

| EXPANSION PIER BEARING GEOMETRY |                    |               |                        |              |             |                  |                    |                 |             |               |             |                 |             |             |                          |                   |  |         |          |         |          |          |        |
|---------------------------------|--------------------|---------------|------------------------|--------------|-------------|------------------|--------------------|-----------------|-------------|---------------|-------------|-----------------|-------------|-------------|--------------------------|-------------------|--|---------|----------|---------|----------|----------|--------|
| BRIDGE NO.                      | SUB-STRUCTURE UNIT | △ ASKEW ANGLE | EXPANSION BEARING TYPE | SOLE PLATE   |             |                  |                    | STAINLESS STEEL |             | MASONRY PLATE |             |                 | ANCHOR BOLT |             | BEVELED WASHER THICKNESS |                   | *A* DISTANCE (UPSTATION SIDE OF BEARING) |         |          |         |          |          |        |
|                                 |                    |               |                        | LENGTH (SPL) | WIDTH (SPW) | THICKNESS        |                    | LENGTH (SSL)    | WIDTH (SSW) | LENGTH (MPL)  | WIDTH (MPW) | THICKNESS (MPT) | OFFSET (BO) | LENGTH (BL) | WTA (UPSTATION)          | WTB (DOWNSTATION) | TEMPERATURE (°F)                         |         |          |         |          |          |        |
|                                 |                    |               |                        |              |             | SPTA (UPSTATION) | SPTB (DOWNSTATION) |                 |             |               |             |                 |             |             |                          |                   | 0  | 15      | 30       | 45      | 60       | 75       | 90     |
| 3N                              | PIER 1             | 90°00'00"     | A                      | 15 3/4"      | 27 1/2"     | 1 3/8"           | 1"                 | 15 1/4"         | 18 1/2"     | 12 1/2"       | 27 1/2"     | 1"              | 11 1/4"     | 25"         | 9/16"                    | 3/8"              | 2 1/4"                                   | 2 3/16" | 2 1/16"  | 2"      | 1 15/16" | 1 13/16" | 1 3/4" |
| 3N                              | PIER 2             |               |                        |              |             | 2 5/8"           | 2 7/16"            |                 |             |               |             |                 |             |             |                          |                   | 2 3/16"                                  | 2"      | 1 13/16" | 1 9/16" | 1 3/8"   |          |        |
| 3S                              | PIER 1             |               |                        |              |             | 1 3/8"           | 1 9/16"            |                 |             |               |             |                 |             |             |                          |                   | 1 13/16"                                 | 2"      | 2 3/16"  | 2 7/16" | 2 5/8"   |          |        |
| 3S                              | PIER 2             |               |                        |              |             | 1 3/4"           | 1 13/16"           |                 |             |               |             |                 |             |             |                          |                   | 1 15/16"                                 | 2"      | 2 1/16"  | 2 3/16" | 2 1/4"   |          |        |

| EXPANSION BEARING TYPE DETAILS |  |             |                 |                             |                                |                                     |                                 |
|--------------------------------|--|-------------|-----------------|-----------------------------|--------------------------------|-------------------------------------|---------------------------------|
| EXPANSION BEARING TYPE         | STEEL REINFORCED ELASTOMERIC PAD WITH PTFE SURFACE |             |                 |                             |                                |                                     |                                 |
|                                | LENGTH (EPL)                                       | WIDTH (EPW) | THICKNESS (EPT) | COVER LAYER THICKNESS (CLT) | INTERNAL LAYER THICKNESS (ILT) | NUMBER OF INTERNAL ELASTOMER LAYERS | NUMBER OF INTERNAL STEEL PLATES |
| A                              | 10 1/2"  | 18 1/2"     | 3 3/8"          | 1/4"                        | 1/2"                           | 4                                   | 5                               |

### BEARING NOTES:

- THESE NOTES ARE APPLICABLE FOR THE BEARINGS AND THEIR COMPONENTS SHOWN ON BRIDGE SHEETS BRI30, BRI30A, AND BRI31, IN ADDITION TO THIS SHEET.
- FOR FIXED BEARING FABRIC PAD, SEE BRIDGE SHEET BRI30. FOR EXPANSION BEARING FABRIC PAD, SEE BRIDGE SHEET BRI30A. FOR EXPANSION BEARING ELASTOMERIC PAD, SEE BRIDGE SHEET BRI31.
- ALL BEARINGS SHALL CONFORM TO SECTIONS 531 AND 731.
- BEARING ASSEMBLIES, INCLUDING ELASTOMERIC PADS, ANCHOR BOLTS, INTERNAL STEEL PLATES, PTFE SHEET, STAINLESS STEEL PLATES, SOLE PLATES, MASONRY PLATES, PREFORMED FABRIC PADS, BOLTS, NUTS, WASHERS AND ALL WORK REQUIRED TO FABRICATE AND INSTALL BEARINGS TO BE PAID UNDER ITEM 531.10, "BEARING DEVICE ASSEMBLY, PREFORMED FABRIC PAD", AND ITEM 531.11 "BEARING DEVICE ASSEMBLY, ELASTOMERIC PAD."
- THE FABRICATION, TESTING AND INSTALLATION OF THE BEARINGS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THESE CONTRACT PLANS, THE STANDARD SPECIFICATIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES DIVISION I - SECTION 14 AND DIVISION II - SECTION 18.
- STEEL REINFORCED ELASTOMERIC BEARINGS WERE DESIGNED USING METHOD B IN AASHTO DIVISION I - SECTION 14.6.5.
- DESIGN CRITERIA
  - MASONRY PLATE TO CONCRETE DESIGN PRESSURE = 1000 PSI - MAXIMUM
  - MINIMUM PREFORMED FABRIC PAD ALLOWABLE DESIGN ROTATION = 0.015 RADIAN
  - FABRIC PAD DESIGN LOAD PER BEARING AT ABUTMENTS 1 & 2 (UNFACTORED)
    - RDL = 49 KIPS
    - RLL = 79.7 KIPS (W/ IMPACT)
  - ELASTOMERIC PAD DESIGN LOAD PER BEARING AT PIERS 1 & 2 (UNFACTORED)
    - MAXIMUM
      - RDL = 164.3 KIPS
      - RLL = 89.6 KIPS (W/O IMPACT)
      - ROTATION = 0.007 RADIAN
    - MINIMUM
      - RDL = 139.7 KIPS
      - RLL = -4.4 KIPS (W/O IMPACT)
      - ROTATION = 0.05 RADIAN
- ELASTOMER SHALL BE GRADE 4, 60 DUROMETER NATURAL RUBBER CONFORMING TO AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DIVISION II, SECTION 18. THE AVERAGE SHEAR MODULUS (G) FOR THE ELASTOMER SHALL BE 150 PSI, WITH AN ALLOWABLE RANGE OF 127.5 PSI TO 172.5 PSI.
- SOLE, MASONRY AND SHIM PLATES SHALL CONFORM TO AASHTO M270 GRADE 50. ALL OTHER STEEL SHALL BE AASHTO M270 GRADE 36, EXCEPT AS NOTED OTHERWISE. ANCHOR BOLTS, NUTS AND WASHERS FOR BEARINGS SHALL CONFORM TO SUBSECTION 714.08. UNLESS NOTED OTHERWISE, ALL STEEL PLATES AND ALL STEEL COMPONENTS (ANCHOR BOLTS, HIGH-STRENGTH BOLTS, NUTS, WASHERS, ETC.) SHALL BE GALVANIZED OR METALIZED PER SUBSECTION 506.15.
- MINIMUM EMBEDMENT OF ALL ANCHOR BOLTS SHALL BE 1'-3".
- THE 1/8" THICK PREFORMED FABRIC PAD BENEATH THE MASONRY OR SHIM PLATE SHALL HAVE THE SAME SIZE AND ANCHOR BOLT HOLE LAYOUT AS THE CORRESPONDING MASONRY OR SHIM PLATE.
- FABRICATION DRAWINGS CONFORMING TO THE REQUIREMENTS OF SUBSECTION 531.03 SHALL INCLUDE WELDING AND BONDING PROCEDURES.
- THE DESIGN COEFFICIENT OF FRICTION BETWEEN THE PTFE AND THE STAINLESS STEEL SHALL NOT EXCEED 0.06 AT 800 PSI COMPRESSIVE LOADING.
- BEARING HEIGHTS AND DIMENSIONS SHOWN ARE BEFORE APPLICATION OF LOADS.
- THE CONTRACTOR SHALL ENSURE THAT THE HEAT FROM WELDING THE SOLE PLATE TO THE GIRDER DOES NOT DAMAGE ANY PART OF THE BEARING.
- THE \*A\* DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOADS ARE ADDED TO THE GIRDERS.
- THE CONCRETE SURFACE BENEATH THE BEARING DEVICE SHALL BE LEVEL.
- STAINLESS STEEL BACKING PLATE SHALL CONFORM TO SUBSECTION 731.05.

## STATE OF VERMONT AGENCY OF TRANSPORTATION

|  |              |                          |                 |
|--|--------------|--------------------------|-----------------|
| Town Of                                      | GUILFORD     | Bridge No.               | <b>3N&amp;S</b> |
| Highway No.                                  | I-91         | Log Sta.                 |                 |
|  |              | Surv. Sta.               |                 |
| I-91 OVER BROAD BROOK & BROAD BROOK ROAD     |              |                          |                 |
| <b>BEARING NOTES &amp; TABLES (3N&amp;S)</b> |              |                          |                 |
| Designed By                                  | M.J. MOZER   | Drawn By                 | G.K. MORZE      |
| Checked By                                   | P.W. SZUSTAK | Bridge Design Supervisor | J.P. HALSTEAD   |
|  | Date 01/03   | Date                     | 01/03           |
| PROJECT                                      | GUILFORD     | PROJECT NO.              | IM 091-1(33)    |
| TVGA CAD Drawing No. G BRNOTE.dgn            |              | Date                     | 04/28/08        |
| Bridge Sheet No.                             | BRI32        | Sheet                    | 58 of 114       |