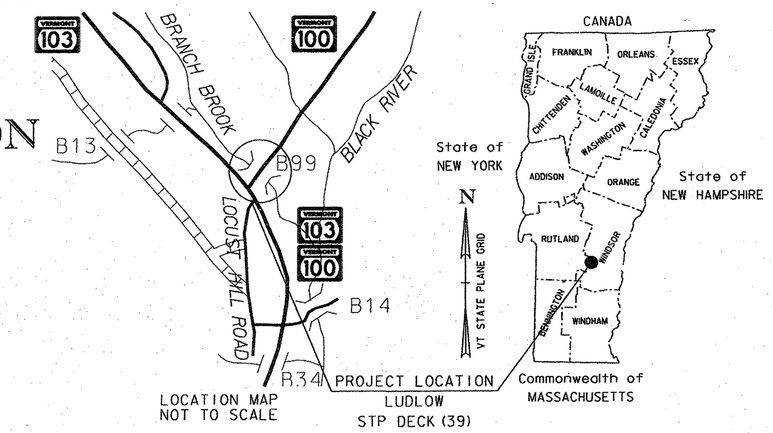
STATE OF VERMONT
AGENCY OF TRANSPORTATION

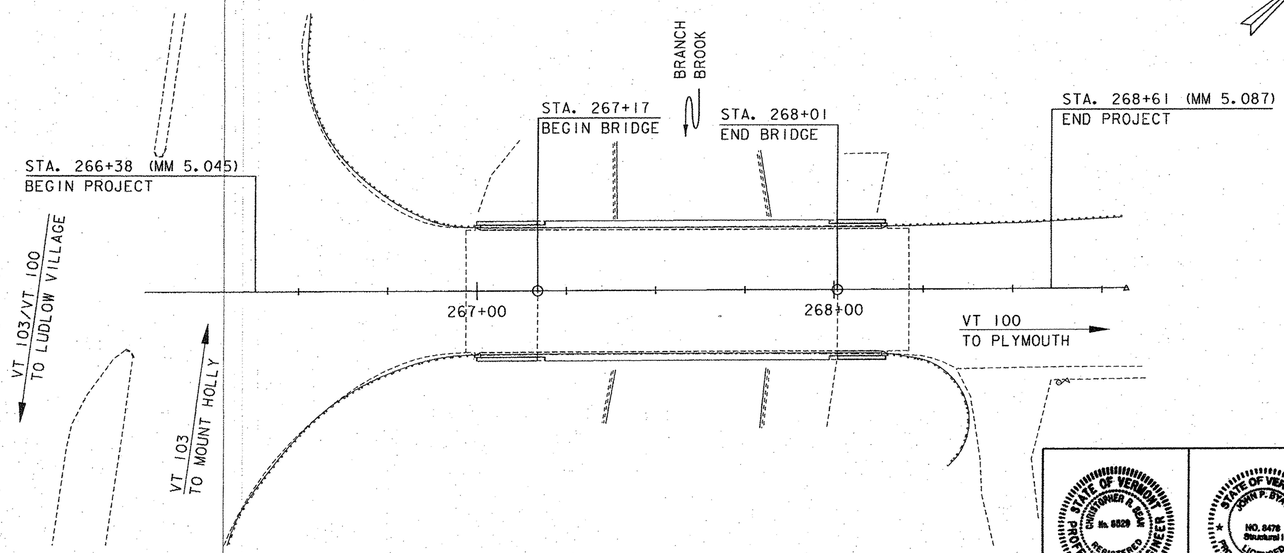
PROPOSED IMPROVEMENT
BRIDGE PROJECT
TOWN OF LUDLOW
COUNTY OF WINDSOR
VT ROUTE 100 (MINOR ARTERIAL) BRIDGE NO. 99



PROJECT LOCATION: LOCATED IN THE TOWN OF LUDLOW, ON VT 100, APPROXIMATELY 0.028 MILES EASTERLY FROM THE INTERSECTION WITH VT 103.

PROJECT DESCRIPTION: WORK TO BE PERFORMED UNDER THIS PROJECT INCLUDES THE REPLACEMENT OF THE EXISTING BRIDGE DECK INCLUDING RELATED APPROACH WORK.

LENGTH OF STRUCTURE: 84.00 FEET
LENGTH OF ROADWAY: 139.00 FEET
LENGTH OF PROJECT: 223.00 FEET



RECORD PLANS

CONTRACTOR: THE BELDEN COMPANY, INC. – RUTLAND, VT
RESIDENT ENGINEER: CHRIS D. WILLIAMS
CONSTRUCTION BEGAN: APRIL 27, 2017
CONSTRUCTION COMPLETE: SEPTEMBER 08, 2017
RECORD PLANS BY: CHRIS D. WILLIAMS & AARON WEAVER

I HEREBY CERTIFY THAT ALL THE CONSTRUCTION REQUIRED BY THIS SET OF DRAWINGS HAS BEEN ACCOMPLISHED AS INDICATED HEREIN.

BY _____ RESIDENT ENGINEER

DATE June 18, 2018

NOTE: Any further information concerning final quantities, amounts or other details relative to this project may be found at Central Files in the electronic archives.

CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2011, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON JULY 20, 2011 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

QUALITY ASSURANCE PROGRAM : LEVEL 2

SURVEYED BY : CLD
SURVEYED DATE : 09/21/2015

DATUM
VERTICAL NAVD 88
HORIZONTAL NAD 83

STATE OF VERMONT CHRISTOPHER R. BELL No. 6829 REGISTERED PROFESSIONAL ENGINEER
HIGHWAY

STATE OF VERMONT JOHN P. BYATT NO. 8478 Structural LICENSED PROFESSIONAL ENGINEER
BRIDGE

CONSULTING ENGINEERS
540 Commercial Street
Manchester, NH 03101
(603) 668-8223
www.cldengineers.com

DIRECTOR OF PROJECT DELIVERY
APPROVED _____ DATE 8/8/2016

PROJECT MANAGER : TODD SUMNER, P.E.

PROJECT NAME : LUDLOW
PROJECT NUMBER : STP DECK (39)

SHEET 1 OF 42 SHEETS

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STRUCTURE DETAIL SHEETS

SD-501.00	02/09/2012	CONCRETE DETAILS AND NOTES
SD-502.00	10/10/2012	CONCRETE DETAILS AND NOTES
SD-516.10	08/29/2011	BRIDGE JOINT ASPHALTIC PLUG
SD-601.00	06/04/2010	STRUCTURAL STEEL DETAILS & NOTES

HIGHWAY SAFETY AND DESIGN DETAIL SHEETS

HSD-621.06	11/03/2015	GUARDRAIL TERMINAL LABEL DETAIL

VAOT STANDARD SHEETS

B-5	06/1/1994	EMBANKMENT ON EARTH SLOPE, EMBANKMENT ON ROCK SLOPE,MUCK EXCAVATION, TYPICAL SLOPE ROUNDING
B-71	07/08/2005	STANDARDS FOR RESIDENTIAL AND COMMERCIAL DRIVES
D-3	06/01/1994	TREATED GUTTERS
E-127	08/08/1995	ROUTE MARKINGS AT RURAL INTERSECTIONS
E-136B	08/08/1995	STATE ROUTE MARKER SIGN DETAILS
E-191	02/01/1999	PAVEMENT MARKING DETAILS
E-193	08/18/1995	PAVEMENT MARKING DETAILS
G-1	11/10/2015	STEEL BEAM GUARDRAIL WITH STEEL POSTS, STEEL BEAM GUARDRAIL WITH WOOD POSTS
G-1d	02/10/2014	STEEL BEAM GUARDRAIL APPROACH END TERMINAL, STEEL BEAM GUARDRAIL TRAILING END TERMINAL, ANCHOR FOR STEEL BEAM GUARDRAIL, STEEL BEAM MEDIAN BARRIER
S-360A	04/23/2012	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM
S-360B	04/23/2012	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM
T-1	04/25/2016	TRAFFIC CONTROL GENERAL NOTES
T-10	08/06/2012	CONVENTIONAL ROADS CONSTRUCTION APPROACH SIGNING
T-28	08/06/2012	CONSTRUCTION SIGN DETAILS
T-31	08/06/2012	CONSTRUCTION SIGN DETAILS
T-42	04/09/2014	BRIDGE NUMBER PLAQUE
T-44	04/09/2014	MILEMARKER DETAILS STATE AND TOWN HIGHWAYS
T-45	01/02/2013	SQUARE TUBE SIGN POST AND ANCHOR

LRFR LOAD RATING FACTORS

LOADING LEVELS	TRUCK						
	H-20	HL-93	3S2	6 AXLE	3A. STR.	4A. STR.	5A. SEMI
TONNAGE	**20**	**36**	**36**	**66**	**30**	**34.5**	**38**
INVENTORY	**1.57**	**1.29**					
POSTING							
OPERATING	**2.04**	**1.68**	**4.18**	**2.72**	**2.82**	**3.38**	**3.59**
COMMENTS:	**3S2, 6 AXLE, 4A. STR, AND 5A. SEMI TRUCKS CONTROLLED BY EXTERIOR BEAM SERVICE II, ALL OTHER TRUCKS CONTROLLED BY DECK**						

PROJECT NOTES

GENERAL

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 2011 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, DATED 2014, AND ITS LATEST REVISIONS.

2. THE DESIGN LIVE LOAD SHALL BE HL-93.

3. ALL WORK AND ANY ASSOCIATED ACTIVITY ON THIS PROJECT SHALL BE PERFORMED WITHIN THE EXISTING RIGHT-OF-WAY LIMITS.

4. THE CONTRACTOR IS MADE AWARE THAT EXISTING UTILITIES ARE WITHIN THE CONSTRUCTION LIMITS OF BRIDGE NO. 99. THE LOCATION OF ANY UTILITY INFORMATION ON THE PLANS IS APPROXIMATE. NO CLAIMS ARE MADE TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING AND PROTECTING FROM DAMAGE ALL UTILITIES ON SITE DURING ALL STAGES OF CONSTRUCTION. ANY DAMAGE TO UTILITIES DUE DIRECTLY TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

5. EMULSIFIED ASPHALT SHALL BE APPLIED ON ALL COLD PLANED SURFACES AT THE RATE OF 0.08 GAL/SY AND BETWEEN ALL COURSE OF PAVEMENT AT THE RATE OF 0.040 GAL/SY OR AS DIRECTED BY THE ENGINEER. PAYMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, TYPE IVB)".

6. ANY REQUIRED SAWCUT OF EXISTING PAVEMENT WILL BE CONSIDERED INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, TYPE IVB)".

7. ALL EDGES OF PAVEMENT SHALL BE BACKED UP TO FULL HEIGHT WITH AGGREGATE SHOULDER MATERIAL AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID UNDER ITEM 402.12, "AGGREGATE SHOULDERS".

8. THE CONTRACTOR SHALL COORDINATE WITH VTRANS DISTRICT 3 TRANSPORTATION ADMINISTRATOR, ROBERT FALEY AT 802-786-5826, BEFORE CLOSING THE BRIDGE.

ENVIRONMENTAL

9. EROSION CONTROL MEASURES SHALL BE UTILIZED AS REQUIRED AND SHALL CONFORM TO SECTION 105 OF THE STANDARD SPECIFICATIONS AND THE LOW RISK SITE HANDBOOK FOR EROSION PREVENTION AND SEDIMENT CONTROL FROM THE AGENCY OF NATURAL RESOURCES. PAYMENT FOR SILT FENCE WILL BE PAID FOR UNDER ITEM 649.515, "GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED". PAYMENT FOR ALL OTHER EROSION CONTROL MEASURES, IF APPLICABLE, WILL BE CONSIDERED INCIDENTAL TO OTHER ITEMS IN THE CONTRACT.

10. THE DESIGN INTENT IS TO ALLOW THE CONTRACTOR TO STAGE IN THE TRAVELED ROADWAY OF THE APPROACHES TO THE BRIDGE DURING THE CLOSURE PERIOD. ANY STAGING AREAS OUTSIDE OF THIS SHALL BE CLEARED FOR RESOURCES THROUGH THE VTRANS ENVIRONMENTAL UNIT.

11. THE CONTRACTOR SHALL MAINTAIN ACCESS TO THE DRIVEWAY ON THE NORTHEAST CORNER OF THE PROJECT. A TEMPORARY ACCESS DRIVE MAY BE REQUIRED TO FACILITATE CONSTRUCTION OPERATIONS. THE CONTRACTOR IS RESPONSIBLE FOR ANY ADDITIONAL PERMITTING REQUIRED TO CONSTRUCT A TEMPORARY ACCESS DRIVEWAY. ANY MATERIAL NEEDED TO BUILD A TEMPORARY DRIVE ACCESS WILL BE PAID UNDER ITEM 401.10, "AGGREGATE SURFACE COURSE". AN ESTIMATED QUANTITY OF 26 CY HAS BEEN INCLUDED IN THE ESTIMATE FOR THIS WORK.

TRAFFIC CONTROL

12. AS PART OF ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)", THE CONTRACTOR SHALL SUBMIT A SITE SPECIFIC TRAFFIC CONTROL PACKAGE FOR ALL STAGES OF CONSTRUCTION TO THE PROJECT MANAGER FOR APPROVAL IN ACCORDANCE WITH SUBSECTION 105.03 AND SHALL BE STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN AN APPROPRIATE DISCIPLINE IN THE STATE OF VERMONT. THE PACKAGE SHALL IDENTIFY CONSTRUCTION ACTIVITIES BEFORE, DURING, AND AFTER THE BRIDGE CLOSURE PERIOD, AND SHALL INCLUDE A LAYOUT SHOWING ALL ON- AND OFF-PROJECT SIGNS AND BARRICADES AND ANY OTHER DETAILS ASSOCIATED WITH THE TRAFFIC CONTROL.

13. ALL ITEMS REQUIRED TO PREPARE, SUBMIT, AND IMPLEMENT THE CONTRACTOR'S PLAN, INCLUDING ANY NECESSARY REVISIONS TO THE PLAN, WILL BE INCLUDED IN THE UNIT BID PRICE FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". THE PAY ITEM INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:

    TRAFFIC CONTROL PLAN
    TEMPORARY TRAFFIC BARRIERS
    BARRICADES
    DRUMS/CONES
    PROJECT CONSTRUCTION SIGNING
    TEMPORARY PAVEMENT MARKINGS (IF REQUIRED)

    TRAFFIC CONTROL ITEMS NOT PAID FOR IN THE UNIT PRICE BID FOR ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)", AND PAID FOR SEPARATELY INCLUDE THE FOLLOWING:

    ITEM 630.10, "UNIFORMED TRAFFIC OFFICERS"
    ITEM 630.15, "FLAGGERS"
    ITEM 641.15, "PORTABLE CHANGEABLE MESSAGE SIGN"

    THE CONTRACTOR SHALL ALLOW TWO WEEKS FOR APPROVAL OF THE TRAFFIC CONTROL PLAN. NO WORK SHALL COMMENCE UNTIL THE CONTRACTOR HAS AN APPROVED TRAFFIC CONTROL PLAN.

14. DURING CLOSURE PERIOD, TRAFFIC SHALL BE MAINTAINED BY A REGIONAL DETOUR AS SHOWN ON SHEET 13. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING CLOSURE SIGNAGE AS SHOWN ON SHEET 13 IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD AND VTRANS STANDARDS. PAYMENT FOR BRIDGE CLOSURE SIGNAGE WILL BE MADE UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". ANY COORDINATION REQUIRED BETWEEN THE CONTRACTOR AND THE TOWN OF LUDLOW WILL BE AT NO ADDITIONAL COST TO THE STATE. SEE THE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING THE CLOSURE PERIOD.

CLD 15-0223 MODEL: Sheet01

CONSULTING ENGINEERS

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109notes-99.dgn PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT CHECKED BY: N. CARON
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PAVEMENT REMOVAL ON APPROACH SLABS

15. THE FINAL ONE HALF INCH OF PAVEMENT ON THE AT-GRADE APPROACH SLABS SHALL BE REMOVED BY LOADER, GRADER, OR EQUIPMENT APPROVED BY THE ENGINEER. REMOVAL OF PAVEMENT ON THE APPROACH SLABS WILL BE PAID FOR UNDER ITEM 529.10, "REMOVAL OF BRIDGE PAVEMENT".

16. DURING AT-GRADE APPROACH SLAB PAVEMENT REMOVAL, THE CONTRACTOR SHALL EXERCISE CARE TO ENSURE NO DAMAGE OCCURS TO THE EXISTING AT-GRADE APPROACH SLABS. ANY DAMAGE TO AT-GRADE APPROACH SLABS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. REPAIRS, IF APPLICABLE, SHALL BE MADE IN ACCORDANCE WITH SECTION 580.

17. THE AT-GRADE APPROACH SLABS SHALL BE CLEANED IN ACCORDANCE WITH SUBSECTION 580.04 AND TO THE SATISFACTION OF THE ENGINEER. REMOVAL OF THE BARRIER MEMBRANE, IF APPLICABLE, AND THE CLEANING OF THE AT-GRADE APPROACH SLABS WILL BE PAID FOR UNDER ITEM 580.16, "SURFACE PREPARATION FOR MEMBRANE". NO NEW BARRIER MEMBRANE WILL BE PLACED ON THE AT-GRADE APPROACH SLABS.

DECK REMOVAL AND RELATED ITEMS

18. ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE" WILL INCLUDE REMOVAL OF ANY PORTIONS OF THE EXISTING STRUCTURE AS SHOWN ON THE PLANS, INCLUDING THE EXISTING BRIDGE DECK AND CURBS, SHEAR STUD/SPIRALS, SCUPPERS, BARRIER MEMBRANE, PAVEMENT, AND BRIDGE RAILING. ITEM 529.25, "REMOVAL OF CONCRETE OR MASONRY" WILL INCLUDE REMOVAL OF THE TOPS OF THE EXISTING CONCRETE WINGWALLS AT THE END OF EACH WINGWALL, THE CONCRETE CHEEKWALL, AND THE APPROACH SLAB CURBS. ITEM 525.10, "REMOVAL OF EXISTING BRIDGE RAILING" WILL INCLUDE REMOVAL OF THE EXISTING BRIDGE RAIL ALONG THE TOPS OF THE WINGWALLS. SEE BITUMINOUS CONCRETE/CONCRETE REMOVAL PLAN ON SHEET 27.

19. THE TOPS OF THE EXISTING CONCRETE WINGWALLS, THE CONCRETE APPROACH SLAB CURBS, AND THE CONCRETE DECK AT THE CURTAIN WALL SHALL BE REMOVED BY MECHANICAL MEANS AND THE REMAINING CONCRETE SHALL HAVE NEAT LINES. PROTECT ALL ELEMENTS INTENDED TO REMAIN, AND MAINTAIN EXISTING REINFORCING AS NOTED. IF EXISTING REINFORCING IS DAMAGED OR HAS SIGNIFICANT SECTION LOSS, ADDITIONAL STEEL SHALL BE DRILLED AND GROUTED. PAYMENT FOR THIS WORK WILL BE INCLUDED UNDER ITEM 507.11, "REINFORCING STEEL, LEVEL I" AND ITEM 507.16, "DRILLING AND GROUTING DOWELS". THE QUANITITIES FOR THESE TWO ITEMS AS SHOWN ON THE QUANTITY SUMMARY SHEETS INCLUDE AN ADDITIONAL ESTIMATED AMOUNT TO ACCOUNT FOR THIS WORK.

20. ONCE THE EXISTING PAVEMENT AND MEMBRANE ARE REMOVED FROM THE EXISTING AT-GRADE APPROACH SLABS, AND AFTER REMOVAL OF THE EXISTING BRIDGE DECK, ANY AREAS ON THE CONCRETE APPROACH SLABS, CONCRETE BEAM SEATS, AND THE FACES OF THE EXISTING CURTAIN WALLS THAT ARE FOUND TO BE UNSOUND SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER. THE METHOD FOR DETERMINING AREAS OF UNSOUND CONCRETE SHALL BE APPROVED BY THE ENGINEER. THE ENGINEER SHALL MAKE A DETERMINATION AS TO WHAT CLASS REPAIR IS REQUIRED TO REPAIR THE DETERIORATED PORTION OF THE CONCRETE BEAM SEAT AND THE LIMITS OF THE REPAIR. THE REPAIRS FOR THE CONCRETE BEAM SEAT WILL BE PAID FOR UNDER ITEM 580.13, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I" OR ITEM 580.14, "REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II, AS APPLICABLE. THE REPAIRS FOR THE CONCRETE APPROACH SLABS, CURTAIN WALLS, AND THE CLEANING OF ALL EFFLORESCENCE ON THE CONCRETE CURTAIN WALLS WILL BE PAID FOR UNDER ITEM 580.10, "REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I", ITEM 580.11, "REPAIR OF CONCRETE SUPERSTRUCTURE, CLASS II", OR ITEM 580.12, "REPAIR OF CONCRETE SUPERSTRUCTURE, CLASS III", AS APPLICABLE. QUANTITIES FOR ITEMS 580.10, 580.11, 580.12, 580.13 AND 580.14 AS SHOWN ON THE QUANTITY SUMMARY SHEETS ARE ESTIMATED. HIGH PERFORMANCE CONCRETE, RAPID SET IS AN ACCEPTABLE ALTERNATE REPLACEMENT MATERIAL BUT WILL BE PAID FOR UNDER THE APPLICABLE REPAIR ITEM AS DETAILED ABOVE.

DECK REMOVAL AND RELATED ITEMS (CONTINUED)

21. AFTER THE REMOVAL OF THE EXISTING CONCRETE CHEEKWALL AT EACH BRIDGE CORNER, FLOWABLE FILL SHALL BE USED TO FILL ANY VOIDS BEHIND THE EXISTING CURTAIN WALL. THIS WORK WILL BE PAID FOR UNDER ITEM 541.45, "CONTROLLED DENSITY (FLOWABLE) FILL". THE EDGE SURFACE OF THE EXISTING CONCRETE CURTAIN WALL AT EACH BRIDGE CORNER SHALL BE CLEANED OF ANY DEBRIS OR LOOSE CONCRETE, ANY UNSOUND CONCRETE SHALL BE REMOVED, AND THE NEW CAST-IN-PLACE CONCRETE CURTAIN WALL EXTENSION SHALL BE POURED UP AGAINST THE EXISTING CONCRETE CURTAIN WALL SURFACE. PREPARING THE EXISTING CONCRETE SURFACE AND PLACING THE CURTAIN WALL EXTENSION WILL BE PAID FOR UNDER ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".

22. THE JOINT BETWEEN THE NEW CONCRETE CURTAIN WALL EXTENSION AND THE END OF THE EXISTING CONCRETE WINGWALL SHALL BE FILLED WITH AN IMPERMEABLE CLOSED-CELL JOINT SEAL WITH EPOXY ADHESIVE CAPABLE OF ACCOMMODATING 0.34 INCHES OF EXPANSION AND 0.64 INCHES OF CONTRACTION AT 68 DEGREES. A JOINT DETAIL SHALL BE SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL. ALL COMPONENTS SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 900.608, "SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)".

STEEL

23. AFTER ALL PAVEMENT AND MEMBRANE ARE REMOVED BUT PRIOR TO THE REMOVAL OF THE EXISTING CONCRETE DECK, THE CONTRACTOR SHALL TAKE TOP OF DECK ELEVATIONS EVERY 5 FEET ALONG THE CENTERLINE OF EACH BEAM FROM CENTERLINE TO CENTERLINE OF BEARING. AFTER THE EXISTING CONCRETE DECK HAS BEEN REMOVED, THE CONTRACTOR SHALL TAKE ELEVATIONS EVERY 5 FEET ALONG THE TOP OF EACH BEAM FROM CENTERLINE TO CENTERLINE OF BEARING. THE TOP OF DECK AND TOP OF BEAM ELEVATIONS SHALL THEN BE SENT TO THE ENGINEER FOR USE IN DETERMINING THE FINAL PROFILE AND HAUNCH DEPTHS. THE CONTRACTOR SHALL EXPECT 24 HOURS FOR VTRANS TO PREPARE THE REVISED PROFILE AND HAUNCH DEPTH CALCULATIONS.

24. THE EXISTING STRUCTURAL STEEL IS PAINTED WITH A MATERIAL THAT MAY CONTAIN LEAD. THE CONTRACTOR SHALL FOLLOW ALL APPLICABLE REGULATIONS WHEN HANDLING AND WORKING WITH THIS STEEL. ANY REMOVED STRUCTURAL STEEL, IF APPLICABLE, IS THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL INDEMNIFY AND HOLD THE STATE AND ITS OFFICERS AND EMPLOYEES HARMLESS CONCERNING THE CONTRACTOR'S USE OR DISPOSITION OF THE REMOVED EXISTING STRUCTURAL STEEL.

25. UPON REMOVING THE DECK, THE TOPS OF THE BEAMS IN THE AREA OF THE SHEAR STUDS SHALL BE CLEANED IN ACCORDANCE WITH SSPC-SP11 REQUIREMENTS AND ALL APPLICABLE PROVISIONS PRIOR TO THE WELDING OF THE SHEAR STUDS. THE CONTRACTOR IS NOT REQUIRED TO APPLY NEW PAINT. THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE", EXCEPT AS NOTED IN PROJECT NOTE 26.

26. THE CONTRACTOR SHALL BE ADVISED TO TAKE EXPLORATORY CORINGS IN ALL AREAS WHERE EXISTING PAINT IS TO BE REMOVED UNDER THE DIRECTION OF THE ENGINEER PRIOR TO CONSTRUCTION TO DETERMINE THE PRESENCE OF LEAD. PAYMENT FOR LEAD PAINT TESTING WILL BE CONSIDERED INCIDENTAL TO ITEM 529.20, "PARTIAL REMOVAL OF STRUCTURE". IF LEAD PAINT REMOVAL IS REQUIRED, PAINT REMOVAL, SURFACE PREPARATION, CONTAINMENT, AND DISPOSAL WILL BE PAID FOR AS EXTRA WORK IN ACCORDANCE WITH 104.03. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH ALL NECESSARY LEAD ABATEMENT PERMITS.

REINFORCED CONCRETE

27. ALL CAST-IN-PLACE CONCRETE SHALL CONFORM TO THE SPECIFICATIONS FOR CONCRETE, HIGH PERFORMANCE CLASS A, EXCEPT AS NOTED. THE CONTRACTOR SHALL PROVIDE TESTING EQUIPMENT FOR CONCRETE IN ACCORDANCE WITH SUBSECTION 631.05.

28. A REINFORCING STEEL SCHEDULE AND SHOP DRAWINGS MEETING THE REQUIREMENTS OF SUBSECTION 105.03 SHALL BE SUBMITTED. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 507.11, "REINFORCING STEEL, LEVEL I". ALL REINFORCING STEEL SHALL BE LEVEL I - EPOXY COATED AND MEET THE REQUIREMENTS OF SECTION 507.

29. TEST BARS SHALL BE PROVIDED IN ACCORDANCE WITH THE "VERMONT AGENCY OF TRANSPORTATION MATERIAL SAMPLING MANUAL" AVAILABLE ON THE AGENCY WEBSITE. A MINIMUM OF TWO TEST SECTIONS ARE REQUIRED FOR EACH SIZE, BRAND, AND GRADE OR TYPE OF REINFORCING. SEE THE MANUAL FOR ACCEPTABLE DIMENSIONS OF TEST SECTIONS. EXTRA BARS FOR TESTING PURPOSES SHALL BE SPECIFIED IN THE WORKING DRAWING SUBMITTAL.

30. WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF THE DECK BETWEEN THE DRIP NOTCHES. THIS WORK WILL BE PAID FOR UNDER ITEM 514.10, "WATER REPELLENT, SILANE".

31. THE ½" EXPANSION MATERIAL IN THE JOINT BETWEEN THE CONCRETE WINGWALL AND THE APPROACH SLAB CURB WILL BE CONSIDERED INCIDENTAL TO ITEM 501.33, "CONCRETE, HIGH PERFORMANCE CLASS A".

32. MINIMUM CLEAR COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

ALONG BACK FACES OF WALL AGAINST EARTH:	2.0 INCH
ALONG TOP SURFACE OF DECK SLAB:	3.0 INCH
ALONG BOTTOM SURFACE OF DECK SLAB:	1.5 INCH
ELSEWHERE UNLESS OTHERWISE INDICATED:	3.0 INCH

CLD 15-0223 MODEL: Sheet02

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109notes-99.dgn PLOT DATE: 8/30/2016
PROJECT LEADER: J. BYATT DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT CHECKED BY: N. CARON
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PRECAST CONCRETE DECK AND POST-TENSIONING

33. DESIGN VALUES:
    A. PRECAST CONCRETE COMPRESSIVE STRENGTH: f'c = 5,000 PSI
    B. REINFORCING STEEL, LEVEL I - EPOXY COATED: fy = 60,000 PSI
    C. POST TENSIONING STRANDS: 0.6 INCH DIAMETER, 270 KSI, LOW RELAXATION 7-WIRE STRANDS.
    D. ASSUMED MODULUS OF ELASTICITY: 28,500 KSI
    E. THERE SHALL BE THREE STRANDS PER CONDUIT.
    F. DESIGN BASED ON THE FOLLOWING POST-TENSION CONDUIT PARAMETERS:
       COEFFICIENT OF FRICTION = 0.23
       WOBBLE FRICTION COEFFICIENT = 0.0002/FT
       NET FINAL COMPRESSIVE STRESS = 750 PSI
       IF THE PROPOSED CONDUIT DOES NOT MEET THESE VALUES, THEN THE CONTRACTOR SHALL ADJUST THE JACKING FORCE TO PRODUCE THE FINAL POST-TENSIONING FORCE LISTED BELOW.
    G. JACKING FORCE PER STRAND: 32.7 KIPS
    H. FINAL FORCE PER STRAND: 30.35 KIPS (AFTER ALL LOSES DUE TO FRICTION, ANCHORAGE SET, AND ELASTIC SHORTENING).
    I. FINAL FORCE IN STRANDS SHALL BE UNIFORM ACROSS THE PANEL.

34. ALL DECK PANELS SHALL BE CAST FOR A MINIMUM OF 56 DAYS PRIOR TO POST-TENSIONING.

35. DECK PANELS SHALL BE ALLOWED TO SLIDE ON THE BEAMS DURING POST TENSIONING.

36. CONDUIT SHALL BE GROUTED WITH A CEMENTIOUS, PRE-BAGGED NON-SHRINK GROUT SPECIFICALLY FORMULATED FOR POST TENSIONING DUCTS.

37. POST-TENSIONING AND GROUTING SHALL BE PERFORMED BY QUALIFIED PERSONNEL WITH PREVIOUS EXPERIENCE IN PRECAST DECK PLACEMENT.

38. SHEAR KEY FACES SHALL HAVE ⅛" COARSE AGGREGATE EXPOSED WITH A PROFILE SIMILAR TO ICRI ROUGHNESS PLAQUE CSP #7 COPYRIGHT 1997.

39. BEGIN POST-TENSIONING AT THE CENTER OF PANELS. DO NOT ALLOW MORE THAN 12.5 PERCENT OF THE POST-TENSIONING FORCE TO BE ECCENTRIC AT ANY TIME. SUBMIT STRESSING SEQUENCE TO THE ENGINEER AS PART OF THE FABRICATION DRAWINGS AND ERECTION PLAN.

40. THE CONTRACTOR IS RESPONSIBLE FOR DESIGN OF ALL LIFTING POINTS, PRESTRESSING (IF REQUIRED FOR ERECTION), LEVELING DEVICES, POST-TENSIONING ELEMENTS IN THE ANCHORAGE ZONE INCLUDING, BUT NOT LIMITED TO, THE BEARING PLATE ANCHOR HEADS AND METAL TRUMPETS, AND ADDITIONAL REINFORCEMENT IN THE ANCHORAGE ZONE (REQUIRED FOR SPLITTING, BURSTING, SPALLING, ETC.) INCLUDING THE LOCAL ZONE (REGION IMMEDIATELY SURROUNDING THE POST-TENSIONING DEVICE). THE CONTRACTOR IS RESPONSIBLE FOR CONSIDERATION OF STRENGTH, SERVICEABILITY, STIFFNESS, AND STABILITY OF THE PRECAST CONCRETE ELEMENTS AND ANY ADDITIONAL STRESSES ON THE PRECAST CONCRETE ELEMENTS FOR LOADS GENERATED DURING FABRICATION, TRANSPORTATION, ERECTION, AND CONSTRUCTION OPERATIONS.

41. ANY DAMAGE TO THE PRECAST CONCRETE DECK SLABS DUE DIRECTLY TO THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE STATE.

PRECAST CONCRETE DECK AND POST-TENSIONING (CONTINUED)

42. GALVANIZE BEARING PLATE ANCHOR HEADS AND METAL TRUMPETS AT ANCHORAGES ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. DO NOT GALVANIZE GRIPPING WEDGES.

43. POST-TENSIONING STRANDS AND CONDUIT SHALL MEET THE REQUIREMENTS OF SECTION 510.

44. ANCHOR ASSEMBLIES, CONDUIT, GROUT FOR THE CONDUIT AND PANEL JOINTS, SPLIT SLEEVE CONNECTORS, AND POST-TENSIONING STRANDS SHALL BE INCLUDED IN ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)".

45. SHEAR CONNECTOR BLOCKOUTS, SHEAR KEYS, HAUNCHES, LEVELING DEVICE BLOCKOUTS, AND HANDHOLES FOR DUCT CONNECTIONS SHALL BE FILLED WITH MORTAR, TYPE IV CONFORMING TO THE REQUIREMENTS OF SUBSECTION 707.03 EXCEPT AS NOTED IN NOTE 46. COST FOR MORTAR WILL BE CONSIDERED INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)".

46. MORTAR, TYPE IV WITH EXPANSIVE ADDITIVES THAT REQUIRE ALL SURFACES TO BE CONFINED SHALL NOT BE USED FOR THE GROUT BEDS UNLESS THE CONTRACTOR PROVIDES A METHOD AND MEANS FOR CONFINEMENT THAT IS ACCEPTABLE TO THE ENGINEER.

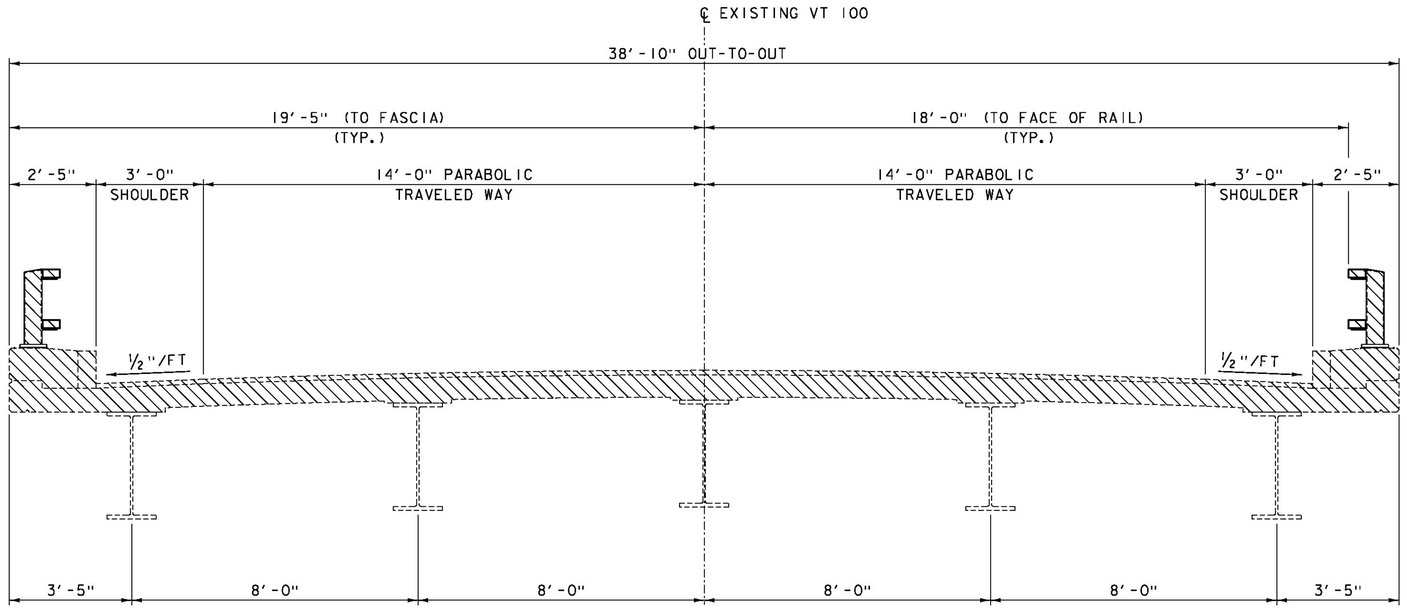
47. THE DRILLING OF HOLES IN THE PRECAST CONCRETE ELEMENTS SHALL NOT BE PERMITTED. ANY LIFTING HOLES SHALL BE FILLED WITH MORTAR, TYPE IV CONFORMING TO THE REQUIREMENTS OF SUBSECTION 707.03. COST FOR MORTAR WILL BE CONSIDERED INCIDENTAL ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)".

48. PROPOSED SEQUENCE OF CONSTRUCTION:

    A. ERECT DECK SLABS.
    B. ADJUST SLABS TO GRADE USING LEVELING DEVICES. ALL LEVELING BOLTS SHALL BE TORQUED TO APPROXIMATELY THE SAME VALUE WITHIN 20 PERCENT.
    C. INSTALL POST TENSIONING STRANDS LOOSE IN CONDUIT AND SEAL CONDUIT.
    D. PLACE MORTAR, TYPE IV IN TRANVERSE JOINTS ONLY. THE MORTAR SHALL BE RODDED OR VIBRATED TO ENSURE ALL VOIDS ARE FILLED.
    E. MORTAR SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1000 PSI BASED ON MANUFACTURER'S RECOMMENDATIONS PRIOR TO STRESSING. THE GROUT NEED NOT BE CURED FOR THREE DAYS PRIOR TO COMMENCING POST-TENSIONING.
    F. PROVIDE APPROPRIATE CUBE MOLDS AS DESCRIBED IN AASHTO T106 FOR 3 SETS OF 3 DAY CUBES, 3 SETS OF 28 DAY CUBES, AND A MINIMUM OF 3 MORE CUBES TO TEST FOR THE 1000 PSI MINIMUM.
    G. STRESS POST-TENSIONING STRANDS USING A CALIBRATED JACK.
    H. INSTALL SHEAR CONNECTORS.
    I. GROUT POST TENSIONING CONDUIT, SHEAR CONNECTOR BLOCKOUTS, AND HAUNCHES BETWEEN THE BEAMS AND THE BOTTOM OF THE PRECAST DECK SLABS WITH MORTAR, TYPE IV.
    J. POUR THE END CLOSURE POUR CONCRETE.
    K. REMOVE LEVELING BOLTS AND GROUT RECESS WITH MORTAR, TYPE IV.

ALTERNATE SEQUENCE OF CONSTRUCTION MAY BE SUBMITTED FOR APPROVAL BY THE ENGINEER.

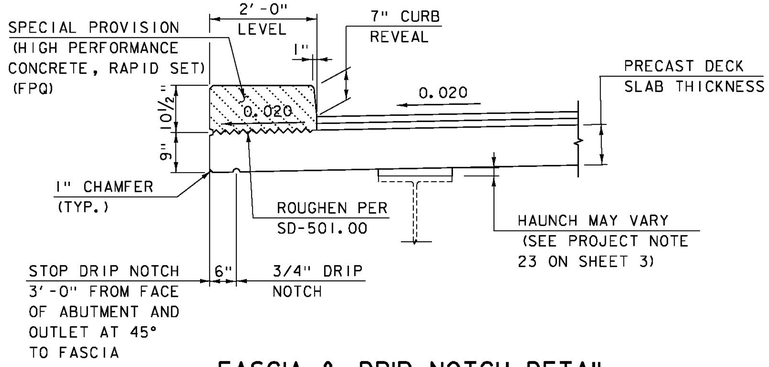
PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109notes-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: N. CARON
INDEX OF SHEETS & PROJECT NOTES SHEET 3	SHEET 4 OF 42



PARTIAL REMOVAL OF STRUCTURE

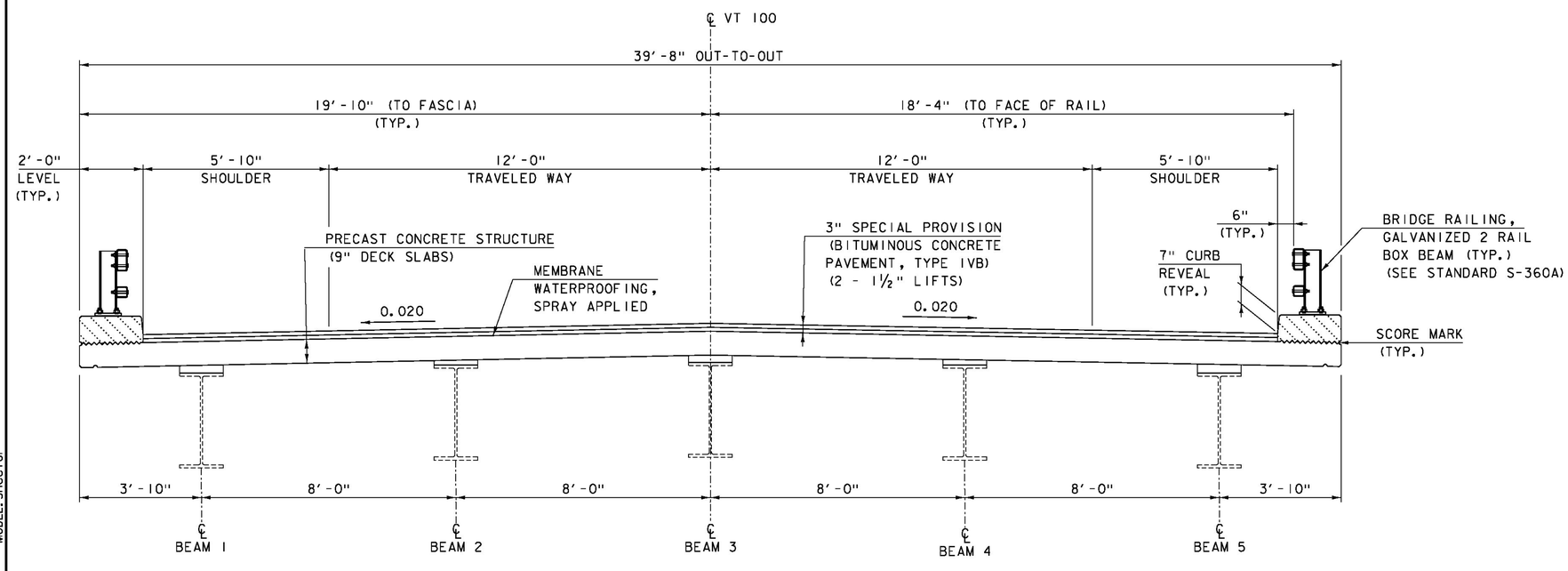
EXISTING BRIDGE SECTION

SCALE: ½" = 1'-0"



FASCIA & DRIP NOTCH DETAIL

SCALE: ¾" = 1'-0"



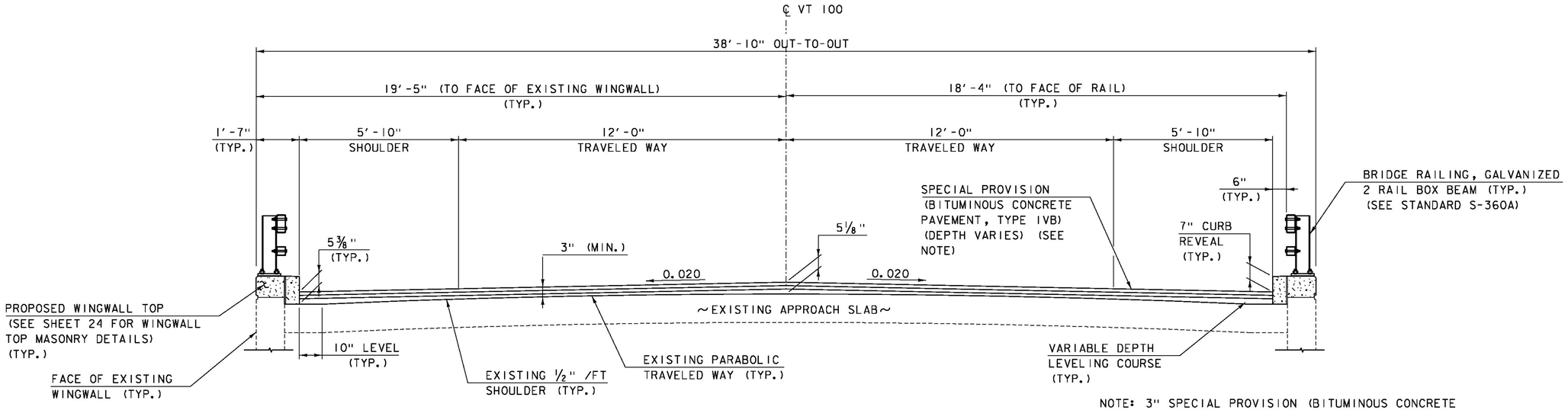
TYPICAL BRIDGE SECTION

SCALE: ½" = 1'-0"

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
TYPICAL BRIDGE SECTIONS SHEET 1	SHEET 5 OF 42

CLD 15-0223 MODEL: Sheet01



TYPICAL APPROACH SLAB SECTION

SCALE: ½" = 1'-0"

NOTE: 3" SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, TYPE IVB) (2 - 1½" LIFTS AND 1 - VARIABLE DEPTH LEVELING COURSE, TYPE IVB).

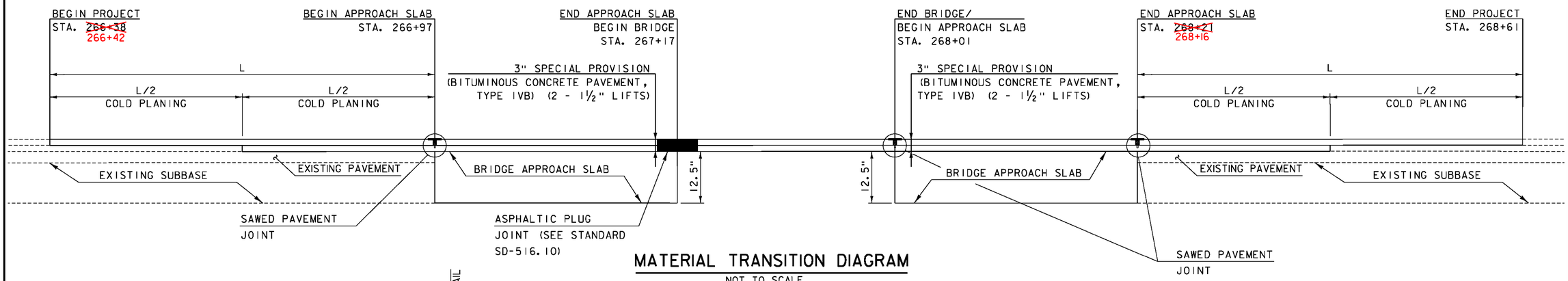
NOTES: SEE SHEET 24 FOR APPROACH SLAB CURB MASONRY DETAILS.

CONCRETE, HIGH PERFORMANCE CLASS A

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
TYPICAL BRIDGE SECTIONS SHEET 2	SHEET 6 OF 42

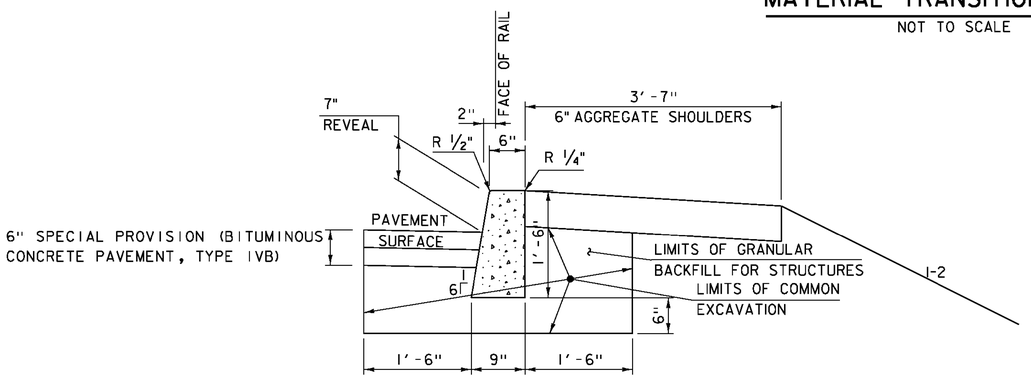
CONSULTING ENGINEERS

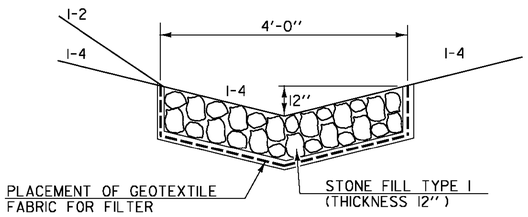
CLD 15-0223 MODEL: Sheet02



MATERIAL TRANSITION DIAGRAM

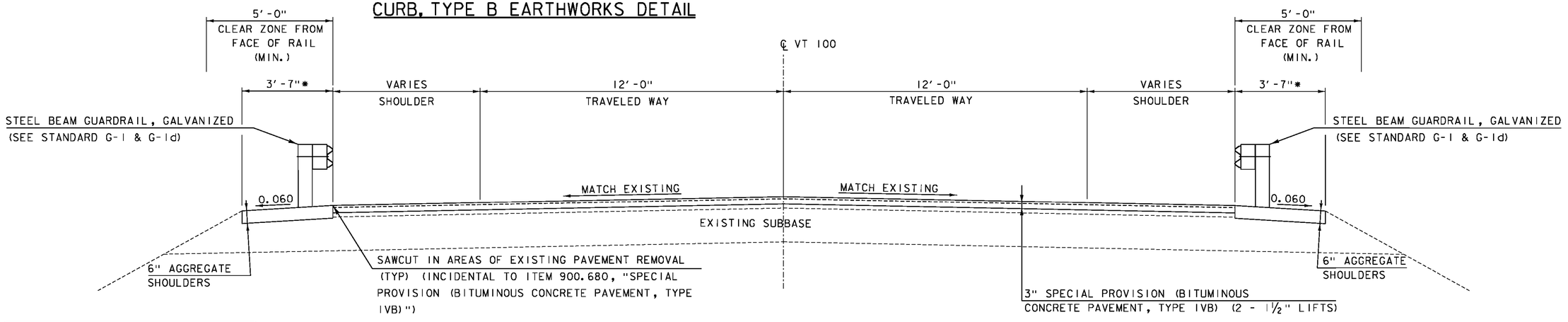
NOT TO SCALE





TYPICAL STONE FILL DITCH

TYPICAL CAST-IN-PLACE CONCRETE CURB, TYPE B EARTHWORKS DETAIL



VT 100
TYPICAL SECTION

SCALE: ½" = 1'-0"

*GUARDRAIL PANEL SHALL BE REDUCED TO A MINIMUM OF 2'-7" AS SHOWN IN THE LAYOUT SHEET

MATERIAL TOLERANCES

SURFACE	
- PAVEMENT (TOTAL THICKNESS)	+/- ¼"
- AGGREGATE SURFACE COURSE	+/- ½"
SUBBASE	+/- 1"

CONSULTING ENGINEERS

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP DECK(39)	
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: S. FORTIER
DESIGNED BY: S. FORTIER	CHECKED BY: L. GREER
TYPICAL ROADWAY SECTIONS SHEET	SHEET 7 OF 42

CLD 15-0223 MODEL: Sheet+03

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES				TOTALS		DESCRIPTIONS				DETAILED SUMMARY OF QUANTITIES		
ROADWAY	EROSION CONTROL	BRIDGE NO. 99	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
50				50		CY	COMMON EXCAVATION	203.15	2.3			
20				20		CY	EARTH BORROW	203.30	2.6			
1				1		CY	TRENCH EXCAVATION OF EARTH, EXPLORATORY (N.A.B.I.)	204.22	-			
30				30		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	1			
730				730		SY	COLD PLANING, BITUMINOUS PAVEMENT	210.10	2			
27				27		CY	AGGREGATE SURFACE COURSE	401.10	0.3			
50				50		TON	AGGREGATE SHOULDERS	402.12	6			
1				1		LU	PRICE ADJUSTMENT, ASPHALT CEMENT (N.A.B.I.)	406.50	-			
		4		4		CY	CONCRETE, HIGH PERFORMANCE CLASS A	501.33	0.97			
		2310		2310		LB	REINFORCING STEEL, LEVEL I	507.11	2.75			
		231		231		LF	DRILLING AND GROUTING DOWELS	507.16	0.55			
		1		1		LS	SHEAR CONNECTORS (800 - 7" X 1")	508.15	-			
		14		14		GAL	WATER REPELLENT, SILANE	514.10	0.27			
		36		36		LF	BRIDGE EXPANSION JOINT, ASPHALTIC PLUG	516.10	0.33			
		492		492		SY	MEMBRANE WATERPROOFING, SPRAY APPLIED	520.10	0.59			
		107		107		LF	JOINT SEALER, HOT POURED	524.11	-			
		69		69		LF	REMOVAL OF EXISTING BRIDGE RAILING	525.10	-			
		229		229		LF	BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM	525.33	-			
		159		159		SY	REMOVAL OF BRIDGE PAVEMENT	529.10	0.48			
		1		1		EACH	PARTIAL REMOVAL OF STRUCTURE	529.20	-			
		8		8		CY	REMOVAL OF CONCRETE OR MASONRY	529.25	0.74			
		1		1		LS	PRECAST CONCRETE STRUCTURE (9" DECK SLABS)	540.10	-			
		5		5		CY	CONTROLLED DENSITY (FLOWABLE) FILL	541.45	1			
		6		6		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS I	580.10	EST.			
		9		9		SY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS II	580.11	EST.			
		2		2		CY	REPAIR OF CONCRETE SUPERSTRUCTURE SURFACE, CLASS III	580.12	EST.			
		4		4		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS I	580.13	EST.			
		2		2		SY	REPAIR OF CONCRETE SUBSTRUCTURE SURFACE, CLASS II	580.14	EST.			
		4423		4423		SF	SURFACE PREPARATION FOR MEMBRANE	580.16	0.33			
	3			3		CY	STONE FILL, TYPE I	613.10	0.04			
	20			20		CY	STONE FILL, TYPE II	613.11	4.89			
160				160		LF	CAST-IN-PLACE CONCRETE CURB, TYPE B	616.28	3.24			
187.5				187.5		LF	STEEL BEAM GUARDRAIL, GALVANIZED	621.20	-			
1				1		EACH	ANCHOR FOR STEEL BEAM RAIL	621.60	-			
		4		4		EACH	GUARDRAIL APPROACH SECTION, GALVANIZED 2 RAIL BOX BEAM	621.72	-			
275				275		LF	REMOVAL AND DISPOSAL OF GUARDRAIL	621.80	2			
340				340		HR	UNIFORMED TRAFFIC OFFICERS	630.10	-			
680				680		HR	FLAGGERS	630.15	-			
			1	1		LS	FIELD OFFICE, ENGINEERS	631.10	-			
			1	1		LS	TESTING EQUIPMENT, CONCRETE	631.16	-			

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109qss-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
QUANTITY SHEET 1

PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: A. GIRALDI
SHEET 8 OF 42

STATE OF VERMONT
AGENCY OF TRANSPORTATION

QUANTITY SHEET 2

SUMMARY OF ESTIMATED QUANTITIES

ROADWAY	EROSION CONTROL	BRIDGE NO. 99	FULL C.E. ITEMS	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND
			1	1		LS	TESTING EQUIPMENT, BITUMINOUS	631.17	-
			3000	3000		DL	FIELD OFFICE TELEPHONE (N.A.B.I.)	631.26	-
1				1		LS	MOBILIZATION/DEMOBILIZATION	635.11	-
3				3		EACH	PORTABLE CHANGEABLE MESSAGE SIGN	641.15	-
500				500		LF	DURABLE 4 INCH WHITE LINE, POLYUREA	646.404	10.5
430				430		LF	DURABLE 4 INCH YELLOW LINE, POLYUREA	646.414	4
30				30		LF	DURABLE 24 INCH STOP BAR, POLYUREA	646.484	3.7
4				4		EACH	DURABLE LETTER OR SYMBOL, POLYUREA	646.494	-
	65			65		SY	GEOTEXTILE UNDER STONE FILL	649.31	0.8
	180			180		SY	GEOTEXTILE FOR SILT FENCE, WOVEN WIRE REINFORCED	649.515	4
	3			3		LB	SEED	651.15	0.5
	11			11		LB	FERTILIZER	651.18	0.5
	0.1			0.1		TON	AGRICULTURAL LIMESTONE	651.20	0.06
	0.1			0.1		TON	HAY MULCH	651.25	0.06
	10			10		CY	TOPSOIL	651.35	4.4
1				1		SF	TRAFFIC SIGNS, TYPE A	675.20	0.17
30				30		LF	SQUARE TUBE SIGN POST AND ANCHOR	675.341	-
2				2		EACH	REMOVING SIGNS	675.50	-
1				1		EACH	DELINEATOR WITH STEEL POST	676.10	-
		18		18		CY	SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)	900.608	0.75
40000				40000		DL	SPECIAL PROVISION (INCENTIVE/DISINCENTIVE) (N.A.B.I.)	900.615	-
8				8		EACH	SPECIAL PROVISION (CPM SCHEDULE)	900.620	-
1				1		LS	SPECIAL PROVISION (TRAFFIC CONTROL, ALL INCLUSIVE)	900.645	-
1				1		LU	SPECIAL PROVISION (MAT DENSITY PAY ADJUSTMENT, TYPE IVB) (N.A.B.I.)	900.650	-
75		105		180		TON	SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, TYPE IVB)	900.680	1

DETAILED SUMMARY OF QUANTITIES

QUANTITIES	UNIT	ITEMS
		SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, TYPE IVB)
74	TON	TYPE IVB - ROADWAY
105	TON	TYPE IVB - BRIDGE
179	TON	SUBTOTAL
1	TON	ROUNDING
180	TON	TOTAL

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109qss-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
QUANTITY SHEET 2

PLOT DATE: 8/30/2016
DRAWN BY: M. SMITH
CHECKED BY: A. GIRALDI
SHEET 9 OF 42

GENERAL INFORMATION

SYMBOLOGY LEGEND NOTE

THE SYMBOLOGY ON THIS SHEET IS INTENDED TO COVER STANDARD CONVENTIONAL SYMBOLOGY. THE SYMBOLOGY IS USED FOR EXISTING & PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROJECT ANNOTATION, AS NOTED ON PROJECT PLAN SHEETS. THIS LEGEND SHEET COVERS THE BASICS. SYMBOLOGY ON PLANS MAY VARY, PLAN ANNOTATIONS AND NOTES SHOULD BE USED TO CLARIFY AS NEEDED.

R.O.W. ABBREVIATIONS (CODES) & SYMBOLS

POINT	CODE	DESCRIPTION
	CH	CHANNEL EASEMENT
	CONST	CONSTRUCTION EASEMENT
	CUL	CULVERT EASEMENT
	D&C	DISCONNECT & CONNECT
	DIT	DITCH EASEMENT
	DR	DRAINAGE EASEMENT
	DRIVE	DRIVEWAY EASEMENT
	EC	EROSION CONTROL
	HWY	HIGHWAY EASEMENT
	I&M	INSTALL & MAINTAIN EASEMENT
	LAND	LANDSCAPE EASEMENT
	R&RES	REMOVE & RESET
	R&REP	REMOVE & REPLACE
	SR	SLOPE RIGHT
	UE	UTILITY EASEMENT
	(P)	PERMANENT EASEMENT
	(T)	TEMPORARY EASEMENT
■	BNDNS	BOUND SET
⊡	BNDNS	BOUND TO BE SET
●	IPNS	IRON PIN SET
◎	IPNS	IRON PIN TO BE SET
⊠	CALC	EXISTING ROW POINT
○	PROW	PROPOSED ROW POINT
[LENGTH]		LENGTH CARRIED ON NEXT SHEET

COMMON TOPOGRAPHIC POINT SYMBOLS

POINT	CODE	DESCRIPTION
#	APL	BOUND APPARENT LOCATION
▫	BM	BENCHMARK
▫	BND	BOUND
▣	CB	CATCH BASIN
✿	COMB	COMBINATION POLE
▣	DITHR	DROP INLET THROATED DNC
✿	EL	ELECTRIC POWER POLE
⊙	FPOLE	FLAGPOLE
⊙	GASFIL	GAS FILLER
⊙	GP	GUIDE POST
⋈	GSO	GAS SHUT OFF
⊙	GUY	GUY POLE
⊙	GUYW	GUY WIRE
⋈	GV	GATE VALUE
❀	H	TREE HARDWOOD
△	HCTRL	CONTROL HORIZONTAL
◬	HVCTRL	CONTROL HORIZ. & VERTICAL
◇	HYD	HYDRANT
●	IP	IRON PIN
●	IPIPE	IRON PIPE
✿	LI	LIGHT - STREET OR YARD
✿	MB	MAILBOX
⊙	MH	MANHOLE (MH)
▫	MM	MILE MARKER
●	PM	PARKING METER
▫	PMK	PROJECT MARKER
⊙	POST	POST STONE/WOOD
✿	RRSIG	RAILROAD SIGNAL
◆	RRSL	RAILROAD SWITCH LEVER
✳	S	TREE SOFTWOOD
⊙	SAT	SATELLITE DISH
❀	SHRUB	SHRUB
✿	SIGN	SIGN
⅄	STUMP	STUMP
✿	TEL	TELEPHONE POLE
⊙	TIE	TIE
✿✿	TSIGN	SIGN W/DOUBLE POST
⅄	VCTRL	CONTROL VERTICAL
⊙	WELL	WELL
⋈	WSO	WATER SHUT OFF

THESE ARE COMMON VAOT SURVEY POINT SYMBOLS FOR EXISTING FEATURES, ALSO USED FOR PROPOSED FEATURES WITH HEAVIER LINEWEIGHT, IN COMBINATION WITH PROPOSED ANNOTATION.

PROPOSED GEOMETRY CODES

CODE	DESCRIPTION
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
CC	CENTER OF CURVE
PT	POINT OF TANGENCY
PCC	POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
POB	POINT OF BEGINNING
POE	POINT OF ENDING
STA	STATION PREFIX
AH	AHEAD STATION SUFFIX
BK	BACK STATION SUFFIX
D	CURVE DEGREE OF (100FT)
R	CURVE RADIUS OF
T	CURVE TANGENT LENGTH
L	CURVE LENGTH OF
E	CURVE EXTERNAL DISTANCE

UTILITY SYMBOLOGY

UNDERGROUND UTILITIES

- UGU — UTILITY (GENERIC-UNKNOWN)
- TELEPHONE
- ELECTRIC
- CABLE (TV)
- UEC — ELECTRIC+CABLE
- UET — ELECTRIC+TELEPHONE
- UCT — CABLE+TELEPHONE
- UECT — ELECTRIC+CABLE+TELEP.
- GAS LINE
- WATER LINE
- SANITARY SEWER (SEPTIC)

ABOVE GROUND UTILITIES (AERIAL)

- AGU — UTILITY (GENERIC-UNKNOWN)
- TELEPHONE
- ELECTRIC
- C — CABLE (TV)
- EC — ELECTRIC+CABLE
- ET — ELECTRIC+TELEPHONE
- ELECTRIC+TELEPHONE
- CT — CABLE+TELEPHONE
- ECT — ELECTRIC+CABLE+TELEP.
- UTILITY POLE GUY WIRE

PROJECT CONSTRUCTION SYMBOLOGY

PROJECT DESIGN & LAYOUT SYMBOLOGY

- CZ — CLEAR ZONE
- PLAN LAYOUT MATCHLINE

PROJECT CONSTRUCTION FEATURES

- TOP OF CUT SLOPE
- TOE OF FILL SLOPE
- STONE FILL
- BOTTOM OF DITCH ℄
- CULVERT PROPOSED
- STRUCTURE SUBSURFACE
- PROJECT DEMARCATION FENCE
- BF BF — BARRIER FENCE
- TREE PROTECTION ZONE (TPZ)
- STRIPING LINE REMOVAL
- SHEET PILES

CONVENTIONAL BOUNDARY SYMBOLOGY

BOUNDARY LINES

- TOWN BOUNDARY LINE
- COUNTY BOUNDARY LINE
- STATE BOUNDARY LINE
- PROPOSED STATE R.O.W. (LIMITED ACCESS)
- PROPOSED STATE R.O.W.
- STATE ROW (LIMITED ACCESS)
- STATE ROW
- TOWN ROW
- PERMANENT EASEMENT LINE (P)
- TEMPORARY EASEMENT LINE (T)
- SURVEY LINE
- PROPERTY LINE (P/L)
- SR SR SR — SLOPE RIGHTS
- 6F PROPERTY BOUNDARY
- 4F PROPERTY BOUNDARY
- HAZARDOUS WASTE

EPSC LAYOUT PLAN SYMBOLOGY

EPSC MEASURES

- FILTER CURTAIN
- SILT FENCE
- SILT FENCE WOVEN WIRE
- CHECK DAM
- DISTURBED AREAS REQUIRING RE-VEGETATION
- EROSION MATTING

ENVIRONMENTAL RESOURCES

- WETLAND BOUNDARY
- RIPARIAN BUFFER ZONE
- WETLAND BUFFER ZONE
- SOIL TYPE BOUNDARY
- T&E — THREATENED & ENDANGERED SPECIES
- HAZARDOUS WASTE AREA
- AG — AGRICULTURAL LAND
- HABITAT — FISH & WILDLIFE HABITAT
- FLOOD PLAIN — FLOOD PLAIN
- OHW — ORDINARY HIGH WATER (OHW)
- STORM WATER
- USDA FOREST SERVICE LANDS
- WILDLIFE HABITAT SUIT/CONN

ARCHEOLOGICAL & HISTORIC

- ARCH — ARCHEOLOGICAL BOUNDARY
- HISTORIC DIST — HISTORIC DISTRICT BOUNDARY
- HISTORIC — HISTORIC AREA
- (H) HISTORIC STRUCTURE

CONVENTIONAL TOPOGRAPHIC SYMBOLOGY

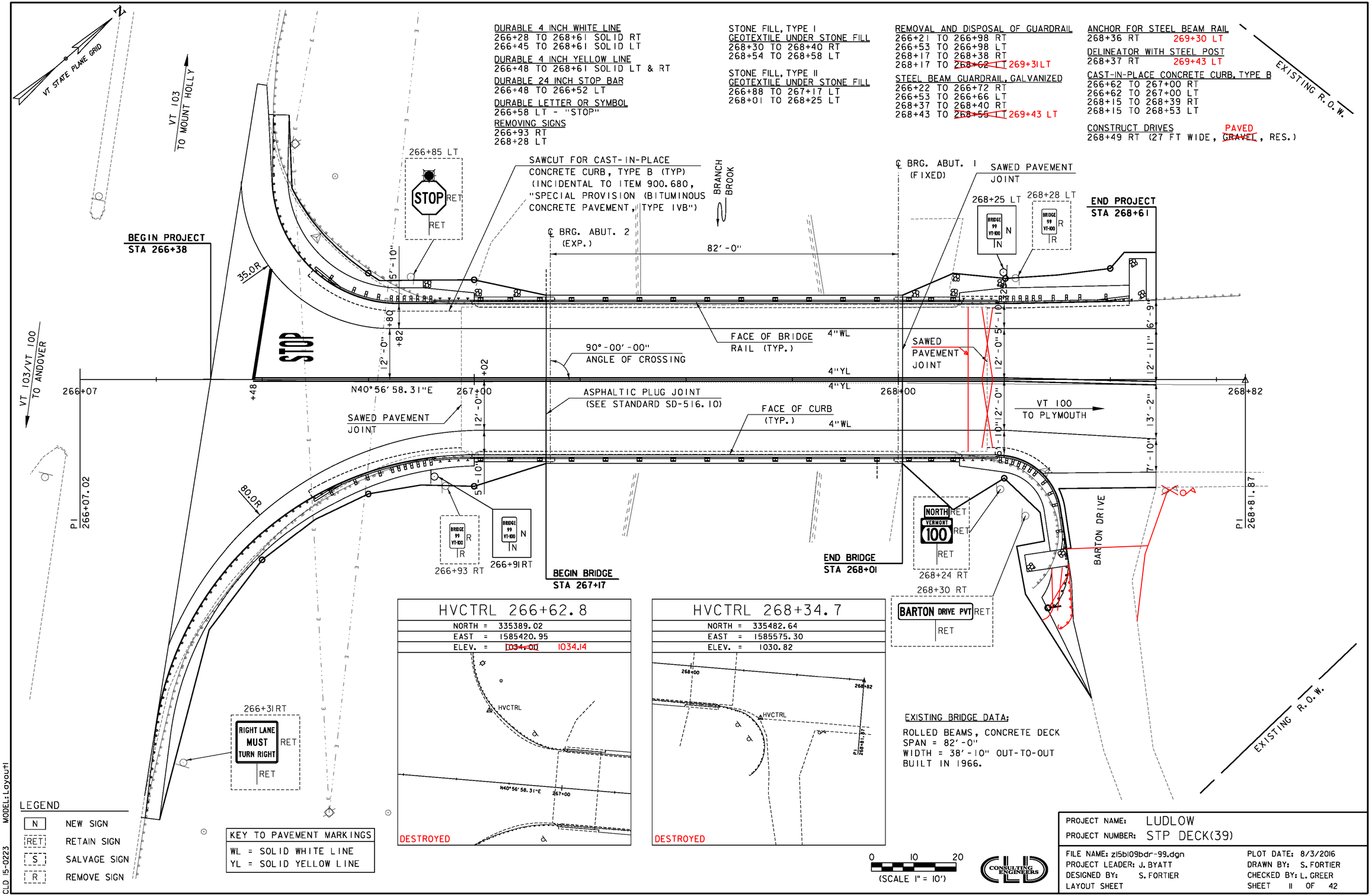
EXISTING FEATURES

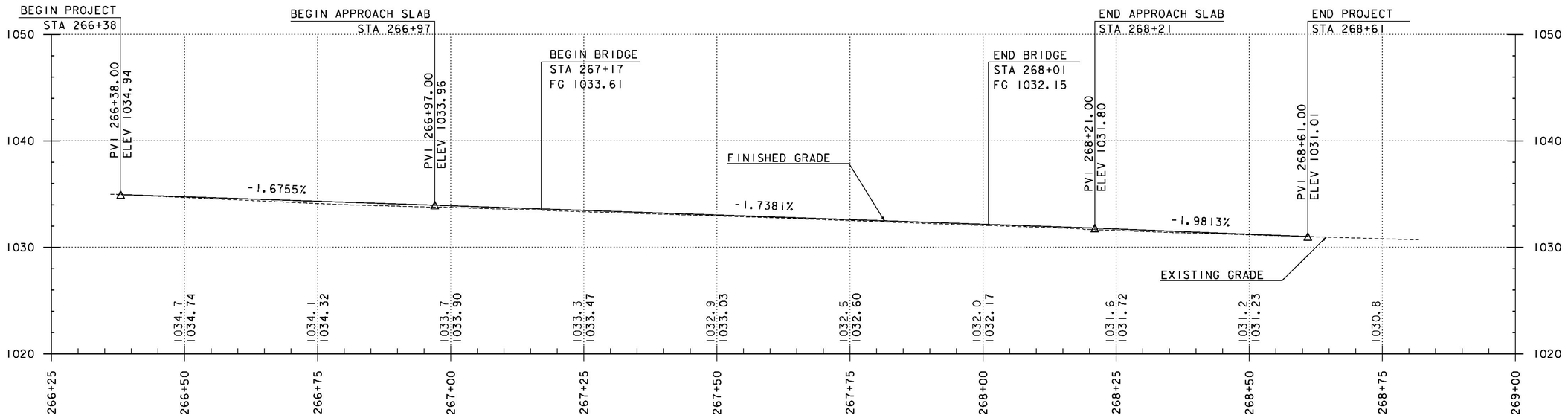
- ROAD EDGE PAVEMENT
- ROAD EDGE GRAVEL
- DRIVEWAY EDGE
- DITCH
- FOUNDATION
- FENCE (EXISTING)
- FENCE WOOD POST
- FENCE STEEL POST
- GARDEN
- ROAD GUARDRAIL
- RAILROAD TRACKS
- CULVERT (EXISTING)
- STONE WALL
- WALL
- WOOD LINE
- BRUSH LINE
- HEDGE
- BODY OF WATER EDGE
- LEDGE EXPOSED

CLD 15-0223 MODEL: Sheet

CONSULTING ENGINEERS

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: zl5bl09legend-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: P. McKECHNIE
DESIGNED BY: L. GREER	CHECKED BY: S. FORTIER
CONVENTIONAL SYMBOLOGY LEGEND SHEET	SHEET 10 OF 42


VT STATE PLANE GRID
VT 103 TO MOUNT HOLLY
DURABLE 4 INCH WHITE LINE
266+28 TO 268+61 SOLID RT
266+45 TO 268+61 SOLID LT
DURABLE 4 INCH YELLOW LINE
266+48 TO 268+61 SOLID LT & RT
DURABLE 24 INCH STOP BAR
266+48 TO 266+52 LT
DURABLE LETTER OR SYMBOL
266+58 LT - "STOP"
REMOVING SIGNS
266+93 RT
268+28 LT
STONE FILL, TYPE I
GEOTEXTILE UNDER STONE FILL
268+30 TO 268+40 RT
268+54 TO 268+58 LT
STONE FILL, TYPE II
GEOTEXTILE UNDER STONE FILL
266+88 TO 267+17 LT
268+01 TO 268+25 LT
REMOVAL AND DISPOSAL OF GUARDRAIL
266+21 TO 266+98 RT
266+53 TO 266+98 LT
268+17 TO 268+38 RT
268+17 TO 268+62 LT 269+31 LT
STEEL BEAM GUARDRAIL, GALVANIZED
266+22 TO 266+72 RT
266+53 TO 266+66 LT
268+37 TO 268+40 RT
268+43 TO 268+55 LT 269+43 LT
ANCHOR FOR STEEL BEAM RAIL
268+36 RT 269+30 LT
DELINEATOR WITH STEEL POST
268+37 RT 269+43 LT
CAST-IN-PLACE CONCRETE CURB, TYPE B
266+62 TO 267+00 RT
266+62 TO 267+00 LT
268+15 TO 268+39 RT
268+15 TO 268+53 LT
CONSTRUCT DRIVES
268+49 RT (27 FT WIDE, PAVED, RES.)
EXISTING R.O.W.
BEGIN PROJECT
STA 266+38
266+85 LT
STOP RET
RET
SAWCUT FOR CAST-IN-PLACE CONCRETE CURB, TYPE B (TYP) (INCIDENTAL TO ITEM 900.680, "SPECIAL PROVISION (BITUMINOUS CONCRETE PAVEMENT, TYPE IVB")
BRANCH BROOK
℄ BRG. ABUT. 2 (EXP.)
82'-0"
℄ BRG. ABUT. 1 (FIXED)
SAWED PAVEMENT JOINT
268+25 LT
268+28 LT
BRIDGE 99 VT-100 N
BRIDGE 99 VT-100 R
END PROJECT
STA 268+61
35.0R
STOP
15'-10"
+80
+82
12'-0"
FACE OF BRIDGE RAIL (TYP.)
4"WL
90°-00'-00" ANGLE OF CROSSING
4"YL
4"YL
SAWED PAVEMENT JOINT
5'-10"
5'-10"
12'-0"
12'-0"
5'-10"
6'-9"
12'-11"
VT 103/VT 100 TO ANDOVER
266+07
+48
N40°56'58.31"E
267+00
+02
ASPHALTIC PLUG JOINT (SEE STANDARD SD-516.10)
268+00
268+82
VT 100 TO PLYMOUTH
SAWED PAVEMENT JOINT
12'-0"
FACE OF CURB (TYP.)
4"WL
5'-10"
12'-0"
5'-10"
7'-10"
13'-2"
7'-10"
P I 266+07.02
80.0R
BRIDGE 99 VT-100 R
266+93 RT
BRIDGE 99 VT-100 N
266+91 RT
BEGIN BRIDGE
STA 267+17
END BRIDGE
STA 268+01
NORTH VERMONT 100 RET
RET
268+24 RT
268+30 RT
BARTON DRIVE PVT RET
RET
BARTON DRIVE
P I 268+81.87
EXISTING R.O.W.
266+31 RT
RIGHT LANE MUST TURN RIGHT RET
RET
HVCTRL 266+62.8
NORTH = 335389.02
EAST = 1585420.95
ELEV. = 1034.00 1034.14
HVCTRL
N40°56'58.31"E
267+00
DESTROYED
HVCTRL 268+34.7
NORTH = 335482.64
EAST = 1585575.30
ELEV. = 1030.82
268+00
268+82
HVCTRL
P I 268+81.87
DESTROYED
EXISTING BRIDGE DATA:
ROLLED BEAMS, CONCRETE DECK
SPAN = 82'-0"
WIDTH = 38'-10" OUT-TO-OUT
BUILT IN 1966.
LEGEND
N NEW SIGN
RET RETAIN SIGN
S SALVAGE SIGN
R REMOVE SIGN
KEY TO PAVEMENT MARKINGS
WL = SOLID WHITE LINE
YL = SOLID YELLOW LINE
0 10 20
(SCALE 1" = 10')
CONSULTING ENGINEERS
PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)
FILE NAME: z15b109bdr-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. FORTIER
LAYOUT SHEET
PLOT DATE: 8/3/2016
DRAWN BY: S. FORTIER
CHECKED BY: L. GREER
SHEET 11 OF 42
CLD 15-0223 MODEL: Layout1



VT 100 PROFILE

HOR. SCALE 1" = 10'-0"
VER. SCALE 1" = 20'-0"

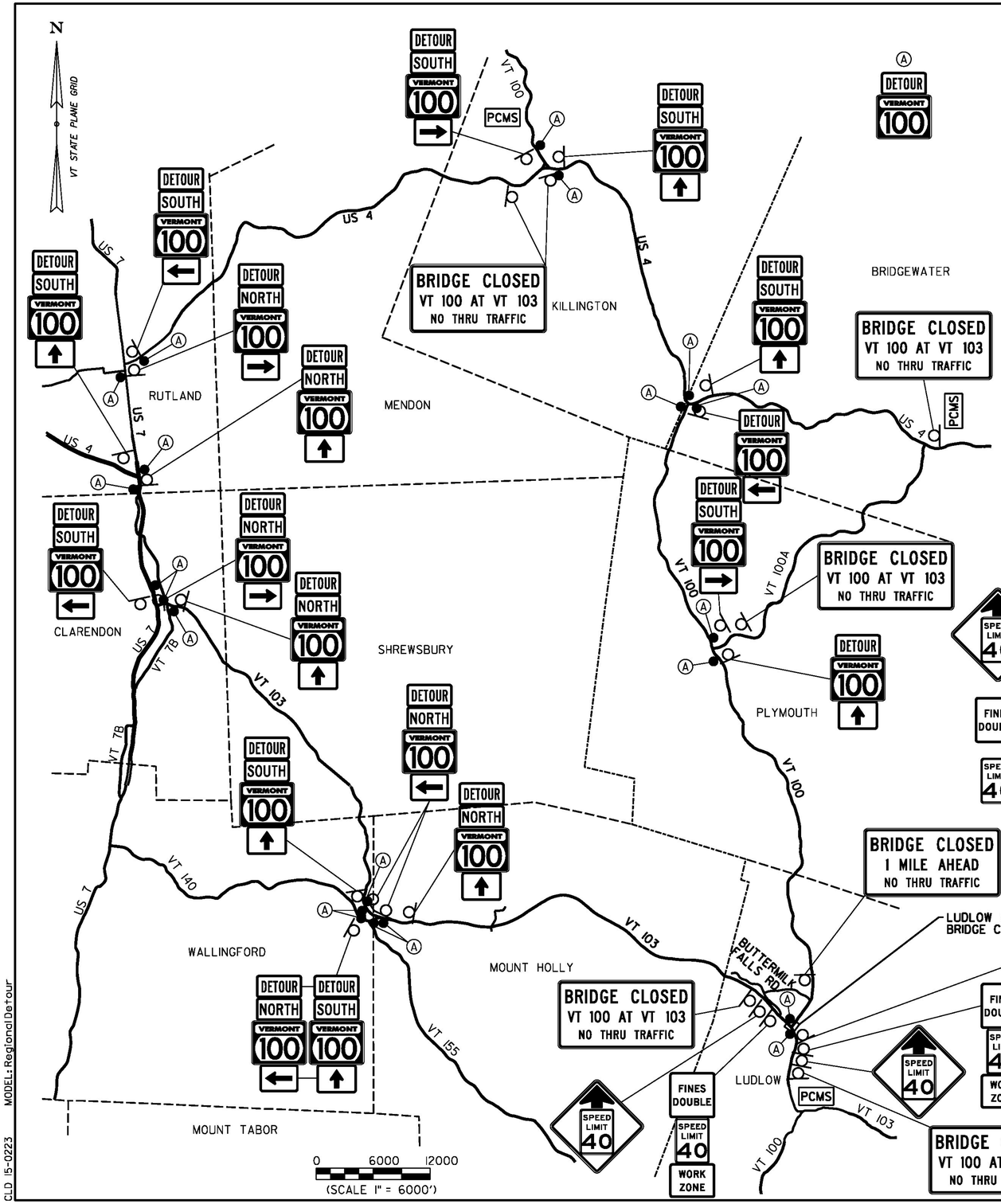
NOTES

1. STATIONS AND ELEVATIONS ARE IN FEET.
2. THE ELEVATIONS SHOWN TO THE NEAREST TENTH ARE THE EXISTING GROUND ALONG THE CENTERLINE.
3. THE ELEVATIONS SHOWN TO THE NEAREST HUNDRETH ARE THE FINISHED GRADE ALONG THE CENTERLINE.
4. PROPOSED PROFILE SHOWN IS FOR INFORMATIONAL PURPOSES ONLY. FINAL FINISHED GRADE SHALL BE DETERMINED BY THE PROJECT MANAGER AFTER TOP OF DECK AND TOP OF BEAM ELEVATIONS ARE SURVEYED. SEE PROJECT NOTE 23 ON SHEET 3.

CLD 15-0223 MODEL:Profile

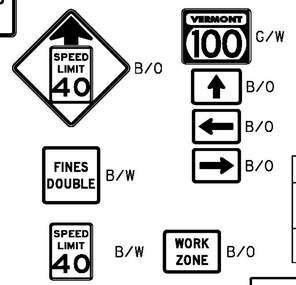
CONSULTING ENGINEERS

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP DECK(39)	
FILE NAME: z15b109pro-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: S. FORTIER
DESIGNED BY: S. FORTIER	CHECKED BY: L. GREER
PROFILE SHEET	SHEET 12 OF 42



TRAFFIC CONTROL NOTES

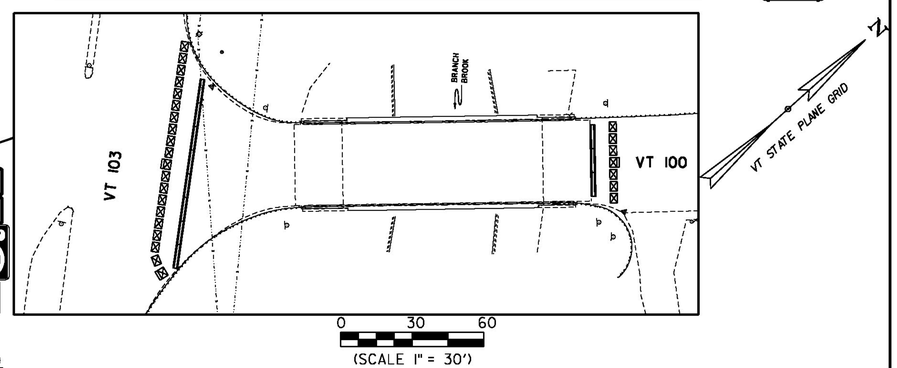
1. TRAFFIC WILL BE MAINTAINED ON A REGIONAL DETOUR VIA ROUTES VT 103, US 7, US 4, AND VT 100 BETWEEN LUDLOW, MOUNT HOLLY, WALLINGFORD, SHREWSBURY, CLARENDON, RUTLAND TOWN, RUTLAND CITY, MENDON, KILLINGTON, BRIDGEWATER, AND PLYMOUTH.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DETOUR AND CONSTRUCTION SIGNING. THE EXACT LOCATION WILL BE COORDINATED WITH THE ENGINEER AND SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MUTCD.
3. TRAFFIC CONTROL WARNING SIGNS SHALL BE PROVIDED PER STANDARD T-1 AND THE LATEST EDITION OF THE MUTCD. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS SHOWN N THE PLANS AND AS DIRECTED BY THE ENGINEER. ALL ON AND OFF PROJECT SIGNS AND BARRICADES AS REQUIRED FOR THE DETOUR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL BE PAID FOR UNDER THE ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)". ALL SIGNS AND BARRICADES SHALL BE INSPECTED DAILY AND REPAIRED AS NECESSARY. ALL SIGNS AND BARRICADES SHALL BE CLEARED OF DUST AND DEBRIS WEEKLY.
4. PORTABLE CHANGEABLE MESSAGE SIGNS (PCMS) SHALL BE PLACED AT THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS OR WHERE DIRECTED BY THE ENGINEER. TWO PCMS SHALL BE PLACED AT THE PROJECT LOCATION 14 DAYS PRIOR TO THE START OF CONSTRUCTION. MESSAGE TO SAY "DETOUR AHEAD (DATE) - (DATE)", TO WARN OF THE IMPENDING DETOUR. THESE PCMS SHALL THEN BE REMOVED AND DEPLOYED TO THE LOCATIONS SHOWN ONCE CONSTRUCTION HAS BEGUN. PAYMENT FOR THESE SIGNS, INCLUDING ANY RELOCATING REQUIRED, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 641.15 "PORTABLE CHANGEABLE MESSAGE SIGN".
5. THE ROUTE MARKERS USED FOR THE DETOUR AS SHOWN ON THE PLANS SHALL FOLLOW STANDARDS E-127 AND E-136B. THESE SIGNS SHALL BE REMOVED AT THE END OF THE CONSTRUCTION PERIOD. THESE SIGNS AND THEIR REMOVAL WILL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
6. ACCESS TO ALL EXISTING DRIVES AND SIDE ROADS SHALL BE MAINTAINED AT ALL TIMES DURING ALL PHASES OF CONSTRUCTION.
7. INSTALLATION OF DETOUR SIGNS SHALL NOT BLOCK ANY EXISTING TRAFFIC CONTROL SIGN ASSEMBLIES AND SHALL MODIFY OR BE PLACED ADJACENT TO EXISTING SIGN ASSEMBLIES WHEN POSSIBLE. THE CONTRACTOR SHALL MAINTAIN AT LEAST 200 FEET BETWEEN SIGN ASSEMBLIES WHENEVER POSSIBLE.
8. EXISTING SIGNS THAT ARE IN CONFLICT WITH THE TRAFFIC FLOW OF THE DETOUR SHALL BE REMOVED OR COVERED BY THE CONTRACTOR. ALL SIGNS REMOVED OR COVERED SHALL BE REPLACED OR UNCOVERED AND ANY STICKY RESIDUE REMOVED WHEN THE TRAFFIC CONTROL PLAN IS DISASSEMBLED. PAYMENT FOR THIS WORK WILL BE CONSIDERED INCIDENTAL TO ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)".
9. CONTACT DIG-SAFE AT LEAST 48 HOURS PRIOR TO BREAKING GROUND TO INSTALL ANY SIGN POSTS.
10. TEMPORARY TRAFFIC BARRIER WILL BE PAID FOR UNDER ITEM 900.645, "SPECIAL PROVISION (TRAFFIC CONTROL, ALL-INCLUSIVE)" AND SHALL BE USED FOR THE CLOSURE OF THE BRIDGE. CONTRACTOR SHALL INSTALL BARRIER AS NECESSARY TO PREVENT THE TRAVELLING PUBLIC FROM ENTERING THE CONSTRUCTION SITE.
11. REDUCED SPEED ZONE FOR VT 103 TRAFFIC SHALL BE SIGNED BETWEEN VT 100 AND BUTTERMILK FALLS ROAD. RETAIN EXISTING 50 MPH SIGN ON VT 103 NORTHBOUND, NORTH OF BUTTERMILK FALLS ROAD, AND VT 103 SOUTHBOUND, SOUTH OF VT 100.



RII-2 B/W SIGN MOUNTED ON TYPE III BARRICADE (MODIFIED)

TRAFFIC DATA

LOCATION	AADT		DHV		%T		%D		ADTT	
	2017	2037	2017	2037	2017	2037	2017	2037	2017	2037
VT 103	3000	3200	420	450	1.8	3.1	51	51	160	290



LEGEND

- N/C NEW SIGN/CONSTRUCTION ONLY
- B/O BLACK/ORANGE
- B/W BLACK/WHITE
- G/W GREEN/WHITE
- ⊠ TYPE III BARRICADE
- ⊠ TYPE III BARRICADE (MOD.)
- ═ TEMPORARY TRAFFIC BARRIER

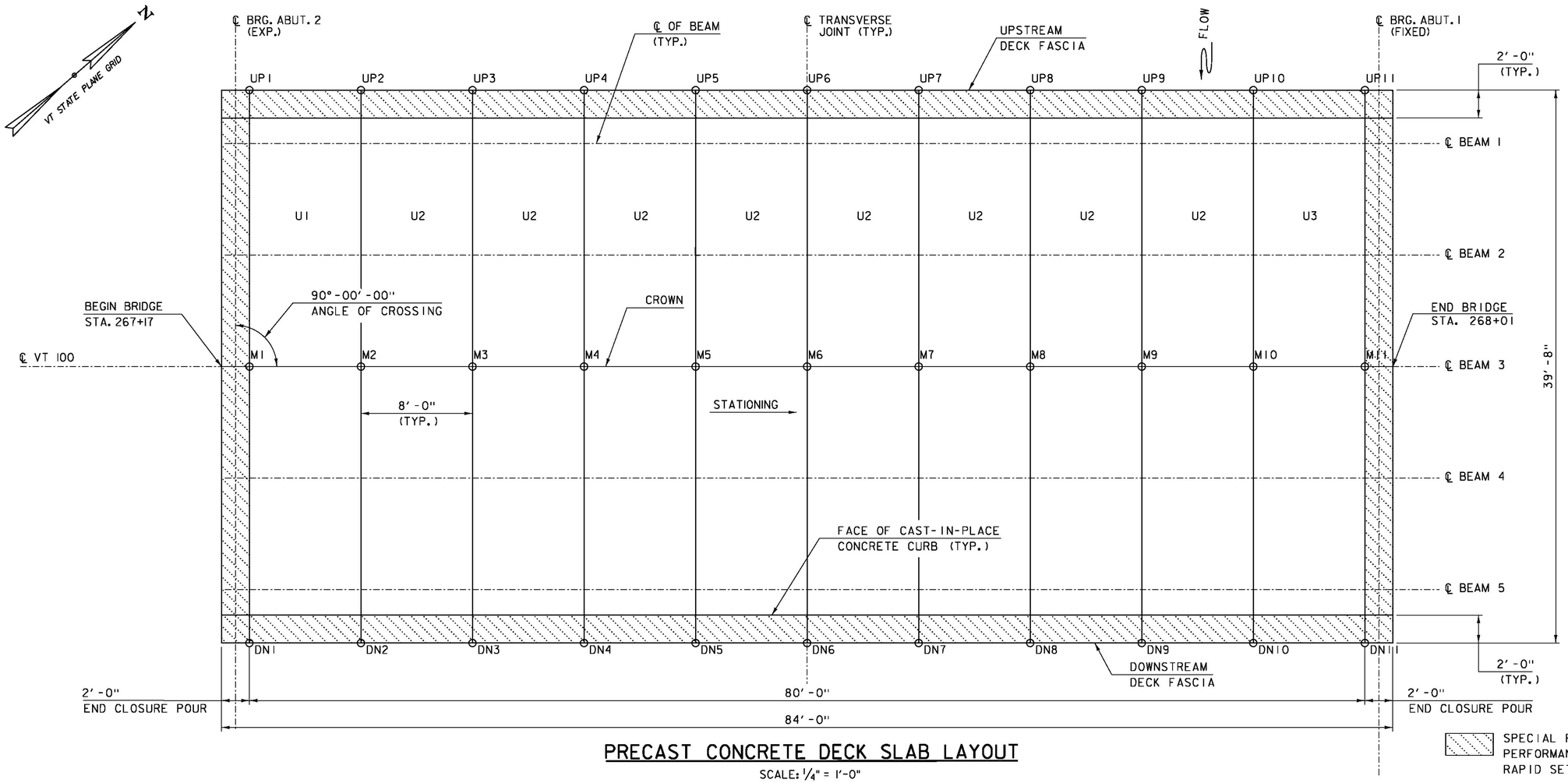
CONSULTING ENGINEERS

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109detour-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. FORTIER
REGIONAL DETOUR SHEET

PLOT DATE: 8/3/2016
DRAWN BY: S. FORTIER
CHECKED BY: L. GREER
SHEET 13 OF 42

CLD 15-0223 MODEL: RegionalDetour



PRECAST CONCRETE DECK SLAB LAYOUT

SCALE: 1/4" = 1'-0"

UPSTREAM FASCIA POINTS

POINT	STATION	OFFSET	SLAB FINAL ELEV.	SDL DEFLECTION	SLAB ELEV. AT INSTALLATION
UP1	267+19.00	19.83 LT	1032.93'	0"	1032.93'
UP2	267+27.00	19.83 LT	1032.79'	1/8"	1032.80'
UP3	267+35.00	19.83 LT	1032.65'	1/4"	1032.67'
UP4	267+43.00	19.83 LT	1032.51'	5/16"	1032.54'
UP5	267+51.00	19.83 LT	1032.37'	3/8"	1032.40'
UP6	267+59.00	19.83 LT	1032.23'	3/8"	1032.26'
UP7	267+67.00	19.83 LT	1032.09'	3/8"	1032.12'
UP8	267+75.00	19.83 LT	1031.96'	5/16"	1031.98'
UP9	267+83.00	19.83 LT	1031.82'	1/4"	1031.84'
UP10	267+91.00	19.83 LT	1031.68'	1/8"	1031.69'
UP11	267+99.00	19.83 LT	1031.54'	0"	1031.54'

MIDPOINT POINTS

POINT	STATION	OFFSET	SLAB FINAL ELEV.	SDL DEFLECTION	SLAB ELEV. AT INSTALLATION
M1	267+19.00	0	1033.33'	0"	1033.33'
M2	267+27.00	0	1033.19'	1/8"	1033.20'
M3	267+35.00	0	1033.05'	1/4"	1033.07'
M4	267+43.00	0	1032.91'	5/16"	1032.93'
M5	267+51.00	0	1032.77'	3/8"	1032.80'
M6	267+59.00	0	1032.63'	3/8"	1032.66'
M7	267+67.00	0	1032.49'	3/8"	1032.52'
M8	267+75.00	0	1032.35'	5/16"	1032.38'
M9	267+83.00	0	1032.21'	1/4"	1032.23'
M10	267+91.00	0	1032.07'	1/8"	1032.09'
M11	267+99.00	0	1031.93'	0"	1031.94'

DOWNSTREAM FASCIA POINTS

POINT	STATION	OFFSET	SLAB FINAL ELEV.	SDL DEFLECTION	SLAB ELEV. AT INSTALLATION
DN1	267+19.00	19.83 RT	1032.93'	0"	1032.93'
DN2	267+27.00	19.83 RT	1032.79'	1/8"	1032.80'
DN3	267+35.00	19.83 RT	1032.65'	1/4"	1032.67'
DN4	267+43.00	19.83 RT	1032.51'	5/16"	1032.54'
DN5	267+51.00	19.83 RT	1032.37'	3/8"	1032.40'
DN6	267+59.00	19.83 RT	1032.23'	3/8"	1032.26'
DN7	267+67.00	19.83 RT	1032.09'	3/8"	1032.12'
DN8	267+75.00	19.83 RT	1031.96'	5/16"	1031.98'
DN9	267+83.00	19.83 RT	1031.82'	1/4"	1031.84'
DN10	267+91.00	19.83 RT	1031.68'	1/8"	1031.69'
DN11	267+99.00	19.83 RT	1031.54'	0"	1031.54'

NOTES:

1. SLAB ELEVATIONS WERE CALCULATED AT THE UPSTREAM (UP), AND DOWNSTREAM (DN) SCORE MARK ELEVATIONS, AS WELL AS TOP OF SLAB AT MIDPOINT (M) LOCATIONS AS SHOWN. SEE SHEETS 15, 16, AND 17.
2. SLAB ELEVATION AT INSTALLATION ASSUMES THAT ALL DECK SLABS ARE IN PLACE.

PRECAST DECK SLAB ELEVATIONS

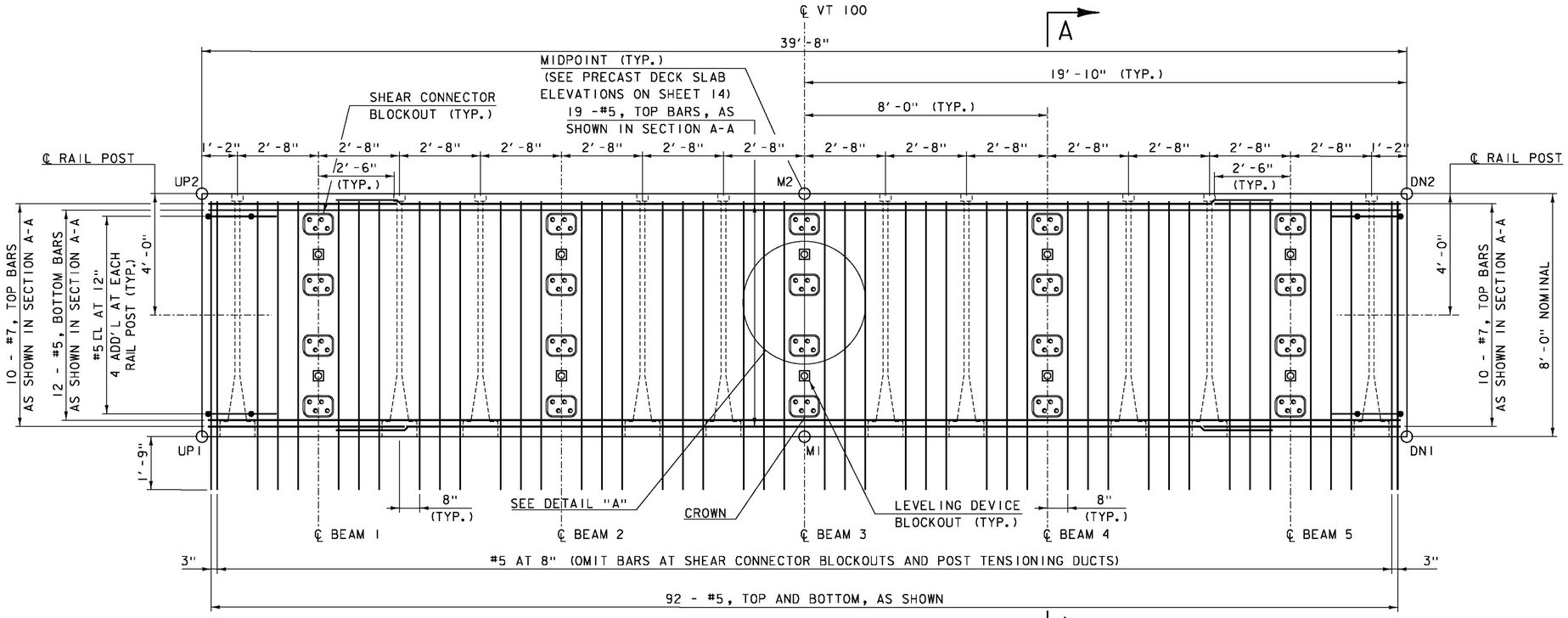
SCALE: 1/4" = 1'-0"

CLD 15-0223 MODEL: Sheet04

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

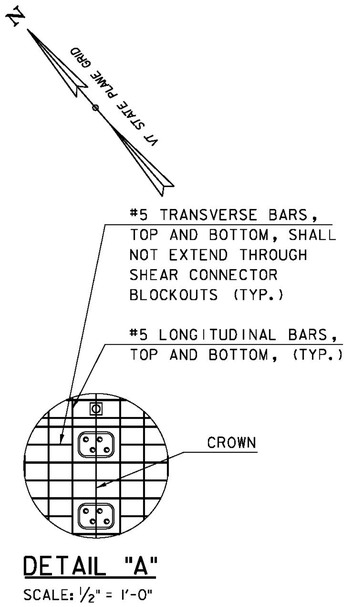
FILE NAME: z15b109typ-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: N. CARON
DECK DETAILS SHEET 1

PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 14 OF 42



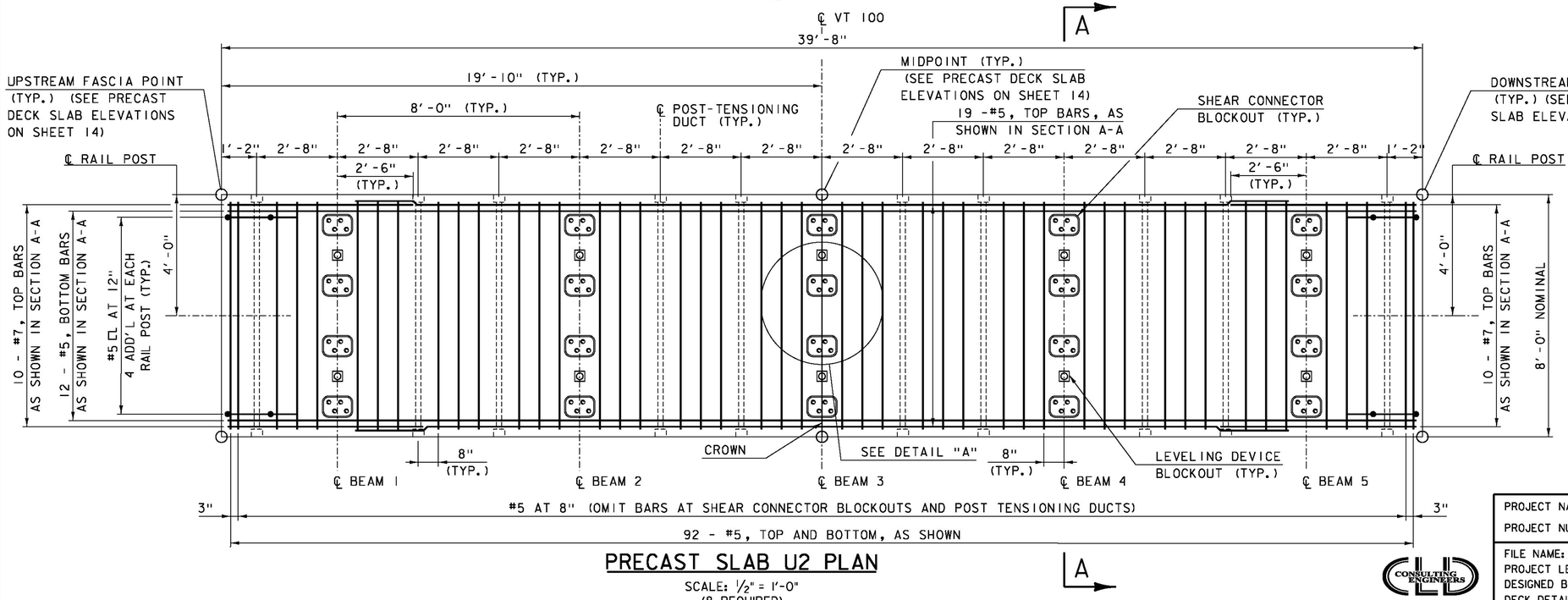
PRECAST SLAB U1 PLAN

SCALE: ½" = 1'-0"



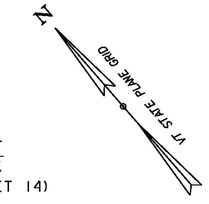
DETAIL "A"

SCALE: ½" = 1'-0"



PRECAST SLAB U2 PLAN

SCALE: ½" = 1'-0"
(8 REQUIRED)



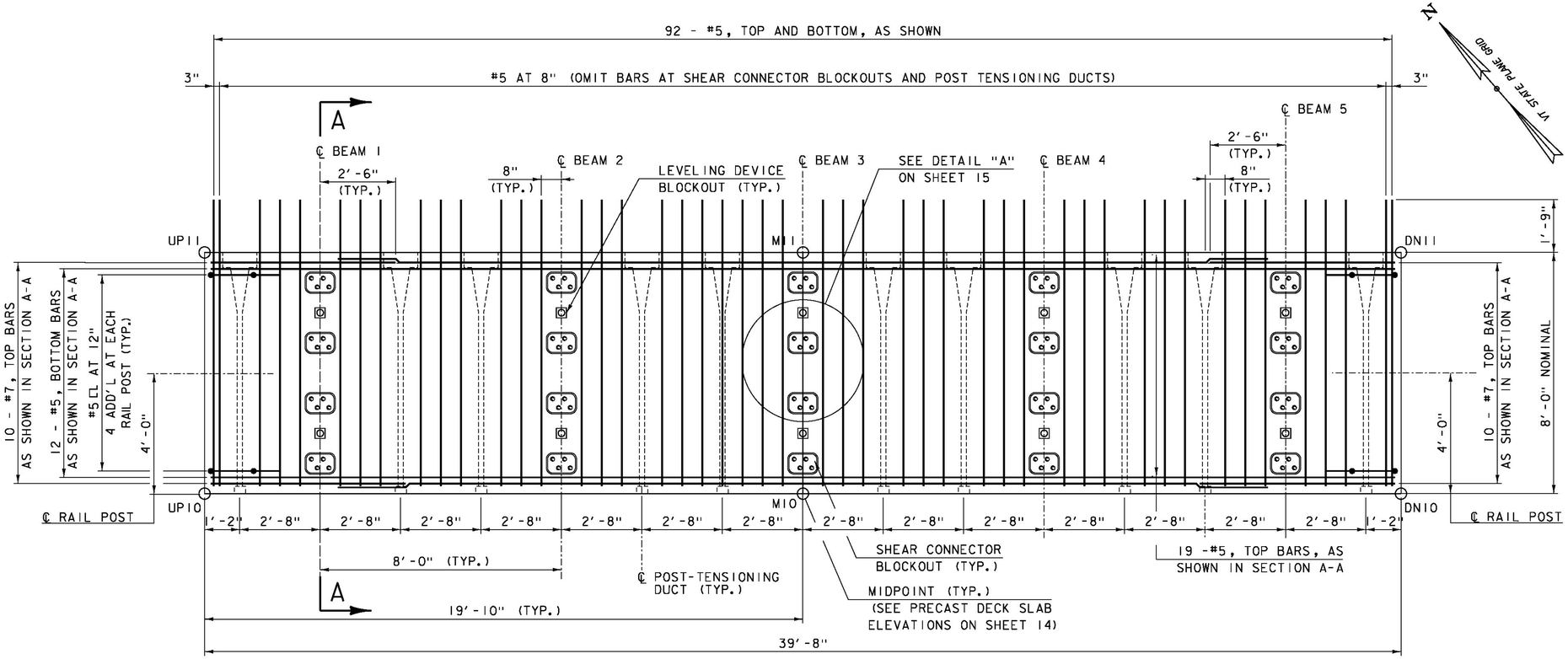
NOTES:

1. 3" CLEAR FROM SLAB EDGES. 1" MIN. CLEAR FROM ALL BLOCKOUTS, POCKETS, OR LEVELING DEVICES.
2. 2'-2" SPLICE UNLESS OTHERWISE SPECIFIED ON PLANS.
3. 10" HOOK UNLESS OTHERWISE SPECIFIED ON PLANS.
4. SEE SHEET 17 FOR TYPICAL PRECAST SLAB SECTION AND SECTION A-A.
5. SEE SHEET 20 FOR ANCHORAGE ZONE REINFORCEMENT.

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
DECK DETAILS SHEET 2	SHEET 15 OF 42

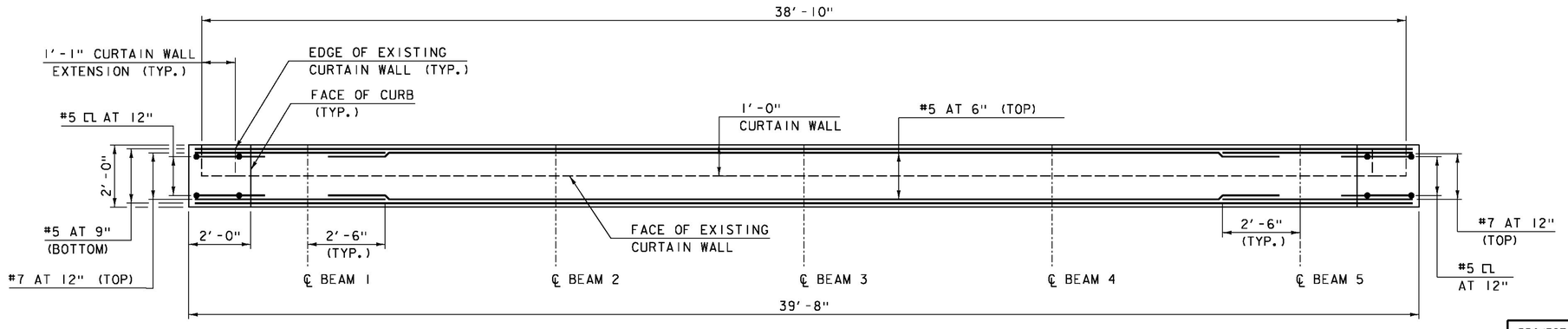
CONSULTING ENGINEERS

CLD 15-0223 MODEL: Sheet05



PRECAST SLAB U3 PLAN

SCALE: ½" = 1'-0"



END CLOSURE POUR MASONRY AND REINFORCING PLAN

SCALE: ½" = 1'-0"

NOTES:

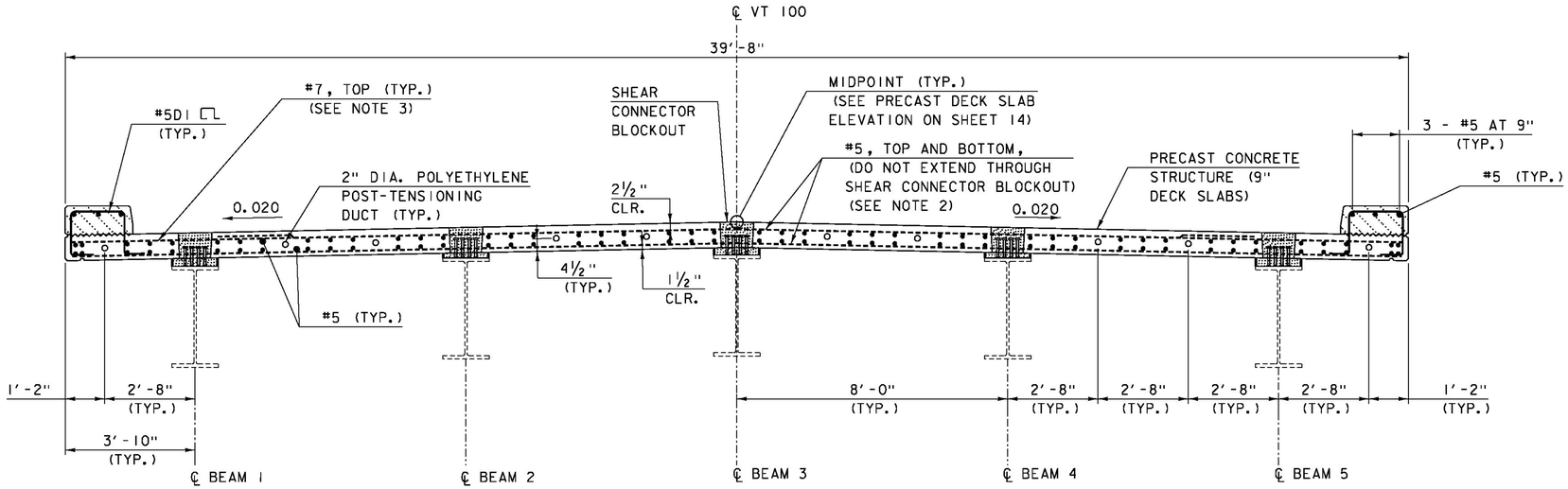
1. 3" CLEAR FROM SLAB EDGES. 1" MIN. CLEAR FROM ALL BLOCKOUTS, POCKETS, OR LEVELING DEVICES.
2. 2'-2" SPLICE UNLESS OTHERWISE SPECIFIED ON PLANS.
3. 10" HOOK UNLESS OTHERWISE SPECIFIED ON PLANS.
4. SEE SHEET 17 FOR TYPICAL PRECAST SLAB SECTION AND SECTION A-A.
5. SEE SHEET 20 FOR ANCHORAGE ZONE REINFORCEMENT.
6. FOR END CLOSURE POUR SECTION, SEE "JOINT DETAIL AT ABUTMENT 2" ON SHEET 21.
7. FOR END CLOSURE POUR REINFORCEMENT, SEE END CLOSURE POUR AND CURTAIN WALL EXTENSION MASONRY AND REINFORCING ELEVATION ON SHEET 25.

CLD 15-0223 MODEL: Sheet06

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

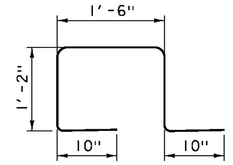
FILE NAME: z15b109typ-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: N. CARON
DECK DETAILS SHEET 3

PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT



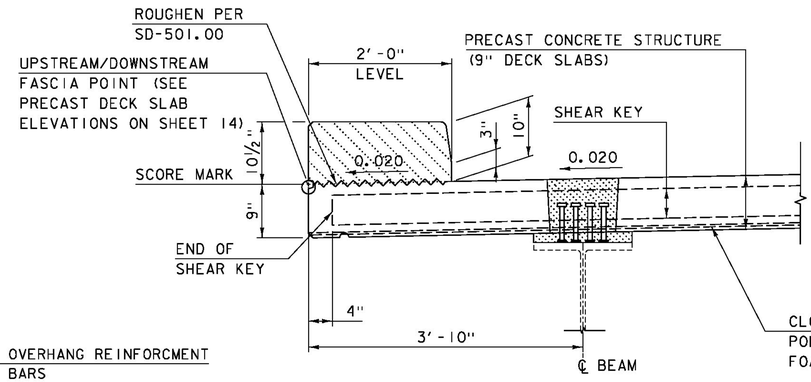
TYPICAL PRECAST SLAB SECTION

SCALE: ½" = 1'-0"



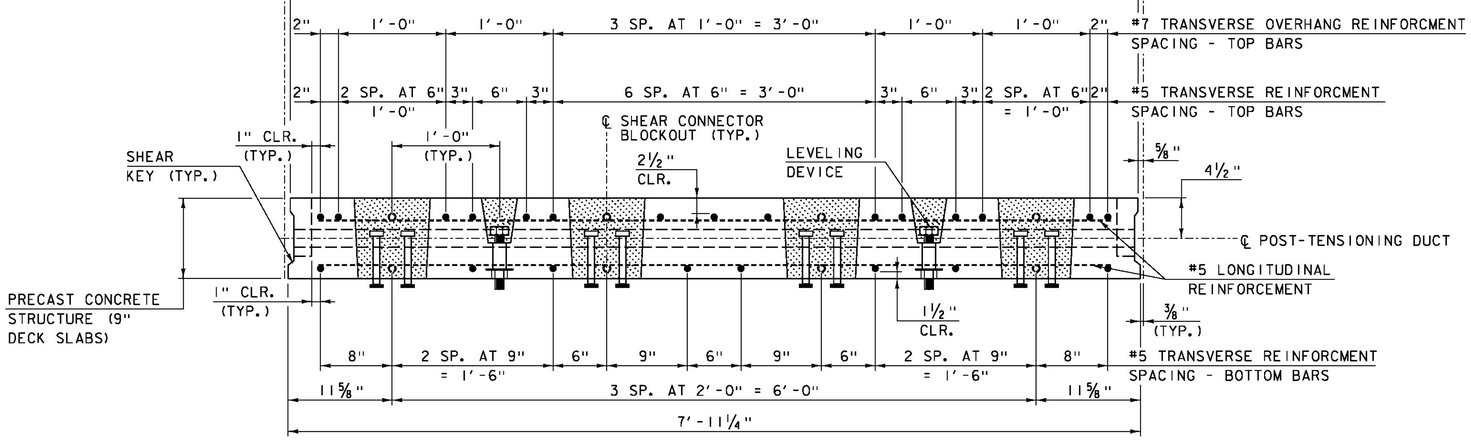
BAR #5DI

(260 - REQUIRED)
SCALE: 1" = 1'-0"



TYPICAL OVERHANG SECTION

SCALE: 1" = 1'-0"



SECTION A-A

SCALE: 1½" = 1'-0"

NOTES:

1. 3" CLEAR FROM SLAB/CURB EDGES. 1" MIN. CLEAR FROM ALL BLOCKOUTS, POCKETS, OR LEVELING DEVICES.
2. TRANSVERSE AND LONGITUDINAL REINFORCING DO NOT EXTEND THROUGH SHEAR CONNECTOR BLOCKOUT. REINFORCEMENT SHOWN DASHED FOR CLARITY. SEE PRECAST SLAB PLANS AND DETAIL "A" ON SHEETS 15 AND 16.
3. #7 TRANSVERSE OVERHANG REINFORCEMENT SHOWN FOR CLARITY ONLY. BARS ARE NOT LOCATED AT SHEAR CONNECTOR BLOCKOUT LOCATIONS. SEE SECTION A-A FOR TRANVERSE OVERHANG REINFORCEMENT SPACING.
4. SEE SHEET 5 FOR FASCIA AND DRIP NOTCH DETAIL.

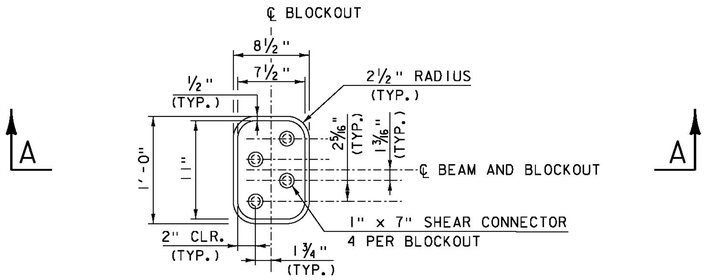
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

MORTAR, TYPE IV (COST INCIDENTAL TO ITEM 540.10)

CONSULTING ENGINEERS

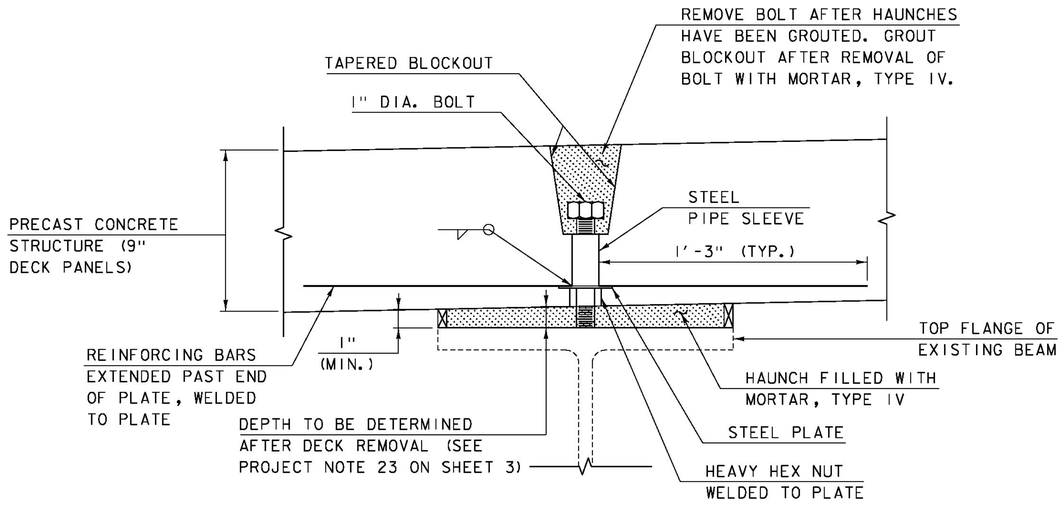
PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15bl09typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
DECK DETAILS SHEET 4	SHEET 17 OF 42

CLD 15-0223 MODEL: Sheet07



SHEAR CONNECTOR BLOCKOUT DETAIL

SCALE: 1½" = 1'-0"



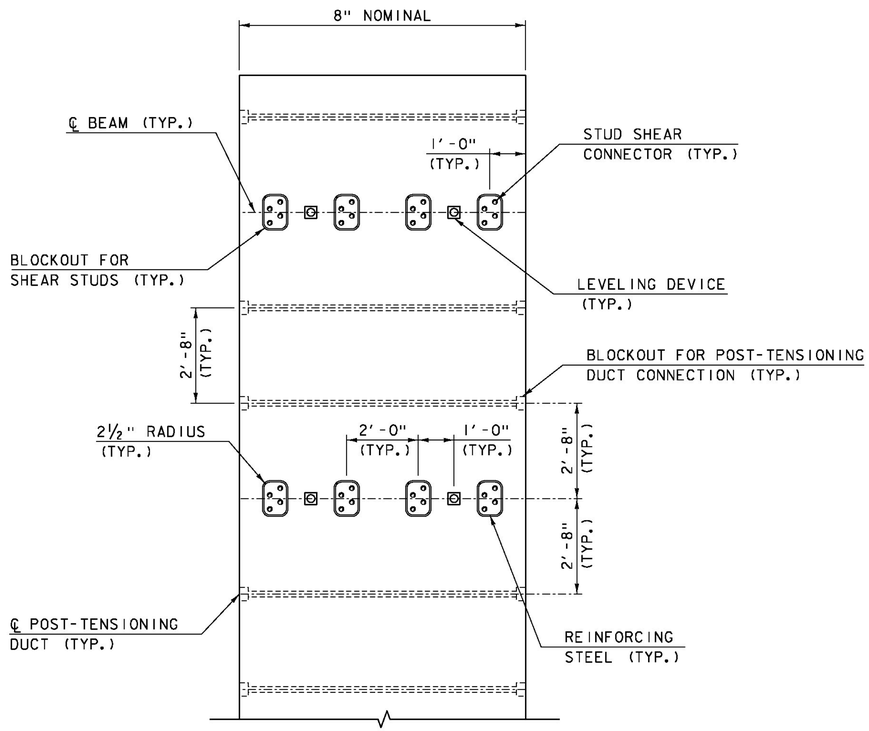
LEVELING DEVICE DETAIL

SCALE: 3" = 1'-0"

NOTES:

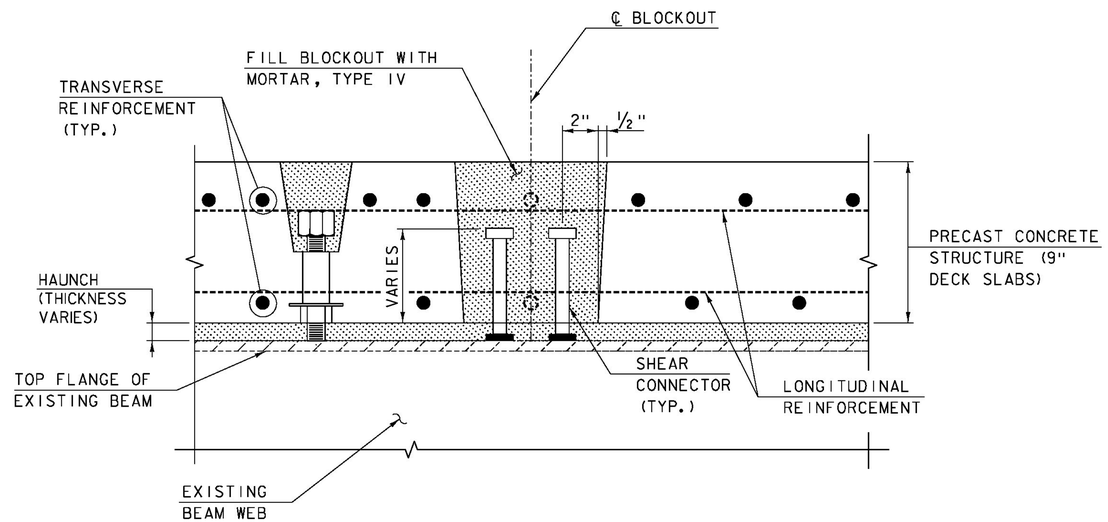
THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN OF THE LEVELING DEVICE BASED ON THE WEIGHT OF THE SLABS AND THE NUMBER OF DEVICES.

ALTERNATE DEVICES MAY BE SUBSTITUTED WITH APPROVAL FROM THE PROJECT MANAGER.



SHEAR CONNECTOR BLOCKOUT PLAN

SCALE: ½" = 1'-0"



SECTION A-A

SCALE: 3" = 1'-0"

NOTE:

TRANSVERSE AND LONGITUDINAL REINFORCING DO NOT EXTEND THROUGH SHEAR CONNECTOR BLOCKOUT. REINFORCEMENT SHOWN DASHED FOR CLARITY. SEE PRECAST SLAB PLANS AND DETAIL "A" ON SHEETS 15 AND 16.

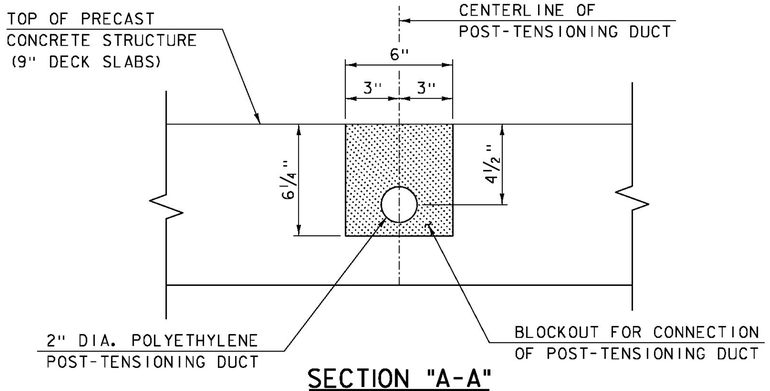
MORTAR, TYPE IV (COST INCIDENTAL TO ITEM 540.10)

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109typ-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: N. CARON
DECK DETAILS SHEET 5

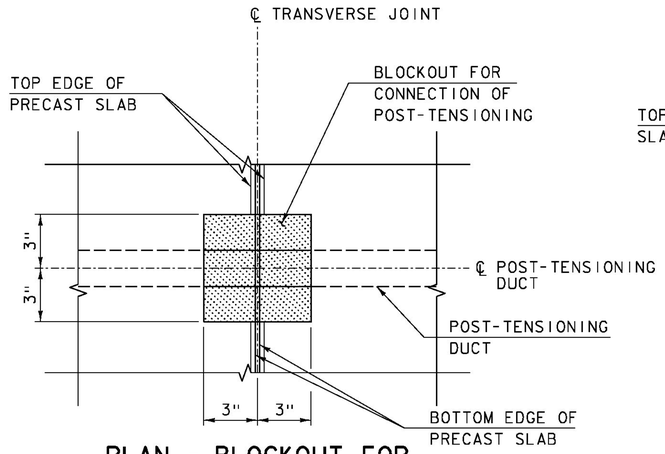
PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 18 OF 42

CLD 15-0223 MODEL: Sheet08



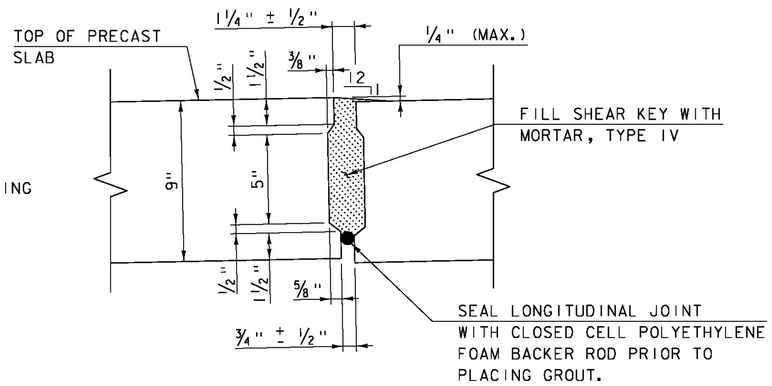
SECTION "A-A"

SCALE: 3" = 1'-0"



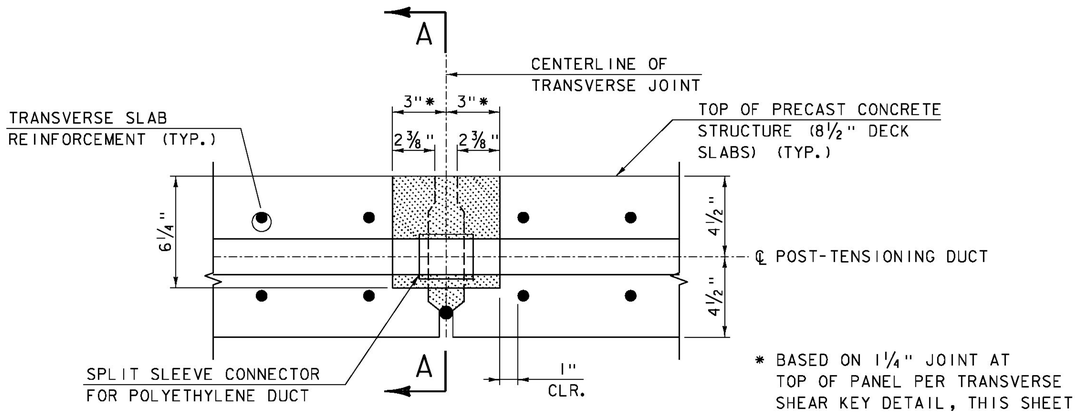
PLAN - BLOCKOUT FOR POST-TENSIONING DUCT

SCALE: 3" = 1'-0"



TRANSVERSE SHEAR KEY DETAIL

SCALE: 3" = 1'-0"



TYPICAL SECTION - TRANSVERSE DECK JOINT AT POST-TENSIONING DUCT

SCALE: 3" = 1'-0"

NOTE: LONGITUDINAL SLAB REINFORCEMENT NOT SHOWN FOR CLARITY.

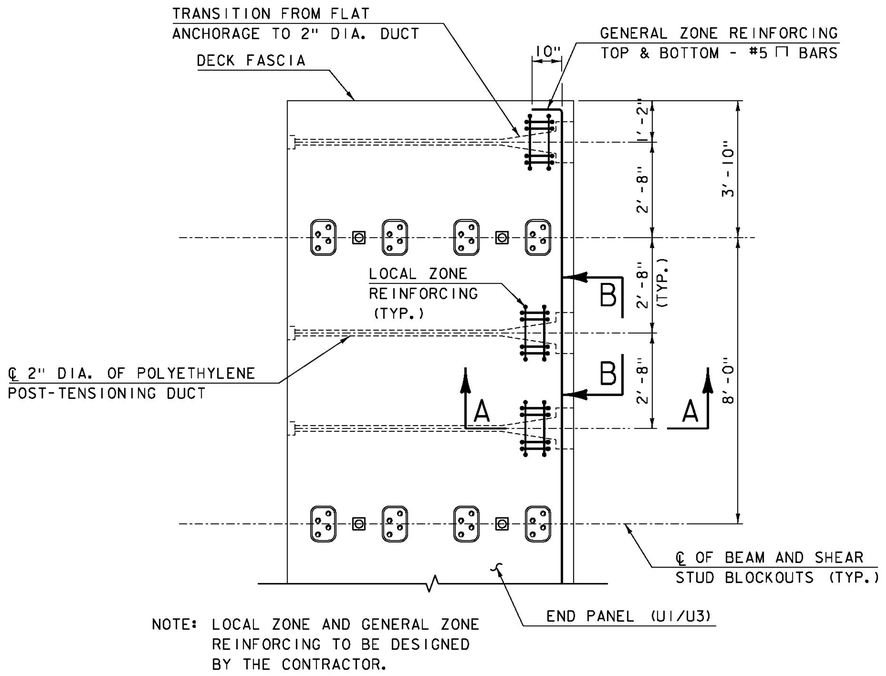
1. THE SLAB SHALL BE PLACED AT THE NOMINAL SPACING SHOWN ON THE PLANS WITH A ¾" WIDE GAP BETWEEN THE SLABS. THE WIDTH OF THIS GAP CAN VARY DUE TO TOLERANCES OF THE SLABS.
2. MORTAR, TYPE IV FOR SHEAR KEYS SHALL BE RODDED OR VIBRATED TO ENSURE THAT ALL VOIDS IN THE SHEAR KEYS ARE FILLED.
3. POST-TENSIONING DUCT SHOWN IS FOR 3 - 0.6" DIA. PRESTRESSING STRANDS. ALTERNATE DUCTS MAY BE USED. THE CONNECTION OF THE DUCT SHALL BE WATERTIGHT.
4. FILL BLOCKOUT WITH MORTAR, TYPE IV SIMULTANEOUSLY WITH THE TRANSVERSE SHEAR KEYS.
5. FORM SHEAR KEY ALONG INTERFACE OF PRECAST SLABS AND CLOSURE POUR.

MORTAR, TYPE IV (COST INCIDENTAL TO ITEM 540.10, "PRECAST CONCRETE STRUCTURE (9" DECK SLABS)").

CONSULTING ENGINEERS

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP DECK(39)	
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
DECK DETAILS SHEET 6	SHEET 19 OF 42

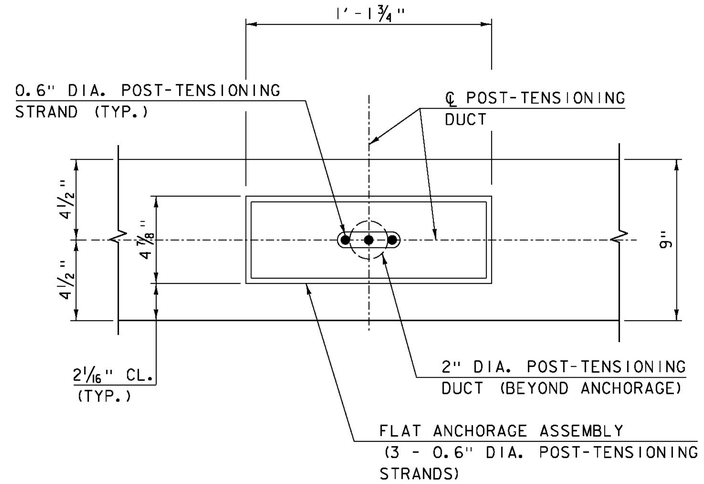
CLD 15-0223 MODEL: Sheet09



NOTE: LOCAL ZONE AND GENERAL ZONE REINFORCING TO BE DESIGNED BY THE CONTRACTOR.

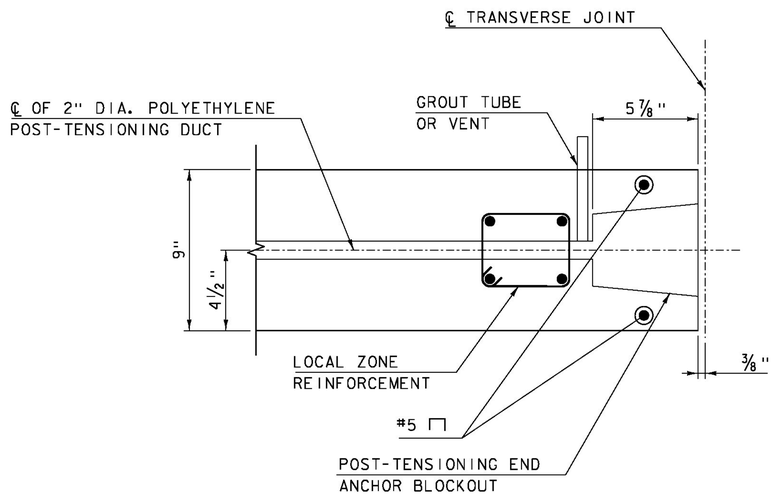
END ANCHORAGE DETAILS FOR POST-TENSIONING

SCALE: ½" = 1'-0"



SECTION B-B

SCALE: 3" = 1'-0"



SECTION A-A

SCALE: 3" = 1'-0"

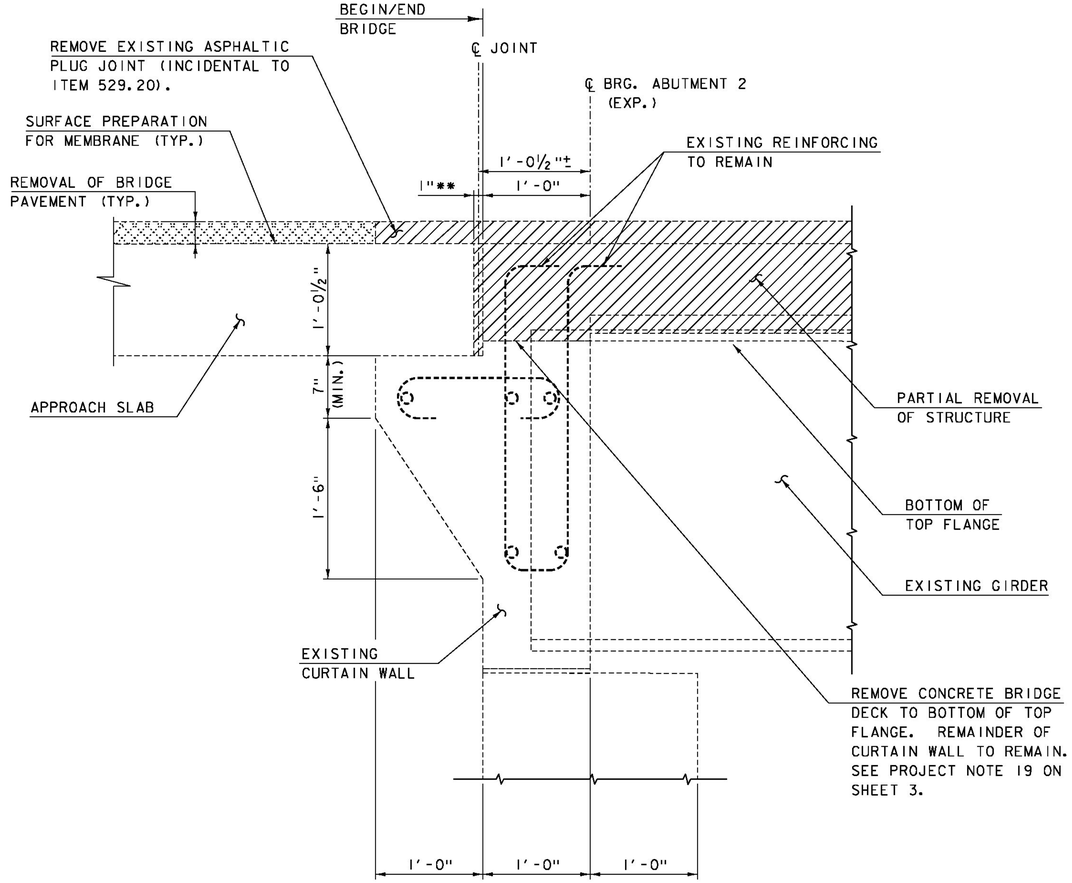
NOTE: 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)

FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: N. CARON	CHECKED BY: S. BEAUMONT
DECK DETAILS SHEET 7	SHEET 20 OF 42

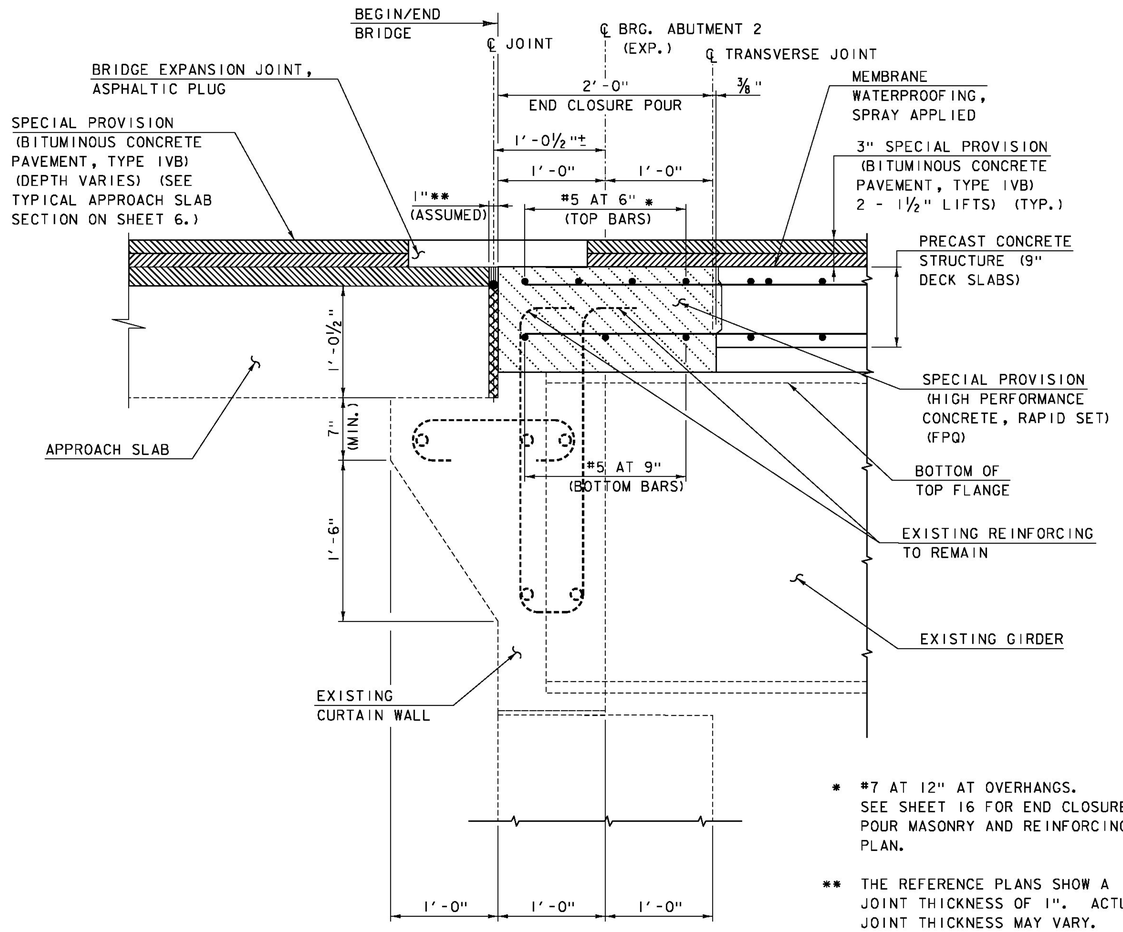
CLD CONSULTING ENGINEERS

CLD 15-0223 MODEL: Sheet10



DECK REMOVAL DETAIL AT ABUTMENT 2

SCALE: 1½" = 1'-0"



JOINT DETAIL AT ABUTMENT 2

SCALE: 1½" = 1'-0"

* #7 AT 12" AT OVERHANGS. SEE SHEET 16 FOR END CLOSURE POUR MASONRY AND REINFORCING PLAN.

** THE REFERENCE PLANS SHOW A JOINT THICKNESS OF 1". ACTUAL JOINT THICKNESS MAY VARY.

NOTE: ABUTMENT 2 REMOVAL AND ASPHALTIC PLUG JOINT DETAILS SHOWN.
ABUTMENT 1 REMOVAL AND SAWED PAVEMENT JOINT DETAILS SIMILAR.

REMOVAL OF BRIDGE PAVEMENT

PARTIAL REMOVAL OF STRUCTURE

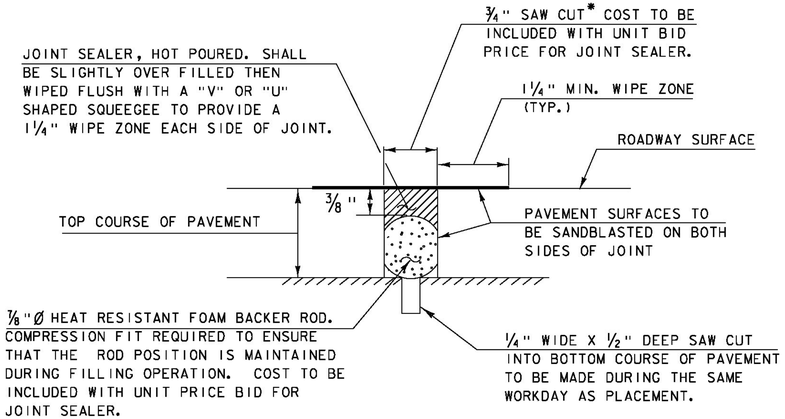
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109typ-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAUMONT
JOINT DETAILS SHEET 1

PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: A. GIRALDI
SHEET 21 OF 42

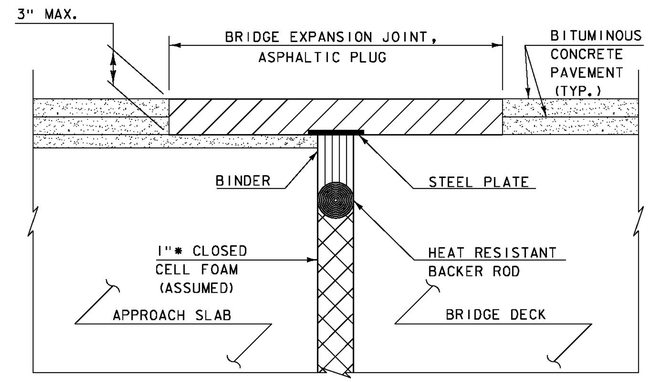
CLD 15-0223 MODEL: Sheet11



SAWED PAVEMENT JOINT DETAIL

(NOT TO SCALE)

* JOINT IS TO BE LOCATED ACCURATELY BY STRING LINING, OR OTHER MEANS, PRIOR TO PAVING, SO THAT THE SAW CUT WILL BE MADE DIRECTLY OVER THE END OF CONCRETE DECK. JOINT SHALL BE CUT DRY IN A SINGLE PASS AND BE SEALED WITHIN 24 HOURS OR PRIOR TO EXPOSURE TO TRAFFIC. JOINT SHALL BE CLEANED PRIOR TO APPLYING THE JOINT SEALER. ALL WORK WILL BE PAID FOR UNDER ITEM 524.11, "JOINT SEALER, HOT POURED".



* THE REFERENCE PLANS SHOW A 1" JOINT BETWEEN THE APPROACH SLAB AND CONCRETE DECK. ACTUAL THICKNESS MAY VARY.

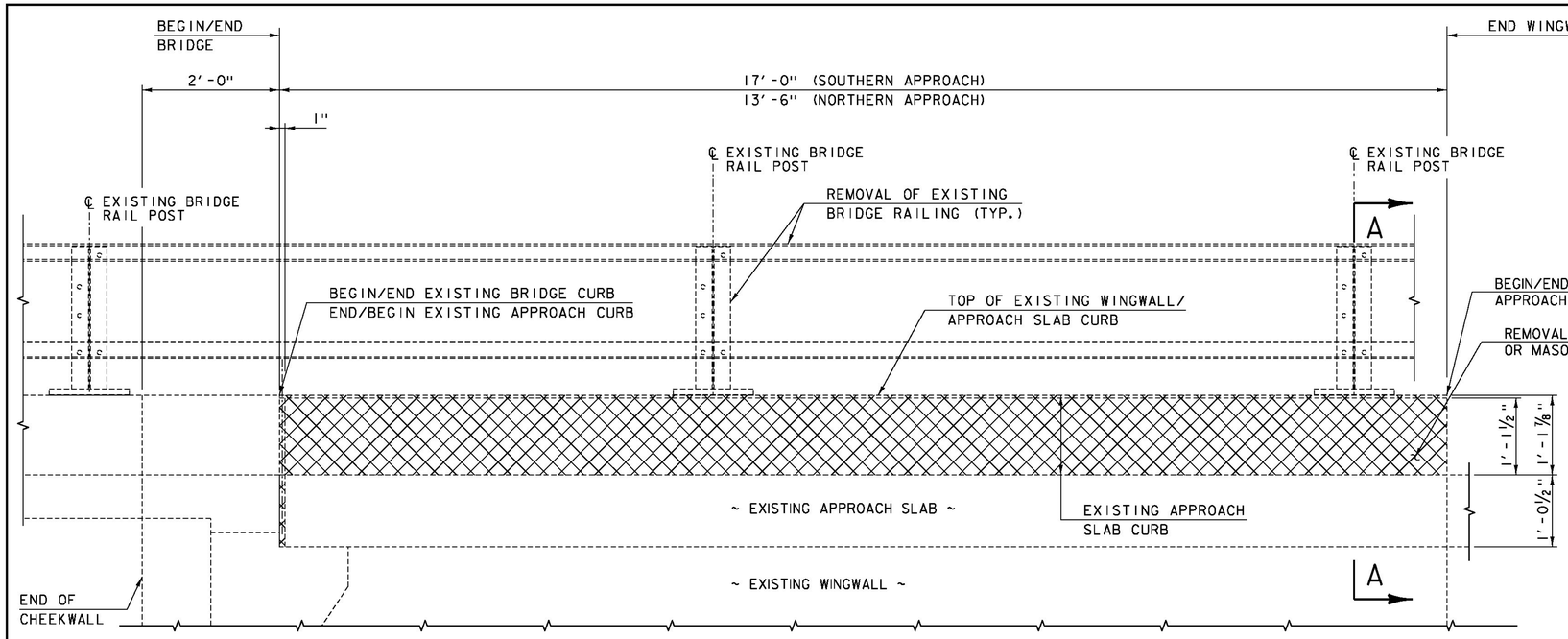
ASPHALTIC PLUG-TYPE JOINT DETAIL

(NOT TO SCALE)

NOTE: SEE STANDARD SD-516.10 FOR ADDITIONAL INFORMATION.

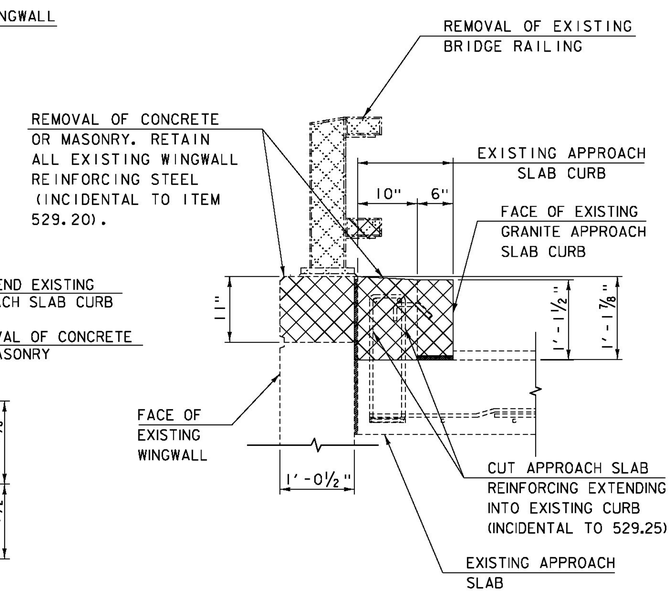
CLD 15-0223 MODEL: Sheet12

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP DECK(39)	
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
JOINT DETAILS SHEET 2	SHEET 22 OF 42



APPROACH SLAB CURB REMOVAL ELEVATION

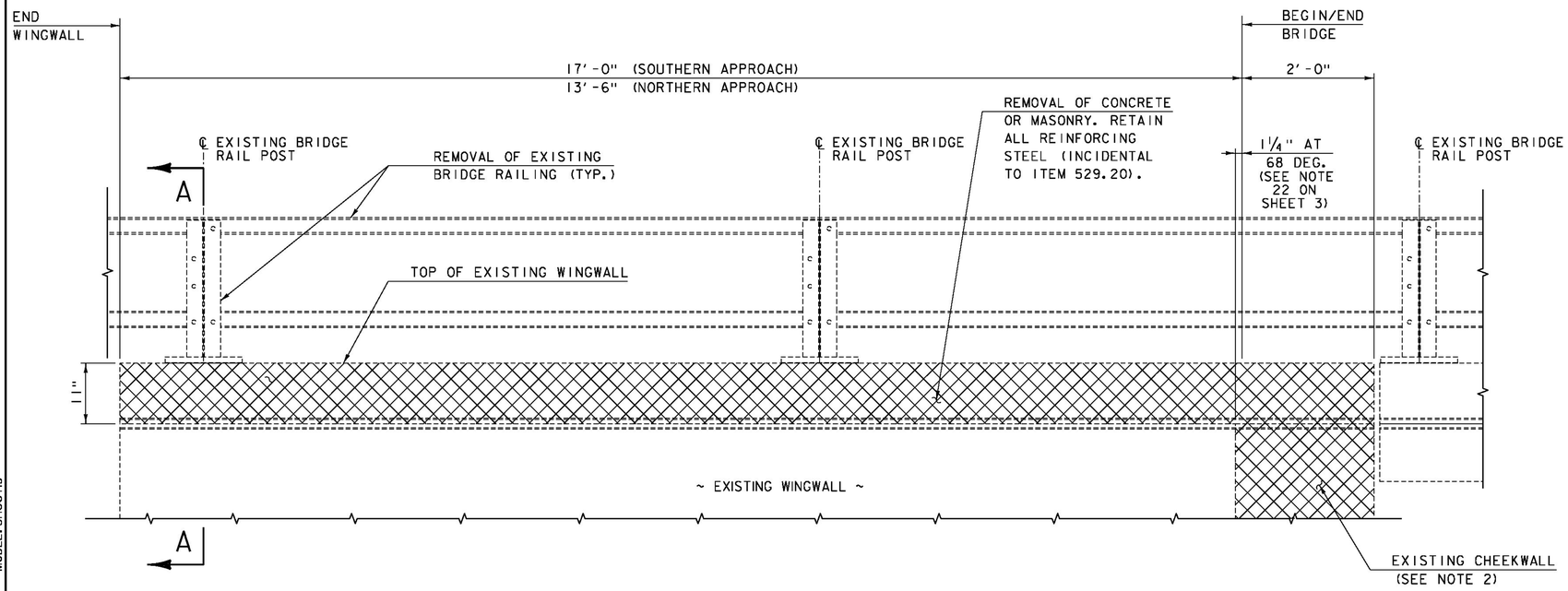
(SW CURB SHOWN, OTHERS SIMILAR)
SCALE: 1" = 1'-0"



NOTE: REMOVAL OF GRANITE CURB WILL BE PAID FOR UNDER ITEM 529.25, "REMOVAL OF CONCRETE OR MASONRY".

SECTION A-A

SCALE: 1" = 1'-0"



WINGWALL REMOVAL ELEVATION

(SW WINGWALL SHOWN, OTHERS SIMILAR)
SCALE: 1" = 1'-0"

NOTE:

1. SEE SHEET 24 FOR PROPOSED CONCRETE APPROACH SLAB AND PROPOSED CONCRETE WINGWALL MASONRY AND REINFORCING DETAILS.
2. SEE SHEETS 25 AND 26 FOR EXISTING CHEEKWALL REMOVAL DETAILS.

REMOVAL OF EXISTING BRIDGE RAILING

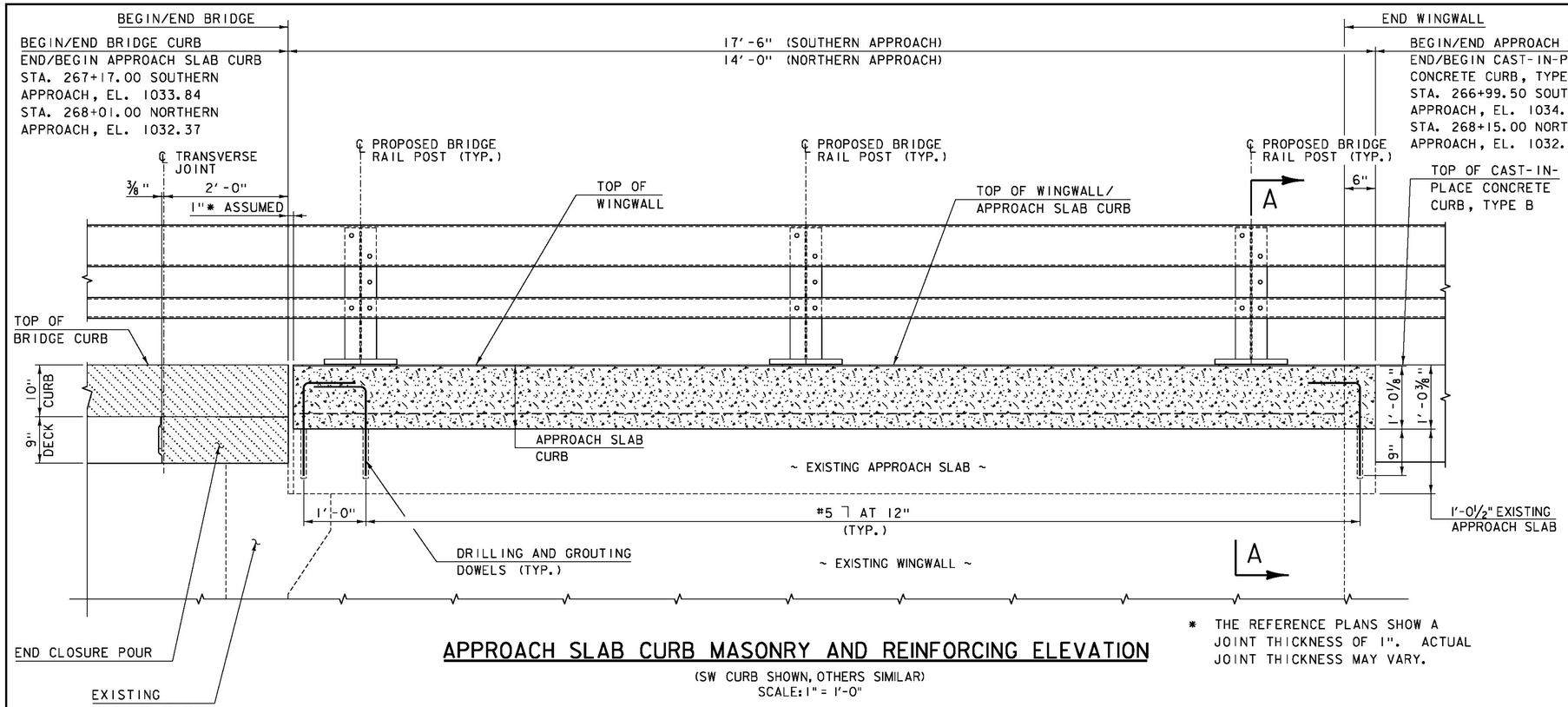
REMOVAL OF CONCRETE OR MASONRY (SEE PROJECT NOTES 18 AND 19 ON SHEET 3).

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)

FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
CURB/WINGWALL REMOVAL DETAILS SHEET	SHEET 23 OF 42

CONSULTING ENGINEERS

CLD 15-0223 MODEL: Sheet13



APPROACH SLAB CURB MASONRY AND REINFORCING ELEVATION

(SW CURB SHOWN, OTHERS SIMILAR)
SCALE: 1" = 1'-0"

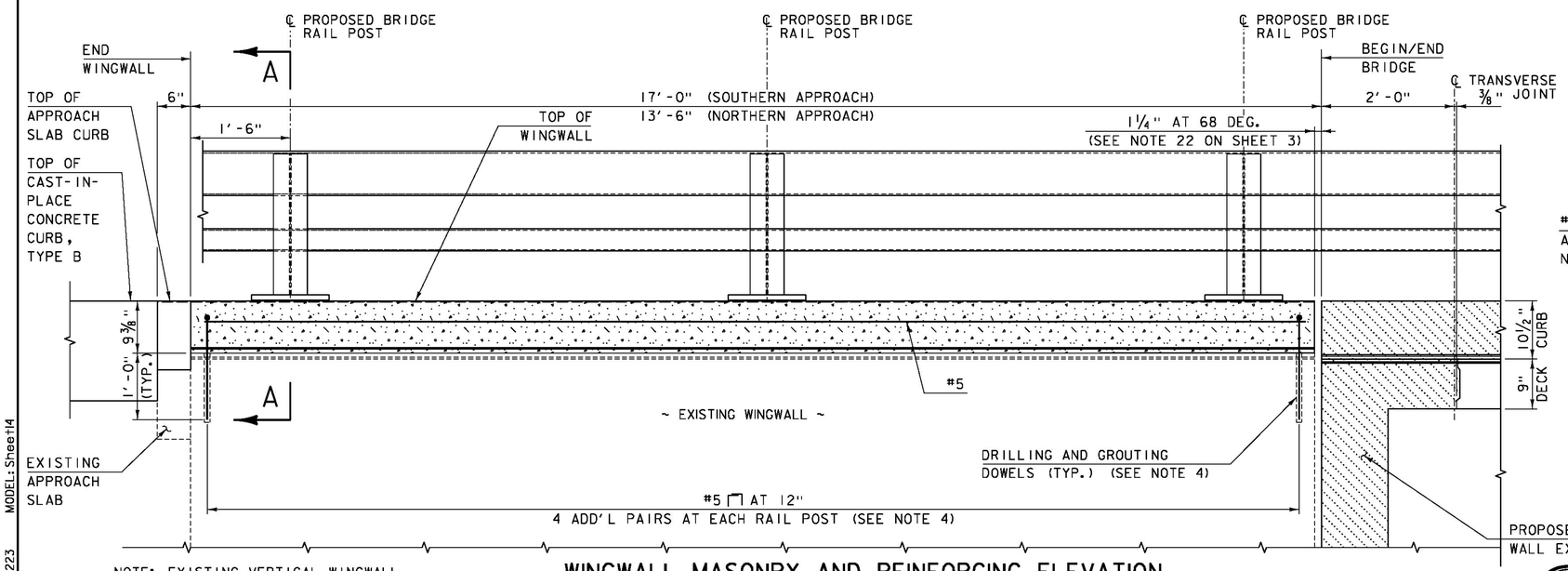
* THE REFERENCE PLANS SHOW A JOINT THICKNESS OF 1". ACTUAL JOINT THICKNESS MAY VARY.

NOTES:

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. SEE SHEET 6 FOR TYPICAL APPROACH SLAB SECTION.
3. ELEVATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. FINAL FINISHED GRADES SHALL BE DETERMINED BY VTRANS AFTER EXISTING TOP OF DECK AND TOP OF BEAM ELEVATIONS ARE SURVEYED. SEE PROJECT NOTE 23 ON SHEET 3.
4. A MINIMUM OF 7 PAIRS OF BARS AT 6" ARE REQUIRED IN THE TOP OF WINGWALL AT THE BRIDGE POST LOCATIONS AND A SPACING OF 12" BETWEEN THE POSTS. MAINTAIN ALL EXISTING VERTICAL REINFORCING THAT IS IN GOOD CONDITION WITH NO SECTION LOSS AND DRILL AND GROUT ADDITIONAL STEEL AS REQUIRED TO MEET THESE REQUIREMENTS.
5. SEE SHEET 6 FOR APPROACH SLAB PAVEMENT TYPE AND DEPTHS.

CONCRETE, HIGH PERFORMANCE CLASS A

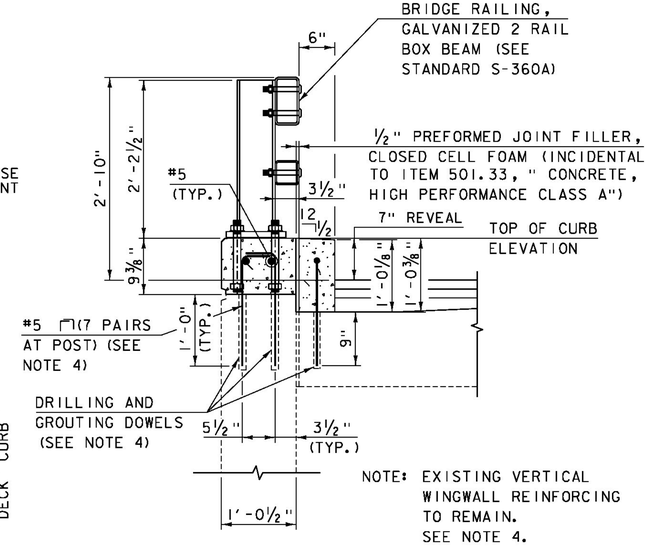
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPO)



NOTE: EXISTING VERTICAL WINGWALL REINFORCING TO REMAIN. SEE NOTE 4.

WINGWALL MASONRY AND REINFORCING ELEVATION

(SW WINGWALL SHOWN, OTHERS SIMILAR)
SCALE: 1" = 1'-0"



NOTE: EXISTING VERTICAL WINGWALL REINFORCING TO REMAIN. SEE NOTE 4.

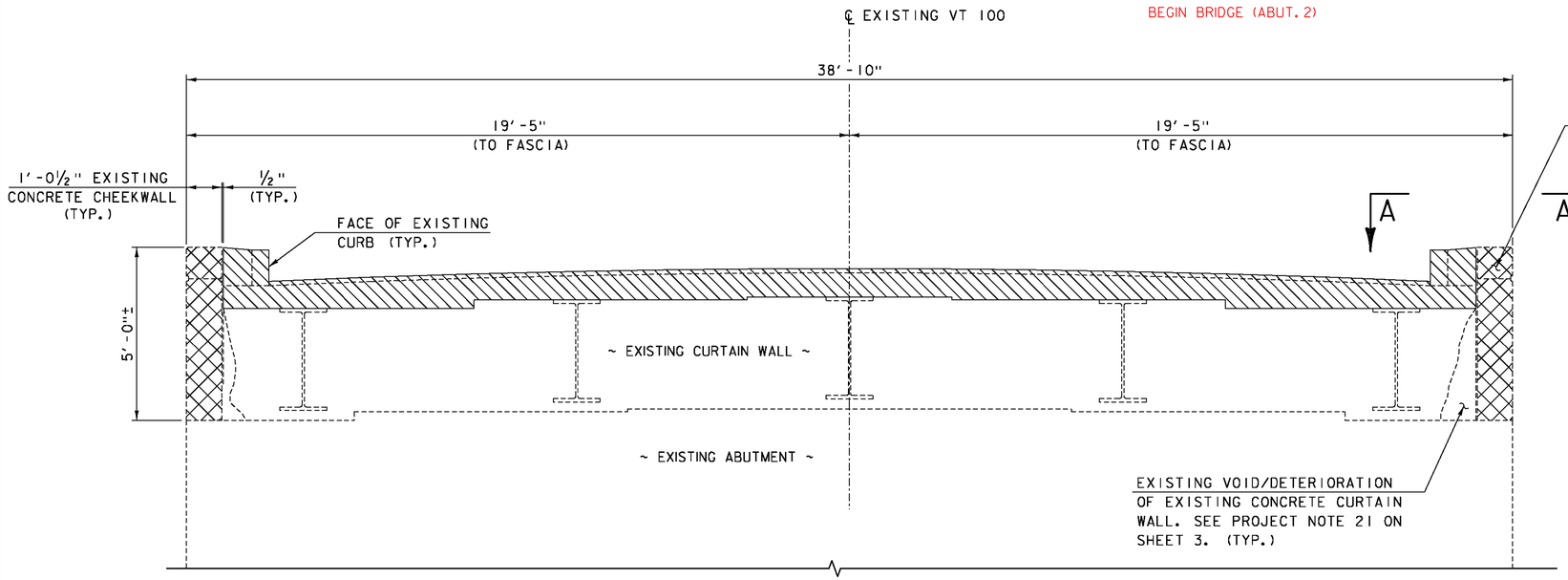
SECTION A-A

SCALE: 1" = 1'-0"

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15bl09typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
CURB/WINGWALL REPLACEMENT DETAILS SHEET	SHEET 24 OF 42

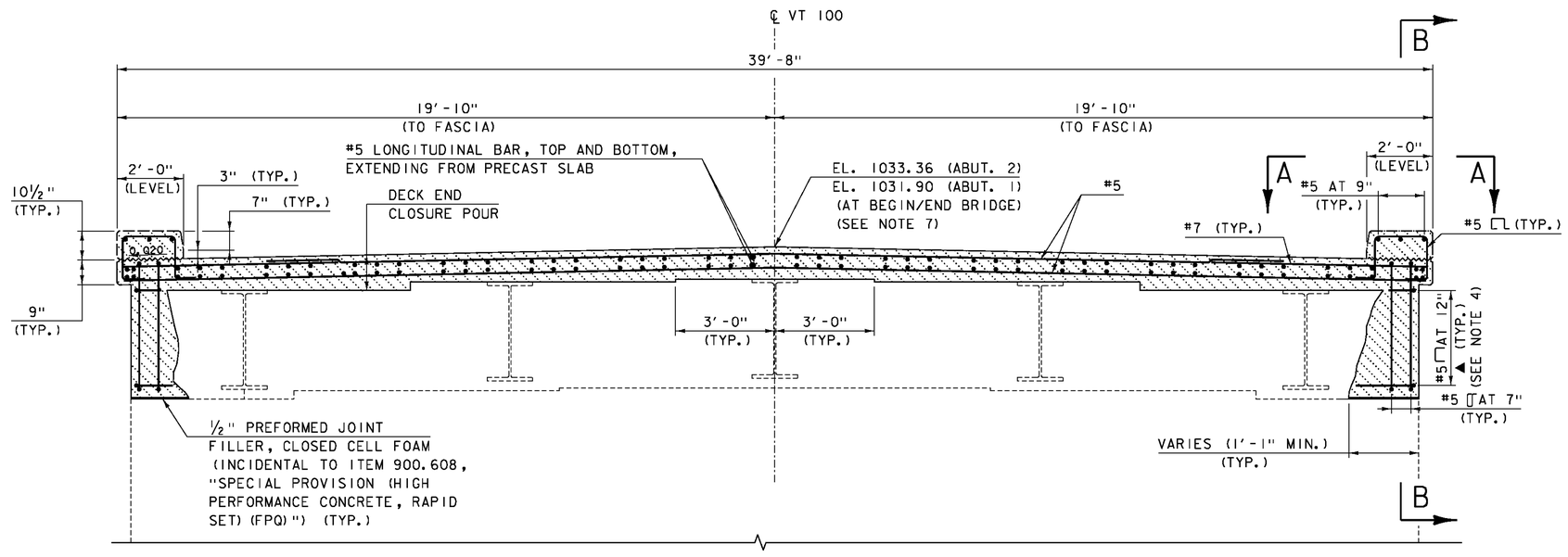
CLD CONSULTING ENGINEERS

CLD 15-0223 MODEL: Sheet14



CHEEKWALL REMOVAL LIMITS

SCALE: ½" = 1'-0"



END CLOSURE POUR AND CURTAIN WALL MASONRY AND REINFORCING ELEVATION

SCALE: ½" = 1'-0"

NOTES:

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 2'-2" SPLICE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 10" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. SPLICE NEW CURTAIN WALL EXTENSION REINFORCING TO EXISTING EXPOSED CURTAIN WALL REINFORCING.
5. SEE SHEET 26 FOR SECTION A-A AND B-B.
6. SEE SHEET 16 FOR END CLOSURE POUR MASONRY AND REINFORCING PLAN.
7. ELEVATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. FINAL FINISHED GRADES SHALL BE DETERMINED BY VTRANS AFTER EXISTING TOP OF DECK AND TOP OF BEAM ELEVATIONS ARE SURVEYED. SEE PROJECT NOTE 23 ON SHEET 3.

PARTIAL REMOVAL OF STRUCTURE

REMOVAL OF CONCRETE OR MASONRY (SEE PROJECT NOTES 18 AND 19 ON SHEET 3).

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

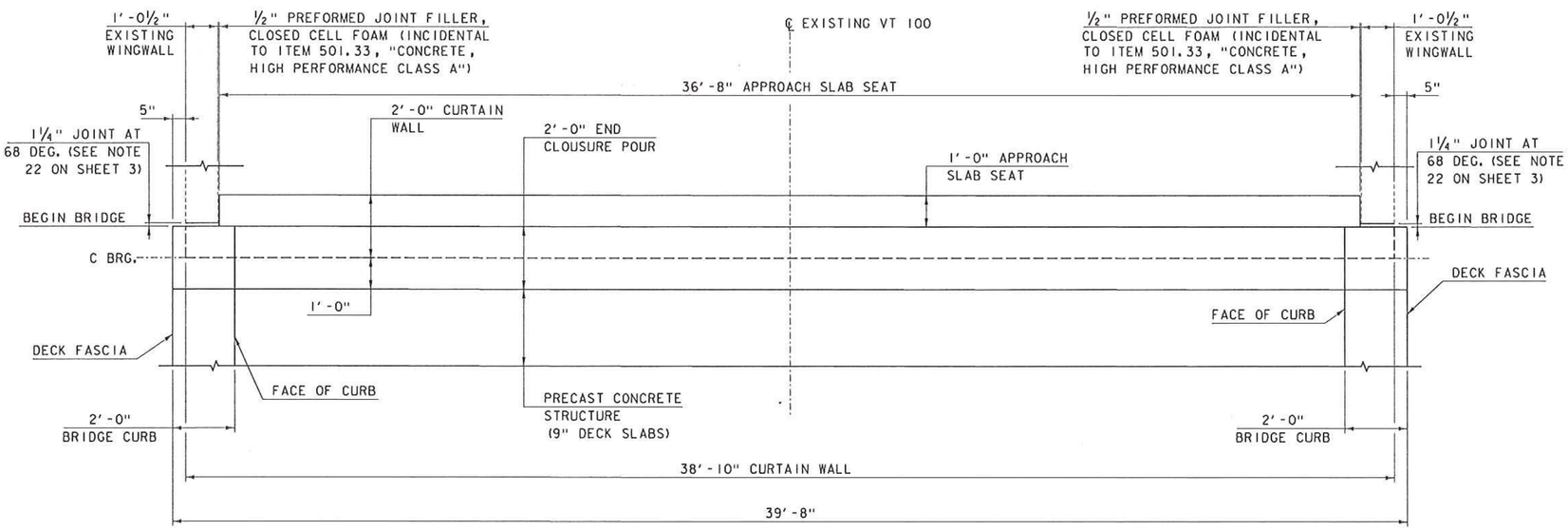
PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109typ-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: S. BEAMONT
REMOVAL AND CURTAIN WALL DETAILS SHEET 1

PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: A. GIRALDI
SHEET 25 OF 42

CLD 15-0223 MODEL: Sheet15

New Curtain Wall, Abut 1

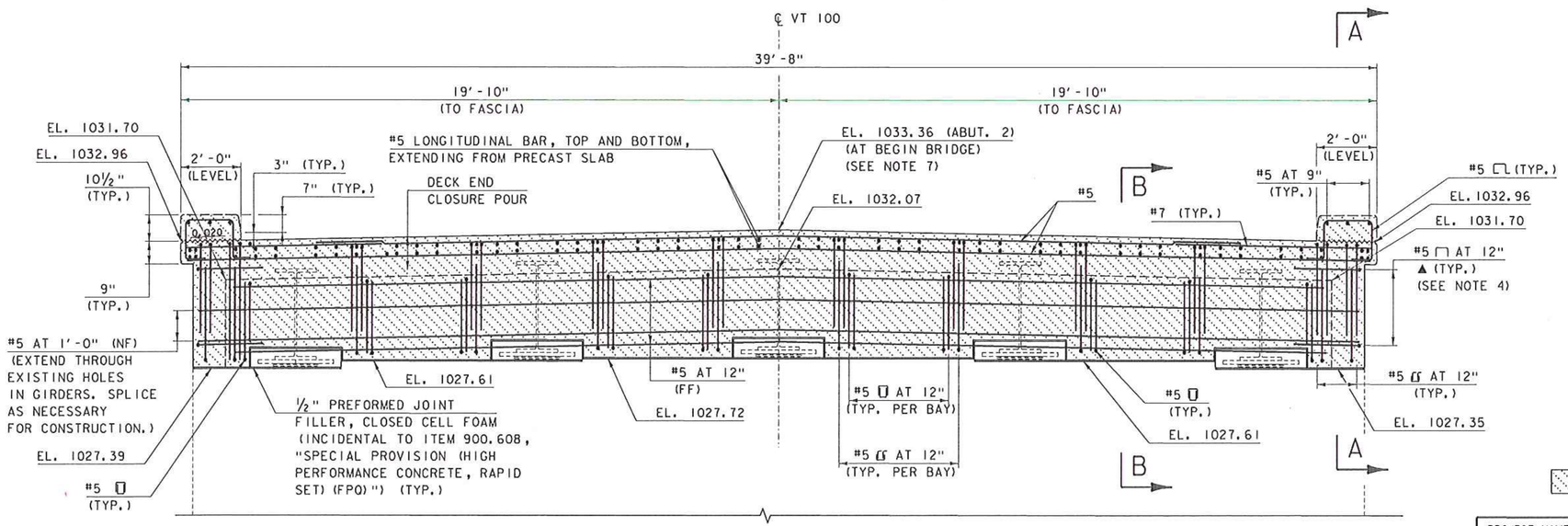


CURTAIN WALL MASONRY PLAN

SCALE: ½" = 1'-0"

NOTES:

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 2'-2" SPLICE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
3. 10" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.
4. FF= FAR FACE
   NF= NEAR FACE



END CLOSURE POUR AND CURTAIN WALL MASONRY AND REINFORCING ELEVATION

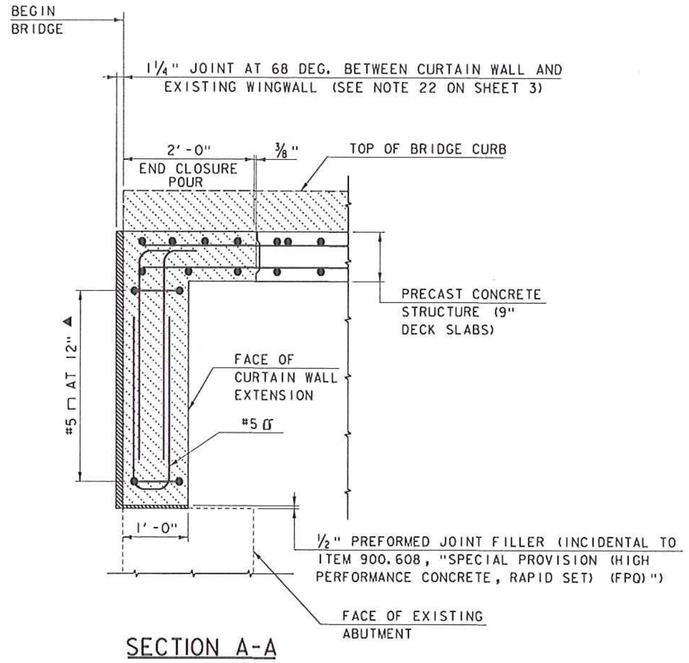
SCALE: ½" = 1'-0"

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPO)

CLD 15-0223 MODEL: Default

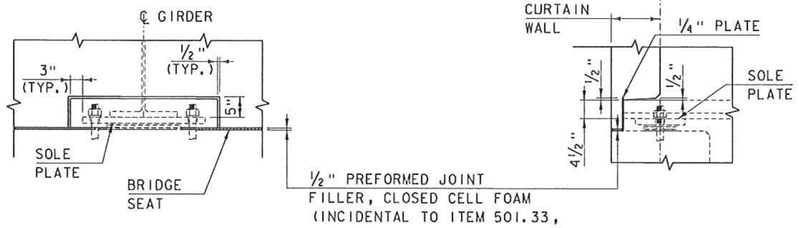
PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 5/17/2017
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAMONT	CHECKED BY: A. GIRALDI
CURTAIN WALL DETAILS SHEET 1	SHEET 259 OF 1

New Curtain Wall, Abut 1



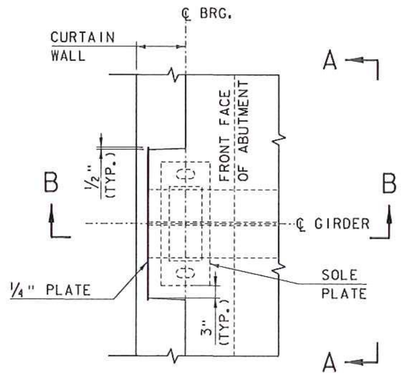
SECTION A-A

SCALE: 1" = 1'-0"



SECTION A-A

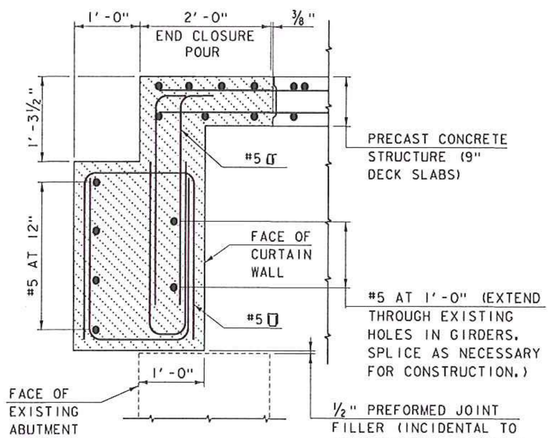
SECTION B-B



PLAN VIEW

CONCRETE CURTAIN WALL BLOCKOUTS AROUND BEARINGS

SCALE: ¾" = 1'-0"



SECTION B-B

SCALE: 1" = 1'-0"

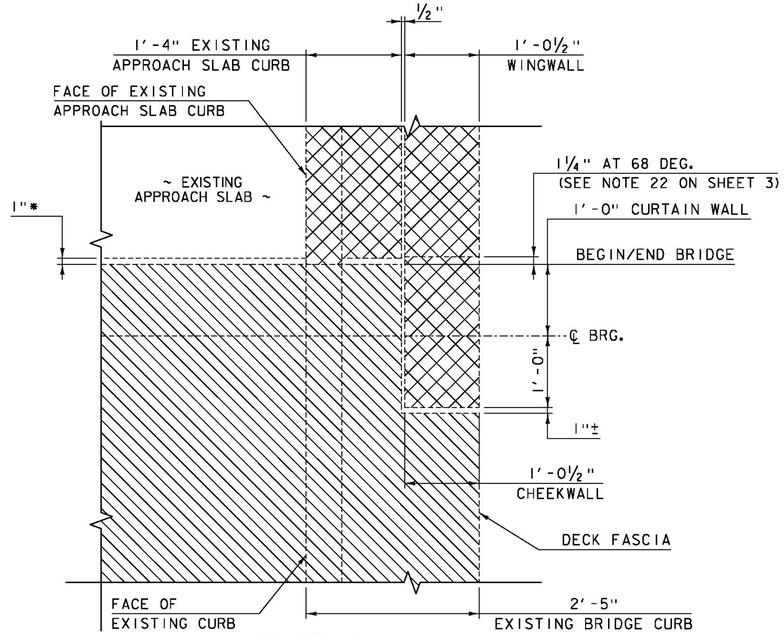
NOTES:

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 10" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.

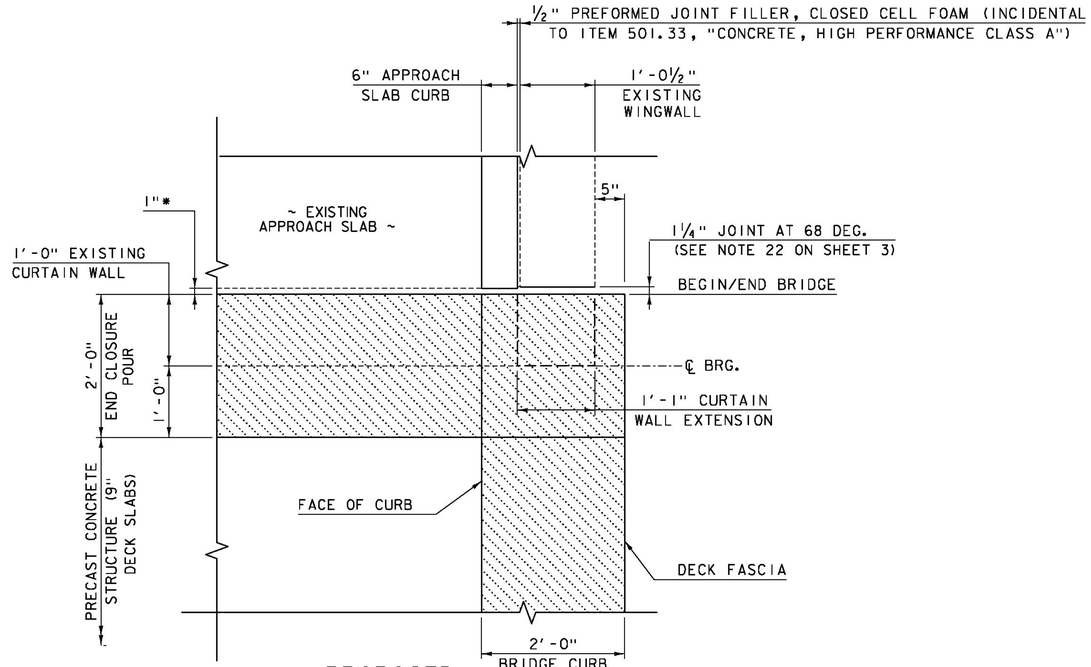
SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPO)

CLD 15-0223 MODEL: Default

PROJECT NAME: LUDLOW	
PROJECT NUMBER: STP DECK(39)	
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 5/17/2017
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
CURTAIN WALL DETAILS SHEET 2	SHEET 25B OF 1



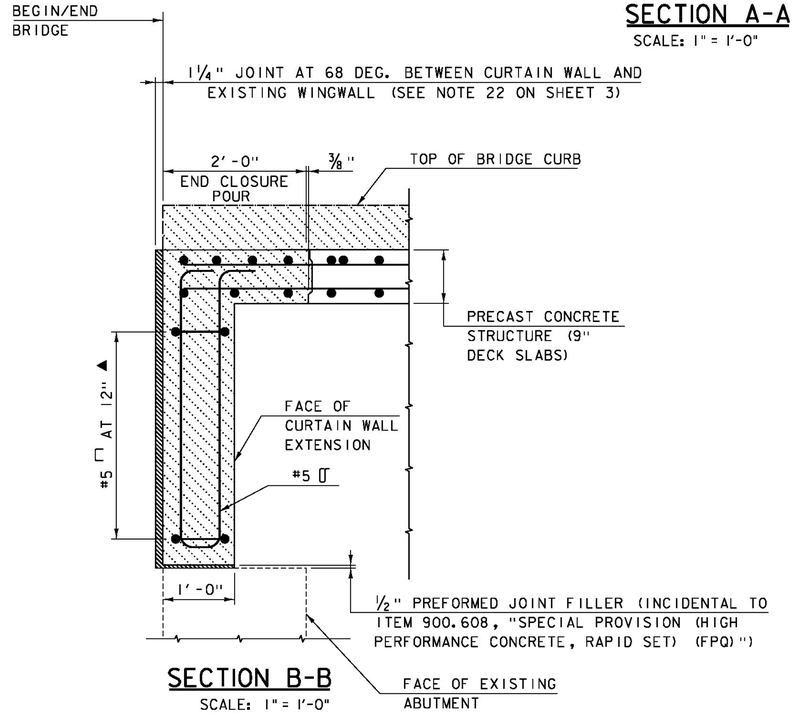
EXISTING



PROPOSED

SECTION A-A

SCALE: 1" = 1'-0"



SECTION B-B

SCALE: 1" = 1'-0"

* THE REFERENCE PLANS SHOW A JOINT THICKNESS OF 1". ACTUAL JOINT THICKNESS MAY VARY.

NOTES:

1. 3" CLEAR, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
2. 10" HOOK UNLESS OTHERWISE SPECIFIED ON THE PLANS.

PARTIAL REMOVAL OF STRUCTURE

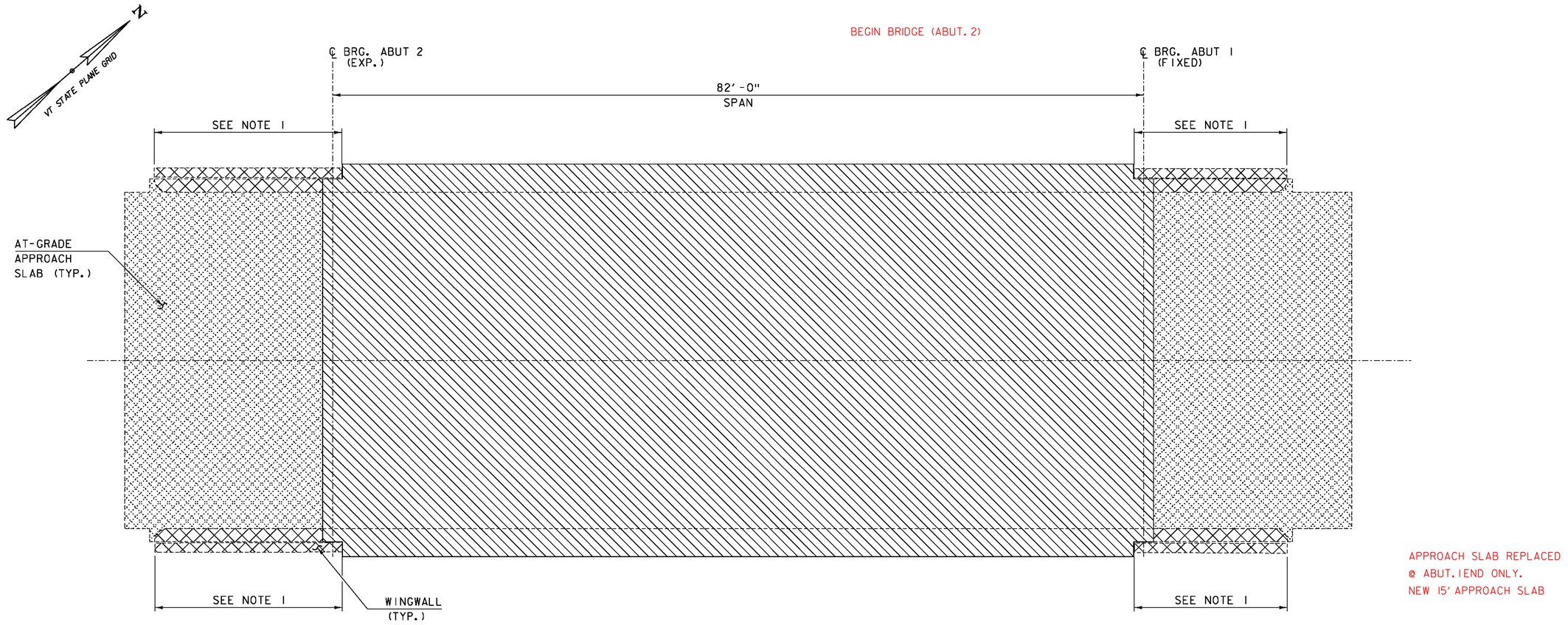
REMOVAL OF CONCRETE OR MASONRY (SEE PROJECT NOTES 18 AND 19 ON SHEET 3).

SPECIAL PROVISION (HIGH PERFORMANCE CONCRETE, RAPID SET) (FPQ)

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: A. GIRALDI
REMOVAL AND CURTAIN WALL DETAILS SHEET 2	SHEET 26 OF 42

CONSULTING ENGINEERS

CLD 15-0223 MODEL: Sheet16



APPROACH SLAB REPLACED
@ ABUT.1END ONLY.
NEW 15' APPROACH SLAB

BITUMINOUS CONCRETE/ CONCRETE REMOVAL PLAN

SCALE: 3/16" = 1'-0"

REMOVE BIT. CONC. PAVEMENT TO TOP OF AT-GRADE APPROACH SLABS (PAID FOR UNDER ITEM 529.10). SEE PROJECT NOTE 15 ON SHEET 3. REMOVE BARRIER MEMBRANE (PAID FOR UNDER ITEM 580.16), IF APPLICABLE. SEE PROJECT NOTE 17 ON SHEET 3.

REMOVE CONCRETE BRIDGE DECK (PAID FOR UNDER ITEM 529.20). SEE PROJECT NOTE 18 ON SHEET 3.

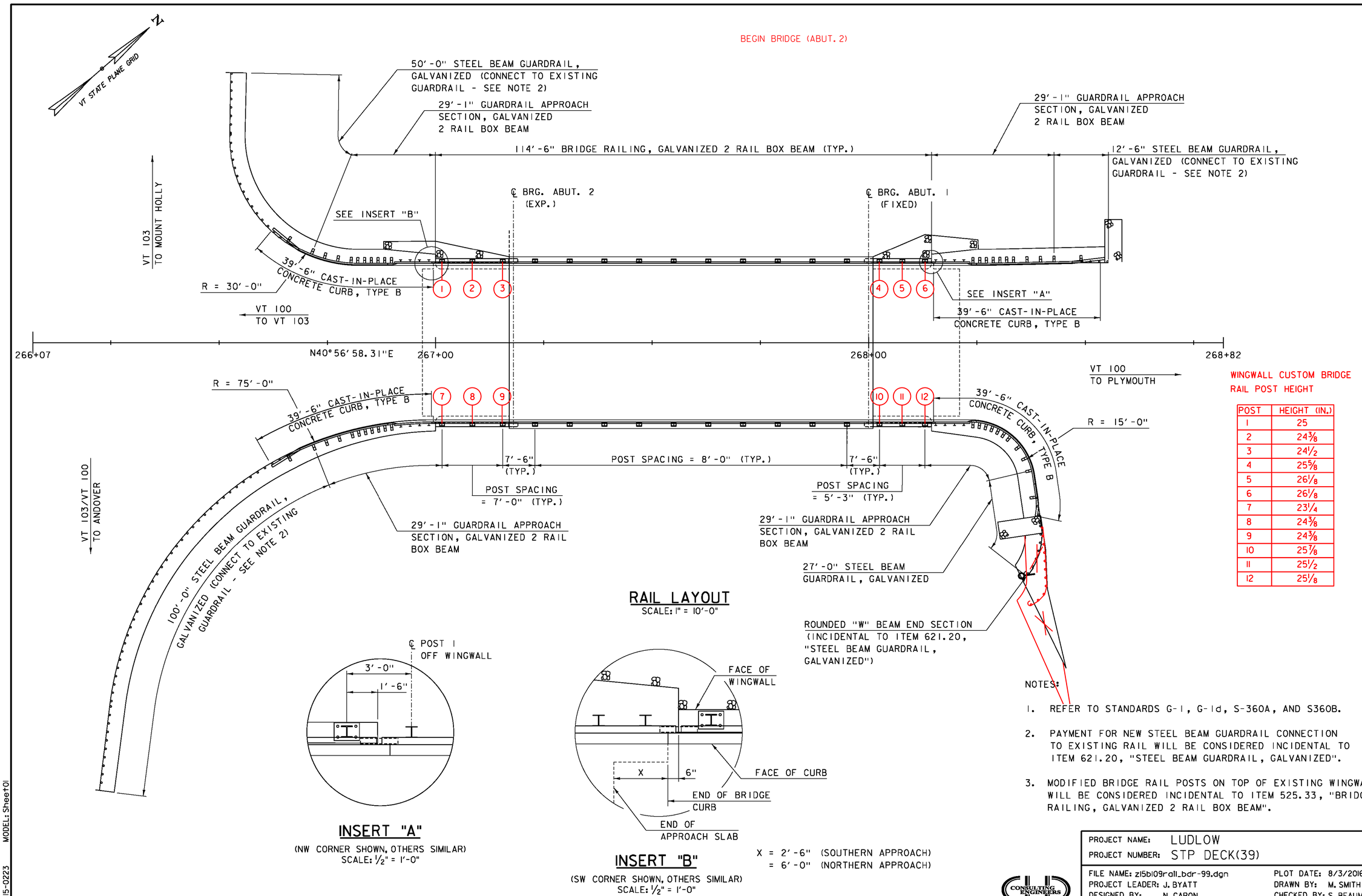
REMOVE CONCRETE APPROACH SLAB CURB AND TOPS OF WINGWALLS (PAID FOR UNDER ITEM 529.25). SEE PROJECT NOTES 18 AND 19 ON SHEET 3.

NOTES:

1. REMOVE BRIDGE RAIL (PAID FOR UNDER ITEM 529.20).
2. SEE DECK REMOVAL AND RELATED ITEMS NOTES AND PAVEMENT REMOVAL ON APPROACH SLABS NOTES ON SHEET 3.

CLD 15-0223 MODEL: Sheet17

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)
FILE NAME: z15b109typ-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: M. SMITH
DESIGNED BY: S. BEAUMONT	CHECKED BY: N. CARON
BITUMINOUS CONCRETE REMOVAL PLAN SHEET	SHEET 27 OF 42



RAIL LAYOUT
SCALE: 1" = 10'-0"

INSERT "A"
(NW CORNER SHOWN, OTHERS SIMILAR)
SCALE: ½" = 1'-0"

INSERT "B"
(SW CORNER SHOWN, OTHERS SIMILAR)
SCALE: ½" = 1'-0"

X = 2'-6" (SOUTHERN APPROACH)
= 6'-0" (NORTHERN APPROACH)

WINGWALL CUSTOM BRIDGE RAIL POST HEIGHT

POST	HEIGHT (IN.)
1	25
2	24 3/8
3	24 1/2
4	25 5/8
5	26 1/8
6	26 1/8
7	23 1/4
8	24 3/8
9	24 3/8
10	25 7/8
11	25 1/2
12	25 1/8

NOTES:

1. REFER TO STANDARDS G-1, G-1d, S-360A, AND S360B.
2. PAYMENT FOR NEW STEEL BEAM GUARDRAIL CONNECTION TO EXISTING RAIL WILL BE CONSIDERED INCIDENTAL TO ITEM 621.20, "STEEL BEAM GUARDRAIL, GALVANIZED".
3. MODIFIED BRIDGE RAIL POSTS ON TOP OF EXISTING WINGWALL WILL BE CONSIDERED INCIDENTAL TO ITEM 525.33, "BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM".

CONSULTING ENGINEERS

PROJECT NAME: LUDLOW
PROJECT NUMBER: STP DECK(39)

FILE NAME: z15b109rail_bdr-99.dgn
PROJECT LEADER: J. BYATT
DESIGNED BY: N. CARON
RAIL LAYOUT SHEET

PLOT DATE: 8/3/2016
DRAWN BY: M. SMITH
CHECKED BY: S. BEAUMONT
SHEET 28 OF 42

CLD 15-0223 MODEL: Sheet01

N/F
DEBICK, JOHN

N/F
MOLTA, DEAN D. & SYLVIA L.

EXISTING R.O.W.

N/F
KRUM, DAVID E.

EXISTING R.O.W.

268+00

267+00 VT 103 TO MOUNT HOLLY

BEGIN PROJECT
STA 266+38

BRANCH BROOK

END PROJECT
STA 268+61

EXISTING R.O.W.

N/F
AZZARETTO, AUSTIN
AND DANYEW, ROGER

VT STATE PLANE GRID

STOP

VT 103/VT 100 TO ANDOVER

266+07

266+00

PI
266+07.02

265+00

N40°56' 58.31"E

267+00

268+00

VT 100
TO PLYMOUTH

268+82

BARTON DRIVE

PI
268+81.87

EXISTING R.O.W.

END BRIDGE
STA 268+01

BEGIN BRIDGE
STA 267+17

N/F
BARTON, ROBERT J. & COLLEEN

NOTE: SHEET PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

0 20 40
(SCALE 1" = 20')

CONSULTING ENGINEERS

PROJECT NAME:	LUDLOW
PROJECT NUMBER:	STP DECK(39)

FILE NAME: z15b109row_bdr-99.dgn	PLOT DATE: 8/3/2016
PROJECT LEADER: J. BYATT	DRAWN BY: S. FORTIER
DESIGNED BY: S. FORTIER	CHECKED BY: L. GREER
R.O.W. LOCATION SHEET	SHEET 29 OF 42

CLD 15-0223 MODEL: Layout1

INDEX OF SHEETS

1	TITLE
2-2A	COMPOSITE QUANTITY
3	LUDLOW F 025-1(29)S TYPICAL
4	TRAFFIC ITEM AND SIGN SUMMARY
5	PAVEMENT MARKING DETAILS F 025-1(29)S
6-8	DECK REHABILITATION AND GENERAL NOTES
9	ONE WAY TEMPORARY TRAFFIC SIGNAL DETAIL,BRIDGE #33,(WITH TEMPORARY FLASHING BEACON)
10	ONE WAY TEMPORARY TRAFFIC SIGNAL DETAIL BRIDGE #99
11	TRAFFIC SIGN SUMMARY SHEET AND NOTES F-DECK (22)S
12	PAVEMENT MARKING DETAILS F-DECK (22)S
13-14	TYPICAL DETAILS F-DECK (22)S
15-18	BRIDGE #99 INFORMATION SHEETS (4 SHEETS)
19-21	BRIDGE #33 INFORMATION SHEETS (3 SHEETS)

STANDARD SHEETS

22	B-16	12-14-71
23	E-2	2-3-86R
24	E-6	2-3-86R
25	E-7	2-3-86R
26	E-7A	2-3-86R
27	E-8	2-3-86R
28	E-15	2-3-86R
29	E-15B	2-3-86R
30	E-15C	2-3-86R
31	E-19	2-3-86R
32	E-19B	2-3-86R
33	E-24A	2-3-86R
34	E-29	2-3-86R
35	E-33	2-3-86R
36	E-34	2-3-86R
37	E-36	2-3-86R
38	E-39	2-3-86R
39	E-50	2-3-86R
40	SCB-DI-75	9-14-81R

Date OCT 27 1987

FRANK W. Whitcomb CONSTRUCTION Corporation
Contractor

Signature

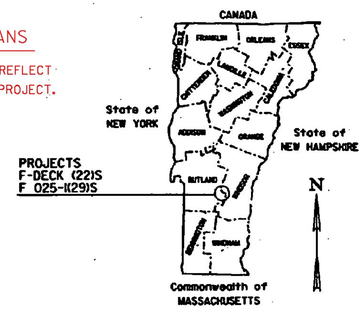
Title

Transportation Secretary's Signature

STATE OF VERMONT
AGENCY OF TRANSPORTATION

CONTRACT PLANS

THESE PLANS DO NOT REFLECT CHANGES MADE ON THE PROJECT.



PROJECTS
F-DECK (22)S
F 025-1(29)S

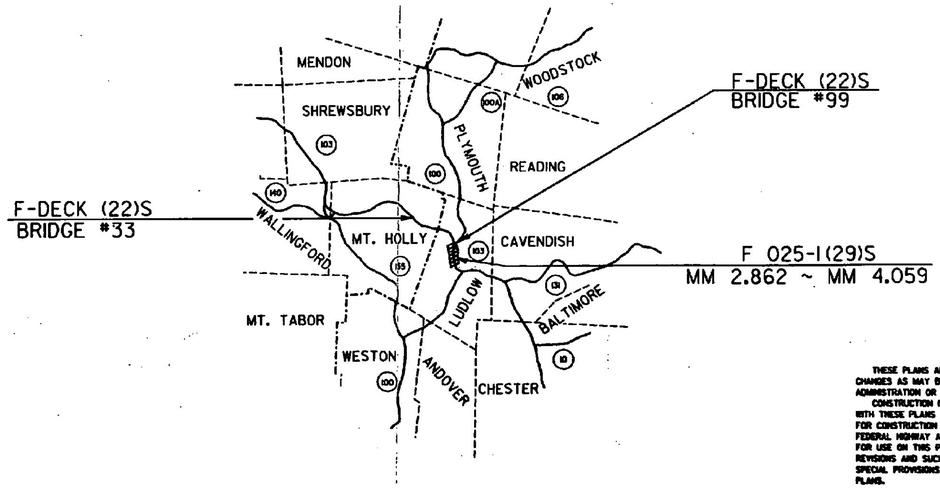
PROPOSED IMPROVEMENT
TOWNS OF LUDLOW & MT. HOLLY
COUNTYS OF WINDSOR & RUTLAND

BEGINNING IN THE TOWN OF LUDLOW ON VT 103 MM 2.862 ~ MM4.059 , RESURFACING AND NEW PAVEMENT MARKINGS ,(F025-1(29)S)
LUDLOW VT 100 BRIDGE #99 , INSTALL TRAFFIC CONTROL , REHABILITATE DECK , REMOVE TRAFFIC CONTROL
MT. HOLLY VT 103 BRIDGE #33 , INSTALL TRAFFIC CONTROL , REHABILITATE DECK , REMOVE TRAFFIC CONTROL.

LENGTH OF F 025-1(29)S : 1.197 MILES
6320 FEET

LENGTH OF STRUCTURE : BRIDGE #99 = 84.00'
BRIDGE #33 = 84.51'

TOTAL LENGTH OF STRUCTURES = 168.51'



CONVENTIONAL SIGNS

COUNTY LINE
TOWN LINE
LIMITS OF ACCESS
POINT OF ACCESS
FENCE LINE
STONE WALL
TRAVELED WAY
GUARD RAIL
RAILROAD
SURVEY LINE
CULVERT
POWER POLE
TELEPHONE POLE
TREES
CONTROL OF ACCESS
PROPERTY LINE
R.O.W. TAKING LINE
SLOPE RIGHTS
TOP OF CUT
TOE OF SLOPE

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1984, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON NOVEMBER 21, 1985 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND SPECIAL PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

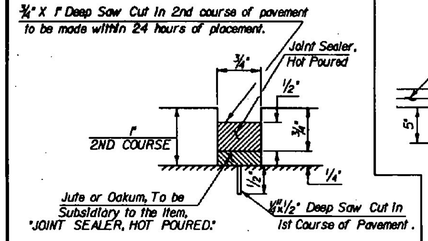
SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD
APPROVED David P. Kelley DATE 7/14/87
CHIEF ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____ DATE _____
DIVISION ADMINISTRATOR

LUDLOW & MT. HOLLY
PROJECT F no. DECK (22)S
F 025-1(29)S
SHEET 1 OF 40 SHEETS

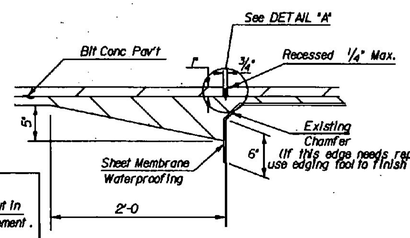
PROJECT PROCESSED UNDER
SECONDARY ROAD PLAN

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 30 OF 42
FOR REFERENCE ONLY



DETAIL "A"
Scale 1" = 1'

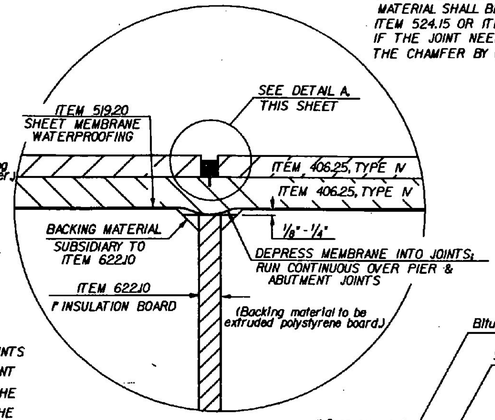
Note: Clean sawing dust and other foreign material from the sawed joint before applying the Hot Poured Joint Sealer. See VT. SPEC. 524.05 (1)



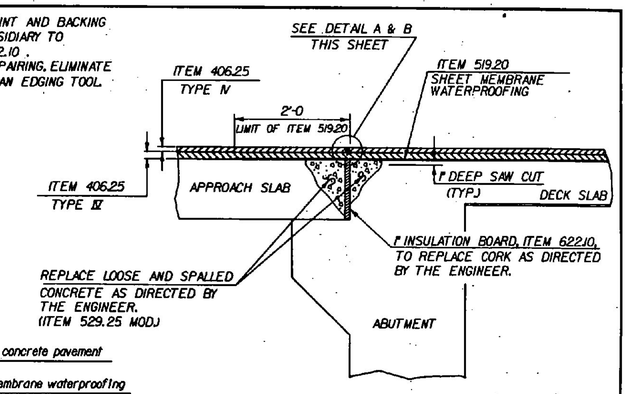
JOINT SEALER DETAIL WITHOUT SURFACE APPROACH SLAB
Scale 1½" = 1'-0"

MEMBRANE WILL BE DEPRESSED INTO DECK JOINTS AND RUN CONTINUOUS OVER PIER AND ABUTMENT JOINTS. ON BRIDGES WITH APPROACH SLABS, THE MEMBRANE WILL EXTEND TWO (2) FEET ONTO THE SLAB FROM THE END OF THE BRIDGE.

REMOVAL OF EXISTING JOINT AND BACKING MATERIAL SHALL BE SUBSIDIARY TO ITEM 524.15 OR ITEM 622.10. IF THE JOINT NEEDS REPAIRING, ELIMINATE THE CHAMFER BY USING AN EDGING TOOL.

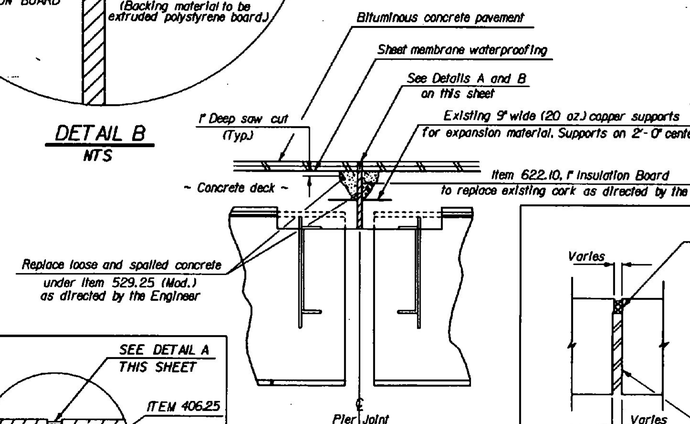


DETAIL B
NTS

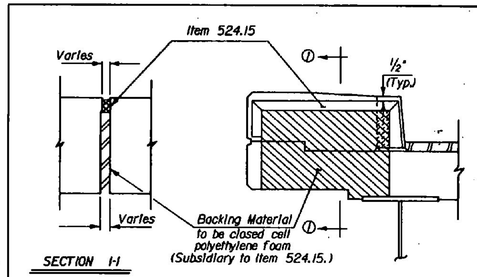


TYPICAL ABUTMENT JOINT DETAIL (WITH SURFACE APPROACH SLAB)
NTS

(2)



TYPICAL PIER JOINT DETAIL
NTS

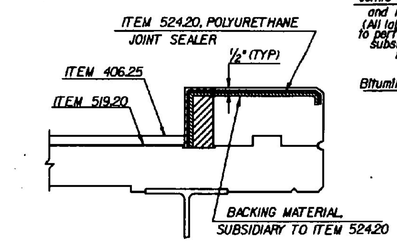


SECTION 1-1

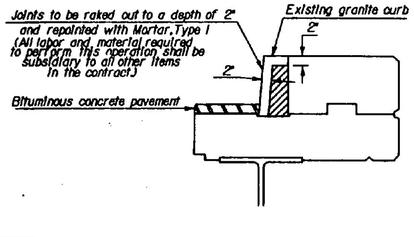
Any existing Joint Sealer, Preformed Neoprene, if removed, shall not be reused but shall be replaced with new material.

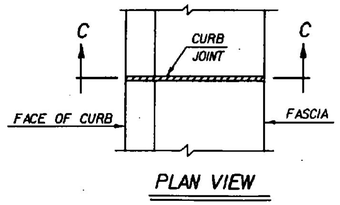
CURB JOINT DETAIL A
NTS

(5)

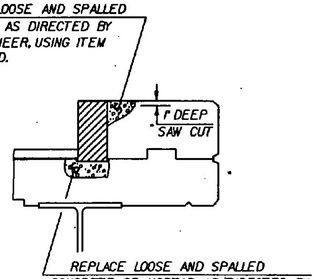


SECTION C - C



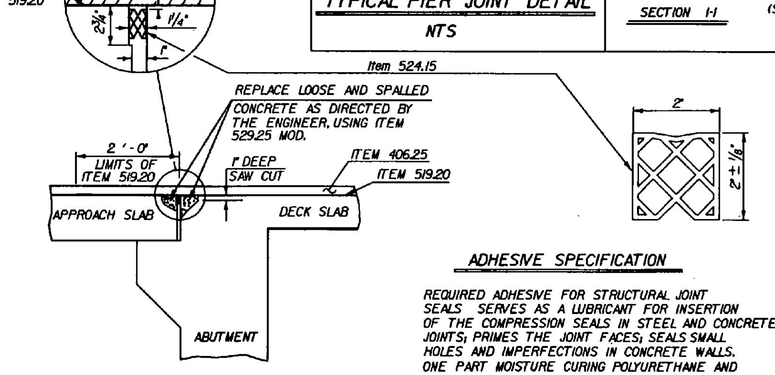


PLAN VIEW



CURB JOINT DETAIL
NTS

(3)



COMPRESSION SEAL DETAILS
NTS

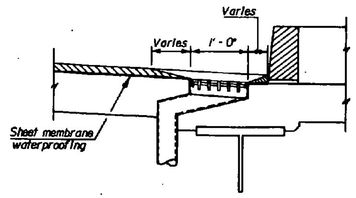
ADHESIVE SPECIFICATION

REQUIRED ADHESIVE FOR STRUCTURAL JOINT SEALS SERVES AS A LUBRICANT FOR INSERTION OF THE COMPRESSION SEALS IN STEEL AND CONCRETE JOINTS; PRIMES THE JOINT FACES; SEALS SMALL HOLES AND IMPERFECTIONS IN CONCRETE WALLS. ONE PART MOISTURE CURING POLYURETHANE AND AROMATIC HYDROCARBON SOLVENT MIXTURE. SOLID CONTENT 72% ± 3% BY WEIGHT. APPROXIMATE WEIGHT 8½± POUNDS PER GALLON. COLOR, CONCRETE GRAY. (4)

STATE OF VERMONT
AGENCY OF TRANSPORTATION

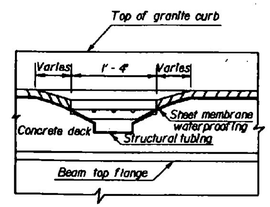
Town Of LUDLOW - MT. HOLLY	Bridge No.
Highway No. VT. 100B & VT. 103	Log Sta. / Surv. Sta.
DECK REHABILITATION	
TYPICAL DETAILS	
Designed By G.S. ROGERS	Drawn By G. Schelley/D. Newton
Checked By G.S. ROGERS Date 6/87	Bridge Design Supervisor R.L. OATLEY Date
PROJECT LUDLOW - MT. HOLLY	PROJECT NO. F-DECK(22)S
L&C Info.	OSAI(30,33)DECKREHAB
Bridge Sheet No.	Sheet 13 of 42

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 31 OF 42
FOR REFERENCE ONLY



SECTION B-B

N.T.S.



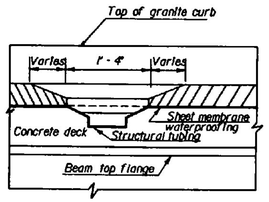
SECTION A-A

N.T.S.

Note: Mark location of scupper; install membrane; make a "X" incision on diagonals of scupper; trim, seal, and wrap into scupper.

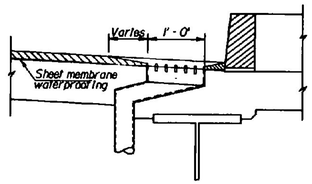
MEMBRANE DETAIL FOR SCUPPERS FLUSH WITH DECK

(1)



SECTION A-A

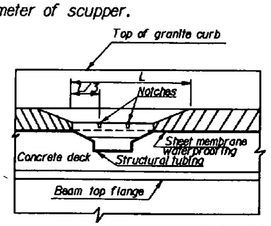
N.T.S.



SECTION B-B

N.T.S.

Fit membrane to outside perimeter of scupper.



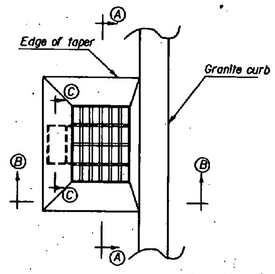
SECTION C-C

N.T.S.

Note: Notch scupper ½" wide to top of concrete on three sides. This work to be subsidiary to the Item519.20

MEMBRANE DETAIL FOR RAISED SCUPPERS

(2)



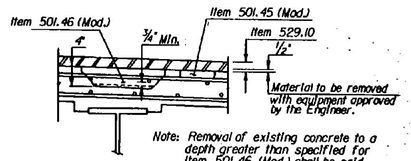
PLAN VIEW
(TYP. FOR DETAILS NO. 1 & 2)

N.T.S.

(3)

Note: All edges of repair areas are to be saw cut square and a minimum of one (1) inch deep.

Note: Item 501.45 (Mod.) shall include removal of concrete to a maximum depth as determined by the top of the top bars of reinforcing steel.



Note: Removal of existing concrete to a depth greater than specified for Item 501.46 (Mod.) shall be paid under the Item 529.25 (Mod.).

TYPICAL LIMITS FOR REMOVAL ITEMS

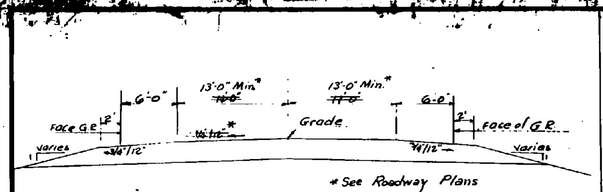
N T S

(4)

STATE OF VERMONT
AGENCY OF TRANSPORTATION

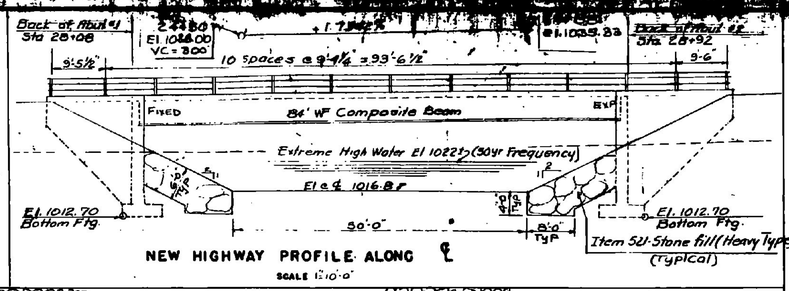
Town Of LUDLOW - MT. HOLLY	Bridge No.
Highway No. VT 100 & VT 103	Log Sta. / Surv. Sta.
DECK REHABILITATION	
TYPICAL DETAILS	
Designed By G.S. ROGERS	Drawn By D.W. NEWTON
Checked By G.S. ROGERS Date 6/87	Bridge Design Supervisor R.L. OATLEY Date 6/87
PROJECT LUDLOW - MT. HOLLY	PROJECT NO. F-DECK (22) S
U.C. Info. ZFA(L30,32)SCUPREHABDGN	PRF: LUDWTHLY
Bridge Sheet No.	Sheet 14 of 40

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 32 OF 42
FOR REFERENCE ONLY



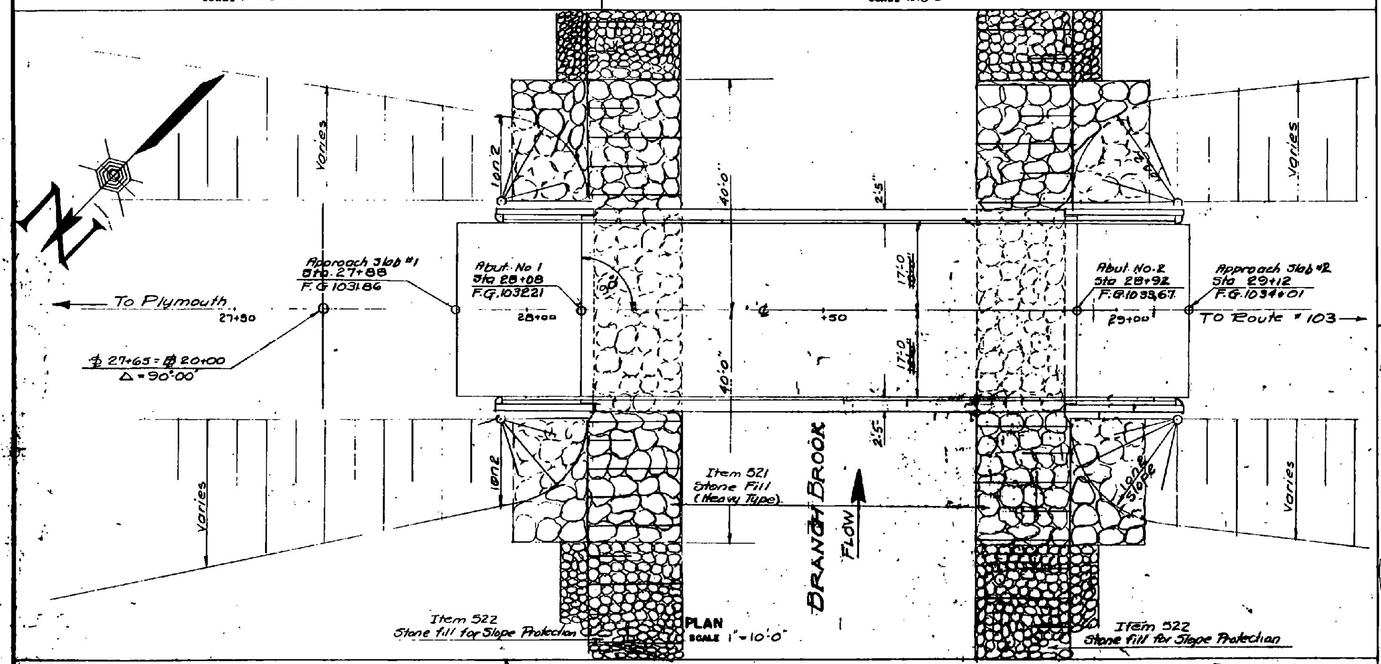
NEW HIGHWAY SECT. STA. 27+50± TO STA. 29+25±

SCALE 1" = 6'-0"



NEW HIGHWAY PROFILE ALONG ℄

SCALE 1"=10'-0"



HIGHWAY NO VT. 100 NAME OF HIGHWAY —

STRUCTURE NO — COUNTY WINDSOR TOWN LUDLOW

PROJECT NO F025-1(6) LOCATION BRANCH BROOK

EXISTING STRUCTURE

1 RATED LOADING OF EXISTING STRUCTURE H-15 Live Loading
2 TYPE OF EXISTING STRUCTURE Concrete I Beams
3 UNDERCLEARANCE ELEVATION OF EXISTING STRUCTURE 4.4'±
4 WHAT DISPOSITION SHOULD BE MADE OF EXISTING STRUCTURE Remove COST OF REMOVAL $ 5,500.
5 SHOULD EXISTING STRUCTURE BE USED TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF NEW STRUCTURE NO
6 SHOULD NEW TEMPORARY STRUCTURE BE BUILT NO
7 ORDINARY HIGH WATER SURFACE ELEV. AT EXISTING STRUCTURE 1021'(1½') WATERWAY TO ORDINARY H.W. 1288 S.F.
8 EXTREME HIGH WATER AT EXISTING STRUCTURE —
9 SPAN OF EXISTING BRIDGE UPSTREAM 39' WATERWAY TO EXTREME H.W. 500± Sq.Ft.
SPAN OF EXISTING BRIDGE DOWNSTREAM None WATERWAY TO EXTREME H.W. —
10 TYPE OF FOUNDATION UNDER EXISTING ABUTMENTS —
11 DOES ALL WATER AT FLOOD ELEVATION PASS THROUGH EXISTING STRUCTURE —
12 IF NOT AT WHAT ELEVATION IS RELIEF AFFORDED —
13 ADDITIONAL WATERWAY AREA PROVIDED —

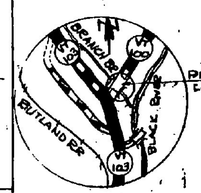
NEW STRUCTURE

1 RECOMMENDED TYPE OF STRUCTURE One 84' Span Composite WF Beam
2 RECOMMENDED CLEAR SPAN OR SPANS One Span, 80'
MEASURED PARALLEL TO ℄ NEW HIGHWAY 80'
MEASURED AT RIGHT ANGLES TO ℄ STREAM 80'
3 ARE THERE OBJECTIONS TO A PIER IN THE STREAM, ANSWER YES OR NO N.A
4 ORDINARY HIGH WATER ELEVATION AT NEW STRUCTURE 1020 ± (3'±)
5 EXTREME HIGH WATER ELEVATION AT NEW STRUCTURE 1022± SOURCE OF INFORMATION Computed
6 IS ALL WATER INTENDED TO PASS THROUGH NEW STRUCTURE? YES
7 DOES STREAM REACH ITS MAXIMUM HIGH WATER ELEVATION RAPIDLY? NO IS ORDINARY RISE NOTICEABLE?
8 LOW WATER ELEVATION AT NEW STRUCTURE 1018± (1'±)
9 DRAINAGE AREA IN ACRES ABOVE STRUCTURE 9432 CHARACTER OF TERRAINE Mountainous
10 IS STREAM EVER DRY? NO
11 VELOCITY OF STREAM AT HIGH WATER STAGE 8.15 ESTIMATED DISCHARGE 26000 C.F.S.
12 AREA FULL OPENING 300 S.F. AREA BELOW ORDINARY H.W. (75 S.F.
13 CHARACTER OF SCOUR — DRIFT —
14 ESTIMATED DRAINAGE AREA, ABOVE NATURAL OR ARTIFICIAL STORAGE N/A
15 VERTICAL CLEARANCE ABOVE FLOOD ELEVATION 7.0'±
16 ARE SIDEWALKS REQUIRED, IF SO ON WHAT SIDE NO
17 RECOMMENDED TYPE OF PAVEMENT 1½" Bit. Conc. Pvt. on Conc. Slab
18 TRAFFIC TO BE MAINTAINED UNDER ITEM NO. N.A ONE OR TWO WAYS — PROBABLE COST —
19 PROBABLE COST OF CLEARING AND GRUBBING STREAM CHANNEL AT STRUCTURE SITE? N.A.
20 SHOULD PROVISIONS BE MADE FOR PUBLIC UTILITIES? NO.
21 ESTIMATED ALLOWABLE LOAD ON FOUNDATIONS Piles by Pt. SHOULD PILES BE USED? NO

FOUNDATION INFORMATION

OBTAINED FOR DESIGN PURPOSES ONLY, AND THE STATE ASSUMES NO RESPONSIBILITY WHATEVER FOR THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN. BOULDERS, ROCK OR LEDGE ENCOUNTERED AT ANY PIER OR ABUTMENT LOCATION.

Note- For Detail of Superstructure See BR 4A of 42



F-DECK(22)S, BR.# 99
THIS SHEET FOR INFORMATION ONLY

Recommended for Approval — Bridge Engineer — Date 7/27/64
Recommended for Approval — Asst. Chief Engineer — Date 7/27/64
Approved by — Chief Engineer — Date 6/1/64

Sheet Revised 8-4-64
BR 3 OF 42

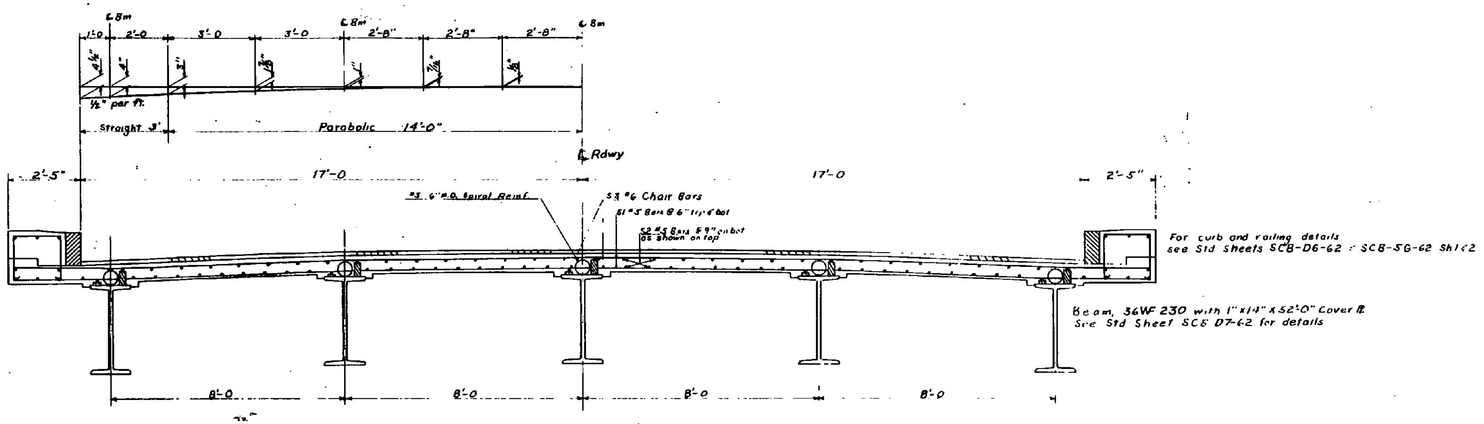
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

IN THE TOWN OF LUDLOW
VT. 100 - LUDLOW
ROUTE NO. VT 100 100 STA. 27+50 TO STA. 29+25±

SURVEYED BY — DRAWN BY — CHECKED BY —
PROJECT NO. F025-1(6)

SHEET 15 OF 42

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 33 OF 42
FOR REFERENCE ONLY



TYPICAL SECTION

For additional details see Std Sht SCB-30-62.

Spiral Pitch

℄ brg - 10'	double	@ 5 ¼"
10' - 20'	double	@ 6"
20' - 30'		@ 4"
30' - ℄ Span		@ 5"

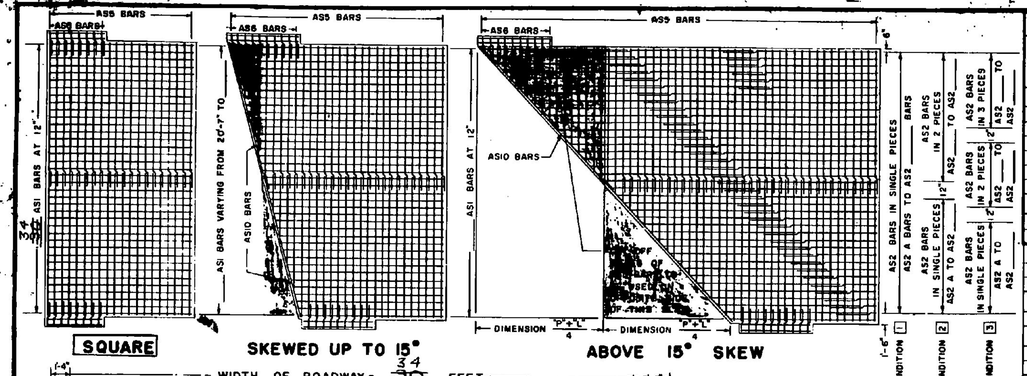
F-DECK(22)S, BR. #99
THIS SHEET FOR INFORMATION ONLY
Rev. Br 4A of 16

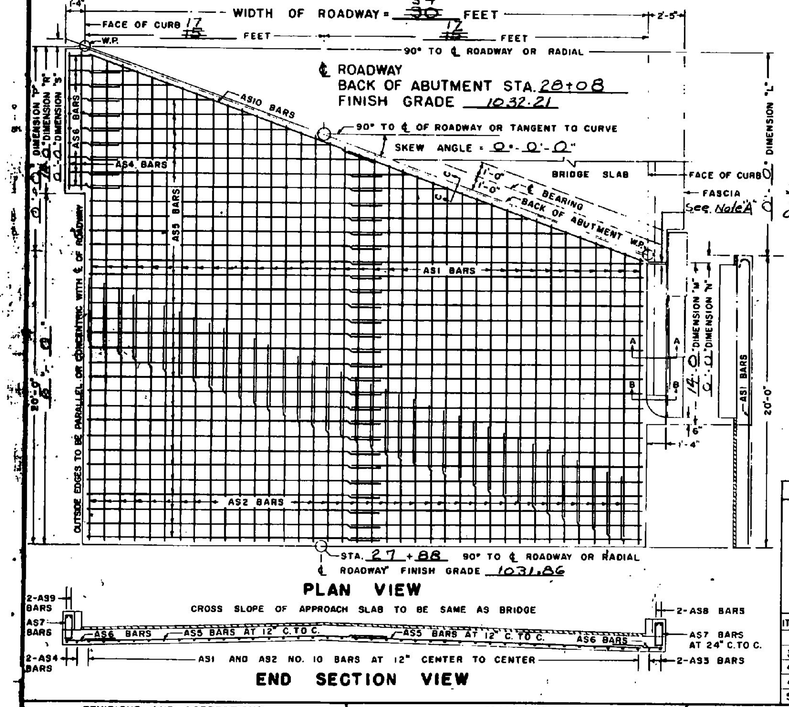
ITEM NO.	ITEM	UNIT	NET		TOTAL	FINAL
	CHAN. EXCAV. OF EARTH	C.Y.				
	CHAN. EXCAV. OF ROCK	C.Y.				
	UNCLASS. CHAN. EXCAV.	C.Y.				
	STRUCT. EXCAV.	C.Y.				
	CONC. CLASS AA (MOD.)	C.Y.				
	CONC. CLASS B (MOD.)	C.Y.				
	REINF. STEEL	LBS.				
	ASPHALTIC-ASB. COATING	S.Y.				
	TREATED TIMBER PILING	L.F.				
	SPLICES FOR STEEL PILING	EA.				
	STEEL PILING	L.F.				
	UNTREATED TIMBER PILING	L.F.				

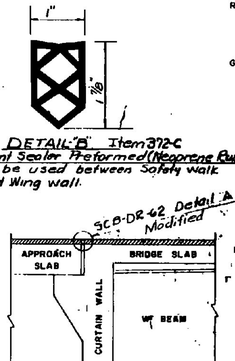
SHEET 16 OF 40

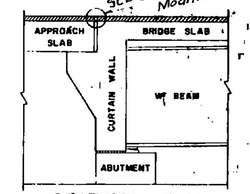
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS

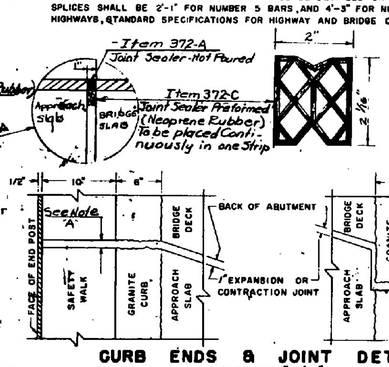
TOWN OF MT. HOLLY-LUDLOW
ROUTE NO. I 89 LOG STA. 1+30
TYPICAL BRIDGE SECTION
REVISED SHEET
SCALE ¼ in. = 1ft.
SURVEYED BY
DRAWN BY AGC CHECKED BY WRT
PROJECT NO. F 025-1(6)
SHEET 04A OF 196

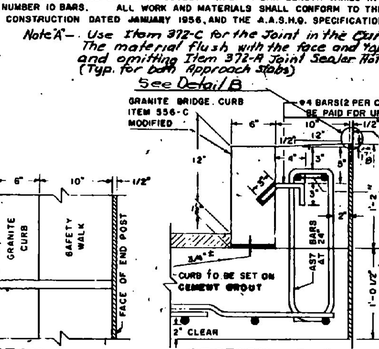












30'34' ROADWAY

NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED					
2	10	13'-6"	AS3	STR.	
2	10	12'-6"	AS4	STR.	
30	5	3'-6"	AS6	STR.	
16	5	5'-0"	AS7	S6	
2	5	11'-10	AS8	STR.	
2	5	11'-10	AS9	STR.	
SQUARE					
~~34~~ 30	10	~~29'-7"~~ 29'-7"	ASI		
20	5	~~22'-9"~~ 19'-9"	AS5	STR.	
SKEWED UP TO 15°					
30	10	AVE.	ASI		
	5	29'-6"	AS5	STR.	2.
ALL SKEWED SPANS					
2	5		ASIO	STR.	
ABOVE 15° SKEW					
30	10	20'-7"	ASI		
29	10	AVE.	AS2	STR.	4.
	3	29'-6"	AS5	STR.	2.

38' ROADWAY

NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED					
2	10		AS3	STR.	
2	10		AS4	STR.	
	5	3'-6"	AS6	STR.	
	5	5'-0"	AS7	S6	
2	5		AS8	STR.	
2	5		AS9	STR.	
SQUARE					
38	10	20'-7"	ASI		1
40	5	19'-9"	AS5	STR.	
SKEWED UP TO 15°					
38	10	AVE.	ASI		1.
	5	19'-9"	AS5	STR.	3.
ALL SKEWED SPANS					
	5		ASIO	STR.	
ABOVE 15° SKEW					
38	10	20'-7"	ASI		1
37	10	AVE.	AS2	STR.	4.
	5	19'-9"	AS5	STR.	3.

42' ROADWAY

NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED					
2	10		AS3	STR.	
2	10		AS4	STR.	
	5	3'-6"	AS6	STR.	
	5	8'-0"	AS7	S6	
2	5		AS8	STR.	
2	5		AS9	STR.	
SQUARE					
42	10	20'-7"	ASI		1
40	5	21'-9"	AS5	STR.	
SKEWED UP TO 15°					
42	10	AVE.	ASI		1.
	5	21'-9"	AS5	STR.	3.
ALL SKEWED SPANS					
	5		ASIO	STR.	
ABOVE 15° SKEW					
42	10	20'-7"	ASI		1
41	10	AVE.	AS2	STR.	4.
	5	21'-9"	AS5	STR.	3.

44' ROADWAY

NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED					
2	10		AS3	STR.	
2	10		AS4	STR.	
	5	3'-6"	AS6	STR.	
	5	5'-0"	AS7	S6	
2	5		AS8	STR.	
2	5		AS9	STR.	
SQUARE					
44	10	20'-7"	ASI		1
40	5	22'-9"	AS5	STR.	
SKEWED UP TO 15°					
44	10	AVE.	ASI		1.
	5	22'-9"	AS5	STR.	3.
ALL SKEWED SPANS					
	5		ASIO	STR.	
ABOVE 15° SKEW					
44	10	20'-7"	ASI		1
43	10	AVE.	AS2	STR.	4.
	5	22'-9"	AS5	STR.	3.

ROADWAY

NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED					
2	10		AS3	STR.	
2	10		AS4	STR.	
	5	3'-6"	AS6	STR.	
	5	5'-0"	AS7	S6	
2	5		AS8	STR.	
2	5		AS9	STR.	
SQUARE					
	10	20'-7"	ASI		1
	5		AS5	STR.	
SKEWED UP TO 15°					
	10	AVE.	ASI		1
	5		AS5	STR.	2.
ALL SKEWED SPANS					
	5		ASIO	STR.	
ABOVE 15° SKEW					
	10	20'-7"	ASI		1
	10	AVE.	AS2	STR.	
	5		AS5	STR.	

REMARKS: ● ASI BAR "B" DIMENSION VARIES FROM 19'-6" TO ____ ● 20 + DIMENSION ("P"+"L") ÷ 4 (IN FEET) + NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. ● 40 + DIMENSION ("P"+"L") ÷ 2 (IN FEET) + NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. ● THE LENGTH OF AS2 BARS VARIES FROM ____ TO ____. THE AS2 BARS MAY BE DIVIDED INTO TWO OR MORE PIECES, AS MAY BE NECESSARY, TO LIMIT THE MAXIMUM [illegible] TO 30 FEET. THE LOCATION OF SPLICES IS LEFT TO THE OPTION OF THE DESIGNER. THE NO. PIECES SHOWN ARE FOR CONDITION 1. (FOR CONDITION 2. & 3. SEE REINF. [illegible]

GENERAL NOTES: ALL REINFORCING STEEL SHALL BE DETAILED ON THE REINFORCING STEEL SCHEDULE. WHEN A BAR LENGTH VARIES IN INCREMENTS EACH BAR MUST BE DETAILED. SPLICES SHALL BE 2'-1" FOR NUMBER 5 BARS, AND 4'-3" FOR NUMBER 10 BARS. ALL WORK AND MATERIALS SHALL CONFORM TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JANUARY 1956, AND THE A.A.S.H.O. SPECIFICATIONS DATED 1952. DESIGNED FOR H[illegible]

DETAILS OF REINFORCING BARS

TYPE 1
A = 1'-1" J = 0'-9"
B = 19'-6" OR VARIES

TYPE S6
A = 0'-6"
B = 1'-9"
C = 0'-6"
D = 1'-9"
G = 0'-6"

ITEM NO.	ITEM	UNIT	TOTAL	FINAL
318	TAR EMULSION FOR BRIDGE FLOORS	GAL.	~~27~~ 34	24
361-B	BITUMINOUS CONCRETE PAVEMENT (MOD.)	TONS	6	
401-B	CONCRETE CLASS B (MOD.)	CY.	~~30~~ 20	28
402	REINFORCING STEEL	LB.	~~4335~~ 4255	
556-C	GRANITE BRIDGE CURB (MOD.)	LF.	29	28

REINFORCING STEEL

BAR NO.	NO. PCS.	A LENGTH	B LENGTH	C	WEIGHT PER FT.	A x B x C WEIGHT IN LBS.
ASI	~~30~~ 20		20'-7		4.303	~~2584.98~~ 1769.42
AS2					4.303	
AS3	2		13'-6"		4.303	116.18
AS4	~~3~~ 2		13'-6"		4.303	~~174.27~~ 116.18
AS5	20		~~22'-9"~~ 19'-9"		1.043	~~474.95~~ 412.31
AS6	30		3'-6"		1.043	109.52
AS7	16		5'-0"		1.043	83.44
AS8	~~3~~ 2		11'-10		1.043	~~37.02~~ 24.68
AS9	2		11'-10		1.043	24.68
ASIO					1.043	
TOTAL WEIGHT =						~~3884.86~~ 2534.80

QUANTITY COMPUTATION

W = WIDTH OF ROADWAY W = 30 34
Z = 20 + DIMENSION "P"+"L"/4 Z = 20
T = DIMENSION T = 14.6

BITUMINOUS CONCRETE = W x Z x 0.0278 = TONS ~~34~~ 30 x 20 x 0.0278 = ~~19~~ 16.68 TONS
TAR EMULSION = W x Z x 0.0494 = GALLONS ~~34~~ 30 x 20 x 0.0494 = ~~33~~ 29.64 GAL.
CONCRETE CLASS B = W x Z x 0.0386 + T x 0.1029 + (T - 1.8333) x 0.0733 = CU.YDS.
[~~34~~ 30 x 20 x 0.0386] + [14.0 x 0.1029] + [(14.0 - 1.8333) x 0.0733] = ~~30~~ 27.20 CU.YDS.
GRANITE BRIDGE CURB = 2(LT + 0'-3") = LINEAR FEET 2(14.0 + 0.25) = 28.5 LF.

BAR LENGTHS: AS3 BARS = DIMENSION "M" - 0'-6" * One bar Added for
AS4 BARS = DIMENSION "M" - 0'-6"
AS6 BARS = 3'-6"
AS7 BARS = 5'-0"
AS8 BARS = DIMENSION "M" - 2'-2"
AS9 BARS = DIMENSION "M" - 2'-2"

F-DECK (22)S, BR. #99
THIS SHEET FOR INFORMATION ONLY
Sheet Revised

REVISIONS AND CORRECTIONS
Revised Joint Filler Item 372 - 6-21-63 W

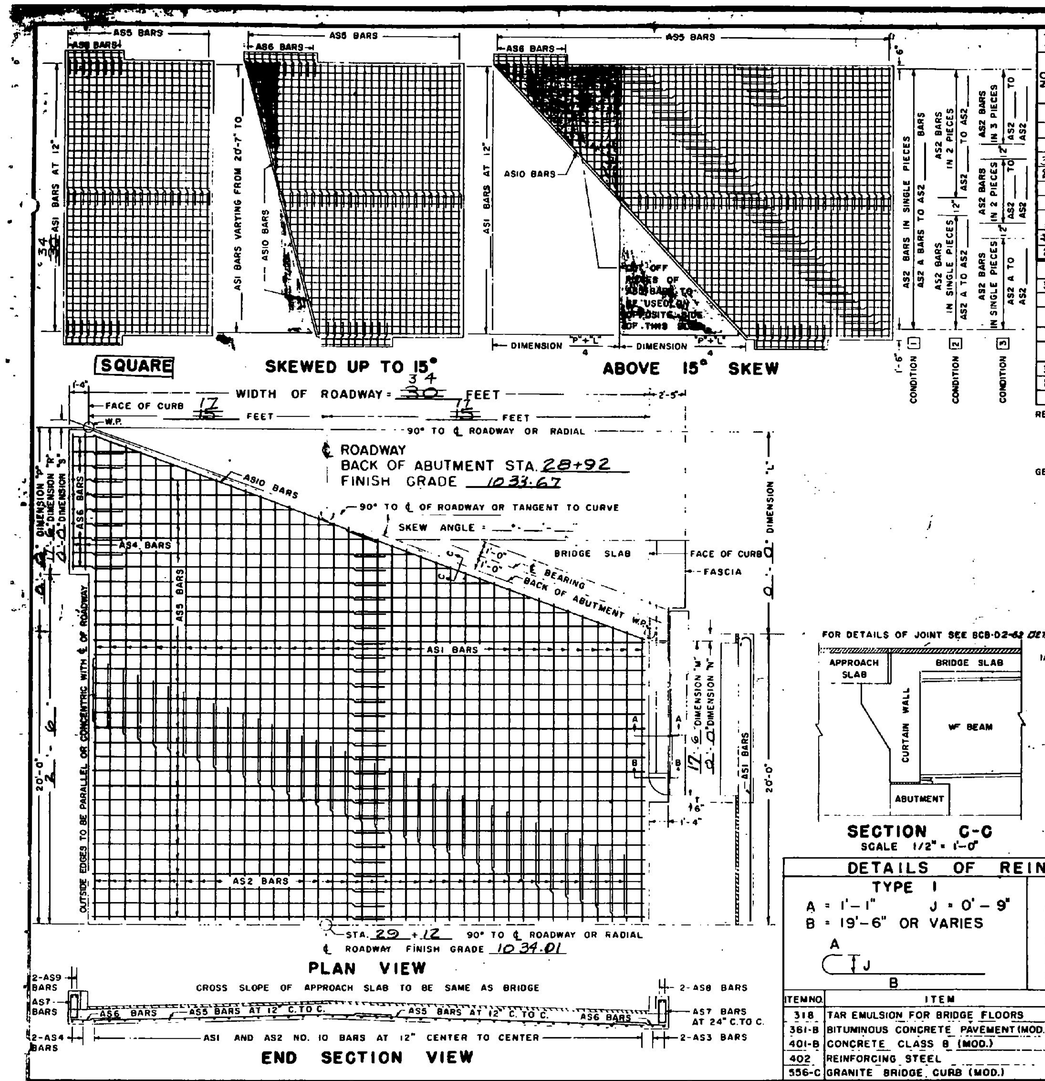
APPROVED
DRAWN BY: R.S. HAUPT NOV. 1960
TRACED BY: R.S. HAUPT NOV. 1960
CHECKED BY: A.H. SMALLEY NOV. 1960
Recommended For Approval: Bridge Engineer Date 12/7/62
Recommended For Approval: Asst. Chief Engineer Date 12/19/62
Approved By: Chief Engineer Date 12/19/62

DETAILS OF APPROACH SLAB #1
FOR ~~34~~ 30 FOOT (WIDTH) BRIDGE
TO BE USED FOR BRIDGE AT STATION 28+50
LOCATION BRANCH BROOK

STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURE
SB-[illegible]
SHEET 17 OF 40

TOWN OF MT HOLLY
ROUTE NO. VT No. [illegible]
LOG STA. [illegible]
SCALE [illegible]

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 35 OF 42
FOR REFERENCE ONLY



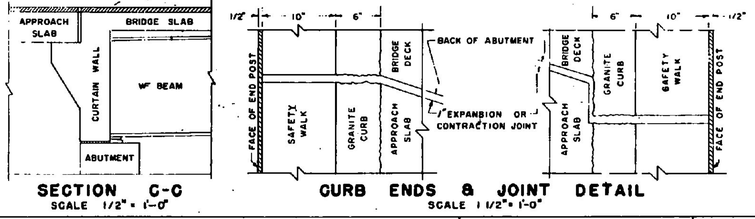
30'-34' ROADWAY						38' ROADWAY						42' ROADWAY						44' ROADWAY						ROADWAY					
NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS	NO. PIECES	SIZE	LENGTH	MARK	TYPE	REMARKS
SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED						SQUARE OR SKEWED					
2	10	17'-0"	AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.		2	10		AS3	STR.	
2	10	17'-0"	AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.		2	10		AS4	STR.	
36	5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.			5	3'-6"	AS6	STR.	
20	5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6			5	5'-0"	AS7	S6	
2	5	15'-4	AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.		2	5		AS8	STR.	
2	5	15'-4	AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.		2	5		AS9	STR.	
SQUARE						SQUARE						SQUARE						SQUARE						SQUARE					
~~30~~ 34	10	20'-7"	AS1	1		38	10	20'-7"	AS1	1		42	10	20'-7"	AS1	1		44	10	20'-7"	AS1	1		10	20'-7"	AS1	1		
20	5	~~23'-8~~	AS5	STR.		40	5	19'-9"	AS5	STR.		40	5	21'-9"	AS5	STR.		40	5	22'-9"	AS5	STR.		5		AS5	STR.		
SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°						SKEWED UP TO 15°					
30	10	AVE.	AS1	1	1.	38	10	AVE	AS1	1	1.	42	10	AVE	AS1	1	1.	44	10	AVE	AS1	1	1.	10	AVE	AS1	1	1.	
	5	29'-6"	AS5	STR.	2.		5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.	5		AS5	STR.	2.	
ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS						ALL SKEWED SPANS					
2	5		AS10	STR.			5		AS10	STR.			5		AS10	STR.			5		AS10	STR.		5		AS10	STR.		
ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW						ABOVE 15° SKEW					
30	10	20'-7"	AS1	1		38	10	20'-7"	AS1	1		42	10	20'-7"	AS1	1		44	10	20'-7"	AS1	1		10	20'-7"	AS1	1		
29	10	AVE.	AS2	STR.	4.	37	10	AVE	AS2	STR.	4.	41	10	AVE	AS2	STR.	4.	43	10	AVE	AS2	STR.	4.	10	AVE	AS2	STR.	4.	
	5	29'-6"	AS5	STR.	2.		5	19'-9"	AS5	STR.	3.		5	21'-9"	AS5	STR.	3.		5	22'-9"	AS5	STR.	3.	5		AS5	STR.	3.	

REMARKS: ● ASI BAR "B" DIMENSION VARIES FROM 19'-6" TO ____ ● 20 + DIMENSION ("P"+"L") ÷ 4 (IN FEET) • NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. ● 40 + DIMENSION ("P"+"L") ÷ 2 (IN FEET) • NUMBER OF PIECES. CUT BARS IN THE FIELD USING CUT OFF PIECES ON OPPOSITE HALF OF SLAB. ● THE LENGTH OF AS2 BARS VARIES FROM ____ TO ____. THE AS2 BARS MAY BE DIVIDED INTO TWO OR MORE PIECES, AS MAY BE NECESSARY, TO LIMIT THE MAXIMUM BAR LENGTH TO 30 FEET. THE LOCATION OF SPLICES IS LEFT TO THE OPTION OF THE DESIGNER. THE NO. PIECES SHOWN ARE FOR CONDITION 1. (FOR CONDITION 2. & 3. SEE REINF. SCHEDULE.)

GENERAL NOTES: ALL REINFORCING STEEL SHALL BE DETAILED ON THE REINFORCING STEEL SCHEDULE. WHEN A BAR LENGTH VARIES IN INCREMENTS EACH BAR MUST BE DETAILED. SPLICES SHALL BE 2'-1" FOR NUMBER 5 BARS, AND 4'-3" FOR NUMBER 10 BARS. ALL WORK AND MATERIALS SHALL CONFORM TO THE STATE OF VERMONT, DEPARTMENT OF HIGHWAYS, STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION DATED JANUARY 1956, AND THE A.A.S.H.O. SPECIFICATIONS DATED 1964. DESIGNED FOR H20-S16-44.

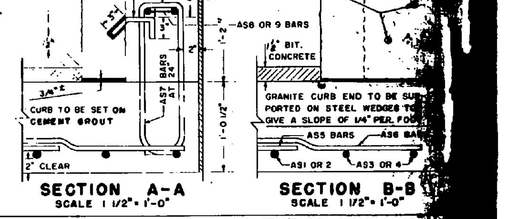
Item 372C Joint Sealer, Preformed
For Details See Det. B Sheet

FOR DETAILS OF JOINT SEE BCB-02-62 DET. A MODIFIED AS SHOWN ON SHEET 7 OF 16



SECTION C-C
SCALE 1/2" = 1'-0"

CURB ENDS & JOINT DETAIL
SCALE 1 1/2" = 1'-0"



SECTION A-A
SCALE 1 1/2" = 1'-0"

SECTION B-B
SCALE 1 1/2" = 1'-0"

DETAILS OF REINFORCING BARS

TYPE I
A = 1'-1" J = 0'-9"
B = 19'-6" OR VARIES

TYPE S6 C
A = 0'-6"
B = 1'-9"
C = 0'-6"
D = 1'-9"
G = 0'-6"

ITEM NO.	ITEM	UNIT	TOTAL	FINAL
318	TAR EMULSION FOR BRIDGE FLOORS	GAL.	~~27~~ 30	24
361-B	BITUMINOUS CONCRETE PAVEMENT (MOD.)	TONS	6	30
401-B	CONCRETE CLASS B (MOD.)	C.Y.	~~27~~ 29	28
402	REINFORCING STEEL	LB.	~~3845~~ 4301	
556-C	GRANITE BRIDGE CURB (MOD.)	L.F.	36	36

REINFORCING STEEL

BAR NO.	A NO. PIECES	B LENGTH	C WEIGHT PER FT. IN LBS.	A x B x C WEIGHT
AS1	~~30~~ 34	20'-7"	4.303	~~2636.67~~ 3010.90
AS2			4.303	
AS3	2	17'-0	4.303	146.30
AS4	2	17'-0	4.303	146.30
AS5	20	~~23'-8~~	1.043	~~494.37~~ 564.87
AS6	36	3'-6"	1.043	131.42
AS7	20	5'-0"	1.043	104.30
AS8	2	15'-4	1.043	31.98
AS9	2	15'-4	1.043	31.98
AS10			1.043	
TOTAL WEIGHT =				~~3845.32~~ 4301.93

QUANTITY COMPUTATION

W = WIDTH OF ROADWAY Z = 20 + DIMENSION ("P"+"L")/4 T = DIMENSION ("P"+"L")/4

W = ~~30~~ 34 Z = 20 T = 17.5

BITUMINOUS CONCRETE = W x Z x 0.0092 = TONS ~~34~~ 30 x 20 x 0.0092 = 6 TONS

TAR EMULSION = W x Z x 0.0444 = GALLONS ~~34~~ 30 x 20 = 0.0444 = ~~29.90~~ GALLONS

CONCRETE CLASS B = W x Z x 0.0386 + T x 0.1029 + (T − 1.8333) x 0.0733 = CUBIC YARDS

[~~34~~ 30 x 20 x 0.0386] + [17.5 x 0.1029] + [(17.5 − 1.8333) x 0.0733] = ~~28~~ CUBIC YARDS

GRANITE BRIDGE CURB = 2(T + 0'-3") = LINEAR FEET 2(17.5 + 0.25) = 36 LINEAR FEET

BAR LENGTHS: AS3 BARS = DIMENSION "M" − 0'-6"
AS4 BARS = DIMENSION "R" − 0'-6"
AS6 BARS = 3'-6"
AS7 BARS = 5'-0"
AS8 BARS = DIMENSION "M" − 2'-2"
AS9 BARS = DIMENSION "R" − 2'-2"

F-DECK(22)S, BR. #99
THIS SHEET FOR INFORMATION ONLY
Sheet Revised 2-16

REVISIONS AND CORRECTIONS
Revised Joint Filler Item 373 - 6-21-63 JK

APPROVED

DRAWN BY: R.S. HAUPT NOV. 1960
TRACED BY: R.S. HAUPT NOV. 1960
CHECKED BY: A.H. SMALLEY NOV. 1960

Recommended For Approval: Bridge Engineer Date 12/9/62
Recommended For Approval: Asst. Chief Engineer Date 1/4/63
Approved By: Chief Engineer Date 1/4/63

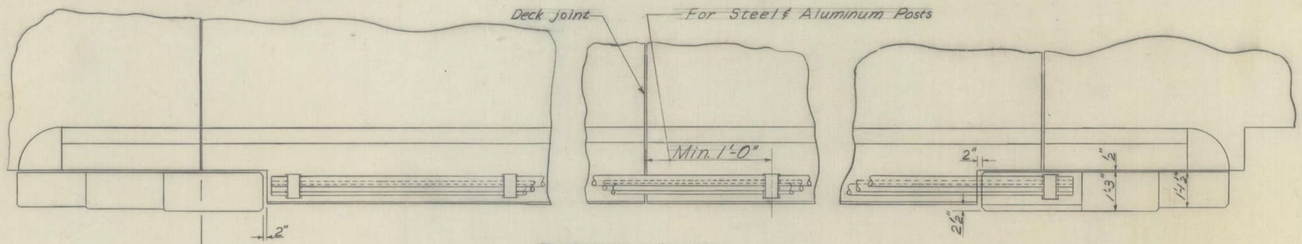
DETAILS OF APPROACH SLAB #2
FOR ~~30~~ 34 (WIDTH) FOOT BRIDGE

TO BE USED FOR BRIDGE AT STATION 28+50
LOCATION BRANCH BROOK

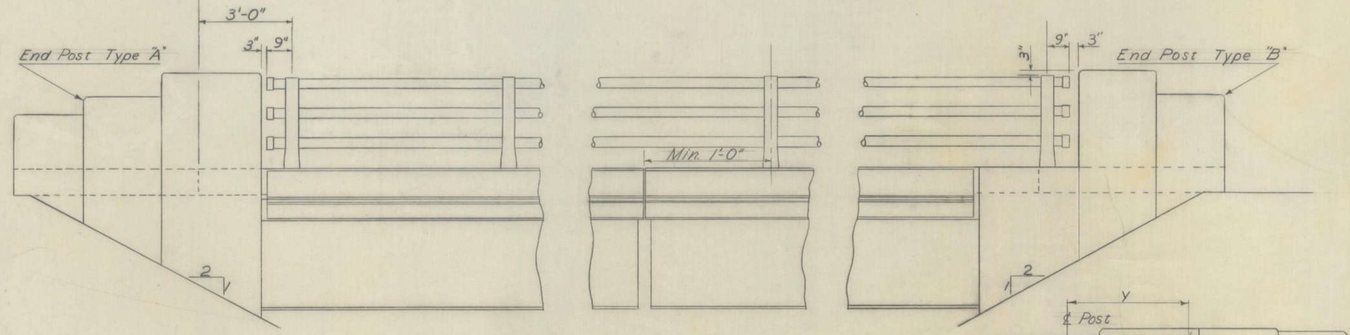
STATE OF VERMONT
DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURE
SB-~~AS~~-60
SHEET 18 OF 42

TOWN OF Mt. Holly
ROUTE NO. VT 1001
LOG STA. 1+30
SCALE AS NOTED
DESIGNED BY GVK CHECKED
QUANTITIES BY

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 36 OF 42
FOR REFERENCE ONLY

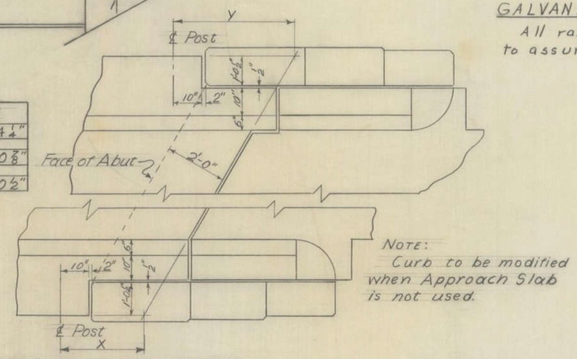


TYPICAL PLAN



TYPICAL ELEVATION

SKEW	X	Y
15°	2'-9½"	3'-4¼"
30°	2'-8½"	3'-10⅞"
45°	2'-9½"	4'-10½"



PLAN FOR SKEWED ENDS

NOTE:
Curb to be modified when Approach Slab is not used.

GENERAL RAILING NOTES

All posts to be set normal to the grade.

Prior to fabrication of the railing, shop drawings shall be submitted to the Highway Department for approval.

One anchor bolt template shall be supplied for each type of post.

Tubular rails, rail posts, box section inserts, wedges, end caps, anchor bolts, nuts, washers, anchor bolt templates, shims & all labor, tools, equipment and incidentals necessary to complete the acceptable railing installation shall be included in the Unit Price bid for Item 572.

All bolts, nuts & washers shall be galvanized to A.S.T.M.-A-153-61.

GALVANIZED METAL RAILING

Intermediate Three Tube Post - Malleable Iron Casting - A.S.T.M. A-47 GR. 35018, galvanize to A.S.T.M. A-123-59.

Maximum post spacing shall be 10'-0".

Except for end sections and panels over expansion joints, all rails shall run continuous through two consecutive posts. Rails shall be so arranged, that no more than two splices will be adjacent to any given post. (In effect stagger joints as much as is practical.)

ALUMINUM RAILING

Posts shall meet A.A.S.H.O. Designation M-193-61. Rails shall meet A.S.T.M. - Specification B 235-61 Alloy-6061 Cond. T-6.

Maximum post spacing shall be 7'-2".

Aluminum railing posts are to be set on pads ⅛" thick of a non-conductive material meeting the approval of the Engineer and the edges are to be sealed with an Aluminum Impregnated Caulking Compound.

Except for end sections all rails shall run continuous through three consecutive railing spans. With the exclusion of the end posts, the joints shall be placed so that there will be no more than one rail splice at each post.

GALVANIZED METAL RAILING (CONTINUED)

All rail splices and end caps shall be tested after galvanizing to assure proper clearances for field erection.

REVISIONS & CORRECTIONS
Note added for testing rail splices after galvanizing. 9/28/64 WMS.

Drawn By: JW Date: Dec. 1962
Traced By: JW Date: Dec. 1962
Checked By: EEP, WMS, RSH Date: Dec. 1962
Recommended _____ 12/7/62
For Approval Bridge Engineer Date
Recommended _____ 1/4/63
For Approval Assist. Chief Engineer Date
Approved By _____ 1/4/63
Chief Engineer Date

DETAILS OF BRIDGE RAILING
PLAN & ELEVATION

EITHER ALUMINUM OR GALVANIZED METAL RAILING MAY BE USED

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

SB-5G-62 SHEET 1 OF 2

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LUDLOW
STP DECK(39)
BRIDGE NO. 99
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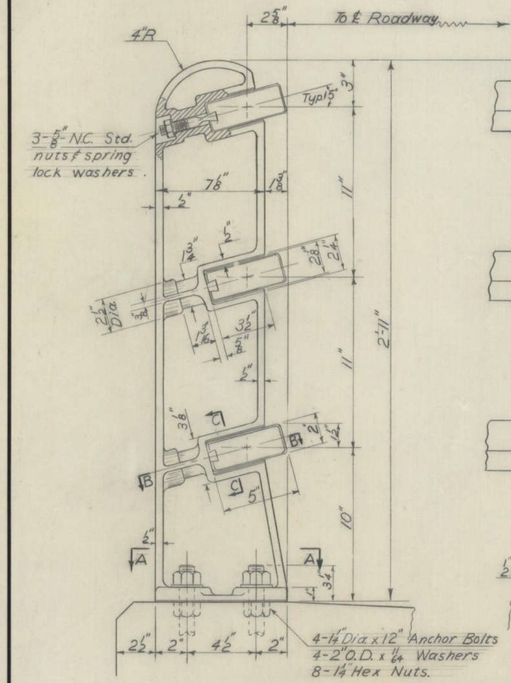
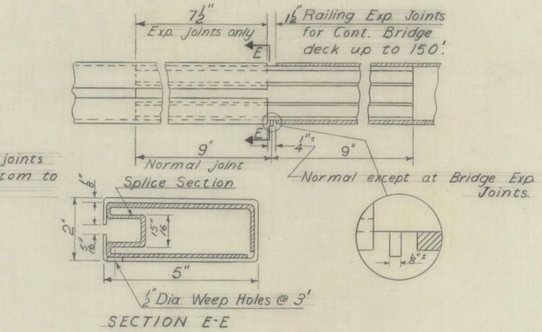
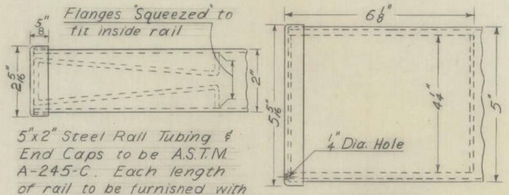
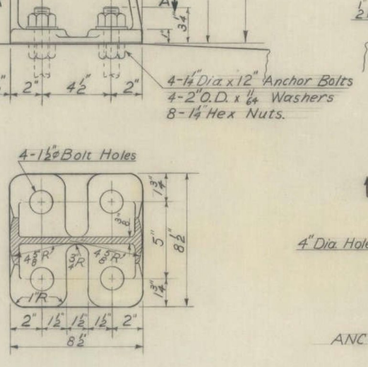
FOR REFERENCE ONLY

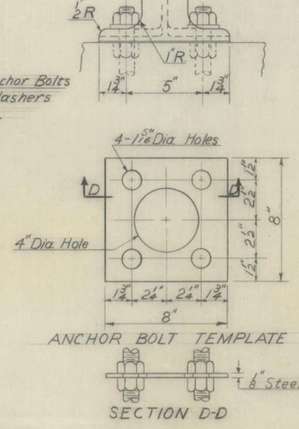


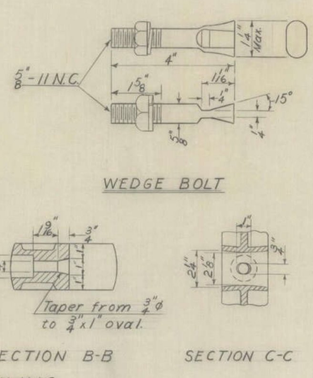


TYPICAL RAIL TUBE JOINT



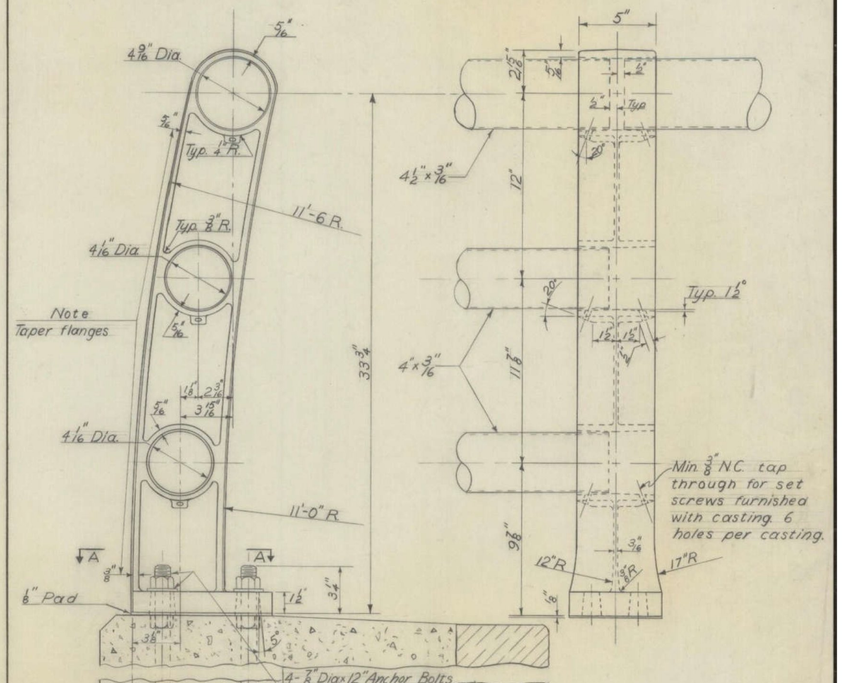


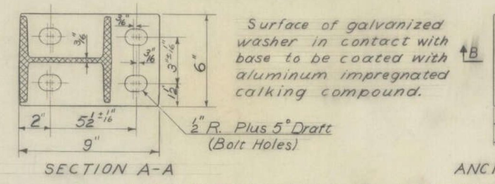


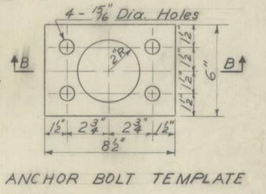


GALVANIZED METAL BRIDGE RAILING

Ⓐ







ALUMINUM BRIDGE RAILING

Ⓑ

REVISIONS & CORRECTIONS

Revised size of nuts on Anchor Bolts & size of holes Anchor Bolt Template Detail A. 6/21/63 XX

Drawn By: XX Date: Dec. 1, 1962
Traced By: XX Date: Dec. 1, 1962
Checked By: E.E.P. W.N.S. R.S.H. Date: Dec. 1, 1962
Recommended For Approval: L.M. Bjorn, Bridge Engineer, 12/7/62 Date
Recommended For Approval: R.H. Crandall, Assist. Chief Engineer, 1/4/63 Date
Approved By: A.D. Purchase, Chief Engineer, 1/4/63 Date

DETAILS OF BRIDGE RAILING

Ⓐ GALVANIZED METAL RAILING DETAILS
Ⓑ ALUMINUM RAILING DETAILS

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

SB-5G-62

SHEET 2 OF 2

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LUDLOW
STP DECK(39)
BRIDGE NO. 99
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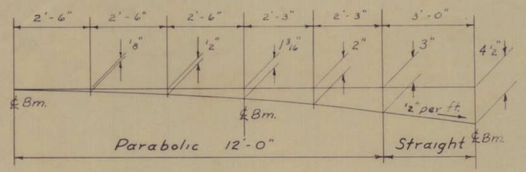
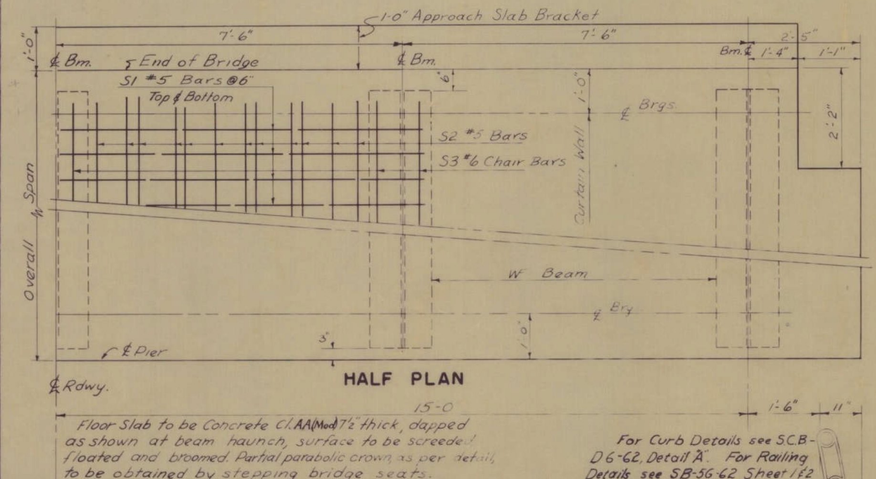
FOR REFERENCE ONLY

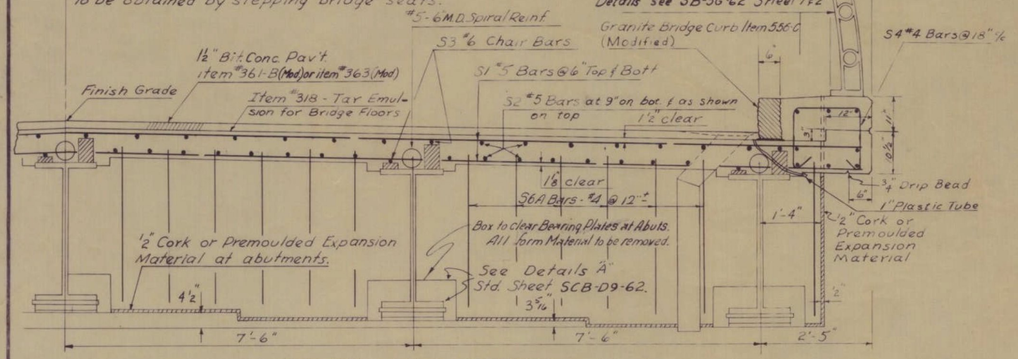


DETAIL OF PARTIAL PARABOLIC CROWN OF SLAB

*Excluding Scuppers & Bearing Devices



HALF PLAN



TYPICAL HALF SECTION

TABLE OF QUANTITIES FOR SINGLE (SQUARE) SPAN

Span, Out to Out	99'-0	94'-0	89'-0	84'-0	79'-0	74'-0	69'-0	64'-0	59'-0	54'-0	49'-0	44'-0	39'-0	34'-0
Span ℄ to ℄ Brngs.	97'-0	92'-0	87'-0	82'-0	77'-0	72'-0	67'-0	62'-0	57'-0	52'-0	47'-0	42'-0	37'-0	32'-0
Length of Bms.	98'-0	93'-0	88'-0	83'-0	78'-0	73'-0	68'-0	63'-0	58'-0	53'-0	48'-0	43'-0	38'-0	33'-0
Size W. Beam	36WF280	36WF245	36WF230	36WF230	36WF194	36WF170	36WF150	36WF135	36WF135	36WF135	36WF135	36WF135	33WF118	30WF108
Lgth & Size Cover PL (Bott. only)	66'-1 19/32" 14"x 1 1/2"	63'-7 19/32" 14"x 1 1/4"	59'-5 19/32" 14"x 1 1/4"	49'-5 19/32" 14"x 2 1/2"	43'-2 9/32" 10"x 1 1/4"	43'-1 13/32" 10"x 1 1/8"	45'-5 19/32" 10"x 1 1/2"	42'-5 19/32" 10"x 1 1/8"	31'-11 13/32" 10"x 1/2"	29'-1 19/32" 8"x 1/2"	——	——	——	——
Dead Load Deflection	3 1/2"	3 1/8"	2 5/8"	2 1/4"	1 7/8"	1 5/8"	1 3/8"	1 1/8"	7/8"	5/8"	1/2"	3/8"	1/4"	1/4"
Dia. of Spiral Bars	→	→	→	→	→	→	5/8"	→	→	→	→	Non Composite		
Mean Dia. of Spiral	→	→	→	→	→	→	6"	→	→	→	→	"	"	"
Spiral Pitch 0'-10' from Brng.	Double @ 5½	Double @ 5½	Double @ 5½	Double @ 5½	Double @ 5	Double @ 5	Double @ 5	Double @ 5	Double @ 5	Double @ 5	Double @ 5½	"	"	
" " 10'-20' or ℄ Span	Double @ 6½	Double @ 6"	Double @ 6½	Double @ 7"	Double @ 7"	Double @ 7½	Double @ 7"	Double @ 7"	Double @ 7"	Double @ 7"	Double @ 7"	"	"	
" " 20'-30' or ℄ Span	4"	4"	4½"	4½"	4½"	4½"	4½"	5"	5½"	6"	6"	"	"	
" " 30'-40' or ℄ Span	5"	5"	5"	6"	6"	6"	6"	5"	——	——	——	"	"	
" " 40'-℄ Span	6½"	6½"	6"	6"	——	——	——	——	——	——	——	"	"	
*Tot. Struct. Steel (1 span) (lbs.)	163,590	145,670	126,840	112,050	92,150	76,670	62,740	52,610	45,490	41,150	35,830	32,390	24,240	19,280
Reinforcing Bars ~ S1	376	376	356	336	316	296	276	256	236	216	196	176	156	136
" " ~ S2	225	225	225	225	225	225	225	150	150	150	150	150	150	75
" " ~ S3	30	30	30	30	30	30	30	20	20	20	20	20	20	10
" " ~ S4	132	126	120	112	106	100	92	86	80	72	66	60	52	46
" " ~ S5	16	16	16	16	16	16	16	16	16	16	16	16	16	16
" " ~ S6A	52	52	52	52	52	52	52	52	52	52	52	52	52	52
" " ~ S7	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Tot Weight - Reinf. Bars (lbs.)	25,300	24100	22,900	21,700	20,400	19,300	18,000	16,600	15,400	14200	13,000	11,800	10,600	9200
Approx. Wt. Spiral Reinf. (lbs.)	2,580	2,550	2,380	2,190	2,160	2,040	1,990	1,800	1700	1560	1440	Non Composite		
Tot Cu Yds. Conc. Class "AA" (Cu yds)	116	111	106	101	95	90	85	79	73	68	63	58	51	45
Tot Wt. Bitum. Conc. Pavt (Mod.) (Tons)	32	30	29	27	26	24	22	21	19	18	16	15	13	12
Tar Emulsion for Bridge Floors (Gals.)	132	125	119	112	105	99	92	85	79	72	65	59	52	45
Approx. Quantity 3/4" x 7" Studs	3180	3120	2,940	2,680	2640	2,500	2440	2280	2,120	1900	1,760	Non Composite		
Approx. Quantity 7/8" x 7" Studs	2,110	2,080	1960	1790	1760	1670	1630	1520	1410	1270	1170	Non Composite		

REINFORCING STEEL SCHEDULE

S1-#5 34'-4" Straight | S5-#5 32'-2" Straight

Span	S2-#5 Str. Length	S3-#6 Str. Length	S6A-#4 B & D	S6A-#4 Total Length	S4-#4	S6A-#4
					T.L. = 5'-3" B = 1'-6" D = 1'-6" C = 1'-5" H = 3" A=5" G=5"	T.L. Varies A=5" G=5" B D C=8"
34	33'-6"	33'-6"	2'-6"	6'-6"		
39	20'-3"	20'-6"	2'-9"	7'-0"		
44	22'-9"	23'-0"	3'-0"	7'-6"		
49	25'-3"	25'-6"	3'-0"	7'-6"		
54	27'-9"	28'-0"	3'-0"	7'-6"		
59	30'-3"	30'-6"	3'-0"	7'-6"		
64	32'-9"	33'-0"	3'-0"	7'-6"		
69	24'-3"	24'-6"	3'-2"	7'-10"		
74	26'-0"	26'-3"	3'-2"	7'-10"	S7-#6	S6P-#5
79	27'-6"	28'-0"	3'-3"	8'-0"	T.L. = 3'-0" B = 1'-8" J=6" A=8" G=8"	T.L. = 4'-2" B=2'-6" C=8" D=1'-0"
84	29'-3"	29'-6"	3'-3"	8'-0"		
89	31'-0"	31'-3"	3'-3"	8'-0"		
94	32'-6"	33'-0"	3'-4"	8'-2"		
99	34'-3"	34'-6"	3'-4"	8'-2"		

Revisions & Corrections

Drawn By: R.S.H. June 1960
Traced By: R.S.H. June 1960
Checked By: R.T.B. & R.S.H. July 1960

Recommended For Approval: Lynn Beers, Bridge Engineer, 12/7/62 Date
Recommended For Approval: [illegible], Asst. Chief Engineer, [illegible] Date
Approved By: C. D. Sutton, Chief Engineer, 11/4/63 Date

TYPICAL SECTION, PLAN VIEW, & QUANTITIES
30 FOOT ROADWAY WF BEAM BRIDGES
DESIGN LOADING - H-20-S16-44 (A.S.T.M. - A 36-62T STEEL)
34-44 NON COMPOSITE, 49-99 COMPOSITE
FOR ADDITIONAL DETAILS SEE STANDARD SCB-D-62

DEPARTMENT OF HIGHWAYS
STANDARD STRUCTURES
SCB-30-62

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LUDLOW
STP DECK(39)
BRIDGE NO. 99
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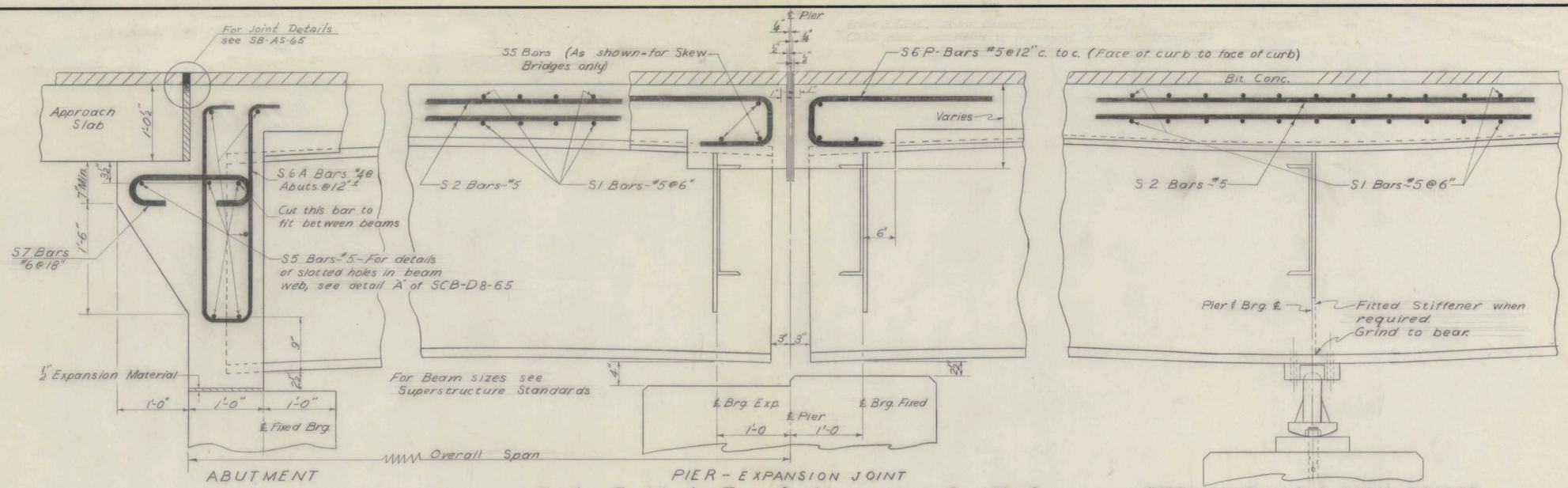
FOR REFERENCE ONLY



REVISIONS & CORRECTIONS

Drawn By: XX 12/1/62 Revised WBT 1/25/65
Traced By: XX 12/1/62 Revised WBT 1/25/65
Checked By: EEP WMS RSH 12/1/62 Rev. WMS 1/26/65
Recommended For Approval: Bridge Engineer — Date 2/4/65
Recommended For Approval: Assist. Chief Engineer — Date 2/4/65
Approved By: Chief Engineer — Date 2/4/65

DETAILS OF WF BEAM BRIDGES

Ⓐ ELEVATION VIEWS
Ⓑ SHEAR CONNECTOR DETAILS
Ⓒ BEAM HAUNCH DETAIL

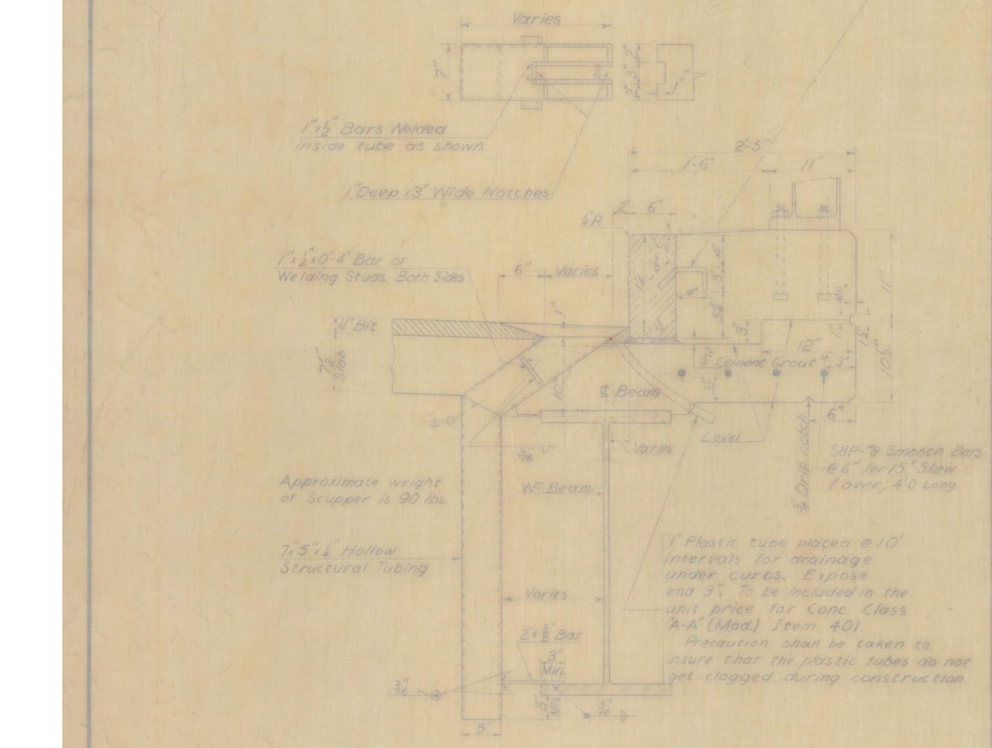
VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

SCB-D2-65

LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 40 OF 42
FOR REFERENCE ONLY

*After aligning the curbs, both horizontally & vertically on steel wedges, cement grout shall be forced under the curbs completely filling all voids.

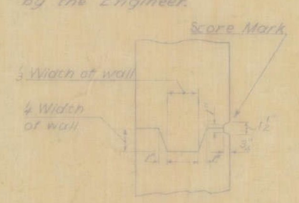
#4 Bar 12" from either end. (Two required for each curb section) Drilling & leading of bars to be paid for under the Unit Price bid for Item 556-C.



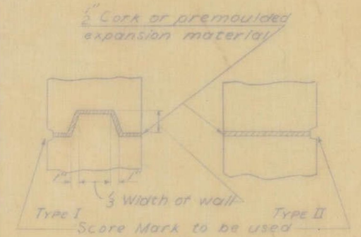
End scupper to be placed midway between ℄ or Brg & first diaphragm assembly. Intermediate scuppers to be placed midway between diaphragm assemblies.

SCUPPER & CURB DETAILS (A)

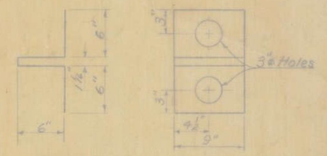
Construction joints shall be placed as indicated on the plans.
Horizontal score marks shall be placed as indicated on the plans or as directed by the Engineer.



TYPICAL DETAIL OF CONST. JOINT & SCORE MARKS (B)

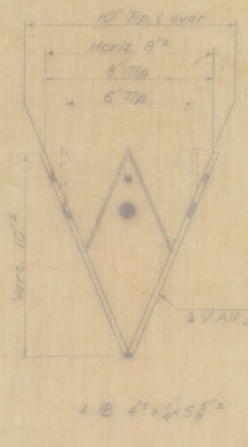


DETAILS OF VERTICAL EXPANSION JOINTS (C)



Support shall be 16 oz. copper. Place supports @ 2' intervals. Furnishing & placing of supports shall be included in the unit price bid for concrete, Item 401.

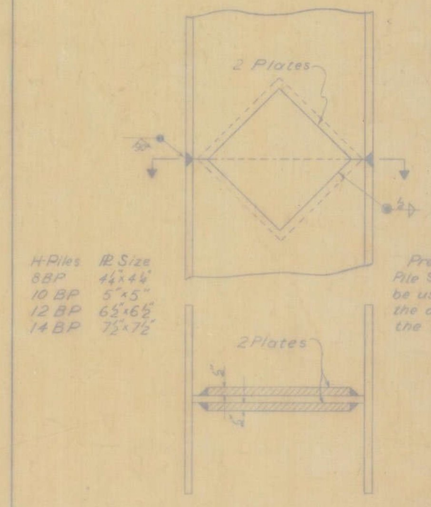
DETAIL OF COPPER SUPPORT FOR EXPANSION MATERIAL (D)



Approximate Weight = 6½ lbs.

Other types of shoes may be furnished with the approval of the Engineer.

DETAIL OF STEEL SHOE FOR TIMBER PILES (E)



H-Piles	℞ Size
8BP	4½"x4½"
10 BP	5"x5"
12 BP	6½"x6½"
14 BP	7½"x7½"

Prefabricated Pile Splice may be used with the approval of the Engineer.

DETAIL OF PILE SPLICE (F)

REVISIONS & CORRECTIONS
Dimensioned SBP Bars 6/21/63 JK

Drawn By JK Date: Dec. 4, 1962
Traced By JK Date: Dec. 4, 1962
Checked By: EEB WMS, EW Date: Dec. 4, 1962
Recommended _____ 12/1/62
For Approval Bridge Engineer Date
Recommended _____ 4/4/63
For Approval Assist. Chief Engineer Date
Approved By _____ 4/4/63
Chief Engineer Date

DETAILS OF WF BEAM BRIDGES
(A) SCUPPER & CURB DETAILS
(B)(C)(D) CONSTRUCTION DETAILS
(E)(F) PILE DETAILS

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS
SCB-D6-62

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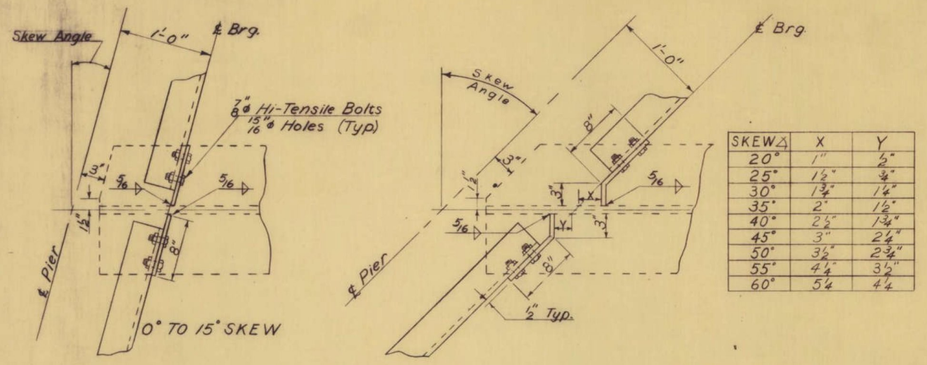
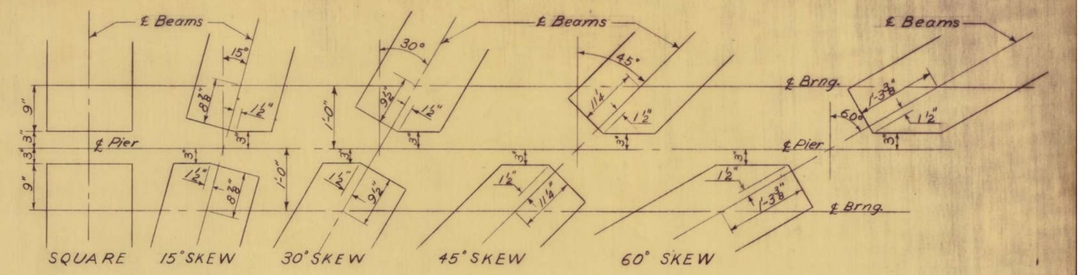
LUDLOW
STP DECK(39)
BRIDGE NO. 99
PAGE 41 OF 42
FOR REFERENCE ONLY



SKEW △	X	Y
20°	1"	½"
25°	1½"	¾"
30°	1¾"	1"
35°	2"	1¼"
40°	2½"	1¾"
45°	3"	2"
50°	3½"	2¾"
55°	4"	3½"
60°	5¼	4¼

DETAILS OF PIER DIAPHRAGM CONNECTIONS

(A)

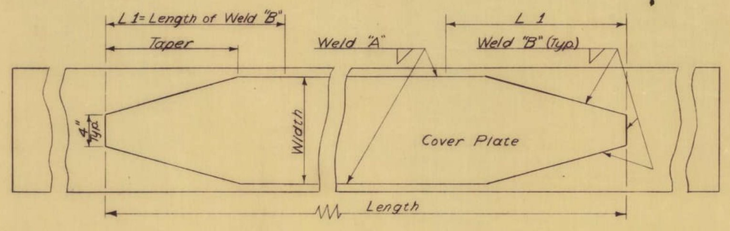


INTERIOR WF BEAM CUT-OFFS AT PIER

(B)

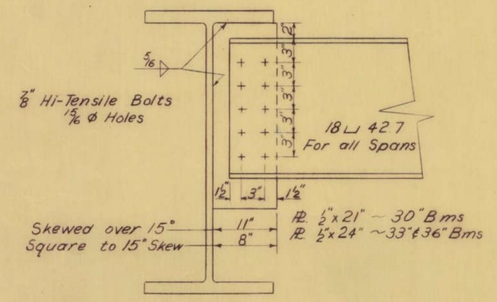
Max. Design 7'-6 Bm Spacing – S.C.B-24, 30, 38, 44-62							
SPAN	Cover Pl. Length	Width	Thick-ness	Taper	Weld "A"	Weld "B"	L 1
99'-0	66'-1	14"	1½"	1'-6	3/8"	½"	3'-5½
94'-0	65'-7	14"	1½"	1'-6	3/8	½	3'-5½
89'-0	59'-5	14"	1¼	1'-6	5/16	½	2'-10
84'-0	49'-5	14"	⅞"	1'-6	5/16	½	1'-11
79'-0	49'-10	10"	1¼"	1'-0	5/16	½	2'-0
74'-0	47'-1	10"	1⅛"	1'-0	5/16	½	1'-9½
69'-0	45'-9	10"	1"	1'-0	5/16	5/16	——
64'-0	42'-5	10"	⅞"	1'-0	5/16	5/16	——
59'-0	31'-11	10"	¾"	1'-0	5/16	5/16	——
54'-0	27'-1	8"	½"	1'-0	5/16	5/16	——

Max. Design 7'-0 Bm Spacing S.C.B – 42-62							
Cover Pl. Length	Width	Thick-ness	Taper	Weld "A"	Weld B	L 1	
67'-5	14"	1½"	1'-6	3/8	½	3'-5	
64'-7	14"	1⅜"	1'-6	3/8	½	3'-5½	
54'-9	14"	1"	1'-6	5/16	½	2'-3	
45'-1	14"	⅝"	1'-6	5/16	5/16	——	
48'-11	10"	1⅛"	1'-0	5/16	½	1'-9½	
48'-1	10"	1"	1'-0	5/16	5/16	——	
41'-3	10"	¾"	1'-0	5/16	5/16	——	
37'-8	10"	⅝"	1'-0	5/16	5/16	——	
29'-1	8"	½"	1'-0	5/16	5/16	——	
27'-1	8"	½"	1'-0	5/16	5/16	——	

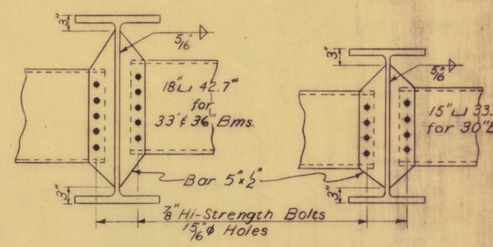


COVER PLATE DETAILS

(C)

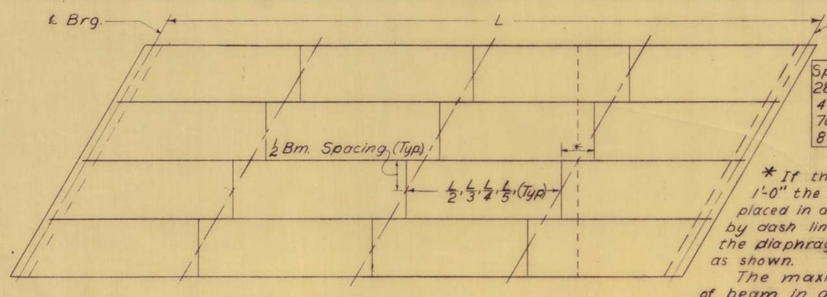


PIER DIAPHRAGMS



INTERMEDIATE DIAPHRAGMS

(D)



Span Length		Sets of Diaph. Required
28'-0 through 43'		1
44'-0	69'-0	2
70'-0	84'-0	3
85'-0	99'-0	4

* If this dimension is less than 1'-0" the diaphragms may be placed in a straight line as indicated by dash line. If it is greater than 1'-0 the diaphragms shall be staggered as shown.

The maximum unbraced length of beam in all cases shall be 25'-0

DIAPHRAGM LOCATION PLAN

(E)

REVISIONS & CORRECTIONS

Added size of Diaphragms on Detail D 6/21/63 WW

Drawn By: WW Date: Dec. 1, 1962
Traced By: WW Date: Dec. 1, 1962
Checked By: EFP, WMS, RSH Date: Dec. 1, 1962

Recommended For Approval — Bridge Engineer — 12/7/62 Date

Recommended For Approval — Assist. Chief Engineer — 11/4/63 Date

Approved By — Chief Engineer — 11/4/63 Date

DETAILS OF WF BEAM BRIDGES

STRUCTURAL STEEL DETAILS

(A) (D) (E) DIAPRAGM DETAILS
(B) WF BEAM CUT-OFFS
(C) COVER PLATE DETAILS

VERMONT
DEPARTMENT OF HIGHWAYS
STRUCTURE STANDARDS

SCB-D7-62

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LUDLOW
STP DECK(39)
BRIDGE NO. 99
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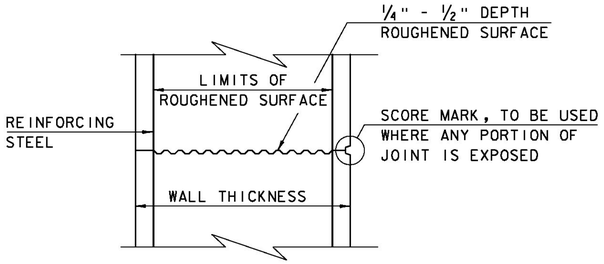
FOR REFERENCE ONLY

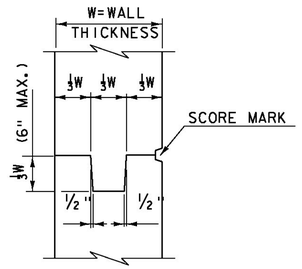
CONCRETE GENERAL NOTES

1. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" x 1"
2. REINFORCING STEEL SIZE AND SPACING SHOWN IN THE PLANS IS BASED ON 60 KSI STEEL, UNLESS NOTED OTHERWISE. WITH THE ENGINEER'S PERMISSION, BAR SIZE AND SPACING MAY BE MODIFIED ACCORDING TO THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATION AND STRUCTURES DESIGN MANUAL WHEN USING HIGHER STRENGTH STEEL.

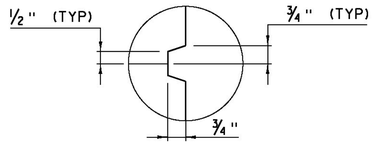


TYPICAL HORIZONTAL CONSTRUCTION JOINT
(NOT TO SCALE)

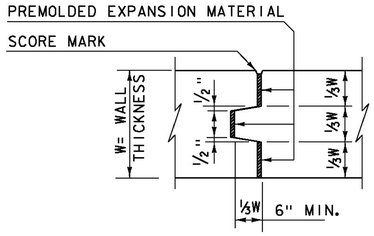
1. THE SURFACE OF THE CONCRETE CONSTRUCTION JOINTS SHALL BE CLEANED AND FREE OF LAITANCE.
2. IMMEDIATELY BEFORE NEW CONCRETE IS PLACED, ALL CONSTRUCTION JOINTS SHALL BE WETTED AND STANDING WATER REMOVED.



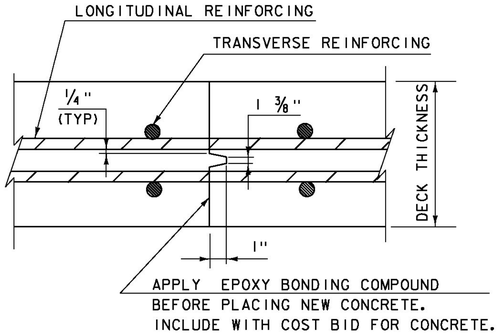
TYPICAL CONCRETE CONSTRUCTION JOINT
(NOT TO SCALE)



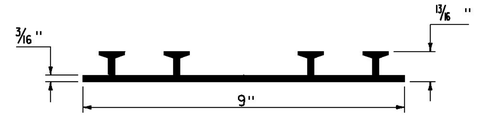
SCORE MARK DETAIL
(NOT TO SCALE)



TYPICAL CONCRETE EXPANSION JOINT
(NOT TO SCALE)



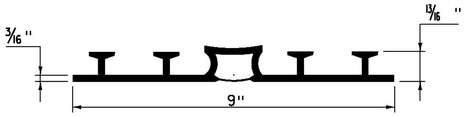
TRANSVERSE BRIDGE SLAB CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)



P.V.C. WATERSTOP FOR CONSTRUCTION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

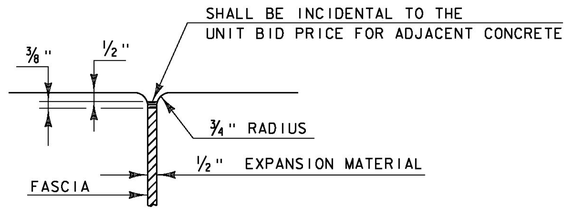
OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



P.V.C. WATERSTOP FOR EXPANSION JOINTS
(NOT TO SCALE)

PAYMENT FOR THE P.V.C. WATERSTOP SHALL BE INCIDENTAL TO THE UNIT BID PRICE FOR THE ADJACENT CONCRETE.

OTHER CONFIGURATIONS OF WATERSTOP MAY BE USED UPON APPROVAL OF THE ENGINEER.



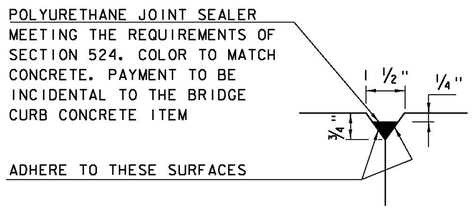
JOINT BETWEEN FASCIA AND WINGWALL
(NOT TO SCALE)

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
FEBRUARY 9, 2012	REBAR SUBSTITUTION ALLOWANCE ADDED TO CONCRETE GENERAL NOTES.

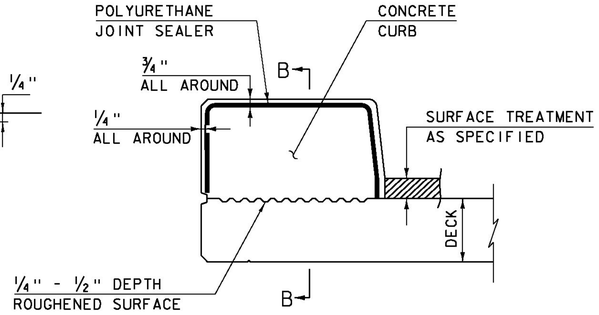
CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

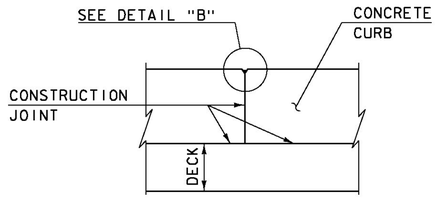
STRUCTURES DETAIL
SD-501.00



DETAIL "B"
(NOT TO SCALE)

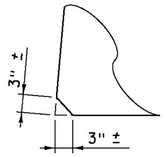


CONCRETE CURB JOINT SECTION
(NOT TO SCALE)

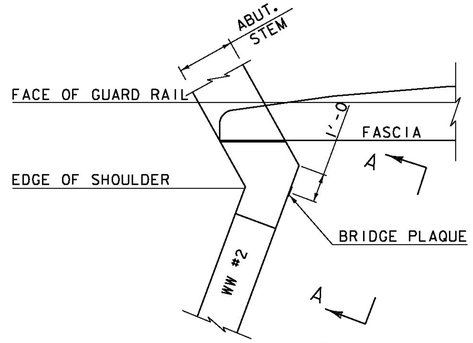


SECTION B - B
(NOT TO SCALE)

1. SEE TYPICAL HORIZONTAL CONSTRUCTION JOINT DETAIL FOR ADDITIONAL INFORMATION



ACUTE ANGLE CLIP DETAIL
(NOT TO SCALE)



PLAN

CONCRETE CURB JOINT NOTES

1. CONCRETE CURBS MAY BE PLACED IN ONE CONTINUOUS OPERATION IF AN APPROVED SHRINKAGE REDUCING ADMIXTURE LISTED IN THE SPECIAL PROVISIONS IS USED WITH THE CONCRETE MIX DESIGN. PAYMENT FOR THE SHRINKAGE REDUCING ADMIXTURE WILL BE INCIDENTAL TO THE BRIDGE CURB CONCRETE ITEM.

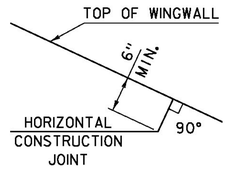
2. IF THE CONTRACTOR CHOOSES NOT TO USE AN APPROVED SHRINKAGE REDUCING ADMIXTURE, THE CURBS SHALL BE CONSTRUCTED WITH CONSTRUCTION JOINTS SPACED AT A MAXIMUM OF 15'-0" CENTER TO CENTER AND 2'-0" MINIMUM FROM THE CENTER OF NEAREST BRIDGE RAILING POST.

3. ON MULTI-SPAN CONTINUOUS SUPERSTRUCTURES, REGARDLESS OF WHETHER APPROVED SHRINKAGE REDUCING ADMIXTURE IS USED, CURB JOINTS SHALL BE LOCATED OVER THE CENTERLINE OF PIERS AND 7'-0" EACH SIDE OF THE CENTERLINE OF EACH PIER.

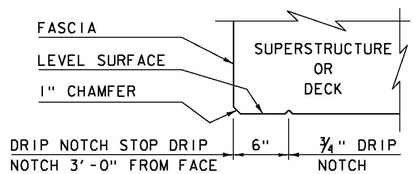
4. WHEN CURB JOINTS ARE USED THE CURBS SHALL BE PLACED IN ALTERNATE SECTIONS WITH A MINIMUM OF 48 HOUR DELAY BETWEEN ADJACENT PLACEMENTS.

5. LONGITUDINAL REINFORCING SHALL BE CONTINUOUS THROUGH CURB CONSTRUCTION JOINTS. CURB STIRRUP BARS SHALL BE TURNED AS NECESSARY TO MAINTAIN COVER IN THE FLARED CURB ENDS.

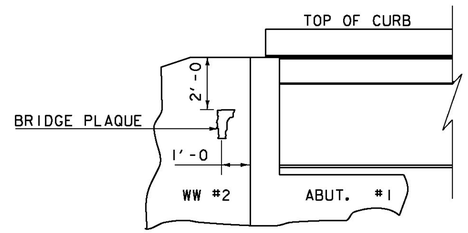
6. THE JOINT SPACING AND DETAILS SHOWN SHALL APPLY TO SIDEWALKS WHEN SHOWN IN THE PLANS.



HORIZONTAL WINGWALL CONSTRUCTION JOINT
(NOT TO SCALE)



DRIP NOTCH DETAIL
(NOT TO SCALE)



VIEW "A - A"

BRIDGE PLAQUE
(NOT TO SCALE)

THE BRIDGE PLAQUE WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

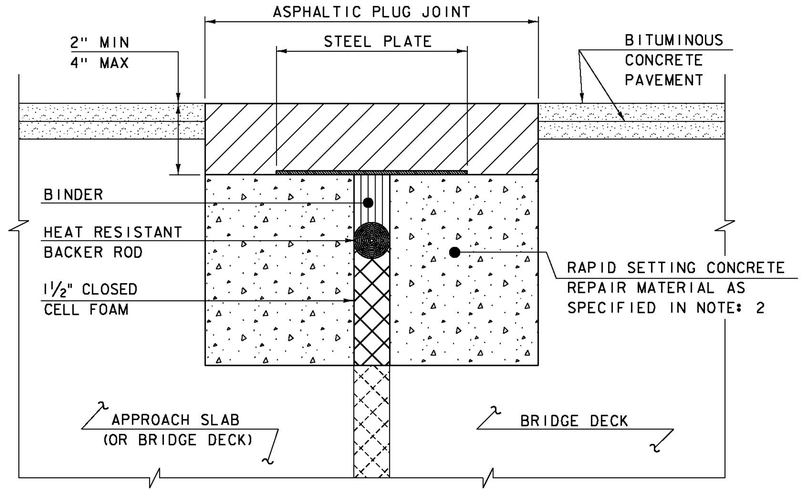
PAYMENT FOR INSTALLATION OF THE BRIDGE PLAQUE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED AND ADDED TWO DETAILS
OCTOBER 10, 2012	MODIFIED HORZ. JOINT WINGWALL ADD 6" MIN. DIMENSION

CONCRETE DETAILS AND NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-502.00



ASPHALTIC PLUG JOINT DETAIL - REHAB

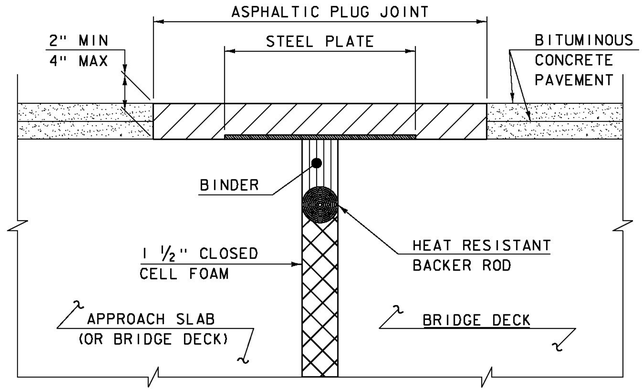
NOTES:

1. THE CONTRACTOR SHALL REMOVE ALL ASPHALTIC PLUG JOINT MATERIAL AND DETERIORATED CONCRETE AS DIRECTED BY THE ENGINEER. REMOVAL OF THE FIRST 4 INCHES OF MATERIAL SHALL BE INCLUDED IN THE BID PRICE FOR ITEM 516.10 BRIDGE EXPANSION JOINT, ASPHALTIC PLUG. ANY REMOVAL OF MATERIAL GREATER THAN 4 INCHES SHALL BE INCLUDED IN THE BID PRICE OF ITEM 580.20 RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE.

2. THE CONTRACTOR SHALL REPLACE REMOVED MATERIAL THAT IS LESS THAN 4" FROM FINISHED GRADE WITH ASPHALTIC PLUG JOINT MATERIAL MEETING THE REQUIREMENTS OF SUBSECTION 707.15. ALL REMOVED MATERIAL THAT IS GREATER THAN 4 INCHES FROM FINISHED GRADE SHALL BE REPLACED WITH RAPID SETTING CONCRETE REPAIR MATERIAL WITH COARSE AGGREGATE MEETING THE REQUIREMENTS OF SUBSECTION 780.04.

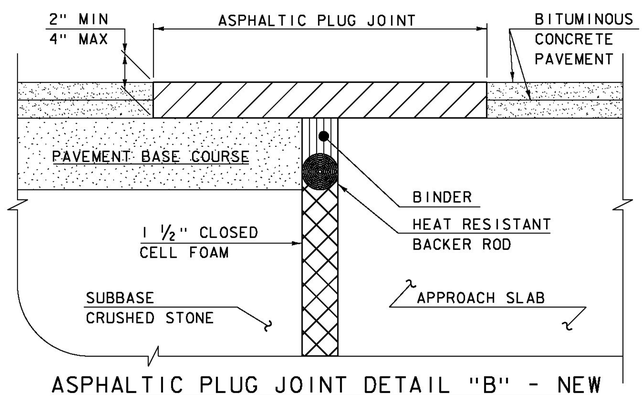
3. REINFORCING STEEL NOT SHOWN FOR CLARITY.

4. PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER. THE STEEL PLATES MAY BE OMITTED WHERE THE ENGINEER DETERMINES THAT THE APPROACH SLAB OR BRIDGE DECK WILL PROVIDE INADEQUATE SUPPORT AND WHERE VERTICAL MOVEMENT OF THE PLATES MIGHT OCCUR.



ASPHALTIC PLUG JOINT DETAIL "A" - NEW

NOTE:
PLACE 1/4" THICK BY 8" WIDE SECTIONS OF STEEL PLATE OVER THE CENTER OF THE MOVEMENT GAP. SECURE THE PLATES FROM MOVING BY INSERTING LOCATING PINS THROUGH THE PRE-STAMPED HOLES INTO BACKER ROD AND COVER WITH HOT BINDER.



ASPHALTIC PLUG JOINT DETAIL "B" - NEW

ASPHALTIC PLUG JOINT NOTES

INSTALLATION:

1. LOCATE THE JOINT CENTRALLY OVER THE DECK OVERLAY EXPANSION GAP OR FIXED JOINT, MARKED OUT TO THE MANUFACTURER'S RECOMMENDED WIDTH.
2. REMOVE THE BITUMINOUS CONCRETE PAVEMENT FULL DEPTH AS SHOWN ON THE PLANS. THE PAVEMENT SHALL BE DRY AND SAW CUT TO THE LIMITS REQUIRED TO PLACE THE JOINT. A PNEUMATIC HAMMER AND CHISEL MAY BE USED ADJACENT TO THE CURB ONLY WHEN SAW CUTTING IS NOT POSSIBLE.
3. BLAST CLEAN THE JOINT AREA OF DEBRIS, ASPHALT AND SHEET MEMBRANE. THOROUGHLY DRY THE JOINT AREA WITH COMPRESSED AIR PRIOR TO APPLYING BINDER MATERIAL.
4. PLACE PROPERLY SIZED HEAT RESISTANT BACKER ROD IN THE MOVEMENT GAP ALLOWING FOR 1" +/- OF BINDER ABOVE THE ROD.
5. HEAT AND PLACE THE BINDER MATERIAL AS RECOMMENDED BY THE MANUFACTURER.
6. IMMEDIATELY AFTER TOP COATING, CAST AN ANTI-SKID MATERIAL OVER THE JOINT TO REDUCE THE RISK OF TRACKING.

WEATHER LIMITATIONS

APPLY BINDER MATERIAL ONLY WHEN THE FOLLOWING CONDITIONS PREVAIL OR AS RECOMMENDED BY THE MANUFACTURER:

1. THE AMBIENT AIR TEMPERATURE IS AT LEAST 10 DEG C (50 DEG F) AND RISING.
2. THE ROAD SURFACE IS DRY.
3. WEATHER CONDITIONS OR OTHER CONDITIONS ARE FAVORABLE AND ARE EXPECTED TO REMAIN SO FOR THE PERFORMANCE OF SATISFACTORY WORK.

DETAILS ON THIS SHEET ARE NOT TO SCALE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
AUGUST 29, 2011	ADD DETAIL "B" AND REV. NOTES

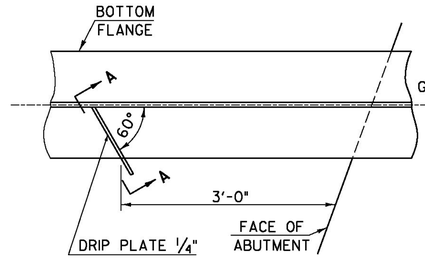
BRIDGE JOINT
ASPHALTIC PLUG

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - DIVISION

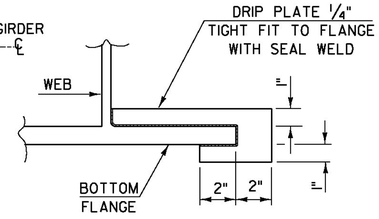
STRUCTURES DETAIL
SD-516.10

STRUCTURAL STEEL GENERAL NOTES:

1. ALL FIELD CONNECTIONS SHALL BE MADE WITH 7/8" DIAMETER HIGH-STRENGTH BOLTS IN 15/16" DIAMETER HOLES, PER SUBSECTION 506.19, UNLESS OTHERWISE SPECIFIED.
2. ALL HOLES IN THE WEBS OF THE FASCIA GIRDERS THAT ARE NOT OTHERWISE FILLED, SHALL BE FILLED WITH EITHER BUTTON HEAD OR HEX HEAD BOLTS. THESE BOLTS SHALL BE TIGHTENED IN ACCORDANCE WITH SUBSECTION 506.19.
3. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF SUBSECTION 506.10.
4. ANY CONNECTIONS THAT ARE NOT DETAILED ON THE PLANS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURES ENGINEER FOR APPROVAL.
5. STRUCTURAL STEEL MEMBERS DESIGNATED "CVN" IN THE PLANS SHALL BE CHARPY V-NOTCH TESTED IN ACCORDANCE WITH SUBSECTION 714.01 OF THE STANDARD SPECIFICATIONS.
6. ENDS OF GIRDERS ARE TO BE VERTICAL IN THEIR FINAL POSITION.
7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF THE GIRDERS SHALL BE TAKEN AS DIRECTED BY THE RESIDENT ENGINEER FOR USE IN DETERMINING FINISHED GRADES.

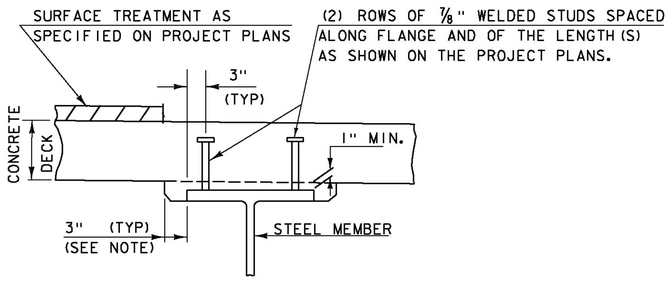


PLAN DRIP PLATE



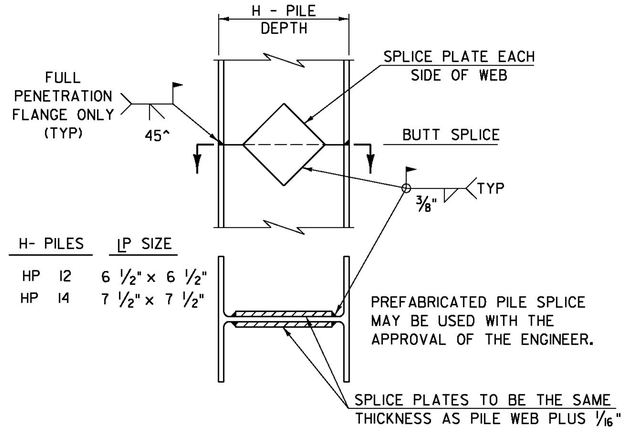
SECTION A - A

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND ABUTMENTS OR AS INDICATED ON PROJECT PLANS.



NOTE:
THE 3" HORIZONTAL SECTION MAY BE ELIMINATED FOR FORMING SYSTEMS DESIGNED FOR THE CONSTRUCTION OF VERTICAL HAUNCHES. ANY VOIDS RESULTING FROM FORMING SYSTEM ELEMENTS SHALL BE FILLED WITH JOINT SEALER, POLYURETHANE MEETING THE REQUIREMENTS OF SECTION 524. THE COST OF THE JOINT SEALER, POLYURETHANE SHALL BE INCIDENTAL TO THE ADJACENT CONCRETE.

HAUNCH AND SHEAR CONNECTOR DETAIL



H- PILES	LP SIZE
HP 12	6 1/2" x 6 1/2"
HP 14	7 1/2" x 7 1/2"

DETAIL OF PILE SPLICE

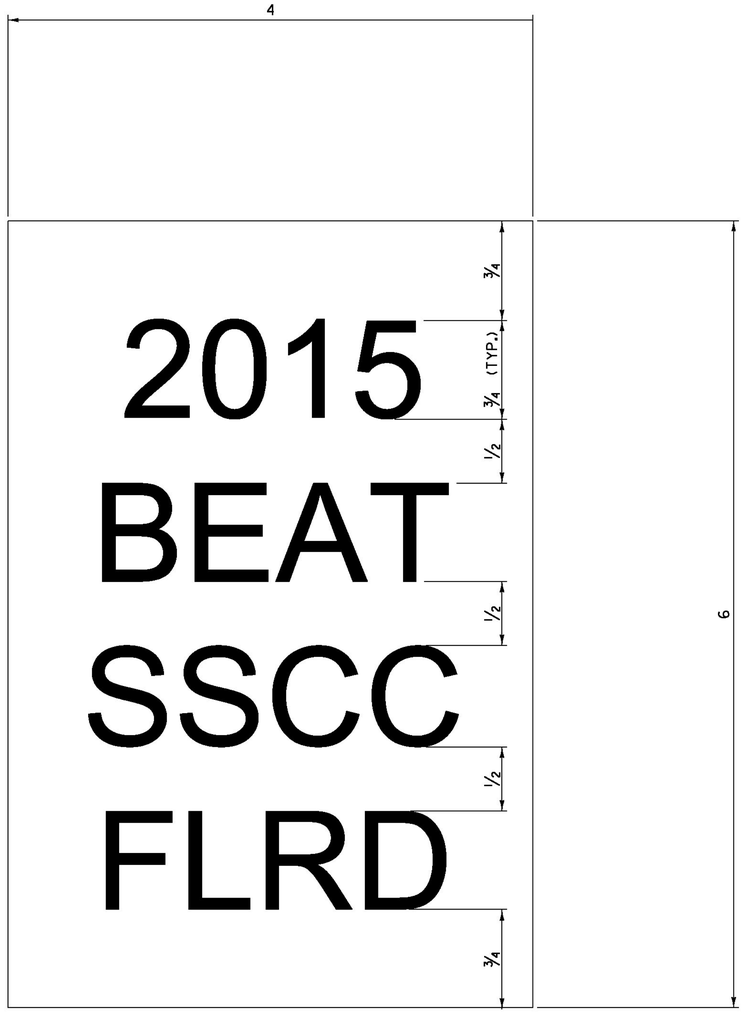
DETAILS ON THIS SHEET ARE "NOT TO SCALE" UNLESS NOTED OTHERWISE.

REVISIONS	
MAY 7, 2010	APPROVED FOR USE BY VAOT STRUCTURES SECTION
JUNE 4, 2010	MODIFIED NOTES

STRUCTURAL STEEL DETAILS & NOTES

VERMONT AGENCY OF TRANSPORTATION
STRUCTURES - SECTION

STRUCTURES DETAIL
SD-601.00



GENERAL NOTES:

1. LINE ONE SHALL INDICATE THE INSTALLATION YEAR (YYYY).
2. LINE TWO SHALL INDICATE THE MODEL AS IDENTIFIED ON THE APPROVED PRODUCTS LIST. FOR GENERIC INSTALLATIONS THE STANDARD DRAWING DESIGNATION OR NAME AS IDENTIFIED IN THE FHWA ELIGIBILITY LETTER SHALL BE USED.
3. LINE THREE SHALL SHALL INDICATE ADDITIONIAL MODEL INFORMATION IF NECESSARY.
4. LINE FOUR SHALL INDICATE FLARED (FLRD) OR TANGENT (TANG).
5. LEGEND SHALL BE ONE ARIEL FONT.
6. LEGEND SHALL BE BLACK ON A WHITE BACKGROUND, LENGEND AND BACKGROUND SHALL NOT BE REFLECTIVE.
7. SUITABLE MATERIAL SHALL BE USED SO AS TO NOT DETERIORATE DURING EXPOSURE TO WEATHER.
8. LABELS SHALL BE APPLIED IN SUCH A WAY THAT THEY REMAIN INTACT DURING THE LIFE OF THE TERMINAL.
9. FOR W-BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE TOP OF POST ONE FACING AWAY FROM TRAFFIC.
10. FOR BOX BEAM GUARDRAIL, LABEL SHALL BE PLACED ON THE BOX BEAM ADJACENT TO POST ONE FACING AWAY FROM TRAFFIC.
11. PAYMENT SHALL BE INCIDENTAL TO OTHER TRAFFIC BARRIER ITEMS.
12. ALL DIMENSIONS IN INCHES.

REV.	DATE	DESCRIPTION
0	NOV. 3, 2015	ORIGINAL APPROVAL

OTHER DETAILS REQUIRED: NONE

DETAILS APPROVED FOR USE BY HIGHWAY SAFETY & DESIGN

GUARDRAIL TERMINAL LABEL DETAIL

VTrans Working to Get You There — VERMONT AGENCY OF TRANSPORTATION

HIGHWAY SAFETY & DESIGN DETAIL

HSD-621.06

03 Adson A
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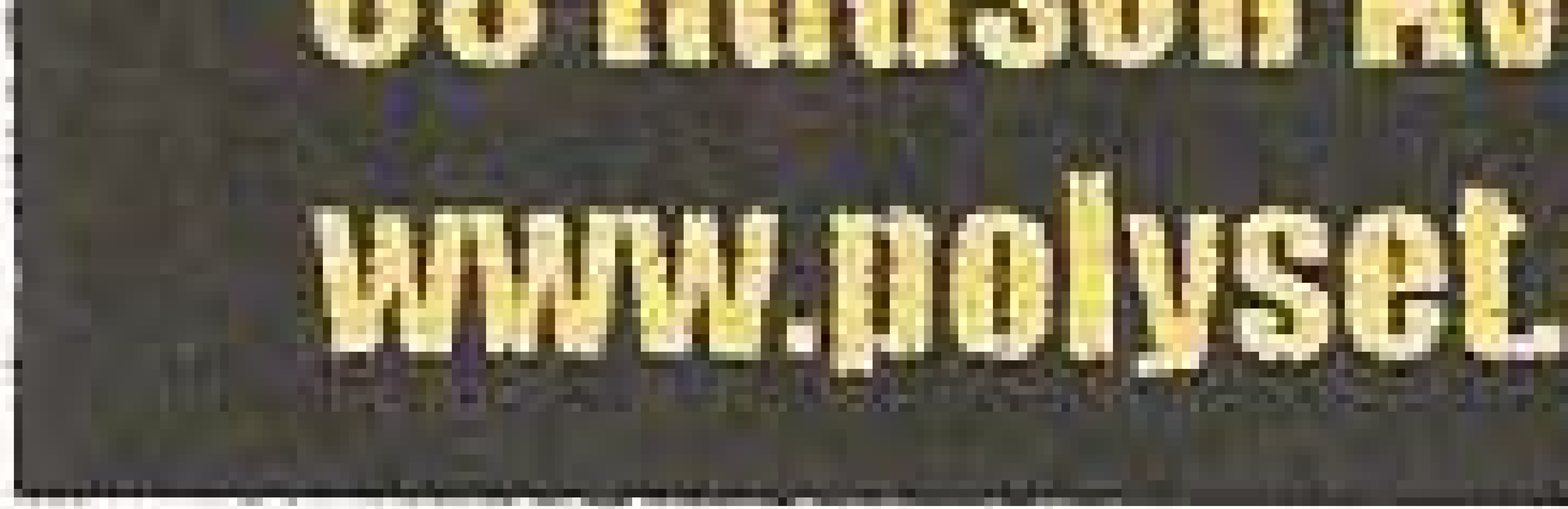
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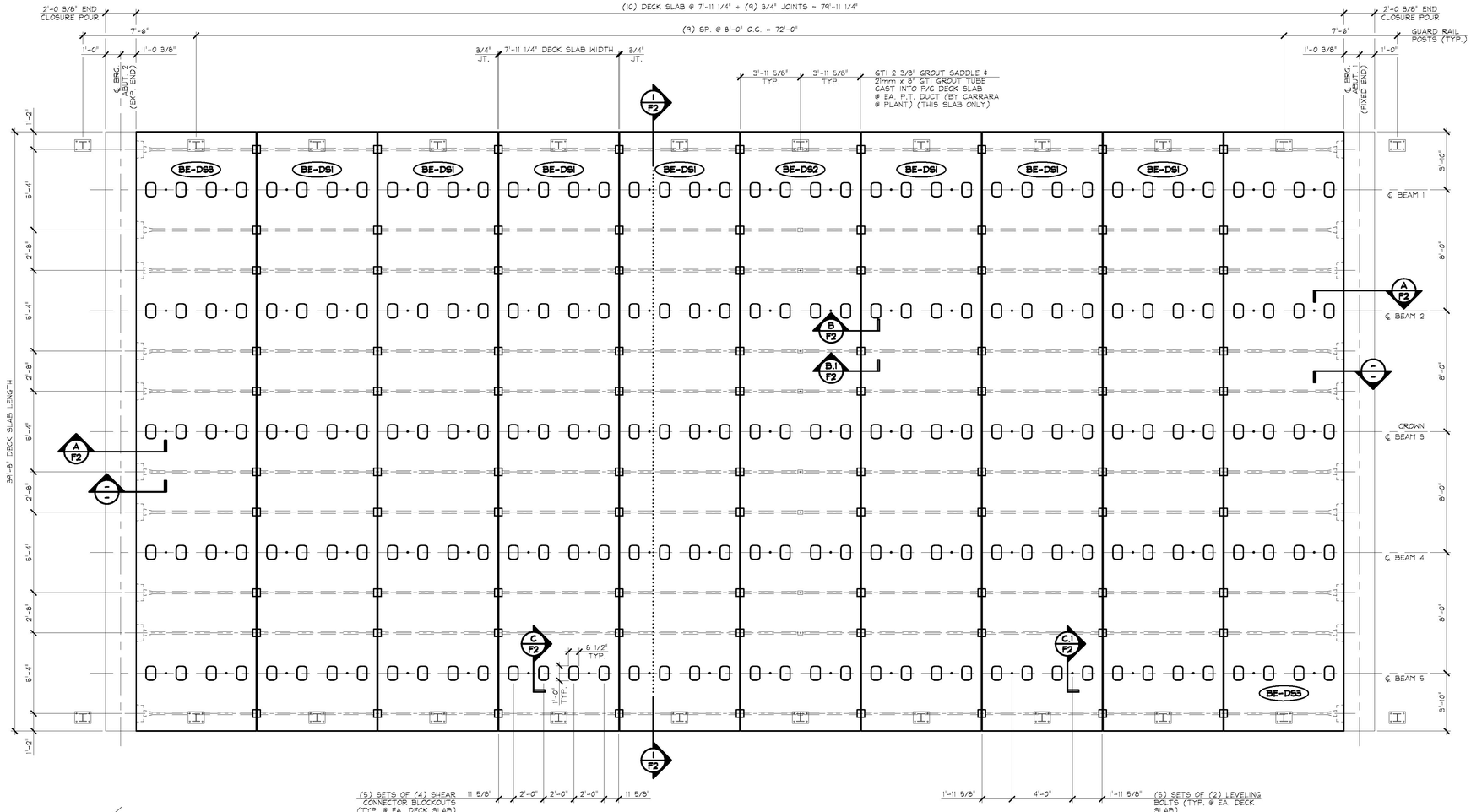

1/F1 PRECAST CONCRETE DECK SLAB LAYOUT

1/4" = 1'-0"

GENERAL NOTES

1. MIN. CONCRETE STRENGTH AT 28 DAYS SHALL BE 5,000 PSI.
2. MIN. CONCRETE STRENGTH FOR HANDLING SHALL BE 4,000 PSI.
3. REINFORCING STEEL SHALL BE GR-60, ASTM A-615 (AASHTO M31), AND SHALL BE EPOXY COATED, AS NOTED.
4. THE TOP OF DECK SLABS SHALL RECEIVE A SMOOTH FLOAT FINISH (UNLESS NOTED OTHERWISE).
5. A SELF RETARDER SHALL BE PLACED ON THE SHEAR KEY FORMS PRIOR TO CASTING THE SLABS. AFTER CURING AND AFTER THE FORMS ARE REMOVED, THE EDGES SHALL RECEIVE A POWER WASH TO REMOVE THE RESIDUE FROM THE RETARDER. THE SURFACE SHOULD THEN EXHIBIT A PITTED SURFACE WITH SOME EXPOSED AGGREGATE PROVIDING AN IMPROVED BONDING SURFACE FOR THE SHEAR KEY MORTAR.
6. DECK SLABS SHALL BE HANDLED AND ERECTED USING THE LIFTING INSERTS ONLY. THE MINIMUM SLING ANGLE FROM THE HORIZONTAL SHALL BE 60°. DECK SLABS SHALL BE STORED & TRANSPORTED WITH TIMBER SUPPORTS AT LIFT LOCATIONS, UNLESS APPROVED BY J.P. CARRARA & SONS, INC.
7. MATERIAL SPECIFICATION AND MIX DESIGN SHALL CONFORM TO VERMONT SPEC. P510.02 AND P510.05 RESPECTIVELY.

   DESIGN MIX: J.P.C. BRIDGE MIX #4216M - NO DCI
8. QUALITY CONTROL PROCEDURES ARE IN ACCORDANCE WITH PCI REQUIREMENTS. J.P. CARRARA & SONS, INC. IS A PCI CERTIFIED PLANT.
9. CURING METHOD: AS SOON AS THE TOP OF DECK SLAB IS FINISHED, A COVER OF POLY WILL BE PLACED OVER THE DECK SLAB. NATURAL CURE WITH NO EXTERNAL HEAT APPLIED. AMBIENT ENCLOSURE TEMPERATURE SHALL BE MONITORED. UNITS SHALL NOT BE EXPOSED TO TEMPERATURE DIFFERENTIAL GREATER THAN 40°F. UNITS SHALL NOT BE EXPOSED TO A TEMTERATURES LESS THAN 36°F UNTIL DESIGN STRENGTH IS ACHIEVED.
10. DUNNAGE IS LOCATED UNDER LIFTER POSITIONS
11. THE DRILLING OF HOLES OR USE OF POWER ACTUATED TOOLS ON DECK SLABS SHALL NOT BE PERMITTED.
12. THE DECK SLABS SHALL BE ORIENTED AND ERECTED WITH THE MARK-END AS SHOWN ON PLANS.

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

PRECAST CONCRETE DECK SLAB LAYOUT

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016
DWG. NO: F1

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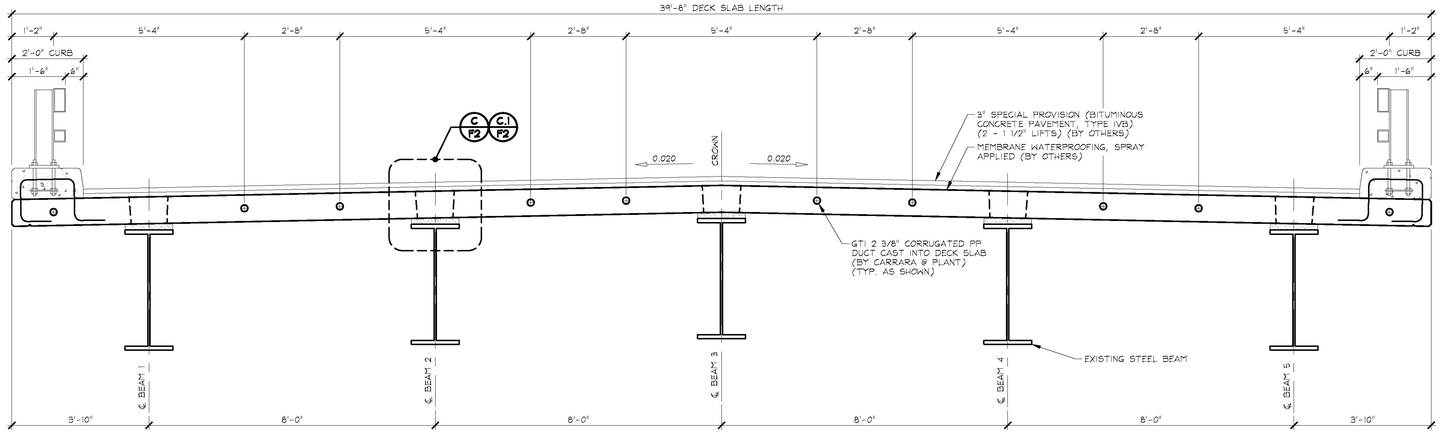
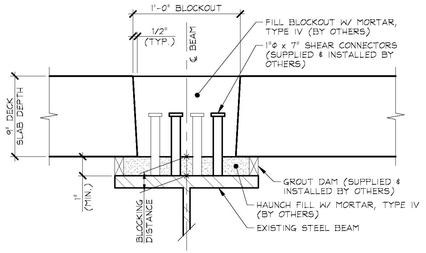
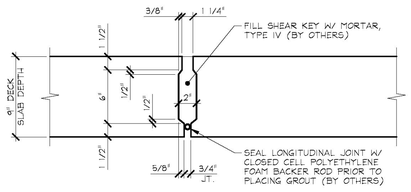


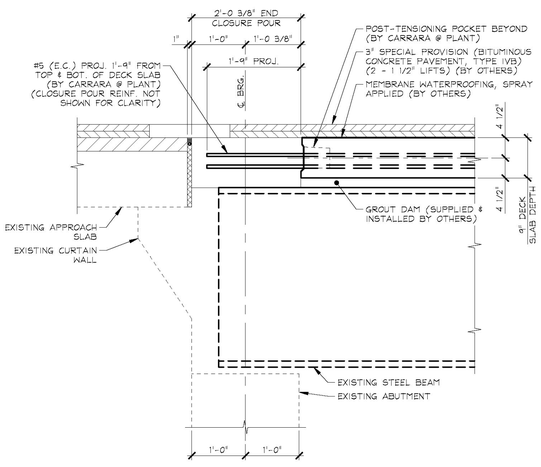
1 F2 **TRANSVERSE SECTION**
1/2" = 1'-0"



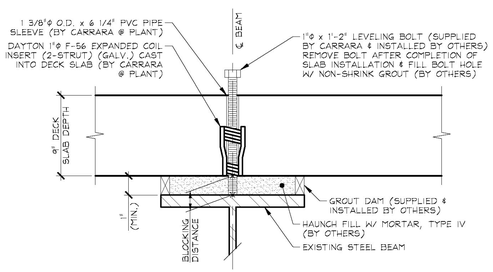
C F2 **SHEAR KEY SECTION**
1 1/2" = 1'-0"



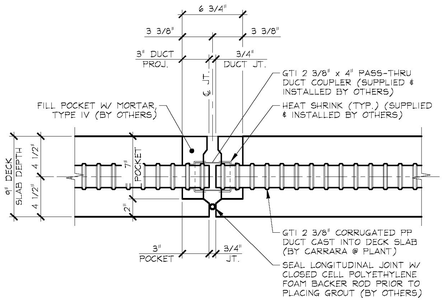
B F2 **SHEAR KEY SECTION**
1 1/2" = 1'-0"



A F2 **END CLOSURE POUR SECTION**
3/4" = 1'-0"



C.1 F2 **LEVELING DEVICE SECTION**
1 1/2" = 1'-0"



B.1 F2 **BLOCKOUT POST-TENSIONING DUCT SECTION**
1 1/2" = 1'-0"

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

TRANSVERSE SECTION & DETAILS

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23498-016
DWG. NO: F2

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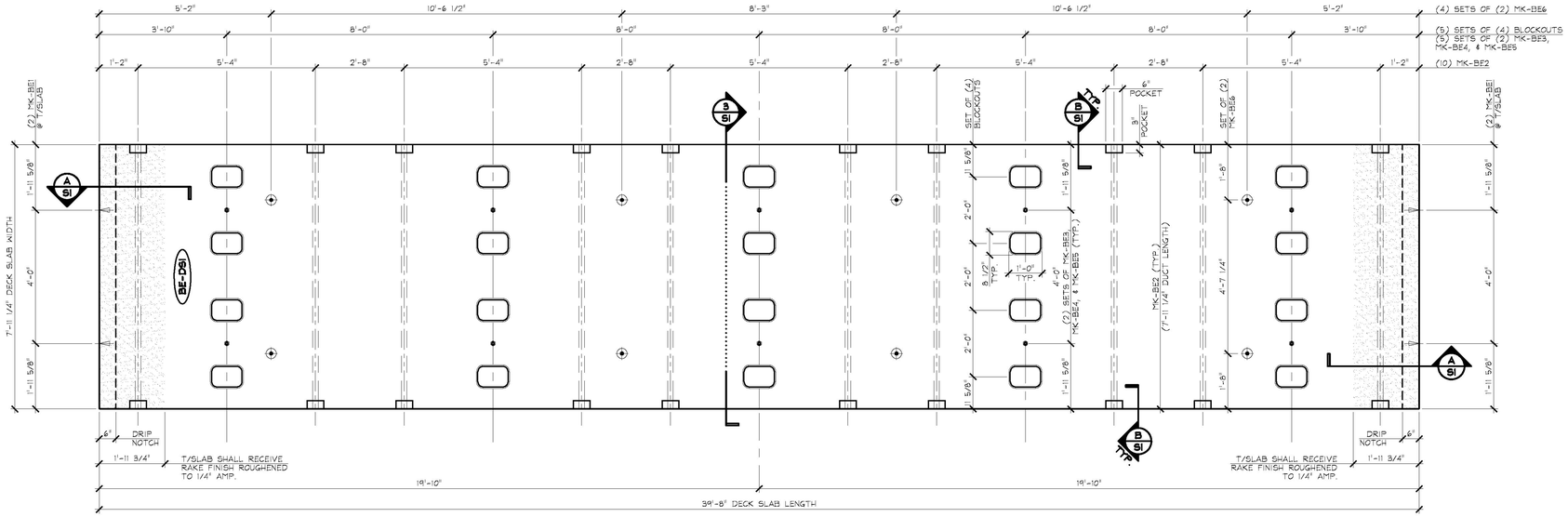
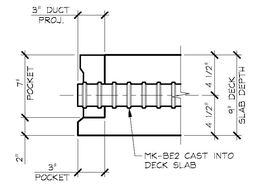


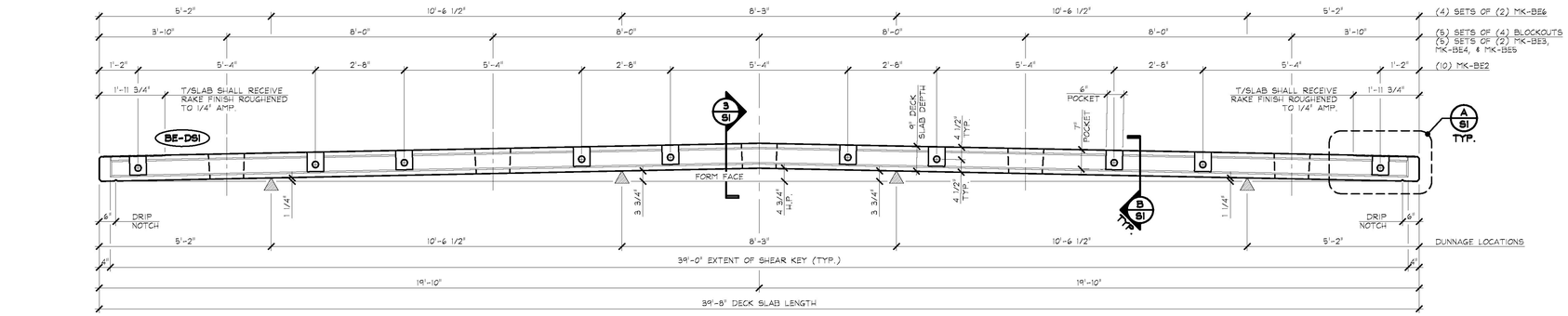
1 S1 DIMENSIONAL PLAN VIEW IN FORM

1/2" = 1'-0"



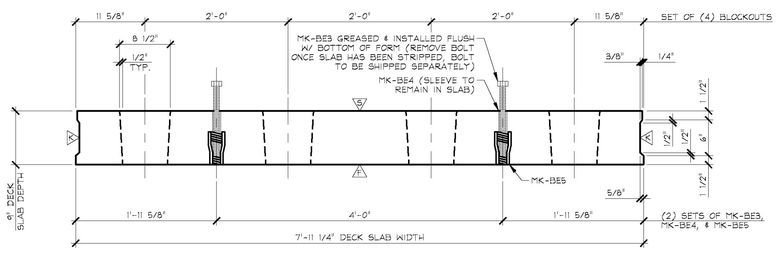
B S1 SECTION - "B"

1 1/2" = 1'-0"



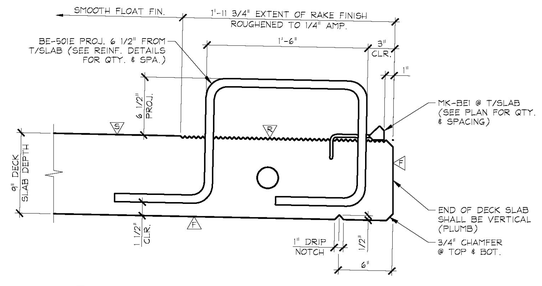
2 S1 DIMENSIONAL ELEVATION

1/2" = 1'-0"



3 S1 DIMENSIONAL SECTION

1" = 1'-0"



A S1 SECTION - "A"

1 1/2" = 1'-0"

A DENOTES FORM FINISH

A DENOTES SMOOTH FLOAT FINISH

A DENOTES ROUGHENED FINISH (SEE GENERAL NOTE #5, SHEET 'F1')

A DENOTES RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE

SHOP NOTE:
SEE DRAWING NO. 'S3' FOR REINFORCING INFORMATION

MARK: BE-DS1	QTY.: 7	WT.: 17.02 T	VOL.: 8.41 cy

MATERIAL LIST / DECK SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	MK-BE1	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	4
2	MK-BE2	GTI 2 3/8" x 7'-11 1/4" LONG CORRUGATED PP DUCT (SUPPLIED BY OTHERS)	10
3	MK-BE3	1"Ø x 1'-2" LEVELING BOLT (COIL THREAD)	10
4	MK-BE4	1 3/8"Ø O.D. x 6 1/4" PVC PIPE SLEEVE	10
5	MK-BE5	DAYTON 1"Ø F-56 EXPANDED COIL INSERT (2-STRUT) (GALV.)	10
6	MK-BE6	4T x 7 1/8" SWIFT LIFT LIFTER (GALV.)	8
7			
8			
9			
10			

APPROVAL STAMP:

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THE BELDEN COMPANY
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STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

PRECAST DECK SLAB DIMENSIONAL DETAILS

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016
DWG. NO: S1

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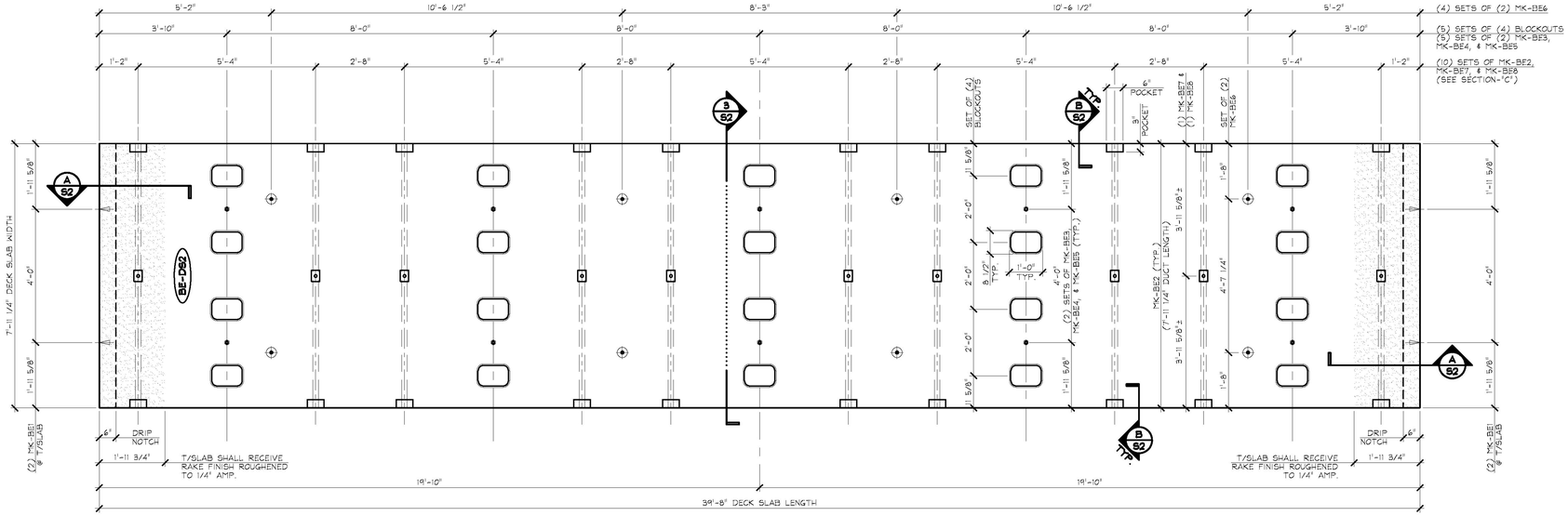
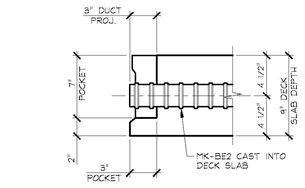
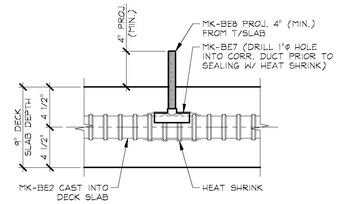


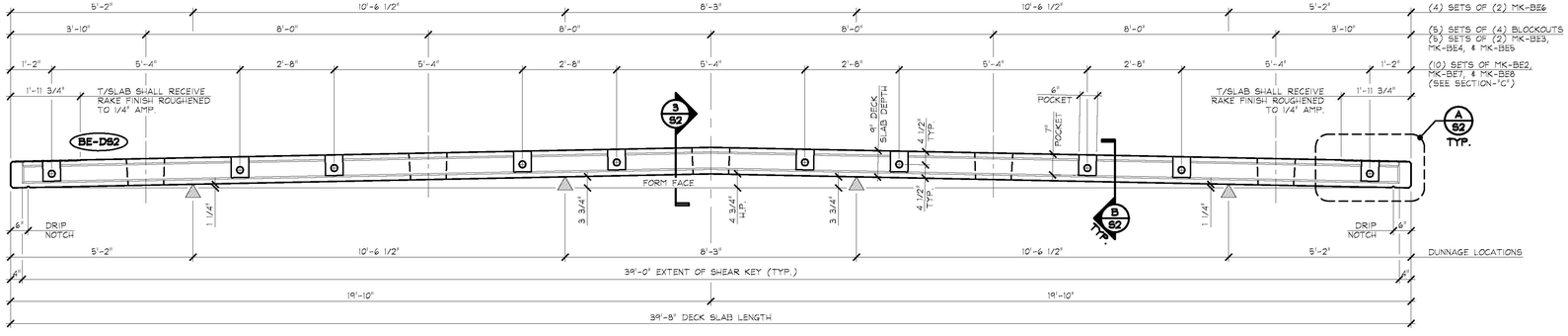
1 / S2 DIMENSIONAL PLAN VIEW IN FORM
1/2" = 1'-0"



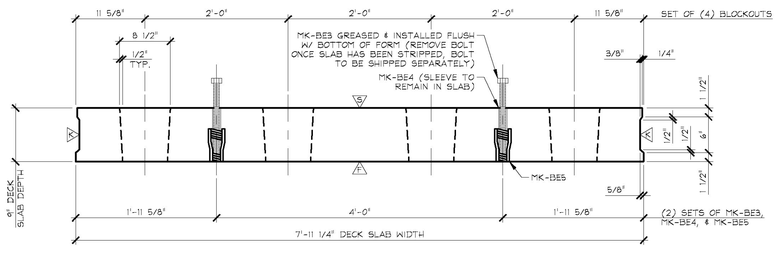
B / S2 SECTION - "B"
1 1/2" = 1'-0"



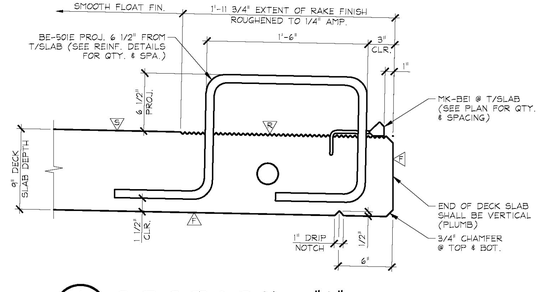
C / S2 SECTION - "C"
1 1/2" = 1'-0"



2 / S2 DIMENSIONAL ELEVATION
1/2" = 1'-0"



3 / S2 DIMENSIONAL SECTION
1" = 1'-0"



A / S2 SECTION - "A"
1 1/2" = 1'-0"

A DENOTES FORM FINISH

B DENOTES SMOOTH FLOAT FINISH

C DENOTES ROUGHENED FINISH (SEE GENERAL NOTE #5, SHEET 'F1')

D DENOTES RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE

SHOP NOTE:
SEE DRAWING NO. "S3" FOR REINFORCING INFORMATION

MARK: BE-DS2	QTY.: 1	WT.: 17.02 T	VOL.: 8.41 cy

MATERIAL LIST / DECK SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	MK-BE1	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	4
2	MK-BE2	GTI 2 3/8" x 7'-11 1/4" LONG CORRUGATED PP DUCT (SUPPLIED BY OTHERS)	10
3	MK-BE3	1"ø x 1'-2" LEVELING BOLT (COIL THREAD)	10
4	MK-BE4	1 3/8"ø O.D. x 6 1/4" PVC PIPE SLEEVE	10
5	MK-BE5	DAYTON 1"ø F-56 EXPANDED COIL INSERT (2-STRUT) (GALV.)	10
6	MK-BE6	4T x 7 1/8" SWIFT LIFT LIFTER (GALV.)	8
7	MK-BE7	GTI 2 3/8" GROUT SADDLE (SUPPLIED BY OTHERS)	10
8	MK-BE8	21mm x 8" GTI GROUT TUBE (SUPPLIED BY OTHERS)	10
9		HEAT SHRINK (SUPPLIED BY OTHERS)	AS REQ'D.
10			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

PRECAST DECK SLAB
DIMENSIONAL DETAILS

DWG. NO: S2

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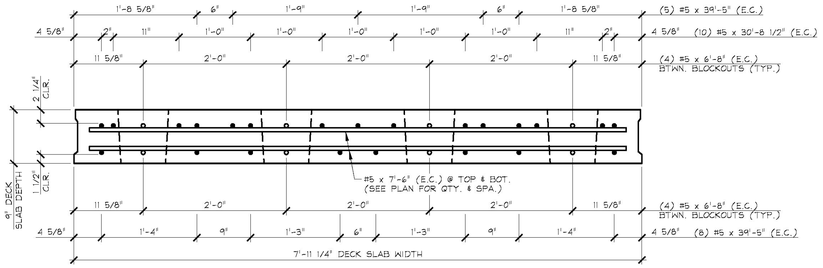
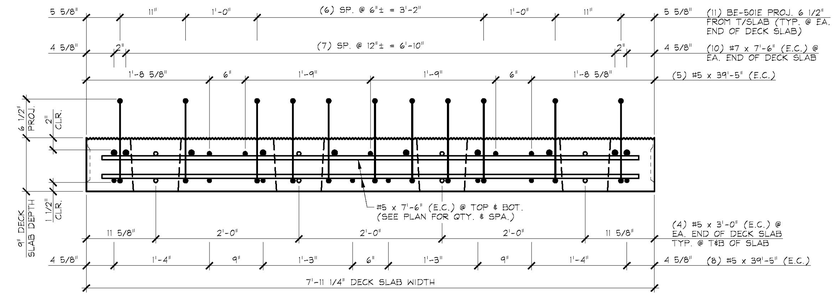


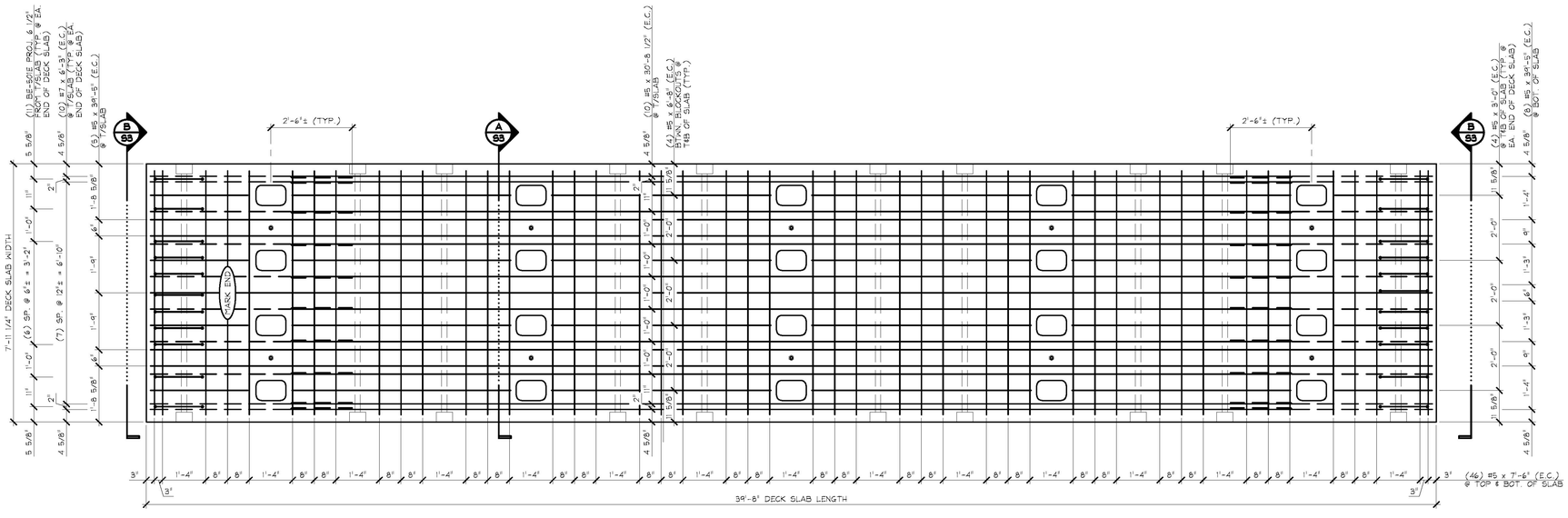
A S3 REINFORCING SECTION @ MID-SPAN

1" = 1'-0"



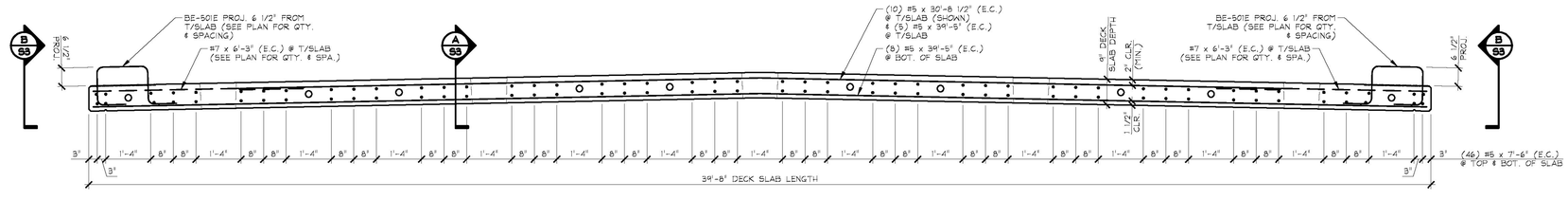
B S3 REINFORCING SECTION @ BEAM END

1" = 1'-0"



1 S3 REINFORCING PLAN VIEW IN FORM

1/2" = 1'-0"



2 S3 REINFORCING ELEVATION

1/2" = 1'-0"

MARK:	BE-DSI	QTY.:	7
MARK:	BE-DS2	QTY.:	1

MATERIAL LIST / DECK SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	BE-501E	#5 BENT BAR (EPOXY COATED)	22
2		#5 x 3'-0" (EPOXY COATED)	16
3		#5 x 6'-8" (EPOXY COATED)	32
4		#5 x 7'-6" (EPOXY COATED)	92
5		#5 x 30'-8 1/2" (EPOXY COATED)	10
6		#5 x 39'-5" (EPOXY COATED)	13
7			
8		#7 x 6'-3" (EPOXY COATED)	20
9			
10			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

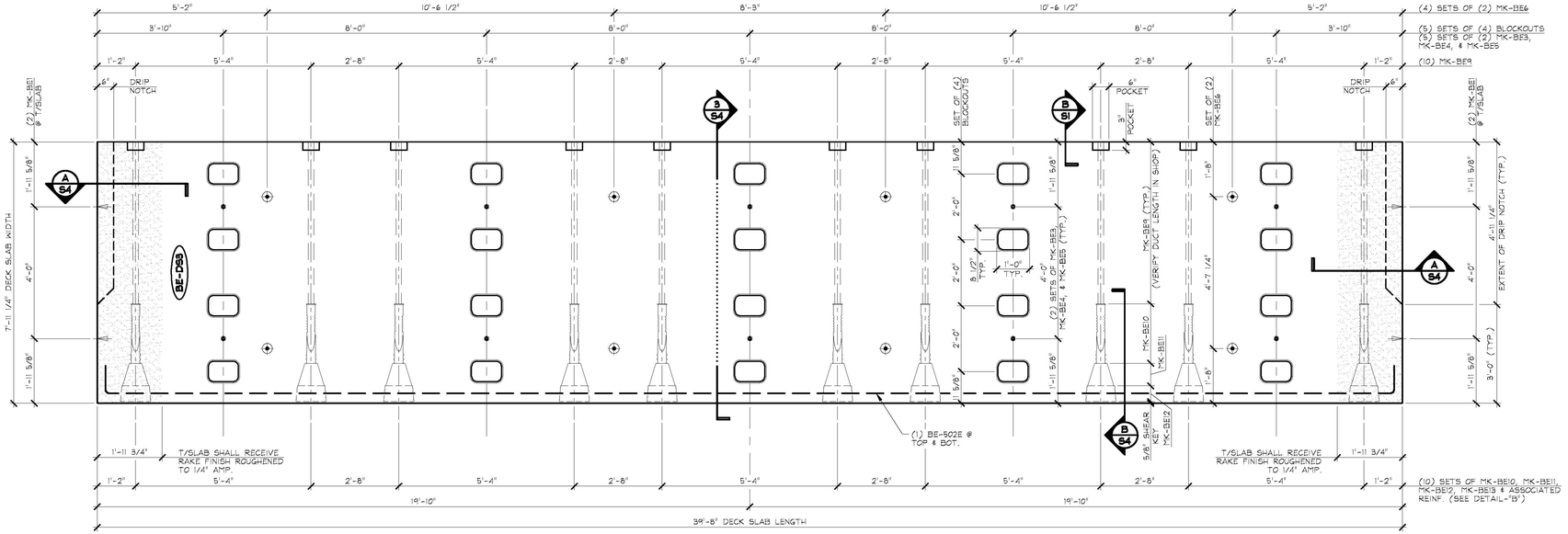
STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

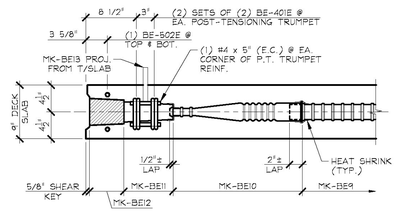
PRECAST DECK SLAB
REINFORCING DETAILS

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016
DWG. NO: S3

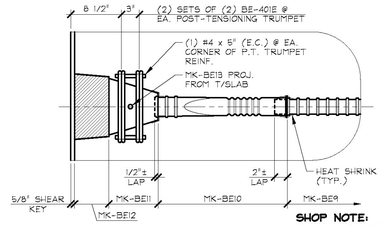
F:\VT-Bridges\23499-16 Ludlow\23499-DS3.dwg, 11/2/2016 8:11:38 PM



1 / S4 DIMENSIONAL PLAN VIEW IN FORM
1/2" = 1'-0"



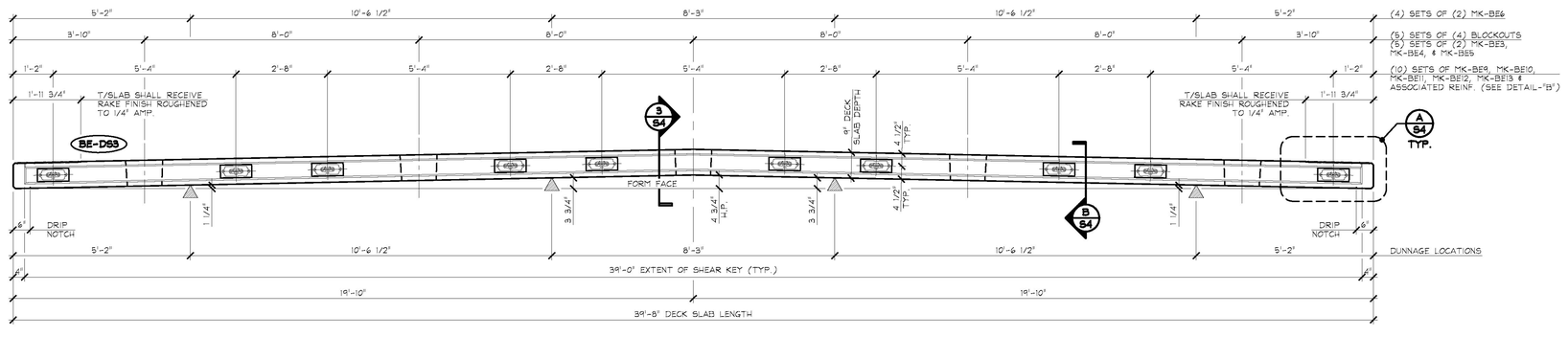
SECTION



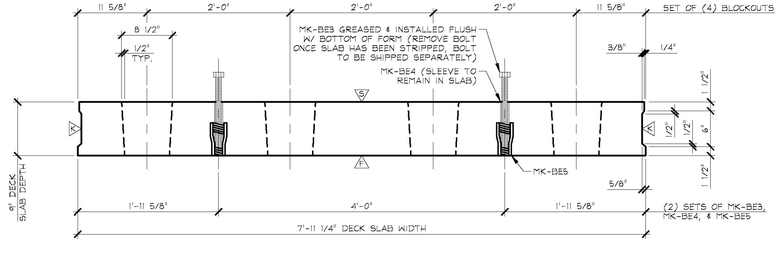
PLAN VIEW

SHOP NOTE:
MK-BE9 LENGTH SHOWN IS BASED ON LAP DIMENSIONS SHOWN. ADJUST LENGTH PER LAP DIMENSIONS ACTUALLY USED FOR POST-TENSIONING EQUIPMENT SUPPLIED BY OTHERS.

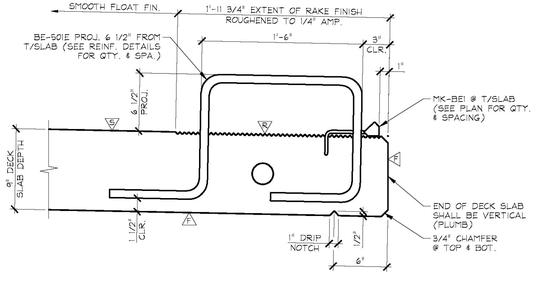
B / S4 DETAIL - "B"
1" = 1'-0"



2 / S4 DIMENSIONAL ELEVATION
1/2" = 1'-0"



3 / S4 DIMENSIONAL SECTION
1" = 1'-0"



A / S4 SECTION - "A"
1 1/2" = 1'-0"

A DENOTES FORM FINISH
B DENOTES SMOOTH FLOAT FINISH
C DENOTES ROUGHENED FINISH (SEE GENERAL NOTE #5, SHEET 'FI')
A DENOTES RAKE FINISH ROUGHENED TO 1/4" AMPLITUDE

SHOP NOTE:
SEE DRAWING NO. "S5" FOR REINFORCING INFORMATION

MARK: BE-DS3	QTY.: 2	WT.: 17.02 T	VOL.: 8.41 cy

MATERIAL LIST / DECK SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	MK-BE1	DAYTON C-24 TYPE 4-APR DECK FORM HANGER (GALV.)	4
2	MK-BE3	1'ø x 1'-2" LEVELING BOLT (COIL THREAD)	10
3	MK-BE4	1 3/8"ø O.D. x 6 1/4" PVC PIPE SLEEVE	10
4	MK-BE5	DAYTON 1'ø F-56 EXPANDED COIL INSERT (2-STRUT) (GALV.)	10
5	MK-BE6	4T x 7 1/8" SWIFT LIFT LIFTER (GALV.)	8
6	MK-BE9	GTI 2 3/8" x 5'-0 7/8" LONG CORRUGATED PP DUCT (SUPPLIED BY OTHERS)	10
7	MK-BE10	GTI 1"x3" TRANSITION PIECE (SUPPLIED BY OTHERS)	10
8	MK-BE11	POST-TENSIONING TRUMPET (DSI 4-0.6" FLAT ANCHOR (GALV.) W/ HARDWARE) (SUPPLIED BY OTHERS)	10
9	MK-BE12	DSI POCKET FORMER (SUPPLIED BY OTHERS)	10
10	MK-BE13	3/4" x 6" NPT PIPE NIPPLE (SUPPLIED BY OTHERS)	10
11		HEAT SHRINK (SUPPLIED BY OTHERS)	AS REQ'D.
12			
13	BE-401E	#4 BENT BAR (EPOXY COATED)	40
14		#4 x 0'-5" (EPOXY COATED)	40
15			
16	BE-502E	#5 BENT BAR (EPOXY COATED)	2
17			
18			
19			
20			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 OXBOW STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

PRECAST DECK SLAB
DIMENSIONAL DETAILS

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016
DWG. NO: S4

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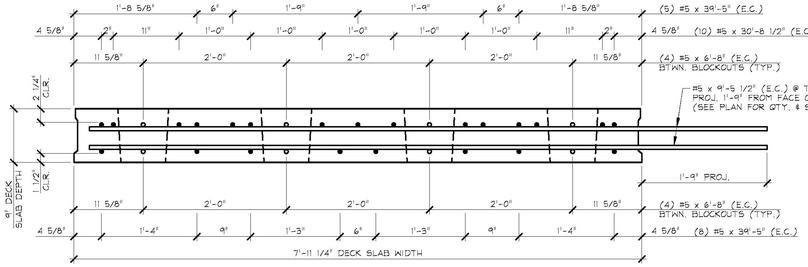
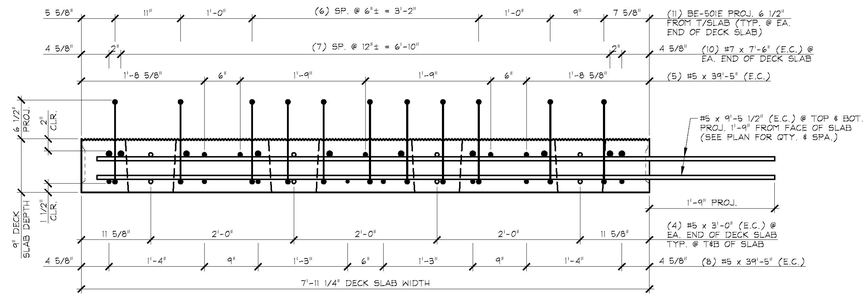


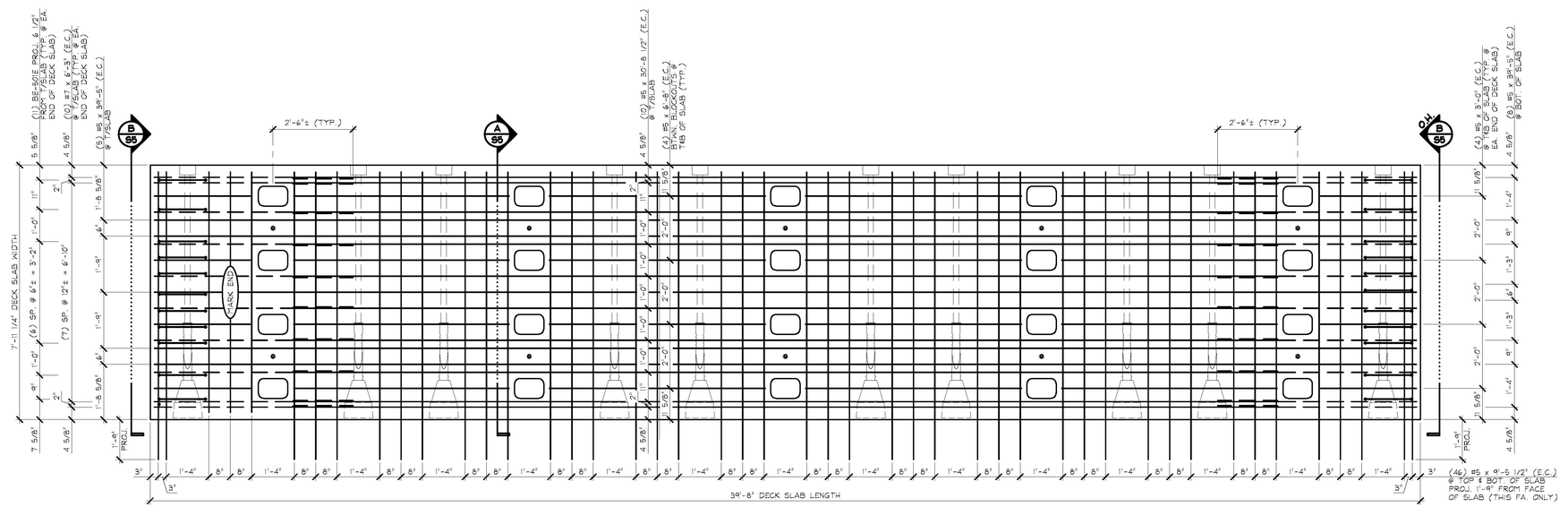
A S5 REINFORCING SECTION @ MID-SPAN

1" = 1'-0"



B S5 REINFORCING SECTION @ BEAM END

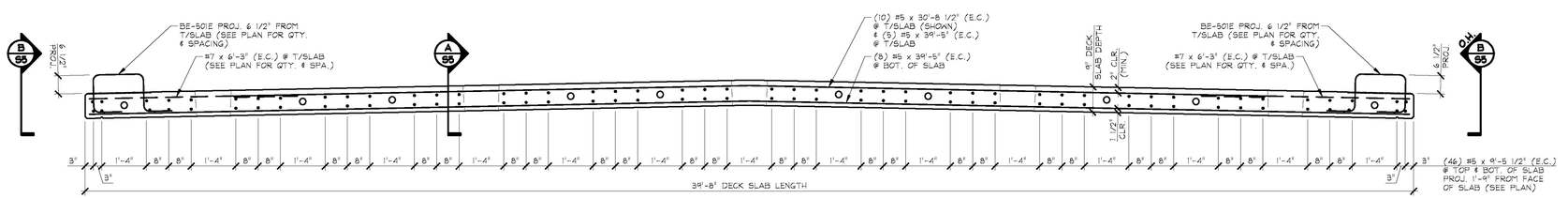
1" = 1'-0"



1 S5 REINFORCING PLAN VIEW IN FORM

1/2" = 1'-0"

SHOP NOTE:
SEE DRAWING NO. "S4" FOR ADDITIONAL REQUIRED REINFORCING NOT SHOWN ON THIS SHEET.



2 S5 REINFORCING ELEVATION

1/2" = 1'-0"

MARK: BE-DS3 QTY.: 2

MATERIAL LIST / DECK SLAB

ITEM	MARK	DESCRIPTION	QTY.
1	BE-501E	#5 BENT BAR (EPOXY COATED)	22
2		#5 x 3'-0" (EPOXY COATED)	16
3		#5 x 6'-8" (EPOXY COATED)	32
4		#5 x 9'-5 1/2" (EPOXY COATED)	92
5		#5 x 30'-8 1/2" (EPOXY COATED)	10
6		#5 x 39'-5" (EPOXY COATED)	13
7			
8		#7 x 6'-3" (EPOXY COATED)	20
9			
10			

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 OLDE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

PRECAST DECK SLAB REINFORCING DETAILS

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016
DWG. NO: S5

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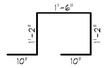
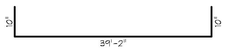
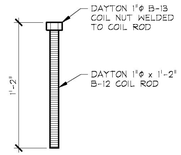
BE-401E
#4 BENT BAR
EPOXY COATED
USE 2"ϕ (50mm) PIN
(80) REQ'D.



BE-501E
#5 BENT BAR
EPOXY COATED
USE 2¾"ϕ (70mm) PIN
(220) REQ'D.



BE-502E
#5 BENT BAR
EPOXY COATED
USE 2¾"ϕ (70mm) PIN
(4) REQ'D.



MK-BE3
(100) REQ'D.

MISCELLANEOUS MATERIALS

ITEM	MARK	QTY.	DESCRIPTION	REMARKS
1	MK-BE1	40	DAYTON C-24 TYPE 4-APR DECK FORM HANGER	GALVANIZED
2	MK-BE2	80	GTI 2 3/8" x 7'-11 1/4" LONG CORRUGATED PP DUCT	SUPPLIED BY OTHERS
3	MK-BE3	100	1"ϕ x 1'-2" LEVELING BOLT (COIL THREAD)	SEE DETAIL THIS SHEET
4	MK-BE4	100	1 3/8"ϕ O.D. x 6 1/4" PVC PIPE SLEEVE	
5	MK-BE5	100	DAYTON 1"ϕ F-56 EXPANDED COIL INSERT (2-STRUT)	GALVANIZED
6	MK-BE6	80	4T x 7 1/8" SWIFT LIFT LIFTER	GALVANIZED
7	MK-BE7	10	GTI 2 3/8" GROUT SADDLE	SUPPLIED BY OTHERS
8	MK-BE8	10	21mm x 8" GTI GROUT TUBE	SUPPLIED BY OTHERS
9	MK-BE9	20	GTI 2 3/8" x 5'-0 7/8" LONG CORRUGATED PP DUCT (ADJUST LENGTH AS REQ'D. AFTER INSTALLATION)	SUPPLIED BY OTHERS
10	MK-BE10	20	GTI 1"x3" TRANSITION PIECE	SUPPLIED BY OTHERS
11	MK-BE11	20	POST-TENSIONING TRUMPET (DSI 4-0.6" FLAT ANCHOR (GALV.) W/ HARDWARE)	SUPPLIED BY OTHERS
12	MK-BE12	20	DSI POCKET FORMER	SUPPLIED BY OTHERS
13	MK-BE13	20	3/4" x 6" NPT PIPE NIPPLE	SUPPLIED BY OTHERS
14				
15		AS REQ'D.	HEAT SHRINK	SUPPLIED BY OTHERS
16				
17				
18		80	#4 x 0'-5" (EPOXY COATED)	
19				
20		160	#5 x 3'-0" (EPOXY COATED)	
21		320	#5 x 6'-8" (EPOXY COATED)	
22		736	#5 x 7'-6" (EPOXY COATED)	
23		100	#5 x 30'-8 1/2" (EPOXY COATED)	
24		130	#5 x 39'-5" (EPOXY COATED)	
25		184	#5 x 9'-5 1/2" (EPOXY COATED)	
26				
27		200	#7 x 6'-3" (EPOXY COATED)	
28				
29				
30				

APPROVAL STAMP:

J.P. CARRARA & SONS INC.
Precast & Prestress Manufacturer
2464 CASE STR., MIDDLEBURY, VERMONT 05753 Phone:(802)388-6361 Fax:(802)388-9010

THE BELDEN COMPANY
CONTRACTOR
RUTLAND, VERMONT

STATE OF VERMONT AGENCY OF TRANSPORTATION
COUNTY OF WINDSOR

TOWN OF LUDLOW
VT ROUTE 100 (MINOR ARTERIAL)
BRIDGE NO.: 99 PROJECT NO.: STP DECK(39)

MATERIALS LIST

DATE: NOV. 1, 2016
SCALE: NOTED
CHKD: A.S. DFTM: B.L.
JOB NO: 23499-016
DWG. NO: M1

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REV.1

SHOP DRAWINGS
&
CALCULATIONS

For

LUDLOW
POST-TENSIONED VT DECK PANELS

STATE OF VERMONT
AGENCY OF TRANSPORTATION

PREPARED FOR

CONSTRUCTIVE SERVICES, INC.

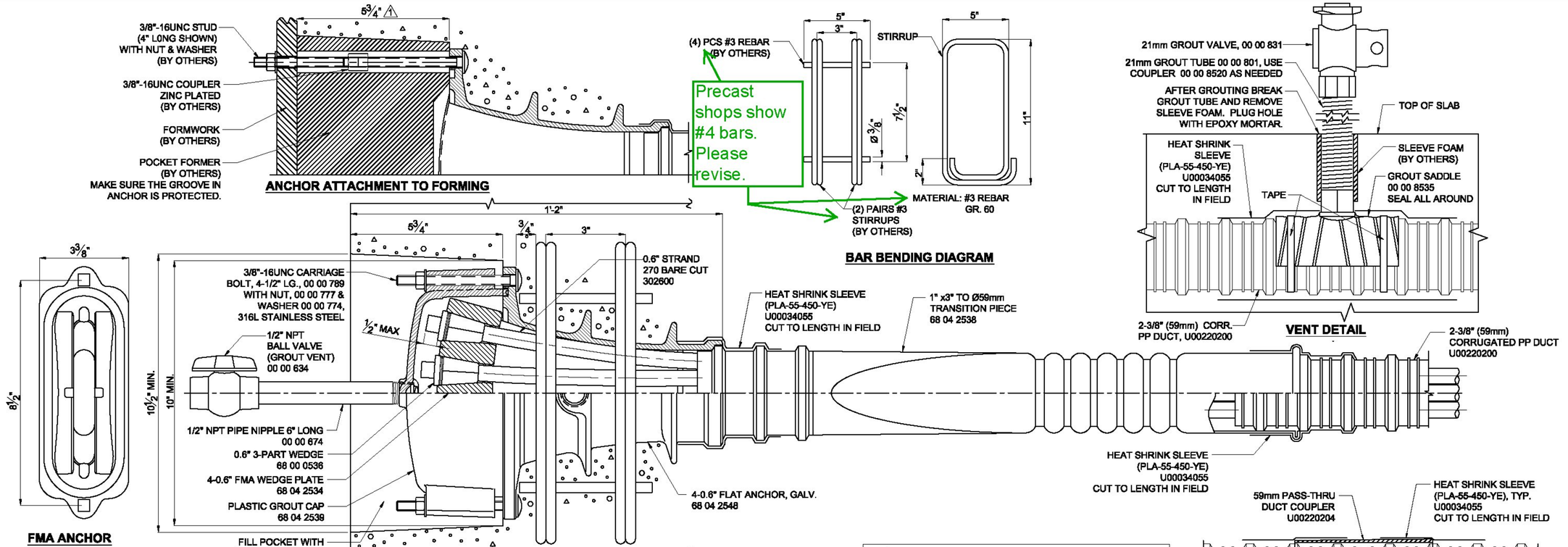
SUBMITTED FOR FINAL APPROVAL

November 22, 2016

INDEX

PAGE NO.:	CONTENTS:
Page 3	4-0.6" Flat Anchorage System Assembly Drawing - PT-1
Page 4	Deck Slab Tendon Layout and Stressing Schedule - PT-2
Page 5	Stressing Calculations

FMA ANCHOR END VIEW

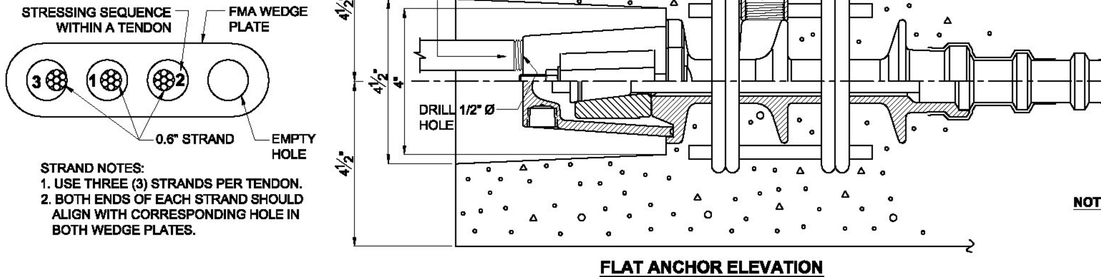


ANCHOR ATTACHMENT TO FORMING

BAR BENDING DIAGRAM

VENT DETAIL

FLAT ANCHOR PLAN



STRAND NOTES:
1. USE THREE (3) STRANDS PER TENDON.
2. BOTH ENDS OF EACH STRAND SHOULD ALIGN WITH CORRESPONDING HOLE IN BOTH WEDGE PLATES.

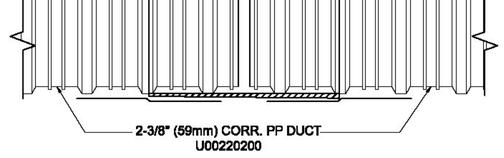
FLAT ANCHOR ELEVATION

PART NO.	DESCRIPTION	MATERIAL SPECIFICATION
302600	0.6" STRAND 270 BARE CUT	0.6" DIA. LOWLAX STRAND PER ASTM A416
68 04 2548	4-0.6" FMA ANCHOR GALV.	DUCTILE IRON, 80-55-06 ASTM A536
68 04 2534	4-0.6" FMA WEDGE PLATE	DUCTILE IRON, 80-55-06 ASTM A536
68 04 2539	4-0.6" PLASTIC GROUT CAP	NYLON 6, 20% GLASS FILLED
68 00 0536	0.6" 3-PART WEDGE	COLD DRAWN C12L14 BAR
U00220200	2-3/8" (59mm) CORR. PP DUCT	PPEX3
U00220204	59mm PASS-THRU DUCT COUPLER	HDPE OR POLYPROPENE
68 04 2538	1" x3" TO Ø59mm TRANSITION PIECE	POLYETHYLENE
U00034055	HEAT SHRINK SLEEVE PLA-55-450-YE	PER CANUSA SPECS.
00 00 874	3/4" NPT PIPE NIPPLE 6" LONG	SCH 40 BLACK WELDED STEEL
00 00 674	1/2" NPT PIPE NIPPLE 6" LONG	SCH 40 BLACK WELDED STEEL

PART NO.	DESCRIPTION	MATERIAL SPECIFICATION
00 00 834	3/4" NPT BALL VALVE	PVC
00 00 634	1/2" NPT BALL VALVE	PVC
00 00 847	3/4" BT PLUG	NYLON
00 00 647	1/2" BT PLUG	NYLON
00 00 789	3/8"-16UNC CARRIAGE BOLT 4-1/2" LG.	316L STAINLESS STEEL
00 00 777	HEX NUT	
00 00 774	WASHER	
00 00 8535	GROUT SADDLE	HDPE
00 00 801	21mm GROUT TUBE	HDPE
00 00 8520	21mm GROUT TUBE COUPLER	HDPE
00 00 831	21mm GROUT VALVE	PLASTIC

WARNING: READ AND COMPLY WITH ALL APPLICABLE SAFETY AND OPERATING INSTRUCTIONS AND WARNINGS FOR MULTI-STRAND STRESSING BEFORE STARTING ANY WORK OR OPERATION.

CAUTION: WHEN PRESSURIZING GROUT CAPS, DO NOT STAND BEHIND CAPS!



DUCT COUPLING DETAIL
(USED INSIDE PANEL)

NOTE: OTHER REQUIRED REINFORCING BARS NOT SHOWN.

Vermont Agency of Transportation
RECEIVED
CK'D BY CLD OK'D BY TAS
December 7, 2016
RESUBMIT No Approved As Noted
BY T Sumner DATE 12/16/16

OWNER: State of Vermont Agency of Transportation
CONTRACTOR: CONSTRUCTIVE SERVICES, INC.
PROJECT: **LUDLOW VT DECK PANELS**

4-0.6" FLAT ANCHORAGE SYSTEM ASSEMBLY DRAWING

DATE: 11/10/16 | DWG: GM | CHK: SN | APP: SN

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DYWIDAG SYSTEMS INTERNATIONAL, USA INC. DOES NOT ASSUME ANY LIABILITY FOR THE DESIGN OF THIS STRUCTURE. THIS SHOP DRAWING IS INTENDED TO PROVIDE POST TENSIONING DETAILS ONLY.

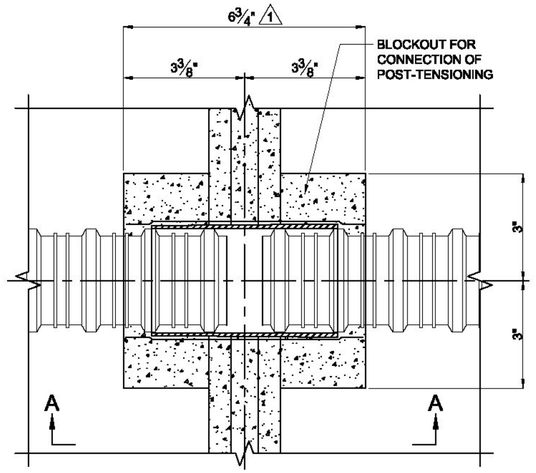
WEIGHT	REV.	DATE	ISSUE DESCRIPTION	NAME	CHKD.
	0	11/11/16	FOR APPROVAL	GM	SN
	⚠1	11/22/16	FOR FINAL APPROVAL	GM	SN

JOB NUMBER: **J115139**

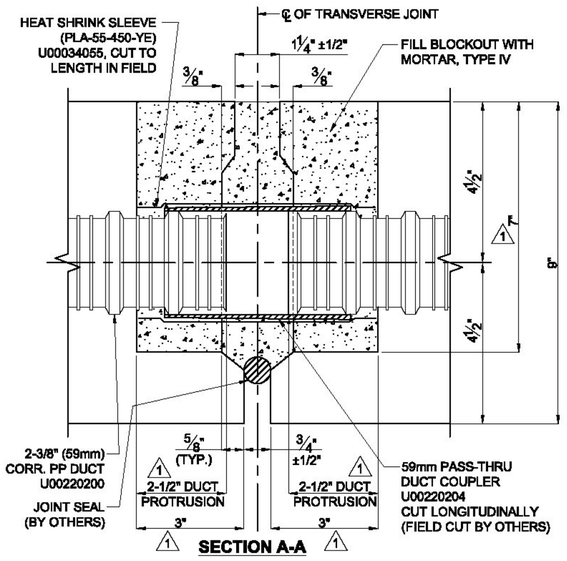
SCALE 1 : 4

DRAWING NUMBER: **PT - 1**

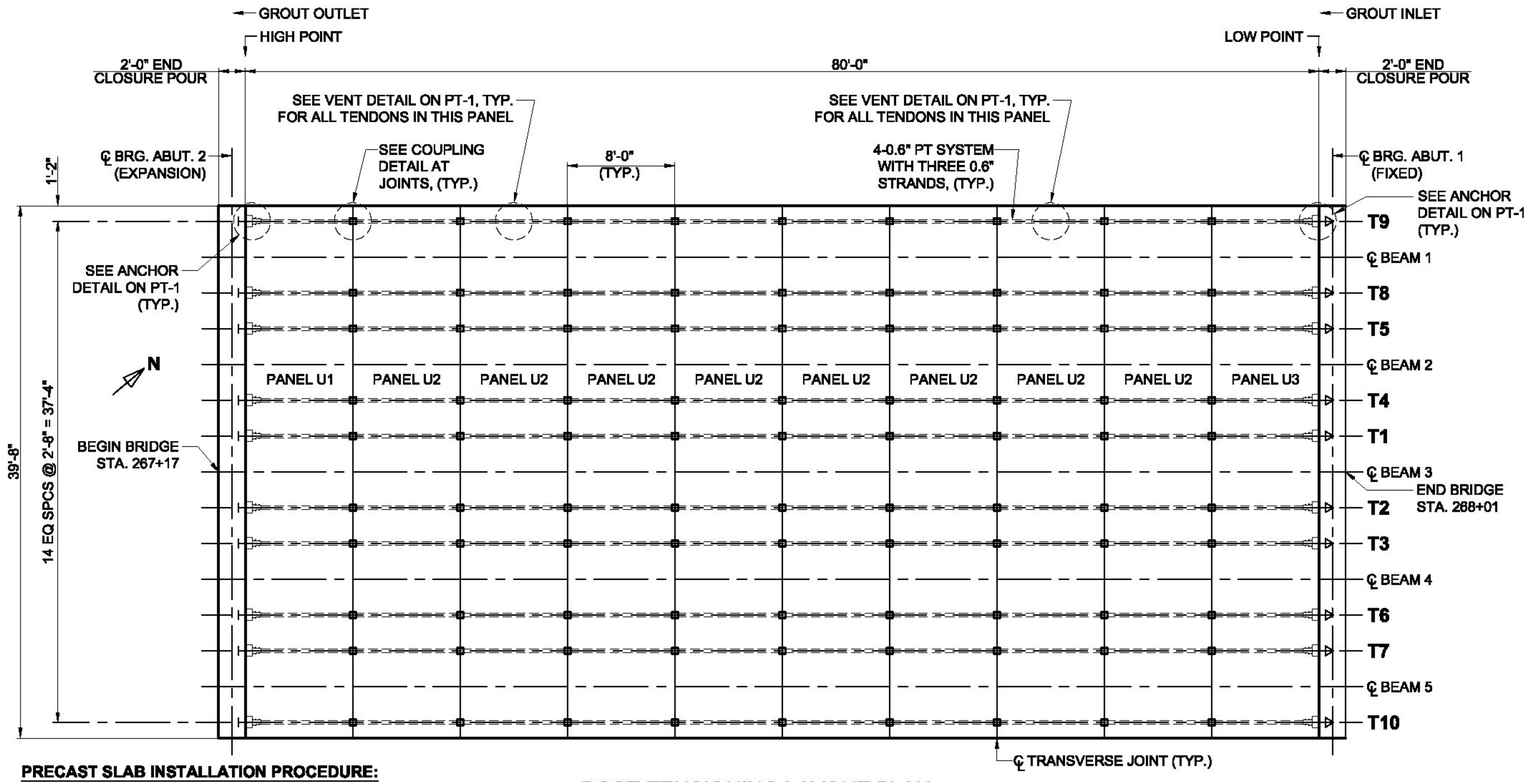
DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC.
POST TENSIONING / REINFORCING UNIT PHONE: 630-739-1100
320 MARMON DRIVE - BOLINGBROOK, IL FAX: 630-739-1405



COUPLING DETAIL AT JOINTS
(USED AT DUCT BLOCKOUT IN BETWEEN PANELS)



SECTION A-A



POST-TENSIONING LAYOUT PLAN

PRECAST SLAB INSTALLATION PROCEDURE:

1. ERECT DECK SLABS.
2. ADJUST SLABS TO GRADE USING LEVELING DEVICES. ALL LEVELING BOLTS SHALL BE TORQUED TO APPROXIMATELY THE SAME VALUE WITHIN 20%.
3. INSTALL DUCT COUPLER AS SHOWN. INSTALL PT STRANDS LOOSE IN DUCT
4. COMPLETE OTHER WORKS PER CONTRACT PLANS SHEET 4 OF 42..
5. STRESS PT TENDONS FOLLOWING THE PROVIDED STRESSING SEQUENCE ON THIS SHEET. MAKE SURE TO STRESS EACH OF 3 STRANDS IN EACH TENDON TO THE REQUIRED JACKING FORCE FOLLOWING THE SEQUENCE AS SHOWN ON SHEET PT-1. SEE TABLE FOR JACKING FORCE AND ELONGATIONS
6. AFTER STRESSING RECORDS ARE APPROVED BY ENGINEER OF RECORDS, CUT TAILS AND GROUT EACH DUCT FROM THE NORTH END AS SHOWN. USE ALL OTHER GROUT TUBES AS VENT.
7. POURBACK THE BLOCKOUTS WITH NON-SHRINK GROUT

TENDON	100% JACKING FORCE PER STRAND (KIPS)	LOCK-OFF FORCE PER STRAND (KIPS)	REQUIRED ELONGATION BETWEEN 20% AND 100%	
			BEFORE LOCK-OFF (IN)	AFTER LOCK-OFF (IN)
ALL	33.4	30.7	4.28	3.96

LEGEND

- T1 — STRESSING SEQUENCE
- TENDON MARK
- → STRESSING END
- ⊢ DEAD END

Vermont Agency of Transportation
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December 7, 2016
RESUBMIT No Approved
BY T Sumner DATE 12/16/16

OWNER:	State of Vermont Agency of Transportation
CONTRACTOR:	CONSTRUCTIVE SERVICES, INC.
PROJECT:	LUDLOW VT DECK PANELS

DECK SLAB TENDON LAYOUT AND STRESSING SCHEDULE

DATE: 11-10-16 | DWG: GM | CHK: SN | APP: SN

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WEIGHT	REV.	DATE	ISSUE DESCRIPTION	NAME	CHKD.
	0	11-11-16	FOR APPROVAL	GM	SN
	1	11-22-16	FOR FINAL APPROVAL	GM	SN

SCALE
3/32" = 1'-0"
3" = 1'-0"

JOB NUMBER **J115139**

DRAWING NUMBER: **PT-2**

DYWIDAG-SYSTEMS INTERNATIONAL, USA, INC.
POST TENSIONING / REINFORCING UNIT PHONE: 630-739-1100
320 MARMON DRIVE - BOLINGBROOK, IL FAX: 630-739-1405

ADAPT Corporation
1733 Woodside Rd., Suite 220
Redwood City, CA, 94061, USA

ADAPT CORPORATION
1733 Woodside Road, Suite 220, Redwood City, CA 94061 USA
Tel: (650) 306 2400, Fax: (650) 306 2401
E-mail: support@adaptsoft.com, Web site: www.adaptsoft.com

ADAPT-FELT Standard 2014
ADAPT POST-TENSIONING STRESS LOSS & ELONGATION PROGRAM

This program calculates the long-term and immediate stress losses in a post-tensioned tendon. It outputs the elongations at the stressing ends and the final stress profile along the tendon.

DATE: Nov 15, 2016 TIME: 09:49:41

Vermont Agency of Transportation
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P R O J E C T T I T L E :
LUDLOW VT DECK PANELS

S P E C I F I C T I T L E :
TYPICAL PT TENDON

F R I C T I O N & E L O N G A T I O N C A L C U L A T I O N S :

INPUT PARAMETERS :

Coefficient of angular friction (meu)	0.23000	/radian
Coefficient of wobble friction (K)	0.00020	rad/ft
Ultimate strength of strand	270.00	ksi
Ratio of jacking stress to strand's ultimate strength	0.57	
Anchor set	0.38	inch
Cross-sectional area of strand	0.217	inch^2
Total Number of Strands per Tendon	3	
Modulus of elasticity of strand	28500.00	ksi
STRESSING	AT RIGHT END	

LEGEND :
P ..... = Tendon profile type defined as: 1=reversed parabola;
2=partial/regular parabola; 3=harped; 4=general; 5=straight;
6=extended reversed parabola; 7=cantilever down
X1/L etc = horizontal distances to control points in geometry of the tendon divided by span length
Stresses tabulated are after anchor set but before long-term losses.

TENDON ID, GEOMETRY AND STRESS PROFILE (Typical PT tendon)

	LENGTH		< TENDON HEIGHT in.>			Horizontal ratios			<- STRESS (ksi) -->		
SPAN	ft	P	start	center	right	X1/L	X2/L	X3/L	start	center	right
-1-	----2-----	3	----4----	------5------		------6-------		7----	8----	9--------10------	11------	12-

1	79.50	1	4.50	4.50	4.50	0.05	0.50	0.05	142.69	141.48	140.26

79.50 ft (total length of tendon)

SUMMARY :

Average initial stress (after release)	141.48	ksi
Long term stress losses	0.00	ksi
Final average stress	141.48	ksi
Final average force in tendon	92.10	k
Anchor set influence from right pull (142.69ksi;0.528)	79.50	ft
Elongation at right pull before anchor set	5.111	inch
Elongation at right pull after anchor set	4.736	inch
Total elongation after anchor set	4.736	inch
Ratio of total elongation to tendon length after anchor set	0.060	inch/ft
Jacking force	100.19	k

CRITICAL STRESS RATIOS :
At stressing 0.570; At anchorage 0.528; Max along tendon 0.528

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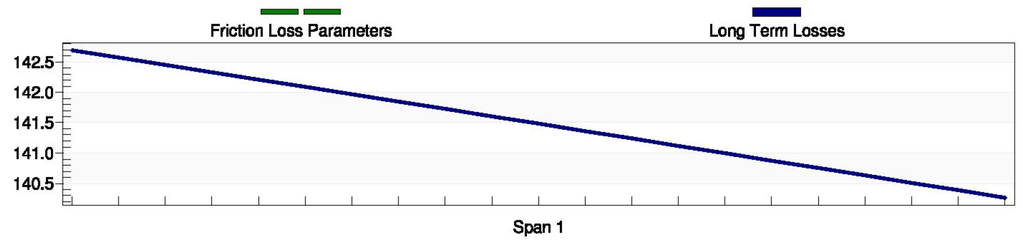
ADAPT Structural Concrete Software

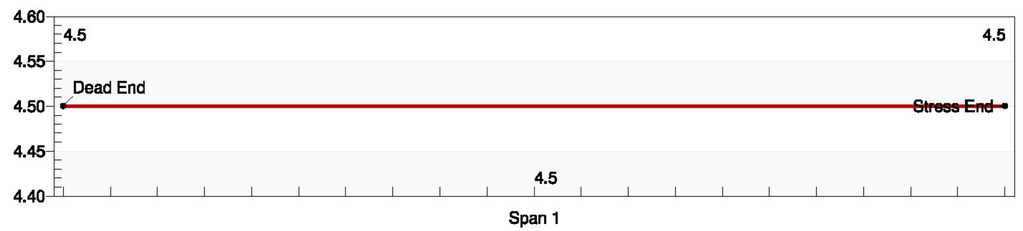
E-mail: support@adaptsoft.com, Web site: www.adaptsoft.com
ADAPT-FELT Ver. 2014
Date: 11/15/2016 Time: 09:54

1- PROJECT TITLE : LUDLOW VT DECK PANELS
1.1 SPECIFIC TITLE : TYPICAL PT TENDON
1.2 FILE NAME : Typical PT tendon

2 - TENDON STRESSES [ksi]



3 - TENDON PROFILE [in]



4 - SUMMARY

Average initial stress (after release).....	141.48	ksi
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CRITICAL STRESS RATIOS :
At stressing 0.570; At anchorage 0.528; Max along tendon 0.528

5 - DESIGNER'S NOTES

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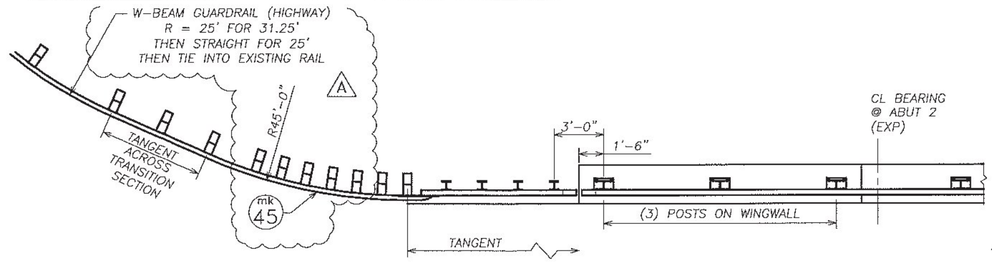
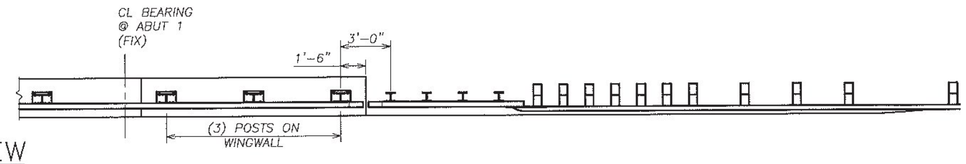
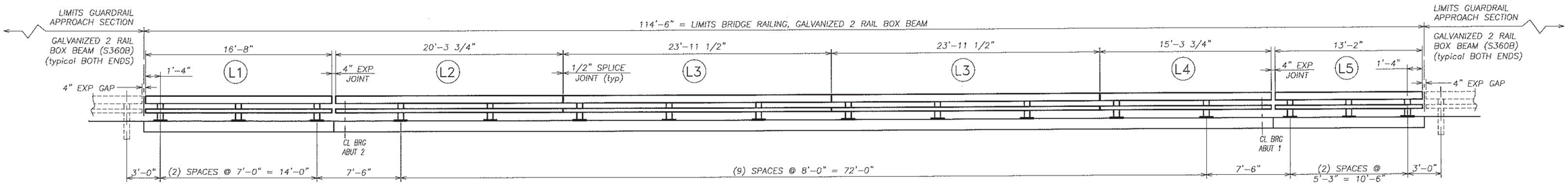




PARTIAL PLAN VIEW



NORTHWEST SIDE RAILING ELEVATION

LOOKING AT TRAFFIC FACE OF RAILING
FACING NORTHWEST FROM CENTERLINE OF ROAD

BILL OF MATERIAL

BOTH SIDES OF BRIDGE

Qty	mk	Description	Spec.
229 LF		ITEM 525.33 BRIDGE RAILING, GALVANIZED, 2 RAIL BOX BEAM	
32		BRIDGE RAILING POST W6 x 25 x 2'-2.375" OAH WITH 1 x 10 x 14 BASE PLATE (GLV)	A709 gr 50
6		SPLICE TUBE (FOR 8X4 RAIL) HSS 7 x 3 x 3/8 x 1'-8.000" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)	A500 gr B
6		SPLICE TUBE (FOR 4X4 RAIL) HSS 3 x 3 x 5/16 x 1'-8.000" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)	A500 gr B
4		EXP SPLICE (FOR 8X4 RAIL) HSS 7 x 3 x 3/8 x 1'-11.750" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)	
4		EXP SPLICE (FOR 4X4 RAIL) HSS 3 x 3 x 5/16 x 1'-11.750" OAL w/ TAPPED HOLES & 2 WELDED NUTS (GLV)	
2	L1	UPPER RAIL TUBE 8 x 4 x 5/16 16'-8.000" OAL (GLV) exp slots both ends	A500 gr B
2	L2	UPPER RAIL TUBE 8 x 4 x 5/16 20'-3.750" OAL (GLV) 1 end slots, 1 end holes	A500 gr B
4	L3	UPPER RAIL TUBE 8 x 4 x 5/16 23'-11.500" OAL (GLV) splice holes both ends	A500 gr B
2	L4	UPPER RAIL TUBE 8 x 4 x 5/16 15'-3.750" OAL (GLV) 1 end slots, 1 end holes	A500 gr B
2	L5	UPPER RAIL TUBE 8 x 4 x 5/16 13'-2.000" OAL (GLV) exp slots both ends	A500 gr B
2	L1	LOWER RAIL TUBE 4 x 4 x 1/4 16'-8.000" OAL (GLV) exp slots both ends	A500 gr B
2	L2	LOWER RAIL TUBE 4 x 4 x 1/4 20'-3.750" OAL (GLV) 1 end slots, 1 end holes	A500 gr B
4	L3	LOWER RAIL TUBE 4 x 4 x 1/4 23'-11.500" OAL (GLV) splice holes both ends	A500 gr B
2	L4	LOWER RAIL TUBE 4 x 4 x 1/4 15'-3.750" OAL (GLV) 1 end slots, 1 end holes	A500 gr B
2	L5	LOWER RAIL TUBE 4 x 4 x 1/4 13'-2.000" OAL (GLV) exp slots both ends	A500 gr B
		anchors on bridge	
20		ANCHOR SPACER PLATE PL 0.375 x 13.000 x 9.375	A709 gr 36
80		ANCHOR STUD DBL END PART THREAD - 1" DIA x 12.000 w/ 2.250" THD EACH END (GLV)	A449
160		HEAVY HEX NUT 1" (GLV)	A563 DH
80		ROUND WASHER (SAE) - 1" DIA SMALL (GLV)	F436
80		JAM NUT 1" (GALV)	A563 DH
		anchors on wingwall	
12		ANCHOR STUD DBL END PART THREAD - 1" DIA x 12.000 w/ 2.250" THD EACH END (GLV)	A449
24		HEAVY HEX NUT 1" (GLV)	A563 DH
12		ROUND WASHER (SAE) - 1" DIA SMALL (GLV)	F436
128		ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 6" LG. FULL BODY (GLV)	A449 / A325
128		LOCK NUT 3/4" (GLV)	A563 DH
128		ROUND WASHER (SAE) 3/4" (GLV)	F436
80		HEX HEAD BOLT 5/8" DIA x 1.75" LG. (GLV)	A325
80		ROUND WASHER (SAE) 5/8" (GLV)	F436
32		SPACER PIPE - GALVANIZED 3/4" SCH. 40 x 1/2" LONG (GLV)	A53 gr B
32		BEARING PAD 0.125" THICK x 10.000 x 14.000 (NEOPRENE 80 duro +/-10)	aashto M251

Vermont Agency of Transportation
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December 29, 2016
RESUBMIT No Approved AsNoted
BY T Sumner DATE 01/03/2016

No.	Remarks	Date
A	corrected submittal	12-29-16
0	initial submittal	10-26-16

REVISIONS – APPLIES TO SET

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: CONFIRMING 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, 540 Commercial Street, Manchester, NH 03101, 603-668-8223

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

HIGHWAY SAFETY CORP
GLASTONBURY, CT
860-633-9445

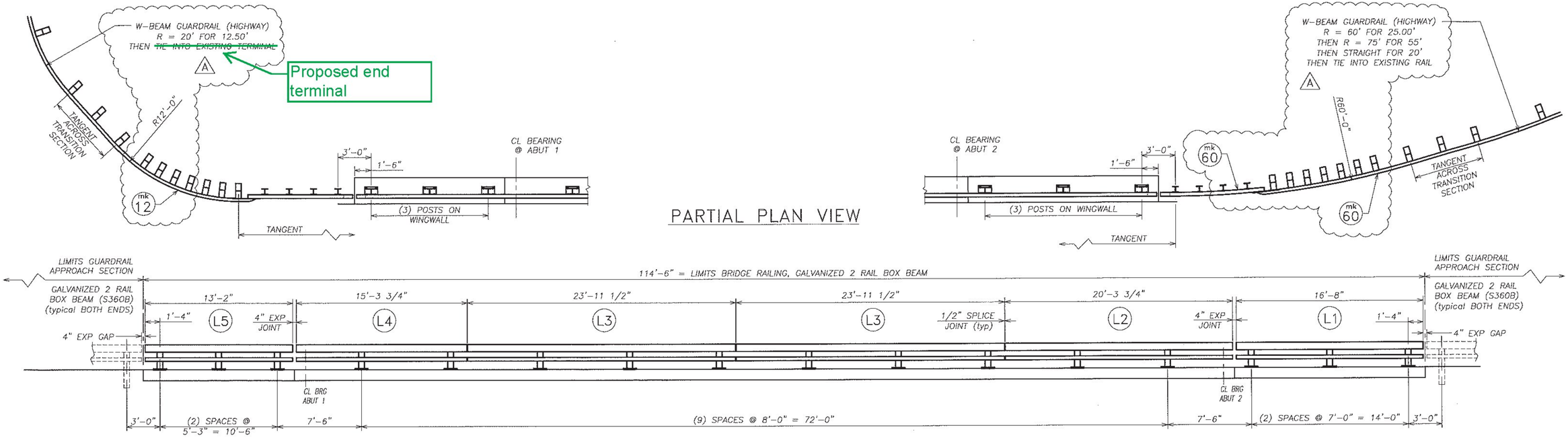
ITEM 525.33 BRIDGE RAILING, GALVANIZED 2 RAIL BOX BEAM (S-360A)
ITEM 621.72 GUARDRAIL APPROACH, GALV 2 RAIL BOX BEAM (S-360B)
TOWN OF LUDLOW, VERMONT
VT ROUTE 100 – (MINOR ARTERIAL) BRIDGE #99
WINDSOR COUNTY STP DECK (39)

CERTIFIED FABRICATOR

GENERAL CONTRACTOR
SUB CONTRACTOR LAFAYETTE

NSC JOB NO. 2141
SHEET NO. 1 of 4

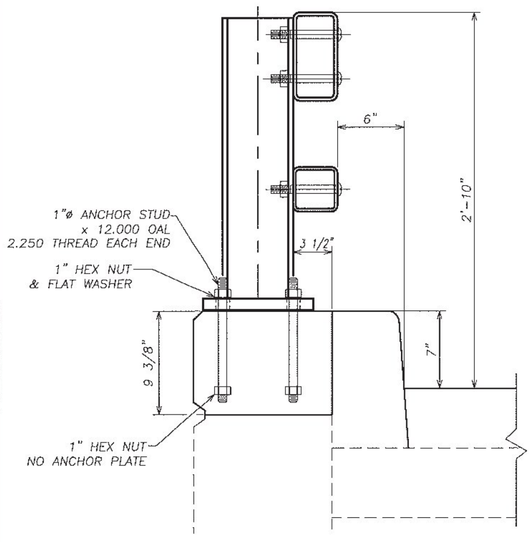
DRAWN PAR | CHECKED | DATE 10-20-16 | SCALE NONE | SIZE D



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:

1. ALL WORK AND MATERIALS SHALL CONFORM TO SECTION 525.
2. PRIOR TO GALVANIZING, ALL EXPOSED CUT OR SHEARED EDGES SHALL BE ROUNDED TO A 1/16" RADIUS AND BE FREE OF BURRS.
3. ALL POSTS SHALL BE SET NORMAL TO GRADE.
4. SECTIONS OF RAIL TUBE SHALL BE ATTACHED TO A MINIMUM OF TWO (2) RAIL POSTS AND PREFERABLY TO AT LEAST FOUR (4) POSTS.
5. (A) 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.
6. HOLES IN RAILS FOR RAIL TUBE ATTACHMENT SHALL BE FIELD-DRILLED. HOLES SHALL BE COATED WITH AN APPROVED ZINC-RICH PAINT PRIOR TO INSTALLATION.
7. RAIL POST ANCHORING NUTS SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL ONE-EIGHTH TURN.
8. 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.
9. ANY BENDING OR CURVING OF RAIL SHALL BE DONE IN A FABRICATION PLANT IN ACCORDANCE WITH SUBMITTED PROCEDURES.
10. 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.
11. 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.
12. THIS RAILING MEETS THE REQURIEMENTS 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 AASTHO M291 (ASTM A563).

WASHERS SHALL COMPLY WITH AASHTO M293 (ASTM F436) SPECIFCATIONS.

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
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December 29, 2016
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SHOP DRAWING REVIEW

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CLD Consulting Engineers
540 Commercial Street
Manchester, NH 03101
603-668-8223

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

HIGHWAY SAFETY CORP
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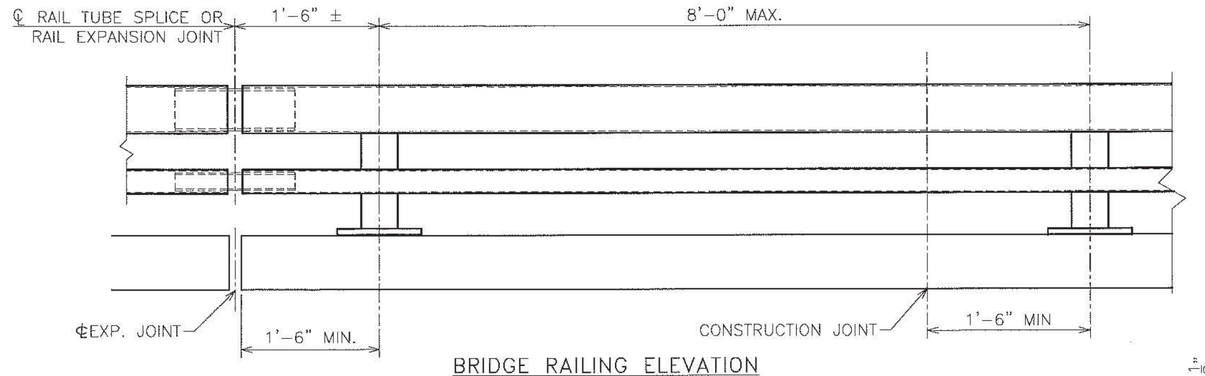
WINDSOR COUNTY STP DECK (39)

NSC CERTIFIED FABRICATOR

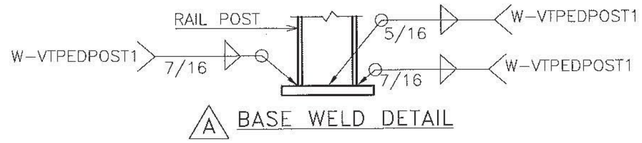
GENERAL CONTRACTOR
SUB CONTRACTOR LAFAYETTE

HSC JOB NO. 2141
SHEET NO. 2 of 4

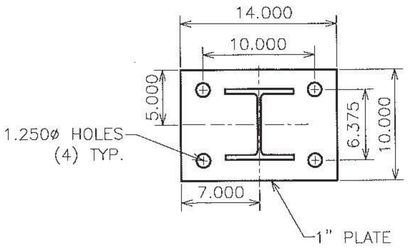
DRAWN	CHECKED	DATE	SCALE	SIZE
PAR		10-20-16	NONE	D



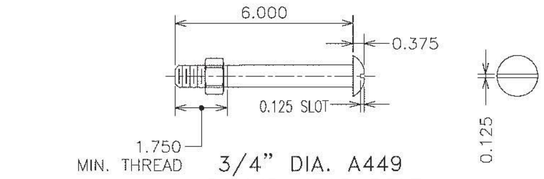
BRIDGE RAILING ELEVATION



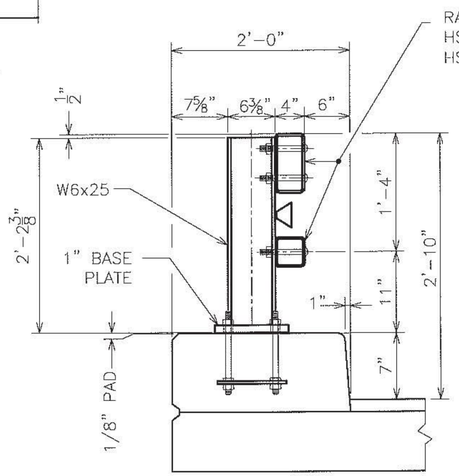
A BASE WELD DETAIL



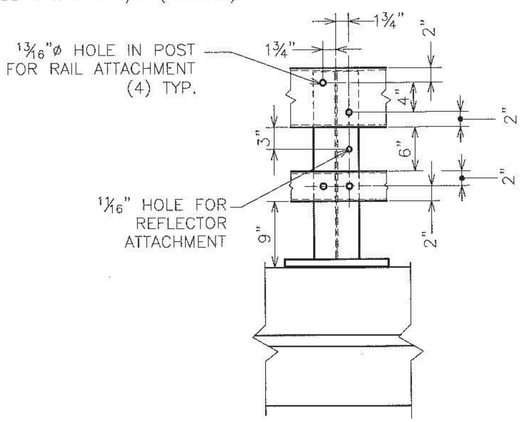
POST AND BASE PLATE



3/4" DIA. A449
ROUND HEAD BOLT
(WITH WASHER AND PREVAILING TORQUE TYPE LOCK NUT)
(SEE NOTE #8)
ONLY FULL DIAMETER BODY BOLTS WILL BE ALLOWED.

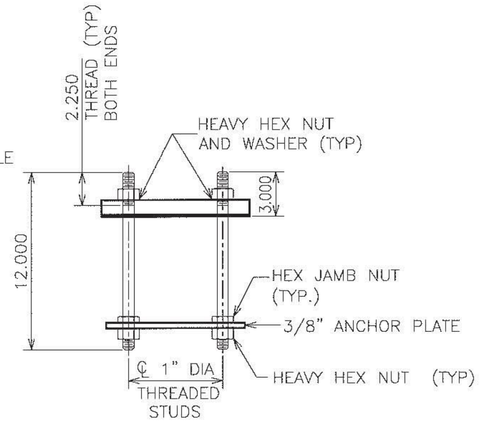


TYPICAL SECTION
ON BRIDGE

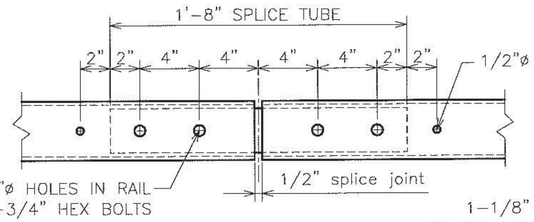


ELEVATION

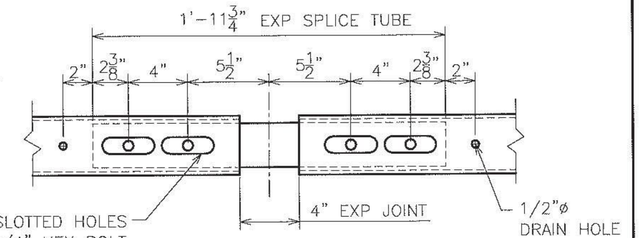
ANCHOR PLATE



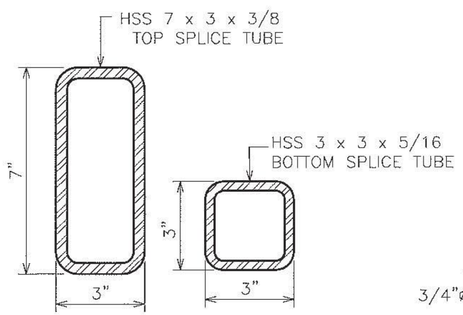
RAIL POST ANCHORAGE



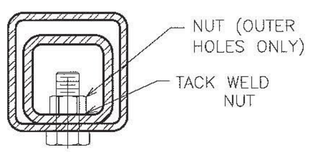
FIXED SPLICE JOINT DETAIL
BOTTOM VIEW



EXPANSION SPLICE DETAIL
BOTTOM VIEW

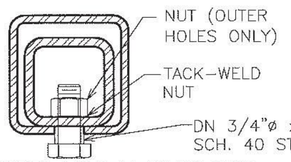


RAIL TUBE SPLICE SECTION



TAPPED HOLE IN SPLICE TUBE &
3/4"ø HOLE IN RAIL TUBE FOR 5/8ø BOLT
& PLAIN HARDENED WASHER

FIXED SPLICE JOINT SECTION



TAPPED HOLE IN SPLICE TUBE
AND 1.125 x 3.500 SLOT IN RAIL TUBE FOR
5/8ø BOLT AND PLAIN HARDENED WASHER

EXPANSION JOINT SECTION

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

REVISIONS 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.

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CLD Consulting Engineers
540 Commercial Street
Manchester, NH 03101
603-668-8223

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)

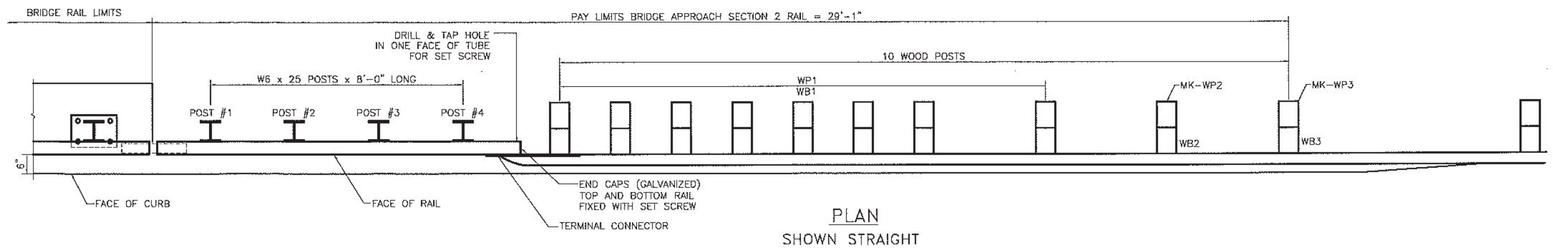
TOWN OF LUDLOW, VERMONT
VT ROUTE 100 - (MINOR ARTERIAL) BRIDGE #99
WINDSOR COUNTY STP DECK (39)

AISC CERTIFIED FABRICATOR

HSC JOB NO. 2141
SHEET NO. 3 of 4

GENERAL CONTRACTOR
SUB CONTRACTOR LAFAYETTE

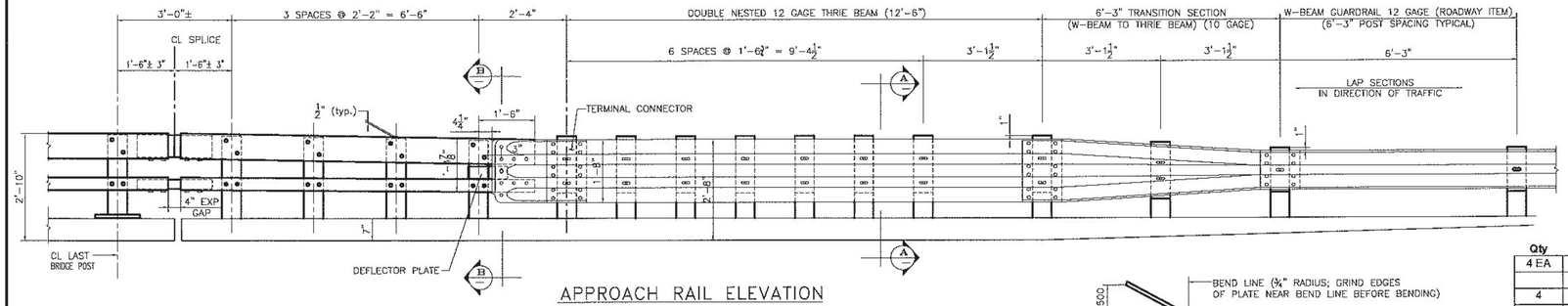
DRAWN	CHECKED	DATE	SCALE	SIZE
PAR		10-20-16	NONE	D



PLAN

SHOWN STRAIGHT

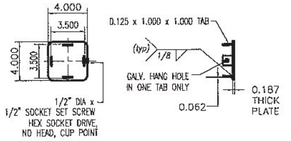
SEE SHEETS 1 & 2 FOR RADIUS REQUIREMENTS AT EACH APPROACH



APPROACH RAIL ELEVATION

LEADING END (RIGHT) IS SHOWN

DEPARTURE END (LEFT) SIMILAR BUT OPPPOSITE HAND



END CAP (4x4)

0.187 x 4.000 x 4.000 (A709 gr 36)

NOTES:

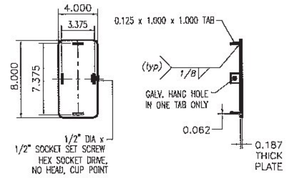
1. PAYMENT FOR GUARDRAIL APPROACH SECTION – GALVANIZED 2 RAIL, SHALL INCLUDE THE TERMINAL CONNECTOR, THE CONNECTION PLATE, THE DEFLECTOR PLATE, RAIL, POSTS, BLOCKS AND ATTACHMENT HARDWARE.

2. ALL APPROACH RAIL SPLICES SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC FLOW.

3. TUBE AND STEEL POST MATERIALS, DIMENSION SIZES AND NOTES SHALL BE THE SAME AS THOSE OF THE BRIDGE RAIL UNLESS OTHERWISE NOTED.

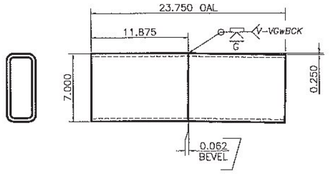
4. APPROACH RAIL BOLTS SHALL BE ASTM A307 GRADE A AND NUTS SHALL BE AASHTO M291 (ASTM 563 GRADE A OR BETTER (GALVANIZED). WASHERS SHALL BE ASTM F844.

⚠5. WELD TOP SPLICE BAR TO FIT BEND. USE COMPLETE PENETRATION WELD (B-U2a).



END CAP (8x4)

0.187 x 4.000 x 8.000 (A709 gr 36)



ANGLED SPLICE DETAIL

HSS 7 x 3 x 3/8 – FOR UPPER RAIL SPLICE

SEE BRIDGE RAIL SHEET FOR DETAIL ON LOWER RAIL SPLICE TUBE

Vermont Agency of Transportation

RECEIVED

CK'D BY CLD OK'D BY TAS

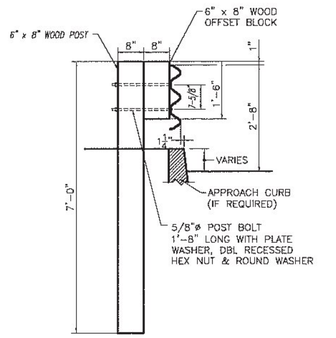
December 29, 2016

RESUBMIT No Approved AsNoted

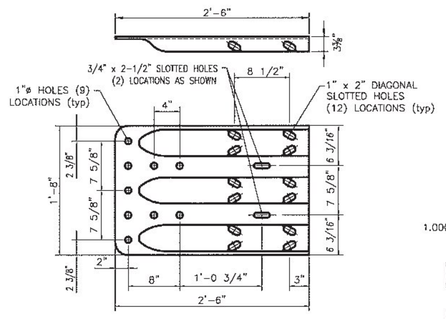
BY T Sumner DATE 01/03/2016

BILL OF MATERIAL ⚠

Qty	mk	Description	Spec.
4 EA		ITEM 621.72 GUARDRAIL APPROACH SECTION, GALVANIZED, 2 RAIL BOX BEAM	
4	01	W6x25 APPROACH POST - #1 x 8'-0" OAL (GALV)	A709 gr 50
4	02	W6x25 APPROACH POST - #2 x 8'-0" OAL (GALV)	A709 gr 50
4	03	W6x25 APPROACH POST - #3 x 8'-0" OAL (GALV)	A709 gr 50
4	04	W6x25 APPROACH POST - #4 x 8'-0" OAL (GALV)	A709 gr 50
3		UPPER RAIL APPROACH TUBE HSS 8 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV)	A500 gr B
3		LOWER RAIL APPROACH TUBE HSS 4 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV)	A500 gr B
1	60	UPPER RAIL APPROACH TUBE HSS 8 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV) **60'R**	A500 gr B
1	60	LOWER RAIL APPROACH TUBE HSS 4 x 4 x 5/16 x 9'-4.000" w/ 3.500 SLOTS FOR 4" EXP GAP (GALV) **60'R**	A500 gr B
4		CONNECTION PLATE PL 0.375" x 20.000" x 27.000" (GALV)	A709 gr 36
2		DEFLECTOR PLATE (RIGHT) PL 0.375 x 4.000 x 13.375 (GALV)	A709 gr 36
2		DEFLECTOR PLATE (LEFT) PL 0.375 x 4.000 x 13.375 (GALV)	A709 gr 36
4		END CAP FOR 8x4 TUBE 0.187 THICK PLATE 8.000 x 4.000 w/ WELDED TABS (GALV)	A709 gr 36
4		END CAP FOR 4x4 TUBE 0.187 THICK PLATE 4.000 x 4.000 w/ WELDED TABS (GALV)	A709 gr 36
4		(ANGLED) SPLICE TUBE (EXPANSION) FOR 8x4 UPPER RAIL HSS 7 x 3 x 3/8 x 1'-11.750" OAL (GALV)	A500 gr B
4		SPLICE TUBE (EXPANSION) FOR 4x4 LOWER RAIL HSS 3 x 3 x 5/16 x 1'-11.750" OAL (GALV)	A500 gr B
32		WOOD POST (WP1) 6 x 8 x 7'-0"	TIMBER
32		WOOD BLOCKOUT (WB1) 6 x 8 x 1'-6"	TIMBER
4		WOOD POST (WP2) 6 x 8 x 7'-0"	TIMBER
4		WOOD BLOCKOUT (WB2) 6 x 8 x 1'-6"	TIMBER
4		WOOD POST(WP3) 6 x 8 x 7'-0"	TIMBER
4		WOOD BLOCKOUT (WB3) 6 x 8 x 1'-2"	TIMBER
4		THRIE FLAT LIP BRIDGE SHOE (MODIFIED) 10 GA. GALV	aashto M180 B2
2		THRIE TRANSITION PANEL 6'-3" / 3'-1 1/2" 10 GA. GALV.	aashto M180 B2
2	45	THRIE TRANSITION PANEL 6'-3" / 3'-1 1/2" 10 GA. GALV. **(45'R CONVEX CURVE)**	aashto M180 B2
2	12	THRIE TRANSITION PANEL 6'-3" / 3'-1 1/2" 10 GA. GALV. **(12'R CONVEX CURVE)**	aashto M180 B2
2	60	THRIE TRANSITION PANEL 6'-3" / 3'-1 1/2" 10 GA. GALV. **(60'R CONVEX CURVE)**	aashto M180 B2
8		THRIE PANEL 12'-6" / 1'-6 3/4" 12 GA. GALV.	aashto M180 A2
92		ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 6" LG. (GLV) w/ LOCK NUT & FLAT WASHER	A449
4		ROUND HEAD POST BOLT slot or wrench head - no shoulder 3/4" DIA x 2" LG. (GLV) w/ HEX NUT	A449
8		ROUND HEAD POST BOLT - oval shoulder 5/8" DIA x 1'-8" LG. (GALV) w/ DBL RECESS NUT, FLAT WASHER	A307
70		ROUND HEAD POST BOLT - oval shoulder 5/8" DIA x 1'-6" LG. (GALV) w/ DBL RECESS NUT, FLAT WASHER	A307
32		HEX HEAD BOLT 5/8 x 1-3/4" (GALV) w/ FLAT WASHER	A325
128		PANEL SPLICE BOLT 5/8 x 1-1/4" (GALV) w/ DOUBLE RECESSED NUT	A307
78		RECTANGULAR PLATE WASHER 0.187 x 1.750 x 3.000 (GALV)	A709 gr 36
32		SPACER PIPE - GALVANIZED STD SCH. 40 x 1/2" LONG (GLV)	A53 gr B

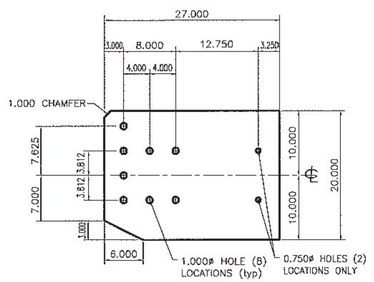


SECTION A–A



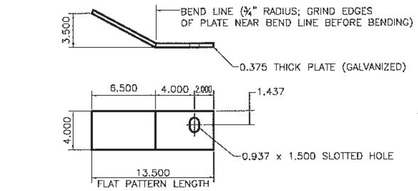
TERMINAL CONNECTOR

10 GAUGE (AASHTO M180 B2)



CONNECTION PLATE

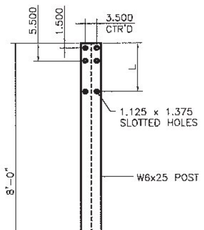
0.375 x 20.000 x 27.000 (A709 gr 36)



DEFLECTOR PLATE

0.375 x 4.000 x 13.500 (A709 gr 36)

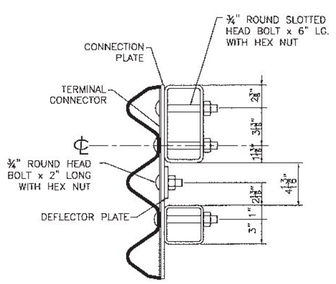
RIGHT HAND APPROACH SHOWN – LEFT HAND BENT OPPOSITE



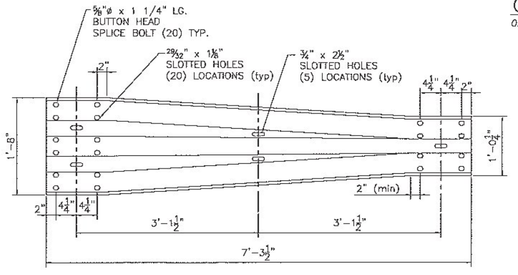
STEEL POST

STEEL POST CHART

No.	L
#1	1'-3.250"
#2	1'-3.000"
#3	1'-2.687"
#4	1'-2.375"

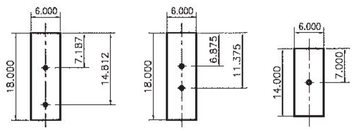


SECTION B–B



THRIE TRANSITION PANEL

10 GAUGE (AASHTO M180 B2)



WOOD BLOCK DETAILS

SHOP DRAWING REVIEW

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CLD Consulting Engineers, 540 Commercial Street, Manchester, NH 03101, 603-668-4223

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)

AISC CERTIFIED FABRICATOR

TOWN OF LUDLOW, VERMONT

VT ROUTE 100 – (MINOR ARTERIAL) BRIDGE #99

WINDSOR COUNTY STP DECK (39)

HSC JOB NO. 2141

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

SHEET NO. 4 of 4

DRAWN	CHECKED	DATE	SCALE	SIZE
PAR		10-20-16	NONE	D

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification **A572 gr 50, A709 Gr 50**

Welding process **Gas Metal Arc Welding (GMAW) Spray Transfer**

Manual, semi-automatic, or automatic **Semi-Automatic**

Position of welding **Flat (1F) or Horizontal (2F)**

Filler metal specification **AWS A5.18**

Filler metal classification **ER70S-6**

Electrode and manufacturer **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer **N/A**

Shielding gas **86% Argon / 14% CO2** Flow rate **38 - 46 CFH**

Single or multiple pass **Single or Multiple**

Single or multiple arc **Single**

Welding current **DCEP**

Polarity **Reverse - electrode positive**

Welding progression **Stringers**

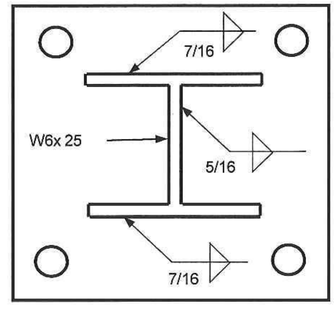
Root treatment **clean base metal**

Preheat and interpass temperature **base metal up to 3/4" (50°F) ; over 3/4 thru 1-1/2" (150°F) : over 1-1/2" thru 2-1/2" (225°F)**

Postweld heat treatment **None**

Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
5/16"	1	1/16"	310 A ± 30	29 V ± 1	17 - 19 ipm	
7/16"	1 & 2	1/16"	↓	↓	↓	

SHOP DRAWING REVIEW
X 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.
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CLD Consulting Engineers 540 Commercial Street Manchester, NH 03101 603-668-4933
Job Number: 15-0223
Reviewed by: NDC
Date: 1/3/2017

Vermont Agency of Transportation
RECEIVED
CK'D BY CLD&RF OK'D BY TAS
December 29, 2016
RESUBMIT No Approved
BY T Sumner DATE 01.03/2016

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

AWS
Paul A Radice
CWI 98070221
QC1 EXP. 7/1/2019

WPS no. **W-VTPEDPOST1**

Revision no. **2**

Supporting PQR no. **HSCTGD15052416**

Project Name **Ludlow, VT**

Fabricator **Highway Safety Corp**

Prepared By: **Paul Radice**

Date **12/21/16**

Project Number **STP DECK (39)**

Highway Safety Corporation

Glastonbury, CT

Welding Procedure Specification

Material specification **ASTM A500 gr B**

Welding process **Gas Metal Arc Welding (GMAW)**

Manual, semi-automatic, or automatic **Semi-Automatic**

Position of welding **Flat (1F)**

Filler metal specification **AWS A5.18**

Filler metal classification **ER70S-6**

Electrode and manufacturer **Lincoln Electric Lincoln Weld L-56**

Flux and manufacturer **N/A**

Shielding gas **86% Argon / 14% CO2** Flow rate **38 - 46 CFH**

Single or multiple pass **Single**

Single or multiple arc **Single**

Welding current **DCEP**

Polarity **Reverse - electrode positive**

Welding progression **Stringers**

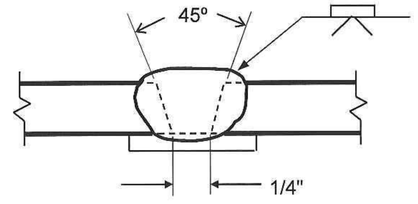
Root treatment **clean base metal**

Preheat and interpass temperature **base metal up to 3/4" (50°F)**

Postweld heat treatment **None**

Electrode extension **3/4" ± 1/4"**

WELDING PROCEDURE

Weld size	Pass no.	Electrode size	Welding parameters Amperes	Welding parameters Volts	Travel speed	Joint detail
	1	1/16"	310 A ± 30	29 V ± 1	17 - 19 ipm	B-U2a-GF 

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BY T Sumner DATE 01/03/2016

SHOP DRAWING REVIEW
X 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: CONFIRMING 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 540 Commercial Street Manchester, NH 03101 603-668-8223
Job Number: 16-0223
Reviewed by: NDC
Date: 1/3/2017

This procedure may vary due to fabrication sequence, fit-up, pass size, etc. within the limitation of variables given in section 5 of latest edition AWS D1.5

AWS® Paul A Radice CWI 98070221 QC1 EXP: 7/1/2019

WPS no. **W-VGwBCK**

Revision no. **2**

Supporting PQR no. **HSCTGD15052416**

Project Name **Ludlow, VT**

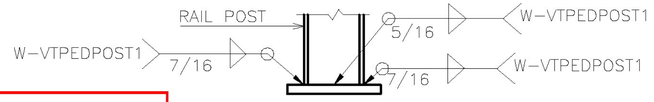
Fabricator **Highway Safety Corporation**

Prepared By: **Paul Radice**

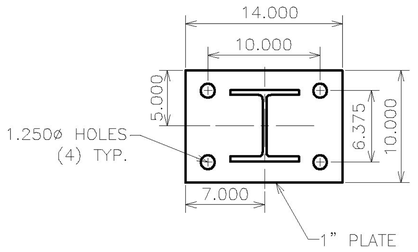
Date **12/21/16**

Project Number **STP DECK (39)**

POST REPLACEMENT – refer to original approved shop drawing 2141 for additional notes & info

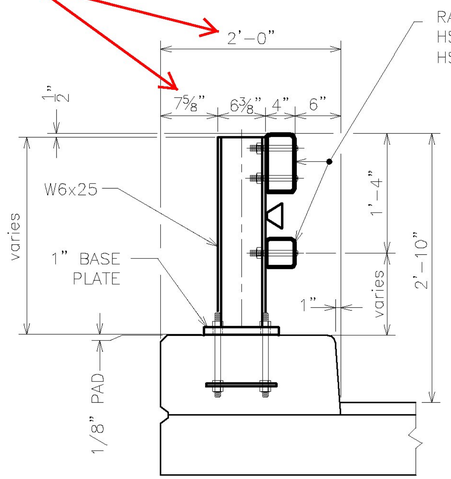


BASE WELD DETAIL

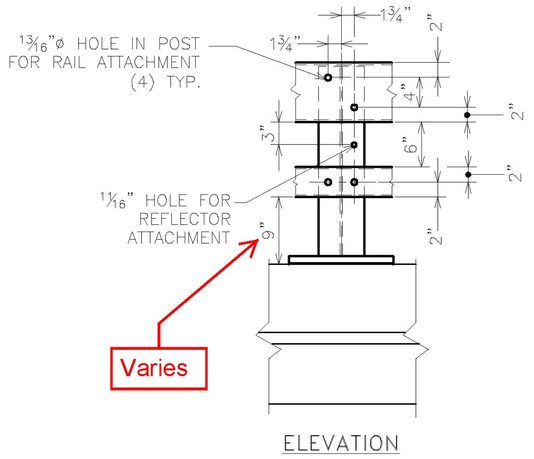


POST AND BASE PLATE

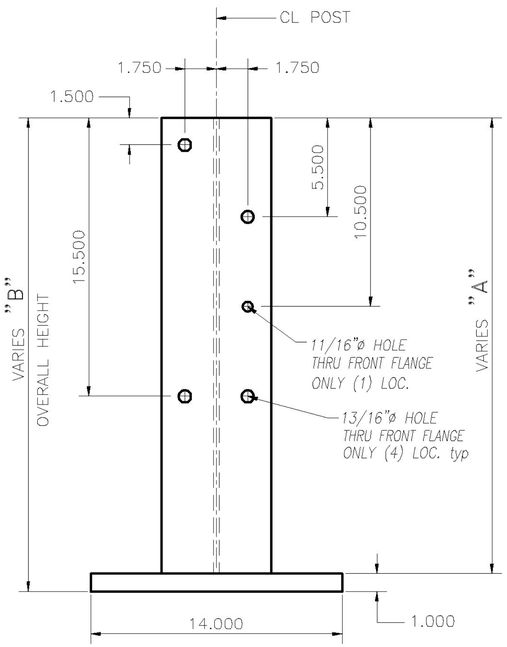
These dimensions are different when the railing is on the wingwall



TYPICAL SECTION
ON BRIDGE



ELEVATION



RAILING POST W6 x 25 x height varies w/ 1 x 10 x 14 BASE PLATE (GLV)

QTY	dim "A" post height	dim "B" OAH incl plate	MTL
1	21.750	22.750	A709 gr 50
3	22.875	23.875	A709 gr 50
1	23.000	24.000	A709 gr 50
1	23.500	24.500	A709 gr 50
1	23.625	24.625	A709 gr 50
1	24.000	25.000	A709 gr 50
1	24.125	25.125	A709 gr 50
1	24.375	25.375	A709 gr 50
2	24.625	25.625	A709 gr 50

Vermont Agency of Transportation

RECEIVED

2141C shop drwg rev 0.pdf

CK'D BY CLD OK'D BY TAS

June 20, 2017

RESUBMIT no Approved AsNoted

BY Todd Sumner DATE 06/21/17

No.	Remarks	Date
0	Initial submittal	06–16–17

REVISIONS – APPLIES TO SET

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)

AISC CERTIFIED FABRICATOR

GENERAL CONTRACTOR

SUB CONTRACTOR LAFAYETTE

HSC JOB NO. 2141C

SHEET NO. 1 of 1

DRAWN	CHECKED	DATE	SCALE	SIZE
PAR	rwl	06–16–17	NONE	D