CONSTRUCTION PLANS
FOR
CRENSHAW ROAD
EAST

Royse City, Rockwall County, Texas

FEBRUARY 2026

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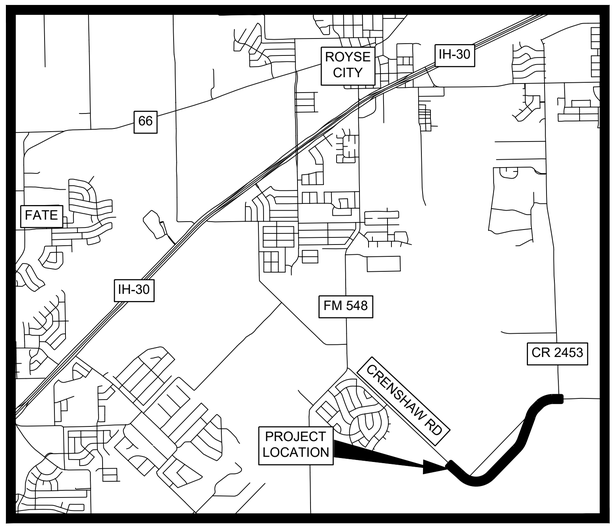

VICINITY MAP

N.T.S.

ENGINEER & SURVEYOR:

wsb

3522 SAM RAYBURN HWY,
MELISSA, TEXAS 75454
TBPE FIRM # F-16849

Texas 811

!!! CAUTION !!!

UTILITIES & UNDERGROUND FACILITIES

EXISTING UTILITIES AND UNDERGROUND FACILITIES INDICATED ON THESE PLANS HAVE BEEN LOCATED FROM REFERENCE INFORMATION SUPPLIED BY THE VARIOUS OWNERS OF THE FACILITIES. THE ENGINEER DOES NOT ACCEPT THE RESPONSIBILITY FOR THE UTILITY LOCATIONS SHOWN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY BOTH HORIZONTALLY AND VERTICALLY THE LOCATION OF ALL EXISTING UTILITIES AND UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION, TO TAKE NECESSARY PRECAUTIONS IN ORDER TO PROTECT ALL FACILITIES ENCOUNTERED, AND TO NOTIFY THE ENGINEER PROMPTLY OF ALL CONFLICTS OF THE WORK WITH EXISTING FACILITIES. THE CONTRACTOR SHALL PRESERVE AND PROTECT ALL EXISTING FACILITIES FROM DAMAGE DURING CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS/HER EXPENSE.

REVIEW - NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF BIDDING UNDER THE AUTHORITY OF JACKSON R. MEYER, P.E. 148369 ON 2/16/2026.
IT IS NOT TO BE USED FOR CONSTRUCTION OR PERMITTING PURPOSES.

CRENSHAW ROAD EAST

GENERAL NOTES

1. ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CITY'S DESIGN STANDARDS. IF NO CITY STANDARD IS APPLICABLE, MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE "NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION"
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH ALL MATERIALS AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS. ALL WORK REQUIRED BY THESE PLANS SHALL BE CONDUCTED IN CONFORMANCE WITH CURRENT SAFETY CODES AND STANDARDS WITH JURISDICTION OVER THIS PROJECT.
3. THE CONTRACTOR SHALL CONTACT ALL FRANCHISE UTILITY COMPANIES TO HAVE THEM LOCATE EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND DEPTH OF ALL FRANCHISE UTILITY SERVICES AND ANY REQUIRED RELOCATION AND/OR EXTENSIONS. SERVICES SHOWN ON THE PLANS, IF ANY, ARE CONCEPTUAL.
4. THE CONTRACTOR SHALL PROTECT ALL PUBLIC AND PRIVATE UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, POWER POLES, SIGNS, FIRE HYDRANTS, ETC., MUST BE ADJUSTED TO PROPER GRADE BY THE CONTRACTOR PRIOR TO AND AFTER PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
5. BRACING OF UTILITY POLES MAY BE REQUIRED BY UTILITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR. THERE IS NO SEPARATE PAY ITEM FOR THIS WORK. THE COST IS INCIDENTAL TO THE VARIOUS PAY ITEMS FOR INSTALLATION OF PIPE.
6. THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT THE CONTRACTOR'S EXPENSE. THE ENGINEER SHALL BE NOTIFIED WHEN PROPOSED FACILITY GRADES CONFLICT WITH EXISTING UTILITY GRADES.
7. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO PRIVATE PROPERTY, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PAVEMENT, GRASS, TREES, AND LAWN SPRINKLER AND IRRIGATION SYSTEMS AT NO COST TO THE OWNER. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT (UNLESS OTHERWISE NOTED) AND IS NOT A SEPARATE PAY ITEM.
8. THE CONTRACTOR SHALL REMOVE SURPLUS MATERIAL FROM THE PROJECT AREA. THIS WORK SHALL BE SUBSIDIARY TO THE CONTRACT AND IS NOT A SEPARATE PAY ITEM.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES A COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
11. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ENGINEER. NO CONSIDERATION WILL BE GIVEN TO CHANGE ORDERS FOR WHICH THE OWNER AND ENGINEER WERE NOT CONTACTED PRIOR TO CONSTRUCTION OF THE AFFECTED ITEM.
12. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS SHALL BE SENT TO THE, CIVIL ENGINEER, CONTRACTOR AND OWNER DIRECTLY FROM THE TESTING AGENCY.
13. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, JURISDICTIONAL AGENCIES AND/OR UTILITY SERVICE COMPANIES SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICES.
14. CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUM PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS.
15. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER AND ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
16. ALL HORIZONTAL DIMENSIONS GIVEN ARE TO BACK OF CURB AND TO PIPE CENTERLINES UNLESS OTHERWISE NOTED ON PLANS.
17. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING RELOCATION AND INSTALLATION OF FRANCHISE UTILITIES NECESSARY FOR ON AND OFF SITE CONSTRUCTION. PAYMENT FOR RELOCATION AND INSTALLATION WILL BE NEGOTIATED ONCE IDENTIFIED.
18. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE SHOWN.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION.
20. UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE THE CIVIL ENGINEER A COPY OF RECORD DRAWINGS IDENTIFYING ALL DEVIATIONS OR VARIATIONS FROM THE ORIGINAL PLANS.
21. CONTRACTOR SHALL GIVE NOTICE TO ALL AFFECTED PARTIES AND ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS, AT LEAST 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
22. ALL "RECORD" DIMENSIONS SHALL CONFORM TO THE DESIGN DIMENSIONS PLUS OR MINUS 0.02 FEET. ALL "RECORD" SLOPES SHALL CONFORM TO THE DESIGNED SLOPES PLUS OR MINUS 0.005 FOOT/FOOT.
23. CONTRACTOR SHALL CONTACT CITY BUILDING OFFICIAL TO LEARN OF ANY UNUSUAL CONSTRUCTION SEQUENCING REQUIREMENTS THAT THE CITY MAY REQUIRE. THE CONTRACTOR IS CAUTIONED THAT THIS AND PERHAPS OTHER SUCH REQUIREMENTS MAY EXIST AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO INVESTIGATE AND COMPLY WITH THEM.

PAVING AND STRIPING NOTES

1. TESTING OF MATERIALS REQUIRED FOR THE CONSTRUCTION OF THE PAVING IMPROVEMENTS SHALL BE PERFORMED BY AN AGENCY, APPROVED BY THE OWNER, FOR TESTING MATERIALS. PROCUREMENT OF THE TESTING LABORATORY AND THE PAYMENT OF SUCH TESTING SERVICES SHALL BE MADE BY THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE, BY THE STANDARD TESTING PROCEDURES, THAT THE WORK CONSTRUCTED MEETS THE REQUIREMENTS OF THE CITY AND PROJECT SPECIFICATIONS.
2. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", AS WELL AS CITY OF ROYSE CITY AND TXDOT DETAILS AND SPECIFICATIONS.
3. THE CONTRACTOR SHALL REVIEW LOCATION OF ALL TRAFFIC CONTROL DEVICES WITH THE OWNER PRIOR TO INSTALLATION.
4. CONTRACTOR SHALL SUBMIT A PAVEMENT JOINTING PLAN TO THE ENGINEER AND OWNER PRIOR TO THE BEGINNING OF ANY CONCRETE PAVING WORK.
5. ANY EXISTING CONCRETE OR BUILDING MATERIALS SHOWN TO BE REMOVED SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR OFF SITE. ITEMS FOR REMOVAL SHALL BE SUBSIDIARY TO THE CONTRACT AND IS NOT A SEPARATE PAY ITEM.
6. CONSTRUCTION JOINTS SHALL BE REQUIRED AT INTERRUPTIONS OF PAVING OPERATIONS SUCH AS THOSE OCCURRING AT THE END OF THE DAY OR DUE TO WEATHER OR EQUIPMENT BREAKDOWN. PLACE AT LONGITUDINAL CONSTRUCTION OR ISOLATION JOINT LOCATIONS.
7. CONTRACTOR TO INSTALL CONSTRUCTION JOINTS IN CONCRETE PAVEMENT AT ALL PC'S AND AS CONVENIENT TO PHASING OF POURS. CONCRETE PAVEMENT TO BE CONSTRUCTED WITH ISOLATION JOINTS AROUND THE PERIMETER OF ANY BLOCK OUT IN PAVEMENT AND TRANSVERSE CONTRACTION JOINTS PER STANDARD DETAILS.
8. ALL JOINTS ARE TO CONTINUE THROUGH THE CURB.
9. RADIAL JOINTS SHALL BE NO SHORTER THAN 24".
10. ALL CONSTRUCTION JOINTS SHALL BE SAWED, CLEANED OF DEBRIS, BLOWN DRY AND IMMEDIATELY SEALED WITH HOT POURED RUBBER JOINT SEALING COMPOUND.

STORM SEWER NOTES

1. CONTRACTOR SHALL FIELD VERIFY THE VERTICAL AND HORIZONTAL LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND CONSTRUCTION MANAGER IMMEDIATELY IF A CONFLICT IS DISCOVERED.
2. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS, GRATE INLETS, AND ALL UTILITIES CROSSING THE STORM SEWER. FLOW LINES AND RIMS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE PROPOSED GRADE PRIOR TO CONSTRUCTION.
3. THE END OF ALL STORM SEWER LATERALS THAT CONNECT TO WORK BY PLUMBER SHALL BE TIGHTLY PLUGGED OR CAPPED AND MARKED 5.0 FEET OUTSIDE THE BUILDING UNTIL FINAL CONNECTIONS ARE MADE BY PLUMBING CONTRACTOR.
4. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM SEWER.
5. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL CONSTRUCTION PERMITS.
6. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SUITABILITY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND DIMENSIONS BEFORE COMMENCEMENT OF CONSTRUCTION. THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
7. EXISTING MANHOLE TOPS AND ALL OTHER DRAINAGE FACILITIES SHALL BE ADJUSTED AS REQUIRED TO MATCH FINAL GRADES AS SHOWN ON GRADING PLAN. NO SEPARATE PAY ITEM.
8. ALL RCP SHALL BE CLASS 3 OR APPROVED EQUAL.

STORM SEWER DISCHARGE AUTHORIZATION

1. IF THE TOTAL DISTURBED AREA EXCEEDS ONE (1) ACRE A NOTICE OF INTENT (N.O.I.) SHALL BE SUBMITTED BY THE CONTRACTOR TO THE TCEQ NO LESS THAN 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
2. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN A CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP.
3. A COPY OF THE SWPPP, INCLUDING CONTRACTOR CERTIFICATIONS AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY AND FILED WITH THE CONSTRUCTION PLANS, AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION.
4. A NOTICE OF TERMINATION (N.O.T.) SHALL BE SUBMITTED TO THE TCEQ BY THE CONTRACTOR WHEN THE SITE HAS 100% OF THE DISTURBED AREAS STABILIZED AND THE SITE NO LONGER HAS STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (CONSTRUCTION), OR THE N.O.T. PERMITTEE OR CO-PERMITTEE NO LONGER HOLDS OPERATIONAL CONTROL OF THE CONSTRUCTION.

TRAFFIC CONTROL NOTES

1. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLANS TO THE OWNER, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION ACTIVITY.
2. ALL TRAFFIC CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD), LATEST VERSION.
3. THE CONTRACTOR SHALL COVER EXISTING SIGNS AND OBLITERATE EXISTING PAVEMENT MARKINGS THAT CONFLICT WITH THE INTENT OF THESE TRAFFIC CONTROL PLANS TO AVOID CONFUSION TO THE TRAVELING PUBLIC.
4. THE CONTRACTOR SHALL UNCOVER EXISTING SIGNS AND REPLACE PAVEMENT MARKINGS IN-KIND AS ORIGINALLY CONFIGURED AT THE END OF CONSTRUCTION OPERATIONS AND PRIOR TO FINAL ACCEPTANCE BY THE OWNER.
5. ALL TEMPORARY SIGNS, BARRICADES, WARNING LIGHTS AND OTHER MISCELLANEOUS TRAFFIC CONTROL MEASURES SHALL BE REMOVED AND ORIGINAL TRAFFIC CONTROL MEASURES REPLACED AT THE END OF THE CONTRACTOR'S CONSTRUCTION OPERATIONS.

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL EROSION, CONSERVATION, AND SILTATION ORDINANCES. THE CONTRACTOR SHALL USE SEDIMENT FILTERS OR OTHER MEASURES APPROVED BY THE ENGINEER AND CONSTRUCTION MANAGER TO PREVENT SILT AND CONSTRUCTION DEBRIS FROM CLOGGING STORM SEWER PIPES OR PROPOSED OR EXISTING INLETS, OR FROM BEING TRANSPORTED TO ADJACENT PROPERTIES AND STREET RIGHT-OF-WAYS. ALL EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO SITE DISTURBANCE AND SHALL REMAIN IN PLACE UNTIL FINAL GRADING AND PAVING IS COMPLETE AND PERMANENT SOIL STABILIZATION IS ACHIEVED.
2. CONSTRUCTION OPERATIONS SHALL BE MANAGED SO THAT AS MUCH OF THE SITE AS POSSIBLE IS LEFT COVERED WITH EXISTING TOPSOIL AND VEGETATION.
3. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE AREAS SHALL THEN BE SEEDED (OR SODDED), IRRIGATED, AND MAINTAINED UNTIL PERMANENT STAND OF GRASS IS ACHIEVED WITH A MINIMUM OF 75% COVERAGE. UNLESS OTHERWISE NOTED, PRIVATE LAWN AREAS AND PARKWAYS IN FRONT OF PRIVATE LAWN AREAS DISTURBED BY CONSTRUCTION SHALL BE REPLACED WITH BLOCK SOD SIMILAR TO THAT EXISTING.
4. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS. CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION TRAFFIC UTILIZES THE STABILIZED ENTRANCE AT ALL TIMES FOR INGRESS/EGRESS TO THE SITE.
5. CONSTRUCTION ENTRANCE:
   - MINIMUM SIZE STONE: 5-INCHES DIAMETER
   - THICKNESS: NOT LESS THAN 8-INCHES
   - LENGTH: AS SHOWN ON PLAN
   - WIDTH: NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS AND EGRESS.
   - MAINTENANCE REQUIREMENTS: AS NECESSARY TO PREVENT TRACKING OR FLOWING MUD INTO PUBLIC RIGHT-OF-WAY OR PARKING AREAS
   - SITE ENTRY AND EXIT LOCATIONS SHALL BE MAINTAINED IN A CONDITION WHICH SHALL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC ROADWAYS. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ON A PUBLIC ROADWAY SHALL BE REMOVED IMMEDIATELY. WHEN WASHING IS REQUIRED TO REMOVE SEDIMENT PRIOR TO ENTRANCE TO A PUBLIC ROADWAY, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT BASIN. ALL FINES IMPOSED FOR TRACKING ONTO PUBLIC ROADS SHALL BE PAID BY THE CONTRACTOR.
6. CONTRACTOR IS RESPONSIBLE FOR PROPER MAINTENANCE OF THE REQUIRED EROSION CONTROL DEVICES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS. EROSION CONTROLS SHALL BE REPAIRED OR REPLACED AS INSPECTION DEEMS NECESSARY, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE. ACCUMULATED SILT IN ANY EROSION CONTROL DEVICE SHALL BE REMOVED AND SHALL BE DISTRIBUTED ON SITE IN A MANNER NOT CONTRIBUTING TO ADDITIONAL SILTATION. THE CONTRACTOR IS RESPONSIBLE FOR RE-ESTABLISHING ANY EROSION CONTROL DEVICE WHICH IS DISTURBED.
7. THE CONTRACTOR SHALL MAINTAIN ADEQUATE SITE DRAINAGE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL USE FILTER BARRIER (OR OTHER METHOD APPROVED BY THE ENGINEER AND CITY) AS REQUIRED TO PREVENT ADVERSE OFF SITE IMPACTS OR STORM WATER QUALITY FROM SILT AND CONSTRUCTION DEBRIS FLOWING ONTO ADJACENT PROPERTIES AS REQUIRED BY THE CITY.
8. BEFORE ANY EARTHWORK IS DONE, THE CONTRACTOR SHALL STAKE OUT AND MARK THE LIMITS OF CONSTRUCTION AND OTHER ITEMS ESTABLISHED BY THE PLANS. THE CONTRACTOR SHALL PROTECT AND PRESERVE CONTROL POINTS AT ALL TIMES DURING THE COURSE OF THE PROJECT. THE GRADING CONTRACTOR SHALL PROVIDE ALL NECESSARY ENGINEERING AND SURVEYING FOR LINE AND GRADE CONTROL POINTS RELATED TO EARTHWORK.
9. CONTRACTOR STAGING AREA TO BE AGREED UPON BY OWNER PRIOR TO BEGINNING CONSTRUCTION.
10. THE CONTRACTOR MUST REVIEW AND MAINTAIN A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN WITH ALL CONDITIONS, ATTACHMENTS, EXHIBITS, AND PERMIT MODIFICATIONS IN GOOD CONDITION AT THE CONSTRUCTION SITE. THE COMPLETE PERMIT MUST BE AVAILABLE FOR REVIEW UPON REQUEST BY THE T.C.E.Q. OR THE GOVERNING CITY.

GRADING NOTES

1. IF A GRADING PERMIT IS REQUIRED FROM THE CITY PRIOR TO STARTING CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR OBTAINING PERMIT AND PAYING ALL ASSOCIATED FEES.
2. CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS OWN EXPENSE.
3. ALL SPOT ELEVATIONS SHOWN ARE TO TOP OF CURB SURFACE OR FINISHED EARTH GRADE UNLESS NOTED OTHERWISE.
4. CONTRACTOR TO ENSURE POSITIVE DRAINAGE FROM THE EXISTING AND PROPOSED BUILDINGS AND NO PONDING IN PAVED AREAS. CONTRACTOR ADJUSTMENTS TO SPOT GRADES TO MAINTAIN POSITIVE DRAINAGE IS ALLOWED WITH THE PRIOR APPROVAL OF THE ENGINEER. CONTRACTOR SHALL CONTACT THE ENGINEER PRIOR TO PAVING IF ANY AREAS OF POOR DRAINAGE ARE ENCOUNTERED.
5. THE CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
6. ALL EXISTING CONCRETE PAVING, CHANNEL IMPROVEMENTS, SIDEWALK, STRUCTURES AND CURB DEMOLITION SHALL BE REMOVED IN THEIR ENTIRETY AND DISPOSED OF BY THE CONTRACTOR, OFFSITE UNLESS OTHERWISE DIRECTED BY THE OWNER OR ENGINEER.
7. ALL CLEARING, GRADING, COMPACTION AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE TO THE GEOTECHNICAL REPORT.
8. GRADING CONTRACTOR TO COORDINATE WITH THE FRANCHISE UTILITY COMPANIES FOR ANY REQUIRED UTILITY ADJUSTMENTS AND/OR RELOCATIONS.
9. THE CONTRACTOR SHALL CALCULATE HIS OWN EARTHWORK QUANTITIES AND USE TO DETERMINE HIS BID ACCORDINGLY.

***CITY OF ROYSE CITY GENERAL CONSTRUCTION NOTES SHALL SUPERCEDE IF MORE STRINGENT.

NTMWD NOTES:

A. NORTH TEXAS MUNICIPAL WATER DISTRICT (NTMWD) ?-INCH WATER/WASTEWATER PIPELINE IS LOCATED WITHIN LIMITS OF CONSTRUCTION.

B. OPERATION OF HEAVY EARTHMOVING EQUIPMENT, COMPACTION EQUIPMENT OR HEAVY CONSTRUCTION EQUIPMENT, SUCH AS CONCRETE TRUCKS, SHALL BE RESTRICTED TO SPECIFIC CROSSING POINTS ACROSS NTMWD EASEMENTS, AS APPROVED BY THE NTMWD. THE CROSSINGS SHALL BE DESIGNATED AND VERIFIED TO PROVIDE A MINIMUM OF FIVE-FEET OF COVER.

C. TO ASSURE THAT PLACING OF SIGNIFICANT LOADS OVER THE NTMWD PIPELINE DOES NOT DAMAGE THE EXISTING PIPELINE, NO MATERIALS SHALL BE STOCKPILED ON THE NTMWD EASEMENT WITHOUT AUTHORIZATION FROM THE NTMWD. IF THE CONTRACTOR DESIRES TO USE NTMWD'S EASEMENT FOR STOCKPILE OF MATERIALS, CONTACT NTMWD ENGINEERING AT (972) 442-5405 SO YOUR PLANS FOR USE OF NTMWD'S EASEMENT CAN BE REVIEWED.

D. A MINIMUM OF 4.5 FEET SEPARATION BETWEEN BOTTOM OF PAVEMENT AND TOP OF NTMWD PIPELINE IS REQUIRED. IN ADDITION, IF SEPARATION BETWEEN BOTTOM OF PAVEMENT AND TOP OF PIPELINE IS LESS THAN 4.5 FEET, LIME STABILIZED IS NOT PERMITTED AND A THICKENED PAVEMENT SECTION IS REQUIRED.

E. CROSSING OF THE NTMWD EASEMENT WITH OTHER UTILITIES, SUCH AS TV CABLE, PHONE, GAS AND ELECTRIC, SHALL BE COORDINATED WITH THE NTMWD TO AVOID DAMAGE TO THE NTMWD FACILITIES.

F. OUTDOOR LIGHTING, LANDSCAPING, SCREENING WALLS OR OTHER FACILITIES SHALL NOT BE INSTALLED IN NTMWD EASEMENTS WITHOUT WRITTEN APPROVAL OF THE NTMWD.

G. UNLESS OTHERWISE SHOWN OR REQUIRED, A MINIMUM OF TWO-FOOT CLEARANCE SHALL BE PROVIDED FOR ALL UTILITIES CROSSING THE NTMWD PIPELINES. DIRECTIONAL BORE CROSSINGS REQUIRE A MINIMUM OF FOUR-FEET CLEARANCE.

H. BORE CROSSINGS ONLY TO BE PERFORMED BETWEEN 9:00 AM AND 4:00 PM TUESDAY THRU THURSDAY

I. NO TREES ARE ALLOWED WITHIN NTMWD EASEMENT, ONLY CREPE MYRTLES, SHRUBS, AND BUSHES

J. "THE CONTRACTOR SHALL CONTACT NTMWD LINE LOCATES AT (469) 626-4569 AT LEAST 48 HOURS PRIOR TO PERFORMING ANY WORK IN THE VICINITY OF THE NTMWD FACILITIES."

CIVIL LEGEND

EXISTING	PROPOSED	DESCRIPTION
425	428	CONTOUR
OHE		OVERHEAD ELECTRIC
		STORM LINE
		PIPE FENCE
X		BARBED WIRE FENCE
		APPROX. LIMITS OF GRADING / CONSTRUCTION
		UTILITY EASEMENT
		ROW LINE
		STORM SEWER INLET
FH		FIRE HYDRANT
		LIGHT POLE
PP		POWER POLE
		EXTERIOR SIGN
WV		WATER VALVE
WM		WATER METER
SS		SEWER MANHOLE
CO		SANITARY SEWER CLEANOUT
		FIBER OPTIC
		BUILDING
		CONCRETE (HEAVY DUTY)
		GRAVEL
		STAMPED CONCRETE

A	
ADJ	ADJACENT
APPROX.	APPROXIMATE
B	
BC	BACK OF CURB
B.M.	BENCH MARK
BP	BEGIN POINT
C	
CL	CENTER LINE
CMP	CORRUGATED METAL PIPE
CONC.	CONCRETE
CONST.	CONSTRUCT
D	
DEMO	DEMOLISH / DEMOLITION
DA	DRAINAGE AREA
E	
EL or ELEV.	ELEVATION
EX	EXISTING
EP	END POINT
F	
FFE	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FG	FINISHED GRADE
FC TO FC	FACE OF CURB TO FACE OF CURB
FL	FLOWLINE
H	
HP	HIGH POINT
HORIZ.	HORIZONTAL
I	
INV.	INVERT
L	
LF	LINEAL FEET
LP	LOW POINT
M	
MAX	MAXIMUM
M.E.	MATCH EXISTING
MH	MANHOLE
MIN	MINIMUM
MRK	MARKING
N	
N	NORTH
P	
PL	PROPERTY LINE
PROP	PROPOSED
PV	PAVEMENT
R	
R/W	RIGHT OF WAY
RCB	REINFORCED CONCRETE BOX
RCP	REINFORCED CONCRETE PIPE
S	
SAN	SANITARY
SS	SANITARY SEWER
STM	STORM
SW	SIDEWALK
STA	STATION
T	
TC OR T.O.C.	TOP OF CURB
TG	TOP OF GRATE
TOS	TOP OF STAIRS
TW	TOP OF WALL
TYP	TYPICAL
V	
W	
W/	WITH
WL	WATERLINE

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
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REGISTRATION NO.
F-16849

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF BIDDING UNDER THE AUTHORITY OF JACKSON R. MEYER, P.E. 148369 ON 2/16/2026.
IT IS NOT TO BE USED FOR CONSTRUCTION OR PERMITTING PURPOSES.

PROJECT NO.	22-02557
DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

GENERAL NOTES

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-1

GENERAL ITEMS

1. Prior to any construction the Contractor shall be familiar with the Contract Documents and Specifications, the Plans (including all notes). The City of Royse City Specifications and any other applicable standards or specifications relevant to the proper completion of the work specified. Failure on the part of the Contractor to be familiar with all Standards and Specifications pertaining to this work shall in no way relieve the Contractor of responsibility for performing the work in accordance with all such applicable Standards and Specifications.
2. Prior to construction, Contractor shall have in their possession all necessary permits, plans, licenses, etc. Contractor shall have at least one set of approved Engineering Plans and Specifications on-site at all times.
3. All work shall conform to the City of Royse City design manuals and standards. In the event an item is not covered in the plans or the City of Royse City design manuals and standards, the most current North Central Texas Council of Governments (NCTCOG) Standard Specifications for Public Works Construction shall apply with concurring notification to the City and Project Engineer. The City shall have the final decision on all construction materials, methods, and procedures.
4. Construction inspection will be performed by representatives of the Owner, Engineer, City, Geotechnical Engineer, and reviewing authorities and agencies. Unrestricted access shall be provided to them at all times. Contractor is responsible for understanding and scheduling required inspections. Testing samples shall be collected and processed by certified technicians.
5. All contractors must confine their activities to the work area. No encroachments onto developed or undeveloped areas will be allowed. Any damage resulting therefrom shall be Contractor's responsibility to repair.
6. Developer shall be responsible for obtaining all offsite easements prior to commencement of offsite and relevant on-site construction activities.
7. It will be the responsibility of each contractor to protect all existing public and private utilities throughout the construction of this project. Contractor shall contact the appropriate utility companies for line locations prior to commencement of construction and shall assume kill liability to those companies for any damages caused to their facilities.
8. Trench Safety Design will be the responsibility of the Utility Contractor. Contractor shall submit a trench safety design approved by a professional engineer to the City Inspector for review prior to the start of any underground utility construction.
9. Continuous access for mail service shall be provided during construction.
10. If any conflict arises between these generals notes and any other notes found in the plans, the City General Notes shall take precedence.

EROSION CONTROL & VEGETATION

1. Every soil disturbing activity shall have an accompanying Erosion Control Plan (ECP), and either Construction Site Notice (CSN) for those activities disturbing more than 1 but less than 5 acres, or Notice of Intent (NOI) for those activities disturbing 5 or more acres including those activities less than 5 acres, but are part of a common plan of development totaling 5 or more acres. A copy of the appropriate CSN or NOI shall be provided to the City of Royse City prior to issuance of a grading permit. The ECP shall be provided to Royse City's Public Works Department prior to grading.
2. The CSN or NOI shall be posted in a location viewable to the public until construction is complete and Notice of Termination (NOT) submitted. The Storm Water Pollution Prevention Plan (SWP3) shall be readily available for review by Federal, State, or local officials.
3. No soil disturbing activities will occur prior to the SWP3, ECP, and associated Best Management Practices (BMP) being fully implemented, and then inspected by Royse City's Public Works Department.
4. The contractor shall comply with the current NCTCOG iSWMTM Technical Manual for Construction, the TPDES General Construction Permit TXR150000 and any other State and/or Local regulations.
5. The contractor shall employ measures as necessary to prevent dirt, mud, debris from being tracked off site. Any dirt, mud, debris tracked offsite shall be cleaned up by the contractor immediately.
6. The site shall be reviewed by the operator or his representative weekly, and after any major storm. Adjustments/repairs to the erosion control measures will be made as needed. The contractor shall notify Royse City's Public Works Department of adjustments/repairs such that the adjustments/repairs may be inspected and approved by the City.
7. Along parkways and medians in the right-of-way, a four (4) foot strip of native sod shall be placed behind the curb on top of four (4) inches of topsoil. Contractor shall be responsible for any temporary irrigation or watering as needed. Areas adjacent to new residential lots, where the homebuilder will be disturbing this area, may be exempt from this requirement so long as adequate erosion control measures are installed and maintained behind the curb.
8. Contractor shall establish perennial vegetation on all other disturbed areas immediately upon completion of grading activities. An appropriate seed mix should be considered with respect to the season and the timing of final acceptance. A cool season seed mix should be used between September 15th and April 15th. Final acceptance of a site shall be contingent upon perennial vegetation being fully established in all disturbed areas.
9. A completed N.O.T. shall be submitted to the State and a copy of this N.O.T. shall be provided to the City of Royse City prior to final acceptance.

TREE PRESERVATION

1. Prior to construction, the contractor or subcontractor shall construct and maintain a protective fence at the drip line of all protected existing trees, bushes, landscaping plants, sprinklers, and lawns unless noted otherwise on the construction drawings. Any damage to the existing trees, bushes, landscaping plants, sprinklers, and lawns caused by construction shall be replaced to the satisfaction of the City of Royse City at the contractor's expense.
2. All protective measures shall be in place prior to commencement of any site or grading work and remain in place until all exterior work has been completed.
3. The City's Public Works Department shall be contacted to approve the placement of the Tree Preservation fencing, prior to beginning of site work on property.
4. The following activities shall be prohibited within the limits of the primary root zone: Material storage, equipment cleaning/liquid disposal, no tree attachments of signs or wires, and construction equipment/vehicular traffic is prohibited.
5. Unless specifically allowed, no grade changes shall be allowed within the limits of the primary root zone of any protected tree unless the City approves adequate construction methods.
6. No trimming of trees may occur within the Tree Preservation fencing limits without prior consent of the City.

TRAFFIC CONTROL

1. When the normal function of the roadway is suspended through closure of any portion of the right-of-way, temporary construction work zone traffic control devices shall be installed to effectively guide the motoring public through the area. Consideration for road user safety, worker safety, and the efficiency of road user flow shall be an integral element of every traffic control zone. All traffic control devices shall be in accordance with the latest T.M.U.T.C.D. Devices must contain either Type III Hi-Intensity sheeting or Type IV reboundable Hi-Intensity sheeting.
2. Any traffic control plans not included in the engineering plan set must be submitted for review a minimum of seven (7) working days prior to the anticipated lane closure. Construction activity shall not begin until the traffic control plan is approved by the City of Royse City. Traffic control plans may be required on other roadways as determined by the City or the designee. All traffic control plans must be prepared by an individual that is certified in their preparation. Any deviation from an approved traffic control plan must be reviewed by the City or their designated representative.
3. The contractor shall be responsible for maintaining all traffic control devices on an around-the-clock basis, whether or not work is active. Any deficiencies shall be corrected by the contractor immediately, regardless of time of day.
4. Lane closures will not be permitted on arterial roadways before 9:00 am or after 4:00 pm. Violations may result in suspension of all work at the job site for a minimum of 48-hours. The City reserves the right to deny a closure for a special event.
5. Lane closures will not be permitted on streets adjacent to private and/or public schools during the following hours:

   Elementary ..... 7:15am - 8:15am; 2:45pm – 3:45pm
   Middle School ..... 7:55am – 9:00am; 3:30pm – 4:40pm
   High School ..... 6:45am – 7:45am; 2:15pm – 3:15pm

6. All temporary traffic control devices shall be removed as soon as practical when they are no longer needed. When work is suspended for short periods of time at the end of the workday, temporary traffic control devices that are no longer appropriate shall be removed or covered. The first violation of this provision will result in a verbal warning to the construction foreman. Subsequent violations will result in suspension of all work at the job site for 48-hrs minimum.
7. Existing permanent signs removed by the contractor for construction purposes other than stop, yield and street name signs shall be returned to the City of Royse City. All stop, yield and street name signs removed shall be temporarily erected in the appropriate locations (no less than 7 feet vertical from grade) until permanent signing can be installed. Any temporary stop or yield sign locations to be left in place overnight will require prior approval from the City.
8. Any permanent sign or existing pavement markings that conflict with the approved traffic control plan shall be covered, obliterated or removed as directed by the City.
9. Access must be maintained to all drives and side streets or as indicated in the traffic control plan.

PEDESTRIAN ACCESSIBILITY (WITHIN PUBLIC R.O.W.)

1. All newly constructed sidewalks, curb ramps and crosswalks installed within City of Royse City public rights-of-way shall be considered a pedestrian access route and shall conform to the most current "Draft" Guidelines for Public Rights-of-Way created by the United States Access Board. *http://www.access-board.gov/prowac/draft.htm*
2. Curb Ramps shall conform to all federal guidelines, and shall adhere to the following criteria:
   a. 8.3% maximum running slope and 2.0% maximum cross slope
   c. Minimum 4.0-ft width
   d. Minimum 4.0-ft x 4.0-ft landings at top and bottom of ramps with 2.0% maximum running slope and cross slope.
   e. Detectable warning surface placed at point of entry into roadway.
3. Detectable warning surface shall be pre-manufactured plates with truncated dome material built in. Only plates from TxDOT approved vendors shall be permitted and shall be installed per manufacturer's specifications. Brick pavers will not be allowed. Final color shall be approved by the City but shall generally be in the "RED" color family.
4. The contractor shall provide a clear and safe route for pedestrians adjacent to the site for the duration of construction. A temporary pedestrian route shall be provided when any existing sidewalk is closed due to construction activity.
5. Construction materials shall be kept off existing sidewalks and consolidated in areas within the City right-of-way, unless otherwise approved by the City.
6. Sidewalks shall conform to all federal guidelines, but shall generally adhere to the following:
   a. Generally follow the street grade with a maximum 2.0% cross slope.
   b. Shall be free of any overhangs by landscaping or other items to a height of 7.0-feet.
   c. Sidewalks shall maintain a continuous (pedestrian access route) elevation through residential and commercial driveways.
   d. A minimum 5.0-ft x 5.0-ft passing zone shall be provided at a minimum of 200-ft intervals.

WATER

1. Line and grade stakes for construction of all water and sanitary sewer lines and services shall be furnished by the following:
   a. Private Development: Developer's engineer, surveyor or their designated representative.
   b. Capital Improvement Projects: the Contractor, unless specified otherwise in the contract.

   Property lines and corners must be properly staked to verify the water line alignment. The City shall not be liable for improper alignment or delay of any kind caused by improper or inadequate surveys.
2. All new water services shall be AWWA C901, 1" minimum DR-9 (250 psi) HDPE poly pipe with PE4710 as specified in ASTM F714, from the service tap to the curb stop, 1-inch minimum compression fitting angle stop, and meter box, unless otherwise indicated on the plans. Curb stops will be located within the meter box and facing toward the lot. For single family residential services the minimum meter size is ¾". Following the 1" service and the curb stop, a 1" to ¾" adaptor may be utilized to accommodate a ¾" meter. 1-½-inch meters not permitted.
3. Each meter box shall be located adjacent to the curb and installed after street pavement has been completed and curbs backfilled. Meter boxes shall be Bass & Hays BH PMC 1220-12 for small meter boxes or BH PMC 1015-12 for large meter boxes with hinged blue tops and no reader lid. A 2" minimum metal locator plate shall be placed in the recess of the meters.
4. All water services shall be located along the lot lines. Single services shall be placed no more than 2-ft inside the service lot at the lot line.
5. Detector pads embedded in sand shall be installed above all service connections.
6. Each individual service location shall be sawcut into the face of the curb with a 4-inch high "W" painted by the Contractor. If no curb exists, a similar mark shall be placed in the pavement near the edge of the roadway. After cleaning the sawcut via compressed air or brush, apply one coat of APWA Blue spray paint to mark the sawcut symbol.
7. All water service lines shall be embedded with 6-inch sand below and around the pipe and 1-ft. of sand over the top of the pipe; from the water main to the meter. Water service lines within City roadway right-of-way shall be compacted to a minimum of the 95% Standard Proctor density with a +/- 3% wet of optimum moisture content.
8. All 6", 8" and 12" water mains shall be AWWA C900 PVC pipe or polywrapped ductile iron.
9. Minimum cover shall be 4 feet for 6-inch to 8-inch lines, 5 feet for 12-inch to 16-inch lines, and 6 feet for 20-inch and larger lines. Additional cover may be required in un-paved or un-developed areas.
10. Water mains in the right-of-way near storm inlets shall be constructed with a minimum clearance of 12 inches behind the inlet by pulling the pipe using longitudinal bending in accordance to 80% of the pipe manufacturers' requirements.
11. Standard embedment shall be NCTCOG Class "B-3" for all waterlines, with revisions in accordance with the Royse City Technical Construction Standards.
12. All blow-off (flush) valves shall be two (2) inch and shall be provided in accordance with City of Royse City standards and/or NCTCOG standards.
13. Bolts and nuts for mechanical joints will be of a high-strength low-alloy corrosion resistant steel conforming to ASTM A325 (Type 3).
14. All waterline fittings shall be ductile iron. All 6" - 12" valves shall be AWWA approved resilient wedge gate valves.
15. In addition to thrust blocking, all fittings must be restrained.
16. Install 2' x 2' x 4" thick, concrete pad around all water valves outside of concrete pavement.
17. Valve extensions shall be provided on all valves with operating nuts greater than 5-ft below finished ground or paving grade.
18. All valves shall be marked with a "V" by sawcut on the curb or pavement The "V" shall point to the location of the valve as follows: If the valve is in the paving, the "V" shall be marked upright; if the valve is outside the paving, the "V" shall be marked upside down. After cleaning the sawcut via compressed air or brush, apply one coat of APWA Blue spray paint to mark the sawcut symbol.
19. NRS Resilient-Seated Gate Valves shall conform to AWWA C509 or AWWA C515. Rubber-Seated Butterfly Valves shall conform to AWWA C504. All valves shall have a 2" square operating nut and open to the left. All valves shall be Mueller, Clow or AVK.
20. Valve Boxes shall be "Shorty" Valve Boxes with PVC Valve Stacks. Adjustable valve stacks are not permitted.

STORM SEWER

1. When there is less than two feet of clearance between a water/sewer line and a storm sewer, the Contractor shall install concrete encasement around the sanitary sewer or waterlines at the storm sewer crossing. The encasement shall be a minimum of 10 L.F. and 6" thick centered at the crossing.
2. Manhole lids on storm sewer inlets shall be centered over the outgoing storm lateral.
3. All bends and wyes for pipes less than 42" diameter must be factory manufactured bends and wyes.
4. Inlet block-outs shall be placed three (3') feet from the back of standard curbs for the distance of ten (10') feet upstream (both sides in sag conditions) and five (5') feet downstream from the inside face of inlet. Inlet block-outs shall be placed five (5') feet downstream from the inside face of inlet, unless otherwise noted.
5. Structural concrete used for storm water structures shall follow the latest version of the NCTCOG standards and specifications.
6. Prior to final acceptance, all storm sewers shall be television filmed and cleared of any sediment and debris.
7. Standard embedment shall be NCTCOG Class "B" for all public storm lines, with revisions in accordance with the Royse City Technical Construction Standards.

RETAINING WALLS

1. Retaining walls greater than 2 feet in height must be an engineered design by an engineer licensed in the State of Texas.
2. Retaining walls (including the footing) shall not be constructed to encroach upon City Right-of-Way, public easements, or public utilities without the consent of the City.

FIRE HYDRANTS

1. Fire hydrants shall be placed 3 feet from back of curb unless otherwise indicated on the plans, or as required to clear sidewalks. Fire hydrants shall not be located within a sidewalk.
2. Fire hydrants shall be three way breakaway type no less than 5¼ inches in size and must conform to AWWA specifications C-502. They shall be Mueller, East Jordan, AVK or approved equal with all bronze to bronze moving parts. Two 2½-inch NST hose connections are required. 4-1/2" X 5" steamer nozzle shall have a Storz hydrant converter installed by hydrant manufacturer on all fire hydrants. The 4½-inch diameter steamer connection shall be 4.800 pitch with 4 threads per inch. The operating nut shall be 1½-inch P to F pentagon nut, open left. Mechanical joint connection is required. The steamer nozzle shall face the fire lane, adjacent roadway or as directed by the Fire Department.
3. A Blue Stimsonite, Fire-Lite reflector (or approved equal) shall be placed in the center of the street opposite each fire hydrant. The fire hydrant shall colored silver from the manufacturer. Bonnet to flange and nozzle caps of Fire Hydrant to be painted with 2 coats of Tnemec Safety Paint Series 2H "Hi-Build" according to the following:
   a. Hydrants connected to 6" main line shall be painted silver.
   b. Hydrants connected to 8" main line shall be painted blue.
   c. Hydrants connected to 10" main line shall be painted yellow

SANITARY SEWER

1. Line and grade stakes for construction of all water and sanitary sewer lines and services shall be furnished by the following:
   a. Private Development: Developer's engineer, surveyor or their designated representative.
   b. Capital Improvement Projects: The Contractor, unless specified otherwise in the contract.

   Property lines and corners must be properly staked to verify the sewer line alignment. The City shall not be liable for improper alignment or delay of any kind caused by improper or inadequate surveys.
2. Unless otherwise noted on the plans, all sanitary sewer pipes shall be PVC ASTM Designation D3034 up through 15" in diameter. Pipes larger than 15" in diameter shall be designated PVC ASTM F679. Other pipe shall be subject to Approval by the City.
3. All residential sanitary sewer laterals shall include a 4" tee wye bend, pipe and stopper, and shall be installed downstream from the water service at the lot centerline and extended 10' beyond the property line onto private property. Sewer laterals shall be laid on a minimum slope of +2.00% from the main line to the street right-of-way.
4. After curb and paving has been completed, contractor shall cut a four (4) inch high "S" on the curb indicating the location of the cleanout. After cleaning the sawcut via compressed air or brush, apply one coat of APWA Green paint to mark the sawcut symbol.
5. All sanitary sewers and laterals shall be tested by pulling a mandrel, air pressure test, and television video. The television video shall be provided to the City Inspector in a DVD format and shall be labeled accordingly for City record.
6. All sanitary sewer manholes within flood plains or flood prone areas require Type "S" manhole lids and be properly vented per TCEQ requirements.
7. All manholes shall be vacuum tested where a 10" mercury vacuum is developed. The air vacuum shall then be monitored for a test period of 2 minutes. The allowance drop in air vacuum shall be no greater than 1" mercury over the test period.
8. The Contractor shall install City of Royse City standard wastewater manhole lids on all manholes.
9. Unless otherwise noted, in open spaces, the top of the sanitary sewer manhole shall be installed a minimum of 12 inches above the surrounding ground.
10. Structural concrete used for wastewater structures shall be in compliance with the latest version of the NCTCOG standards and specifications.
11. Standard embedment shall be NCTCOG Class "B-2" for all public sanitary sewer lines, with revisions in accordance with the Royse City Technical Construction Standards, for crushed stone 12" above top of pipe.

PAVING

1. All mix designs shall be sealed by a professional engineer and submitted to the City Inspector one week before a scheduled pour. Mix designs are subject to approval by the City.
2. All concrete paving shall have a minimum compressive strength of 4,000 psi, unless a higher compressive strength is specified.
3. All fill shall be compacted to 95% Standard Proctor Density in a maximum of 6" (six) inch lifts or per the approved Geotechnical Engineers Report.
4. Subgrade shall extend 12" minimum behind the curb, be a minimum of 6" thick and shall be lime or cement stabilized as recommended in the Geotechnical Report. The amount of lime to be added shall be sufficient to achieve a Plasticity Index not to exceed 12.
5. A subgrade density report must be presented to the City Inspector prior to paving. Densities are only valid for 72 hours. Densities received on a Friday are valid until noon on the following Monday. Densities taken before inclement weather may be required to be retaken at the City Inspector's discretion. A minimum of four (4) test cylinders are required for breaks at 7 days, 2 at 28 days, and the last cylinder being an extra.
6. All City streets are required to be paved with the use of an approved slip form paving machine with mechanical vibration. Hand pours are only allowed at intersection returns or other non-standard areas as approved by the City Inspector. Hand pours shall be vibrated by an approved hand vibrator.
7. Construction joints, cold joints and curb returns shall have fabric installed to allow for expansion.
8. Sawed joints shall be every 15 feet for 6" thick concrete and every 20 feet for 8" thick concrete; and shall be constructed within the first 12 hours of concrete placement.
9. Expansion joints shall be placed at a maximum every 400 feet.
10. All median noses shall be poured monolithically.
11. All Baffler Free Ramps shall comply with the current TDLR, ADA and TxDOT regulations.

GENERAL CONSTRUCTION NOTES
SEPTEMBER 2021
9

CITY OF ROYSE CITY PUBLIC WORKS DEPARTMENT

305 N. Arch Street
Royse City, Texas 75189
P (972) 636-2250
F (972) 635-2434

RC Royse City — A Friendly Touch of Texas

NO.	REVISIONS	DATE	BY

WSB LLC. wsb
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO.
F-16849

NOT FOR CONSTRUCTION
THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF BIDDING UNDER THE AUTHORITY OF JACKSON R. MEYER, P.E. 148369 ON 2/16/2026.
IT IS NOT TO BE USED FOR CONSTRUCTION OR PERMITTING PURPOSES.

PROJECT NO. 22-02557
DATE 2/16/2026
SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

CITY OF ROYSE CITY
GENERAL
CONSTRUCTION NOTES

CRENSHAW ROAD
EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-2

ITEM NO.	QUANT.	UNIT	DESCRIPTION
G1	1	LS	MOBILIZATION * Per NCTCOG Item # 200
G2	1	LS	GENERAL SITE PREPARATION * Per NCTCOG Item # 203.1
G3	1	LS	BARRICADES, SIGNS, TRAFFIC CONTROL Per TxDOT Item #502, NCTCOG Item #801.1
G4	18	EA	REMOVE STREET SIGN ASSEMBLY Per NCTCOG Item # 203.1
G5	1	EA	REMOVE AND RELOCATE NTMWD SIGN Per NCTCOG Item # 203.1
G6	4,631	LF	REMOVE BARBED WIRE FENCE Per NCTCOG Item # 203.1
G7	278	LF	REMOVE AND REPLACE BARBED WIRE FENCE Per NCTCOG Item # 203.1
G8	307	SY	REMOVE AND DISPOSE OF EXISTING ASPHALT Per NCTCOG Item # 203.1

ITEM NO.	QUANT.	UNIT	DESCRIPTION
G9	4,668	SY	REMOVE AND DISPOSE OF EXISTING ASPHALT Per NCTCOG Item # 203.1
G10	9,943	LF	BARBED WIRE FENCE Per TxDOT Item #552, TxDOT Detail WF (2)-10
G11	11	EA	16' GATE Per TxDOT Item #552, TxDOT Detail WF (2)-10
G12	1	EA	20' GATE Per TxDOT Item #552, TxDOT Detial WF (2)-10
G13	1	EA	24' DOUBLE CHAIN LINK GATE (NTMWD) Per Plans and Specifications
G14	8,703	CY	UNCLASSIFIED STREET EXCAVATION Per NCTCOG Item # 203.2
G15	11,922	CY	EMBANKMENT Per NCTCOG Item # 203.2

* INDICATES ITEM WITH SPECIAL PROVISIONS. REFERENCE CONTRACT DOCUMENTS SECTION M FOR SPECIAL PROVISION FOR ITEM.

ITEM NO.	QUANT.	UNIT	DESCRIPTION
P1	18,907	SY	6" LIME TREATED SUBGRADE * Per NCTCOG Item # 301.2
P2	454	TON	LIME MATERIAL (6% ~48 LBS/SY) * Per NCTCOG Item # 301.2
P3	577	SY	6" CONCRETE DRIVEWAY Per NCTCOG Item # 303, 305.1
P4	516	SY	3/4" CRUSHED LIMESTONE GRAVEL DRIVEWAY Per NCTCOG Item # 303, 305.1
P5	17,781	SY	8" REINFORCED CONCRETE PAVEMENT Per NCTCOG Item # 303, 305.2
P6	278	SY	25' B-B 8" REINFORCED CONCRETE PAVEMENT W/ CURB Per NCTCOG Item # 303, 305.2
P7	120	SY	6" REINFORCED CONCRETE SURFACE CROSSING Per NCTCOG Item # 303, 305.2
P8	327	TON	8" TYPE C HMAC PAVEMENT Per NCTCOG Item # 303, 305.2

ITEM NO.	QUANT.	UNIT	DESCRIPTION
P9	1,090	LF	METAL BEAM GUARD FENCE Per TxDOT Item #540
P10	14	EA	STREET SIGN ASSEMBLY Per Plans and Specifications, TxDOT Detail SMD
P11	36	LF	24" (W) STOP BAR Per TxDOT Item #666 OR #668
P12	13,669	LF	4" (W) REFLECTIVE PAVEMENT MARKINGS Per TxDOT Item #666 OR #668
P13	6,829	LF	4" (Y)(DBL) REFLECTIVE PAVEMENT MARKINGS Per TxDOT Item #666 OR #668
P14	6,829	LF	RAISED PAVEMENT MARKINGS TY A-A Per TxDOT Item #666 OR #668

* INDICATES ITEM WITH SPECIAL PROVISIONS. REFERENCE CONTRACT DOCUMENTS SECTION M FOR SPECIAL PROVISION FOR ITEM.

ITEM NO.	QUANT.	UNIT	DESCRIPTION
E1	1	LS	EROSION CONTROL & SWPPP (EXCLUDING SILT FENCE) Per NCTCOG Item # 202
E2	13,449	LF	SILT FENCE Per NCTCOG Item # 202.5
E3	5,763	SY	SOD Per NCTCOG Item # 204.5,TxDOT Item #162
E4	31,053	SY	SEEDED CURLEX * Per NCTCOG Item # 204.6, TxDOT Item #164
E5	16,067	SY	HYDROMULCH * Per NCTCOG Item # 204.6, TxDOT Item #164

* INDICATES ITEM WITH SPECIAL PROVISIONS. REFERENCE CONTRACT DOCUMENTS SECTION M FOR SPECIAL PROVISION FOR ITEM.

ITEM NO.	QUANT.	UNIT	DESCRIPTION
D1	135	LF	RCP (18") CLASS III Per NCTCOG Item # 508.3
D2	4	EA	SAFETY END TREATMENT (18") Per NCTCOG Item # 508.3, TxDOT Detail PSET-SC
D3	2	EA	SAFETY END TREATMENT (18") Per NCTCOG Item # 508.3, TxDOT Detail PSET-SP
D4	1,775	SY	12" STONE RIPRAP Per NCTCOG Item # 803.3, TxDOT Detail SSR

* INDICATES ITEM WITH SPECIAL PROVISIONS. REFERENCE CONTRACT DOCUMENTS SECTION M FOR SPECIAL PROVISION FOR ITEM.

NOTE:

- CONDITIONS AND SPECIFICATIONS ARE REFERENCED FROM THE PUBLIC WORKS CONSTRUCTION STANDARDS - NORTH CENTRAL TEXAS, LATEST EDITION, THE STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MAINTENANCE OF HIGHWAYS, STREETS, AND BRIDGES - TXDOT 2014 EDITION, AND CITY OF ROYSE CITY TECHNICAL CONSTRUCTION STANDARDS AND SPECIFICATIONS (TCSS).
- QUANTITIES LISTED HERE ARE PROVIDED FOR INFORMATION PURPOSES ONLY. PLEASE REFER TO THE BID FORM FOR QUANTITIES USED IN BID AWARD.

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO.
F-16849

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PROJECT NO.	22-02557
DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

SUMMARY OF QUANTITIES

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-3

N

0 250 500 Feet

MARY EMMA PULLEN PROPERTY

FM 2453

MARY EMMA PULLEN PROPERTY

CRENSHAW ROAD STA: 126+79.19
END PROJECT

JOHN WESLEY CRENSHAW PROPERTY

EXISTING CRENSHAW ROAD BRIDGE

EXISTING CRENSHAW ROAD

JEFF HITTSON PROPERTY

CRENSHAW ROAD

CRENSHAW ROAD STA: 59+39.74
BEGIN PROJECT

JEFF HITTSON PROPERTY

CRENSHAW ROAD STA: 95+67.95
END BRIDGE

RCISD PROPERTY

DAVID BOYD & JAMES VILLWOK PROPERTY

WATERSCAPE 4 LLC PROPERTY

CRENSHAW ROAD STA: 80+47.95
BEGIN BRIDGE

EXISTING 60" SS LINE
(EAST SABINE SANITARY SEWER TRUNK MAIN, 2024)

DAVID BOYD & JAMES VILLWOK PROPERTY

NORTH TEXAS MUNICIPAL WATER DISTRICT PROPERTY

EXISTING 30" SS LINE
(NTMWD SABINE CREEK INTERCEPTOR, 2006)

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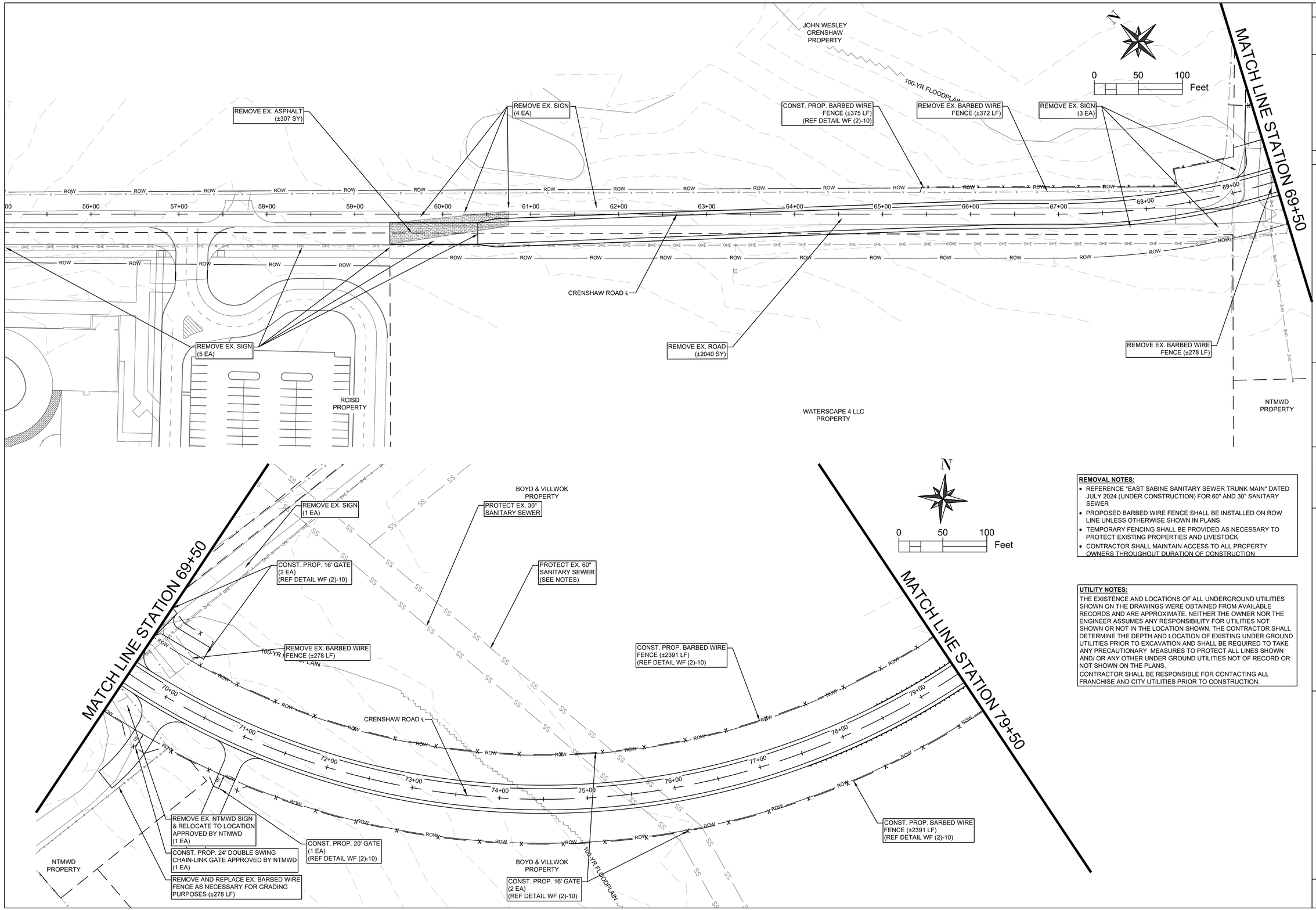
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

PROJECT LAYOUT

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-4



REMOVAL NOTES:

- REFERENCE "EAST SABINE SANITARY SEWER TRUNK MAIN" DATED JULY 2024 (UNDER CONSTRUCTION) FOR 60" AND 30" SANITARY SEWER
- PROPOSED BARBED WIRE FENCE SHALL BE INSTALLED ON ROW LINE UNLESS OTHERWISE SHOWN IN PLANS
- TEMPORARY FENCING SHALL BE PROVIDED AS NECESSARY TO PROTECT EXISTING PROPERTIES AND LIVESTOCK
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTY OWNERS THROUGHOUT DURATION OF CONSTRUCTION

UTILITY NOTES:

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDER GROUND UTILITIES PRIOR TO EXCAVATION AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND/ OR ANY OTHER UNDER GROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS.
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PROJECT NO.	DATE	SCALE	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

REMOVAL AND FENCE PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-5

REMOVAL NOTES:

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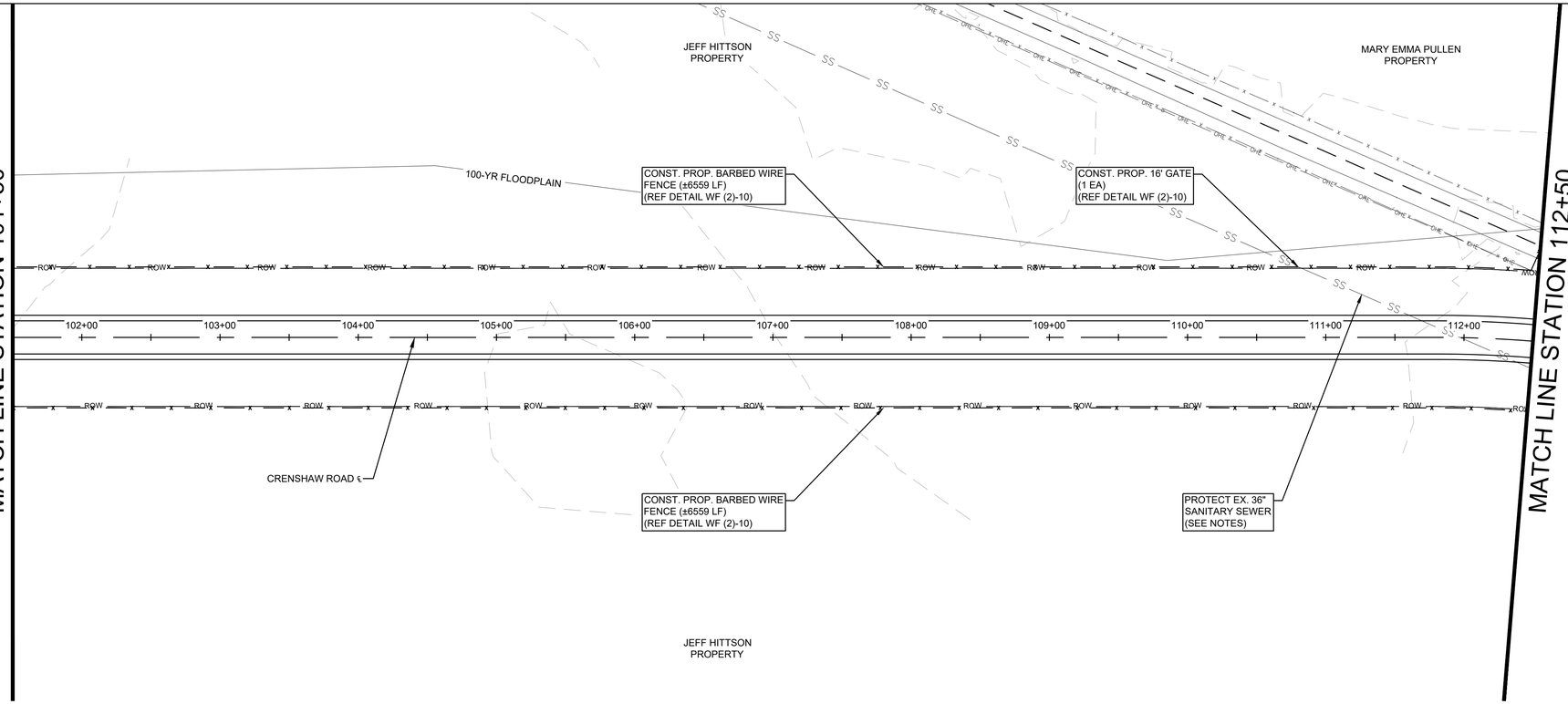
PROJECT NO.	22-02557
DATE	2/16/2026
SCALE	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

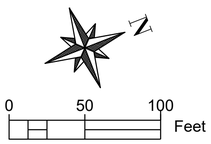
REMOVAL AND FENCE PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-6





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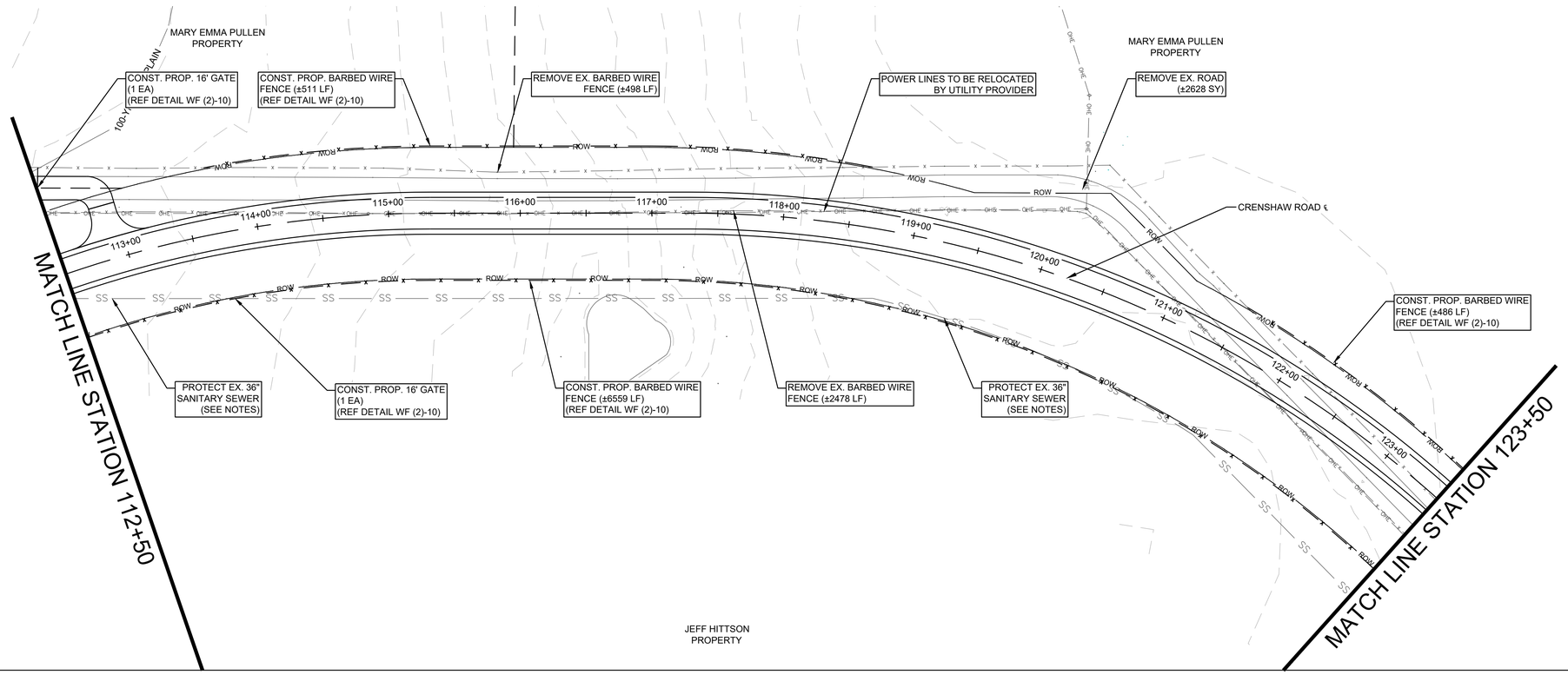

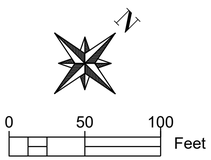

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DRAWN BY:	JRM
CHECKED BY:	JKS

REMOVAL AND FENCE PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-7

MATCH LINE STATION 123+50

MARY EMMA PULLEN PROPERTY

DWAIN DAWSON PROPERTY

REMOVE EX. SIGN (APPROX. 650 LF N. OF INTERSECTION) (1 EA)

CONST. PROP. BARBED WIRE FENCE (±486 LF) (REF DETAIL WF (2)-10)

REMOVE EX. BARBED WIRE FENCE (±519 LF)

FM 2453

CRENSHAW ROAD ℄

REMOVE EX. SIGN (1 EA)

124+00 125+00 126+00 127+00 127+82 BLOCKDALE RD

PROTECT EX. 36" SANITARY SEWER (SEE NOTES)

CONST. PROP. BARBED WIRE FENCE (±6559 LF) (REF DETAIL WF (2)-10)

CONST. PROP. 16' GATE (1 EA) (REF DETAIL WF (2)-10)

REMOVE EX. BARBED WIRE FENCE (±2478 LF)

JEFF HITTSON PROPERTY

JEFF HITTSON PROPERTY

N

0 50 100 Feet

JOHN WESLEY CRENSHAW PROPERTY

SABINE CREEK

EXISTING BRIDGE TO REMAIN

EX. CRENSHAW RD.

REMOVE EX. SIGN (2 EA)

BOYD & VILLWOK PROPERTY

JEFF HITTSON PROPERTY

N

0 50 100 Feet

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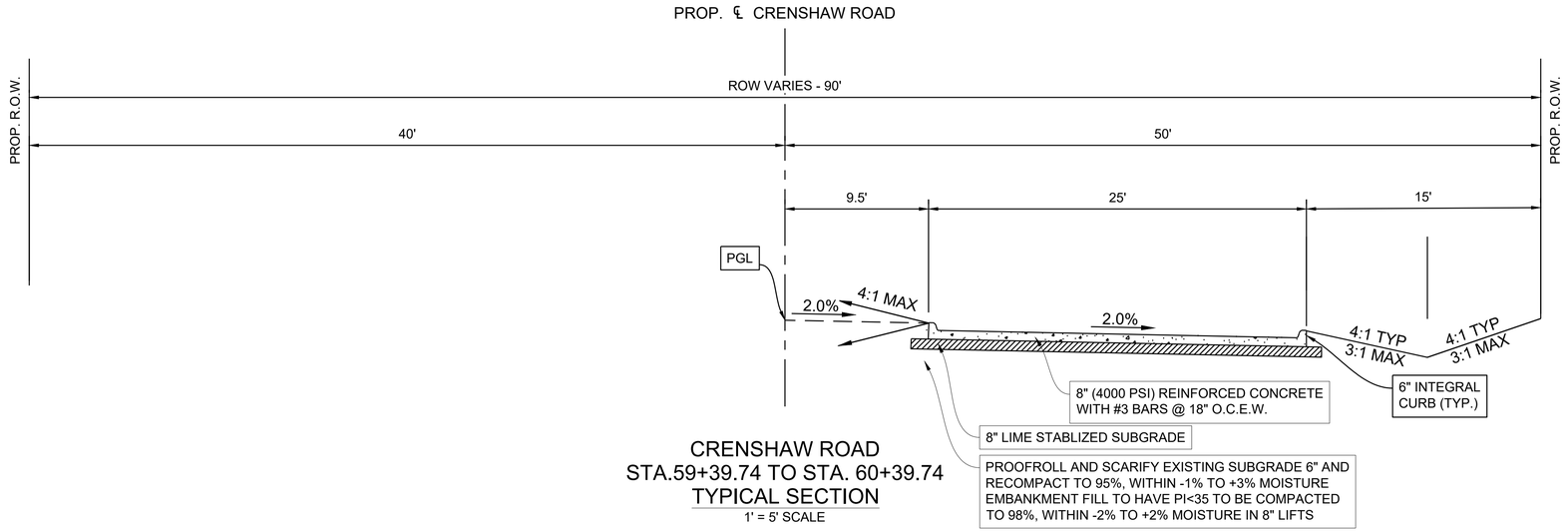
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

REMOVAL AND FENCE PLAN

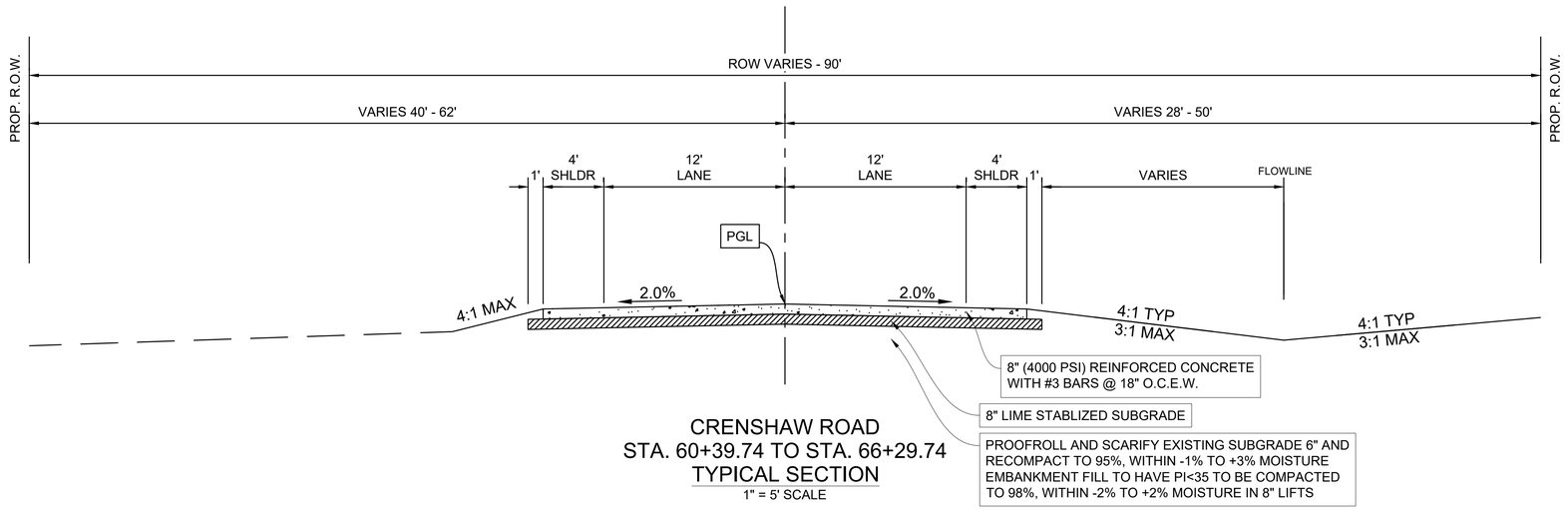
CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-8



CRENSHAW ROAD
STA.59+39.74 TO STA. 60+39.74
TYPICAL SECTION
1' = 5' SCALE



CRENSHAW ROAD
STA. 60+39.74 TO STA. 66+29.74
TYPICAL SECTION
1" = 5' SCALE

NOTE:

- PAVEMENT DESIGNS REFERENCE GEOTECHNICAL REPORT BY XXXXXXXXXXXXX DATED XXXXXXXXX AND CITY OF ROYSE CITY TECHNICAL CONSTRUCTION STANDARDS AND SPECIFICATIONS (TCSS)

NO.	REVISIONS	DATE	BY

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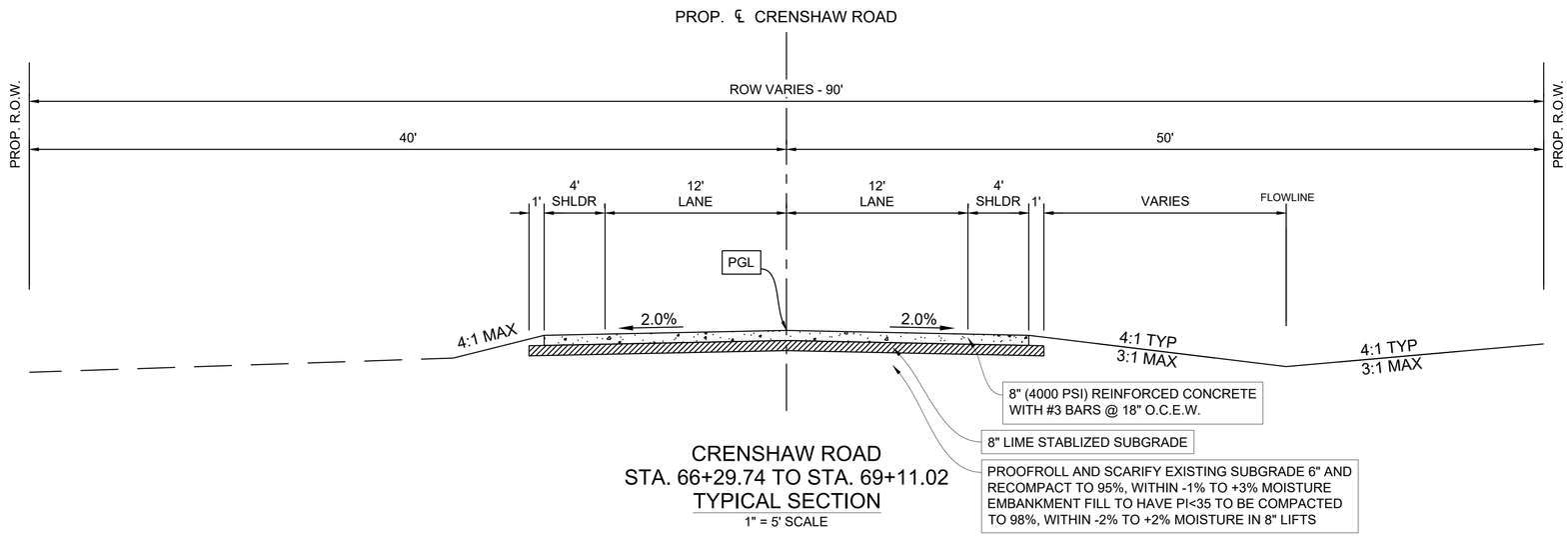
TYPICAL SECTIONS

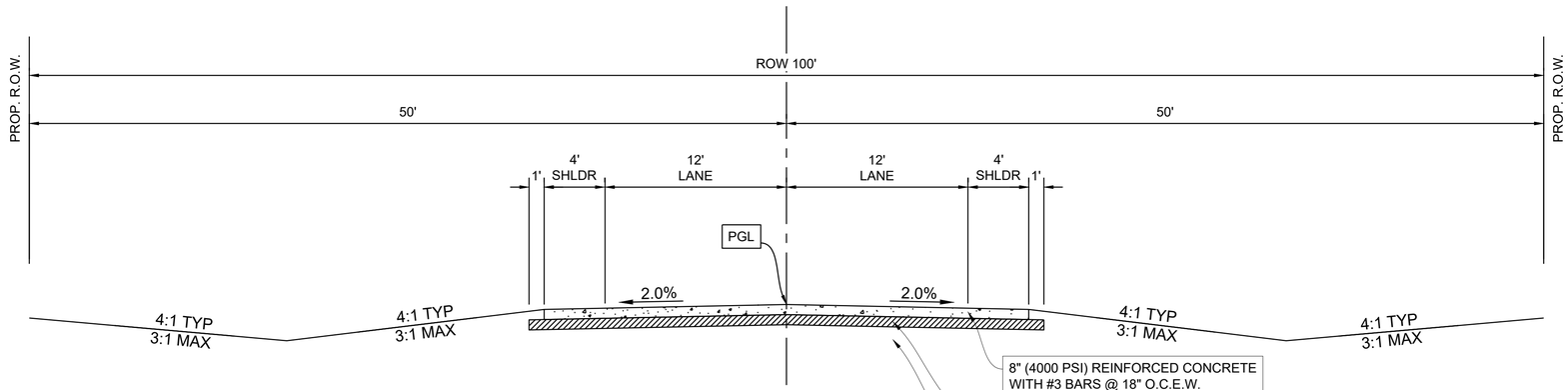
CRENSHAW ROAD
EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

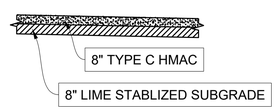
SHEET NUMBER
C-9



CRENSHAW ROAD
STA. 66+29.74 TO STA. 69+11.02
TYPICAL SECTION
1" = 5' SCALE



CRENSHAW ROAD
STA.69+11.02 TO STA.80+47.95
95+67.95 TO 126+02.52
TYPICAL SECTION
1" = 5' SCALE



ASPHALT TRANSITION
TO EXISTING ROAD
PAVEMENT SECTION

NOTE:

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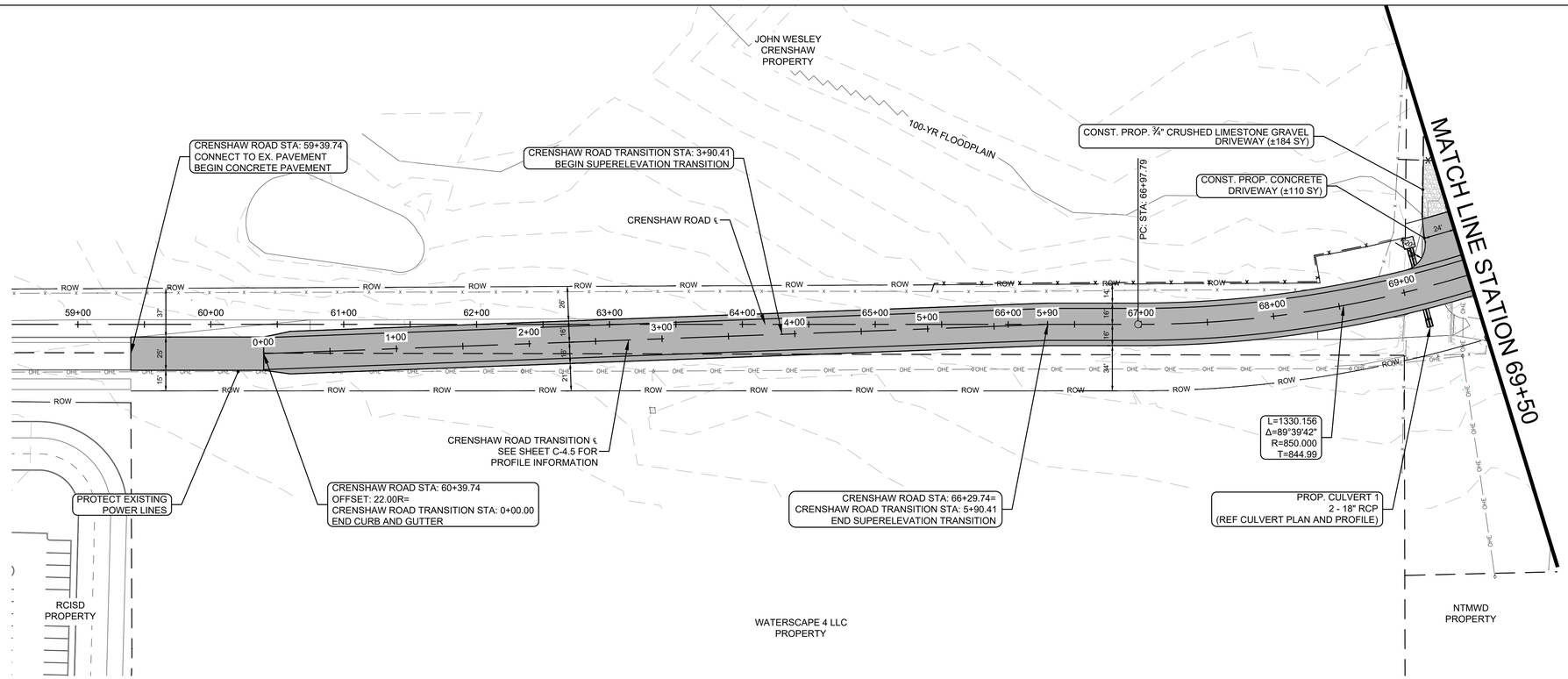
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

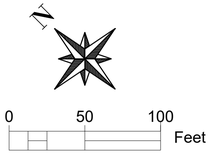
TYPICAL SECTIONS

CRENSHAW ROAD
EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-10





PAVING NOTES:

- REF. SHEETS C-9 - C-10 FOR TYPICAL PAVEMENT SECTIONS
- REF. SHEETS C-31 - C-47 FOR CROSS SECTIONS
- ALL DIMENSIONS ARE FROM EDGE OF PAVEMENT OR CENTERLINE OF ROAD UNLESS OTHERWISE NOTED
- DESIGN CRITERIA FOR CRENSHAW ROAD CONFORMS TO ROYSE CITY TCSS; DESIGN SPEED 40 MPH
- CONSTRUCTION AND EXPANSION JOINTS SHALL BE INSTALLED PER CITY STANDARDS

UTILITY NOTES:

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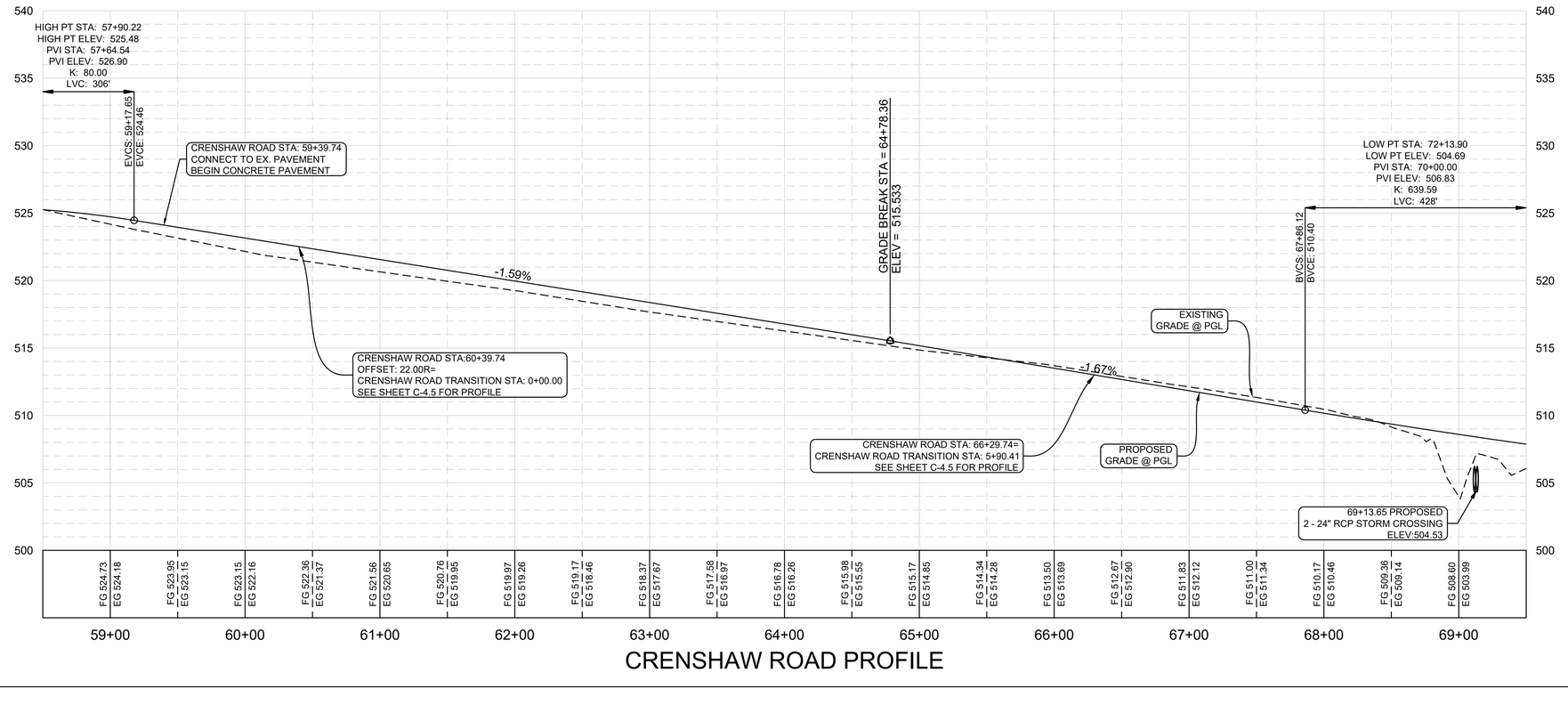

CRENSHAW ROAD PROFILE

NO.	REVISIONS	DATE	BY

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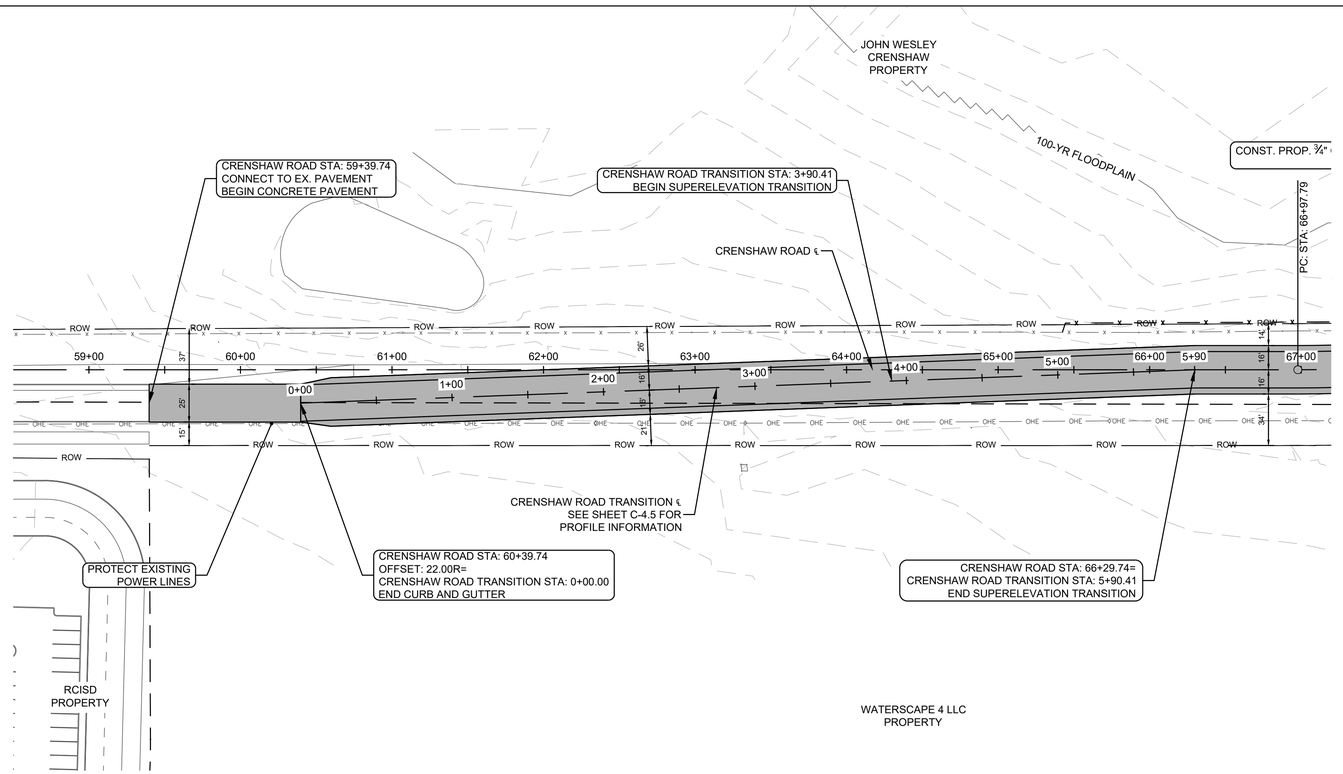
DRAWN BY:	JRM
CHECKED BY:	JKS

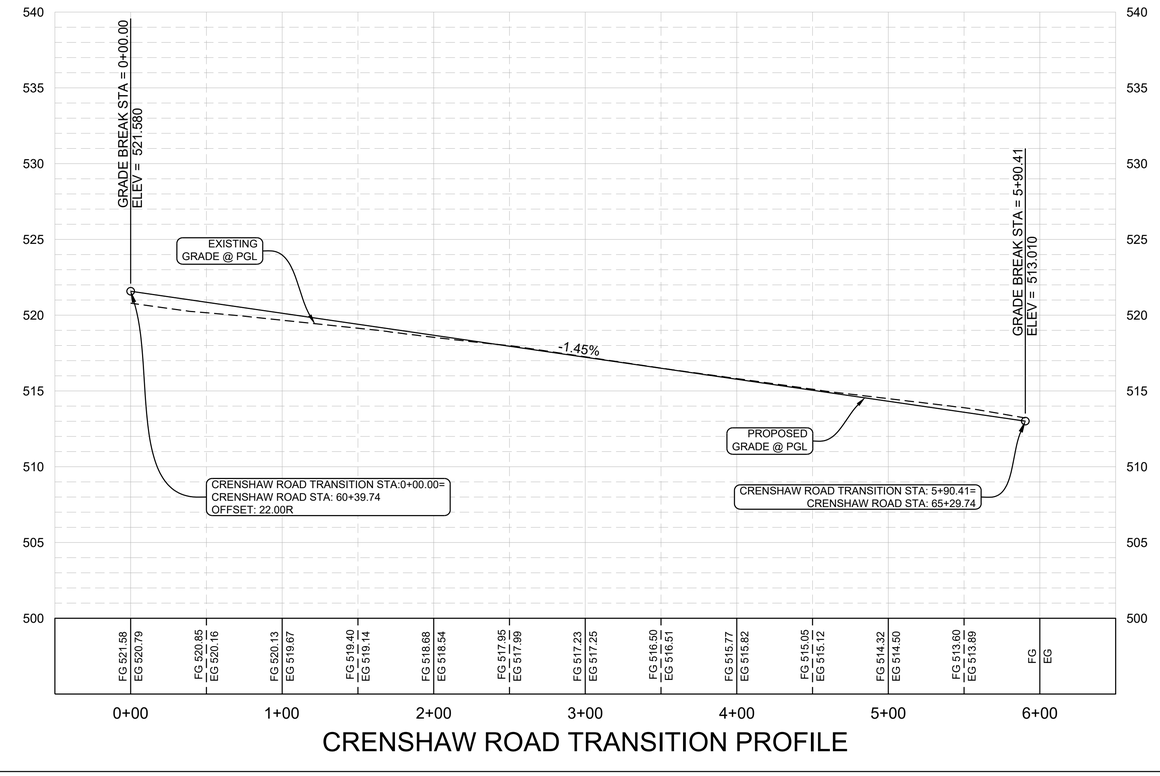
CRENSHAW ROAD PLAN AND PROFILE

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-11





CRENSHAW ROAD TRANSITION PROFILE

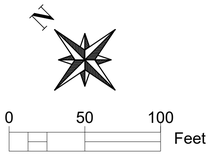
Horizontal Alignment Report

Begin CRENSHAW ROAD TRANSITION
N 7,027,024.7557 E 2,637,251.2913 0+00.00

Line (1)
S48° 18' 05"E 590.41'
N 7,026,632.0070 E 2,637,692.1229 5+90.41
Line (1)

N 7,026,632.0070 E 2,637,692.1229 5+90.41
End CRENSHAW ROAD TRANSITION

****
Alignment Length: 590.41'
****



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UTILITY NOTES:

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NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO.
F-16849

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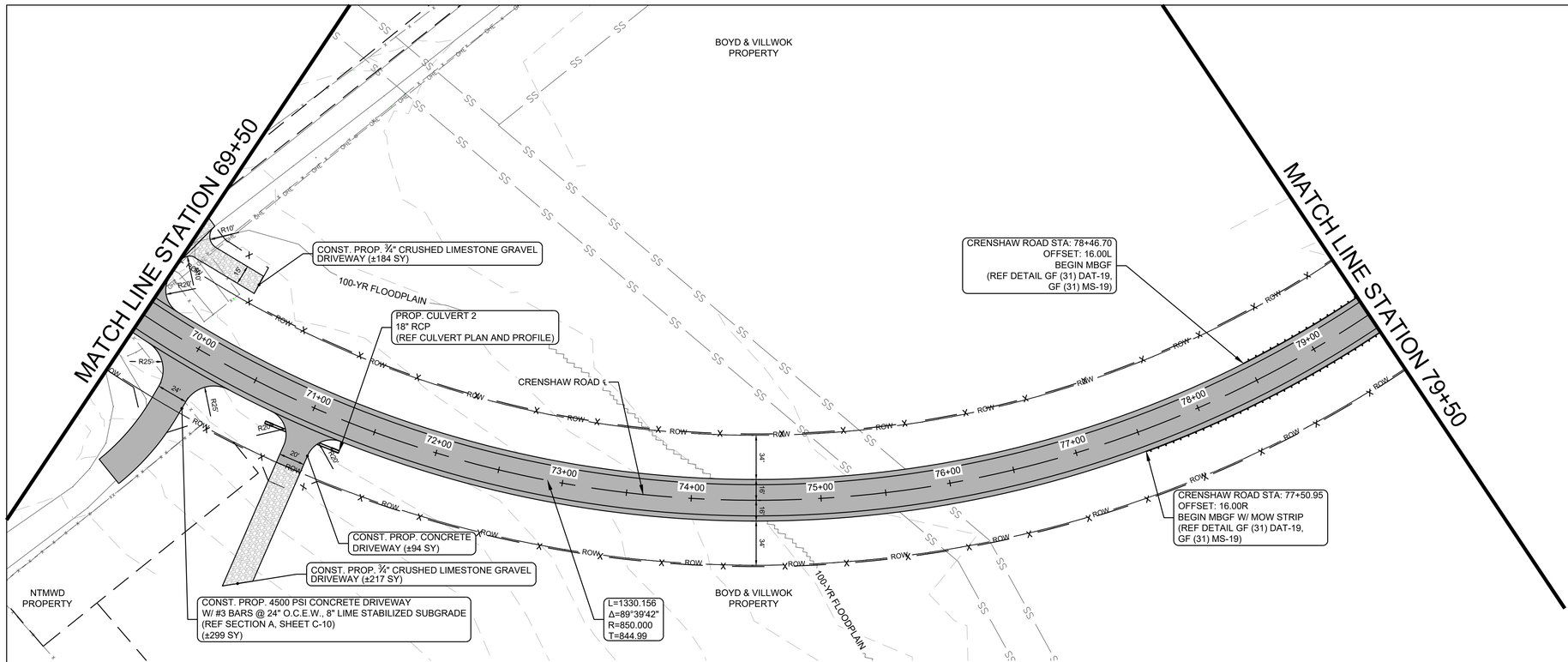
PROJECT NO.	22-02557
DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

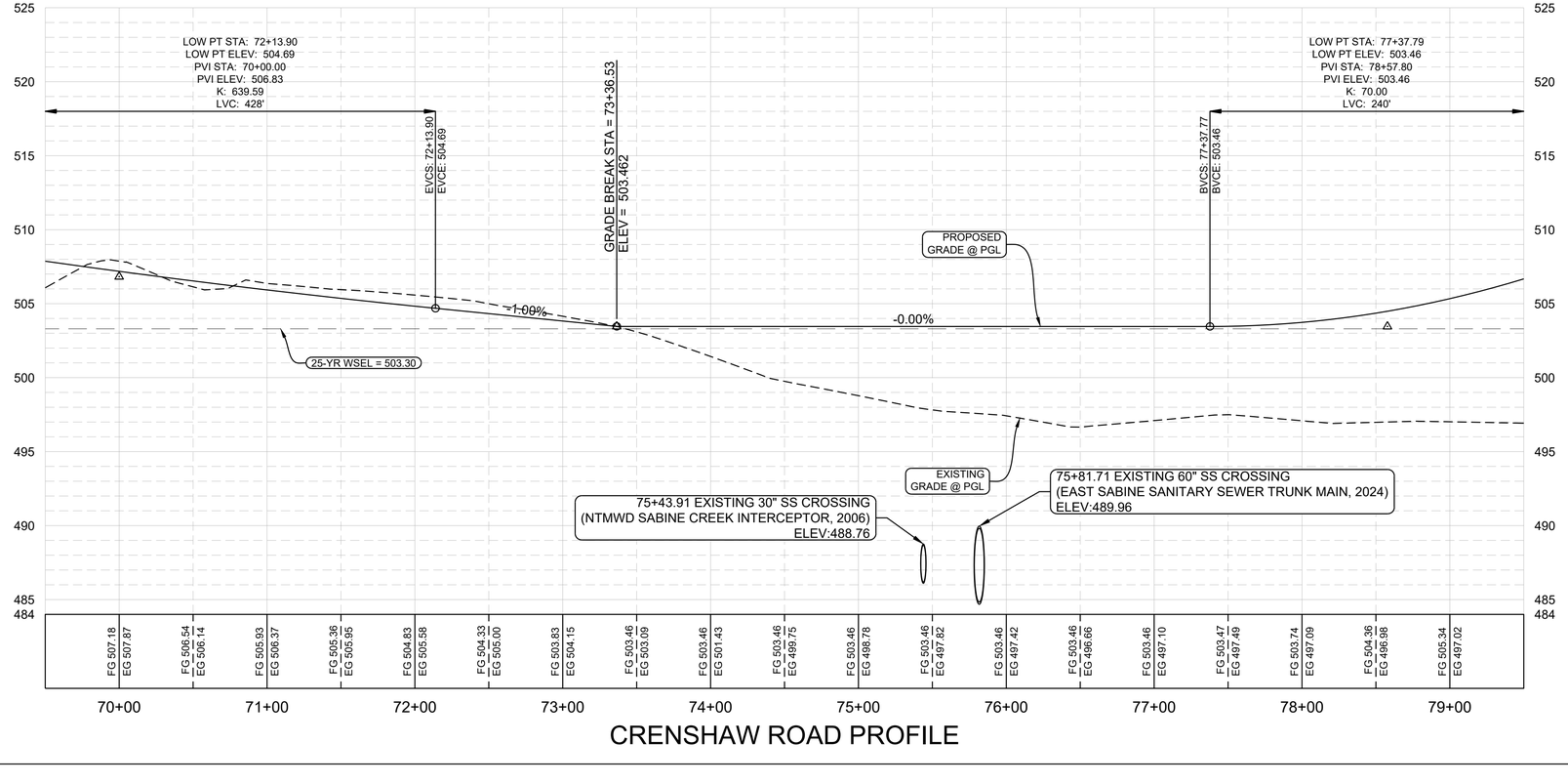
CRENSHAW ROAD TRANSITION PLAN AND PROFILE

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-12





CRENSHAW ROAD PROFILE

PAVING NOTES:

- REF. SHEETS C-9 - C-10 FOR TYPICAL PAVEMENT SECTIONS
- REF. SHEETS C-31 - C-47 FOR CROSS SECTIONS
- ALL DIMENSIONS ARE FROM EDGE OF PAVEMENT OR CENTERLINE OF ROAD UNLESS OTHERWISE NOTED
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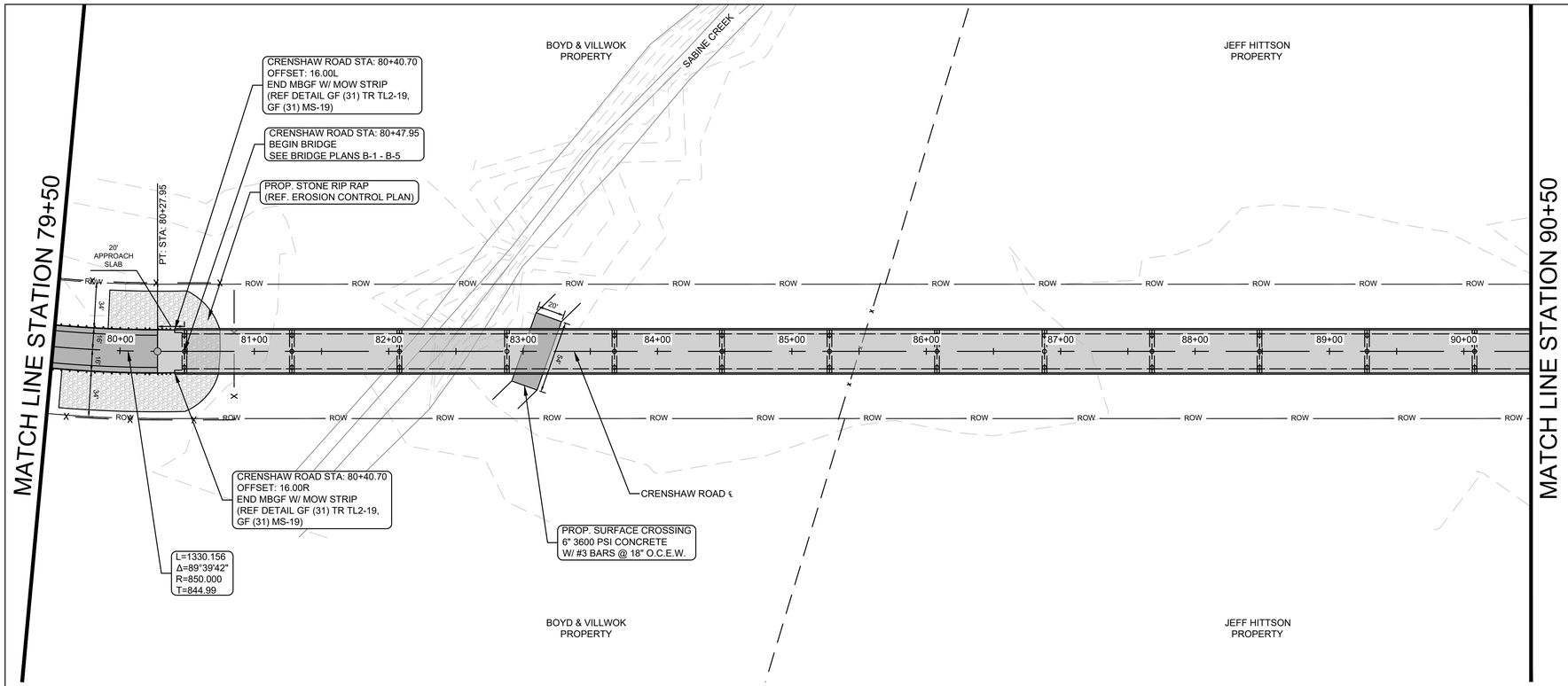
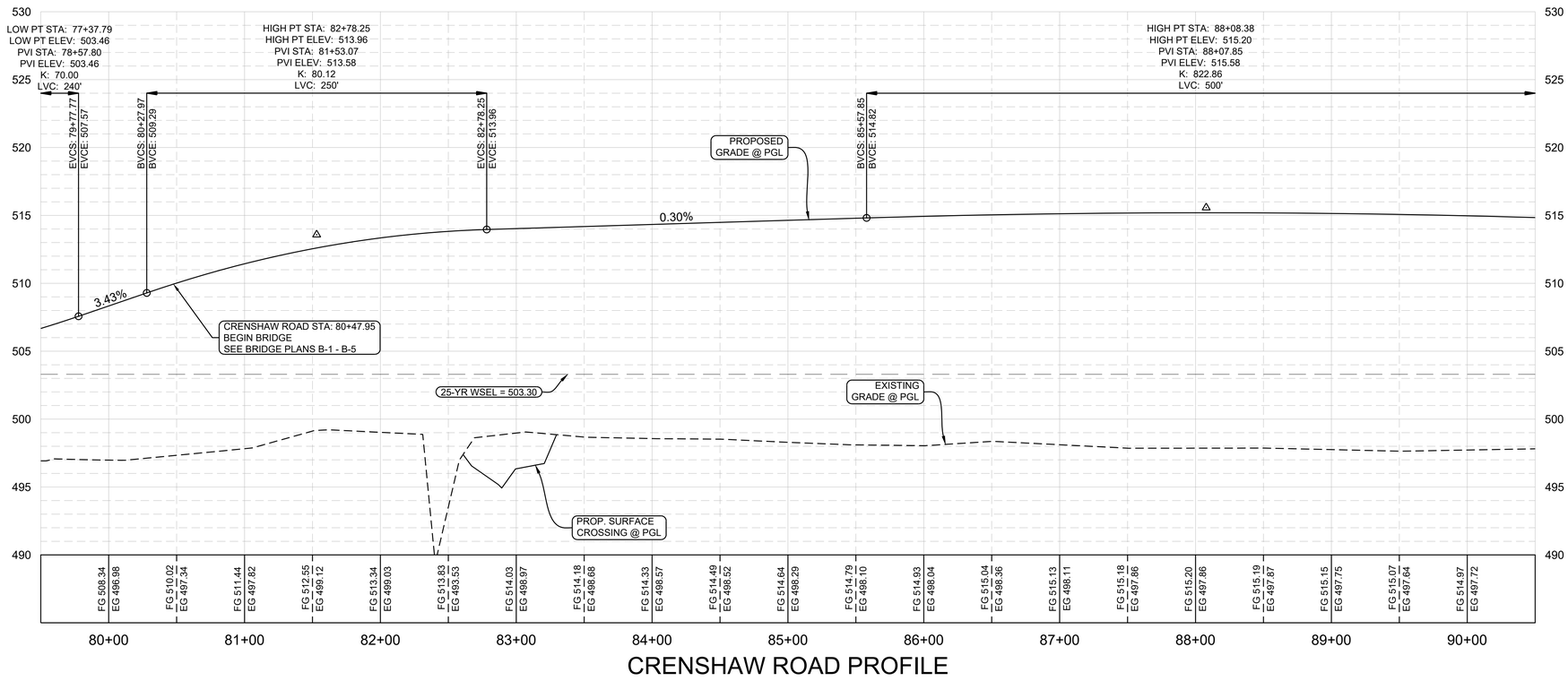
CRENSHAW ROAD PLAN AND PROFILE

CRENSHAW ROAD EAST

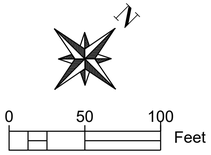
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-13





CRENSHAW ROAD PROFILE



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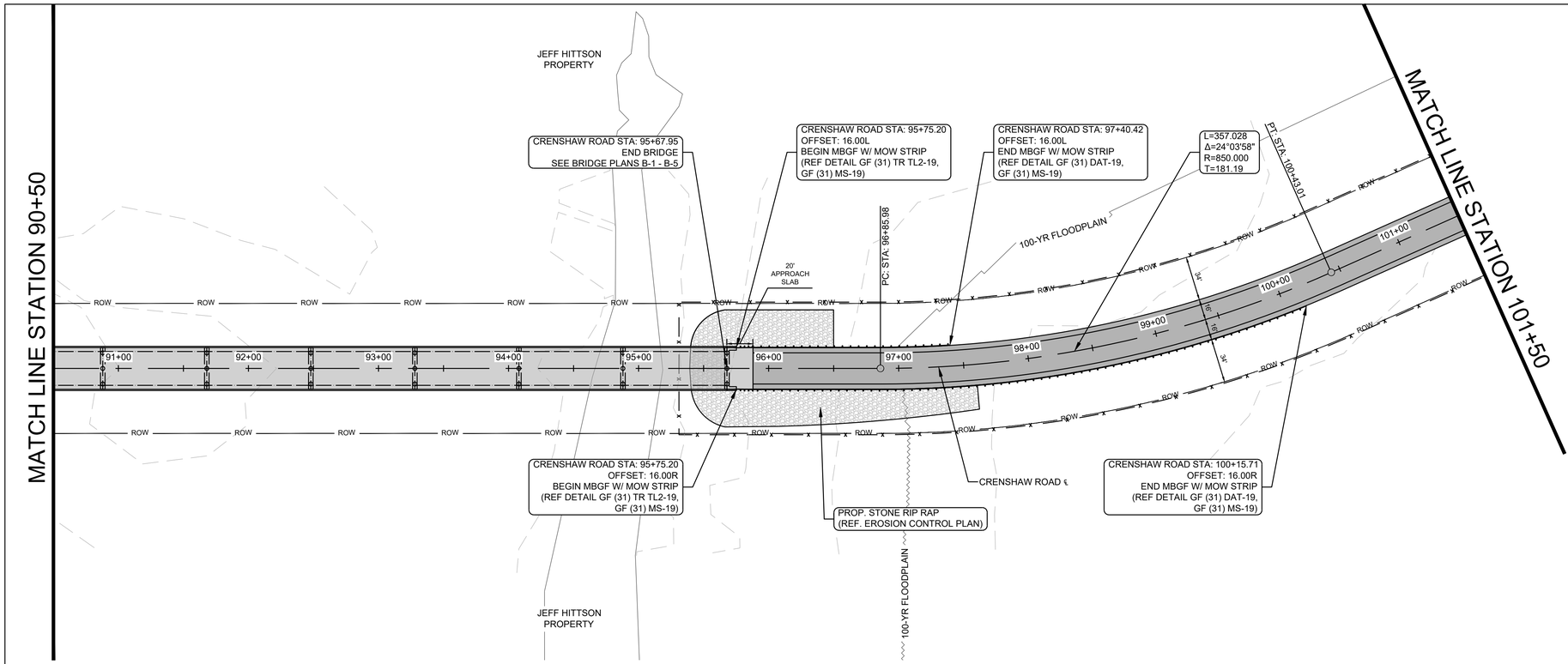
CRENSHAW ROAD PLAN AND PROFILE

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-14



CRENSHAW ROAD PROFILE

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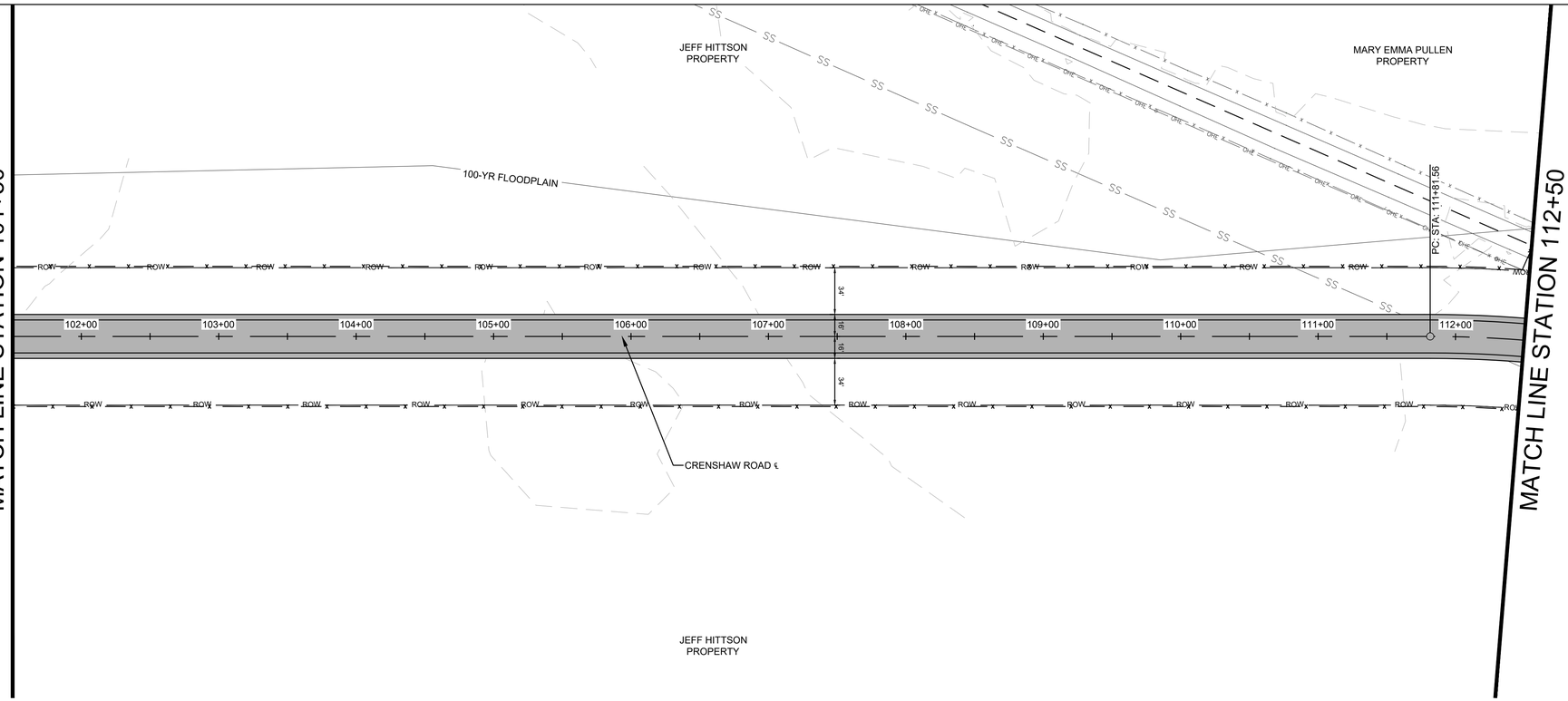
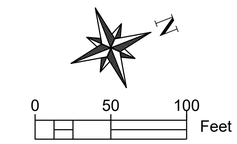
CRENSHAW ROAD PLAN AND PROFILE

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-15





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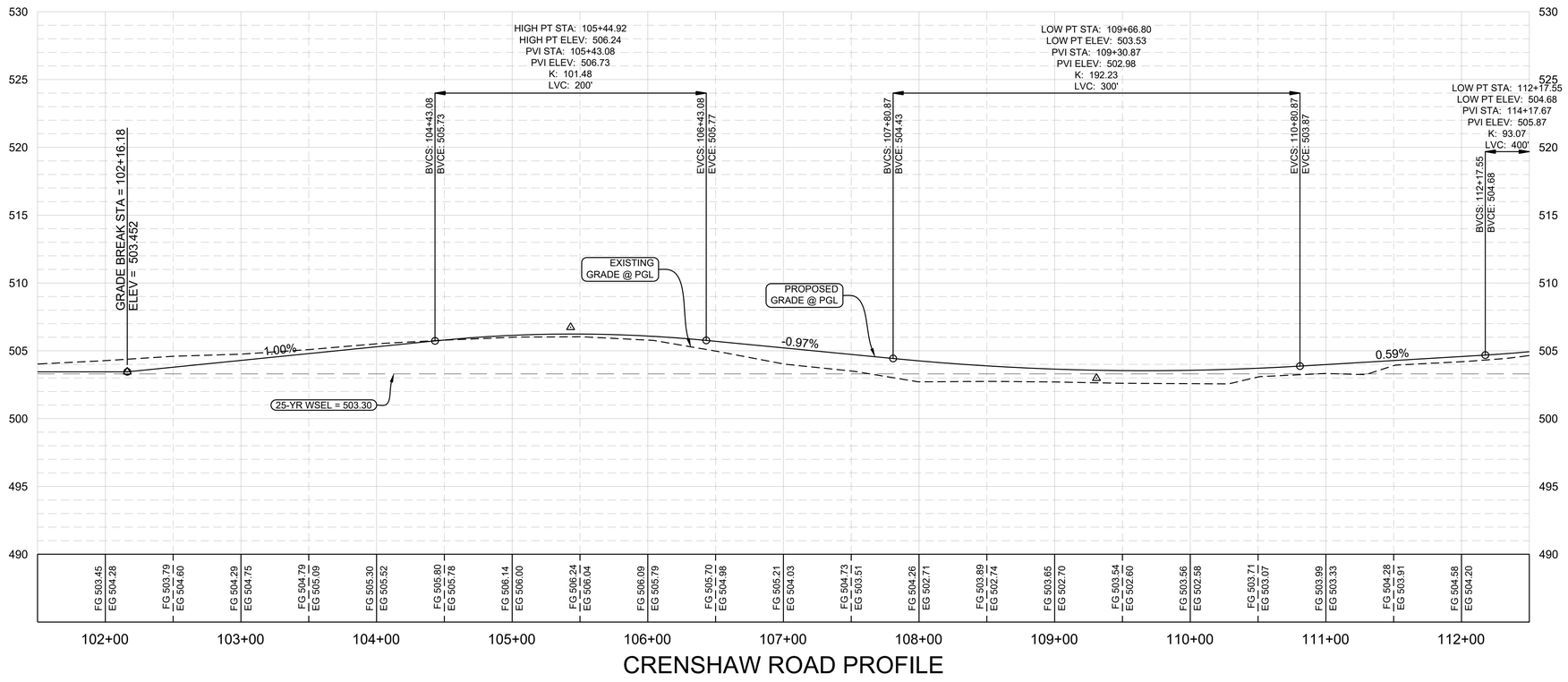

CRENSHAW ROAD PROFILE

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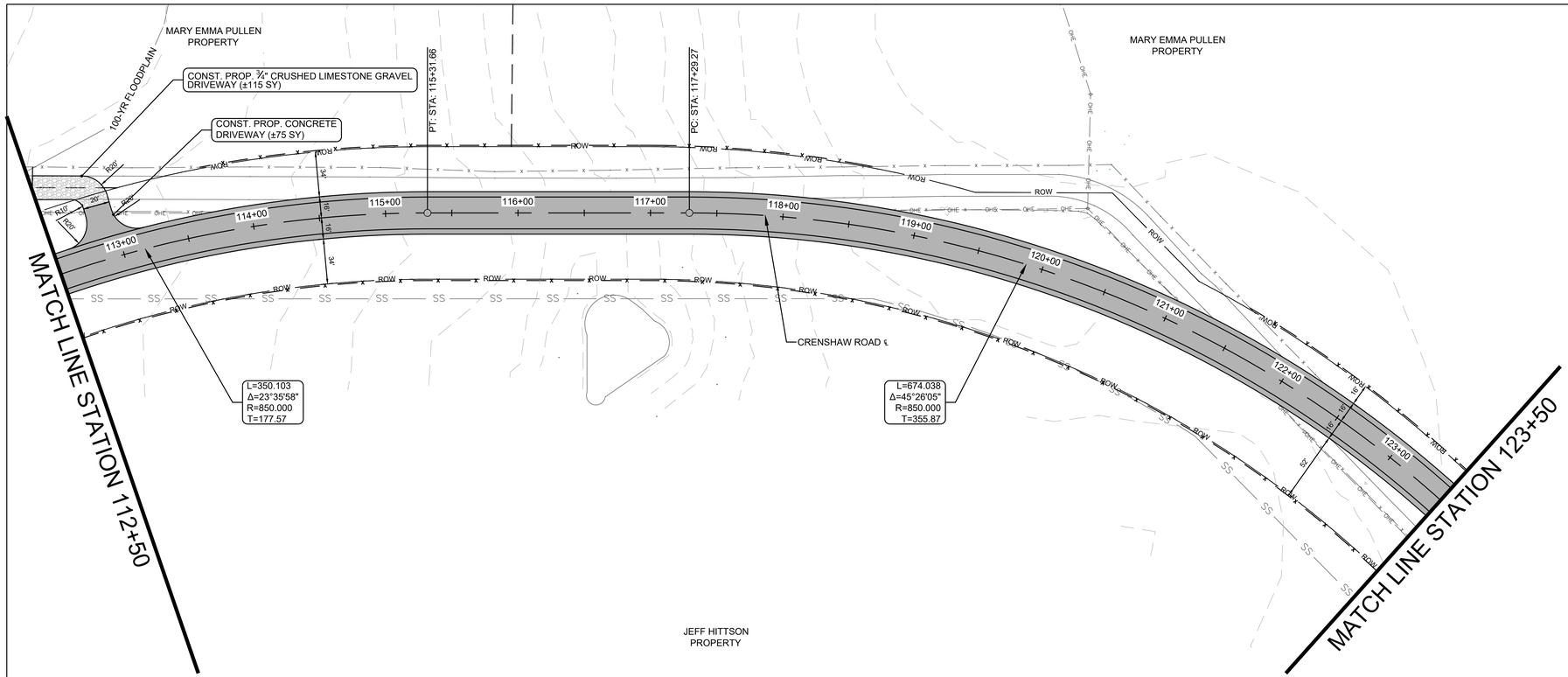
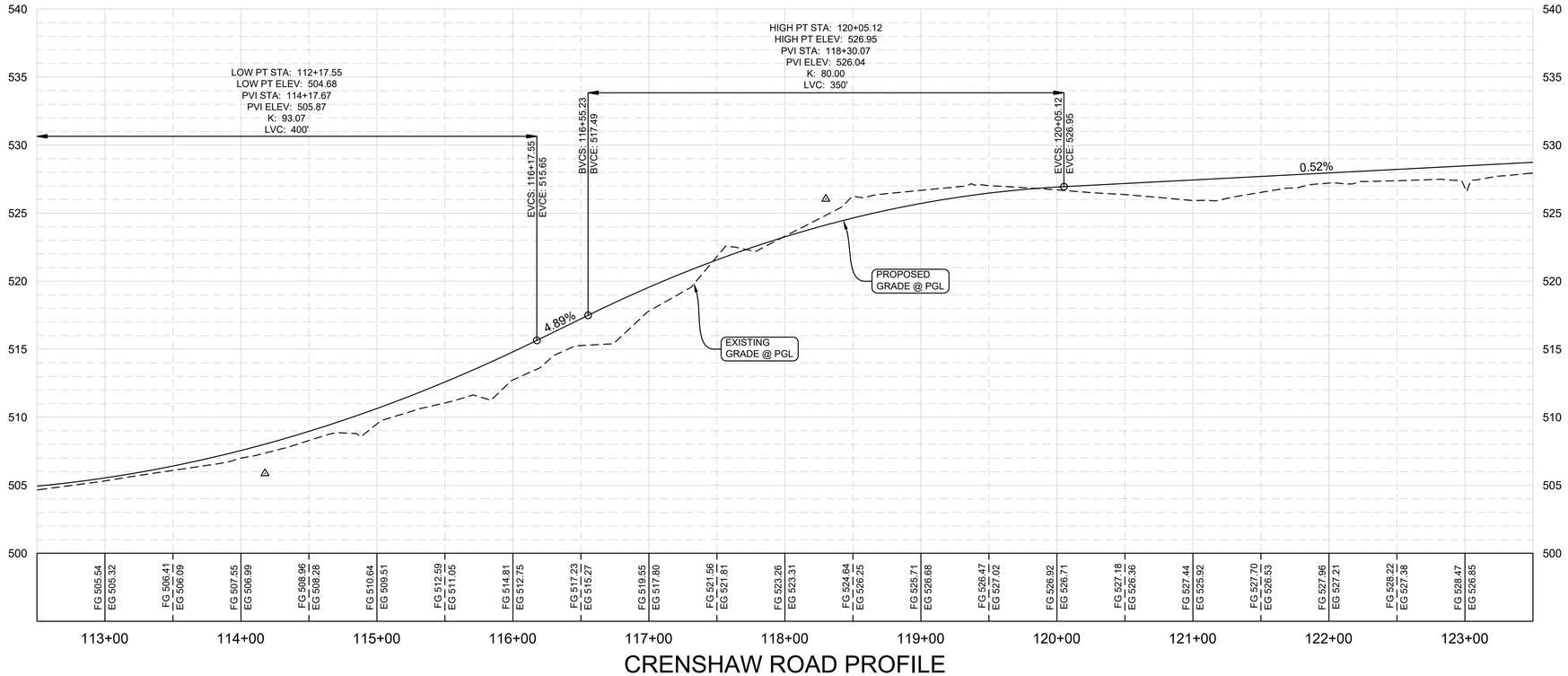
CRENSHAW ROAD PLAN AND PROFILE

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-16





CRENSHAW ROAD PROFILE

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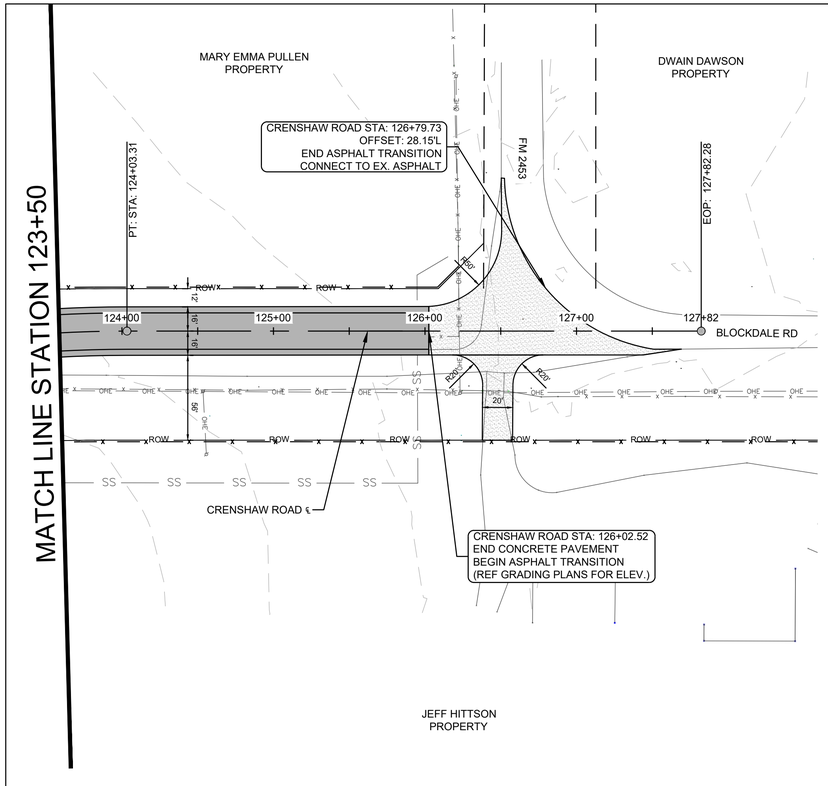
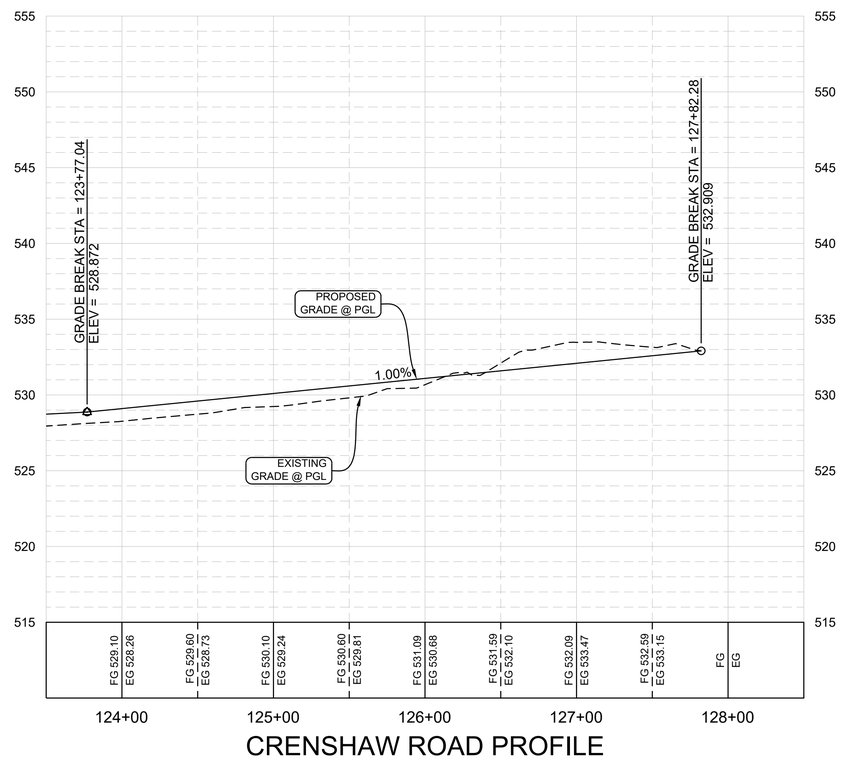
CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-17





Horizontal Alignment Report

Begin CRENSHAW ROAD
N 7,027,742.9352 E 2,636,535.0397 50+25.68

Line (1)
S46° 09' 57"E 1,672.11'
N 7,026,584.8755 E 2,637,741.2125 66+97.79
Line (1)

Curve (2)
BC N 7,026,584.8755 E 2,637,741.2125 66+97.79
CTR N 7,027,198.0207 E 2,638,329.8999
PI N 7,025,999.6554 E 2,638,350.7464

Direction Back S46° 09' 57"E
Radius 850.00'
Delta 89°39'42"(LT)
Length 1,330.16'
Tangent 844.99'
Chord Direction N89° 00' 12"E Distance 1,198.53'
Direction Ahead N44° 10' 21"E

EC N 7,026,605.7216 E 2,638,939.5570 80+27.95
Curve (2)

Line (3)
N44° 10' 21"E 1,658.03'
N 7,027,794.9340 E 2,640,094.9106 96+85.98
Line (3)

Curve (4)
BC N 7,027,794.9340 E 2,640,094.9106 96+85.98
CTR N 7,028,387.2331 E 2,639,485.2536
PI N 7,027,924.8885 E 2,640,221.1651

Direction Back N44° 10' 21"E
Radius 850.00'
Delta 24°03'58"(LT)
Length 357.03'
Tangent 181.19'
Chord Direction N32° 08' 22"E Distance 354.41'
Direction Ahead N20° 06' 23"E

EC N 7,028,095.0321 E 2,640,283.4506 100+43.01
Curve (4)

Line (5)
N20° 06' 23"E 1,138.55'
N 7,029,164.1932 E 2,640,674.8452 111+81.56
Line (5)

Horizontal Alignment Report (Continued)

Curve (6)
BC N 7,029,164.1932 E 2,640,674.8452 111+81.56
CTR N 7,028,871.9921 E 2,641,473.0422
PI N 7,029,330.9405 E 2,640,735.8874

Direction Back N20° 06' 23"E
Radius 850.00'
Delta 23°35'58"(RT)
Length 350.10'
Tangent 177.57'
Chord Direction N31° 54' 22"E Distance 347.63'
Direction Ahead N43° 42' 21"E

EC N 7,029,459.3047 E 2,640,858.5800 115+31.66
Curve (6)

Line (7)
N43° 42' 21"E 197.61'
N 7,029,602.1565 E 2,640,995.1199 117+29.27
Line (7)

Curve (8)
BC N 7,029,602.1565 E 2,640,995.1199 117+29.27
CTR N 7,029,014.8439 E 2,641,609.5822
PI N 7,029,859.4104 E 2,641,241.0072

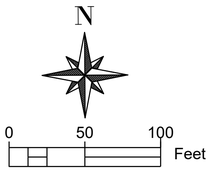
Direction Back N43° 42' 21"E
Radius 850.00'
Delta 45°26'05"(RT)
Length 674.04'
Tangent 355.87'
Chord Direction N66° 25' 23"E Distance 656.52'
Direction Ahead N89° 08' 26"E

EC N 7,029,864.7483 E 2,641,596.8325 124+03.31
Curve (8)

Line (9)
N89° 08' 26"E 378.97'
N 7,029,870.4327 E 2,641,975.7601 127+82.28
Line (9)

N 7,029,870.4327 E 2,641,975.7601 127+82.28
End CRENSHAW ROAD

****
Alignment Length: 7,756.60'
****



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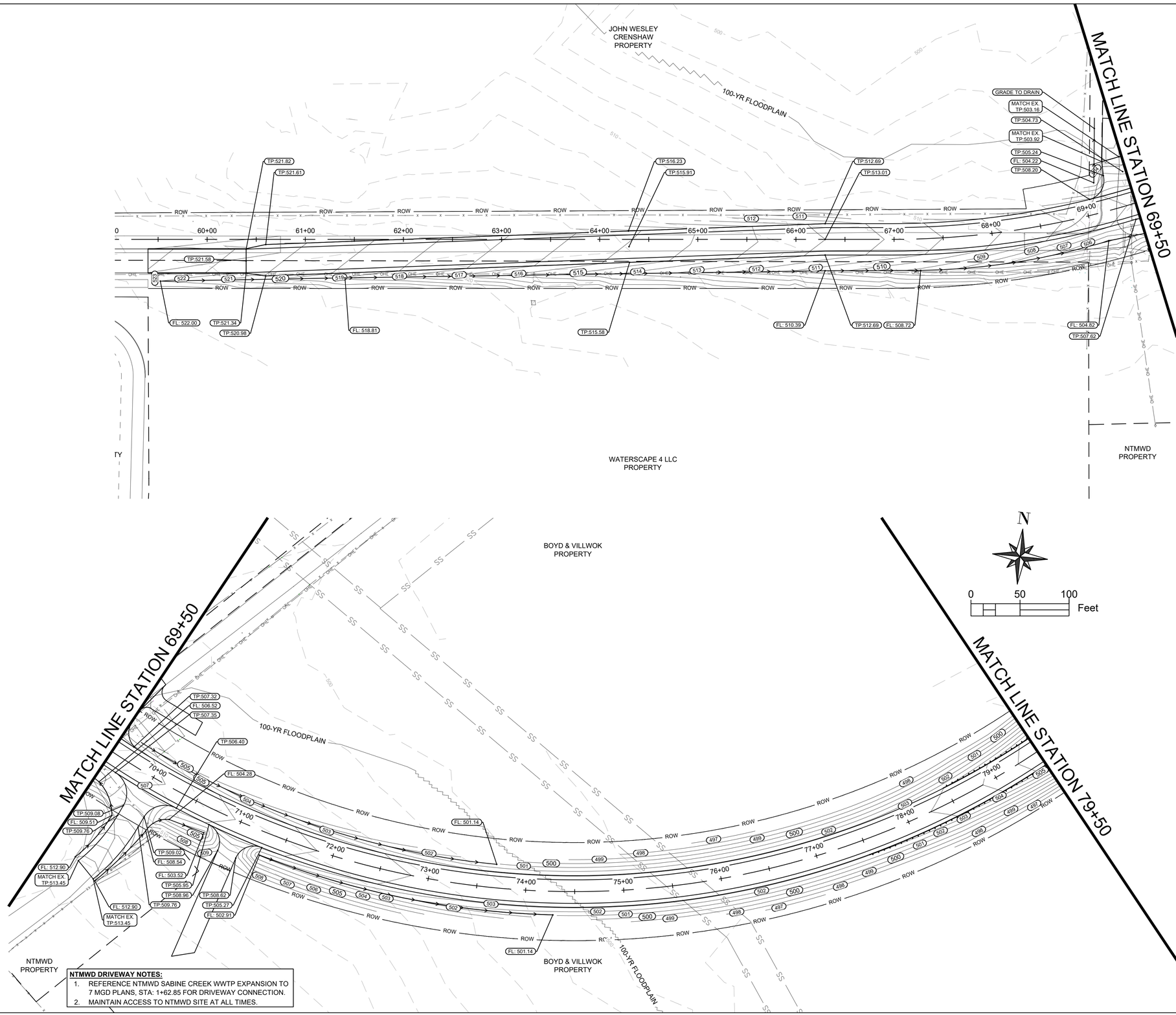
CRENSHAW ROAD PLAN AND PROFILE

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-18



GRADING LEGEND	
520	PROPOSED CONTOUR
	EXIST. CONTOUR (MINOR)
520	EXIST. CONTOUR (MAJOR)
	PROPOSED FLOWLINE

GRADING NOTES:

1. EXISTING ELEVATIONS TO BE VERIFIED BY CONTRACTOR. NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL GRADE DITCHES TO ENSURE POSITIVE DRAINAGE.

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NTMWD DRIVEWAY NOTES:

1. REFERENCE NTMWD SABINE CREEK WWTP EXPANSION TO 7 MGD PLANS, STA: 1+62.85 FOR DRIVEWAY CONNECTION.
2. MAINTAIN ACCESS TO NTMWD SITE AT ALL TIMES.

NO.	REVISIONS	DATE	BY

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GRADING PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
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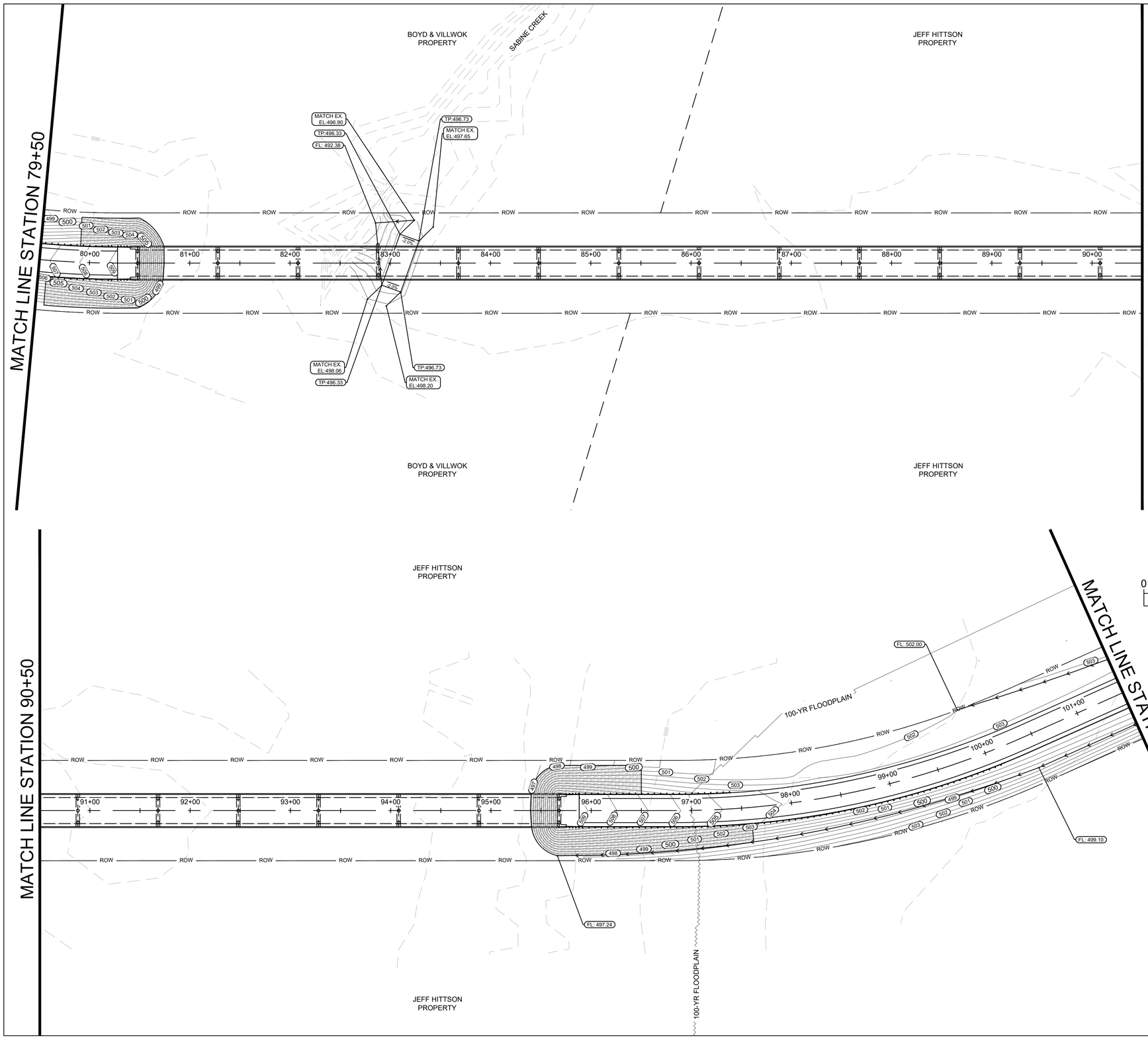
SHEET NUMBER
C-19



GRADING LEGEND	
520	PROPOSED CONTOUR
	EXIST. CONTOUR (MINOR)
520	EXIST. CONTOUR (MAJOR)
	PROPOSED FLOWLINE

GRADING NOTES:

1. EXISTING ELEVATIONS TO BE VERIFIED BY CONTRACTOR. NOTIFY ENGINEER OF ANY DISCREPANCIES.
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NO.	REVISIONS	DATE	BY

WSB, LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO.
F-16849

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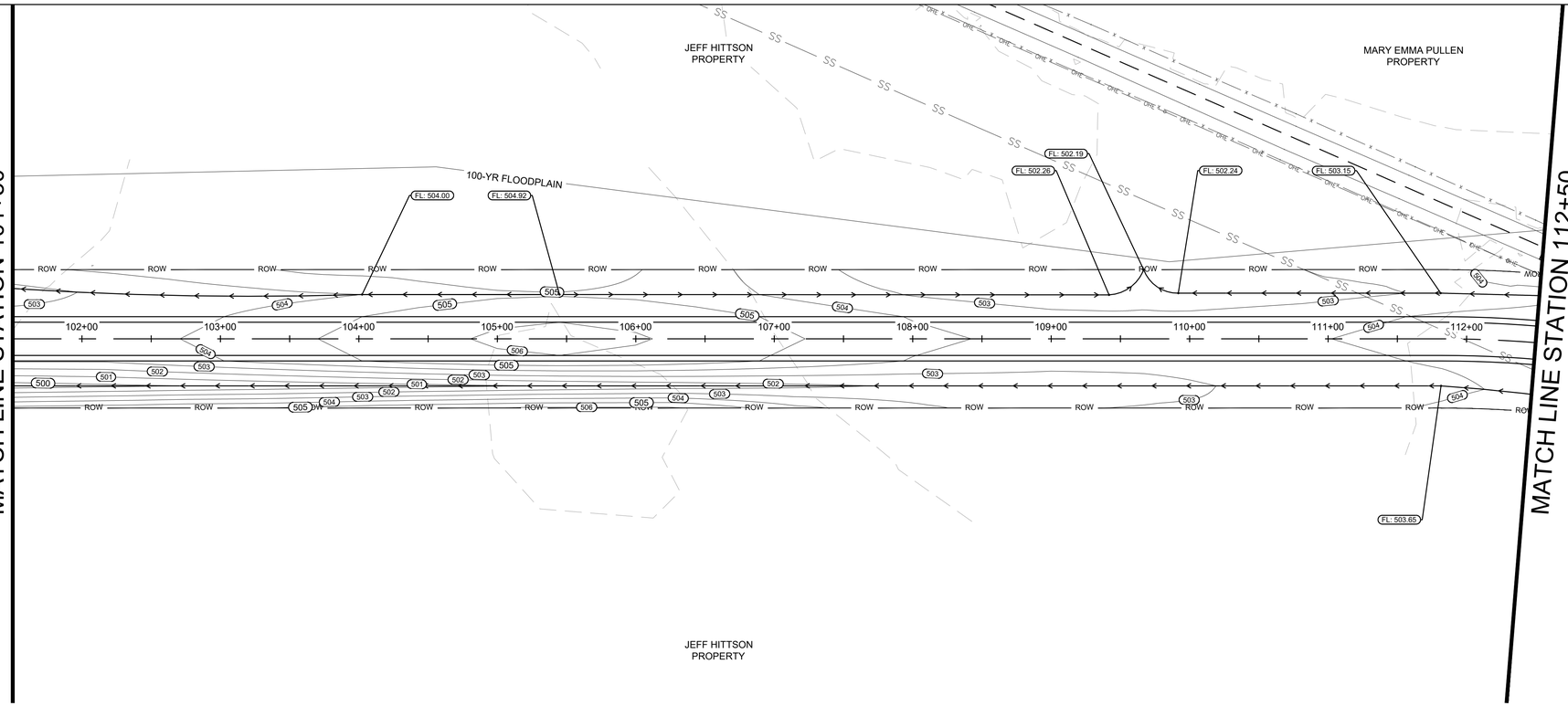
PROJECT NO.	DATE	SCALE	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

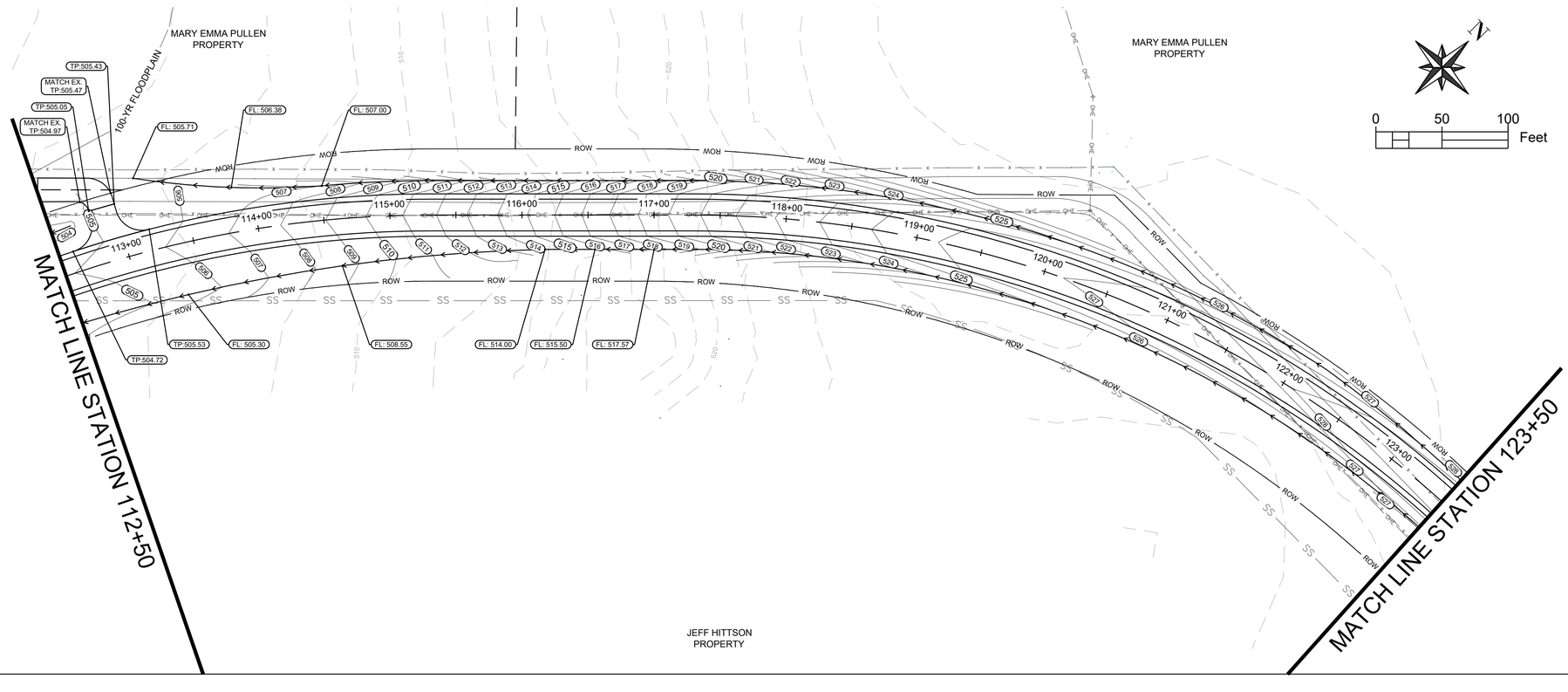
GRADING PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY,
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-20





0 50 100 Feet

GRADING LEGEND	
520	PROPOSED CONTOUR
	EXIST. CONTOUR (MINOR)
520	EXIST. CONTOUR (MAJOR)
	PROPOSED FLOWLINE

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PROJECT NO.	22-02557
DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

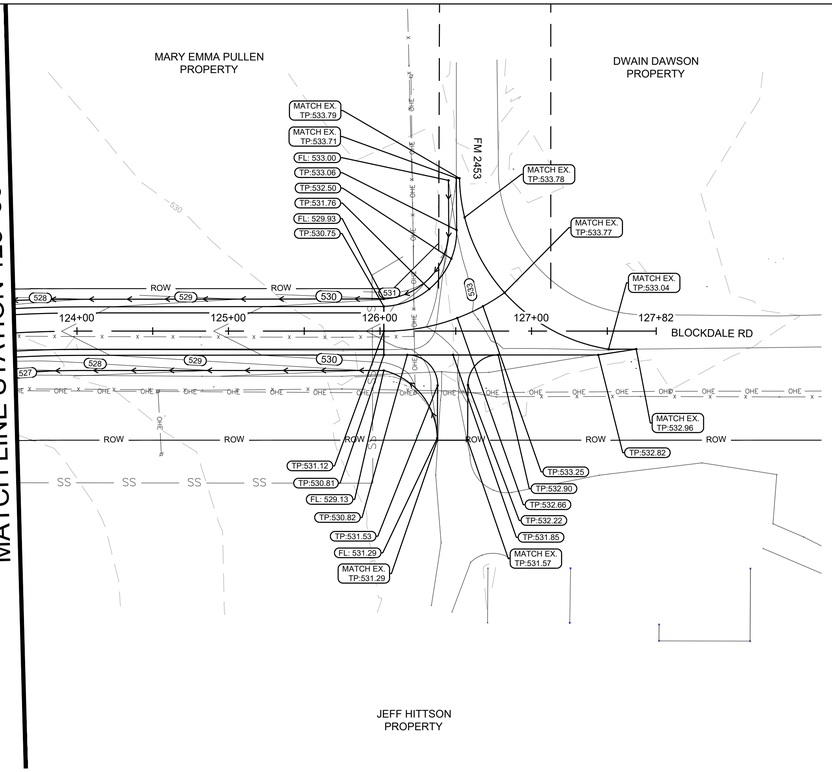
GRADING PLAN

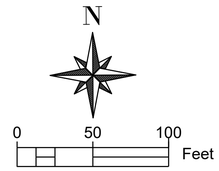
CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-21

MATCH LINE STATION 123+50





GRADING LEGEND	
520	PROPOSED CONTOUR
	EXIST. CONTOUR (MINOR)
520	EXIST. CONTOUR (MAJOR)
	PROPOSED FLOWLINE

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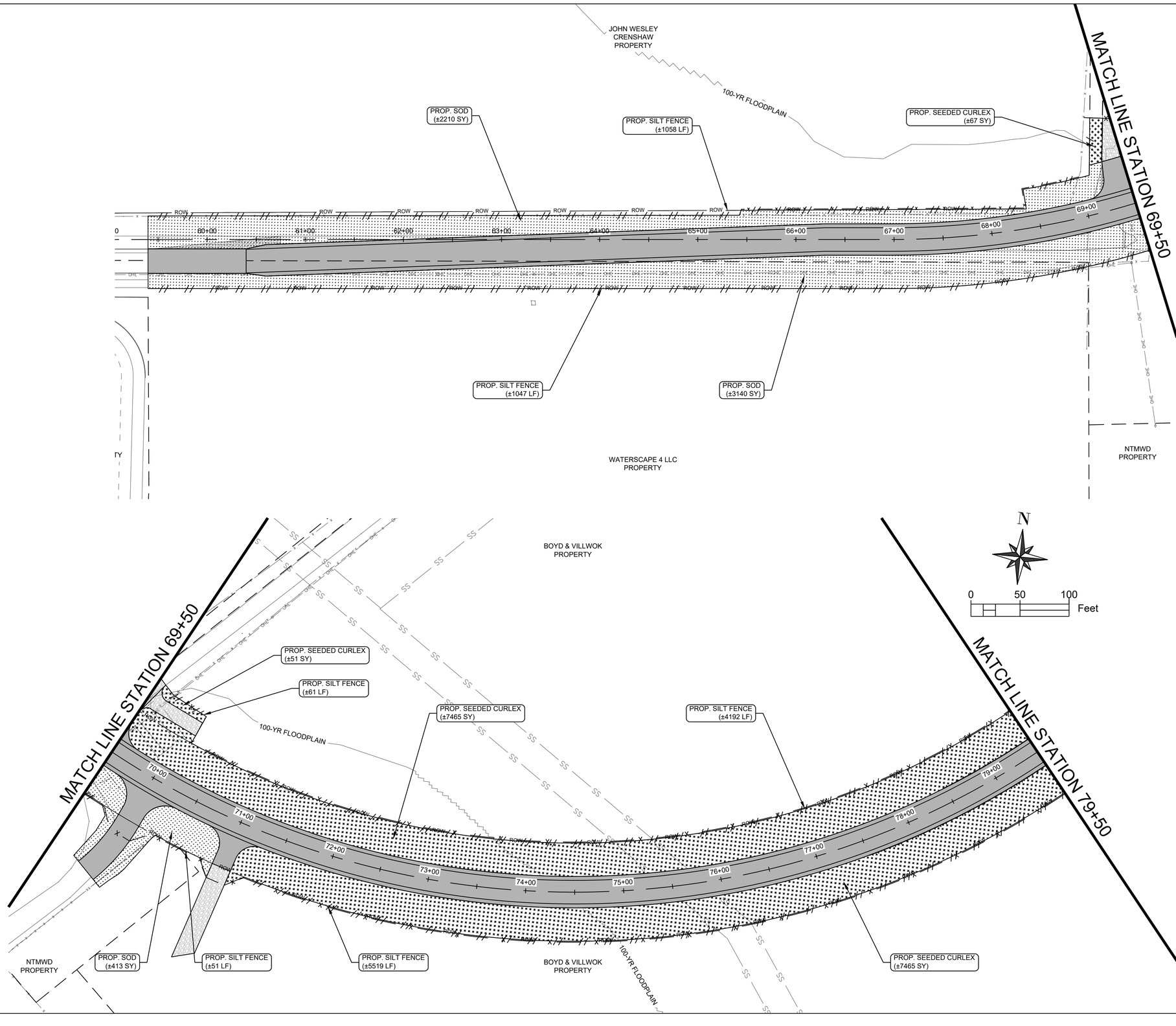
GRADING PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-22



EROSION CONTROL LEGEND	
	PROP. SOD
	PROP. HYDROMULCH
	PROP. SEEDED CURLEX
	PROP. SILT FENCE
	PROP. STONE RIPRAP

EROSION CONTROL NOTES:

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A COPY OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND ANY DOCUMENTATION REQUIRED BY THE CONSTRUCTION GENERAL PERMIT.
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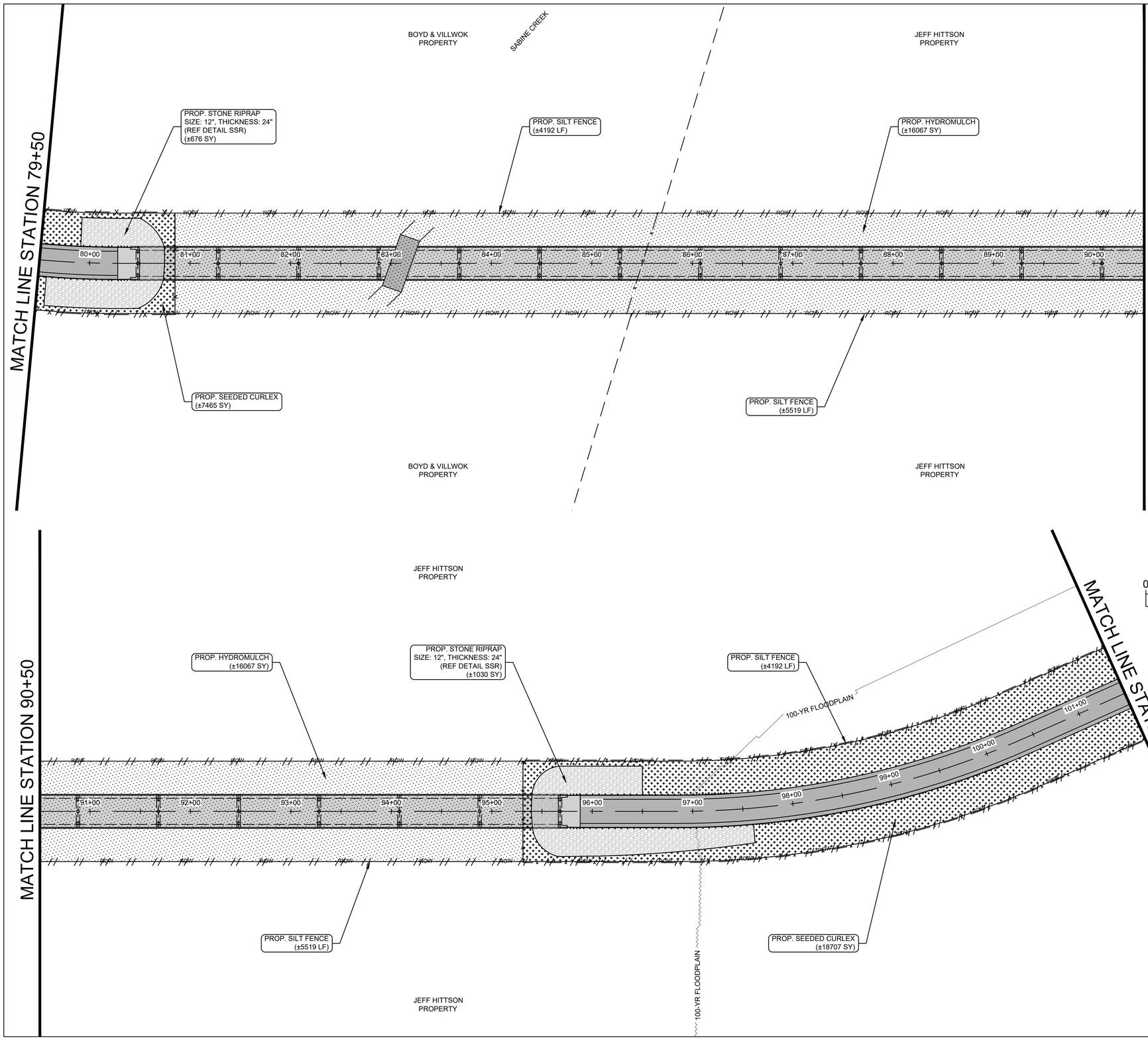
CHECKED BY:	JKS

EROSION CONTROL PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-23



EROSION CONTROL LEGEND	
	PROP. SOD
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	PROP. SEEDED CURLEX
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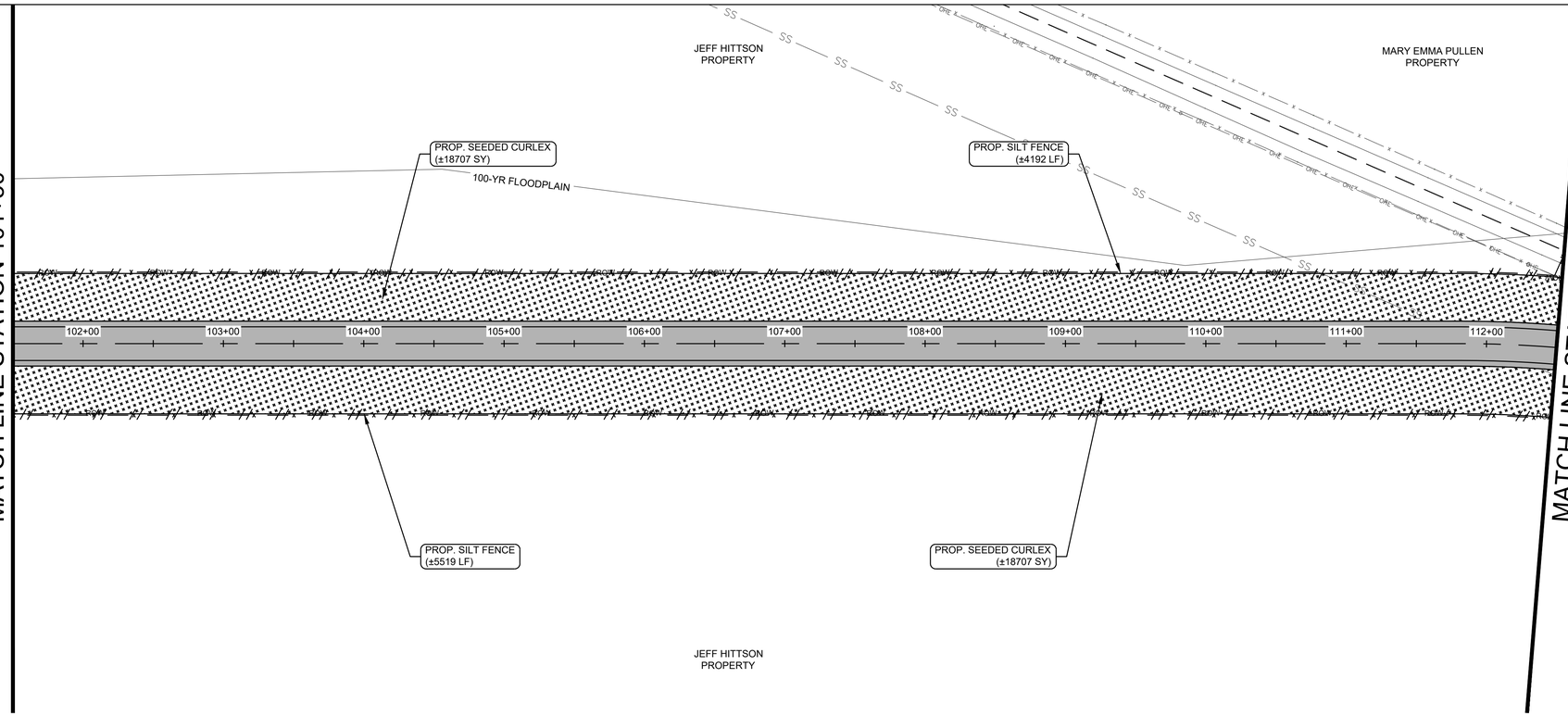
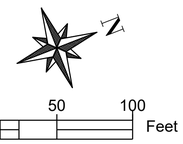
EROSION CONTROL PLAN

CRENSHAW ROAD EAST

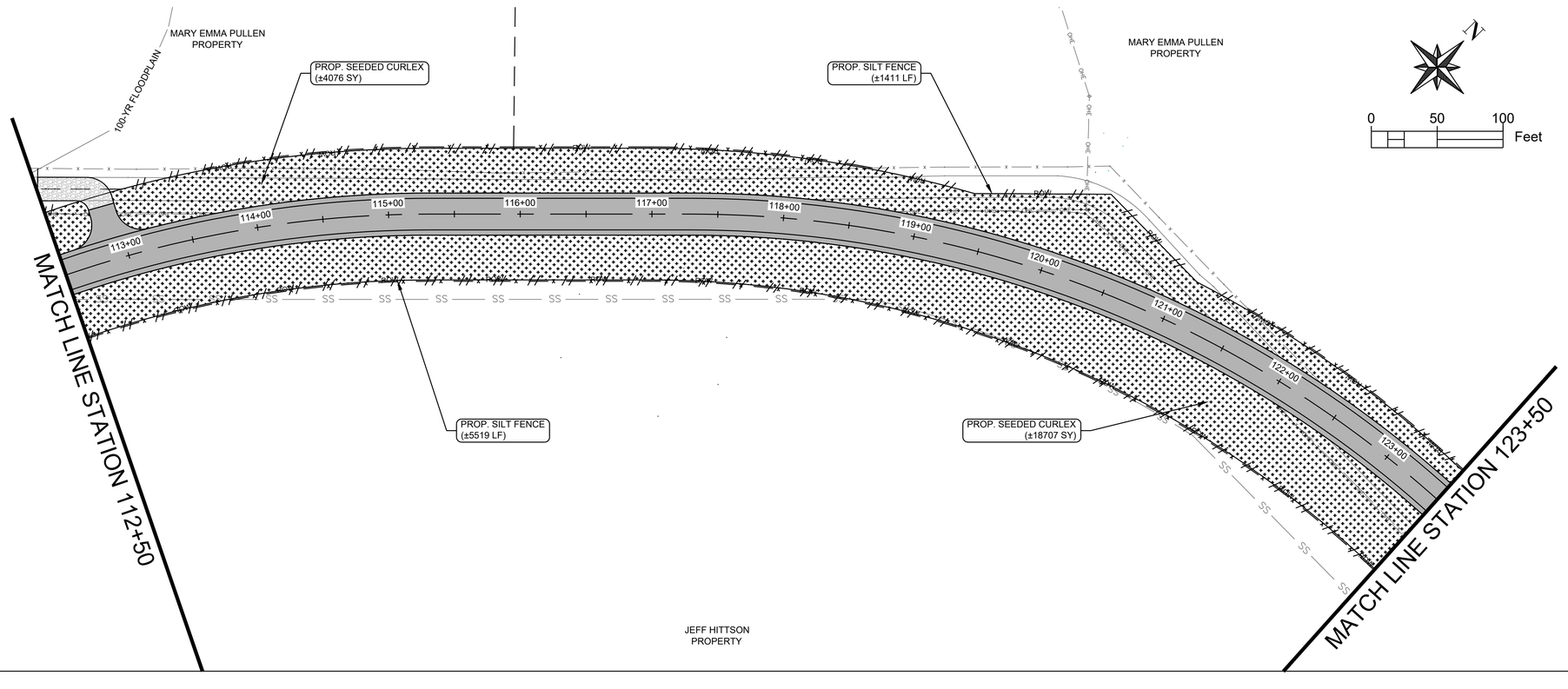
CITY OF ROYSE CITY,
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-24





EROSION CONTROL LEGEND	
	PROP. SOD
	PROP. HYDROMULCH
	PROP. SEEDED CURLEX
	PROP. SILT FENCE
	PROP. STONE RIPRAP



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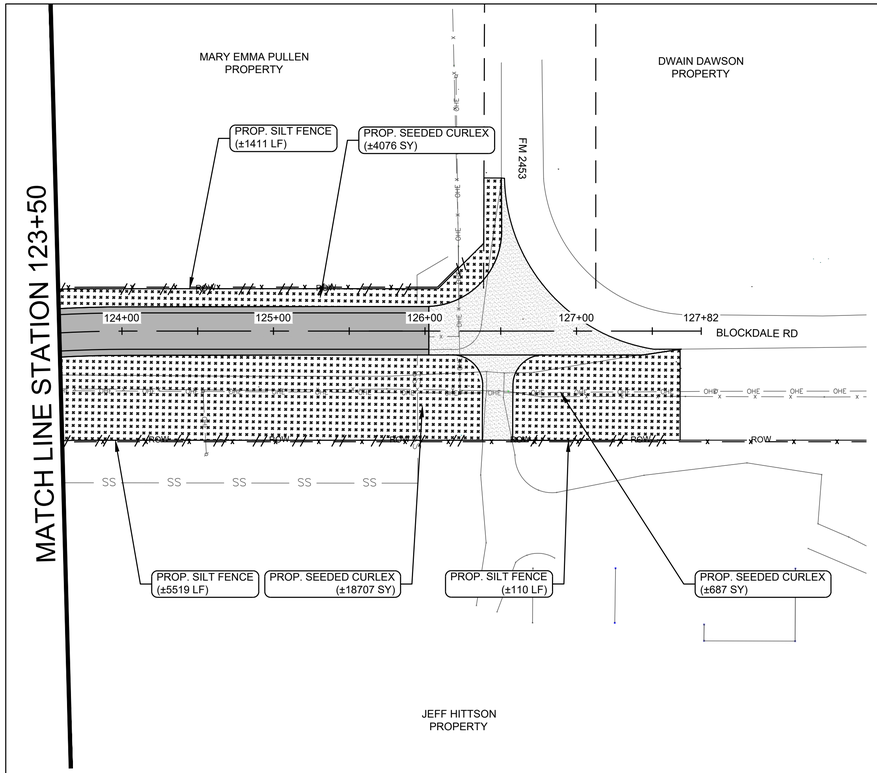
CHECKED BY:	JKS

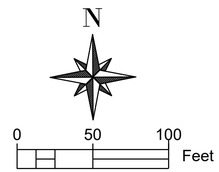
EROSION CONTROL PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-25





EROSION CONTROL LEGEND	
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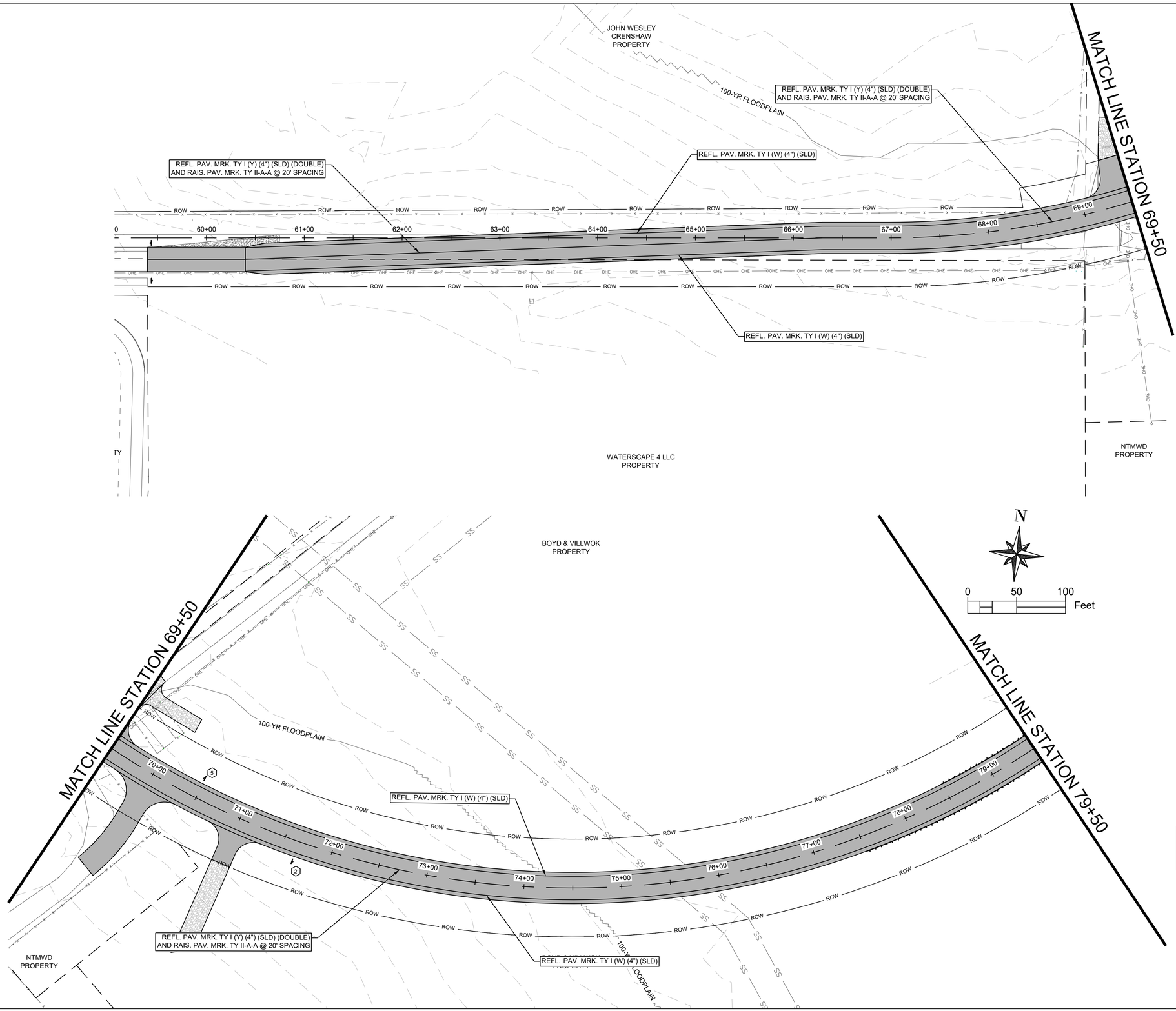
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

EROSION CONTROL PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-26



1 — SPEED LIMIT 35 — R2-1 (24" x 30")

2 — W11-3 (36" x 36")

3 — BRIDGE MAY ICE IN COLD WEATHER — W8-13aT (36" x 36")

4 — STOP — R1-1 (30" x 30")

5 — SCHOOL SPEED LIMIT 20 — S4-5 (36" x 36")

6 — W3-1 (30" x 30")

7 — W1-7 (60" x 30")

SIGNAGE NOTES:

CONTRACTOR TO REMOVE AND SALVAGE EXISTING SIGNS AS SHOWN ON REMOVAL PLAN. CONTRACTOR TO REINSTALL SIGNS AS SHOWN ON STRIPING AND SIGNAGE SHEETS. NEW SIGNS SHALL BE INSTALLED PER DETAILS.

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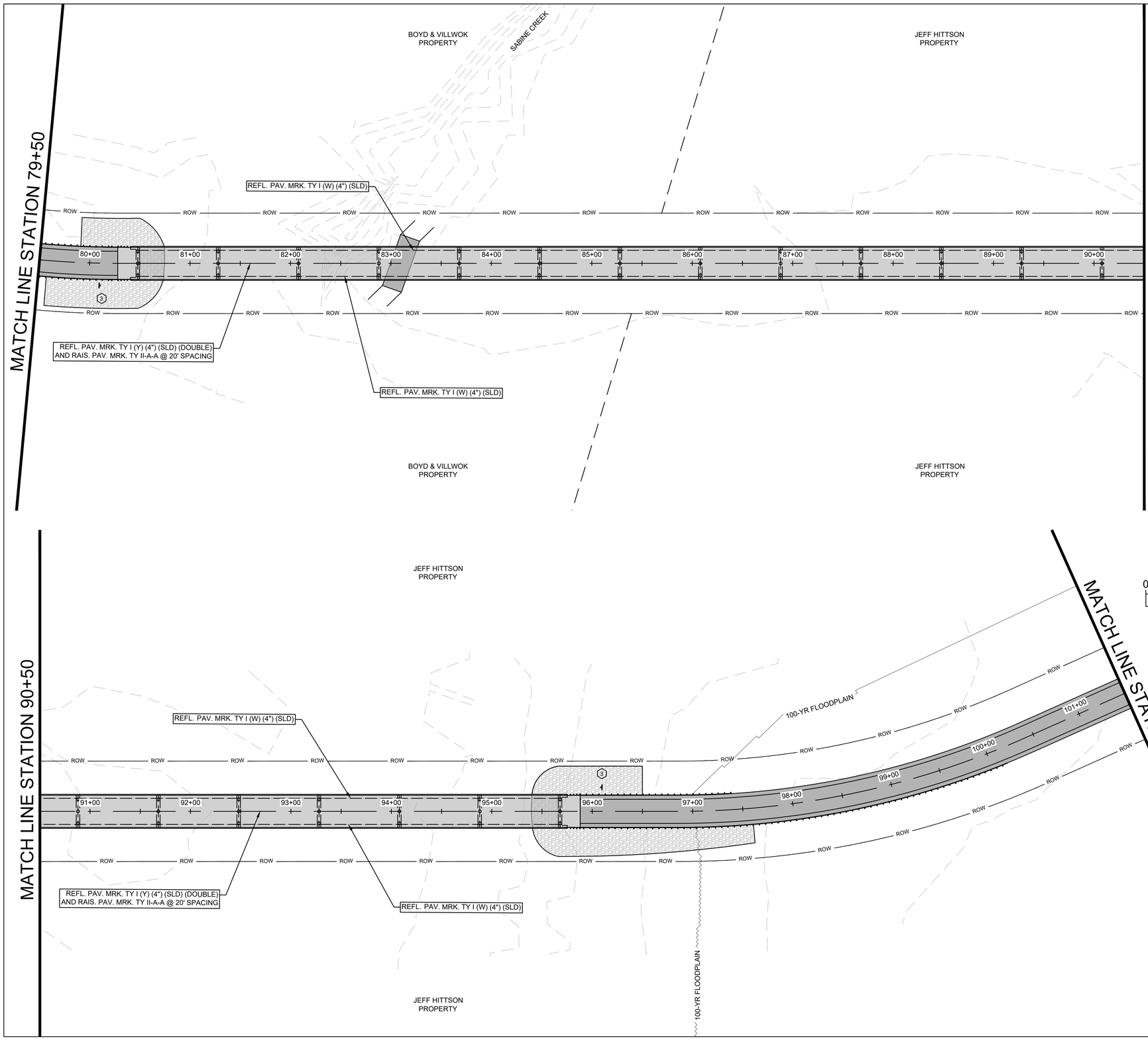
PROJECT NO. 22-02557
DATE 2/16/2026
SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

SIGNAGE AND STRIPING PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-27



0 50 100 Feet

1. SPEED LIMIT 35 — R2-1 (24" x 30")
2. W11-3 (36" x 36")
3. BRIDGE MAY ICE IN COLD WEATHER — W8-13aT (36" x 36")
4. STOP — R1-1 (30" x 30")
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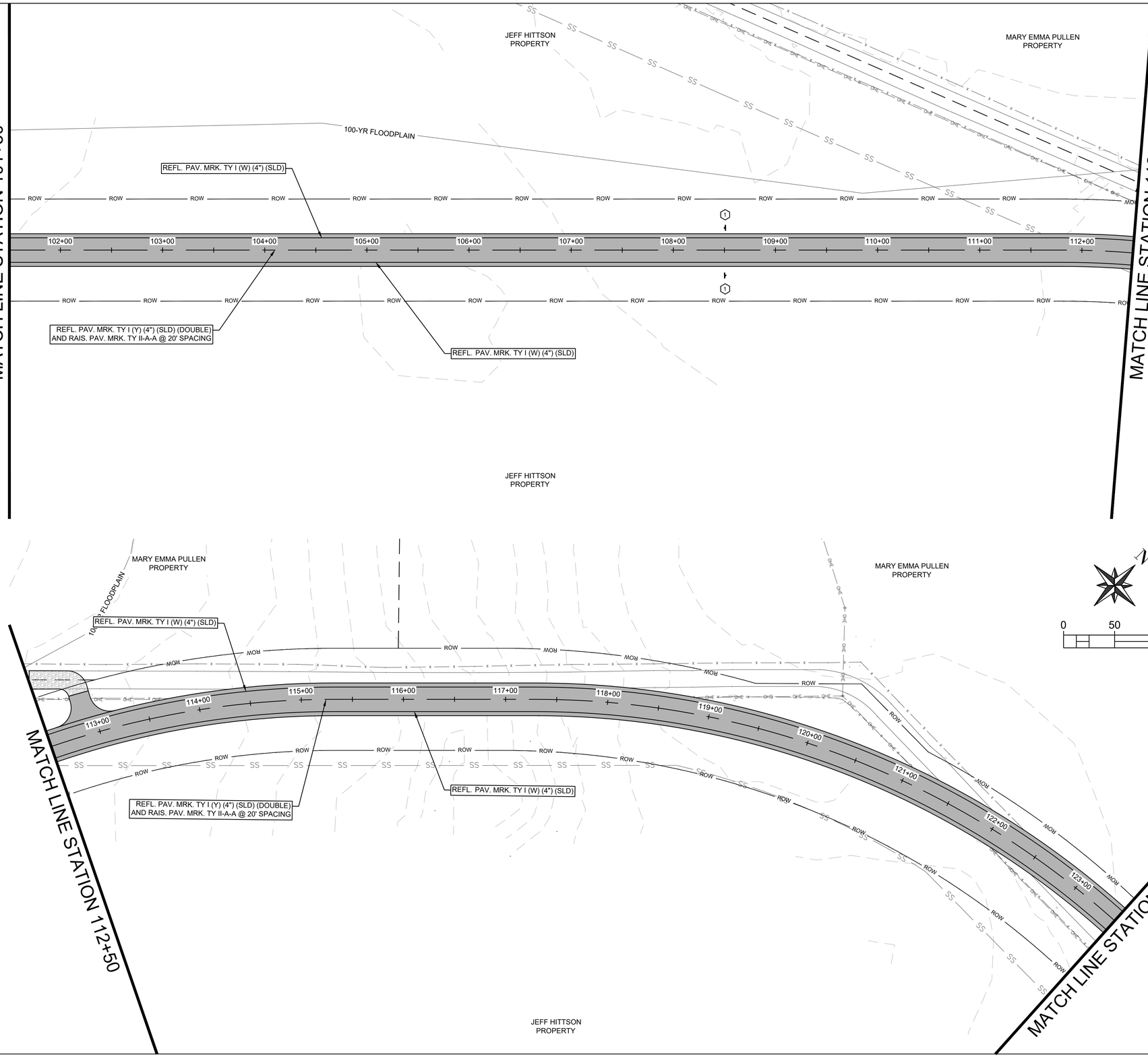
CHECKED BY:	JKS

SIGNAGE AND STRIPING PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-28



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SIGNAGE NOTES:

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UTILITY NOTES:

THE EXISTENCE AND LOCATIONS OF ALL UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS AND ARE APPROXIMATE. NEITHER THE OWNER NOR THE ENGINEER ASSUMES ANY RESPONSIBILITY FOR UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL DETERMINE THE DEPTH AND LOCATION OF EXISTING UNDER GROUND UTILITIES PRIOR TO EXCAVATION AND SHALL BE REQUIRED TO TAKE ANY PRECAUTIONARY MEASURES TO PROTECT ALL LINES SHOWN AND/ OR ANY OTHER UNDER GROUND UTILITIES NOT OF RECORD OR NOT SHOWN ON THE PLANS.
CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ALL FRANCHISE AND CITY UTILITIES PRIOR TO CONSTRUCTION.

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO. F-16849

NOT FOR CONSTRUCTION
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PROJECT NO.	DATE	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

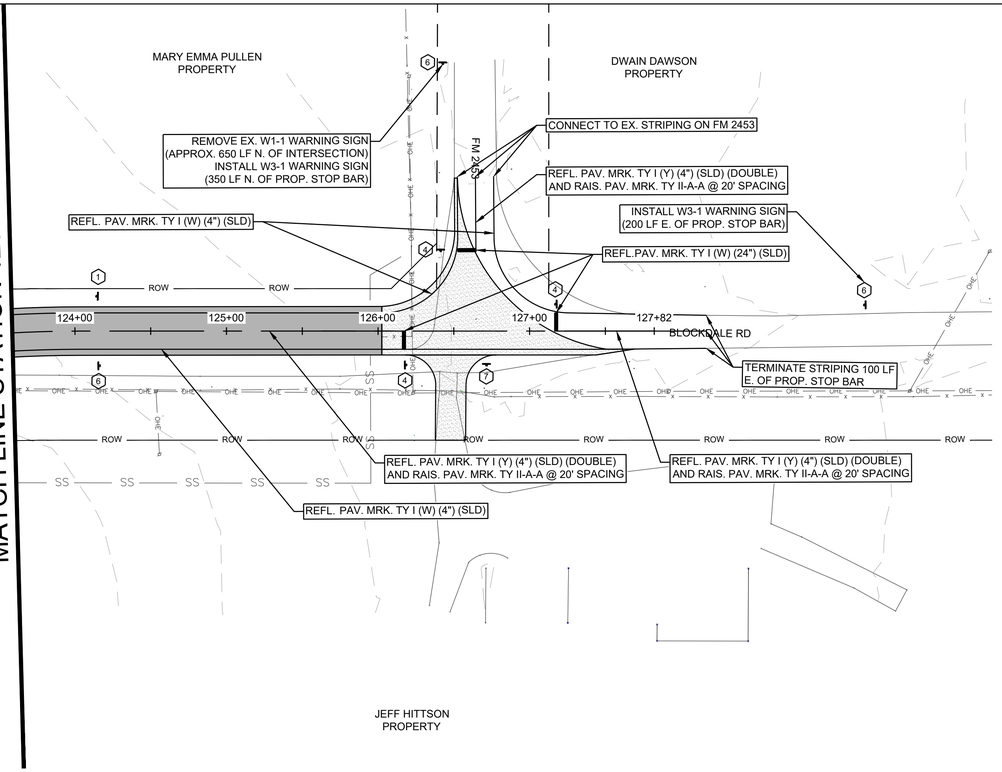
SIGNAGE AND STRIPING PLAN

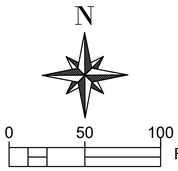
CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-29

MATCH LINE STATION 123+50





1 — SPEED LIMIT 35
R2-1
(24" x 30")

2 —
W11-3
(36" x 36")

3 —

W8-13aT
(36" x 36")

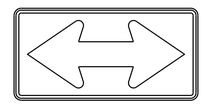
4 —

R1-1
(30" x 30")

5 —

S4-5
(36" x 36")

6 —
W3-1
(30" x 30")

7 — 
W1-7
(60" x 30")

SIGNAGE NOTES:

CONTRACTOR TO REMOVE AND SALVAGE EXISTING SIGNS AS SHOWN ON REMOVAL PLAN. CONTRACTOR TO REINSTALL SIGNS AS SHOWN ON STRIPING AND SIGNAGE SHEETS. NEW SIGNS SHALL BE INSTALLED PER DETAILS.

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DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

SIGNAGE AND STRIPING PLAN

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-30

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

TRANSITION CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-31

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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TRANSITION CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-32

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-33

CIVIL LEGEND

EX. GRADE	
PROP. GRADE	

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-34

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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PROJECT NO.
22-02557

DATE
2/16/2026

SCALE:	AS SHOWN
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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY,
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-35

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-36

CIVIL LEGEND

- - - - - - - -	EX. GRADE
————	PROP. GRADE

NO.	REVISIONS	DATE	BY

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CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

CROSS SECTIONS

SHEET NUMBER
C-37

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-38

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-39

CIVIL LEGEND

- - - - - - - -	EX. GRADE
————	PROP. GRADE

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-40

CIVIL LEGEND

EX. GRADE	
PROP. GRADE	

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-41

CIVIL LEGEND

EX. GRADE	
PROP. GRADE	

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-42

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY,
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-43

CIVIL LEGEND

EX. GRADE	
PROP. GRADE	

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-44

CIVIL LEGEND

EX. GRADE	
PROP. GRADE	

NO.	REVISIONS	DATE	BY

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CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-45

CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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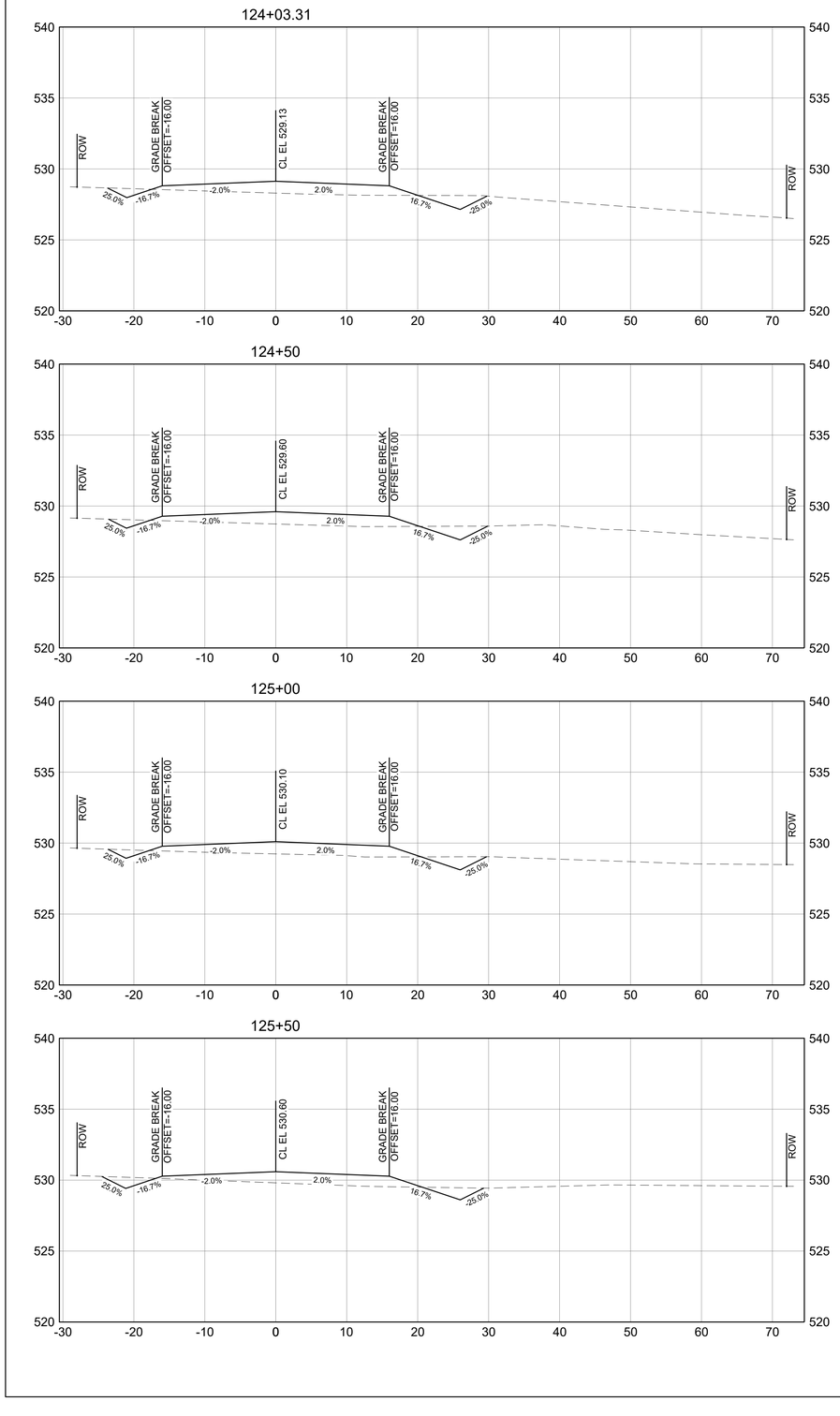
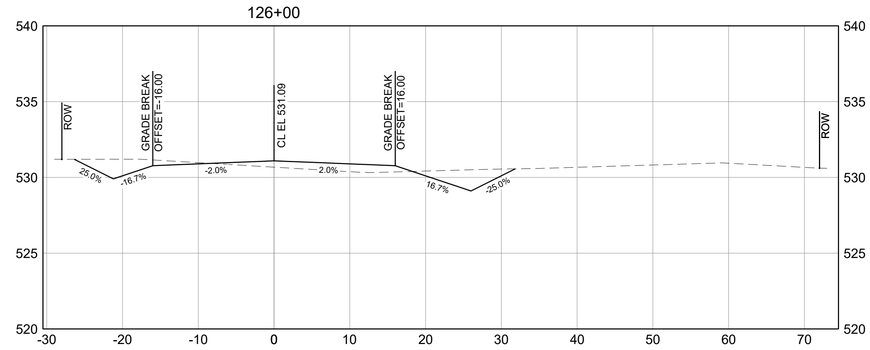
CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-46





CIVIL LEGEND

	EX. GRADE
	PROP. GRADE

NO.	REVISIONS	DATE	BY

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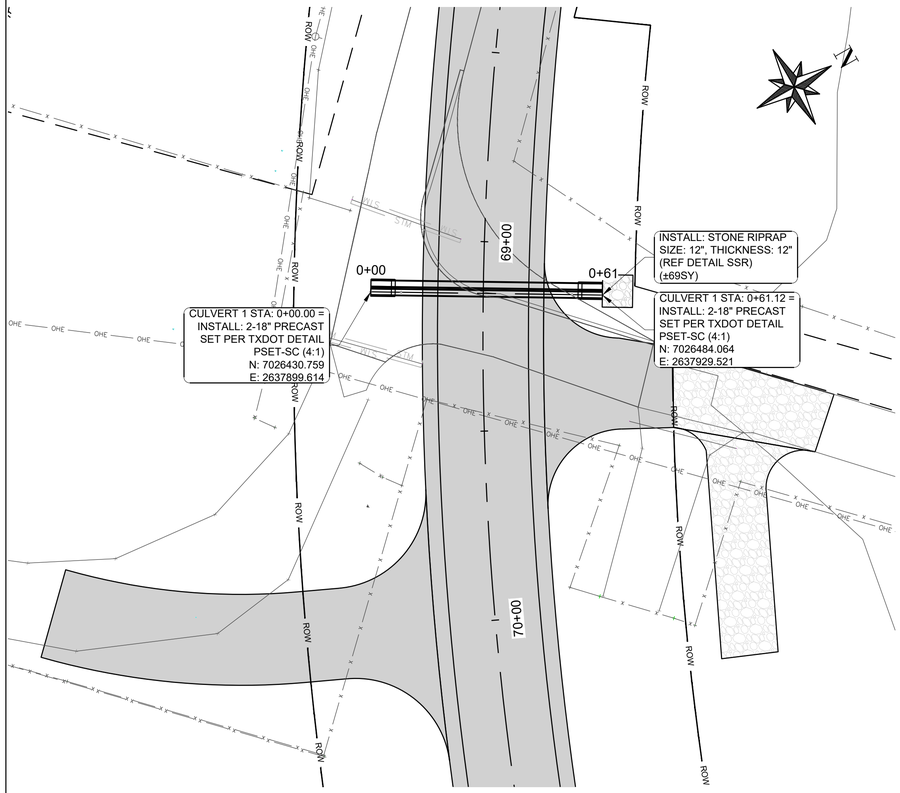
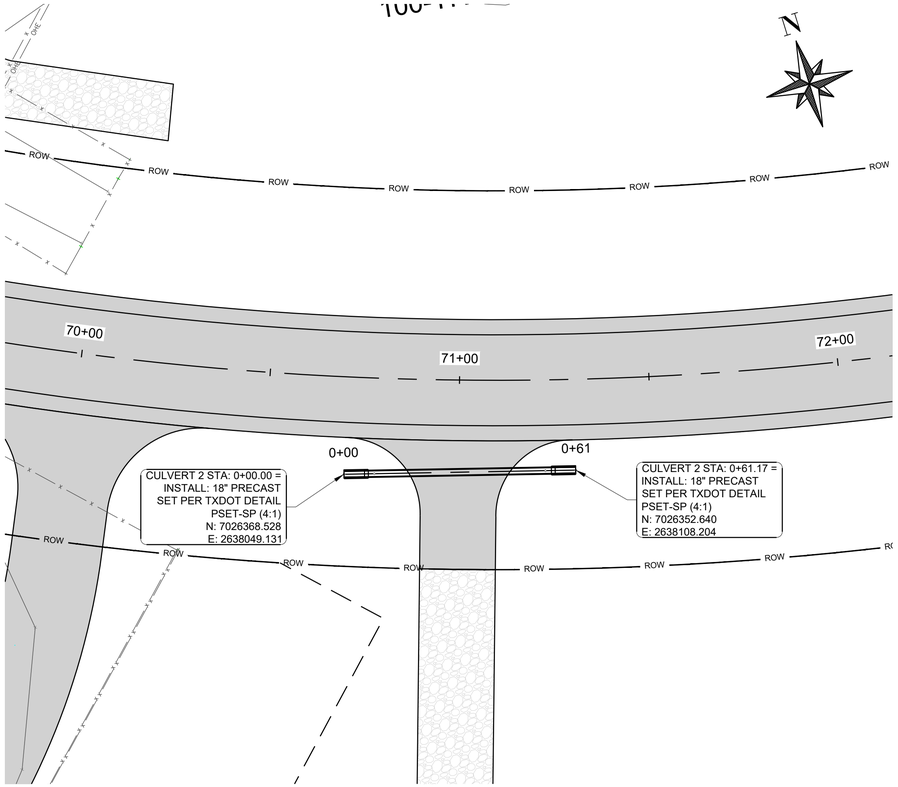
CROSS SECTIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-47





0 20 40 Feet

DRAINAGE NOTES:

ALL STORM PIPE SHALL BE RCP CLASS III OR APPROVED EQUAL.

UTILITY NOTE:

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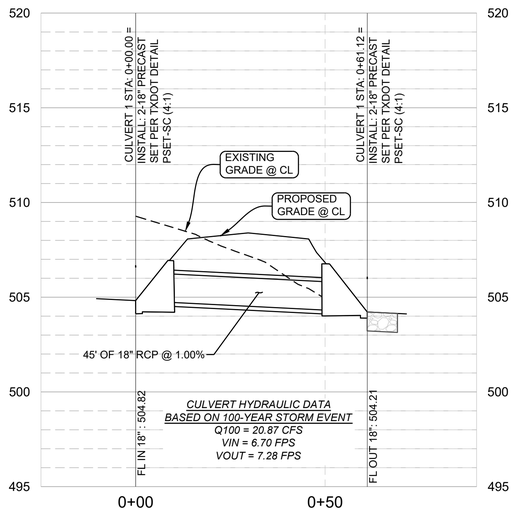
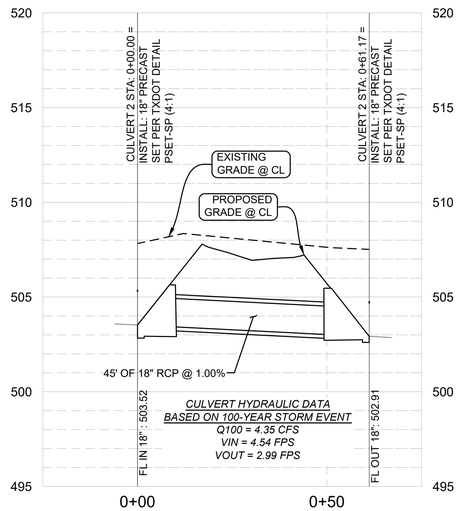


CULVERT 1 PROFILE



CULVERT 2 PROFILE

NO.	REVISIONS	DATE	BY

WSB LLC.
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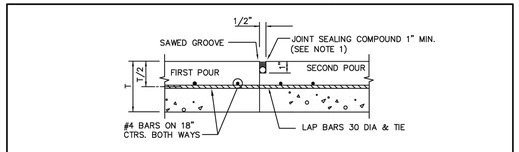
PROJECT NO.	22-02557
DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

CULVERT PLAN AND PROFILES

CRENSHAW ROAD EAST

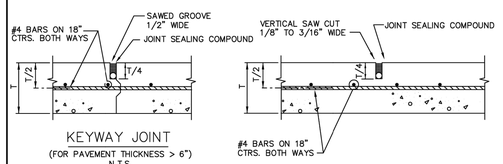
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-48



CONSTRUCTION JOINT

N.T.S.



KEYWAY JOINT

(FOR PAVEMENT THICKNESS > 6")

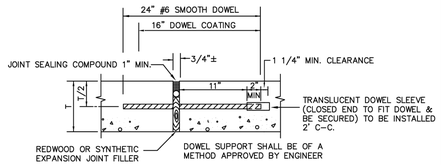
N.T.S.

SAWED CONTRACTION JOINT

N.T.S.

NOTE:

1. APPLY BACKER ROD AS APPROVED BY OWNER

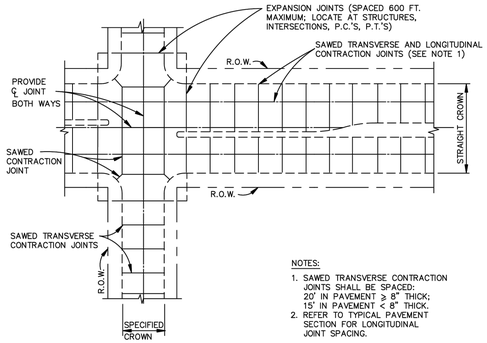


EXPANSION JOINT

(SPACED 600 FT. MAXIMUM; LOCATE AT STRUCTURES AND AT INTERSECTION P.C.'S & P.T.'S)

N.T.S.

REINFORCED CONCRETE PAVEMENT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 303.5.4.	
JOINTS		DATE AUG '23	STANDARD DRAWING NO. 2050



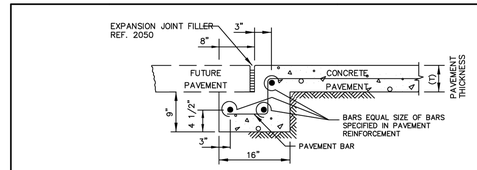
NOTES:

1. SAWED TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED: 20' IN PAVEMENT ≥ 8" THICK; 15' IN PAVEMENT < 8" THICK.
2. REFER TO TYPICAL PAVEMENT SECTION FOR LONGITUDINAL JOINT SPACING.

SPACING DIAGRAM FOR TRANSVERSE JOINTS

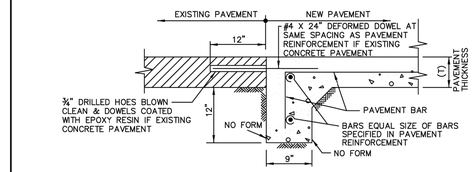
N.T.S.

REINFORCED CONCRETE PAVEMENT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 303.5.4.	
TRANSVERSE JOINT SPACING		DATE AUG '23	STANDARD DRAWING NO. 2060



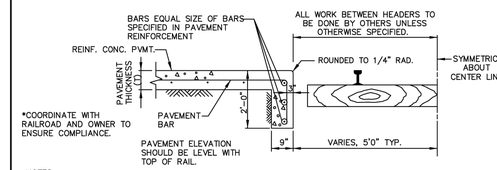
STREET HEADER FOR FUTURE PAVEMENT

N.T.S.



STREET HEADER AT EXISTING PAVEMENT

N.T.S.



NOTES:

1. PAVEMENT BARS TO BE BENT DOWN INTO HEADER.
2. HEADER AND PAVEMENT TO BE MONOLITHIC.

STREET HEADER AT RAILROAD

N.T.S.

REINFORCED CONCRETE PAVEMENT	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 303.5.4.	
STREET HEADERS		DATE AUG '23	STANDARD DRAWING NO. 2070

NO.	REVISIONS	DATE	BY

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3522 SAM RAYBURN HWY., MELISSA, TX. 75454
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PROJECT NO. 22-02557
DATE 2/16/2026
SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

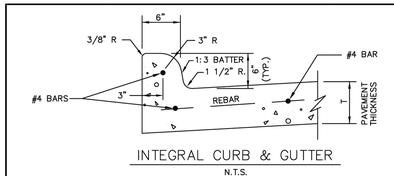
NCTCOG DETAILS

SHEET NUMBER C-49

GENERAL NOTES:

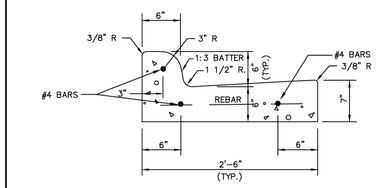
1. REINFORCED CONCRETE PAVEMENT:
   - A. ALL CURBS SHALL BE PLACED INTEGRAL WITH PAVEMENT UNLESS OTHERWISE APPROVED BY THE OWNER.
   - B. CURBS SHALL MEET THE SAME COMPRESSIVE STRENGTH AS SPECIFIED FOR THE PAVEMENT.
   - C. BAR LAPS SHALL BE 30 DIAMETERS.
   - D. REINFORCING BARS SHALL BE SUPPORTED BY CHAIRS OR OTHER DEVICES APPROVED BY THE OWNER.
2. SUBGRADE: (UNLESS OTHERWISE SPECIFIED BY OWNER)
   - A. SUBGRADE UNDER ALL PAVEMENTS SHALL BE STABILIZED TO MINIMUM DEPTH OF 6" FOR 2 LANE RESIDENTIAL ROAD AND 8" FOR ALL OTHERS. IF THE P.I. IS 15 OR GREATER, LIME SHALL BE USED, IF THE P.I. IS LESS THAN 15, CEMENT SHALL USED OR AS RECOMMENDED BY A GEOTECH ENGINEER. LABORATORY TESTS MUST BE PERFORMED TO DETERMINE THE AMOUNT OF CEMENT REQUIRED TO LOWER THE P.I. TO 15 OR BELOW SATURATION P.I. (PHI≥ 12.4) WILL BE THE LIMIT WHEN A SOIL'S P.I. CANNOT BE BROUGHT TO 15 OR LOWER.
   - B. WHERE THE IN PLACE MATERIAL HAS A P.I. OF LESS THAN 15, THE SUBGRADE SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 6" AND RECOMPACTED.
   - C. WHERE SULFATES ARE PRESENT, CONSULT A GEOTECHNICIAL ENGINEER FOR RECOMMEND SUBGRADE TREATMENT.
3. IF THE ROADWAY IS A DESIGNATED BIKE ROUTE OR BIKE USAGE IS ANTICIPATED, REFER TO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES (2012, 4TH EDITION) AND THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD):
   https: //mutcd.fhwa.dot.gov/resources/state_info/texas/tx.htm

PAVEMENT SYSTEMS	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 301. 302. 303.	
GENERAL NOTES		DATE AUG '23	STANDARD DRAWING NO. 2110



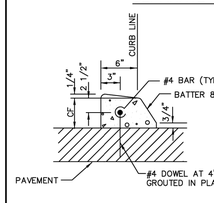
INTEGRAL CURB & GUTTER

N.T.S.



SEPARATE CURB & GUTTER

N.T.S.



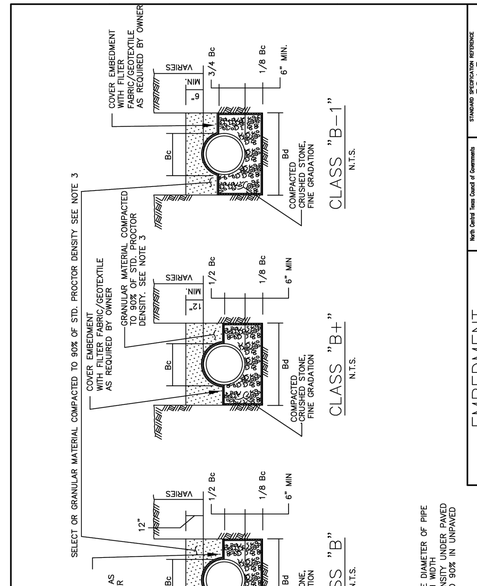
DOWELED CURB

N.T.S.

NOTES:

1. REINFORCEMENT SHALL BE NO. 4 BARS, UNLESS OTHERWISE SPECIFIED.
2. CONCRETE SHALL BE CLASS "C" OR "PC".
3. "CF" IS 6" UNLESS OTHERWISE SPECIFIED.
4. ALL CURBS ARE CONSTRUCTED OF PORTLAND CEMENT CONCRETE UNLESS OTHERWISE SHOWN.
5. GRADE SHALL BE MEASURED AT BACK OF CURB.
6. SEE ROADWAY SECTIONS FOR SUBGRADE SUBGRADE SHALL EXTEND 1' BEYOND BACK OF CURB.

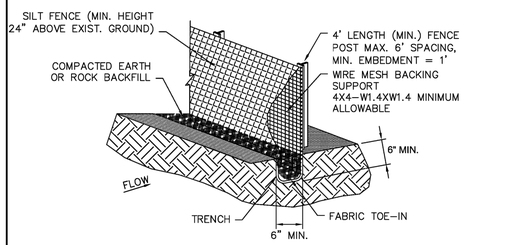
CONCRETE CURB & GUTTER	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 305.1	
INTEGRAL, SEPARATE, & DOWELED		DATE AUG '23	STANDARD DRAWING NO. 2120



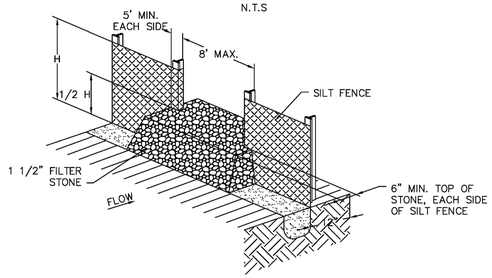
EMBEDMENT
CLASS "B", "B+", & "B-1"

North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 504.3	
	DATE AUG '23	STANDARD DRAWING NO. 3020

STANDARD DRAWING NO. 3020



SILT FENCE
N.T.S



SILT FENCE OVERFLOW STRUCTURE
N.T.S

SILT FENCE	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 202.5	
		DATE AUG '23	STANDARD DRAWING NO. 1020A

SILT FENCE GENERAL NOTES:

1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL LOW POINTS AND AT A SPACING OF APPROXIMATELY 300 FEET WHERE NO LOW POINT IS APPARENT.

2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE AT THE ENDS. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.

3. POST WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

4. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.

5. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

6. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

7. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

8. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.

9. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

10. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.5

SILT FENCE GENERAL NOTES	North Central Texas Council of Governments	STANDARD SPECIFICATION REFERENCE 202.5	
		DATE AUG '23	STANDARD DRAWING NO. 1020B

NO.	REVISIONS	DATE	BY

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PROJECT NO.	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	JRM	JRM	JKS
DATE 2/16/2026			
SCALE: AS SHOWN			

NCTCOG DETAILS

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-50

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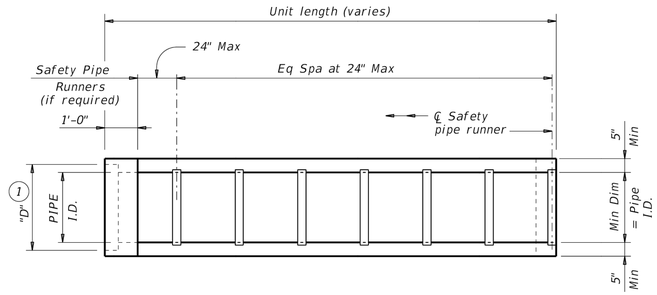
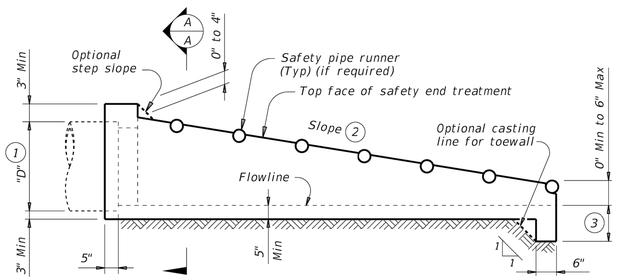
FILE:



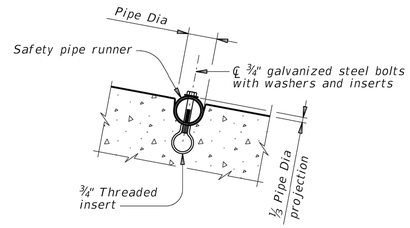
PLAN

(Showing bell end connection.)



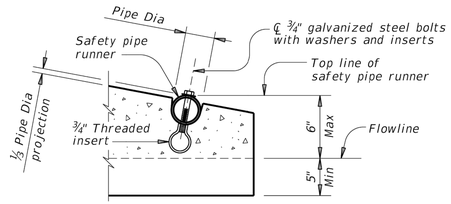
LONGITUDINAL ELEVATION

(Showing bell end connection.)

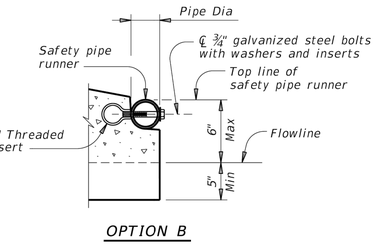


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



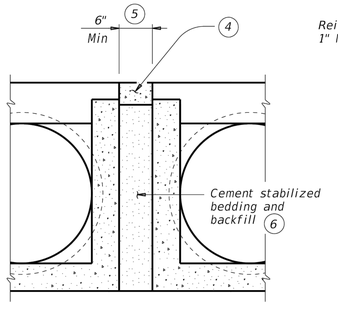
OPTION A



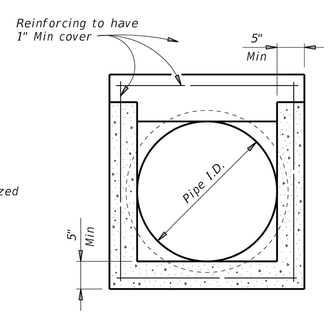
OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

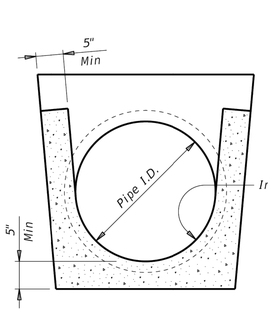
(If required)



MULTIPLE PIPE INSTALLATION

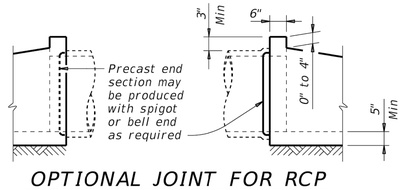


OPTION WITH SQUARE BOTTOM



OPTION WITH INVERT BOTTOM

SECTION A-A



OPTIONAL JOINT FOR RCP

(Showing joint between RCP and precast safety end treatment.)

REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (7)	"D" (1)	Slope	Min Length	Pipe Runners Required		Required Pipe Runner Size		
						Single Pipe	Multiple Pipe	Nominal Dia.	O.D.	I.D.
12"	2"	1.15"	17.00"	6:1	4' – 9"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	1.30"	20.50"	6:1	6' – 5"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	1.60"	24.00"	6:1	8' – 0"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
24"	3"	1.95"	31.00"	6:1	11' – 3"	No	Yes, for > 2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	2.65"	38.50"	6:1	14' – 8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	2.75"	45.50"	6:1	17' – 11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	2.7"	52.50"	6:1	21' – 2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment."

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures." Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment." When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(7) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment."

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).

B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor the next larger size of safety end treatment may be furnished; as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Provide pipe runners meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464, "Reinforced Concrete Pipe." Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ PARALLEL DRAINAGE

PSET-SP

FILE: CD-PSET-SP-21.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS 12-21: Added 42" TP	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
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PROJECT NO.	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	AS SHOWN	JRM	JRM	JKS
DATE 2/16/2026				

PSET-SP

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-51

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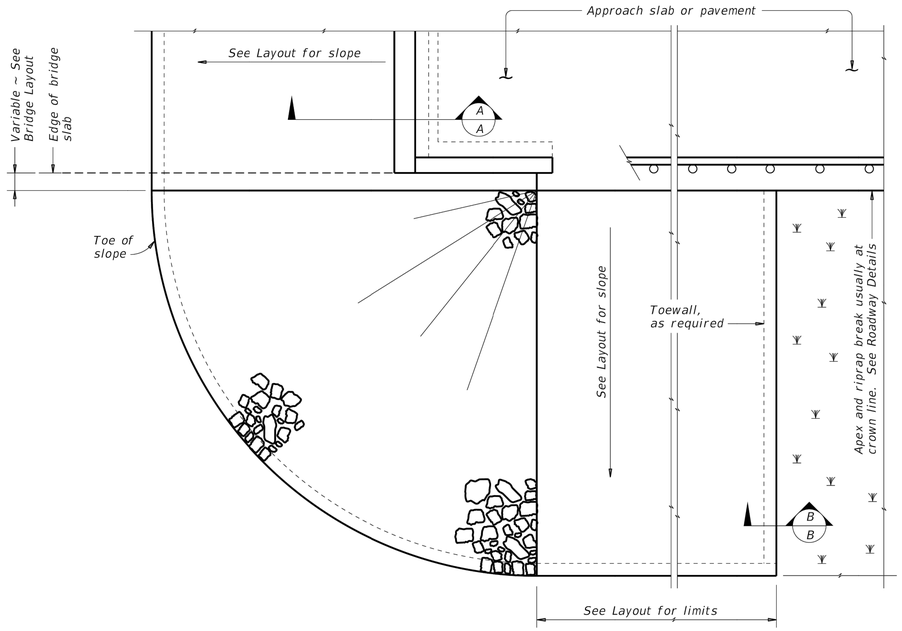
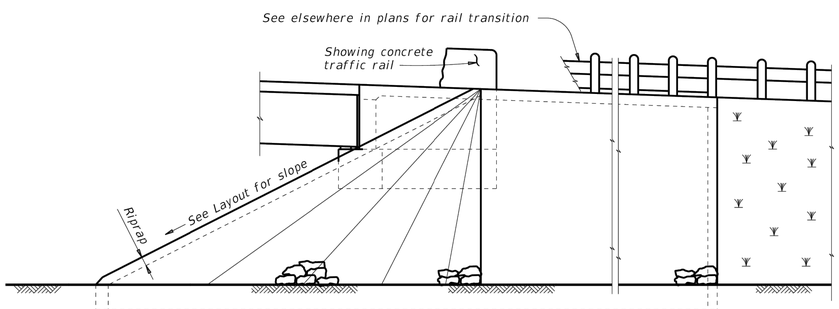
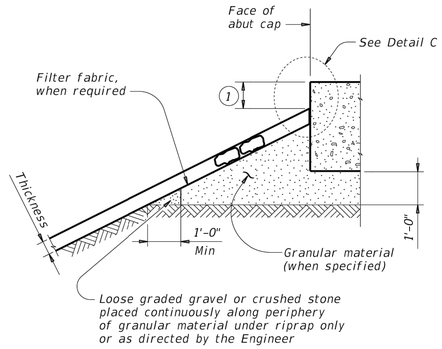
FILE:



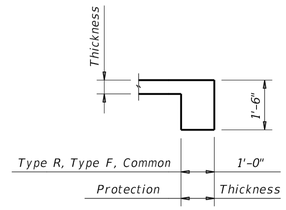
PLAN



ELEVATION

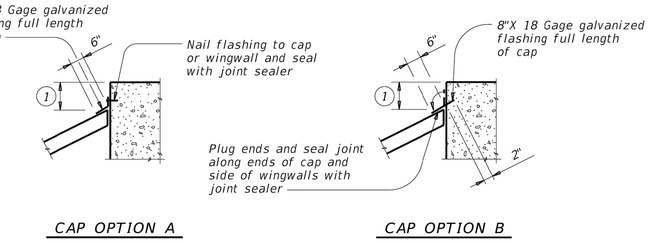


SECTION A-A AT CAP



SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A

CAP OPTION B

DETAIL C

(1) Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

GENERAL NOTES:

Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.

See elsewhere in plans for locations and details of shoulder drains.

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES
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22-02557	JRM	JRM	JKS
DATE 2/16/2026			
SCALE: AS SHOWN			

SSR

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-52

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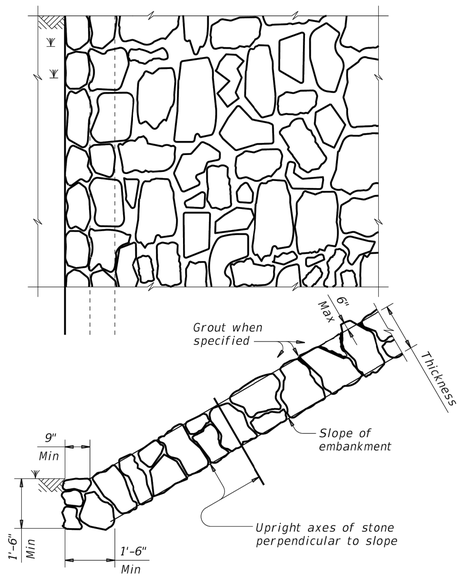


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

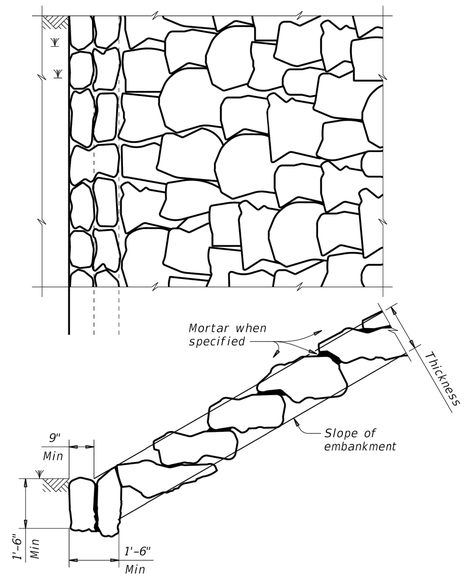


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

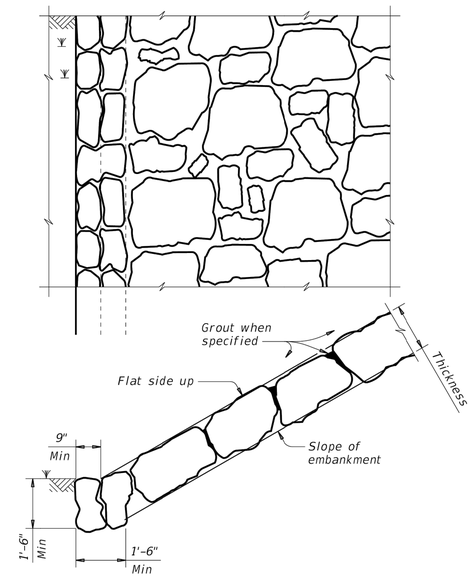


FIGURE 3 ~ TYPE F STONE RIPRAP

grouted

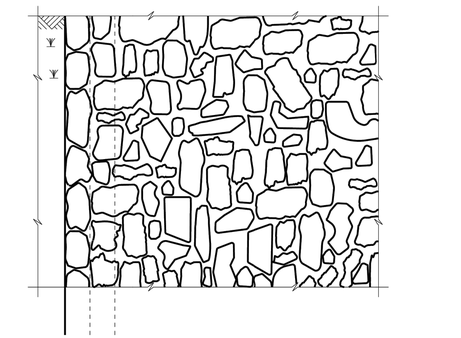


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted

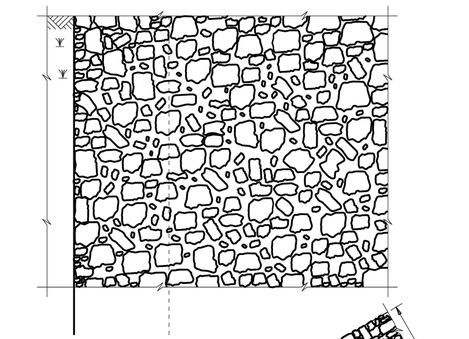


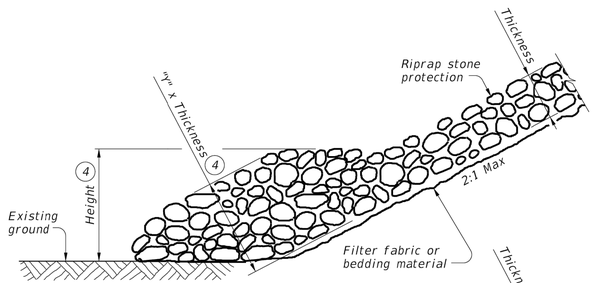
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

(2) *Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.*

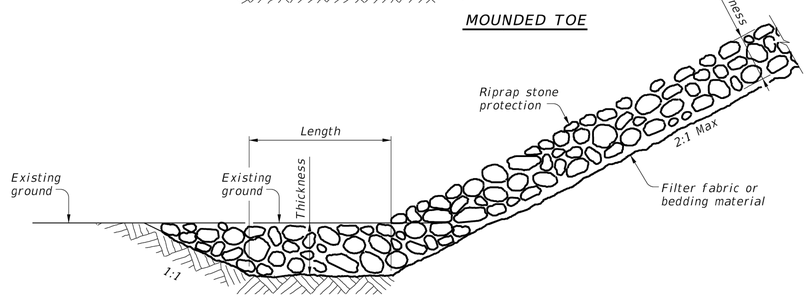
(3) *Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.*

(4) *"Y" and Height need to be defined. See layout or detail sheet for values if this option is used.*

(5) *List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.*
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.



MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS (5)

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

STONE RIPRAP

SRR

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CRENSHAW ROAD EAST
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SHEET NUMBER
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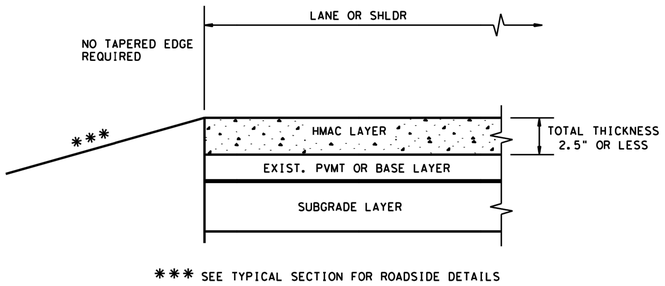
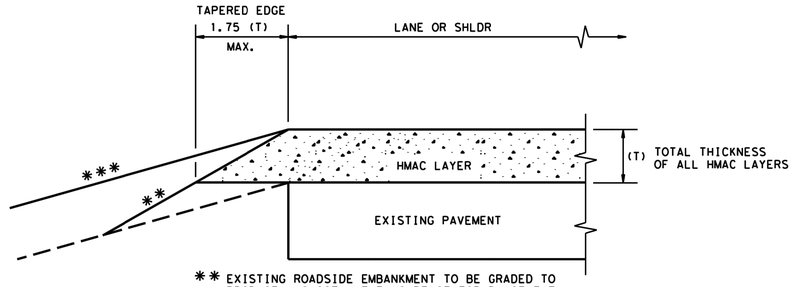


*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

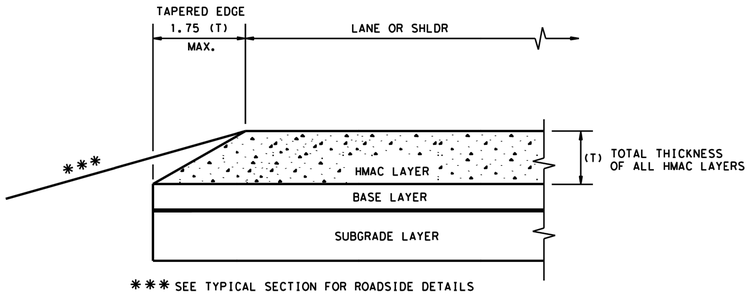
CONDITION - 1
THIN HMAC SURFACES OR HMAC OVERLAY WITH THICKNESS OF 2.5" OR LESS



** EXISTING ROADSIDE EMBANKMENT TO BE GRADED TO PRODUCE A SMOOTH LEVEL SURFACE FOR PLACEMENT OF TAPERED EDGE. THIS WORK IS SUBSIDIARY TO THE VARIOUS BID ITEMS.

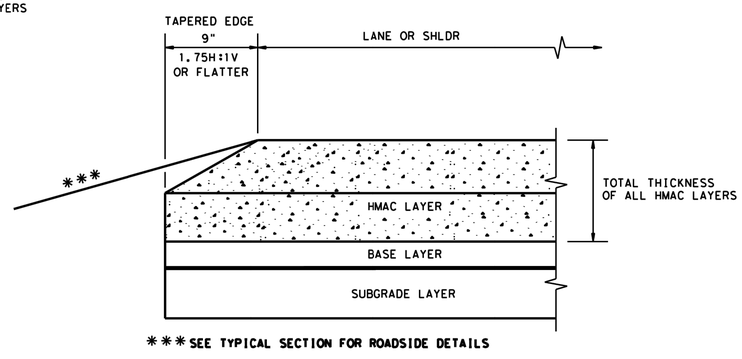
*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 2
OVERLAY OF EXISTING PAVEMENT HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 3
NEW OR RECONSTRUCTED PAVEMENT HMAC THICKNESS 2.5" TO 5"



*** SEE TYPICAL SECTION FOR ROADSIDE DETAILS

CONDITION - 4
NEW OR RECONSTRUCTED PAVEMENT HMAC THICKNESS 5" OR GREATER

(NOT TO SCALE)

GENERAL NOTES

1. UNLESS OTHERWISE SHOWN IN THE PLANS, A VERTICAL EDGE IS PERMISSIBLE FOR HMAC PLACED GREATER THAN 5" BELOW THE EDGE OF PAVEMENT AND FOR THICKNESS OF HMAC LESS THAN 2.5".
2. FOR FURTHER INFORMATION REGARDING THE ROADSIDE AND PAVEMENT DETAILS, SEE TYPICAL SECTIONS.
3. PAYMENT FOR TAPERED EDGE WILL BE IN ACCORDANCE WITH APPLICABLE ITEMS IN THE CONTRACT.
4. THE SLOPE OF THE TAPERED EDGE SHALL BE 1.75H:1V OR FLATTER.
5. THE TAPERED EDGE SHALL BE PRODUCED BY USE OF A SCREED ATTACHMENT CAPABLE OF PRODUCING A SMOOTH COMPACTED SURFACE. ADDITIONAL COMPACTING EFFORT BEHIND THE SCREED IS NOT REQUIRED.

Texas Department of Transportation | Design Division Standard

TAPERED EDGE DETAILS
HMAC PAVEMENT

TE(HMAC)-11

FILE: tehmac11.dgn		DN: TxDOT	CK: RL	DW: KB		CK:	
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TE (HMAC)-11

CRENSHAW ROAD EAST
CITY OF ROYSE CITY, ROCKWALL COUNTY, TX.

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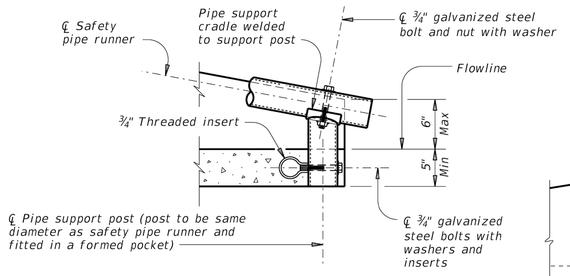
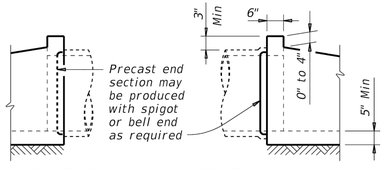
REQUIREMENTS FOR CULVERT PIPES AND SAFETY PIPE RUNNERS

Pipe I.D.	RCP Wall "B" Thickness	TP Wall Thickness (8)	"D" (1)	Slope	Min Length of Unit	Single Pipe		Multiple Pipes	
						Skew	Pipe Runners Required	Skew	Pipe Runners Required
12"	2"	1.15"	17.00"	3:1	2' – 11"	≤ 45°	No	≤ 45°	No
				4:1	3' – 6"				
				6:1	4' – 9"				
15"	2 ¼"	1.30"	20.50"	3:1	3' – 8"	≤ 45°	No	≤ 45°	No
				4:1	4' – 7"				
				6:1	6' – 5"				
18"	2 ½"	1.60"	24.00"	3:1	4' – 6"	≤ 45°	No	≤ 45°	No
				4:1	5' – 8"				
				6:1	8' – 0"				
24"	3"	1.95"	31.00"	3:1	6' – 2"	≤ 45°	No	= 30°	No
				4:1	7' – 10"			> 30°	Yes
				6:1	11' – 3"				
30"	3 ½"	2.65"	38.50"	3:1	7' – 10"	= 15°	No	= 15°	No
				4:1	10' – 1"	> 15°	Yes	> 15°	Yes
				6:1	14' – 8"				
36"	4"	2.75"	45.50"	3:1	9' – 5"	= 0°	No	≥ 0°	Yes
				4:1	12' – 3"	> 0°	Yes		
				6:1	17' – 11"				
42"	4 ½"	2.7"	52.50"	3:1	11' – 1"	≥ 0°	Yes	≥ 0°	Yes
				4:1	14' – 5"				
				6:1	21' – 2"				



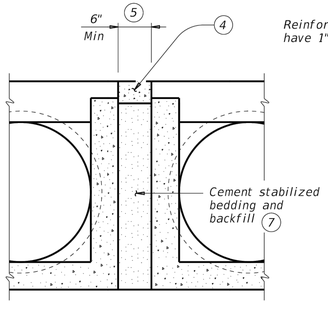
END DETAIL FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

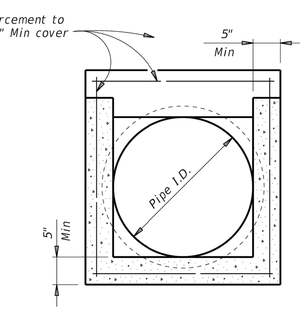


OPTIONAL JOINT FOR RCP

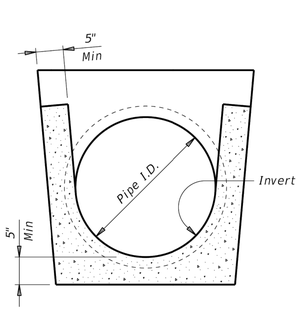
(Showing joint between RCP and precast safety end treatment)



MULTIPLE PIPE INSTALLATION

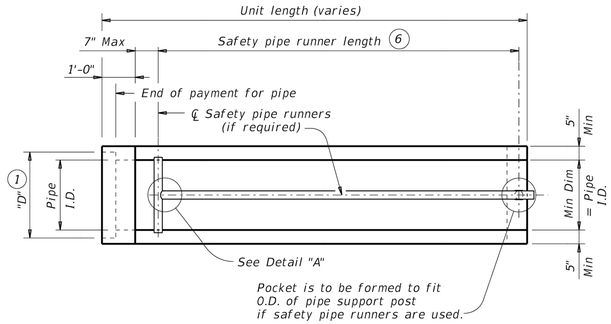


OPTION WITH SQUARE BOTTOM



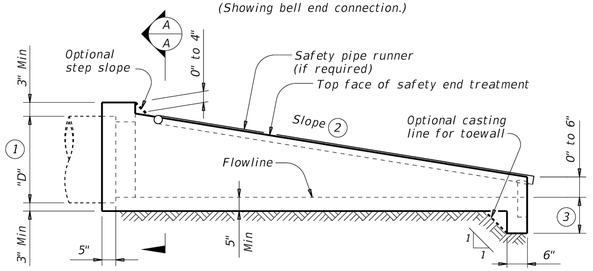
OPTION WITH INVERT BOTTOM

SECTION A-A



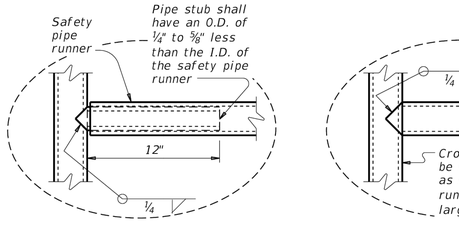
PLAN

(Showing bell end connection.)



LONGITUDINAL ELEVATION

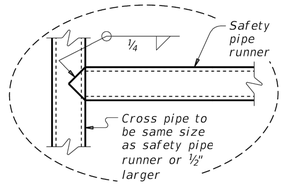
(Showing bell end connection.)



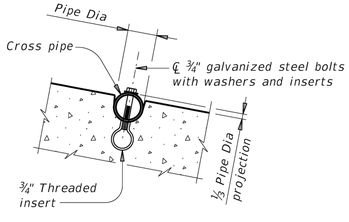
OPTION A

DETAIL A

(If required)



OPTION B



INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)

SAFETY PIPE RUNNER DIMENSIONS

Max Safety Pipe Runner Length	Required Pipe Runner Size		
	Pipe Size	Pipe O.D.	Pipe I.D.
11' – 2"	3" STD	3.500"	3.068"
15' – 6"	3 ½" STD	4.000"	3.548"
20' – 10"	4" STD	4.500"	4.026"
35' – 4"	5" STD	5.563"	5.047"

(1) Dimension "D" is based on reinforced concrete pipe (RCP) meeting the requirements of ASTM C-76, Class III, (RCP Wall "B" thickness). Adjust "D" for any other wall thickness used. For thermoplastic pipe (TP) take into account the annular space requirements for grouted connections.

(2) Slope as shown elsewhere in plans. Slope of 3:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) Fill the top 4" of void between precast end treatments with concrete riprap. Concrete riprap is considered subsidiary to the Item 467, "Safety End Treatment."

(5) Adjust clear distance between pipes to provide for the minimum distance between safety end treatments.

(6) Measured along slope.

(7) Provide cement stabilized bedding and backfill in accordance with the Item 400, "Excavation and Backfill for Structures." Bedding and backfill is considered subsidiary to the Item 467, "Safety End Treatment." When concrete riprap is specified around the safety end treatment, backfill as directed by Engineer.

(8) Thermoplastic pipe wall thickness may vary. Adjust accordingly. Thermoplastic pipe requires the safety end treatments to have a bell end for grouted connections.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe (RCP), and thermoplastic pipe (TP) may be used for TYPE II end treatment as specified in Item "Safety End Treatment."

When precast safety end treatment is used as a Contractor's alternate to mitered RCP, riprap will not be required unless noted otherwise on the plans.

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Manufacture this product in accordance with Item 467, "Safety End Treatment" except as noted below :

A. Provide minimum reinforcing of #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6"x6" – D12 x D12 or 5"x5" – D10 x D10 welded wire reinforcement (WWR).
B. For precast (steel formed) sections, provide Class "C" concrete (f'c = 3,600 psi).

At the option and expense of the Contractor, the next larger size of safety end treatment may be furnished as long as the "D" dimension cast is that of the required size of pipe.

Pipe runners are designed for a traversing load of 1,800 Lbs at yield as recommended by Research Report 280-1, "Safety Treatment of Roadside Cross-Drainage Structures", Texas Transportation Institute, March 1981.

Provide safety pipe runners, cross pipes, pipe support posts, and pipe stubs meeting the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Galvanize all steel components except reinforcing steel after fabrication. Repair galvanizing damaged during transport or construction in accordance with the specifications.

Connect RCP using the Optional Joint for RCP detail shown or in accordance with Item 464 "Reinforced Concrete Pipe." Connect TP by grouting. See Pipe and Box Grouted Connections (PBGC) standard for grouted connections with TP and precast safety end treatment.

Texas Department of Transportation

Bridge Division Standard

PRECAST SAFETY END TREATMENT

TYPE II ~ CROSS DRAINAGE

PSET-SC

FILE: CD-PSET-SC-21.dgn	DN: RLW	CK: KLR	DW: JTR	CK: GAF
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REVISIONS 12-21: Added 42" TP	DIST	COUNTY		SHEET NO.

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		CHECKED BY: JKS

PSET-SC

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
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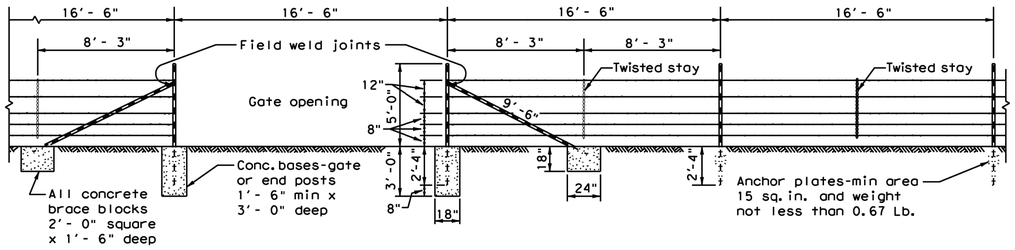
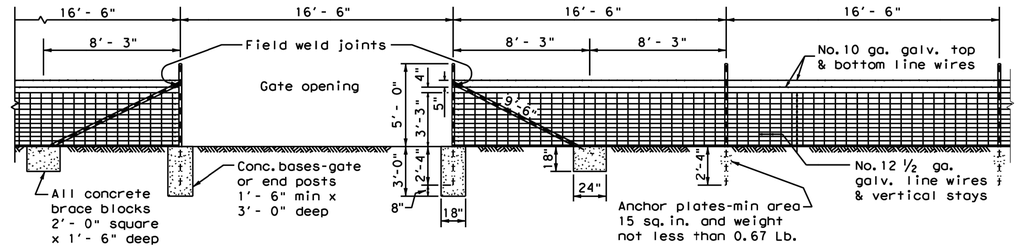
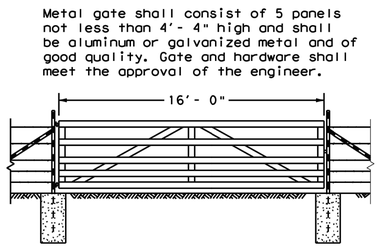


SECTION GALVANIZED BARBED WIRE FENCE WITH METAL POSTS
BRACING DETAIL USED AT ENDS AND GATES
TYPE "C" FENCE
(See General Note 8)

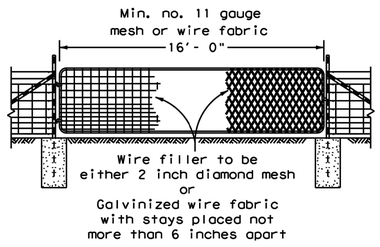
Note:
For Steel pipe and T-Post requirements. (See General Notes 6 & 7)



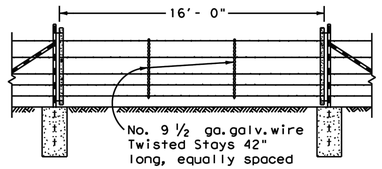
SECTION GALVANIZED WOVEN WIRE FENCE WITH METAL POSTS
BRACING DETAIL USED AT ENDS AND GATES
TYPE "D" FENCE
(See General Note 8)



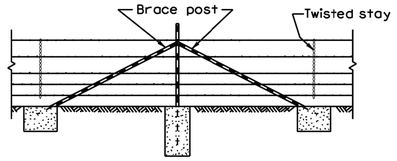
DETAIL TYPE 1 GATE



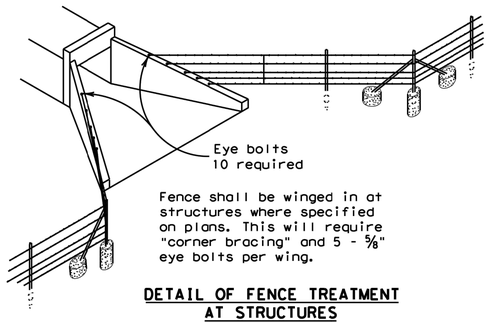
DETAIL TYPE 2 GATE



DETAIL TYPE 3 GATE

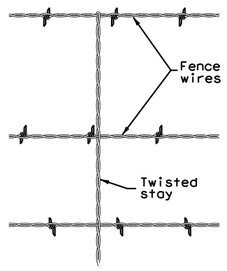


CORNER OR PULL POST ASSEMBLY

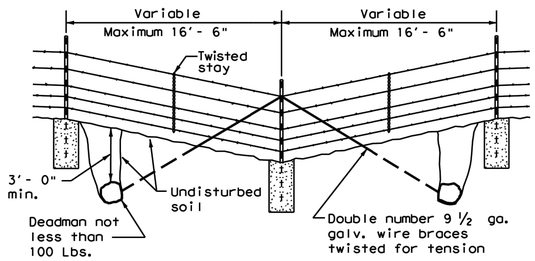


Fence shall be winged in at structures where specified on plans. This will require "corner bracing" and 5 - ⅝" eye bolts per wing.

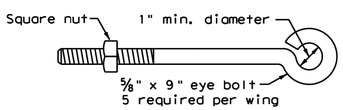
DETAIL OF FENCE TREATMENT AT STRUCTURES



DETAIL OF STAY
(Barbed Wire Fence)



DETAIL OF FENCE SAG



DETAIL OF EYE BOLT

GENERAL NOTES

1. Any high point which interferes with the placing of wire mesh shall be excavated to provide a 2 inch clearance.
2. Latches for Type 1 and Type 2 gates shall be good commercial quality and design latch of the spring, fork or chain type. All latches shall be suitable to the gate and shall be approved by the Engineer.
3. Hinges for Type 2 gates shall be a commercial design approved by the Engineer suitable for post and gate.
4. Concrete shall be of the design and consistency approved by the Engineer and shall contain not less than 4 sacks of cement per cubic yard. Concrete footings are to be crowned at the top to shed water.
5. Steel anchor plates shall be of a design and thickness sufficient to prevent turning of the post in firm soil.
6. Steel pipe end posts, corner and pull posts shall be a minimum of 2" Std. pipe (2.375" O.D., 0.154" wall thickness) with a 1¼" Std. pipe brace (1.660" O.D., 0.140" wall thickness), with a 2"x2"x1/4" angle, or other as approved by the Engineer. Fasteners for securing barbed wire or woven wire fence to metal posts shall be a minimum of 11 gauge galvanized steel wire. Tubular posts shall be fitted with water malleable iron caps.
7. If Steel pipe is used for posts and braces, use standard pipe in accordance with ASTM A 53, Class B or A 501. For T-Posts use steel that meets ASTM A 702. Metal line posts shall be not less than 6'-6" in length and shall weigh not less than (1.33 lbs./lin.ft.). These Items shall be in accordance with Item 552, "Wire Fence."
8. Barbed Wire shall be in accordance with ASTM A 121, Class 1 Design designation 12-2-4-1 4R or 12-2-5-1 4R, or as approved by the Engineer.

   Woven Wire Fence (Type D) shall be in accordance with ASTM A 116, Class 1 No. 12-1/2 Grade 60 (See Table 1 ASTM A 116) to the height and design shown on the plans, or as approved by the Engineer.
9. The location of gates and corner posts will be as indicated elsewhere in these plans.

Texas Department of Transportation — Design Division Standard

BARBED WIRE AND WOVEN WIRE FENCE (STEEL POSTS)

WF (2)-10

FILE: wf210.dgn	DN: TxDOT	CK: AM	DW: VP	CK:
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CRENSHAW ROAD EAST
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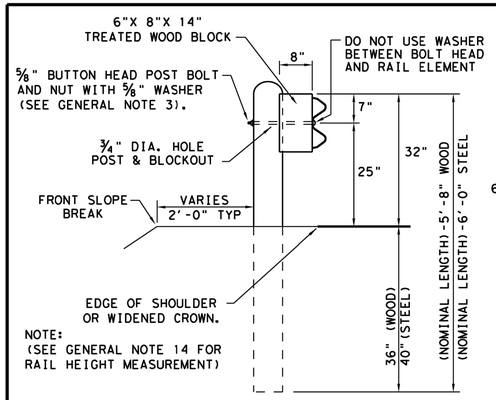
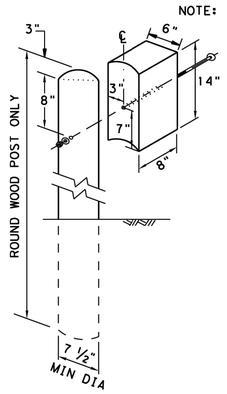
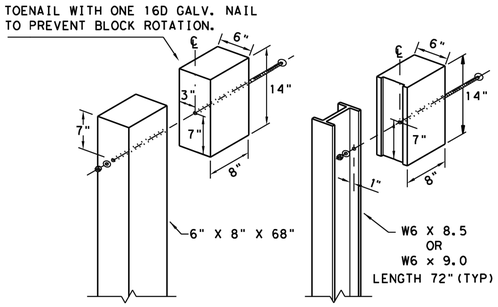


TYPICAL POST PLACEMENT



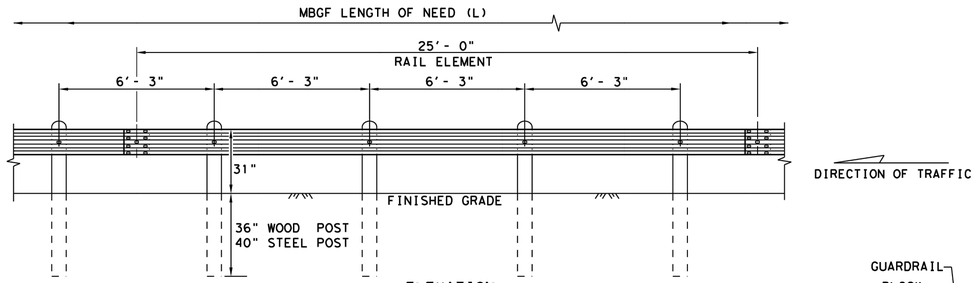
WOOD BLOCK TO ROUND WOOD POST



WOOD BLOCK TO RECTANGULAR WOOD POST

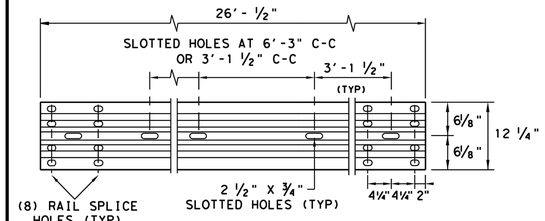
ROUTED WOOD BLOCK TO I-BEAM STEEL POST

NOTE: ** "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.



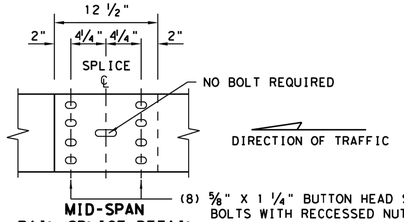
ELEVATION MID-SPAN RAIL SPLICE

SHOWING A 25'- 0" SECTION OF W-BEAM RAIL. (SEE GENERAL NOTE 2)



ELEVATION 25'- 0" (NOM.) W-BEAM SECTION

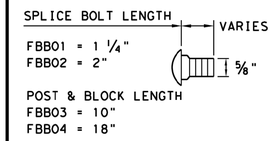
NOTES: SEE GENERAL NOTE 2 FOR ALLOWABLE RAIL TYPES.
SEE RAIL SPLICE DETAIL FOR REQUIRED HARDWARE.



MID-SPAN RAIL SPLICE DETAIL

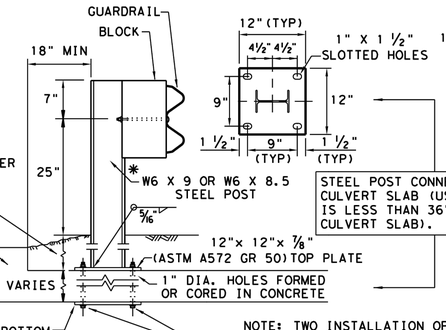
NOTE: GF(31), MID-SPAN RAIL SPLICES ARE REQUIRED WITH 6'-3" POST SPACINGS.

NOTE: FOUR TYPES OF BUTTON-HEAD GUARD RAIL BOLTS COME WITH A RECCESSED NUT.



BUTTON HEAD BOLT

NOTE: SEE GENERAL NOTE 3 FOR SPLICE & POST BOLT DETAILS.



*POST(S) MAY REQUIRE FIELD MODIFICATION TO ENSURE PROPER GUARDRAIL HEIGHT.

STEEL POST CONNECTION TO CULVERT SLAB (USE WHEN THERE IS LESS THAN 36" COVER OVER CULVERT SLAB).

12" X 12" X 1/4" (ASTM A36) STEEL BOTTOM PLATE WITH 1" DIA. HOLES REQUIRED WITH BOLT-THROUGH INSTALLATION.

LOW FILL CULVERT POST

NOTE: TWO INSTALLATION OPTIONS.

1. BOLT-THROUGH OPTION: REQUIRES A 6" MIN. SLAB THICKNESS. 7/8" DIA (ASTM A449) HEAVY HEX BOLTS WITH TWO HARDENED WASHER EACH AND HEAVY HEX NUTS.
   NOTE: BOLT LENGTH = SLAB PLUS 2 1/4" MIN.

2. EPOXY ANCHOR OPTION: THIS OPTION MAY ONLY BE USED IF THE CULVERT SLAB IS 9" MIN. THICK. THREADED ANCHOR RODS MUST BE 7/8" DIA. ASTM A449 OR A193 GRADE B7 WITH HEAVY HEX NUT, AND ONE HARDENED WASHER EACH. EMBED ANCHOR RODS 6" WITH HILTI HIT RE 500 EPOXY ADHESIVE. OTHER TYPE III CLASS C EPOXY ADHESIVES MEETING THE REQUIREMENTS OF DMS-6100, "EPOXIES AND ADHESIVES", MAY BE USED IF IT CAN BE DEMONSTRATED THAT THEY MEET OR EXCEED THE STRENGTH OF HILTI HIT RE 500 WITH THE SAME EMBEDMENT DEPTH AND THREADED ROD DIA. FOLLOW THE MANUFACTURER'S REQUIREMENTS FOR INSTALLING EPOXIED THREADED RODS. EXTEND RODS 1/4" MIN. BEYOND NUT.

NOTE: CULVERTS OF 25 FT. OR LESS, SEE GF(31)LS STANDARD FOR "LONG SPAN" OPTION.

GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF MBGF SHALL BE SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. STEEL POSTS TO BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING."
2. RAIL ELEMENTS SHALL MEET THE REQUIREMENTS OF ITEM 540,"METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS. THE CONTRACTOR MAY FURNISH RAIL ELEMENTS OF 25'- 0", OR 12'- 6" (NOM.) LENGTHS. RAIL ELEMENTS MAY HAVE SLOTTED HOLES AT 3'-1 1/2" C-C OR 6'-3" C-C. A SPECIAL LENGTH OF RAIL MAY BE MANUFACTURED TO ACCOMMODATE THE DOWNSTREAM ANCHOR TERMINAL (DAT) AND THE TRANSITION SECTIONS OF GUARDRAIL.
3. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND 5/8" WASHER (FWC16a) AND NOT MORE THAN 1" BEYOND IT. TRIM REMAINING BOLT LENGTH TO MEET REQUIRED LENGTH.
4. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445,"GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM.
5. CROWN SHALL BE WIDENED TO ACCOMMODATE THE METAL BEAM GUARD FENCE.
6. THE LATERAL APPROACH TO THE GUARD FENCE, SHALL HAVE A MAXIMUM SLOPE OF 1V:10H.
7. IF SHOWN ELSEWHERE IN THE PLANS OR AS DIRECTED BY THE ENGINEER, THE GUARD FENCE MAY BE FLARED AT A RATE OF 25:1 OR FLATTER.
8. UNLESS OTHERWISE SHOWN IN THE PLANS, GUARD FENCE PLACED IN THE VICINITY OF CURBS SHALL BE POSITIONED SO THAT THE FACE OF CURB IS LOCATED DIRECTLY BELOW OR BEHIND THE FACE OF THE RAIL. RAIL PLACED OVER CURBS SHALL BE INSTALLED SO THAT THE POST BOLT IS LOCATED APPROXIMATELY 25 INCHES ABOVE THE GUTTER PAN OR EDGE OF SHOULDER.
9. APPLICATIONS IN SOLID ROCK ARE ONLY ALLOWED WITH STEEL POSTS. IF SOLID ROCK IS ENCOUNTERED WITHIN 0 TO 18" OF THE FINISHED GRADE, DRILL A 24" DIA. HOLE, 24" INTO THE ROCK. IF SOLID ROCK IS ENCOUNTERED BELOW 18", DRILL A 12" DIA. HOLE, 12" INTO THE ROCK OR TO THE STANDARD EMBEDMENT DEPTH, WHICHEVER MAYBE LESS. ANY EXCESS POST LENGTH, AFTER MEETING THESE DEPTHS, MAY BE FIELD CUT TO ENSURE PROPER GUARDRAIL MOUNTING HEIGHT. BACKFILL WITH COARSE AGGREGATE MATERIAL.
10. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
11. SPECIAL FABRICATION WILL BE REQUIRED AT INSTALLATION LOCATIONS HAVING A CURVATURE OF LESS THAN 150 FT. RADIUS.
12. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210,"COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210 ONLY PRODUCERS ON THE MPL MAY FURNISH COMPOSITE MATERIAL BLOCKS.
13. FOR THE LOW FILL CULVERT OPTION, POSTS LOCATED PARTIALLY OR WHOLLY BETWEEN PRECAST BOX CULVERT UNITS, THE USE OF A CAST-IN-PLACE CONCRETE CLOSURE BETWEEN BOXES IS REQUIRED. THE LENGTH OF THE CAST-IN-PLACE CONCRETE CLOSURE SHALL ACCOMMODATE THE PLACEMENT OF THE LOW FILL CULVERT OPTION. SEE CONCRETE CLOSURE DETAILS ON BRIDGE STANDARD SCP-MD.
14. GUARDRAIL HEIGHT MEASUREMENT: WHEN THE GUARDRAIL IS LOCATED ABOVE PAVEMENT, MEASURE THE HEIGHT FROM THE PAVEMENT TO THE TOP OF THE W-BEAM RAIL. WHEN THE GUARDRAIL IS LOCATED UP TO 2 FT. OFF OF THE EDGE OF PAVEMENT OR FOR A PAVEMENT OVERLAY, USE A 10-FOOT STRAIGHTEDGE TO EXTEND THE PAVEMENT/SHOULDER SLOPE TO THE BACK OF RAIL, MEASURE FROM THE BOTTOM OF STRAIGHTEDGE TO THE TOP OF RAIL. FOR GUARDRAIL LOCATED DOWN A 10:1 SLOPE, MEASURE FROM THE NOMINAL TERRAIN.

NOTE: TRANSISTIONS TO BRIDGE RAILS OR TRAFFIC BARRIERS.
SEE GF(31)TL3 TR STANDARD FOR HIGH-SPEED TL-3 TRANSITIONS.
SEE GF(31)TL2 TR STANDARD FOR LOW-SPEED TL-2 TRANSITIONS.

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE TL-3 MASH COMPLIANT

GF(31)-19

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DATE 2/16/2026				

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SHEET NUMBER C-57

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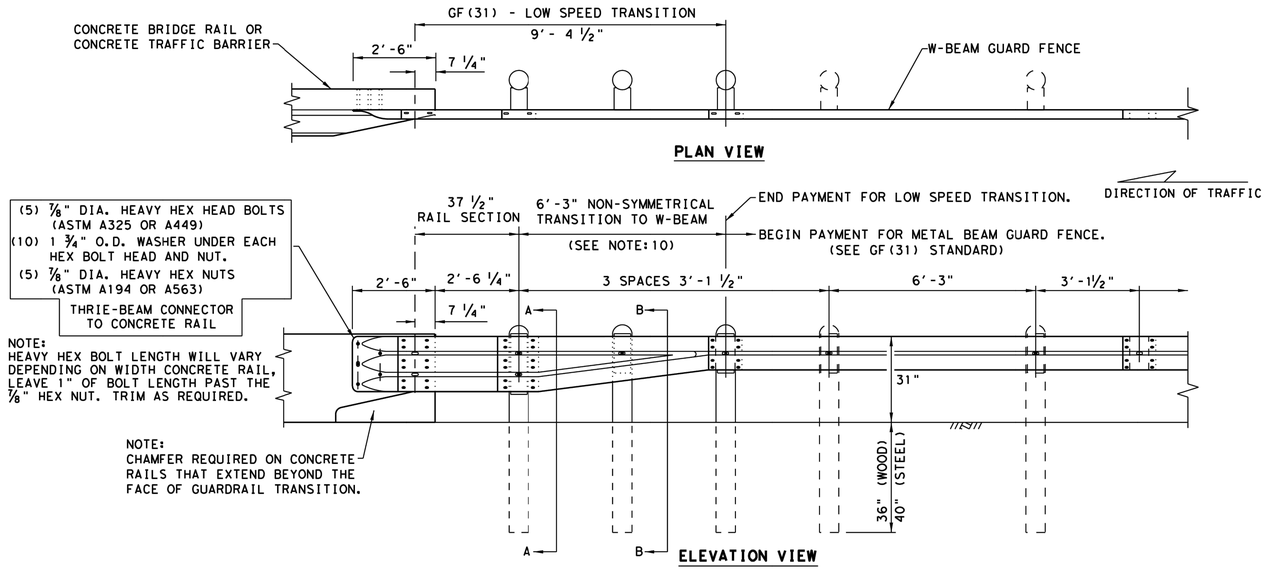
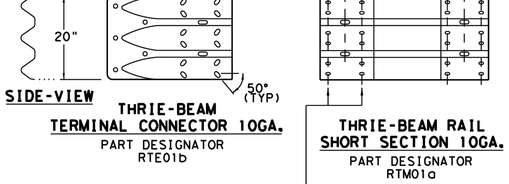
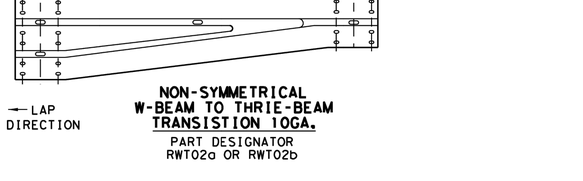


GENERAL NOTES

1. THE TYPE OF POST (ROUND WOOD POST, RECTANGULAR WOOD POST, OR STEEL POST) WILL BE AS SHOWN IN THE PLANS. THE EXACT POSITION OF TRANSITIONS SHALL BE AS SHOWN IN THE PLANS OR AS DIRECTED BY THE ENGINEER. REFER TO GF(31)STANDARD SHEET.
2. RAIL ELEMENT SHALL MEET THE REQUIREMENTS OF ITEM 540, "METAL BEAM GUARD FENCE" EXCEPT AS MODIFIED IN THE PLANS.
3. FITTINGS (BOLTS, NUTS, AND WASHERS) SHALL BE GALVANIZED IN ACCORDANCE WITH ITEM 445, "GALVANIZING." FITTINGS SHALL BE SUBSIDIARY TO THE BID ITEM REQUIRING CONSTRUCTION OF THE TRANSITION.
4. BUTTON HEAD "POST BOLTS & NUTS" SHALL MEET THE REQUIREMENTS OF (ASTM A307), AND SHALL BE OF SUFFICIENT LENGTH TO EXTEND THROUGH THE FULL THICKNESS OF THE NUT AND ⅝" WASHER (FWC16a)AND NOT MORE THAN 1" BEYOND IT. TRIM BOLT LENGTH TO MEET REQUIRED LENGTH.
5. POSTS SHALL NOT BE SET IN CONCRETE, OF ANY DEPTH.
6. CROWN SHALL BE WIDENED TO ACCOMMODATE TRANSITIONS.
7. WHERE SOLID ROCK IS ENCOUNTERED, CONTACT THE DESIGN DIVISION FOR ADDITIONAL GUIDANCE. (512) 416-2678
8. UNLESS OTHERWISE SHOWN IN THE PLANS, A COMPOSITE MATERIAL BLOCK THAT MEETS THE REQUIREMENTS OF DMS-7210, "COMPOSITE MATERIAL POSTS AND BLOCKS FOR METAL BEAM GUARD FENCE" MAY BE SUBSTITUTED FOR BLOCKS OF SIMILAR DIMENSIONS. THE CONSTRUCTION DIVISION, TXDOT, MAINTAINS A MATERIAL PRODUCER LIST (MPL) FOR PRODUCERS OF MATERIALS CONFORMING TO DMS-7210. ONLY PRODUCERS ON THE MPL CAN FURNISH COMPOSITE MATERIAL BLOCKS.
9. REFER TO GF(31)STANDARD SHEET & BRIDGE RAILING DETAILS FOR ADDITIONAL DETAILS.
10. FOR ROUND WOOD POSTS SYSTEMS, ALL ROUND WOOD POSTS SHALL BE 7 ½" DIA. MINIMUM THROUGHOUT THE TRANSITION.

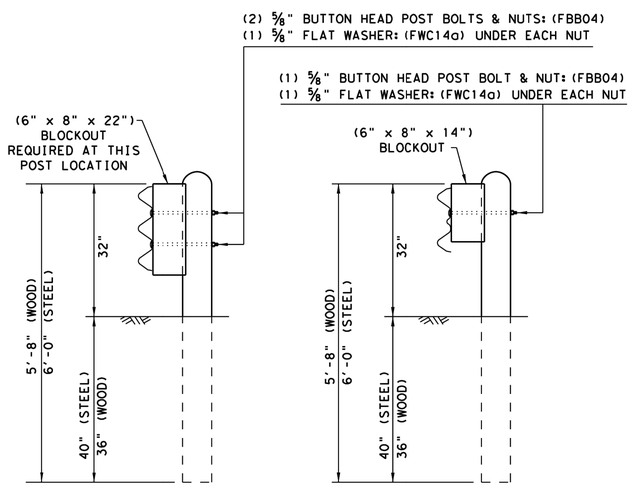




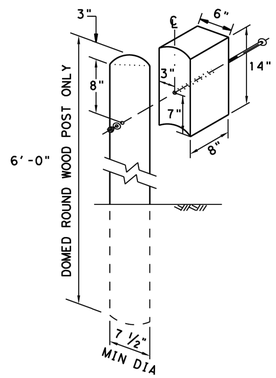
(12) ⅝" X 1 ¼" BUTTON HEAD SPLICE BOLTS WITH RECESSED NUTS: (FBB01)
(12) RECTANGULAR GUARDRAIL PLATE WASHERS: (FWR03)

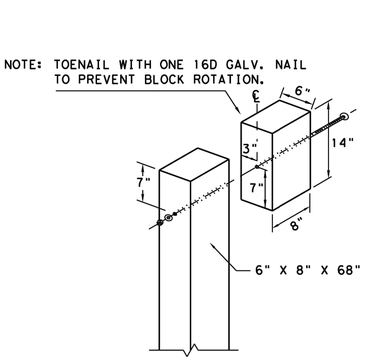
PLATE WASHER INSTRUCTIONS

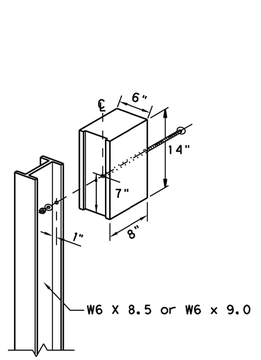
BRIDGE APPROACH - UPSTREAM: THE SHORT RAIL LAPS OVER THE TERMINAL CONNECTOR. PLATE WASHERS ARE INSTALLED UNDER THE SPLICE NUTS AGAINST INSIDE OF CONNECTOR.
BRIDGE EXIT - DOWNSTREAM: THE TERMINAL CONNECTOR LAPS OVER THE NESTED RAIL. PLATE WASHERS ARE INSTALLED UNDER THE BOLT HEAD AGAINST OUTSIDE OF CONNECTOR.



NOTE: * "WOOD" INDICATES DIMENSIONS FOR BOTH ROUND AND RECTANGULAR WOOD POST SYSTEMS.







LOW-SPEED TRANSITION

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE THRIE-BEAM TRANSITION TL-2 MASH COMPLIANT

GF(31)TR TL2-19

FILE: gf31trtl219.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG		
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22-02557	JRM	JRM	JKS
DATE 2/16/2026			
SCALE: AS SHOWN			

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

GF (31) TR TL2-19

SHEET NUMBER
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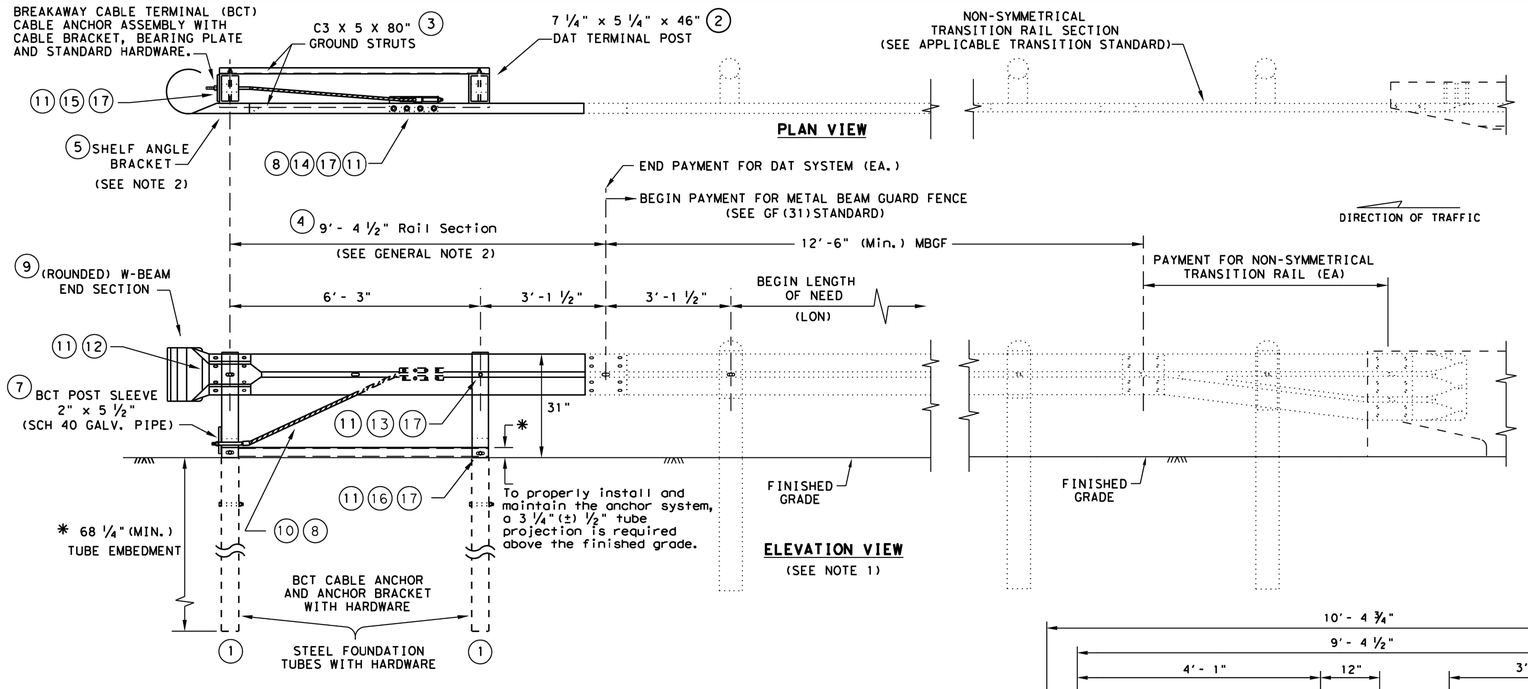


DOWNSTREAM ANCHOR TERMINAL (DAT)

NOTE: ONLY FOR DOWNSTREAM USE, WHEN LOCATED OUTSIDE THE HORIZONTAL CLEARANCE AREA OF OPPOSING TRAFFIC.

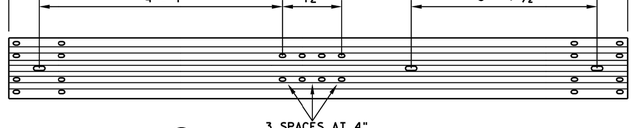
GENERAL NOTES

1. THE DETAIL SHOWN IS THE MINIMUM LENGTH OF NEED (LON) FOR A DOWNSTREAM ANCHOR TERMINAL (DAT) CONNECTED TO A CONCRETE RAIL.
2. THE RAIL SECTION AT THE END POST IS SUPPORTED BY THE SHELF ANGLE BRACKET. THE RAIL ELEMENT IS NOT ATTACHED TO THE END POST.
3. THE FOUNDATION TUBES SHALL NOT PROJECT MORE THAN 3 3/4" ABOVE THE FINISHED GRADE.
4. ALL HARDWARE FOR DAT SHALL BE ASTM A307 UNLESS OTHERWISE SHOWN.
5. REFER TO GF(31) SHEET FOR TERMINAL CONNECTION DETAILS.

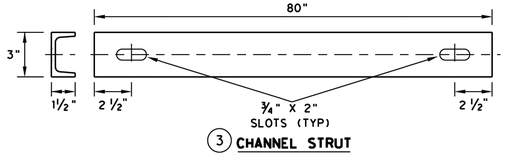
MOW STRIP INSTALLATION

IF A MOW STRIP IS REQUIRED WITH THE DAT INSTALLATION THE LEAVE-OUT AREA AROUND THE STEEL FOUNDATION TUBES AND THE TWO CHANNEL STRUTS MAY BE OMITTED. THIS WILL REQUIRE A FULL POUR AT THE FOUNDATION TUBES.

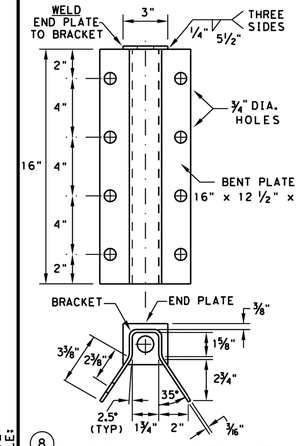
#	(DAT) PARTS LIST	QTY
(1)	STEEL FOUNDATION TUBE	2
(2)	DAT TERMINAL POST	2
(3)	CHANNEL STRUT	2
(4)	TERMINAL RAIL ELEMENT	1
(5)	SHELF ANGLE BRACKET	1
(6)	BCT BEARING PLATE	1
(7)	BCT POST SLEEVE	1
(8)	GUARDRAIL ANCHOR BRACKET	1
(9)	(ROUNDED) W-BEAM END SECTION	1
(10)	BCT CABLE ANCHOR	1
(11)	RECESSED NUT, GUARDRAIL	20
(12)	1 1/4" BUTTON HEAD BOLT	4
(13)	10" BUTTON HEAD BOLT	2
(14)	5/8" X 2" HEX HEAD BOLT	8
(15)	5/8" X 8" HEX HEAD BOLT	4
(16)	5/8" X 10" HEX HEAD BOLT	2
(17)	5/8" FLAT WASHER	18



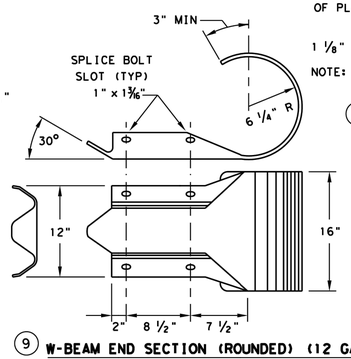
(4) TERMINAL RAIL ELEMENT FOR DAT



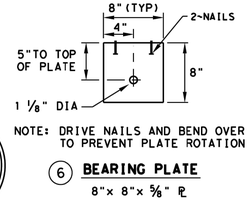
(3) CHANNEL STRUT
C3 X 5 X 80", GRADE A36



(8) GUARDRAIL ANCHOR BRACKET

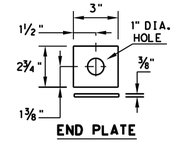


(9) W-BEAM END SECTION (ROUNDED) (12 GA.)

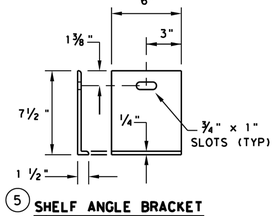


NOTE: DRIVE NAILS AND BEND OVER TO PREVENT PLATE ROTATION

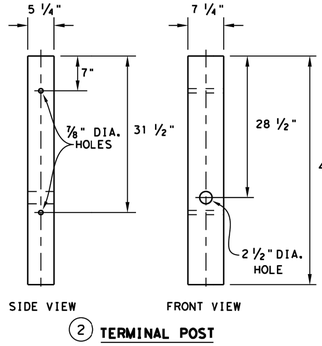
(6) BEARING PLATE
8"x 8"x 5/8" PL



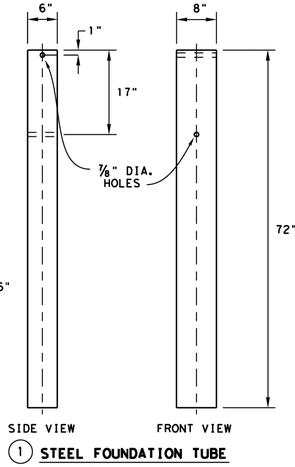
END PLATE



(5) SHELF ANGLE BRACKET



(2) TERMINAL POST
7 1/4"x 5 1/4"x 46" WOOD POST



(1) STEEL FOUNDATION TUBE
6"x 8"x 1/8" x 72" STEEL TUBE

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE
(DOWNSTREAM ANCHOR TERMINAL) TL-3 MASH COMPLIANT
GF(31)DAT-19

FILE: gf31dat19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG	
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY	
REVISIONS					
	DIST	COUNTY		SHEET NO.	

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com
REGISTRATION NO. F-16849

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22-02557	AS SHOWN	JRM	JRM	JKS
DATE 2/16/2026				

GF(31)DAT-19

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-59

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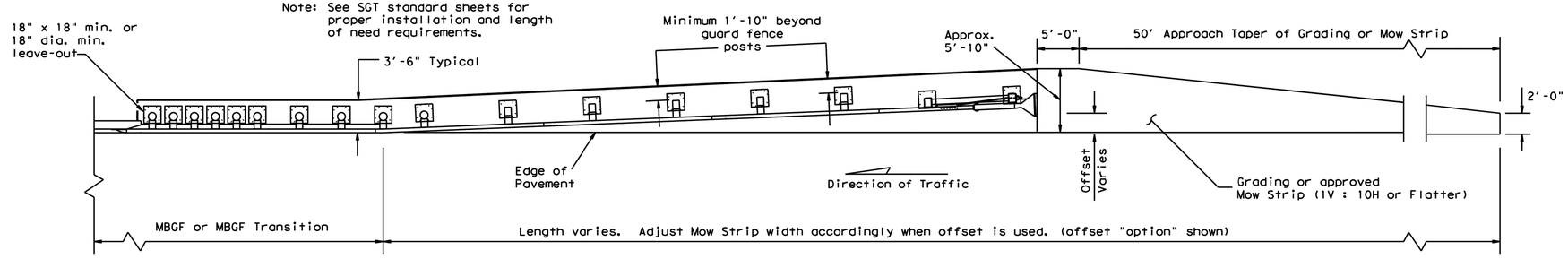
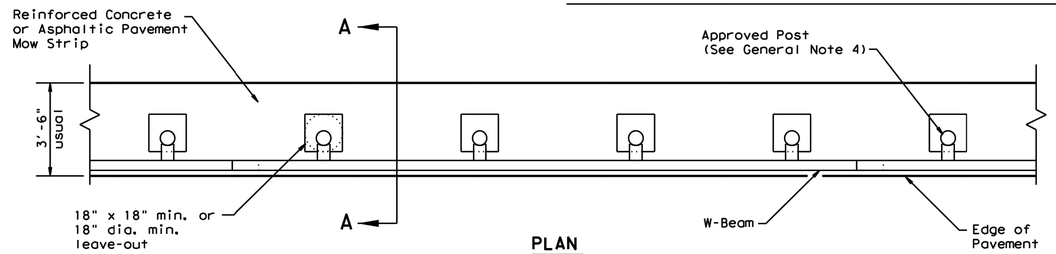
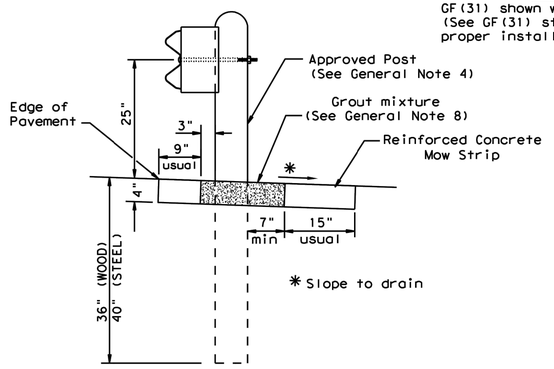


GRADING AND MOW STRIP AT GUARDRAIL END TREATMENTS



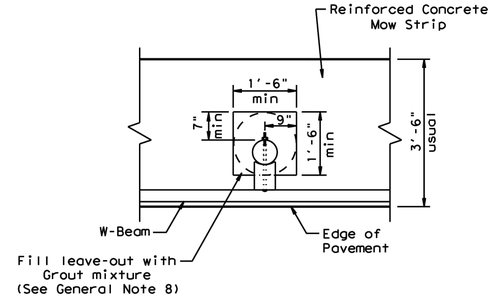
PLAN

GF(31) shown with Mow Strip
(See GF(31) standard sheet for
proper installation)



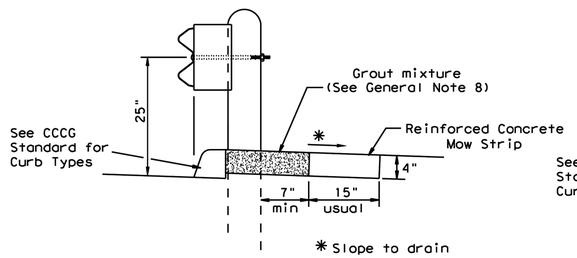
SECTION A-A

Typical



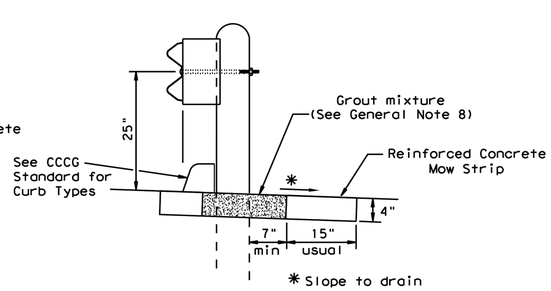
MOW STRIP DETAIL

Reinforced Concrete Mow Strip
with 18" x 18" Square or
18" Dia. minimum leave-out.



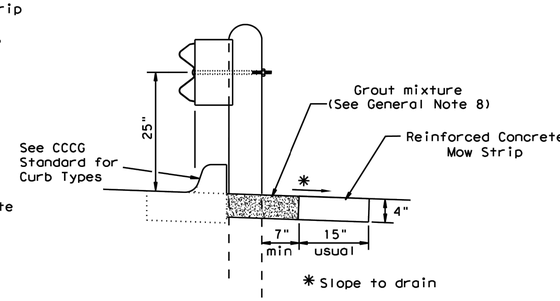
CURB OPTION (1)

This option will increase the post
embedment throughout the system.



CURB OPTION (2)

Curb shown on top of mow strip



CURB OPTION (3)

Note: Site Condition(s)

Site conditions may exist where grading is required for the proper installation of metal guard fence and end treatments.

Approach grading or mow strip may be decreased or eliminated, as directed by the Engineer.

GENERAL NOTES

1. This mow strip design is for use with metal beam guard fence, guard fence transitions, and guard fence end treatments. See applicable GF(31) MBGF or GF(31) Transition Standard sheet for additional information.
2. Mow strips shall be reinforced concrete with (wire mesh or synthetic fiber), as shown on the plans and will be paid for under the pertinent bid item. Reinforced concrete shall be placed in accordance with Item 432, "Riprap." The use of the synthetic fiber in lieu of steel reinforcing is acceptable, provided the fiber producer is on the Department Material Producer List (MPL), maintained by TxDOT, Construction Division.
3. The leave-out behind the post shall be a minimum of 7".
4. Only steel (W6 x 8.5 or W6 x 9.0), or 7 ½" Dia. round wood posts are acceptable for use in the mow strip. See GF(31) Standard for additional details.
5. Other curb placement options may be used. Curbs are not considered part of the mow strip and will be paid for under other pertinent bid item.
6. Thickness of the mow strip will be 4".
7. The limits of payment for reinforced concrete will include leave-outs for the posts.
8. The leave-outs shall be filled with a Grout mixture consisting of: 2719 pounds sand, 188 pounds Type 1 or II cement, and 550 pounds of water per cubic yard, with a 28-day compressive strength of approximately 230 psi or less. Provide grout with a consistency that will flow into and completely fill all voids. Due to auger size, larger leave-out dimensions are acceptable from both an impact performance and maintenance repair standpoint (Suggested Maximum leave-out of 20"). Payment for furnishing and placing the grout mixture will be subsidiary to the pay item of riprap mow strip.

Texas Department of Transportation — Design Division Standard

METAL BEAM GUARD FENCE (MOW STRIP) TL-3 MASH COMPLIANT

GF(31)MS-19

FILE: gf31ms19.dgn	DN: TxDOT	CK: KM	DW: VP	CK: CGL/AG
©TxDOT: NOVEMBER 2019	CONT	SECT	JOB	HIGHWAY
REVISIONS				
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22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

GF (31) MS-19

CRENSHAW ROAD
EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-59.1

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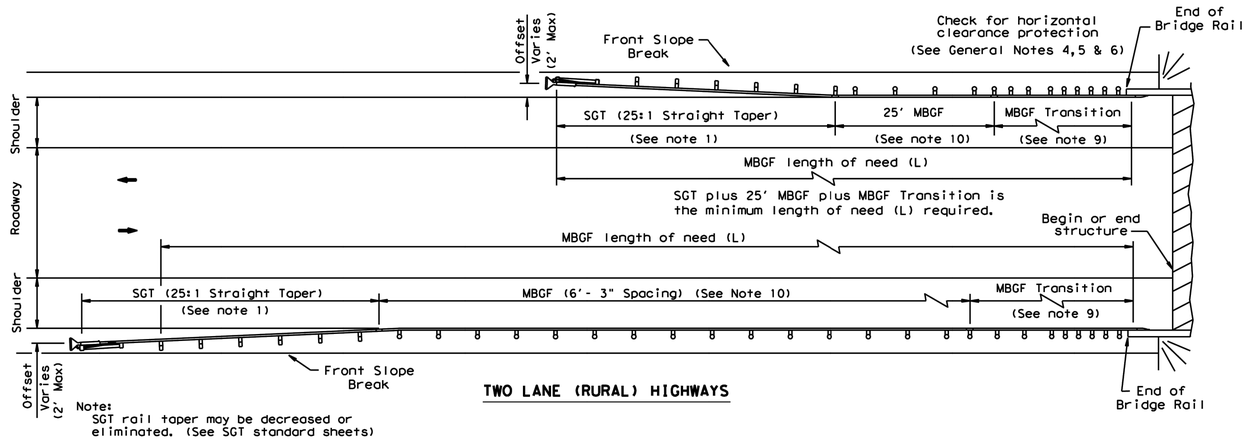
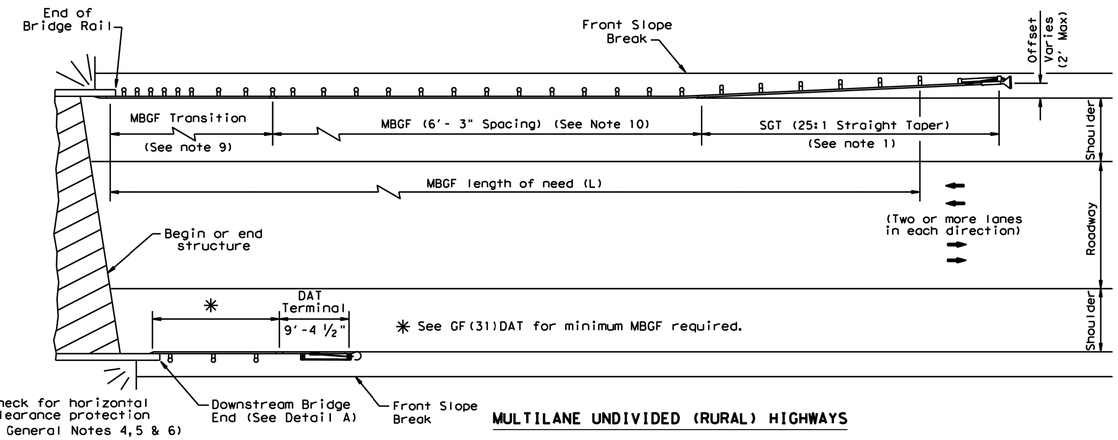
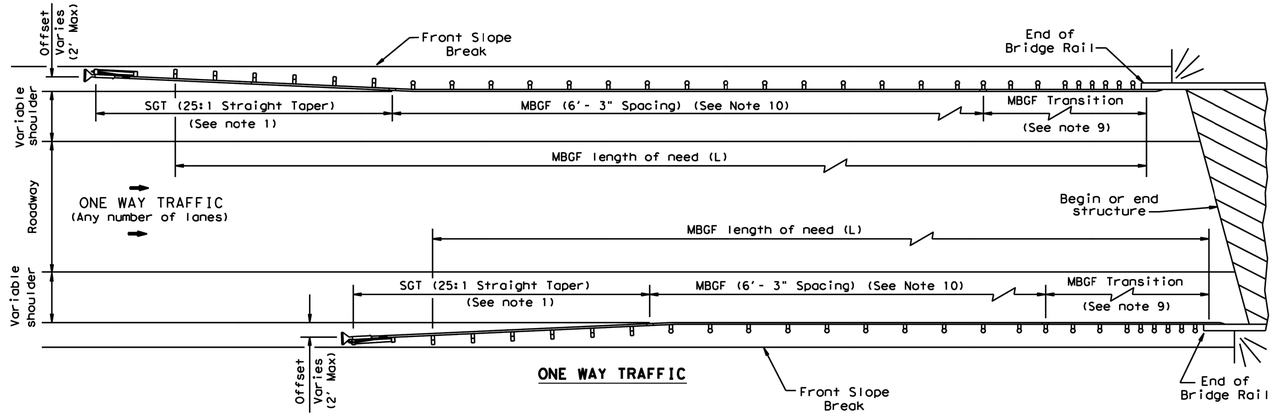


Note:
SGT rail taper may be decreased or eliminated. (See SGT standard sheets)

TWO LANE (RURAL) HIGHWAYS



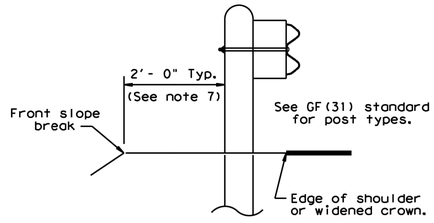
MULTILANE UNDIVIDED (RURAL) HIGHWAYS



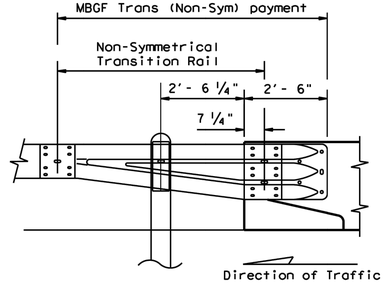
ONE WAY TRAFFIC

GENERAL NOTES

1. For more detail: See GF(31), SGT( )31, GF(31)TR, and GF(31)TL2 standard sheets.
2. Quantities of metal beam guard fence (MBGF) at individual bridge ends are as shown in the plans.
3. Use average daily traffic (ADT) for the current year to determine MBGF length of need in accordance with the Roadway Design Manual unless otherwise specified. Where significant traffic volume growth is anticipated on low volume (0-750 ADT) highways, use length determinations for the higher volume category.
4. MBGF may not be required to shield departure end of bridge unless other obstacles within the horizontal clearance limits or opposing traffic indicate a MBGF consideration.
5. Downstream anchor terminals (DAT) are only for downstream end anchorage use, outside the horizontal clearance area of opposing traffic.
6. Direct connection of MBGF to concrete rails are only for downstream rail connections outside the horizontal clearance area of opposing traffic. (This requires a minimum of three standard line posts plus the DAT terminal, See Detail A)
7. The crown shall be widened to accommodate MBGF. Typically the "front slope" break should be 2'- 0" from the back of the MBGF post. This applies to new construction on new alignment or where existing roadway cross section is to be widened to increase roadway width. This does not apply to rehabilitation work where existing roadway crown width is to be retained (See Typical Cross Section at MBGF).
8. For restrictive bridge widths: The MBGF should be properly transitioned from the existing bridge rail to the adjoining MBGF (See MBGF Transition Standards). Metal beam guard fence at these bridge location(s) shall be flared at the rate of 25:1 or flatter, and be of the length necessary to locate the terminal end at the 2 ft."maximum" offset from the shoulder edge in the approach direction.
9. Transition length and post spacing will vary depending on the transition type. Transition type will be shown elsewhere in the plans.
10. A minimum 25' length of MBGF will be required.



TYPICAL CROSS SECTION AT MBGF



Note:
All rail elements shall be lapped in the direction of adjacent traffic.

DETAIL A

Showing Downstream Rail Attachment

Texas Department of Transportation — Design Division Standard

BRIDGE END DETAILS

(METAL BEAM GUARD FENCE APPLICATIONS TO RIGID RAILS)

BED-14

FILE: bed14.dgn	DN: TxDOT	CK: AM	DW: BD/VP	CK: CGL
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REVISIONS REVISED APRIL 2014 SEE MEMO 04141	DIST	COUNTY		SHEET NO.

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BED-14

CRENSHAW ROAD EAST
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DATE:
FILE:

SIGN SUPPORT DESCRIPTIVE CODES

(Descriptive Codes correspond to project estimate and quantities sheets)

SM RD SGN ASSM TY XXXXX(X)XX(X-XXXX)

Post Type

FRP = Fiberglass Reinforced Plastic Pipe (see SMD(FRP))
TWT = Thin-Walled Tubing (see SMD(TWT))
10BWG = 10 BWG Tubing (see SMD(SLIP-1) to (SLIP-3))
S80 = Schedule 80 Pipe (see SMD(SLIP-1) to (SLIP-3))

Number of Posts (1 or 2)

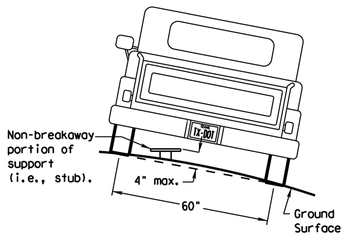
Anchor Type

UA = Universal Anchor - Concreted (see SMD(FRP) and (TWT))
UB = Universal Anchor - Bolted down (see SMD(FRP) and (TWT))
WS = Wedge Anchor Steel - (see SMD(TWT))
WP = Wedge Anchor Plastic (see SMD(TWT))
SA = Slipbase - Concreted (see SMD(SLIP-1) to (SLIP-3))
SB = Slipbase - Bolted Down (see SMD(SLIP-1) to (SLIP-3))

Sign Mounting Designation

P = Prefab. "Plain" (see SMD(SLIP-1) to (SLIP-3), (TWT), (FRP))
T = Prefab. "T" (see SMD(SLIP-1) to (SLIP-3), (TWT))
U = Prefab. "U" (see SMD(SLIP-1) to (SLIP-3))
IF REQUIRED
1EXT or 2EXT = Number of Extensions (see SMD(SLIP-1) to (SLIP-3), (TWT))
BM = Extruded Wind Beam (see SMD(SLIP-1) to (SLIP-3))
WC = 1.12 #/ft Wing Channel (see SMD(SLIP-1) to (SLIP-3))
EXAL = Extruded Aluminum Sign Panels (see SMD(SLIP-3))

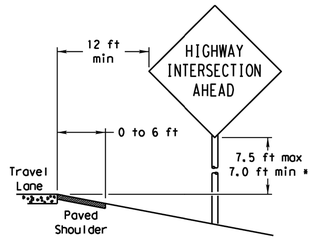
REQUIRED CLEARANCE FOR BREAKAWAY SUPPORT



To avoid vehicle undercarriage snagging, any substantial remains of a breakaway support, when it is broken away, should not project more than 4 inches above a 60-inch chord (i.e., typical space between wheel paths).

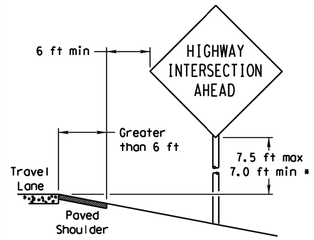
SIGN LOCATION

PAVED SHOULDERS



LESS THAN 6 FT. WIDE

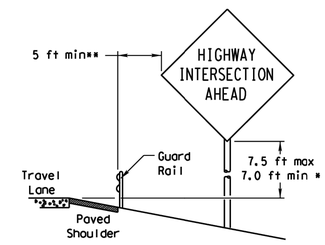
When the shoulder is 6 ft. or less in width, the sign must be placed at least 12 ft. from the edge of the travel lane.



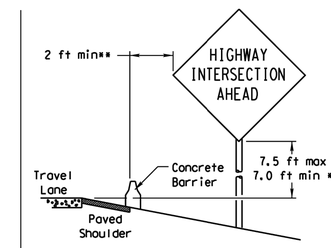
GREATER THAN 6 FT. WIDE

When the shoulder is greater than 6 ft in width, the sign must be placed at least 6 ft. from the edge of the shoulder.

BEHIND BARRIER



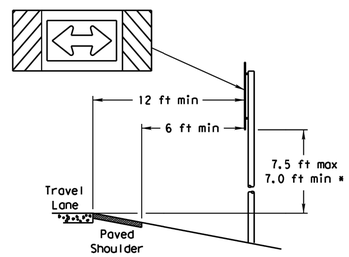
BEHIND GUARDRAIL



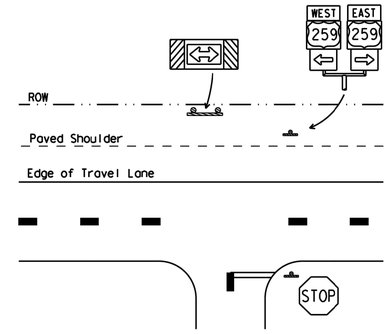
BEHIND CONCRETE BARRIER

**Sign clearance based on distance required for proper guard rail or concrete barrier performance.

T-INTERSECTION



When this sign is needed at the end of a two-lane, two way roadway, the right edge of the sign should be in line with the centerline of the roadway. Place as close to ROW as practical.



* Signs shall be mounted using the following condition that results in the greatest sign elevation:

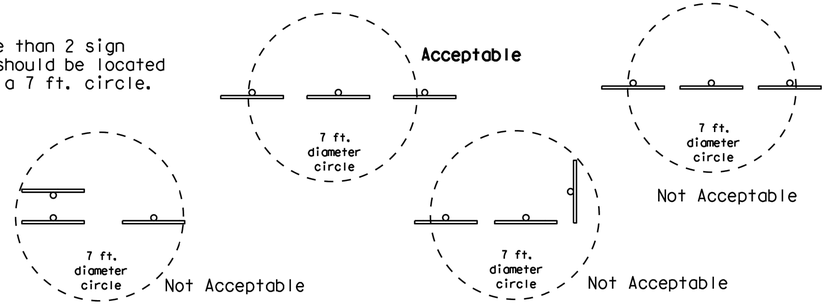
(1) a minimum of 7 to a maximum of 7.5 feet above the edge of the travel lane or

(2) a minimum of 7 to a maximum of 7.5 feet above the grade at the base of the support when sign is installed on the backslope.

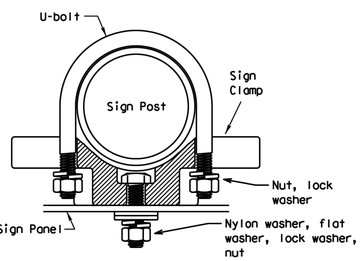
The maximum values may be increased when directed by the Engineer.

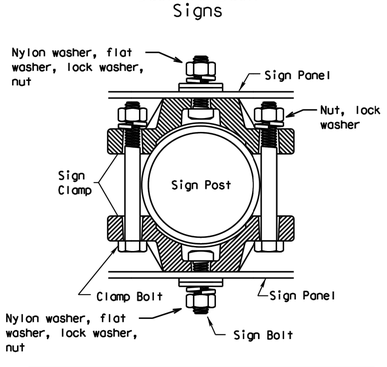
See the Traffic Operations Division website for detailed drawings of sign clamps, Triangular Slipbase System components and Wedge Anchor System components.

The website address is:
http://www.txdot.gov/publications/traffic.htm



TYPICAL SIGN ATTACHMENT DETAIL





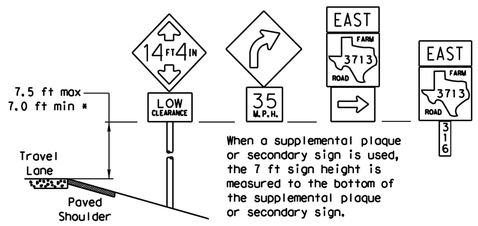
Bolts used to mount sign panels to the clamp are 5/16-18 UNC galvanized square head with nut, nylon washer, flat washer and lock washer. The bolt length is 1 inch for aluminum.

When two sign clamps are used to mount signs back-to-back, use a 5/16-18 UNC galvanized hex head per ASTM A307 with nut and helical-spring lock washer. The approximate bolt lengths for various post sizes and sign clamp types are given in the table at right. The bolt length may need to be adjusted depending upon field conditions.

Sign clamps may be either the specific size clamp or the universal clamp.

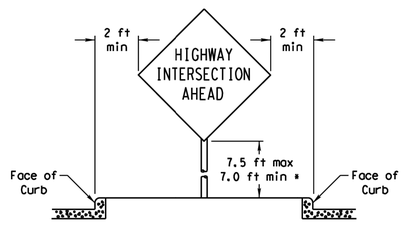
Pipe Diameter	Approximate Bolt Length	
	Specific Clamp	Universal Clamp
2" nominal	3"	3 or 3 1/2"
2 1/2" nominal	3 or 3 1/2"	3 1/2 or 4"
3" nominal	3 1/2 or 4"	4 1/2"

SIGNS WITH PLAQUES



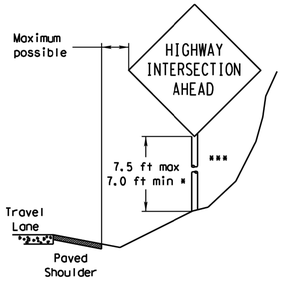
When a supplemental plaque or secondary sign is used, the 7 ft sign height is measured to the bottom of the supplemental plaque or secondary sign.

CURB & GUTTER OR RAISED ISLAND



RESTRICTED RIGHT-OF-WAY

(When 6 ft min. is not possible.)



Right-of-way restrictions may be created by rocks, water, vegetation, forest, buildings, a narrow island, or other factors.

In situations where a lateral restriction prevents the minimum horizontal clearance from the edge of the travel lane, signs should be placed as far from the travel lane as practical.

*** Post may be shorter if protected by guardrail or if Engineer determines the post could not be hit due to extreme slope.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS GENERAL NOTES & DETAILS

SMD(GEN)-08

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SMD (GEN)-08

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-61

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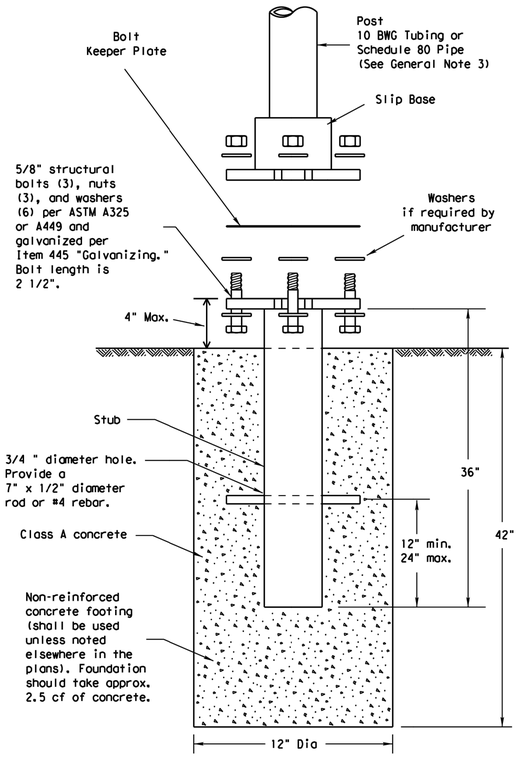
TRIANGULAR SLIPBASE INSTALLATION GENERAL REQUIREMENTS



SM RD SGN ASSM TY XXXXX(X)SA(X-XXXX)

NOTE

There are various devices approved for the Triangular Slipbase System. Please reference the Material Producer List for approved slip base systems. http://www.txdot.gov/business/producer_list.htm The devices shall be installed per manufacturers' recommendations. Installation procedures shall be provided to the Engineer by Contractor.

GENERAL NOTES:

1. Slip base shall be permanently marked to indicate manufacturer. Method, design, and location of marking are subject to approval of the TxDOT Traffic Standards Engineer.
2. Material used as post with this system shall conform to the following specifications:
   10 BWG Tubing (2.875" outside diameter)
   - 0.134" nominal wall thickness
   - Seamless or electric-resistance welded steel tubing or pipe
   - Steel shall be HSLAS Gr 55 per ASTM A1011 or ASTM A1008
   - Other steels may be used if they meet the following:
     - 55,000 PSI minimum yield strength
     - 70,000 PSI minimum tensile strength
     - 20% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.122" to 0.138"
   - Outside diameter (uncoated) shall be within the range of 2.867" to 2.883"
   - Galvanization per ASTM A123 or ASTM A653 G210. For precoated steel tubing (ASTM A653), recoat tube outside diameter weld seam by metallizing with zinc wire per ASTM B833.

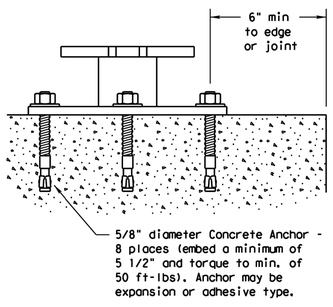
   Schedule 80 Pipe (2.875" outside diameter)
   - 0.276" nominal wall thickness
   - Steel tubing per ASTM A500 Gr C
   - Other seamless or electric-resistance welded steel tubing or pipe with equivalent outside diameter and wall thickness may be used if they meet the following:
     - 46,000 PSI minimum yield strength
     - 62,000 PSI minimum tensile strength
     - 21% minimum elongation in 2"
   - Wall thickness (uncoated) shall be within the range of 0.248" to 0.304"
   - Outside diameter (uncoated) shall be within the range of 2.855" to 2.895"
   - Galvanization per ASTM A123
3. See the Traffic Operations Division website for detailed drawings of sign clamps and Texas Universal Triangular Slipbase System components. The website address is: http://www.txdot.gov/publications/traffic.htm
4. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.

ASSEMBLY PROCEDURE

Foundation
1. Prepare 12-inch diameter by 42-inch deep hole. If solid rock is encountered, the depth of the foundation may be reduced such that it is embedded a minimum of 18 inches into the solid rock.
2. The Engineer may permit batches of concrete less than 2 cubic yards to be mixed with a portable, motor-driven concrete mixer. For small placements less than 0.5 cubic yards, hand mixing in a suitable container may be allowed by Engineer. Concrete shall be Class A.
3. Push the pipe end of the slip base stub into the center of the concrete. Rotate the stub back and forth while pushing it down into the concrete to assure good contact between the concrete and stub. Continue to work the stub into the concrete until it is between 2 to 4 inches above the ground.
4. Plumb the stub. Allow a minimum of 4 days to set, unless otherwise directed by the Engineer.
5. The triangular slipbase system is multidirectional and is designed to release when struck from any direction.

Support
1. Cut support so that the bottom of the sign will be 7 to 7.5 feet above the edge of the travelway (i.e., edge of the closest lane) when slip plate is below the edge of pavement or 7 to 7.5 feet above slip plate when the slip plate is above the edge of the travelway. The cut shall be plumb and straight.
2. Attach sign to support using connections shown. When multiple signs are installed on the same support, ensure the minimum clearance between each sign is maintained. See SMD(SLIP-2) for clearances based on sign types.

CONCRETE ANCHOR



SM RD SGN ASSM TY XXXXX(X)SB(X-XXXX)

Concrete anchor consists of 5/8" diameter stud bolt with UNC series bolt threads on the upper end. Heavy hex nut per ASTM A563, and hardened washer per ASTM F436. The stud bolt shall have a minimum yield and ultimate tensile strength of 50 and 75 KSI, respectively. Nuts, bolts and washers shall be galvanized per Item 445, "Galvanizing." Adhesive type anchors shall have stud bolts installed with Type III epoxy per DMS-6100, "Epoxies and Adhesives." Adhesive anchors may be loaded after adequate epoxy cure time per the manufacturer's recommendations. Top of bolt shall extend at least flush with top of the nut when installed. The anchor, when installed in 4000 psi normal-weight concrete with a 5 1/2" minimum embedment, shall have a minimum allowable tension and shear of 3900 and 3100 psi, respectively.

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-1)-08

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CITY OF ROYSE CITY
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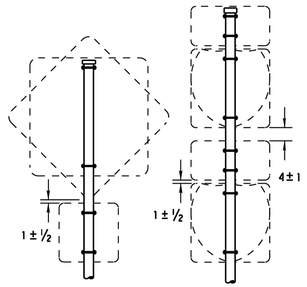
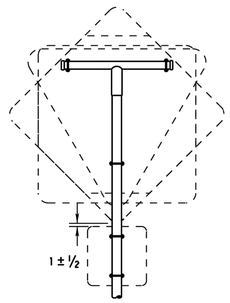


SM RD SGN ASSM TY XXXXX(1)XX(P)



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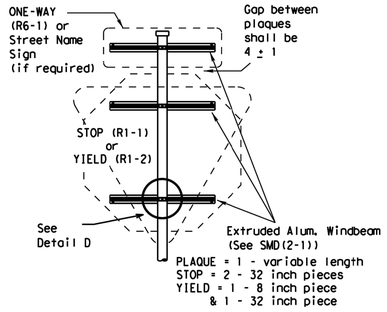

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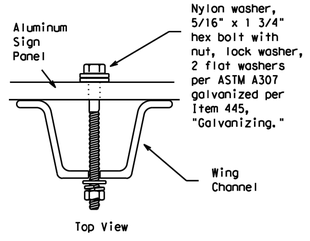
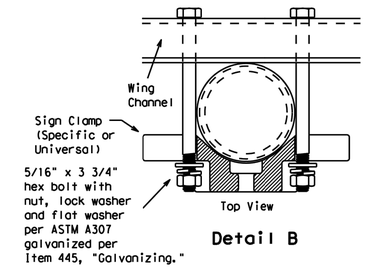


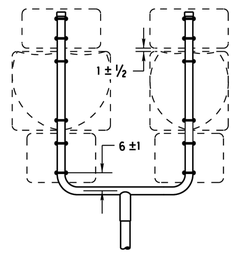
Top View

Detail A



Top View

Detail B



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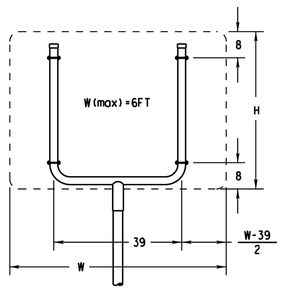

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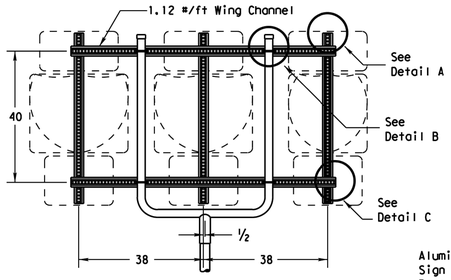
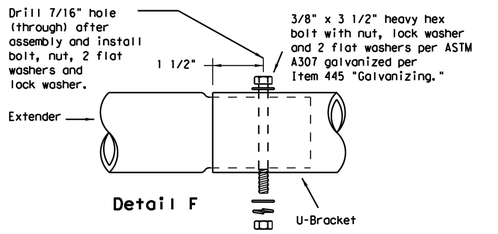
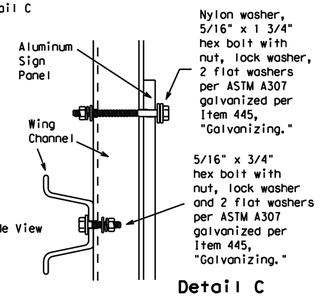


SM RD SGN ASSM TY XXXXX(1)XX(U-WC)
(See Note 11)

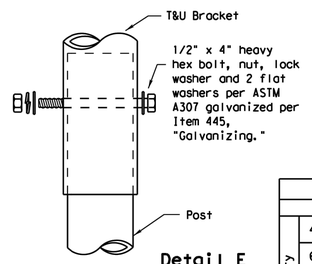


Detail F

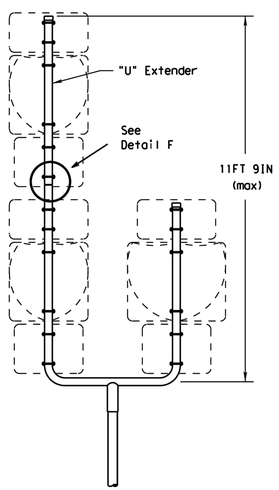
Splices shall only be allowed behind the sign substrate.



Detail C



Detail E



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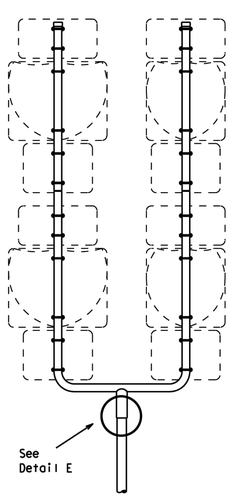

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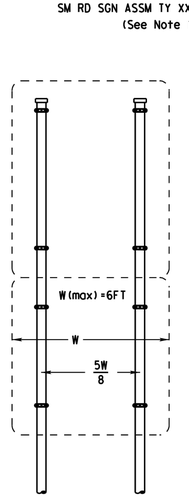
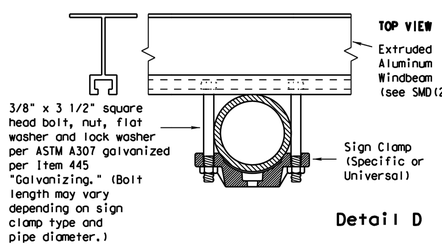
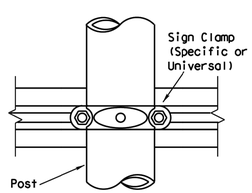


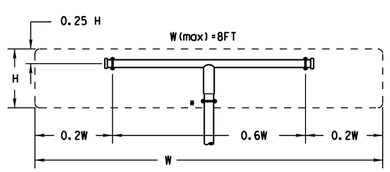
SM RD SGN ASSYM TY XXXXX(2)XX(P)

SIDE VIEW



Detail D

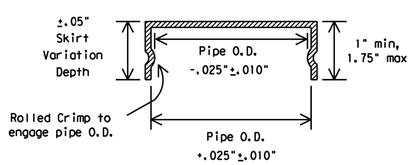




SM RD SGN ASSM TY XXXXX(1)XX(T)
(* - See Note 12)

All dimensions are in english unless detailed otherwise.

FRICTION CAP DETAIL



Friction caps may be manufactured from hot rolled or cold rolled steel sheets. The minimum sheet metal thickness shall be 24 gauge for all cap sizes.

The rim edges shall be reasonably straight and smooth. Caps shall be sized and formed in such a manner as to produce a drive-on friction fit and have no tendency to rock when seated on the pipe. The depth shall be sufficient to give positive protection against entrance of rainwater. They shall be free of sharp creases or indentations and show no evidence of metal fracture.

Caps shall have an electrodeposited coating of zinc in accordance with the requirements of ASTM B633 Class FE/ZN 8.

GENERAL NOTES:

1.

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Additional route markers may be added vertically, provided the total sign area does not exceed the maximum allowable amount per Note 1.
11. Additional sign clamp required on the "T-bracket" post for 24 inch height signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.
13. Sign blanks shall be the sizes and shapes shown on the plans.

REQUIRED SUPPORT

	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-2)-08

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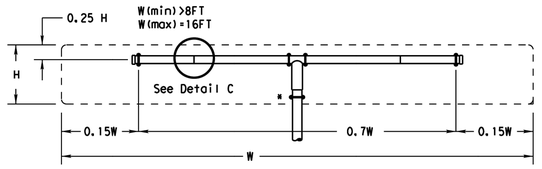
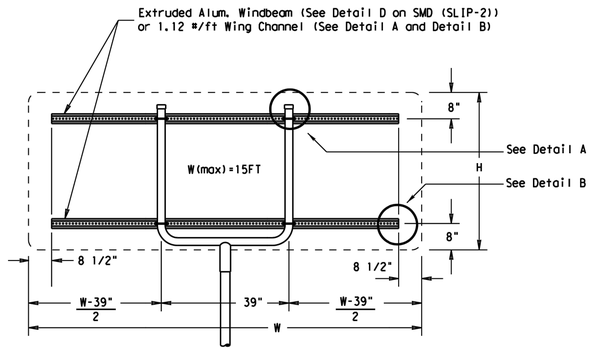
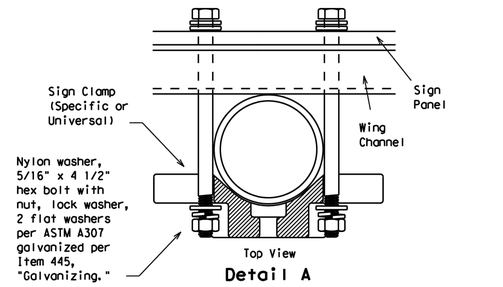


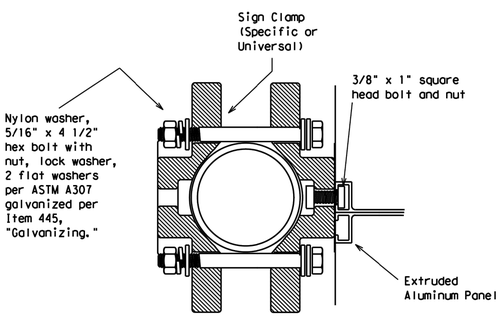
SM RD SGN ASSM TY XXXXX(1)XX(T-2EXT)
(* - See Note 12)



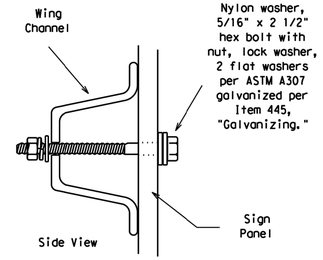
SM RD SGN ASSM TY XXXXX(1)XX(U-XX)



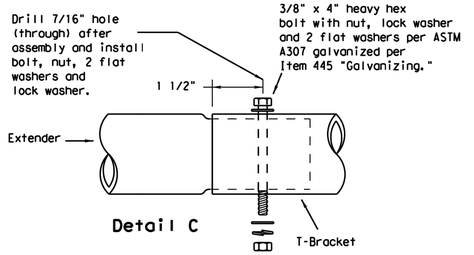
Detail A



Detail D
EXTRUDED ALUMINUM SIGN WITH T BRACKET

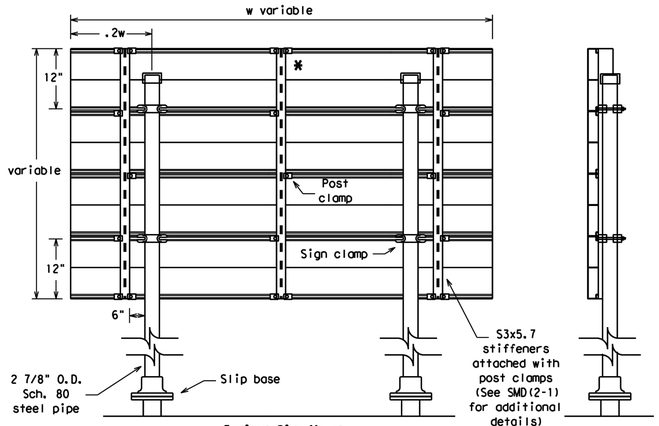


Detail B



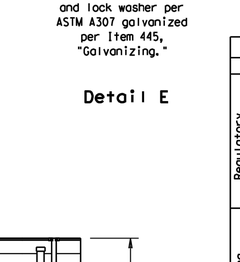
Detail C

Splices shall only be allowed behind the sign substrate.

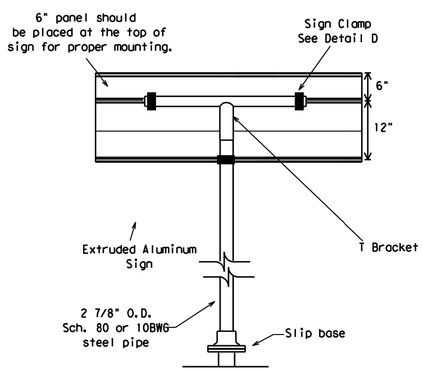


Typical Sign Mount
SM RD SGN ASSM TY S80(2)XX(P-EXAL)

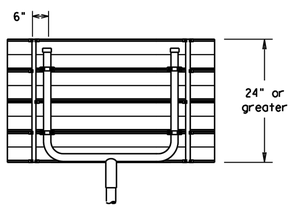
* Additional stiffener placed at approximate center of signs when sign width is greater than 10'.



Detail E



Extruded Aluminum Sign
With T Bracket



Use Extruded Alum. Windbeam as stiffeners
See SMD (2-1) for additional details

See Detail E
for clamp installation

GENERAL NOTES:

SIGN SUPPORT	# OF POSTS	MAX. SIGN AREA
10 BWG	1	16 SF
10 BWG	2	32 SF
Sch 80	1	32 SF
Sch 80	2	64 SF

2. The Engineer may require that a Schedule 80 post be used in place of a 10 BWG where a sign height is abnormally high due to a fill slope.
3. Sign supports shall not be spliced except where shown. Sign support posts shall not be spliced.
4. Aluminum sign blanks shall conform to Departmental Material Specifications DMS-7110 and shall have the following minimum thicknesses: 0.080 for signs less than 7.5 sq. ft., 0.100 for signs 7.5 to 15 sq. ft., and 0.125 for signs greater than 15 sq. ft.
5. Signs that require specific supports due to reasons in addition to windloading are indicated on the "REQUIRED SUPPORT" table on this sheet.
6. For horizontal rectangular signs fabricated from flat aluminum, T-brackets are used for signs 24 inches or less in height. U-brackets are used for signs of greater height.
7. When two triangular slipbase supports are used to support a single sign, they shall not be "rigidly" connected to each other except through the sign panel. This will allow each support to act independently when impacted by an errant vehicle.
8. Wing channel shall meet ASTM A 1011 SS Gr 50 and be galvanized per ASTM A 123.
9. Excess pipe, wing channel, or windbeam shall be cut off so that it does not extend beyond the sign panel (i.e., excess support shall not be visible when the sign is viewed from the front.) Repair galvanized coating at cut support ends per Item 445, "Galvanizing."
10. Sign blanks shall be the sizes and shapes shown on the plans.
11. Additional sign clamp required on the "T-bracket" post for 24 inch high signs. Place the clamp 3 inches above bottom of sign when possible.
12. Post open ends shall be fitted with Friction Caps.

REQUIRED SUPPORT		
	SIGN DESCRIPTION	SUPPORT
Regulatory	48-inch STOP sign (R1-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	60-inch YIELD sign (R1-2)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	48x16-inch ONE-WAY sign (R6-1)	TY 10BWG(1)XX(T) TY 10BWG(1)XX(P-BM)
	36x48, 48x36, and 48x48-inch signs	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
Warning	48x48-inch signs (diamond or square)	TY 10BWG(1)XX(T)
	48x60-inch signs	TY S80(1)XX(T)
	48-inch Advance School X-ing sign (S1-1)	TY 10BWG(1)XX(T)
	48-inch School X-ing sign (S2-1)	TY 10BWG(1)XX(T)
	Large Arrow sign (W1-6 & W1-7)	TY 10BWG(1)XX(T)

Texas Department of Transportation
Traffic Operations Division

SIGN MOUNTING DETAILS SMALL ROADSIDE SIGNS TRIANGULAR SLIPBASE SYSTEM

SMD(SLIP-3)-08

©TxDOT July 2002

DN: TXDOT	CK: TXDOT	DW: TXDOT	CK: TXDOT
CONT	SECT	JOB	HIGHWAY
DIST	COUNTY		SHEET NO.

9-08 REVISIONS

26D

DATE:
FILE:

NO.	REVISIONS	DATE	BY

WSB LLC. wsb
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO.
F-16849

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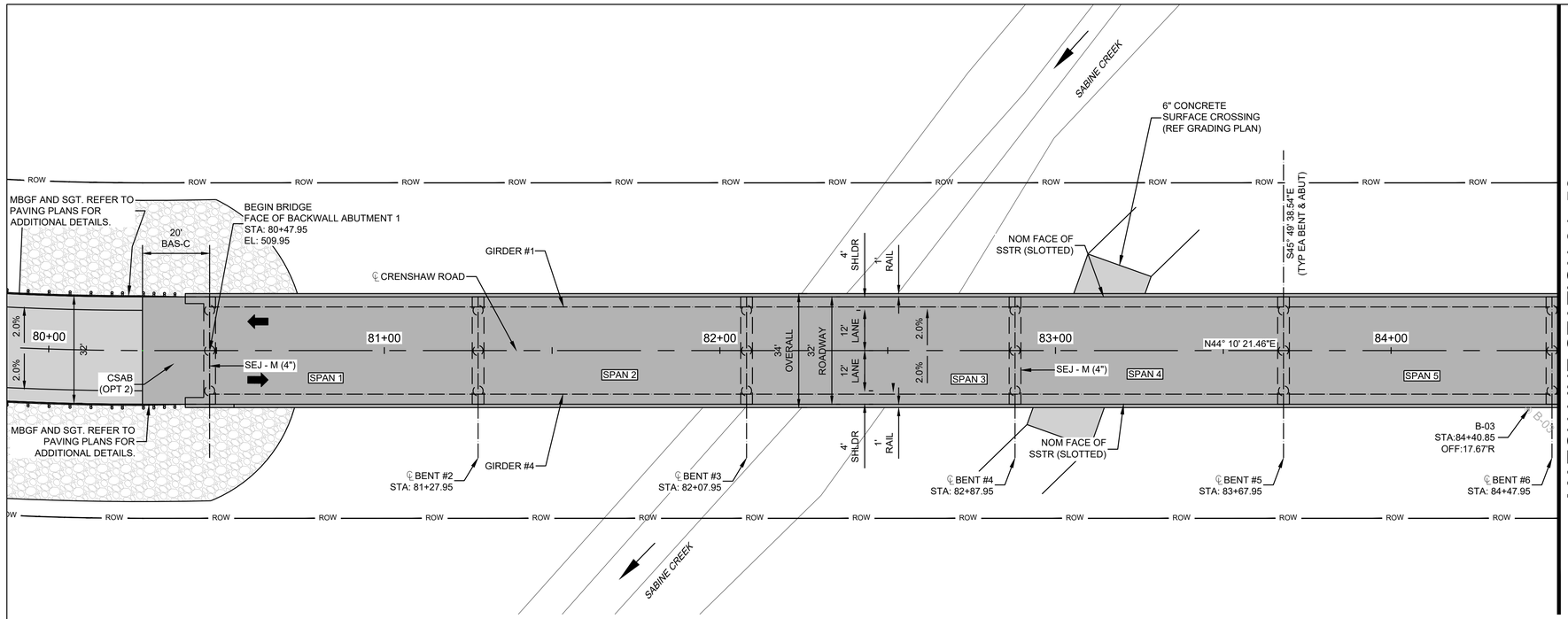
IT IS NOT TO BE USED FOR CONSTRUCTION OR PERMITTING PURPOSES.

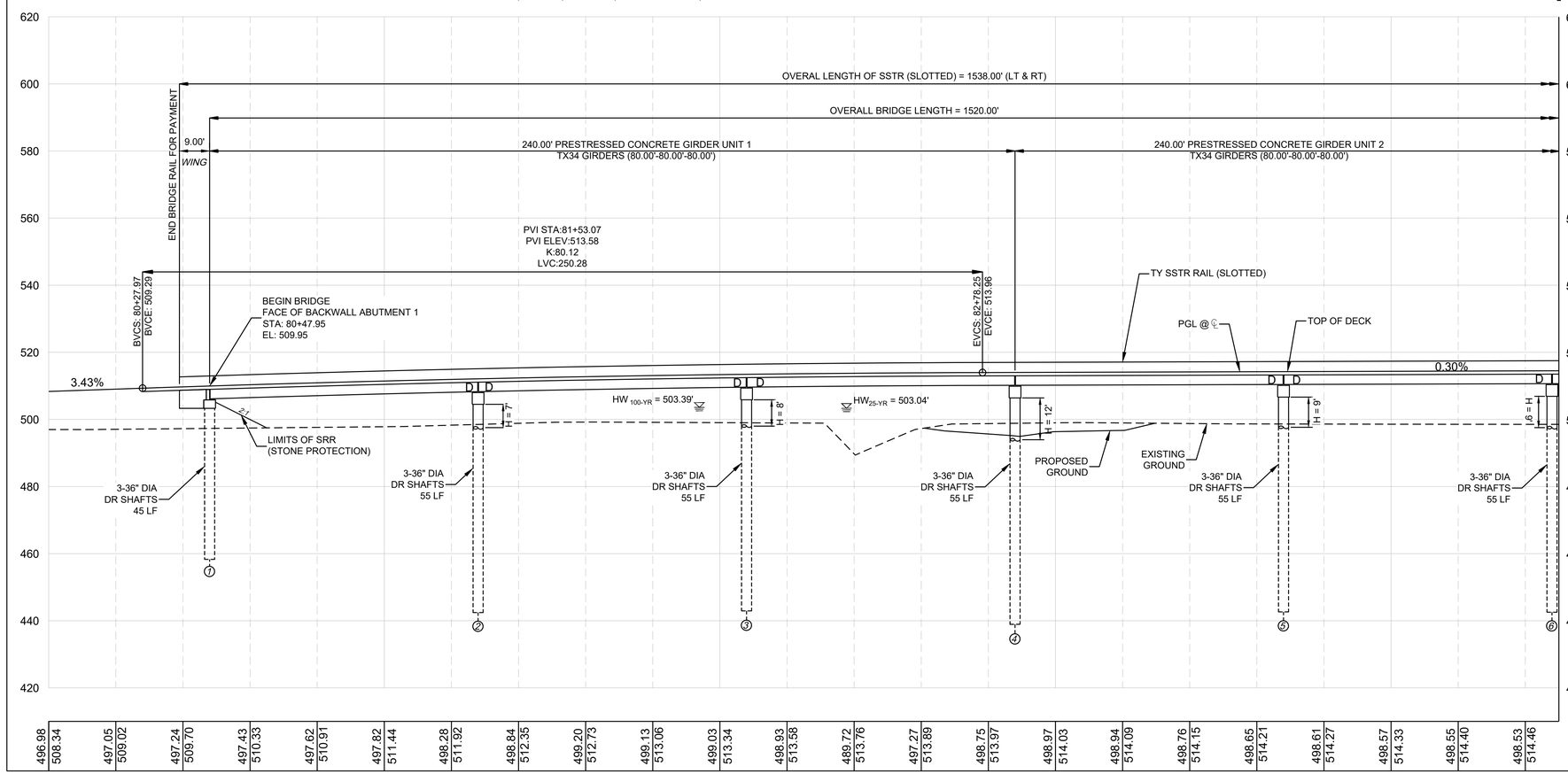
PROJECT NO. 22-02557
DATE 2/16/2026
SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

SMD (SLIP-3)-08

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
C-64





0 20 40 Feet

BRIDGE NOTES:

DESIGNED IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION (2020). (HL-93 LOADING)

THE "H" VALUES ARE ESTIMATED COLUMN HEIGHTS. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATING THE ACTUAL COLUMN HEIGHTS BASED ON FIELD CONDITIONS.

SEE IGEB STANDARD FOR GIRDER END AND BEARING DETAILS. SEE BENT DETAILS FOR DOWEL LOCATIONS. (D) DENOTES DOWELED END CONDITIONS.

FOUND DRILLED SHAFTS AT THE ELEVATION SHOWN OR DEEPER AS NECESSARY TO OBTAIN A MINIMUM OF THREE DRILLED SHAFT DIAMETER PENETRATION INTO GRAY MARL.

SEE GEOTECHNICAL REPORT FOR THE GROUNDWATER LEVELS AND OTHER DETAILS. GROUNDWATER MAY BE ENCOUNTERED DURING INSTALLATION OF THE DRILLED SHAFTS.

FUNCTIONAL CLASS = COLLECTOR
DESIGN SPEED = 40 MPH

PROP NBI NO. = XX-XXX-X-XXXX-XX-XXX

NO.	REVISIONS	DATE	BY

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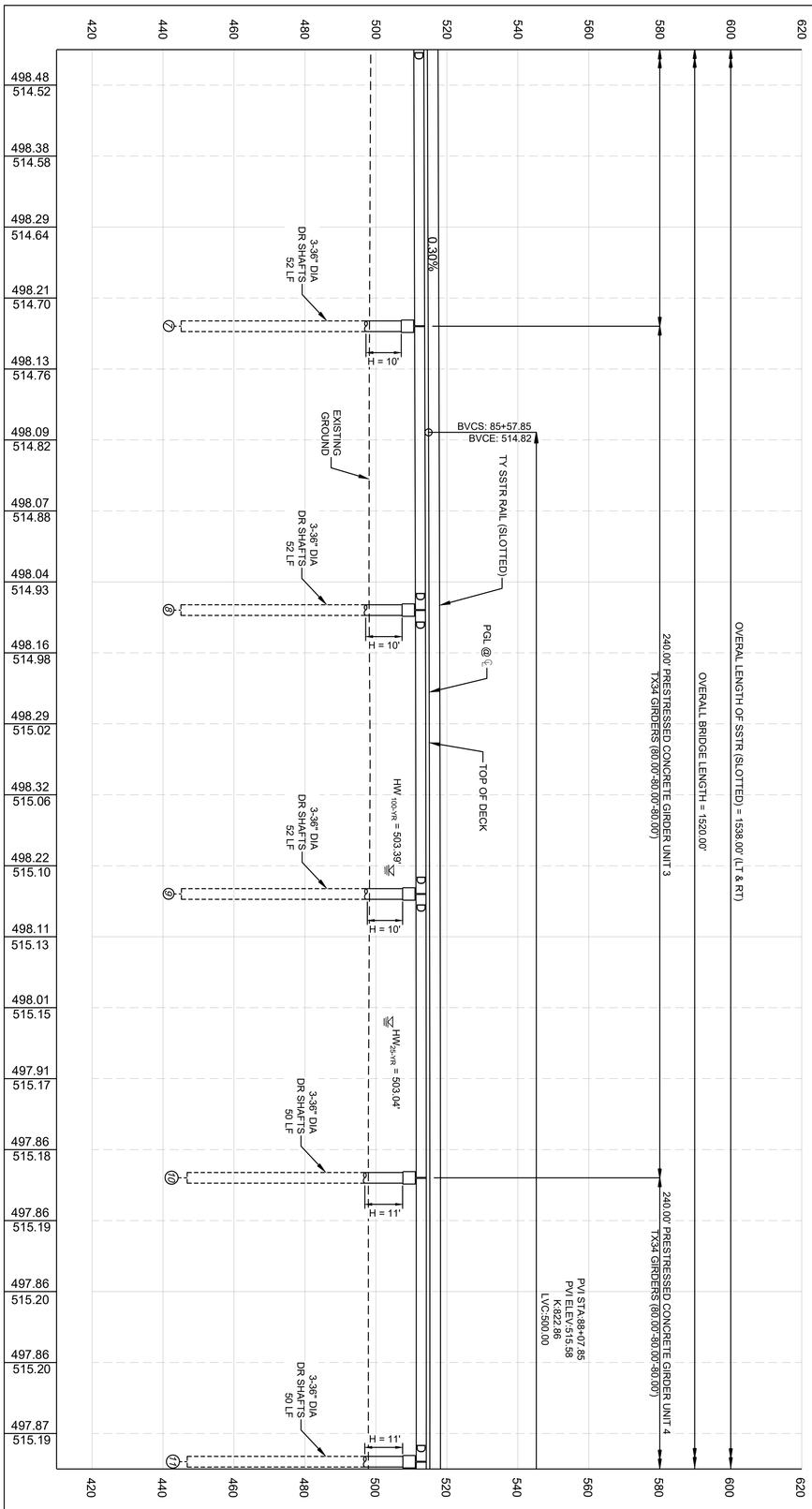
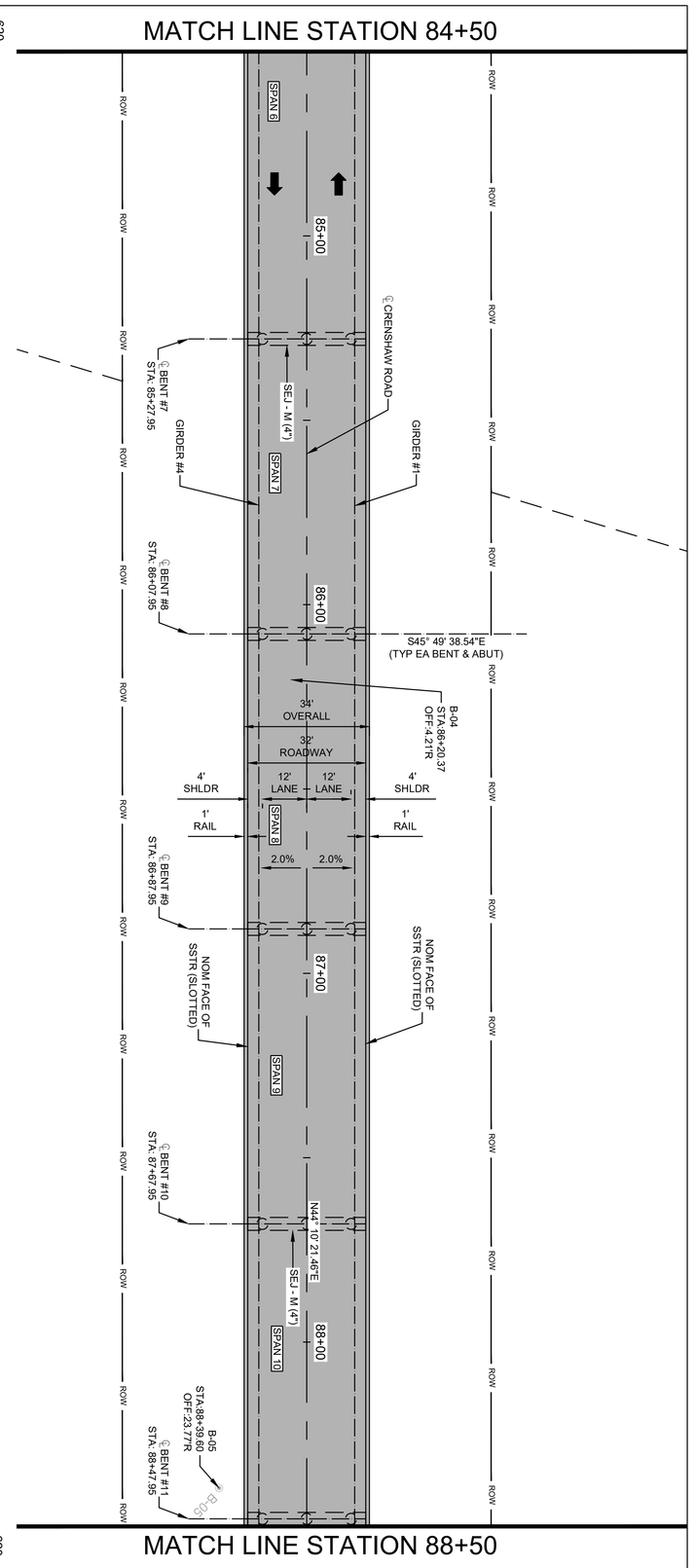
BRIDGE LAYOUT BEGIN TO 84+50

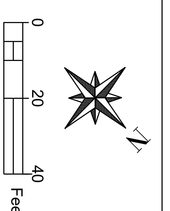
CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-1







SHEET NUMBER
B-2

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

BRIDGE LAYOUT 84+50 TO 88+50

PROJECT NO.
22-02557

DATE
2/16/2026

SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

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F-16849

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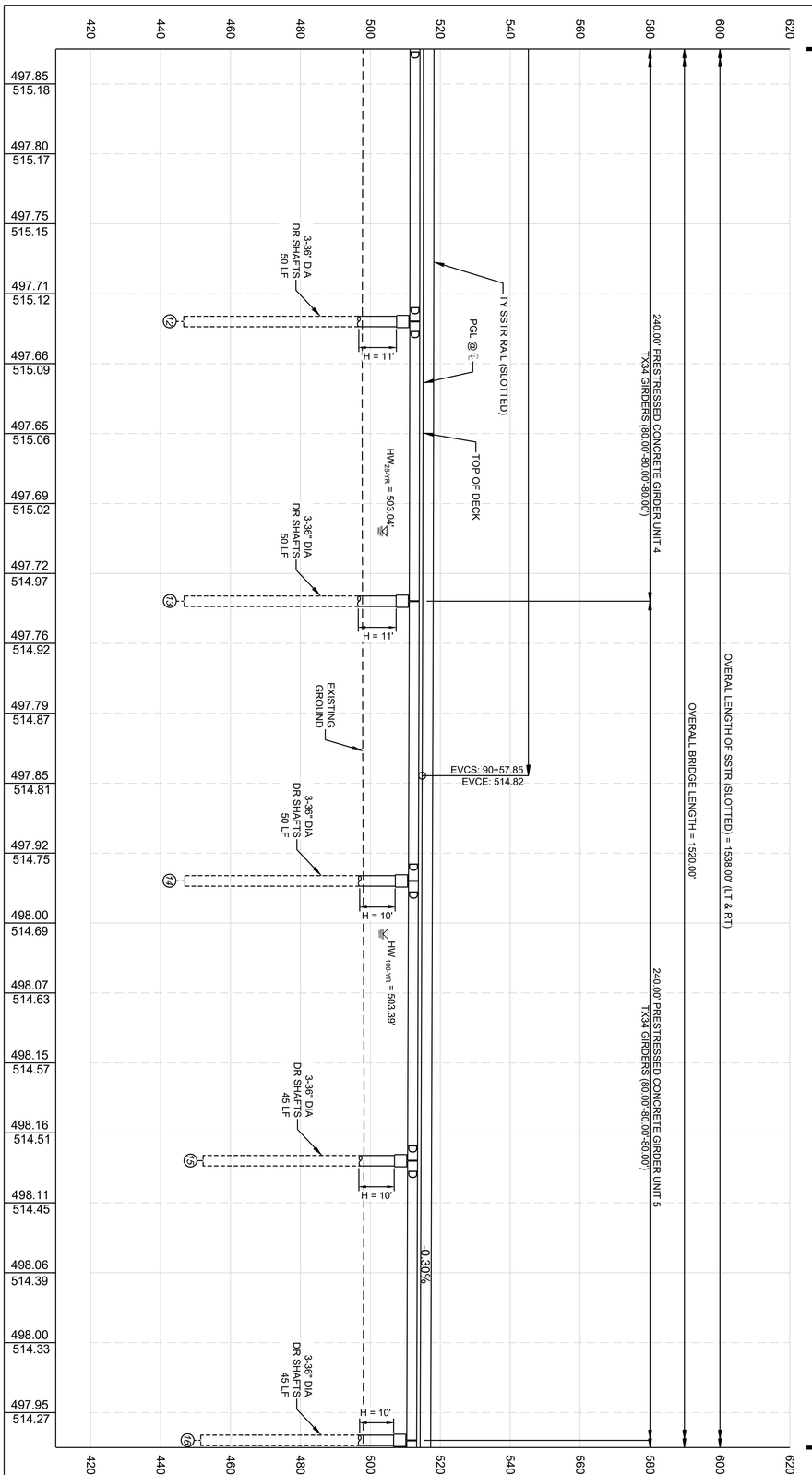
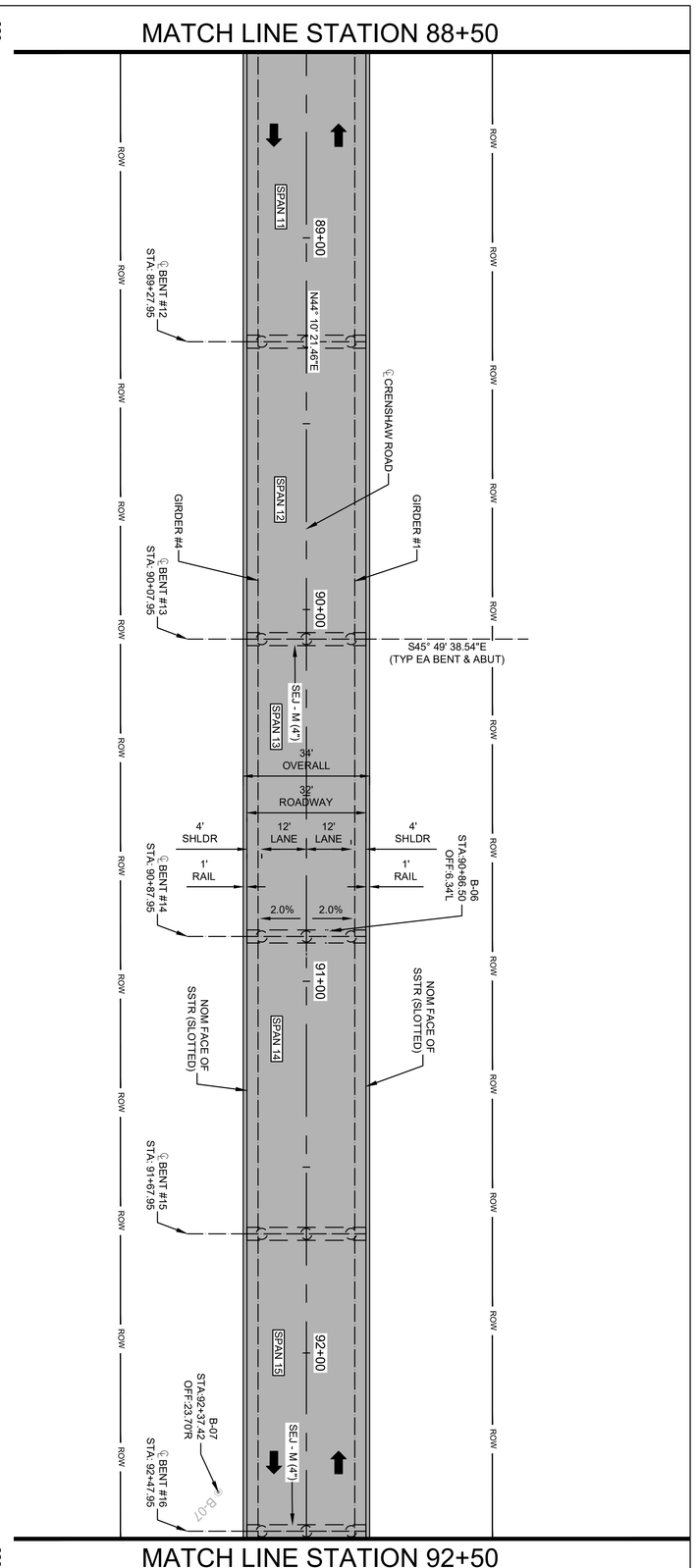
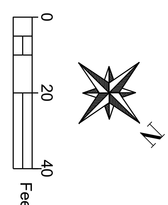
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

NO.	REVISIONS	DATE	BY

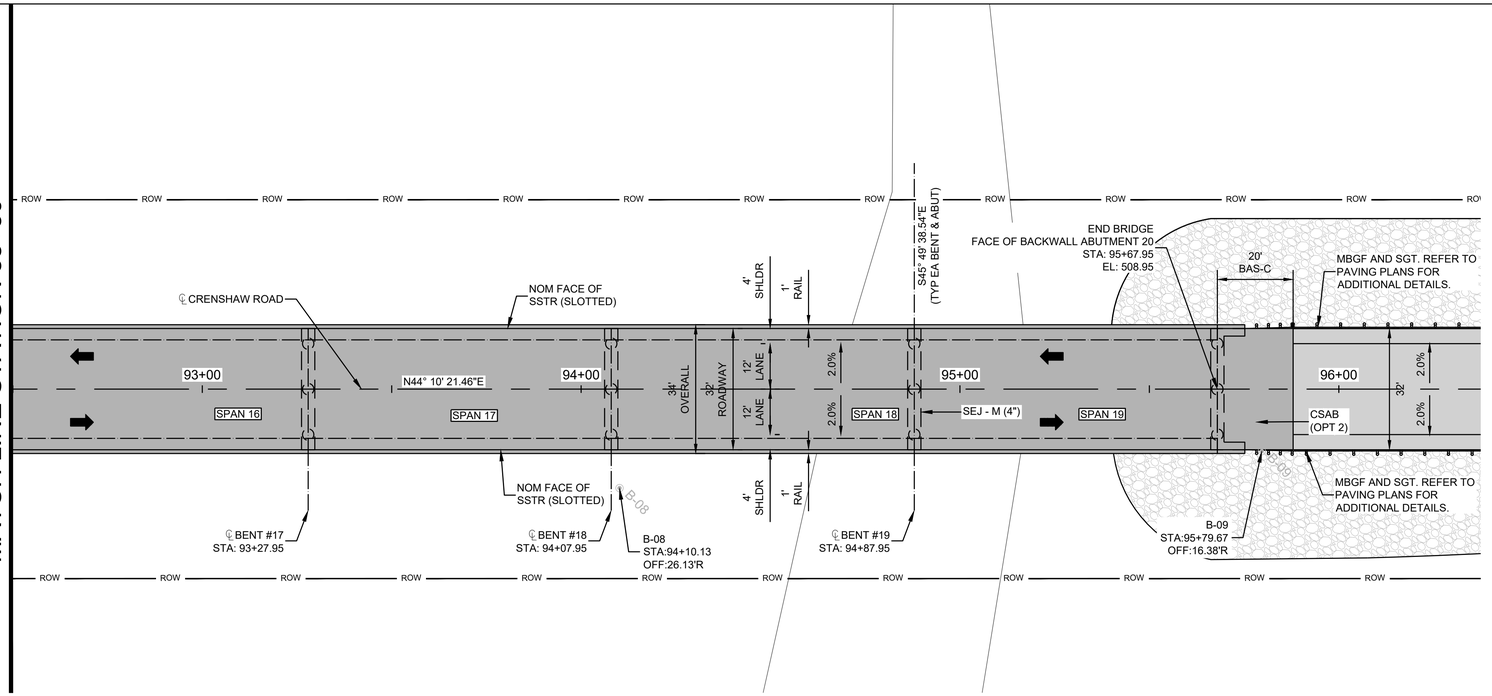


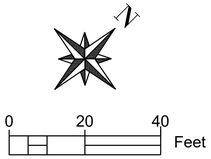


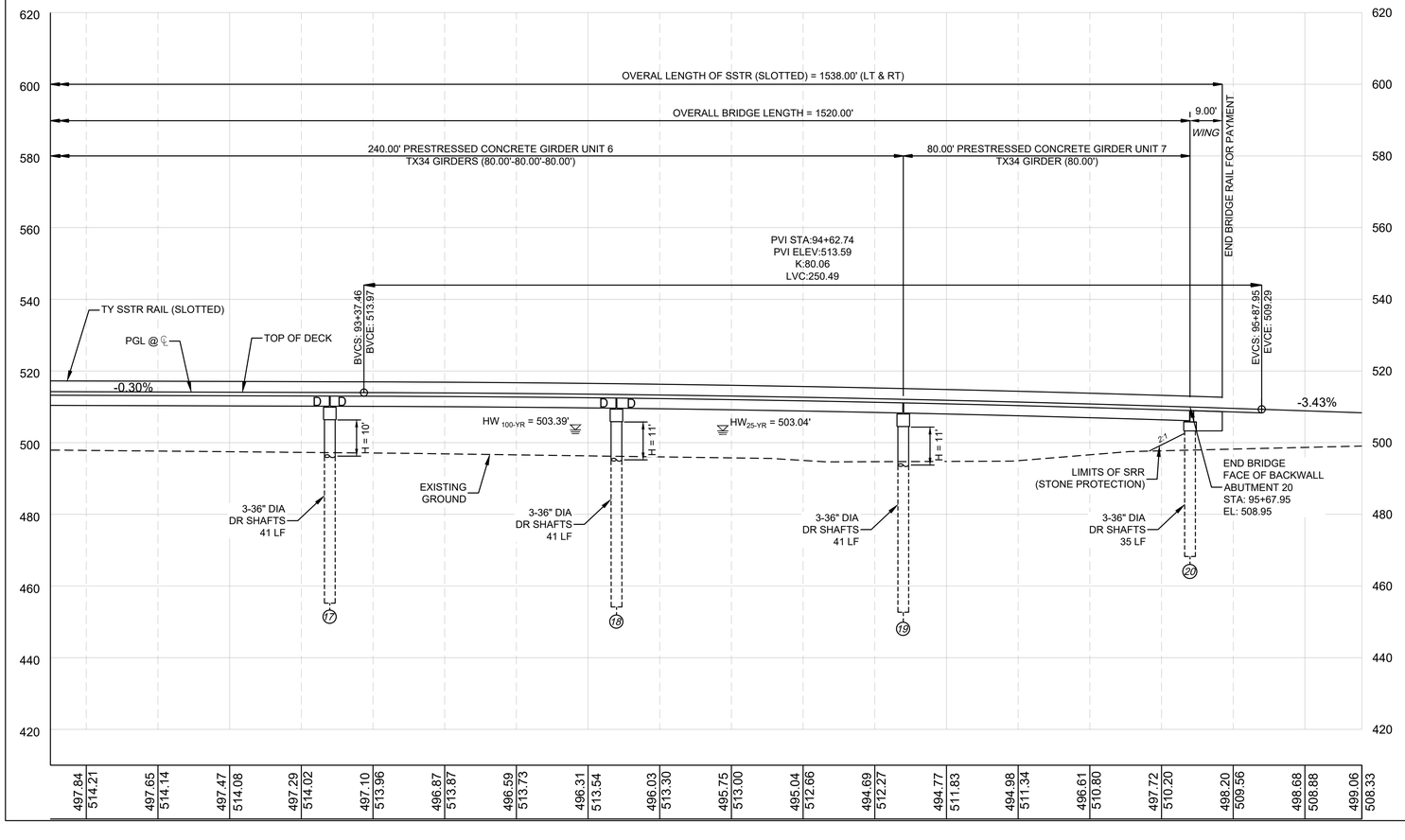


SHEET NUMBER B-3	CRENSHAW ROAD EAST CITY OF ROYSE CITY ROCKWALL COUNTY, TX.	BRIDGE LAYOUT 88+50 TO 92+50	PROJECT NO. 22-02557 DATE 2/16/2026 SCALE: AS SHOWN DESIGNED BY: JRM DRAWN BY: JRM CHECKED BY: JKS	NOT FOR CONSTRUCTION THIS DOCUMENT IS RELEASED FOR THE PURPOSE OF BIDDING UNDER THE AUTHORITY OF JACKSON R. MEYER, P.E. 140599 ON 2/16/2026. IT IS NOT TO BE USED FOR CONSTRUCTION OR PERMITTING PURPOSES.	REGISTRATION NO. F-16849 WSB, LLC. 3522 SAM RAYBURN HWY., MELISSA, TX. 75454 Ph. (469) 907-5500 www.wsbeng.com

NO.	REVISIONS	DATE	BY







NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

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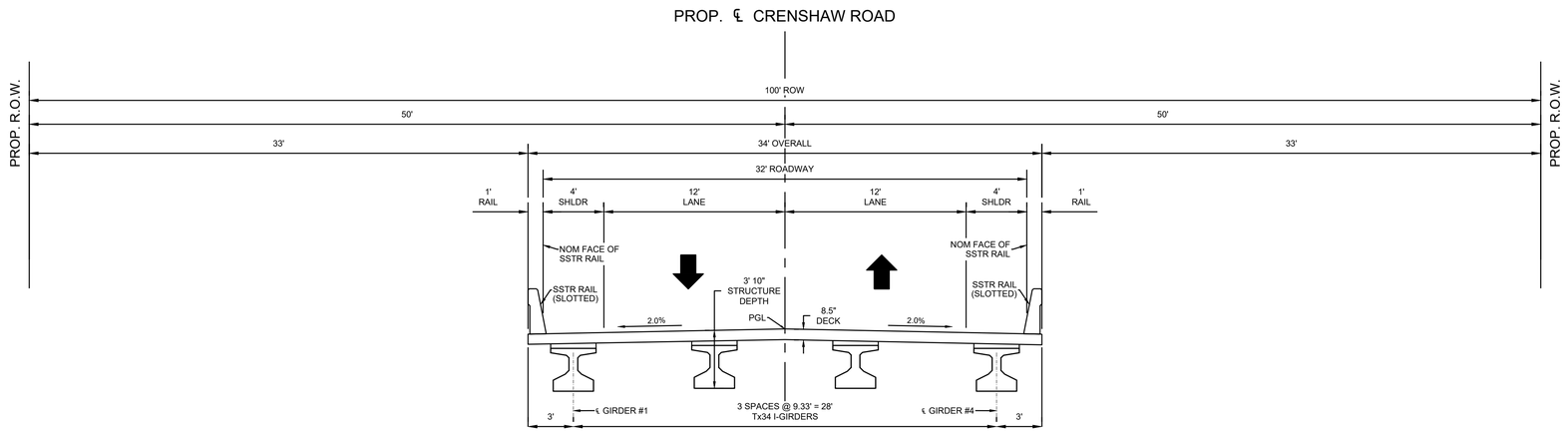
DRAWN BY:	JRM
CHECKED BY:	JKS

BRIDGE LAYOUT 92+50 TO END

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-4



TYPICAL SECTION
(SPANS 1-19)

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-3500
www.wsbeng.com

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CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

TYPICAL SECTION
(SHEET 1 OF 1)

SHEET NUMBER
B-5

SUMMARY OF ESTIMATED QUANTITIES												
ITEM	400	416	420	420	420	422	422	422	425	432	450	454
BID CODE	6005	6004	6013	6029	6037	6023	6001	6015	6036	6031	6023	6018
BID ITEM / DESCRIPTION / BRIDGE ELEMENT	CEM STABIL BKFL	DRILL SHAFT (36 IN)	CL C CONC (ABUT)	CL C CONC (CAP)	CL C CONC (COL)	SHEAR KEY	REINF CONC SLAB	APPROACH SLAB	PRESTR CONC GIRDER (TX34)	RIPRAP STONE PROTECTION (12 IN)	RAIL (TY SSTR)	SEALED EXPANSION JOINT (SEJ-M) (4 IN)
UNIT	CY	LF	CY	CY	CY	CY	SF	CY	LF	CY	LF	LF
2 - ABUTMENTS	73	240	40.2			1		62.0		0		
18 - INTERIOR BENTS		2,682		257.4	142.2	13						
PRESTR CONC I-GIRDER (TX34)							51,680		6,042.00		3,076.0	229.3
TOTAL	73	2,922	40.2	257.4	142.2	13	51,680	62	6,042.00	0	3,076.0	229.3

BEARING SEAT ELEVATIONS

	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 1 (FWD)	505.668	505.855	505.855	505.668
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 2 (BK)	508.342	508.528	508.528	508.342
(FWD)	508.410	508.597	508.597	508.410
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 3 (BK)	509.402	509.588	509.588	509.402
(FWD)	509.408	509.594	509.594	509.408
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 4 (BK)	509.646	509.833	509.833	509.646
(FWD)	509.652	509.839	509.839	509.652
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 5 (BK)	509.890	510.077	510.077	509.890
(FWD)	509.896	510.083	510.083	509.896
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 6 (BK)	510.135	510.321	510.321	510.135
(FWD)	510.141	510.327	510.327	510.141
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 7 (BK)	510.379	510.566	510.566	510.379
(FWD)	510.385	510.572	510.572	510.385
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 8 (BK)	510.623	510.810	510.810	510.623
(FWD)	510.630	510.816	510.816	510.630
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 9 (BK)	510.868	511.054	511.054	510.868
(FWD)	510.874	511.061	511.061	510.874
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 10 (BK)	511.112	511.299	511.299	511.112
(FWD)	511.118	511.305	511.305	511.118
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 11 (BK)	511.118	511.305	511.305	511.118
(FWD)	511.112	511.299	511.299	511.112
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 12 (BK)	510.875	511.062	511.062	510.875
(FWD)	510.869	511.056	511.056	510.869
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 13 (BK)	510.632	510.819	510.819	510.632
(FWD)	510.626	510.813	510.813	510.626
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 14 (BK)	510.389	510.576	510.576	510.389
(FWD)	510.383	510.570	510.570	510.383
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 15 (BK)	510.146	510.333	510.333	510.146
(FWD)	510.140	510.326	510.326	510.140
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 16 (BK)	509.903	510.089	510.089	509.903
(FWD)	509.897	510.083	510.083	509.897
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 17 (BK)	509.660	509.846	509.846	509.660
(FWD)	509.654	509.840	509.840	509.654
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 18 (BK)	509.417	509.603	509.603	509.417
(FWD)	509.410	509.597	509.597	509.410
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 19 (BK)	508.416	508.603	508.603	508.416
(FWD)	508.347	508.534	508.534	508.347
	BEAM 1	BEAM 2	BEAM 3	BEAM 4
BENT 20 (BK)	505.670	505.857	505.857	505.670

NO.	REVISIONS	DATE	BY

WSB LLC.
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ESTIMATED QUANTITIES & BEARING SEAT ELEVATIONS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-5.1

DRILLING LOG

1 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-03 | Structure Bridge | Station | Offset
District Dallas | Date 8/9/24 | Grnd. Elev. 498.44 ft | GW Elev. 478.44 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)							PP=4.50
		2 (6) 2 (6)								PP=2.75
5										
		2 (6) 3 (6)								PP=2.00
10										
		4 (6) 4 (6)								PP=2.50
15										
		5 (6) 5 (6)								PP=3.00
20										
		5 (6) 6 (6)								PP=3.25
25										
468.4		23 (6) 26 (6)	MARL, soft, gray.							PP=1.75
30										
		49 (6) 50 (4)								N=9-11-12
35										
		50 (2.5) 50 (3.75)								N=10-11-15
40										

Remarks: Northing: 7027916.44 & Easting: 2639625.64.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

2 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-03 | Structure Bridge | Station | Offset
District Dallas | Date 8/9/24 | Grnd. Elev. 498.44 ft | GW Elev. 478.44 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 30 (6)								
50		50 (6) 50 (5.5)								N=19-21-30
55		38 (6) 50 (6)								
60		50 (1.5) 50 (3.25)								N=22-22-33
65		50 (2) 50 (1.5)								
70		50 (3.5) 50 (2.5)								N=16-18-27
423.4		34 (6) 28 (6)								
75										
80										

Remarks: Northing: 7027916.44 & Easting: 2639625.64.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

1 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-04 | Structure Bridge | Station | Offset
District Dallas | Date 8/1/24 | Grnd. Elev. 498.12 ft | GW Elev. 462.12 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to very stiff, dark gray, and gray and brown. (CH)							PP=3.75
		3 (6) 3 (6)								PP=3.50
5										
		2 (6) 3 (6)								PP=2.25
10										
		4 (6) 4 (6)								PP=2.50
15										
		8 (6) 10 (6)								N=3-4-5
20										
		10 (6) 11 (6)								N=5-6-8
25										
465.1		18 (6) 18 (6)	MARL, soft, gray.							N=7-10-12
30										
		29 (6) 49 (6)								N=7-10-14
35										
		50 (4) 50 (4)								N=9-12-15
40										

Remarks: Northing: 7028054.6 & Easting: 2639741.09.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

2 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-04 | Structure Bridge | Station | Offset
District Dallas | Date 8/1/24 | Grnd. Elev. 498.12 ft | GW Elev. 462.12 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 50 (3.5)								N=10-11-11
50		50 (2.5) 50 (2)								N=8-12-14
55		50 (1) 50 (0.5)								N=11-23-29
60		50 (1.5) 50 (1)								N=16-18-19
65		50 (1.75) 50 (1)								
70		50 (1.88) 50 (1)								
423.1		50 (1.75) 50 (1.25)								
75										
80										

Remarks: Northing: 7028054.6 & Easting: 2639741.09.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

1 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-05 | Structure Bridge | Station | Offset
District Dallas | Date 7/30/24 | Grnd. Elev. 497.68 ft | GW Elev. 461.68 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)							PP=4.25
		2 (6) 2 (6)								PP=3.50
5										
		3 (6) 3 (6)								PP=1.75
10										
		4 (6) 4 (6)								N=3-4-5
15										
		12 (6) 13 (6)								N=3-3-4
20										
		11 (6) 10 (6)								N=6-7-10
25										
467.7		47 (6) 50 (6)								N=6-8-11
30			MARL, soft, gray.							
		25 (6) 27 (6)								N=9-12-15
35										
		50 (4) 50 (5)								N=6-10-15
40										

Remarks: Northing: 7028198.23 & Easting: 2639907.91.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

2 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-05 | Structure Bridge | Station | Offset
District Dallas | Date 7/30/24 | Grnd. Elev. 497.68 ft | GW Elev. 461.68 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (4) 50 (3)								N=13-18-19
50		50 (1) 50 (1)								N=11-17-23
55		50 (2) 50 (1)								N=19-21-26
60		50 (2) 50 (1.5)								N=24-30-37
65		50 (2.25) 50 (1.13)								N=22-25-29
70		50 (5) 50 (2.5)								N=25-27-31
422.7		50 (2) 50 (3.5)								N=22-28-31
75										
80										

Remarks: Northing: 7028198.23 & Easting: 2639907.91.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

NO.	REVISIONS	DATE	BY

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Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO. F-16849

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PROJECT NO. 22-02557
DATE 2/16/2026
SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

BORING LOGS

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-5.2

DRILLING LOG

1 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-06 | Structure Bridge | Station | Offset
District Dallas | Date 7/29/24 | Grnd. Elev. 497.59 ft | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)							PP=3.00
										PP=2.75
5		2 (6) 3 (6)								
10		3 (6) 3 (6)								PP=1.75
15		7 (6) 7 (6)								PP=2.00
20		8 (6) 7 (6)								N=7-8-9
25		14 (6) 12 (6)								N=5-6-8
467.6 30		50 (4) 50 (4.5)	MARL, soft, gray.							N=6-7-10
35		50 (4) 50 (4)								N=9-13-17
40		50 (3.5) 50 (3)								N=11-15-21

Remarks: Northing: 7028396.33 & Easting: 2640058.38.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

2 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-06 | Structure Bridge | Station | Offset
District Dallas | Date 7/29/24 | Grnd. Elev. 497.59 ft | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 50 (2)								N=11-17-23
50		50 (2) 50 (2)								N=25-31-40
55		50 (2) 50 (1)								N=17-19-25
60		50 (2.5) 50 (1)								N=21-28-23
65		50 (2) 50 (0.5)								N=19-24-26
70		50 (2.5) 50 (1)								N=19-24-33
422.6 75		50 (3.5) 50 (6)								N=15-18-24
80										

Remarks: Northing: 7028396.33 & Easting: 2640058.38.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

1 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-07 | Structure Bridge | Station | Offset
District Dallas | Date 7/26/24 | Grnd. Elev. 497.63 ft | GW Elev. 468.13 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, stiff to very stiff, dark gray, and gray and brown. (CH)							PP=4.00
										PP=3.25
5		2 (6) 3 (6)								
10		4 (6) 4 (6)								PP=2.50
15		7 (6) 6 (6)								PP=3.25
20		9 (6) 11 (6)								PP=2.50
25		12 (6) 18 (6)								N=5-6-8
467.6 30		50 (5) 50 (3.5)	MARL, soft, gray.							N=10-12-14
35		50 (3) 50 (2.5)								N=12-20-25
40		50 (1) 50 (2)								N=11-14-17

Remarks: Northing: 7028483.65 & Easting: 2640185.11.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

2 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-07 | Structure Bridge | Station | Offset
District Dallas | Date 7/26/24 | Grnd. Elev. 497.63 ft | GW Elev. 468.13 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (3) 50 (2.5)								N=16-18-21
50		50 (2) 50 (1)								N=15-20-24
55		50 (1.5) 50 (1.5)								N=17-18-25
60		50 (3.5) 50 (1)								N=19-22-26
65		50 (3) 50 (2.25)								N=18-21-25
70		50 (3.25) 50 (2.75)								N=16-18-21
422.6 75		50 (1) 50 (1)								N=19-30-43
80										

Remarks: Northing: 7028483.65 & Easting: 2640185.11.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

1 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-08 | Structure Bridge | Station | Offset
District Dallas | Date 7/24/24 | Grnd. Elev. 496.20 ft | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)							PP=4.50+
										PP=2.50
5		2 (6) 3 (6)								
10		8 (6) 8 (6)								PP=2.75
15		9 (6) 11 (6)								PP=3.75
476.2 20		50 (5) 50 (6)	MARL, soft, gray.							PP=3.50
25		50 (3) 50 (3)								N=10-12-16
30		50 (4.5) 50 (4.5)								N=10-16-18
35		50 (4.5) 50 (4)								N=10-15-20
40		50 (3) 50 (2.25)								N=13-19-23

Remarks: Northing: 7028605.85 & Easting: 2640307.22.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

DRILLING LOG

2 of 2

WinCore Version 3.3

County Collin | Highway Crenshaw Rd | CSJ
Hole B-08 | Structure Bridge | Station | Offset
District Dallas | Date 7/24/24 | Grnd. Elev. 496.20 ft | GW Elev. N/A

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		50 (2.5) 50 (1.75)								N=14-18-23
50		50 (2.5) 50 (2)								N=15-21-28
55		50 (2) 50 (1.5)								N=20-27-41
60		50 (2.5) 50 (1.5)								N=21-26-37
65		50 (2.25) 50 (1.5)								N=5-18-24
70		50 (2) 50 (1.75)								N=17-22-50/5.5in
421.2 75		50 (1.75) 50 (1.5)								
80										

Remarks: Northing: 7028605.85 & Easting: 2640307.22.

The ground water elevation was not determined during the course of this boring.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dg

NO.	REVISIONS	DATE	BY

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PROJECT NO.	DATE	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

BORING LOGS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-5.3

DRILLING LOG

WinCore Version 3.3

County Collin
Highway Crenshaw Rd
CSJ

Hole B-09
Structure Bridge
Station
Offset

District Dallas
Date 7/19/24
Grnd. Elev. 498.09 ft
GW Elev. 465.09 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			CLAY, fat, firm to very stiff, dark gray, and gray and brown. (CH)							PP=3.75
										PP=1.75
5		4 (6) 4 (6)								
10		8 (6) 8 (6)								PP=3.75
15		14 (6) 14 (6)								N=5-7-8
478.1 20		25 (6) 50 (6)	MARL, soft, gray.							N=7-7-9
25		50 (3.5) 50 (4.5)								N=14-17-23
30		50 (5) 50 (4.5)								N=14-19-27
35		32 (6) 50 (5.5)								N=15-16-18
40		50 (3.75) 50 (4.25)								N=15-18-23

Remarks: Northing: 7028734.27 & Easting: 2640418.38.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dlg

DRILLING LOG

WinCore Version 3.3

County Collin
Highway Crenshaw Rd
CSJ

Hole B-09
Structure Bridge
Station
Offset

District Dallas
Date 7/19/24
Grnd. Elev. 498.09 ft
GW Elev. 465.09 ft

Elev. (ft)	LOG	Texas Cone Penetrometer	Strata Description	Triaxial Test: Lateral Press. (psi)	Triaxial Test: Deviator Stress (psi)	Properties: MC	LL	PI	Wet Den. (pcf)	Additional Remarks
			MARL, soft, gray.							
45		34 (6) 24 (6)								N=14-17-19
50		50 (3) 50 (1.5)								N=22-33-36
55		50 (3.25) 50 (2)								N=30-50-50/4.5in
60		50 (1.5) 50 (1.25)								
65		50 (1.25) 50 (1.5)								
70		50 (2) 50 (1.5)								
423.1 75		50 (1.5) 50 (1.24)								
80										

Remarks: Northing: 7028734.27 & Easting: 2640418.38.

Any ground water elevation information provided on this boring log is representative of conditions existing on the day and for the specific location where this information was collected. The actual groundwater elevation may fluctuate due to time, climatic conditions, and/or construction activity.

Driller: TW **Logger: JM** **Organization: WSB**

J:_TX_Melissa_Geotechnical\2021 Geotech Texas Projects\2-202557 - Crenshaw Rd\D - BORING LOGS\B Borings\Crenshaw Rd Wincore Logs - Bridge Borings.dlg

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PROJECT NO.	22-02557
DATE	2/16/2026
SCALE:	AS SHOWN
DESIGNED BY:	JRM
DRAWN BY:	JRM
CHECKED BY:	JKS

BORING LOGS

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-5.4

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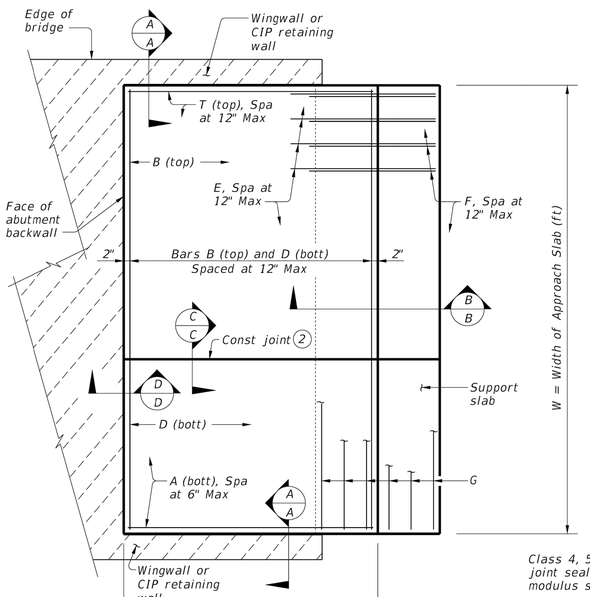
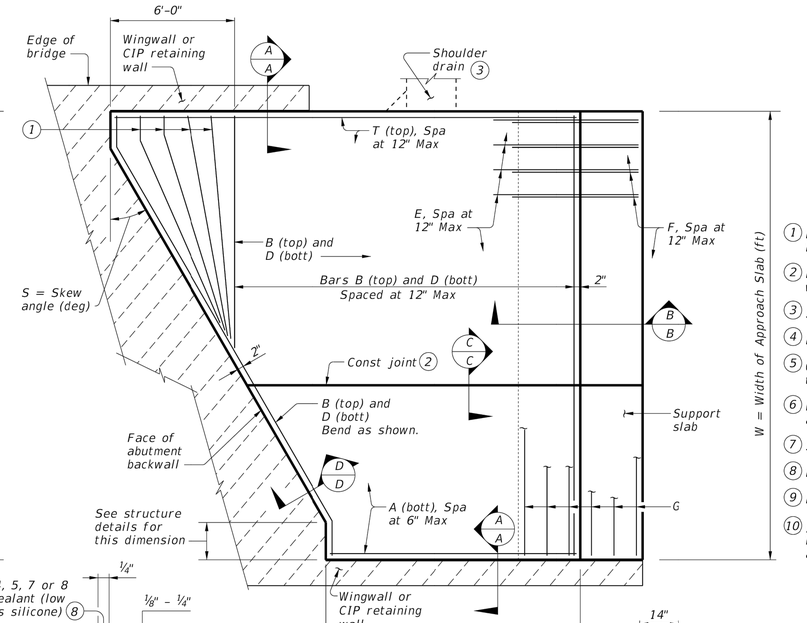
FILE:



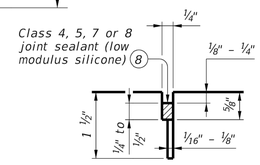
PLAN

(Showing non-skewed approach slab.)

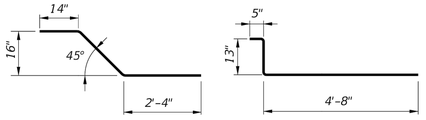


PLAN

(Showing skewed approach slab.)

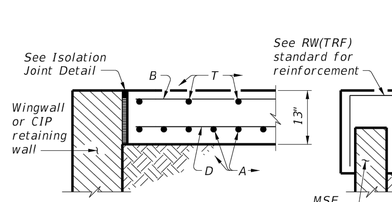


LONGITUDINAL SAW CUT JOINT DETAIL

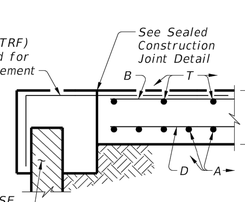


BARS E (#5)

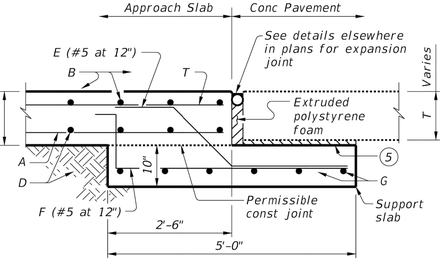
BARS F (#5)



SHOWING WINGWALL OR CIP RETAINING WALL

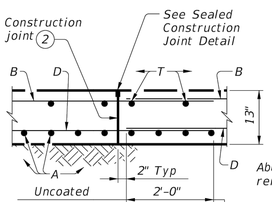


SHOWING MSE WALL



SECTION A-A

SECTION B-B



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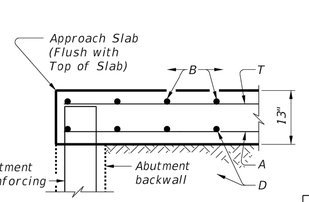
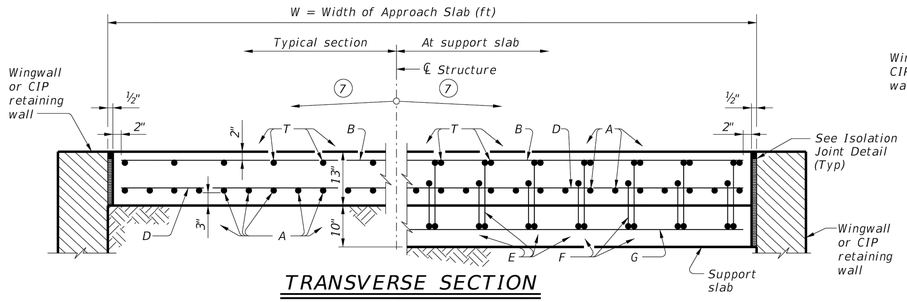
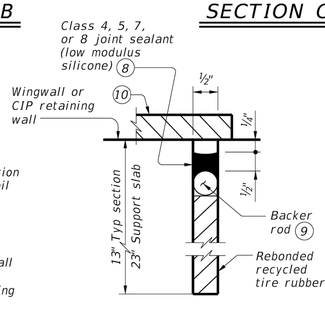


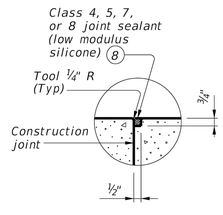
SECTION D-D



TRANSVERSE SECTION



ISOLATION JOINT DETAIL



SEALED CONSTRUCTION JOINT DETAIL

BAR TABLE	
BAR	SIZE
A	#8
B	#5
D	#5
E	#5
F	#5
G	#5
T	#5

APPROXIMATE QUANTITIES (4)

Reinf steel weight = 8.5 Lbs/SF of Approach Slab
= 18.4 Lbs/LF of Support Slab

Vol of Appr Slab Conc (CY) = 1.057W – 0.008W x T + 0.02W² Tan S
(Includes Support Slab)

W = Width of Approach Slab (ft)

T = Conc Pavement Thickness (in)

S = Skew Angle (deg)

(1) Flare Bars B and D in this region (1'-6" Max Spa, 3" Min Spa). Minimum flared bar length = 2'-6". Bend bars as necessary.

(2) Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.

(3) See details elsewhere in plans for shoulder drain location and details.

(4) For Contractor's information only. Quantities shown are for one approach slab only.

(5) On portion of support slab that supports the concrete pavement, adjust top surface elevation, if required, to accommodate concrete pavement thickness. Smooth trowel finish. Place two layers of 30# roofing felt.

(6) Multiple piece tie bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.

(7) See details elsewhere in plans for required cross-slope.

(8) Place in accordance with Item 438.

(9) Provide backer rod that is 25% larger than joint opening and compatible with the sealant.

(10) If bridge rail is present at the wingwall or CIP retaining wall, place ½" rebonded recycled tire rubber between concrete railing and top of approach slab as shown when concrete railing projects over the approach slab.

GENERAL NOTES:

Construct approach slab in accordance with Item 422.

Provide Class "S" concrete with a minimum compressive strength of 4,000 psi.

Provide Grade 60 reinforcing steel.

Provide longitudinal joints as shown on the Longitudinal Saw Cut Joint Detail at lane lines and shoulders when width between longitudinal construction joints or edges of approach slab exceeds 16 feet. Saw cut joints within 24 hours of concrete placement to a depth of 1 ½" and seal in accordance with Item 438. Alternately, provide a controlled joint consisting of 1 ½" vinyl or plastic joint former (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

Provide rebonded recycled tire rubber joint filler that meets the requirements of DMS-6310. "Joint Sealants and Fillers."

Construct the subgrade or subbase away from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.

Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown on the plans.

Cure for 4 days using water or membrane curing per Item 422.

All details shown herein are subsidiary to bridge approach slab.

Cover dimensions are clear dimensions, unless noted otherwise. Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation

Bridge Division Standard

BRIDGE APPROACH SLAB
CONCRETE PAVEMENT

BAS-C

FILE: MS-BAS-C-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS				
02-20: Removed stress relieving pad. 03-23: Note 5 changed.	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

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3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
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PROJECT NO. 22-02557	DATE 2/16/2026	SCALE: AS SHOWN	DESIGNED BY: JRM	DRAWN BY: JRM	CHECKED BY: JKS

BAS-C

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
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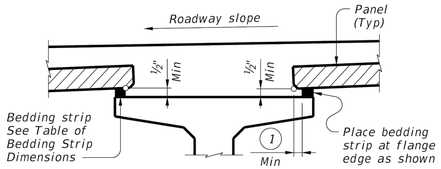
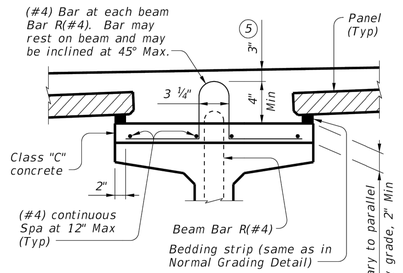


NORMAL GRADING DETAIL (3)

Showing prestressed concrete I-girders.
(Other beam types similar)



SPECIAL GRADING DETAIL FOR CONCRETE BEAMS

Showing prestressed concrete I-girders.
(Other beam types similar)

TABLE OF BEDDING STRIP DIMENSIONS		
WIDTH	HEIGHT (4)	
	Min	Max
1" (Min)	½"	2"
1 ¼"	½"	2 ½"
1 ½"	½"	3"
1 ¾"	½"	3 ½"
2"	½"	4"
2 ¼"	½"	4 ½" (2)
2 ½"	½"	5" (2)
2 ¾"	½"	5 ½" (2)
3" (Max)	½"	6" (2)

(1) 2" Min for I-girders, 1 ½" Min for all other beam types.

(2) Allowed for prestressed concrete I-girders, not allowed on other beam types.

(3) To reduce the quantity of cast-in-place concrete, bedding strip thickness may be increased in ¼" increments. Bedding strips must be comprised of one layer. Bond bedding strips to the beams with an adhesive compatible with bedding strips. Bedding strips over 2.5" high may need to be bonded to panels. The same thickness strip must be used under any one panel edge and the maximum change in thickness between adjacent panels is ¼". Alternatively, bedding strips may be cut to grade. Panels may be supported by an alternate method, using a commercial product, if approved by the Engineer of Bridge Design, Bridge Division. If bedding strips exceed 6" high for I-Girders, 4" high for all other beam types, use Special Grading Detail for Concrete Beams or submit an alternate method to the Bridge Division for approval.

(4) Height must not exceed twice the width.

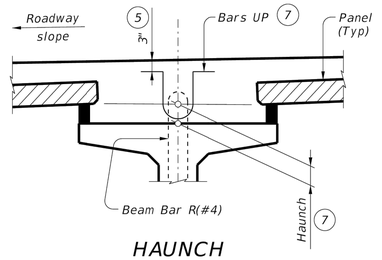
(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(7) Space Bars UP(#4) with Beam Bars R(#4) in all areas where measured haunch exceeds 3 ½" with I-girders, and 3" for all other beam types. Epoxy coating for Bars UP is not required.

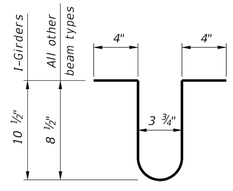
(8) Do not locate construction joints on top of a panel.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

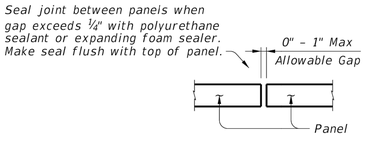


HAUNCH REINFORCING DETAIL

Showing prestressed concrete I-girders.
(Other beam types similar)

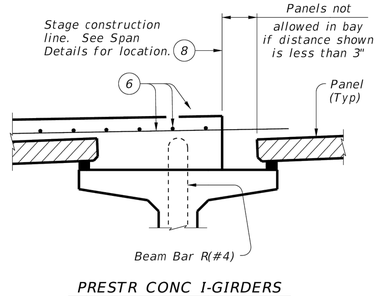


BARS UP (#4) (7)

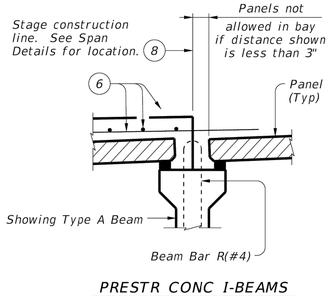


PANEL JOINTS

(Panel reinforcing not shown for clarity.
The gap cannot be considered as a panel fabrication tolerance. Adjust panel placement to minimize joint openings.)



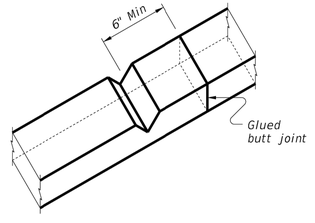
PRESTR CONC I-GIRDERS



PRESTR CONC I-BEAMS

STAGE CONSTRUCTION LIMITATIONS

(Other beam types similar)



BEDDING STRIP DETAIL (9)

CONSTRUCTION NOTES:

Erected panels must bear uniformly on bedding strips of extruded polystyrene placed along top flange edges.

Placing panels to minimize joint openings is recommended.

If additional blocking is needed, special grading details for supporting the panels and extra reinforcing between beam and slab will be considered subsidiary to deck construction.

Bars U, shown on PCP-FAB, may be bent over or cut off if necessary.

Care must be taken to ensure proper cleaning of construction debris and consolidation of concrete material under the edges of the panels. Bedding strips must be placed at beam flange edges so that adequate space is provided for the mortar to flow a minimum of 1 ½" under the panels as the slab concrete is placed.

To allow the proper amount of mortar to flow between beam and panel, the minimum vertical opening must be at least ½". Roadway cross-slope reduces the opening available for entry of the mortar. Bedding strips varying in thickness across the beam are therefore required.

For clear span between U-beams less than or equal to 18", see Permissible Slab Forming Detail on Miscellaneous Slab Detail sheets, UBMS.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel in the cast-in-place slab. See Table of Reinforcing Steel for size and spacing of reinforcement.

If the top and bottom layer of reinforcing steel is shown on the Span Details to be epoxy coated, then the D, E, P, & Z bars must be epoxy coated.

Provide bar Laps, where required, as follows:

Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

Panel placement may follow either Option 1 or Option 2 except Option 1 must be used if the skew exceeds 45 degrees.

Use of Prestressed Concrete Panels is not permitted for horizontally curved steel plate or tub girders. See Span Details for other possible restrictions on their use.

These details are to be used in conjunction with the Span Details, PCP-FAB and other applicable standard drawings.

When panel support (bedding strips) deviates from what is shown herein, provide details signed and sealed by a professional Engineer.

Any additional reinforcement or concrete required on this standard is considered subsidiary to the bid Item "Reinforced Concrete Slab".

Cover dimensions are clear dimensions, unless noted otherwise.

Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

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3/2023: Removed top flange tension limit.	DIST	COUNTY		SHEET NO.	

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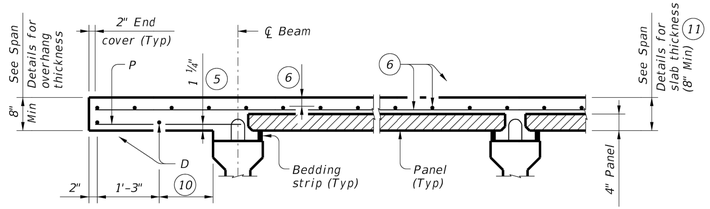
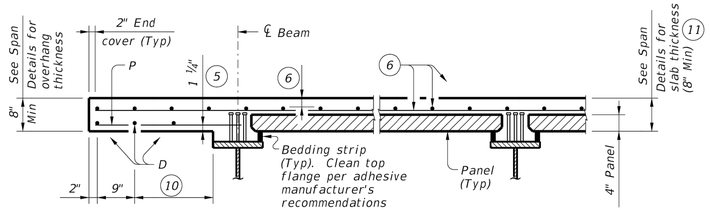
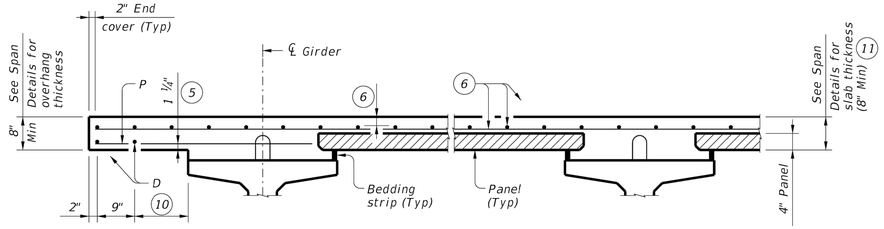


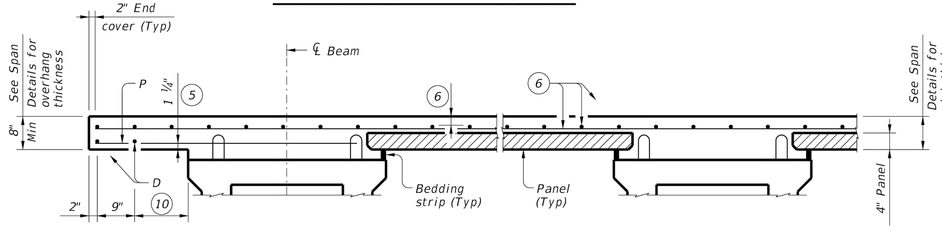
PRESTRESSED CONCRETE I-BEAMS



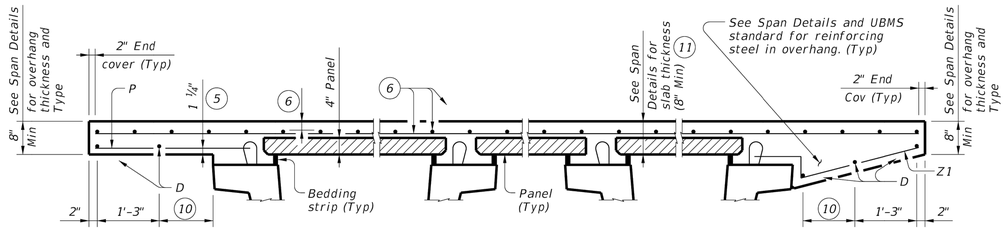
STEEL BEAMS 13



PRESTRESSED CONCRETE I-GIRDERS



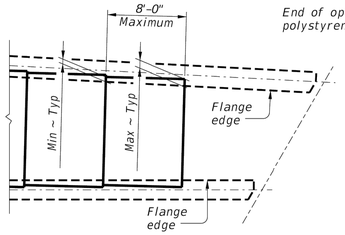
PRESTRESSED CONCRETE X-BEAMS



NORMAL OVERHANG WITH PRESTR CONC U-BEAMS

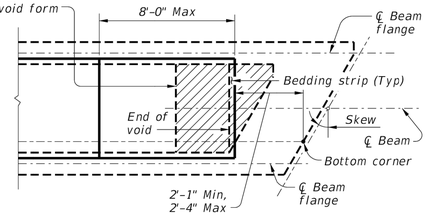
SLOPED OVERHANG WITH PRESTR CONC U-BEAMS

TYPICAL PART TRANSVERSE SECTIONS



AT FLARED BEAMS OR GIRDERS

See PCP-FAB standard for Min and Max dimensions based on beam/girder type.



OVER CONC U-BEAMS

PART PLANS OF PANEL PLACEMENT

(5) Provide clear cover as indicated unless otherwise shown on Span Details.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

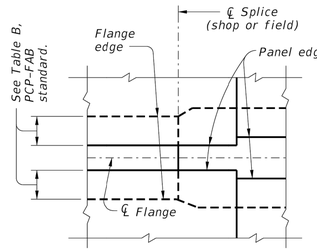
(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c..

(10) Equally space additional bar if more than 1'-3" Max.

(11) The actual thickness constructed may exceed the slab thickness shown on the Span Details but the extra thickness may be no more than 2" (1" for prestressed concrete U-beams and steel beams). Bearing seat elevations or finished grade may be adjusted.

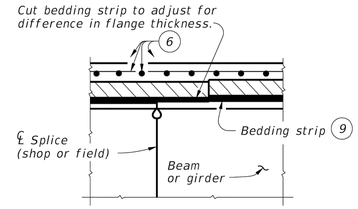
(12) Field adjust Bars Z1(#4) to match actual slope of slab overhangs. Width of slab overhang will vary along span with curved slab edges. Adjust Bar Z1(#4) dimensions to maintain proper cover. Bars Z2(#4) are located at Inverted-Tee stems only.

(13) Panels are allowed over top tension flanges, as approved by the Engineer. See Span Details for additional top mat reinforcement required in tension zones. Location of concrete placement sequence boundaries and bolted field splices should be considered by the contractor in determining panel limits.



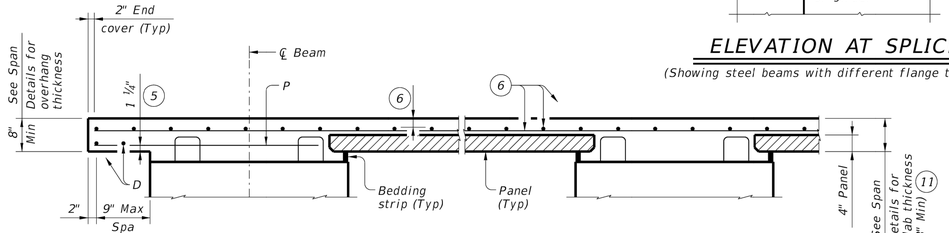
PLAN AT SPLICE

(Showing steel beams with flange width transition)



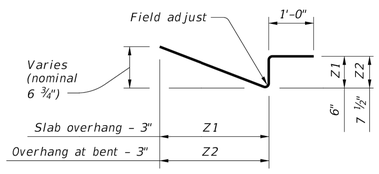
ELEVATION AT SPLICE

(Showing steel beams with different flange thickness)



PRESTRESSED CONCRETE SPREAD SLAB BEAMS

Bars P over exterior beams are still required when no overhang is used. In this case, only one Bar D, 2" from slab edge, is required.



BARS Z (#4) 12

HL93 LOADING SHEET 2 OF 4

Texas Department of Transportation | Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

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	CHECKED BY: JKS	

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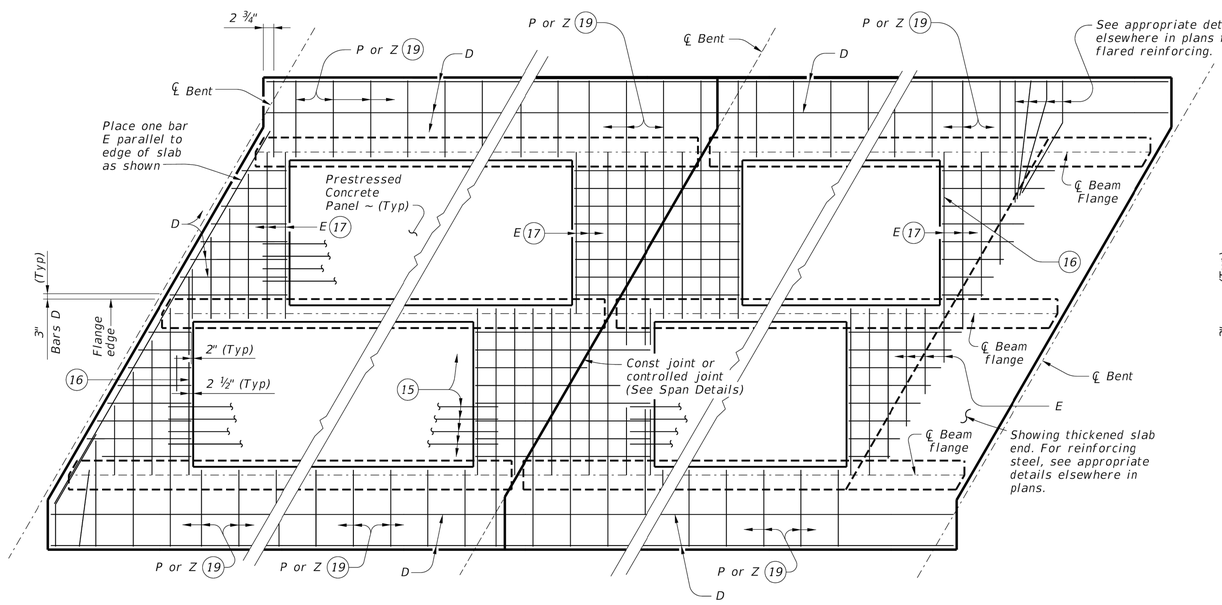
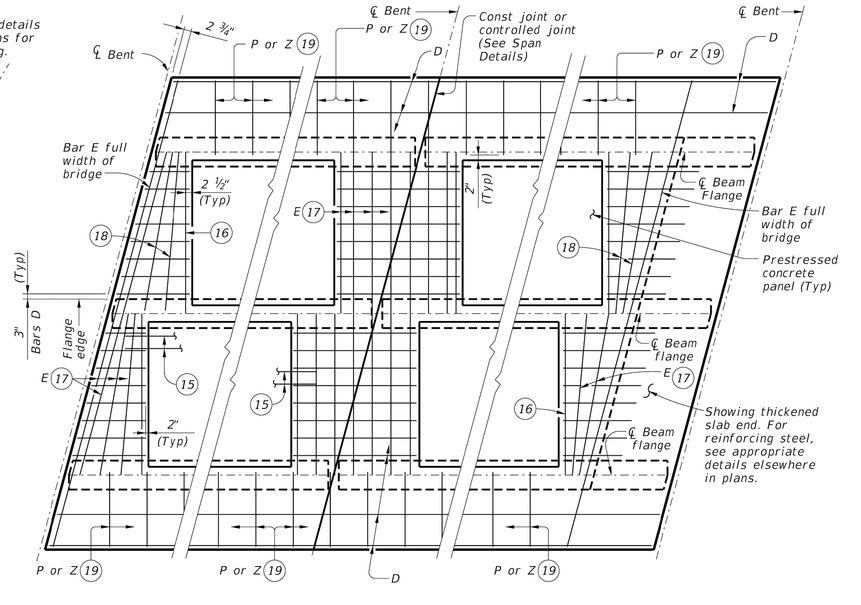


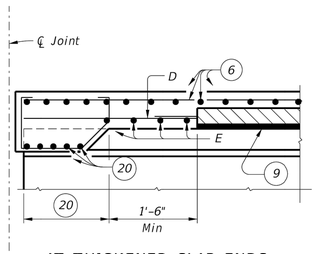
AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

OPTION 1 ~ PLAN OF SLABS WITH NORMAL REINFORCEMENT

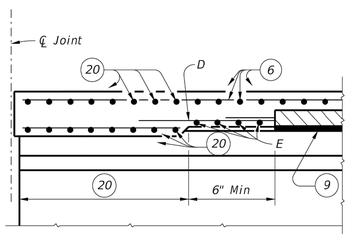


AT ALL SPAN ENDS UNLESS NOTED OTHERWISE | AT INTERIOR BENTS | AT THICKENED END SLABS

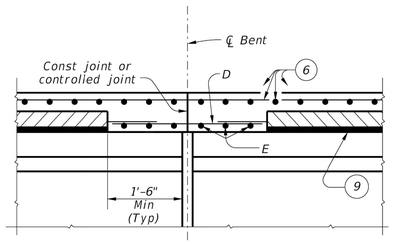
OPTION 1 ~ PLAN OF SLABS WITH SKEWED REINFORCEMENT



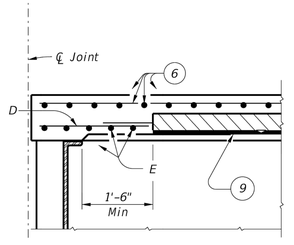
AT THICKENED SLAB ENDS FOR PRESTR CONCRETE U-BEAMS



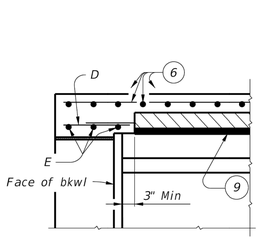
AT THICKENED SLAB ENDS FOR PRESTR CONCRETE I-BEAMS AND STEEL BEAMS



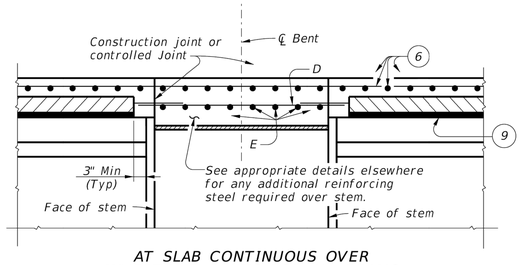
AT SLAB CONTINUOUS OVER CONVENTIONAL INTERIOR BENTS FOR ALL SIMPLE SPAN BEAMS



AT CONVENTIONAL END DIAPHRAGMS FOR STEEL BEAMS



AT SLAB OVER ABUTMENT BACKWALL FOR ALL BEAMS



AT SLAB CONTINUOUS OVER INVERTED-T BENTS FOR ALL BEAMS

OPTION 1 ~ ELEVATIONS AT BEAM ENDS

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(9) Butt adjacent bedding strips together with adhesive. Cut v-notches, approx ¼" deep, in the top of the bedding strips at 8' o.c.

(14) Max Spacing as listed unless otherwise shown.

(15) At connection with cast-in-place slab, extend longitudinal panel reinforcement. See PCP-FAB for details.

(16) Maintain one Bar E(#4) parallel to panel ends (Typ).

(17) Bars E(#4) not continuous over beam flanges must overlap beam flange 6" Min.

(18) Add flared Bars E(#4) (Min Spa = 6", Max Spa = 12") as required at panel ends.

(19) Where possible, Bars E(#4) may be extended into overhangs to replace Bars P(#4). Bars Z(#4) are required for sloped overhangs with U-Beams.

(20) See appropriate thickened slab end details for reinforcing and limits of thickened slab end.

TABLE OF REINFORCING STEEL (14)

BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18

HL93 LOADING

SHEET 3 OF 4

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANELS
DECK DETAILS

PCP

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22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

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CRENSHAW ROAD EAST

CITY OF ROYSE CITY
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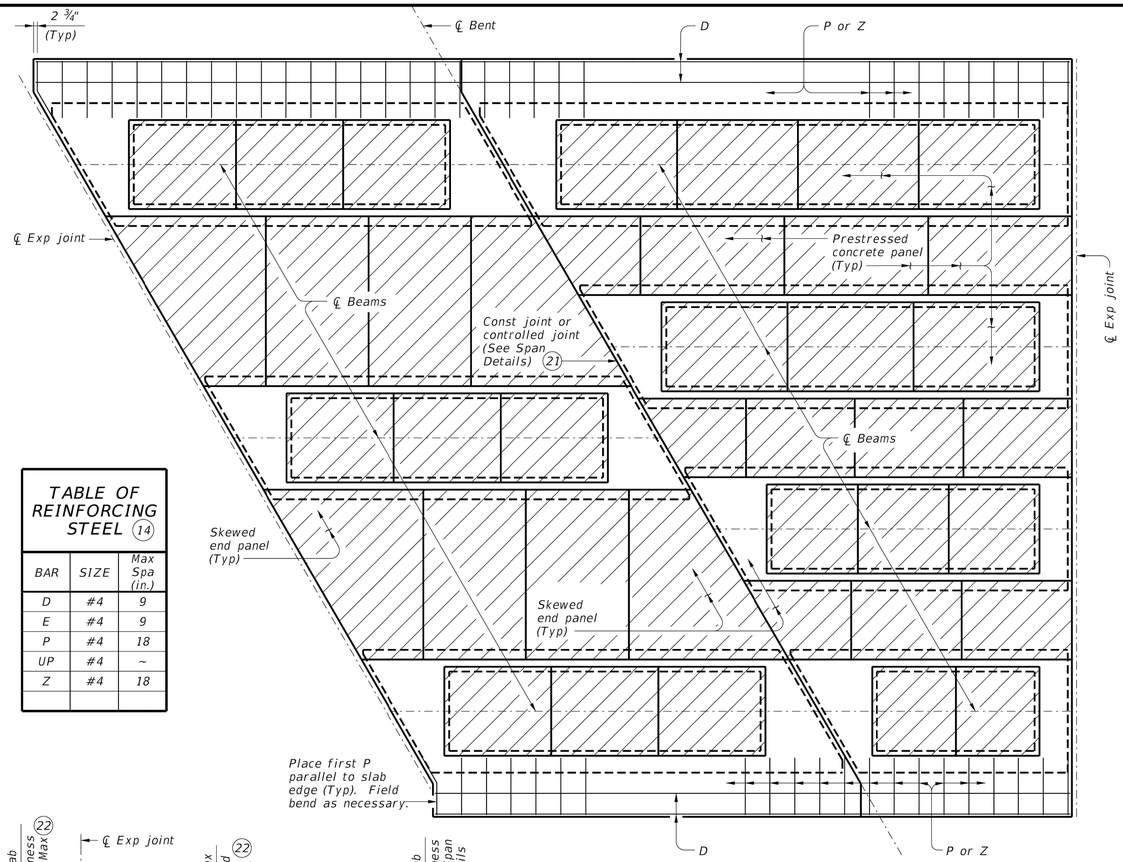
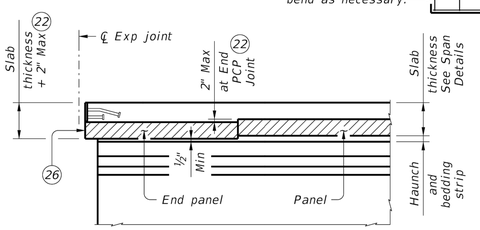


OPTION 2 ~ PLAN OF SLAB

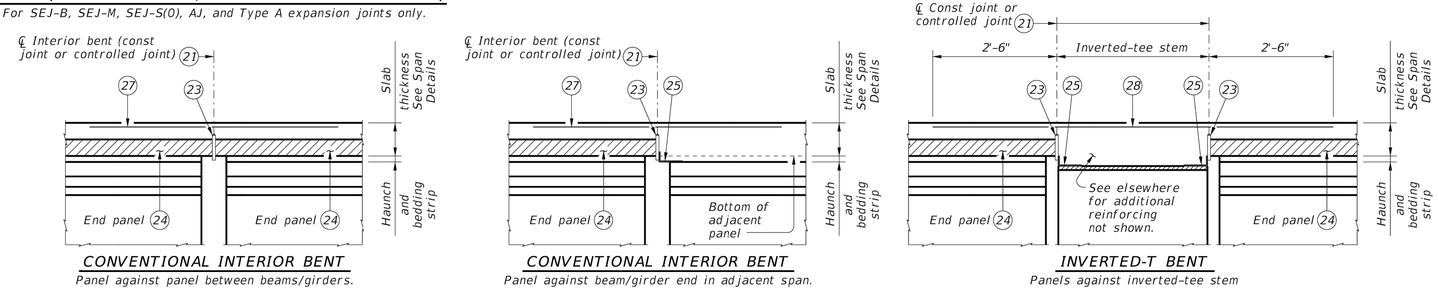
(Showing U-Beams; other beams similar)

TABLE OF REINFORCING STEEL (14)		
BAR	SIZE	Max Spa (in.)
D	#4	9
E	#4	9
P	#4	18
UP	#4	~
Z	#4	18

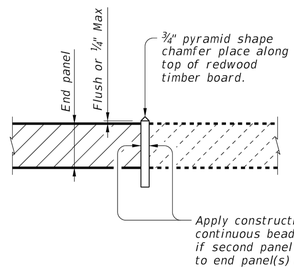


JOINTS (BETWEEN BEAMS/GIRDERS OR AT INV-T STEM)

For SEJ-B, SEJ-M, SEJ-S(0), AJ, and Type A expansion joints only.

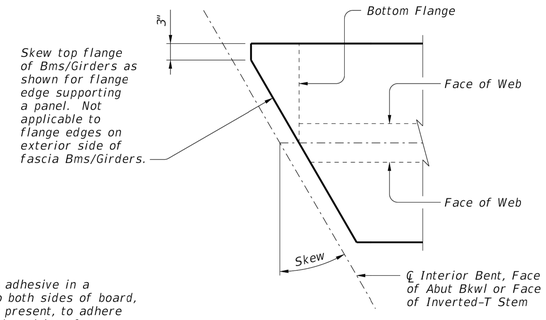


OPTION 2 ~ ELEVATIONS AT BEAM ENDS (6)



ELEVATION EXAMPLE OF END PANEL AND TIMBER BOARD (23)

See "Option 2 ~ Elevation At Beam Ends".



Skew top flange of Bms/Girders as shown for flange edge supporting a panel. Not applicable to flange edges on exterior side of fascia Bms/Girders.

OPTION 2 ~ SHOWING MODIFICATION TO BEAM/GIRDER TOP FLANGE FOR SKEWS OVER 5°

Showing I-Beam/I-Girder, U-Beams and Steel Beams similar.

(6) See Span Details and Thickened Slab End Details for top slab reinforcement and clear cover. Transverse top slab reinforcement may rest on top of prestressed concrete panels if necessary to maintain clear cover.

(14) Max Spacing as listed unless otherwise shown.

(21) 1 ½" Vinyl or plastic joint former at controlled joints (Stress Cap, Zip Strip, Stress Lock, or equal as approved by the Engineer.)

(22) End panel may be set up to 2" lower to accommodate expansion joint hardware, provided bedding strip is not less than ½" thick.

(23) ¾" thick redwood timber board, leave in place. Redwood timber board placed flush with top of panel or within ¼" Max above panel. Place ¾" pyramid shape chamfer along top of timber board. See "Elevation Example of End Panel and Timber Board". Place straight, within ¼" of centerline of bent or face of inverted-tee, across bridge width and end board at exterior flange edge of fascia beams/girders. Do not extend into overhang.

(24) Place panel within ½" of ¾" thick board.

(25) Permanent galvanized steel sheet form. Removable formwork is acceptable.

(26) Place end panel within ½" of expansion joint opening. End panel cannot encroach on required expansion joint opening.

(27) Place additional (#4) bar 5'-0" in length between every slab Bars T. Center (#4) bar on Joint.

(28) Place additional (#4) bar continuous 2'-6" beyond each side of Inverted-T Stem between every slab bars T.

SPECIAL OPTION 2 CONSTRUCTION NOTES:

When Option 2 is chosen bottom mat of thickened end slab reinforcing is not required. Use the same top mat as shown on the Thickened Slab End Details sheet.

Placing panels adjacent to expansion joints and bent centerlines prior to completing interior panel placement is recommended. Saw cutting panels to fit is acceptable when approved by the Engineer. Minimum distance from a saw cut edge to a panel strand is 1 ½".

Do not extend the longitudinal panel reinforcement into the cast-in-place slab.

Top flanges of beams and girders on skewed bridges must be modified as shown on this drawing. The Contractor is responsible for coordinating this modification with the beam fabricator prior to submitting shop drawings for approval.

Fabricator may optionally skew the whole end. When electing to skew whole end, girder end details and bearing type at conventional interior bent must be changed to use condition at abutment. Fabricator must coordinate change in bearing type, bearing centerline location, and dowel location with Engineer and Contractor. Show appropriate changes on girder and bearing shop drawings.

Bending of anchor studs of expansion joints shown on standards AJ, SEJ-B, SEJ-M, and SEJ-S(0) is permissible if necessary to clear top of end panels. The Contractor is responsible for coordinating modifications with the joint fabricator. Submit shop drawings for approval when modifications to expansion joint hardware are made.

Bedding strips under skewed end panels must conform to the requirements of Item 422 except their minimum compressive strength must be 60 psi.

Provide Bars AA, G, K and OA from standard IGTS in the slab.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE PANELS DECK DETAILS

PCP

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DATE 2/16/2026	DRAWN BY: JRM
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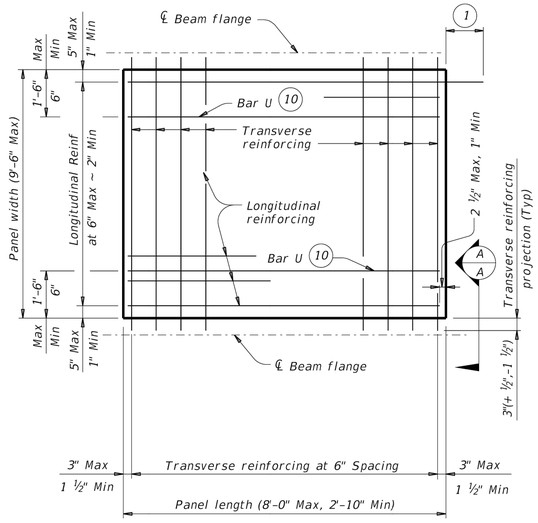
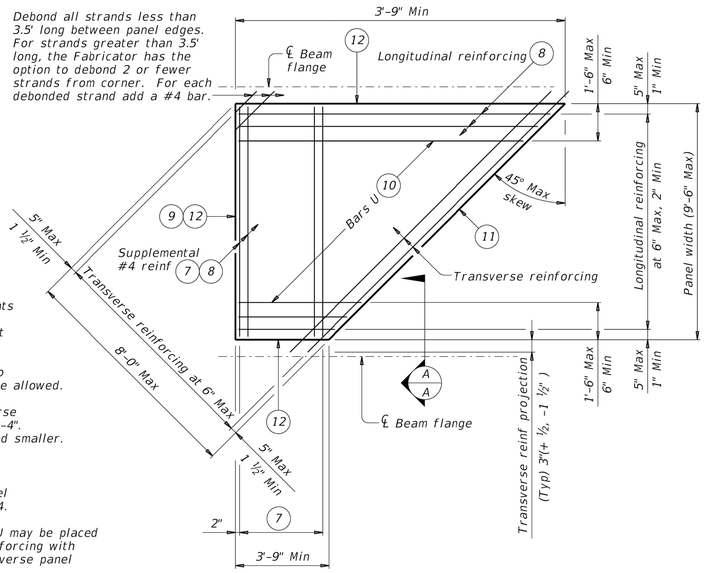


TYPICAL NON-SKEWED PANEL PLAN

1. At connection with cast-in-place slab, extend longitudinal panel reinforcement 1'-0" (+2",-0") past panel end. Alternatively, provide (#3) x 2'-0" dowels at 6" Max Spacing and extend dowels 1'-0" past panel end.
2. Four loops required per panel.
3. Four loops required per panel. ⅜" or ½" strands may be used.
4. Normal dimensions must be used on spans with parallel beams. Maximum and Minimum dimensions apply only to spans with flared beams.
5. See Normal Grading Detail on PCP standard for lap requirements and bedding strip dimensions. Some laps shown in tables cannot utilize all bedding strip widths.
6. One Splice allowed per panel. No more than two sheets of WWR are allowed.
7. Provide (#4) bars under transverse reinforcing, 10 Spaces at 4" = 3'-4". Omit for 5 degree (1:12) skew and smaller.
8. End Cover 2 ½" Max, 1" Min.
9. Recess strands on indicated panel edge in accordance with Item 424.
10. At the fabricator's option, Bars U may be placed parallel to transverse panel reinforcing with horizontal legs in plane of transverse panel reinforcing.
11. Use length of indicated panel edge as panel width for purpose of determining type of transverse reinforcing.
12. Timber form work permissible this edge.

Debond all strands less than 3.5' long between panel edges. For strands greater than 3.5' long, the Fabricator has the option to debond 2 or fewer strands from corner. For each debonded strand add a #4 bar.



TYPICAL SKEWED END PANEL PLAN

(Only to be used with details shown elsewhere in the plans.)

TABLE A (4) (5)			
Beam Type	Normal (In.)	Min (In.)	Max (In.)
A	3	2 ½	3 ½
B	3	2 ½	3 ½
C	4	3	4 ½
IV	6	4	7 ½
VI	6 ½	4 ½"	8 ½
U40 - 54	5 ½	5 ½	7
Tx28-70	6	5	7 ½
XB20 - 40	4	3	4 ½
XSB12 - 15	4	3	4 ½

TABLE B (4) (5)			
Top Flange Width	Normal (In.)	Min (In.)	Max (In.)
11" to 12"	2 ¾	2 ½	2 ¾
Over 12" to 15"	3 ¼	3	3 ¼
Over 15" to 18"	4	3	4 ¾
Over 18"	5	3 ½	6 ¼

GENERAL NOTES:

Provide Class H concrete for panels. Release strength f'ci=3,500 psi. Minimum 28 day strength f'c=5,000 psi.

Provide ¾" chamfer along bottom edge of panel on beam side.

Do not use epoxy-coated reinforcing steel bar or strand in panels.

Remove laitance from top panel surface.

Finish top of panel to a roughness between a No. 6 and No. 9 concrete surface profile, inclusive, as specified by the International Concrete Repair Institute (ICRI).

Shop drawings for the fabrication of panels will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

A panel layout which identifies location of each panel must be developed by the Fabricator. Permanently mark each panel in accordance with the panel layout. A copy of the layout is to be provided to the Engineer.

TRANSVERSE PANEL REINFORCEMENT:

For panel widths over 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kips per strand.

For panel widths over 3'-6" up to and including 5', use ⅜" or ½" Dia (270k) prestressing strands with a tension of 14.4 kip per strand. Optionally, (#4) Grade 60 reinforcing bars may be used in lieu of prestressed strands.

For panel widths up to 3'-6", use (#4) Grade 60 reinforcing bars (prestressed strands alone are not allowed).

Place transverse panel reinforcement at panel centroid and space at 6" Max.

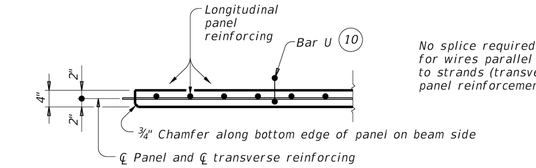
LONGITUDINAL PANEL REINFORCEMENT:

Any of the following options may be used for longitudinal panel reinforcement:

1. (#3) Grade 60 reinforcing steel at 6" Max Spacing. No splices allowed.
2. ⅜" Dia prestressing strands at 4 ½" Max Spacing (unstressed). No splices allowed.
3. ½" Dia prestressing strands at 6" Max Spacing (unstressed). No splices allowed.
4. Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) providing 0.22 sq in per foot of panel width. Wires larger than D11 not permitted. Provide transverse wires to ensure proper handling of reinforcing. One splice per panel is allowed. See WWR Splice Detail.

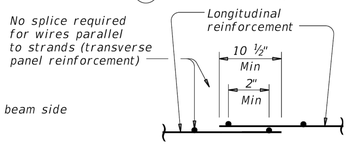
No combination of longitudinal reinforcement options in a panel is allowed.

Place longitudinal panel reinforcement above or below transverse panel reinforcement. Must be placed above transverse panel reinforcement for skewed end panels with supplemental (#4) reinforcement.

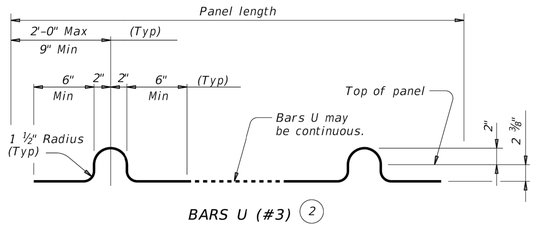


SECTION A-A

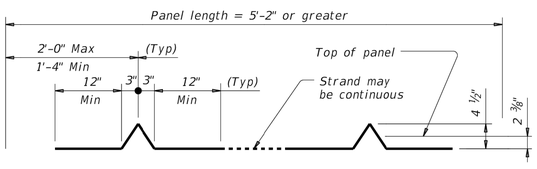
(Not showing supplemental #4 bars for skewed end panels.)



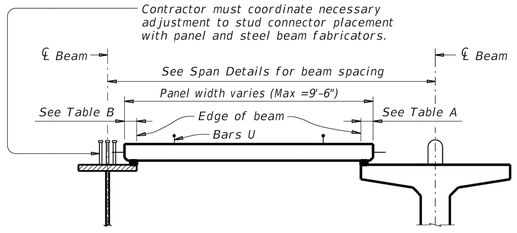
WELDED WIRE REINFORCEMENT (WWR) SPLICE DETAIL (6)



BARS U (#3) (2)



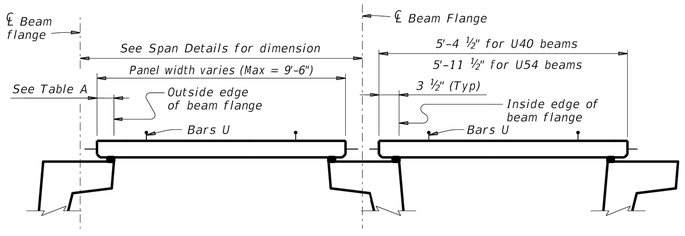
OPTIONAL STRAND FOR BARS U (3)



STEEL BEAMS

PRESTRESSED CONCRETE BEAMS OR GIRDERS

Typ unless noted otherwise



PRESTRESSED CONCRETE U-BEAMS

TYPICAL SECTIONS FOR DETERMINING PANEL WIDTH

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE PANEL FABRICATION DETAILS

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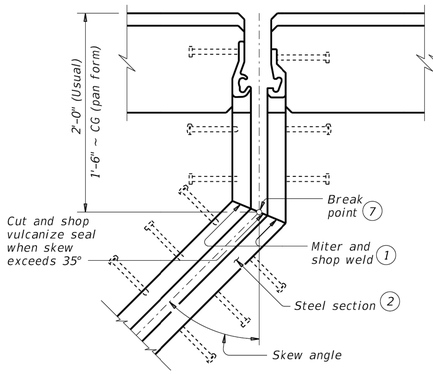
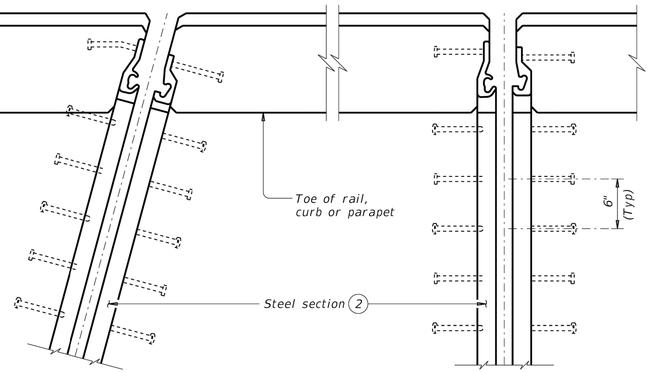


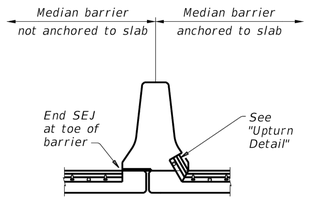
SHOWING SKEWS WITH SLAB BREAKBACKS



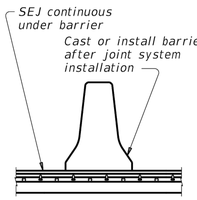
SHOWING SKEWS WITHOUT SLAB BREAKBACKS

SHOWING WITHOUT SKEWS AND SLAB BREAKBACKS

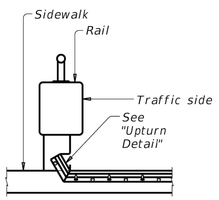
PLANS OF END CONDITIONS



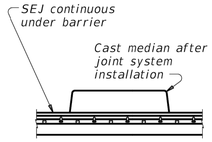
WITH OPEN DECK JOINT BELOW MEDIAN BARRIER



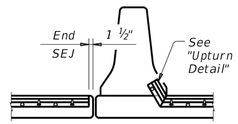
AT MEDIAN BARRIER



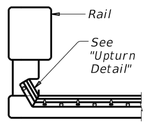
AT SIDEWALK BEHIND BRIDGE RAIL



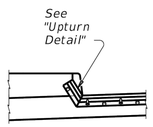
AT RAISED MEDIAN



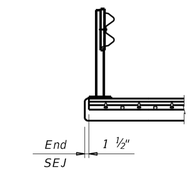
WITH OPEN DECK JOINT ADJACENT TO MEDIAN BARRIER



AT CONCRETE BRIDGE RAIL

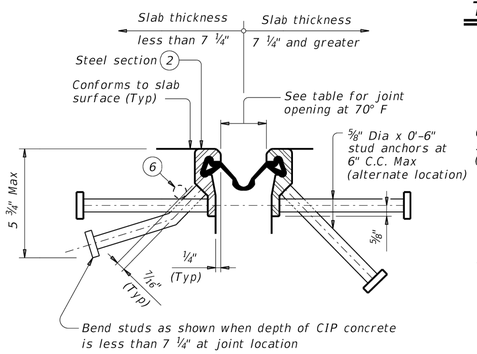


AT SIDEWALK

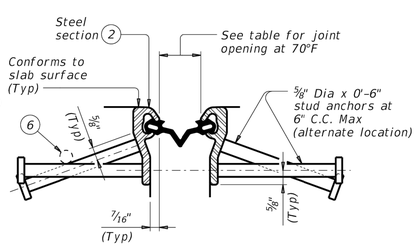


AT STEEL POST BRIDGE RAIL

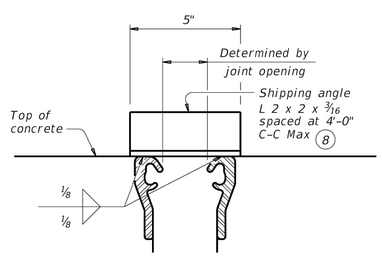
TYPICAL SECTIONS (5)



SECTION THRU WATSON BOWMAN ACME (SE-400 OR SE-500) JOINTS



SECTION THRU D.S. BROWN (A2R-400 OR A2R-XTRA) JOINTS



SHOWING D.S. BROWN (Ty SSCM2)
(All joints are similar.) (Studs are not shown for clarity.)

SHIPPING ANGLE

An alternate method of securing joint sections may be used if approved by the Bridge Division. Erection bolts are not allowed.

TABLE OF SEALED EXPANSION JOINT INFORMATION

MANUFACTURER	STEEL SECTION (2)	STRIP SEAL			
		4" JOINT		5" JOINT	
		Seal Type	Joint Opening (3)	Seal Type	Joint Opening (3)
D.S. Brown	Type SSCM2	A2R-400	1 ¾"	A2R-XTRA	2"
Watson Bowman Acme	Type R	SE-400	1 ¾"	SE-500	2"

REDUCED LONGITUDINAL MOVEMENT RANGE

SKEW (deg)	JOINT SIZE	
	4"	5"
0	4.0"	5.0"
15	4.0"	5.0"
30	3.5"	4.3"
45	2.8"	3.5"

DESIGN NOTES:

Joints installed on a skew have reduced ability to accommodate longitudinal movement. Use table values to determine the correct joint size for skewed installations.

For other skews over 25 degrees, calculate reduced movement range by multiplying joint size by cosine (skew).

(1) Remove all burrs which will be in contact with seal prior to making splice.

(2) Shape of steel section shown is typical. Variations in sections must be approved by the Engineer.

(3) These openings are also the recommended minimum installation openings.

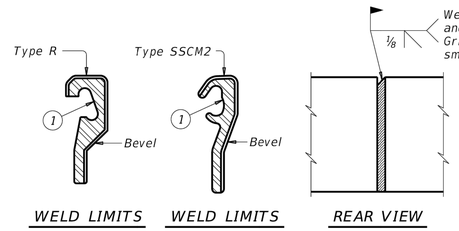
(4) Reduce for sidewalk or parapet heights less than 6".

(5) Other conditions affecting the joint profile should be noted elsewhere.

(6) Move transverse bars that are in conflict with SEJ studs, in either the bridge slab or approach slab, to rest at the junction of the studs.

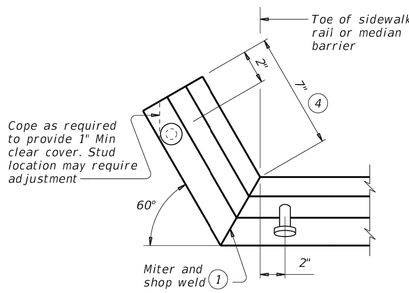
(7) See Span details for location of break point.

(8) Align shipping angle perpendicular to joint.



WELD LIMITS WELD LIMITS REAR VIEW

FIELD SPLICE DETAIL



UPTURN DETAIL

FABRICATION NOTES:

Temporarily shop assemble corresponding sections of sealed expansion joints (SEJ), check for fit, and match mark for shipment. Secure corresponding sections together for shipment with shipping angle. Do not use erection bolts.

The seal must be continuous and included in the price bid for sealed expansion joint.

Ship steel sections in convenient lengths of 10'-0" Min and 24'-0" Max unless necessary for staged construction or widenings. One shop splice is permitted in each shipping length provided no piece is less than 2'-0" long and sufficient studs are added to limit the stud to shop splice distance to 2" Min and 4" Max.

Weld studs in accordance with AWS D1.1.

Butt weld all shop and field splices and grind smooth areas in contact with seal. Make all necessary field splice joint preparations in the shop.

Paint the entire steel section with System II or IV primer in accordance with Item 446, "Field Cleaning and Painting Steel", unless required to galvanize when shown in the plans. Provide galvanizing in accordance with Item 445, "Galvanizing". Provide paints in accordance with Item 446.2. Prepare steel and apply paint in accordance with Item 446.4.7.3 and 446.4.7.4.

Shop drawings for the fabrication of sealed expansion joints will not require the Engineer's approval if fabrication is in accordance with the details shown on this standard.

CONSTRUCTION NOTES:

Secure the sealed expansion joint in position and place to the proper grade and alignment by welding braces to adjacent reinforcing steel, to prestressed beam stirrups, or to anchors cast in concrete diaphragms. Include cost of temporary bracing in the price bid for sealed expansion joint.

Remove shipping angle immediately after each joint half is secured in place. Grind smooth, and touch up with organic zinc-rich paint.

Clean and prepare seal cavity for seal installation as per the Manufacturer's installation procedures.

GENERAL NOTES:

Provide sealed expansion joints in the size and at locations shown on the plans.

Minimum slab and overhang thickness required for the use of SEJ-M is 6 ½".

Texas Department of Transportation — Bridge Division Standard

SEALED EXPANSION JOINT TYPE M WITHOUT OVERLAY

SEJ-M

FILE: MS-SEJ-M-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: JMH
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www.wsbeng.com

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DATE 2/16/2026			
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SEJ-M

CRENSHAW ROAD EAST
CITY OF ROYSE CITY, ROCKWALL COUNTY, TX.

SHEET NUMBER B-12

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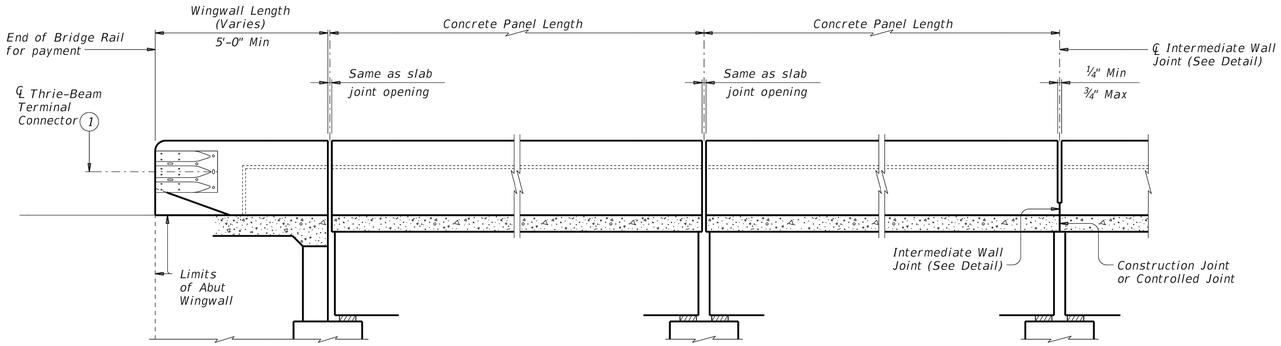
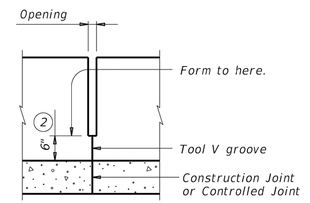


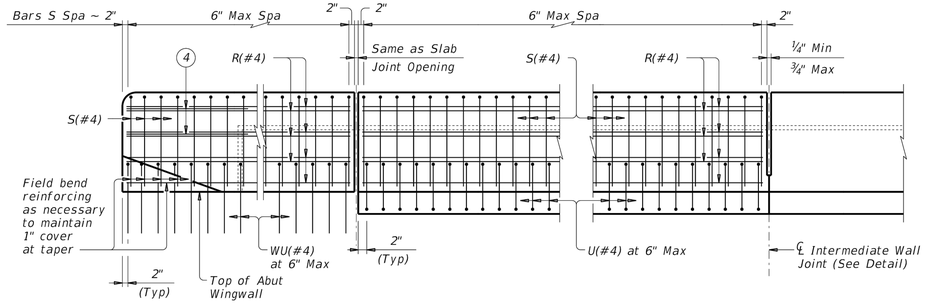
AT ABUTMENTS | AT BENTS WITH SLAB EXP JOINTS | AT BENTS WITHOUT SLAB EXP JOINTS

ROADWAY ELEVATION OF RAIL

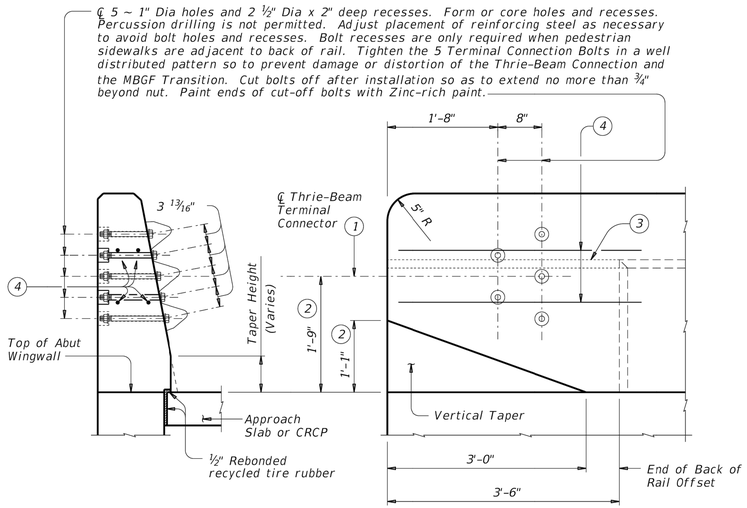


INTERMEDIATE WALL JOINT DETAIL

Provide at all interior bents without slab expansion joints.

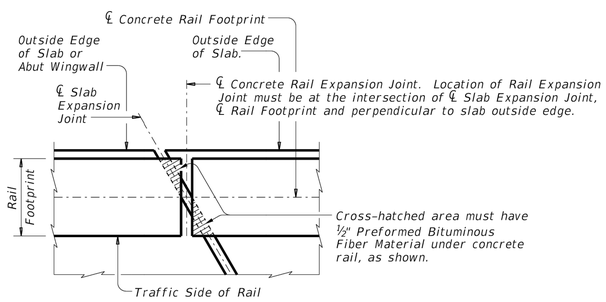


ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT



SECTION | ELEVATION

TERMINAL CONNECTION DETAILS



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.

(1) *Terminal Connectors and associated hardware are to be paid for under the Item "Metal Beam Guard Fence." Attach Metal Beam Guard Fence Transitions to the bridge rail and extend along the embankment unless otherwise shown in the plans.*

(2) *Increase 2" for structures with Overlay.*

(3) *Back of rail offset may, with Engineer's approval, be continued to the end of the railing.*

(4) *Place 4 additional Bars R(#4) 3'-8" in length inside Bars S(#4) and centered 2'-0" from end of rail when Terminal Connections are required.*

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

TRAFFIC RAIL SINGLE SLOPE

TYPE SSTR

FILE: RL-SSTR-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
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DATE 2/16/2026			
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SSTR

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
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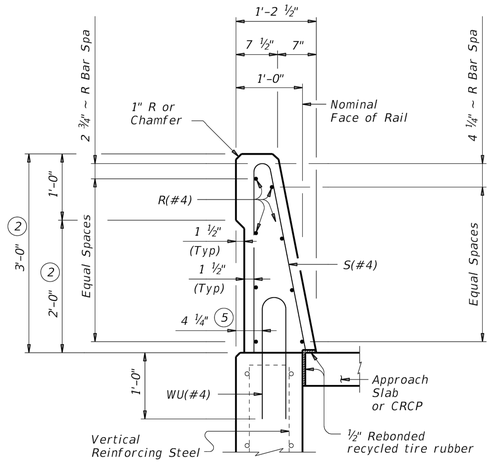
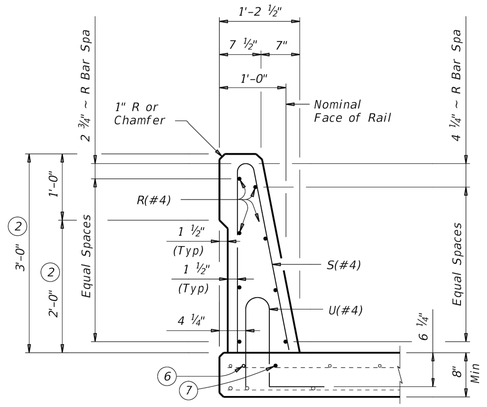


ON ABUTMENT WINGWALLS OR CIP RETAINING WALLS



ON BRIDGE SLAB

SECTIONS THRU RAIL

(2) Increase 2" for structures with Overlay.

(5) 5 ¼" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.

(6) As an aid in supporting reinforcement, additional longitudinal bars may be used in the slab with the approval of the Engineer. Such bars must be furnished at the Contractor's expense.

(7) Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

(8) No longitudinal wires may be within upper bend.

(9) Bend or cut as required to clear drain slots.

(10) Space U(#4) bars at 4" Max when end region of panel length is less than 6'-0" to side slot drain. Space U(#4) bars at 6" Max when end region of panel length is 6'-0" and greater to side slot drain.

CONSTRUCTION NOTES:

This railing may be constructed by the slipform process when approved by the Engineer, with equipment approved by the Engineer. Provide sensor control for both line and grade. Tack welding to provide bracing for slipform operations is acceptable. Welding may be performed at a minimum spacing of 3 ft between the cage and the anchorage. It is permissible to weld to bars U, WU and S at any location on the cage. If increased bracing is needed, provide additional anchorage devices and weld in the upper two thirds of the cage. Paint welded areas on epoxy coated and/or galvanized reinforcing with an organic zinc rich paint in accordance with Item 445 "Galvanizing".

If rail is slipformed, apply an heavy epoxy bead 1" behind toe of traffic side of rail to concrete deck just prior to slip forming. Provide a ⅜" width x ½" tall heavy epoxy bead with Type III, Class C or a Type V epoxy.

The back of railing must be vertical unless otherwise shown in the plans or approved by the Engineer.

MATERIAL NOTES:

Provide Class "C" concrete. Provide Class "C" (HPC) if required elsewhere.

Provide Grade 60 reinforcing steel.

Epoxy coat or galvanize all reinforcing steel if slab bars are epoxy coated or galvanized.

Deformed Welded Wire Reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U and WU unless noted otherwise. Deformed WWR (ASTM A1064) may be substituted for Bars R and S, as shown. Combinations of reinforcing steel and WWR or configurations of WWR other than shown are permitted if conditions in the table are satisfied. Provide the same laps as required for reinforcing bars.

Provide bar laps, where required, as follows:

Uncoated or galvanized ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

GENERAL NOTES:

This rail has been successfully evaluated by full-scale crash test to meet MASH TL-4 criteria. This rail can be used for speeds of 50 mph and greater when a TL-3 rated guard fence transition is used. When a TL-2 rated guard fence transition is used, this rail can only be used for speeds of 45 mph and less.

Do not use this railing on bridges with expansion joints providing more than 5" movement.

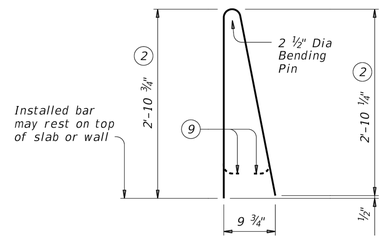
Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.

Shop drawings will not be required for this rail.

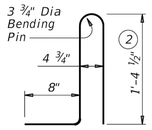
Average weight of railing with no overlay is 376 plf.

Cover dimensions are clear dimensions, unless noted otherwise.

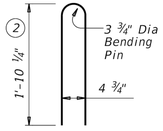
Reinforcing bar dimensions shown are out-to-out of bar.



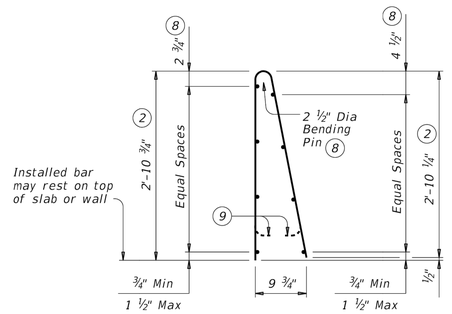
BARS S (#4)



BARS U (#4)

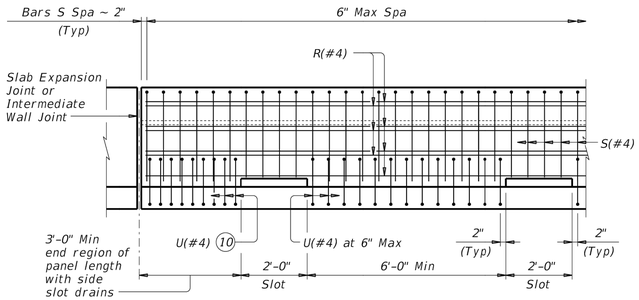


BARS WU (#4)



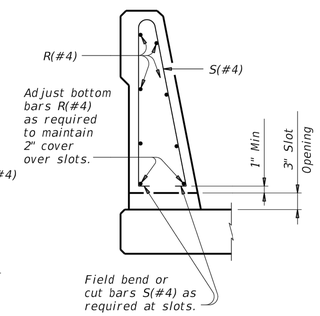
OPTIONAL WELDED WIRE REINFORCEMENT (WWR)

DESCRIPTION	LONGITUDINAL WIRES	VERTICAL WIRES
Minimum (Cumulative Total) Wire Area	1.067 Sq In.	0.267 Sq In. per Ft
	No. of Wires	Spacing
Minimum	8	4"
Maximum	10	8"
Maximum Wire Size Differential	The smaller wire must have an area of 40% or more of the larger wire.	



OPTIONAL SIDE SLOT DRAIN DETAIL

Note: Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.



SECTION THRU OPTIONAL SIDE SLOT DRAIN

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

TRAFFIC RAIL SINGLE SLOPE

TYPE SSTR

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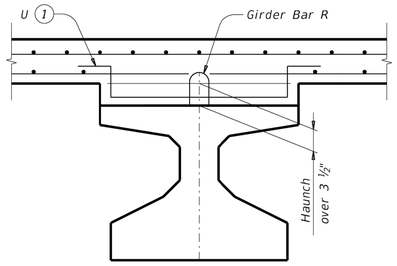
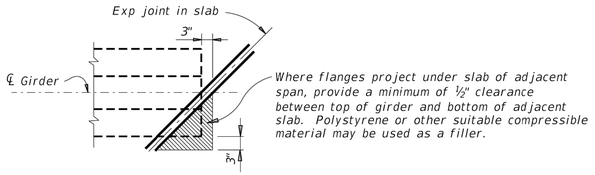
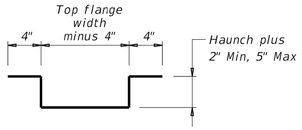


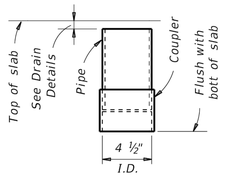
HAUNCH REINFORCING DETAIL



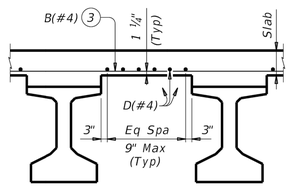
TREATMENT AT GIRDER END FOR SKEWED SPANS



BARS U (#4)

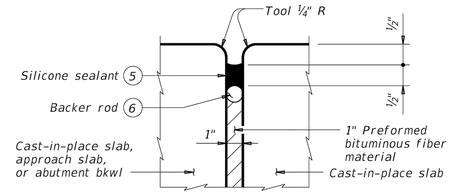


C-I-P DRAIN DETAIL (2)



TYPICAL PART TRANSVERSE SLAB SECTION WITHOUT PCP (4)

Top reinforcing steel not shown for clarity.



TYPE A JOINT DETAIL (7)

(1) Space Bars U with girder Bars R in all areas where measured haunch exceeds 3 ½".

(2) Roughen outside of PVC with coarse rasp or equal to ensure bond with cast-in-place concrete.

(3) Bars B(#4) spaced at 9" Max with 2" end cover. Overhang option, Contractor's may end alternating bars B(#4) at centerline outside girder.

(4) Provide Grade 60 reinforcing steel. Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"

(5) Class 7 silicone sealant that conforms to DMS-6310. Install when ambient temperature is between 55°F and 85°F and rising. Engineer to determine allowable hours for sealant application.

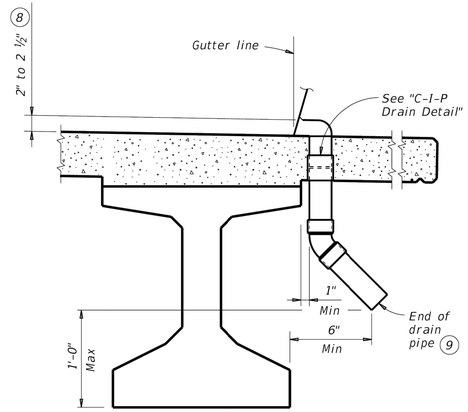
(6) 1 ¼" backer rod must be compatible with joint sealant. Use of multiple pieces to create a backer rod cross section is not permitted. Top of backer rod must be convex as shown.

(7) The maximum distance between Type A expansion joints is 100'. See Bridge Layout for location of joints.

(8) Drain entrance formed in rail or sidewalk.

(9) Water may not be discharged onto girders.

(10) All drain pipe and fittings to be 4" diameter (Sch 40) PVC. See Item 481 "Pipe for Drains" for pipe, connections and solvent welding. Bend reinforcing steel to clear PVC 1". Drain length and location is as directed by the Engineer. Drains are not permitted over roadways or railways, or within 10'-0" of bent caps. Degrease outside of exposed PVC, apply acrylic water base primer, then coat with same surface finishing material as used for outside girder face. Variations of the above designs, as required for the type of rail used and its location on the structure, may be installed with the approval and direction of the Engineer.



DRAIN DETAIL (10)

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
Payment for Type A joint will be as per Item 454, "Bridge Expansion Joints."
All other items (reinforcing steel, drains, etc.) shown on this sheet are subsidiary to other bid items.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

DECK FORMWORK NOTES:
Overhang bracket hangers are limited to a safe working load of 3,600 lbs, applied to and along the axis of a coil rod at 45 degrees from vertical, regardless of higher loads permitted by hanger manufacturers. Do not place a hanger less than 12" from girder end. Space hangers accordingly.

SHEET 1 OF 2

Texas Department of Transportation — Bridge Division Standard

MISCELLANEOUS SLAB DETAILS
PRESTR CONCRETE I-GIRDERS

IGMS

FILE: IG-IGMS-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Modified Note 7. Type A now a pay item.	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO. F-16849

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PROJECT NO. 22-02557	DESIGNED BY: JRM
DATE 2/16/2026	DRAWN BY: JRM
SCALE: AS SHOWN	CHECKED BY: JKS

IGMS

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-15

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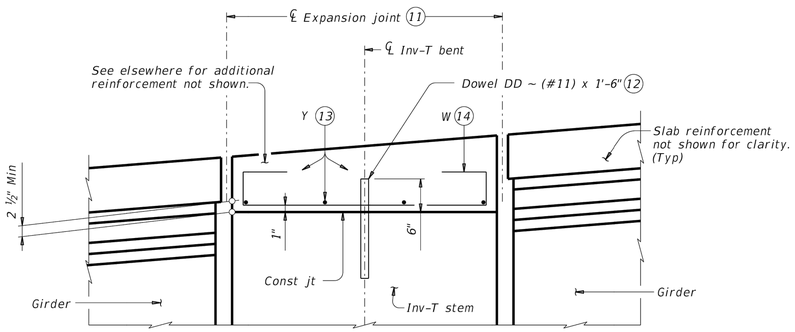
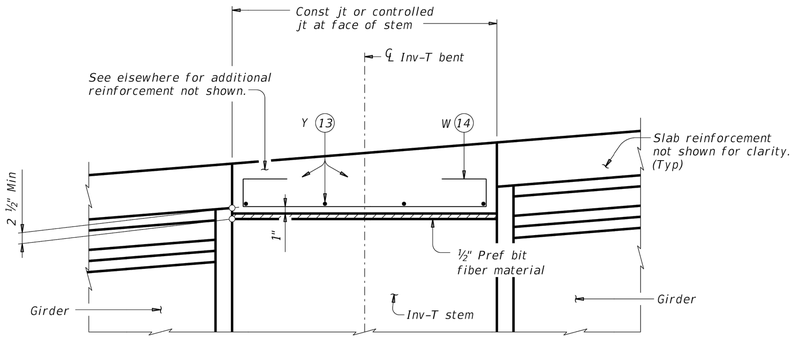
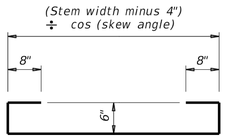


SHOWING EXPANSION JOINTS

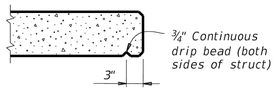


SHOWING CONST JTS OR CONTROLLED JTS

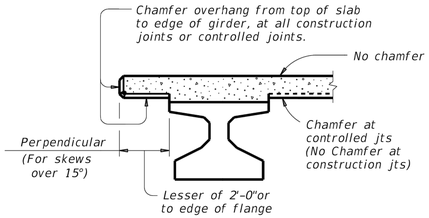
REINFORCEMENT OVER INV-T BENTS



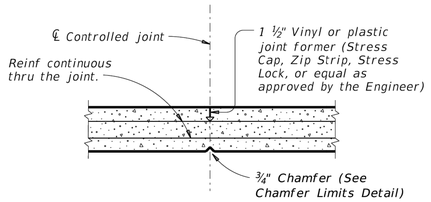
BARS W (#4)



DRIP BEAD DETAIL



CHAMFER LIMITS DETAIL (15)



CONTROLLED JOINT DETAIL

(Saw-cutting is not allowed)

(11) See Layout for joint type.

(12) Dowels DD (#11) spaced at 5 Ft Max. See Inv-T bents for quantity and location.

(13) Space Bars Y (#4) at 12" Max. Use 2" end cover. Number of Bars Y must satisfy spacing limit. Place parallel to bent.

(14) Space Bars W at 12" Max (3" from end of cap). Tilt if necessary to maintain cover requirements. Place parallel to longitudinal slab reinforcement.

(15) See Span details for type of joint and joint locations.

DATE:
FILE:

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

MISCELLANEOUS SLAB DETAILS
PRESTR CONCRETE I-GIRDERS

IGMS

FILE: IG-IGMS-19.dgn	DN: TxDOT	CK: TxDOT	DW: JTR	CK: TxDOT
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
10-19: Modified Note 7. Type A now a pay item.	DIST	COUNTY		SHEET NO.

NO	REVISIONS	DATE	BY

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3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
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REGISTRATION NO.
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PROJECT NO.
22-02557

DATE
2/16/2026

SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

IGMS

CRENSHAW ROAD EAST
CITY OF ROYSE CITY,
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-16

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DATE:
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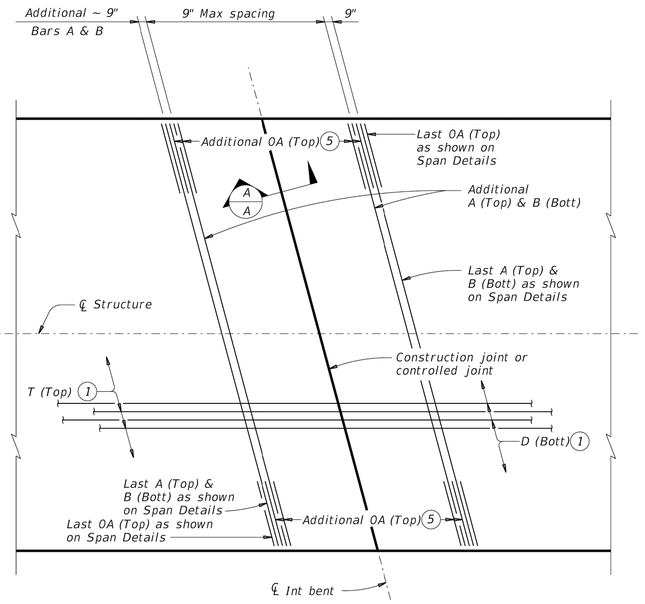
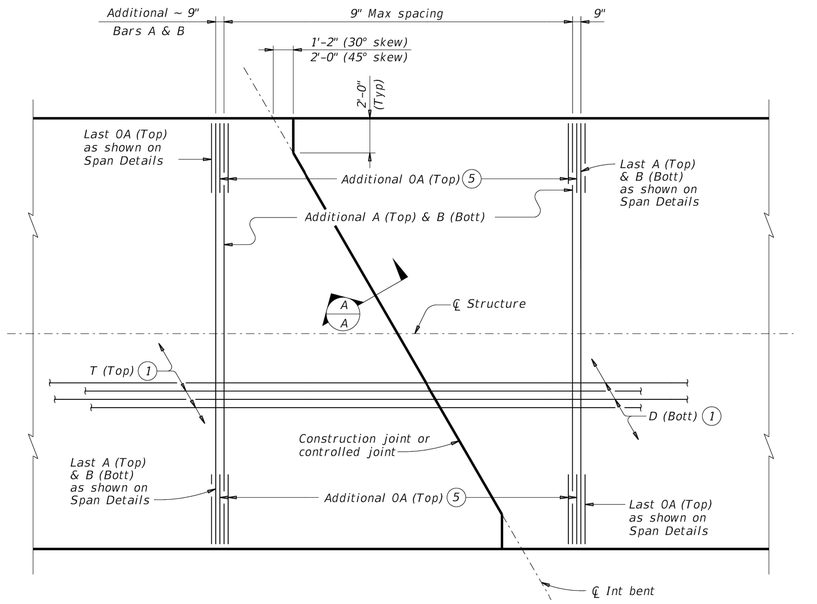


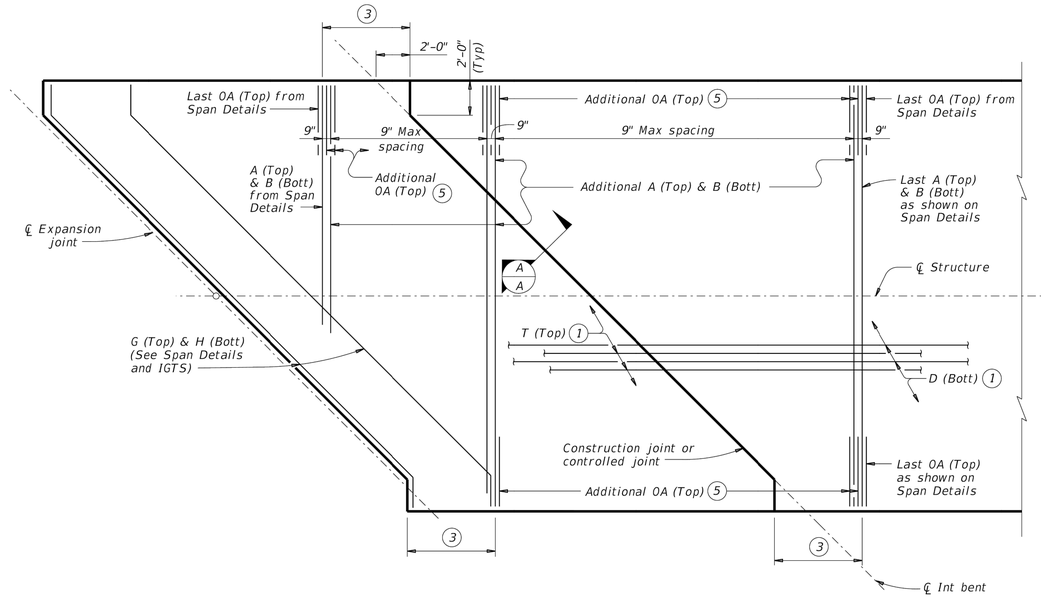
PLAN FOR 0° OR 15° SKEW

(Showing 15° skew)



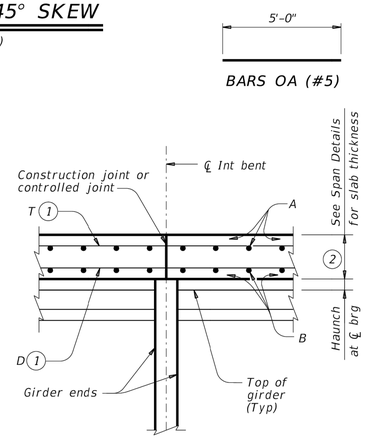
PLAN FOR 30° OR 45° SKEW

(Showing 30° skew)



PLAN FOR 45° SKEW 4

(Showing short span condition.)



SECTION A-A

Bars OA (Top) not shown for clarity.

1. Top and bottom mats must be continuous through joint.
2. Maintain a constant slab thickness over the bent.
3. 5'-4" as shown on Span Details.
4. Use these details when no full slab width bars A and B are shown on Span Details.
5. Bars OA (Top) at 9" Max spacing between Bars A (Top).
6. Values in table assume a temperature change of 70° F after erection when calculating thermal movement in one direction (not total).

TABLE OF (6) ALLOWABLE UNIT LENGTH

Max Rdwy Grade, Percent	Unit Length Factor
0.00	4.1
1.00	3.9
2.00	3.7
3.00	3.5
4.00	3.3
5.00	3.1

Unit length must not exceed the length of the shortest end span times the Unit Length Factor shown in table or 400', whichever is less.

BAR TABLE

BAR	SIZE
A	#4
B	#4
D	#4
T	#4
0A	#5

The details shown on this sheet are applicable for two and three span units comprised of the same girder type.
Units may be comprised of different span lengths. See "Table of Allowable Unit Length".

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
This standard is drawn showing right forward skew. See Bridge Layout for actual skew direction.

CONSTRUCTION NOTES:

Where multi-span units are indicated on the Bridge Layout, the thickened slab end details and reinforcement shown on IGTS standard (Bars AA, G, H, J, K, and M) and on the Span Details will be omitted where slabs are continuous over interior bents. At these locations, the slab details and reinforcement will be as shown on this sheet or on PCP standard (if using this option).
Thickened slab end reinforcement and details still apply at expansion joint locations (ends of units).
See Span Details for remainder of slab reinforcement and details.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide Class "S" concrete (f'c = 4,000 psi). Provide Class "S" (HPC) if shown elsewhere on the plans.
Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy Coated ~ #4 = 2'-5"

The details shown on this sheet are applicable for use only with the Prestressed Concrete I-Girder Standard Designs shown on standards IGSD-24, IGSD-28, IGSD-30, IGSD-32, IGSD-34, IGSD-38, IGSD-40 and IGSD-44.

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

CONTINUOUS SLAB DETAILS
PRESTR CONC I-GIRDER SPANS

IGCS

FILE: IG-IGCS-23.dgn	DN: JMH	CK: TxDOT	DW: JTR	CK: TxDOT
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REVISIONS				
10-19: Added bubble note 6.	DIST	COUNTY		SHEET NO.
01-23: Added 34' Rdwy.				

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PROJECT NO.	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	AS SHOWN	JRM	JRM	JKS
DATE 2/16/2026				

IGCS

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
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STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS			
				PRESTRESSING STRANDS															STRENGTH I		SERVICE III	
	SPAN NO.	GIRDER NO.	GIRDER TYPE	NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)	NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2) Moment	LIVE LOAD DISTRIBUTION FACTOR (2) Shear	Inv	Opr	Inv	
Type Tx28 Girders 32' Roadway 8.5" Slab	40	ALL	Tx28		14	0.6	270	10.48	9.34	2	10.5	4.000	5.000	1.189	-1.700	1731	0.850	1.070	1.58	2.04	2.01	
	45	ALL	Tx28		14	0.6	270	10.48	9.34	2	10.5	4.000	5.400	1.507	-2.077	1717	0.820	1.080	1.48	1.91	1.57	
	50	ALL	Tx28		16	0.6	270	10.23	9.23	4	8.5	4.000	5.800	1.853	-2.508	2040	0.800	1.080	1.39	1.80	1.30	
	55	ALL	Tx28		18	0.6	270	10.04	8.26	4	12.5	4.100	6.400	2.247	-2.980	2377	0.780	1.090	1.26	1.69	1.07	
	60	ALL	Tx28		22	0.6	270	9.75	7.57	4	16.5	4.800	6.900	2.655	-3.462	2715	0.760	1.090	1.24	1.82	1.05	
	65	ALL	Tx28		26	0.6	270	9.56	7.71	4	16.5	5.600	7.300	3.104	-3.978	3064	0.740	1.100	1.09	1.76	1.07	
Type Tx34 Girders 32' Roadway 8.5" Slab	40	ALL	Tx34		12	0.6	270	13.01	13.01			4.000	5.000	0.934	-1.303	1975	0.880	1.050	1.77	2.29	2.35	
	45	ALL	Tx34		14	0.6	270	13.01	12.15	2	8.5	4.000	5.000	1.180	-1.588	2124	0.850	1.060	1.75	2.27	2.11	
	50	ALL	Tx34		16	0.6	270	12.76	11.76	4	8.5	4.000	5.000	1.437	-1.907	2248	0.830	1.060	1.64	2.13	1.82	
	55	ALL	Tx34		16	0.6	270	12.76	11.76	4	8.5	4.000	5.000	1.739	-2.263	2449	0.810	1.060	1.37	1.77	1.35	
	60	ALL	Tx34		18	0.6	270	12.57	11.23	4	10.5	4.000	5.500	2.068	-2.640	2806	0.790	1.070	1.30	1.72	1.17	
	65	ALL	Tx34		22	0.6	270	12.28	7.92	4	28.5	4.000	6.000	2.424	-3.039	3173	0.770	1.070	1.59	2.08	1.34	
	70	ALL	Tx34		26	0.6	270	12.09	8.09	4	30.5	4.700	6.500	2.807	-3.458	3548	0.750	1.080	1.08	1.81	1.04	
	75	ALL	Tx34		30	0.6	270	11.81	7.41	6	28.5	5.200	6.700	3.195	-3.894	3951	0.740	1.080	1.44	1.93	1.12	
	80	ALL	Tx34		34	0.6	270	11.48	7.25	6	30.5	5.800	7.000	3.633	-4.373	4378	0.730	1.080	1.23	1.67	1.05	
Type Tx40 Girders 32' Roadway 8.5" Slab	40	ALL	Tx40		12	0.6	270	15.60	15.60			4.000	5.000	0.768	-1.053	2052	0.910	1.030	2.02	2.62	2.88	
	45	ALL	Tx40		14	0.6	270	15.60	15.60			4.700	5.000	0.967	-1.282	2430	0.880	1.040	2.01	2.61	2.63	
	50	ALL	Tx40		14	0.6	270	15.60	15.60			4.500	5.000	1.195	-1.554	2558	0.860	1.040	1.91	2.48	2.29	
	55	ALL	Tx40		16	0.6	270	15.35	14.35	4	8.5	4.000	5.000	1.442	-1.834	2685	0.830	1.050	1.60	2.07	1.79	
	60	ALL	Tx40		18	0.6	270	15.16	13.82	4	10.5	4.000	5.000	1.687	-2.118	2875	0.810	1.050	1.57	2.03	1.61	
	65	ALL	Tx40		18	0.6	270	15.16	13.82	4	10.5	4.000	5.000	1.978	-2.447	3277	0.800	1.060	1.31	1.70	1.22	
	70	ALL	Tx40		20	0.6	270	15.00	13.40	4	12.5	4.000	5.200	2.288	-2.783	3666	0.780	1.060	1.13	1.68	1.08	
	75	ALL	Tx40		24	0.6	270	14.77	9.77	4	34.5	4.100	5.700	2.619	-3.135	4064	0.760	1.060	1.60	2.07	1.26	
	80	ALL	Tx40		28	0.6	270	14.60	10.60	4	32.5	4.900	6.000	2.964	-3.509	4498	0.750	1.070	1.27	1.99	1.14	
	85	ALL	Tx40		32	0.6	270	14.23	8.60	6	36.5	5.100	6.200	3.328	-3.900	4944	0.740	1.070	1.29	2.04	1.08	
	90	ALL	Tx40		36	0.6	270	13.93	9.27	6	34.5	5.900	6.600	3.695	-4.294	5394	0.730	1.070	1.33	1.75	1.07	
Type Tx46 Girders 32' Roadway 8.5" Slab	40	ALL	Tx46		12	0.6	270	17.60	17.60			4.000	5.000	0.678	-0.844	2150	0.950	1.020	2.22	2.88	3.41	
	45	ALL	Tx46		14	0.6	270	17.60	17.60			4.500	5.000	0.846	-1.024	2543	0.920	1.020	2.22	2.88	3.17	
	50	ALL	Tx46		14	0.6	270	17.60	17.60			4.500	5.000	1.041	-1.235	3012	0.890	1.030	1.82	2.36	2.47	
	55	ALL	Tx46		16	0.6	270	17.35	16.35	4	8.5	4.000	5.000	1.257	-1.465	3277	0.870	1.030	1.77	2.30	2.22	
	60	ALL	Tx46		16	0.6	270	17.35	16.35	4	8.5	4.000	5.000	1.489	-1.701	3221	0.840	1.040	1.51	1.95	1.77	
	65	ALL	Tx46		18	0.6	270	17.16	15.83	4	10.5	4.000	5.000	1.732	-1.957	3424	0.830	1.040	1.48	1.92	1.59	
	70	ALL	Tx46		18	0.6	270	17.16	15.83	4	10.5	4.000	5.000	2.001	-2.227	3834	0.810	1.040	1.26	1.64	1.23	
	75	ALL	Tx46		20	0.6	270	17.00	15.40	4	12.5	4.000	5.000	2.289	-2.510	4254	0.790	1.040	1.16	1.63	1.10	
	80	ALL	Tx46		24	0.6	270	16.77	14.10	4	20.5	4.000	5.100	2.579	-2.804	4703	0.780	1.050	1.28	1.83	1.14	
	85	ALL	Tx46		28	0.6	270	16.60	11.46	4	40.5	4.200	5.500	2.905	-3.125	5181	0.770	1.050	1.38	1.98	1.14	
	90	ALL	Tx46		32	0.6	270	16.23	9.48	6	42.5	4.400	5.700	3.234	-3.438	5624	0.750	1.050	1.46	2.11	1.13	
	95	ALL	Tx46		34	0.6	270	16.07	11.13	6	34.5	5.000	5.900	3.582	-3.777	6117	0.740	1.060	1.49	2.12	1.12	
	100	ALL	Tx46		38	0.6	270	15.81	11.39	6	34.5	5.600	6.600	3.961	-4.139	6635	0.730	1.060	1.31	1.78	1.03	

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER

(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.

DESIGN NOTES:

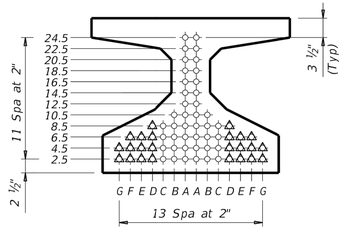
Designed according to AASHTO LRFD Bridge Design Specifications.
Load rated using Load and Resistance Factor Rating according to AASHTO Manual for Bridge Evaluation.
Optional designs for girders 120 feet or longer must have a calculated residual camber equal to or greater than that of the designed girder.
Prestress losses for the designed girders have been calculated for a relative humidity of 60 percent. Optional designs must likewise conform.

FABRICATION NOTES:

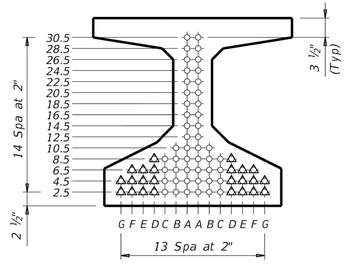
Provide Class H concrete.
Provide Grade 60 reinforcing steel bars.
Use low relaxation strands, each pretensioned to 75 percent of fpu.
Strand debonding must comply with Item 424.4.2.2.2.4. Full-length debonded strands are only permitted in positions marked △. Double wrap full-length debonded strands in outer most position of each row.
When shown on this sheet, the Fabricator has the option of furnishing either the designed girder or an approved optional design. All optional design submittals must be signed, sealed and dated by a Professional Engineer registered in the State of Texas.
Seal cracks in girder ends exceeding 0.005" in width as directed by the Engineer. The fabricator is permitted to decrease the spacing of Bars R and S by providing additional bars to help limit crack width provided the decreased spacing results in no less than 1" clear between bars. The fabricator must take an approved corrective action if cracks greater than 0.005" form on a repetitive basis.

DEPRESSED STRAND DESIGNS:

Locate strands for the designed girder as low as possible on the 2" grid system unless a non-standard strand pattern is indicated. Fill row "2.5", then row "4.5", then row "6.5", etc., beginning each row in the "A" position and working outward until the required number of strands is reached. All strands in the "A" position must be depressed, maintaining the 2" spacing so that, at the girder ends, the upper two strands are in the position shown in the table.



TYPE Tx28



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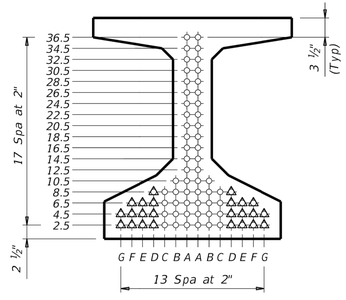

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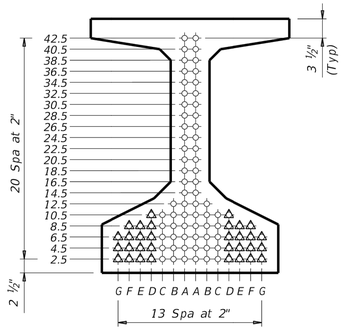

TYPE Tx46

HL93 LOADING

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

32' ROADWAY

IGSD-32

FILE: IG-IGSD32-21.dgn	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Redesigned girders. 1-21: Added load rating.	DIST	COUNTY		SHEET NO.

DATE:
FILE:

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO.
F-16849

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PROJECT NO.	DATE	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	2/16/2026	AS SHOWN	JRM	JRM	JKS

IGSD-32

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-18

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DATE:
FILE:

STRUCTURE	DESIGNED GIRDERS									DEPRESSED STRAND PATTERN		CONCRETE		OPTIONAL DESIGN					LOAD RATING FACTORS			
	SPAN NO.	GIRDER NO.	GIRDER TYPE	PRESTRESSING STRANDS						NO.	TO END (in)	RELEASE STRGTH (1) f'ci (ksi)	MINIMUM 28 DAY COMP STRGTH f'c (ksi)	DESIGN LOAD COMP STRESS (TOP ℄) (SERVICE I) fct(ksi)	DESIGN LOAD TENSILE STRESS (BOTT ℄) (SERVICE III) fcb(ksi)	REQUIRED MINIMUM ULTIMATE MOMENT CAPACITY (STRENGTH I) (kip-ft)	LIVE LOAD DISTRIBUTION FACTOR (2)		STRENGTH I		SERVICE III
				NON-STD STRAND PATTERN	TOTAL NO.	SIZE (in)	STRGTH fpu (ksi)	"e" ℄ (in)	"e" END (in)								Moment	Shear	Inv	Opr	Inv
Type Tx54 Girders 32' Roadway 8.5" Slab	40	ALL	Tx54		12	0.6	270	21.01	21.01			4.000	5.000	0.561	-0.686	2216	0.980	1.010	2.55	3.30	4.09
	45	ALL	Tx54		12	0.6	270	21.01	21.01			4.000	5.000	0.703	-0.835	2629	0.950	1.010	2.12	2.75	3.32
	50	ALL	Tx54		14	0.6	270	21.01	21.01			4.000	5.000	0.858	-1.003	3108	0.920	1.020	2.10	2.73	3.05
	55	ALL	Tx54		16	0.6	270	20.76	20.26	4	6.5	4.000	5.000	1.035	-1.189	3629	0.900	1.020	2.05	2.66	2.77
	60	ALL	Tx54		16	0.6	270	20.76	20.26	4	6.5	4.000	5.000	1.224	-1.381	3931	0.870	1.020	1.76	2.28	2.27
	65	ALL	Tx54		18	0.6	270	20.56	19.23	4	10.5	4.000	5.000	1.430	-1.588	4159	0.850	1.020	1.75	2.26	2.09
	70	ALL	Tx54		18	0.6	270	20.56	19.23	4	10.5	4.000	5.000	1.653	-1.815	4103	0.840	1.030	1.49	1.93	1.68
	75	ALL	Tx54		20	0.6	270	20.41	18.81	4	12.5	4.000	5.000	1.877	-2.035	4399	0.820	1.030	1.50	1.94	1.56
	80	ALL	Tx54		20	0.6	270	20.41	18.81	4	12.5	4.000	5.000	2.129	-2.284	4880	0.810	1.030	1.29	1.67	1.23
	85	ALL	Tx54		22	0.6	270	20.28	18.46	4	14.5	4.000	5.000	2.392	-2.534	5339	0.790	1.040	1.30	1.68	1.12
	90	ALL	Tx54		26	0.6	270	20.08	16.39	4	28.5	4.000	5.000	2.665	-2.800	5839	0.780	1.040	1.22	1.67	1.00
	95	ALL	Tx54		28	0.6	270	20.01	14.29	4	44.5	4.000	5.000	2.951	-3.075	6353	0.770	1.040	1.38	1.86	1.03
	100	ALL	Tx54		32	0.6	270	19.63	12.51	6	44.5	4.300	5.200	3.262	-3.370	6892	0.760	1.040	1.42	1.99	1.03
	105	ALL	Tx54		36	0.6	270	19.34	12.01	6	50.5	4.700	5.400	3.574	-3.667	7434	0.750	1.040	1.48	2.10	1.05
	110	ALL	Tx54		40	0.6	270	19.11	12.51	6	50.5	5.300	6.100	3.899	-3.973	7988	0.740	1.050	1.53	2.19	1.08
	115	ALL	Tx54		44	0.6	270	18.83	11.55	8	48.5	5.600	6.400	4.252	-4.301	8569	0.730	1.050	1.29	1.74	1.03
	120	ALL	Tx54	*	48	0.6	270	18.42	10.09	10	50.5	5.800	7.700	4.619	-4.640	9165	0.720	1.050	1.28	1.69	1.01
Type Tx62 Girders 32' Roadway 8.5" Slab	60	ALL	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	0.961	-1.157	4309	0.900	1.010	1.98	2.56	2.74
	65	ALL	Tx62		16	0.6	270	25.53	25.53			4.000	5.000	1.121	-1.331	4614	0.880	1.010	1.69	2.19	2.26
	70	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.292	-1.514	4894	0.860	1.020	1.71	2.21	2.12
	75	ALL	Tx62		18	0.6	270	25.33	25.33			4.000	5.000	1.475	-1.705	4844	0.840	1.020	1.48	1.92	1.75
	80	ALL	Tx62		20	0.6	270	25.18	24.38	4	8.5	4.000	5.000	1.659	-1.903	5116	0.830	1.020	1.49	1.93	1.64
	85	ALL	Tx62		20	0.6	270	25.18	24.38	4	8.5	4.000	5.000	1.866	-2.120	5578	0.820	1.020	1.29	1.67	1.32
	90	ALL	Tx62		20	0.6	270	25.18	24.38	4	8.5	4.500	5.500	2.080	-2.338	6072	0.800	1.030	1.31	1.70	1.23
	95	ALL	Tx62		24	0.6	270	24.94	22.94	4	16.5	4.000	5.000	2.310	-2.574	6621	0.790	1.030	1.31	1.70	1.12
	100	ALL	Tx62		26	0.6	270	24.85	22.39	4	20.5	4.000	5.000	2.531	-2.805	7159	0.780	1.030	1.27	1.70	1.03
	105	ALL	Tx62		30	0.6	270	24.58	14.18	6	58.5	4.800	5.800	2.771	-3.050	7723	0.770	1.030	1.64	2.16	1.31
	110	ALL	Tx62		34	0.6	270	24.25	15.42	6	56.5	4.200	5.000	3.020	-3.304	8301	0.760	1.030	1.60	2.10	1.21
	115	ALL	Tx62		36	0.6	270	24.11	17.44	6	46.5	4.700	5.600	3.291	-3.576	8909	0.750	1.030	1.53	2.04	1.13
	120	ALL	Tx62		40	0.6	270	23.88	16.68	6	54.5	5.100	6.000	3.545	-3.835	9493	0.740	1.040	1.63	2.12	1.47
	125	ALL	Tx62		44	0.6	270	23.60	14.87	8	56.5	5.300	6.100	3.836	-4.124	10128	0.730	1.040	1.51	2.04	1.35
	130	ALL	Tx62		48	0.6	270	23.28	15.28	8	56.5	5.800	6.700	4.144	-4.438	10849	0.730	1.040	1.44	1.80	1.11

NON-STANDARD STRAND PATTERNS

PATTERN	STRAND ARRANGEMENT AT ℄ OF GIRDER
*	2.5(14),4.5(14),6.5(14),8.5(4),10.5(2)

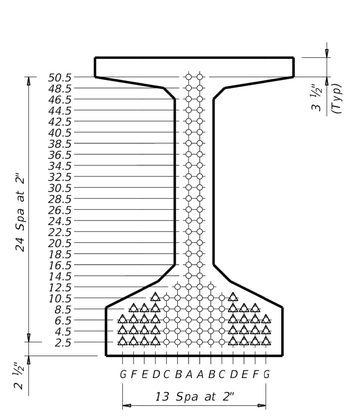
(1) Based on the following allowable stresses (ksi):

Compression = 0.65 f'ci

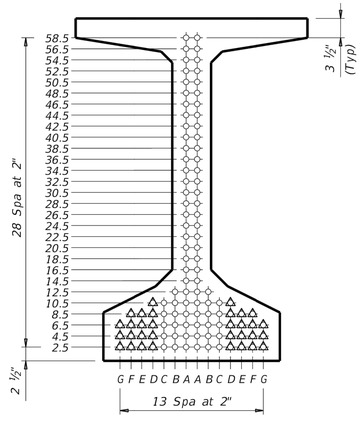
Tension = $0.24\sqrt{f'ci}$

Optional designs must likewise conform.

(2) Portion of full HL93.



TYPE Tx54



TYPE Tx62

HL93 LOADING

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER STANDARD DESIGNS

32' ROADWAY

IGSD-32

FILE: IG-IGSD32-21.dgn	DN: EFC	CK: AJF	DW: EFC	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Redesigned girders. 1-21: Added load rating.	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO. F-16849

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PROJECT NO.	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	JRM	JRM	JKS
DATE 2/16/2026			
SCALE: AS SHOWN			

IGSD-32

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-19

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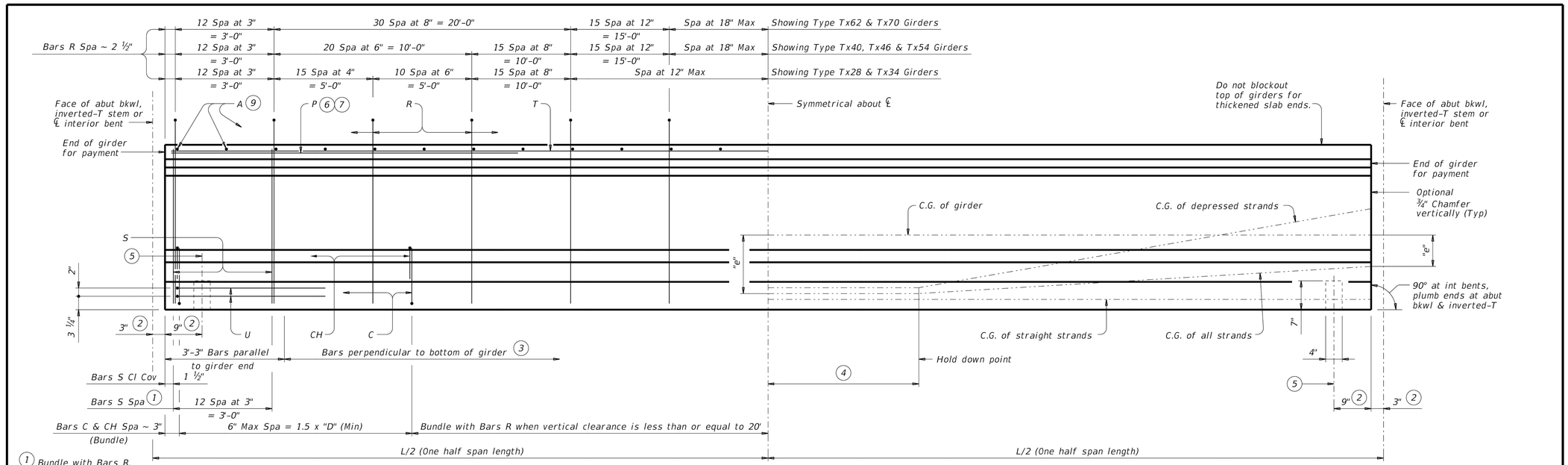


(1) Bundle with Bars R.

(2) Measured along ℄ Girder at interior bents; perpendicular to abutment bkwl or inverted-T stem.

(3) The average of the top and bottom spacing of Bars R cannot exceed the required spacing.

(4) L/20, but not less than 5'-0" (-0,+2').

(5) ℄ 4" x 1 ½" Vertical Slotted Hole at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details. Anchorage holes may be tapered (4 ¾" x 1 ⅜") at base. If holes are formed with sheet metal, forms may be left in place.

GIRDER ELEVATION

(6) Bars P (#6 x 15'-0") required in Tx62 and Tx70 girders. At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

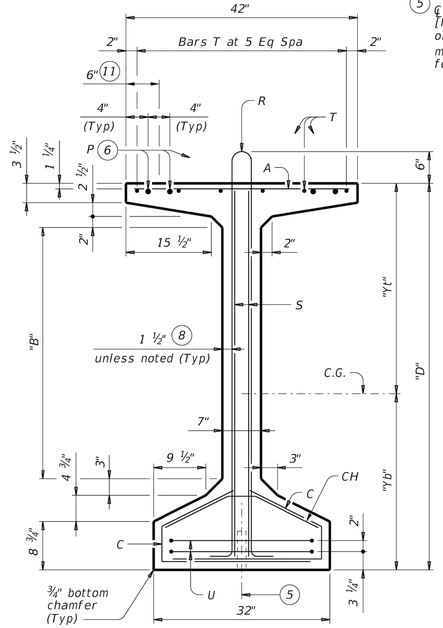
(7) Bars P (#6 x 15'-0") are only required in Tx28, Tx34, Tx40, Tx46, and Tx54 girders when "e" at girder ends exceeds 0.25 x "D". At the fabricator's option bars larger than #6 may be used. When L is less than 50 ft, Bars P are to be the same length as Bars T.

(8) 1 ⅜" Clear Cover to Bars S.

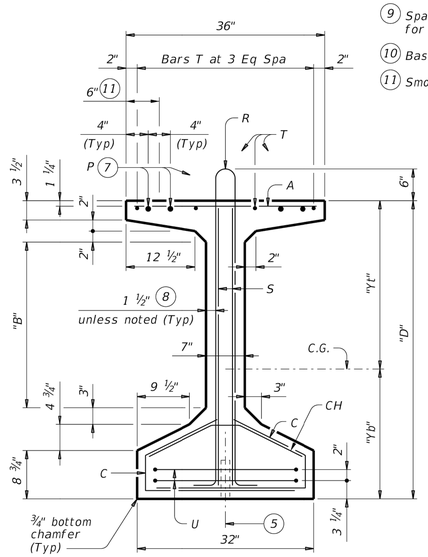
(9) Space Bars A at 6" Max for girders requiring overhang bracket hangers. Space at 12" Max for all other girders. Tie to Bars R as necessary. See standard IGMS for "Deck Forming Notes".

(10) Based on 155 pcf total weight of concrete and reinforcing steel.

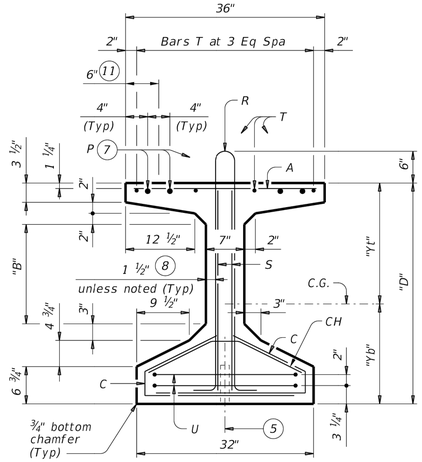
(11) Smooth trowel finish on the slab overhang side of exterior girder.



TYPE Tx62 & Tx70



TYPE Tx46 & Tx54



TYPE Tx28, Tx34 & Tx40

GIRDER DIMENSIONS AND SECTION PROPERTIES

Girder Type	"D" (in.)	"B" (in.)	"Yt" (in.)	"Yb" (in.)	Area (in.²)	"Ix" (in.⁴)	"Iy" (in.⁴)	Weight (10) (plf)
Tx28	28	6	15.02	12.98	585	52,772	40,559	630
Tx34	34	12	18.49	15.51	627	88,355	40,731	675
Tx40	40	18	21.90	18.10	669	134,990	40,902	720
Tx46	46	22	25.90	20.10	761	198,089	46,478	819
Tx54	54	30	30.49	23.51	817	299,740	46,707	880
Tx62	62	37 ½"	33.72	28.28	910	463,072	57,351	980
Tx70	70	45 ½"	38.09	31.91	966	628,747	57,579	1,040

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Provide Class H concrete.
Provide Grade 60 reinforcing steel.
An equal area of deformed Welded Wire Reinforcement (WWR) (ASTM A1064) may be substituted for Bars A, C, R or T unless otherwise noted.
It is permissible for bars or strands to come in contact with materials used in forming anchor holes.
When vertical clearance of the span is less than or equal to 20', provide additional Bars C and CH in every girder of that span.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

HL93 LOADING

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: IG-IGD-23.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS 10-19: Added Bars C and CH full length for VC<= 20' 3-23: Clarified C and CH requirement	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

WSB LLC.
3522 SAM RAYBURN HWY., MELISSA, TX. 75454
Ph. (469) 907-5500
www.wsbeng.com

REGISTRATION NO. F-16849

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PROJECT NO. 22-02557
DATE 2/16/2026
SCALE: AS SHOWN
DESIGNED BY: JRM
DRAWN BY: JRM
CHECKED BY: JKS

IGD

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-20

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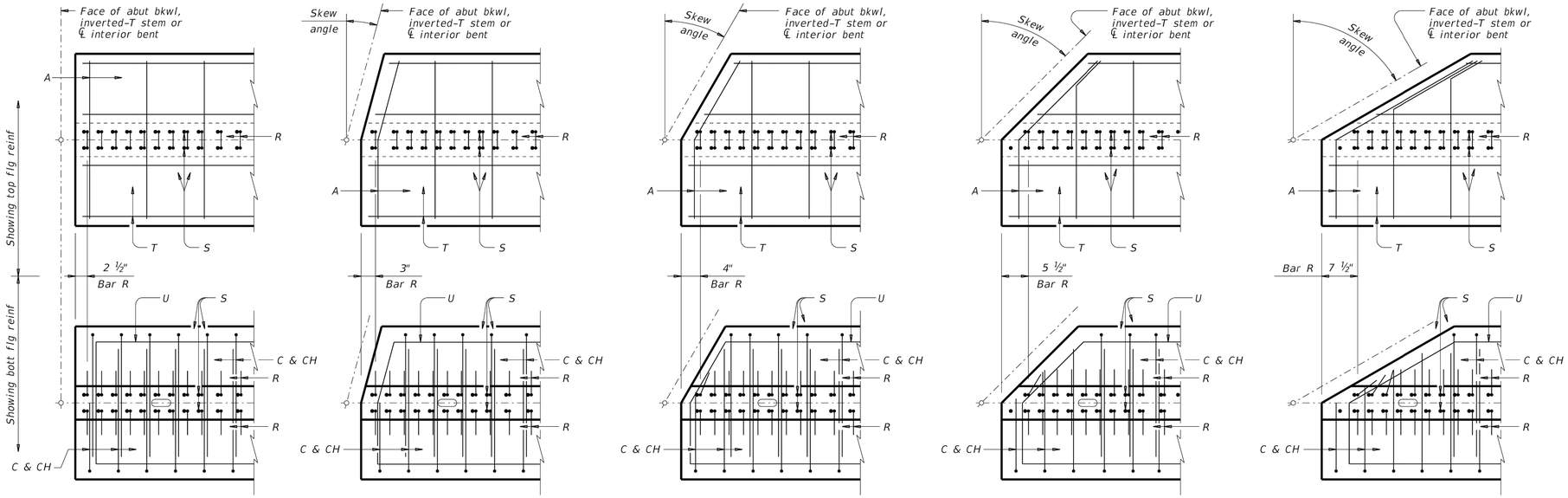
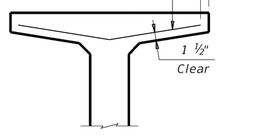
FILE: DOCUMENT NAME

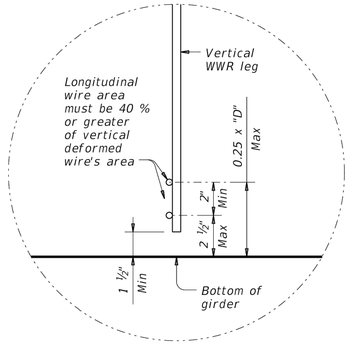


PLAN OF GIRDER ENDS (12)

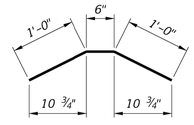
To control top flange cracking that may occur during form removal, additional top flange reinforcing may be placed as shown in girder ends at the Fabricator's option.



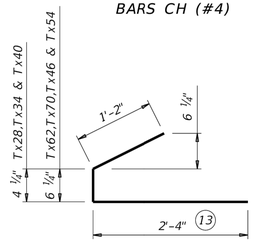
OPTIONAL TOP FLANGE REINFORCING DETAIL



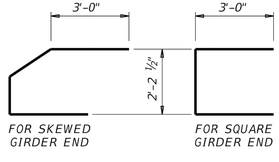
OPTIONAL WELDED WIRE REINFORCEMENT (WWR) DETAIL



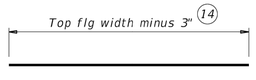
BARS CH (#4)



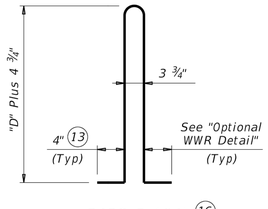
BARS C (#4)



BARS U (#5)

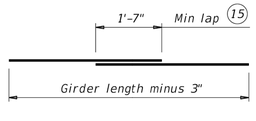


BARS A (#3)



BARS R (#4) (16)

BARS S (#6)



BARS T (#4)

(12) Reinforcing patterns shown are provided as guides to determine reinforcement placement in skewed ends. Place Bars S as close to girder end as cover requirements permit, which may prevent them to be bundled with Bars R.

(13) Bars may be cut or bent at skewed end as required.

(14) Increase as necessary for bars at skewed end.

(15) No portion of bar less than 10 ft.

(16) For Welded Wire Reinforcement (WWR) option, area of Bars R may be reduced in proportion to the increase in reinforcement yield strength over 60 ksi. Yield strength of WWR is limited to 75 ksi.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER DETAILS

IGD

FILE: IG-IGD-23.dgn	DN: TxDOT	CK: JMH	DW: JTR	CK: TAR
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REVISIONS 10-19: Added Bars C and CH full length for VC<= 20' 3-23: Clarified C and CH requirement	DIST	COUNTY		SHEET NO.

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PROJECT NO. 22-02557	SCALE: AS SHOWN	DESIGNED BY: JRM
DATE 2/16/2026		DRAWN BY: JRM
		CHECKED BY: JKS

IGD

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER B-21

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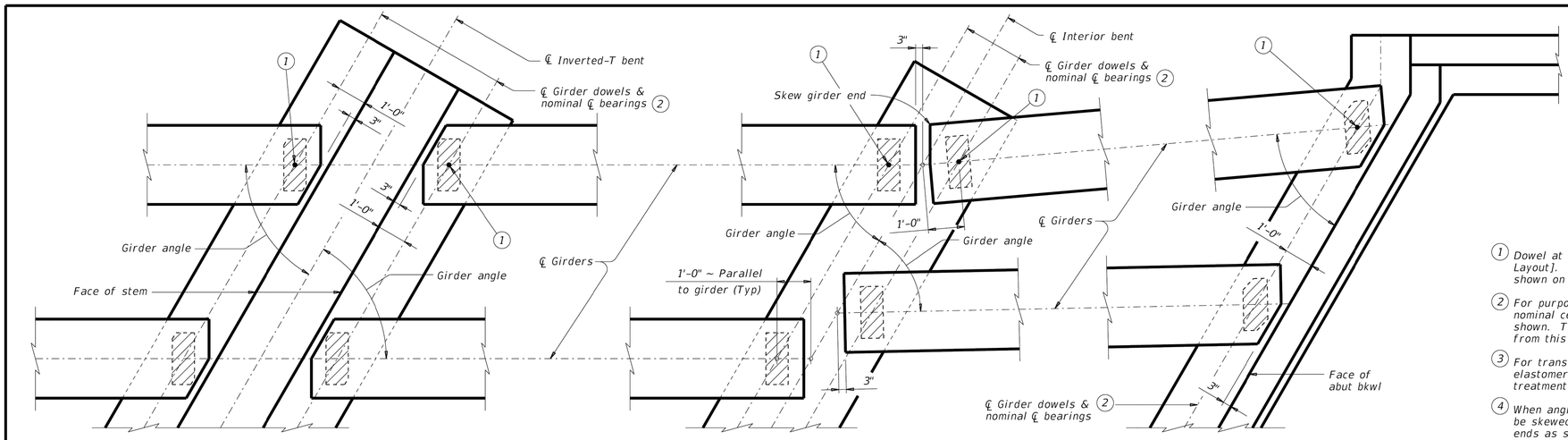


AT INVERTED-T BENT W/SKEW | AT CONVENTIONAL INTERIOR BENT W/SKEW | AT ABUTMENT W/SKEW (3)

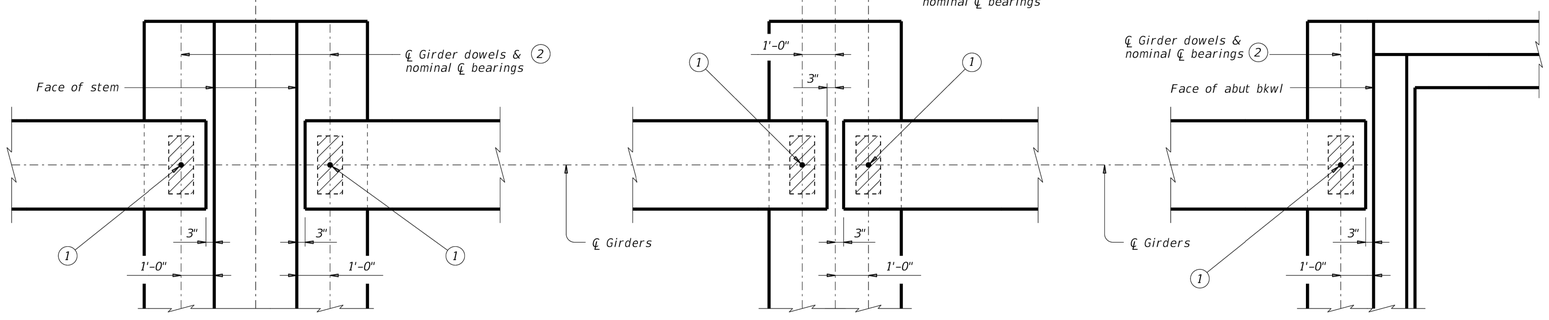
(1) Dowel at doweled girder end [labeled (D) on Bridge Layout]. Required for outside girder only or as shown on substructure details.

(2) For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.

(3) For transition bents with backwall, girder and elastomeric bearings must receive the same treatment as shown for abutments.

(4) When angle exceeds 0°, one or both girders ends must be skewed to maintain the clearance between girder ends as shown in view.

(5) See Table of Bearing Pad Dimensions for bearing size. Girder end skew angles in Table not applicable for this situation. Table reflects girder conflicts of this type on radial bents only.



AT INVERTED-T BENT | AT CONVENTIONAL INTERIOR BENT | AT ABUTMENT (3)

GIRDER END DETAILS

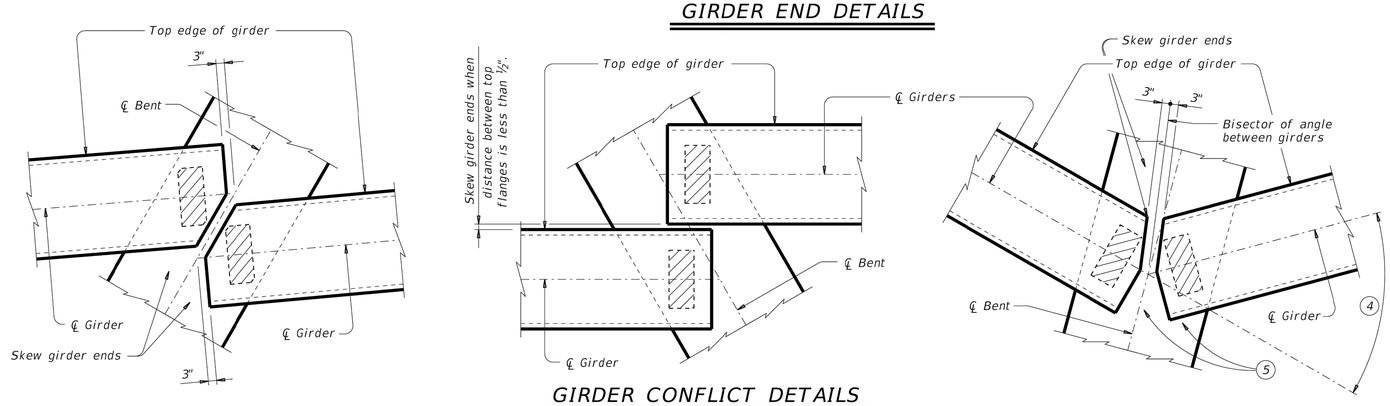
GENERAL NOTES:

These details accommodate skew angles up to 60°.

Shop drawings for approval are required.

A bearing layout which identifies location and orientation of all bearings must be developed by the bearing fabricator. Permanently mark each bearing in accordance with the bearing layout. A copy of the bearing layout is to be provided to the Engineer.

Cost of furnishing and installing elastomeric bearings, including beveled and embedded steel plates, must be included in unit price bid for "Prestressed Concrete Girders".



GIRDER CONFLICT DETAILS

HL93 LOADING

SHEET 1 OF 3

Texas Department of Transportation

Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS
PRESTR CONCRETE I-GIRDERS

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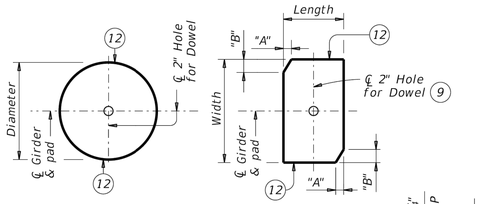
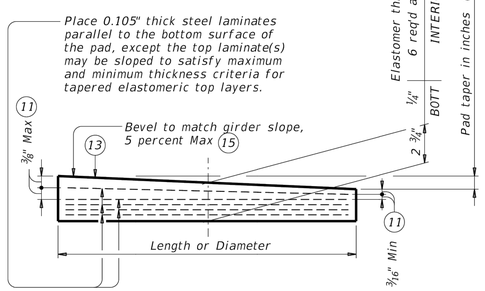


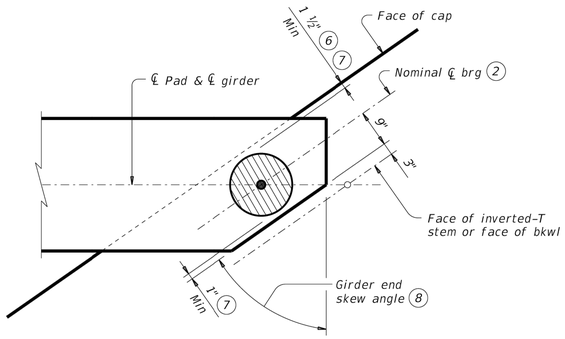
PLANS (10)



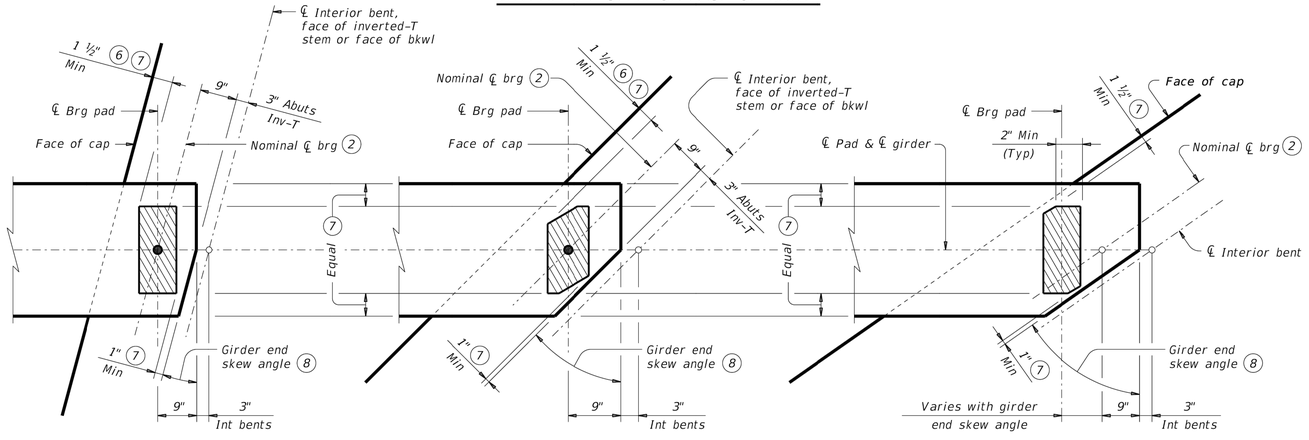
ELEVATION

LAMINATED ELASTOMERIC BEARING PAD

(50 DUROMETER)



ROUND BEARINGS FOR SKEWED GIRDER ENDS AT FACE OF INVERTED-T STEM OR FACE OF BKWL



SKEWED GIRDER ENDS AT INT BENTS, FACE OF INVERTED-T STEM OR FACE OF BKWL

SKEWED GIRDER ENDS AT CONVENTIONAL INTERIOR BENTS (16)

(NO GIRDER DOWELS)

BEARING PAD PLACEMENT DIAGRAMS

TABLE OF MINIMUM SUBSTRUCTURE DIMENSIONS (14)			
Girder Type	Abutments	Int Bents	Inv-T Bents
	Face of Bkwl to Face of Cap	Overall Cap Width	Corbel Width
Tx28 thru Tx54	1'-9"	3'-6"	1'-10 ½"
Tx62 & Tx70	2'-0"	4'-0"	2'-1 ½"

TABLE OF BEARING PAD DIMENSIONS						
Bent Type	Girder Type	Bearing Type (13)	Girder End Skew Angle Range	Pad Size Lgth x Wdth	Pad Clip Dimensions	
					"A"	"B"
ABUTMENTS, INVERTED-T AND TRANSITION BENTS WITH BACKWALLS	Tx28,Tx34, Tx40,Tx46 & Tx54	G-1-"N"	0° thru 21°	8" x 21"	---	---
		G-2-"N"	21°+ thru 30°	8" x 21"	1 ½"	2 ½"
		G-3-"N"	30°+ thru 45°	9" x 21"	4 ½"	4 ½"
		G-4-"N"	45°+ thru 60°	15" Dia	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 21°	9" x 21"	---	---
		G-6-"N"	21°+ thru 30°	9" x 21"	1 ½"	2 ½"
		G-7-"N"	30°+ thru 45°	10" x 21"	4 ½"	4 ½"
		G-8-"N"	45°+ thru 60°	10" x 21"	7 ¼"	4 ¼"
CONVENTIONAL INTERIOR BENTS	Tx28,Tx34, Tx40,Tx46 & Tx54	---	---	---	---	---
		---	---	---	---	---
		G-1-"N"	0° thru 60°	8" x 21"	---	---
	Tx62 & Tx70	G-5-"N"	0° thru 60°	9" x 21"	---	---
CONVENTIONAL INTERIOR BENTS WITH SKEWED GIRDER ENDS (GIRDER CONFLICTS) (16)	Tx28,Tx34, Tx40,Tx46 & Tx54	G-1-"N"	0° thru 18°	8" x 21"	---	---
		G-2-"N"	18°+ thru 30°	8" x 21"	1 ½"	2 ½"
		G-9-"N"	30°+ thru 45°	8" x 21"	3"	3"
		G-10-"N"	45°+ thru 60°	9" x 21"	6"	3 ½"
	Tx62 & Tx70	G-5-"N"	0° thru 18°	9" x 21"	---	---
		G-5-"N"	18°+ thru 30°	9" x 21"	---	---
		G-11-"N"	30°+ thru 45°	9" x 21"	1 ½"	1 ½"
		G-12-"N"	45°+ thru 60°	9" x 21"	3"	1 ¾"

(2) For purposes of computing bearing seat elevations, nominal centerline of bearing must be defined as shown. The actual center of bearing pad may vary from this line.

(6) 3" for inverted-T.

(7) Place centerline pad as near nominal centerline bearing as possible between limits shown.

(8) Girder end skew angle is equal to 90° minus the girder angle except at some conflicting girders.

(9) Provide 2" dia hole only at locations required. See Substructure details for location.

(10) See Table of Bearing Pad Dimensions for dimensions.

(11) Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.

(12) Locate Permanent Mark here.

(13) Indicate BEARING TYPE on all pads. For tapered pads, locate BEARING TYPE on the high side. The Fabricator must include the value of "N" (amount of taper in ⅛" increments) in this mark.
Examples: N=0, (for 0" taper)
N=1, (for ⅛" taper)
N=2, (for ¼" taper)
(etc.)
Fabricated pad top surface slope must not vary from plan girder slope by more than $\left(\frac{0.0625"}{\text{Length or Dia}}\right)$ IN/IN.

(14) Substructure dimensions must satisfy the minimums provided to accommodate the elastomeric bearings shown on this standard.

(15) See sheet 3 of 3 for beveled plate use when slopes exceed 5 percent.

(16) If girder end is skewed for a girder conflict at an interior bent and a beveled sole plate is required, use bearing type for abutments at this location. Location of bearing centerline is to be set as for abutments in this case.

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation — Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS
PRESTR CONCRETE I-GIRDERS

IGEB

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CRENSHAW ROAD EAST

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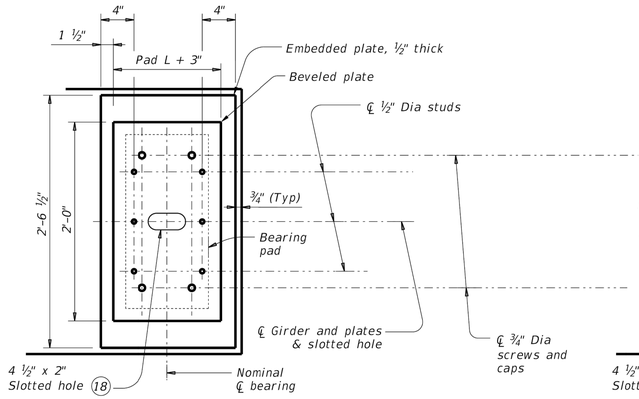
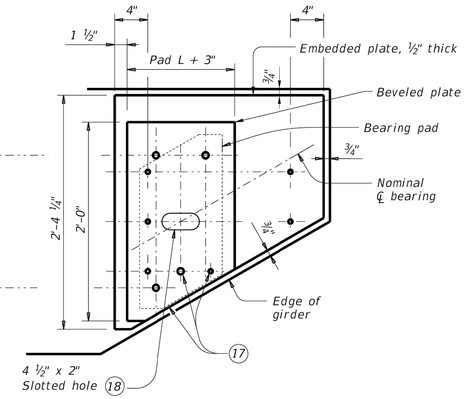
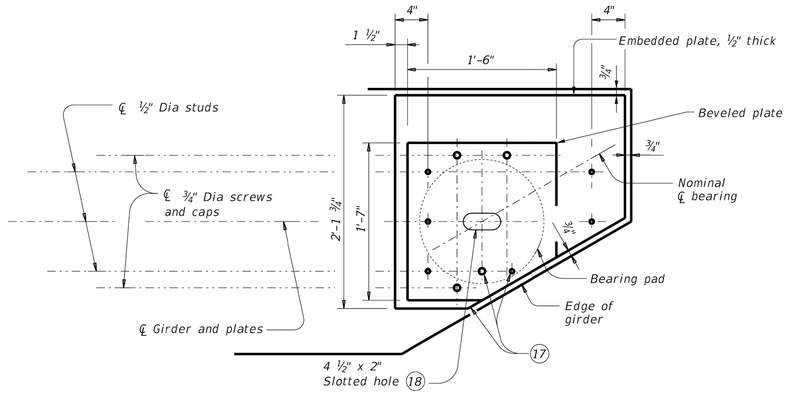


NORMAL GIRDER END
RECTANGULAR BEARING PAD

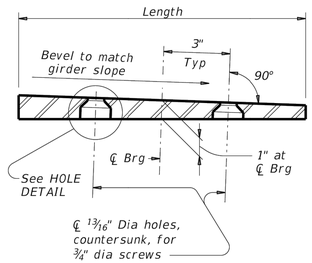


SKEWED GIRDER END
CLIPPED RECTANGULAR BEARING PAD

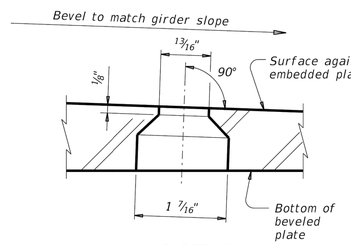


SKEWED GIRDER END
15" DIA BEARING PAD

PLAN VIEW OF SOLE PLATE DETAILS



SECTION



HOLE DETAIL

(17) Cut beveled and embedded plates to match girder end skew. Adjust location of screw and stud as shown when necessary.

(18) Slotted hole is required at doweled girder end locations.

SOLE PLATE NOTES:

Provide constant thickness elastomeric bearings with beveled and embedded steel sole plates in accordance with these details when the girder slope exceeds 5 percent or if otherwise required in the plans. Provide for all girders in the span.

On the shop drawings, dimension sole plates to the nearest 1⁄16" based on required thickness at centerline of bearing and slope of girder. Thickness tolerance variation from the approved shop drawings is 1⁄16"+/-, except variation from a plane parallel to the theoretical top surface can not exceed 1⁄16" total. Bearing surface tolerances listed in Item 424 apply to embedded and beveled plates.

Steel plate must conform to ASTM A36, A572 Gr 50, or A709 Gr 36 or Gr 50. Hot dip galvanize both the embedded plate and beveled sole plate after fabrication. Seal weld caps to embedded plate before galvanizing.

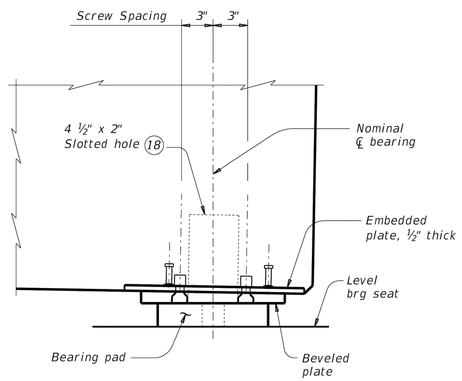
When determining if relocation of screw holes and studs are necessary for skewed girder ends, minimum clearance from screw or stud centerline to plate edge is 1.25".

Tap threads in the embedded plate only. Drill and tap prior to galvanizing.

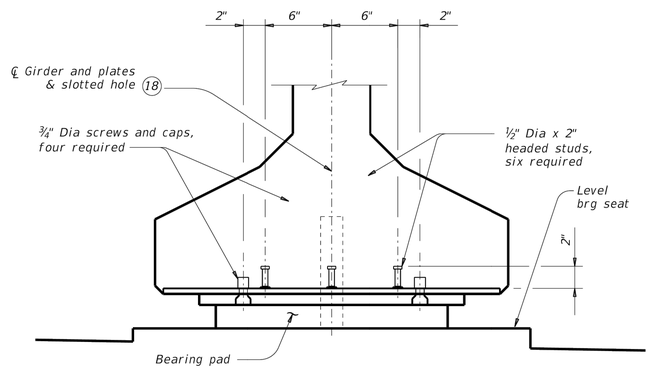
¾" Dia screws must be electroplated, socket flat head countersunk cap screws conforming to ASTM F835. Electroplating must conform to ASTM B633, SC 2, Type I. Provide screws long enough to maintain a ¾" minimum embedment into the embedded plate and galvanized cap. Provide galvanized steel caps (16 ga Min) with a nominal 1" inside diameter and deep enough to accommodate the screws, but not less than ½" deep or deeper than 1".

Install beveled sole plates prior to shipping girders. Installed screw heads must not protrude below the bottom of the beveled plate.

BEVELED PLATE DETAILS



SIDE ELEVATION



END ELEVATION
Showing normal girder end.

GIRDER DETAILS

HL93 LOADING SHEET 3 OF 3

Texas Department of Transportation | Bridge Division Standard

ELASTOMERIC BEARING AND GIRDER END DETAILS
PRESTR CONCRETE I-GIRDERS

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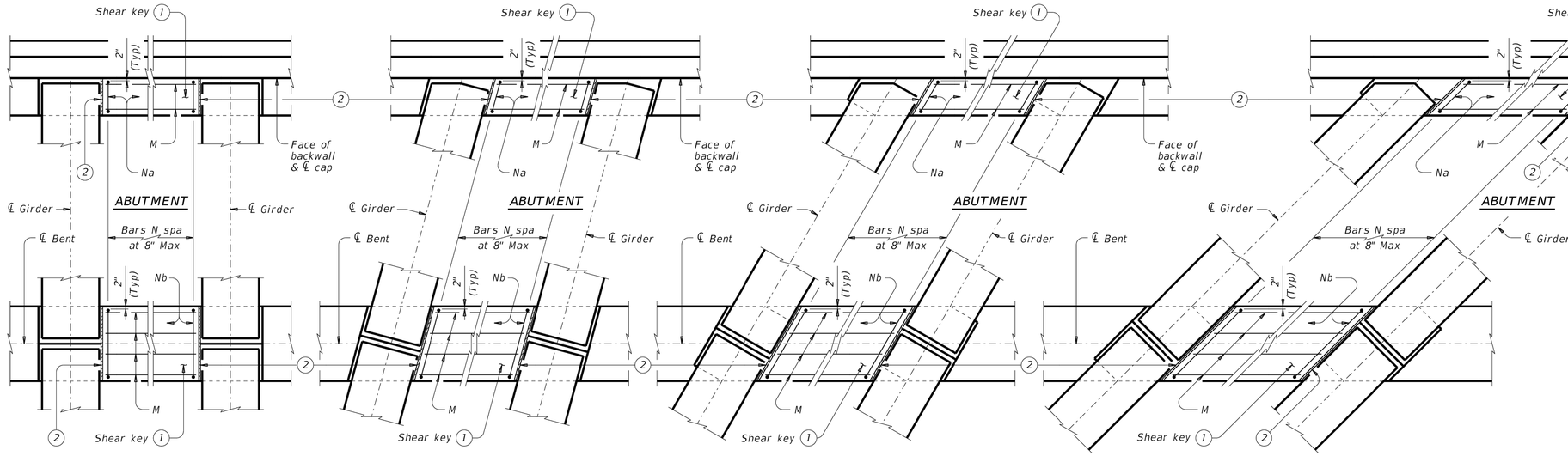


PARTIAL PLANS WITH NO SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

PARTIAL PLANS WITH 15° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

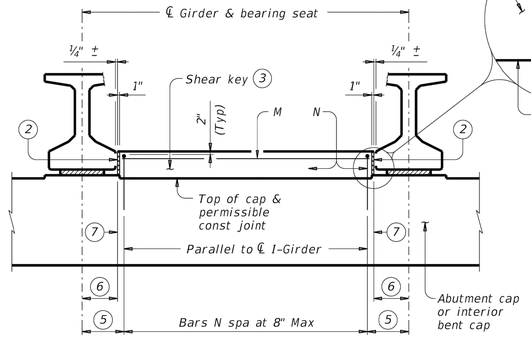
PARTIAL PLANS WITH 30° SKEW

Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

PARTIAL PLANS WITH 45° SKEW

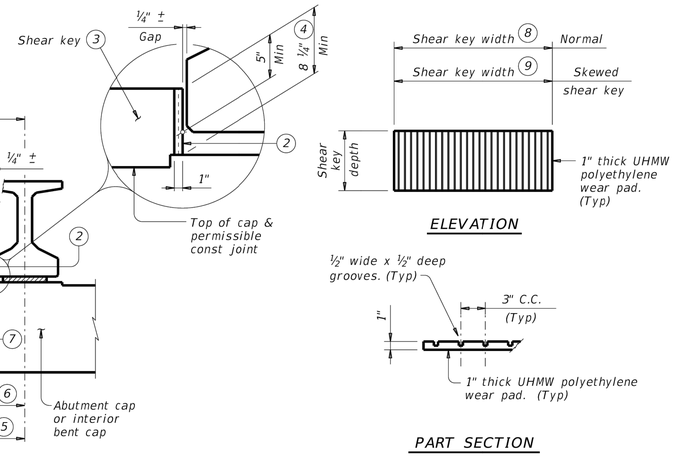
Showing shear keys on 3'-6" wide caps. 4'-0" caps similar.

1. Place shear keys on the upstream side of structure between outside girder and next adjacent girder, unless shown otherwise on plans.
2. UHMW polyethylene wear pad. (Typ)
3. Leave a ¼" gap plus or minus between girder and face of wear pad. Cast wear pad with shear key, smooth side facing girder. Care must be taken to keep concrete from flowing under girder. Slope top of shear keys in accordance with Item 420.4.9, "Treatment and Finishing of Horizontal Surfaces."
4. Measure at higher bearing seat elevation forward or back. Dimension based on typical bearing pad and bearing seat. Increase as necessary to maintain 5" overlap.
5. With No Skew = 1'-8 ¼", measured along ℄ cap.
   With Skew = 1'-8 ¼" ‡ Cos Skew, measured along ℄ cap.
6. With No Skew = 1'-4 ¼", measured along ℄ cap.
   With Skew = 1'-4 ¼" ‡ Cos Skew, measured along ℄ cap.
7. Face of UHMW polyethylene wear pad. Smooth side of pad facing girder.
8. Abutments = ½ Cap width.
   Interior bents = Cap width.
9. Abutments = ½ Cap width ‡ Cos Skew.
   Interior bents = Cap width ‡ Cos Skew.

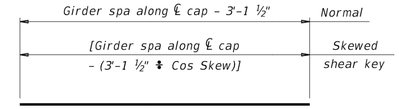


PARTIAL ELEVATION OF ABUTMENT OR INTERIOR BENT CAP (1)

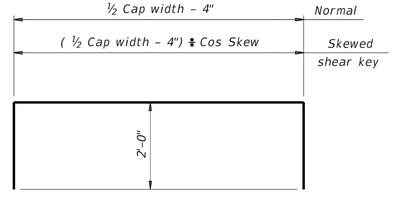
Showing shear key with girder Type Tx46. Other I-Girder types similar.



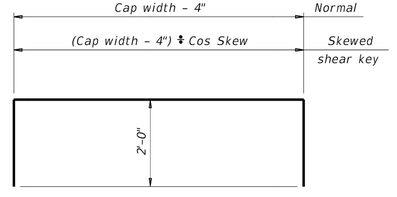
ULTRA HIGH MOLECULAR WEIGHT (UHMW) POLYETHYLENE WEAR PAD DETAILS



BARS M (#5)



BARS Na (#5)
(For abutments)



BARS Nb (#5)
(For interior bents)

CONSTRUCTION NOTES:

Provide Class "C" concrete (f'_c = 3,600 psi). Provide Class "C" (HPC) if shown elsewhere on the plans.
Provide Grade 60 reinforcing steel.
Provide epoxy coated reinforcing steel for shear key if abutment or interior bent reinforcing steel is epoxy coated.
Provide Ultra High Molecular Weight (UHMW) polyethylene wear pads in accordance with ASTM D6712.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Details showing skew are drawn showing right forward skew. See Bridge Layout for actual skew direction.
These details are limited to bridges skewed 45 degrees and less.
This standard is only applicable for I-Girders.
Modify details for bearing conditions, and girder spacing not shown on this standard. Details do not account for sole plate or pedestal bearing seat.
Include shear key concrete in abutment or bent concrete for payment.
UHMW polyethylene wear pads are subsidiary to Class "C" concrete.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

Texas Department of Transportation — Bridge Division Standard

SHEAR KEY DETAILS
PRESTR CONCRETE I-GIRDERS

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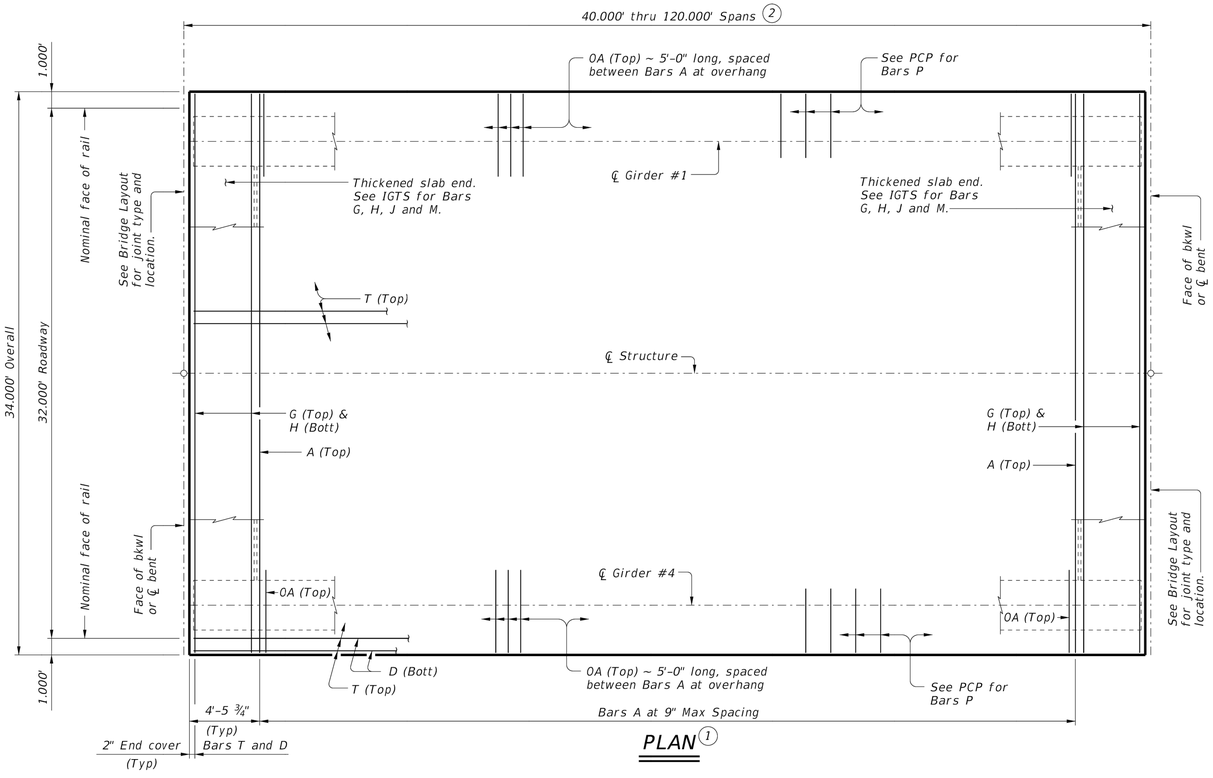
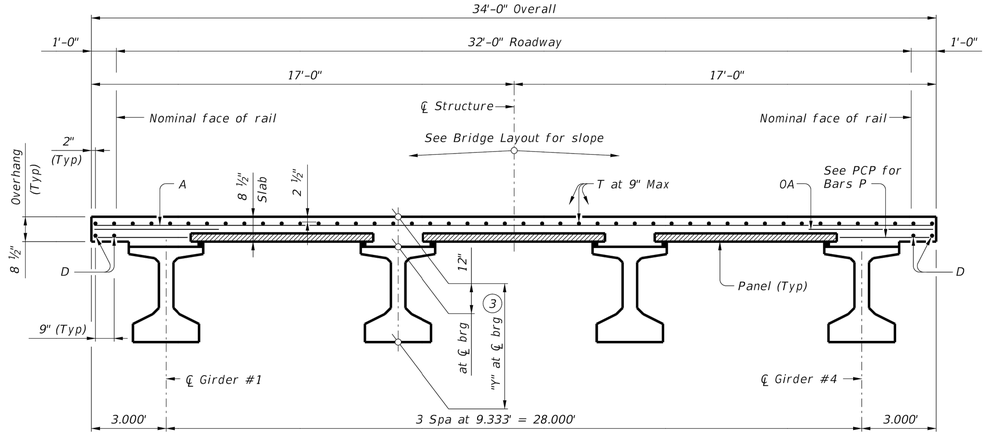


PLAN (1)



TYPICAL TRANSVERSE SECTION

(Showing girder type Tx46)

BAR TABLE	
BAR	SIZE
A	#4
D	#4
G	#4
H	#4
J	#4
M	#4
OA	#5
P	#4
T	#4

TABLE OF SECTION DEPTHS	
GIRDER TYPE	"Y" AT ℄ BRG (3)
	Ft/In
Tx28	3'-4"
Tx34	3'-10"
Tx40	4'-4"
Tx46	4'-10"
Tx54	5'-6"

(1) If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see standard IGCS for adjustment to slab reinforcement and quantities.

(2) Span lengths for prestressed concrete I-Girder type:
Type Tx28 for spans lengths 40.000' thru 65.000'.
Type Tx34 for spans lengths 40.000' thru 80.000'.
Type Tx40 for spans lengths 40.000' thru 90.000'.
Type Tx46 for spans lengths 40.000' thru 100.000'.
Type Tx54 for spans lengths 40.000' thru 120.000'.

(3) "Y" value shown is based on theoretical girder camber, dead load deflection from an 8 ½" concrete slab, a constant roadway grade, and using precast panels (PCP). The Contractor will adjust this value as necessary for any roadway vertical curve.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

32' ROADWAY

SIG-32

FILE: IG-SIG3200-23.dgn	DN: JMH	CK: ASB	DW: JTR	CK: TAR
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REVISIONS				
10-19: Increased "X" and "Y" Values. 01-23: Removed PCP(0) reference.	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

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PROJECT NO. 22-02557		
DATE 2/16/2026		
SCALE: AS SHOWN	DESIGNED BY:	JRM
	DRAWN BY:	JRM
	CHECKED BY:	JKS

SIG-32

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-26

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TABLE OF DEAD LOAD DEFLECTIONS

TYPE Tx28 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.011	0.015
45	0.017	0.024
50	0.026	0.037
55	0.040	0.056
60	0.057	0.080
65	0.079	0.111

TYPE Tx34 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.006	0.009
45	0.010	0.014
50	0.016	0.022
55	0.024	0.033
60	0.034	0.048
65	0.047	0.066
70	0.064	0.090
75	0.085	0.120
80	0.111	0.156

TYPE Tx40 GIRDERS

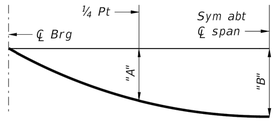
SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.004	0.006
45	0.006	0.009
50	0.011	0.015
55	0.016	0.022
60	0.022	0.031
65	0.031	0.043
70	0.042	0.059
75	0.056	0.078
80	0.073	0.102
85	0.093	0.131
90	0.118	0.165

TYPE Tx46 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.003	0.004
45	0.004	0.006
50	0.007	0.010
55	0.011	0.015
60	0.015	0.021
65	0.021	0.030
70	0.028	0.040
75	0.038	0.053
80	0.049	0.069
85	0.063	0.089
90	0.080	0.113
95	0.100	0.140
100	0.123	0.173

TYPE Tx54 GIRDERS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.002	0.003
45	0.003	0.004
50	0.005	0.007
55	0.007	0.010
60	0.010	0.014
65	0.014	0.020
70	0.019	0.027
75	0.025	0.035
80	0.033	0.046
85	0.042	0.059
90	0.053	0.074
95	0.066	0.093
100	0.081	0.114
105	0.100	0.140
110	0.120	0.169
115	0.144	0.202
120	0.172	0.241



DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior girders only (Ec = 5000 ksi). Adjust values as required for exterior girders and if optional slab forming is used. These values may require field verification.

TABLE OF ESTIMATED QUANTITIES

SPAN LENGTH	REINF CONCRETE SLAB	Prestressed Concrete Girders			TOTAL REINF STEEL (5)
		ABUT TO INT BT (4)	INT BT TO INT BT (4)	ABUT TO ABUT (4)	
Ft	SF	LF	LF	LF	Lb
40	1,360	158.00	158.00	158.00	3,128
45	1,530	178.00	178.00	178.00	3,519
50	1,700	198.00	198.00	198.00	3,910
55	1,870	218.00	218.00	218.00	4,301
60	2,040	238.00	238.00	238.00	4,692
65	2,210	258.00	258.00	258.00	5,083
70	2,380	278.00	278.00	278.00	5,474
75	2,550	298.00	298.00	298.00	5,865
80	2,720	318.00	318.00	318.00	6,256
85	2,890	338.00	338.00	338.00	6,647
90	3,060	358.00	358.00	358.00	7,038
95	3,230	378.00	378.00	378.00	7,429
100	3,400	398.00	398.00	398.00	7,820
105	3,570	418.00	418.00	418.00	8,211
110	3,740	438.00	438.00	438.00	8,602
115	3,910	458.00	458.00	458.00	8,993
120	4,080	478.00	478.00	478.00	9,384

(4) *Fabricator will adjust lengths for girder slopes as required.*

(5) *Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.*

MATERIAL NOTES:

Provide Class S concrete (f'c = 4,000 psi).
Provide Class S (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Provide bar laps, where required, as follows:
Uncoated ~ #4 = 1'-7"
Epoxy coated ~ #4 = 2'-5"
Deformed welded wire reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, D, OA, P or T unless noted otherwise.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Multi-span units, with slab continuous over interior bents, may be formed with the details shown on this sheet and the I-Girder Continuous Slab Detail (IGCS) standard.
See I-Girder Thickened Slab End Details (IGTS) standard for details and quantity adjustments.
See Prestressed Concrete Panels (PCP) standard and Prestressed Concrete Panel Fabrication Details (PCP-FAB) standard for panel details not shown.
See I-Girder Miscellaneous Slab Details (IGMS) standard for miscellaneous details.
See applicable rail details for rail anchorage in slab.
See Permanent Metal Deck Forms (PMDF) standard for details and quantity adjustments if this option is used.
This standard does not support the use of transition bents.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING SHEET 2 OF 2

Texas Department of Transportation — Bridge Division Standard

PRESTRESSED CONCRETE I-GIRDER SPANS (TYPE Tx28 THRU Tx54)

32' ROADWAY

SIG-32

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SIG-32

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
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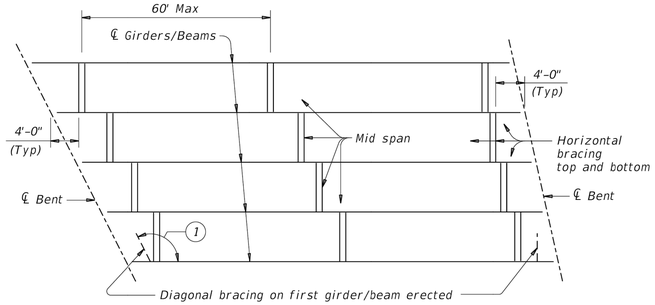
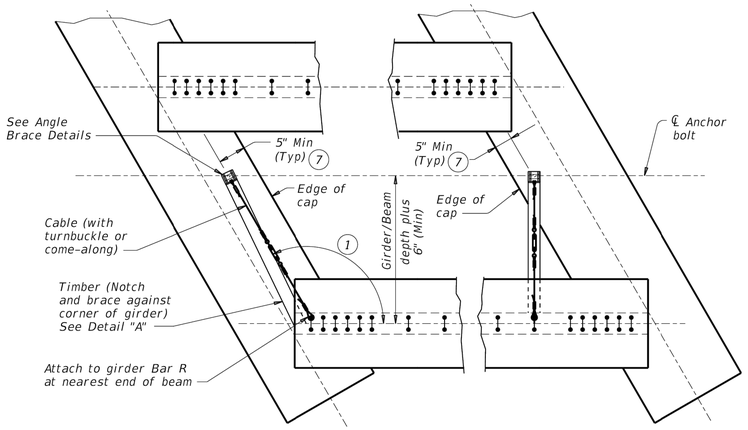


ERECTION BRACING



PLAN

HAULING & ERECTION:

The Contractor's attention is directed to the possible lateral instability of prestressed concrete girders and beams over 130' long, especially during hauling and erection. The use of the following methods to improve stability is encouraged: Locate lifting devices at the maximum practical distance from girder ends; use external lateral stiffening devices during hauling and erection; lift with vertical lines using two machines; and take care in handling to minimize inertial and impact forces.

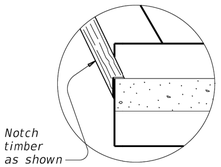
ERECTION BRACING:

Erection bracing details shown are considered the minimum for fulfilling the bracing requirements of Item 425.

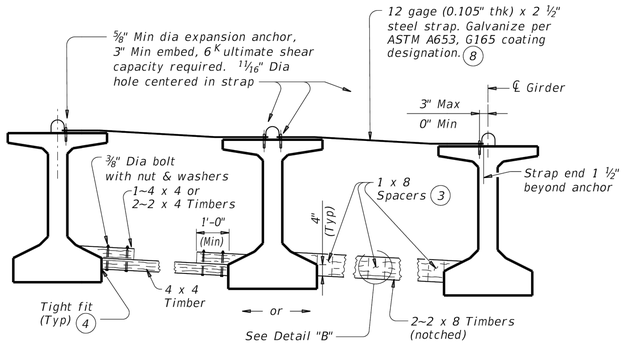
Required erection bracing must be placed immediately after erection of each girder and remain in place until additional bracing as required for slab placement is in place. This standard is needed in all cases to meet requirements for Slab Placement Bracing.

PHASED CONSTRUCTION:

Place erection and slab placement bracing for all girders in a phase as shown in these details. For phases after first, also place erection and slab placement bracing between outer girder of completed phase and adjacent girder of current phase. When the phase construction joint is between girders, top bracing can be omitted.

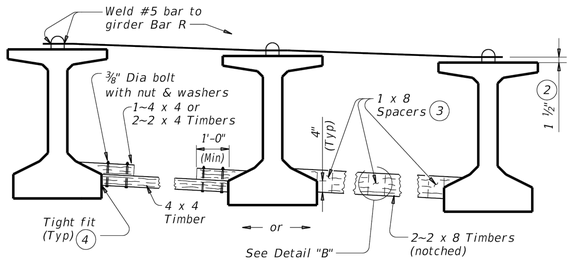


DETAIL "A"



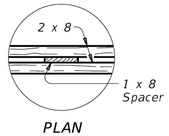
FOR ERECTION BRACING, OPTION 1

(This option is not allowed when slab is formed with PMDF or plywood.)



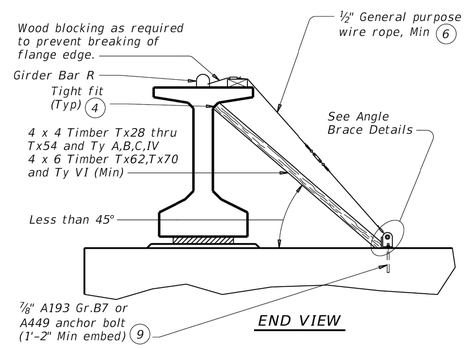
FOR ERECTION BRACING, OPTION 2

HORIZONTAL BRACING DETAILS 5



PLAN

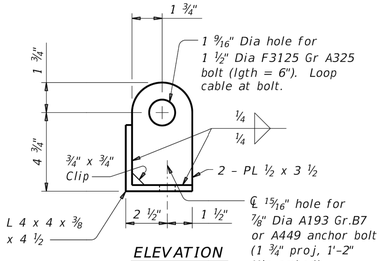
DETAIL "B"



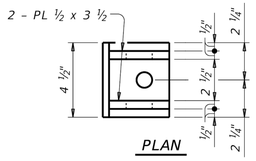
END VIEW

DIAGONAL BRACING DETAILS 5

(To be used on both ends of the first girder/beam erected in the span in each phase.)



ELEVATION



PLAN

ANGLE BRACE DETAILS

1 If angle shown exceeds 120 degrees, move diagonal brace to other side of girder/beam and place square to girder/beam. This may prevent exterior girder from being erected first.

2 Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re–install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R (See Sheet 2 of 2).

3 Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

4 Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

5 Pressure treated landscape timbers can not be used.

6 All hardware used with cable must be able to develop a minimum 25 kips breaking strength. Use thimbles at all loops in cable. Install cable clamps with saddles bearing against the live end and U–bolts bearing aginst the dead end.

7 It is acceptable to tie anchor bolts to cap reinforcement.

8 Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

9 Anchor bolt may be drilled and epoxied in place. Provide 25k minimum pullout. Core drill hole.

SHEET 1 OF 2

Texas Department of Transportation | Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS

PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS

MEBR(C)

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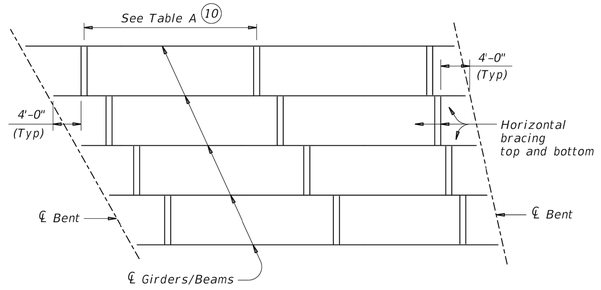
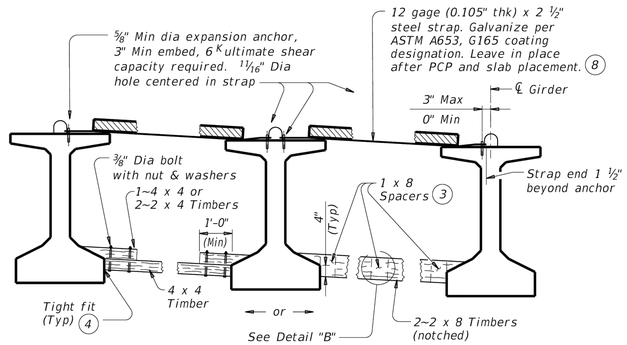


SLAB PLACEMENT BRACING

TABLE A

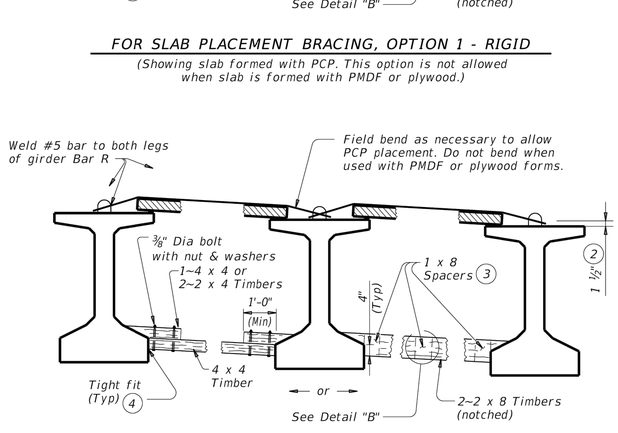
OPTION 1-RIGID BRACING (STEEL STRAP)		
Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	¼ points
Tx34	¼ points	¼ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	⅛ points	⅛ points
B	⅛ points	⅛ points
C	⅛ points	⅛ points
IV	¼ points	⅛ points
VI	¼ points	⅛ points

OPTION 2-FLEXIBLE BRACING (NO. 5 OVER PCP)		
Girder or Beam Type	Maximum Bracing Spacing	
	Slab Overhang less than 4'-0" (11)	Slab Overhang 4'-0" and greater (11)
Tx28	¼ points	⅛ points
Tx34	¼ points	⅛ points
Tx40	¼ points	⅛ points
Tx46	¼ points	⅛ points
Tx54	¼ points	⅛ points
Tx62	¼ points	⅛ points
Tx70	¼ points	⅛ points
A	2.0 ft	1.5 ft
B	3.0 ft	2.0 ft
C	4.5 ft	2.0 ft
IV	¼ points	4.0 ft
VI	¼ points	4.0 ft



FOR SLAB PLACEMENT BRACING, OPTION 1 - RIGID

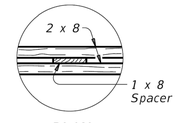
(Showing slab formed with PCP. This option is not allowed when slab is formed with PMDF or plywood.)



FOR SLAB PLACEMENT BRACING, OPTION 2 - FLEXIBLE

(Showing slab formed with PCP.)

HORIZONTAL BRACING DETAILS (5)



PLAN

DETAIL "B"

(2) Place and weld #5 bars as shown during erection. If forming deck with prestressed panels, bars can be temporarily removed, one at a time, during panel erection. Re-install bar prior to additional panel erection. Bars can rest on panels and be bent down and welded to girder Bars R.

(3) Clear distance between spacers must not exceed 3'. Nail together with 16d nails.

(4) Use wedges as necessary to obtain tight fit. Nail wedges to timbers.

(5) Pressure treated landscape timbers can not be used.

(8) Prior to installing, field bend strap to lay flush on both girders' top flange and slope between flange tips.

(10) Bracing spacing (¼ and ⅛ points) measured between first and last typical brace location.

(11) Measure slab overhang from centerline of girder or beam. When overhang varies in span, determine bracing spacing based on largest overhang.

SLAB PLACEMENT BRACING:

The details for slab placement bracing are considered minimum for fulfilling the requirements of Specification Items 422 and 425.

Required slab placement bracing must remain in place until slab concrete has attained a compressive strength of 3000 psi.

GENERAL NOTES:

Bracing details for spans longer than 150' are not provided. The Contractor must submit proposed bracing details for such conditions to the Engineer for approval prior to erection.

Systems equal to or better than those shown may be used provided details of such systems are submitted to and approved by the Engineer prior to erection.

Use of these systems or details does not relieve the Contractor of the responsibility for the adequacy of the bracing and the safety of the structure.

Removal of bracing for short periods of time to align girders and beams is permissible.

All turn-buckles, come-alongs, anchors and other connections must be capable of developing the full strength of the cable shown.

Furnish anchor bolts and nuts in accordance with Item 449, "Anchor Bolts".

Texas Department of Transportation | Bridge Division Standard

MINIMUM ERECTION AND BRACING REQUIREMENTS
PRESTRESSED CONCRETE I-GIRDERS AND I-BEAMS
MEBR(C)

FILE: IG-MEBR(C)-17.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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	DIST	COUNTY		SHEET NO.

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DATE 2/16/2026		
SCALE: AS SHOWN	DESIGNED BY:	JRM
	DRAWN BY:	JRM
	CHECKED BY:	JKS

MEBR(C)

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
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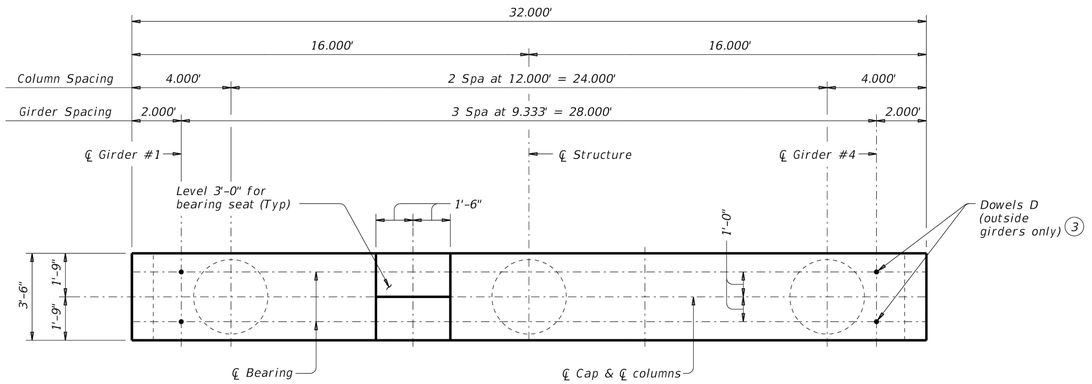
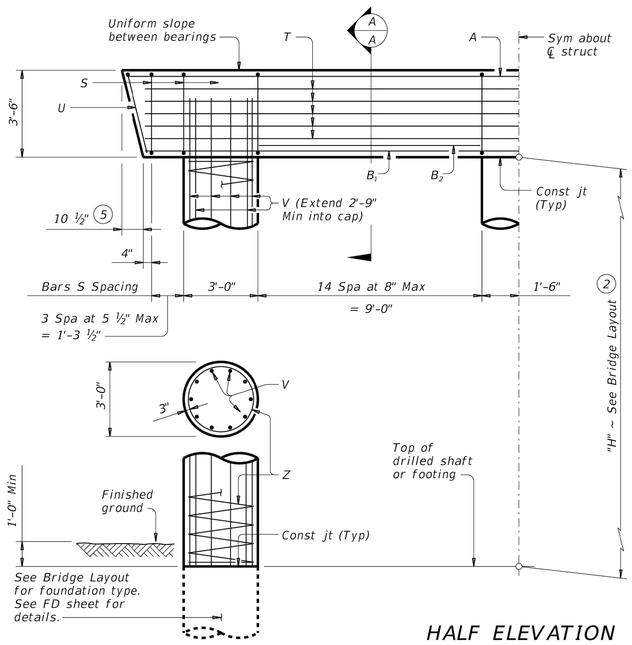
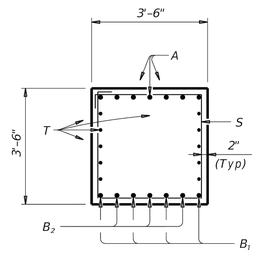


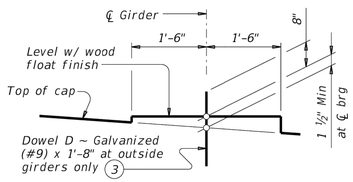
PLAN



HALF ELEVATION

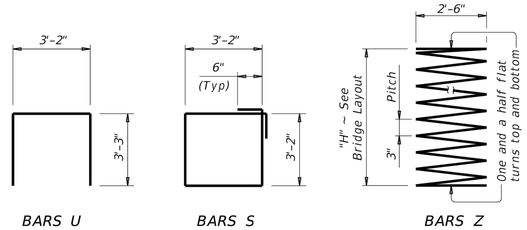


SECTION A-A



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)



1. Quantities shown are based on an "H" value of 36'. For each linear foot variation in "H" value, make the following adjustments:
   Bars V length, 1'-0"
   Bars Z length, 31'-5"
   Reinforcing steel, 165 Lb
   Class "C" conc (col), 0.78 CY
2. This standard may not be used for "H" heights exceeding 36'. In areas of very soft soil or where scour is anticipated, allowable "H" heights must be evaluated by the Engineer prior to the use of this standard.
3. Omit Dowels D at end of multi-span units. Adjust reinforcing steel total accordingly.
4. Foundation Loads based on "H" = 36'.
5. Measured parallel to top of cap cross-slope.

TABLE OF ESTIMATED QUANTITIES 1

Bar	No.	Size	Length	Weight
A	7	#11	31'- 6"	1,172
B_1	4	#11	30'- 0"	638
B_2	6	#11	9'- 0"	287
D 3	4	#9	1'- 8"	23
S	38	#5	13'- 8"	627
T	10	#5	30'- 0"	313
U	2	#5	9'- 8"	20
V	30	#9	38'- 9"	3,953
Z	3	#4	1154'- 7"	2,314
Reinforcing Steel			Lb	9,262
Class "C" Concrete (Cap)			CY	14.3
Class "C" Concrete (Col)			CY	28.3

FOUNDATION LOADS 4

Span Average	Drilled Shaft Loads	Pile Load (Tons/Pile)		
		3 Pile Ftg	4 Pile Ftg	5 Pile Ftg
Ft	Tons/Shaft			
40	113	41	31	26
45	121	44	33	27
50	130	47	36	29
55	138	49	38	31
60	147	52	40	33
65	155	55	42	34
70	163	58	44	36
75	172	61	46	38
80	180	63	48	39
85	188	66	50	41
90	196	69	52	42
95	205	72	54	44
100	213	74	56	46
105	221	77	58	47
110	229	80	60	49
115	237	82	62	51
120	245	85	64	52

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
See Bridge Layout for foundation type, size and length.
See Common Foundation Details (FD) standard sheet for all foundation details and notes.
See Shear Key (IGSK) standard sheet for all shear key details and notes, if applicable.
Bent selected must be based on the average span length rounded up to the next 5 ft increment.
These bent details may be used with standard SIG-32 only.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

MATERIAL NOTES:

Provide Class C concrete (f'c = 3,600 psi).
Provide Class C (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Galvanize dowel bars D.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

INTERIOR BENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

BIG-32

FILE: IG-BIG3200-17.dgn	DN: TAR	CK: SDB	DW: JTR	CK: TAR
©TxDOT August 2017	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

NO.	REVISIONS	DATE	BY

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REGISTRATION NO.
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PROJECT NO.	SCALE:	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	AS SHOWN	JRM	JRM	JKS
DATE 2/16/2026				

BIG-32

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-30

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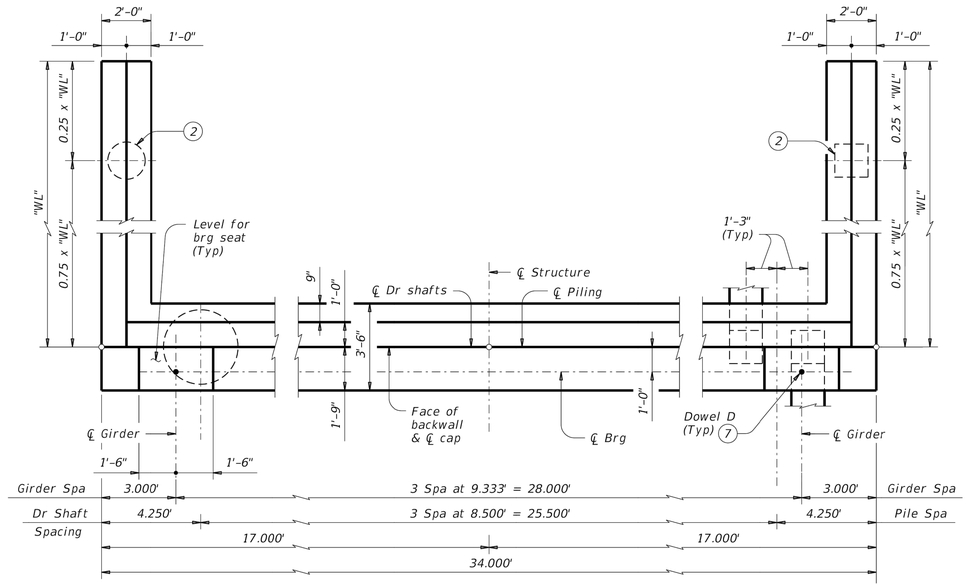
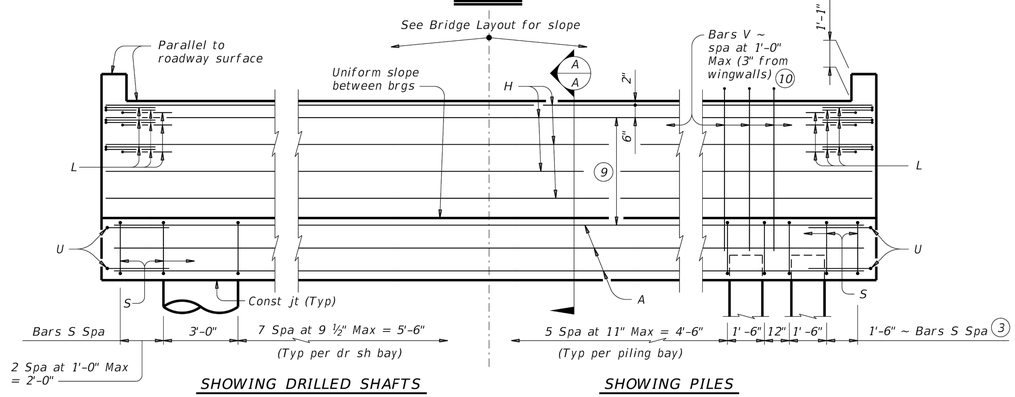


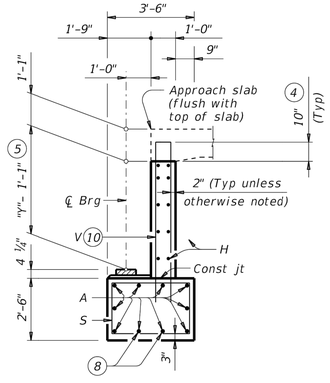
SHOWING DRILLED SHAFTS SHOWING PILES

PLAN (1)



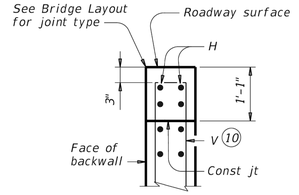
SHOWING DRILLED SHAFTS SHOWING PILES

ELEVATION



SECTION A-A

(With approach slab) (6)



BACKWALL DETAIL

(Without approach slab) (6)

TABLE OF FOUNDATION LOADS		
Span Length	All Girder Types	
Ft	Tons/Shaft	Tons/Pile
40	53	47
45	56	49
50	60	51
55	63	53
60	66	54
65	70	56
70	73	58
75	76	59
80	79	61
85	82	62
90	86	64
95	89	66
100	92	67
105	95	69
110	98	70
115	101	72
120	104	74

(1) See Table A for variable dimensions based on header slope and girder type.

(2) See Table A to determine if wingwall foundations are required.

(3) For piling larger than 16" adjust Bars S spacing as required to avoid piling.

(4) Increase as required to maintain 3" from finished grade.

(5) See Span details for "Y" value.

(6) See Bridge Layout to determine if approach slab is present.

(7) Omit Dowels D at end of multi-span unit. Adjust reinforcing steel total accordingly.

(8) With pile foundations, move Bars A shown to clear piles.

(9) Spacing based on girder type:
Tx28 ~ 3 spaces at 1'-0" Max
Tx34 ~ 3 spaces at 1'-0" Max
Tx40 ~ 4 spaces at 1'-0" Max
Tx46 ~ 4 spaces at 1'-0" Max
Tx54 ~ 5 spaces at 1'-0" Max

(10) Field bend as needed to clear piles.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.

See Bridge Layout for header slope and foundation type, size and length.

See Common Foundation Details (FD) standard sheet for all foundation details and notes.

See Concrete Riprap (CRR) standard sheet or Stone Riprap (SRR) standard sheet for riprap attachment details, if applicable.

See applicable rail details for rail anchorage in wingwalls.

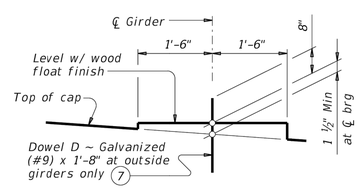
These abutment details may be used with standard SIG-32 only.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bar dimensions shown are out-to-out of bar.

MATERIAL NOTES:

Provide Class C concrete (f'c = 3,600 psi).
Provide Class C (HPC) concrete if shown elsewhere in the plans.
Provide Grade 60 reinforcing steel.
Galvanize dowel bars D.

TABLE A			
Header Slope	Girder Type	Wingwall Type	Wingwall Lgth "WL"
2:1	Tx28	Cantilevered	8.000'
	Tx34	Cantilevered	9.000'
	Tx40	Cantilevered	10.000'
	Tx46	Cantilevered	11.000'
	Tx54	Cantilevered	12.000'
3:1	Tx28	Cantilevered	12.000'
	Tx34	Founded	13.000'
	Tx40	Founded	15.000'
	Tx46	Founded	16.000'
	Tx54	Founded	18.000'



BEARING SEAT DETAIL

(Bearing surface must be clean and free of all loose material before placing bearing pad.)

HL93 LOADING SHEET 1 OF 3

Texas Department of Transportation | Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32

FILE: IG-AIG3200-17.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
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REVISIONS				
	DIST	COUNTY		SHEET NO.

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PROJECT NO. 22-02557	SCALE: AS SHOWN	DESIGNED BY: JRM
DATE 2/16/2026	DRAWN BY: JRM	CHECKED BY: JKS

AIG-32

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER B-31

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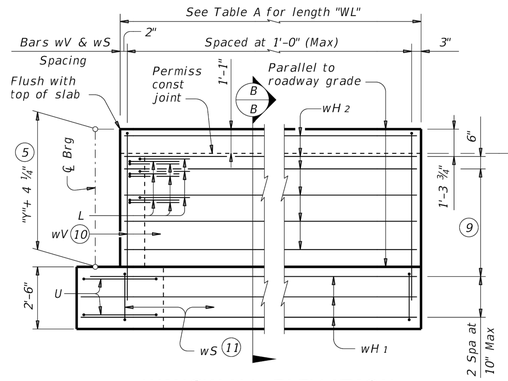
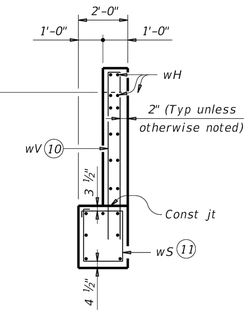
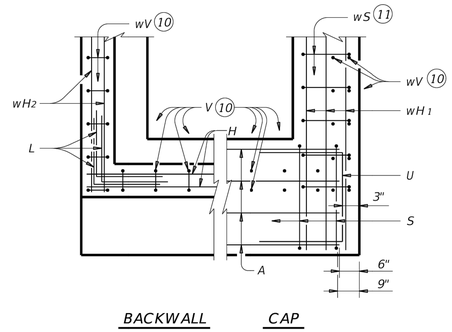


WINGWALL ELEVATION

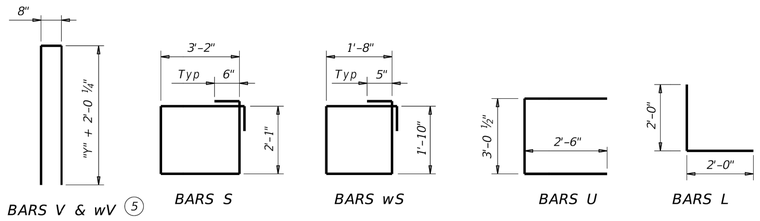


SECTION B-B



BACKWALL CAP

CORNER DETAILS



BARS V & wV (5) BARS S BARS wS BARS U BARS L

(5) See Span details for "Y" value.

(9) Spacing based on girder type:
Tx28 ~ 3 spaces at 1'-0" Max
Tx34 ~ 3 spaces at 1'-0" Max
Tx40 ~ 4 spaces at 1'-0" Max
Tx46 ~ 4 spaces at 1'-0" Max
Tx54 ~ 5 spaces at 1'-0" Max

(10) Field bend as needed to clear piles.

(11) Adjust as required to avoid piling.

HL93 LOADING SHEET 2 OF 3

Texas Department of Transportation | Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32

FILE: IG-AIG3200-17.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR
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PROJECT NO. 22-02557	SCALE: AS SHOWN	DESIGNED BY: JRM
DATE 2/16/2026		DRAWN BY: JRM
		CHECKED BY: JKS

AIG-32

CRENSHAW ROAD EAST
CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-32

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DATE:
FILE:

TABLES OF ESTIMATED QUANTITIES WITH 2:1 HEADER SLOPE (12)

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	11'-4"	390
wH1	14	#6	9'-5"	198
wH2	20	#6	7'-8"	230
wS	18	#4	7'-10"	94
wV	18	#5	11'-4"	213
Reinforcing Steel		Lb		3,811
Class "C" Concrete		CY		18.5

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	12'-4"	425
wH1	14	#6	10'-5"	219
wH2	20	#6	8'-8"	260
wS	20	#4	7'-10"	105
wV	20	#5	12'-4"	257
Reinforcing Steel		Lb		3,952
Class "C" Concrete		CY		20.1

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	13'-4"	459
wH1	14	#6	11'-5"	240
wH2	24	#6	9'-8"	348
wS	22	#4	7'-10"	115
wV	22	#5	13'-4"	306
Reinforcing Steel		Lb		4,255
Class "C" Concrete		CY		21.8

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	14'-4"	493
wH1	14	#6	12'-5"	261
wH2	24	#6	10'-8"	385
wS	24	#4	7'-10"	126
wV	24	#5	14'-4"	359
Reinforcing Steel		Lb		4,411
Class "C" Concrete		CY		23.5

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	12	#6	33'-8"	607
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	15'-8"	539
wH1	14	#6	13'-5"	282
wH2	28	#6	11'-8"	491
wS	26	#4	7'-10"	136
wV	26	#5	15'-8"	425
Reinforcing Steel		Lb		4,761
Class "C" Concrete		CY		25.6

TABLES OF ESTIMATED QUANTITIES WITH 3:1 HEADER SLOPE (12)

TYPE Tx28 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	11'-4"	390
wH1	14	#6	13'-5"	282
wH2	20	#6	11'-8"	350
wS	26	#4	7'-10"	136
wV	26	#5	11'-4"	307
Reinforcing Steel		Lb		4,151
Class "C" Concrete		CY		21.1

TYPE Tx34 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	8	#6	33'-8"	405
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	12'-4"	425
wH1	14	#6	14'-5"	303
wH2	20	#6	12'-8"	381
wS	28	#4	7'-10"	147
wV	28	#5	12'-4"	360
Reinforcing Steel		Lb		4,302
Class "C" Concrete		CY		22.8

TYPE Tx40 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	13'-4"	459
wH1	14	#6	16'-5"	345
wH2	24	#6	14'-8"	529
wS	32	#4	7'-10"	167
wV	32	#5	13'-4"	445
Reinforcing Steel		Lb		4,732
Class "C" Concrete		CY		25.3

TYPE Tx46 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	10	#6	33'-8"	506
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	14'-4"	493
wH1	14	#6	17'-5"	366
wH2	24	#6	15'-8"	565
wS	34	#4	7'-10"	178
wV	34	#5	14'-4"	508
Reinforcing Steel		Lb		4,897
Class "C" Concrete		CY		27.2

TYPE Tx54 Girders

Bar	No.	Size	Length	Weight
A	10	#11	33'-0"	1,753
D (7)	2	#9	1'-8"	11
H	12	#6	33'-8"	607
L	18	#6	4'-0"	108
S	30	#5	11'-6"	360
U	4	#6	8'-1"	49
V	33	#5	15'-8"	539
wH1	14	#6	19'-5"	408
wH2	28	#6	17'-8"	743
wS	38	#4	7'-10"	199
wV	38	#5	15'-8"	621
Reinforcing Steel		Lb		5,398
Class "C" Concrete		CY		30.4

(7) Omit Dowels D at end of multi-span unit. Adjust reinforcing steel total accordingly.

(12) Quantities shown are for one abutment only (with approach slab). With no approach slab, add 1.3 CY Class "C" concrete and 202 lbs reinforcing steel for 4 additional Bars H.

HL93 LOADING

SHEET 3 OF 3

Texas Department of Transportation

Bridge Division Standard

ABUTMENTS
TYPE TX28 THRU TX54
PRESTR CONC I-GIRDERS
32' ROADWAY

AIG-32

FILE: IG-AIG3200-17.dgn	DN: TAR	CK: KCM	DW: JTR	CK: TAR		
©TxDOT August 2017	CONT	SECT	JOB		HIGHWAY	
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PROJECT NO.	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	JRM	JRM	JKS
DATE 2/16/2026	SCALE: AS SHOWN		

AIG-32

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-33

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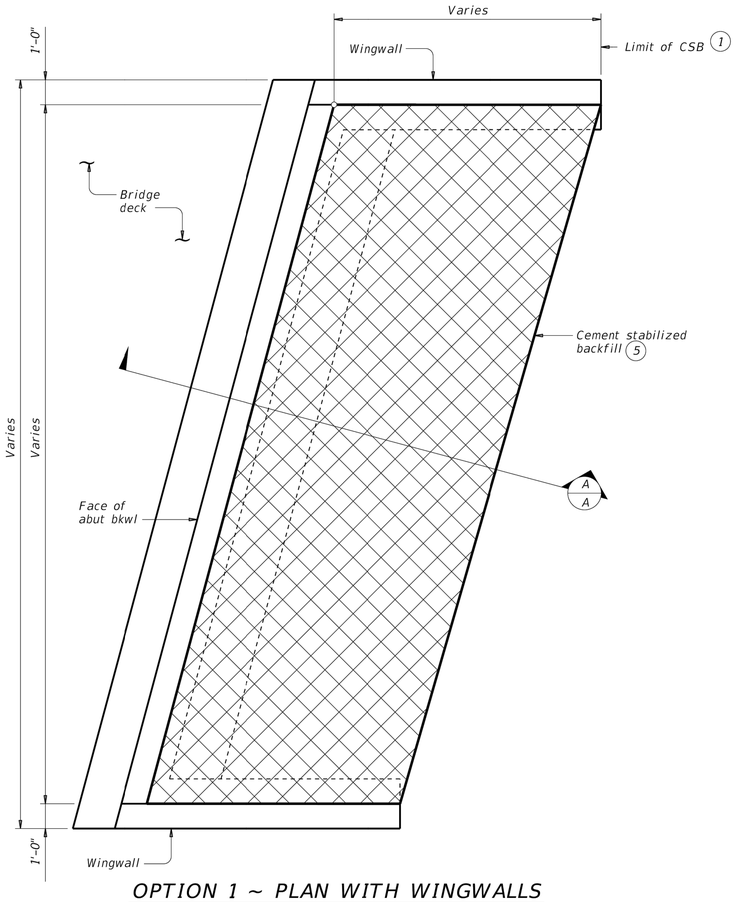
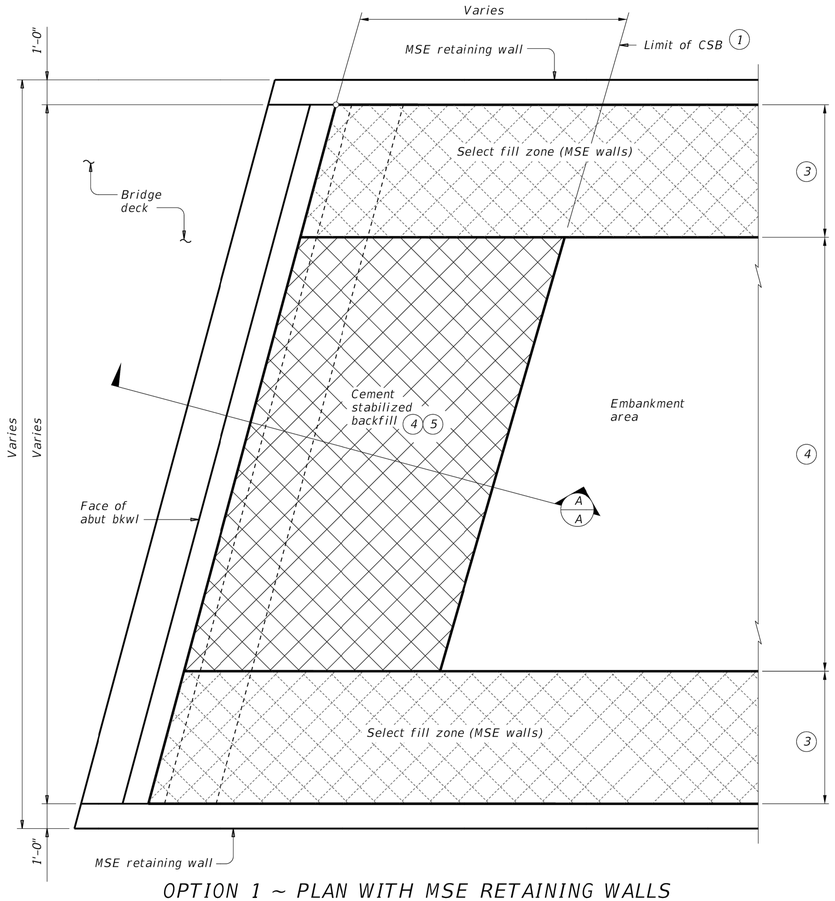
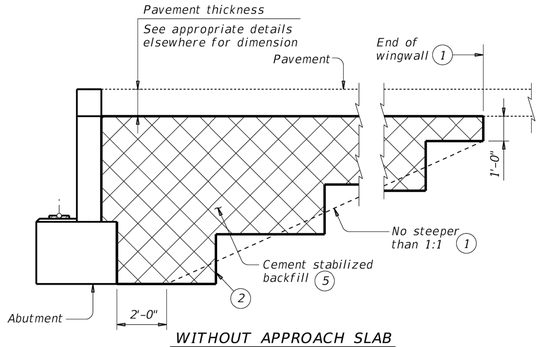


OPTION 1 ~ PLAN WITH WINGWALLS

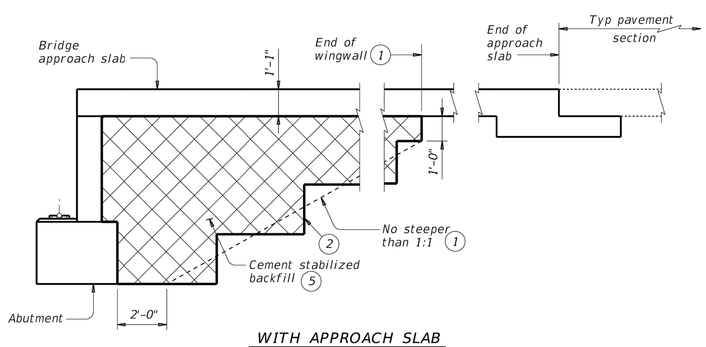
Cast-in-place retaining walls similar.



OPTION 1 ~ PLAN WITH MSE RETAINING WALLS



WITHOUT APPROACH SLAB



WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION A-A

(1) Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.

(2) Bench backfill as shown with 12" (approximate) bench depths.

(3) Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.

(4) When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.

(5) If shown in the plans, flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:
a). If flowable backfill is to be placed over MSE backfill, then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
b). Place flowable fill in lifts not exceeding 2 feet in height. Place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).

GENERAL NOTES:

See the Bridge Layout for selected Option. Option 1 is intended for construction only requiring plasticity index (PI) controlled embankment fill or excavation in competent soils/rocks in order to construct the abutment. Option 2 is intended for new construction requiring high plasticity embankment fill with a PI greater than 30 or pavement built in poor native soil. Poor soils are defined as high plasticity clays or expansive clays.

Construct abutment backfill in accordance with Item 400, "Excavation and Backfill for Structures".

Provide Cement Stabilized Backfill (CSB) meeting the requirements of Item 400, "Excavation and Backfill for Structures", to the limits shown at bridge abutments.

If required elsewhere in the plans, provide Flowable Backfill meeting the requirements of Item 401, "Flowable Backfill", to the limits shown at bridge abutments.

Details are drawn showing left forward skew. See Bridge Layout for actual skew direction.

These details do not apply when Concrete Block retaining walls are used in lieu of wingwalls.

Texas Department of Transportation

Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL

BRIDGE ABUTMENT

CSAB

FILE: MS-CSAB-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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PROJECT NO. 22-02557	SCALE: AS SHOWN	DESIGNED BY: JRM
DATE 2/16/2026	DRAWN BY: JRM	CHECKED BY: JKS

CSAB

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-34

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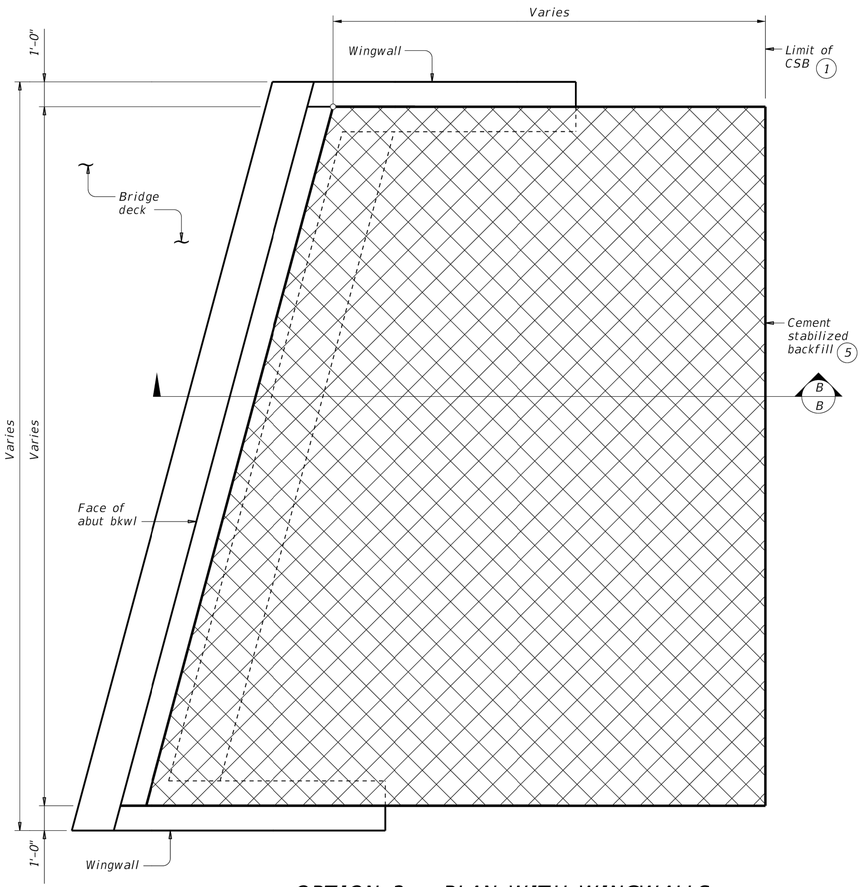
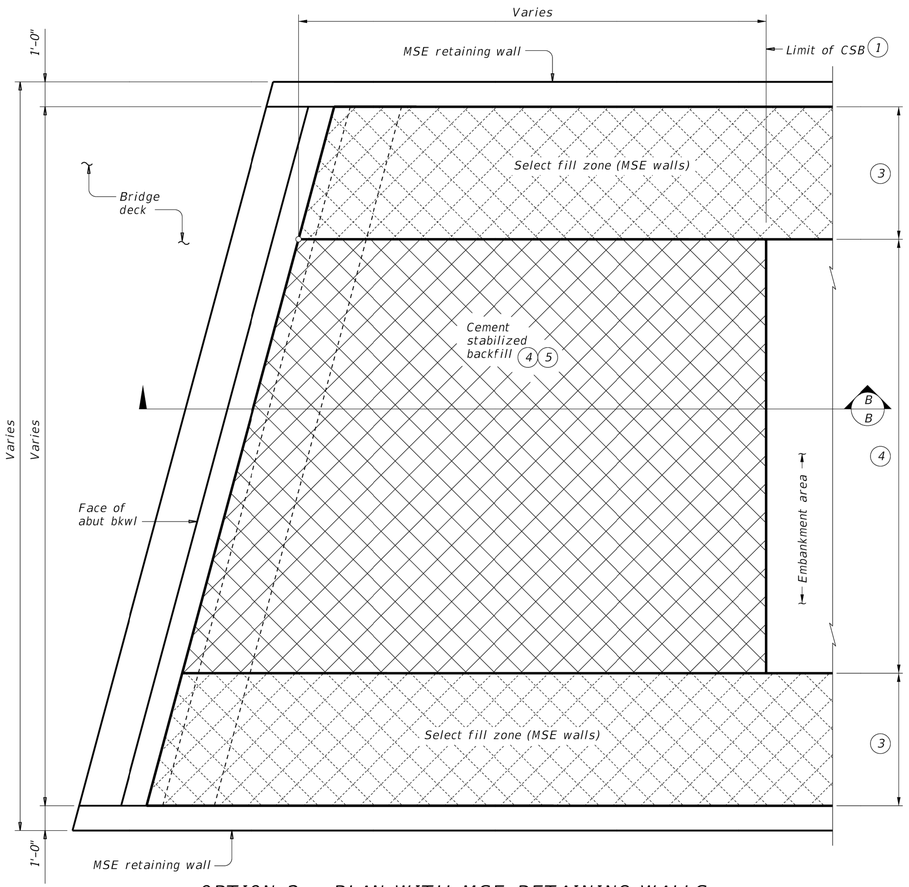


OPTION 2 ~ PLAN WITH WINGWALLS

Cast-in-place retaining walls similar.



OPTION 2 ~ PLAN WITH MSE RETAINING WALLS

(1) *Usual limit of Cement Stabilized Backfill is at end of wingwall. Extend CSB limits as required to maintain a slope no steeper than 1:1 at bottom of backfill.*

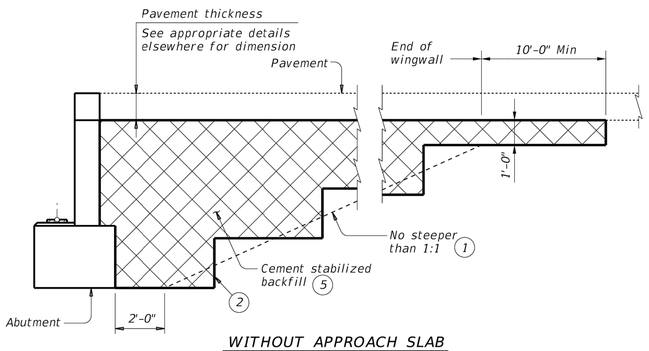
(2) *Bench backfill as shown with 12" (approximate) bench depths.*

(3) *Where MSE retaining walls are present, adjust CSB limits to accommodate the select fill zone. See retaining wall details for additional information.*

(4) *When distance between select fill zones is less than 5'-0", MSE select fill may be substituted for cement stabilized backfill with approval from the Engineer.*

(5) *If shown in the plans, flowable backfill can be used as a substitute for cement stabilized backfill with the following constraints:*
a). If flowable backfill is to be placed over MSE backfill, then a filter fabric will be placed over the MSE backfill prior to placement of the flowable fill; and
b). Place flowable fill in lifts not exceeding 2 feet in height. Place each successive lift when the previous lift has stiffened/hardened (i.e. has lost its flowability).

(6) *1'-0" for BAS-A*
1'-10" for BAS-C



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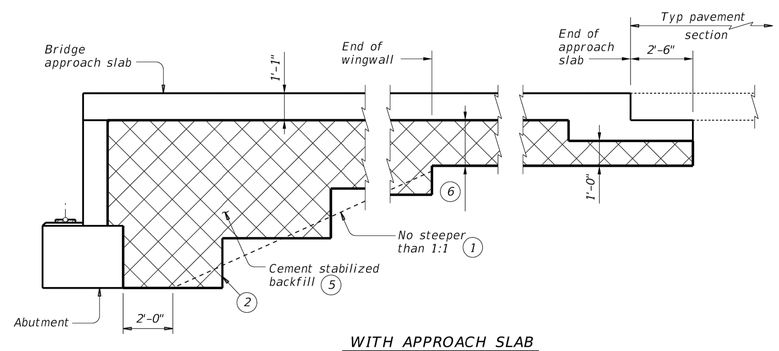

WITH APPROACH SLAB

(Showing BAS-C, BAS-A similar.)

SECTION B-B

SHEET 2 OF 2

Texas Department of Transportation

Bridge Division Standard

CEMENT STABILIZED ABUTMENT BACKFILL

BRIDGE ABUTMENT

CSAB

FILE: MS-CSAB-23.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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PROJECT NO.	DESIGNED BY:	DRAWN BY:	CHECKED BY:
22-02557	JRM	JRM	JKS
DATE 2/16/2026			
SCALE: AS SHOWN			

CSAB

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-35

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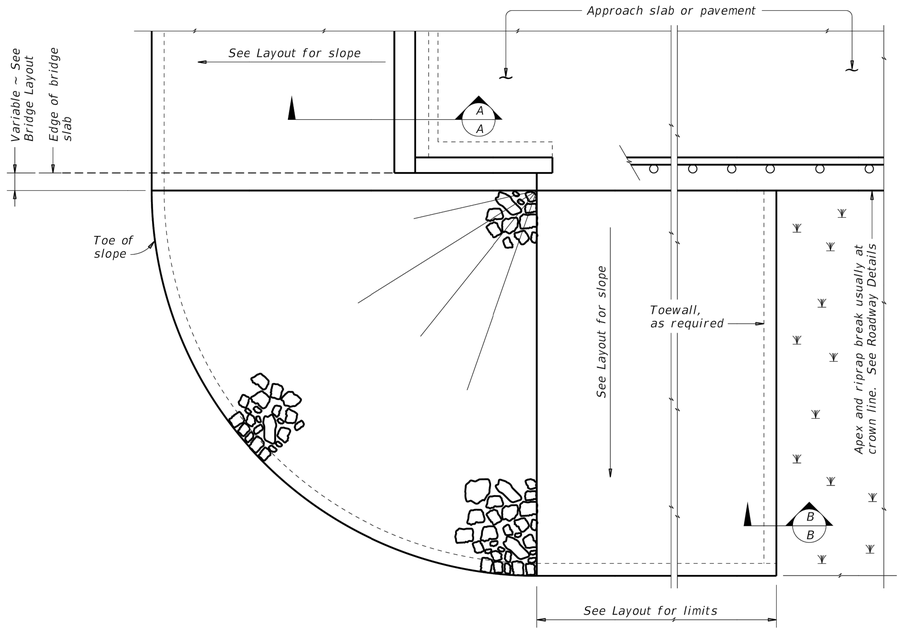
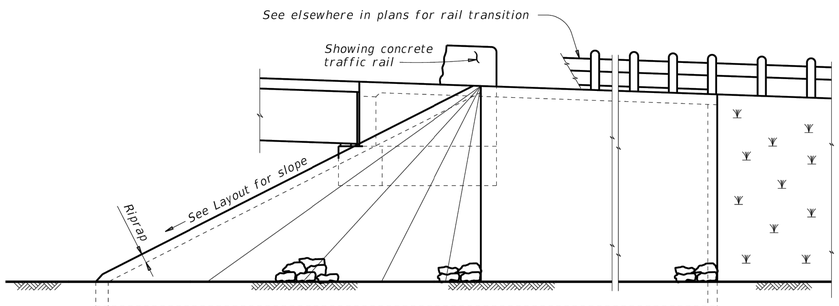
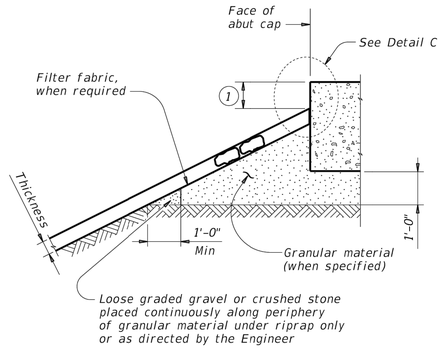


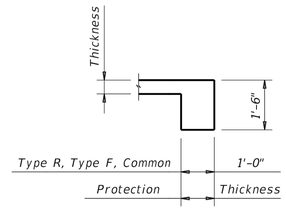
PLAN



ELEVATION

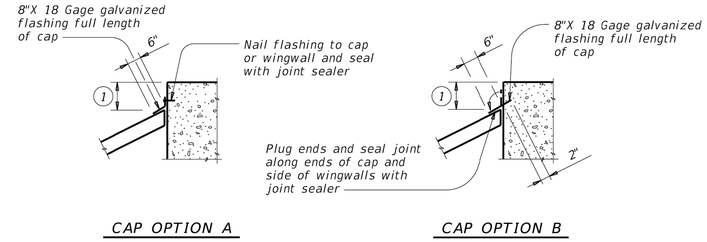


SECTION A-A AT CAP



SECTION B-B

Provide toewall when shoulder drain is located adjacent to limits of stone riprap. Omit toewall when thickness of protection riprap is greater than 18".



CAP OPTION A

CAP OPTION B

DETAIL C

GENERAL NOTES:

Refer to Item 432, "Riprap" for stone size and gradation, and construction details. See Layout for limits and thickness of riprap specified.

See elsewhere in plans for locations and details of shoulder drains.

(1) Top of cap to top of riprap dimension varies as directed by the Engineer. Provide 9" Min for beam/slab type bridges and 1'-6" for slab span, box beam, or slab beam bridges.

SHEET 1 OF 2

Texas Department of Transportation

Bridge Division Standard

STONE RIPRAP

SRR

FILE: MS-SRR-19.dgn	DN: AES	CK: JGD	DW: BWH	CK: AES			
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SSR1

CRENSHAW ROAD EAST

CITY OF ROYSE CITY
ROCKWALL COUNTY, TX.

SHEET NUMBER
B-36

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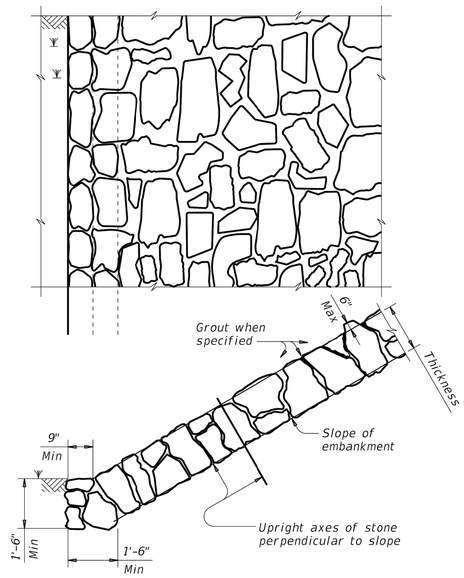


FIGURE 1 ~ TYPE R STONE RIPRAP

dry or grouted

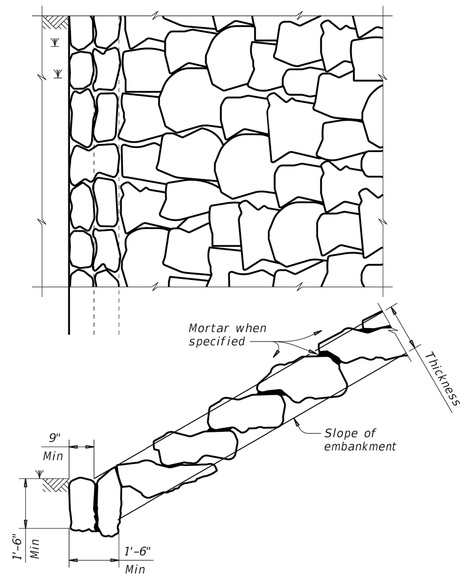


FIGURE 2 ~ TYPE F STONE RIPRAP

dry or mortared

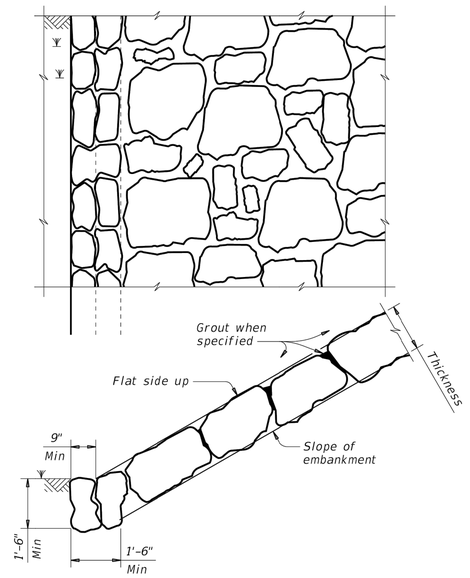


FIGURE 3 ~ TYPE F STONE RIPRAP

grouted

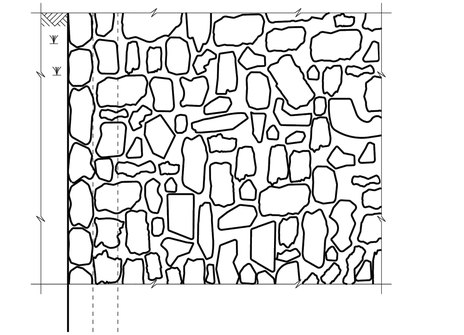


FIGURE 4 ~ COMMON STONE RIPRAP

dry or grouted

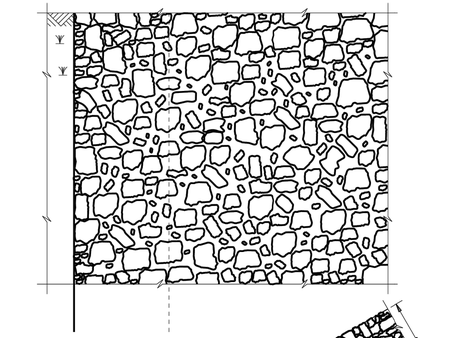


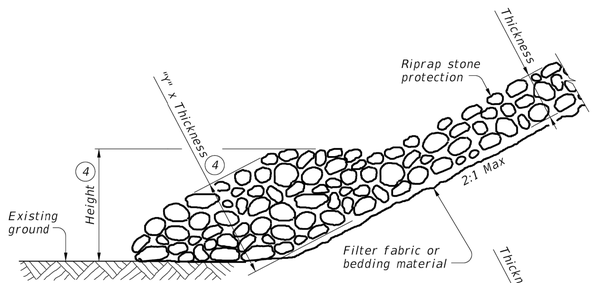
FIGURE 5 ~ PROTECTION STONE RIPRAP (5)

(2) *Provide bedding material instead of filter fabric if shown elsewhere in plans. See Layout for thickness of bedding material.*

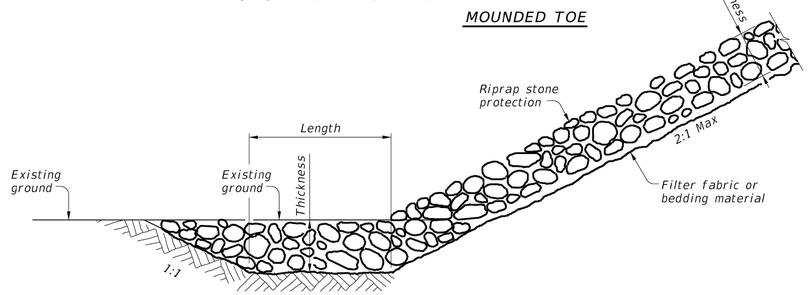
(3) *Minimum toe depth is the larger of the maximum scour depth or 2 times the riprap thickness.*

(4) *"Y" and Height need to be defined. See layout or detail sheet for values if this option is used.*

(5) *List Stone Protection as size (XX inch) and thickness (YY inch) on the layout.*
Example: Riprap (Stone Protection) XX inch, Thickness = YY inch.



MOUNDED TOE



EXTENDED ROCK FILLED TRENCH

PROTECTION STONE RIPRAP TOE OPTIONS (5)

SHEET 2 OF 2

Texas Department of Transportation | Bridge Division Standard

STONE RIPRAP

SRR

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SSR2

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