

CONDITIONS WHERE PRACTICE APPLIES: BELOW DISTURBED AREAS WHERE EROSION WOULD OCCUR IN THE FORM OF 2. WHERE THE SIZE OF THE DRAINAGE AREA IS NO MORE THAN ONE QUARTER ACRE PER 100 FEET OF SILT FENCE LENGTH; THE MAX. SLOPE LENGTH BEHIND THE BARRIER IS 100 FEET: AND THE MAX, GRADIENT BEHIND THE BARRIER IS

50 PERCENT (2:1) 3. IN MINOR SWALES OR DITCH LINES WHERE THE MAX. CONTRIBUTING DRAINAGE AREA IS NO GREATER THAN 1 ACRE AND FLOW IS NOT GREATER THAN 1 CFS. 4. SILT FENCE WILL NOT BE USED IN AREAS WHERE ROCK OR SOME OTHER HARD SURFACE PREVENTS THE FULL AND UNIFORM DEPTH ANCHORING OF THE BARRIER. PLANNING CONSIDERATIONS:

LAB WORK AT THE VIRGINIA HIGHWAY AND TRANSPORTATION RESEARCH COUNCIL (VHTRC) HAS SHOWN THAT SILT FENCES CAN TRAP A MUCH HIGHER PERCENTAGE OF SUSPENDED SEDIMENTS THAN STRAW BALES, THOUGH SILT FENCE PASSES THE SEDIMENT-LADEN WATER SLOWER, SILT FENCES ARE PREFERABLE TO STRAW BARRIERS IN MANY CASES BECAUSE OF THEIR DURABILITY AND POTENTIAL COST SAVINGS, WHILE THE FAILURE RATE OF SILT FENCES IS LOWER THAN THAT OF STRAW RADDIEDS MANY INSTANCES HAVE BEEN OBSERVED WHERE SILT FENCES ARE IMPROPERLY INSTALLED INVITING FAILURE AND SEDIMENT LOSS, THE INSTALLATION METHODS OUTLINED HERE CAN IMPROVE PERFORMANCE AND REDUCE FAILURES. AS NOTED, FLOW RATE THROUGH SILT FENCE IS SIGNIFICANTLY LOWER THAN THE FLOW RATE FOR STRAW BALE BARRIERS, THIS CREATES MORE PONDING AND HENCE MORE TIME FOR SEDIMENT TO FALL OUT, TABLE 3.05-A DEMONSTRATES THESE RELATIONSHIPS. BOTH WOVEN AND NON-WOVEN SYNTHETIC FABRICS ARE COMMERCIALLY AVAILABLE. THE WOVEN FABRICS GENERALLY DISPLAY HIGHER STRENGTH THAN THE NON-WOVEN FABRICS AND, IN MOST CASES, DO NOT REQUIRE ANY ADDITIONAL REINFORCEMENT WHEN TESTED UNDER ACID AND ALKALINE WATER CONDITIONS, MOST OF THE WOVEN FABRICS INCREASE IN STRENGTH, WHILE THE REACTIONS OF NON-WOVEN FABRICS TO THESE CONDITIONS ARE VARIABLE. THE SAME IS TRUE OF TESTING UNDER EXTENSIVE ULTRAVIOLET RADIATION, PERMEABILITY RATES VARY REGARDLESS OF FABRIC TYPE. WHILE ALL OF THE FABRICS DEMONSTRATE VERY HIGH FILTERING EFFICIENCIES FOR

NO FORMAL DESIGN IS REQUIRED. AS WITH STRAW BALE BARRIERS. AN EFFORT SHOULD BE MADE TO LOCATE SILT FENCE AT LEAST 5 FEET TO 7 FEET BEYOND THE BASE OF DISTURBED SLOPES WITH GRADES GREATER THAN 7%. 2. THE USE OF SILT FENCES, BECAUSE THEY HAVE SUCH A LOW PERMEABILITY, IS LIMITED TO SITUATIONS IN WHICH ONLY SHEET OF OVERLAND FLOWS ARE EXPECTED AND WHERE CONCENTRATED FLOWS ORIGINATE FROM DRAINAGE AREAS OF 1 ACRE OR LESS. 3. FIELD EXPERIENCE HAS DEMONSTRATED THAT, IN MANY INSTANCES, SILT FENCE IS INSTALLED TOO SHORT (LESS THAN 16 INCHES ABOVE GROUND ELEVATION). THE SHORT FENCE IS SUBJECT TO PREACHING DURING EVEN SMALL STORM EVENTS AND WILL REQUIRE MAINTENANCE "CLEAN-OUTS" MORE OFTEN, PROPERLY SUPPORTED SILT FENCE WHICH STANDS 24 TO 34 INCHES ABOVE THE EXISTING GRADE TENDS TO PROMOTE MORE EFFECTIVE SEDIMENT CONTROL. **CONSTRUCTION SPECIFICATIONS:**

1. SYNTHETIC FILTER FABRIC SHALL BE A PERVIOUS SHEET OF PROPYLENE, NYLON, POLYESTER OR ETHYLENE YARN AND SHALL BE CERTIFIED BY THE MANUFACTURER OR IPPLIER AS CONFORMING TO THE REQUIREMENTS NOTED IN TABLE 3.05-B. 2. SYNTHETIC FILTER FABRIC SHALL CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS TO PROVIDE A MIN. OF SIX MONTHS OF EXPECTED USABLE CONSTRUCTION LIFE AT A TEMPERATURE RANGE OF O' F TO 120' F. 3. IF WOODEN STAKES ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A DIAMETER OF 2 INCHES WHEN OAK IS USED AND 4 INCHES WHEN PINE IS USED. WOODEN STAKES MUST HAVE MINIMUM LENGTH OF 5 FEET.

4. IF STEEL POSTS (STANDARD "U" OR "T" SECTION) ARE UTILIZED FOR SILT FENCE CONSTRUCTION, THEY MUST HAVE A MIN. WEIGHT OF 1.33 POUNDS PER LINEAR FOOT AND SHALL HAVE A MINIMUM LENGTH OF 5 FEET. 5. WIRE FENCE REINFORCEMENT FOR SILT FENCES USING STANDARD-STRENGTH FILTER CLOTH SHALL BE A MIN. OF 14 GAUGE AND SHALL HAVE A MAX. MESH SPACING OF 6 INCHES. 1. THE HEIGHT OF A SILT FENCE SHALL BE A MIN. OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE AND SHALL NOT EXCEED 34 INCHES ABOVE GROUND ELEVATION.

2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH

6-INCH OVERLAP, AND SECURELY SEALED.

OF THE BARRIER TO AVOID THE USE OF JOINTS. WHEN JOINTS ARE UNAVOIDABLE, FILTER CLOTH

SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM

3. A TRENCH SHALL BE EXCAVATED APPROX. 4 INCHES WIDE AND 4 INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE MEASURE. 4. WHEN WIRE SUPPORT IS USED, STANDARD-STRENGTH FILTER CLOTH MAY BE USED POSTS FOR THIS TYPE OF INSTALLATION SHALL BE PLACED A MAX. OF 10-FEET APART. (SEE PLATE 3.05-1). THE WIRE MESH FENCE MUST BE FASTENED SECURELY TO THE <u>upslope</u> side of the posts using heavy duty wire staples at least one inch NG. TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRANCH A MIN OF 2 INCHES AND SHALL NOT EXTEND MORE THAN 34 INCHES ABOVE THE ORIGINAL GROUND SURFACE. THE STANDARD-STRENGTH FABRIC SHALL BE STAPLED OR WIRED TO THE WIRE FENCE, AND 8 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.

5. WHEN <u>WIRE SUPPORT IS NOT USED</u>, EXTRA-STRENGTH FILTER CLOTH SHALL BE USED.
POSTS FOR THIS TYPE OF FABRIC SHALL BE PLACED A MAX. OF 6-FEET APART. (SEE PLATE 3 05-2). THE FILTER FABRIC SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING ONE INCH LONG (MIN.) HEAVY-DUTY WIRE STAPLES OR TIE WIRES AND EIGHT INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT BE STAPLED TO EXISTING TREES. THIS METHOD OF INSTALLATION HAS BEEN FOUND TO BE MORE COMMONPLACE THAN #4. 6. IF A SILT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OF SYVALE, THE MEASURE HALL RESEMBLE AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE (SEE

MUST BE OF SUFFICIENT LENGTH TO ELIMINATE ENDFLOW, AND PLAN CONFIGURATION PLATE 3.05-2). EXTRA-STRENGTH FILTER FABRIC SHALL BE USED FOR THIS APPLICATION WITH A MAX, 3-FOOT SPACING OF POST . THE 4-INCH BY 4-INCH TRENCH SHALL BE BACKFILLED AND THE SOIL COMPACTED

SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE. BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMENENTLY STABILIZED. I. SILT FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST LY DURING PROLONGED RAINFALL ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

2. CLOSE ATTENTION SHALL BE PAID TO THE REPAIR OF DAMAGED SILT FENCE RESULTING FROM END RUNS AND UNDERCUTTING. 3. SHOULD THE FABRIC ON A SILT FENCE DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USABLE LIFE AND THE BARRIER STILL BE NECESSARY, THE FABRIC SHALL BE REPLACED PROMPTLY. 4. SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH STORM EVENT. THEY MUST BE REMOVED WHEN DEPOSITS REACH APPROX. ONE-HALF THE HEIGHT OF THE BARRIER. 5. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE IS NO LONGER

REQUIRED SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PERPARED AND SEEDED.

NON-WOVEN FABRICS WHEN FILTERING THE FINER SILT AND CLAY PARTICLES. SILT FENCE (VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK STD. & SPEC. 3.05)

TEMPORARY PONDING AREA FORMED BY CONSTRUCTING AN EARTHEN TO DETAIN SEDIMENT-LADEN RUNOFF FROM SMALL DISTURBED AREAS LONG ENOUGH TO ALLOW THE MAJORITY OF THE SEDIMENT TO SETTLE OUT FI FVATION COARSE AGGREGATE-SHALL BE V.D.O.T. #3, #357, OR #5 __1.0' HEIGHT OF WEIR 67 CU, YD/ACRE 1,787 CF STORAGE CROSS SECTION CLASS I* RIP-RAP FOR SETTLEMENT 6° BELOW SLOPE MAX.

STONE SECTION

NOTE: SEE EROSION CONTROL PLANS FOR SIZE CALCULATIONS.

ONDITIONS WHERE PRACTICE APPLIES: BELOW DISTURBED AREAS WHERE THE TOTAL CONTRIBUTING DRAINAGE 2. WHERE THE SEDIMENT TRAP WILL BE USED NO LONGER THAN 18 MONTHS (THE MAXIMUM USEFUL LIFE IS 18 MONTHS). 3. THE SEDIMENT TRAP MAY BE CONSTRUCTED EITHER INDEPENDENTLY OR IN CONJUNCTION WITH A TEMPORARY DIVERSION DIKE (STD.%SPEC. 3 09).

SEDIMENT TRAPS SHOULD BE USED ONLY FOR SMALL DRAINAGE AREAS. IF THE CONTRIBUTING DRAINAGE AREA IS 3 ACRES OR GREATER, REFER TO SEDIMENT BASIN (STD.&SPEC. 3.14). SEDIMENT TRAPS, ALONG WITH OTHER PERIMETER CONTROLS INTENDED TO RAP SEDIMENT, SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. RECENT STUDIES HAVE BEEN CONDUCTED ON THE PERFORMANCE OF SEDIMENT TRAPS (AND BASINS) WHICH WERE CONSTRUCTED USING THE DESIGN CRITERIA FOUND IN PREVIOUS EDITIONS OF THIS HANDBOOK. THE STUDIES INDICATE THAT THE CONTROL MEASURES ONLY ACHIEVED A 46% REMOVAL OF SEDIMENT

WHICH FLOWED INTO THEM DURING STORM EVENTS WHICH CAUSED MEASURABLE OUTFLOW, TO ACHIEVE A MORE ACCEPTABLE REMOVAL RATE (60%), IT WAS NECESSARY TO REVISE THE DESIGN OF THESE MEASURES IN THE HANDBOOK. THE TOTAL INITIAL STORAGE VOLUME FOR BOTH THE SEDIMENT TRAP AND THE EMPORARY SEDIMENT BASIN (STD.&SPEC. 3.14) HAS BEEN DOUBLED. THERE ARE BOTH A "WET" STORAGE VOLUME AND A DRAWDOWN OR "DRY" STORAGE VOLUME WHICH HELP TO ENHANCE SEDIMENT FALL-OUT AND PREVENT EXCESSIVE SEDIMENT LOSSES DURING LARGE STORM EVENTS WHICH OCCUR DURING THE ADVANCED STAGES OF LAND DISTURBANCE (28). IN MOST CASES EXCAVATION WILL BE REQUIRED TO ATTAIN THE NECESSARY STORAGE VOLUME, ALSO, SEDIMENT MUST BE PERIODICALLY REMOVED FROM THE TRAP TO MAINTAIN THE REQUIRED VOLUME, PLANS SHOULD DETAIL HOW EXCAVATED SEDIMENT IS TO BE DISPOSED OF, SUCH AS BY USE IN FILL AREAS on site or removal to an approved off-šite location. AS NOTED PREVIOUSLY IN THE HANDBOOK, THERE ARE NUMEROUS OTHER ACCEPTABLE WAYS TO DESIGN MANY OF THE EROSION CONTROL PRACTICES WITHIN THIS IS CERTAINLY TRUE IN THE CASE OF THE SEDIMENT TRAP. HOWEVER, VARIATIONS IN ITS DESIGN SHOULD BE CONSIDERED JUDICIOUSLY BY PLAN REVIEWERS TO ENSURE THAT THE MINIMUM STORAGE REQUIREMENTS

AND STRUCTURAL INTEGRITY NOTED IN THIS SPECIFICATION ARE MAINTAINED.

-BLAZE ORANGE

EQUAL) TO BE

. --- PLACE BARK MULCH

BY BARRIER

SYNTHETIC BARRICADE

MESH (OR APPROVED

FASTENED TO POSTS

AT AREAS NOT PROTECTED

HE SEDIMENT TRAP MUST HAVE AN INITIAL STORAGE VOLUME OF 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA, HALF OF WHICH SHALL BE IN THE FORM OF A PERMANENT POOL OR WET STORAGE TO PROVIDE A STABLE SETTLING MEDIUM. THE REMAINING HAIF SHALL BE IN THE FORM OF A DRAWDOWN OR DRY STORAGE WHICH WILL PROVIDE EXTENDED SETTLING TIME DURING LESS FREQUENT, LARGER STORM EVENTS. THE VOLUME OF THE WE STORAGE SHALL BE MEASURED FROM THE LOW POINT OF THE EXCAVATED AREA TO THE BASE OF THE STONE OUT IFT STRUCTURE. THE VOLUME OF THE DRY STORAGE SHALL BE MEASURED. FROM THE BASE OF THE STONE OUTLET TO THE CREST OF THE STONE OUTLET (OVERFLOW MECHANISM). SEDIMENT SHOULD BE REMOVED FROM THE BASIN WHEN THE VOLUME OF THE VET STORAGE IS REDUCED BY ONE-HALF

FOR A SEDIMENT TRAP, THE WET STORAGE VOLUME MAY BE APPROXIMATED AS FOLLOWS: $V1 = 0.85 \times A1 \times D1$ V1 = THE WET STORAGE VOLUME IN CUBIC FEET

A1 = THE SURFACE AREA OF THE FLOODED AREA AT THE BASE OF THE STONE OUTLET IN SQUARE FEET D1 = THE MAXIMUM DEPTH IN FEET, MEASURED FROM THE LOW POINT IN THE TRAP TO THE BASE OF THE STONE OUTLET THE DRY STORAGE VOLUME MAY BE APPROXIMATED AS FOLLOWS:

> V2 = THE DRY STORAGE VOLUME IN CUBIC FEET A1 = THE SURFACE AREA OF THE FLOODED AREA AT THE BASE OF THE STONE OUTLET IN SQUARE FEET

THE STONE OUTLET (OVERFLOW MECHANISM), IN SQUARE FEET D2 = THE DEPTH IN FEET, MEASURED FROM THE BASE OF THE STONE OUTLET TO THE CREST OF THE STONE OUTLET. THE DESIGNER SHOULD SEEK TO PROVIDE A STORAGE AREA WHICH HAS A MINIMUM 2:1 LENGTH O WIDTH RATIO IMEASURED FROM POINT OF MAXIMUM RUNOFF INTRODUCTION TO OUTLET). NOTE: CONVERSION BETWEEN CUBIC FEET AND CUBIC YARDS IS AS FOLLOWS:

A2 = THE SURFACE AREA OF THE FLOODED AREA AT THE CREST OF

IUMBER OF CUBIC FEET x 0.037 = NUMBER OF CUBIC YARDS SIDE SLOPES OF EXCAVATED AREAS SHOULD BE NO STEEPER THAN 1:1. THE MAXIMUM TH OF EXCAVATION WITHIN THE WET STORAGE AREA SHOULD BE 4 FEET TO FACILITATE

CLEAN-OUT AND FOR SITE SAFETY CONSIDERATIONS.

THE OUTLET FOR THE SEDIMENT TRAP SHALL CONSIST OF A STONE SECTION OF THE EMBANKMENT LOCATED AT THE LOW POINT IN THE BASIN, A COMBINATION OF COARSE AGGREGATE AND RIPRAP SHALL BE USED TO PROVIDE FOR FILTERING/DETENTION AS WELL AS OUTLET STABILITY. THE SMALLER STONE SHALL BE VOOT #3, #357, OR #5 COARSE AGGREGATE (SMALLER STONE SIZES WILL ENHANCE FILTER EFFICIENCY) AND RIPRAP SHALL BE "CLASS I". FILTER CLOTH WHICH MEETS THE PHYSICAL

REQUIREMENTS NOTED IN STDASPEC, 3.19, RIPRAP SHALL BE PLACED AT THE STONE-SOIL INTERFACE TO ACT AS A "SEPARATOR". THE MINIMUM LENGTH OF THE OUTLIET SHALL BE 6 FEET TIMES THE NUMBER OF ACRES COMPRISING THE TOTAL AREA DRAINING TO THE TRAP. THE CREST OF THE STONE OUTLET MUST BE AT LEAST 1.0 FOOT BELOW THE TOP OF THE EMBANKMENT TO ENSURE THAT THE FLOW WILL TRAVEL OVER THE STONE AND NOT THE EMBANGMENT. THE OUTLET SHALL BE CONFIGURED AS NOTED IN PLATE 3.13-2 EMBANKMENT CROSS-SECTION:
THE MAXIMUM HEIGHT OF THE SEDIMENT TRAP EMBANKMENT SHALL BE 5 FEET AS MEASURED FROM THE

BASE OF THE STONE OUTLET. MIN. TOP WIDTHS (W) AND OUTLET HEIGHTS (Ho) FOR VARIOUS EMBANKMEN HEIGHTS (H) ARE SHOWN IN PLATE 3.13-1. SIDE SLOPES OF THE EMBANKMENT SHALL BE 2:1 OR FLATTER.

SEDIMENT TRAPS MUST BE REMOVED AFTER THE CONTRIBUTING DRAINAGE AREA IS STABILZIED, PLANS SHOULD SHOW HOW THE SITE OF THE SEDIMENT TRAP IS TO BE GRADED AND STABILIZED AFTER REMOVAL.

THE AREA UNDER THE EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MAT. 2. FILL MATERIAL FOT THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHOULD BE COMPACTED IN 6-INCH LAYERS BY TRAVERSING WITH CONSTRUCTION EQUIPMEN 3. THE EARTHEN EMBANKMENT SHALL BE SEEDED WITH TEMPORARY OR PERMANENT VEGETATION (SEE STD &SPEC, 3.31 AND 3.32) IMMEDIATELY AFTER INSTALLATION. 4. CONSTRUCTION OPERATIONS SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION ARE MINIMIZED. 5. THE STRUCTURE SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE UPSLOPE DRAINAGE AREA 6. ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER (EXCEPT FOR EXCAVATED, WET STORAGE AREA

WHICH MAY BE AT A MAXIMUM 1:1 GRADE). SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN VOLUME OF THE WET STORAGE. SEDIMENT REMOVAL FROM THE BASIN SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE AND CAUSE SEDIMENTATION PROBLEMS.

2. FILTER STONE SHALL BE REGULARLY CHECKED TO ENSURE THAT FILTRATION PERFORMANCE I MAINTAINED. STONE CHOKED WITH SEDIMENT SHALL BE REMOVED AND CLEANED OR REPLACED. 3. THE STRUCTURE SHOULD BE CHECKED REGULARLY TO ENSURE THAT IT IS STRUCTURALLY SOUND AND HAS NOT BEEN DAMAGED BY EROSION OR CONSTRUCTION EQUIPMENT. THE HEIGHT OF THE STONE OUTLET SHOULD BE CHECKED TO ENSURE THAT ITS CENTER IS AT LEAST 1 FOOT BELOW

SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET. PREVENT SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF THE DISTRURBED AREA.

CONDITIONS WHERE PRACTICE APPLIES: THERE STORM DRAIN INLETS ARE TO BE MADE OPERATIONAL BEFORE PERMANENT STABILIZATION OF THE CORRESPONDING DISTURBED DRAINAGE AREA DIFFERENT TYPES OF STRUCTURES ARE APPLICABLE TO DIFFERENT CONDITIONS (SEE PLATES 3.07-1 THROUGH 3.07-8). PLANNING CONSIDERATIONS

STORM SEWERS WHICH ARE MADE OPERATIONAL PRIOR TO STABILIZATION OF THE ASSOCIATED DRAINAGE AREAS CAN CONVEY LARGE AMOUNTS OF SEDIMENT TO NATURAL DRAINAGEWAYS. IN CASE OF EXTREME SEDIMENT LOADING. THE STORM SEWER ITSELF MAY CLOG AND LOSE A MAJOR PORTION OF ITS CAPACITY TO AVOID THESE PROBLEMS, IT IS NECESSARY TO PREVENT SEDIMENT FROM ENTERING THE SYSTEM AT THE INLETS. THIS PRACTICE CONTAINS SEVERAL TYPES OF INLET FILTERS AND TRAPS WHICH HAVE DIFFERENT APPLICATIONS DEPENDENT UPON SITE CONDITIONS AND TYPE OF INLET. OTHER INNOVATIVE TECHNIQUES FOR ACCOMPLISHING THE SAME PURPOSE ARE ENCOURAGED, BUT ONLY AFTER SPECIFIC PLANS AND DETAILS ARE SUBMITTED TO AND APPROVED BY THE APPROPIRATE PLAN-APPROVING AUTHORITY. CARE SHOULD BE TAKEN WHEN CHOOSING A SPECIFIC TYPE OF INLET PROTECTION. FIELD EXPERIENCE HAS SHOWN THAT INLET PROTECTION WHICH CAUSES EXCESSIVE PONDING IN AN AREA OF HIGH CONSTRUCTION ACTIVITY MAY BECOME SO INCONVENIENT THAT IT IS REMOVED OR BYPASSED. THUS TRANSMITTING SEDIMENT-LADEN FLOWS UNCHECKED, IN SUCH SITUATIONS, A STRUCTURE WITH AN ADEQUATE OVERLOW MECHANISM SHOULD BE UTILIZED.

THE FOLLOWING INLET PROTECTION DEVICES ARE FOR DRAINAGE AREAS OF ONE ACRE OF LESS, RUNOFF FROM LARGER DISTURBED AREAS SHOULD BE ROUTED TO A TEMPORARY SEDIMENT TRAP (STD. %SPEC. 3.13) OR A TEMPORARY SEDIMENT BASIN (STD.&SPEC, 3.14) THE BEST WAY TO PREVENT SEDIMENT FROM ENTERING THE STORM SEWER SYSTEM IS TO STABILIZE THE SITE AS QUICKLY AS POSSIBLE, PREVENTING EROSION AND STOPPING SEDIMENT AT ITS SOURCE. STONE IS UTILIZED AS THE CHIEF PONDING/FILTERING AGENT IN MOST OF THE INLET PROTECTION TYPES DESCRIBED IN THIS SPECIFICATION. THE VARIOUS TYPES OF 'COARSE AGGREGATES' WHICH ARE DEPICTED ARE ARI E TO FILTER OUT SEDIMENT MAINLY THROUGH SLOWING DOWN FLOWS DIRECTED TO THE INLET BY CREATING AN INCREASED FLOW PATH FOR THE STORMWATER (THOUGH VOID SPACE IN THE RESPECTIVE STONE). THE STONE FILTERING MEDIUM BY NO MEANS SLOWS STORMWATER FLOWRATE AS DOES FILTER CLOTH AND THEREFORE CANNOT PROVIDE THE SAME DEGREE OF FILTER EFFICIENCY WHEN SMALLER SILT AND CLAY PARTICLES ARE INTRODUCED INTO STORMWATER FLOWS. HOWEVER, AS MENTIONED EARLIER, EXCESSIVE PONDING IN BUSY AREAS ADJACENT TO STORMWATER INLETS IS IN MANY CASES UNACCEPTABLE-THAT IS WHY STONE MUST BE UTILIZED WITH MANY INSTALLATIONS FORTUNATELY, IN MOST INSTANCES, INLET PROTECTION UTILIZING STONE SHOULD NOT BE THE SOLE CONTROL MEASURE, AT THE TIME THAT STORM SEWER INLET AND ASSOCIATED APPURTANCES BECOME OPERATIONAL

AREAS ADJACENT TO THE STRUCTURES ARE MOST LIKELY AT FINAL GRADE OR OR WILL NOT BE ALTERED FOR EXTENDED PERIODS: THIS IS THE TIME WHEN TEMPORARY SEEDING (STD.&SPEC.3.31) AND OTHER APPROPRIATE CONTROLS SHOULD BE IMPLEMENTED TO ENHANCE SEDIMENT-LOSS MITIGATION. IN ADDITION BY VARYING STONE SIZES USED IN THE CONSTRUCTION OF INLET PROTECTION, A GREATER DEGREE OF SEDIMENT REMOVAL CAN BE OBTAINED. AS AN OPTION, FILTER CLOTH CAN BE USED WITH THE STONE IN THESE DEVICES TO FURTHER ENHANCE SEDIMENT REMOVAL NOTABLY, THE POTENTIAL INCONVENIENCE OF EXCESSIVE PONDING MUST BE EXAMINED WITH THESE CHOICES, ESPECIALLY THE LATTER. . THE DRAINAGE AREA SHALL BE NO GREATER THAN 1 ACRE.

2. THE INLET PROTECTION DEVICE SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN OUT AND DISPOSAL OF TRAPPED SEDIMENT AND MIN. INTERFERENCE WITH CONSTRUCTION ACTIVITIES 3. THE INLET PROTECTION DEVICES SHALL BE CONSTRUCTED IN SUCH A MANNER THAT ANY RESULTANT PONDING OF STORMMATER WILL NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES I. DESIGN CRITERIA MORE SPECIFIC TO EACH PARTICULAR INLET PROTECTION DEVICE WILL BE FOUND ON PLATES 3.07-1 THROUGH 3 07-8. 5. FOR THE INLET PROTECTION DEVICES WHICH UTILIZE STONE AS THE CHIEF PONDING/FILTERING MEDIUM, A RANGE OF STONE SIZED IS OFFERED; V.D.O.T. #3, #357, OR #5 COARSE AGGREGATE SHOULD BE USED. THE DESIGNER/PLAN REVIEWER SHOULD ATTEMPT TO GET THE GREATEST AMOUNT

- WIRE SCREEN FILTERED WATER SEDIMENT POND NOTE: GRAVEL SHALL BE V.D.O.T. #3, #357, OR #5 COARSE AGGREGATE

FIGURE A: BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER OF FILTERING ACTION POSSIBLE (BY USING SMALLER-SIZED STONE), WHILE NOT CREATING

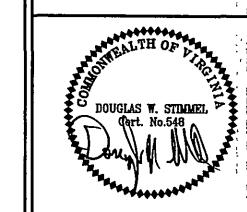
SIGNIFICANT PONDING PROBLEMS. 6. IN ALL DESIGNS WHICH UTILIZE STONE WITH A WIRE-MESH SUPPORT AS A FILTERING MECHANISM. THE STONE CAN BE COMPLETELY WRAPPED WITH THE WIRE MESH TO IMPROVE STABILITY AND PROVIDE EASIER CLEANING. 7. FILTER FABRIC MAY BE ADDED TO ANY OF THE DEVICES WHICH UTILIZE "COARSE AGGREGATE" STONE TO SIGNIFICANTLY ENHANCE SEDIMENT REMOVAL. THE FABRIC, WHICH MUST MEET THE PHYSICAL REQUIREMENTS NOTED FOR "EXTRA STRENGTH" FOUND IN TABLE 3.05-B. SHOULD BE SECURED BETWEEN THE STONE AND THE INLET (ON WIRE-MESH IF IT IS PRESENT). AS A RESULT OF THE SIGNIFICANT INCREASE IN FILTER EFFICIENCY PROVIDED BY THE FABRIC, A LARGER RANGE OF STONE SIZES (VDOT#1, #2, OR #3 COARSE AGGREGATE) MAY BE UTILIZED WITH SUCH A CONFIGURATION. THE LARGER STONE WILL HELP KEEP LARGER SEDIMENT MASSES FROM CLOGGING THE CLOTH, NOTABLY, SKINIFICANT PONDING MAY OCCUR AT THE INLET IF FILTER CLOTH IS UTILIZED IN THIS MANNER

CONSTRUCTION SPECIFICATIONS (BLOCK AND GRAVEL DROP INLET SEDIMENT FILTER): A PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERMETER OF THE INLET, WITH THE ENDS OF ADJACENT BLOCKS ABUTTING. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF 4-INCH, 8-INCH, AND 12-INCH WIDE BLOCKS, THE BARRIER OF BLOCKS SHALL BE AT LEAST 12-INCHES HIGH AND NO GREATER THAN 24-INCHES HIGH. B. WIRE MESH SHALL BE PLACED OVER THE OUTSIDE VERTICAL FACE (WEBBING) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE HOLES IN THE BLOCKS, WIRE MESH WITH 1/2-INCH OPENINGS C. STONE SHALL BE PILED AGAINST THE WIRE TO THE TOP OF THE BLOCK BARRIER, AS SHOWN IN PLATE 3.07-3

D. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT SO THAT IT NO LONGER ADEQUATELY PERFORMS ITS FUNCTION, THE STONE MUST BE PULLED AWAY FROM THE BLOCKS, CLEANED AND REPLACED. 1. THE STRUCTURE SHALL BE INSPECTED AFTER EACH RAIN AND REPAIRS MADE AS NEEDED.

2. SEDIMENT SHALL BE REMOVED AND THE TRAP RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE HALF THE DESIGN DEPTH OF THE TRAP, REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE. 3. STRUCTURES SHALL BE REMOVED AND THE AREA STABILIZED WHEN THE REMAINING DRAINAGE AREA HAS

(VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK STD.&SPEC.3.07)



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TEMPORARY SEDIMENT TRAP (VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK STD. & SPEC. 3.13)

THIS MUST BE APPROVED ON AN INDIVIDUAL BASIS BY THE

PROTECTION BARRIERS SHALL BE INSTALLED PRIOR TO ANY

ENGINEERING DEPARTMENT. ALL TREE

GENERAL NOTES:

TREES LOCATED WITHIN THE STREET RIGHT OF WAY SHALL BE BARRIERS SHALL EXTEND AROUND TRUNK AS SHOWN. THEY PROTECTED FROM DAMAGE AND/OR REMOVAL PER THE CITY SHALL ENCOMPASS THE TREES WITH A RADIUS OF NO LESS OF ROANOKE TREE ORDINANCE. UTILITIES MAY BE TUNNELED IN THAN ONE FOOT (1') FOR EVERY ONE INCH (1") OF TRUNK THE ROOT ZONE AT A 24" MINIMUM PROVIDING THAT PLANS ARE DIAMETER UNLESS OTHERWISE DETAILED. DEVIATIONS FROM APPROVED SHOWING THE LOCATION AND METHOD.

GRADING OR OTHER LAND DISTURBING ACTIVITY. THEY SHALL BE CONSTRUCTED FROM ANY MATERIAL SUBSTANTIAL ENOUGH TO DESIGNATE THE PROTECTED AREA AND PROTECT THE ROOTS. TRUNK, AND CROWN OF THE TREE. EXAMPLE: 2"x4" 4 STANDARDS AND 1"x4" RAILS, SILT FENCING, ETC. ONE FOOT FOR EACH INCH OF TRUNK DIAMETER 6' MINIMUM WIDTH DEAD TREES AND SCRUB GROWTH SHALL BE CUT FLUSH WITH ADJACENT ✓ STEELWOOD POST GRADE, NO GRUBBING ALLOWED POST TO POST UNDER DRIP LINE CONTINUE FENCE COMPLETELY AROUND AREA TO BE PROTECTED. NO BLDG. MATERIALS, DIRT OR EQUIPMENT TO BE STORED INSIDE FENCE. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT.

GENERAL NOTES cont'd:

IN SOME CASES, PERMITS MAY BE ISSUED TO ALLOW TEMPORARY (30 DAYS) ACCESS ACROSS THE PROTECTED AREA. MULCH, 4" TO 6" DEEP, WILL BE REQUIRED IN THESE AREAS TO ACT AS A CUSHION TO PREVENT SOIL COMPACTION DO NOT STORE MATERIALS OR PARK MACHINERY IN ANY PORTION OF THE PROTECTED ROOT ZONE. FILL DIRT NO DEEPER THAN TWO INCHES (2") SHALL BE

BE PERFORMED UNDER THE SUPERVISION OF THE CITY OF ROANOKE ENGINEERING DEPARTMENT. IN THE PROTECTED ROOT ZONE, STUMPS, DEAD TREES, AND SHRUB GROWTH SHALL BE CUT FLUSH OR GROUND OUT. NO GRUBBING IS PERMITTED. REMOVE ALL BARRIERS UPON COMPLETION OF PROJECT AND

ALLOWED WITHIN THE DRIP LINE OF THE TREE. THIS WORK SHALL

TREES THAT DIE AS A RESULT OF THE CONTRACTORS NEGLIGENCE TO THESE SPECIFICATIONS SHALL BE REMOVED AND REPLACED.

NEW TREE DEAD OR DYING TREES LESS THAN 12 INCHES DBH 1-4" CALIPER TREES 2-4" CALIPER TREES 12-20 INCHES DBH 3-4" CALIPER TREES 20-28 INCHES DBH 4-4" CALIPER TREES 28-36 INCHES DBH

ABOVE 36 INCHES DBH 5-4" CALIPER TREES ANY TREES PLANTED SHALL BE IN ACCORDANCE WITH THE CITY OF ROANOKE TREE PLANTING SPECIFICATIONS.

ROOT PRUNING: ROOT PRUNING SHALL BE KEPT TO AN ABSOLUTE MINIMUM. ROOT PRUNING SHALL BE STARTED WITHIN 15 DAYS AFTER THE AWARD OF THE CONTRACT AN SHALL BE COMPLETED WITHIN 15 DAYS AFTER STARTING WORK, THE CUT IS TO BE MADE NO MORE THAN 6" BEHIND THE BACK OF TWO FEET BELOW THE SOIL SURFACE. THE ROOTS SHALL BE CUT CLEANLY LEAVING A SMOOTH SURFACE, ALL CUT SURFACES OF ROOTS TWO INCHES OR LARGER IN DIAMETER SHALL BE COVERED IMMEDIATELY WITH TREE WOUND DRESSING OR THE TYPE USE AND APPROVED BY THE CITY ARBORIST. ROOT PRUNING EQUIPMENT SHALL BE KEPT SHARP TO ENSURE THAT ROOTS ARE CUT CLEANLY AND ARE NOT BROKEN OR TORN BY DULL OR UNSUITABLE EQUIPMENT.

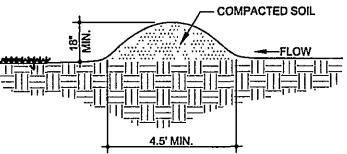
PRUNING AND THINNING OF EXISTING TREES: ALL BRANCHES OVERHANGING THE ROADWAY SHALL BE REMOVED TO A HEIGHT OF 17', DEAD WOOD AND CROSSED BRANCHES SHALL BE REMOVED FROM THE TREES WITHIN THE CONTRACT AREA. THE PRUNING SHALL BE DONE IN A MATTER WHICH WILL PRESERVE THE NATURAL CHARACTER OF THE CROWN.

FERTILIZATION: . A FORMULATION OF 31-10-8 ANALYSIS FERTILIZER OR OTHER AS APPROVED BY THE CITY OF ROANOKE AND THE ENGINEER SHALL BE USED. TREES SHALL BE FERTILIZED WITHIN THE PROTECTED ROOT ZONE AT THE RATE OF 6 LBS. NITROGEN PER 1000 S.F. SOURCE OF NITROGEN SHALL BE NO LESS THAN 50% UREA FORMALDEHYDE (SLOW RELEASE LOW SALT INDEX), THIS LIQUID FERTILIZER IS USED WITH A TREE FEEDING NEEDLE AN EQUIVALENT DOSAGE SHALL BE APPLIED USING THE SAME PATTERN OF HOLE.

A TEMPORARY RIDGE OF COMPACTED SOIL CONSTRUCTED AT THE TOP OR BASE OF A SLOPING DISTURBED AREA.

. TO DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED DISTURBED AREAS AND SLOPES TO A STABILIZED OUTLET. 2. TO DIVERT SEDIMENT-LADEN RUNOFF FROM A DISTURBED AREA TO A SEDIMENT-TRAPPING FACILITY SUCH AS A SEDIMENT TRAP OR SEDIMENT BASIN

CONDITIONS WHERE PRACTICE APPLIES: MHEREVER STORMWATER RUNOFF MUST BE TEMPORARILY DIVERTED TO PROTECT DISTURBED AREAS AND SLOPES OF RETAIN SEDIMENT ON SITE DURING CONSTRUCTION, THESE STRUCTURES GENERALLY HAVE A LIFE EXPECTANCY OF 18 MONTHS OR LESS, WHICH CAN BE PROLONGED



TEMPORARY DIVERSION DIKE IS INTENDED TO DIVERT OVERLAND FLOW TO A STABILIZED OUTLET OR A SEDIMENT-TRAPPING FACILITY DURING ESTABLISHMENT OR PERMANENT STABILIZATION ON SLOPING DISTURBED AREAS. WHEN USED AT THE TOP OF A SLOPE, THE STRUCTURE PROTECTS EXPOSED SLOPES BY KEEPING UPLAND RUNOFF AWAY. WHE USED AT THE BASE OF A SLOPE, THE STRUCTURE PROTECTS ADJACENT AND DOWNSTREAM AREAS BY DIVERTING SEDIMENT-LADEN RUNOFF TO A SEDIMENT TRAPPING FACILITY. AS PER M S. #5, IT IS VERY IMPORTANT THAT A TEMPORARY DIVERSION DIKE BE STABILIZED IMMEDIATELY FOLLOWING INSTALLATION WITH TEMPORAR PERMANENT VEGETATION TO PREVENT EROSION OF THE DIKE ITSELF. THE GRADIENT OF THE CHANNEL BEHIND THE DIKE IS ALSO AN IMPORTANT CONSIDERATION, THE DIKE MUST HAVE A POSITIVE GRADE TO ASSURE DRAINAG BUT IF THE GRADIENT IS TOO GREAT, PRECAUTIONS MUST BE TAKEN TO PREVEN

PARABOLIC OR TRAPEZOIDAL SHAPE TO HELP INHIBIT A HIGH VELOCITY OF FLOW

TO UPSLOPE LAND DISTURBANCE. TO THE DIKE IMMEDIATELY FOLLOWING ITS CONSTRUCTION. 4. THE DIKE SHOULD BE LOCATED TO MINIMIZE DAMAGES BY CONSTRUCTION FROSION DUE TO HIGH-VELOCITY CHANNEL FLOW BEHIND THE DIKE. THE CROSS-OPERATIONS AND TRAFFIC. SECTION OF THE CHANNEL WHICH RUNS BEHIND THE DIKE SHOULD BE OF A

SIZE TYPE LOCATION SANITARY SEWER WATER STORM SEWER

SPECIFICATIONS.

THE CHANNEL BEHIND THE DIKE SHALL HAVE A POSITIVE GRADE TO A STABILIZED OUTLET, IF THE CHANNEL SLOPE IS LESS THAN OR EQUAL TO 2%, NO STABILIZATION IS REQUIRED, IF THE SLOPE IS GREATER THAN 2%, THE CHANNEL SHALL BE STABILIZED IN ACCORDANCE WITH STD.&SPEC. 3.17, STORMWATER CONVEYANCE CHANNEL. 1. THE DIVERTED RUNOFF, IF FREE OF SEDIMENT, MUST BE RELEASED

2. SEDIMENT-LADEN RUNOFF MUST BE DIVERTED AND RELEASED THROUGH

A SEDIMENT-TRAPPING FACILITY SUCH AS A TEMPORARY SEDIMENT TRAP

THIS PRACTICE IS CONSIDERED AN ECONOMICAL ONE BECAUSE IT USES

MATERIAL AVAILABLE ON THE SITE AND CAN USUALLY BE CONSTRUCTED WITH EQUIPMENT NEEDED FOR SITE GRADING. THE USEFUL LIFE OF THE

PRACTICE CAN BE EXTENDED BY STABILIZING THE DIKE WITH VEGETATION. DIVERSION DIKES ARE PREFERABLE TO SILT FENCE BECAUSE THEY ARE MORE

DURABLE, LESS EXPENSIVE, AND REQUIRE MUCH LESS MAINTENANCE WHEN

ONCE THE CONTROL LIMITS OF THE SILT FENCE OR STRAY BALE BARRIER

SITES. IF INSTALLED PROPERLY AND IN THE FIRST PHASE OF GRADING,

FACILITIES IS THE ONLY ASSOCIATED MAINTENANCE REQUIREMENT.

ACCORDANCE WITH DIVERSIONS (STD.&SPEC. 3.12).

OF THE DIKE IS 18 INCHES (SEE PLATE 3.09-1).

THROUGH A STABILIZED OUTLET OR CHANNEL

THE MAXIMUM ALLOWABLE DRAINAGE AREA IS 5 ACRES.

HAVE BEEN EXCEEDED.

DRAINAGE AREA:

(SEE PLATE 3.09-1).

CONSTRUCTED PROPERLY ALONG WITH A TEMPORARY SEDIMENT TRAP (STD & SPEC. 3.13), THEY BECOME A LOGICAL CHOICE FOR A CONTROL MEASURE

TEMPORARY DIVERSION DIKES ARE OFTEN USED AS A PERIMETER CONTROL IN ASSOCIATION WITH A SEDIMENT TRAP OR A SEDIMENT BASIN, OR A SERIES

OF SEDIMENT-TRAPPING FACILITIES, ON MODERATE TO LARGE CONSTRUCTION

MAINTENANCE COSTS ARE VERY LOW. OFTEN, CLEANING OF SEDIMENT-TRAPPING

AS SPECIFIED HEREIN, THIS PRACTICE IS INTENDED TO BE TEMPORARY. HOWEVER,

NO FORMAL DESIGN IS REQUIRED. THE FOLLOWING CRITERIA SHALL BE MET:

THE MINIMUM ALLOWABLE HEIGHT MEASURED FROM THE UPSLOPE SIDE

SIDE SLOPES: 1-1/2:1 OR FLATTER, ALONG WITH A MINIMUM BASE WIDTH OF 4.5 FEET

WITH MORE STRINGENT DESIGN CRITERIA, IT CAN BE MADE PERMANENT IN

(STD &SPEC. 3.13) OR TEMPORARY SEDIMENT BASIN (STD.&SPEC. 3.14). **CONSTRUCTION SPECIFICATIONS:** 1. TEMPORARY DIVERSION DIKES MUST BE INSTALLED AS A FIRST STEP IN THE LAND-DISTURBING ACTIVITY AND MUST BE FUNCTIONAL PRIOR 2. THE DIKE SHOULD BE ADEQUATELY COMPACTED TO PREVENT FAILURE. TEMPORARY OR PERMANENT SEEDING AND MULCH SHALL BE APPLIED

MADE TO THE DIKE, FLOW CHANNEL, OUTLET OR SEDIMENT TRAPPING EVENT HAS OCCURRED OR NOT. THE MEASURE SHALL BE INSPECTED

THE MEASURE SHALL BE INSPECTED AFTER EVERY STORM AND REPAIRS FACILITY, AS NECESSARY, ONCE EVERY TWO WEEKS, WHETHER A STORM AND REPAIRS MADE IF NEEDED. DAMAGES CAUSED BY CONSTRUCTIO TRAFFIC OR OTHER ACTIVITY MUST BE REPAIRED BEFORE THE END OF FACH WORKING DAY.

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PARKING INFORMATION HANDICAP SPACES 8.0' X 21.0' @ 60 • **SPACES** 32 SPACES 9.0' X 21.0' @ 60 • 9.0' X 21.0' @ 90 • 3 SPACES 9.0' X 19.0' @ 90 • SPACES

PAVING SPECIFICATIONS

CONTRACTOR TO REFER TO SOILS REPORT FOR SITE SPECIFIC PAVEMENT

COMPACTION TEST AND/OR A CORE SAMPLE. IF TESTS PROVE CORRECT, PER ABOVE SPECIFICATION, TESTS WILL BE AT THE EXPENSE OF

McDONALD'S, OTHERWISE, GENERAL CONTRACTOR WILL BE CHARGED.

McDONALD'S ENGINEER RESERVES THE RIGHT TO REQUEST A

UTILITY INFORMATION

8" DIP IN RUTHERFORD AVE. 12" LINE - WILLIAMSON ROAD EXISTING SYSTEM TIES IN TO MANHOLE. 24" RCP IN RUTHERFORD AVE. ELECTRIC OVERHEAD AT SOUTHEAST CORNER OF PROPERTY GAS ALONG WILLIAMSON ROAD

SURVEY INFORMATION PREPARED BY: REGIONAL LAND SURVEYORS, INC.

8642 W. MARKET ST. SUITE 100 GREENSBORO, NC 27409 336-665-8155 DATE OF SURVEY:8-20-07

PLAN SCALE: 1" = 20'

STREET ADDRESS 701 WILLIAMSON ROAD CITY

STATE **VIRGINIA** ROANOKE COUNTY

LOCATION CODE NUMBER TAX PIN NUMBER 3025003

STATUS DATE FINAL 03/06/08 PLAN CHECKED | 03/06/08 AS-BUILT **C-8**

SCALE: N.T.S.

WHICH COULD ARISE IN A VEE DITCH.

(VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK STD. & SPEC. 3.09)

SAPA PROJECT # 07-240

STIMMEL FILENAME: 07-240BASE.DWG

45-0174

DETAILS