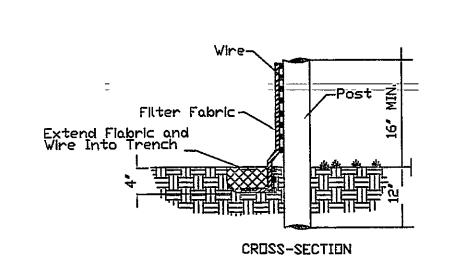
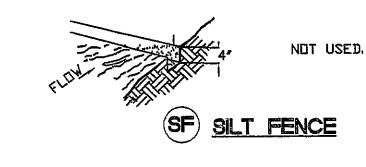
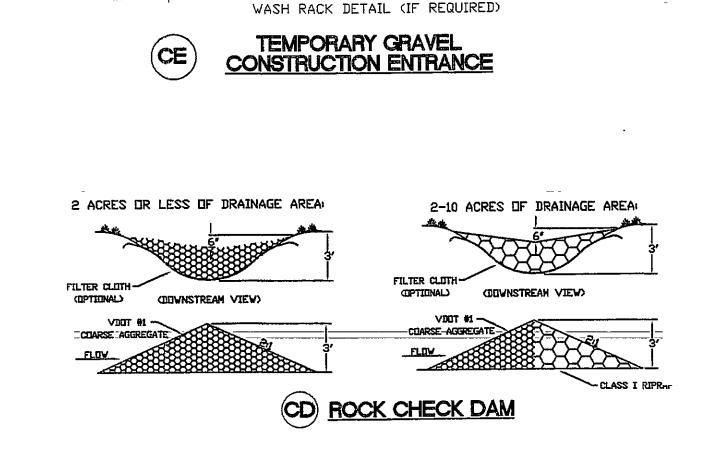


Pipe Dutlet To Flat Area With No Defined Channe Pipe Butlet To Well-Defined Channel OUTLET PROTECTION 1. Apron lining may be rip-rap, grouted rip-rap, or concrete. 2. La is the length of the riprap apron as calculated using plates 1.36d-and 1.36e. 3. d = 1.5 times the maximum stone dlameter, but not less



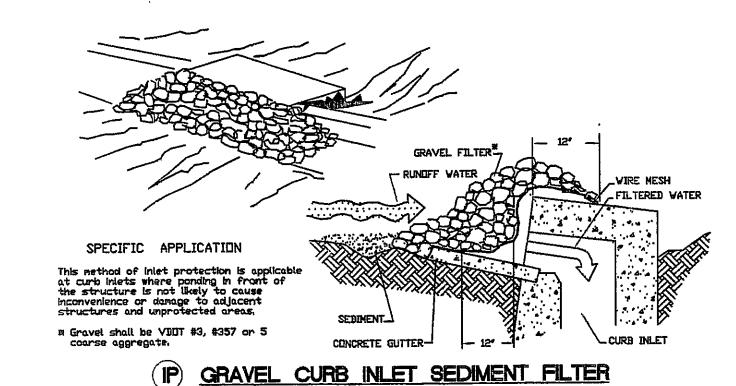


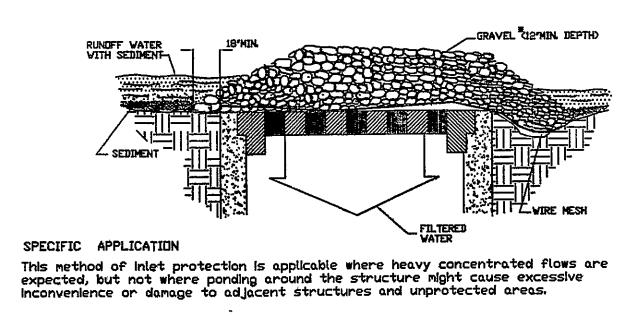




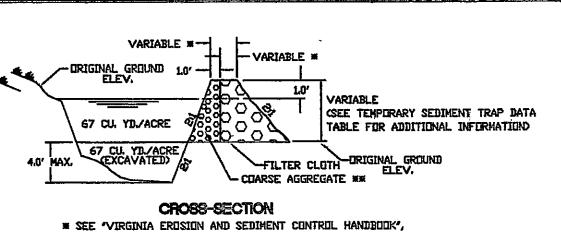
FILTER CLOTH

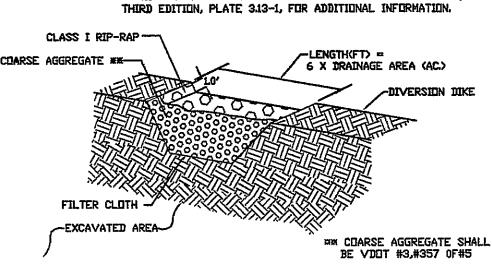
-Reinforced Concrete





* Gravel shall be VDDT #3, #357 or #5 coarse aggregate. (IP) GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER





SEDMENT TRAP FOR AREAS LESS THAN 3.0 ACRES. FOR AREAS LARGER THAN 3.0 ACRES A SEDIMENT BASIN IS REQUIRED. SEE DETAIL THIS SHEET.

TEMPORARY STABILIZATION

TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO RELIFFT DORMANT FOR MORE THAN ONE YEAR

TS TEM	PORARY SEEDING MIXTURE	
PLANTING DATES	SPECIES_	RATE(LBS./ACRE)
SEPT. 1 FEB. 15	50/50 MIX OF ANNUAL RYEGRASS (LOLIUM MULTI-FLORUM) & CEREAL (WINTER) RYE (SECALE CEREALE)	50 — 100
FEB. 16 - APR. 30	ANNUAL RYEGRASS (LOLIUM MULTI—FLORUM)	60 - 100
-MAY1 - AUG31	GERMAN-MILLET (SETARIA ITALICA)	50

PERMANENT STABILIZATION

ALL AREAS DISTURBED BY CONSTRUCTION WILL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS OR IMMEDIATELY FOLLOWING FINISH GRADING. SEEDING WILL BE DONE ACCORDING TO STANDARD AND SPECIFICATION 3.32 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. PERMANENTLY SEEDED AREAS SHALL BE PROTECTED DURING ESTABLISHMENT WITH STRAW MULCH.

PERMANENT SEEDING MIXTURE

TYPE B (SLOPES 3:1 OR STEEPER) 15 MARCH TO 1 MAY 5 OCTOBER TO 1 FEBRUARY K-31 FESCUE @ 5 LB / 1000 SF BORZY WINTER RYE @ 1/2 LB / 1000 SF CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF 1 FEBRUARY TO 1 JUNE K-31 FESCUE @ 5 LB / 1000 SF 15 AUGUST TO 1 OCTOBER ANNUAL RYE @ 1/2 LB / 1000 SF CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF 1 JUNE TO 1 SEPTEMBER K—31 FESCUE @ 5 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF GERMAN MILLET @ 1/2 LB / 1000 SF SEPTEMBER TO 15 OCTOBER K-31 FESCUE @ 5 LB / 1000 SF ANNUAL RYE @ 1/2 LB / 1000 SF

140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE FERTILIZER: 5-20-10 25 LB / 1000 SF 38-0-0 @ 7 LB / 1000 SF IF REQUIRED, SHALL BE USED OVER ALL SEEDED AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.75 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.

MAXIMUM SEEDING DEPTH SHALL BE 1/4 INCH.

SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED. MULCHING, MAINTENANCE OF NEW SEEDLINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE VIRGINIA SOIL EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION. ADDITIONAL SEEDING TO BE PERFORMED AS REQUIRED ALL COSTS GIVEN ARE COMPLETE IN PLACE SEED APPLICATION: APPLY SEED UNIFORMLY WITH A CYCLONE SEEDER, DRILL,

CULTIPACKER SEEDER, OR HYDROSEEDER ON A FIRM, FRIABLE, SEEDBED.

CITY OF ROANOKE

ST-1

Contractor shall pay particular attention to the following MINIMUM STANDARDS:

MS-1: THOUGH TS / PS LABELS ARE SHOWN GENERICALLY ON THE PLANS, THE CONTRACTOR SHALL SEED ALL AREAS NOT INDICATED TO BE OTHERWISE STABILIZED WITH PERMANENT SEED MIXTURE WITHIN 7 DAYS OF REACHING FINAL GRADE OR WITH TEMPORARY SEED MIXTURE ANY AREA YET TO REACH FINAL GRADE BUT THAT IS NOT PROPOSED TO BE ACTIVELY INVOLVED IN THE WORK WITHIN 30 DAYS. THESE SEED MIXTURES AND APPLICATION SPECIFICATIONS ARE SHOWN HEREON. THE CONTRACTOR SHALL HONOR THE CLEARING AND GRADING LIMITS SHOWN

TEMPORARY SEDIMENT TRAP DATA

TOP OF DRY 49' X 37' X 1.75'

TOP OF WET 42' X 30' x 3.0'

BOTTOM OF WET 30' X 18'

195 8.5

MS-2: THE CONTRACTOR SHALL STABILIZE WITH TS AND PROTECT FROM EROSION, WITH ANY APPLICABLE METHOD, ALL STOCKPILES AND ANY ON-SITE OR OFF-SITE BORROW OR SPOIL AREAS, AS APPLICABLE. APPROVAL OF THIS PLAN DOES NOT COVER OFF-SITE BORROW OR SPOIL AREAS. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN APEAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO, OFF_SITE PORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN FOR REVIEW AND APPROVAL

MS-3: WHERE TS/PS ARE NOT APPLICABLE PROVIDE OTHER MEANS OF STABILIZATION (CRS, ETC.) WITHIN 7 DAYS OF REACHING FINAL GRADE OR WITHIN 30 DAYS WHERE THE AREA IS YET TO REACH FINAL GRADE BUT IS NOT PROPOSED TO BE ACTIVELY INVOLVED IN THE WORK.

-MS-4: — ALL-SOIL-EROSION-AND-SEDIMENT-CONTROL-MEASURES SHALL-BE PLACED IN ADVANCE OF THE WORK THEY... ARE INTENDED TO PROTECT.

MS-5: EARTHEN CONTROLS AND STRUCTURES SHALL BE STABILIZED IMMEDIATELY UPON INSTALLATION. MS-6: WHERE A SEDIMENT TRAP (<3 ACRES OF DRAINAGE) IS INDICATED CALCULATIONS SHOWN ARE BASED ON OUTLINED DRAINAGE AREAS. CONTRACTOR SHALL HONOR INDICATED DRAINAGE DIVIDES AND CONFORM TO VOLUMES,

MS-7: CARE HAS BEEN TAKEN IN DESIGN TO MINIMIZE DRAINAGE OVER SLOPES AND PROVIDE A SUITABLE -PROTECTIVE-STABILIZATION-METHOD.—CONTRACTOR-SHALL-PROTECT-SLOPE-AREAS-DURING-AND-AFTER-CONSTRUCTION FROM CONCENTRATED RUNOFF AND THE EROSION EFFECTS OF WIND AND RAIN. STABILIZE AS SOON AS PRACTICAL TO MINIMIZE EROSION.

MS-8: NOT APPLICABLE; NO CHANNELS OR DRAINS ARE PROPOSED OVER SLOPES.

DETAILS, ETC. PROVIDED ON PLANS.

MS-9: NOT APPLICABLE; SEEPAGE THROUGH SLOPES IS NOT ANTICIPATED TO BE ENCOUNTERED ON THIS PROJECT. MS-10: INLET PROTECTION IS PROPOSED FOR THE INLETS OF ALL STORM SEWERS ON-SITE. RESPONSIBLE LAND DISTURBER (RLD) SHALL INSURE PROPER INSTALLATION AND ASSURE ADEQUATE SIZING BASED ON DRAINAGE AREA

MS-11: RLD SHALL VERIFY THAT ADEQUATE CHANNEL LININGS AND PROPER OUTLET PROTECTION IS IN PLACE PRIOR TO OPERATION OF STORM SEWER SYSTEM. MS-12: LIVE WATERCOURSE PROTECTION AND PERMITS ARE NOT APPLICABLE; NO LIVE WATERCOURSES EXIST WITHIN

OR ADJACENT TO THIS PROJECT. MS-13: STREAM CROSSING IS NOT APPLICABLE; NO LIVE WATERCOURSES EXIST WITHIN OR ADJACENT TO THIS

MS-14: REGULATIONS PERTAINING TO LIVE WATERCOURSES ARE NOT APPLICABLE; NO LIVE WATERCOURSES EXIST WITHIN OR ADJACENT TO THIS PROJECT.

MS-15: LIVE WATERCOURSE BED AND BANK STABILIZATION ARE NOT APPLICABLE; NO LIVE WATERCOURSES EXIST WITHIN OR ADJACENT TO THIS PROJECT.

MS-16: REGARDING UTILITY INSTALLATIONS, NO MORE THAN 500 LF OF TRENCH MAY BE OPEN AT A GIVEN TIME. EXCAVATED MATERIAL SHALL BE PLACED ON UPHILL SIDE OF TRENCH. EFFLUENT OF ANY DEWATERING SYSTEM USED MUST BE FILTERED. TRENCHES SHALL BE PROPER BACKFILLED AND COMPACTED PER DETAIL AND SPECS. COMPLETED INSTALLATION SHALL BE RE—STABILIZED IMMEDIATELY.

MS-17: THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING MUD FROM TRUCKS AND / OR OTHER EQUIPMENT PRIOR TO ENTERING PUBLIC STREETS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSURE THAT THE STREETS ARE IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES.

MS-18: SEE MAINTENANCE UNDER ESC NARRATIVE FOR CE, IP, SF, AND TS/PS AT A MINIMUM.

MS-19: INCREASES IN STORMWATER VOLUME, VELOCITY, AND PEAK RUNOFF HAVE BEEN ADDRESSED IN THE PLAN PER CALCULATIONS SUBMITTED FOR REVIEW. RESPONSIBLE LAND DISTURBER SHALL PAY PARTICULAR ATTENTION TO OFF-SITE LOCATIONS RECEIVING RUNOFF FROM THIS PROJECT, AND PROPER OPERATION OF STORMWATER MANAGEMENT PRACTICES ON-SITE. ALL DITCHES, SWALES, AND NATURAL WATERCOURSES DOWNSTREAM OF THIS PROJECT SHALL BE FIELD INSPECTED DURING AND AFTER CONSTRUCTION BY THE RLD TO ENSURE COMPLIANCE WITH DCR'S MS-19. IF EROSION OR SCOUR IS OCCURRING THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL CORRECTIVE

	3.07	INLET PROTECTION		
	3.08	CULVERT INLET PROTECTION	CIP	
	3.09	TEMPURARY DIVERSION DIKE	DD	(B)
	3.10	TEMPORARY FILL DIVERSION	FD	(FI)
	3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	RWD	(N)
	3.12	DI∨ERSION	DV	⊗
	3.13	TEMPORARY SEDIMENT TRAP	ST	
	3.14	TEMPORARY SEDIMENT BASIN	(ZB)	
	3,15	TEMPORARY SLOPE DRAIN	TSD	(SI)
	3.16	PAVED FLUME	PF	(F)
	3.17	STORMWATER CONVEYANCE CHANNEL	SCC	
	3,18	OUTLET PROTECTION		
	3.19	RIPRAP	RR	
	3.20	ROCK CHECK DAMS	_CD	<u> </u>
	0.C1	LEVEL STREADER		
	3.22	VEGETATIVE STREAMBANK STABILIZATION	(2SV)	9
	3.23	STRUCTURAL STREAMBANK STABILIZATION	(222)	(55)
	3.24	TEMPOPARY—VEHICULAR STREAM_CROSSING	(VSC)	
=	3.25	UTILITY STREAM CROSSING	(USC)	
	3.26	DEWATERING STRUCTURE		
	3.27	TURBIDITY CURTAIN	10	DX
_	3.28	SUBSURFACE DRAIN		-
•	3.29	SURFACE ROUGHENING	SR	
	3.30	TOPSOILING		- ®
	3.31	TEMPORARY SEEDING	TS	- - 3
	3.32	PERMANENT SEEDING	PS	
	3,33	SODDING	SD	
	3.34	BERMUDA GRASS AND ZOYSIAGRASS ESTABLISHMENT	- E	
	3.35	MULCHING	MU	
	3.36	SOIL STABILIZATION BLANKETS AND MATTING		TREAT. 1
	3,38	TREE PRESERVATION AND PROTECTION	ТР	(TP)
			. <u>.</u>	
		FRACION OF TATION CONTE		

EROSION AND SEDIMENT CONTROL LEGEND

SAFETY FENCE

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE

STABILIZATION

SILT FENCE

STORM DRAIN

CONSTRUCTION ROAD

EROSION-SILTATION CONTI	ROL
COST ESTIMATE	

BY THE INSPECTOR. TOTAL COST UNIT QUANTITY UNIT COST DESCRIPTION CONSTRUCTION EA 700.00 700.00 ENTRANCE SILT FENCE *300* 900.00 3.00 **TEMPURARY** 180 2.00 DIVERSION DIKE EA INLET PROTECTION 26 100.00 2,600.00 EΑ 800.00 100.00 PROTECTION EΑ 200.00 200.00 DUTLET PROTECTION EΑ 700.00 700.00 SEDIMENT TRAP 1000 SF 40.00 1,200.00 PERMANENT SEEDING 6,760.00 SUB-TOTAL 676.00 10% CONTINGENCY 7,436.00 TOTAL PROJECT COST

-x -x -x -x PACKAGE #5: 12/5/05 PACKAGE #4: 11/15/05 SITE DEVELOPMENT SUBMISSIO PACKAGE #3: 11/18/05 PACKAGE #2: 19/16/05 ___

SYMBOL

VIRGINIA LUTHERAN HOMES, INC. 117 SHERATON DRIVE SALEM, VA 24153 TEL 540-562-5443

PERKINS EASTMAN ARCHITECTS I

1100 Liberty Aven

Pittsburgh.

15222 42

412 456 09

Fax 456 09

NO. DATE REVISION

PACKAGE #6: 12/20/05

PACKAGE #1: 6/30/05

PERMIT AND CONSTRUCTION SI

85% CONSTRUCTION DOC. SET

DESIGN DEVELOPMENT SET

SCMEMATIC DESIGN SET

FOUNDATION PERMIT SET

Civil / Site: **LUMSDEN ASSOCIATES** 4664 BRAMBLETON AVENUE

ROANOKE, VA 24018 TEL. 540-774-4411 Structural: DAY & KINDER CONSULTING ENGINEERS 3239 ELECTRIC ROAD, BUILDING C

ROANOKE, VA 24018 TEL. 540-774-5706 LAWRENCE PERRY & ASSOCIATES

30A W CHURCH STREET ROANOKE, VA 24025 TEL. 540-342-1816 Landscape:

DAN CHITWOOD DESIGN PO BOX 20912 ROANOKE, VA 24018 TEL. 540-989-9040

GENERAL CONTRACTOR LIONBERGER CONSTRUCTION 5903 STARKEY ROAD PO BOX 20209 ROANOKE, VA 24018 TEL. 540-989-5301

PROJECT TITLE:

BRANDON OAKS PHASE ONE-**ADDITION &** RENOVATIONS

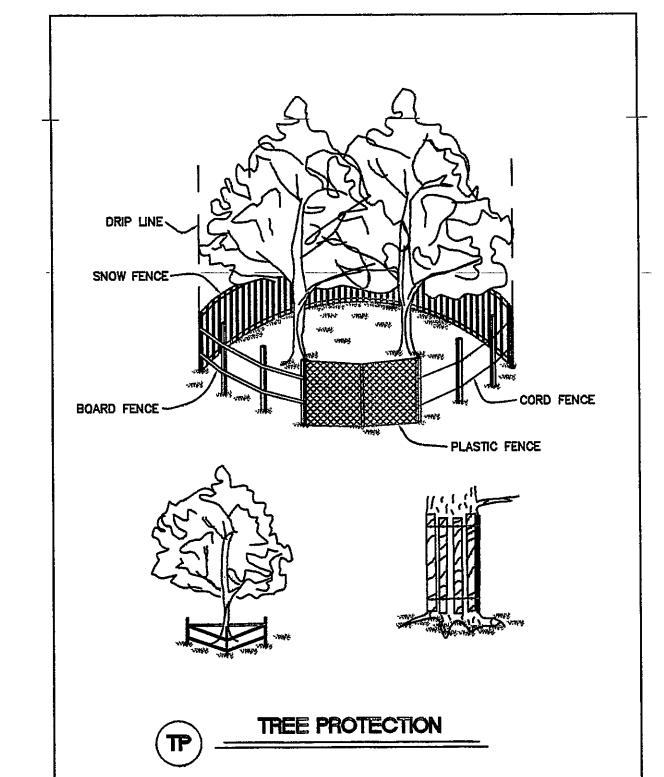
3804 BRANDON AVE. ROANOKE, VA 24018

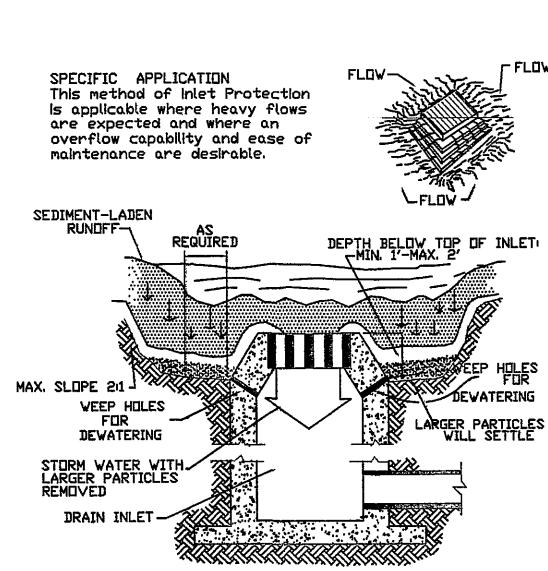
PROJECT No: 19412 DRAWING TITLE:

> **EROSION** CONTROL **DETAILS**

SCALE: NO SCALE

C-107





(P) EXCAVATED DROP INLET SEDIMENT TRAP

COMM: 2003-112

PACKAGE #6 PERMIT AND CONSTRUCTION SET 12/20/2005