

3.4 Drainage Design Development at the Preliminary Design Phase for Roadway Projects

3.4.1 General

The preliminary design submission is provided when plans are approximately 35% complete. The information that should be provided in this phase is outlined in the preliminary design checklist, found in Appendix B. This checklist should be completed and included in this submission. It is designed to serve as a tool for the designer, ensuring that many of the common drainage aspects found at this stage of design are addressed. This checklist also provides necessary information to the Hydraulics and Drainage Section to expedite the review process.

3.4.2 Preliminary Design Report

The preliminary design report should include a section on drainage and/or hydraulic involvement. The report should include an overview contour map showing the watershed areas to major cross culverts and all environmental permit requirements as outlined in Section 3.11. Any special conditions or drainage issues that the designer is aware of, (i.e. diversions, existing flooding problems, hydraulic controls or limitations) should be addressed in the preliminary design report.

3.4.3 Preliminary Plans

The plans should include a conceptual layout of the proposed drainage system. Proposed drainage outlets should be established and a preliminary estimate prepared. There should be adequate information to allow the reviewer to concur with the conceptual layout of the proposed system and determine how it may impact the existing drainage facilities. Proposed storm drainage systems, swales, ditches and channels should also be included on the plans to depict the drainage patterns specific to the site. The proposed system should be evaluated with respect to its effect on adjacent properties, the need for additional improvements to the existing system and to identify any diversions that may occur with the preliminary layout. Existing property lines and drainage rights, proposed taking lines and approximate slope limits should be shown.

3.4.4 Watercourses

The determination of whether a crossing conveys a watercourse is important. It defines the legal obligations by the State, establishes the right of way requirements and determines the storm frequency for the design discharge. The legal definition of what constitutes a watercourse is found in Chapter 7, Channels. Oftentimes the establishment of the watercourse can be best determined by field review. A stream can be either perennial or intermittent to be considered a watercourse. Watercourses should be shown and labeled on the plans. The designer should review Sections 7.2.1 and 7.2.2 of the Channels chapter to determine the design criteria and ConnDEP requirements.

3.4.5 Permits

The designer should be aware of environmentally sensitive areas within the project early in the design phase. Mitigative measures and alternative designs may need to be considered to comply with federal and state regulations. There should be ongoing coordination between the

designer and Office of Environmental Planning to ensure that the design of the project is consistent with state statutes and federal regulations. Section 3.2 of this chapter discusses the Hydraulics and Drainage Section's involvement with permits. The processing and coordination of the associated permits is discussed in Section 3.11, Permit Requirements.

3.4.6 Fish Passage

A meeting should be held with a fish biologist from ConnDEP at the project site to review all streams and determine which crossings and channels need to be designed for fish passage. **The meeting should be held prior to the completion of Preliminary Design.**

3.4.7 Watershed Area Maps

Contour maps should be provided showing watershed areas to all cross culverts. A list of existing culvert or bridge crossings should accompany the map.

3.4.8 Unusual Designs/Special Provisions

The designer should identify the need for any unusual designs. Early in the design phase the designer should be aware of possible storage facilities (detention basins), pump stations, tidal impacts or existing drainage problems that local property owners or the Town may be concerned with. The Hydraulics and Drainage Section may offer guidance to the designer regarding these issues. Special drainage provisions, if required, should be included in this submission. The designer should review the various chapters in this manual for additional guidance.