U.S. Department
of Transportation
Federal Highway Administration

October 19, 2005

400 Seventh St., S.W.
Washington, D.C. 20590

In Reply Refer To: HSA-10

Mr. Rick Mauer
Outside Sales National Representative
Nucor Steel Marion, Inc.
912 Chaney Avenue
Marion, Ohio 43302

Dear Mr. Mauer:

In your September 2 letter to Mr. Richard Powers of my staff, you requested formal Federal Highway Administration acceptance of a design concept by which your high-tension cable rail could be transitioned and connected to a strong-post W-beam guardrail.

Your transition design is intended for use in conjunction with a W-beam installation that has a standard, crashworthy terminal with a minimum 4'-0" offset from the cable. A unique gusset plate is nested behind and bolted to the back of a special 6 foot-3 inch W-beam panel at the splice located at the first line post. Each cable is threaded through 1-in by 2-in slots in the W-beam panel and connected to the bracket. The first U-channel cable post is placed in line with the barrier proper and 6.5 feet upstream from the first W-beam line post. The transition then consists of 11 additional line posts also set on 6.5 foot centers, at which point your standard post spacing begins. Details for the transition design are shown in the enclosed drawings.

Previous full-scale crash testing has shown that high-tension cable barriers result in lower deflections than those seen in the lesser-tensioned generic cable barrier. In earlier cable-to-W-beam transition testing with the lower-tensioned generic cable rail, the cable deflection allowed the W-beam terminals to be impacted, resulting in significant vehicle instability. With your high-tension design, it is less likely that the nose of the terminal will be impacted in a typical impact. Even so, the use of a lightweight, non-energy absorbing W-beam terminal is suggested to minimize vehicle instability if the terminal is hit.

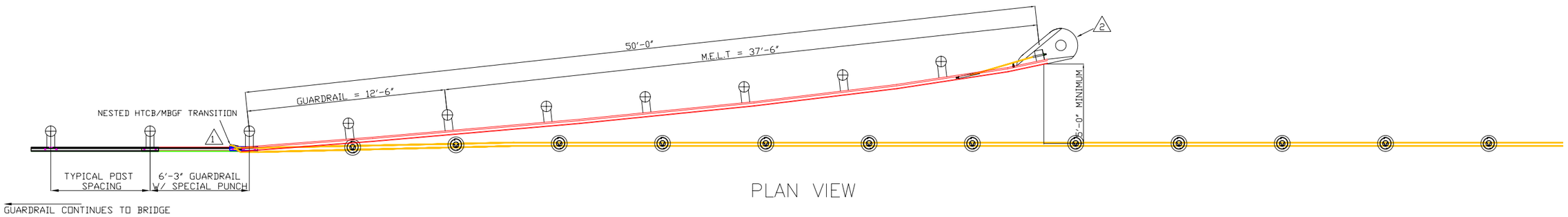
Based on the specific design details noted above, your proposed transition design is acceptable for use on the National Highway System at National Cooperative Highway Research Program Report 350 test level 3 when used in conjunction with a crashworthy terminal having a

minimum 4-foot offset from the cables. Since this transition design has not been physically tested, field installations should be monitored to verify their presumed crashworthiness.

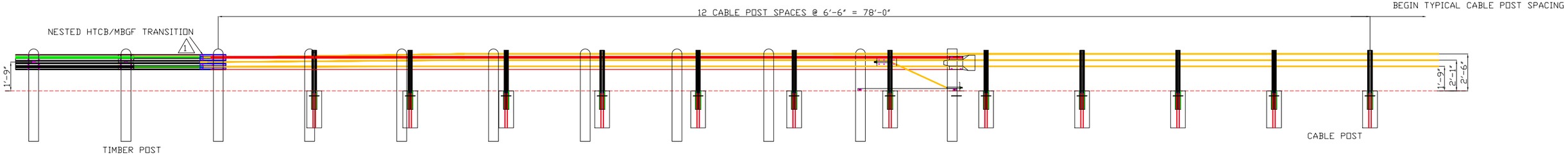
Sincerely yours,

for John R. Baxter, P.E.
Director, Office of Safety Design
Office of Safety

Enclosure



PLAN VIEW



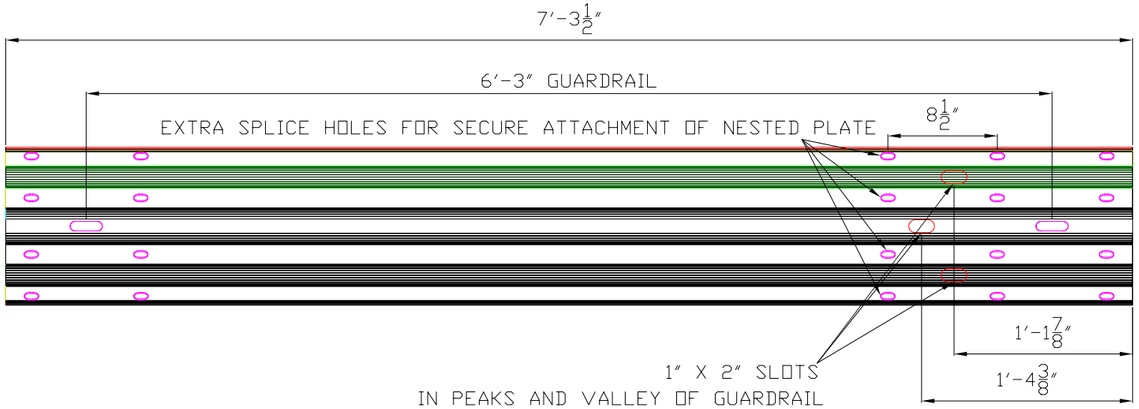
ELEVATION VIEW

NOTES:
1. CABLE TERMINATES INTO ADJUSTABLE CABLE END FITTINGS BEHIND GUARDRAIL.
2. M.E.L.T. OR OTHER END-SECTION AS NEEDED PARTICULAR TO TRAFFIC REQUIREMENTS.

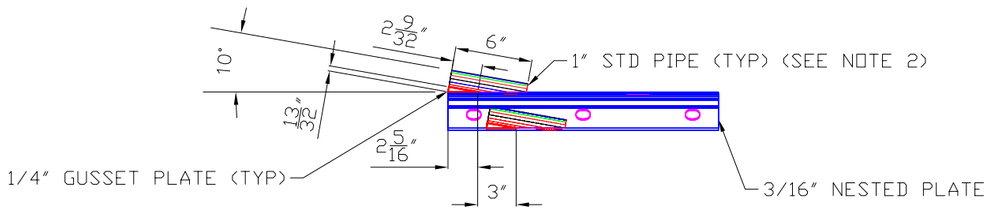
G.S.I. HIGH TENSION CABLE, LP		
720 W. WINTERGREEN RD., HUTCHINS, TEXAS 75141 (972) 225-1660		
CONTRACTOR:		
SCALE: VARIES	GSI#:	DATE: 10/05/05
REVISED:	CHECKED:	DRAWN: DPD

NESTED PLATE DETAIL FOR HTCB TO MBGF TRANSITION

TYPE MBGF/HTCB TRANSITION	LAYOUT	1 / 3



SPECIAL 6'–3" GUARDRAIL FOR NESTED PLATE



PLAN VIEW
SHOWING GUSSET PLATE, 1" PIPE DETAIL

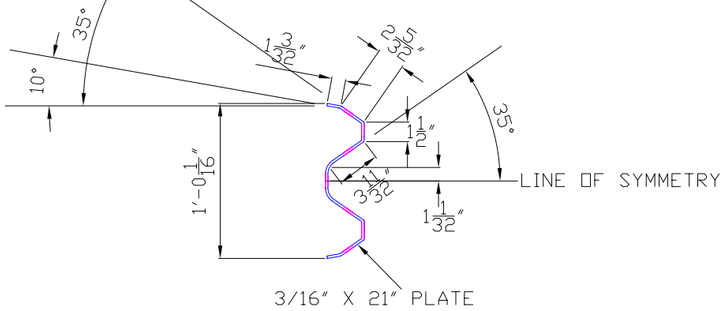
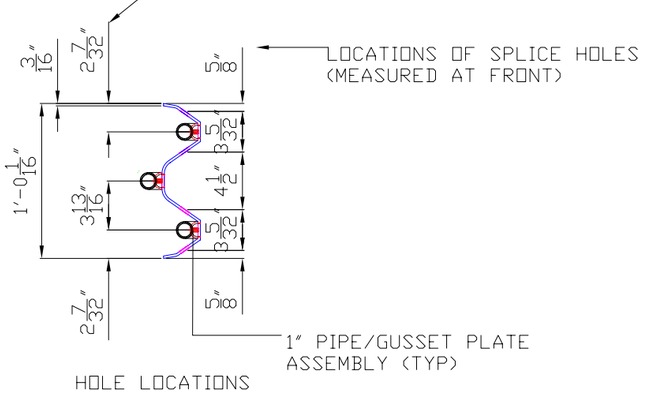
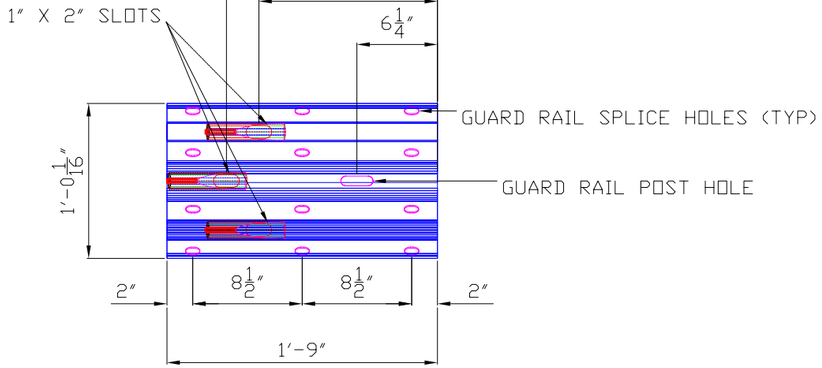


PLATE DIMENSIONS



HOLE LOCATIONS

SECTION VIEW



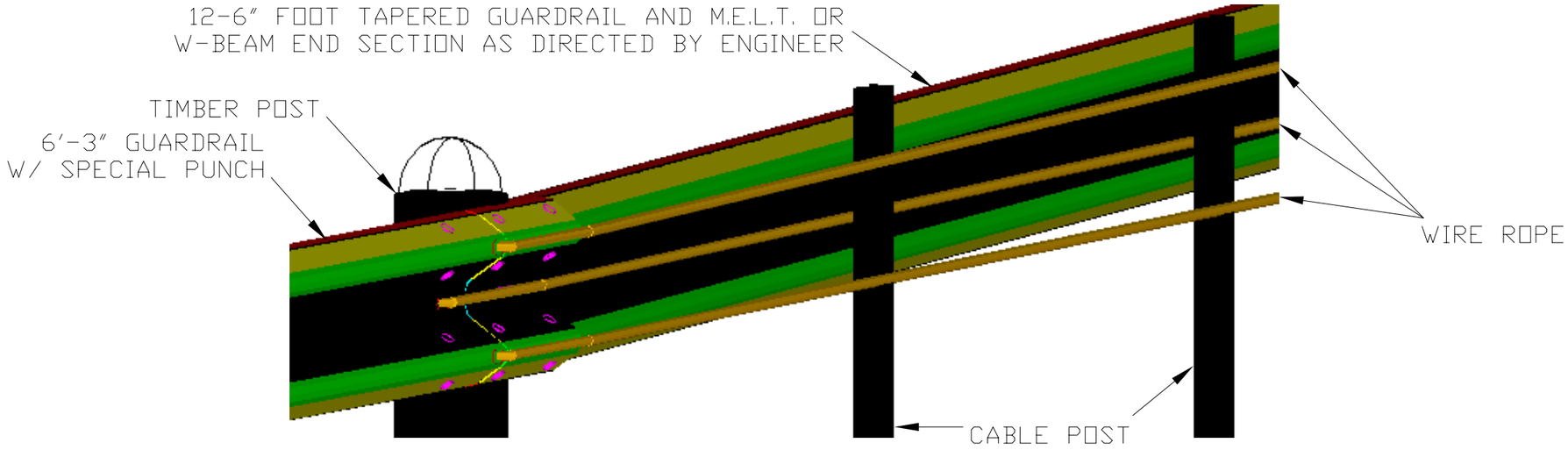
ELEVATION VIEW
SHOWING FRONT HOLE PATTERN

NOTES: 1. FILLET WELD ALL CONNECTIONS
2. CUT 1″ PIPE FROM ℄ TO EDGE AT 10°ANGLE.

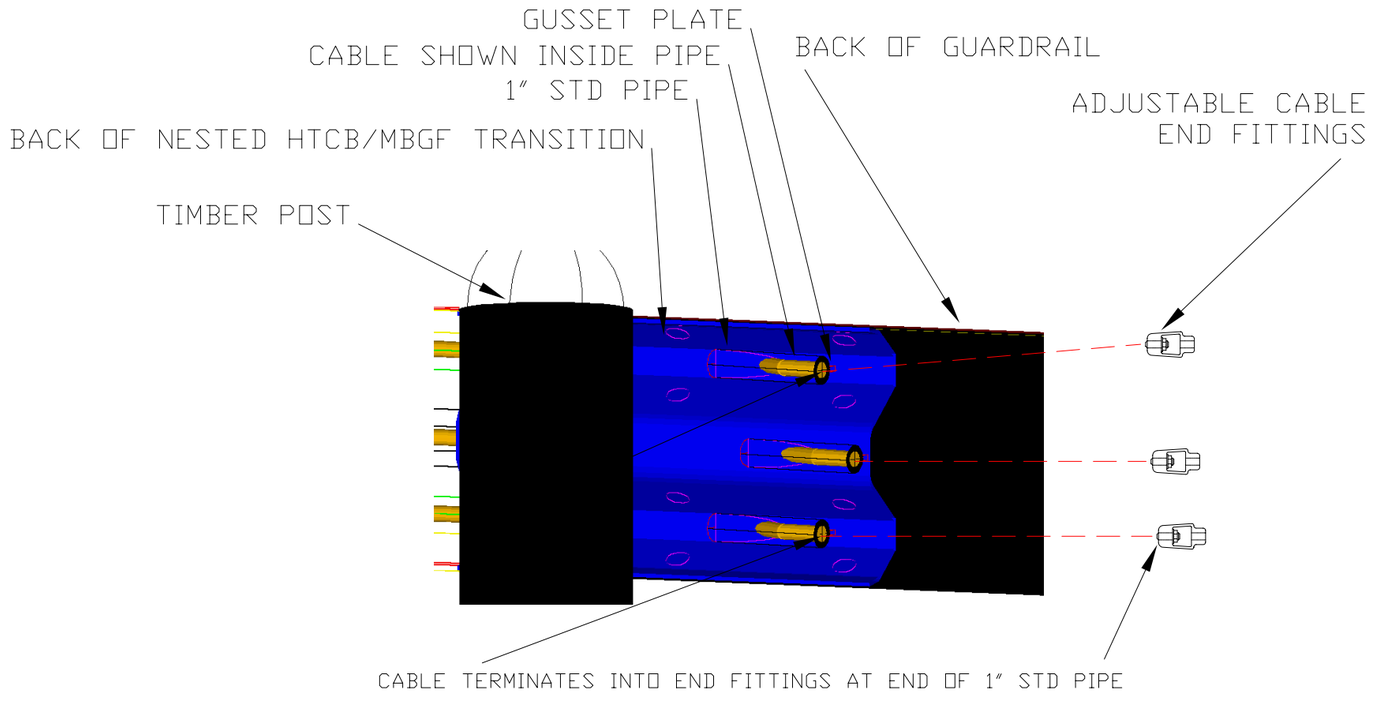
G.S.I. HIGH TENSION CABLE, LP		
720 W. WINTERGREEN RD., HUTCHINS, TEXAS 75141 (972) 225–1660		
CONTRACTOR:		
SCALE: NONE	GSI#:	DATE: 10/05/05
REVISED:	CHECKED:	DRAWN: DPD

NESTED PLATE DETAIL FOR HTCB TO MBGF TRANSITION

MBGF/HTCB TRANSITION	FABRICATION	2 / 3



ISOMETRIC OF HTCB/MBGF TRANSITION



BACK OF HTCB/MBGF TRANSITION SHOWING CABLE END DETAILS

G.S.I. HIGH TENSION CABLE, LP		
720 W. WINTERGREEN RD., HUTCHINS, TEXAS 75141 (972) 225-1660		
CONTRACTOR:		
SCALE: NONE	GSI#:	DATE: 10/05/05
REVISED:	CHECKED:	DRAWN: DUGAN
NESTED PLATE DETAIL FOR HTCB TO MBGF TRANSITION		
MBGF/HTCB TRANSITION	CABLE END DETAILS	3 / 3