STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION - BUREAU OF BRIDGE DESIGN

BRIDGE NO. 16312 Genplan
STREET OF NH ROUTE 145 over BISHOP BROOK
STEWARTSTOWN

GENERAL PLAN AND ELEVATION

ELEVATION

PLAN

HYDRAULIC DATA

1. DRAINAGE AREA: 4.1 SQUARE MILES
2. DESIGN FLOOD: Q50 = 593 CFS
3. DESIGN VELOCITY: 8.8 FPS
4. DESIGN FLOOD HEIGHT: 2.8' DEPTH OF WATER
5. BRIDGE WATERWAY OPENING: 68 SQ. FT. BELOW Q50 ELEVATION

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Sure, I can help with that. Please share the text so I can convert it to a natural language representation.
**STRUCTURAL STEEL AND SUPERSTRUCTURE NOTES**

1. All structural steel shall be paid under item 550.1, Structural Steel (F), including the design, fabrication, erection, and protection, as required.

2. The steel shall resist the wind and snow loads specified in the loading and wind design. The structural design shall be based on the most recent load and wind data from the New Hampshire Department of Transportation.

3. All structural steel shall be fabricated from steel meeting the requirements of the American Institute of Steel Construction (AISC) and shall be fabricated in accordance with the American Society for Testing and Materials (ASTM) standards.

4. All structural steel shall be bolted, welded, or spliced in accordance with the American National Standard for Structural Steel Buildings (AISC 360-16) and shall be designed and fabricated in accordance with the American Society for Testing and Materials (ASTM) standards.

5. All steel connections shall be designed for the full design load, including all loads acting in combination.

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10. All welding and fabrication shall be performed in conformance with the American Welding Society (AWS) standards.

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### Soil Descriptions

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Recovery</th>
<th>Sample</th>
<th>Elevation (ft)</th>
<th>SYMBOL</th>
<th>Major Component</th>
<th>Classifier</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.0</td>
<td>Medium Dense, stratified, SILTS, with layers of fine to coarse sand, little medium to coarse sand, trace silt</td>
<td>S1</td>
<td>1292.0</td>
<td>S8</td>
<td>Medium Dense</td>
<td>4.0 [93]</td>
<td>3:00pm</td>
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<tr>
<td>14.0</td>
<td>Loose, very dark brown, SILT, trace to little organics</td>
<td>S7</td>
<td>1294.0</td>
<td>S7</td>
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<tr>
<td>16.0</td>
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<td>S3</td>
<td>1295.0</td>
<td>S3</td>
<td>Medium Dense</td>
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### Soil Descriptions (Continued)

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<th>Sample</th>
<th>Elevation (ft)</th>
<th>SYMBOL</th>
<th>Major Component</th>
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<th>Time</th>
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<tr>
<td>18.0</td>
<td>Loose, very dark brown, LOAMY GRASSY TOPSOIL</td>
<td>S2</td>
<td>1296.0</td>
<td>S2</td>
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### Soil Descriptions (Further)

<table>
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<tr>
<th>Depth (ft)</th>
<th>Recovery</th>
<th>Sample</th>
<th>Elevation (ft)</th>
<th>SYMBOL</th>
<th>Major Component</th>
<th>Classifier</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0</td>
<td>Very dark brown, LOAMY GRASSY TOPSOIL</td>
<td>S1</td>
<td>1298.0</td>
<td>S1</td>
<td>Medium Dense</td>
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<tr>
<td>STRATUM CHANGE (ft)</td>
<td>DEPTH</td>
<td>MATERIALS &amp; RESEARCH BUREAU - GEOTECHNICAL SECTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>------------------</td>
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<td>---------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.875</td>
<td>1285.1</td>
<td>META GRAYWACKE, w/ mostly low angle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.9</td>
<td>1285.6</td>
<td>dark gray, fine grained, META-GRAYWACKE, w/ mostly low angle</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Complex joint sets, w/ calcite &amp; quartz stringers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hard, slightly to moderately weathered, slightly to moderately fractured,</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>medium sand, over COARSE - FINE SAND &amp; GRAVEL, little silt</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Medium dense, dark olive brown, gravelly FINE SAND, little silt, little</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>dense, dark olive brown, gravelly FINE SAND, little silt, little</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Other Details**

- **Blows/foot (N)**: 33
- **Identification**: DRILL RIG 121/114 SAMPLER ENGLISH
- **Total Sheets**: 16312
- **Date**: 08/27/15
- **Elevation (ft)**: 5/13/15 / 5/13/15
- **SYMBOL**: BF = BOTTOM OF FOOTING, TF = TOP OF FOOTING
- **EQUIPMENT**: CME 45-C Trlr
- **START/END**: ELEVATION: BASELINE STA. 3/31/16
- **DGN LOCATOR**: Scott Myers
- **WOR - Weight of Rod**: 20%  -  35%
- **WOR - Weight of Hammer**: 10%  -  20%
- **SFM**
- **BORED LOGS**: (4 OF 4)
- **PER**: 10%  -  20%
- **TOTAL SHEETS**: 16312
- **ISSUE DATE**: 6/15
- **BORING NO.**: 1042465/900651
- **Casing**
  - **OF CASING**: 1.875
  - **B103**: 20.3
  - **NX**: 12.0

**Notes**

- **RQD: 2.4 / 5.0 = 48%**
- **Very loose**
- **Very stiff**
- **Hard, moderately weathered, moderately to slightly fractured, medium sand**
- **Dense, olive brown, silty FINE SAND, little gravel, trace coarse - medium sand**
- **Hammer Type**: SIZE I.D. (in): 28.5
- **Boring Logs**: (4 OF 4)
- **Blows Number**: 0.5 ft
- **Material Recovery**
  - **Very Loose**: 30°
  - **Very Stiff**: 8°
  - **Stiff**: 15°
  - **Medium Stiff**: 25°
  - **Soft**: 30°
  - **Medium Dense**: 35°
  - **Hard**: 45°

**Groundwater Levels**

- **7**: 4.7 [94]
- **9**: 0.6 [30]
- **4**: 5.0

**Soil Descriptions**

- **NON-COHESIVE SOILS**
  - **Loose, strong brown & light olive brown, gravelly FINE SAND, little silt, medium sand**
  - **Loose, dark olive brown, silty FINE SAND, little gravel, trace coarse - medium sand**
  - **Medium dense, similar to S2, w/ some gravel**
  - **Medium dense, dark olive brown, gravelly FINE SAND, little silt, little medium sand**

**Depth**

- **1276**: 18.5
- **1278**: 15
- **1284**: 10
- **1288**: 5
- **1302**: 1
- **1318**: 0
**Elastomeric Bearing Notes (Abutment B)**

1. Steel plates shall be furnished in accordance with AASHTO M270, Grade 50W (ASTM A709, Grade 50W), and shall be coated per Special Provision 550.

2. Steel plates shall conform to AASHTO ASTM 1011 Grade 36.

3. Steel plates shall be galvanized in accordance with AASHTO M232 (ASTM A153).

**Elastomeric Bearing Notes (Abutment A)**

4. Steel plates shall be prepared and finished in accordance with AASHTO LRFD Bridge Construction Specifications, Section 4.4.1.

5. Bearing surfaces marked "f", or surfaces in contact to be welded, shall be prepared in accordance with AASHTO LRFD Bridge Construction Specifications, Section 4.4.8.

6. Top load plates shall be vulcanized to the elastomer prior to coating. All plates shall be flat and true after installation temperatures outside this range will require adjustment.

7. The manufacturer shall clearly mark the front of the bearing assembly to assist with proper orientation in the field.

8. Following the manufacture of elastomeric bearings and verification of the internal steel laminates, the pin groove openings shall be coated with an approved material to prevent rust and seal the opening.

9. The manufacturer shall clearly mark the front of the bearing assembly to assist with proper orientation in the field.

10. The temperature of the steel load plate adjacent to the elastomer shall not exceed 200°F during welding of the load plate to the girder. Temperature shall be controlled by welding procedures and temperature recording during or after welding approved by the engineer. All plates shall be flat and true after welding.

11. Elastomeric bearing design loads require loads - design method A.

**Steel Keeper Assembly**

12. The proposed fabrication shall conform to Section 550.2.6 of the NHDOT Specifications. Finishes shall be in accordance with AASHTO LRFD Bridge Construction Specifications, Article 4.4.1.

**Fixed Bearing Notes (Abutment A)**

13. Steel plates shall conform to AASHTO M270, Grade 50W (ASTM A709, Grade 50W).

14. Fixed shoe assemblies, including anchor rods, nuts, washers, and bearing pads, shall be sized to be 1.05 times the minimum required size.

15. Steel plates shall be prepared and finished in accordance with AASHTO LRFD Bridge Construction Specifications, Section 4.4.1.

16. Steel plates shall be galvanized in accordance with AASHTO M232 (ASTM A153).

**Section A-A**

- Elastomeric layer: 2", (3 - ") Elastomeric laminates alternating with steel plates.
- Elastomeric layer: 3", (5 - " Elastomeric laminates)

**Engineering Notes**

- Initial compressive deflection = 0.03".
- Design movement = 1.00".
- Maximum live load (W/O impact) = 50 Kips.
- Abut. B maximum non-composite dead load = 22 Kips.
- Abut. A maximum live load = 120 Kips.
- Design movement = 1.00".
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**State of New Hampshire Department of Transportation Bureau of Bridge Design**

- Bridge No.: 129.42
- Date: 6/16
- Sheet: 12512
- Scale: 1'-0" = 1'-0"
ELEVATIONS AT BOTTOM OF CONCRETE DECK SLAB (FEET)

<table>
<thead>
<tr>
<th>ORDER</th>
<th>ELEVATION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1304.46</td>
</tr>
<tr>
<td>2</td>
<td>1304.48</td>
</tr>
<tr>
<td>3</td>
<td>1304.54</td>
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<tr>
<td>4</td>
<td>1304.62</td>
</tr>
<tr>
<td>5</td>
<td>1304.68</td>
</tr>
</tbody>
</table>

CAMBER/DEADLOAD DEFLECTION SCHEDULE (INCHES)

<table>
<thead>
<tr>
<th>ORDER</th>
<th>0.1L</th>
<th>0.2L</th>
<th>0.3L</th>
<th>0.4L</th>
<th>0.5L</th>
<th>0.6L</th>
<th>0.7L</th>
<th>0.8L</th>
<th>0.9L</th>
<th>ABUT E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>0.067</td>
<td>0.107</td>
<td>0.147</td>
<td>0.187</td>
<td>0.217</td>
<td>0.247</td>
<td>0.277</td>
<td>0.307</td>
<td>0.337</td>
</tr>
</tbody>
</table>

DECK SLAB ELEVATION NOTES

1. After the structural steel is erected, slab forms are placed on the top of the girders and extending to the finished elevations in the table. The difference between the elevation readings and those in the table is the actual camber deflection from the top of the slab to the crown of the slab. This is the value to be shown on the drawings.

2. Elevations shown in the table are finished bottom of slab elevations adjusted for total dead load deflection less the deflection due to camber deflection.
EXPANSION JOINT NOTES

1. All expansion joint steel, including anchors, shall be galvanized, unless noted otherwise. The anchor shall be welded to the girder plate and cover plate. The expansion joint assembly shall be normal to grade after joint assembly has been completed.

2. The expansion joint opening shall be preset to the temperature anticipated at the time of installation. Final setting in the field shall be determined by the contractor, in accordance with the manufacturer's instructions. See the temperature adjustment table and notes.

3. The compression seal shall be furnished in one continuous length. No splices will be allowed. The seal shall be installed in the field by the contractor. In accordance with the manufacturer of the seal, using an approved tool that will not damage the seal.

4. The compression seal expansion joint shall be assembled with a constant joint opening to ensure proper performance and watertightness.

5. Joint support plates and curb plates shall be shop welded to expansion joint steel. The plates shall be the manufacturer's specification of steel angles and shall be normal to grade. The expansion joint assembly shall be shipped to the construction site by the manufacturer of the joint, and an approved tool that will not damage the seal.

6. All expansion joint assembly shall be delivered to the construction site and assembled. The assembly shall be installed and tested in accordance with the manufacturer's instructions.

7. The expansion joint assembly shall be secured to the structural steel and shall develop full strength immediately after the joint has been secured to the structural steel and welds on exposed steel angles shall be ground smooth.

8. The expansion joint assembly shall be protected during the placement of concrete and bituminous surfaces. The expansion joint assembly shall be protected during the placement of concrete and bituminous surfaces.

9. The expansion joint assembly shall be protected during placement of concrete and bituminous surfaces.

10. Elevations shown at the top of angles are lower than proposed finished grade.

11. Steel angles and stop bars shall be maintained free from dirt, water, and any other loose debris. The expansion joint assembly shall be protected during the placement of concrete and bituminous surfaces.

12. For section A-A through D-D see bridge sheet 28.

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12. For section A-A through D-D see bridge sheet 28.
Grind Top of Backwall to a smooth flat surface and to Top of Backwall for the entire length slab with pavement joint adhesive. Concrete armoring at deck & approach.

Item 538.5 (seal at vertical face of deck and backwall contact area placing concrete) (Typ)

After final adjustment prior to for 3/8" bolts (field weld plates 3/8" plates with 1"x3" slotted holes)

Concrete Armor Strip for Full Length Backwall Strip:

8" x 8" x 5" steel plate

Item 403.91 (bearing strip detail)

Bearing strip detail

Anchorage detail

Support plate detail

Relief cut details

Uncompressed seal

Temperature adjustment notes:
1. Fasteners are recommended to have a minimum
2. Minimum joint for seal installation = 1/4" (approximately 0.6 cm)
3. Values in the temperature adjustment fields for use in setting the expansion joint assembly from the project drawings.

Scale: 3" = 1'-0"
RAIL AND CURB LAYOUT NOTES

A. ITEM 563.22, BRIDGE RAIL T2
   NOTE: SEE BRIDGE SHEET 30 FOR DETAILS
   ITEM TOTAL = 150 LF

B. ITEM 565.222, BRIDGE APPROACH RAIL T2 (STEEL POSTS)
   NOTE: SEE BRIDGE SHEET 31 FOR DETAILS
   ITEM TOTAL = 4 UNITS

C. ITEM 606.18001, 31" W-BEAM GUARDRAIL WITH 8" OFFSET BLOCK (STEEL POST)
   NOTE: SEE SHEET 6 FOR DETAILS
   ITEM TOTAL = 4 UNITS

D. ITEM 606.1255, BEAM GUARDRAIL (TERMINAL UNIT TYPE EAGRT, TL 2) (STEEL POST)
   NOTE: SEE BRIDGE SHEET 32 FOR DETAILS
   ITEM TOTAL = 4 UNITS

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DEPARTMENT OF TRANSPORTATION • BUREAU OF BRIDGE DESIGN

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