6.15 Hydrology for Temporary Facilities

6.15.1 Introduction

Temporary hydraulic facilities include, among other things, all channels, culverts, bridges or channel constrictions such as cofferdams which are required for stage construction, haul roads, channel relocations, culvert installations, bridge construction, temporary roads, or detours. They are to be designed in the same level of care that is used for the primary facility.

These designs are to be included in the plans for the project. Appendix F of this chapter provides a procedure to determine the temporary design flood frequency based on the percent design risk and rating selection factors. Section 9.6.12 of Chapter 9, Bridges, discusses the hydraulic design of temporary facilities.

6.15.2 Detours And Temporary Roadways

Drainage systems for these are to be designed for a 2-year frequency if the roadway is required for a year or less and a 5-year frequency if required for longer than a year. All other temporary hydraulic facilities connected with these roads are to be designed for frequencies as determined by using Section 6.15.4.

6.15.3 Haul Roads

Hydraulic facilities for haul roads which cross or encroach into a watercourse are to be designed for a frequency as determined by using a Design Risk of 50% in step 3 of Appendix F. As a general rule, to avoid excess upstream flooding, the profile of the road should connect the tops of the channel embankments and the road designed to be overtopped by those events which exceed the design discharge. Sufficient cover must be provided over the temporary conduit to insure structural integrity. The structural analysis of the conduit is to be included with the design.

The plan is to include a warning to the contractor that this road is expected to be under water during certain rainfall events for undetermined lengths of time.

6.15.4 Other Hydraulic Facilities

The selection of a design flood frequency for the remaining temporary hydraulic facilities involves consideration of several factors. These factors are rated considering their severity as 1, 2, or 3 for low, medium or high conditions. Appendix F provides a step by step procedure for determining the design flood frequency.