To reduce the production of dust and mud associated with bare sail surface;

5. For use as a filtering device for sediments in areas prior to achieving permanent stabilization

1. Disturbed areas which require immediate vegetative covers, or where sodding is preferred to other means of grass establishment.

The successful establishment of quality turf grass is difficult in Virginia. Extremes in temperature an maisture availability create severe stresses on both cool and warm season grasses. The selection of appropriate turf—establishment methods requires a great deal of forethought.

A quality turf containing the recommended mixtures and species can be established with either seed or sod. Soil preparation for the two methods is the same.

it is initially more costly to install sod than to seed. However, this cost is justified in places where sod can perform better than seed in controlling erosion.

Drop inlets which will be placed in grassed areas can be kept free of sediments, and the grade immediately around the inlet can be maintained, by framing the inlet with sod strips.

Sod can be laid during times of the year when seded grass may fall, so long as there is adequate water available for irrigation in the early weeks.

1. Prior to soil preparation, areas to be sodded shall be brought to final grade in accordance with

2. Soil tests should be made to determine the exact requirements for time and fertilizer. Soil test may be conducted by the State Laboratory at VPI & SU or a reputable commercial laboratory. Information on state soil tests is available from county or city agricultural extension agents.

Eartilizer at 25 lbs./1000 sq.ft. (1000 lbs./acre) of 10-10-10 in fall, or 25 lbs./1000 sq.ft. of 5-10-10 in spring.

These amendments shall be spread evenly over the area to be sodded and <u>incorporated</u> (if possible) into the top 3 to 6 inches of the soil by discing, harrowing or other acceptable means.

3. Prior to laying sod, the soil suface shall be clear of trash, debris, large roots, branches, stones and clods in excess of 1 inch in length or diameter. Sod shall not be applied to gravel or other

4. Any irregularities in the soil surface resulting from top~soiling or other operations shall be filled or leveled in order to prevent the formation of depressions or water pockets.

5. Areas to be topsoffed and topsoff used shall fulfill the requirements of TOPSOILING, Std. & Spec. 3.30. No sad shall be spread on soil which has been treated with soil storilants or any other toxic herbicides until enough time has elapsed to permit dissipation of toxic materials.

1. Sod used shall be state—certified. <u>Certified</u> turfgrass sad is grown from Certified seed, inspected and certified by the Virginia Crop improvement Association (VCIA) or the certifying agency in other states. This ensures genetic purity, high quality, freedom from noxious weeds and excessive insect or disease problems. The sad must meet published state standards and bear an official blue "Certified Turf" label on the bill of lading.

2. High-quality sod is also available outside of the VCIA certified sod program. When purchasing this sod, the consumer is encouraged to be aware of factors which are important in determining sod quality. High-quality sod will contain the best varieties and be free of serious disease, insect, or weed problems. It will be dense, have good color and hold together well.

3. Sod shall be machine cut at a uniform soil thickness of 3/4 inch (± 1/4 inch) at the time of cutting. This thickness shall exclude shoot growth and thatch.

5. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended from a firm grasp on one end of the section.

The type of sod used must be composed of plants adapted to the locality. Use Table 3.33—A to select the type of sod best suited to your area.

2. During periods of high temperature, the soil shall be lightly irrigated immediately prior to laying the sod, to cool the soil and reduce root burning and dieback.

3. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to butting tightly against each other. Lateral joints shall be exercised to ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would

4. On slopes 3:1 or greater, or wherever erosion may be a problem, sod shall be iald with staggered joints and secured by stapling or other approved methods. Sod shall be installed with the length perpendicular to the slope (on the contour).

As sodding of clearly defined areas is completed, sod shall be rolled or temped to provide firm contact between roots and soil.

6. After rolling, sod shall be irrigated to a depth sufficient that the underside of the sod pad and the soil 4 inches below the sod is thoroughly wet.

7. Until such time a good root system becomes developed, in the absence of adequate rainfall, watering shall be performed as often as necessary to maintain moist soil to a depth of at least 4

8. The first mowing shall not be attempted until the god is firmly rooted, usually 2—3 weeks. Not more than one third of the grass leaf shall be removed at any one cutting.

1. Care should be taken to prepare the soil adequately in accordance with this specification. The soci type shall consist of plant materials obje to withstand the designed velocity (see STORM WATER CONVEYANCE CHANNELS, Std. & Spec. 3.17).

3. After rolling or tamping, sod shall be pegged or stapled to resist washout during the establishment period. Jute mesh or other netting may be pegged over sod for extra protection in critical areas.

2. Sad strips in waterways shall be laid perpendicular to the direction of flow. Care should be taken to butt ends of strips tightly.

4. All other specifications for this practice shall be adhered to when sodding a waterway.

1. During the 2 to 3 week establishment stage, sod shall be watered as necessary to maintain adequate moisture in the root zone and prevent dormancy of sod.

No more than one third of the shoot (grass leaf) should be removed in any mowing. Grass height should be maintained between 2 and 3 inches unless otherwise specified.

3. After the first growing season, established sod will require fertilization and may require lime, Follow soil test recommendations when possible, or apply maintenance levels as outlined in table 3.33-R.

4. Pieces of sod shall be cut to the supplier's standard width and length, with a maximum allowable deviation in any dimension of S.K. Torn or uneven pads will not be acceptable.

6. Sod shall not be cut or laid in excessively wet or dry weather.

1. Sod should not be laid on soil surfaces that are frozen.

Choosing Appropriate Types of Sod

Sod installation (See Plate 3.33-1)

Sodded Waterways

Maintenance of Established Sod

7. Sod shall be harvested, delivered, and installed within a period of 36 hours.

Under difficult circumstances where it is not possible to obtain a soil test, the following soil amendments shall be made:

Pulverized agricultural limestons at 90 lbs./1000 sq.ft. (2 tons/acre).

Note: Equivalent nutrients may be applied with other fortilizer formulations.

Quality of Sod

Ground preparation and proper maintenance are as important with sod as with seed. Sod is composed of living plants and those plants must receive adequate care in order to provide vegetative stabilization on a disturbed area.

-waterways carrying intermittent flow
-area around drop inlets or in grassed swales
-residential or commercial lawns where quick use or aesthetics are factors

7. The option of buying a quality-controlled product with predictable results.

4. To stabilize drainageways where concentrated overland flow will occur.

2. Locations particularly suited to stabilization with sod are:

The advantages of properly installed sod include

5. Freedom from weeds.
3. Quick use of the sodded surface.

2. An instant green surface with no dust or mud.
3. Nearly year—round establishment capability.
4. Less chance of fallure than seed.

THE DESIGN OF STRUCTURALLY LINED APRONS AT THE OUTLETS OF PIPES AND PAVED CHANNEL SECTIONS APPLIES TO THE IMMEDIATE AREA OR REACH BELOW THE PIPE OR CHANNEL AND DOES NOT APPLY TO CONTINUOUS ROCK LININGS OF CHANNELS OR STREAMS (SEE STORMWATER CONVEYANCE CHANNEL, STD. & SPEC. 3.17). NOTABLY, PIPE OR CHANNEL OUTLETS AT THE TOP OF CUT SLOPES OR ON SLOPES STEEPER THAN 10% SHOULD NOT BE PROTECTED USING JUST OUTLET PROTECTION AS A RESULT OF THE RECONCENTRATION AND LARGE VELOCITY OF FLOW ENCOUNTERED AS THE FLOW LEAVES THE STRUCTURAL APRON. OUTLET PROTECTION SHALL BE DESIGNED ACCORDING TO THE FOLLOWING CRITERIA.

PIPE OUTLETS (SEE PLATE 3. 18-1)

1. TAILVAIER DEPTH: THE DEPTH OF TAILVATER IMMEDIATELY BELOW THE PIPE OUTLET MUST BE DETERMINED FOR THE DESIGN CAPACITY OF THE PIPE. MANNING'S EQUATION MAY BE USED TO DETERMINE TAILVATER DEPTH (SEE CHAPTER 5, ENGINEERING CALCULATIONS). IF THE TAILVATER DEPTH IS LESS THAN HALF THE DIAMETER OF THE DUTLET PIPE, IT SHALL BE CLASSIFIED AS A MINIMUM TAILVATER CONDITION, IF THE TAILVATER DEPTH IS GREATER THAN HALF THE PIPE DIAMETER, IT SHALL BE CLASSIFIED AS A MAXIMUM TAILVATER CONDITION, PIPES WHICH DUTLET ONTO FLAT AREAS WITN NO DEFINED CHANNEL MAY BE ASSUMED TO HAVE A MINIMUM TAILVATER CONDITION, NOTABLY, IN MOST CASES WHERE POST-DEVELOPMENT STURMWATER RUNOFF HAS BEEN CONCENTRATED OR INCREASED, MS #19 WILL BE SATISFIED ONLY BY OUTFALL INTO A DEFINED CHANNEL. MS #19 WILL BE SATISFIED ONLY BY DUTFALL INTO A DEFINED CHANNEL.

2. APRON LENGTH: THE APRON LENGTH SHALL BE DETERMINED FROM THE CURVES ACCORDING TO THE TAILVATER CONDITION:
MINIMUM TAILVATER - USE PLATE 3. 18-3.
MAXIMUM TAILVATER - USE PLATE 3. 18-4.

3. APRON VIDTH: WHEN THE PIPE DISCHARGES DIRECTLY INTO A WELL-DEFINED CHANNEL, THE APRON SHALL EXTEND ACROSS THE CHANNEL BOTTOM AND UP THE CHANNEL BANKS TO AN ELEVATION ONE FOOT ABOVE THE MAXIMUM TAILWATER DEPTH OR THE TOP OF THE BANK (WHICHEVER IS LESS). IF THE PIPE DISCHARGES UNTO A FLAT AREA WITH NO DEFINED CHANNEL, THE WIDTH OF THE APRON SHALL BE DETERMINED AS FOLLOWS: A. THE UPSTREAM END OF THE APRON, ADJACENT TO THE PIPE, SHALL HAVE A VIDTH THREE TIMES THE DIAMETER OF THE DUTLET PIPE.

B. FOR A MINIMUM TAIL WATER CONDITION. THE DOWNSTREAM END OF THE APRON SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS THE LENGTH OF THE APRON. C. FOR A MAXIMUM TAILVATER CONDITION. THE DOWNSTREAM END SHALL HAVE A WIDTH EQUAL TO THE PIPE DIAMETER PLUS O. 4 TIMES THE LENGTH OF THE

BOTTOM GRADE: THE APRON SHALL BE CONSTRUCTED WITH NO SLOPE ALONG ITS LENGTH (0.0% GRADE). THE INVERT ELEVATION OF THE DOWNSTREAM END OF THE APRON SHALL BE EQUAL TO THE ELEVATION OF THE INVERT OF THE RECEIVING CHANNEL. THERE SHALL BE NO OVERFALL AT THE END OF THE APRON,

5. SIDE SLOPES IF THE PIPE DISCHARGES INTO A WELL DEFINED CHANNEL, THE SIDE SLOPES OF THE CHANNEL SHALL NOT BE STEEPER THAN 2:1 CHORIZONTAL:

6. ALIGNMENT. THE APRON SHALL BE LUCATED SO THERE ARE NOT BENDS IN THE HURIZUNTAL ALIGNMENT. 7. MATERIALS: THE APRON MAY BE LINED WITH RIPRAP, GROUTED RIPRAP, CONCRETE, OR GABION BASKETS. THE MEDIAN SIZED STONE FOR RIPRAP SHALL BE DETERMINED FROM THE CURVES IN APPENDIX 3. 18-A (PLATES 3. 18-3 AND 3. 18-4) ACCORDING TO THE TAILWATER CONDITION. THE GRADATION, QUALITY AND PLACEMENT OF RIPRAP SHALL CONFORM TO STD. & SPEC. 3. 19, RIPRAP.

EILTER CLOTH: IN ALL CASES, FILTER CLOTH SHALL BE PLACED BETWEEN THE RIPRAP AND THE UNDERLYING SOIL TO PREVENT SOIL MOVEMENT INTO AND THROUGH THE RIPRAP. THE MATERIAL MUST MEET OR EXCRED THE PHYSICAL PROPERTIES FOR FILTER CLOTH FOUND IN STD. & SPEC. 3, 19, RIPRAP. SEE PLATE 3, 18-1 FOR ORIENTATION DETAILS.

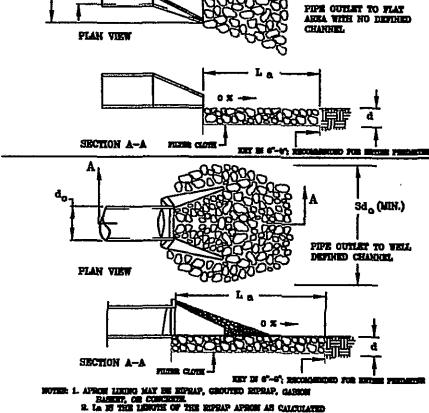
PAVED CHANNEL OUTLETS

(SEE PLATE 3. 18-2) THE FLOW VELOCITY AT THE DUTLET OF PAVED CHANNELS FLOWING AT DESIGN CAPACITY MUST NOT EXCEED THE PERMISSIBLE VELOCITY OF THE RECEIVING CHANNEL (SEE TABLES 3. 18-A AND 3. 18-B)

2. THE END OF THE PAVED CHANNEL SHALL MERGE SMOOTHLY WITH THE RECEIVING CHANNEL SECTION. THERE SHALL BEND OVERFALL AT THE END OF THE PAVED SECTION. WHERE THE BOTTOM WIDTH OF THE PAVED CHANNEL IS NARROWER THAN THE BOTTOM WIDTH OF THE RECEIVING CHANNEL, A TRANSITION SECTION SHALL BE PROVIDED THE MAXIMUM SIDE DIVERGENCE OF THE TRANSITION SHALL BE 1 IN 3F WHERE;

V = VELOCITY AT BEGINNING OF TRANSITION (FT. /SEC.)
d = DEPTH OF FLOW AT BEGINNING OF TRANSITION (FT.)

ALLOWED UNLESS THE FROUDE NUMBER (F) IS 1.0 OR LESS, OR THE SECTION IS SPECIFICALLY DESIGNED FOR TURBULENT FLOW. PIPE OUTLET CONDITIONS



Under Player 5.18-5 and 5.18-4. 3. d = 1.5 times the Manhaue Stone Diameter, but not Less than 6 diches.

Plate 8.18-1

STD & SPEC 3. 31 TEMPORARY SEEDING (TS)

. TO REDUCE EROSION AND SEDIMENTATION BY STADILIZING DISTURBED AREAS THAT WILL NOT BE PROUGHT TO FINAL GRADE FOR A PERIOD OF HOME THAN 30 DAYS.

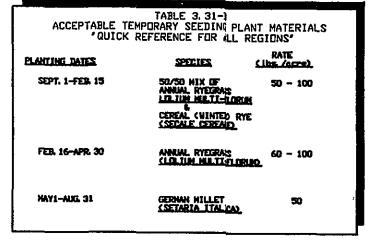
PRIOR TO SEEDING. INSTALL NECESSARY EROSION CONTROL PRACTICES SUCH AS DIKES, VATERWAYS, AND BASINS.

TO CONTROL EROSION ON BARE SOIL SURFACES, PLANTS MUST BE ABLE TO GERMINATE AND GROV, SEEDBED PREPARATION IS ESSENTIAL. LINING AN EVALUTION SHOULD BE CONDUCTED TO DETERMINE IF LINE IS NECESSARY FOR TEMPURARY SEEDING. IN MOST SOILS, IT YAMES UP TO 6 MONTHS FOR PM ADJUSTMENTS TO DOCUM FOLLOWING THE APPLICATION OF LINE. THEREFURE, IT MAY BE DIFFICULT TO JUSTIFY THE COST OF LINING A TEMPURARY SITE, ESPECIALLY WHEN THE SOIL WILL LATER BE MOVED AND REGRADED. THE FOLLOWING MAY BE USED TO DETERMINE THE ACTUAL MEED ALONG WITH SUGGESTED APPLICATION RATES.

EERTILIZED SHALL BE APPLIED AS 600 LBS. ACRE OF 10-20-10 (14 LBS. /1,000 SG. FT.) OR EQUIVALENT NUTRIENTS. LINE AND FERTILIZER SHALL BE INCREPORATED INTO THE TOP 2 TO 4 INCRES OF THE SOIL IF POSSIME.

RE-SEEDING

AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COTOR ADEQUATE TO PREVENT RILL. EROSION WILL BE RESEEDED AS SOON AS SUCH AREAS ARE IDENTIFIED.



TEMPORARY SEEDING PLANT MATERIALS, REEDING RATES, AND DATES

NUBTH

√ S∏UTH[®]

SEEDING RATE

L'S Use

STD & SPEC 3. 15 TEMPORARY SLOPE DRAIN (TSI)

DEFINITION

PURPOSE

CONSTRUCTION SPECIFICATIONS

THE MEASURE SHALL BE PLACED ON UNDISTURBED SOIL OR WELL-COMPACTED FILL.
THE ENTRANCE SECTION SHALL SLOPE TOWARD THE SLOPE TRAIN AT THE MINIMUM RATE

JF 1/2-INCH PER FOOT. THE SOIL AROUND AND UNDER THE ENTRANCE SECTION SHALLBE HAND-TAMPED IN 8-INCH LIFTS TO THE TOP OF THE DIKE TO PREVENT PIPING FAILURE AROUND THE

SLOPE DRAIN SHALL BE SECURELY STAKED TO THE SLOPE AT THE GROMMETS

WATERTIGHT FITTINGS.

6. INSTALL CULVERT INLET PROTECTION AND OUTLET PROTECTION AS PER STD. AND SPEC'S 3. 08 AND 3. 18 RESPECTIVELY.

MAINTENENCE

PROVIDED.

5. THE SLOPE DRAIN SECTIONS SHALL BE SECURELY FASTENED TOGETHER AND HAVE

THE SLOPE DRAIN STRUCTURE SHALL BE INSPECTED WEEKLY AND AFTER EVERY STORM, AND REPAIRS MADE IF NECESSARY. THE CONTRACTOR SHOULD AVOID THE PLACEMENT OF ANY MATERIAL ON AND PREVENT CONSTRUCTION TRAFFIC ACROSS THE SLOPE DRAIN.

A FLEXIBLE TUBING OR CONDUIT EXTENDING FROM THE TOP TO THE BOTTOM OF A CUT OR FILL SLOPE.

TO TEMPORARILY CONDUCT CONCENTRATED STORM VATER RUNOFF SAFELY DOWN THE FACE OF A CUT OR FILL SLOPE WITHOUT CAUSING EROSION ON OR BELLY THE SLOPE.

3 bt. (up to 100

a NOUTHERN PLEDMENT AND HOUNTAIN REGION.

C HAY BE USED AS A COVER CROP WITH SPRING SEEDING

d hay be used as a cover crop for fall secoing

b SOUTHERN PIEDMONT AND COASTAL PLAIN.

X HAY BE PLANTED BETVEEN THESE DATES.

- MAY MIL BE PLANTED BETWEEN THESE DATES.

SPECIS

RYE d

GERHAH HILLET CECTARIA ITALICA)

KIREAN LESPEDEZA ^G (LISPEDEZA STIPULACEA)

CHARACTERISTICS (a.p. Noble) May be easied in nixes. Vil.

Very-season perennial. May bunch Tolerates hot. sty stopes and acids, infertit solls. May be added to nix

Vern setten erreat legion. Tolerates ecid soils. May be added to nixes.

TABLE 6.23a

EARTHERN RIDGE -

STD & SPEC 3, 09 TEMPORARY DIVERSION DIKE <u>PURPOSES</u> TO DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AVAY FROM UN-PROTECTED DISTURBED AREAS AND SLOPES TO A STABILIZED OUTLET.

RIGHT-OF-WAY DIVERSIONS (WATER BARS)

A RIDGE OR RIDGE AND CHANNEL CONSTRUCTED DIAGONALLY ACROSS A SLOPING ROAD OR UTILITY RIGHT-OF-WAY THAT IS SUBJECT TO EROSION.

CONSTRUCTION OT ACCESS ROADS, POWER LINES, AND OTHER SIMILAR INSTALLATIONS OFTEN REQUIRES CLEARING LONG NARROW RIGHTS—OF—WAY OVER SLOPING TERRAIN (FIG. 6.230). DISTURBANCE AND COMPACTION PROMOTES GUILLY FORMATION IN THESE CLEARED STRIPS VY INCREASING THE VOLUME AND VELOCITY OF RUNOFF. GUILLY FORMATION MAY BE ESPECIALLY SEVERE IN TIRE TRACKS AND RUTS. TO PREVENT GUILLING, RUNOFF CAN OFTEN BE DIVERTED ACROSS THE WIDTH OF THE RIGHT—OF—WAY TO UNDISTURBED AREAS BY USING SMALL PREDESIGNED DIVERSIONS. GIVE SPECIAL CONSIDERATION TO EACH INDIVIDUAL OUTLET AREA, AS WELL AS TO THE CUMULATIVE EFFECT OF ADDED DIVERSIONS. USE GRAVEL TO STABILIZE THE DIVERSION WHERE SIGNIFICANT VEHICULAR TRAFFIC IS ANTICIPATED.

SPACING (FT

TO LIMIT THE ACCUMULATION OF EROSIVE VOLUMES OF WATER BY DIVERTING SURFACE RUNOFF AT PREDESIGNED INTERVALS.

CONDITIONS WHERE WHERE RUNOFF PROTECTION IS NEEDED TO PREVENT EROSION ON SLOPING PRACTICE APPLIES ACCESS RIGHTS-OF-WAYS OR OTHER LONG, NARROW SLOPING AREAS GENERALLY LESS THAN 100 FT. IN WIDTH.

DESIGN CRITERIA HEIGHT- 18 INCH MIN. MEASURED FROM THE CHANNEL BOTTOM TO THE RIDGE TOP.

GRADE AND ANGLE- A CROSSING ANGLE SHOULD BE SELECTED TO PROVIDE A POSITIVE GRADE NOT TO EXCEED 2%

OUTLET- DIVERSIONS SHOULD HAVE STABLE OUTLETS, EITHER NATURAL OF CONSTRUCTED. SITE SPACING MAY NEED TO BE ADJUSTED FOR

TELD CONDITIONS TO USE THE MOST SUITABLE AREAS FOR WATER

SIDE SLOPE- 2: 1 OR FLATTER WHERE VEHICLES CROSS

spacing of water bars is shown in Table 6.230:

SLOPE (%)

BASE WIDTH OF RIDGE- 6 FT. MIN. (FIG. 6.23b).

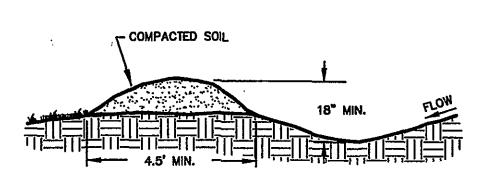
Fig. 6.23b Section view of a water bar

CONSTRUCTION 1. INSTALL THE DIVERSION AS SOON AS THE RIGHT-OF-WAY HAS BEEN CLEARED SPECIFICATIONS AND GRADED.

MAINTENANCE
PERIODICALLY INSPECT RIGHT-OF-WAY DIVERSIONS FOR WEAR AND AFTER EVERY
HEAVY RAINFALL FOR EROSION DAMAGE. IMMEDIATELY REMOVE SEDIMENT FROM THE
FLOW AREA AND REPAIR DIKE. CHECK OUTLET AREAS AND MAKE TIMELY REPAIRS
AS NEEDED. WHEN PERMANENT ROAD DRAINAGE IS ESTABLISHED AND THE AREA
ABOVE THE TEMPORARY RIGHT-OF-WAY DIVERSIONS IS PERMANENTLY STABILIZED,
REMOVE THE DIKE AND FILL THE CHANNEL TO BLEND WITH THE NATURAL GROUND,
AND APPROPRIATELY STABILIZE THE DISTURBED AREA.

2. DISK THE BASE FOR THE CONSTRUCTED RIDGE BEFORE PLACING FILL.

2. TO DIVERT SEDIMENT-LADEN RUNOFF FROM A DISTURBED AREA TO A SEDIMENT-TRAPPING FACILITY SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN.



CONSTRUCTION SPECIFICATIONS

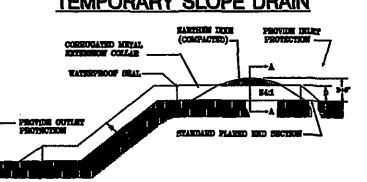
1. TEMPURARY DIVERSION DIKES MUST BE INSTALLED AS A FIRST STEP IN THE LAND-DISTURBING ACTIVITY AND MUST BE FUNTIONAL PRIOR TO UPSLOPE LAND DISTRUBANCE.

2. THE DIKE SHOULD BE ADEQUATELY COMPACTED TO PREVENT FAILURE.

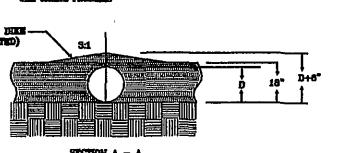
3. TEMPORARY OR PERMANENT SEEDING AND MULCH SHALL BE APPLIED TO THE DIKE IMMEDIATELY FOLLOWING ITS CONSTRUCTION. 4. THE DIKE SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION OPERATIONS AND TRAFFIC.

MAINTENANCE THE MEASURE SHALL BE INSPECTED AFTER EVERY STORM AND REPAIRS MADE TO THE DIKE, FLOW CHANNEL, DUTLET OR SEDIMENT TRAPPING FACILITY, AS NECESSARY. ONCE EVERY TWO WEEKS, WHETHER A STORM EVENT HAS DICCURRED OR NOT, THE MEASURE SHALL BE INSPECTED AND REPAIRS MADE IF NEEDED. DAMAGES CAUSED BY CONSTRUCTION TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF

TEMPORARY SLOPE DRAIN



NOTE: SECURET MAY HE CONTROLLED AT OUTLET IF UPLAND PORDERS



STD & SPEC 3, 08 CULVERT

INLET PROTECTION

GENERAL GUIDELINES (ALL TYPES)

1. THE INLET PROTECTION DEVICE SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENT AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES.

2. THE INLET PROTECTION DEVICES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT ANY RESULTANT PONDING OF STORMWATER WILL NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES. 3. DESIGN CRITERIA MORE SPECIFIC TO EACH PARTICULAR INLET PROTECTION

DEVICE WILL BE FOUND IN PLATES 3.08-1 THROUGH 3.08-2.

1. SILT FENCE CULVERT INLET PROTECTION

BE A MINIMUM OF 16 INCHES AND SHALL NOT EXCEED 34 INCHES. B. EXTRA STRENGTH FILTER FABRIC WITH A MAXIMUM SPACING OF STAKES OF 3 FEET SHALL BE USED TO CONSTRUCT THE MEASURE. C. THE PLACEMENT OF SILT FENCE SHOULD BE APPROXIMATELY 8 FEET FROM THE CULVERT IN THE DIRECTION OF INCOMING FLOW, CREATING A "HORSESHOE" SHAPE AS SHOWN IN PLATE 3.08-1.

D. IF SILT FENCE CANNOT BE INSTALLED PROPERLY OR THE FLOW AND/OR VELOCITY OF FLOW TO THE CULVERT PROTECTION IS EXCESSIVE AND MAY BREACH THE STRUCTURE, THE STONE COMBINATION NOTED IN PLATE 3,08-1

SHOULD BE UTILIZED. 2. CULVERT SEDIMENT TRAP

A. GEOMETRY OF THE DESIGN WILL BE A "HORSESHOE" SHAPE AROUND THE **CULVERT INLET (SEE PLATE 3 08-2)** B. THE TOE OF RIPRAP (COMPOSING THE SEDIMENT FILTER DAM) SHALL BE NO CLOSER THAN 24° FROM THE CULVERT OPENING IN ORDER TO PROVIDE AN ACCEPTABLE EMERGENCY OUTLET FOR FLOWS FROM LARGER STORM EVENTS C. ALL OTHER "CONSTRUCTION SPECIFICATIONS" FOUND WITHIN STD. & SPEC. 3.13,

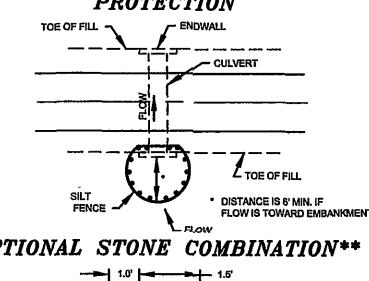
TEMPORARY SEDIMENT TRAP, ALSO APPLY TO THIS PRACTICE. E. THE PROPER INSTALLATION OF THE CULVERT INLET SEDIMENT TRAP IS A VIABLE SUBSTITUTE FOR THE INSTALLATION OF THE TEMPORARY SEDIMENT TRAP.

1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED. 2. AGGREGATE SHALL BE REPLACED OR CLEANED WHEN INSPECTION REVEALS THAT CLOGGED VOIDS ARE CAUSING PONDING PROBLEMS WHICH INTERFERE WITH ON-SITE CONSTRUCTION.

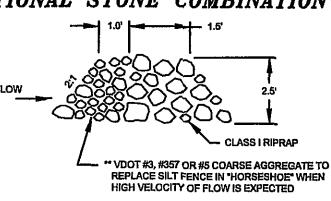
3. SEDIMENT SHALL BE REMOVED AND THE IMPOUNDMENT RESTORED TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER

4. TEMPORARY STRUCTURES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

> SILT FENCE CULVERT INLET PROTECTION

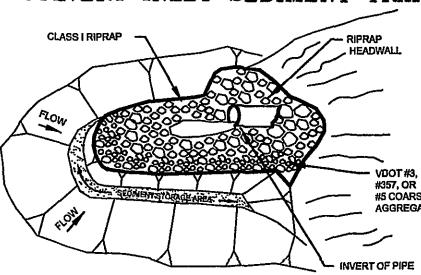


OPTIONAL STONE COMBINATION**



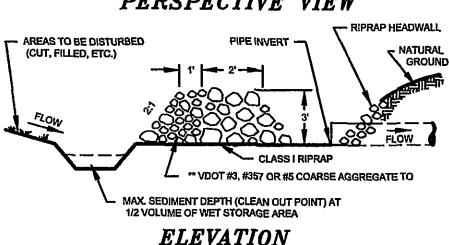
Sheets and Va. DSWC

CULVERT INLET SEDIMENT TRAP



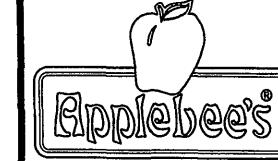
STORAGE REQUIREMENTS EQUIVALENT TO THAT OF TEMPORARY SEDIMENT TRAP, STD. & SPEC. 3.13 67 C.Y./ACRE WET STORAGE (BELOW BASE OF STONE) 67 C.Y./ACRE DRY STORAGE (BASE OF STONE TO TOP OF STONE BERM)

PERSPECTIVE VIEW



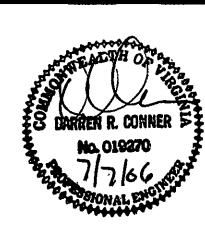
Source: North Carolina Sediment Control Commission

Plate 3.08-2



Neighborhood Grill & Bar APPLEBEE'S INTERNATIONAL, INC 4551 W. 107TH STREET, SUITE 100 OVERLAND PARK, KANSAS 66207 PH: (913) 967-4000 FX: (913) 967-8103





PROJECT NUMBER: 80320900 ISSUED FOR PERMIT & BID: 11/05 REVISIONS: PER CO. COMMENTS 6/1/06

> BKB DRAWN BY:

Erosion & Sediment Control Details

C5.3

WVWA ID# 6PAL88

PROJECT MANAGER:

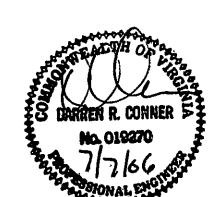
DRAWING TITLE:

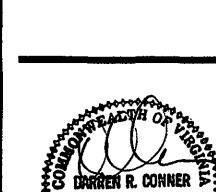
Plate 3.08-1

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