



Crawford County Road Commission

Donald A. Babcock, Managing Director

NOTICE TO BIDDERS

The Crawford County Road Commission will receive sealed bids until 4:00 p.m. (for a bid opening during the regular meeting) commencing at 4:30 p.m., on Thursday August 1, 2024, at their Grayling office located at 500 Huron Street, Grayling, MI 49738, for furnishing the following:

STATE STREET @ I-75BL/M-72, CITY OF GRAYLING, CRAWFORD COUNTY PROPOSED SPLITTER ISLAND

Bidder shall be responsible for furnishing all necessary equipment, labor and materials to complete the project.

Completion date September 30, 2024

Michigan Department of Transportation Gaylord TSC shall provide inspection and engineering support. Michigan Department of Transportation will provide traffic control during construction. All work and materials must meet the current Michigan Department of Transportation 2020 Standard Specifications for Construction. Additional information may be obtained at the office of the undersigned. Bidding documents are available upon request.

The contractor shall provide the Certificate of Insurance prior to commencing work. Certificate shall include:

Board of County Road Commissioners **AND** the Crawford County Road Commission named as additional insured to all coverage, **2) Bodily Injury Liability** – each person - \$500,000.00 each occurrence, **3) Bodily Injury Liability** – each accident - \$1,000,000.00, **4) Property Damage Liability** – each accident - \$1,000,000.00, **5). Single Limit Policy** - \$1,000,000.00 and **6) Worker's compensation-** statutory limits.

“The Crawford County Road Commission, in accordance with Title VI of the Civil Rights Act of 1964, 78 Stat. 252, 42 USC 2000d to 2000d-4 and Title 49, Code of Federal Regulations, Department of Federally-assisted programs of the Department of Transportation issued pursuant to such Act, hereby notifies all bidders that it will affirmatively insure that in any contract entered into pursuant to this advertisement, minority business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of gender, disability, race, color, or national origin in consideration for an award.”

Submit bids in a sealed envelope that is clearly marked with the words: “**State Street Splitter Island**”

Crawford County Road Commission reserves the right to reject any or all bids, to waive irregularities in the bid, to waive details in the specifications, to add or delete quantities or projects to or from the bid and to accept the bid deemed to be in the best interest of Crawford County.

Board of Crawford County Road Commissioners

Ryan Halstead, Chairman
Gary Summers, Vice Chairman
Cris Jones, Commissioner
Scott Hanson, Commissioner
Ronald Larson, Commissioner

For publication:
Avalanche

500 Huron Street • Grayling, Michigan 49738
Phone: (989) 348-2281 • Fax: (989) 348-6933

PROJECT INFORMATION & BID PROPOSAL
STATE STREET @ I-75BL/M-75, CITY OF GRAYLING, CRAWFORD CO PROPOSED
SPLITTER ISLAND

SCOPE OF WORK

The proposed work on State Street includes HMA removal, HMA cold milling, constructing a splitter island, and HMA resurfacing. Other work includes removing and replacing curb and gutter, improving pedestrian accessibility, and placing permanent signs and pavement markings. All work will be completed as shown on the plans or as directed by the Engineer and in accordance with the Michigan Department of Transportation 2020 Standard Specifications for Construction.

Traffic will be detoured on local streets. The placement of temporary traffic control devices and permanent pavement markings will be as directed by the Engineer. The detour route shall be coordinated with City of Grayling personnel.

Successful bidder shall attend a pre-construction meeting with MDOT, Gaylord TSC Staff, prior to commencing construction.

The Contractor is responsible for verifying the work items and quantities. No additional compensation will be paid for increases in quantities or additional incidental items necessary to complete the work. **All completed work will be measured and paid as one Lump Sum (LSUM).**

GENERAL NOTES

TRAFFIC CONTROL:

Michigan Department of Transportation personnel shall provide traffic control and traffic control devices during the project. Traffic Control Coordination shall be directed to Rob Hall, North Region, Gaylord TSC office, 1088 E. M-32, Gaylord, Michigan 49735, (989)-731-5090

UTILITIES

Miss Dig/Underground Utility Notification

Contact MISS DIG System, Inc. for the protection of underground utilities and in conformance with MCL 460.721 et seq, by phone at 811 or 800-482-7171 or via the web at either elocate.missdig.org for single address or rte.missdig.org, a minimum of 3 working days prior to excavating, excluding weekends and holidays.

ROW / REAL ESTATE

Lawn Sprinkler Systems and Landscaping

Notify owners of existing lawn sprinkler systems and/or landscaping (in writing with a copy sent to the Engineer) two weeks in advance of any work to be done that will affect those systems and/or landscaping. If the property owner fails to relocate the lawn sprinkler system prior to the Contractor beginning work, and if the Contractor cuts the system during the construction, cap the system pipe and witness the location of the cap with a wooden stake for the property owner's use. Place the salvaged sprinkler heads on the property owner's property. If the property owner fails to relocate the landscaping prior to the Contractor beginning work, carefully salvage the landscaping items and stockpile them on the property owner's property for the property owner. This work is included in other items of the project. Any other modification to the lawn sprinkler systems and/or landscaping is the responsibility of the owner and is not part of this contract.

EARTHWORK

Soil Erosion Measures

Place appropriate soil erosion and sedimentation control measures prior to earth-disturbing activities. Place turf establishment items as soon as possible on potential erodible slopes as directed by the Engineer. Protect critical ditch grades with either sod or seed/mulch or mulch blanket as directed by the Engineer.

TURF ESTABLISHMENT

Use symbol TDS for the permanent turf seed mixture. Place according to the Road Standard Plan, Seeding and Tree Planting R-100-SERIES.

PROJECT SPECIFIC NOTES

DETECTABLE WARNING SURFACE COLOR

The Contractor will submit the list of detectable warning surface colors available from the manufacturer/supplier that they choose from the Qualified Products list. The detectable warning surface color will be as approved by the Engineer.

EROSION CONTROL, INLET PROTECTION, FABRIC DROP

Place “*Erosion Control, Inlet Protection, Fabric Drop*” protection at the existing catch basin according to the Road Standard Plan, Soil Erosion & Sedimentation Control Measures, R-96-SERIES.

HMA REMOVAL, HMA COLD MILLING, AND HMA RESURFACING

The HMA removal limit begins at an existing pavement joint near the outside lane of I-75BL/M-72 and ends northerly of the existing pedestrian crossing on State Street, as shown on the plans.

The HMA cold milling limit begins northerly of the existing pedestrian crossing on State Street and ends northerly of an existing sanitary sewer manhole, as shown on the plans. The milling depth will be 2 inches.

The HMA resurfacing will be as shown on the plans, per the HMA Application Estimate.

PAVEMENT MARKINGS

The pedestrian cross walk will be recessed and paid as “*Recessing Pavt Mrkg, Transv*”. All pavement markings will be placed according to the Road Standard Plans:

Pavement Marking Recessing Details	PAVE-901-SERIES
Intersection, Stop Bar and Crosswalk Markings	PAVE-945-SERIES

PEDESTRIAN ACCESSIBILITY IMPROVEMENTS

All concrete curb and gutter, sidewalk, and sidewalk ramps will be staked according to the Road Standard Plans:

Curb Ramp and Detectable Warning Details	R-28-SERIES
Driveway Openings & Approaches & Concrete Sidewalks	R-29-SERIES
Concrete Curb and Concrete Curb & Gutter	R-30-SERIES

Prior to placing the new concrete curb and gutter, sidewalk, and/or sidewalk ramps, the Contractor will contact the Engineer within 5 business days for approval and authorization.

SPLITTER ISLAND

Construct the proposed splitter island as shown on the plans and as directed by the Engineer. The island leg, near the I-75BL/M-72 outside lane, will be “*Curb and Gutter, Conc, Det B2*”. The other 2 legs of the island will be “*Curb and Gutter, Conc, Det B2, Modified*” with the gutter pan tipped out to provide positive drainage away from the island.

PROJECT QUANTITIES. Quantities listed below are provided for informational purposes only. The Contractor is responsible for verifying the work items and quantities. No additional compensation will be paid for increases in quantities or additional incidental items necessary to complete the work. **All completed work will be measured and paid as one Lump Sum (LSUM).**

Work Items	Quantity	Unit
Mobilization, Max	1	LSUM
Curb and Gutter, Rem	23	Ft
Sidewalk, Rem	16	Syd
Erosion Control, Inlet Protection, Fabric Drop	1	Ea
Approach, CI I	7	Ton
Cold Milling HMA Surface	97	Syd
HMA Surface, Rem	216	Syd
Hand Patching	32	Ton
Curb and Gutter, Conc, Det B2	23	Ft
Curb and Gutter, Conc, Det C6	16	Ft
Curb and Gutter, Conc, Det B2 Modified	45	Ft
Detectable Warning Surface	4	Ft
Curb Ramp Opening, Conc	8	Ft
Sidewalk, Conc, 4 inch	79	Sft
Curb Ramp, Conc, 4 inch	51	Sft
Delineator, Reflective Sheeting, 3 inch by 12 inch, Yellow	6	Ea
Fdn, Wood Support, Rem	1	Ea
Perforated Steel Square Tube Breakaway System	1	Ea
Post Hole Through Conc for Steel Post	2	Ea
Post, Flexible, Delineator	6	Ea
Post, Steel, 3 pound	60	Ft
Post, Wood, 6 inch by 8 inch	54	Ft
Sign, Type III, Erect, Salv	4	Ea
Sign, Type III, Rem	1	Ea
Sign, Type IIIA	18	Sft
Sign, Type IIIB	12	Sft
Sign, Type VA	30	Sft
Reflective Panel for Permanent Sign Support, 3 foot	4	Ea
Reflective Panel for Permanent Sign Support, 6 foot	1	Ea
Sign, Type III, Rem, Salv	4	Ea
Ground Mtd Sign Support, Rem	3	Ea
Pavt Mrkg, Polyurea, 6 inch, Crosswalk	69	Ft
Recessing Pavt Mrkg, Transv	35	Sft
Fertilizer, Chemical Nutrient, CI A	1	Lb
Mulch	15	Syd
Seeding, Mixture TUF	1	Lb
Topsoil Surface, Furn, LM	2	Cyd

BID SHEET

Total Lump Sum Bid \$ _____

Company Name: _____

Address: _____

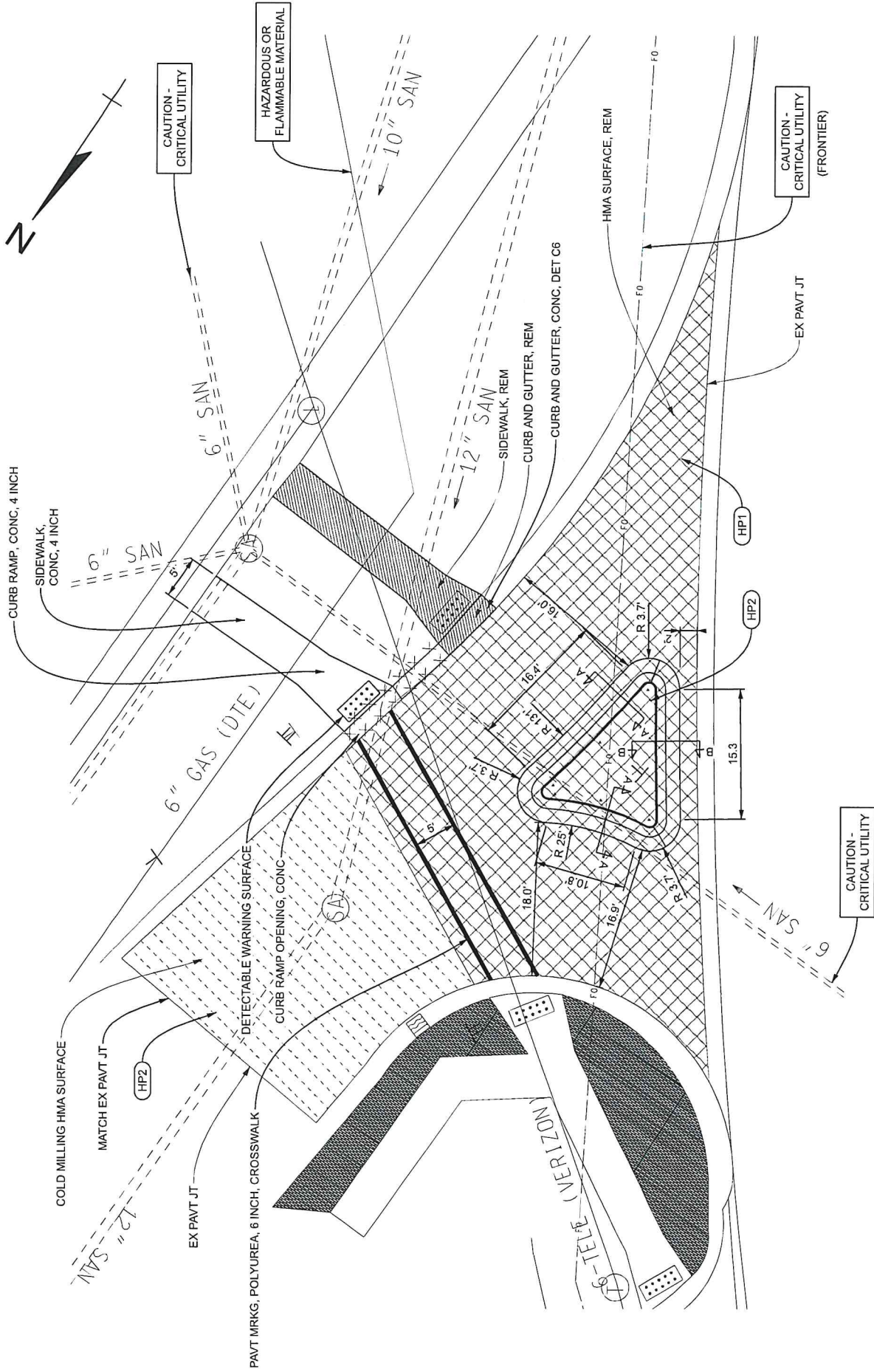
_____ Phone: _____

Signature: _____ Date: _____

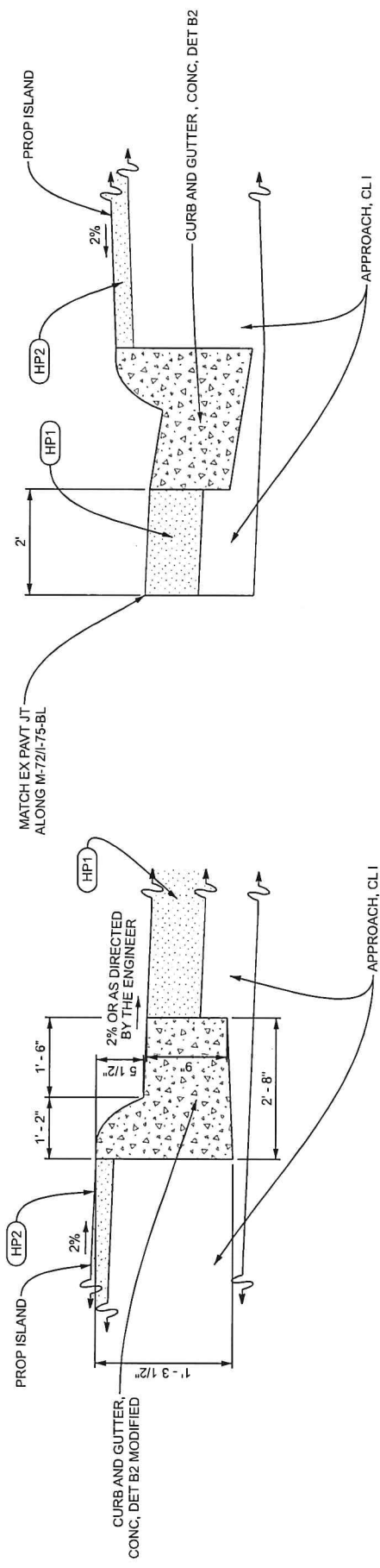
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Board of Crawford County Road Commissioners

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Gary Summers, Vice Chairman
Cris Jones, Commissioner
Scott Hanson, Commissioner
Ronald Larson, Commissioner



 Michigan Department of Transportation FILE: Maint_Grayling_Island_Rem-Con001.dgn	VERT. (FT) 16 	DATE: 03/21/24 DESIGN UNIT: RADULSKI TSC: GAYLORD	CS: 20012 JN: GRAYLING STATE STREET ISLAND	REMOVAL AND CONSTRUCTION	DRAWING SHEET F-75RL CON 001
	HORZ. (FT) 16 				



SECTION A - A

SECTION B - B

HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE LBS PER SYD	PERFORMANCE GRADE	REMARKS
HP1	HAND PATCHING 1	660	64-28	4EML (MAX LIFT 220 LB/SYD), AWI = 260
HP2	HAND PATCHING 2	220	64-28	4EML; ISLAND
	* BOND COAT	0.05-0.15 GAL		

* FOR INFORMATION ONLY

MDOT
Michigan Department of Transportation
FILE: Maint_Grayling_Island_Misc_Detail001.dgn

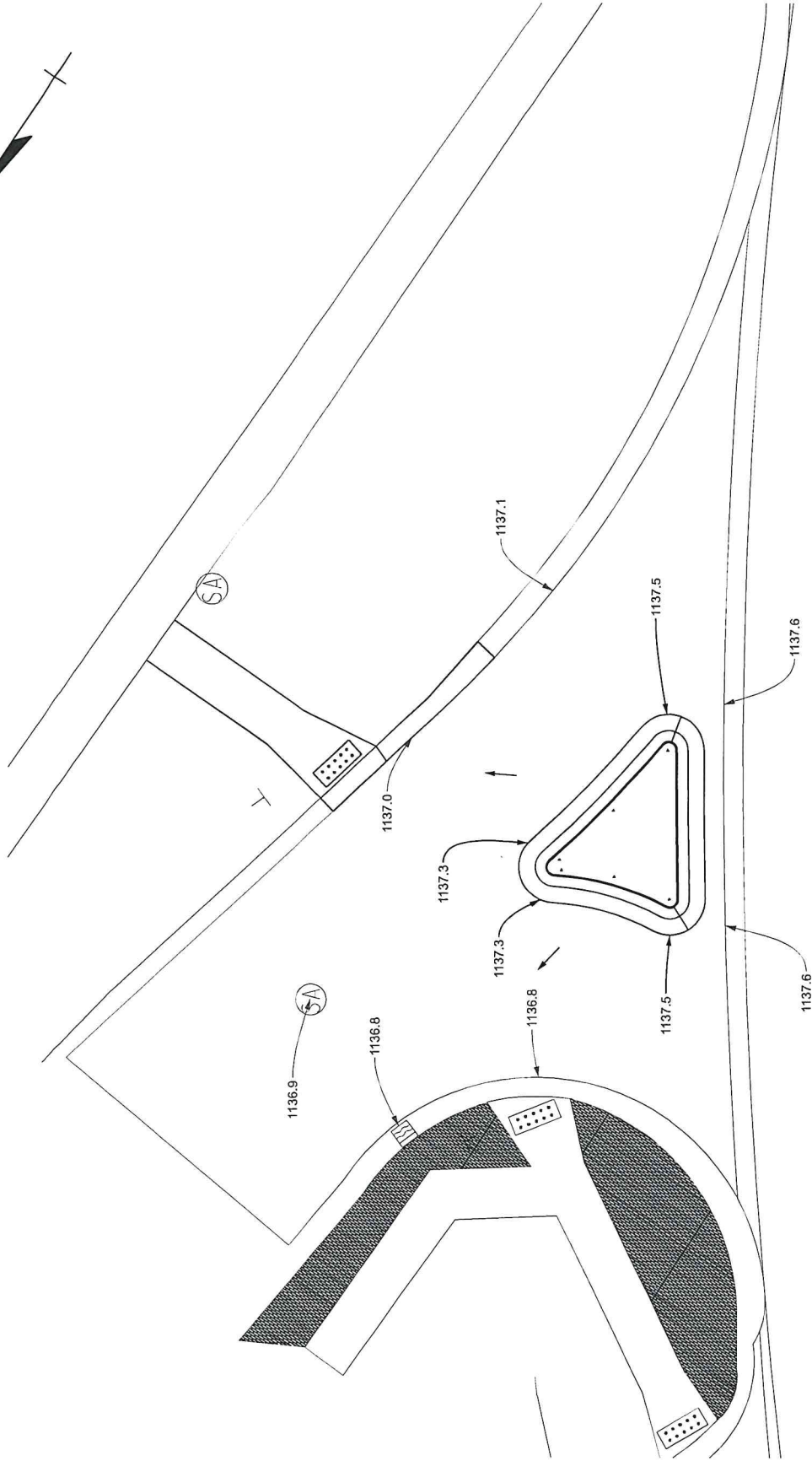
DATE: 03/26/24
DESIGN UNIT: RADULSKI
TSC: GAYLORD

VERT. (FT) 0 6
HORZ. (FT) 0 3

CS: 20012
JN: GRAYLING STATE STREET ISLAND

MISCELLANEOUS DETAILS

DRAWING SHEET I-75BL MISC 001
SECT 1



FILE: Maint_Grayling_Island_Elevation.dgn



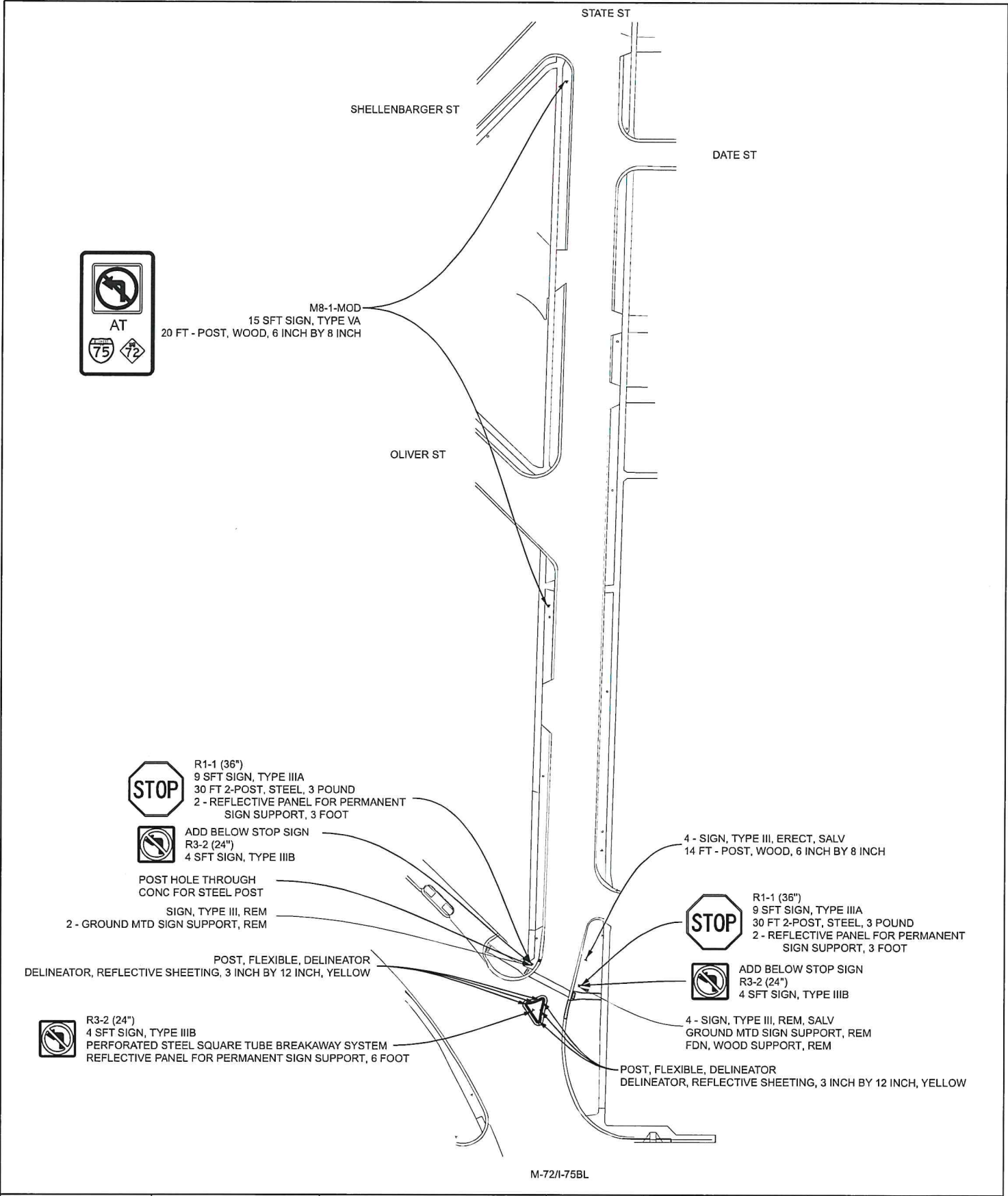
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 TSC: GAYLORD

CS: 20012
 JN: GRAYLING STATE STREET
 ISLAND

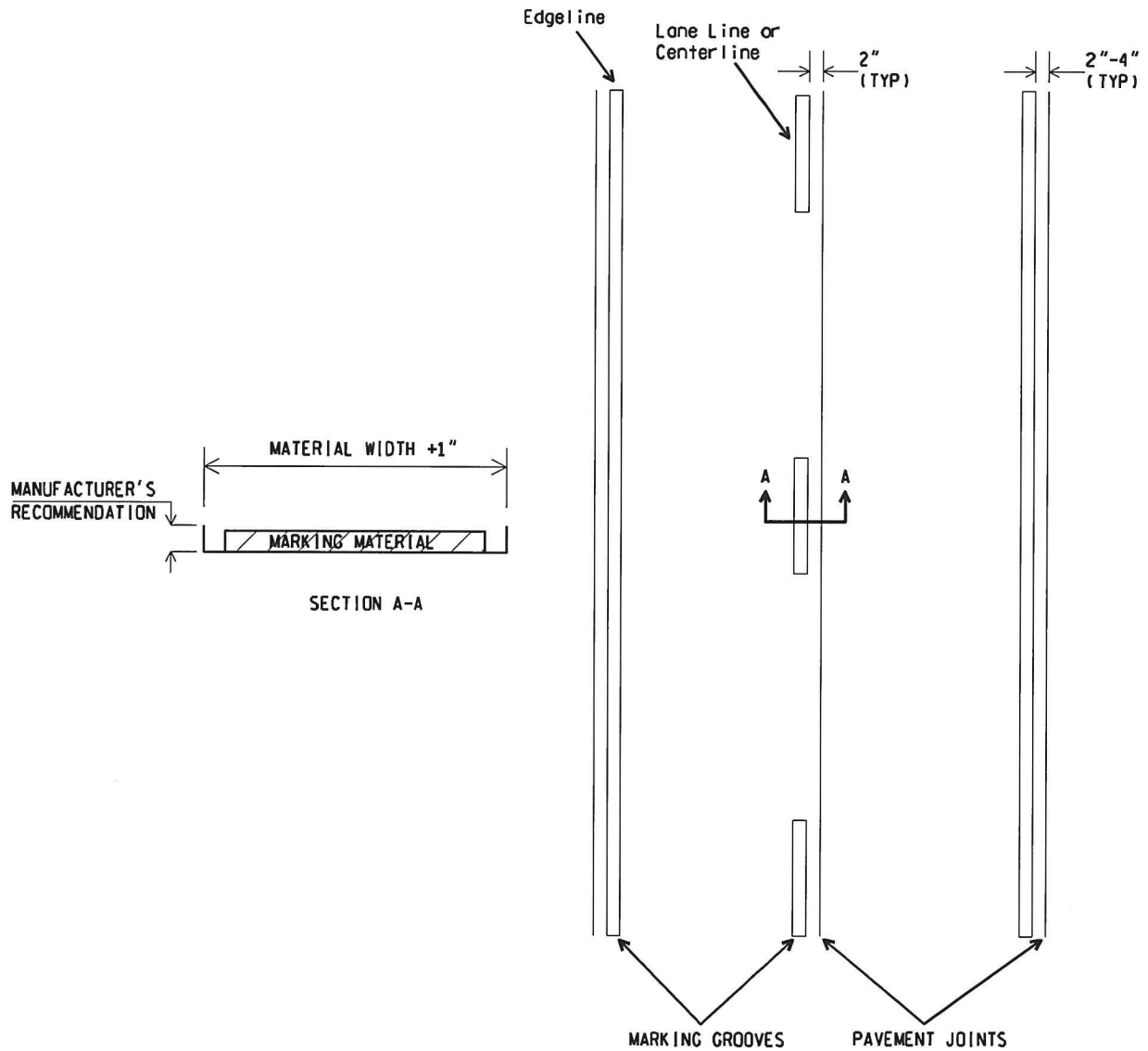
ELEVATIONS

DRAWING SHEET
 I-75BL
 ELEV
 001

SECT 1




		DESIGN UNIT: RADULSKI	TSC: GAYLORD	DATE: 03/25/24
		CS: 20012	SIGNING	
		JN: GRAYLING STATE STREET ISLAND		DRAWING SHEET
FILE: MAINT_GRAYLING_ISLAND_SIGN 001.DGN				SECT 1

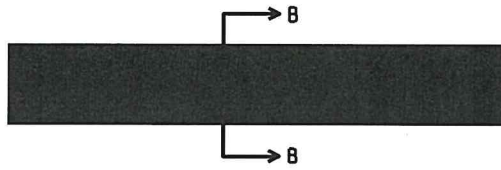


RECESSING LONGITUDINAL MARKINGS

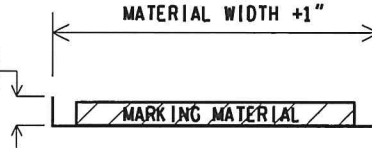
NOTES:

1. Tolerance on all transverse dimensions is $\pm 1/8"$.
2. Tolerance on all recessing depths is ± 5 mils.

 PREPARED BY TSMO DIVISION	DEPARTMENT DIRECTOR Paul C. Ajegba APPROVED BY: _____ DIRECTOR, BUREAU OF FIELD SERVICES	MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF DEVELOPMENT STANDARD PLAN FOR <h3 style="margin: 0;">PAVEMENT MARKING RECESSING DETAILS</h3>		
	DRAWN BY: <u>MKB</u> CHECKED BY: <u>CMV</u>	APPROVED BY: _____ DIRECTOR, BUREAU OF DEVELOPMENT	09/21/20 <small>F.H.W.A. APPROVAL</small>	03/25/20 <small>PLAN DATE</small>

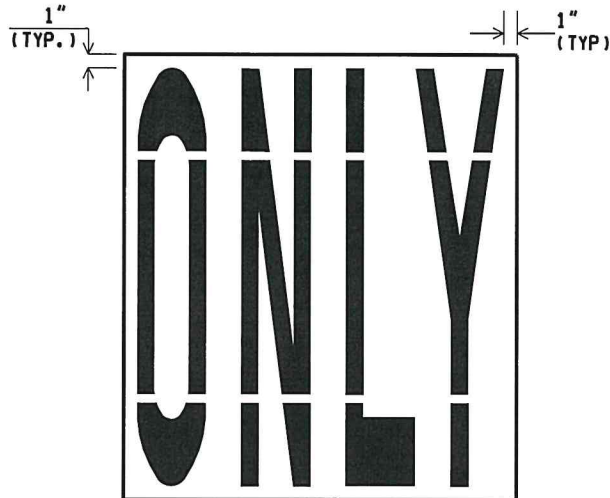


MANUFACTURER'S
RECOMMENDATION



SECTION B-B

FOR STOP BARS, CROSSWALKS, & CROSS HATCHING

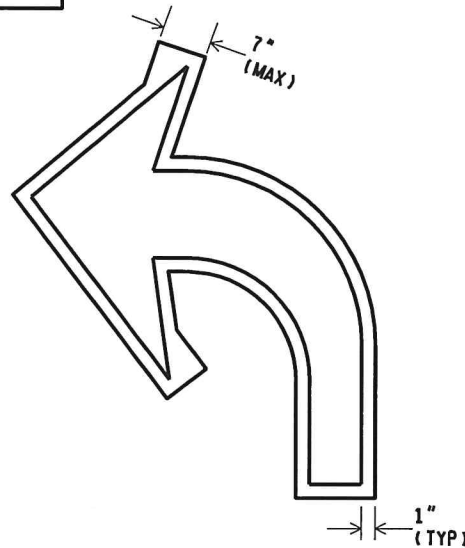


FOR LEGENDS



1" (TYP)

FOR IRREGULAR SYMBOLS



FOR ARROWS
(ALL TYPES)

RECESSING SPECIAL MARKINGS

NOTES:

1. Tolerance on all transverse dimensions is $\pm 1/8"$.
2. Tolerance on all recessing depths is ± 5 mils.
3. The recess should follow the shape of the special marking as closely as possible. Where the shape cannot be followed, use a grinder head with a maximum width of 7 inches.
4. For irregular shapes agree upon a recessing layout with the Engineer. See Special Marking Symbols and Legends (CAD drawing) for recommendations.
5. See PAVE-900 for special marking recessing payment areas.

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

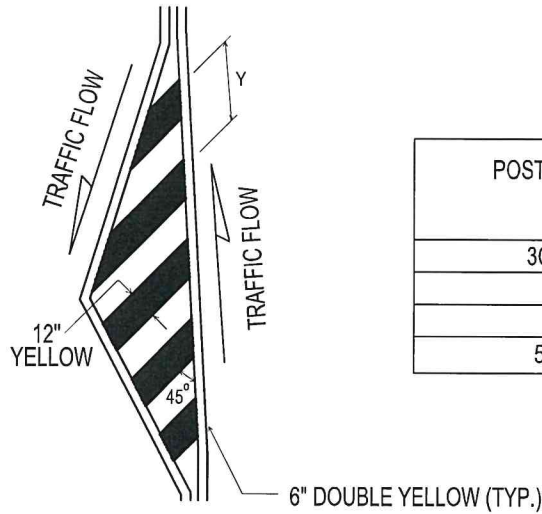
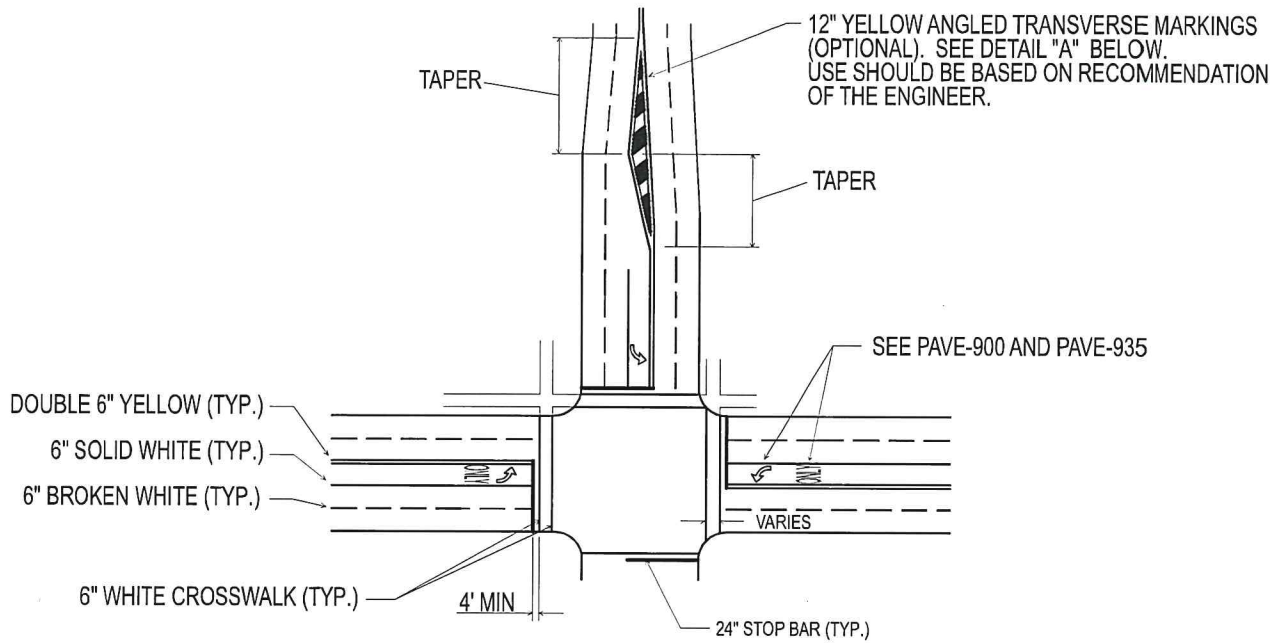
09/21/20
F.H.W.A. APPROVAL

03/25/20
PLAN DATE

PAVE-901-A

SHEET
-2 OF -2

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.



POSTED SPEED LIMIT (MPH)	"Y" FT
30 OR LESS	10
35-40	20
45	30
50 OR MORE	40

DETAIL "A" ANGLED TRANSVERSE MARKING

NOT TO SCALE

E-SIGNED by JASON GUTTING
on 2023-12-11 17:09:04 EST

APPROVED BY: DIRECTOR, BUREAU OF FIELD SERVICES
E-SIGNED by Demetrius Parker

APPROVED BY: on 2023-12-11 16:12:24 EST
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

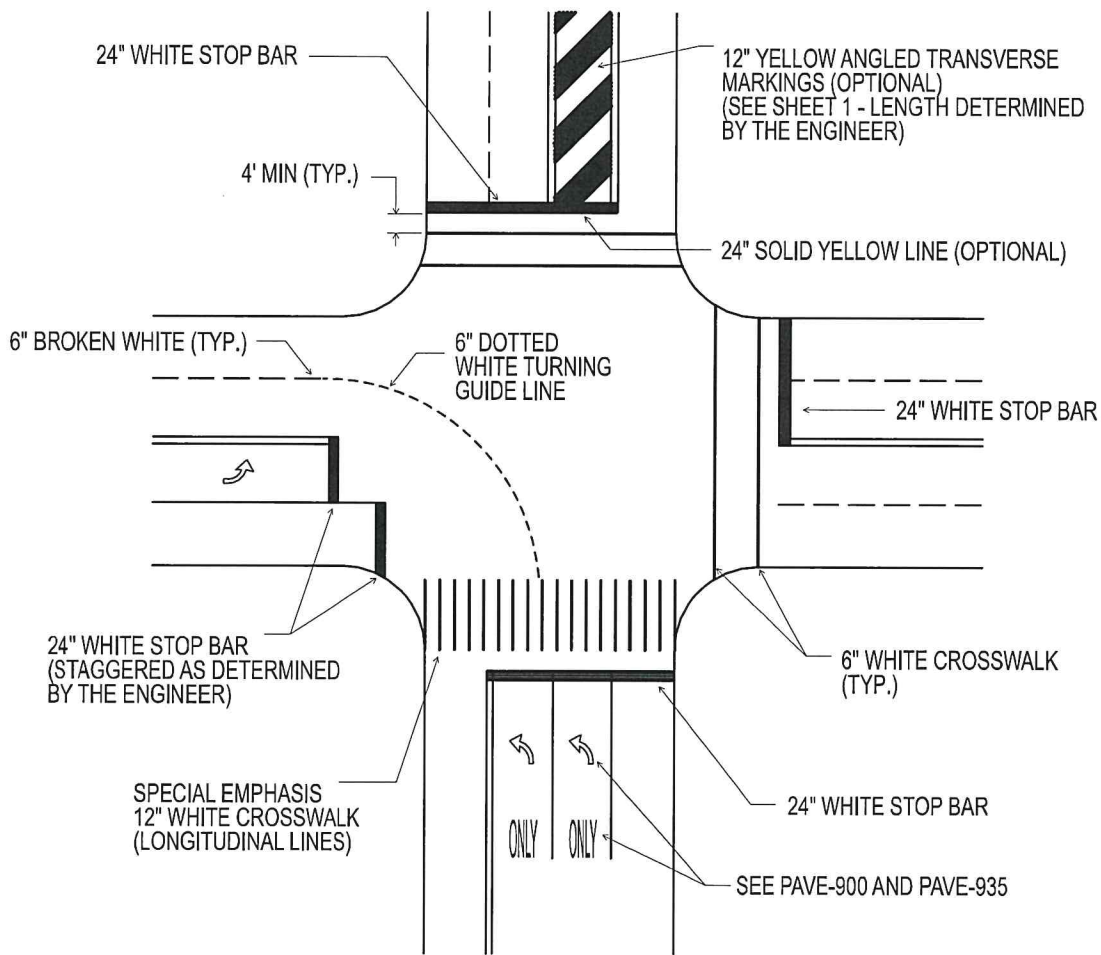
STANDARD PLAN FOR
INTERSECTION, STOP BAR, &
CROSSWALK MARKINGS

11/22/2023
FHWA APPROVAL

09/13/2023
PLAN DATE

PAVE-945-E

SHEET
1 OF 3



SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

NOTES:

1. STOP BARS SHOULD BE LOCATED 40-150 FT FROM THE SIGNAL HEAD. OPTIONAL STOP BARS, IF USED AT STOP CONTROLLED INTERSECTIONS, SHOULD BE 4-30 FT FROM THE EDGE OF THE INTERSECTING ROADWAY. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.
2. STANDARD CROSSWALK IS TWO 6 INCH WHITE TRANSVERSE LINES. SPECIAL EMPHASIS CROSSWALK IS 12 INCH WHITE LONGITUNDINAL LINES.
3. INSTALL SPECIAL EMPHASIS CROSSWALKS AT MID-BLOCK CROSSINGS, ESTABLISHED SCHOOL CROSSINGS (AS DEFINED BY THE MMUTCD), WHERE CROSSING UNCONTROLLED TRAFFIC AT AN INTERSECTION OR RAMP, OR WHEN DIRECTED BY THE ENGINEER. SEE SHEET 3 FOR DETAIL OF SPECIAL EMPHASIS CROSSWALK MARKINGS.
4. WIDTH OF CROSSWALK SHOULD EQUAL WIDTH OF THE ADJACENT SIDEWALK, BUT SHALL NOT BE LESS THAN 6 FT (MEASURED INSIDE THE LINES).
5. WHEN PRACTICAL, CROSSWALK LOCATION SHOULD AVOID CONFLICT WITH DRAINAGE INLETS.
6. TURNING GUIDE LINES SHOULD BE PLACED TO DIRECT THE DRIVER INTO THE CLOSEST THROUGH LANE. INCLUDE A DOTTED TURNING GUIDE LINE FOR ALL DOUBLE TURN MOVEMENTS.

NOT TO SCALE



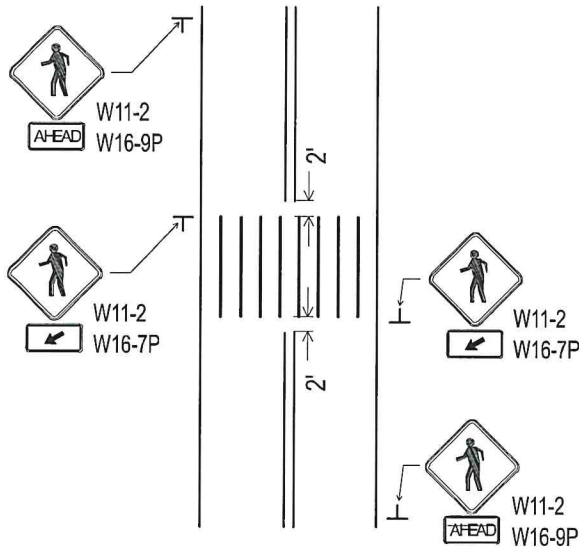
STANDARD PLAN FOR
INTERSECTION, STOP BAR, &
CROSSWALK MARKINGS

11/22/2023
FHWA APPROVAL

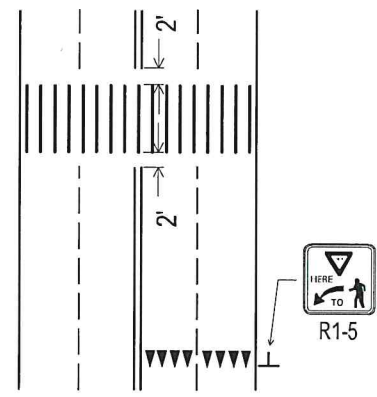
09/13/2023
PLAN DATE

PAVE-945-E

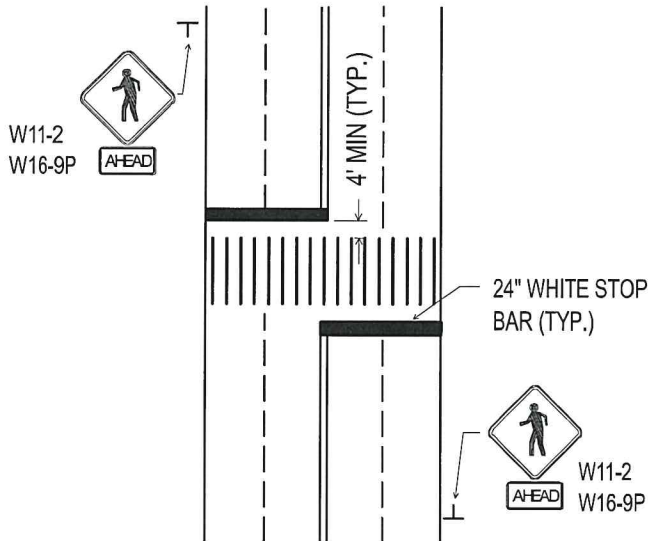
SHEET
2 OF 3



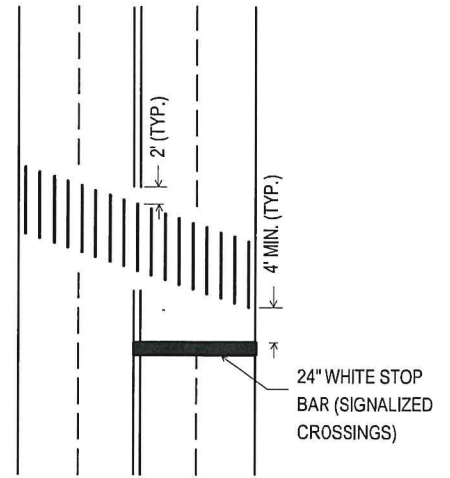
**MID-BLOCK TWO LANE
NON-SIGNALIZED**



**MID-BLOCK MULTI-LANE
NON-SIGNALIZED**

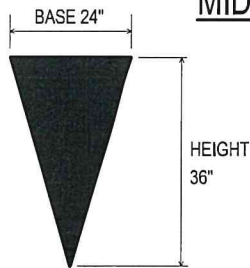


**MID-BLOCK MULTI-LANE
SIGNALIZED**



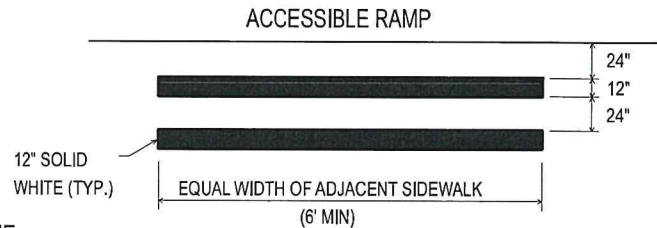
SKEWED CROSSINGS

NOTE:
1. INSTALL SPECIAL EMPHASIS CROSSWALK MARKINGS PARALLEL TO TRAFFIC FLOW.



**DETAIL OF YIELD TRIANGLE
FOR YIELD LINE**

NOTES:
1. INSTALL FOUR TRIANGLES PER LANE.
2. ADJUST SPACING (BETWEEN 3 TO 12 INCHES) AS NECESSARY.



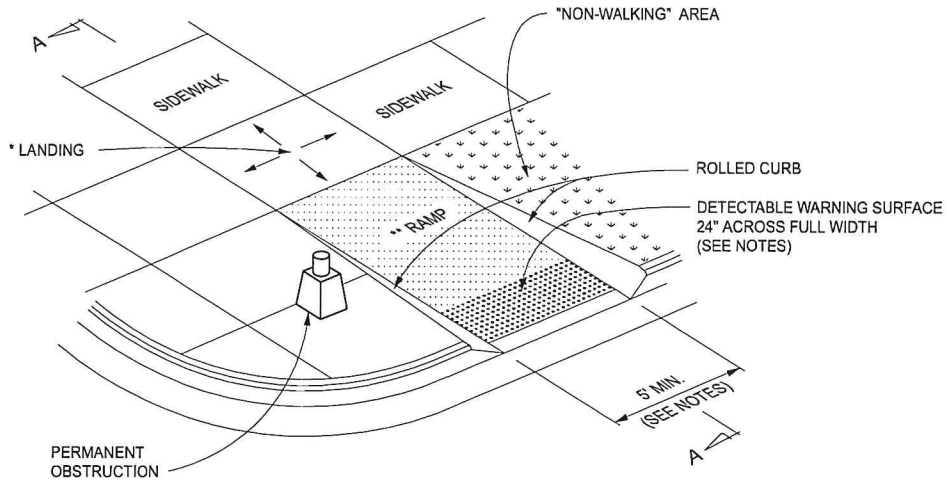
**DETAIL OF SPECIAL
EMPHASIS CROSSWALK MARKING**

NOT TO SCALE

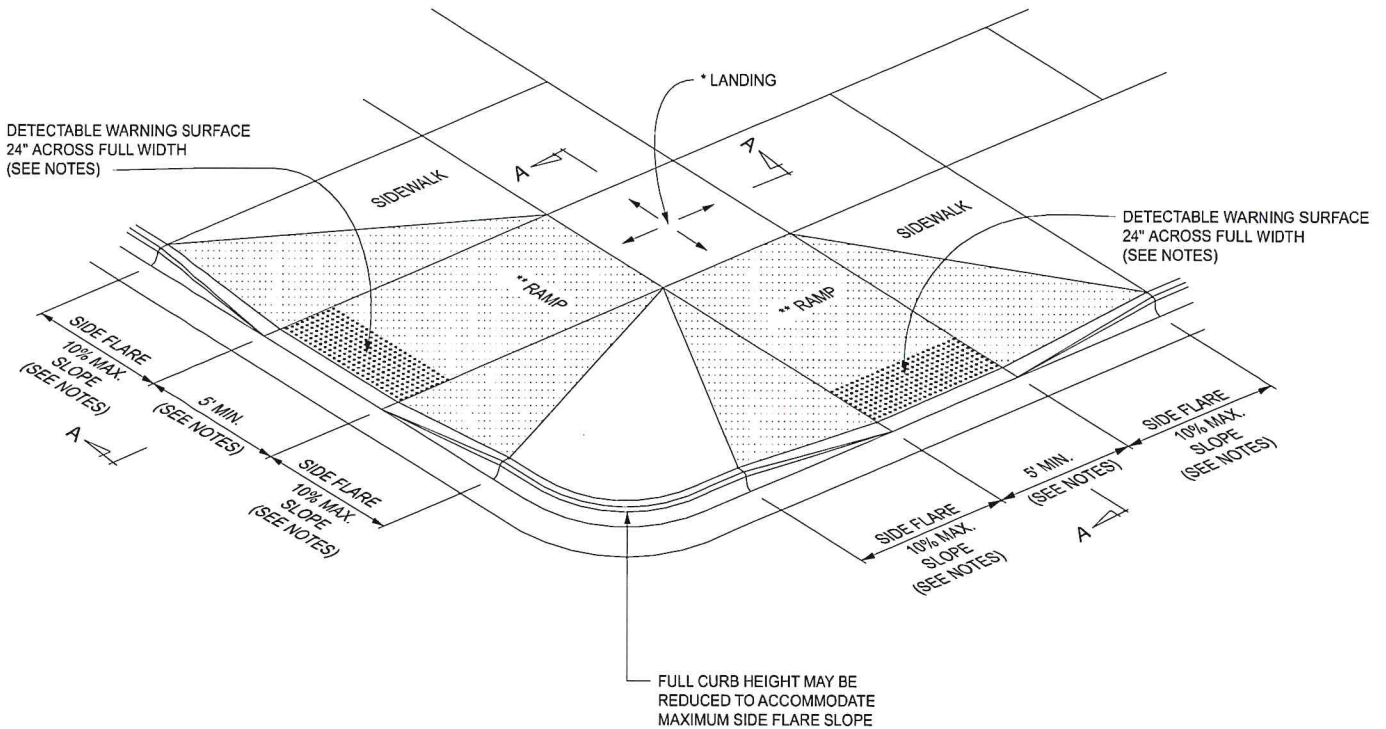
	STANDARD PLAN FOR INTERSECTION, STOP BAR, & CROSSWALK MARKINGS			SHEET 3 OF 3
	DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	11/22/2023 FHWA APPROVAL	09/13/2023 PLAN DATE	

* MAXIMUM LANDING SLOPE IS 2.1% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.1%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



CURB RAMP TYPE R
(ROLLED SIDES)



CURB RAMP TYPE F
(FLARED SIDES, TWO RAMPS SHOWN)

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
**CURB RAMP AND
DETECTABLE WARNING DETAILS**

(SPECIAL DETAIL)
FHWA APPROVAL

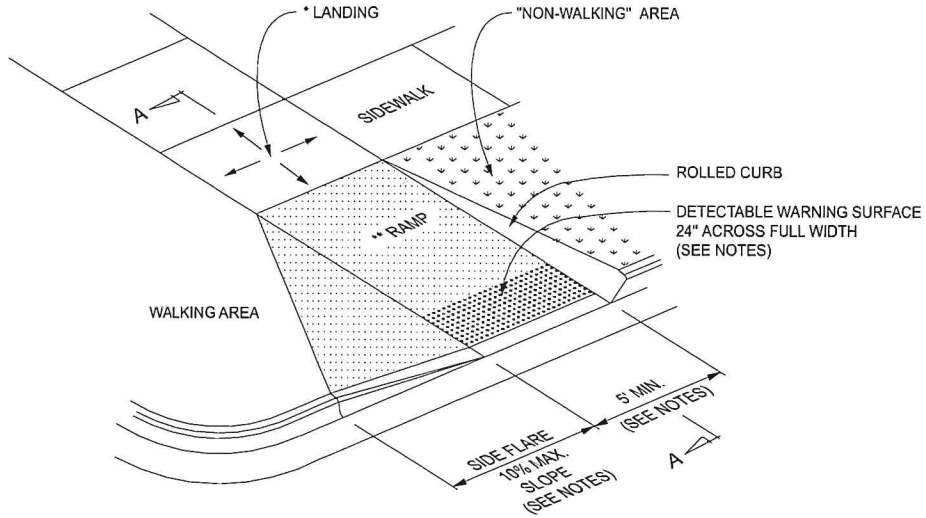
11/08/2023
PLAN DATE

R-28-K

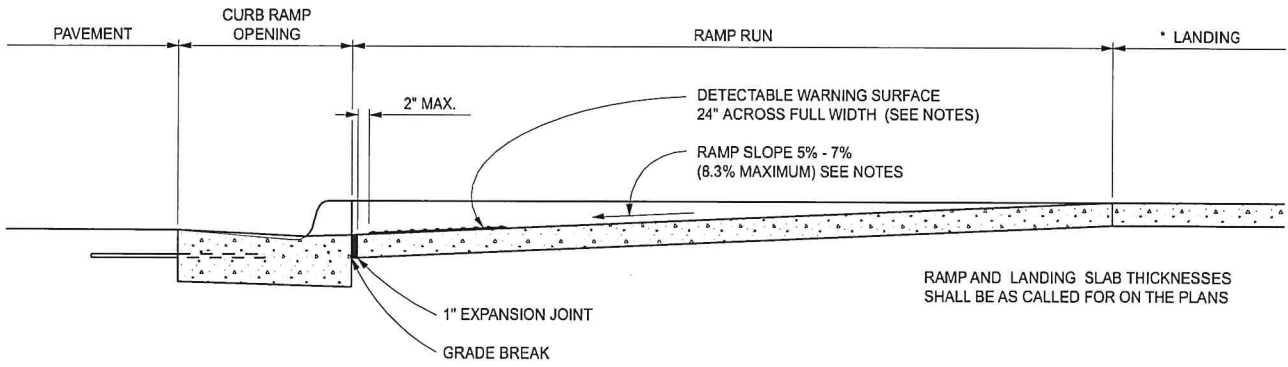
SHEET
1 OF 7

* MAXIMUM LANDING SLOPE IS 2.1% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.1%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



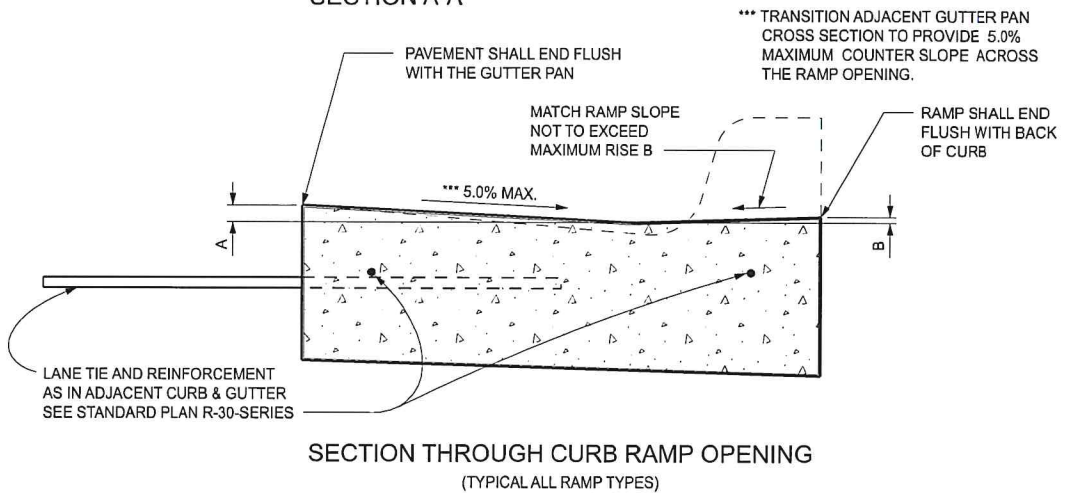
CURB RAMP TYPE RF
(ROLLED / FLARED SIDES)



SECTION A-A

CURB TYPE	MAXIMUM RISE (INCHES)	
	A	B
B1	¾	1
B2	¾	1
B3	¾	1
D1	¾	1
D2	¾	1
D3	¾	1
C1	½	½
C2	½	½
C3	¾	½
C4	¾	½
C5	1	½
C6	1	½
F1	½	½
F2	½	½
F3	¾	½
F4	¾	½
F5	1	½
F6	1	½

FOR CURB TYPES SEE STANDARD PLAN R-30-SERIES

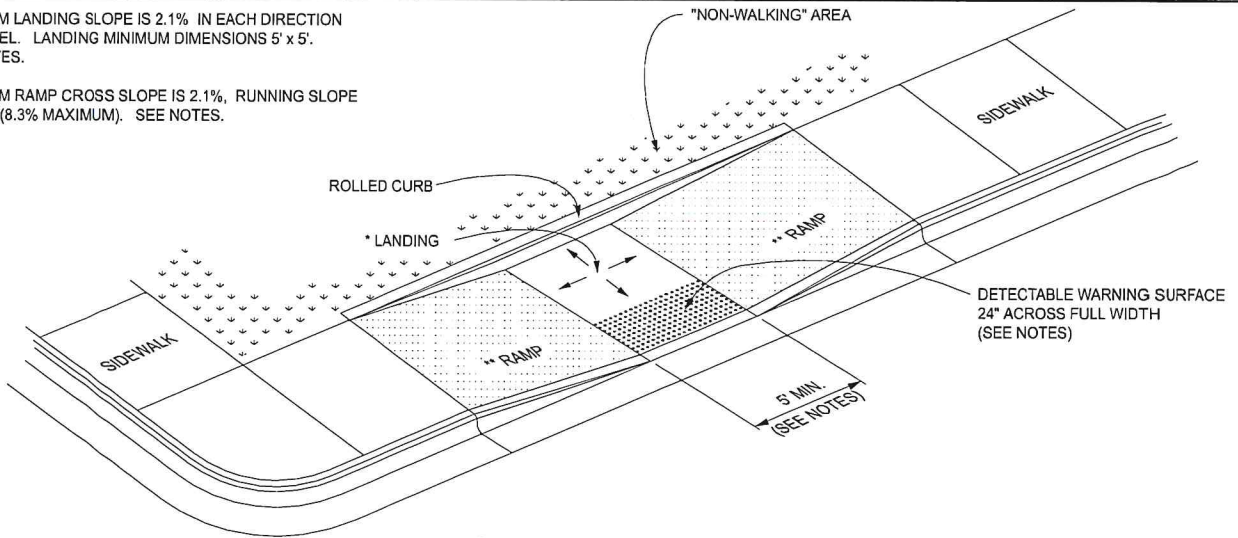


SECTION THROUGH CURB RAMP OPENING
(TYPICAL ALL RAMP TYPES)

 DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS		R-28-K	SHEET 2 OF 7
	(SPECIAL DETAIL) FHWA APPROVAL	11/08/2023 PLAN DATE		

* MAXIMUM LANDING SLOPE IS 2.1% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

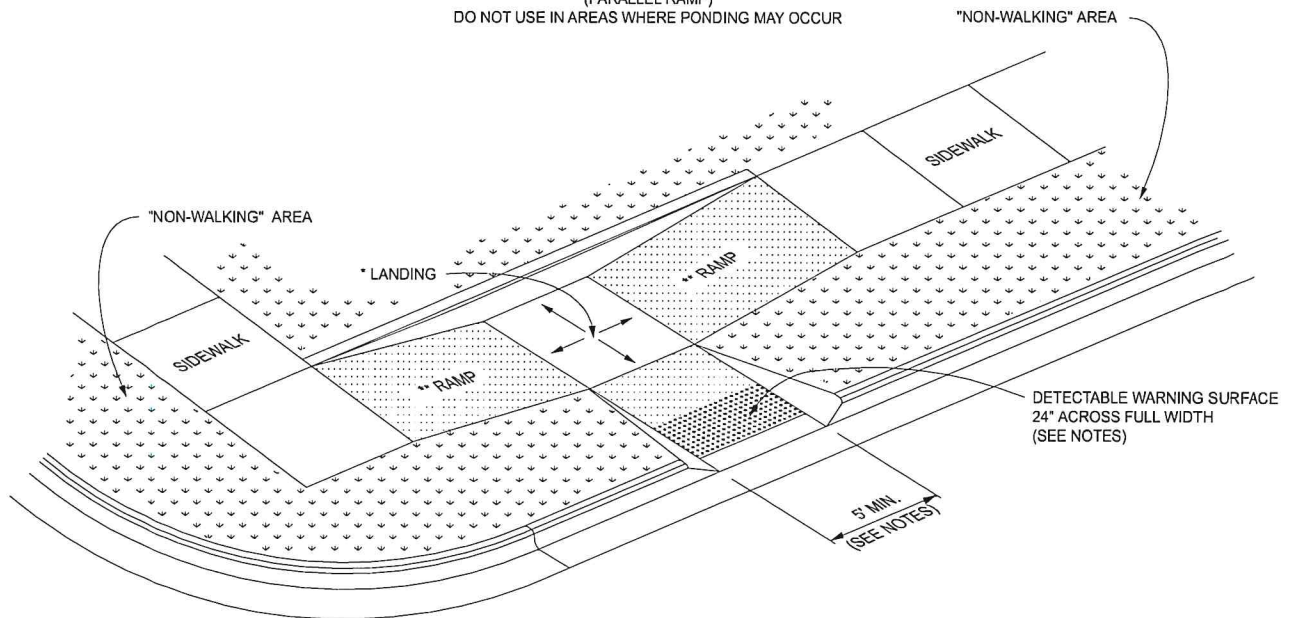
** MAXIMUM RAMP CROSS SLOPE IS 2.1%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



CURB RAMP TYPE P

(PARALLEL RAMP)

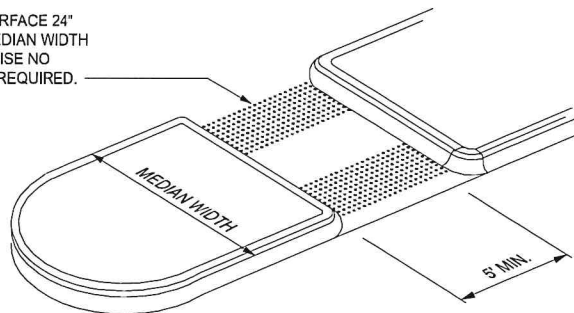
DO NOT USE IN AREAS WHERE PONDING MAY OCCUR



CURB RAMP TYPE C

(COMBINATION RAMP)

DETECTABLE WARNING SURFACE 24" ACROSS FULL WIDTH IF MEDIAN WIDTH IS AT LEAST 6'-0". OTHERWISE NO DETECTABLE WARNING IS REQUIRED.



CURB RAMP TYPE M

(MEDIAN ISLAND)

MDOT
Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
CURB RAMP AND
DETECTABLE WARNING DETAILS

(SPECIAL DETAIL)
FHWA APPROVAL

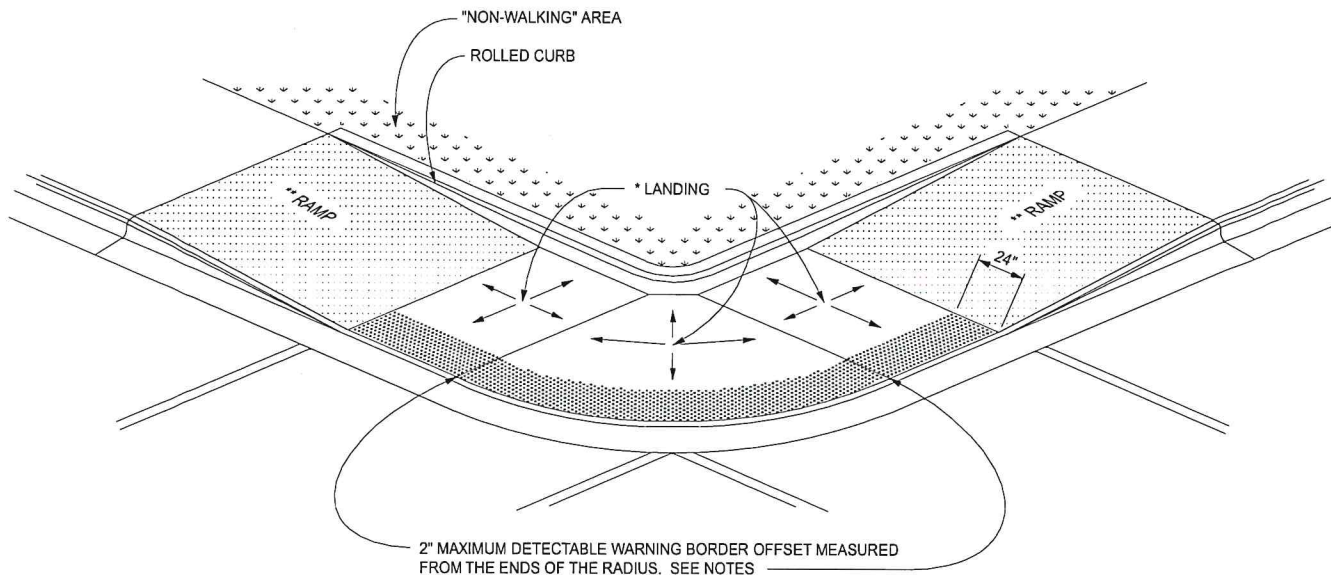
11/08/2023
PLAN DATE

R-28-K

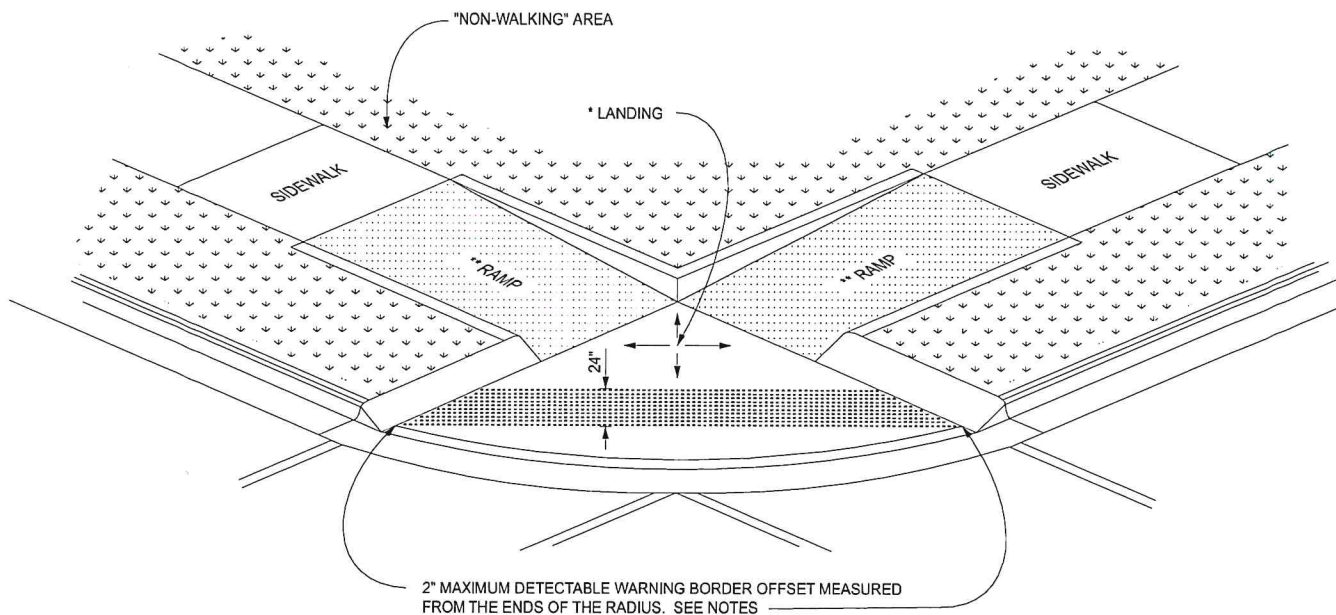
SHEET
3 OF 7

* MAXIMUM LANDING SLOPE IS 2.1% IN EACH DIRECTION OF TRAVEL. LANDING MINIMUM DIMENSIONS 5' x 5'. SEE NOTES.

** MAXIMUM RAMP CROSS SLOPE IS 2.1%, RUNNING SLOPE 5% - 7% (8.3% MAXIMUM). SEE NOTES.



(RADIAL DETECTABLE WARNING SHOWN)



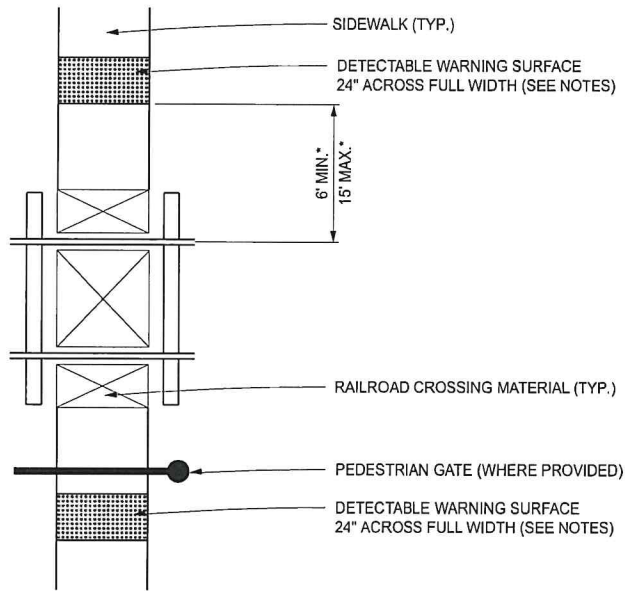
(TANGENT DETECTABLE WARNING SHOWN)

CURB RAMP TYPE D
(DEPRESSED CORNER)

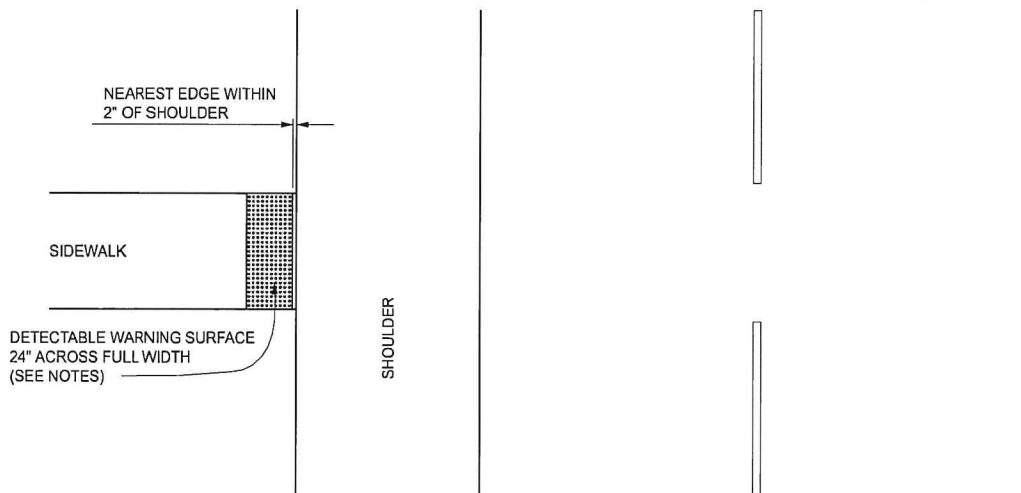
USE ONLY WHEN INDEPENDENT DIRECTIONAL RAMPS CAN NOT BE CONSTRUCTED FOR EACH CROSSING DIRECTION

<p>DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE</p>	STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS		R-28-K	SHEET 4 OF 7
	(SPECIAL DETAIL) FHWA APPROVAL	11/08/2023 PLAN DATE		

* THE DETECTABLE WARNING SURFACE SHALL BE LOCATED SO THAT THE EDGE NEAREST THE RAIL CROSSING IS 6' MINIMUM AND 15' MAXIMUM FROM THE CENTERLINE OF THE NEAREST RAIL. DO NOT PLACE DETECTABLE WARNING ON RAILROAD CROSSING MATERIAL.

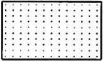







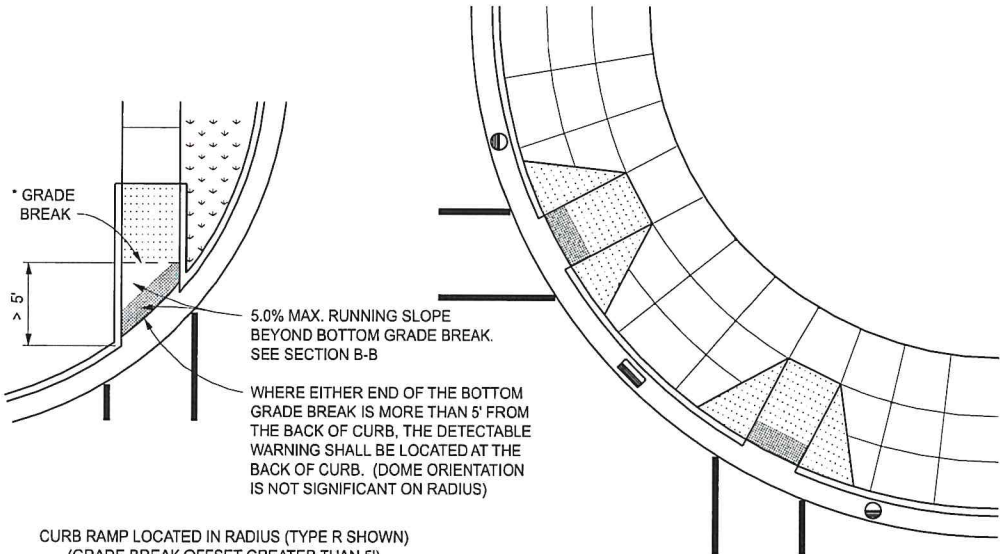
DETECTABLE WARNING AT RAILROAD CROSSING



DETECTABLE WARNING AT FLUSH SHOULDER OR ROADWAY

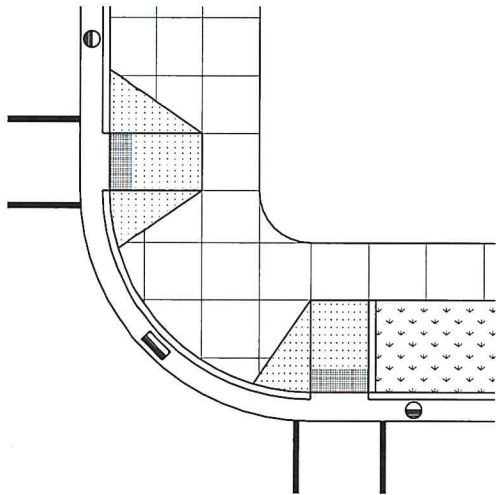
<p>DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE</p>	<p>STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS</p>			<p>SHEET 5 OF 7</p>
	<p>(SPECIAL DETAIL) FHWA APPROVAL</p>	<p>11/08/2023 PLAN DATE</p>	<p>R-28-K</p>	

LEGEND	
	SLOPED SURFACE
	DETECTABLE WARNING
	"NON-WALKING" AREA
	CROSSWALK MARKING
	PREFERRED LOCATION OF DRAINAGE INLET (TYP.)
	ALTERNATE LOCATION OF DRAINAGE INLET (TYP.)

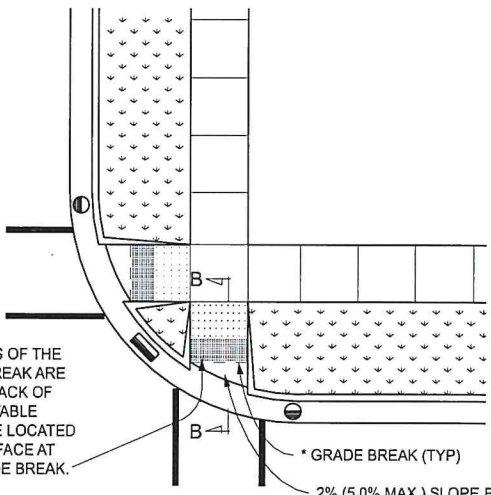


CURB RAMP LOCATED IN RADIUS (TYPE R SHOWN)
(GRADE BREAK OFFSET GREATER THAN 5')

CURB RAMP PERPENDICULAR TO RADIAL CURB (TYPE F SHOWN)
(USE WITH RADIAL CURB WHEN THE CROSSWALK AND CURB RAMP ARE NOT ALIGNED)



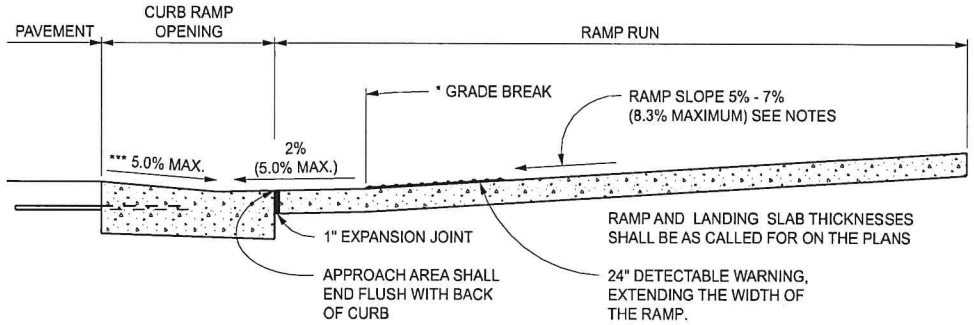
CURB RAMP PERPENDICULAR TO TANGENT CURB
(TYPE F AND TYPE RF SHOWN)



CURB RAMP LOCATED IN RADIUS (TYPE R SHOWN)
(GRADE BREAK OFFSET LESS THAN 5')


WHERE BOTH ENDS OF THE BOTTOM GRADE BREAK ARE WITHIN 5' OF THE BACK OF CURB, THE DETECTABLE WARNING SHALL BE LOCATED ON THE RAMP SURFACE AT THE BOTTOM GRADE BREAK.

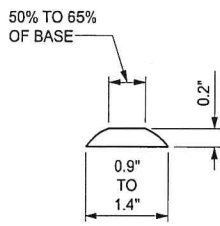
* GRADE BREAK (TYP.)
2% (5.0% MAX.) SLOPE BEYOND BOTTOM GRADE BREAK



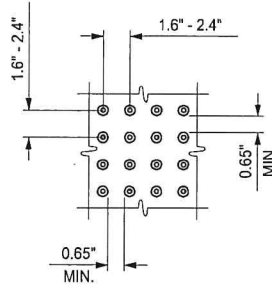
SECTION B-B
CURB RAMP ORIENTATION

* GRADE BREAKS AT THE TOP AND BOTTOM OF CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF TRAVEL.
*** TRANSITION ADJACENT GUTTER PAN CROSS SECTION TO PROVIDE 5.0% MAXIMUM COUNTER SLOPE ACROSS THE RAMP OPENING.
SEE SHEET 2 FOR CURB RAMP OPENING DETAILS.

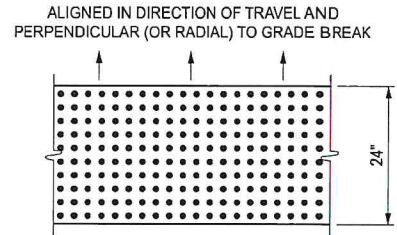
 DEPARTMENT DIRECTOR BRADLEY C. WIEFERICH, PE	STANDARD PLAN FOR CURB RAMP AND DETECTABLE WARNING DETAILS		R-28-K	SHEET 6 OF 7
	(SPECIAL DETAIL) FHWA APPROVAL	11/08/2023 PLAN DATE		



DOME SECTION



DOME SPACING



DOME ALIGNMENT

DETECTABLE WARNING DETAILS

NOTES:

DETAILS SPECIFIED ON THIS PLAN APPLY TO ALL CONSTRUCTION, RECONSTRUCTION, OR ALTERATION OF STREETS, CURBS, OR SIDEWALKS IN THE PUBLIC RIGHT OF WAY.

CURB RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

RAMPS SHALL BE PROVIDED AT ALL CORNERS OF AN INTERSECTION WHERE THERE IS EXISTING OR PROPOSED SIDEWALK AND CURB. RAMPS SHALL ALSO BE PROVIDED AT MARKED AND/OR SIGNALIZED MID-BLOCK CROSSINGS.

SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE RUNNING SLOPE.

SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.

CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION, PARALLEL TO THE DIRECTION OF TRAVEL.

RAMP WIDTH SHALL BE INCREASED, IF NECESSARY, TO ACCOMMODATE SIDEWALK SNOW REMOVAL EQUIPMENT NORMALLY USED BY THE MUNICIPALITY.

WHEN 5' MINIMUM WIDTHS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDINGS TO NOT LESS THAN 4' x 4'.

CURB RAMPS WITH A RUNNING SLOPE $\leq 5\%$ DO NOT REQUIRE A TOP LANDING. HOWEVER, ANY CONTINUOUS SIDEWALK OR PEDESTRIAN ROUTE CROSSING THROUGH OR INTERSECTING THE CURB RAMP MUST INDEPENDENTLY MAINTAIN A CROSS SLOPE NOT GREATER THAN 2.1% PERPENDICULAR TO ITS OWN DIRECTION(S) OF TRAVEL.

DETECTABLE WARNING SURFACE COVERAGE IS 24" MINIMUM IN THE DIRECTION OF RAMP/PATH TRAVEL AND THE FULL WIDTH OF THE RAMP/PATH OPENING EXCLUDING CURBED OR FLARED CURB TRANSITION AREAS. A BORDER OFFSET NOT GREATER THAN 2" MEASURED ALONG THE EDGES OF THE DETECTABLE WARNING IS ALLOWABLE. FOR RADIAL CURB THE OFFSET IS MEASURED FROM THE ENDS OF THE RADIUS.

FOR NEW ROADWAY CONSTRUCTION, THE RAMP CROSS SLOPE MAY NOT EXCEED 2.1%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.

THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH NOT INCLUDING LANDINGS OR TRANSITIONS.

DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OF TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN $\frac{1}{2}$ ". ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE FLUSH WITH THE ADJACENT CONCRETE.

CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE ROADSIDE CURB LINE, SHALL BE PROVIDED WHERE AN UNOBSTRUCTED CIRCULATION PATH LATERALLY CROSSES THE CURB RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE RAMP IS BORDERED BY LANDSCAPING, UNPAVED SURFACE OR PERMANENT FIXED OBJECTS. WHERE THEY ARE NOT REQUIRED, FLARED SIDES CAN BE CONSIDERED IN ORDER TO AVOID SHARP CURB RETURNS AT RAMP OPENINGS.

DETECTABLE WARNING PLATES MUST BE INSTALLED USING FABRICATED OR FIELD CUT UNITS CAST AND/OR ANCHORED IN THE PAVEMENT TO RESIST SHIFTING OR HEAVING.



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

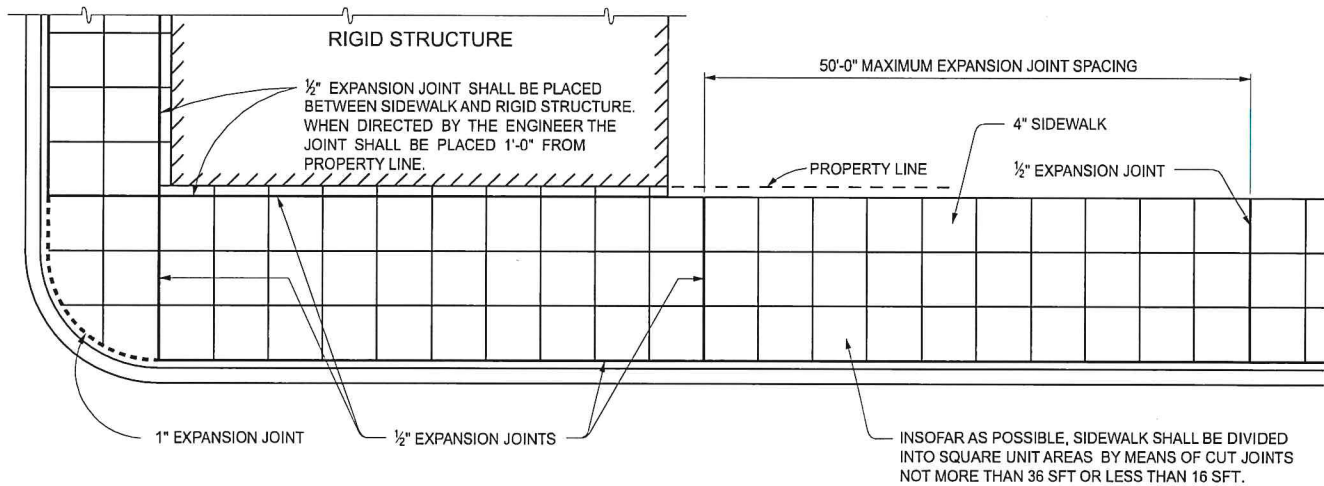
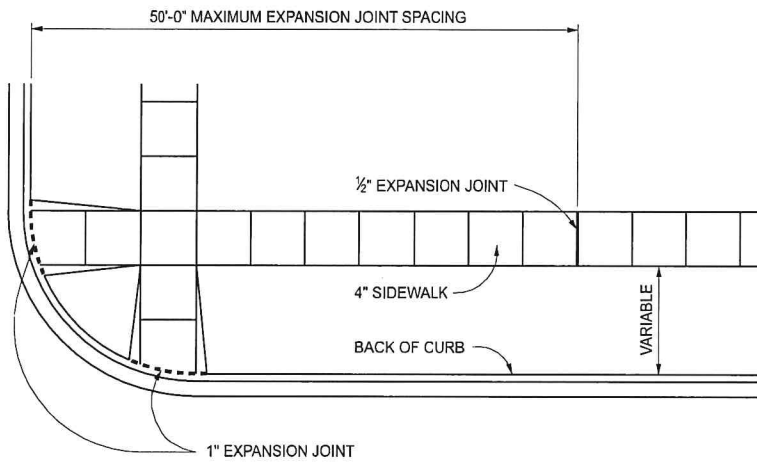
STANDARD PLAN FOR
CURB RAMP AND
DETECTABLE WARNING DETAILS

(SPECIAL DETAIL)
FHWA APPROVAL

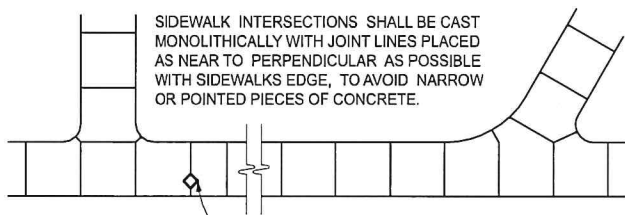
11/08/2023
PLAN DATE

R-28-K

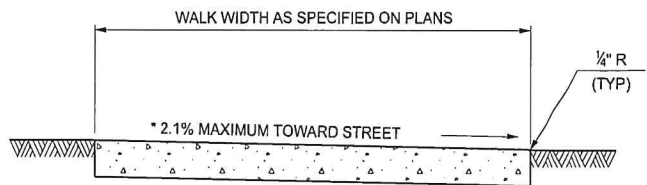
SHEET
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LOCATION OF JOINTS IN CONCRETE SIDEWALK



TYPICAL SIDEWALK JOINT LAYOUTS



4" CONCRETE SIDEWALK

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: _____
DIRECTOR, BUREAU OF DEVELOPMENT



DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

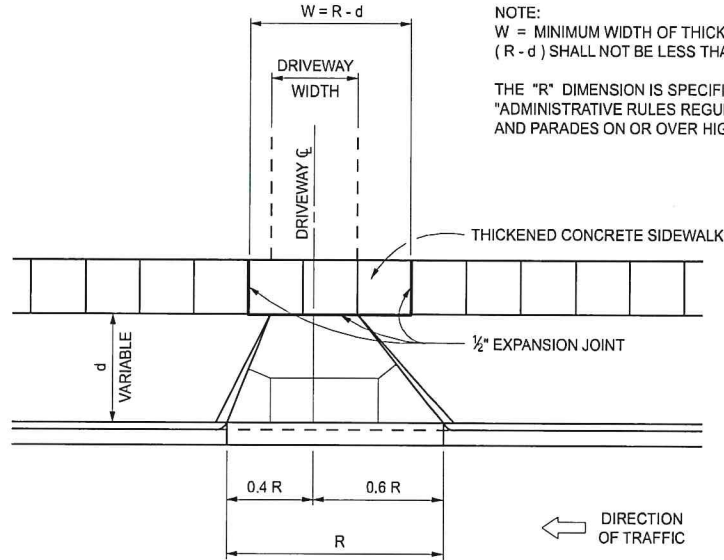
STANDARD PLAN FOR
DRIVEWAY OPENINGS & APPROACHES,
AND CONCRETE SIDEWALK

(SPECIAL DETAIL)
FHWA APPROVAL

11/08/2023
PLAN DATE

R-29-J

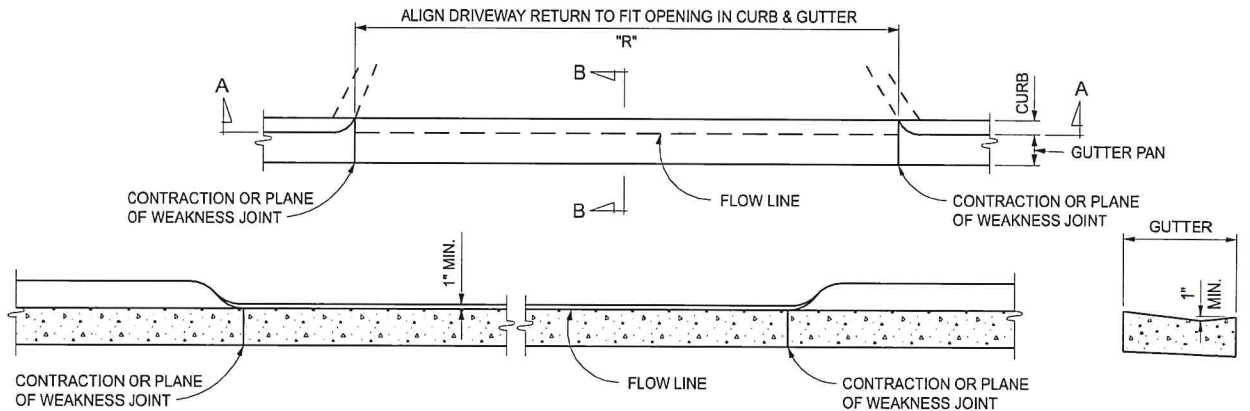
SHEET
1 OF 4



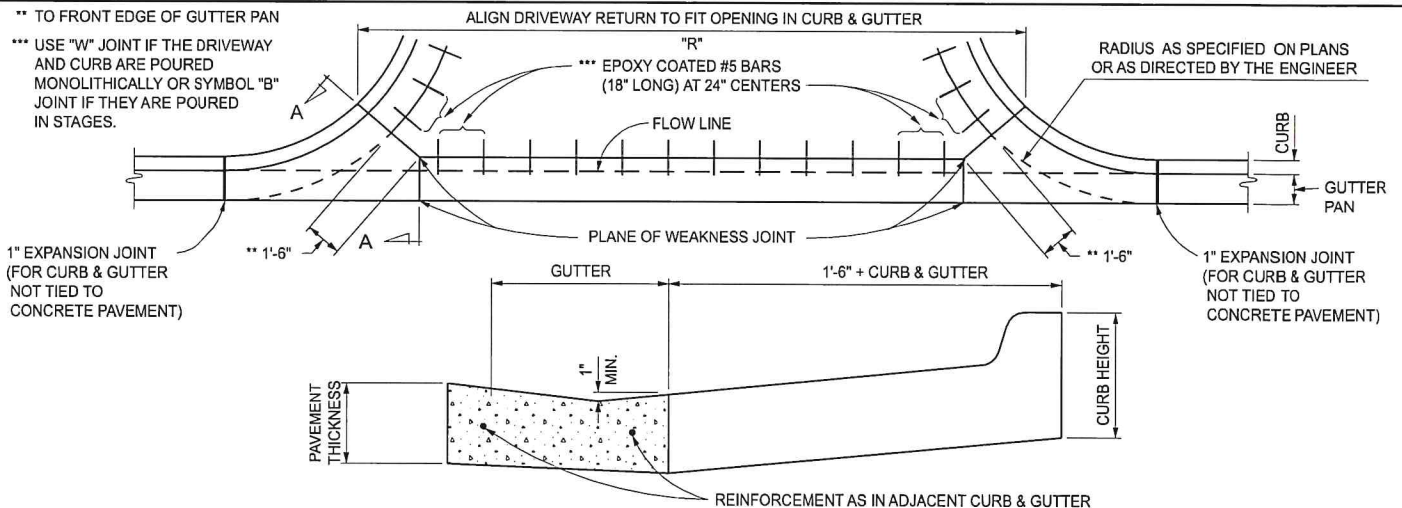
NOTE:
 W = MINIMUM WIDTH OF THICKENED CONCRETE SIDEWALK.
 (R - d) SHALL NOT BE LESS THAN DRIVEWAY WIDTH.

THE "R" DIMENSION IS SPECIFIED IN THE PUBLICATION
 "ADMINISTRATIVE RULES REGULATING DRIVEWAYS, BANNERS
 AND PARADES ON OR OVER HIGHWAYS".

CONCRETE DRIVEWAY OPENING LAYOUT



SECTION A - A
 SECTION B - B
 CONCRETE DRIVEWAY OPENING, DETAIL L



SECTION A - A
 CONCRETE DRIVEWAY OPENING, DETAIL M

NOTE:
 FOR ROADWAYS WITH CONCRETE PAVEMENTS,
 LONGITUDINAL LANE TIES WILL BE CONTINUOUS
 THROUGH THE DRIVEWAY OPENING AND THE
 SPACING OF THE #5 BARS IN CONCRETE DRIVEWAYS
 SHALL BE ADJUSTED TO AVOID CONFLICT WITH THE
 LONGITUDINAL LANE TIES.



DEPARTMENT DIRECTOR
 BRADLEY C. WIEFERICH, PE

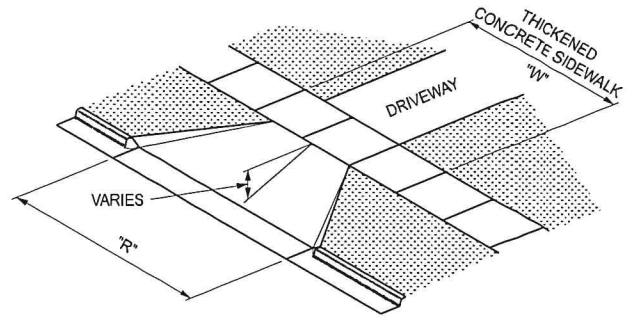
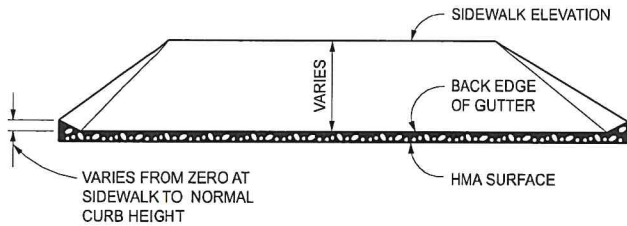
STANDARD PLAN FOR
 DRIVEWAY OPENINGS & APPROACHES,
 AND CONCRETE SIDEWALK

(SPECIAL DETAIL)
 FHWA APPROVAL

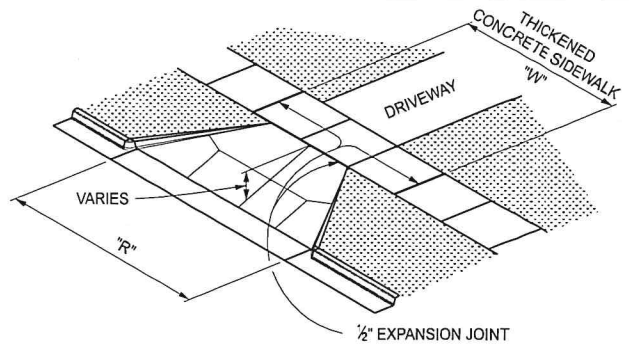
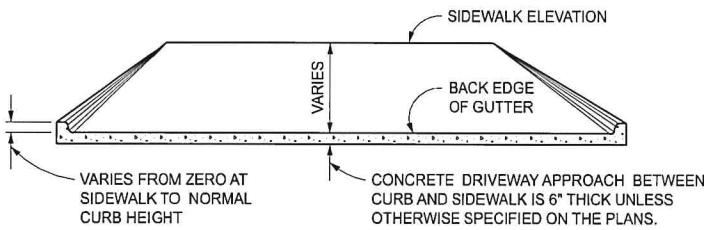
11/08/2023
 PLAN DATE

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HMA DRIVEWAY APPROACH
(TO BE USED WITH DETAIL L)

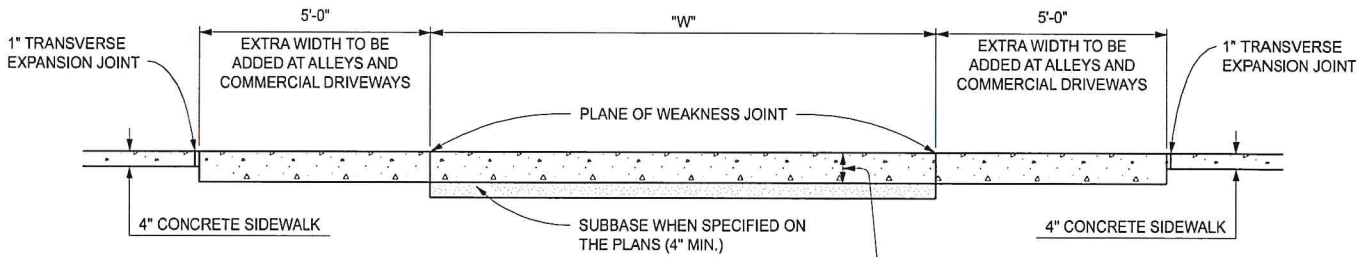


CONCRETE DRIVEWAY APPROACH
(TO BE USED WITH DETAIL L OR M)

NOTES:

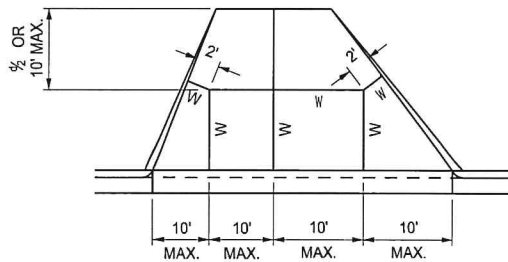
MONOLITHIC CURB IS INCLUDED IN THE CONCRETE DRIVEWAY APPROACH QUANTITY.

REINFORCEMENT IS NOT REQUIRED UNLESS SPECIFIED ON THE PLANS. WHEN REINFORCEMENT IS SPECIFIED, SEE CHART ON THIS SHEET.



WHEN CONCRETE DRIVEWAY APPROACH IS SPECIFIED, THE THICKENED CONCRETE SIDEWALK THICKNESS IS EQUAL TO THE THICKNESS OF THE CONCRETE DRIVEWAY APPROACH. WHEN HMA DRIVEWAY APPROACH IS SPECIFIED, THE THICKENED CONCRETE SIDEWALK THICKNESS IS 6" MIN.

THICKENED CONCRETE SIDEWALK



ADJUST DRIVEWAY JOINTS AS NEEDED TO ALIGN WITH ANY COINCIDING TRANSVERSE PAVEMENT JOINTS.

JOINT LAYOUT IS AS INDICATED OR AS DIRECTED BY THE ENGINEER.

INTERMEDIATE DRIVEWAY JOINT DETAILS

REINFORCEMENT FOR CONCRETE DRIVEWAYS

CONCRETE DRIVEWAY THICKNESS	WIRE SIZE (6" x 6" MESH)	AVERAGE WEIGHT (LBS/100 SFT)
LESS THAN 8"	W1.4	21
	W2.9	42
8" OR GREATER	USE WIRE FABRIC REINFORCEMENT SPECIFIED ON STANDARD PLAN R-37-SERIES	



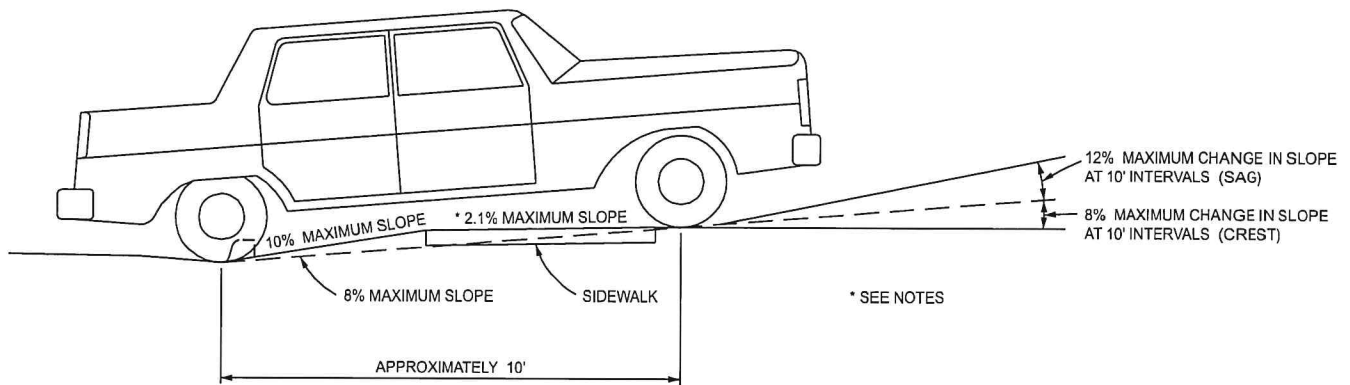
DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

STANDARD PLAN FOR
**DRIVEWAY OPENINGS & APPROACHES,
AND CONCRETE SIDEWALK**

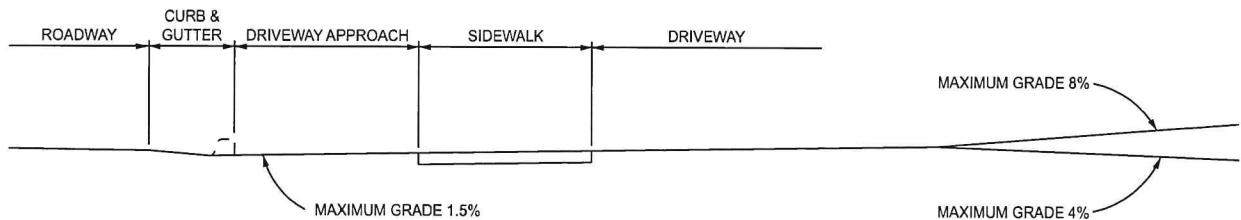
(SPECIAL DETAIL) 11/08/2023
FHWA APPROVAL PLAN DATE

R-29-J

SHEET
3 OF 4



LOW VOLUME COMMERCIAL OR RESIDENTIAL DRIVEWAY SLOPES



COMMERCIAL DRIVEWAY PROFILE FOR MAJOR TRAFFIC GENERATORS

NOTES:

FOR DRIVEWAY DESIGN REFER ALSO TO "ADMINISTRATIVE RULES REGULATING DRIVEWAYS, BANNERS, AND PARADES ON OR OVER HIGHWAYS" AND GEOMETRIC DESIGN G-680-SERIES, COMMERCIAL DRIVEWAYS.

FOR CURB AND GUTTER DETAILS, SEE STANDARD PLAN R-30-SERIES.

TRANSVERSE SIDEWALK SLOPES ARE 2.1% MAXIMUM. IN ORDER TO MEET SITE CONDITIONS, IF THE TRANSVERSE SLOPE IS REQUIRED TO BE LESS THAN 1.5%, LONGITUDINAL DRAINAGE MUST BE PROVIDED.

WHEN SETTING GRADES FOR COMMERCIAL DRIVES, THE TYPES OF VEHICLES USING THE DRIVE SHOULD BE CONSIDERED.

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Michigan Department of Transportation

DEPARTMENT DIRECTOR
BRADLEY C. WIEFERICH, PE

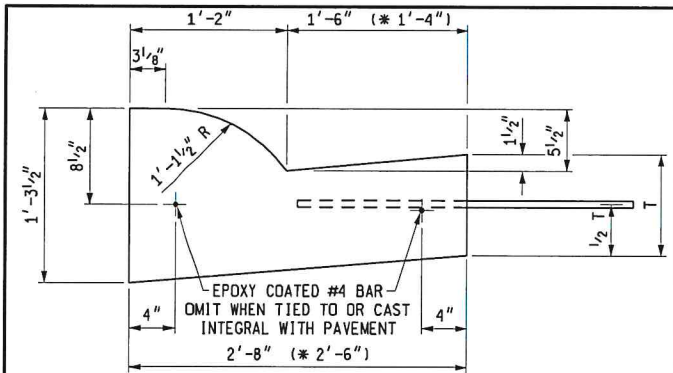
STANDARD PLAN FOR
DRIVEWAY OPENINGS & APPROACHES,
AND CONCRETE SIDEWALK

(SPECIAL DETAIL)
FHWA APPROVAL

11/08/2023
PLAN DATE

R-29-J

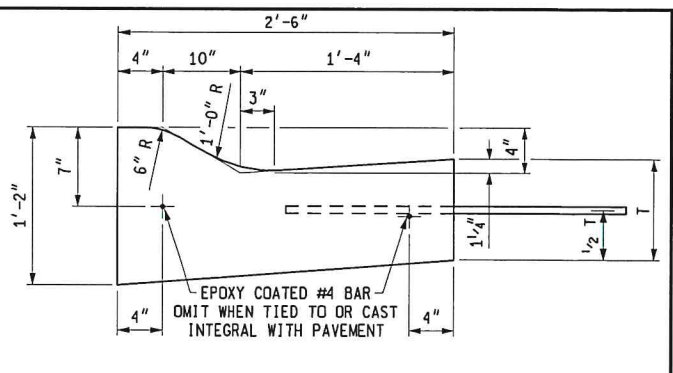
SHEET
4 OF 4



(* GUTTER PAN WIDTH MAY BE REDUCED WHEN APPROVED BY THE ENGINEER)

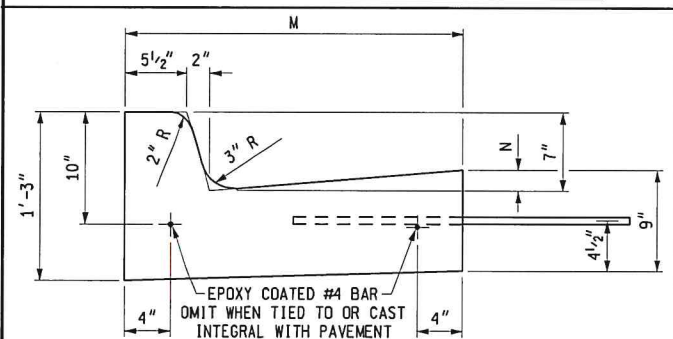
DETAIL	DIMENSION		LANE TIES	CONCRETE CYD / LFT	CONCRETE CYD / LFT
	T				
B1	9"		AS SHOWN	0.0900	(* 0.0855)
B2	9"		OMITTED	0.0900	(* 0.0855)
B3	10"		AS SHOWN	0.0941	(* 0.0894)

B



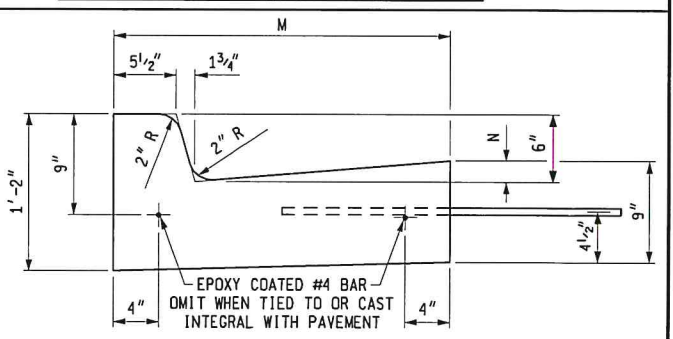
DETAIL	DIMENSION		LANE TIES	CONCRETE CYD / LFT
	T			
D1	9"		AS SHOWN	0.0788
D2	9"		OMITTED	0.0788
D3	10"		AS SHOWN	0.0826

D



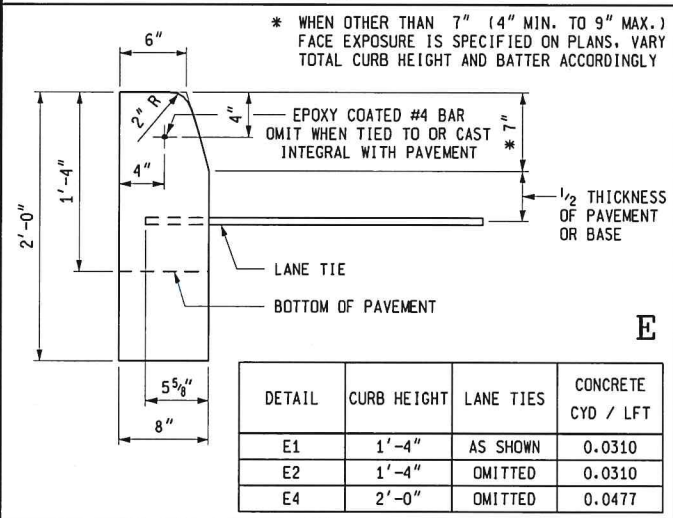
DETAIL	DIMENSION		LANE TIES	CONCRETE CYD / LFT
	M	N		
C1	1'-6"	7/8"	AS SHOWN	0.0506
C2	1'-6"	7/8"	OMITTED	0.0506
C3	2'-0"	1 3/8"	AS SHOWN	0.0632
C4	2'-0"	1 3/8"	OMITTED	0.0632
C5	2'-6"	1 7/8"	AS SHOWN	0.0757
C6	2'-6"	1 7/8"	OMITTED	0.0757

C



DETAIL	DIMENSION		LANE TIES	CONCRETE CYD / LFT
	M	N		
F1	1'-6"	7/8"	AS SHOWN	0.0484
F2	1'-6"	7/8"	OMITTED	0.0484
F3	2'-0"	1 3/8"	AS SHOWN	0.0610
F4	2'-0"	1 3/8"	OMITTED	0.0610
F5	2'-6"	1 7/8"	AS SHOWN	0.0737
F6	2'-6"	1 7/8"	OMITTED	0.0737

F



* WHEN OTHER THAN 7" (4" MIN. TO 9" MAX.)
FACE EXPOSURE IS SPECIFIED ON PLANS, VARY
TOTAL CURB HEIGHT AND BATTER ACCORDINGLY

DETAIL	CURB HEIGHT	LANE TIES	CONCRETE CYD / LFT
E1	1'-4"	AS SHOWN	0.0310
E2	1'-4"	OMITTED	0.0310
E4	2'-0"	OMITTED	0.0477

E

MDOT
Michigan Department of Transportation

PREPARED BY
DESIGN DIVISION

DRAWN BY: B.L.T.

CHECKED BY: W.K.P.

DEPARTMENT DIRECTOR
Kirk T. Steudle

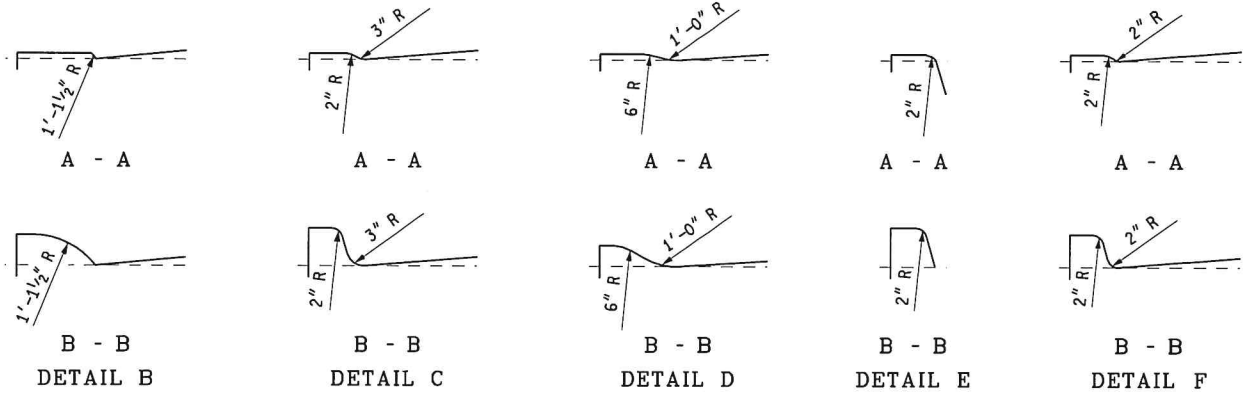
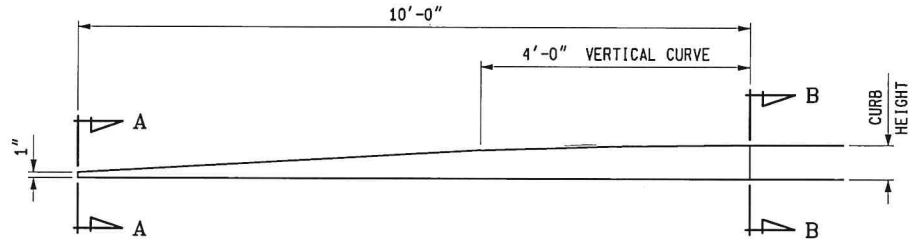
APPROVED BY: Randy V. Bittler
DIRECTOR, BUREAU OF FIELD SERVICES

APPROVED BY: Mark A. Van Pelt
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

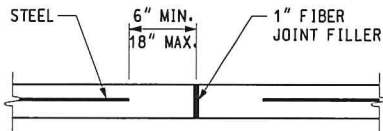
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

**CONCRETE CURB AND
CONCRETE CURB & GUTTER**

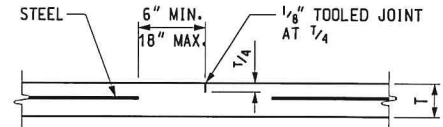
9-30-2014 F.H.W.A. APPROVAL	2-6-2014 PLAN DATE	R-30-G	SHEET 1 OF 2
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CONCRETE CURB, CURB AND GUTTER ENDINGS



1" FIBER JOINT FILLER



CONTRACTION JOINT

NOTES:

CURB AND GUTTER RADII SHALL BE DIMENSIONED TO THE FRONT EDGE OF THE GUTTER PAN OR EDGE OF PAVEMENT.

CONCRETE CURB AND GUTTER ENDINGS WILL BE PAID FOR IN LINEAR FEET OF THE ADJACENT CURB DETAIL.

JOINTS SHALL BE PLACED AT RIGHT ANGLES TO THE EDGE OF CONCRETE CURB AND GUTTER.

JOINTS DETAILED ON THE PLANS SHALL SUPERSEDE THOSE SPECIFIED ON THIS STANDARD PLAN.

BOTTOM SLOPE OF CURB AND GUTTER STRUCTURE MAY BE THE SAME SLOPE AS BOTTOM OF PAVEMENT. BACK OF CURB AND VERTICAL EDGE OF GUTTER PAN MAY HAVE A MAXIMUM 1/2" BATTER TO FACILITATE FORMING.

WHEN CURB AND GUTTER IS CAST INTEGRALLY, SEE CURRENT STANDARD PLAN R-31-SERIES.

ALL JOINTS FOR CURB OR CURB AND GUTTER ARE INCLUDED IN THE PAY ITEM FOR THE CURB OR CURB AND GUTTER.

JOINTS IN CURB OR CURB AND GUTTER NOT TIED TO CONCRETE PAVEMENT; ADJACENT TO CONCRETE BASE COURSE; OR ADJACENT TO HMA PAVEMENT:

- A. PLACE 1" FIBER JOINT FILLER AT 400' MAXIMUM INTERVALS.
- B. PLACE 1" FIBER JOINT FILLER AT SPRING POINTS OF INTERSECTING STREETS.
- C. PLACE 1/2" ISOLATION JOINT AT CATCH BASINS PER STANDARD PLAN R-37-SERIES.
- D. PLACE CONTRACTION JOINTS AT 40' MAXIMUM INTERVALS.

JOINTS IN CURB OR CURB AND GUTTER TIED TO JOINTED PAVEMENT

- A. PLACE 1" FIBER JOINT FILLER OPPOSITE ALL TRANSVERSE EXPANSION JOINTS IN PAVEMENT.
- B. PLACE 1/2" ISOLATION JOINT AT CATCH BASINS PER STANDARD PLAN R-37-SERIES.
- C. PLACE CONTRACTION JOINTS OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN PAVEMENT.
- D. A SYMBOL (B) JOINT SHALL BE PLACED BETWEEN CURB OR CURB AND GUTTER AND ADJACENT CONCRETE PAVEMENT AS SPECIFIED ON STANDARD PLAN R-41-SERIES.

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR

**CONCRETE CURB AND
CONCRETE CURB & GUTTER**

9-30-2014
F.H.W.A. APPROVAL

2-6-2014
PLAN DATE

R-30-G

SHEET
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