



## ARRC ENGINEERING PLANS, SPECIFICATIONS & ESTIMATE (PS&E) SUBMITTAL GUIDELINES

### **Project Concept PS&E (5%) This is the minimum required for capital planning and ARRC funds to pursue engineering/permitting**

The purpose of this step will be to describe and budget a project for ARRC review and approval.

A general scope of work narrative will be created and a budgetary cost estimate will be created. Some figures may be created to aid in the (SOW) Statement of Work and Estimating.

A list of potential permits will be identified.

### **PS&E Project Definition (15%) This is the minimum required for Grant applications or for Capital requests that include construction monies and the minimum required for comparison and selection of design alternatives.**

This submittal represents approximately 15% of the design effort and shall be used to document and validate project concept, requirements and costs.

This submittal will further define the SOW.

The submittal shall include preliminary schematic plans, and a preliminary cost estimate.

### **PS&E Design (30%)**

This submittal represents approximately 30% of the design effort and shall be of sufficient detail to show how the users' functional and technical requirements will be met, indicate the designer's approach to the solution of technical problems, show compliance with design criteria or provide justification for noncompliance, and provide a valid estimate of cost.

The Concept Design consists of:

- (a) Design Analysis:
  - (1) Design narrative, and appropriate design calculations for all disciplines as required.
  - (2) Intended (outline) specifications list.
  - (3) Environmental permitting identification
- (b) Concept drawings including selected PS&E of all structures, project footprint to include all permanently disturbed areas and areas to be used for construction staging or access such that NEPA and/or permitting can be completed.
- (c) Cross Sections showing minimum
  - (1) Any excavation or embankment outside the ROW
  - (2) At key points in the design (i.e. abutments, crossings, switches, roads, overhead items, etc.)
  - (3) Estimated cut/fill quantity sheet
- (d) Bidding schedule with Bid Options identified when applicable.
- (e) Concept cost estimate.

- (f) Required information and data for each required permit.
- (g) Annotated Project Definition review comments.
- (h) Identify potential conflicts with existing facilities
- (i) Identify additional property required for the project.

**PS&E Design (60%)**

This submittal is intended to insure that funding limitations are not being exceeded and that the drawings, design analysis, specifications, and cost estimate are proceeding in a timely manner and that the design criteria and previous review comments are being correctly interpreted. Redlined marked up specifications will be submitted at this design phase.

The Interim Design shall consist of:

- a) Design Analysis developed to approximately 60% completion to include all design details, typical and special cross sections, drainage design to include elevations, sizes, and lengths, list of standard details.
- b) Approximately 60% complete drawings including those addressing construction phasing.
- c) Annotated review comments.
- d) Detailed cost estimate developed to approximately 60% completion including Bid Options where applicable.
- e) Redlined marked up of Technical & Supplemental Specifications.
- f) Completed Draft Permit Applications
- g) Finalize any conflicts with existing facilities.
- h) Finalize any additional right-of-way needs

**PS&E Final Design (90%) For final review and funding agency review (if required)**

This submittal represents a complete design with the exception of the incorporation of any review comments resulting from the review of the submittal.

The Final Design shall consist of:

- (a) Design Analysis with all items 100% complete. It shall include all backup material previously submitted and revised, as necessary, all design calculations, all explanatory material giving the design rationale for any design decisions which would not be obvious to an engineer reviewing the Final drawings and specifications, and any information for the Project Manager that will assist in administering the construction contract.
- (b) 100% complete drawings including those addressing project construction phasing.
- (c) Final edited Technical and Supplemental Specifications.
- (d) Cost Schedule. (Identify Bid Options where applicable.)
- (e) Detailed 100% complete cost estimate.
- (f) Annotated review comments.
- (g) All supporting documentation required for permit application approvals.

**PS&E Ready-To-Advertise (100%)**

This submittal represents a complete design (design analysis, specifications, and drawings) including annotated design submittal review comments that answer and/or incorporate review comments resulting from the review of the Final design submittal.

Ready-To-Advertise shall consist of items to Procurement:

- (a) Bid Schedule (including Site Visit)
- (b) 100% Plans
- (c) 100% Technical Specifications
- (d) 100% Supplemental Specifications
- (e) Cost Schedule
- (f) Attachments
  - (1) Standard Drawings
  - (2) As-Build's
  - (3) Permits
  - (4) Photos
  - (5) CQC Plan
  - (6) Project Communications Outline
  - (7) Exhibits
  - (8) Any other info necessary for bidding the project

**Issued for Construction (Conformed)**

This is the PS&E that will incorporate all Addendum items developed during the Bid Advertisement.

Issued for Construction shall consist of items:

- (1) Technical Specifications annotated with Addendum items.
- (2) Supplemental Specifications annotated with Addendum items.
- (3) Plans annotated with Addendum items.

Annotations shall include the original info with a strikethrough, the addendum info added, italicized and to include the Addendum Number.