

## **C13 CADD Notes**

### **C13.2 Project**

#### **C13.2.2 Listing**

##### **2011 ~ Increase Class C Concrete Strength to 4.0 ksi**

In recent years the typical concrete strengths achieved by Class C concrete have been greater than the 3500 psi used for design. For structural components a higher strength concrete would be advantageous, and for a few of the longer prestressed concrete beams 4.0 ksi concrete is required for the bridge deck. After checking with state and district materials engineers it was decided to increase the design strength for Class C concrete to 4.0 ksi for design, except when a higher strength is required. The increase in design strength also requires an increase in minimum flexural strength to 575 psi for form removal. The change from psi to ksi units for design strength is consistent with the transition to AASHTO LRFD Specifications.

### **C13.3 New bridge**

#### **C13.3.2 Listing**

##### **24 March 2005, Revised 6 July 2005 ~ Temporary Shoring Adjacent to Roadway**

To help clarify the use of temporary shoring the following guidelines using zones of excavation have been adopted. See also Figure 1. “Temporary Shoring Excavation Classification Line” for details of the temporary shoring limits and zones.

Zone 1: If room is available for the contractor to temporarily slope the embankment back from the edge of shoulder at a minimum slope of 1.5 to 1, then no submittal for shoring is required. For situations where traffic is shifted to the shoulders, consideration should be given to shoring or slope stability. The temporary slope of 1.5:1 is limited to heights of less than 20 ft. unless a global stability analysis is performed.

Zone 2: When excavation less than 5 ft. is required adjacent to the roadway, shoring shall be provided by the contractor. Shoring plans will be the responsibility of the contractor and shall be submitted for approval. Plan note E171 shall be used. The degree of formal review will be at the judgment of the RCE.

Zone 3: When excavation 5 ft. and more is required adjacent to the roadway, shoring shall be required and a professional engineer shall seal the design. The department will review the design and details for approval. Plan note E172 shall be used. The Lump Sum “Temporary Shoring” bid item shall be used.

Also see the flow chart for the approval process.

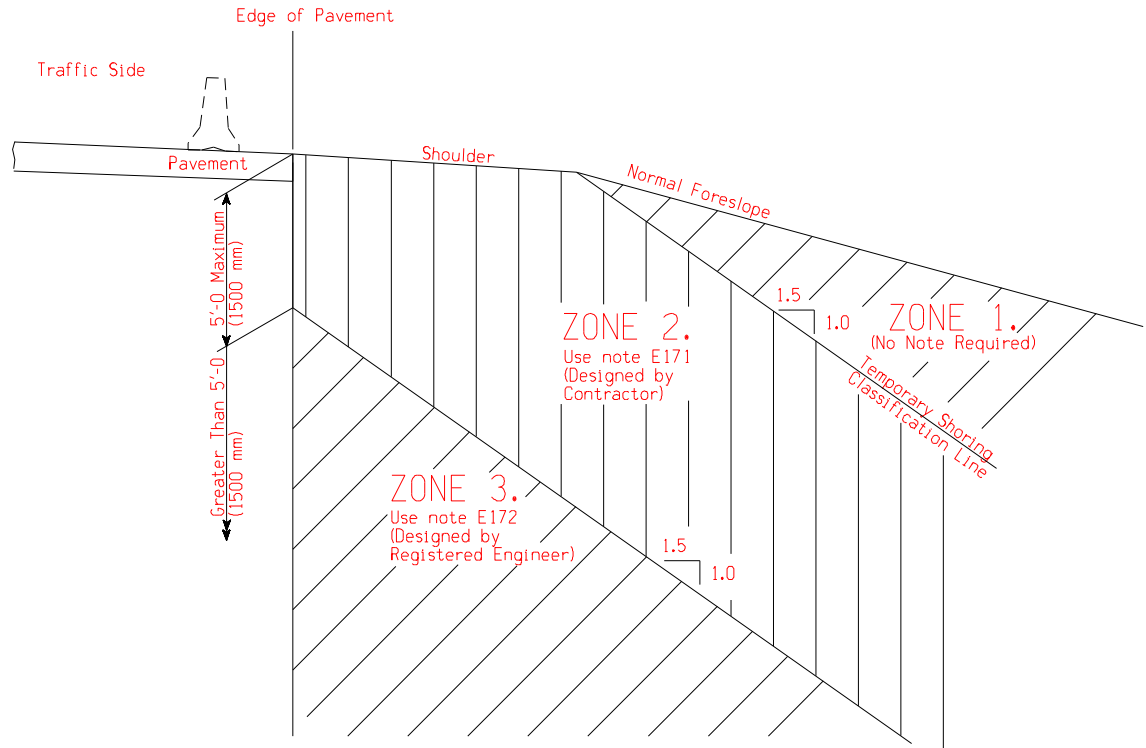


Figure 1. Temporary Shoring Excavation Classification Line

The Soils Design Section, should be the first to review the temporary shoring plans submitted. The Soils Design Section will review the contractor's soils assumption and the applied load generated. The Office of Bridges and Structures will then review the shoring system to verify the loads do not exceed the allowable stresses on the temporary shoring system and will check for adequacy of the details. See Figure 2 for a flowchart of the temporary shoring plan review.

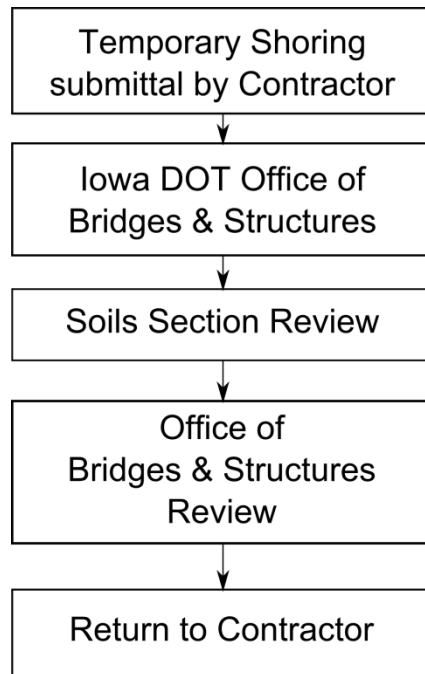


Figure 2 - Temporary Shoring Plan Review Flowchart for Zone 3 approval