

# EROSION - SILTATION CONTROL COST ESTIMATE

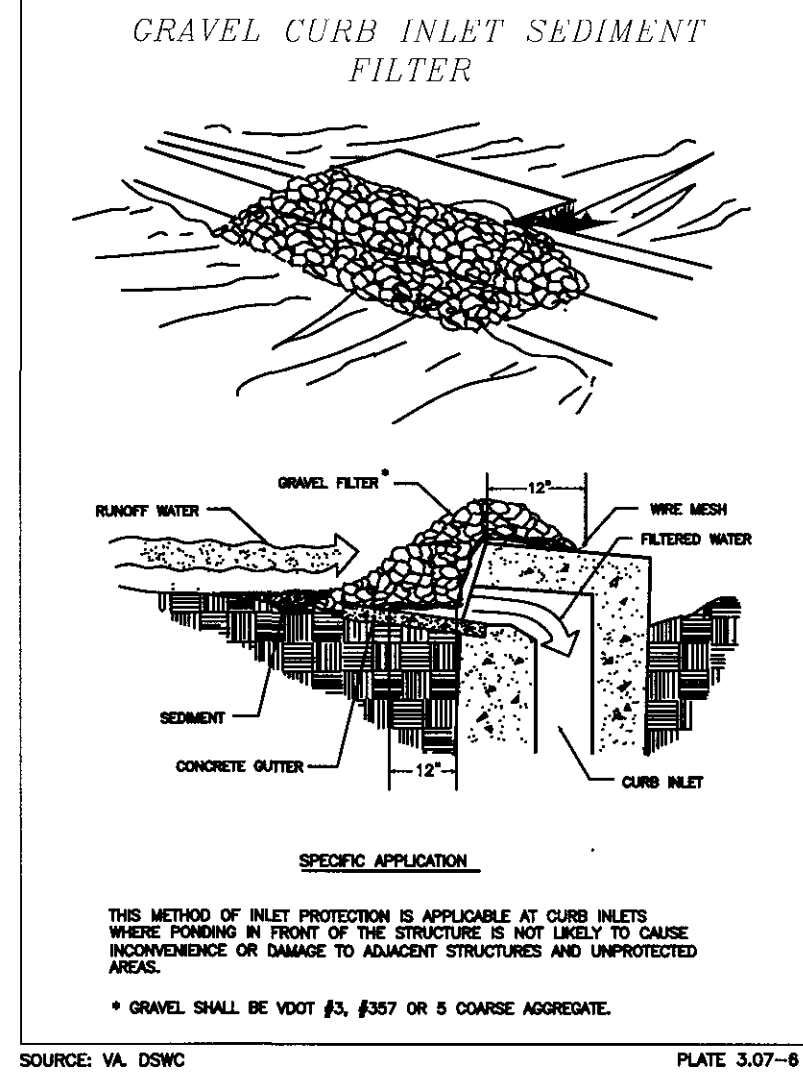
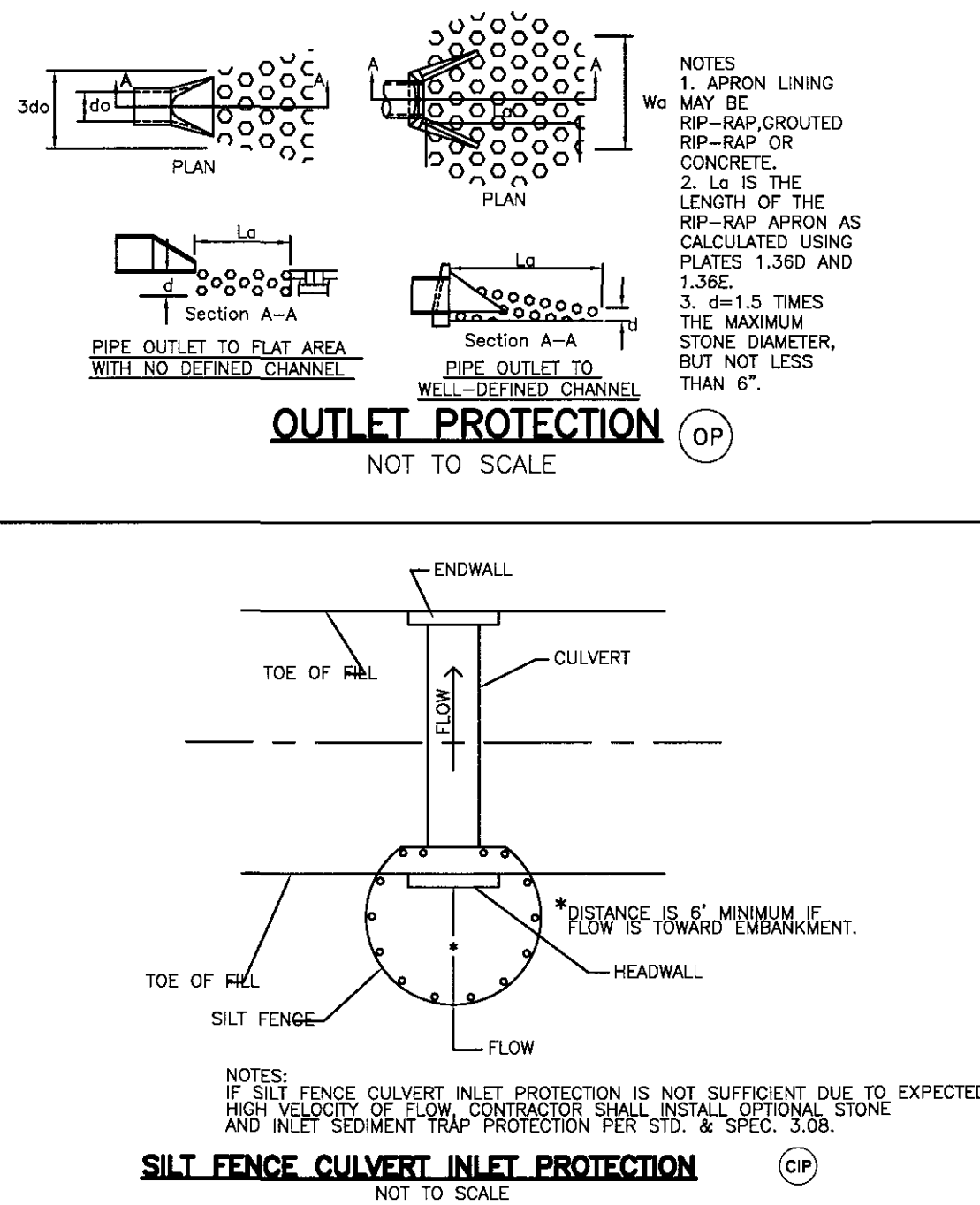
ALL COSTS GIVEN ARE COMPLETE IN PLACE

DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
CONSTRUCTION ENTRANCE	EA	1	\$ 1,000	\$ 1,000
SILT FENCE	LF	0	6	0
INLET PROTECTION	EA	26	625	16,250
OUTLET PROTECTION	EA	6	2,500	15,000
LEVEL SPREADER	LS	0	650	0
TS - PS - MU	LS	1	10,000	10,000
CRITICAL ROAD STABILIZATION	SY	0	8	0
CHECK DAM	EA	0	325	0
SUB-TOTAL				\$ 42,250
10% CONTINGENCY				\$ 4,225
TOTAL PROJECT COST				\$ 46,475

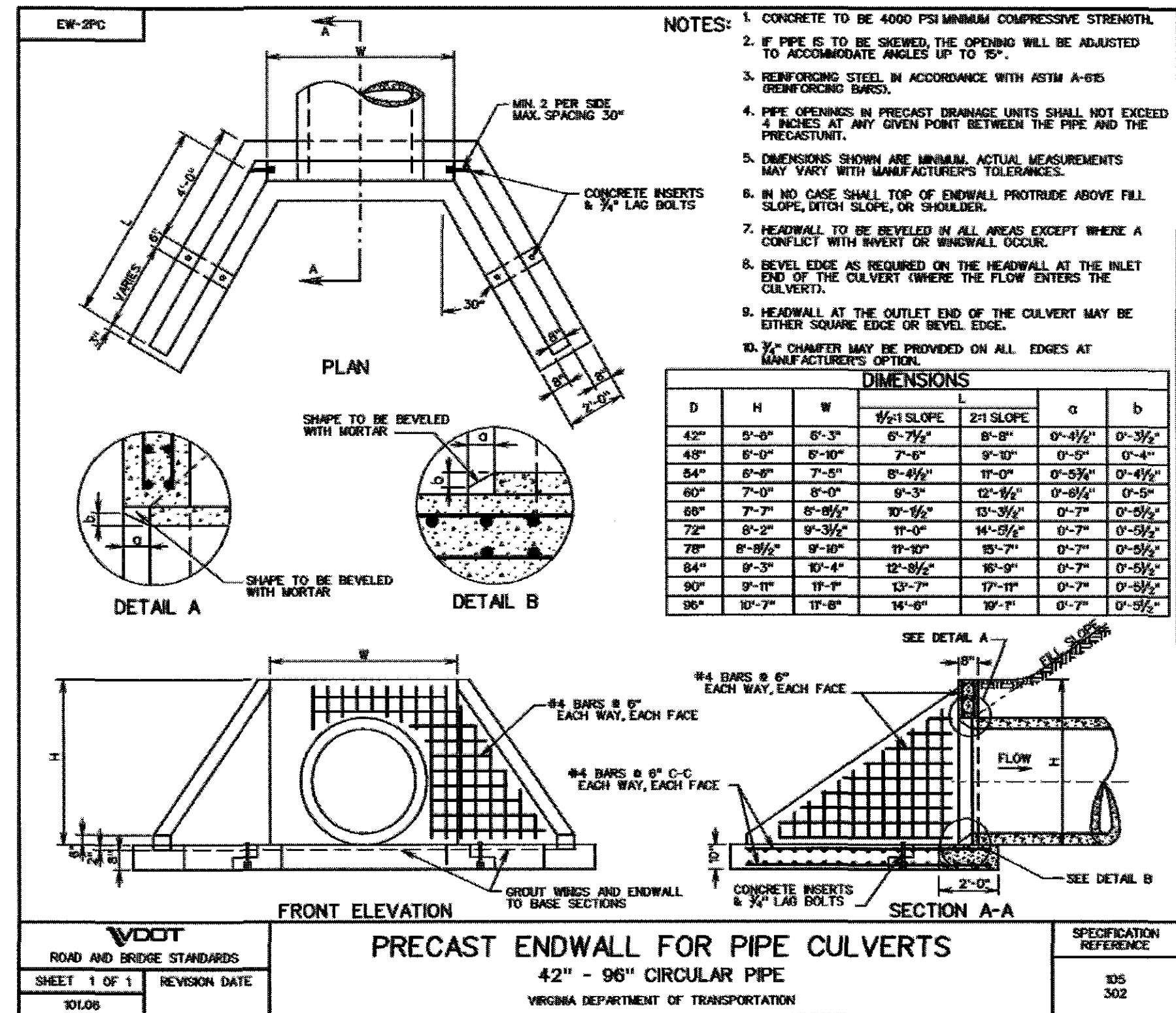
TOTAL DISTURBED AREA: 20 ACRES

## TS PS PERMANENT SEEDING MIXTURE

TYPE A	TYPE B (SLOPES 3:1 OR STEEPER)
15 OCTOBER TO 1 FEBRUARY K-31 FESCUE @ 5 LB / 1000 SF BORZY WINTER RYE @ 1/2 LB / 1000 SF	15 MARCH TO 1 MAY 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 ANNUAL RYE @ 1/2 LB / 1000 SF	15 AUGUST TO 1 OCTOBER CROWN VETCH @ 1/2 LB / 1000 SF PERENNIAL RYEGRASS @ 1/2 LB / 1000 SF RED TOP @ 1/8 LB / 1000 SF
1 JUNE TO 1 SEPTEMBER K-31 FESCUE @ 5 LB / 1000 SF GERMAN MILLET @ 1/2 LB / 1000 SF	
LIME: 140 LB / 1000 SF PULVERIZED AGRICULTURAL LIMESTONE	
FERTILIZER: 5-20-10 @ 25 LB / 1000 SF 38-0-0 @ 7 LB / 1000 SF	
MULCH: IF REQUIRED, SHALL BE USED OVER ALL SEEDING AREAS AND SHALL BE APPLIED IN ACCORDANCE WITH SECTION 1.7.5 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.	
SOIL CONDITIONING: INCORPORATION OF LIME AND FERTILIZER, SELECTION OF CERTIFIED SEED, MULCHING, MAINTENANCE OF NEW SEEDINGS, AND RESEEDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN	



NO.	TITLE	KEY SYMBOL	NO.	TITLE	KEY SYMBOL
3.01	SAFETY FENCE	SAF	3.20	ROCK CHECK DAMS	CD
3.02	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE	CE	3.21	LEVEL SPREADER	LS
3.03	STABILIZATION CONSTRUCTION ROAD	CRS	3.22	VEGETATIVE STREAMBANK STABILIZATION	VSB
3.04	STRAW BALE BARRIER	STB	3.23	STRUCTURAL STREAMBANK STABILIZATION	SSB
3.05	SILT FENCE	SF	3.24	TEMPORARY VEHICULAR STREAM CROSSING	VSC
3.06	BRUSH BARRIER	BB	3.25	UTILITY STREAM CROSSING	USC
3.07	STORM DRAIN INLET PROTECTION	IP	3.26	DEWATERING STRUCTURE	DS
3.08	CULVERT INLET PROTECTION	CHP	3.27	TURBIDITY CURTAIN	TC
3.09	TEMPORARY DIVERSION DIKE	DD	3.28	SUBSURFACE DRAIN	SD
3.10	TEMPORARY FILL DIVERSION	FD	3.29	SURFACE ROUGHENING	SR
3.11	TEMPORARY RIGHT-OF-WAY DIVERSION	RWD	3.30	TOPSOILING	TO
3.12	DIVERSION	DV	3.31	TEMPORARY SEEDING	TS
3.13	TEMPORARY SEDIMENT TRAP	ST	3.32	PERMANENT SEEDING	PS
3.14	TEMPORARY SEDIMENT BASIN	SB	3.33	SODDING	SO
3.15	TEMPORARY SLOPE DRAIN	SDS	3.34	BERMUDA GRASS AND ZOYSIAGRASS ESTABLISHMENT	ZG
3.16	PAVED FLUME	PF	3.35	MULCHING	MU
3.17	STORMWATER CONVEYANCE CHANNEL	SCC	3.36	SOIL STABILIZATION BLANKETS AND MATTING	SB
3.18	OUTLET PROTECTION	OP	3.37	TREES, SHRUBS, VINES AND GROUND COVERS	VEG
3.19	RIPRAP	RR	3.38	TREE PRESERVATION AND PROTECTION	TP
			3.39	DUST CONTROL	DC



**PROJECT ELDOR EROSION CONTROL**  
THIS PROJECT WILL RESULT IN THE COMPLETION OF SITE DEVELOPMENT FROM A PREVIOUSLY GRADED BUILDING PAD. ALL PERIMETER EROSION CONTROL MEASURES ARE EXISTING. EROSION CONTROL MEASURES REQUIRED FOR THIS PROJECT WILL INCLUDE THE FOLLOWING:

1. INSTALLATION OF INLET PROTECTION
2. INSTALLATION OF OUTLET PROTECTION
3. MULCHING AND SEEDING OF ALL AREAS NOT COVERED BY PAVING, SIDEWALKS, AND BUILDINGS

FOR PLAN CLARITY, THESE MEASURES ARE NOT SHOWN ON THE SITE PLAN.

## PROJECT ELDOR STORMWATER MANAGEMENT

THE STORMWATER MANAGEMENT FOR THIS PROJECT IS HANDLED BY THE GREENFIELD LAKE FOR BOTH QUANTITY AND QUALITY. ALL RUNOFF FROM THIS SITE SHALL BE DISCHARGED TO THE GREENFIELD LAKE THROUGH MANMADE CHANNELS AND STORM SEWER SYSTEMS.

THIS PROJECT WILL REQUIRE A VIRGINIA STORMWATER MANAGEMENT PERMIT. CONTRACTOR SHALL MAINTAIN AN UPDATED STORMWATER POLLUTION PREVENTION PLAN ONSITE AT ALL TIMES.

## EROSION CONSTRUCTION NOTES

- ES-1 UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS VR 625-02-00 EROSION AND SEDIMENT CONTROL REGULATIONS.
- ES-2 THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRECONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
- ES-3 ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.
- ES-4 A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
- ES-5 PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.
- ES-6 THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.
- ES-7 ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
- ES-8 DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.
- ES-9 THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

## VEGETATIVE PRACTICES

1. TO - TOPSOILING - 3.30  
TOPSOIL WILL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILED LOCATIONS ARE TO BE STABILIZED WITH TEMPORARY VEGETATION AND THE PERIMETER OF THE STOCKPILE IS TO HAVE SILTFENCE INSTALLED.
2. TS - TEMPORARY SEEDING - 3.31  
ALL DISTURBED AREAS WHICH WILL BE LEFT DORMANT FOR MORE THAN 30 DAYS SHALL BE SEEDING WITH FAST GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING.
3. PS - PERMANENT SEEDING - 3.32  
ALL FINAL-GRADED AREAS WHERE PERMANENT COVER IS DESIRED OR ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE SHALL BE SEEDING WITH PERENNIAL VEGETATION WITHIN 7 DAYS.
4. MU - MULCHING - 3.35  
MULCH (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT AREAS AND WILL BE APPLIED AS THE SECOND STEP IN THE SEEDING OPERATION.
5. B/M - SOIL STABILIZATION BLANKETS & MATTING - 3.36  
A PROTECTIVE COVERING (BLANKET) OR A SOIL STABILIZATION MAT WILL BE INSTALLED ON PREPARED PLANTING AREAS OF STEEP SLOPES, CHANNELS, OR SHOULDER WHERE NOTED. VDOT EC-2 SHALL BE USED ON SLOPES STEEPER THAN 2.5:1. ALL SLOPES 2.5:1 OR LESS SHALL BE HYDRO-SEEDING.
6. VEG - TREES, SHRUBS, VINES AND GROUND COVERS - 3.37  
ALL DISTURBED AREAS WHERE TURF IS NOT PREFERRED SHALL BE COVERED WITH TREES, SHRUBS, VINES, AND OTHER GROUND COVERINGS.
7. TP - TREE PRESERVATION AND PROTECTION - 3.38  
TREE PRESERVATION AND PROTECTION PRACTICES WILL BE OBSERVED AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

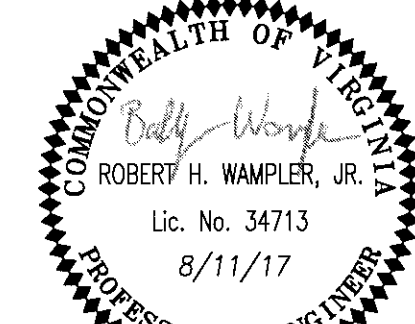
## PERMANENT STABILIZATION

ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING WITHIN 7 DAYS FOLLOWING FINAL GRADING. SEEDING SHALL BE DONE WITH KENTUCKY 31 TALL FESCUE ACCORDING TO STD. AND SPEC. 3.32. PERMANENT SEEDING, OF THE 1992 VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, MULCH (STRAW OR FIBER) WILL BE USED ON ALL SEEDING AREAS. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER AND LIME WILL BE APPLIED PRIOR TO MULCHING. EROSION CONTROL BLANKETS MAY BE INSTALLED OVER STEEP SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDING TO PROTECT THE SLOPES PROPERLY.

Structure	Type	Rim	Invert	Depth	Note	RC Invert	Depth to RC
7	DI-7	1366.0	1362.1	3.9	Traffic Rated		N/A
8	Manhole	1366.8	1361.1	5.8		1361.1	5.7
9	DI-7	1366.0	1360.7	5.3	Traffic Rated		N/A
10	Manhole	1366.8	1360.3	6.5		1361.5	5.3
11	Manhole	1366.6	1359.6	7.0		1361.5	5.1
12	DI-7	1366.0	1359.3	6.7	Traffic Rated		N/A
13	Manhole	1366.4	1358.1	8.3		1360.0	6.4
14	DI-7	1366.0	1357.9	8.1	Traffic Rated		N/A
15	Manhole	1367.0	1357.0	10.0		1361.0	6.0
16	DI-7	1366.0	1356.7	9.3	Traffic Rated		N/A
17	Manhole	1364.0	1355.1	8.9			N/A
18	Endwall		1352.5		EW-2PC		N/A
35	DI-7	1365.8	1362.2	3.6		1362.2	3.6
36	DI-7	1365.8	1361.3	4.5			N/A
37	Manhole	1366.6	1361.0	5.6		1361.8	4.8
38	DI-7	1365.8	1360.5	5.3		1361.0	4.8
39	Manhole	1366.1	1360.3	5.8			N/A
40	DI-7	1365.8	1359.8	6.0			N/A
41	Manhole	1366.2	1359.3	6.9		1362.0	4.2
42	DI-7	1365.8	1359.1	6.7			N/A
43	DI-7	1366.2	1358.4	7.9			N/A
44	Manhole	1366.1	1358.2	7.9		1362.0	4.1
45	DI-7	1365.5	1357.6	7.9			N/A
46	Manhole	1366.0	1356.8	9.1			N/A
47	Manhole	1364.0	1355.1	8.9			N/A
48	Endwall		1353.0		EW-1PC		N/A
55	DI-3B	1360.3	1355.0	5.3	L=8'		N/A
56	DI-3B	1353.8	1346.3	7.5	L=8'		N/A
57	DI-3B	1345.6	1338.5	7.1	L=10'		N/A
58	DI-3B	1346.1	1338.2	7.9	L=12'		N/A
59	DI-3B	1345.6	1330.0	15.6	L=20'		N/A
60	Endwall		1326.0		EW-1PC		N/A
64	DI-3B	1354.1	1348.2	5.9	L=10'		N/A
66	DI-3B	1342.5	1336.7	5.8	L=8'		N/A
67	DI-3B	1342.5	1331.0	11.5	L=14'		N/A
68	Endwall		1335.0		EW-1PC		N/A
82	DI-7	1366.0	1361.5	4.5			N/A
83	DI-7	1366.7	1360.5	6.2		1360.3	6.4
84	Manhole	1367.3	1359.8	7.5		1361.7	5.6
85	DI-7	1366.5	1359.4	7.2			N/A
86	DI-7	1366.5	1358.2	8.3		1355.9	10.6
87	Manhole	1366.0	1356.6	9.4			N/A
88	Endwall		1355.5		EW-2PC		N/A
89	Manhole	1366.6	1361.4	5.2			N/A
90	DI-7	1365.0	1362.1	2.9			N/A
91	DI-7	1365.0	1359.6	5.4			N/A
92	Manhole	1366.0	1360.7	5.3			N/A
93	DI-7	1365.0	1361.4	3.6			N/A
94	DI-7	1365.0	1363.1	1.9			N/A

STRUCTURE TABLE

**ENGINEERING CONCEPTS, INC.**  
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No.	Revision	By	Appd.	Date	Drawn	ECI
1	REVIEW COMMENTS	ECI	RHW	6/29/17	Designed	ECI
2	ELIMINATE STRUCTURE	ECI	RHW	8/11/17	Checked	ECI
					Approved	RHW

## EROSION & SEDIMENT CONTROL DETAILS ELDOR IGNITION MANUFACTURING

THE BOTETOURT CENTER AT GREENFIELD  
BOTETOURT COUNTY, VIRGINIA

SCALE: NONE
DATE: August 11, 2017
PROJECT: 16070
C10