NOTES:

1. PROVIDE 1'-0" CLOSURE POUR, MEASURED FROM THE EDGE OF THE ELASTOMERIC CONCRETE HEADER AND PERPENDICULAR TO THE SKM AS SHOWN IN THE PARTIAL PLAN VIEW AT ABUTMENT, TO ACCOMMODATE THE INSTALLATION OF STRIP SEAL EXPANSION JOINT AT THE SIDEWALK. (SEE GENERAL NOTES)


3. FOR TYPICAL ABUTMENT DETAILS, SEE DETAIL A.

4. SEE DETAIL C ON SHEET 45 FOR ELASTOMERIC CONCRETE HEADER AND JOINT SEAL STEEL RETAINER DIMENSIONS.

5. FOR STOP SEAL EXPANSION JOINT NOTE AND SECTION D-D, SEE SHEET 35.

6. FOR GENERAL NOTES, SEE SHEET 55.

7. FOR AN EXAMPLE ON HOW TO DETERMINE STRIP SEAL GLAND OPENING DIMENSION, SEE NOTE 8.

8. FOR EPOXY COATED REINFORCING STEEL LIST, SEE SHEET 45.

9. SIDEWALK COVER PLATES SHALL BE CLIPPED 1" X 1" AT ACUTE ANGLE CORNERS ONLY. FOR 0° SKEW BRIDGES, ALL FOUR CORNERS OF SIDEWALK COVER PLATES SHALL BE CLIPPED M X M.

10. FOR EPOXY COATED REINFORCING STEEL LIST, SEE SHEET 45.

11. FOR EXAMPLE ON HOW TO DETERMINE STRIP SEAL GLAND OPENING DIMENSION, SEE NOTE 8.

12. FOR EPOXY COATED REINFORCING STEEL LIST, SEE SHEET 45.

13. FOR JOINT DETAILS, SEE DETAIL A.

14. FOR BACKGROUND NOTES, SEE SHEET 55.
ITEM 516 - STRIP SEAL EXPANSION JOINT ANCHORED WITH ELASTOMERIC CONCRETE: (CONT.)

THE DEPARTMENT WILL PAY FOR ACCEPTED QUANTITIES AT THE CONTRACT PRICE BY THE NUMBER OF FEET FOR ITEM 516 - STRIP SEAL JOINT SEAL.

THE DEPARTMENT WILL MEASURE THE ARMORLESS PREFORMED JOINT SEAL, ELASTOMERIC CONCRETE HEADER, JOINT SEAL STEEL RETAINER STEEL RAIL PROFILE, LUBRICANT-ADHESIVE, AND STEEL RETAINER'S ANCHORAGE METHOD USING THE DEPARTMENT'S SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS. THE DEPARTMENT'S ACCEPTANCE IS NOT REQUIRED.

THE DEPARTMENT WILL MEASURE THE ARMORLESS PREFORMED JOINT SEAL BY THE NUMBER OF FEET ALONG THE ENTIRE LENGTH OF INSTALLED JOINT SEAL.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE BY THE NUMBER OF FEET FOR ITEM 516 - STRIP SEAL EXPANSION JOINT ANCHORED WITH ELASTOMERIC CONCRETE.


FOR STRUCTURES WITH REINFORCED CONCRETE SIDEWALK, THE JOINT SEAL SHALL BEND UPWARD INSIDE THE CONCRETE TO AN ELEVATION ½" BELOW THE TOP SURFACE OF THE SIDEWALK AND AT AN ANGLE BETWEEN 30° AND 60° MEASURED FROM THE HORIZONTAL LINE AT THE BEND POINT AS SHOWN IN SECTION B-B, SHEET 45.

PROVIDE TEMPORARY SUPPORT DURING THE INSTALLATION OF JOINT SEAL IN THE SIDEWALK PRIOR TO CLOSURE.

SUPPLY THE MANUFACTURER'S JOINT SEAL INSTALLATION PROCEDURES, TECHNICAL DATA INCLUDING TEST RESULTS, AND SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS.

THE MANUFACTURER SHALL BE PRESENT TO SUPERVISE ALL PHASES OF PROCEDURES, TECHNICAL DATA INCLUDING TEST RESULTS, AND SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS.

THE DEPARTMENT WILL MEASURE SIDEWALK COVER PLATE BY THE NUMBER OF FEET FOR ITEM 516 - SIDEWALK COVER PLATE.

THE DEPARTMENT WILL MEASURE THE ARMORLESS PREFORMED JOINT SEAL, ELASTOMERIC CONCRETE HEADER, JOINT SEAL STEEL RETAINER STEEL RAIL PROFILE, LUBRICANT-ADHESIVE, AND STEEL RETAINER'S ANCHORAGE METHOD USING THE DEPARTMENT'S SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS. THE DEPARTMENT'S ACCEPTANCE IS NOT REQUIRED.

THE DEPARTMENT WILL MEASURE THE ARMORLESS PREFORMED JOINT SEAL BY THE NUMBER OF FEET ALONG THE ENTIRE LENGTH OF INSTALLED JOINT SEAL.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE BY THE NUMBER OF FEET FOR ITEM 516 - STRIP SEAL EXPANSION JOINT ANCHORED WITH ELASTOMERIC CONCRETE.

FOR STRUCTURES WITHOUT REINFORCED CONCRETE SIDEWALK, THE JOINT SEAL SHALL BEND UPWARD INSIDE THE CONCRETE TO AN ELEVATION ½" BELOW THE TOP SURFACE OF THE SIDEWALK AND AT AN ANGLE BETWEEN 30° AND 60° MEASURED FROM THE HORIZONTAL LINE AT THE BEND POINT AS SHOWN IN SECTION B-B, SHEET 45.

FOR STRUCTURES WITH REINFORCED CONCRETE SIDEWALK, THE JOINT SEAL SHALL BEND UPWARD INSIDE THE CONCRETE TO AN ELEVATION ½" BELOW THE TOP SURFACE OF THE SIDEWALK AND AT AN ANGLE BETWEEN 30° AND 60° MEASURED FROM THE HORIZONTAL LINE AT THE BEND POINT AS SHOWN IN SECTION B-B, SHEET 45.

SUPPLY THE MANUFACTURER'S JOINT SEAL INSTALLATION PROCEDURES, TECHNICAL DATA INCLUDING TEST RESULTS, AND SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS.

THE MANUFACTURER SHALL BE PRESENT TO SUPERVISE ALL PHASES OF PROCEDURES, TECHNICAL DATA INCLUDING TEST RESULTS, AND SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS.

THE DEPARTMENT WILL MEASURE SIDEWALK COVER PLATE BY THE NUMBER OF FEET FOR ITEM 516 - SIDEWALK COVER PLATE.

THE DEPARTMENT WILL MEASURE THE ARMORLESS PREFORMED JOINT SEAL, ELASTOMERIC CONCRETE HEADER, JOINT SEAL STEEL RETAINER STEEL RAIL PROFILE, LUBRICANT-ADHESIVE, AND STEEL RETAINER'S ANCHORAGE METHOD USING THE DEPARTMENT'S SPECIFICATIONS TO THE ENGINEER AT LEAST SEVEN (7) DAYS BEFORE CONSTRUCTION OF THE JOINT BEGINS. THE DEPARTMENT'S ACCEPTANCE IS NOT REQUIRED.

THE DEPARTMENT WILL MEASURE THE ARMORLESS PREFORMED JOINT SEAL BY THE NUMBER OF FEET ALONG THE ENTIRE LENGTH OF INSTALLED JOINT SEAL.

THE DEPARTMENT WILL PAY FOR THE ACCEPTED QUANTITIES AT THE CONTRACT PRICE BY THE NUMBER OF FEET FOR ITEM 516 - STRIP SEAL EXPANSION JOINT ANCHORED WITH ELASTOMERIC CONCRETE.
LEGEND

1. This is the actual distance from the centerline of joint to the thermal neutral point of the superstructure measured along the centerline of roadway. This dimension shall be a maximum of 287 feet for 60° skew, 342 feet for 45° skews, 385 feet for 30° skews, and 427 feet for 0° through 15° skews. The thermal neutral point of the superstructure is that point which has zero horizontal movement during temperature changes.

2. This distance for expansion joints having skew angles of 0° or less is the actual distance to the thermal neutral point of the superstructure along the centerline of roadway. This distance for expansion joints having skew angles over 0°, but not greater than 60° is arrived at by multiplying the above defined distance along the centerline of roadway by the cosine of the expansion joint skew angle.

3. This is the joint opening dimension *A* required at the time of abutment backwall concrete placement, based on the day’s anticipated peak ambient temperature.

4. Minimum joint opening dimension *B* at the time of seal gland installation shall not be less than the dimension shown on sheet 45. If the joint opening is less, installation shall be postponed until the temperature drops a sufficient amount to allow the minimum joint installation width dimension *A*.

EXAMPLE

Given:
- The distance from the centerline of the joint to the thermal neutral point of the superstructure along the centerline of the roadway is 287.5 feet.
- The skew angle of the expansion joint is 30°.
- The anticipated ambient temperature at the time of joint installation is 65° F.

Find:
- The required strip seal gland size and the joint opening dimension *A* at the time of joint armor installation.

Solution:
1. Enter table “A” at 1 with 30° F, 287.5 feet, and find that the required strip seal gland size is 4 inches.
2. Enter table “B” at 4 with 30° F and cos(30°) x 249.88 feet, and find the required joint opening at 65° is 1.86 inches.

NOTE: Step (ii) is only required at time of construction.
GENERAL NOTES

DESCRIPTION
Perform work in accordance with CMS 516 except as noted herein.

DESIGN DATA (STRIP SEAL SYSTEM)

DESIGN LOADING: HL-93
DESIGN STRESSES (TABI/STATION)
EPOXY COATED REINFORCING STEEL - MIN. YIELD STRENGTH = 60ksi

NEOPRENE STRIP SEAL GLAND:
FURNISH STRIP SEAL GLAND MEETING THE REQUIREMENTS OF ASTM D9573. PROVIDE TO THE ENGINEER SEVEN (7) DAYS BEFORE STARTING WORK, CERTIFIED TEST DATA CONFORMING TO CMS 101.03. ACCEPTANCE IS NOT REQUIRED.

LUBRICANT-ADHESIVE: USE A LUBRICANT-ADHESIVE TO INSTALL THE GLAND, PROVIDED BY THE MANUFACTURER OF THE NEOPRENE STRIP SEAL GLAND.

INSTALLATION: INSTALL STRIP SEAL EXPANSION JOINT SYSTEM AFTER ALL CORRECTIVE DECK WORK HAS BEEN COMPLETED, INCLUDING GRINDING.

JOINTS IN NEOPRENE STRIP SEAL GLAND:
FURNISH NEOPRENE STRIP SEAL GLAND IN ONE CONTINUOUS PIECE UNLESS OTHERWISE APPROVED BY THE ENGINEER.

STEEL RETAINERS:
FURNISH SOLID SHAPE STEEL RETAINERS, AS SHOWN IN DETAIL D, SHEET 3/5, THAT ARE EXTRUDED, NOT ROLLED OR MACHINED. RETAINERS MANUFACTURED FROM BENT PLATE OR BUILT-UP PIECES ARE NOT ACCEPTABLE. THE MANUFACTURER SHALL SPECIFY THE INTERNAL DIMENSIONS OF THE STEEL RETAINER TO ACHIEVE A POSITIVE SEAL AND ANCHORAGE.

AT JOINT UPTURNS, ESPECIALLY ON SKewed BRIDGE DECKS, THE USE OF SPLIT RETAINERS MAY BE NECESSARY TO ENSURE PROPER NEOPRENE STRIP SEAL GLAND INSTALLATION. WHERE THE SPLIT RETAINERS ARE REQUIRED, THE MANUFACTURER SHALL OBTAIN THE ENGINEER'S ACCEPTANCE FOR THE DESIGN.

BEFORE NEOPRENE STRIP SEAL GLAND IS INSTALLED, CORRECT ANY DEFECT IN THE STEEL RETAINER OR THE ACTUAL STRIP SEAL EXPANSION JOINT THAT COULD CAUSE DAMAGE TO THE NEOPRENE STRIP SEAL GLAND.

GENERAL: THIS STANDARD DRAWING PROVIDES DESIGN AND GENERAL CONSTRUCTION DETAILS. THE PROJECT PLANS SHALL LIST DIMENSION "A" FOR TEMPERATURES BETWEEN 30°F AND 90°F, OTHER PERTINENT DETAILS, AND SPECIAL NOTES THAT ARE SPECIFIC TO THE STRUCTURE.

DESIGN STRESSES (ABUTMENT):

SHEAR = 70MPA
COMPLIANCE = 45MPA

LIMITATION: SKEW ANGLES SHALL NOT BE GREATER THAN 60°.

DESIGN DATA (STRUCTURAL STEEL):

NEOPRENE STRIP SEAL GLAND AT FIXED BEARINGS SHALL BE THE SAME SIZE AS AT THE EXPANSION BEARINGS WITH A DIMENSION "A" OF 2 INCHES AT ANY AMBIENT TEMPERATURE.

LIMITATION: SKEW ANGLES SHALL NOT BE GREATER THAN 60°.

GENERAL STRESSES (ABUTMENT):

STRENGTH = 60 KSI
EPOXY COATED REINFORCING STEEL - MIN. YIELD STRENGTH = 60ksi

DESIGN LOADING:
HL-93

DESIGN STRESSES (STRUCTURAL STEEL):

MIN. YIELD STRENGTH = 60ksi

LIMITATION: SKEW ANGLES SHALL NOT BE GREATER THAN 60°.

DESIGN STRESSES (CONCRETE):

MIN. COMPLIANCE = 35MPA
COMPLIANCE = 0.6 x CONCRETE STRENGTH

LIMITATION: SKEW ANGLES SHALL NOT BE GREATER THAN 60°.

FABRICATION:

STRUCTURAL STEEL MATERIAL FOR STEEL RETAINERS SHALL BE ASTM A572, GRADE 36, 50, OR 50W.

CLOSURE POURS:
THE CLOSURE POURS ALLOW FOR INSTALLATION OF THE EXPANSION JOINT SYSTEM AFTER THE CONCRETE RAILINGS AND SIDEWALK ARE INSTALLED.

FOR PROJECTS WITH INERTIAL PROFILING SURFACE SMOOTHNESS REQUIREMENTS, THE EXPANSION JOINT SYSTEM SHALL BE INSTALLED AFTER ALL SURFACE SMOOTHNESS CORRECTIVE WORK HAS BEEN PERFORMED.

FOR PROJECTS WITHOUT INERTIAL PROFILING SURFACE SMOOTHNESS REQUIREMENTS, THE CONCRETE RAILINGS AND SIDEWALK MAY BE COMPLETED WITHOUT CLOSURE POURS.

JOINTS IN STEEL RETAINERS:
WELDS SHALL BE WATER TIGHT, PARTIAL PENETRATION WELDS AROUND THE OUTER PERIPHERY OF THE ABUTTING SURFACES. GRIND FLUSH ALL WELDS IN CONTACT WITH THE NEOPRENE STRIP SEAL GLAND DO NOT USE SHORT PIECES OF STEEL RETAINERS LESS THAN 6'-0" LONG, UNLESS REQUIRED AT CURBS OR SIDEWALKS. DO NOT PROVIDE ADDITIONAL SPLICES IN RETAINERS AT THE CURB OR SIDEWALK SECTIONS OTHER THAN THOSE DETAILED IN THE STANDARD BRIDGE DRAWINGS.

STRIP SEAL EXPANSION JOINT COATING:
COAT STEEL PARTS OF THE STRIP SEAL EXPANSION JOINT ASSEMBLY ACCORDING TO CMS 516.

STEEL RETAINERS TEMPORARY SUPPORTS:
THE FABRICATOR SHALL DESIGN, PROVIDE, AND INSTALL TEMPORARY SUPPORTS TO RESIST SHIPPING, ERECTION, AND CONSTRUCTION FORCES WITHOUT DAMAGE TO THE STEEL RETAINERS OR COATING. THESE SUPPORTS SHALL BE ADJUSTABLE IN THE FIELD TO ACCOUNT FOR VARIABLE TEMPERATURE SETTINGS AND HEIGHT ADJUSTMENTS. INSTALL THE TEMPORARY SUPPORTS AFTER THE FABRICATION AND STRIP SEAL EXPANSION JOINT COATING IS COMPLETE.

NOTES TO DESIGNER:
PROJECT PLANS SHALL LIST DIMENSION "A" AS SHOWN IN SECTION A-A, SHEETS 1/5 AND 2/5 FOR TEMPERATURES BETWEEN 30°F AND 90°F IN 10°F INCREMENTS.

NEOPRENE STRIP SEAL GLAND AT FIXED BEARINGS SHALL BE THE SAME SIZE AS AT THE EXPANSION BEARINGS WITH A DIMENSION "A" OF 2 INCHES AT ANY AMBIENT TEMPERATURE.