

STRUCTURE FOR WATER CONTROL

Structure size will affect documentation needs. Small turnouts and checks usually won't require extensive design surveys and design data and specifications can be shown on the standard plan. The documentation requirements listed here are for non-standard plan structures.

Design Survey

The following information shall be obtained and recorded in the field notes:

- a. Profile and cross sections of conveyance (adequate distance to establish water surface and ground control elevations).
- b. Site topography (field elevations, etc.).
- c. Location of physical features that may have an effect on construction.
- d. Soils classification and foundation investigation as needed.
- e. Resistivity survey, if required.
- f. Drainage area and/or irrigation ditch flow rate.

Design Data

The following will be considered minimum in the design of a water control structure. The information shall be recorded in the design notes.

- a. Capacity requirements.
- b. Hydraulic computations for sizing the structure including open channel hydraulic computations as needed.
- c. Structural design computations for selected material(s).
- d. Quantity computations.
- e. Geologic investigations.
- f. Records indicating NRCS obligations regarding State and Federal regulations including NEP requirements have been met including, but not limited to, the following: water rights, easements, Army Corp of Engineer's 404 permits, NPDES storm water permits, cultural resources, etc.

Drawings and Specifications

The construction drawings shall include but will not be limited to the following:

- a. Location map with legal description and north arrow.
- b. Overall scaled plan view layout of structure showing location and station of structure.
- c. Channel profile 100 feet upstream and downstream of structure.
- d. Structural details showing dimensions and sectional views.
- e. Reinforcement requirements (i.e. bar sizes, spacing, splice lengths, steel schedule, etc.)
- f. Backfill material requirements.
- g. Special requirements for diverting water, dewatering, and keeping the excavation area dry.
- h. Location, type, size, and quality of waterstops, construction joints, expansion-contraction joints, or any special joints.

- i. Special foundation treatment if needed.
- j. Table of quantities.
- k. Construction notes.
- l. Engineering job classification is shown and proper engineering approval is obtained.
- m. Cooperator's signature of review and acceptance to construct the project according to the plans and specifications.

Practice specifications along with applicable "Items of Work and Construction Details" shall be provided for each item or phase of construction.

Layout Survey Notes

The following information shall be recorded in the field notes:

- a. Location, alignment, elevation, and reference stakes for structures as required.

Compliance Checks

The complexity of the structure will dictate the need for compliance checks during construction. All compliance checks shall be recorded in the field notes. Narratives of construction checks shall be recorded in the job diary or on a sheet in the field notes. Compliance checks shall include but will not be limited to the following:

- a. Profile of conveyance channel and related structure(s).
- b. Elevations, dimensions, alignment, and backfill of structures.
- c. Certification of reinforcing steel placement (for concrete structures).
- d. Dimensions and/or description of appurtenances (i.e. gates, pipes, riprap, etc.)
- e. Quality of materials.
- f. Statement of compliance signed by NRCS personnel with applicable job approval authority that the work meets the plans and specifications. (A NRCS employee, with proper job approval authority, shall certify on the as-built drawings whether the as-built practice does or does not meet the requirements of the standards and specifications.)
- g. Changes in design are documented.

As-Built Plans

Plans shall be prepared for all water control structures. These drawings shall reflect all significant changes in linear measurements, quantities, alignment or design changes. If there were no significant changes, the original drawings shall be marked as-built.

In the event standard plans were used for the water control structure and there were no significant changes the standard plans shall be marked "As-Built".