SURFACE ROUGHENING

DEFINITION:
Provide a rough soil surface with horizontal depressions created by operating a tillage or other suitable implement on the contour, or by leaving slopes in a roughened condition by not fine-grading them.

PURPOSES:
1. To aid in seed bed preparation and establishment of vegetative cover.
2. To reduce runoff velocity and increase infiltration.
3. To reduce runoff and wind erosion and provide for sediment trapping.
SILT FENCE

DEFINITION:
A temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts and entrenched. The silt fence is a temporary linear barrier constructed of synthetic filter fabric and supported by wooden or steel posts.

PURPOSES:
1. To intercept and detain small amounts of sediment from disturbed areas during construction operations in order to reduce sediment in runoff from leaving the site.
2. To decrease the velocity of sheet flows and low-to-moderate level concentrated flows.

1. SET POSTS.

2. EXCAVATE A 4" X 4" TRENCH UPHILL ALONG THE POSTS.

3. ATTACH A SUPPORTING WIRE FENCE TO THE POSTS.

4. ATTACH FABRIC, SANDWICH FABRIC OVERLAP BETWEEN POSTS AND WIRE AND EXTEND INTO TRENCH.

FABRIC TO BE 36" WIDE

ATTACH FABRIC WITH HOE RINGS 12" MAXIMUM HORIZONTAL SPACING ON TOP AND BOTTOM OF THE WOVEN WIRE AND WITH STAPLES OR WIRE TIES AT 12" MAXIMUM VERTICAL SPACING ON THE POSTS.

POST 2" MIN. OVERLAP

WOVEN WIRE FABRIC WHEEL COMPACT TRENCH

8" STAPLES AT EACH POST

ON MULTIPLE PIPE INSTALLATIONS, THE WIDTH OF THE Silt FENCE INSTALLATION WILL INCREASE. ADJUSTMENTS TO BE MADE ON THE CONSTRUCTION AS DETERMINED BY THE ENGINEER.

5. BACKFILL TRENCH, IF ROCK TYPE SOILS ARE ENCOUNTERED, UTILIZE 30 TO 40 LB SANDBAGS BUTTED END TO END TO PREVENT UNDERFLOW.

3" 3" 3" 3"

4" TRENCH AND 8" STAPLES AT EACH POST

6" X 4" TRENCH AND 8" STAPLES AT EACH POST

\[ \text{CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT} \]
\[ \text{SILT FENCE (WOVEN WIRE)} \]
\[ \text{DATE: 2-16-12} \]
\[ \text{SEC.-SHT. 150-2} \]
GENERAL NOTES:

AT CUT OR FILL SLOPE INSTALLATIONS, WATTLE SHALL BE INSTALLED ALONG THE CONTOUR AND PERPENDICULAR TO THE WATER FLOW.

AT DITCH INSTALLATIONS, POINT 'A' MUST BE HIGHER THAN POINT 'B' TO ENSURE THAT WATER FLOWS OVER THE WATTLE AND NOT AROUND THE ENDS.

THE CONTRACTOR SHALL DIG A 3" TO 5" TRENCH, INSTALL THE WATTLE TIGHTLY IN THE TRENCH SO THAT DAYLIGHT CAN NOT BE SEEN UNDER THE WATTLE, AND THEN COMPACT THE SOIL EXCAVATED FROM THE TRENCH AGAINST THE WATTLE ON THE UPHILL SIDE. SEE DETAIL B.

THE STAKES SHALL BE 1/2"X2" OR 2"X2" WOOD STAKES, THE STAKES SHALL BE PLACED 6" FROM THE ENDS OF THE WATTLE AND THE SPACING OF THE STAKES ALONG THE WATTLE SHALL BE 3' TO 4'.

WHERE INSTALLING RUNNING LENGTHS OF WATTLE, THE CONTRACTOR SHALL BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST AND SHALL NOT OVERLAP THE ENDS. SEE DETAIL C.
GENERAL NOTES:

PRIOR TO PLACEMENT OF THE EROSION CONTROL BLANKET, THE AREAS SHALL BE PROPERLY PREPARED, SHAPED, SEEDED, AND FERTILIZED.

EROSION CONTROL BLANKET SHALL BE UNROLLED IN THE DIRECTION OF THE FLOW OF WATER WHEN PLACED IN DITCHES AND ON SLOPES. THE UP-SLOPE END OF THE EROSION CONTROL BLANKET SHALL BE BURIED IN A TRENCH 6" DEEP BY 6" WIDE. THE TRENCH SHALL BE BACKFILLED AND COMPACTED TO THE APPROPRIATE ELEVATION.

THE EROSION CONTROL BLANKET SHALL BE PINNED TO THE GROUND ACCORDING TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS.

AFTER THE PLACEMENT OF THE EROSION CONTROL BLANKET, THE CONTRACTOR SHALL FINE GRADE ALONG ALL EDGES OF THE BLANKET TO MAINTAIN A UNIFORM SLOPE ADJACENT TO THE BLANKET AND LEVEL ANY LOW SPOTS WHICH MIGHT PREVENT UNIFORM AND UNRESTRICTED FLOW TO SIDE DRAINAGE DIRECTLY ONTO THE EROSION CONTROL BLANKET.

ALL DITCH SECTIONS SHALL BE SHAPED WHEN INSTALLING THE EROSION CONTROL BLANKET.

CITY OF RAPID CITY

PUBLIC WORKS DEPARTMENT

EROSION CONTROL BLANKET

DATE: 2-12-16

SEC. - SHT.

150-4
GENERAL NOTES:

THE TYPE OF SEDIMENT CONTROL DEVICE SHOWN IS FOR ILLUSTRATIVE PURPOSES ONLY.

THE TYPE OF SEDIMENT CONTROL DEVICE USED SHALL BE ONE OF THE TYPES AS SPECIFIED IN THE PLANS.

THE SEDIMENT CONTROL DEVICE SHALL BE PLACED AT THE DROP INLETS ACCORDING TO THE MANUFACTURES' INSTALLATION INSTRUCTIONS.

THE SEDIMENT CONTROL AT INLET FOR TYPE E REINFORCED CONCRETE DROP INLET SHALL BE PLACED AT LOCATIONS STATED IN THE PLANS OR AT LOCATIONS DETERMINED BY THE ENGINEER.
ISOMETRIC VIEW

GENERAL NOTES:

THE GRATE AND CURB AND GUTTER SHOWN ARE FOR ILLUSTRATIVE PURPOSES ONLY.

THE SEDIMENT CONTROL AT INLET WITH FRAME AND GRATE SHALL BE PLACED AT LOCATIONS STATED IN THE PLANS OR AT LOCATIONS DETERMINED BY THE ENGINEER.

THE FILTER FABRIC SHALL BE THE TYPE SPECIFIED IN THE PLANS.

THE FILTER FABRIC SHALL BE PLACED IN THE INLET OPENING PRIOR TO PLACING THE GRATE. APPROXIMATELY 18" OF EXCESS FILTER FABRIC SHALL BE WRAPPED AROUND THE 2"x4" AND STAPLED SECURELY TO THE 2"x4" AFTER THE GRATE HAS BEEN PLACED.
INLET PROTECTION

DEFINITION:
A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.

PURPOSE:
TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF DISTURBED AREAS.

SPECIFIC APPLICATION:
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES OR UNPROTECTED AREAS. CLEAN OUT AS NECESSARY TO PREVENT BLOCKAGE OF RUNOFF CONVEYANCE.
INLET PROTECTION

DEFINITION:
A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.

PURPOSE:
TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF DISTURBED AREAS.

1. SET POSTS
2. EXCAVATE AN 8"x8" TRENCH UPSLOPE ALONG THE POSTS
3. ATTACH A SUPPORTING WIRE FENCE TO THE POSTS
4. ATTACH FABRIC SANDWICH 4" FABRIC OVERLAP BETWEEN POSTS AND WIRE AND EXTEND INTO TRENCH
5. BACK FILL TRENCH. IF ROCKY TYPE SOILS ARE ENCOUNTERED, UTILIZE 30 TO 40 LBS. SANDBAGS BUTTED END TO END TO PREVENT UNDERFLOW
6. ATTACH FABRIC WITH HOG RINGS 12" MAXIMUM HORIZONTAL SPACING ON TOP AND BOTTOM OF THE WOVEN WIRE AND WITH STAPLES OR WIRE TIES AT 12" MAXIMUM VERTICAL SPACING ON THE POSTS

FILTER FABRIC
WOVEN WIRE
WASHED GRAVEL
WATER WITH SEDIMENT
BURIED FILTER FABRIC
FILTERED WATER

STAKES
OVERLAP 4"

CITY OF RAPID CITY PUBLIC WORKS DEPARTMENT

SILT FENCE DROP INLET PROTECTION DEVICE

DATE: 2-16-12
SEC.-SHT. 150-8
VEHICLE TRACKING CONTROL

DEFINITION:
A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE

PURPOSE:
TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO ROADS BY MOTOR VEHICLES OR RUNOFF

1 1/2" - 3" ROCK

6" MIN.

50' MINIMUM

AS REQUIRED

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

TEMPORARY VEHICLE TRACKING CONTROL

DATE: 2-16-12
SEC.-SHT. 150-9
VEHICLE TRACKING CONTROL

DEFINITION:
A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE, EQUIPPED WITH A WASH RACK

PURPOSES
TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO ROADS BY MOTOR VEHICLES OR RUNOFF

NOTE:
ONLY APPLICABLE FOR SITES GREATER THAN 2 ACRES IN SIZE

DITCH TO CARRY WASH WATER TO SEDIMENT BASIN OR TRAP

1 1/2" - 3" ROCK

DRAINAGE SPACE

12" MINIMUM

CONCRETE END SUPPORT

CATTLE GURAD CROSSING

6'-7'

DRAIN SPACE

DETAIL OF WASH RACK
CONCRETE WASHOUT AREA

NOTES:

1. CONCRETE WASHOUT AREA SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE

2. THE CONCRETE WASHOUT AREA SHALL BE REPAIRED AND ENLARGED TO CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE

3. AT THE END OF CONSTRUCTION, ALL CONCRETE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT AN APPROVED WASTE SITE

4. WHEN THE CONCRETE WASHOUT AREA IS REMOVE, THE DISTURBED AREA SHALL BE SEEDED AND MULCHED OR OTHERWISE STABILIZED AS APPROVED BY THE ENGINEER

CROSS SECTIONAL VIEW
TEMPORARY SEDIMENT TRAP

DEFINITION:
A SMALL TEMPORARY PONDING AREA, FORMED BY CONSTRUCTING AN EARTHEN EMBANKMENT WITH A ROCK-COVERED OUTLET ACROSS A DRAINAGE SWALE, OR BY EXCAVATION OF A DEPRESSION BELOW ORIGINAL GRADE. RELATIVE ELEVATIONS SHOULD CONTAIN ALL RUNOFF WITHIN THE TRAP AREA

PURPOSE:
TO DETAIN SEDIMENT- LADEN RUNOFF FROM DISTURBED AREAS LONG ENOUGH TO ALLOW THE MAJORITY OF THE SEDIMENT TO SETTLE OUT

EXCAVATED SEDIMENT TRAP

EMBANKMENT SEDIMENT TRAP

OVERFLOW WEIR CROSS SECTION

ROCK PLACED ON TOP OF IMPERVIOUS EMBANKMENT

ROCK LINING:
9" THICK LAYER OF 6" ROCK ON 3" THICK LAYER OF 1/2"-3/4" FILTER

DIVERSION DIKE CAN JOIN WITH EMBANKMENT

Woven Wire Fabric

Wheel Compact Trench

SILT TRAP - WIDTH, LENGTH AND DEPTH ARE VARIABLE

Sediment Trap with Silt Fence

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 2-16-12
SEC.-SHT. 150-12
CHECK DAM

DEFINITION:
SMALL TEMPORARY DAM CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH

PURPOSE:
TO REDUCE THE VELOCITY OF STORM WATER FLOWS AND EROSION OF THE SWALE OR DITCH

ROCK CHECK DAM

4" TO 6" ROCK

FLOW

L = THE DISTANT SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

SPACING BETWEEN CHECK DAMS
SILT DITCH

NOTES:
1. SILT SHALL BE REMOVED WHEN SILT DITCH IS ONE-HALF FULL
2. DITCH SHALL BE RECONSTRUCTED WHEN DAMAGED BY EQUIPMENT OR COVERED BY FILL

CROSS SECTION VIEW
TEMPORARY SLOPE DRAIN

DEFINITION:
A FLEXIBLE TUBE OR CONDUIT EXTENDING FROM THE TOP TO THE BOTTOM OF A CUT OR FILL SLOPE

PURPOSE:
TO TEMPORARILY CONDUCT CONCENTRATED STORM WATER RUNOFF SAFELY DOWN THE FACE OF A CUT OR FILL SLOPE WITHOUT CAUSING EROSION PROBLEMS ON OR BELOW THE SLOPE

SIZE OF SLOPE DRAIN

<table>
<thead>
<tr>
<th>DRAINAGE AREA ACRES</th>
<th>PIPE SIZE INCHES</th>
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</thead>
<tbody>
<tr>
<td>&lt; 1.5</td>
<td>12&quot;</td>
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<tr>
<td>&lt; 5.0</td>
<td>18&quot;</td>
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<tr>
<td>&lt; 10.0</td>
<td>24&quot;</td>
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CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

DATE: 2-16-12
SEC.-SHT. 150-15
TEMPORARY STREAM CROSSING

DEFINITION:
A TEMPORARY STRUCTURAL SPAN INSTALLED ACROSS A FLOWING WATERCOURSE FOR USE BY CONSTRUCTION TRAFFIC. STRUCTURES MAY INCLUDE BRIDGES, ROUND PIPES OR PIPE ARCHES

PURPOSE:
TO STABILIZE STREAM CROSSINGS AND REDUCE EROSION CREATED BY CONSTRUCTION TRAFFIC

ELEVATION

PLAN

COURSE AGGREGATE

EARTH FILL COVERED BY LARGE ANGULAR ROCK

COURSE AGGREGATE 6" DEEP

FLOW

LARGE ANGULAR ROCK OVER EARTH FILL

TOP OF BANK

TOP OF BANK

25' MIN

PUBLIC WORKS DEPARTMENT

DATE: 2-16-12

CITY OF RAPID CITY

SEC.-SHT.
150-17
TEMPORARY STREAM CROSSING

DEFINITION:
A TEMPORARY AT-GRADE STREAM CROSSING INSTALLED ACROSS A NORMALLY DRY WATERCOURSE FOR USE BY CONSTRUCTION TRAFFIC

PURPOSE:
TO STABILIZE STREAM CROSSINGS AND REDUCE EROSION CREATED BY CONSTRUCTION TRAFFIC

CROSS SECTION

DESIGN CRITERIA:
1. AS A MINIMUM, DESIGN THE STRUCTURE TO PASS BANK FULL FLOW OR PEAK FLOW, WHICHERSOEVER IS LESS, FROM A 2-YEAR PEAK STORM, WITHOUT OVER-TOPPING
2. INSURE THAT DESIGN FLOW VELOCITY AT THE OUTLET OF THE CROSSING STRUCTURE IS NON-EROSSIVE FOR THE RECEIVING STREAM CHANNEL
ROUGH-CUT STREET CONTROL

DEFINITION:
A temporary sediment barrier placed on alternate sides of a rough cut street

PURPOSE:
To divert sediment-laden runoff from rough-cut streets and slow the velocity of storm runoff

NOTE:
1. Alternate materials such as silt fences may be used where large flows are not expected
2. Requirements for and spacing of velocity reducers for streets with grades of less than 4% shall be as shown on the erosion control plan

<table>
<thead>
<tr>
<th>W</th>
<th>X</th>
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<tbody>
<tr>
<td>20° - 30°</td>
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</tr>
<tr>
<td>31° - 40°</td>
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<tr>
<td>41° - 50°</td>
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<tr>
<td>51° - 60°</td>
<td>10.5''</td>
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<tr>
<td>61° - 70°</td>
<td>12''</td>
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</table>

CITY OF RAPID CITY
PUBLIC WORKS DEPARTMENT

ROUGH-CUT STREET CONTROL

DATE: 2-16-12
SEC.-SHT. 150-19