

U.S DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
CONNECTICUT

**IMPLEMENTATION REQUIREMENTS
FOR
642 – WATER WELL**

For: Business Name _____ Participant Name Here _____
Job Location _____ Enter Physical Address Here _____
County_ Enter County Here _____ Farm/Tract No. _FFarm / TTract _____
Contract No. ___ Contract Number _____ Contract Item Number(s) _Enter CINs here _____
Prepared By ___ Preparer _____ Title _____ Title _____ Date ___ Date ___

IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO OBTAIN ALL NECESSARY PERMITS AND/OR RIGHTS, AND TO COMPLY WITH ALL ORDINANCES AND LAWS PERTAINING TO THIS INSTALLATION. CALL AT LEAST 72 HOURS BEFORE YOU DIG! 811 OR 1-800-922-4455

Installation shall be in accordance with the drawings, conservation practice standards, specifications, and special requirements as shown below. NO CHANGES ARE TO BE MADE IN THE DRAWINGS OR SPECIFICATIONS WITHOUT PRIOR APPROVAL OF THE NRCS ENGINEER.

1. Drawings, No. _____
2. Practice Specifications 642
3. Type of casing: _____ Size _____ in; Wall thickness _____ in.
4. Length of casing: shall extend from at least 12” above the ground surface down through unstable earth materials to an elevation of at least 10 feet into stable material or to the top of the screen.
5. Length of screened section: Length to be determined by well driller and/or geological site investigation
6. Type and size of perforations: perforation size based on achieving a fluid velocity of 0.7 fps through openings
7. Filter pack gradation (if applicable): Applies if there is a need to stabilize fine-grained, poorly sorted sand aquifers to avoid sand pumping or if larger slot openings are desired for better well efficiency in a fine-grained aquifer, see figure 32-12 and 32-13 of NEH Part 631, Chapter 32, “Well Design and Spring Development” for grain size distribution recommendations for an artificial filter pack.
8. Special Requirements: Water well drillers shall adhere to all state licensing requirements and regulations. All Connecticut NRCS contracted water wells shall file a well completion report with NRCS, the Department of Consumer Protection, the Department of Environmental Protection and the local health district. An appropriate site-specific hydrogeologic investigation including test well drilling, is required prior to well construction. Well shall be sited in accordance with the below listed chart as defined by the Connecticut Department of Health:

Setback Distance Requirements (Connecticut Department of Health, Sec. 19-13-B51d.)			
Source	Withdrawal Rate (well flowrate)		
	less than 10 gpm	10 -- 50 gpm	Greater than 50 gpm
Disposal of sewage or other pollution (includes animal waste, agrichemical handling areas, petroleum or fuel areas, etc.)	75'	150'	200'
Industrial waste	greater than 75' may be required*	greater than 150' may be required*	greater than 200' may be required*
Sewers constructed of extra heavy cast iron pipe with leaded joints	25'	75'	100'
High Watermark of any surface water body	25'	50'	50'
Drain carrying surface water	25'	50'	50'
Foundation drain	25'	50'	50'
Certain Rock Formations	greater than 75' may be required*	greater than 150' may be required*	greater than 200' may be required*

*check with you local health district for more details

Surface runoff and drainage that might reach the wellhead from potential areas of contamination such as agrichemical handling areas or areas used by livestock shall be diverted away from wellhead. All wellheads shall be cased to a sufficient height (minimum of 12") above the ground surface to prevent entry of surface and near-surface water. Wellhead shall be located a safe distance from overhead and underground utility lines and other safety hazards. All other local and state regulations or codes shall also be followed. The site shall be suitable for safe operation of the drilling equipment. Well screen material shall be determined according to water pH. The below listed table indicates acceptable materials according to well water pH:

<u>Screen Material</u>	<u>Acceptable pH Range</u>
Monel Metal	Use for extremely aggressive or frequent acidizing water
Stainless Steel	Less than 5 or Greater than 8
Everdur Metal	Between 5 and 6 or Greater than 8
Armco Iron	Between 6 and 8 where mild carbonate deposition is anticipated
Mild Steel, Soft Iron	between 6 and 8
Galvanized iron or steel	between 6 and 8
enamel coated iron or steel	between 6 and 8

Derived from NRCS NEH Part 631, Chapter 32, "Well Design and spring Development"

If a zone is penetrated that is determined or suspected to contain water of quality unsuitable for the intended use, the zone shall be sealed to prevent infiltration of the poor-quality water into the well and the developed portion of the aquifer.

Grouting and Sealing: The annulus surrounding the permanent well casing at the upper terminus of the well shall be filled with mortar containing expansive hydraulic cement meeting ASTM C 845, a bentonite based grout, or bentonite chips and pellets in accordance with state requirements. The length of the grout seal shall be no less than 10 feet and not less than the minimum specified in state or locally applicable construction codes.

Concrete Apron: The casing shall be surrounded at the ground surface by a 4” thick concrete slab extending at least 2 feet in all directions from the outside of the casing to prevent contamination. The slab shall slope away from the well.

A positive seal (grouted in place) or packer shall be provided between the casing and the less pervious material overlying the aquifer of artesian wells, and in all aquifers where comingling of waters is undesirable.

Sanitary Seal and Access Port: Well shall be equipped with a tightly fixed vented cap or a sanitary seal with an access port for ventilation. The access port shall have a minimum inside diameter of ¼”. It shall be installed and maintained in such a manner as to prevent the entrance of water, dust, insects, or other foreign material and to permit ready access for the purpose of water level measurement.

Disinfection: Wells shall be disinfected immediately following their construction or repair to neutralize any contamination from equipment, material, or surface drainage introduced during construction. The disinfection process shall comply with the Public Health Code Regulation of Connecticut State Agencies.

Water Quality Testing: Sampling and testing shall comply with all applicable Federal, State and Local requirements used for potable water.

Practice Completion and required documentation:

A record of the installation of this practice shall be made and shall include the following information:

1. Well completion report. This report shall include (at a minimum)
 - a. Location of the water well by GPS, latitude/longitude or other georeferencing convention to ensure the well can be readily re-located.
 - b. Date of completion of the water well
 - c. Name of the landowner
 - d. Name, title and address of person responsible for the water well
 - e. Total depth of the water well
 - f. Length of the casing and screening
 - g. Inside diameter of the well bore or casing
 - h. Type of casing material or schedule
 - i. Static water level measured from ground surface
 - j. Water chemistry before and after disinfection
 - k. Well logs recorded during construction
2. Well must have all accompanying component practices installed to meet the purpose and function of the conservation contract item. This includes but is not limited to: pumping plant, pipeline, pump controls.

An inspection of the well head and surrounding concrete apron must be performed and approved by NRCS personnel prior to payment of practice.

8. Special Maintenance Requirements: See additional O&M plan provided. Well construction records shall be kept on file with the maintenance plan by the owner/operator. The plan shall include a statement of identified problems, corrective action taken, date, and specific capacity (yield per unit drawdown) of water well before and after corrective action was taken.

PRACTICE APPROVAL:

Job Classification: (Ref: Section 501 NEM)

Show the limiting elements for this job. This job is classified as, Class _____

Limiting elements:	Units
<u>Well Casing Diameter</u> _____	_____ Inches
<u>Well Depth</u> _____	_____ feet
_____	_____

CIN # _____ Approved by: _____ Date: _____

CLIENT’S ACKNOWLEDGEMENT:

The Client acknowledges that:

- a. They have received a copy of the drawings, specification, and implementation requirements, and that they understand the contents.
- b. They have obtained all the necessary permits.
- c. No changes will be made in the installation of the job without prior concurrence of the NRCS engineer.
- d. Maintenance of the installed work is necessary for proper performance during the project life.

Accepted by: _____ Date: _____

PRACTICE COMPLETION:

I certify installation and submitted documentation of the contracted well meets standards and specifications

CIN # _____ Completion Certification by:

/s/ _____ Date _____