DRY HYDRANT SPECIFICATIONS

DEFINITION

A Dry Hydrant is a standpipe connected by means of pipeline to a static water source that permits the withdrawal of water by drafting.

PURPOSE

The purpose of the following specification is to provide a fully functional dry hydrant and provide a means for local fire departments to use a static water source area for fire suppression, usually in a non-hydrant area , regardless of the time of year or weather conditions.

ACCESS

1. The dry hydrant shall be accessible by all weather road. The access area between the road and the hydrant shall be constructed of a prepared surface that will support the weight of a fire engine in all conditions. For aesthetic purposes the access area may be landscaped with grass , if landscape grating or an adequate stone base is used below the sod to support the weight of the fire engine.

2. The dimensions of the access area shall be such to enable both options of a front end or side intake connections from a fire engine to the hydrant. The area shall be such that a engine for drafting and a tanker shall be able to maneuver in a manner that allows for efficient and expedient water shuttle operations.

3. Access shall not be blocked by locked gates, walls or fences. The access area shall be free of obstruction, debris and vegetation.

LOCATION

1. The location of the hydrant shall be such that required dimensions are met.

2. The location of the hydrant connection shall allow the engine to be level during drafting operations.

3. The location of the hydrant connection shall be to allow safe operations. The area shall be free of hazards. The location of the connection shall be placed at a distance from the waters edge or steep banks to prevent hazardous situations during use or maintenance.

4. The necessary permits and land use agreements shall be submitted, approved and/or filed by the developer. This shall include situations where access to the hydrant requires entry across other properties or right of ways. The required interaction shall also be performed with the necessary utility agencies by the developer.

DESIGN CRITERIA

1. The dry hydrant shall be able to supply a minimum of 1250 GPM during continuous operations.

2. The pipeline, strainer and fittings shall have a diameter of six inches (6") for lengths under 60'. Anything longer shall be 8" or larger in diameter.

3. Total suction lift shall not exceed thirteen feet (13').

4. Total friction loss shall not exceed seventeen feet (17').

5. The intake shall be placed at least two feet (2') below the estimated 50 year drought and freeze condition level.

6. The intake shall be placed at least two feet (2') above the bottom of the water source.

7. All design and construction activities shall comply with all federal, state and local laws, rules and regulations governing all activities in or along streams or bodies of water or in relation to pollution abatement, health and safety. The owner or developer shall be responsible for securing all required permits or approvals and for performing in accordance with such laws or regulations.

8. The pipeline shall be encased by #30 gravel (or equivalent) on all sides where located in the trench.

9. The underwater support and anchor shall be made of rip-rap class D stone or other type if approved. The strainer shall also be supported in a manner not to interfere with water inflow and removable cap, to clean out trash accumulation.

10. The Trench shall be prepared with four inches (4") of #30 gravel. The gravel shall be laid, smoothed at the necessary slope and without vertical bends.

11. The pipe shall be placed straight and without horizontal bends. All connections shall be sealed with the specified solvents. Any reduction in size of pipe will be on F/D connection end, below grade level.

12. The trench shall be back filled with #30 gravel, with at least six inches (6") on the sides and top of the pipe.

13. After the trench has been back filled the pipeline shall be pressure tested. The pipeline shall hold at least 40 psi gauge for 1 hour with a minimum drop of 5 pi over one hour.

14. National Fire Protection Association (NFPA) 1231, Standard on Water Supplies for Suburban and Rural fire Fighting shall be used for further guidance and items not covered in these specifications. Hancock County Soil and Water Conservation District can be used as a tech agency.

MATERIAL

1. The adapter at the hydrant connection shall be male 6", with strainer, national standard thread; it can be non-rust metal or brass with cap.

2. The pipeline and fittings shall be of PVC or steel pipe. The minimum pipe quality shall be schedule 40 or SDR 26 PVC or equivalent.

a. Standard thermoplastic pipe designation code for PVC pipe shall be 1120 or 1220 and for ABS pipe shall be 1316 or 2112.

b. Material for PVC pipe fittings shall be PVC I or PVC 12, for ABS pipe fittings, ABS II or ABS 13.

c. Steel pipe shall meet the requirements specified in ASTM A120 or in AWWA C200.

d. Plastic pipe shall conform to one of the following ASTM specifications:

D1785, Polyvinyl Chloride (PVC) Plastic Pipe, Schedules 40, 80, and 120.
D2241, PVC Pressure Rated Pipe (SDR Series).
D2665, PVC Plastic Drain, Waste and Vent Pipe Fittings.
D1527, Acrylonitrile Butadiene Styrene (ABS) Plastic Pipe schedules 40 and 80.
D2282, Acrylonitrile Butadiene styrene (ABS) Plastic Pipe (SDR-PR).

e. Pressure pipe fittings shall conform to the requirements of the following ASTM specifications:

D2464, Threaded (PVC) Plastic Pipe Fittings, Schedule 80.

D2466, PVC Plastic Pipe Fittings, Schedule 40
D2467, Socket-Type, PVC Plastic Pipe Fittings, Schedule 80
D2468, ABS Plastic Pipe Fittings, Schedule 40.
D2672, Joints for IPS PVC Pipe Using Solvent Cement.

f. Solvents for solvent-welded pipe joints shall conform to the following ASTM specifications:

D2235, Solvent Cement for ABS Plastic Pipe Fittings.
D2564, Solvent Cements for PVC Plastic Pipe Systems.
D2855, Making Solvent-Cemented Joints with PVC Pipe and Fittings.

3. The intake strainer can be either commercially manufactured or hand manufactured. The type of material shall be PVC or steel. The strainer shall be at least four feet (4") in length. The opening shall be no larger than 5/16" in diameter with enough openings (approx. 1000) to sustain the required fire flow even with a 30% blockage of silt debris.

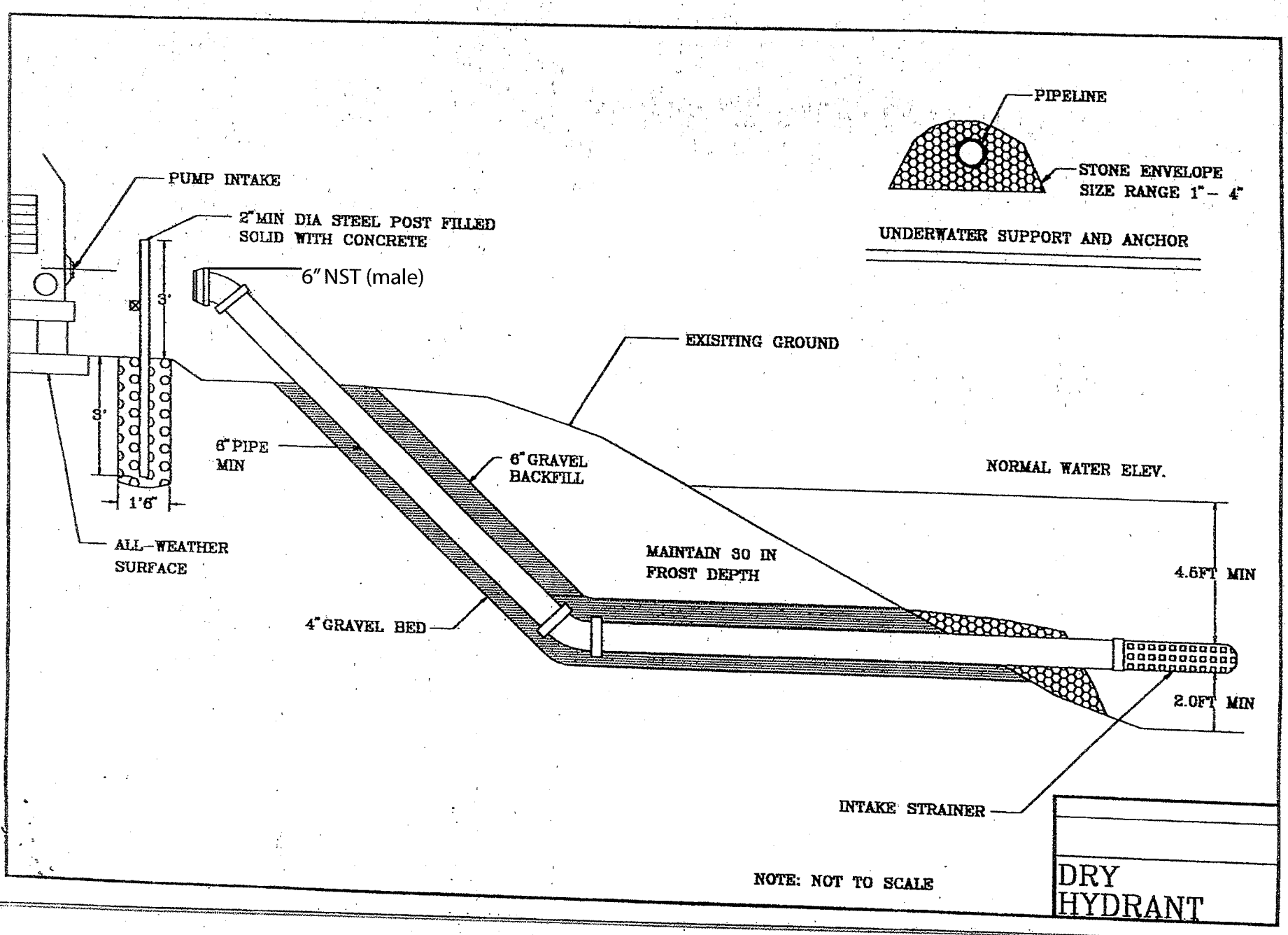
4. The stone for the underwater support and anchor shall be of class D stone. Other type of support and anchor shall require approval.

5. The gravel placed in the trench shall be No. 30 gravel or equivalent.

§ 155.097 DRY HYDRANTS.

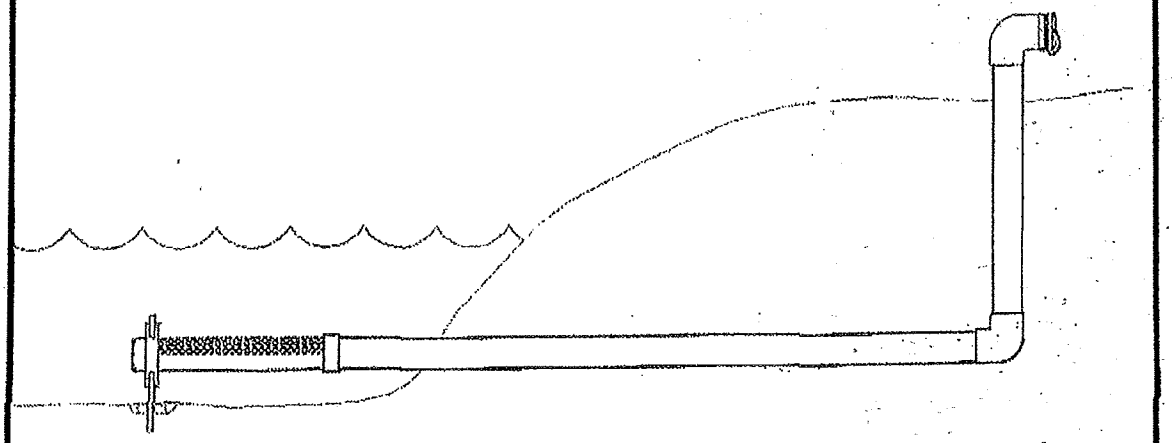
The County Area Plan Commission shall require installation of dry hydrants in major subdivisions with detention facilities. The hydrants shall be installed consistent with standards maintained by the County Soil and Water Conservation District.

('86 Code, § 7.1-53 (Ord. 1993-9G, passed 9-27-93)


PIPELINE
STONE ENVELOPE
SIZE RANGE 1"– 4"
UNDERWATER SUPPORT AND ANCHOR
PUMP INTAKE
2"MIN DIA STEEL POST FILLED
SOLID WITH CONCRETE
6" NST (male)
3'
3'
1'6"
EXISITING GROUND
6" PIPE
MIN
6" GRAVEL
BACKFILL
NORMAL WATER ELEV.
ALL–WEATHER
SURFACE
MAINTAIN 80 IN
FROST DEPTH
4.6FT MIN
4" GRAVEL BED
2.0FT MIN
INTAKE STRAINER
NOTE: NOT TO SCALE
DRY
HYDRANT

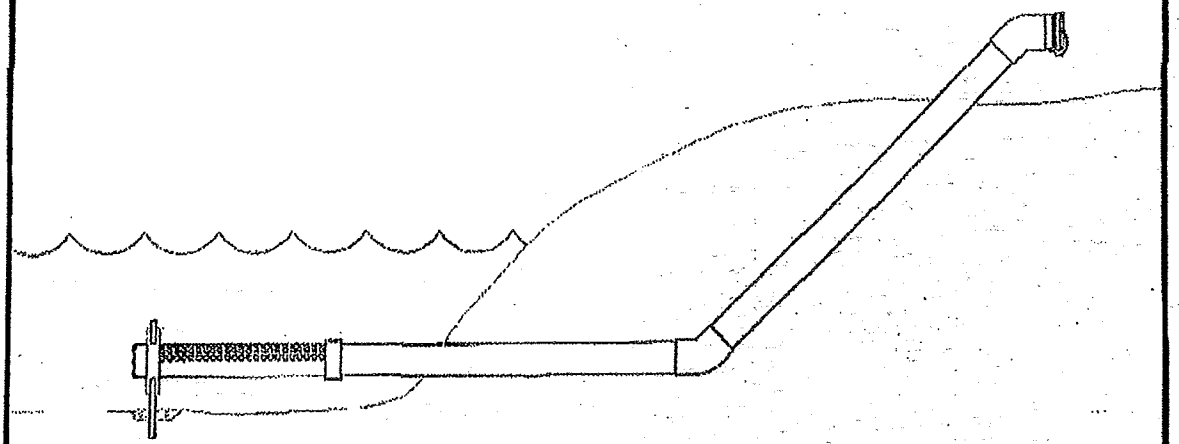
Either a 45-degree or 90-degree configuration can be used to install the dry hydrant. The 45-degree configuration is generally preferred but check with the local fire department.

90 degree Configuration



6" male adaptor with strainer and cap

45 degree Configuration (preferred)



6" male adaptor with strainer and cap