

***Formerly Appendix Q- Requirements for
Review of Structural Items for Land
Development Projects***

For DelDOT to review any structural submission, the developer's plan submission **must at a minimum** include the following:

1. Geotechnical Report

For all structures requiring a review by DelDOT's Bridge Design Section, a Geotechnical Report must be submitted. Requirements can be found in DelDOT's *Bridge Design Manual* (found on DelDOT's website or purchased from DelDOT).

2. Hydraulic Report

For all structures carrying a roadway over a body of water, a Hydraulic Report must be submitted. Requirements can be found in DelDOT's *Bridge Design Manual*.

3. Appropriate Plans and Details

Plans must include all necessary details, notes, and specifications for the construction of the proposed structure such that an adequate review can be performed. These plans must be submitted well in advance of the final submission. Shop drawings must also be submitted for concurrence in advance of the construction. Plans and details shall be in accordance with DelDOT's *Bridge Design Manual*.

4. All Necessary Calculations

All designs must be performed in accordance with the latest version of AASHTO's LRFD Bridge Design Specifications. Calculations must be provided for all structural elements and must be clear, thorough, and easy to follow. The design of all structural elements must be included in the calculations. Submitting only input and output for computer programs is acceptable **only** if the computer program is pre-approved for use by DelDOT's Bridge Design Engineer. All proprietary structures (i.e., ConSPAN, etc.) must include documentation of the proprietary computer used for the design. Any assumptions made must be highlighted in the design calculation packet.

5. Load Ratings

Load ratings in accordance with DelDOT's *Bridge Design Manual* must be submitted for all bridges. The definition of a "bridge" is included in DelDOT's *Bridge Design Manual*.

6. Constructability

The proposal must consider constructability in the design. A detailed sequence of construction shall be included with the submission. The Sequence of Construction shall include maintenance of traffic, stream diversion, erection procedures, and any other information pertinent to the construction of the structure. Section 2.5.3 of DelDOT's *Bridge Design Manual* must be addressed in the Sequence of Construction.

The above items are the **minimum** requirements for any submission for a development or subdivision. If any of these items are not included, the submittal **will be returned without review**.

In addition to the above submittal requirements, all requirements noted in DelDOT's *Bridge Design Manual* must be met. The manual provides information regarding the design and detailing required by DelDOT. Failure to meet these requirements will result in returning the submittal for revision.

Design of Catch Basins

For the design of catch basins, the following assumptions and design guidance should be followed by the engineer:

Assumptions:

- Minimum Unit Weight of Soil and Soil Surcharge = 125 pounds per cubic foot.
- Minimum Submerged Unit Weight of Soil = 70 pounds per cubic foot
- Minimum Unit Weight of Reinforced Concrete = 150 pounds per cubic foot
- Maximum Soil Friction Angle = 30 degrees
- Water is present to the top of the roadway
- Lateral soil pressures are At-Rest

Design

- Current edition of AASHTO LRFD Bridge Design Specifications with interims
 - Live Load shall be HL-93
 - Live Load surcharge shall be determined assuming catch basin is a retaining wall with the traffic against the back face of the wall
 - Design for Strength
 - Design for Service
 - Design for Temperature and Shrinkage
 - Design for Shear
 - Check Fatigue (Top Slab Only)
 - Check Maximum and Minimum Reinforcement Limitations
 - Check development of reinforcement
- Wall Sections act as simple spans between corners
- Bottom 3' of wall acts as cantilever
- Bottom Slab acts 1-way as a simple span
 - Walls are solid
 - Full Live Load
 - Soil Reaction is uniform
 - No water is in basin