GENERAL NOTES:

STRIP SEAL: MATERIAL SHALL BE AN EXTRUDED POLYCHLOROPRENE CONFORMING TO ASTM D2628. THE RECOVERY TEST IS NOT APPLICABLE, DUE TO CONFIGURATION OF THE SEAL. PHYSICAL PROPERTIES OF THE STRIP SEAL SHALL CONFORM TO TABLE "E".

THE MANUFACTURER OR AN ACCREDITED LABORATORY SHALL TEST EACH LOT AS SPECIFIED AND SUBMIT TWO COPIES OF CERTIFIED TEST DATA SHOWING COMPLIANCE TO THE ODOT OFFICE OF MATERIALS MANAGEMENT. THE SEAL AND RETAINER ARE AN INTEGRAL SYSTEM DESIGNED AND SUPPLIED BY THE SAME MANUFACTURER. SEE "CONSTRUCTION PROCEDURE" FOR INSTALLATION.

TABLE E
(PHYSICAL PROPERTIES OF SEAL ELEMENT)

PROPERTY	REQUIREMENT	ASTM METHOD
TENSILE STRENGTH, MIN. PSI	2000	D412
ELONGATION @ BREAK, MIN. (PERCENT)	250	D412
HARDNESS, TYPE A DUROMETER, POINTS	60 ± 5	MODIFIED D2240
OVEN AGING, 70 HR @ 212°F TENSILE STRENGTH, LOSS, MAX. ELONGATION, LOSS, MAX. HARDNESS, TYPE A DUROMETER, POINTS CHANGE	 20 PERCENT 20 PERCENT 0 TO +10	D573 MODIFIED D2240
OIL SWELL, ASTM OIL 3 70 HR @ 212°F, WEIGHT CHANGE MAX	45 PERCENT	D471
OZONE RESISTANCE 20 PERCENT STRAIN, 300 PPHM IN AIR, 70 HR @ 104°F (WIPED WITH TOLUENE TO REMOVE SURFACE CONTAMINATION)	NO CRACKS	D1149
LOW TEMPERATURE STIFFENING 7 DAYS @ 14°F HARDNESS, TYPE A DUROMETER, POINTS CHANGE COMPRESSION SET, 70 HR @ 212°F MAX.	 0 TO +15 40 PERCENT	D2240 MODIFIED D2240 D395 METHOD B

LUBRICANT-ADHESIVE: ONE PART MOISTURE CURING POLYURETHANE COMPOUND MEETING THE REQUIREMENTS OF ASTM D4070 AND AS SPECIFIED BY THE SEAL MANUFACTURER. SEE "CONSTRUCTION PROCEDURE" FOR APPLICATION.

JOINTS IN STRIP SEALS: NO JOINTS ARE ALLOWED UNLESS APPROVED BY THE DIRECTOR.

SEAL RETAINERS: EXTRUDE, HOT ROLL OR MACHINE, STEEL RETAINERS INTO A SOLID SHAPE AS DIMENSIONED ON SHEET 2 / 5 "RETAINER DETAIL". RETAINERS MANUFACTURED FROM BENT PLATE OR BUILT UP PIECES ARE NOT ACCEPTABLE. THE INTERNAL DIMENSIONS OF THE RETAINER SHALL BE SPECIFIED BY THE MANUFACTURER TO ACHIEVE POSITIVE SEAL ANCHORAGE.

AT JOINT UPTURNS, ESPECIALLY ON SKEWED BRIDGE DECKS, THE USE OF SPLIT RETAINERS MAY BE NECESSARY TO ENSURE GOOD SEAL GLAND INSTALLATION. WHEN THE SPLIT RETAINER IS USED, THE DESIGN SHALL BE SUBMITTED TO THE DIRECTOR FOR APPROVAL.

ANY DEFECTS IN THE STEEL RETAINER OR THE ACTUAL EXPANSION JOINT THAT COULD CAUSE DAMAGE TO THE GLAND SHALL BE CORRECTED BEFORE THE GLAND IS INSTALLED.

JOINTS IN RETAINERS: WELDS SHALL BE WATER TIGHT, PARTIAL PENETRATION WELDS AROUND THE OUTER PERIPHERY OF THE ABUTTING SURFACES. GRIND FLUSH ALL WELDS IN CONTACT

JOINTS IN RETAINERS: <CONTINUED> WITH THE SEAL AND JOINT ARMOR. DO NOT USE SHORT PIECES OF RETAINERS LESS THAN 6'-0" LONG, UNLESS REQUIRED AT CURBS OR SIDEWALKS. DO NOT PROVIDE ADDITIONAL SPLICES IN RETAINERS AT CURB OR SIDEWALK SECTIONS OTHER THAN THOSE DETAILED IN THE STANDARD BRIDGE DRAWINGS.

ARMOR STEEL: ALL STEEL PARTS OF THE JOINT ASSEMBLY, INCLUDING RETAINERS, SHALL BE ASTM A709, GRADE 50.

JOINTS IN ARMOR STEEL: SHOP OR FIELD JOINTS IN THE ARMOR SHALL BE COMPLETE PENETRATION WELDS GROUND FLUSH WHERE IN CONTACT WITH THE RETAINER.

ARMOR COATING: ALL STEEL PARTS OF THE JOINT ASSEMBLY REQUIRE METALIZING WITH 100% ZINC WIRE. SURFACE PREPARATION AND APPLICATION OF THE COATING SHALL BE AS PER THE SOCIETY FOR PROTECTIVE COATINGS SSPC-CS-23.00(I). THE COATING THICKNESS SHALL BE 6 MILS MINIMUM. METALIZED SURFACES EMBEDDED OR PARTIALLY EMBEDDED IN CAST-IN-PLACE CONCRETE REQUIRE SEALING. THE SEALER SHALL BE THE INTERMEDIATE EPOXY COATING MEETING THE REQUIREMENTS OF SS910.03. THE SEALER SHALL COVER ALL PEAKS, VALLEYS AND SURFACE ROUGHNESS ATTRIBUTED TO METALIZING. THE METALIZED COATING SHOULD NOT BE FIELD PAINTED, EXCEPT FOR THE METALIZED SURFACES ON THE ½" GUSSET PLATES DAMAGED DURING CROSSFRAME INSTALLATION. THESE AREAS SHALL BE CLEANED AND PAINTED IN CONFORMANCE WITH THE STRUCTURE'S PAINT SYSTEM.

THE METALIZED COATING SHALL BE PROTECTED WHEN BLASTING OR COATING ADJACENT STEEL MEMBERS. OVERSPRAY NEED NOT BE REMOVED.

COATING REPAIRS: COATINGS DAMAGED DURING FABRICATION SHALL BE REPAIRED BY COMPLETE REMOVAL AND RE-METALIZING PER ARMOR COATING NOTES ABOVE. COATINGS DAMAGED DURING SHIPPING, CONSTRUCTION OR FIELD WELDING, EXCEPT AS NOTED IN "ARMOR COATING" NOTES, SHALL BE REPAIRED BY ASTM A780, ANNEX A1, "REPAIR USING ZINC BASED ALLOYS". THE PROCEDURE SHALL BE AS FOLLOWS: REMOVE SURFACE CONTAMINATES, PREHEAT TO 600°F, APPLY ZINC COATING BY RUBBING WITH A PURE ZINC STICK OR SPRINKLING ZINC POWDER ON THE PREHEATED SURFACE TO ACHIEVE A MINIMUM COATING THICKNESS OF 6 MILS.

TEMPORARY SUPPORTS: FABRICATOR DESIGNED AND INSTALLED SUPPORTS ARE REQUIRED TO SUPPORT SHIPPING, ERECTION AND CONSTRUCTION FORCES WITHOUT DAMAGE TO THE STEEL ARMOR OR COATINGS. THESE SUPPORTS SHALL BE ADJUSTABLE IN THE FIELD TO ACCOUNT FOR VARIABLE TEMPERATURE SETTINGS. THE SUPPORTS SHALL BE INSTALLED AFTER THE FABRICATION AND COATING IS COMPLETE.

MEASUREMENT: MEASUREMENT AND PAYMENT PER ITEM 516 SHALL INCLUDE ALL LABOR, MATERIALS, COATINGS AND EQUIPMENT NECESSARY TO COMPLETE THE JOINT IN PLACE.

CONSTRUCTION PROCEDURE:

ARMOR INSTALLATION:

1. PLACE JOINT ASSEMBLY SO THE CHANNEL AND ANGLE REMAIN PARALLEL TO EACH OTHER AND PERPENDICULAR TO THE ROADWAY GRADIENT.
2. PLACE ABUTMENT BACKWALL CONCRETE AFTER THE SUPERSTRUCTURE CONCRETE IS PLACED IN THE SPAN ADJACENT TO THE ABUTMENT.
3. SET ABUTMENT EXPANSION JOINT WIDTH TO DIMENSION "A" NO MORE THAN FOUR HOURS PRIOR TO THE DAY'S PEAK AMBIENT TEMPERATURE. SEE PROJECT PLANS FOR DIMENSION "A".
4. PLACE THE BACKWALL CONCRETE DURING STABLE OR RISING AMBIENT TEMPERATURES. CONCLUDE PLACEMENT AT OR IMMEDIATELY BEFORE THE DAY'S PEAK AMBIENT TEMPERATURE.
5. HAND PLACE AND VIBRATE CONCRETE UNDER JOINT ARMOR TO ACHIEVE COMPLETE CONSOLIDATION.
6. LOOSEN ANY TEMPORARY JOINT ARMOR SUPPORTS AFTER INITIAL SET OF THE CONCRETE, PREFERABLY NOT LATER THAN TWO HOURS AFTER CONCLUSION OF THE CONCRETE PLACEMENT.

SEAL INSTALLATION:

1. EXAMINE THE RETAINER FOR SOILAGE OR DEFECTS THAT CAN DAMAGE THE SEAL PRIOR TO SEAL INSTALLATION. REPAIR DEFECTS.
2. NOT MORE THAN 24 HOURS PRIOR TO SEAL INSTALLATION, BLAST THE RETAINER INTERIOR PER SSPC SP6 "COMMERCIAL BLAST CLEANING", WITHOUT DAMAGING ADJACENT COATINGS. REMOVE ALL BLASTING MEDIA FROM THE RETAINER.
3. CLEAN ALL SURFACES OF THE SEAL WITH METHYL ETHYL KETONE (MEK), TOLUENE (T) OR OTHER MANUFACTURER SPECIFIED SOLVENT USING CLEAN DISPOSABLE CLOTHS. MAINTAIN THE SURFACE CLEANLINESS UNTIL INSTALLATION.
4. IMMEDIATELY BEFORE APPLYING THE LUBRICANT-ADHESIVE, BONDING SURFACES MUST BE CLEAN, DRY AND WARMER THAN 45°F. BONDING SURFACES MUST BE MAINTAINED IN THIS CONDITION UNTIL THE SEAL IS INSTALLED. LIBERALLY APPLY THE LUBRICANT-ADHESIVE TO BOTH THE RETAINER AND THE SEAL USING THE MANUFACTURER'S SPECIFIED METHODS FOR COMPLETE AND UNIFORM COVERAGE.
5. INSTALL THE SEAL WITH EQUIPMENT AND PROCEDURE SPECIFIED BY THE MANUFACTURER. ELONGATION OF THE SEAL OR STRUCTURAL DAMAGE TO THE SEAL CAUSED BY INSTALLATION METHODS WILL BE CAUSE FOR REJECTION.
6. REMOVE EXCESS LUBRICANT-ADHESIVE AFTER INSTALLATION.

DESIGNER NOTES:

PROJECT PLANS SHALL LIST DIMENSION "A" FOR TEMPERATURES BETWEEN 30°F AND 90°F IN 10° INCREMENTS.

JOINT SEAL GLANDS AT FIXED BEARINGS SHALL BE THE SAME SIZE AS AT THE EXPANSION BEARINGS WITH A DIMENSION "A" OF 2" AT ANY AMBIENT TEMPERATURE.

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

THE DESIGNER SHALL SUPPLY DETAILS FOR STRUCTURES WITH ROADWAY GRADES GREATER THAN 2%.

DESIGN AGENCY
OFFICE OF
STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION

01-20-94
DATE

ENGINEER OF BRIDGES

REVIEWED WTL/LWW

CHECKED JS

EXJ-4-87

DESIGNED AJM

DRAWN GFJ/AJM

REVISIONS
11-12-93
2-14-97
04-20-01

STANDARD
STRIP SEAL EXPANSION JOINTS
STEEL STRINGER STRUCTURES