



**S.A.Y. FIRST NATION  
LANDS OFFICE  
TECHNICAL DEFINITIONS**



**A) CONCEPTUAL ENGINEERING STUDY & CONCEPTUAL DRAWINGS  
(REQUIRED IN PRE-LEASE STAGE BEFORE LEASE IN PLACE)**

A conceptual or feasibility study identifies engineering options which could be implemented to meet project requirements. ***The study examines the technical engineering and economic feasibility of the options, and recommends a preferred option.*** Where more than one option is available and the most technically sound and cost-effective option is not obvious, a feasibility study must be undertaken.

The following information should be included in a conceptual engineering study:

- 1) Project requirements including level of service and standards to be met.
- 2) Options, complete with a conceptual design, and advantages and disadvantages of the options studied.
- 3) List any assumptions made with respect to the site, soil conditions, existing services, future expansion plans, etc. and any additional data required to complete preliminary and final designs such as surveys soil investigations, studies, etc.
- 4) List the options, in preferential order, complete with a brief discussion supporting the listed order.
- 5) The information required in the studies is set out in detail in the respective Design Guidelines in Section 1.2. and should be set out to a "conceptual" level.
- 6) Environmental assessment report.

Much of the information necessary to develop a conceptual design is available from published literature, maps and government agencies. The information must be supplemented through discussion with local people having site specific knowledge and preferably a site visit should be made by the planners/designers for a first-hand evaluation of conditions.

The conceptual engineering study must be fully defined and discussed with the client and regulating authorities before field work is undertaken. This precaution ensures that the efforts of the field work are organized in knowledge of previous work and that concerns of the client and regulating bodies are not overlooked.

Feasibility studies are often incorporated into this pre-design stage, however, such a pre- design study must have the conceptual phase clearly separate from the pre-design work to demonstrate that the best option is selected.

## **B) DESIGN BRIEF**

### **(REQUIRED AFTER LEASE IN PLACE BUT BEFORE CONSTRUCTION COMMENCES)**

The purpose of the design brief is to accumulate and present the criteria and data necessary to design, qualify and refine the conceptual design, and gather pre-construction data for post-operational comparison. In the pre-design work, all of the data accumulated for development of the conceptual design will be verified by site specific studies.

The following information should be included in a design brief:

- 1) A recommended installation to satisfy the design criteria within the restraints of any conditions specific to the site;
- 2) A description of any outstanding risk or boundaries and a quantification of these parameters if possible;
- 3) A class 118" cost estimate of the proposed work;
- 4) The identification of preferred construction scheduling to minimize impact on the construction, O&M, and other costs;
- 5) The identification of unusual problems which will face the designer or construction such as limited working area for pipe assembly or conditions which may influence the construction technique selected.

All data obtained during the study must be presented in technical appendices to qualify the analysis and to package all of the works in one document.

A Design Brief will not normally have to be submitted during the conceptual stage approval process.

## **C) FINAL DESIGN DRAWINGS AND SPECIFICATIONS**

### **(REQUIRED AFTER LEASE IN PLACE BUT BEFORE CONSTRUCTION COMMENCES)**

The concept should be well established and accepted prior to the preparation of the final design. The engineer should be left only with the detailed calculations and preparations of the drawings. The drawings produced must fully describe the intent of the proposed installation but not prescribe how a contractor is to satisfy the intent. The specifications outline the standard of work to be done, and provide the contractor with the quality of the materials to be used. From the final design, an estimator can produce a bill of materials and a Class "A" cost estimate.

For review purposes, a design brief must accompany the drawing and specifications. The requirements of the design brief are set out above and in detail in the respective Design Guidelines, in Section 1.5. Drawing requirements are set out in Section 1.3