

## SPRING DEVELOPMENT (CODE 574)

### 1. GENERAL

Installation shall be in accordance with an approved design and plan. Details of construction shown on the drawings but not included herein are considered as a part of this specification. Construction activities shall be in accordance with applicable OSHA regulations.

### 2. INSTALLATION

Disturbance of the site shall be limited to that needed to complete the installation. Sensitive areas that are flagged in the field or noted on the drawings shall be avoided.

Excavation for pipe trenches, spring boxes and appurtenances shall be as needed to install the appurtenant components as noted on the drawings.

Backfill shall be with materials shown on the drawings. Gravel and sand filters when specified shall be installed as to avoid contamination with other materials.

Backfill materials around and over pipelines and around spring boxes shall be hand compacted to a depth of at least 2 feet over the top of the pipe and within 2 feet of the structure.

### 3. PIPE MATERIALS

The collector conduit shall be of the size, material type as shown on the drawings. Unless otherwise specified, pipe shall conform to one of the following specifications:

- a) Corrugated polyethylene drainage tubing ASTM F 405 or F 667, AASHTO M 252 or AASHTO 294

- b) Corrugated polyvinyl chloride tubing ASTM F 800
- c) Polyvinyl chloride corrugated sewer pipe ASTM F 949
- d) Polyvinyl chloride sewer pipe ASTM D 2729
- e) Polyvinyl chloride pipe ASTM D 3033 or D 3034
- f) Concrete pipe for irrigation and drainage ASTM C 118
- g) Reinforced concrete pipe ASTM C 76
- h) Corrugated metal pipe ASTM A 760, A 761 A 762, A 849, A 875, A 885, A 929, B 745, B 746 or B 790.

The casing pipe for horizontal wells shall be standard weight, galvanized steel pipe conforming to ASTM A 120. The liner pipe shall be Schedule 80 PVC 2110 plastic pipe conforming to ASTM D 1785. The pipe through the water bearing formation shall be either slotted or perforated with a minimum of 2 square inches of opening area per linear foot of pipe.

### 4. CONCRETE

Concrete shall meet the requirements of Montana Construction Specification MT-106, or MT-106A, B, or C as specified in the Special Provisions.

### 5. FILTER MATERIALS

Sand-gravel filters shall be clean, hard durable material. Unless otherwise specified on the drawings or the Special Provisions, the perforated collection pipe shall be backfilled with 6-12 inches of compatible sand/gravel filter material or covered with a

polyester filter sock. For fine-grained soils, the filter shall meet the requirements of ASTM C 33 fine aggregate. For springs in rocky areas where penetration of fines is not a problem, a C33 coarse aggregate, and size 57 to size 357 can be used.

Geotextile fabric materials shall be of the weight, type and opening size as shown on the drawings or specified in the Special Provisions.

## **6. LUMBER**

All lumber used shall be redwood, red cedar or be treated with a cold soak or pressure wood preservative meeting the requirements of ASTM D 1760 for underground burial.

## **7. FENCING**

Fencing shall be in accordance with Montana Construction Specification, MT-382, FENCE.

## **8. SEEDING**

Seed the disturbed areas unless suitable vegetation already exists. Seedbed preparation, seed mixture, fertilizer, mulch, and application rates shall be in accordance with Montana Specification/Job Sheet MT-342, CRITICAL AREA PLANTING, or as specified in the Special Provisions.

## **9. CLEAN-UP**

Waste earth material shall be smoothed.