

**NATURAL RESOURCES CONSERVATION SERVICE
CONSTRUCTION SPECIFICATIONS**

DRY HYDRANT

(No.)
Code 432

GENERAL

Site specific specifications shall be developed for each dry hydrant based on site conditions. The following items should be considered in developing the specifications.

SITE PREPARATION

The dry hydrant access area and pipe location shall be cleared to the extent needed for pipe installation. Clearing and brush removal for safe, line-of-sight to the road shall be included. Debris, logs, stumps, and other trash cleared from the site shall be burned, buried, removed from the site, or otherwise disposed of in a manner that does not interfere with pipe installation or vehicle access. All burning operations shall be in conformance with existing state and local regulations.

EXCAVATION

Excavation for placement of the dry hydrant pipe and riser shall be constructed by trenching or other approved methods. Excavation should begin at the water source and proceed toward the hydrant location. Trenches, having cuts greater than 5 feet shall be sloped to a stable slope above the 5 foot cuts or braced to avoid sidewall caving and to improve backfill compaction. Care must be taken during underwater excavation to avoid ridges and valleys in the bottom grade. The bottom grade shall be sloped toward the water source.

Excavation and shaping of the site shall facilitate and enhance easy on/off road access to the dry hydrant. Such excavation and shaping shall provide a nearly level, well drained site which will also facilitate operation and maintenance activities.

FILL PLACEMENT

If suitable, the material excavated from the pipe trench, access area shaping, or other source may be used for pipe backfill and other site filling and shaping activities. The fill material used in the trench shall be free from all sod, roots, stones over 2 inches in diameter, and other objectionable material. Soil placed against plastic pipe shall be free of any isolated stones. A minimum of 2 feet of cover perpendicular to the slope is required. The soil surface shall be mounded over the pipe for settlement and to divert surface water away from the trench.

The pipe riser shall be anchored in place prior to fill placement. Backfill should start at the access road and proceed toward the water source.

Fill material above water level shall be placed in layers not exceeding 9 inches thick before compaction. Compaction around the pipe above water level shall be by hand tamping or by manually directed power tampers. The sides of the trench shall be scarified so that they will bond with the fill material and minimize settlement. Loose, sandy material or pea size gravel should be used as backfill below water level to promote drainage and anchoring. Trench confinement and compaction will be accomplished in a manner that will force excess water from the fill material. Care must be taken so that loose soil in the water will not be pushed out over the intake screen.

CONSTRUCTION MATERIALS AND METHODS

Pipe materials shall be of the specified type, size, and length as shown on the drawings. Pipe connections shall be properly cleaned and cemented so that all connections are air-tight.

The pipe shall be placed in the trench to design elevations and anchored in position ready for backfill. The purpose of anchoring is to hold the pipe riser in proper position, location, and elevation until all backfill operations are completed. Anchoring may be accomplished by

tying pipe to stakes, concreting in place, or by tying and placing rounded pea-size or larger gravel around lower pipe elbow.

A support shall be provided for the intake screen to assure that it has at least 2.0 feet of clearance from the pond bottom or is below the stream bottom in a 2 feet deep by 4 feet wide gravel bed.

In ponds, the end of the pipe shall be supported by cement blocks, 1-inch diameter galvanized pipe-post and strap, or other permanent supports under the pipe. The pipe shall be adequately secured to the support with corrosion resistant material. Screens or strainers may also be covered with 12 inches of crushed rock or gravel.

For streams with bedload, the intake screen or strainer shall be anchored in a 2 to 4 foot deep by 4 foot wide bed of crushed stone or gravel located below the streambed. The inlet end of the screen or strainer shall be capped to prevent entry of silt and debris. The strainer must be buried deep enough to prevent scouring action of the stream from exposing the strainer and tearing it loose from the supply pipe.

Attach quick-connect couplers acceptable to and approved by the local fire department.

Minimum size pipe and fittings shall be 6-inch nominal inside diameter. All PVC components are to be Schedule 40, SDR 26, or stronger. Pipe shall conform to ASTM D 1785 or D 2241. Fittings shall conform to ASTM D 2466 or D 2467. Solvent cement shall conform to ASTM D 2564 - Tetrahydrofurnace (THF) primer and between 800-1000 centipoise viscosity cement. (Never use all-purpose cements to join PVC pipe and fittings).

All PVC pipe and fittings exposed to sunlight shall be primed and painted with a high grade epoxy paint. The underwater support shall be concrete or non-corrosive metal. It shall be of sufficient design to support and stabilize the strainer inlet and to provide ease of adjustment.

ACCESS

Vehicle access to and from the dry hydrant shall be provided for fire truck and pumper units. Access shall be all weather and acceptable to the local fire department. Access roads shall be at least 14 feet wide for ease of movement by personnel and equipment during an emergency. When public roads are used for access, an all weather road surface adjacent to the dry hydrant and completely off the public road is recommended for safety of emergency personnel and the public.

TESTING

The fire department shall perform a pump test at the design capacity to confirm operation of the installation after the pipe has been backfilled and glue joints have sufficiently cured (24 hours minimum).

MARKINGS

The dry hydrant shall be clearly marked with appropriate sign(s) acceptable to the fire department. Use of reflective paint on signs and on the quick-connect cap will help improve visibility during emergencies. Letters and/or numbers should be 3-inches high with $\frac{1}{2}$ -inch stroke and be reflective. Physical barriers may be needed to protect the above ground pipe system.