

| | | | |
|--------------------|-------------------|-----------|-------------|
| FED. AID DIST. NO. | PROJECT NO. | SHEET NO. | |
| 6 | STP 2024(914) VRU | 1 | |
| STATE | STATE DIST. | COUNTY | |
| TEXAS | YKM | VICTORIA | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |

CS = JOHN STOCKBAUER DR

HWY FUNCTIONAL CLASS: URBAN MINOR ARTERIAL
 DESIGN SPEED: N/A
 ADT: 10,925 VPD (2022)
 16,388 VPD (2042)

| PROJECT LENGTH | |
|----------------|------------------------|
| ROADWAY = | 3,253.00 FT = 0.616 MI |
| BRIDGES = | 80.00 FT = 0.015 MI |
| TOTAL = | 3,333.00 FT = 0.631 MI |

REGISTERED ACCESSIBILITY SPECIALIST (RAS) INSPECTION REQUIRED
 TDLR NO.: TABS2024009459

SEE SHEET 2 FOR "INDEX OF SHEETS"

CONTRACTOR: _____
 DATE OF LETTING: _____
 DATE WORK BEGAN: _____
 DATE WORK COMPLETED: _____
 DATE WORK ACCEPTED: _____
 FINAL CONTRACT COST: \$ _____

LIST OF APPROVED FIELD CHANGES:

STATE OF TEXAS

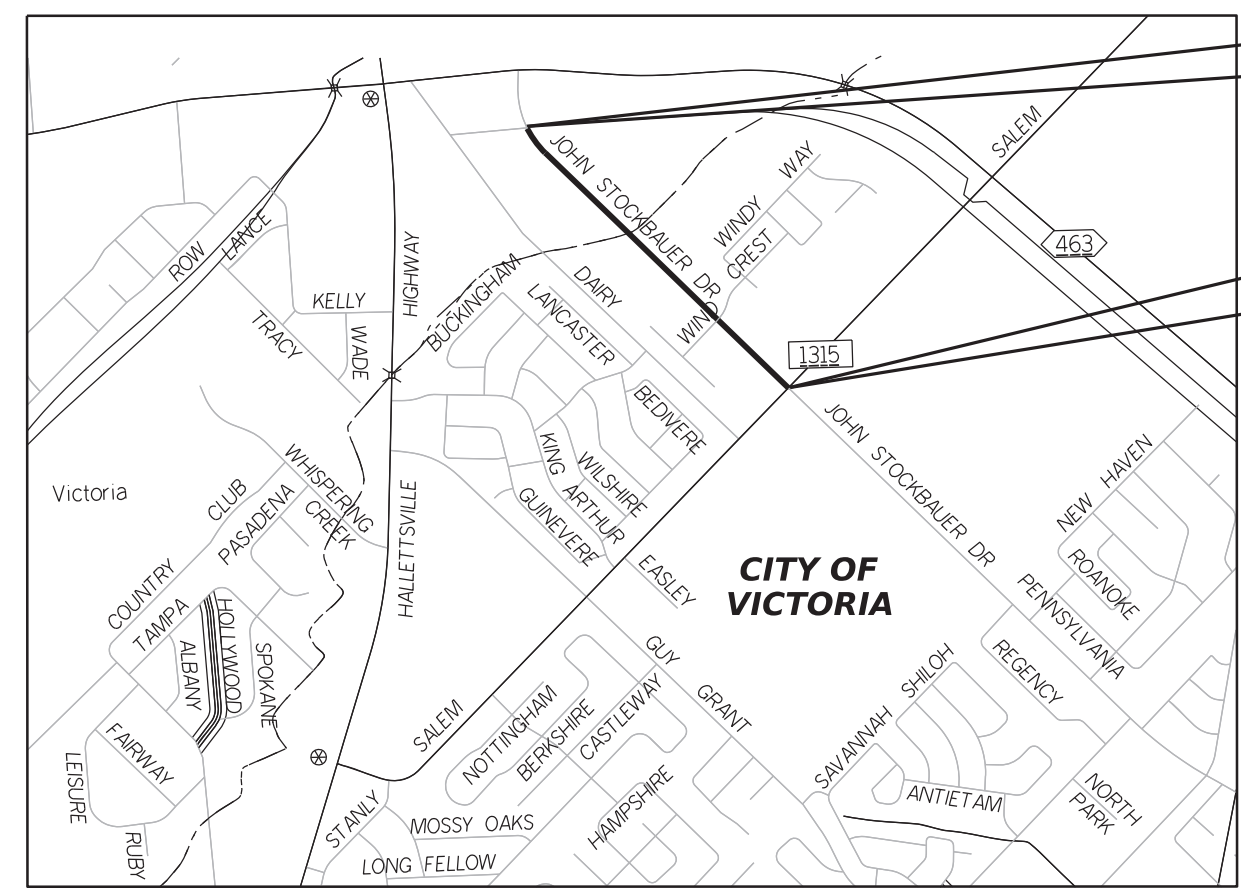
TEXAS DEPARTMENT OF TRANSPORTATION

PLANS OF PROPOSED STATE HIGHWAY IMPROVEMENT

FOR THE CONSTRUCTION OF A HIGHWAY SAFETY IMPROVEMENT PROJECT
 CONSISTING OF PEDESTRIAN, SIDEWALKS, & CURB RAMPS

JOHN STOCKBAUER DR VICTORIA COUNTY

CSJ: 0913-27-090
 PROJECT NO.: STP 2024(914)VRU
 LIMITS: FROM SL 463 TO FM 1315



BEGIN PROJECT
 JOHN STOCKBAUER DR
 CSJ: 0913-27-090
 STA 0+00

END PROJECT
 JOHN STOCKBAUER DR
 CSJ: 0913-27-090
 STA 33+33

CITY OF VICTORIA
 DATE 1/22/24

 CITY MANAGER

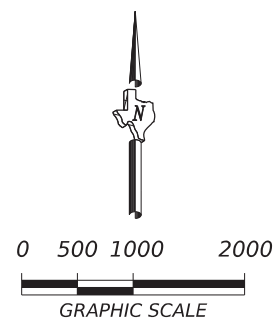


THIS IS TO CERTIFY THAT THE CONSTRUCTION WORK WAS PERFORMED IN ACCORDANCE WITH THE PLANS, CONTRACT AND LISTED FIELD CHANGES.

_____, P. E. _____
 AREA ENGINEER DATE

VICTORIA COUNTY YOAKUM DISTRICT

EXCEPTIONS: NONE
 EQUATIONS: NONE
 RAILROAD CROSSINGS: NONE



RECOMMENDED FOR LETTING 1/25/2024
 DocuSigned by:
 Jeffery Vinklarek, P.E.

DIRECTOR OF TRANSPORTATION
 PLANNING AND DEVELOPMENT

SUBMITTED FOR LETTING 01/24/2024

DISTRICT DESIGN ENGINEER

APPROVED FOR LETTING 1/25/2024

DocuSigned by:
 Martin C. Horst, P.E.
 DISTRICT ENGINEER

SPECIFICATIONS ADOPTED BY THE TEXAS DEPARTMENT OF TRANSPORTATION, NOVEMBER 1, 2014 AND SPECIFICATION ITEMS LISTED AND DATED AS FOLLOWS, SHALL GOVERN ON THIS PROJECT: REQUIRED CONTRACT PROVISIONS FOR ALL FEDERAL AID CONSTRUCTION CONTRACTS (FORM FHWA 1273, OCTOBER 2023).

| SHEET NO. | DESCRIPTION |
|----------------|---|
| GENERAL | |
| 1 | TITLE SHEET |
| 2 | INDEX OF SHEETS |
| 3-7 | GENERAL NOTES |
| 8-9 | ESTIMATE & QUANTITY SHEET |
| 10 | SUMMARY SHEET |
| 11 | BRIDGE CLASS CULVERT (WHISPERING CREEK) SUMMARY & DETAILS |

| TRAFFIC CONTROL | |
|------------------------|--------------|
| STANDARD SHEETS | |
| 12-23 | BC(1-12)-21 |
| 24 | TCP(2-1)-18 |
| 25 | TCP(2-4)-18 |
| 26 | WZ(BTS-1)-13 |
| 27 | WZ(BTS-2)-13 |
| 28 | WZ(RS)-22 |

| ROADWAY | |
|------------------------|--------------------------------------|
| 29-42 | SIDEWALK LAYOUT (JOHN STOCKBAUER DR) |
| 43-44 | SIDWALK DETAILS |
| STANDARD SHEETS | |
| 45 | CCCG-22 |
| 46 | JS-14 |
| 47-48 | LPCB-13 |
| 49-52 | PED-18 |

| SHEET NO. | DESCRIPTION |
|------------------------|-------------|
| BRIDGE | |
| STANDARD SHEETS | |
| 53-56 | TYPE C223 |
| 57-58 | RAC-R(MOD) |
| 59-60 | SRR |
| 61 | TRF |

| TRAFFIC | |
|----------------|--|
| 62 | JOHN STOCKBAUER DR @ SALEM RD PEDESTRIAN FACILITIES LAYOUT |
| 63 | JOHN STOCKBAUER DR @ SALEM RD CONDUIT & CONDUCTOR LAYOUT |

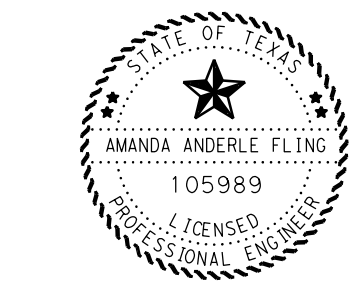
| STANDARD SHEETS | |
|------------------------|----------------|
| 64 | D & OM(1)-20 |
| 65 | D & OM(2)-20 |
| 66 | D & OM(3)-20 |
| 67 | D & OM(4)-20 |
| 68 | D & OM(6)-20 |
| 69 | D & OM(VIA)-20 |
| 70 | PM(1)-22 |
| 71 | PM(4)-22A |
| 72 | TS-FD-12 |
| 73 | ED(1)-14 |
| 74 | ED(3)-14 |

| ENVIRONMENTAL | |
|----------------------|---|
| 75-76 | STORMWATER POLLUTION PREVENTION PLAN(SWP3) |
| 77 | ENVIRONMENTAL PERMITS, ISSUES & COMMITMENTS |

| STANDARD SHEETS | |
|------------------------|----------|
| 78-80 | EC(9)-16 |

PATH: T:\KIMANNEX\PS&E\091327090_STOCKBAUER_SIDEWALK\Index_of_Sheets1
 FILE: Index_of_Sheets.dgn
 DATE: 1/18/2024

THE STANDARD SHEETS SPECIFICALLY IDENTIFIED ABOVE HAVE BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT.



Amanda Anderle Fling, P.E.
 01/18/2024

INDEX OF SHEETS

Texas Department of Transportation
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 SHEET 1 OF 1

| FED. RD. DIV. NO. | | PROJECT NO. | |
|-------------------|-------|-------------|-------------|
| 6 | | | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 2 |

Project Number:

Sheet: 3

County: VICTORIA

Control: 0913-27-090

Highway: CS

GENERAL:

Contractor questions on this project are to be addressed to the following individual(s):

Clayton Harris Clayton.Harris@txdot.gov
James Janak James.Janak@txdot.gov

Contractor questions will be accepted through email, phone, and in person by the above individuals.

Questions may be submitted via the Letting Pre-Bid Q&A web page. This webpage can be accessed from the Notice to Contractors dashboard located at the following Address:
<https://tableau.txdot.gov/views/ProjectInformationDashboard/NoticetoContractors>

All contractor questions will be reviewed by the Engineer. All questions and any corresponding responses that are generated will be posted through the same Letting Pre-Bid Q&A web page.

The Letting Pre-Bid Q&A web page for each project can be accessed by using the dashboard to navigate to the project you are interested in by scrolling or filtering the dashboard using the controls on the left. Hover over the blue hyperlink for the project you want to view the Q&A for and click on the link in the window that pops up.

Contractor is responsible for preventing damage to adjacent property during the entire construction project, especially during demolition and removal of existing pavement, sidewalk, and improvements. Contractor shall take any measures necessary to ensure proper protection.

Any damages caused to existing pavement, curbs, sidewalks, etc. not included in the scope to work shall be repaired by the contractor to the satisfaction of TxDOT/the city prior to final inspection.

The existing utilities graphically represented on these plan drawings are shown in an approximate location only and may not be totally accurate. Any damage to existing utility lines, both known and unknown, shall be repaired at the expense of the contractor. The contractor shall determine the exact horizontal and vertical location prior to beginning any work. The contractor agrees to be fully responsible for any and all damages which may be a result of his failure to exactly locate the underground utilities. Contractor shall call 811 or 1-800-DIG-TESS for utility locations prior to working within city easements or street R.O.W.

The Contractor's attention is directed to the fact that a company has existing underground gas/oil facilities located within or near the project limits. The company includes CenterPoint Energy. Excavation and/or construction is prohibited without prior notification to the company.

Project Number:

Sheet: 3

County: VICTORIA

Control: 0913-27-090

Highway: CS

In the removal of the surface and base material on the existing pavement, exercise extreme care in providing a smooth and uniform edge adjacent to the existing travelway pavement which is to remain in place.

The contractor will be required to plug all holes in existing storm sewer lines caused by the removal of incidental sewer appurtenances. Materials and method of plugging holes will be as approved or directed. No direct payment will be made for these materials and the work shall be considered subsidiary to the various bid items of the contract.

Existing manholes, water valves, water meters, etc., as shown in the plans, are to be removed, adjusted or relocated if necessary by others.

Install railing on one side of the roadway at each location at one time through completion before work is begun on the other side of the roadway, unless directed otherwise.

Do not work on the roadway before sunrise or after sunset unless otherwise approved.

Leave all traffic lanes open to traffic at night, weekends and holidays unless otherwise approved.

Furnish a certified copy of the legal gross weight of each vehicle hauling materials by weight and certified measurements for all trucks hauling material by volume.

Leave all intersecting roadways, side streets, and entrances open during construction unless otherwise approved. Should there be a request to restrict access for such reasons as parallel culvert replacement, reconstruction, etc., approval will be required 48 hours in advance and the contractor will be required to coordinate satisfactorily with any affected property owners.

Unless otherwise approved, maintain a minimum safety clearance from the edge of the travelway for material stockpiled in proximity of traffic lanes based on the current average traffic count of the particular highway as follows:

0 - 1500 = 16 feet

Over 1500 = 30 feet

In the event the above requirements cannot be met, make arrangements to stockpile material off the right of way.

Provide temporary pipe drains or culverts and take such other measures as directed to provide for continued drainage from all abutting property, the right of way and the roadway during construction operations. Labor and materials involved in this work will not be paid for directly, but will be considered subsidiary to the various bid items of the contract.

The Department will provide the cylinder testing machine for this project. Deliver the test specimens to the engineer's curing facilities as directed.

Project Number:

Sheet: 4

County: VICTORIA

Control: 0913-27-090

Highway: CS

Do not clean out concrete trucks within the right of way.

The contractor shall field verify all existing pipe, box culvert, and safety end treatments sizes prior to fabrication of related items. All work involved with field verifying will not be measured or paid for directly but will be subsidiary to pertinent items.

ITEM 6: CONTROL OF MATERIALS

To comply with the latest provisions of Build America, Buy America Act (BABA Act) of the Bipartisan Infrastructure Law, the contractor must submit an original of the TxDOT Construction Material Buy America Certification Form for all items classified as construction materials. This form is not required for materials classified as a manufactured product.

Refer to the Buy America Material Classification Sheet for clarification on material categorization.

The Buy America Material Classification Sheet is located at the below link.

<https://www.txdot.gov/business/resources/materials/buy-america-material-classification-sheet.html> for clarification on material categorization.

ITEM 7: LEGAL RELATIONS AND RESPONSIBILITIES

The Department has determined that a USACE Nationwide or Individual Permit is not necessary for the project since all work shall be conducted outside the USACE jurisdictional areas. Any impacts to these jurisdictional areas by the Contractor without a USACE permit will be the responsibility of the Contractor. If the Contractor deems it necessary to impact the USACE jurisdictional areas, then it becomes the Contractor's entire responsibility to consult with the USACE pertaining to the need for a Nationwide or Individual Permit. TXDOT will then hold the Contractor responsible for following all conditions of the approved permit.

No significant traffic generator events identified.

If the contractor proposes work beyond the TxDOT obtained permit limitations, the contractor is responsible for additional costs, delays, and obtaining new or revised permits prior to construction.

Temporary construction waterway crossings have not been environmental cleared/permitted within Right of Way. Restrict construction operations in any water body to the necessary areas as shown on the plans or applicable permit, or as directed.

Project Number:

Sheet: 4

County: VICTORIA

Control: 0913-27-090

Highway: CS

ITEM 8: PROSECUTION AND PROGRESS

The 90 day delayed start special provision is for allowing the contractor additional time for mobilizing crews and equipment to start this project.

Provide progress schedule as a Bar Chart.

ITEM 104: REMOVING CONCRETE

This Item is for concrete sidewalk, curb or curb and gutter removal, to be used as directed for those areas that are not covered under Item 531, "Sidewalks". The unit price bid for Item 531, "Concrete Sidewalks or "Curb Ramps" includes the price for removal and disposal of existing concrete, including sidewalk and curb, in those areas where new sidewalk or curb ramps are to be constructed.

Sawing of concrete is not paid for directly, but is considered subsidiary to this item.

ITEM 132: EMBANKMENT

Furnish Type C embankment consisting of suitable earth material such as loam, clay or other such material that will form a stable embankment and has a plasticity index of at least 15 but not more than 40. Requirements may vary for material excavated under Item 110, "Excavation" as directed.

ITEM 150: BLADING

Sprinkling and rolling which may be required during the operation of Item 150 will not be measured or paid for directly, but will be considered subsidiary to this item.

ITEM 161: COMPOST

Furnish and install a 6" layer of Compost Manufactured Topsoil.

ITEM 162: SODDING FOR EROSION CONTROL

Use block sodding in those areas behind the curb and gutter section at locations shown on the plans and as determined.

Project Number:

Sheet: 5

County: VICTORIA

Control: 0913-27-090

Highway: CS

Provide Bermuda block sod unless St. Augustine is the prevailing grass cover at particular placement locations. Provide St. Augustine block sod at those locations.

Peg all block sodding on slopes steeper than 3:1.

ITEM 166: FERTILIZER

Fertilize all seeded or sodded areas.

ITEM 168: VEGETATIVE WATERING

Equip water trucks with sprinkler systems capable of covering the entire area to be seeded or sodded from the roadway.

Water all newly placed sod or seeded areas the same day of installation. Thereafter, maintain the sod or seeded areas in a well-watered condition and at no time allow the areas to dry to the condition that water stress is evident.

Watering rate shall be 2.25 MG per acre times 3 applications per week, for 12 weeks.

ITEM 204: SPRINKLING

Do not use seawater.

ITEM 351: FLEXIBLE PAVEMENT STRUCTURE REPAIR

The Engineer will select the locations. The repairs will consist of the removal of existing subgrade, base and surfacing and replacement with asphaltic concrete pavement conforming to Item 3076, Dense Graded Hot-Mix Asphalt (Exempt), Type B, PG 64-22. All work and materials required to bring the repaired pavement section to its desired depth will be considered subsidiary to the item "Flexible Pavement Structure Repair".

ITEM 432: RIPRAP

Place 1/2 inch expansion joint material between the two concrete areas or structures where riprap is placed against other concrete such as concrete pavement and structures unless otherwise shown on the plans or as directed. This work will not be paid for directly but will be subsidiary to the pertinent items.

Project Number:

Sheet: 5

County: VICTORIA

Control: 0913-27-090

Highway: CS

Unless otherwise shown on the plans or directed, riprap will be 5" deep and reinforced; reinforced toewalls 6" wide and 12" deep will be placed around the perimeter of each location.

The dimension as shown in the stone protection bid item description is the stone size as described in the specification. The required thickness will be as shown elsewhere in the plans.

ITEM 451: RETROFIT RAILING

Remove rail flush with top of existing concrete. Concrete shall be recessed around all exposed reinforcing ends. Trim projecting reinforcing ends 1/2" below the sawcut surface. Clean all loose debris from the sawcut surface, recesses and exposed reinforcing areas. Coat the exposed reinforcing ends with a corrosion inhibiting bond agent. Fill recess with non-shrink grout. (A grout containing a corrosive inhibitor may, with approval, be used in place of separate inhibitor and grout.)

ITEM 502: BARRICADES, SIGNS, AND TRAFFIC HANDLING

The Contractor Force Account "Safety Contingency" that has been established for this project is intended to be utilized for work zone enhancements, to improve the effectiveness of the Traffic Control Plan, that could not be foreseen in the project planning and design stage. These enhancements will be mutually agreed upon by the Engineer and the Contractor's Responsible Person based on weekly or more frequent traffic management reviews on the project. The Engineer may choose to use existing bid items if it does not slow the implementation of enhancement.

Use WZ(RS)-22 in conjunction with TCP(2-4).

Provide suitable warning lights mounted high enough to be visible from all directions on all construction equipment, including pilot vehicles, and operate warning lights when the equipment is within the right of way. Equip other equipment such as trucks, trailers, autos, etc., with emergency flashers and use emergency flashers while within the work area.

No additional payment will be made for relocating existing sign assemblies to temporary mounts.

Place plastic drums along the gutter line at curb ramp locations during non-working hours and barricades with "Sidewalk Closed" signs while ramps and/or sidewalks are under construction.

Provide lights to illuminate the flaggers and work area during night time operations. Class 3 garments shall be required for all workers and flaggers during night time work.

Provide a 3:1 slope or flatter from the pavement edge with 42" cones in all work areas during non-working hours. If adequate width is not available to set the 42" cones, the 3:1 edge build up shall be widened to accommodate 42" cone placement. Labor and materials involved in this work will not be paid for directly, but shall be considered subsidiary to the various bid items of the contract.

Signs warning of temporary conditions, such as "NO CENTER LINE," "LOOSE GRAVEL," etc., shall only be displayed when conditions are present. Remove or completely cover signs that do not apply to the roadway conditions. These signs may be installed prior to beginning work but shall remain completely covered until the signs are applicable.

In accordance with Article 502.4.2, no payment will be made for the month if the contractor fails to provide or properly maintain signs in compliance with the contract requirements. Temporary warning signs that are visible when conditions do not apply will be considered improper maintenance of signs.

ITEM 506: TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL CONTROLS

1. See SWP3 plan sheet for total disturbed acreage.
2. The disturbed area in this project, all project locations in the contract, and contractor project specific locations (PSLs), within one (1) mile of the project limits, for the contract will further establish the authorization requirements for storm water discharges.
3. The department will obtain an authorization to discharge storm water from the Texas Commission on Environmental Quality (TCEQ) for the construction activities shown on the plans.
4. Obtain any required authorization from the TCEQ for any contractor PSLs for construction activities on or off right-of-way (ROW).
5. When the total disturbed area for all projects in the contract and PSLs within one (1) mile of the project limits exceeds five (5) acres, provide a copy of the contractor NOI.
6. Provide a signed sketch detailing the location of any contractor's PSLs on ROW or within one (1) mile of the project.

ITEM 529: CONCRETE CURB, GUTTER, AND COMBINED CURB AND GUTTER

Taper the curb or curb and gutter from 5 3/4" to 0" in the last three feet when changing from a curb or curb and gutter section to an open section.

Reinforcement will be required for this item.

ITEM 530: INTERSECTIONS, DRIVEWAYS, AND TURNOUTS

Notify property owners a minimum of 48 hr. in advance of beginning work on their driveway. Provide a list of each notification and contact prior to each closure. Only close driveways for reconstruction if duration and alternate access are approved. Install and maintain material across a work zone as temporary access. Temporary access must not have grade breaks that exceed 8%. This work is subsidiary.

ITEM 618: CONDUIT

Provide as-built or certified as-installed plans, including GPS coordinates, for all conduit to establish the locations, vertical elevations, and horizontal alignments based on the department's survey datum. The plans shall also show the relationship to existing highway facilities and the right of way line. Submit to the engineer on an 11x17 inch scaled plan sheet.

Repair any pavement damaged by the boring operations. Repair method shall be as approved by the Engineer. This will be considered subsidiary to this item.

Conduit bore pits a minimum of five feet from the edge of the base or pavement. Close the bore pit holes during non-working hours. Consider payment for bored conduit as the width of the roadway plus five (5) feet on each side of roadway.

Unless shown otherwise on the plans, install the underground conduit a minimum of 24 in. deep. Place conduit under driveway or roadways a minimum of 24 in. below the pavement surface.

If using casing to place bored conduit, consider the casing incidental to the conduit. Prior to backfilling conduit trenches, place a detachable underground metalized mylar marking tape above the conduit and concrete encasement. Ensure the marking tape extends continuously into the ground box at each end of all conduit runs. Consider the supplying and installation of the marking tape incidental to the various bid items.

Project Number:

Sheet: 7

County: VICTORIA

Control: 0913-27-090

Highway: CS

When backfilling bore pits, ensure that the conduit is not damaged during installation or due to settling backfill material. Compact select backfill in three equal lifts to the bottom of the conduit, or if using sand, place it in 2 in. above the conduit. Ensure backfill density is equal to that of the existing soil. Prevent material from entering the conduit.

ITEM 644: SMALL ROADSIDE SIGN SUPPORTS AND ASSEMBLIES

Use Class B concrete for all small roadside sign assembly concrete footings.

The exact location of the foundations to be placed will be determined in the field by the Engineer.

Replace the signs with reference markers to the exact station from which they were removed.

Drill the holes in the signs carefully as to not damage the reflective sheeting of the signs.

Install the wedge anchor system in a concrete footing 42" in depth and 12" in diameter. Foundation should take approximately 2.7 cubic feet of concrete.

ITEM 677: ELIMINATING EXISTING PAVEMENT MARKINGS AND MARKERS

Remove existing stripe with the water blasting method.

ITEM 668: PREFABRICATED PAVEMENT MARKINGS

Pavement marking material may be placed on roadways at any time during the year, subject to temperature and moisture limitations specified.

ITEM 682: VEHICLE AND PEDESTRIAN SIGNAL HEADS

Provide all signal heads from the same manufacturer.

Provide all LED traffic signal lamp units, as well as the various components of the signal heads to be installed within this project.

Traffic signal heads shall be black polycarbonate with vented black polycarbonate back plate. Signal heads mounted on poles and mast arms shall be level and plumb and aimed as directed. Completely cover all signal faces until placed in operation.

Project Number:

Sheet: 7

County: VICTORIA

Control: 0913-27-090

Highway: CS

ITEM 3076: DENSE-GRADED HOT-MIX ASPHALT

Mixture designs, using the PG binder originally specified and without additives, failing to meet the requirements of Table 10 will require the addition of a minimum 1.0% of Type A hydrated lime based on dry weight of the total aggregate.

Use of RAS in the HMA CP surface course is not permitted.

Do not add additional quantity of RAP to stockpiles tested and approved. If additional RAP is added to a stockpile, a new design and trial batch will be required prior to placement on the roadway.

The extracted aggregate from contractor-owned RAP shall have a minimum of 85% two crushed faces when tested in accordance with TEX-460-A, Part I.

ITEM 5003: RETROFIT DETECTIBLE WARNING SURFACE

Apply an approved surface applied detectable warning surface to otherwise compliant existing curb ramps as directed.

ITEM 6001: PORTABLE CHANGEABLE MESSAGE SIGN

Provide two (2) Portable Changeable Message Signs (PCMS) for the duration of the project. Locations and messages or other miscellaneous uses of PCMS, shall be as approved or directed by the Engineer.

ITEM 6185: TRUCK MOUNTED ATTENUATOR (TMA) AND TRAILER ATTENUATOR (TA)

Shadow vehicle(s) with TMA are set up for stationary and/or mobile operations. The contractor will be responsible for determining if operations will be ongoing at the same time to determine the total number of TMAs needed for the project.

The TMA/TA used for installation/removal of traffic control for a work area will be subsidiary to the TMA/TA used to perform the work.



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0913-27-090

DISTRICT Yoakum
HIGHWAY JOHN STOCKBAUER DR

COUNTY Victoria

| CONTROL SECTION JOB | | | | 0913-27-090 | | TOTAL EST. | TOTAL FINAL |
|---------------------|----------|--|------|--------------------|-------|------------|-------------|
| PROJECT ID | | | | A00177680 | | | |
| COUNTY | | | | Victoria | | | |
| HIGHWAY | | | | JOHN STOCKBAUER DR | | | |
| ALT | BID CODE | DESCRIPTION | UNIT | EST. | FINAL | | |
| | 104-6017 | REMOVING CONC (DRIVEWAYS) | SY | 448.000 | | 448.000 | |
| | 104-6022 | REMOVING CONC (CURB AND GUTTER) | LF | 400.000 | | 400.000 | |
| | 104-6036 | REMOVING CONC (SIDEWALK OR RAMP) | SY | 17.000 | | 17.000 | |
| | 132-6021 | EMBANKMENT (VEHICLE)(ORD COMP)(TY C) | CY | 83.000 | | 83.000 | |
| | 150-6002 | BLADING | HR | 20.000 | | 20.000 | |
| | 161-6028 | COMPOST MANUF TOPSOIL (2") | SY | 309.000 | | 309.000 | |
| | 162-6002 | BLOCK SODDING | SY | 309.000 | | 309.000 | |
| | 168-6001 | VEGETATIVE WATERING | MG | 2.590 | | 2.590 | |
| | 351-6075 | FLEX PAVEMENT STRUCTURE REPAIR (2"-4") | SY | 77.000 | | 77.000 | |
| | 401-6001 | FLOWABLE BACKFILL | CY | 1.000 | | 1.000 | |
| | 420-6066 | CL C CONC (RAIL FOUNDATION) | CY | 9.240 | | 9.240 | |
| | 420-6136 | CL C CONC (RAC-R) | CY | 18.900 | | 18.900 | |
| | 432-6002 | RIPRAP (CONC)(5 IN) | CY | 1.000 | | 1.000 | |
| | 432-6033 | RIPRAP (STONE PROTECTION)(18 IN) | CY | 60.000 | | 60.000 | |
| | 451-6033 | RETROFIT RAIL (TY C223) | LF | 196.000 | | 196.000 | |
| | 500-6001 | MOBILIZATION | LS | 1.000 | | 1.000 | |
| | 502-6001 | BARRICADES, SIGNS AND TRAFFIC HANDLING | MO | 5.000 | | 5.000 | |
| | 506-6038 | TEMP SEDMT CONT FENCE (INSTALL) | LF | 100.000 | | 100.000 | |
| | 506-6039 | TEMP SEDMT CONT FENCE (REMOVE) | LF | 100.000 | | 100.000 | |
| | 506-6040 | BIODEG EROSN CONT LOGS (INSTL) (8") | LF | 100.000 | | 100.000 | |
| | 506-6043 | BIODEG EROSN CONT LOGS (REMOVE) | LF | 100.000 | | 100.000 | |
| | 512-6009 | PORT CTB (FUR & INST)(LOW PROF)(TY 1) | LF | 200.000 | | 200.000 | |
| | 512-6010 | PORT CTB (FUR & INST)(LOW PROF)(TY 2) | LF | 40.000 | | 40.000 | |
| | 512-6033 | PORT CTB (MOVE)(LOW PROF)(TY 1) | LF | 180.000 | | 180.000 | |
| | 512-6034 | PORT CTB (MOVE)(LOW PROF)(TY 2) | LF | 40.000 | | 40.000 | |
| | 512-6057 | PORT CTB (REMOVE)(LOW PROF)(TY 1) | LF | 200.000 | | 200.000 | |
| | 512-6058 | PORT CTB (REMOVE)(LOW PROF)(TY 2) | LF | 40.000 | | 40.000 | |
| | 529-6008 | CONC CURB & GUTTER (TY II) | LF | 298.000 | | 298.000 | |
| | 530-6004 | DRIVEWAYS (CONC) | SY | 448.000 | | 448.000 | |
| | 531-6002 | CONC SIDEWALKS (5") | SY | 1,332.000 | | 1,332.000 | |
| | 531-6035 | CURB RAMPS | SY | 130.000 | | 130.000 | |
| | 542-6001 | REMOVE METAL BEAM GUARD FENCE | LF | 137.500 | | 137.500 | |
| | 542-6002 | REMOVE TERMINAL ANCHOR SECTION | EA | 2.000 | | 2.000 | |
| | 618-6033 | CONDT (PVC) (SCH 40) (4") | LF | 101.000 | | 101.000 | |
| | 618-6034 | CONDT (PVC) (SCH 40) (4") (BORE) | LF | 247.000 | | 247.000 | |
| | 620-6007 | ELEC CONDR (NO.8) BARE | LF | 348.000 | | 348.000 | |
| | 621-6002 | TRAY CABLE (3 CONDR) (12 AWG) | LF | 947.000 | | 947.000 | |



Estimate & Quantity Sheet

CONTROLLING PROJECT ID 0913-27-090

DISTRICT Yoakum
HIGHWAY JOHN STOCKBAUER DR

COUNTY Victoria

| CONTROL SECTION JOB | | | | 0913-27-090 | | TOTAL EST. | TOTAL FINAL |
|---------------------|-----------|---|------|--------------------|-------|------------|-------------|
| PROJECT ID | | | | A00177680 | | | |
| COUNTY | | | | Victoria | | | |
| HIGHWAY | | | | JOHN STOCKBAUER DR | | | |
| ALT | BID CODE | DESCRIPTION | UNIT | EST. | FINAL | | |
| | 644-6068 | RELOCATE SM RD SN SUP&AM TY 10BWG | EA | 1.000 | | 1.000 | |
| | 658-6013 | INSTL DEL ASSM (D-SW)SZ (BRF)CTB | EA | 7.000 | | 7.000 | |
| | 658-6053 | INSTL OM ASSM (OM-3L)(TWT)GND | EA | 2.000 | | 2.000 | |
| | 658-6057 | INSTL OM ASSM (OM-3R)(TWT)GND | EA | 2.000 | | 2.000 | |
| | 668-6076 | PREFAB PAV MRK TY C (W) (24") (SLD) | LF | 360.000 | | 360.000 | |
| | 677-6005 | ELIM EXT PAV MRK & MRKS (12") | LF | 290.000 | | 290.000 | |
| | 677-6007 | ELIM EXT PAV MRK & MRKS (24") | LF | 144.000 | | 144.000 | |
| | 682-6018 | PED SIG SEC (LED)(COUNTDOWN) | EA | 8.000 | | 8.000 | |
| | 684-6010 | TRF SIG CBL (TY A)(12 AWG)(5 CONDR) | LF | 947.000 | | 947.000 | |
| | 687-6001 | PED POLE ASSEMBLY | EA | 8.000 | | 8.000 | |
| | 688-6001 | PED DETECT PUSH BUTTON (APS) | EA | 8.000 | | 8.000 | |
| | 688-6003 | PED DETECTOR CONTROLLER UNIT | EA | 1.000 | | 1.000 | |
| | 6001-6002 | PORTABLE CHANGEABLE MESSAGE SIGN | EA | 2.000 | | 2.000 | |
| | 6185-6002 | TMA (STATIONARY) | DAY | 45.000 | | 45.000 | |
| | 18 | SAFETY CONTINGENCY: CONTRACTOR FORCE ACCOUNT WORK (PARTICIPATING) | LS | 1.000 | | 1.000 | |
| | | EROSION CONTROL MAINTENANCE: CONTRACTOR FORCE ACCOUNT WORK (PART) | LS | 1.000 | | 1.000 | |

SIDEWALK SUMMARY

| SIDEWALK LOCATION | ITEM 100 PREPARING ROW STA | ITEM 104 | | | ITEM 150 BLADING (EST) HR | ITEM 161 COMPOST MANUF TOPSOIL (2") SY | ITEM 162 BLOCK SODDING SY | ITEM 166 FERTILIZER 500 LBS/AC ① TON | ITEM 168 VEGETATIVE WATERING (13.58 MG/AC X 3 CYCLES) MG | ITEM 351 FLEX PAVEMENT STRUCTURE REPAIR (2*-4*) (EST) SY | ITEM 529 CONC CURB & GUTTER (TY II) LF | ITEM 530 DRIVEWAYS (CONC) SY | ITEM 531 | | | | | | REMARKS | |
|---|-------------------------------------|--|---|---------------------------------------|------------------------------------|---|------------------------------------|--|---|---|---|---------------------------------------|---------------------------------|---------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|----------|--------------------------------------|
| | | REMOVING CONC (CURB AND GUTTER) LF | REMOVING CONC (SIDEWALK OR RAMP) SY | REMOVING CONC (DRIVEWAYS) SY | | | | | | | | | CONC SIDEWALKS (5") SY | CURB RAMPS SY | CURB RAMPS (TYP 1) ① SY | CURB RAMPS (TYP 3) ① SY | CURB RAMPS (TYP 6) ① SY | CURB RAMPS (TYP 7) ① SY | | CURB RAMPS (TYP 10) ① SY |
| SL 463 TO FM 1315 (SALEM RD) | | | | | | | | | | | | | | | | | | | | |
| STA 0+00 TO STA 2+40 (SHEET 1 OF 14) | | 113 | | | 20 | 7 | 7 | 0.0003 | 0.06 | 9 | 56 | | 40 | | | | | | | |
| STA 2+40 TO STA 4+80 (SHEET 2 OF 14) | | 6 | | | | 10 | 10 | 0.0005 | 0.08 | 1 | 6 | | | 39 | | | | | | |
| STA 4+80 TO STA 7+20 (SHEET 3 OF 14) | | 45 | | | | 5 | 5 | 0.0003 | 0.04 | 5 | 35 | | | 27 | | | | | | |
| STA 7+20 TO STA 9+60 (SHEET 4 OF 14) | | | | | | | | | | | | | | | | | | | | |
| STA 9+60 TO STA 12+00 (SHEET 5 OF 14) | | | | | | 50 | 50 | 0.003 | 0.42 | 5 | | | | 189 | | | | | | |
| STA 12+00 TO STA 14+40 (SHEET 6 OF 14) | | | | | | 50 | 50 | 0.003 | 0.42 | | | | | 290 | | | | | | |
| STA 14+40 TO STA 16+80 (SHEET 7 OF 14) | | | | | | 35 | 35 | 0.002 | 0.29 | | | | | 133 | | | | | | |
| STA 16+80 TO STA 19+20 (SHEET 8 OF 14) | | 13 | | 33 | | 26 | 26 | 0.001 | 0.22 | 7 | 13 | 33 | | 96 | | | | | | |
| STA 19+20 TO STA 21+60 (SHEET 9 OF 14) | | 10 | | 88 | | 4 | 4 | 0.0002 | 0.03 | 10 | 10 | 88 | | 15 | | | | | | |
| STA 21+60 TO STA 24+00 (SHEET 10 OF 14) | | 31 | | 215 | | 36 | 36 | 0.002 | 0.30 | 21 | 31 | 215 | | 140 | | | | | | |
| STA 24+00 TO STA 26+40 (SHEET 11 OF 14) | | 92 | | 47 | | 37 | 37 | 0.002 | 0.31 | 8 | 57 | 47 | | 136 | 23 | | | | 23 | |
| STA 26+40 TO STA 28+80 (SHEET 12 OF 14) | | 42 | 17 | 65 | | 22 | 22 | 0.001 | 0.19 | 11 | 42 | 65 | | 87 | | | | | | |
| STA 28+80 TO STA 31+20 (SHEET 13 OF 14) | | | | | | 27 | 27 | 0.001 | 0.23 | | | | | 100 | | | | | | |
| STA 31+20 TO STA 33+33 (SHEET 14 OF 14) | | | | | | | | | | | | | | | | | | | | |
| PROJECT TOTALS | 0 | 352 | 17 | 448 | 20 | 309 | 309 | 0.016 | 2.59 | 77 | 250 | 448 | 1292 | 23 | 0 | 0 | 0 | 23 | 0 | |

① FOR CONTRACTOR'S INFORMATION ONLY.

SIGN SUMMARY

| LOCATION | SIGN | ITEM 644 RELOCATE SM RD SN SUP & AM TY 10BWG EA |
|-------------------------------------|-----------------------|--|
| SL 463 TO FM 1315 (SALEM RD) | | |
| STA 30+57 LT | SPEED LIMIT 40 MPH | 1 |
| PROJECT TOTALS | | 1 |

NOTE:
1. RELOCATE SIGN WITHIN EXISTING RIGHT OF WAY AT EXISTING STATION TO AVOID CONFLICT WITH NEW SIDEWALK CONSTRUCTION.

SWP3 SUMMARY

| LOCATION | ITEM 506 | | | |
|-------------------------------------|---|--|---|---|
| | TEMP SEDMT CONT FENCE (INSTALL) (EST) LF | TEMP SEDMT CONT FENCE (REMOVE) (EST) LF | BIODEG EROSN CONT LOGS (INSTALL) (8") (EST) LF | BIODEG EROSN CONT LOGS (REMOVE) (EST) LF |
| SL 463 TO FM 1315 (SALEM RD) | | | | |
| AS DIRECTED BY ENGINEER | 100 | 100 | 100 | 100 |
| PROJECT TOTALS | 100 | 100 | 100 | 100 |

NOTES:
1. INSTALL BMP'S TO CORRESPOND WITH SEQUENCE OF CONSTRUCTION. ADDITIONAL BMP'S MAY BE ADDED TO CORRESPOND WITH CONSTRUCTION ACTIVITIES AS APPROVED OR AS DIRECTED BY THE ENGINEER.
2. ACTUAL BMP LOCATIONS AND LENGTHS MAY VARY TO MEET FIELD CONDITIONS, AS APPROVED OR AS DIRECTED BY THE ENGINEER.

MISCELLANEOUS SUMMARY

| LOCATION | ITEM 6001 PORTABLE CHANGEABLE MESSAGE SIGN EA | ITEM 6185 TMA (STATIONARY) DAY |
|-------------------------------------|--|---|
| SL 463 TO FM 1315 (SALEM RD) | | |
| AS DIRECTED BY ENGINEER | 2 | 45 |
| PROJECT TOTALS | | 45 |

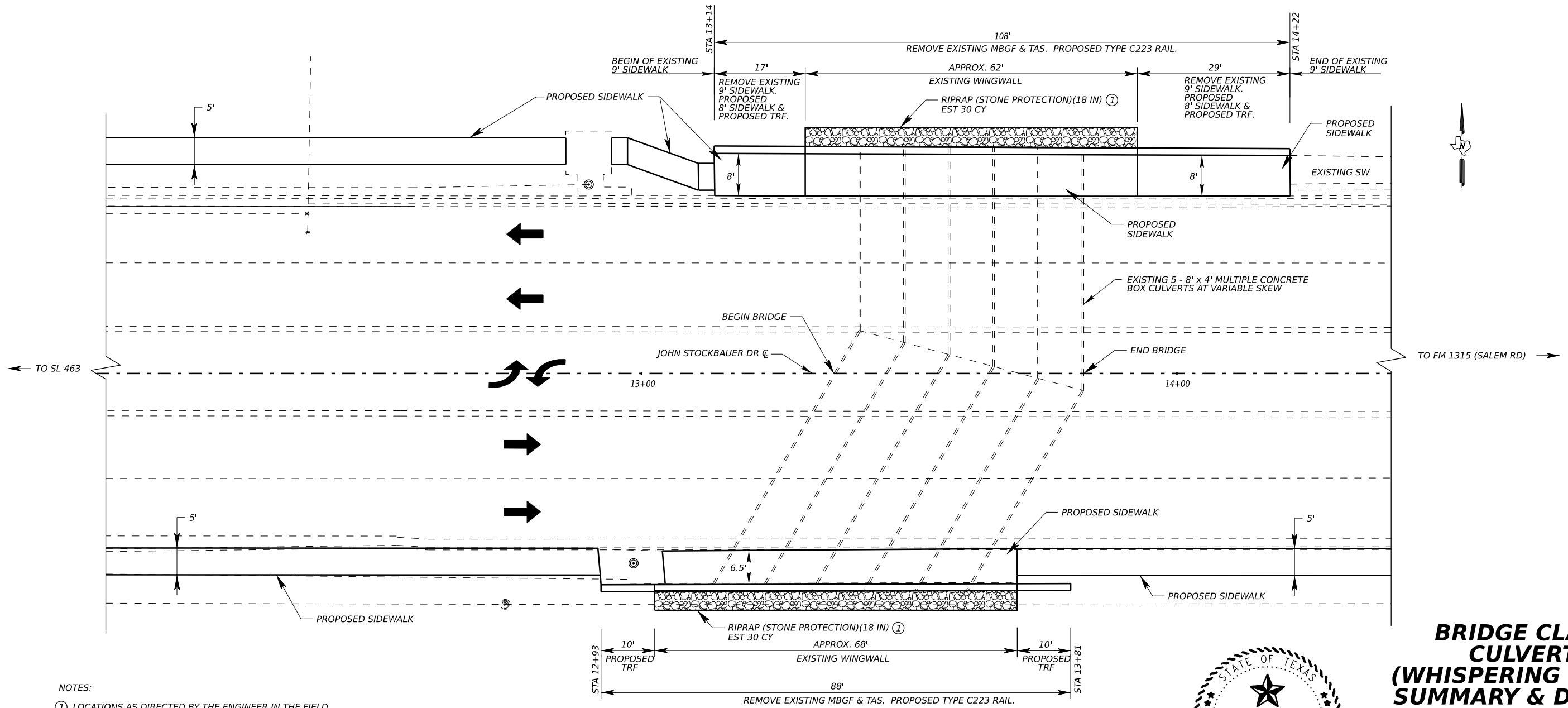
SUMMARY SHEET

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| | | | |
|------------------------|-------|-------------|-------------|
| FED. RD. DIV. NO. 6 | | PROJECT NO. | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 10 |

WHISPERING CREEK BRIDGE CLASS BOX CULVERT SUMMARY

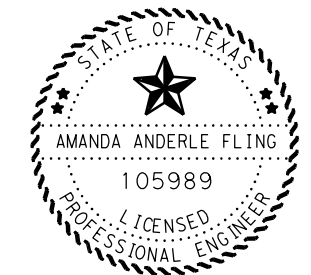
| LOCATION | ITEM 132 | ITEM 401 | ITEM 420 | ITEM 420 | ITEM 432 | ITEM 451 | ITEM 512 ② | | | | | ITEM 542 | | ITEM 658 | | | CTB LOCATION | REMARKS | |
|--|---|----------------------|--------------------------------|----------------------|--------------------------------------|----------------------------|--|--------------------------------------|--|--|--------------------------------------|--|----------------|-----------------------------------|--|-------------------------------------|--------------|---------------------------|--|
| | EMBANKMENT (VEHICLE) (ORD COMP) (TY C) (EST) CY | FLOWABLE BACKFILL CY | CL C CONC (RAIL FOUNDATION) CY | CL C CONC (RAC-R) CY | RIPRAP (STONE PROTECTION) (18 IN) CY | RETROFIT RAIL (TY C223) LF | PORT CTB (FUR & INST) (LOW PROF) (TY 1) LF | PORT CTB (MOVE) (LOW PROF) (TY 1) LF | PORT CTB (REMOVE) (LOW PROF) (TY 1) LF | PORT CTB (FUR & INST) (LOW PROF) (TY 2) LF | PORT CTB (MOVE) (LOW PROF) (TY 2) LF | PORT CTB (REMOVE) (LOW PROF) (TY 2) LF | REMOVE MBGF LF | REMOVE TERMINAL ANCHOR SECTION EA | INSTR DEL ASSM(D-SW) SZ (BRF) (CTB) EA | INSTR OM ASSM(OM-3L) (TWT) (GND) EA | | | INSTR OM ASSM(OM-3R) (TWT) (GND) EA |
| WHISPERING CREEK BRIDGE CLASS BOX CULVERT | | | | | | | | | | | | | | | | | | | |
| STA 12+93 TO STA 13+81 RT | 40 | | 2.80 | 9.70 | | 88 | 180 | | | 40 | | | 62.5 | 1 | 3 | 1 | 1 | STA 12+41 TO STA 14+21 RT | WHISPERING CREEK BRIDGE CLASS BOX CULVERT 5 - 8' x 4' MULTIPLE CONCRETE BOX CULVERT AT VARIABLE SKEW NBI# 13-235-0-B003-85-003 |
| STA 13+14 TO STA 14+22 LT | 40 | | 6.44 | 9.20 | | 108 | 20 | 180 | 200 | | 40 | | 75.0 | 1 | 4 | 1 | 1 | STA 12+74 TO STA 14+74 LT | |
| WHISPERING CREEK CULVERT EROSION REPAIR | ① 3 | ① 1 | | | ① 60 | | | | | | | | | | | | | | |
| PROJECT TOTALS | 83 | 1 | 9.24 | 18.90 | 60 | 196 | 200 | 180 | 200 | 40 | 40 | 40 | 137.5 | 2 | 7 | 2 | 2 | | |



NOTES:

- ① LOCATIONS AS DIRECTED BY THE ENGINEER IN THE FIELD.
- ② a. THE "WHISPERING CREEK BRIDGE CLASS BOX CULVERT SUMMARY" FOR "FURNISH & INSTALL", "MOVE", AND "REMOVE" QUANTITY OF LOW PROFILE PORTABLE CONCRETE TRAFFIC BARRIER IS BASED ON INSTALLING RAILING ON ONE SIDE OF THE ROADWAY AT EACH LOCATION THROUGH COMPLETION BEFORE WORK IS BEGUN ON THE OTHER SIDE OF THE ROADWAY.
- b. PLACE THE LOW PROFILE PORTABLE CONCRETE TRAFFIC BARRIER ON THE SIDEWALK AT THE BACK OF CURB UNLESS OTHERWISE DIRECTED.
- c. IF THE CONTRACTOR ELECTS TO DEVIATE FROM THE ABOVE SEQUENCE, IT WILL BE AT THE EXPENSE OF THE CONTRACTOR.

RIPRAP (STONE PROTECTION)(18 IN)
 (SIZE = 18 IN)
 (THICKNESS = 27 IN)



Amanda Anderle Fling, P.E.

01/18/2024

BRIDGE CLASS CULVERT (WHISPERING CREEK) SUMMARY & DETAILS

NOT TO SCALE

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| FED. RD. DIV. NO. | | PROJECT NO. | |
|-------------------|-------|-------------|-------------|
| 6 | | | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 11 |

PATH: T:\YKMAN\EX\PS&E\091327090_STOCKBAUER_SIDEWALK\Plan_Sheets
 FILE: SUM_SHEET.dgn
 DATE: 1/21/2024

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BARRICADE AND CONSTRUCTION (BC) STANDARD SHEETS GENERAL NOTES:

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

DATE: 1/18/2024 \$TIME\$
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WORKER SAFETY NOTES:


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

COMPLIANT WORKZONE TRAFFIC CONTROL DEVICES

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

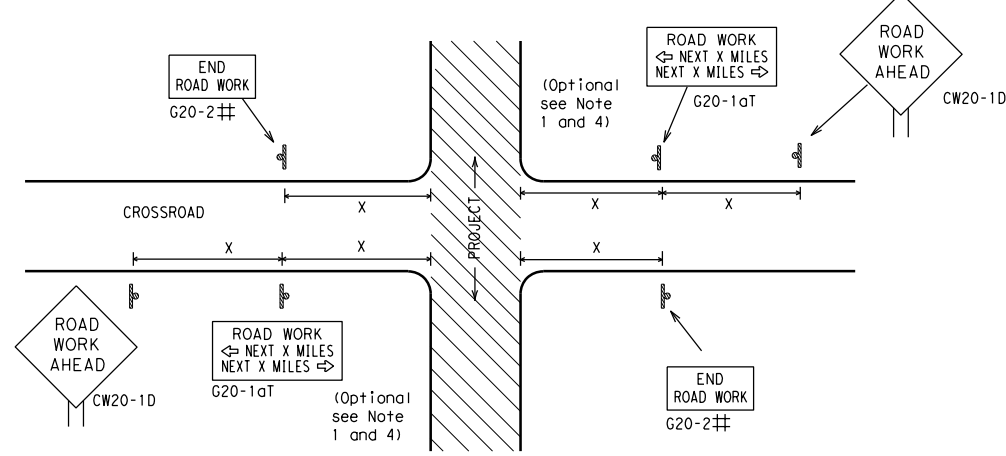
| |
|--|
| <p>THE DOCUMENTS BELOW CAN BE FOUND ON-LINE AT http://www.txdot.gov</p> |
| COMPLIANT WORK ZONE TRAFFIC CONTROL DEVICES LIST (CWZTCD) |
| DEPARTMENTAL MATERIAL SPECIFICATIONS (DMS) |
| MATERIAL PRODUCER LIST (MPL) |
| ROADWAY DESIGN MANUAL - SEE "MANUALS (ONLINE MANUALS) " |
| STANDARD HIGHWAY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

SHEET 1 OF 12

| | | | |
|---|---------------|---|---|
|  | | <i>Texas Department of Transportation</i> | <i>Traffic Safety Division Standard</i> |
| <p>BARRICADE AND CONSTRUCTION GENERAL NOTES AND REQUIREMENTS</p> <p>BC (1) - 21</p> | | | |
| FILE: | bc-21.dgn | DN: TxDOT | ck: TxDOT |
| © TxDOT | November 2002 | CONT | SECT |
| 4-03 | 7-13 | 0913 | 27 |
| 9-07 | 8-14 | DIST | COUNTY |
| 5-10 | 5-21 | YKM | VICTORIA |
| | | JOB | HIGHWAY |
| | | 090 | CS |
| | | SHEET NO. | 12 |

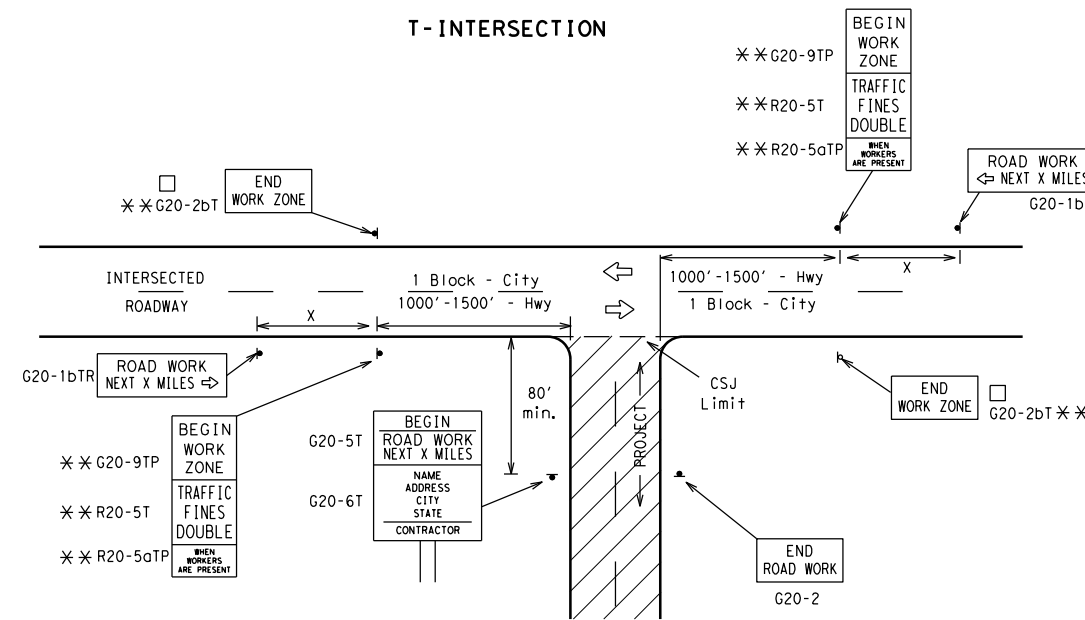
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TYPICAL LOCATION OF CROSSROAD SIGNS



- ## May be mounted on back of "ROAD WORK AHEAD" (CW20-1D) sign with approval of Engineer. (See note 2 below)
- The typical minimum signing on a crossroad approach should be a "ROAD WORK AHEAD" (CW20-1D) sign and a (G20-2) "END ROAD WORK" sign, unless noted otherwise in plans.
 - The Engineer may use the reduced size 36" x 36" ROAD WORK AHEAD (CW20-1D) sign mounted back to back with the reduced size 36" x 18" "END ROAD WORK" (G20-2) sign on low volume crossroads (see Note 4 under "Typical Construction Warning Sign Size and Spacing"). See the "Standard Highway Sign Designs for Texas" manual for sign details. The Engineer may omit the advance warning signs on low volume crossroads. The Engineer will determine whether a road is low volume as per TMUTCD Part 5. This information shall be shown in the plans.
 - Based on existing field conditions, the Engineer/Inspector may require additional signs such as FLAGGER AHEAD, LOOSE GRAVEL, or other appropriate signs. When additional signs are required, these signs will be considered part of the minimum requirements. The Engineer/Inspector will determine the proper location and spacing of any sign not shown on the BC sheets, Traffic Control Plan sheets or the Work Zone Standard Sheets.
 - The "ROAD WORK NEXT X MILES" (G20-1aT) sign shall be required at high volume crossroads to advise motorists of the length of construction in either direction from the intersection. The Engineer will determine whether a roadway is considered high volume.
 - Additional traffic control devices may be shown elsewhere in the plans for higher volume crossroads.
 - When work occurs in the intersection area, appropriate traffic control devices, as shown elsewhere in the plans or as determined by the Engineer/Inspector, shall be in place.

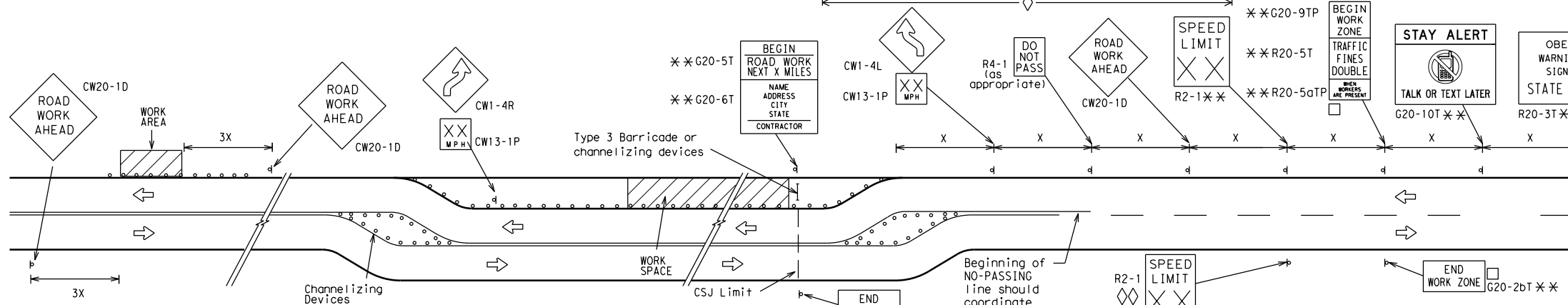
T-INTERSECTION



CSJ LIMITS AT T-INTERSECTION

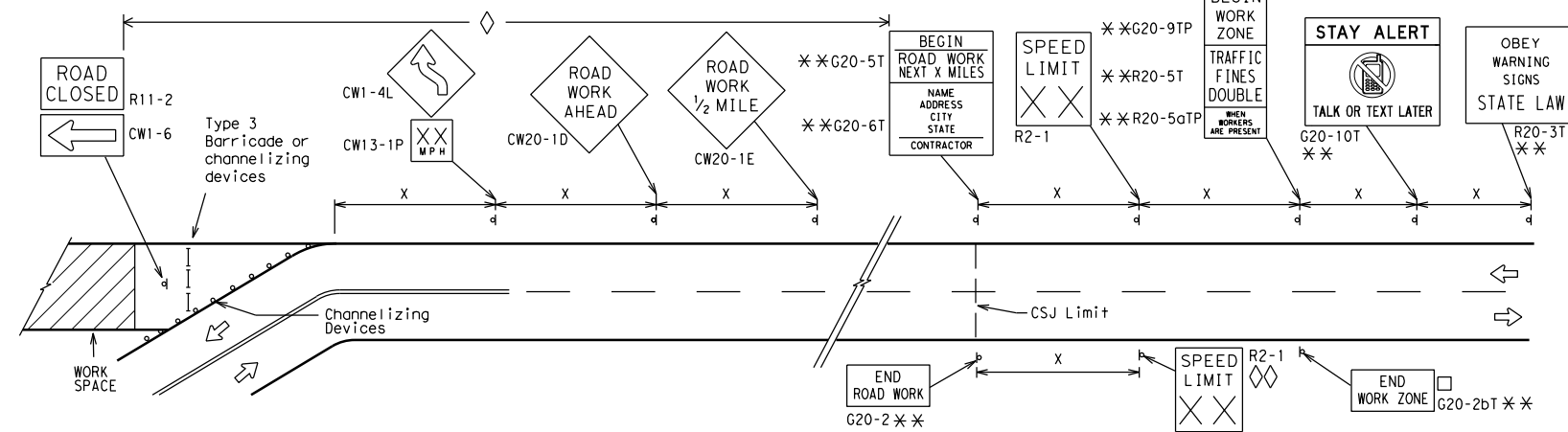
- The Engineer will determine the types and location of any additional traffic control devices, such as a flagger and accompanying signs, or other signs, that should be used when work is being performed at or near an intersection.
- If construction closes the road at a T-intersection, the Contractor shall place the "CONTRACTOR NAME" (G20-6T) sign behind the Type 3 Barricades for the road closure (see BC(10) also). The "ROAD WORK NEXT X MILES" left arrow (G20-1bTL) and "ROAD WORK NEXT X MILES" right arrow (G20-1bTR) signs shall be replaced by the detour signing called for in the plans.

WORK AREAS IN MULTIPLE LOCATIONS WITHIN CSJ LIMITS

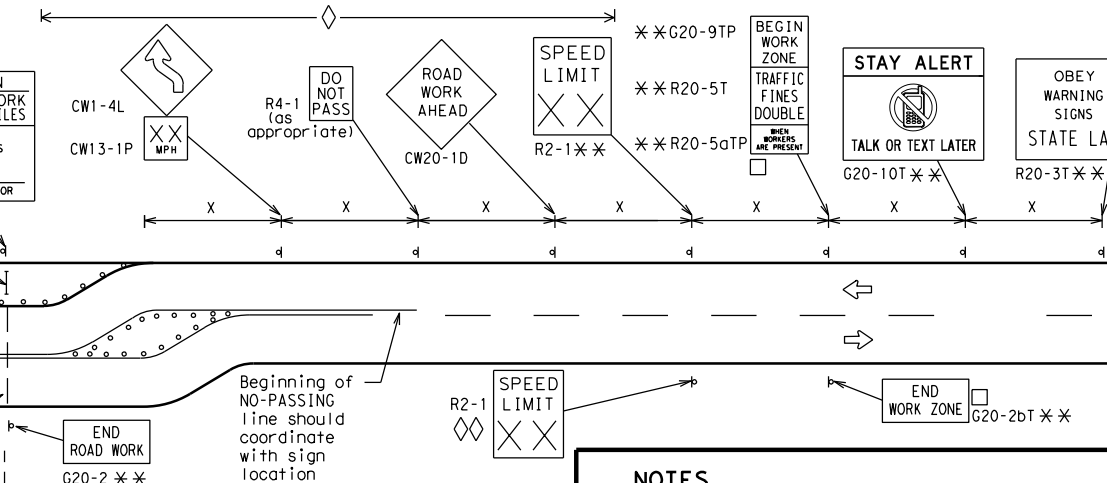


When extended distances occur between minimal work spaces, the Engineer/Inspector should ensure additional "ROAD WORK AHEAD" (CW20-1D) signs are placed in advance of these work areas to remind drivers they are still within the project limits. See the applicable TCP sheets for exact location and spacing of signs and channelizing devices.

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



SAMPLE LAYOUT OF SIGNING FOR WORK BEGINNING AT THE CSJ LIMITS



NOTES

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

TYPICAL CONSTRUCTION WARNING SIGN SIZE AND SPACING^{1,5,6}

| Sign Number or Series | SIZE | | SPACING | |
|---------------------------------------|-------------------|--------------------|------------------|--------------------------------|
| | Conventional Road | Expressway/Freeway | Posted Speed MPH | Sign Spacing "X" Feet (Apprx.) |
| CW20 ⁴ | 48" x 48" | 48" x 48" | 30 | 120 |
| CW21 | | | 35 | 160 |
| CW22 | | | 40 | 240 |
| CW23 | | | 45 | 320 |
| CW1, CW2, CW7, CW8, CW9, CW11, CW14 | 36" x 36" | 48" x 48" | 50 | 400 |
| | | | 55 | 500 ² |
| | | | 60 | 600 ² |
| | | | 65 | 700 ² |
| CW3, CW4, CW5, CW6, CW8-3, CW10, CW12 | 48" x 48" | 48" x 48" | 70 | 800 ² |
| | | | 75 | 900 ² |
| | | | 80 | 1000 ² |
| | | | * | * ³ |

* For typical sign spacings on divided highways, expressways and freeways, see Part 6 of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) typical application diagrams or TCP Standard Sheets.

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

GENERAL NOTES

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

LEGEND

| | |
|-------|---|
| — — | Type 3 Barricade |
| ○ ○ ○ | Channelizing Devices |
| —■— | Sign |
| X | See Typical Construction Warning Sign Size and Spacing chart or the TMUTCD for sign spacing requirements. |

SHEET 2 OF 12



BARRICADE AND CONSTRUCTION PROJECT LIMIT

BC(2)-21

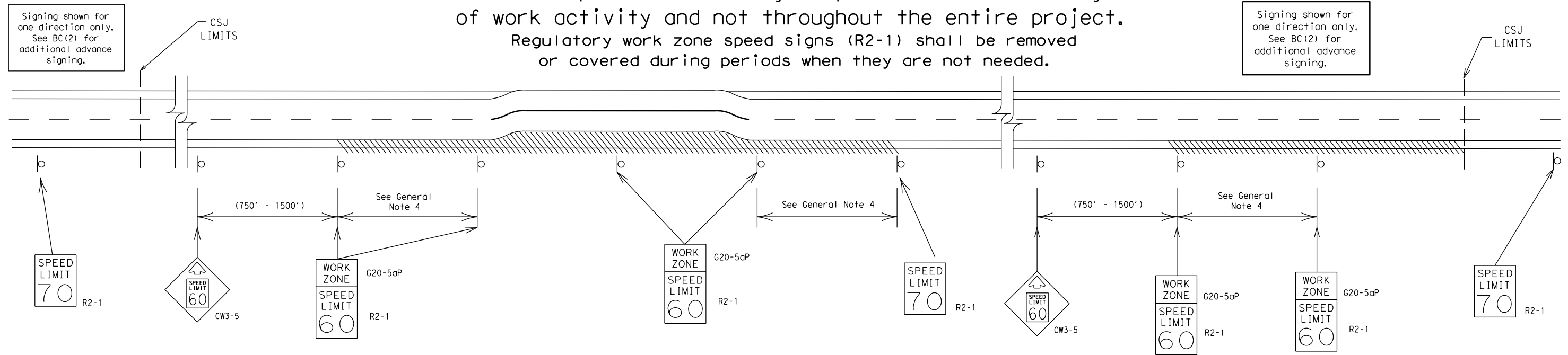
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| © TxDOT November 2002 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| 9-07 8-14 | DIST | COUNTY | SHEET NO. | |
| 7-13 5-21 | YKM | VICTORIA | 13 | |

DATE: 1/18/2024 \$TIME\$ FILE: \$FILES\$

TYPICAL APPLICATION OF WORK ZONE SPEED LIMIT SIGNS

Work zone speed limits shall be regulatory, established in accordance with the "Procedures for Establishing Speed Zones," and approved by the Texas Transportation Commission, or by City Ordinance when within Incorporated City Limits.

Reduced speeds should only be posted in the vicinity of work activity and not throughout the entire project. Regulatory work zone speed signs (R2-1) shall be removed or covered during periods when they are not needed.



GUIDANCE FOR USE:

LONG/INTERMEDIATE TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit should be included on the design of the traffic control plans when restricted geometrics with a lower design speed are present in the work zone and modification of the geometrics to a higher design speed is not feasible.

Long/Intermediate Term Work Zone Speed Limit signs, when approved as described above, should be posted and visible to the motorist when work activity is present. Work activity may also be defined as a change in the roadway that requires a reduced speed for motorists to safely negotiate the work area, including:

- rough road or damaged pavement surface
- substantial alteration of roadway geometrics (diversions)
- construction detours
- grade
- width
- other conditions readily apparent to the driver

As long as any of these conditions exist, the work zone speed limit signs should remain in place.

SHORT TERM WORK ZONE SPEED LIMITS

This type of work zone speed limit may be included on the design of the traffic control plans when workers or equipment are not behind concrete barrier, when work activity is within 10 feet of the traveled way or actually in the traveled way.

Short Term Work Zone Speed Limit signs should be posted and visible to the motorists only when work activity is present. When work activity is not present, signs shall be removed or covered. (See Removing or Covering on BC(4)).

GENERAL NOTES

- Regulatory work zone speed limits should be used only for sections of construction projects where speed control is of major importance.
- Regulatory work zone speed limit signs shall be placed on supports at a 7 foot minimum mounting height.
- Speed zone signs are illustrated for one direction of travel and are normally posted for each direction of travel.
- Frequency of work zone speed limit signs should be:

| | |
|--------------------|----------------|
| 40 mph and greater | 0.2 to 2 miles |
| 35 mph and less | 0.2 to 1 mile |
- Regulatory speed limit signs shall have black legend and border on a white reflective background (See "Reflective Sheeting" on BC(4)).
- Fabrication, erection and maintenance of the "ADVANCE SPEED LIMIT" (CW3-5) sign, "WORK ZONE" (G20-5aP) plaque and the "SPEED LIMIT" (R2-1) signs shall not be paid for directly, but shall be considered subsidiary to Item 502.
- Turning signs from view, laying signs over or down will not be allowed, unless as otherwise noted under "REMOVING OR COVERING" on BC(4).
- Techniques that may help reduce traffic speeds include but are not limited to:
 - Law enforcement.
 - Flagger stationed next to sign.
 - Portable changeable message sign (PCMS).
 - Low-power (drone) radar transmitter.
 - Speed monitor trailers or signs.
- Speeds shown on details above are for illustration only. Work Zone Speed Limits should only be posted as approved for each project.
- For more specific guidance concerning the type of work, work zone conditions and factors impacting allowable regulatory construction speed zone reduction see TxDOT form #1204 in the TxDOT e-form system.

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SHEET 3 OF 12



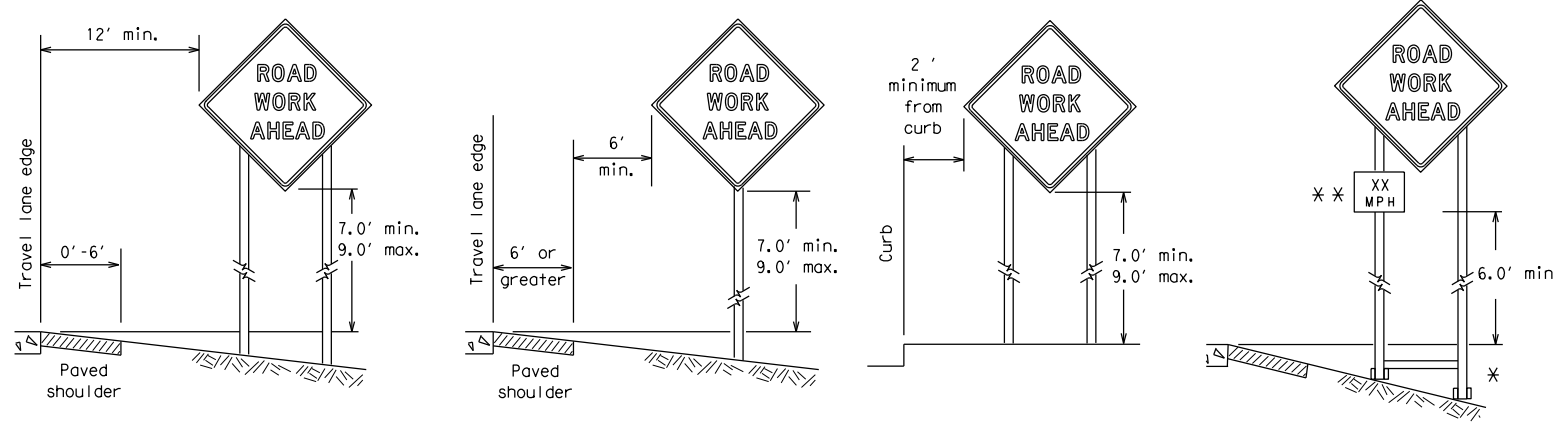
BARRICADE AND CONSTRUCTION WORK ZONE SPEED LIMIT

BC (3) - 21

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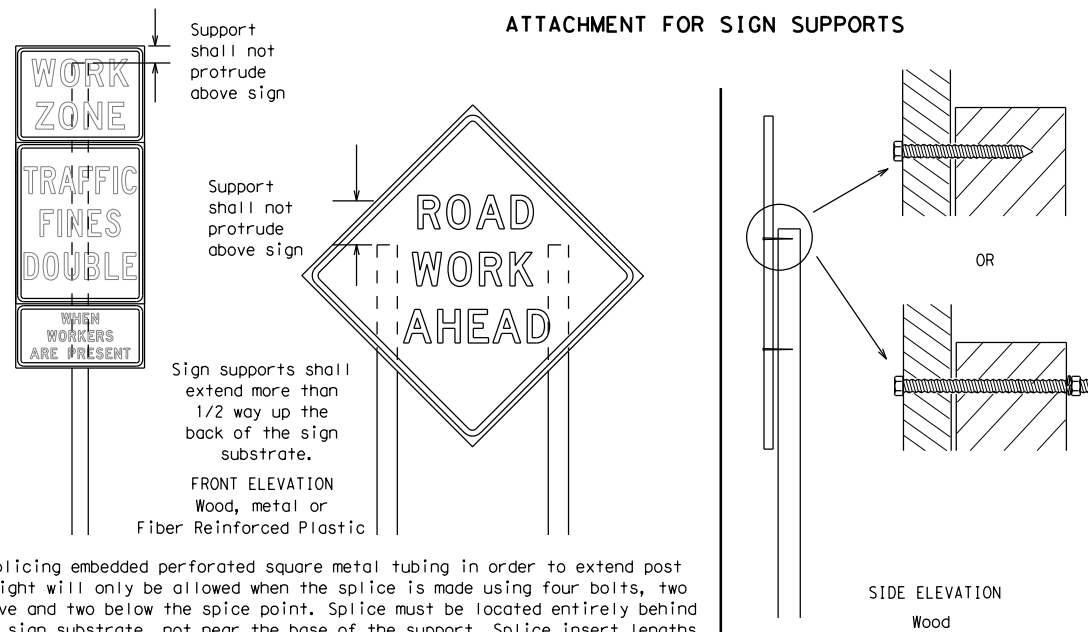
TYPICAL MINIMUM CLEARANCES FOR LONG TERM AND INTERMEDIATE TERM SIGNS



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

** When plaques are placed on dual-leg supports, they should be attached to the upright nearest the travel lane. Supplemental plaques (advisory or distance) should not cover the surface of the parent sign.

ATTACHMENT FOR SIGN SUPPORTS



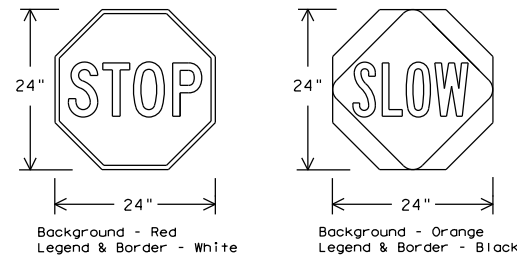
Attachment to wooden supports will be by bolts and nuts or screws. Use TxDOT's or manufacturer's recommended procedures for attaching sign substrates to other types of sign supports

Nails shall NOT be allowed.
Each sign shall be attached directly to the sign support. Multiple signs shall not be joined or spliced by any means. Wood supports shall not be extended or repaired by splicing or other means.

Splicing embedded perforated square metal tubing in order to extend post height will only be allowed when the splice is made using four bolts, two above and two below the splice point. Splice must be located entirely behind the sign substrate, not near the base of the support. Splice insert lengths should be at least 5 times nominal post size, centered on the splice and of at least the same gauge material.

STOP/SLOW PADDLES

1. STOP/SLOW paddles are the primary method to control traffic by flaggers. The STOP/SLOW paddle size should be 24" x 24".
2. STOP/SLOW paddles shall be retroreflective when used at night.
3. STOP/SLOW paddles may be attached to a staff with a minimum length of 6' to the bottom of the sign.
4. Any lights incorporated into the STOP or SLOW paddle faces shall only be as specifically described in Section 6E.03 Hand Signaling Devices in the TMUTCD.



| SHEETING REQUIREMENTS (WHEN USED AT NIGHT) | | |
|--|--------|--|
| USAGE | COLOR | SIGN FACE MATERIAL |
| BACKGROUND | RED | TYPE B OR C SHEETING |
| BACKGROUND | ORANGE | TYPE B _{FL} OR C _{FL} SHEETING |
| LEGEND & BORDER | WHITE | TYPE B OR C SHEETING |
| LEGEND & BORDER | BLACK | ACRYLIC NON-REFLECTIVE FILM |

CONTRACTOR REQUIREMENTS FOR MAINTAINING PERMANENT SIGNS WITHIN THE PROJECT LIMITS

1. Permanent signs are used to give notice of traffic laws or regulations, call attention to conditions that are potentially hazardous to traffic operations, show route designations, destinations, directions, distances, services, points of interest, and other geographical, recreational, specific service (LOGO), or cultural information. Drivers proceeding through a work zone need the same, if not better route guidance as normally installed on a roadway without construction.
2. When permanent regulatory or warning signs conflict with work zone conditions, remove or cover the permanent signs until the permanent sign message matches the roadway condition. For details for covering large guide signs see the TS-CD standard.
3. When existing permanent signs are moved and relocated due to construction purposes, they shall be visible to motorists at all times.
4. If existing signs are to be relocated on their original supports, they shall be installed on crashworthy bases as shown on the SMD Standard sheets. The signs shall meet the required mounting heights shown on the BC Sheets or the SMD Standards. This work should be paid for under the appropriate pay item for relocating existing signs.
5. If permanent signs are to be removed and relocated using temporary supports, the Contractor shall use crashworthy supports as shown on the BC standard sheets, TLRs standard sheets or the CWZTCD list. The signs shall meet the required mounting heights shown on the BC, or the SMD standard sheets during construction. This work should be paid for under the appropriate pay item for relocating existing signs.
6. Any sign or traffic control device that is struck or damaged by the Contractor or his/her construction equipment shall be replaced as soon as possible by the Contractor to ensure proper guidance for the motorists. This will be subsidiary to Item 502.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Contractor shall install and maintain signs in a straight and plumb condition and/or as directed by the Engineer.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. All signs shall be installed in accordance with the plans or as directed by the Engineer. Signs shall be used to regulate, warn, and guide the traveling public safely through the work zone.
5. The Contractor may furnish either the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD). The Engineer/Inspector may require the Contractor to furnish other work zone signs that are shown in the TMUTCD but may have been omitted from the plans. Any variation in the plans shall be documented by written agreement between the Engineer and the Contractor's Responsible Person. All changes must be documented in writing before being implemented. This can include documenting the changes in the Inspector's TxDOT diary and having both the Inspector and Contractor initial and date the agreed upon changes.
6. The Contractor shall furnish sign supports listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD) for small roadside signs. Supports for temporary large roadside signs shall meet the requirements detailed on the Temporary Large Roadside Signs (TLRS) standard sheets. The Contractor shall install the sign support in accordance with the manufacturer's recommendations. If there is a question regarding installation procedures, the Contractor shall furnish the Engineer a copy of the manufacturer's installation recommendations so the Engineer can verify the correct procedures are being followed.
7. The Contractor is responsible for installing signs on approved supports and replacing signs with damaged or cracked substrates and/or damaged or marred reflective sheeting as directed by the Engineer/Inspector.
8. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1 inch.
9. The Contractor shall replace damaged wood posts. New or damaged wood sign posts shall not be spliced.

DURATION OF WORK (as defined by the "Texas Manual on Uniform Traffic Control Devices" Part 6)

1. The types of sign supports, sign mounting height, the size of signs, and the type of sign substrates can vary based on the type of work being performed. The Engineer is responsible for selecting the appropriate size sign for the type of work being performed. The Contractor is responsible for ensuring the sign support, sign mounting height and substrate meets manufacturer's recommendations in regard to crashworthiness and duration of work requirements.
 - a. Long-term stationary - work that occupies a location more than 3 days.
 - b. Intermediate-term stationary - work that occupies a location more than one daylight period up to 3 days, or nighttime work lasting more than one hour.
 - c. Short-term stationary - daytime work that occupies a location for more than 1 hour in a single daylight period.
 - d. Short, duration - work that occupies a location up to 1 hour.
 - e. Mobile - work that moves continuously or intermittently (stopping for up to approximately 15 minutes.)

SIGN MOUNTING HEIGHT

1. The bottom of Long-term/Intermediate-term signs shall be at least 7 feet, but not more than 9 feet, above the paved surface, except as shown for supplemental plaques mounted below other signs.
2. The bottom of Short-term/Short Duration signs shall be a minimum of 1 foot above the pavement surface but no more than 2 feet above the ground.
3. Long-term/Intermediate-term Signs may be used in lieu of Short-term/Short Duration signing.
4. Short-term/Short Duration signs shall be used only during daylight and shall be removed at the end of the workday or raised to appropriate Long-term/Intermediate sign height.
5. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

SIZE OF SIGNS

1. The Contractor shall furnish the sign sizes shown on BC (2) unless otherwise shown in the plans or as directed by the Engineer.

SIGN SUBSTRATES

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

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the color and retro-reflectivity requirements of DMS-8300 for rigid signs or DMS-8310 for roll-up signs. The web address for DMS specifications is shown on BC(1).
2. White sheeting, meeting the requirements of DMS-8300 Type A, shall be used for signs with a white background.
3. Orange sheeting, meeting the requirements of DMS-8300 Type B_{FL} or Type C_{FL}, shall be used for rigid signs with orange backgrounds.

SIGN LETTERS

1. All sign letters and numbers shall be clear, and open rounded type uppercase alphabet letters as approved by the Federal Highway Administration (FHWA) and as published in the "Standard Highway Sign Design for Texas" manual. Signs, letters and numbers shall be of first class workmanship in accordance with Department Standards and Specifications.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered.
2. Long-term stationary or intermediate stationary signs installed on square metal tubing may be turned away from traffic 90 degrees when the sign message is not applicable. This technique may not be used for signs installed in the median of divided highways or near any intersections where the sign may be seen from approaching traffic.
3. Signs installed on wooden skids shall not be turned at 90 degree angles to the roadway. These signs should be removed or completely covered when not required.
4. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night, without damaging the sign sheeting.
5. Burlap shall NOT be used to cover signs.
6. Duct tape or other adhesive material shall NOT be affixed to a sign face.
7. Signs and anchor stubs shall be removed and holes backfilled upon completion of work.

SIGN SUPPORT WEIGHTS

1. Where sign supports require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand should be used.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects shall not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall NOT be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

FLAGS ON SIGNS

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

SHEET 4 OF 12



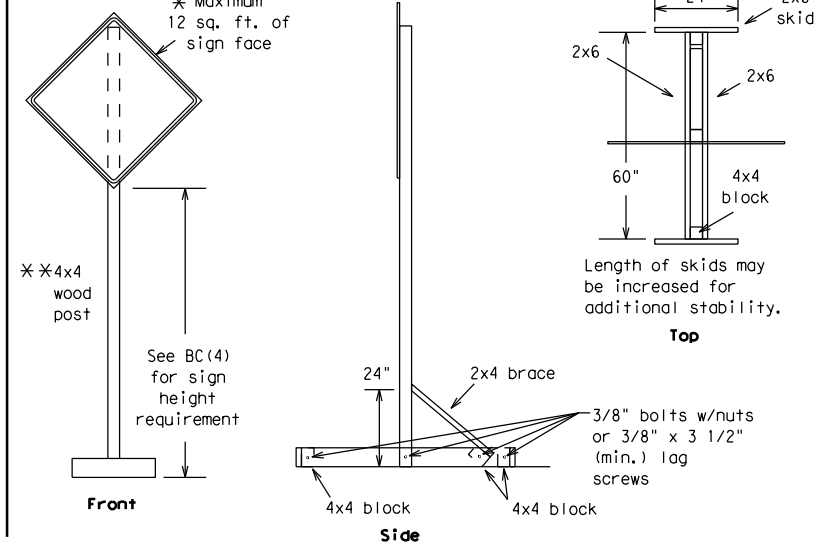
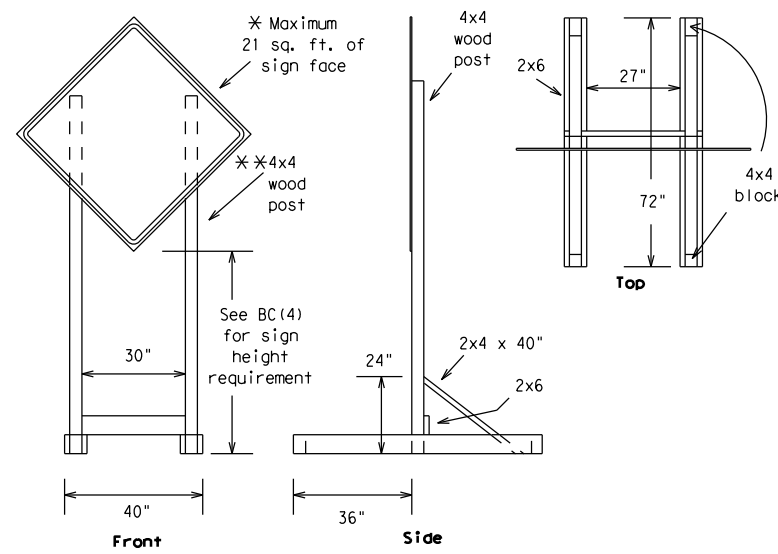
BARRICADE AND CONSTRUCTION TEMPORARY SIGN NOTES

BC (4) - 21

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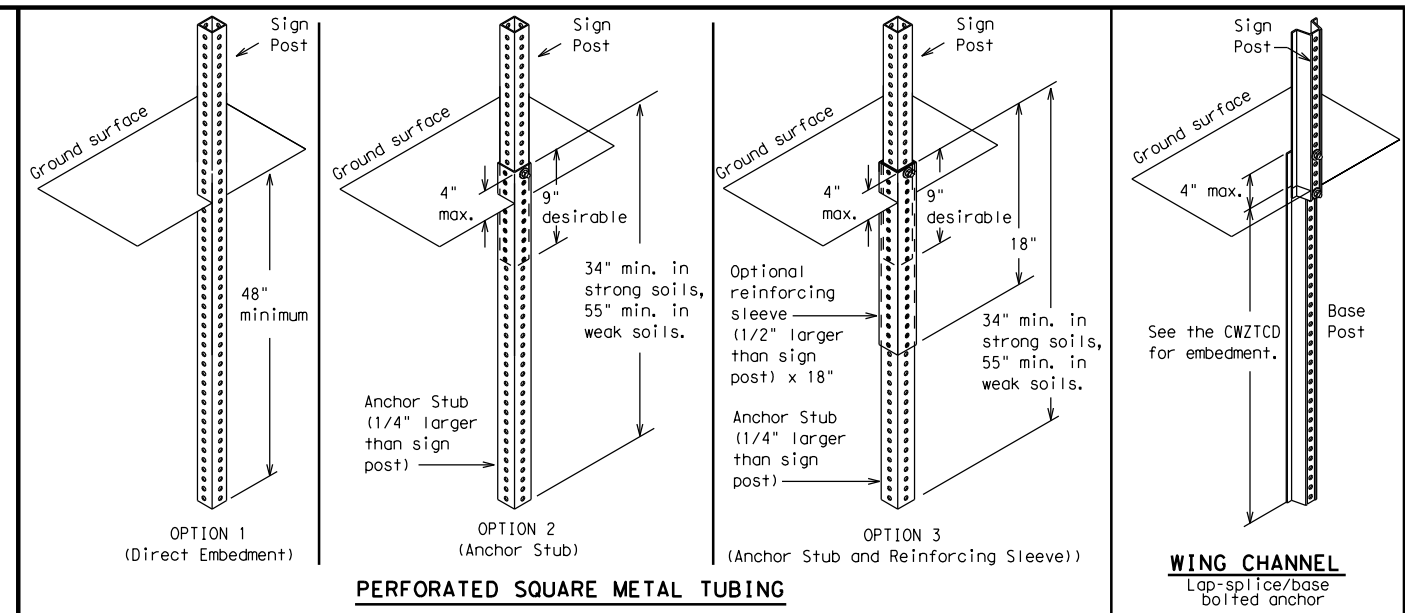
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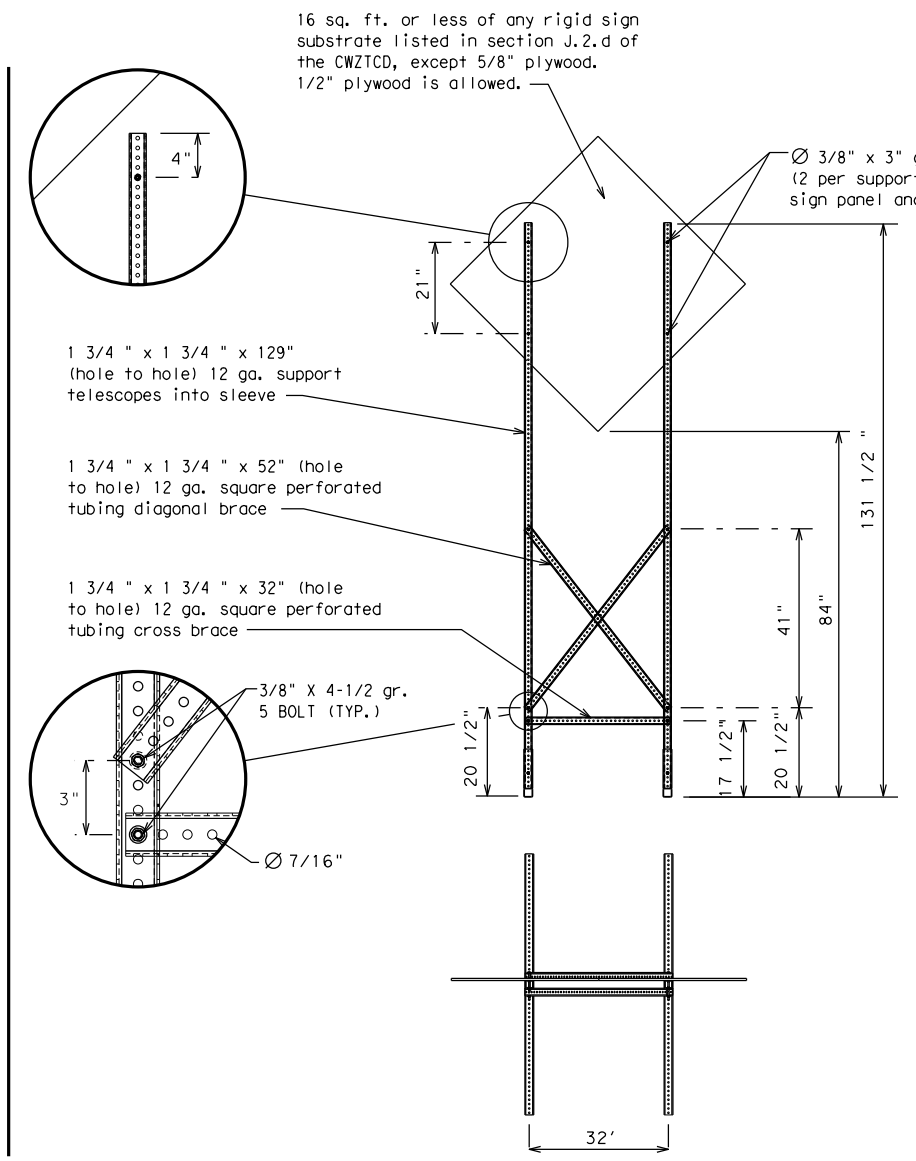
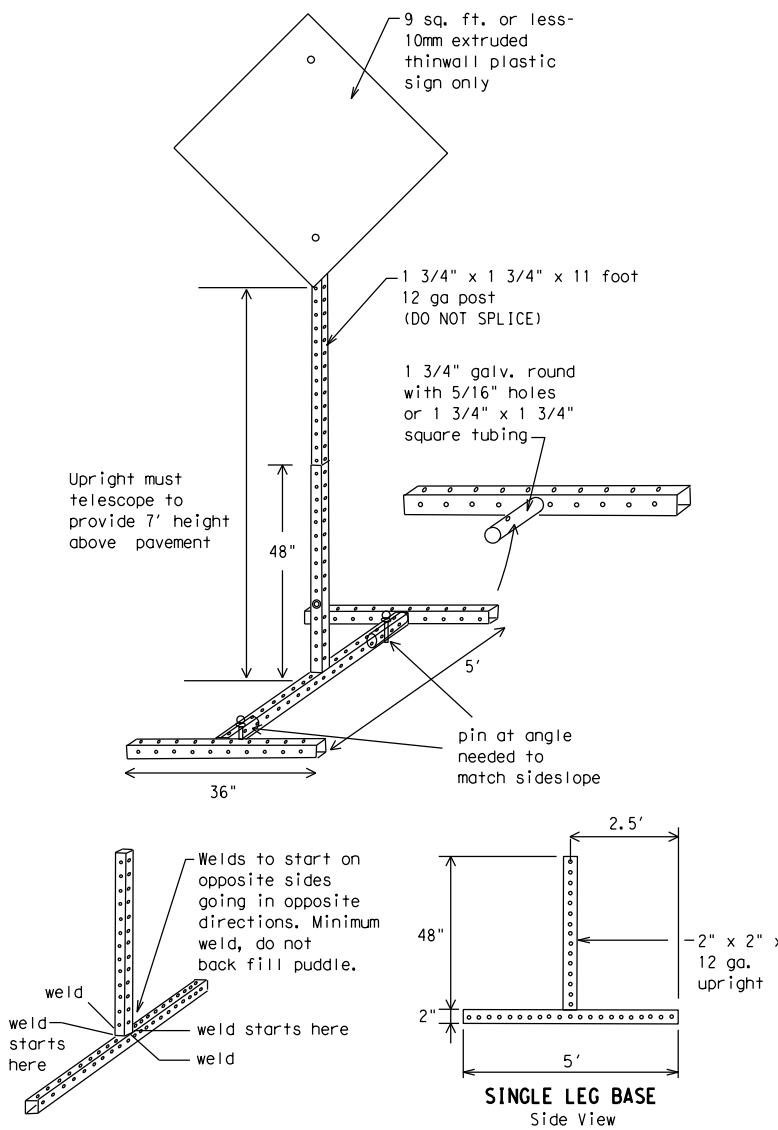
SKID MOUNTED WOOD SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS



GROUND MOUNTED SIGN SUPPORTS

Refer to the CWZTCD and the manufacturer's installation procedure for each type sign support. The maximum sign square footage shall adhere to the manufacturer's recommendation. Two post installations can be used for larger signs.



SKID MOUNTED PERFORATED SQUARE STEEL TUBING SIGN SUPPORTS

* LONG/INTERMEDIATE TERM STATIONARY - PORTABLE SKID MOUNTED SIGN SUPPORTS

WEDGE ANCHORS

Both steel and plastic Wedge Anchor Systems as shown on the SMD Standard Sheets may be used as temporary sign supports for signs up to 10 square feet of sign face. They may be set in concrete or in sturdy soils if approved by the Engineer. (See web address for "Traffic Engineering Standard Sheets" on BC(1)).

OTHER DESIGNS

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

- ### GENERAL NOTES
- Nails may be used in the assembly of wooden sign supports, but 3/8" bolts with nuts or 3/8" x 3 1/2" lag screws must be used on every joint for final connection.
 - No more than 2 sign posts shall be placed within a 7 ft. circle, except for specific materials noted on the CWZTCD List.
 - When project is completed, all sign supports and foundations shall be removed from the project site. This will be considered subsidiary to Item 502.
- * See BC(4) for definition of "Work Duration."
 - ** Wood sign posts MUST be one piece. Splicing will NOT be allowed. Posts shall be painted white.
 - See the CWZTCD for the type of sign substrate that can be used for each approved sign support.

SHEET 5 OF 12



BARRICADE AND CONSTRUCTION TYPICAL SIGN SUPPORT

BC(5) - 21

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WHEN NOT IN USE, REMOVE THE PCMS FROM THE RIGHT-OF-WAY OR PLACE THE PCMS BEHIND BARRIER OR GUARDRAIL WITH SIGN PANEL TURNED PARALLEL TO TRAFFIC

RECOMMENDED PHASES AND FORMATS FOR PCMS MESSAGES DURING ROADWORK ACTIVITIES

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

PORTABLE CHANGEABLE MESSAGE SIGNS

- The Engineer/Inspector shall approve all messages used on portable changeable message signs (PCMS).
- Messages on PCMS should contain no more than 8 words (about four to eight characters per word), not including simple words such as "TO," "FOR," "AT," etc.
- Messages should consist of a single phase, or two phases that alternate. Three-phase messages are not allowed. Each phase of the message should convey a single thought, and must be understood by itself.
- Use the word "EXIT" to refer to an exit ramp on a freeway; i.e., "EXIT CLOSED." Do not use the term "RAMP."
- Always use the route or interstate designation (IH, US, SH, FM) along with the number when referring to a roadway.
- When in use, the bottom of a stationary PCMS message panel should be a minimum 7 feet above the roadway, where possible.
- The message term "WEEKEND" should be used only if the work is to start on Saturday morning and end by Sunday evening at midnight. Actual days and hours of work should be displayed on the PCMS if work is to begin on Friday evening and/or continue into Monday morning.
- The Engineer/Inspector may select one of two options which are available for displaying a two-phase message on a PCMS. Each phase may be displayed for either four seconds each or for three seconds each.
- Do not "flash" messages or words included in a message. The message should be steady burn or continuous while displayed.
- Do not present redundant information on a two-phase message; i.e., keeping two lines of the message the same and changing the third line.
- Do not use the word "Danger" in message.
- Do not display the message "LANES SHIFT LEFT" or "LANES SHIFT RIGHT" on a PCMS. Drivers do not understand the message.
- Do not display messages that scroll horizontally or vertically across the face of the sign.
- The following table lists abbreviated words and two-word phrases that are acceptable for use on a PCMS. Both words in a phrase must be displayed together. Words or phrases not on this list should not be abbreviated, unless shown in the TMUTCD.
- PCMS character height should be at least 18 inches for trailer mounted units. They should be visible from at least 1/2 (.5) mile and the text should be legible from at least 600 feet at night and 800 feet in daylight. Truck mounted units must have a character height of 10 inches and must be legible from at least 400 feet.
- Each line of text should be centered on the message board rather than left or right justified.
- If disabled, the PCMS should default to an illegible display that will not alarm motorists and will only be used to alert workers that the PCMS has malfunctioned. A pattern such as a series of horizontal solid bars is appropriate.

Phase 1: Condition Lists

Road/Lane/Ramp Closure List

| | |
|-----------------------|--------------------------|
| FREEWAY CLOSED X MILE | FRONTAGE ROAD CLOSED |
| ROAD CLOSED AT SH XXX | SHOULDER CLOSED XXX FT |
| ROAD CLSD AT FM XXXX | RIGHT LN CLOSED XXX FT |
| RIGHT X LANES CLOSED | RIGHT X LANES OPEN |
| CENTER LANE CLOSED | DAYTIME LANE CLOSURES |
| NIGHT LANE CLOSURES | I-XX SOUTH EXIT CLOSED |
| VARIOUS LANES CLOSED | EXIT XXX CLOSED X MILE |
| EXIT CLOSED | RIGHT LN TO BE CLOSED |
| MALL DRIVEWAY CLOSED | X LANES CLOSED TUE - FRI |
| XXXXXXXX BLVD CLOSED | |

Other Condition List

| | |
|--------------------------|-------------------------|
| ROADWORK XXX FT | ROAD REPAIRS XXXX FT |
| FLAGGER XXXX FT | LANE NARROWS XXXX FT |
| RIGHT LN NARROWS XXXX FT | TWO-WAY TRAFFIC XX MILE |
| MERGING TRAFFIC XXXX FT | CONST TRAFFIC XXX FT |
| LOOSE GRAVEL XXXX FT | UNEVEN LANES XXXX FT |
| DETOUR X MILE | ROUGH ROAD XXXX FT |
| ROADWORK PAST SH XXXX | ROADWORK NEXT FRI-SUN |
| BUMP XXXX FT | US XXX EXIT X MILES |
| TRAFFIC SIGNAL XXXX FT | LANES SHIFT * |

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

Phase 2: Possible Component Lists

Action to Take/Effect on Travel List

| | |
|----------------------|----------------------|
| MERGE RIGHT | FORM X LINES RIGHT |
| DETOUR NEXT X EXITS | USE XXXXX RD EXIT |
| USE EXIT XXX | USE EXIT I-XX NORTH |
| STAY ON US XXX SOUTH | USE I-XX E TO I-XX N |
| TRUCKS USE US XXX N | WATCH FOR TRUCKS |
| WATCH FOR TRUCKS | EXPECT DELAYS |
| EXPECT DELAYS | PREPARE TO STOP |
| REDUCE SPEED XXX FT | END SHOULDER USE |
| USE OTHER ROUTES | WATCH FOR WORKERS |
| STAY IN LANE * | |

Location List

| |
|--------------------------|
| AT FM XXXX |
| BEFORE RAILROAD CROSSING |
| NEXT X MILES |
| PAST US XXX EXIT |
| XXXXXXXX TO XXXXXXX |
| US XXX TO FM XXXX |

Warning List

| |
|-----------------------|
| SPEED LIMIT XX MPH |
| MAXIMUM SPEED XX MPH |
| MINIMUM SPEED XX MPH |
| ADVISORY SPEED XX MPH |
| RIGHT LANE EXIT |
| USE CAUTION |
| DRIVE SAFELY |
| DRIVE WITH CARE |

** Advance Notice List

| |
|-----------------------|
| TUE-FRI XX AM-X PM |
| APR XX-XX X PM-X AM |
| BEGINS MONDAY |
| BEGINS MAY XX |
| MAY X-X XX PM - XX AM |
| NEXT FRI-SUN |
| XX AM TO XX PM |
| NEXT TUE AUG XX |
| TONIGHT XX PM-XX AM |

** See Application Guidelines Note 6.

APPLICATION GUIDELINES

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

WORDING ALTERNATIVES

- The words RIGHT, LEFT and ALL can be interchanged as appropriate.
- Roadway designations IH, US, SH, FM and LP can be interchanged as appropriate.
- EAST, WEST, NORTH and SOUTH (or abbreviations E, W, N and S) can be interchanged as appropriate.
- Highway names and numbers replaced as appropriate.
- ROAD, HIGHWAY and FREEWAY can be interchanged as needed.
- AHEAD may be used instead of distances if necessary.
- FT and MI, MILE and MILES interchanged as appropriate.
- AT, BEFORE and PAST interchanged as needed.
- Distances or AHEAD can be eliminated from the message if a location phase is used.

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

FULL MATRIX PCMS SIGNS

- When Full Matrix PCMS signs are used, the character height and legibility/visibility requirements shall be maintained as listed in Note 15 under "PORTABLE CHANGEABLE MESSAGE SIGNS" above.
- When symbol signs, such as the "Flagger Symbol" (CW20-7) are represented graphically on the Full Matrix PCMS sign and, with the approval of the Engineer, it shall maintain the legibility/visibility requirement listed above.
- When symbol signs are represented graphically on the Full Matrix PCMS, they shall only supplement the use of the static sign represented, and shall not substitute for, or replace that sign.
- A full matrix PCMS may be used to simulate a flashing arrow board provided it meets the visibility, flash rate and dimming requirements on BC(7), for the same size arrow.

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| WORD OR PHRASE | ABBREVIATION | WORD OR PHRASE | ABBREVIATION |
|------------------------|--------------|----------------|--------------|
| Access Road | ACCS RD | Major | MAJ |
| Alternate | ALT | Miles | MI |
| Avenue | AVE | Miles Per Hour | MPH |
| Best Route | BEST RTE | Minor | MNR |
| Boulevard | BLVD | Monday | MON |
| Bridge | BRDG | Normal | NORM |
| Cannot | CANT | North | N |
| Center | CTR | Northbound | (route) N |
| Construction Ahead | CONST AHD | Parking | PKING |
| CROSSING | XING | Road | RD |
| Detour Route | DETOUR RTE | Right Lane | RT LN |
| Do Not | DONT | Saturday | SAT |
| East | E | Service Road | SERV RD |
| Eastbound | (route) E | Shoulder | SHLDR |
| Emergency | EMER | Slippery | SLIP |
| Emergency Vehicle | EMER VEH | South | S |
| Entrance, Enter | ENT | Southbound | (route) S |
| Express Lane | EXP LN | Speed | SPD |
| Expressway | EXPWY | Street | ST |
| XXXX Feet | XXXX FT | Sunday | SUN |
| Fog Ahead | FOG AHD | Telephone | PHONE |
| Freeway | FRWY, FWY | Temporary | TEMP |
| Freeway Blocked | FWY BLKD | Thursday | THURS |
| Friday | FRI | To Downtown | TO DWNTN |
| Hazardous Driving | HAZ DRIVING | Traffic | TRAF |
| Hazardous Material | HAZMAT | Travelers | TRVLRS |
| High-Occupancy Vehicle | HOV | Tuesday | TUES |
| Highway | Hwy | Time Minutes | TIME MIN |
| Hour(s) | HR, HRS | Upper Level | UPR LEVEL |
| Information | INFO | Vehicles (s) | VEH, VEHS |
| It Is | ITS | Warning | WARN |
| Junction | JCT | Wednesday | WED |
| Left | LFT | Weight Limit | WT LIMIT |
| Left Lane | LFT LN | West | W |
| Lane Closed | LN CLOSED | Westbound | (route) W |
| Lower Level | LWR LEVEL | Wet Pavement | WET PVMT |
| Maintenance | MAINT | Will Not | WONT |

Roadway designation # IH-number, US-number, SH-number, FM-number

DATE: 1/18/2024 \$TIME\$ FILE: \$FILES\$



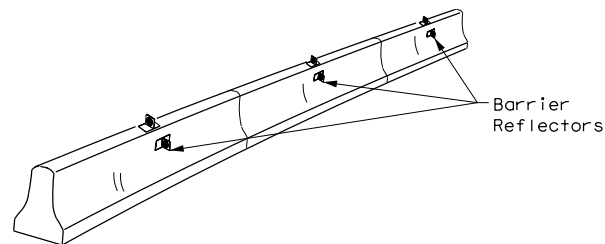
BARRICADE AND CONSTRUCTION PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)

BC (6) - 21

| | | | | | | | | | |
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| 7-13 | 5-21 | YKM | VICTORIA | 17 | | | | | |

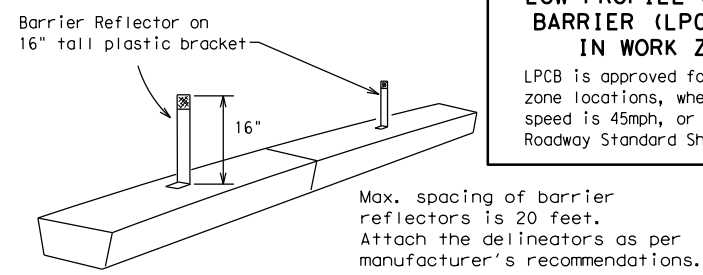
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- Barrier Reflectors shall be pre-qualified, and conform to the color and reflectivity requirements of DMS-8600. A list of prequalified Barrier Reflectors can be found at the Material Producer List web address shown on BC(1).
- Color of Barrier Reflectors shall be as specified in the TMUTCD. The cost of the reflectors shall be considered subsidiary to Item 512.



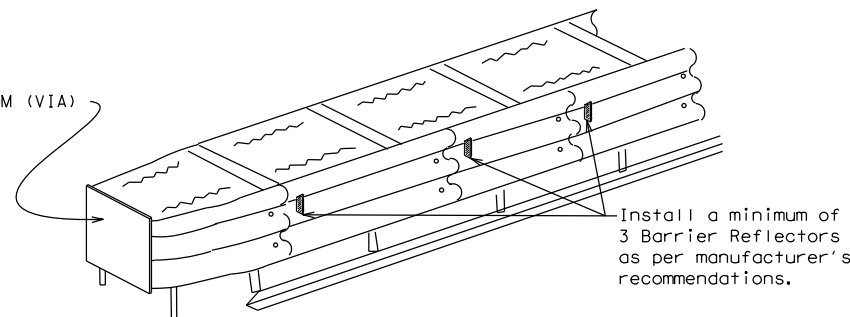
CONCRETE TRAFFIC BARRIER (CTB)

- Where traffic is on one side of the CTB, two (2) Barrier Reflectors shall be mounted in approximately the midsection of each section of CTB. An alternate mounting location is uniformly spaced at one end of each CTB. This will allow for attachment of a barrier grapple without damaging the reflector. The Barrier Reflector mounted on the side of the CTB shall be located directly below the reflector mounted on top of the barrier, as shown in the detail above.
- Where CTB separates two-way traffic, three barrier reflectors shall be mounted on each section of CTB. The reflector unit on top shall have two yellow reflective faces (Bi-Directional) while the reflectors on each side of the barrier shall have one yellow reflective face, as shown in the detail above.
- When CTB separates traffic traveling in the same direction, no barrier reflectors will be required on top of the CTB.
- Barrier Reflector units shall be yellow or white in color to match the edgeline being supplemented.
- Maximum spacing of Barrier Reflectors is forty (40) feet.
- Pavement markers or temporary flexible-reflective roadway marker tabs shall NOT be used as CTB delineation.
- Attachment of Barrier Reflectors to CTB shall be per manufacturer's recommendations.
- Missing or damaged Barrier Reflectors shall be replaced as directed by the Engineer.
- Single slope barriers shall be delineated as shown on the above detail.



LOW PROFILE CONCRETE BARRIER (LPCB) USED IN WORK ZONES
LPCB is approved for use in work zone locations, where the posted speed is 45mph, or less. See Roadway Standard Sheet LPCB.

LOW PROFILE CONCRETE BARRIER (LPCB)



DELINEATION OF END TREATMENTS

END TREATMENTS FOR CTB'S USED IN WORK ZONES
End treatments used on CTB's in work zones shall meet the appropriate crashworthy standards as defined in the Manual for Assessing Safety Hardware (MASH). Refer to the CWZTCD List for approved end treatments and manufacturers.

BARRIER REFLECTORS FOR CONCRETE TRAFFIC BARRIER AND ATTENUATORS

WARNING LIGHTS

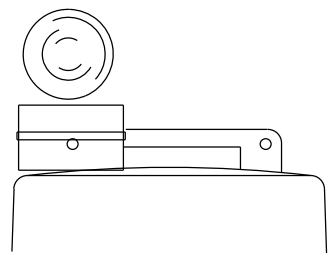
- Warning lights shall meet the requirements of the TMUTCD.
- Warning lights shall NOT be installed on barricades.
- Type A-Low Intensity Flashing Warning Lights are commonly used with drums. They are intended to warn of or mark a potentially hazardous area. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "FL". The Type A Warning Lights shall not be used with signs manufactured with Type B_{FL} or C_{FL} Sheeting meeting the requirements of Departmental Material Specification DMS-8300.
- Type-C and Type D 360 degree Steady Burn Lights are intended to be used in a series for delineation to supplement other traffic control devices. Their use shall be as indicated on this sheet and/or other sheets of the plans by the designation "SB".
- The Engineer/Inspector or the plans shall specify the location and type of warning lights to be installed on the traffic control devices.
- When required by the Engineer, the Contractor shall furnish a copy of the warning lights certification. The warning light manufacturer will certify the warning lights meet the requirements of the latest ITE Purchase Specifications for Flashing and Steady-Burn Warning Lights.
- When used to delineate curves, Type-C and Type D Steady Burn Lights should only be placed on the outside of the curve, not the inside.
- The location of warning lights and warning reflectors on drums shall be as shown elsewhere in the plans.

WARNING LIGHTS MOUNTED ON PLASTIC DRUMS

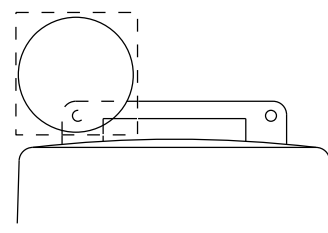
- Type A flashing warning lights are intended to warn drivers that they are approaching or are in a potentially hazardous area.
- Type A random flashing warning lights are not intended for delineation and shall not be used in a series.
- A series of sequential flashing warning lights placed on channelizing devices to form a merging taper may be used for delineation. If used, the successive flashing of the sequential warning lights should occur from the beginning of the taper to the end of the merging taper in order to identify the desired vehicle path. The rate of flashing for each light shall be 65 flashes per minute, plus or minus 10 flashes.
- Type C and D steady-burn warning lights are intended to be used in a series to delineate the edge of the travel lane on detours, on lane changes, on lane closures, and on other similar conditions.
- Type A, Type C and Type D warning lights shall be installed at locations as detailed on other sheets in the plans.
- Warning lights shall not be installed on a drum that has a sign, chevron or vertical panel.
- The maximum spacing for warning lights on drums should be identical to the channelizing device spacing.

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

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



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

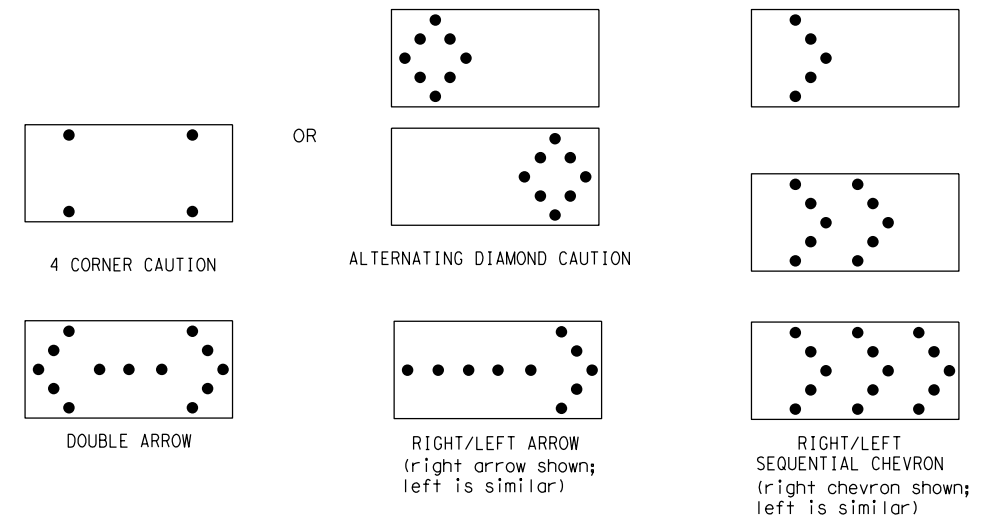


Warning reflector may be round or square. Must have a yellow reflective surface area of at least 30 square inches

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Arrow Boards may be located behind channelizing devices in place for a shoulder taper or merging taper, otherwise they shall be delineated with four (4) channelizing devices placed perpendicular to traffic on the upstream side of traffic.

- The Flashing Arrow Board should be used for all lane closures on multi-lane roadways, or slow moving maintenance or construction activities on the travel lanes.
- Flashing Arrow Boards should not be used on two-lane, two-way roadways, detours, diversions or work on shoulders unless the "CAUTION" display (see detail below) is used.
- The Engineer/Inspector shall choose all appropriate signs, barricades and/or other traffic control devices that should be used in conjunction with the Flashing Arrow Board.
- The Flashing Arrow Board should be able to display the following symbols:



- The "CAUTION" display consists of four corner lamps flashing simultaneously, or the Alternating Diamond Caution mode as shown.
- The straight line caution display is NOT ALLOWED.
- The Flashing Arrow Board shall be capable of minimum 50 percent dimming from rated lamp voltage. The flashing rate of the lamps shall not be less than 25 nor more than 40 flashes per minute.
- Minimum lamp "on time" shall be approximately 50 percent for the flashing arrow and equal intervals of 25 percent for each sequential phase of the flashing chevron.
- The sequential arrow display is NOT ALLOWED.
- The flashing arrow display is the TxDOT standard; however, the sequential chevron display may be used during daylight operations.
- The Flashing Arrow Board shall be mounted on a vehicle, trailer or other suitable support.
- A Flashing Arrow Board SHALL NOT BE USED to laterally shift traffic.
- A full matrix PCMS may be used to simulate a Flashing Arrow Board provided it meets visibility, flash rate and dimming requirements on this sheet for the same size arrow.
- Minimum mounting height of trailer mounted Arrow Boards should be 7 feet from roadway to bottom of panel.

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

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

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

FLASHING ARROW BOARDS

SHEET 7 OF 12

TRUCK-MOUNTED ATTENUATORS

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



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

BC (7) -21

| | | | | | | | | | |
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| FILE: | bc-21.dgn | DN: | TxDOT | CR: | TxDOT | OW: | TxDOT | CK: | TxDOT |
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GENERAL NOTES

- For long term stationary work zones on freeways, drums shall be used as the primary channelizing device.
- For intermediate term stationary work zones on freeways, drums should be used as the primary channelizing device but may be replaced in tangent sections by vertical panels, or 42" two-piece cones. In tangent sections, one-piece cones may be used with the approval of the Engineer but only if personnel are present on the project at all times to maintain the cones in proper position and location.
- For short term stationary work zones on freeways, drums are the preferred channelizing device but may be replaced in tapers, transitions and tangent sections by vertical panels, two-piece cones or one-piece cones as approved by the Engineer.
- Drums and all related items shall comply with the requirements of the current version of the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and the "Compliant Work Zone Traffic Control Devices List" (CWZTCD).
- Drums, bases, and related materials shall exhibit good workmanship and shall be free from objectionable marks or defects that would adversely affect their appearance or serviceability.
- The Contractor shall have a maximum of 24 hours to replace any plastic drums identified for replacement by the Engineer/Inspector. The replacement device must be an approved device.

GENERAL DESIGN REQUIREMENTS

Pre-qualified plastic drums shall meet the following requirements:

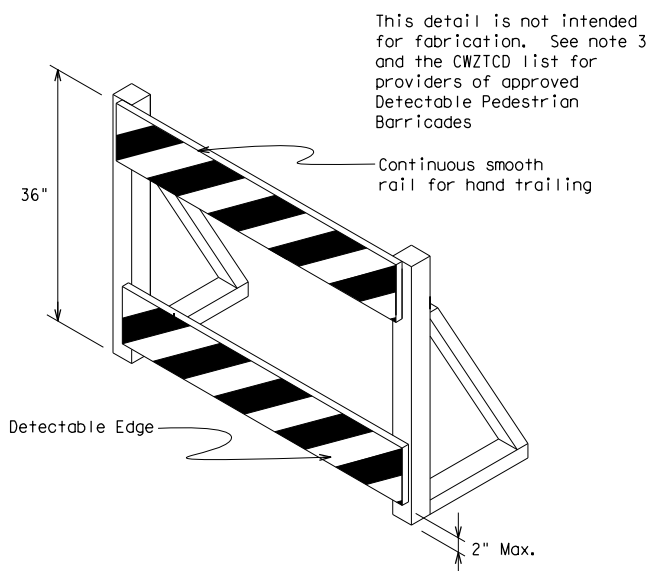
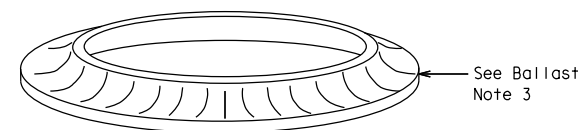
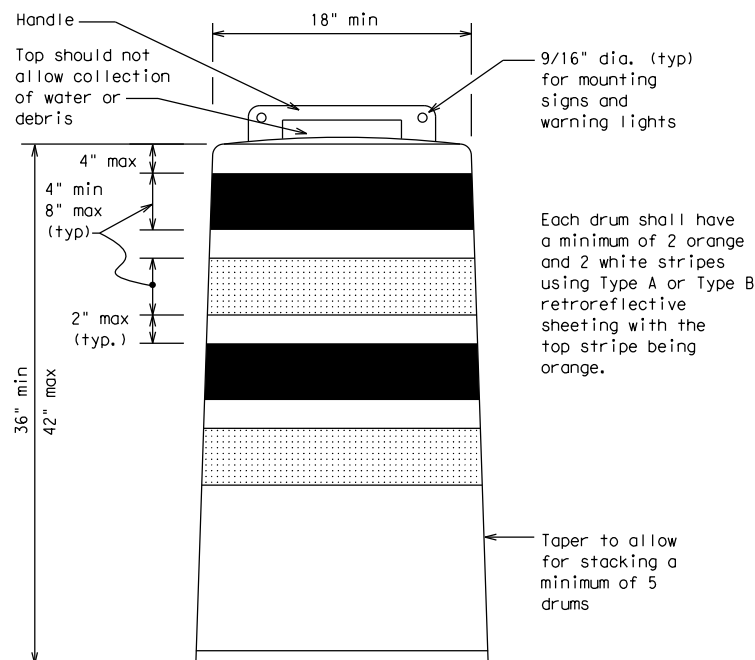
- Plastic drums shall be a two-piece design; the "body" of the drum shall be the top portion and the "base" shall be the bottom.
- The body and base shall lock together in such a manner that the body separates from the base when impacted by a vehicle traveling at a speed of 20 MPH or greater but prevents accidental separation due to normal handling and/or air turbulence created by passing vehicles.
- Plastic drums shall be constructed of lightweight flexible, and deformable materials. The Contractor shall NOT use metal drums or single piece plastic drums as channelization devices or sign supports.
- Drums shall present a profile that is a minimum of 18 inches in width at the 36 inch height when viewed from any direction. The height of drum unit (body installed on base) shall be a minimum of 36 inches and a maximum of 42 inches.
- The top of the drum shall have a built-in handle for easy pickup and shall be designed to drain water and not collect debris. The handle shall have a minimum of two widely spaced 9/16 inch diameter holes to allow attachment of a warning light, warning reflector unit or approved compliant sign.
- The exterior of the drum body shall have a minimum of four alternating orange and white retroreflective circumferential stripes not less than 4 inches nor greater than 8 inches in width. Any non-reflectORIZED space between any two adjacent stripes shall not exceed 2 inches in width.
- Bases shall have a maximum width of 36 inches, a maximum height of 4 inches, and a minimum of two footholds of sufficient size to allow base to be held down while separating the drum body from the base.
- Plastic drums shall be constructed of ultra-violet stabilized, orange, high-density polyethylene (HDPE) or other approved material.
- Drum body shall have a maximum unballasted weight of 11 lbs.
- Drum and base shall be marked with manufacturer's name and model number.

RETROREFLECTIVE SHEETING

- The stripes used on drums shall be constructed of sheeting meeting the color and retroreflectivity requirements of Departmental Materials Specification DMS-8300, "Sign Face Materials." Type A or Type B reflective sheeting shall be supplied unless otherwise specified in the plans.
- The sheeting shall be suitable for use on and shall adhere to the drum surface such that, upon vehicular impact, the sheeting shall remain adhered in-place and exhibit no delaminating, cracking, or loss of retroreflectivity other than that loss due to abrasion of the sheeting surface.

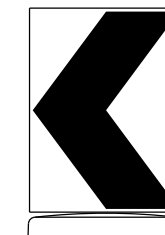
BALLAST

- Unballasted bases shall be large enough to hold up to 50 lbs. of sand. This base, when filled with the ballast material, should weigh between 35 lbs (minimum) and 50 lbs (maximum). The ballast may be sand in one to three sandbags separate from the base, sand in a sand-filled plastic base, or other ballasting devices as approved by the Engineer. Stacking of sandbags will be allowed, however height of sandbags above pavement surface may not exceed 12 inches.
- Bases with built-in ballast shall weigh between 40 lbs. and 50 lbs. Built-in ballast can be constructed of an integral crumb rubber base or a solid rubber base.
- Recycled truck tire sidewalls may be used for ballast on drums approved for this type of ballast on the CWZTCD list.
- The ballast shall not be heavy objects, water, or any material that would become hazardous to motorists, pedestrians, or workers when the drum is struck by a vehicle.
- When used in regions susceptible to freezing, drums shall have drainage holes in the bottoms so that water will not collect and freeze becoming a hazard when struck by a vehicle.
- Ballast shall not be placed on top of drums.
- Adhesives may be used to secure base of drums to pavement.

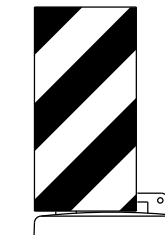


DETECTABLE PEDESTRIAN BARRICADES

- When existing pedestrian facilities are disrupted, closed, or relocated in a TTC zone, the temporary facilities shall be detectable and include accessibility features consistent with the features present in the existing pedestrian facility. Refer to WZ(BTS-2) for Pedestrian Control requirements for Sidewalk Diversions, Sidewalk Detours and Crosswalk Closures.
- Where pedestrians with visual disabilities normally use the closed sidewalk, a Detectable Pedestrian Barricade shall be placed across the full width of the closed sidewalk instead of a Type 3 Barricade.
- Detectable pedestrian barricades similar to the one pictured above, longitudinal channelizing devices, some concrete barriers, and wood or chain link fencing with a continuous detectable edging can satisfactorily delineate a pedestrian path.
- Tape, rope, or plastic chain strung between devices are not detectable, do not comply with the design standards in the "Americans with Disabilities Act Accessibility Guidelines (ADAAG)" and should not be used as a control for pedestrian movements.
- Warning lights shall not be attached to detectable pedestrian barricades.
- Detectable pedestrian barricades should use 8" nominal barricade rails as shown on BC(10) provided that the top rail provides a smooth continuous rail suitable for hand trailing with no splinters, burrs, or sharp edges.



18" x 24" Sign
(Maximum Sign Dimension)
Chevron CW1-8, Opposing Traffic Lane Divider, Driveway sign D70a, Keep Right R4 series or other signs as approved by Engineer



12" x 24" Vertical Panel
mount with diagonals sloping down towards travel way

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

SIGNS, CHEVRONS, AND VERTICAL PANELS MOUNTED ON PLASTIC DRUMS

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

SHEET 8 OF 12

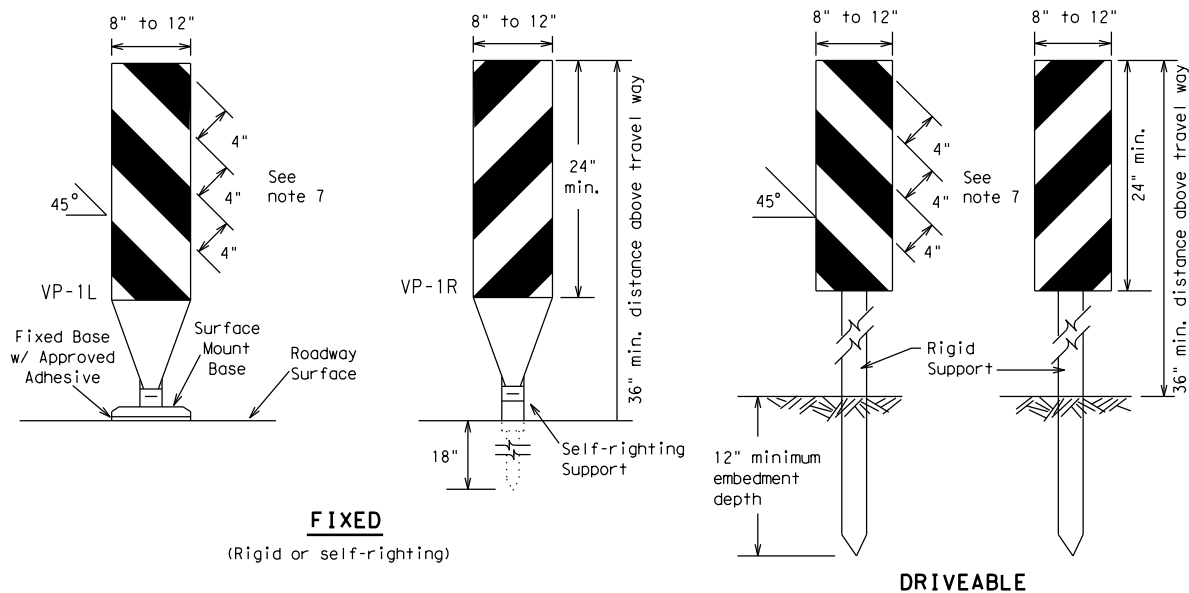


BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (8) - 21

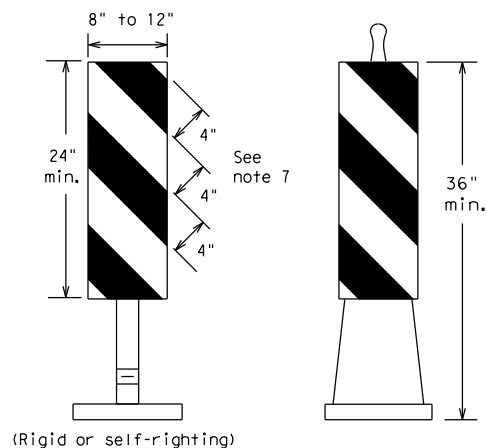
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FIXED
(Rigid or self-righting)

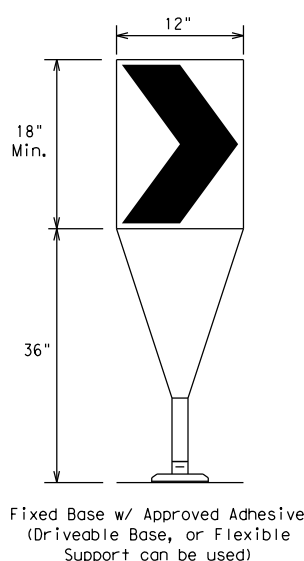
DRIVEABLE



PORTABLE

VERTICAL PANELS (VPs)

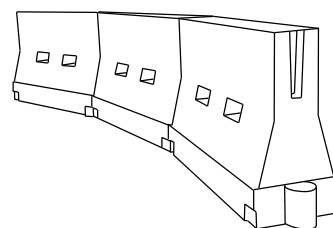
- Vertical Panels (VP's) are normally used to channelize traffic or divide opposing lanes of traffic.
- VP's may be used in daytime or nighttime situations. They may be used at the edge of shoulder drop-offs and other areas such as lane transitions where positive daytime and nighttime delineation is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



Fixed Base w/ Approved Adhesive
(Driveable Base, or Flexible Support can be used)

- The chevron shall be a vertical rectangle with a minimum size of 12 by 18 inches.
- Chevrons are intended to give notice of a sharp change of alignment with the direction of travel and provide additional emphasis and guidance for vehicle operators with regard to changes in horizontal alignment of the roadway.
- Chevrons, when used, shall be erected on the outside of a sharp curve or turn, or on the far side of an intersection. They shall be in line with and at right angles to approaching traffic. Spacing should be such that the motorist always has three in view, until the change in alignment eliminates its need.
- To be effective, the chevron should be visible for at least 500 feet.
- Chevrons shall be orange with a black nonreflective legend. Sheeting for the chevron shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.
- For Long Term Stationary use on tapers or transitions on freeways and divided highways, self-righting chevrons may be used to supplement plastic drums but not to replace plastic drums.

CHEVRONS



LONGITUDINAL CHANNELIZING DEVICES (LCD)

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

WATER BALLASTED SYSTEMS USED AS BARRIERS

- Water ballasted systems used as barriers shall not be used solely to channelize road users, but also to protect the work space per the appropriate Manual for Assessing Safety Hardware (MASH) crashworthiness requirements based on roadway speed and barrier application.
- Water ballasted systems used to channelize vehicular traffic shall be supplemented with retroreflective delineation or channelizing devices to improve daytime/nighttime visibility. They may also be supplemented with pavement markings.
- Water ballasted systems used as barriers shall be placed in accordance to application and installation requirements specific to the device, and used only when shown on the CWZTCD list.
- Water ballasted systems used as barriers should not be used for a merging taper except in low speed (less than 45 MPH) urban areas. When used on a taper in a low speed urban area, the taper shall be delineated and the taper length should be designed to optimize road user operations considering the available geometric conditions.
- When water ballasted systems used as barriers have blunt ends exposed to traffic, they should be attenuated as per manufacturer recommendations or flared to a point outside the clear zone.

If used to channelize pedestrians, longitudinal channelizing devices or water ballasted systems must have a continuous detectable bottom for users of long canes and the top of the unit shall not be less than 32 inches in height.

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

GENERAL NOTES

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

| Posted Speed | Formula | Minimum Desirable Taper Lengths * X | | | Suggested Maximum Spacing of Channelizing Devices | |
|--------------|--------------------------|-------------------------------------|------------|------------|---|--------------|
| | | 10' Offset | 11' Offset | 12' Offset | On a Taper | On a Tangent |
| 30 | L = WS ² / 60 | 150' | 165' | 180' | 30' | 60' |
| 35 | | 205' | 225' | 245' | 35' | 70' |
| 40 | | 265' | 295' | 320' | 40' | 80' |
| 45 | L = WS | 450' | 495' | 540' | 45' | 90' |
| 50 | | 500' | 550' | 600' | 50' | 100' |
| 55 | | 550' | 605' | 660' | 55' | 110' |
| 60 | | 600' | 660' | 720' | 60' | 120' |
| 65 | | 650' | 715' | 780' | 65' | 130' |
| 70 | | 700' | 770' | 840' | 70' | 140' |
| 75 | | 750' | 825' | 900' | 75' | 150' |
| 80 | | 800' | 880' | 960' | 80' | 160' |

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

SUGGESTED MAXIMUM SPACING OF CHANNELIZING DEVICES AND MINIMUM DESIRABLE TAPER LENGTHS

SHEET 9 OF 12



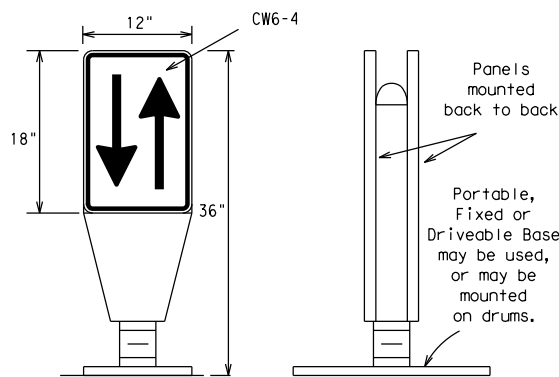
BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (9) - 21

| | | | | |
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| FILE: bc-21.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
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OPPOSING TRAFFIC LANE DIVIDERS (OTLD)



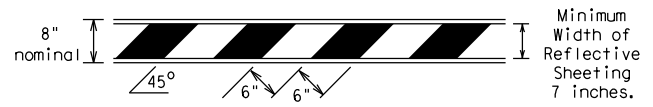
- Opposing Traffic Lane Dividers (OTLD) are delineation devices designed to convert a normal one-way roadway section to two-way operation. OTLD's are used on temporary centerlines. The upward and downward arrows on the sign's face indicate the direction of traffic on either side of the divider. The base is secured to the pavement with an adhesive or rubber weight to minimize movement caused by a vehicle impact or wind gust.
- The OTLD may be used in combination with 42" cones or VPs.
- Spacing between the OTLD shall not exceed 500 feet. 42" cones or VPs placed between the OTLD's should not exceed 100 foot spacing.
- The OTLD shall be orange with a black non-reflective legend. Sheeting for the OTLD shall be retroreflective Type B_{FL} or Type C_{FL} conforming to Departmental Material Specification DMS-8300, unless noted otherwise. The legend shall meet the requirements of DMS-8300.

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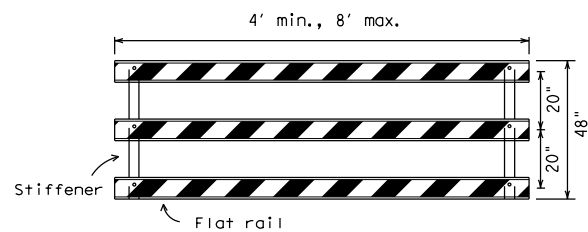
TYPE 3 BARRICADES

1. Refer to the Compliant Work Zone Traffic Control Devices List (CWZTCD) for details of the Type 3 Barricades and a list of all materials used in the construction of Type 3 Barricades.
2. Type 3 Barricades shall be used at each end of construction projects closed to all traffic.
3. Barricades extending across a roadway should have stripes that slope downward in the direction toward which traffic must turn in detouring. When both right and left turns are provided, the chevron striping may slope downward in both directions from the center of the barricade. Where no turns are provided at a closed road, striping should slope downward in both directions toward the center of roadway.
4. Striping of rails, for the right side of the roadway, should slope downward to the left. For the left side of the roadway, striping should slope downward to the right.
5. Identification markings may be shown only on the back of the barricade rails. The maximum height of letters and/or company logos used for identification shall be 1".
6. Barricades shall not be placed parallel to traffic unless an adequate clear zone is provided.
7. Warning lights shall NOT be installed on barricades.
8. Where barricades require the use of weights to keep from turning over, the use of sandbags with dry, cohesionless sand is recommended. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight. Sand bags shall not be stacked in a manner that covers any portion of a barricade rails reflective sheeting. Rock, concrete, iron, steel or other solid objects will NOT be permitted. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber (such as tire inner tubes) shall not be used for sandbags. Sandbags shall only be placed along or upon the base supports of the device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners.
9. Sheeting for barricades shall be retroreflective Type A or Type B conforming to Departmental Material Specification DMS-8300 unless otherwise noted.

Barricades shall NOT be used as a sign support.



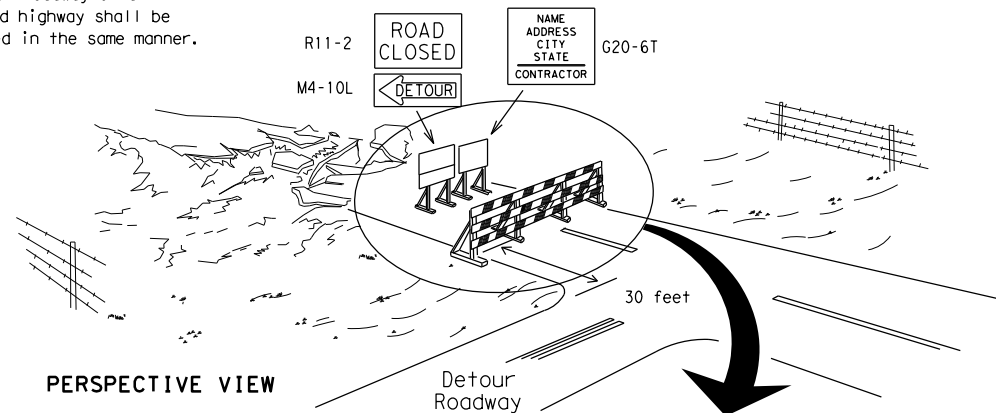
TYPICAL STRIPING DETAIL FOR BARRICADE RAIL



Stiffener may be inside or outside of support, but no more than 2 stiffeners shall be allowed on one barricade.

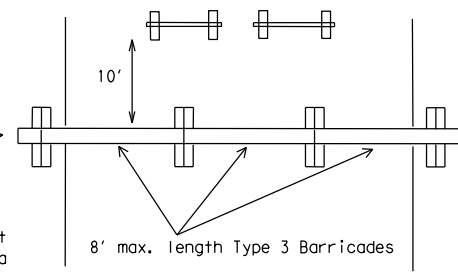
TYPICAL PANEL DETAIL FOR SKID OR POST TYPE BARRICADES

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



PERSPECTIVE VIEW

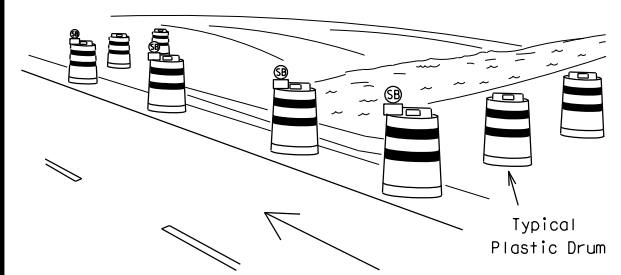
The three rails on Type 3 barricades shall be reflectorized orange and reflective white stripes on one side facing one-way traffic and both sides for two-way traffic. Barricade striping should slant downward in the direction of detour.



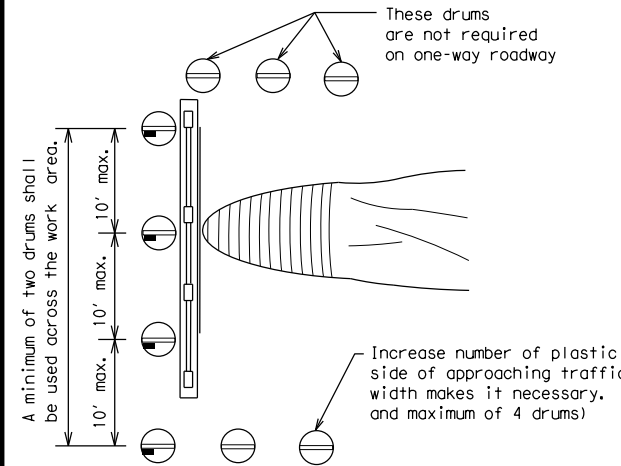
PLAN VIEW

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

TYPE 3 BARRICADE (POST AND SKID) TYPICAL APPLICATION



PERSPECTIVE VIEW

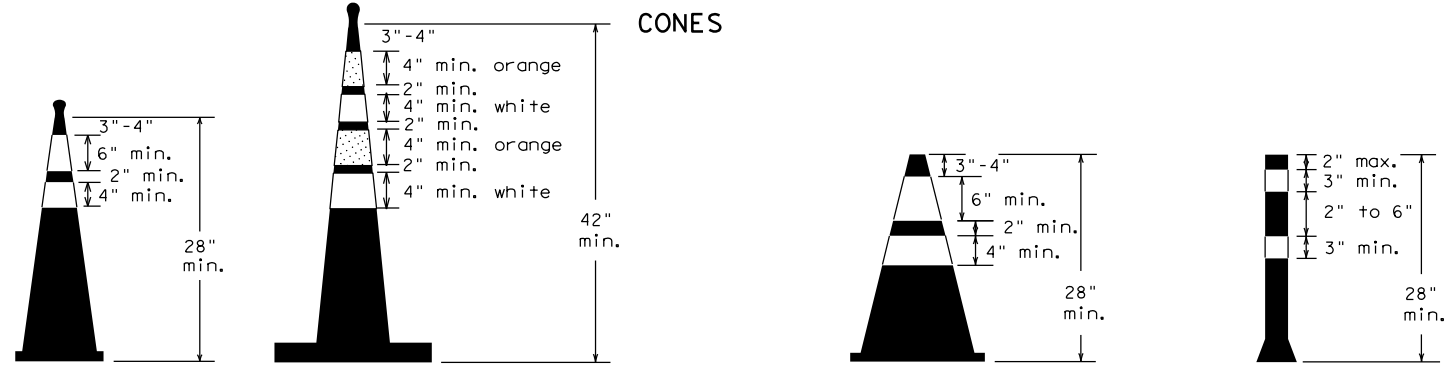


PLAN VIEW

CULVERT WIDENING OR OTHER ISOLATED WORK WITHIN THE PROJECT LIMITS

1. Where positive redirection capability is provided, drums may be omitted.
2. Plastic construction fencing may be used with drums for safety as required in the plans.
3. Vertical Panels on flexible support may be substituted for drums when the shoulder width is less than 4 feet.
4. When the shoulder width is greater than 12 feet, steady-burn lights may be omitted if drums are used.
5. Drums must extend the length of the culvert widening.

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



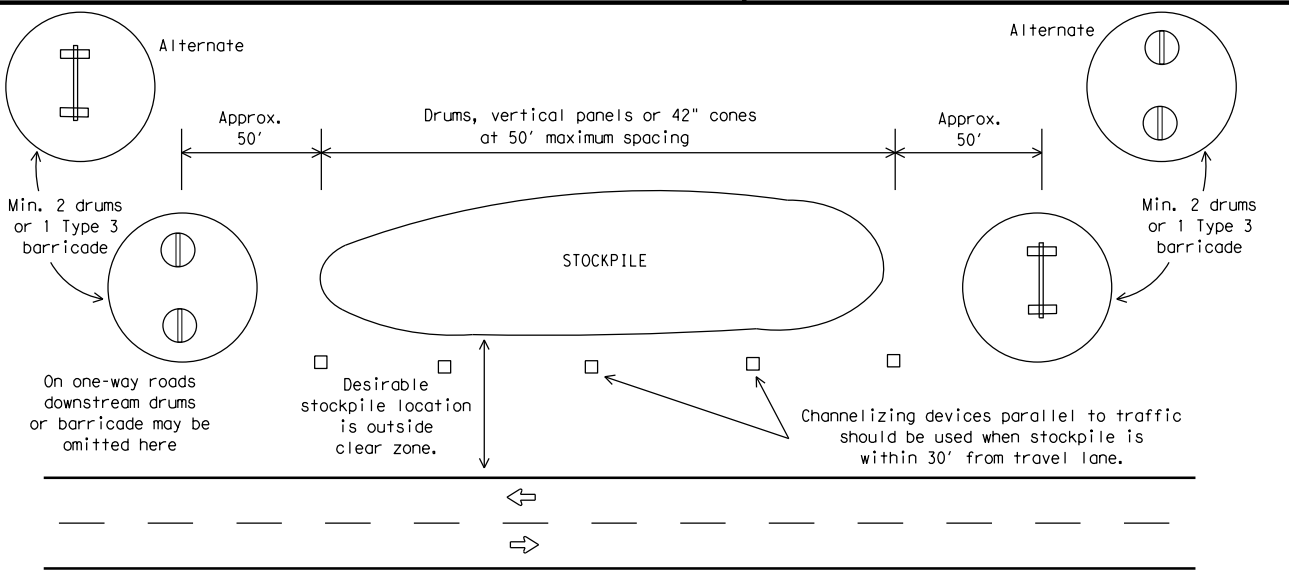
Two-Piece cones

One-Piece cones

Tubular Marker

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

1. Traffic cones and tubular markers shall be predominantly orange, and meet the height and weight requirements shown above.
2. One-piece cones have the body and base of the cone molded in one consolidated unit. Two-piece cones have a cone shaped body and a separate rubber base, or ballast, that is added to keep the device upright and in place.
3. Two-piece cones may have a handle or loop extending up to 8" above the minimum height shown, in order to aid in retrieving the device.
4. Cones or tubular markers shall have white or white and orange reflective bands as shown above. The reflective bands shall have a smooth, sealed outer surface and meet the requirements of Departmental Material Specification DMS-8300 Type A or Type B.
5. 28" cones and tubular markers are generally suitable for short duration and short-term stationary work as defined on BC(4). These should not be used for intermediate-term or long-term stationary work unless personnel is on-site to maintain them in their proper upright position.
6. 42" two-piece cones, vertical panels or drums are suitable for all work zone durations.
7. Cones or tubular markers used on each project should be of the same size and shape.



TRAFFIC CONTROL FOR MATERIAL STOCKPILES



BARRICADE AND CONSTRUCTION CHANNELIZING DEVICES

BC (10) - 21

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WORK ZONE PAVEMENT MARKINGS

GENERAL

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

RAISED PAVEMENT MARKERS

- Raised pavement markers are to be placed according to the patterns on BC(12).
- All raised pavement markers used for work zone markings shall meet the requirements of Item 672, "RAISED PAVEMENT MARKERS" and Departmental Material Specification DMS-4200 or DMS-4300.

PREFABRICATED PAVEMENT MARKINGS

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

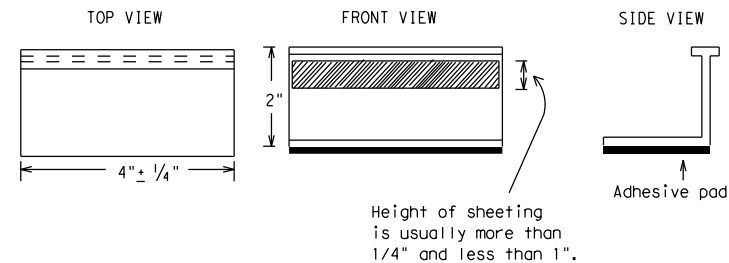
MAINTAINING WORK ZONE PAVEMENT MARKINGS

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

REMOVAL OF PAVEMENT MARKINGS

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

Temporary Flexible-Reflective Roadway Marker Tabs



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

- Temporary flexible-reflective roadway marker tabs used as guidemarks shall meet the requirements of DMS-8242.
- Tabs detailed on this sheet are to be inspected and accepted by the Engineer or designated representative. Sampling and testing is not normally required, however at the option of the Engineer, either "A" or "B" below may be imposed to assure quality before placement on the roadway.
 - Select five (5) or more tabs at random from each lot or shipment and submit to the Construction Division, Materials and Pavement Section to determine specification compliance.
 - Select five (5) tabs and perform the following test. Affix five (5) tabs at 24 inch intervals on an asphaltic pavement in a straight line. Using a medium size passenger vehicle or pickup, run over the markers with the front and rear tires at a speed of 35 to 40 miles per hour, four (4) times in each direction. No more than one (1) out of the five (5) reflective surfaces shall be lost or displaced as a result of this test.
- Small design variances may be noted between tab manufacturers.
- See Standard Sheet WZ(STPM) for tab placement on new pavements. See Standard Sheet TCP(7-1) for tab placement on seal coat work.

RAISED PAVEMENT MARKERS USED AS GUIDEMARKS

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

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

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

A list of prequalified reflective raised pavement markers, non-reflective traffic buttons, roadway marker tabs and other pavement markings can be found at the Material Producer List web address shown on BC(1).

SHEET 11 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKINGS

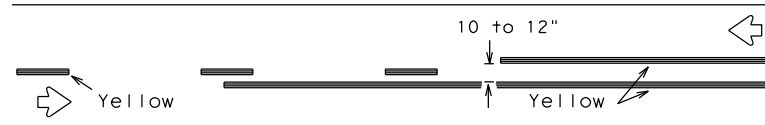
BC(11)-21

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| 11-02 8-14 | | | | |

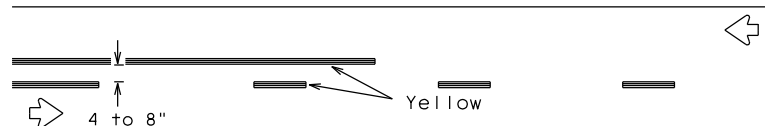
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PAVEMENT MARKING PATTERNS

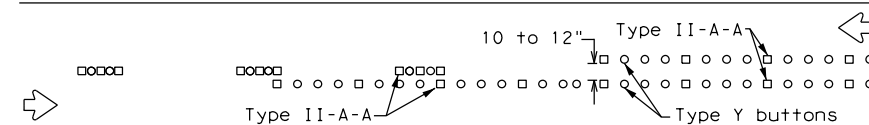


REFLECTORIZED PAVEMENT MARKINGS - PATTERN A

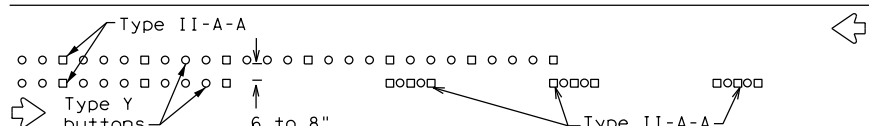


REFLECTORIZED PAVEMENT MARKINGS - PATTERN B

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

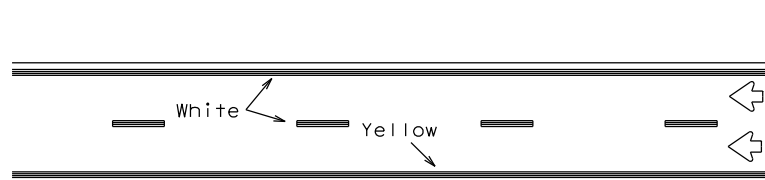


RAISED PAVEMENT MARKERS - PATTERN A



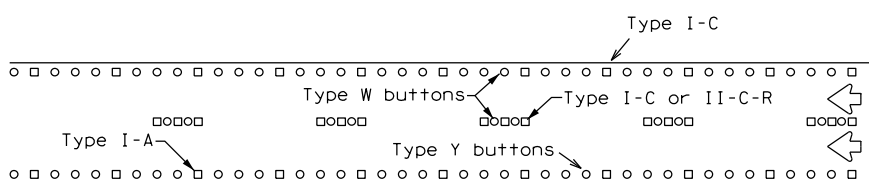
RAISED PAVEMENT MARKERS - PATTERN B

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



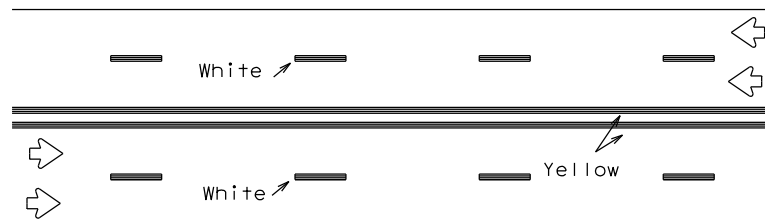
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



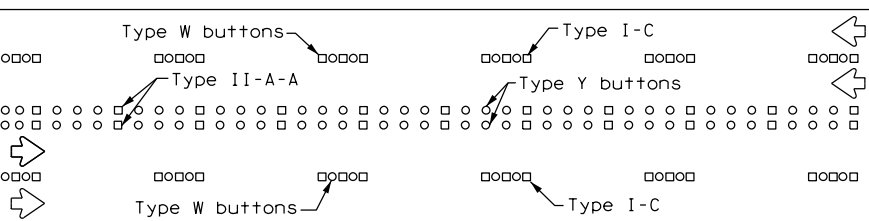
RAISED PAVEMENT MARKERS

EDGE & LANE LINES FOR DIVIDED HIGHWAY



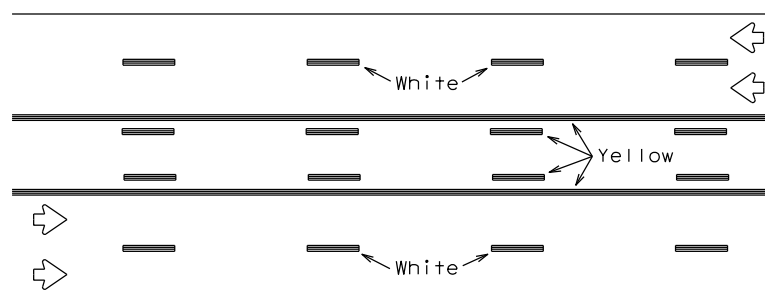
REFLECTORIZED PAVEMENT MARKINGS

Prefabricated markings may be substituted for reflectORIZED pavement markings.



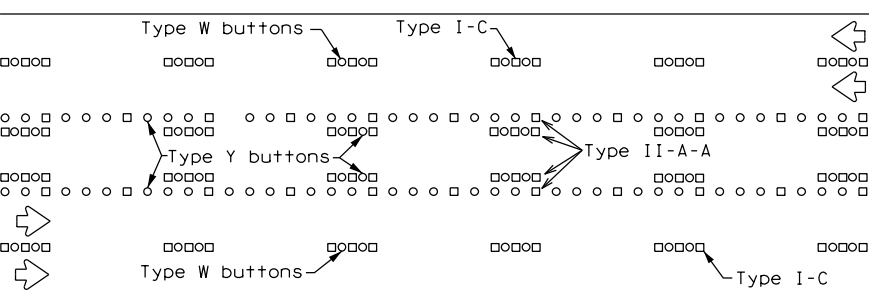
RAISED PAVEMENT MARKERS

LANE & CENTER LINES FOR MULTILANE UNDIVIDED HIGHWAYS



REFLECTORIZED PAVEMENT MARKINGS

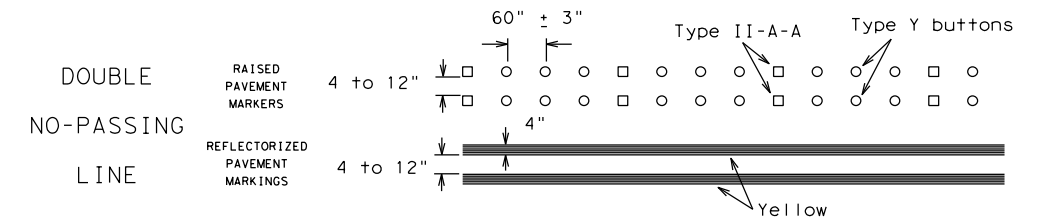
Prefabricated markings may be substituted for reflectORIZED pavement markings.



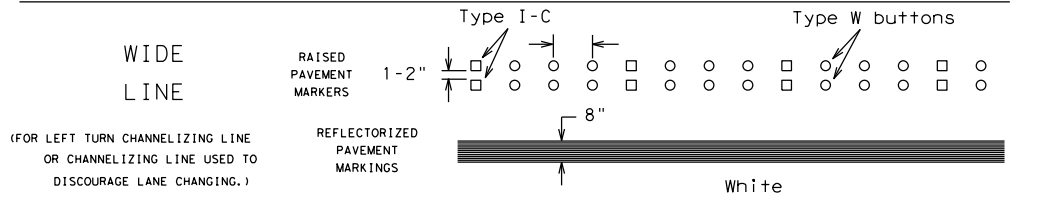
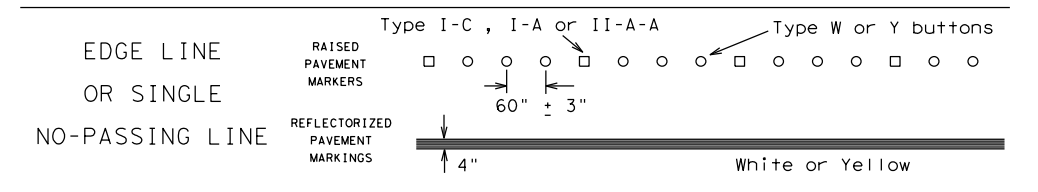
RAISED PAVEMENT MARKERS

TWO-WAY LEFT TURN LANE

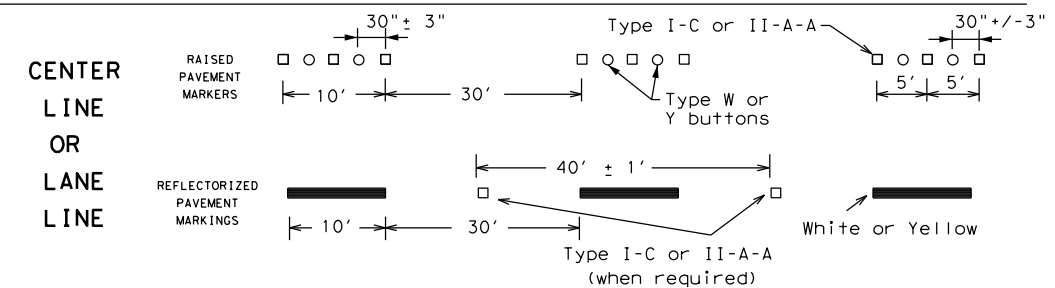
STANDARD WORK ZONE PAVEMENT MARKINGS DETAILS



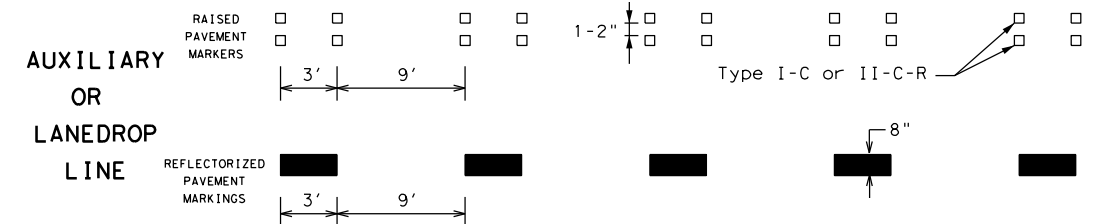
SOLID LINES



(FOR LEFT TURN CHANNELIZING LINE OR CHANNELIZING LINE USED TO DISCOURAGE LANE CHANGING.)

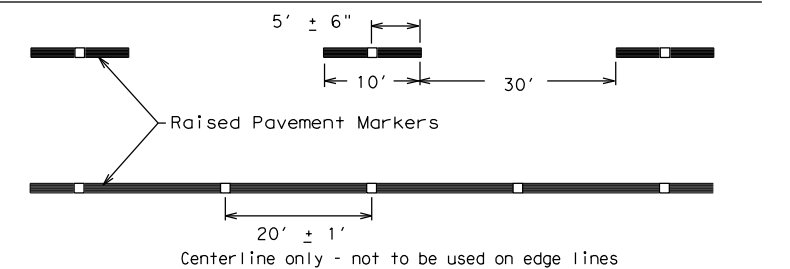


BROKEN LINES



REMOVABLE MARKINGS WITH RAISED PAVEMENT MARKERS

If raised pavement markers are used to supplement REMOVABLE markings, the markers shall be applied to the top of the tape at the approximate mid length of tape used for broken lines or at 20 foot spacing for solid lines. This allows an easier removal of raised pavement markers and tape.



SHEET 12 OF 12



BARRICADE AND CONSTRUCTION PAVEMENT MARKING PATTERNS

BC (12) - 21

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| 2-98 7-13 | | | | |
| 11-02 8-14 | DIST | COUNTY | SHEET NO. | |
| | YKM | VICTORIA | 23 | |

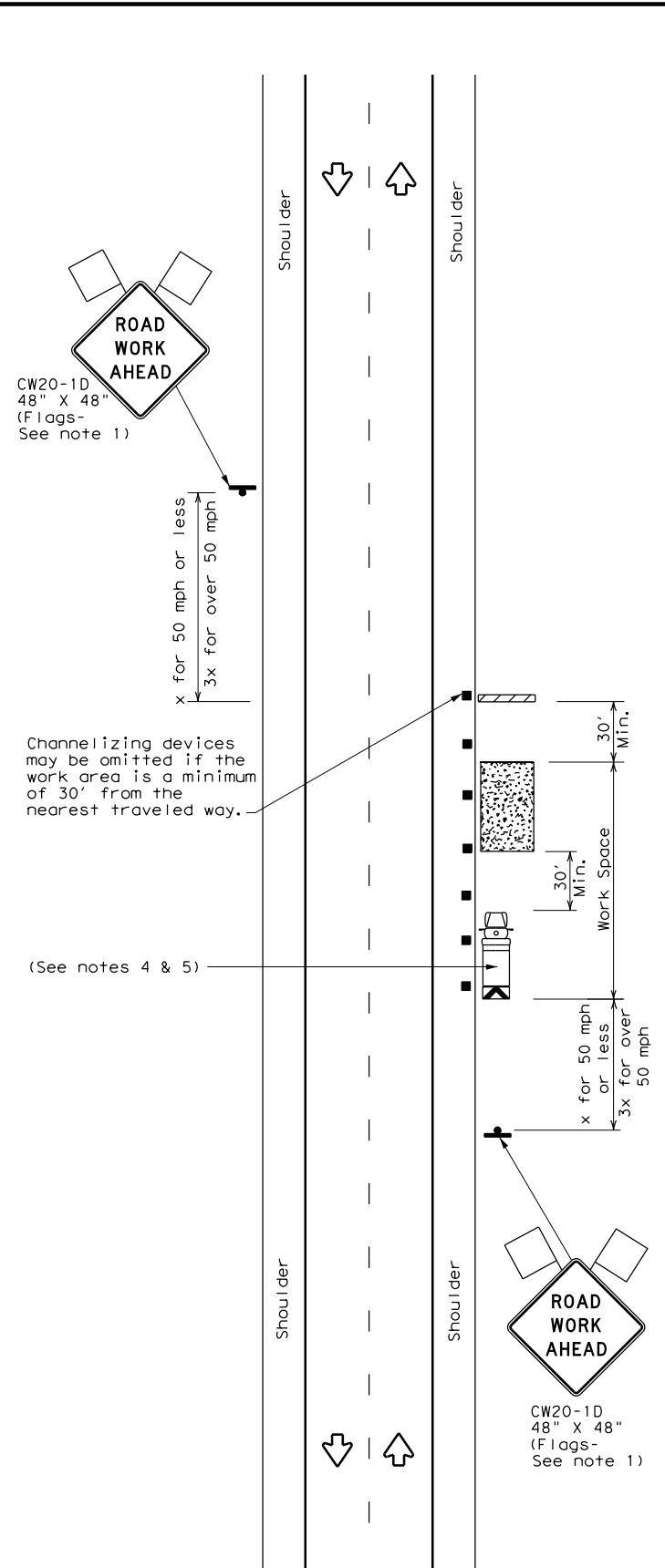
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Raised pavement markers used as standard pavement markings shall be from the approved products list and meet the requirements of Item 672 "RAISED PAVEMENT MARKERS."

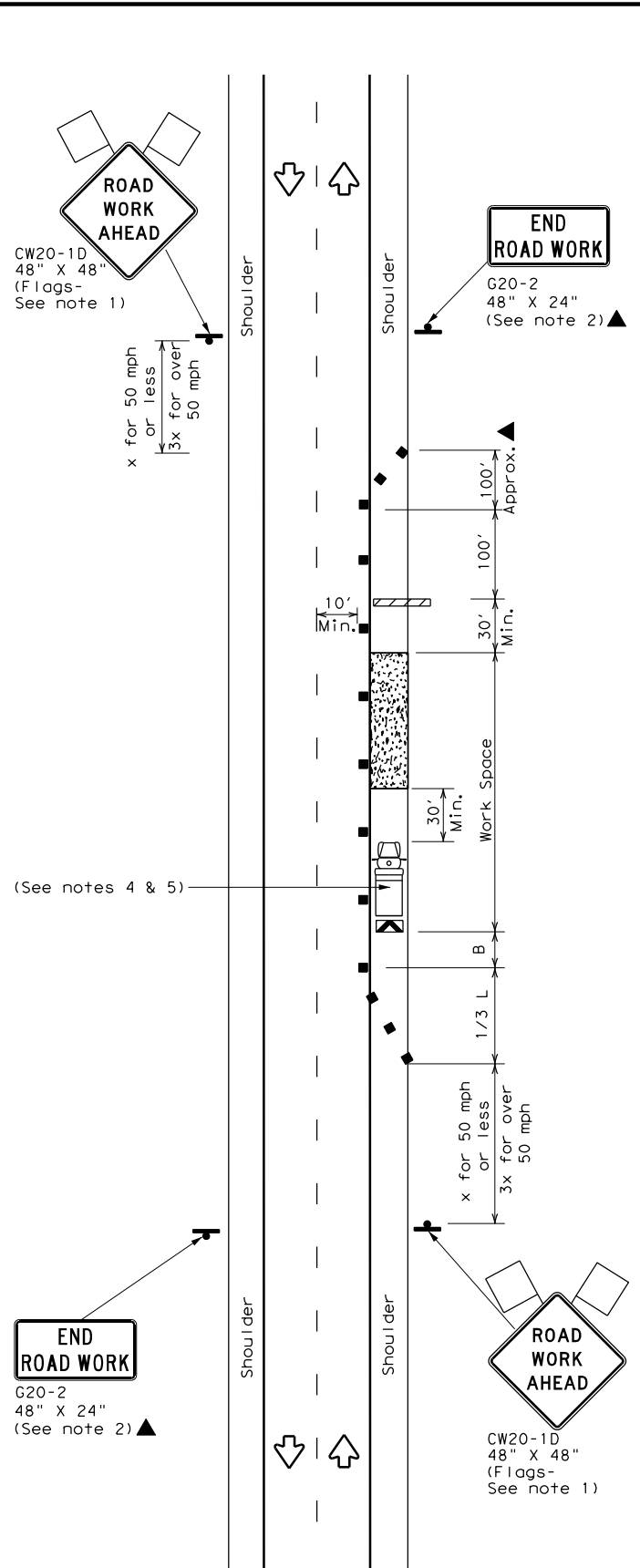
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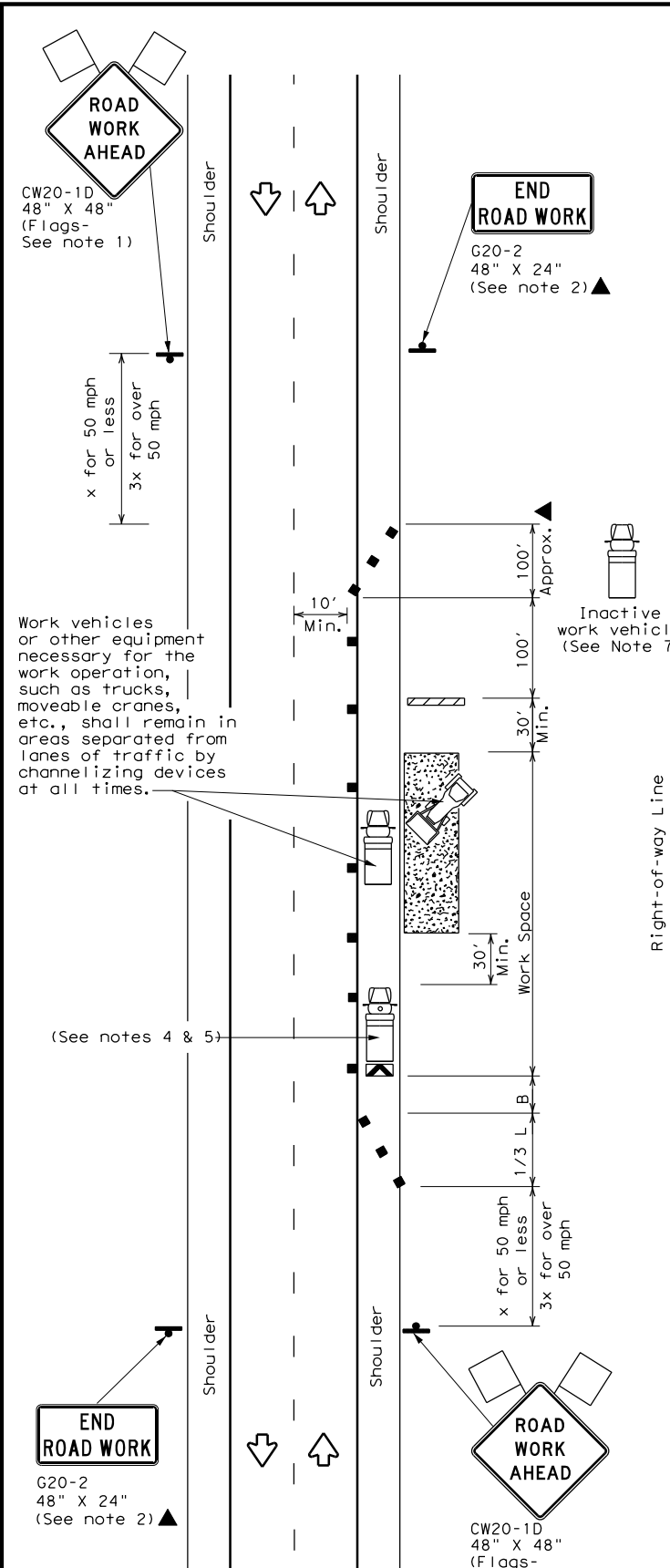
TCP (2-1a)

WORK SPACE NEAR SHOULDER
Conventional Roads



TCP (2-1b)

WORK SPACE ON SHOULDER
Conventional Roads



TCP (2-1c)

WORK VEHICLES ON SHOULDER
Conventional Roads

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

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

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

| TYPICAL USAGE | | | | |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
| | ✓ | ✓ | ✓ | ✓ |

GENERAL NOTES

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



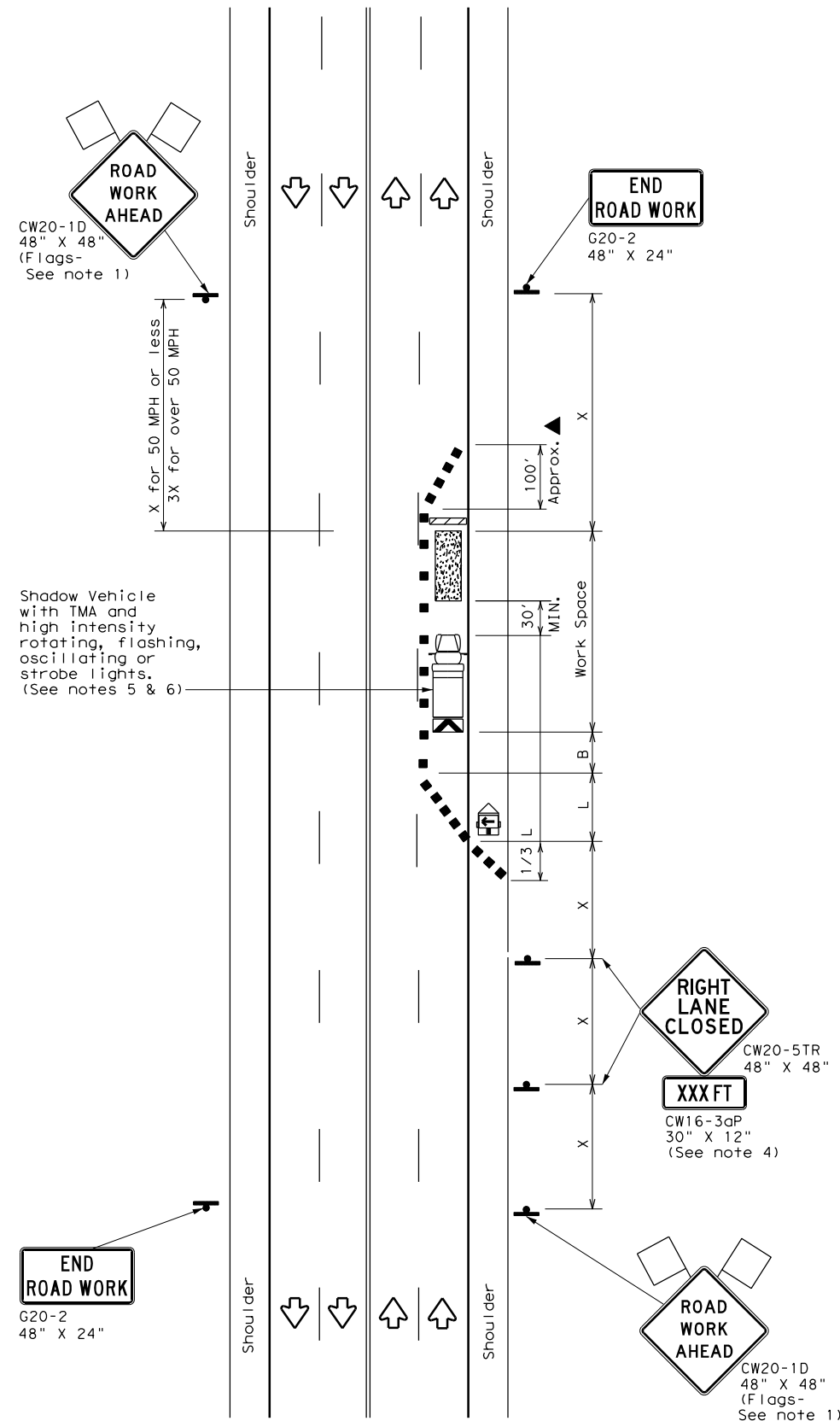
TRAFFIC CONTROL PLAN
CONVENTIONAL ROAD
SHOULDER WORK

TCP (2-1) - 18

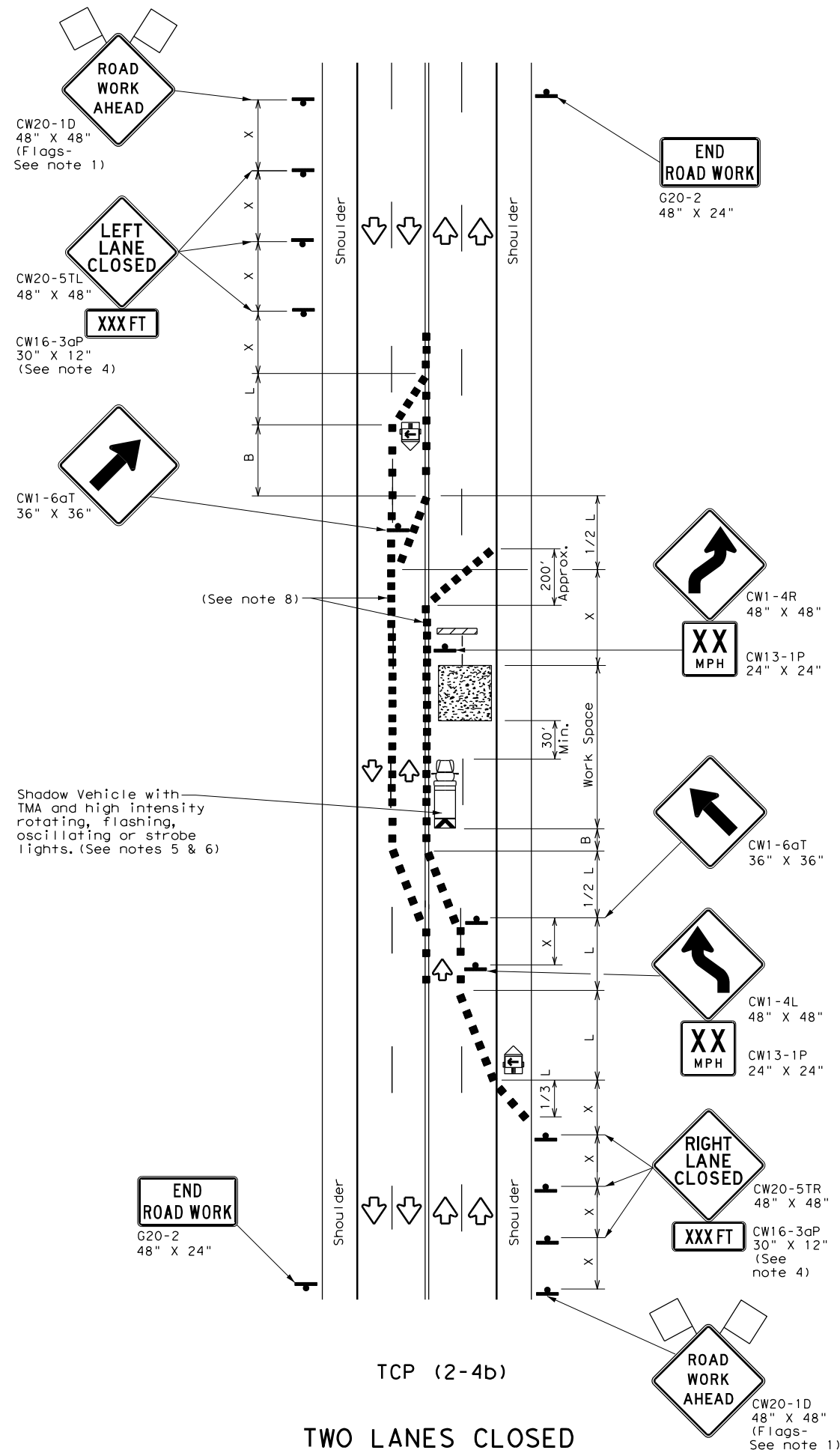
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| FILE: tcp2-1-18.dgn | DN: | CK: | DW: | CK: |
| © TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| 2-94 4-98 | DIST | COUNTY | SHEET NO. | |
| 8-95 2-12 | YKM | VICTORIA | 24 | |
| 1-97 2-18 | | | | |

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TCP (2-4a)
ONE LANE CLOSED



TCP (2-4b)
TWO LANES CLOSED

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

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

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

| TYPICAL USAGE | | | | |
|---------------|----------------|-----------------------|------------------------------|----------------------|
| MOBILE | SHORT DURATION | SHORT TERM STATIONARY | INTERMEDIATE TERM STATIONARY | LONG TERM STATIONARY |
| | | ✓ | ✓ | |

GENERAL NOTES

- Flags attached to signs where shown, are REQUIRED.
- All traffic control devices illustrated are REQUIRED, except those denoted with the triangle symbol may be omitted when stated elsewhere in the plans, or for routine maintenance work, when approved by the Engineer.
- The downstream taper is optional. When used, it should be 100 feet minimum length per lane.
- For short term applications, when post mounted signs are not used, the distance legend may be shown on the sign face rather than on a CW16-3aP supplemental plaque.
- A Shadow Vehicle with a TMA should be used anytime it can be positioned 30 to 100 feet in advance of the area of crew exposure without adversely affecting the performance or quality of the work. If workers are no longer present but road or work conditions require the traffic control to remain in place, Type 3 Barricades or other channelizing devices may be substituted for the Shadow Vehicle and TMA.
- Additional Shadow Vehicles with TMAs may be positioned in each closed lane, on the shoulder or off the paved surface, next to those shown in order to protect a wider work space.

TCP (2-4a)

- If this TCP is used for a left lane closure, CW20-5TL "LEFT LANE CLOSED" signs shall be used and channelizing devices shall be placed on the centerline to protect the work space from opposing traffic with the arrow board placed in the closed lane near the end of the merging taper.

TCP (2-4b)

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

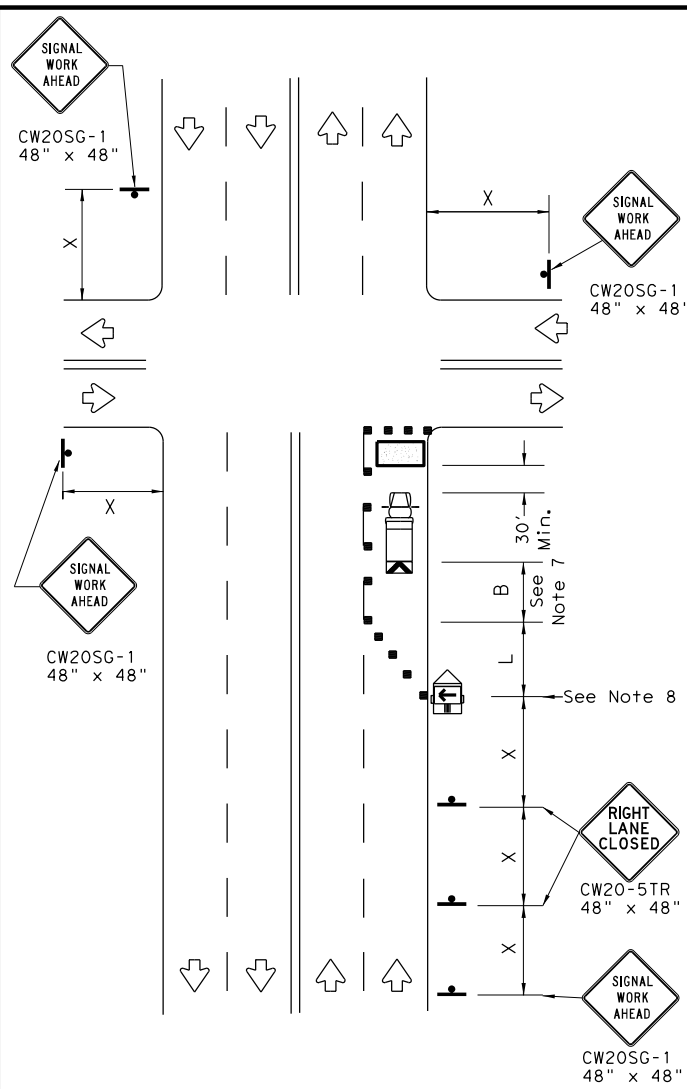


**TRAFFIC CONTROL PLAN
LANE CLOSURES ON MULTILANE
CONVENTIONAL ROADS**

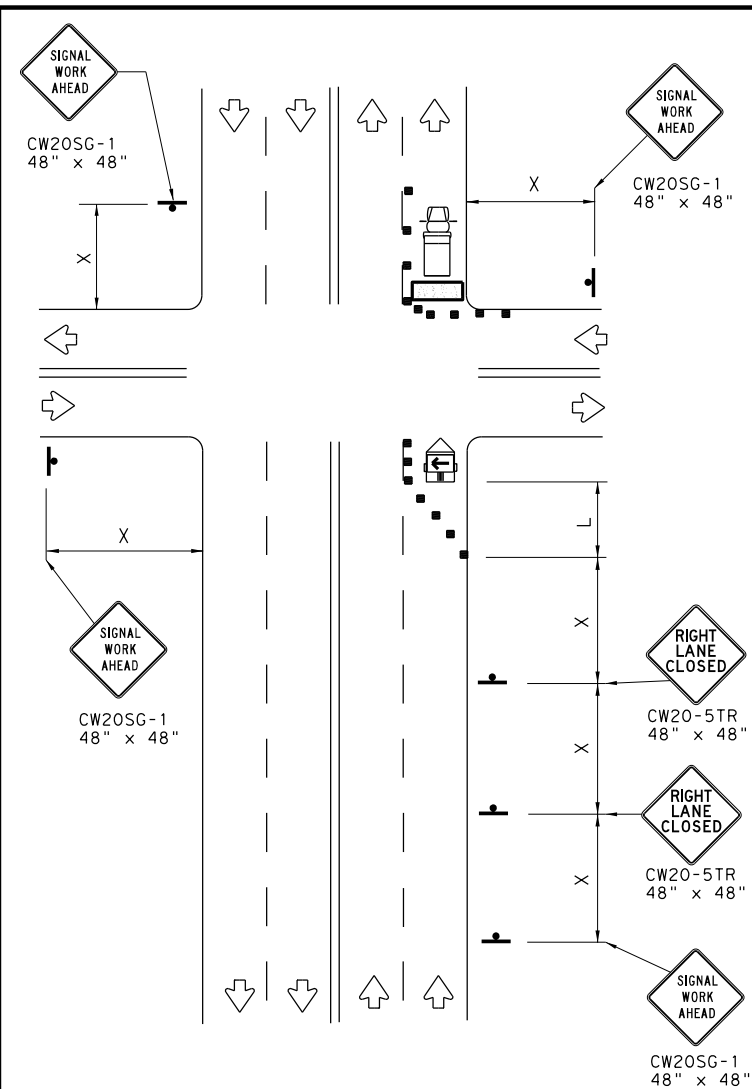
TCP (2-4) - 18

| | | | | |
|-----------------------|------|----------|-----------|---------|
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| © TxDOT December 1985 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| 8-95 3-03 | DIST | COUNTY | SHEET NO. | |
| 1-97 2-12 | YKM | VICTORIA | 25 | |
| 4-98 2-18 | | | | |

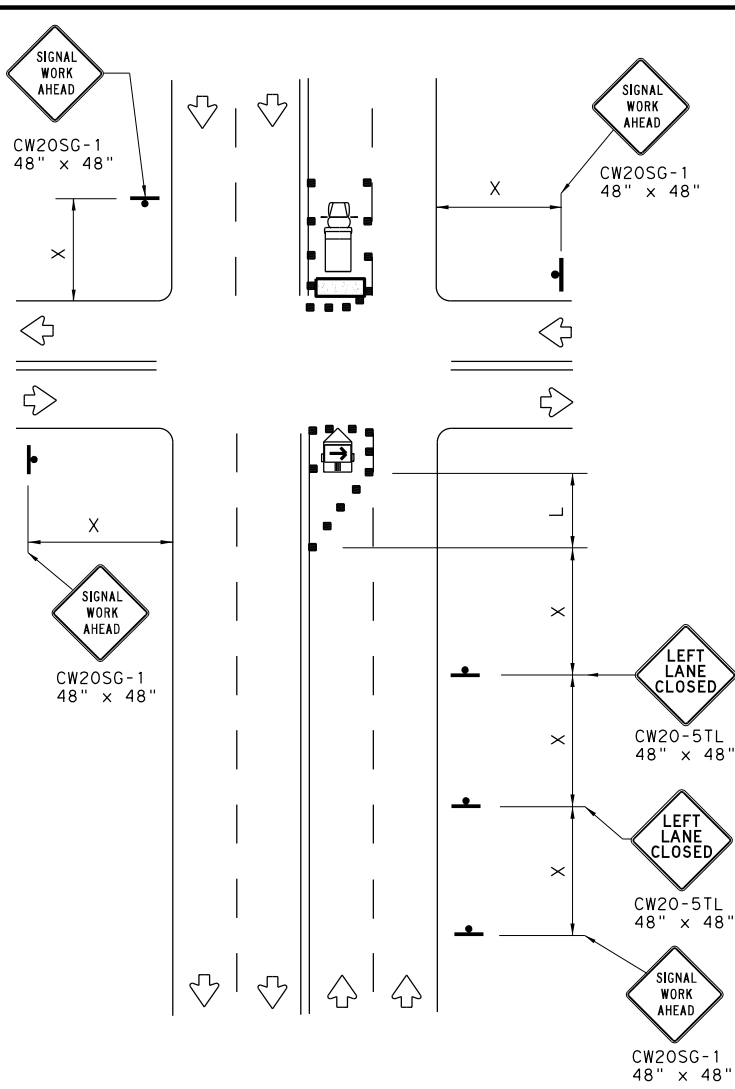
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NEAR SIDE LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



FAR SIDE RIGHT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY



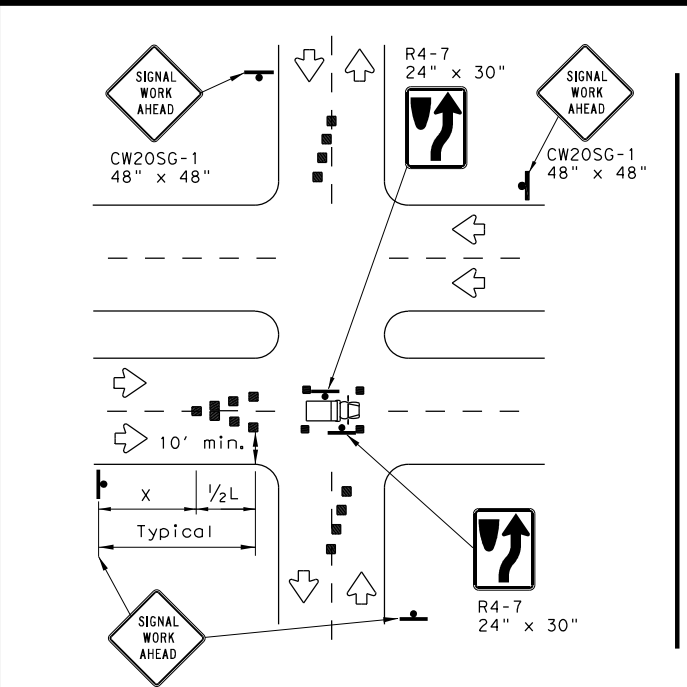
FAR SIDE LEFT LANE CLOSURE
SHORT DURATION OR SHORT TERM STATIONARY

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

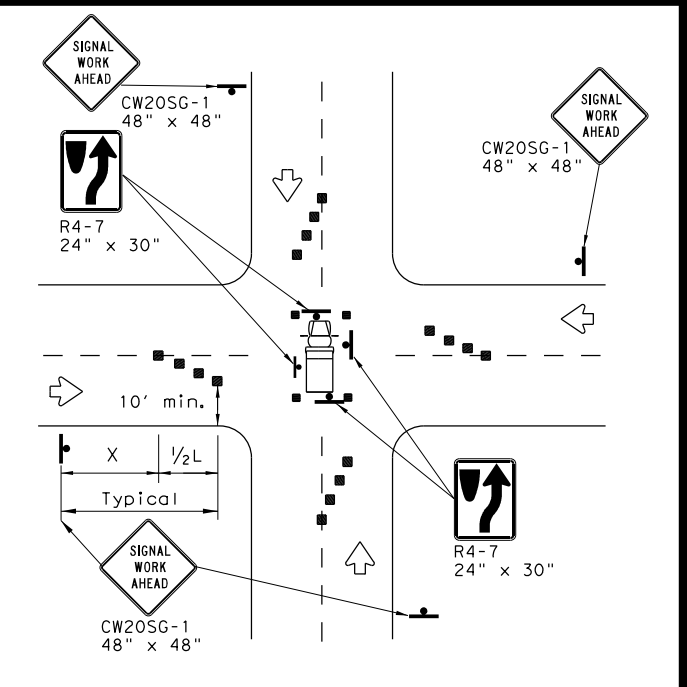
| Posted Speed * | Formula | Minimum Desirable Taper Lengths ** | | | Suggested Maximum Spacing of Channelizing Devices | | Minimum Sign Spacing "X" Distance | Suggested Longitudinal Buffer Space "B" |
|-------------------|-----------------------|---------------------------------------|------------|------------|---|--------------|--------------------------------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

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

WORKERS IN BUCKET TRUCKS SHALL NOT WORK ABOVE OPEN LANES OF TRAFFIC.



OPERATIONS IN THE INTERSECTION
SHORT DURATION



GENERAL NOTES

- The minimum size channelizing device is the 28" cone. 42" Two-piece cones, drums, vertical panels or barricades will be required when the device must be left unattended at night.
- Obstructions or hazards at the work area shall be clearly marked and delineated at all times.
- Flaggers and Flagger Symbol (CW20-7) signs may be required according to field conditions.
- Vehicles parked in roadway shall be equipped with at least two high intensity rotating, flashing, oscillating or strobe type lights.
- High level warning devices (flag trees) may be used at corners of the vehicle.
- When work operations are performed on existing signals, the signals may be placed in flashing red mode when approved by the engineer. If existing signals do not have power, All-Way Stop (R1-1 and R1-3P) signs may be implemented when approved by the engineer.
- For Short-Term Stationary work the buffer space "B" from the above table should be used if field conditions permit. For Short Duration (less than 1 hour) any buffer space provided will enhance the safety of the setup.
- The arrow board at this location may be omitted for Short Duration work if the work vehicle has an arrow board in operation. As an option, the arrow board may be placed at the end of the taper in the closed lane if space is not available at the beginning of the taper.
- Signs and devices for the NEAR SIDE LANE CLOSURE may be altered for a left lane closure by using a LEFT LANE CLOSED (CW20-5TL) and adding channelizing devices on the centerline to protect the work space from opposing traffic.



TRAFFIC SIGNAL WORK TYPICAL DETAILS

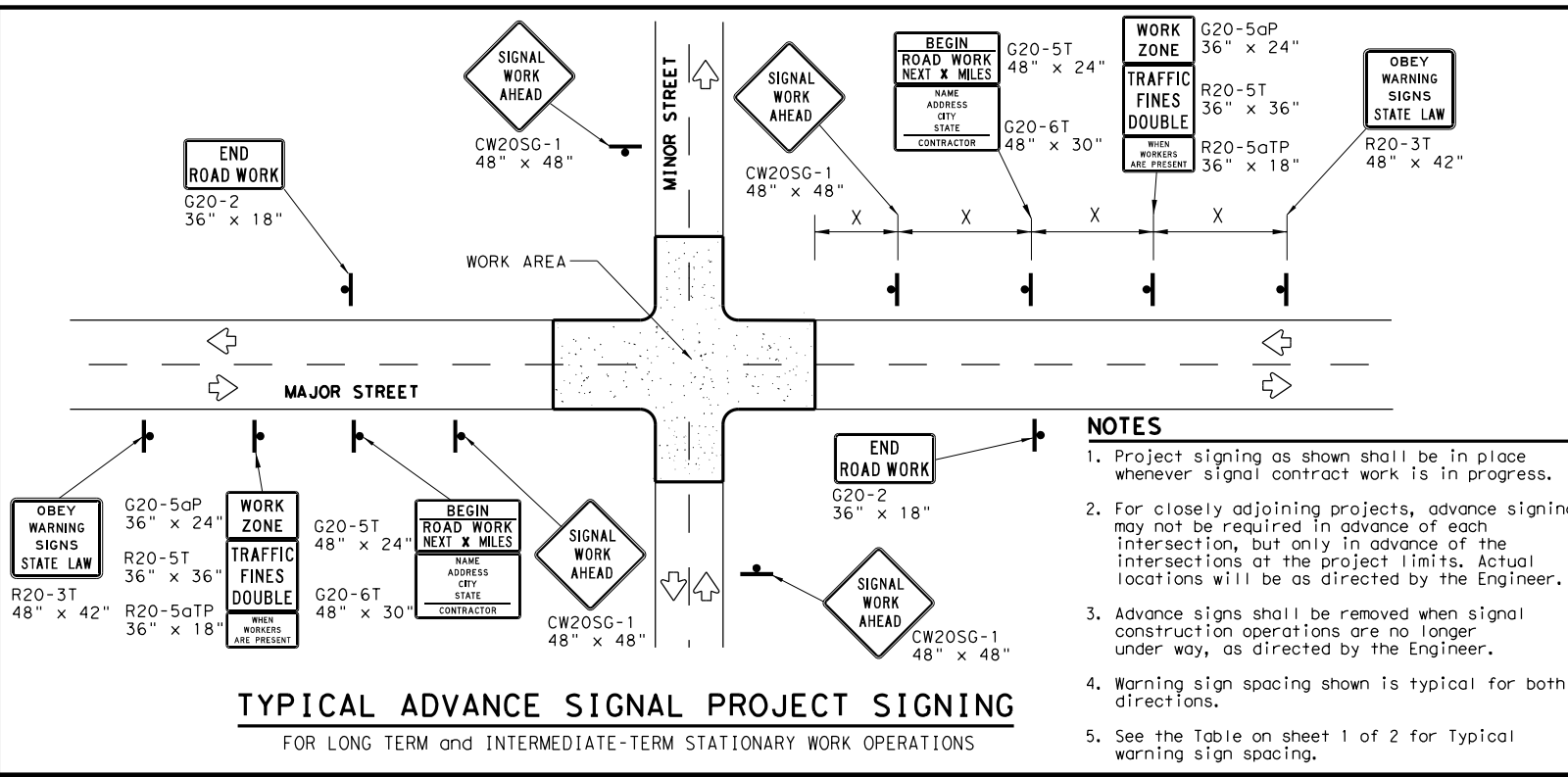
WZ (BTS-1) - 13

| | | | | |
|--------------------|-----------|-----------|-----------|-----------|
| FILE: wzbts-13.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| © TxDOT April 1992 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| 2-98 10-99 7-13 | DIST | COUNTY | SHEET NO. | |
| 4-98 3-03 | YKM | VICTORIA | 26 | |

DATE: 1/18/2024 \$TIME\$
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TYPICAL ADVANCE SIGNAL PROJECT SIGNING
FOR LONG TERM and INTERMEDIATE-TERM STATIONARY WORK OPERATIONS

- NOTES**
1. Project signing as shown shall be in place whenever signal contract work is in progress.
 2. For closely adjoining projects, advance signing may not be required in advance of each intersection, but only in advance of the intersections at the project limits. Actual locations will be as directed by the Engineer.
 3. Advance signs shall be removed when signal construction operations are no longer under way, as directed by the Engineer.
 4. Warning sign spacing shown is typical for both directions.
 5. See the Table on sheet 1 of 2 for Typical warning sign spacing.

GENERAL NOTES FOR WORK ZONE SIGNS

1. Signs shall be installed and maintained in a straight and plumb condition.
2. Wooden sign posts shall be painted white.
3. Barricades shall NOT be used as sign supports.
4. Nails shall NOT be used to attach signs to any support.
5. All signs shall be installed in accordance with the plans or as directed by the Engineer.
6. The Contractor shall furnish the sign design shown in the plans or in the "Standard Highway Sign Designs for Texas" (SHSD).
7. The Contractor shall furnish sign supports and substrates listed in the "Compliant Work Zone Traffic Control Device List" (CWZTCD), installed as per the manufacturer's recommendations.
8. Temporary signs that have damaged or cracked substrates and/or damaged or marred reflective sheeting shall be replaced as directed by the Engineer.
9. Identification markings may be shown only on the back of the sign substrate. The maximum height of letters and/or company logos used for identification shall be 1".
10. Damaged wood posts shall be replaced. Splicing wood posts will not be allowed.

DURATION OF WORK

1. Work zone durations are defined in Part 6, Section 60.02 of the Texas Manual on Uniform Traffic Control Devices (TMUTCD).

SIGN MOUNTING HEIGHT

1. Sign height of Long-term/Intermediate-term warning signs shall be as shown on Figure 6F-1 of the TMUTCD.
2. Sign height of Short-term/Short Duration warning signs shall be as shown on Figure 6F-2 of the TMUTCD.
3. Regulatory signs shall be mounted at least 7 feet, but not more than 9 feet, above the paved surface regardless of work duration.

REMOVING OR COVERING

1. When sign messages may be confusing or do not apply, the signs shall be removed or completely covered, unless otherwise approved by the Engineer.
2. When signs are covered, the material used shall be opaque, such as heavy mil black plastic, or other materials which will cover the entire sign face and maintain their opaque properties under automobile headlights at night without damaging the sign sheeting. Burlap, or heavy materials such as plywood or aluminum shall not be used to cover signs.
3. Duct tape or other adhesive material shall NOT be affixed to a sign face.
4. Signs and anchor stubs shall be removed and holes back filled upon completion of the work.

REFLECTIVE SHEETING

1. All signs shall be retroreflective and constructed of sheeting meeting the requirements of the DMS and color usage table shown on this sheet.

SIGN SUPPORT WEIGHTS

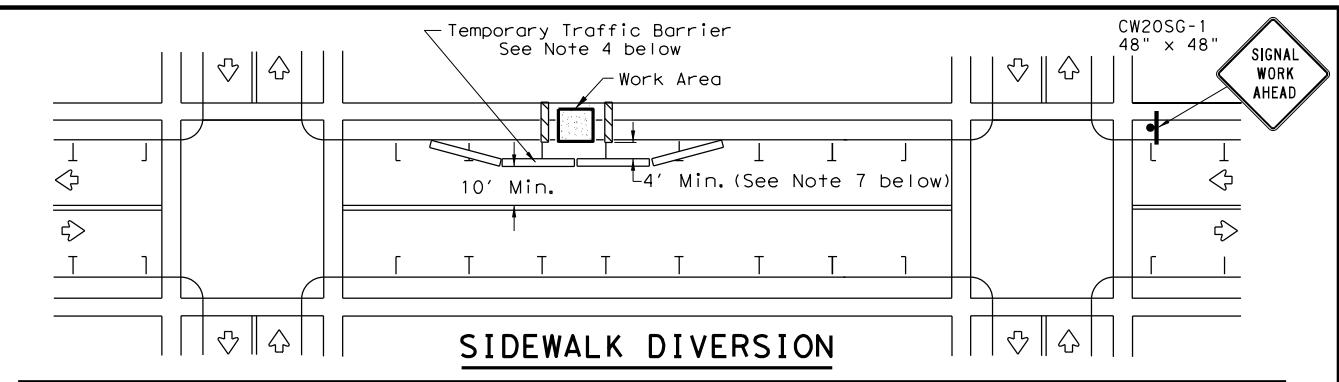
1. Weights used to keep signs from turning over should be sandbags filled with dry, cohesionless material.
2. The sandbags will be tied shut to keep the sand from spilling and to maintain a constant weight.
3. Rock, concrete, iron, steel or other solid objects will not be permitted for use as sign support weights.
4. Sandbags should weigh a minimum of 35 lbs and a maximum of 50 lbs.
5. Sandbags shall be made of a durable material that tears upon vehicular impact. Rubber, such as tire inner tubes, shall not be used.
6. Rubber ballasts designed for channelizing devices should not be used for ballast on portable sign supports. Sign supports designed and manufactured with rubber bases may be used when shown on the CWZTCD list.
7. Sandbags shall only be placed along or laid over the base supports of the traffic control device and shall not be suspended above ground level or hung with rope, wire, chains or other fasteners. Sandbags shall be placed along the length of the skids to weigh down the sign support.
8. Sandbags shall NOT be placed under the skid and shall not be used to level sign supports placed on slopes.

| LEGEND | |
|--------|----------------------|
| | Sign |
| | Channelizing Devices |
| | Type 3 Barricade |

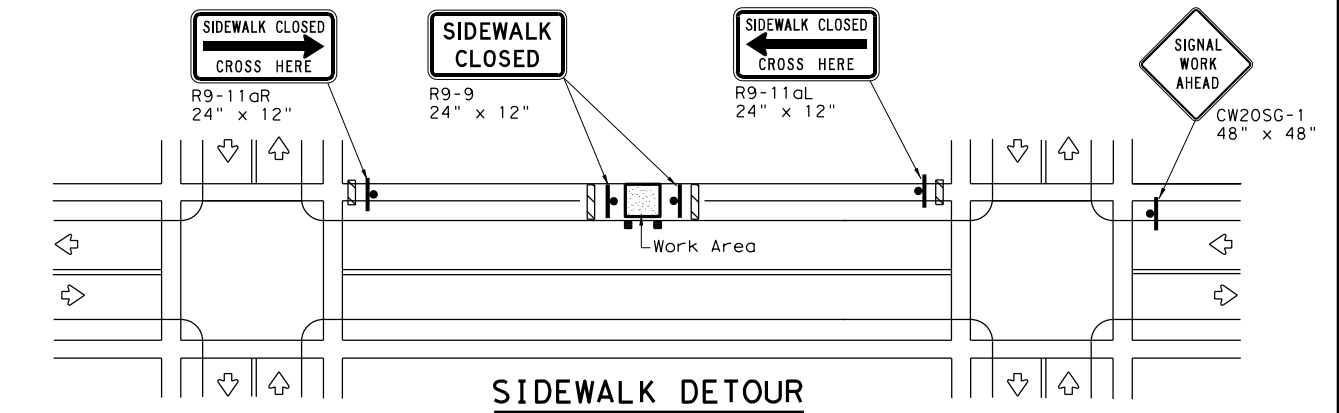
| DEPARTMENTAL MATERIAL SPECIFICATIONS | |
|--------------------------------------|----------|
| SIGN FACE MATERIALS | DMS-8300 |
| FLEXIBLE ROLL-UP REFLECTIVE SIGNS | DMS-8310 |

| COLOR | USAGE | SHEETING MATERIAL |
|--------|------------------|---|
| ORANGE | BACKGROUND | TYPE B _{FL} OR TYPE C _{FL} SHEETING |
| WHITE | BACKGROUND | TYPE A SHEETING |
| BLACK | LEGEND & BORDERS | ACRYLIC NON-REFLECTIVE SHEETING |

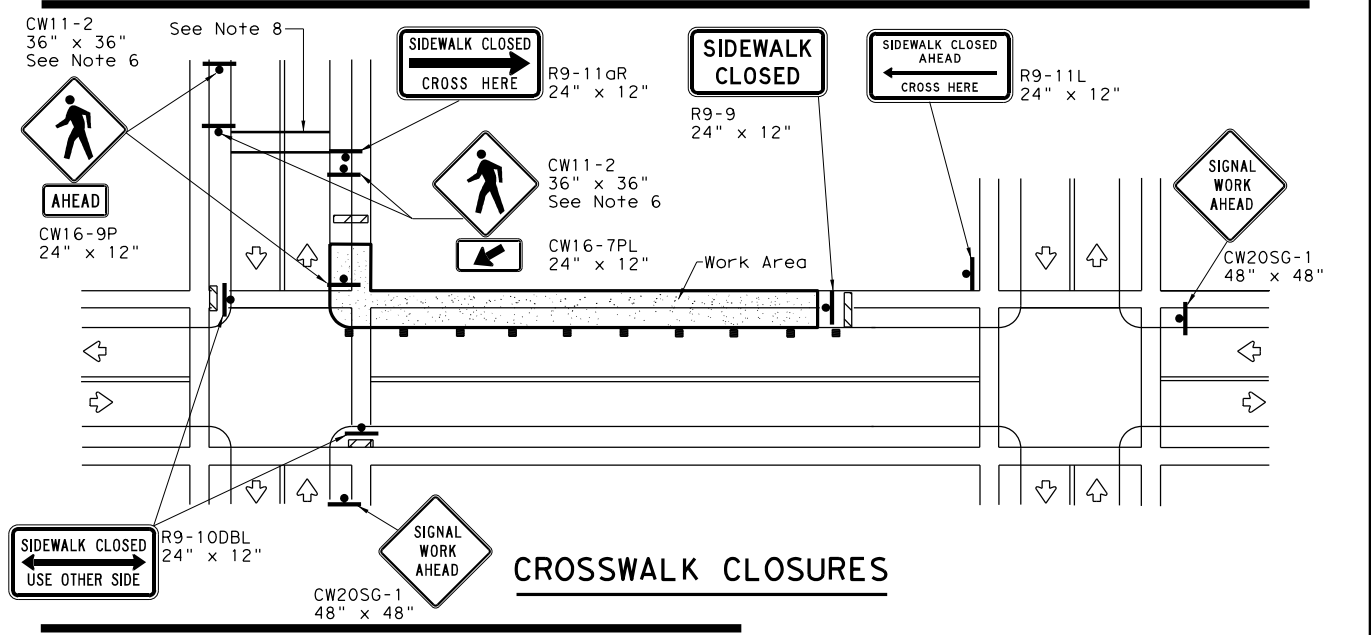
Only pre-qualified products shall be used. A copy of the "Compliant Work Zone Traffic Control Devices List" (CWZTCD) describes pre-qualified products and their sources and may be found at the following web address:
http://www.txdot.gov/txdot_library/publications/construction.htm



SIDEWALK DIVERSION



SIDEWALK DETOUR



CROSSWALK CLOSURES

PEDESTRIAN CONTROL

1. Holes, trenches or other hazards shall be adequately protected by covering, delineating or surrounding the hazard with orange plastic pedestrian fencing or longitudinal channelizing devices, or as directed by the Engineer.
2. "CROSSWALK CLOSURES" as detailed above will require the Engineer's approval prior to installation.
3. R9 series signs shown may be placed on supports detailed on the BC standards or CWZTCD list, or when fabricated from approved lightweight plastic substrates, they may be mounted on top of a plastic drum at or near the location shown.
4. For speeds less than 45 mph longitudinal channelizing devices may be used instead of traffic barriers when approved by the Engineer. Attenuation of blunt ends and installation of water filled devices shall be as per BC(9) and manufacturer's recommendations.
5. Location of devices are for general guidance. Actual device spacing and location must be field adjusted to meet actual conditions.
6. Where pedestrians with visual disabilities normally use the closed sidewalk Detectable Pedestrian Barricades should be used instead of the Type 3 Barricades shown.
7. The width of existing sidewalk should be maintained if practical.
8. Pavement markings for mid-block crosswalks shall be paid for under the appropriate bid items.
9. When crosswalks or other pedestrian facilities are closed or relocated, temporary facilities shall be detectable and shall include accessibility features consistent with the features present in the existing pedestrian facility.

SHEET 2 OF 2

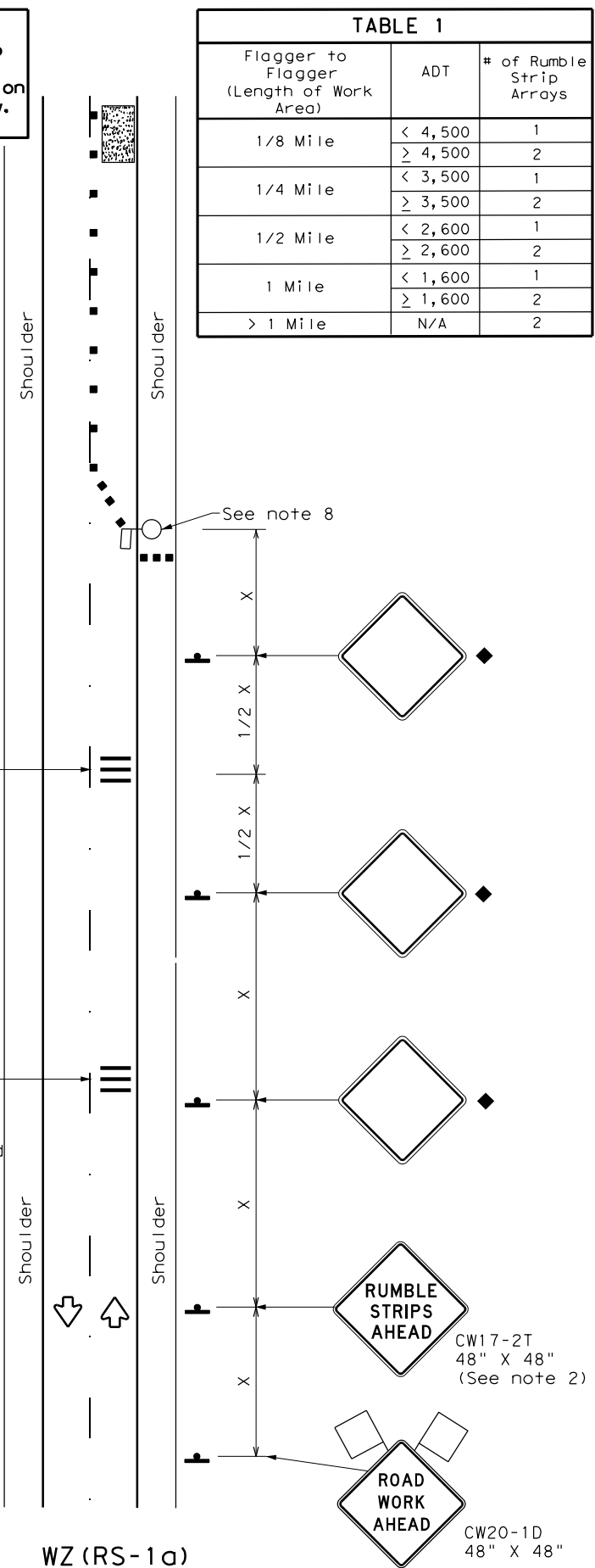
| | | | |
|---|-----------|--------------------------------------|-----------|
| | | Traffic Operations Division Standard | |
| TRAFFIC SIGNAL WORK BARRICADES AND SIGNS | | | |
| WZ (BTS-2) - 13 | | | |
| FILE: wzbts-13.dgn | DN: TxDOT | CR: TxDOT | DW: TxDOT |
| © TxDOT April 1992 | CONT | SECT | JOB |
| REVISIONS | 0913 | 27 | 090 |
| 2-98 10-99 7-13 | DIST | COUNTY | SHEET NO. |
| 4-98 3-03 | YKM | VICTORIA | 27 |

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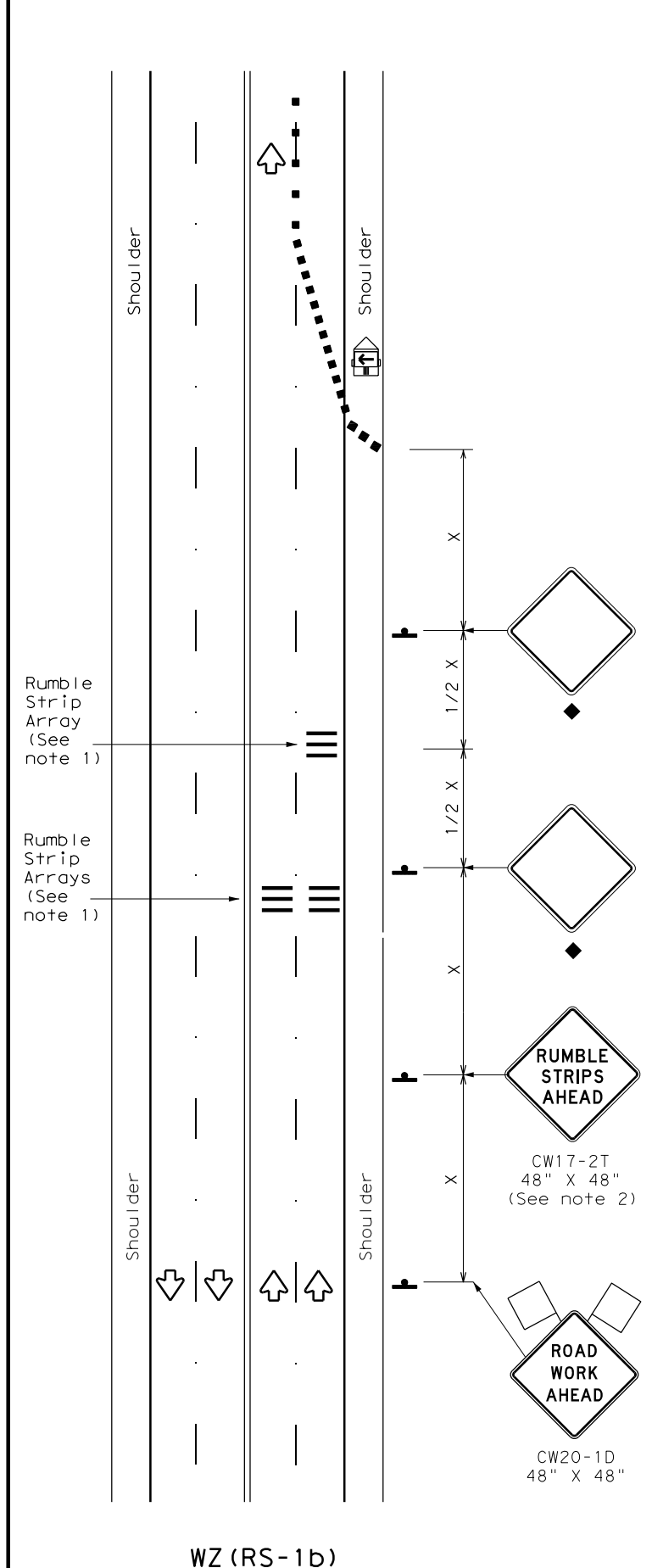
DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

Warning sign and rumble strip sequence in opposite direction is same as below.

| Flagger to Flagger (Length of Work Area) | ADT | # of Rumble Strip Arrays |
|--|---------|--------------------------|
| 1/8 Mile | < 4,500 | 1 |
| | ≥ 4,500 | 2 |
| 1/4 Mile | < 3,500 | 1 |
| | ≥ 3,500 | 2 |
| 1/2 Mile | < 2,600 | 1 |
| | ≥ 2,600 | 2 |
| 1 Mile | < 1,600 | 1 |
| | ≥ 1,600 | 2 |
| > 1 Mile | N/A | 2 |



RUMBLE STRIPS ON ONE-LANE TWO-WAY APPLICATION



RUMBLE STRIPS FOR LANE CLOSURE ON CONVENTIONAL ROADWAY

GENERAL NOTES

- Each Rumble Strip Array should consist of three rumble strips spaced center to center at the spacing shown in Table 2, placed transverse across the lane at locations shown.
- The CW17-2T "RUMBLE STRIPS AHEAD" sign should be located after the CW20-1D "ROAD WORK AHEAD" sign and spaced as shown. If traffic is observed to be queuing, or is expected to queue beyond the Rumble Strips, the CW17-2T sign and the first Rumble Strip Array may be located upstream of the CW20-1D sign as necessary to provide needed warning.
- Temporary Rumble Strips will be considered subsidiary to Item 502, and shall be a product listed on the Compliant Work Zone Traffic Control Devices.
- Remove Temporary Rumble Strips before removing the advanced warning signs.
- Temporary Rumble Strips should not be used on horizontal curves, loose gravel, soft or bleeding asphalt, heavily rutted pavements or unpaved surfaces.
- Temporary Rumble Strips shall be installed and maintained as per manufacturer's recommendations.
- This standard sheet shall be used in conjunction with other appropriate TCP standard, TMUTCD typical application or project specific detail for the project.
- The one-lane two-way application may utilize a flagger, an Automated Flagger Assistance Device (AFAD) or a Portable Traffic Signal (PTS).
- Replace defective Temporary Rumble Strips as directed by the Engineer.
- Temporary Rumble Strips may be used on freeways or expressways based on engineering judgment and written direction from the Engineer.

| Speed | Approximate distance between strips in an array |
|---------------------|---|
| ≤ 40 MPH | 10' |
| > 40 MPH & ≤ 55 MPH | 15' |
| = 60 MPH | 20' |
| ≥ 65 MPH | * 35' + |

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

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

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

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

◆ Signs are for illustrative purposes only. Signs required may vary depending on the TCP, TMUTCD Typical Application, or project specific details for the project.
 * For posted speeds in excess of 65 MPH, it is recommended that spacing is increased as speed limits increase. Increasing space between rumble strips will improve effectiveness.

Texas Department of Transportation
 Traffic Safety Division Standard

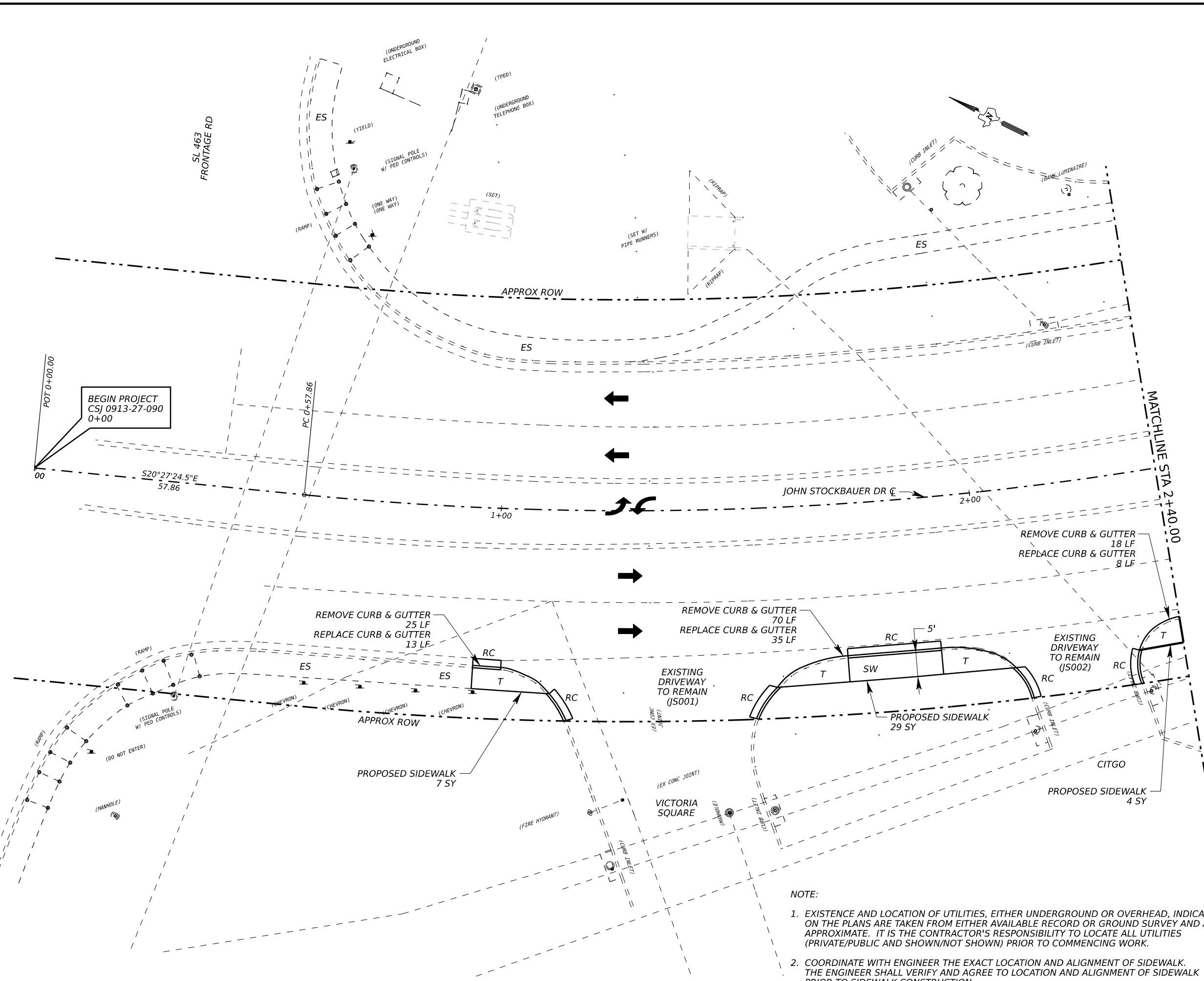
TEMPORARY RUMBLE STRIPS

WZ (RS) - 22

| | | | | |
|-----------------------|-----------|-----------|-----------|-----------|
| FILE: wzrs22.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| © TxDOT November 2012 | CONT | SECT | JOB | HIGHWAY |
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| 2-14 1-22 | DIST | COUNTY | SHEET NO. | |
| 4-16 | YKM | VICTORIA | 28 | |

CK: DW: CK: DW:

| LEGEND | |
|--------|--|
| | = SIGN |
| | = MANHOLE |
| | = POWER POLE |
| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
| | = GUY ANCHOR |
| | = TRAFFIC SIGNAL POLE |
| | = SANITARY CLEAN OUT |
| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | R = RAMP |
| | CR = CURB RAMP |
| | F = FLARE |
| | L = LANDING |
| | SW = PROPOSED SIDEWALK |
| | ES = EXISTING SIDEWALK |
| | RC = REPLACE CURB/CURB & GUTTER |
| | ADW = ADD DETECTABLE WARNING |
| | TPD = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | T = SIDEWALK TRANSITION TO EXISTING DRIVEWAY (SLOPE VARIES) |



BEGIN PROJECT
CSJ 0913-27-090
0+00

S20°27'24.5"E
57.86

PC 0+57.86

MATCHLINE STA 2+40.00

JOHN STOCKBAUER DR C

REMOVE CURB & GUTTER
25 LF
REPLACE CURB & GUTTER
13 LF

REMOVE CURB & GUTTER
70 LF
REPLACE CURB & GUTTER
35 LF

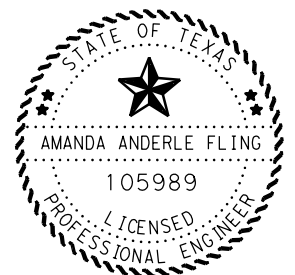
REMOVE CURB & GUTTER
18 LF
REPLACE CURB & GUTTER
8 LF

PROPOSED SIDEWALK
7 SY

PROPOSED SIDEWALK
29 SY

PROPOSED SIDEWALK
4 SY

NOTE:
1. EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
2. COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 0+00 TO STA 2+40**

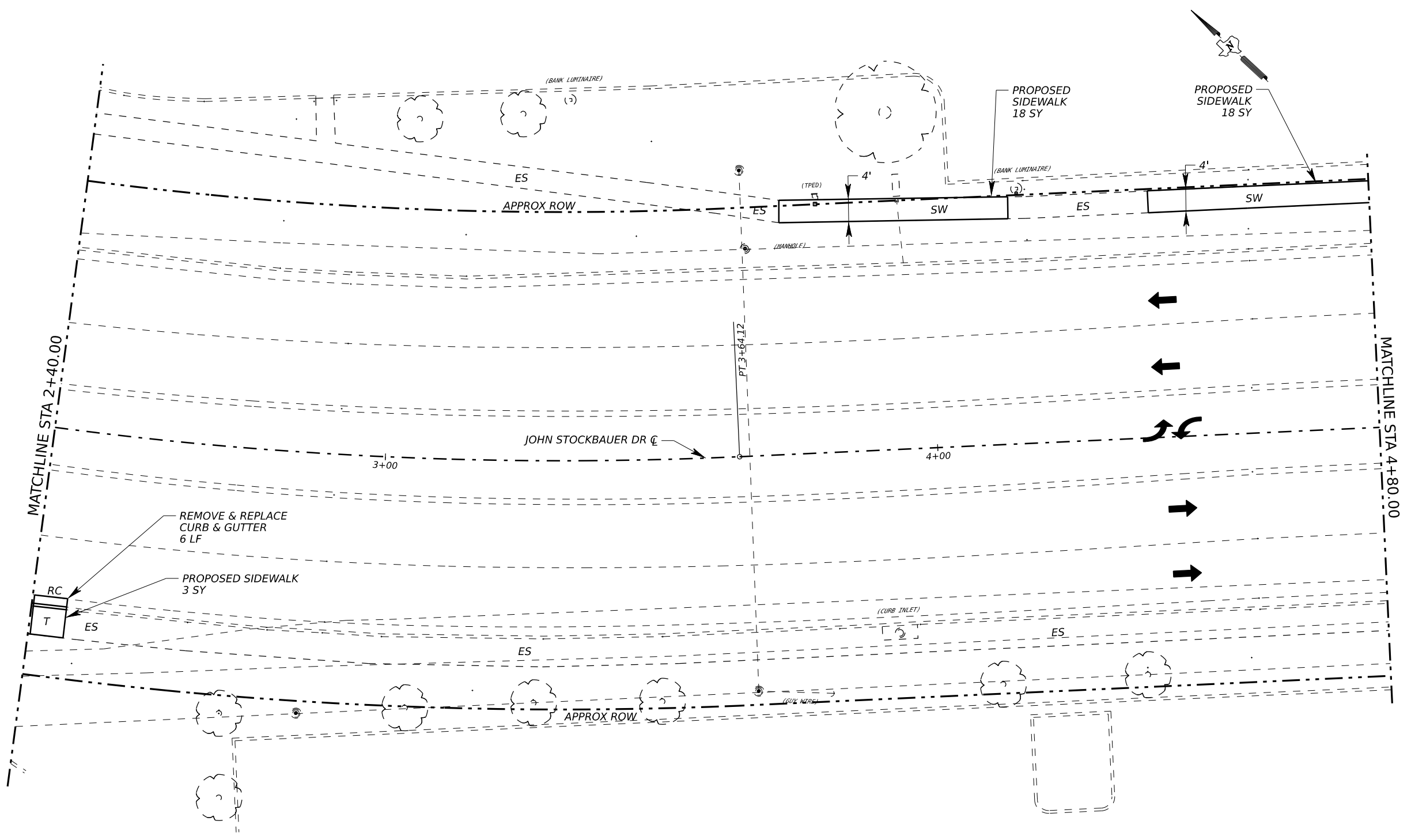
SHEET 1 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 29 | |

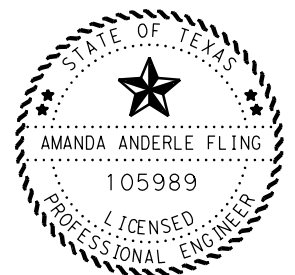
DATE: 1/18/2024
FILE: \$FILES

CK:
DW:
CK:
DW:

| LEGEND | |
|--------|--|
| | = SIGN |
| | = MANHOLE |
| | = POWER POLE |
| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
| | = GUY ANCHOR |
| | = TRAFFIC SIGNAL POLE |
| | = SANITARY CLEAN OUT |
| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | = RAMP |
| | = CURB RAMP |
| | = FLARE |
| | = LANDING |
| | = PROPOSED SIDEWALK |
| | = EXISTING SIDEWALK |
| | = REPLACE CURB/CURB & GUTTER |
| | = ADD DETECTABLE WARNING |
| | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



- NOTE:
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Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



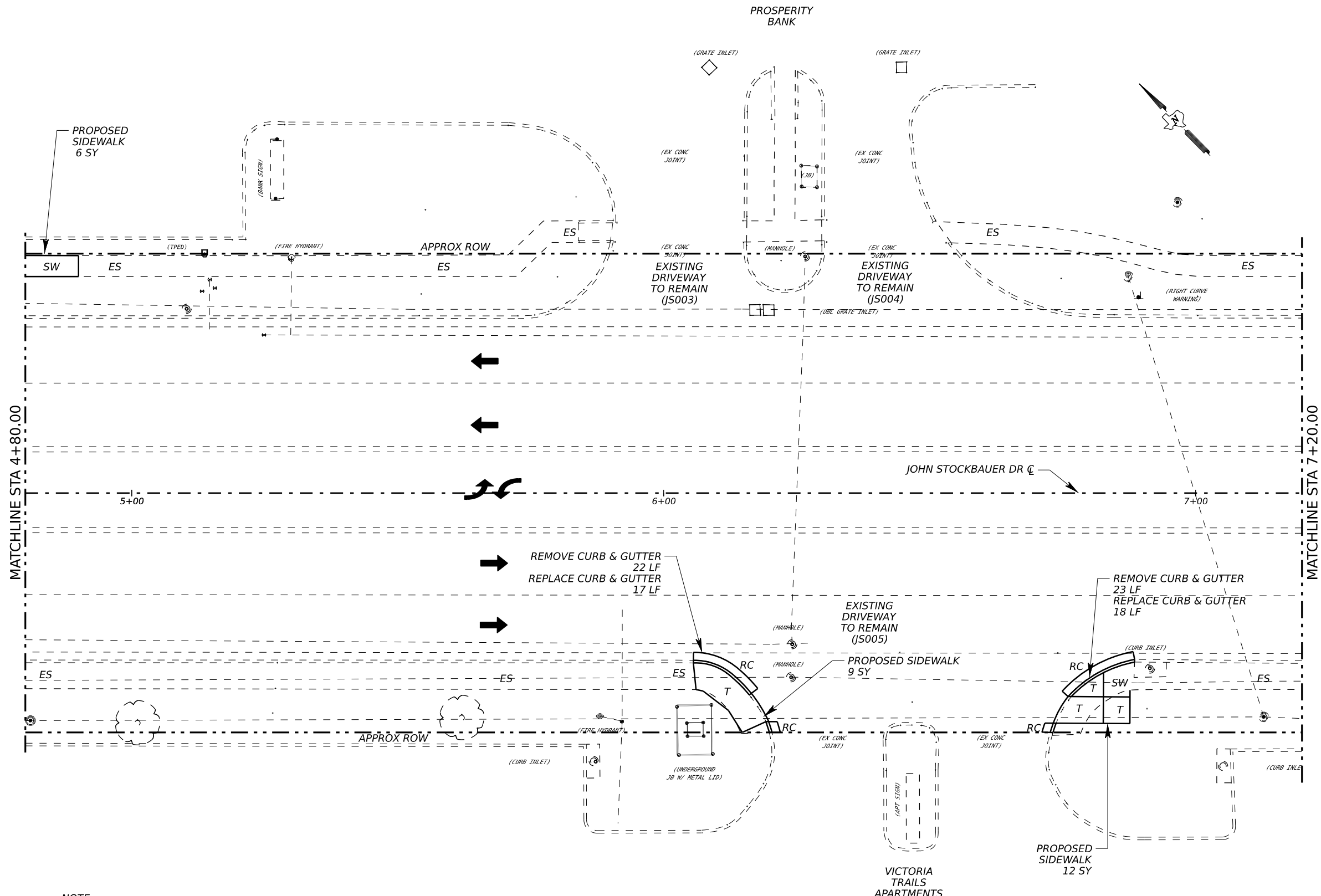
**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 2+40 TO STA 4+80**

SHEET 2 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 30 | |

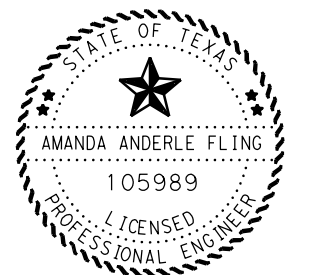
DATE: 1/18/2024
FILE: \$FILES

CK: DW: CK: DW:



LEGEND

- ⊙ = SIGN
- = MANHOLE
- ⊕ = POWER POLE
- ⊗ = SHRUB
- ⊠ = TELEPHONE PEDESTAL
- ⊙ = TELEPHONE MANHOLE
- ⊗ = WATER METER
- ⊙ = JUNCTION BOX
- ⊕ = FIRE HYDRANT
- ⊗ = WATER VALVE
- ⊕ = GAS METER
- = GUY ANCHOR
- ⊙ = TRAFFIC SIGNAL POLE
- = SANITARY CLEAN OUT
- ⊠ = TRAFFIC SIGNAL BOX
- ⊙ = STORM DRAIN MANHOLE
- = TREE
- = DROP INLET
- R = RAMP
- CR = CURB RAMP
- F = FLARE
- L = LANDING
- SW = PROPOSED SIDEWALK
- ES = EXISTING SIDEWALK
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TPD = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE)
- T = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES)



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 4+80 TO STA 7+20**

SHEET 3 OF 14

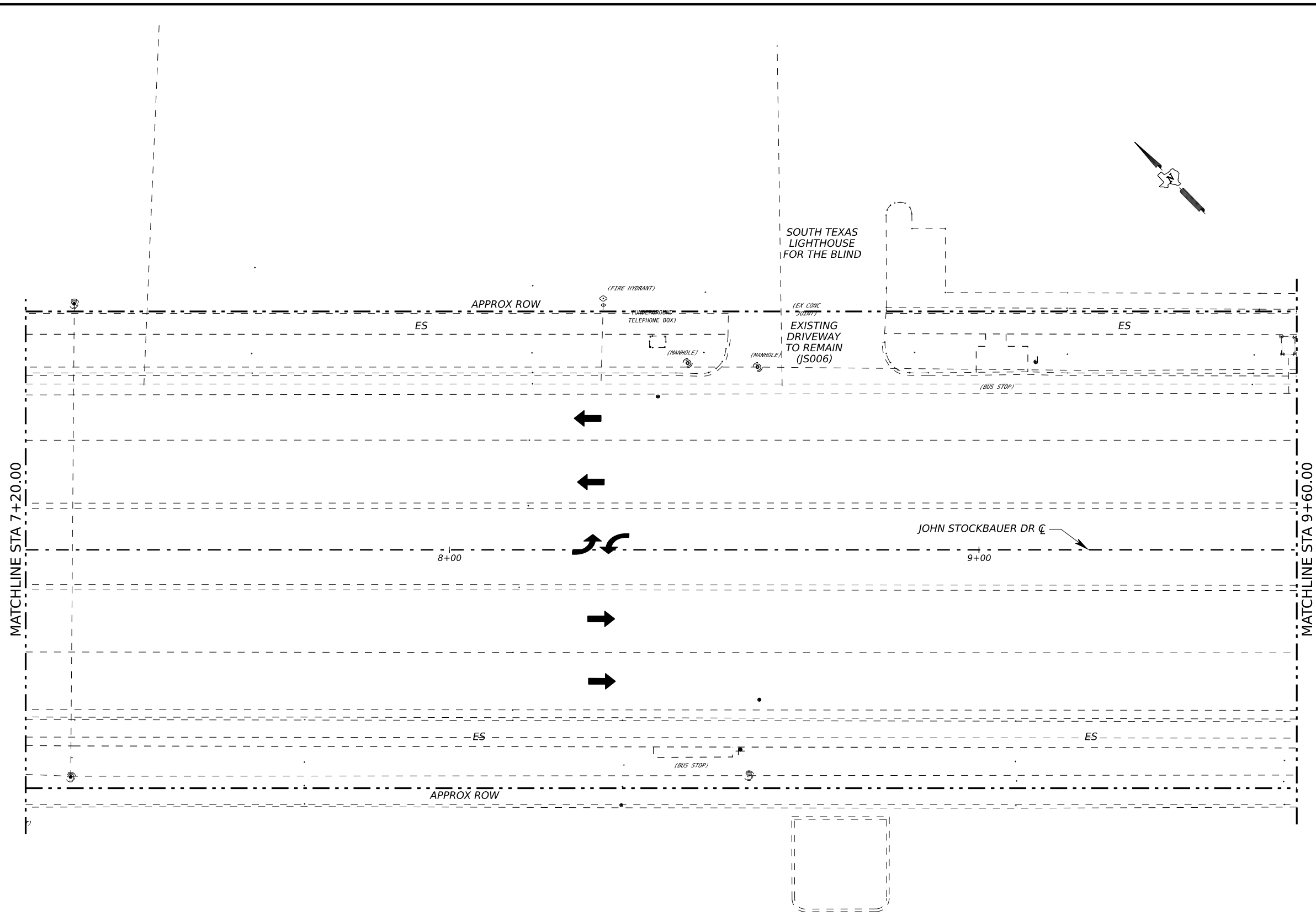
| | | | |
|------|----------|-----------|---------|
| CONT | SECT | JOB | HIGHWAY |
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 31 | |

NOTE:

1. EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
2. COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.

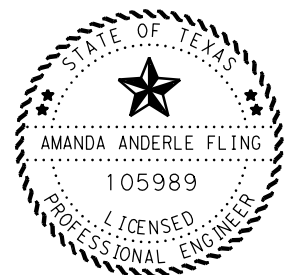
DATE: 1/20/2024
FILE: \$FILES

CK: DW: CK: DW:



LEGEND

- ⊙ = SIGN
- ⊕ = MANHOLE
- ⊗ = POWER POLE
- ⊙ (with cloud) = SHRUB
- ⊠ (with T) = TELEPHONE PEDESTAL
- ⊕ (with T) = TELEPHONE MANHOLE
- ⊕ (with W) = WATER METER
- ⊕ (with J) = JUNCTION BOX
- ⊕ (with F) = FIRE HYDRANT
- ⊕ (with V) = WATER VALVE
- ⊕ (with G) = GAS METER
- ⊕ (with A) = GUY ANCHOR
- ⊙ (with T) = TRAFFIC SIGNAL POLE
- (with T) = SANITARY CLEAN OUT
- ⊠ (with X) = TRAFFIC SIGNAL BOX
- ⊕ (with S) = STORM DRAIN MANHOLE
- (with T) = TREE
- (with I) = DROP INLET
- R = RAMP
- CR = CURB RAMP
- F = FLARE
- L = LANDING
- SW = PROPOSED SIDEWALK
- ES = EXISTING SIDEWALK
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TPD = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE)
- T = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES)



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 7+20 TO STA 9+60**

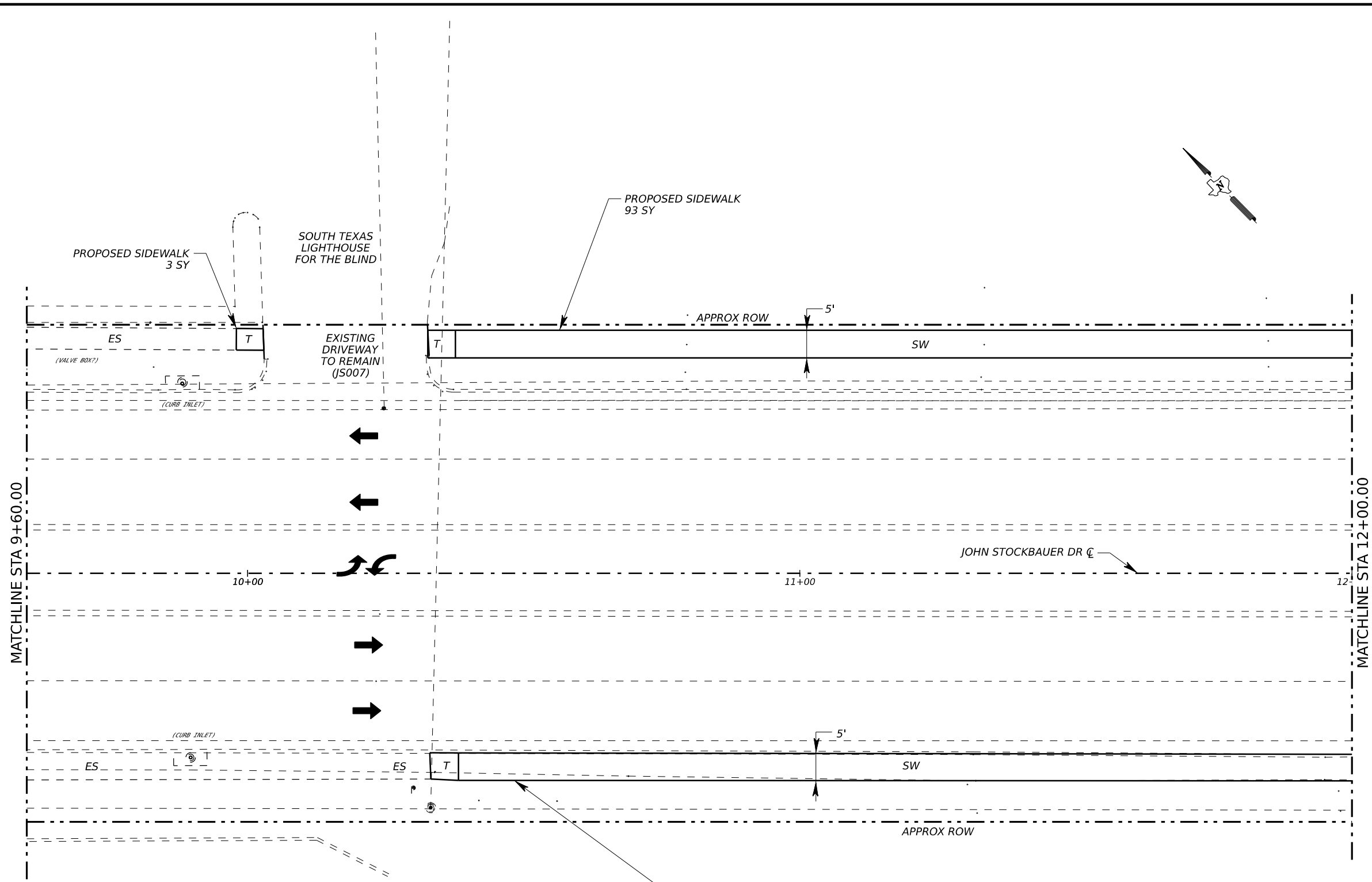
SHEET 4 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|------|----------|-----------|
| 0913 | 27 | 090 | CS |
| DIST | | COUNTY | SHEET NO. |
| YKM | | VICTORIA | 32 |

- NOTE:**
- EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
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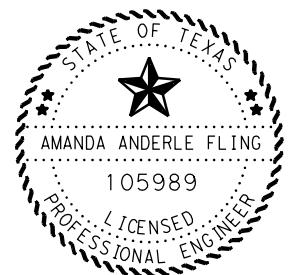
DATE: 1/18/2024
FILE: \$FILES

CK: DW: CK: DW:



LEGEND

- = SIGN
- = MANHOLE
- = POWER POLE
- = SHRUB
- = TELEPHONE PEDESTAL
- = TELEPHONE MANHOLE
- = WATER METER
- = JUNCTION BOX
- = FIRE HYDRANT
- = WATER VALVE
- = GAS METER
- = GUY ANCHOR
- = TRAFFIC SIGNAL POLE
- = SANITARY CLEAN OUT
- = TRAFFIC SIGNAL BOX
- = STORM DRAIN MANHOLE
- = TREE
- = DROP INLET
- = RAMP
- = CURB RAMP
- = FLARE
- = LANDING
- = PROPOSED SIDEWALK
- = EXISTING SIDEWALK
- = REPLACE CURB/CURB & GUTTER
- = ADD DETECTABLE WARNING
- = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE)
- = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES)



Amanda Anderle Fling, P.E.

01/18/2024

SCALE 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 9+60 TO STA 12+00**

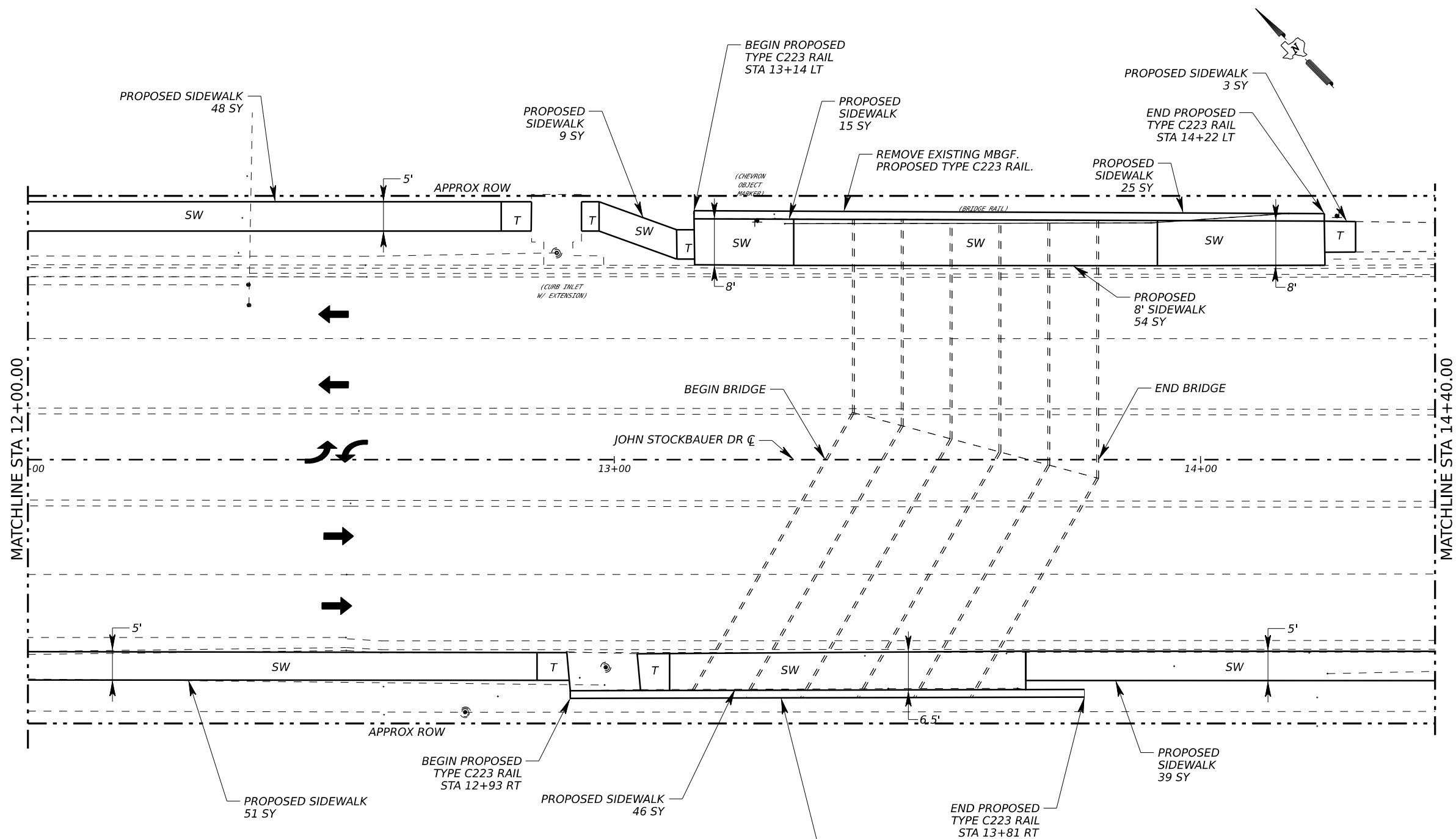
SHEET 5 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 33 | |

- NOTE:
- EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
 - COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.

DATE: 1/18/2024
FILE: \$FILES

CK: DW: CK: DN:



LEGEND

- ⊙ = SIGN
- = MANHOLE
- ⊗ = POWER POLE
- ⊕ = SHRUB
- ⊠ = TELEPHONE PEDESTAL
- ⊕ = TELEPHONE MANHOLE
- ⊗ = WATER METER
- ⊙ = JUNCTION BOX
- ⊕ = FIRE HYDRANT
- ⊗ = WATER VALVE
- ⊕ = GAS METER
- = GUY ANCHOR
- = TRAFFIC SIGNAL POLE
- = SANITARY CLEAN OUT
- ⊗ = TRAFFIC SIGNAL BOX
- ⊕ = STORM DRAIN MANHOLE
- = TREE
- = DROP INLET
- R = RAMP
- CR = CURB RAMP
- F = FLARE
- L = LANDING
- SW = PROPOSED SIDEWALK
- ES = EXISTING SIDEWALK
- RC = REPLACE CURB/CURB & GUTTER
- ADW = ADD DETECTABLE WARNING
- TPD = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE)
- T = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES)



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'

NOTE:

1. EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
2. COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.
3. SEE "BRIDGE CLASS CULVERT (WHISPERING CREEK) SUMMARY & DETAILS" SHEET FOR ADDITIONAL INFORMATION.

REMOVE EXISTING MBGF. PROPOSED TYPE C223 RAIL.



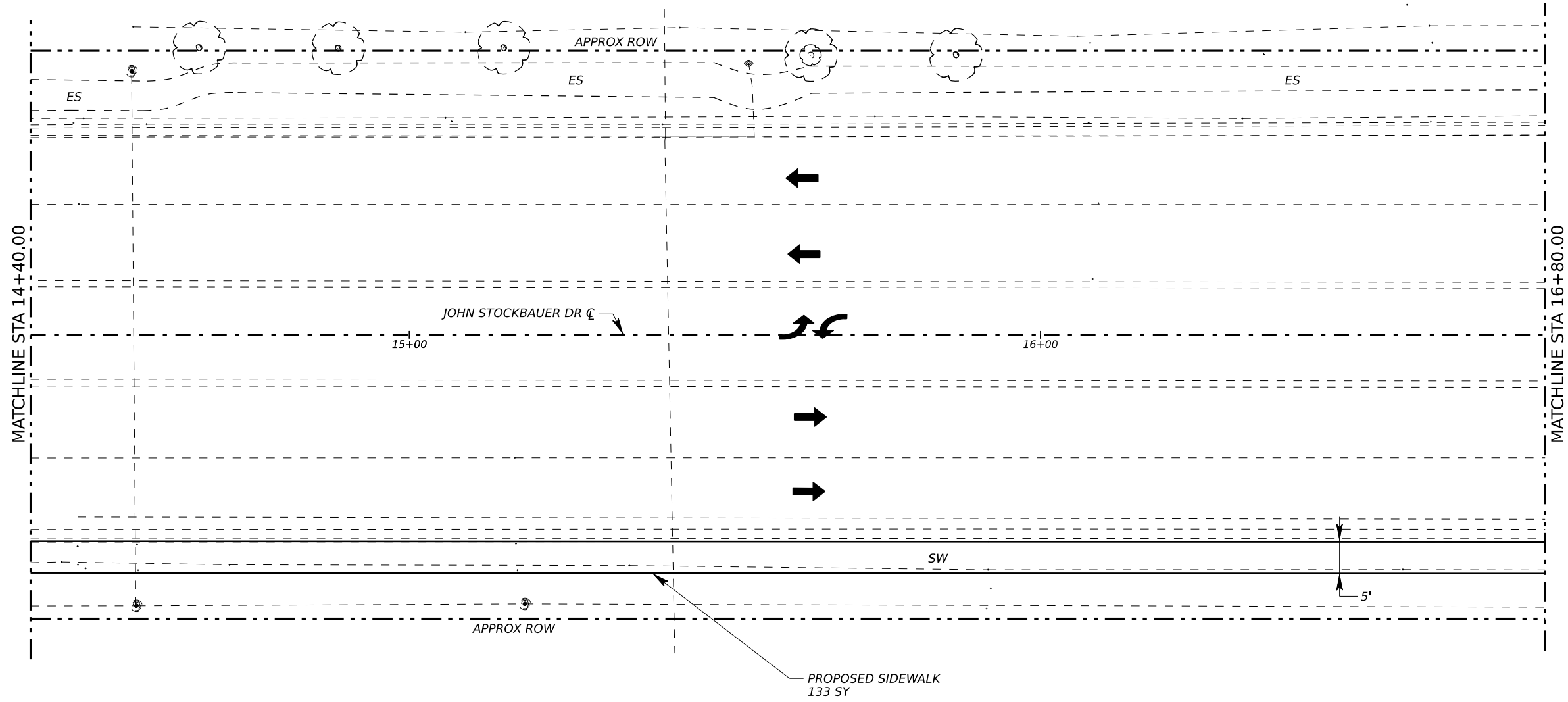
**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 12+00 TO STA 14+40**

SHEET 6 OF 14

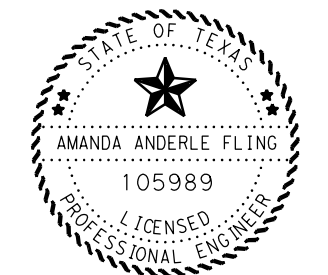
| | | | |
|------|----------|-----------|---------|
| CONT | SECT | JOB | HIGHWAY |
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 34 | |

DATE: 1/20/2024
FILE: \$FILES

CK: DW: CK: DW:



| LEGEND | |
|--------|--|
| | = SIGN |
| | = MANHOLE |
| | = POWER POLE |
| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
| | = GUY ANCHOR |
| | = TRAFFIC SIGNAL POLE |
| | = SANITARY CLEAN OUT |
| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | = RAMP |
| | = CURB RAMP |
| | = FLARE |
| | = LANDING |
| | = PROPOSED SIDEWALK |
| | = EXISTING SIDEWALK |
| | = REPLACE CURB/CURB & GUTTER |
| | = ADD DETECTABLE WARNING |
| | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 14+40 TO STA 16+80**

SHEET 7 OF 14

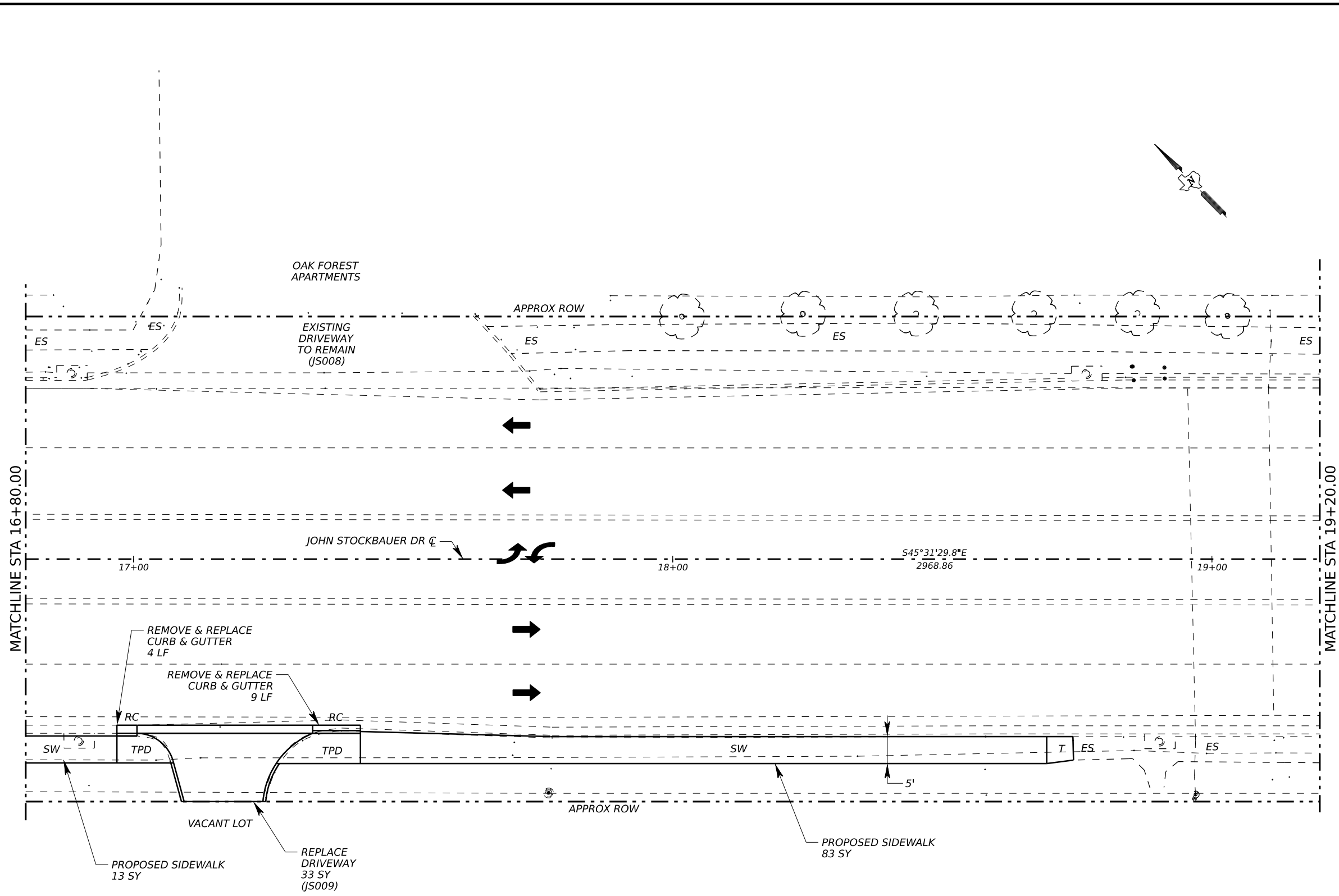
| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 35 | |

NOTE:

- EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES (PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
- COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.

DATE: 1/18/2024
FILE: \$FILES

CK: DW: CK: DW: CK: DW: CK: DW:



LEGEND

- = SIGN
- = MANHOLE
- = POWER POLE
- = SHRUB
- = TELEPHONE PEDESTAL
- = TELEPHONE MANHOLE
- = WATER METER
- = JUNCTION BOX
- = FIRE HYDRANT
- = WATER VALVE
- = GAS METER
- = GUY ANCHOR
- = TRAFFIC SIGNAL POLE
- = SANITARY CLEAN OUT
- = TRAFFIC SIGNAL BOX
- = STORM DRAIN MANHOLE
- = TREE
- = DROP INLET
- = RAMP
- = CURB RAMP
- = FLARE
- = LANDING
- = PROPOSED SIDEWALK
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- = REPLACE CURB/CURB & GUTTER
- = ADD DETECTABLE WARNING
- = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE)
- = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES)



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 16+80 TO STA 19+20**

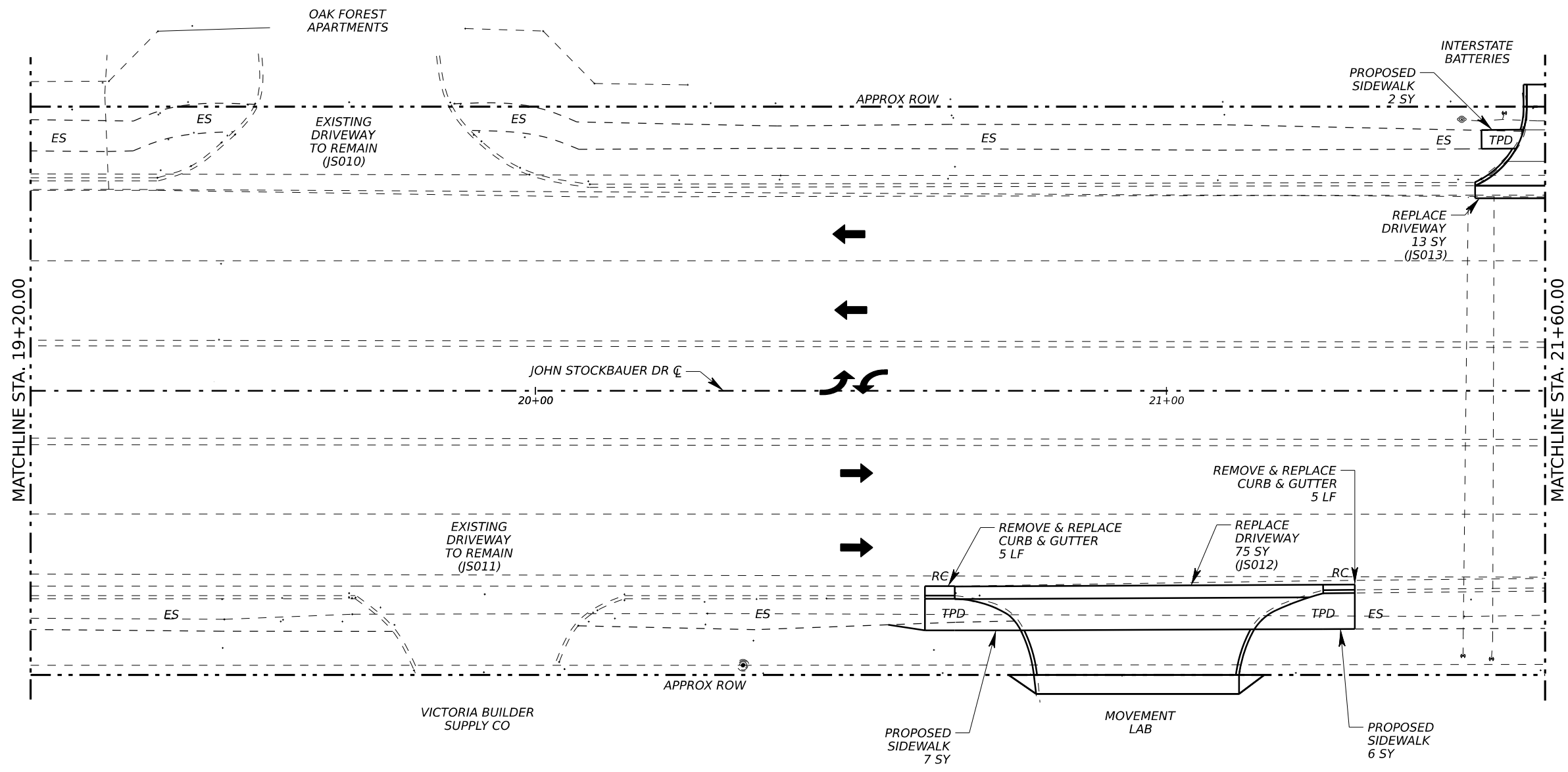
SHEET 8 OF 14

| | | | |
|------|----------|-----------|---------|
| CONT | SECT | JOB | HIGHWAY |
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 36 | |

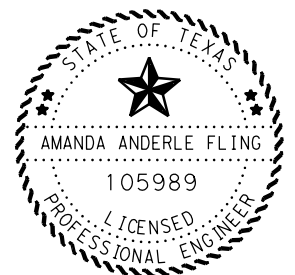
- NOTE:
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DATE: 1/20/2024 \$TIMES
FILE: \$FILES

CK: DW: CK: DW:



| LEGEND | |
|--------|--|
| | = SIGN |
| | = MANHOLE |
| | = POWER POLE |
| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
| | = GUY ANCHOR |
| | = TRAFFIC SIGNAL POLE |
| | = SANITARY CLEAN OUT |
| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | = RAMP |
| | = CURB RAMP |
| | = FLARE |
| | = LANDING |
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| | = REPLACE CURB/CURB & GUTTER |
| | = ADD DETECTABLE WARNING |
| | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'

NOTE:

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- COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.

DATE: 1/18/2024
FILE: \$FILES

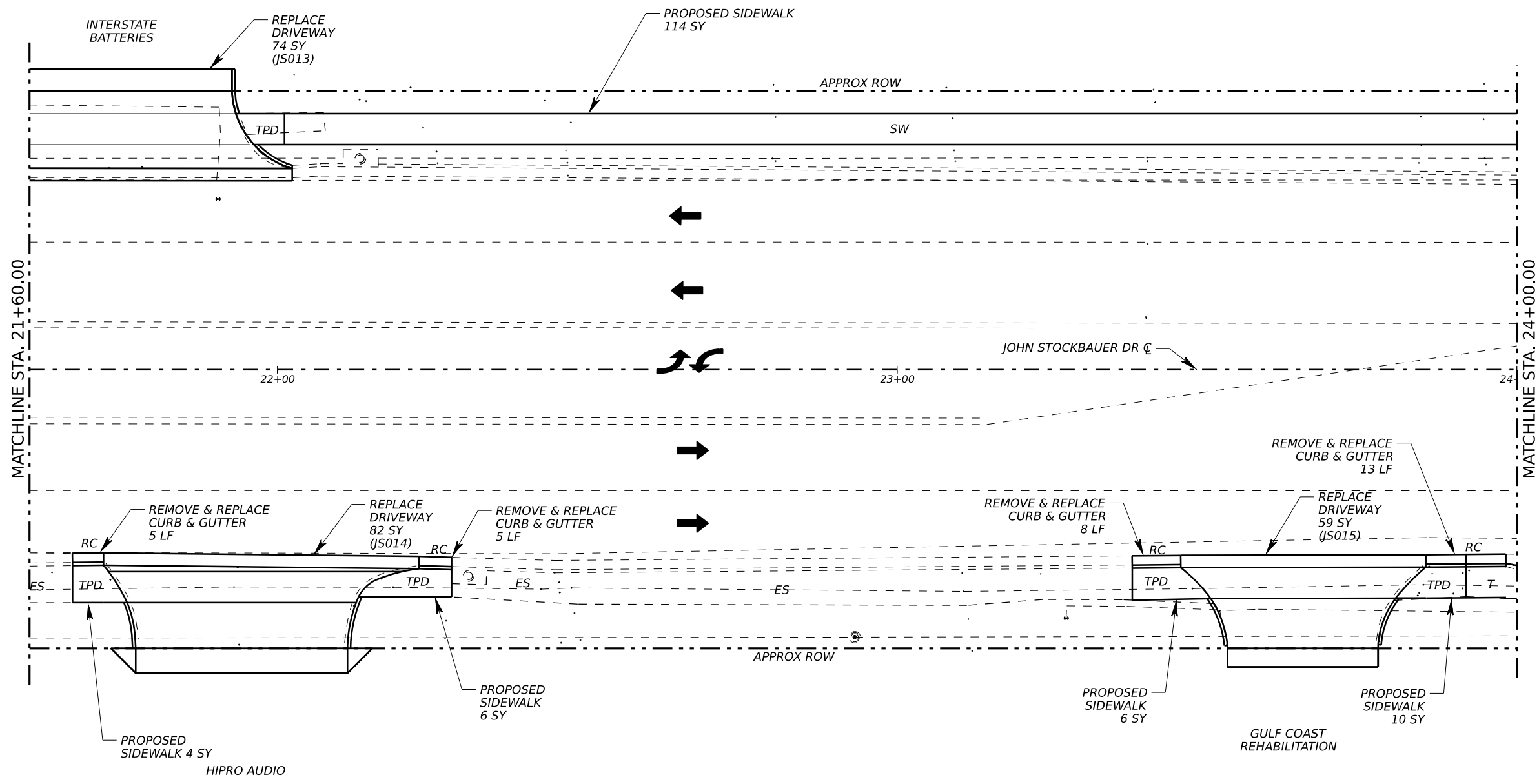


**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 19+20 TO STA 21+60**

SHEET 9 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 37 | |

CK: DW: CK: DW:



| LEGEND | |
|--------|--|
| | = SIGN |
| | = MANHOLE |
| | = POWER POLE |
| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
| | = GUY ANCHOR |
| | = TRAFFIC SIGNAL POLE |
| | = SANITARY CLEAN OUT |
| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | = RAMP |
| | = CURB RAMP |
| | = FLARE |
| | = LANDING |
| | = PROPOSED SIDEWALK |
| | = EXISTING SIDEWALK |
| | = REPLACE CURB/CURB & GUTTER |
| | = ADD DETECTABLE WARNING |
| | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 21+60 TO STA 24+00**

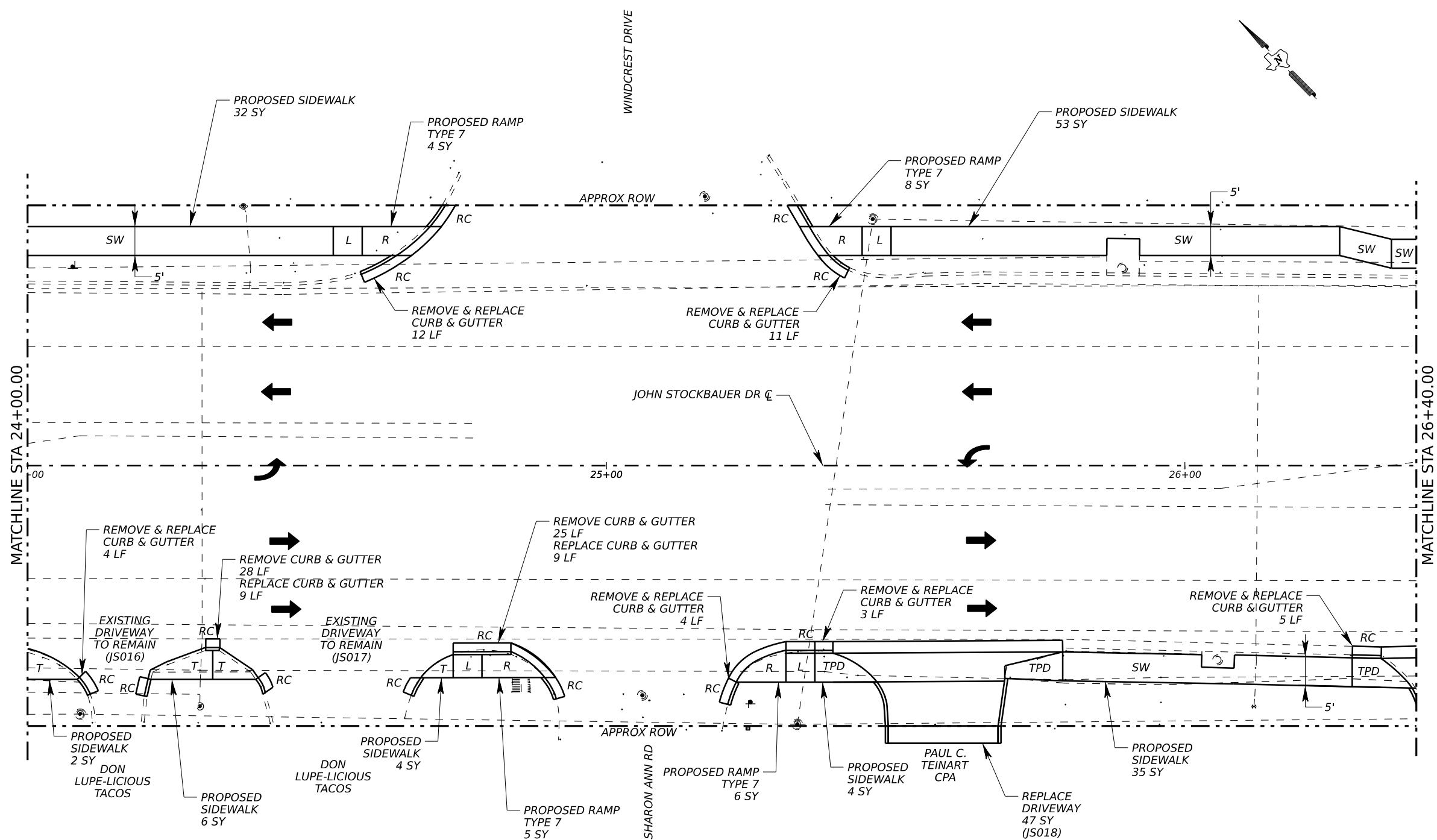
SHEET 10 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 38 | |

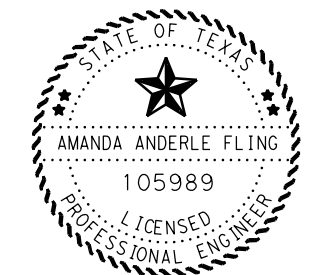
- NOTE:
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 - COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.

DATE: 1/20/2024
FILE: \$FILES

CK:
DW:
CK:
DW:



| LEGEND | |
|--------|--|
| ⊙ | = SIGN |
| ⊗ | = MANHOLE |
| ⊕ | = POWER POLE |
| ⊖ | = SHRUB |
| ⊠ | = TELEPHONE PEDESTAL |
| ⊚ | = TELEPHONE MANHOLE |
| ⊙ | = WATER METER |
| ⊙ | = JUNCTION BOX |
| ⊙ | = FIRE HYDRANT |
| ⊙ | = WATER VALVE |
| ⊙ | = GAS METER |
| ⊙ | = GUY ANCHOR |
| ⊙ | = TRAFFIC SIGNAL POLE |
| ⊙ | = SANITARY CLEAN OUT |
| ⊙ | = TRAFFIC SIGNAL BOX |
| ⊙ | = STORM DRAIN MANHOLE |
| ⊙ | = TREE |
| □ | = DROP INLET |
| R | = RAMP |
| CR | = CURB RAMP |
| F | = FLARE |
| L | = LANDING |
| SW | = PROPOSED SIDEWALK |
| ES | = EXISTING SIDEWALK |
| RC | = REPLACE CURB/CURB & GUTTER |
| ADW | = ADD DETECTABLE WARNING |
| TPD | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| T | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'

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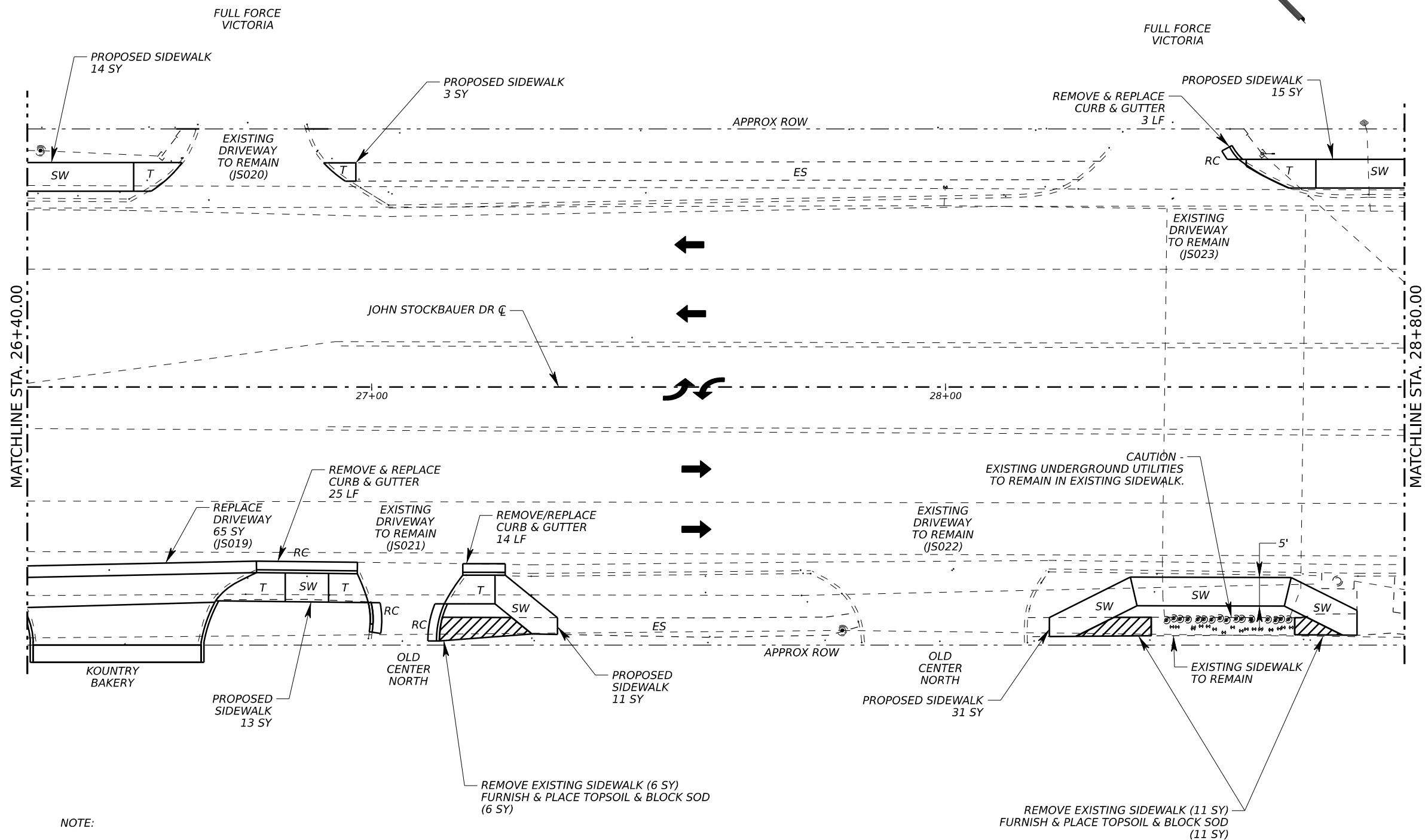
**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 24+00 TO STA 26+40**

SHEET 11 OF 14

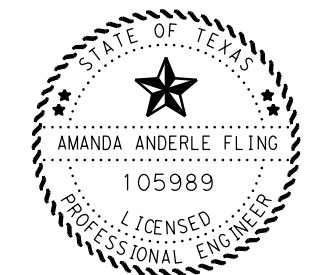
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|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 39 | |

DATE: 1/20/2024
FILE: \$FILES

CK: DW: CK: DW:



| LEGEND | |
|--------|--|
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| ⊗ | = POWER POLE |
| ⊙ | = SHRUB |
| ⊕ | = TELEPHONE PEDESTAL |
| ⊕ | = TELEPHONE MANHOLE |
| ⊕ | = WATER METER |
| ⊕ | = JUNCTION BOX |
| ⊕ | = FIRE HYDRANT |
| ⊕ | = WATER VALVE |
| ⊕ | = GAS METER |
| ⊕ | = GUY ANCHOR |
| ⊕ | = TRAFFIC SIGNAL POLE |
| ⊕ | = SANITARY CLEAN OUT |
| ⊕ | = TRAFFIC SIGNAL BOX |
| ⊕ | = STORM DRAIN MANHOLE |
| ⊕ | = TREE |
| ⊕ | = DROP INLET |
| R | = RAMP |
| CR | = CURB RAMP |
| F | = FLARE |
| L | = LANDING |
| SW | = PROPOSED SIDEWALK |
| ES | = EXISTING SIDEWALK |
| RC | = REPLACE CURB/CURB & GUTTER |
| ADW | = ADD DETECTABLE WARNING |
| TPD | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| T | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'

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**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 26+40 TO STA 28+80**

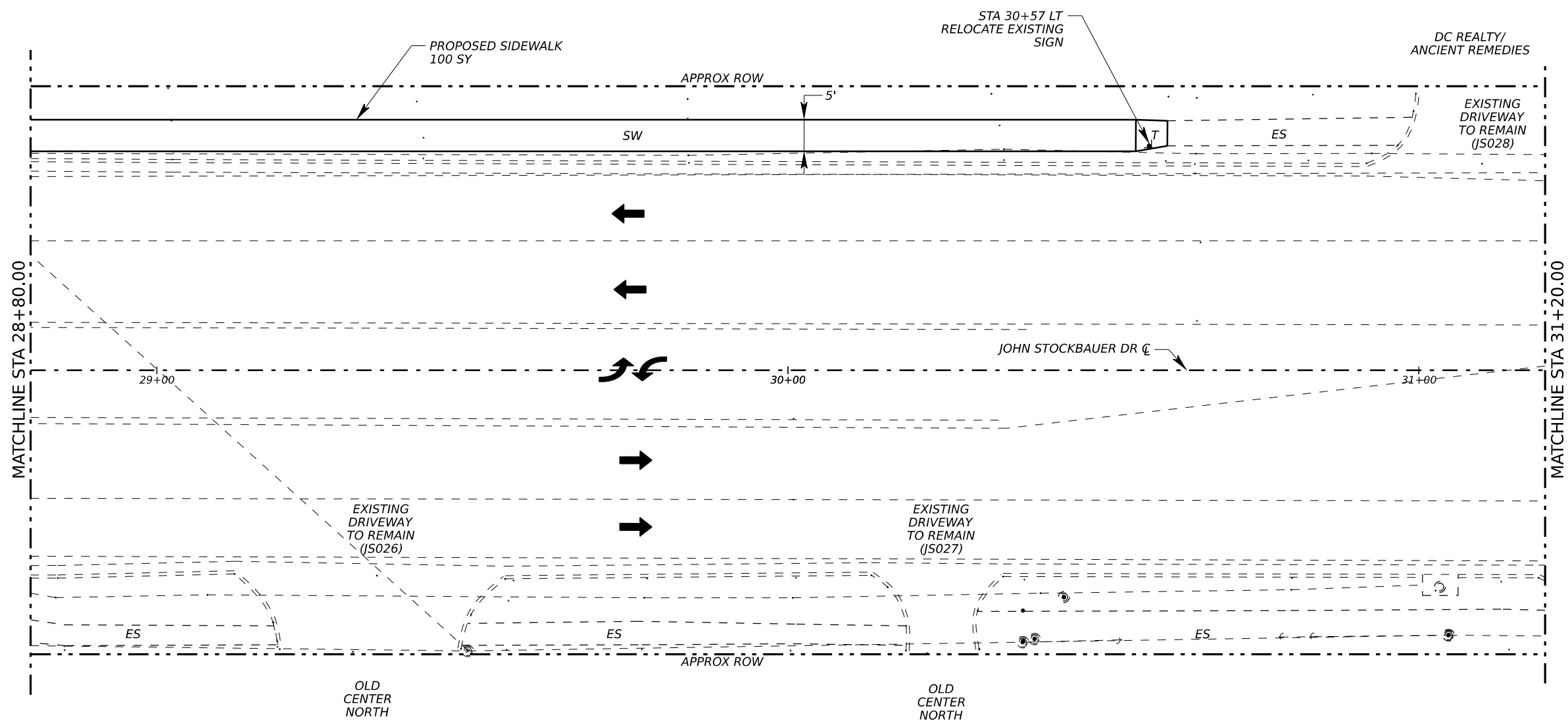
SHEET 12 OF 14

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| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 40 | |

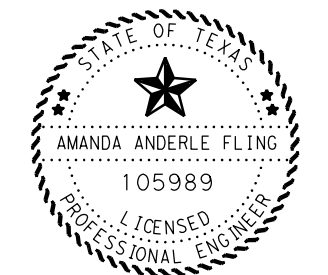
DATE: 1/23/2024
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| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
| | = GUY ANCHOR |
| | = TRAFFIC SIGNAL POLE |
| | = SANITARY CLEAN OUT |
| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | = RAMP |
| | = CURB RAMP |
| | = FLARE |
| | = LANDING |
| | = PROPOSED SIDEWALK |
| | = EXISTING SIDEWALK |
| | = REPLACE CURB/CURB & GUTTER |
| | = ADD DETECTABLE WARNING |
| | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |



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Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'



**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 28+80 TO STA 31+20**

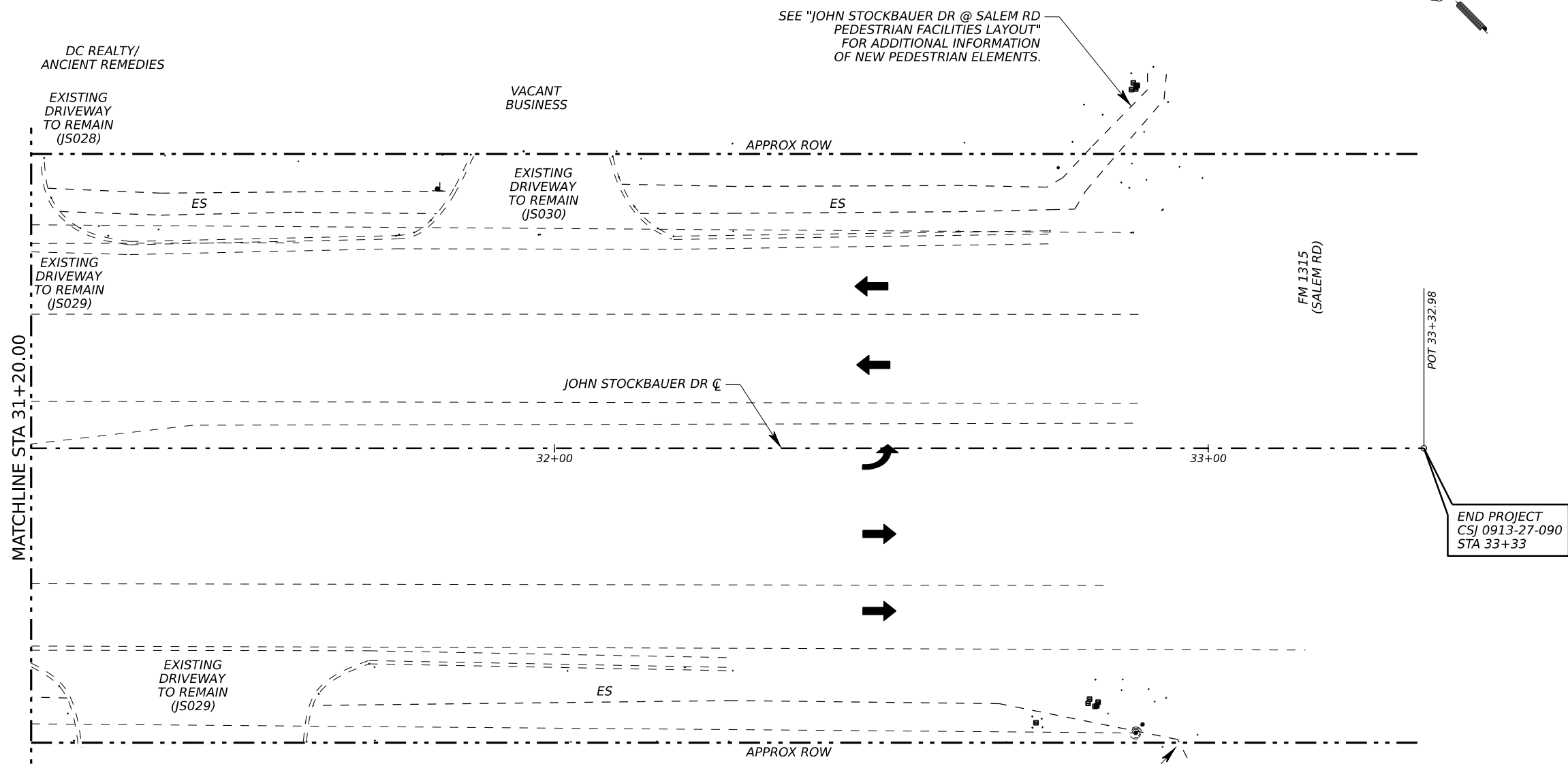
SHEET 13 OF 14

| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 41 | |

DATE: 1/18/2024
FILE: \$FILES

CK: DW: CK: DN:

| LEGEND | |
|--------|--|
| | = SIGN |
| | = MANHOLE |
| | = POWER POLE |
| | = SHRUB |
| | = TELEPHONE PEDESTAL |
| | = TELEPHONE MANHOLE |
| | = WATER METER |
| | = JUNCTION BOX |
| | = FIRE HYDRANT |
| | = WATER VALVE |
| | = GAS METER |
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| | = TRAFFIC SIGNAL BOX |
| | = STORM DRAIN MANHOLE |
| | = TREE |
| | = DROP INLET |
| | = RAMP |
| | = CURB RAMP |
| | = FLARE |
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| | = SIDEWALK TRANSITION TO PROPOSED DRIVEWAY (8.33% MAX SLOPE) |
| | = SIDEWALK TRANSITION TO EXISTING SIDEWALK/DRIVEWAY (SLOPE VARIES) |

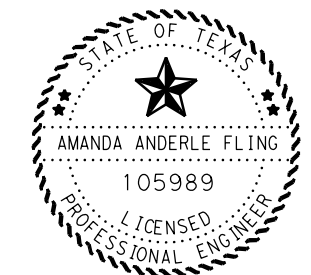


SEE "JOHN STOCKBAUER DR @ SALEM RD PEDESTRIAN FACILITIES LAYOUT" FOR ADDITIONAL INFORMATION OF NEW PEDESTRIAN ELEMENTS.

SEE "JOHN STOCKBAUER DR @ SALEM RD PEDESTRIAN FACILITIES LAYOUT" FOR ADDITIONAL INFORMATION OF NEW PEDESTRIAN ELEMENTS.

MATCHLINE STA 31+20.00

END PROJECT
CSJ 0913-27-090
STA 33+33



Amanda Anderle Fling, P.E.

01/18/2024

SCALE: 1" = 20'

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DATE: 1/20/2024
FILE: \$FILES

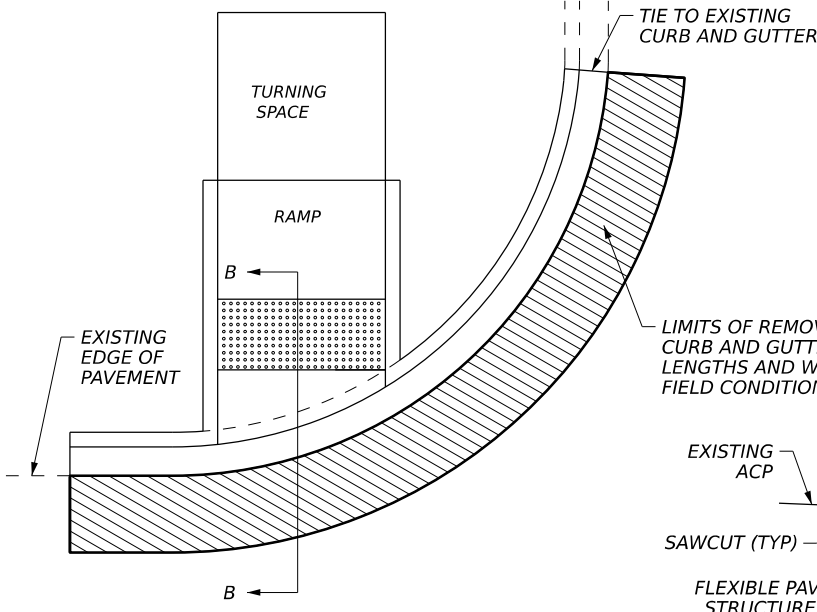


**SIDEWALK LAYOUT
(JOHN STOCKBAUER DR)
STA 31+20 TO STA 33+33**

SHEET 14 OF 14

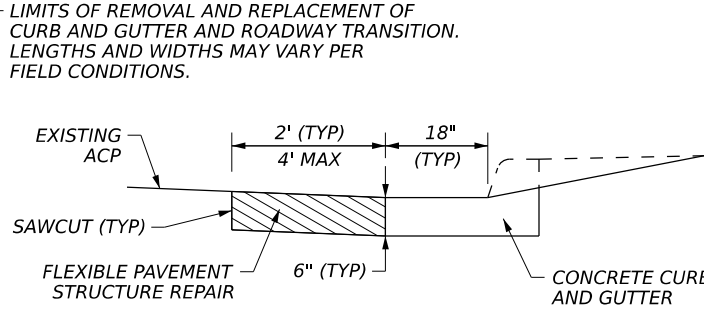
| CONT | SECT | JOB | HIGHWAY |
|------|----------|-----------|---------|
| 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 42 | |

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 FILE: SIDEWALK_DETAILS.dgn
 DATE: 1/18/2024

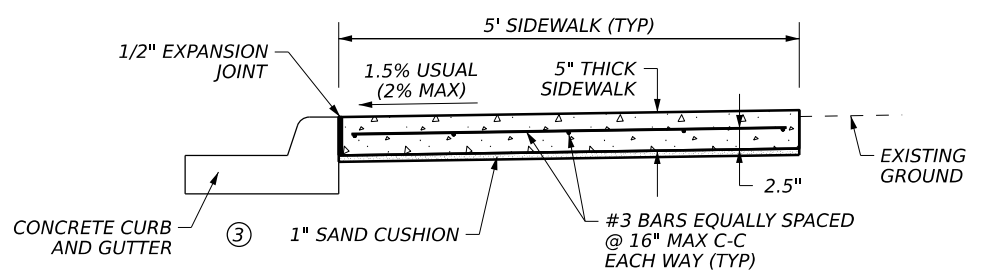


ROADWAY TRANSITION DETAIL
 PLAN VIEW
 NOT TO SCALE

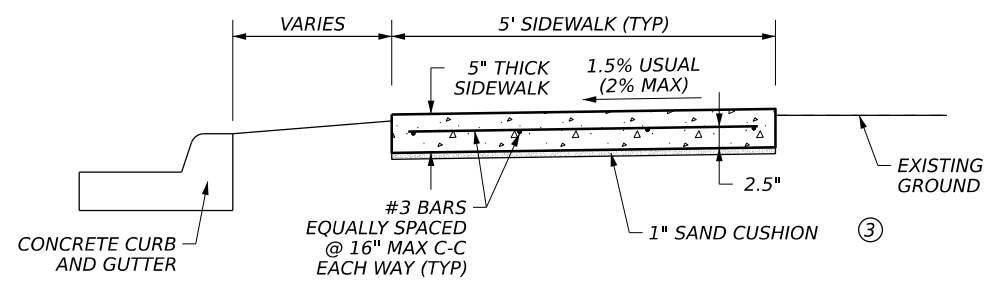
- ROADWAY TRANSITION NOTES:**
- A. UTILIZE ROADWAY TRANSITION TO TIE TO CROSS-SLOPE OF NEWLY CONSTRUCTED CURB RAMP TO EXISTING ROADWAY GRADE. ENSURE POSITIVE DRAINAGE IN ROADWAY TRANSITION AREAS.
 - B. SEE GENERAL NOTES, ITEM 351, FLEXIBLE PAVEMENT STRUCTURE REPAIR FOR MORE INFORMATION.
 - C. ROADWAY TRANSITION IS CONSIDERED SUBSIDIARY TO ITEM 531, SIDEWALK OR CURB RAMP.



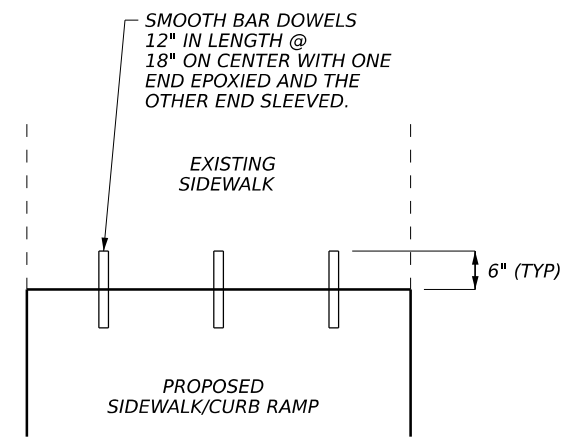
ROADWAY TRANSITION
 SECTION B-B
 NOT TO SCALE



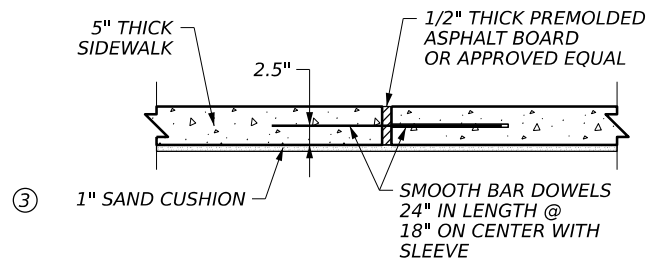
CONCRETE SIDEWALK DETAIL
 (SIDEWALK ADJACENT TO CURB)
 NOT TO SCALE



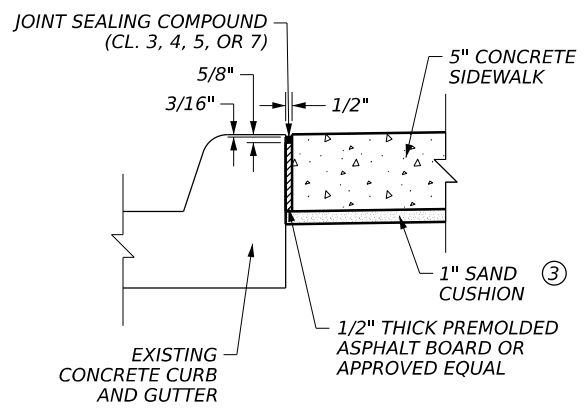
CONCRETE SIDEWALK DETAIL
 (SIDEWALK OFFSET FROM CURB)
 NOT TO SCALE



CONSTRUCTION JOINT DETAIL
 NOT TO SCALE

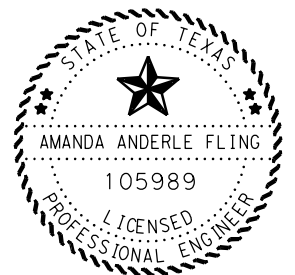


TRANSVERSE EXPANSION JOINT DETAIL
 NOT TO SCALE



**1/2\"/>
 (SIDEWALK ADJACENT TO CURB)
 NOT TO SCALE**

- SIDEWALK GENERAL NOTES**
- ① PROVIDE 1/2" DEEP TOOLED OR SAW CUT JOINTS EVENLY SPACED AT 5' TYP / 10' MAX SPACING.
 - ② PROVIDE EXPANSION JOINTS AT 40' MAX SPACING.
 - ③ EMBANKMENT, SAND, AND FLEX BASE MATERIAL FOR SIDEWALK FOUNDATION ARE CONSIDERED SUBSIDIARY TO ITEM 531.
 - ④ PROVIDE 1/2" CHAMFER ON ALL EXPOSED CORNERS.



Amanda Anderle Fling, P.E.

01/18/2024

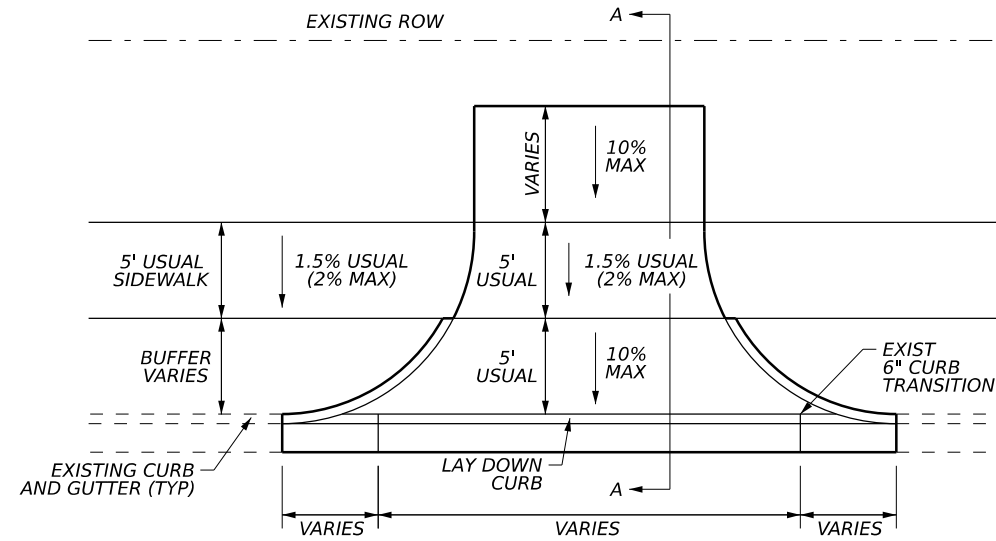
SIDEWALK DETAILS

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| FED. RD. DIV. NO. | | PROJECT NO. | |
|-------------------|-------|-------------|-------------|
| 6 | | | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 43 |

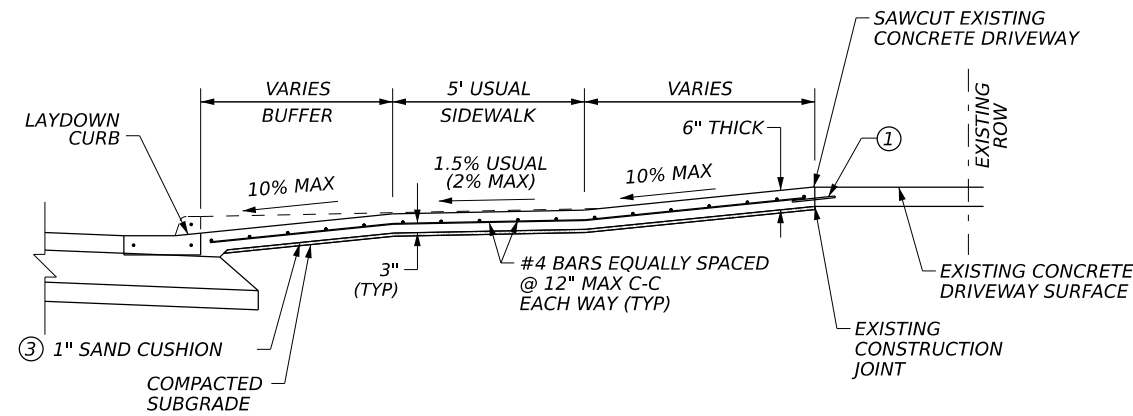
SHEET 1 OF 2

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 FILE: SIDEWALK_DETAILS.dgn
 DATE: 1/20/2024



DRIVEWAY (CONC) DETAIL

PLAN VIEW
 NOT TO SCALE

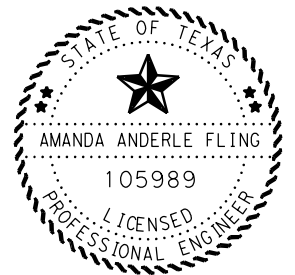


DRIVEWAY (CONC) DETAIL

SECTION A-A
 NOT TO SCALE

DRIVEWAY NOTES:

- ① DRILL AND EMBED 1/2" DIA DOWEL BAR INTO EXISTING CONCRETE DRIVEWAY AS APPROVED BY THE ENGINEER AND TIE TO PROPOSED REINFORCEMENT.
- ② DIMENSIONS FOR EACH DRIVEWAY ARE TYPICAL AND MAY VARY DURING ACTUAL CONSTRUCTION TO MEET FIELD CONDITIONS AND MATCH EXISTING DRIVEWAYS.
- ③ EMBANKMENT, SAND, AND FLEX BASE MATERIAL FOR DRIVEWAY FOUNDATION ARE CONSIDERED SUBSIDIARY TO ITEM 530.



Amanda Anderle Fling, P.E.

01/18/2024

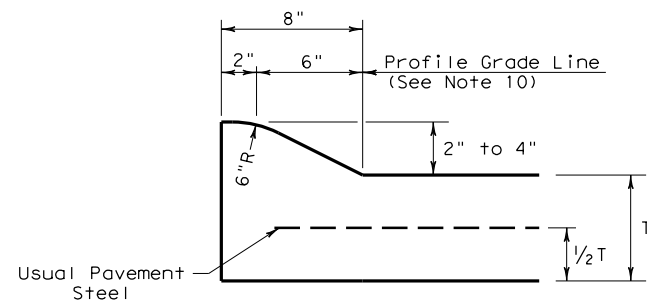
SIDEWALK DETAILS

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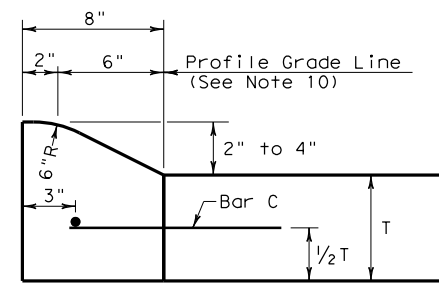
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|-------------------|-------|-------------|-------------|
| 6 | | | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 44 |

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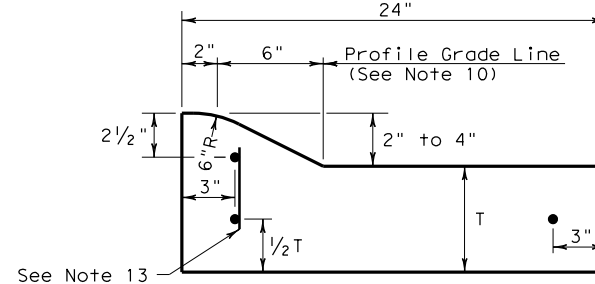
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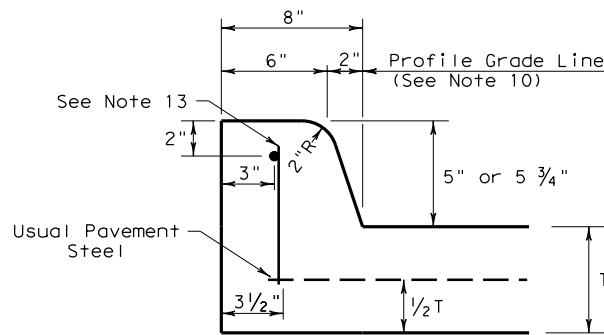
**TYPE I CURB (MONOLITHIC)
2" - 4" HEIGHT**



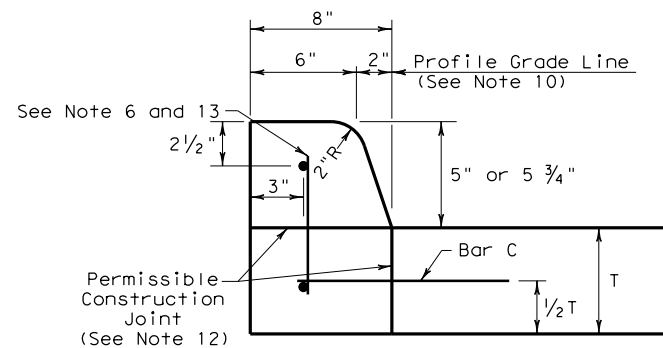
**TYPE I CURB
2" - 4" HEIGHT**



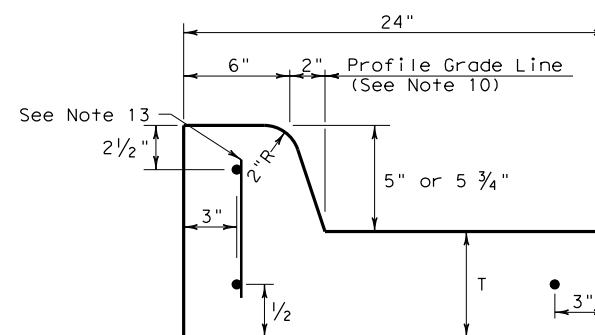
**TYPE I CURB AND GUTTER
2" - 4" HEIGHT**



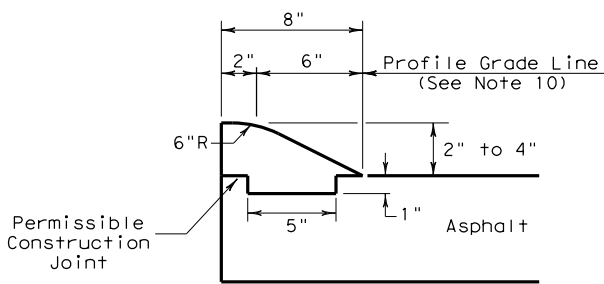
**TYPE II CURB (MONOLITHIC)
5" - 5 3/4" HEIGHT**



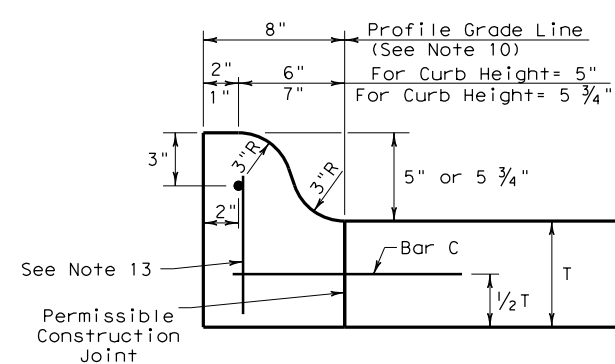
**TYPE II CURB
5" - 5 3/4" HEIGHT**



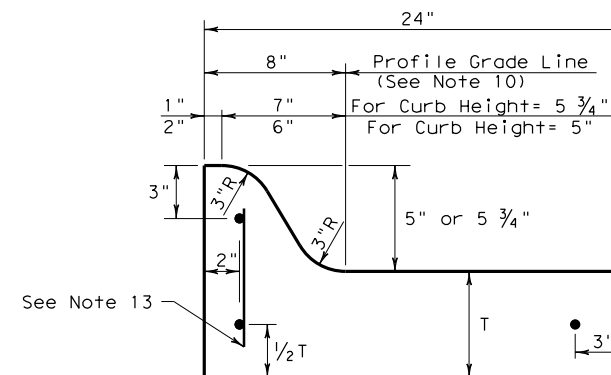
**TYPE II CURB AND GUTTER
5" - 5 3/4" HEIGHT**



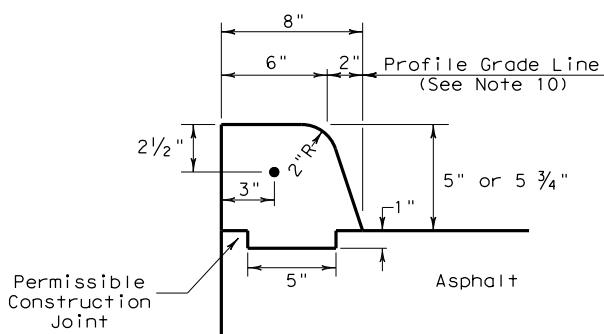
**TYPE III CURB (KEYED)
2" - 4" HEIGHT**



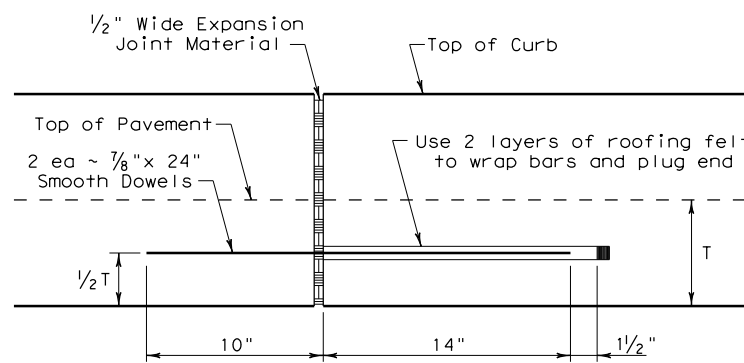
**TYPE IIa CURB
5" - 5 3/4" HEIGHT**



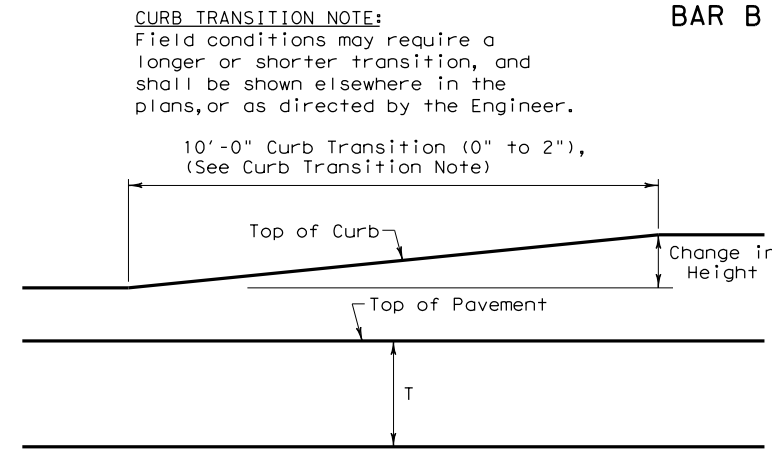
**TYPE IIa CURB AND GUTTER
5" - 5 3/4" HEIGHT**



**TYPE IV CURB (KEYED)
5" - 5 3/4" HEIGHT**



EXPANSION JOINT DETAIL

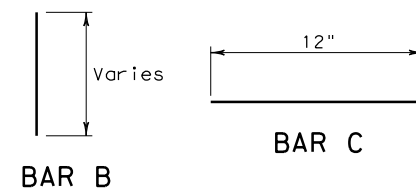


CURB TRANSITION

Note: To be paid for as Highest Curb

GENERAL NOTES

- All materials and construction shall be in accordance with Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."
- Concrete shall be Class A.
- When reinforcing bars are used, they shall be No.4 unless otherwise shown. The use of fiber reinforced concrete in lieu of reinforcing steel is acceptable. Use fibers meeting the requirements of DMS 4550, "Fibers for Concrete," and dose fibers in accordance with Material Producers List (MPL) "Fibers for Class A and B Concrete Applications."
- Round exposed sharp edges with a rounding tool, to a minimum radius of 1/4 inch.
- All existing curbs and driveways to be removed shall be sawed or removed at existing joints.
- Where concrete curb is to be placed on existing concrete pavement, Bar B may be drilled and grouted in place, or may be inserted into fresh concrete.
- Expansion and contraction joints shall be constructed to match pavement joints in all curbs and curb and gutter adjacent to jointed concrete pavement. Where placement of curb or curb and gutter is not adjacent to concrete pavement, expansion joints shall be provided at structures, curb returns at streets, and at locations directed by The Engineer.
- Vertical and horizontal dowel bars and transverse reinforcing bars shall be placed at four feet C-C.
- Dimension 'T' shown is the thickness of concrete pavement. When curb is installed adjacent to flexible pavement dimension 'T' is 8" maximum.
- Usual profile grade line. Refer to typical sections and plan-profile sheets for exact locations.
- One-half inch expansion joint material shall be provided where curb or curb and gutter is adjacent to sidewalk or riprap.
- When horizontal permissible construction joints are used, the longitudinal pavement steel shall be placed in accordance with pavement details shown elsewhere in the plans. Reinforcing steel for curb section shall then conform to that required for concrete curb.
- Bar B placement as needed (typically at four ft. C-C) to support curb reinforcing steel during concrete placement.

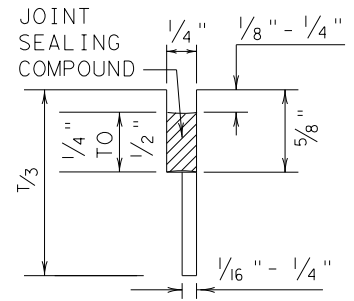


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| | | | | Design Division Standard | |
| CONCRETE CURB AND GUTTER | | | | | |
| CCCG-22 | | | | | |
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| © TxDOT: JUNE 2022 | CONT | SECT | JOB | HIGHWAY | |
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| | DIST | COUNTY | SHEET NO. | | |
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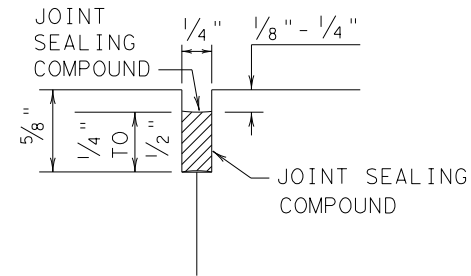
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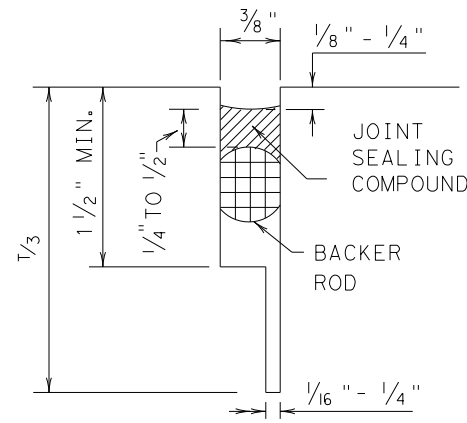
METHOD B: JOINT SEALING COMPOUND



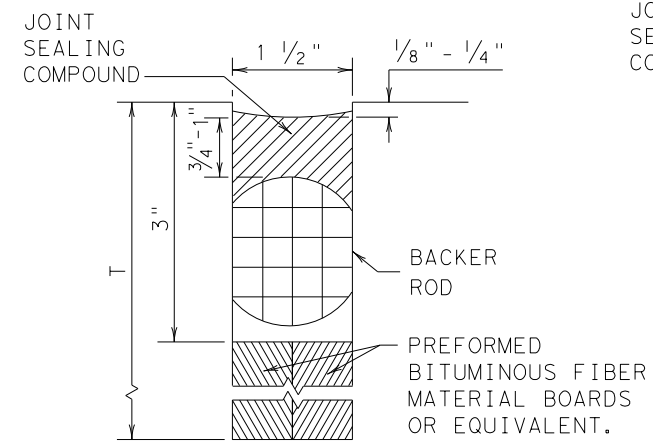
LONGITUDINAL SAWED CONTRACTION JOINT



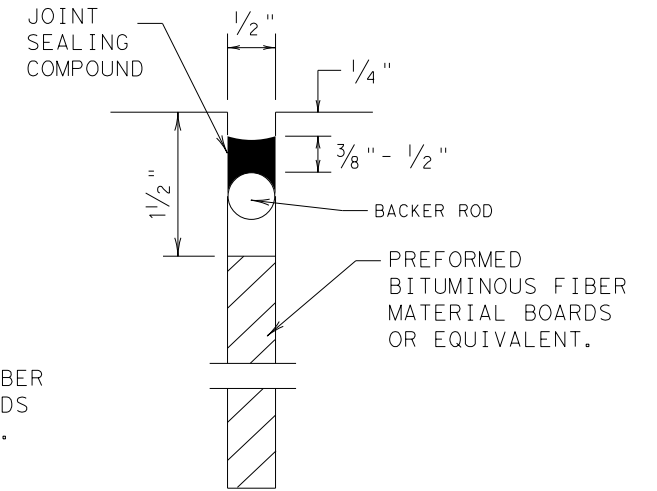
LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT

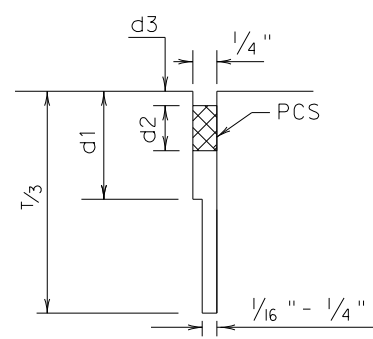


TRANSVERSE FORMED EXPANSION JOINT

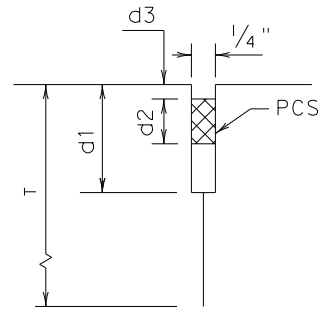


FORMED ISOLATION JOINT

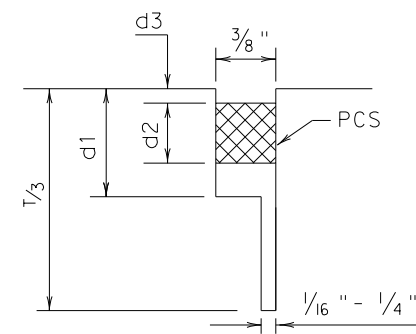
METHOD A: PREFORMED COMPRESSION SEALS (PCS) (DMS-6310 CLASS 6)



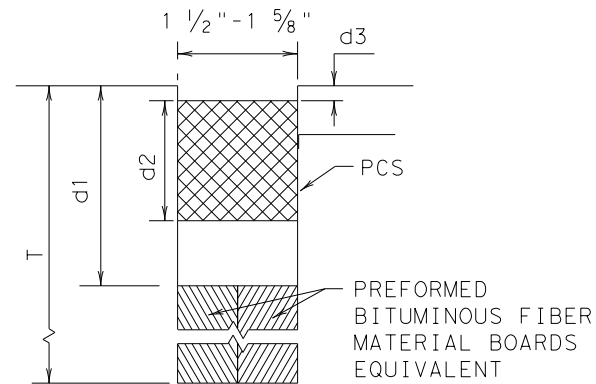
LONGITUDINAL SAWED CONTRACTION JOINT



LONGITUDINAL CONSTRUCTION JOINT



TRANSVERSE SAWED CONTRACTION JOINT



TRANSVERSE FORMED EXPANSION JOINT

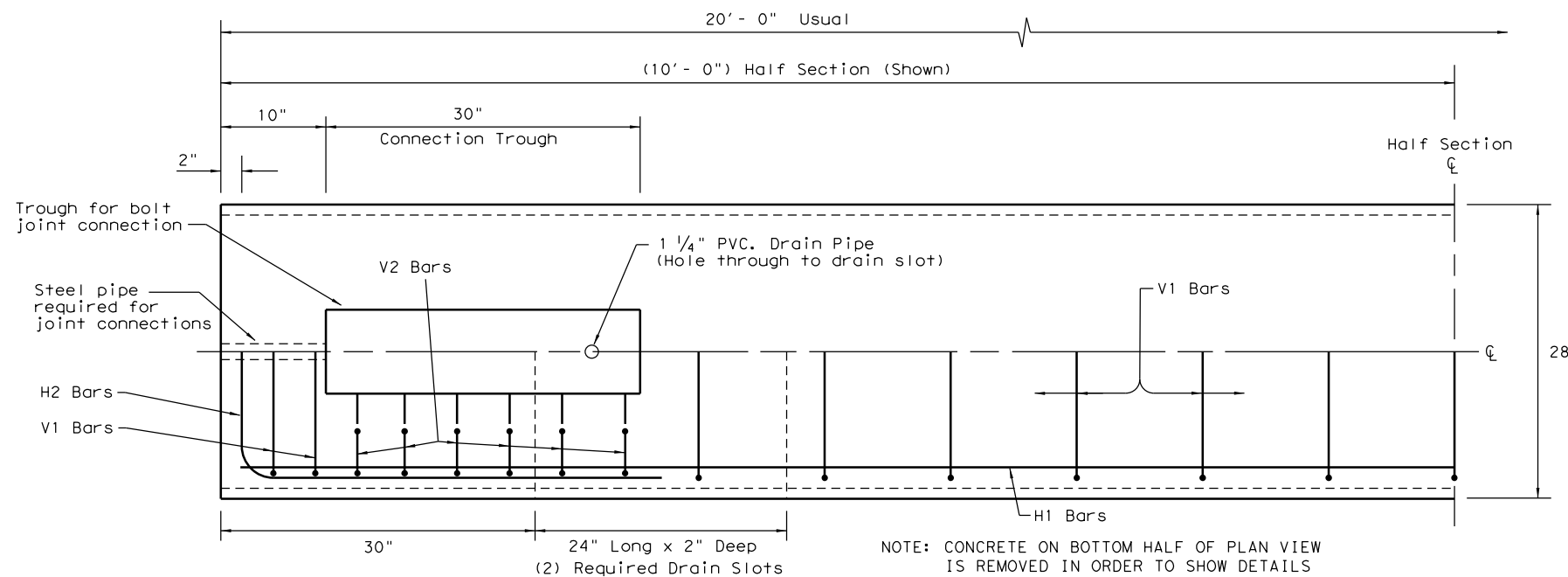
GENERAL NOTES

- UNLESS OTHERWISE SHOWN IN THE PLANS, EITHER METHOD "A" OR METHOD "B" MAY BE USED.
- THE LOCATION OF JOINTS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
- THE JOINT RESERVOIR FOR SEALANT OR PCS SHALL BE SAWED UNLESS OTHERWISE SHOWN ON THE PLANS FOR THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS AND THE SAWED JOINTS.
- DIMENSIONS d1, d2, AND d3 SHOWN IN METHOD A SHALL BE IN ACCORDANCE WITH THE PREFORMED COMPRESSION SEAL MANUFACTURER'S RECOMMENDATION.
- REFER TO DMS-6310 "JOINT SEALANTS AND FILLERS" FOR THE CLASSIFICATIONS.
- FOR SAWED LONGITUDINAL JOINT, LONGITUDINAL OR TRANSVERSE CONSTRUCTION JOINT, USE JOINT SEALANT CLASS 5 OR 8 UNLESS OTHERWISE SHOWN ON THE PLAN OR APPROVED.
- FOR TRANSVERSE SAWED CONTRACTION, TRANSVERSE FORMED EXPANSION JOINT, AND ISOLATION JOINT USE JOINT SEALANT CLASS 5 OR 8 AT NEW JOINTS. USE JOINT SEALANT CLASS 4, 5, 7, OR 8 FOR MAINTAINING EXISTING JOINTS.
- THE JOINTS SHALL BE CLEANED IN ACCORDANCE WITH THE ITEM 438 "CLEANING AND SEALING JOINTS" OR ITEM 713 "CLEANING AND SEALING JOINTS AND CRACKS (CONCRETE PAVEMENT)".
- ISOLATION JOINTS ACCOMMODATE HORIZONTAL AND VERTICAL MOVEMENTS THAT OCCUR BETWEEN A PAVEMENT AND A STRUCTURE. ISOLATION JOINTS MAY BE USED FOR BRIDGE ABUTMENTS, INTERSECTIONS, CURB AND GUTTER, OLD AND NEW PAVEMENTS, OR AROUND DRAINAGE INLETS, MANHOLES, FOOTINGS AND LIGHTING STRUCTURES.

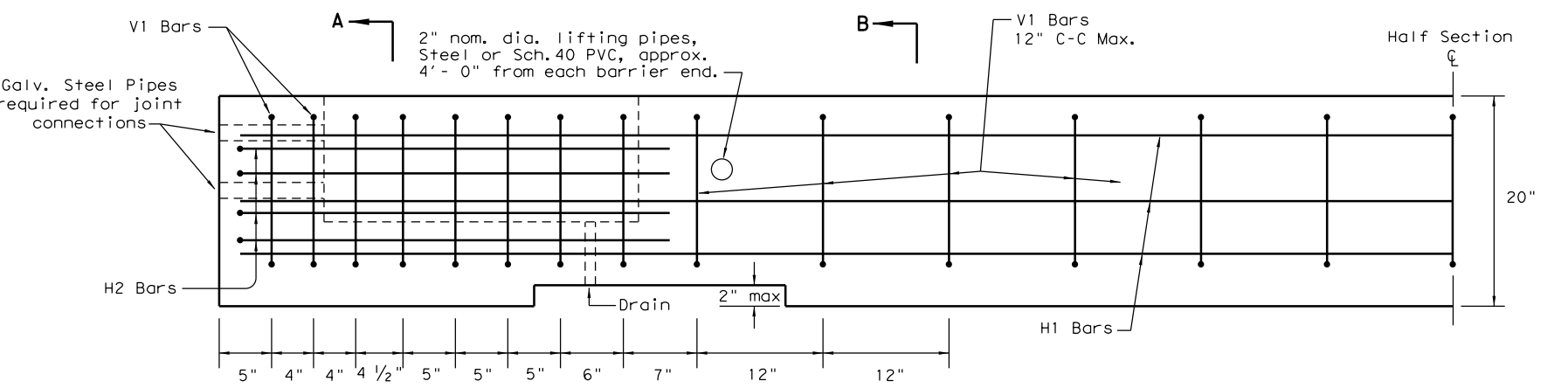
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| | | | | Design Division Standard | |
| CONCRETE PAVING DETAILS JOINT SEALS JS-14 | | | | | |
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| © TxDOT: DECEMBER 2014 | CONT | SECT | JOB | HIGHWAY | |
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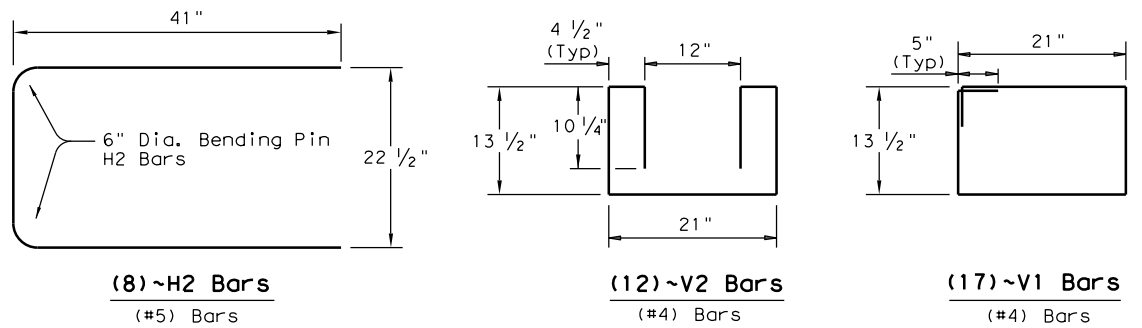
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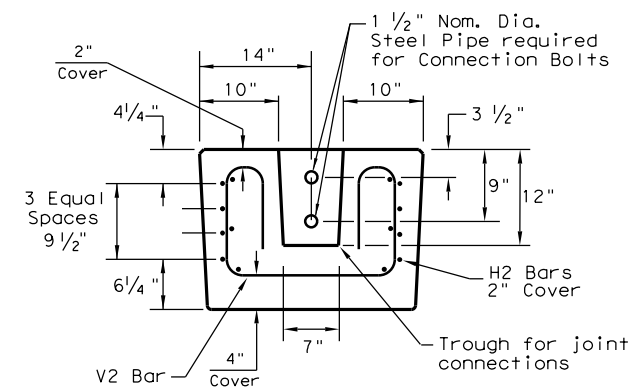
PLAN
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



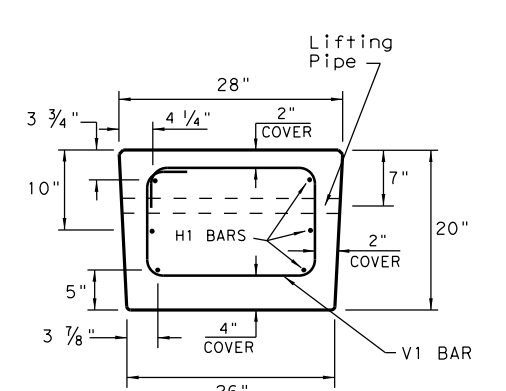
ELEVATION
(TYPE 1) BARRIER SEGMENT
(SYMMETRICAL ABOUT CENTER LINES)



REINFORCING STEEL DETAILS
TYPE 1 - BARRIER SEGMENT
Note: Use 2" Dia. Bending Pin, unless otherwise shown



SECTION A-A



SECTION B-B

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

FOR CONTRACTORS INFORMATION ONLY

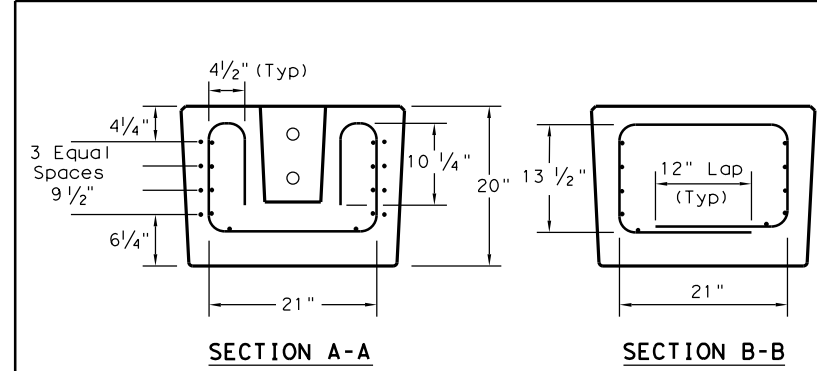
| (TYPE 1) APPROX. QUANTITIES 20 FT. SECTION | | |
|---|-----|-------|
| CONCRETE | CY | 2.6 |
| REINFORCING STEEL | LBS | 330 |
| TOTAL BARRIER WT. | LBS | 11000 |

(WWR) GENERAL NOTES

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

REQUIRED (WWR) WIRE DESIGN

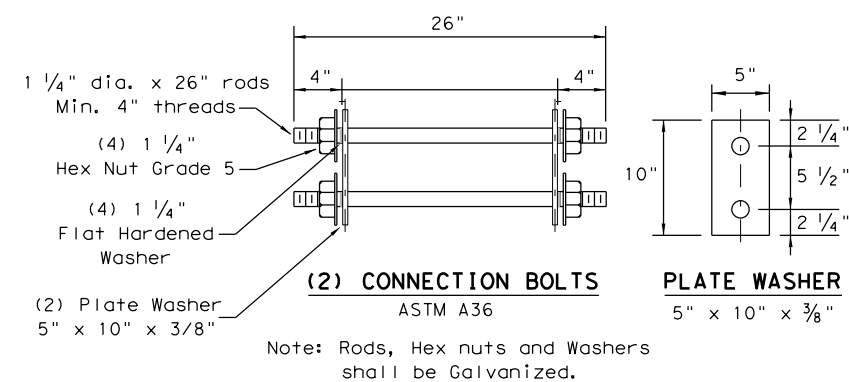
- 8 ~ (D31) Horizontal Wires (Equally spaced)
- 10 ~ (D20) Horizontal Wires (Equally spaced)
- 29 ~ (D20) Vertical Wires (Spaced as shown in Elevation View)



SECTION A-A

SECTION B-B

WELDED WIRE REINFORCEMENT (WWR) - OPTIONAL REINFORCING

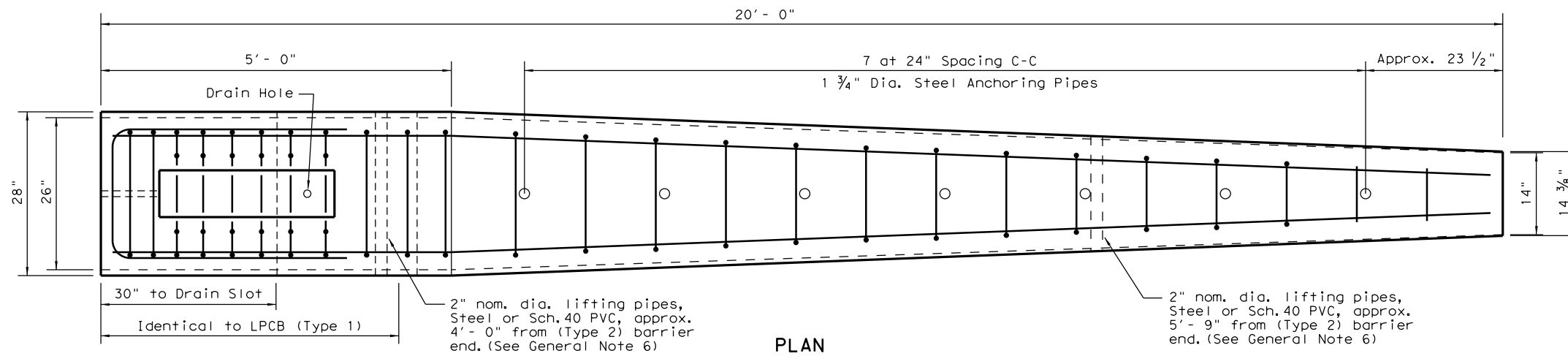


Texas Department of Transportation
Design Division Standard

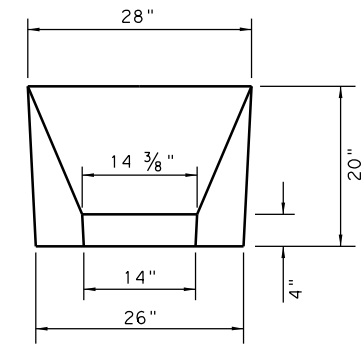
LOW PROFILE CONCRETE BARRIER PRECAST BARRIER (TYPE 1) LPCB-13

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| FILE: lpcb13.dgn | DN: TxDOT | CK: AM | DW: VP | CK: |
| ©TxDOT December 2010 | CONT | SECT | JOB | HIGHWAY |
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| DIST | COUNTY | SHEET NO. | | |
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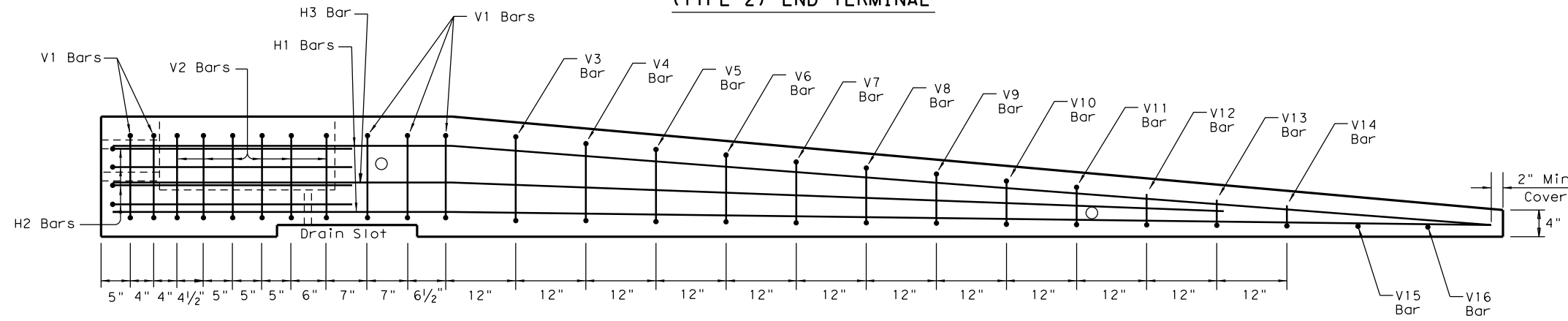
PLAN (TYPE 2) END TERMINAL



APPROACH VIEW

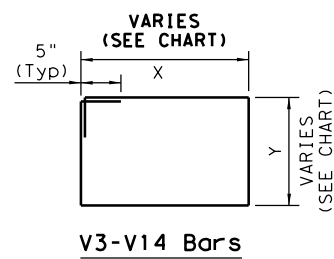
TYPE 2 - NOTES

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

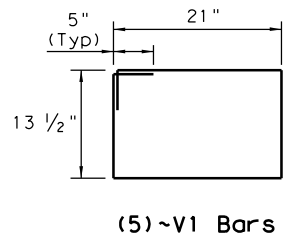
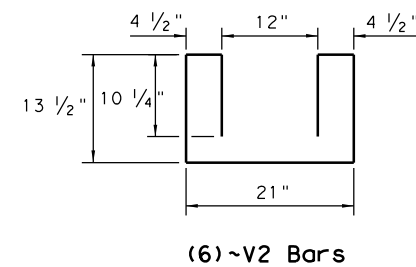


ELEVATION (TYPE 2) END TERMINAL

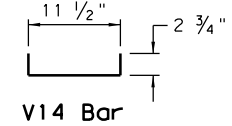
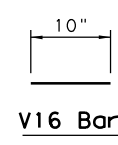
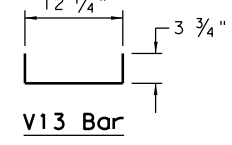
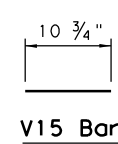
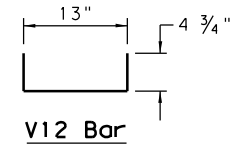
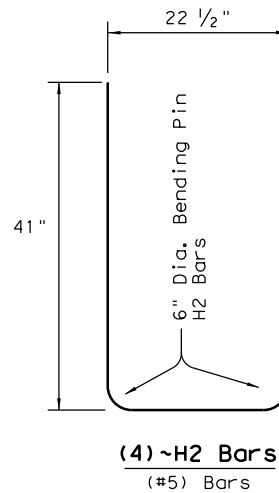
Note: Anchoring pipes not shown in Elevation View



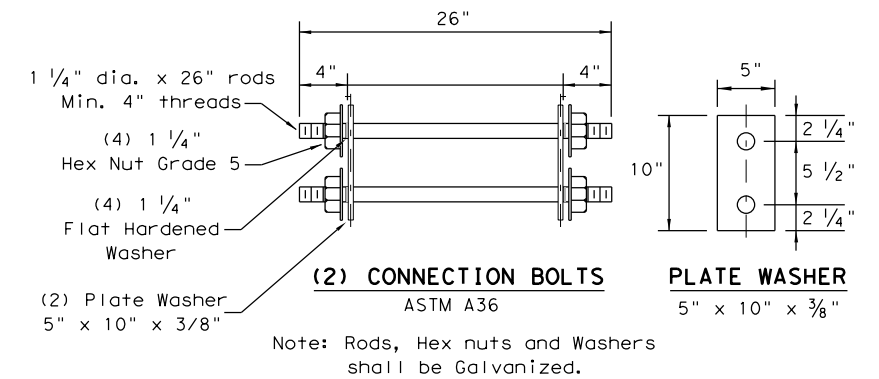
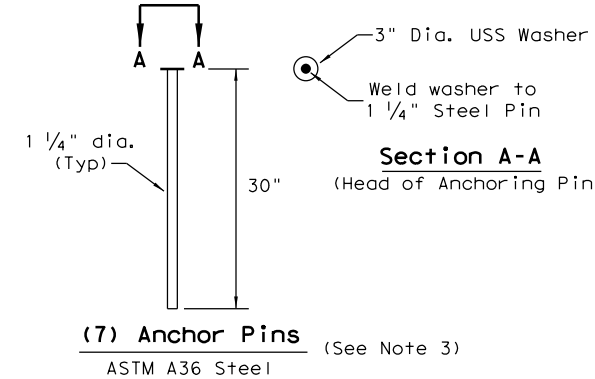
| BAR (#4) | X (IN.) | Y (IN.) |
|----------|---------|---------|
| V3 BAR | 20 1/4 | 14 1/2 |
| V4 BAR | 19 1/2 | 13 1/2 |
| V5 BAR | 18 1/2 | 12 1/4 |
| V6 BAR | 17 1/2 | 11 1/4 |
| V7 BAR | 17 | 10 1/4 |
| V8 BAR | 16 1/4 | 9 |
| V9 BAR | 15 1/2 | 8 |
| V10 BAR | 14 1/2 | 7 |
| V11 BAR | 13 3/4 |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



REINFORCING STEEL DETAILS TYPE 2 - END TERMINAL

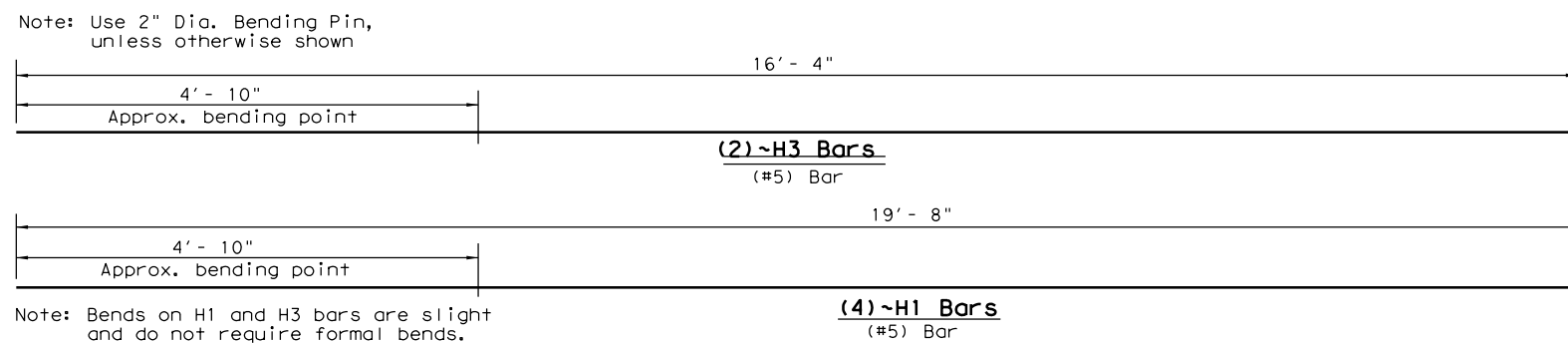


Note: All V Bars are (#4)



FOR CONTRACTORS INFORMATION ONLY

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



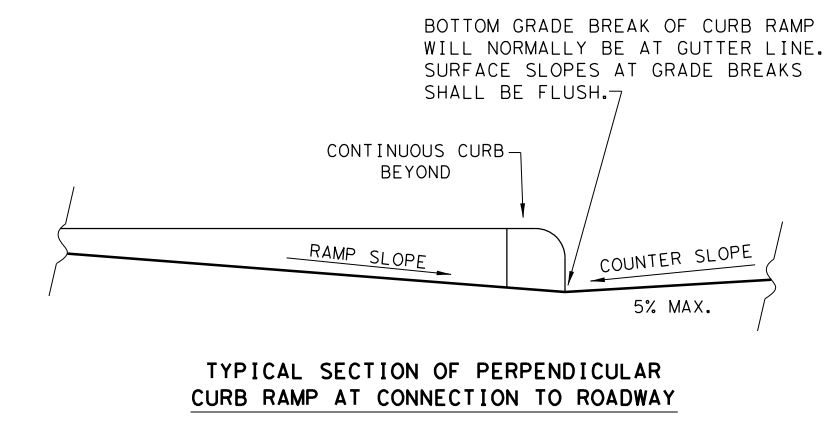
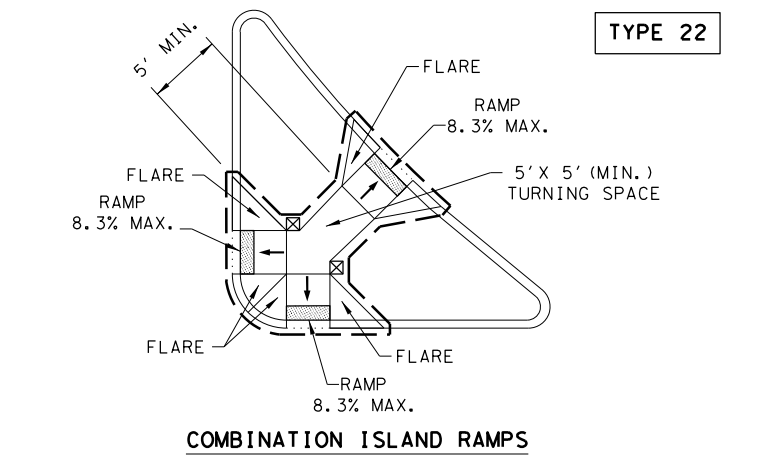
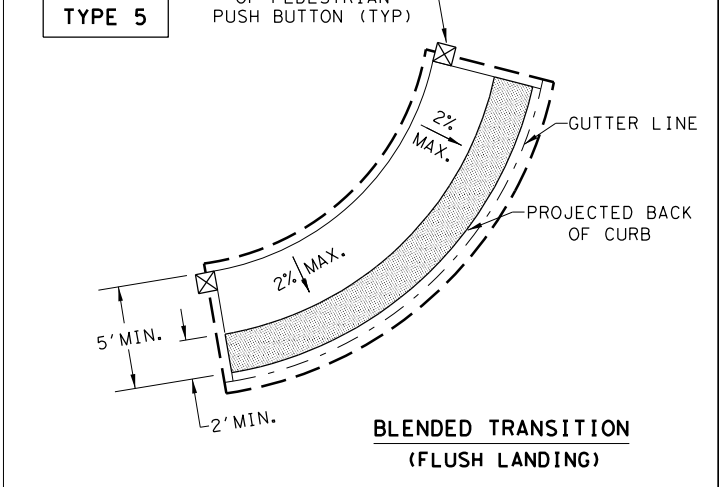
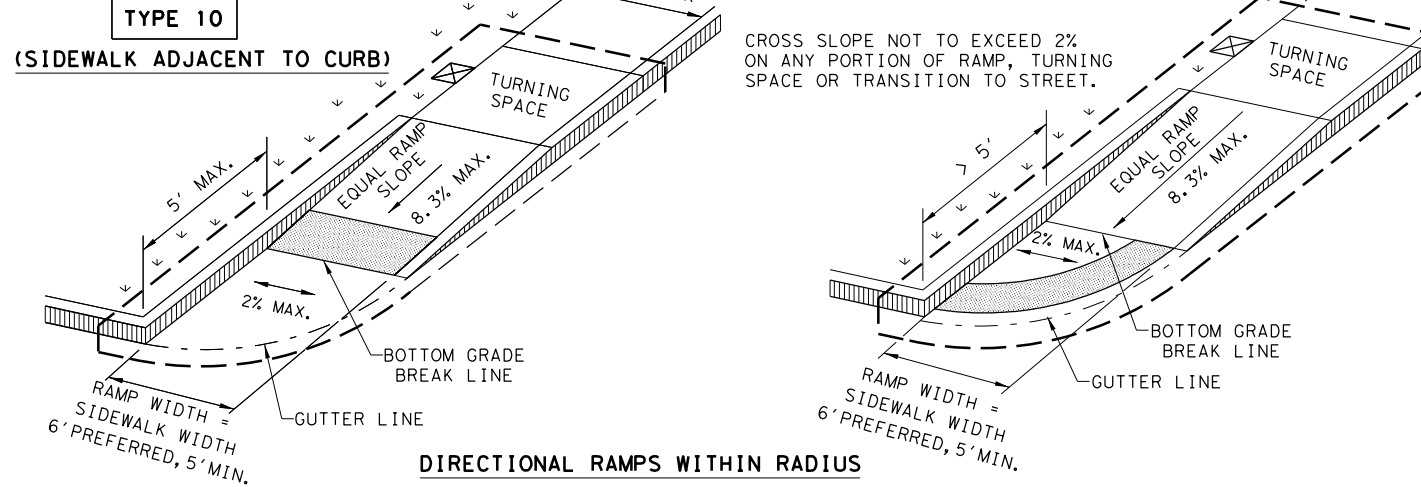
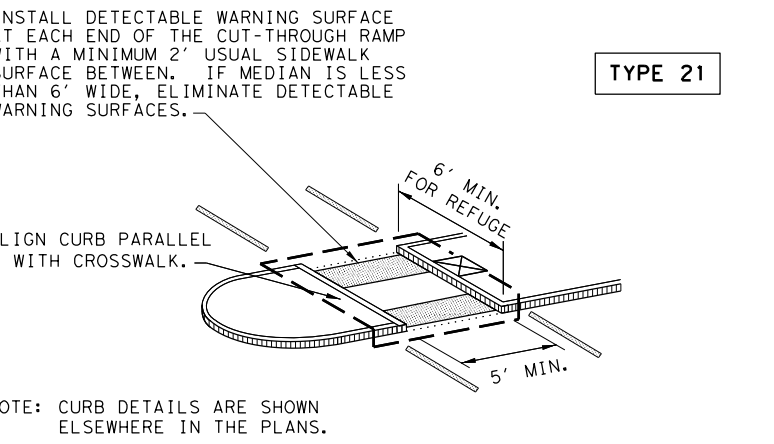
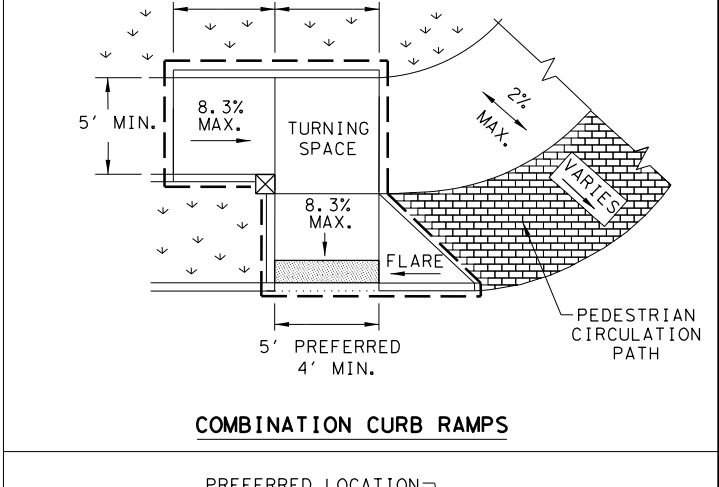
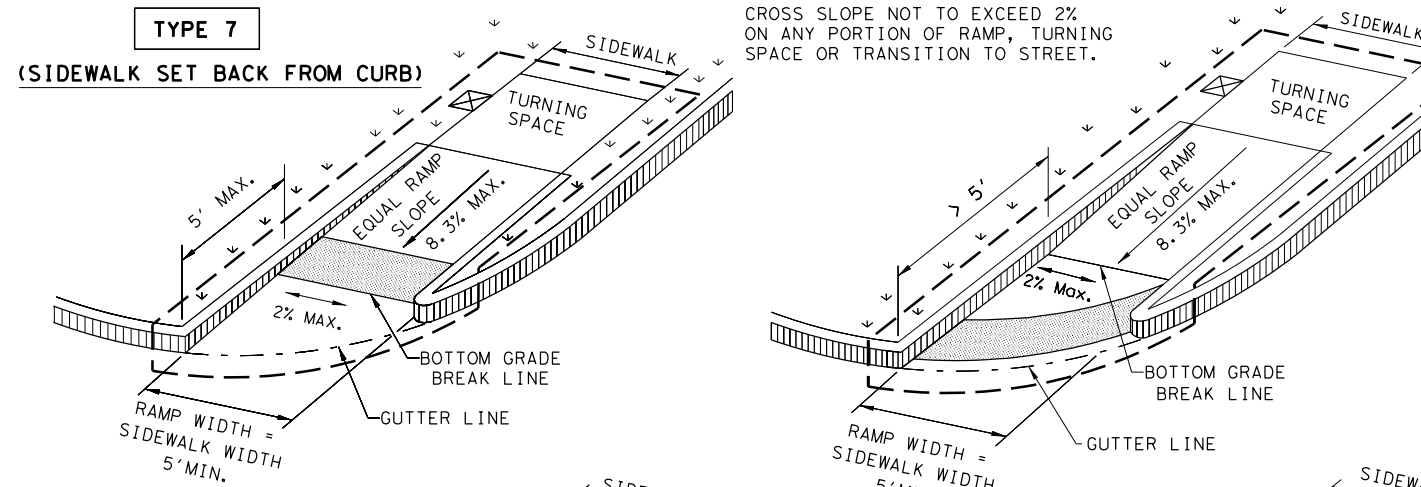
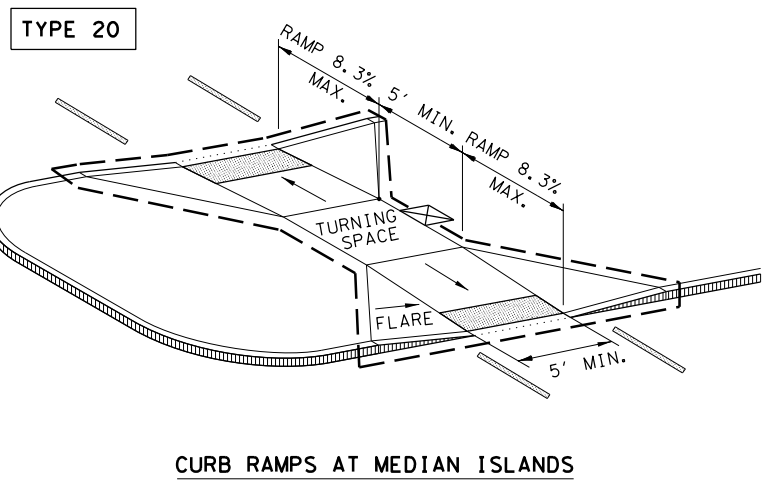
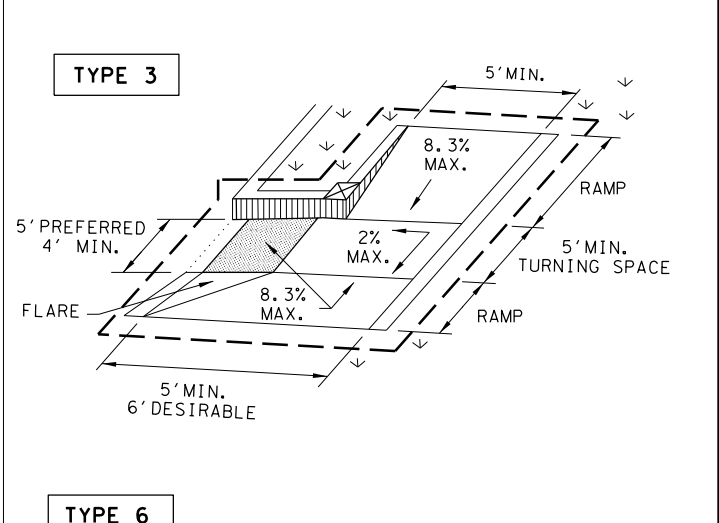
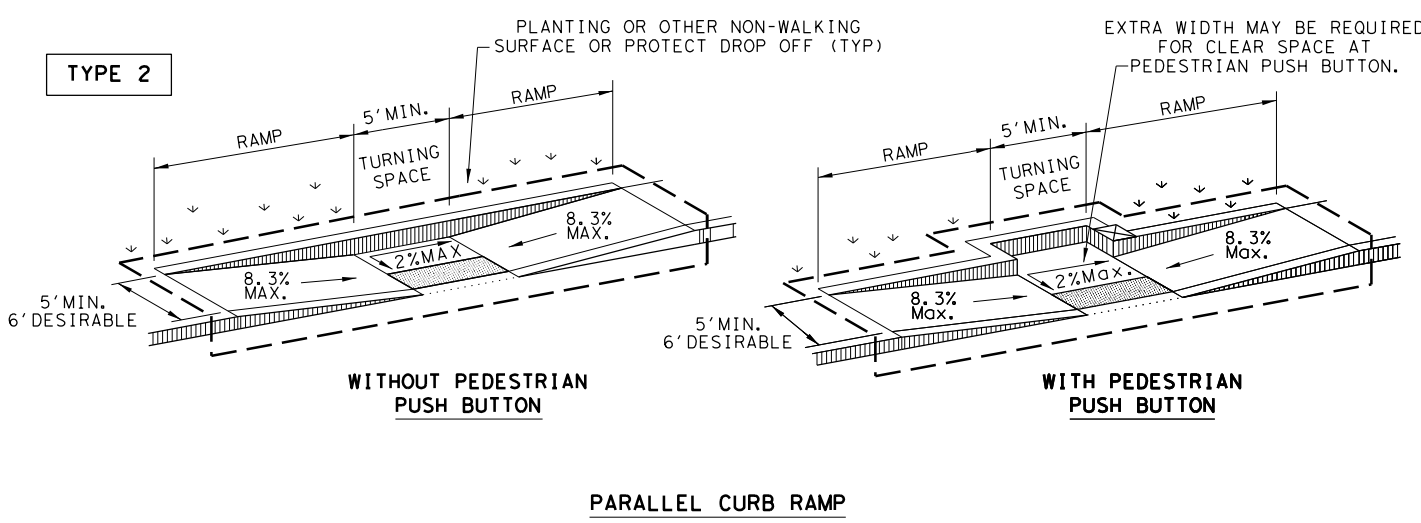
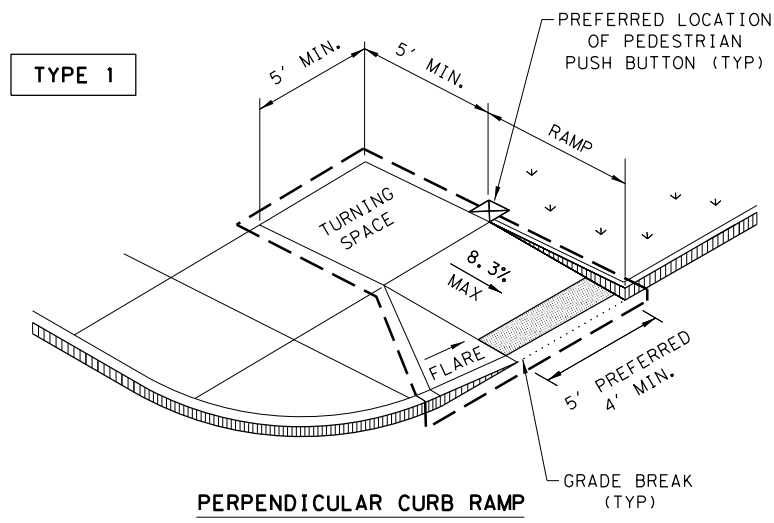
Texas Department of Transportation Design Division Standard

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

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|----------------------|-----------|-----------|--------|---------|
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| ©TxDOT December 2010 | CONT | SECT | JOB | HIGHWAY |
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NOTES / LEGEND:
SEE GENERAL NOTES ON SHEET 2 OF 4 FOR MORE INFORMATION.

DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH.

DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON IF APPLICABLE.

Detectable Warning Surface: [Symbol]

Grade Break: [Symbol]

Gutter Line: [Symbol]

Ramp Limits of Payment: [Symbol]

SHEET 1 OF 4

Texas Department of Transportation
Design Division Standard

PEDESTRIAN FACILITIES CURB RAMPS
PED-18

| | | | | |
|----------------------|-----------|----------|-----------|-------------|
| FILE: ped18 | DN: TxDOT | DW: VP | CK: KM | CK: PK & JG |
| © TxDOT: MARCH, 2002 | CONT | SECT | JOB | HIGHWAY |
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| REVISED 08, 2005 | DIST | COUNTY | SHEET NO. | |
| REVISED 06, 2012 | YKM | VICTORIA | 49 | |
| REVISED 01, 2018 | | | | |

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GENERAL NOTES

CURB RAMP

1. Install a curb ramp or blended transition at each pedestrian street crossing.
2. All slopes shown are maximum allowable. Cross slopes of 1.5% and lesser running should be used. Adjust curb ramp length or grade of approach sidewalks as directed.
3. Maximum allowable cross slope on sidewalk and curb ramp surfaces is 2%.
4. The minimum sidewalk width is 5'. Where the sidewalk is adjacent to the back of curb, a 6' sidewalk width is desirable. Where a 5' sidewalk cannot be provided due to site constraints, sidewalk width may be reduced to 4' for short distances. 5' x 5' passing areas at intervals not to exceed 200' are required.
5. Turning Spaces shall be 5' x 5' minimum. Cross slope shall be maximum 2%.
6. Clear space at the bottom of curb ramps shall be a minimum of 4' x 4' wholly contained within the crosswalk and wholly outside the parallel vehicular travel path.
7. Provide flared sides where the pedestrian circulation path crosses the curb ramp. Flared sides shall be sloped at 10% maximum, measured parallel to the curb. Returned curbs may be used only where pedestrians would not normally walk across the ramp, either because the adjacent surface is planted, substantially obstructed, or otherwise protected.
8. Additional information on curb ramp location, design, light reflective value and texture may be found in the latest draft of the Proposed Guidelines for Pedestrian Facilities in the Public Right of Way (PROWAG) as published by the U.S. Architectural and Transportation Barriers Compliance Board (Access Board).
9. To serve as a pedestrian refuge area, the median should be a minimum of 6' wide, measured from back of curbs. Medians should be designed to provide accessible passage over or through them.
10. Small channelization islands, which do not provide a minimum 5' x 5' landing at the top of curb ramps, shall be cut through level with the surface of the street.
11. Crosswalk dimensions, crosswalk markings and stop bar locations shall be as shown elsewhere in the plans. At intersections where crosswalk markings are not required, curb ramps shall align with theoretical crosswalks unless otherwise directed.
12. Provide curb ramps to connect the pedestrian access route at each pedestrian street crossing. Handrails are not required on curb ramps.
13. Curb ramps and landings shall be constructed and paid for in accordance with Item 531 "Sidewalks".
14. Place concrete at a minimum depth of 5" for ramps, flares and landings, unless otherwise directed.
15. Furnish and install No. 3 reinforcing steel bars at 18" o.c. both ways, unless otherwise directed.
16. Provide a smooth transition where the curb ramps connect to the street.
17. Curbs shown on sheet 1 within the limits of payment are considered part of the curb ramp for payment, whether it is concrete curb, gutter, or combined curb and gutter.
18. Existing features that comply with applicable standards may remain in place unless otherwise shown on the plans.

DETECTABLE WARNING MATERIAL

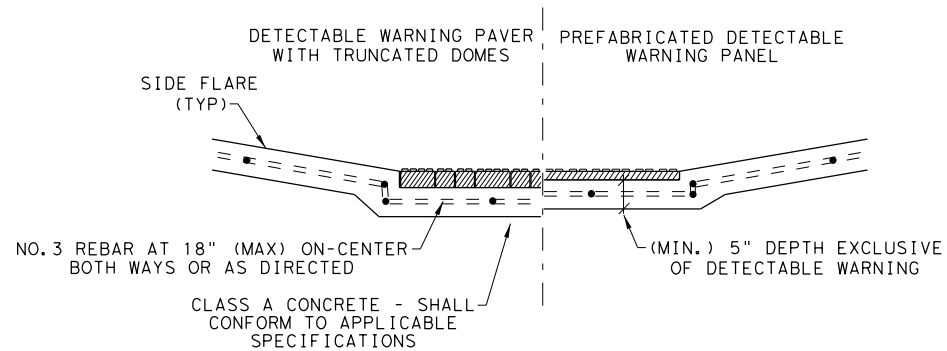
19. Curb ramps must contain a detectable warning surface that consists of raised truncated domes complying with PROWAG. The surface must contrast visually with adjoining surfaces, including side flares. Furnish and install an approved cast-in-place dark brown or dark red detectable warning surface material adjacent to uncolored concrete, unless specified elsewhere in the plans.
20. Detectable Warning Materials must meet TxDOT Departmental Materials Specification DMS 4350 and be listed on the Material Producer List. Install products in accordance with manufacturer's specifications.
21. Detectable warning surfaces must be firm, stable and slip resistant.
22. Detectable warning surfaces shall be a minimum of 24 inches in depth in the direction of pedestrian travel, and extend the full width of the curb ramp or landing where the pedestrian access route enters the street.
23. Detectable warning surfaces shall be located so that the edge nearest the curb line is at the back of curb and neither end of that edge is greater than 5 feet from the back of curb. Detectable warning surfaces may be curved along the corner radius.
24. Shaded areas on Sheet 1 of 4 indicate the approximate location for the detectable warning surface for each curb ramp type.

DETECTABLE WARNING PAVERS (IF USED)

25. Furnish detectable warning paver units meeting all requirements of ASTM C-936, C-33. Lay in a two by two unit basket weave pattern or as directed.
26. Lay full-size units first followed by closure units consisting of at least 25 percent (25%) of a full unit. Cut detectable warning paver units using a power saw.

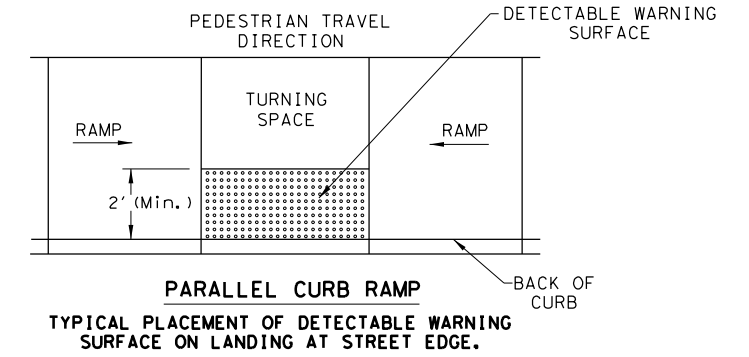
SIDEWALKS

27. Provide clear ground space at operable parts, including pedestrian push buttons. Operable parts shall be placed within unobstructed reach range specified in PROWAG section R406.
28. Place traffic signal or illumination poles, ground boxes, controller boxes, signs, drainage facilities and other items so as not to obstruct the pedestrian access route or clear ground space.
29. Street grades and cross slopes shall be as shown elsewhere in the plans.
30. Changes in level greater than 1/4 inch are not permitted.
31. The least possible grade should be used to maximize accessibility. The running slope of sidewalks and crosswalks within the public right of way may follow the grade of the parallel roadway. Where a continuous grade greater than five percent (5%) must be provided, handrails may be desirable to improve accessibility. Handrails may also be needed to protect pedestrians from potentially hazardous conditions. If provided, handrails shall comply with PROWAG R409.
32. Handrail extensions shall not protrude into the usable landing area or into intersecting pedestrian routes.
33. Driveways and turnouts shall be constructed and paid for in accordance with Item "Intersections, Driveways and Turnouts". Sidewalks shall be constructed and paid for in accordance with Item, "Sidewalks".
34. Sidewalk details are shown elsewhere in the plans.

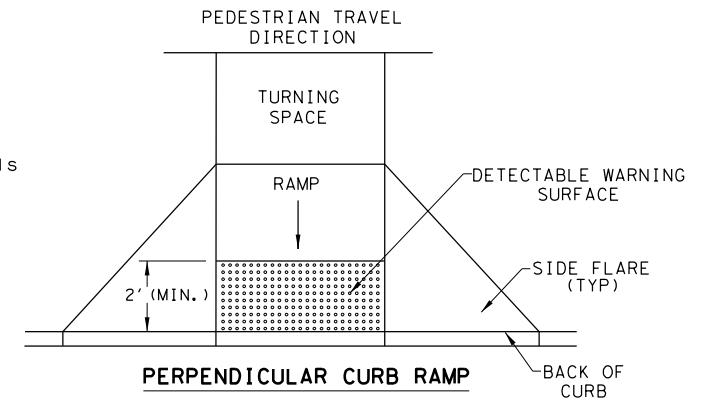


SECTION VIEW DETAIL
CURB RAMP AT DETECTIBLE WARNINGS

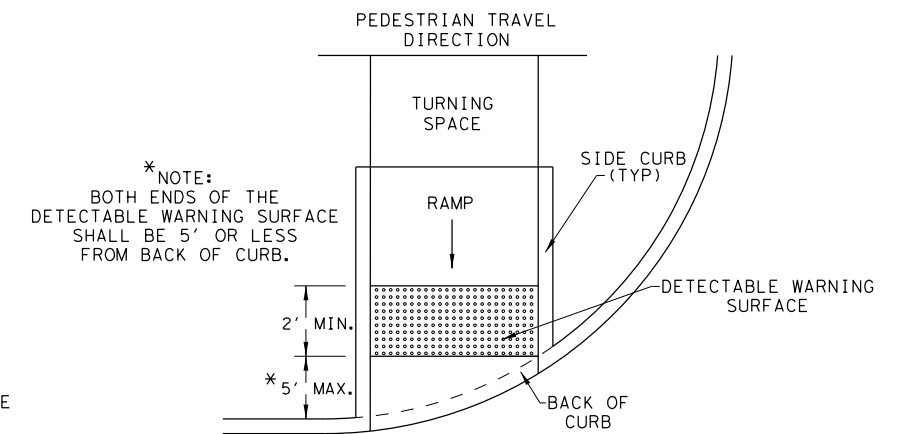
DETECTABLE WARNING SURFACE DETAILS



PARALLEL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON LANDING AT STREET EDGE.



PERPENDICULAR CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.



* NOTE:
 BOTH ENDS OF THE
 DETECTABLE WARNING SURFACE
 SHALL BE 5' OR LESS
 FROM BACK OF CURB.

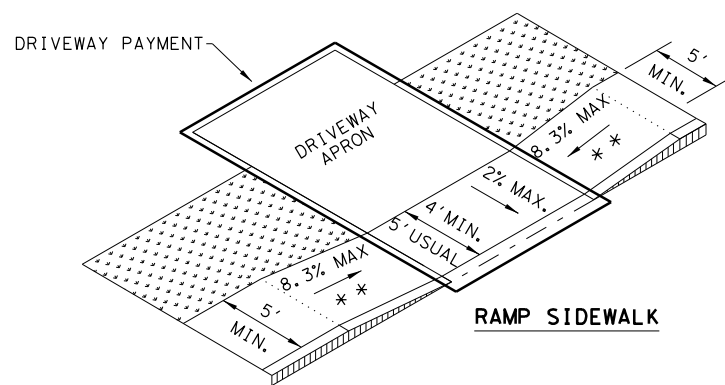
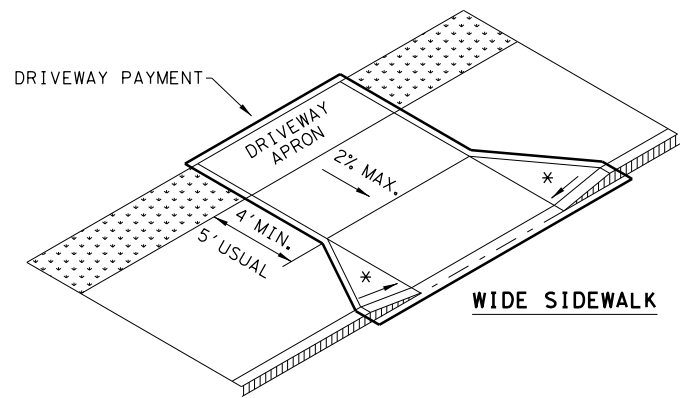
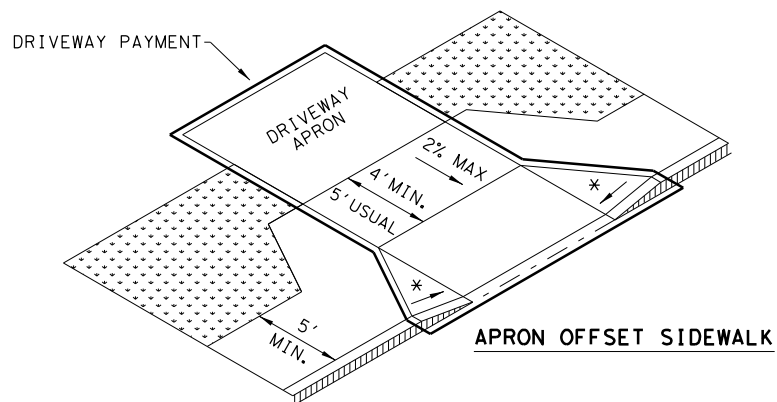
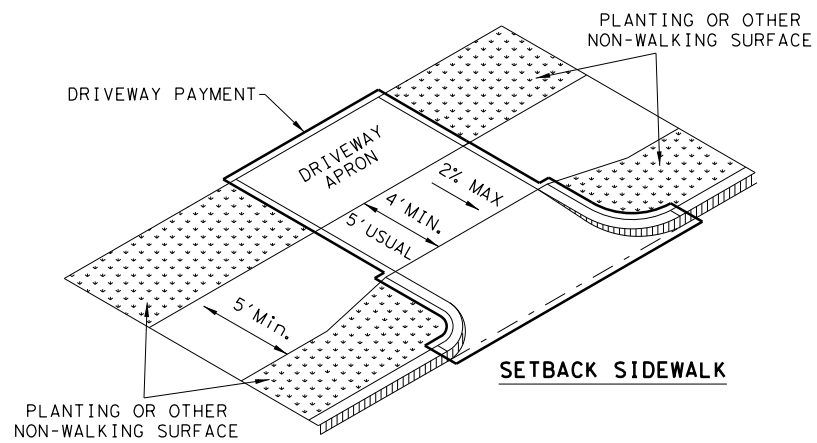
DIRECTIONAL CURB RAMP
TYPICAL PLACEMENT OF DETECTABLE WARNING SURFACE ON SLOPING RAMP RUN.

SHEET 2 OF 4

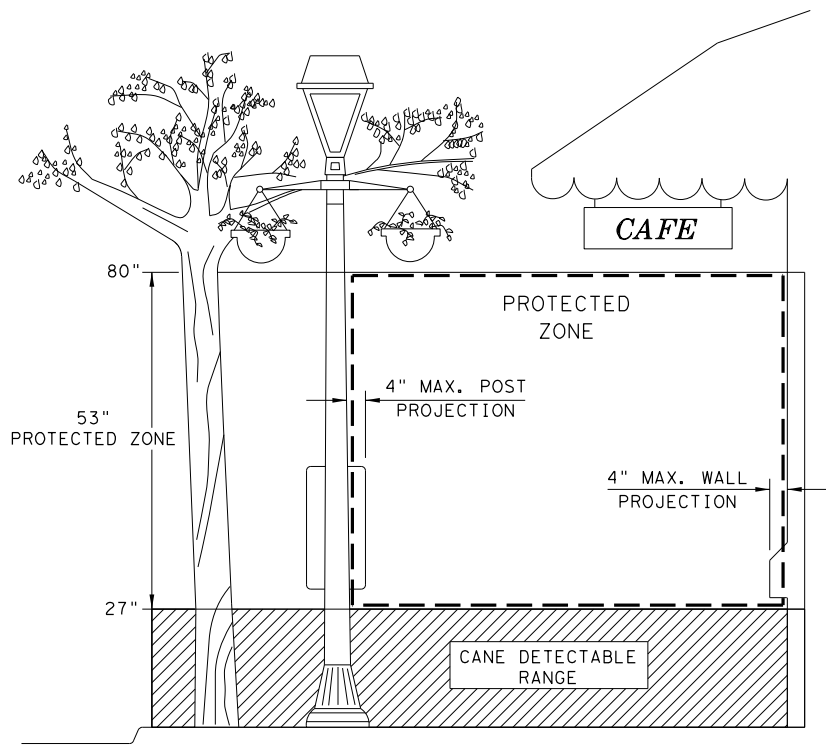
| | | | |
|-------------------------------------|-----------|--------------------------------|-----------|
| Texas Department of Transportation | | Design Division Standard | |
| PEDESTRIAN FACILITIES CURB RAMPS | | | |
| PED-18 | | | |
| FILE: ped18 | DN: TxDOT | DW: VP | CK: KM |
| © TxDOT: MARCH, 2002 | CONT | SECT | JOB |
| REVISIONS | 0913 | 27 | 090 |
| REVISED 08, 2005 | DIST | COUNTY | SHEET NO. |
| REVISED 06, 2012 | YKM | VICTORIA | 50 |
| REVISED 01, 2018 | | | |

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SIDEWALK TREATMENT AT DRIVEWAYS

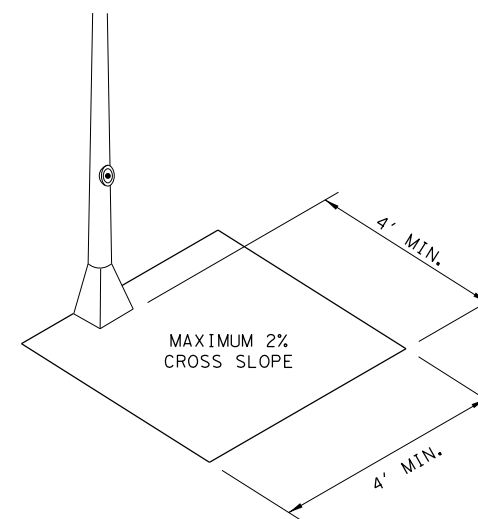


NOTES:
 * WHERE DRIVEWAYS CROSS THE PEDESTRIAN ROUTE, SIDES SHALL BE FLARED AT 10% MAX SLOPE.
 * * IF CURB HEIGHT IS GREATER THAN 6 INCHES, USE GRADE LESS THAN OR EQUAL TO 5%. HANDRAIL AND DETECTABLE WARNING ARE NOT REQUIRED.

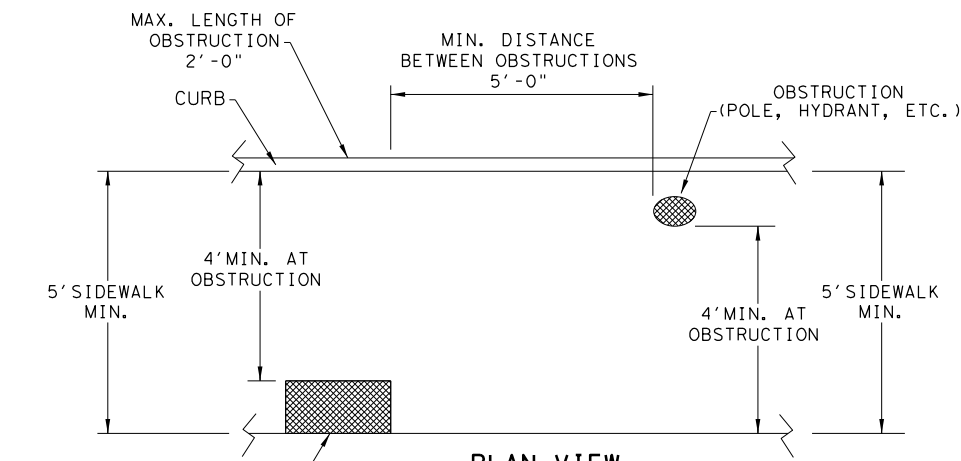


PROTECTED ZONE

NOTE: IN PEDESTRIAN CIRCULATION AREA, MAXIMUM 4" PROJECTION FOR POST OR WALL MOUNTED OBJECTS BETWEEN 27" AND 80" ABOVE THE SURFACE.

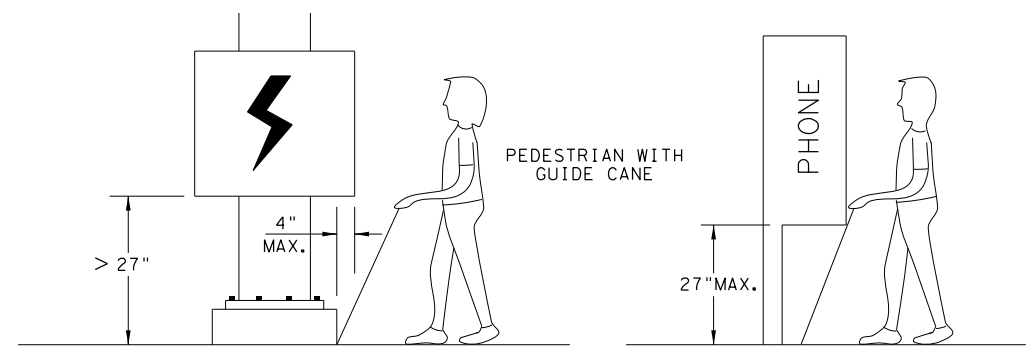


CLEAR SPACE ADJACENT TO PEDESTRIAN PUSH BUTTON



**PLAN VIEW
 PLACEMENT OF STREET FIXTURES**

NOTE: ITEMS NOT INTENDED FOR PUBLIC USE. MINIMUM 4' X 4' CLEAR GROUND SPACE REQUIRED AT PUBLIC USE FIXTURES.



DETECTION BARRIER FOR VERTICAL CLEARANCE < 80"

WHEN AN OBSTRUCTION OF A HEIGHT GREATER THAN 27" FROM THE SURFACE WOULD CREATE A PROTRUSION OF MORE THAN 4" INTO THE PEDESTRIAN CIRCULATION AREA, CONSTRUCT ADDITIONAL CURB OR FOUNDATION AT THE BOTTOM TO PROVIDE A MAXIMUM 4" OVERHANG.

PROTRUDING OBJECTS OF A HEIGHT ≤ 27" ARE DETECTABLE BY CANE AND DO NOT REQUIRE ADDITIONAL TREATMENT.

SHEET 3 OF 4



**PEDESTRIAN FACILITIES
 CURB RAMPS**

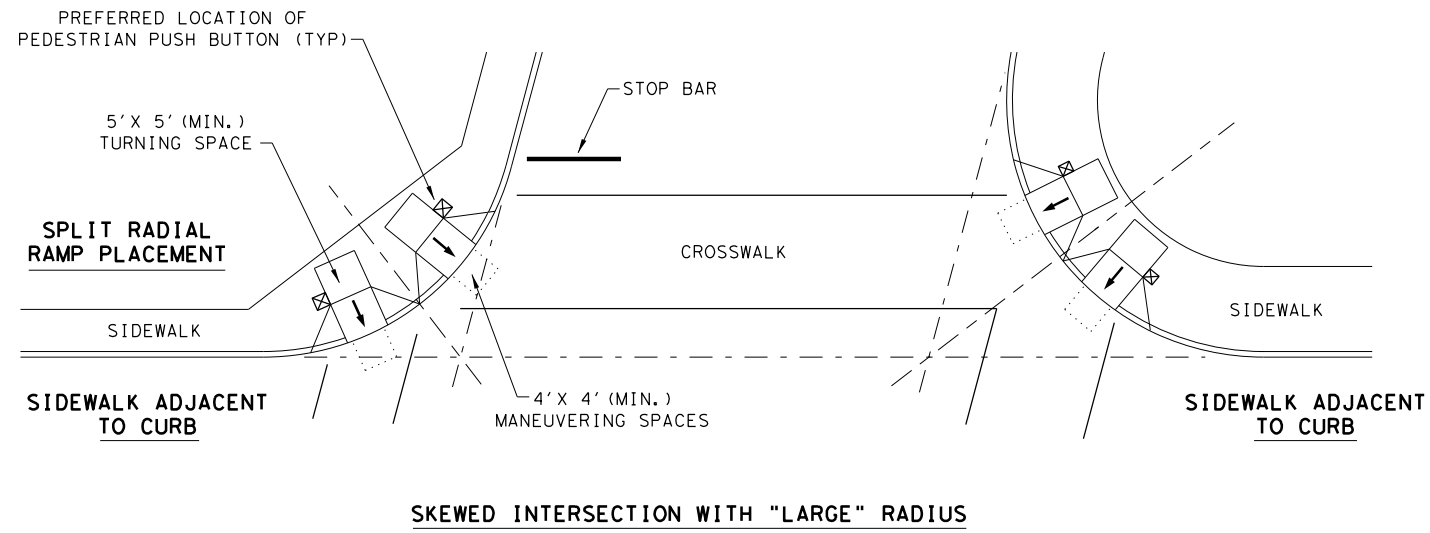
PED-18

| | | | | |
|----------------------|-----------|----------|-----------|---------|
| FILE: ped18 | DN: TxDOT | DW: VP | CK: KM | PK: JG |
| © TxDOT: MARCH, 2002 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| REVISED 08, 2005 | DIST | COUNTY | SHEET NO. | |
| REVISED 06, 2012 | YKM | VICTORIA | 51 | |
| REVISED 01, 2018 | | | | |

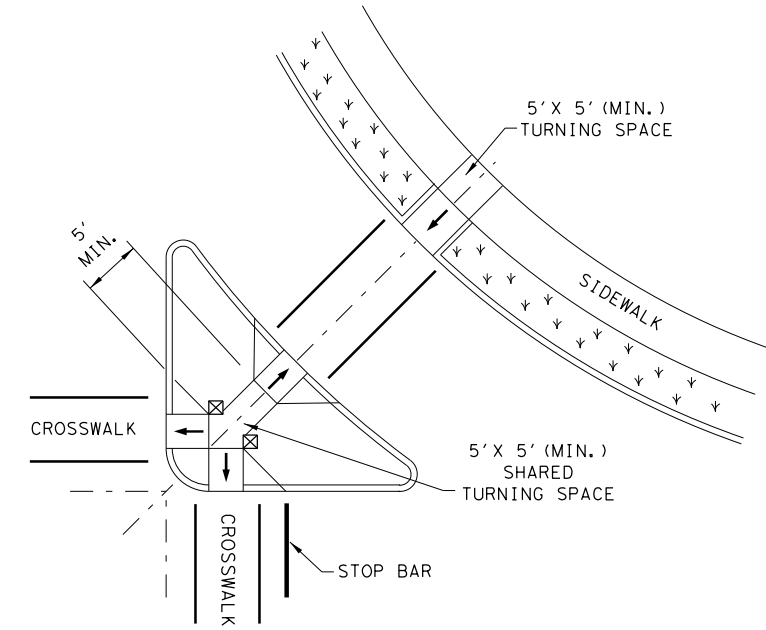
DATE: 1/18/2024
 FILE: \$FILES

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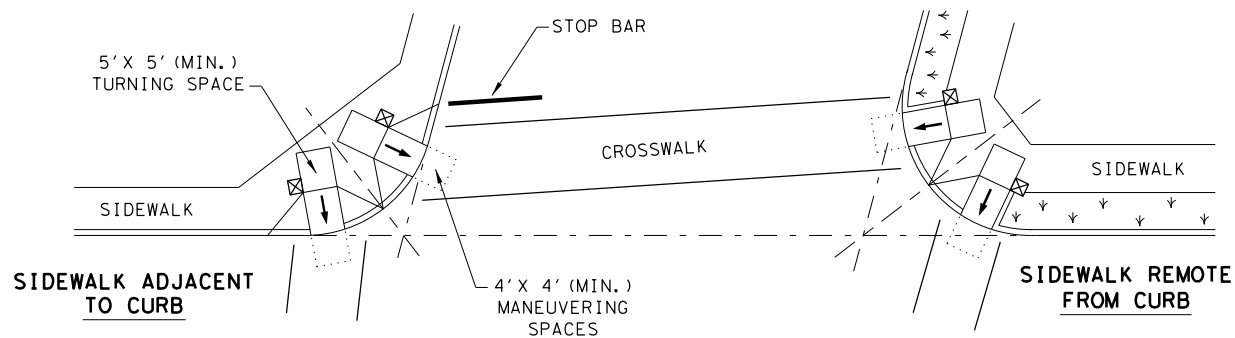
TYPICAL CROSSING LAYOUTS
SEE SHEET 1 OF 4 FOR DETAILS AND DIMENSIONS



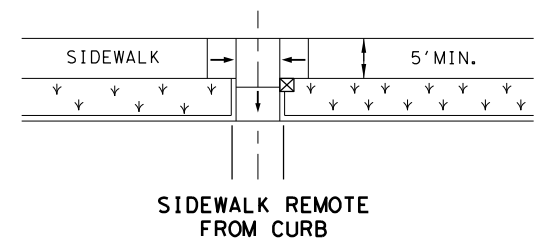
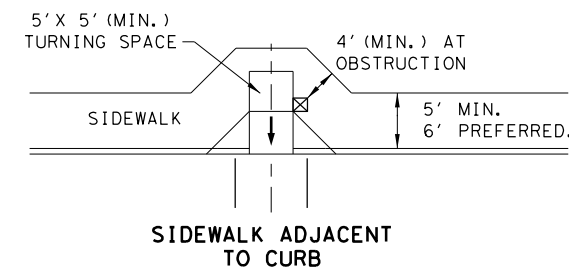
SKewed INTERSECTION WITH "LARGE" RADIUS



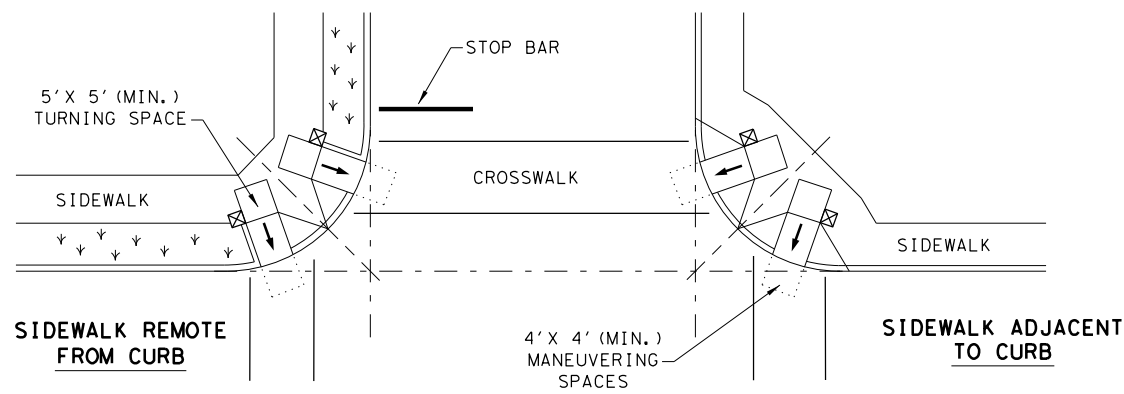
AT INTERSECTION W/FREE RIGHT TURN & ISLAND



SKewed INTERSECTION WITH "SMALL" RADIUS



MID-BLOCK PLACEMENT PERPENDICULAR RAMPS



NORMAL INTERSECTION WITH "SMALL" RADIUS

LEGEND:

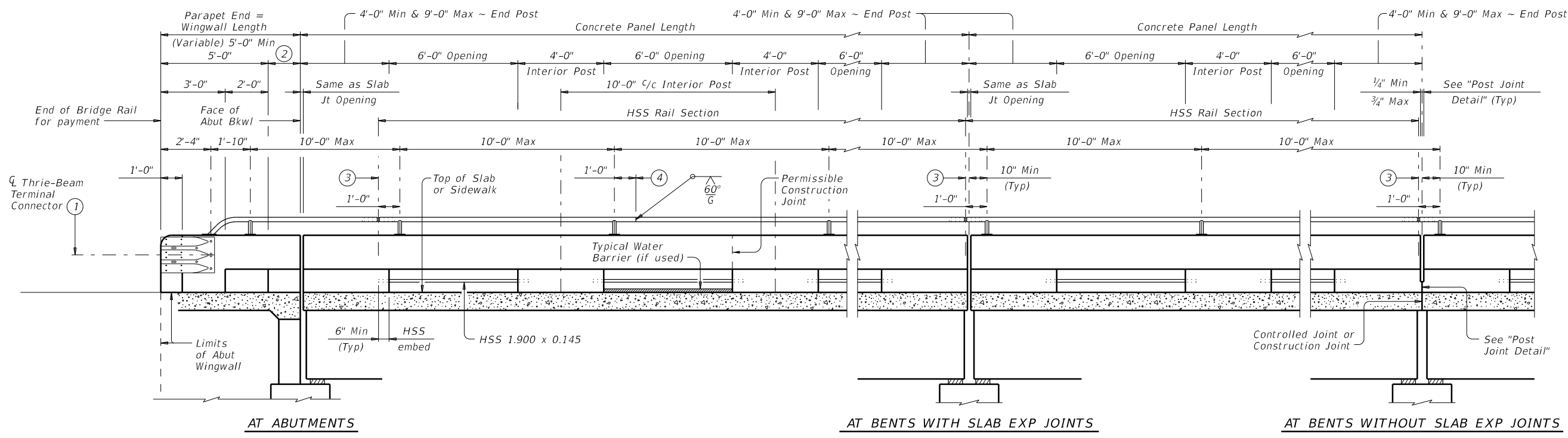
- SHOWS DOWNWARD SLOPE. →
- DENOTES PREFERRED LOCATION OF PEDESTRIAN PUSH BUTTON (IF APPLICABLE). ☒
- DENOTES PLANTING OR NON-WALKING SURFACE NOT PART OF PEDESTRIAN CIRCULATION PATH. ↙ ↘ ↙ ↘ ↙ ↘

DATE: 1/18/2024
FILE: \$FILES

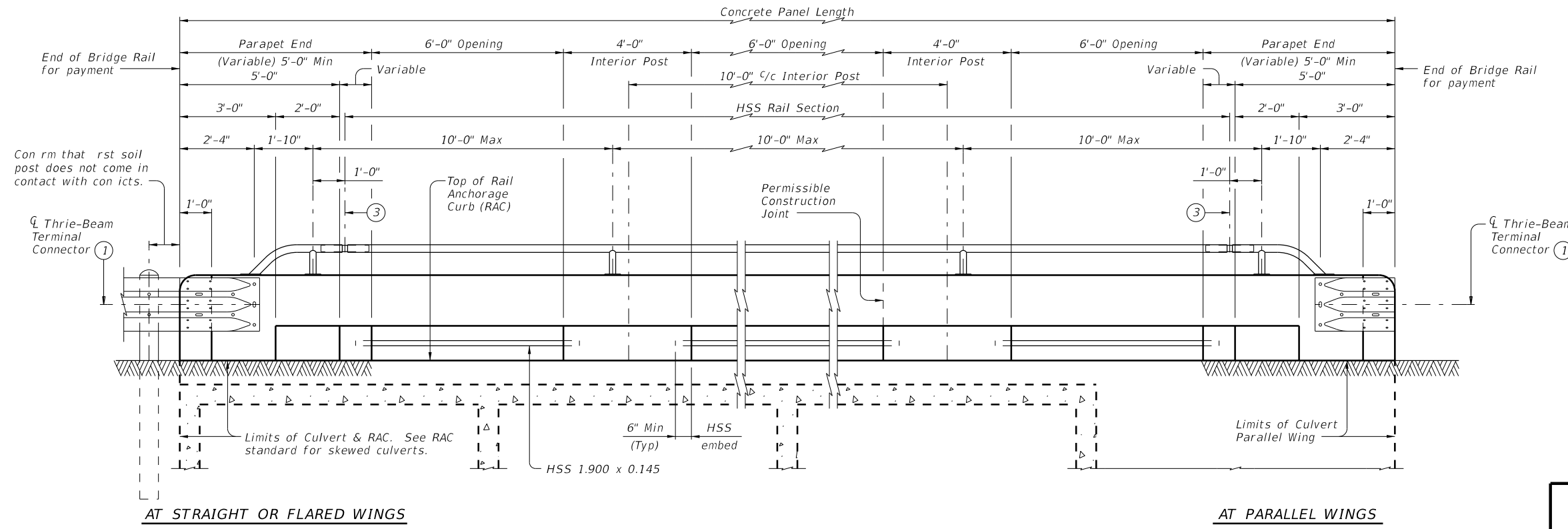
| | | | |
|---|-----------|---------------------------------|------------------|
| | | Design Division Standard | |
| PEDESTRIAN FACILITIES CURB RAMPS | | | |
| PED-18 | | | |
| FILE: ped18 | DN: TxDOT | DW: VP | CK: KM |
| © TxDOT: MARCH, 2002 | CON: 0913 | SECT: 27 | JOB: 090 |
| REVISIONS | DIST: YKM | | COUNTY: VICTORIA |
| REVISED 08, 2005 | | | SHEET NO. 52 |
| REVISED 06, 2012 | | | |
| REVISED 01, 2018 | | | |

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FILE: \$FILES\$



ROADWAY ELEVATION OF RAIL ON BRIDGE
(Showing without raised sidewalk)



ROADWAY ELEVATION OF RAIL ON BOX CULVERTS

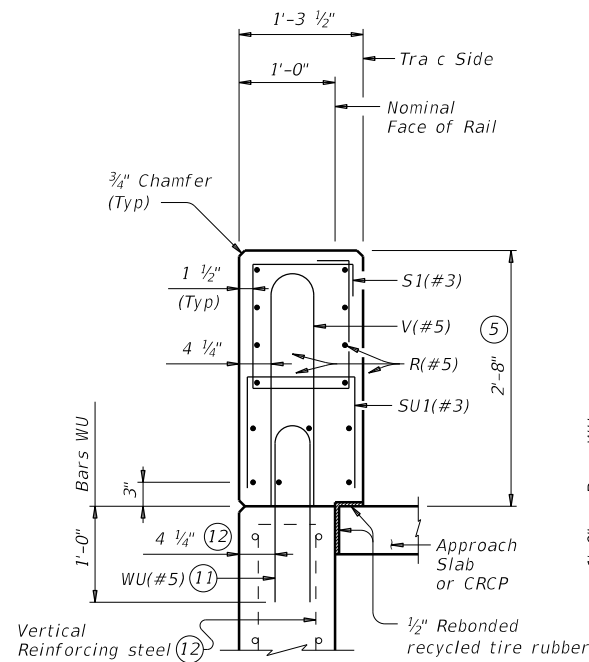
Showing 0° skew culvert. Skewed culverts similar. See RAC standard for details not shown. Vertical joints in concrete rail are not required, unless shown elsewhere.

- 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 Wingwall Length minus 5'-0" (Varies)
- ③ Splice Jt or Exp Jt
- ④ One shop splice per HSS rail section is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.

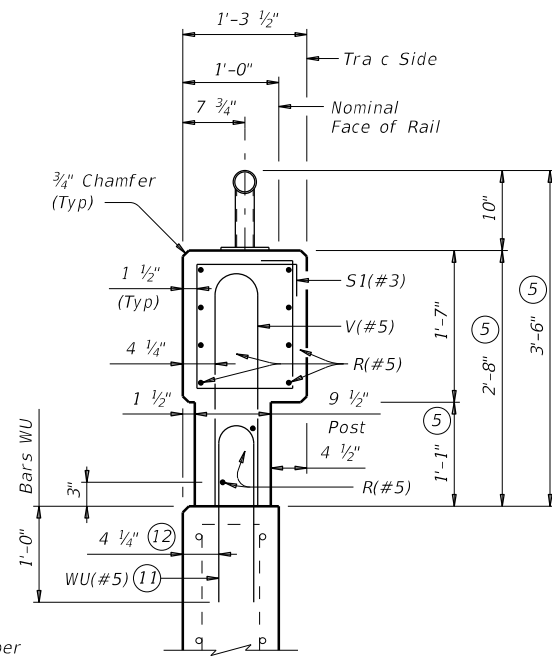
SHEET 1 OF 4

| | | | |
|---------------------------|----------------|---------------------------------|--------------|
| | | Bridge Division Standard | |
| <h2>COMBINATION RAIL</h2> | | | |
| <h3>TYPE C223</h3> | | | |
| FILE: r1std019-19.dgn | DN: TxDOT | CK: TxDOT | DW: JTR |
| ©TxDOT September 2019 | CONTRACT: 0913 | SECTION: 27 | JOB: 090 |
| REVISIONS | | | HIGHWAY: CS |
| | DIST: YKM | COUNTY: VICTORIA | SHEET NO: 53 |

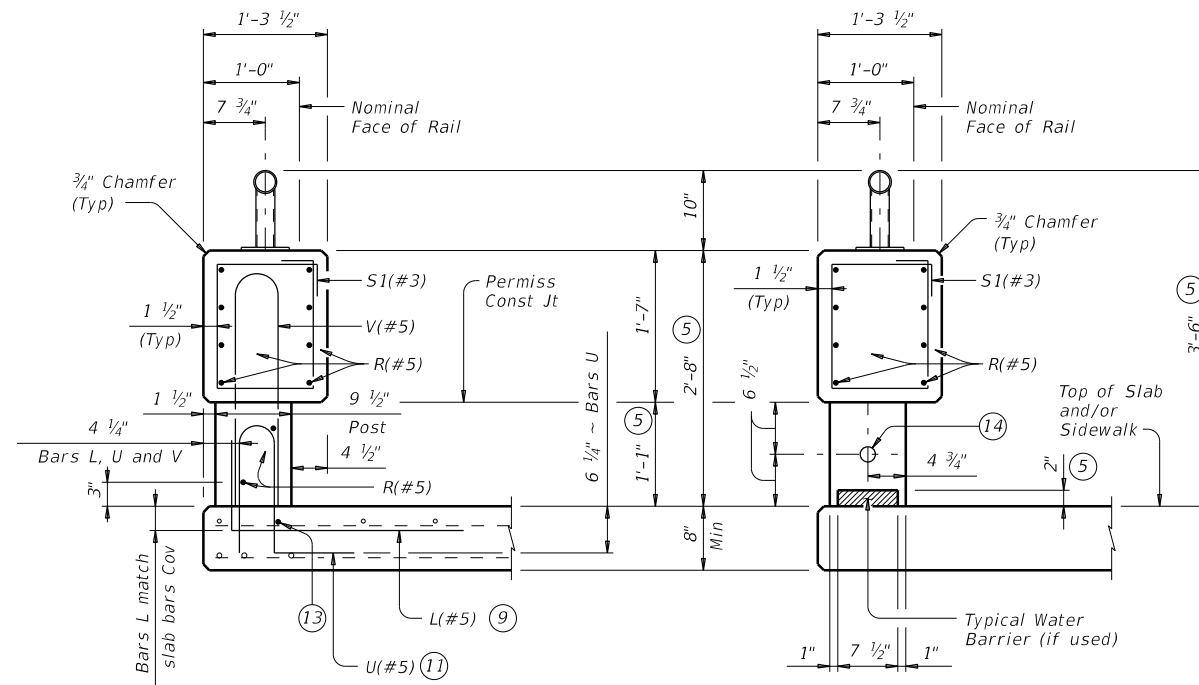
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SECTION D-D
ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS

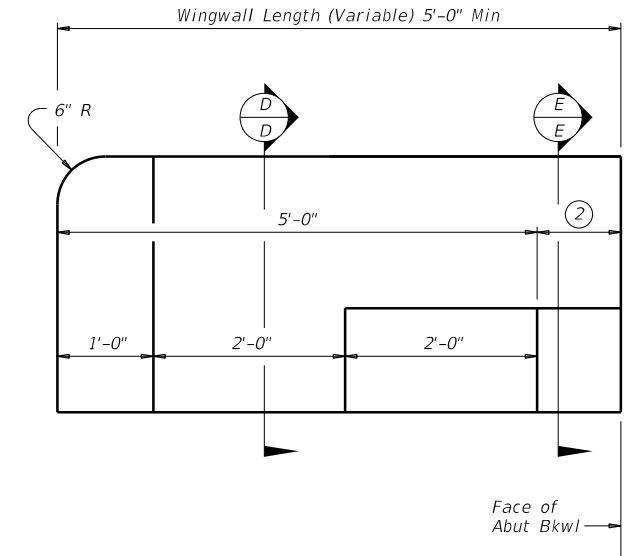


SECTION E-E
ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS



AT POST
ON BRIDGE SLAB

AT OPENING
ON BRIDGE SLAB

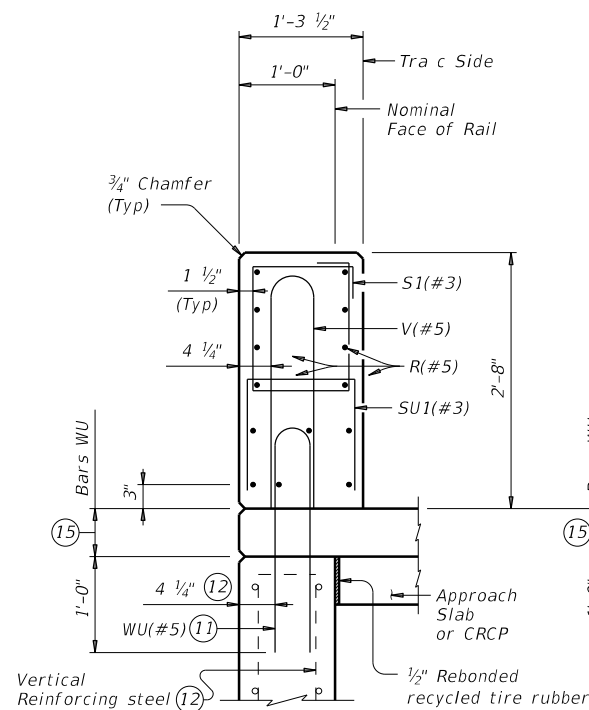


ELEVATION AT
ABUTMENT WINGWALL

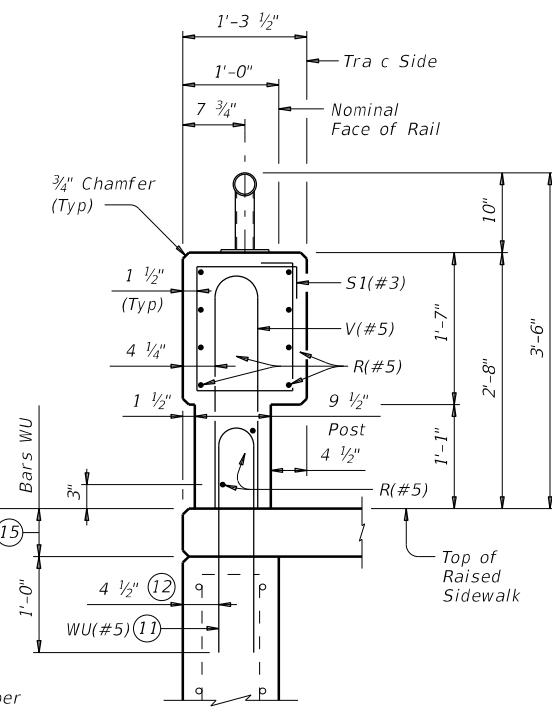
Box culvert parallel wings or rail anchorage curb similar.
HSS rail not shown for clarity.

SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK

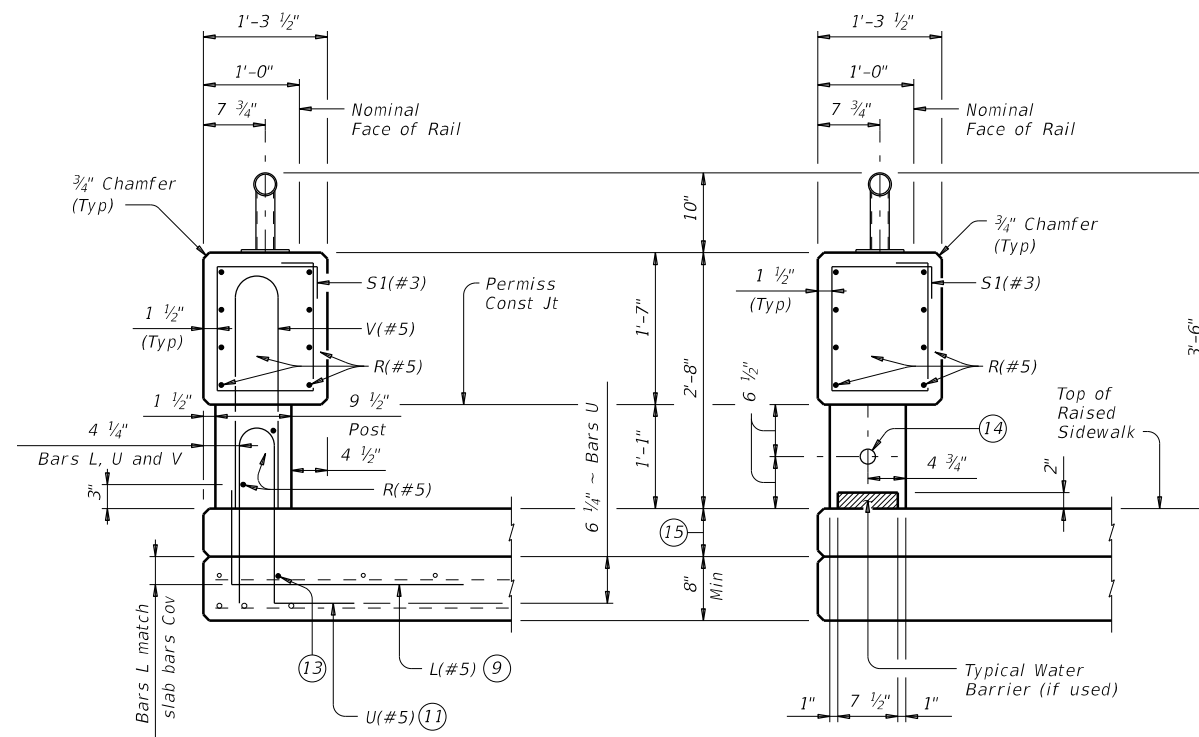
Sections on box culvert similar.



SECTION D-D
ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS



SECTION E-E
ON ABUTMENT WINGWALLS
OR CIP RETAINING WALLS

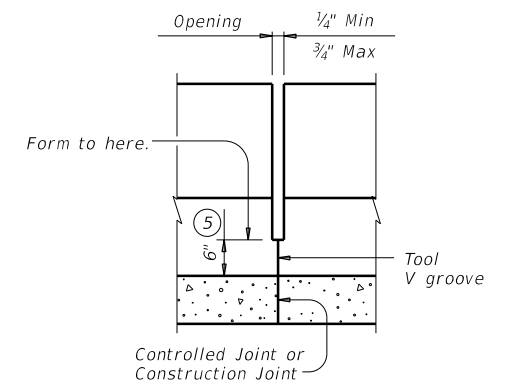


AT POST
ON BRIDGE SLAB

AT OPENING
ON BRIDGE SLAB

SECTIONS THRU RAIL WITH RAISED SIDEWALK

Sections on box culvert similar.



POST JOINT DETAIL

(Showing without raised sidewalk)
Provide at all interior bents without
slab expansion joints.

- ② Wingwall Length minus 5'-0" (Varies)
- ⑤ Increase 2" for structures with overlay.

- ⑨ Bars L(#5) are part of rail reinforcing and are included in unit price bid for railing. Space with Bars U. Bars L match slab bar cover. Bars L may be bundled with top slab reinforcing if spacing is equivalent.

- ⑪ Substitute Bars U(#5) for Bars WU(#5) when parapet end is located on anchorage curb over culvert top slab. Use Bars WU(#5) in culvert parallel wings.

- ⑫ When vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls on traffic side of wall, move the horizontal wingwall/retaining wall reinforcing to the inside of Bars WU where bars connect.

- ⑬ Top longitudinal slab bar may be adjusted laterally 3" plus or minus to tie reinforcing.

- ⑭ HSS 1.900 x 0.145

- ⑮ Raised Sidewalk.

DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

SHEET 3 OF 4



COMBINATION RAIL

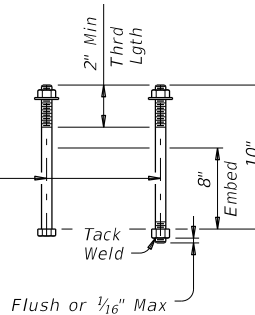
TYPE C223

| | | | | |
|-----------------------|-----------|-----------|---------|---------|
| FILE: r1std019-19.dgn | DN: TxDOT | CK: TxDOT | DW: JTR | CK: AES |
| ©TxDOT September 2019 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| DIST | COUNTY | SHEET NO. | | |
| YKM | VICTORIA | 55 | | |

RAIL DATA FOR HORIZONTAL CURVES

| | RADIUS TO FACE OF RAIL | MAX CHORD LENGTH | CONSTRUCT OR FABRICATE |
|----------|------------------------|------------------|---------------------------------------|
| HSS Rail | Over 2800' | 29'-0" | Straight rail sections |
| | Over 1400' thru 2800' | 14'-6" | To required radius or to chords shown |
| | Over 700' thru 1400' | 7'-3" | |
| | Thru 700' | Zero | To required radius |

5/8" Dia hex head anchor bolt or threaded rod (ASTM A307 Gr A) with one hardened steel washer (ASTM F436) placed under each hex nut (ASTM A563). One additional hex nut must be furnished and tack welded for each threaded rod.



CAST-IN-PLACE ANCHOR BOLT OPTIONS 16

- 15 Increase 2" for structures with overlay.
- 16 See "Material Notes" for anchor bolt information.
- 17 For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail's location.
- 18 At the Contractor's option, Bars V may be replaced by extending Bars U to 2'-5 1/4" above the roadway/sidewalk surface without overlay.

CONSTRUCTION NOTES:

Face of rail, posts and parapet must be vertical transversely unless otherwise approved by the Engineer. HSS rail posts and opening end faces must be perpendicular to top of adjacent concrete parapet grade. Use epoxy mortar under HSS rail post base plates if gaps larger than 1/16" exist.

Provide water barriers at openings draining onto undercrossing roadways and sidewalks. They may be cast-in-place or precast in convenient lengths and bonded to the bridge deck with an approved epoxy cement.

HSS rail sections must not include less than two posts, and no more than four (except at Abutments).

Round or chamfer exposed edges of HSS rail and HSS rail posts to approximately 1/16" by grinding.

Test adhesive anchors in accordance with Item 450.3.3, "Tests". Test 3 anchors per 100 anchors installed. Perform corrective measures to provide adequate capacity if any of the tests do not meet the required test load. Repair damage from testing as directed.

At the Contractor's option anchor bolts may be cast with the parapet. See "Material Notes". Chamfer all exposed corners.

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. Provide ASTM A1085, A500 Gr B or A53 Gr B for all HSS.

Galvanize all metal components of steel rail system. Apply additional coatings when shown elsewhere on the plans. When plans require paint over galvanizing, follow the requirements for painting galvanized steel in Item 445, "Galvanizing" and when field painting, Item 446, "Field Cleaning and Painting Steel". Sleeve members and anchor bolts must receive galvanization prior to installation and only field paint after installation unless directed otherwise by Engineer.

Deformed Welded Wire Reinforcing (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars U, V, and WU unless noted otherwise.

Anchor bolts must be 5/8" Dia ASTM A307 Gr A fully threaded rods with one hex nut and one hardened steel washer (ASTM F436) each. Nuts must conform to ASTM A563 requirements. Embed fully threaded rods into parapet wall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 3". Anchor adhesive chosen must be able to achieve a nominal bond strength in tension of a single anchor, Na, of 5 kips (edge distance must be accounted for). Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing".

Optional cast-in-place anchor bolts must be 5/8" Dia ASTM A307 Gr A bolts (or threaded rods with one tack welded hex nut each) with one hex nut and one hardened steel washer (ASTM F436) at each bolt. Nuts must conform to ASTM A563 requirements.

Provide bar laps, where required, as follows: Uncoated or galvanized ~ #5 = 2'-0" Epoxy coated ~ #5 = 3'-0"

GENERAL NOTES:

This rail has been evaluated by full-scale crash test to meet MASH TL-3 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.

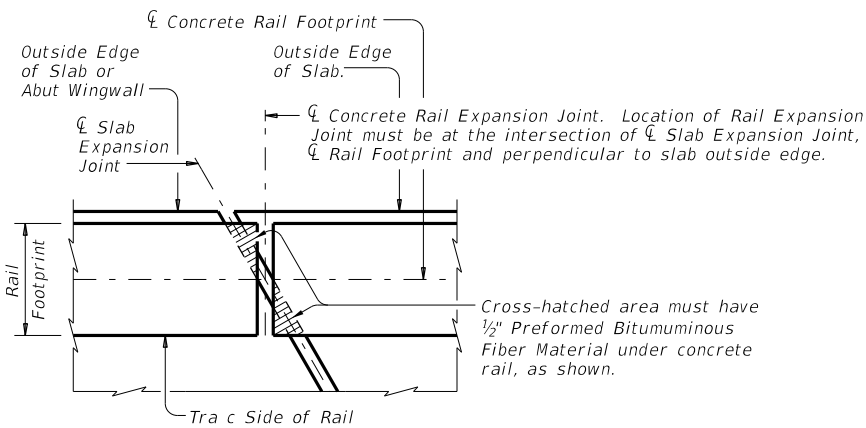
Do not use this railing on bridges with expansion joints providing more than 5" movement. Rail anchorage details shown on this standard may require modification for select structure types.

See appropriate details elsewhere in plans for these modifications.

Submit erection drawings showing panel lengths, HSS rail post spacing, and anchor bolt setting to the Engineer for approval.

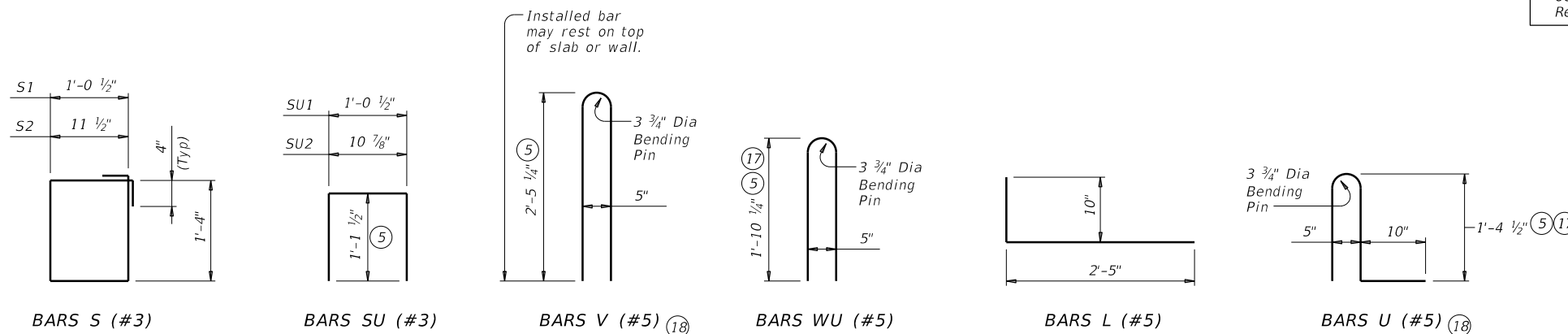
Average weight of railing with no overlay:
370 plf total
358 plf (Conc)
12 plf (Steel)

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



PLAN OF RAIL AT EXPANSION JOINTS

Example showing Slab Expansion Joints without breakbacks.



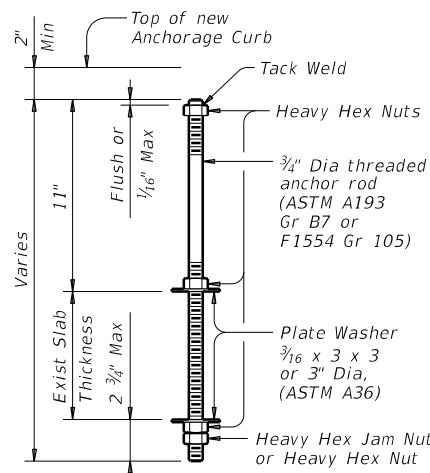
| | | | |
|---------------------------|-----------|---------------------------------|----------|
| | | Bridge Division Standard | |
| <h2>COMBINATION RAIL</h2> | | | |
| <h3>TYPE C223</h3> | | | |
| FILE: r1std019-19.dgn | DN: TxDOT | CK: TxDOT | DW: JTR |
| CON: September 2019 | SECT: | JOB: | HIGHWAY: |
| REVISIONS | 0913 27 | 090 | CS |
| DIST: | COUNTY: | SHEET NO. | |
| YKM | VICTORIA | 56 | |

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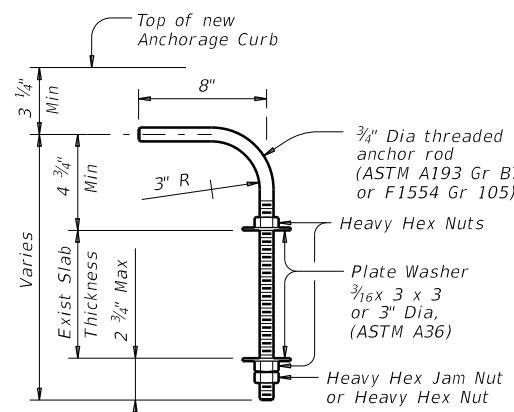
DATE: 1/18/2024 \$TIME\$
 FILE: \$FILES\$

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DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

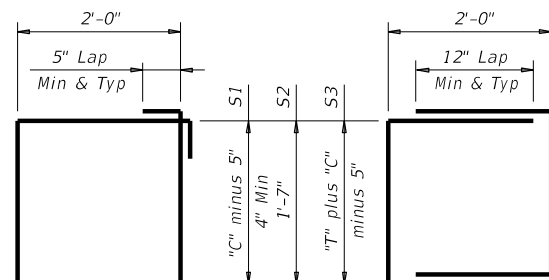


STRAIGHT ANCHOR ⑨



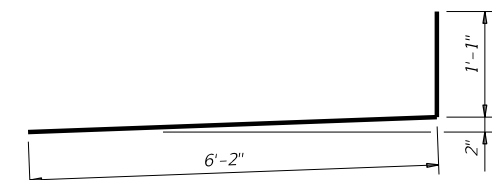
HOOKED ANCHOR ⑨

ANCHOR DETAILS

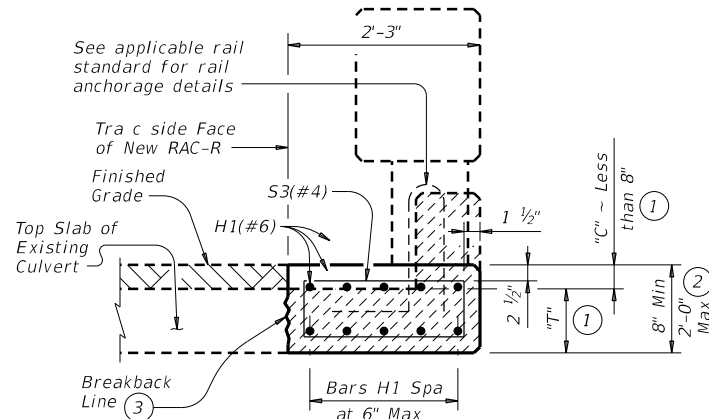


BARS S (#4)

OPTIONAL BARS S (#4)

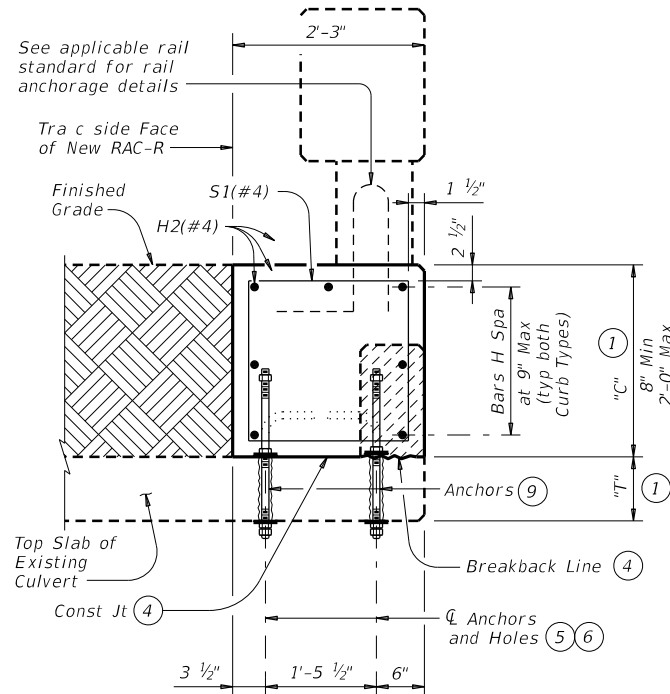


BARS L (#5)



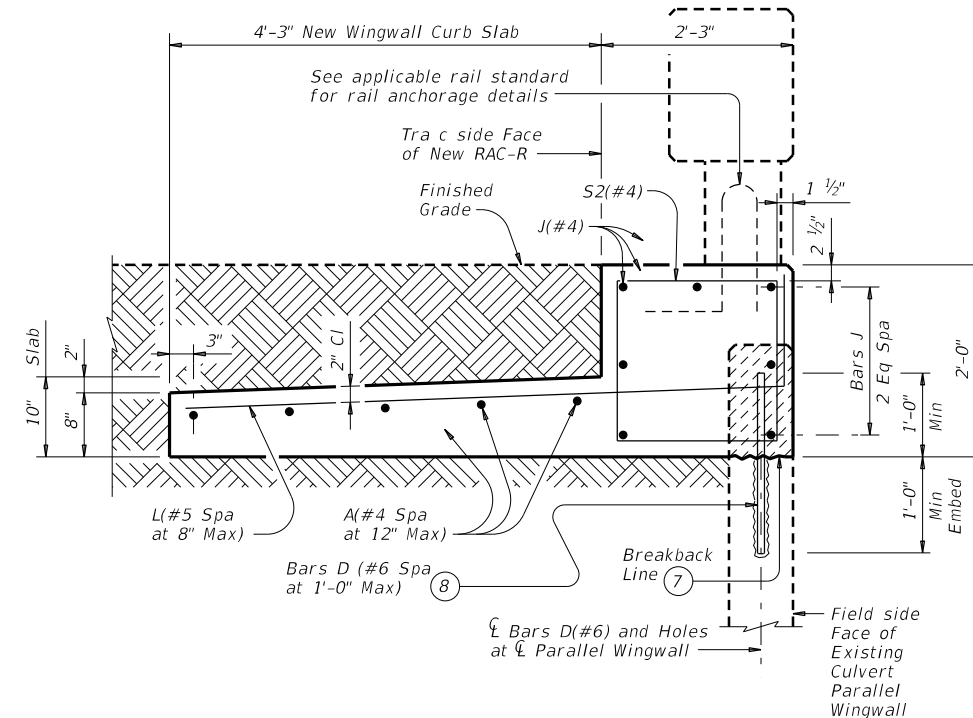
TYPICAL SECTION ~ TYPE 1

Used when the top of the Retrofit Curb is less than 8' above existing slab. Showing T223 Rail other rails similar. (Bars L(#5) on T223 and C223 Rails are not used for this structure). Bars RH(#5) required on standards T80HT, T80SS and T224 are not required when used with the RAC-R standard.



TYPICAL SECTION ~ TYPE 2

Used when the Retrofit Curb is 8' in height or greater. Showing T223 Rail, other rails similar. (Bars L(#5) on T223 and C223 Rails are not used for this structure). Bars RH(#5) required on standards T80HT, T80SS and T224 are not required when used with the RAC-R standard.



TYPICAL SECTION ~ PARALLEL WINGWALL

Wingwall Anchorage Curb is required on Parallel Wingwalls only. Omit Wingwall Anchorage Curb on Flared and Straight Wingwalls. Showing T223 Rail, other rails similar. (Bars L(#5) on T223 and C223 Rails are not used for this structure). Bars RH(#5) required on standards T80HT, T80SS and T224 are not required when used with RAC-R standard.

- ① "T" is equal to the existing culvert top slab thickness. If "T" is less than 6", a special design will be required. "C" is equal to the Retrofit Rail Anchorage Curb thickness.
- ② The total thickness ("T" plus "C") must be 8" minimum in order to properly install the railing anchorage reinforcing.
- ③ Remove shaded portion of existing concrete to Breakback Line shown. Care must be taken so as to not damage existing reinforcing. Replace damaged reinforcing with new, like reinforcing. Clean existing reinforcing and incorporate into new concrete construction.
- ④ Saw cut (score) 1" deep flush with top of existing culvert slab, on the field side face of existing curb, if present. After scoring, remove shaded portion of existing concrete to Breakback Line shown. Do not damage existing reinforcing. Clean, bend and incorporate existing reinforcing into new concrete construction. Note that new anchors, as shown in the detail, are required even when existing reinforcing remains in use. Remove existing overlay and/or base material to flush with top of culvert in areas of new construction. Care must be taken to not damage the existing slab. In order to prevent existing asphalt remnants from acting as a bond breaker between the exposed, existing concrete and the retrofitted concrete curb, clean the newly exposed concrete with abrasive blasting or shot blasting. Remove all loose debris prior to placing new anchorage curb.
- ⑤ Core drill 1" diameter holes through existing slab. Percussion drilling is not permitted. Patch spalls, when directed by the Engineer, in accordance with Item 429, "Concrete Structure Repair", at the Contractor's expense. Tighten nuts snug tight.
- ⑥ Space field side anchors at 36" maximum. Space traffic side anchors at 11" maximum. Do not align field side and traffic side anchors transversely.
- ⑦ Retrofit Wingwall Anchorage Curb must always be 2'-0" in height. Breakback existing wingwall as needed in order to properly align the wingwall Anchorage Curb with that placed on the existing culvert. Saw cut (score) 1" deep on field side face of the existing wingwall prior to breakback. Care must be taken so as to not damage existing reinforcing. Clean and extend existing reinforcing into new construction. Note that new Bars D(#6), as shown in the detail, are required even when existing reinforcing remains in use.

CONSTRUCTION NOTES:
Field verify dimensions before commencing work and ordering materials.

MATERIAL NOTES:
Provide Class "C" concrete (f'c=3,600 psi). Provide Class "C" (HPC) concrete if shown elsewhere in the plans.
Chamfer all exposed corners 3/4" unless shown otherwise.
Provide Grade 60 reinforcing steel.
Galvanize all reinforcing steel if required elsewhere.
Provide bar laps, where required, as follows: Uncoated or galvanized ~ #4 = 1'-11"
Galvanize 3/4" Dia threaded rods, heavy hex nuts and plate washers, unless otherwise shown on plans.

GENERAL NOTES:
Designed according to AASHTO LRFD Bridge Design Specifications.
The rail anchorage curb details have sufficient strength for use with all standard rail types. See appropriate rail standard for approved speed restrictions, notes and details not shown.
For vehicle safety, the top of the new curb must be flush with the finished grade.
These details are for use with curbs with a maximum height of 2'-0" only. Curb heights greater than 2'-0" will require special design.
Removal and replacement of backfill, subgrade, and asphalt or concrete pavement necessary for this installation is considered subsidiary to the rail anchorage curb.
Payment for rail anchorage curb (including wingwall curb slab) will be by CY of Class "C" or Class "C" (HPC) concrete.
Not all possible combinations of existing box culverts, curbs, wingwalls etc. have been shown on this sheet. Other combinations and reinforcement arrangements are permissible if they meet the same strength requirements as indicated on this sheet.

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



Amanda Anderle Fling, P.E.

01/18/2024

SHEET 1 OF 2



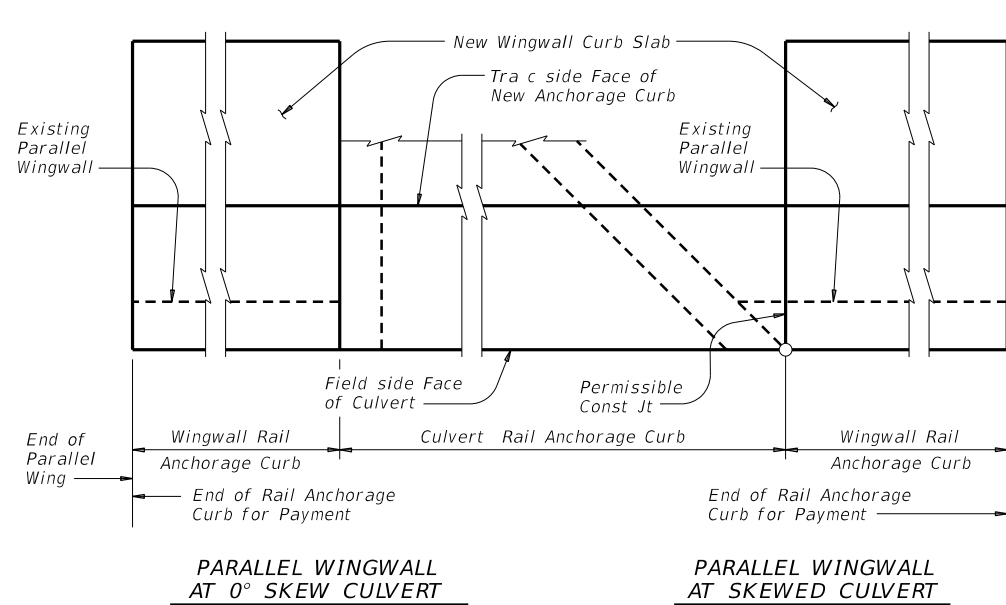
**RAIL ANCHORAGE CURB
RETROFIT GUIDE
BOX CULVERT RAIL MOUNTING DETAILS
(CURBS 2'-0" TALL AND LESS ONLY)**

RAC-R(MOD)

| | | | | |
|-----------------------|-----------|-----------|-----------|-----------|
| FILE: CD-RAC-R-20.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CK: TxDOT |
| ©TxDOT February 2020 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| DIST | COUNTY | | SHEET NO. | |
| YKM | VICTORIA | | 57 | |

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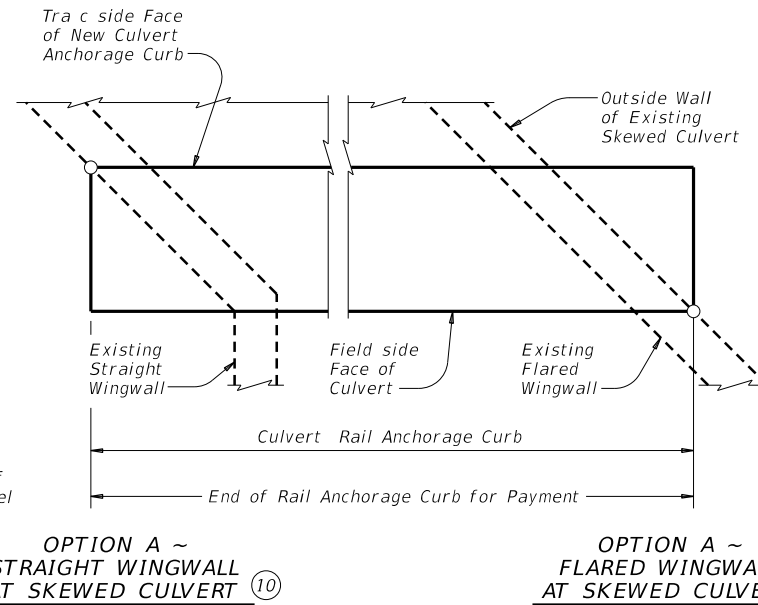
DATE: 1/18/2024 \$TIME\$
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PARALLEL WINGWALL AT 0° SKEWED CULVERT

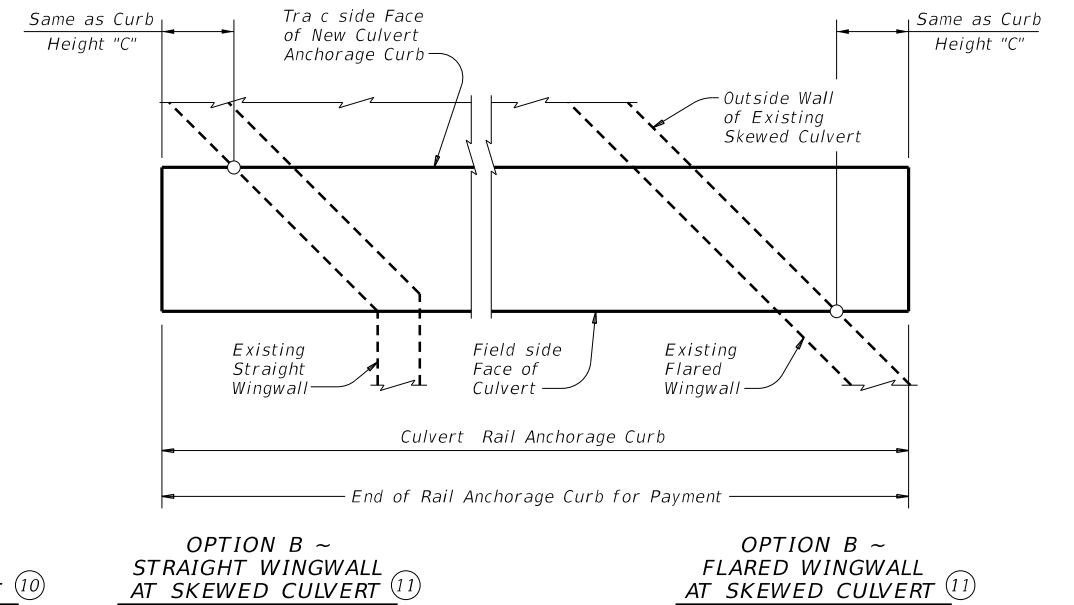
PARALLEL WINGWALL AT SKEWED CULVERT

Note that Wingwall Rail Anchorage Curb is used only at culverts with parallel wingwalls.



OPTION A ~ STRAIGHT WINGWALL AT SKEWED CULVERT ⑩

OPTION A ~ FLARED WINGWALL AT SKEWED CULVERT ⑩

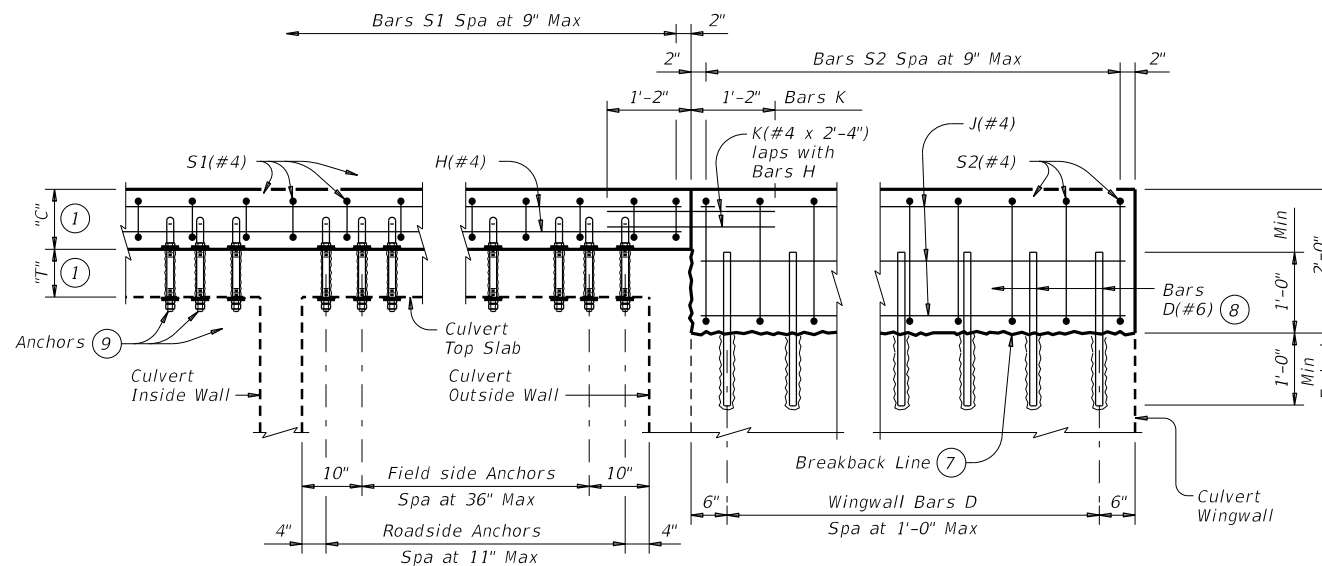


OPTION B ~ STRAIGHT WINGWALL AT SKEWED CULVERT ⑪

OPTION B ~ FLARED WINGWALL AT SKEWED CULVERT ⑪

TYPICAL CURB PLANS

Showing Geometry only. Reinforcing, Curb Anchors, and Railing not shown for clarity.



SHOWING CULVERT ANCHORAGE CURB

Showing Anchorage Curb Type 2. Anchor and Bars S spacing are the same for Anchorage Type 1.

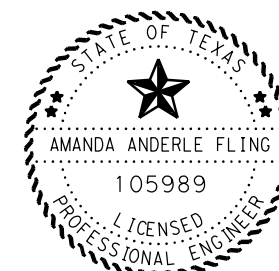
SHOWING WINGWALL ANCHORAGE CURB

Curb Slab and Slab reinforcing not shown for clarity.

TYPICAL ELEVATIONS OF INSTALLATION

- ① "T" is equal to the existing culvert top slab thickness. If "T" is less than 6", a special design will be required. "C" is equal to the Retro t Rail Anchorage Curb thickness.
- ⑦ Retro t Wingwall Anchorage Curb must always be 2'-0" in height. Breakback existing wingwall as needed in order to properly align the wingwall Anchorage Curb with that placed on the existing culvert. Saw cut (score) 1" deep on eld side face of the existing wingwall prior to breakback. Care must be taken so as to not damage existing reinforcing. Clean and extend existing reinforcing into new construction. Note that new Bars D(#6), as shown in the detail, are required even when existing reinforcing remains in use.
- ⑧ Embed bars D(#6) into existing wingwall with a Type III, Class C, D, E, or F anchor adhesive. Minimum adhesive anchor embedment depth is 12". Anchor adhesive chosen must be able to achieve a basic bond strength in tension, N_{ba}, of 26 kips. Submit signed and sealed calculations or the manufacturer's published literature showing the proposed anchor adhesive's ability to develop this load to the Engineer for approval prior to use. Anchor installation, including hole size, drilling, and clean out, must be in accordance with Item 450, "Railing." If existing parallel wingwall thickness is less than 8", a special design will be required.
- ⑨ Use straight anchors if retro t anchorage curb is 1'-2" or greater in thickness. Use hooked anchors for retro t anchorage curb less than 1'-2" thick.
- ⑩ Use Option A if nished grade at face of rail anchorage curb remains unchanged, or if both wingwalls and rail anchorage curb will be vertically raised. Existing wingwalls must be checked for suitability of vertically raising.
- ⑪ Use Option B if wingwalls will not be vertically raised when the curb height is increased. Verify adequacy of existing or proposed nished grade between end of rail anchorage curb and wingwall. Extension of rail anchorage curb beyond wingwall may need to be greater than "C" depending on side slope conditions.

SHEET 2 OF 2



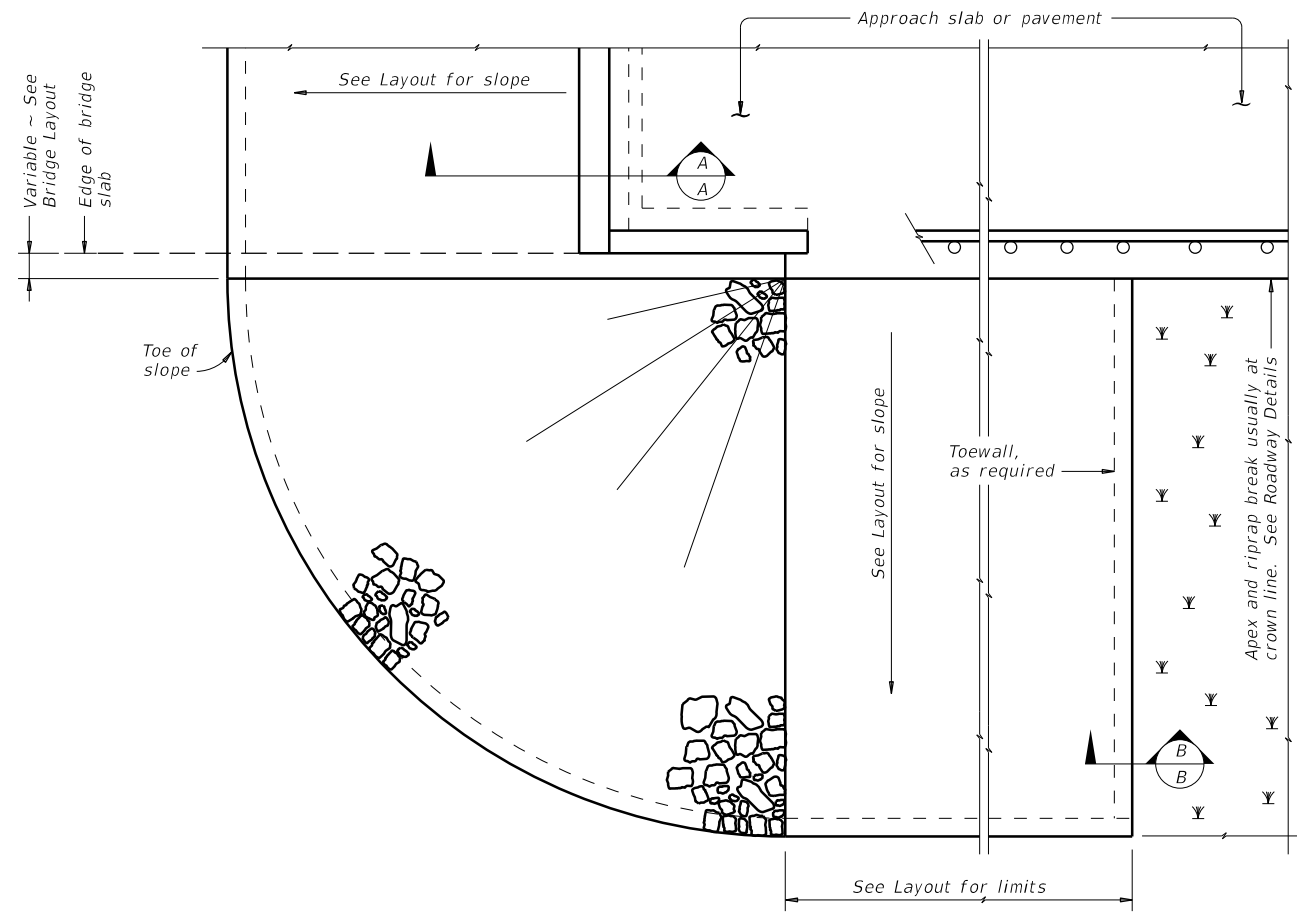
Amanda Anderle Fling, P.E.

01/18/2024

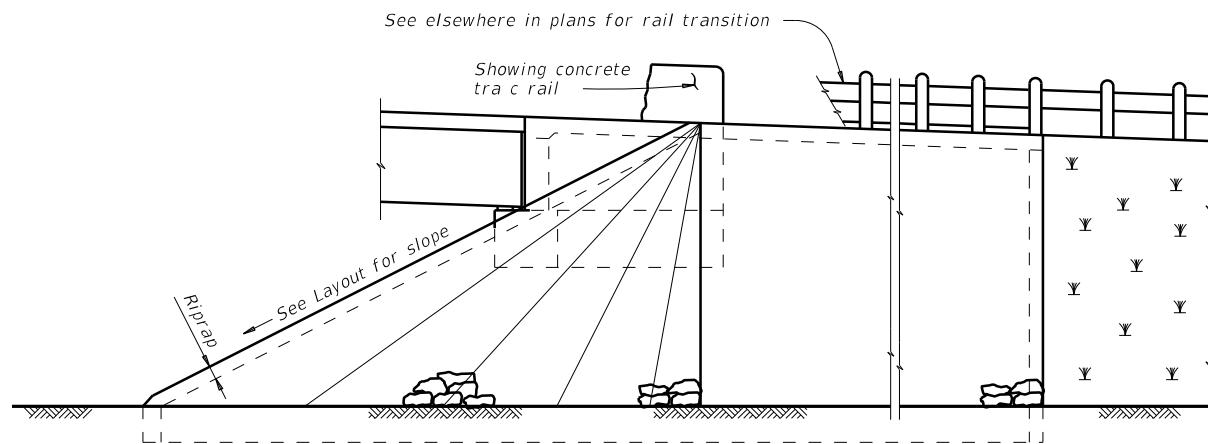
| | | | |
|--|-----------|---------------------------------|-----------|
| | | Bridge Division Standard | |
| RAIL ANCHORAGE CURB RETROFIT GUIDE BOX CULVERT RAIL MOUNTING DETAILS (CURBS 2'-0" TALL AND LESS ONLY) | | | |
| RAC-R(MOD) | | | |
| FILE: CD-RAC-R-20.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT |
| ©TxDOT February 2020 | CONT | SECT | JOB |
| REVISIONS | 0913 | 27 | 090 |
| DIST | COUNTY | SHEET NO. | |
| YKM | VICTORIA | 58 | |

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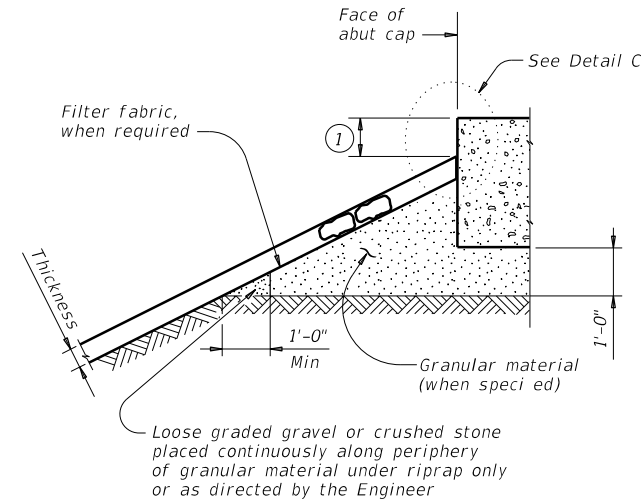
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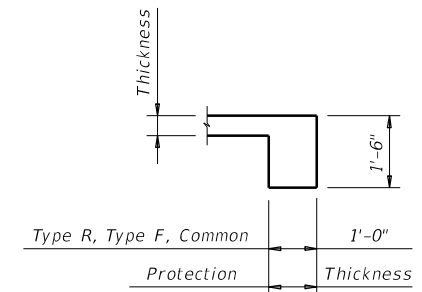
PLAN



ELEVATION

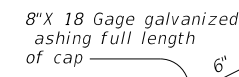


SECTION A-A AT CAP



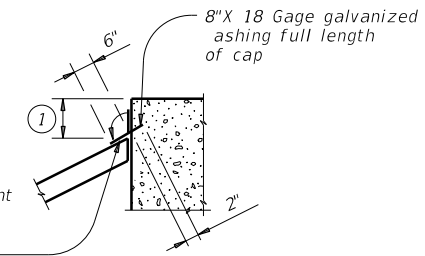
SECTION B-B

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

Nail ashing to cap or wingwall and seal with joint sealer



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

SHEET 1 OF 2

| | | | | | |
|-----------------------|---------|----------|-----------|---------|---------------------------------|
| | | | | | Bridge Division Standard |
| <h2>STONE RIPRAP</h2> | | | | | |
| <h3>SRR</h3> | | | | | |
| FILE: MS-SRR-19.dgn | DN: AES | CK: JGD | DW: BWH | CK: AES | |
| ©TxDOT April 2019 | CONT | SECT | JOB | HIGHWAY | |
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DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

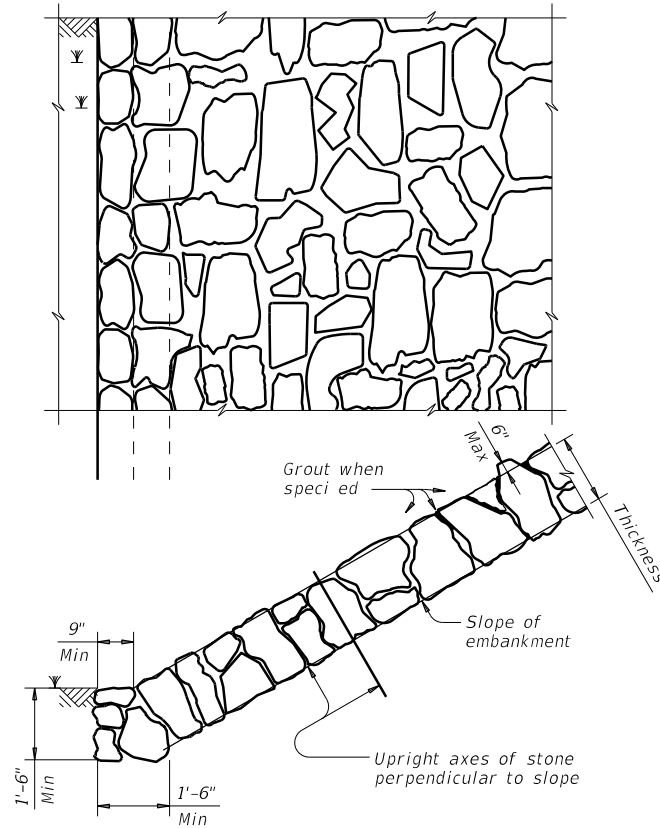


FIGURE 1 ~ TYPE R STONE RIPRAP
dry or grouted

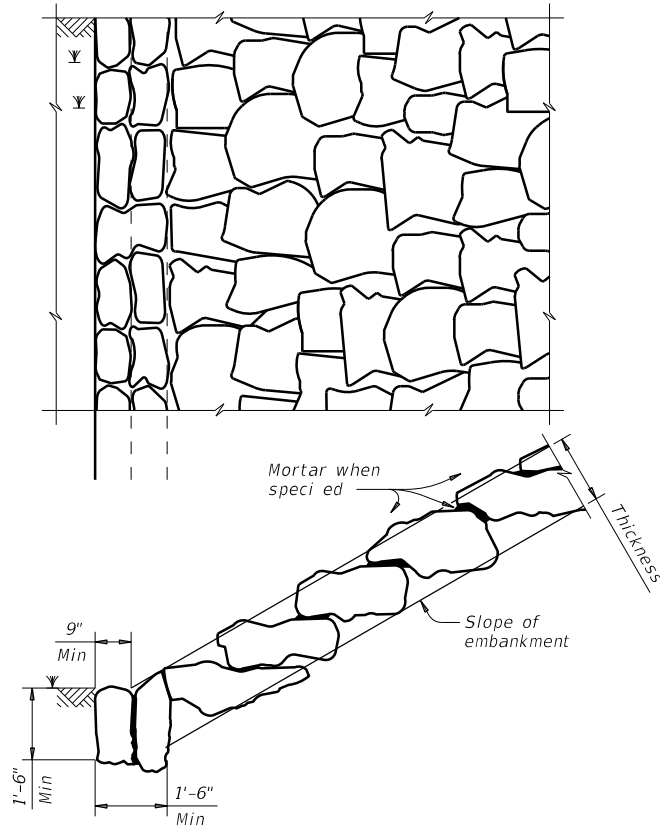


FIGURE 2 ~ TYPE F STONE RIPRAP
dry or mortared

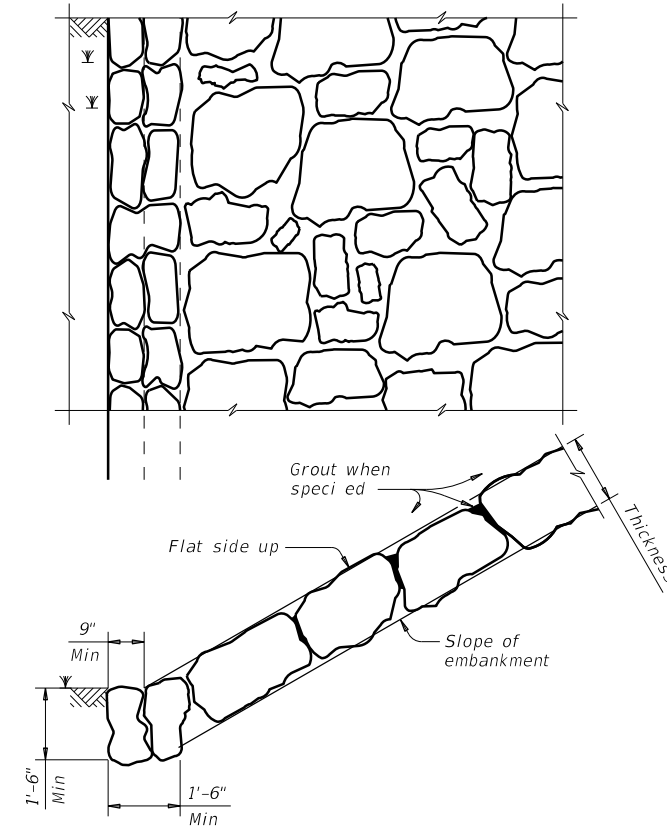
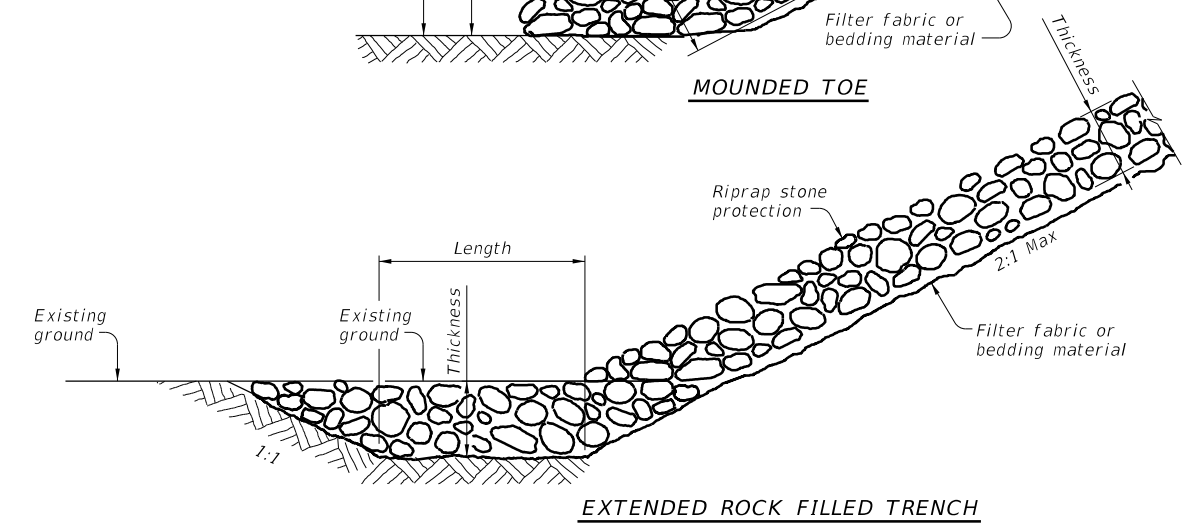
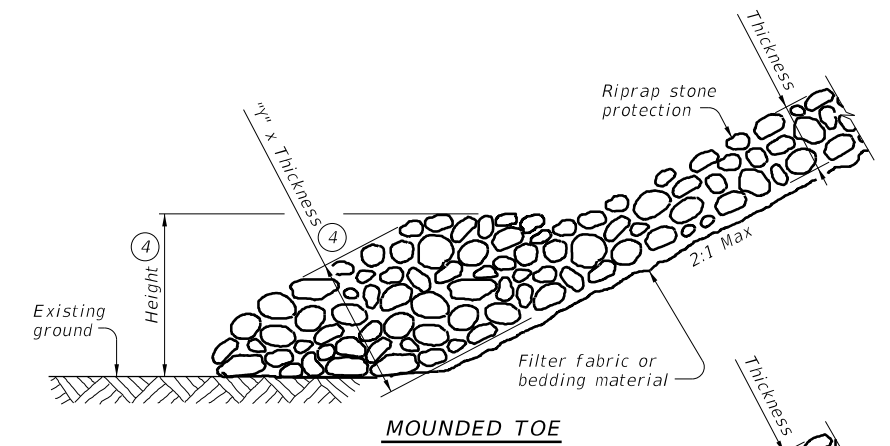


FIGURE 3 ~ TYPE F STONE RIPRAP
grouted

- 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.



PROTECTION STONE RIPRAP TOE OPTIONS ⑤

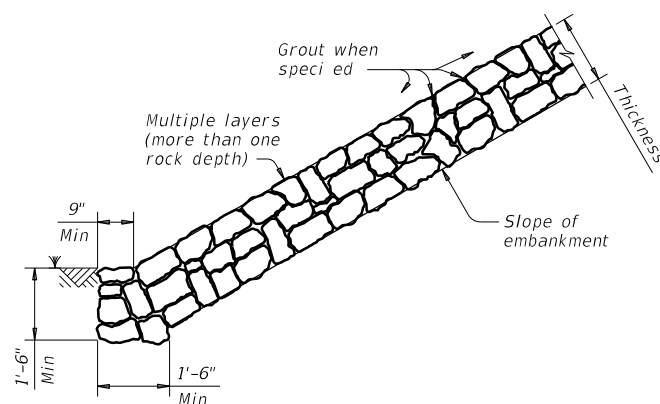
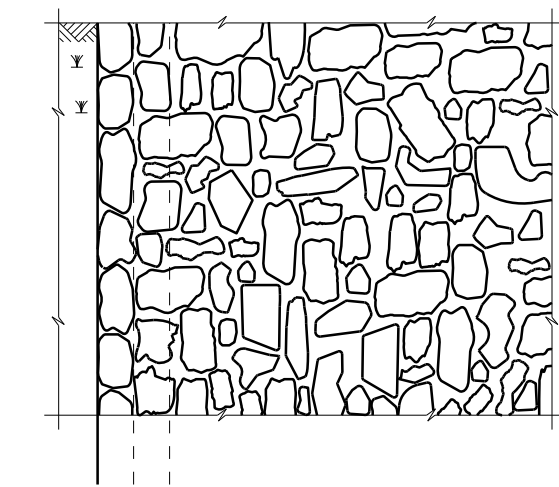


FIGURE 4 ~ COMMON STONE RIPRAP
dry or grouted

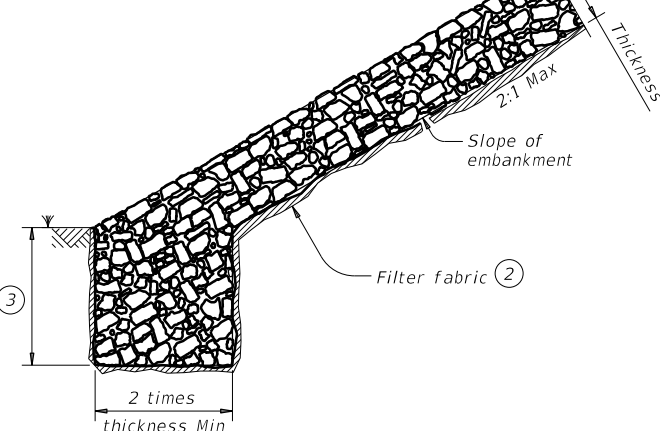
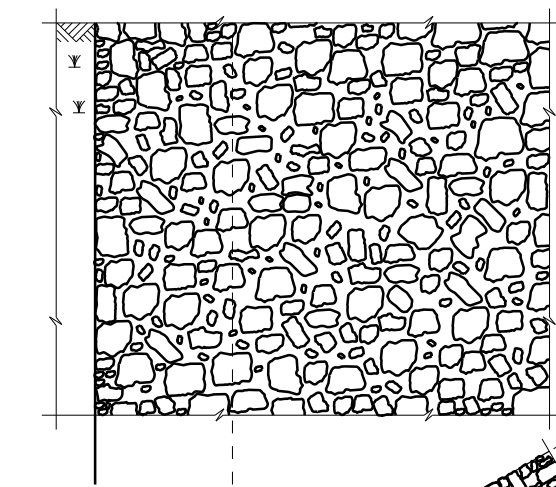


FIGURE 5 ~ PROTECTION STONE RIPRAP ⑤

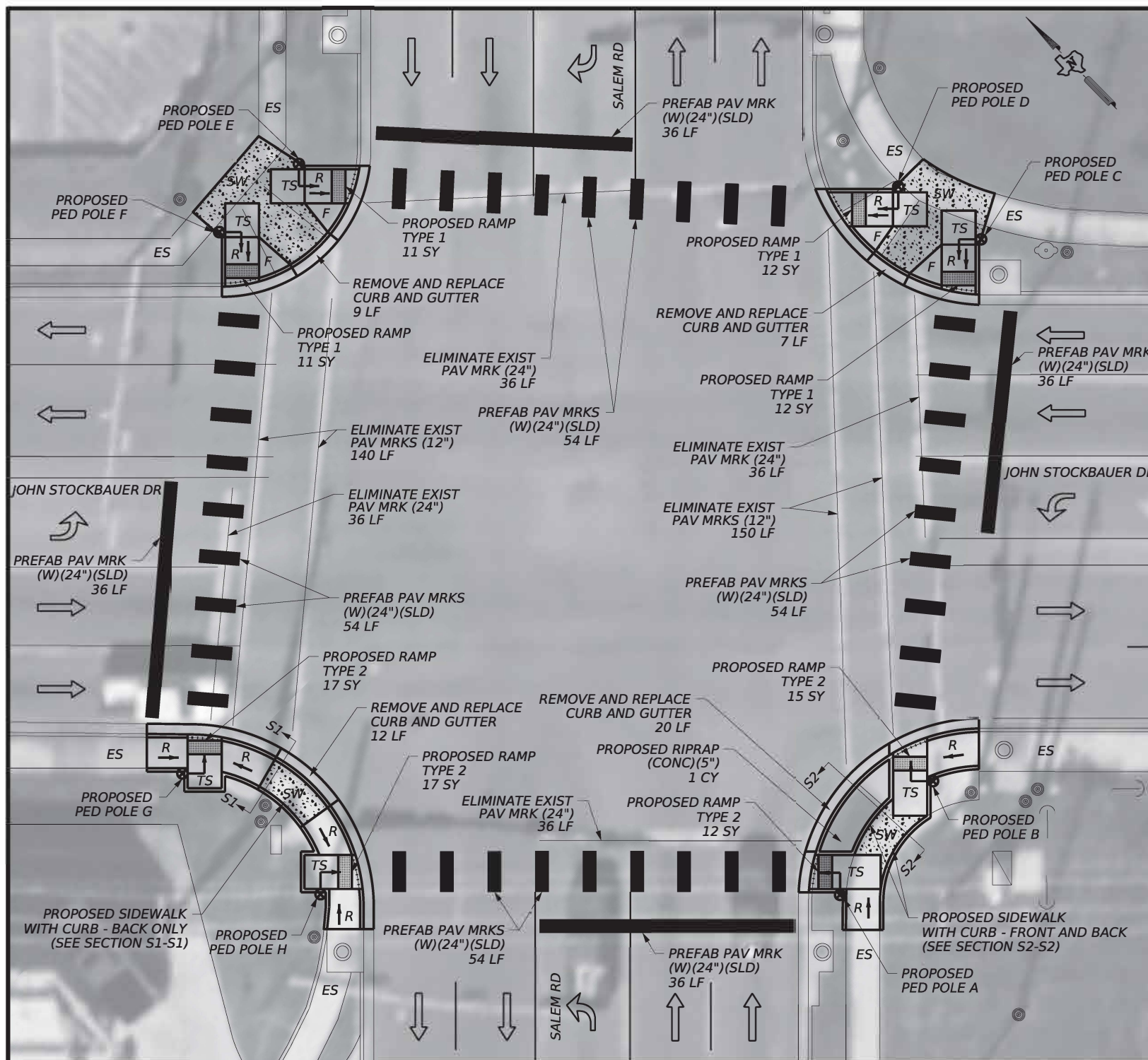
SHEET 2 OF 2



STONE RIPRAP

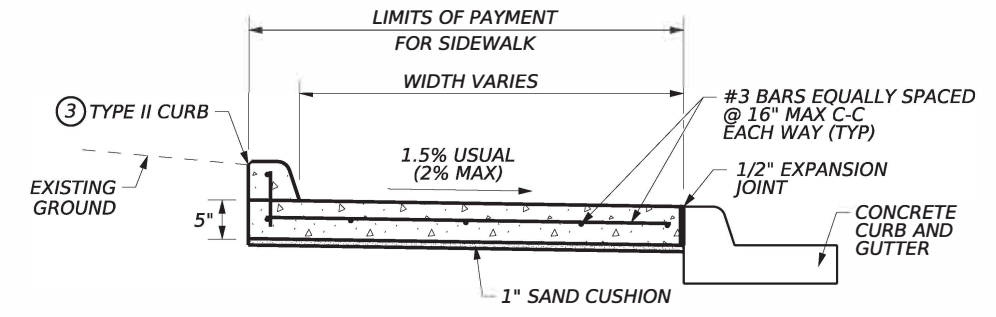
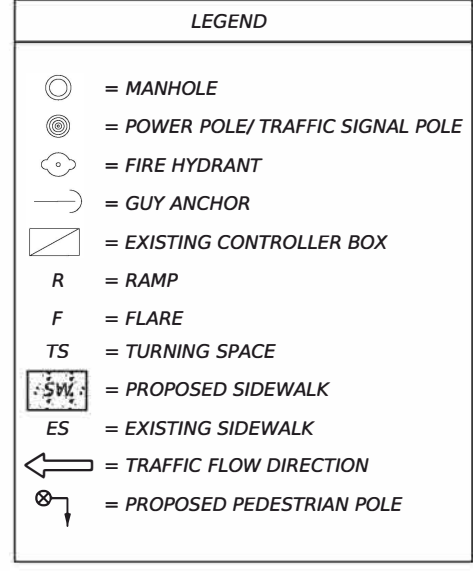
SRR

| | | | | |
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| ©TxDOT April 2019 | CONT | SECT | JOB | HIGHWAY |
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| | YKM | VICTORIA | 60 | |

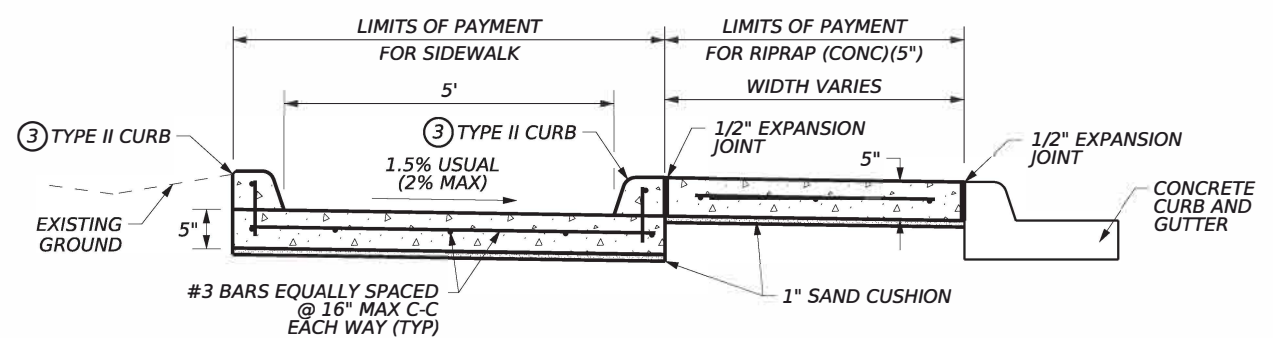


NOTES:

- ① EXISTENCE AND LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, INDICATED ON THE PLANS ARE TAKEN FROM EITHER AVAILABLE RECORD OR GROUND SURVEY AND ARE APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL UTILITIES PRIVATE/PUBLIC AND SHOWN/NOT SHOWN) PRIOR TO COMMENCING WORK.
- ② COORDINATE WITH ENGINEER THE EXACT LOCATION AND ALIGNMENT OF SIDEWALK. THE ENGINEER SHALL VERIFY AND AGREE TO LOCATION AND ALIGNMENT OF SIDEWALK PRIOR TO SIDEWALK CONSTRUCTION.
- ③ PROPOSED TYPE II CURB IS CONSIDERED SUBSIDIARY TO ITEM 531, SIDEWALK OR RAMP.
- ④ COORDINATE WITH CITY OF VICTORIA PRIOR TO INSTALLING STOP BARS WITH SIGNAL DETECTION.
- ⑤ USE WATERBLASTING FOR PAVEMENT MARKING REMOVAL.



PROPOSED SIDEWALK WITH CURB - BACK ONLY DETAIL
SECTION S1-S1
NOT TO SCALE



PROPOSED SIDEWALK WITH CURB - FRONT AND BACK DETAIL
SECTION S2-S2
NOT TO SCALE

SHEET TOTALS

| BID CODE | DESCRIPTION | UNIT | QTY |
|-----------|------------------------------------|------|-----|
| 0104 6022 | REMOVING CONC (CURB AND GUTTER) | LF | 48 |
| 0432 6002 | RIPRAP (CONC) (5") | CY | 1 |
| 0529 6008 | CONC CURB AND GUTTER (TY II) | LF | 48 |
| 0531 6002 | CONC SIDEWALKS (5") | SY | 40 |
| 0531 6035 | CURB RAMPS | SY | 107 |
| 0668 6076 | PREFAB PAV MRK TY C (W) (24")(SLD) | LF | 360 |
| 677 6005 | ELIM EXT PAV MRK & MRKS (12") | LF | 290 |
| 0677 6007 | ELIM EXT PAV MRK & MRKS (24") | LF | 144 |
| 0682 6018 | PED SIG SEC (LED)(COUNTDOWN) | EA | 8 |
| 0687 6001 | PED POLE ASSEMBLY | EA | 8 |
| 0688 6001 | PED DETECT PUSH BUTTON (APS) | EA | 8 |
| 0688 6003 | PED DETECTOR CONTROLLER UNIT | EA | 1 |



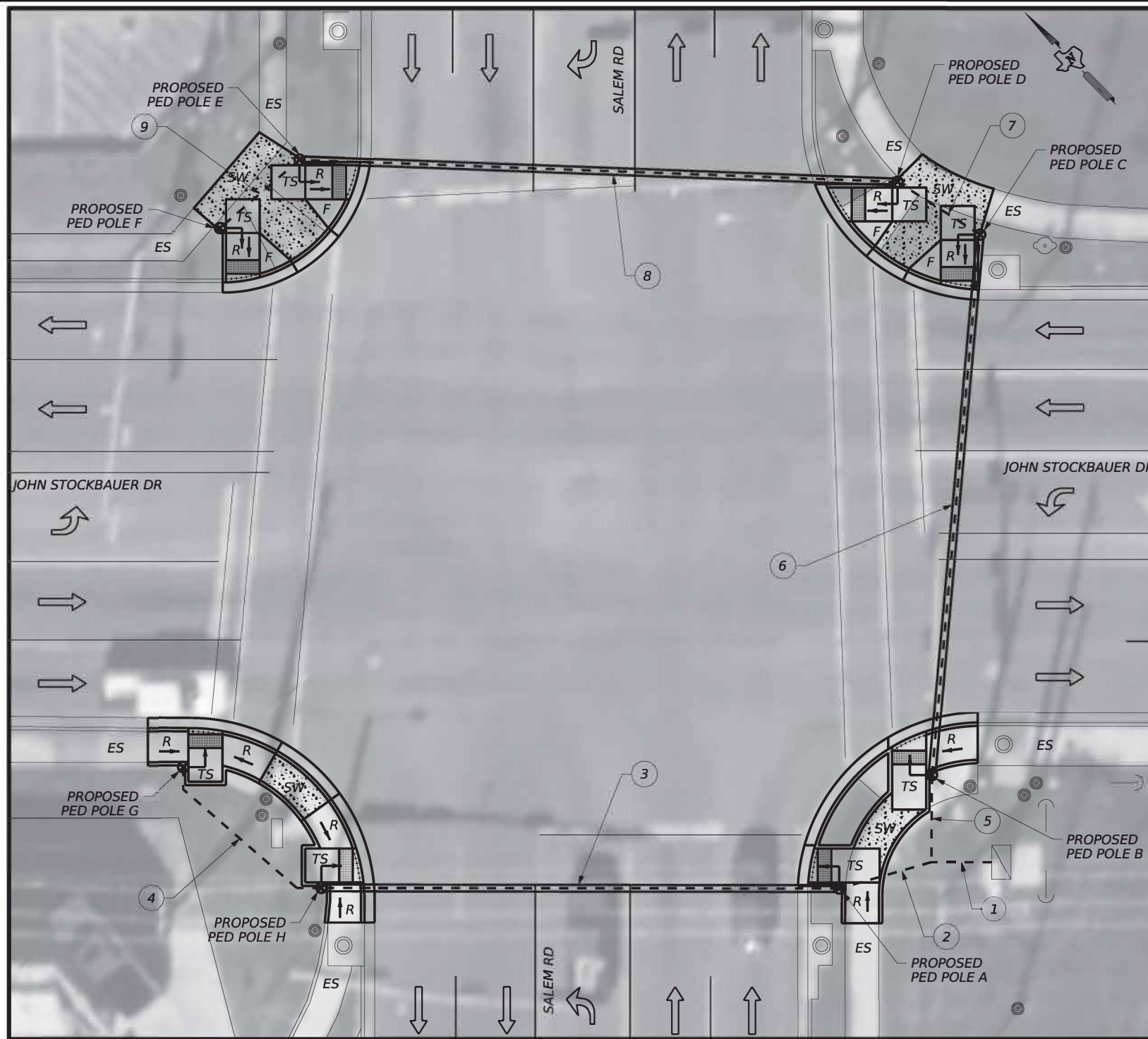
Kath C. Marek, P.E.
December 29, 2023

**JOHN STOCKBAUER DR @ SALEM RD
PEDESTRIAN FACILITIES
LAYOUT**

SCALE: 1" = 20'

Texas Department of Transportation
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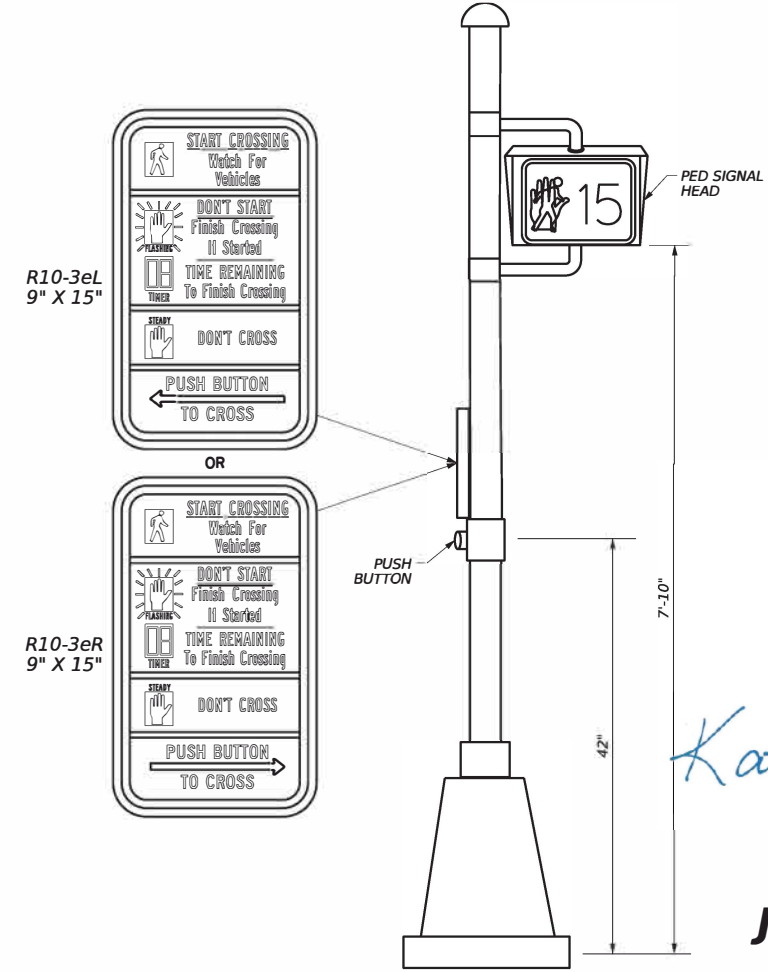
| FED. RD. DIV. NO. | | PROJECT NO. | |
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| 6 | | | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 62 |



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- ② STAKE POLE LOCATIONS AND SEEK TXDOT'S APPROVAL PRIOR TO DRILLING FOUNDATIONS AND POURING CONCRETE.
- ③ MINIMUM CLEARANCE OF 6' RADIUS FROM NEUTRAL AND 10' RADIUS FROM PRIMARY SHALL BE MAINTAINED BETWEEN PROPOSED TRAFFIC SIGNAL EQUIPMENT AND ELECTRIC LINES.
- ④ POLES IDENTIFIED HEREIN MAY HAVE POTENTIAL CONFLICTS WITH EXISTING UTILITIES. POT HOLE LOCATIONS AND VERIFY EXISTING UTILITY LOCATIONS PRIOR TO DRILLING FOUNDATION.
- ⑤ POLES IDENTIFIED HEREIN MAY BE IN CONFLICT WITH OVERHEAD UTILITIES. COORDINATE WITH UTILITY PROVIDER PRIOR TO PED POLE INSTALLATION TO VERIFY CLEARANCE FROM EXISTING OVERHEAD UTILITIES.

| LEGEND | |
|--------|-----------------------------------|
| | = MANHOLE |
| | = POWER POLE/ TRAFFIC SIGNAL POLE |
| | = FIRE HYDRANT |
| | = GUY ANCHOR |
| | = EXISTING CONTROLLER BOX |
| R | = RAMP |
| F | = FLARE |
| TS | = TURNING SPACE |
| | = PROPOSED SIDEWALK |
| ES | = EXISTING SIDEWALK |
| | = TRAFFIC FLOW DIRECTION |
| | = PROPOSED PEDESTRIAN POLE |
| | = ELECTRICAL CONDUIT (TRENCH) |
| | = ELECTRICAL CONDUIT (BORE) |
| | = CONDUIT RUN NUMBER |



PEDESTRIAN POLE DETAIL
NOT TO SCALE

- PEDESTRIAN POLE NOTES:**
- P1. THE CONTRACTOR SHALL MOUNT THE PEDESTRIAN HEADS AT A UNIFORM HEIGHT FOR EACH INTERSECTION.
 - P2. FOR PEDESTRIAN SIGNAL POLE AND PUSH BUTTON LOCATIONS, SEE TRAFFIC SIGNAL LAYOUT.
 - P3. SEE STANDARD TS-FD-12 FOR FOUNDATION DETAILS.



Kathryn C. Marek, P.E.
December 29, 2023

**JOHN STOCKBAUER DR @ SALEM RD
CONDUIT & CONDUCTOR LAYOUT**

SCALE: 1" = 20'

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SHEET 1 OF 1

| FED. RD. DIV. NO. | | PROJECT NO. | |
|-------------------|-------|-------------|-------------|
| 6 | | | |
| CONT. | SECT. | JOB | HIGHWAY NO. |
| 0913 | 27 | 090 | CS |
| STATE | DIST. | COUNTY | SHEET NO. |
| TEXAS | YKM | VICTORIA | 63 |

CONDUIT AND CONDUCTOR RUNS

| RUN NO. | LENGTH OF RUN LF | 618 | | 620 | | 621 | | 684 | | | |
|---------------|---------------------|-------------------------|-----------------------------------|-------------------------|-----------------------------------|-------------------|------------------------------------|-------------------------------|------------------------------------|---------------------------------------|------------------------------------|
| | | CONDT (PVC)(SCH 40)(4") | | CONDT (PVC)(SCH 40)(4") | | ELEC CONDR (NO.8) | | TRAY CABLE (3 CONDR) (12 AWG) | | TRF SIG CBLE (TY A)(12 AWG) (5 CONDR) | |
| | | TRENCH | | BORE | | BARE | | "PED SIGNAL BUTTON" | | "PED SIGNAL HEAD" | |
| | | NO. OF RUNS | LENGTH OF RUN X NO. OF RUNS LF | NO. OF RUNS | LENGTH OF RUN X NO. OF RUNS LF | NO. OF CONDR | LENGTH OF RUN X NO. OF CONDR LF | NO. OF CONDR | LENGTH OF RUN X NO. OF CONDR LF | NO. OF CONDR | LENGTH OF RUN X NO. OF CONDR LF |
| 1 | 10 | 1 | 10 | | | 1 | 10 | 8 | 80 | 8 | 80 |
| 2 | 15 | 1 | 15 | | | 1 | 15 | 3 | 45 | 3 | 45 |
| 3 | 77 | | | 1 | 77 | 1 | 77 | 2 | 154 | 2 | 154 |
| 4 | 30 | 1 | 30 | | | 1 | 30 | 1 | 30 | 1 | 30 |
| 5 | 15 | 1 | 15 | | | 1 | 15 | 5 | 75 | 5 | 75 |
| 6 | 81 | | | 1 | 81 | 1 | 81 | 4 | 324 | 4 | 324 |
| 7 | 15 | 1 | 15 | | | 1 | 15 | 3 | 45 | 3 | 45 |
| 8 | 89 | | | 1 | 89 | 1 | 89 | 2 | 178 | 2 | 178 |
| 9 | 16 | 1 | 16 | | | 1 | 16 | 1 | 16 | 1 | 16 |
| TOTALS | | | 101 | | 247 | | 348 | | 947 | | 947 |

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DATE: 1/18/2024 \$TIME\$
 FILE: \$FILES\$

| REFLECTOR UNIT SIZES FOR DELINEATORS AND OBJECT MARKERS | | | | DELINEATORS | | | | D & OM DESCRIPTIVE CODES | |
|---|--------|--------|--------|--|--------|-------------------------|--|--------------------------|--|
| DEVICE | SIZE 1 | SIZE 2 | SIZE 3 | SIZE 4 | DEVICE | SINGLE | | DOUBLE | |
| | | | | | | | | | |
| SHEETING: Yellow, White or Red Type B or C reflective sheeting | | | | SHEETING: Yellow, White or Red Type B or C Reflective Sheeting | | 1-Size 2 reflector unit | | 2-Size 2 reflector units | |
| NOTE: 1. Size 1 and 4 - Direct applied reflective sheeting for use on flexible post (fix). 2. Size 2 and 3 - For use on wing channel (wc) post only. Use approved metal, plastic or fiberglass backplate with 17/64" mounting holes. | | | | POST TYPE: WC, YFLX, WFLX | | MOUNT TYPE: GND | | MOUNT TYPE: GND, SRF | |

| OBJECT MARKERS | | | | | | | | D & OM DESCRIPTIVE CODES | | |
|---|---------------|---|---------------|--|---|---------------|--|---|--|--|
| DEVICE | Type 1 (OM-1) | | Type 2 (OM-2) | | | Type 3 (OM-3) | | | Type 4 (OM-4) | |
| | | | | | | | | | INSTL OM ASSM (OM-XX) (XXXX)XXX (XX) TYPE OF OBJECT MARKER 1, 2, 3, or 4 NUMBER OF REFLECTORS OR DIRECTION X = 3-Size 2 reflector unit (Type 2 only) Y = 1-Size 3 reflector unit (Type 2 only) Z = 3-Size 1 or 1-Size 4 reflector unit(s) (Type 2 only) L = Left Side (Type 3 Object Marker only) R = Right Side (Type 3 Object Marker only) C = Center (Type 3 Object Marker only) TYPE OF POST WC = Wing Channel Post WFLX = White Flexible Post TWT = Thin Walled Tubing TYPE OF MOUNT GND = Embedded (drivable) SRF = Surface Mount WAS = Wedge Anchor Steel WAP = Wedge Anchor Plastic DIRECTION If Required BI = Bi-Directional | |
| SHEETING: Yellow-Type B _{FL} or C _{FL} Sheeting | | SHEETING: Yellow - Type B or C Sheeting | | | SHEETING: Alternating acrylic black and retroreflective yellow - Type B _{FL} or C _{FL} Sheeting | | | SHEETING: Red -Type B _{FL} or C _{FL} Sheeting | | |
| POST TYPE: TWT | | POST TYPE: WC | | | POST TYPE: WFLX | | | POST TYPE: TWT | | |
| MOUNT TYPE: WAS, WAP | | MOUNT TYPE: GND | | | MOUNT TYPE: GND, SRF | | | MOUNT TYPE: WAS, WAP | | |

| DEPARTMENTAL MATERIAL SPECIFICATIONS | |
|--|----------|
| FLEXIBLE DELINEATOR & OBJECT MARKER POSTS (EMBEDDED & SURFACE MOUNT TYPES) | DMS-4400 |
| SIGN FACE MATERIALS | DMS-8300 |
| DELINEATORS, OBJECT MARKERS AND BARRIER REFLECTORS | DMS-8600 |

| BARRIER REFLECTORS (BRF) | | | CHEVRONS | | | | ONE DIRECTION LARGE ARROW | | NOTE: Delineator and object marker substrates and sign substrates shall be 0.080" Aluminum sign blank to conform to ASTM B-209 Alloy 6061-T6 or approved alternative. | |
|---|--|--|--|--|--|--|-----------------------------|--|--|--|
| DEVICE | | | | | | | | | | |
| SHEETING: Yellow, White, Red | | | MOUNTING HEIGHT: 4'-0" or 7'-0" | | | | MOUNTING HEIGHT: 7'-0" Only | | MOUNTING HEIGHT: 7'-0" | |
| NOTE: 1. Barrier reflectors shall meet the requirements of DMS 8600. 2. Approved Barrier Reflectors are listed on the "Barrier Reflectors" Material Producer List at: www.txdot.gov. | | | NOTE: 1. CHEVRON (W1-8) signs and ONE DIRECTION LARGE ARROW (W1-6) Signs shall be installed per Sign Mounting Details (SMD) Standard Sheets and paid under Item 644 (Small Roadside Sign Assemblies). 2. When there is a need to increase conspicuity, the Texas version of the ONE DIRECTION LARGE ARROW sign (W1-9T) may be used instead of the ONE DIRECTION LARGE ARROW (W1-6). | | | | | | | |

Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER MATERIAL DESCRIPTION

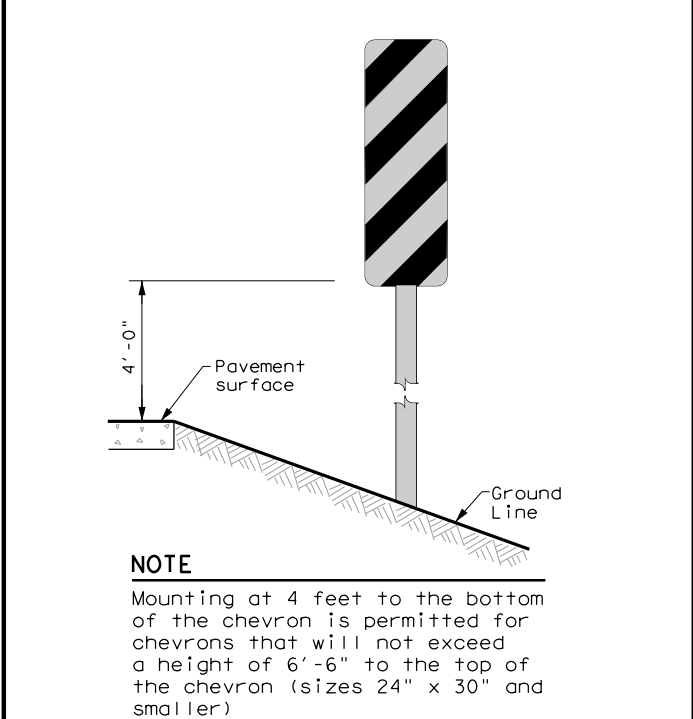
D & OM(1)-20

| | | | | |
|---------------------|------------|------------------|--------------|-------------|
| FILE: dom1-20.dgn | DN: TXDOT | CK: TXDOT | DW: TXDOT | CK: TXDOT |
| © TXDOT August 2004 | CONT: 0913 | SECT: 27 | JOB: 090 | HIGHWAY: CS |
| 10-09 3-15 | DIST: YKM | COUNTY: VICTORIA | SHEET NO. 64 | |
| 4-10 7-20 | | | | |

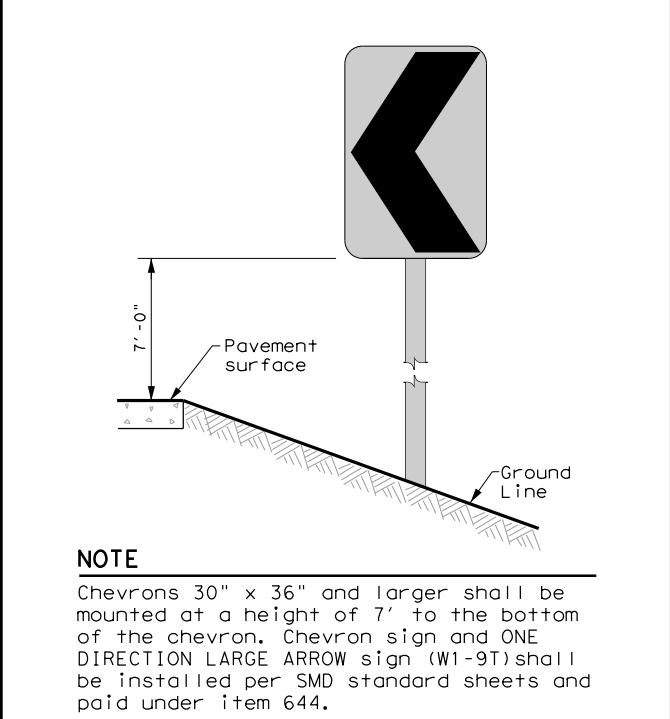
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| POST TYPE AND SUPPORT FOUNDATION DETAILS | | | | TYPE OF BARRIER MOUNTS | | |
|--|-----------------------------|--|----------------------|---|------------------------|--|
| WING CHANNEL (WC) | FLEXIBLE POSTS (YFLX, WFLX) | | WEDGE ANCHOR SYSTEMS | | GUARD FENCE ATTACHMENT | |
| GND | GND | SRF | WAS | WAP | GF 1 | |
| | | | | | | |
| | EMBEDDED | SURFACE MOUNT | STEEL | PLASTIC | GF 2 | |
| NOTES 1. Embedded Wing Channel (WC) post option may be used for Type 2 Object Markers and Delineators only. 2. 1.12 lbs/ft steel per ASTM A 1011 SS Gr. 50, or ASTM A499. | | NOTES 1. See "Flexible Delineator and Object Marker Posts" Material Producer List for approved devices. 2. Install per manufacturer's recommendations. 3. Post length may vary to meet field conditions. 4. When using yellow delineators with flexible posts to separate opposing direction of travel, such as centerline or median use, the flexible posts shall be yellow. | | NOTE 1. Install per manufacturer's recommendations. | | |
| CONCRETE TRAFFIC BARRIER (CTB) | | | | | | |
| | | | | | | |
| GENERAL NOTES | | | | | | |
| 1. Place delineators on a section of roadway at a consistent distance from the edge of pavement. 2. Where a restriction prevents consistent placement from the pavement edge, place the affected object markers in line with the innermost edge of the obstruction. 3. When Type 2 object markers and delineators are more than 8'-0" from the edge of the pavement, it may not be possible to maintain a height of approximately 4'-0". If this is the case, place the object marker or delineator as close to the desired height as possible. 4. Install all delineators, object markers and barrier reflectors in accordance with the manufacturer's recommendation. 5. Barrier reflectors should be installed a minimum of 18 inches above the edge of the pavement surface. 6. Diagonal stripes on Type 3 object markers shall slope down toward the intended travel lane. | | | | | | |

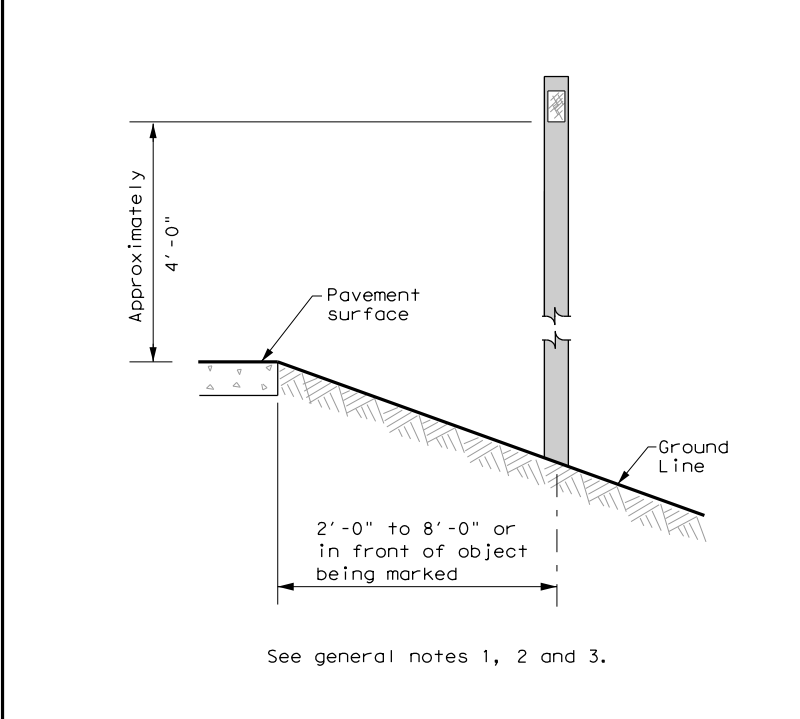
TYPES 1,3, AND 4 OBJECT MARKERS AND CHEVRONS



CHEVRONS AND ONE DIRECTION LARGE ARROW SIGN



DELINEATORS AND TYPE 2 OBJECT MARKERS



DATE: 1/18/2024 \$TIME\$
 FILE: \$FILES\$

Texas Department of Transportation
 Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER INSTALLATION

D & OM(2)-20

| | | | | |
|---------------------|-----------|-----------|-----------|-----------|
| FILE: dom2-20.dgn | DN: TxDOT | CK: TxDOT | DW: TxDOT | CK: TxDOT |
| © TxDOT August 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| 10-09 3-15 | DIST | COUNTY | SHEET NO. | |
| 4-10 7-20 | YKM | VICTORIA | 65 | |

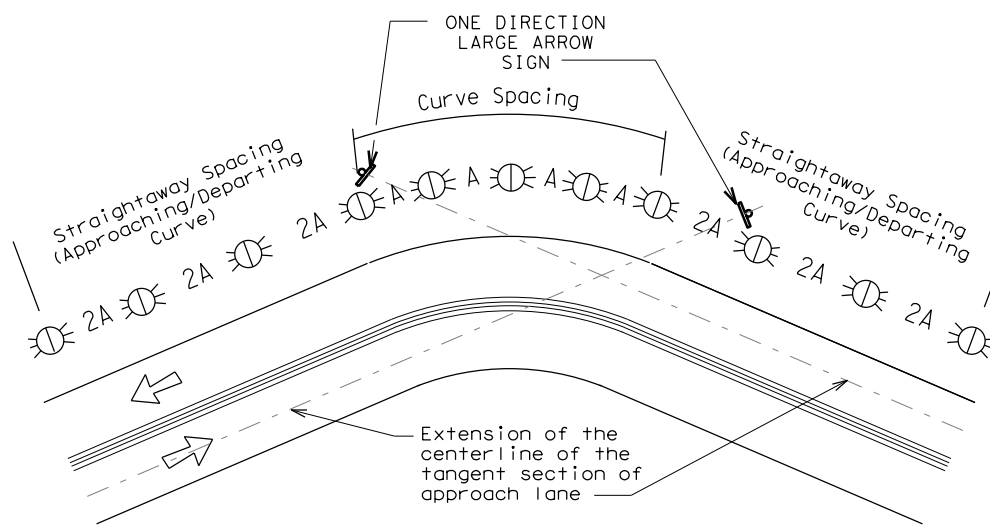
20B

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MINIMUM WARNING DEVICES AT CURVES WITH ADVISORY SPEEDS

| Amount by which Advisory Speed is less than Posted Speed | Curve Advisory Speed | |
|--|--|---|
| | Turn (30 MPH or less) | Curve (35 MPH or more) |
| 5 MPH & 10 MPH | • RPMs | • RPMs |
| 15 MPH & 20 MPH | • RPMs and One Direction Large Arrow sign | • RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons. |
| 25 MPH & more | • RPMs and Chevrons; or • RPMs and One Direction Large Arrow sign where geometric conditions or roadside obstacles prevent the installation of chevrons | • RPMs and Chevrons |

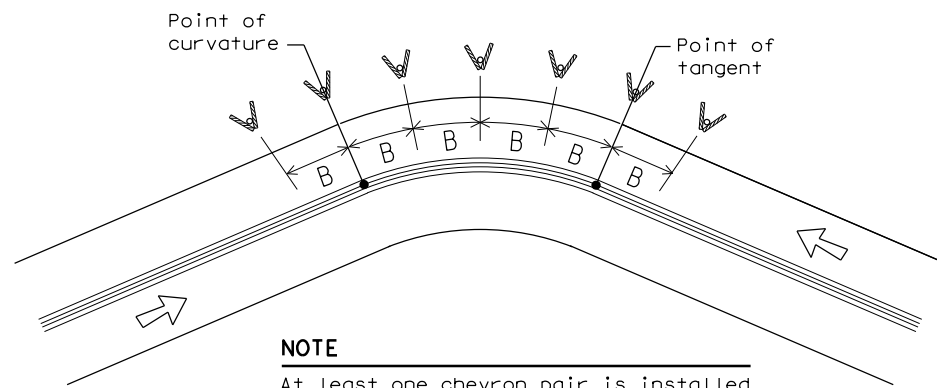
SUGGESTED SPACING FOR DELINEATORS ON HORIZONTAL CURVES



NOTE

ONE DIRECTION LARGE ARROW (W1-6) sign should be located at approximately and perpendicular to the extension of the centerline of the tangent section of approach lane.

SUGGESTED SPACING FOR CHEVRONS ON HORIZONTAL CURVES



NOTE

At least one chevron pair is installed beyond the point of tangent in tangent section.

DELINEATOR AND CHEVRON SPACING

| WHEN DEGREE OF CURVE OR RADIUS IS KNOWN | | | | |
|---|-----------------|------------------|-------------------------|--------------------------|
| Degree of Curve | FEET | | | |
| | Radius of Curve | Spacing in Curve | Spacing in Straightaway | Chevron Spacing in Curve |
| | | A | 2A | B |
| 1 | 5730 | 225 | 450 | — |
| 2 | 2865 | 160 | 320 | — |
| 3 | 1910 | 130 | 260 | 200 |
| 4 | 1433 | 110 | 220 | 160 |
| 5 | 1146 | 100 | 200 | 160 |
| 6 | 955 | 90 | 180 | 160 |
| 7 | 819 | 85 | 170 | 160 |
| 8 | 716 | 75 | 150 | 160 |
| 9 | 637 | 75 | 150 | 120 |
| 10 | 573 | 70 | 140 | 120 |
| 11 | 521 | 65 | 130 | 120 |
| 12 | 478 | 60 | 120 | 120 |
| 13 | 441 | 60 | 120 | 120 |
| 14 | 409 | 55 | 110 | 80 |
| 15 | 382 | 55 | 110 | 80 |
| 16 | 358 | 55 | 110 | 80 |
| 19 | 302 | 50 | 100 | 80 |
| 23 | 249 | 40 | 80 | 80 |
| 29 | 198 | 35 | 70 | 40 |
| 38 | 151 | 30 | 60 | 40 |
| 57 | 101 | 20 | 40 | 40 |

Curve delineator approach and departure spacing should include 3 delineators spaced at 2A. This spacing should be used during design preparation or when the degree of curve is known.

DELINEATOR AND CHEVRON SPACING

| WHEN DEGREE OF CURVE OR RADIUS IS NOT KNOWN | | | |
|---|------------------|-------------------------|--------------------------|
| Advisory Speed (MPH) | Spacing in Curve | Spacing in Straightaway | Chevron Spacing in Curve |
| | A | 2xA | B |
| 65 | 130 | 260 | 200 |
| 60 | 110 | 220 | 160 |
| 55 | 100 | 200 | 160 |
| 50 | 85 | 170 | 160 |
| 45 | 75 | 150 | 120 |
| 40 | 70 | 140 | 120 |
| 35 | 60 | 120 | 120 |
| 30 | 55 | 110 | 80 |
| 25 | 50 | 100 | 80 |
| 20 | 40 | 80 | 80 |
| 15 | 35 | 70 | 40 |

If the degree of curve is not known, delineator spacing may be determined based on the Advisory Speed of the curve. Use the delineator curve spacing for each Advisory Speed (MPH).

DELINEATOR AND OBJECT MARKER APPLICATION AND SPACING

| CONDITION | REQUIRED TREATMENT | MINIMUM SPACING |
|--|---|---|
| Frwy./Exp. Tangent | RPMs | See PM-series and FPM-series standard sheets |
| Frwy./Exp. Curve | Single delineators on right side | See delineator spacing table |
| Frwy/Exp. Ramp | Single delineators on at least one side of ramp (should be on outside of curves) (see Detail 3 on D&OM(4)) | 100 feet on ramp tangents Use delineator spacing table for ramp curves ("straightway spacing" does not apply to ramp curves) |
| Acceleration/Deceleration Lane | Double delineators (see Detail 3 on D&OM(4)) | 100 feet (See Detail 3 on D & OM (4)) |
| Truck Escape Ramp | Single red delineators on both sides | 50 feet |
| Bridge Rail (steel or concrete) and Metal Beam Guard Fence | Bi-Directional Delineators when undivided with one lane each direction Single Delineators when multiple lanes each direction | Equal spacing (100' max) but not less than 3 delineators |
| Concrete Traffic Barrier (CTB) or Steel Traffic Barrier | Barrier reflectors matching the color of the edge line | Equal spacing 100' max |
| Cable Barrier | Reflectors matching the color of the edge line | Every 5th cable barrier post (up to 100' max) |
| Guard Rail Terminus/Impact Head | Divided highway - Object marker on approach end Undivided 2-lane highways - Object marker on approach and departure end | Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) and D & OM (6) |
| Bridges with no Approach Rail | Type 3 Object Marker (OM-3) at end of rail and 3 single delineators approaching rail | See D & OM(5) |
| Reduced Width Approaches to Bridge Rail | Type 2 and Type 3 Object Markers (OM-3) and 3 single delineators approaching bridge | Requires reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end See D & OM (5) |
| Culverts without MBGF | Type 2 Object Markers | See Detail 2 on D & OM(4) |
| Crossovers | Double yellow delineators and RPMs | See Detail 1 on D & OM (4) |
| Pavement Narrowing (lane merge) on Freeways/Expressway | Single delineators adjacent to affected lane for full length of transition | 100 feet |

NOTES

- Unless indicated otherwise, the delineator or barrier reflector color shall conform to the color of the pavement edge line on the side of the road where the delineators or barrier reflectors are placed.
- Barrier reflectors may be used to replace required delineators.
- Single red delineators may be mounted on the back side of delineator posts for wrong way driver applications

| LEGEND | |
|--------|---------------------------|
| | Bi-directional Delineator |
| | Delineator |
| | Sign |

Texas Department of Transportation
Traffic Safety Division Standard

DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(3)-20

| | | | | |
|---------------------|-----------|-----------|-----------|-----------|
| FILE: dom3-20.dgn | DN: TxDOT | CK: TxDOT | OW: TxDOT | CR: TxDOT |
| © TxDOT August 2004 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | 0913 | 27 | 090 | CS |
| 3-15 8-15 | DIST | COUNTY | SHEET NO. | |
| 8-15 7-20 | YKM | VICTORIA | 66 | |

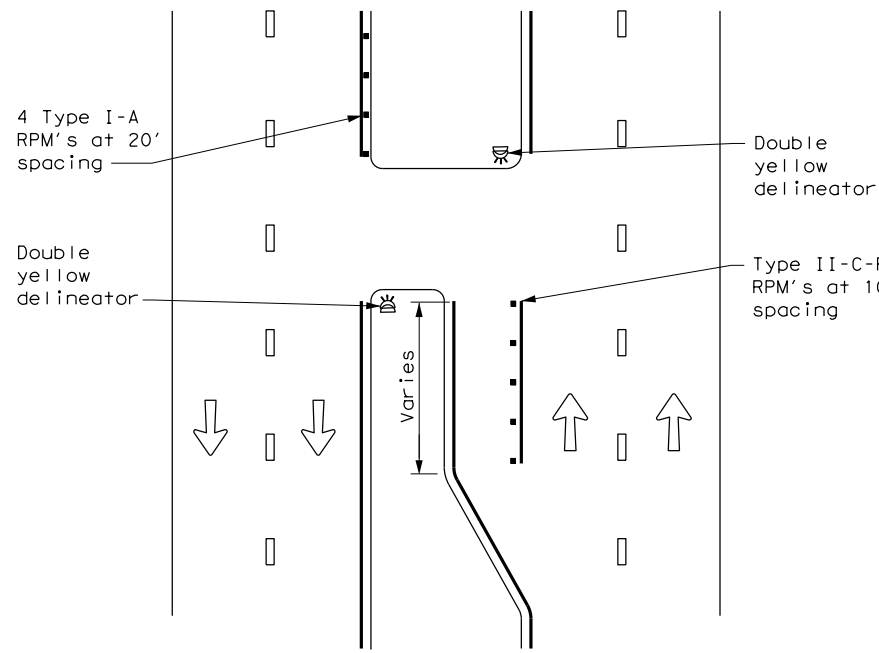
20C

DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

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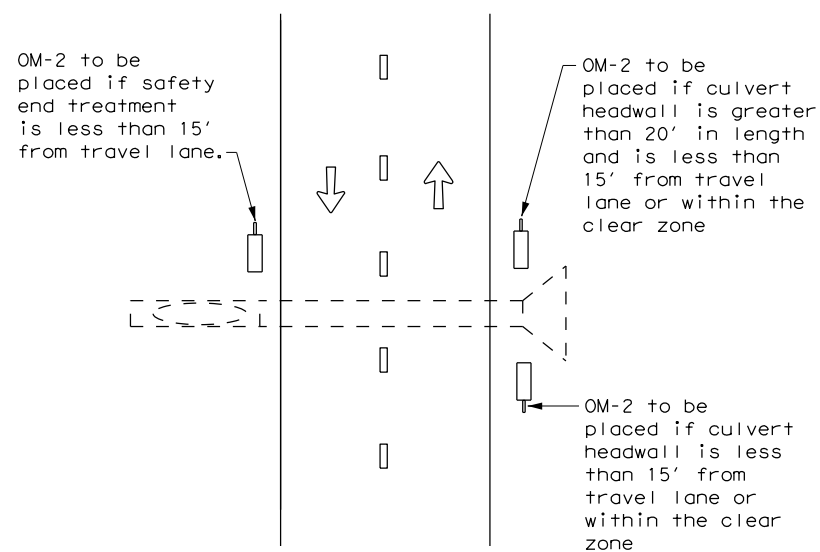
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FILE: \$FILES\$

CROSSOVERS



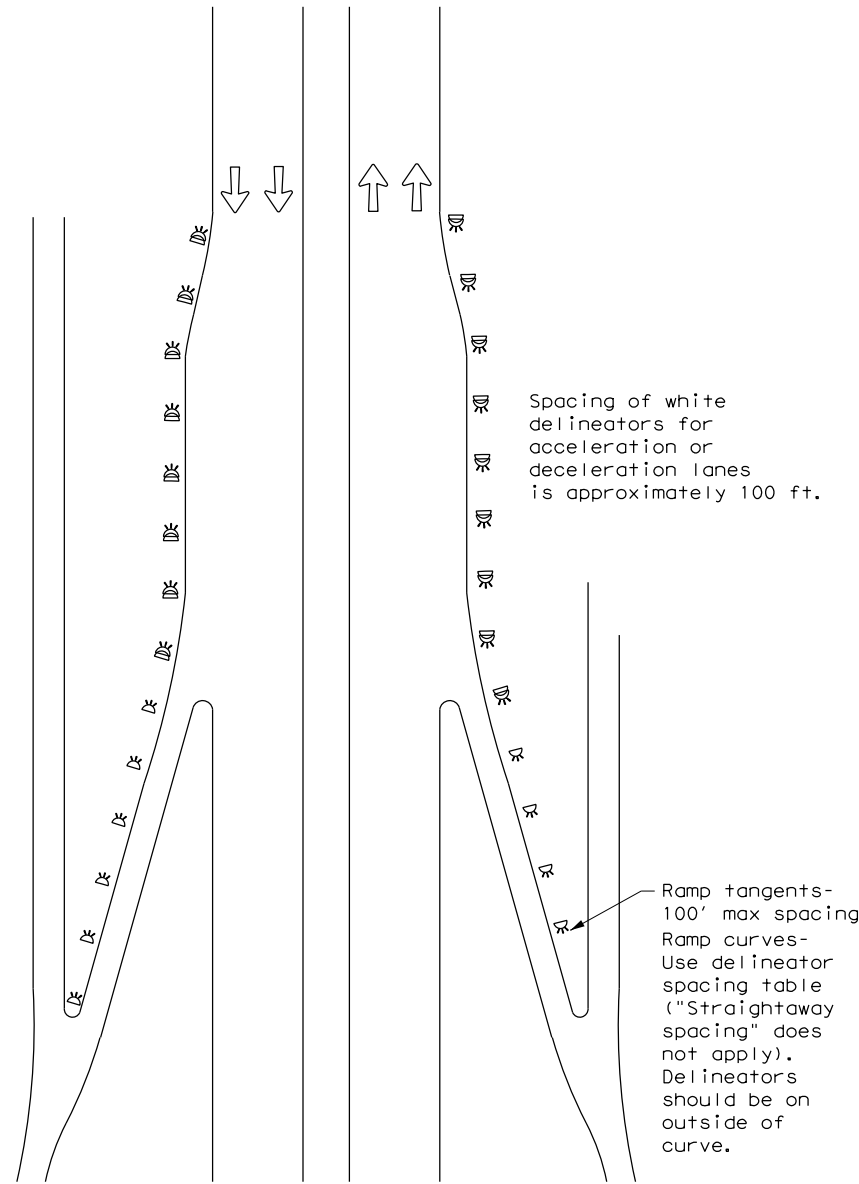
DETAIL 1

FOR CULVERTS WITHOUT MBGF



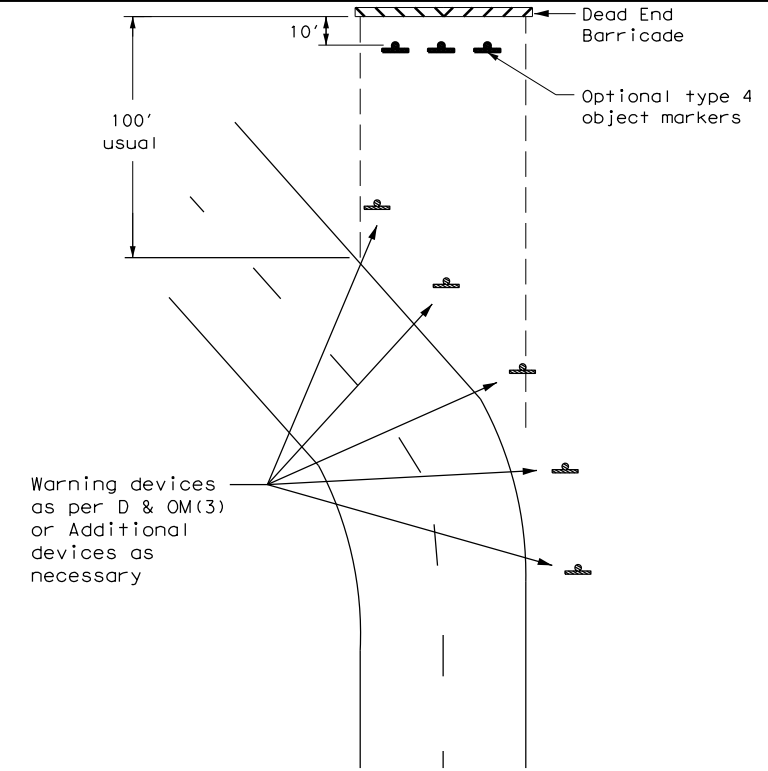
DETAIL 2

FREEWAY DELINEATION FOR RAMPS AND ACCELERATION/DECELERATION LANES



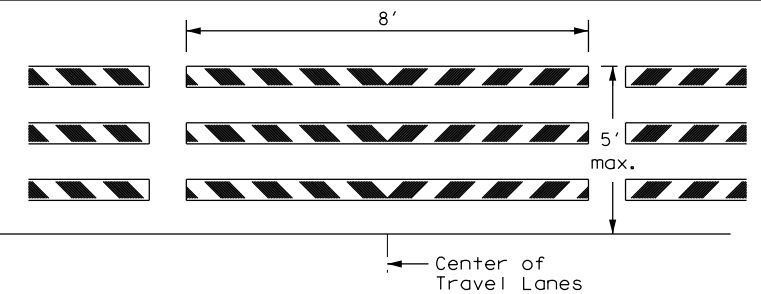
DETAIL 3

TYPICAL APPLICATION OF DEAD END BARRICADE



DETAIL 4

TYPICAL DEAD END BARRICADE INSTALLATION



NOTES

- Barricade striping shall be red and white reflective sheeting for all permanent road closures.
- Barricade striping is red and white sloping toward the center of the roadway.
- Type 3 Barricade Supports should be anchored to soil or pavement as described in compliant Work Zone Traffic Control Devices List, section D.2.f and D.2.g.

DETAIL 5

| LEGEND | |
|--------|--------------------------|
| | Bidirectional Delineator |
| | Delineator |
| | OM-3 |
| | Barricade |
| | Sign |
| | OM-2 |
| | Double Delineator |



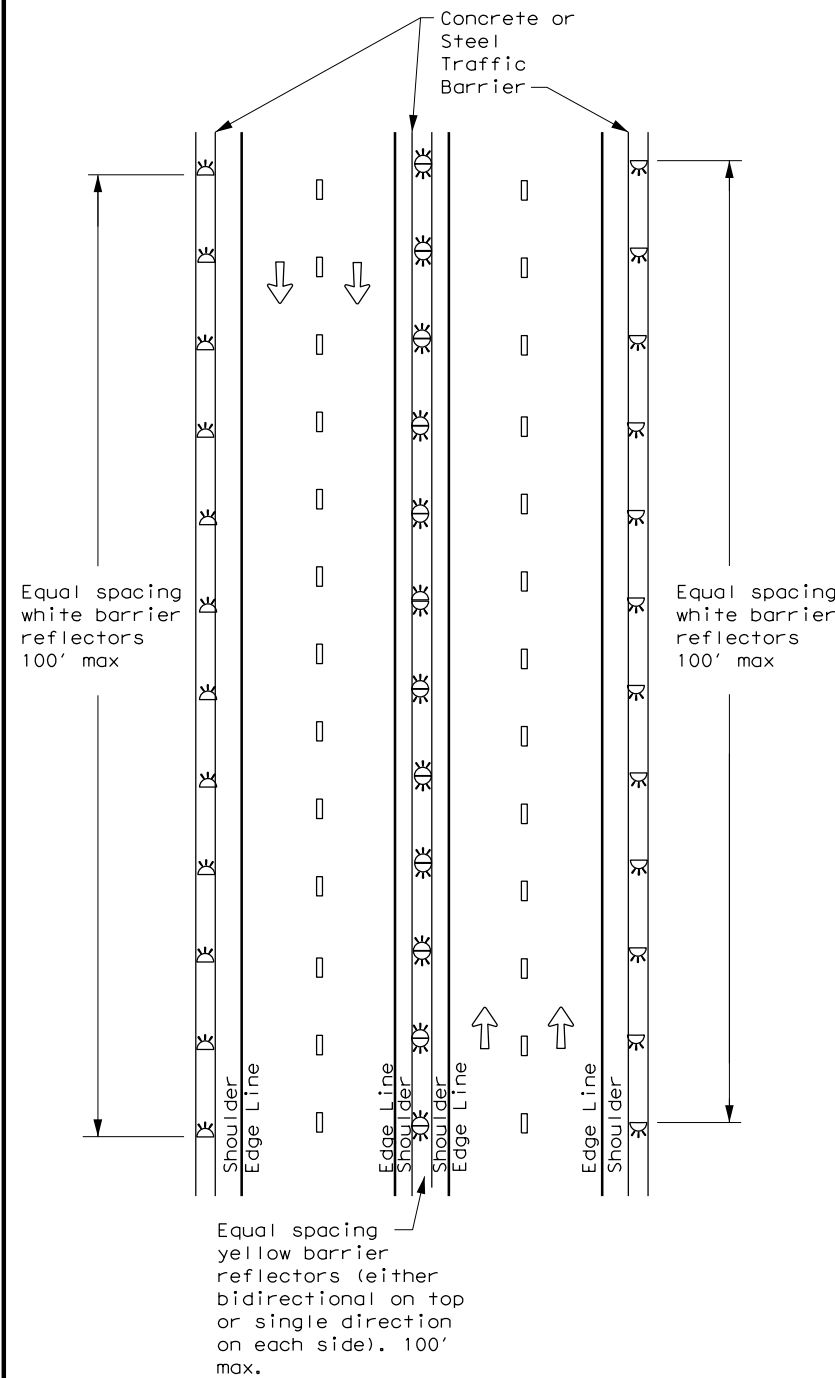
DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

D & OM(4) -20

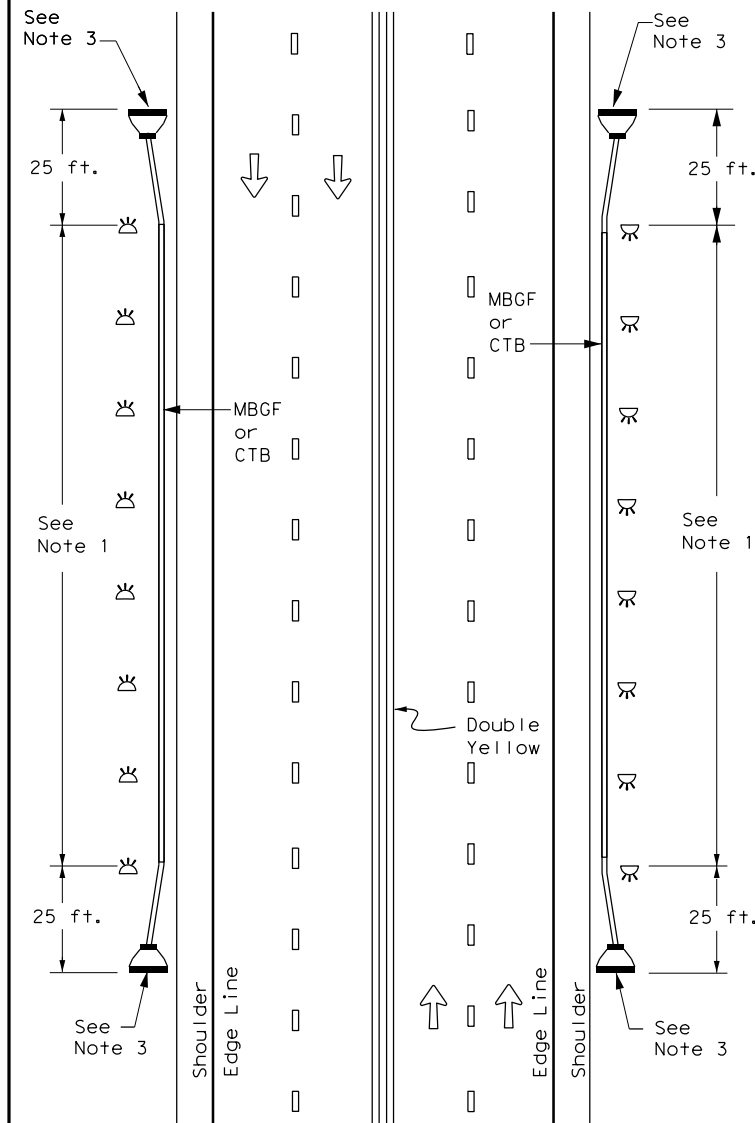
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| © TXDOT August 2004 | CONT | SECT | JOB | HIGHWAY |
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| 3-15 | DIST | COUNTY | SHEET NO. | |
| 7-20 | YKM | VICTORIA | 67 | |

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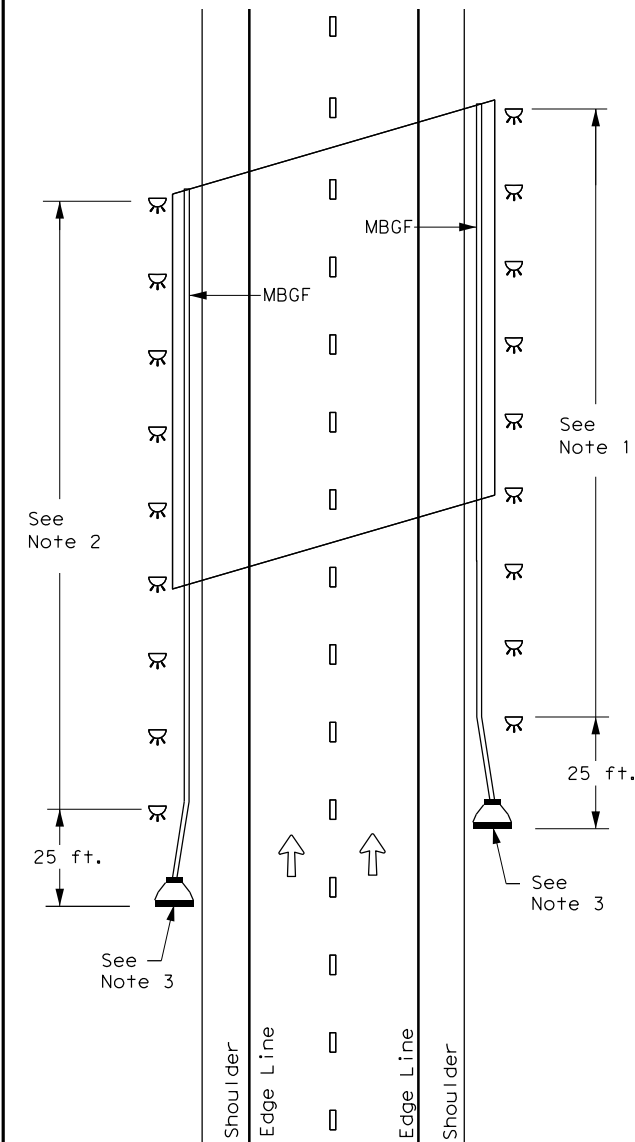
CONTINUOUS CONCRETE OR STEEL BARRIER



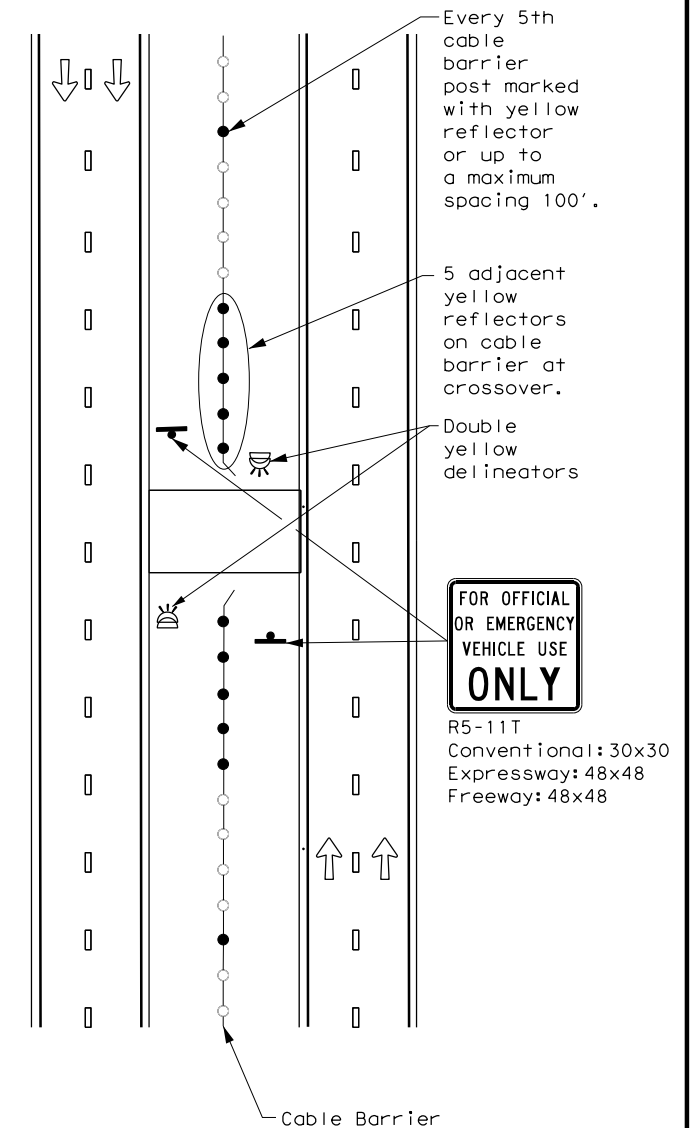
MULTI-LANE UNDIVIDED, TWO-WAY ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



DIVIDED ROADWAY WITH METAL BEAM GUARD FENCE (MBGF)



EMERGENCY CROSSOVER



NOTES

1. Equal spacing (100' max), but not less than 3 single directional white barrier reflectors or delineators. On Continuous Barrier, equal spacing (100' max.)
2. Equal spacing (100' max), but not less than 3 single directional yellow barrier reflectors or delineators.
3. Terminal ends require reflective sheeting provided by manufacturer per D & OM (VIA) or a Type 3 Object Marker (OM-3) in front of the terminal end.

LEGEND

| | |
|--|--------------------------|
| | Bidirectional Delineator |
| | Delineator |
| | OM-3 |
| | OM-2 |
| | Terminal End |
| | Traffic Flow |

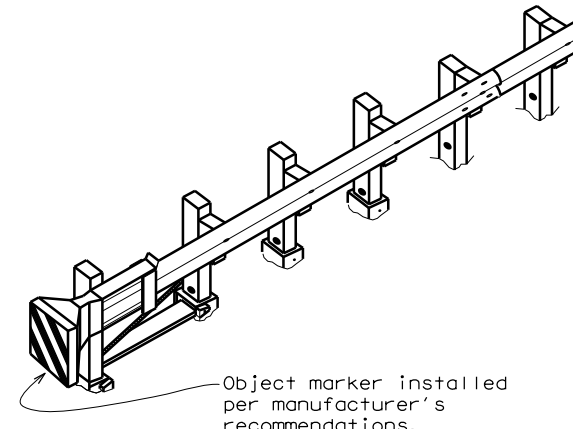
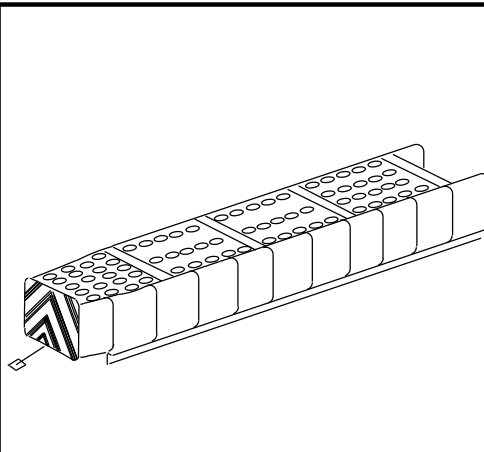
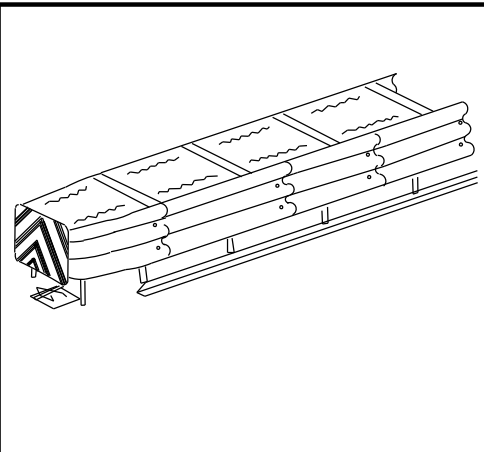
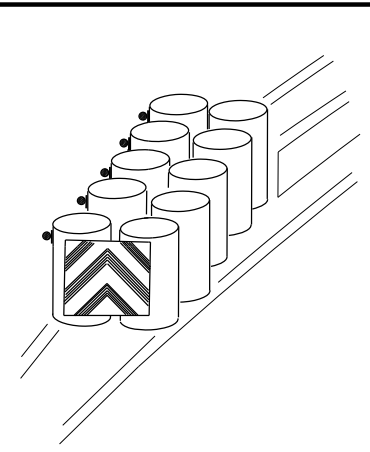


DELINEATOR & OBJECT MARKER PLACEMENT DETAILS

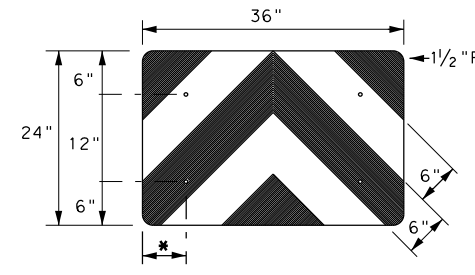
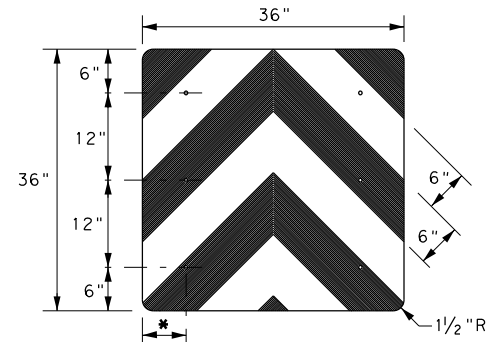
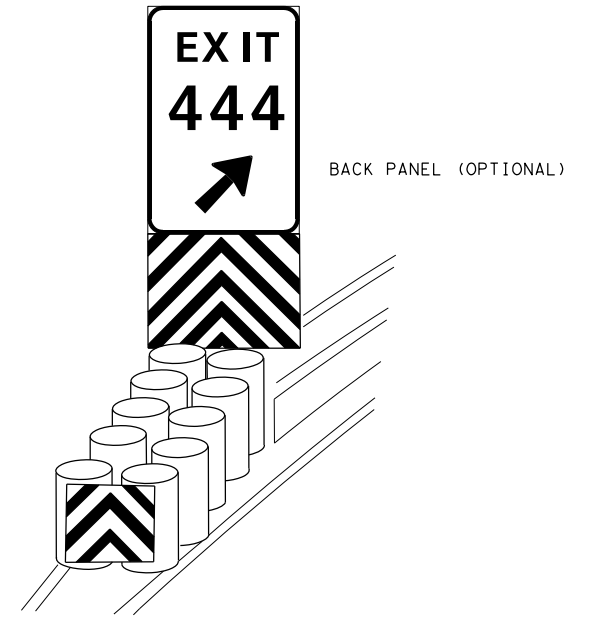
D & OM(6) - 20

| | | | | |
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| 7-20 | DIST | COUNTY | SHEET NO. | |
| | YKM | VICTORIA | 68 | |

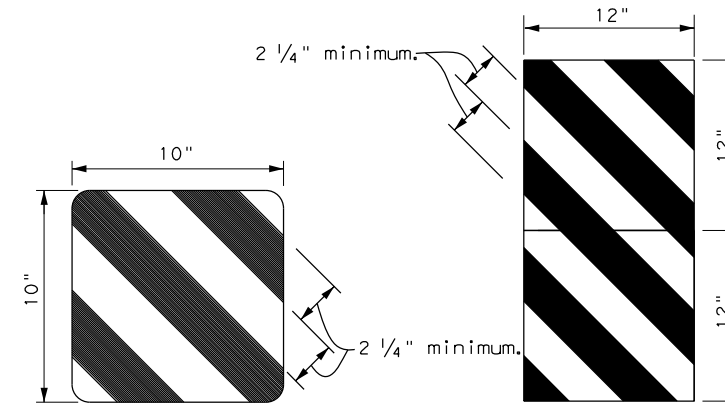
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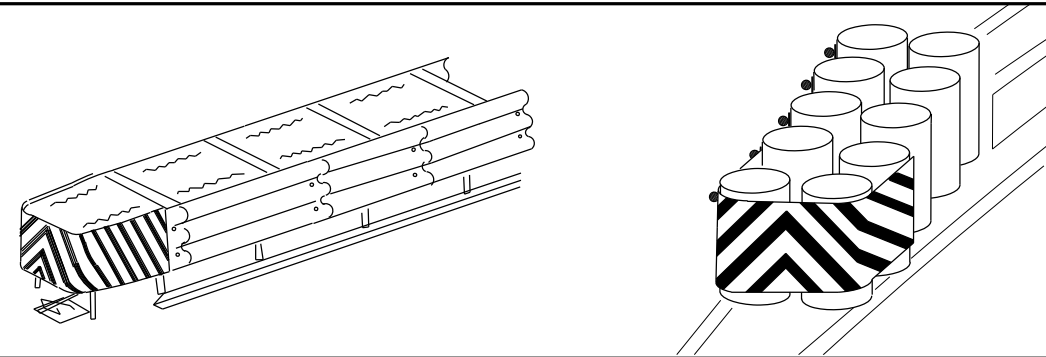
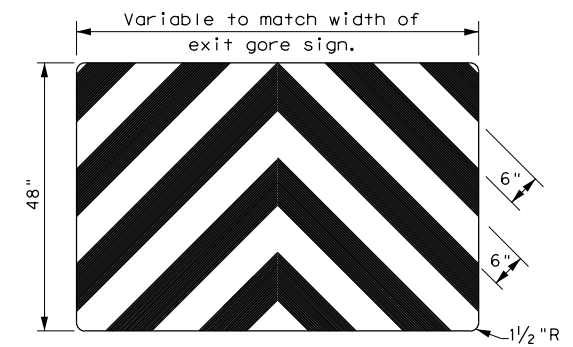
Object marker installed per manufacturer's recommendations.



* Adjust to fit attenuator per manufacturer's recommendation, or as directed by the Engineer

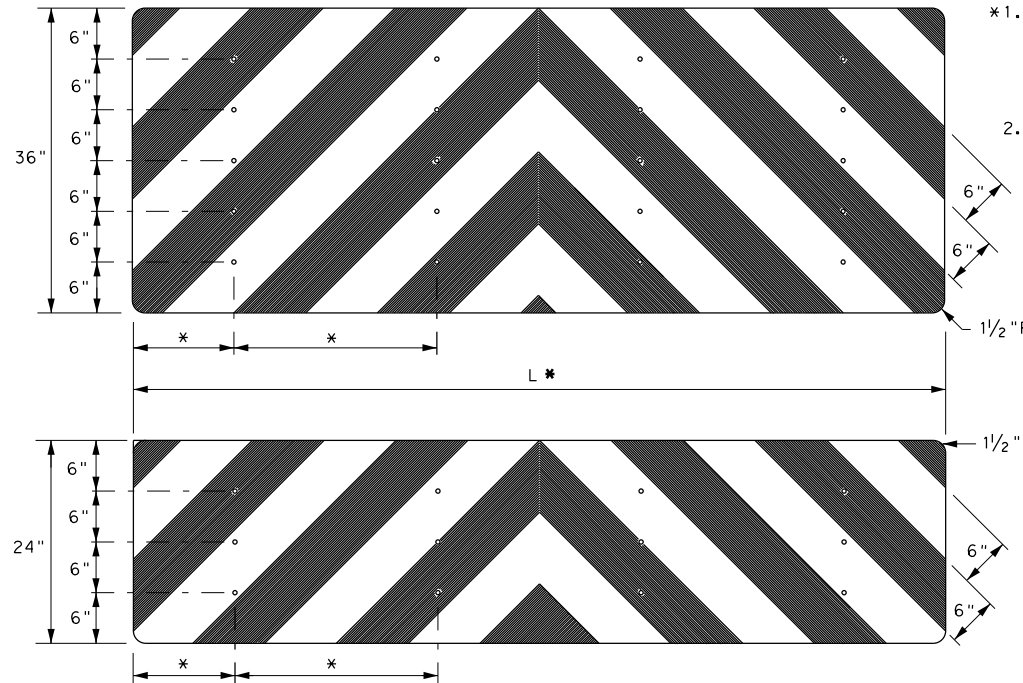


OBJECT MARKERS SMALLER THAN 3 FT²



NOTES

- *1. Spacing should be adjusted to attach through centerline of drum, per attenuator manufacturer's recommendation, or as directed by the Engineer.
- 2. Mounting should be flush with top of attenuator. Minimum size 96" x 24".



NOTES

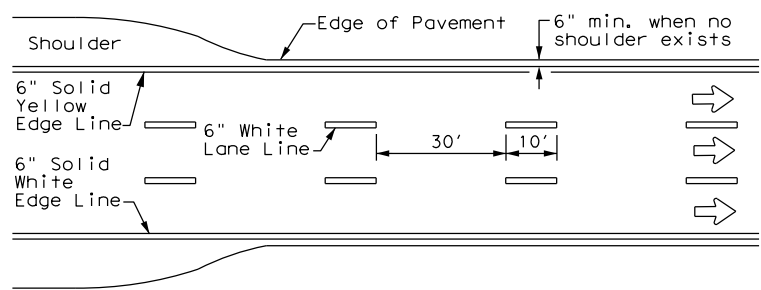
1. Object Markers shall conform to the Texas MUTCD and meet the color and reflectivity requirement of Department Material Specification DMS 8300. Background shall be yellow reflective sheeting (Type B or C) and Chevron shall be black.
2. Object Markers may be fabricated from adhesive backed reflective sheeting applied directly to guardrail end treatment, or applied directly to an "end cap" as per the manufacturer's recommendation. Direct applied sheeting shall provide a smooth surface and have no wrinkles, air bubbles, cuts or tears. A radius at the corners is not required for direct applied sheeting.
3. Object Marker size may be reduced to fit smaller devices. Width of alternating black and yellow stripes are typically 6". Object Markers smaller than 3ft may have reduced width stripes of a minimum of 2 1/4".
4. Pop rivets, screws, or nuts and bolts may be used to attach object markers and reflectors. Holes, slots or other openings may be cut or drilled through object markers to allow cable or other attachments.
5. Object Marker at nose of attenuator is subsidiary to the attenuator.
6. See D & OM (1-4) for required barrier reflectors.

DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

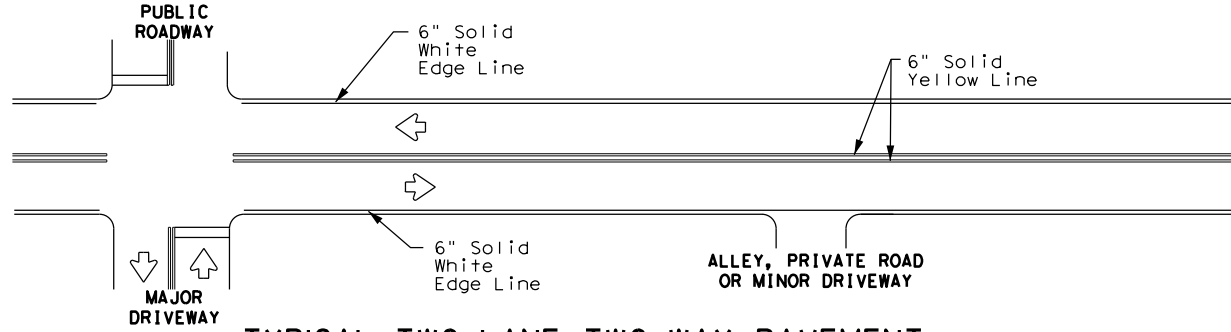
| | | | |
|--|-----------|---|---------------------|
| | | Traffic Safety Division Standard | |
| DELINEATOR & OBJECT MARKER FOR VEHICLE IMPACT ATTENUATORS D & OM(VIA) -20 | | | |
| FILE: domvia20.dgn | DN: TXDOT | CK: TXDOT | DW: TXDOT |
| © TXDOT December 1989 | CONT | SECT | JOB |
| REVISIONS | | 0913 | 27 |
| 4-92 | 8-04 | 090 | CS |
| 8-95 | 3-15 | DIST | COUNTY |
| 4-98 | 7-20 | YKM | VICTORIA |
| | | | SHEET NO. 69 |
| 20G | | | |

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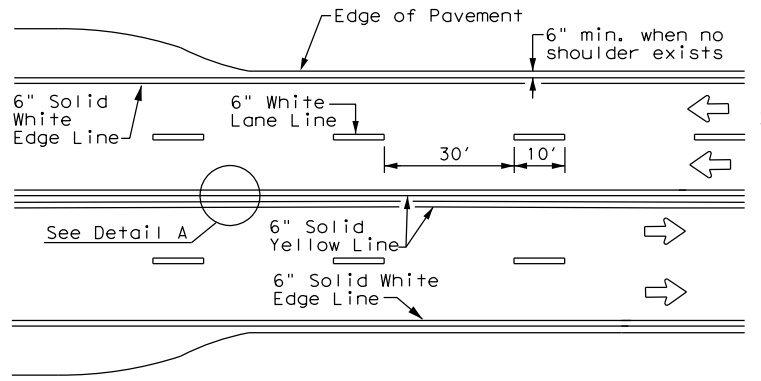
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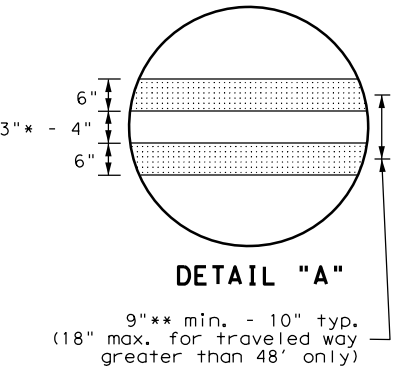
**EDGE LINE AND LANE LINES
ONE-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



**TYPICAL TWO-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

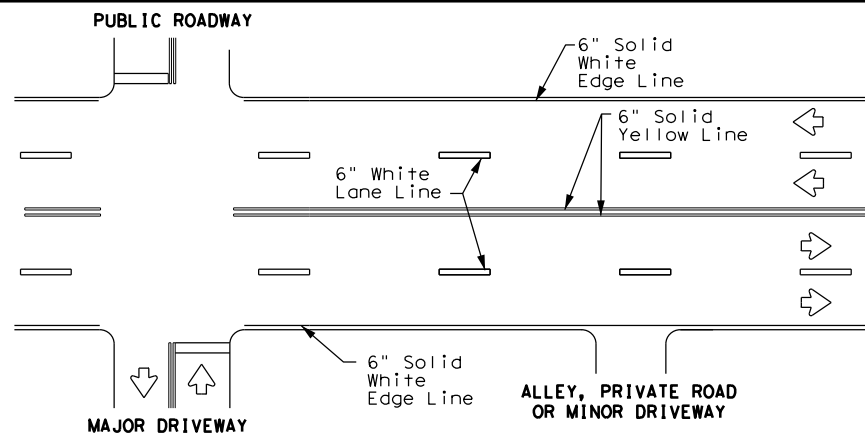


**CENTERLINE AND LANE LINES
FOUR LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**

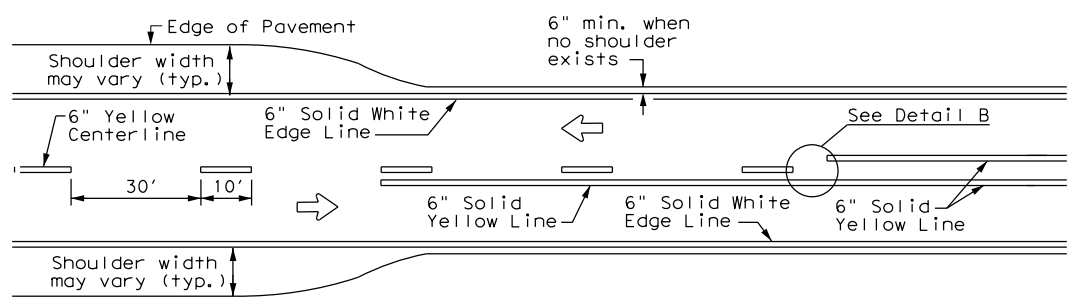


DETAIL "A"
9" ** min. - 10" typ.
(18" max. for traveled way greater than 48' only)

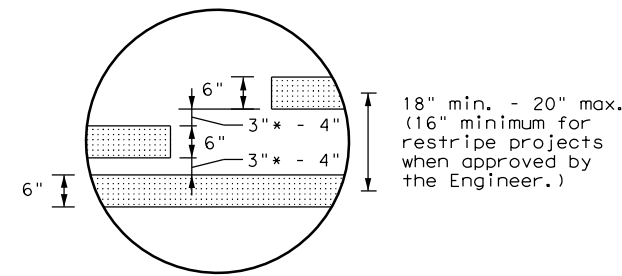
* 2" minimum for restripe projects when approved by the Engineer.
** 8" minimum for restripe projects when approved by the Engineer.



**TYPICAL MULTI-LANE, TWO-WAY PAVEMENT
MARKINGS THROUGH INTERSECTIONS**

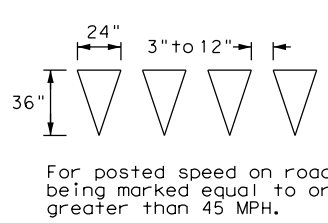


**TWO LANE TWO-WAY ROADWAY
WITH OR WITHOUT SHOULDERS**



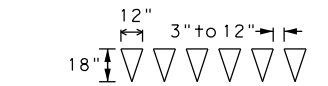
DETAIL "B"

* 2" minimum for restripe projects when approved by the Engineer.



YIELD LINES

For posted speed on road being marked equal to or greater than 45 MPH.



For posted speed on road being marked equal to or less than 40 MPH.

NOTES

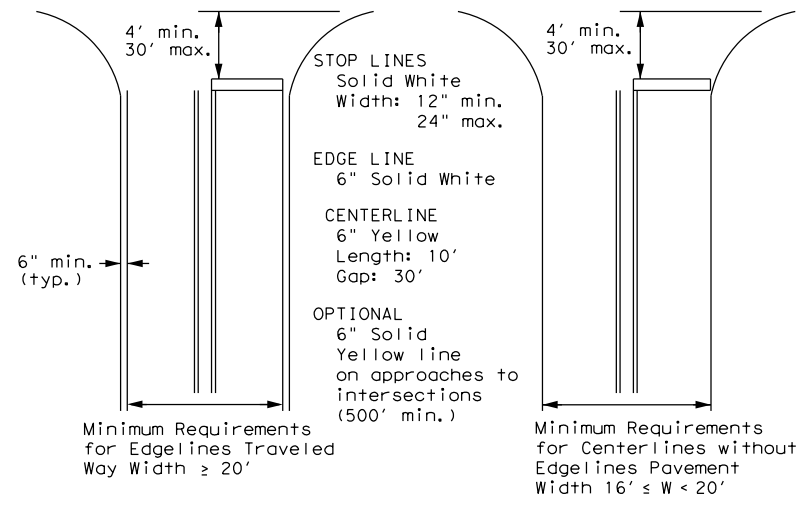
- Where divided highways are separated by median widths at the median opening itself of 30 feet or more, median openings shall be signed as two separate intersections. Each median opening has two width measurements, with one measurement for each approach. The narrow median width will be the controlling width to determine if signs are required. Yield signs are the typical intersection control. Stop signs and stop bars are optional as determined by the Engineer.
- Install median striping (double yellow centerlines and stop lines/yield lines) when a 50' or greater median centerline can be placed. Stop lines shall only be used with stop signs. Yield lines shall only be used with yield signs.
- Length of turn bays, including taper, deceleration, and storage lengths shall be as shown on the plans or as directed by the Engineer.

GENERAL NOTES

- Edge line striping shall be as shown in the plans or as directed by the Engineer. The edge line should not be placed less than 6 inches from the edge of pavement. This distance may vary due to pavement raveling or other conditions. Edge lines are not required in curb and gutter sections of roadways.
- The traveled way includes only that portion of the roadway used for vehicular travel. It does not include the parking lanes, sidewalks, berms and shoulders. The traveled ways shall be measured from the center of edge line to the center of edge line of a two lane roadway.

| MATERIAL SPECIFICATIONS | |
|---|----------|
| PAVEMENT MARKERS (REFLECTORIZED) | DMS-4200 |
| EPOXY AND ADHESIVES | DMS-6100 |
| BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS | DMS-6130 |
| TRAFFIC PAINT | DMS-8200 |
| HOT APPLIED THERMOPLASTIC | DMS-8220 |
| PERMANENT PREFABRICATED PAVEMENT MARKINGS | DMS-8240 |

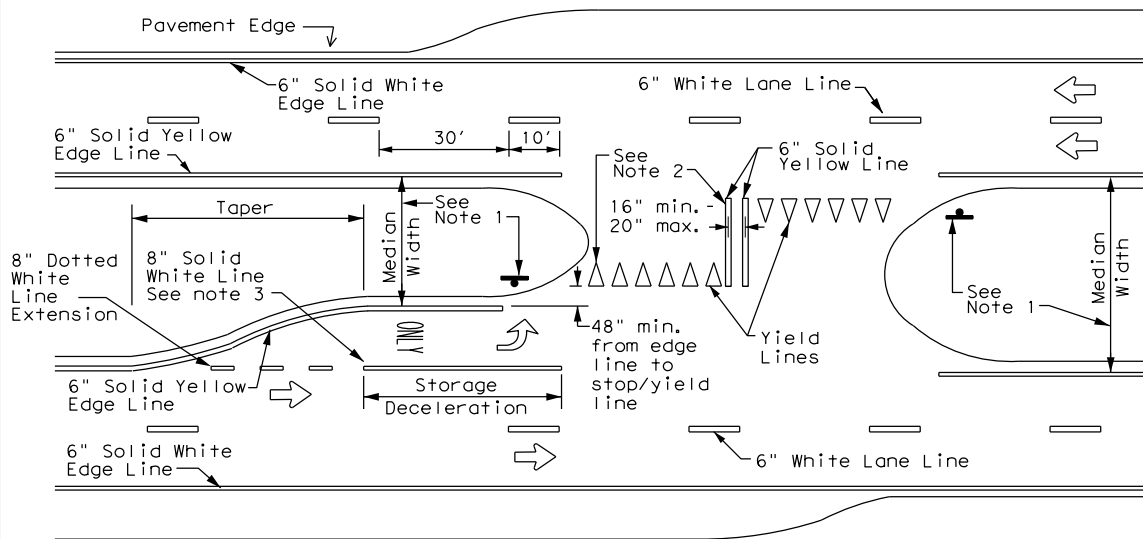
All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



NOTE: Traveled way is exclusive of shoulder widths. Refer to General Note 2 for additional details.

**GUIDE FOR PLACEMENT OF STOP LINES,
EDGE LINE & CENTERLINE**

Based on Traveled Way and Pavement Widths for Undivided Roadways



FOUR LANE DIVIDED ROADWAY CROSSOVERS

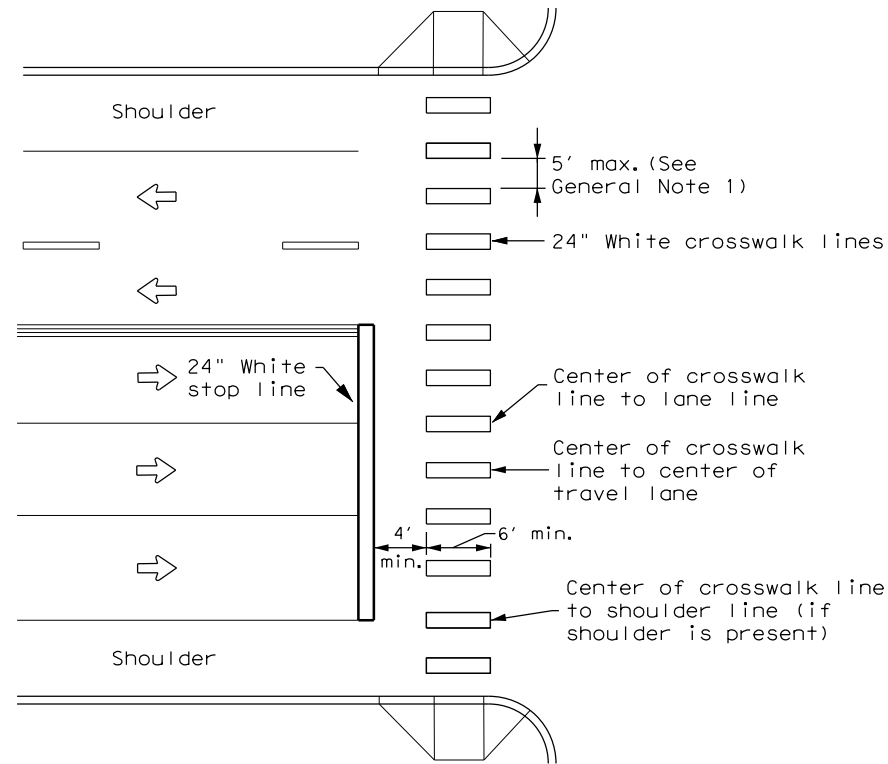


**TYPICAL STANDARD
PAVEMENT MARKINGS**

PM(1) - 22

| | | | | | |
|---------|---------------|------|----------|-----------|---------|
| FILE: | pm1-22.dgn | DN: | CK: | DW: | CK: |
| © TxDOT | December 2022 | CONT | SECT | JOB | HIGHWAY |
| 11-78 | 8-00 6-20 | 0913 | 27 | 090 | CS |
| 8-95 | 3-03 12-22 | DIST | COUNTY | SHEET NO. | |
| 5-00 | 2-12 | YKM | VICTORIA | 70 | |

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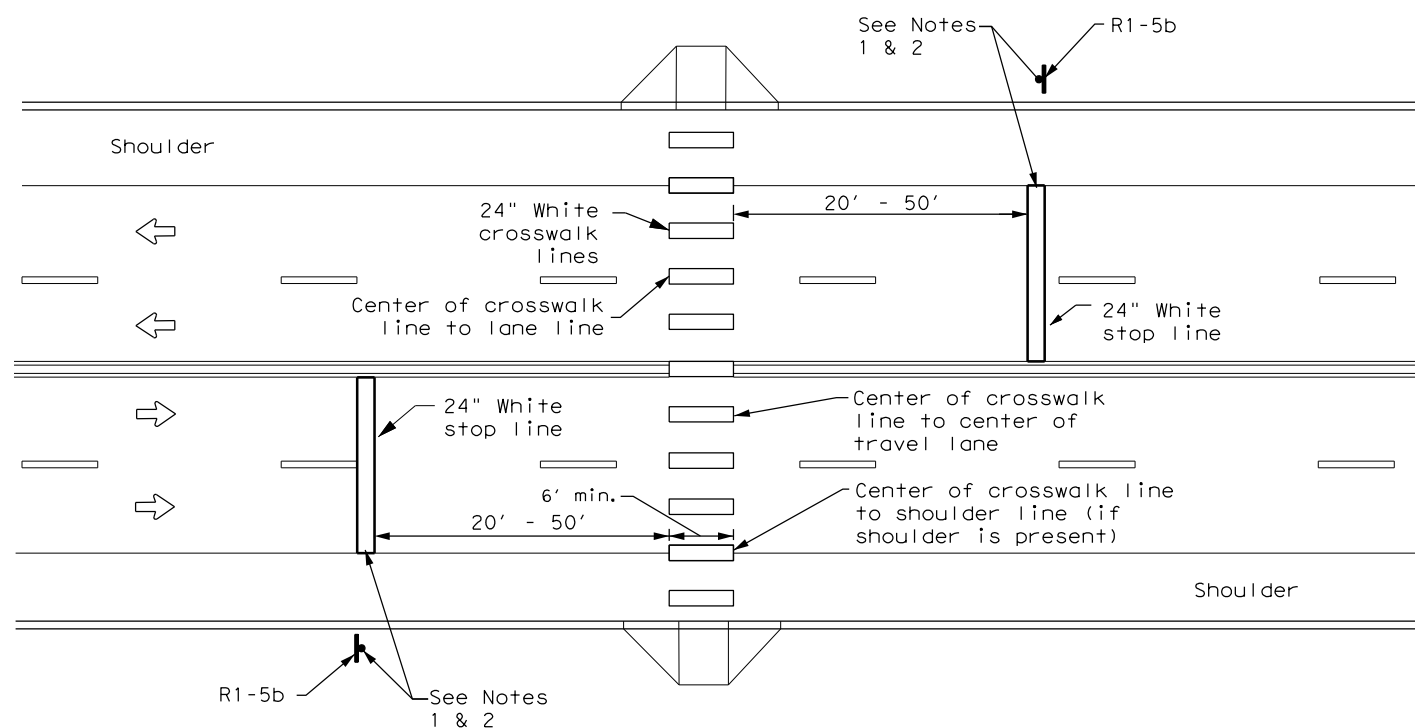
HIGH-VISIBILITY LONGITUDINAL CROSSWALK AT CONTROLLED APPROACH

GENERAL NOTES

1. Longitudinal crosswalk lines should not be placed in the wheel path of vehicles. Center the crosswalk lines on travel lanes, lane lines, and shoulder lines (if present).
2. A minimum 6" clear distance shall be provided to the curb face. If the last crosswalk line falls into this distance it must be omitted.
3. For divided roadways, adjustments in spacing of the crosswalk lines should be made in the median so that the crosswalk lines are maintained in their proper location across the travel portion of the roadway.
4. At skewed crosswalks, the crosswalk lines are to remain parallel to the lane lines.
5. Each crosswalk shall be a minimum of 6' wide.
6. The High-Visibility Longitudinal Crosswalk is the preferred crosswalk pattern on State Highways. Other crosswalk patterns as shown in the "Texas Manual on Uniform Traffic Control Devices" may be used. All crosswalk designs and dimension shall comply with the "Texas Manual on Uniform Traffic Control Devices."
7. Final placement of Stop Bar and Crosswalk shall be approved by the Engineer in the field.

| MATERIAL SPECIFICATIONS | |
|---|----------|
| PAVEMENT MARKERS (REFLECTORIZED) | DMS-4200 |
| EPOXY AND ADHESIVES | DMS-6100 |
| BITUMINOUS ADHESIVE FOR PAVEMENT MARKERS | DMS-6130 |
| TRAFFIC PAINT | DMS-8200 |
| HOT APPLIED THERMOPLASTIC | DMS-8220 |
| PERMANENT PREFABRICATED PAVEMENT MARKINGS | DMS-8240 |

All pavement marking materials shall meet the required Departmental Material Specifications as specified by the plans.



UNSIGNALIZED MIDBLOCK HIGH-VISIBILITY LONGITUDINAL CROSSWALK

NOTES:

1. Use stop bars with Stop Here For Pedestrians (R1-5b) signs at unsignalized midblock crosswalks.
2. Use stop bars with STOP HERE ON RED (R10-6 or R10-6a) signs at mid block crosswalks controlled by traffic signals or pedestrian hybrid beacons.

DATE: 1/18/2024 \$TIME\$
FILE: \$FILES\$

| | | | | | |
|---|---------------|------|----------|---|---------|
| | | | | Traffic Safety Division Standard | |
| <h2>CROSSWALK PAVEMENT MARKINGS</h2> <h3>PM(4) - 22A</h3> | | | | | |
| FILE: | pm4-22a.dgn | DN: | CK: | DW: | CK: |
| © TxDOT | December 2022 | CONT | SECT | JOB | HIGHWAY |
| REVISIONS | | 0913 | 27 | 090 | CS |
| 6-20 | | DIST | COUNTY | SHEET NO. | |
| 6-22 | | YKM | VICTORIA | 71 | |
| 12-22 | | | | | |
| | | | | 22D | |

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GENERAL NOTES FOR ALL ELECTRICAL WORK

1. The location of all conduits, junction boxes, ground boxes, and electrical services is diagrammatic and may be shifted to accommodate field conditions.
2. Provide new and unused materials. Ensure that all materials and installations comply with the applicable articles of the National Electrical Code (NEC), TxDOT standards and specifications, National Electrical Manufacturers Association (NEMA), and are listed by Underwriters Laboratories (UL) or a Nationally Recognized Testing Lab (NRTL). NRTLs such as Canadian Standard Association (CSA), Intertek Testing Services NA Inc., or FM Approvals LLC can be considered equivalent to UL. Where reference is made to NEMA listed devices, International Electrotechnical Commission (IEC) listed devices will not be considered an acceptable equal to a NEMA listed device. Acceptable devices may have both a NEMA and IEC listing. Faulty fabrication or poor workmanship in any material, equipment, or installation is justification for rejection. Replace or reinstall rejected material or equipment at no additional cost to the Department.
3. Miscellaneous nuts, bolts and hardware, except for high strength bolts, may be stainless steel when plans specify galvanized, provided the bolt size is 1/2 in. or less in diameter.
4. Provide the following test equipment as required by the Engineer to confirm compliance with the contract and the NEC: voltmeter, ammeter, megohm meter (1000 volt DC), ground resistance tester, torque wrenches, and torque screwdrivers. Ensure all equipment has been properly calibrated within the last year. Provide calibration certification to the Engineer upon request. Operate test equipment during inspection as requested by the Engineer.
5. Install grounding as shown on the plans and in accordance with the NEC. Ensure all metallic conduits; metal poles; luminaires; and metal enclosures are bonded to the equipment grounding conductor. Provide stranded bare copper or green insulated grounding conductors. Ground rods, connectors, and bonding jumpers are subsidiary to the various bid items.
6. When required by the Engineer, notify the Department in writing of materials from the Material Producers List (MPL) intended for use on each project. Prequalified materials are listed on the MPL on TxDOT's website under "Roadway Illumination and Electrical Supplies." No substitutions will be allowed for materials on this list.

CONDUIT

A. MATERIALS

1. Provide conduit, junction boxes, fittings, and hardware as per TxDOT Departmental Material Specification (DMS) 11030 "Conduit" and Item 618 "Conduit" of TxDOT's "Standard Specifications For Construction And Maintenance Of Highways, Streets, And Bridges," latest edition. Provide conduits listed under Item 618 on the MPL under "Roadway Illumination and Electrical Supplies." Provide conduit types according to the descriptive code or as shown on the plans. Do not substitute other types of conduits for those shown. Provide liquidtight flexible metal conduit (LFMC) when flexible conduit is called for on galvanized steel rigid metallic conduit (RMC) systems. Provide liquidtight flexible nonmetallic conduit (LFNC) when flexible conduit is called for on polyvinyl chloride (PVC) systems.
2. Provide galvanized steel RMC for all exposed conduits, unless otherwise shown on the plans. Properly bond all metal conduits.
3. Unless otherwise shown on the plans, provide junction boxes with a minimum size as shown in the following table, which applies to the greatest number of conductors entering the box through one conduit with no more than four conduits per box. When a mixture of conductor sizes is present, count the conductors as if all are of the larger size. For situations not applicable to the table, size junction boxes in accordance with NEC.


| AWG | 3 CONDUCTORS | 5 CONDUCTORS | 7 CONDUCTORS |
|-----|----------------|----------------|----------------|
| #1 | 10" x 10" x 4" | 12" x 12" x 4" | 16" x 16" x 4" |
| #2 | 8" x 8" x 4" | 10" x 10" x 4" | 12" x 12" x 4" |
| #4 | 8" x 8" x 4" | 10" x 10" x 4" | 10" x 10" x 4" |
| #6 | 8" x 8" x 4" | 8" x 8" x 4" | 10" x 10" x 4" |
| #8 | 8" x 8" x 4" | 8" x 8" x 4" | 8" x 8" x 4" |

4. Junction boxes with an internal volume of less than 100 cu. in. and supported by entering raceways must have threaded entries or hubs identified for the intended purpose and supported by connection of two or more rigid metal conduits. Secure conduit within 3 ft. of the enclosure or within 18 in. of the enclosure if all conduit entries are on the same side. Mechanically secure all junction boxes with an internal volume greater than 100 cu. inches.
5. Provide hot dipped galvanized cast iron or sand cast aluminum outlet boxes for junction boxes containing only 10 AWG or 12 AWG conductors. Do not use die cast aluminum boxes. Size outlet boxes according to the NEC.
6. Do not use intermediate metal conduit (IMC) or electrical metallic tubing (EMT) unless specifically required by the plan sheets. When EMT is called for, provide junction boxes made from galvanized steel sheeting, listed and approved for outdoor use, unless otherwise noted on the plans. Size all galvanized steel junction boxes in accordance with the NEC. Provide junction boxes for IMC conduit systems that meet the same requirements for junction boxes used with RMC systems.
7. Provide PVC junction boxes intended for outdoor use on PVC conduit systems, unless otherwise noted on the plans.

8. Provide PVC elbows in PVC conduit systems, unless otherwise shown on the plans. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the PVC conduit system. When galvanized steel RMC elbows are specifically called for in the plans and any portion of the RMC elbow is buried less than 18 in., ground the RMC elbow by means of a grounding bushing on a rigid metal extension. Grounding of the rigid metal elbow is not required if the entire RMC elbow is encased in a minimum of 2 in. of concrete. PVC extensions are allowed on these concrete encased rigid metal elbows. RMC or PVC elbows are subsidiary to various bid items.
9. When required, provide High-Density Polyethylene (HDPE) conduit with factory installed internal conductors according to Item 622 "Duct Cable." At the Contractor's request and with approval by the Engineer, substitute HDPE conduit with no conductors for bored schedule 40 or schedule 80 PVC conduit bid under Item 618. Ensure bored HDPE substituted for PVC is schedule 40 and of the same size PVC called for in the plans. Ensure the substituted HDPE meets the requirements of Item 622, except that the conduit is supplied without factory-installed conductors. Make the transition of the HDPE conduit to PVC (or RMC elbow when required) at the bore pit. Provide conduit of the size and schedule as shown on the plans. Do not extend substituted conduit into ground boxes or foundations. Provide PVC or galvanized steel RMC elbows as called for at all ground boxes and foundations.
10. Use two-hole straps when supporting 2 in. and larger conduits. On electrical service poles, properly sized stainless steel or hot dipped galvanized one-hole standoff straps are allowed on the service riser conduit.

B. CONSTRUCTION METHODS

1. Provide and install expansion joint conduit fittings on all structure-mounted conduits at the structure's expansion joints to allow for movement of the conduit. In addition, provide and install expansion joint fittings on all continuous runs of galvanized steel RMC conduit externally exposed on structures such as bridges at maximum intervals of 150 ft. When requested by the project Engineer, supply manufacturer's specification sheet for expansion joint conduit fittings. Repair or replace expansion joint fittings that do not allow for movement at no additional cost to the Department. Provide the method of determining the amount of expansion to the Engineer upon request. Do not use LFMC or LFNC as a substitute for the required expansion conduit fittings.
2. Space all conduit supports at maximum intervals of 5 ft. Install conduit spacers when attaching metal conduit to surface of concrete structures. See "Conduit Mounting Options" on ED(2). Install conduit support within 3 ft. of all enclosures and conduit terminations.
3. Do not attach conduit supports directly to pre-stressed concrete beams except as shown specifically in the plans or as approved by the Engineer.
4. Unless otherwise shown on the plans, jack or bore conduit placed beneath existing roadways, driveways, sidewalks, or after the base or surfacing operation has begun. Backfill and compact the bore pits below the conduit per Item 476 "Jacking, Boring, or Tunneling Pipe or Box" prior to installing conduit or duct cable to prevent bending of the connections.
5. When placing conduit in the sub-grade of new roadways, backfill all trenches with excavated material unless otherwise noted on the plans. When placing conduit in the sub-base of new roadways, backfill all trenches with cement-stabilized base as per requirements of Items 110 "Excavation", 400 "Excavation and Backfill for Structures", 401 "Flowable Backfill", 402 "Trench Excavation Protection", and 403 "Temporary Special Shoring."
6. Provide and place warning tape approximately 10 in. above all trenched conduit as per Item 618.
7. During construction, temporarily cap or plug open ends of all conduit and raceways immediately after installation to prevent entry of dirt, debris and animals. Temporary caps constructed of durable duct tape are allowed. Tightly fix the tape to the conduit opening. Clean out the conduit and prove it clear in accordance with Item 618 prior to installing any conductors.
8. Ensure conduit entry into the top of any enclosure is waterproof by installing conduit sealing hubs or using boxes with threaded bosses. This includes surface mounted safety switches, meter cans, service enclosures, auxiliary enclosures and junction boxes. Grounding bushings on water tight sealing hubs are not required.
9. Fit the ends of all PVC conduit terminations with bushings or bell end fittings. Provide and install a grounding type bushing on all metal conduit terminations.
10. Install a bonding jumper from each grounding bushing to the nearest ground rod, grounding lug, or equipment grounding conductor. Ensure all bonding jumpers are the same size as the equipment grounding conductor. Bonding of conduit used as a casing under roadways for duct cable is not required, if the duct extends the full length through the casing.
11. At all electrical services, install a 6 AWG solid copper grounding electrode conductor.
12. Place conduits entering ground boxes so that the conduit openings are between 3 in. and 6 in. from the bottom of the box. See the ground box detail on sheet ED(4).
13. Seal ends of all conduits with duct seal, expandable foam, or by other methods approved by the Engineer. Seal conduit immediately after completion of conductor installation and pull tests. Do not use duct tape as a permanent conduit sealant. Do not use silicone caulk as a conduit sealant.
14. File smooth the cut ends of all mounting strut and conduit. Before installing, paint the field cut ends of all mounting strut and RMC (threaded or non-threaded) with zinc rich paint (94% or more zinc content) to alleviate overspray. Use zinc rich paint to touch up galvanized material as allowed under Item 445 "Galvanizing." Do not paint non-galvanized material with a zinc rich paint as an alternative for materials required to be galvanized.

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|---|--------------|---|----------|
|  | | Traffic Operations Division Standard | |
| <h1>ELECTRICAL DETAILS CONDUITS & NOTES</h1> | | | |
| <h2>ED(1) - 14</h2> | | | |
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| © TxDOT | October 2014 | CONT | SECT |
| REVISIONS | | 0913 | 27 |
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| | | HIGHWAY | |
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| | | DIST | COUNTY |
| | | YKM | VICTORIA |
| | | SHEET NO. | |
| | | 73 | |

ELECTRICAL CONDUCTORS

A. MATERIAL INFORMATION

1. Provide Type XHHW insulated conductors in accordance with Departmental Material Specification (DMS) 11040 "Conductors" and Item 620 "Electrical Conductors." Provide conductors as listed on the Material Producers List (MPL) on the Department web site under "Roadway Illumination and Electrical Supplies" Item 620. Color code insulated conductors in conformance with the NEC. Identify grounded (neutral) conductors with white insulation. Identify grounding conductors (ground wires) with green insulation or bare conductors. Identify ungrounded (hot) conductors with any color insulation except green, white, or gray. Keep color scheme consistent throughout the wiring system. Identify conductors 6 American Wire Gauge (AWG) and smaller by continuous color jacket. Identify electrical conductors 4 AWG and larger by continuous color jacket or by colored tape. When identifying conductors with colored tape, mark at least 6 in. of the conductor's insulation with half laps of tape.
2. Provide a solid copper 6 AWG grounding electrode conductor to bond the electrical service equipment to the concrete encased grounding electrode or the ground rod at the service location. Connect the grounding electrode conductor to the ground rod with a UL listed connector in accordance with DMS 11040. Connect the grounding electrode conductor to the concrete encased grounding electrode as shown in the plans.
3. Where two or more circuits are present in one conduit or enclosure, permanently identify the conductors of each branch circuit by attaching a non-metallic tag around both circuit conductors at each accessible location. Provide tags with two straps, large enough to indicate circuit number, letter, or other identification as shown in the plans. Print circuit identification on the tag with a permanent marker.
4. Use listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors for splicing as specified in DMS 11040. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Provide UL listed gel-filled insulating splice covers. Splicing materials, insulating materials, breakaway disconnects, splice covers, and fuse holders are subsidiary to various bid items.

B. CONSTRUCTION METHODS

1. Use only a flat, high tensile strength polyester fiber pull tape for pulling conductors through the conduit system. After installing conductors in conduit, perform conductor pull test. If a conductor cannot be freely pulled, make any needed alterations or repairs at no additional cost to the department. Perform insulation resistance tests in accordance with Item 620. Coordinate with the Engineer to witness the tests.
2. Leave 2 ft. minimum, 3 ft. maximum length for each conductor up to the splice in ground boxes. Leave 3 ft. minimum, 4 ft. maximum length of conductor in ground boxes when pulled through with no splice. Leave 1 ft. minimum, 1.5 ft. maximum length of conductor at enclosures, weatherheads and pole bases.
3. Make splices only in junction boxes, ground boxes, pole bases, or electrical enclosures and use only listed compression or screw type pressure connectors, terminal blocks, or split bolt connectors. Insulate splices with heavy wall heat shrink tubing or gel-filled insulating splice covers to provide a watertight splice. Overlap conductor insulation with heat shrink tubing a minimum of 2 in. past both sides of the splice. Where heat shrink tubing may not shrink sufficiently to provide a watertight seal around the individual conductors, prior to heating the tubing, increase the diameter of the conductor insulation using hot melt adhesive tape to provide a watertight seal between the individual conductors and the heat shrink tubing. Ensure the tape extends past the heat shrink tubing. Use hot melt adhesive tape to fill the gap and seal the ends of heat shrink tubing. Heat shrink tubing that appears to have been burned, or overheated, is considered defective and must be replaced.
4. Size and install gel-filled insulating splice covers according to manufacturer's specifications when used in place of heat shrink tubing.
5. Wire nuts with factory applied waterproof sealant may be used for 8 AWG or smaller conductors in above ground junction boxes, but not in pole bases or ground boxes. Install wire nuts in an upright position to prevent the accumulation of water.
6. Support conductors in illumination poles with a J-hook at the top of the pole.
7. When terminating conductors, remove the insulation and jacketing material without nicking the individual strands of the conductor. Conductors with nicked individual conductor strands or removed strands will be considered damaged.
8. Replace conductors and cables that are damaged beyond repair or that fail an insulation resistance test at no additional cost to the department.
9. Do not repair damaged conductors with duct tape, electrical tape, or wire nuts. Use only approved splicing methods.
10. Do not terminate more than one conductor under a single connector, unless the connector is rated for multiple conductors. Do not exceed the pressure connector's listing for maximum number and size of conductors allowed.
11. Install breakaway connectors on conductors bid under Item 620 whenever those conductors pass through a breakaway support device. Follow manufacturer's instructions when terminating conductors to breakaway connectors. Properly torque threaded connections. Proper terminations are critical to the safe operation of breakaway devices. Trim waterproofing boots on breakaway connectors to fit snugly around the conductor to ensure waterproof connection. Only one conductor may enter a single opening in a boot. Provide waterproof boots with the correct number of openings. Leave unused openings factory sealed. Use prequalified breakaway connectors as shown on the MPL.

12. Provide and install a separate stranded equipment grounding conductor (EGC) in all conduits that contain circuit wiring of 50 volts or more. Unless shown elsewhere, size the EGC to be the same size as the largest current carrying conductor contained in the conduit. Ensure all EGCs are bonded together at every accessible location. For traffic signal installations, provide a minimum size 8 AWG EGC. The EGC is paid for under Item 620.

C. TEMPORARY WIRING

1. Install temporary conductors and electrical equipment in accordance with the NEC article "Temporary Installations" and Department standard sheets.
2. Provide a ground fault circuit interrupter (GFCI) for power outlets for portable electrical equipment, power tools, ice machines, ice storage bins and refrigerators located outdoors at grade. GFCI may be any one of the following: molded cord and plug set, receptacle, or circuit breaker type.
3. Use listed wire nuts with factory applied sealant for temporary wiring where approved.
4. Enclose conductor splices within a listed enclosure or ground box, or ensure the splices are more than 10 ft. above grade vertically and more than 5 ft. horizontally from any metal structure. Where installing temporary conductors in areas subject to vehicle traffic or mobile construction equipment, ensure the vertical clearance to ground is at least 18 ft. when measured at the lowest point. Ground messenger wires that support power conductors in conformance with the NEC.
5. Protect and when necessary repair any existing electrical conduits uncovered during the construction process in a timely manner and in conformance with the NEC.

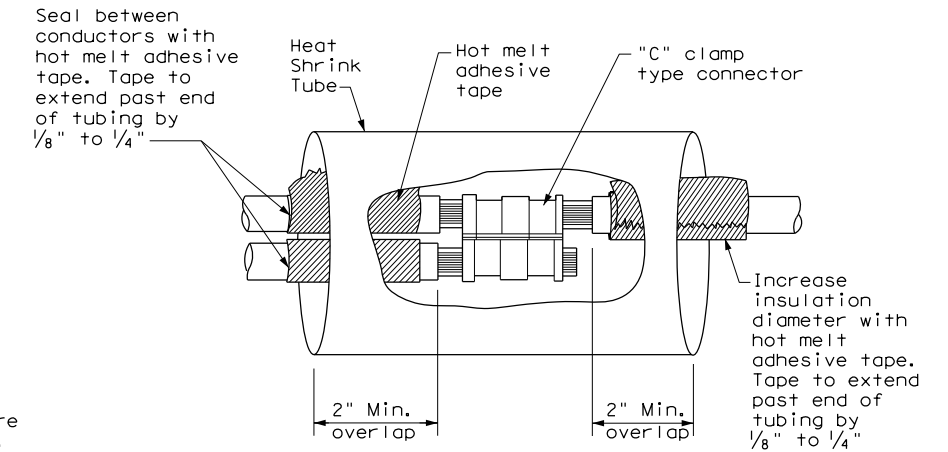
GROUND RODS & GROUNDING ELECTRODES

A. MATERIAL INFORMATION

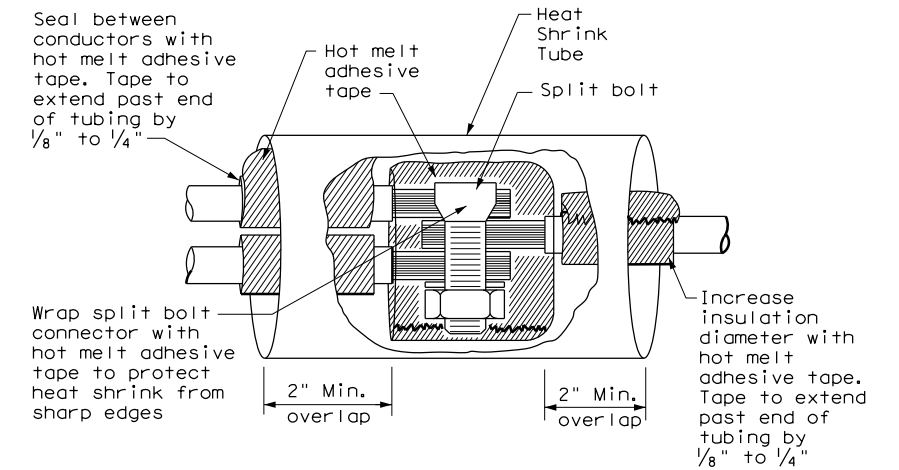
1. Provide and install a grounding electrode at electrical services. Provide ground rods according to DMS 11040 and the plans. Larger diameter or longer length rods may be called for in some specific locations, see the individual plans sheets. Concrete encased grounding electrodes may be called for in specific locations including electrical service, see individual plan sheets.

B. CONSTRUCTION METHODS

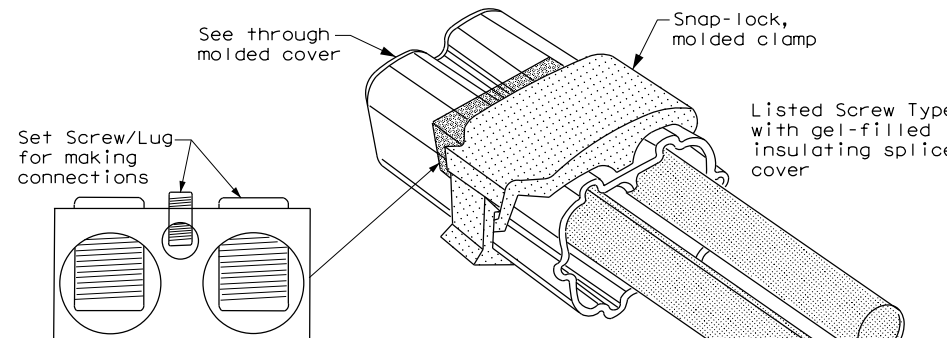
1. Furnish auxiliary ground rods for lightning protection and install in soil, concrete, or both, as called for in the plans. For ground rods installed in concrete, ensure the connection of the conductor to the ground rod is readily accessible for inspection or repairs. For ground rods installed in soil, ensure that the upper end is between 2 to 4 in. below finished grade.
2. Do not place ground rods in the same drilled hole as a timber pole.
3. Install ground rods so the imprinted part number is at the upper end of the rod.
4. Remove all non-conductive coatings such as concrete splatter from the rod at the clamp location.
5. Route all conductors as short and straight as possible for connection to lightning protection ground rods. When a bend is required, ensure a minimum radius bend of four inches for these conductors.
6. Unless otherwise called for in the plans, protect grounding electrode conductors with non-metallic conduit. When protecting grounding electrode conductors with metal conduit, provide and install a grounding type bushing and properly sized bonding jumper on each end of the metal conduit.
7. Written authorization is required before installing a ground rod in a horizontal trench for rocky soil or a solid rock bottom.



**SPLICE OPTION 1
Compression Type**



**SPLICE OPTION 2
Split Bolt Type**



**SPLICE OPTION 3
Listed Screw Type**

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| | | Texas Department of Transportation | | Traffic Operations Division Standard | |
| <h2>ELECTRICAL DETAILS CONDUCTORS</h2> | | | | | |
| <h3>ED(3) - 14</h3> | | | | | |
| FILE: | ed3-14.dgn | DN: | TxDOT | CK: | TxDOT |
| © TxDOT | October 2014 | CONT: | 0913 | SECT: | 27 |
| REVISIONS | | JOB: | 090 | | HIGHWAY: |
| | | COUNTY: | VICTORIA | | SHEET NO.: |
| | | | | 74 | |

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

This SWP3 has been developed in accordance with TxDOT policy for projects disturbing less than 1 acre of soil, and not part of a larger common plan of development.

For projects with less than one acre of soil disturbing activity and that have Environmental, Permits, Issues, and Commitments (EPICs) dependent on stormwater controls and water quality measures TxDOT will maintain a SWP3 with all pertinent records, correspondence, environmental documents, etc. at the project field office, Area Office, or electronically.

This SWP3 is consistent with requirements specified in applicable stormwater plans, and the project's environmental permits, issues, and commitments (EPICs).

1.0 SITE/PROJECT DESCRIPTION

1.1 PROJECT CONTROL SECTION JOB (CSJ):

CSJ 0913-27-090

1.2 PROJECT LIMITS:

From: SL 463

To: FM 1315

1.3 PROJECT COORDINATES:

BEGIN: (Lat) 28°51' 47.00"N ,(Long) 96°59' 34.64"W

END: (Lat) 28°51' 22.92"N ,(Long) 96°59' 9.11"W

1.4 TOTAL PROJECT AREA (Acres): 7 (APPROX.)

1.5 TOTAL AREA TO BE DISTURBED (Acres): 0.2 (APPROX.)

1.6 NATURE OF CONSTRUCTION ACTIVITY:

Consist of pedestrian, sidewalks, & curb ramps.

1.7 MAJOR SOIL TYPES:

| Soil Type | Description |
|------------|--|
| Nada-Cieno | frequently ponded complex, 0 to 1 percent slopes |
| Telferner | Fine sandy loam, 0 to 1 percent slopes |
| | |
| | |
| | |
| | |
| | |
| | |

1.8 PROJECT SPECIFIC LOCATIONS (PSLs):

PSLs must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. PSLs may be identified during preconstruction meetings or during the construction process. Please choose from the options below:

- PSLs determined during preconstruction meeting
- PSLs determined during construction
- No PSLs planned for construction

| Type | Sheet #s |
|------|----------|
| | |
| | |
| | |
| | |
| | |

All off-ROW PSLs required by the Contractor are the Contractor's responsibility. The Contractor shall secure all permits required by local, state, federal laws for off-ROW PSLs. The contractor shall provide diagrams, areas of disturbance, acreage, and BMPs for all off-ROW PSLs within one mile of the project.

1.9 CONSTRUCTION ACTIVITIES:

(Use the following list as a starting point when developing the Construction Activity Schedule and Ceasing Record in Attachment 2.3.)

- Mobilization
- Install sediment and erosion controls
- Blade existing topsoil into windrows, prep ROW, clear and grub
- Remove existing pavement
- Grading operations, excavation, and embankment
- Excavate and prepare subgrade for proposed pavement widening
- Remove existing culverts, safety end treatments (SETs)
- Remove existing metal beam guard fence (MBGF), bridge rail
- Install proposed pavement per plans
- Install culverts, culvert extensions, SETs
- Install mow strip, MBGF, bridge rail
- Place flex base
- Rework slopes, grade ditches
- Blade windrowed material back across slopes
- Revegetation of unpaved areas
- Achieve site stabilization and remove sediment and erosion control measures

Other: _____
 Other: _____
 Other: _____

1.10 POTENTIAL POLLUTANTS AND SOURCES:

- Sediment laden stormwater from stormwater conveyance over disturbed area
- Fuels, oils, and lubricants from construction vehicles, equipment, and storage
- Solvents, paints, adhesives, etc. from various construction activities
- Transported soils from offsite vehicle tracking
- Construction debris and waste from various construction activities
- Contaminated water from excavation or dewatering pump-out water
- Sanitary waste from onsite restroom facilities
- Trash from various construction activities/receptacles
- Long-term stockpiles of material and waste
- Discharges from concrete washout activities, runoff from concrete cutting activities, and other concrete related activities

Other: _____
 Other: _____
 Other: _____

1.11 RECEIVING WATERS:

Receiving waters must be depicted on the Environmental Layout Sheets in Attachment 1.2 of this SWP3. Include Segment # for receiving waters.

| Tributaries | Classified Waterbody |
|-------------|----------------------|
| | |
| | |
| | |
| | |
| | |

* Add (*) for impaired waterbodies with pollutant in ().

1.12 ROLES AND RESPONSIBILITIES: TxDOT

- Development of plans and specifications
- Perform SWP3 inspections
- Maintain SWP3 records and update to reflect daily operations
- Other: _____
- Other: _____

1.13 ROLES AND RESPONSIBILITIES: CONTRACTOR

- Day To Day Operational Control
- Maintain schedule of major construction activities
- Install, maintain and modify BMPs
- Other: _____
- Other: _____

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

| | | | | |
|-------------------|-------------|----------|-------------|-----------|
| FED. RD. DIV. NO. | PROJECT NO. | | | SHEET NO. |
| 6 | | | | 75 |
| STATE | STATE DIST. | COUNTY | | |
| TEXAS | YKM | VICTORIA | | |
| CONT. | SECT. | JOB | HIGHWAY NO. | |
| 0913 | 27 | 090 | CS | |

STORMWATER POLLUTION PREVENTION PLAN (SWP3):

2.0 BEST MANAGEMENT PRACTICES (BMPs) AND CONTROLS, INSPECTION, AND MAINTENANCE

The Contractor shall be the responsible party for implementing the BMPs described herein and for complying with the SWP3 for control of erosion and sedimentation during day-to-day operations. The Contractor shall implement changes to this SWP3 approved by TxDOT within the times specified in this SWP3 or the CGP.

2.1 EROSION CONTROL AND SOIL STABILIZATION BMPs:

T / P

- Protection of Existing Vegetation
- Vegetated Buffer Zones
- Soil Retention Blankets
- Geotextiles
- Mulching/ Hydromulching
- Soil Surface Treatments
- Temporary Seeding
- Permanent Planting, Sodding or Seeding
- Biodegradable Erosion Control Logs
- Rock Filter Dams/ Rock Check Dams
- Vertical Tracking
- Interceptor Swale
- Riprap
- Diversion Dike
- Temporary Pipe Slope Drain
- Embankment for Erosion Control
- Paved Flumes
- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.2 SEDIMENT CONTROL BMPs:

T / P

- Biodegradable Erosion Control Logs
- Dewatering Controls
- Inlet Protection
- Rock Filter Dams/ Rock Check Dams
- Sandbag Berms
- Sediment Control Fence
- Stabilized Construction Exit
- Floating Turbidity Barrier
- Vegetated Buffer Zones
- Vegetated Filter Strips
- Other: _____
- Other: _____
- Other: _____
- Other: _____

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.3 PERMANENT CONTROLS:

(Coordinate post-construction BMPs with appropriate TxDOT maintenance sections.)

BMPs To Be Left In Place Post Construction:

| Type | Stationing | |
|------|------------|----|
| | From | To |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.4 OFFSITE VEHICLE TRACKING CONTROLS:

- Excess dirt/mud on road removed daily
- Haul roads dampened for dust control
- Loaded haul trucks to be covered with tarpaulin
- Stabilized construction exit
- Daily street sweeping
- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.5 POLLUTION PREVENTION MEASURES:

- Chemical Management
- Concrete and Materials Waste Management
- Debris and Trash Management
- Dust Control
- Sanitary Facilities
- Other: _____
- Other: _____
- Other: _____
- Other: _____

2.6 VEGETATED BUFFER ZONES:

Natural vegetated buffers shall be maintained as feasible to protect adjacent surface waters. If vegetated natural buffer zones are not feasible due to site geometry, the appropriate additional sediment control measures have been incorporated into this SWP3.

| Type | Stationing | |
|------|------------|----|
| | From | To |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Refer to the Environmental Layout Sheets/ SWP3 Layout Sheets located in Attachment 1.2 of this SWP3

2.7 ALLOWABLE NON-STORMWATER DISCHARGES:

- Fire hydrant flushings
- Irrigation drainage
- Pavement washwater (where spills or leaks have not occurred, and detergents are not used)
- Potable water sources
- Springs
- Uncontaminated groundwater
- Water used to wash vehicles or control dust
- Other allowable non-stormwater discharges as allowed by TPDES GP TXR150000.

2.8 DEWATERING:

Dewatering discharges of accumulated stormwater, groundwater, and surface water including discharges from dewatering of trenches, excavations, foundations, vaults, and other points of accumulation are prohibited unless managed by appropriate controls to prevent and minimize the offsite discharge of sediment and other pollutants.

2.9 INSPECTIONS:

All disturbed areas and erosion and sediment control devices shall be inspected at least once every seven (7) days. Inspections shall be performed by TxDOT as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3 .

2.10 MAINTENANCE:

Control measures shall be properly installed according to specifications. If it is determined that a BMP or control measure is not operating effectively, maintenance must be accomplished as soon as possible and before the next anticipated rain event, but in no case later than 7 calendar days after being able to access the site. Maintenance shall be performed by the Contractor as indicated on the Field Inspection and Maintenance Report Form 2118 and retained in Attachment 2.3 of this SWP3.

STORMWATER POLLUTION PREVENTION PLAN (SWP3) (Less Than 1 Acre)

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| FED. RD. DIV. NO. | PROJECT NO. | | | SHEET NO. |
| 6 | | | | 76 |
| STATE | STATE DIST. | COUNTY | | |
| TEXAS | YKM | VICTORIA | | |
| CONT. | SECT. | JOB | HIGHWAY NO. | |
| 0913 | 27 | 090 | CS | |

I. STORMWATER POLLUTION PREVENTION

Texas Pollutant Discharge Elimination System (TPDES) TXR 150000: Stormwater Discharge Permit or Construction General Permit is required for projects with 1 or more acres disturbed soil. Projects with any disturbed soil must protect for erosion and sedimentation in accordance with Item 506. If applicable list MS4 operator that may receive discharges from this project. MS4 operator should be notified prior to construction activities.

Prevent stormwater pollution erosion and sedimentation in accordance with TPDES Permit TXR 150000.

Comply with the SW3P and revise when necessary to control pollution or as required by the Engineer.

Post Construction Site Notice (CSN) with SW3P information on or near the site, accessible to the public and TCEQ, EPA, or other inspectors.

When Contractor project specific locations (PSL) increase disturbed soil area to 5 acres or more, submit Notice of Intent (NOI) to TCEQ and Engineer.

MS4 Operator(s): City of Victoria

No Additional Comments

II. WORK IN OR NEAR STREAMS, WATERBODIES AND WETLANDS

United States Army Corps of Engineers (USACE) Permit is required for filling, dredging, excavating or other work in water bodies, rivers, creeks, streams, wetlands or wet areas. The Contractor must adhere to all of the terms and general conditions associated with the following permit(s). If additional work not represented in the plans is required, contact the Engineer immediately.

No USACE Permit Required

Work is authorized by the USACE under a Nationwide Permit _____ without a Pre-Construction Notification (PCN). Project specific permit was not issued by USACE, therefore is not in the plan set.

Work is authorized by the USACE under a Nationwide Permit _____ with a Pre-Construction Notification (PCN). The project specific permit issued by the USACE is included in the plan set.

Work is authorized by the USACE under a Individual Permit (IP). The project specific permit issued by the USACE is included in the plan set.

Work would be authorized by the USACE. The project specific permit issued by the USACE or Nationwide Permit will be provided to the contractor.

United States Coast Guard (USCG) Permit is required for projects that involve the construction or modification (including changes to lighting) of a bridge or causeway across a water body determined to be navigable by the United States Coast Guard (USCG) under Section 9 of the Rivers and Harbors Act. If additional work not represented in the plans is required, contact the Engineer immediately.

No United States Coast Guard (USCG) Coordination Required

United States Coast Guard (USCG) Permit **(Include Permit, when available)**

United States Coast Guard (USCG) Exemption

Best Management Practices

| | | |
|--|--|--|
| Erosion | Sedimentation | Post Construction TSS |
| <input checked="" type="checkbox"/> Temporary Vegetation | <input checked="" type="checkbox"/> Silt Fence | <input checked="" type="checkbox"/> Vegetative Filter Strips |
| <input type="checkbox"/> Vegetation Lined Ditches | <input type="checkbox"/> Rock Filter Dam | <input type="checkbox"/> Vegetation Lined Ditches |
| <input type="checkbox"/> Sodding | <input type="checkbox"/> Sand Bag Berm | <input type="checkbox"/> Grassy Swales |

No Additional Comments

III. CULTURAL RESOURCES

Refer to TxDOT Standard Specifications in the event historical issues or archeological artifacts are found during construction. Upon discovery of archeological artifacts (bones, burnt rock, flint, pottery, etc.) cease work in the area and contact the Engineer immediately.

No Additional Comments

IV. VEGETATION RESOURCES

Preserve native vegetation to the extent practical. Refer to TxDOT Standard Specifications 162, 164, 192, 193, 506, 730, 751, and 752 in order to comply with requirements for invasive species, beneficial landscaping and tree/brush removal.

No Additional Comments

V. FEDERAL LISTED, PROPOSED THREATENED, ENDANGERED SPECIES, CRITICAL HABITAT, STATE LISTED SPECIES, CANDIDATE SPECIES AND MIGRATORY BIRDS

If any of the listed species below are observed, cease work in the area, do not disturb species or habitat and contact the Engineer immediately.

The work may not remove active nests (from bridges, structures, or vegetation adjacent to the roadway, etc.) during nesting season (February 15 to October 1). If removal of structures or vegetation is necessary during the nesting season, the Contractor shall conduct a bird survey no more than 3 days in advance of the clearing/demolish start date. All bird surveys shall be conducted by a Field Biologist and adhere to the guidance document "Avoiding Migratory Birds and Handling Potential Violations" found in the TxDOT Environmental Compliance Toolkits at the time of the survey. (See below for Field Biologist and Ornithologist qualifications)

No Additional Comments

Field Biologist, Ornithologist – a field biologist is defined as an individual qualified to perform field investigations, presence/absence surveys and habitat surveys for protected avian species or species of concern. A mandatory bachelor's degree in biology or a related science is required. At a minimum, the Field Biologist, Ornithologist, shall have completed and reported a minimum of three presence/absence and habitat surveys for protected avian species in the past five years. A minimum of three projects must have been conducted in Texas. Surveys shall have been performed for documentation of species in accordance with a protocol approved by USFWS or TPWD, or following generally accepted methodologies.

VI. HAZARDOUS MATERIALS OR CONTAMINATION ISSUES

Refer to TxDOT Standard Specifications in the event potentially contaminated materials are observed, such as dead or distressed vegetation, trash disposal areas, drums, canisters, barrels, leaching or seepage of substances, unusual smells or odors, or stained soil, cease work in the area and contact the Engineer immediately.

Does the project involve any bridge class structure rehabilitation or replacements (bridge class structures not including box culverts)? Yes No

No further action required.


TxDOT is still required to notify DSHS 14 working days prior to any scheduled demolition.

The Contractor is responsible for providing the date(s) for abatement activities and/or demolition with careful coordination between the Engineer and asbestos consultant in order to minimize construction delays and subsequent claims.

No Additional Comments

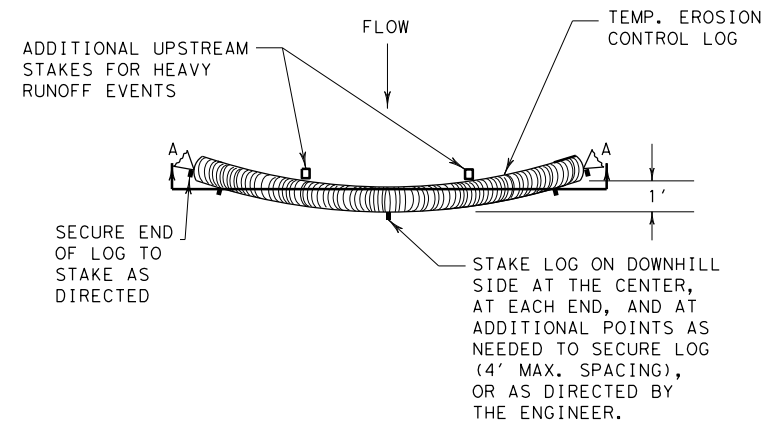
VII. GENERAL NOTES

TxDOT has determined that a USACE Nationwide or Individual Permit is not necessary for the project since all work shall be conducted outside the USACE jurisdictional areas. Any impacts to these jurisdictional areas by the contractor without a USACE permit will be the responsibility of the contractor. If the contractor deems it necessary to impact the USACE jurisdictional areas, then it becomes the contractor's entire responsibility to consult with the USACE pertaining to the need for a Nationwide or Individual Permit. TxDOT will then hold the contractor responsible for following all conditions of the approved Permit.

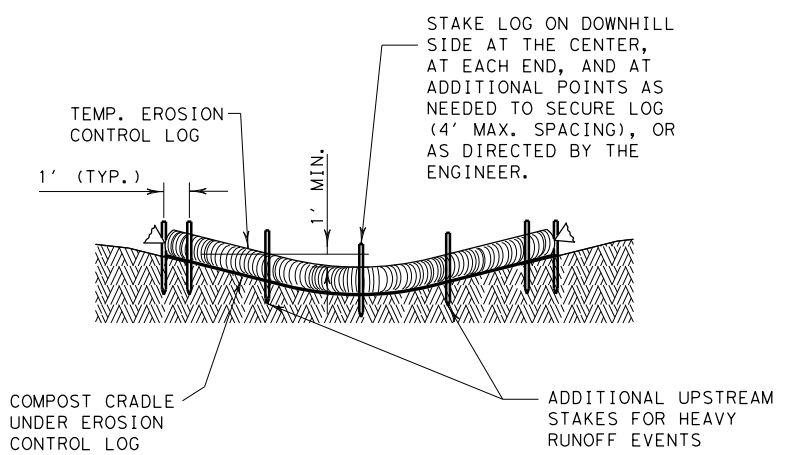
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|  | | | | TxDOT Yoakum District | |
| ENVIRONMENTAL PERMITS, ISSUES AND COMMITMENTS EPIC | | | | | |
| FILE: | EPIC Sheet.dgn | DN: | CK: | DW: | CK: |
| © TxDOT: | March 2017 | CONT | SECT | JOB | HIGHWAY |
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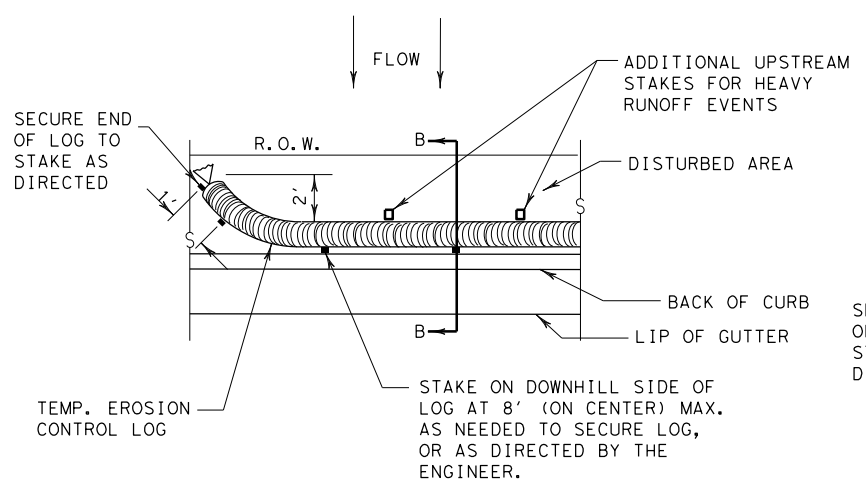
PLAN VIEW



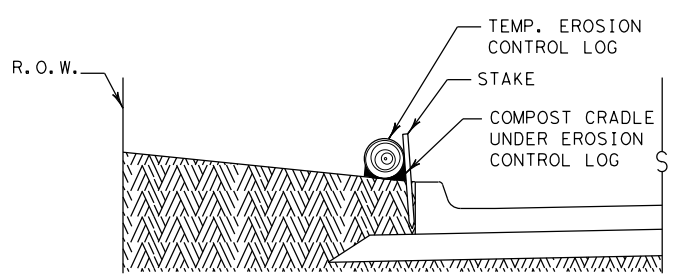
SECTION A-A

EROSION CONTROL LOG DAM

CL-D



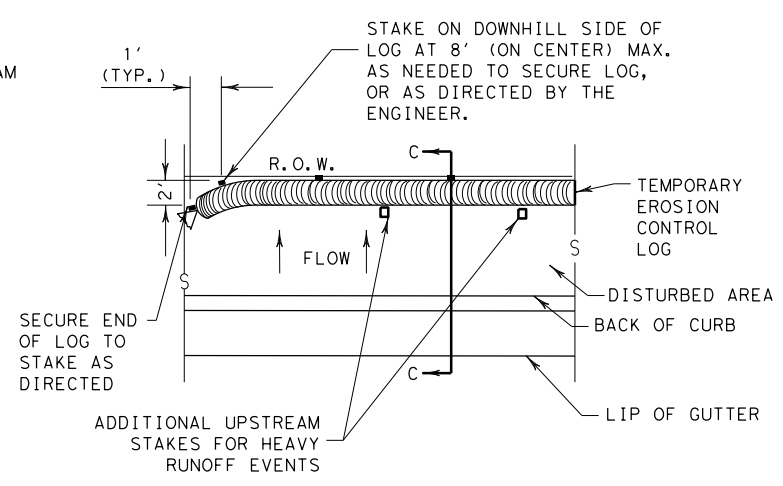
PLAN VIEW



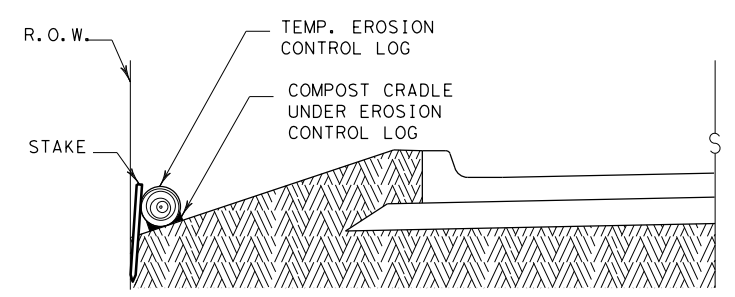
SECTION B-B

EROSION CONTROL LOG AT BACK OF CURB

CL-BOC



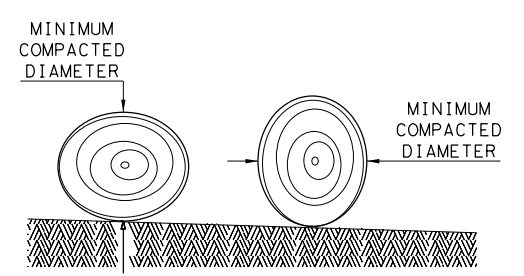
PLAN VIEW



SECTION C-C

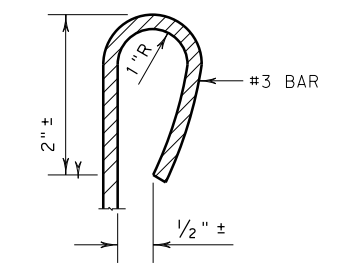
EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY

CL-ROW



DIAMETER MEASUREMENTS OF EROSION CONTROL LOGS SPECIFIED IN PLANS

- LEGEND**
- CL-D EROSION CONTROL LOG DAM
 - CL-BOC EROSION CONTROL LOG AT BACK OF CURB
 - CL-ROW EROSION CONTROL LOG AT EDGE OF RIGHT-OF-WAY
 - CL-SST EROSION CONTROL LOGS ON SLOPES STAKE AND TRENCHING ANCHORING
 - CL-SSL EROSION CONTROL LOGS ON SLOPES STAKE AND LASHING ANCHORING
 - CL-DI EROSION CONTROL LOG AT DROP INLET
 - CL-CI EROSION CONTROL LOG AT CURB INLET
 - CL-GI EROSION CONTROL LOG AT CURB & GRATE INLET



REBAR STAKE DETAIL

SEDIMENT BASIN & TRAP USAGE GUIDELINES

An erosion control log sediment trap may be used to filter sediment out of runoff draining from an unstabilized area.

Log Traps: The drainage area for a sediment trap should not exceed 5 acres. The trap capacity should be 1800 CF/Acre (0.5" over the drainage area).

Control logs should be placed in the following locations:

1. Within drainage ditches spaced as needed or min. 500' on center
2. Immediately preceding ditch inlets or drain inlets
3. Just before the drainage enters a water course
4. Just before the drainage leaves the right of way
5. Just before the drainage leaves the construction limits where drainage flows away from the project.

The logs should be cleaned when the sediment has accumulated to a depth of 1/2 the log diameter.

Cleaning and removal of accumulated sediment deposits is incidental and will not be paid for separately.

GENERAL NOTES:

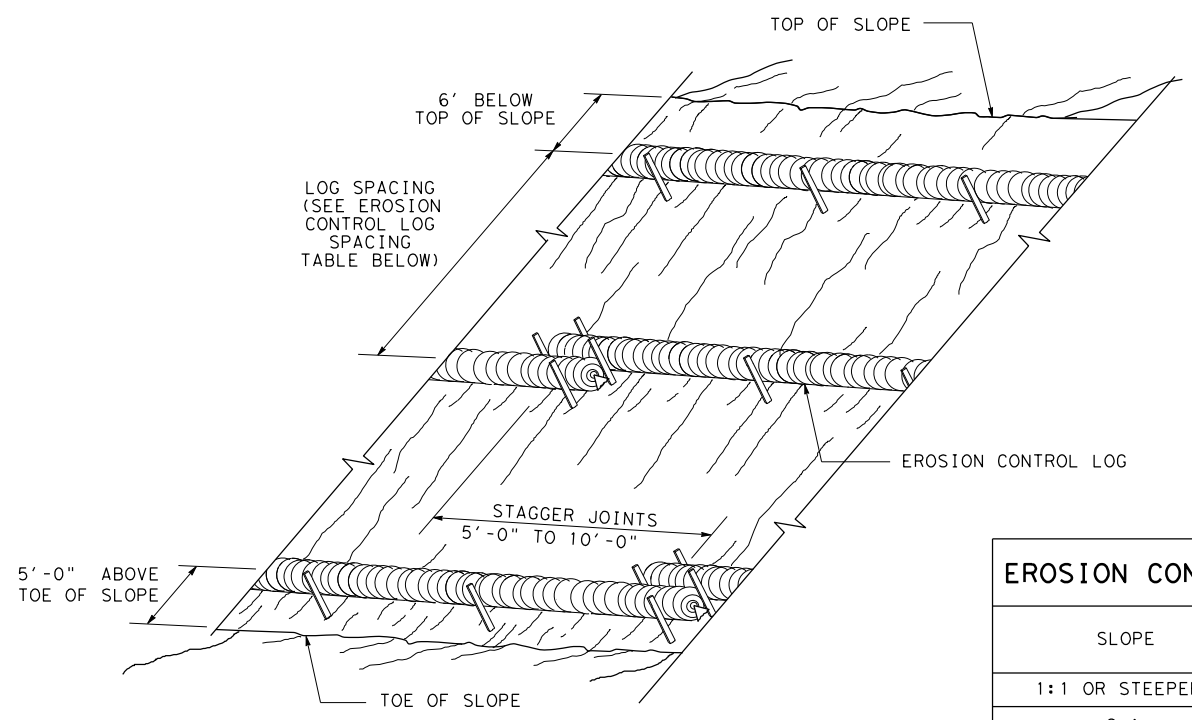
1. EROSION CONTROL LOGS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, OR AS DIRECTED BY THE ENGINEER.
2. LENGTHS OF EROSION CONTROL LOGS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS REQUIRED FOR THE PURPOSE INTENDED.
3. UNLESS OTHERWISE DIRECTED, USE BIODEGRADABLE OR PHOTODEGRADABLE CONTAINMENT MESH ONLY WHERE LOG WILL REMAIN IN PLACE AS PART OF A VEGETATIVE SYSTEM. FOR TEMPORARY INSTALLATIONS, USE RECYCLABLE CONTAINMENT MESH.
4. FILL LOGS WITH SUFFICIENT FILTER MATERIAL TO ACHIEVE THE MINIMUM COMPACTED DIAMETER SPECIFIED IN THE PLANS WITHOUT EXCESSIVE DEFORMATION.
5. STAKES SHALL BE 2" X 2" WOOD OR #3 REBAR, 2'-4' LONG, EMBEDDED SUCH THAT 2" PROTRUDES ABOVE LOG, OR AS DIRECTED BY THE ENGINEER.
6. DO NOT PLACE STAKES THROUGH CONTAINMENT MESH.
7. COMPOST CRADLE MATERIAL IS INCIDENTAL & WILL NOT BE PAID FOR SEPARATELY.
8. SANDBAGS USED AS ANCHORS SHALL BE PLACED ON TOP OF LOGS & SHALL BE OF SUFFICIENT SIZE TO HOLD LOGS IN PLACE.
9. TURN THE ENDS OF EACH ROW OF LOGS UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE LOG.
10. FOR HEAVY RUNOFF EVENTS, ADDITIONAL UPSTREAM STAKES MAY BE NECESSARY TO KEEP LOG FROM FOLDING IN ON ITSELF.

SHEET 1 OF 3

| | | | |
|---|-----------|---------------------------------|-----------|
| | | Design Division Standard | |
| TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES | | | |
| EROSION CONTROL LOG | | | |
| EC (9) - 16 | | | |
| FILE: ec916 | DN: TxDOT | CK: KM | DW: LS/PT |
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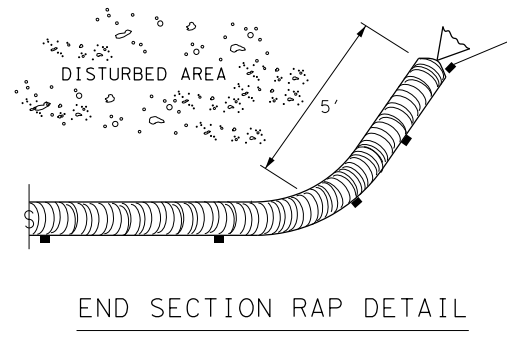
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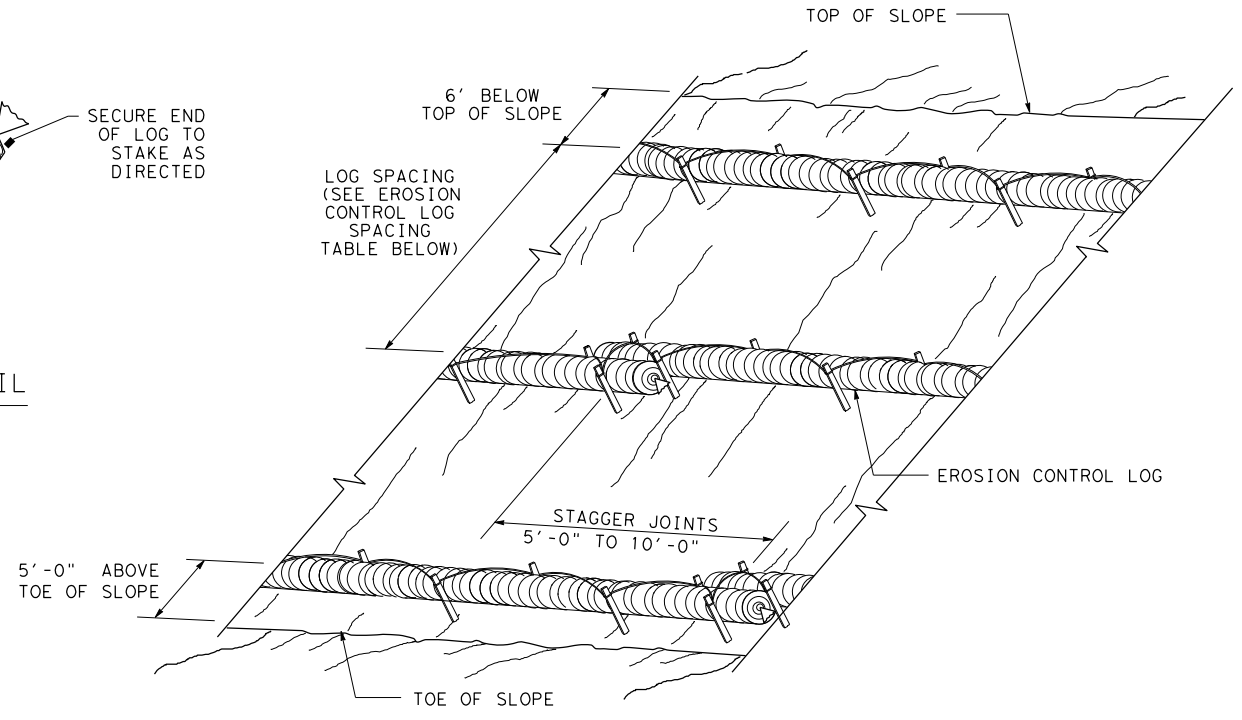
**EROSION CONTROL LOGS ON SLOPES
STAKE AND TRENCHING ANCHORING**

CL-SST



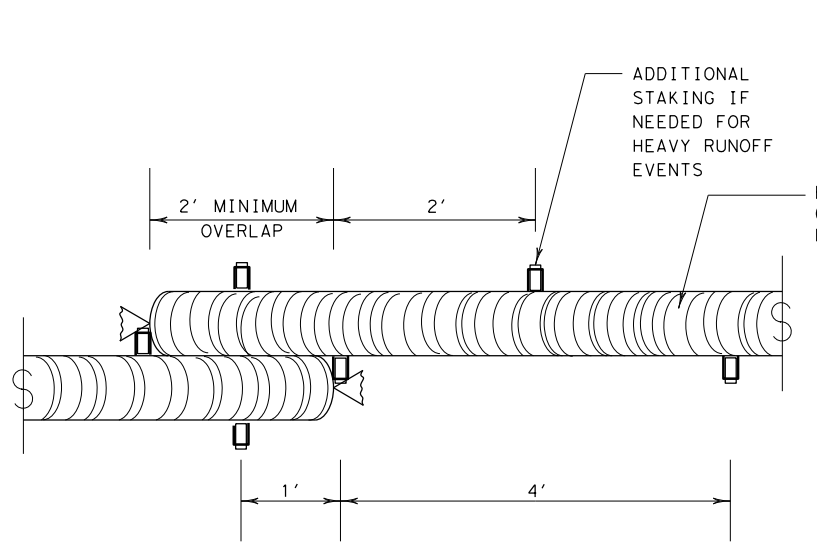
| SLOPE | LOG DIAMETER | | | |
|----------------|--------------|-----|-----|-----|
| | 6" | 8" | 12" | 18" |
| 1:1 OR STEEPER | 5' | 10' | 15' | 20' |
| 2:1 | 10' | 20' | 30' | 40' |
| 3:1 | 15' | 30' | 45' | 60' |
| 4:1 OR FLATTER | 20' | 40' | 60' | 80' |

* ADJUSTMENTS CAN BE MADE FOR SOIL TYPE:
SOFT, LOAMY SOILS-ADJUST ROWS CLOSER TOGETHER;
HARD, ROCKY SOILS- ADJUST ROWS FARTHER APART



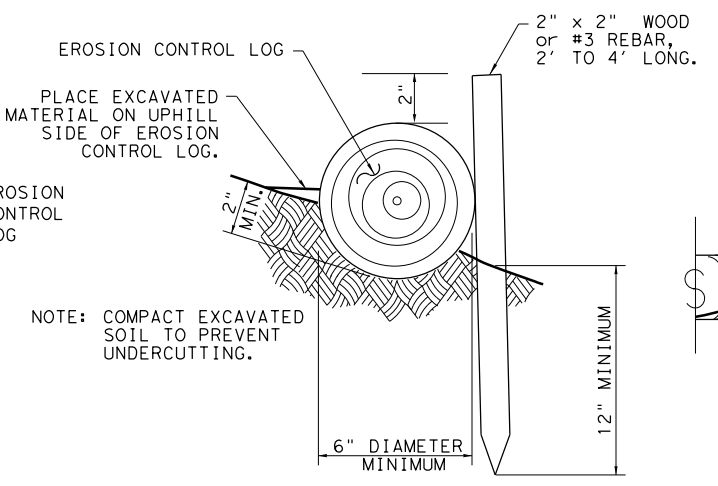
**EROSION CONTROL LOGS ON SLOPES
STAKE AND LASHING ANCHORING**

CL-SSL



STAKE AND TRENCHING ANCHORING DETAIL

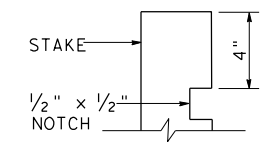
CL-SST



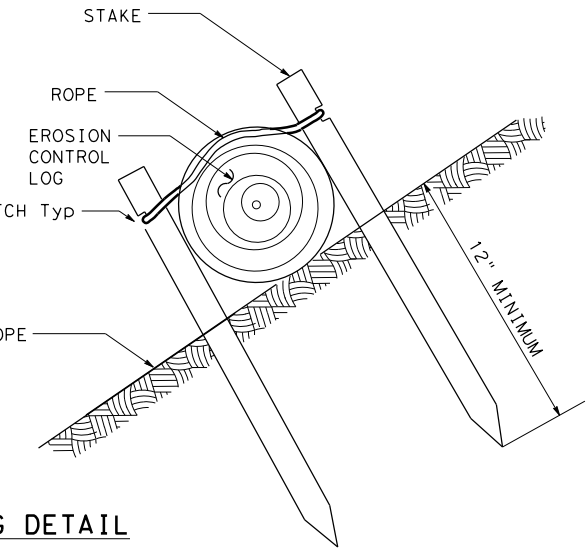
STAKE AND LASHING ANCHORING DETAIL

CL-SSL

| LOG DIAMETER | DEPTH |
|--------------|-------|
| 6" | 2" |
| 8" | 3" |
| 12" | 4" |
| 18" | 5" |



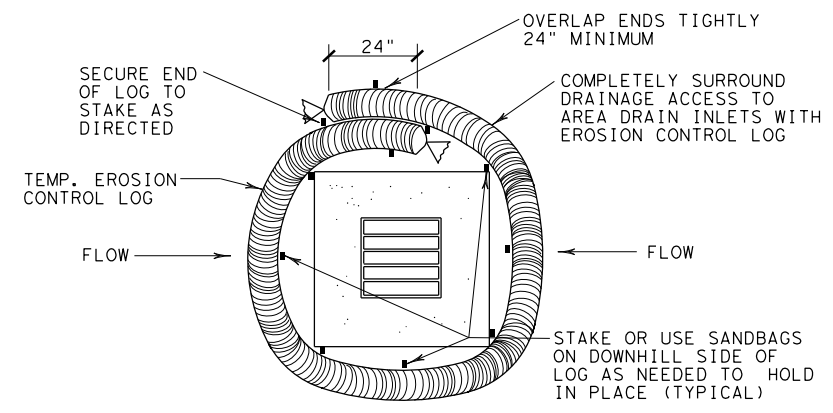
STAKE NOTCH DETAIL



SHEET 2 OF 3

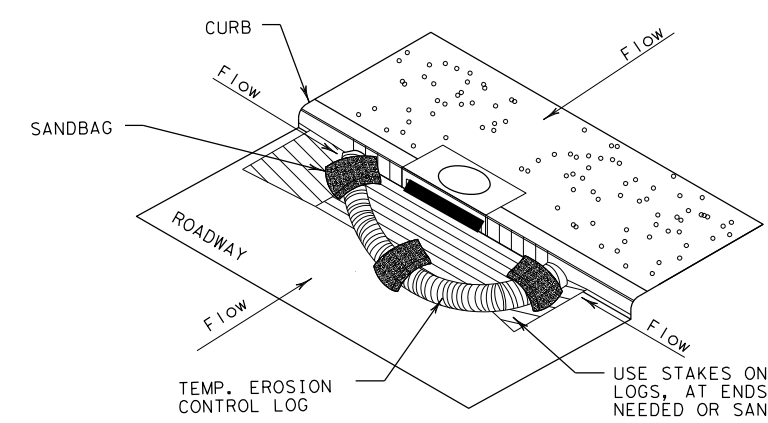
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| | | | | Design Division Standard | |
| TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16 | | | | | |
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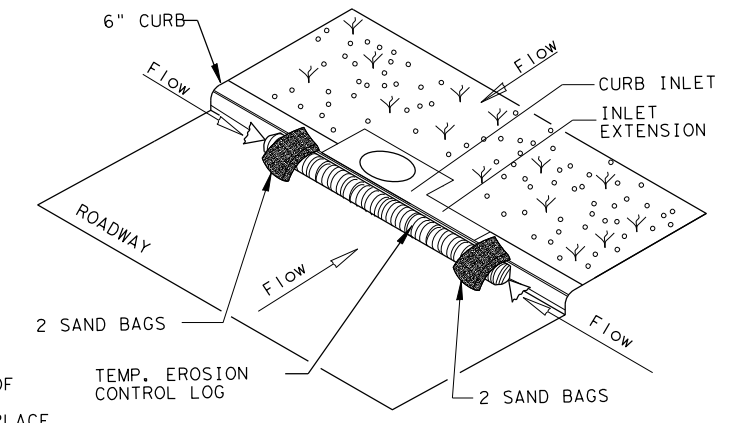
EROSION CONTROL LOG AT DROP INLET

CL-DI



EROSION CONTROL LOG AT CURB INLET

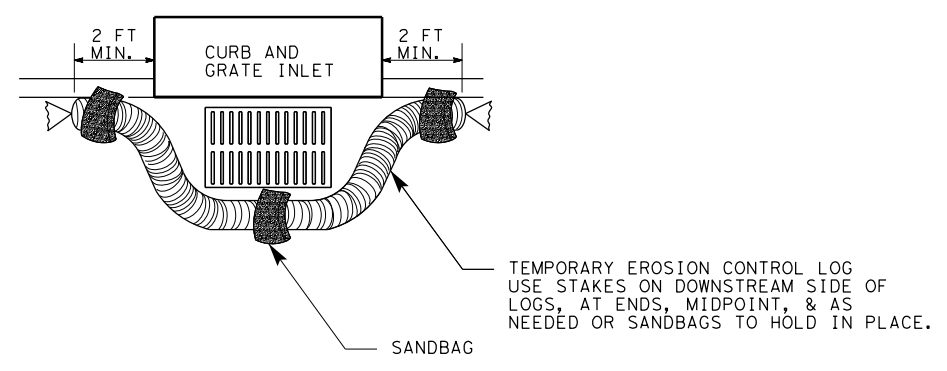
CL-CI



EROSION CONTROL LOG AT CURB INLET

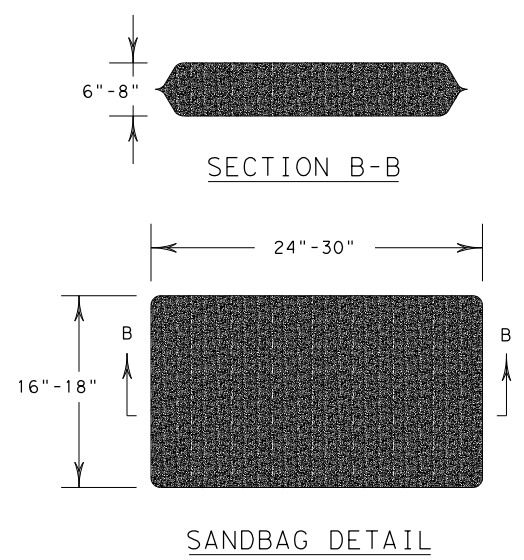
CL-CI

NOTE:
EROSION CONTROL LOGS USED AT CURB INLETS SHOULD ONLY BE USED IF THEY WILL NOT IMPEDE TRAFFIC OR FLOOD THE ROADWAY OR WHEN THE STORM SEWER SYSTEM IS NOT FULLY FUNCTIONAL.



EROSION CONTROL LOG AT CURB & GRADE INLET

CL-GI



SHEET 3 OF 3

| | | | |
|---|-----------|---------------------------------|-----------|
| | | Design Division Standard | |
| TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES EROSION CONTROL LOG EC (9) - 16 | | | |
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DATE: 1/21/2024
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