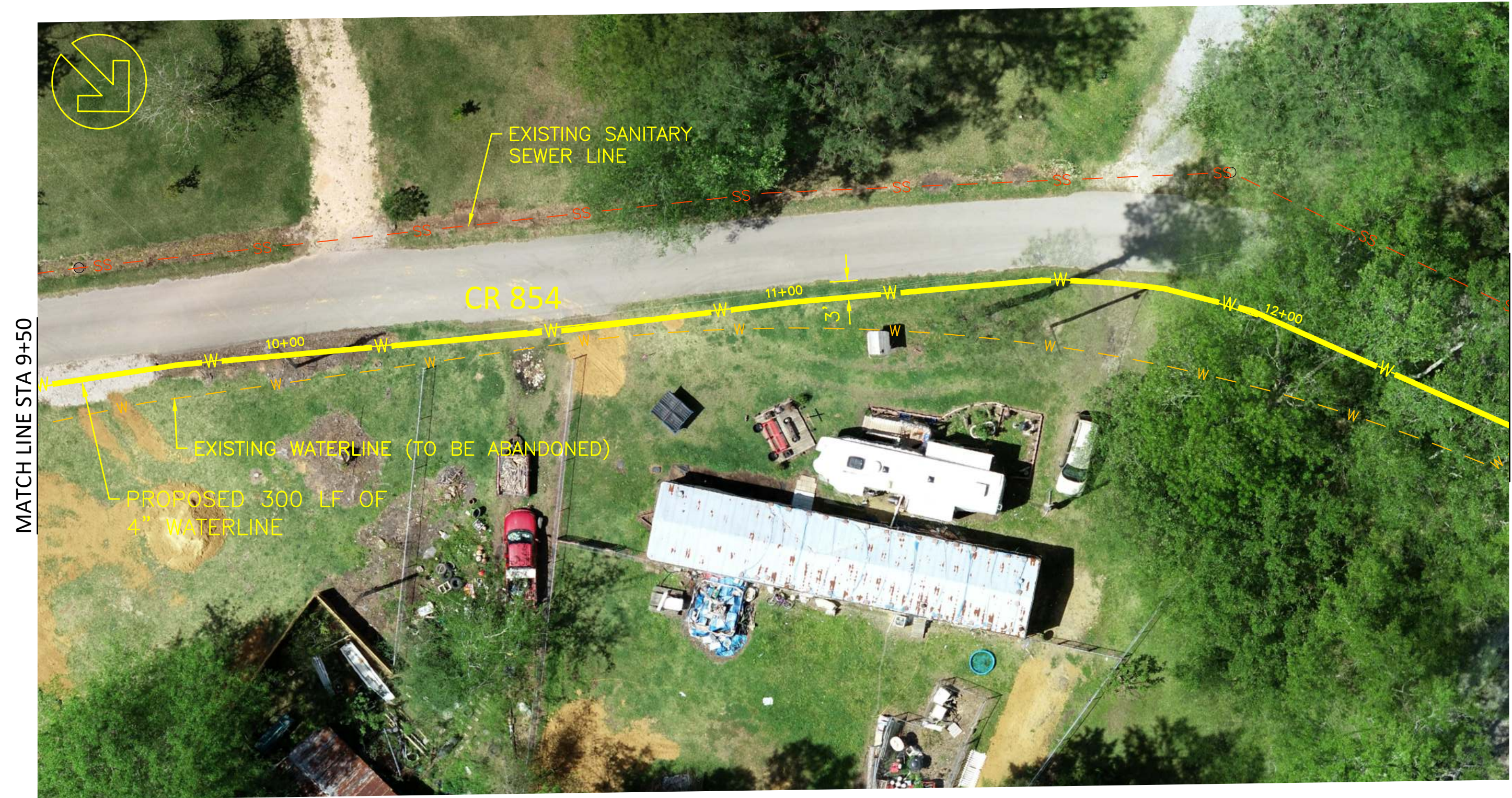
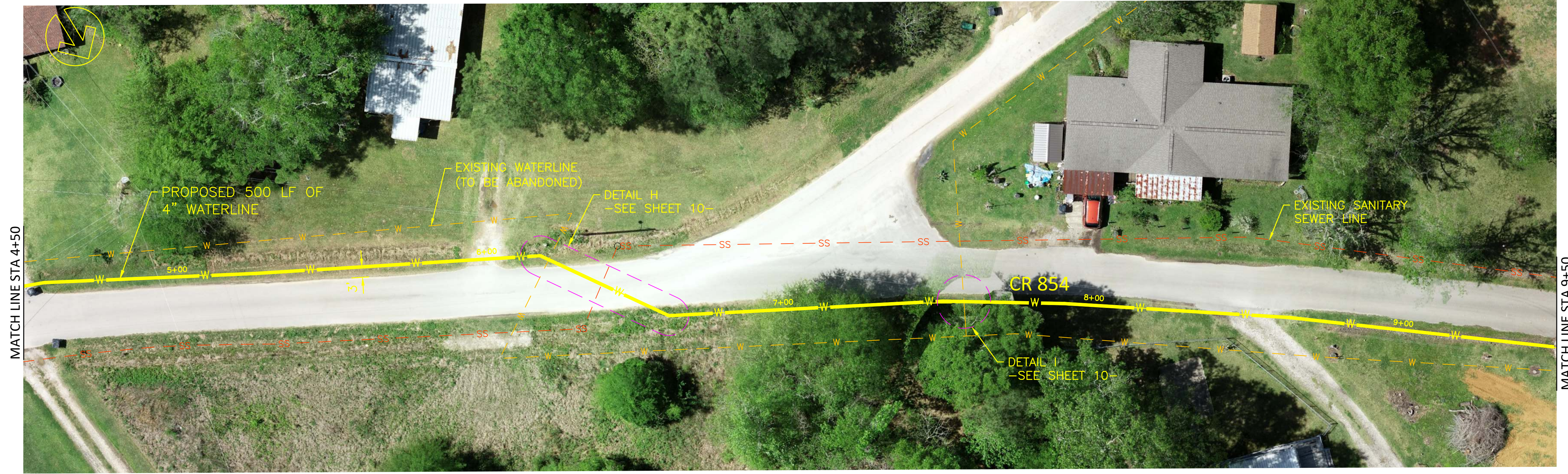
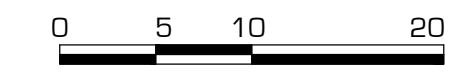
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CONSTRUCTION PLANS
 FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
 TWDB DWSRF PROJECT No.62873
 FM 105 - STA. 8+00 TO 14+24
 CR 854 - STA. 0+00 TO 4+50

STATE OF TEXAS
 TROY WHITEHEAD
 102472
 LICENSED PROFESSIONAL ENGINEER
Troy Whitehead
 9-28-23

DATE: SEPTEMBER 2023
 SCALE: AS SHOWN
 DRAWN BY: JV
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NOTE:
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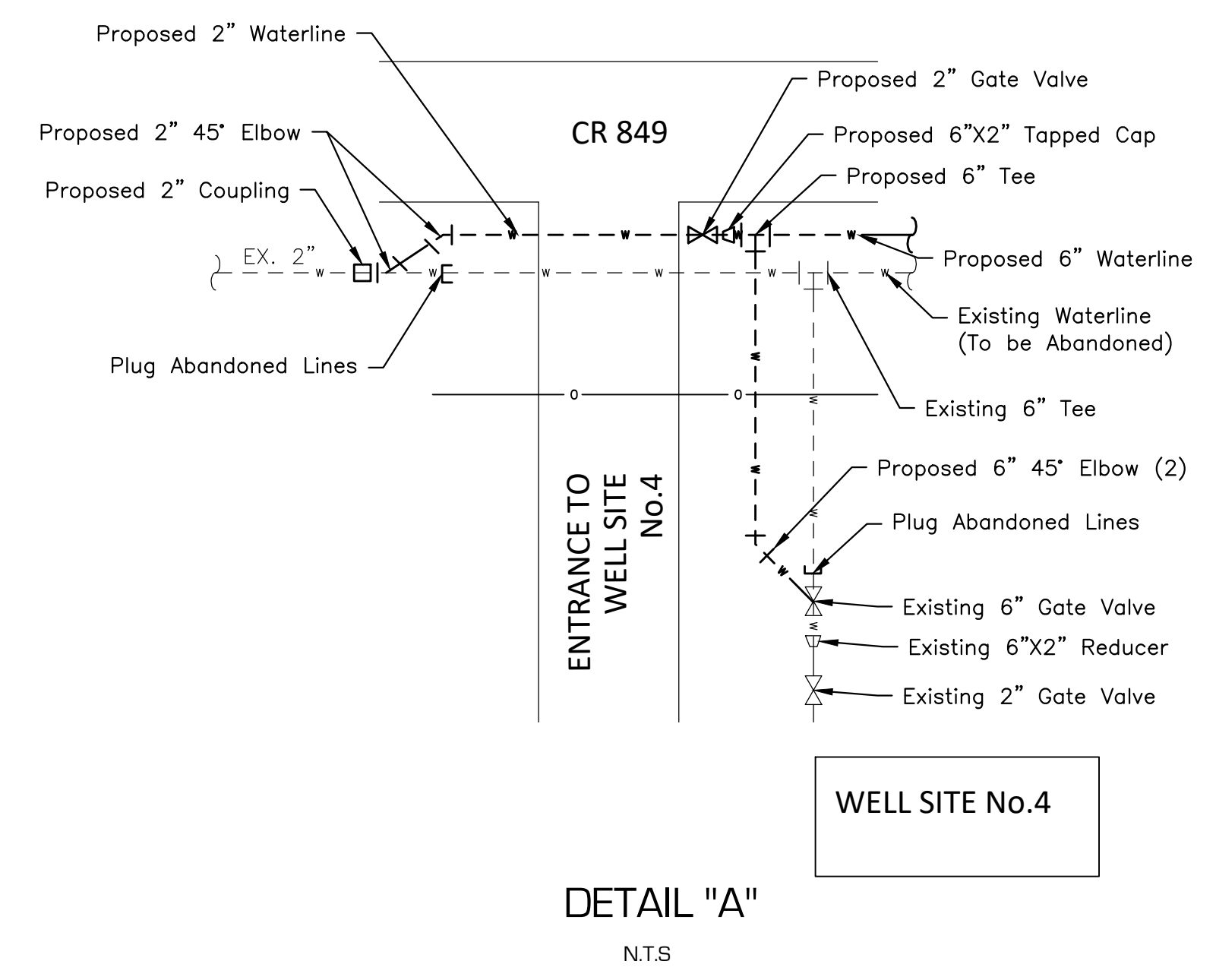
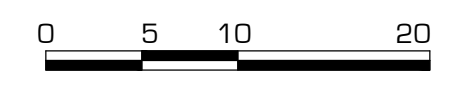
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CONSTRUCTION PLANS
 FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
 TWD DWSRF PROJECT No. 62873
 CR 854
 STA. 4+50 TO 14+50

STATE OF TEXAS
 TROY WHITEHEAD
 102472
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Troy Whitehead
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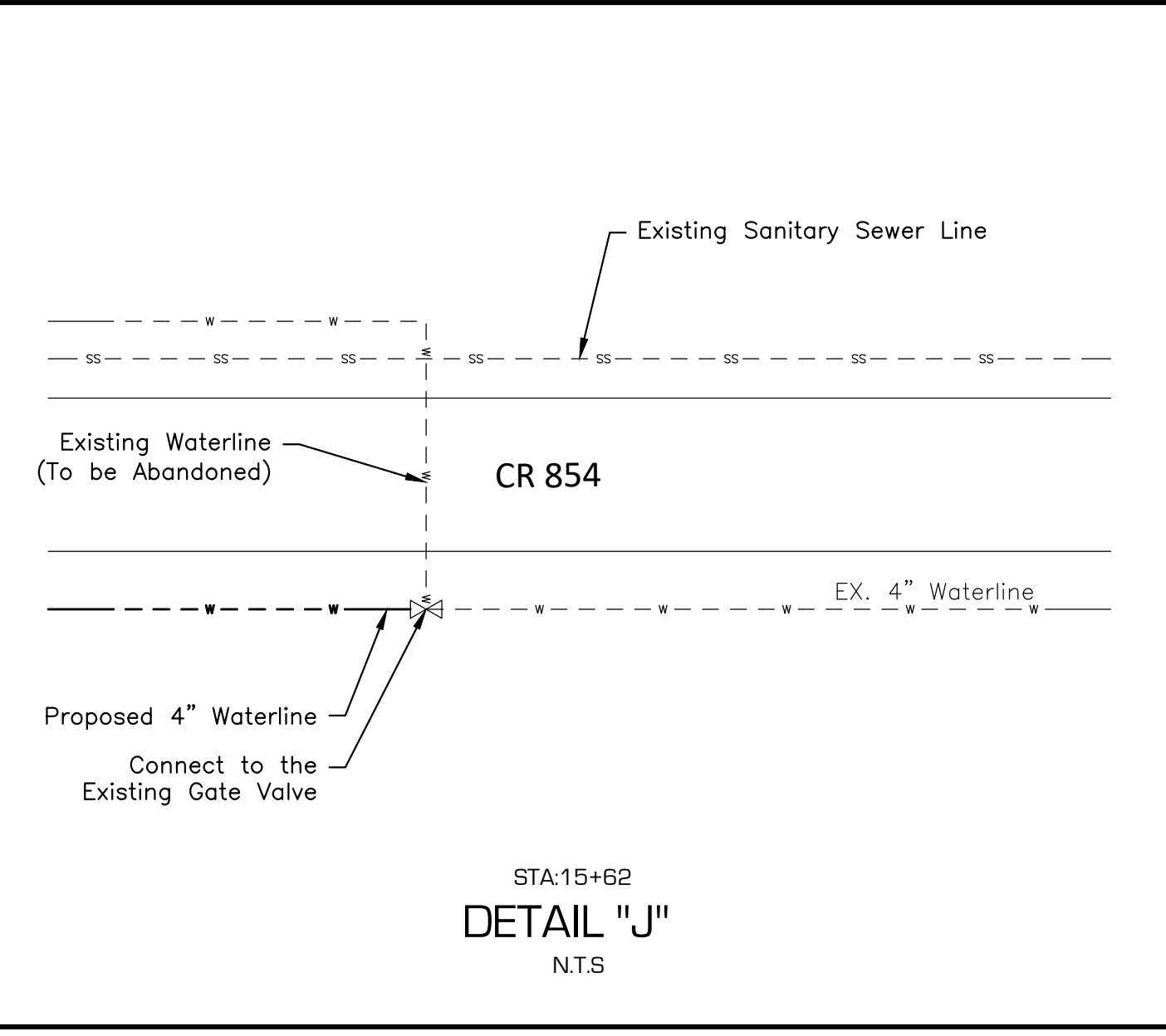
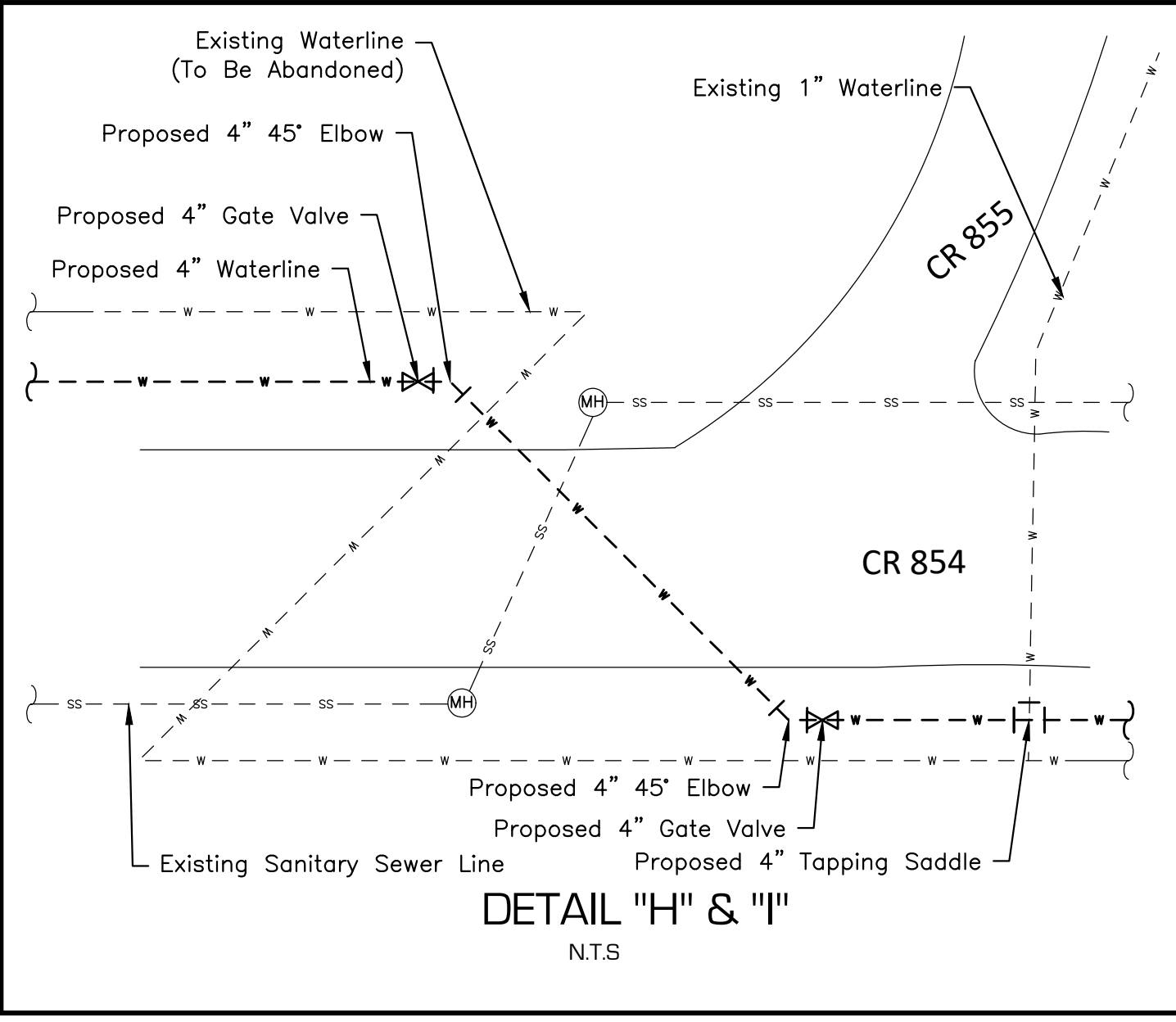
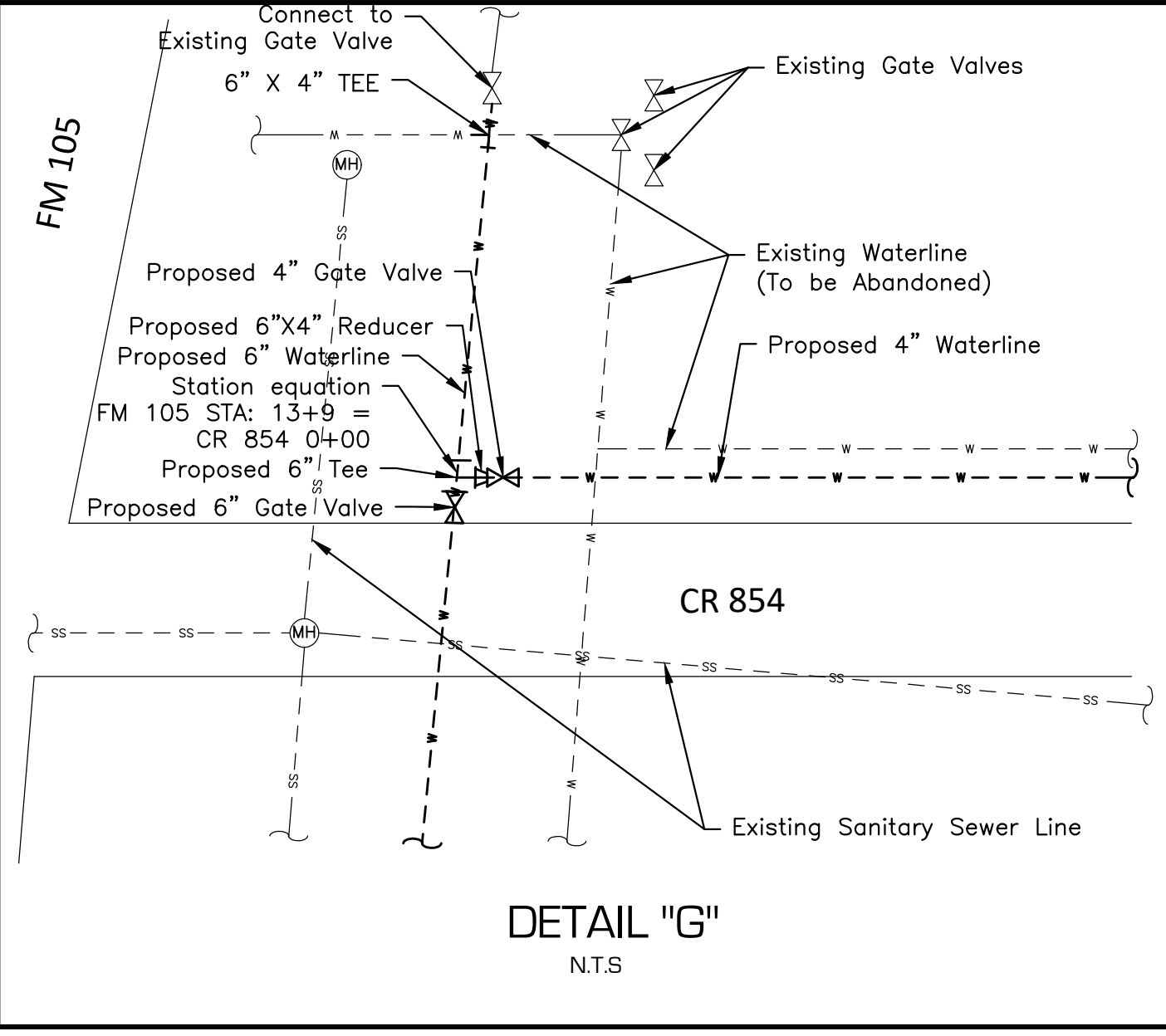
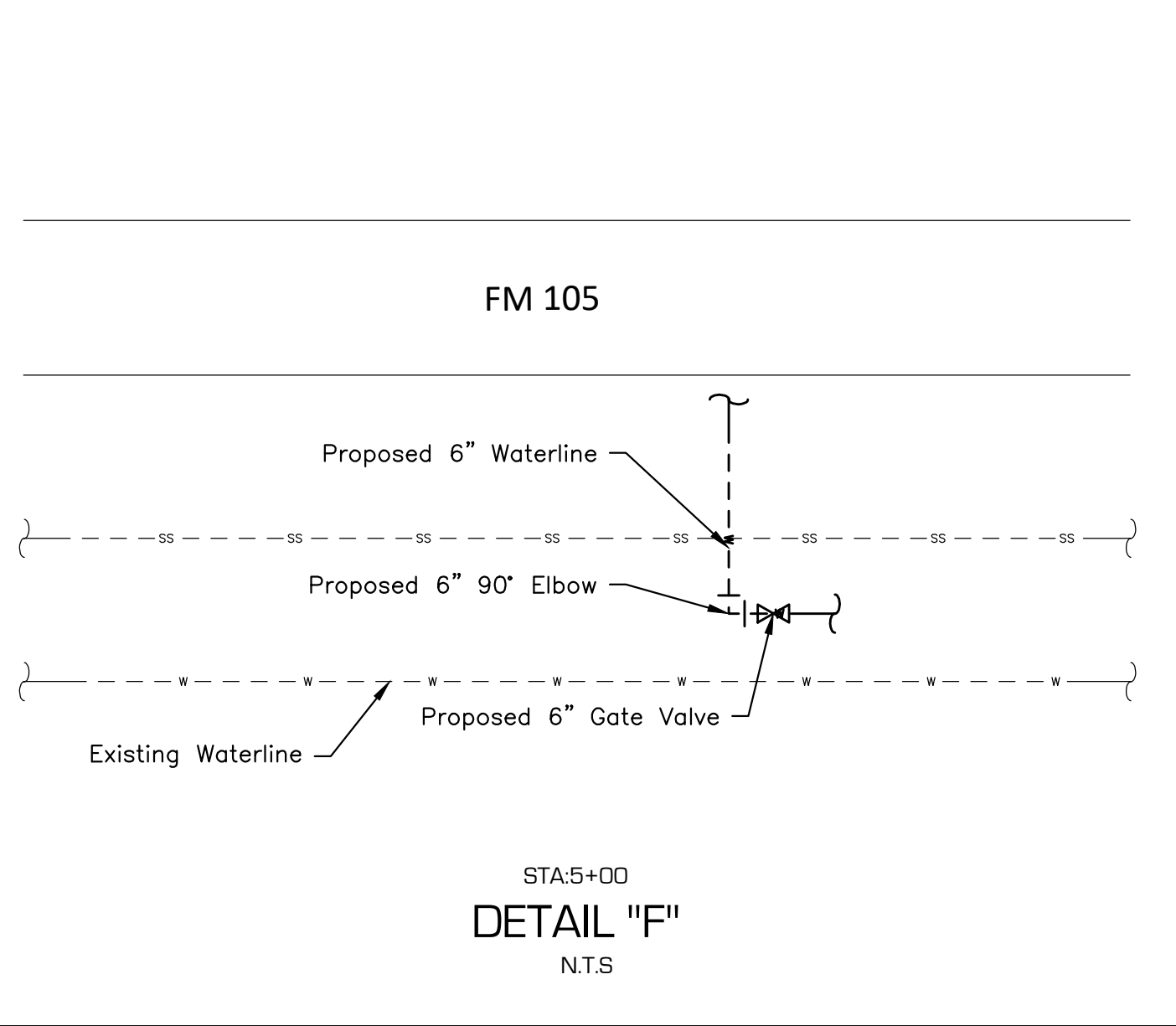
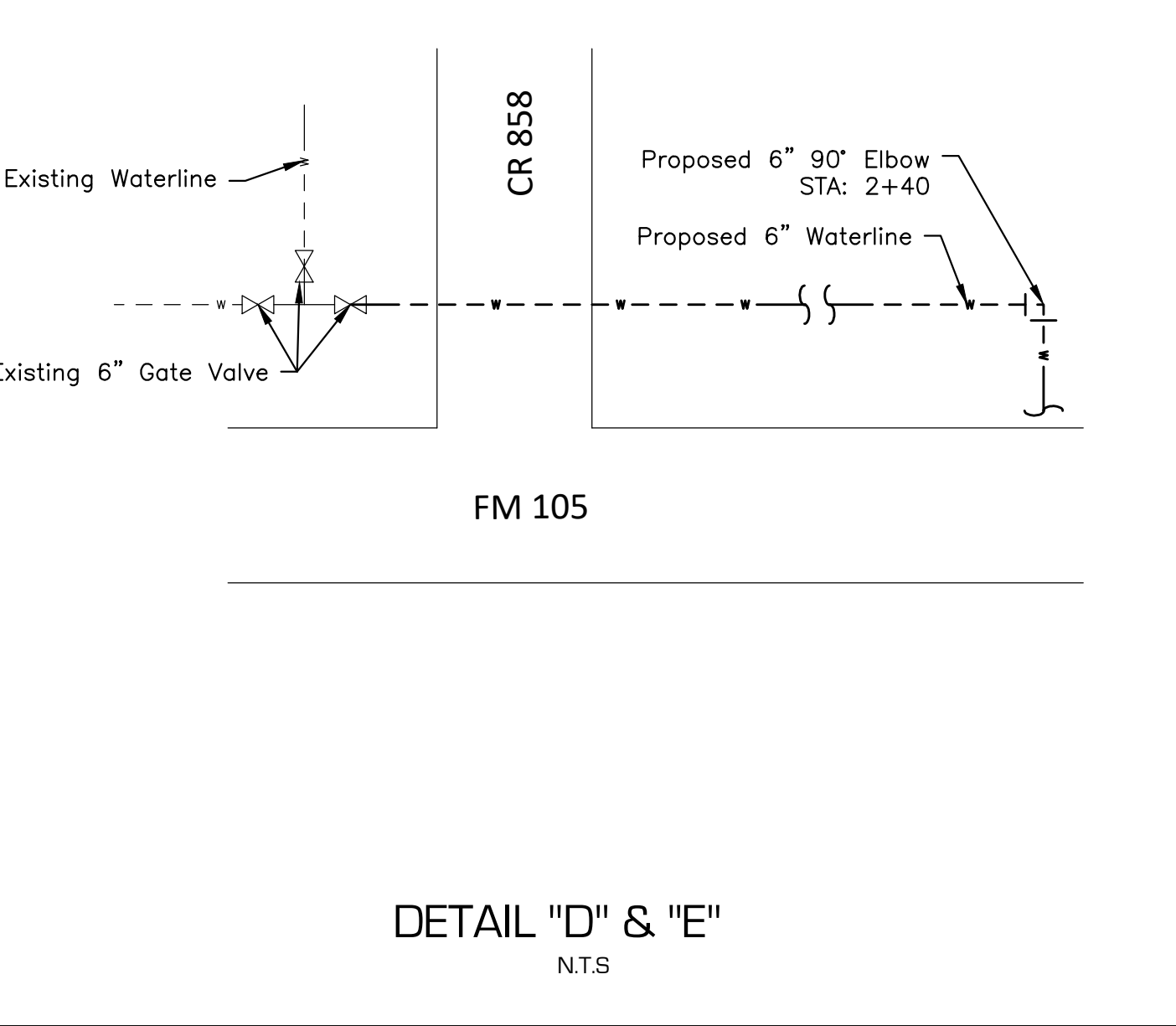
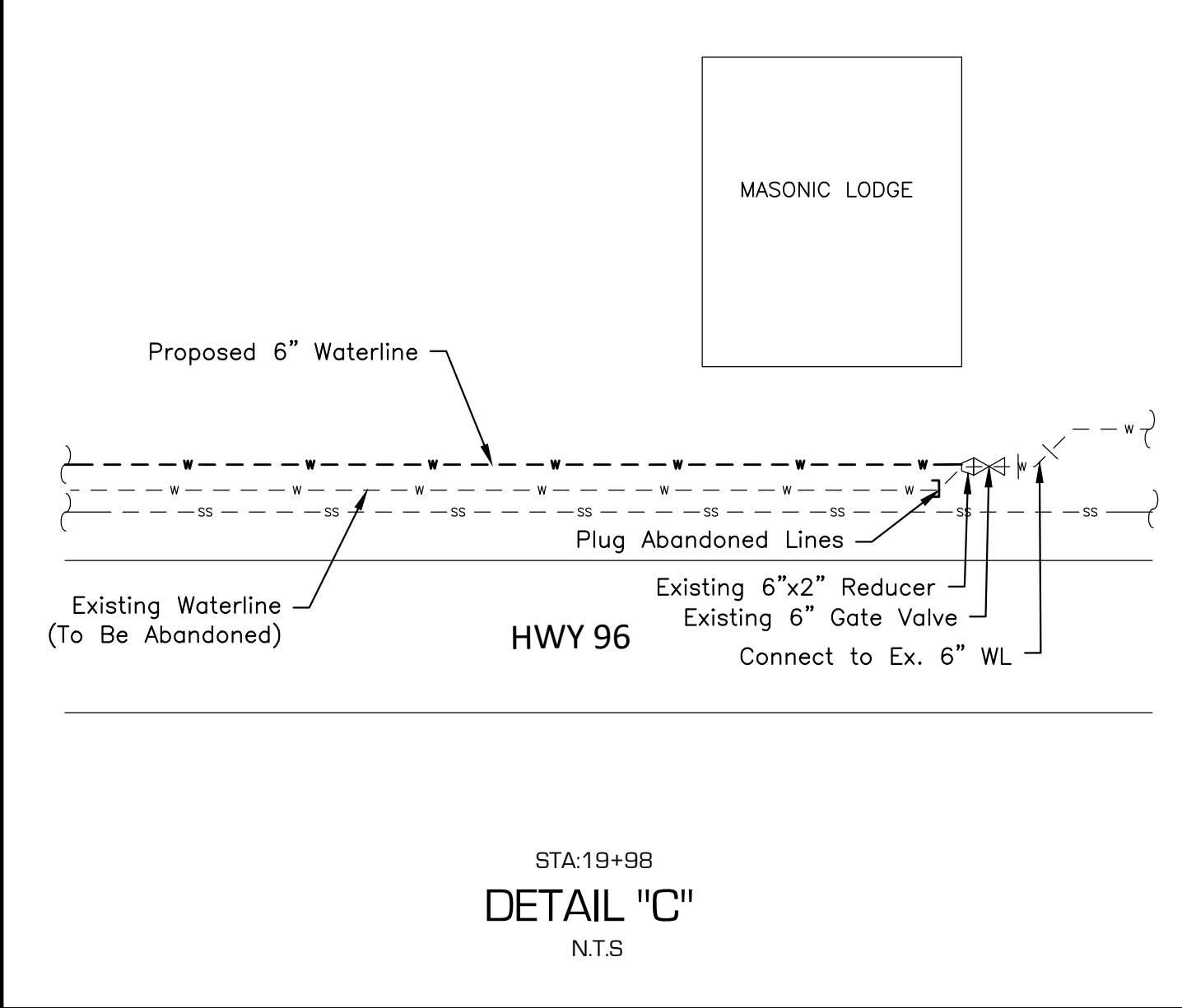
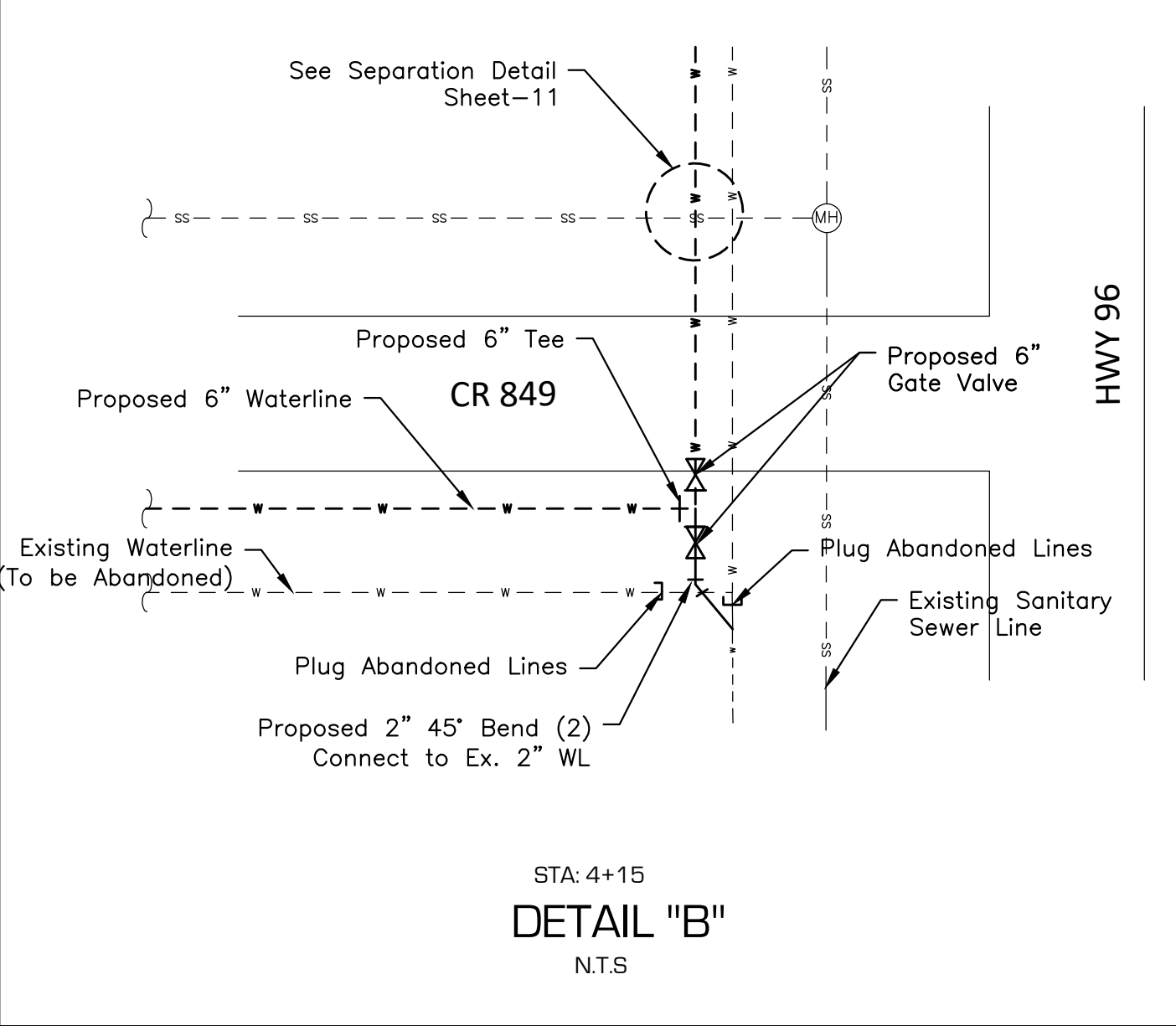
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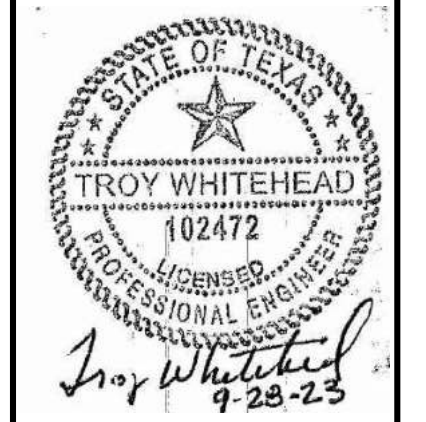
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CONSTRUCTION PLANS
 FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
 TWD DB DWSRF PROJECT No. 62873
 CR 854
 STA. 14+50 TO 15+62



DATE: SEPTEMBER 2023

SCALE: AS SHOWN

DRAWN BY: JV

DESIGNED BY: PJ

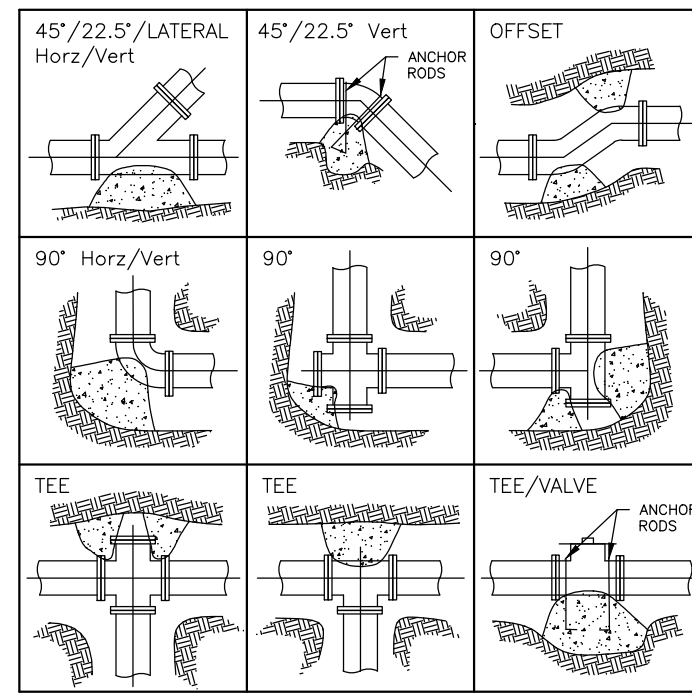
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NOTE:
 Contractor to field locate existing waterlines prior to construction.

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PIPE THRUST BLOCKING

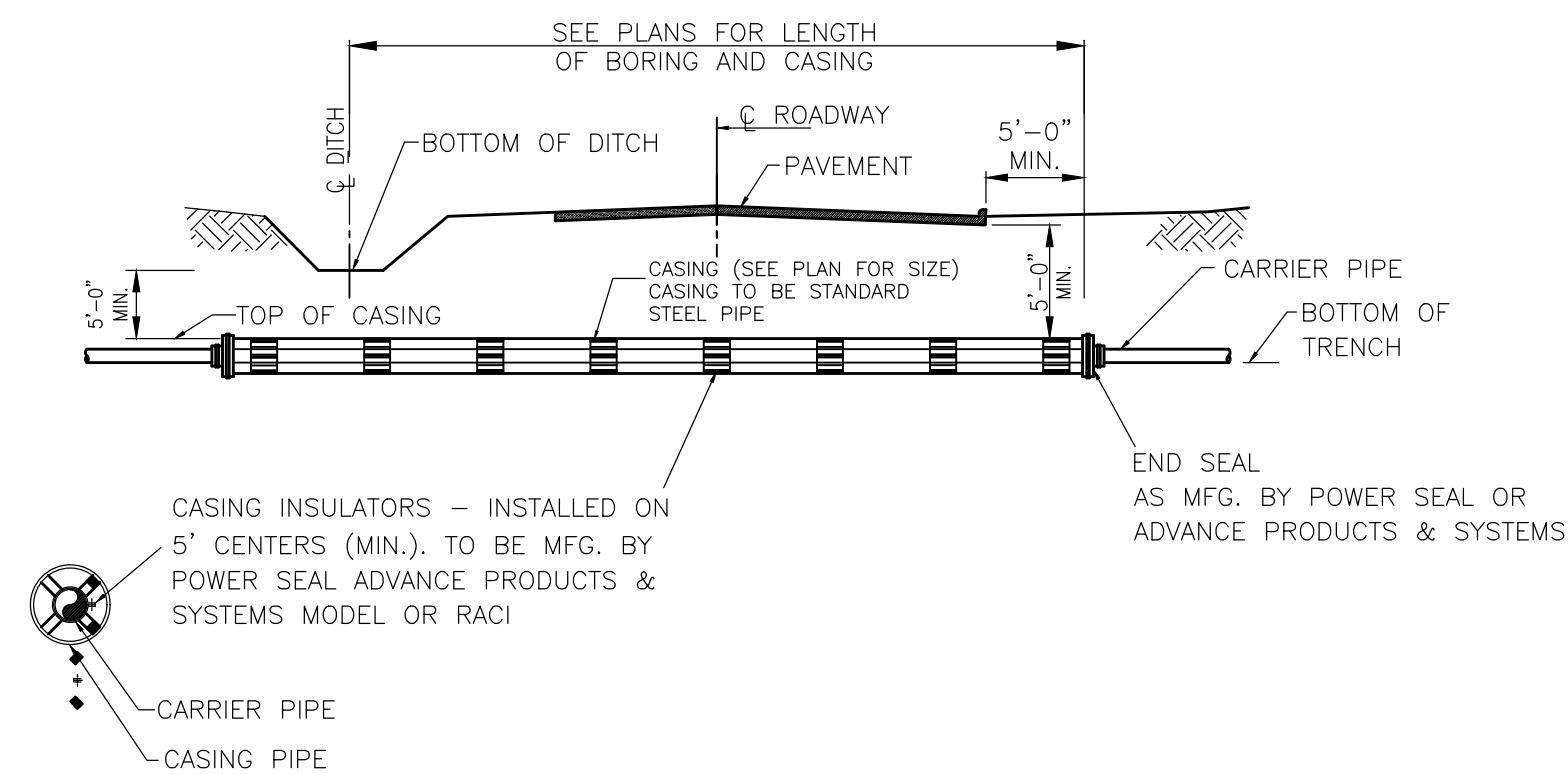
- AREAS SHOWN ARE BASED ON SOIL BEARING VALUE OF 1500 PSI AND AN OPERATING PRESSURE OF 150 PSI FOR TYPE C-900, CLASS 150 PIPE
- CONTRACTOR SHALL VERIFY SOIL BEARING VALUE FOR EXISTING SOIL ENCOUNTERED AT THRUST BLOCK LOCATIONS
- THRUST BLOCKS SHALL BE CAST AGAINST UNDISTURBED SOIL USING F_c 2500 PSI CONCRETE
- DO NOT ENCASE JOINTS WITH CONCRETE
- ANCHOR RODS WHERE USED SHALL BE COATED WITH COAL TAR EPOXY. MOP ALL MECHANICAL JOINT BOLTS/NUTS WITH CEMENT SLURRY OR COAL TAR EPOXY
- UNDERGROUND PIPE CLAMPS IN CONJUNCTION WITH CONCRETE THRUST BLOCKING SHALL BE USED WHERE ENCRoACHMENT OF ADJACENT PIPING PREVENTS NORMAL THRUST BLOCKING METHODS. SUCH CLAMPS SHALL BE AT NO EXTRA COST TO OWNER.

GENERAL NOTES

- JOINT DEFLECTION OF PIPELINES SHALL NOT EXCEED MANUFACTURERS RECOMMENDATION.
- MINIMUM 36" COVER OVER ALL PROPOSED PIPELINES.
- 2" THROUGH 8" POLYETHYLENE WATER LINE TO BE SDR-11 CLASS 160 I.P.S.
- 1" AND SMALLER POLYETHYLENE WATER SERVICE LINE TO BE SDR-9, CLASS 200

4" FITTINGS AND SMALLER	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	824	1617	2347	2987	2112
AREA- SQ FT	0.5	1.1	1.6	2.0	1.4
SIZE- FTxFT	0.7	1.0	1.3	1.4	1.2
6" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	1704	3342	4852	6176	4367
AREA- SQ FT	1.1	2.2	3.2	4.1	2.9
SIZE- FTxFT	1.2	1.5	1.8	2.0	1.7
8" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	2931	5748	8345	10622	7511
AREA- SQ FT	2.0	3.8	5.6	7.1	5.0
SIZE- FTxFT	1.4	2.0	2.4	2.7	2.2
10" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	4144	8128	11800	15019	10620
AREA- SQ FT	2.8	5.4	7.9	10.0	7.1
SIZE- FTxFT	1.7	2.3	2.4	3.2	2.7
12" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	5948	11667	16938	21558	15244
AREA- SQ FT	4.0	7.8	11.3	14.4	10.2
SIZE- FTxFT	2.0	2.8	3.4	3.8	3.2
14" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	8077	15844	23002	29276	20701
AREA- SQ FT	5.4	10.6	15.3	19.5	13.8
SIZE- FTxFT	2.3	3.3	3.9	4.4	3.7
16" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	10557	20708	30064	38264	27057
AREA- SQ FT	7.1	13.9	20.0	25.5	17.9
SIZE- FTxFT	2.7	3.6	4.8	5.1	4.3
20" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	17090	33523	48668	61942	43800
AREA- SQ FT	14.2	27.9	40.6	51.6	36.5
SIZE- FTxFT	3.8	5.3	6.4	7.2	6.0
24" FITTINGS	22.5'	45'	90'	67.5'	T-DEAD END OR VALVE
THRUST- lbs	26477	51037	9566	12175	67858
AREA- SQ FT	17.7	34.6	64.0	81.3	45.2
SIZE- FTxFT	4.2	5.9	8.0	9.0	6.7

PIPE THRUST BLOCKING



CASING TO BE 1" THICK UNLESS OTHERWISE NOTED

CARRIER PIPE	CASING PIPE
4"	10"
6"	12"
8"	16"
10"	18"
12"	20"
16"	24"
18"	30"
20"	30"
24"	36"

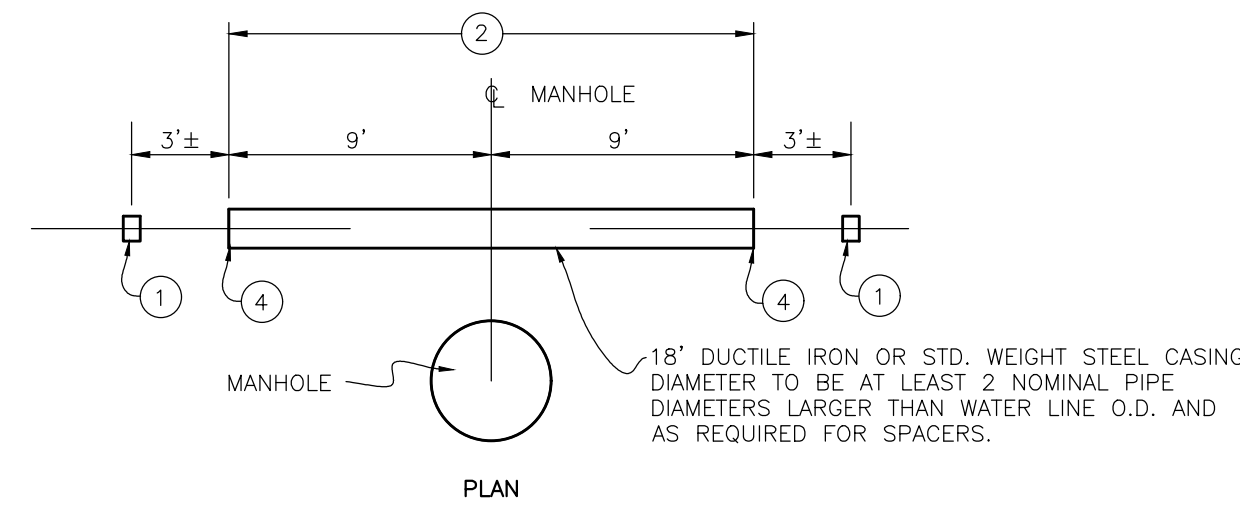
VERIFY CASING PIPE SIZE WITH CASING INSULATORS MFG.

CITY STREETS:
CASING REQUIRED BY WET BORE OR DRY BORE METHODS AS SPECIFIED BY ENGINEER. OTHER METHODS SHALL BE APPROVED BY ENGINEER.

STATE HIGHWAYS:
CASING REQUIRED BY DRY BORE METHOD ONLY.

NOTE:
CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS AND SPECIFICATIONS TxDOT OR OTHER ROADWAY OWNERS.

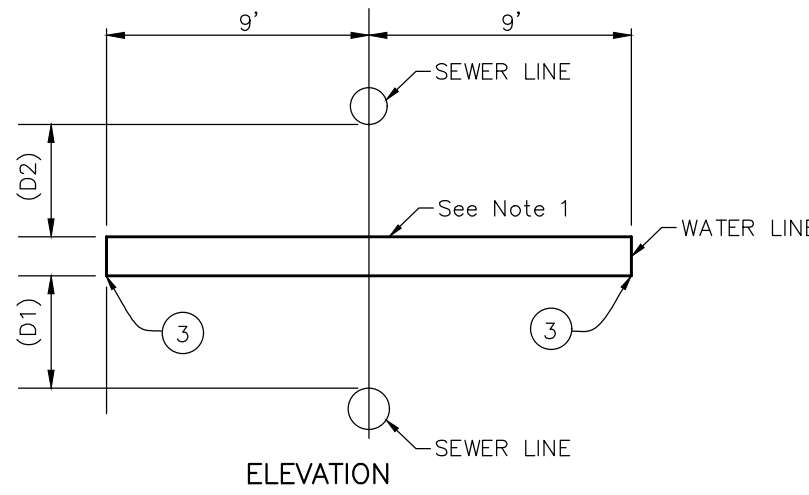
ROAD BORE AND CASING DETAIL



- NOTES:**
- WHERE WATER LINE IS EXISTING USE M.J. x PE DUAL-PURPOSE CUTTING IN SLEEVE.
 - NEW WATER LINE TO BE AWWA C-900 OR C-905.
 - SUPPORT WATER LINE IN CASING WITH POLYETHYLENE SPACERS AND INSULATORS AT INTERVALS NOT EXCEEDING 5 FEET.
 - USE MANUFACTURED END SEAL CONSTRUCTED OF 1/8" SYNTHETIC RUBBER AND SECURED WITH STAINLESS STEEL BAND.

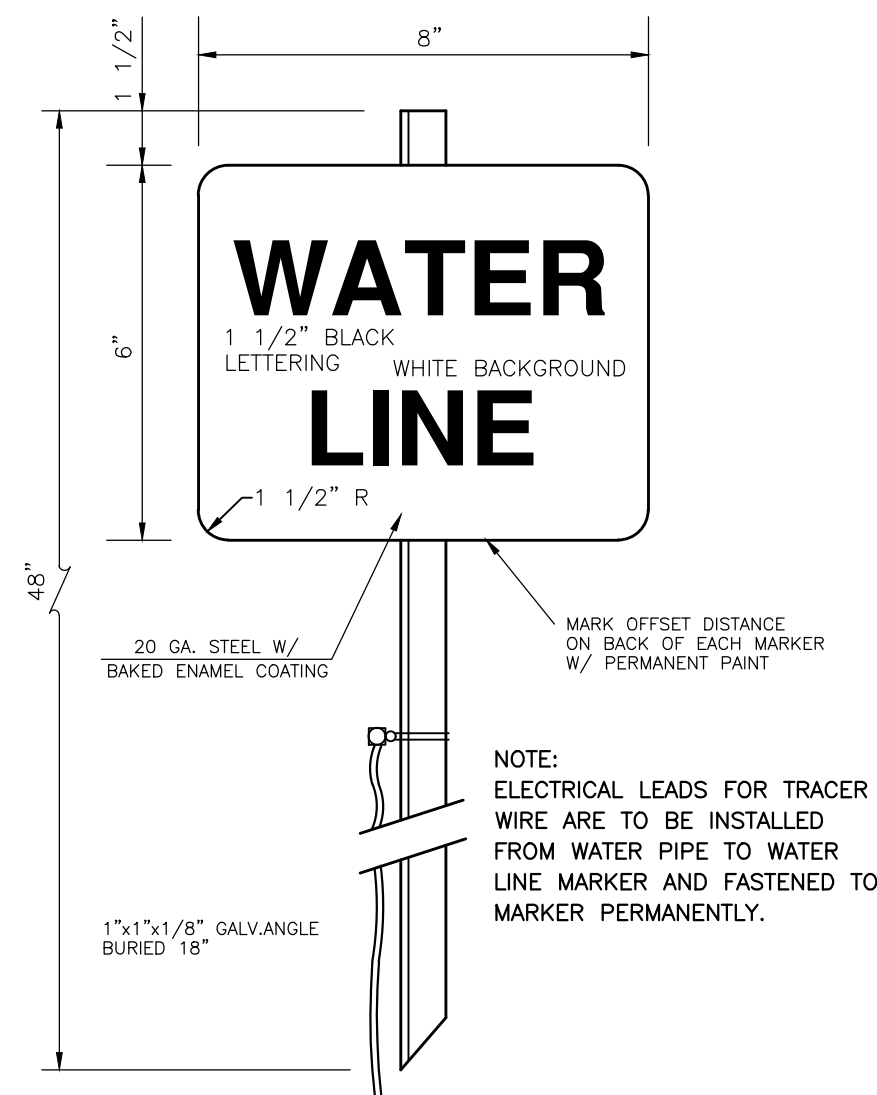
(USE WHEN SEPERATION IS LESS THAN 9 FEET)

WATER LINE ENCASMENT AT MANHOLE



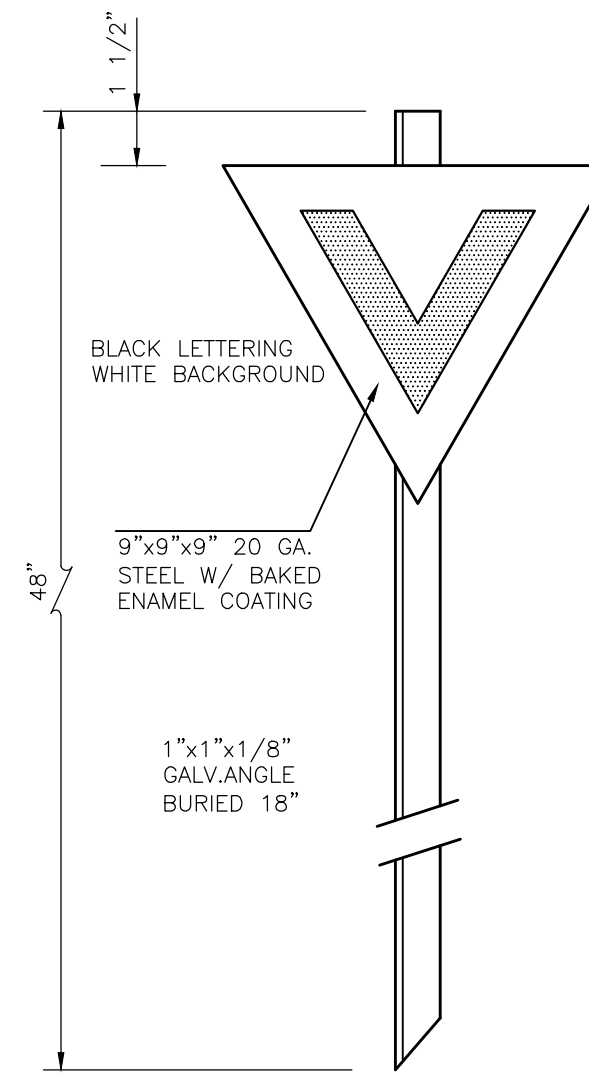
- NOTES:**
- CENTER ONE JOINT OF PIPE UNDER OR ABOVE SEWER LINE.
 - FOR SEPARATION DISTANCE (D1)=6" MIN. ABOVE PRESSURIZED SEWER AND 24" MIN. ABOVE NON-PRESSURIZED SEWER, (D2)=12" BELOW.
 - BACKFILL FROM BOTTOM OF WATER LINE TO 1/4 SEWER PIPE DIAMETER BELOW AND EITHER SIDE OF SEWER PIPE WITH 2.5 BAGS PER CUBIC YARD CEMENT/SAND BACKFILL.
 - WATER LINE TO BE CASED, CASING DIAMETER TO BE 2 NOMINAL SIZES LARGER THAN CARRIER PIPE.
 - FOR SEPARATION REQUIREMENTS REFER TO 30 TAC CHAPTER 290.44(e) OF THE TCEQ REGULATIONS.

WATER AND SANITARY SEWER CROSSING



NOTES:
LINE MARKERS SHALL BE LOCATED ALONG COUNTY ROADS STATE HIGHWAYS AND EVERY BLOCK (400 FT. MAX. SPACE) FOR PARALLEL LINES. MARKERS SHALL BE LOCATED AT R.O.W. UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

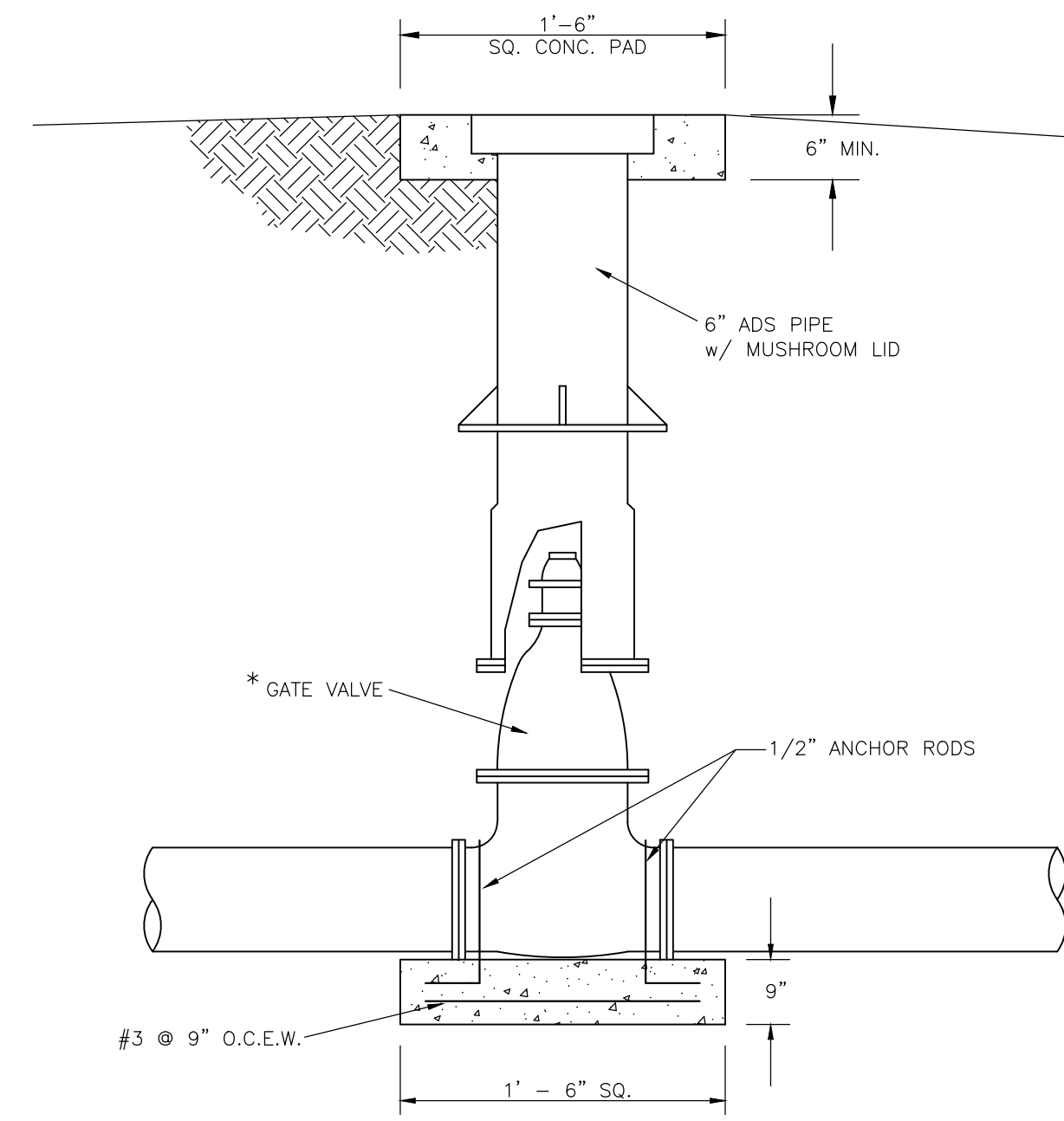
WATER LINE MARKER



NOTES:
VALVE MARKERS SHALL BE LOCATED ALONG LINE ROUTES AT ALL WATER VALVES BEING PLACED DURING THE PROJECT. MARKERS SHALL BE LOCATED AT R.O.W. UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

WATER VALVE MARKER

NOTE:
*RESILIENT SEAT FOR ALL SIZES WHERE AVAILABLE;
DOUBLE DISC FOR OTHER SIZES



NOTE:
CONCRETE NOT TO ENCASE ANY PART OF VALVE

TYPICAL VALVE ANCHOR

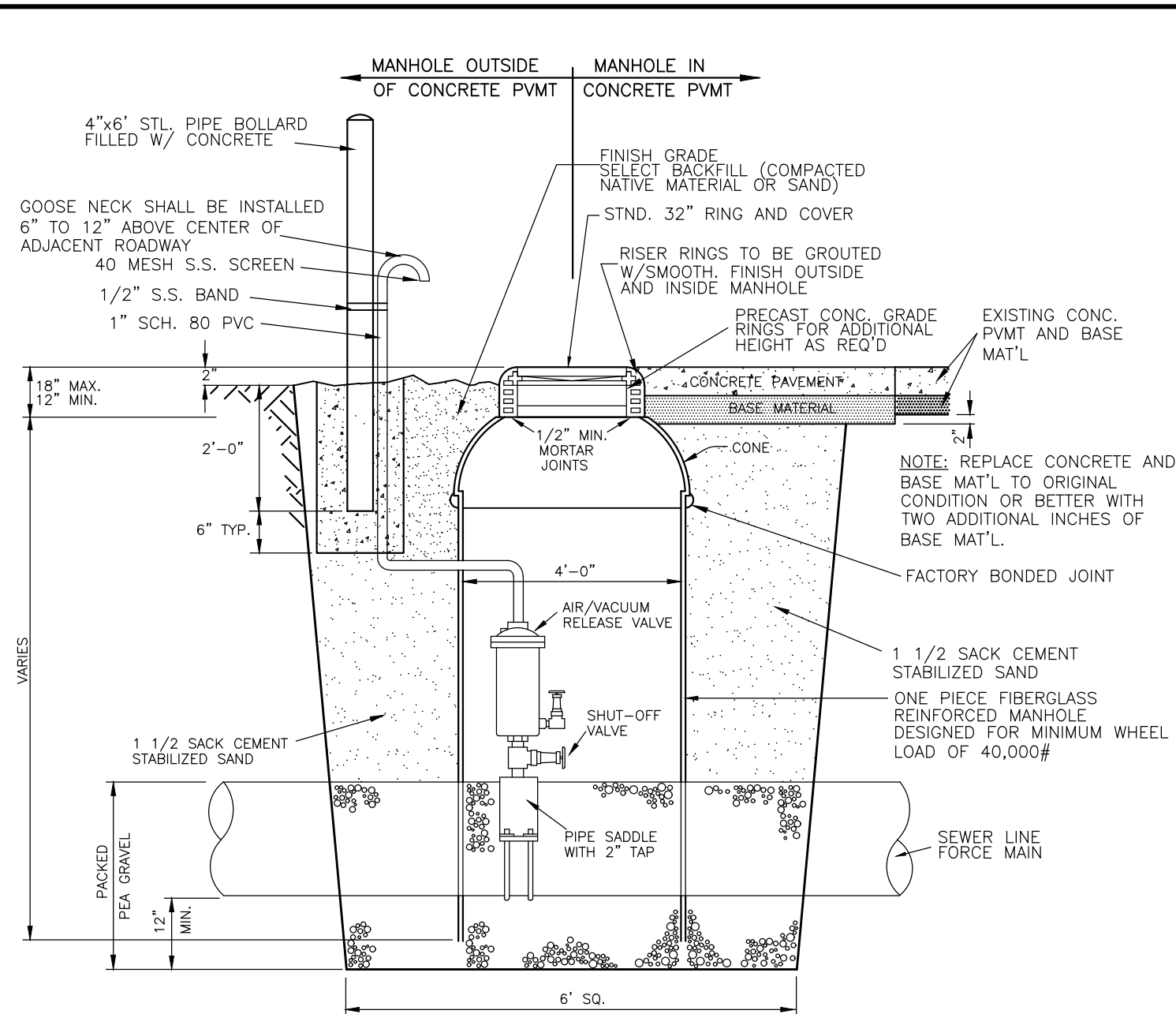
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CONSTRUCTION PLANS
FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
TWD DWSRF PROJECT No.62873
MISCELLANEOUS DETAILS

STATE OF TEXAS
TROY WHITEHEAD
102472
LICENSED PROFESSIONAL ENGINEER
Troy Whitehead
9-28-23

DATE: SEPTEMBER 2023
SCALE: AS SHOWN
DRAWN BY: JV
DESIGNED BY: PJ
CHECKED BY: TW
SHEET:

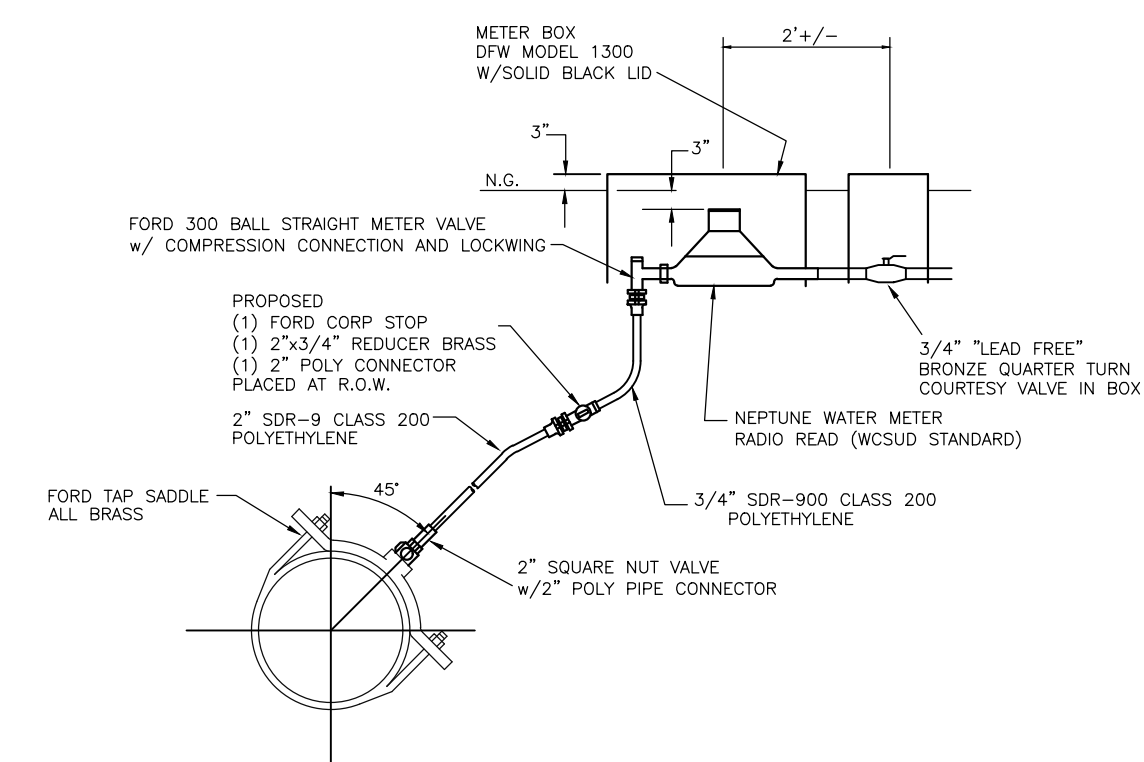


FIBERGLASS MANHOLE STIFFNESS - THICKNESS				
DEPTH	3'- 6"	7'- 12"	13'- 20"	21'- 25"
NOMINAL	.25	.30	.48	.48
WALL THICKNESS	.72	1.26	2.01	3.02
MIN. STIFFNESS FLEX. PSI (KPa)	(4.96)	(8.69)	(13.86)	(20.82)

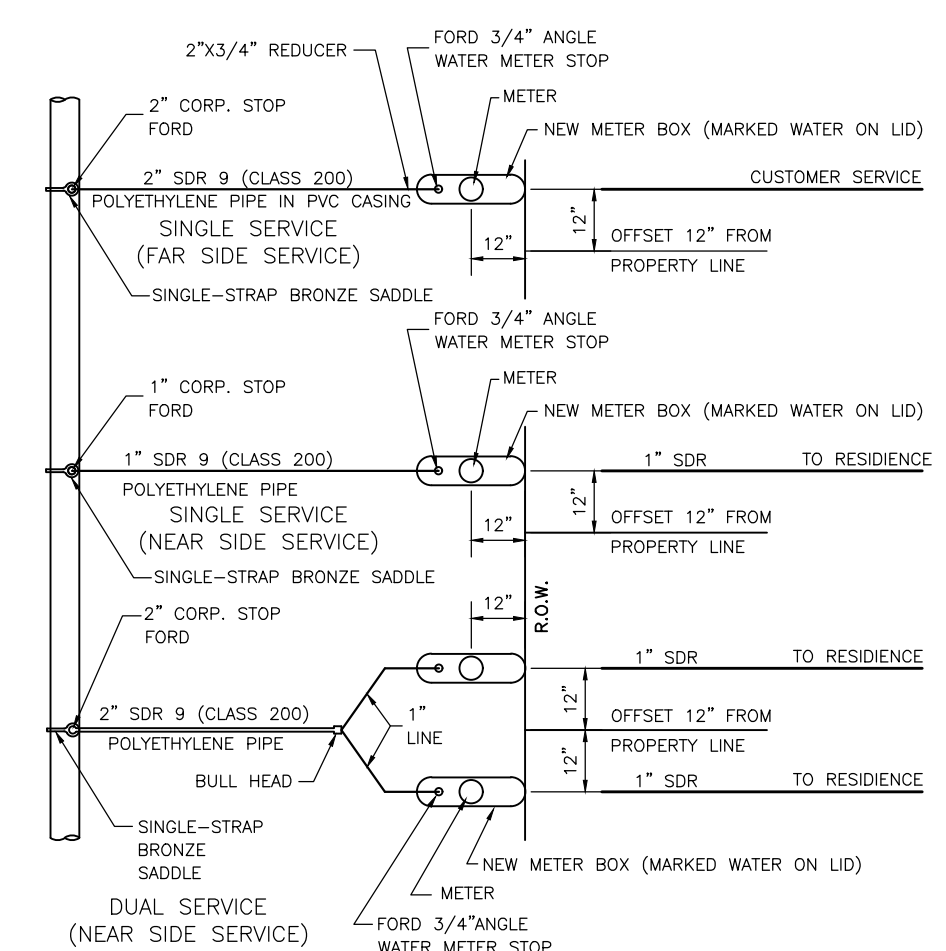
NOTE: CIRCULAR HOLES CUT INTO M.H.'S TO BE ONE (1) INCH GREATER THAN PIPE DIA. (CUTS AND DRILLED HOLES TO BE MADE WITH MASONRY BLADE AND BIT)

TYPICAL AIR/VACUUM RELEASE VALVE AND MANHOLE

- GENERAL NOTES:
- JOINT DEFLECTION OF PIPELINES SHALL NOT EXCEED ALL MANUFACTURERS RECOMMENDATION.
 - MINIMUM 36" COVER OVER ALL PROPOSED PIPELINES.
 - ALL PIPE TO BE PLACED WITH BELL ENDS UPSTREAM.
 - ALL PVC WATER LINE TO BE SDR-21, CLASS 200. ALL DUCTILE IRON WATER LINE TO BE CLASS 350.

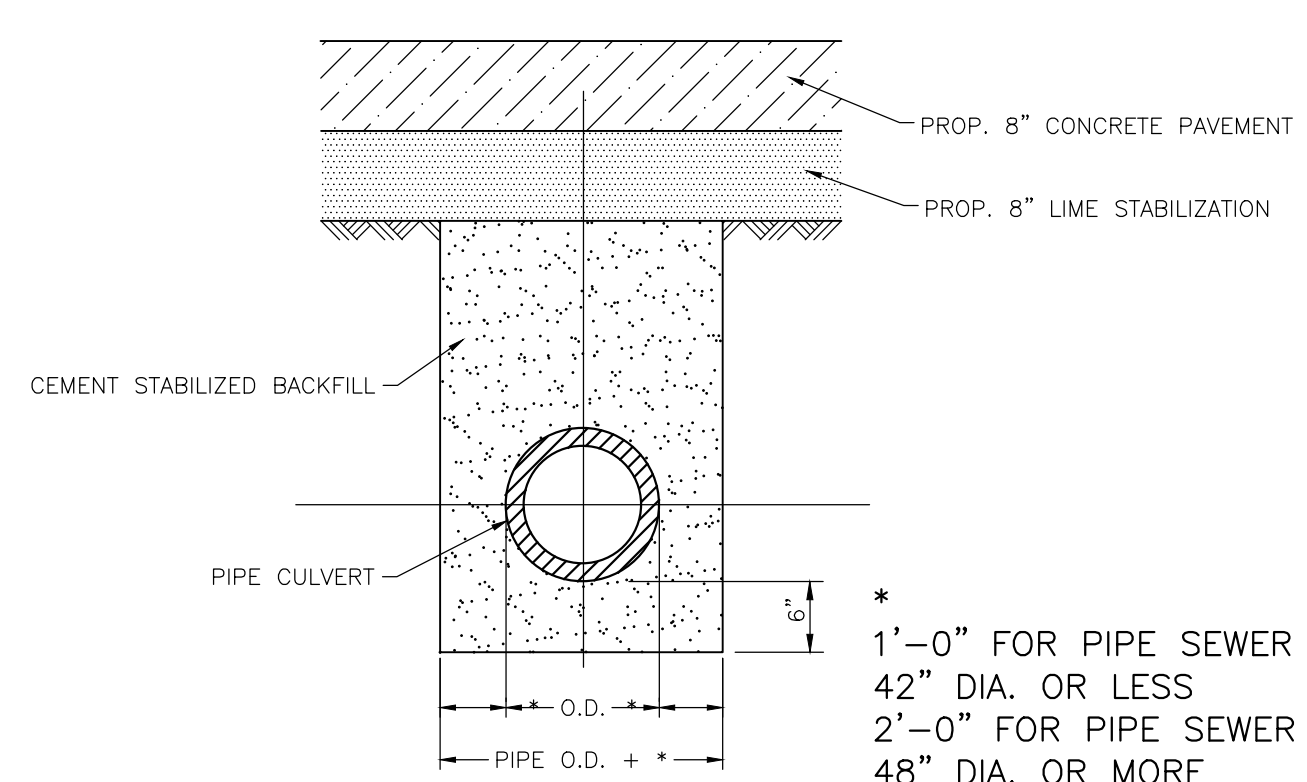


TYPICAL WATER SERVICE

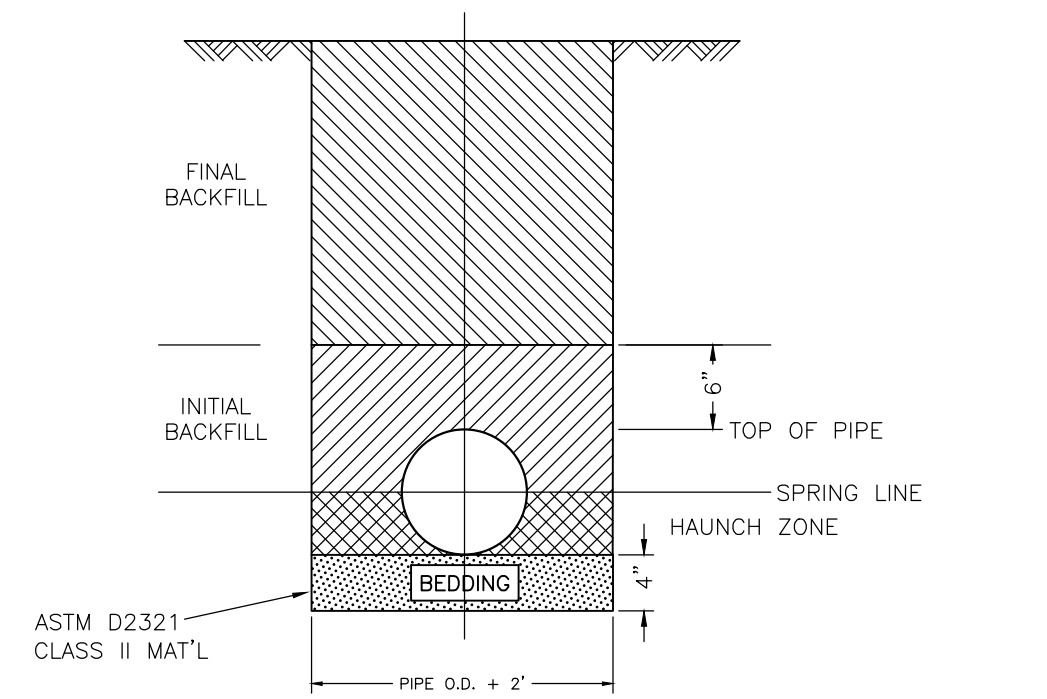


- NOTES:
- JOINT DEFLECTION OF PIPELINES SHALL NOT EXCEED MANUFACTURERS RECOMMENDATION.
 - MINIMUM 36" COVER OVER ALL PROPOSED PIPELINES.
 - ALL PIPE TO BE PLACED WITH BELL ENDS UPSTREAM
 - FAR SIDE SHALL BE CASING IN PVC CASING WHERE ALLOWED AND IN STEEL CASING AT TxDOT CROSSING

TYPICAL WATER SERVICE



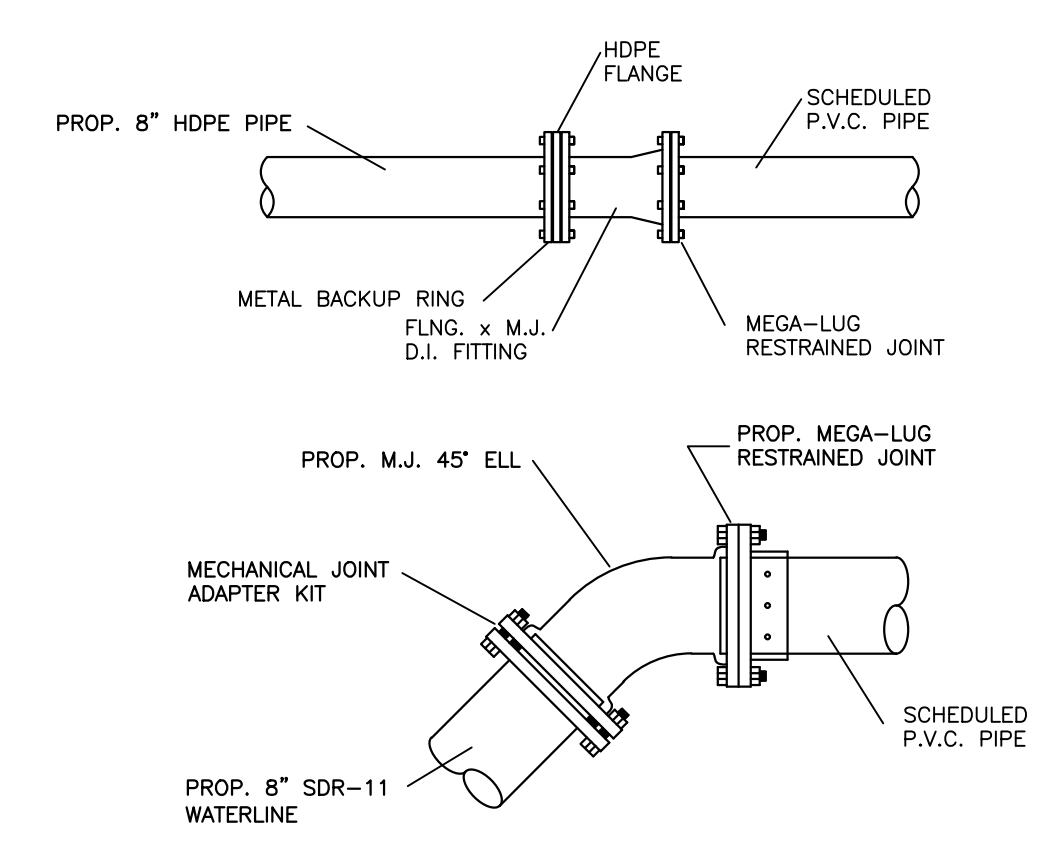
BACKFILL DETAIL UNDER PAVEMENT



- NOTES:
- HAUNCH ZONE: NATIVE SOIL W/MAX. P.I. OF 20. MAXIMUM PARTICLE SIZE OF 3/4". INSTALL & COMPACT IN 6" LAYERS WORK IN AROUND PIPE.
- INITIAL BACKFILL: NATIVE SOIL W/MAX. P.I. OF 20. MAXIMUM PARTICLE SIZE OF 1.5". INSTALL & COMPACT IN 6" LAYERS MINIMUM DENSITY-95% STD. PROCTOR.
- FINAL BACKFILL: NATIVE SOIL MINIMUM DENSITY-90% STD. PROCTOR NEAR OPTIMUM MOISTURE.

TYPICAL BACKFILL NATURAL GROUND

- NOTES:
- COAT ALL METALIC SURFACES W/ COAL TAR EPOXY
 - WRAP ALL FITTINGS PER AWWA C105 WITH POLYETHYLENE ENCASMENT
 - BACKFILL FITTINGS W/ 2 SACK/C.Y. CEMENT STABILIZED SAND TO TWO FEET ABOVE FITTINGS



TYPICAL POLYETHYLENE TO PVC CONNECTION

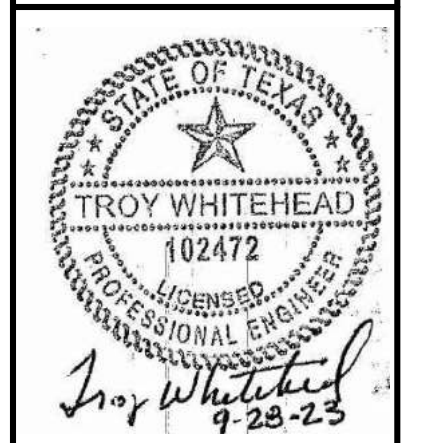
Monday, October 2, 2023 4:16:13 PM F:\EVADALE WCID#1\6112 2020 TMDb DWSRF 62873\PLANS\DWG\WATER DTLS.DWG

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CONSTRUCTION PLANS
 FOR
**EVADALE WCID#1
 WATER SYSTEM IMPROVEMENTS**
 TMDb DWSRF PROJECT No.62873

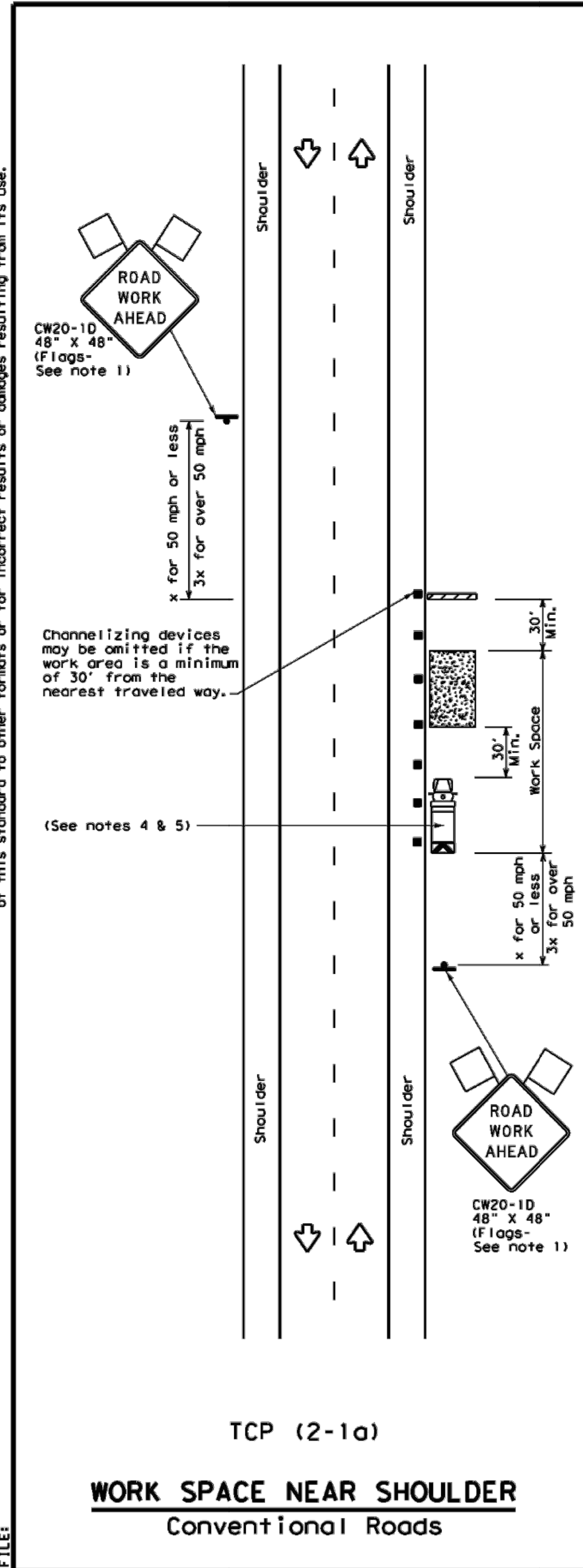
MISCELLANEOUS DETAILS



DATE: SEPTEMBER 2023
SCALE: AS SHOWN
DRAWN BY: JV
DESIGNED BY: PJ
CHECKED BY: TW
SHEET: 12 OF 14

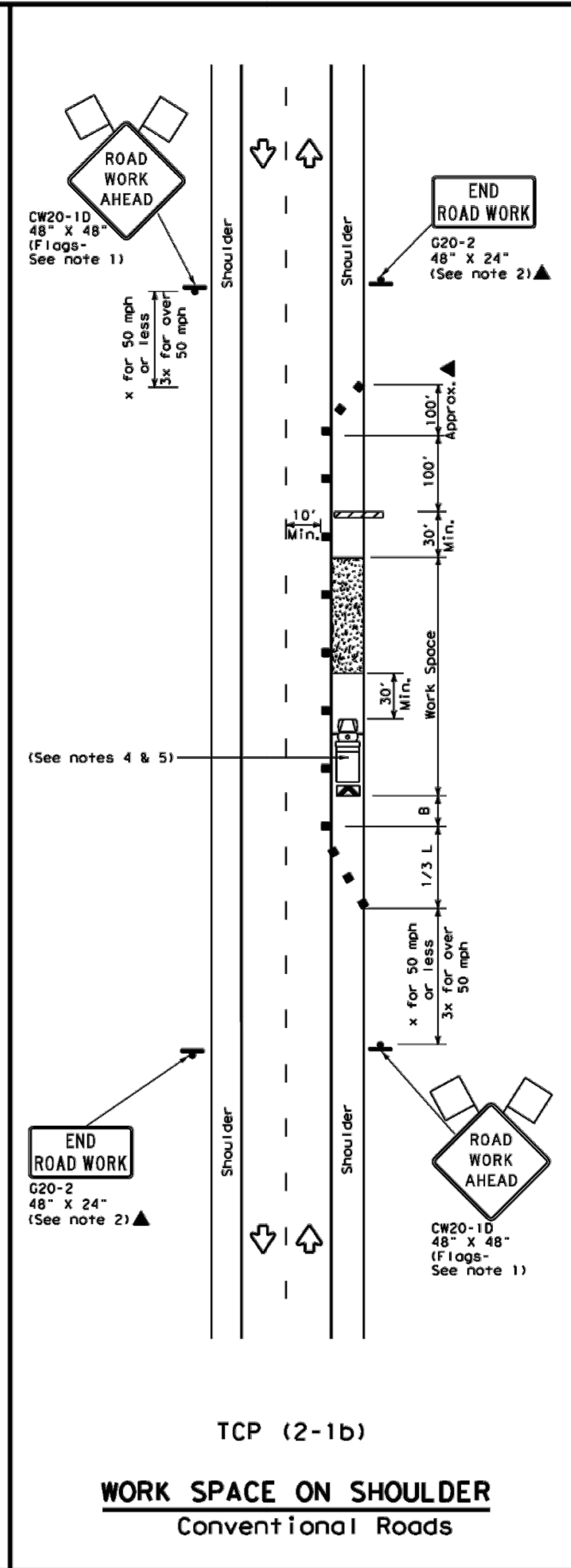
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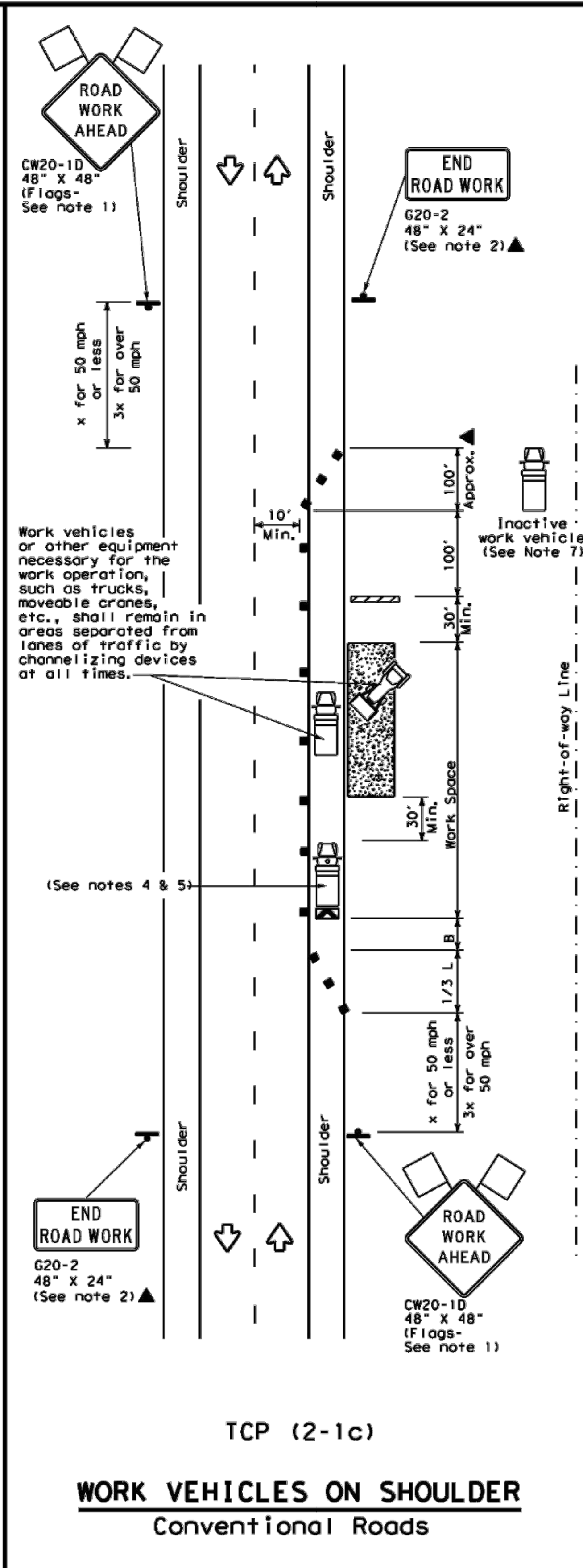
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent		
30	L = $\frac{W \cdot S^2}{60}$	150'	165'	180'	30'	60'	120'	90'
35		205'	225'	245'	35'	70'	160'	120'
40		265'	295'	320'	40'	80'	240'	155'
45		450'	495'	540'	45'	90'	320'	195'
50		500'	550'	600'	50'	100'	400'	240'
55		550'	605'	660'	55'	110'	500'	295'
60		600'	660'	720'	60'	120'	600'	350'
65	650'	715'	780'	65'	130'	700'	410'	
70	700'	770'	840'	70'	140'	800'	475'	
75	750'	825'	900'	75'	150'	900'	540'	

* Conventional Roads Only
** Taper lengths have been rounded off.
L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	✓

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated in the plans, or for routine maintenance work, when approved by the Engineer.
 - Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
 - Shadow Vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
 - See TCP (5-1) for shoulder work on divided highways, expressways and freeways.
 - Inactive work vehicles or other equipment should be parked near the right-of-way line and not parked on the paved shoulder.
 - CW21-5 "SHOULDER WORK" signs may be used in place of CW20-1D "ROAD WORK AHEAD" signs for shoulder work on conventional roadways.

Texas Department of Transportation
Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1)-18

FILE: tcp2-1-18.dgn	DN: CONT	CK: SECT	DW: JOB	CK: HIGHWAY
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2-94 4-98				
8-95 2-12				
1-97 2-18				

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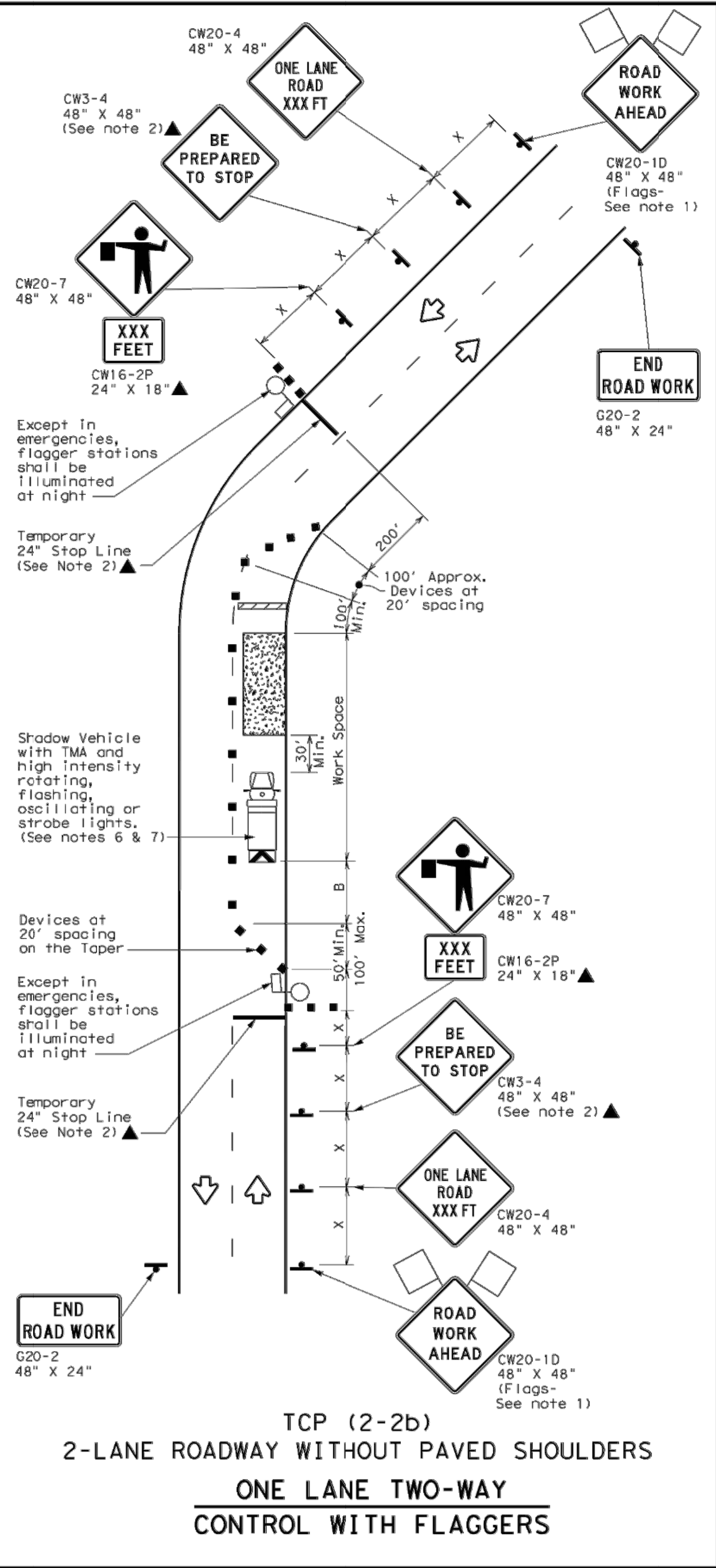
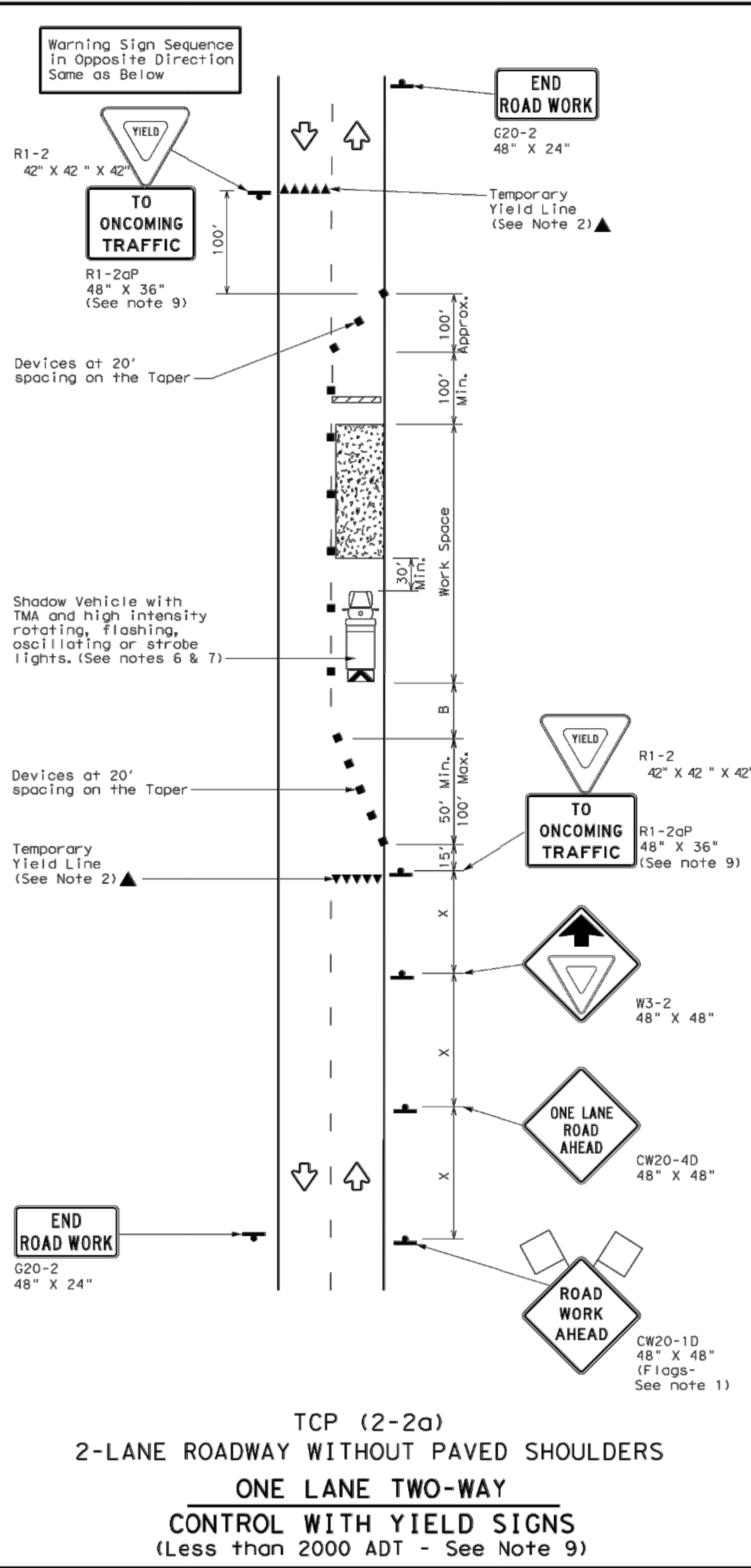
CONSTRUCTION PLANS
FOR
EVADALE WCID#1
WATER SYSTEM IMPROVEMENTS
TWDB DWSRF PROJECT No.62873
TRAFFIC CONTROL
TCP (2-1)-18

STATE OF TEXAS
TROY WHITEHEAD
102472
LICENSED PROFESSIONAL ENGINEER
Troy Whitehead
9-28-23

DATE: SEPTEMBER 2023
SCALE: AS SHOWN
DRAWN BY: JV
DESIGNED BY: PJ
CHECKED BY: TW
SHEET:

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DATE: FILE:



LEGEND

	Type 3 Barricade		Channelizing Devices
	Heavy Work Vehicle		Truck Mounted Attenuator (TMA)
	Trailer Mounted Flashing Arrow Board		Portable Changeable Message Sign (PCMS)
	Sign		Traffic Flow
	Flag		Flagger

Posted Speed *	Formula	Minimum Desirable Taper Lengths **			Suggested Maximum Spacing of Channelizing Devices		Minimum Sign Spacing "x" Distance	Suggested Longitudinal Buffer Space "B"	Stopping Sight Distance
		10' Offset	11' Offset	12' Offset	On a Taper	On a Tangent			
30	L = WS ² / 60	150'	165'	180'	30'	60'	120'	90'	200'
35		205'	225'	245'	35'	70'	160'	120'	250'
40		265'	295'	320'	40'	80'	240'	155'	305'
45	L = WS	450'	495'	540'	45'	90'	320'	195'	360'
50		500'	550'	600'	50'	100'	400'	240'	425'
55		550'	605'	660'	55'	110'	500'	295'	495'
60		600'	660'	720'	60'	120'	600'	350'	570'
65		650'	715'	780'	65'	130'	700'	410'	645'
70		700'	770'	840'	70'	140'	800'	475'	730'
75		750'	825'	900'	75'	150'	900'	540'	820'

* Conventional Roads Only
 ** Taper lengths have been rounded off.
 L=Length of Taper (FT) W=Width of Offset (FT) S=Posted Speed (MPH)

TYPICAL USAGE

MOBILE	SHORT DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
	✓	✓	✓	

- GENERAL NOTES**
- Flags attached to signs where shown, are REQUIRED.
 - All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
 - The CW3-4 "BE PREPARED TO STOP" sign may be installed after the CW20-4 "ONE LANE ROAD XXX FT" sign, but proper sign spacing shall be maintained.
 - Flaggers should use two-way radios or other methods of communication to control traffic.
 - Length of work space should be based on the ability of flaggers to communicate.
 - A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
 - Additional Shadow Vehicles with TMAs may be positioned off the paved surface, next to those shown in order to protect a wider work space.
- TCP (2-2a)**
- The R1-2 "YIELD" sign traffic control may be used on projects with approaches that have adequate sight distance. For projects in urban areas, work space should be no longer than one half city block. In rural areas, roadways with less than 2000 ADT, work space should be no longer than 400 feet.
 - The R1-2aP "YIELD TO ONCOMING TRAFFIC" sign shall be placed on a support at a 7 foot minimum mounting height.
- TCP (2-2b)**
- Channelizing devices on the center line may be omitted when a pilot car is leading traffic and approved by the Engineer.
 - If the work space is located near a horizontal or vertical curve, the buffer distances should be increased in order to maintain stopping sight distance to the flagger and a queue of stopped vehicles. (See table above).
 - Flaggers should use 24" STOP/SLOW paddles to control traffic. Flags should be limited to emergency situations.

Texas Department of Transportation
 Traffic Operations Division Standard

TRAFFIC CONTROL PLAN
ONE-LANE TWO-WAY
TRAFFIC CONTROL

TCP (2-2) - 18

FILE: tcp2-2-18.dgn	DIV:	CDI:	DIV:	CDI:
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1-97 2-12	DIST:	COUNTY:	SHEET NO.:	
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CONSTRUCTION PLANS FOR
 EVADALE WCID#1
 WATER SYSTEM IMPROVEMENTS
 TWDB DWSRF PROJECT No.62873
 TRAFFIC CONTROL
 TCP(2-2)-18

STATE OF TEXAS
 TROY WHITEHEAD
 102472
 LICENSED PROFESSIONAL ENGINEER
 Troy Whitehead
 9-28-23

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 CHECKED BY: TW
 SHEET: 14 OF 14

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