

MISSOURI HIGHWAYS and TRANSPORTATION COMMISSION

JEFFERSON CITY, MISSOURI

**SUPPLEMENTAL PLANS TO JULY 201J MISSOURI STANDARD
PLANS FOR HIGHWAY CONSTRUCTION**

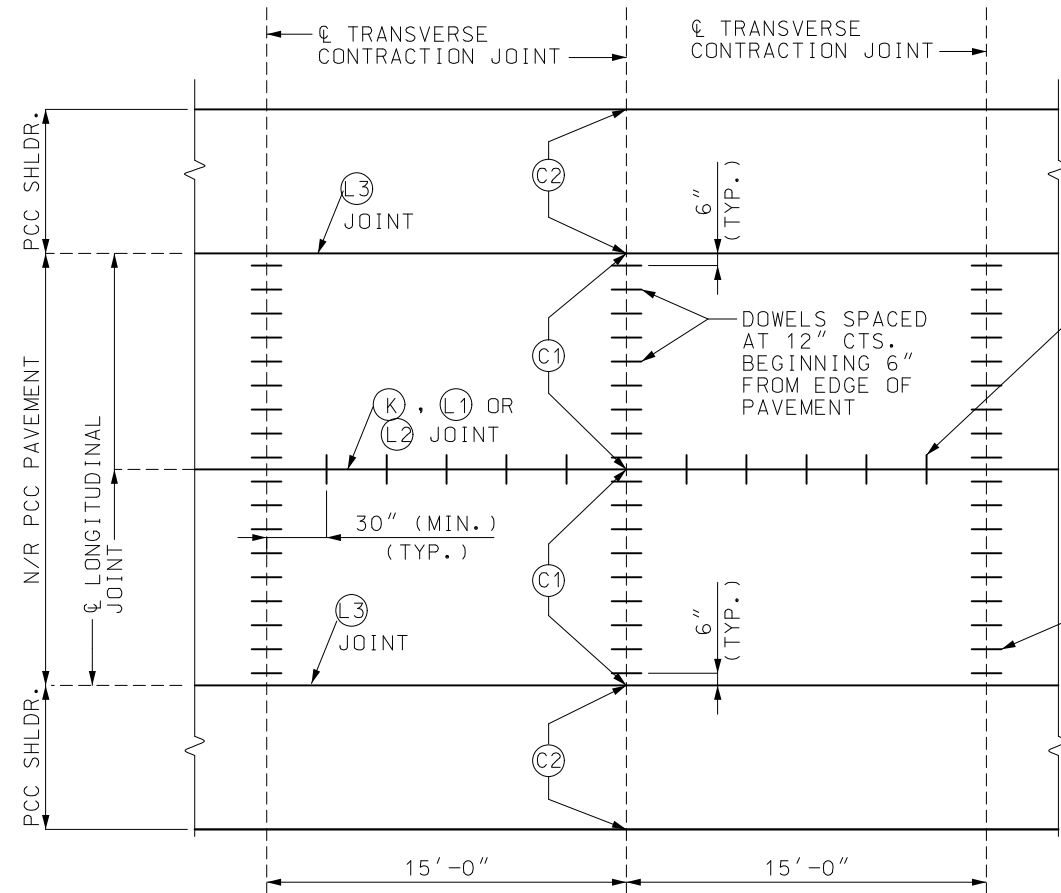
EFFECTIVE April 1, 2020

| MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION | | | | | | | |
|--|---|---------------|----------------|------------------------------------|--|---------------|----------------|
| MISSOURI STANDARD PLANS FOR HIGHWAY CONSTRUCTION | | | | | | | |
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| 203.00E | EXCAVATION AND EMBANKMENT – TYPICAL DETAILS | 1 | 08/01/1998 | 606.60B | MIDWEST GUARDRAIL SYSTEM (MGS) – VERTICAL BARRIER TRNSITIONS * | 6 | 04/01/2020 |
| 203.02F | UNDERGRADING – TYPICAL DETAILS | 2 | 01/01/2004 | 606.70B | MIDWEST GUARDRAIL SYSTEM (MGS) – THRIE BEAM RAIL ON BRIDGE | 5 | 04/01/2018 |
| 203.10D | TABULATED EARTHWORK AND SECTION DATA | 1 | 02/01/2009 | 606.80C | MIDWEST GUARDRAIL SYSTEM (MGS) – TERMINAL ANCHOR ENDS | 7 | 07/01/2017 |
| 203.20G | SUPERELEVATION, SPIRALS AND WIDENING (UNDIVIDED HIGHWAY) | 4 | 07/01/2017 | 606.81B | MASH – CRASHWORTHY END TERMINALS – TYPE A – GRADING LIMITS * | 1 | 10/01/2019 |
| 203.21K | SUPERELEVATION, SPIRALS AND WIDENING (DIVIDED HIGHWAY) | 3 | 07/01/2017 | 607.10V | CHAIN-LINK FENCE | 1 | 02/01/2007 |
| 203.22 | SUPERELEVATION, SPIRALS AND WIDENING | 2 | 07/01/2017 | 607.11H | CHAIN-LINK FENCE FOR RETAINING WALLS | 1 | 06/01/2009 |
| 203.35A | MAILBOX TURNOUTS | 1 | 08/01/1981 | 607.20G | WOVEN WIRE FENCE | 2 | 07/01/2016 |
| 203.40G | TYPICAL DETAILS ON AND OFF RAMPS | 2 | 10/01/2007 | 608.00J | PAVED APPROACHES * | 2 | 04/01/2020 |
| 203.41F | TYPICAL DETAILS ON AND OFF RAMPS (ROADWAY WITH 6:1 FORESLOPE) | 2 | 01/01/1995 | 608.10P | CONCRETE SIDEWALK | 1 | 04/01/2015 |
| 203.50N | TYPICAL MEDIAN OPENINGS (DIVIDED HIGHWAYS) | 2 | 04/01/2016 | 608.20E | CONCRETE STAIRS | 2 | 04/01/2015 |
| 203.61A | DRIVEWAY – TYPE I | 1 | 07/01/2004 | 608.30A | CONCRETE MEDIAN STRIP | 1 | 02/01/2011 |
| 203.62D | DRIVEWAY – TYPE II | 2 | 04/01/2017 | 608.40 | HANDRAILING | 4 | 04/01/2015 |
| 203.63B | DRIVEWAY – TYPE III | 2 | 04/01/2017 | 608.50 | CURB RAMPS | 4 | 04/01/2015 |
| 203.64D | DRIVEWAY – TYPE IV | 2 | 04/01/2017 | 609.00P | CONCRETE CURB, CURB AND GUTTER AND GUTTER | 2 | 08/01/2008 |
| 203.65A | DRIVEWAY – TYPE V | 1 | 10/01/1998 | 609.15D | PAVED DITCHES | 1 | 07/01/2016 |
| 204.00D | EMBANKMENT CONTROL – MEASURING DEVICES | 1 | 04/01/1983 | 609.40S | DRAIN BASIN, SHOULDER PAVING AND FILL SLOPES AT BRIDGE ENDS | 3 | 01/01/2017 |
| 204.30 | PORE PRESSURE MEASUREMENT DEVICES | 1 | 03/01/1996 | 609.60C | ROCK DITCH LINER | 1 | 03/01/1993 |
| 401.00B | TYPE A2 AND A3 SHOULDERS, SAFETY EDGE SM | 3 | 04/01/2018 | 609.70C | ROCK LINING FOR CULVERT OUTLET | 1 | 10/01/1981 |
| 413.20 | SCRUB SEAL BROOM CONFIGURATION | 1 | 07/01/2004 | 611.60R | CONCRETE SLOPE PROTECTION | 1 | 07/01/2015 |
| 502.05P | CONCRETE PAVEMENT AND BASE APPURTENANCES FOR 15 FT. JOINT SPACING * | 4 | 04/01/2020 | 612.20E | SAND FILLED IMPACT ATTENUATORS | 1 | 10/01/2018 |
| 502.10K | DOWEL SUPPORTING UNITS | 2 | 06/01/2010 | 613.00T | PAVEMENT REPAIR * | 4 | 01/01/2020 |
| 504.00J | CONCRETE APPROACH PAVEMENT | 3 | 07/01/2015 | 614.10T | GRATES AND BEARING PLATES | 1 | 12/01/2005 |
| 602.00D | RIGHT-OF-WAY AND DRAIN MARKERS | 2 | 01/01/2003 | 614.11C | CURVED VANE GRATE AND FRAME | 1 | 06/01/2010 |
| 604.05D | PIPE CULVERT HEADWALLS – TYPE S | 2 | 08/01/2006 | 614.30E | MANHOLE FRAMES AND COVERS | 2 | 03/01/1996 |
| 604.10E | PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 18” CONCRETE PIPE | 1 | 07/01/2001 | 616.10AV | TEMPORARY TRAFFIC CONTROL DEVICES | 9 | 07/01/2019 |
| 604.11E | PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 24” CONCRETE PIPE | 1 | 07/01/2001 | 617.10L | PERMANENT CONCRETE TRAFFIC BARRIER | 11 | 01/01/2019 |
| 604.12E | PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 30” CONCRETE PIPE | 1 | 07/01/2001 | 617.20D | TEMPORARY CONCRETE TRAFFIC BARRIER | 8 | 10/01/2018 |
| 604.13E | PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 36” CONCRETE PIPE | 1 | 07/01/2001 | 619.10J | PAVEMENT EDGE TREATMENT | 1 | 10/01/2017 |
| 604.14E | PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 42” CONCRETE PIPE | 1 | 07/01/2001 | 620.00L | PAVEMENT MARKING | 5 | 10/01/2016 |
| 604.15E | PIPE CULVERT HEADWALL – ENERGY DISSIPATOR FOR 48” CONCRETE PIPE | 1 | 07/01/2001 | 620.10G | TEMPORARY PAVEMENT MARKING | 5 | 07/01/2017 |
| 604.29C | DROP INLET – TYPE X | 2 | 04/01/2018 | 625.00 | HOLE PATTERN FOR PAVEMENT SLAB STABILIZATION | 1 | 10/01/1998 |
| 604.30G | CONCRETE MANHOLES | 2 | 02/01/2009 | 626.00H | RUMBLE STRIPS | 2 | 04/01/2009 |
| 604.40F | PIPE COLLARS | 2 | 10/01/2000 | | | | |
| 604.70 | SLOTTED DRAIN | 2 | 03/01/1994 | | | | |
| 605.10I | PAVEMENT UNDERDRAINAGE | 4 | 06/01/2013 | | | | |
| 606.00AY | GUARDRAIL * | 7 | 01/01/2020 | | | | |
| 606.01F | MEDIAN PIER PROTECTION | 9 | 08/01/2012 | | | | |
| 606.22U | BRIDGE ANCHOR SECTION – SAFETY BARRIER CURB ON BRIDGE | 6 | 07/01/2016 | | | | |
| 606.23J | BRIDGE ANCHOR SECTION (THRIE BEAM RAIL ON BRIDGE) | 5 | 07/01/2016 | | | | |
| 606.30K | GUARDRAIL – TERMINAL ANCHOR ENDS | 7 | 04/01/2017 | | | | |
| 606.31B | CRASHWORTHY END TERMINALS – TYPE A – GRADING LIMITS * | 1 | 10/01/2019 | | | | |
| 606.40D | ONE-STRAND ACCESS RESTRAINT CABLE | 2 | 07/01/2004 | | | | |
| 606.41L | THREE-STRAND GUARD CABLE | 7 | 04/01/2019 | | | | |
| 606.50D | MIDWEST GUARDRAIL SYSTEM (MGS) | 8 | 01/01/2019 | | | | |
| 606.51 | MIDWEST GUARDRAIL SYSTEM (MGS) – MEDIAN PIER PROTECTION | 2 | 04/01/2018 | | | | |
| | | | | * REVISED OR ADDED SINCE JULY 2019 | | | |
| | | | | SHEET 1 OF 2 | | | |

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

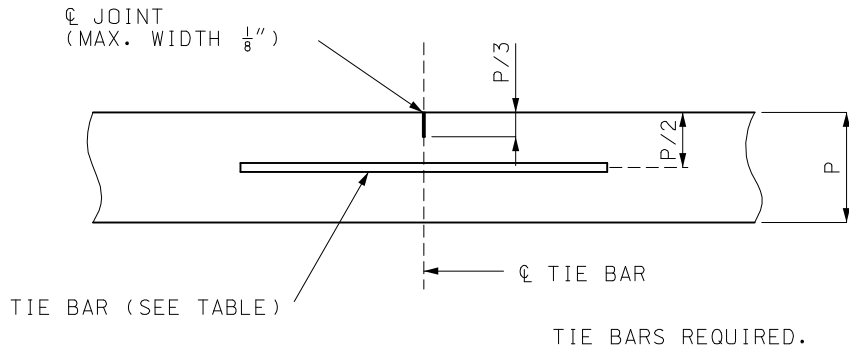
| MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION | | | | | | | |
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| 703.11J | CONCRETE SINGLE BOX CULVERT – FLARED WINGS (SQUARED) | 3 | 07/01/2015 | 901.80D | HIGHWAY LIGHTING – POWER SUPPLY ASSEMBLY – SECONDARY SERVICE | 2 | 04/01/2002 |
| 703.12J | CONCRETE SINGLE BOX CULVERT – STRAIGHT WINGS (LEFT ADVANCE) | 3 | 07/01/2015 | 901.85B | HIGHWAY LIGHTING SYMBOLS | 1 | 04/01/2018 |
| 703.13J | CONCRETE SINGLE BOX CULVERT – FLARED WINGS (LEFT ADVANCE) | 3 | 07/01/2015 | 902.00P | TRAFFIC SIGNALS | 2 | 04/01/2018 |
| 703.14J | CONCRETE SINGLE BOX CULVERT – STRAIGHT WINGS (RIGHT ADVANCE) | 3 | 07/01/2015 | 902.10Q | TRAFFIC SIGNALS – CONTROLLERS CONDUIT LOCATION | 1 | 04/01/2005 |
| 703.15E | CONCRETE SINGLE BOX CULVERT – FLARED WINGS (RIGHT ADVANCE) | 3 | 07/01/2015 | 902.15K | TRAFFIC SIGNALS – POWER SUPPLY ASSEMBLY | 3 | 07/01/2004 |
| 703.16 | CONCRETE SINGLE BOX CULVERT – CUT SECTION | 1 | 04/01/2011 | 902.20G | TRAFFIC SIGNALS – CONCRETE PULL BOXES | 3 | 04/01/2019 |
| 703.17 | CONCRETE SINGLE BOX CULVERT – MEMBER SIZES AND REINFORCEMENT | 14 | 04/01/2011 | 902.21C | TRAFFIC SIGNALS – TELEPHONE INTERCONNECT | 1 | 03/01/1996 |
| 703.37C | CONCRETE BOX CULVERT – EXTERIOR WING REINFORCEMENT | 2 | 04/01/2011 | 902.30P | TRAFFIC SIGNALS – POST BASES | 2 | 10/01/2018 |
| 703.38A | CONCRETE BOX CULVERT – CUTTING DETAILS | 2 | 10/01/2009 | 902.40R | TRAFFIC SIGNALS – TUBULAR STEEL POSTS | 3 | 04/01/2018 |
| 703.40H | CONCRETE DOUBLE BOX CULVERT – STRAIGHT WINGS (SQUARED) | 3 | 10/01/2011 | 902.50M | TRAFFIC SIGNALS – INDUCTION LOOP DETECTORS | * | 04/01/2020 |
| 703.41H | CONCRETE DOUBLE BOX CULVERT – FLARED WINGS (SQUARED) | 3 | 10/01/2011 | 902.70P | TRAFFIC SIGNALS – RIGID SPAN WIRE DETAILS | 2 | 04/01/2018 |
| 703.42H | CONCRETE DOUBLE BOX CULVERT – STRAIGHT WINGS (LEFT ADVANCE) | 3 | 10/01/2011 | 902.80L | TRAFFIC SIGNALS – TRAFFIC SIGNAL SYMBOLS | * | 04/01/2020 |
| 703.43H | CONCRETE DOUBLE BOX CULVERT – FLARED WINGS (LEFT ADVANCE) | 3 | 10/01/2011 | 903.01J | STANDARD ARROW DETAILS | 2 | 10/01/2016 |
| 703.44H | CONCRETE DOUBLE BOX CULVERT –STRAIGHT WINGS (RIGHT ADVANCE) | 3 | 10/01/2011 | 903.02AP | HIGHWAY SIGNING | * | 10/01/2019 |
| 703.45C | CONCRETE DOUBLE BOX CULVERT – FLARED WINGS (RIGHT ADVANCE) | 3 | 10/01/2011 | 903.03BM | POST INSTALLATIONS AND SIGN MOUNTING DETAILS | * | 01/01/2020 |
| 703.46 | CONCRETE BOX CULVERT – CUT SECTION | 1 | 10/01/2011 | 903.04F | HIGHWAY SIGNING – WEIGH STATION | 1 | 02/01/2012 |
| 703.47 | CONCRETE BOX CULVERT – MEMBER SIZES AND REINFORCEMENT | 27 | 10/01/2011 | 903.05J | HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE S, ONE TUBE | 2 | 10/01/2016 |
| 703.60E | CONCRETE BOX STRUCTURE – PIPE INLET | 1 | 07/01/2001 | 903.06J | HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE S, TWO TUBE | 2 | 10/01/2016 |
| 703.80H | CONCRETE TRIPLE BOX CULVERT – STRAIGHT WINGS (SQUARED) | 3 | 12/01/2011 | 903.07J | HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE C | 2 | 10/01/2016 |
| 703.81H | CONCRETE TRIPLE BOX CULVERT – FLARED WINGS (SQUARED) | 3 | 12/01/2011 | 903.08H | HIGHWAY SIGNING – TUBULAR SUPPORT STEEL – TYPE B | 2 | 10/01/2016 |
| 703.82H | CONCRETE TRIPLE BOX CULVERT – STRAIGHT WINGS (LEFT ADVANCE) | 3 | 12/01/2011 | 903.10BC | OVERHEAD SIGN TRUSSES – ALUMINUM | 6 | 10/01/2016 |
| 703.83H | CONCRETE TRIPLE BOX CULVERT – FLARED WINGS (LEFT ADVANCE) | 3 | 12/01/2011 | 903.12Z | OVERHEAD SIGN TRUSSES – BUTTERFLY AND CANTILEVER STRUCTURAL STEEL | 7 | 10/01/2016 |
| 703.84H | CONCRETE TRIPLE BOX CULVERT – STRAIGHT WINGS (RIGHT ADVANCE) | 3 | 12/01/2011 | 903.60AB | OVERHEAD SIGN TRUSSES – STRUCTURAL STEEL | 5 | 10/01/2016 |
| 703.85C | CONCRETE TRIPLE BOX CULVERT – FLARED WINGS (RIGHT ADVANCE) | 3 | 12/01/2011 | | | | |
| 703.86 | CONCRETE TRIPLE BOX CULVERT – CUT SECTION | 1 | 12/01/2011 | | | | |
| 703.87 | CONCRETE TRIPLE BOX CULVERT – MEMBER SIZES AND REINFORCEMENT | 27 | 12/01/2011 | | | | |
| 706.35H | BAR SUPPORTS FOR CONCRETE REINFORCEMENT | 1 | 07/01/2004 | | | | |
| 712.40L | STEEL DAMS AT EXPANSION DEVICES | * | 10/01/2019 | | | | |
| 725.00C | CORRUGATED METAL PIPE INSTALLATION METHODS | 5 | 04/01/2011 | | | | |
| 725.31C | METAL CURTAIN WALL AND METAL INLETS | 1 | 07/01/2004 | | | | |
| 726.30J | RIGID CULVERT INSTALLATION METHODS | 2 | 04/01/2015 | | | | |
| 730.00E | THERMOPLASTIC PIPE INSTALLATION METHODS | 1 | 04/01/2015 | | | | |
| 731.00U | PRECAST MANHOLES | 2 | 07/01/2016 | | | | |
| 731.10S | PRECAST DROP INLET | 8 | 07/01/2016 | | | | |
| 732.00S | FLARED END SECTION | 3 | 04/01/2016 | | | | |
| 732.05C | BEVELED PIPE END TREATMENT | 2 | 07/01/2004 | | | | |
| 732.10H | SAFETY SLOPE END SECTION | 3 | 06/01/2013 | | | | |
| 733.00 | PRECAST CONCRETE BOX CULVERT TIES | 1 | 04/01/2018 | | | | |
| 806.10J | TEMPORARY EROSION CONTROL MEASURES | 6 | 04/01/2019 | | | | |
| 808.00 | TYPICAL PLANTING ILLUSTRATIONS | 3 | 07/01/2004 | | | | |
| 901.00AB | HIGHWAY LIGHTING – POLES, FOUNDATIONS & APPURTENANCES FOR 30’ M.H. | 4 | 04/01/2018 | | | | |
| 901.01AJ | HIGHWAY LIGHTING – POLES, FOUNDATIONS & APPURTENANCES FOR 45’ M.H. | 6 | 04/01/2018 | | | | |
| 901.02B | HIGHWAY LIGHTING – CABLE, CONDUIT AND TRENCHING | 1 | 04/01/2002 | | | | |
| | | | | | | | |
| * REVISED OR ADDED SINCE JULY 2019 | | | | | | | |
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IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



JOINT PLAN AND SPACING FOR CONTRACTION JOINTS (1)

(1) LONGITUDINAL JOINT NOT REQUIRED AT INSIDE SHOULDER ON DIVIDED HIGHWAYS OR AT INSIDE SHOULDER OF RAMPS. FOR 4' OR LESS INSIDE SHOULDERS, DOWELS ARE REQUIRED FOR THE FIRST TWO FEET ADJACENT TO THE TRAVEL LANE.

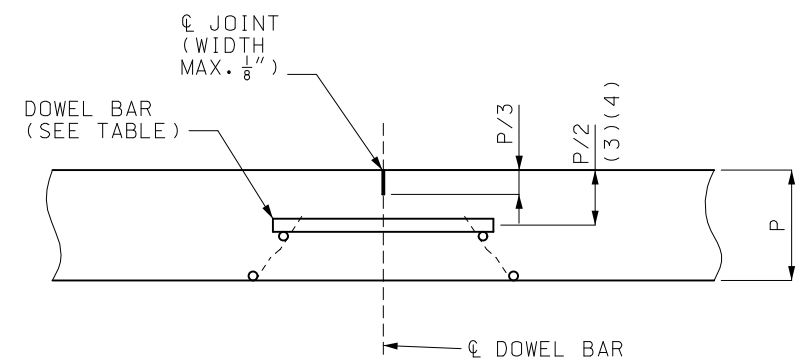


LONGITUDINAL JOINT (L1)

| TIE BAR AND DOWEL TABLE | | | | |
|-------------------------|------------|--------------|---------------|-----------------|
| PCCP THICKNESS (P) | DOWEL SIZE | TIE BAR SIZE | DOWEL SPACING | TIE BAR SPACING |
| LESS THAN 7" | NONE | #5X30" | NONE | 30" CTR.-CTR. |
| 7" TO 10" | 1 1/4"X18" | #5X30" | 12" CTR.-CTR. | 30" CTR.-CTR. |
| GREATER THAN 10" | 1 1/2"X18" | #6X40" | 12" CTR.-CTR. | 30" CTR.-CTR. |

TIE BARS SPACED AT 30" CTS. BEGINNING 30" FROM CL TRANSVERSE CONSTRUCTION JOINT

DOWEL BAR (TYP.)

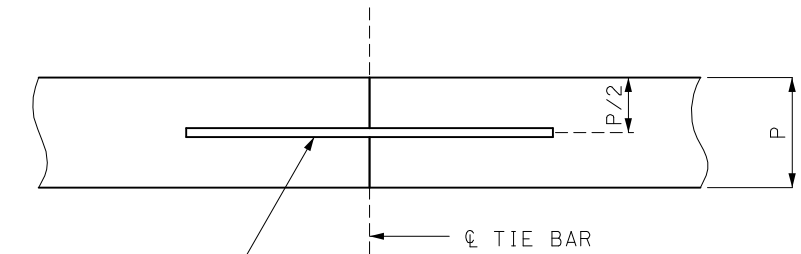


DOWELS REQUIRED. FOR PERMISSIBLE TYPES OF DOWELS SUPPORTING UNITS, SEE OTHER DRAWINGS.

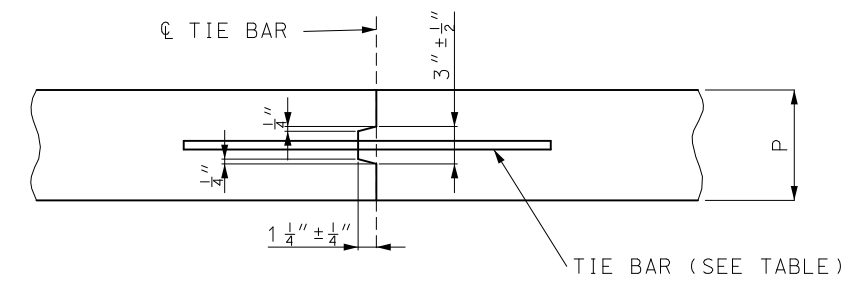
TRANSVERSE CONTRACTION JOINTS FOR CONCRETE PAVEMENT OR BASE WIDENING SHALL MATCH EXISTING JOINTS.

TRANSVERSE CONTRACTION JOINT (C2) (2)

- (2) DOWEL BARS ARE REQUIRED FOR ALL PAVEMENTS HAVING THE SAME THICKNESS AS THE TRAVELED WAY.
- (3) FOR PAVEMENTS HAVING THICKNESS IN 1/2" INCREMENTS, DOWEL BASKETS SHALL BE P/2 - 1/2".
- (4) DOWEL BARS MAY BE PLACED BY MECHANICAL MEANS AT THE OPTION OF THE CONTRACTOR.



LONGITUDINAL CONSTRUCTION JOINT (L2)



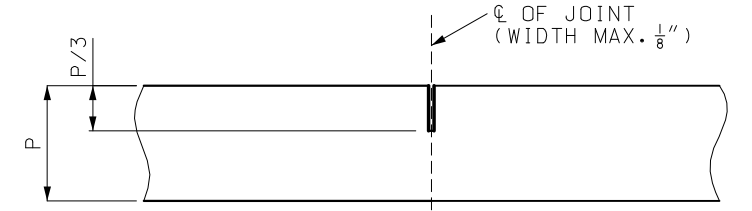
IF METAL IS USED TO FORM KEY DISCONTINUE STRIP FOR DISTANCE OF APPROXIMATELY 3" EACH SIDE OF TRANSVERSE JOINT.

TYPE (K) REQUIRES TIE BAR.

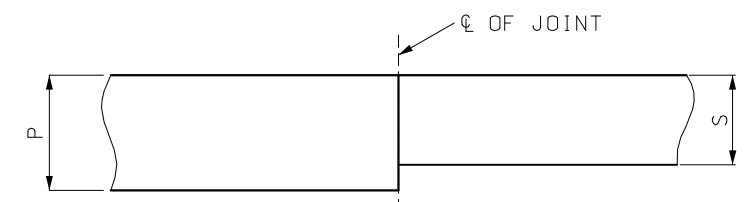
TYPE (M) CONSTRUCTED WITHOUT TIE BARS.

(K) AND (M) JOINTS SHALL NOT BE SAWED.

TONGUE AND GROOVE JOINTS (K) AND (M)



TRANSVERSE CONTRACTION JOINT (C2)



LONGITUDINAL CONSTRUCTION JOINT FOR SHOULDER AND APPROACHES (L3)

S = SHOULDER OR APPROACH THICKNESS

GENERAL NOTES:

THE FINAL POSITION OF ALL DOWELS AND TIE BARS SHALL BE PERPENDICULAR TO THE PLANE OF THE JOINT AND PARALLEL TO THE SURFACE OF THE PAVEMENT AND PARALLEL TO EACH OTHER.

(L3) JOINT FOR FULL DEPTH OR PARTIAL DEPTH SHOULDERS.

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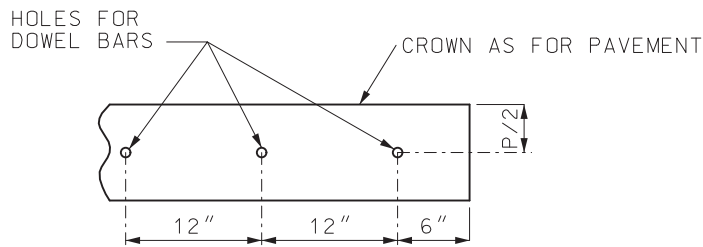
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

CONCRETE PAVEMENT AND BASE APPURTENANCES FOR 15' JOINT SPACING

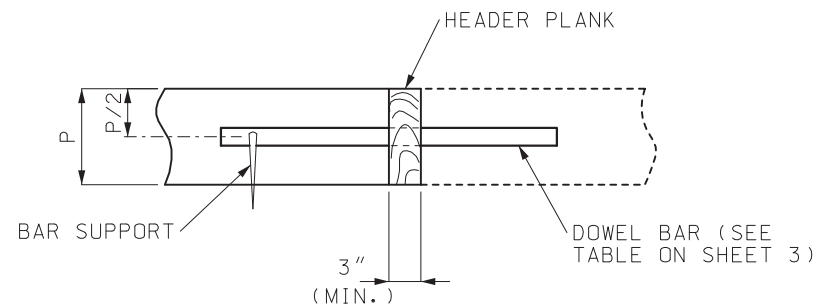
DATE EFFECTIVE: 04/01/2020
DATE PREPARED: 1/14/2020

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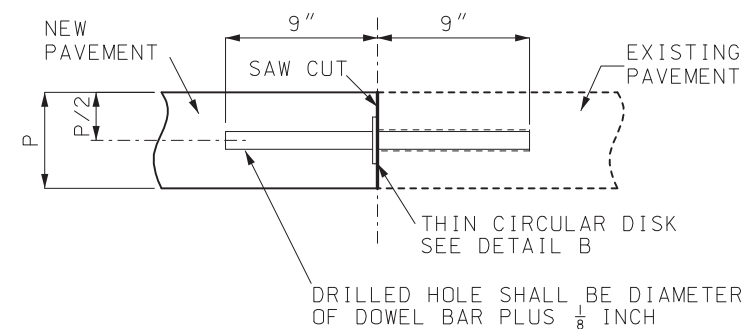
SHEET NO.
3 OF 4



PART ELEVATION OF
HEADER PLANK



HEADER SECTION



SAWED SECTION

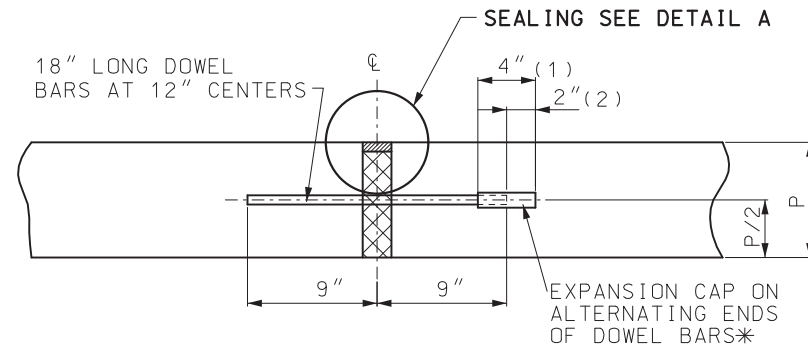
THE HEADER BOARD SHALL BE SUFFICIENTLY RIGID TO PREVENT DISTORTION FROM THE TYPICAL SECTION AND MAINTAIN A STRAIGHT LINE FROM PAVEMENT EDGE TO PAVEMENT EDGE.

THE CONSTRUCTION JOINT MAY BE SAWED FULL DEPTH. HOLES FOR DOWEL BARS SHALL BE DRILLED AFTER THE CONCRETE HAS SUFFICIENT SET TO PREVENT DAMAGE. DOWEL BARS SHALL BE BONDED INTO THE HOLES.

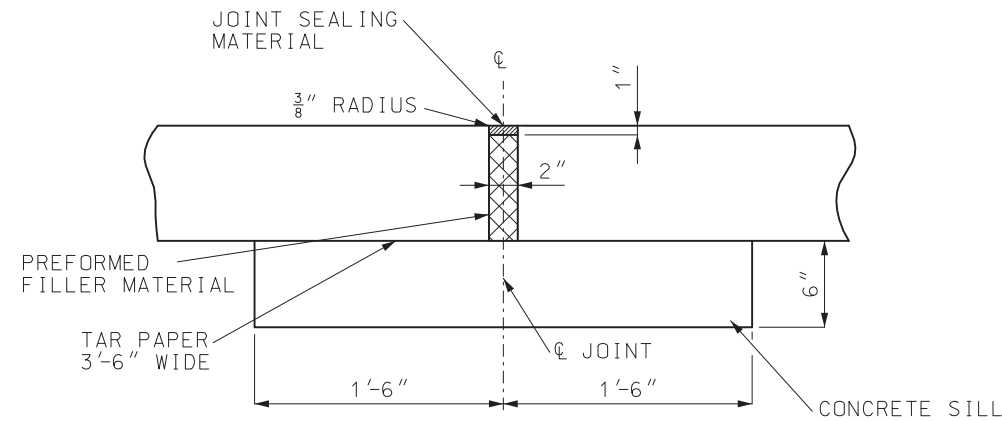
BONDING FOR DOWEL BARS SHALL BE EPOXY OR POLYESTER BONDING AGENTS AS SPECIFIED IN SECTION 1039.

THE PORTION OF THE DOWEL OUTSIDE THE HOLE SHALL BE COATED WITH AN APPROVED LUBRICANT.

CONSTRUCTION JOINT (C)



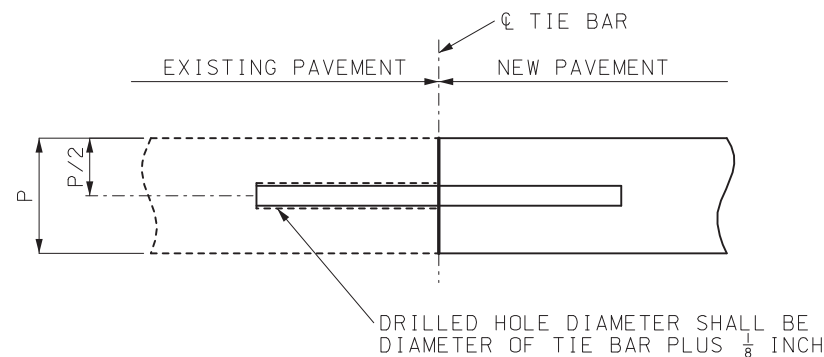
EXPANSION JOINTS (E)



SILL SHALL EXTEND 18" BEYOND EACH EDGE OF THE PAVEMENT AND SHALL BE CONSTRUCTED OF CONCRETE REGARDLESS OF ADJACENT BASE MATERIAL.

ALTERNATE EXPANSION JOINTS (E)

(CONTRACTOR MAY SELECT EITHER EXPANSION JOINT (E))



TIE BARS SHALL BE EPOXY COATED, DEFORMED REINFORCING BARS MEETING THE REQUIREMENTS OF SECTIONS 710 AND 1057.

BONDING FOR TIE BARS SHALL BE EPOXY OR POLYESTER BONDING AGENTS AS SPECIFIED IN SECTION 1039.

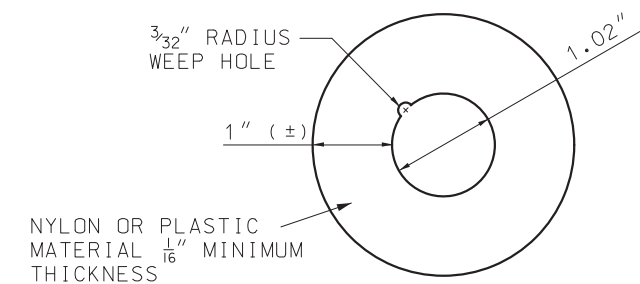
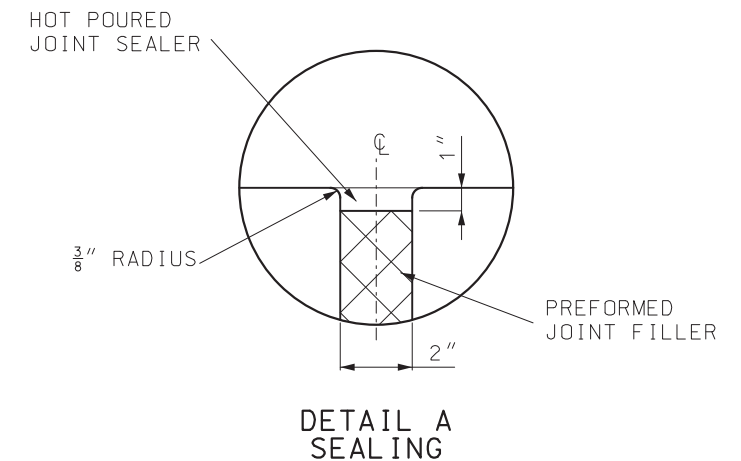
TIE BAR SIZE AND LENGTH SHALL BE BASED ON THE THICKNESS OF THE THINNER PAVEMENT OR SHOULDER TO BE TIED TOGETHER.

LONGITUDINAL CONSTRUCTION JOINT (EXISTING PAVEMENT) (L)

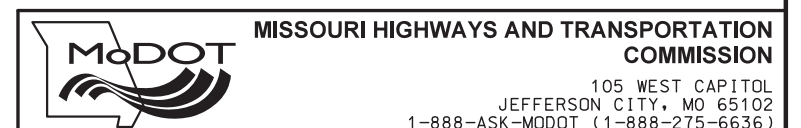
(1) LENGTH OF CAP

(2) GAP BETWEEN END OF
CAP AND DOWEL.

* FOR EXPANSION JOINTS FORMED USING A CONSTRUCTION HEADER, THE EXPANSION CAPS SHALL BE INSTALLED ON THE EXPOSED END OF EACH BAR ONCE THE HEADER HAS BEEN REMOVED AND THE JOINT FILLER MATERIAL HAS BEEN INSTALLED.



DETAIL B
THIN CIRCULAR DISK

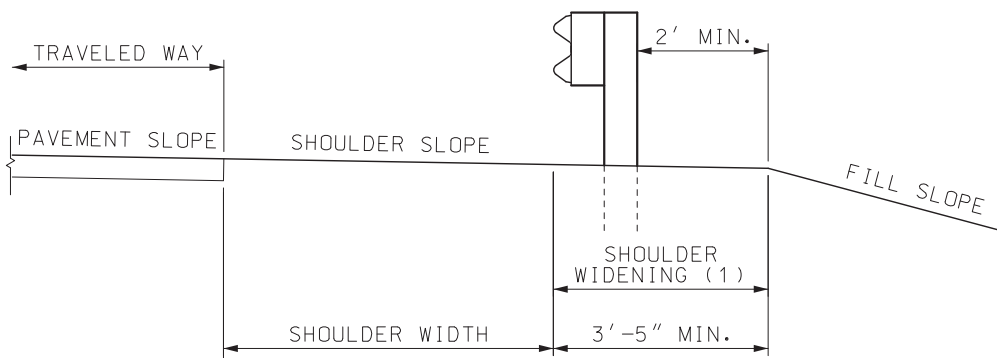


DATE EFFECTIVE: 01/01/2020
DATE PREPARED: 10/17/2019

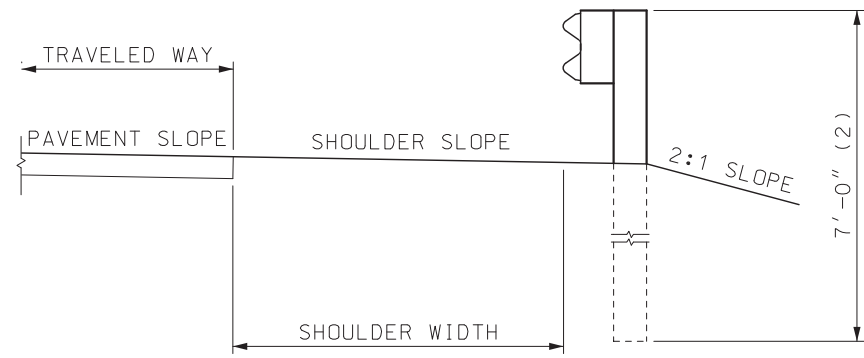
502.05P

SHEET NO.
4 OF 4

CONCRETE PAVEMENT AND BASE APPURTENANCES FOR 15' JOINT SPACING

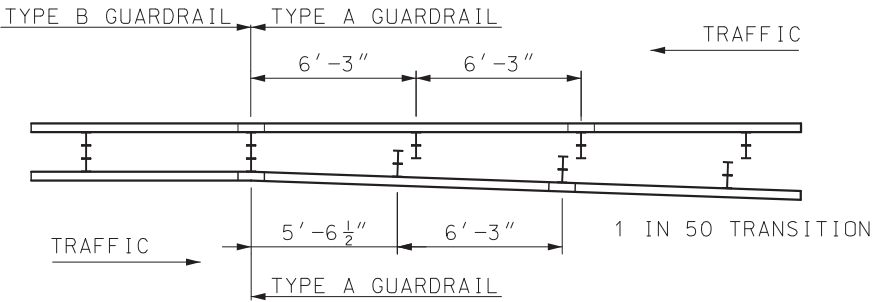


TYPICAL SECTION

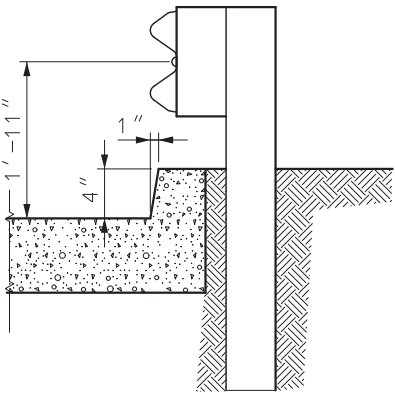
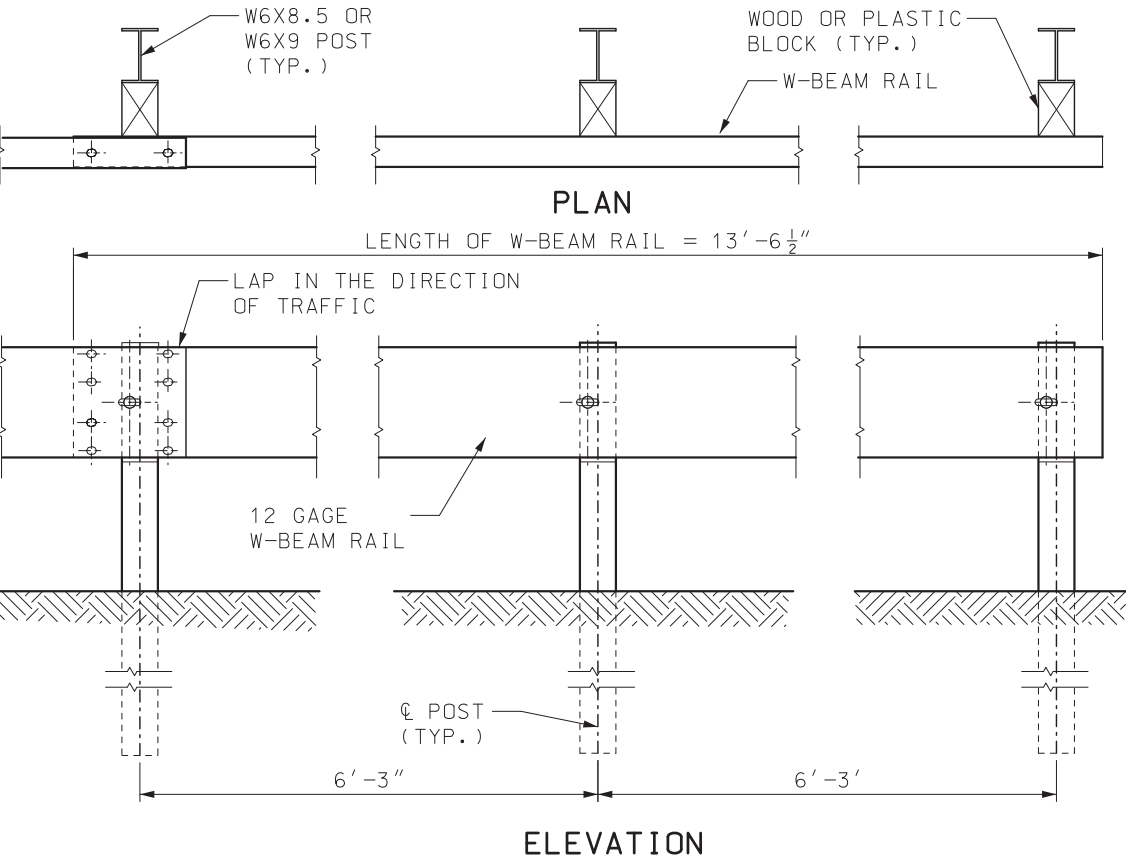


ALTERNATE TYPICAL SECTION AT SLOPE BREAKPOINT

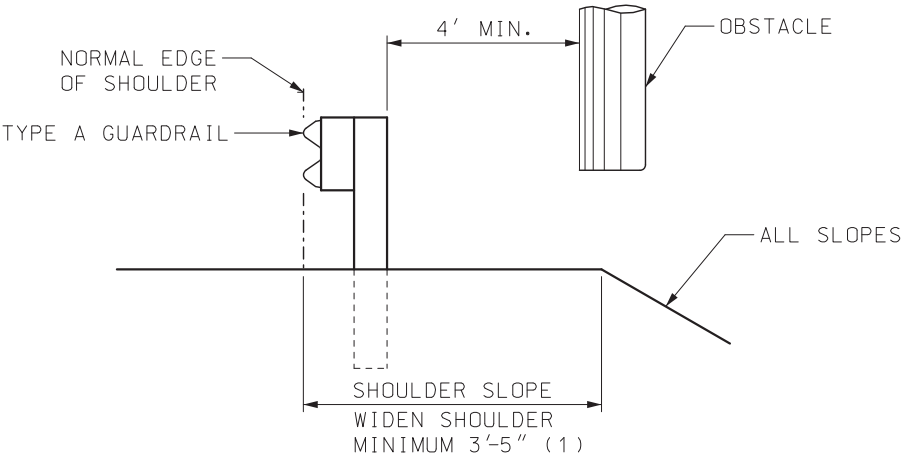
- (1) SHOULDER WIDENING SHALL CONSIST OF EMBANKMENT MATERIAL COMPACTED IN ACCORDANCE WITH SEC 203.4 OF THE STANDARD SPECIFICATIONS.
- (2) POST SHALL BE SPACED AT 3'-1 1/2" ON CENTER.
- (3) WHEN GUARDRAIL IS CONSTRUCTED OVER CURBS, THE CURBS SHALL BE CONSTRUCTED AS SHOWN.




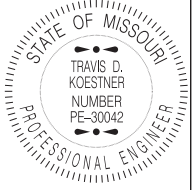
DETAIL FOR TRANSITIONING
BETWEEN TYPE A AND TYPE B GUARDRAIL

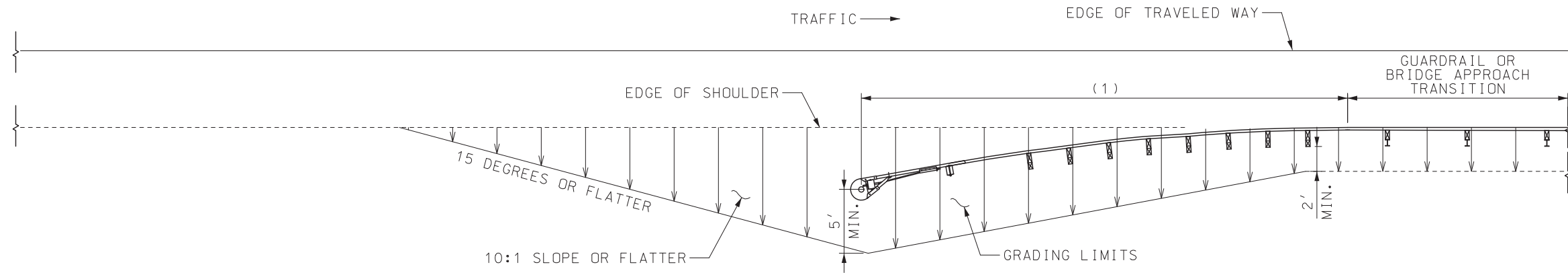


GUARDRAIL AT CURBS (3)

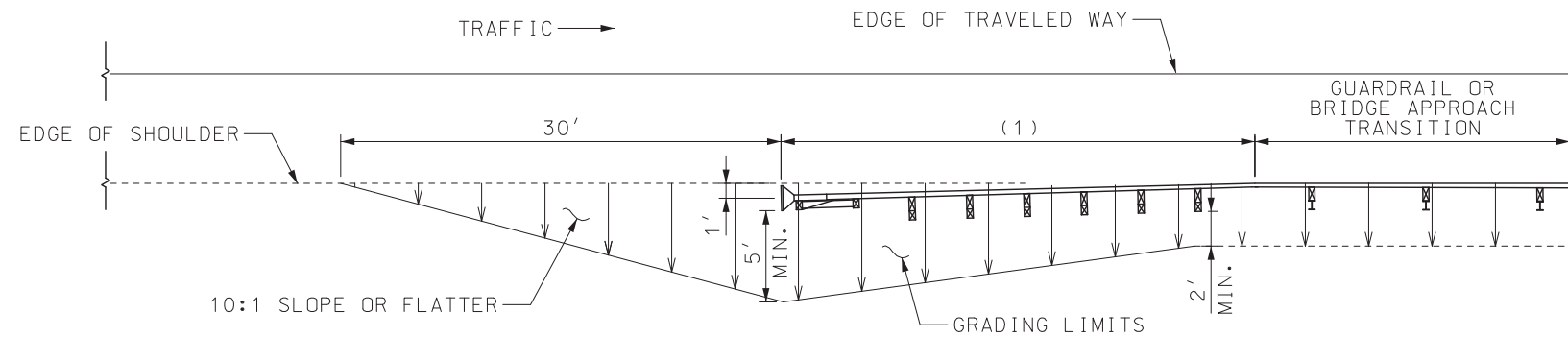


LOCATION OTHER THAN ϕ MEDIAN
LATERAL PLACEMENT OF GUARDRAIL
FOR SHOULDER INSTALLATION

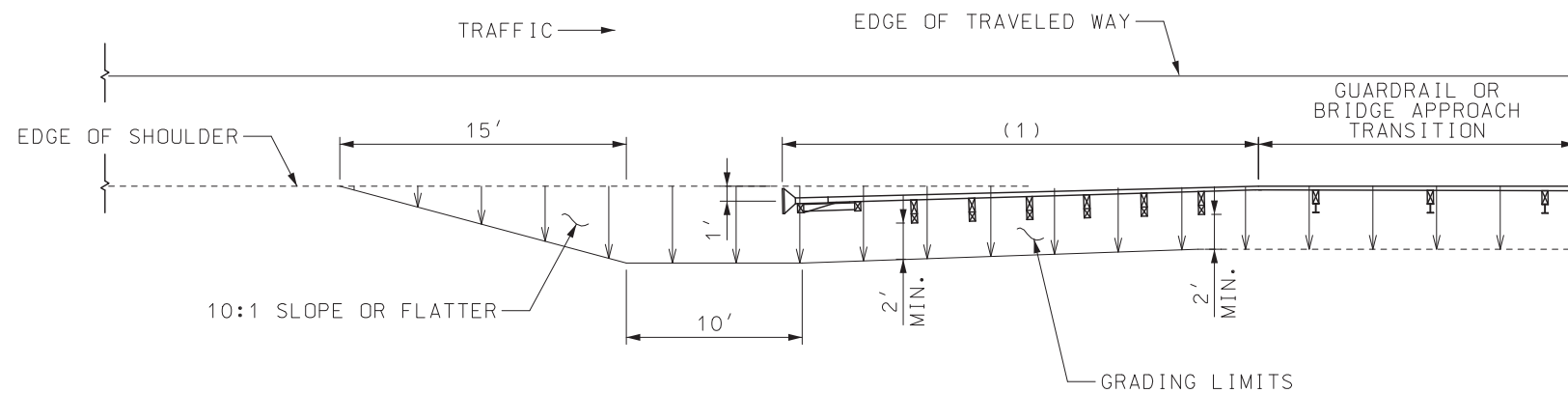
| | |
|--|-------------------------|
|  MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
|  | GUARDRAIL LAYOUT |
| DATE EFFECTIVE: 01/01/2020 DATE PREPARED: 10/21/2019 | 606.00AY |
| SHEET NO. 3 OF 7 | |



GRADING LIMITS FOR FLARED CRASHWORTHY END TERMINALS



STANDARD GRADING LIMITS FOR CRASHWORTHY END TERMINALS



ALTERNATE GRADING LIMITS FOR CRASHWORTHY END TERMINALS


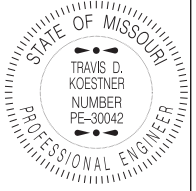
GENERAL NOTES:

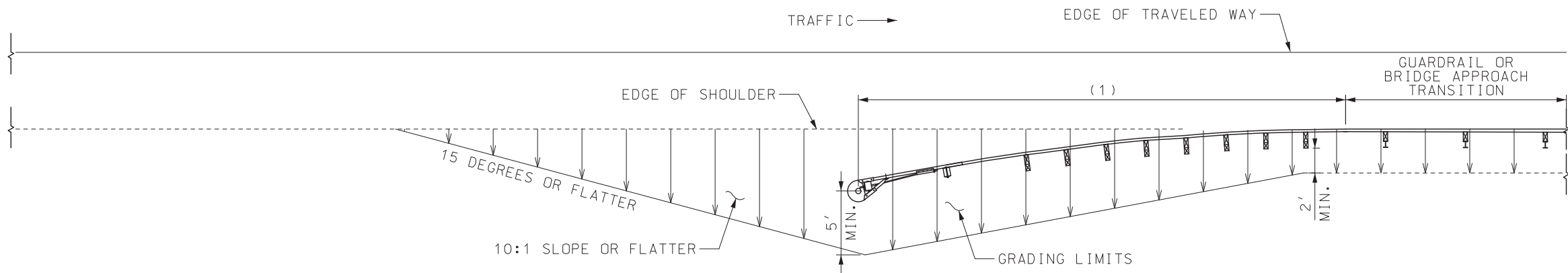
STANDARD GRADING LIMITS SHALL BE USED WHEN CONSTRUCTING A NEW ROADBED. ALTERNATE GRADING LIMITS ARE ALLOWABLE ON EXISTING ROADBEDS EXCEPT WHEN STANDARD GRADING IS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH APPROVED SHOP DRAWINGS OF THE APPROVED CRASHWORTHY END TERMINAL.

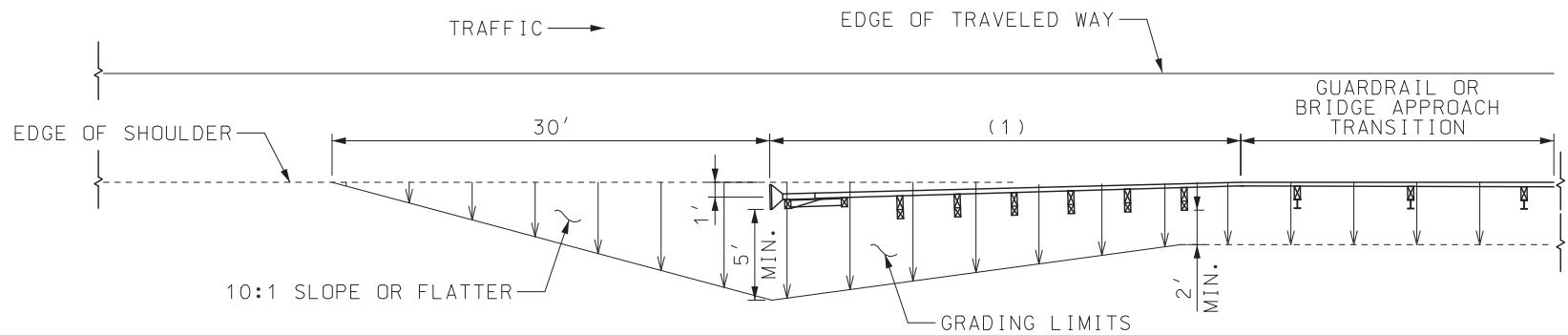
END ANCHORS SHALL BE INSTALLED ON ENDS OF GUARDRAIL RUNS WHERE CRASHWORTHY END TERMINALS ARE NOT REQUIRED.

(1) APPROVED CRASHWORTHY END TERMINAL

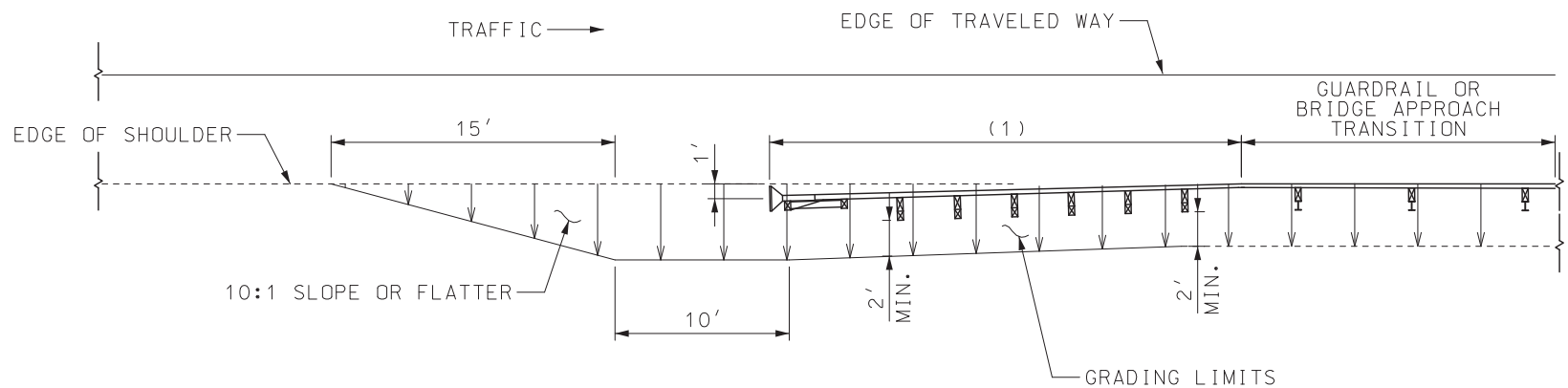
| | |
|--|--|
|  MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
|  <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p> | CRASHWORTHY END TERMINALS TYPE A GRADING LIMITS |
| DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019 | 606.31B |
| SHEET NO. 1 OF 1 | |



GRADING LIMITS FOR FLARED CRASHWORTHY END TERMINALS



STANDARD GRADING LIMITS FOR CRASHWORTHY END TERMINALS




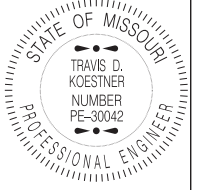
ALTERNATE GRADING LIMITS FOR CRASHWORTHY END TERMINALS

GENERAL NOTES:

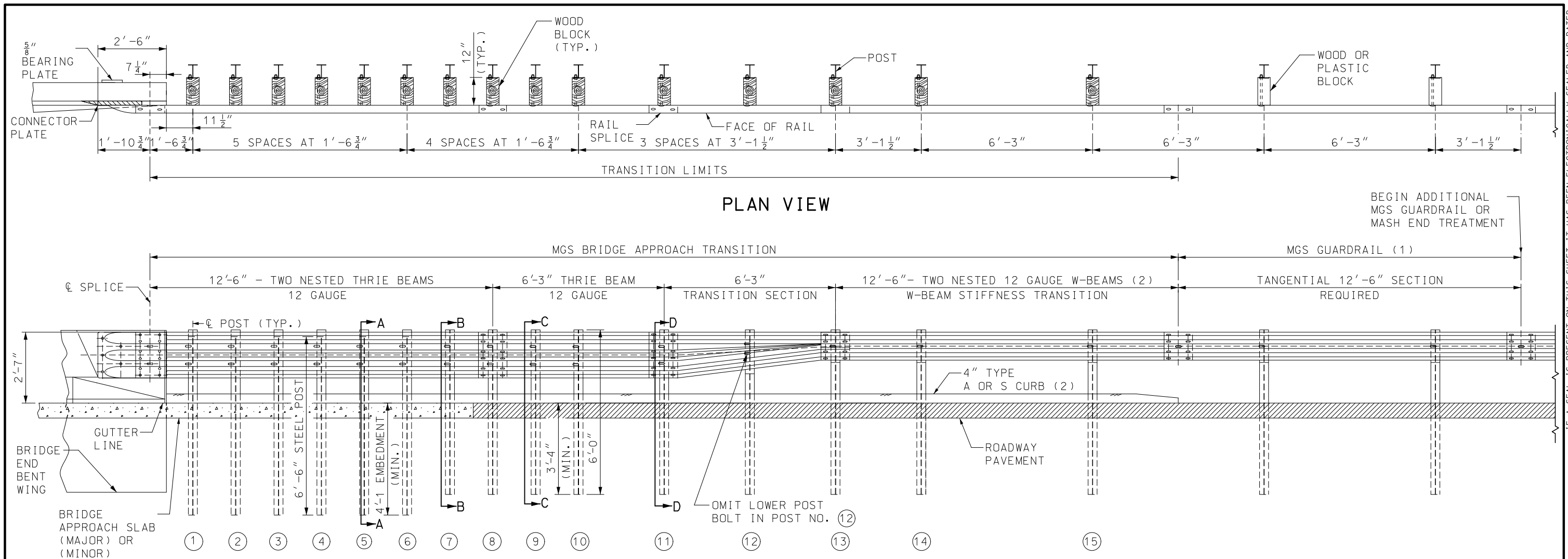
STANDARD GRADING LIMITS SHALL BE USED WHEN CONSTRUCTING A NEW ROADBED. ALTERNATE GRADING LIMITS ARE ALLOWABLE ON EXISTING ROADBEDS EXCEPT WHEN STANDARD GRADING IS INDICATED ON THE PLANS.

THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH APPROVED SHOP DRAWINGS OF THE MASH APPROVED CRASHWORTHY END TERMINAL.

END ANCHORS SHALL BE INSTALLED ON ENDS OF GUARDRAIL RUNS WHERE CRASHWORTHY END TERMINALS ARE NOT REQUIRED.

| | |
|--|--|
|  MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
|  <p>THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.</p> | <p>MASH CRASHWORTHY END TERMINALS TYPE A GRADING LIMITS</p> |
| DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019 | 606.81B |
| SHEET NO. 1 OF 1 | |

(1) APPROVED CRASHWORTHY END TERMINAL



GENERAL NOTES:

MGS GUARDRAIL SHALL BE TANGENTIAL WITH BRIDGE APPROACH TRANSITION FOR 12'-6" BEYOND THE TWO NESTED W-BEAM STIFFNESS TRANSITION AND 25'-0" BEYOND THRIE BEAM TRANSITION SECTION.

AT THE CONTRACTORS OPTION, A SINGLE 18'-9" PIECE OF THRIE BEAM MAY BE SUBSTITUTED FOR ONE OF THE 12'-6" PANELS AND THE 6'-3" SECTION AS SHOWN.

FOR PROTECTIVE COATING AND MATERIAL REQUIREMENTS, SEE SEC 1040 OF THE STANDARD SPECIFICATIONS.

RAIL POSTS SHALL BE SET PERPENDICULAR TO THE ROADWAY PROFILE GRADE AND VERTICALLY IN CROSS SECTION.

USE $\frac{5}{8}$ " BUTTON-HEAD OVAL SHOULDER BOLTS WITH HEX NUTS AT ALL SLOTS (THICKNESS OF HEX NUTS = $\frac{3}{8}$ " MIN.).

THE BEARING PLATE SHALL BE FABRICATED FROM GRADE A36 STEEL AND GALVANIZED.


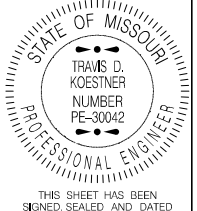
ALL LAP SPLICES, INCLUDING END SHOES, SHALL BE MADE IN THE DIRECTION OF TRAFFIC.

THE COST OF FURNISHING, FABRICATING AND INSTALLING BRIDGE APPROACH TRANSITION (EXTENDED CURB), COMPLETE IN PLACE, WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH.

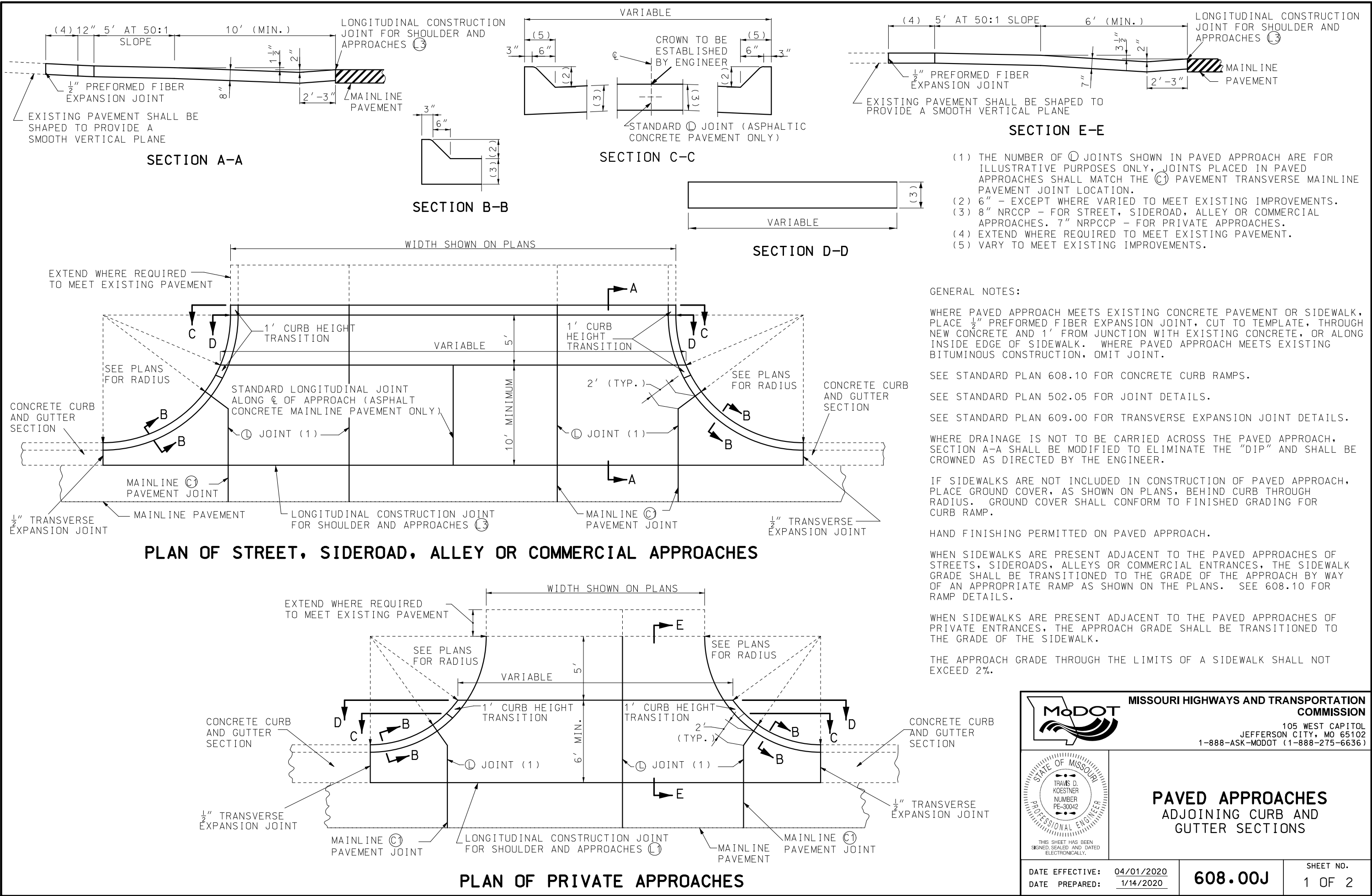
BRIDGE APPROACH TRANSITION (EXTENDED CURB)(2)


THE CONTRACTOR MAY, AT THEIR OPTION, FURNISH EQUIVALENT SECTIONS FABRICATED FROM MATERIAL MEETING AND IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM A769 GRADE 36 OR 40. THE SECTIONS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH REQUIREMENTS OF AASHTO M 111.

- (1) PLACE THE FIRST POST OF THE MGS 6'-3" PAST THE LAST POST OF THE BRIDGE APPROACH TRANSITION TO KEEP POSTS OFFSET FROM THE RAIL SPLICES.
- (2) WHERE CURB EXTENDS UPSTREAM OF POST NO. (11) FOR DRAINAGE PURPOSES, A STIFFNESS TRANSITION CONSISTING OF AN EXTRA 12'-6" BEAM OF 12 GAUGE W-BEAM MUST BE NESTED PRIOR TO THE TRANSITION SECTION (UPSTREAM OF POST NO. (13)). THE CURB SHALL BE EXTENDED TO THE END OF THE 12'-6" 12 GAUGE W-BEAM STIFFNESS TRANSITION SEE STD. PLAN 609.40 FOR DETAILS. WHEN CURBS DO NOT EXTEND UPSTREAM OF POST NO. (11), PAY FOR A BRIDGE APPROACH TRANSITION (REGULAR CURB/NO CURB). FOR DETAILS OF BRIDGE APPROACH TRANSITION (REGULAR CURB/NO CURB), SEE SHEET 2 OF 6.

| | |
|--|--|
|  MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
|  | MIDWEST GUARDRAIL SYSTEM (MGS) VERTICAL BARRIER TRANSITIONS |
| DATE EFFECTIVE: 04/01/2020 DATE PREPARED: 1/14/2020 | 606.60B |
| SHEET NO. 1 OF 6 | |

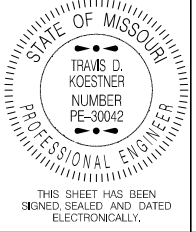
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.





MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

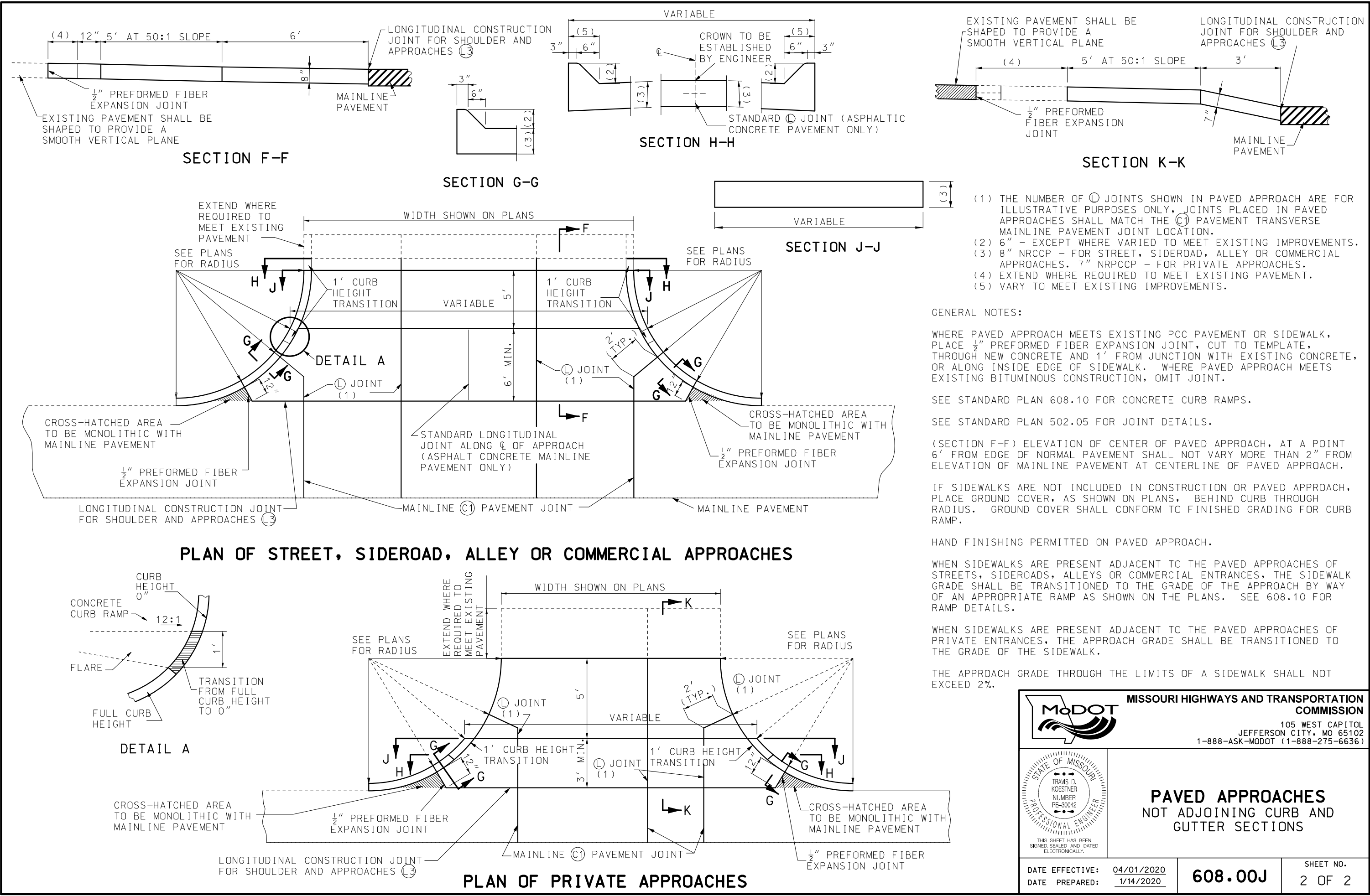


STATE OF MISSOURI
TRAVIS D. KOESTNER
NUMBER PE-30042
PROFESSIONAL ENGINEER

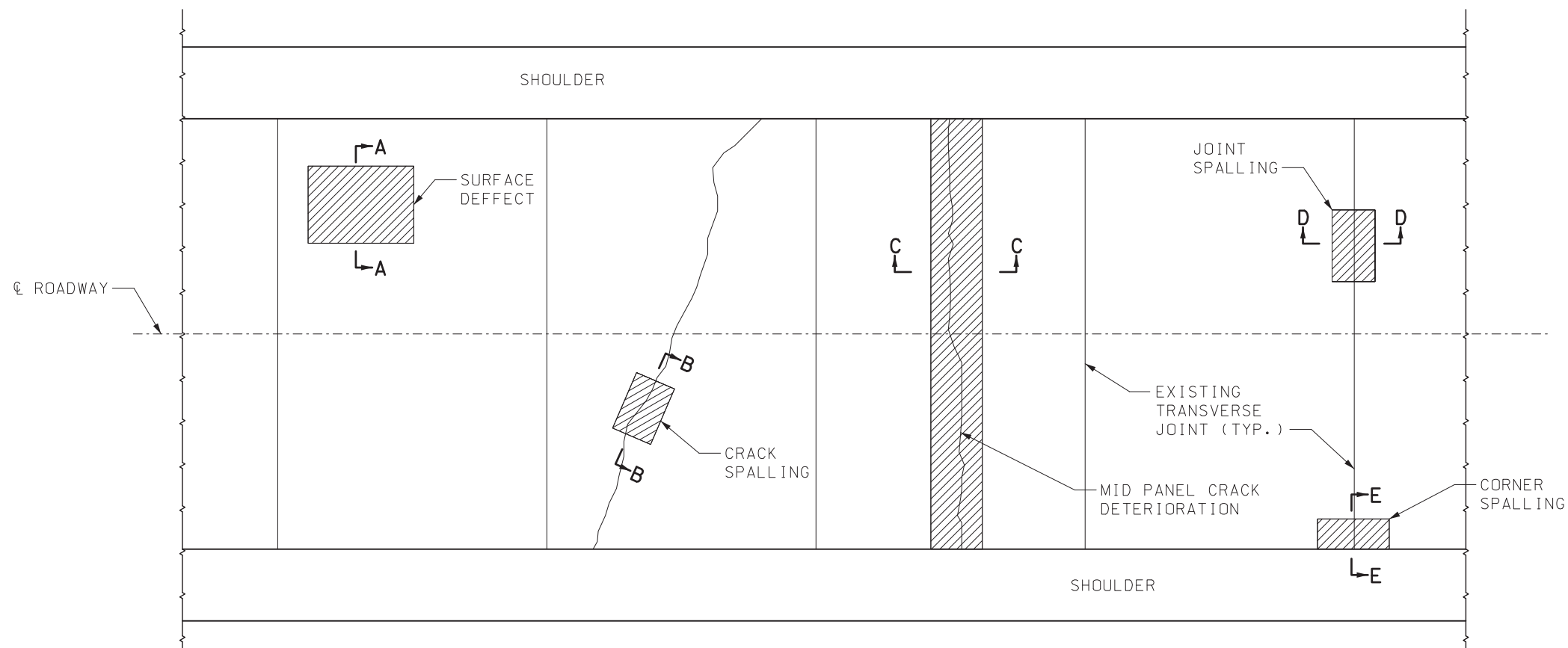
THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

**PAVED APPROACHES
ADJOINING CURB AND
GUTTER SECTIONS**

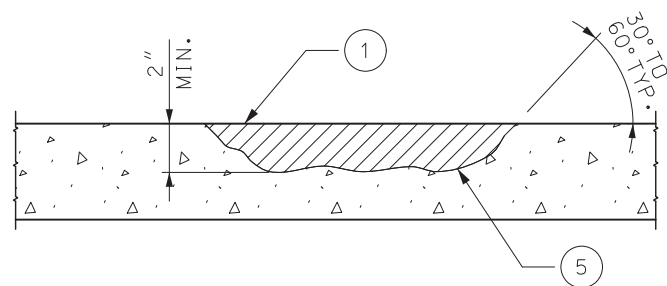
| | | |
|----------------------------|---------|---------------------|
| DATE EFFECTIVE: 04/01/2020 | 608.00J | SHEET NO. 1 OF 2 |
| DATE PREPARED: 1/14/2020 | | |



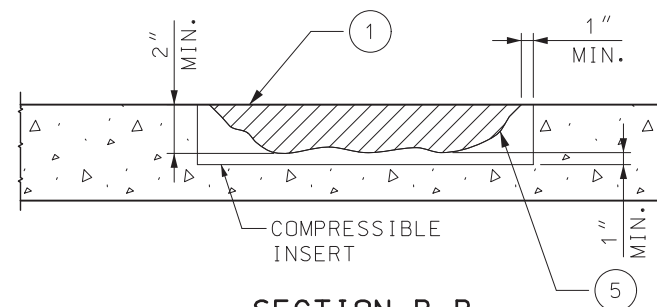
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.



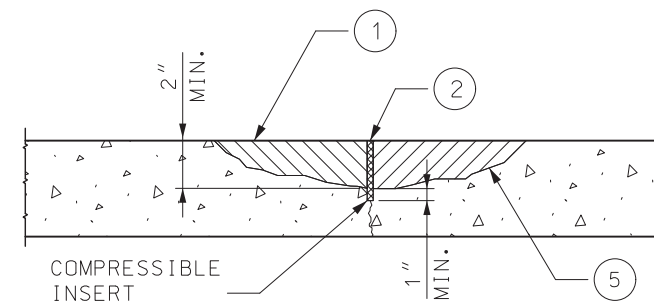
PLAN VIEW



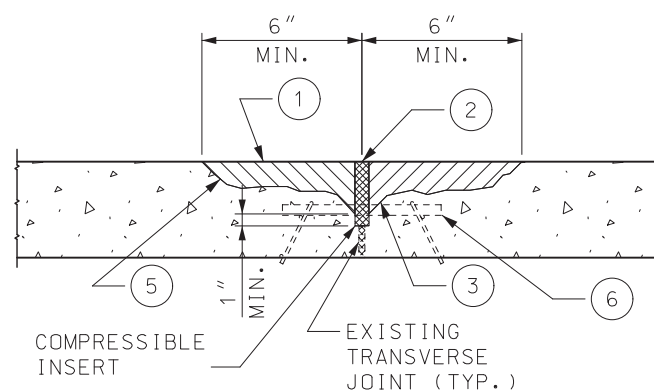
SECTION A-A



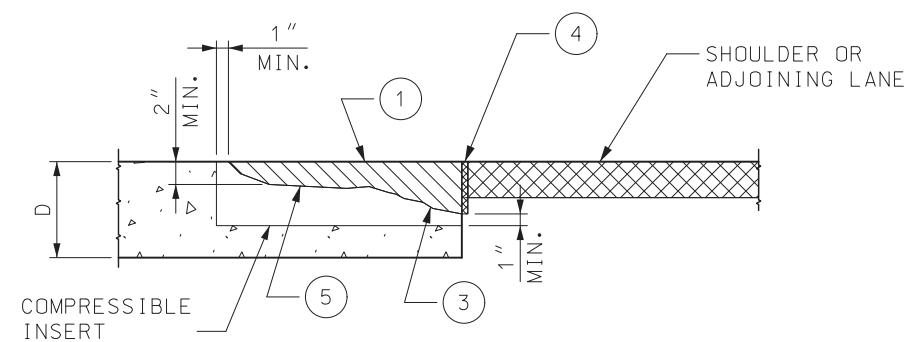
SECTION B-B



SECTION C-C



SECTION D-D

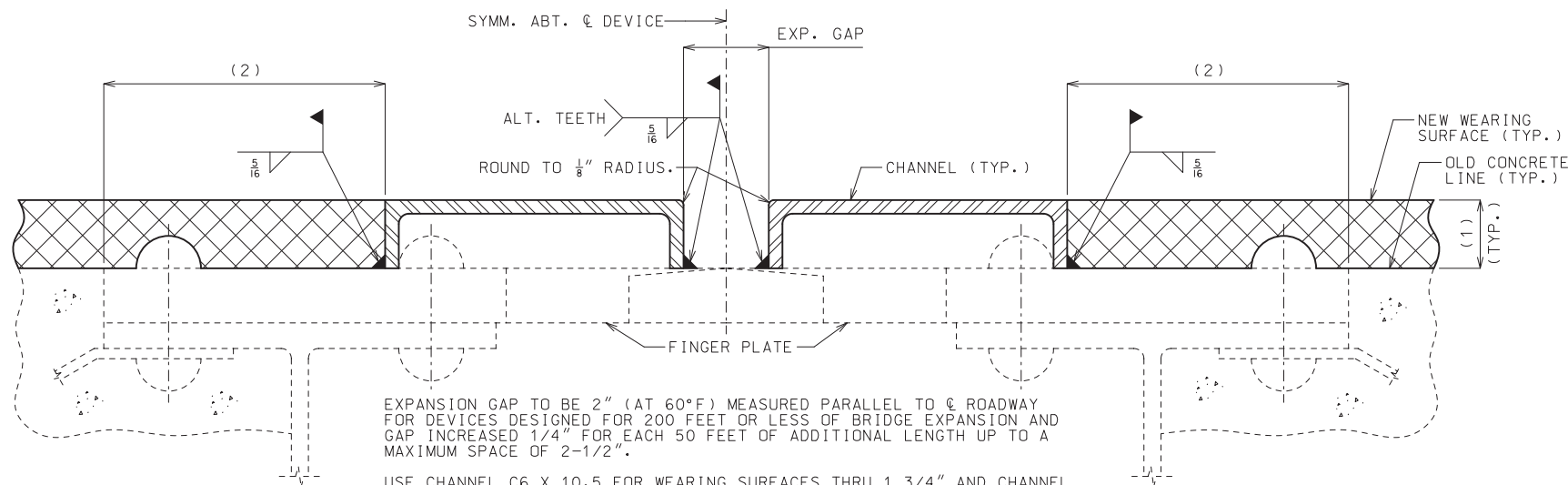


SECTION E-E

AREA TO BE REMOVED

- 1 REMOVE ALL CONCRETE, TO LIMITS SHOWN, TO MAX. OF $\frac{1}{2}$ THE PAVEMENT DEPTH OR TOP OF DOWELS BY MILLING.
- 2 PLACE COMPRESSIBLE INSERT IN JOINT OR CRACK. INSERT SHALL BE THICKNESS OF JOINT OR CRACK WIDTH, BUT NOT LESS THAN $\frac{1}{4}$ ".
- 3 CHIP VERTICAL REPAIR EDGES AT APPROXIMATE 1:1 SLOPE.
- 4 PLACE $\frac{1}{8}$ " MIN. COMPRESSIBLE INSERT ADJACENT TO LONGITUDINAL LANE OR SHOULDER JOINT.
- 5 EXPOSED SURFACE SHALL BE CLEANED BY SANDBLASTING OR SHOTBLASTING.
- 6 EXPOSED SURFACE OF DOWEL BARS SHALL BE COATED WITH AN APPROVED BONDBREAKER.

| | |
|--|---|
| MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
| | <p>PAVEMENT REPAIR</p> <p>PARTIAL DEPTH CLASS A</p> |
| DATE EFFECTIVE: 01/01/2020 DATE PREPARED: 10/17/2019 | <p>613.00T</p> |
| SHEET NO. 2 OF 4 | |

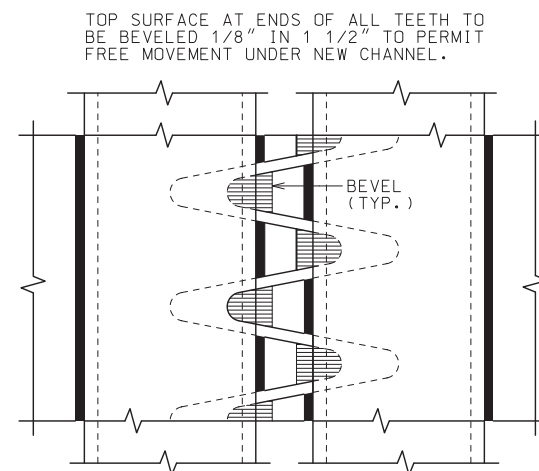


EXPANSION GAP TO BE 2" (AT 60°F) MEASURED PARALLEL TO & ROADWAY FOR DEVICES DESIGNED FOR 200 FEET OR LESS OF BRIDGE EXPANSION AND GAP INCREASED 1/4" FOR EACH 50 FEET OF ADDITIONAL LENGTH UP TO A MAXIMUM SPACE OF 2-1/2".

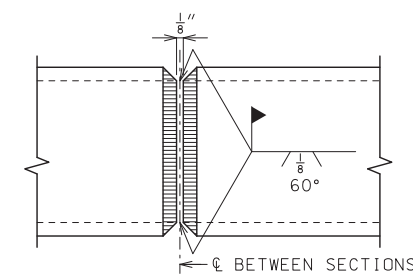
USE CHANNEL C6 X 10.5 FOR WEARING SURFACES THRU 1 3/4" AND CHANNEL C7 X 14.75 OR MC6 X 15.1 FOR WEARING SURFACES GREATER THAN 1 3/4" TO 2 1/4". CUT FLANGES TO MATCH REQUIRED WEARING SURFACE THICKNESS AND NOTCH FLANGE WHERE NECESSARY TO CLEAR RIVET HEADS.

PART SECTION THRU EXPANSION DEVICE

TYPE A - FINGER TYPE EXPANSION DEVICES

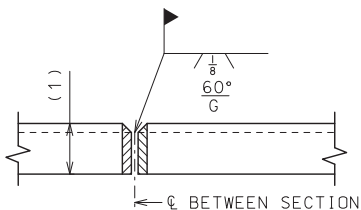


PART PLAN AT EXPANSION DEVICE

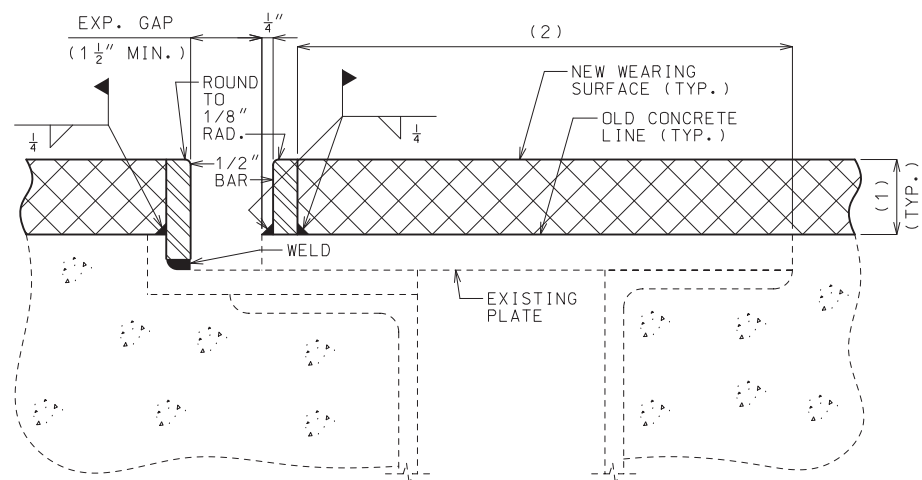


PLAN OF CHANNEL SPLICE

SPLICE TO BE AT & ROADWAY FOR TWO LANE BRIDGES.



ELEVATION OF CHANNEL SPLICE



PART SECTION AT EXPANSION DEVICE

TYPE B - PLATE TYPE EXPANSION DEVICES

- (1) WEARING SURFACE THICKNESS
- (2) WHEN THIS DIMENSION EXCEEDS 3" AND A CONCRETE WEARING SURFACE IS USED, TACK WELD A ONE INCH BAR CHAIR TO THE PLATE OR ANGLE FOR EACH 3" OF PLATE OR ANGLE TO BE COVERED BY WEARING SURFACE.

GENERAL NOTES:

OUTLINE OF OLD WORK IS INDICATED BY LIGHT DASHED LINES. HEAVY LINES INDICATE NEW WORK.

THE EXISTING EXPANSION DEVICE PLATES SHALL BE CHECKED FOR LOOSENESS AND SECURED BEFORE THE NEW BAR DAM IS INSTALLED.

STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH ASTM A70 GRADE 36.

QUALIFICATION OF WELDING OPERATORS WILL BE REQUIRED.

E7016 OR E7018 ELECTRODES SHALL BE USED.

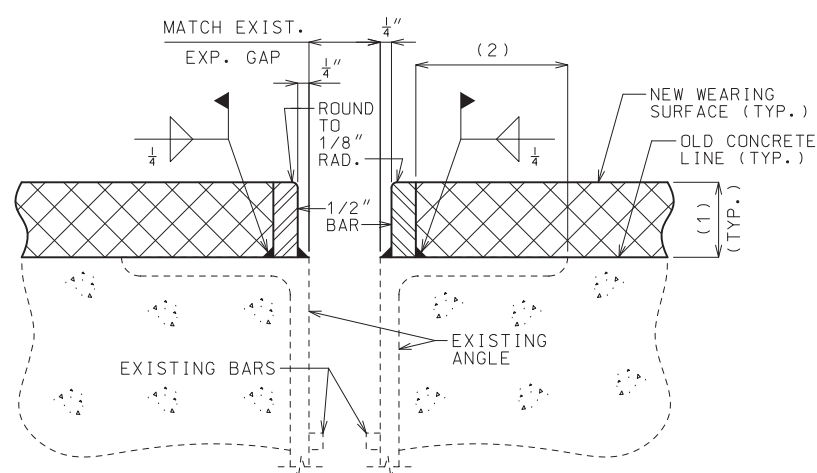
THE STEEL DAMS SHALL EXTEND FULL ROADWAY WIDTH BETWEEN CURBS, BUT SHALL BE INSTALLED IN SECTIONS OF SUCH LENGTHS TO PERMIT AT LEAST ONE WAY TRAFFIC AT ALL TIMES. BEFORE TRAFFIC IS PERMITTED TO CROSS OVER SECTIONS OF DAMS IN PLACE, SUFFICIENT WEARING SURFACE SHALL BE PLACED ON ROADWAY SLAB ADJACENT TO BOTH SIDES OF EXPANSION DEVICE TO PREVENT ANY DAMAGE TO EITHER THE STEEL DAMS OR TIRES OF VEHICLES.

STEEL DAMS SHALL BE FABRICATED AND INSTALLED TO THE CROWN AND GRADE OF THE ROADWAY.

STEEL CHANNELS OR BARS ON BOTH SIDES OF EXPANSION JOINT, FOR FULL WIDTH OF ROADWAY, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR STEEL BAR DAM.

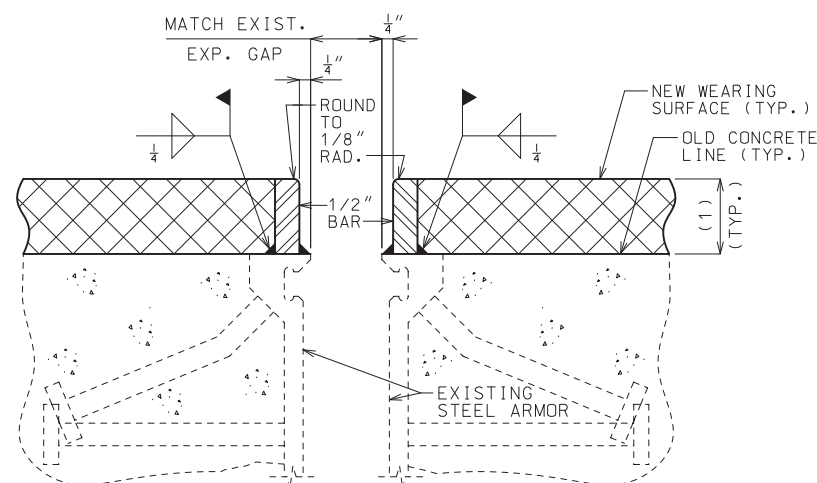
PAINT INSIDE SURFACE OF CHANNEL 5.0 MILS THICKNESS OF INORGANIC ZINC PRIMER.

SHOP DRAWINGS WILL NOT BE REQUIRED FOR STEEL BAR DAMS.



PART SECTION AT EXPANSION DEVICE

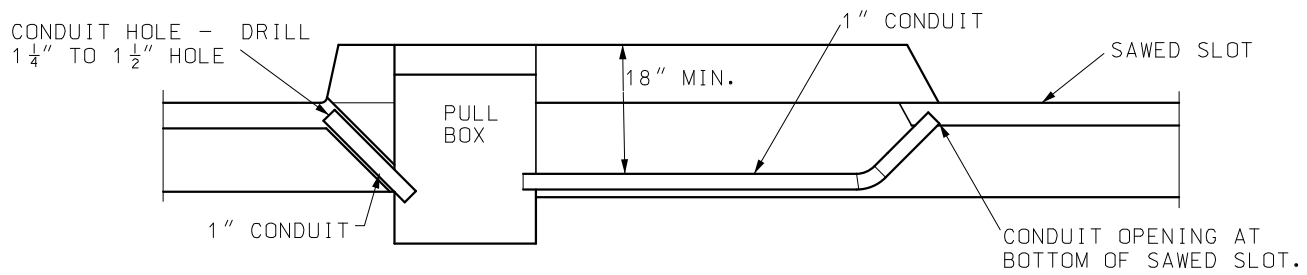
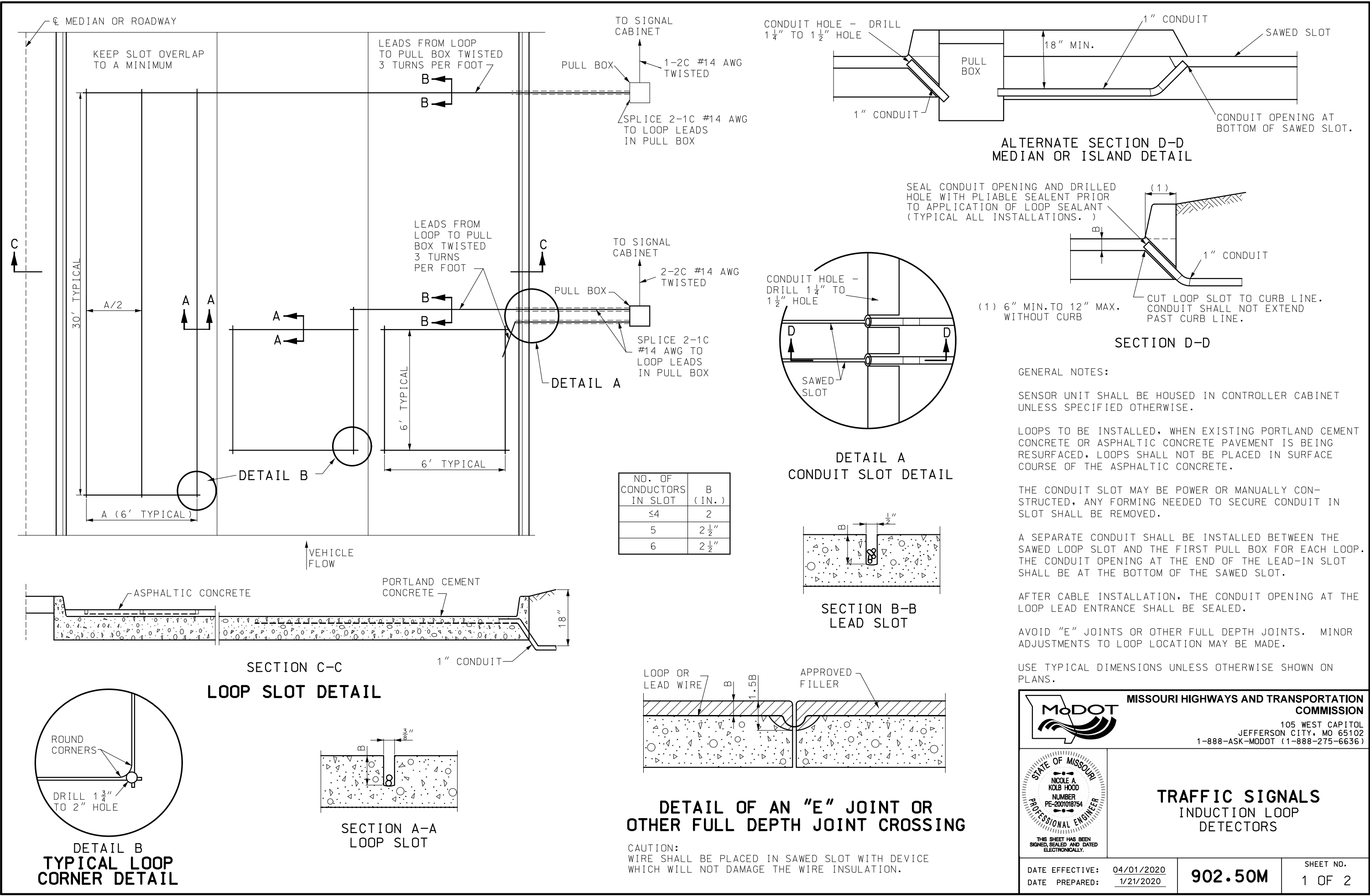
TYPE C - ANGLE TYPE EXPANSION DEVICES



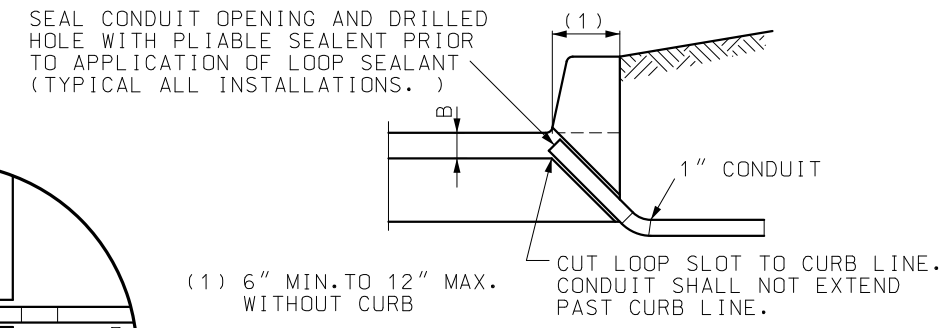
PART SECTION AT EXPANSION DEVICE

TYPE D - STRIP SEAL TYPE EXPANSION DEVICES

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|  MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
|  | STEEL DAMS AT EXPANSION DEVICES FOR RESURFACING BRIDGE FLOORS |
| DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019 | 712.40L |
| SHEET NO. 1 OF 1 | |



ALTERNATE SECTION D-D
MEDIAN OR ISLAND DETAIL



SECTION D-D

GENERAL NOTES:
SENSOR UNIT SHALL BE HOUSED IN CONTROLLER CABINET UNLESS SPECIFIED OTHERWISE.

LOOPS TO BE INSTALLED, WHEN EXISTING PORTLAND CEMENT CONCRETE OR ASPHALTIC CONCRETE PAVEMENT IS BEING RESURFACED, LOOPS SHALL NOT BE PLACED IN SURFACE COURSE OF THE ASPHALTIC CONCRETE.

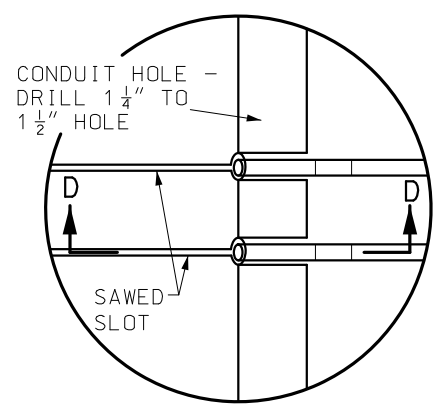
THE CONDUIT SLOT MAY BE POWER OR MANUALLY CON-STRUCTED, ANY FORMING NEEDED TO SECURE CONDUIT IN SLOT SHALL BE REMOVED.

A SEPARATE CONDUIT SHALL BE INSTALLED BETWEEN THE SAWED LOOP SLOT AND THE FIRST PULL BOX FOR EACH LOOP. THE CONDUIT OPENING AT THE END OF THE LEAD-IN SLOT SHALL BE AT THE BOTTOM OF THE SAWED SLOT.

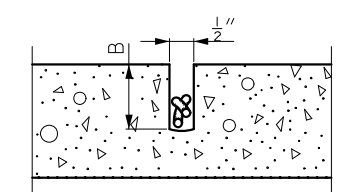
AFTER CABLE INSTALLATION, THE CONDUIT OPENING AT THE LOOP LEAD ENTRANCE SHALL BE SEALED.

AVOID "E" JOINTS OR OTHER FULL DEPTH JOINTS. MINOR ADJUSTMENTS TO LOOP LOCATION MAY BE MADE.

USE TYPICAL DIMENSIONS UNLESS OTHERWISE SHOWN ON PLANS.

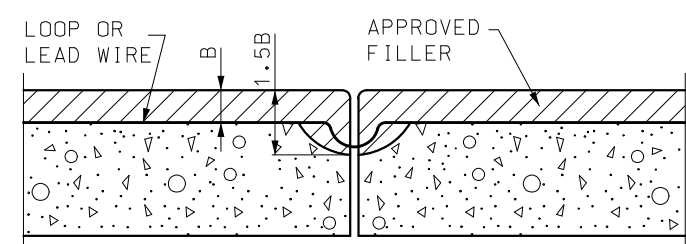


DETAIL A
CONDUIT SLOT DETAIL



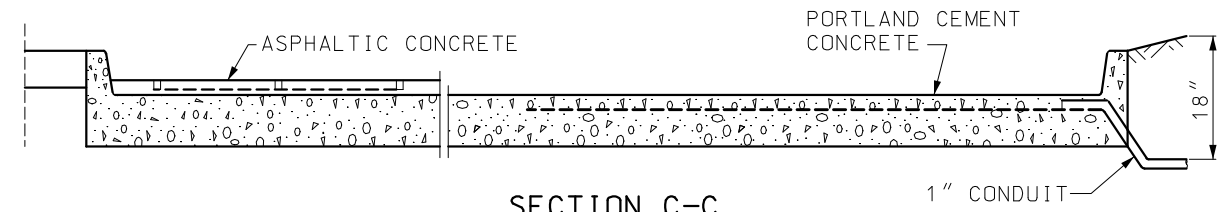
SECTION B-B
LEAD SLOT

| NO. OF CONDUCTORS IN SLOT | B (IN.) |
|---------------------------|---------|
| ≤4 | 2 |
| 5 | 2 1/2 |
| 6 | 2 1/2 |

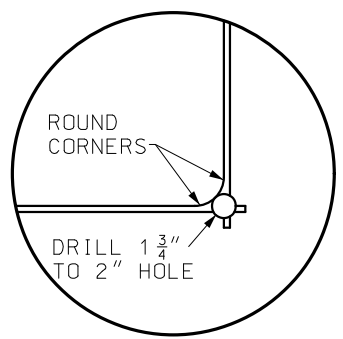


DETAIL OF AN "E" JOINT OR
OTHER FULL DEPTH JOINT CROSSING

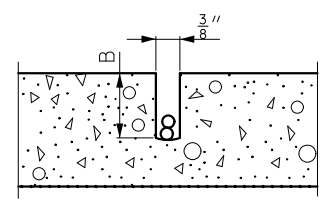
CAUTION:
WIRE SHALL BE PLACED IN SAWED SLOT WITH DEVICE WHICH WILL NOT DAMAGE THE WIRE INSULATION.




SECTION C-C
LOOP SLOT DETAIL



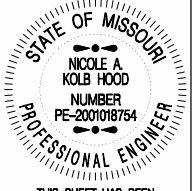
DETAIL B
TYPICAL LOOP
CORNER DETAIL



SECTION A-A
LOOP SLOT



MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)



**TRAFFIC SIGNALS
INDUCTION LOOP
DETECTORS**

DATE EFFECTIVE: 04/01/2020
DATE PREPARED: 1/21/2020

902.50M

SHEET NO.
1 OF 2

| | |
|--|--|
| | OPTICALLY LIMITING SIGNAL HEAD WITH BACKPLATE |
| | OPTICALLY LIMITING & CONVENTIONAL SIGNAL HEAD WITH BACKPLATE |
| | CONVENTIONAL SIGNAL HEAD WITH BACKPLATE |
| | SIGNAL HEAD - PEDESTRIAN |
| | POST MOUNTED SIGNAL HEAD WITH SIGN AND BACKPLATE |
| | STOP LINE |
| | LANE USE |
| | TYPE A BASE |
| | TYPE F BASE |
| | TYPE C BASE |
| | EXISTING POST BASE |
| | WOOD POLE WITH DOWN GUY |
| | STEEL POLE |
| | STEEL POLE WITH DOWN GUY |
| | CONTROLLER WITH PAD |
| | EXISTING CONTROLLER |
| | PULL BOX, TYPE I DRAIN, CONCRETE |
| | PULL BOX, TYPE II DRAIN, CONCRETE |
| | PULL BOX, TYPE I DRAIN, PREFORMED |
| | PULL BOX, TYPE II DRAIN, PREFORMED |
| | DOUBLE PULL BOX, TYPE A, TYPE I DRAIN, CONCRETE |
| | DOUBLE PULL BOX, TYPE A, TYPE II DRAIN, CONCRETE |
| | DOUBLE PULL BOX, TYPE B, TYPE I DRAIN |
| | DOUBLE PULL BOX, TYPE B, TYPE II DRAIN |
| | PULL BOX, CLASS 5, TYPE I DRAIN, PREFORMED |
| | PULL BOX, CLASS 5, TYPE II DRAIN, PREFORMED |

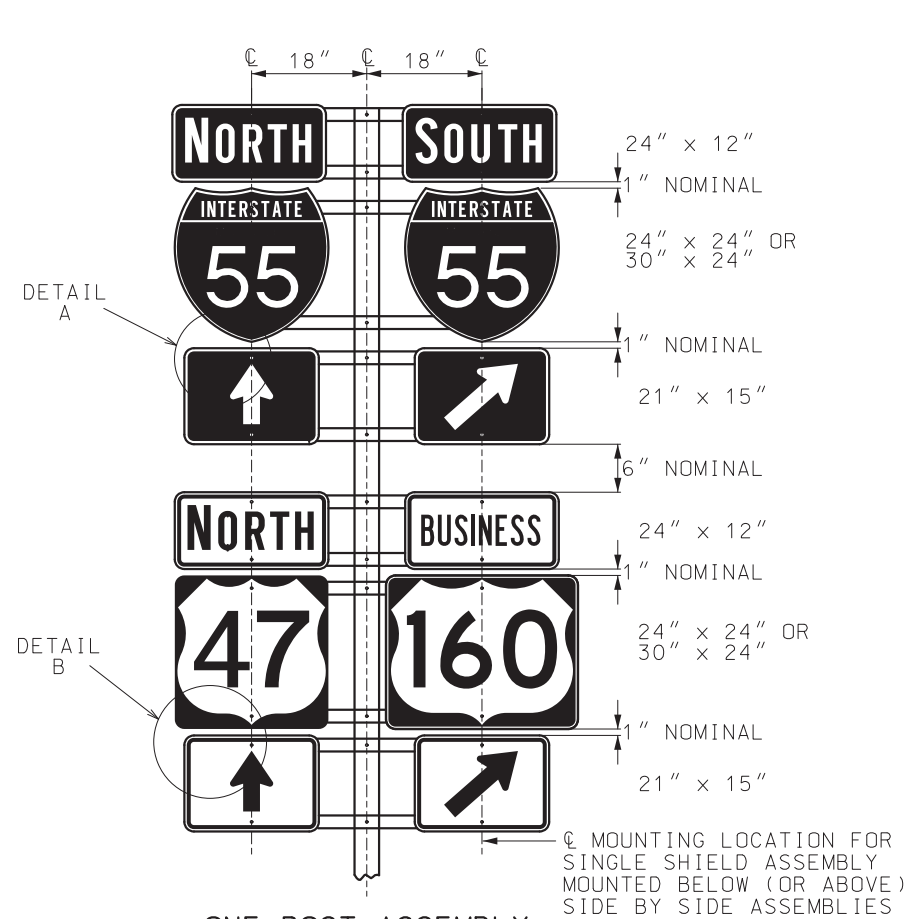
| | |
|--|--|
| | EXISTING PULL BOX |
| | SERVICE POLE OR PEDESTAL AND POWER SUPPLY |
| | EXISTING SERVICE POLE |
| | LED - A LUMINAIRE |
| | SPAN WIRE WITH SIGNAL HEAD |
| | MAST ARM WITH SIGNAL HEADS AND LED - A LUMINAIRE |
| | MAST ARM WITH OVERHEAD SIGN |
| | INDUCTION LOOP DETECTOR |
| | VIDEO DETECTION ZONE |
| | PUSH BUTTON DETECTOR |
| | CAPPED RIGID CONDUIT |
| | RIGID CONDUIT IN TRENCH |
| | RIGID CONDUIT PUSHED |
| | EXISTING RIGID CONDUIT |
| | RIGID CONDUIT ON BRIDGE |
| | RIGID CONDUIT IN MEDIAN |
| | SIZE OF CONDUIT |
| | NUMBER & AWG SIZE OF CABLE |
| | SIGNAL FACE NUMBER |
| | POST NUMBER |
| | DETECTOR NUMBER |
| | PULL BOX NUMBER |
| | WALK INTERVAL |
| | DON'T WALK INTERVAL |
| | FLASHING DON'T WALK INTERVAL |

| | |
|-----|-----------------------------|
| R | RED (CIRCULAR) |
| FR | FLASHING RED (CIRCULAR) |
| RL | RED LEFT ARROW |
| Y | YELLOW (CIRCULAR) |
| FY | FLASHING YELLOW (CIRCULAR) |
| FYA | FLASHING YELLOW ARROW |
| FYL | FLASHING YELLOW LEFT ARROW |
| FYR | FLASHING YELLOW RIGHT ARROW |
| YL | YELLOW LEFT ARROW |
| YR+ | YELLOW RIGHT ARROW |
| G | GREEN (CIRCULAR) |
| S | GREEN STRAIGHT ARROW |
| L | GREEN LEFT ARROW |
| R+ | GREEN RIGHT ARROW |
| | TUNNEL VISOR WITH LOUVER |

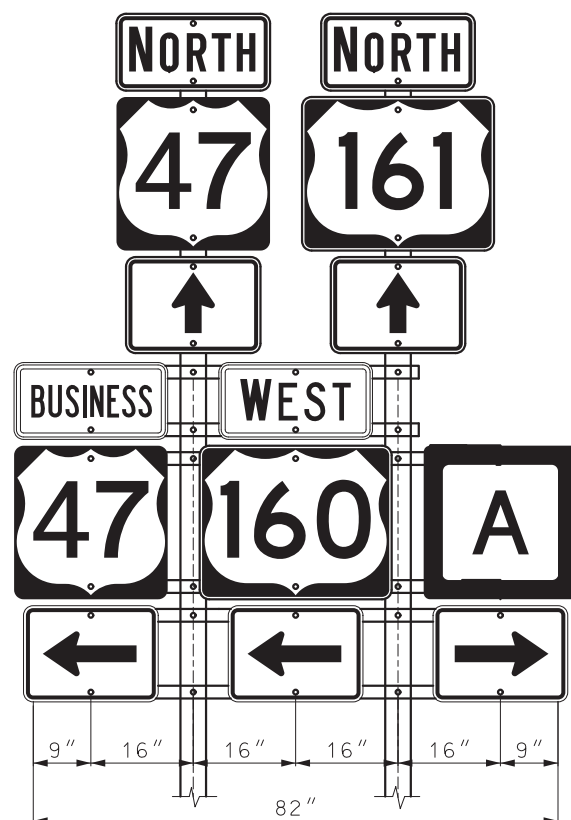
ALL 12 INCH WITH TUNNEL VISOR

| SIGN | LEGEND |
|-----------|---------------------------------------|
| R10 - 10L | LEFT TURN SIGNAL |
| R10 - 10R | RIGHT TURN SIGNAL |
| R3 - 5L | LEFT ARROW (SYMBOL) ONLY |
| R3 - 5R | RIGHT ARROW (SYMBOL) ONLY |
| R3 - 5A | STRAIGHT ARROW (SYMBOL) ONLY |
| R3 - 6L | LEFT ARROW - STRAIGHT ARROW (SYMBOL) |
| R3 - 6R | RIGHT ARROW - STRAIGHT ARROW (SYMBOL) |
| R3 - 2 | NO LEFT TURN (SYMBOL) |
| R3 - 1 | NO RIGHT TURN (SYMBOL) |
| R3 - 3 | NO TURNS |
| D3 - 1 | STREET NAME (ONE LINE) |
| D3 - 1B | STREET NAME (TWO LINE) |
| R10 - 3E | CROSSWALK (PEDESTRIAN SYMBOL) |
| R10 - 11A | NO TURN ON RED |
| R10 - 13 | EMERGENCY SIGNAL |
| R10 - 27A | LEFT TURN YIELD ON FLASHING ARROW |

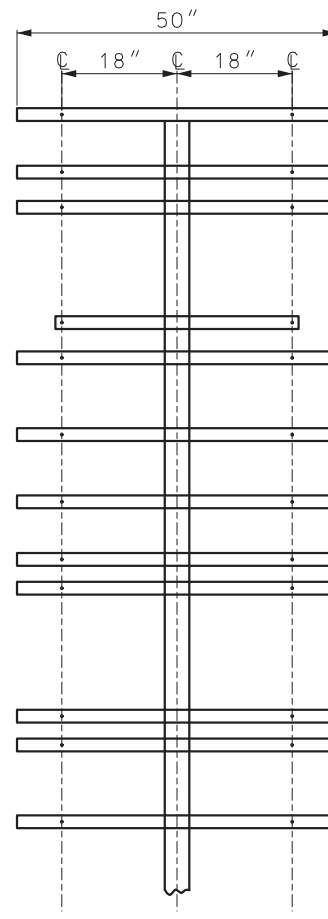
| | | |
|--|---|----------------------------|
| MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | | |
| | TRAFFIC SIGNALS TRAFFIC SIGNAL SYMBOLS | |
| DATE EFFECTIVE: 04/01/2020 DATE PREPARED: 1/21/2020 | 902.80L | SHEET NO. 1 OF 1 |



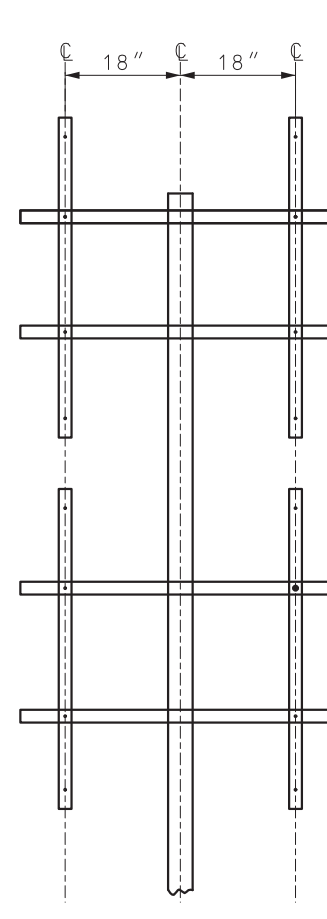
ONE POST ASSEMBLY
USE TO SUPPORT UP TO 4 ROUTE MARKERS



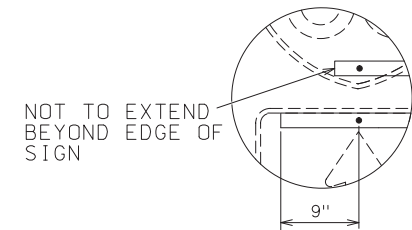
TWO POST ASSEMBLY
USE TO SUPPORT 5 OR 6 ROUTE MARKERS



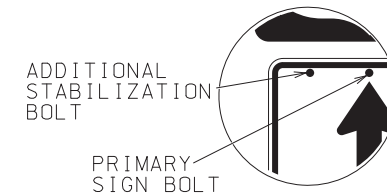
STANDARD BACKING
BAR LAYOUT



OPTIONAL BACKING
BAR LAYOUT



DETAIL A
SEE GENERAL NOTES



DETAIL B
SEE GENERAL NOTES

GENERAL NOTES:

ALL BACKING BARS SHALL BE 2"x 3/8" STEEL, GALVANIZED AFTER PUNCHING. WEIGHT = 2.55 LBS. PER FOOT. HOLES IN BARS SHALL BE 3/8" AND SHALL BE PUNCHED AS SHOWN ON THIS DRAWING.

DETAIL A - THE END OF THE HORIZONTAL BACKING BARS SHALL EXTEND MAXIMUM OF 9 INCHES PAST THE SIGN BOLT, BUT SHALL NOT EXTEND PAST THE EDGE OF THE SIGN.

DETAIL B - FOR SIGNS INSTALLED ON TWO PARALLEL HORIZONTAL BACKING BARS, ONE ADDITIONAL BOLT SHALL BE ADDED TO THE LEFT SIGN TO KEEP ASSEMBLY SQUARE.

WHEN USING OPTIONAL BACKING BAR LAYOUT, VERTICAL BARS SHALL BE MOUNTED BEHIND HORIZONTAL BARS.

BACKING BARS SHALL MEET MISSOURI STANDARD PLANS OR APPROVED PRODUCTS LIST.

BACKING BARS PAID FOR AS STRUCTURAL STEEL, PER POUND.

ALL SIGNS TO BE INSTALLED ALONG VERTICAL CENTERLINES.

FOR POST AND FOOTING DATA AND DETAILS OF SHIELDS AND PLAQUES, SEE OTHER DRAWINGS.

NOMINAL VERTICAL SPACING INDICATED BETWEEN SIGNS TO BE ACHIEVED BY USING THE CLOSEST AVAILABLE HOLES WHEN USING PSST.

TWO POST ASSEMBLY NOTE:

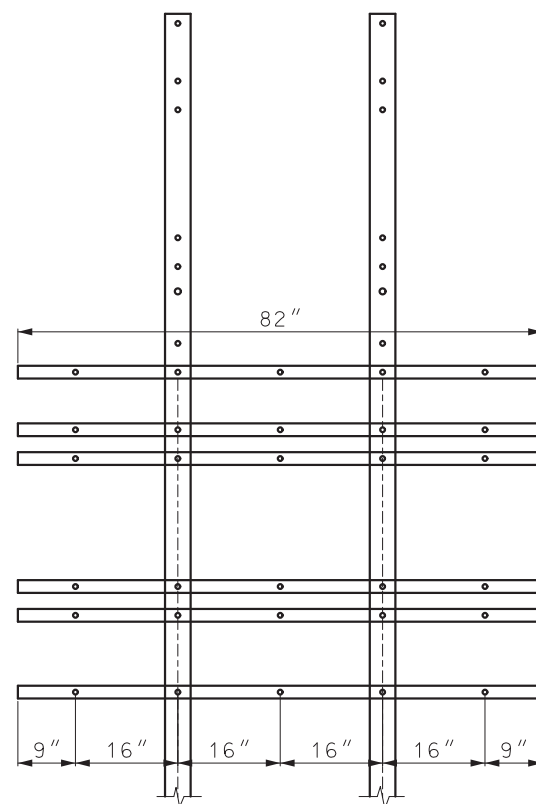
OPTIONAL BACKING BAR LAYOUT MAY BE USED WITH TWO POST ASSEMBLY.

FOR 6 ROUTE SHIELD ASSEMBLY ADDITIONAL BACKING BARS ARE REQUIRED.


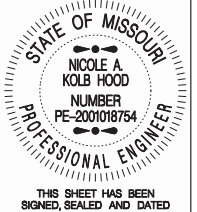
POST SELECTION

SINGLE POST ASSEMBLIES SHALL USE A 4" PIPE POST OR A 2 1/2" PSST POST.

TWO POST ASSEMBLIES SHALL USE TWO 4" PIPE POSTS OR TWO 2 1/2" PSST POST WITH 2 1/4" PSST INSERTS AND BREAKAWAYS. (SEE STANDARD PLAN 903.03)



STANDARD BACKING
BAR LAYOUT

| | |
|--|--|
|  MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION | |
| 105 WEST CAPITOL JEFFERSON CITY, MO 65102 1-888-ASK-MODOT (1-888-275-6636) | |
|  | HIGHWAY SIGNING BACKING BARS SHEET SIGN MOUNTING ROUTE SHIELD AND MARKER ASSEMBLIES |
| DATE EFFECTIVE: 10/01/2019 DATE PREPARED: 7/18/2019 | 903.02AP |
| SHEET NO. 4 OF 8 | |

