Review Using Comment and Markup Tools, Send To
Alton.Miller@TN.USDA.GOV

NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS

PUMPING PLANT

(No.)
Code 533

SCOPE

This work includes the design and installation of a pumping plant system that meets the requirements of Conservation Practice Standard 533, Pumping Plant. Complete all work in accordance with all federal, state and local laws and regulations.

DESIGN

Prepare plans and design in accordance with NRCS Conservation Practice Standard, Pumping Plant, Code 533. Require the vendor or contractor furnishing pumps and motors to provide the necessary performance curves, ratings, and other operating data to determine that they will meet the capacity, head, and other operating requirements in the engineering plan and specifications.

Prepare engineering plans and specifications for pumping plant that specify the type of equipment, material, and accessories and contain all necessary supporting data such as performance curves, manufacturer's recommendations, drawings, sketches, etc.

MATERIALS AND INSTALLATION

Perform construction to the neat lines and grades specified by the design and shown on the engineering plans. Meet all special requirements of the equipment manufacturer.

Conduct construction operations in a skillful and workmanlike manner. Ensure that the completed job presents a workmanlike appearance. Minimize air and water pollution and hold pollution within the legal limits.

Set pumps and power units on a firm base and in proper alignment. Follow all pertinent safety codes and manufacturer's recommendations in the installation of the equipment. As a minimum, safety guards for revolving engine components, outside faces of pulleys, sheaves, sprockets, and gears on drives that rotate with projections, revolving shafts, except smooth shaft ends protruding less than one half of the diameter of the shaft, and nip points on exposed gears, belts, chain drives and idlers shall be provided to shield or otherwise minimize inadvertent contact.

Protect exposed steel surfaces from corrosion by galvanizing, painting, or use of other approved coatings.

Use a mix design and require testing of concrete consistent with the size, and requirements of the job. Specify mix requirements or necessary strength, but as a minimum use a cement content of 5 sacks per cubic yard and a maximum net water content of 7 gallons per sack. Specify the type of cement, air entrainment, slump, aggregate, admixtures and other properties. As a minimum, use reasonably well graded, clean, and durable aggregates that do not contain clay lumps and organic matter in excess of 3 percent of the total weight. Use concrete water that is free of acid, alkali, oils, and organic matter. All concrete is to consist of a workable mix that can be placed and finished in an acceptable manner. Specify the necessary curing requirements. Place reinforcing steel as designed and inspect before concrete placement. Install subgrades and forms to line and grade, using forms that are watertight and unyielding as the concrete is placed.

DRAFT

All lumber in contact with the ground or waste shall be pressure-treated in accordance with the specified American Wood Protection Association U1 Standard, latest edition, for the appropriate use category.

TESTING

Require the installer, vendor, or contractor to demonstrate by testing that the pumping plant will function properly at design capacity, without objectionable flow conditions, vibrations, noise, or other indications of problems.

Ensure that gates, valves, pipe connections, discharge bays, power units, pumps, automatic controls, suction pipe and bays and other accessories and appurtenances perform satisfactorily.

Determine the acceptability of the pumping plant by inspections to check compliance with the provisions of this standard, the plant design, and with respect to the design requirements of the pump, power units, the appurtenances used, and the minimum installation requirements. Where NRCS is responsible to certify the pumping plant, NRCS will be notified when planned construction will begin to allow for scheduling timely construction inspections.

Require the installing contractor or vendor to certify that the installation complies with the requirements of this standard. Require the installer to provide a written guarantee that protects the owner against defective workmanship and materials for not less than one (1) year after installation and testing and that identifies the manufacturer and appropriate ratings (horsepower, capacity, rpm, head, etc.) of equipment installed. The one-year guarantee is not required when the landowner installs the pumping plant.

DRAFT