



**VIS+BARRIER<sup>®</sup>**

**PRECAST POLYMER CONCRETE PANELS**

**MICHIGAN DOT  
M-48 OVER I-75  
RUDYARD, MICHIGAN**

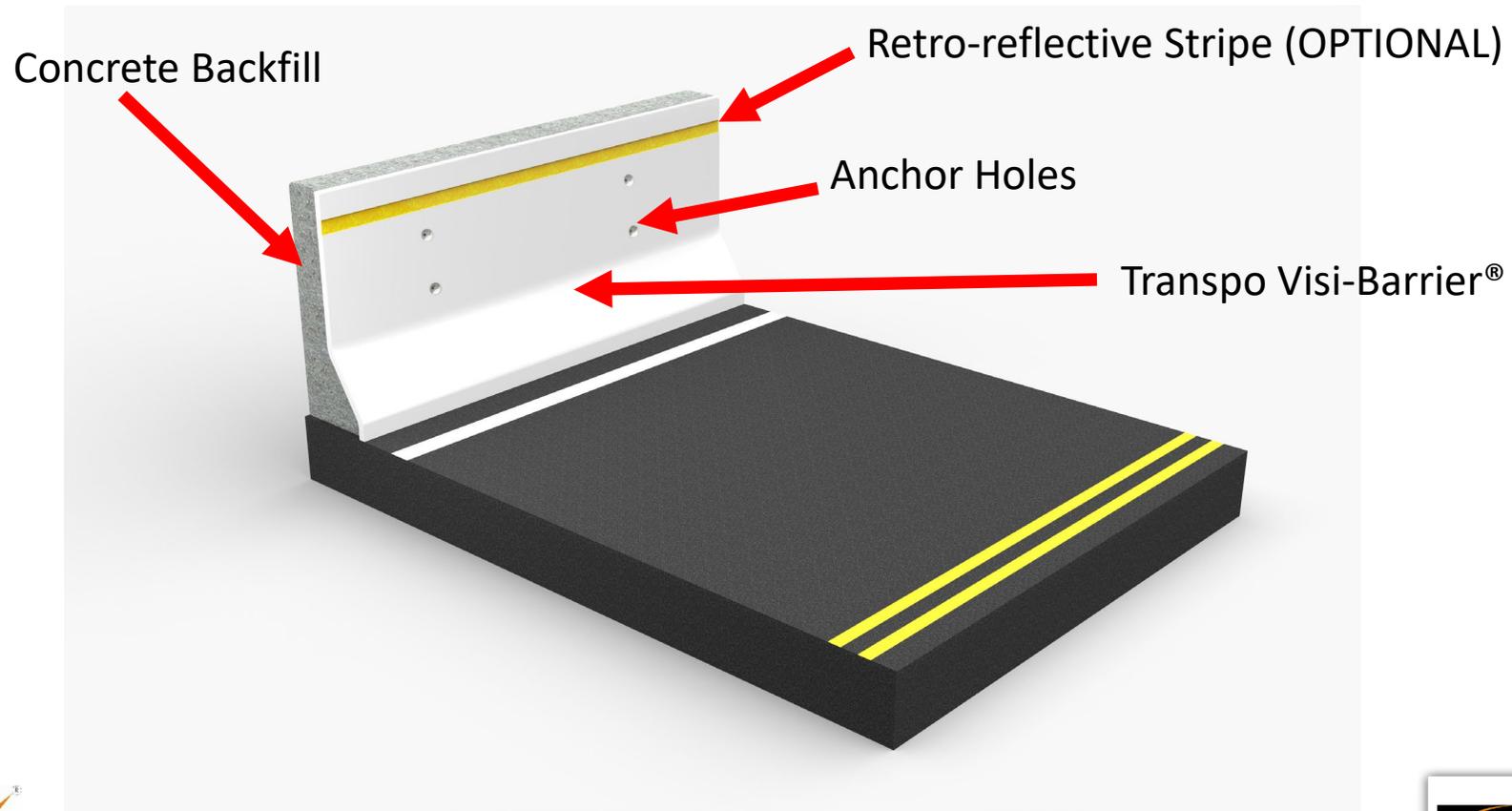


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# VIS+BARRIER<sup>®</sup>

## PRECAST POLYMER CONCRETE PANELS

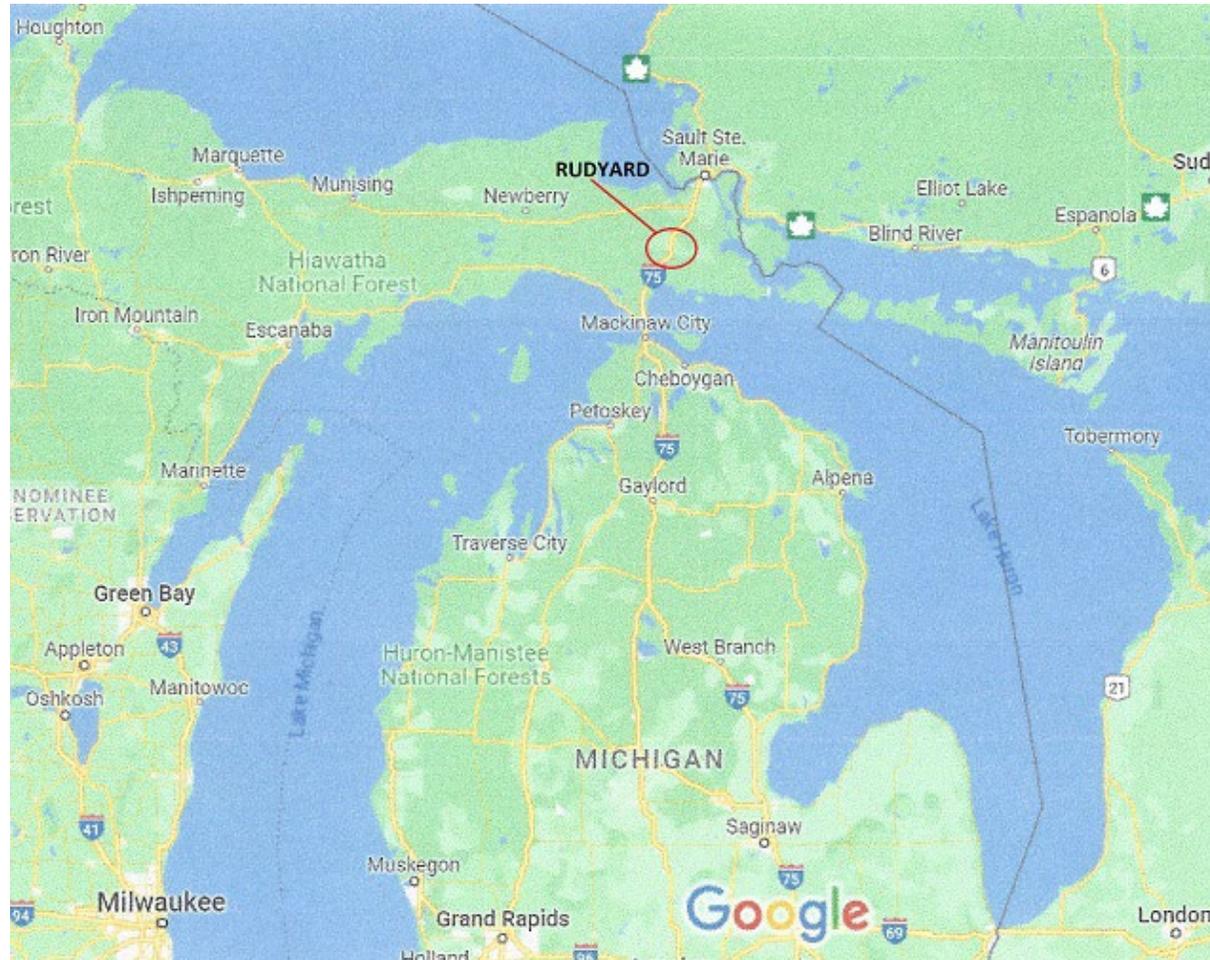


# MICHIGAN DOT – VISI-BARRIER PROJECT

- 2023**      **MARCH – BRIDGE WEEK (MUSKEGON)**
- **DISCUSS NEED & VISI-BARRIER SOLUTION (NORTH REGION)**
- APRIL – AUGUST: DEVELOP SP & PLANS**
- DECEMBER LETTING: 3 BIDDERS; GRC @ \$5M**
- 2024**      **APRIL – DECEMBER: GRC & MDOT FINALIZE/APPROVE**
- 2025**      **JANUARY - JULY: MOLD PROCESS & PRODUCTION**
- JULY – PANELS DELIVERED TO JOBSITE**
- **INSTALLATION: ~25 DAYS**
  - **128 PANELS @ \$163K + MOLDS @ \$55K (\$218K)**
- AUGUST 29 – PROJECT COMPLETED**



# MICHIGAN DOT ~~BAR~~ PROJECT RUDYARD, MICHIGAN



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# MICHIGAN DEPARTMENT OF TRANSPORTATION

ROUTE: I-75 & M-48  
RUDYARD TOWNSHIP  
CHIPPEWA COUNTY

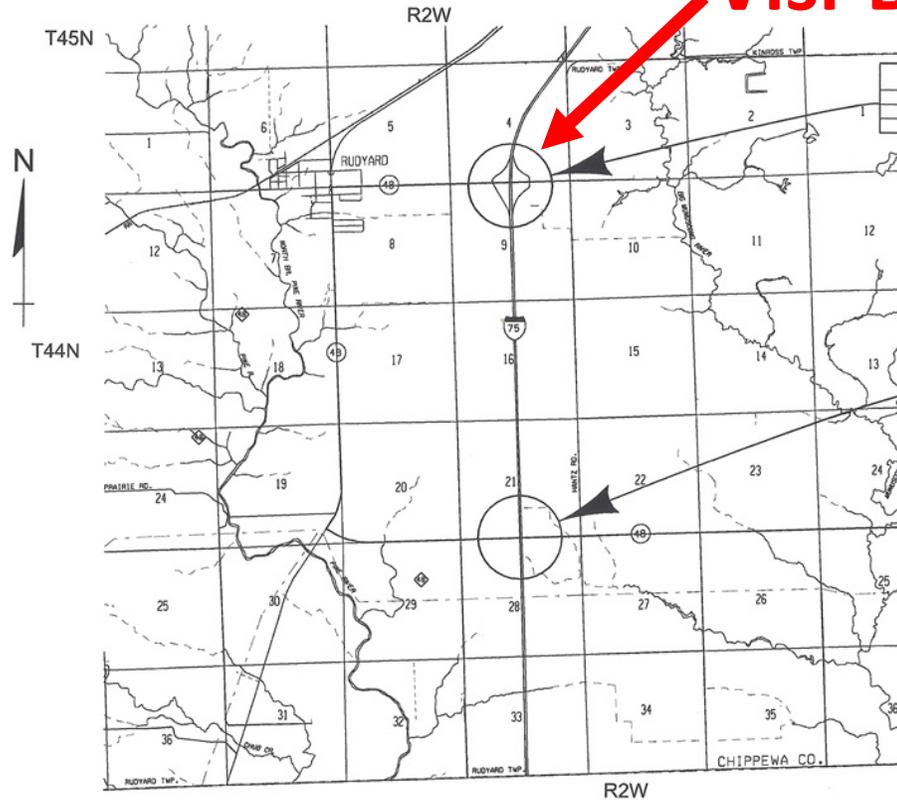


CHIPPEWA COUNTY  
COUNTY KEY

TRAFFIC DATA			SPEED DATA			LIMITS
ROAD	YEAR	ADT	DHV	COMM	DESIGNPOSTED	
I-75	2022	3950	12%	75	75	UNDER M-48
	2042	4375	12%	75	75	
M-48	2022	595	5%	55	55	OVER I-75 (S01 OF 17033)
	2042	600	5%	55	55	
M-48	2022	595	5%	55	55	OVER I-75 (S02 OF 17033)
	2042	600	5%	55	55	

SECTION	CONTROL SEC	JOB NO.	FED AID PROJ
1 & 2	17033	204407A	YES

- PROJECT (\$5M)**
- TWO BRIDGES**
  - BRIDGE #2 (M-48)**
    - VISI-BARRIER**
    - FULL CLOSURE**



S02 OF 17033
M-48 OVER I-75
STRUCTURE NUMBER: 1577
JN: 204407A

THE REGULATED WASTE ACTIVITY IDENTIFICATION NUMBERS FOR THIS PROJECT ARE AS FOLLOWS:

CONTROL SECTION	NUMBER
S01 OF 17033	MID985661826
S02 OF 17033	MID985661826

S01 OF 17033
M-48 OVER I-75
STRUCTURE NUMBER: 1576
JN: 204407A

**MICHIGAN DEPARTMENT OF TRANSPORTATION**  
BRADLEY C. WIEFERICH, P.E. - DIRECTOR

CONTRACT FOR:  
S01: SUBSTRUCTURE CONCRETE PATCHING, BEAM END CUTTING, BARRIER REPLACEMENT, CONCRETE DEEP OVERLAY, FULL DEPTH PATCHING, JOINT REPLACEMENT, PARTIAL PAINTING, APPROACH WORK AND MAINTAINING TRAFFIC  
S02: BARRIER PATCHING, POLYMER BARRIER PANELS, DECK PATCHING, JOINT REPLACEMENT, SUBSTRUCTURE PATCHING, APPROACH WORK AND MAINTAINING TRAFFIC.

**NOTES:**

THE REHABILITATION DESIGN IS BASED ON THE 17TH EDITION OF AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES HS-20-44 LOADING, LIVE LOAD PLUS IMPACT DEFLECTION DOES NOT EXCEED 1/800 OF SPAN LENGTH. THE ORIGINAL STRUCTURE (S01 OF 17033) WAS DESIGNED FOR H20-S16-44 & (S02 OF 17033) WAS DESIGNED FOR H15-44 LOADING BASED ON AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.

THE DESIGN OF THE STRUCTURAL MEMBERS IS BASED ON MATERIAL OF THE FOLLOWING GRADES AND STRESSES:  
 CONCRETE: GRADE 4500  $f_c = 4,000 \text{ psi}$   
 STEEL REINFORCEMENT  $f_y = 60,000 \text{ psi}$   
 STRUCTURAL STEEL:  $f_y = 36,000 \text{ psi}$   
 AASHTO M270 GRADE 36  
 STRUCTURAL STEEL:  $f_y = 50,000 \text{ psi}$   
 AASHTO M270 GRADE 50, 50W

BEVEL ALL EXPOSED CONCRETE CORNERS SHOWN SQUARE ON THE PLANS WITH 1/4" TRIANGULAR MOLDINGS EXCEPT AS OTHERWISE NOTED.

THE BRIDGE PAINT MAY CONTAIN LEAD.

UNLESS OTHERWISE SHOWN ON THE PLANS PROVIDE MINIMUM CONCRETE CLEAR COVER FOR REINFORCEMENT ACCORDING TO THE FOLLOWING:  
 CONCRETE CAST AGAINST EARTH: 3 IN.  
 ALL OTHER UNLESS SHOWN ON PLANS: 2 IN.

THIS PROJECT HAS BEEN EVALUATED USING THE FAA NOTICE CRITERIA TOOL FOR A STRUCTURE HEIGHT OF 159 FEET ABOVE A GROUND LEVEL ELEVATION OF 692 FEET FOR S01 OF 17033 AND 715 FEET FOR S02 OF 17033 AND NO PERMITS ARE REQUIRED.

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, PERFORM ALL WORK ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION 2020 EDITION.

DO NOT OPEN STRUCTURES TO TRAFFIC UNTIL ALL PROPOSED CONCRETE ATTAINS 100% OF ITS SPECIFIED STRENGTH.

FINAL ROW PLAN REVISIONS		SUBMITTAL DATE:	
NO.	DATE	NO.	DATE



NO SCALE

DRAWN BY: M THORNTON  
CHK'D BY: K HOENSHEID CORR BY: MRT  
FILE: 17033\_816.dgn

DATE: 08/10/23  
DESIGN UNIT: HOENSHEID  
TSC: NEWBERRY

CS: 17033, 17042  
JN: 204407A

DRAWING SHEET	
TITLE SHEET	SHEET
	1





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# M-40 Bridge over I-75 Rudyard, MI.

SUMMER 2023

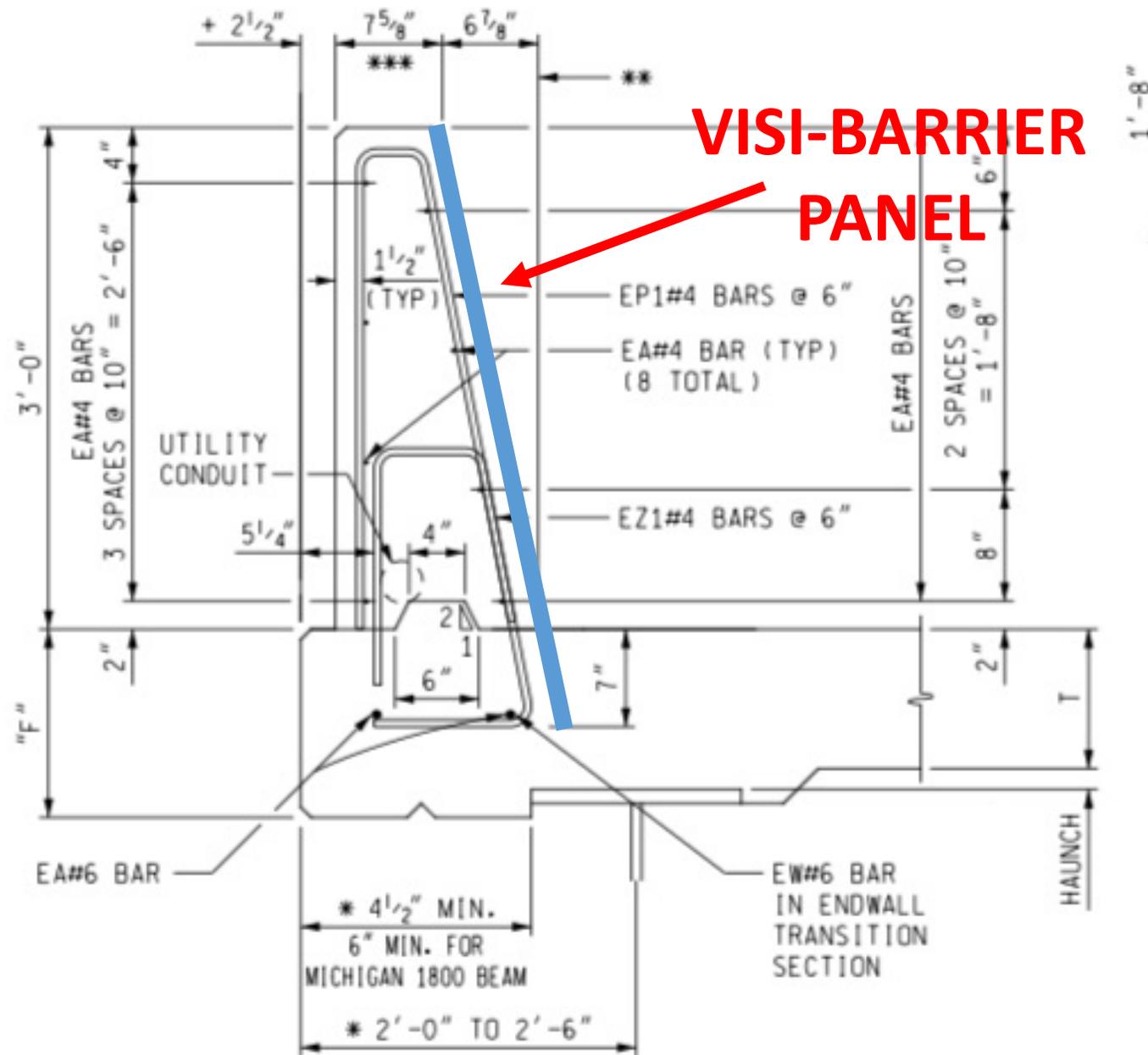
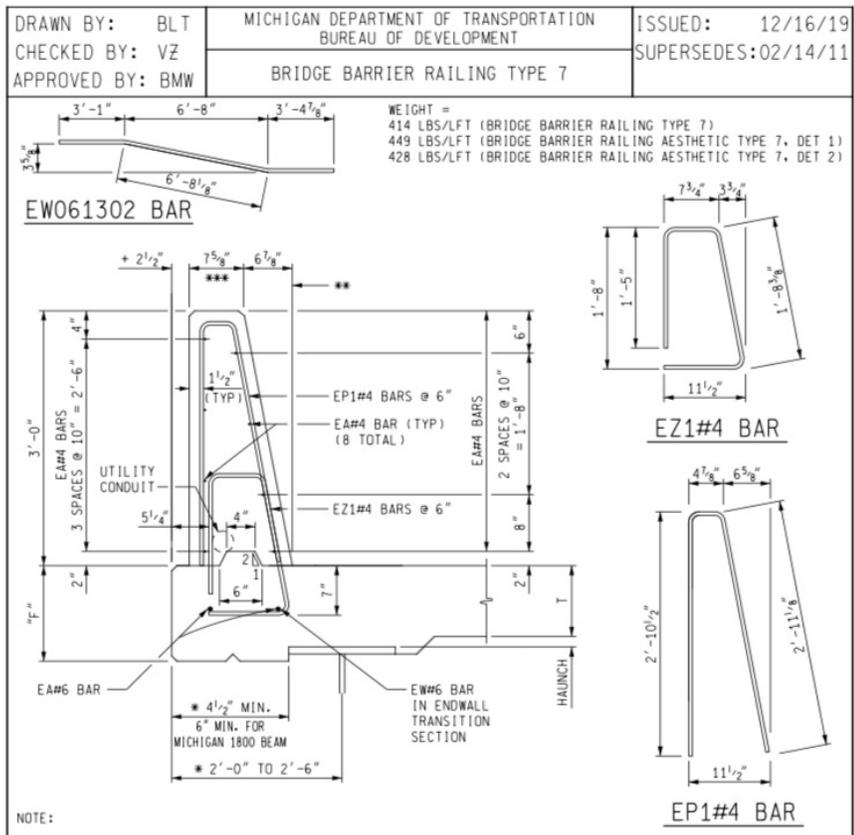


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## Bridge Railing Type 6 & 7

PDF - 157 KB



# VIS+BARRIER<sup>®</sup>

## PRECAST POLYMER CONCRETE PANE

# MANUFACTURING



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# MICHIGAN DOT – VISI-BARRIER PROJECT



Top, Mold Cover

## PRODUCTION:

- TWO MOLDS
- 6 PANELS/DAY

## PROJECT REQUIREMENTS:

- 128 PANELS
- LENGTH:  
10-FT - ~13-FT
- WEIGHT:  
850-LBS – 1,300-LBS

# VIS+BARRIER<sup>®</sup>

## PRECAST POLYMER CONCRETE PANE

# PROJECT SUMMARY



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# VISBARRIER® - RUDYARD, MI.



## VISBARRIER®

- 128 PANELS
- 16 PANELS/RACK
- 3 TRUCKS

# VISBARRIER® RUDYARD, MI.



**SET & ALIGN PANEL**



**ADJUST WITH PREINSTALLED STUDS**



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# VISIBARRIER® - RUDYARD, MI.



**ADJUST BOTTOM; MARK HOLES W/ DRILL**



**DRILL HOLES THROUGH BARRIER**



# VISBARRIER® RUDYARD, MI.



**RE-POSITION PANEL**



**INSTALL THREADED ROD, NUTS & TIGHTEN**



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# VISIBARRIER® RUDYARD, MI.



PANEL SIDE; ANCHOR ROD SECURED



BARRIER SIDE; ANCHOR ROD SECURED



# VIS+BARRIER® - RUDYARD, MI.



**GROUTING BACK OF PANEL**



**ACCOMODATION FOR ELASTOMERIC JOINT SERVICING**



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# VISIBARRIER® RUDYARD, MI.



**SPANS 1-3 OF 8 SPANS COMPLETED**



**COMPLETED INSTALLATION**



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# VIS+BARRIER<sup>®</sup>

## PRECAST POLYMER CONCRETE PANE

# REPAIR



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# CUMBERLAND GAP TUNNEL VISI-BARRIER® REPAIR

## STAKE HOLDERS

- KyTC
- TDOT
- NPS
- JMT\*

\*TUNNEL OPERATOR:  
(JOHNSON, MERMIRAN & THOMPSON)

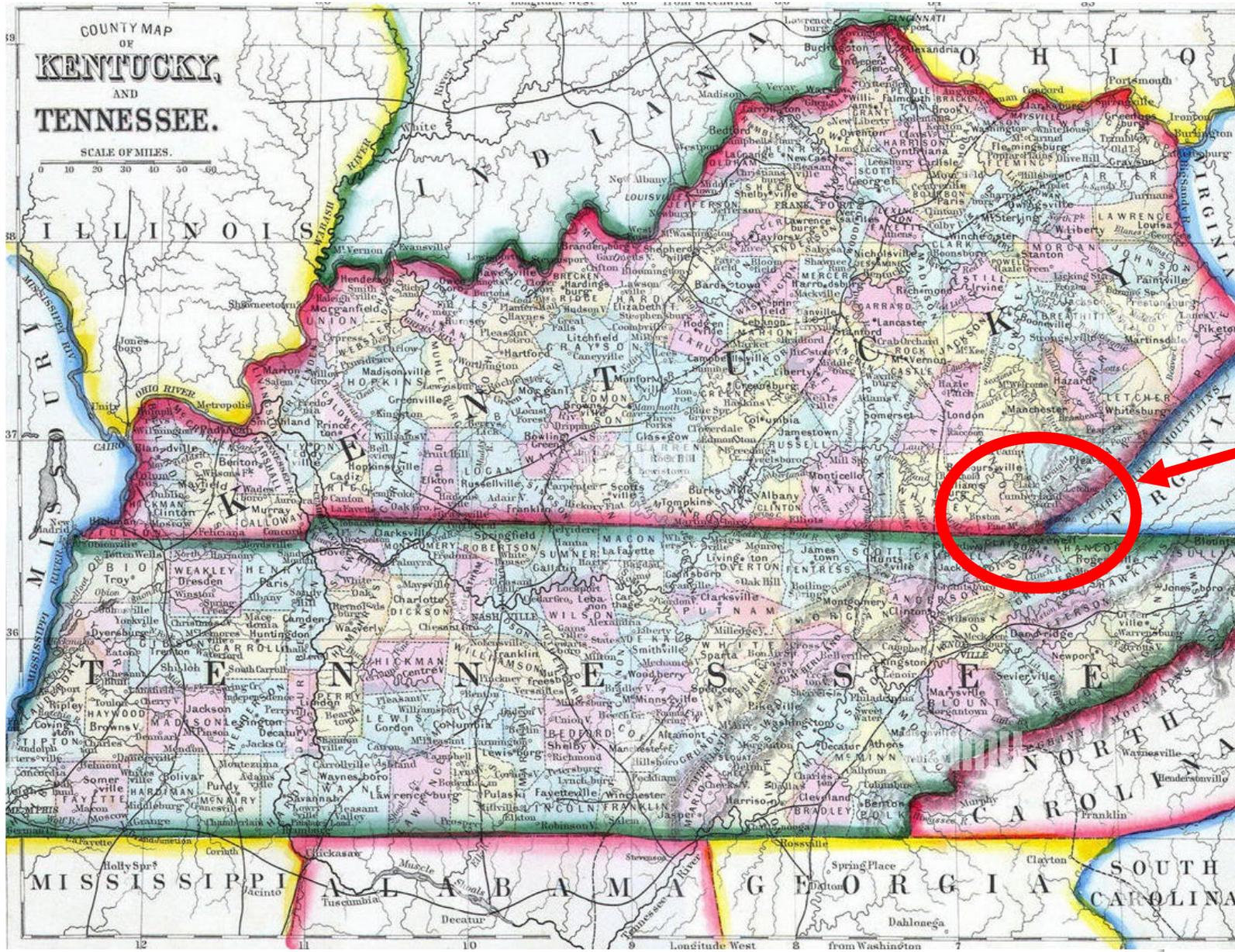


Route 25E  
Middlesboro, KY.



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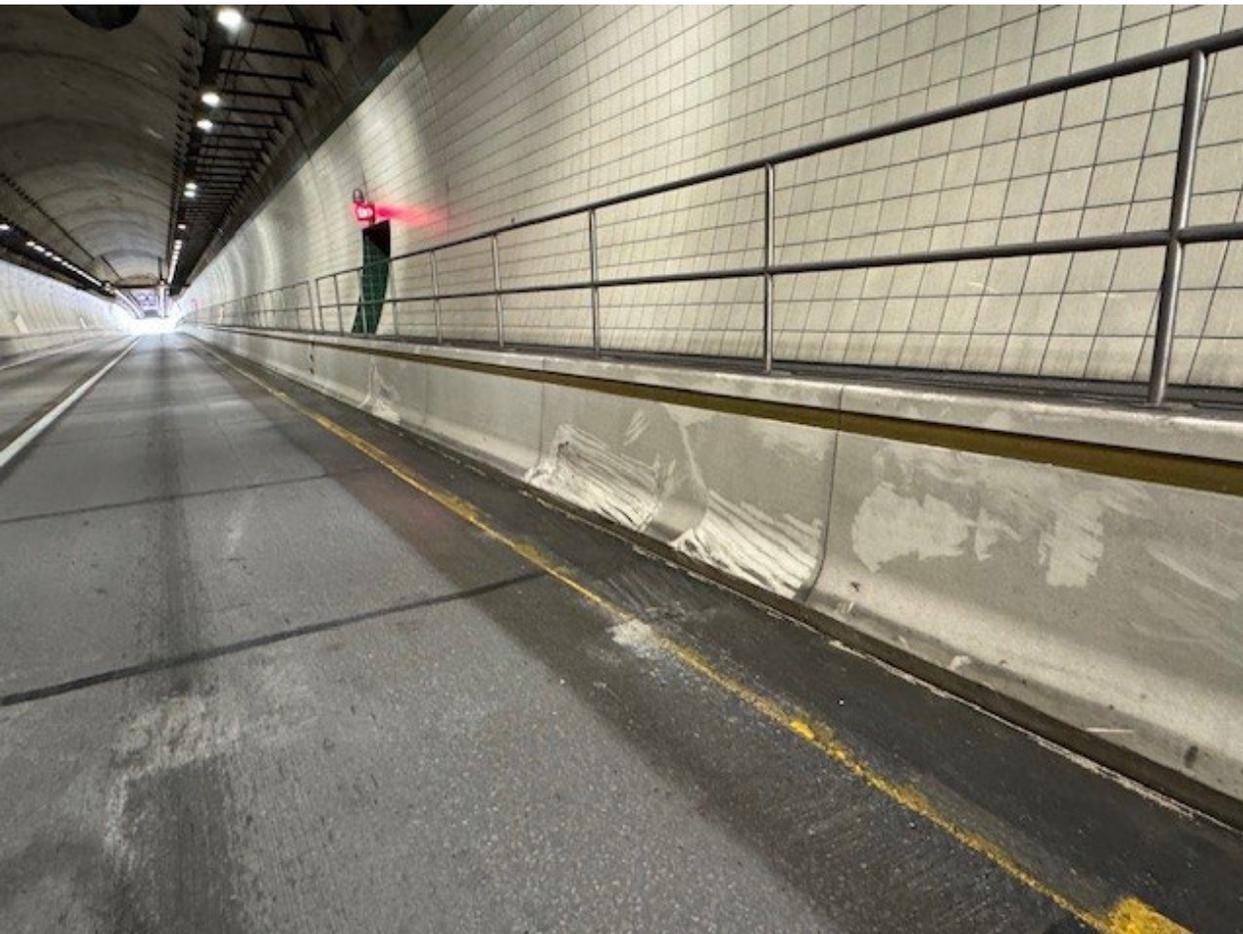


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- Installed 1996
- 21,000 lineal feet
- SB W Wall & NB E Wall – attached to wall
- SB East Wall & NB West Wall – Elevated walk



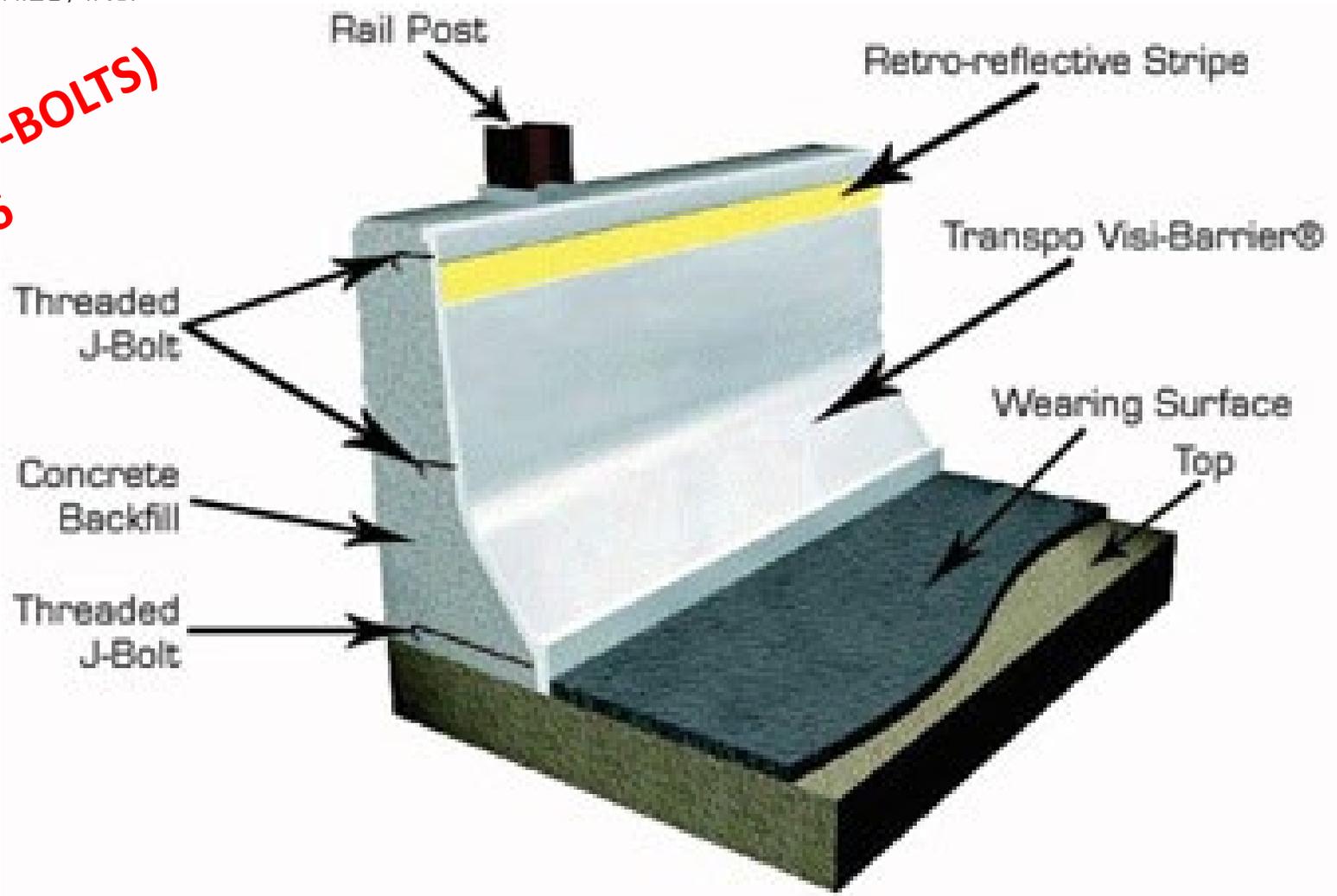
## Panel Damage (June 2025 accident) – Southbound, East Wall (Station 123 +50)



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**OLD DESIGN (J-BOLTS)**  
**1996**





## CUT & SPLICED PARTIAL SECTION W/ STRIPING



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- Grime buildup on existing tunnel striping (left)
- New panel with safety stripe (right)
- Owners plan to high pressure wash striping



# Questions?

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