

CONSTRUCTION SPECIFICATION

763CS. Manufactured Ditch Check

1. SCOPE

This work consists of furnishing all material, equipment, and labor necessary for the installation, maintenance, and removal (when required) of manufactured ditch checks.

2. QUALITY

Manufactured ditch checks shall conform to the requirements of Material Specification 514 and this specification.

3. STORAGE

Before use, manufactured ditch check material shall be stored in a dry location and in a safe area to prevent damage to material. Storage on the job site shall comply with conditions of any State or municipality-issued permit.

4. SURFACE PREPARATION

The geometry of the ditch or swale shall be completed prior to installation of any manufactured ditch check. Ditch check site condition shall be prepared according to Material Specification 514 concerning final grade and use of erosion control blanket (when applicable).

5. PLACEMENT

Before the manufactured ditch check is placed, the soil surface and drainage ditch or swale will be reviewed for quality assurance of the design and construction. The ditch check shall be placed on the approved prepared surface at the locations and in accordance with the details shown on the drawings and specified in Section 7 of this specification. Any pre-application ground work such as trenching, application of erosion control blanket, and soil movement shall be performed according to Material Specification 514 for the selected manufactured ditch check. Regardless of type of ditch check used, general installation shall result in the center of the ditch check being at least 6" lower than the outside edges

Urethane Foam Geotextiles- The seven-foot long, 10" tall (minimum) sections of urethane foam geotextile shall be installed perpendicular to the prepared channel of the ditch or swale and affixed to the surface with No. 11 gauge wire staples at least 6"-8" long. The design of the urethane foam geotextile allows for placement over rough or rocky terrain. The up-flow apron of geotextile shall be placed in a 3"-6" deep trench and stapled prior to backfilling the trench. A total of ten staples shall be used on each side to affix the apron to the ground surface and spaced at intervals according to the manufacturer's directions for installation on soil.

Rolled Erosion Control Products- Rolled erosion control products shall be installed perpendicular to the prepared channel of the ditch or drainage swale. The length of rolled erosion control product depends on the diameter selected. Under 10-inch diameter is supplied in 25-foot lengths and 10-inch diameter and over are supplied in 10-foot lengths. Regardless of diameter, seams shall not occur within the channel. Splices are to be connected a minimum length equal to the diameter of the rolled product. For areas less than one acre, rolled erosion control products of 8-inch diameter or less are appropriate. Ditches and swales draining over 1 acre should utilize products greater than 8-inches in diameter. When used on bare soils, the rolled erosion control product shall be placed in a 3-inch deep trench and have stakes placed through the rolled product at an angle of 45° facing the direction of flow. The stake shall penetrate the ground to a minimum depth of 24 inches. When rolled erosion control products are placed over erosion control blanket, the trench is not required but all other installation requirements remain.

Plastic Permeable Checks- Plastic permeable checks shall be installed perpendicular to the prepared channel of the ditch or drainage swale. This practice will consist of using 3.28ft long x 0.738ft tall sections of HDPE plastic (either standard or biodegradable versions). The panels are anchored with 10" spiral spikes. Anchor spacing depends on soil condition and density. Minimum recommendation is three anchors on the upstream side and two anchors on the downstream side. The bottoms of the HDPE panels shall be in intimate contact with the ground to prevent a "bridging effect" and potential erosion. If necessary, cut the HDPE panel to fit the geometry of the channel to ensure intimate contact.

In addition to use of the plastic permeable check HDPE sections, erosion control blanket (ECB) is required to be installed under the area where the plastic permeable check will be installed. The selection of the ECB shall be based upon site conditions, including but not limited to soil type, slope of channel, expected flow velocities, and acreage drained. The ECB shall be installed with 6" staples at intervals of 1.67ft. Other installation specifications shall be per ECB manufacturer specifications or as specified in the plan.

Synthetic Porous Runoff Control Structures- Synthetic porous runoff control structures shall be installed perpendicular to the prepared channel of the ditch or drainage swale. Panels shall be spaced using the formula $131/\text{slope}\%$ (example: $4\%\text{slope} = 131/4=32.75\text{ft}$ apart).

Starting at the top of the channel, and using the panel spacing formula, mark each runoff control structure site with a stake at the outer points of the sideslope and backslope to ensure that no water flow will go around the panel sets. Use a laser/level combination to ensure that the bottom edge of the outside corners on the sideslope/backslope panels are a minimum of 6 inches higher than the top of the panel at the lowest point on the bottom channel at each installation site.

Seed the soil area where structures are to be located and lay erosion control blanket across the ditch at each runoff structure site. The blanket should extend up the sideslope and backslope the length of the panel. Trench the upstream edge of the mat 6 inches deep, the trench should extend to below the topsoil level. Staple the mat in the trench with 8" staples, 18" apart.

Starting at either the toe of the backslope or sideslope, place a set of porous panel strips on the bottom of the ditch along the center line of the erosion mat. Place the spacing gauge between the panels to hold them upright, the bottom panel should face outward. Put a pin in the installation tool, place the pin over the panels about half way down the strips (in the middle) so a pin leg is against the outside of each panel, and drive the pin through the panel lips into the ground. The panels should be wedged into the pins at the top and ensure firm contact between the entire bottoms of the Porous Sediment Control Structure and the soil and then pull the installation tool off the installed pin.

From the installed panels, install a second pair of panels, overlapping the first panels at the toe a minimum of 3" up the side or backslope. Place the next pin over both sets of panes at the toe and drive the pin into the ground with the installation tool and ensure firm contact between the entire bottoms of the porous sediment control structure and the soil. Install the next pins in the middle and at the upper end of the second set of panels, again using both the spacing guide and the driving tool.

A third panel set is placed, extending across the ditch from the first installed panels, overlapped a minimum of 3" and the next pin placed at the overlap. The sequence is continued until the runoff structure is installed and firm contact between the entire bottoms of the Porous Sediment Control Structure and the soil is established. The last panel installed is the one extending up the opposite slope from the starting panels. No breach shall occur along the integrity of the structure.

Vegetated Ditch Checks- The multi-check is trenched in to the soil on the up flow side. Water will flow over the top of the multi-check and contact the apron of the down flow side. The check flap and cape model shall be used to connect the individual multi-check sections.

6. MEASUREMENT AND PAYMENT

This work, regardless of type of ditch check, will be measured for payment per linear foot.

7. ITEMS OF WORK AND CONSTRUCTION DETAILS