



STATEMENT OF WORK
Denitrifying Bioreactor (605)
Iowa

These deliverables apply to this individual practice. For deliverables for other planned practices, refer to those specific Statements of Work.

DESIGN

Deliverables

1. A Copy of survey notes which shows 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. Rod readings or Elevations shall be referenced to a benchmark. A temporary benchmark is acceptable. The TBM shall be selected to ensure its availability through completion of construction activities.
 - c. Elevation data collected with LiDAR meeting Iowa Standard or FEMA Compliant specifications may be used for planning and watershed delineation but not for final design.
2. Design documentation that will demonstrate that the criteria in the NRCS practice standard have been met and are compatible with other planned and applied practices:
 - a. Practice purpose(s) as identified in the conservation plan.
 - b. List of required permits to be obtained by the client.
 - c. Impacts on adjacent properties and structures.
 - d. Compliance with NRCS national and state utility safety policy (National Engineering Manual (NEM), Part 503-Safety, Subpart A, Engineering Activities Affecting Utilities, 503.0 through 503.6 and Iowa NEM Amendment, Parts 503.0 through 503.5).
 - e. Practice standard criteria related computations and analyses to develop plans and specifications including but not limited to:
 - i. Geology and Soil Mechanics (NEM Part 531, Geology, and Part 533 Geotechnical Engineering).
 - ii. Hydrology/Hydraulics.
 - iii. Structural design. Include hazard class documentation as appropriate.
 - iv. Vegetation.
 - v. A tile map that includes tile sizes, materials, depth, and locations of all tile draining to the denitrifying bioreactor if available. Provide documentation on how the saturated buffer was sized, including drainage area.
3. Written plans and specifications including drawings provided to the client that adequately describes the requirements to install the practice and obtain necessary permits. Include the following, at a minimum:
 - a. Location map with legal descriptions.
 - b. A plan view showing the location and stations of the practice to be constructed, including relevant benchmark elevations and descriptions.
 - c. Profile(s) of planned excavations and fills.
 - d. Profile(s) of the denitrifying bioreactor including relevant elevations.
 - e. Details of required structure(s) for water level control.
 - f. Vegetation establishment requirements.
 - g. Quantities of all components.
 - h. Construction and material specifications that describe site-specific installation requirements.
 - i. A note on the drawings stating that the contractor is responsible for notifying Iowa One Call by phone at 811 or on the Iowa One Call website at www.iowaOneCall.com.
 - j. A note on the drawings stating that if a cultural resource is identified during construction, work will stop

- immediately and the local NRCS Field Office will be notified.
- k. The Iowa Engineering Job Class is shown on the drawings (NEM Part 501, Form IA-ENG-6).
 - l. Additional notes as necessary to identify avoidance and protection areas and boundaries associated with cultural resources, threatened or endangered species, or other resources needing temporary protection during installation.
 - m. Signature/initials and date for design and design check. Design check to be completed by an individual other than the designer.
 - n. Construction and material specifications, including but not limited to:
 - i. Appropriate specifications listed in the Conservation Practice Standard.
 - ii. IA-605 Denitrifying Bioreactor Construction Specification.
 - iii. Other specifications required for the project
 - iv. IA-5 Pollution Control Construction Specification or its equivalent is required for all jobs.
4. Design Report with detail appropriate to the complexity of the job. 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.
 - 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. Bill of Materials and Itemized Cost Estimate
 - g. Bid Sheet to be used by the client, if appropriate.
 5. Inspection Plan appropriate to the complexity of the job. The inspection plan shall describe the following:
 - a. Items of work and materials requiring inspection.
 - b. Knowledge, skills, and abilities required of the inspector.
 - c. Type and frequency of testing, if needed.
 - d. The as-built documentation required.
 - e. Quality Control responsibilities.
 - f. Quality Assurance responsibilities.
 6. Operation and Maintenance (O&M) Plan developed in accordance with the requirements of Conservation Practice Standard 605, Denitrifying Bioreactor.
 7. Certifications that the design meets practice standard criteria and complies with applicable laws and regulations, or is approved by an employee with the appropriate delegated engineering job approval authority.

INSTALLATION

Deliverables

1. Conduct a preconstruction meeting with client, contractor, and designer.
2. Verification that client has obtained required permits.
3. Staking and layout according to plans and specifications including applicable layout notes.
4. Installation inspection (according to inspection plan):
 - a. Actual materials used (NEM, Part 512, Subpart D, Quality Assurance Reviews, 512.33).
 - b. Inspection records.
5. Facilitate and implement required design modifications with client and original designer
6. Advise client/NRCS on compliance issues with all federal, state, tribal, and local laws, regulations and NRCS policies during installation.
7. Certification that the installation process and materials meet design and permit requirements.

CHECK OUT

Deliverables

1. Survey for Checkout conducted and recorded as for the design survey.
 - a. Location of the practice components installed.
 - b. As-built elevations of the excavation, top of bioreactor media, structure flow lines, etc.
 - c. Profile along the route(s) of pipe installation.
2. As-built documentation.
 - a. Extent of practice units applied.
 - b. Documentation of materials installed (i.e. pipe materials, structures, bioreactor media, seed tags, etc.).
 - c. As-built plan is required when a significant change in design or layout occurs during construction or when the job is designated Class V or higher. Identify "As Built" on plan. Superimpose changes on the as-built plan using a different color or otherwise clearly differentiating the as-built dimensions.
 - d. For practices not requiring an as-built plan, survey notes documenting critical dimensions, elevations, and materials.
 - e. Final quantities.
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. (Completed by NRCS)

REFERENCES

- Iowa Administrative Code
- NRCS Field Office Technical Guide (eFOTG), Section IV, Conservation Practice Standard, Denitrifying Bioreactor (605)
- NRCS National Engineering Manual (NEM)
- NRCS National Environmental Compliance Handbook
- NRCS Cultural Resources Handbook
- NRCS General Manual