

SUPPLEMENTAL SOIL EROSION NARRATIVE

PROJECT DESCRIPTION: THE PURPOSE OF THIS PROJECT IS THE COMPLETION OF THE MASS-GRADING PROJECT TO A SINGLE-FAMILY RESIDENTIAL SUBDIVISION. THIS WILL BE ACCOMPLISHED BY FINE GRADING THE ROADWAYS, INSTALLATION OF CURBING AND ASPHALT SURFACE, INSTALLATION OF UNDERGROUND PIPE SYSTEMS. REFER TO THE COMPLETE SET OF CONSTRUCTION FOR EXACT LOCATION AND CONSTRUCTION DETAILS.

EXISTING SITE CONDITIONS: THE SITE IS CURRENTLY UNDER DEVELOPMENT OF A MASS-GRADING PLAN, PERMITTED BY THE DEVELOPER GRAHAM THOMAS, LLC. THERE IS NO JURISDICTIONAL WATERS LOCATED WITHIN THE LIMITS OF THE SUBJECT DEVELOPMENT.

ADJACENT PROPERTY: REFER TO THE PLAN VIEW FOR ADDITIONAL INFORMATION.

OFF-SITE AREAS: THE DEVELOPMENT WILL BE A "BALANCED" SITE AND NO EXCESS MATERIAL WILL BE EXPORTED NOR WILL ANY MATERIAL BE IMPORTED FROM OTHER PROPERTIES.

SOILS: A SUBSURFACE INVESTIGATION HAS NOT BEEN PROVIDED. SOIL INFORMATION IS AVAILABLE ON THE RESIDUAL SOILS THAT IS SUGGESTED IN THE "SOIL SURVEY OF ROANOKE COUNTY AND THE CITIES OF ROANOKE AND SALEM, VIRGINIA" AS PREPARED BY THE UNITED STATES DEPARTMENT OF AGRICULTURE. THIS SURVEY IDENTIFIES THE ORIGINAL SOIL MATERIAL AS A CHISWELL-LITZ COMPLEX. CHISWELL-LITZ SOIL HAS THE FOLLOWING CHARACTERISTICS: 1)WELL DRAINED 2) 0"-9" OF TOPSOIL 3) +/- 10" OF A SILT LOAM SUBBASE 4)MODERATE PERMEABILITY 5)MEDIUM TO RAPID SURFACE RUN-OFF AND 6)HIGH EROSION POTENTIAL.

CRITICAL EROSION AREAS: NO CRITICAL AREAS ARE ANTICIPATED AS THE MAJORITY OF THE SITE WILL DRAIN TO AN EXISTING SEDIMENT BASIN LOCATED AT THE LOW POINT OF THE PROJECT. ALL SLOPES PROPOSED WITHIN THE PROJECT AREA WILL BE PROTECTED BY DIVERSIONS WHICH WILL DISCHARGE INTO A PROPOSED UNDERGROUND STORM DRAIN PIPE SYSTEM.

STRUCTURAL—
CONSTRUCTION ROAD STABILIZATION—STD. 3.03.....THE TEMPORARY STABILIZATION OF ACCESS ROADS, TEMPORARY OR PERMANENT, WITH STONE AFTER GRADING TO REDUCE EROSION CAUSED BY VEHICLES DURING WET WEATHER.

SILT FENCE—STD. 3.05.....A TEMPORARY BARRIER CONSTRUCTED ALONG THE PERIMETER OF THE DISTURBED AREA AS REQUIRED TO INTERCEPT AND DETAIN SEDIMENT.

INLET PROTECTION—STD. 3.07.....INSTALLATION OF A SEDIMENT TRAPPING MEASURES AROUND DROP INLETS OR CURB INLET STRUCTURES PRIOR TO PERMANENT STABILIZATION OF THE DISTURBED AREA.

CULVERT INLET PROTECTION—STD. 3.08.....SEDIMENT TRAPPING MEASURES LOCATED AT THE INLET TO STORM SEWER CULVERTS WHICH PREVENTS SEDIMENT FROM ENTERING, ACCUMULATING IN AND BEING TRANSFERRED BY THE CULVERT.

DIVERSION DIKE—STD. 3.09.....A RIDGE OF COMPACTED SOIL CONSTRUCTED AT THE TOP OR BASE OF A SLOPING DISTURBED AREA WHICH DIVERTS OFF-SITE RUNOFF AWAY FROM UNPROTECTED SLOPES AND TO A STABILIZED OUTLET OR TO DIVERT SEDIMENT LADEN RUNOFF TO SEDIMENT TRAPPING STRUCTURE.

SEDIMENT BASIN—STD. 3.14.....A PERMANENT DAM WITH A CONTROLLED STORMWATER RELEASE STRUCTURE WHICH IS FORMED BY CONSTRUCTING AN EMBANKMENT OF COMPACTED SOIL ACROSS A DRAINAGE WAY, TO DETAIN SEDIMENT-LADEN RUNOFF FROM LARGE DISTURBED AREAS TO ALLOW FOR SUSPENDED SOLIDS TO SETTLE OUT.

RIPRAP—STD. 3.19.....A PERMANENT EROSION-RESISTANT GROUND COVER OF LARGE, LOOSE, ANGULAR STONE INSTALLED WHEREVER SOIL CONDITIONS, WATER TURBULENCE AND VELOCITY, EXPECTED VEGETATIVE COVER, ETC. ARE SUCH THAT SOIL MAY ERODE UNDER DESIGN FLOW CONDITIONS.

VEGETATIVE —
TEMPORARY SEEDING—STD. 3.31.....ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR PERIODS OF 30 DAYS TO 1-YEAR BY SEEDING WITH AN APPROPRIATE RAPIDLY GROWING SEED MIXTURE.

PERMANENT SEEDING—STD. 3.32.....ESTABLISHMENT OF A VEGETATIVE COVER BY PLANTING SEED ON ALL FINAL GRADED AREAS THAT WILL NOT RECEIVE AN IMPERVIOUS COVER OR RECEIVE TOPSOIL MATERIAL TO PROVIDE A STABILIZED SITE AFTER THE PROJECT IS COMPLETE.

MULCHING—3.35.....MULCH SHALL BE APPLIED TO ALL TEMPORARY AND PERMANENT SEEDING OPERATIONS TO PROMOTE THE GROWTH OF VEGETATION AND TO PROTECT THE SOIL SURFACE FROM RAINFALL IMPACTS.

SOIL STABILIZATION BLANKETS & MATTING—3.36.....UPON COMPLETION OF GRADING OPERATIONS FOR THE AREA ALONG THE CUL-DE-SAC EMBANKMENT, A DEGRADABLE BLANKET SHALL BE INSTALLED ON ALL SLOPES 3:1 OR GREATER TO PROMOTE STABILIZATION DUE TO SEEDING OPERATIONS.

DUST CONTROL—STD. 3.39.....DUE TO THE PROXIMITY OF THE PROJECT TO OTHER RESIDENTIAL SUBDIVISIONS, CONTRACTOR SHALL TAKE CARE TO REDUCE/PREVENT SURFACE AND AIR MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES.

MANAGEMENT STRATEGIES:
A) CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.

B) SEDIMENT TRAPPING MEASURES WILL BE INSTALLED AS A FIRST STEP IN GRADING.

C) THE LOCAL PROGRAM ADMINISTRATOR RESERVES THE RIGHT TO ADD TO, DELETE OR OTHERWISE CHANGE THE EROSION CONTROL MEASURES AS DEEMED NECESSARY DUE TO ACTUAL FIELD CONDITIONS BY WRITTEN NOTIFICATION TO THE CONTRACTOR.

D) ALL FILL AND CUT SLOPES SHALL BE SEED WITHIN SEVEN (7) DAYS OF ACHIEVING FINAL GRADE.

E) ONLY AFTER INSPECTION AND APPROVAL FROM THE LOCAL PROGRAM ADMINISTRATOR MAY ITEMS BE REMOVED FOLLOWING THE STABILIZATION OF THE CONTRIBUTING AREAS.

INSPECTIONS:
THE GENERAL CONTRACTOR SHALL INSPECT DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED, AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND THE AREA OF CONSTRUCTION VEHICLE ACCESS AT LEAST EVERY FOURTEEN (14) CALENDAR DAYS, AND WITHIN 48 HOURS OF THE END OF A STORM EVENT PRODUCING 1/2" OR GREATER OF PRECIPITATION. WHERE AREAS HAVE BEEN FINALLY STABILIZED OR RUNOFF IS UNLIKELY DUE TO WINTER CONDITIONS (SITE IS COVERED WITH SNOW, ICE, OR FROZEN GROUND EXISTS) SUCH INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH.

A) INSPECT DISTURBED AREAS AND AREAS OF MATERIALS STORAGE THAT ARE EXPOSED TO PRECIPITATION FOR EVIDENCE OF, OR THE POTENTIAL FOR SEDIMENT ENTERING THE STORM DRAIN SYSTEM. INSPECT ERS CONTROLS IN ACCORDANCE WITH REQUIREMENTS STATED HEREIN, AND INSPECT POINTS OF STORM DRAIN DISCHARGE FOR EXCESSIVE SEDIMENTATION. CORRECT SITE CONTROLS AS REQUIRED TO REDUCE SEDIMENTATION OF STORM DRAINS, CULVERTS, AND RECEIVING CHANNELS.

B) IF CONTROLS OR SEDIMENT PREVENTION AREAS ARE FOUND TO BE IN NEED OF REPAIR OR MODIFICATION, THE GENERAL CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES OR MODIFICATIONS TO EXISTING MEASURES AS REQUIRED. ANY ADDITIONAL MEASURES OR MODIFICATIONS TO EXISTING MEASURES SHALL BE RECORDED AS FIELD REVISIONS TO THESE PLANS. IN THE EVENT THAT ADDITIONAL CONTROLS ARE FOUND TO BE REQUIRED, THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THESE CONTROLS BEFORE THE NEXT ANTICIPATED STORM EVENT. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICAL, THEY SHALL BE IMPLEMENTED AS SOON AS PRACTICAL.

C) A REPORT SUMMARIZING THE SCOPE OF INSPECTIONS, NAME OF INSPECTOR, INSPECTOR'S QUALIFICATIONS, DATES OF INSPECTIONS, MAJOR OBSERVATIONS PERTAINING TO THE IMPLEMENTATION OF THESE EROSION CONTROL PLANS, AND ACTIONS TAKEN SHALL BE MADE AND RETAINED AS A PART OF THESE PLANS. MAJOR OBSERVATIONS OF THESE REPORTS SHALL INCLUDE: THE LOCATIONS OF EXCESSIVE SEDIMENTATION FROM THE SITE; LOCATIONS OF CONTROLS IN NEED OF REPAIR; LOCATIONS OF FAILED OR INADEQUATE CONTROLS; AND LOCATIONS WHERE ADDITIONAL CONTROLS ARE NEEDED.

STORMWATER MANAGEMENT:
UPON COMPLETION OF THE PROJECT, THE EXISTING SEDIMENT BASIN WILL HAVE BEEN CONVERTED TO A PERMANENT STORMWATER MANAGEMENT FACILITY TO PROTECT DOWNSTREAM CHANNELS/FACILITIES FROM INCREASED FLOWS ANTICIPATED FROM THE DEVELOPMENT.

SANITARY SEWER MANHOLE AND CLEANOUT INFORMATION

LINE	BEARING	DISTANCE
exist. to 'A'	S. 42°09'32" W.	11.66'
'A' to 'B'	N. 52°19'51" W.	141.83'
'B' to 'C'	S. 63°08'28" W.	197.20'
'C' to 'D'	S. 40°16'22" W.	80.00'
'D' to 'E'	S. 04°08'26" E.	167.66'
'E' to 'F'	S. 15°11'21" E.	49.56'
'F' to 'M'	N. 80°24'49" E.	313.55'
'E' to 'G'	S. 43°44'40" W.	119.28'
'G' to 'H'	S. 18°17'01" W.	200.00'
'H' to 'I'	S. 30°00'58" W.	108.41'
'I' to 'J'	N. 59°25'17" W.	213.86'
'J' to 'K'	N. 18°17'01" E.	335.06'
'K' to 'L'	N. 09°01'32" W.	166.48'

LOT	DOWN-STREAM STRUCTURE	STA.	OFFSET	CLEANOUT INVERT	MINIMUM FLOOR ELEV.	PROPOSED FLOOR ELEV.
1	SSMH 'I'	0+23.6	33.0' L	1255.4	1257.4	1261.5
2	SSMH 'I'	0+62.6	33.0' L	1255.7	1259.9	1261.5
3	SSMH 'I'	1+03.8	33.0' L	1256.0	1258.0	1261.5
4	SSMH 'I'	1+53.7	33.0' L	1256.3	1258.3	1261.5
5	SSMH 'J'	0+19.9	32.7' L	1256.7	1258.7	1261.5
27	SSMH 'J'	0+68.1	36.0' L	1262.9	1264.9	1275.0
28	SSMH 'J'	1+22.1	36.0' L	1267.9	1269.9	1271.0
29	SSMH 'J'	1+82.1	36.0' L	1273.4	1275.4	1276.0
30	SSMH 'J'	2+42.1	36.0' L	1278.9	1280.9	1282.0
31	SSMH 'J'	3+02.1	36.0' L	1284.4	1286.4	1288.0
32	SSMH 'K'	0+99.9	71.0' L	1296.2	1298.2	1300.0
33	SSMH 'L'	0+00.0	6.0'	1300.1	1302.1	1309.0
34	SSMH 'K'	1+37.4	42.3' R	1298.6	1300.6	1307.0
35	SSMH 'K'	0+93.4	48.3' R	1295.2	1297.2	1304.5
36	SSMH 'K'	0+34.8	33.7' R	1290.2	1292.2	1301.5
37	SSMH 'J'	3+27.7	14.0' R	1286.3	1288.3	1289.0
38	SSMH 'J'	2+67.7	14.0' R	1280.8	1282.8	1284.0
39	SSMH 'J'	2+07.7	14.0' R	1275.3	1277.3	1279.0
40	SSMH 'J'	1+47.7	14.0' R	1269.8	1271.8	1274.0
41	SSMH 'J'	0+87.7	14.0' R	1264.3	1266.3	1270.0
42	SSMH 'J'	0+53.1	14.0' R	1261.1	1263.1	1273.0
43	SSMH 'H'	0+53.2	17.3' R	1254.6	1256.6	1272.75
44	SSMH 'G'	1+90.1	20.0' R	1254.4	1256.4	1273.0
45	SSMH 'G'	1+28.1	20.0' R	1254.1	1256.1	1273.25
46	SSMH 'G'	0+66.1	20.0' R	1253.8	1255.8	1273.5
47	SSMH 'G'	0+00.0	20.0'	1253.3	1255.3	1273.75
48	SSMH 'D'	1+38.6	20.0' L	1252.5	1254.5	1274.0
49/50	SSMH 'D'	1+07.9	20.0' L	1252.3	1254.3	1264.5
51	SSMH 'F'	1+48.0	25.7' L	1268.7	1270.7	1274.5
52	SSMH 'M'	0+00.0	15.2'	1270.0	1272.0	1280.0
53	SSMH 'M'	0+00.0	12.1'	1269.9	1271.9	1279.0
54	SSMH 'F'	2+75.6	24.0' R	1269.8	1271.8	1278.0
55	SSMH 'F'	2+14.0	24.0' R	1269.2	1271.2	1277.0
56	SSMH 'F'	1+52.0	24.0' R	1268.6	1270.6	1276.0
57	SSMH 'F'	0+90.0	24.0' R	1268.0	1270.0	1275.0
58	SSMH 'E'	0+00.0	26.1'	1266.9	1268.9	1274.0

STATIONS AND OFFSETS ARE MEASURED ALONG A BASELINE FROM CENTER OF MANHOLE TO CENTER OF MANHOLE WITH 0+00.0 BEING THE BEGINNING AT THE LOWER MANHOLE.

CLEANOUT ELEVATIONS ARE BASED ON A MINIMUM SLOPE OF 2.08% WITHIN THE RIGHT-OF-WAY OR EASEMENTS AND MAY BE INCREASED AS DICTATED BY THE SURROUNDING TOPOGRAPHY.

THE MIN. FLOOR ELEVATION IS BASED ON SEC. 200.02-2-G-1-h OF THE WESTERN VIRGINIA WATER AUTHORITY WATER & SEWER REGULATIONS. LOT OWNERS REQUESTING A LOWER SERVICE ELEVATION WILL REQUIRE THE USE OF A PRIVATE SEWAGE PUMP FACILITY, INSTALLED AND MAINTAINED BY THE HOMEOWNER.

SITE SUMMARY

TAX MAP NUMBER: 35.04-1-45 THROUGH 35.04-1-53 INCLUSIVE
35.04-2-33 THROUGH 35.04-2-42 INCLUSIVE
35.04-2-46, AND 35.04-2-47

OWNER/ DEVELOPER: GRAHAM THOMAS, LLC
494 GLENMORE DRIVE
SALEM, VIRGINIA 24153

SIZE: 54.19 ACRES

STREET CATAGORY: VARIES — SEE CROSS SECTIONS

MINIMUM LOT SIZE REQUIRED: 0.13 AC./5,760 SQ.FT.

MAXIMUM BUILDING COVERAGE: 40 PERCENT OF LOT AREA

MINIMUM LOT FRONTAGE REQUIRED: 60' ON EXISTING R/W

PARKING: DEVELOPER SHALL PROVIDE A MINIMUM OF 2 OFF-STREET PARKING SPACES FOR EACH LOT.

LOT FRONTAGE PROVIDED: 48' ON INTERIOR ROAD
60' MINIMUM

SETBACKS: FRONT: 30' OFF OF EXISTING R/W
24' OFF OF INTERIOR ROAD

SIDE: 10' WHEN ADJACENT TO PROPERTY NOT WITHIN COMMON DEVELOPMENT — OTHERWISE ONE 10' YARD AND ONE ZERO YARD

REAR: 25' WHEN ADJACENT TO PROPERTY NOT WITHIN COMMON DEVELOPMENT OTHERWISE 20'

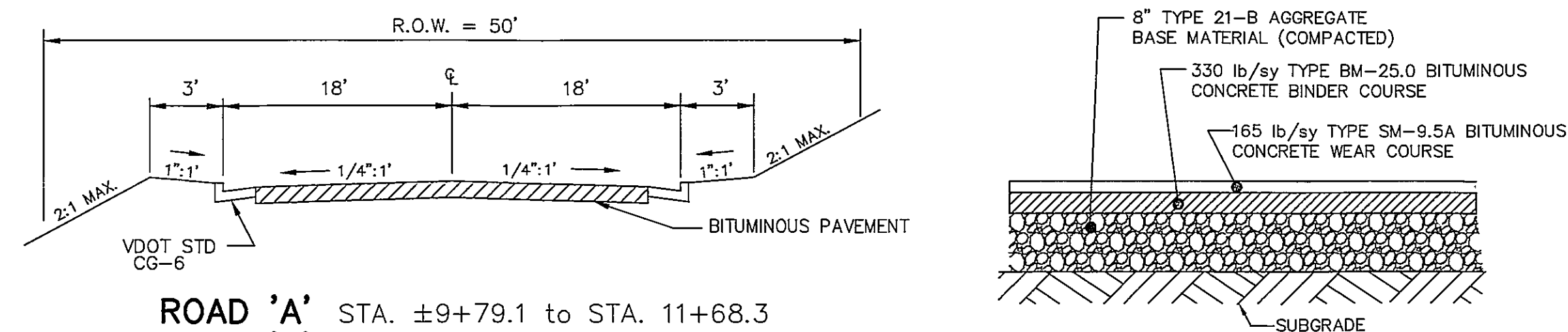
MAXIMUM BUILDING HEIGHT: 45'

MAXIMUM LOT COVERAGE: 50%

WALL MAINTENANCE NOTE: A PERPETUAL 5 FOOT WALL MAINTENANCE EASEMENT SHALL BE PROVIDED ON THE LOT ADJACENT TO THE ZERO LOT LINE PROPERTY LINE. THIS EASEMENT SHALL BE KEPT CLEAR OF STRUCTURES OR ANY OTHER IMPROVEMENT WHICH WOULD INFRINGE ON THE USE OF THE EASEMENT, WITH THE EXCEPTION OF FREESTANDING WALLS AND FENCES. THIS EASEMENT SHALL BE SHOWN ON THE PLAT AND INCORPORATED INTO EACH DEED TRANSFERRING TITLE TO THE PROPERTY.

FEMA MAP # 51161C0039 D (EFFECTIVE DATE 10/18/95)

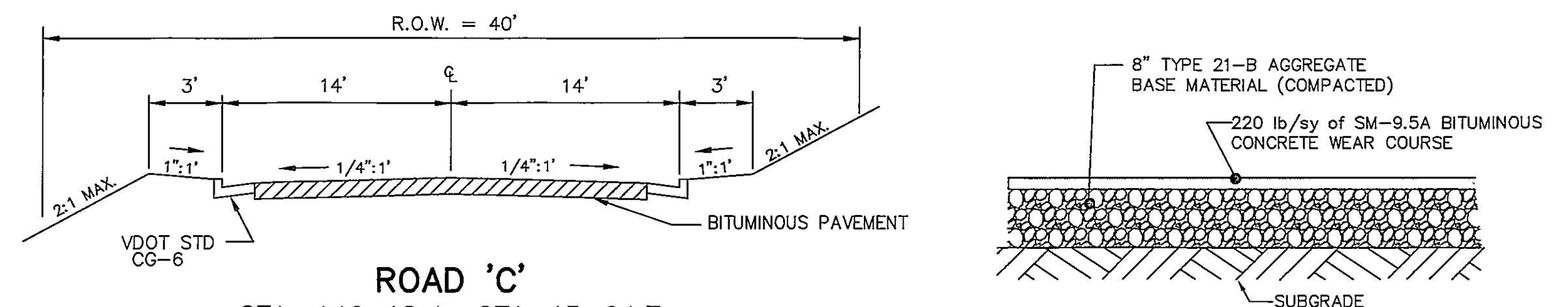
TYPICAL ROAD SECTIONS



ROAD 'A' STA. ±9+79.1 to STA. 11+68.3
ROAD 'B' STA. ±10+18 to STA. 13+03.8

PAVEMENT DESIGN TO BE BASED ON AN ADT OF 580 AND A PREDICTED CBR OF 7.0

CBR TESTS AND FINAL PAVEMENT SPECIFICATIONS TO BE PROVIDED TO VDOT RESIDENCY FOR APPROVAL PRIOR TO INSTALLATION



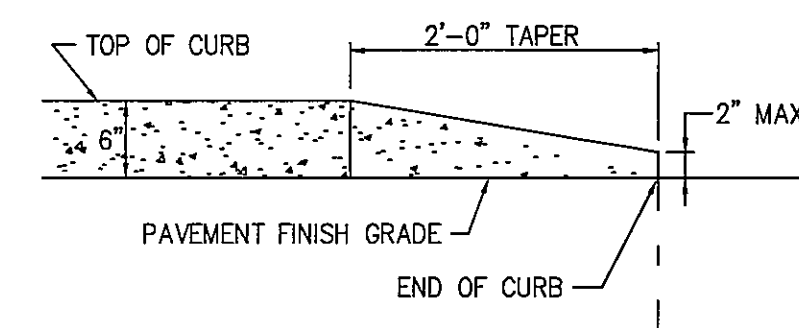
ROAD 'C'
STA. ±10+18 to STA. 15+04.7

PAVEMENT DESIGN TO BE BASED ON AN ADT OF 160 AND A PREDICTED CBR OF 7.0

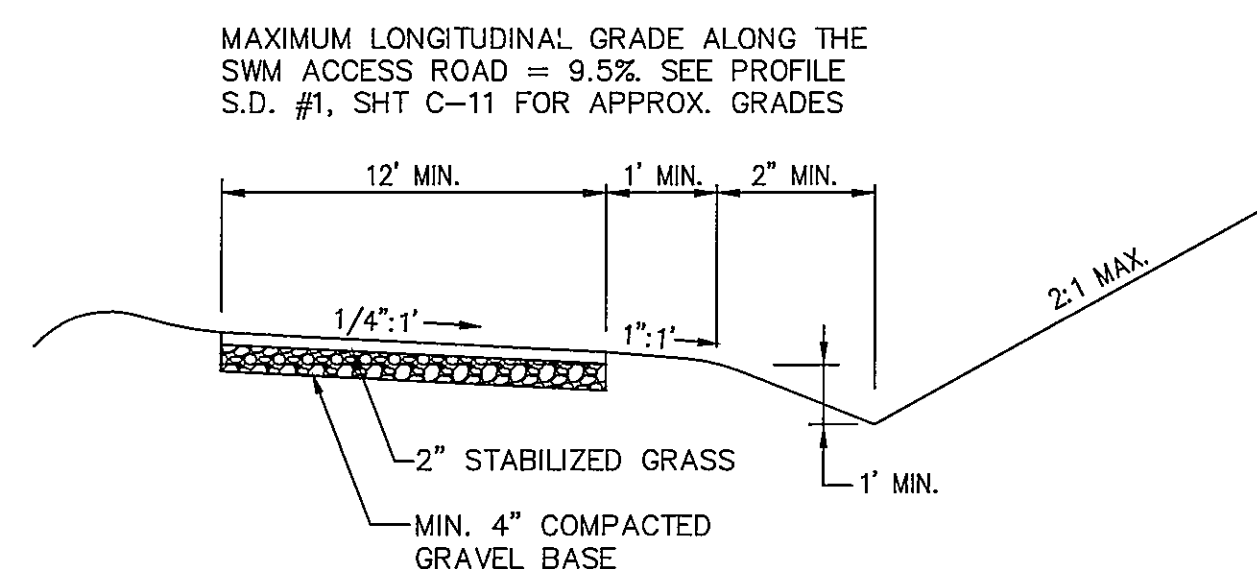
CBR TESTS AND FINAL PAVEMENT SPECIFICATIONS TO BE PROVIDED TO VDOT RESIDENCY FOR APPROVAL PRIOR TO INSTALLATION

NOTE:
THE PRELIMINARY PAVEMENT DESIGNS SHOWN ARE BASED ON A PREDICTED SUB-GRADE CBR VALUE OF 7.0 AND A RESILIENCY FACTOR (RF) OF 2.0 AS SHOWN IN APPENDIX I OF THE "2000 VIRGINIA DEPARTMENT OF TRANSPORTATION PAVEMENT DESIGN GUIDE FOR SUBDIVISION AND SECONDARY ROADS". THE SUB-GRADE SOIL IS TO BE TESTED BY AN INDEPENDENT LABORATORY AND THE RESULTS SUBMITTED TO VDOT FOR REVIEW AND APPROVAL PRIOR TO BASE CONSTRUCTION. SHOULD THE SUB-GRADE CBR VALUE AND/OR THE RF VALUE BE LESS THAN THE PREDICATED VALUES, ADDITIONAL BASE MATERIAL WILL BE REQUIRED IN ACCORDANCE WITH THE DEPARTMENTAL SPECIFICATIONS. REFER TO THE SAME MANUAL FOR THE NUMBER AND LOCATIONS OF THE REQUIRED SOIL SAMPLES TO BE TESTED.

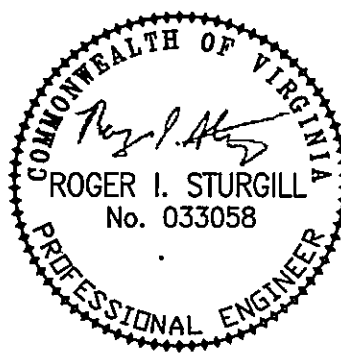
THE SUB-GRADE SHALL BE APPROVED BY VDOT PRIOR TO PLACEMENT OF THE BASE. BASE SHALL BE APPROVED BY VDOT FOR DEPTH, TEMPLATE AND COMPACTION BEFORE SURFACE IS APPLIED. THE SUBBASE WILL NOT BE INSPECTED BY VDOT PRIOR TO RECEIVING THE CBR TESTS AND SOIL CLASSIFICATIONS. CONTACT VDOT SEVEN (7) DAYS PRIOR TO SCHEDULING PLACEMENT OF AGGREGATE BASE COURSE(S) FOR AN INSPECTION.



CURB TAPER DETAIL
NO SCALE



SWM ACCESS PATH
NO SCALE



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PLANNERS • ARCHITECTS
ENGINEERS • SURVEYORS

1208 Corporate Circle
Roanoke, Virginia 24018
Phone: 540/772-9580
FAX: 540/772-8050

501 Branberry Road
Richmond, Virginia 23236
Phone: 804/784-0571
FAX: 804/784-2035

880 Technology Park Drive
Suite 200
Glen Allen, Virginia 23059
Phone: 804/653-0132
FAX: 804/653-0133

102 Hubbard Street
Blacksburg, Virginia 24060
Phone: 540/651-0061
FAX: 540/651-0982

1557 Commerce Road
Suite 201
Verona, Virginia 24462
Phone: 540/248-3220
FAX: 540/248-3221

FAIRWAYS at
HANGING ROCK
SECTION 2
CONSTRUCTION DETAILS
ROANOKE COUNTY, VIRGINIA

DRAWN BY: JVV

DESIGNED BY: JVV

CHECKED BY: SMH

DATE: 12/27/05

REVISIONS:

04/04/06 PER VDOT &
RKE CO. 1ST REVIEW

07/12/06 PER VDOT &
RKE CO. 2nd REVIEW

SCALE: AS SHOWN

SHEET NO.

C-4

JOB NO.

R0500377.00