

SECTION 101PLAN PREPARATION STANDARDSPART 1: GENERAL

- 1.01 All plans submitted to ECUA for review shall comply with these standards for preparation.
- 1.02 The design shall be shown in sufficient detail to insure the intended construction. Anticipate problems and design a solution. All work shall be constructed in accordance with the latest edition of ECUA's Standard Specifications.
- 1.03 The plans shall be clean, legible, and free from smudges. Any plans which cannot readily be read will be rejected.

PART 2: PLAN MAKEUP2.01 General:

- A. All plans shall be submitted on standard engineering sheets of 24 inch by 36 inch.
- B. Lettering shall be of appropriate size.
- C. Plan sets shall consist of:
1. Cover sheet
  2. Location map
  3. Project map
  4. Design sheets
  5. Detail sheets
- D. All design and detail sheets shall have the following note in the upper right hand corner: "All work shall be constructed in accordance with the \_\_\_\_\_ edition of ECUA's Standard Specifications".
- E. Title block to be shown on all sheets except cover sheet, and shall include:
1. Project name
  2. Sheet title
  3. Engineer
  4. Date prepared
  5. Date revised
  6. Sheet number (sequential)

2.02 Cover Sheet to Include:

- A. Project Title.
- B. Identify ECUA and list Board members at time of bidding. (ECUA funded projects only).
- C. Developer and Engineer or Engineer.
- D. Project Number or Identification.
- E. Type of Project (if not clear in title).
- F. Date(s) of Design or Submittal and Subsequent Revisions.

2.03 Location Map Shall Include:

- A. Map of project area and area surrounding to easily identify location of project (minimum of 1/2 mile radius) at a scale of 1 inch = 1000 ft (min.), show graphically.
- B. North arrow (north to be between 0° and 90°).
- C. Title Block.

2.04 Project Map Shall Include:

- A. Map of project at 1 inch = 200 feet or other appropriate scale as approved by Director of Engineering. Show graphically.
- B. Index of Design Sheets in an appropriate manner.
- C. North arrow (north to be between 0° and 90°).
- D. General notes needed by field crew.
- E. Title block.
- F. Location map and Project map may be combined on single sheet if project size permits.

2.05 Design Sheets Shall Include:

- A. North arrow (north to be between 0° and 90°).
- B. Scale: show numerically and graphically, not less than 1 inch = 50 ft. horizontal 1 inch = 5 ft. vertical

- C. Title block.
- D. The following items will be shown on both Plan and Profile:
1. Pipe with size and material, to be installed.
  2. Show and locate all appurtenances (bends, T's, X's, valves, hydrants, manholes, services, etc.)
  3. At all road or paving crossing show if "opens cut" will be allowed; if not, show length, depth and size of pipe or casing to be bored or jacked.
  4. Special notes for construction that are specific to that sheet.
  5. Circle and reference items for which a detail is provided. Show on same sheet if possible; otherwise, see 2.06 below.
  6. Bench mark - minimum one per sheet.
  7. Match line with station for continued sheets.
  8. Boring location and results (if available).
- E. Plan view of project shall also include:
1. Stationing along centerline at 100 feet increments. May use survey baseline stationing if very close to pipeline. Restrict use of station equations.
  2. Location of other utilities within 20 feet of project or that may otherwise conflict with project.
  3. Poles, trees, structures, roads, etc. that may conflict with project.
  4. Property lines, ROW lines, easements (both temporary and permanent), which are existing and proposed.
  5. Topographical features, such as ditches, embankments, etc.
- F. Profile View of Project Shall Also Include:

1. Ground surface elevation as existing and as final if different.
2. Type and depth of underground utilities and other features that will be crossed or that might otherwise cause a problem.
3. Ground water elevations if known.
4. Stream or water crossings with stream bed elevations and the normal and extreme high and low water levels.

2.06 Detail Sheets: Shall be used when necessary for clarity of work and will include:

- A. Appropriate Scale
- B. Label
- C. Elevations
- D. Dimensions
- E. Other Information as Appropriate
- F. Title Block

PART 3: SPECIAL REQUIREMENTS

- 3.01 Water plans shall also clearly identify the intended depth of cover at least twice on each sheet.
- 3.02 Wastewater plans shall also clearly identify:
- A. The invert of each pipe in each manhole.
  - B. The calculated slope of each section.
  - C. The final rim elevation of each manhole and the type rim if other than standard (locking, waterproof, etc.).
  - D. The size (inside diameter) of each manhole and anything special, such as drop (inside or outside), shallow (flat top), etc., if different than standard size.