

# The Glebe

## Cottage 21

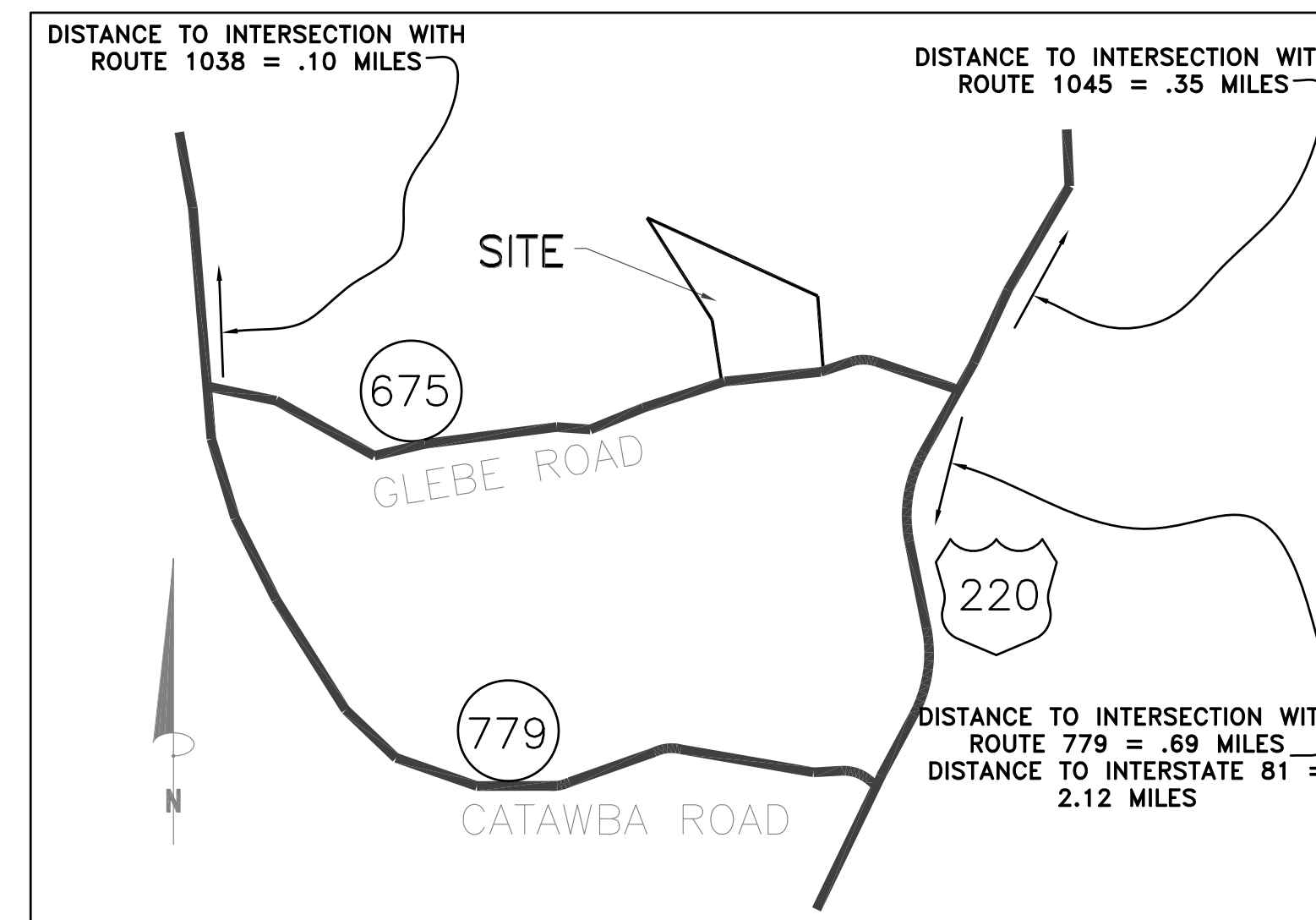
### PROPERTY OWNER IDENTIFICATION

1. PROPERTY OWNER:  
VIRGINIA BAPTIST HOMES INC.
2. SUBMITTING ENGINEER:  
ENGINEERING CONCEPTS, INC.  
20 S. ROANOKE ST.  
FINCASTLE, VIRGINIA 24090  
(540) 473-1253  
BOBBY WAMPLER, P.E. – PROJECT ENGINEER

### ABBREVIATIONS

O.D. OUTSIDE DIAMETER  
MH MANHOLE  
XING CROSSING  
GPM GALLONS PER MINUTE  
PSI POUNDS PER SQUARE INCH  
P.I.V. POST INDICATOR VALVE  
MIN MINIMUM  
ST STORM DRAIN  
VERT. VERTICAL  
HORIZ. HORIZONTAL  
BLDG. BUILDING  
MAX. MAXIMUM  
F.F.E. FINISHED FLOOR ELEVATION  
FIN. FINISHED  
FDTN. FOUNDATION  
Ø DIAMETER  
CLR. CLEARANCE  
WWF WELDED WIRE FABRIC  
FD FOUNDATION DRAIN  
ADS ADVANCED DRAINAGE SYSTEM

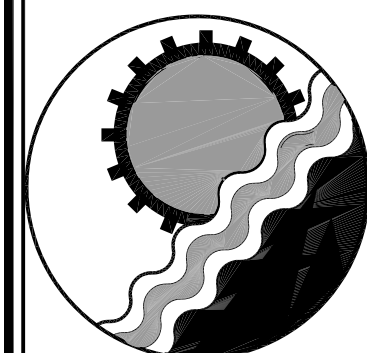
ELEC ELECTRIC (UNDERGROUND)  
SS SANITARY SEWER  
C.I. CAST IRON  
W WATERLINE  
WV WATER VALVE  
CONC. CONCRETE  
INV. INVERT  
V.D.O.T. VIRGINIA DEPARTMENT OF TRANSPORTATION  
TYP. TYPICAL  
ELEV. ELEVATION  
@ AT  
CL CENTERLINE  
PVC POLYVINYL CHLORIDE  
F.H. FIRE HYDRANT  
TELE TELEPHONE  
H.P. HIGH POINT  
EXIST/EX EXISTING  
HDPE HIGH DENSITY POLYETHYLENE  
O.C. ON CENTER  
A.E. AIR ENTRAINED



VICINITY MAP  
NO SCALE

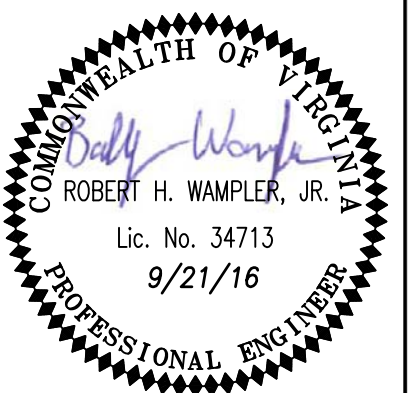
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Drawn msmJ	COVER SHEET COTTAGE ADDITION – 21	SCALE: NONE
Designed ECI		DATE: SEP. 21, 2016
Checked RHW	"THE GLEBE" BOTETOURT COUNTY – VIRGINIA	PROJECT: 16064
Approved RHW		C1



GRADING NOTES:

1. PRIOR TO BEGINNING EARTHWORK OPERATIONS, THE CONTRACTOR SHALL EMPLOY A QUALIFIED, PROFESSIONAL GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF VIRGINIA. AS A RESULT OF ONSITE TESTING, THE GEOTECHNICAL ENGINEER SHALL MAKE RECOMMENDATIONS REGARDING THE ONSITE PLACEMENT OF FILL MATERIAL AND PROPER COMPACTION METHODS. NO WARRANTIES ARE MADE BY THE OWNER OR ENGINEER FOR ANY SUBSURFACE CONDITIONS ON THE PROPERTY.
2. FILL SHALL BE PLACED ONLY ON FIRM SUBGRADES APPROVED BY THE GEOTECHNICAL ENGINEER. SUBGRADES SHALL BE SCARIFIED TO A DEPTH OF 4 INCHES PRIOR TO FILL PLACEMENT TO ASSURE BONDING BETWEEN THE TWO SOILS. ALL FILL AREAS SHALL BE COMPACTED TO A DRY DENSITY OF AT LEAST 95% DRY DENSITY (ASTM D698), UNLESS NOTED OTHERWISE. THE COMPACTION SHALL BE ACCOMPLISHED BY PLACING FILL IN 6 TO 8 INCH LIFTS AND MECHANICALLY COMPACTING EACH LIFT TO THE REQUIRED DENSITY. THE GEOTECHNICAL ENGINEER SHALL PERFORM FIELD DENSITY TEST ON EACH LIFT OR AS NECESSARY TO ASCERTAIN THAT ADEQUATE COMPACTION HAS BEEN ACHIEVED. CALIFORNIA BEARING RATIO TESTS SHALL BE PERFORMED IN MATERIAL PROPOSED FOR USE BENEATH PAVEMENT WHETHER CUT OR FILL. THE UPPER 2 FEET OF MATERIAL BELOW STRUCTURES SHALL BE COMPACTED TO 98% DRY DENSITY (ASTM D698).
3. CLEAR SITE WITHIN LIMITS OF GRADING WORK. DO NOT DISTURB AREAS OUTSIDE OF GRADING LIMITS OR PROPERTY BOUNDARY.
4. REMOVE TREES, SHRUBS, GRASS AND OTHER VEGETATION, IMPROVEMENTS OR OBSTRUCTIONS AS REQUIRED TO PERMIT INSTALLATION OF NEW CONSTRUCTION. ALL UNSUITABLE MATERIAL SHALL BE DISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO THE GOVERNING AUTHORITY. REMOVE TREES AND OTHER VEGETATION, INCLUDING STUMPS AND ROOTS, COMPLETELY IN AREAS REQUIRED FOR SUBSEQUENT SEEDING. CUT OFF TREES AND STUMPS IN AREAS TO RECEIVE FILL MORE THAN THREE FEET IN DEPTH TO WITHIN EIGHT INCHES OF THE ORIGINAL GROUND SURFACE.
5. BARRICADE OPEN EXCAVATIONS OCCURRING AS PART OF THIS WORK AND OPERATE WARNING LIGHTS AS RECOMMENDED BY AUTHORITIES HAVING JURISDICTION.
6. EXCAVATION FOR STRUCTURES:
- A. CONFORM TO ELEVATIONS AND DIMENSIONS SHOWN WITHIN A TOLERANCE OF PLUS OR MINUS 0.10 FOOT.
- B. PROVIDE TRUE AND STRAIGHT FOOTING EXCAVATIONS WITH UNIFORM LEVEL BOTTOMS OF THE WIDTH INDICATED TO ENSURE PROPER PLACEMENT AND COVER OF ALL REINFORCEMENT.
- C. REMOVE ALL LOOSE MATERIALS FROM THE EXCAVATION PRIOR TO PLACEMENT OF CONCRETE.
- D. PROVIDE A MINIMUM OF 2'-0" FROM THE FINISHED GRADE TO TOP OF ALL EXTERIOR WALL FOOTINGS.
- E. FOOTINGS WHICH SUPPORT CONCRETE MASONRY UNITS MAY BE STEPPED PROVIDED THE VERTICAL STEP DOES NOT EXCEED ONE HALF OF THE HORIZONTAL DISTANCE BETWEEN STEPS AND HORIZONTAL DISTANCE BETWEEN STEPS IS NOT LESS THAN TWO FEET.
- F. IF ROCK IS ENCOUNTERED IN A FOOTING EXCAVATION, UNDERCUT IT A MINIMUM OF 12" BELOW THE BOTTOM OF THE FOOTINGS AND FILL THE RESULTING OVER-EXCAVATION WITH CONTROLLED FILL.
7. CUT SURFACE UNDER PAVEMENTS TO COMPLY WITH CROSS SECTIONS, ELEVATIONS, AND GRADES AS INDICATED.
8. EXCAVATE TRENCHES TO UNIFORM WIDTH CONFORMING TO VDOT STANDARD PB-1 FOR STORM DRAINAGE PIPING AND UB-1 FOR SANITARY SEWER AND WATER. BACKFILL TRENCHES WITH CONTROLLED FILL.
9. PREVENT SURFACE WATER AND SUBSURFACE OR GROUND WATER FROM FLOWING INTO EXCAVATIONS AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. DO NOT ALLOW WATER TO ACCUMULATE IN EXCAVATIONS. REMOVE WATER TO PREVENT SOFTENING OF FOUNDATION BOTTOMS, UNDERCUTTING FOOTINGS, AND SOIL CHANGES DETRIMENTAL TO STABILITY OF SUBGRADES AND FOUNDATIONS. CONVEY WATER REMOVED FROM EXCAVATIONS AND RAIN WATER TO COLLECTING OR RUNOFF AREAS. ESTABLISH AND MAINTAIN TEMPORARY DRAINAGE DITCHES AND OTHER DIVERSIONS OUTSIDE EXCAVATION LIMITS FOR EACH STRUCTURE. DO NOT USE TRENCH EXCAVATIONS AS TEMPORARY DITCHES.
10. PROTECT EXCAVATED BOTTOMS OF ALL FOOTINGS AND TRENCHES AGAINST FREEZING WHEN ATMOSPHERIC TEMPERATURE IS LESS THAN 35 F (1 C).
11. BACKFILLING:
- A. COMPACT THE BACKFILL AROUND THE OUTSIDE OF BUILDING TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D 698 STANDARD PROCTOR. DO NOT ALLOW HEAVY COMPACTION EQUIPMENT SUCH AS ROLLERS, ETC., CLOSER TO ANY FOOTING THAN THE HORIZONTAL DISTANCE SUBTENDED BY A 45 ANGLE WITH THE TOP EDGE OF THE FOOTINGS AND THE SURFACE OF THE GROUND.
- B. BACKFILL BEHIND WALLS AFTER PERMANENT CONSTRUCTION WHICH BRACES THE WALL IS IN PLACE OR TEMPORARY BRACING OF THE WALL IS PROPERLY INSTALLED, AND AFTER ACCEPTANCE OF CONSTRUCTION BELOW FINISH GRADE INCLUDING DAMP-PROOFING, REMOVAL OF CONCRETE FORMWORK, AND REMOVAL OF TRASH AND DEBRIS.
12. UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING INCLUDING ADJACENT TRANSITION AREAS. SMOOTH FINISHED SURFACES WITHIN SPECIFIED TOLERANCES, COMPACT WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS AND EXISTING GRADES. GRADE AREAS ADJACENT TO BUILDING LINES TO DRAIN AWAY FROM STRUCTURES TO PREVENT PONDING.
13. FINISH LAWN AREAS TO WITHIN ONE INCH ABOVE OR BELOW REQUIRED SUBGRADE ELEVATIONS. SHAPE SURFACE UNDER WALKS AND PAVEMENTS TO LINE, GRADE, AND CROSS SECTION, WITH NOT MORE THAN 1/2" ABOVE OR BELOW REQUIRED SUBGRADE ELEVATION.
14. GRADE SURFACE UNDER BUILDING SLABS SMOOTH AND EVEN, FREE OF VOIDS. PROVIDE FINAL GRADES WITHIN 1/2" OF THOSE INDICATED WHEN TESTED WITH A 10' STRAIGHT EDGE.
15. PROTECT GRADED AREAS FROM TRAFFIC AND EROSION. REPAIR AREAS WHICH HAVE SETTLED, ERODED, OR BECOME DAMAGED DUE TO CONSTRUCTION ACTIVITIES AT NO ADDITIONAL COST TO OWNER.
16. UNDER FOUNDATIONS, SIDEWALKS, AND PAVEMENTS COMPACT EACH LAYER TO 95% MAXIMUM DRY DENSITY ASTM D 698 (STANDARD PROCTOR). FOR FURTHER SUPPORT COMPACT 2 FEET BELOW STRUCTURES TO 98% MAXIMUM DRY DENSITY ASTM D 698 (STANDARD PROCTOR).
17. UNDER LAWN OR UNPAVED AREAS, COMPACT SUBGRADE AND EACH LAYER TO 90% MAXIMUM DRY DENSITY ASTM D 698 (STANDARD PROCTOR).
18. ALL SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE CAPPED AND PIPED TO THE NEAREST STORM SEWER SYSTEM OR NATURAL WATERCOURSE. THE PIPE SHALL BE A MINIMUM OF 6" DIAMETER AND CONFORM TO V.D.O.T. STANDARD SB-1.

GENERAL SITE NOTES:

1. TOPOGRAPHIC INFORMATION FROM FIELD RUN TOPOGRAPHY BY ENGINEERING CONCEPTS IN JUNE 2011.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS.
3. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR THE CHARACTER AND ACTUAL LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES, STRUCTURES, OTHER FACILITIES, AND OBSTRUCTIONS WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL, AT NO ADDITIONAL COST TO THE OWNER, CONTACT THE OWNERS/OPERATORS OF ALL UTILITIES AND ARRANGE FOR THE VERIFICATION AND MARKING OF UTILITY LOCATIONS BY SAID OWNERS/OPERATORS. THE CONTRACTOR SHALL ASSIST THE UTILITY OWNERS/OPERATORS BY EVERY MEANS POSSIBLE TO DETERMINE THE LOCATION OF UTILITIES. THE CONTRACTOR SHALL BEAR SOLE RESPONSIBILITY FOR ALL DISTURBANCE OF ANY DAMAGE TO UTILITIES RESULTING FROM THE CONTRACTOR'S FAILURE TO ARRANGE FOR THE LOCATION OF UTILITIES BY THE OWNERS/OPERATORS OF THE UTILITIES. CONTACT MISS UTILITY (800) 552-7001.
4. SITE CONDITIONS MAY NECESSITATE SLIGHT DEVIATIONS IN ALIGNMENT, GRADE, AND/OR LOCATION OF NEW FACILITIES FROM THE PLAN ALIGNMENT, GRADE, AND/OR LOCATION. THE CONTRACTOR SHALL CONSTRUCT THE NEW FACILITIES TO SUCH DEVIATIONS AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST OR FINE TO THE OWNER. SHOULD PLAN DEVIATIONS BE REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO UNDER TAKING ANY REVISION.
5. ALL CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CURRENT BOCA AND/OR STATE AND LOCAL BUILDING CODES AS WELL AS THE CONSTRUCTION STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION AND ALL APPLICABLE STATE AND FEDERAL OSHA REGULATIONS.
6. THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION AREA IN A SAFE AND ACCEPTABLE MANNER AND SHALL BE RESPONSIBLE FOR REMEDIATING ANY DAMAGES RESULTING FROM HIS FAILURE TO DO SO.
7. THE CONTRACTOR SHALL MAINTAIN LIMITS OF CONSTRUCTION WITHIN THE PROPERTY BOUNDARIES OR EASEMENTS AS INDICATED.
8. AN APPROVED SET OF PLANS SHALL BE KEPT ON THE SITE AT ALL TIMES.
9. ALL CONSTRUCTION DEBRIS SHALL BE CONTAINERIZED IN CONFORMANCE WITH THE VIRGINIA LITTER CONTROL ACT AND DISPOSED OF IN A MANNER AND LOCATION ACCEPTABLE TO THE GOVERNING JURISDICTION. AT LEAST ONE TRASH RECEPTACLE SHALL BE ONSITE DURING CONSTRUCTION.
10. TEMPORARY TOILETS SHALL BE PROVIDED ONSITE AT A RATIO OF ONE TOILET PER 30 WORKERS DURING THE CONSTRUCTION PERIOD.
11. GRADE STAKES SHALL BE SET FOR CURB & GUTTER, WATER LINES, SANITARY SEWER AND STORM SEWER.
12. THE CONTRACTOR SHALL MAINTAIN A CLEAR FLOW PATH TO AND THROUGH ALL SURFACE WATER AND STORM WATER DRAINAGE FACILITIES AT ALL TIMES.
13. THE CONTRACTOR SHALL GRADE, SEED, AND/OR SOD, AND MULCH THE ENTIRE AREA(S) DISTURBED BY CONSTRUCTION ACTIVITIES.
14. CONSTRUCTION AND START-UP OF ALL WORK SHALL NOT INTERFERE WITH THE OPERATION OF WATER AND SEWERAGE FACILITIES. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL WORK WITH THE OWNERS AS REQUIRED.
15. MINIMUM COVER ON ALL PIPE SHALL BE 3.0 FEET, UNLESS OTHERWISE SPECIFICALLY INDICATED ON THESE DRAWINGS. ALL PIPE SHALL BE INSTALLED WITH COATED TRACER WIRE TO FACILITATE FUTURE LOCATION OF PIPE AFTER CONSTRUCTION IS COMPLETED.
16. WHERE IT IS NECESSARY TO DEFLECT PIPE EITHER HORIZONTALLY OR VERTICALLY, PIPE JOINT DEFLECTION OR BARREL BEND RADIUS SHALL NOT EXCEED 75% OF THE MANUFACTURER'S RECOMMENDED DEFLECTION ANGLE OR BEND RADIUS.
17. ALL PIPING SHALL BE PROPERLY SUPPORTED. ALL PIPING WHICH WILL BE PRESSURIZED DURING OPERATION SHALL BE PROPERLY RESTRAINED.
18. ALL HDPE PIPE SHALL CONFORM TO THE CURRENT VDOT SPECIFICATIONS AND BE BEDDED IN ACCORDANCE WITH THE CURRENT VDOT STANDARDS.
19. CONSTRUCTION TRAFFIC SHALL USE THE CONSTRUCTION ENTRANCE.

GENERAL UTILITY NOTES:

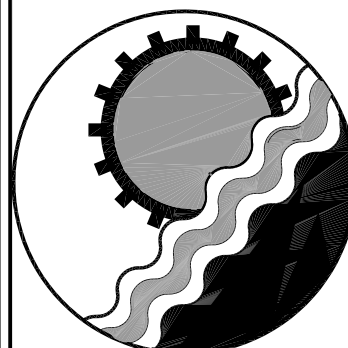
1. VERIFY LOCATION, SIZE, AND ELEVATION FOR ALL UTILITIES IN AREAS OF CONSTRUCTION PRIOR TO STARTING WORK. CONTACT ENGINEER IMMEDIATELY IF LOCATION, SIZE, OR ELEVATION IS DIFFERENT FROM THAT SHOWN ON PLAN. IF THERE APPEARS TO BE A CONFLICT, OR UPON DISCOVERY OF ANY UTILITY NOT SHOWN ON PLAN.
2. PROVIDE CONSTRUCTION METHODS AND MATERIALS IN ACCORDANCE WITH THE COMMONWEALTH OF VIRGINIA SEWAGE AND WATERWORKS REGULATIONS AND BOTETOURT COUNTY, VIRGINIA REGULATIONS WHERE APPLICABLE.
3. A MINIMUM OF THREE (3.0) FEET OF COVER IS REQUIRED OVER PROPOSED WATER AND SEWER LINES.
4. ALL EXISTING UTILITIES MAY NOT BE SHOWN IN EXACT LOCATION. THE CONTRACTOR SHALL COMPLY WITH THE STATE WATERWORKS REGULATIONS, SECTION 12.05.03, WHERE LINES CROSS.
5. ALL LINES SHALL BE STAKED PRIOR TO CONSTRUCTION.
6. REFER TO DETAIL SHEETS FOR BEDDING DETAILS. AFTER THE PIPE HAS BEEN PLACED IN THE TRENCH, THE TRENCH SHALL BE BACKFILLED WITH SELECT MATERIAL AND THOROUGHLY COMPACTED PER SPECIFICATIONS.
7. ALL WATER MAINS SHALL BE PROPERLY RESTRAINED WITH MECHANICALLY RESTRAINED JOINTS OR APPROVED ALTERNATIVE.
8. ALL WATER MAINS SHALL BE TESTED IN ACCORDANCE WITH BOTETOURT COUNTY STANDARDS. COORDINATE INSPECTIONS FOR TESTING WITH BOTETOURT COUNTY.
9. ALL WATER PIPE TO BE DUCTILE IRON PIPE, PRESSURE CLASS 350, MINIMUM IN ACCORDANCE WITH AWWA C151.
10. PROPOSED STORM DRAINS TO BE FLUSHED PRIOR TO REMOVING SEDIMENT TRAPPING MEASURES.

BOTETOURT COUNTY EROSION AND SEDIMENT CONTROL 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, LATEST EDITION, 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 ONSITE 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 & NARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL ADMINISTRATOR WILL DELIVER THESE MATERIALS AT THE ONSITE PRECONSTRUCTION CONFERENCE.
- 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 THE 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. AN INSPECTION REPORT MUST BE FILED WITH THE BOTETOURT COUNTY EROSION & SEDIMENT CONTROL ADMINISTRATOR ONCE EVERY TWO WEEKS, BEGINNING WITH COMMENCEMENT OF THE LAND DISTURBING ACTIVITY, AND WITHIN 48 HOURS OF ANY RUNOFF-PRODUCING RAINFALL EVENT. FAILURE TO SUBMIT A REPORT WILL BE GROUNDS FOR IMMEDIATE REVOCATION OF THE LAND DISTURBING PERMIT. REPORTS MUST BE POSTMARKED WITHIN 24 HOURS OF THE DEADLINE. A STANDARD INSPECTION REPORT FORM WILL BE SUPPLIED, WHICH SHOULD BE COPIED AS NECESSARY. THIS PROVISION IN NO WAY WAIVES THE RIGHT OF BOTETOURT COUNTY PERSONNEL TO CONDUCT SITE INSPECTIONS, NOR DOES IT DENY THE RIGHT OF THE PERMITTEE(S) TO ACCOMPANY THE INSPECTOR(S).

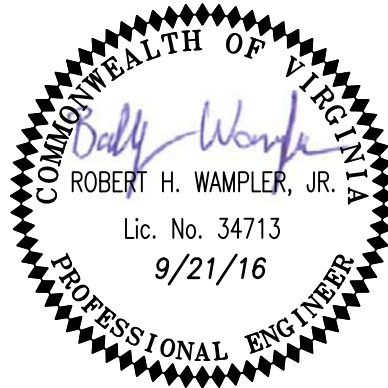
CONSTRUCTION SEQUENCE AND PHASING

1. AS A FIRST STEP IN LAND DISTURBANCE THE CONSTRUCTION ENTRANCE AND ALL PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED.
2. GRADING FOR CUL-DE-SAC, SLOPES AND DITCHES SHALL FOLLOW INCLUDING CONSTRUCTION OF THE TEMPORARY SEDIMENT TRAP WITH EROSION CONTROL MEASURES PLACED IMMEDIATELY AFTER FINISHED GRADE IS REACHED.
3. PREPARATION OF COTTAGE SITE ENVELOPE AND SEEDING OF DISTURBED AREAS.
4. INSTALLATION OF THE PERFORATED PVC UNDERDRAIN FOR POROUS ASPHALT PLACEMENT AND STABILIZATION OF OUTFALL NEAR TOP OF SLOPE AS SHOWN ON PLANS.
5. REMOVAL OF SEDIMENT LADEN CONSTRUCTION ENTRANCE AND INSTALLATION OF POROUS ASPHALT BASE IN PREPARATION FOR ASPHALT PLACEMENT.
6. INSTALLATION OF UTILITIES TO COTTAGE BUILDING ENVELOPE.
7. INSTALLATION OF ASPHALT AND GUARDRAIL.
8. REMOVAL OF TEMPORARY SEDIMENT CONTROL MEASURES FOLLOWING STABILIZATION OF SITE AS DIRECTED BY BOTETOURT COUNTY EROSION AND SEDIMENT CONTROL INSPECTOR.
9. INSTALL LEVEL SPREADER IMMEDIATELY FOLLOWING REMOVAL OF TEMPORARY SEDIMENT TRAP.



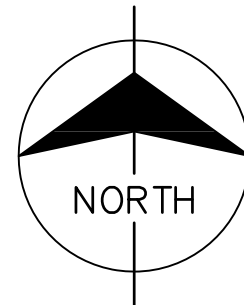
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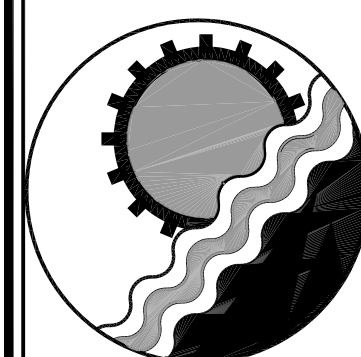
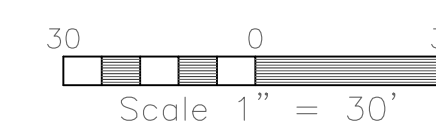
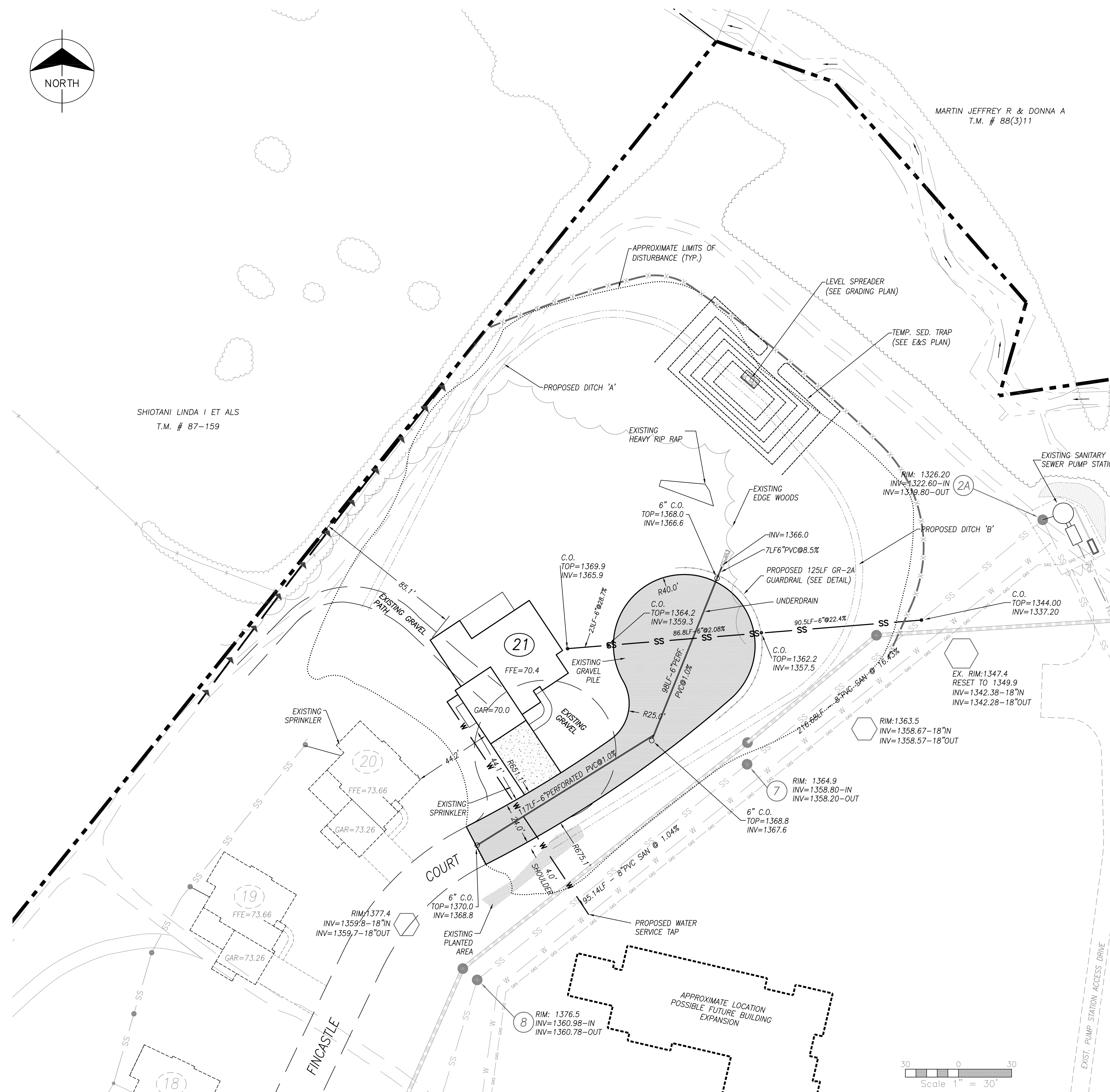
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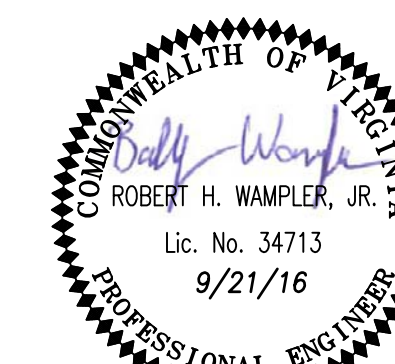
FOR CONSTRUCTION ACTIVITIES THAT HAVE A DISTURBED AREA GREATER THAN 1 ACRE, THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION (DCR) WILL REQUIRE THIS PROJECT TO FOLLOW THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT PROGRAM (VPDES) AND TO REGISTER FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT. PURSUANT TO THIS PERMIT A STORMWATER POLLUTION PREVENTION PLAN (SWPP) AND AN APPROVED EROSION AND SEDIMENT CONTROL PLAN MUST BE ONSITE AT ALL TIMES. CONTRACTOR SHALL CONTACT BOTETOURT COUNTY EROSION AND SEDIMENT CONTROL ADMINISTRATORS OFFICE FOR REGISTRATION AND SECURE ALL PERMITS REQUIRED FOR CONSTRUCTION, PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.

NOTES: DRIVEWAYS, ROAD EXTENSION AND CUL-DE-SAC SHALL BE POROUS ASPHALT CONSTRUCTION



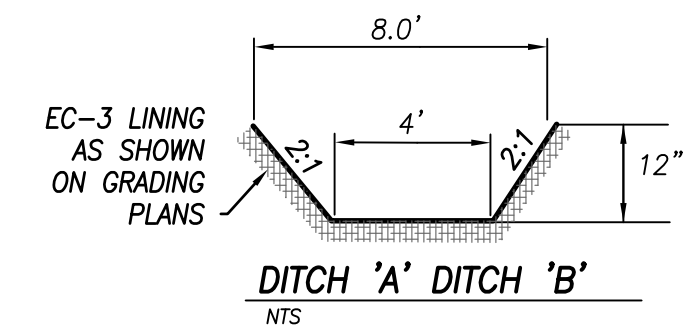
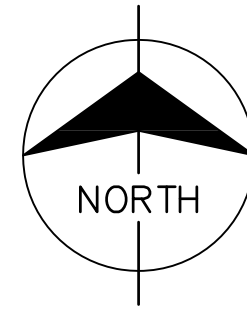
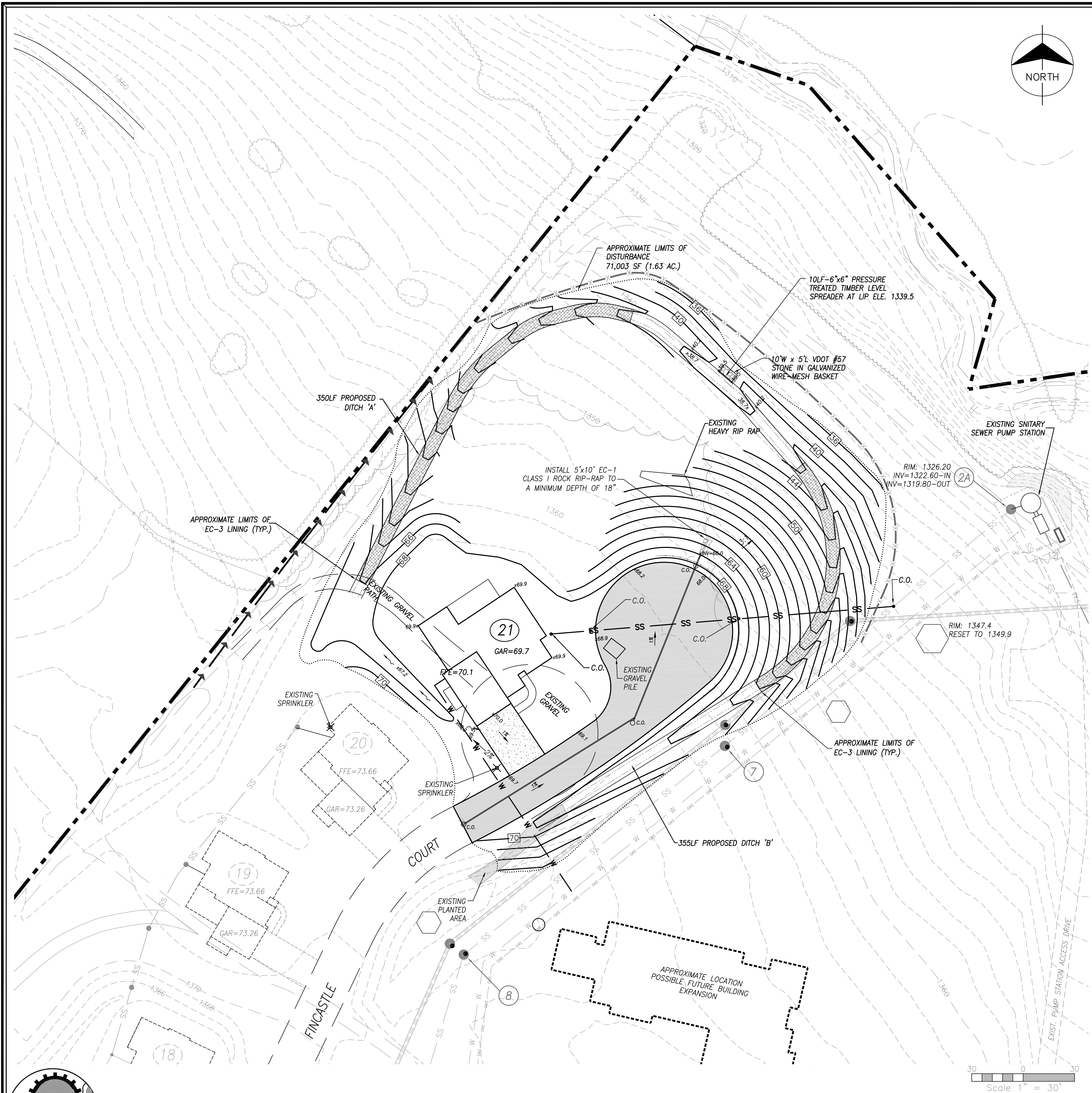
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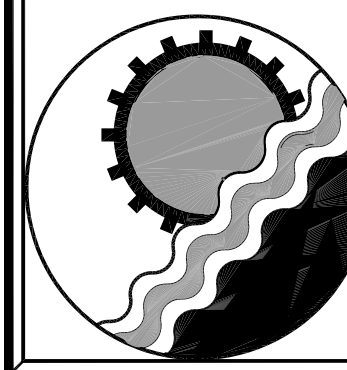
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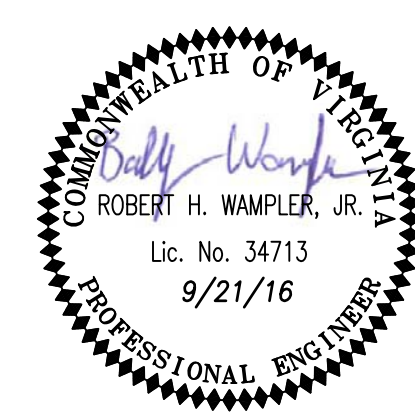
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NOTES: DRIVEWAYS, ROAD EXTENSION AND CUL-DE-SAC SHALL BE POROUS ASPHALT CONSTRUCTION

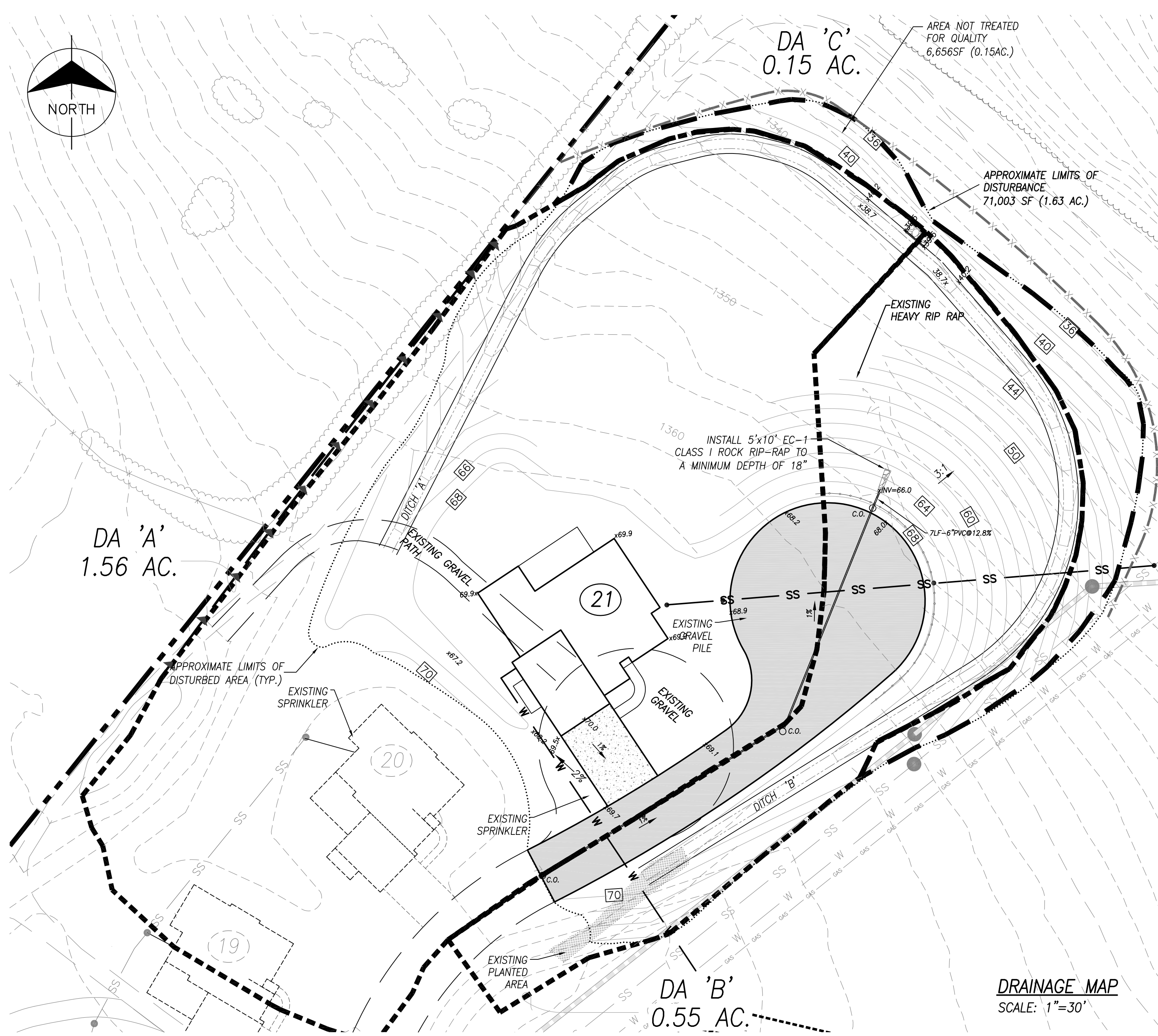


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20 S. ROANOKE ST., PO BOX 619  
FINCASTLE, VIRGINIA 24090  
540.473.1253 FAX: 540.473.1254

Drawn	BRF	<b>GRADING PLAN</b> <b>COTTAGE ADDITION - 21</b>  <b>"THE GLEBE"</b> <b>BOTETOURT COUNTY - VIRGINIA</b>	SCALE: 1"=30'
Designed	ECI		DATE: SEP. 21, 2016
Checked	RHW		PROJECT: 16064
Approved	RHW		<b>C4</b>







DISTURBED AREAS

D.A. 'A'	TOTAL: 1.56 AC.
ROOF	0.13 AC.
ROAD	0.15
TURF	1.28 AC
TOTAL	= 1.56 AC.

D.A. 'B'	TOTAL: 0.55 AC.
ROOF	0.00 AC
ROAD	0.12 AC
TURF	0.43 AC
TOTAL	= 0.55 AC.

ALL AREAS	TOTAL: 2.11 AC.
ROOF	0.13 AC
ROAD	0.27 AC
TURF	1.71 AC
TOTAL	= 2.11 AC.

NOT INCLUDED IN QUALITY CALCULATIONS

D.A. 'C'	TOTAL: 0.15 AC.
TURF	0.15 AC
TOTAL	= 0.15 AC.

WATER QUALITY

Virginia Runoff Reduction Method Worksheet

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List: 2013 Draft Stds & Specs

Site Summary

Total Rainfall (in):	43
Total Disturbed Acreage:	1.66

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	1.96	0.00	1.96	93
Impervious Cover (acres)	0.00	0.00	0.15	0.00	0.15	7
					2.11	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	1.71	0.00	1.71	81
Impervious Cover (acres)	0.00	0.00	0.40	0.00	0.40	19
					2.11	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post- ReDevelopment	Post- Development (New Impervious)	Adjusted Pre- ReDevelopment
Site Rv	0.36	0.28	0.95	0.28
Treatment Volume (ft³)	2,745	1,883	862	1,883
TP Load (lb/yr)	1.72	1.18	0.54	1.18

Pre- ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
0.64	0.82	0.64

Total TP Load Reduction Required (lb/yr)	0.68	0.24	0.44
--	------	------	------

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre- ReDevelopment
TN Load (lb/yr)	12.34	9.36

Site Compliance Summary

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%
--	-----

Total Runoff Volume Reduction (ft³)	952
Total TP Load Reduction Achieved (lb/yr)	0.75
Total TN Load Reduction Achieved (lb/yr)	5.68
Remaining Post Development TP Load (lb/yr)	0.97
Remaining TP Load Reduction (lb/yr) Required	0.00

\*\* TARGET TP REDUCTION EXCEEDED BY 0.08 LB/YEAR \*\*

DRAINAGE MAP  
SCALE: 1"=30'

DITCH DRAINAGE AREA ANALYSIS

Cimpervious =	0.90				
Cpervious =	0.33				
I <sub>2</sub> =	5.34				
I <sub>10</sub> =	6.22				

Structure	Ampervious	Apervious	A <sub>total</sub>	C <sub>weighted</sub>	Q <sub>2</sub>	Q <sub>10</sub>
Ditch A	0.28	1.41	1.69	0.42	3.8	4.5
Ditch B	0.12	0.43	0.55	0.45	1.3	1.6

Channel Report

Hydroware Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 8 2015			
<b>Ditch A - Q2</b>			
Trapezoidal Bottom Width (ft)	= 4.00	Highlighted Depth (ft)	= 0.18
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 3.800
Total Depth (ft)	= 1.00	Area (sqft)	= 0.79
Invert Elev (ft)	= 1344.10	Velocity (ft/s)	= 4.84
Slope (%)	= 17.00	Wetted Perim (ft)	= 4.80
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.29
		Top Width (ft)	= 4.72
		EGL (ft)	= 0.54
Calculations Compute by:	Known Q		
Known Q (cfs)	= 3.80		

Channel Report

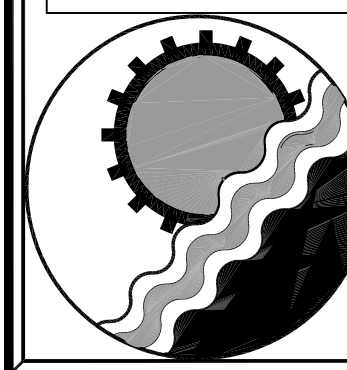
Hydroware Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 8 2015			
<b>Ditch A - Q10</b>			
Trapezoidal Bottom Width (ft)	= 4.00	Highlighted Depth (ft)	= 0.36
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 4.500
Total Depth (ft)	= 1.00	Area (sqft)	= 1.70
Invert Elev (ft)	= 1344.10	Velocity (ft/s)	= 2.65
Slope (%)	= 2.00	Wetted Perim (ft)	= 5.61
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.33
		Top Width (ft)	= 5.44
		EGL (ft)	= 0.47
Calculations Compute by:	Known Q		
Known Q (cfs)	= 4.50		

Channel Report

Hydroware Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 8 2015			
<b>Ditch B - Q2</b>			
Trapezoidal Bottom Width (ft)	= 4.00	Highlighted Depth (ft)	= 0.09
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 1.300
Total Depth (ft)	= 1.00	Area (sqft)	= 0.38
Invert Elev (ft)	= 1344.10	Velocity (ft/s)	= 3.46
Slope (%)	= 20.00	Wetted Perim (ft)	= 4.40
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.15
		Top Width (ft)	= 4.36
		EGL (ft)	= 0.28
Calculations Compute by:	Known Q		
Known Q (cfs)	= 1.30		

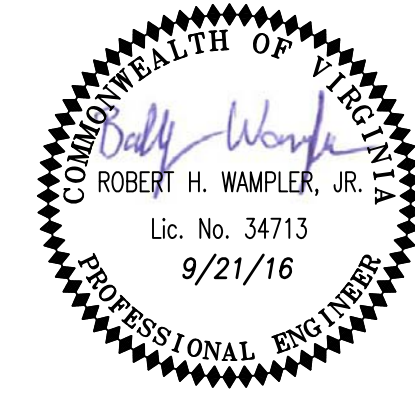
Channel Report

Hydroware Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Monday, Jul 8 2015			
<b>Ditch B - Q2</b>			
Trapezoidal Bottom Width (ft)	= 4.00	Highlighted Depth (ft)	= 0.20
Side Slopes (z:1)	= 2.00, 2.00	Q (cfs)	= 1.800
Total Depth (ft)	= 1.00	Area (sqft)	= 0.88
Invert Elev (ft)	= 1344.10	Velocity (ft/s)	= 1.82
Slope (%)	= 2.00	Wetted Perim (ft)	= 4.89
N-Value	= 0.035	Crit Depth, Yc (ft)	= 0.17
		Top Width (ft)	= 4.80
		EGL (ft)	= 0.25
Calculations Compute by:	Known Q		
Known Q (cfs)	= 1.80		



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FINCASTLE, VIRGINIA 24090  
540.473.1253 FAX: 540.473.1254

Drawn BRF	DRAINAGE MAP COTTAGE ADDITION - 21	SCALE: 1"=30'
Designed ECI		DATE: SEP. 21, 2016
Checked RHW	"THE GLEBE" BOTETOURT COUNTY - VIRGINIA	PROJECT: 16064
Approved RHW		C5







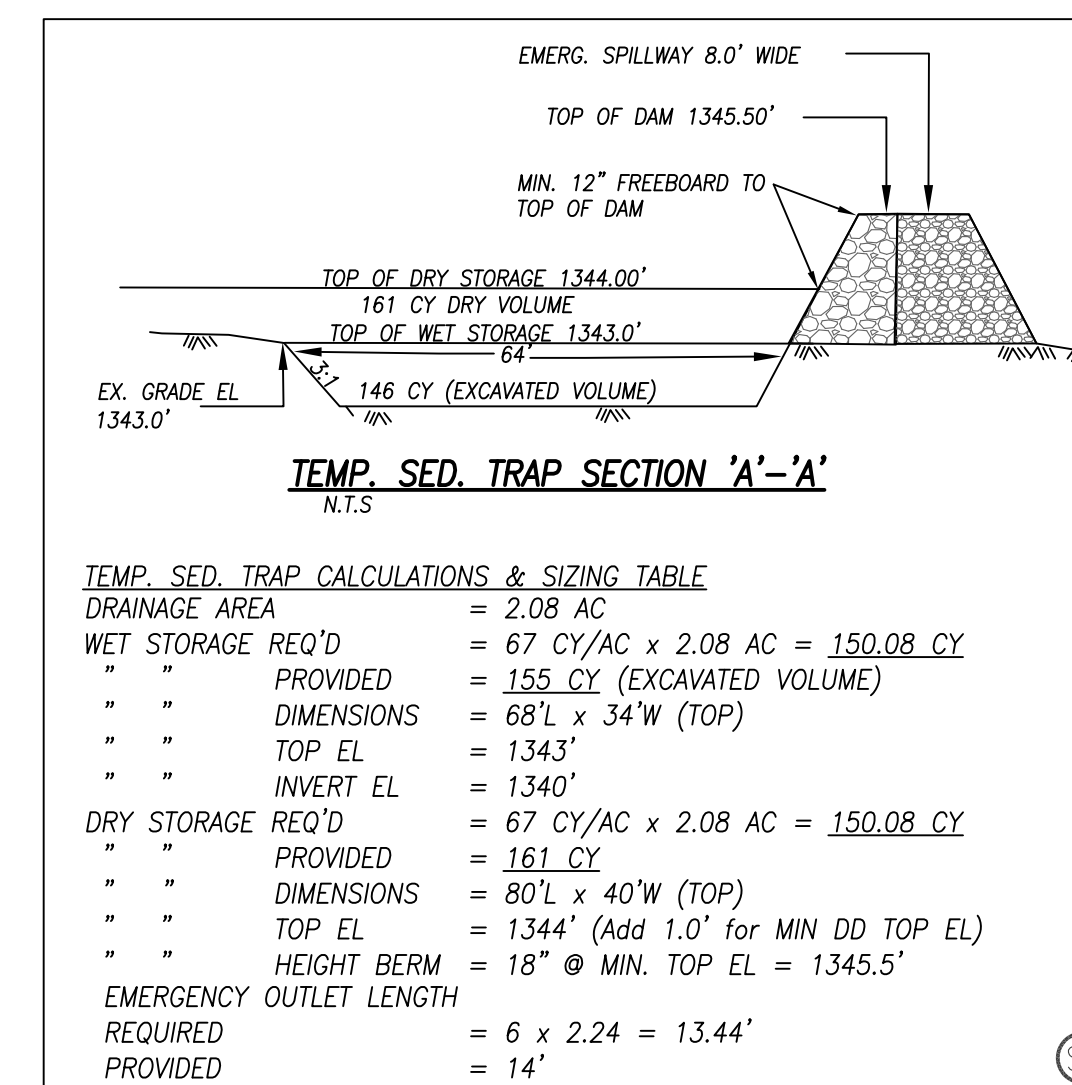
28C Groseclose silt loam, 7 to 15 percent slopes

Map Unit Setting  
National map unit symbol: k47  
Elevation: 1,000 to 2,600 feet  
Mean annual precipitation: 30 to 45 inches  
Mean annual air temperature: 50 to 57 degrees F  
Frost-free period: 153 to 196 days  
Farmland classification: Farmland of statewide importance

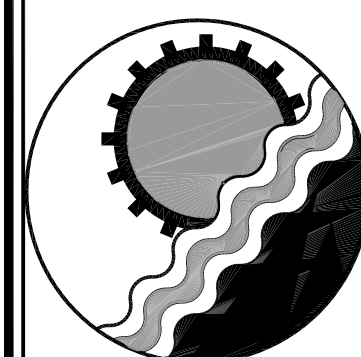
Map Unit Composition  
Groseclose and similar soils: 80 percent  
Estimates are based on observations, descriptions, and transects of the mapunit.  
Description of Groseclose Setting  
Landform: Hills  
Landform position (two-dimensional): Summit, shoulder, backslope  
Landform position (three-dimensional): Side slope, nose slope, interfluv  
Down-slope shape: Convex  
Across-slope shape: Convex  
Parent material: Residuum weathered from limestone and shale  
Typical profile  
H1 - 0 to 7 inches: silt loam  
H2 - 7 to 26 inches: clay  
H3 - 26 to 65 inches: silty clay loam  
Properties and qualities  
Slope: 7 to 15 percent  
Depth to restrictive feature: More than 80 inches  
Natural drainage class: Well drained  
Runoff class: Very high  
Capacity of the most limiting layer to transmit water (Ksat):  
Moderately low to moderately high (0.06 to 0.20 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Available water storage in profile: Moderate (about 8.5 inches)  
Interpretive groups  
Land capability classification (irrigated): None specified  
Land capability classification (nonirrigated): 3e  
Hydrologic Soil Group: C

28D Groseclose silt loam, 15 to 30 percent slopes

Map Unit Setting  
National map unit symbol: k48  
Elevation: 1,000 to 2,600 feet  
Mean annual precipitation: 30 to 45 inches  
Mean annual air temperature: 50 to 57 degrees F  
Frost-free period: 153 to 196 days  
Farmland classification: Not prime farmland  
Map Unit Composition  
Groseclose and similar soils: 80 percent  
Estimates are based on observations, descriptions, and transects of the mapunit.  
Description of Groseclose Setting  
Landform: Hills  
Landform position (two-dimensional): Backslope  
Landform position (three-dimensional): Nose slope, side slope  
Down-slope shape: Convex  
Across-slope shape: Convex  
Parent material: Residuum weathered from limestone and shale  
Typical profile  
H1 - 0 to 7 inches: silt loam  
H2 - 7 to 26 inches: clay  
H3 - 26 to 65 inches: silty clay loam  
Properties and qualities  
Slope: 15 to 30 percent  
Depth to restrictive feature: More than 80 inches  
Natural drainage class: Well drained  
Runoff class: Very high  
Capacity of the most limiting layer to transmit water (Ksat):  
Moderately low to moderately high (0.06 to 0.20 in/hr)  
Depth to water table: More than 80 inches  
Frequency of flooding: None  
Frequency of ponding: None  
Available water storage in profile: Moderate (about 8.5 inches)  
Interpretive groups  
Land capability classification (irrigated): None specified  
Land capability classification (nonirrigated): 4e  
Hydrologic Soil Group: C



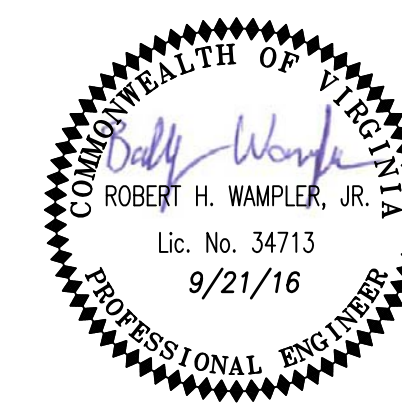
TEMPORARY SEDIMENT TRAP DETAIL



ENGINEERING CONCEPTS, INC.

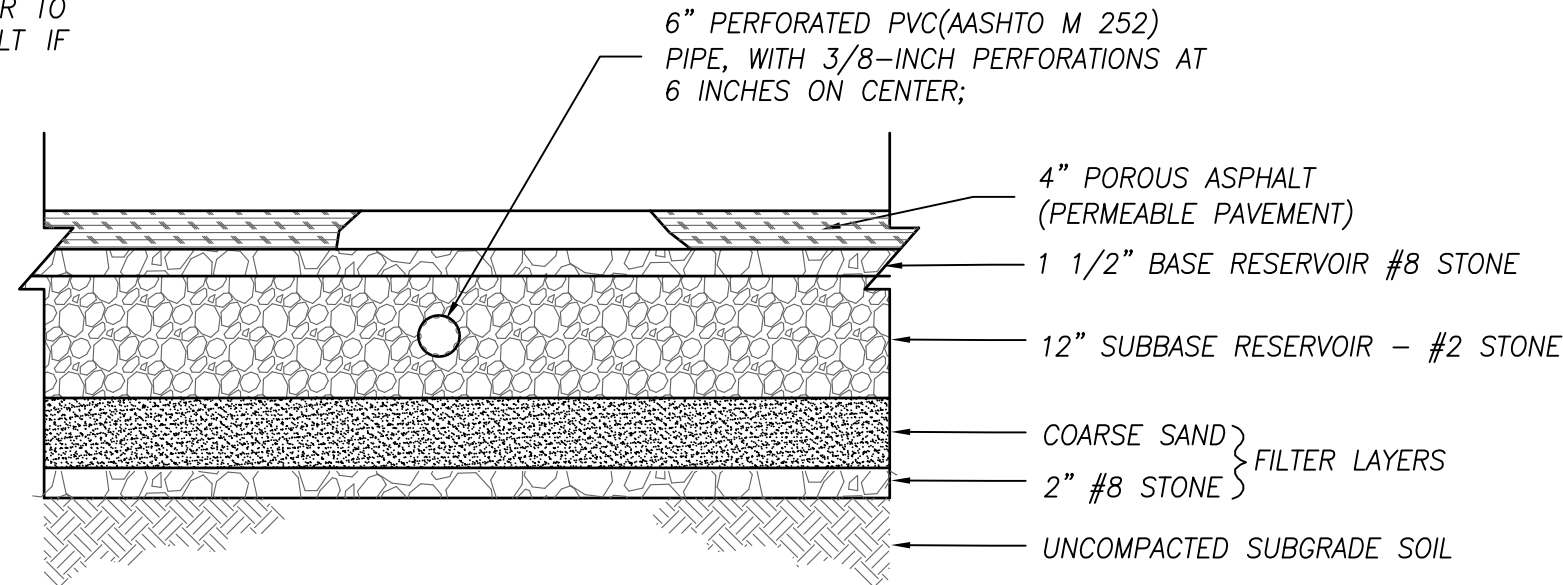
20 S. ROANOKE ST., PO BOX 619  
FINCASTLE, VIRGINIA 24090  
540.473.1253 FAX: 540.473.1254

Drawn msmJ	EROSION & SEDIMENT CONTROL PLAN COTTAGE ADDITION - 21  "THE GLEBE" BOTETOURT COUNTY - VIRGINIA	SCALE: 1"=30'
Designed ECI		DATE: SEP. 21, 2016
Checked RHW		PROJECT: 16064
Approved RHW		C6

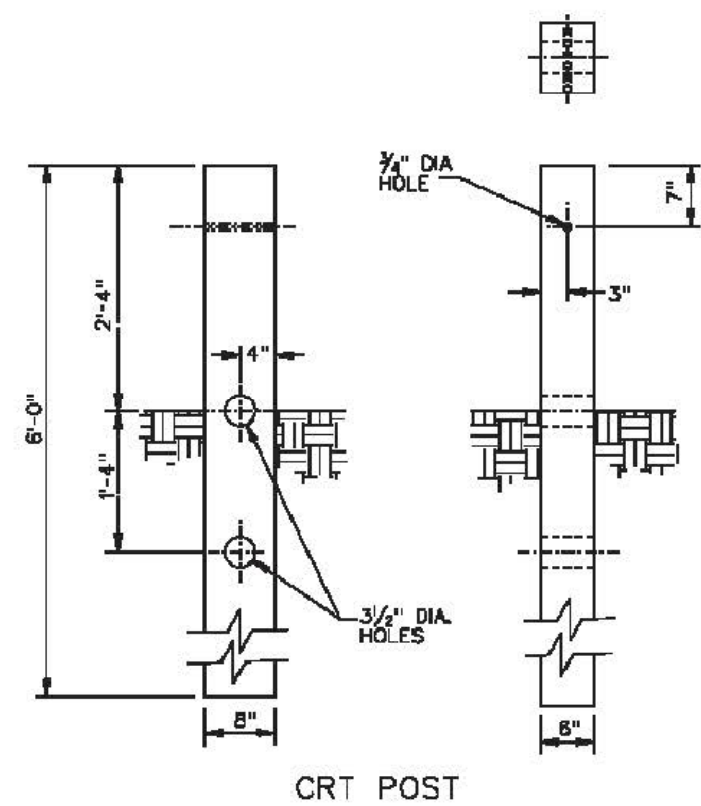
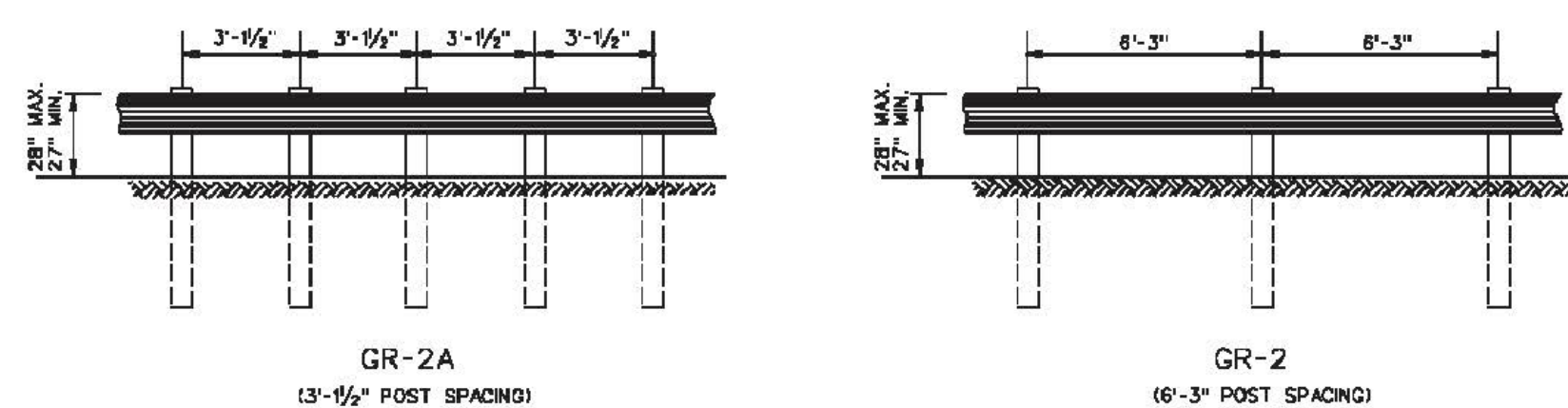




\* PAVEMENT DESIGN BASED ON A CBR OF 6 OR GREATER. NOTIFY THE ENGINEER PRIOR TO PLACEMENT OF THE ASPHALT IF LESS THAN SPECIFIED.

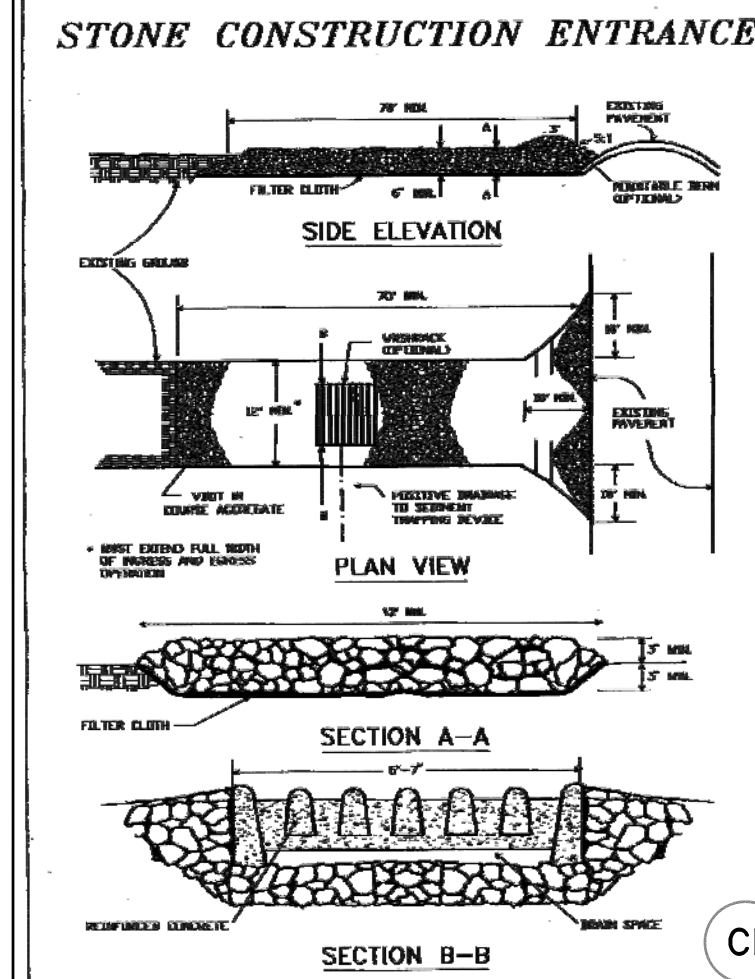


FINCASTLE COURT  
AND DRIVEWAY  
**PAVEMENT SECTION\***  
NOT TO SCALE



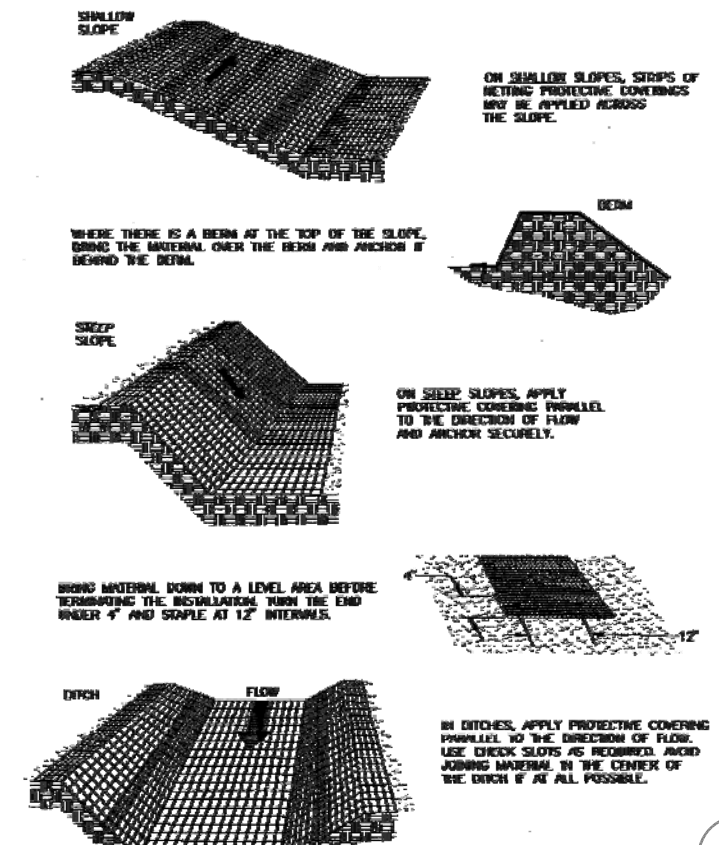
NOTES:  
GUARDRAIL LOCATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY AND CAN BE ADJUSTED DURING CONSTRUCTION IF AND AS DIRECTED BY THE ENGINEER.  
FOR DETAILS OF POST AND BLOCKOUTS SEE SHEET NO. 501.05.  
FOR DETAILS OF RAIL ELEMENT, RAIL SPLICE JOINT, W-BEAM BACK-UP PLATE, AND ASSOCIATED HARDWARE SEE SHEET NOS. 501.01 AND 501.02.  
THE MAXIMUM DYNAMIC DEFLECTION FOR STANDARD GR-2 IS 3 FEET, AND 2 FEET FOR GR-2A.  
RAIL ELEMENTS ARE FURNISHED SHOP CURVED FOR RADIIBETWEEN 5 FEET AND 150 FEET.

STANDARD BLOCKED-OUT W BEAM GUARDRAIL (STRONG POST SYSTEM)  
VIRGINIA DEPARTMENT OF TRANSPORTATION



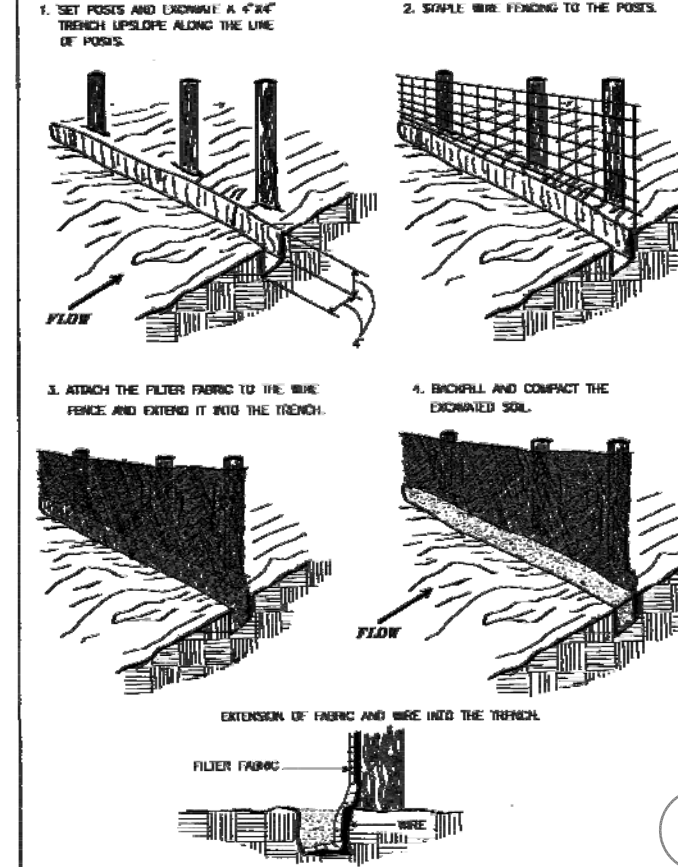
Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC

TYPICAL ORIENTATION OF TREATMENT - 1 (SOIL STABILIZATION BLANKET)

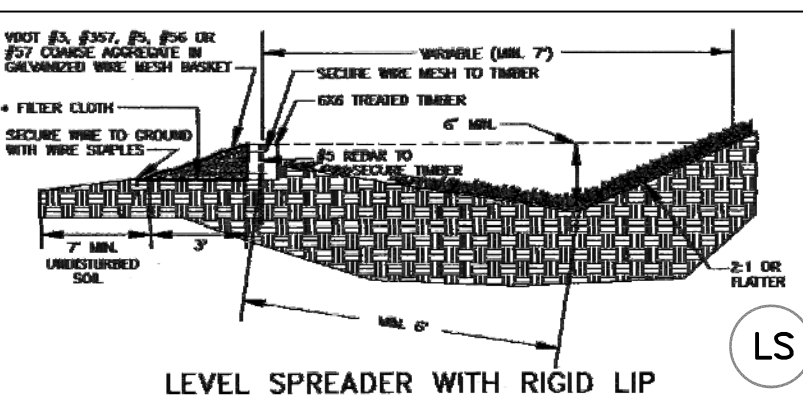


CE

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)

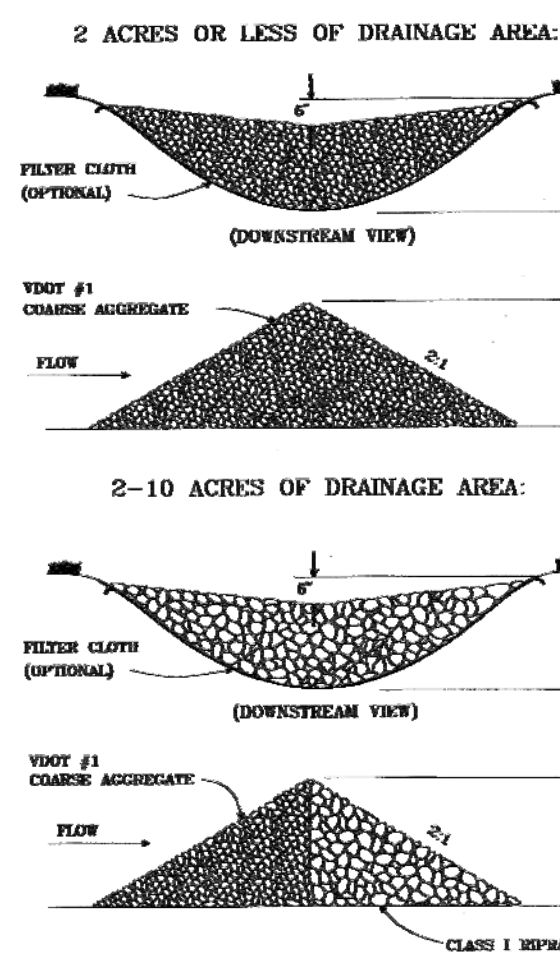


SF



LS

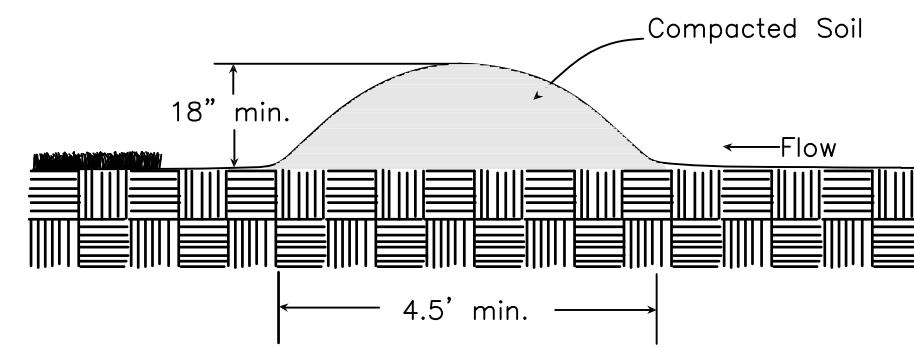
ROCK CHECK DAM



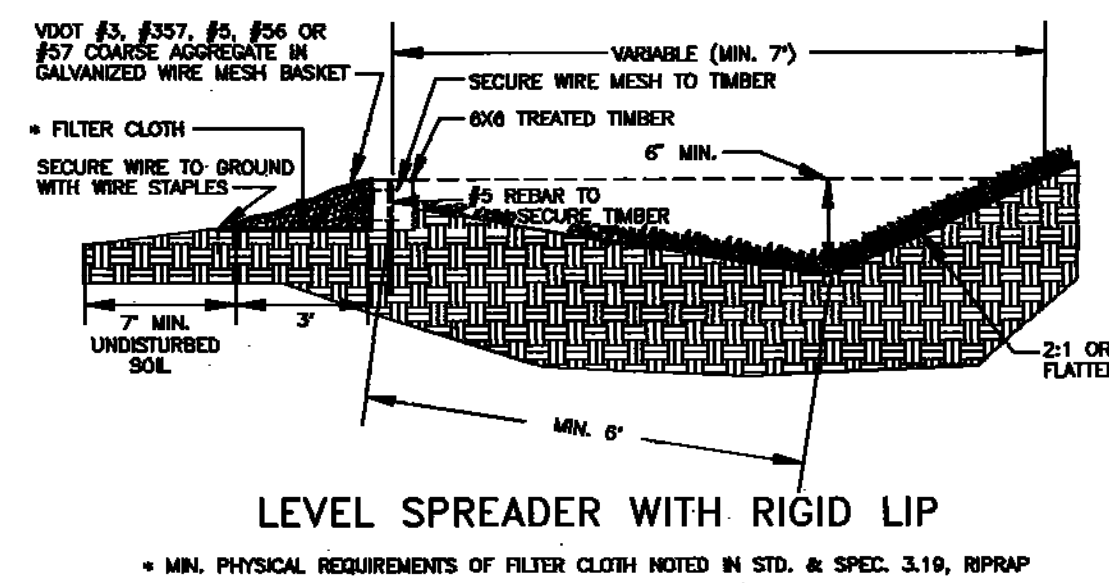
CD

Source: Va. DSWC

DD TEMPORARY DIVERSION DIKE



CROSS SECTION



LS

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 ONSITE 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 & NARRATIVE, AS WELL AS A COPY OF THE LAND DISTURBING PERMIT, SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE EROSION AND SEDIMENT CONTROL ADMINISTRATOR WILL DELIVER THESE MATERIALS AT THE ONSITE PRECONSTRUCTION CONFERENCE.

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 THE 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. AN INSPECTION REPORT MUST BE FILED WITH THE BOTETOURT COUNTY EROSION AND SEDIMENT CONTROL ADMINISTRATOR ONCE EVERY TWO WEEKS, BEGINNING WITH COMMENCEMENT OF THE LAND DISTURBING ACTIVITY, AND WITHIN 48 HOURS OF ANY RUNOFF-PRODUCING RAINFALL EVENT. FAILURE TO SUBMIT A REPORT WILL BE GROUNDS FOR IMMEDIATE REVOCATION OF THE LAND DISTURBING PERMIT. REPORTS MUST BE POSTMARKED WITHIN 24 HOURS OF THE DEADLINE. A STANDARD INSPECTION REPORT FORM WILL BE SUPPLIED, WHICH SHOULD BE COPIED AS NECESSARY. THE PROVISION IN NO WAY WAIVES THE RIGHTS OF BOTETOURT COUNTY PERSONNEL TO CONDUCT SITE INSPECTIONS, NOR DOES IT DENY THE RIGHT OF THE PERMITTEE(S) TO ACCOMPANY THE INSPECTOR(S).

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	CONSTRUCTION ROAD STABILIZATION	(CRS)		3.22	VEGETATIVE STREAMBANK STABILIZATION	(VRS)	
3.04	STRAW BALE BARRIER	(SIB)		3.23	STRUCTURAL STREAMBANK STABILIZATION	(SSS)	
3.05	SILT FENCE	(SF)		3.24	TEMPORARY VEHICULAR STREAM CROSSING	(VRS)	
3.06	BRUSH BARRIER	(BB)		3.25	UTILITY STREAM CROSSING	(US)	
3.07	STORM DRAIN INLET PROTECTION	(IP)		3.26	DEWATERING STRUCTURE	(DS)	
3.08	CULVERT INLET PROTECTION	(CP)		3.27	TURBIDITY CURTAIN	(TC)	
3.09	TEMPORARY FILL DIVERSION	(FD)		3.28	SUBSURFACE DRAIN	(SD)	
3.10	TEMPORARY RIGHT-OF-WAY DIVERSION	(FRW)		3.29	SURFACE ROUGHENING	(SR)	
3.11	DIVERSION	(DV)		3.30	TOPSOILING	(TO)	
3.12	TEMPORARY SEDIMENT TRAP	(ST)		3.31	TEMPORARY SEEDING	(TS)	
3.13	TEMPORARY SEDIMENT BASIN	(SB)		3.32	PERMANENT SEEDING	(PS)	
3.14	PAVED FLUME	(PF)		3.33	SODDING	(SO)	
3.15	STORMWATER CONVEYANCE CHANNEL	(SCC)		3.34	BERMUDA GRASS AND ZOYSIAGRASS ESTABLISHMENT	(GB)	
3.16	OUTLET PROTECTION	(OP)		3.35	MULCHING	(MU)	
3.17	RIPRAP	(RR)		3.36	SOIL STABILIZATION BLANKETS AND MATTING	(SM)	
3.18				3.37	TREES, SHRUBS, VINES AND GROUND COVERS	(VEG)	
3.19				3.38	TREE PRESERVATION AND PROTECTION	(TP)	
				3.39	DUST CONTROL	(DC)	

EROSION - SILTATION CONTROL COST ESTIMATE				
ALL COSTS GIVEN ARE COMPLETE IN PLACE				
DESCRIPTION	UNIT	QUANTITY	UNIT COST	TOTAL COST
SILT FENCE	LF	470	\$ 6	\$ 2,820.00
OP	EA	1	625	625.00
TS - PS - MU	AC	1.28	1750	2,240.00
CD	EA	9	125	1,125.00
LS	EA	1	1,250	1,250.00
CE	EA	1	5,000	5,000.00
ST	CY	307	5.00	1,535.00
DD	LF	250	3.00	750.00
SUB-TOTAL				\$ 13,810.00
20% CONTINGENCY				\$ 2,762.00
TOTAL PROJECT COST				\$ 16,572

DISTURBED AREAS: 71,003 SF (1.63 AC.)

COMMONWEALTH OF VIRGINIA  
ROBERT H. WAMPLER, JR.  
Lic. No. 34713  
9/21/16  
PROFESSIONAL ENGINEER