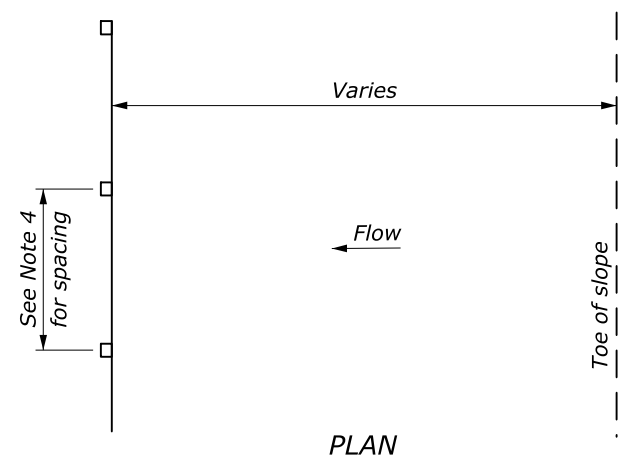
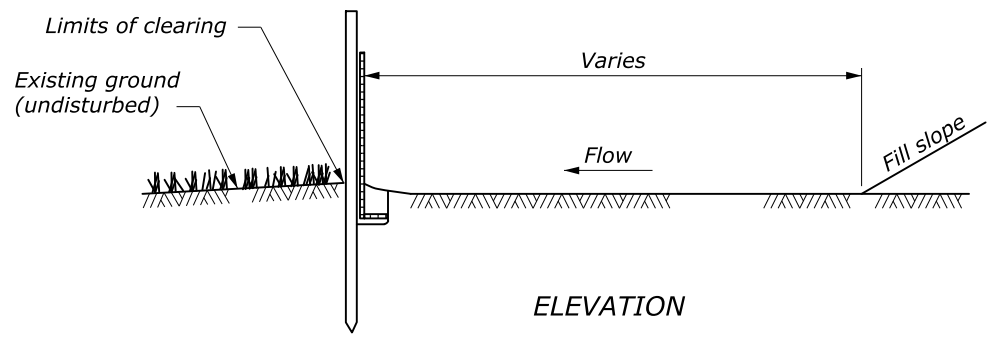
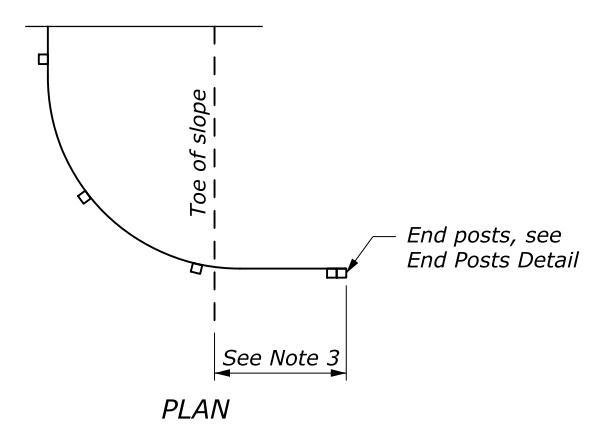


POST AND GEOTEXTILE INSTALLATION DETAIL

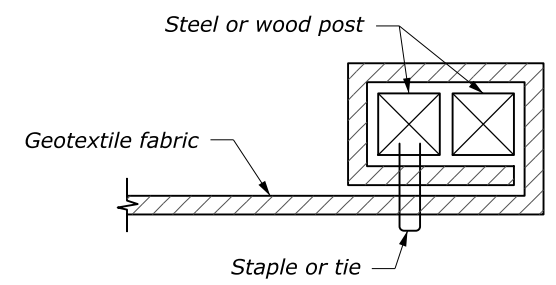


NOTE:

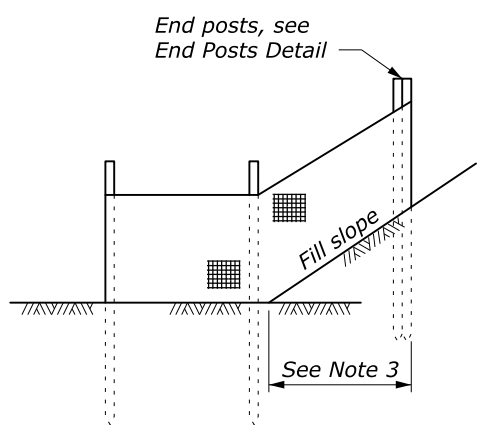
1. Alternate preassembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.
2. Install silt fence to follow the ground contours as closely as possible.
3. Curve ends of silt fence upgrade to prevent water from running around the ends.
4. 10-foot (max.) spacing with silt fence reinforcement. 6-foot (max.) spacing without silt fence reinforcement.



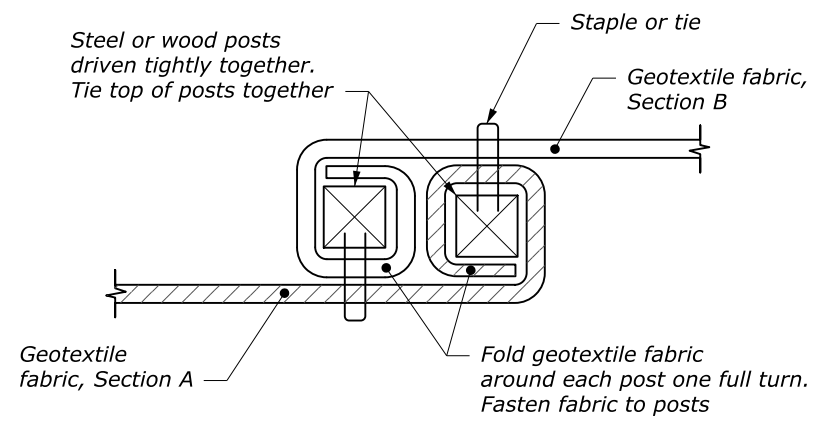
SILT FENCE INSTALLATION AT TOE OF FILL



END POSTS DETAIL



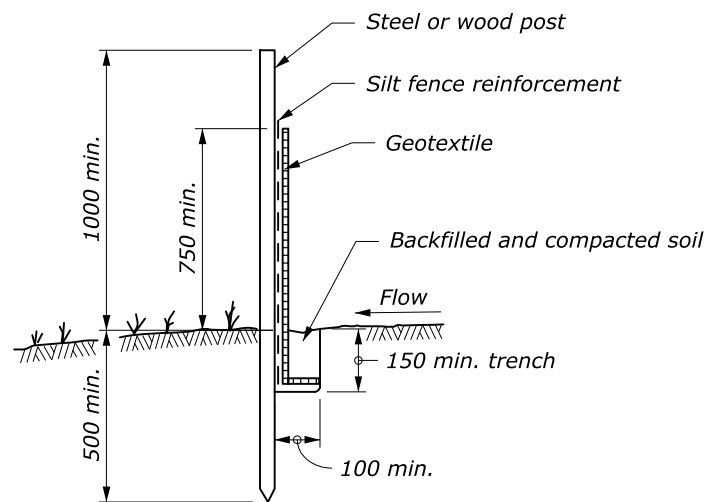
END DETAIL



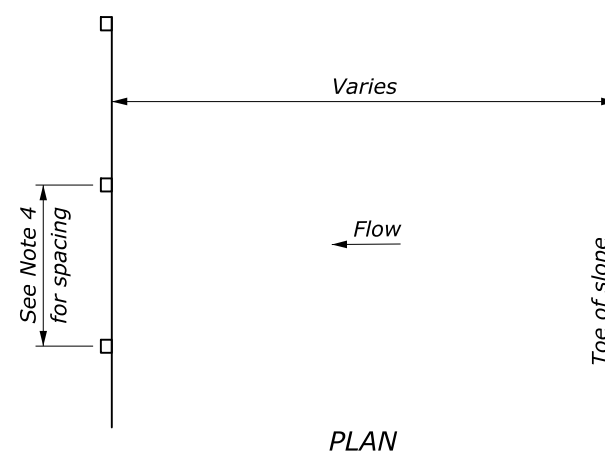
POSTS AT JOINTS

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
SILT FENCE	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 10/2016	W157-1

NO SCALE

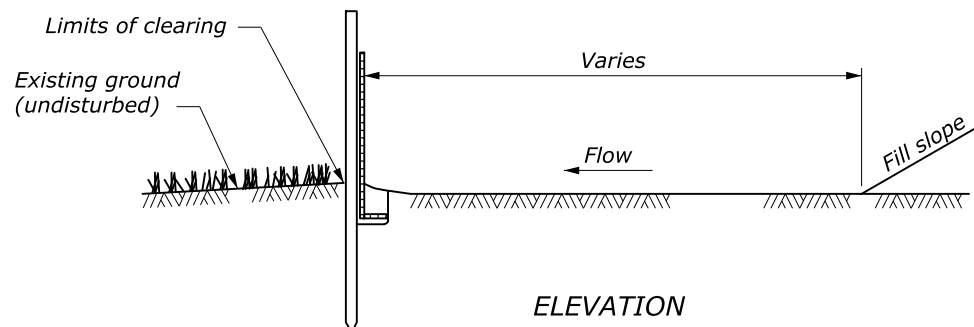
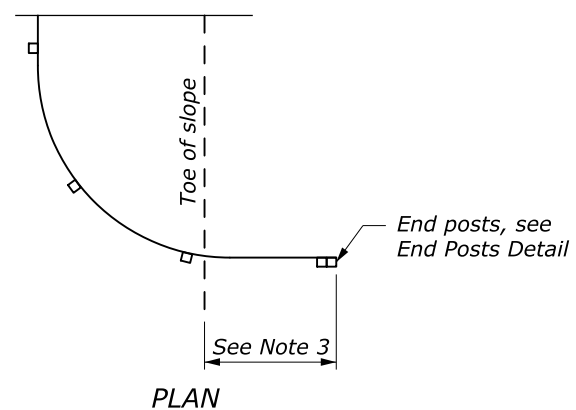


POST AND GEOTEXTILE INSTALLATION DETAIL

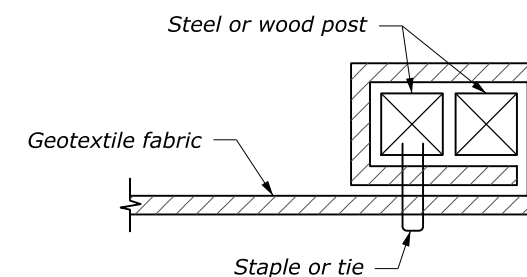


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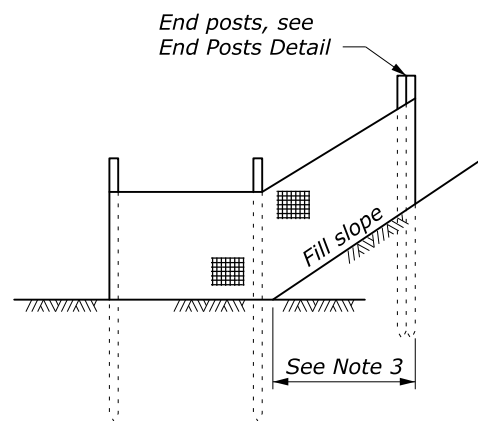
1. Alternate preassembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.
2. Install silt fence to follow the ground contours as closely as possible.
3. Curve ends of silt fence upgrade to prevent water from running around the ends.
4. 3-meters (max.) spacing with silt fence reinforcement. 1.8-meters (max.) spacing without silt fence reinforcement.
5. Dimensions without units are millimeters.



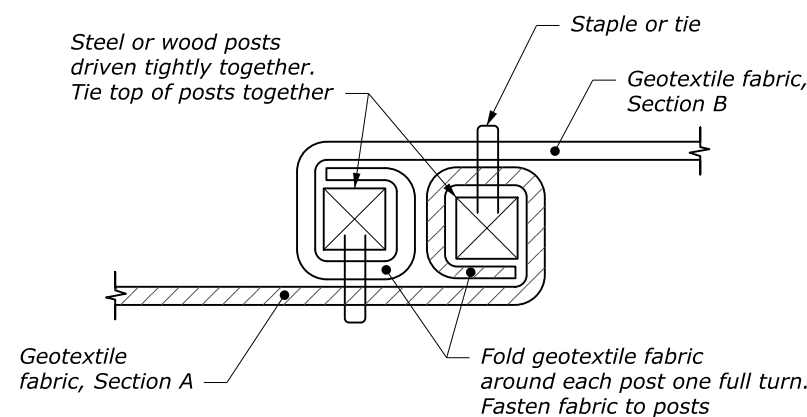
SILT FENCE INSTALLATION AT TOE OF FILL



END POSTS DETAIL



END DETAIL



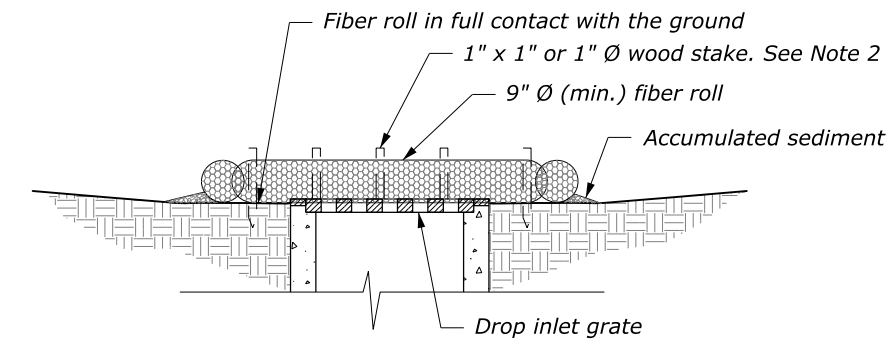
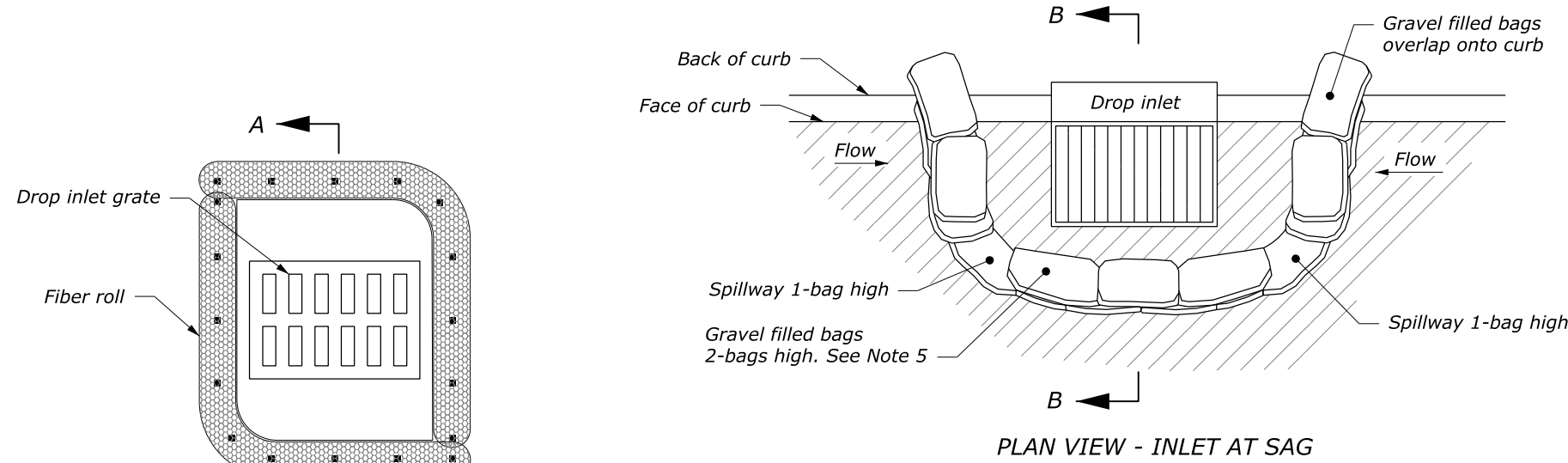
POSTS AT JOINTS

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
SILT FENCE	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 10/2016	MW157-1

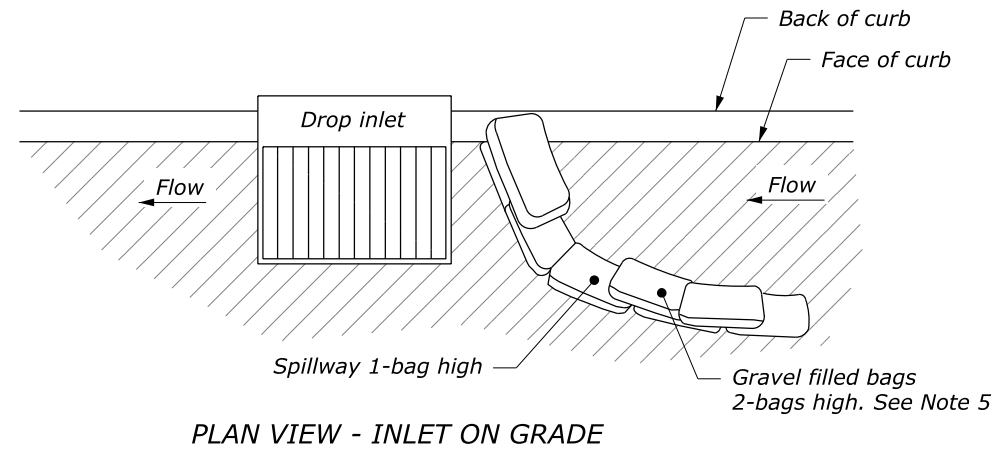
NO SCALE

NOTE:

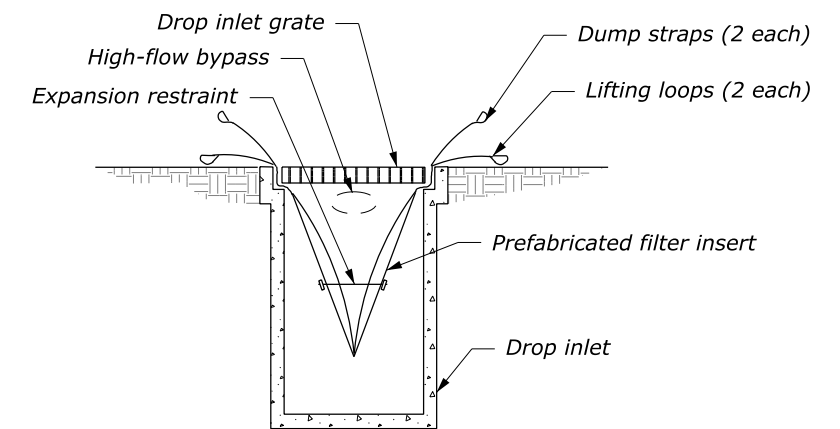
1. Select the inlet protection device to fit field conditions as approved by the CO.
2. Install fiber rolls with stakes spaced no more than 24-inches on center. Drive stakes 12-inches (min.) in undisturbed soil.
3. Approximate finished dimension of gravel bags is 12-inches x 18-inches.
4. Maximum top of gravel bag spillway elevation = Top of curb minus 1-inch.
5. Pack gravel filled bags tightly together end to end to ensure no sediment flows between or underneath the bags. Where tight fit is unachievable, install geotextile filter, class 2, type C along the upstream face of the bags. Place fabric over the top of the bags to the spillway elevation. Anchor the fabric by placing the next layer of bags on top of it. Extend the geotextile fabric a minimum of 18-inches upstream of the bags. Cover geotextile fabric to the top of the fabric with clean, silt-free coarse aggregate between 2-inches and 3-inches in diameter.
6. Size the prefabricated filter insert (Type C) to fit the drop inlet and allow collected material removal without spillage. Include a high-flow bypass in the insert.



**FIBER ROLL
DROP INLET PROTECTION (TYPE A)**



**GRAVEL BAG BERM
DROP INLET PROTECTION (TYPE B)**



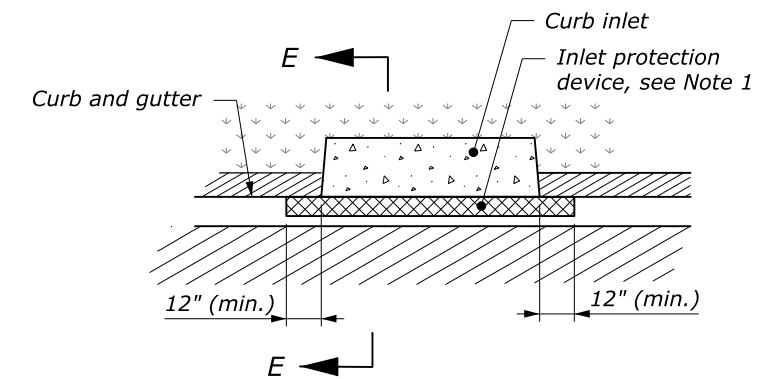
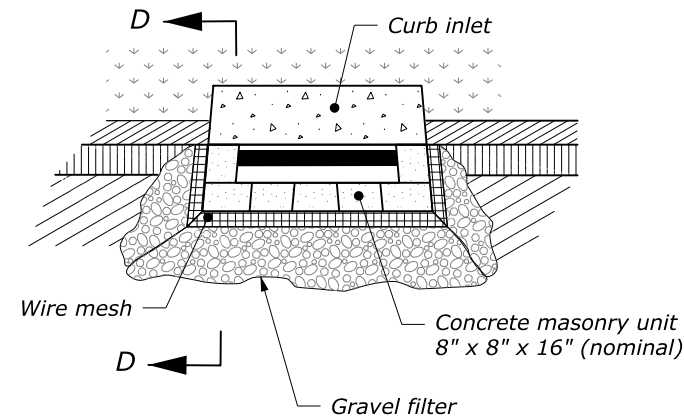
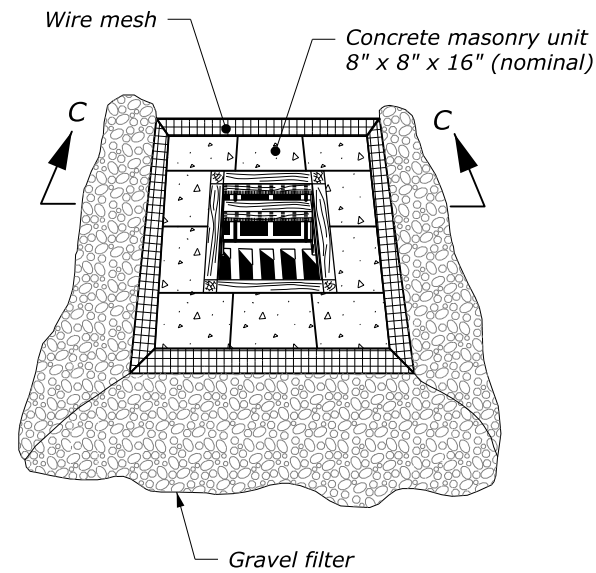
**PREFABRICATED FILTER INSERT
DROP INLET PROTECTION (TYPE C)**
See Note 6

NO SCALE

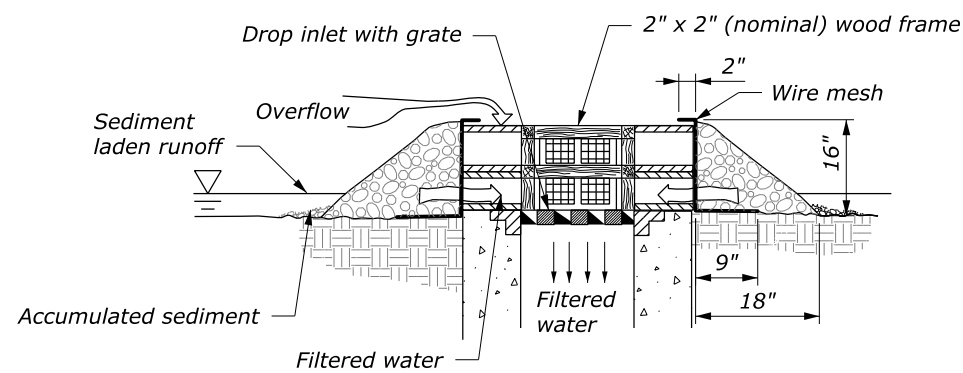
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL TEMPORARY INLET PROTECTION Sheet 1 of 2	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-2

NOTE:

1. Inlet protection device (type E) may consist of continuous filter tubing filled with gravel or other prefabricated filter material. Install device according to manufacturer's recommendations.
2. Vary dimensions to fit field conditions.

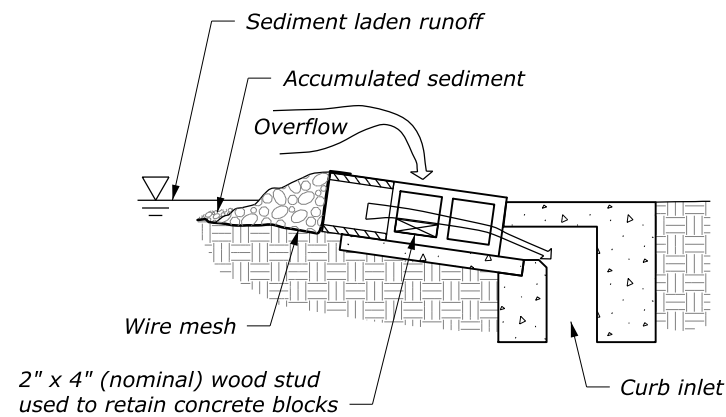


PLAN



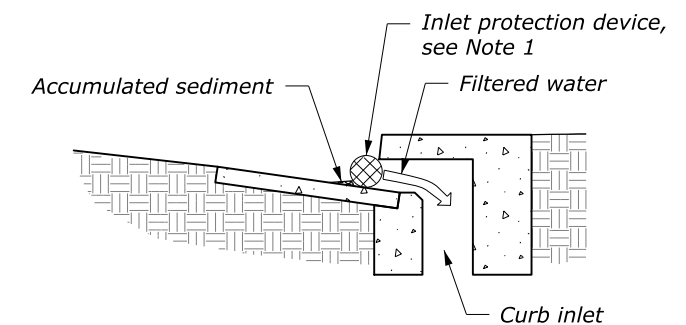
SECTION C-C

**BLOCK AND GRAVEL
DROP INLET PROTECTION (TYPE D1)**



SECTION D-D

**BLOCK AND GRAVEL
CURB INLET PROTECTION (TYPE D2)**



SECTION E-E

**INLET PROTECTION DEVICE
CURB INLET PROTECTION (TYPE E)**

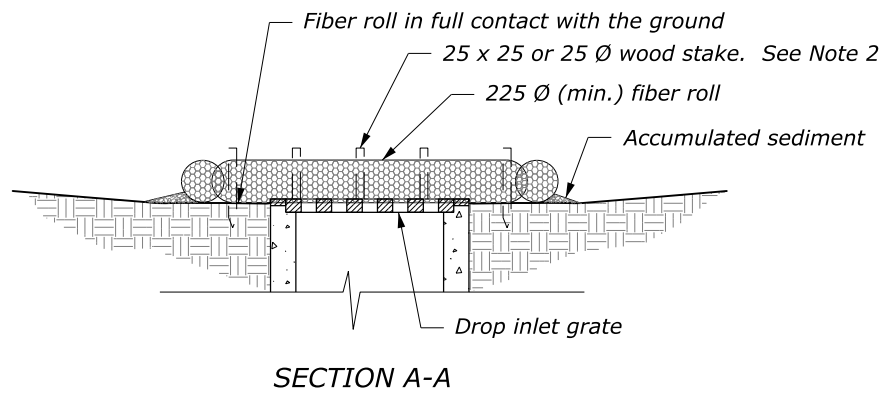
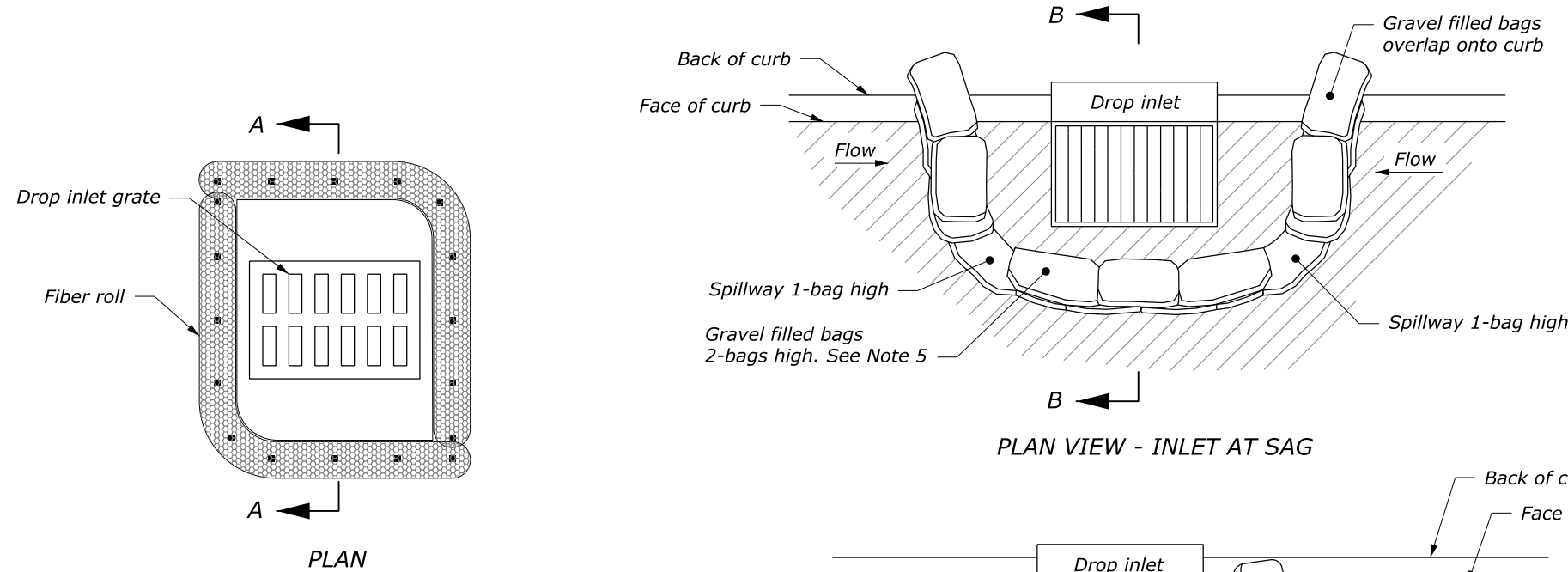
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NO SCALE

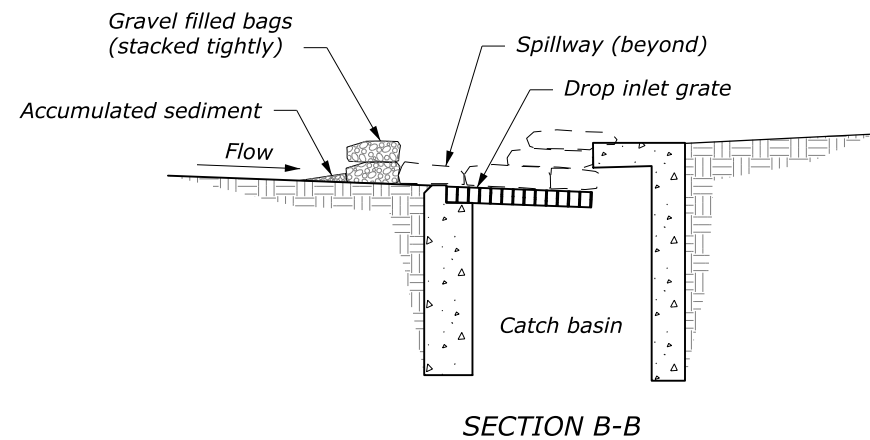
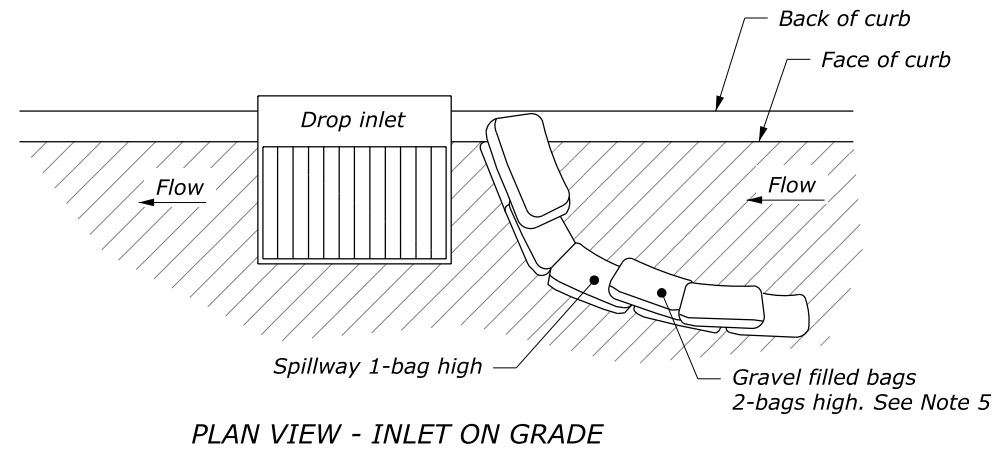
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL TEMPORARY INLET PROTECTION Sheet 2 of 2	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-2

NOTE:

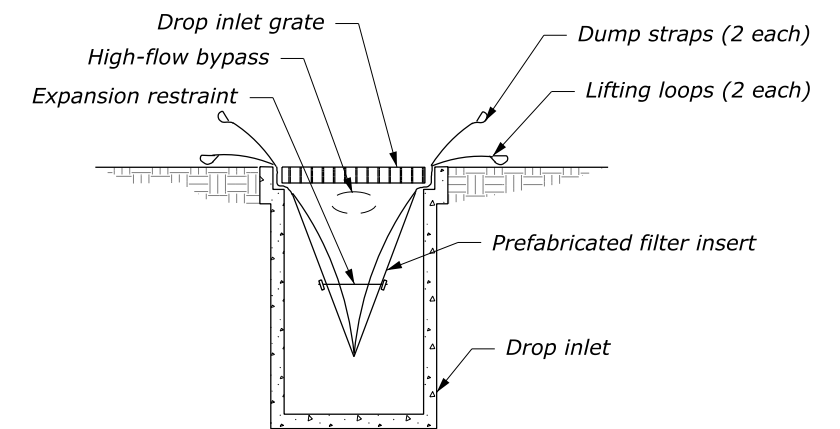
1. Select the inlet protection device to fit field conditions as approved by the CO.
2. Install fiber rolls with stakes spaced no more than 600 mm on center. Drive stakes 300 mm (min.) in undisturbed soil.
3. Approximate finished dimension of gravel bags is 300 mm x 450 mm.
4. Maximum top of gravel bag spillway elevation = Top of curb minus 25 mm.
5. Pack gravel filled bags tightly together end to end to ensure no sediment flows between or underneath the bags. Where tight fit is unachievable, install geotextile filter, class 2, type C along the upstream face of the bags. Place fabric over the top of the bags to the spillway elevation. Anchor the fabric by placing the next layer of bags on top of it. Extend the geotextile fabric a minimum of 450 mm upstream of the bags. Cover geotextile fabric to the top of the fabric with clean, silt-free coarse aggregate between 50 mm and 75 mm in diameter.
6. Size the prefabricated filter insert (Type C) to fit the drop inlet and allow collected material removal without spillage. Include a high-flow bypass in the insert.
7. Dimensions without units are millimeters.



**FIBER ROLL
DROP INLET PROTECTION (TYPE A)**



**GRAVEL BAG BERM
DROP INLET PROTECTION (TYPE B)**



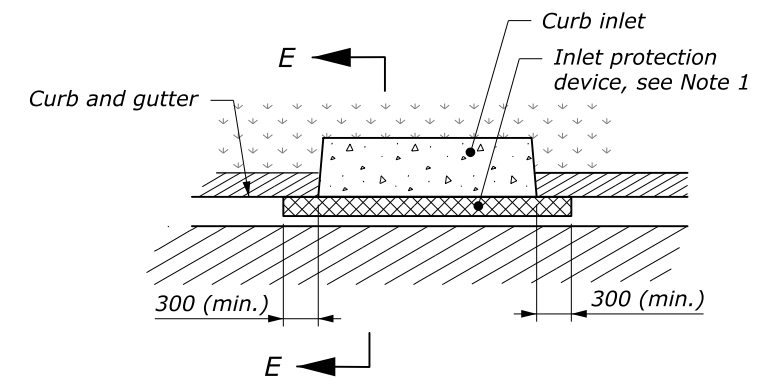
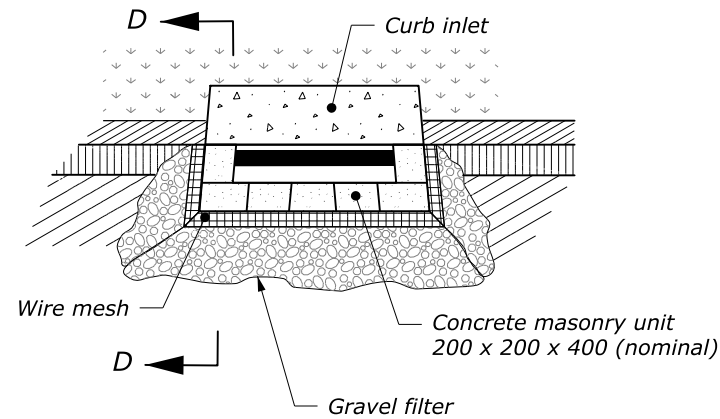
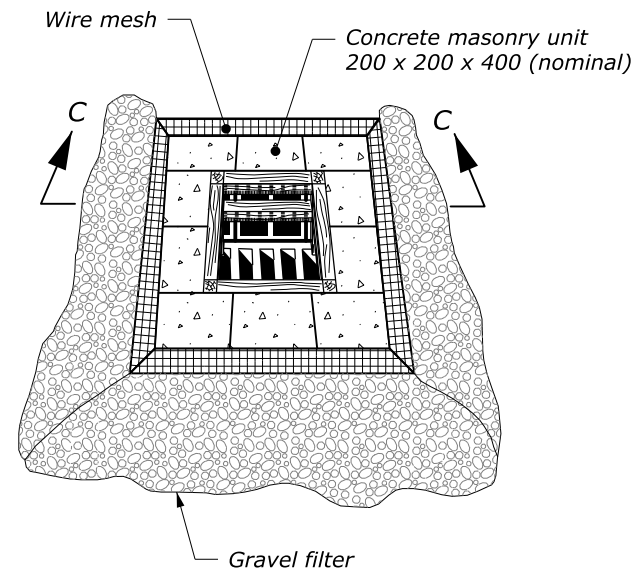
**PREFABRICATED FILTER INSERT
DROP INLET PROTECTION (TYPE C)**
See Note 6

NO SCALE

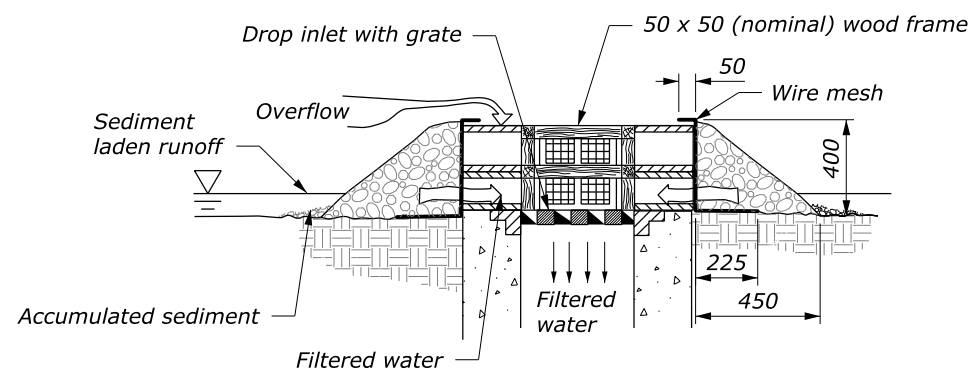
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
TEMPORARY INLET PROTECTION	
Sheet 1 of 2	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	MW157-2

NOTE:

1. Inlet protection device (type E) may consist of continuous filter tubing filled with gravel or other prefabricated filter material. Install device according to manufacturer's recommendations.
2. Vary dimensions to fit field conditions.
3. Dimensions without units are millimeters.

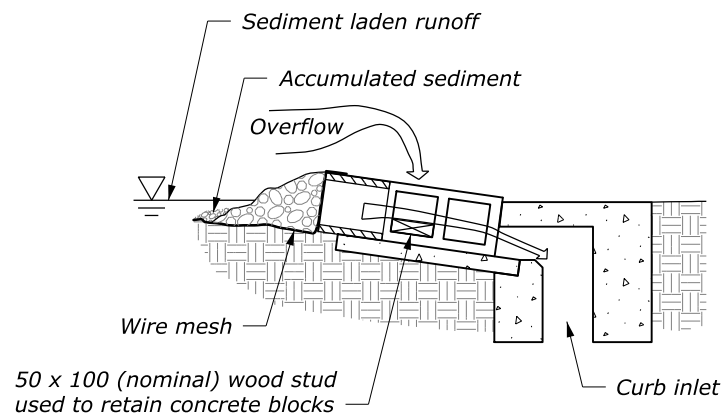


PLAN



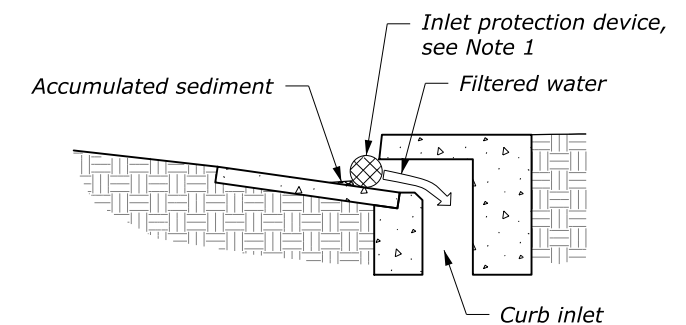
SECTION C-C

**BLOCK AND GRAVEL
DROP INLET PROTECTION (TYPE D1)**



SECTION D-D

**BLOCK AND GRAVEL
CURB INLET PROTECTION (TYPE D2)**



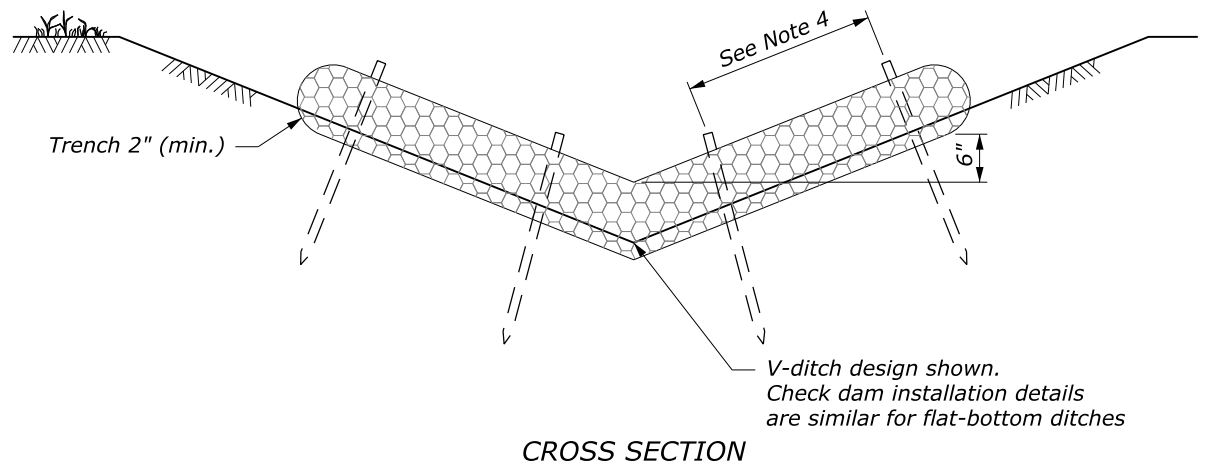
SECTION E-E

**INLET PROTECTION DEVICE
CURB INLET PROTECTION (TYPE E)**

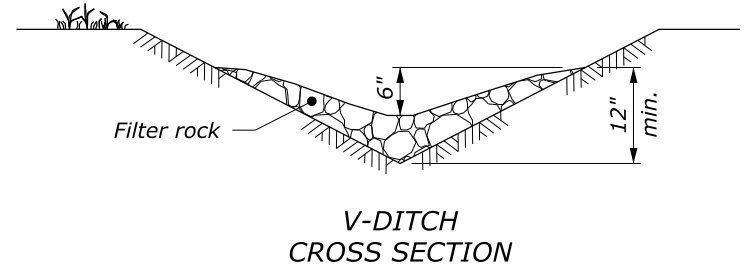
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7 July 2016 12:39 PM

NO SCALE

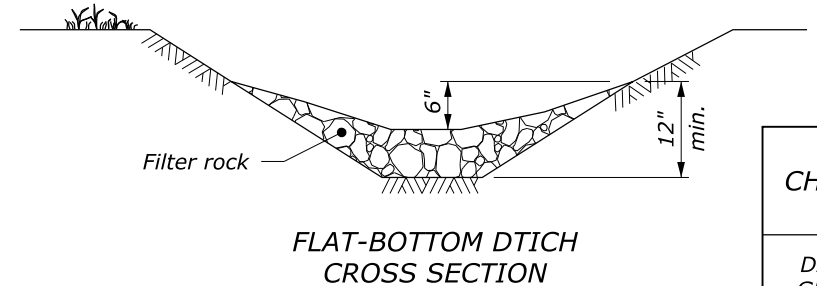
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
TEMPORARY INLET PROTECTION	
Sheet 2 of 2	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	MW157-2



CROSS SECTION

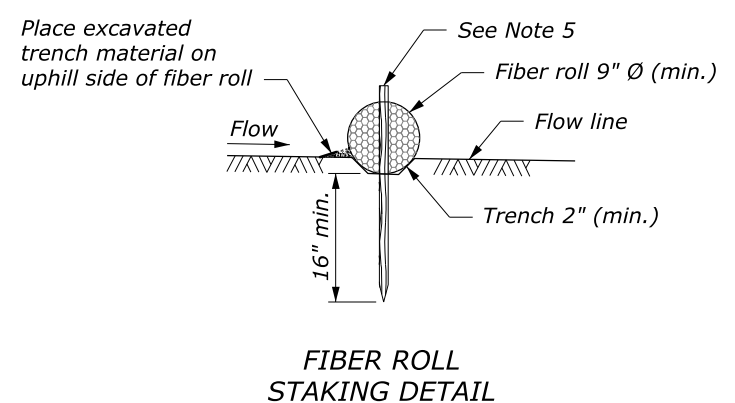


V-DITCH CROSS SECTION



FLAT-BOTTOM DITCH CROSS SECTION

- NOTE:**
1. Construct check dams from fiber rolls, filter rock, or gravel bags as approved by the CO, to meet the functional requirements of the check dam device.
 2. Repair all rills or gullies and properly compact prior to installation.
 3. Install check dams in ditches perpendicular to the flowline.
 4. Stake fiber rolls in place with 1½-inch x 1½-inch wood stakes. Drive stakes at each end of the fiber roll and at 2-foot (max.) spacing.
 5. Drive stakes into undisturbed soil of trench bottom. Expose stakes 2-inches (min.) above top of fiber roll.
 6. Provide sufficient length to prevent water from flowing around the ends of the fiber roll.
 7. Adjust check dam spacing based on site-specific conditions.



FIBER ROLL STAKING DETAIL

FIBER ROLL CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60

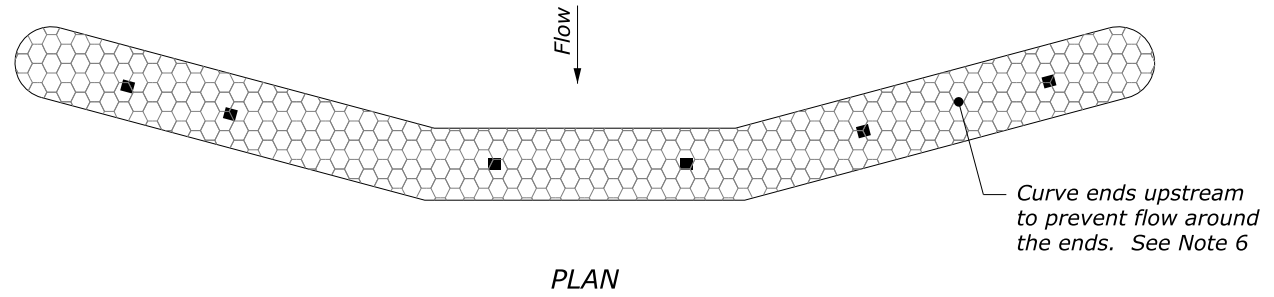
* Spacing calculated based on 9" Ø minimum fiber roll. Do not use fiber roll check dams on ditch grades steeper than 5%.

FILTER ROCK CHECK DAM SPACING (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

FILTER ROCK CHECK DAM

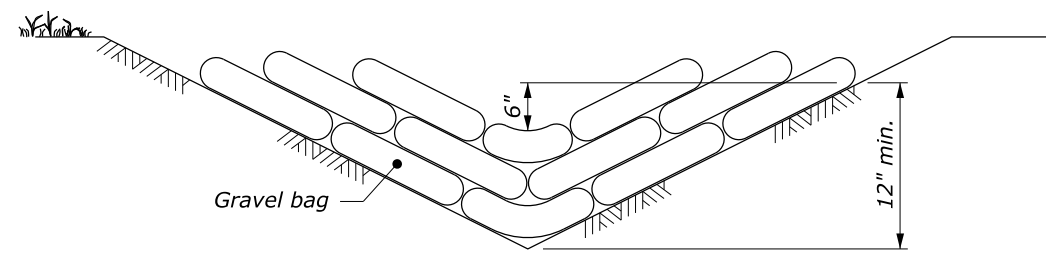
GRAVEL BAG CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

* Do not use gravel bag check dams on ditch grades steeper than 6%.



PLAN

FIBER ROLL CHECK DAM



CROSS SECTION

GRAVEL BAG CHECK DAM

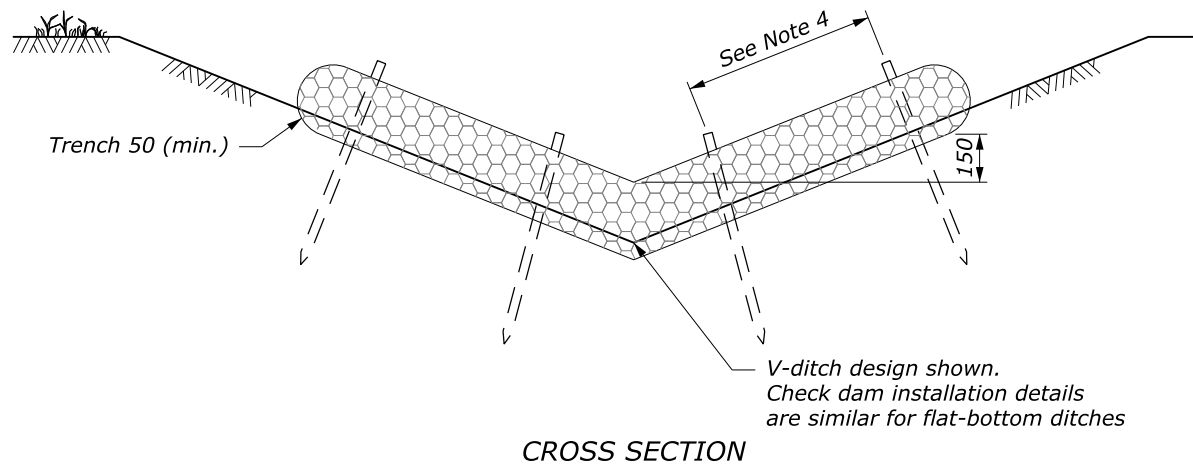
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

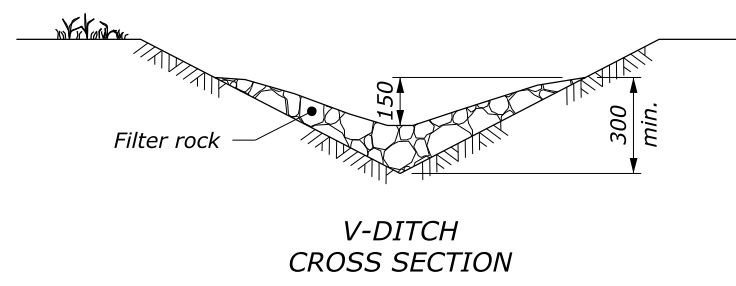
U.S. CUSTOMARY DETAIL

**CHECK DAM
MODERATE GRADES**

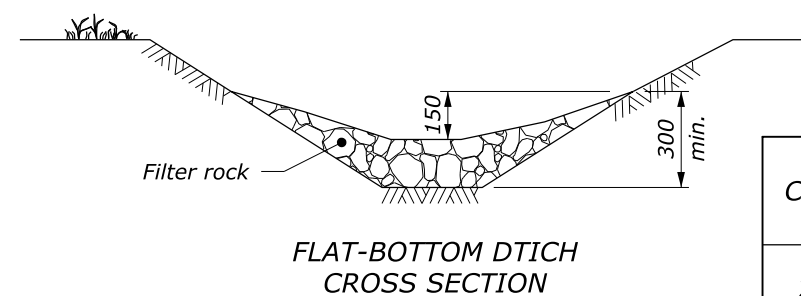
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-15



CROSS SECTION

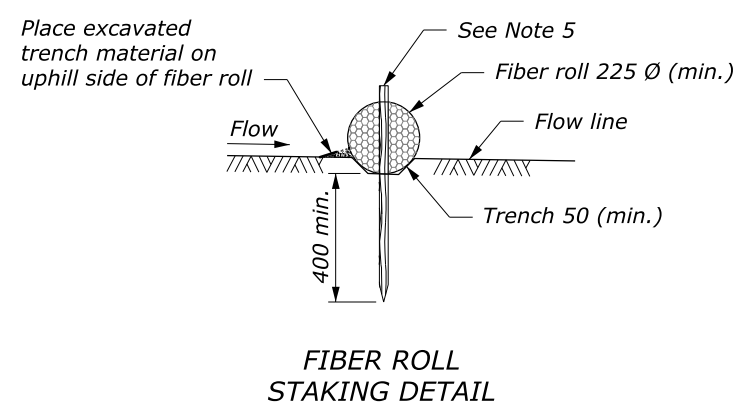


V-DITCH CROSS SECTION



FLAT-BOTTOM DTICH CROSS SECTION

- NOTE:**
1. Construct check dams from fiber rolls, filter rock, or gravel bags as approved by the CO, to meet the functional requirements of the check dam device.
 2. Repair all rills or gullies and properly compact prior to installation.
 3. Install check dams in ditches perpendicular to the flowline.
 4. Stake fiber rolls in place with 28 mm x 28 mm wood stakes. Drive stakes at each end of the fiber roll and at 600 mm (max.) spacing.
 5. Drive stakes into undisturbed soil of trench bottom. Expose stakes 50 mm (min.) above top of fiber roll.
 6. Provide sufficient length to prevent water from flowing around the ends of the fiber roll.
 7. Adjust check dam spacing based on site-specific conditions.
 8. Dimensions without units are millimeters.



FIBER ROLL STAKING DETAIL

FIBER ROLL CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (m)
2%	45
3%	30
4%	24
5%	18

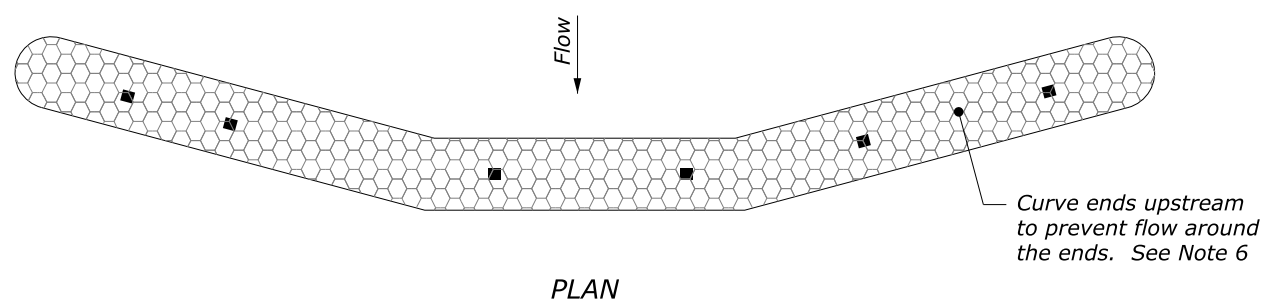
* Spacing calculated based on 225 Ø minimum fiber roll.
Do not use fiber roll check dams on ditch grades steeper than 5%.

FILTER ROCK CHECK DAM SPACING (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (m)
2%	45
3%	30
4%	24
5%	18
6%	15

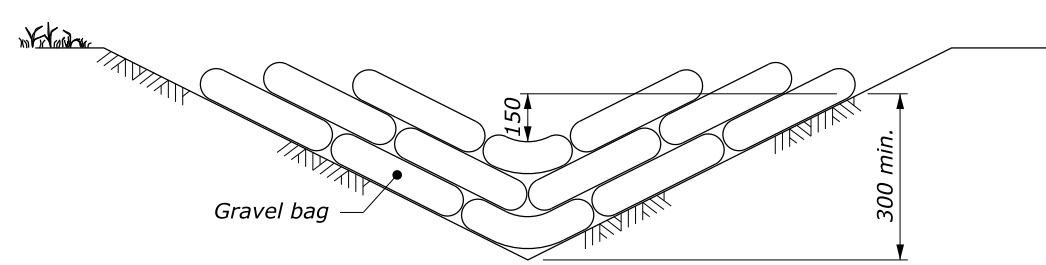
FILTER ROCK CHECK DAM

GRAVEL BAG CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (m)
2%	45
3%	30
4%	24
5%	18
6%	15

* Do not use gravel bag check dams on ditch grades steeper than 6%.



PLAN
FIBER ROLL CHECK DAM



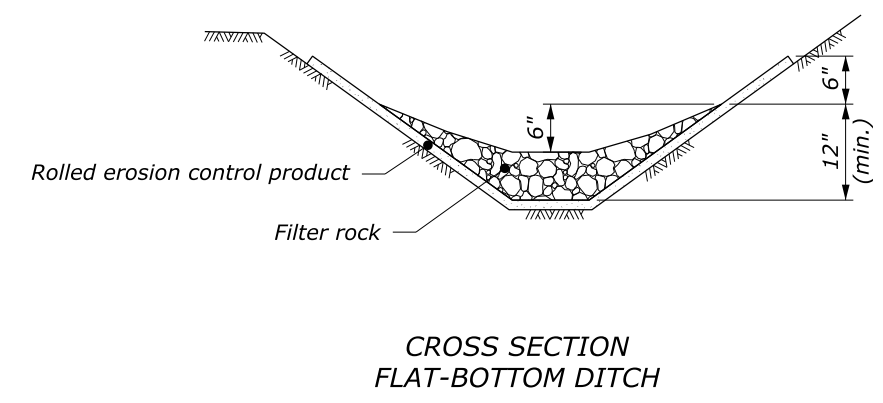
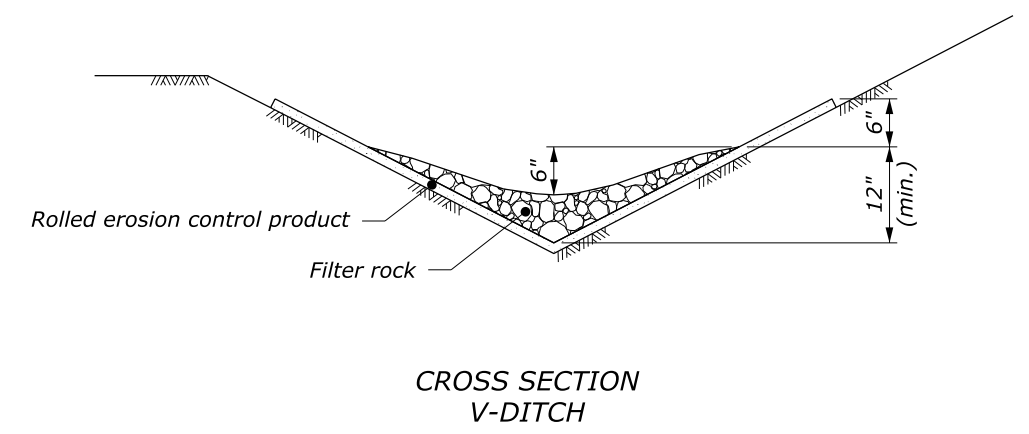
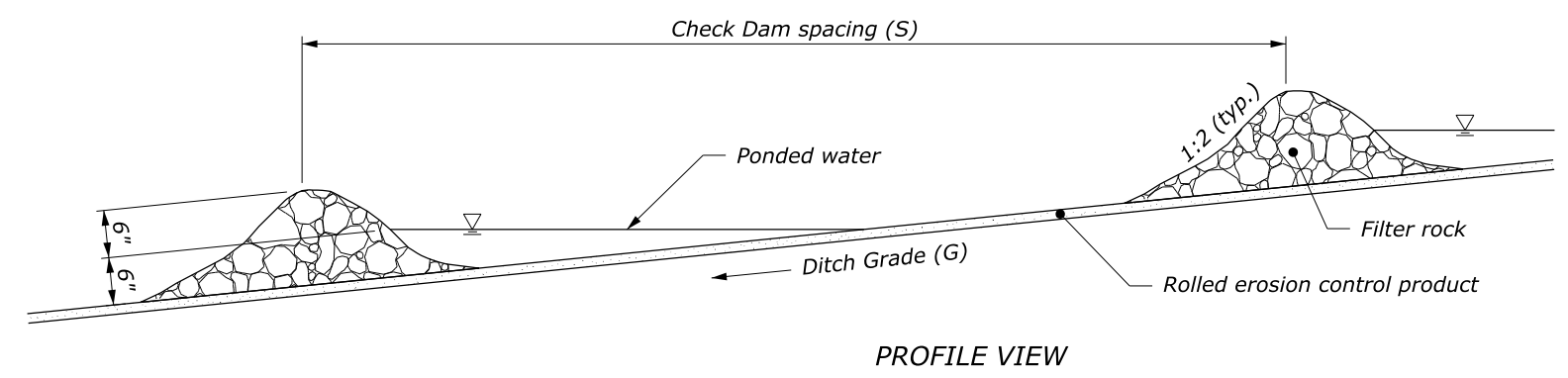
CROSS SECTION
GRAVEL BAG CHECK DAM

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
CHECK DAM MODERATE GRADES	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	MW157-15

NOTE:

1. Repair all rills or gullies and properly compact prior to installation.
2. Install check dams in ditches perpendicular to the flowline.
3. Adjust check dam spacing based on site-specific conditions.



FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	MAX. CHECK DAM SPACING (S) (FT)
7%	40
8% and 9%	30
≥10%	20

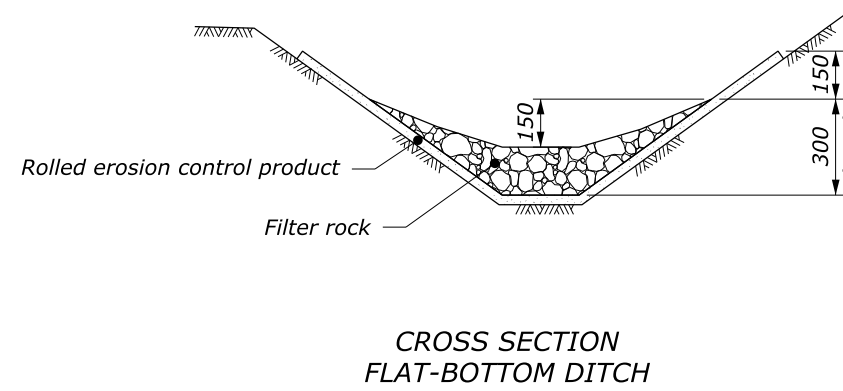
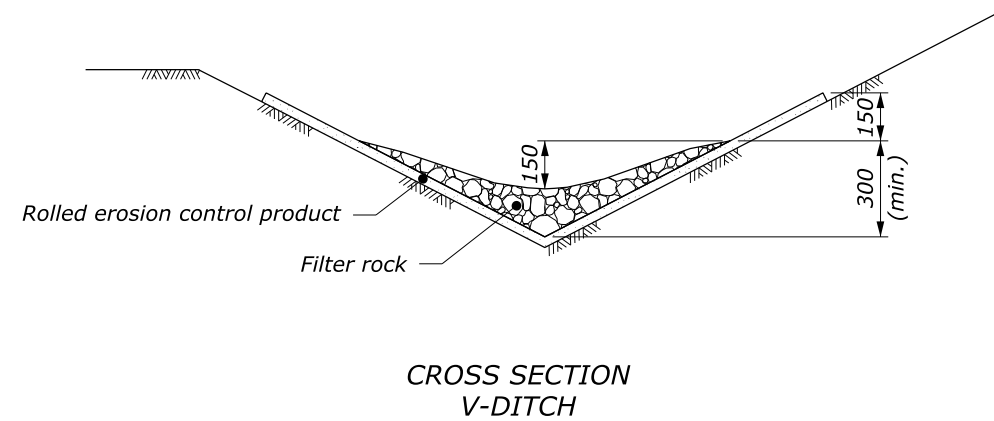
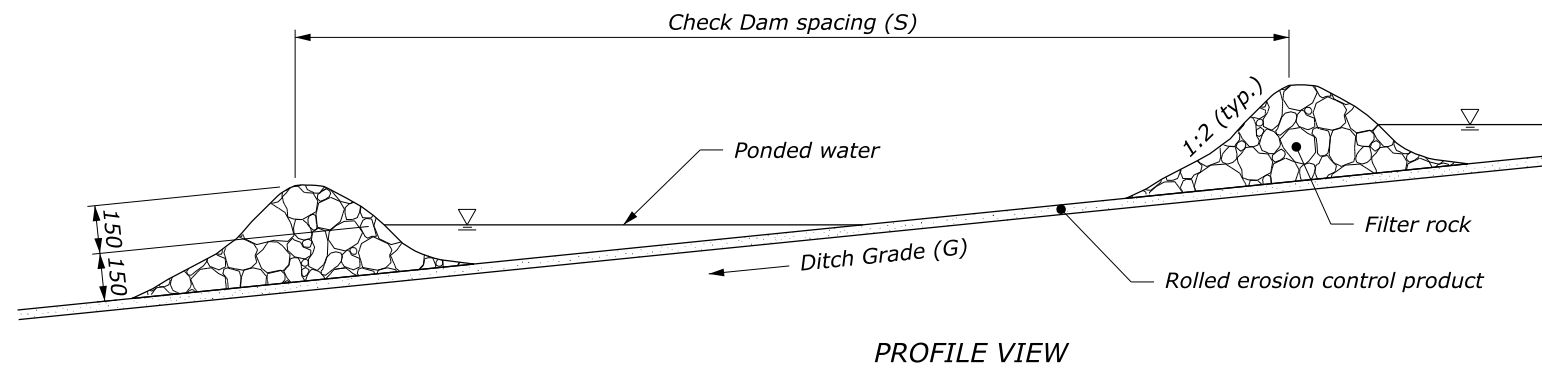
FILTER ROCK CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-16

NOTE:

1. Repair all rills or gullies and properly compact prior to installation.
2. Install check dams in ditches perpendicular to the flowline.
3. Adjust check dam spacing based on site-specific conditions.
4. Dimensions without units are millimeters.

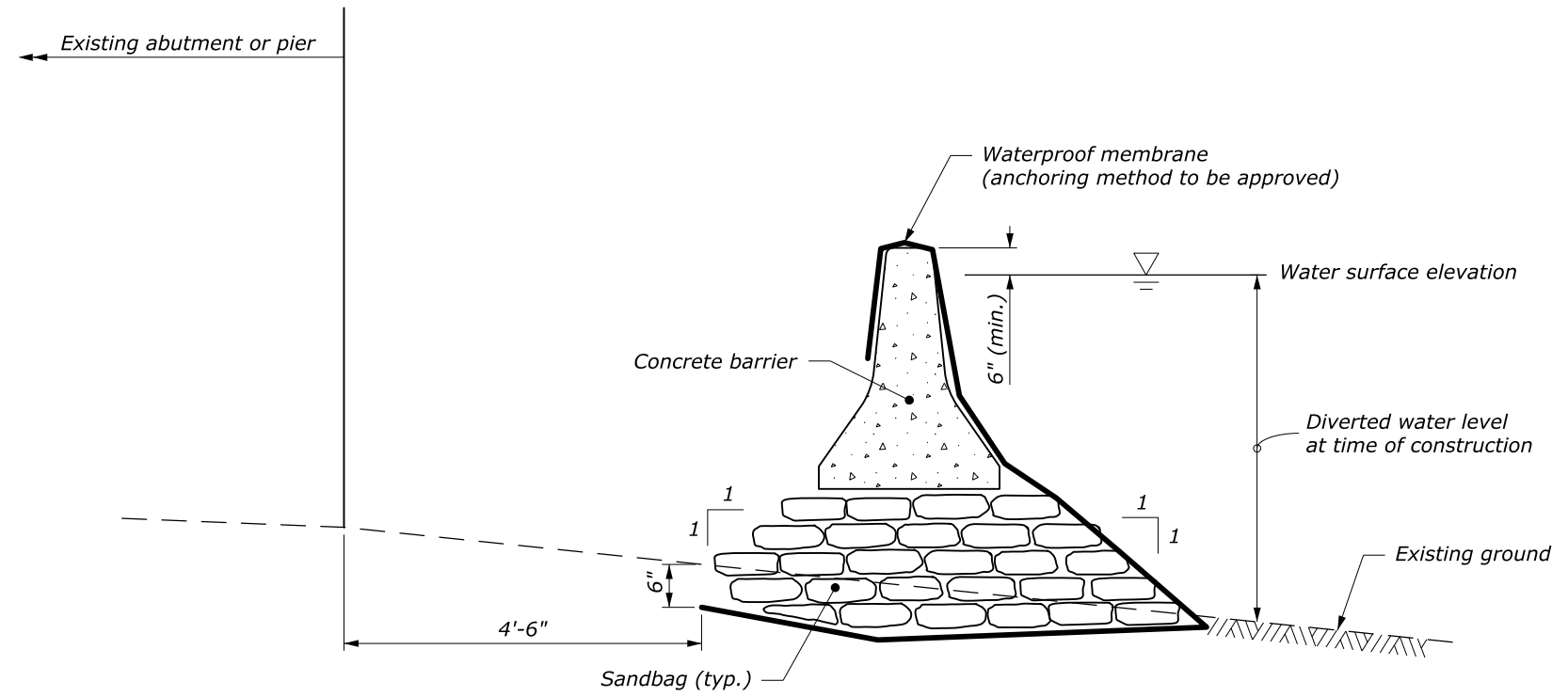


FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	MAX. CHECK DAM SPACING (S) (m)
7%	12
8% and 9%	9
≥10%	6

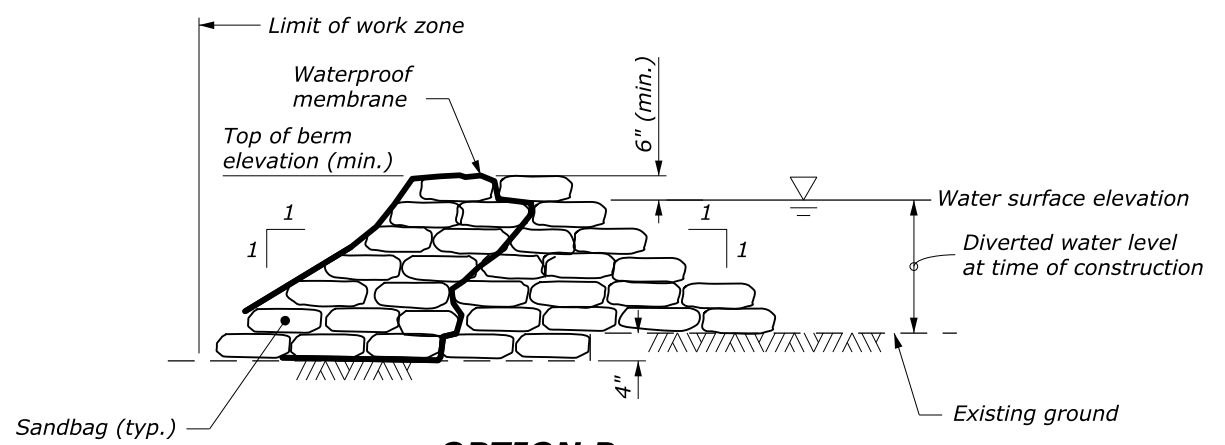
FILTER ROCK CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT

NO SCALE

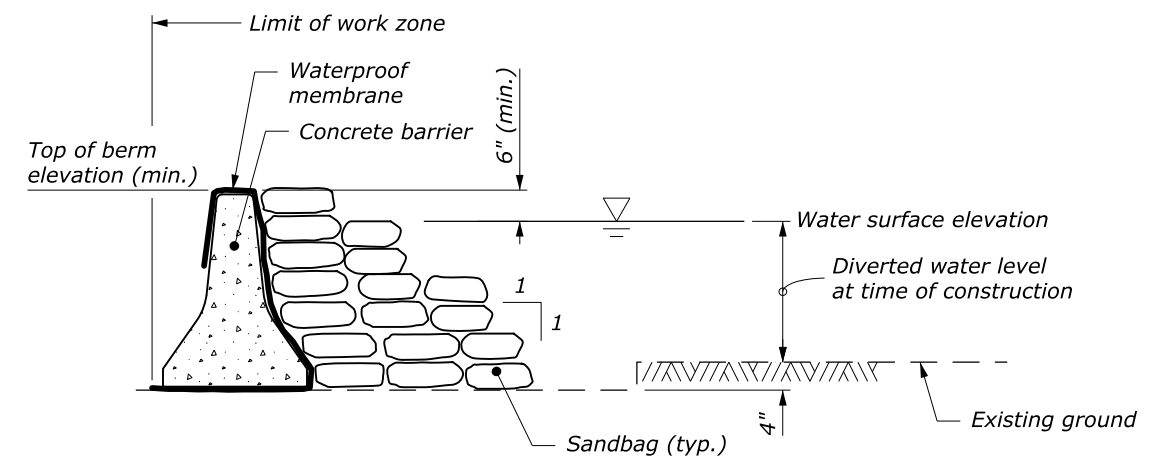
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT	
DETAIL APPROVED FOR USE --/-----	DETAIL
REVISED: 7/2016	MW157-16



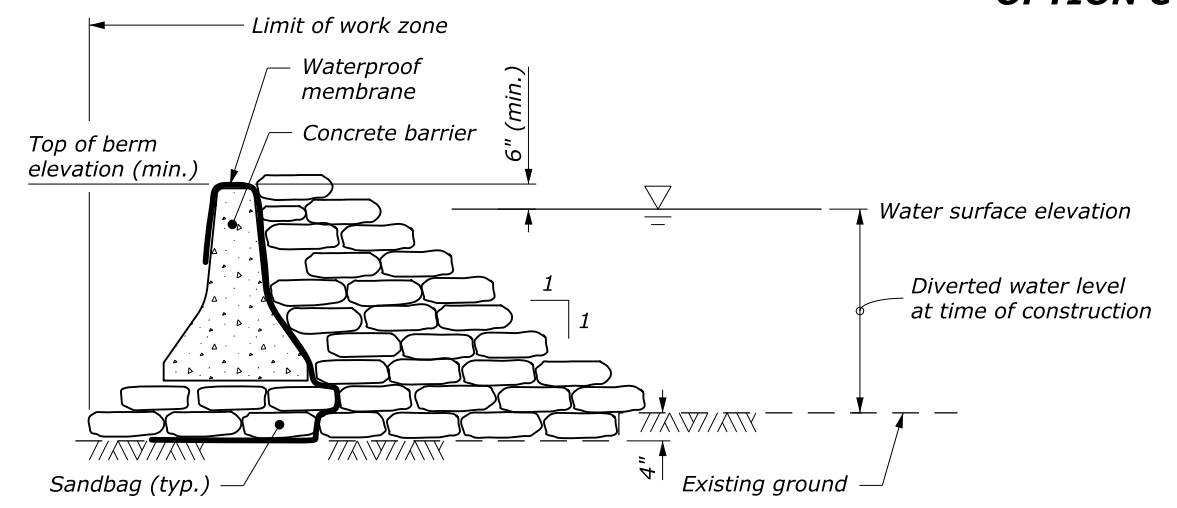
OPTION A



OPTION B



OPTION C



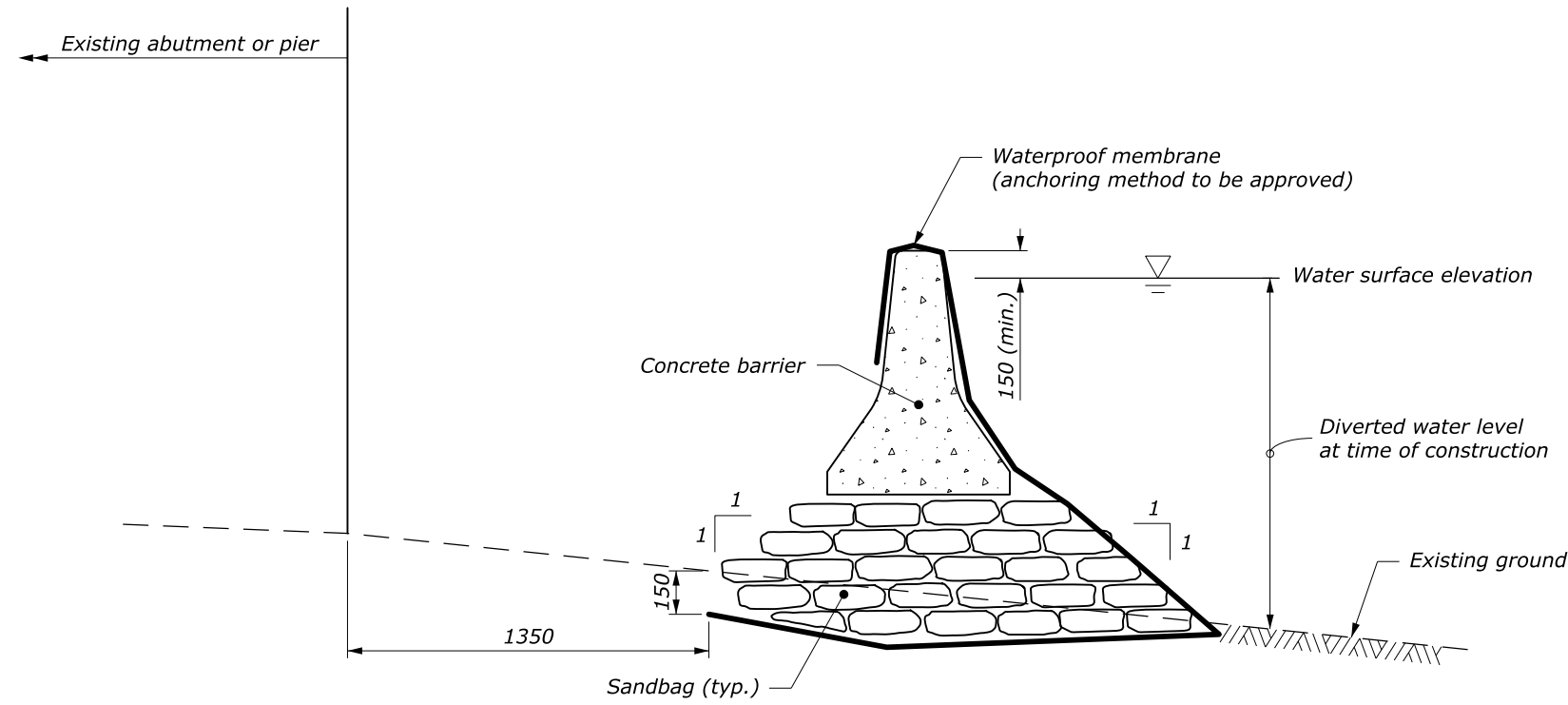
OPTION D

NOTE:

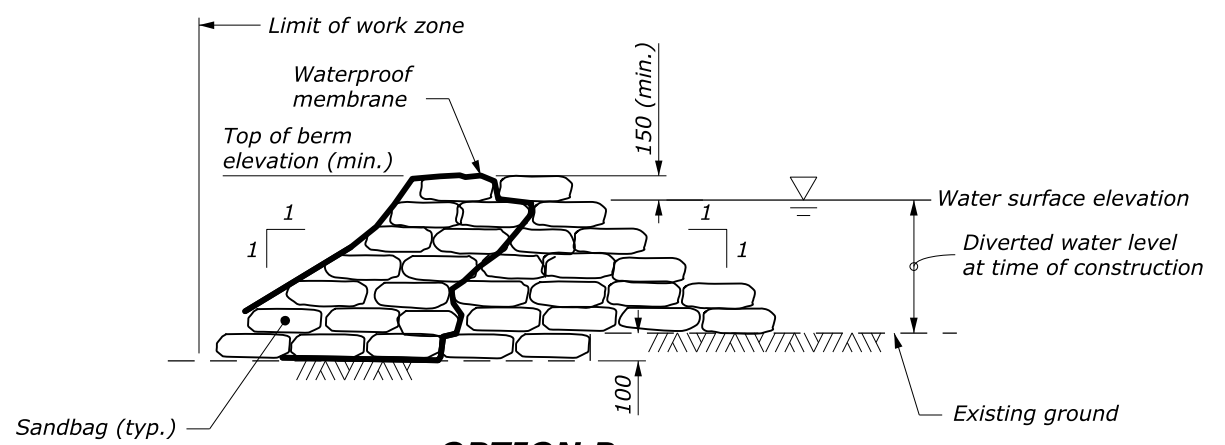
1. These options suggest configurations for diverting a stream during construction operations. Alternate stream diversion methods may be chosen (including any approved prefabricated or portable diversion berms, dams, etc.). As a minimum, provide a temporary diversion berm with a minimum height equal to the water surface elevation with 6" (min.) freeboard. Submit temporary stream diversion plans for approval prior to installation.
2. Place sandbags to form a pyramid by laying equal numbers of bottom rows as there are vertical course. Overlap the upper rows of sandbags above the joints in lower rows.
3. Place a maximum of one diversion in the stream at any given time.
4. While in use, inspect and maintain the temporary diversion berm daily. Repair as needed after rainfall events or as directed. Remove sediment when deposits reach half the height of the sandbag barrier.

NO SCALE

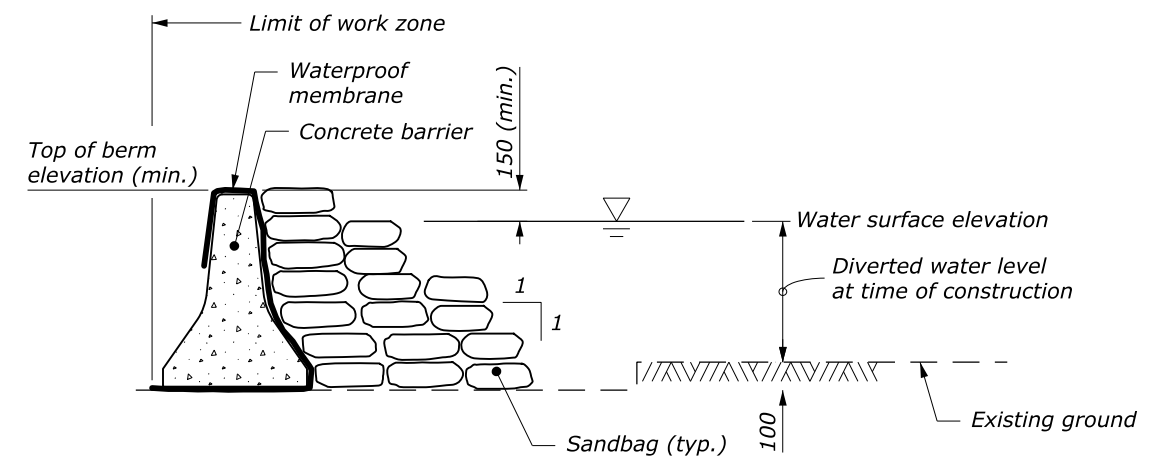
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
TEMPORARY DIVERSION BERM METHODS	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-17



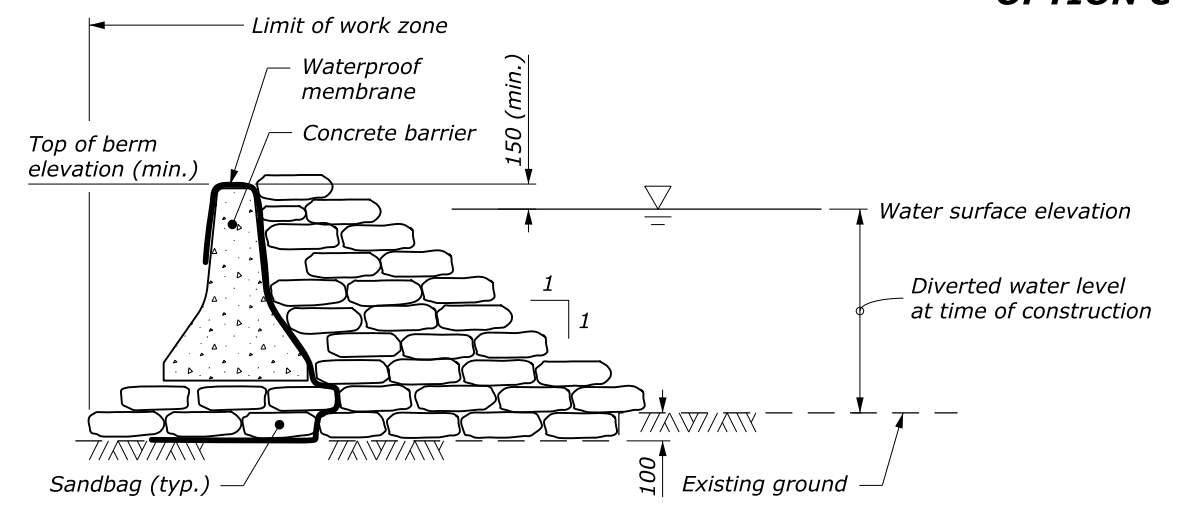
OPTION A



OPTION B



OPTION C



OPTION D

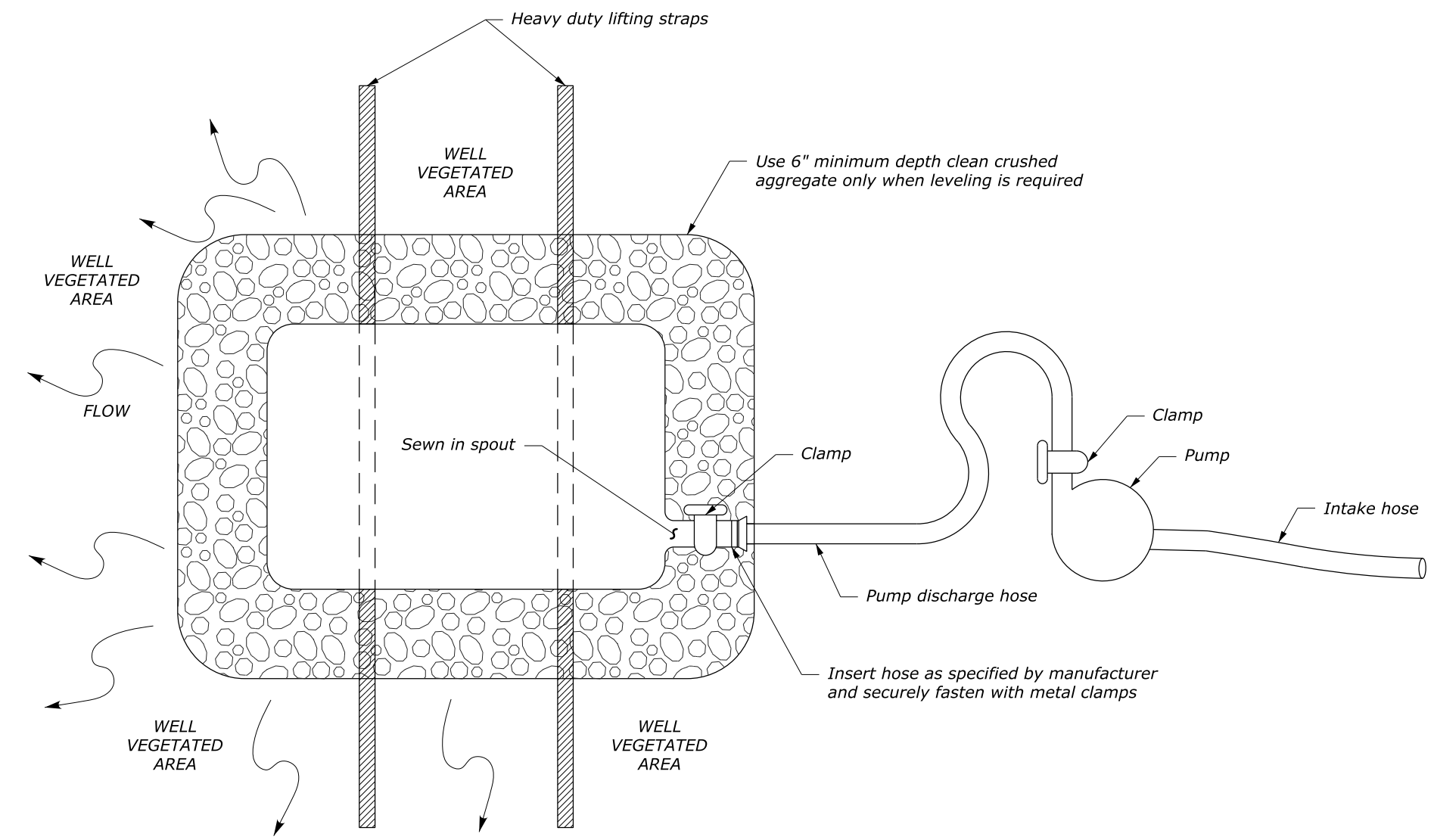
NOTE:

1. These options suggest configurations for diverting a stream during construction operations. Alternate stream diversion methods may be chosen (including any approved prefabricated or portable diversion berms, dams, etc.). As a minimum, provide a temporary diversion berm with a minimum height equal to the water surface elevation with 150 mm (min.) freeboard. Submit temporary stream diversion plans for approval prior to installation.
2. Place sandbags to form a pyramid by laying equal numbers of bottom rows as there are vertical course. Overlap the upper rows of sandbags above the joints in lower rows.
3. Place a maximum of one diversion in the stream at any given time.
4. While in use, inspect and maintain the temporary diversion berm daily. Repair as needed after rainfall events or as directed. Remove sediment when deposits reach half the height of the sandbag barrier.
5. Dimensions without units are millimeters.

NO SCALE

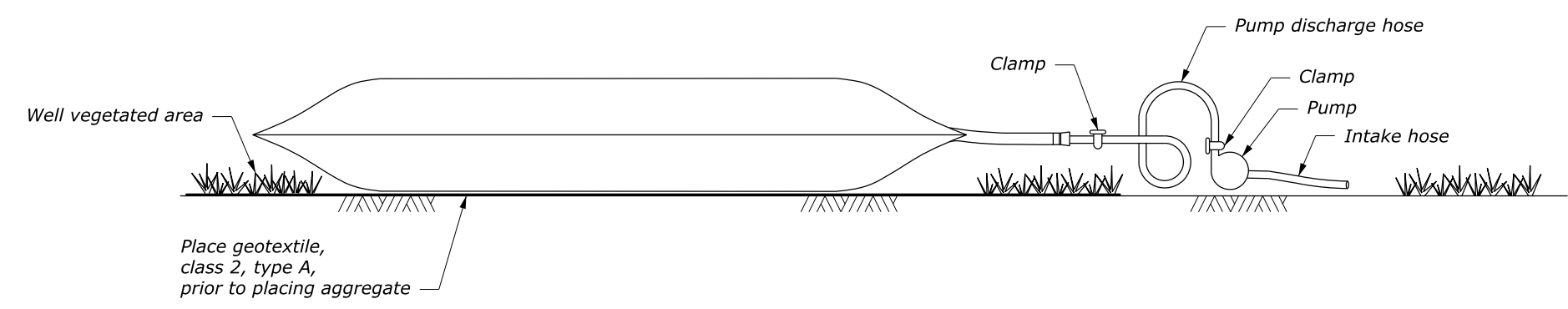
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
TEMPORARY DIVERSION BERM METHODS	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	MW157-17

STATE	PROJECT	SHEET NUMBER



NOTE:

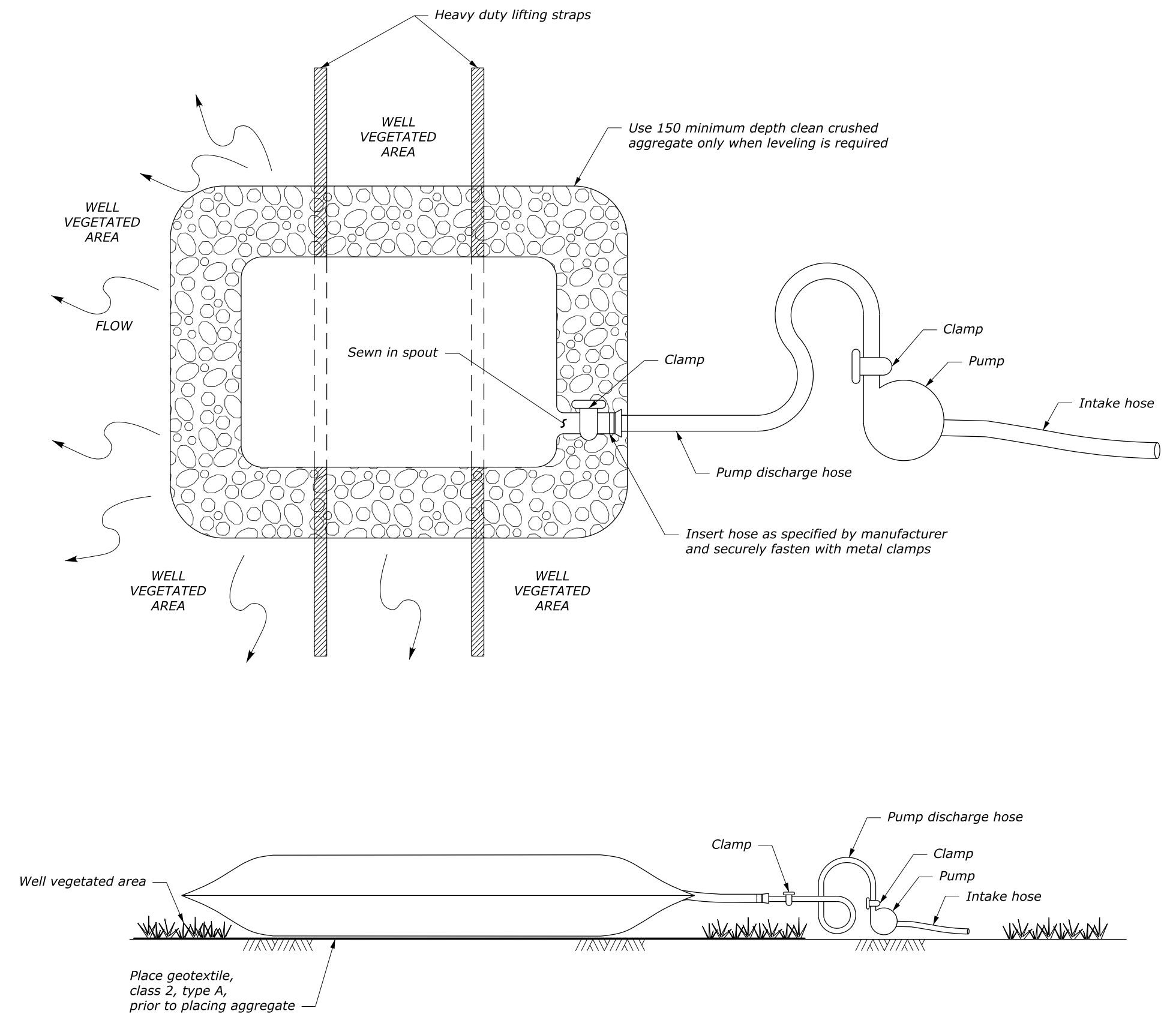
1. Locate bags in level areas (less than 5% grade). When level areas are not available, place geotextile and coarse aggregate to level the bags.
2. Locate bags in approved areas. Discharge onto stable, erosion resistant areas.
3. Locate bags in areas accessible by equipment for maintenance and removal.
4. Insert a maximum of one hose in each bag at any given time.
5. Replace bags when 50% of the sediment capacity has been reached and/or when there is a failure. Have spare bags on site for replacement.
6. Do not cut or empty filter bag onsite.
7. Do not permit discharge from the bags to drain back into work or access areas of the project.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
SEDIMENT FILTER BAG	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 10/2016	W157-18

c:\myfiles\pw_production\dms43148\W157-18.dgn [USC] 13 July 2016 9:58 AM



NOTE:

1. Locate bags in level areas (less than 5% grade). When level areas are not available, place geotextile and coarse aggregate to level the bags.
2. Locate bags in approved areas. Discharge onto stable, erosion resistant areas.
3. Locate bags in areas accessible by equipment for maintenance and removal.
4. Insert a maximum of one hose in each bag at any given time.
5. Replace bags when 50% of the sediment capacity has been reached and/or when there is a failure. Have spare bags on site for replacement.
6. Do not cut or empty filter bag onsite.
7. Do not permit discharge from the bags to drain back into work or access areas of the project.

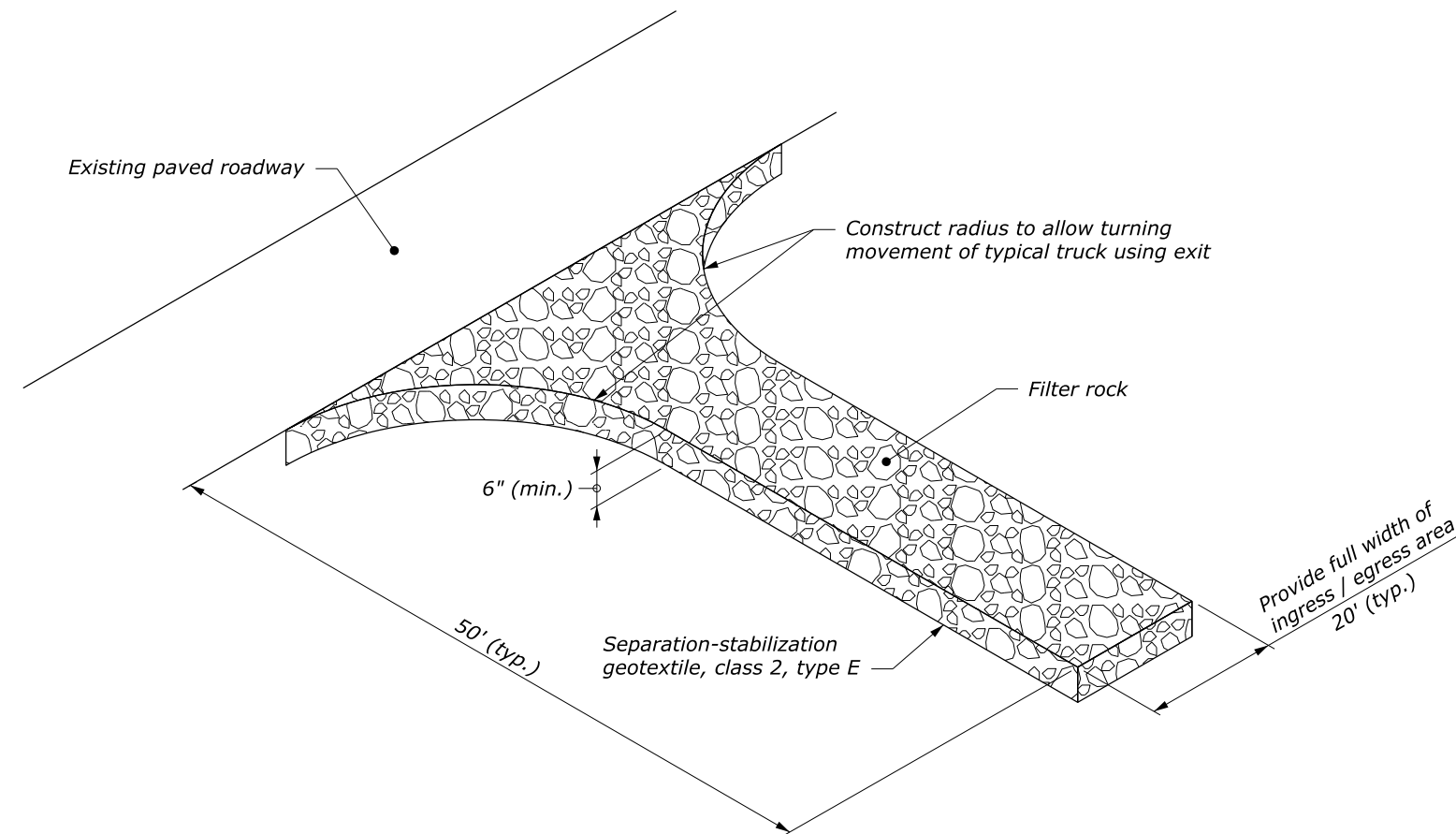
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
SEDIMENT FILTER BAG	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 10/2016	MW157-18

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NOTE:

1. Use this entrance for construction vehicles only.
2. Construct drainage ditches along entrance as directed. Provide temporary drainage culvert where entrance crosses existing drainage ditches.
3. Minimize tracking onto paved roadway by removing built up sediment.
4. Adjust length to fit field conditions as approved.



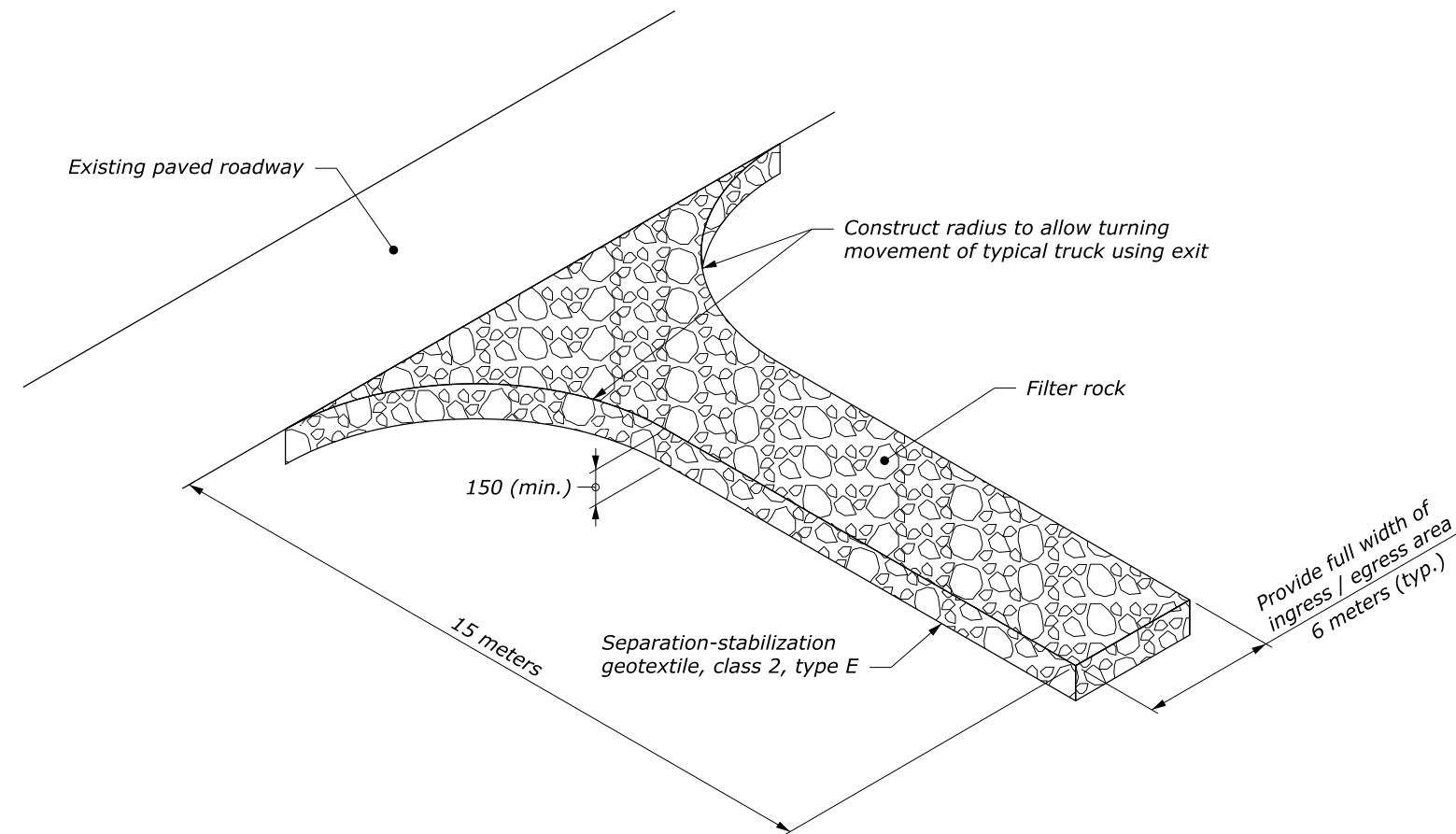
STABILIZED CONSTRUCTION EXIT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
STABILIZED CONSTRUCTION EXIT	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-19

NOTE:

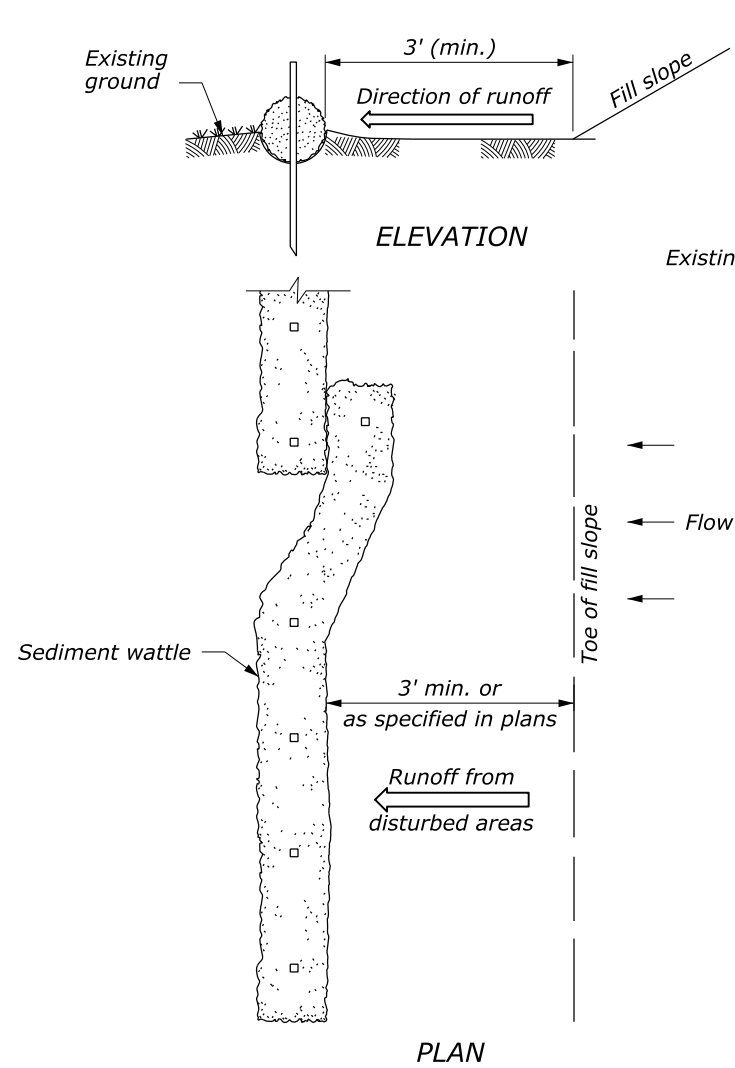
1. Use this entrance for construction vehicles only.
2. Construct drainage ditches along entrance as directed. Provide temporary drainage culvert where entrance crosses existing drainage ditches.
3. Minimize tracking onto paved roadway by removing built up sediment.
4. Adjust length to fit field conditions as approved.
5. Dimensions without units are millimeters.



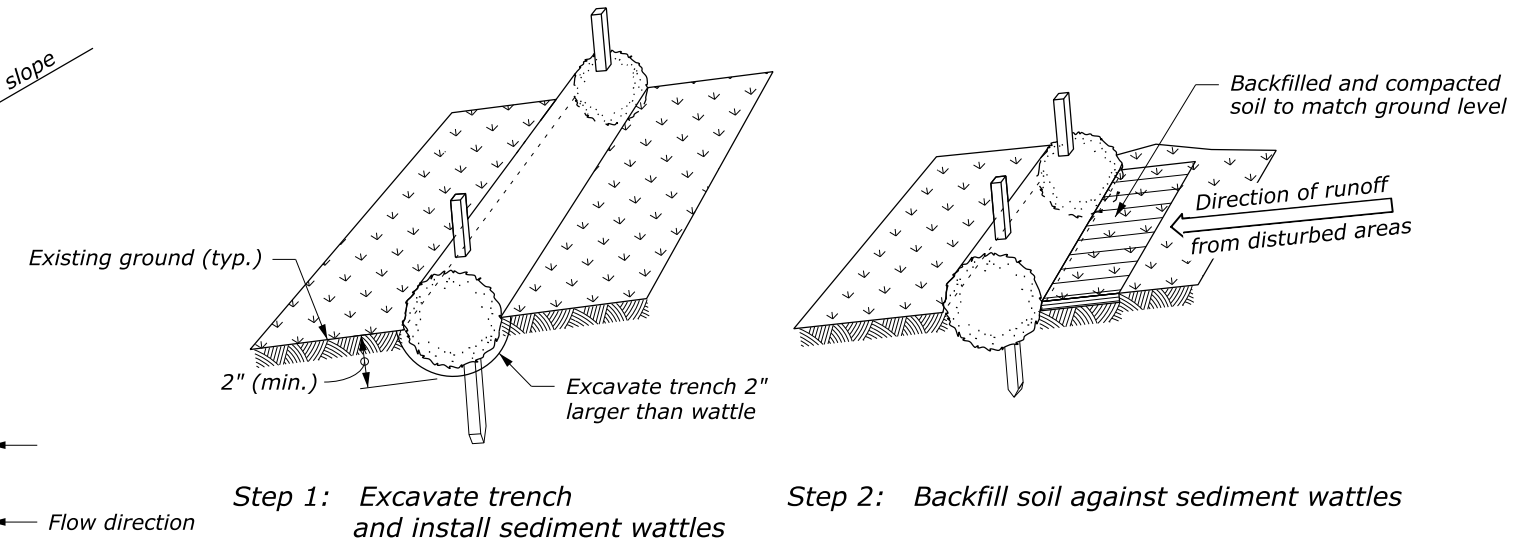
STABILIZED CONSTRUCTION EXIT

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
STABILIZED CONSTRUCTION EXIT	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	MW157-19



INSTALLATION BEYOND TOE OF SLOPE

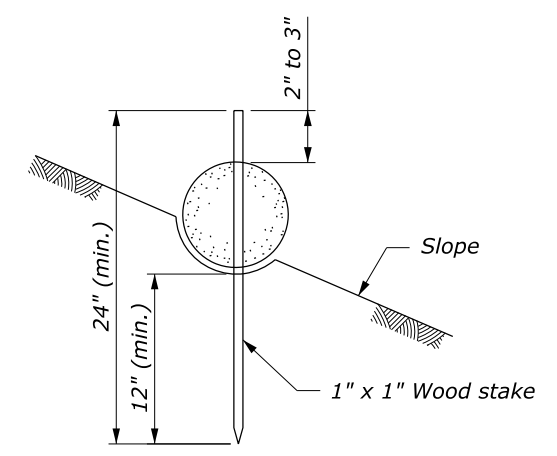


PROPERLY STAKED AND ENTRENCHED SEDIMENT WATTLE

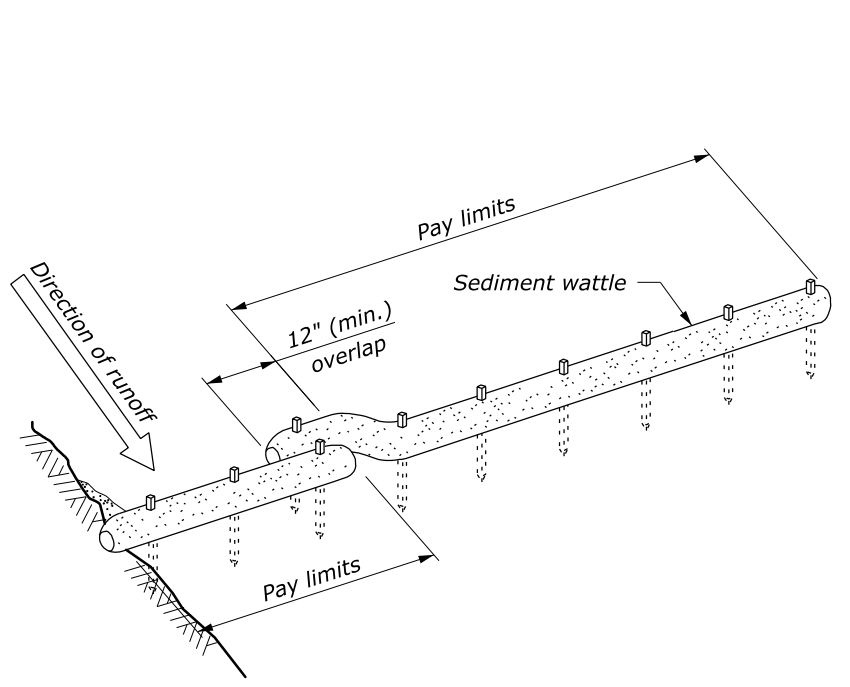
WATTLE SPACING	
Slope	Spacing (FT)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

STAKES REQUIRED	
Wattle length (FT)	Stakes required for each wattle
25	8
20	6
12	4

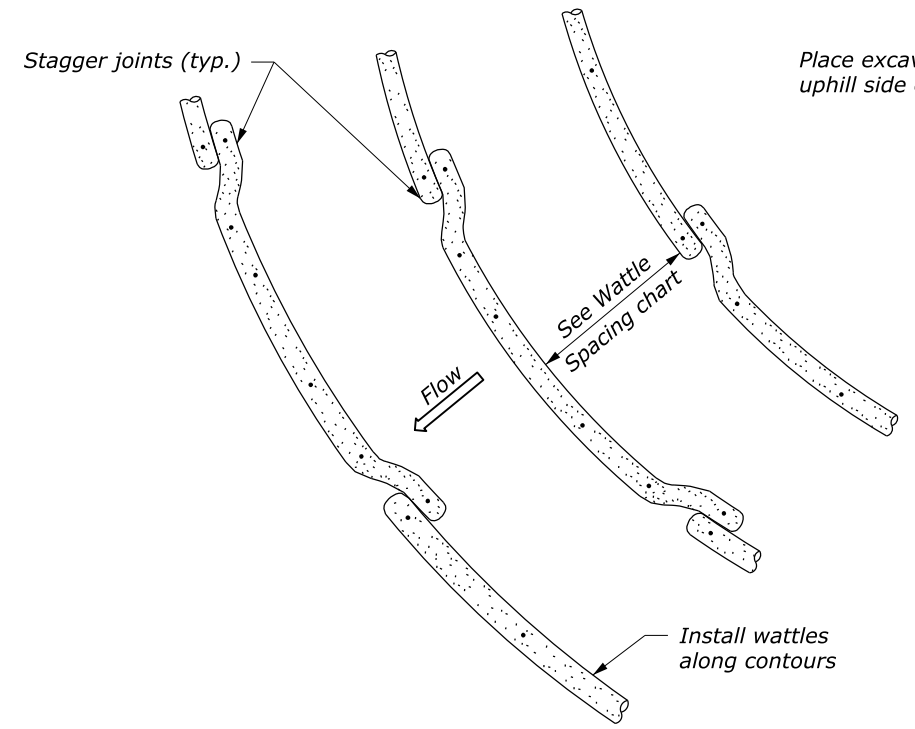
- NOTE:**
1. Drive stakes at each end and at 4-foot spacing until wattle is secure to slope. Live stakes may be used for permanent installations. Do not crush wattle while staking.
 2. Overlap wattles 12-inch minimum. Drive stakes at 6-inches from wattles end angles towards the adjacent wattles and space stakes at 4-foot max.



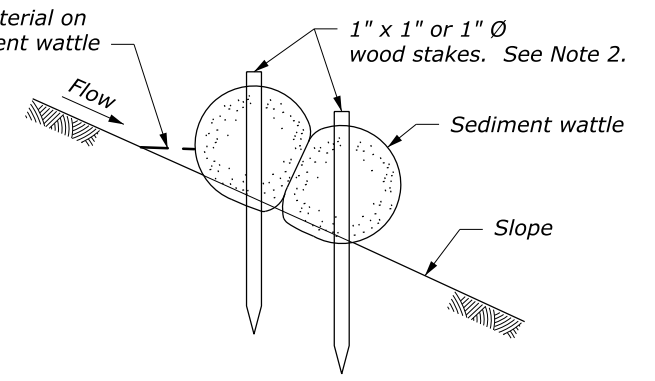
SEDIMENT WATTLE STAKING DETAIL



**ALTERNATE SEDIMENT WATTLE JOINT DETAIL
SLOPE PROTECTION INSTALLATION**



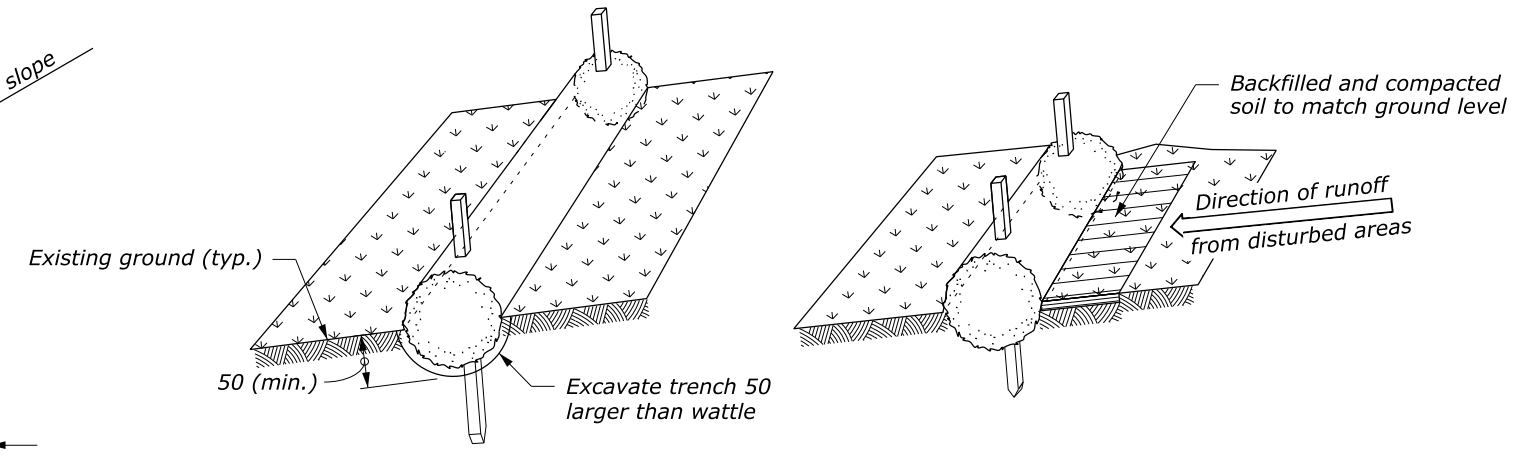
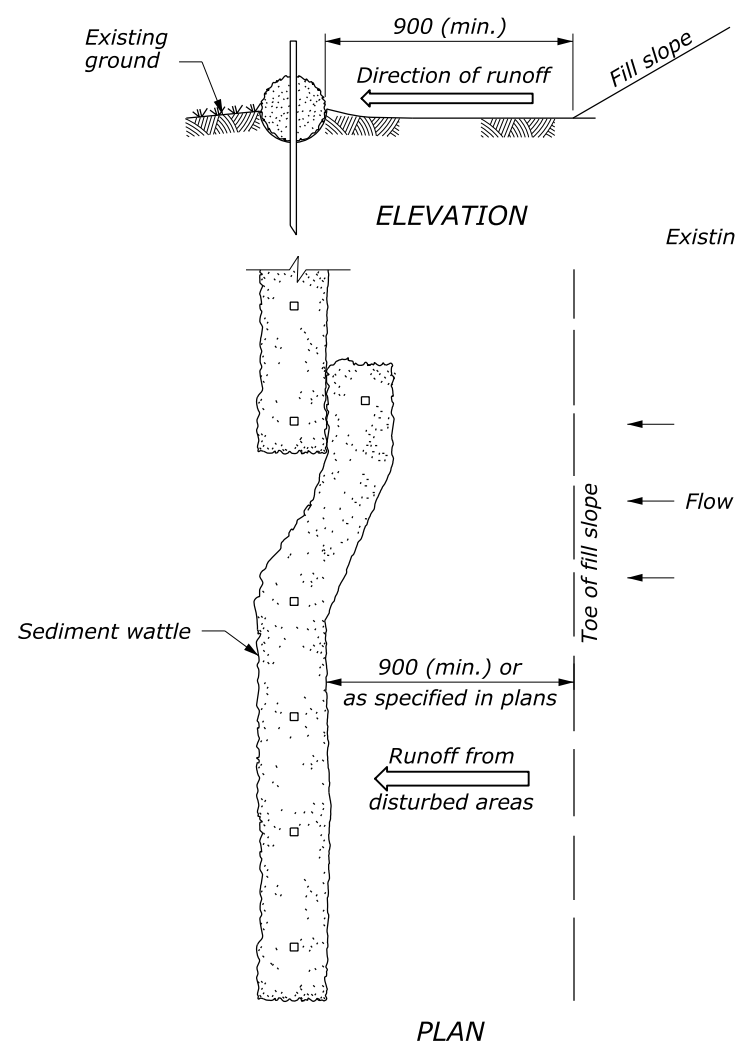
INSTALLATION ALONG SLOPES



SEDIMENT WATTLE LAPPING DETAIL

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
SEDIMENT WATTLE	
DETAIL APPROVED FOR USE 10/2014	DETAIL
REVISED: DRAFT: 7/2016	W157-20

NO SCALE



Step 1: Excavate trench and install sediment wattles

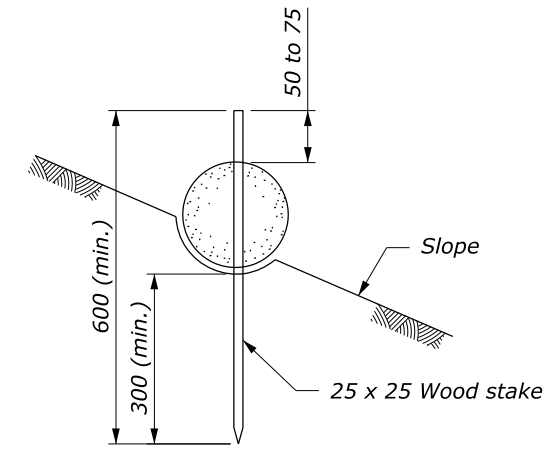
Step 2: Backfill soil against sediment wattles

PROPERLY STAKED AND ENTRENCHED SEDIMENT WATTLE

WATTLE SPACING	
Slope	Spacing (m)
1:4 or flatter	12
1:3	9
1:2	6
1:1	3

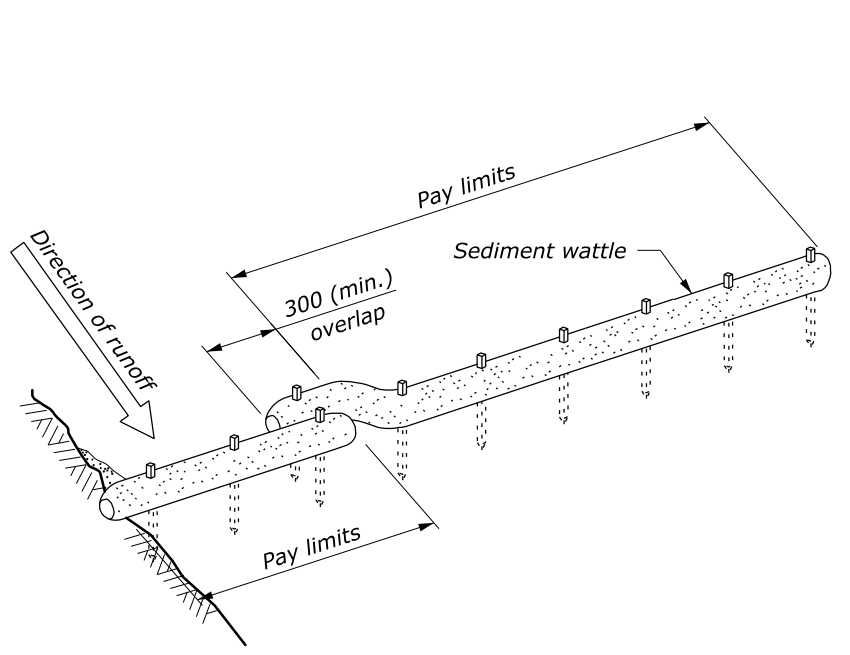
STAKES REQUIRED	
Wattle length (m)	Stakes required for each wattle
7.5	8
6.0	6
3.5	4

- NOTE:**
1. Drive stakes at each end and at 1.2 m spacing until wattle is secure to slope. Live stakes may be used for permanent installations. Do not crush wattle while staking.
 2. Overlap wattles 300 mm minimum. Drive stakes at 150 mm from wattle end angles towards the adjacent wattle and space stakes at 1.2 meters max.
 3. Dimensions without units are millimeters.

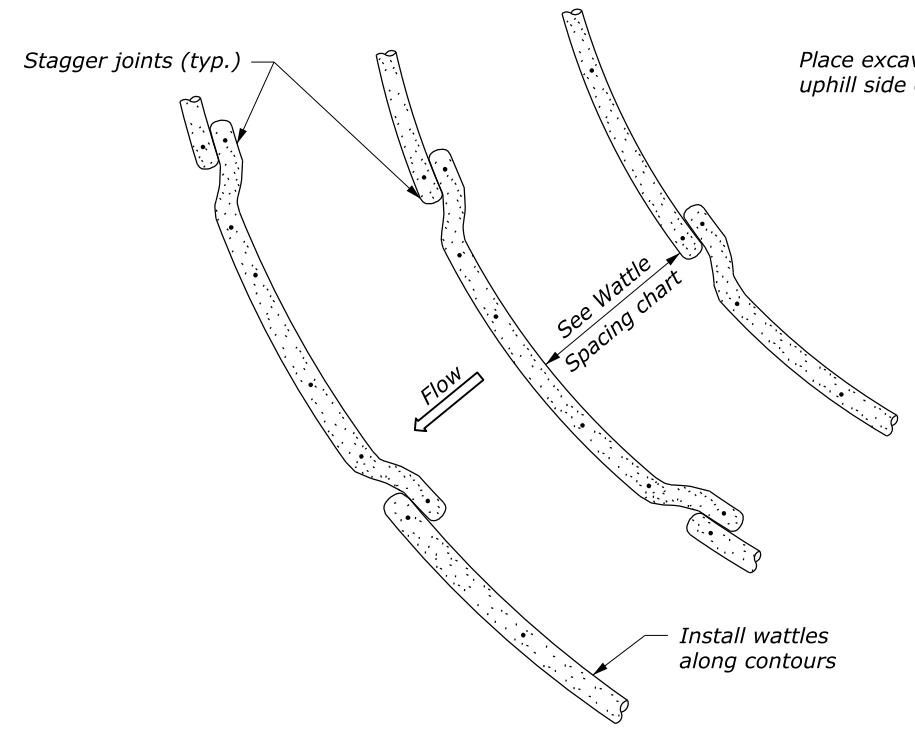


SEDIMENT WATTLE STAKING DETAIL

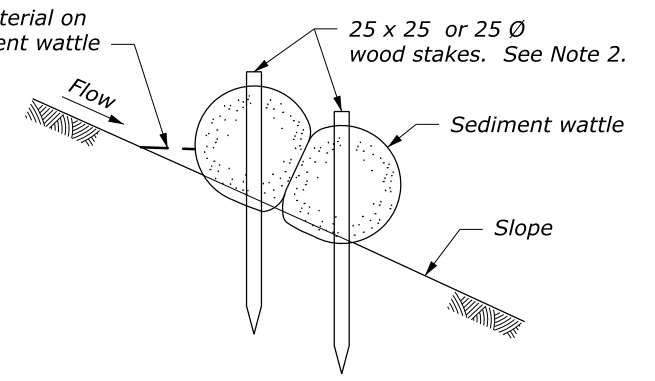
INSTALLATION BEYOND TOE OF SLOPE



**ALTERNATE SEDIMENT WATTLE JOINT DETAIL
SLOPE PROTECTION INSTALLATION**



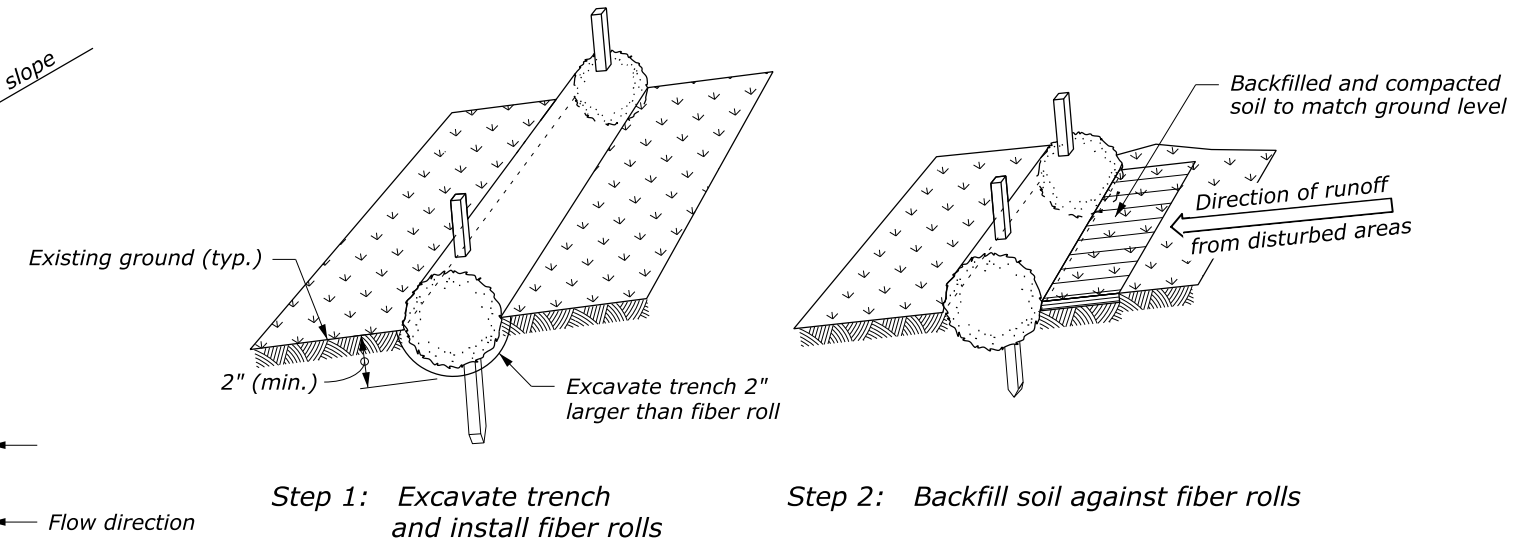
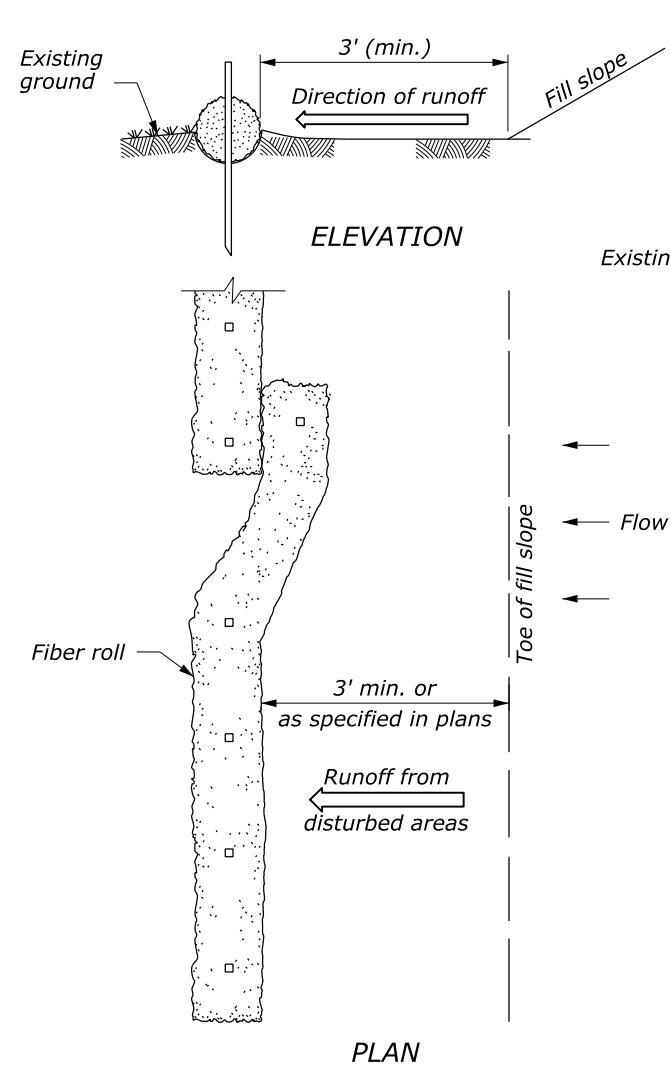
INSTALLATION ALONG SLOPES



SEDIMENT WATTLE LAPPING DETAIL

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
METRIC DETAIL	
SEDIMENT WATTLE	
DETAIL APPROVED FOR USE 10/2014	DETAIL
REVISED: DRAFT: 7/2016	MW157-20

NO SCALE

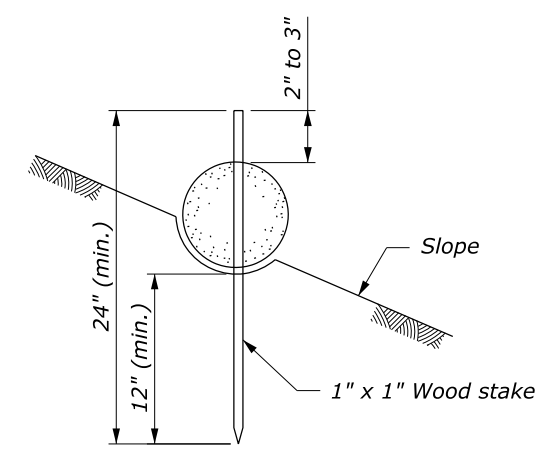


PROPERLY STAKED AND ENTRENCHED FIBER ROLL

FIBER ROLL SPACING	
Slope	Spacing (FT)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

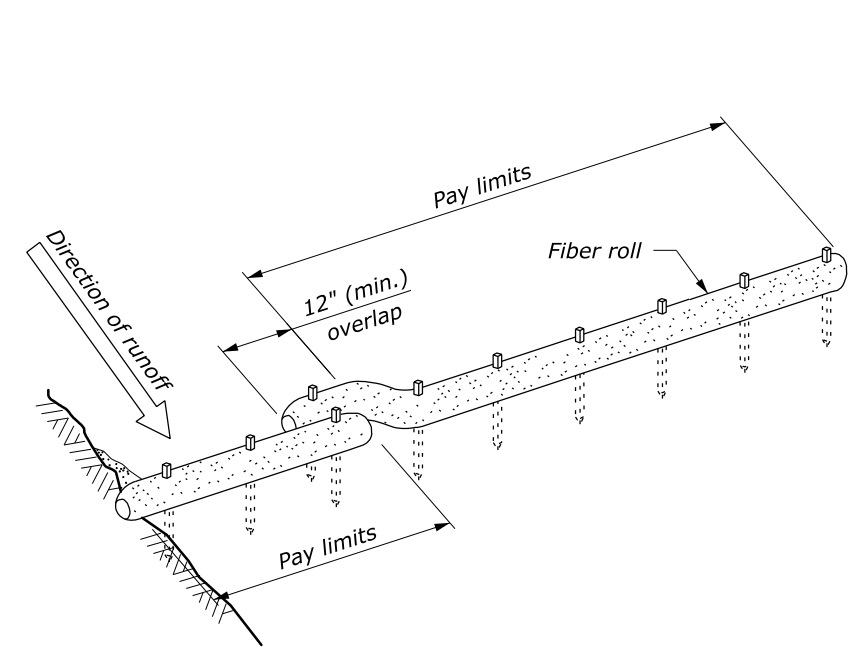
STAKES REQUIRED	
Fiber roll length (FT)	Stakes required for each roll
25	8
20	6
12	4

- NOTE:**
1. Drive stakes at each end and at 4-foot spacing until fiber roll is secure to slope. Live stakes may be used for permanent installations. Do not crush fiber roll while staking.
 2. Overlap fiber rolls 12-inch minimum. Drive stakes at 6-inches from fiber roll end angles towards the adjacent fiber roll and space stakes at 4-foot max.

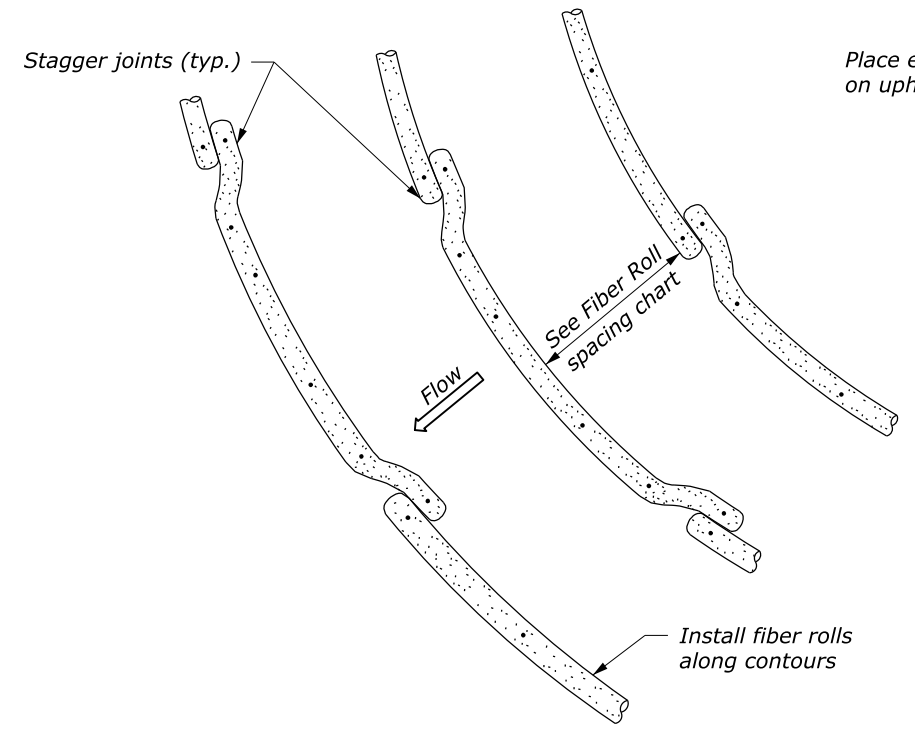


FIBER ROLL STAKING DETAIL

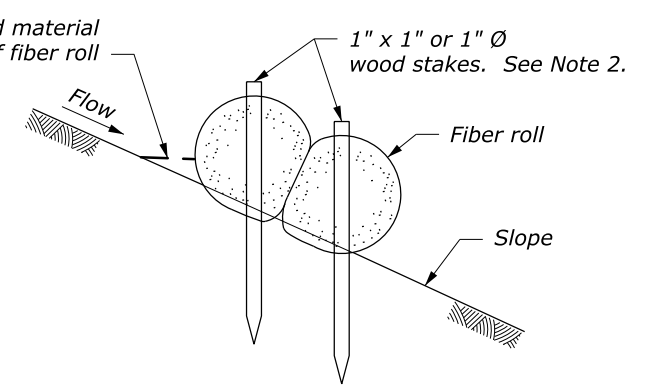
INSTALLATION BEYOND TOE OF SLOPE



**ALTERNATE FIBER ROLL JOINT DETAIL
SLOPE PROTECTION INSTALLATION**



INSTALLATION ALONG SLOPES



FIBER ROLL LAPPING DETAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

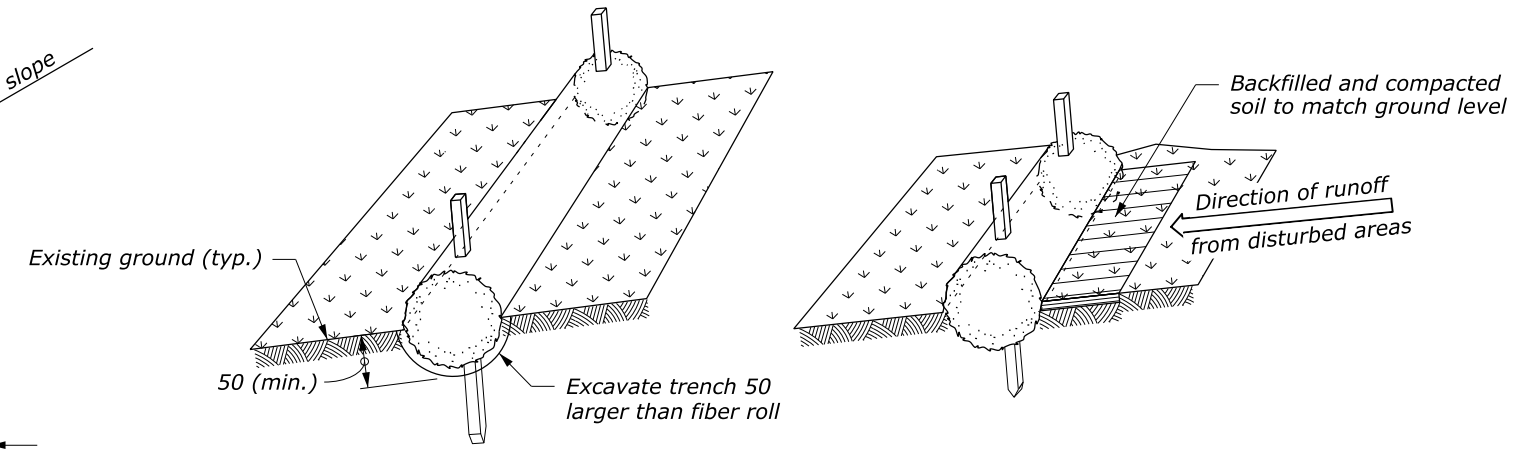
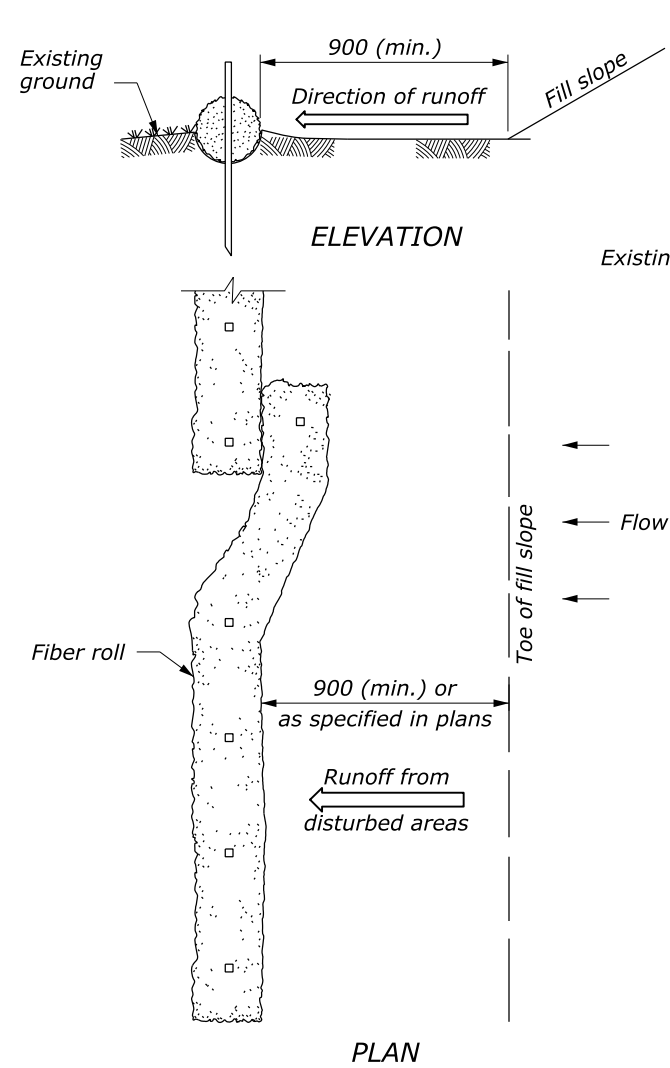
FIBER ROLL

DETAIL APPROVED FOR USE 10/2014

REVISOR: 7/2016

DETAIL W157-21

NO SCALE



Step 1: Excavate trench and install fiber rolls

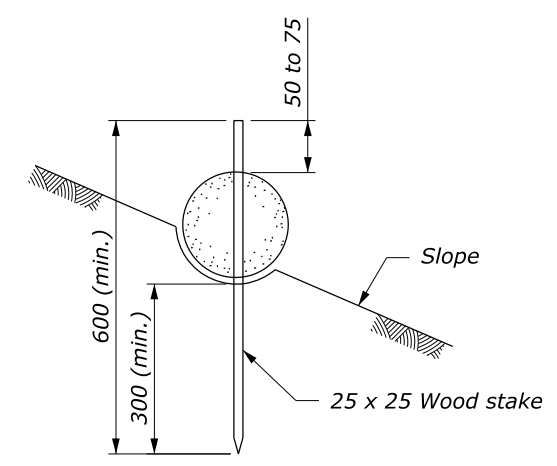
Step 2: Backfill soil against fiber rolls

PROPERLY STAKED AND ENTRENCHED FIBER ROLL

FIBER ROLL SPACING	
Slope	Spacing (m)
1:4 or flatter	12
1:3	9
1:2	6
1:1	3

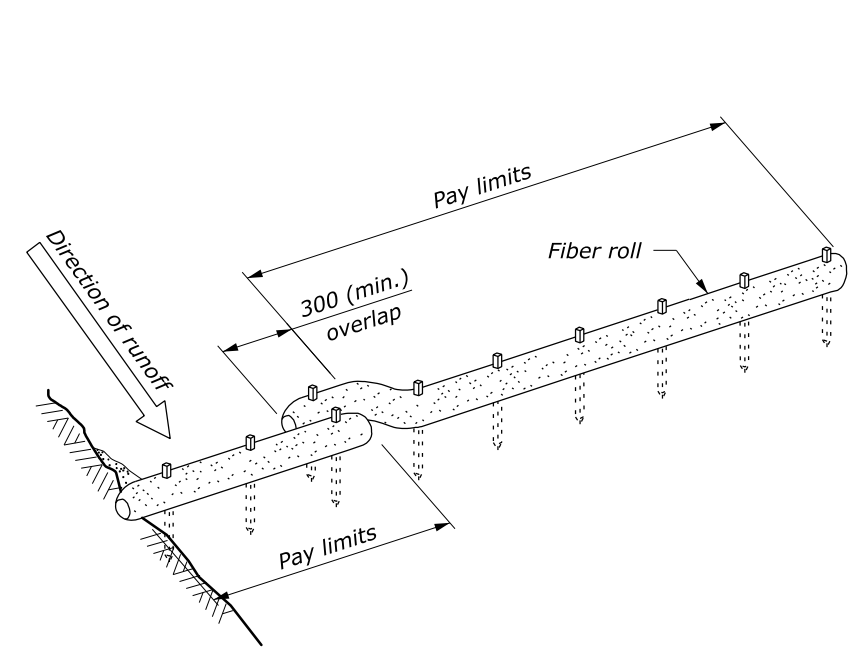
STAKES REQUIRED	
Fiber roll length (m)	Stakes required for each roll
7.5	8
6.0	6
3.5	4

- NOTE:**
1. Drive stakes at each end and at 1.2 m spacing until fiber roll is secure to slope. Live stakes may be used for permanent installations. Do not crush fiber roll while staking.
 2. Overlap fiber rolls 300 mm minimum. Drive stakes at 150 mm from fiber roll end angles towards the adjacent fiber roll and space stakes at 1.2 meters max.
 3. Dimensions without units are millimeters.

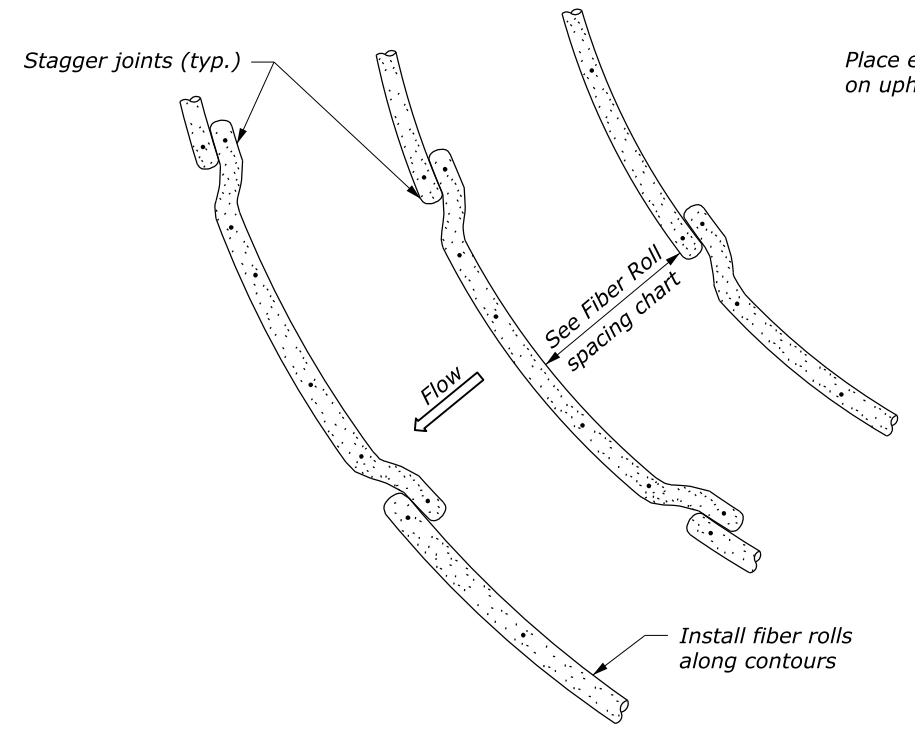


FIBER ROLL STAKING DETAIL

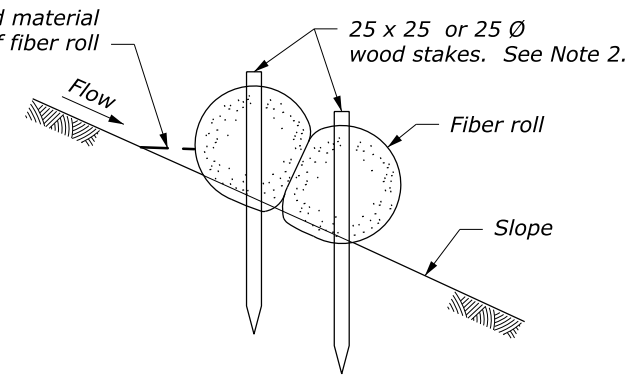
INSTALLATION BEYOND TOE OF SLOPE



**ALTERNATE FIBER ROLL JOINT DETAIL
SLOPE PROTECTION INSTALLATION**



INSTALLATION ALONG SLOPES



FIBER ROLL LAPPING DETAIL

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

METRIC DETAIL

FIBER ROLL

DETAIL APPROVED FOR USE 10/2014

REVISID: 7/2016

DRAFT: 7/2016

DETAIL MW157-21

NO SCALE