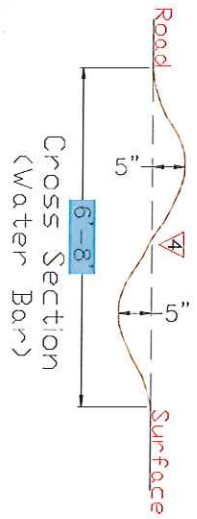
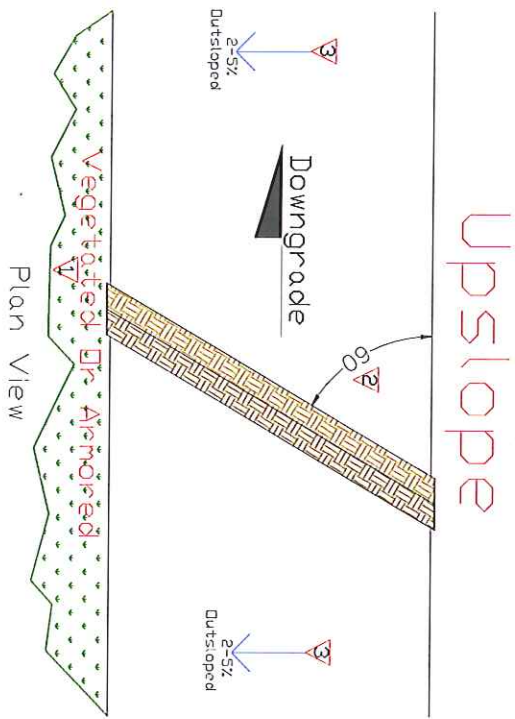
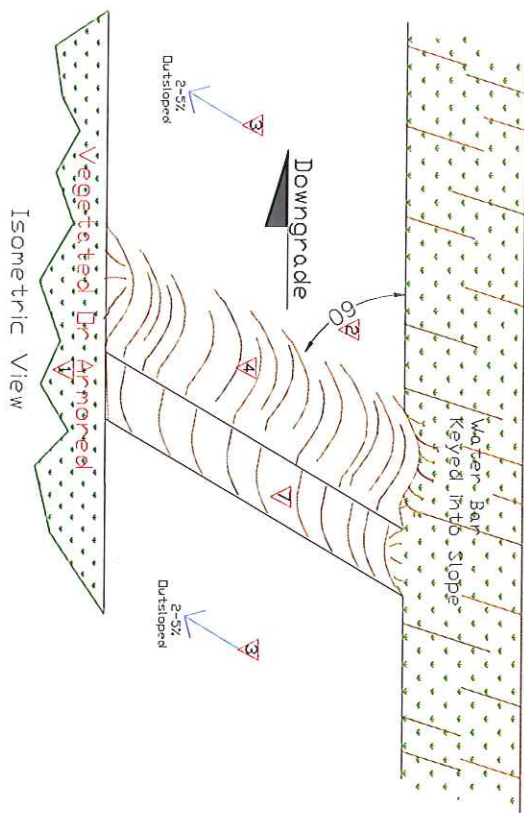


Earth Water Bar Option



Recommended Water Bar Spacing (feet)

Road Grade%	Low to Non-Erosive Soil (1)	Erosive Soil (2)
0-5	250	130
6-10	200	100
11-15	150	65
16-20	125	50
21-30	100	40
30+	50	30

Note:
 (1) Low Erosion Soils - Coarse Rocky Soils, Gravel and some Clay
 (2) High Erosion Soils - Fine, Friable soils, Silt, Fine Sands

From Low-Voltage Based Engineering Staff, Fig. 4. Culture, Center Key, S. James Street - 20221

- Note:**
- 45 inch median angular riprap or vegetation shall be placed at water bar fallout to protect from eroding.
 - Earthen water bars shall completely dissect road at a 60 degree angle from road.
 - Road cross slope shall be 2-5%.

- Use material excavated from dip to construct hump.
- Excavated dip shall be a minimum of 5 inches in depth and 3-4 feet in width. Constructed hump shall be a minimum of 5 inches in height and 3-4 feet in width. Total height of dip shall be a minimum of 10 inches and total width shall be a minimum of 6-8 feet.
- Excavated dips shall be at 2-5% cross slope.

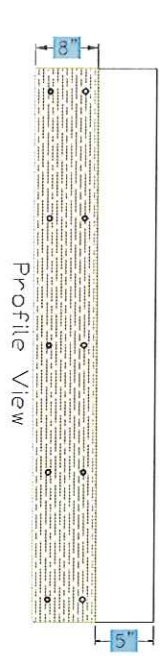
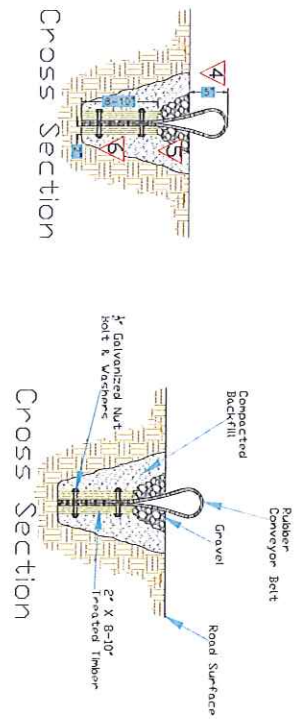
Dutisloped Road

Designed	SC	Date	10/15
Drawn	SC		10/15
Checked	DK		10/15
Approved	DK		10/15

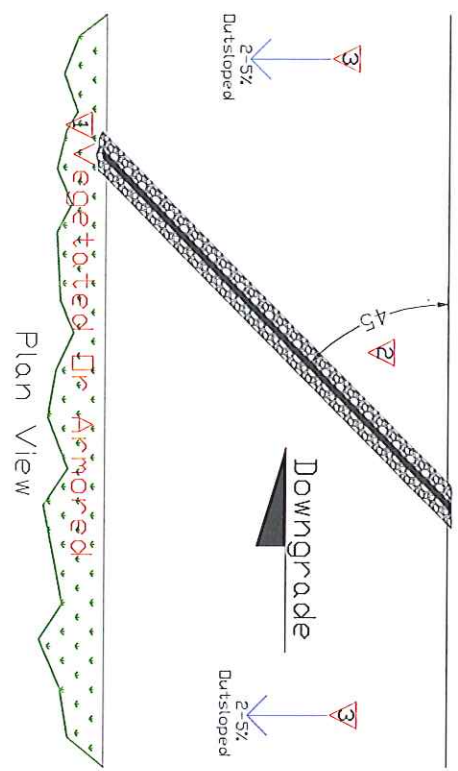
USDA United States Department of Agriculture
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File No. Water
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Conveyer Belt Water Bar Option



Upslope



Note:

- 1 1/2 inch median angular riprap or vegetation shall be placed on water bar flout to protect from eroding.
- 2 Drivable water bars shall completely dissect road at a 45 degree angle from road inside shoulder as shown on detail drawing.
- 3 Road cross slope shall be 2-5%.
- 4 Flap shall extend a minimum of 5 inches above the surface of the road.
- 5 Back fill shall include gravel and be compacted to same density as undisturbed soil by hand or with mechanical compactor.
- 6 Conveyer belt shall be sandwiched between two pressure treated 2 x 8's or 2 x 10's held together by 1/2 inch galvanized nuts, bolts and washers.

Dut sloped Road

Recommended Water Bar Spacing (Feet)

Road Grade's	Low to Non-Erosive Soils(1)	Erosive Soils(2)
0-5	250	130
6-10	200	100
11-15	150	65
16-20	125	50
21-30	100	40
30+	50	30

Note:
 (1) Low Erosion Soils - Coarse Rocky Soils, Gravel and some Clay
 (2) High Erosion Soils - Fine, Friable Soils, Silts, Fine Sands

From Low-Volturne Road Engineering Order Field Guide, Gordon Keller & James Meyer (2003)

Designed	SC	Date	10/15
Drawn	SC		10/15
Checked	DK		10/15
Approved	DK		10/15

United States Department of Agriculture

 Natural Resources Conservation Service
 Title No. 10/23/15 1055
 Drawing No. 10/23/15 1055
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