

Design Package Checklist for Livestock Watering System

See "Design Data" sections of Conservation Practice Standards:

<http://efotq.sc.egov.usda.gov> Section IV

516 – Livestock Pipeline

614 – Watering Facility

533 – Pumping Plant

642 – Water Well

- 1) Completed environmental evaluation (CPA 52), Cultural Resources (CR), Threatened and Endangered Species (T/E), and subsequent requirements.
- 2) On-site soils investigation. Record in field book or on Form 538 (see Forms section on the DCR Engineering Services webpage).
- 3) Copy of survey notes (or acceptable elevation source, source must be approved by DCR Agricultural Engineer, USGS is not an acceptable elevation source).
- 4) Design drawings:
 - Cover sheet – must get design approval signature from someone with appropriate EJAA
 - Plan View
 - Pipeline Detail (pipeline profile) – typically not needed for pressure systems if elevations are shown on plan view, however, the sheet should still be included as there are important construction notes on this sheet. Show pipeline profile with gravity systems.
 - Trough Detail
- 5) Design computations:
 - Livestock Watering System Worksheet print out or hand calculations
 - Quantities
- 6) Construction Specifications: Will vary depending on the project – here is an example list:
 - VA 705 – Pollution Control
 - VA 706 – Seeding (note attachment to be filled out)
 - VA 721 – Excavation
 - VA 730 – Water Well
 - VA 731 – Concrete Construction
 - VA 745 – Plastic Pipe
 - VA 772 – Watering Facility
 - VA 795 – Geotextile
- 7) Operation and Maintenance Plans – one for each conservation practice (516, 533, 614, 642)

Notes:

- **Office files:** Include all items listed above (may choose to leave out construction specs as long as noted on cover sheet and cover sheet is dated ... don't need to clog files with hundreds of copies). See *Water Well* standard for well documents needed for files (well usually not dug prior to LWS design).

Every file shall include a completed project folder checklist (see Forms section on the DCR Engineering Services webpage for suggested format).

Credits: Checklist adapted from a checklist developed by Sharyl Ogle, PE, NRCS Area Engineer

- **Landowner/Contractor:** Include design drawings, LWS worksheet, Construction specs, and O&M plans. Don't include more pieces of paper unless requested. Provide at least 2 copies, or more if multiple bids are required, so that the landowner can give one copy to their contractor.