THE GOLD STAR MEMORIAL HIGHWAY

MAINE TURNPIKE AUTHORITY

DANIEL E. WATHEN, CHAIR
JAMES F. CLOUTIER, VICE CHAIR
GERARD P. CONLEY, SR., MEMBER
JOHN E. DORITY, MEMBER
ROBERT D. STONE, MEMBER
FREEMAN R. GOODRICH, MEMBER
KAREN S. DOYLE, MEMBER EX-OFFICIO

S. PETER MILLS, EXECUTIVE DIRECTOR

CONTRACT 2016.03
BRIDGE SUPERSTRUCTURE REPLACEMENT
SMALL ROAD UNDERPASS
MILE 95.1

LOCATION MAP
### ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM DESCRIPTION</th>
<th>UNIT</th>
<th>STRUCTURAL QUANTITY</th>
<th>CIVIL QUANTITY</th>
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### EARTHWORK SUMMARY

- **COMMON EXCAVATION FOR ESTIMATE**
  - **COMMON EXCAVATION FROM CROSS SECTIONS**
    - **GRADING IN FILL**
    - **TOTAL COMMON EXCAVATION (by estimate)**
- **FILL FOR BORROW CALCULATIONS**
  - **COMMON FILL FROM CROSS SECTIONS**
    - **GRADING IN FILL**
    - **TOTAL FILL**
  - **AVAILABLE COMMON EXCAVATION FOR BORROW CALCULATIONS**
    - **TOTAL AVAILABLE COMMON EXCAVATION (1 minus 2)**
    - **BORROW**
    - **TOTAL AVAILABLE NON-ROCK EXCAVATION**
  - **COMPUTATION FOR COMMON BORROW FOR ESTIMATE**
    - **TOTAL FILL**
    - **TOTAL AVAILABLE NON-ROCK EXCAVATION**
    - **BORROW NEEDED**

**TOTAL AVAILABLE EXCAVATION**

**TOTAL AVAILABLE NON-ROCK**

**BORROW NEEDED**

**TOTAL AVAILABLE NON-ROCK EXCAVATION**

**TOTAL AVAILABLE COMMON EXCAVATION**
GENERAL

1. All details shall be in conformance with Maine Department of Transportation Standard Details, Highway and Bridge Details, Latest Revision and MDOT Best Management Practices for Erosion and Sediment Control Latest Revision unless otherwise provided in these plans.

2. Chain Link Fence Sages shall be #8 single strakes. A Sage shall be located on each side of the turnaround pathway, exact location of the Sage shall be determined in the field by the Resident.

3. Connections for existing fence to proposed fence shall be incidental to the proposed fence items.

4. Existing Row Fence within the limits of work, as shown on the plans or as directed by the Resident shall be removed and disposed. This work shall be incidental to Section 10.

5. Contractor is required to maintain access to all driveways and side roads during construction unless otherwise shown on the plans.

6. The Contractor shall submit his proposed staging areas and field trailer location to the Resident for approval prior to starting work.

7. No wetlands shall be impacted.

8. The Contractor is required to call 811 Safe at 401-563-2832 at least 72 hours prior to start of work.

9. The Contractor shall notify the Resident 45 days prior to construction so the Resident can arrange for Maine Turnpike Trailer Location to the Resident for approval prior to starting work.

10. EXISTING AND PROPOSED ELEVATIONS ARE BASED ON A LOCAL PROJECT

EROSION CONTROL

1. The anticipated Erosion Control Devices are shown on the plans. The Contractor shall propose actual type and location of devices for approval by the Resident. Additional measures may be proposed by the Contractor due to site or weather conditions, the Resident may direct the Contractor to implement additional measures. Any additional measures approved by or directed by the Resident shall be measured for payment.

2. No loans has been estimated for one of the disturbed slope area unless otherwise specified on the plans. Actual placement of the loan shall be as designated by the Resident.

3. All temporary and permanent Erosion Control Devices shall be installed in accordance with the Maine Department of Transportation Best Management Practices.

4. Temporary Stone Check Dam shall be installed in accordance with the Mini Best Management Practices.

5. Temporary Beams and temporary slope drains are anticipated at all stormwater locations and top of embankments while growth is being established on site slopes.

6. Temporary Erosion Control Blanket, view 83.59 shall be installed in all ditches and slopes 5% and steeper from toe to toe of slope. Loan and seed shall be placed prior to the installation of the Erosion Control Blanket in ditches shall be #8 wire unless otherwise specified on the plans or as designated by the Resident.

CARTWORk

1. All clearing shall be completed before April 10th. Clearing limits shall be 5' beyond and parallel to the construction slope lines or as shown on the plans unless otherwise authorized by the Resident. The actual clearing limits shall be established in the field by the Contractor and shall be approved by the Resident prior to any clearing taking place.

2. Individual trees within the slope limit lines or called to be removed on the plans shall be removed and disposed. This work shall be incidental to the contract.

3. The normal spurring width in ditches shall be variable, left or right where sustainable to less than 5' above old ground, the spurring depth has been estimated as 0' in field areas and up to 1' in wooded areas.

4. Waste Materials shall be disposed of at the project site in accordance with all Environmental Regulations.

5. Removal of existing pavement shall be paid as common excavation. Existing pavement thickness has been estimated to be 8'.
NOTES:
1. THE PAVEMENT, BASE, AND SUBBASE DEPTHS, AS SHOWN ON THE PLANS, ARE INTENDED TO BE NOMINAL.
2. DRAGONS FOR ALL COURSES OF SUBBASE AND PAVEMENT SHALL BE STRAIGHT.
3. ALL NECESSARY PAVEMENT CUTTING SHALL BE SAWCUT AND DONE IN SUCH A MANNER AS TO LEAVE A CLEAN, VERTICAL FACE.
4. BITUMINOUS TACK COAT IS REQUIRED BETWEEN ALL LIFTS OF PAVEMENT AND ON ALL EXISTING PAVED SURFACES PRIOR TO PLACING PROPOSED PAVEMENT OR AS DIRECTED BY THE RESIDENT.
5. CELLULAR CONFINEMENT SYSTEM SHALL BE INSTALLED ON ALL SLOPES STEEPER THAN 2:1. SLOPES SHALL BE GRUBBED, BACKFILLED AND COMPACTED PRIOR TO CELLULAR CONFINEMENT SYSTEM INSTALLATION. SEE SPECIFICATION FOR ADDITIONAL INFORMATION.
# Construction Sign Summary

## Legend
- **Back-Arrow**
- **Vertical Letter Signs**

### Required Dimensions
- **Text Height**: 4" (100 mm)
- **Spacing**: 6" (150 mm)
- **Radius**: 15.00 ft (4.57 m)
- **Area in Square Feet**: 15.00

### Ground Border
- **Number**: 8.00
- **Color**: CS-25

### Notes
- **Note 1**: M4-10L
- **Note 2**: M4-10R

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### Text Dimensions
- **RTE. MKR.**
- **G20-2**: 24" 48" (64)
- **G20-5aP**: 24" 48" (32)
- **R11-2**: 24" 48" (54)
- **R2-6aP**: 24" 48" (32)
- **R11-3b**: 24" 48" (50)
- **M4-9**: 24" 30" (54)
- **M4-10L**: 24" 30" (6)
- **M4-10R**: 24" 30" (6)
- **R2-1**: 24" 30" (50)
- **R2-12**: 24" 30" (50)
- **R2-1**: 24" 30" (50)
- **R2-12**: 24" 30" (50)

### Color
- **WHITE**: 24" 30" (50)
- **BLACK**: 24" 30" (50)

### Area
- **Area in Square Feet**: 15.00

### Additional Notes
- **DATE**: 12/23/2015
- **File Name**: 007_MOT_Sign Summary 01.dgn
- **Contract**: 2018.03
- **Contractor**: Small Road Underpass Replacement
- **Consultant**: Small Road Replacement
- **Maintenance of Traffic**
### Construction Sign Summary (Continued)

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<tr>
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<td>ORANGE</td>
<td>BLACK</td>
<td>9.00 (60)</td>
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### Notes
- Legend: Back-arrow, vertical letter signs, required height, spacing, route marker, ground border, number, text dimensions (inches), text color, of radius, width, height, sign size of number, caution, identification area in square feet, border.
FILE NAME: 009 Fence Details.dgn

CONTRACT: SMALL ROAD UNDERPASS
BRIDGE SUPERSTRUCTURE REPLACEMENT
MEMORIAL HIGHWAY
THE GOLD STAR
GRANITE STATE CORPORATION
555 Main Street, Suite 5-C
Westbrook, ME 04092
TEL (207) 774-5155
FAX (207) 228-0909
340 County Road, Suite 6-C
Westbrook, ME 04092

Fence Details

METHOD OF ATTACHING CHAIN LINK FENCE TO WOVEN WIRE FENCE

NOTE:
1. BRACE PANELS SHALL BE INSTALLED WHERE THE CHANGE IN GRADE BETWEEN ANY THREE POSTS EXCEEDS 15 PERCENT.
2. NO ADDITIONAL PAYMENT WILL BE MADE FOR LONGER POSTS NECESSITATED BY LARGE GRADE DIFFERENTIAL.
3. TYPE II BRACING WILL BE USED AT FENCE ENDS. TYPE I BRACING WILL BE USED AT CORNER POSTS.
4. WHEN LEDGE IS ENCOUNTERED, STEEL POSTS SHALL BE SET AND GROUTED 12" DEEP UNLESS THE POSTS PENETRATE THE GROUND TO THE DEPTH INDICATED ON THE DRAWINGS.
5. CONCRETE FOR POST FOUNDATION SHALL BE CLASS B.
6. BRACE, GATE AND END POSTS SHALL BE SET IN CONCRETE.
7. CHAIN LINK FENCE SHALL BE INSTALLED WITH BARBS DOWN.
8. ALL COMPONENTS OF CHAIN LINK FENCE SHALL BE IN ACCORDANCE WITH AASHTO M181.

SCALE: 1/8" = 1'0"

TYPICAL TYPE I END PANEL

TYPICAL INTERMEDIATE PANEL

TYPICAL TYPE II BRACE PANEL

SINGLE GATE

DOUBLE GATE

NOTES:
1. BRACE PANELS SHALL BE INSTALLED WHERE THE CHANGE IN GRADE BETWEEN ANY THREE POSTS EXCEEDS 15 PERCENT.
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TYPICAL INTERMEDIATE PANEL

TYPICAL TYPE II BRACE PANEL

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DOUBLE GATE

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SCALE: 1/8" = 1'0"
**NOTES**

1. Grubbing will be paid for under Item 203.20 Common Excavation.
2. Excavation for benching to receive embankments is incidental to Item 203.20 Common Excavation.
3. Grubbing is required where fill is to be placed on existing embankments with slopes 2:1 or steeper.

---

**SCALING:**

1 LF of Downspout = 1.04 SY of Erosion Control Geotextile Fabric
1 LF of Downspout = .33 CY of Stone Ditch Protection

---

**SECTION A-A**

1" = 10'-0"

**BENCH DETAIL**

NOTE:

- See Bridge Rail Transition Details for more information.

**PLAN VIEW**

NOTE:

- Stone for stone downsputs shall meet the requirements of MDOT Specification NTS.
- Grubbing will be paid for under Item 203.20 Common Excavation.
- Grubbing will be paid for under Item 203.20 Common Excavation.

**SECTION A-A**

1" = 5'-0"

**NOTES:**

- With slopes 2:1 or steeper.
- To be placed on existing embankments.
- Benching is required where fill is to be placed on existing embankments with slopes 2:1 or steeper.

---

**DOWNSPOUT DETAILS**

- Prop. Stone Downspout Invert
- Existing Ground
- Vertical Curb Type 1
- Bridge Rail Attachment
- Drainage into Downspout
- Depress pavement to force drainage into downspout

---

**DRAWN**

Dale A. Mitchell, P.E.

**CHECKED**

Ralph C. Norwood IV, P.E., P.T.O.
BEGIN RIGHT SHOULDER RECONSTRUCTION

END VARIABLE DEPTH MILL AND FILL

STATION 32+75

END FULL DEPTH PAVEMENT

STATION 35+00

BEGIN FULL DEPTH CONSTRUCTION

STATION 31+75

EXISTING GROUND

PROPOSED GROUND
NOTES:

1. Erosion and sedimentation control devices required for the contractor's access locations and storage areas will not be measured for payment.

2. See specifications for contractor's submittal requirements if adding additional limits of disturbance to the project estimated quantities.

3. An additional 0.5 acre has been estimated for contractor access locations and storage areas.

4. Total limit of disturbance for this project has been estimated to be 9.5 acres.

CONTRACT: 2.1 ACRES.

TOTAL LIMIT OF DISTURBANCE FOR THIS PROJECT HAS BEEN ESTIMATED TO AN ADDITIONAL 0.5 ACRE HAS BEEN ESTIMATED FOR CONTRACTOR ACCESS QUANTITIES.

ADDING ADDITIONAL LIMITS OF DISTURBANCE TO THE PROJECT ESTIMATED MEASURED FOR PAYMENT.

CONTRACTOR'S ACCESS LOCATIONS AND STORAGE AREAS WILL NOT BE
SHEET NUMBER: XS-03

SCALE OF FEET

STA. 25+00
MATCH existing pavement
DESIGN VARIABLE depth MILL AND FILL

KEY:
- X: Dwarfed
- 0: Original

DRAWING IN FILL
- 2.00'
- 1.52'
- 10.48'
- 9.47'
- 2.53'
- 2.00'

G=3
F=0
C=75

COMMERCIAL:

FILE NAME: xsec.xgn
DATE: 12/23/2015

HNTB CORPORATION
540 County Road, Suite 6-C
Westbrook, ME 04092
TEL 207-774-5155
FAX 207-228-0909

Designed by:
Dale A. Mitchell, P.E.
LZD
DAM

Drawn:
11/15

Designed:
11/15

Checked:
11/15

In Charge of:
11/15

HNTB PROJECT MANAGER:
Ralph C. Norwood IV, P.E., P.T.O.E.
BRIEF SUPERSTRUCTURE REPLACEMENT
SMALL ROAD UNDERPASS

STA. 27+00

STA. 26+80

BEGIN FULL DEPTH CONSTRUCTION

END FULL DEPTH PAVEMENT

21.14
-1.5 :1
-2.0 %
256.68
-2.0 %
-1.5 :1
-28.02

GRADED IN FILL (TYP.)

BENCHING (TYP.)

2.00'
12.00'
12.00'
2.00'

REMOVAL
PAVEMENT

DAM

Scale: 50

Designed by:
HNTB CORPORATION
340 County Road, Suite 6-C
Westbrook, ME 04092
TEL (207) 774-5155
FAX (207) 228-0909

340 County Road, Suite 6-C
Westbrook, ME 04092
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CONSULTANT PROJECT MANAGER:
RALPH C. NORWOOD IV, P.E., P.T.O.E.

CONSULTANT PROJECT MANAGER:
Dale A. Mitchell, P.E.

HNTB CORPORATION
340 County Road, Suite 6-C
Westbrook, ME 04092
TEL (207) 774-5155
FAX (207) 228-0909

THE GOLD STAR MEMORIAL HIGHWAY

BRIEF SUPERSTRUCTURE REPLACEMENT
SMALL ROAD UNDERPASS

STA. 27+00
STA 34+00 TO STA 34+50

MATCH EXISTING PAVEMENT END VARIABLE DEPTH MILL AND FILL

STA 33+75

MAILBOX #33 STA. 33+93.68, 15RT

CMP #6 32.41 RT

STA. 34+27.50

END VARIABLE DEPTH MILL AND FILL

SCALE: 5'

TYP.

G=6
F=33
C=24

W.O.R.

T.S.X

GRUBBING IN FILL

2.00'

2.56'

9.44'

10.84'

9.89'
GENERAL NOTES:
1. ABUTMENT CONCRETE REPAIRS OUTSIDE OF THE FULL DEMOLITION LIMITS WILL BE PAID UNDER ITEM 518.10 ABUTMENT CONCRETE REPAIRS AND ITEM 518.30 ABUTMENT SEAT REFACING.
2. CONCRETE DEMOLITION WHICH GENERALLY INCLUDES EXISTING ENDPOSTS, APPROACH CURBS AND ABUTMENT BACKWALLS, WILL BE MEASURED FOR PAYMENT UNDER PAY ITEM 202.12, REMOVING EXISTING STRUCTURAL CONCRETE. THIS WORK SHALL INCLUDE SAWCUTTING AND REMOVING EXISTING CONCRETE AND REINFORCING STEEL TO THE LIMITS SHOWN ON THE PLANS.
3. EXCAVATION REQUIRED TO COMPLETE ABUTMENT AND PIER REPAIRS SHALL BE MEASURED FOR PAYMENT UNDER PAY ITEM 206.082, STRUCTURAL EARTH EXCAVATION-MAJOR STRUCTURES. BACKFILL OF THE REPAIR AREAS SHALL BE INCIDENTAL TO THE STRUCTURAL EXCAVATION PAY ITEM.
5. FOR ADDITIONAL DETAIL See SHEET 5-40.
6. THE LIMITS OF CONCRETE ABUTMENT SEAT REPLACEMENT UNDER PAY ITEM 518.10, ABUTMENT CONCRETE REPAIRS, THE FABRICATION AND PLACEMENT OF REINFORCING STEEL, SHALL BE INCLUDED IN THE ABUTMENT SEAT CONCRETE REMOVAL QUANTITIES.
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ABUTMENT 2 DEMO AND REPAIRS

1. SEE SHEET S-03 FOR REPAIR NOTES.
2. SEE SHEET S-05 FOR REPAIR DETAILS.

* 10 S.F. REPAIR QUANTITY IS A CONTINGENCY.

LIMIT OF ABUTMENT SEAT REFACING
LIMIT OF SURFACE PATCH REPAIR
LIMIT OF CONCRETE DEMOLITION

NOTES:
- ‰" = 1'-0"
- ‰" = 1'-0"
- ‰" = 1'-0"
- ‰" = 1'-0"

HNTB CORPORATION
340 County Road, Suite 6-C
Westbrook, ME  04092
TEL (207) 774-5155
FAX (207) 228-0909

FILE NAME: 036_ABUTDEM_REP-A2.dgn
DATE: 12/23/2015
CONTRACT:
SHEET NUMBER: S-04
OF 65

DESIGNED BY:
Dale A. Mitchell, P.E.
RALPH C. NORWOOD IV, P.E., P.T.O.E.

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DESIGNED BY:
Dale A. Mitchell, P.E.
RALPH C. NORWOOD IV, P.E., P.T.O.E.
ABUTMENT EXCAVATION AND BACKFILL SECTION

CONCRETE REPAIR LIMITS

REINFORCING STEEL TO CONSIST OF REMOVAL AND PLACEMENT. LIMITS OF CONCRETE REPAIR TO FACE OF ABUTMENT (TYP.)

EXISTING REINFORCEMENT - FACE OF ABUTMENT

LIMIT OF MEASUREMENT

CONCRETE SURFACE PATCH/REPAIR DETAIL

ABUTMENT SEAT REFINING DETAILS

ABUTMENT SEAT REFINACE LIMITS

NOTE:
1. REINFORCING STEEL FOR ABUTMENT REFINACE SHALL BE INCIDENTAL TO PAY ITEM 518.30.
2. ABUTMENT SEAT CALL BE USED ONLY WHERE CONCRETE PAD HEIGHT EXCEEDS 4".
3. LIMIT OF MEASUREMENT
4. CONCRETE REPAIR TO CONSIST OF REMOVAL AND PLACEMENT.
5. CONCRETE REPAIR LIMITS TO FACE OF ABUTMENT (TYP.).
6. EXISTING REINFORCEMENT - FACE OF ABUTMENT
7. LIMIT OF MEASUREMENT
8. CONCRETE SURFACE PATCH/REPAIR DETAIL
9. ABUTMENT SEAT REFINING DETAILS

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6. EXISTING REINFORCEMENT - FACE OF ABUTMENT
7. LIMIT OF MEASUREMENT
8. CONCRETE SURFACE PATCH/REPAIR DETAIL
9. ABUTMENT SEAT REFINING DETAILS

NOTE:
1. REINFORCING STEEL FOR ABUTMENT REFINACE SHALL BE INCIDENTAL TO PAY ITEM 518.30.
2. ABUTMENT SEAT CALL BE USED ONLY WHERE CONCRETE PAD HEIGHT EXCEEDS 4".
3. LIMIT OF MEASUREMENT
4. CONCRETE REPAIR TO CONSIST OF REMOVAL AND PLACEMENT.
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9. ABUTMENT SEAT REFINING DETAILS
GENERAL NOTES:
1. PIER REPAIR WORK SHALL INCLUDE PROVIDING ACCESS FOR PIER INSPECTION, PIER SURFACE PATCH REPAIRS, AND SURFICIAL EXCAVATION TO EXPOSE REPAIRS UP TO 6" BELOW GRADE.

2. WHERE PIER SURFACE PATCH REPAIRS ARE SPECIFIED THE WORK SHALL INCLUDE REMOVAL OF UNSOUND CONCRETE AND PLACEMENT AND CURING OF REPAIR MATERIALS. REPAIRS SHALL BE MEASURED FOR PAYMENT UNDER PAY ITEM 518.20, PIER REPAIRS.

3. THE CONTRACTOR SHALL PROVIDE STAGING OR ANOTHER ACCEPTABLE MEANS OF ACCESS AT ALL PIER LOCATIONS THAT WILL ALLOW THE RESIDENT TO SAFELY PERFORM A DETAILED CONCRETE INSPECTION OF ALL PIER SURFACES. THIS WORK SHALL BE INCIDENTAL TO THE WORK INCLUDED IN PIER REPAIRS.

4. THE QUANTITIES OF PIER REPAIR NOTED ON THESE DRAWINGS HAVE BEEN DEVELOPED BASED PRIMARILY ON VISUAL AND TACTILE INSPECTION OF THE PIERS FROM THE GROUND LEVEL. ACTUAL REPAIR AREAS WILL BE DETERMINED BY THE RESIDENT DURING CONSTRUCTION.

5. EXCAVATION AND BACKFILLING REQUIRED TO COMPLETE PIER REPAIRS SHALL BE INCIDENTAL TO THE WORK INCLUDED IN PIER REPAIRS.

6. TEMPORARY CONCRETE BARRIERS TYPE MAY BE USED FOR SHOULDER CLOSURES DURING PIER REPAIRS AS SHOWN IN THE MOT DETAILS. ONE CLOSURE PER BOUND WITHIN A CONTINGENCY.

REMOVAL PROCEDURES:

2. PERFORM 1 inch DEEP SAWCUTS ALONG LIMITS OF REMOVAL.

3. CHIP CONCRETE TO DEPTH SHOWN.

CONCRETE SURFACE PATCH/REPAIR PROCEDURE:
1. PREPARE AND PATCH REPAIR AREAS WITH CLASS AAA MODIFIED CONCRETE. SEE SPECIFICATIONS FOR MATERIAL PREPARATION, PLACEMENT, AND CURING REQUIREMENTS.

2. PERFORM GENERAL FINISHING, CONSULT BELOW.

GENERAL FINISHING:
1. ALL EXPOSED SURFACES SHALL BE COATED WITH EITHER A PIGMENTED OR CLEAR PROTECTIVE COATING SUITABLE FOR CONCRETE SURFACES AFTER PATCHING IS COMPLETED AND PATCH MATERIALS HAVE CURVED THE SOUTH FACE OF PIER 3 SHALL BE COATED WITH CLEAR PROTECTIVE COATING. ALL OTHER SURFACES SHALL RECEIVE PIGMENTED COATING.
NOTES:

1. SEE SHEET S-06 FOR REPAIR NOTES.
2. EXPOSED REBAR AREAS ASSUME 5 S.F.
3. OF MATCHING PIER EXPOSED AREA.
4. LIMIT OF PIER SURFACE PATCH REPAIR

REPAIR QUANTITIES
PIER SURFACE PATCH REPAIR
88 S.F.
* INCLUDES 20 S.F. ADDITIONAL REPAIR QUANTITY AS A CONTINGENCY.

PLAN
ELEVATION B
ELEVATION A
ELEVATION D
ELEVATION C

LIMIT OF PIER SURFACE PATCH REPAIR
SQUARE FOOT AREA OF REPAIR

LEGEND

PIER SURFACE PATCH REPAIR
SQUARE FOOT AREA OF REPAIR
1. SEE SHEET S-06 FOR REPAIR NOTES.

NOTES:

REPAIR QUANTITIES
PIER SURFACE PATCH REPAIR
- INCLUDES 20 S.F. ADDITIONAL REPAIR QUANTITY AS A CONTINGENCY.

LEGEND
- LIMIT OF PIER SURFACE PATCH REPAIR
- SQUARE FOOT AREA OF REPAIR

PIER ELEVATION KEY

ELEVATION D
ELEVATION C
ELEVATION A

PLAN

ELEVATION B

EXISTING GRADE APPROXIMATE

3.0
2.0
0.5
0.5
100.5
1.0
1.5

CONSULTING PROJECT MANAGER: RALPH C. NORWOOD IV, P.E.

PEB

HNTB CORPORATION

340 County Road, Suite 6-C
Westbrook, ME 04092
TEL 207-774-5155
FAX 207-228-0909

HNTB MEMORIAL HIGHWAY

THE GOLD STAR

BRIDGE SUPERSTRUCTURE REPLACEMENT
SMALL ROAD UNDERPASS
PIER 3 DEMOLITION AND REPAIRS

FILE NAME: 040_PIER3DEM_REP-P3.dgn
DATE: 12/23/2015

CONTRACT: 129 S.F.

SHEET NUMBER: S-08

40 OF 65
ABUTMENT NOTES:
1. ALL EXPOSED ABUTMENT SURFACES, EXCEPT FOR THE ROADWAY FACE AND TOP OF WINGWALL CURVES, SHALL BE FINISHED WITH PIGMETTED COATING FOR CONCRETE. SURFACES AFTER RECONSTRUCTION IS COMPLETE AND MATERIAL HAS CURED.
2. ALL EXISTING CONCRETE SURFACES AGAINST WHICH NEW CONCRETE SHALL BE PLACED SHALL BE ROUGHENED AND COATED WITH AN EPONY BONDING COMPOUND. THIS WORK SHALL BE INCIDENTAL TO ITEM 502.219.
3. FOR BEARING PEDESTAL REINFORCING DETAILS SEE SHEET S-05.
5. FOR ABUTMENT KEEPER BLOCK DETAILS AND ELEVATIONS SEE SHEET S-10.
6. FOR WINGWALL REINFORCING DETAILS SEE SHEET S-11 TO S-12.
7. EXPOSED DEMOLITION SHALL BE TREATED PRIOR TO APPLICATION OF PIGMETTED COATING. TREATMENT SHALL INCLUDE A COLD GALLIUMIZATION OF EXPOSED END OF CUT REBAR, A ROUGHENED CONCRETE SURFACE WITH BONDING AGENT, AND A BRUSH THICK NON-SHRINK GROUT TO TOPPED SLOPED TO DRAIN.
8. ALL CONCRETE BEARING PEDESTALS AND KEEPER BLOCKS SHALL BE CAST MONOLITHICALLY WITH THE SURROUNDING CONCRETE.

WORKING POINT LOCATIONS

<table>
<thead>
<tr>
<th>WORKING POINT LOCATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>WINGWALL 1E &amp; 2W</td>
</tr>
<tr>
<td>WINGWALL 1W &amp; 2E</td>
</tr>
<tr>
<td>ABUTMENT 1 &amp; 2 ELEVATION</td>
</tr>
<tr>
<td>ABUTMENT 1 &amp; 2 PLAN</td>
</tr>
</tbody>
</table>

DETAIL A

WINGWALL 1E & 2W

ABUTMENT 1 & 2 ELEVATION

ABUTMENT 1 & 2 PLAN

WINGWALL 1W & 2E
**Bridge Superstructure Replacement**

**Small Road Underpass**

**Abutment Modification Details**

---

**Plan**

- **Top of Abutment Seat:**
  - 2" x 3" x 6" Leveling Sand
  - Shear Studs (Eq. Sp.)
- **Concrete Keeper Block:**
- **Reinforcing (Typ.)**
- **Bearing Assembly:**
- **Keeper Block Reinforcing (Typ.)**
- **Seat:**
- **Abutment:**
  - 2'-0" x 3'-5" Hot Dip Galvanized Striker Plate
  - E Girder
  - E Girder
  - E Girder
- **Note:** Abutment reinforcing not shown.

---

**Elevation**

- **Elevation Applies Here:**
- **Top of Abutment Seat:**
  - 1'-0"
- **Top of Bearing Pedestal:**
  - 2'-0"
- **Top of Abutment Seat:**
  - 1'-0"
- **Top of Bearing Pedestal:**
  - 2'-0"
- **Note:** Sand shall be placed level, smooth and compacted to not less than 95% max dry density using multiple passes of vibratory plate compactor.

---

**Details**

- **Detail A**
- **Section A-A**
- **Section B-B**

---

**Dimensions:**
- 2" = 1'-0"
NOTE:
1. SEE SHEET S-12 FOR SECTION C-C.

WINGWALL 1E & 2W PLAN

WINGWALL 1W & 2E ELEVATION

WINGWALL 1W & 2E PLAN

WINGWALL 1E & 2W ELEVATION

1. SEE SHEET S-12 FOR SECTION C-C.

NOTE:
1. SEE SHEET S-12 FOR SECTION C-C.
**BEARING NOTES:**

1. ELASTOMER SHELL SHALL BE 100% POLYCHLOROPRENE (NEOPRENE). NO NOXIOUS ODOR OR ODORLESS FLUID MAY BE PRODUCED OR DEVELOPED UNDER MAINTENANCE OR SERVICE REQUIREMENTS.

2. ELASTOMER SHELLS SHALL BE AT LEAST 2 INCHES THICK.
EXPANSION BEARING ASSEMBLY - PIERS 1 & 3
(4 REQUIRED)

FIXED BEARING ASSEMBLY - PIER 2
(4 REQUIRED)

PLAN

ELEVATION

EXPANSION BEARING ASSEMBLY - PIERS 1 & 3
(4 REQUIRED)

FIXED BEARING ASSEMBLY - PIER 2
(4 REQUIRED)

PLAN

ELEVATION

EXPANSION BEARING ASSEMBLY - PIERS 1 & 3
(4 REQUIRED)

FIXED BEARING ASSEMBLY - PIER 2
(4 REQUIRED)
Bearing Details III

Small Road Underpass

Bridge Superstructure Replacement
Structural Steel Notes:

1. Camber ordinates as shown are computed to compensate for all dead load deflections and for the curvature of the finished grade profile.

2. No transverse outboard splices will be allowed in the flange plates or web plates within 10 ft or less of the span length measured is created from the points of maximum deflection. All other welds, including angles and butt welds, shall be located within 6 ft of other transverse welds. Welds (i.e., connection plates to web) shall be located within 3 ft of other transverse welds.

3. Sections of flange plates or web plates between transverse shop splices or between a transverse shop splice and a field splice shall not be less than 0.5 ft in length unless otherwise shown on the plans.

4. All bolts shall be installed with heads down at all bottom flange connections and heads up at all top flange connections.

5. Diaphragm connection plates may be either flush or normal to the top flange.

6. Diaphragm connection plates shall be full web depth and welded to the web and flanges on both sides of the plates. Welds shall terminate 1" from the ends of the plates.

7. Butt welds at web splices and flange splices shall be ground flush in longitudinal direction of girder.

8. Shear studs shall extend a minimum of 2" into the slab. See "Shear Connector Detail" on Sheet S40.

9. Use a single row of shear studs on splice plates to avoid interference with splice bolts.

10. Connection plates shall be full web depth and welded to the web and flanges on both sides of the plates. Welds shall terminate 1" from the ends of the plates.

11. Prior to erection of structural steel, the contractor shall submit a detailed erection plan for approval.

12. Bearing stiffeners shall be placed in the bottom flange and tight to the top flange. Bearing stiffeners used as connection plates shall be detailed as connection plates. Bearing stiffeners used on bolsters shall be multilinear on the top and bottom flange.

13. For details of diaphragms types A, B, C, D, see MassDOT standard details, Pages 504(01) and 504(22).

14. All joining surfaces, with the exception of field splices, shall be painted or sealed in accordance with Fema technical advisory threads section 9.01.05 to prevent the formation of rust. FABRICATION TOLERANCES SHALL BE APPROVED BY THE ENGINEER.

15. All portions of the structural steel that will remain unpainted shall be blast-cleansed to SSPC SP-6/NACE No. 3 after fabrication and prior to delivery in order to present a uniform appearance free of dirt, oil, or other foreign materials.

16. Changes in field splice filler plate thickness to compensate for fabrication tolerances shall be approved by the engineer.
**PIER BOLSTER DETAIL**

1" = 1'-0"

**SECTION**

1" = 1'-0"

**BOLSTER HEIGHT "H" (INCHES)**

<table>
<thead>
<tr>
<th>Girder</th>
<th>Pier 1</th>
<th>Pier 2</th>
<th>Pier 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>G2</td>
<td>24</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>G3</td>
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<td>0</td>
</tr>
<tr>
<td>G4</td>
<td>24</td>
<td>24</td>
<td>1&quot;</td>
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**SHIM HEIGHT "S" (INCHES)**

<table>
<thead>
<tr>
<th>Girder</th>
<th>Pier 1</th>
<th>Pier 2</th>
<th>Pier 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>G2</td>
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</tr>
<tr>
<td>G3</td>
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</tr>
<tr>
<td>G4</td>
<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>

**BOLSTER NOTES:**

1. For structural steel notes, see sheet S-16.
2. Bolsters shall be paid for under structural steel pay items.
3. Contractor shall provide shim plates in structural steel pay items.
4. All bolsters shall be marked indicating bolster location prior to shipping. Mark shall be visible after erection.

---

**PLAN - TOP FLANGE**

**ELEVATION**

**PLAN - BOTTOM FLANGE**

**BOLTED FIELD SPLICE**

1" = 1'-0"
SIGN SUPPORT NOTES:

1. Location of sign support shall be field located by the Resident.

2. Brackets shall be 1/2" diameter A325 Type 3.

3. Sign brackets shall be located within two feet of sign ends. Bracket spacing shall be five feet on center maximum.

4. Prior to installation the sign panels shall be mounted to a frame of sufficient rigidity to prevent excessive sign deformations due to wind, ice, and other conditions that may occur.

5. Signs shall be provided by others.

6. Fabrication and erection of the sign supports shall be incidental to pay item 504.702. Removal and installation of the sign and sign support shall be incidental to pay item 504.702.
**BLOCKING NOTES:**

1. PRIOR TO PROFILING THE GIRDER, THE CONTRACTOR SHALL HAVE ADJUSTED THE GIRDER TO THEIR FINAL ELEVATION AND INSTALLED ALL NECESSARY SHIELDS AND/OR TEMPORARY SUPPORTS NECESSARY TO HOLD THE GIRDER IN THEIR FINAL PLUMB POSITION.

2. THE CONTRACTOR SHALL INSTALL THE PROTECTIVE SHIELDING AND ACCEPTABLE SAFETY LINES OR SHIELDS PRIOR TO PROFILING THE GIRDER.
EXISTING TYPICAL SECTION

SMALL ROAD E

EXAMINATION:

- ITEMS TO BE REMOVED

PROPOSED TYPICAL SECTION

SMALL ROAD E

APPROXIMATE SHIELDING QUANTITIES:

<table>
<thead>
<tr>
<th>Description</th>
<th>Demolition</th>
<th>Construction</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Approx. Width of New Shielding</td>
<td>33 ft</td>
<td>54 ft</td>
<td>87 ft</td>
</tr>
<tr>
<td>S550 T &amp; B</td>
<td>596 sq ft</td>
<td>644 sq ft</td>
<td>1210 sq ft</td>
</tr>
</tbody>
</table>

* SEE NOTES 5 AND 6

1. CLEAR PROTECTIVE COATING FOR CONCRETE SURFACES SHALL BE APPLIED TO THE FOLLOWING AREAS: CURB SURFACES AND FASCIA SHELVINGS TO CURB FLANGE.

2. ALL BRIDGE CURB CONCRETE, INCLUDING INSIDE FACES, AND CROWNED CONCRETE DECKS SHALL BE GIVEN A RUBBED FINISH PRIOR TO THE APPLICATION OF THE CLEAR PROTECTIVE COATING FOR CONCRETE SURFACES.

3. THE CONCRETE DECK SHALL BE GIVEN A SMOOTH BULL FLOAT OR WOOD FLOAT FINISH.

4. SUPER DRAWINGS FOR BAR CHAIRS USED WITH BRIGHTENING STEEL, IN SLAB CONSTRUCTION SHALL BE SUBMITTED WITH REQUIRED SPACING TO THE RESPECTIVE AGENCY FOR APPROVAL. BAR CHAIRS SHALL BE EPOXY-COATED OR PLASTIC PROTECTED.

5. PROTECTIVE SHEILDING SHALL EXTEND LATERALLY FROM ROADSIDE FACE PIER 1 TO ROADSIDE FACE PIER 3. THE WIDTH OF THIS SHEILDING SHALL BE EQUAL TO THE TOTAL WIDTH OF THE NEW STRUCTURE PLUS THREE FEET BEYOND THE FASCIA LINES ON EITHER SIDE OF THE STRUCTURE.

6. CONTRACTOR SHALL HAVE THE OPTION OF USING PRECAST, PRESTRESSED CONCRETE DECK PANELS AS AN ALTERNATIVE TO THE CONCRETE SLAB DETAILS SHOWN ON THE CONTRACT PLANS. THE REQUIREMENT SHOWN ON PAGE 502-05 OF THE MAINE DOT STANDARD DETAILS SHALL APPLY ALL WELD REINFORCING WITHIN THE PRECAST PANELS SHALL BE EPOXY-COATED.

7. THE SUPERSTRUCTURE SLAB CONCRETE SHALL BE PLACED IN ONE CONTINUOUS SPAN WITHIN THE PRECAST PANELS SHALL BE EPOXY-COATED OR PLASTIC PROTECTED.

8. FORMWORK ON THE FASCIA AT THE HORIZNATIONAL JOINT BETWEEN THE CURB AND SLAB.

9. THE APPROXIMATE SHIELDING QUANTITIES REPRESENT THE TOTAL QUANTITY OF SHIELDING REQUIRED TO COMPLETE THE WORK INCLUDING INITIAL INSTALLATION, MEMORIAL, AND RESETTING OF SURFACES.

10. DO NOT COVER DECK DRAGS WITH WATERPROOFING MEMBRANES DEPRESS DRAGS TO BOTTOM OF SLAB PROVIDE 63 GAUGE GALVANIZED SCREENS (1/4 WIRE) DEEP DRAGS.
DECK PLAN NOTES:
1. Lap length shall be
   - 2'-0" for #4 bars
   - 2'-7" for #5 bars
   - 3'-1" min. for #6 bars
   
2. The theoretical blocking used for design of the structure is dimensioned at the centerline of bearing at the abutments and piers, refer to standard detail 502(02) for blocking details.
   
3. Three additional 551 bars shall be placed at each railing post location. See sheet S-23 for detail.
BRIDGE RAIL MATERIAL NOTES:

1. STRUCTURAL TUBING SHALL CONFORM TO THE REQUIREMENTS OF ASTM A500, GRADE B.
2. RAIL POSTS AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A572, SAMPLES SHALL BE TAKEN AFTER FORMING THE TUBES.
3. BOLTS AND MATCHING NUTS FOR RAIL-TO-POST ATTACHMENT SHALL CONFORM TO ASTM A325 OR A449. ALL OTHER BOLTS AND NUTS SHALL CONFORM TO ASTM 307 AND ASTM 563. WASHERS SHALL BE HARDENED STEEL COMMERCIAL GRADE A RESPECTIVELY OR BETTER, EXCEPT ASTM A307 NUTS MAY BE USED ON THE BOTTOM OF ANCHOR ASSEMBLY. WASHERS SHALL BE SLOTTED HOLES OF 0.75" TO 1.0" IN POST (TYP.).
4. ALL STEEL COMPONENTS (EXCEPT STAINLESS) SHALL BE GALVANIZED AFTER FABRICATION IN CONFORMANCE TO ASTM A653 AND AS9010. THE GALVANIZING KETTLE SHALL HAVE 0.05 TO 0.09 PERCENT NICKEL. GALVANIZING FABRICATION IN CONFORMANCE TO AASHTO M232 (ASTM A153) AND AASHTO M111 (ASTM A123). ANCHOR RODS SHALL CONFORM TO ASTM F1554, Gr. 105.
5. PREFORMED BEARING PADS (" THICK) SHALL CONFORM TO AASHTO M251.
NOTES:

1. ROUND WIRE TIES SHALL BE 9 GAUGE ZINC-COATED STEEL. PREFORMED TO THE CURVE OF THE POST AND POWER-FASTENED TO WRAP 360 DEGREES AROUND THE POST AND ONE COMPLETE DIAMOND OF THE CHAIN-LINK FENCE. THE TWO ENDS SHALL BE TWISTED TOGETHER IN A CLOSE HELIX OF CHAIN-LINK TURNS (3 FULL TWISTS) TIGHTLY AROUND THE POST AND CHAIN-LINK FABRIC. SPACE TIES @ 6" O.C. TO BOTTOM RAIL AND @ 12" O.C. TO ALL POSTS AND OTHER RAILS. TWISTED ENDS SHALL BE BENT DOWN UPON COMPLETION.

2. ALTERNATIVELY, WIRE TIES MAY BE STANDARD ROUND 9 GAUGE ZINC-COATED STEEL. ALL TIES SHALL BE WRAPPED AROUND CHAIN-LINK FABRIC TWO DOZEN TIMES AROUND EACH END. SPACE TIES @ 6" O.C. TO BOTTOM RAIL, AND @ 12" O.C. TO ALL POSTS AND OTHER RAILS. TIES SHALL BE WRAPPED AND POWER-FASTENED TO WRAP 360 DEGREES AROUND THE POST OR RAIL. TWISTED ENDS SHALL BE BENT DOWN UPON COMPLETION.

3. ALL BOLTS AND NUTS SHALL BE STEEL CONFORMING TO ASTM A 307 AND ASTM A 563 GRADE A. JOINTS WHERE ONE BOLT IS USED IN LATTICE CONSTRUCTION, TWO BOLTS SHALL BE USED AT ALL SPLICE LOCATIONS EXCEPT EXPANSION JOINTS WHERE ONE BOLT SHALL BE USED.

4. SEE SHEET S-22 FOR SNOW FENCE LIMITS.

5. POST CAPS SHALL BE SECURELY ATTACHED TO POSTS.


7. TYPICAL RAIL SPLICE DETAIL (TOP & BOTTOM RAIL) 1" = 1'-0" (SEE NOTE 2)

8. USE TWO BOLTS AT ALL SPLICE JOINTS WHERE ONE BOLT SHALL BE USED.

9. POWER FASTENED TIES

10. TENSION BAND DETAIL

11. TENSION BAND DETAIL

12. TENSION BAND DETAIL

13. ONE FENCE DIAMOND

14. TWO FENCE DIAMOND

15. DOUBLE PIGTAILED TIE - ALTERNATE

16. NOT TO SCALE

17. NOT TO SCALE

18. NOT TO SCALE

19. FENCE FABRIC, 1" MESH

20. FENCE FABRIC, 1" MESH

21. FENCE FABRIC, 1" MESH

22. TENSION BAR

23. TENSION BAR

24. TENSION BAR

25. FENCE FABRIC, 1" MESH

26. FENCE FABRIC, 1" MESH

27. FENCE FABRIC, 1" MESH

28. POST OR RAIL

29. POST OR RAIL

30. POST OR RAIL

31. 9 GAUGE STEEL WIRE TIE

32. 9 GAUGE STEEL WIRE TIE

33. 9 GAUGE STEEL WIRE TIE

34. FENCE FABRIC, MESH

35. FENCE FABRIC, MESH

36. FENCE FABRIC, MESH

37. SPRING LOCK WASHERS

38. SPRING LOCK WASHERS

39. FLAT WASHERS, "C" SPACERS

40. FLAT WASHERS, "C" SPACERS

41. WASHER AND NUT (TYP.)

42. WASHER AND NUT (TYP.)

43. WASHER AND NUT (TYP.)

44. " CARRIAGE BOLT WITH WASHER AND NUT (TYP.)

45. " CARRIAGE BOLT WITH WASHER AND NUT (TYP.)

46. " CARRIAGE BOLT WITH WASHER AND NUT (TYP.)

47. 3/8" CARRIAGE BOLT WITH WASHER AND NUT (TYP.)

48. 3/8" CARRIAGE BOLT WITH WASHER AND NUT (TYP.)

49. 3/8" CARRIAGE BOLT WITH WASHER AND NUT (TYP.)

50. NUTS TO BE FINGER TIGHT AND THE FIRST THREAD BELOW THE NUT SHALL BE UPSET (TYP.)

51. LOOP EACH TIE AROUND CHAIN-LINK FABRIC TWO (SEE NOTE 2) (TYP.)

52. POST OR RAIL

53. POST OR RAIL

54. POST OR RAIL

55. 9 GAUGE STEEL TENSION BAR

56. 9 GAUGE STEEL TENSION BAR

57. 9 GAUGE STEEL TENSION BAR

58. TYPICAL RAIL SPLICE DETAIL (TOP & BOTTOM RAIL) 1" = 1'-0" (SEE NOTE 2)

59. STAINLESS STEEL TENSION BAR

60. STAINLESS STEEL TENSION BAR

61. STAINLESS STEEL TENSION BAR

62. TENSION BAND DETAIL

63. TENSION BAND DETAIL

64. TENSION BAND DETAIL

65. POWER FASTENED TIE

66. POWER FASTENED TIE

67. POWER FASTENED TIE

68. TENSION BAR BAND

69. TENSION BAR BAND

70. TENSION BAR BAND

71. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

72. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

73. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

74. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

75. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

76. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

77. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

78. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

79. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)

80. 1" WIDE x 12" STEEL TENSION BAR BAND (GALVANIZED)
EXPANSION JOINT NOTES:

1. Shop drawings of the expansion device shall be submitted for approval by the Resident Engineer.

2. The expansion device shall be set to an opening of 2 inches in the fabrication shop and shall be secured to the girder and/or anchor bolts when the ambient temperature is between 40 and 90°F. The opening shall be adjusted to reflect the temperature of the structure at the time of installation. The table for the opening dimensions and joint opening shall be measured normal to the centerline of bearing.

3. The contractor shall apply an epoxy bonding agent selected from MaineDOT's qualified products list to all steel surfaces of the expansion joint that will be embedded in the concrete before placing the deck and backwall concrete.

4. Steel components shall be A36 steel grade, unless otherwise noted. The expansion joint assembly and associated hardware shall be hot-dipped galvanized after fabrication.

5. All welds are 1/8" continuous fillets, except as noted.

6. For clarity, not all reinforcing steel has been shown in all details.

7. The neoprene locking compression seals to be furnished shall have a minimum movement range of 3 inches, and edge beam shall be "WABO D SERIES" as manufactured by Watson Bowman Acme.

8. Compression seals shall be installed in the shop as one continuous piece.


10. Compression seals shall be installed in the shop as one continuous piece.