### SINGLE FAMILY RESIDENTIAL STANDARD DESIGN BOOKLET

KANSAS CITY METROPOLITAN CHAPTER AMERICAN PUBLIC WORKS ASSOCIATION

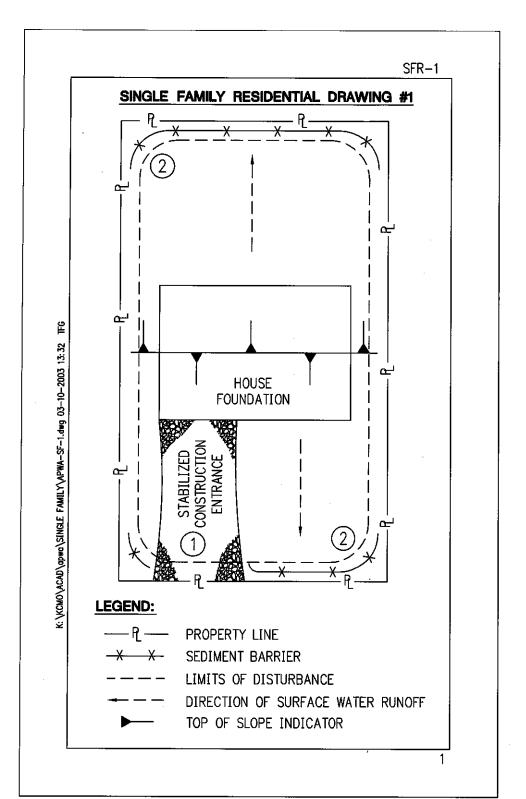


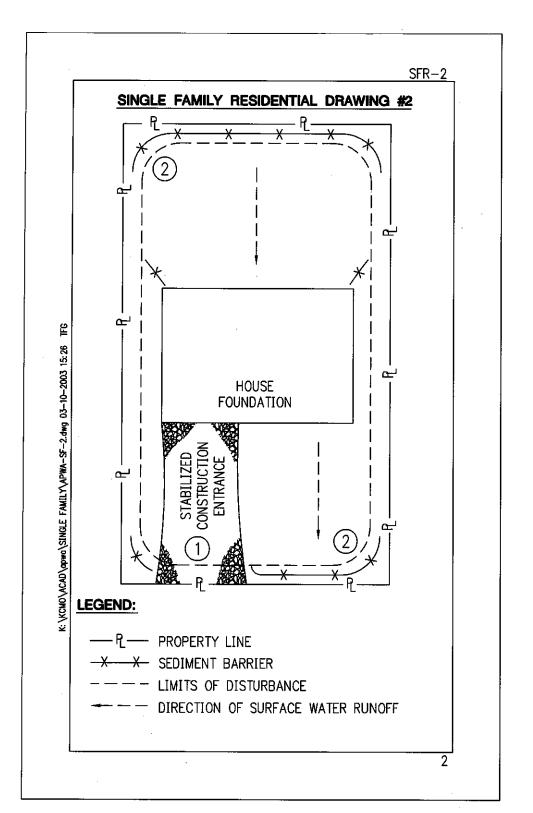
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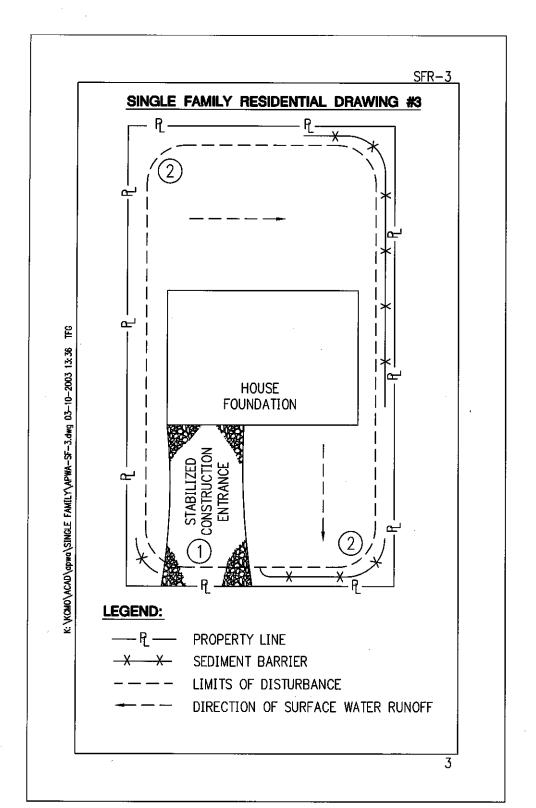
### KANSAS CITY METROPOLITAN CHAPTER AMERICAN PUBLIC WORKS ASSOCIATION

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1. ANY ADDITIONAL BEST MANAGEMENT PRATICES (BMPs)
CAN BE FOUND IN THE KANSAS CITY METROPOLITAN CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION'S EROSION AND SEDIMENT CONTROL MANUAL.







### GENERAL INSTALLATION/CONSTRUCTION SEQUENCE:

- (1) STABILIZED LOT ENTRANCE
- PERIMETER CONTROLS
  - PLACE WHERE STORMWATER RUNOFF LEAVES THE SITE.
  - INSPECT AND MAINTAIN CONTROLS.
- 3 EXCAVATE AND BACKFILL FOUNDATION
   SPOIL PILE MUST REMAIN A MINIMUM OF
  5 FT. FROM BACK OF CURB AND NOT
  EXTEND BEYOND PROPERTY LINE.
- (4) CONSTRUCTION ACTIVITIES
  - MAINTAIN AND REPAIR ALL CONTROLS UNTIL FINAL CERTIFICATE OF OCCUPANCY IS ISSUED.
- (5) FINAL GRADING AND SOD OR SEED PLACEMENT

CONTROL EROSION.

6 PERIMETER CONTROLS REMOVED

- REMOVE AFTER PERMANENT GROUND COVER IS
OBTAINED AT A DENSITY SUFFICIENT TO

### **CONCENTRATED FLOW:**

- 1. PROVIDE CHECKS (ROCKS, STRAW BALES, ETC.) OR EROSION PROTECTION (EROSION BLANKET, SOD, ETC.) FOR CONCENTRATED FLOW AREAS.
- PROVIDE SOIL PROTECTION AND ENERGY DISSIPATION AT GUTTER DOWN SPOUTS IF THEY ARE IN PLACE PRIOR TO FULL VEGETATIVE COVER OVER THE AREA.

### **DISCLAIMER:**

(SEE SHEET 4a.)

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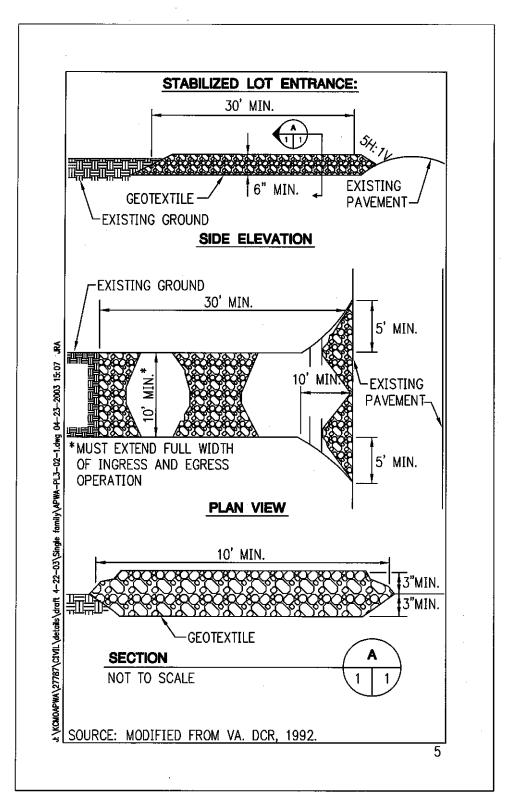
### **DISCLAIMER:**

THE APPROPRIATE STANDARD DRAWING SHOULD BE ATTACHED TO THE PLOT PLAN. IT DOES NOT REQUIRE AN ENGINEER'S SEAL. THIS MODEL PLAN CAN BE USED IF THE SITE MEETS THESE CONDITIONS:

- 1.) LESS THAN 1/2 ACRE IN SIZE;
- 2.) APPROVED BY THE CITY;
- 3.) CONDITIONS MEET ONE OF THE THREE MODEL DRAWINGS IN THIS BOOKLET.

IF MORE EROSION AND SEDIMENT CONTROL MEASURES ARE NEEDED, THIS PLAN MUST BE MODIFIED ACCORDINGLY. THE CITY CAN MANDATE ADDITIONAL CONTROLS AS NECCESSARY. THE LOT OWNER ASSUMES RESPONSIBILITY FOR EXISTING CONTROL MEASURES ON THE PROPERTY AND MUST PRESERVE THEM UNTIL THE SITE IS FULLY STABILIZED.

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### STABILIZED LOT ENTRANCE CONT.:

### NOTES:

STABILIZED ENTRANCE MATERIAL CAN BE:

- 1. 2-3 INCHES COARSE AGGREGATE.
- 2. WOOD CHIPS OR MULCH.
- TURF REINFORCEMENT MAT IS STURDY ENOUGH FOR CONSTRUCTION VEHICLE TRAFFIC.
- 4. CITY APPROVED MATERIAL.

### MAINTENANCE:

- 1. INSPECT ON A DAILY BASIS OR AS NECESSARY.
- 2. IMMEDIATELY REMOVE MUD OR SEDIMENT TRACKED ONTO ROAD.
- 3. ADD ADDITIONAL STABILIZED MATERIAL AS NECESSARY.

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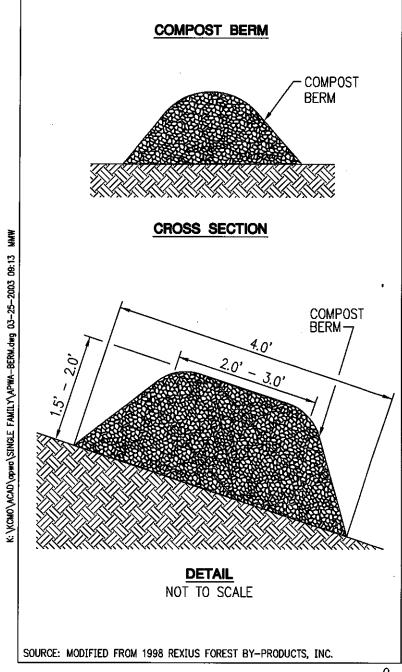
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### SEDIMENT FENCE NOTES:

### **INSTALLATION:**

- 1. SEDIMENT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE GROUND SURFACE.
- EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 6 INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE FENCE. A SLICING MACHINE MAY BE USED IN LIEU OF TRENCHING.
- 3. POSTS SHALL BE PLACED A MAXIMUM OF 6 FEET APART. FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF POSTS USING MIN. ONE—INCH LONG, HEAVY—DUTY WIRE STAPLES OR TIE WIRES. EIGHT INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
- 4. IF A SEDIMENT FENCE IS CONSTRUCTED ACROSS A DITCH LINE OR SWALE, IT MUST BE LONG ENOUGH TO ELIMINATE ENDFLOW, AND THE PLAN CONFIGURATION SHALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE. EXTRA-STRENGTH FILTER FABRIC SHALL BE USED WITH A MAXIMUM 3-FOOT SPACING OF POSTS.
- 5. THE 4 INCH BY 6 INCH TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED OVER THE GEOTEXTILE UNLESS A SLICING MACHINE IS USED.
- SEDIMENT FENCE SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

SOURCE: MODIFIED FROM VA. DCR, 1992.



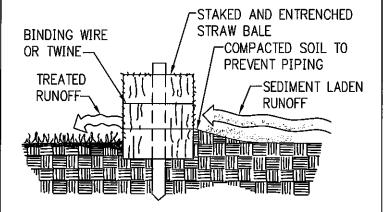
### COMPOST BERM

### **NOTES:**

- THE COMPOST BERM SHALL BE PLACED, UNCOMPACTED, IN A WINDROW AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- 2. PARALLEL TO THE BASE OF THE SLOPE, OR AROUND THE PERIMETER OF OTHER AFFECTED AREAS, CONSTRUCT A 1- TO 1.5-FOOT HIGH BY 2.5- TO 3-FOOT WIDE BERM. FOR STEEP SLOPES, CONSTRUCT A 1.5- TO 2- FOOT HIGH TRAPEZOIDAL BERM THAT IS APPROXIMATELY 2 TO 3 FEET WIDE AT THE TOP AND A MINIMUM OF FOUR FEET WIDE AT THE BASE. IN EXTREME CONDITIONS, AND WHERE SPECIFIED BY THE ENGINEER, A SECOND BERM SHALL BE CONSTRUCTED AT THE TOP OF THE SLOPE AND ENGINEER SHALL SPECIFY BERM REQUIREMENTS.
- 3. IF BERM IS TO BE LEFT AS A PERMANENT PART OF THE LANDSCAPE, IT MAY BE SEEDED PERMANENT VEGETATION DURING CONSTRUCTION. THE ENGINEER/LANDSCAPE ARCHITECT SHALL SPECIFY SEED REQUIREMENTS.
- 4. DO NOT USE COMPOST BERMS IN RUNOFF CHANNELS.

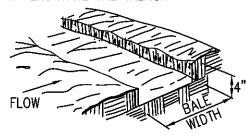
SOURCE: 1998 REXIUS FOREST BY-PRODUCTS, INC.

### STRAW BALE BARRIER:

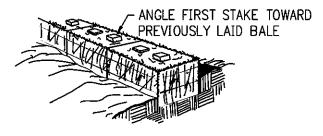


### CONSTRUCTION OF STRAW BALE BARRIER:

1. EXCAVATE THE TRENCH



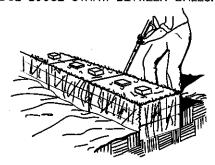
2. PLACE AND STAKE STRAW BALES.



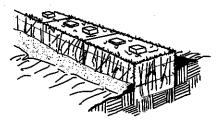
SOURCE: MODIFIED FROM VA. DCR, 1992.

### STRAW BALE BARRIER CONT.:

3. WEDGE LOOSE STRAW BETWEEN BALES.



4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



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### STRAW BALE BARRIER NOTES:

### A) INSTALLATION:

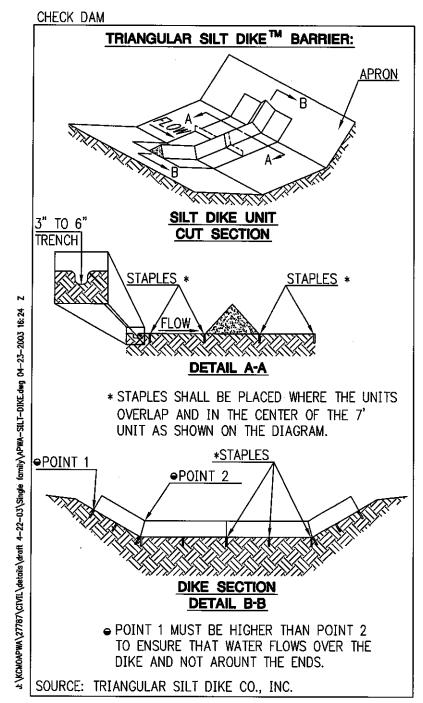
- 1. PLACE EACH BALE END TO END IN THE TRENCH SO THE BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN TOP TO BOTTOM.
- ANCHOR THE BALES BY DRIVING TWO 36-INCH LONG, 2X2 INCH HARDWOOD STAKES THROUGH EACH BALE UNTIL NEARLY FLUSH WITH THE TOP. DRIVE THE FIRST STAKE TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER.

### **B) CONSTRUCTION SPECIFICATIONS:**

- ONLY USE AS PERIMETER CONTROL FOR LESS THAN ONE ACRE OF RUNOFF AREA.
- 2. DETERMINE EXACT LOCATION OF UNDERGROUND UTILITIES.
- 3. GRADE ALIGNMENT OF BARRIER AS NEEDED TO PROVIDE A BROAD, NEARLY LEVEL AREA UPSTREAM OF BARRIER.

### C) INSPECTION AND MAINTENANCE:

- 1. INSPECT STRAW BALE BARRIERS AFTER EACH STORM EVENT AND REMOVE ANY SEDIMENT DEPOSITS PROMPTLY. DO NOT UNDERMINE THE ENTRENCHED BALES.
- 2. INSPECT PERIODICALLY FOR DETERIORATION OR DAMAGE FROM CONSTRUCTION ACTIVITIES. REPLACE DAMAGED BARRIER IMMEDIATELY.
- 3. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ALL STRAW BALES AND SEDIMENT, BRING THE DISTURBED AREA TO GRADE, AND STABILIZE.

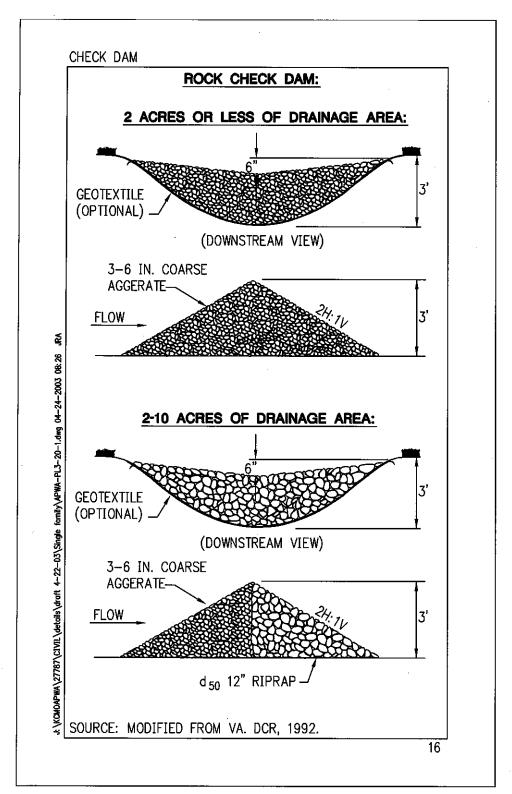


### TRIANGULAR SILT DIKE:

### **NOTES:**

- 1. TRIANGULAR SILT DIKE SHALL BE TRIANGULAR SHAPED HAVING A HEIGHT OF AT LEAST EIGHT TO TEN INCHES IN THE CENTER WITH EQUAL SIDES AND A SIXTEEN—TO TWENTY—INCH BASE. THE TRIANGULAR SHAPED INNER MATERIAL SHALL BE URETHANE FOAM. THE OUTER COVER SHALL BE A WOVEN GEOTEXTILE FABRIC PLACED AROUND THE INNER MATERIAL AND ALLOWED TO EXTEND BEYOND BOTH SIDES OF THE TRIANGLE TWO TO THREE FEET.
- 2. LENGTH SHALL BE THREE TO SEVEN FEET. STANDARD LENGTH WILL BE SEVEN FEET UNLESS OTHERWISE INDICATED ON THE PLANS.
- 3. THE DIKES SHALL BE ATTACHED TO THE GROUND WITH WIRE STAPLES. THE STAPLES SHALL BE NO. 11 GAUGE WIRE AND BE AT LEAST SIX TO EIGHT INCHES LONG. STAPLES SHALL BE PLACED AS SHOWN ON THE INSTALLATION DETAIL.
- 4. THE CONTRACTOR SHALL INSPECT ALL DIKES AFTER EACH RAINFALL EVENT OF 1/2 INCH OR GREATER. ANY DEFICIENCIES OR DAMAGE SHALL BE REPAIRED BY THE CONTRACTOR.
- 5. ACCUMULATED SEDIMENT OR DEBRIS SHALL BE REMOVED AND DISPOSED OF AS DIRECTED BY THE ENGINEER. IF THE DIKES ARE DAMAGED OR INADVERTENTLY MOVED DURING THE SEDIMENT REMOVAL PROCESS, THE CONTRACTOR SHALL RE-ESTABLISH CONTINUITY.

SOURCE: TRIANGULAR SILT DIKE CO., INC.



### **ROCK CHECK DAM:**

### NOTES:

- 1. THE MAXIMUM HEIGHT OF THE DAM SHALL BE 3.0 FEET.
- 2. THE CENTER OF THE CHECK DAM MUST BE AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES.
- 3. FOR ADDED STABILITY, THE BASE OF THE CHECK DAM CAN BE KEYED INTO THE SOIL APPROXIMATELY 6 INCHES.
- 4. THE DAMS SHOULD BE SPACED SO THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
- 5. STONE SHOULD BE PLACED ACCORDING TO THE DETAIL.
  HAND OR MECHANICAL PLACEMENT WILL BE NECESSARY TO
  ACHIEVE COMPLETE COVERAGE OF THE DITCH OR SWALE
  AND TO INSURE THAT THE CENTER OF THE DAM IS LOWER
  THAN THE EDGES.
  - 6. GEOTEXTILE MAY BE USED UNDER THE STONE TO PROVIDE
    A STABLE FOUNDATION AND TO FACILITATE REMOVAL OF
    THE STONE.
  - 7. CHECK DAMS SHOULD BE INSPECTED FOR SEDIMENT
    ACCUMULATION AFTER EACH RUNOFF—PRODUCING STORM
    EVENT. SEDIMENT SHOULD BE REMOVED WHEN IT REACHES
    HALF OF THE ORIGNAL HEIGHT OF THE MEASURE.
  - 8. REGULAR INSPECTIONS SHOULD BE MADE TO ENSURE THAT THE CENTER OF THE DAM IS LOWER THAN THE EDGES. EROSION CAUSED BY HIGH FLOWS AROUND THE EDGES OF THE DAM SHOULD BE CORRECTED IMMEDIATELY.

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### **EROSION CONTROL**

### TYPICAL ORIENTATION OF SOIL STABILIZATION BLANKET:

### SHALLOW SLOPE:



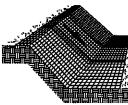
ON SHALLOW SLOPES, STRIPS OF PROTECTIVE COVERINGS MAY BE APPLIED PARALLEL TO DIRECTION OF FLOW.

### BERM:



WHERE THERE IS A BERM AT THE TOP OF THE SLOPE, BRING THE MATERIAL OVER THE BERM AND ANCHOR IT BEHIND THE BERM.

### STEEP SLOPE:



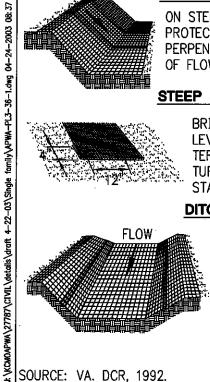
ON STEEP SLOPES, APPLY PROTECTIVE COVERING PERPENDICULAR TO THE DIRECTION OF FLOW AND ANCHOR SECURELY.

### STEEP SLOPE:

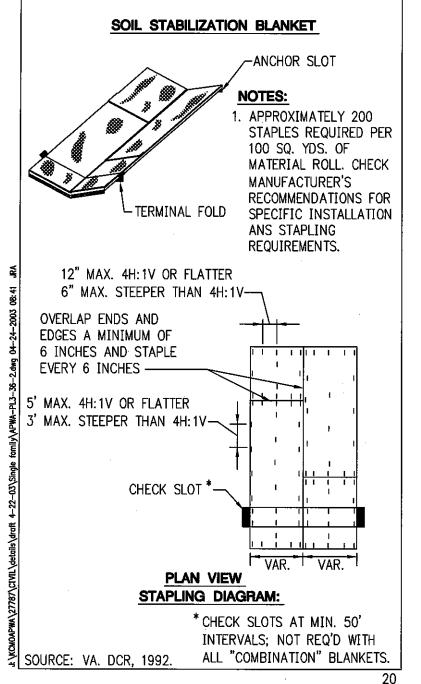


BRING MATERIAL DOWN TO A LEVEL AREA BEFORE TERMINATING INSTALLATION. TURN THE END UNDER 4" AND STAPLE AT 12" INTERVALS.

### DITCH:



IN DITCHES, APPLY PROTECTIVE COVERING PARALLEL TO THE DIRECTION OF FLOW. AVOID JOINING MATERIAL IN THE CENTER OF THE DITCH IF AT ALL POSSIBLE.



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### **SOIL STABILIZATION BLANKET:**

### LAYING AND STAPLING:

PLACE THE EROSION CONTROL COVERING ON A FRIABLE SEEDBED FREE OF CLODS, ROCKS, AND ROOTS THAT MIGHT IMPEDE GOOD CONTACT.

- START PLACING THE PROTECTIVE COVERING FROM THE TOP OF THE CHANNEL OR SLOPE AND UNROLL DOWN-GRADE.
- 2. ALLOW TO REST LOOSELY ON SOIL; DO NOT STRETCH.
- 3. UPSLOPE ENDS OF THE PROTECTIVE COVERING SHOULD BE BURIED IN A ANCHOR SLOT NO LESS THAN 6 INCHES DEEP. TAMP EARTH FIRMLY OVER THE MATERIAL. STAPLE THE MATERIAL AT A MINIMUM OF EVERY 12 INCHES ACROSS THE TOP END.
- 4. EDGES OF THE MATERIAL SHALL BE STAPLED EVERY 3 FEET. WHERE MULTIPLE WIDTHS ARE PLACED SIDE BY SIDE, THE ADJACENT EDGES SHALL BE OVERLAPPED A MINIMUM OF 6 INCHES AND STAPLED TOGETHER.
- 5. STAPLES SHALL BE PLACED DOWN THE CENTER, STAGGERED WITH THE EDGES AT 3 FOOT INTERVALS.

### NOTE:

STUDY MANUFACTURER'S RECOMMENDATIONS AND SITE CONDITIONS FOR CORRECT INSTALLATION AND STAPLING OF PRODUCT.

### JOINING PROTECTIVE COVERINGS:

INSERT A NEW ROLL OF MATERIAL INTO AN ANCHOR SLOT AS WITH UPSLOPE ENDS. OVERLAP THE END OF THE PREVIOUS ROLL A MINIMUM OF 12 INCHES, AND STAPLE ACROSS THE END OF THE ROLL JUST BELOW THE ANCHOR SLOT AND ACROSS THE MATERIAL EVERY 12 INCHES.

### TERMINAL END:

WHERE THE MATERIAL IS DISCONTINUED OR WHERE THE PROTECTIVE COVERING MEETS A STRUCTURE, FOLD 4 INCHES OF THE MATERIAL UNDERNEATH AND STAPLE EVERY 12 INCHES.

### AT BOTTOM OF SLOPES:

ROLL ONTO A LEVEL SURFACE BEFORE ANCHORING. TURN ENDS UNDER 4 INCHES, AND STAPLE ACROSS END EVERY 12 INCHES.

### **FINAL CHECK:**

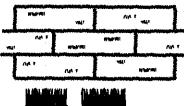
THESE INSTALLATION CRITERIA MUST BE MET:

- 1. PROTECTIVE BLANKET IS IN UNIFORM CONTACT WITH THE SOIL.
- 2. ALL LAP JOINTS ARE SECURE.
- 3. ALL STAPLES ARE DRIVEN FLUSH WITH THE GROUND.
- 4. ALL DISTURBED AREAS HAVE BEEN SEEDED.

### **MAINTENANCE:**

ALL SOIL STABILIZATION BLANKETS AND MATTING SHOULD BE INSPECTED PERIODICALLY FOLLING INSTALLATION, PARTICULARLY AFTER STORMS, TO CHECK FOR EROSION AND UNDERMINING. ANY DISLOCATION OR FAILURE SHOULD BE REPAIRED IMMEDIATELY. IF WASHOUTS OR BREAKAGE OCCURS, REINSTALL THE MATERIAL AFTER REPAIRING DAMAGE TO THE SLOPE OR DITCH. CONTINUE TO MONITOR THESE AREAS UNTIL THEY BECOME PERMANENTLY STABILIZED; AT THAT TIME AN ANNUAL INSPECTION SHOULD BE ADEQUATE.

### SODDING:



NOTE:

LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

CORRECT

**INCORRECT** 

### **BUTTING:**

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ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.



ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.



WATER SOD TO A DEPTH OF 4" AS NEEDED. WATER WELL IN 2-3 WEEKS. AS SOON AS THE SOD IS INSTALLED.



MOW WHEN THE SOD IS ESTABLISHED SET THE MOWER HEIGHT AT 2"-3".

### APPEARANCE OF GOOD SOD:

### SHOOTS:



GRASS SHOULD BE GREEN AND HEALTHY, MOWED AT A 2"-3" CUTTING HEIGHT.

### THATCH:

GRASS CLIPPINGS AND DEAD LEAVES UP TO 1/2" THICK.

### **ROOT ZONE:**

SOIL AND ROOTS SHOULD BE 1/2" -34" THICK WITH DENSE ROOT MAT FOR STRENGTH.

SOURCE: VA. DSWC

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