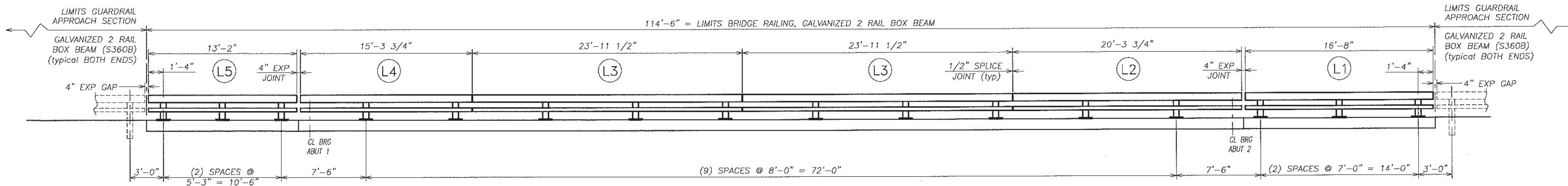
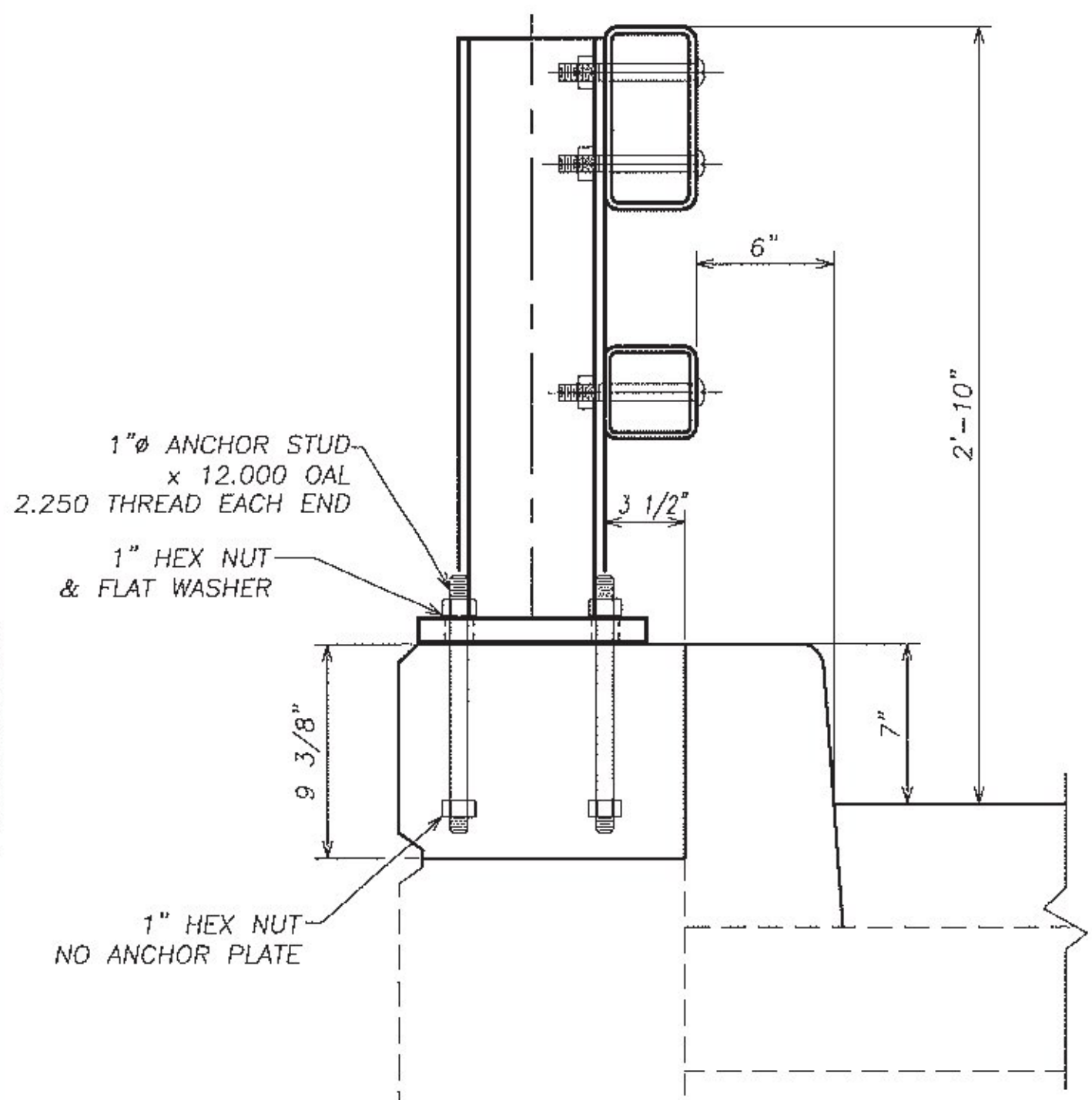


PARTIAL PLAN VIEW



SOUTHEAST SIDE RAILING ELEVATION  
LOOKING AT TRAFFIC FACE OF RAILING  
FACING SOUTHEAST FROM CENTERLINE OF ROAD



MODIFIED POST INSTALLATION ON WINGWALLS  
SEE SHEET 3 FOR TYPICAL POST ON BRIDGE

- NOTES:**
- ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
  - PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
  - ALL POSTS SHALL BE SET NORMAL TO GRADE.
  - SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
  - RAIL TUBE EXPANSION JOINT SHALL BE PROVIDED IN ANY RAIL BAY SPANNING THE END OF AN INTEGRAL ABUTMENT BRIDGE AND AT ALL SUPERSTRUCTURE EXPANSION JOINTS. EXPANSION JOINT WIDTH SHALL BE 4" AT 68°F AND WILL BE ADJUSTED IN THE FIELD BY THE ENGINEER FOR OTHER TEMPERATURES.
  - HOLES IN RAILS FOR RAIL TUBE ATTACHMENT SHALL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
  - RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
  - RAIL TUBES SHALL BE ATTACHED USING 3/4" FULL DIAMETER BODY ASTM A449 ROUND HEAD BOLTS INSERTED THROUGH THE FACE OF THE TUBE. HOLES IN POSTS SHALL BE 1/16" LARGER THAN THE BOLT SIZE.
  - ANY BENDING OR CURVING OF RAIL SHALL BE DONE IN A FABRICATION PLANT IN ACCORDANCE WITH SUBMITTED PROCEDURES.
  - THE MINIMUM DISTANCE FROM A POST TO AN EXPANSION JOINT SHALL BE SUCH TO MAINTAIN MINIMUM EDGE DISTANCE OF 5" FROM ANY ANCHOR STUD TO THE END OF THE SLAB, OR TO THE EXPANSION JOINT RECESS POUR, IF ONE IS USED.
  - A DELINEATOR (SEE VAOT STANDARD DRAWING G-1 FOR DETAILS) SHALL BE INSTALLED AT NEAREST POST TO 30 FT SPACING. WHITE IS TO BE INSTALLED ON THE DRIVER'S RIGHT. FOR ONE WAY BRIDGES, YELLOW IS TO BE INSTALLED ON THE DRIVER'S LEFT. PAYMENT SHALL BE INCIDENTAL TO OTHER ITEMS.
  - THIS RAILING MEETS THE REQUIREMENTS FOR A TL-4 SERVICE LEVEL.

- MATERIALS**
- RAIL TUBES.....ASTM A500 GRADE B OR ASTM A501
  - RAIL POSTS AND BASE PLATES.....ASTM A709/A709M, GRADE 50
  - ALL OTHER SHAPES AND PLATES.....ASTM A709/A709M, GARDE 36
  - ANCHOR STUDS.....ASTM A449
  - ALL OTHER BOLTS (UNLESS NOTED).....AASHTO M164, TYPE1
- NUTS FOR AASHTO M164 BOLTS AND FOR ANCHOR STUDS SHALL COMPLY WITH AASHTO M291 (ASTM A563).
- WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFICATIONS.
- 1/8" PAD SHALL COMPLY WITH STANDARD SPECIFICATION SUBSECTION 731.01 OR 731.02.
- RAIL POSTS AND BASE PLATES SHALL BE TESTED FOR IMPACT PROPERTIES IN ACCORDANCE WITH ASTM A370 CHARPY IMPACT TESTING USING TYPE A SPECIMEN.

Vermont Agency of Transportation  
**RECEIVED**  
CK'D BY CLD OK'D BY TAS  
December 29, 2016  
RESUBMIT No Approved AsNoted  
BY T Sumner DATE 01/03/2016

**SHOP DRAWING REVIEW**

REVIEWED AS REQUIRED BY THE CONSTRUCTION CONTRACT DOCUMENTS AND APPROVED BUT ONLY FOR CONFORMANCE TO THE DESIGN CONCEPT OF THE WORK, AND SUBJECT TO FURTHER LIMITATIONS AND REQUIREMENTS CONTAINED IN THE CONSTRUCTION CONTRACT DOCUMENTS.

REJECTED  REVISE AND RESUBMIT  APPROVED AS NOTED

CORRECTIONS OR COMMENTS MADE ON THE SHOP DRAWINGS DURING THIS REVIEW DID NOT RELIEVE CONTRACTOR FROM COMPLIANCE WITH REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS. THIS CHECK IS ONLY FOR REVIEW OF GENERAL CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND GENERAL COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR CORRECTING AND CORRELATING ALL QUANTITIES AND DIMENSIONS; SELECTING FABRICATION PROCESSES AND TECHNIQUES OF CONSTRUCTION; COORDINATING THEIR WORK WITH THAT OF ALL OTHER TRADES; AND PERFORMING THEIR WORK IN A SAFE AND SATISFACTORY MANNER.

CLD Consulting Engineers  
545 Commercial Street  
Manchester, NH 03101  
603-669-4225

Job Number: 15-0223  
Reviewed by: NDC  
Date: 1/3/2017

**HIGHWAY SAFETY CORP**  
GLASTONBURY, CT  
860-633-9445

ITEM 525.33 BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM (S-360A)  
ITEM 621.72 GUARDRAIL APPROACH, GALV 2 RAIL BOX BEAM (S-360B)

TOWN OF LUDLOW, VERMONT  
VT ROUTE 100 - (MINOR ARTERIAL) BRIDGE #99  
WINDSOR COUNTY STP DECK (39)

**CERTIFIED FABRICATOR**

NSC JOB NO. 2141  
SHEET NO. 2 of 4

GENERAL CONTRACTOR: LAFAYETTE  
SUB CONTRACTOR: LAFAYETTE

DATE 10-20-16 SCALE NONE SIZE D