

STATEMENT OF WORK
Dam, Diversion (348)
Iowa

These deliverables are the minimum requirements that apply to this individual practice. Refer to practice specific Statements of Work for conservation practices associated with this practice.

PRE-DESIGN

Deliverables:

1. Documents that demonstrate that adequate planning activities have been completed.
 - a. Report or conservation assistance notes summarizing pre-design meeting(s) with client.
 - i. Identify the resource concern being addressed and the landowner objectives.
 - ii. Define roles and responsibilities of all parties that will be involved in the project.
 1. Landowner
 2. Designer
 3. NRCS and/or other funding source(s)
 4. Contractor
 - iii. Advise client on potential compliance issues with federal, state, tribal, and local laws, regulations and NRCS policies.
 - b. The practice is included in a conservation plan and meets one or more of the purpose(s) described in the Conservation Practice Standard.
 - c. Completed IA-CPA-52 showing NEPA requirements have been met and documented (i.e., cultural resources and threatened and endangered (T&E) species).

DESIGN

Deliverables:

1. A copy of survey notes which show that a thorough and detailed site survey was completed.
 - a. Survey notes shall be in accordance with NRCS Technical Release 62, Engineering Field Handbook (EFH), Chapter 1, Engineering Surveys, and/or standard industry practice.
 - b. If survey equipment with automatic / electronic data collection devices is used, an electronic copy of the survey shall be provided on a non-volatile medium such as CD-ROM. In lieu of an electronic copy of the data, a print out of the data may be included in the file. Both printed and electronic data shall be provided in a delimited ASCII format that includes point number, easting, northing, elevation, and description for each surveyed point. Horizontal and vertical datums used shall be identified.
 - c. Rod Readings or Elevations shall be referenced to a bench mark. A temporary bench mark (TBM) may be acceptable. The TBM shall be selected to ensure its availability through completion of construction activities.
 - d. Elevation data collected with LiDAR meeting Iowa Standard or FEMA Compliant specifications can be used for:
 - i. Planning and watershed delineation.
 - ii. Stage storage computation.
 - iii. Earthwork if LiDAR elevations are verified with Survey Grade GPS Field Survey.
 - e. The design survey shall meet the accuracy standard for Ordinary Surveys as presented in Chapter 1 of the EFH. Required survey elements include but are not limited to (some items are not needed for excavated ponds):
 - i. Benchmark and control points, property lines, grade breaks, and other important features.
 - ii. Profile of channel extending at least 100 feet upstream from the dam centerline and downstream at least 200 feet or for a sufficient distance to demonstrate a stable outlet channel.
 - iii. A topographic survey of the dam footprint including the auxiliary spillway unless survey verified LiDAR is used.

STATEMENT OF WORK
Dam, Diversion (348)
Iowa

2. Design documents that demonstrate the criteria in the practice standard have been met and are compatible with other planned and applied practices.
 - a. Practice standard substantiating data, computations, and analyses to develop plans and specifications including but not limited to:
 - i. Geology and soil mechanics (NEM Part 531 – Geology, Subpart A) .
 - ii. Hydrology/Hydraulics.
 - iii. Environmental considerations.
 - iv. Erosion control/Seeding.
 - v. Safety considerations
 - vi. Hazard Classification and determination of Inventory Class (NEM Part 520, Subpart C-Dams)
 - b. All design documentation is shown as checked.
3. Written plans and specifications which adequately describe the requirements to install the practice and obtain necessary permits (NEM Part 511, Subpart A, Construction Plans, 511.08, and Iowa Amendments; NEM Part 541, Drafting and Drawing; NEM Part 542, Specifications; NEM Part 543, Materials).
 - a. Drawings, which include but are not limited to the following elements, if applicable:
 - i. Location map of the site, including the township, range, section, scale, and north arrow.
 - ii. Plan view of the project site showing the practice relative to fences, property lines, streams, bench mark, etc., including borrow and waste areas, and work limits.
 - iii. Bench mark elevation and description.
 - iv. Quantities
 - v. A listing of the applicable Construction and Material Specifications.
 - vi. Coordinates and elevations of horizontal and vertical control points needed for practice layout.
 - vii. Contour lines for normal pool, auxiliary crest, and top of dam elevation.
 - viii. Profiles of the stream channel, dam centerline, principal spillway centerline, and auxiliary spillway centerline, including original ground on each profile.
 - ix. Special details of the Outlet Works, Bypass Works, Special Purpose Works, and appurtenances with dimensions, elevations, and special notes required for construction.
 - x. Other items required in the current Conservation Practice Standard.
 - xi. A note on the drawings stating that the contractor is responsible for calling Iowa One Call at 1-800-292-8989 at least 48 hours prior to beginning any excavation work.
 - xii. A note on the drawings stating that if a cultural resource is identified during construction, work will stop immediately and the NRCS Archeologist will be notified.
 - xiii. A note on the drawings stating that NRCS does not guarantee that the pond will fill and / or remain filled with water to the principal spillway crest elevation.
 - xiv. The Iowa Engineering Job Class is shown on the drawings (NEM Part 501, Form IA-ENG-6).
 - xv. Completed title block showing dates and the names of the designer and checker, and the signature of the person approving the design.
 - xvi. Acceptance signature by client.
 - b. Construction and material specifications, including but not limited to:
 - i. Appropriate specifications listed in the Conservation Practice Standard.
 - ii. Other specifications required for the project.
 - iii. IA-5 Pollution Control Construction Specification or its equivalent is required for all jobs.
4. Design Report (NEM Part 511, Subpart B - Design Documentation, 511.11) with detail appropriate to the complexity of the job. A detailed design report is required for Job Class IV or higher and all inventory class dams. If multiple practices are part of a single job, a combined design report may be acceptable. The design report shall include, but not be limited to the following:
 - a. Summary of project objectives.
 - b. Site assessment including hazard class.
 - c. Summary of design documentation from item 2 listed above.
 - d. List of facilitating practices.
 - e. List or map showing land rights to be obtained, if needed.

STATEMENT OF WORK
Dam, Diversion (348)
Iowa

- f. List of required permits to be obtained by the client, including, but not limited to the following:
 - i. Iowa DNR Storage Permit (Iowa Administrative Code 567-51.2):
 1. A dam with permanent storage of 18 acre feet or more of water.
 - ii. Iowa DNR Construction Permit (Iowa Administrative Code 567-71.3):
 1. Any dam designed to provide a sum of permanent and temporary storage exceeding 50 acre-feet at the top of dam elevation, or
 2. Any dam designed to provide a sum of permanent and temporary storage exceeding 25 acre-feet if the dam does not have an auxiliary spillway and has a height of 5 feet or more, or
 3. A dam providing permanent storage of 18 acre-feet or more and overall height of 5 feet or more, or
 4. Any dam across a stream draining more than 10 square miles.
 5. Any dam located within 1 mile of an incorporated municipality, if the dam has a height of 10 feet or more, stores 10 acre-feet or more at the top of dam elevation, and is situated such that the discharge from the dam will flow through the incorporated area.
 - iii. U.S. Army Corps of Engineers Section 404 permit. See Regional Permit 33 for guidance.
 - g. Bill of Materials and Itemized Cost Estimate.
 - h. Bid Sheet to be used by the client, if appropriate.
5. Inspection Plan (NEM Part 512, Subpart D Quality Assurance Activities, 512.30 through 512.33) appropriate to the complexity of the job. A detailed inspection plan is required for Job Class IV or higher and all inventory class dams. The inspection plans shall describe the following:
 - a. Items of work and materials requiring inspection.
 - b. Type and frequency of testing, if needed.
 - c. The as-built documentation required.
 - d. Quality Control responsibilities.
 - e. Quality Assurance responsibilities.
 6. Operation and maintenance plan meeting the requirements of the current Conservation Practice Standard.
 7. Certification that the design meets practice standard criteria and complies with applicable laws and regulations (NEM Part 505, Subpart A, 505.03), or is approved by an employee with the appropriate delegated engineering job approval authority (NEM Part 501, Subpart A).

INSTALLATION

Deliverables

1. Pre-installation conference with client and contractor.
 - a. Review plans and specifications.
 - b. Review NRCS utility safety policy. (NEM Part 503 – Safety, Subpart A – Engineering Activities Affecting Utilities, Section 503.00 through 503.22 and Iowa amendments).
 - c. Review roles and responsibilities of all parties involved in the project installation.
 - d. Verification that client has obtained required permits and land rights.
2. Staking and layout according to plans and specifications including applicable layout notes.
3. Installation inspection documented in the case file assistance notes or in a job diary to include:
 - a. Dates and record of inspections made, testing completed, instruction provided to the contractor, etc., to document compliance with standards and specifications.
 - b. Actual materials used.
4. Facilitate and implement required design modifications with client and the original designer. Design modifications required during installation are properly approved and documented.

STATEMENT OF WORK
Dam, Diversion (348)
Iowa

CHECK OUT

Deliverables

1. Survey for Checkout conducted and recorded as for the design survey.
 - a. Profiles of the dam centerline including core trench, principal spillway centerline, and auxiliary spillway centerline.
 - b. Cross-sections of the dam and auxiliary spillway as needed to document practice installation.
 - c. Elevations, dimensions, etc. of the Outlet Works, Bypass Works, Special Purpose Works, and appurtenances, as needed to document practice installation.
2. As-built documentation (450-GM, IA407).
 - a. Extent of practice units applied.
 - b. Drawings with changes from the original construction plans clearly shown.
 - c. Materials documentation including final quantities.
 - d. Testing reports, as required.
 - e. Survey and construction notes for layout, inspections, and final checkout documenting compliance with standards and specifications.
3. Certification that the practice has been installed in accordance with NRCS practice standard criteria and specifications and complies with applicable laws and regulations, or is approved by an employee with the appropriate delegated engineering job approval authority (see Design Deliverable Item 7).
4. Submission of completed NRCS Form IA-ENG-40 to the State Conservation Engineer for dams meeting the following criteria (NEM Part 520, Subpart C - Dams):
 - a. All significant hazard and high hazard dams.
 - b. Low hazard dams over 6 feet in overall height and with a storage capacity of 50 acre-feet or more;
 - c. Low hazard dams with an overall height of 25 feet or more and a storage capacity of more than 15 acre-feet.
5. Progress reporting.

REFERENCES

- Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard, Dam, Diversion (348)
- NRCS National Engineering Manual (NEM)
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook
- NRCS General Manual

STATE CONTACT

Allen Gehring, State Conservation Engineer
515-284-4357
allen.gehring@ia.usda.gov