

**STATEMENT OF WORK**  
Subsurface Drain (606)  
**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**

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### **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 and Conservation Compliance requirements have been met and documented (i.e., cultural resources and threatened and endangered (T&E) species; wetland and HEL determination).

## **DESIGN**

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### **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;
    - ii. Design for single drains if the pipe grade >1.99% and LiDAR is verified with a Field Survey as directed in Iowa NRCS Instruction 210-385, LiDAR for Engineering.
  - 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:
    - i. Benchmark and control points, property lines, ditch bottom elevations, existing drain elevation and location, and other important features.

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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. Hydrology/Hydraulics.
    - ii. Environmental considerations.
    - iii. Safety considerations
  - 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, 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, work limits, and delineated wetlands in or near the project area.
    - iii. Bench mark elevation and description.
    - iv. Coordinates and elevation of horizontal and vertical control points needed for practice layout.
    - v. Quantities – conduit lengths, grades, sizes, and types of materials.
    - vi. Outlet location(s), elevation(s), and protection required.
    - vii. Structure and appurtenance locations, dimensions, and elevations.
    - viii. Normal water level elevations in outlet ditches or streams.
    - ix. 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.
    - x. 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.
    - xi. The Iowa Engineering Job Class is shown on the drawings (NEM Part 501, Form IA-ENG-6).
    - xii. Completed title block showing dates and the names of the designer and checker, and the signature of the person approving the design.
    - xiii. 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. The design report shall include, but not be limited to the following:
  - a. Summary of project objectives.
  - b. Site assessment.
  - 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.
  - f. List of required permits to be obtained by the client, including, but not limited to the following:
    - i. 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. The inspection plan 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.

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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**

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### **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. Verify that the 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.

## **CHECK OUT**

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### **Deliverables**

1. Survey for Checkout conducted and recorded as for the design survey.
  - a. Location and profile or elevation at various points of each main and submain.
  - b. Location and flow line elevation of all surface inlets and outlets.
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. Progress reporting.

## **REFERENCES**

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- Iowa Administrative Code
- NRCS electronic Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard, Subsurface Drain (606)
- NRCS National Engineering Manual (NEM) and NRCS General Manual
- NRCS National Environmental Compliance Handbook and NRCS Cultural Resources Handbook

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**STATE CONTACT**

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