

PLAN INDEX

SHEET NUMBER	SHEET DESCRIPTION
1	TITLE SHEET
2	TYPICAL CROSS SECTIONS
3-4	DETAIL SHEETS
5	NOTE/LEGEND SHEET
6-9	PLAN SHEETS

MANISTEE COUNTY ROAD COMMISSION

PLANS OF PROPOSED IMPROVEMENTS TO

MILARCH ROAD

MANISTEE & BROWN TOWNSHIPS, MANISTEE COUNTY

TRAFFIC DATA

POSTED SPEED/DESIGN SPEED..... 55 MPH / 55 MPH

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 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.

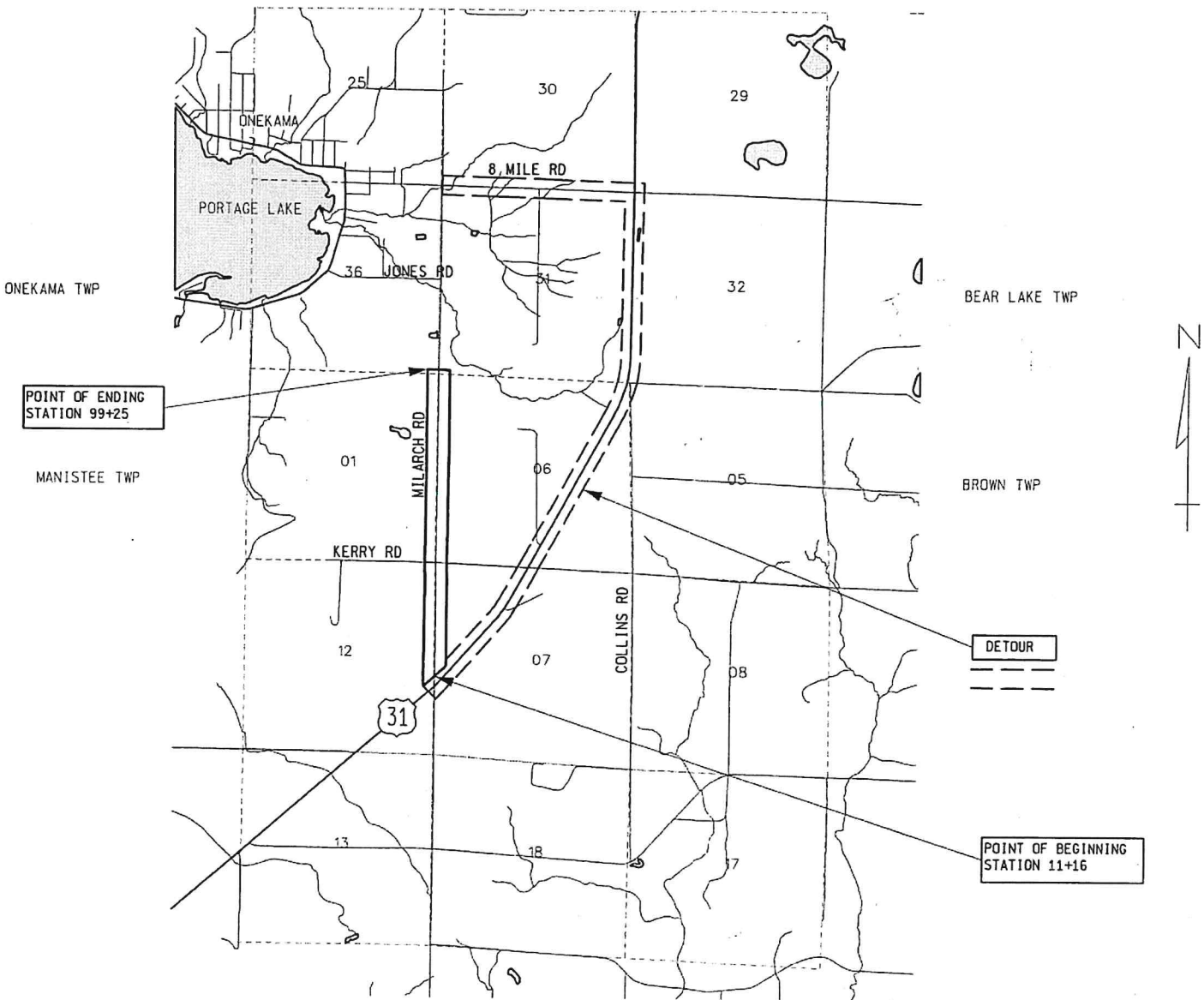
THE PROPOSED IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE WITH SECTION C, RESURFACING, RESTORATION AND REHABILITATION (3R) OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION LOCAL AGENCY PROGRAMS GUIDELINES FOR GEOMETRICS DATED JULY 24, 2017.



COUNTY KEY



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



PROJECT LENGTH = 1.67 MILES

CONTRACT FOR:  
HMA BASE CRUSHING & SHAPING, AGGREGATE BASE, HMA PAVING, AND  
GUARDRAIL.

MANISTEE COUNTY ROAD COMMISSION APPROVALS

*[Signature]* 2/5/20  
MARK P. SOHLDEN, MCRC MANAGER DATE

PREPARED UNDER SUPERVISION OF  
GARY L. KARTTUNEN, P.E. 30565  
REGISTERED PROFESSIONAL ENGINEER REGISTRATION NUMBER

KPM Engineering  
CIVIL ENGINEERING CONSULTANTS

STATE OF MICHIGAN  
GARY L. KARTTUNEN  
ENGINEER  
No. 30565  
LICENSED PROFESSIONAL ENGINEER  
*[Signature]* 2/5/2020

1:18:55 PM

1/30/2020



NOTES:

TRENCH 8" DEPTH (OR 4" DEPTH WHERE CALLED FOR) AT THE WIDTH AND SLOPE INDICATED. TRENCHED MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE SITE. SUITABLE TRENCHED MATERIAL, AS DETERMINED BY THE ENGINEER, MAY BE USED AS EMBANKMENT.

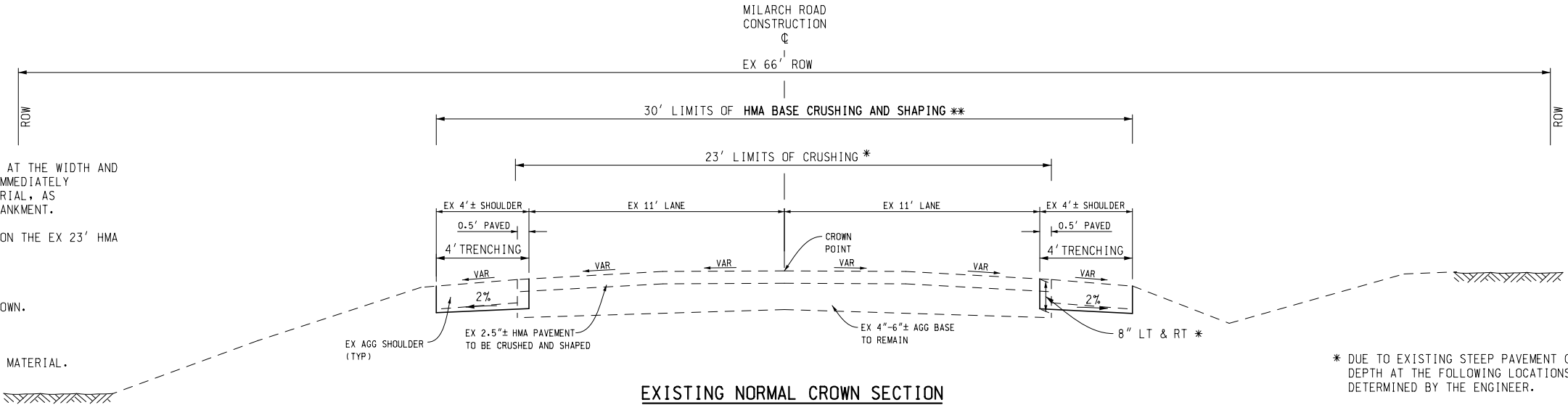
PLACE AGGREGATE BASE AT A UNIFORM DEPTH OF 3" ON THE EX 23' HMA PAVEMENT PRIOR TO CRUSHING.

CRUSH THE EX PAVT.

SPREAD AND SHAPE CRUSHED MATERIAL TO WIDTHS SHOWN.

PAVE HMA LEVELING AND TOP COURSE.

BRING UP OUTSIDE SHOULDERS WITH CL II SHOULDER MATERIAL.



\* CRUSHING WIDTH = WIDTH OF EX PAVED SURFACE  
\*\* SPREAD AND SHAPE TO WIDTH OF PROP PAVED SURFACE PLUS 1' BEYOND PAVED EDGES.

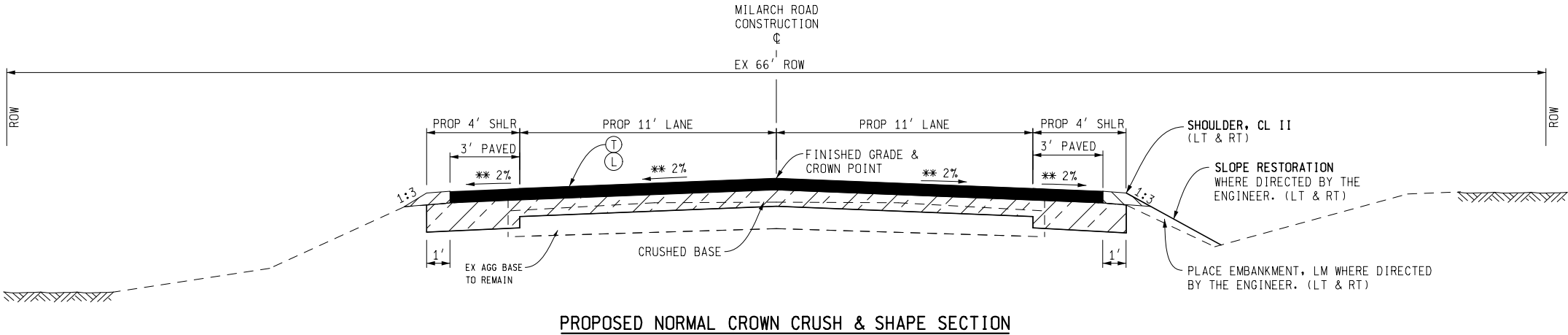
EXISTING NORMAL CROWN SECTION

SECTION APPLIES:  
POB STA 11+16 TO POE STA 99+25

\* DUE TO EXISTING STEEP PAVEMENT CROWNS, REDUCE TRENCHING DEPTH TO 4" DEPTH AT THE FOLLOWING LOCATIONS. THE EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER.

LEFT	RIGHT
STA 73+00 TO STA 78+00	STA 11+00 TO STA 23+00
STA 89+00 TO STA 98+25	STA 42+00 TO STA 53+00
	STA 62+00 TO STA 67+00
	STA 73+00 TO STA 83+00
	STA 92+00 TO STA 98+25

NOTE: FROM STA 98+25 TO POE STA 99+25 - OMIT HMA BASE CRUSHING AND SHAPING, TRENCHING AND BASE WIDENING. CONSTRUCT 100' LONG FEATHER JOINT TO POE.



PROPOSED NORMAL CROWN CRUSH & SHAPE SECTION

SECTION APPLIES:  
POB STA 11+16 TO POE STA 99+25

HMA APPLICATION ESTIMATE

IDENT NO.	ITEM	RATE PER SYD	PERFORMANCE GRADE	REMARKS
①	HMA, 4E1	165#	PG 58-28	TOP COURSE, AWI = 220
②	HMA, 4E1	165#	PG 58-28	LEVELING COURSE
④1	HMA APPROACH	330#	PG 58-28	HMA, 4E1 (2 LIFTS) APPROACH RDS
④2	HMA APPROACH	** 220# (MIN)	PG 58-28	HMA, 4E1 (1 LIFT) DRIVES
	PAVED DITCH, HMA	250#	PG 58-28	HMA MIXTURE MEETING APPROVAL OF THE ENGINEER
	*** BOND COAT	0.05-0.15 GAL/SYD		

\*\* 220#/SYD (MIN) OR MATCH EX THICKNESS, WHICHEVER IS GREATER. \*\*\* FOR INFORMATION ONLY

\*\* VARY PAVEMENT SLOPE 1.0% TO 3.0% (2% DESIRABLE) AS DIRECTED BY THE ENGINEER TO MATCH EX CONDITIONS. VARY SHOULDER SLOPE 1.0% TO 6.0% (2% DESIRABLE).



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OR 811

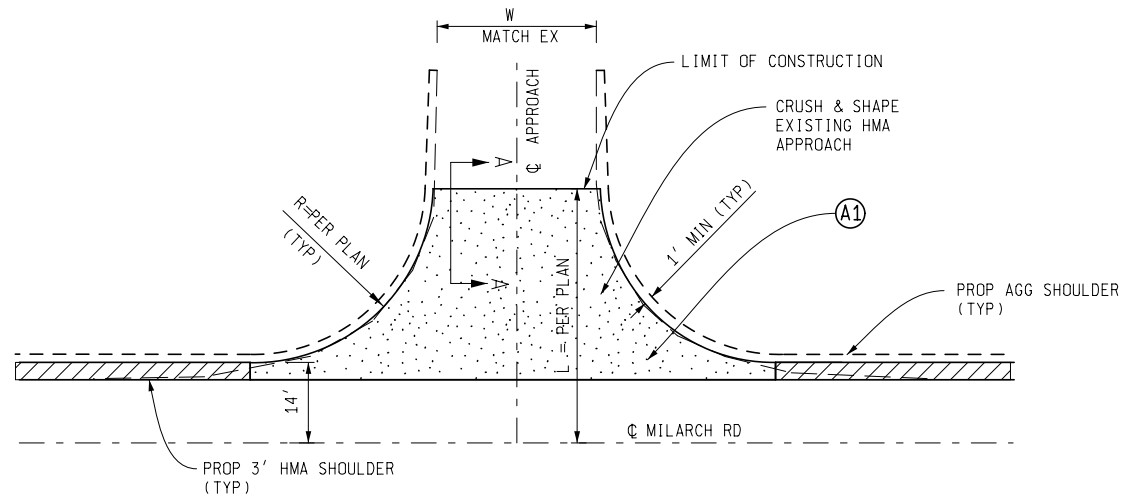
**MANISTEE**  
County Road Commission



TYPICAL CROSS SECTIONS

DATE	TOWNSHIP	JOB NO.	SHEET NO.
1/28/2020	MANISTEE & BROWN		2

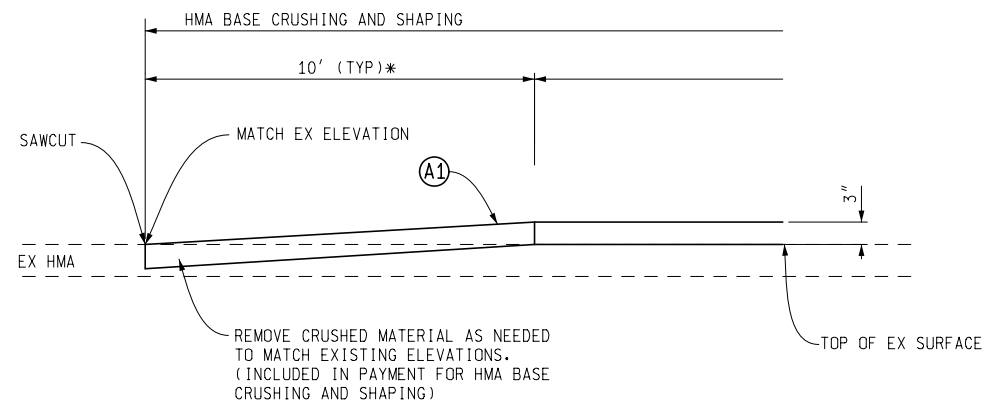




### APPROACH TREATMENT TYPE I (EX HMA)

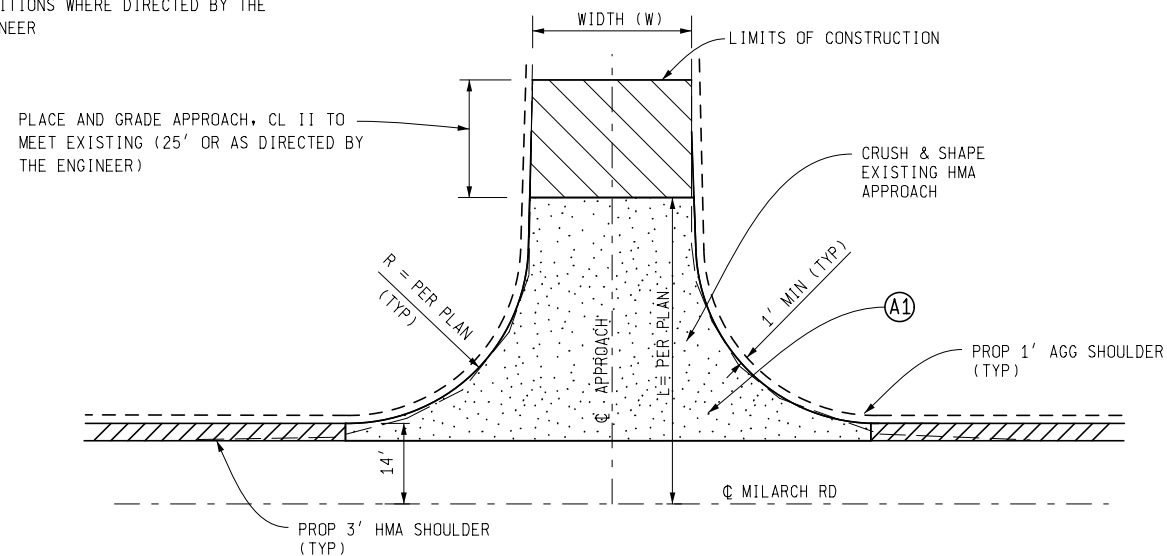
TO APPLY:  
KERRY ROAD (LT)

WIDTH (W)  
23'



### SECTION A-A

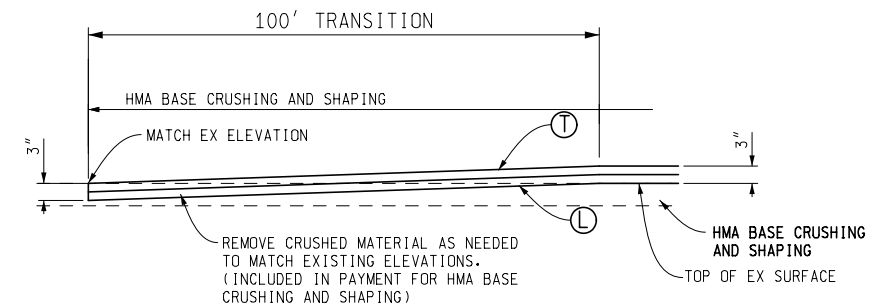
\* ADJUST TO MATCH EXISTING  
CONDITIONS WHERE DIRECTED BY THE  
ENGINEER



### APPROACH TREATMENT TYPE II (EX AGG W/HMA APRON)

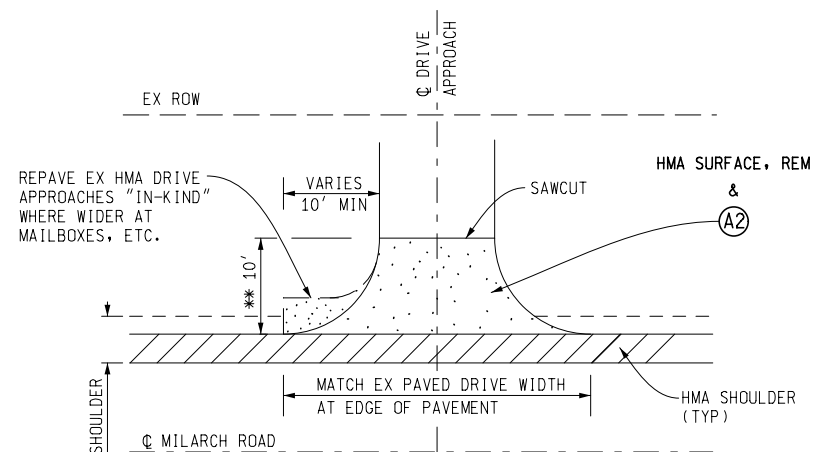
TO APPLY:  
KERRY ROAD (RT)

WIDTH (W)  
24'



### BUTT JOINT DETAIL

TO APPLY:  
POB STA 11+16 TO STA 12+16

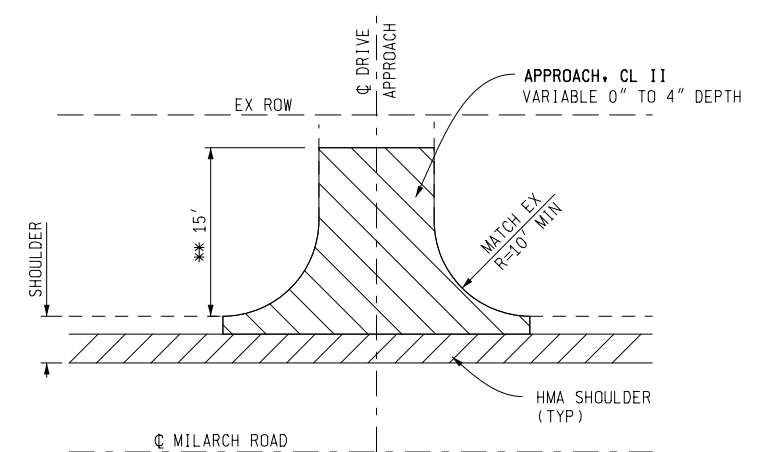


### HMA PAVED DRIVEWAY DETAIL

EX & PROP HMA SURFACE

NOTE: THE CONTRACTOR SHALL DOCUMENT THE LIMITS AND CONFIGURATIONS OF EXISTING PAVED DRIVE APPROACHES PRIOR TO REMOVAL. IT IS THE INTENT TO REPAVE THE APPROACHES TO THE SAME LIMITS AND CONFIGURATIONS UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

\*\*OR AS DIRECTED BY  
THE ENGINEER



### UN-PAVED DRIVEWAY DETAIL

EX & PROP GRAVEL SURFACE



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OR 811

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County Road Commission



### DETAIL SHEET

DATE  
1/28/2020

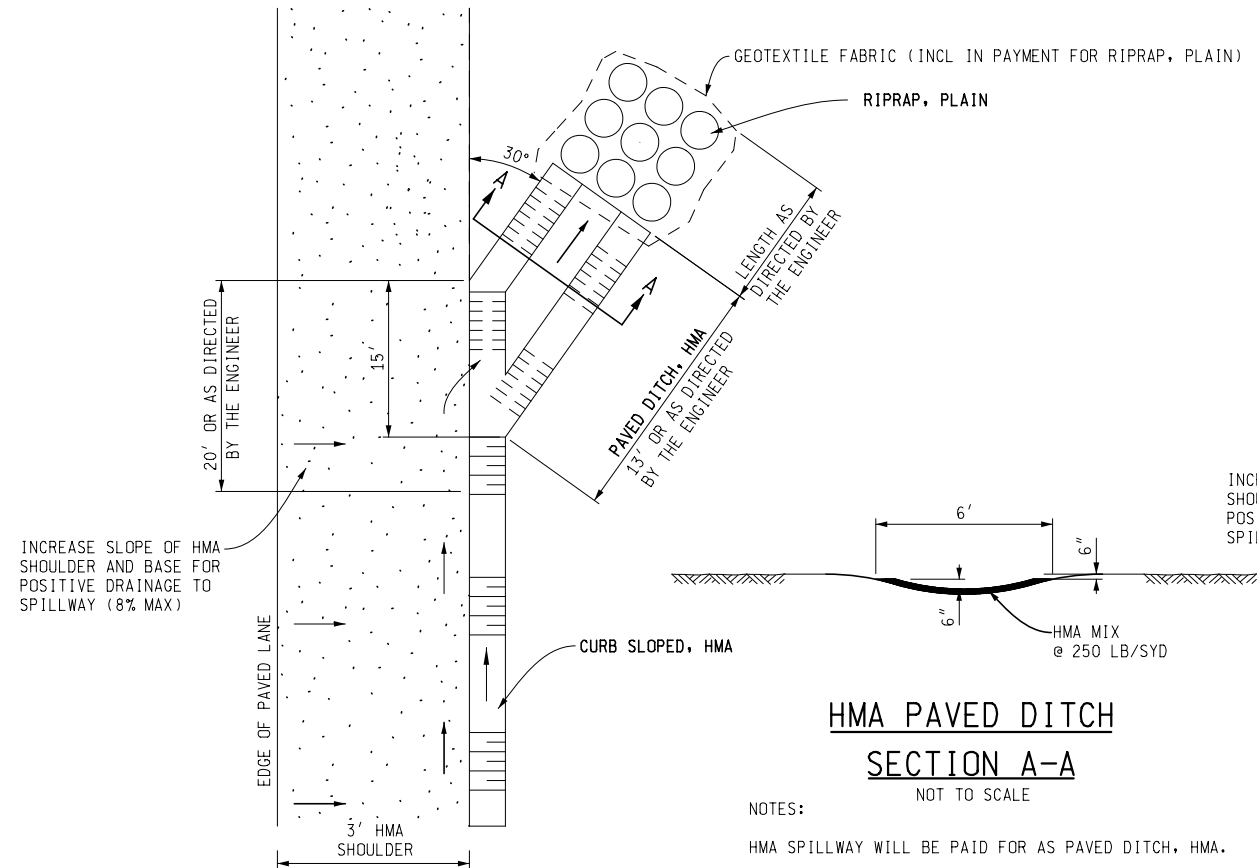
TOWNSHIP  
MANISTEE & BROWN

JOB NO.

SHEET NO.  
3

8:53:52 AM  
1/28/2020





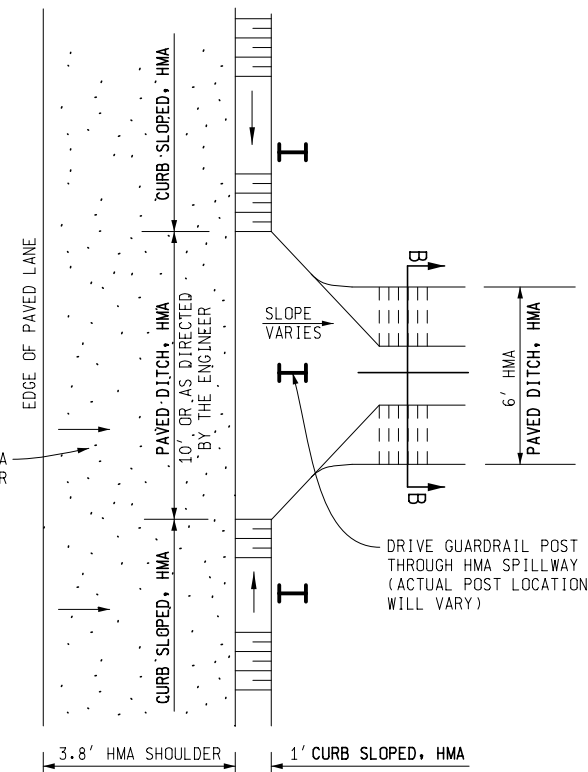
**HMA SPILLWAY, TYPE 1**  
NOT TO SCALE  
APPROXIMATE LOCATIONS  
AS SHOWN ON PLANS

**NOTES:**

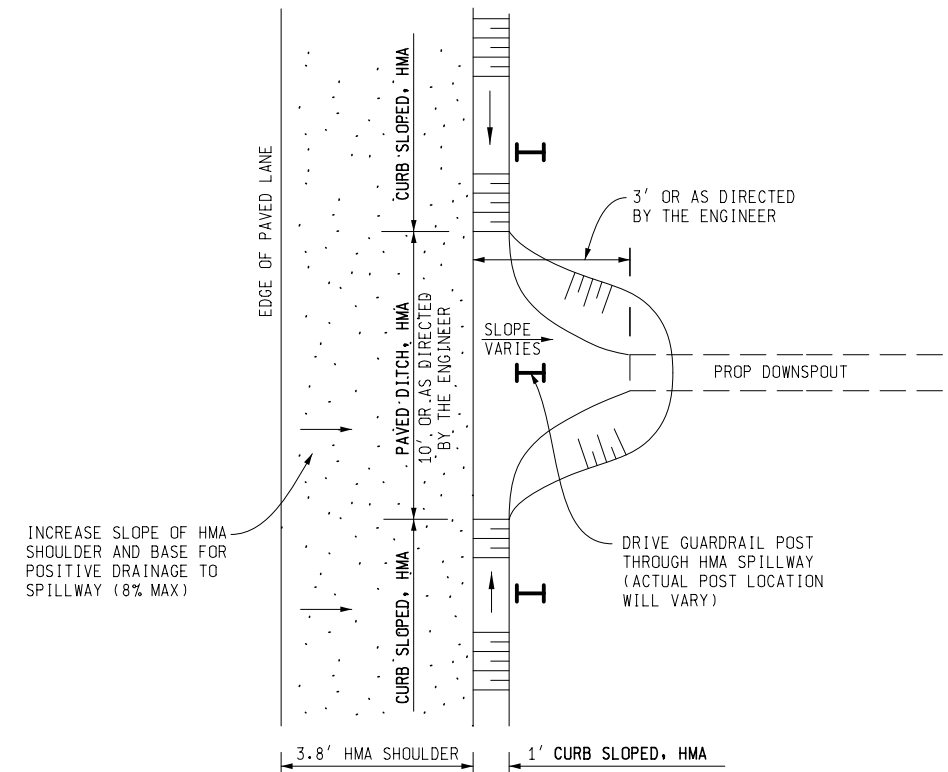
HMA SPILLWAY WILL BE PAID FOR AS PAVED DITCH, HMA.

EXACT LOCATION OF HMA SPILLWAYS TO BE DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION.

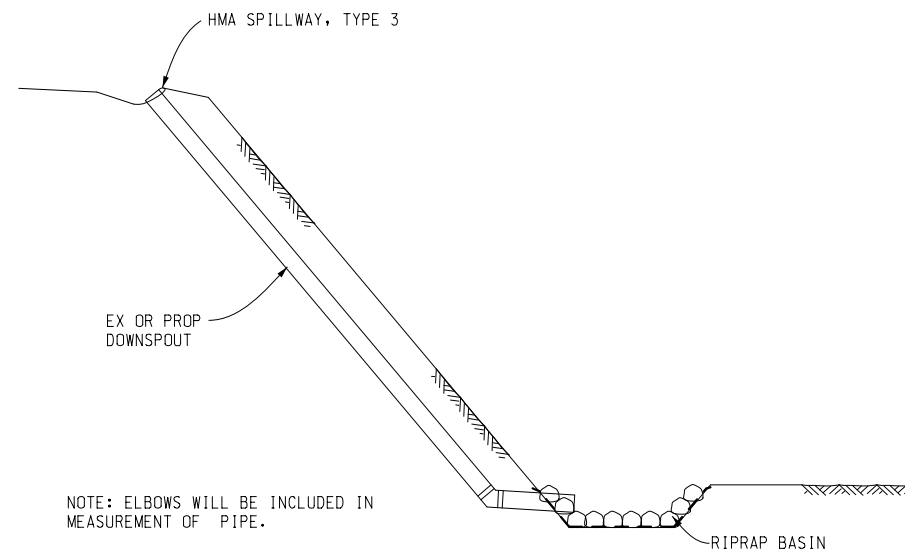
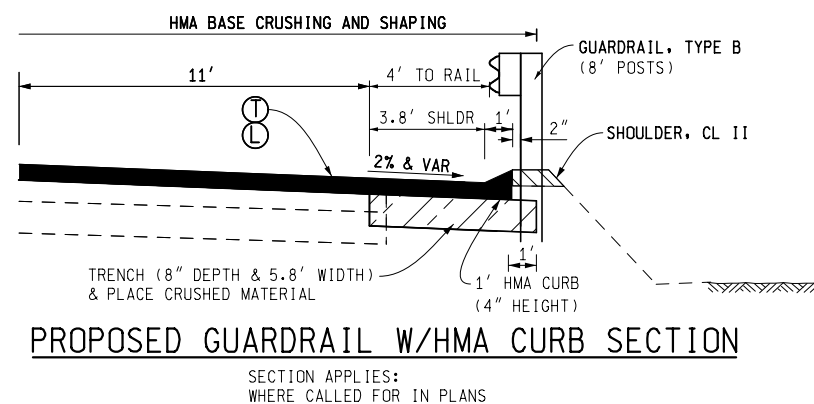
THE HMA SPILLWAY WILL BE PAVED CONCURRENTLY WITH THE LEVELING COURSE. THE HMA SPILLWAY SHALL BE BUILT TO THE LEVELING COURSE ELEVATION ADJACENT TO THE PROPOSED PAVED SHOULDER. FEATHERING WILL BE REQUIRED FOR THE PLACEMENT OF THE TOP COURSE.



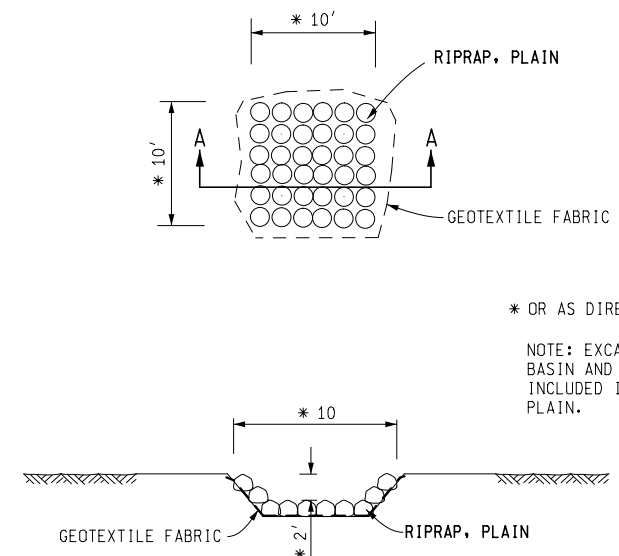
**HMA SPILLWAY, TYPE 2  
(WITHIN GUARDRAIL RUN)**  
NOT TO SCALE  
APPROXIMATE LOCATIONS  
AS SHOWN ON PLANS



**HMA SPILLWAY, TYPE 3  
(DOWNSPOUT WITHIN GUARDRAIL RUN)**  
NOT TO SCALE  
APPROXIMATE LOCATIONS  
AS SHOWN ON PLANS



**DOWNSPOUT DETAIL**  
NOT TO SCALE  
APPROXIMATE LOCATIONS  
AS SHOWN ON PLANS



**RIPRAP BASIN DETAIL**  
NOT TO SCALE  
APPROXIMATE LOCATIONS  
AS SHOWN ON PLANS



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OR 811

**MANISTEE**  
County Road Commission



**DETAIL SHEET**

DATE  
1/28/2020

TOWNSHIP  
MANISTEE & BROWN

JOB NO.

SHEET NO.  
4



MISCELLANEOUS SYMBOLS

☆

PINE TREE

☼

TREE

🌳

STUMP

🌿

SWAMP

⊗ T.H.#

TEST HOLE NO.

◁

EXISTING CULVERT END SECTION

◄

PROPOSED CULVERT END SECTION

⊙

SECTION CORNER

⊗

QUARTER QUARTER CORNER

⊙

QUARTER CORNER

⊙

HALF QUARTER CORNER

T

SIGN

⌘

SIGN2

⊗

RIPRAP

⊙

EXISTING PROPERTY CORNER

UTILITIES SYMBOLS

●

POWER POLE

●

GUY POLE

●

TELEPHONE POLE

⑦

TELEPHONE MANHOLE

⊕

TELEPHONE PEDESTAL

Ⓜ

GAS LINE MARKER

Ⓜ

GAS VALVE

📧

MAIL BOX

👤

DEADMAN FOR GUYWIRE

HAZARDOUS OR  
FLAMMABLE MATERIAL

CAUTION - CRITICAL  
UNDERGROUND UTILITY

TOPO LINSTYLES

~~~~~

TREE LINE

—X—X—

EXISTING FENCE

— . . . —

EXISTING DRAINAGE COURSE  
EDGE OF WATER

— . . . —

PROPOSED DRAINAGE COURSE  
EDGE OF WATER

— PROP 36' — — — —

PROPOSED CULVERT/SEWER

— EX 12' CMP — — — — —

EXISTING CULVERT/SEWER

< x x  
x x x  
x x x

PROPOSED CRUSH & SHAPE

▒

PROPOSED HMA APPROACH

▨

PROP CL II APPROACH

UNDERGROUND UTILITY LINSTYLES

— ELEC — — — — —

ELECTRICAL LINE

— 24" GAS — — — — —

GAS LINE

— 12" OIL — — — — —

OIL LINE

— TELE — — — — —

TELEPHONE LINE

— 36" WM — — — — —

WATER LINE

— CTV — — — — —

CABLE TV

— FO — — — — —

FIBER OPTICS

ABOVE GROUND UTILITY LINSTYLES

— — — — —

POWER TRANSMISSION  
LINE

GENERAL PLAN NOTES

UNDERGROUND UTILITIES / MISS DIG

FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 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.

SOIL EROSION MEASURES

APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH-DISTURBING ACTIVITIES. PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODIBLE SLOPES AS DIRECTED BY THE ENGINEER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH EITHER SOD OR SEED/MULCH OR MULCH BLANKET AS DIRECTED BY THE ENGINEER.

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.

AGGREGATE BASE

AGGREGATE BASE USED ON THIS PROJECT SHALL BE AGGREGATE 21AA.

HMA BASE CRUSHING AND SHAPING

THE CONTRACTOR SHALL MAKE EVERY EFFORT TO USE EXCESS CRUSHED MATERIAL TO CONSTRUCT THE PROPOSED CROSS SECTION. COSTS FOR LOADING, HAULING, PLACING AND COMPACTING EXCESS CRUSHED MATERIAL THROUGHOUT THE PROJECT LIMITS WILL BE INCLUDED IN THE ITEM OF HMA BASE CRUSHING AND SHAPING AND WILL NOT BE PAID FOR SEPARATELY. DISPOSAL OF SURPLUS OR UNSUITABLE EXCESS CRUSHED MATERIAL WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE ITEM OF HMA BASE CRUSHING AND SHAPING.

GUARDRAIL POSTS

8' GUARDRAIL POSTS SHALL BE UTILIZED ON THIS PROJECT (EXCLUDING APPROACH TERMINALS). PAYMENT FOR THE ADDITIONAL POST LENGTH SHALL BE INCLUDED IN PAYMENT FOR THE NEW GUARDRAIL.

GUARDRAIL POST HOLES

POSTS LOCATED NEAR EXISTING UTILITIES SHALL BE HAND DUG. THIS WORK WILL NOT BE PAID FOR SEPERATELY BUT WILL BE INCLUDED IN PAYMENT FOR THE NEW GUARDRAIL.

GUARDRAIL INSTALLATION

ALL GUARDRAIL SHALL BE STAKED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.

SOIL BORINGS AND PAVEMENT CORES

THE SOIL BORING LOGS AND PAVEMENT CORES REPRESENT POINT INFORMATION. NO INFERENCE SHOULD BE MADE THAT SUBSURFACE OR PAVEMENT CONDITIONS ARE THE SAME AT OTHER LOCATIONS.

SAWCUTTING

SAWCUT AT ALL LIMITS OF CONSTRUCTION INCLUDING DRIVEWAYS. PAYMENT FOR SAWCUTTING REQUIRED THROUGHOUT THE PROJECT SHALL BE INCLUDED IN OTHER ITEMS.

PERMANENT SIGNING

ANY PERMANENT SIGNS REQUIRING RELOCATION DUE TO CONTRACTOR OPERATIONS SHALL BE SALVAGED AND RESET BY THE CONTRACTOR AT LOCATIONS DESIGNATED BY THE ENGINEER. SIGNS AND POSTS DAMAGED DURING THE REMOVAL AND STORAGE OPERATIONS SHALL BE REPLACED WITH NEW SIGNS AND POSTS. THE COST OF THIS WORK SHALL BE BORNE BY THE CONTRACTOR.

UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

UTILITY NAME

UTILITY TYPE

CONSUMERS ENERGY  
821 HASTINGS ST  
TRAVERSE CITY, MI 49684  
CONTACT: ERIC MARR  
231-779-5536

ELECTRIC

AT&T  
205 E HARRIS STREET  
CADILLAC, MI 49601  
CONTACT: JEFF SHUSTER  
231-779-8451

TELEPHONE-FO

DTE ENERGY  
1250 MICHCON LANE SW  
KALKASKA, MI 49646  
CONTACT: KARLA SHAWHAN-BONNEE  
(231) 258-3750

GAS (TRANSMISSION)

SUPERIOR ENERGY  
11690 CHIPPEWA HWY  
BEAR LAKE, MI 49614  
CONTACT: MARK HEARIT  
(989) 737-3880 CELL

NATURAL GAS

MARKWEST MICHIGAN PIPELINE  
1515 THOMAS RD  
KALKASKA, MI 49646  
CONTACT: DONNA BOHN  
(231) 258-4614

OIL

MISCELLANEOUS ESTIMATES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT AS DIRECTED BY THE ENGINEER. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

MISCELLANEOUS ITEMS

5 Ea

Post, Mailbox

100 Ton

Shoulder, Cl II

200 Ton

Aggregate Base

1000 Syd

Slope Restoration

100 Cyd

Embankment, LM

1 Ea

Monument Box

4 Ea

Monument Preservation

THE FOLLOWING ITEMS OF WORK ARE ESTIMATED FOR THE ENTIRE PROJECT FOR MAINTAINING TRAFFIC WHERE DESIGNATED BY THE ENGINEER.

MISCELLANEOUS ITEMS

1 LS

Traffic Control

1 LS

Temporary Pavement Markings

LOG OF EXISTING PAVEMENT MARKINGS

THE FOLLOWING PAVEMENT MARKINGS INFORMATION IS FOR INFORMATION ONLY. PERMANENT PAVEMENT MARKINGS WILL BE PLACED BY OTHERS AFTER COMPLETION OF THE PROJECT.

STATION LIMITS

STA 11+16

TO STA 14+00

SKIP

STA 14+00

TO STA 23+86

NB SOLID, SB SKIP

STA 23+86

TO STA 45+55

DOUBLE YELLOW

STA 45+55

TO STA 53+50

NB SKIP, SB SOLID

STA 53+50

TO STA 56+20

DOUBLE YELLOW

STA 56+20

TO STA 61+50

NB SOLID, SB SKIP

STA 61+50

TO STA 63+60

SKIP

STA 63+60

TO STA 71+80

NB SKIP, SB SOLID

STA 71+80

TO STA 82+10

NB SOLID, SB SKIP

STA 82+10

TO STA 99+25

DOUBLE YELLOW

PAVEMENT MARKINGS (BY OTHERS)

17618 Ft

Pavt Mrkg, Waterborne, 4 inch, White (BY OTHERS)

13633 Ft

Pavt Mrkg, Waterborne, 4 inch, Yellow (BY OTHERS)

NOTES APPLYING TO ROAD STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

R-11-E

MONUMENT BOXES

R-46-D

PAVED AND COBBLE DITCHES, & DRAINAGE TREATMENT DETAILS

\* R-60-J

GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D

\* R-61-H-LAP

GUARDRAIL APPROACH TERMINAL TYPES 1B & 1T (SRT & FLEAT)

\* R-62-H-LAP

GUARDRAIL APPROACH TERMINAL TYPES 2B & 2T (SKT & ET-PLUS)

\* R-66-E

GUARDRAIL DEPARTING TERMINAL TYPES B, T, & MGS

R-74-D

BUMPER & PARKING RAILS AND MISC. WOOD POSTS

R-96-E

SOIL EROSION & SEDIMENTATION CONTROL MEASURES

\* SD 21

GUARDRAIL AT INTERSECTIONS

NOTES APPLYING TO TRAFFIC AND SAFETY STANDARD PLANS

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE STANDARD PLAN GIVEN BELOW OPPOSITE EACH ITEM UNLESS OTHERWISE INDICATED.

\* WZD-100-A

GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS

\* WZD-125-E

TEMPORARY TRAFFIC CONTROL DEVICES

\* DENOTES SPECIAL DETAIL

811

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MANISTEE

County Road Commission

KPM ENGINEERING

MILARCH RD NOTE / LEGEND SHEET

DATE

1/28/2020

TOWNSHIP

MANISTEE & BROWN

JOB NO.

SHEET NO.

5

8-5341 AM

1/28/2020



US-31  
EX HMA

MILARCH ROAD  
POINT OF BEGINNING  
STA 11+16

S.B. #1  
STA 14+00, 13' RT  
0.0' - 0.3' FINE TO MED BROWN SAND W/GRAVEL  
0.3' - 2.7' FINE TO MED BROWN SAND  
2.7' - 4.0' MOIST FINE TO MED BROWN SAND W/GRAVEL

PAVT CORE #01  
STA 15+00- 7' RT  
2.5" HMA  
5" AGG (POOR)

SECTION 12  
T22N R16W  
MANISTEE TWP

HAZARDOUS OR  
FLAMMABLE MATERIAL

CAUTION - CRITICAL  
UNDERGROUND UTILITY

EX AGG APRON  
PROP HMA

STA 17+97 - 1' LT  
1/4 CORNER  
PRESERVE AND ADJ MON BOX

SECTION 7  
T22N R15W  
BROWN TWP

S.B. #2  
STA 24+00, 14' LT  
0.0' - 0.3' FINE TO MED BROWN SAND W/GRAVEL  
0.3' - 2.3' FINE TO MED TAN SAND  
2.3' - 4.0' FINE TO MED TAN SAND W/TR GRAVEL

PROP GUARDRAIL  
STA 31+46 TO STA 35+71 LT  
337 Ft Guardrail, Type B (W/8' POSTS)  
1 Ea Guardrail Approach Terminal, Type 1B  
1 Ea Guardrail Approach Terminal, Type 2B  
14 Ea Guardrail Reflector

PROP HMA SLOPED CURB W/HMA SPILLWAY  
STA 31+84 TO STA 35+20 LT  
336 Ft Curb Sloped, HMA  
11 Syd Riprap, Plain  
13 Syd Paved Ditch, HMA

SECTION 12  
T22N R16W  
MANISTEE TWP

CAUTION - CRITICAL  
UNDERGROUND UTILITY

PROP HMA SPILLWAY, TYPE 3,  
12" DOWNSPOUT, AND RIPRAP BASIN

PROP CURB SLOPED, HMA

STA 33+38  
EX 12" PLASTIC DOWNSPOUT  
REMOVE

SURFACE DRIVES THIS SHEET

| STATION  | Approach, CI II<br>(Ton) | HMA<br>Approach<br>(Ton) | EX PAVED DRIVE<br>WIDTH AT EDGE<br>OF PAVT (FT) |
|----------|--------------------------|--------------------------|-------------------------------------------------|
| 13+06 LT | 7                        |                          |                                                 |
| 18+14 LT |                          | 3                        | 41                                              |
| 21+45 RT | 6                        |                          |                                                 |
| 26+14 LT | 6                        |                          |                                                 |
| 31+29 LT | 4                        |                          |                                                 |
| 34+90 RT | 3                        |                          |                                                 |
| TOTALS   | 26                       | 3                        |                                                 |

CONSTRUCTION QUANTITIES THIS SHEET (STA 11+16 TO 35+00)

1016 Ton Aggregate Base  
8169 Syd HMA Base Crushing and Shaping  
48 Sta Trenching  
1335 Ton HMA, 4E1  
234 Ton Shoulder, CI II



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County Road Commission

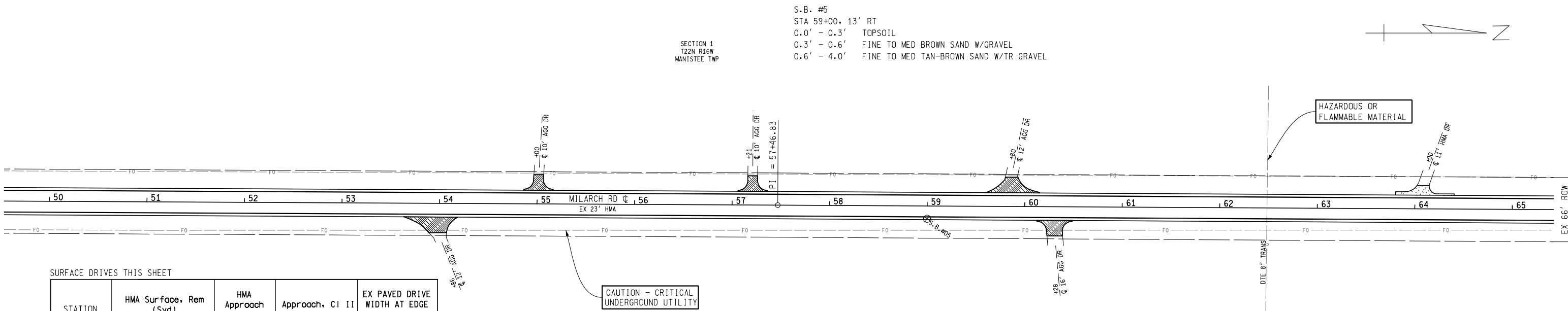
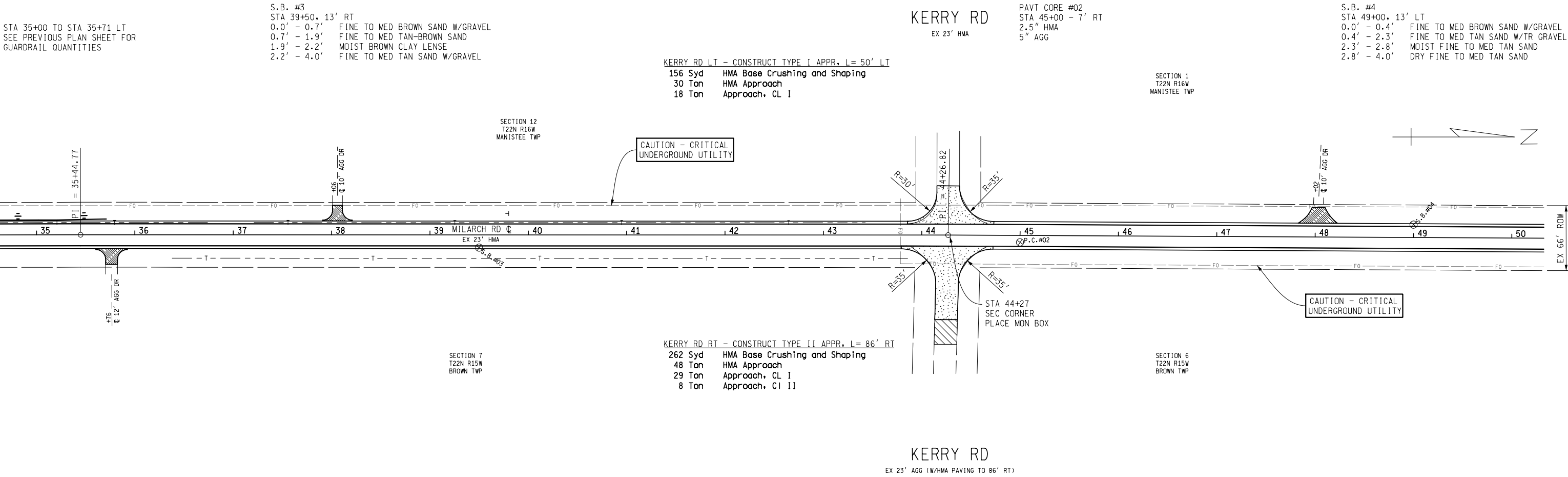


MILARCH RD - POB STA 11+16 TO STA 35+00

| DATE      | TOWNSHIP         | JOB NO. | SHEET NO. |
|-----------|------------------|---------|-----------|
| 1/28/2020 | MANISTEE & BROWN |         | 6         |

8/5/44 AM  
1/28/2020





SURFACE DRIVES THIS SHEET

| STATION  | HMA Surface, Rem (Syd) | HMA Approach (Ton) | Approach, CI II (Ton) | EX PAVED DRIVE WIDTH AT EDGE OF PAVT (FT) |
|----------|------------------------|--------------------|-----------------------|-------------------------------------------|
| 35+76 RT |                        |                    | 3                     |                                           |
| 38+06 LT |                        |                    | 3                     |                                           |
| 48+02 LT |                        |                    | 5                     |                                           |
| 53+86 RT |                        |                    | 6                     |                                           |
| 55+00 LT |                        |                    | 3                     |                                           |
| 57+21 LT |                        |                    | 3                     |                                           |
| 59+80 LT |                        |                    | 5                     |                                           |
| 60+28 RT |                        |                    | 4                     |                                           |
| 64+00 LT | 53                     | 5                  |                       | 60                                        |
| TOTALS   | 53                     | 5                  | 32                    |                                           |

CONSTRUCTION QUANTITIES THIS SHEET (STA 35+00 TO 65+00)

|            |                               |
|------------|-------------------------------|
| 1278 Ton   | Aggregate Base                |
| 10,000 Syd | HMA Base Crushing and Shaping |
| 60 Sta     | Trenching                     |
| 1615 Ton   | HMA, 4E1                      |
| 294 Ton    | Shoulder, CI II               |



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

MANISTEE  
County Road Commission

KPM ENGINEERING

| MILARCH RD - STA 35+00 TO STA 65+00 |                  |         |           |
|-------------------------------------|------------------|---------|-----------|
| DATE                                | TOWNSHIP         | JOB NO. | SHEET NO. |
| 1/28/2020                           | MANISTEE & BROWN |         | 7         |



S.B. #6  
STA 70+00, 13' LT  
0.0' - 0.3' FINE TO MED BROWN SAND W/GRAVEL  
0.3' - 2.8' FINE TO MED TAN SAND W/TR GRAVEL  
2.8' - 4.0' FINE TO MED BROWN SILTY SAND

PAVT CORE #03  
STA 75+00 - 5' RT  
2" HMA  
3.5" AGG (POOR)

S.B. #7  
STA 80+00, 13' RT  
0.0' - 0.3' FINE TO MED BROWN SAND W/GRAVEL  
0.3' - 0.7' FINE TO MED BROWN SAND  
0.7' - 1.0' TAN SILTY SAND  
1.0' - 1.8' FINE TO MED TAN SAND  
1.8' - 2.1' FINE TO MED TAN SAND W/TR GRAVEL  
2.1' - 2.8' FINE TAN SAND  
2.8' - 4.0' FINE TAN SILTY SAND

SECTION 1  
T22N R16W  
MANISTEE TWP

SECTION 6  
T22N R15W  
BROWN TWP

SECTION 1  
T22N R16W  
MANISTEE TWP

SECTION 6  
T22N R15W  
BROWN TWP

S.B. #8  
STA 90+00, 13' LT  
0.0' - 0.6' FINE TO MED BROWN SAND W/GRAVEL  
0.6' - 1.5' FINE TO MED TAN SAND  
1.5' - 2.4' MOIST FINE TO MED TAN SAND W/TR GRAVEL  
2.4' - 4.0' GRAY SILTY CLAY W/GRAVEL

SURFACE DRIVES THIS SHEET

| STATION  | HMA Surface, Rem (Syd) | HMA Approach (Ton) | Approach, CI II (Ton) | EX PAVED DRIVE WIDTH AT EDGE OF PAVT (FT) |
|----------|------------------------|--------------------|-----------------------|-------------------------------------------|
| 67+40 RT |                        |                    | 7                     |                                           |
| 70+41 LT |                        |                    | 3                     |                                           |
| 70+55 RT |                        |                    | 6                     |                                           |
| 72+92 RT |                        |                    | 5                     |                                           |
| 76+66 LT |                        |                    | 5                     |                                           |
| 76+97 RT |                        |                    | 6                     |                                           |
| 77+05 LT | 54                     | 4                  |                       | 50                                        |
| 81+33 LT |                        |                    | 3                     |                                           |
| 85+25 LT | 47                     | 4                  |                       | 38                                        |
| 86+27 RT |                        |                    | 5                     |                                           |
| 89+58 RT | 50                     | 4                  |                       | 61                                        |
| 91+40 LT |                        |                    | 6                     |                                           |
| TOTALS   | 151                    | 12                 | 46                    |                                           |

CONSTRUCTION QUANTITIES THIS SHEET (STA 65+00 TO 95+00)

1278 Ton Aggregate Base  
10,000 Syd HMA Base Crushing and Shaping  
60 Sta Trenching  
1615 Ton HMA, 4E1  
294 Ton Shoulder, CI II

PROP GUARDRAIL  
STA 80+42.5 TO STA 86+05 RT  
488 Ft Guardrail, Type B (W/8' POSTS)  
2 Ea Guardrail Approach Terminal, Type 1B  
18 Ea Guardrail Reflector

\* 12.5' OF GUARDRAIL, CURVED, TYPE B  
PLUS 12.5' OF GUARDRAIL DEPARTING  
TERMINAL, TYPE B (BOTH WITH R = 15')

PROP GUARDRAIL  
STA 89+68 TO STA 95+00 RT  
517 Ft Guardrail, Type B (W/8' POSTS)  
13 Ft Guardrail, Curved, Type B  
1 Ea Guardrail Departing Terminal, Type B  
20 Ea Guardrail Reflector



3 WORKING DAYS  
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**MANISTEE**  
County Road Commission



MILARCH RD - STA 65+00 TO STA 95+00

DATE  
1/28/2020

TOWNSHIP  
MANISTEE & BROWN

JOB NO.

SHEET NO.  
8

8:51:50 AM  
1/28/2020



