

WILLIAMSON COUNTY, TEXAS

CHANGE ORDER NUMBER: 1

- 1. CONTRACTOR: Austin Underground, Inc.
2. Change Order Work Limits: Sta. 10+00 to Sta. 136+51
3. Type of Change(on federal-aid non-exempt projects): Minor (Major/Minor)
4. Reasons: 3F, 3L (3 Max. - In order of importance - Primary first)

Project: T5045
Roadway: CR 404
CSJ Number:

5. Describe the work being revised:

3F. County Convenience. Additional work desired by the County. This Change Order revises the original water line pipe design from 18 inch ductile iron to 24 inch HDPE pipe. Due to the Contract value of this requested change, the 24 inch HDPE pipe material and the fusion of that pipe is also being removed from this Contract and will be bid under a separate Contract. Portable concrete traffic barrier (CTB) is also being added to the Contract, to improve the work zone safety.

- 6. Work to be performed in accordance with Items: See attached.
7. New or revised plan sheet(s) are attached and numbered: C-002, 003, 100, 301 to 338, 401 and 501 to 503
8. New Special Provisions/Specifications to the contract are attached: Yes No
9. New Special Provisions to Item N/A No. N/A, Special Specification Item N/A are attached.

Each signatory hereby warrants that each has the authority to execute this Change Order (CO).

The contractor must sign the Change Order and, by doing so, agrees to waive any and all claims for additional compensation due to any and all other expenses; additional changes for time, overhead and profit; or loss of compensation as a result of this change.
The following information must be provided
Time Ext. #: N/A Days added on this CO: 0
Amount added by this change order: (\$232,550.27)
THE CONTRACTOR Date 5-18-22
By Valentin Gomez, Jr.
Typed/Printed Name Valentin J Gomez, Jr.
Typed/Printed Title Sr. PM

RECOMMENDED FOR EXECUTION:

[Signature] 5/31/2022
Project Manager Date

N/A
Design Engineer Date

[Signature] 5/31/2022
Program Manager Date

Design Engineer's Seal:

County Commissioner Precinct 1 Date
APPROVED REQUEST APPROVAL

County Commissioner Precinct 2 Date
APPROVED REQUEST APPROVAL

County Commissioner Precinct 3 Date
APPROVED REQUEST APPROVAL

County Commissioner Precinct 4 Date
APPROVED REQUEST APPROVAL

[Signature] Jun 9, 2022
Bill Gravell (Jun 9, 2022 08:56 CDT)

County Judge Date
APPROVED

CHANGE ORDER REASON(S) CODE CHART

1. Design Error or Omission	1A. Incorrect PS&E 1B. Other
2. Differing Site Conditions (unforeseeable)	2A. Dispute resolution (expense caused by conditions and/or resulting delay) 2B. Unavailable material 2C. New development (conditions changing after PS&E completed) 2D. Environmental remediation 2E. Miscellaneous difference in site conditions (unforeseeable)(Item 9) 2F. Site conditions altered by an act of nature 2G. Unadjusted utility (unforeseeable) 2H. Unacquired Right-of-Way (unforeseeable) 2I. Additional safety needs (unforeseeable) 2J. Other
3. County Convenience	3A. Dispute resolution (not resulting from error in plans or differing site conditions) 3B. Public relations improvement 3C. Implementation of a Value Engineering finding 3D. Achievement of an early project completion 3E. Reduction of future maintenance 3F. Additional work desired by the County 3G. Compliance requirements of new laws and/or policies 3H. Cost savings opportunity discovered during construction 3I. Implementation of improved technology or better process 3J. Price adjustment on finished work (price reduced in exchange for acceptance) 3K. Addition of stock account or material supplied by state provision 3L. Revising safety work/measures desired by the County 3M. Other
4. Third Party Accommodation	4A. Failure of a third party to meet commitment 4B. Third party requested work 4C. Compliance requirements of new laws and/or policies (impacting third party) 4D. Other
5. Contractor Convenience	5A. Contractor exercises option to change the traffic control plan 5B. Contractor requested change in the sequence and/or method of work 5C. Payment for Partnering workshop 5D. Additional safety work/measures desired by the contractor 5E. Other
6. Untimely ROW/Utilities	6A. Right-of-Way not clear (third party responsibility for ROW) 6B. Right-of-Way not clear (County responsibility for ROW) 6C. Utilities not clear 6D. Other

Williamson County Road Bond Program

CR 404 Hutto Water Line Williamson County Project No. T5045

Change Order No. 1 Reason for Change

This Change Order revises the original water line pipe design from 18 inch ductile iron to 24 inch HDPE pipe. The change in pipe size and material was necessary to meet the increased demand in water and to alleviate the availability issues of ductile iron pipe. Due to the Contract value of this requested change, the 24 inch HDPE pipe material and the fusion of that pipe is also being removed from this Contract (T5045) and will be bid under a separate Contract (22IFB96). Portable concrete traffic barrier (CTB) is also being added to the Contract, to improve the work zone safety.

The following new item will be added by this Change Order.

ITEM	DESCRIPTION	QTY	UNIT
512-6001	PORT CTB (FURN & INSTL)(SGL SLOPE)(TY 1)	120.00	LF
512-6049	PORT CTB (REMOV)(SGL SLOPE)(TY 1)	120.00	LF
545-6005	CRASH CUSHION ATTEN. (REMOV)	4.00	EA
545-6019	CRASH CUSHION ATTEN. (INSTL)(S)(N)(TL3)	4.00	EA
501S-36	Jacking or Boring, 36" Steel Pipe, ASTM A134	789.00	LF
G4.05	Concrete Trench Cap (6" Thick, 2000 PSI)	5.00	CY
SP.W3.21.G	Valves, Butterfly 24" Dia.	11.00	EA
SP.W3.21.F	Drain Valve Assembly, including valve and pipe	10.00	EA
SS.W5.9.B24	24" HDPE Fittings	10.00	EA
SS.W5.9.C24	24" HDPE MJ Adapter	24.00	EA
SS.W5.9.C6	6" HDPE MJ Adapter	10.00	EA
SS.W5.9.A24-IO	Pipe, 24" Dia. HDPE (DIPS Size), DR11 (200psi), Complete in Place, excavation and backfill (Materials and Fusion not included)	14,967.00	LF

This Change Order results in a net decrease of \$232,550.27 to the Contract amount, for an adjusted Contract total of \$2,665,088.73. The original Contract amount was \$2,897,639.00. As a result of this and all Change Orders to-date, \$232,550.27 has been deducted from the Contract, resulting in an 8.03% net decrease in the overall Contract cost. As a result of this Change Order, (0) days will be added to the contract.

HNTB Corporation
Oscar Salazar-Bueno, P.E.

WILLIAMSON COUNTY

CR 404 HUTTO 24 INCH WATER LINE REALIGNMENT PRECINCT NUMBER 4 WILLIAMSON COUNTY PROJECT NO. IFB T5045

CLASSIFICATION & POSTED SPEED:
CR 404 RURAL MAJOR COLLECTOR 40 MPH
FM 973 RURAL MINOR ARTERIAL 65 MPH

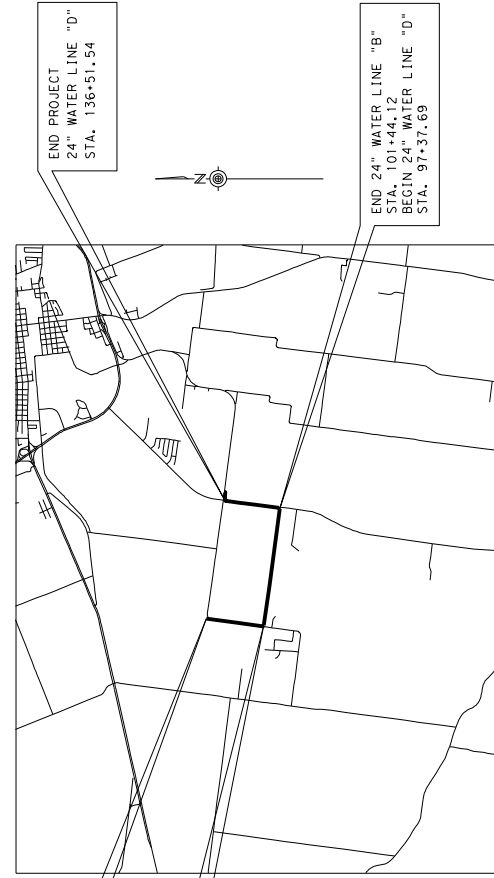
AVERAGE DAILY TRAFFIC (ADT):
AM 458 (2021) 7976 (2041)
PM 973 5758 (2021) 7976 (2041)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	GENERAL NOTES
3	SURVEY NOTES
4	KEY MAP
5 - 42	WATER LINE P&P SHEETS
43	EROSION CONTROL STANDARD DETAILS
44 - 45	STANDARD WATER DETAILS
46	HOPE WATER DETAILS
47 - 63	TXDOT TRAFFIC CONTROL STANDARDS

PROJECT LIMITS: ALONG FUTURE COUNTY ROAD FROM CR 404 TO CR 404 AT FM 973

FOR THE RELOCATION OF AN EXISTING CITY OF HUTTO TRANSMISSION MAIN WITH VALVES, APPURTENANCES, ENCASEMENT PIPE, JACK AND BORE, AND PRESSURE TAPS ONTO THE EXISTING MAIN



BEGIN PROJECT
24" WATER LINE "C"
STA. 10+00.00

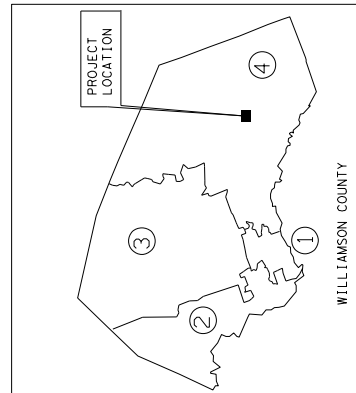
END 24" WATER LINE "C"
STA. 44+18.61
BEGIN 24" WATER LINE "B"
STA. 25+09.88

END 24" WATER LINE "B"
STA. 101+44.12
BEGIN 24" WATER LINE "D"
STA. 97+37.69

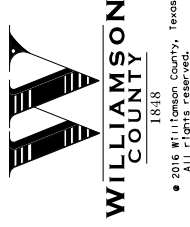
END PROJECT
24" WATER LINE "D"
STA. 136+51.54

THE STANDARD DRAWINGS SHOWN IN THE INDEX OF SHEETS ABOVE AND IDENTIFIED HEREIN BY THE SYMBOLS HAVE BEEN SELECTED BY ME OR UNDER MY CLOSE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.

REQUIRED SIGNS SHALL BE PLACED IN ACCORDANCE WITH STANDARD SHEETS BC(11)-14 THRU BC(12)-14 AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."



VICINITY MAP
N. T. S.



APPROVED BY:
WILLIAMSON COUNTY

HONORABLE BILL GRAVELL, JR., JUDGE
WILLIAMSON COUNTY

APPROVED BY:
WILLIAMSON COUNTY

COMMISSIONER RUSS BOLES
WILLIAMSON COUNTY PRECINCT 4

APPROVED BY:
HNTB CORPORATION

RICHARD L. RIDINGS, PE
ROAD BOND MANAGEMENT TEAM

PREPARED BY:
COBBFENDLEY (DESIGN CONSULTANT)



KRISTEN VAN HOOSTER, P.E.
PROJECT MANAGER

3/30/2022
DATE

TXDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES ADOPTED ON NOVEMBER 1, 2014 AND ALL APPLICABLE SPECIAL PROVISIONS AND SPECIAL SPECIFICATIONS AS INDICATED IN THE BID DOCUMENTS SHALL GOVERN ON THIS PROJECT.

NOTES:

1. ALL PROJECT COORDINATES ARE BASED ON THE TEXAS COORDINATE SYSTEM, TEXAS CENTRAL ZONE (4203), NAD 83/93/NAVD 88 (GEOID12B). ALL COORDINATES SHOWN HEREIN ARE ADJUSTED TO SURFACE BY MULTIPLYING BY A SURFACE ADJUSTMENT FACTOR OF 1.00012352.

2. UNITS: U.S. SURVEY FEET

Horizontal Alignment Report

Report Date: 3/30/2022 3:28:01 PM
 Station Name: S7+30.11W 358.84'
 Station Range Start: 10+00.00 End: 44+18.61
 Description: ALONG CR 404

Line	Stationing
Begin WL-C	N 10,172,006.05 E 3,198,158.67
Line (1)	10+00.00
Line (2)	S7+30.11W 358.84'
Line (3)	N 10,169,854.94 E 3,198,111.52
Line (4)	13+58.84
Line (5)	S7+34.16W 1,440.38'
Line (6)	N 10,170,221.51 E 3,197,921.74
Line (7)	27+99.22
Line (8)	N 10,168,616.05 E 3,197,856.58
Line (9)	32+99.75
Line (10)	S7+34.33W 1,106.17'
Line (11)	N 10,168,625.75 E 3,197,710.34
Line (12)	44+00.92
Line (13)	S7+28.20E 9.69'
Line (14)	N 10,168,616.05 E 3,197,716.24
Line (15)	44+18.61
Line (16)	N 10,168,616.05 E 3,197,716.24
Line (17)	44+18.61
End WL-C	N 10,168,616.05 E 3,197,716.24
Alignment Length:	3,418.61'

Horizontal Alignment Report

Report Date: 3/30/2022 3:28:01 PM
 Station Name: N10+170.22151 763.24'
 Station Range Start: 25+09.88 End: 101+44.12
 Description: ALONG CR 404

Line	Stationing
Begin WL-B	N 10,169,858.09 E 3,197,716.24
Line (1)	25+09.88
Line (2)	N10+170.22151 763.24'
Line (3)	N 10,169,858.09 E 3,197,716.24
Line (4)	101+44.12
Line (5)	N 10,169,858.09 E 3,197,716.24
Line (6)	101+44.12
Line (7)	N 10,169,858.09 E 3,197,716.24
Line (8)	101+44.12
Line (9)	N 10,169,858.09 E 3,197,716.24
Line (10)	101+44.12
Line (11)	N 10,169,858.09 E 3,197,716.24
Line (12)	101+44.12
Line (13)	N 10,169,858.09 E 3,197,716.24
Line (14)	101+44.12
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Line (253)	N 10,169,858.09 E 3,197,716.24
Line (254)	101+44.12
Line (255)	N 10,169,858.09 E 3,197,716.24
Line (256)	101+44.12
Line (257)	N 10,169,858.09 E 3,197,716.24
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Line (259)	N 10,169,858.09 E 3,197,716.24
Line (260)	101+44.12
Line (261)	N 10,16

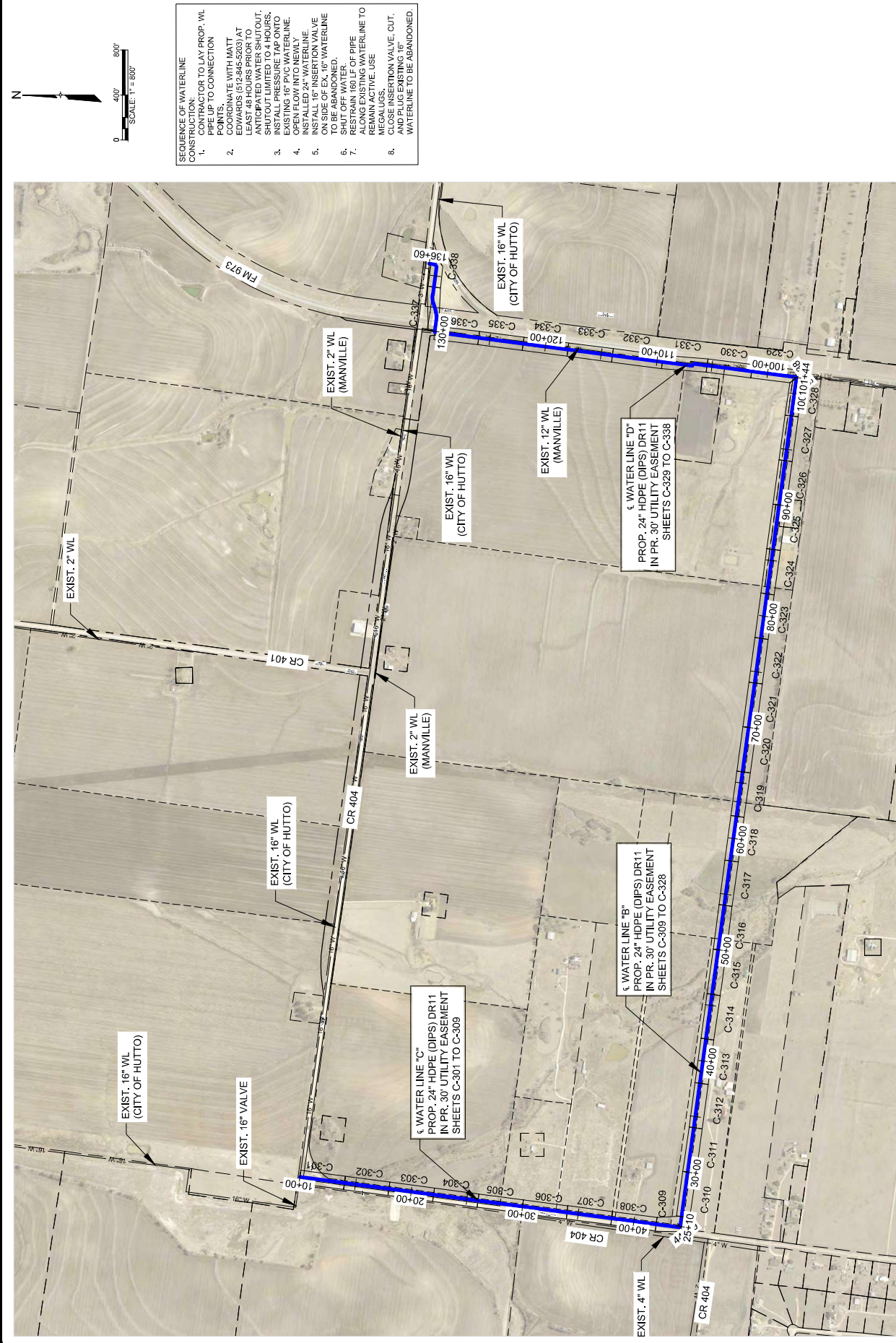
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1789 N. Loop West, Suite 100
 Houston, Texas 77058
 281.460.8888
 WWW.COBSENDLEY.COM

KEYMAP
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-100
 4 of 66



- SEQUENCE OF WATERLINE CONSTRUCTION:**
- CONTRACTOR TO LAY PROP. WL PIPE UP TO CONNECTION POINTS.
 - CONTRACTOR TO MAKE WITH MATT EDWARDS 612-845-5203 AT LEAST 48 HOURS PRIOR TO ANTICIPATED WATER SHUTOFF. SHUTOFF LIMITED TO 4 HOURS.
 - CONTRACTOR TO LOCATE AND MARK EXISTING 16" WATERLINE TO BE OPEN FLOW INTO NEWLY INSTALLED 24" WATERLINE.
 - INSTALL 16" INSERTION VALVE ON SIDE OF EX. 16" WATERLINE TO BE ABANDONED.
 - SHUT OFF WATER.
 - RESTRAIN 160 LF OF PIPE ALONG EXISTING WATERLINE TO REMAIN ACTIVE. USE WELDED RESTRAINTS.
 - INSTALL INSERTION VALVE, CUT, AND PLUG EXISTING 16" WATERLINE TO BE ABANDONED.

Dwg Info: C:\FA\2014\0308801\Williamson_County_2013_Road_Bond\MUN\99_CR404_Hutto\DESIGN\C-100-KEYMAP.dwg - Tab: LAYOUT1 - Plotted: 3/28/2022 3:45 PM By: KRISTEN VAN HOOSER

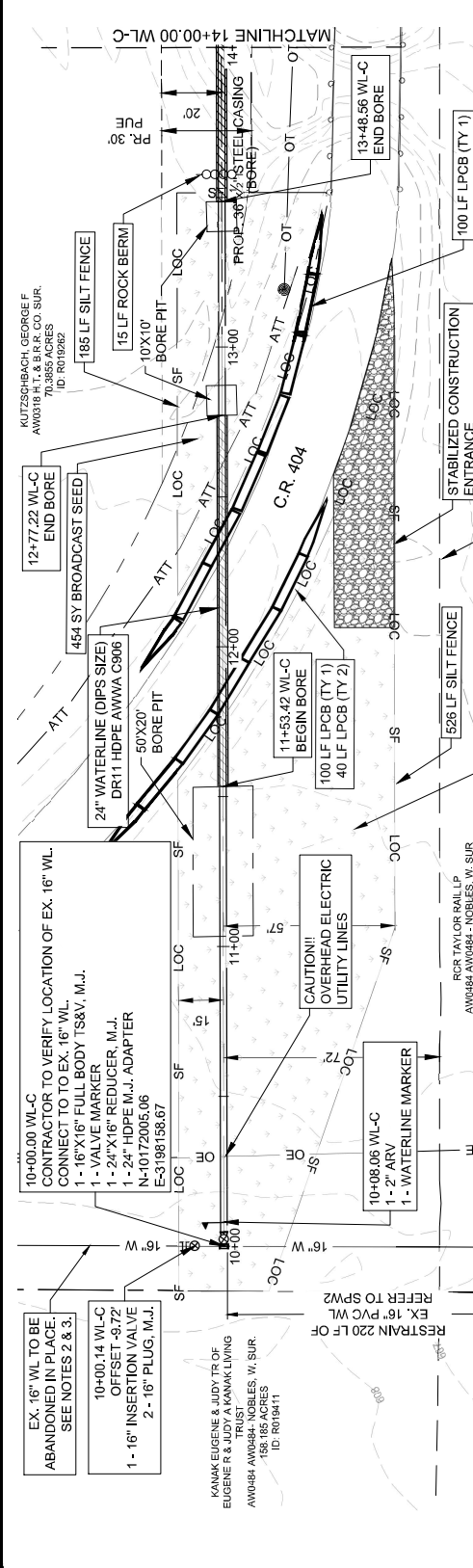
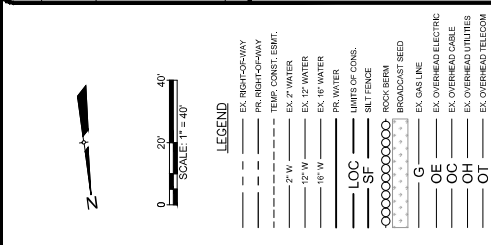
NO.	REVISION DESCRIPTION	APPROVED BY	DATE



WATER LINE C PLAN AND PROFILE
10+00 TO 14+00
CR 404 HULL TO 24" WATER LINE
TAYLOR, TEXAS



SHEET
C-301
5 of 66



GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. WHEN THE CONTRACTOR IS NOTIFIED OF ANY UNDERGROUND UTILITIES, THE CONTRACTOR SHALL LOCATE AND MARK THE UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES FOR THE DURATION OF THE PROJECT.
- EXISTING 16" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN IS INSTALLED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED.
- PROPOSED WATER MAINS SHALL BE PROTECTED BY A 12" MIN. THICK CONCRETE ENCASEMENT. THE ENCASEMENT SHALL BE 12" MIN. THICK AND SHALL BE 12" MIN. ABOVE THE WATER MAIN. THE ENCASEMENT SHALL BE 12" MIN. ABOVE THE WATER MAIN. THE ENCASEMENT SHALL BE 12" MIN. ABOVE THE WATER MAIN.
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NOTE:

- EXISTING 16" WATERLINE MAY BE DUCTILE IRON OR POLYETHYLENE GLASS REINFORCED PLASTIC. VERIFY MATERIAL PRIOR TO CONSTRUCTION.
- COORDINATE WITH MATT TAYLOR RAILROAD COMPANY PRIOR TO CONSTRUCTION. CR 404 MAY BE INSTALLED VIA OPEN TRENCH ONE HALF MILE FROM THE PROJECT TO THE TOWER. REFER TO TOWER/24" FOR FLAGGING OPERATIONS.
- PROPOSED WATER LINE AND CASING CROSSING EXISTING CR 404 MAY BE INSTALLED VIA OPEN TRENCH ONE HALF MILE FROM THE PROJECT TO THE TOWER. REFER TO TOWER/24" FOR FLAGGING OPERATIONS.

LEGEND

EX. RIGHT-OF-WAY
PR. RIGHT-OF-WAY
TEMP. CONST. EMT.
EX. 2" WATER
EX. 12" WATER
EX. 16" WATER
PR. WATER
LIMITS OF CONDS.
SILT FENCE
ROCK BERM
BROADCAST SEED
EX. GAS LINE
EX. OVERHEAD ELECTRIC
EX. OVERHEAD CABLE
EX. OVERHEAD UTILITIES
EX. OVERHEAD TELECOM
EX. U.S. TELECOM
EX. U.S. ELECTRIC
EX. FENCE
PR. WATER VALVE
PR. DRAIN VALVE ASSEMBLY

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

EXISTING GRADE 602.79
FLOW LINE 607.7
OF PIPE 591.88

STATION	ELEVATION
9+75	608.4
10+00	608.4
10+50	607.1
11+00	606.6
11+50	606.3
12+00	607.8
12+50	606.7
13+00	605.0
13+50	603.6
14+00	591.88

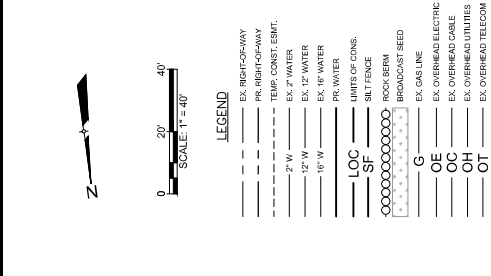
REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE



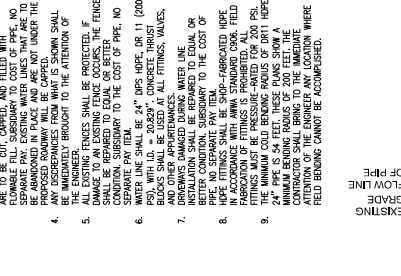
CR 404 HULL TO 24" WATER LINE
TAYLOR, TEXAS
14+00 TO 18+00
WATER LINE C PLAN AND PROFILE



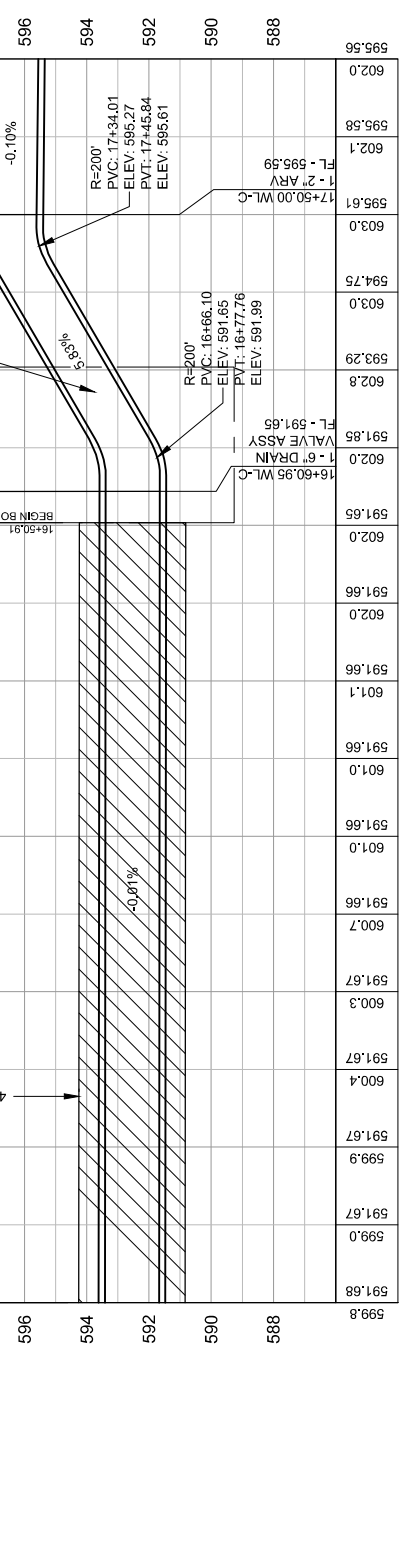
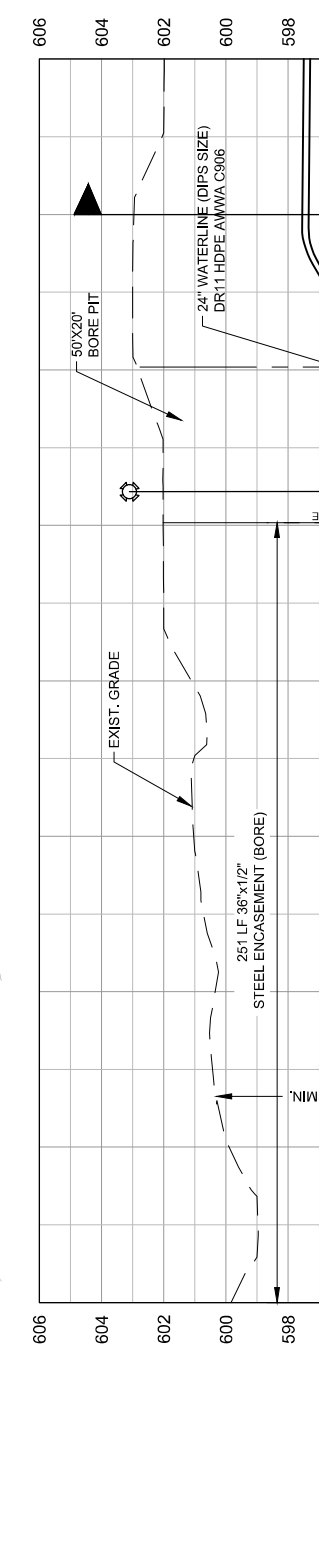
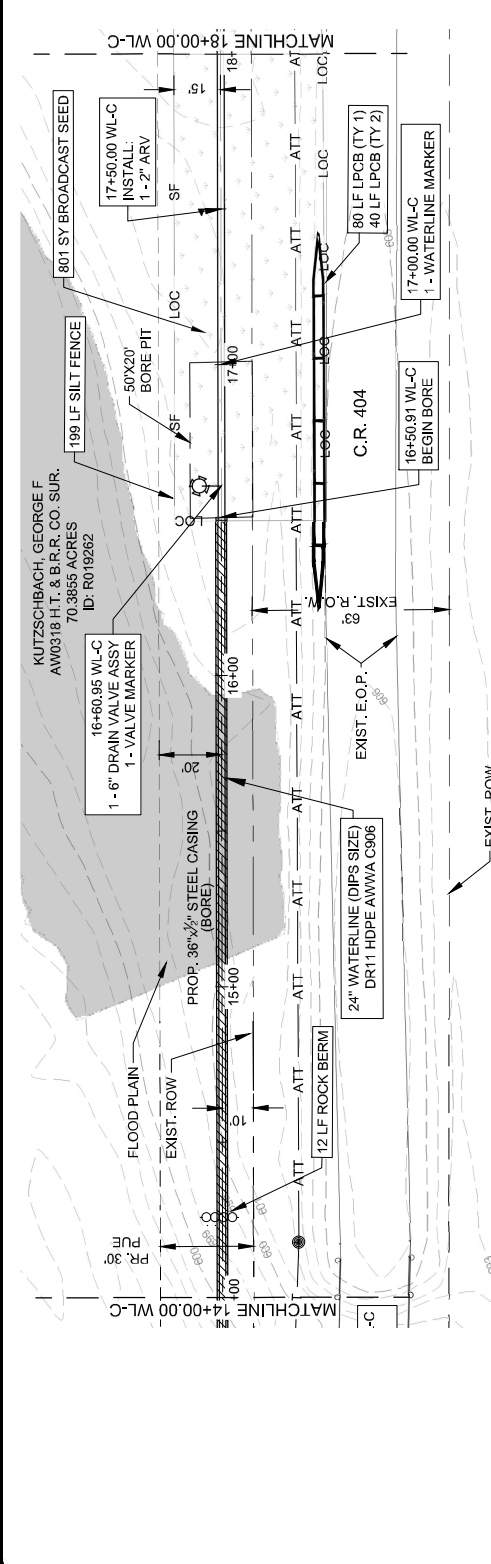
SHEET
C-302
6 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES BY EXCAVATION AND TESTING PRIOR TO ANY WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE EXISTING UTILITIES BY ANY MEANS, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITIES ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN WATER LINE IS INSTALLED. APPROVED AND THE NEW MAIN WATER LINE SHALL BE INSTALLED IN THE EXISTING WATER MAINS THAT ARE TO BE ABANDONED. ALL EXISTING WATER MAINS ARE TO BE CUT, CAPPED, AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE, NO SEPARATE PAY ITEM. ALL EXISTING WATER MAINS ARE TO BE ABANDONED IN PLACE AND ARE NOT UNDER THE PROPOSED ROWWAY WILL BE CAPPED. ANY MAIN SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF ANY DAMAGE TO EXISTING UTILITIES OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, OR 1" (200) RIGID POLYETHYLENE (RPE) PIPE, ALL FITTINGS SHALL BE USED AT ALL FITTINGS, VALVES, AND OTHER APPURTENANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF PIPE, FITTINGS SHALL BE SHOP-FABRICATED HDPE PIPE. FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI.
 - MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL MAINTAIN THE ATTENTION OF THE ENGINEER AT ALL LOCATIONS WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.



PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.



PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

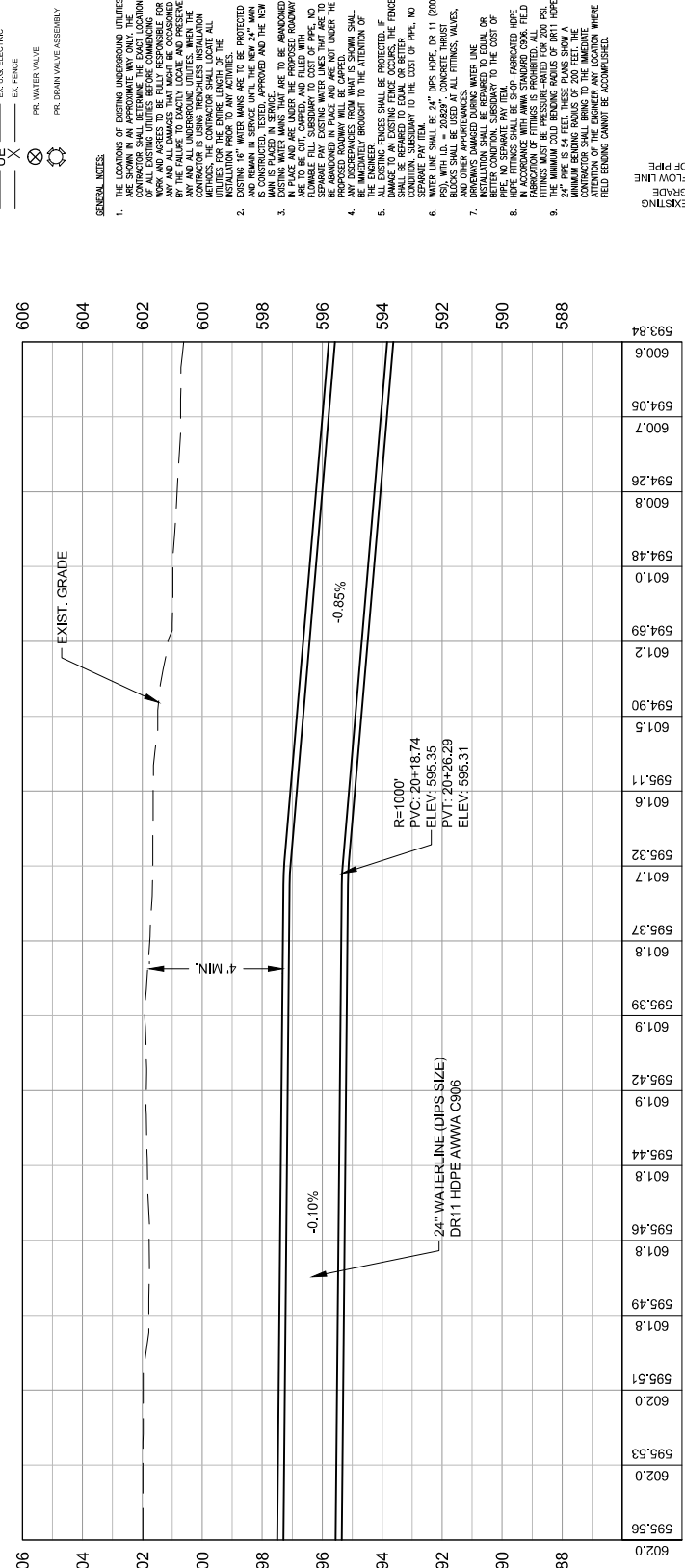
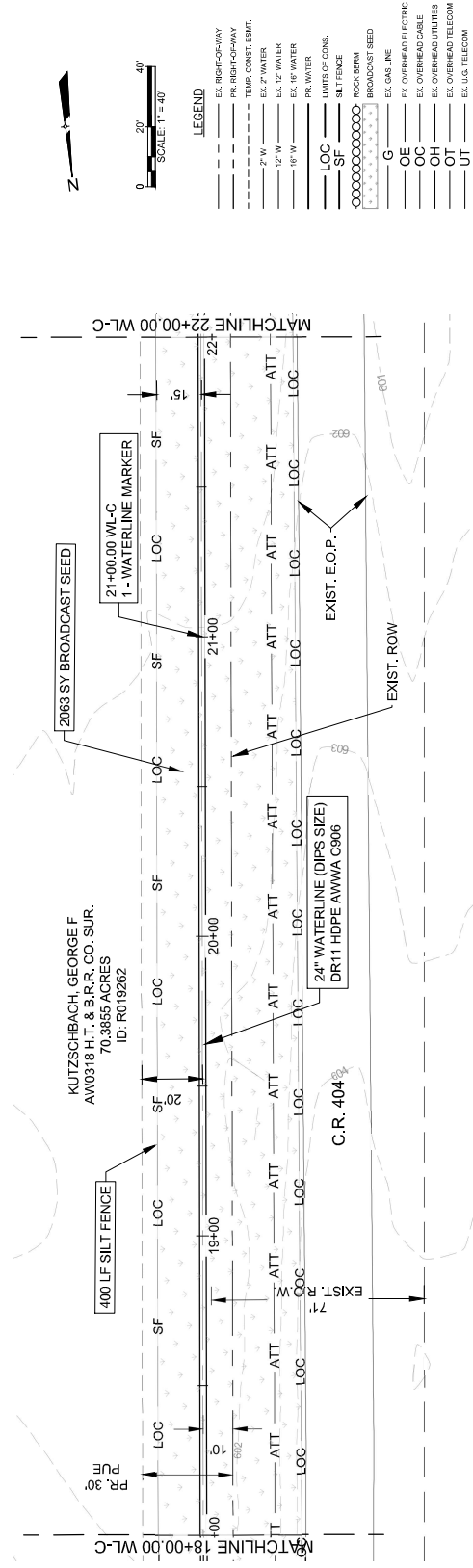
REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N. Loop West, Suite 100
 Houston, Texas 77058
 281.468.1111 FAX 281.468.1112
 WWW.COBSENDLEY.COM

WATER LINE C PLAN AND PROFILE
 18+00 TO 22+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
C-303
 7 of 66



PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. ALL UTILITIES ARE TO BE PROTECTED EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED. APPROVED AND THE NEW MAINS SHALL BE INSTALLED IN THE EXISTING MAINS. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY CAPED AND FLEED WITH FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO FLOWABLE FILL SHALL BE USED. ALL MAINS ARE TO BE OBTAINED AND FLEED WITH FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO FLOWABLE FILL SHALL BE USED. ALL MAINS ARE TO BE ABANDONED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF ANY DAMAGE TO EXISTING UTILITIES OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING THE SAME TO ORIGINAL CONDITION AT HIS OWN SEPARATE PAY FEE.
 - WATER LINE SHALL BE 24" HDPE PIPE, OR 11" (20" O.D.) HDPE PIPE, WITH 11" (20" O.D.) HDPE FITTINGS. ALL FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI.
 - INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF REPAIR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING THE SAME TO ORIGINAL CONDITION AT HIS OWN SEPARATE PAY FEE.
 - IF ANY DAMAGE TO EXISTING UTILITIES OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING THE SAME TO ORIGINAL CONDITION AT HIS OWN SEPARATE PAY FEE.
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 - INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF REPAIR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING THE SAME TO ORIGINAL CONDITION AT HIS OWN SEPARATE PAY FEE.

REV	NO.	REVISION DESCRIPTION	APPROVED	DATE



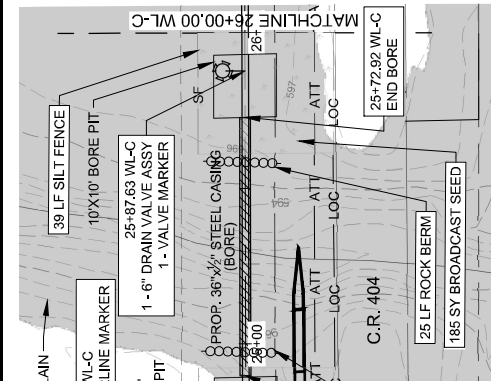
CR 404 HUTTO 24" WATER LINE
TAYLOR, TEXAS
22+00 TO 26+00
WATER LINE C PLAN AND PROFILE



SHEET
C-304
8 of 66

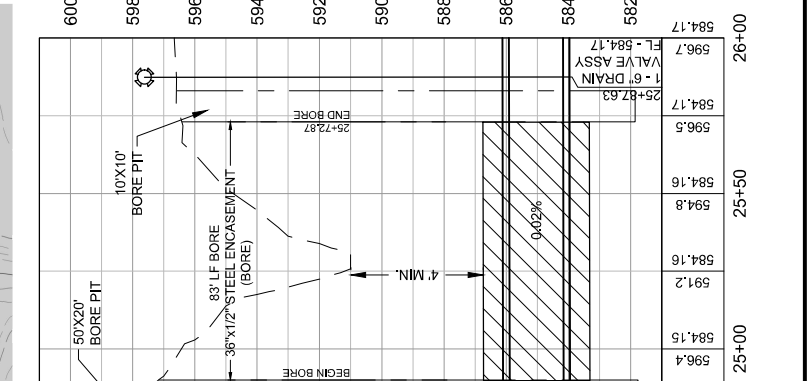
LEGEND

- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. ESMT.
- EX. 2" WATER
- EX. 12" WATER
- EX. 18" WATER
- PR. WATER
- LIMITS OF CONG.
- LOC
- SF
- SILT FENCE
- ROCK BERM
- BROADCAST SEED
- G
- EX. GAS LINE
- EX. OVERHEAD ELECTRIC
- EX. OVERHEAD CABLE
- OC
- EX. OVERHEAD UTILITIES
- OH
- EX. OVERHEAD UTILITIES
- OT
- EX. OVERHEAD TELECOM
- UT
- EX. U.S. TELECOM
- X
- EX. U.S. ELECTRIC
- EX. FENCE
- PR. WATER VALVE
- PR. DRAIN VALVE ASSEMBLY



GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL UNDERGROUND UTILITIES, WHEN THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. ALL UTILITIES SHALL BE PROTECTED BY INSTALLING 18" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAIN HAS BEEN FULLY TESTED AND APPROVED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY TESTED AND APPROVED AND FLOWABLE FILL SUBSIDIARY TO COST OF PIPE, NO SEPARATE PAY ITEM. ALL UTILITIES SHALL BE ABANDONED IN PLACE AND ARE NOT UNDER THE PROPOSED ROADWAY WILL BE CAPPED. ALL UTILITIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- IF AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN ORIGINAL CONDITION TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" BIPS HOPE OR 11' (200) BIPS HOPE SHALL BE USED AT ALL FITTINGS, VALVES, AND OTHER APPURTENANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF FITTINGS SHALL BE SHIP-FABRICATED HOPE. HOPE FITTINGS SHALL BE SHIP-FABRICATED HOPE. HOPE FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. HOPE SHALL BE 54' FEET BIPS PLANS SHALL BE MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.



STATION	ELEVATION
22+00	593.84
22+50	593.62
23+00	593.20
23+50	592.77
24+00	592.03
24+50	589.57
25+00	586.4
25+50	584.16
26+00	582

STATION	ELEVATION
22+00	600.6
22+50	593.41
23+00	592.99
23+50	592.56
24+00	592.03
24+50	588.8
25+00	586.5
25+50	584.16
26+00	582

STATION	ELEVATION
22+00	600.6
22+50	593.41
23+00	592.99
23+50	592.56
24+00	592.03
24+50	588.8
25+00	586.5
25+50	584.16
26+00	582

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

EXISTING GRADE 602.79
FLOW LINE 607.7

REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE



CR 404 HULL TO 24" WATER LINE
TAYLOR, TEXAS

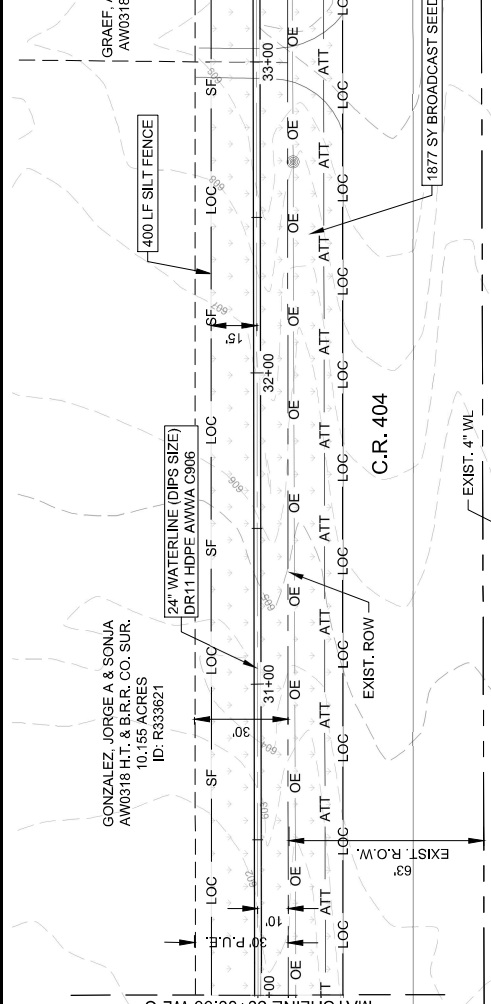
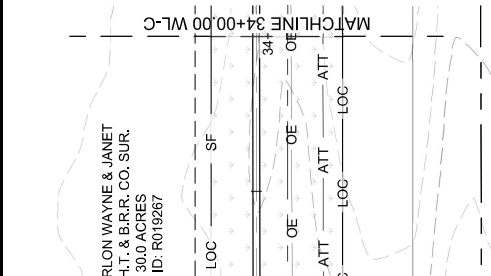


SHEET C-306
10 of 66

WATER LINE C PLAN AND PROFILE
30+00 TO 34+00

LEGEND

- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. EMT.
- 2" W
- 12" W
- 18" W
- PR. WATER
- LIMITS OF CONS.
- SILT FENCE
- ROCK BERM
- BROADCAST SEED
- EX. GAS LINE
- EX. OVERHEAD ELECTRIC
- EX. OVERHEAD CABLE
- EX. OVERHEAD UTILITIES
- OT
- EX. OVERHEAD TELECOM
- EX. U.S. TELECOM
- EX. U.S. ELECTRIC
- EX. FENCE
- PR. WATER VALVE
- PR. DRAIN VALVE ASSEMBLY



GENERAL NOTES:

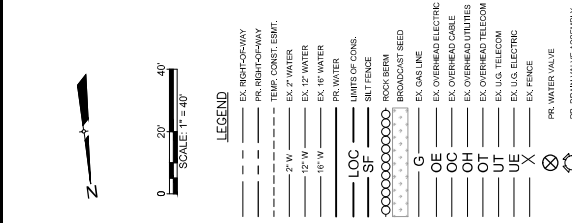
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING 18" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED. APPROVED AND THE NEW MAINS SHALL BE INSTALLED IN THE EXISTING MAINS. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED AND THE MAINS SHALL BE FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO PROPOSED ROADWAY WILL BE ABANDONED IN PLACE AND ARE NOT UNDER THE ATTENTION OF THE ENGINEER. PROPOSED ROADWAY WILL BE CAPPED AND SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER. EXISTING UTILITIES SHALL BE PROTECTED. IF DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" DIPS HOPE DR 11 (200) AND OTHER APPROPRIANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF PIPE, FITTINGS SHALL BE PRESSURE-WAIVED FOR 200 PSI. PROPOSED WATER MAINS SHALL BE 24" DIPS HOPE DR 11 (200) PRESSURE-WAIVED FOR 200 PSI. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.

NOTE: CONTRACTOR SHALL PROVIDE ACCESS TO PRIVATE PROPERTIES DURING CONSTRUCTION AND RESTORE TO EQUAL OR BETTER CONDITIONS (AS APPLICABLE)

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

EXISTING GRADE
607.7
602.79
OF PIPE

REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE



LEGEND

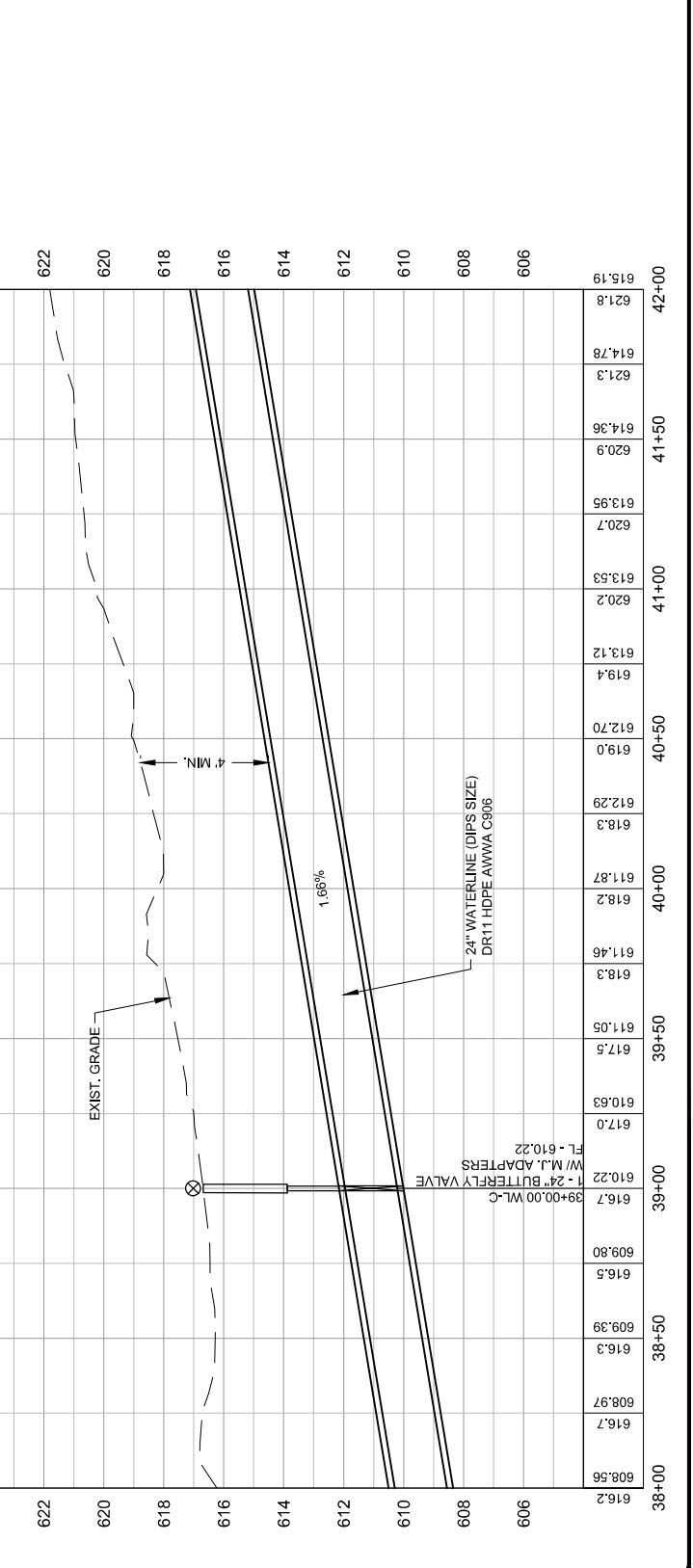
- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. EMT.
- 2" W
- 12" W
- 18" W
- PR. WATER
- LOC
- SF
- SILT FENCE
- ROCK BERM
- BROADCAST SEED
- G
- OE
- OC
- OH
- OT
- UE
- X

EXPLANATIONS

- ⊗ PR. WATER VALVE
- ⊕ PR. DRAIN VALVE ASSEMBLY

NOTE:
 CONTRACTOR SHALL PROVIDE ACCESS TO PRIVATE PROPERTIES DURING CONSTRUCTION AND RESTORE TO EQUAL OR BETTER CONDITIONS (AS APPLICABLE)

- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY WORK. ANY AND ALL UTILITIES FOUND TO BE DIFFERENT FROM ANY AND ALL UTILITIES SHOWN ON THIS PLAN SHALL BE RECORDED AS SHOWN ON THIS PLAN. THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
 - EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN PLACED IN SERVICE. APPROVED AND THE NEW EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF EXISTING WATER MAINS THAT ARE TO BE ABANDONED. ALL WATER MAINS SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF EXISTING WATER MAINS THAT ARE TO BE ABANDONED. ALL WATER MAINS SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF EXISTING WATER MAINS THAT ARE TO BE ABANDONED. ALL WATER MAINS SHALL BE FULLY RESPONSIBLE FOR THE PROTECTION OF EXISTING WATER MAINS THAT ARE TO BE ABANDONED.
 - PROPOSED DRAINAGE WILL BE CAPTURED AND SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIRS TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" DIP HOPE OR 1" (200) AND OTHER APPROPRIANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUPPORT TO THE COST OF HOPE FITTINGS SHALL BE SHIP-FABRICATED HOPE FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. 12" PIPES SHALL BE 54 FEET DEEP. PIPES SHALL BE MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.



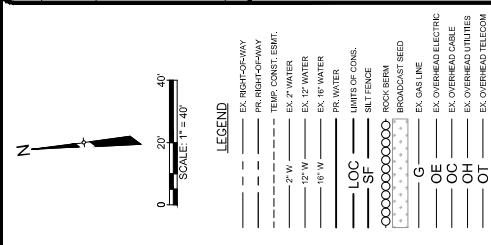
REV.	NO.	REVISION DESCRIPTION	APPROVED	DATE



CR 404 UTTO 24" WATER LINE
P&P 25+00.88 TO 26+00
WL C P&P 42+00 TO 44+32.32 - WL-B



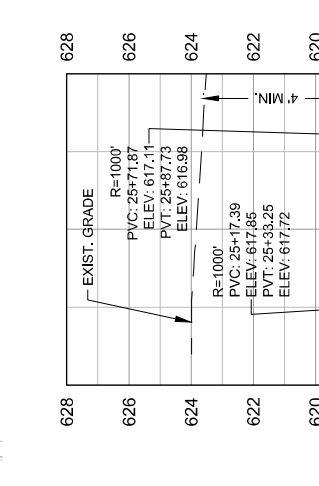
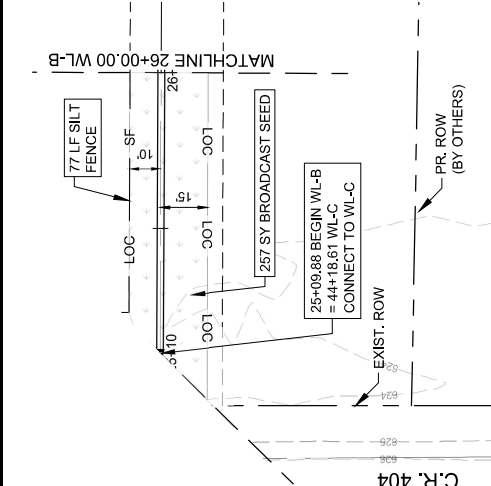
C-309
13 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES BY EXCAVATING AND TESTING AT 10' INTERVALS TO BE RESPONSIBLE FOR ANY AND ALL UTILITIES LOCATED. WHEN THE UTILITIES ARE LOCATED, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE EXISTING UTILITY. WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED AND FULFILLING ALL REQUIREMENTS TO BE ABANDONED IN PLACE AND ARE NOT UNDER THE ATTENTION OF THE ENGINEER.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN THE ORIGINAL CONDITION TO THE SATISFACTION OF THE SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, DR 11 HDPE. FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. 12" PIPES SHALL BE 54" FEET BENDS PER SHAW. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL MAINTAIN THE ATTENTION OF THE ENGINEER AT ALL LOCATIONS WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.
 - PROPOSED DRAINAGE WILL BE CARRIED BY THE EXISTING DRAINAGE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN THE ORIGINAL CONDITION TO THE SATISFACTION OF THE SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, DR 11 HDPE. FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. 12" PIPES SHALL BE 54" FEET BENDS PER SHAW. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL MAINTAIN THE ATTENTION OF THE ENGINEER AT ALL LOCATIONS WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN THE ORIGINAL CONDITION TO THE SATISFACTION OF THE SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, DR 11 HDPE. FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. 12" PIPES SHALL BE 54" FEET BENDS PER SHAW. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL MAINTAIN THE ATTENTION OF THE ENGINEER AT ALL LOCATIONS WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN THE ORIGINAL CONDITION TO THE SATISFACTION OF THE SEPARATE PAY ITEM.
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 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN THE ORIGINAL CONDITION TO THE SATISFACTION OF THE SEPARATE PAY ITEM.

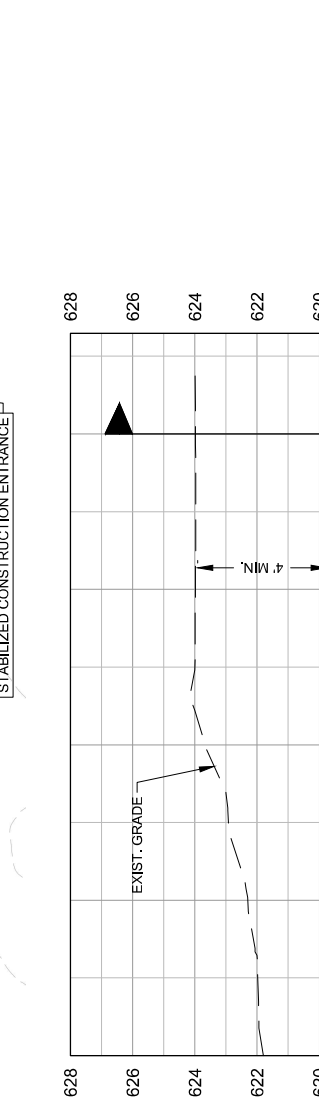
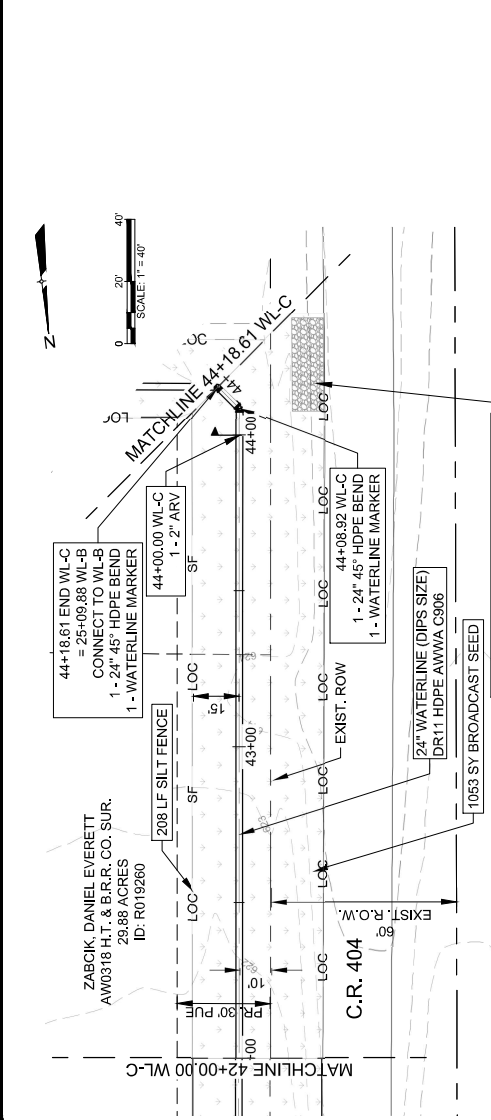
EXISTING GRADE	607.7		
FLOW LINE	602.79		
OF PIPE			

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.



EXISTING GRADE	617.84		
FLOW LINE	617.84		
OF PIPE			

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.



EXISTING GRADE	617.84		
FLOW LINE	617.84		
OF PIPE			

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

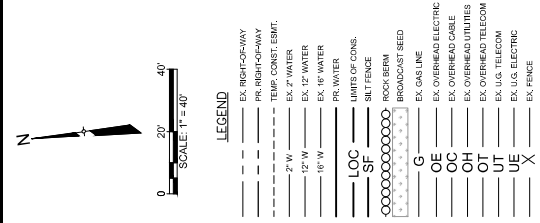
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1789 N. Loop West, Suite 100
 Houston, Texas 77058
 WWW.COBBERNDLEY.COM

WATER LINE B PLAN AND PROFILE
 26+00 TO 30+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-310
 14 of 66



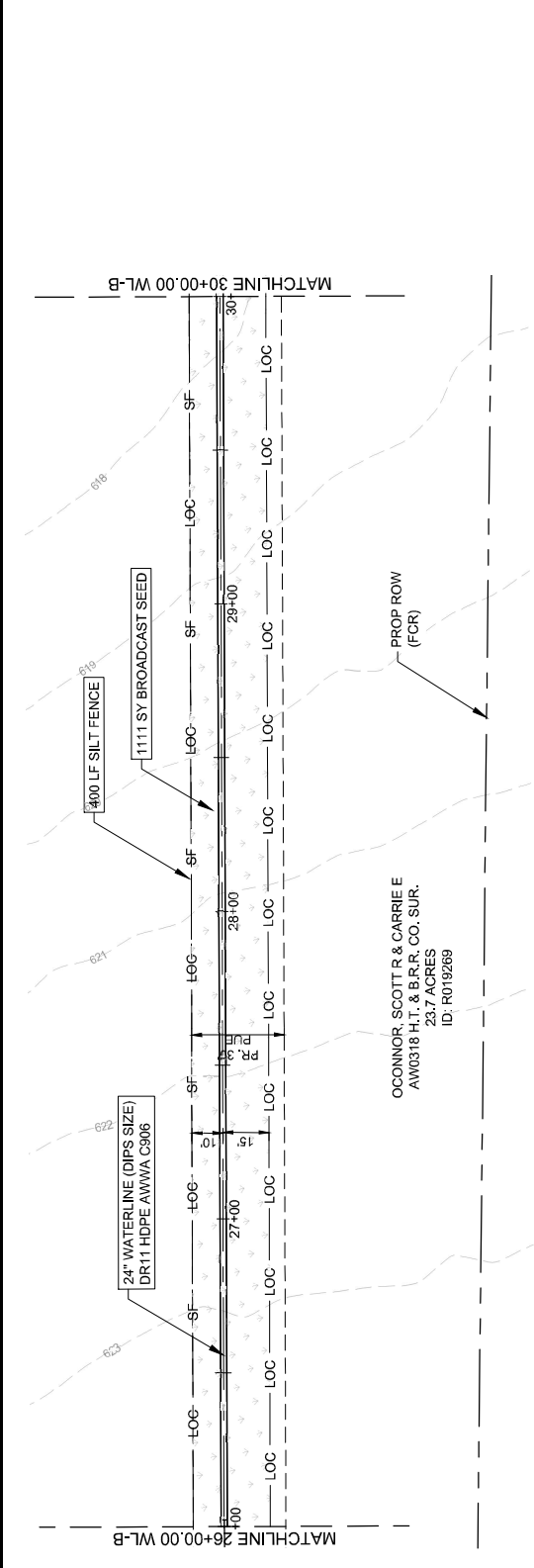
- LEGEND**
- EX. RIGHT-OF-WAY
 - PR. RIGHT-OF-WAY
 - TEMP. CONST. ESMT.
 - EX. 2" WATER
 - EX. 12" WATER
 - EX. 18" WATER
 - PR. WATER
 - LIMITS OF CONGS.
 - SILT FENCE
 - LOC
 - SF
 - ROCK BERM
 - BROADCAST SEED
 - G
 - EX. GAS LINE
 - OE
 - EX. OVERHEAD ELECTRIC
 - OC
 - EX. OVERHEAD CABLE
 - OH
 - EX. OVERHEAD UTILITIES
 - OT
 - EX. OVERHEAD TELECOM
 - UE
 - EX. U.S. TELECOM
 - X
 - EX. U.S. ELECTRIC
 - EX. FENCE
 - PR. WATER VALVE
 - PR. DRAIN VALVE ASSEMBLY

GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES BY EXCAVATION AND TESTING PRIOR TO ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE EXISTING UTILITIES, HE SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES. THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
- EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE FULLY OPERATIONAL.
- EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED AND FILLED WITH FLAMMABLE FILL. SUBSIDIARY TO COST OF PIPE, NO WORK SHALL BE DONE ON THE EXISTING MAINS UNLESS THEY ARE TO BE CUT, CAPED, AND FILLED WITH FLAMMABLE FILL. SUBSIDIARY TO COST OF PIPE, NO WORK SHALL BE DONE ON THE EXISTING MAINS UNLESS THEY ARE TO BE ABANDONED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION.
- PROPOSED ROADWAY WILL BE CAPED. THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF SUCH UTILITY TO ORIGINAL CONDITION AT HIS SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" HDPE PIPE, OR 1" (200) RIGID POLYETHYLENE (RPE) PIPE, WITH FITTINGS SHALL BE USED AT ALL FITTINGS VALUES.
- AND OTHER APPROPRIATE FITTINGS SHALL BE USED AT ALL FITTINGS VALUES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF SUCH UTILITY TO ORIGINAL CONDITION AT HIS SEPARATE PAY ITEM.
- FITTINGS SHALL BE PRESSURE-RATED FOR 200 PSI. FITTINGS SHALL BE USED AT ALL FITTINGS VALUES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF SUCH UTILITY TO ORIGINAL CONDITION AT HIS SEPARATE PAY ITEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF SUCH UTILITY TO ORIGINAL CONDITION AT HIS SEPARATE PAY ITEM.

PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

EXISTING GRADE	607.7
FLOW LINE	602.79
OF PIPE	

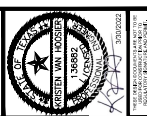


626	617.9	30+00
624	618.09	
622	618.1	
620	618.41	29+50
618	618.4	
616	618.4	
614	618.78	
612	618.8	
610	619.17	29+00
608	619.2	
	619.61	
	619.6	
	620.10	28+50
	620.1	
	620.58	
	620.6	
	621.07	28+00
	621.1	
	621.47	
	621.5	
	621.93	27+50
	621.9	
	622.29	27+00
	622.3	
	622.62	
	622.95	
	623.0	26+50
	623.14	
	623.1	
	623.33	26+00
	623.3	
	623.52	

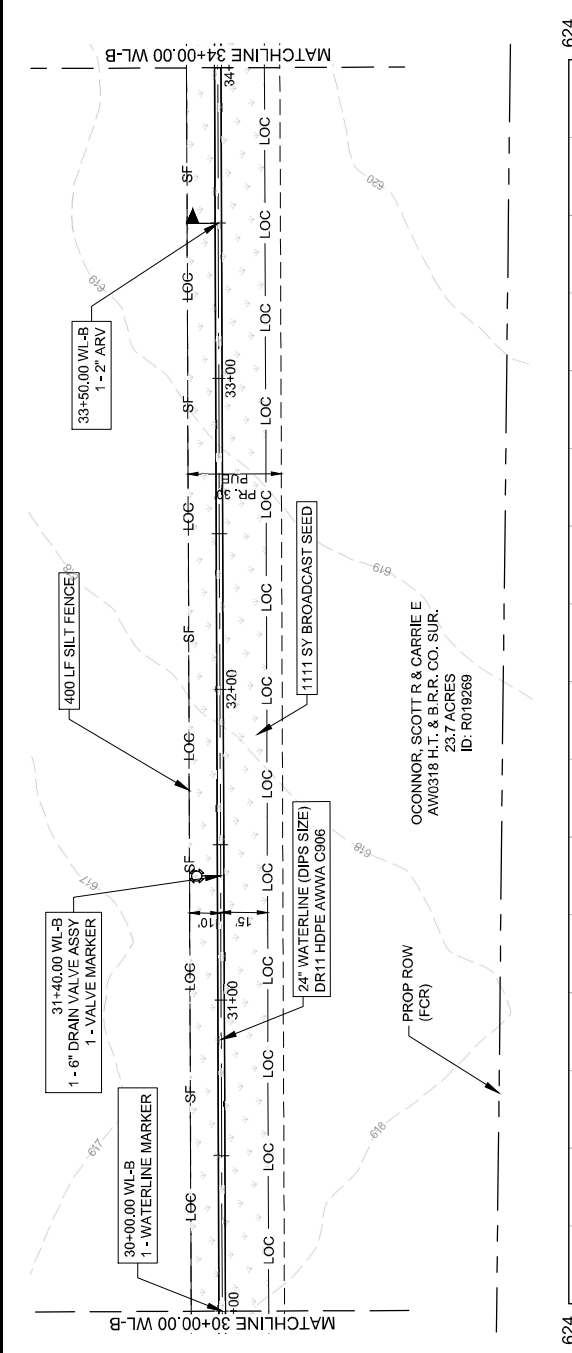
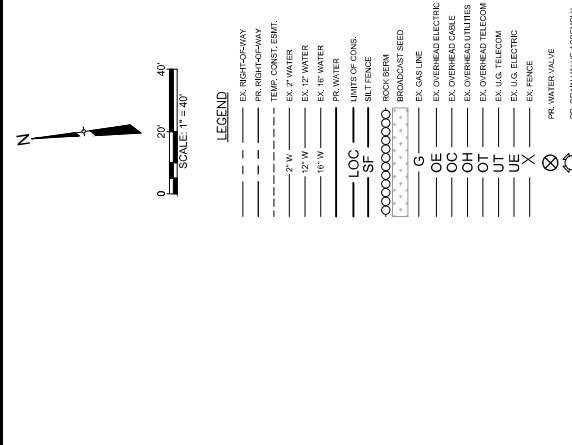
REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 17896 N.W. Pkwy #17896, Fort Worth, TX 76181
 817.334.9799 Fax 817.334.7273
 WWW.COBSENDLEY.COM

WATER LINE B PLAN AND PROFILE
 30+00 TO 34+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
C-311
 15 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWNERS RISK AND AT HIS OWN COST. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL AFFECTED AGENCIES AND UTILITIES. WHEN THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROPOSED WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW EXISTING WATER MAINS THAT ARE TO BE ABANDONED ARE TO BE CUT, CAPPED, AND FILLED WITH FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO PROPOSED ROADWAY WILL BE CAPPED. ALL PROPOSED ROADWAY WILL BE CAPPED. ALL SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF THE EXISTING WATER MAINS ARE TO BE ABANDONED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE OR 11" DIPS. ALL FITTINGS SHALL BE USED AT ALL FITTINGS VALUES, AND OTHER APPROPRIATE. WATER LINE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - IF THE EXISTING WATER MAINS ARE TO BE ABANDONED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
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 - IF THE EXISTING WATER MAINS ARE TO BE ABANDONED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.

STATION	ELEVATION	DESCRIPTION
30+00	611.46	EXIST. GRADE
30+50	611.38	EXIST. GRADE
31+00	611.34	EXIST. GRADE
31+26	611.26	EXIST. GRADE
31+40.00	611.24	1-6" DRAIN VALVE ASSY
31+50	611.23	31+40.00 WL-B
31+74	611.23	24" WATERLINE (DIPS SIZE)
31+78	611.46	24" WATERLINE (DIPS SIZE)
32+00	611.74	24" WATERLINE (DIPS SIZE)
32+50	612.29	24" WATERLINE (DIPS SIZE)
33+00	612.84	24" WATERLINE (DIPS SIZE)
33+39	613.39	33+50.00 WL-B
33+50	613.42	33+50.00 WL-B
34+00	613.19	34+00 WL-B

PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

EXISTING GRADE
 607.7
 FLOW LINE
 602.79
 OF PIPE

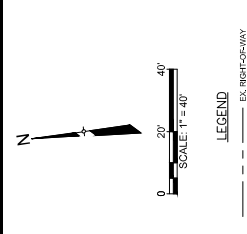
REV	NO.	REVISION DESCRIPTION	APPROVED BY	DATE



CR 404 HULL TO 24" WATER LINE
TAYLOR, TEXAS
38+00 TO 42+00
WATER LINE B PLAN AND PROFILE



SHEET
C-313
17 of 66



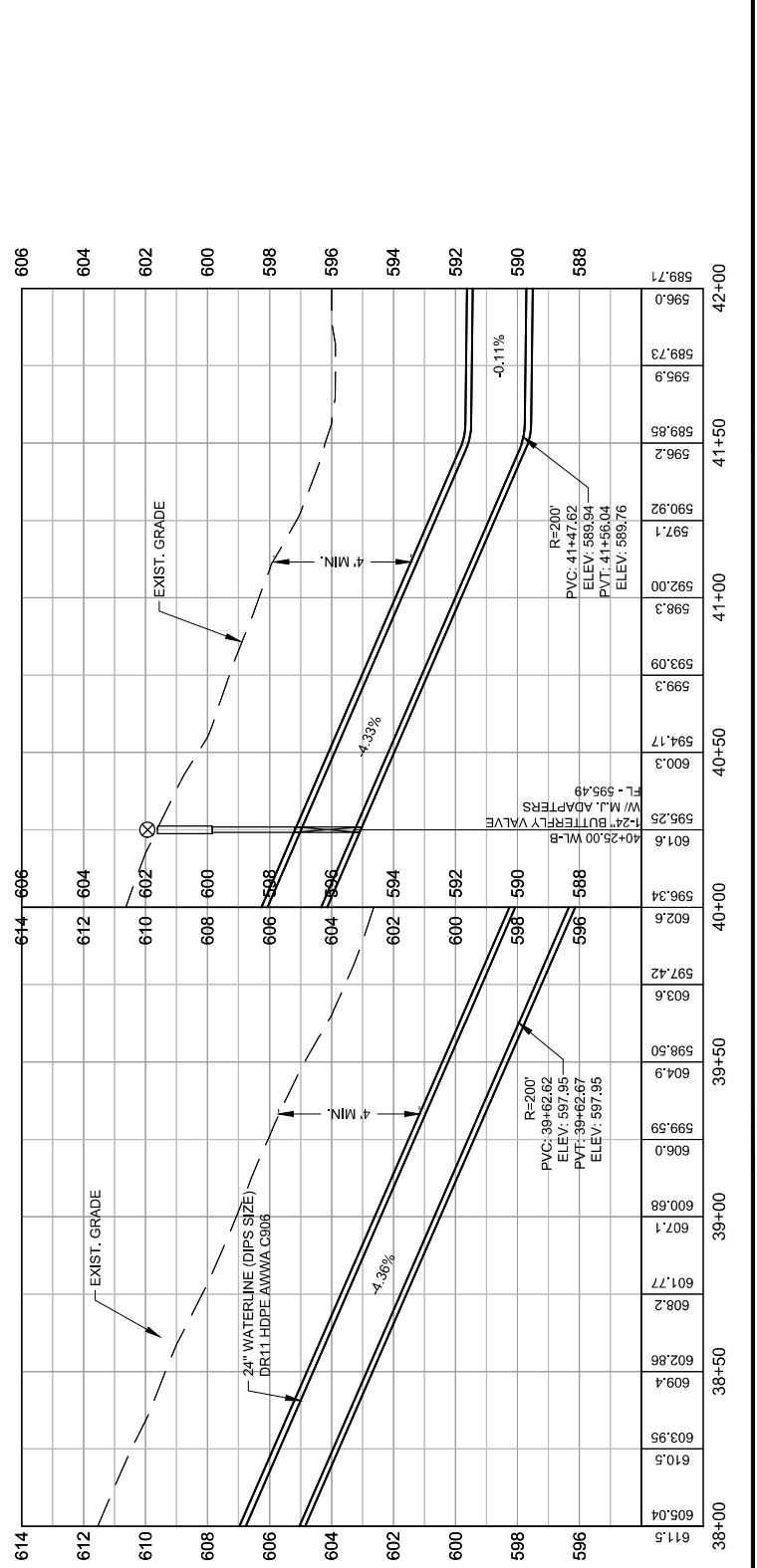
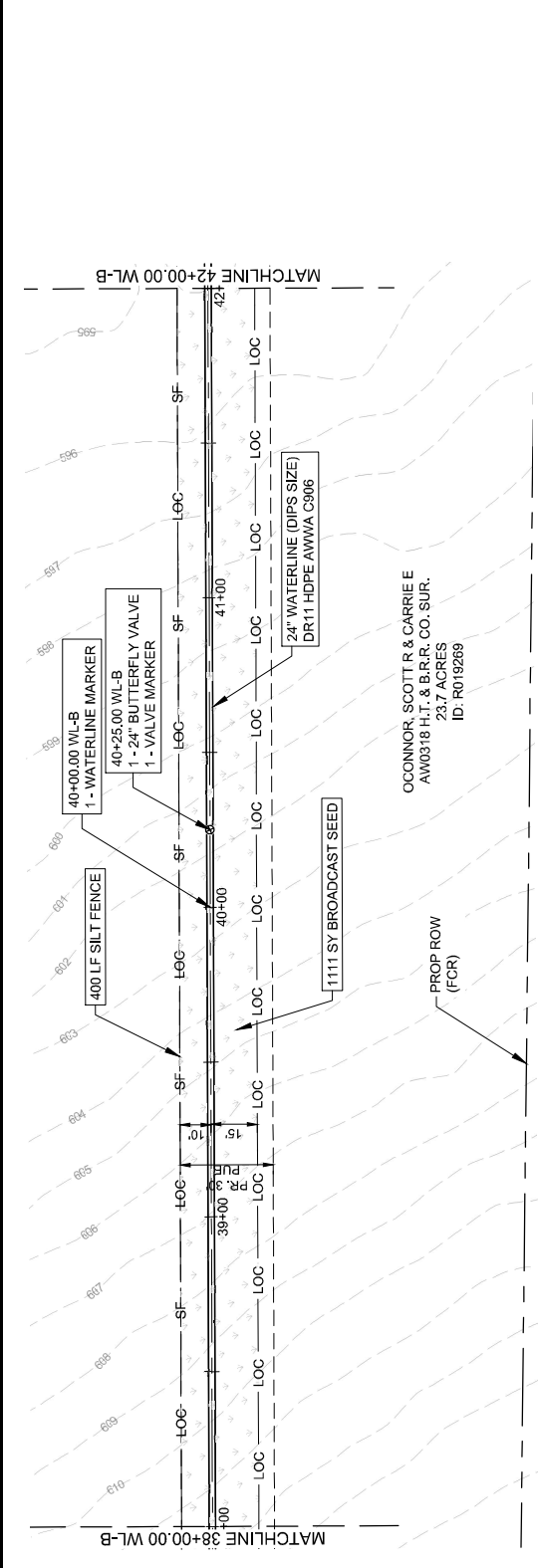
- LEGEND**
- EK. RIGHT-OF-WAY
 - PK. RIGHT-OF-WAY
 - TEMP. CONST. EMT.
 - EK. 2" WATER
 - EK. 12" WATER
 - EK. 18" WATER
 - PK. WATER
 - LIMITS OF CONS.
 - SILT FENCE
 - ROCK BERM
 - BROADCAST SEED
 - G
 - EK. GAS LINE
 - EK. OVERHEAD ELECTRIC
 - OC
 - EK. OVERHEAD CABLE
 - OH
 - EK. OVERHEAD UTILITIES
 - OT
 - EK. OVERHEAD TELECOM
 - UT
 - EK. U.S. TELECOM
 - UE
 - EK. U.S. ELECTRIC
 - X
 - EK. FENCE
 - PK. WATER VALVE
 - PK. DRAIN VALVE ASSEMBLY

GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR DISCOVERS EXISTING UTILITIES, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK AND NOTIFY THE ENGINEER. THE CONTRACTOR SHALL PROTECT ALL UTILITIES FOR THE ENTIRE LENGTH OF THE CONSTRUCTION PERIOD.
- EXISTING UTILITY WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN IS PLACED IN SERVICE. APPROVED AND THE NEW MAIN IS PLACED IN SERVICE. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY COVERED WITH A MINIMUM OF 24" OF FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY COVERED AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY COVERED AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY COVERED AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE.
- PROPOSED ROADWAY SHALL BE IMPROVED TO THE ATTENTION OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REPAIR TO THE COST OF PIPE. NO SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" DIPS HOPE OR 1" (200) IPS HOPE WITH 40' MIN. COVER. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION.
- THE ENGINEER SHALL BE PROTECTED. IF DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REPAIR TO THE COST OF PIPE. NO SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" DIPS HOPE OR 1" (200) IPS HOPE WITH 40' MIN. COVER. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION.
- AND OTHER APPROPRIATE. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REPAIR TO THE COST OF PIPE. NO SEPARATE PAY ITEM.
- HOPE FITTINGS SHALL BE SHIP-FABRICATED HOPE FITTINGS. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION.
- 1" IPS HOPE SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION. ALL FITTINGS SHALL BE AWARDED IN PLACE AND ARE NOT UNDER THE PROVISIONS OF THIS SPECIFICATION.

EXISTING GRADE
607.7
FLOW LINE
602.79
GRADE
EXISTING

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.



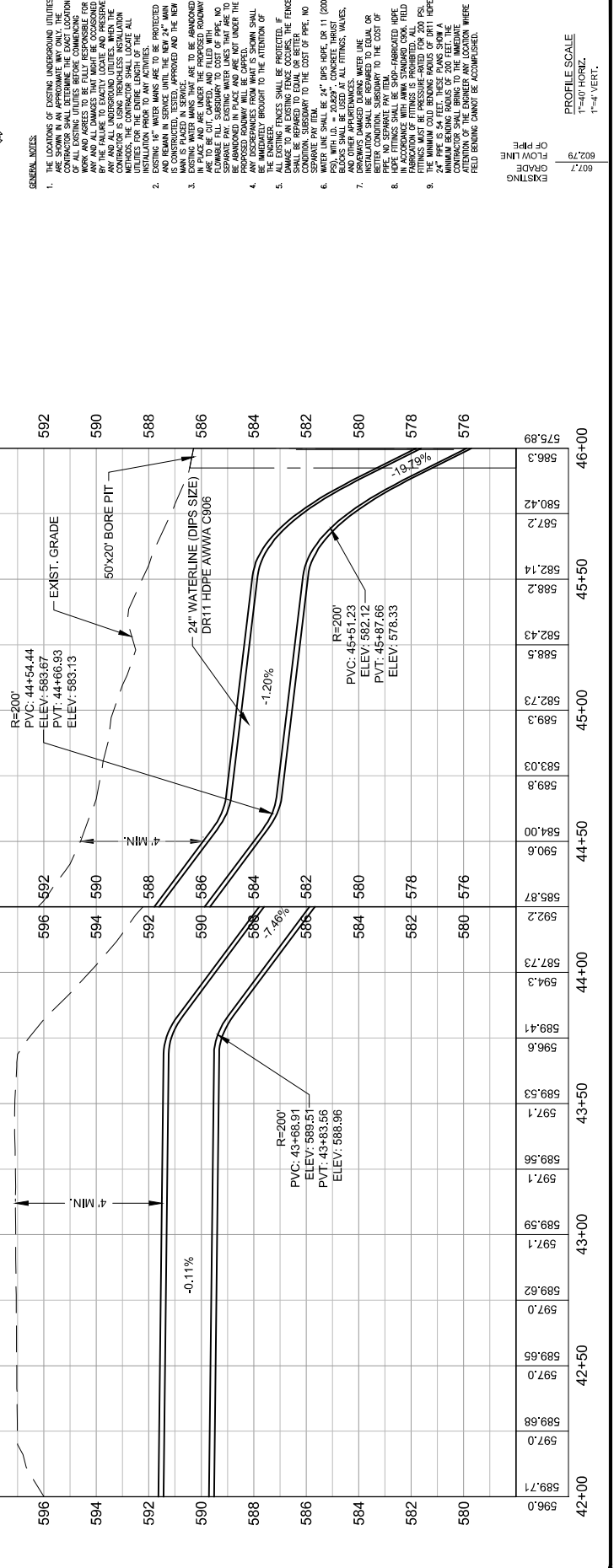
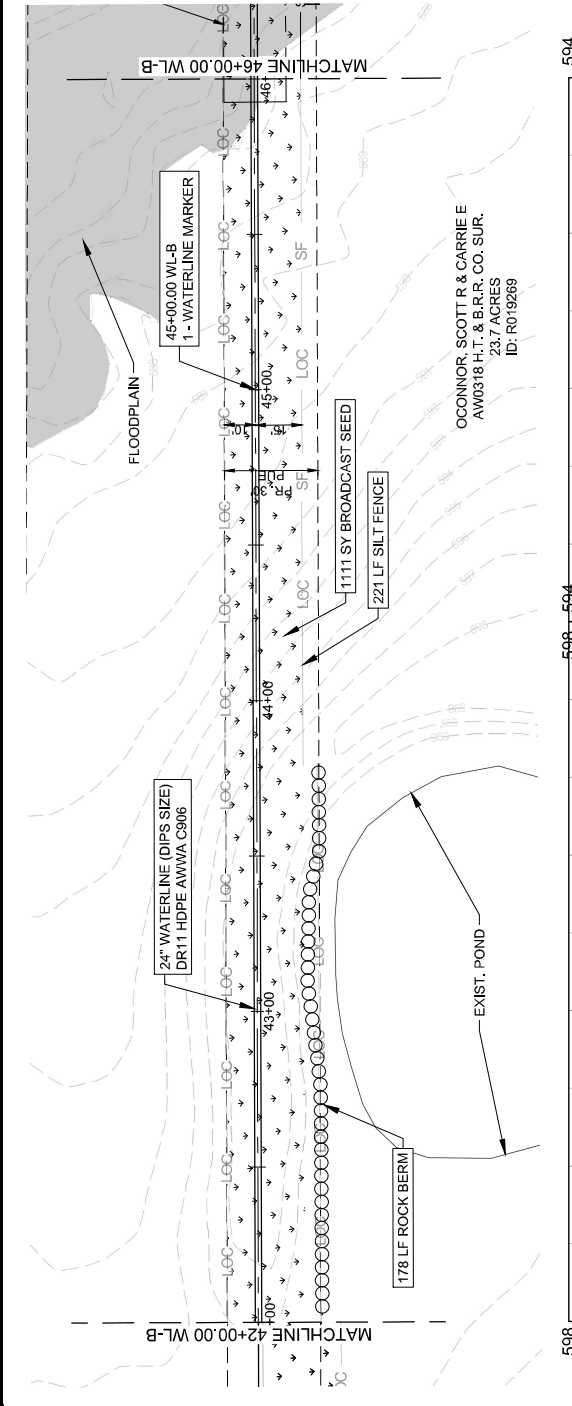
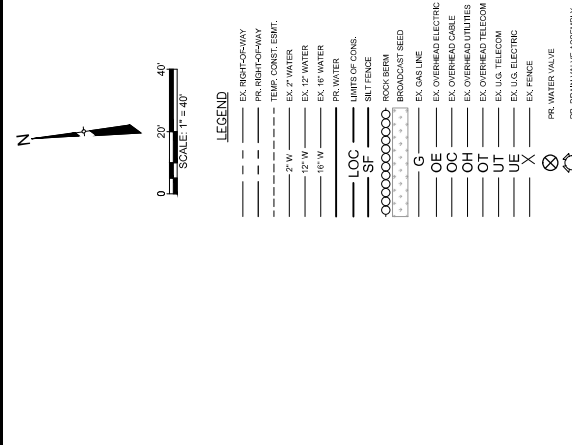
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N. P. 274 1/2 TRACT, N.E. 1/4 SEC. 100
 008 EAST HAWKING DRIVE, SUITE 100
 MARYSTON, TEXAS 75152
 512.624.9798 FAX 512.624.7272
 WWW.COBBERNDLEY.COM

WATER LINE B PLAN AND PROFILE
 42+00 TO 46+00
 CR 404 HULLTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
C-314
 18 of 66



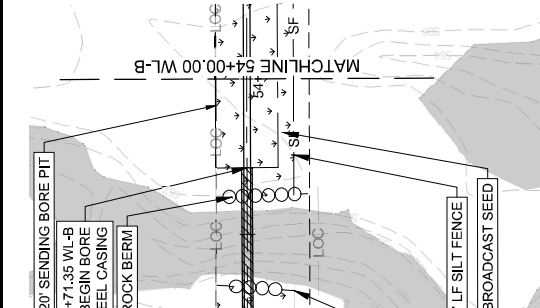
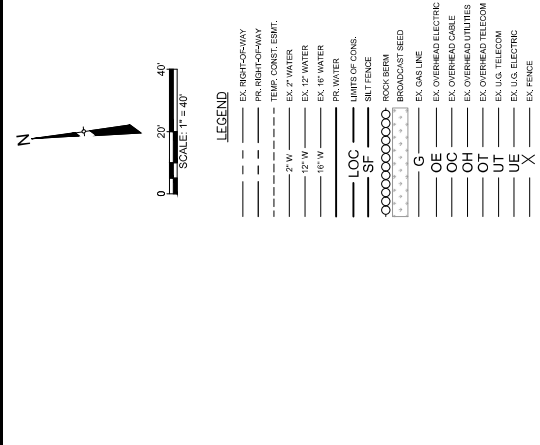
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N. Loop West, Suite 100
 Houston, Texas 77058
 281.488.1111 FAX 281.488.1111
 WWW.COBBERNDLEY.COM

WATER LINE B PLAN AND PROFILE
 50+00 TO 54+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



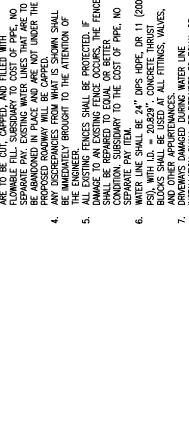
SHEET
 C-316
 20 of 66



- LEGEND**
- EX. RIGHT-OF-WAY
 - PR. RIGHT-OF-WAY
 - TEMP. CONST. ESMT.
 - 2" W
 - 12" W
 - 18" W
 - PR. WATER
 - LIMITS OF CONGS.
 - LOC
 - SF
 - ROCK BERM
 - BROADCAST SEED
 - G
 - OE
 - OC
 - OH
 - OT
 - UT
 - UE
 - X
 - PR. WATER VALVE
 - PR. DRAIN VALVE ASSEMBLY

GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES BY EXCAVATION AND TESTING PRIOR TO ANY WORK. ANY UTILITIES NOT SHOWN ON THIS PLAN SHALL BE FULLY RESPONSIBLE FOR THE CONTRACTOR TO VERIFY THE LOCATION OF ANY UTILITIES TO EXISTING LOCAL CO. RECORDS AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE UTILITIES BY THE METHODS STATED ABOVE, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
- EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED.
- EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY RESPONSIBLE FOR THE CONTRACTOR TO VERIFY THE LOCATION OF ANY UTILITIES TO EXISTING LOCAL CO. RECORDS AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE UTILITIES BY THE METHODS STATED ABOVE, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
- PROPOSED DRAINAGE WILL BE CAPTURED AND SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
- IF THE EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE COST OF REPAIR SHALL BE SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" BPS HOPE OR 1" (600) BPS HOPE. ALL FITTINGS SHALL BE USED AT ALL FITTINGS VALUES.
- INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE COST OF REPAIR SHALL BE SEPARATE PAY ITEM.
- HOPE FITTINGS SHALL BE SHOP-FABRICATED HOPE FITTINGS MUST BE PRESSURE-TESTED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-TESTED FOR 200 PSI. ALL FITTINGS SHALL BE PRESSURE-TESTED FOR 200 PSI.
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GENERAL NOTES:

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EXISTING GRADE
 602.79
 FLOW LINE
 602.79
 PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

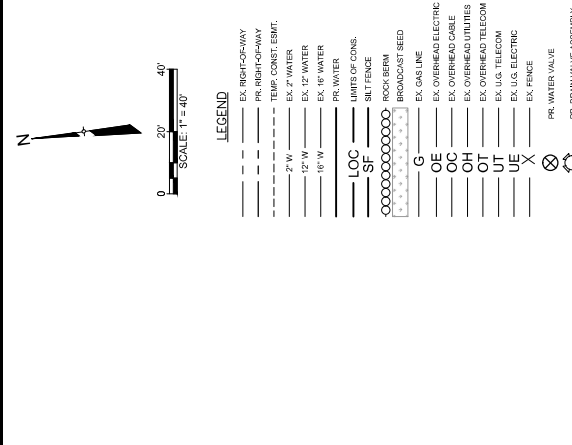
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N. Loop West, Suite 100
 Houston, Texas 77058
 281.488.9999 Fax 281.488.7700
 WWW.COBBERDLEY.COM

WATER LINE B PLAN AND PROFILE
 54+00 TO 58+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



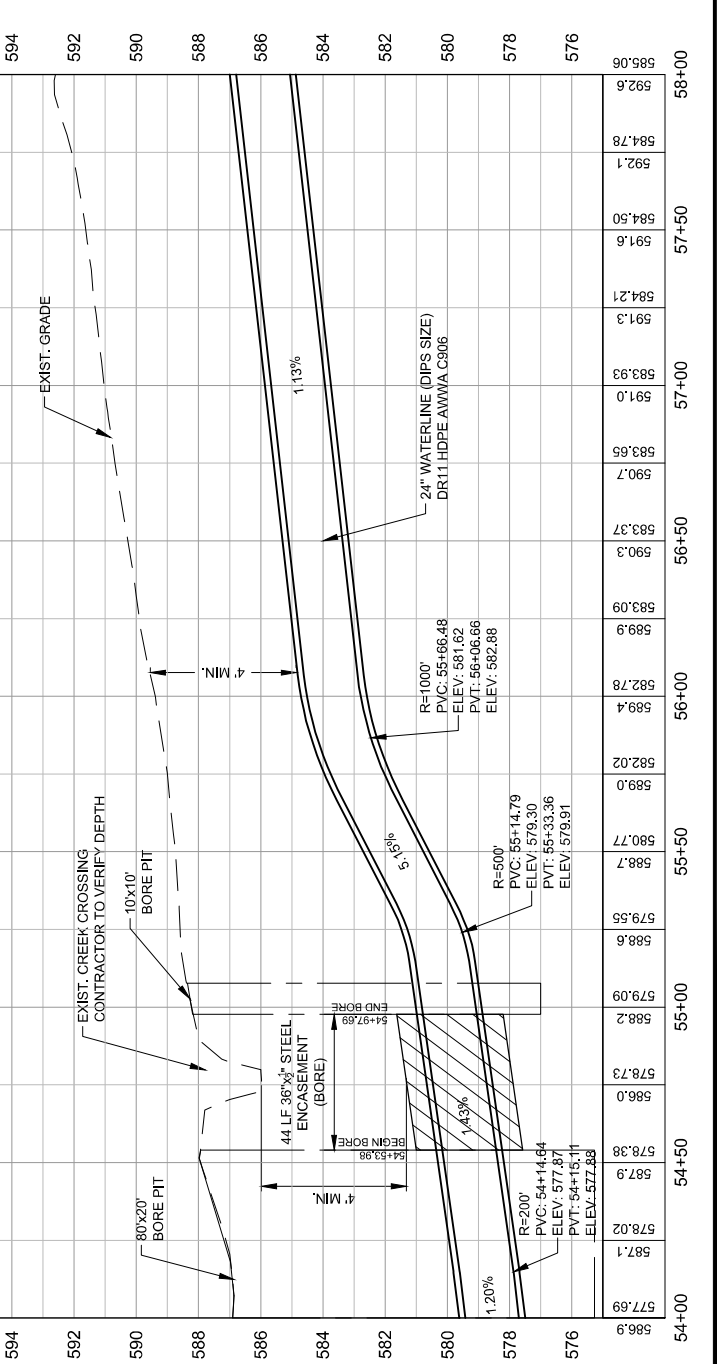
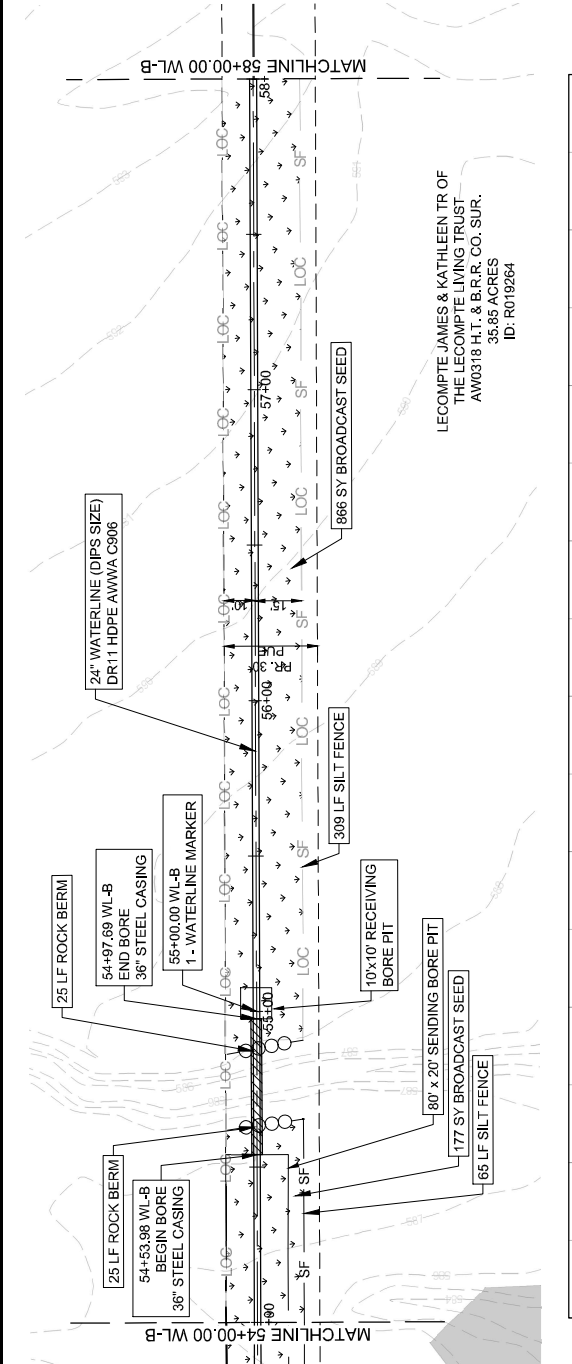
SHEET
C-317
 21 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. WHEN THE CONTRACTOR IS NOTIFIED OF ANY EXISTING UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. THE CONTRACTOR SHALL PROTECT ALL UTILITIES FROM DAMAGE. EXISTING UTILITIES ARE TO BE PROTECTED BY WATER MAINS ARE TO BE PROTECTED BY CONSTRUCTION FENCES. EXISTING UTILITIES ARE TO BE PROTECTED BY CONSTRUCTION FENCES. EXISTING UTILITIES ARE TO BE PROTECTED BY CONSTRUCTION FENCES. EXISTING UTILITIES ARE TO BE PROTECTED BY CONSTRUCTION FENCES.
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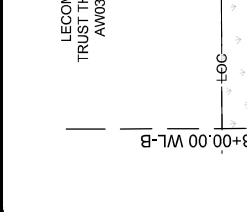
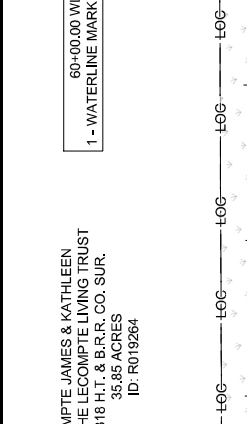
PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

EXISTING GRADE	607.7
FLOW LINE	602.79
OF PIPE	



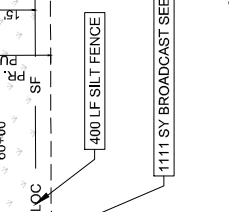
Cobbendley
1806 N. Loop West, Suite 100
512.524.9798 | Fax: 512.524.7272
www.cobbendley.com

LECOMPTIE JAMES & KATHLEEN
TRUST THE LECOMPTIE LIVING TRUST
AW0318 H.T. & B.F.R. CO. SUR.
35.85 ACRES
ID: R019264



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES BY EXCAVATION AND TESTING PRIOR TO ANY WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR SHALL LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
 - EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE ABANDONED IN PLACE. ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY CAPED AND FILLED WITH FLUORIDE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS ARE TO BE ABANDONED IN PLACE AND ARE NOT UNDER THE ATTENTION OF THE ENGINEER.
 - IF A PROPOSED ROADWAY WILL BE CAPED, THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF A PROPOSED ROADWAY WILL BE PROTECTED, THE CONTRACTOR SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
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- LEGEND**
- EX. RIGHT-OF-WAY
 - PR. RIGHT-OF-WAY
 - TEMP. CONST. ESMT.
 - EX. 2" WATER
 - EX. 12" WATER
 - EX. 18" WATER
 - PR. WATER
 - LOC
 - SF
 - LIMITS OF CONDS.
 - SILT FENCE
 - ROCK BERM
 - BROADCAST SEED
 - EX. GAS LINE
 - EX. OVERHEAD ELECTRIC
 - OC
 - OH
 - OT
 - UT
 - UE
 - EX. U.S. TELECOM
 - EX. U.S. ELECTRIC
 - EX. FENCE
 - PR. WATER VALVE
 - PR. DRAIN VALVE ASSEMBLY



PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

EXISTING GRADE	FLOW LINE	OF PIPE
602.79	602.79	

602
600
598
596
594
592
590
588
586
584

Station	Elevation
58+00	582.6
58+10	585.06
58+20	585.42
58+30	586.06
58+40	586.78
58+50	587.50
58+60	588.21
58+70	588.84
58+80	589.33
58+90	589.61
59+00	589.71
59+10	589.86
59+20	589.95
59+30	589.95
59+40	589.84
59+50	589.79
59+60	589.51
59+70	589.23
59+80	588.84
59+90	588.4
60+00	587.7
60+10	586.93
60+20	586.14
60+30	585.23
60+40	584.19
60+50	583.62
60+60	583.62
60+70	583.62
60+80	583.62
60+90	583.62
61+00	583.2
61+10	582.4
61+20	581.9
61+30	581.9
61+40	581.9
61+50	581.9
61+60	581.9
61+70	581.9
61+80	581.9
61+90	581.9
62+00	581.9

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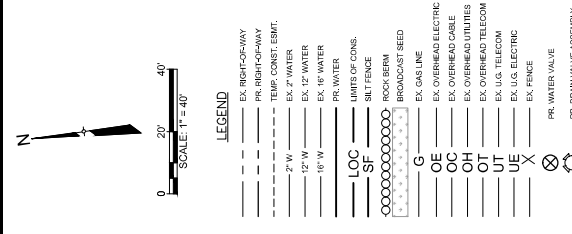
REV	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N.O. P.O. #271 TIRAS, TEXAS 75782
 512.834.9791 FAX 512.834.7723
 WWW.COBBERNDLEY.COM
 005 EAST HENNING AND SPRING, SUITE 100
 AUSTIN, TEXAS 78752

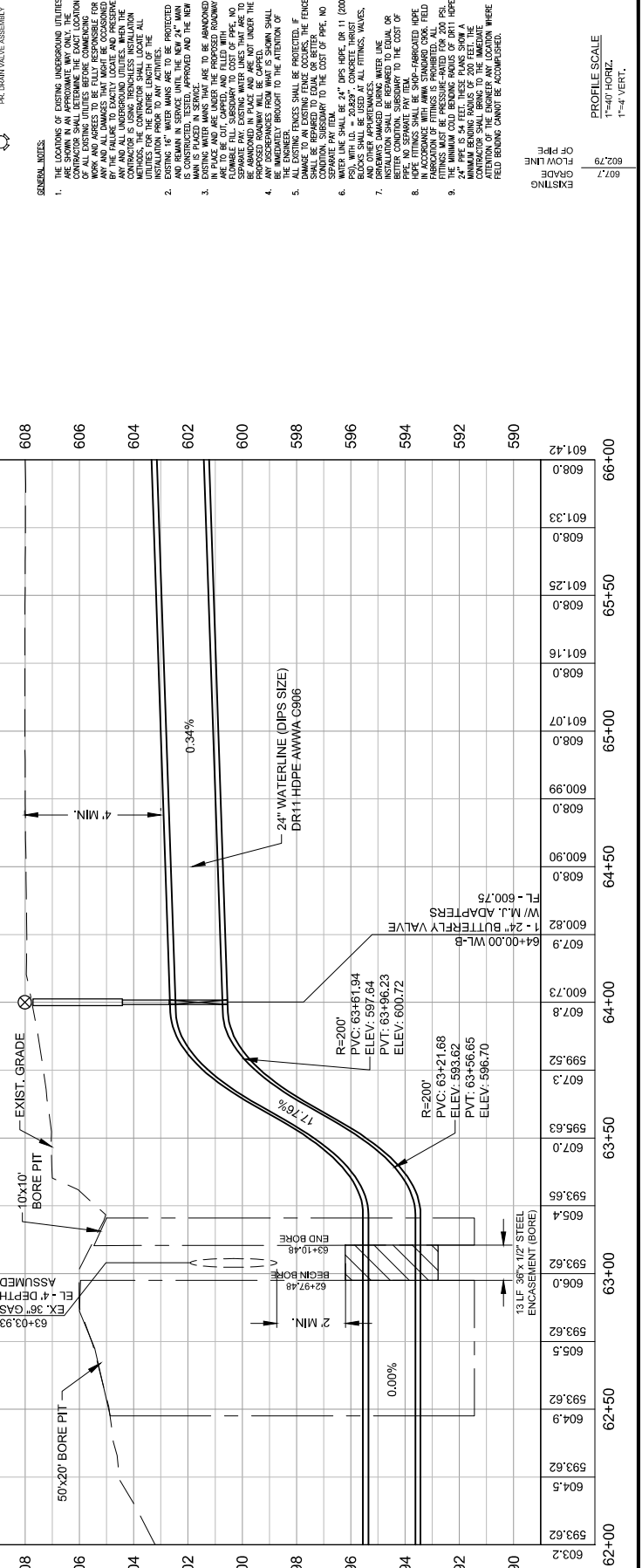
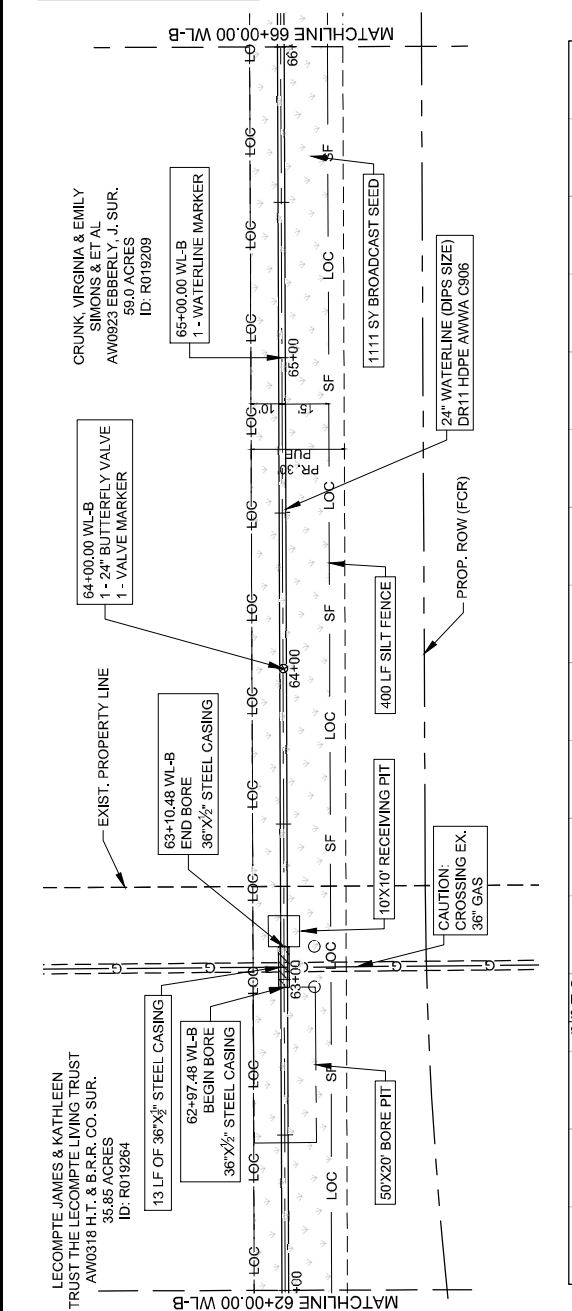
WATER LINE B PLAN AND PROFILE
 62+00 TO 66+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS

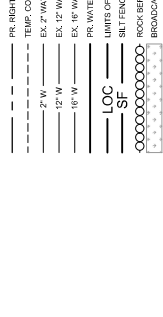


SHEET
 C-319
 23 of 66



VERTICAL LOCATION OF EXISTING 36" CRUDE OIL GAS LINE IS UNKNOWN. CONTRACTOR SHALL COORDINATE WITH PIPELINE OWNER TO DETERMINE DEPTH AT THE CROSSING LOCATION. IF DISCREPANCY IS FOUND BETWEEN FIELD FINDING AND DEPTH SHOWN ON PLAN, CONTRACTOR SHALL COORDINATE WITH ENGINEER.





LEGEND

- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. ESMT.
- 2" W
- 12" W
- 16" W
- PR. WATER
- LIMITS OF CONGS.
- LOC
- SF
- ROCK BERM
- BROADCAST SEED
- G
- OE
- OC
- OH
- OT
- UT
- UE
- X
- PR. WATER VALVE
- PR. DRAIN VALVE ASSEMBLY

GENERAL NOTES:

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- IF ANY DAMAGE TO EXISTING UTILITIES OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION SUBSIDIARY TO THE COST OF SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" DRIP HOPE OR 1" (200) DRIP HOPE WITH 4" FITTINGS. VALVES, AND OTHER APPURTENANCES WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION SUBSIDIARY TO THE COST OF SEPARATE PAY ITEM.
- HOPE FITTINGS SHALL BE SHOP-FABRICATED HOPE FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. 12" PIPE SHALL BE 4" FITTINGS. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.

EXISTING GRADE	607.7	602.79	OF PIPE
602.78	610.0	70+00	
614	610.3	69+50	
612	602.61	69+50	
610	602.63	69+50	
608	602.53	69+00	
606	602.44	69+00	
604	602.36	69+00	
602	610.3	68+50	
600	602.27	68+50	
598	602.19	68+50	
596	602.10	68+00	
	609.9	68+00	
	602.01	68+00	
	609.8	68+00	
	602.01	67+50	
	609.5	67+50	
	601.93	67+50	
	609.2	67+50	
	601.84	67+00	
	609.0	67+00	
	601.76	67+00	
	608.8	67+00	
	601.67	66+50	
	608.5	66+50	
	601.59	66+50	
	608.3	66+50	
	601.50	66+00	
	608.1	66+00	
	601.42	66+00	

CRUNK VIRGINIA & EMILY
SIMONS & ET AL
AW0823 EBERLY, J. SUR.
59.0 ACRES
ID: R018209

24" WATERLINE (DIPS SIZE)
DR11 HDPE AWWA C906

400 LF SILT FENCE

1111 SY BROADCAST SEED

70+00.00 WL-B
1- WATERLINE MARKER

70+00.00 WL-B

PROP. ROW (FCR)

614
612
610
608
606
604
602
600
598
596

EXIST. GRADE

4" MIN.

0.34%

24" WATERLINE (DIPS SIZE)
DR11 HDPE AWWA C906

602.78
610.0
602.70
610.3
602.61
610.5
602.63
610.6
602.44
610.5
602.36
610.3
602.27
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609.9
602.10
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609.5
601.93
609.2
601.84
609.0
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608.3
601.50
608.1
601.42

PROFILE SCALE
1"=40' HORIZ.
1"=4' VERT.

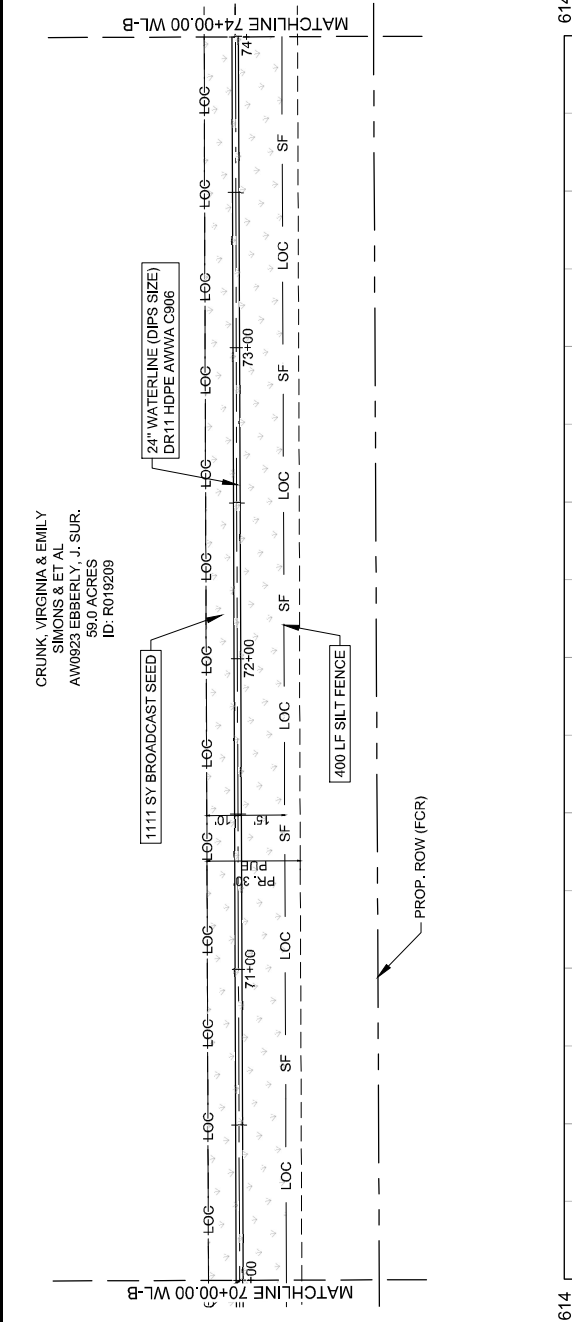
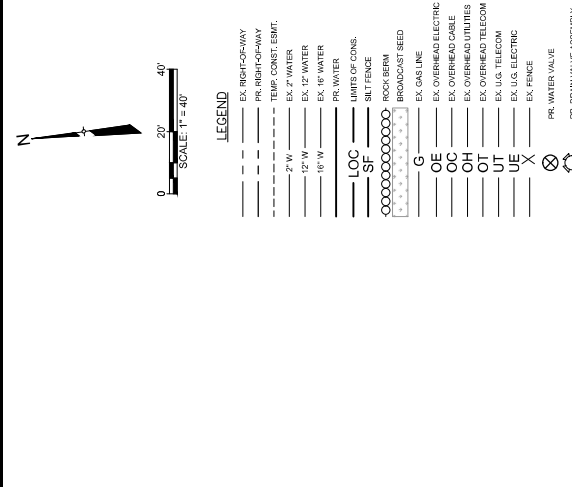
REV.	NO.	REVISION DESCRIPTION	APPROVED	DATE

Cobbendley
 17896 NO. F-274 | TIRUS RD. SUITE 100
 512.534.9798 | FAX 512.524.7722
 WWW.COBBERDLEY.COM

WATER LINE B PLAN AND PROFILE
 7700 TO 74+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-321
 25 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE START OF WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES THAT MAY OCCUR AS A RESULT OF THIS WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL UNDERGROUND UTILITIES, WHEN THE CONTRACTOR IS NOTIFIED OF THE EXISTENCE OF ANY UTILITIES. THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITIES SHALL BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN WATER LINE IS INSTALLED AND APPROVED AND THE NEW EXISTING WATER MAINS THAT ARE TO BE ABANDONED ARE TO BE CUT, CAPPED, AND FILLED WITH FLAMMABLE FILL. SUBSIDIARY TO COST OF PIPE, NO PROPOSED ROADWAY WILL BE OPENED OR REPAIRED BE ABANDONED IN PLACE AND ARE NOT UNDER THE ATTENTION OF THE ENGINEER. DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" DIPS HOPE OR 1" (600) AND OTHER APPROPRIANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUPPORT TO THE COST OF HOPE FITTINGS SHALL BE SHO-FABRICATED HOPE HOPE FITTINGS SHALL BE SHO-FABRICATED HOPE FITTINGS MUST BE PRESSURE-RAID FOR 200 PSI. HOPE FITTINGS SHALL BE PRESSURE-RAID FOR 200 PSI. 12" PIPES SHALL BE 54 FEET BENEATH SURFACE. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.

EXISTING GRADE	FLOW LINE	PROFILE SCALE
602.79	602.79	1"=40' HORIZ. 1"=4' VERT.
604.32	604.32	
610.9	610.9	
610.7	610.7	
603.98	603.98	
610.5	610.5	
603.90	603.90	
610.3	610.3	
603.81	603.81	
610.1	610.1	
603.73	603.73	
610.0	610.0	
603.64	603.64	
609.9	609.9	
603.55	603.55	
609.7	609.7	
603.47	603.47	
609.7	609.7	
603.38	603.38	
609.5	609.5	
603.30	603.30	
609.5	609.5	
603.21	603.21	
609.5	609.5	
603.13	603.13	
609.7	609.7	
603.04	603.04	
609.7	609.7	
602.96	602.96	
609.8	609.8	
602.87	602.87	
609.9	609.9	
602.78	602.78	
610.0	610.0	
70+00	70+00	
70+50	70+50	
71+00	71+00	
71+50	71+50	
72+00	72+00	
72+50	72+50	
73+00	73+00	
73+50	73+50	
74+00	74+00	

REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1789 N. Loop West, Suite 100
 Houston, Texas 77058
 281.488.1111 FAX 281.488.1100
 WWW.COBBENDLEY.COM

WATER LINE B PLAN AND PROFILE
 77+00 TO 78+00
 CR 404 HUTTO TO 24" WATER LINE
 TAYLOR, TEXAS



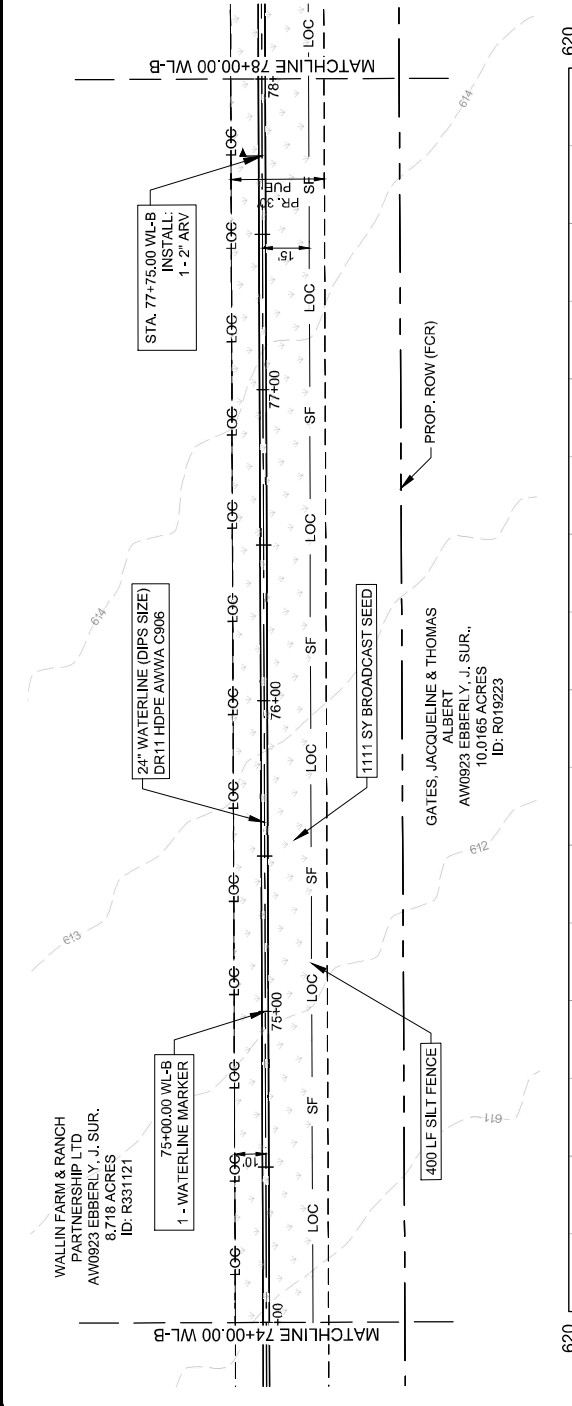
SHEET
 C-322
 26 of 66

LEGEND

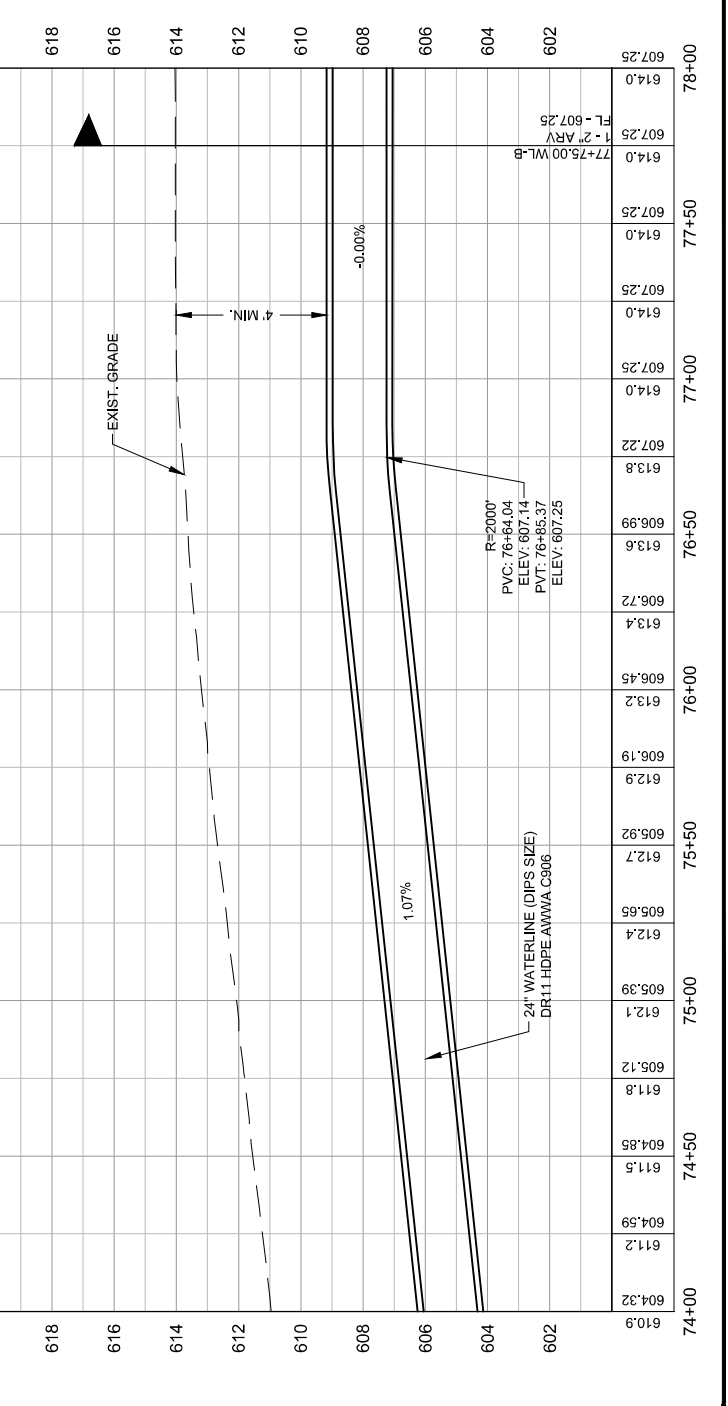
- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. EMT.
- EX. 2" WATER
- EX. 12" WATER
- EX. 18" WATER
- PR. WATER
- LIMITS OF CONS.
- SILT FENCE
- ROCK BERM
- BROADCAST SEED
- EX. GAS LINE
- EX. OVERHEAD ELECTRIC
- EX. OVERHEAD CABLE
- OC
- OH
- EX. OVERHEAD UTILITIES
- EX. OVERHEAD TELECOM
- OT
- EX. U.S. TELECOM
- UE
- EX. U.S. ELECTRIC
- EX. FENCE
- PR. WATER VALVE
- PR. DRAIN VALVE ASSEMBLY

LOC

- SF
- LOC



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND AGREES TO EXEMPT LOCAL JURISDICTIONS FROM ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE EXISTING UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED. APPROVED AND THE NEW MAINS SHALL BE INSTALLED IN THE EXISTING MAINS. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY ABANDONED AND FILL WITH FLUORIDE FILL. SUBSIDIARY TO COST OF PIPE, NO FLUORIDE FILL SHALL BE USED. ALL MAINS SHALL BE ABANDONED IN PLACE AND ARE NOT UNDER THE PROPOSED ROADWAY WILL BE CAPPED. MAINS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF THE EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIRS TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, OR 1" 1000 PSI POLYETHYLENE GLASS FIBER REINFORCED PLASTIC (FRP) SHALL BE USED AT ALL FITTINGS, VALVES, AND OTHER APPURTENANCES.
 - INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUPPORT TO THE COST OF REPAIRS SHALL BE THE RESPONSIBILITY OF THE FIELD OPERATOR. FITTINGS SHALL BE SHOP-FABRICATED HDPE FITTINGS MUST BE PRESSURE-RAIRED FOR 200 PSI. FITTINGS SHALL BE 54 FEET BENCH PIPES SHOWN ON THE PLAN. BENCH PIPES SHALL BE 54 FEET MINIMUM BENCH RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ATTENTION OF THE BROWNS ANY LOCATION WHERE FIELD BENCHING CANNOT BE ACCOMPLISHED.



REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1789 E. FM 1716, Suite 100, Springtown, TX 77152
 512.534.9798 | FAX 512.534.7272
 WWW.COBBERNDLEY.COM

WATER LINE B PLAN AND PROFILE
 78+00 TO 82+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



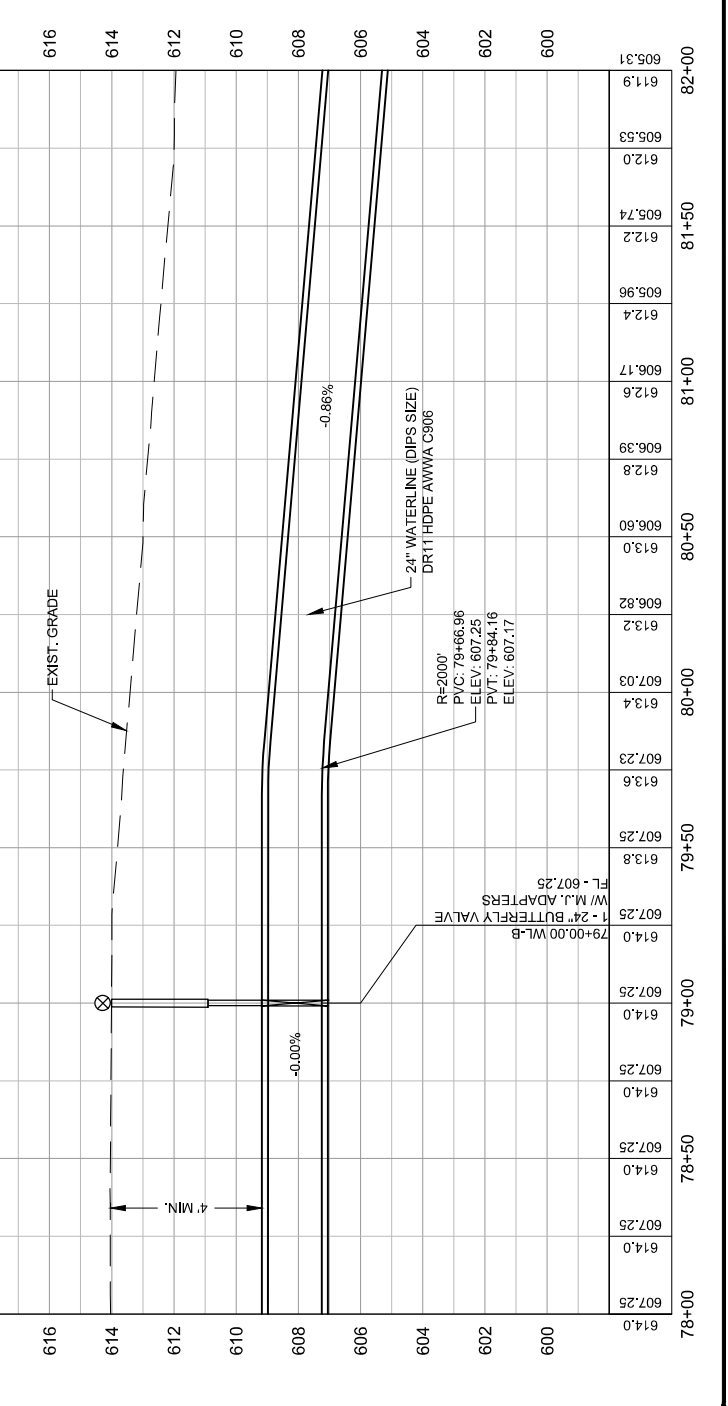
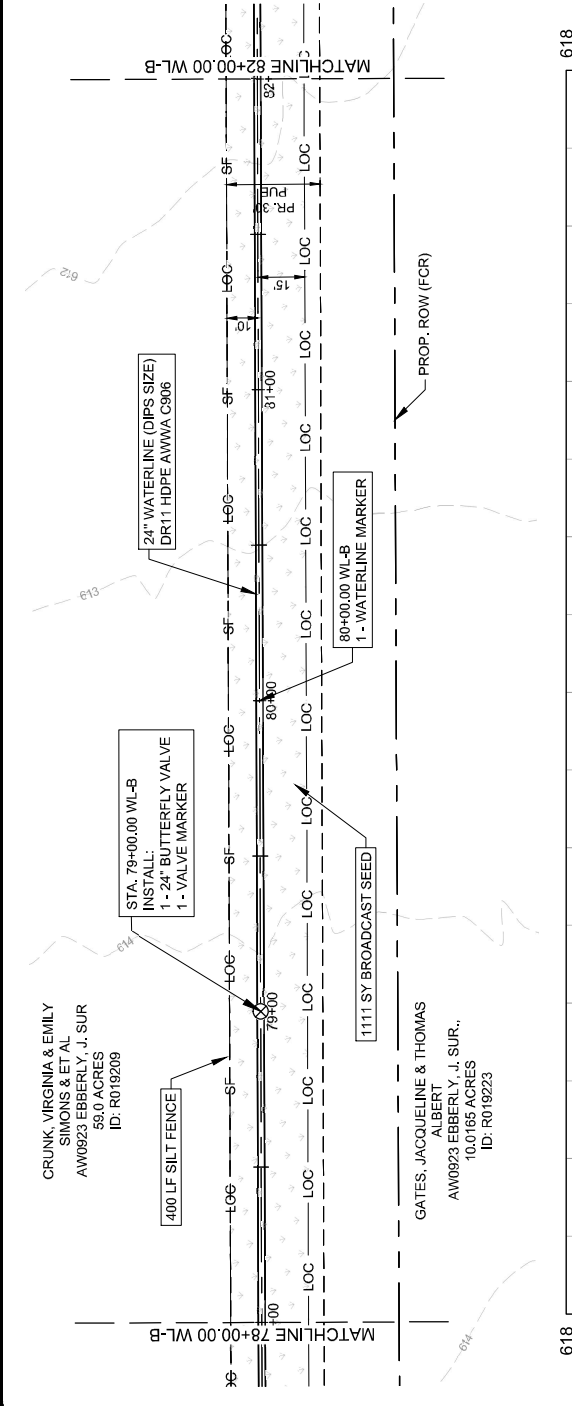
SHEET
 C-323
 27 of 66

GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. ANY DAMAGE TO ANY UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWNERS RISK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITY MARKERS SHALL BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN WATER LINE IS INSTALLED. APPROVED AND THE NEW MAIN WATER LINE SHALL BE INSTALLED IN THE EXISTING WATER MAINS THAT ARE TO BE ABANDONED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE.
- PROPOSED ROADWAY WILL BE CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING ROADWAY SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE.
- THE ENGINEER SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER IF ANY DAMAGE TO EXISTING UTILITIES OCCURS. THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE COST OF REPAIR SHALL BE PAID BY THE CONTRACTOR AT HIS OWNERS RISK. SEPARATE PAY ITEM.
- WATER LINE SHALL BE 24" HDPE PIPE OR 1" 1200 RIGID POLYETHYLENE GLASS REINFORCED PLASTIC (R-2000) WITH 20' MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITY MARKERS SHALL BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN WATER LINE IS INSTALLED. APPROVED AND THE NEW MAIN WATER LINE SHALL BE INSTALLED IN THE EXISTING WATER MAINS THAT ARE TO BE ABANDONED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE.
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- WATER LINE SHALL BE 24" HDPE PIPE OR 1" 1200 RIGID POLYETHYLENE GLASS REINFORCED PLASTIC (R-2000) WITH 20' MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITY MARKERS SHALL BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN WATER LINE IS INSTALLED. APPROVED AND THE NEW MAIN WATER LINE SHALL BE INSTALLED IN THE EXISTING WATER MAINS THAT ARE TO BE ABANDONED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE FULLY CAPED AND FLEED WITH FLAMMABLE FILL SUBSIDIARY TO COST OF PIPE.

LEGEND:

- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. ESMT.
- EX. 2" WATER
- EX. 12" WATER
- EX. 18" WATER
- PR. WATER
- LIMITS OF CONTS.
- SILT FENCE
- ROCK BERM
- BROADCAST SEED
- EX. GAS LINE
- EX. OVERHEAD ELECTRIC
- EX. OVERHEAD CABLE
- EX. OVERHEAD UTILITIES
- EX. OVERHEAD TELECOM
- EX. U.S. TELECOM
- EX. U.S. ELECTRIC
- EX. FENCE
- PR. WATER VALVE
- PR. DRAIN VALVE ASSEMBLY



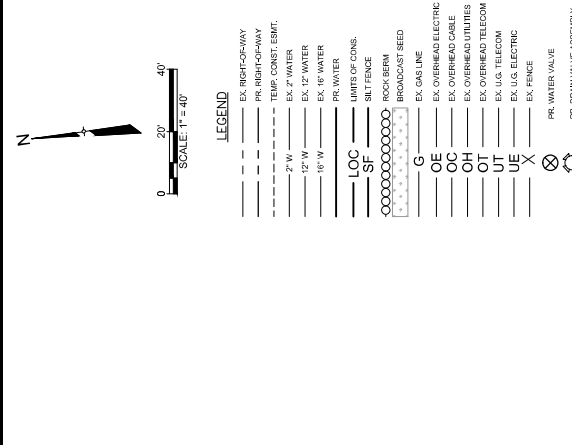
REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 17896 NO. F-274 | 71878 S. 104th ST. | SUITE 100
 512.824.9789 | FAX 512.824.7722
 WWW.COBBERNDLEY.COM

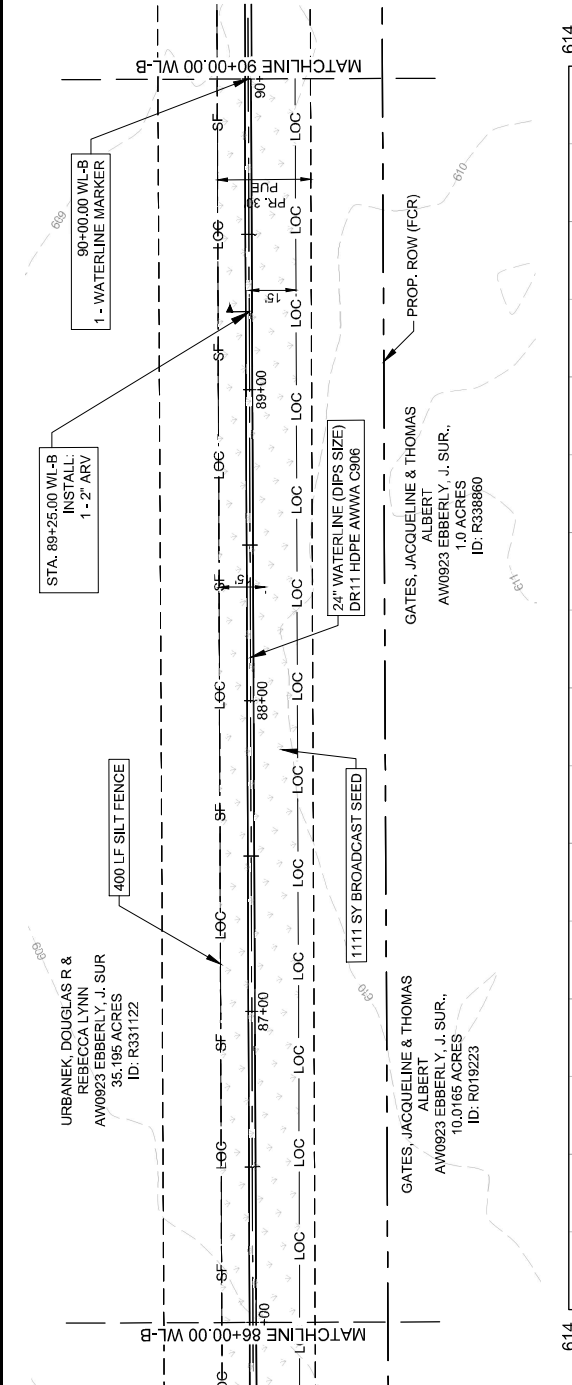
WATER LINE B PLAN AND PROFILE
 86+00 TO 90+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-325
 29 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROPOSED WATER MAINS TO BE PROTECTED.
 - EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE ABANDONED AND REMOVED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DECOMMISSIONED AND FLOWABLE FILL SUBSIDIARY TO COST OF PIPE, NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE OBTAINED AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE OBTAINED AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO EXISTING WATER MAINS SHALL BE ABANDONED UNLESS THEY ARE TO BE OBTAINED AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE.
 - PROPOSED DRAINAGE WILL BE CAPTURED AND SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF A EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, OR 1" (200) AND OTHER APPROPRIATE. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUPPORT TO THE COST OF PIPE FITTINGS SHALL BE SHOP-FABRICATED HDPE PIPE FITTINGS SHALL BE SHOP-FABRICATED HDPE FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI.
 - MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL MAINTAIN THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.



Station	Elevation
86+00	602.69
86+05	602.84
86+10	602.99
86+15	603.13
86+20	603.14
86+25	603.14
86+30	603.14
86+35	603.14
86+40	603.14
86+45	603.14
86+50	603.14
86+55	603.14
86+60	603.14
86+65	603.14
86+70	603.14
86+75	603.14
86+80	603.14
86+85	603.14
86+90	603.14
86+95	603.14
87+00	603.14
87+05	603.14
87+10	603.14
87+15	603.14
87+20	603.14
87+25	603.14
87+30	603.14
87+35	603.14
87+40	603.14
87+45	603.14
87+50	603.14
87+55	603.14
87+60	603.14
87+65	603.14
87+70	603.14
87+75	603.14
87+80	603.14
87+85	603.14
87+90	603.14
87+95	603.14
88+00	603.14
88+05	603.14
88+10	603.14
88+15	603.14
88+20	603.14
88+25	603.14
88+30	603.14
88+35	603.14
88+40	603.14
88+45	603.14
88+50	603.14
88+55	603.14
88+60	603.14
88+65	603.14
88+70	603.14
88+75	603.14
88+80	603.14
88+85	603.14
88+90	603.14
88+95	603.14
89+00	603.14
89+05	603.14
89+10	603.14
89+15	603.14
89+20	603.14
89+25	603.14
89+30	603.14
89+35	603.14
89+40	603.14
89+45	603.14
89+50	603.14
89+55	603.14
89+60	603.14
89+65	603.14
89+70	603.14
89+75	603.14
89+80	603.14
89+85	603.14
89+90	603.14
89+95	603.14
90+00	602.47

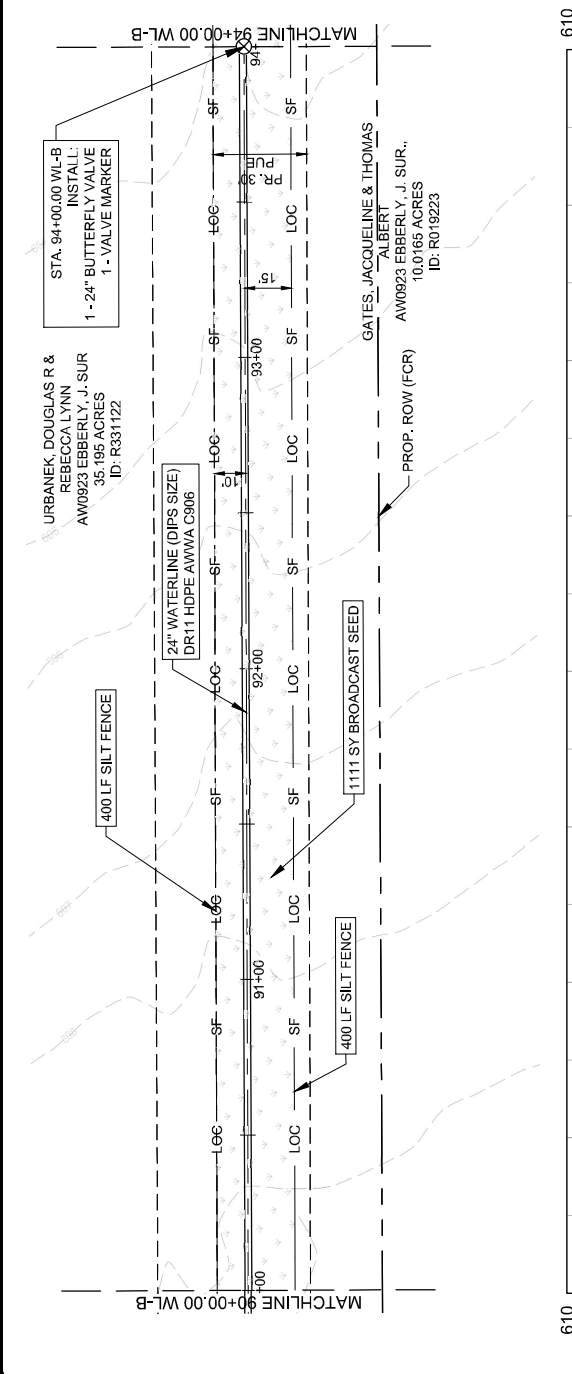
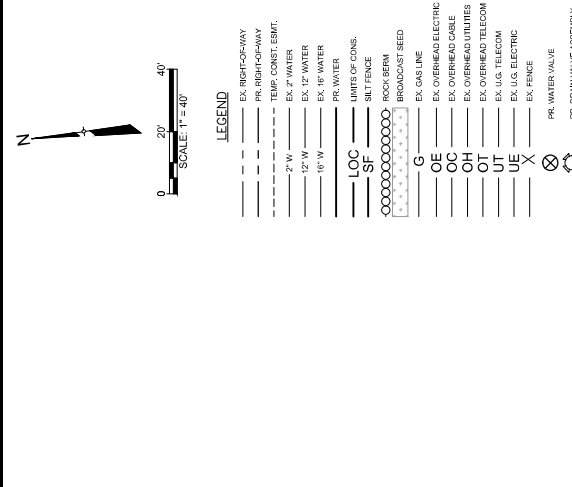
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE



WATER LINE B PLAN AND PROFILE
90+00 TO 94+00
CR 404 HUTTO 24" WATER LINE
TAYLOR, TEXAS



SHEET C-326
30 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO ANY WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL NECESSARY UTILITY LOCATIONS SHALL BE OBTAINED PRIOR TO ANY CONSTRUCTION. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROPOSED WATER LINE.
 - EXISTING 12\"/>

STATION	ELEVATION	DESCRIPTION
90+00	602.47	EXISTING GRADE
90+00	609.0	EXISTING GRADE
90+50	608.7	EXISTING GRADE
90+50	608.14	EXISTING GRADE
91+00	608.0	EXISTING GRADE
91+00	601.47	EXISTING GRADE
91+50	607.3	EXISTING GRADE
91+50	600.81	EXISTING GRADE
92+00	606.7	EXISTING GRADE
92+00	599.81	EXISTING GRADE
92+00	608.1	EXISTING GRADE
92+50	599.47	EXISTING GRADE
92+50	605.8	EXISTING GRADE
93+00	598.87	EXISTING GRADE
93+00	605.3	EXISTING GRADE
93+50	599.14	EXISTING GRADE
93+50	604.7	EXISTING GRADE
94+00	598.05	EXISTING GRADE
94+00	604.0	EXISTING GRADE
94+00	597.78	EXISTING GRADE
94+00	604.0	EXISTING GRADE
94+00	597.50	EXISTING GRADE

PROFILE SCALE
1"=4' HORIZ.
1"=4' VERT.

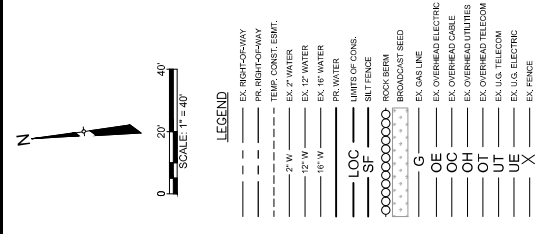
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 17896 NO. F-274 | TIRUS RD. | SUITE 100
 005 EAST HUNTING SPRING | TEXAS 75122
 512.634.9791 | FAX 512.634.7723
 WWW.COBBERNDLEY.COM

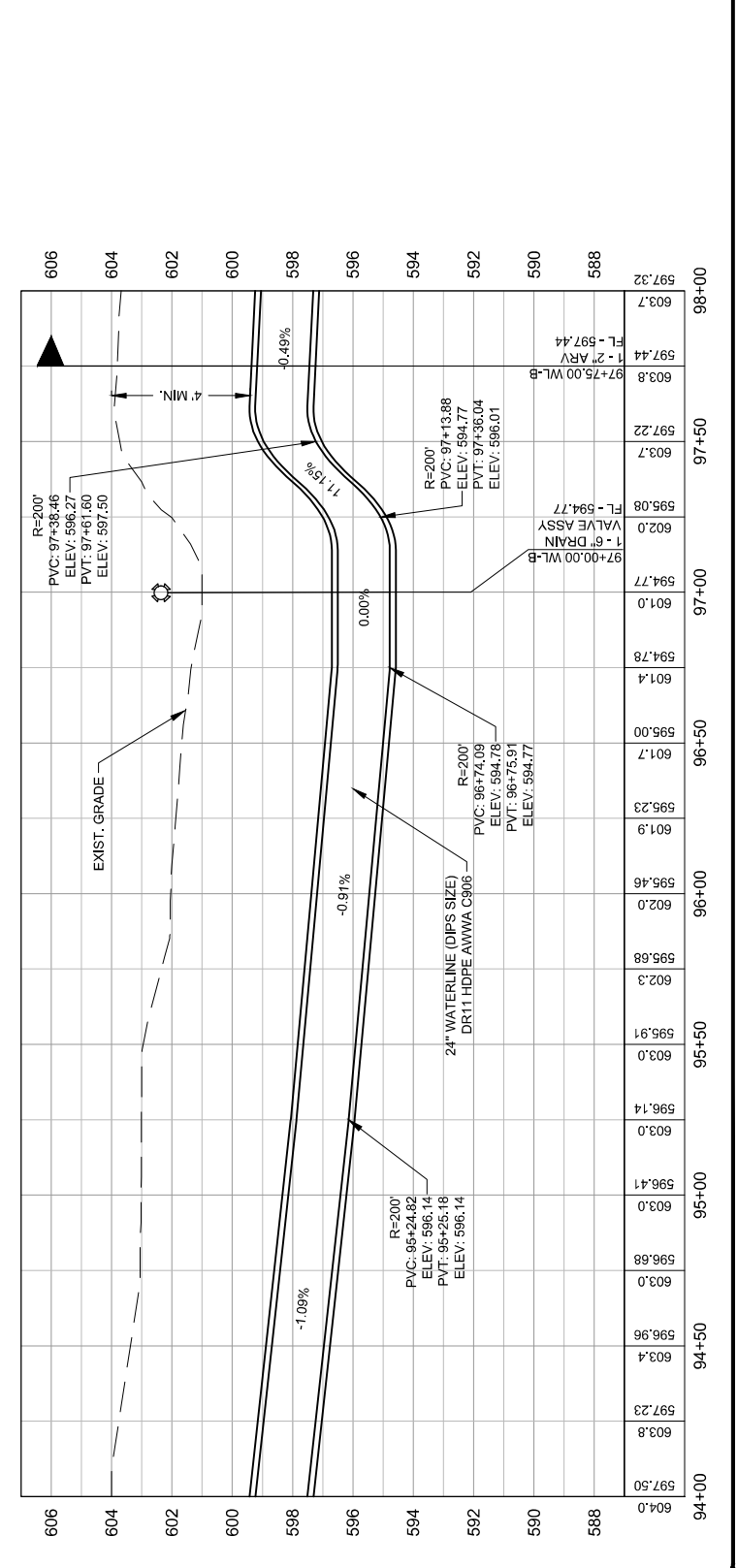
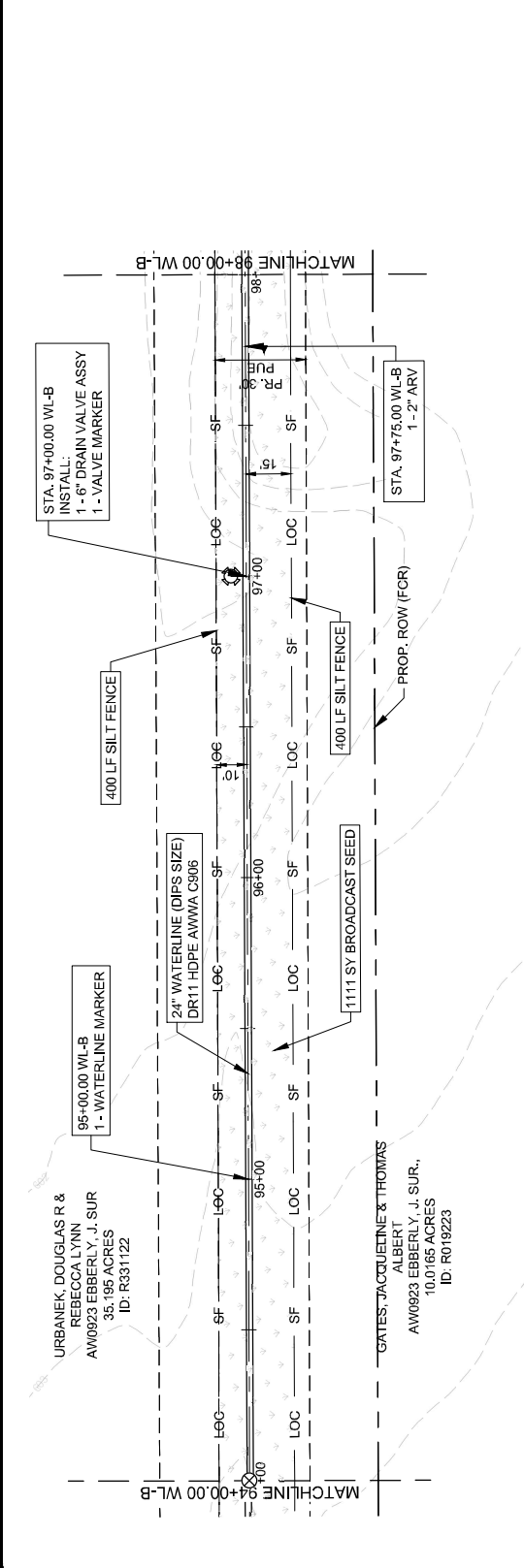
WATER LINE B PLAN AND PROFILE
 94+00 TO 98+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-327
 31 of 66



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL UNDERGROUND UTILITIES, WHEN THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
 - EXISTING UTILITY WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE INSTALLED AND APPROVED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DECOMMISSIONED AND FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO EXISTING WATER MAINS ARE TO BE LEFT OPEN. ALL MAINS ARE TO BE OUTFITTED AND FILLED WITH FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO EXISTING WATER MAINS ARE TO BE LEFT UNDER THE PROPOSED ROADWAY WILL BE CAPPED. ALL MAINS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - ALL EXISTING UTILITIES SHALL BE PROTECTED. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN ORIGINAL CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE PIPE, OR 1" (200) HDPE PIPE. ALL FITTINGS SHALL BE USED AT ALL FITTINGS, VALVES, AND OTHER APPURTENANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF PIPE, FITTINGS SHALL BE SHIP-FABRICATED HDPE PIPE. FITTINGS MUST BE PRESSURE-TESTED FOR 200 PSI. HDPE PIPE SHALL BE 4 FEET MINIMUM SPACING FROM EXISTING UTILITIES. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER AT ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.



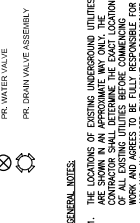
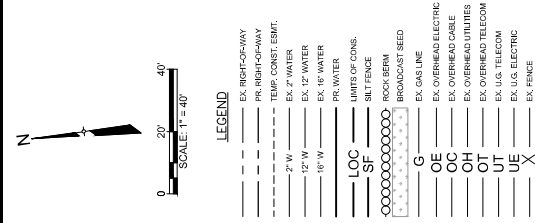
REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N. Loop West, Suite 100
 Houston, Texas 77058
 281.488.8888 FAX 281.488.7777
 WWW.COBBERNDLEY.COM

WATER LINE B PLAN AND PROFILE
 98+00 TO 101+44.22
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
C-328
 32 OF 66



STATION	ELEVATION
98+00	603.7
98+50	597.32
99+00	597.07
99+50	596.95
100+00	596.83
100+50	596.63
101+00	595.24
101+44.22	593.77

URBAN EK, DOUGLAS R & REBECCA LYNN
 AW0923 EBBERLY, J. SUR
 35.185 ACRES
 ID: R331122

GATES, JACQUELINE & THOMAS
 ALBERT
 AW0923 EBBERLY, J. SUR,
 10.0165 ACRES
 ID: R019223

PROF. ENG. NO. 13362202
 KRISTIN VAN HOOSER
 STATE OF TEXAS
 EXPIRES 09/01/2025

LEGEND
 EX. RIGHT-OF-WAY
 PR. RIGHT-OF-WAY
 TEMP. CONST. ESMT.
 EX. 2" WATER
 EX. 12" WATER
 EX. 16" WATER
 PR. WATER
 LIMITS OF CONG.
 SILT FENCE
 ROCK BERM
 BROADCAST SEED
 EX. GAS LINE
 EX. OVERHEAD ELECTRIC
 EX. OVERHEAD CABLE
 EX. OVERHEAD UTILITIES
 EX. OVERHEAD TELECOM
 EX. U.S. TELECOM
 EX. U.S. ELECTRIC
 EX. FENCE
 PR. WATER VALVE
 PR. DRAIN VALVE ASSEMBLY

GENERAL NOTES:
 1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO ANY WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE EXISTING UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. ALL UTILITIES SHALL BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN WATER LINE IS INSTALLED AND APPROVED AND THE NEW MAIN IS PLACED IN SERVICE. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DECOMMISSIONED AND FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO FLOWABLE FILL SHALL BE USED. ALL UTILITIES SHALL BE ABANDONED IN PLACE AND ARE NOT UNDER THE PROPOSED ROADWAY WILL BE CAPPED. PROPOSED ROADWAY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING AND MAINTAINING ALL EXISTING UTILITIES. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE. A SEPARATE PAY ITEM SHALL BE USED AT ALL FITTINGS VALUES.
 3. WATER LINE SHALL BE 24" HDPE PIPE, OR 11" (200) RADIUS CURVE SHALL BE USED AT ALL FITTINGS VALUES AND OTHER APPROPRIATE FITTINGS. WATER LINE SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 201.04. FITTINGS SHALL BE SHOP-FABRICATED HDPE. FITTINGS MUST BE PRESSURE-TESTED FOR 200 PSI. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 201.04. FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE ATTENTION OF THE ENGINEER AND LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.

PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

602.79
 607.7
 EXISTING
 GRADE
 FLOW LINE
 OF PIPE

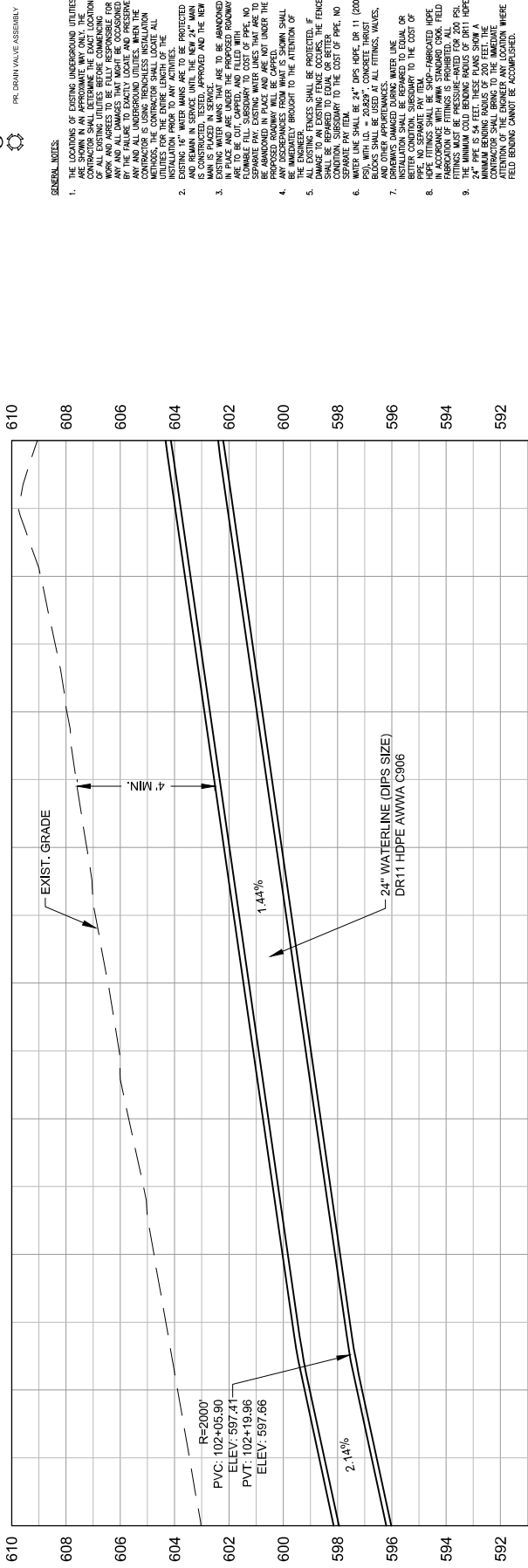
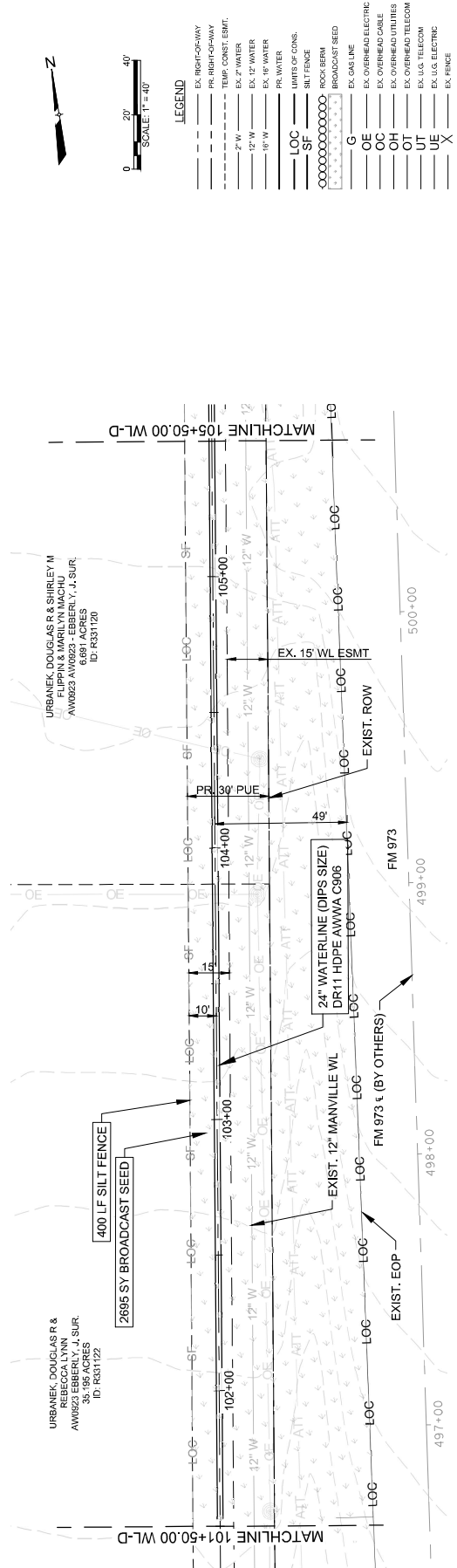
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 17890 N. Fwy #271 • Dallas, TX 75244
 972.354.9999 | Fax 972.354.7222
 WWW.COBBERNDLEY.COM

WATER LINE D PLAN AND PROFILE
 101+50 TO 105+50
 CR 404 HAYTOR 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-330
 34 of 66



EXISTING GRADE	607.7
FLOW LINE	602.79
OF PIPE	

PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

GENERAL NOTES:

- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES BY EXCAVATION AND TESTING PRIOR TO ANY WORK AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHTS-OF-WAY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE ANY UTILITIES, THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITY WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE FULLY TESTED AND APPROVED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY TESTED AND APPROVED AND SHALL BE TO BE FULLY CAPED AND FILLED WITH FLUORIDE FILL. SUBSIDIARY TO COST OF PIPE, NO PROPOSED ROADWAY WILL BE CAPED. ALL SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER. IF ANY DAMAGE TO EXISTING UTILITIES OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF PIPE, NO SEPARATE PAY ITEM. WATER LINE SHALL BE 24" HDPE PIPE, DR 11 (200 PSI) WITH 10' MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ATTENTION OF THE ENGINEER AND LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS-OF-WAY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS-OF-WAY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND RIGHTS-OF-WAY.
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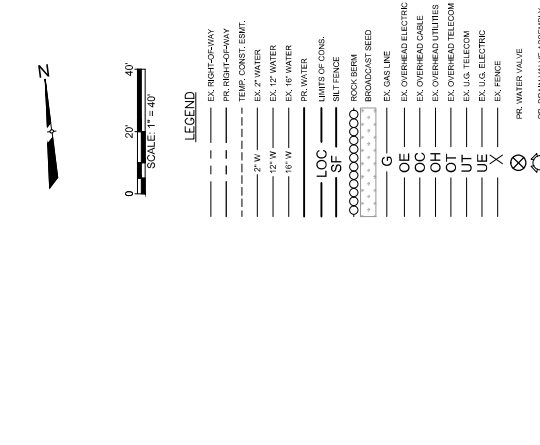
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N. Loop West, Suite 100
 Houston, Texas 77058
 281.462.1100
 WWW.COBSENDLEY.COM

WATER LINE D PLAN AND PROFILE
 114+00 TO 118+00
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS



SHEET
 C-333
 37 of 66



EXISTING GRADE	FLOW LINE	PROFILE SCALE
607.7	602.79	1"=40' HORIZ. 1"=4' VERT.
608.53	615.0	
608.45	615.0	
608.37	615.0	
608.29	615.0	
608.21	615.0	
608.12	615.0	
608.04	615.0	
607.96	615.0	
607.88	615.0	
607.80	615.0	
607.72	615.0	
607.63	615.0	
607.55	615.0	
607.47	615.0	
607.39	614.8	
607.31	614.7	
607.23	614.6	

Station	Elevation	Notes
114+00	607.23	
114+50	607.31	
115+00	607.47	
115+50	607.72	
116+00	607.88	
116+50	607.96	
117+00	608.12	
117+50	608.37	
118+00	608.53	

GENERAL NOTES:
 1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO ANY WORK AND BE FULLY RESPONSIBLE FOR THE PROTECTION OF ANY UTILITIES THAT MAY BE ENCOUNTERED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR IS UNABLE TO LOCATE UTILITIES USING THE METHODS THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
 2. EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE ABANDONED.
 3. EXISTING WATER MAINS THAT ARE TO BE ABANDONED ARE TO BE CUT, CAPED, AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO FLOWABLE FILL SHALL BE USED IN ANY MANNER. THE WORK SHALL BE AWARDED IN PLACE AND NOT UNDER THE PROVISIONS OF A TIME AND MATERIALS CONTRACT. PROPOSED DRAINAGE WILL BE CAPED. ALL WORK SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 4. ALL EXISTING UTILITIES SHALL BE PROTECTED. IF DAMAGE TO AN EXISTING UTILITY OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 5. WATER LINE SHALL BE 24" DIPS HOPE OR 1" (200) DR11 HDPE AWWA C906. ALL FITTINGS SHALL BE 24" DIPS HOPE OR 1" (200) DR11 HDPE AWWA C906. ALL FITTINGS SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE COST OF FITTINGS, VALVES, AND OTHER APPURTENANCES.
 6. INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE COST OF FITTINGS, VALVES, AND OTHER APPURTENANCES.
 7. HOPE FITTINGS SHALL BE SHOP-FABRICATED HOPE FITTINGS MUST BE PRESSURE-TESTED TO 200 PSI. ALL FITTINGS SHALL BE PRESSURE-TESTED TO 200 PSI. ALL FITTINGS SHALL BE PRESSURE-TESTED TO 200 PSI. ALL FITTINGS SHALL BE PRESSURE-TESTED TO 200 PSI. ALL FITTINGS SHALL BE PRESSURE-TESTED TO 200 PSI.
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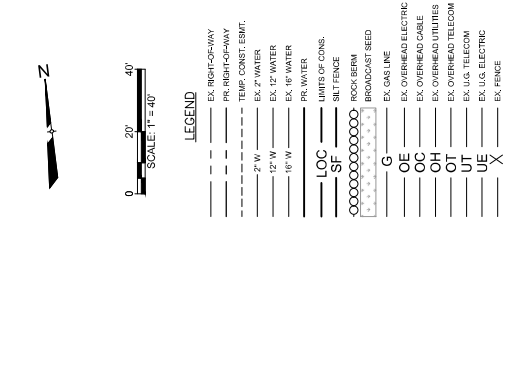
REV.	NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 17800 N. Loop West, Suite 100
 Dallas, Texas 75244
 972.434.9999 | Fax 972.434.7722
 WWW.COBBERNDLEY.COM

WATER LINE D PLAN AND PROFILE
 118+00 TO 122+00
 CR 404 HUTTO 2ND WATER LINE
 TAYLOR, TEXAS



SHEET
C-334
 38 of 66

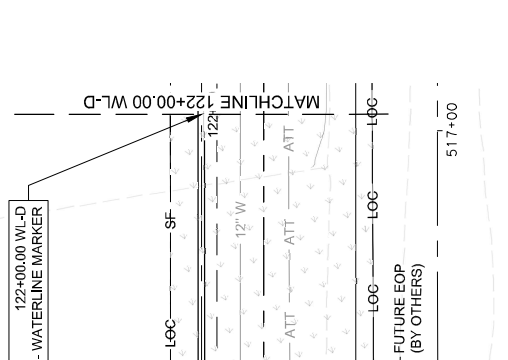


LEGEND

- EX. RIGHT-OF-WAY
- PR. RIGHT-OF-WAY
- TEMP. CONST. ESMT.
- EX. 2" WATER
- EX. 12" WATER
- EX. 18" WATER
- PR. WATER
- LIMITS OF CONGS.
- SILT FENCE
- SF
- ROCK BERM
- BROADCAST SEED
- EX. GAS LINE
- EX. OVERHEAD ELECTRIC
- OC
- EX. OVERHEAD CABLE
- OH
- EX. OVERHEAD UTILITIES
- OT
- EX. OVERHEAD TELECOM
- EX. U.S. TELECOM
- EX. U.S. ELECTRIC
- EX. FENCE
- PR. WATER VALVE
- PR. DRAIN VALVE ASSEMBLY

- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO THE START OF CONSTRUCTION. ANY AND ALL UTILITIES LOCATED TO BE PROTECTED SHALL BE MARKED TO EXISTING LOCATIONS. WHEN THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT, THE CONTRACTOR SHALL PROTECT ALL UTILITIES. WATER MAINS ARE TO BE PROTECTED EXISTING IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE INSTALLED AND APPROVED. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED AND FILLER SHALL BE PLACED TO BE FULLY CAPABLE AND FILLED WITH FLOWABLE FILL SUBSIDIARY TO COST OF PIPE. NO FILLER SHALL BE PLACED IN PLACE AND NOT UNDER THE PROPOSED ROADWAY WILL BE CAPPED. ALL WORK SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - IF ANY DAMAGE TO EXISTING UTILITIES OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION TO THE ORIGINAL CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE COST OF REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" HDPE OR 1' (200) RIGID POLYETHYLENE GLASS REINFORCED PLASTIC (RPP) WITH ALL FITTINGS VALVES.
 - INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION SUBSIDIARY TO THE COST OF REPAIR TO THE ORIGINAL CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE TO THE COST OF REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - HOPE FITTINGS SHALL BE SHOP-FABRICATED HDPE FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. 12" PIPE SHALL BE 54" FEEL BENCH PIPES SHOWN WITH A MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.

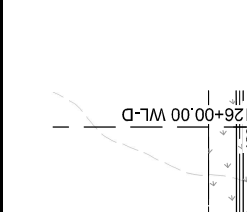
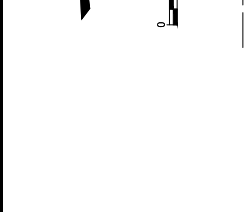
PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.



Station	Elevation	Notes
608.32	614.7	122+00.00 WL-D
608.55	615.0	121+50
608.61	615.0	121+00
608.61	615.0	120+50
608.61	615.0	120+00
608.61	615.0	119+50
608.61	615.0	119+00
608.61	615.0	118+50
608.61	615.0	118+00

EXISTING GRADE
 EXISTING FLOW LINE
 OF PIPE

Dwg Info: C:\FA\2014\0308801\Williamson_County\2012_Road_Bond\MUN\99_CR04_Huto\DISIGN\C-301-WTR-10.dwg - Tbl: 34 - Plotted: 3/28/2022 4:14 PM BY: KRISTEN VAN HOOSER



PROJ. NO. 2020000000
 DESIGNER: K. VAN HOOSER
 CHECKER: K. VAN HOOSER
 DATE: 05/20/2022

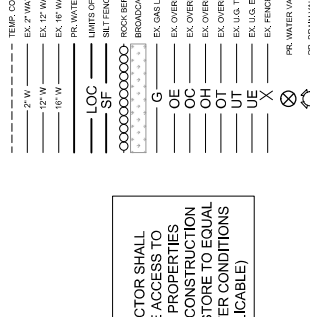
APPROVED: _____
 DATE: _____

REVISION NO. _____
 REVISION DESCRIPTION _____

REVISION NO. _____
 REVISION DESCRIPTION _____

REVISION NO. _____
 REVISION DESCRIPTION _____

REVISION NO. _____
 REVISION DESCRIPTION _____



NOTE:
 CONTRACTOR SHALL PROVIDE ACCESS TO PRIVATE PROPERTIES DURING CONSTRUCTION AND RESTORE TO EQUAL OR BETTER CONDITIONS (AS APPLICABLE)

GENERAL NOTES:
 1. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL UNDERGROUND UTILITIES. WHEN THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT, THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES. WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED AND APPROVED AND THE NEW MAINS ARE TO BE INSTALLED IN SEVERAL PLACES. EXISTING WATER MAINS THAT ARE TO BE ABANDONED ARE TO BE CUT, CAPPED, AND FILLED WITH FLOWABLE FILL. SUBSIDIARY TO COST OF PIPE, NO PROPOSED DRAINAGE WILL BE CAPPED. PROPOSED DRAINAGE WILL BE CAPPED. THE ENGINEER SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER. ACCESS SHALL BE PROTECTED. IF DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF REPAIR TO THE COST OF PIPE, NO SEPARATE PAY ITEM.

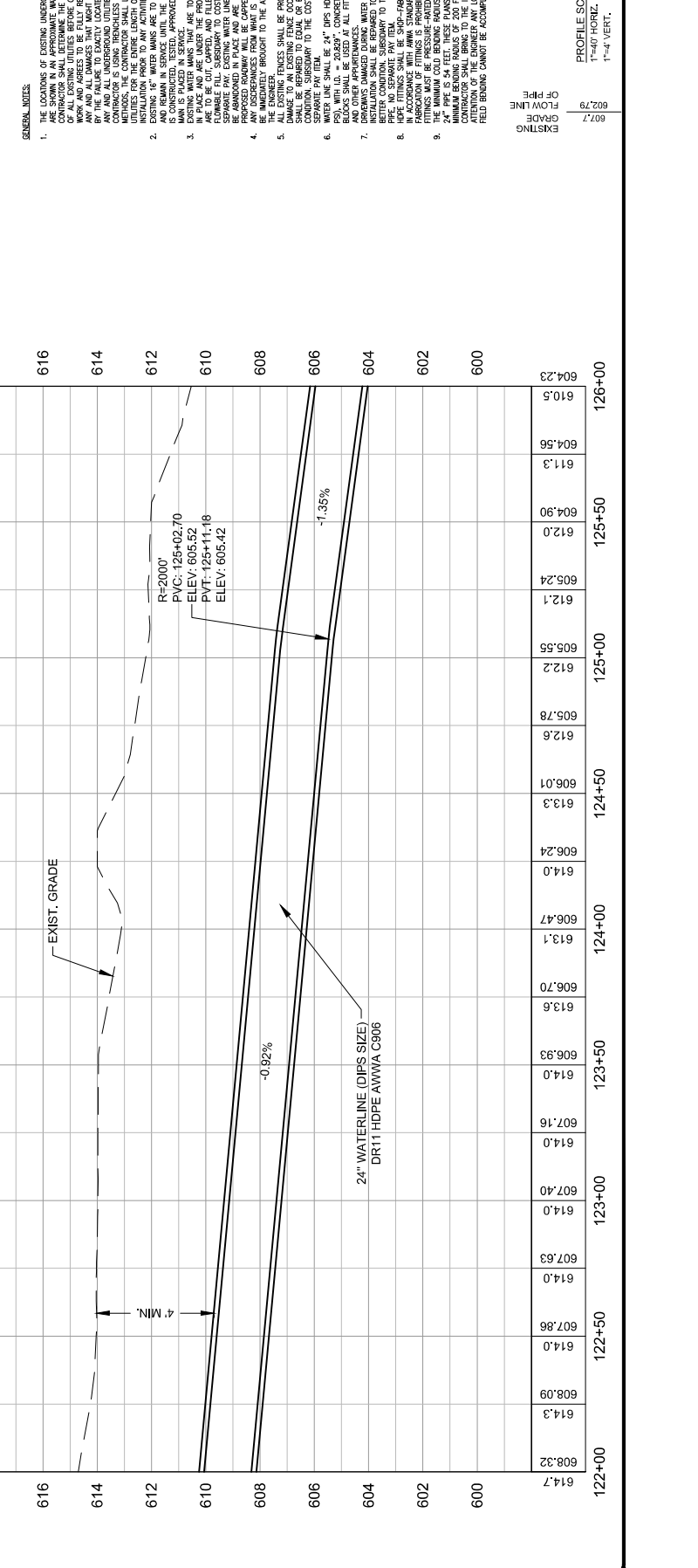
WATER LINE SHALL BE 24" DIPS HOPE OR 1" (200) AND OTHER APPROPRIANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUPPORT TO THE COST OF HOPE FITTINGS SHALL BE SHOP-FABRICATED HOPE FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. HOPE FITTINGS SHALL BE PRESSURE-RAISED FOR 200 PSI. 12" PIPE SHALL BE 54 FEET LONG. MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ATTENTION OF THE ENGINEER ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.

PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

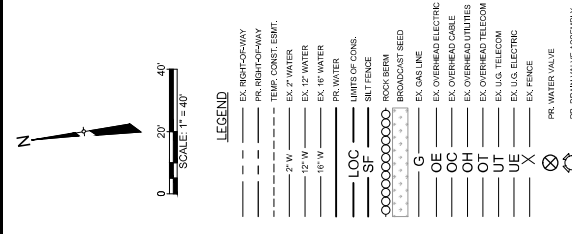
EXISTING GRADE
 FLOW LINE
 GRADE
 OF PIPE

607.7
 602.79
 604.23

618
 616
 614
 612
 610
 608
 606
 604
 602
 600



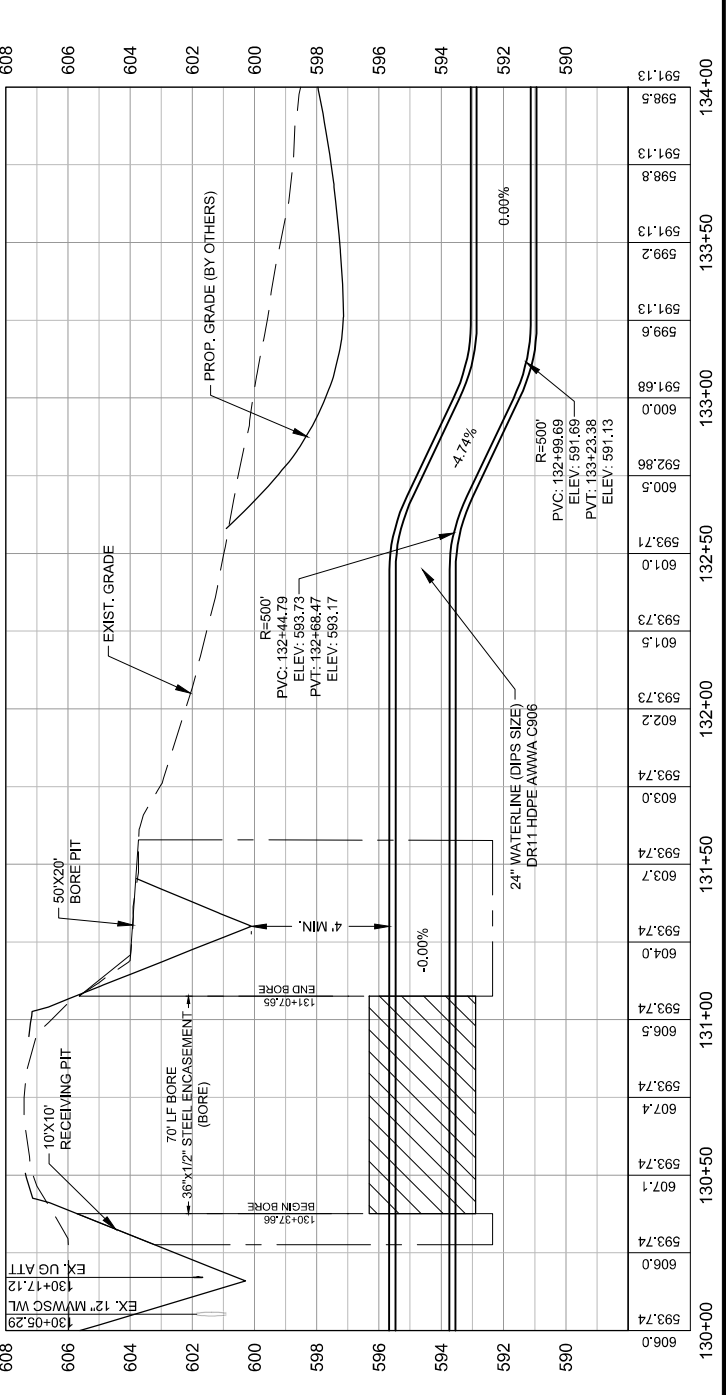
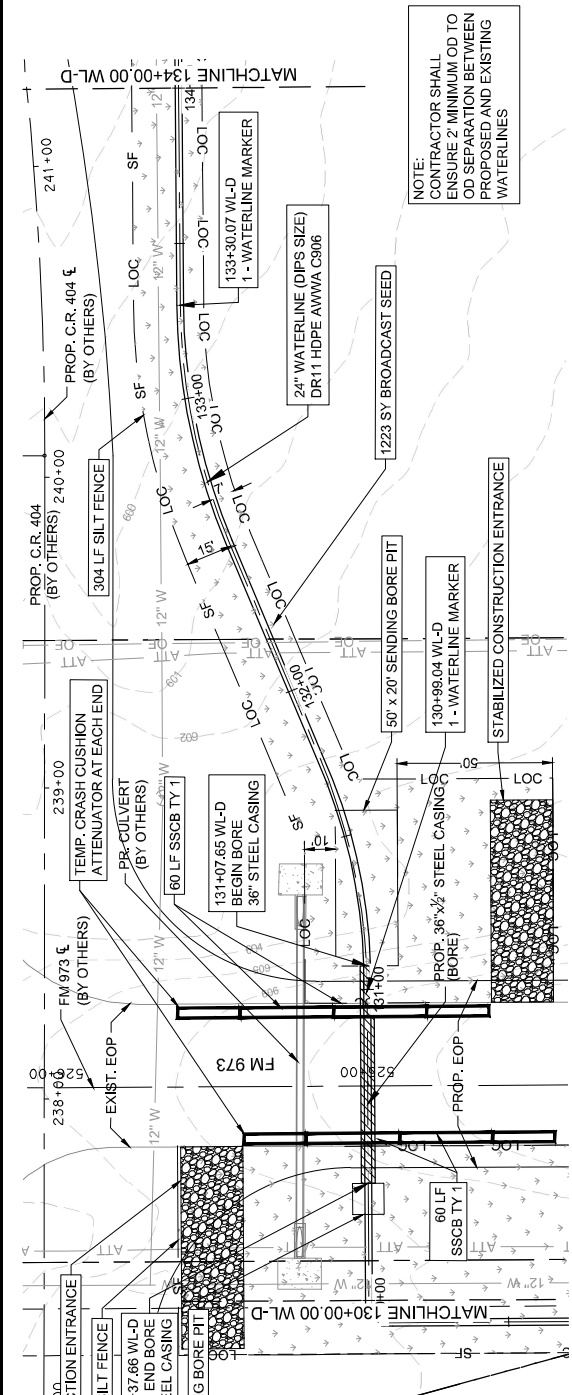
NO.	REVISION DESCRIPTION	APPROVED BY	DATE



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION. ANY AND ALL UTILITIES LOCATED BY THE CONTRACTOR SHALL BE PROTECTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT.
 - EXISTING 12" WATER MAINS ARE TO BE PROTECTED AND REMAIN IN SERVICE UNTIL THE NEW 24" MAIN HAS BEEN INSTALLED. THE NEW 24" MAIN SHALL BE INSTALLED IN A TRENCH APPROVED AND THE NEW MAIN SHALL BE BACKFILLED WITH GRANULAR FILL. EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DECOMMISSIONED AND FILL SUBSIDIARY TO COST OF PIPE. NO FILL SHALL BE PLACED IN THE TRENCH UNLESS APPROVED IN PLACE AND ARE NOT UNDER THE ATTENTION OF THE ENGINEER.
 - PROPOSED DRAINAGE WILL BE CAPED. ALL PROPOSED DRAINAGE SHALL BE INSTALLED IN ACCORDANCE WITH THE ENGINEER'S REQUIREMENTS. ALL DRAINAGE SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
 - DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. REPAIRS SHALL BE TO THE COST OF PIPE, NO SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24" DRIP HOPE OR 1" (200) DRIP HOPE. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE ENGINEER'S REQUIREMENTS. ALL FITTINGS SHALL BE INSTALLED AT ALL FITTINGS, VALVES, AND OTHER APPURTENANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION. SUBSIDIARY TO THE COST OF PIPE. ALL FITTINGS SHALL BE SHIP-FABRICATED DRIP HOPE. FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE ENGINEER'S REQUIREMENTS. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE ENGINEER'S REQUIREMENTS. ALL FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE ENGINEER'S REQUIREMENTS.
 - MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL MAINTAIN THE MINIMUM BENDING RADIUS OF 200 FEET THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE MINIMUM BENDING RADIUS OF 200 FEET THROUGHOUT THE CONSTRUCTION PERIOD. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE MINIMUM BENDING RADIUS OF 200 FEET THROUGHOUT THE CONSTRUCTION PERIOD.

PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

EXISTING GRADE	607.7
FLOW LINE	602.79
OF PIPE	



NOTE: DEPTHS OF EXISTING AT&T AND MANVILLE LINES ARE ASSUMED. THESE UTILITIES TO BE MANAGED AND ASSESSED BY OTHERS.

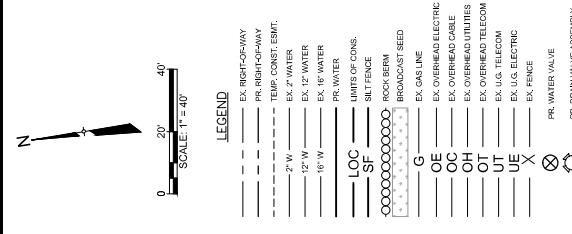
REV	NO.	DESCRIPTION	DATE

Cobbendley
 1788 N. Loop West, Suite 100
 Houston, Texas 77058
 281.468.9999 | Fax: 281.468.7700
 www.cobbendley.com

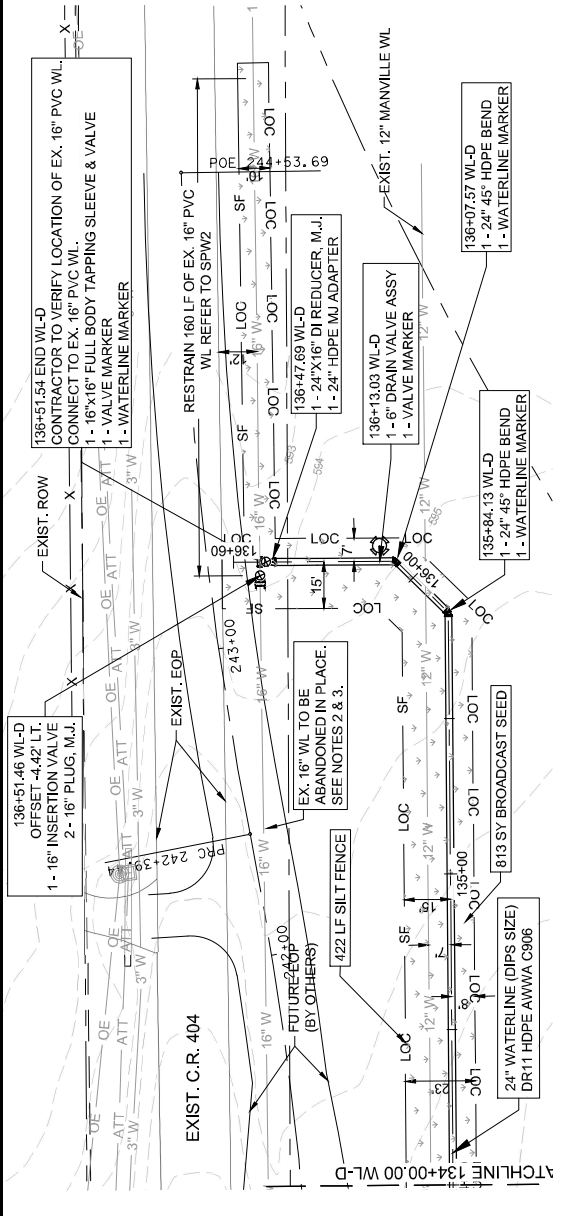
WATER LINE D PLAN AND PROFILE
 134+00 TO 2+ END
 TAYLOR, TEXAS
 CR 404 HULL TO 2+ WATER LINE



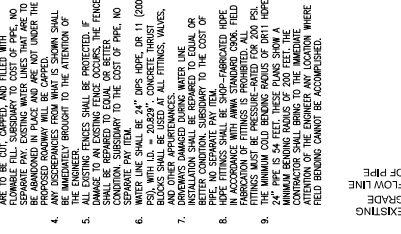
SHEET
 C-338
 42 of 66



NOTE:
 COORDINATE WITH MATT EDWARDS
 (512-945-5203) AT LEAST 48 HOURS PRIOR TO
 ANTICIPATED WATER SHUTOUT. SHUTOUT
 LIMITED TO 4 HOURS.



- GENERAL NOTES:**
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE MANNER ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BY EXCAVATION AND TESTING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ALL UNDERGROUND UTILITIES, WHEN THE CONTRACTOR SHALL LOCATE ALL UTILITIES FOR THE ENTIRE LENGTH OF THE PROJECT. EXISTING UTILITIES SHALL BE PROTECTED BY INSTALLING 12\"/>
 - AND REMAIN IN SERVICE UNTIL THE NEW 24\"/>
 - EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED FROM THE RECORD DRAWING. ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED FROM THE RECORD DRAWING. ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED FROM THE RECORD DRAWING. ALL EXISTING WATER MAINS THAT ARE TO BE ABANDONED SHALL BE FULLY DELETED FROM THE RECORD DRAWING.
 - PROPOSED DRAINAGE SHALL BE CAPPED WITH A 12\"/>
 - THE ENGINEER SHALL BE PROTECTED, IF DAMAGE TO AN EXISTING FENCE OCCURS, THE FENCE SHALL BE REPAIRED TO EQUAL OR BETTER THAN ORIGINAL CONDITION TO THE COST OF THE CONTRACTOR. SEPARATE PAY ITEM.
 - WATER LINE SHALL BE 24\"/>
 - AND OTHER APPURTENANCES. WATER LINE INSTALLATION SHALL BE REPAIRED TO EQUAL OR BETTER CONDITION, SUBORDINARY TO THE COST OF THE CONTRACTOR. SEPARATE PAY ITEM.
 - HOPE FITTINGS SHALL BE SHOP-FABRICATED HOPE FITTINGS MUST BE PRESSURE-RAISED FOR 200 PSI. 12\"/>
 - MINIMUM BENDING RADIUS OF 200 FEET. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE ATTENTION OF THE HOMEOWNERS AT ANY LOCATION WHERE FIELD BENDING CANNOT BE ACCOMPLISHED.



PROFILE SCALE
 1"=40' HORIZ.
 1"=4' VERT.

STATION	ELEVATION	DESCRIPTION
134+00	591.13	24\"/>
134+50	590.83	24\"/>
135+00	590.06	24\"/>
135+50	598.83	24\"/>
136+00	595.2	24\"/>
136+50	594.5	24\"/>
137+00	584.87	24\"/>
137+50	584.87	24\"/>
138+00	582	24\"/>

REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1786 N.W. 72nd Ave., Suite 100
 Fort Lauderdale, FL 33309
 954.576.1100
 WWW.COBBE.NE.COM

EROSION CONTROL STANDARD
DETAILS
 CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS

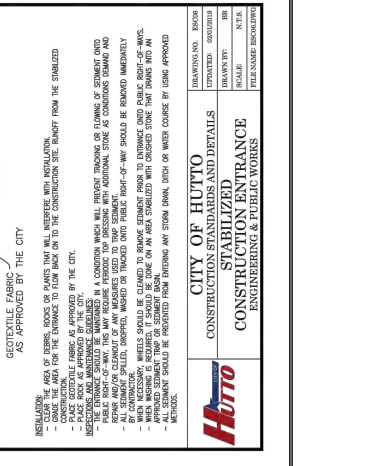
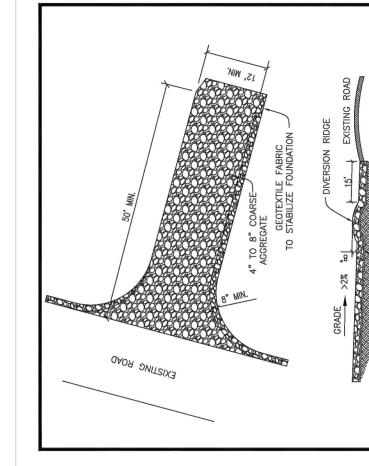
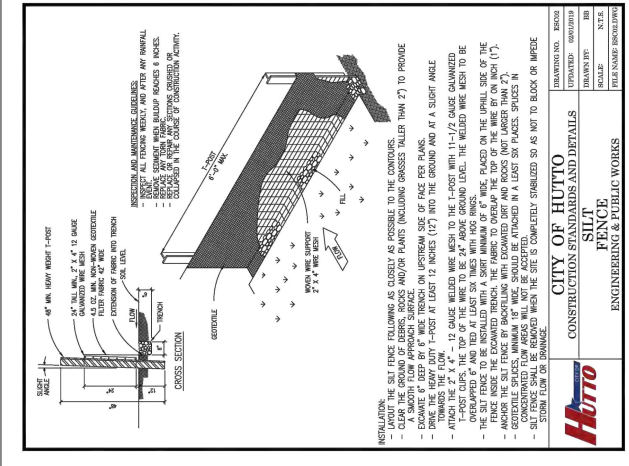


SHEET
C-401
 43 of 66

GUIDELINES FOR DESIGN AND INSTALLATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROLS

TYPE OF STRUCTURE	TYPE OF STRUCTURE	TYPE OF STRUCTURE	TYPE OF STRUCTURE
SILT FENCE	N/A 200 FEET 100 FEET 50 FEET	2 ACRES 1 ACRE 1/2 ACRE	0 - 10% 10% - 20% 20% - 30% > 30%
TRIANGLE FILTER DIKE	100 FEET 50 FEET	1/2 ACRE 1/4 ACRE	< 30% > 30%
ROCK BERM * 1' x 1'	500 FEET	< 5 ACRES	0 - 10%

* HIGH SERVICE ROCK BERMS MAY BE REQUIRED IN AREAS OF ENVIRONMENTAL SIGNIFICANCE AS DETERMINED BY THE CITY OF HUTTO.



CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
TEMPORARY EROSION AND SEDIMENTATION CONTROL
 ENGINEERING & PUBLIC WORKS

REVISION NO. 00000
 UPDATED: 06/01/2023
 DRAWN BY: BR
 SCALE: N.T.S.
 FILE NAME: BSO010.DWG

CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
SILT FENCE
 ENGINEERING & PUBLIC WORKS

REVISION NO. 00000
 UPDATED: 06/01/2023
 DRAWN BY: BR
 SCALE: N.T.S.
 FILE NAME: BSO010.DWG

CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
ROCK BERM
 ENGINEERING & PUBLIC WORKS

REVISION NO. 00000
 UPDATED: 06/01/2023
 DRAWN BY: BR
 SCALE: N.T.S.
 FILE NAME: BSO010.DWG

REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 1700 N. Fwy 71, Suite 100, Dallas, TX 75242
 972.354.9999 | FAX 972.354.7223
 WWW.COBBEENDLEY.COM

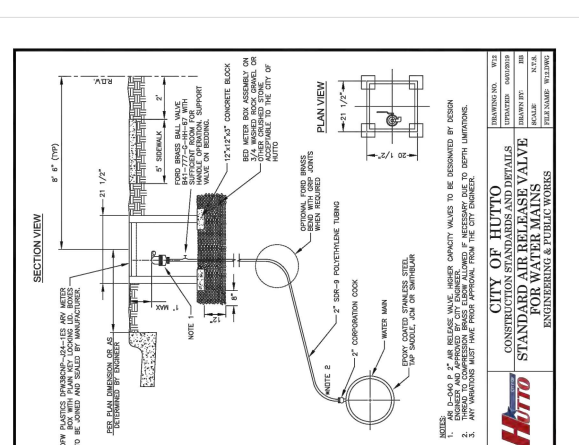
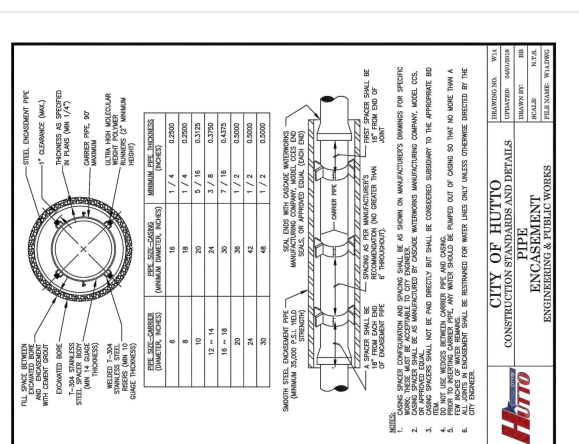
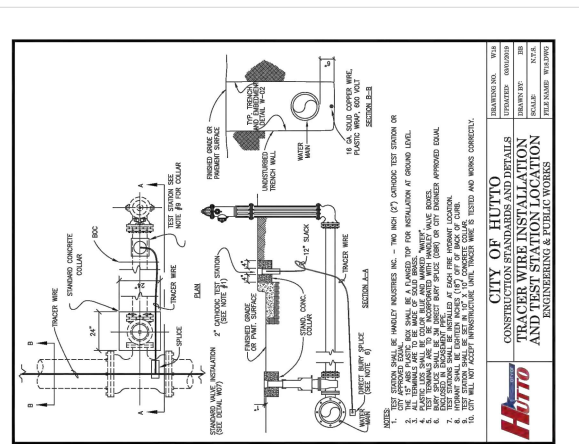
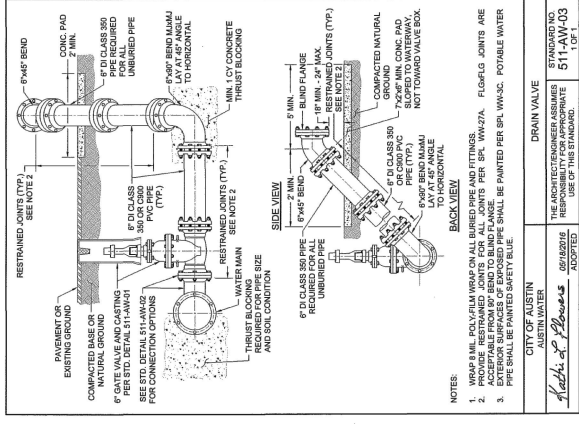
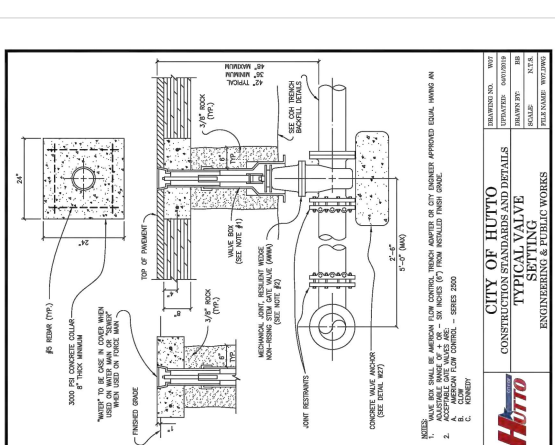
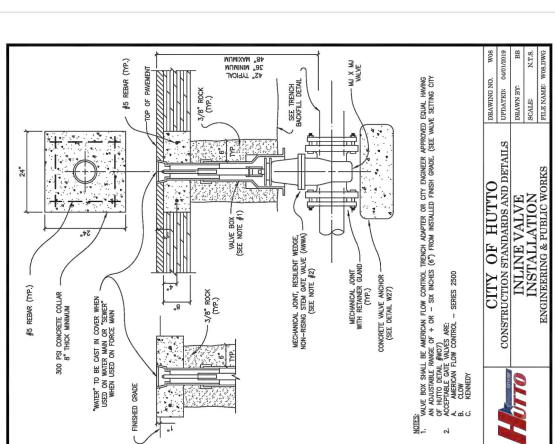
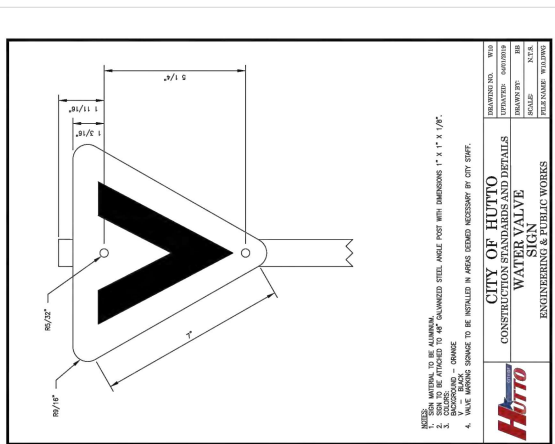
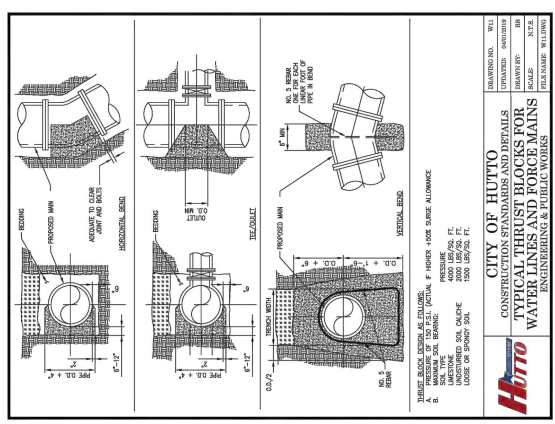
CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS
 STANDARD WATER DETAILS -
 SHEET 1 OF 2



PROJECT NO. 1500000000
 DESIGNER: R. BOONER, INC.
 CHECKED: A. VANHOESER
 DATE: 05/20/2022

WATER
 COUNTY OF WILKINSON
 TAYLOR, TEXAS

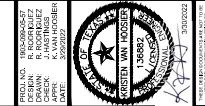
SHEET
 C-501
 44 of 66



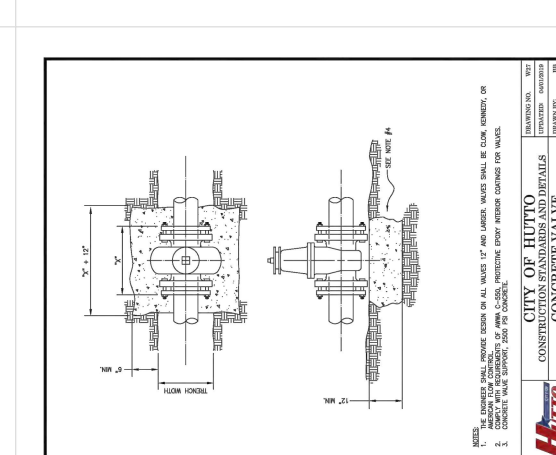
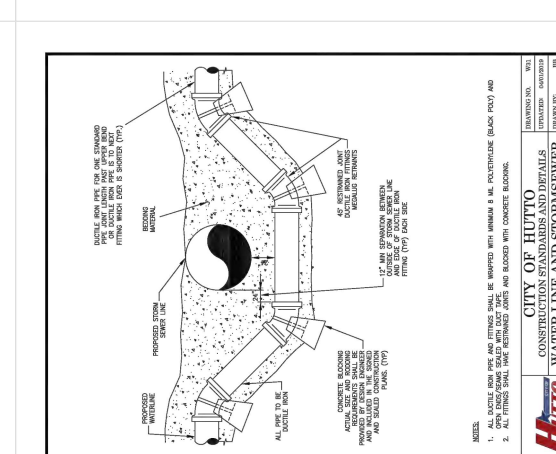
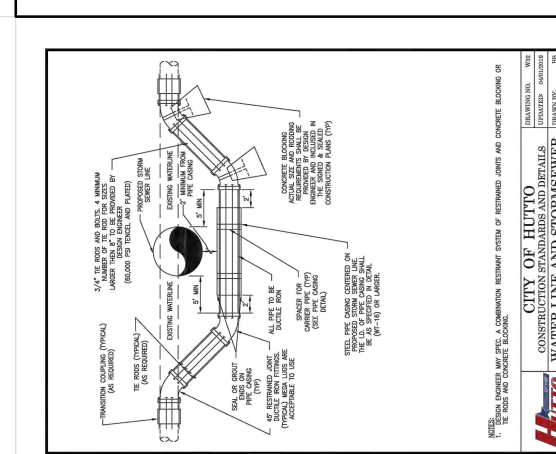
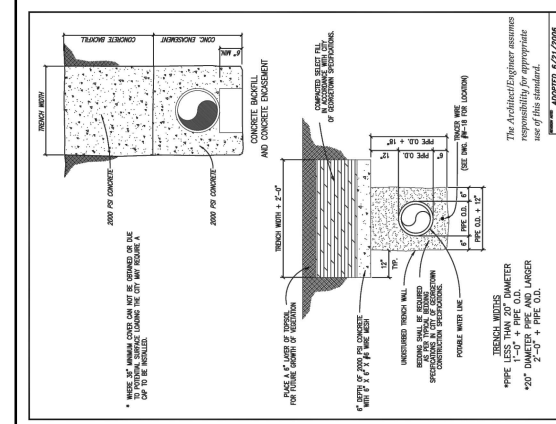
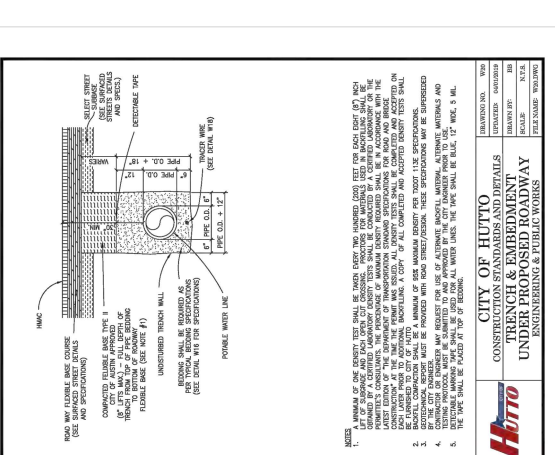
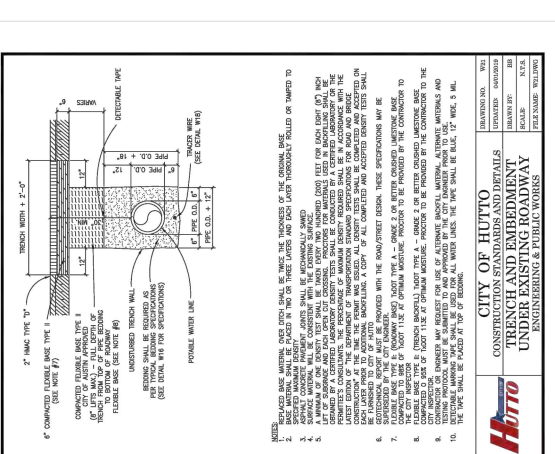
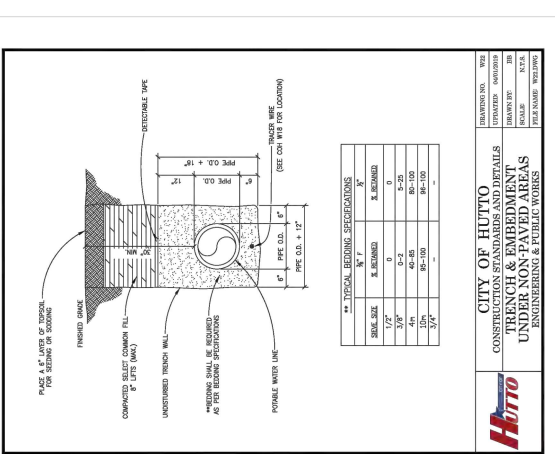
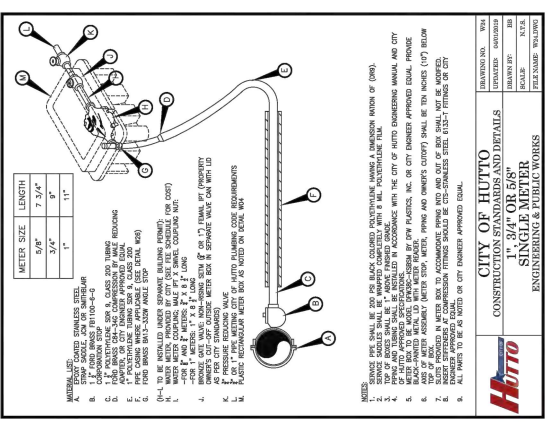
REV. NO.	REVISION DESCRIPTION	APPROVED BY	DATE

Cobbendley
 008 EAST 17TH ST., SUITE 100
 WYOMING, TEXAS 75202
 512.534.9798 | FAX 512.534.7273
 WWW.COBBERNDLEY.COM

CR 404 HUTTO 24" WATER LINE
 TAYLOR, TEXAS
 STANDARD WATER DETAILS -
 SHEET 2 OF 2



SHEET
 C-502
 45 of 66



CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
 1.3/4\"/>
 SINGLE METER
 ENGINEERING & PUBLIC WORKS

CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
 TRENCH & EMBEDMENT
 UNDER NON-PAVED AREAS
 ENGINEERING & PUBLIC WORKS

CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
 TRENCH & EMBEDMENT
 UNDER EXISTING ROADWAY
 ENGINEERING & PUBLIC WORKS

CITY OF HUTTO
 CONSTRUCTION STANDARDS AND DETAILS
 TRENCH & EMBEDMENT
 UNDER PROPOSED ROADWAY
 ENGINEERING & PUBLIC WORKS

BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

1. The Barricade and Construction Standard Sheets (BC sheets) are intended to show typical examples for placement of temporary traffic control devices, construction pavement markings, and typical work zone signs. The information contained in these sheets meet or exceed the requirements shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD).
2. The development and design of the Traffic Control Plan (TCP) is the responsibility of the Engineer.
3. The Contractor may propose changes to the TCP that are signed and sealed by a licensed professional engineer for approval. The Engineer may develop, sign and seal Contractor proposed changes.
4. The Contractor is responsible for installing and maintaining the traffic control devices as shown in the plans. The Contractor may not move or change the approximate location of any device without the approval of the Engineer.
5. Geometric design of lane shifts and detours should, when possible, meet the applicable design criteria contained in manuals such as the American Association of State Highway and Transportation Officials (AASHTO), "A Policy on Geometric Design of Highways and Streets," the TxDOT "Roadway Design Manual" or engineering judgment.
6. When projects about, the Engineer(s) may omit the END ROAD WORK, TRAFFIC FINES DOUBLE, and other advance warning signs if the signing would be redundant and the work areas appear continuous to the motorists. If the adjacent project is completed first, the Contractor shall erect the necessary warning signs as shown on these sheets, the TCP sheets or as directed by the Engineer. The BEGIN ROAD WORK NEXT X MILES sign shall be revised to show appropriate work zone distance.
7. The Engineer may require duplicate warning signs on the median side of divided highways where median width will permit and traffic volumes justify the signing.
8. All signs shall be constructed in accordance with the details found in the Standard Highway Sign Designs for Texas, latest edition. Sign details not shown in this manual shall be shown in the plans or the Engineer shall provide a detail to the Contractor before the sign is manufactured.
9. The temporary traffic control devices shown in the illustrations of the BC sheets are examples. As necessary, the Engineer will determine the most appropriate traffic control devices to be used.
10. Where highway construction or maintenance work is being undertaken, other than mobile operations as defined by the Texas Manual on Uniform Traffic Control Devices, CSJ limit signs are required. CSJ limit signs are shown on BC(2). The OBEY WARNING SIGNS STATE LAW sign, STAY ALERT TALK OR TEXT LATER and the WORK ZONE TRAFFIC FINES DOUBLE sign with plaque shall be erected in advance of the CSJ limits. The BEGIN ROAD WORK NEXT X MILES, CONTRACTOR and END ROAD WORK signs shall be erected at or near the CSJ limits. For mobile operations, CSJ limit signs are not required.
11. Traffic control devices should be in place only while work is actually in progress or a definite need exists.
12. The Engineer has the final decision on the location of all traffic control devices.
13. Inactive equipment and work vehicles, including workers' private vehicles must be parked away from travel lanes. They should be as close to the right-of-way line as possible, or located behind a barrier or guardrail, or as approved by the Engineer.



WORKER SAFETY NOTES:

1. Workers on foot who are exposed to traffic or to construction equipment within the right-of-way shall wear high-visibility safety apparel meeting the requirements of ISEA "American National Standard for High-Visibility Apparel," or equivalent revisions, and labeled as ANSI 107-2004 standard performance for Class 2 or 3 risk exposure. Class 3 garments should be considered for high traffic volume work areas or night time work.
2. Except in emergency situations, flagger stations shall be illuminated when flagging is used at night.

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

1. Only pre-qualified products shall be used. The "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources.
2. Work zone traffic control devices shall be compliant with the Manual for Assessing safety hardware (MASH).

THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov
COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD)
DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS)
MATERIAL PRODUCER LIST (MPL)
ROADWAY DESIGN MANUAL - SEE "MANUALS (ON-LINE MANUALS)"
STANDARD HIGHWAY SIGN DESIGNS FOR TEXAS (SHSD)
TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)
TRAFFIC ENGINEERING STANDARD SHEETS

 Texas Department of Transportation	 Traffic Safety Division Standard	BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS			
	BC (1) - 21				
FILE: DC-21.dgn	DATE: November 2002	PROJECT: 4-03	SECTION: 7-14	REVISIONS: 9-07 8-14	DATE: 5-21
				COUNTY: 47	SHEET NO.: 0666

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING

SIZE		SPACING	
Sign Number or Series	Conventional Road	Expressway/Freeway	Posted Speed
CW20 ⁴	48" x 48"	48" x 48"	30
CW21	48" x 48"	48" x 48"	35
CW22	48" x 48"	48" x 48"	40
CW23	48" x 48"	48" x 48"	45
CW1, CW2, CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	36" x 36"	48" x 48"	50
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	55
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	60
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	65
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	70
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	75
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	80
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	85
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	90
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	100
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	110
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	120
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	130
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	140
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	150
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CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	180
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	190
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	200
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	210
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CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	270
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	280
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	290
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	300
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	310
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	320
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	330
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	340
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	350
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	360
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CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	420
CW3, CW4, CW5, CW6, CW7, CW8, CW9, CW10, CW11, CW12, CW13, CW14	48" x 48"	48" x 48"	430
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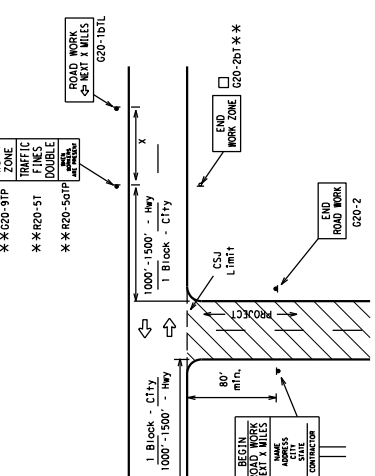
* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD) typical application diagrams or TSP Standard Sheets.

△ Minimum distance from work area to first advance warning sign nearest the work area and/or distance between each additional sign.

GENERAL NOTES

1. Special or larger size signs may be used as necessary.
2. Distance between signs should be increased as required to have 1500 feet advance warning.
3. Distance between signs should be increased as required to have 1/2 mile or more advance warning.
4. 36" x 36" ROAD WORK AHEAD (CW20-1D) signs may be used on low volume crossroads at the discretion of the Engineer as per TMUTCD Part 5. See Note 2 under "Typical Location of Crossroad Signs".
5. Only diamond shaped warning sign sizes are indicated.
6. See sign size listing in "TMUTCD". Sign legends or the "Standard Highway Sign Designs for Texas" manual for complete list of available sign design sizes.

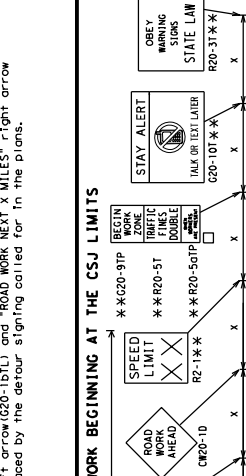
T-INTERSECTION



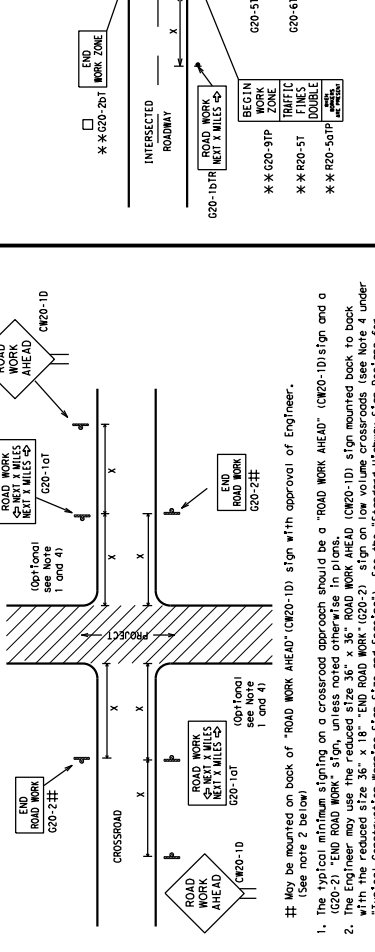
1. The Engineer will determine the types and location of any additional traffic control devices, such as a flagger, and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.

2. If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10)). Also, the "ROAD WORK NEXT X MILES" left arrow (G20-1BTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1BTR) signs shall be replaced by the detour signing called for in the plans.

CSJ LIMITS AT T-INTERSECTION



TYPICAL LOCATION OF CROSSROAD SIGNS



1. The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.

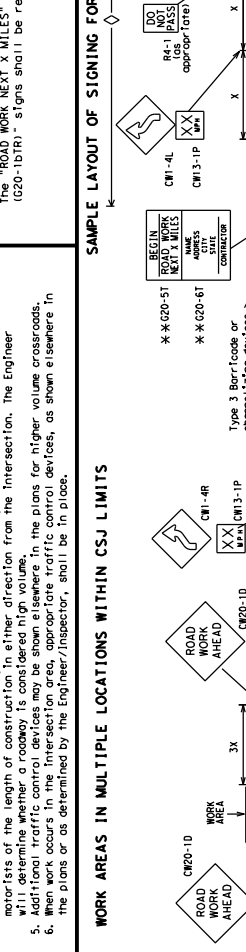
2. The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may only use the advance warning signs on low volume crossroads. The Engineer shall determine the minimum distance between signs based on the volume of traffic and the posted speed limit. The Engineer shall determine the minimum distance between signs based on the volume of traffic and the posted speed limit. The Engineer shall determine the minimum distance between signs based on the volume of traffic and the posted speed limit.

3. Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Planning sheets. The Engineer/Inspector shall determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Planning sheets. The Engineer/Inspector shall determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Planning sheets.

4. "ROAD WORK NEXT X MILES" (CW20-5T) signs shall be required at high volume crossroads to advise motorists of the length of roadway to be closed in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.

5. Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads. In when work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS



LEGEND

—	Type 3 Barricade
○ ○ ○	Channelizing Devices
+	Sign
X	See Typical Construction Warning Sign Size and Spacing for the TMUTCD for sign spacing requirements.

SHEET 2 OF 12



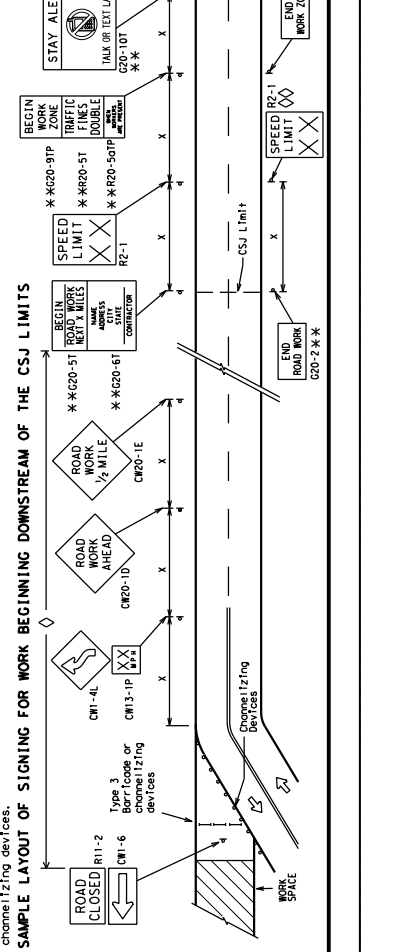
BARRICADE AND CONSTRUCTION PROJECT LIMIT

FILE: BC-21-DPT	DATE: 11/01/01	BY: JAD	PROJECT: 1001	SECTION: 1001	SHEET NO.: 48 OF 66
REVISIONS:	NO. 1	DATE	BY	DESCRIPTION	
9-07	8-14				
7-13	5-21				

NOTES

- The Contractor shall determine the appropriate distance to be placed on the G20-1 series signs and "BEGIN ROAD WORK NEXT X MILES" (G20-5T) signs for each specific project. This distance shall replace the "X" and shall be rounded to the nearest whole number with the approval of the Engineer. No decimals shall be used.
- The "BEGIN WORK ZONE" (G20-9TP) and "END WORK ZONE" (G20-2B) shall be used as shown on the sample layout when advance signs are required outside the CSJ Limits. They inform the Contractor of the location of the work zone and the CSJ Limits. If workers are present.
- CSJ limit signing is required for highway construction and maintenance work, with the exception of mobile operations.
- Area for placement of "ROAD WORK AHEAD" (CW20-1D) sign and other signs or devices as called for on the Traffic Control Plan.
- Contractor will install a regulatory speed limit sign at the end of the work zone.

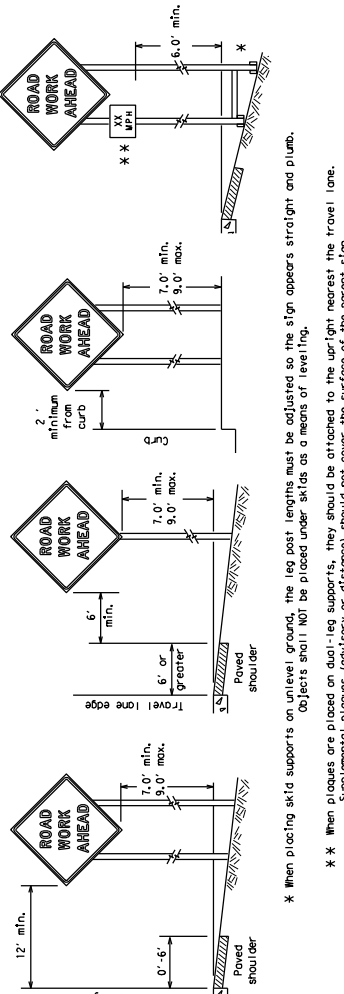
SAMPLE LAYOUT OF SIGNING AT THE CSJ LIMITS



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING DOWNSTREAM OF THE CSJ LIMITS



TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS

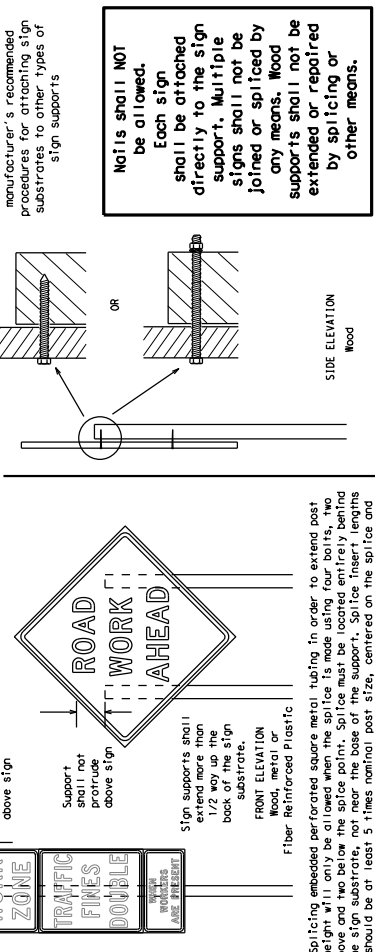


* When placing skid supports on uneven ground, the leg post lengths must be adjusted so the sign appears straight and plumb. Objects shall not be placed under skids as a means of leveling.

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane.

Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice. The bolts must be spaced evenly along the splice. The splice must be at least 5 times nominal post size, centered on the splice and made of at least the same gauge material.

GENERAL NOTES FOR WORK ZONE SIGNS

- Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
- Wooden sign posts shall be painted white.
- Signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
- All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
- The Contractor may require the Contractor to furnish other work zone signs that are shown in the MUTCD but may have been omitted from the plans. Any such signs must be documented in writing before being implemented. This includes documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor Initial and date the agreed upon changes.
- The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTD List) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign supports in accordance with the manufacturer's recommendations. If there is a question as to the proper installation of the sign supports, the Contractor shall contact the Engineer for a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
- The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
- Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used on the sign shall be as shown on the back of the sign substrate. New or damaged wood sign posts shall not be spliced.
- The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF SIGN POSTS DEFINED BY THE "Texas Manual on Uniform Traffic Control Devices" (Part 6)

- The basis of sign post duration is the height of the sign and the type of sign substrate. The duration of sign posts shall be based on the type of sign being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crush-resistance and duration of work requirements.
- Long-term stationary - work that occupies a location more than 3 days.
- Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than 3 days.
- Short-term stationary - work that occupies a location up to 1 hour.
- Mobile - work that moves continuously or intermittently stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

- Signs shall be mounted on a level surface. The sign shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown on supplemental plaques mounted below other signs.
- Signs shall be mounted on a level surface. The sign shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown on supplemental plaques mounted below other signs.
- Long-term/intermediate-term signs may be used in lieu of Short-term/Short duration signing.
- Signs shall be mounted on a level surface. The sign shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown on supplemental plaques mounted below other signs.

SIZE OF SIGNS

Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIGN SUBSTRATES

- The Contractor shall ensure the sign substrate is installed in accordance with the manufacturer's recommendations for the type of sign support that is being used. The CWZTD lists each substrate that can be used on the different types and models of sign supports.
- "Mesh" type materials are NOT an approved sign substrate, regardless of the tightness of the weave.
- All wooden individual sign panels fabricated from 2 or more pieces shall have one or more plywood cleats, 1/2" thick by 6" wide, fastened to the back of the sign and extending fully across the sign. The cleat shall be attached to the back of the sign using wood screws. The cleats shall be placed on both sides of the splice and spaced at 6 feet centers. The Engineer may approve other methods of splicing the sign face.

REFLECTIVE SHEETING

- All signs shall be retro-reflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC11.
- White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
- Orange sheeting, meeting the requirements of DMS-8300 Type B₁ or Type C₁, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

- All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration. Letters shall be uniform in size and shall be spaced evenly. Signs, letters and numbers shall be of first class workmanship. In accordance with Department Standards and Specifications.

REMOVING OR COVERING

- When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
- Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when interactions where the sign may be seen from approaching traffic.

SIGN SUPPORT WEIGHTS

- Where sign supports require the use of weights to keep from turning over, the use of sandbags shall be permitted. Sandbags shall be used to keep the sign from toppling and to maintain a constant weight.
- Rock, concrete, iron, steel or other solid objects shall not be permitted.
- Sandbags shall weigh a minimum of 35 lbs and a maximum of 50 lbs.
- Sandbags should be made of a durable material that tears upon vertical impact. Rubber (such as fire inner tubes) shall NOT be used.
- Sign supports shall be placed on a level surface. Sign supports shall be placed on a level surface. Sign supports shall be placed on a level surface.
- Sign supports shall only be placed along or laid over the base supports of the sign. Sign supports shall not be placed on top of the sign. Sign supports shall not be placed on top of the sign.
- Sandbags shall not be placed under the skid and shall not be used to level sign supports placed on skids.

FLAHS ON SIGNS

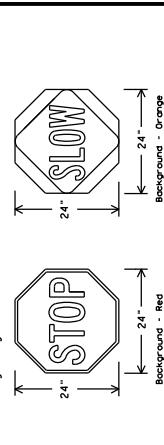
- FlaHS may be used to draw attention to warning signs. When used, the flag shall be 16 inches square or larger and shall be orange or fluorescent red-orange in color. FlaHS shall not be allowed to cover any portion of the sign face.

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

- Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest and other regulatory information. Permanent signs shall be placed at the project limits. Permanent signs shall be placed at the project limits. Permanent signs shall be placed at the project limits.
- When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
- When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
- If existing signs are to be relocated on their original supports, they shall be replaced with the required mounting heights shown on the BC sheets or the SM Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
- If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRS standard sheets or the CWZTD list. The signs shall meet the required mounting heights shown on the BC, or the SM Standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
- Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 800.

STOP/SLOW PADDLES

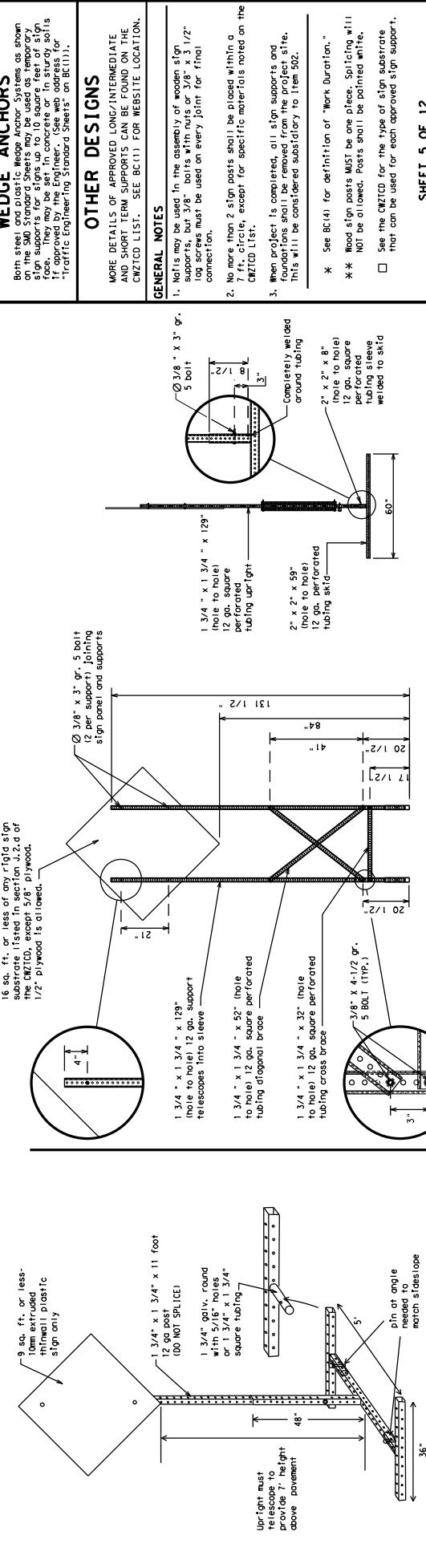
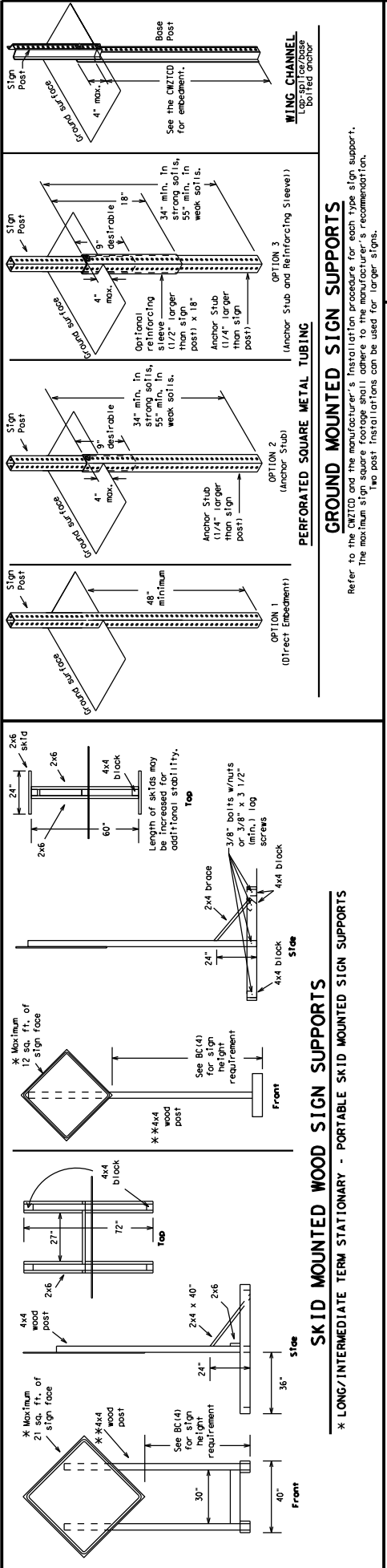
- STOP/SLOW paddles are the primary method to control traffic through a work zone.
- STOP/SLOW paddles shall be retro-reflective when used at night.
- STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
- Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signal flag devices in the MUTCD.



SHEETING REQUIREMENTS (WHEN USED AT NIGHT)

USAGE	COLOR	SIGN FACE MATERIAL
BACKGROUND	RED	TYPE B OR C SHEETING
BACKGROUND	ORANGE	TYPE B ₁ OR C ₁ SHEETING
LEGEND & BORDER	WHITE	TYPE B OR C SHEETING
LEGEND & BORDER	BLACK	ACRYLIC NON-REFLECTIVE FILM

DATE: FILE: 9-07 7-13 8-14 5-21 51.06.66



WEDGE ANCHORS
 Both steel and concrete wedge anchors are shown on the BIA Standard Sheets. They may be used to anchor sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils approved by the Engineer. See web address for Traffic Engineering Standard Sheets on BE(11).

OTHER DESIGNS
 MORE DETAILS OF APPROVED LONG/INTERMEDIATE AND SHORT TERM SUPPORTS CAN BE FOUND ON THE CWZTCO LIST. SEE BC(1) FOR WEBSITE LOCATION.

GENERAL NOTES
 1. Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
 2. No more than 2 sign posts shall be placed within a CWZTCO List.
 3. When erecting is completed, all sign supports and foundations shall be read from the project site. This will be considered subsidiary to Item 502.
 * See BC(4) for definition of "Work Duration."
 ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
 ☐ See the CWZTCO for the type of sign substrate that can be used for each approved sign support.

Texas Department of Transportation
 Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC (5) - 21

FILE: DC-21.001 DW: TAD07 CR: TAD07 CR: TAD07 CR: TAD07
 REVISIONS: November 2002
 9-07 8-14 5-21

SHEET NO. 51.06.66

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RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

(The Engineer may approve other messages not specifically covered here.)

Phase 1: Condition Lists

Road/Lane/Ramp Closure List	Other Condition List
FREWAY CLOSED X MILE	ROADWORK XXX FT
ROAD CLOSED X MILE	ROAD REPAIRS XXXX FT
ROAD CLOSED AT SH XXX	LANE NARROWS XXXX FT
ROAD CLOSED FM XXXX	TWO-WAY TRAFFIC XX MILE
RIGHT X LANES CLOSED	RIGHT LN NARROWS XXXX FT
CENTER LANE CLOSED	MERGING TRAFFIC XXXX FT
NIGHT LANE CLOSURES	LOOSE GRAVEL XXXX FT
VARIOUS LANES CLOSED	DETOUR X MILE
EXIT CLOSED	ROUGH ROAD XXXX FT
MALL DRIVENWAY CLOSED	ROADWORK PAST SH XXXX
XXXXXXXXX BLVD CLOSED	BUMP XXXX FT
	TRAFFIC SIGNAL XXXX FT
	LANES SHIFT

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List	Location List	Warning List
MERGE RIGHT	AT FM XXXX	SPEED LIMIT XX MPH
DETOUR NEXT X EXITS	BEFORE RAILROAD CROSSING	MAXIMUM SPEED XX MPH
USE EXIT I-XX NORTH	NEXT X MILES	MINIMUM SPEED XX MPH
STAY ON I-XX SOUTH	PAST US XXX	ADVISORY SPEED XX MPH
TRUCKS USE FOR TRUCKS	XXXXXX TO XXXXXX	RIGHT LANE EXIT
WATCH EXPECT DELAYS	US XXX TO FM XXXX	USE CAUTION
PREPARE TO STOP	DRIVE SAFELY	DRIVE WITH CARE
REDUCE SPEED XXX FT	END SHOULDER USE	DRIVE WITH CARE
USE OTHER ROUTES	WATCH FOR WORKERS	TONIGHT XX PM-XX AM
STAY IN LANE		

* LANES SHIFT In Phase 1 must be used with STAY IN LANE in Phase 2.

** See Application Guidelines Note 6.

PORTABLE CHANGEABLE MESSAGE SIGNS

(The Engineer/inspector shall approve all messages used on portable changeable message signs (PCMS). No more than 8 words (about four "10", "FOR", "AT", etc.)

- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by the driver.
- The word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or Interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- Stationary PCMS messages should be used for work that starts on Saturday morning and ends by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/inspector may select one of two options when are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "change" in a message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on the face of the sign.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the table. 18 inches for trailer mounted PCMS and 24 inches for portable PCMS. Words and phrases on this list should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each PCMS message should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

WORD OR PHRASE	ABBREVIATION	WORD OR PHRASE	ABBREVIATION
Access Road	ACCS RD	Major	MAJ
Alternate	ALT	Miles	MIL
Avenue	AVE	Miles Per Hour	MPH
Best Route	BEST RTE	Monday	MON
Boysen	BOYS	North	N
Carport	CNPT	Northbound	NBOUND
Center	CTR	Parking	PKNG
Construction	CONST W/D	Road	RD
Arrest	ARST	Right Lane	RT LN
Close	CLS	Right Lane	RT LN
Do Not	DO NOT	Shoulder	SHOULDR
East	E	Slippery	SLIP
Eastbound	EBOUND	South	S
Emergency Vehicle	EMER VEH	Southbound	SBOUND
Entrance	ENTR	Speed	SPD
Express Lane	EXP LN	Street	ST
Expressway	EXPWY	Sunday	SUN
XXX Feet	XXX FT	Telephone	PHONE
Freeway	FRWY	Temporary	TEMP
Freeway Closed	FRWY CLSD	Turn	TURN
Freeway Bypass	FRWY BYPASS	To Downtown	TO DOWNTN
Freeway	FRWY	Traffic	TRAF
Hazardous Driving	HAZ DRIVING	Travelers	TRVLRS
Highway	HWY	Tuesday	TUES
Highway	HWY	Time Minutes	TIME MIN
Hour(s)	HR, HRS	Vertical Level	VERT LVL
Hour(s)	HR, HRS	Warning	WARN
Interchange	INTCR	Wednesday	WED
Junction	JCT	Weight Limit	WT LIMIT
Left Lane	LEFT LN	Work	W
Left Lane	LEFT LN	Work	W
Left Lane Closed	LEFT LN CLSD	Work Position	WKT POSIT
Level	LEVEL	Will Not	WILL NOT
Message	MSG		

Roadway designation = I#R-number, US-number, SH-number, FM-number

APPLICATION GUIDELINES

- Only 1 or 2 phases are to be used on a PCMS.
- The last phase (or both) should be selected from the Road/Ramp Closure List and the other Condition List.
- A "LANES SHIFT" message from the Action to Take/Effect on Travel List is to be used in conjunction with the "LANES SHIFT" message from the Other Condition List.
- A Location Phase is necessary only if a distance or location is not included in the first phase selected.
- Each PCMS message should be preceded by a minimum of 1000 ft. Each PCMS shall be limited to two phases, and should be understandable by themselves.
- For advance notice, when the current date is within seven days of the actual work date, calendar days should be replaced with days of the week. Advance notification should typically be for no more than one week prior to the work.

WORDING ALTERNATIVES

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- Abbreviations E, W, N and S can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distance if necessary.
- BEFORE and AHEAD may be interchanged as needed.
- AT BEFORE and PAST interchanged as needed.
- Distances or AHEAD can be eliminated from the message if a location phase is used.

PCMS SIGNS WITHIN THE R.O.W. SHALL BE BEHIND GUARDRAIL OR CONCRETE BARRIER OR SHALL HAVE A MINIMUM OF FOUR (4) PLASTIC DRUMS PLACED PERPENDICULAR TO TRAFFIC ON THE UPSTREAM SIDE OF THE PCMS, WHEN EXPOSED TO ONE DIRECTION OF TRAFFIC. WHEN EXPOSED TO TWO WAY TRAFFIC, THE FOUR DRUMS SHOULD BE PLACED WITH ONE DRUM AT EACH OF THE FOUR CORNERS OF THE UNIT.

FULL MATRIX PCMS SIGNS

- When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- When symbol signs, such as the "Flagger Symbol" (M20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
- When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
- Full Matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and timing requirements on BC(7), for the same size arrow.

SHEET 6 OF 12



BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

FILED	DC-21-09T	DATE	10/01/2002	BY	1001	REV	10/01/2002	BY	1001
REVISED	11/01/2002	REVISED	11/01/2002	REVISED	11/01/2002	REVISED	11/01/2002	REVISED	11/01/2002
9-07	8-14	7-13	5-21	100					

DATE: 10/01/2002

FILE: 100

CONCRETE TRAFFIC BARRIER (CTB)

Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8300. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address.

Color of Barrier Reflectors shall be as specified in the MUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.

- Barrier reflectors shall be on one side of the CTB, two (2) Barrier reflectors CTB. An alternate mounting location is uniformly spaced at one end of each CTB, this will allow for attachment of a barrier grapple without damaging the reflector. The Barrier reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the CTB except for two-way traffic. Three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (B1-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- Barrier reflectors shall be yellow or white in color to match the edge line being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Barrier reflectors shall be replaced as directed by the Engineer.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be delineated as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.

LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES

LPCB is approved for use in work zone locations, where the posted speed is 45 mph or less. See Roadway Standard Sheet U2B.

Max. spacing of barrier reflectors shall be 20 feet. Attach the delineator as per manufacturer's recommendations.

Install a minimum of 3 Barrier Reflectors as per manufacturer's recommendations.

DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES

End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH), Refer to the CMV/CAD List for approved end treatments and manufacturers.

Arrow Boards may be located behind channelizing devices in place for a shoulder or to channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow lane closures on two-lane roadways. Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:
 - 1. CORNER CAUTION
 - 2. ALTERNATING DIAMOND CAUTION
 - 3. RIGHT/LEFT ARROW (right arrow shown; left is similar)
 - 4. RIGHT/LEFT CHEVRON (right chevron shown; left is similar)

5. The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond display.

6. The straight line caution display is NOT ALLOWED.

7. The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage.

8. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.

9. Minimum spacing between lamps shall be approximately 7.50 percent for the flashing arrow and equal to 20 percent for the sequential arrow.

10. The sequential arrow display is NOT ALLOWED.

11. The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during night operations.

12. A Flashing Arrow Board shall not be used to delineate a vehicle, trailer or other suitable support.

13. A full matrix PDS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.

14. Minimum mounting height of trailer-mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

REQUIREMENTS

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
A	30 x 60	13	3/4 mile
B	48 x 96	15	1 mile

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE TRAFFIC BARRIER OR GUARDRAIL.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

- Warning lights shall meet the requirements of the MUTCD.
- Warning lights shall NOT be installed on barn loads.
- Type A-Low Intensity Flashing Warning Lights are sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B₁ or B₂ sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. They shall be as indicated on the sheet and/or other sheets of the plans by the designation "SL". The Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside. In order to delineate the desired vehicle path, the rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or other delineating device spacing.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

WARNING REFLECTORS MOUNTED ON PLASTIC DRUMS AS A SUBSTITUTE FOR TYPE C (STEADY BURN) WARNING LIGHTS

- A warning reflector or approved substitute may be mounted on a plastic drum as a substitute for a Type C, steady burn warning light at the discretion of the Contractor unless otherwise noted in the plans.
- The warning reflector shall be yellow in color and shall be manufactured using a sign substrate approved for use with plastic drums listed on the CMV/CAD.
- The warning reflector shall have a minimum retroreflective surface area (one-side) of 30 square inches.
- Round reflectors shall be fully reflectorized, including the area where attached to the drum.
- Square substrates must have a minimum of 30 square inches of reflectorized sheeting. They do not have to be reflectorized where 1' of the drum is covered by the warning reflector facing approaching traffic shall have sheeting meeting the color and retroreflectivity requirements for DMS 8300-Type B or Type C.
- When used near two-way traffic, both sides of the warning reflector shall be reflectorized.
- The warning reflector should be mounted on the side of the handle nearest approaching traffic.
- The maximum spacing for warning reflectors should be identical to the channelizing device spacing requirements.

Type C Warning Light or approved substitute mounted on a drum adjacent to the travel way.

Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches.

FLASHING ARROW BOARDS

TRUCK-MOUNTED ATTENUATORS

- Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).
- Refer to the CMV/CAD for the requirements of Level 2 or Level 3 TMAs.
- Refer to the CMV/CAD for a list of approved TMAs.
- TMAs are required on freeways unless otherwise noted.
- TMAs should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.
- The only reason a TMA should not be required is when a work extended distance from the TMA, and the work crew is on the TMA.

ATTENTION
Flashing Arrow Boards shall be equipped with automatic dimming devices.

REQUIREMENTS

TYPE	MINIMUM SIZE	MINIMUM NUMBER OF PANEL LAMPS	MINIMUM VISIBILITY DISTANCE
A	30 x 60	13	3/4 mile
B	48 x 96	15	1 mile

WHEN NOT IN USE, REMOVE THE ARROW BOARD FROM THE RIGHT-OF-WAY OR PLACE THE TRAFFIC BARRIER OR GUARDRAIL.

TRUCK-MOUNTED ATTENUATORS

1. Truck-mounted attenuators (TMA) used on TxDOT facilities must meet the requirements outlined in the Manual for Assessing Safety Hardware (MASH).

2. Refer to the CMV/CAD for the requirements of Level 2 or Level 3 TMAs.

3. Refer to the CMV/CAD for a list of approved TMAs.

4. TMAs are required on freeways unless otherwise noted.

5. TMAs should be used anytime that it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the work performance.

6. The only reason a TMA should not be required is when a work extended distance from the TMA, and the work crew is on the TMA.

Texas Department of Transportation

BARRICADE AND CONSTRUCTION ARROW PANEL, REFLECTORS, WARNING LIGHTS & ATTENUATOR

BC (7) - 21

FILE: BC-21-09T
REVISED: 9-07 8-14
DATE: 10-11-11
SHEET NO. 53 OF 66

GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device. Drums may be replaced in conjunction with the placement of concrete. Drums should be replaced in conjunction with the placement of concrete. Drums should be replaced in conjunction with the placement of concrete.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapered, transitions and tangent sections by cones, barrels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and be free of cracks, holes, or other defects that would adversely affect their appearance or safety.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

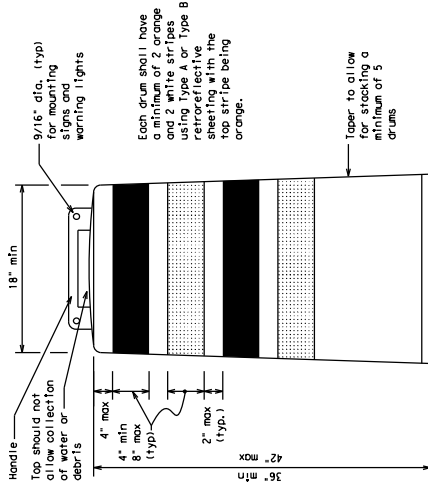
- Plastic drums shall be a two-piece design, the "body" of the drum shall be the top portion and the "base" shall be the bottom. The body shall separate from the base when impacted by a vehicle traveling at a speed of 20 mph or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or other plastic drums as channelizing devices or sign supports.
- Drums shall have a maximum height of 36 inches measured from the top of the drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pick-up and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 3/16 inch diameter holes to allow drainage of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-retroreflective space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footcandle of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

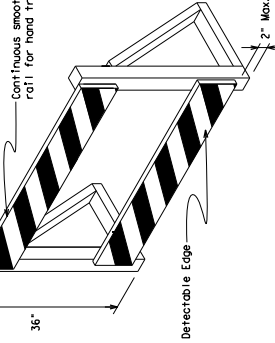
- The stripes used on drums shall be constructed of sheeting meeting the criteria of Section 205.03, "Sign Face Materials," Type A or Type B. Specific Specification DMS-8300, "Sign Face Materials," Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum body. The sheeting shall be applied so that there is no loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

BALLAST

- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Strapping or sandbags will be allowed only if they are secured above pavement level.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral drum rubber base or a solid rubber base.
- Recycled truck fire sidewalks may be used for ballast on drums approved by the Engineer.
- The ballast shall not be hazardous, poisonous, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesive may be used to secure base of drums to pavement.

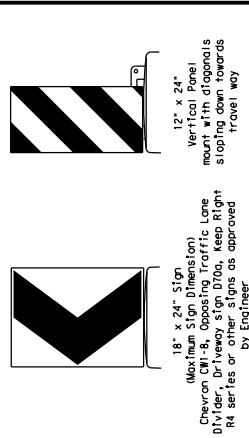


This detail is not intended for fabrication. See note 3 and the CWZTCD list for approved Detectable Pedestrian Barricades.



DETECTABLE PEDESTRIAN BARRICADES

- When existing pedestrian facilities are dislocated, closed, or relocated in a TIC zone, the temporary facilities shall be detectable and include accessibility features consistent with the Americans with Disabilities Act (ADA) and the requirements of WZ (B) (5-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the detectable pedestrian barricades, the barricades shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured in the plans shall be constructed with a continuous detectable edging on each side and chain link fencing with a continuous path.
- Use of cone, or plastic chain, strips between devices are not detectable and do not comply with the design standards in the Americans with Disabilities Act Accessibility Guidelines (ADAAG) and should not be used as a control for pedestrian movement.
- Lighting shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rolls as shown on BCI(10). Provided that the top rail provides ballast for hand trailing with no splinters, burrs, or sharp edges.



Plywood, Aluminum or Metal sign substrates shall NOT be used on plastic drums

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

- Signs used on plastic drums shall be manufactured using substrates listed on the CWZTCD.
- Chevrons and other work zone signs with an orange background shall be manufactured with Type B1, or Type C1, orange sheeting meeting the color and retroreflectivity requirements of DMS-8300, "Sign Face Material," unless otherwise specified in the plans.
- Vertical Panels shall be manufactured with orange and white sheeting meeting the requirements of DMS-8300 Type A or Type B. Diagonal stripes on Vertical Panels shall slope down toward the Intended Travelled Lane.
- Other sign messages (text or symbolic) may be used as approved by the Engineer. Sign dimensions shall not exceed 18 inches in width or 24 inches in height, except for the R9 series signs discussed in note 8 below.
- Signs shall be installed using a 1/2 inch bolt (nominal) and one locking washer for each connection.
- Mounting bolts and nuts shall be fully engaged and adequately torqued. Bolts should not extend more than 1/2 inch beyond nuts.
- Chevrons may be placed on drums on the outside of curves, on merging tapers or on shifting tapers. When used in these locations, they may be placed on every drum or spaced not more than on every third drum. A minimum of three (3) should be used at each location called for in the plans.
- R9-9, R9-10, R9-11, and R9-11a Stowalk Closed signs which are 24 inches wide may be mounted on plastic drums, with approval of the Engineer.

SHEET 8 OF 12

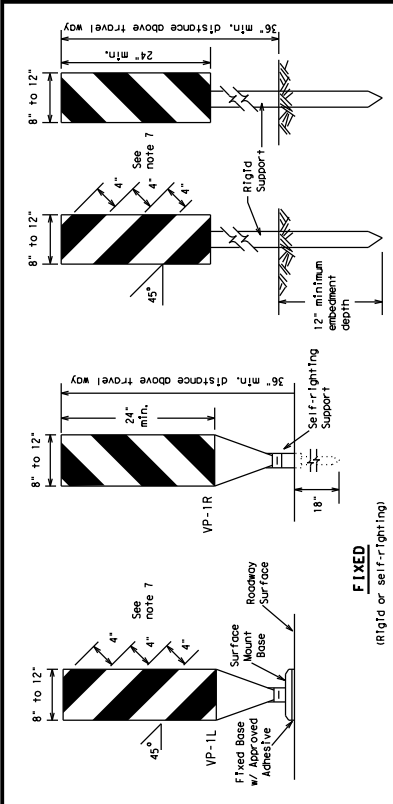


BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

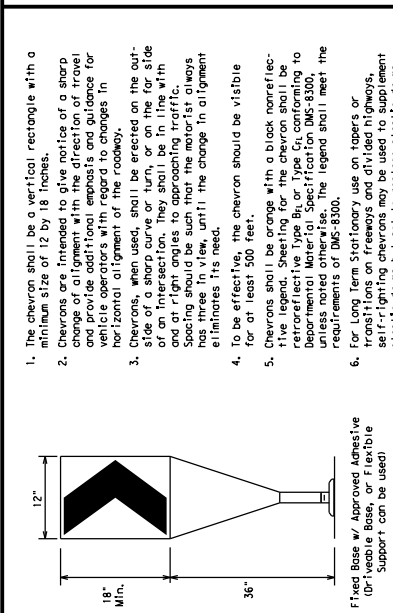
BC (8) - 21

FILE	BC-21.dgn	DR	TxDOT	CR	TxDOT	DR	TxDOT	CR	TxDOT
DATE	November 2002	REV	1	REV	2	REV	3	REV	4
BY	9-07	BY	9-07	BY	9-07	BY	9-07	BY	9-07
COUNTY		COUNTY		COUNTY		COUNTY		COUNTY	
SHEET NO.	8								
REV	7-13								
DATE	5-4-06								

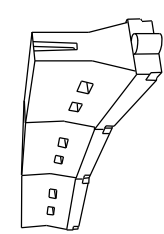
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- FIXED**
(Rigid or self-righting)
- DRIVEABLE**
- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
 - VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and drop-offs in the travel way. The minimum height, daytime and nighttime delineation is required. The Engineer/Inspector shall refer to the Roadway Design Manual for additional requirements on the use of VP's for drop-offs.
 - VP's should be mounted back to back. If used at the edge of a drop-off, the VP's should be self-righting. VP's are to be reflective orange and reflective white and should be always slope downward toward the travel lane.
 - VP's are used on expressways and freeways or other high speed roadways, may have more than 270 square inches of reflective surface area and are available with portable base.
 - See "Compliant Work Zone Traffic Control Devices List" (CWZCD).
 - Sheeting for the VP's shall be retroreflective Type A or Type B reflective material conforming to Departmental Material Specification DMS-8300.
 - Where the height of reflective material on the vertical panel is 36 inches or greater, a panel stripe of 6 inches shall be used.



- CHEVRONS**
- The chevrons shall be a vertical rectangle with a minimum size of 12 by 18 inches.
 - Chevronees intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
 - Chevronees, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with the roadway centerline. The chevrons shall be spaced at intervals such that the overall effect has three in view, until the change in alignment eliminates its need.
 - To be effective, the chevron should be visible for at least 500 feet.
 - Chevronees shall be eroded with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B1 or Type C1 conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
 - For Long Term Stationary use on tapered or transitional on freeways and divided highways, chevrons may be used in conjunction with permanent plastic drums but not to replace plastic drums.



- LONGITUDINAL CHANNELIZING DEVICES (LCD)**
- LCDs are crashworthy, lightweight, deformable devices that are highly visible, have good target value and can be connected together. They are not designed to contain or redirect a vehicle on impact.
 - LCDs shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZCD list.
 - LCDs shall be supplemented with retroreflective delineation as required for temporary barriers on BC(7) when placed roughly parallel to the travel lanes.
 - LCDs used as barricades placed perpendicular to traffic should have at least one row of reflective sheeting meeting the requirements for barricade rolls as shown on BC(10). Place reflective sheeting near the top of the LCD along the full length of the device.

- WATER BALLASTED SYSTEMS USED AS BARRIERS**
- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the roadway speed and barrier application.
 - Water ballasted systems used as barriers shall be supplemented with retroreflective delineation work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on the application.
 - Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZCD list.
 - Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used in a low speed urban area, the taper shall be delineated with the taper length of the device. When used in a low speed urban area, the taper shall be delineated with the taper length of the device. When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.
- If used to attenuate, water ballasted systems used as barriers shall have a continuous detectable bottom for users of long cones and the top of the unit shall not be less than 32 inches in height.

HOLLOW OR WATER BALLASTED SYSTEMS USED AS LONGITUDINAL CHANNELIZING DEVICES OR BARRIERS

- GENERAL NOTES**
- Work zone channelizing devices illustrated on this sheet may be installed in close proximity to traffic and are suitable for use on high or low speed roadways. The Engineer/Inspector shall ensure that spacing and placement is uniform and in accordance with the "Texas Manual on Uniform Traffic Control Devices" (TMUDCD).
 - Channelizing devices shown on this sheet may have a drivable, fixed or portable base. The Engineer/Inspector shall ensure that channelizing devices must be specified in the General Notes or other plan sheets.
 - Channelizing devices on self-righting supports should be used in work zone areas where channelizing devices are frequently impacted by errant vehicles or vehicle related wind gusts making alignment of the channelizing devices difficult to maintain. Locations of these devices shall be detailed elsewhere in the plans. These devices shall conform to the TMUDCD and the requirements of DMS-8300.
 - The Contractor shall maintain devices in a clean condition and replace damaged, nonreflective, faded, or broken devices and bases as required by the Engineer/Inspector. The Contractor shall be required to maintain proper device spacing and alignment.
 - Portable bases shall be fabricated from virgin and/or recycled rubber. The portable bases shall weigh a minimum of 30 lbs. that ensures proper bonding between the adhesives, the fixed mount bases and the pavement surface. Adhesives shall be prepared and applied according to the manufacturer's recommendations.
 - The installation and removal of channelizing devices shall not cause detrimental effects to the final pavement surfaces, including pavement surface discoloration or surface integrity. Drivable bases shall not be used in work zones where the Engineer/Inspector shall approve all application and removal procedures of fixed bases.

Posted Speed	Formula	Minimum Taper Lengths * * *	Suggested Maximum Channelizing Devices
30	$L = WS^2$	10' 11" on offset 150' 165' 180' 30'	On a tangent 60'
35	$L = WS^2$	205' 225' 245' 35'	70'
40	$L = WS^2$	265' 295' 320' 40'	80'
45	$L = WS^2$	450' 495' 540' 45'	90'
50	$L = WS^2$	500' 550' 600' 50'	100'
55	$L = WS^2$	605' 660' 720' 60'	110'
60	$L = WS^2$	600' 660' 720' 60'	120'
65	$L = WS^2$	650' 715' 780' 65'	130'
70	$L = WS^2$	700' 770' 840' 70'	140'
75	$L = WS^2$	750' 825' 900' 75'	150'
80	$L = WS^2$	800' 880' 960' 80'	160'

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESTRIBABLE TAPER LENGTHS

SHEET 9 OF 12
Texas Department of Transportation
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

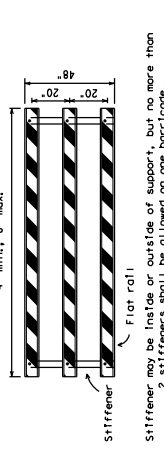
BC (9) - 21

FILE#	BC-21.dgn	DATE	11/01/01	BY	TDOT	CHKD	TDOT	DATE	11/01/01
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REV#	3	DATE	11/01/01	BY	TDOT	CHKD	TDOT	DATE	11/01/01
REV#	4	DATE	11/01/01	BY	TDOT	CHKD	TDOT	DATE	11/01/01
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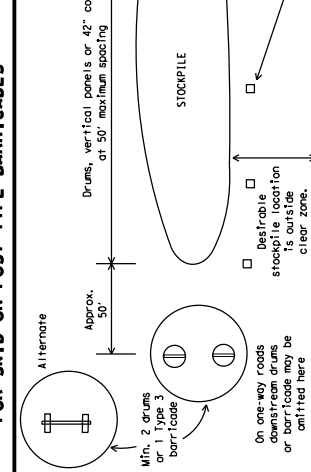
TYPE 3 BARRICADES

- Refer to the Compliant Mark Zone Traffic Control Devices List (CMZ/CDD) for the use of materials in the construction of all materials used in the construction of Type 3 Barricades.
- Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
- Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in a detouring. Where no turns are provided at a closed road, striping should slope downward in both directions from the center of the barricade. Downward in both directions toward the center of roadway.
- Striping of rolls, for the right side of the roadway, should slope downward to the right. For the left side of the roadway, striping should slope downward to the left.
- Identification markings may be shown only on the back of the barricade rolls. The maximum height of letters and/or company logos used for identification shall be 1".
- Barricades shall be placed parallel to traffic unless an adequate detouring is provided.
- Warning lights shall NOT be installed on barricades. The use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to manner that covers any portion of a barricade roll's reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon impact. Sandbags shall be placed along the back of the base of supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
- Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.

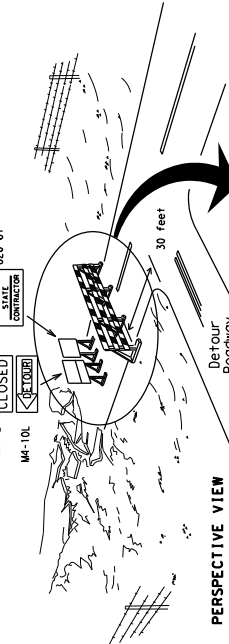


TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES



TRAFFIC CONTROL FOR MATERIAL STOCKPILES

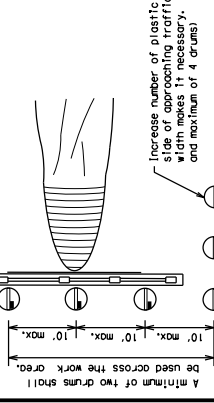
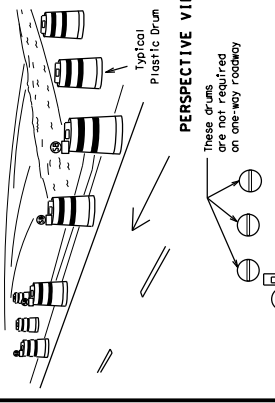
Each roadway of a divided highway shall be barricaded in the same manner.



The three rolls on Type 3 barricades should be placed parallel to traffic with reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.

- Signs should be mounted on independent supports at a 7 foot mounting height in center of roadway. The signs should be a minimum of 10 feet behind Type 3 Barricades.
- Advance signing shall be as specified elsewhere in the plans.

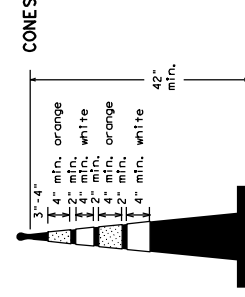
TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



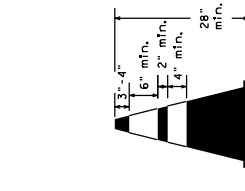
- Where positive retroreflective capability is provided, drums may be omitted.
- Plastic construction fencing may be used with drums for safety as required in the plans.
- Vertical panels or flexible support fabric should be used if the shoulder width is less than 4 feet.
- When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
- Drums must extend the length of the culvert widening.

LEGEND	
	Plastic drum
	Plastic drum with steady burn light or yellow warning reflector
	Steady burn warning light or yellow warning reflector

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS



Two-Piece cones



One-Piece cones

28" Cones shall have a minimum weight of 9 1/2 lbs. 42" 2-piece cones shall have a minimum weight of 30 lbs. including base.

- Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
- One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
- Height specifications are to the top of the cone, including the day bands as shown above. The reflective bands shall have orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300. In addition, the day bands shall be orange.
- Cones or tubular markers shall have white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300. In addition, the day bands shall be orange.
- 28" cones and tubular markers are generally suitable for short duration and intermediate-term or long-term stationary work. These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
- 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
- Cones or tubular markers used on each project should be of the same size and shape.

SHEET 10 OF 12

Texas Department of Transportation
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

FILE: DC-21.dgn	DATE: 11/01/02	BY: JLD	REV: 1
REVISED: 8-01	REVISED: 8-14	REVISED: 7-13	REVISED: 9-21
CONTRACT:	DIST:	COUNTY:	SHEET NO.:
			56 OF 66

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WORK ZONE PAVEMENT MARKINGS

GENERAL

- The Contractor shall be responsible for maintaining work zone and marking requirements on all roadways open to traffic within the CSA limits unless otherwise stated in the plans.
- Color, patterns and dimensions shall be in conformance with the Texas Manual on Uniform Traffic Control Devices (TMUCD).
- Additional supplemental pavement markings may be found in the plans or specifications.
- Pavement markings shall be installed in accordance with the TMUCD and as shown on the plans.
- When short term markings are required on the plans, short term markings shall conform with the TMUCD, the plans and details as shown on the Standard Plan Sheet WZ(S1PM).
- When standard pavement markings are not in place and the roadway is to be closed, the beginning of the sections where passing is prohibited and PASS WITH CARE signs at the beginning of sections where passing is permitted.
- All work zone pavement markings shall be installed in accordance with Item 662, "Work Zone Pavement Markings."

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC1121.
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-5300.

PREFABRICATED PAVEMENT MARKINGS

- Removable prefabricated pavement markings shall meet the requirements of DMS-8241.
- Non-removable prefabricated pavement markings (roll back) shall meet the requirements of DMS-8240.

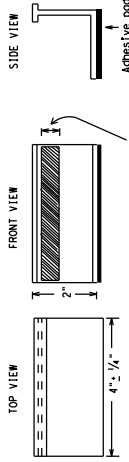
MAINTAINING WORK ZONE PAVEMENT MARKINGS

- The Contractor will be responsible for maintaining work zone pavement markings within the work limits.
- Work zone pavement markings shall be inspected in accordance with the frequency and reporting requirements of work zone traffic control device inspections as required by Item 599.
- The markings should provide a visible reference for a minimum distance of 300 feet during normal daylight hours and 160 feet when illuminated by automobile low-beam headlights at night, unless sight distance is restricted by roadway geometrics.
- Markings failing to meet this criteria within the first 30 days after placement shall be replaced at the expense of the Contractor as per Specification Item 662.

REMOVAL OF PAVEMENT MARKINGS

- Pavement markings that are no longer applicable, could create confusion or are otherwise not needed, shall be removed or obliterated before the roadway is opened to traffic. The above shall not apply to detectors in place for less than three days, where triggers and/or sufficient channelizing devices are used in lieu of markings to outline the detour route.
- Pavement markings shall be removed to the fullest extent possible, so as not to leave a discernible marking. This shall be by any method approved by 74001 Specification Item 677 for "Eliminating Existing Pavement Markings and Markers".
- The removal of pavement markings may require resurfacing or seal coating portions of the roadway as described in Item 677.
- Subject to the approval of the Engineer, any method that proves to be successful on a particular type pavement may be used.
- Blast cleaning may be used but will not be required unless specifically shown in the plans.
- Over-painting of the markings SHALL NOT BE permitted.
- Removal of raised pavement markers shall be as directed by the Engineer.
- Removal of existing pavement markings and markers will be paid for by the Contractor. The Contractor shall submit a list of REMOVED PAVEMENT MARKINGS AND MARKERS, unless otherwise stated in the plans.
- Block-out marking tape may be used to cover conflicting existing markings for periods less than two weeks when approved by the Engineer.

Temporary Flexible-Reflective Roadway Marker Tabs



Height of sheeting is usually more than 1/4" and less than 1".

STAPLES OR NAILS SHALL NOT BE USED TO SECURE TEMPORARY FLEXIBLE-REFLECTIVE ROADWAY MARKER TABS TO THE PAVEMENT SURFACE

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Guidemarks on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
 - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line, using a medium size passenger vehicle or pickup truck. Drive the vehicle at a constant speed of 35 to 40 miles per hour, four (4) files in each direction no more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
 - Small design variances may be noted between tab manufacturers.
 - See Standard Sheet WZ(S1PM) for tab placement on new pavements. See Standard Sheet TOP(1-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

- Raised pavement markers used as guidemarks shall be from the approved product list, and meet the requirements of DMS-4200.
- All temporary construction raised pavement markers provided on a project shall be of the same manufacturer.
- Adhesive for guidemarks shall be bituminous material hot applied or butyl rubber pad for all surfaces, or thermoplastic for concrete surfaces.

Guidemarks shall be displaced as follows:
 YELLOW - two amber reflective surfaces with yellow body.
 WHITE - one silver reflective surface with white body.

DEPARTMENTAL MATERIAL SPECIFICATIONS	
PAVEMENT MARKERS (REFLECTORIZED)	DMS-4200
TRAFFIC BUTTONS	DMS-4300
EPOXY AND ADHESIVES	DMS-6100
BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS	DMS-6130
PERMANENT PREFABRICATED PAVEMENT MARKINGS	DMS-8240
TEMPORARY REMOVABLE, PREFABRICATED PAVEMENT MARKINGS	DMS-8241
TEMPORARY FLEXIBLE, REFLECTIVE ROADWAY MARKER TABS	DMS-8242

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC111.

SHEET 11 OF 12



Texas Department of Transportation

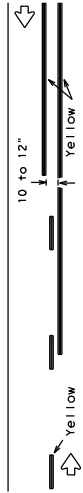
Traffic Safety Division Standard

BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

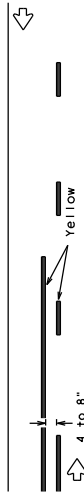
BC(11) - 21

FILE	DATE	BY	CHK	REV	DESCRIPTION
11-02	8-05	9-21			REVISIONS
1-02	7-13				DIST
11-02	8-14				COUNTY
					JOB
					SECTION
					DATE
					PROJECT
					ROADWAY
					SHEET NO.
					57 OF 65

PAVEMENT MARKING PATTERNS



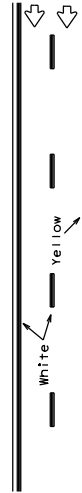
REFLECTORIZED PAVEMENT MARKINGS - PATTERN A



REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

Pattern A is the TxDOT Standard, however Pattern B may be used if approved by the Engineer. Prefabricated markings may be substituted for reflectorized pavement markings.

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS

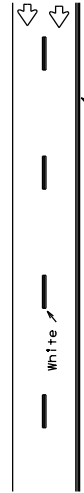


REFLECTORIZED PAVEMENT MARKINGS



Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY

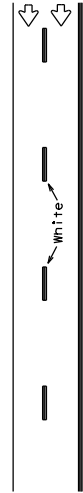


REFLECTORIZED PAVEMENT MARKINGS

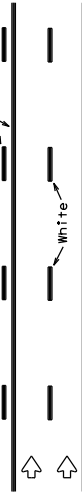


Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

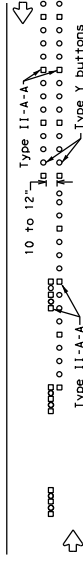


REFLECTORIZED PAVEMENT MARKINGS

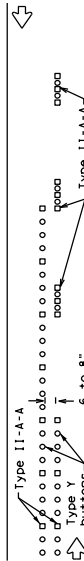


Prefabricated markings may be substituted for reflectorized pavement markings.

TWO-WAY LEFT TURN LANE

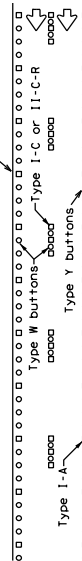


RAISED PAVEMENT MARKERS - PATTERN A

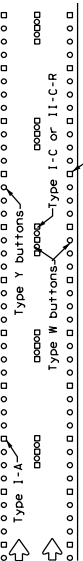


RAISED PAVEMENT MARKERS - PATTERN B

CENTER LINE & NO-PASSING ZONE BARRIER LINES FOR TWO-LANE, TWO-WAY HIGHWAYS



RAISED PAVEMENT MARKERS

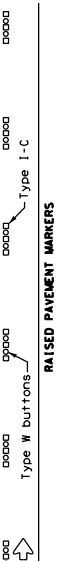


Prefabricated markings may be substituted for reflectorized pavement markings.

EDGE & LANE LINES FOR DIVIDED HIGHWAY

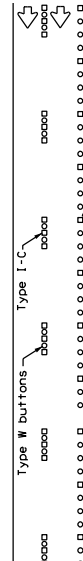


RAISED PAVEMENT MARKERS

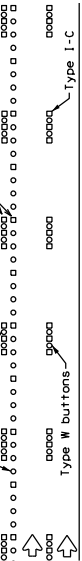


Prefabricated markings may be substituted for reflectorized pavement markings.

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS

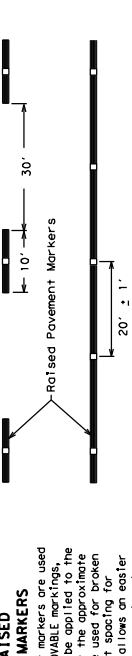
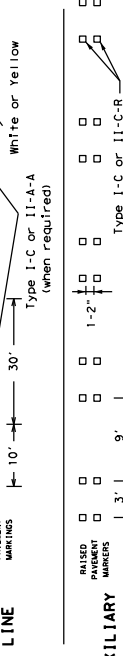
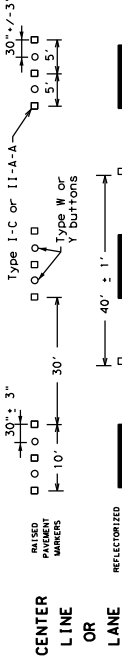
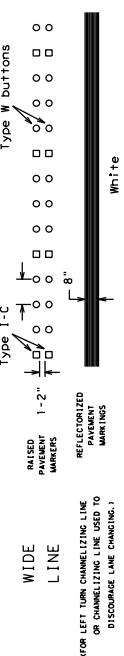
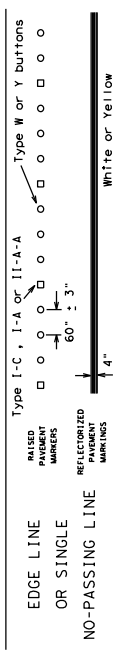
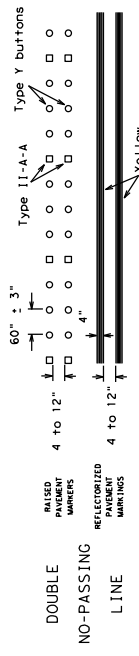


RAISED PAVEMENT MARKERS



Prefabricated markings may be substituted for reflectorized pavement markings.

STANDARD WORK ZONE PAVEMENT MARKING DETAILS



Center line only - not to be used on edge lines

SHEET 12 OF 12

Texas Department of Transportation
Traffic Safety Division Standard

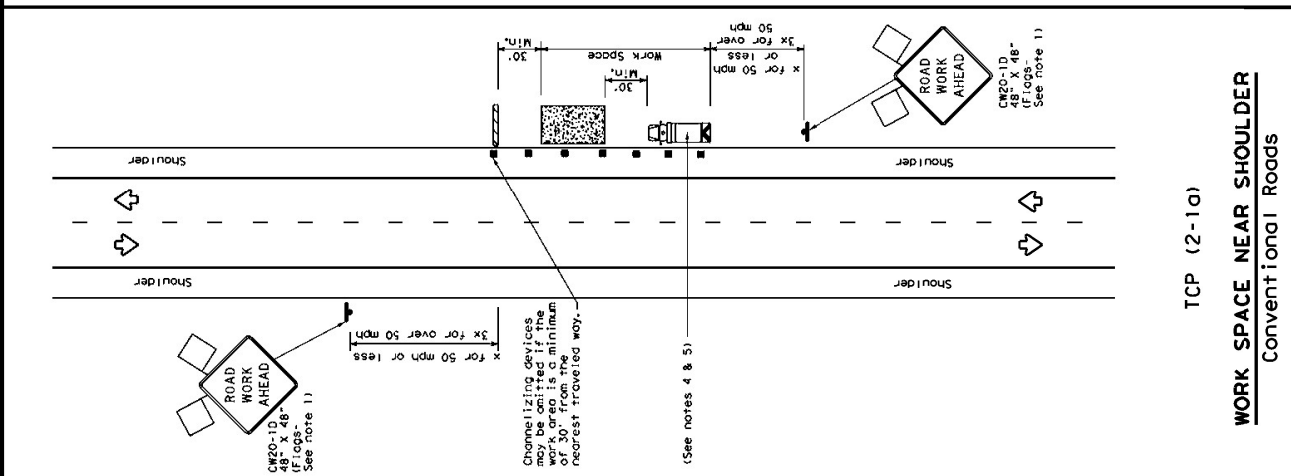
BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 21

FILE: DC-21.dgn	DATE: 12/01/98	BY: TxDOT	REV: 12/01	SCALE: 1/4"=1'-0"
PROJECT: 1-97 9-0	SECTION: HIGHWAY	JOB: BARRICADE AND CONSTRUCTION	DIST: COUNTY	SHEET NO. 12 OF 66
REVISIONS: 1-97 9-0	REVISIONS: 2-98 7-13	REVISIONS: 11-02 8-14	REVISIONS:	REVISIONS:

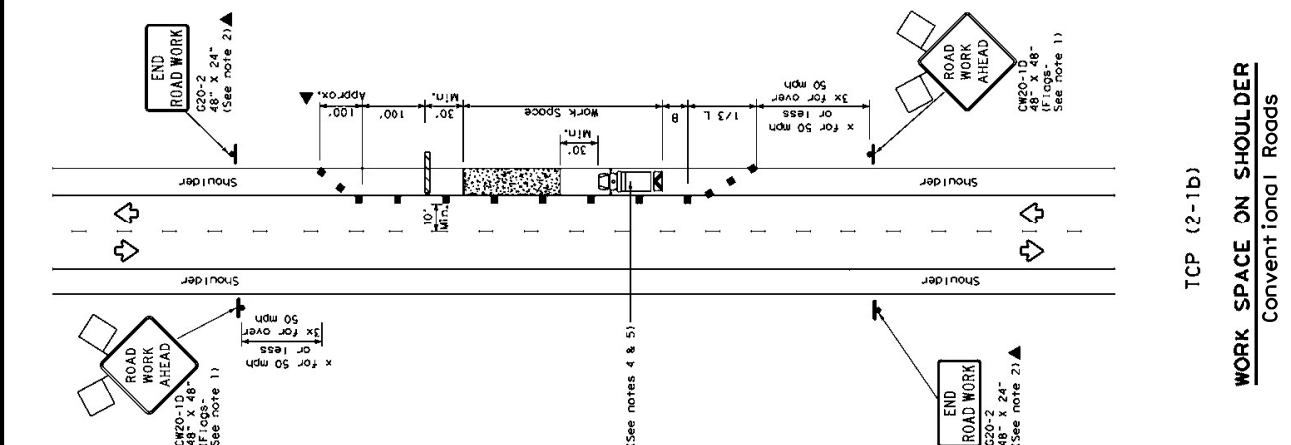
Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

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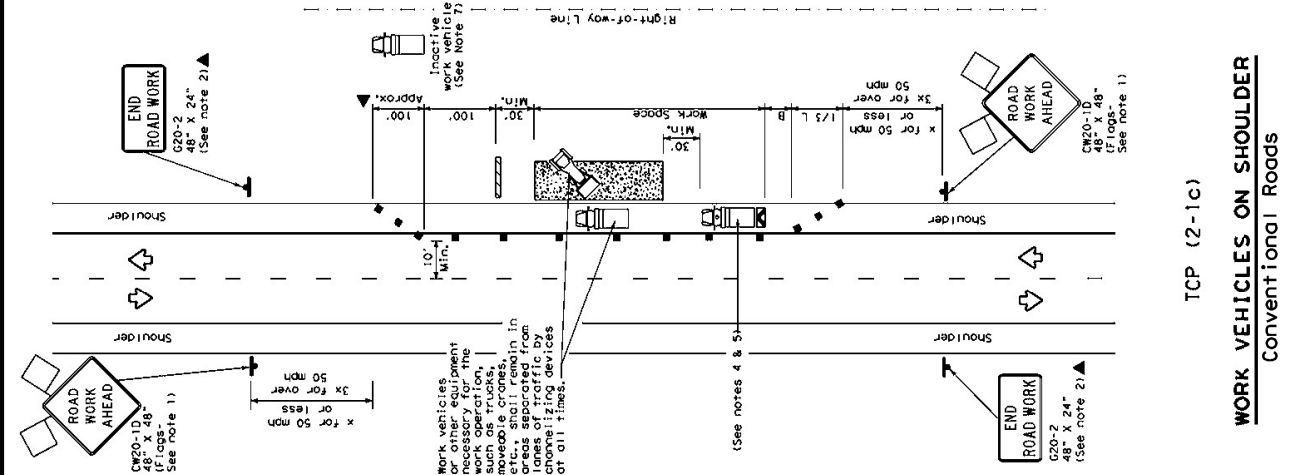
TCP (2-1a)

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 * (MPH)	Formula	Minimum Taper Lengths (ft)	On a Taper (ft)	On a Longest Taper (ft)	Minimum Spacing of Signs (ft)	Suggested Maximum Spacing of Signs (ft)	Suggested Minimum Spacing of Signs (ft)
30	$L = WS^2$	10'	11'	12'	10'	100'	100'
35	$L = WS^2$	150'	165'	180'	30'	30'	120'
40	$L = WS^2$	205'	225'	245'	35'	70'	160'
45	$L = WS^2$	265'	295'	320'	40'	80'	240'
50	$L = WS^2$	330'	370'	405'	45'	90'	320'
55	$L = WS^2$	405'	450'	500'	50'	100'	400'
60	$L = WS^2$	495'	555'	600'	55'	110'	500'
65	$L = WS^2$	600'	660'	720'	60'	120'	600'
70	$L = WS^2$	720'	795'	870'	65'	130'	700'
75	$L = WS^2$	855'	945'	1035'	70'	140'	800'
80	$L = WS^2$	1005'	1110'	1215'	75'	150'	900'
85	$L = WS^2$	1170'	1290'	1410'	80'	160'	1000'
90	$L = WS^2$	1350'	1485'	1620'	85'	170'	1100'
95	$L = WS^2$	1545'	1695'	1845'	90'	180'	1200'
100	$L = WS^2$	1760'	1920'	2080'	95'	190'	1300'

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

TYPICAL USAGE

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

GENERAL NOTES

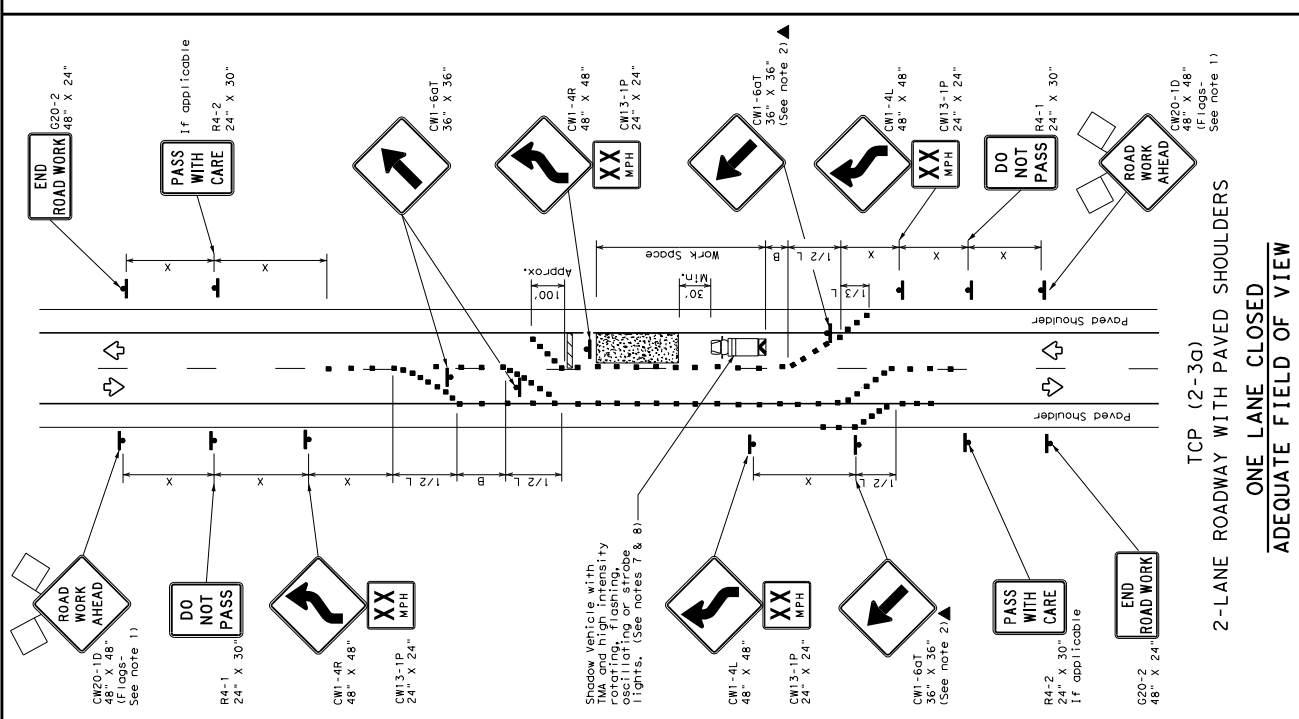
- Flags attached to signs where shown, are REQUIRED.
- Signs should be placed on the right side of the road, except those depicted with the triangle symbol may be omitted when stored in the plans, or for routine maintenance work, when approved by the Engineer.
- Stockpiled material should be placed a minimum of 30 feet from nearest traveled way.
- Shoulder vehicle with TMA and high intensity rotating, flashing, oscillating or strobe lights. A Snow vehicle with a TMA should be placed on the shoulder. The TMA should be placed in the area of crew exposure at that 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 Snow vehicle and TMA.
- Signs should be placed on the shoulder, positioned off the paved surface next to those shown in order to protect a wider work space. See (CP(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 CW20-10 ROAD WORK AHEAD signs for shoulder work on conventional roadways.

Texas Department of Transportation

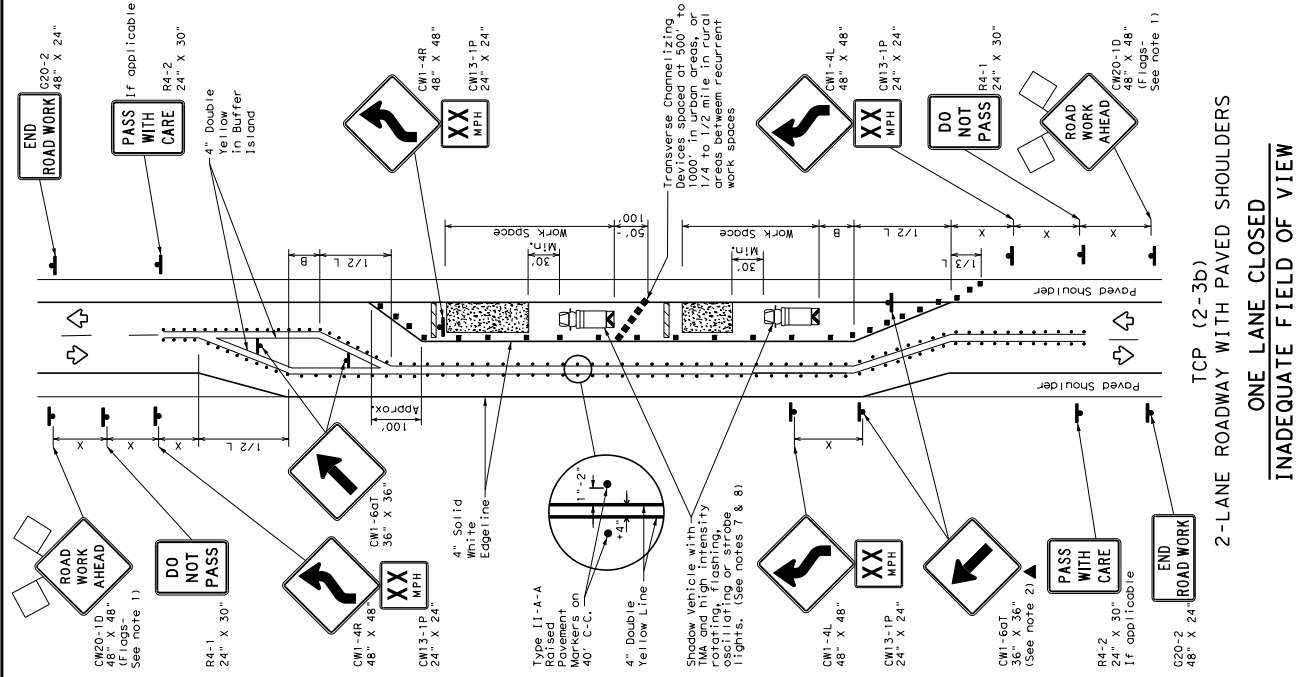
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1) - 18

FILE#	TCP(2-1)-18-000	DATE	1-8-2007	REV	1
PROJECT	10001	DATE	December 1995	REV	2
REVISIONS	2-94	4-98	8-95	2-12	1-97
COUNTY		DIST			
SHEET NO.	59	OF 65			



TCP (2-30)
2-LANE ROADWAY WITH PAVED SHOULDERS
ADEQUATE FIELD OF VIEW



TCP (2-3b)
2-LANE ROADWAY WITH PAVED SHOULDERS
INADEQUATE FIELD OF VIEW

LEGEND

Type 3 Barricade	Channelizing Devices
Heavy Work Vehicle	Truck Mounted Attenuator (TMA)
Trailer Mounted Flashing Arrow Board	Raised Pavement Markers Ty II-AA
Sign	Traffic Flow
F. Flag	F. Flag

Posted Speed	Minimum Taper Lengths	Suggested Maximum Channelizing Device Spacing	Minimum Sign Spacing	Minimum Buffer Space	Suggested Maximum Sign Spacing
30	150'	11'-12'	60'	120'	90'
35	150'	11'-12'	60'	120'	90'
40	150'	11'-12'	60'	120'	90'
45	205'	11'-12'	70'	160'	120'
50	265'	11'-12'	80'	200'	155'
55	325'	11'-12'	90'	240'	195'
60	385'	11'-12'	100'	280'	240'
65	445'	11'-12'	110'	320'	295'
70	505'	11'-12'	120'	360'	350'
75	565'	11'-12'	130'	400'	410'
80	625'	11'-12'	140'	440'	475'
85	685'	11'-12'	150'	480'	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 DURATION	SHORT TERM STATIONARY	INTERMEDIATE TERM STATIONARY	LONG TERM STATIONARY
			TOP (P-3D) ONLY

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices, illustrated are REQUIRED, except those denoted as optional in the plans, or for routine maintenance work, when approved by the Engineer. In the plans, markings may remain in place less than three days existing pavement markings may remain in place. Channelizing devices shall be used to separate traffic.
- Flagger control should NOT be used unless roadway conditions or heavy traffic volume require additional emphasis to safety control procedure. Flagger should be positioned in the center of the work zone.
- The R4-1 "DO NOT PASS," R4-2 "PASS WITH CARE" and construction regulatory speed zone signs may be installed within CW20-1D "ROAD WORK AHEAD" signs. Proper spacing of signs shall be maintained.
- Conflicting pavement marking shall be removed for long term projects.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned in the work zone or adjacent to the work zone. The Shadow Vehicle should be used to protect the work zone from the rear. The Shadow Vehicle should be used to protect the work zone from the front. The Shadow Vehicle should be used to protect the work zone from the side.
- 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 (2-30)

Conflicting pavement markings shall be removed for long-term projects. For shorter durations where traffic is directed over a yellow centerline, channelizing devices which separate two-way traffic should be spaced on tapers at 20' or 15'. If posted speeds are 35 mph or slower, and for tangent sections, at 1/2(S) where S is the speed in mph. This tighter device spacing is intended for the area of the conflicting markings, not the entire work zone.

Texas Department of Transportation

TRAFFIC CONTROL PLAN

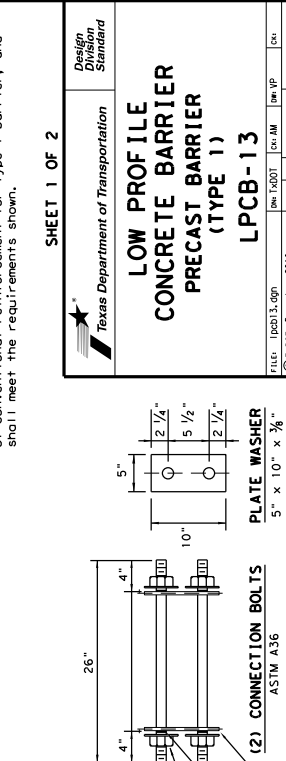
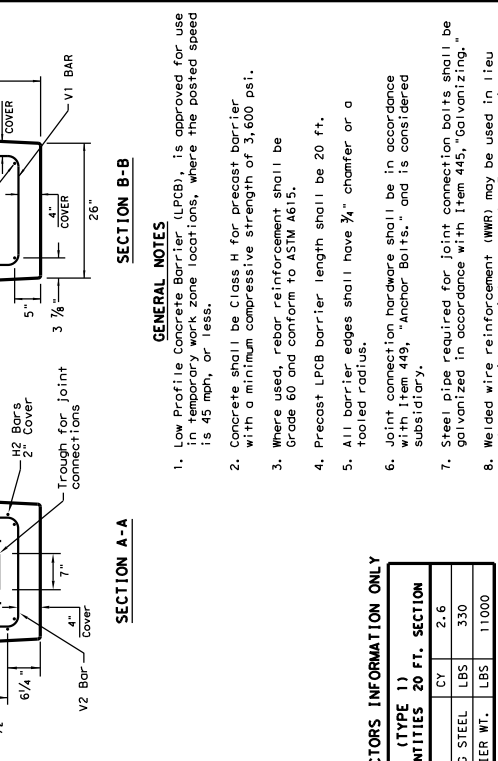
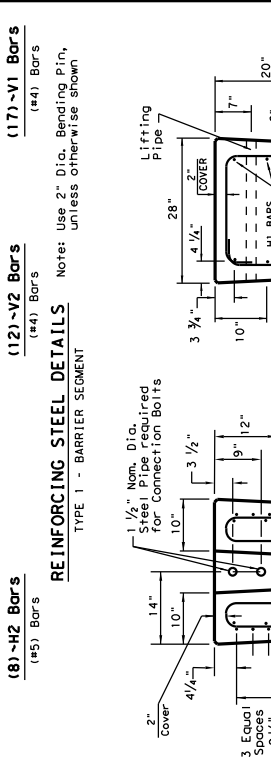
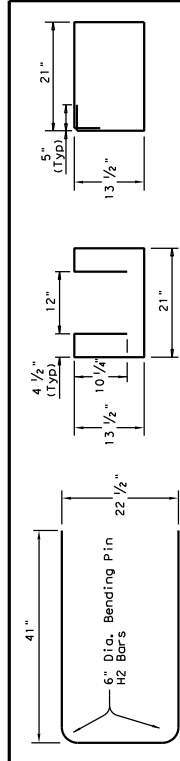
TRAFFIC SHIFTS ON TWO-LANE ROADS

TCP (2-3) - 18

FILE: TCP(2-3)-18.dgn	DATE: 11/18/18	BY: JLB	CHECKED: CML
DESIGNED: JLB	REVISIONS: 8-95 3-03 1-97 2-12 4-98 2-18	COUNT: 000	PROJECT: 18094M
COUNTY: 000		DIST: 000	SHEET NO. 61 OF 65

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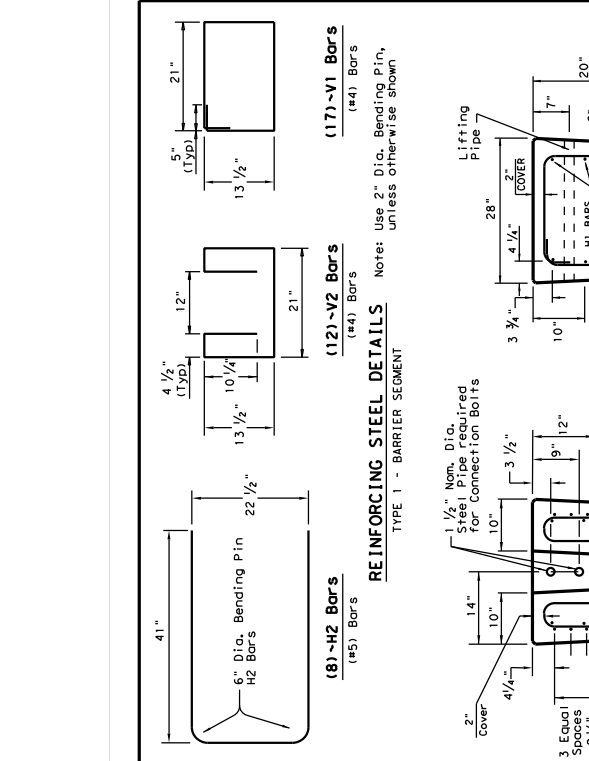


GENERAL NOTES

- Low Profile Concrete Barrier (LPCB) is approved for use in temporary work zone locations, where the posted speed is 45 mph, or less.
- Concrete shall be Class H for precast barrier with a minimum compressive strength of 3,600 psi.
- Where used, rebar reinforcement shall be Grade 60 and conform to ASTM A615.
- Precast LPCB barrier length shall be 20 ft.
- All barrier edges shall have $\frac{3}{4}$ " chamfer or a tooled radius.
- Joint connection hardware shall be in accordance with Item 449, "Anchor Bolts," and is considered subsidiary.
- Steel pipe required for joint connection bolts shall be galvanized in accordance with Item 445, "Galvanizing."
- Welded wire reinforcement (WWR) may be used in lieu of conventional reinforcement for Type 1 barrier, and shall meet the requirements shown.

FOR CONTRACTORS INFORMATION ONLY

APPROX. QUANTITIES	(TYPE 1) 20 FT. SECTION
CONCRETE	CY 2.6
REINFORCING STEEL	LBS 330
TOTAL BARRIER WT.	LBS 11000

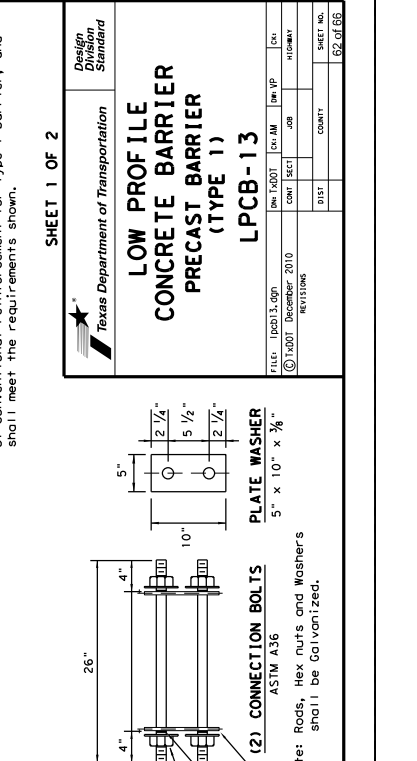


(WWR) GENERAL NOTES

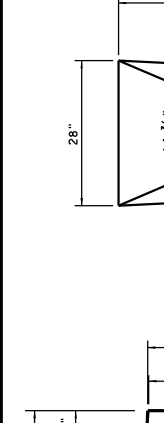
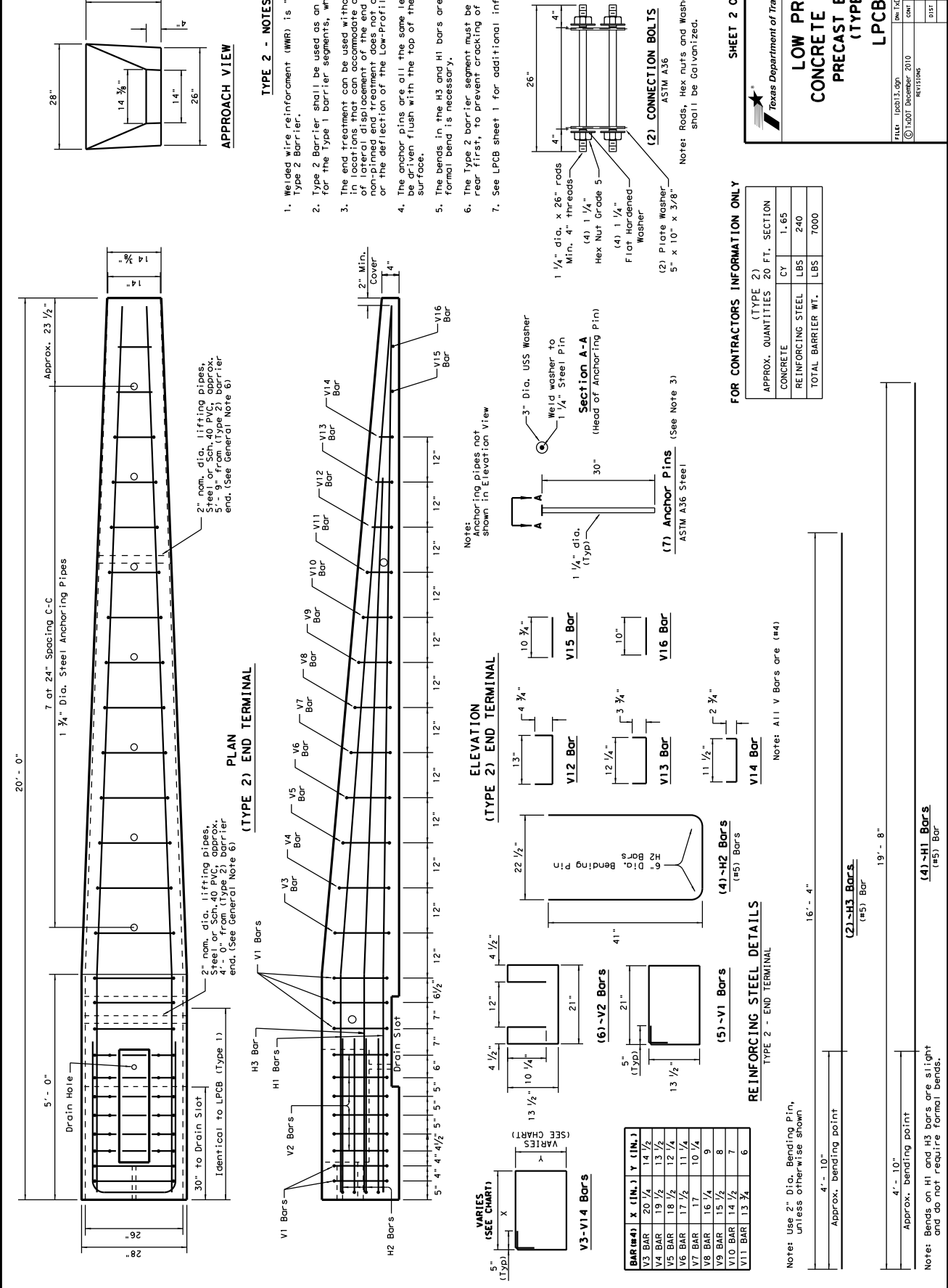
- Deformed Welded Wire Reinforcement shall conform to ASTM A497.
- Welded wire cage may be cut or bent, if necessary, but must be approved by the Engineer.
- Combinations of reinforcing steel and WWR are permitted, as directed by the Engineer. The dimensions from the end of the barrier section to the first wire shall not exceed 3".

REQUIRED (WWR) WIRE DESIGN

- 8 - (D31) Horizontal Wires (Equality spaced)
- 10 - (D20) Horizontal Wires (Equality spaced)
- 29 - (D20) Vertical Wires (Spaced as shown in Elevation View)



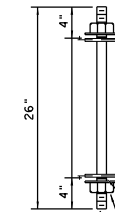
WELDED WIRE REINFORCEMENT (WWR) - OPTIONAL REINFORCING



APPROACH VIEW

TYPE 2 - NOTES

1. Welded wire reinforcement (WWR) is "not" an option for Type 2 Barrier.
2. Type 2 Barrier shall be used as an end treatment for the Type 1 barrier segments, when applicable.
3. The end treatment can be used without the anchor pins in locations that can accommodate approximately 4 ft. of lateral displacement of the end treatment. The use of non-pinned end treatment does not affect the performance or the deflection of the Low-Profile Barrier System.
4. The anchor pins are all the same length and are to be driven flush with the top of the (Type 2) barrier surface.
5. The bands in the H3 and H1 bars are slight, no formal band is necessary.
6. The Type 2 barrier segment must be lifted from the rear first, to prevent cracking of sloped section.
7. See LPCB sheet 1 for additional information.

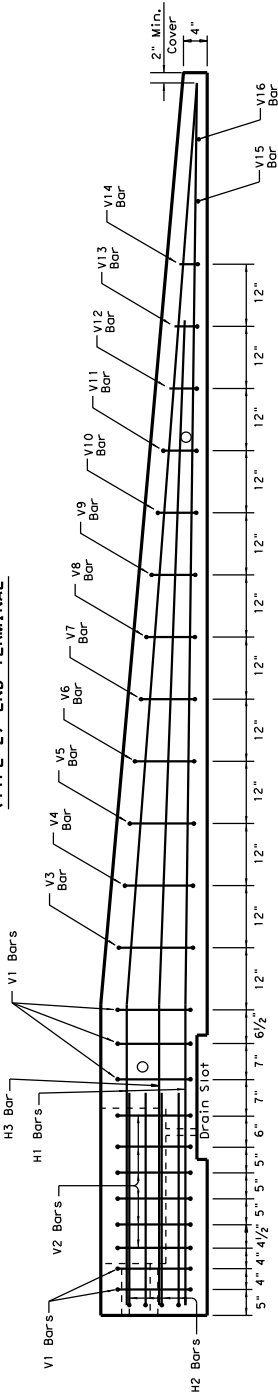


(2) CONNECTION BOLTS
ASTM A36
(2) PLATE WASHER
5" x 10" x 3/8"

Note: Rods, Hex nuts and Washers shall be Galvanized.

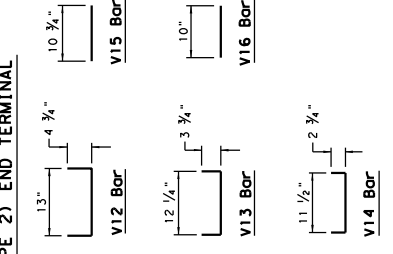
PLAN TERMINAL (TYPE 2) END TERMINAL

2" nom. dia. lifting pipes, Steel or Sch. 40 PVC, approx. 4'-0" from (Type 2) barrier end. (See General Note 6)



Note: Anchoring pipes not shown in Elevation view

ELEVATION (TYPE 2) END TERMINAL

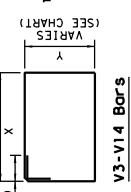


Note: All V Bars are (#4)

REINFORCING STEEL DETAILS

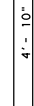
TYPE 2 - END TERMINAL

VARIES (SEE CHART)



BAR (#4)	X (IN.)	Y (IN.)
V3 BAR	20 1/4	14 1/2
V4 BAR	19 1/2	13 1/2
V5 BAR	18 1/2	12 1/2
V6 BAR	17 1/2	11 1/2
V7 BAR	17	10 1/4
V8 BAR	16 1/4	9
V9 BAR	15 1/2	8
V10 BAR	14 1/2	7
V11 BAR	13 3/4	6

Note: Use 2" Dia. Bending Pin, unless otherwise shown



Approx. bending point

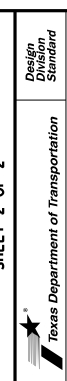


Approx. bending point

Note: Bands on H1 and H3 bars are slight and do not require formal Bands.

FOR CONTRACTORS INFORMATION ONLY

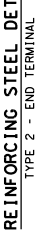
(TYPE 2)	
APPROX. QUANTITIES	20 FT. SECTION
CONCRETE	CY 1.65
REINFORCING STEEL	LBS 240
TOTAL BARRIER WT.	LBS 7000



LOW PROFILE CONCRETE BARRIER PRECAST BARRIER (TYPE 2) LPCB-13

FILE: LPCB-13.dgn	REV: 1/001	CH: JM	REV: VP	CH:
DATE: December 2010	CONT: SECT	JOB:	HISTORY:	
REVISIONS:	DIST:	COUNTY:	SHEET NO.:	63 OF 66

(2)-H3 Bars (#5) Bar



16'-4"

(4)-H2 Bars (#5) Bars



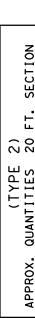
19'-8"

(4)-H1 Bars (#5) Bar



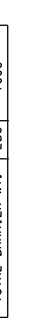
19'-8"

(7) Anchor Pins (See Note 3) ASTM A36 Steel



30"

Section A-A (Head of Anchoring Pin)



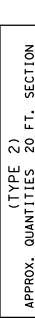
3" Dia. USS Washer

(2) Plate Washer 5" x 10" x 3/8"



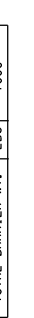
5" x 10" x 3/8"

(2) Connection Bolts ASTM A36



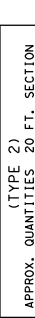
5" x 10" x 3/8"

(4) 1 1/4" Flat Hardened Washers



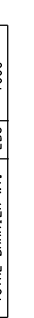
1 1/4" x 1 1/4"

(2) Plate Washer 5" x 10" x 3/8"



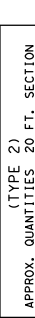
5" x 10" x 3/8"

(2) Connection Bolts ASTM A36



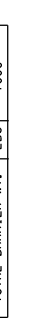
5" x 10" x 3/8"

(2) Plate Washer 5" x 10" x 3/8"



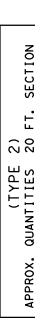
5" x 10" x 3/8"

(4) 1 1/4" Flat Hardened Washers



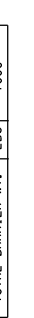
1 1/4" x 1 1/4"

(2) Plate Washer 5" x 10" x 3/8"



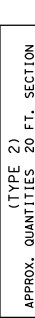
5" x 10" x 3/8"

(2) Connection Bolts ASTM A36



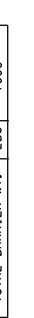
5" x 10" x 3/8"

(2) Plate Washer 5" x 10" x 3/8"



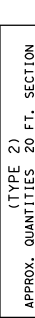
5" x 10" x 3/8"

(4) 1 1/4" Flat Hardened Washers



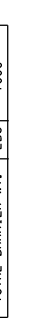
1 1/4" x 1 1/4"

(2) Plate Washer 5" x 10" x 3/8"



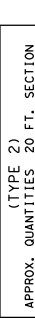
5" x 10" x 3/8"

(2) Connection Bolts ASTM A36



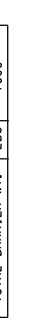
5" x 10" x 3/8"

(2) Plate Washer 5" x 10" x 3/8"



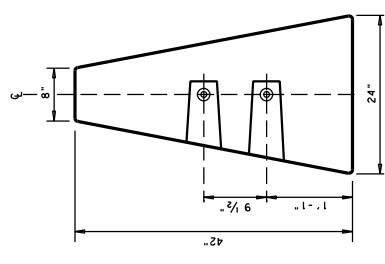
5" x 10" x 3/8"

(4) 1 1/4" Flat Hardened Washers

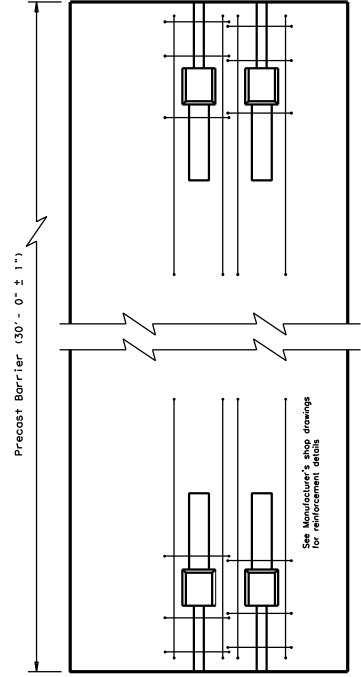


1 1/4" x 1 1/4"

DISCLAIMER: The use of this standard is governed by the Texas Engineering Practice Act. No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use. DATE: FILE:



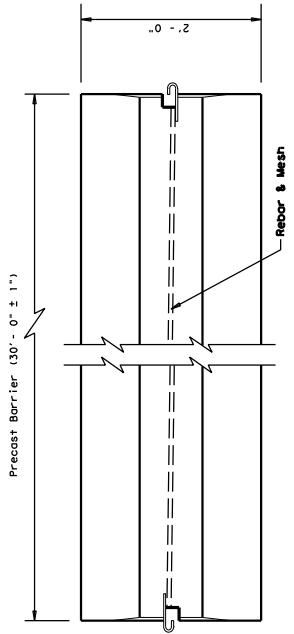
END VIEW
"QUICK-BOLT" POCKET LOCATIONS



ELEVATION VIEW
"QUICK-BOLT" (SSCB)

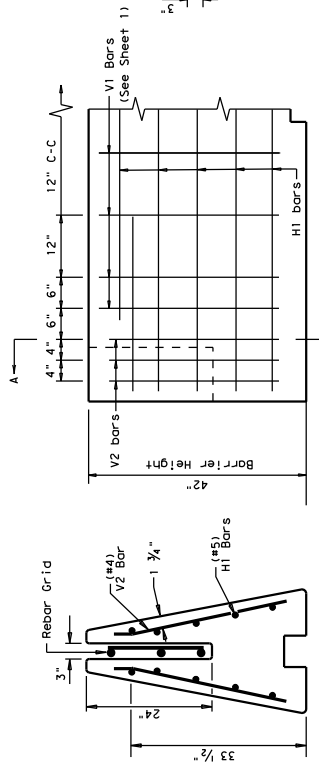
See Manufacturer's shop drawing for additional details

Joint Connection (Type Q)

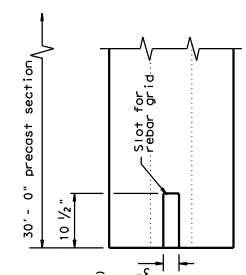


TOP VIEW
PRECAST (SSCB) WITH J-J HOOKS

See Manufacturer's shop drawing for additional details

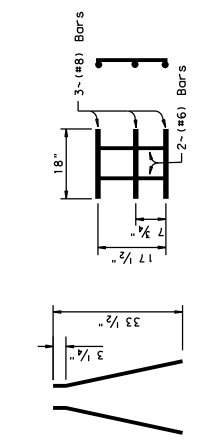


SECTION A-A
Showing (Type R)
Rebar Grid



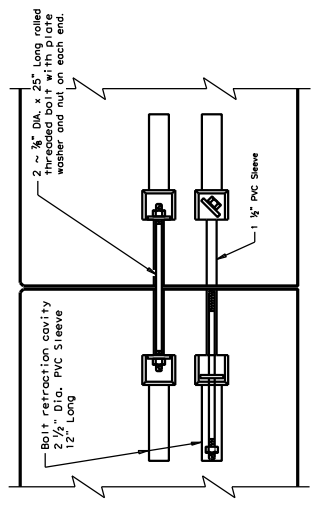
TOP VIEW
JOINT CONNECTION

Typical at both ends of barrier segment

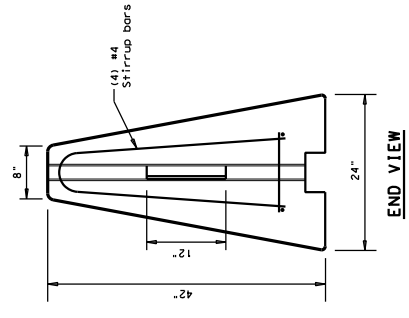


WELDED REBAR GRID

(#4) V2 BARS
6 - two piece bars per
barrier segment



ELEVATION VIEW SHOWING JOINT CONNECTION
"QUICK-BOLT"



END VIEW

Proprietary Joint Connections (SSCB)
This proprietary joint connections are acceptable as alternatives to the (Type X) connection shown, here on. These joint connections types are:
J-J Hooks by Easi-Set Industries, (800)547-6045
Quick-Bolt by Bexor Concrete, (210)487-3773
If one of these connection systems are used, the manufacturer's shop drawing for approval for site source use must be obtained. Details of the connection components and barrier reinforcement for these systems, will be shown in the manufacturer's shop drawing(s) furnished to the Engineer.

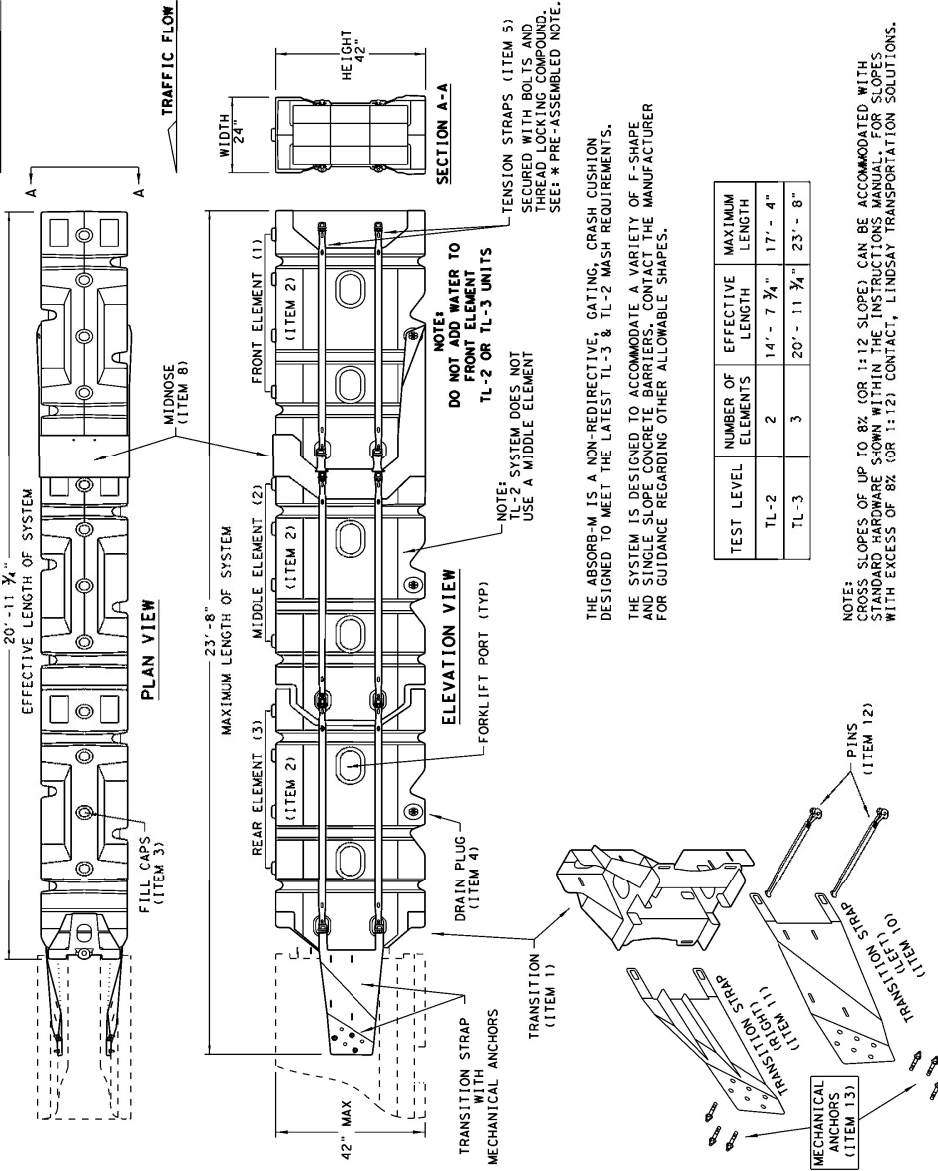
SHEET 2 OF 2

DESIGN STANDARD
SINGLE SLOPE CONCRETE BARRIER
 PRECAST BARRIER (TYPE 1)
SSCB (2) - 10

FILE#	SSCB210.dgn	REV	1/2007	CHK	MM	VP	CHK	
DATE	December 2010	REV		APP			HISTORY	
REVISIONS							DATE	BY
							COUNTY	
							SHEET NO.	65 OF 66

DISCLAIMER: THE USE OF THIS STANDARD IS GOVERNED BY THE TEXAS ENGINEERING PRACTICE ACT. NO WARRANTY OF ANY KIND IS MADE BY TxDOT FOR ANY PURPOSE WHATSOEVER. TxDOT ASSUMES NO RESPONSIBILITY FOR THE CONVERSION OF THIS STANDARD TO OTHER FORMATS OR FOR INCORRECT RESULTS OR DAMAGES RESULTING FROM ITS USE.

SYSTEM SHOWN - ABSORB-M TL-3



GENERAL NOTES

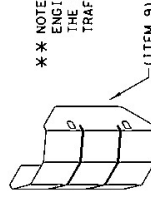
- FOR SPECIFIC INFORMATION REGARDING THE INSTALLATION AND TECHNICAL GUIDANCE, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800. 180 RIVER ROAD, RIO VISTA, CA 94571
- THE ABSORB-M SYSTEM IS ONLY APPROVED FOR USE IN (TEMPORARY WORK ZONE) LOCATIONS.
- THE ABSORB-M IS A WATER FILLED NON-REDIRECTIVE, GATING CRASH CUSHION THAT DOES NOT NEED TO BE ATTACHED TO A FOUNDATION AND CAN BE INSTALLED ON TOP OF CONCRETE, ASPHALT, OR ANY SURFACE CAPABLE OF BEARING THE WEIGHT OF THE SYSTEM.
- MAXIMUM PERMISSIBLE CROSS-SLOPE IS 8%.
- THE INSTALLATION AREA SHOULD BE FREE FROM CURBS, ELEVATED OBJECTS, OR DEPRESSIONS.
- THE ABSORB-M SHOULD BE LOCATED APPROXIMATELY PARALLEL WITH THE BARRIER.
- THE USE OF THE ABSORB-M IS RESTRICTED TO A BARRIER HEIGHT OF UP TO 42 INCHES.
- DO NOT ADD WATER TO FRONT ELEMENT (TL-2 OR TL-3 UNITS).

BILL OF MATERIALS (BOM) ABSORB-M TL-3 & TL-2 SYSTEMS		QTY	QTY
ITEM #	PART NUMBER	PART DESCRIPTION	TL-2 SYSTEM
1	BS1-1809036-00	TRANSITION-(GALV)	1
2	BS1-1808002-00	PRE-ASSEMBLED ABSORBING (ELEMENTS)	2
3	BS1-4004598	FILL CAPS	8
4	BS1-4004599	DRAIN PLUGS	2
5	BS1-1809053-00	TENSION STRAP-(GALV)	8
6	BS1-2001998	C-SCR FH 3/8-16 X 1 1/2 GR5 PLT	8
7	BS1-2001999	C-SCR FH 3/8-16 X 1 GR5 PLT	8
8	BS1-1809035-00	MIDNOSE-(GALV)	1
9	BS1-1808014-00	NOSE PLATE	1
10	BS1-1809037-00	TRANSITION STRAP (LEFT-HAND) -(GALV)	1
11	BS1-1809038-00	TRANSITION STRAP (RIGHT-HAND) -(GALV)	1
12	BS1-1808005-00	PIN ASSEMBLY	8
13	BS1-2002001	ANC MECH 5/8-11X5 (GALV)	6
14	ABSORB-M	INSTALLATION AND INSTRUCTIONS MANUAL	1

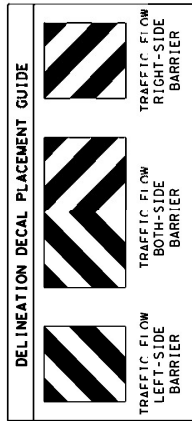
* COMPONENTS PRE-ASSEMBLED WITH ELEMENT ASSEMBLY

NOTE: CROSS SLOPES OF UP TO 8% (OR 1:12 SLOPE) CAN BE ACCOMMODATED WITH STANDARD HARDWARE SHOWN WITHIN THE INSTRUCTIONS MANUAL. FOR SLOPES WITH EXCESS OF 8% (OR 1:12) CONTACT, LINDSAY TRANSPORTATION SOLUTIONS.

** NOTE: (PROVIDED BY OTHERS) ENGINEER OR CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER FOR THE CORRECT DECAL PER TRAFFIC FLOW, LEFT, RIGHT OR BOTH-SIDES.



** APPLY DECAL



NOTE: APPLY A HIGH REFLECTIVE DECAL TO THE NOSE PLATE. DELINEATION DECAL ORIENTATION IS SHOWN ON THE CONSTRUCTION PLAN SET AND SHALL BE IN ACCORDANCE WITH THE TEXAS MUTCD FOR (TRAFFIC CONTROL DEVICES). DECALS ARE AVAILABLE FOR TRAFFIC FLOW ON THE LEFT-SIDE, BOTH -SIDES AND RIGHT-SIDE.

NOTE: THIS STANDARD IS A BASIC REPRESENTATION OF THE ABSORB-M. IT IS NOT INTENDED TO REPLACE THE INSTALLATION INSTRUCTIONS MANUAL.

SACRIFICIAL

LINDSAY TRANSPORTATION SOLUTIONS

CRASH CUSHION

(MASH TL-3 & TL-2)

TEMPORARY - WORK ZONE

ABSORB (M) - 19

FILE: absorbm19	DATE: 07/19/2019	BY: JMM	CHK: JMM	APP: JMM
REV: 01	REV: 01	REV: 01	REV: 01	REV: 01
REV: 02	REV: 02	REV: 02	REV: 02	REV: 02
REV: 03	REV: 03	REV: 03	REV: 03	REV: 03
REV: 04	REV: 04	REV: 04	REV: 04	REV: 04
REV: 05	REV: 05	REV: 05	REV: 05	REV: 05
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REV: 20	REV: 20	REV: 20	REV: 20	REV: 20

COUNTY: _____ DIST: _____ SHEET NO.: _____ OF 66