

POND (Embankment)

Design Survey

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

- a. Topographic survey of pool area, embankment and auxiliary spillway.
- b. Profile along centerline of dam and auxiliary spillway.
- c. Profile and alignment of conduits and principal spillway. (100 feet upstream and 300 feet downstream).
- d. Cross-sections on dam and auxiliary spillway centerline.
Note – b, c and d may be developed from DEM from topographic survey.
- e. Basin topography to the extent needed for design.
- f. Foundation and soils investigation.
- g. Drainage area.
- h. Possible borrow areas.

Design Data

The following shall be considered minimum in the design of all embankment ponds. The information shall be recorded in the design notes. Appropriate data shall be transferred to the construction drawings.

- a. Log of soil investigations and any lab test results along with stability design.
- b. Hydrologic and flood routings computations (for example, WinPond for drainages 2000 acres and below or Sites for drainages above 2000 acres).
- c. Watershed yield computations (to show needed pond volume can be obtained).
- d. Hydraulic computations for principal spillway and conduits.
- e. Stage-storage data.
- f. Sediment computation as needed.
- g. Auxiliary spillway evaluation.
- h. Structural design for non-standard plans.
- i. Quantity computations.
- j. Records indicating NRCS obligations regarding State and Federal regulations have been met including, but not limited to, the following: water rights, easements, NEPA requirements, US Army Corp of Engineer's 404 permits, NPDES stormwater permits, cultural resources, etc.
- k. Record of determination of hazard classification. (see NEM, 520.23)

Note - Permits Required Prior to Construction

All ponds/dams that require review and concurrence by the Safety of Dams Engineer of the State Engineer's Office (SEO) shall have a permit to construct prior to the start of construction.

Drawings and Specifications

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

- a. Overall scaled plan layout showing locations and stationing of embankment.

- b. Location map with legal description and north arrow.
- c. Conduit location, size, type of pipe, and grades.
- d. Location, dimensions, and gradation of filter diaphragm.
- e. Plan, profile and maximum cross-section of embankment and auxiliary spillway.
- f. Profile along centerline of principal spillway and drawdown conduit. (May combine with "b. and c." above.)
- g. Stage storage data (contour interval must be 4 feet or less), drainage area.
- h. Spillway hydraulics.
- i. Inlet and outlet structure details showing dimensioning and reinforcement details.
- j. Table of quantities.
- k. Construction notes.
- l. Cut-off trench details and/or special foundation treatment, if needed.
- m. Foundation drain layout, details and drainfill gradation, if needed.
- n. Special requirements for diverting water, dewatering, and keeping the work area dry.
- o. Borrow area location(s).
- p. Fill material and compaction requirements.
- q. Engineering job classification is shown and proper engineering approval is obtained.
- r. Cooperator's signature of review and acceptance to construct the project according to the plans and specifications.

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

Layout and Survey Notes

The following information shall be recorded in the field notes. For smaller embankment ponds, this phase may be combined with the design survey.

- a. Centerline and slope stakes for the embankment pond and emergency spillway.
- b. Grade and alignment stakes for conduits and principal spillway.
- c. Slope stakes for cutoff trench and drains.

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 and cross-section of cutoff trench (accomplished during construction for other than minimum trenches).
- b. Dimensions and materials used for filter diaphragm.
- c. Profile along centerline of completed embankment and emergency spillway (100' maximum interval).
- d. Cross-section of embankment and spillway (1 minimum).
- e. Dimensions, elevations, materials of principal spillway and drawdown conduits.
- f. Size, material, type and joint connection of all conduits.
- g. Size, type and model of all valves, gates, hoists, and other appurtenances.
- h. Material and soil compaction test results as needed (recorded on applicable form).
- i. Yardage computations required for payment.

- j. 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).
- k. Changes in design are documented.

As-Built Plans

As-built plans shall be prepared for all structures. These drawings shall reflect all significant changes in materials, linear measurements, quantities, alignment or design changes. If there were no significant changes, the original drawings shall be marked "As-Built".

PONDS (Excavated)

If an embankment is involved, refer to the record requirements for 378 Ponds (Embankment).

Design Survey

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

- a. Needed elevations to establish location of pit and placement of excavated material.
- b. Soils investigations.

Design Data

The following will be considered minimum in the design of all excavated ponds. The following will be recorded in the field notes or in the design notes:

- a. Log of soil investigations.
- b. Capacity.
- c. Hydrology and watershed yield computations (to show needed pond volume can be obtained).
- d. Computation of quantities.

Drawings and Specifications

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

- a. Plan and maximum cross-section of excavation.
- b. Drill hole logs.
- c. Table of quantities.
- d. Location map with legal description and north arrow.
- e. 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" will be provided for each item or phase of construction.

Layout Survey Notes

The layout will normally be combined with the design survey. All information regarding slope and corner stakes shall be entered in the field notes.

Compliance Checks

Compliance checks during construction are not usually necessary. If a check is made, the result shall be recorded in the field notes. The results of the final compliance check shall be recorded in the field notes. The final compliance check shall include but will not be limited to the following:

- a. Elevation top and bottom four corners.
- b. Dimensions of top and bottom.
- c. Cross-section of excavation.
- d. 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.).

As-Built Plans

As-Built plans shall be prepared for all 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".