

**Manistee County Road Commission
Plans and Specifications**

**Yates Road HMA Resurfacing
13 Mile Road to North of Valencourt Road
Cleon Township
Manistee County, Michigan**

January 17, 2020

MANISTEE COUNTY ROAD COMMISSION

PLANS OF PROPOSED IMPROVEMENTS TO

YATES ROAD

CLEON TWP
MANISTEE COUNTY

INDEX TO SHEETS

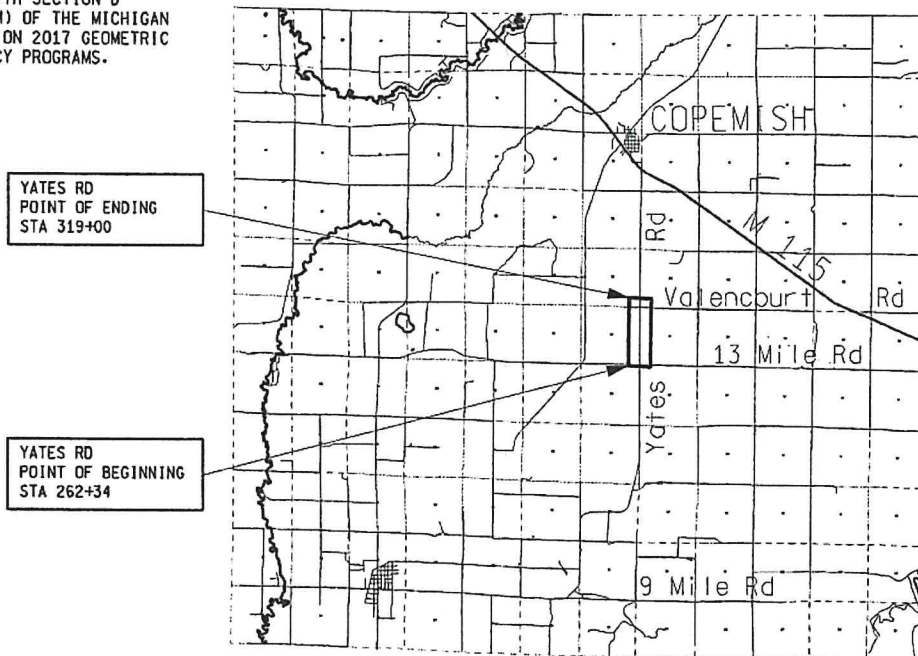
- 1 TITLE SHEET
- 2-5 DESCRIPTION OF WORK
- 6 TYPICAL SECTION SHEETS
- 7 DETAIL SHEET
- 8 STRIP PLAN SHEETS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS AS AMENDED.

PLACING OF TEMPORARY TRAFFIC CONTROL ITEMS SHALL BE DONE IN ACCORDANCE WITH THE 2011 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS REVISED.

THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH SECTION D PREVENTIVE MAINTENANCE (PM) OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2017 GEOMETRIC GUIDELINES FOR LOCAL AGENCY PROGRAMS.

YATES RD	
ADT (2020).....	240
% COMMERCIAL.....	5%
ADT (2040).....	324
POSTED SPEED.....	55 MPH
DESIGN SPEED.....	55 MPH



PROJECT LENGTH: 1.07 MILES
CONTRACT FOR: HMA WEDGING & OVERLAY



PREPARED UNDER SUPERVISION OF

GARY L. KARTTUNEN, P.E. 30565
REGISTERED PROFESSIONAL ENGINEER REGISTRATION #

KPM Engineering
CIVIL ENGINEERING CONSULTANTS

1/16/2020

COUNTY ROAD COMMISSION APPROVAL

Mark P. Sohl 1/20/20
MARK P. SOHL, MCRO MANAGER DATE

SHEET NO.
1

10-40102 JM 1/16/2020

PROJECT LOG

YATES ROAD, FROM 13 MILE ROAD TO NORTH OF VALENCOURT ROAD CLEON TOWNSHIP, MANISTEE COUNTY

Project Location:

The project is on Yates Road from 12' north of the centerline of 13 Mile Road (POB = Station 262+34) northerly to 271' north of the centerline of Valencourt Road (POE = Station 319+00). The project length is 1.07 miles.

Refer to the Project Title Sheet.

Description of Work:

The work at this location involves 1.07 miles of Hot Mix Asphalt (HMA) overlay, HMA quarter crown and centerline wedging, aggregate shoulders, approach paving and maintaining traffic.

Specifications:

All work shall be performed in accordance with the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction, the project Special Provisions, plans, project log, and as directed by the Engineer.

Placement of temporary traffic control items within the project limits shall be done in accordance with the 2011 edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), as revised, and the special provision for Maintaining Traffic.

Items of Work:

Mainline

In accordance with the typical cross sections and details, place full width HMA quarter crown wedging and HMA centerline wedging for the entire project length. Application will be as directed by the Engineer. Resurface the existing and wedged pavements in accordance with the typical cross sections, and place aggregate shoulders. Construct a butt joint at the POB and POE in accordance with the details.

HMA Surface, Rem	259 Syd
HMA, 4E1 (HMA Wedging)	968 Ton
HMA, 4E1 (for HMA Overlay)	1,130 Ton
Shoulder, Cl II	1,120 Ton

PROJECT LOG

YATES ROAD, FROM 13 MILE ROAD TO NORTH OF VALENCOURT ROAD CLEON TOWNSHIP, MANISTEE COUNTY

Note: Widen the proposed HMA surface by 2' at all existing un-paved drive approaches in accordance with the details or as directed by the Engineer.

Valencourt Road Approach (Appr Treatment Type IIB) – Sta 316+29 Rt

In accordance with Intersection Approach Detail Type IIB and as directed by the Engineer, place HMA resurfacing to meet the new pavement grade. Excavate and compact the existing approach for placement of Approach, CI I prior to paving. This work will not be paid for separately, but shall be included in payment for Approach, CI I.

Approach, CI I	59 Ton
HMA Approach	23 Ton

HMA Driveway Approaches

Existing HMA paved drive approaches shall be sawcut and removed for a distance of 10' from the edge of proposed mainline pavement. Place Approach, CI I material as directed by the Engineer and resurface with 2" of HMA material.

HMA Surface, Rem	16 Syd
Approach, CI I	1 Ton
HMA Approach	3 Ton

The sawcutting and removal of the existing paved approaches is included in payment for HMA Surface, Rem. Any excavation or grading required is included in payment for HMA Approach.

Un-paved (Gravel or Dirt) Driveway Approaches

Existing un-paved drive approaches shall be resurfaced with Approach, CI II material for a distance of 15' from the new edge of pavement or as directed by the Engineer as shown in the details. As previously noted under mainline work, widen the proposed HMA surface by 2' at all existing un-paved drive approaches during the mainline HMA paving (paid for as HMA, 4E1).

Approach, CI II	51 Ton
------------------------	---------------

Maintaining Traffic Quantities

Maintain Traffic within the project limits in accordance with the Special Provision for Maintaining Traffic.

Traffic Control	1 LSUM
Temporary Pavement Markings	1 LSUM

PROJECT LOG

YATES ROAD, FROM 13 MILE ROAD TO NORTH OF VALENCOURT ROAD CLEON TOWNSHIP, MANISTEE COUNTY

Entire Project Quantities

There are 2 monument boxes for government corners within the project limits that will need to be adjusted. These are shown in the strip map plan sheets.

Monument Box Adjust	2 Ea
----------------------------	-------------

Replace existing mail box posts where directed by the Engineer:

Post, Mailbox	5 Ea
----------------------	-------------

General Log Notes:

1. Coordination

The contractor shall coordinate his operations with Contractors/Agencies, including the Manistee County Road Commission (MCRC), performing work on this or other projects within or adjacent to the Construction Influence Area (CIA) as defined in the Maintaining Traffic special provision.

2. Underground Utilities

For the protection of underground utilities and in conformance with Public Acts 174 of 2013, the contractor shall call (800) 482-7171 or 811 a minimum of three full working days, excluding Saturdays, Sundays, and Holidays prior to beginning each excavation. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the "MISS DIG" System.

3. Adjusting Monument Boxes

All government corners on this project shall be preserved, whether shown or not. It may be necessary to place or adjust monument boxes, as required.

4. Aggregate Base and Approach, CI I

Aggregate Base used on this project shall be Aggregate 22A or Aggregate 21AA.

5. Mobilization

Mobilization is included with the pay items and will not be paid for separately.

PROJECT LOG

YATES ROAD, FROM 13 MILE ROAD TO NORTH OF VALENCOURT ROAD CLEON TOWNSHIP, MANISTEE COUNTY

LOG OF EXISTING PAVEMENT MARKINGS

The following pavement marking information is for information only. Permanent pavement markings will be placed by others after completion of the project.

Sta 262+34 to Sta 279+31	Skip
Sta 279+31 to Sta 289+49	NB Solid, SB Skip
Sta 289+49 to Sta 297+83	Double Yellow
Sta 297+83 to Sta 307+76	NB Skip, SB Solid
Sta 307+76 to Sta 319+00	Skip

NOTES APPLYING TO ROAD STANDARD PLANS

Where the following items are called for in the log, they are to be constructed according to the Standard Plan given below opposite each item unless otherwise indicated.

MONUMENT BOXES

R-11-E

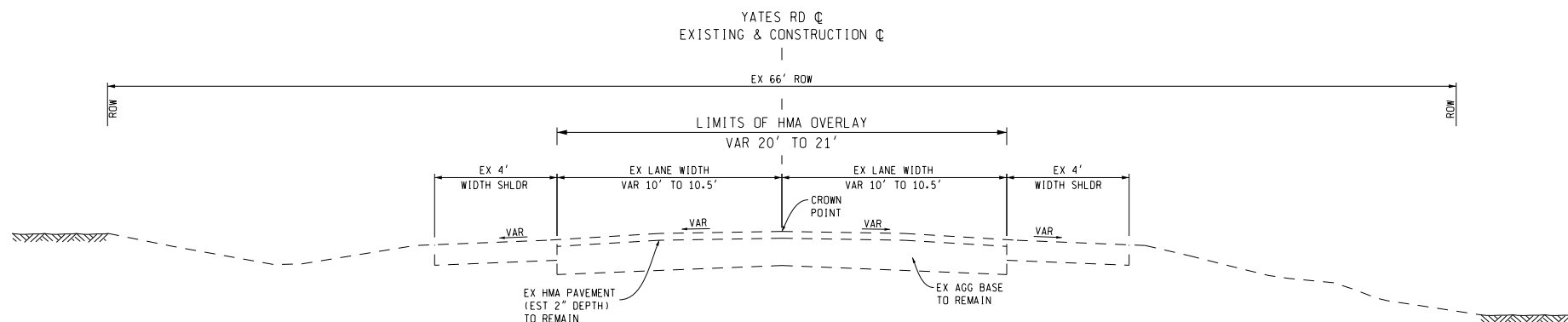
NOTES APPLYING TO TRAFFIC AND SAFETY STANDARD PLANS

Where the following items are called for in the log, they are to be constructed according to the Standard Plan given below opposite each item unless otherwise indicated.

TEMPORARY TRAFFIC CONTROL DEVICES

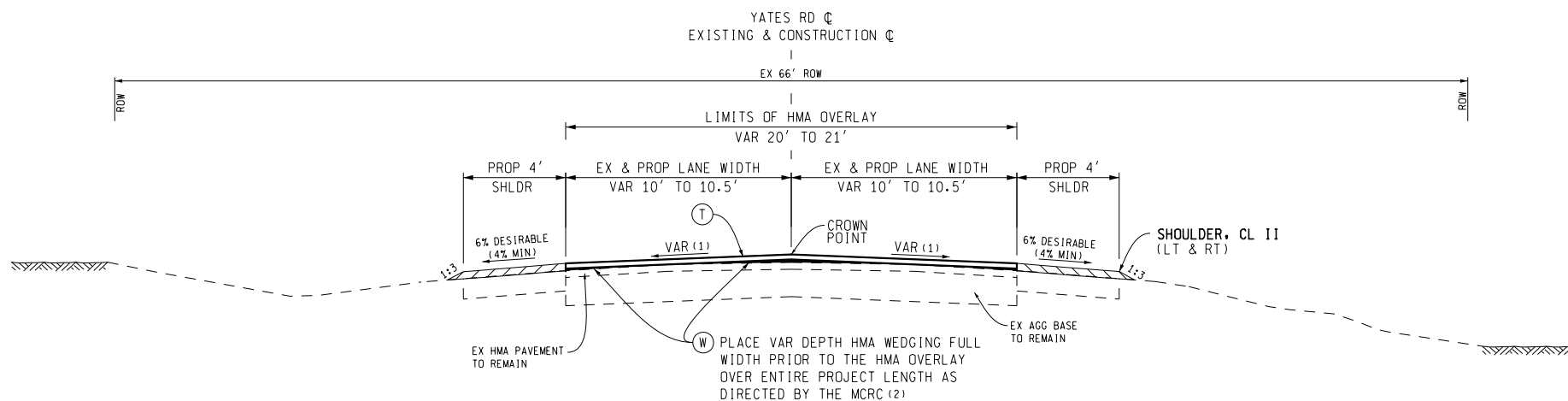
WZD-125-E (S.D.)

Note: Road Standard Plans, Road Special Details, and Traffic & Safety Standard Plans are not included in the Bid Documents. All bidders are required to obtain them from the MDOT website and utilize them if they are the selected contractor for the project.



EXISTING NORMAL CROWN SECTION

SECTION APPLIES:
POB STA 262+34 TO POE STA 319+00



PROPOSED NORMAL CROWN OVERLAY SECTION

SECTION APPLIES:
POB STA 262+34 TO POE STA 319+00

(1) VARY SLOPE 1.5% TO 3.0% (2% DESIRABLE) AS DIRECTED BY THE MCRC.

(2) THE PROPOSED HMA WEDGING COURSE IS ESTIMATED AT 150 #/SYD (AVG). THICKNESS OF HMA SHALL VARY FROM 1.5" MAX AT CENTERLINE TO APPROXIMATELY 1" AT THE QUARTER CROWN TO OBTAIN THE PROPOSED CROSS SLOPE.

HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER SYD	PERFORMANCE GRADE	REMARKS
(T)	HMA, 4E1	165#	PG 58-28	HMA OVERLAY, 1 COURSE AWI = 220
(W)	HMA, 4E1 (2)	VAR 0 TO 220# ±	PG 58-28	PROP HMA WEDGING COURSE FULL WIDTH
(A1)	HMA APPROACH	330# (Avg)	PG 58-28	HMA, 4E1 FOR APPROACHES (2 COURSES)
(A2)	HMA APPROACH	220#	PG 58-28	HMA, 4E1 FOR DRIVES
BOND COAT (3)		0.05-0.15 GAL/SYD		

(3) FOR INFORMATION ONLY

NO SCALE



3 WORKING DAYS
BEFORE YOU DIG
CALL 811
800-482-7171
OR 811

KPM Engineering

YATES ROAD
TYPICAL SHEET

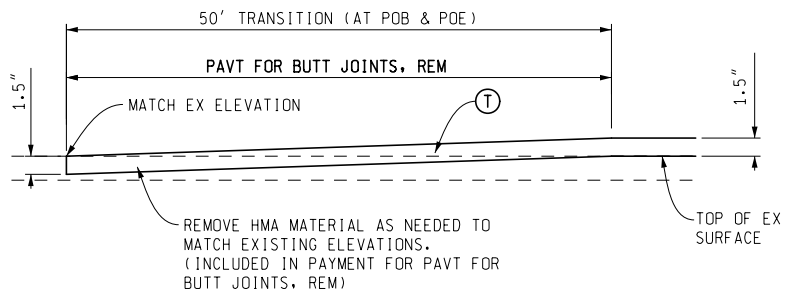
MANISTEE COUNTY
ROAD COMMISSION
8946 CHIPPEWA HWY
BEAR LAKE, MI 49614

DRAWN BY
GLK

SHEET NO.
6

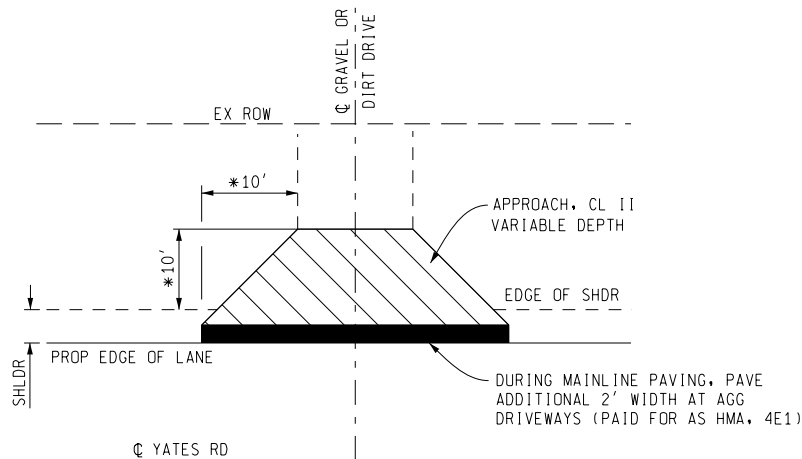
DATE: 1/15/2020

1/15/2020 2:58:13 PM



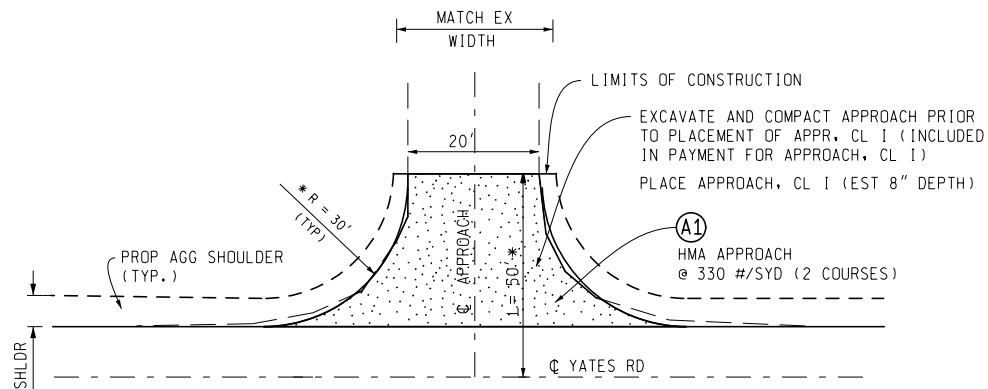
BUTT JOINT DETAIL

TO APPLY:
POB STA 262+34
POE STA 319+00



UN-PAVED DRIVEWAY DETAIL

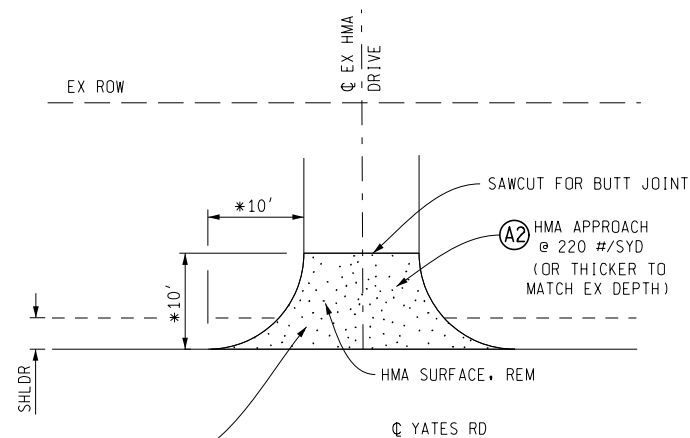
* OR AS DIRECTED BY THE MCRC



APPROACH TREATMENT TYPE IIB (EX AGG)

TO APPLY:
VALENCOURT ROAD (RT)

* OR AS DIRECTED BY THE MCRC



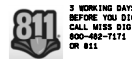
HMA PAVED DRIVEWAY DETAIL

TO APPLY:
STA 266+18 RT

* OR AS DIRECTED BY THE ENGINEER

NO SCALE

KPM Engineering



APPROACH & DRIVEWAY
DETAIL SHEET

DATE: 1/15/2020

MANISTEE COUNTY
ROAD COMMISSION
8946 CHIPPEWA HWY
BEAR LAKE, MI 49614

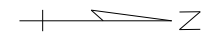
DRAWN BY
GLK

SHEET NO.
7

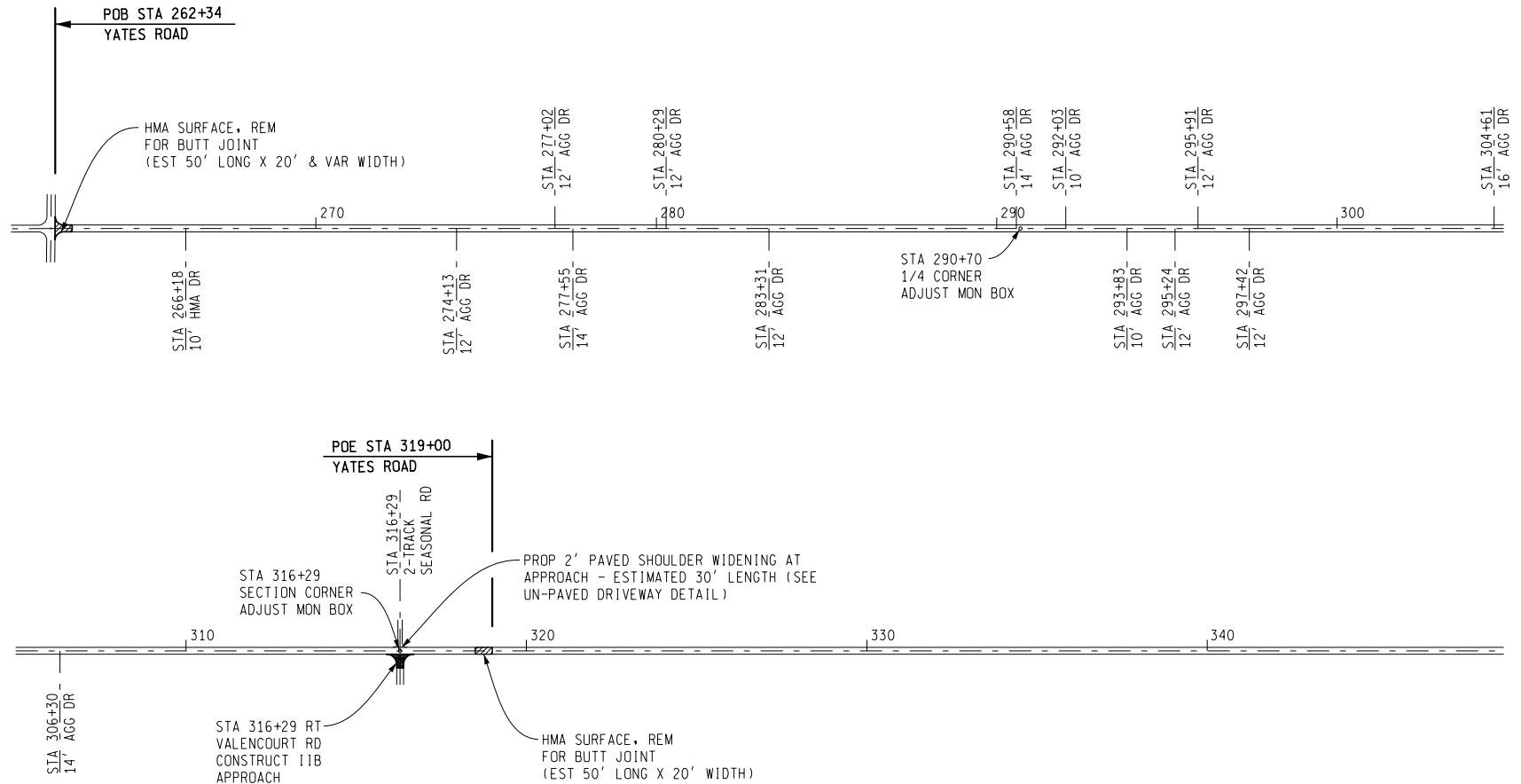
1/15/2020 2:59:46 PM

13 MILE RD

STA 262+22



STA 262+34 TO STA 319+00
PLACE HMA WEDGING AND HMA OVERLAY
20' TO 21' WIDTH



VALENCOURT RD

STA 316+29

NOTE: ALIGNMENT INFORMATION HAS BEEN DERIVED FROM
AERIAL PHOTOGRAPHY AND IS FOR INFORMATION ONLY.

NO SCALE



3 WORKING DAYS
BEFORE YOU DIG
CALL 811
800-482-7171
OR 811

YATES RD
POB STA 262+34 TO POE STA 319+00
CLEON TWP

DATE: 1/16/2020

MANISTEE COUNTY
ROAD COMMISSION
8946 CHIPPEWA HWY
BEAR LAKE, MI 49614

DRAWN BY	SHEET NO.
GLK	8

Manistee County Road Commission
Special Provision
For
Maintaining Traffic

KPM:GLK

Page 1 of 3

01/14/20

General

Traffic will be maintained in accordance with the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction including any supplemental specifications and as herein specified. All traffic control devices and their usage shall comply with the 2011 edition of the Michigan Manual of Uniform Traffic Control Devices (MMUTCD), as amended.

The Manistee County Road Commission (MCRC) may perform maintenance work within or adjacent to the Construction Influence Area (CIA). The MCRC will coordinate their operations to minimize the interference to the Contractor. No additional payment will be made to the Contractor for the joint use of the traffic control items.

Construction Influence Area (CIA)

The CIA limits shall include the area within the right-of-ways for Yates Road from 13 Mile Road to 271' north of Valencourt Road in Cleon Township, plus a distance in advance as required for the advance construction signing and traffic control devices. The CIA shall also extend down all intersecting roadways a distance of 550 feet.

Traffic and Work Restrictions

Conduct all work between sunrise and sunset local time. "Work" is defined as any activity on the project including the setting up and taking down of traffic control devices. No work shall be permitted on Sundays, holidays, or during special events unless approved by the MCRC due to special circumstances. Holiday periods are defined as:

Memorial Day – 5:00 pm, Friday 05/22/20 to 6:00 am, Tuesday, 05/26/20

Independence Day – 5:00 pm Friday, 07/03/20 to 6:00 am, Monday,
07/06/20

Labor Day - 5:00 pm, Friday 09/04/20 to 6:00 am, Tuesday, 09/08/20

A minimum of one lane of traffic shall be maintained at all times. All lanes shall be opened for traffic at night. Work shall only be allowed on one side of the road at a time.

Manistee County Road Commission
Special Provision
For
Maintaining Traffic

KPM:GLK

Page 2 of 3

01/14/20

Traffic shall be maintained with traffic regulator control in accordance with the attached Maintaining Traffic Typical M0020a and M0150a.

A short duration lane closure on 13 Mile Road, utilizing traffic regulator control, may be required when paving in the approach area.

G20-2 (End Road Work) signs will not be required on this short duration project.

Access for commercial and residential drives within the project limits and for emergency services shall be maintained at all times during construction.

Traffic Control Devices

All warning signs shall be 48" x 48" mounted at a 5' minimum bottom height in uncurbed areas and 7' minimum bottom height in curbed or pedestrian areas.

Temporary Traffic Control Devices shall conform to the attached MDOT Work Zone Device Special Detail WZD-125-E.

All construction signs left in place for a duration exceeding 14 days will be on driven posts as per the MDOT Work Zone Device Special Detail WZD-100-A which is available on the MDOT website or available from the MCRC (upon request).

Quantities for traffic control devices have been estimated based on One (1) sequence of Maintaining Traffic Typical M0150a, plus three (3) W20-1 "Road Work Ahead" signs to be placed on the intersecting roads a minimum of 550' in each direction from the centerline of Yates Road or as directed by the Engineer. Additional signing and one additional lighted arrow are estimated for traffic regulator control in the vicinity of the 13 Mile Road intersection at the POB.

Temporary Pavement Markings

Temporary centerline pavement markings shall be Pavt Mrkg, Type NR tape, 4 inch, Yellow, Temp and shall be placed daily on the HMA top course in accordance with the MDOT 2012 Standard Specifications for Construction. The temporary markings shall be placed in a single line of 4' strips spaced 50' center-to-center for passing zones and a double line of 4' strips spaced 50' center-to-center for each course of HMA paving for no-passing zones.

Yates Road
2020 HMA Resurfacing

Manistee County Road Commission
Special Provision
For
Maintaining Traffic

KPM:GLK

Page 3 of 3

01/14/20

Measurement and Payment

The completed work for Maintaining Traffic and for Temporary Pavement Markings, including furnishing and placement of all materials, labor, and equipment, will be measured and paid for at the contract unit price for the following contract items (pay items).

<u>Contract Item</u>	<u>Pay Unit</u>
Traffic Control.....	Lump Sum
Temporary Pavement Markings.....	Lump Sum

Estimates of Maintaining Traffic Quantities

Lighted Arrow, Type C, Furn,	3 Each
Lighted Arrow, Type C, Oper,	3 Each
Sign, Type B, Temp, Prismatic Furn	456 Square Foot
Sign, Type B, Temp, Prismatic Oper.....	456 Square Foot
Traf Regulator Control (with Intermediate Flaggers)	1 Lump Sum
Minor Traf Devices	1 Lump Sum

Estimated quantities for the items above are provided for information only. They shall be included in the lump sum pay item for Traffic Control.

MINIMUM MERGING TAPER LENGTH "L" (FEET)

OFFSET	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)										TAPER LENGTH "L" IN FEET
FEET	25	30	35	40	45	50	55	60	65	70	
1	10	15	20	27	45	50	55	60	65	70	
2	21	30	41	53	90	100	110	120	130	140	
3	31	45	61	80	135	150	165	180	195	210	
4	42	60	82	107	180	200	220	240	260	280	
5	52	75	102	133	225	250	275	300	325	350	
6	63	90	123	160	270	300	330	360	390	420	
7	73	105	143	187	315	350	385	420	455	490	
8	83	120	163	213	360	400	440	480	520	560	
9	94	135	184	240	405	450	495	540	585	630	
10	104	150	204	267	450	500	550	600	650	700	
11	115	165	225	293	495	550	605	660	715	770	
12	125	180	245	320	540	600	660	720	780	840	
13	135	195	266	347	585	650	715	780	845	910	
14	146	210	286	374	630	700	770	840	910	980	
15	157	225	307	400	675	750	825	900	975	1050	

THE FORMULAS FOR THE MINIMUM LENGTH OF A MERGING TAPER IN DERIVING THE "L" VALUES SHOWN IN THE ABOVE TABLES ARE AS FOLLOWS:

"L" = $\frac{W \times S^2}{60}$ WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 40 MPH OR LESS

"L" = S x W WHERE POSTED SPEED PRIOR TO THE WORK AREA IS 45 MPH OR GREATER

L = MINIMUM LENGTH OF MERGING TAPER
S = POSTED SPEED LIMIT IN MPH
PRIOR TO WORK AREA
W = WIDTH OF OFFSET

TYPES OF TAPERS

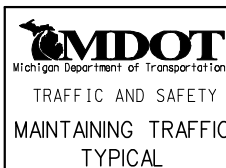
UPSTREAM TAPERS

MERGING TAPER
SHIFTING TAPER
SHOULDER TAPER
TWO-WAY TRAFFIC TAPER

DOWNSTREAM TAPERS
(USE IS OPTIONAL)

TAPER LENGTH

L - MINIMUM
1/2 L - MINIMUM
1/3 L - MINIMUM
100' - MAXIMUM
100' - MINIMUM
(PER LANE)



TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf
CHECKED BY: BMM

JUNE 2006
PLAN DATE:
FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

M0020a

SHEET
1 OF 2

REV. 08/21/2006

DISTANCE BETWEEN TRAFFIC CONTROL DEVICES "D"
AND LENGTH OF LONGITUDINAL BUFFER SPACE ON
"WHERE WORKERS PRESENT" SEQUENCES

"D" DISTANCES	POSTED SPEED LIMIT, MPH (PRIOR TO WORK AREA)									
	25	30	35	40	45	50	55	60	65	70
D (FEET)	250	300	350	400	450	500	550	600	650	700

GUIDELINES FOR LENGTH OF
LONGITUDINAL BUFFER SPACE "B"

SPEED* MPH	LENGTH FEET
20	33
25	50
30	83
35	132
40	181
45	230
50	279
55	329
60	411
65	476
70	542

* POSTED SPEED, OFF PEAK 85TH PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

1 BASED UPON AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) BRAKING DISTANCE PORTION OF STOPPING SIGHT DISTANCE FOR WET AND LEVEL PAVEMENTS (A POLICY ON GEOMETRIC DESIGN OF HIGHWAY AND STREETS), AASHTO. THIS AASHTO DOCUMENT ALSO RECOMMENDS ADJUSTMENTS FOR THE EFFECT OF GRADE ON STOPPING AND VARIATION FOR TRUCKS.



TABLES FOR "L", "D" AND "B" VALUES

DRAWN BY: CON:AE:djf

JUNE 2006

M0020a

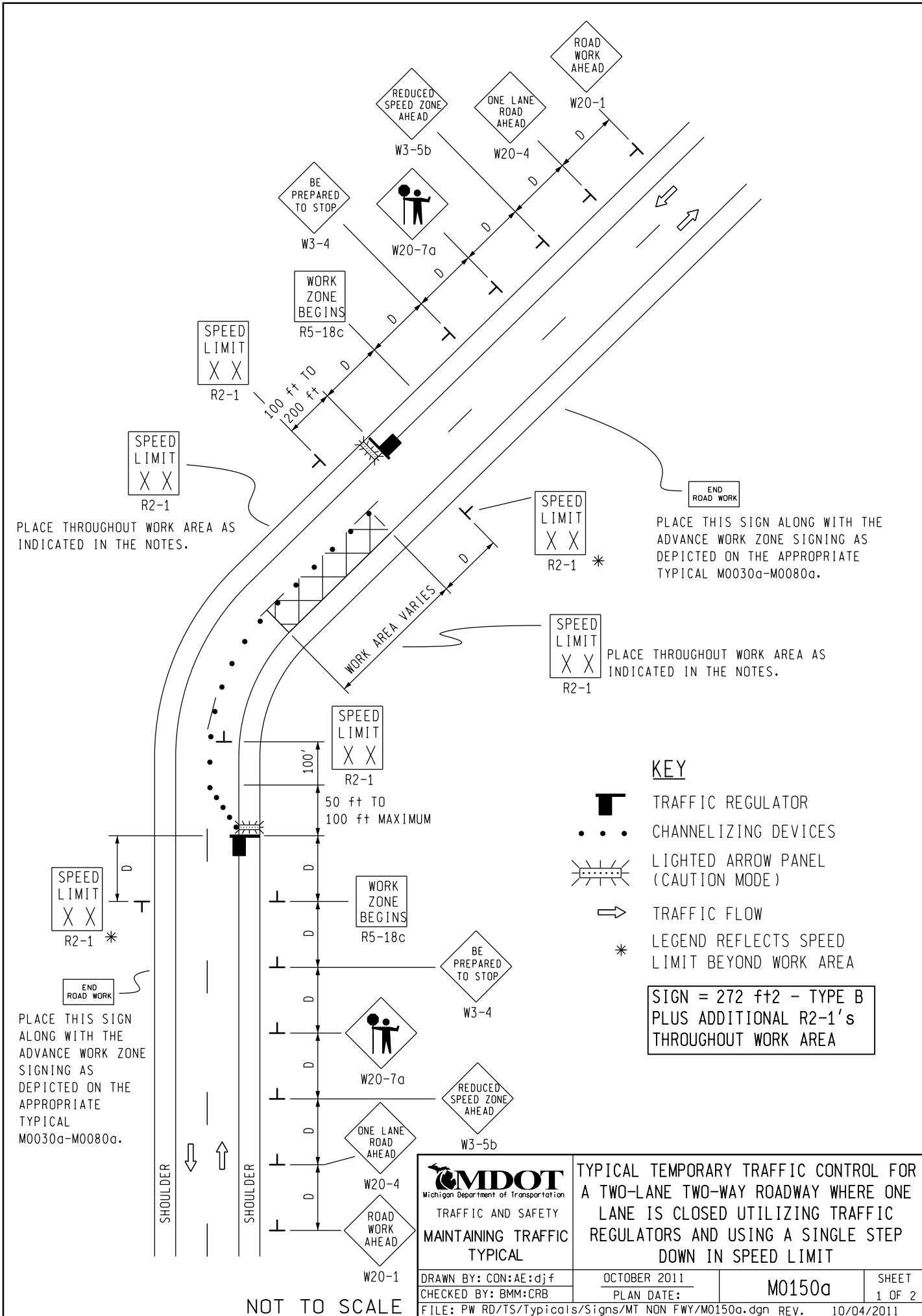
SHEET
2 OF 2

CHECKED BY: BMM

PLAN DATE:

FILE: K:/DGN/TSR/STDS/ENGLISH/MNTTRF/M0020a.dgn

REV. 08/21/2006



PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

PLACE THROUGHOUT WORK AREA AS INDICATED IN THE NOTES.

KEY

- TRAFFIC REGULATOR
- CHANNELIZING DEVICES
- LIGHTED ARROW PANEL (CAUTION MODE)
- TRAFFIC FLOW
- LEGEND REFLECTS SPEED LIMIT BEYOND WORK AREA

SIGN = 272 ft ± 2 - TYPE B PLUS ADDITIONAL R2-1's THROUGHOUT WORK AREA

PLACE THIS SIGN ALONG WITH THE ADVANCE WORK ZONE SIGNING AS DEPICTED ON THE APPROPRIATE TYPICAL M0030a-M0080a.

MDOT
Michigan Department of Transportation
TRAFFIC AND SAFETY
MAINTAINING TRAFFIC
TYPICAL

TYPICAL TEMPORARY TRAFFIC CONTROL FOR A TWO-LANE TWO-WAY ROADWAY WHERE ONE LANE IS CLOSED UTILIZING TRAFFIC REGULATORS AND USING A SINGLE STEP DOWN IN SPEED LIMIT

DRAWN BY: CON:AE:djf
CHECKED BY: BMM:CRB

OCTOBER 2011
PLAN DATE:

M0150a

SHEET
1 OF 2

NOT TO SCALE

FILE: PW RD/TS/Typicals/Signs/MT NON FWY/M0150a.dgn REV. 10/04/2011

NOTES

- 1H. D = DISTANCE BETWEEN TRAFFIC CONTROL DEVICES AND LENGTH OF LONGITUDINAL BUFFERS
SEE **M0020a** FOR "D" VALUES.
2. ALL NON-APPLICABLE SIGNING WITHIN THE CIA SHALL BE MODIFIED TO FIT CONDITIONS, COVERED OR REMOVED.
3. DISTANCES BETWEEN SIGNS, THE VALUES FOR WHICH ARE SHOWN IN TABLE D, ARE APPROXIMATE AND MAY NEED ADJUSTING AS DIRECTED BY THE ENGINEER.
- 3A. THE "WORK ZONE BEGINS" (R5-18c) SIGN SHALL BE USED ONLY IN THE INITIAL SIGNING SEQUENCE IN THE WORK ZONE. SUBSEQUENT SEQUENCES IN THE SAME WORK ZONE SHALL OMIT THIS SIGN AND THE QUANTITIES SHALL BE ADJUSTED APPROPRIATELY.
- 4A. THE MAXIMUM RECOMMENDED DISTANCE(S) BETWEEN CHANNELIZING DEVICES IN THE TAPER AREA(S) SHOULD BE 15 FEET AND SHOULD BE EQUAL IN FEET TO TWICE THE POSTED SPEED IN MILES PER HOUR IN THE PARALLEL AREA(S).
5. FOR OVERNIGHT CLOSURES, TYPE III BARRICADES SHALL BE LIGHTED.
6. WHEN CALLED FOR IN THE FHWA ACCEPTANCE LETTER FOR THE SIGN SYSTEM SELECTED, THE TYPE A WARNING FLASHER, SHOWN ON THE WARNING SIGNS, SHALL BE POSITIONED ON THE SIDE OF THE SIGN NEAREST THE ROADWAY.
7. ALL TEMPORARY SIGNS, TYPE III BARRICADES, THEIR SUPPORT SYSTEMS AND LIGHTING REQUIREMENTS SHALL MEET NCHRP 350 CRASHWORTHLY REQUIREMENTS STIPULATED IN THE CURRENT EDITION OF THE MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, THE CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION, THE STANDARD PLANS AND APPLICABLE SPECIAL PROVISIONS. ONLY DESIGNS AND MATERIALS APPROVED BY MDOT WILL BE ALLOWED.
9. ALL TRAFFIC REGULATORS SHALL BE PROPERLY TRAINED AND SUPERVISED.
- 9A. IN ANY OPERATION INVOLVING MORE THAN ONE TRAFFIC REGULATOR, ONE PERSON SHOULD BE DESIGNATED AS HEAD TRAFFIC REGULATOR.
10. ALL TRAFFIC REGULATORS' CONDUCT, THEIR EQUIPMENT, AND TRAFFIC REGULATING PROCEDURES SHALL CONFORM TO THE CURRENT EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AND THE CURRENT EDITION OF THE MDOT HANDBOOK ENTITLED "TRAFFIC REGULATORS INSTRUCTION MANUAL."
11. WHEN TRAFFIC REGULATING IS ALLOWED DURING THE HOURS OF DARKNESS, APPROPRIATE LIGHTING SHALL BE PROVIDED TO SUFFICIENTLY ILLUMINATE THE TRAFFIC REGULATOR'S STATIONS.
- 12E. THE MAXIMUM DISTANCE BETWEEN THE TRAFFIC REGULATORS SHALL BE NO MORE THAN 2 MILES IN LENGTH UNLESS RESTRICTED FURTHER IN THE SPECIAL PROVISIONS FOR MAINTAINING TRAFFIC. ALL SEQUENCES OF MORE THAN 2 MILES IN LENGTH WILL REQUIRE WRITTEN PERMISSION FROM THE ENGINEER BEFORE PROCEEDING.
13. WHEN INTERSECTING ROADS OR SIGNIFICANT TRAFFIC GENERATORS (SHOPPING CENTERS, MOBILE HOME PARKS, ETC.) OCCUR WITHIN THE ONE-LANE TWO-WAY OPERATION, INTERMEDIATE TRAFFIC REGULATORS AND APPROPRIATE SIGNING SHALL BE PLACED AT THESE LOCATIONS.
14. ADDITIONAL SIGNING AND/OR ELONGATED SIGNING SEQUENCES SHOULD BE USED WHEN TRAFFIC VOLUMES ARE SIGNIFICANT ENOUGH TO CREATE BACKUPS BEYOND THE W3-4 SIGNS.
15. THE HAND HELD (PADDLE) SIGNS REQUIRED BY THE MMUTCD TO CONTROL TRAFFIC WILL BE PAID FOR AS PART OF FLAG CONTROL.
- 16A. ADDITIONAL SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED SHALL BE PLACED AFTER EACH MAJOR CROSSROAD THAT INTERSECTS THE WORK AREA WHERE THE REDUCED SPEED IS IN EFFECT, AND AT INTERVALS ALONG THE ROADWAY SUCH THAT NO SPEED LIMIT SIGNS REFLECTING THE REDUCED SPEED ARE MORE THAN TWO MILES APART.
- 16B. WHEN REDUCED SPEED LIMITS ARE UTILIZED IN THE WORK AREA, ADDITIONAL SPEED LIMIT SIGNS RETURNING TRAFFIC TO ITS NORMAL SPEED SHALL BE PLACED BEYOND THE LIMITS OF THE REDUCED SPEED AS INDICATED.
- 16E. WHEN EXISTING SPEED LIMITS ARE REDUCED MORE THAN 10 MPH, THE SPEED LIMIT SHALL BE STEPPED DOWN IN NO MORE THAN 10 MPH INCREMENTS.
- 28E. THE TRAFFIC REGULATORS SHOULD BE POSITIONED AT OR NEAR THE SIDE OF THE ROAD SO THAT THEY ARE SEEN CLEARLY AT A MINIMUM DISTANCE OF 500 FEET. THIS MAY REQUIRE EXTENDING THE BEGINNING OF THE LANE CLOSURE TO OVERCOME VIEWING PROBLEMS CAUSED BY HILLS AND CURVES.

SIGN SIZES

DIAMOND WARNING - 48" x 48"
 RECTANGULAR REGULATORY - 48" x 60"
 R5-18c REGULATORY - 48" x 48"

NOT TO SCALE



DRAWN BY: CON:AE:djf
 CHECKED BY: BMM:CRB

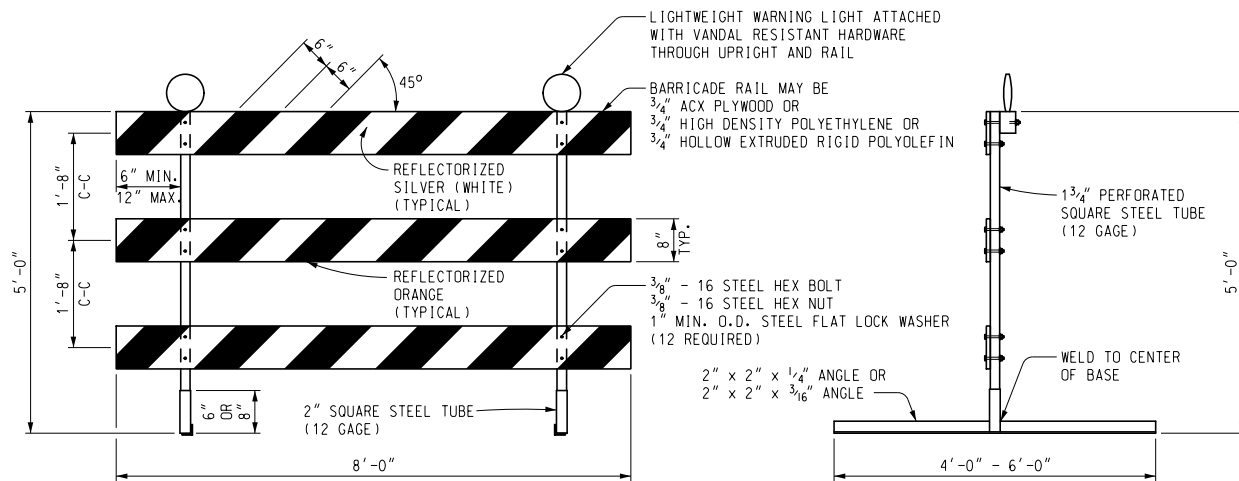
TYPICAL TEMPORARY TRAFFIC CONTROL FOR
 A TWO-LANE TWO-WAY ROADWAY WHERE ONE
 LANE IS CLOSED UTILIZING TRAFFIC
 REGULATORS AND USING A SINGLE STEP
 DOWN IN SPEED LIMIT

OCTOBER 2011
 PLAN DATE:

M0150a

SHEET
 2 OF 2

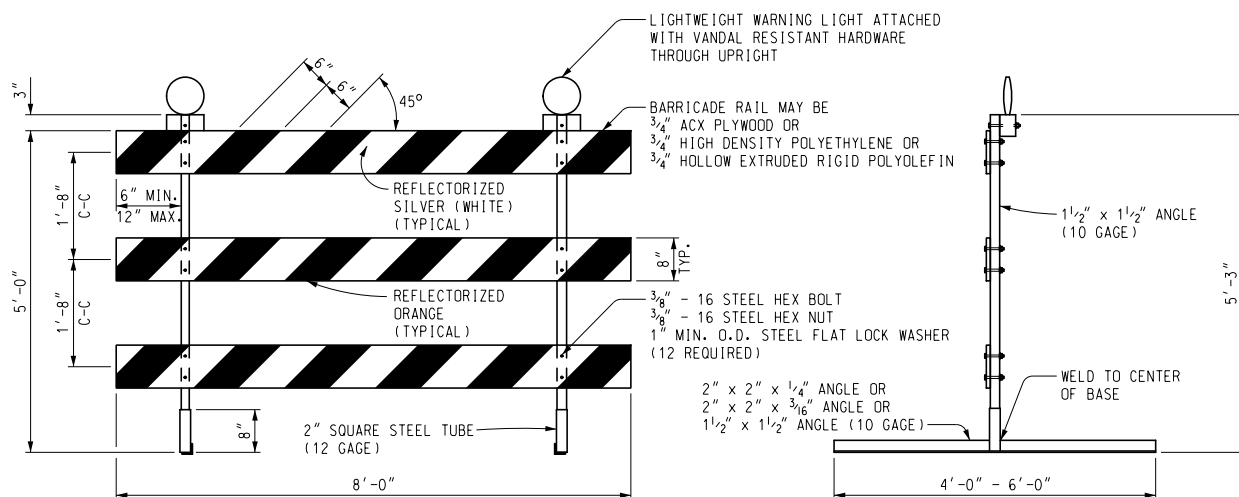
FILE: PW RD/TS/Typicals/Signs/MT NON Fwy/M0150a.dgn REV. 10/04/2011



FRONT ELEVATION

SIDE VIEW

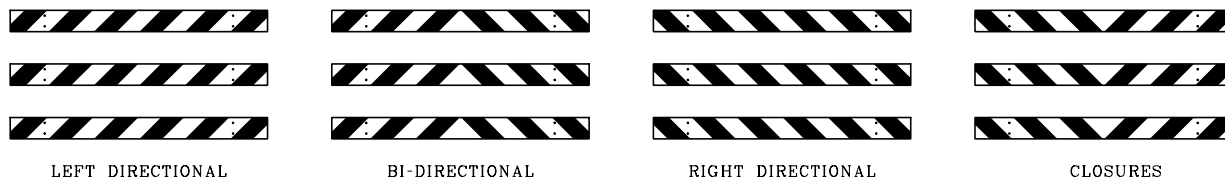
PERFORATED SQUARE STEEL TUBE OPTION



FRONT ELEVATION

SIDE VIEW

ANGLE IRON OPTION



BARRICADE RAIL SHEETING OPTIONS TYPE III BARRICADES

Other Type III Barricades meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm



PREPARED
BY
DESIGN DIVISION

DRAWN BY: ECH

CHECKED BY: MWB

DEPARTMENT DIRECTOR
Kirk T. Steudle

APPROVED BY: _____
DIRECTOR, BUREAU OF FIELD SERVICES
ENGINEER OF DEVELOPMENT

APPROVED BY: _____
(SPECIAL DETAIL)
DIRECTOR, BUREAU OF DEVELOPMENT

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN FOR

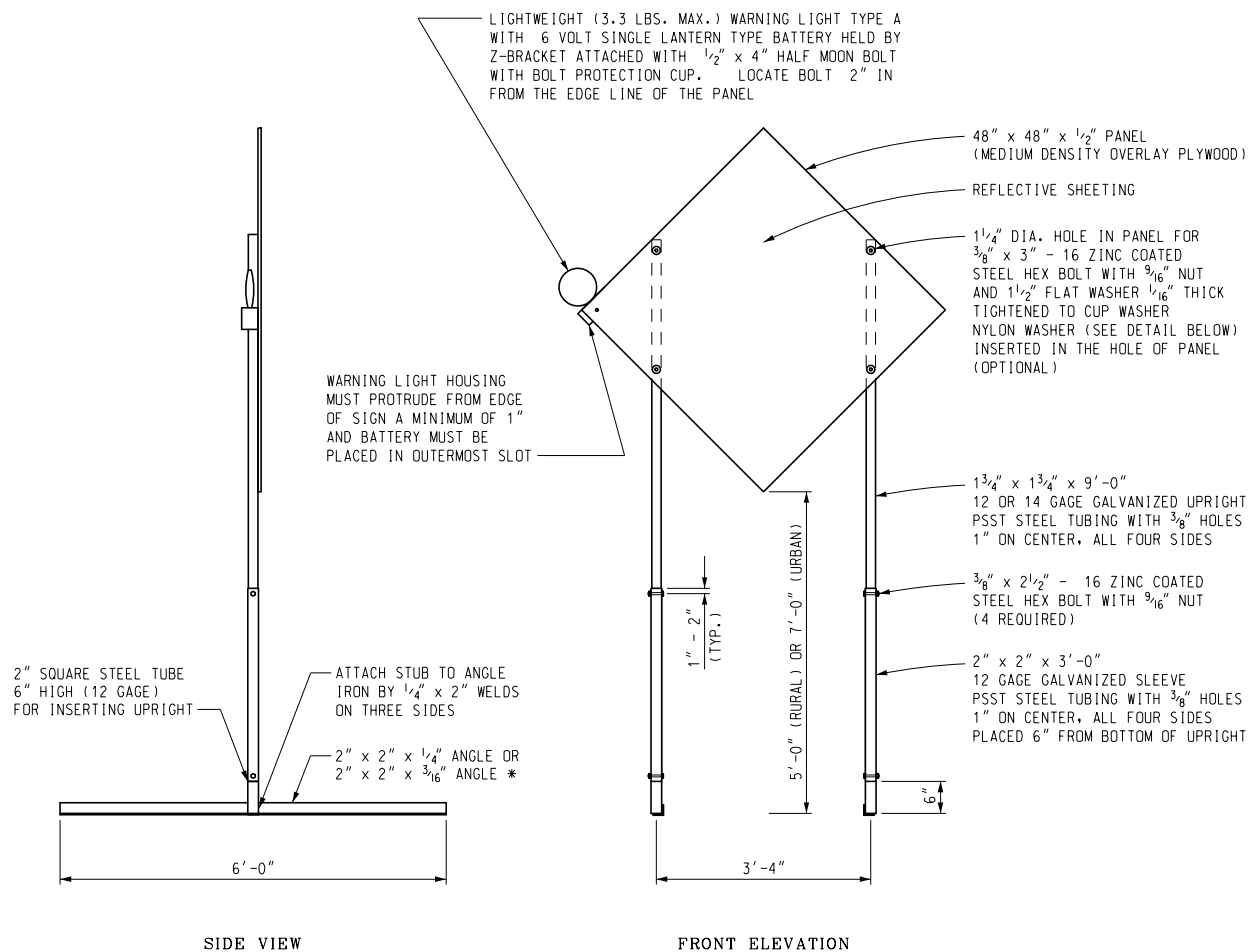
Temporary Traffic Control Devices

F.H.W.A. APPROVAL

1/18/11
PLAN DATE

WZD-125-E

SHEET
1 OF 3

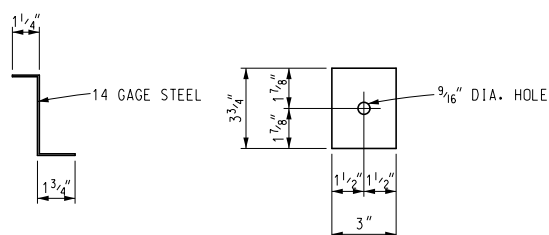


TEMPORARY SIGN SUPPORT

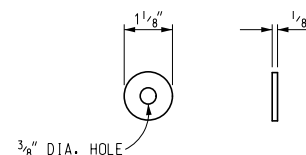
(WARNING LIGHT PLACED ON SIDE CLOSEST TO TRAFFIC)

* SIGN STAND IS BALLASTED WITH FOUR OR MORE 35 LB SANDBAGS. A MINIMUM OF ONE ON EACH END.

UPRIGHTS SHALL NOT EXTEND ABOVE THE SIGN PANEL.



Z-BRACKET DETAIL



OPTIONAL NYLON WASHER

Other temporary sign supports meeting current NCHRP crash worthy criteria can be found on the FHWA Safety website at
http://safety.fhwa.dot.gov/roadway_dept/road_hardware/wzd.htm

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF DEVELOPMENT STANDARD PLAN

SPECIAL DETAIL
F.H.W.A. APPROVAL

1/18/11
PLAN DATE

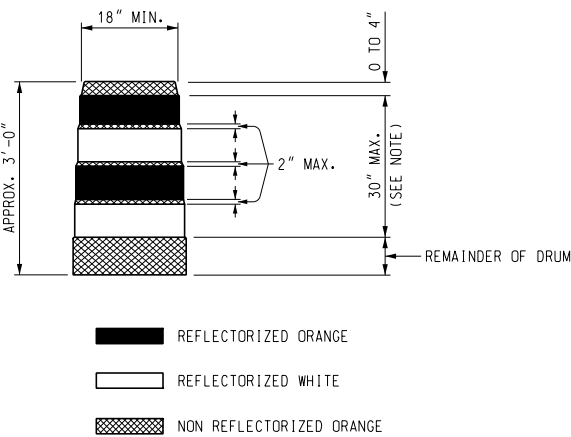
WZD-125-E

SHEET
2 OF 3

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

- PLASTIC DRUM
- ▲▲▲ PROPOSED TYPE III BARRICADE
- △△△ EXISTING TYPE III BARRICADE

SYMBOLS TO BE USED ON PLANS



NOTE:
DRUMS SHALL HAVE AT LEAST 4 HORIZONTAL REFLECTORIZED STRIPES (2 ORANGE AND 2 WHITE) OF 6" UNIFORM WIDTH, ALTERNATING IN COLOR WITH THE TOPMOST REFLECTORIZED STRIPE BEING ORANGE. NON REFLECTORIZED SPACES BETWEEN THE HORIZONTAL REFLECTORIZED ORANGE AND WHITE STRIPES SHALL BE ORANGE IN COLOR AND EQUAL IN WIDTH.

PLASTIC DRUM

- NOTES:
- 2" PERFORATED SQUARE STEEL TUBES MAY BE USED TO FABRICATE THE HORIZONTAL BASE OF THE TYPE III BARRICADE.
- WARNING LIGHTS SHALL BE PLACED ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND ALL OTHER PROVISIONS IN THE CONTRACT ON TYPE III BARRICADES.
- SEE ROAD STANDARD PLANS R-113-SERIES FOR TEMPORARY CROSSOVERS FOR DIVIDED ROADWAY, AND R-126-SERIES FOR TYPICAL LOCATION AND SPACING OF PLASTIC DRUMS FOR PLACEMENT OF TEMPORARY CONCRETE BARRIER.
- SIGNS, BARRICADES, AND PLASTIC DRUMS SHALL BE FACED WITH PRESSURE-SENSITIVE REFLECTIVE SHEETING ACCORDING TO THE CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- SANDBAGS SHALL BE USED WHEN SUPPLEMENTAL WEIGHTS ARE REQUIRED TO ACHIEVE STABILITY OF THE BARRICADE. THE SANDBAGS SHALL BE PLACED SO THEY WILL NOT COVER OR OBSTRUCT ANY REFLECTIVE PORTION OF THE TRAFFIC CONTROL DEVICE.

NOT TO SCALE

**MANISTEE COUNTY ROAD COMMISSION
HMA APPLICATION ESTIMATE**

KPM:GLK

1 of 2

DATE: 01/15/20

a. Description.- This work shall be done in accordance with the requirements of Division 5 of the Michigan Department of Transportation (MDOT) 2012 Standard Specifications for Construction except as herein specified.

b. Construction Methods.- The construction methods shall be in accordance with Section 501 of the MDOT 2012 Standard Specifications for Construction.

c. Tests.- The Nuclear Gauge Method or Coring Method for testing the compaction is hereby waived for this project. The Number of Rollers Method chart below shall apply.

Average Laydown Rate, Square Yards Per Hour	Number of Rollers Required	
	Compaction Rollers	Finish Rollers
Less than 800	1	*1
800-1800	1	1
1800-4000	2	1
4000-7200	3	1

*The compaction roller may also be used as the finish roller.

d. Materials.- The HMA, 4E1 wedging course to correct existing distorted and damaged pavement areas shall have a variable yield per square yard.

The HMA, 4E1 top course for the HMA overlay shall have a yield of 165 pounds per square yard and shall be placed after the HMA wedging. Increase the HMA application rate as needed for the butt joints at the project POB and POE.

MANISTEE COUNTY ROAD COMMISSION
HMA APPLICATION ESTIMATE

KPM:GLK

2 of 2

DATE: 01/15/20

The HMA Approach for paving approach roads will consist of HMA, 4E1 and shall have a average yield of 330 pounds per square yard placed in 2 courses. The yield shall increase where needed to match existing HMA thickness.

The HMA Approach for paving driveways will consist of HMA, 4E1 and shall have a yield of 220 pounds per square yard. The yield shall increase where needed to match existing HMA thickness.

The Performance Grade asphalt binder grades for the HMA top course and leveling course for HMA, 4E1 shall be 58-28.

Reclaimed Asphalt Pavement (RAP) in the HMA top courses shall not exceed 17% RAP binder by weight of total binder in the mixture.

The Target Air Void percentage shall be 3.5% for all HMA on this project.

The HMA Bond Coat material shall be per Section 501.02 of the MDOT 2012 Standard Specifications for Construction. The uniform rate of application shall be 0.05 to 0.15 gallons per square yard.

HMA Bond Coat is included with payment for HMA, 4E1, and HMA Approach.

The Aggregate Wear Index (AWI) for all aggregates used in the HMA top course mixtures shall be a minimum of 220.

The Contractor shall provide an HMA mix design that meets the proposed HMA mixtures in these bid documents and in accordance with the MDOT 2012 Standard Specifications for Construction.

The Contractor shall provide written certification that the HMA materials used on the projects meet the requirements of these bid documents, the HMA Application Estimate, and the MDOT 2012 Standard Specifications for Construction.

The MCRC (or their Consultant) may obtain samples of the HMA mixtures from the HMA plant or the project site at their discretion to test the materials to verify conformance with the HMA mix design provided by the Contractor.

e. Measurement and Payment.- Measurement and Payment shall be at the contract unit price per ton of the HMA, 4E1 and HMA Approach Items.

MANISTEE COUNTY ROAD COMMISSION

NOTICE TO BIDDERS UTILITY COORDINATION

KPM:GLK

1 of 1

01-14-20

YATES RD 2020 OVERLAY

The contractor shall cooperate and coordinate construction activities with the owners of utilities as stated in Section 104.08 of the 2012 MDOT Standard Specifications for Construction. In addition, for the protection of underground utilities, the contractor shall follow the requirements in Section 107.12 of the 2012 MDOT Standard Specifications for Construction. Contractor delay claims, resulting from a utility, will be determined based upon Section 108.09 and 109.05 of the 2012 MDOT Standard Specifications for Construction.

For protection of underground utilities and in conformance with Public Acts 174 of 2013, the contractor shall dial 1-800-482-7171 or 811 a minimum of three full working days, excluding Saturdays, Sundays, and holidays prior to beginning each excavation in areas where public utilities have not been previously located. Members will thus be routinely notified. This does not relieve the contractor of the responsibility of notifying utility owners who may not be a part of the MISS DIG alert system.

Public Utilities:

The following Public Utilities have facilities located within the Right-of-Way:

AcenTek	Telephone
5351 North M-37, PO Box 69	
Mesick, MI 49668	
Contact: Kelly Stiner	
Cell (231) 499-4818	

Consumers Energy	Electric
330 Chestnut St	
Cadillac, MI 49601	
Contact: Eric Marr	
Cell (231) 250-4505	

DTE Energy	Gas (Trans)
One Energy Plaza	
Detroit, MI 48226-1279	
Contact: Tyler Gage	
(989) 365-5122	

Cherryland Electric	Electric
5930 US-31 South	
Grawn, MI 49637	
Contact: Kevin Krause	
(231) 486-9229	

The owners of existing service facilities that are within grading or structure limits and in conflict will move them to locations designated by the Engineer or will remove them entirely from the highway Right-of-Way, when feasible. Owners of Public Utilities will not be required by the County to move additional poles or structures in order to facilitate the operation of construction equipment unless it is determined by the Engineer that such poles or structures constitute a hazard to the public or are dangerous to the Contractor's operations.