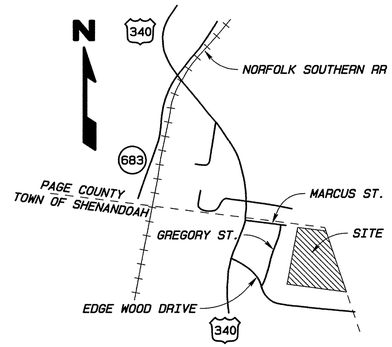
CONSTRUCTION PLANS
FOR
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

DATE: MAR. 20, 2006

LEGEND

- PROPERTY LINE
- E — EXISTING OVERHEAD ELECTRIC AND/OR TELEPHONE
- UE — EXISTING UNDERGROUND ELECTRIC
- UT — EXISTING UNDERGROUND TELEPHONE
- T — EXISTING OVERHEAD TELEPHONE
- X—X — EXISTING WIRE FENCE
- O—O — EXISTING CHAIN LINK FENCE
- □—□ — EXISTING BOARD FENCE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- EXISTING 1' CONTOURS
- EXISTING 5' CONTOURS
- PROPOSED 1' CONTOURS
- PROPOSED 5' CONTOURS
- CENTERLINE OF STREET R/W
- EXISTING EDGE OF GRAVEL
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING CENTERLINE OF DITCH
- PROPOSED CENTERLINE OF DITCH W/MAT
- S — EXISTING SEWER
- S L — EXISTING SEWER SERVICE WITH CLEANOUT
- W — EXISTING WATER LINE
- W — PROPOSED WATER LINE
- W S — EXISTING WATER SERVICE
- W S — PROPOSED WATER SERVICE
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- SOIL BOUNDARY
- 1 SUGGESTED BUILDING PAD
- 1 LIMITS OF CONSTRUCTION
- (37) SOIL TYPE
- (10.00) EXISTING SPOT ELEVATION
- 10.00 PROPOSED SPOT ELEVATION
- (37) STORM STRUCTURE LABEL
- WATER METER
- EXISTING WATER VALVE
- PROPOSED WATER VALVE & BOX
- FIRE HYDRANT ASSEMBLY
- EXISTING MANHOLE
- PROPOSED MANHOLE
- EXISTING UTILITY POLE W/ GUY
- LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- PROPOSED STREET SIGN UNLESS NOTED OTHERWISE
- STOP PROPOSED STOP SIGN
- S F — SILT FENCE
- 1 CD — ROCK CHECK DAM
- SB — TEMPORARY SEDIMENT BASIN
- CIP — CULVERT INLET PROTECTION
- RMD — RIGHT-OF-WAY DIVERSION
- OP — OUTLET PROTECTION
- SR — SURFACE ROUGHENING
- DD — DIVERSION DIKE (PERMANENT)
- CE — CONSTRUCTION ENTRANCE
- 1 — REVISION NUMBER

NOTE: THIS LEGEND MAY CONTAIN ITEMS NOT USED ON THIS PROJECT.



SITE MAP

0 1000 2000 FT.

PROPERTY OWNERS IN FLOYD W. EPPARD & SON SUBDIVISION

LOT	TAX MAP	OWNER	TITLE SOURCE
6	102A1 (1)	FOLTZ, DEBRA RAE RINGLE	DB 594 P 729
25	102A2 (2)	HENSLEY, STEPHEN C. & KATHY R.	DB 481 P 828
26	102A2 (2)	HENSLEY, STEPHEN C. & KATHY R.	DB 481 P 828
27	102A2 (2)	HENSLEY, STEPHEN C. & KATHY R.	DB 481 P 828
28	102A2 (2)	DOFFLEMYER, LARRY M., JR.	DB 489 P 637
29	102A1 (1)	DOFFLEMYER, LARRY M., JR. & VICKIE L.	DB 466 P 624
30	102A1 (1)	CAMPBELL, DONALD LEE, ET AL.	DB 477 P 556
31	102A1 (1)	CAMPBELL, DONALD LEE, ET AL.	DB 477 P 556
32	102A1 (1)	SEAL, BARBARA A.	DB 597 P 643
33	102A1 (1)	JENKINS, SHELVY M.	DB 582 P 084
34	102A1 (1)	HINKLE, DAVID M. & BETTY J.	DB 286 P 319
35	102A1 (1)	QUEEN, M. CHARLES, JR. & MARY C.	DB 315 P 494
36	102A1 (1)	COMER, WILLARD R. & JUANITA A.	INST# 1188
37	102A1 (1)	SHERERTZ, EARL C., JR. & SYLVIA G.	DB 300 P 127
38	102A1 (1)	ROBERTS, HAROLD A. & SHIRLEY E.	DB 618 P 205
39	102A1 (1)	MCCOY, CHRISTL D.	INST# 1428
40	102A1 (1)	STRICKLER, GARY S. & SHARON H.	DB 406 P 738

NOTES

1. PROPERTY OWNER: ELLIOTT H. DIAMOND
   TAX REFERENCE: TM 102A2(2) PCL 46A
   TITLE SOURCE: INSTR. #040005434
2. DEVELOPER: E. H. DIAMOND CO.
   P. O. BOX 2204, RESTON, VA 20195
   TELEPHONE 703 620-1119
3. TOTAL AREA OF OWNERSHIP 10.2 ACRES
   TOTAL AREA OF SUBDIVISION: 10.2 ACRES
   TOTAL PROPOSED STREET AREA: 1.8 ACRES
   TOTAL NUMBER OF SINGLE FAMILY LOTS: 22
   RESIDENTIAL DENSITY: 2.6 LOTS PER ACRE
4. MINIMUM LOT AREA: SINGLE FAMILY LOTS 10,000 SQ. FT.
5. MINIMUM SETBACKS: 35' FRONT, 30' REAR, 10' SIDES.
6. THE ADJACENT PROPERTY TO THE NORTH AND EAST IS ZONED AGRICULTURE. ALL OTHER PROPERTY, INCLUDING THIS PROJECT IS ZONED R-1, RESIDENTIAL.
7. STREET CLASSIFICATION: ROLLING TERRAIN
   RIGHT-OF-WAY WIDTH: 50' WITH 55' RADIUS IN CUL-DE-SAC.
8. ADT CALCULATION: USE 10 TRIPS PER DAY PER LOT = 220
9. THIS PROJECT IS NOT WITHIN A 100 YEAR FLOOD PLAIN.
10. TWO OFF-STREET PARKING SPACES WILL BE PROVIDED FOR EACH LOT. EACH PARKING AREA WILL BE DESIGNED TO PREVENT BACKING ONTO STREETS.
11. CONSTRUCTION LIMITS IS THE BOUNDARY OF THIS PROJECT PLUS TWO ADJACENTS AREAS AS SHOWN ON SHEET 2.
12. POSTED SPEED LIMIT FOR MARCUS STREET IS 25 MPH.
13. SIGHT DISTANCES AT THE INTERSECTION OF ELM STREET WITH MAPLE STREET:
    340' TO THE SOUTH,
    320' TO THE NORTH.
14. SIGHT DISTANCES AT THE INTERSECTION OF MAPLE STREET WITH MARCUS STREET:
    290' TO THE EAST,
    480' TO THE WEST.
1. 15. STORMWATER DETENTION SYSTEM WILL BE MAINTAINED BY THE PROPERTY OWNERS ASSOCIATION.

DRAWING INDEX

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P.O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

FOR THE PURPOSE OF PLAN APPROVAL, JERRY L. BRUNK, P.E., L.S. IS THE RESPONSIBLE LAND DISTURBER.

THE SELECTED CONTRACTOR WILL NAME A PERSON WHO IS CERTIFIED BY THE VIRGINIA DEPARTMENT OF CONVERSATION AND RECREATION AS A CERTIFIED RESPONSIBLE LAND DISTURBER. THE RESPONSIBLE LAND DISTURBER WILL TRANSFER TO THE CERTIFIED PERSON NAMED BY THE CONTRACTOR PRIOR TO BEGINNING LAND DISTURBING ACTIVITY.

OVERALL & GRADING PLAN
EROSION CONTROL PLAN
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB	DWG: RKH	FILE: 02069.pro	PROJ: 05053
DATE: MAR. 20, 2006 PLOTTED: Oct 24, 2006	SCALE: 0 40 80 FT.		SHEET 2 OF 12

STREET CENTERLINE CURVE DATA

CURVE	DELTA	RADIUS	ARC LEN	TANGENT	CHORD	CH BEARING
C1	29°15'05"	200.00'	102.11'	52.19'	101.00'	S03°06'52"W
C2	70°43'40"	120.00'	148.13'	85.17'	138.90'	S55°29'50"W

DRAINAGE STRUCTURE LOCATION TABLE

FROM MARCUS ST. CENTERLINE		
SS 11	Sta 5+29.15,	25.00 L
SS 12	Sta 5+40.94,	23.00 R
SS 13	Sta 7+65.95,	23.00 R
SS 14	Sta 8+31.75,	88.80 R
SS 16	Sta 5+24.07,	24.75 L
SS 17	Sta 5+37.27,	29.00 R
SS 18	Sta 5+37.27,	37.00 R
FROM MAPLE ST. CENTERLINE		
SS 19	Sta 10+50.90,	37.00 R
SS 20	Sta 10+92.95,	32.89 L
SS 21	Sta 11+58.46,	38.24 R
SS 22	Sta 12+22.71,	34.70 R
SS 23	Sta 13+33.27,	56.04 R
FROM ELM ST. CENTERLINE		
SS 22	Sta 18+44.94,	90.15 R
SS 23	Sta 18+50.00,	33.60 L

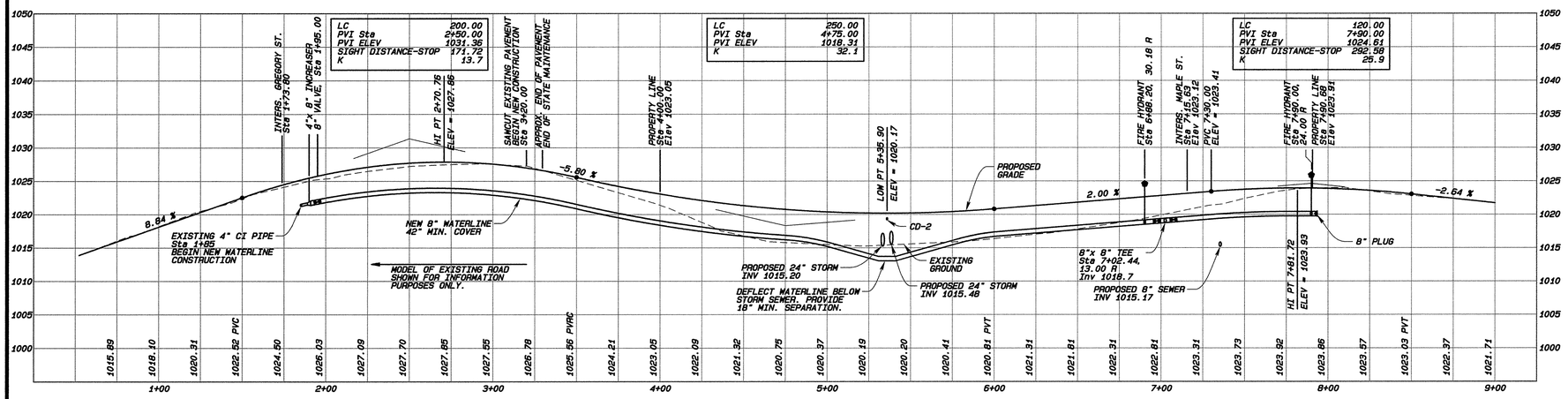
LAYOUT PLAN
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

COMMONWEALTH OF VIRGINIA — NO. 7705 JERRY L. BRUNK — PROFESSIONAL ENGINEER

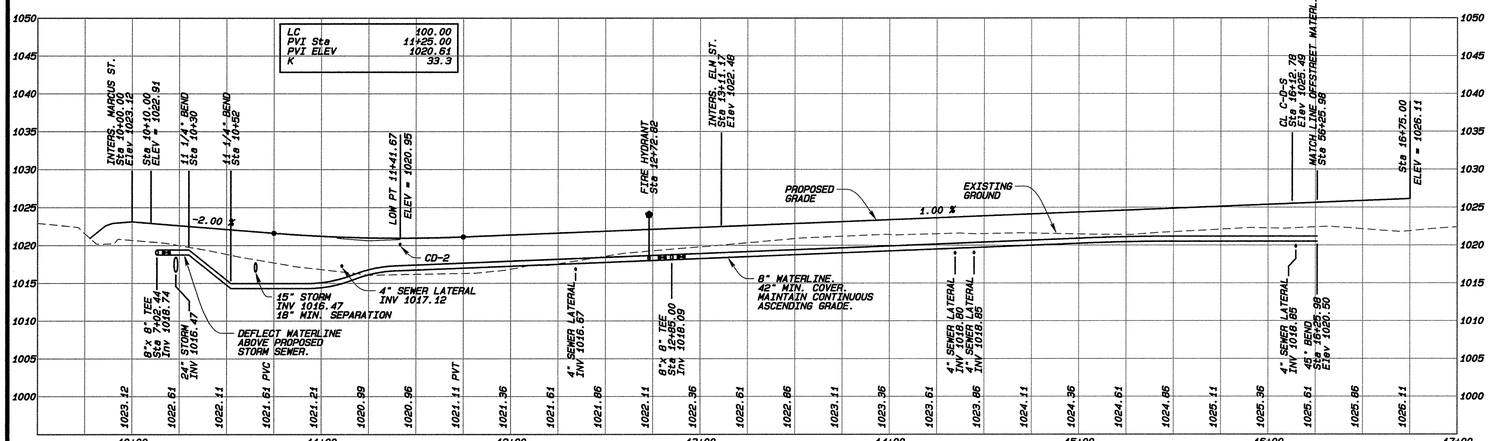
REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

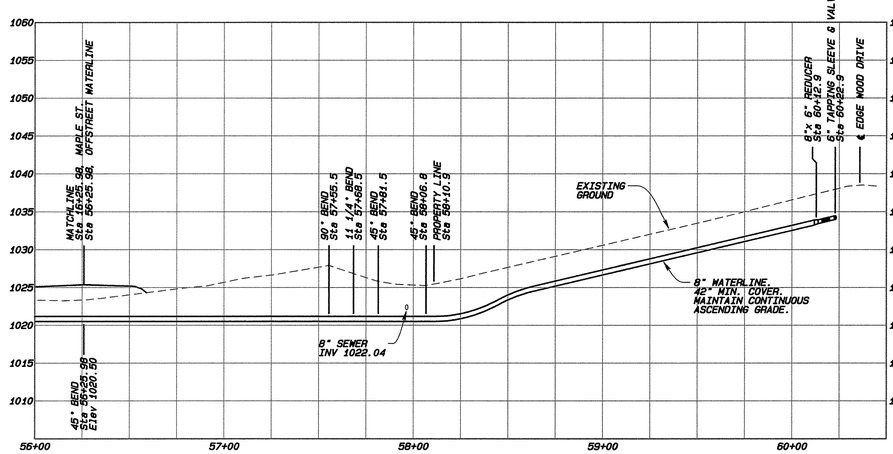
DSN: RKH & JLB	DWG: RKH	FILE: 02069.pro	PROJ: 05053
DATE: MAR. 20, 2006 PLOTTED: Oct 24, 2006	SCALE: 0 40 80 FT.		SHEET 3 OF 12



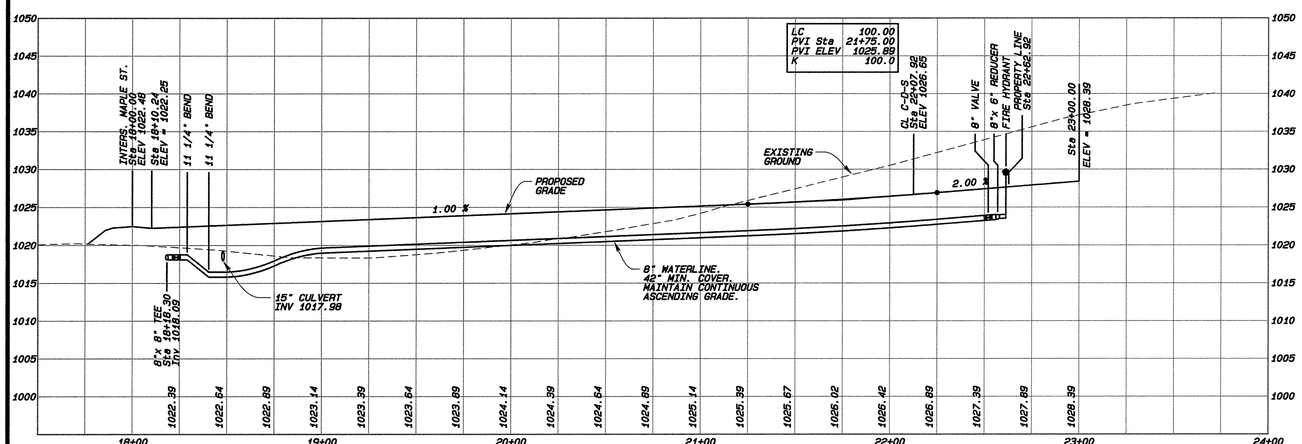
MARCUS ST.



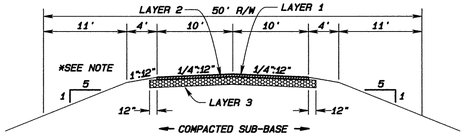
MAPLE ST.



OFF-STREET WATERLINE



ELM ST.



*NOTE: SIDE SLOPES ALONG NORTH SIDE OF MARCUS STREET VARY FROM 5: 1 TO 2: 1. TIE TO EXISTING GROUND WITHIN R/W.

TYPICAL STREET SECTION

NOT TO SCALE

STREET	LOCATION	LAYER 1	LAYER 2	LAYER 3	DESIGN SPEED
MARCUS	ALL	1.5" SM-9.5A	3" BM-25.0	8" 21B STONE	25 MPH
MAPLE	ALL	2.0" SM-9.5AL	NONE	8" 21B STONE	25 MPH
ELM	ALL	2.0" SM-9.5AL	NONE	8" 21B STONE	20 MPH

PAVEMENT DESIGN FOR NEW SUBDIVISION STREETS SHALL BE CONSIDERED PRELIMINARY UNTIL SUBSTANTIATED BY ACCEPTABLE SUBGRADE SOIL TEST REPORTS. VDOT APPROVAL OF THE FINAL DESIGN SHALL BE OBTAINED FROM THE STAUNTON DISTRICT'S MATERIALS MANAGER PRIOR TO THE CONSTRUCTION OF THE PAVEMENT.

1

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

STREET PROFILES & STREET SECTION
OFF-STREET WATERLINE PROFILE
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

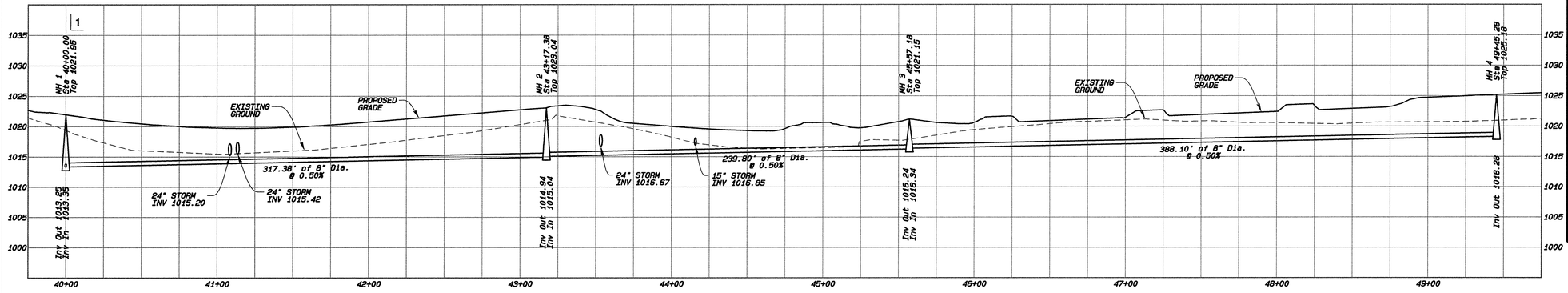
BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053

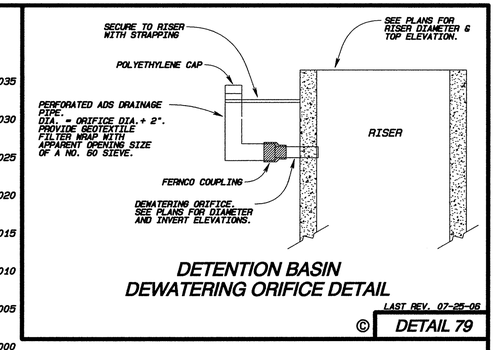
DATE: MAR. 20, 2006
PLOTTED: Oct 24, 2006

SCALE: 0 40 80 FT. HORIZ; 0 10 20 FT. VERT

SHEET 4 OF 12



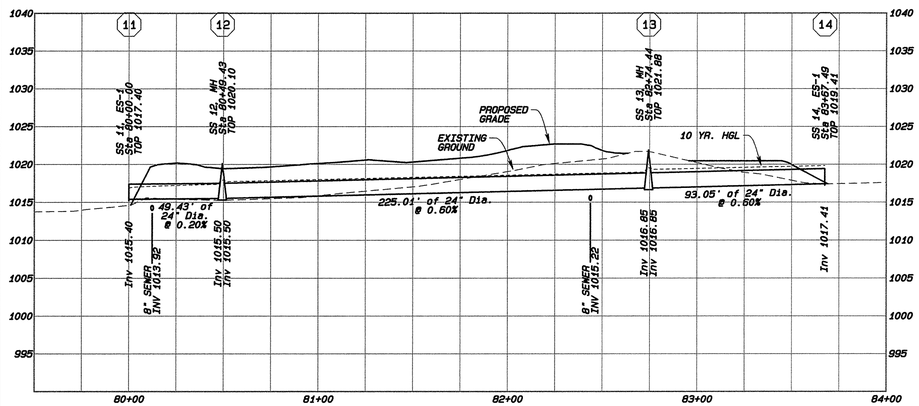
SANITARY SEWER PROFILE



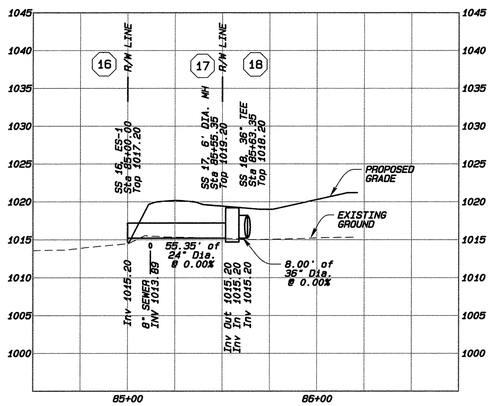
DETENTION BASIN DEWATERING ORIFICE DETAIL

LAST REV. 07-25-06

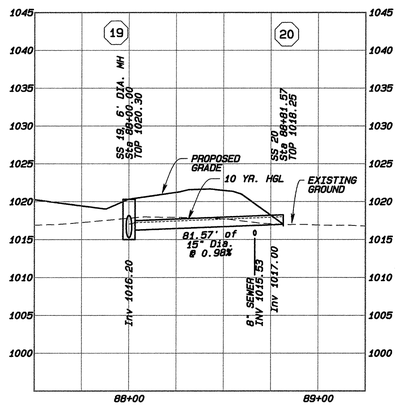
© DETAIL 79



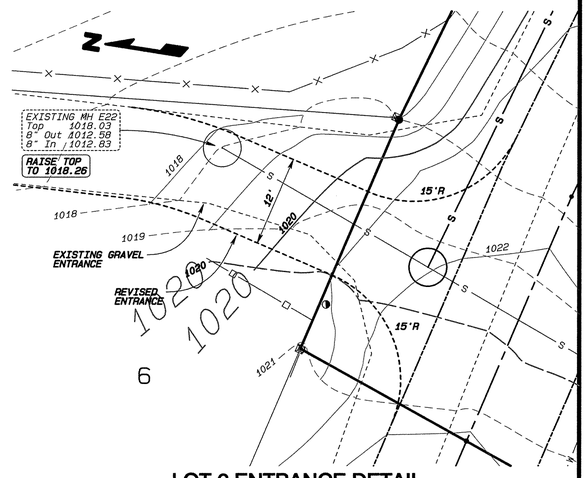
BYPASS STORM SEWER PROFILE 11-12-13-14



STORM SEWER PROFILE 16-17-18

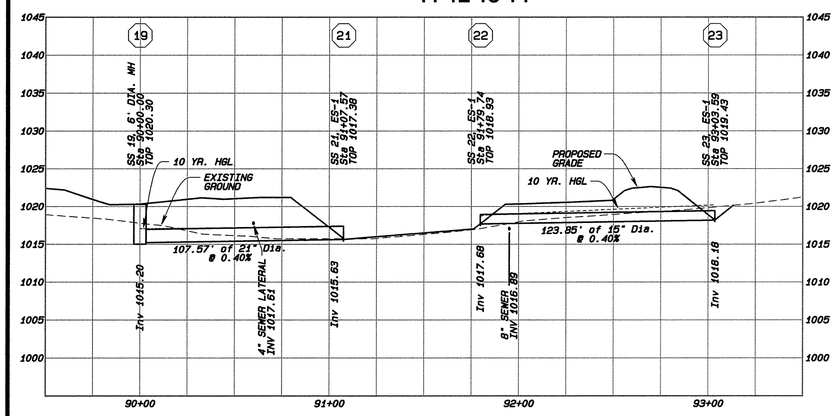


STORM SEWER PROFILE 19-20



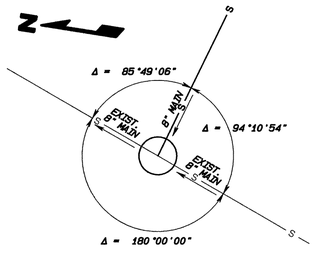
LOT 6 ENTRANCE DETAIL

0 10 20 FT.



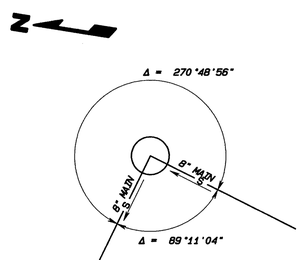
STORM SEWER PROFILE 19-21 & 22-23

REFER TO DRAINAGE NOTES FOR STORM SEWER PIPE MATERIALS



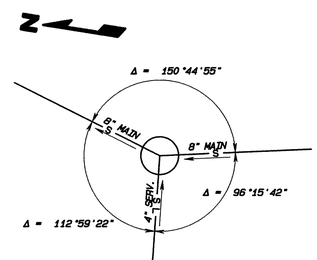
MH 1 (DOGHOUSE)

0 10 20 FT.



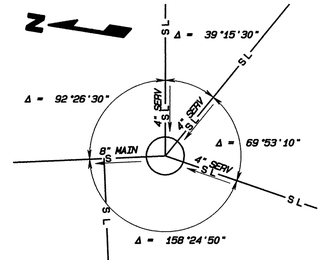
MH 2

0 10 20 FT.



MH 3

0 10 20 FT.



MH 4

0 10 20 FT.

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

SANITARY & STORM SEWER PROFILES MANHOLE DETAILS
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

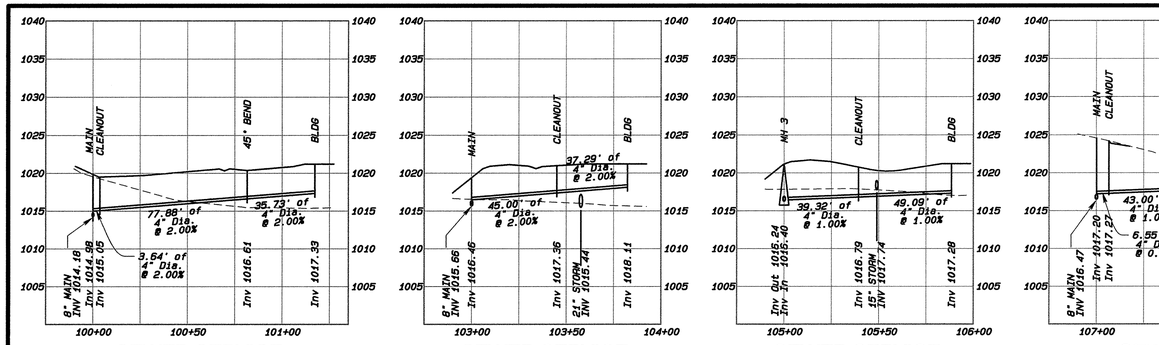
BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053

DATE: MAR. 20, 2006
PLOTTED: Oct 24, 2006

SCALE: 0 40 80 FT. HORIZ; 0 10 20 FT. VERT

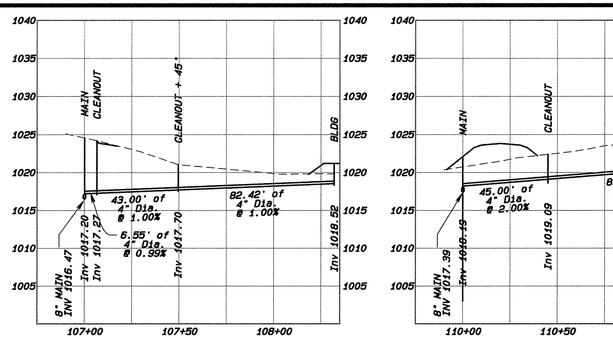
SHEET 5 OF 12



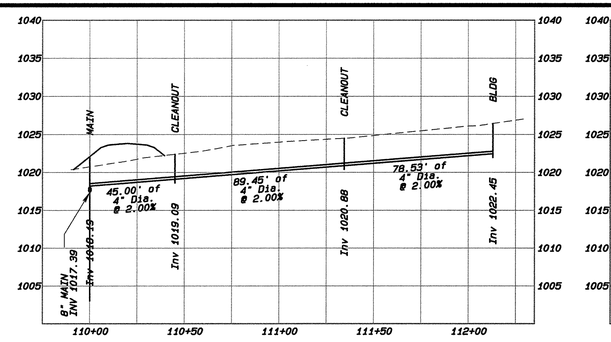
SEWER SERVICE
LOT 2

SEWER SERVICE
LOT 3

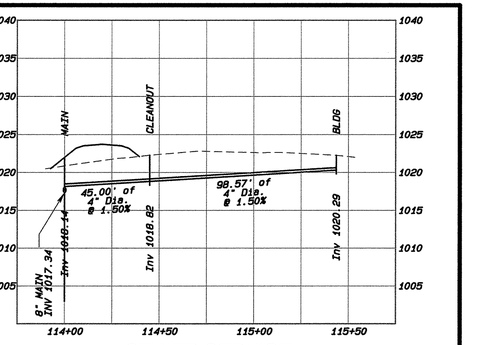
SEWER SERVICE
LOT 4



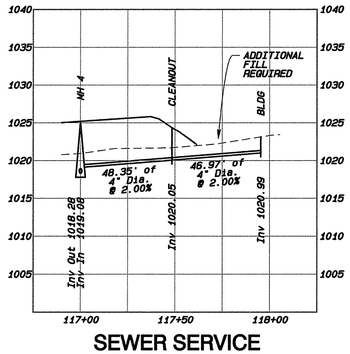
SEWER SERVICE
LOT 5



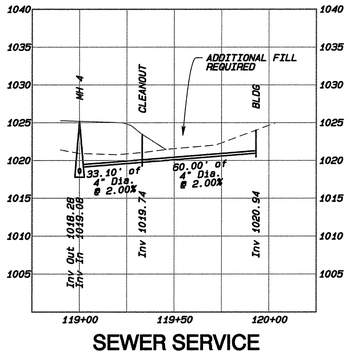
SEWER SERVICE
LOT 13



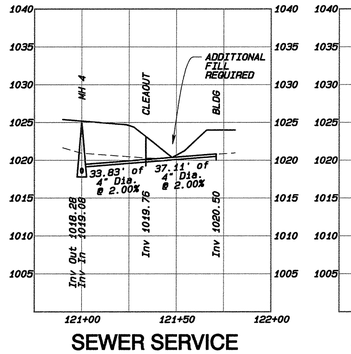
SEWER SERVICE
LOT 14



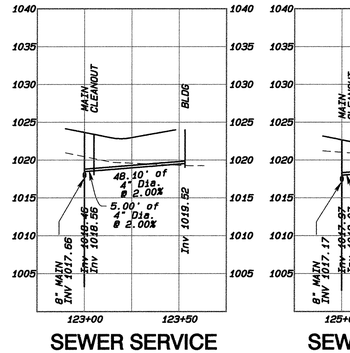
SEWER SERVICE
LOT 16



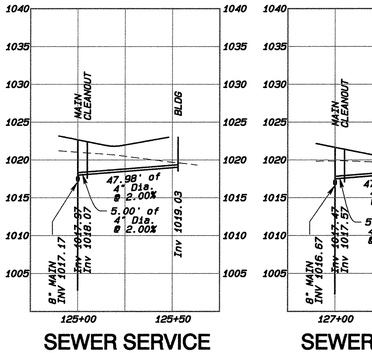
SEWER SERVICE
LOT 17



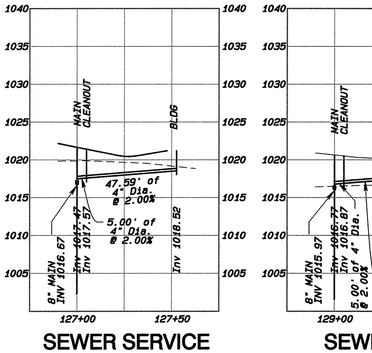
SEWER SERVICE
LOT 18



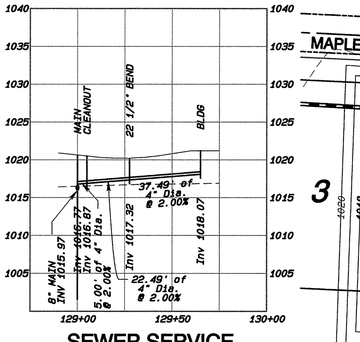
SEWER SERVICE
LOT 19



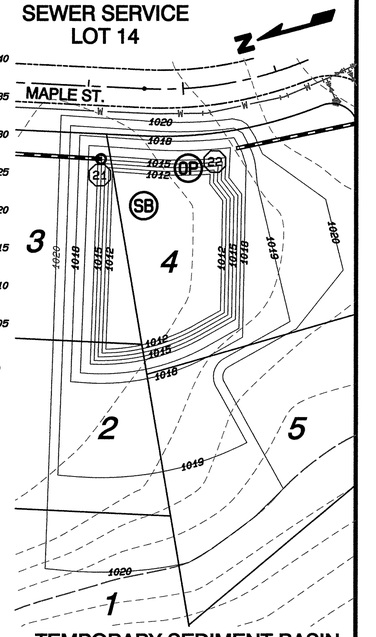
SEWER SERVICE
LOT 20



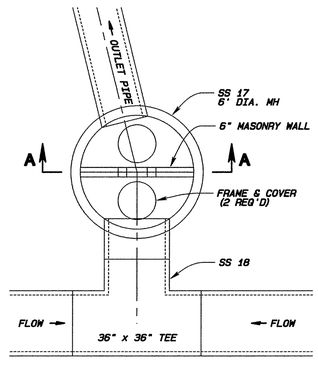
SEWER SERVICE
LOT 21



SEWER SERVICE
LOT 22

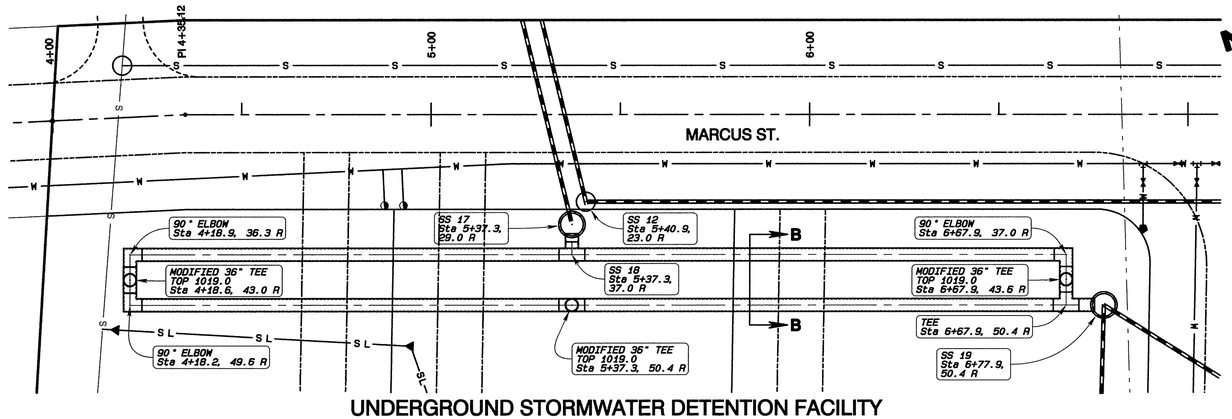


TEMPORARY SEDIMENT BASIN



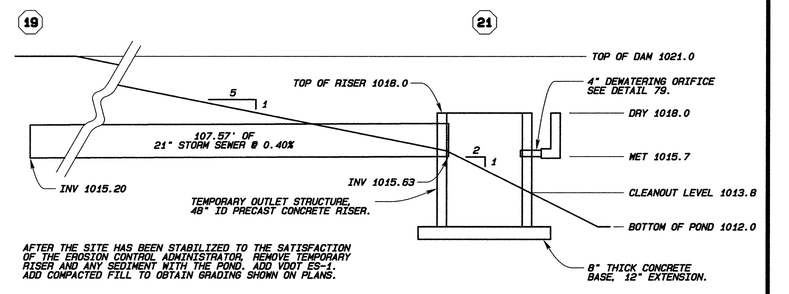
STORMWATER CONTROL
STRUCTURE
PLAN VIEW

0 4 8 FT.



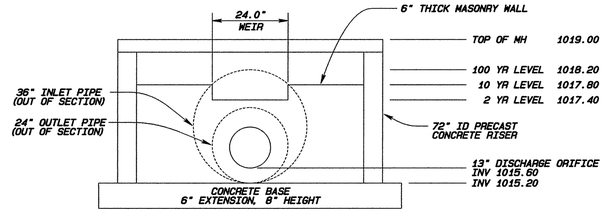
UNDERGROUND STORMWATER DETENTION FACILITY

0 20 40 FT.



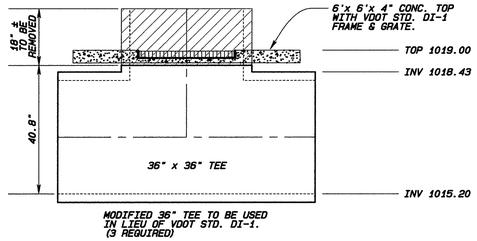
AFTER THE SITE HAS BEEN STABILIZED TO THE SATISFACTION OF THE EROSION CONTROL ADMINISTRATOR, REMOVE TEMPORARY RISER AND ANY SEDIMENT WITH THE POND. ADD VDOT ES-1. ADD COMPACTED FILL TO OBTAIN GRADING SHOWN ON PLANS.

TEMPORARY SEDIMENT BASIN DETAIL
NOT TO SCALE



STORMWATER CONTROL STRUCTURE
SECTION A-A

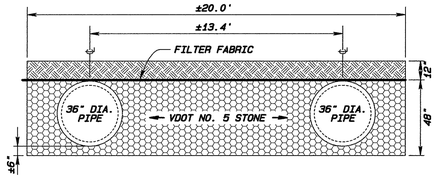
0 2 4 FT.



MODIFIED 36" TEE TO BE USED IN LIEU OF VDOT STD. DI-1. (3 REQUIRED)

MODIFIED 36" TEE
ELEVATION VIEW

0 2 4 FT.



PROVIDE ABSOLUTE MINIMUM OF 12" GOOD FILL DIRT OVER TOP OF PIPES. IN AREAS WHERE DRIVEWAYS MAY CROSS STORMWATER PIPES, ADDITIONAL COVER SHOULD BE PROVIDED.

SECTION B-B

0 4 8 FT.

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

SEWER LATERAL PROFILES
STORMWATER DETENTION FACILITY
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053

DATE: MAR. 20, 2006
PLOTTED: Oct 24, 2006

SCALE: 0 40 80 FT. HORIZ
0 5 10 FT. VERT

SHEET 6 OF 12

EASEMENTS
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB	DWG: RKH	FILE: 02069.pro	PROJ: 05053
DATE: MAR. 20, 2006 PLOTTED: Oct 24, 2006	SCALE: 0 40 80 FT.		SHEET 7 OF 12

MARCH 28, 2006 **NOTES FOR MOUNTAIN VIEW SUBDIVISION** NO. 05053

GENERAL

1. THE TERM "VDOT" REFERS TO VIRGINIA DEPARTMENT OF TRANSPORTATION. THE TERM "COUNTY" REFERS TO THE COUNTY OF PAGE, VIRGINIA. THE TERM "TOWN" REFERS TO THE TOWN OF SHENANDOAH, VIRGINIA.
2. WORK IN THIS PROJECT SHALL CONFORM TO THE LATEST EDITIONS OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS, THE VDOT ROAD AND BRIDGE STANDARDS, THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 1992 EDITION, AND THE MINIMUM STANDARDS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS, VR 625-02-00. IN THE EVENT OF CONFLICT BETWEEN ANY OF THESE STANDARDS, SPECIFICATIONS OR PLANS, THE MOST STRINGENT SHALL GOVERN. ALL WATER AND SEWER UTILITIES TO BE DEDICATED TO THE TOWN OF SHENANDOAH SHALL BE CONSTRUCTED AND TESTED TO CONFORM TO VIRGINIA HEALTH DEPARTMENT WATERWORKS REGULATIONS AND THE DESIGN AND CONSTRUCTION STANDARDS OF THE TOWN OF SHENANDOAH.
3. OBTAIN A CONSTRUCTION PERMIT FROM THE VIRGINIA DEPARTMENT OF TRANSPORTATION PRIOR TO BEGINNING CONSTRUCTION WITHIN PUBLIC RIGHTS-OF-WAY, INCLUDING CONNECTION TO EXISTING STREETS OR ROADS.
4. CALL MISS UTILITY AT 1 800 552-7001 48 HOURS PRIOR TO ANY EXCAVATIONS.
5. THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE PLANS IS BASED UPON AVAILABLE INFORMATION AND IS APPROXIMATE ONLY. FIELD LOCATE ALL PUBLIC OR PRIVATE UTILITIES WHICH LIE IN OR ADJACENT TO THE CONSTRUCTION SITE. COORDINATE THE CONSTRUCTION OF ALL PROPOSED FACILITIES WITH EXISTING FACILITIES.
6. SHOULD CONSTRUCTION ACTIVITIES DAMAGE ANY EXISTING UTILITIES, REPAIR AND RESTORE DAMAGED UTILITIES TO ORIGINAL CONDITION AND OPERATION, AT NO EXPENSE TO THE OWNER OR THE TOWN.
7. REPORT TO BRUNK & HYLTON ENGINEERING, IN WRITING, ANY AMBIGUITIES IN THE PLANS OR ANY DISCREPANCIES FOUND BETWEEN THE PLANS AND THE SITE CONDITIONS. BRUNK & HYLTON ENGINEERING WILL PROMPTLY RESPOND WITH CLARIFICATION. ANY WORK DONE PRIOR TO CLARIFICATION BY BRUNK & HYLTON ENGINEERING IS AT THE CONTRACTOR'S RISK.
8. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS.
9. CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND SHALL COMPLY WITH ALL PREVAILING AND APPLICABLE CODES AND REQUIREMENTS.
10. TO DESIGNATE PRODUCT QUALITY, ONE MANUFACTURER HAS BEEN SPECIFIED; OTHER PRODUCTS OF EQUAL OR BETTER QUALITY WILL BE ACCEPTABLE. CONTRACTOR SHALL SUBMIT DESCRIPTIVE LITERATURE, SPECIFICATIONS, SHOP DRAWINGS, AND OPERATIONAL AND MAINTENANCE INFORMATION, AS APPLICABLE, FOR REVIEW BY THE ENGINEER.
11. DETAILS 1, 2, 3, 4, 5, 6, 11, 15, 16, 23, 48, 52B, 53, 55, AND 63ATTACHED, PROVIDE CONSTRUCTION DETAILS FOR WATER, SEWER, DRAINAGE, AND SITE CONSTRUCTION.
12. SPECIFICATIONS 02480 AND 02500 ARE APPLICABLE TO THIS PROJECT.
13. STANDARDS 1, 2, 3, AND 4 ARE APPLICABLE TO THIS PROJECT.
14. THE EROSION AND SEDIMENT CONTROL NARRATIVE, INCLUDED, IS APPLICABLE TO THIS PROJECT.
15. THE FOLLOWING VDOT STANDARDS ARE INCLUDED WITH THESE PLANS: CD-1, CD-2, AND PE-1. OTHER VDOT STANDARDS, NOT INCLUDED, MAY ALSO BE APPLICABLE.

WATER AND SEWER

16. COORDINATE ALL TESTING WITH THE TOWN OF SHENANDOAH IN ADVANCE. USE 150 PSI TEST PRESSURE UNLESS NOTED OTHERWISE.
17. CONDUCT WATERLINE TEST AND DISINFECTION IN ACCORDANCE WITH STANDARDS 1 AND 2, ATTACHED. CONDUCT SEWER LINE TEST AND MANHOLE TEST IN ACCORDANCE WITH STANDARD 3, ATTACHED. MAINTAIN SEPARATION OF WATER AND SEWER LINES IN ACCORDANCE WITH STANDARD 4, ATTACHED.
18. ALL WATER AND SEWER CONSTRUCTION SHALL CONFORM TO THE LATEST EDITION OF THE AUGUSTA COUNTY SERVICE AUTHORITY (ACSA) CONSTRUCTION STANDARDS. SHOULD THERE BE A CONFLICT BETWEEN THESE PLANS AND THE CONSTRUCTION STANDARDS OF THE ACSA, MAKE A WRITTEN REQUEST TO THE ACSA FOR WRITTEN CLARIFICATION.
19. CONTACT THE TOWN OF SHENANDOAH AT LEAST 48 HOURS PRIOR TO WATER AND/OR SEWER CONSTRUCTION TO COORDINATE PROCEDURES, FEES, INSPECTION, AND SCHEDULING. THE AUTHORITY WILL SELECT LOCATIONS FOR BACTERIOLOGICAL TESTING AND INJECTION OF CHLORINE, IF NEEDED. A TOWN INSPECTOR MUST BE PRESENT WHILE WORK IS BEING PERFORMED.
20. PROVIDE RESILIENT SEAT GATE VALVES PER AWWA C-509.
21. INSTALL DUCTILE IRON WATER PIPE IN STRICT CONFORMANCE WITH MANUFACTURERS' RECOMMENDATIONS AND THESE PLANS AND SPECIFICATIONS. USE LAYING CONDITION 6 FOR DI PIPE (REFERENCE DETAIL 3). PROVIDE DI PIPE TO CONFORM TO AWWA STANDARD C151 SPECIAL CLASS 52 WITH PUSH-ON JOINTS. FOR DI PIPE, PROVIDE EXTERIOR ASPHALTIC COATING AND CEMENT MORTAR INTERIOR LINING.
22. PROVIDE A PRESSURE AND DRAINAGE TEST FOR EACH FIRE HYDRANT BEFORE BACKFILLING. USE THE FOLLOWING PROCEDURE:
    A. LOOSEN CAPS AND OPEN HYDRANT FULLY.
    B. FILL HYDRANT WITH WATER BY CRACKING GATE VALVE OPEN.
    C. ALLOW ALL AIR TO ESCAPE, THEN TIGHTEN CAPS.
    D. APPLY TEST WATER PRESSURE.
    E. CHECK FOR LEAKS AT FLANGES, NOZZLES, & OPERATING STEM.
    F. FOLLOWING PRESSURE TEST, CLOSE HYDRANT.
    G. REMOVE 1 NOZZLE CAP AND PLACE PALM OF HAND OVER OPENING.
    H. PROPER DRAINAGE WILL HAVE A NOTICEABLE SUCTION.
    I. DO NOT TEST HYDRANT AT THE SAME TIME AS THE WATER MAIN.
    J. LEAKAGE UP TO 0.04 GPM THROUGH DRAIN HOLES IS POSSIBLE.
    K. IT IS NOT UNCOMMON FOR NOZZLES & BOLTS TO BECOME LOOSE.
23. PROVIDE FIRE HYDRANT ASSEMBLY PER DETAIL 1 AT LOCATIONS SHOWN ON THE PLANS.
24. PROVIDE BLOWOFF VALVE ASSEMBLY PER DETAIL 8 AT LOCATIONS SHOWN ON THE PLANS.
25. PROVIDE AIR RELEASE VALVE ASSEMBLY PER DETAIL 9 AT LOCATIONS SHOWN ON THE PLANS.
26. ALL VALVES SEPARATING THE EXISTING PUBLIC SYSTEM FROM THE SYSTEM BEING CONSTRUCTED SHALL BE OPERATED ONLY BY AUTHORIZED PUBLIC EMPLOYEES.
27. WATER SERVICE FROM MAIN THROUGH METER: REFER TO DETAIL 11. CONTRACTOR TO INSTALL SERVICE LINE.
28. PROVIDE 4" DIAMETER SCH 40 PVC SLEEVE WITH MAGNETIC TRACER TAPE FOR ALL WATER SERVICE CONNECTIONS UNDER PAVEMENT AREAS. EXTEND ENDS OF PVC SLEEVE AT LEAST 12 INCHES BEYOND THE EDGE OF PAVEMENT.
29. UNLESS NOTED OTHERWISE, MINIMUM WATER SERVICE SIZE FROM THE METER TO THE BUILDING IS 1-INCH TYPE K COPPER PIPE. USE LAYING CONDITION 6 OF DETAIL 3 FOR INSTALLATION.
30. FIELD VERIFY ALL TOP ELEVATIONS FOR MANHOLES PRIOR TO ORDERING.
31. CONTACT TOWN 48 HOURS PRIOR TO CONNECTING TO EXISTING SEWERS. CORE DRILL ALL CONNECTIONS TO EXISTING MANHOLES AND PROVIDE A FLEXIBLE RUBBER CONNECTOR, *PRESS-BOOT* AS MANUFACTURED BY PRESS-SEAL GASKET CORPORATION, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
32. PROVIDE POLYVINYL CHLORIDE (PVC) SANITARY SEWER PIPE. INSTALL IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS AND THESE PLANS AND SPECIFICATIONS. USE LAYING CONDITION 3 OF DETAIL 3 FOR ALL PVC SEWER CONSTRUCTION. SHAPE BOTTOM OF TRENCH FOR PIPE JOINT SO THAT ENTIRE PIPE LENGTH HAS UNIFORM BEARING. PROVIDE PVC PIPE CONFORMING TO ASTM D3034, DR 35, INTEGRAL BELL, GASKETED JOINT.
33. PROVIDE A LEAKAGE TEST FOR THE PVC SEWER PIPE AND CONCRETE MANHOLES PER STANDARD 3.
34. PROVIDE SANITARY SEWER MANHOLES PER DETAIL 4.
35. PROVIDE 4 INCH SCH 40 PVC, DWV, SOLVENT WELD JOINT PIPE FOR ALL SEWER SERVICE. USE LAYING CONDITION 3 OF DETAIL 3. PROVIDE CLEANOUT PER DETAIL 23 AT PROPERTY LINE FOR ALL SERVICE CONNECTIONS.
36. FOR ALL MANHOLES WITHIN THE PAVEMENT, PROVIDE A 4-FOOT DIAMETER CONCRETE COLLAR, AT LEAST 4 INCHES THICK. CONSTRUCT THE CONCRETE COLLAR SO THAT IT'S TOP SURFACE MATCHES THE SLOPE OF THE ADJACENT PAVEMENT SURFACE. INSTALL THE MANHOLE FRAME AND COVER SO THAT IT'S TOP SURFACE MATCHES THE CONCRETE COLLAR SURFACE AND THE SURFACE OF THE ADJACENT PAVEMENT. PROJECTIONS ABOVE THE PAVEMENT SURFACE OR DEPRESSION BELOW THE PAVEMENT SURFACE WILL RESULT IN REJECTION OF THE WORK AND RECONSTRUCTION AT THE EXPENSE OF THE CONTRACTOR.

DRAINAGE

37. PROPOSED DRAINAGE EASEMENTS ARE 20 FEET WIDE, UNLESS NOTED OTHERWISE.
38. PROVIDE POSITIVE DRAINAGE INTO ALL DRAINAGE STRUCTURES AND AWAY FROM ALL OTHER FACILITIES.
39. KEEP ALL EXCAVATIONS, INCLUDING TRENCHES, DRY TO PROTECT THEIR INTEGRITY.
40. PROVIDE CAST-IN-PLACE OR PRECAST CONCRETE DROP INLETS AND MANHOLES FOR STORM SEWER IN CONFORMANCE WITH SECTION 302, VDOT ROAD AND BRIDGE SPECIFICATIONS
41. PROVIDE TYPE S POLYETHYLENE CORRUGATED CULVERT PIPE IN CONFORMANCE WITH SECTION 232, VDOT ROAD AND BRIDGE SPECIFICATIONS FOR ALL STORM SEWER OUTSIDE THE PUBLIC RIGHT-OF-WAY. INSTALL PIPE IN CONFORMANCE WITH VDOT STANDARD PB-1.
42. PROVIDE FLARED END SECTIONS, VDOT STANDARD ES-1, WHERE ALL STORM SEWERS AND CULVERTS MEET DAYLIGHT.
43. DIRECT ALL BUILDING DOWNSPOUTS TO AREAS 10 FEET TO 20 FEET FROM STRUCTURE.
44. PROVIDE DIVERSION DIKES PER DETAIL 53 AT LOCATIONS SHOWN ON THE PLANS.

EROSION CONTROL

45. TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES ARE REQUIRED DURING CONSTRUCTION AND SHALL BE INSTALLED PRIOR TO ANY CLEARING, GRADING, OR OTHER CONSTRUCTION. REFER TO EROSION CONTROL PLAN AND EROSION & SEDIMENT CONTROL PLAN NARRATIVE.
46. ALL AREAS TO BE EXCAVATED OR FILLED SHALL HAVE THE TOPSOIL STRIPPED AND STOCKPILED AWAY FROM CONSTRUCTION ACTIVITIES. IF CONSTRUCTION OCCURS BEYOND THE LIMITS OF THIS PROJECT, MODIFY THE EROSION & SEDIMENT CONTROL PLAN TO ADDRESS OFF-SITE ACTIVITY.
47. AT BEGINNING OF PROJECT, PROVIDE CONSTRUCTION ENTRANCE PER DETAIL 48 AT THE LOCATION SHOWN ON THE PLANS.
48. PROVIDE SILT FENCE, DETAIL 16, AT ALL NECESSARY LOCATIONS AROUND THE PERIMETER OF THE CONSTRUCTION AREA TO PREVENT THE LOSS OF SEDIMENT. CONSTRUCTION LIMITS ARE DEFINED AS 5 FEET BEYOND THE POINT WHERE PROPOSED CONTOURS TIE BACK TO EXISTING CONTOURS.
49. STABILIZE PROPOSED PAVEMENT AREAS WITH GRAVEL IMMEDIATELY FOLLOWING FINISH GRADING OF SUBBASE.
50. PROVIDE VDOT EC-2 TYPE EROSION CONTROL MAT FOR SLOPES WHERE DESIGNATED ON THE PLANS. USE NORTH AMERICAN GREEN S75 EROSION CONTROL BLANKET WITH TYPE A STAPLE PATTERN. INSTALL IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS.

EARTHWORK

51. ALL UNDERGROUND UTILITIES LOCATED UNDER THE PAVEMENT OR ON THE RIGHT-OF-WAY ADJACENT TO THE PAVEMENT ARE TO BE INSTALLED PRIOR TO LAYING BASE. UNDERGROUND UTILITIES LOCATED IN THE ROADWAY ARE TO BE BACKFILLED AND COMPACTED IN STRICT ACCORDANCE WITH THE VDOT ROAD AND BRIDGE SPECIFICATIONS.
52. ALL MATERIALS USED FOR FILL OR BACKFILL SHALL BE FREE OF STONES LARGER THAN 6 INCHES IN ANY DIRECTION, FROZEN MATERIALS, AND ALL FOREIGN MATERIALS.
53. SATISFACTORY MATERIAL FOR USE AS FILL FOR PUBLIC STREETS INCLUDES MATERIAL CLASSIFIED BY ASTM D-2487 AS GW, GP, GM, GC, SW, SP, SM, SC, ML, AND CL GROUPS. SATISFACTORY SOIL SHALL HAVE A MINIMUM DRY DENSITY OF 92 LB/CU FT. PER ASTM D-698 AND SHALL HAVE A PLASTICITY INDEX LESS THAN 17. UNSATISFACTORY MATERIALS INCLUDE ANY OTHER CLASSIFICATIONS OR ANY MATERIAL OUTSIDE OF ACCEPTED MOISTURE LIMITS WHICH WILL NOT COMPACT EASILY.
54. PROVIDE COMPACTION OF FILL MATERIAL UNDER BUILDING SLABS IN COMPLIANCE WITH RECOMMENDATIONS OF SOILS ENGINEER. THESE RECOMMENDATIONS SHALL BE BASED UPON A STANDARD PROCTOR TEST, AND SHALL PROVIDE BEARING CAPACITY NEEDED FOR THE BUILDING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING.
55. UNLESS NOTED OTHERWISE, PLACE ALL FILLS AND BACKFILLS FOR UTILITIES, ROADS, PARKING AREAS, OR BUILDINGS IN 8 INCH MAXIMUM UNCOMPACTED DEPTHS AND COMPACT TO 98% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-698 STANDARD. CONTROL MOISTURE CONTENT DURING COMPACTION TO 2% OF OPTIMUM. TEST FREQUENCY:
    - EMBANKMENTS FOR ROADS, DAMS, ETC: 1 TEST PER LIFT PER 10,000 SQ. FT. OF LIFT.
    - BACKFILL AROUND STRUCTURES AND IN TRENCHES: 1 TEST PER LIFT PER 500 LINEAL FEET OF TRENCH.
56. PRIOR TO ANY OPERATIONS INVOLVING FILLING OR BACKFILLING, SUBMIT THE RESULTS OF THE PROCTOR TEST, TOGETHER WITH A CERTIFICATION THAT THE SOIL TESTED IS REPRESENTATIVE OF THE MATERIAL TO BE USED ON THE PROJECT. TESTS SHALL BE CONDUCTED BY A CERTIFIED MATERIALS TESTING LABORATORY AND THE CERTIFICATIONS MADE BY A LICENSED PROFESSIONAL ENGINEER REPRESENTING THE LABORATORY.
57. PROVIDE COMPACTION TESTS FOR STREET CONSTRUCTION IN CUT AND FILL AREAS AT THE FOLLOWING MINIMUM FREQUENCIES:
    - SUB-GRADE: ONE TEST PER LANE PER 500 LINEAL FEET.
    - STONE BASE: ONE TEST PER LANE PER 6" COMPACTED LIFT PER 500 LINEAL FEET.
    - BITUMINOUS CONCRETE: ONE TEST PER LANE PER LIFT PER 500 LINEAL FEET
58. SUBMIT TEST RESULTS TO THE ENGINEER WITHIN ONE WEEK OF TESTS. FAILURE TO CONDUCT DENSITY TESTS MAY BE CAUSE FOR NON-ACCEPTANCE OF THE FACILITY. DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR ALL TESTING EXPENSES.
59. CONVEY EXCESS MATERIAL TO A SITE HAVING A VALID EROSION AND SEDIMENT CONTROL PLAN.
60. WITHIN VDOT'S STREET RIGHT-OF-WAY, INSTALL ALL MAIL BOXES A MINIMUM OF 4' FROM THE EDGE OF PAVEMENT AND ON A BREAKAWAY POST OR PEDESTAL.

STREETS AND PAVING

61. VDOT GENERAL NOTES VI – V25, ATTACHED, ARE APPLICABLE TO THIS PROJECT.
62. CONSTRUCT ALL ROADS FOR ACCEPTANCE INTO VDOT SECONDARY HIGHWAY SYSTEM.
63. PROVIDE COMBINATION UNDER-DRAINS, TYPE CD-1, AT THE LOWER END OF CUT SECTIONS. PROVIDE UNDER-DRAINS TYPE CD-2 AT THE LOW POINT OF ALL SAG VERTICAL CURVES.
64. PROVIDE STANDARD UD-1 AND UD-3 UNDER-DRAINS WHERE INDICATED ON PLANS AND/OR WHERE DETERMINED NECESSARY IN THE FIELD BY VDOT INSPECTORS.
65. PAVEMENT DESIGN IS BASED UPON SUBGRADE CBR OF 6 AND AN RF OF 2.
    - CONSTRUCT THE STREET TO APPROXIMATE SUBGRADE ELEVATION.
    - TAKE SOIL SAMPLES FOR CBR AND SOIL RESILIENCY AT A MAXIMUM INTERVAL OF 300 FEET MEASURED ALONG THE STREET CENTERLINE.
    - DETERMINE AVERAGE CBR AND RESILIENCY FACTOR FROM THE TEST RESULTS FOR EACH SAMPLE AND DETERMINE THE PAVEMENT STRUCTURE REQUIREMENTS.
    - PAVEMENT MATERIALS AND THEIR THICKNESS MAY BE MODIFIED BY THE RESULTS OF THESE TESTS, IF IN ACCORDANCE WITH VDOT STANDARDS AND IF APPROVED BY VDOT.
    - SUBMIT A COPY OF ALL SOIL TEST RESULTS TO VDOT PRIOR TO THE PLACING OF ANY BASE OR SUBBASE MATERIAL.
66. EXTEND VDOT 21A BASE STONE 12 INCHES BACK OF EDGE OF PAVEMENT, OR BACK OF CURB, OR BACK OF SIDEWALK.
67. PROVIDE STREET IDENTIFICATION SIGNS IN CONFORMANCE WITH TOWN SPECIFICATIONS AND LOCATION. MINIMUM REQUIREMENT: 2 STREET SIGN.
68. PROVIDE TRAFFIC CONTROL SIGNS IN CONFORMANCE WITH VDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. MINIMUM REQUIREMENT: 2 STOP SIGN.
69. VDOT INSPECTORS HAVE FULL AUTHORITY TO REJECT FILL OR BACKFILL MATERIALS, REQUIRE UNDERCUTTING OR SUBGRADE STABILIZATION, REQUIRE PROVISIONS FOR SUBDRAINAGE, OR REQUIRE OTHER MEASURES WHICH AFFECT THE INTEGRITY OF ROAD AND UTILITY CONSTRUCTION. FAILURE TO COMPLY WITH INSPECTOR'S DIRECTIVES SHALL BE CAUSE FOR NON-ACCEPTANCE OF THE FACILITY.
70. PROVIDE 4-INCH, SCH 40 PVC CONDUITS AT EACH LOCATION IDENTIFIED ON THE PLANS. SEAL EACH END WITH A WATERTIGHT PLUG/CAP. SEE PLANS FOR LOCATION.
71. PROVIDE A VDOT STANDARD PE-1 ENTRANCE FOR EACH LOT. WHERE CULVERT PIPE IS REQUIRED, PROVIDE AN ASPHALT-COATED INSIDE AND OUT, CMP, 17" X 13" MINIMUM SIZE, OR TYPE S POLYETHYLENE CORRUGATED PIPE, 15" MINIMUM SIZE. ENTRANCE LOCATIONS AND CULVERT LENGTHS TO BE DETERMINED ON AN INDIVIDUAL LOT BASIS JUST PRIOR TO OBTAINING A RESIDENTIAL BUILDING PERMIT.

MISCELLANEOUS

72. RADII ARE TO FACE OF CURB OR EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.
73. SPOT ELEVATIONS SHOWN ON PLAN ARE LOCATED VERTICALLY ON THE PAVEMENT SURFACE AND HORIZONTALLY AT THE EDGE OF PAVEMENT OR THE FACE OF CURB, UNLESS NOTED OTHERWISE.
74. SPOT ELEVATIONS AND CONTOURS PROVIDE VERTICAL INFORMATION AT SELECTED LOCATIONS. PROVIDE SMOOTH VERTICAL CURVE TRANSITIONS AT INTERSECTING GRADES.

Virginia Department of Transportation
Staunton District
Rev. May 1, 2004

VDOT General Notes

V1. All work on this project shall conform to the current editions of and latest revisions to the Virginia Department of Transportation (VDOT) Road and Bridge Specifications and Standards, the Virginia Erosion and Sediment Control Regulations, and any other applicable state, federal or local regulations. In case of a discrepancy or conflict between the Standards or Specifications and Regulations, the most stringent shall govern.

V2. All construction shall comply with the latest U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), and Virginia Occupational Safety & Health (VOSH) Rules and Regulations.

V3. When working within VDOT right-of-way, all traffic control, whether permanent or temporary, shall be in accordance with the current edition of VDOT's Work Area Protection Manual. Furthermore, all traffic control flaggers must be certified in accordance with Section 104.04(c) of the VDOT Road and Bridge Specifications.

V4 The developer shall be responsible for relocating, at his expense, any and all utilities, including traffic signal poles, junction boxes, controllers, etc., owned by VDOT or private / public utility companies. It is the sole responsibility of the developer to locate and identify utility facilities or items that may be in conflict with the proposed construction activity. VDOT approval of these plans does not indemnify the developer from this responsibility.

V5. Design features relating to field construction, regulations, and control or safety of traffic may be subject to change as deemed necessary by VDOT. Any additional expense incurred as a result of any field revision shall be the responsibility of the developer.

V6. Prior to initiation of work, the contractor shall be responsible for acquiring all necessary VDOT land use permits for any work within VDOT right-of-way.

V7. If required by the local VDOT Residency Office, a pre-construction conference shall be arranged and held by the engineer and/or developer with the attendance of the contractor, various County agencies, utility companies and VDOT prior to initiation of work.

V8. The contractor shall notify the local VDOT Residency Office when work is to begin or cease for any undetermined length of time. VDOT requires and shall receive 48 hours advance notice prior to any required or requested inspection.

V9. The contractor shall be responsible for maintaining adequate access to the project from the adjacent public roadway via a construction entrance that is constructed and maintained in accordance with Section 3.02 of the Virginia Erosion and Sediment Control Handbook. Furthermore, access to other properties affected by this project shall be maintained through construction. The Developer shall have, within the limits of the project, an employee certified by the Virginia Department of Conservation and Recreation (VDCR) in Erosion and Sediment Control who shall inspect erosion and siltation control devices and measures on a continuous basis for proper installation and operation. Deficiencies shall be promptly rectified.

V10. Contractor shall ensure adequate drainage is achieved and maintained on the site during and at the end of construction.

V11. All water and sewer lines within existing or proposed VDOT right-of-way shall have a minimum thirty-six (36) inches cover and when possible shall be installed under roadway drainage facilities at conflict points.

V12. Any unusual subsurface conditions (e.g., unsuitable soils, springs, sinkholes, voids, caves, etc.) encountered during the course of construction shall be immediately brought to the attention of the engineer and VDOT. Work shall cease in that vicinity until an adequate design can be determined by the engineer and approved by VDOT.

V13. All fill areas, borrow material and undercut areas shall be inspected and approved by a VDOT representative prior to placement and fill. Where CBR testing is required, a VDOT representative shall be present to insure the sample obtained is representative of the location. When soil samples are submitted to private laboratories for testing, the samples shall be clearly identified and labeled as belonging to a project to be accepted by VDOT and that testing shall be performed in accordance with all applicable VDOT standards and procedures.

V14. All roadway fill, base, subgrade material, and backfill in utility/storm sewer trenches shall be compacted in six (6) inch lifts to 95% of theoretical maximum density as determined by AASHTO T-99 Method A, within plus or minus 2% of optimum moisture for the full width of any dedicated street right-of-way. At the direction of VDOT, density tests shall be performed by a qualified independent agency in accordance with VDOT Road and Bridge Specifications. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise.

V15. VDOT Standard CD and UD underdrains shall be installed where indicated on these plans and/or as specified by VDOT.

V16. The installation of any entrances and mailboxes within any dedicated street right-of-way shall meet VDOT minimum design standards and is the responsibility of the developer.

V17. Prior to VDOT acceptance of any streets, all required street signage and/or pavement markings shall be installed by the developer or, at VDOT's discretion, by VDOT on an account receivable basis following the Manual On Uniform Traffic Control Devices.

V18. The developer shall provide the VDOT Residency Office with a list of all material sources prior to the start of construction. Copies of all invoices for materials utilized within any dedicated street right-of-way must be provided to the local VDOT Residency Office prior to acceptance of the work. Unit and total prices may be obscured.

V19. Aggregate base and subbase materials shall be placed on subgrade by means of a mechanical spreader. Density will be determined using the density control strip in accordance with Section 304 of the VDOT Road and Bridge Specifications and VTM-10. A certified compaction technician shall perform these tests. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise. In addition to checking stone depths, a VDOT representative shall be notified and given the opportunity to be present during the construction and testing of the density control strip.

V20. Asphalt concrete pavements shall be placed in accordance with Section 315 of the VDOT Road and Bridge Specifications. Density shall be determined using the density control strip as specified in Section 315 and VTM-76. A certified compaction technician shall perform these tests. Certified copies of test reports shall be submitted to VDOT daily, unless specified otherwise. A VDOT representative shall be notified and given the opportunity to be present during the construction and testing of the control strip.

V21. In accordance with Section 302.03, the foundations for pipe culverts thirty-six (36) inches and larger shall be explored below the bottom of the excavation to determine the type and condition of the foundation. The contractor shall report findings of foundation exploration to the engineer and VDOT for approval prior to placing pipe. Foundation designs shall comply with VDOT Road and Bridge Standard PB-1. Where soft, yielding, or otherwise unsuitable foundation is encountered, the foundation design and/or need for foundation stabilization shall be determined by the engineer and approved by VDOT.

V22. The foundations for all box culverts shall be investigated by means of exploratory borings advanced below proposed foundation elevation to determine the type and condition of the foundation. The contractor shall submit copies of borehole logs and report findings of foundation exploration to the engineer and VDOT for approval prior to constructing box. Foundation designs shall comply with VDOT Road and Bridge Standard PB-1. Contrary to the Standard, where rock is encountered and cast-in-place box is proposed, the thickness of bedding shall be six (6) inches. Where soft, yielding, or otherwise unsuitable foundation is encountered, the foundation design and/or need for foundation stabilization shall be determined by the engineer and approved by VDOT.

V23. Approval of these plans shall expire three (3) years from the date of the approval letter.

V24. VDOT Standard CG-12 Curb Ramps shall be installed where indicated on these plans and/or as specified by VDOT.

V25. VDOT Standard Guardrail shall be installed where warranted and/or as proposed on these plans in accordance with VDOT's installation criteria. Final approval of the guardrail layout to be given by VDOT after grading is mostly complete.

V26. Existing and/or proposed easements which overlap existing and/or proposed VDOT right-of-way will be quit-claimed or transferred to VDOT upon acceptance into the Secondary Road System.

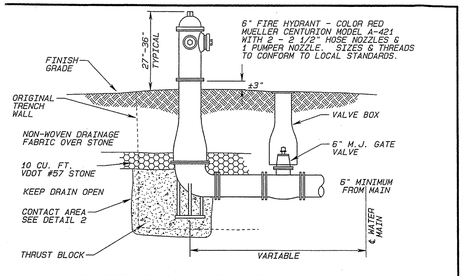
COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

NOTES
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB	DWG: RKH	FILE: 02069.pro	PROJ: 05053
DATE: MAR. 20, 2006 PLOTTED: Apr 7, 2006	SCALE: NONE		SHEET 8 OF 12



- INSTALL FIRE HYDRANT PLUMB WITH PUMPER NOZZLE FACING ROAD.
- SURROUND WEEPHOLES WITH STONE & KEEP WEEPHOLES OPEN FOR DRAINAGE.
- FIRE HYDRANT SHALL CONFORM WITH AWWA STANDARD C-502.
- PROVIDE MECHANICAL JOINT RETAINER GLANDS FOR CONNECTIONS FROM MAIN TO HYDRANT.

PRESSURE & DRAINAGE TEST (BEFORE BACKFILLING)

1. LOOSEN CAPS AND OPEN HYDRANT FULLY.
2. FILL HYDRANT WITH WATER BY CRACKING GATE VALVE OPEN.
3. ALLOW ALL AIR TO ESCAPE, THEN TIGHTEN CAPS.
4. APPLY TEST WATER PRESSURE.
5. CHECK FOR LEAKS AT FLANGES, NOZZLES, & OPERATING STEM.
6. FOLLOWING PRESSURE TEST, CLOSE HYDRANT.
7. REMOVE 1 NOZZLE CAP & PLACE PALM OF HAND OVER OPENING.
8. PROPER DRAINAGE WILL HAVE A NOTICEABLE SUCTION.
9. DO NOT TEST HYDRANT AT THE SAME TIME AS THE WATER MAIN.
10. LEAKAGE UP TO 0.04 GPM THROUGH DRAIN HOLES IS POSSIBLE.
11. IT IS NOT UNCOMMON FOR NOZZLES & BOLTS TO BECOME LOOSE.

TYPICAL FIRE HYDRANT ASSEMBLY

NOT TO SCALE

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 08-22-00

© DETAIL 01

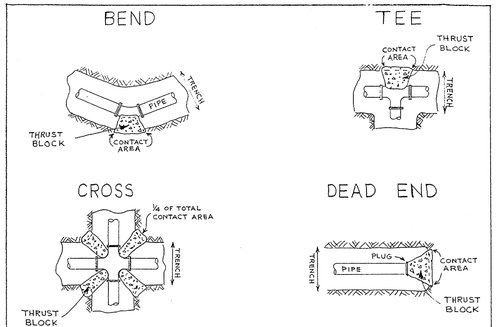


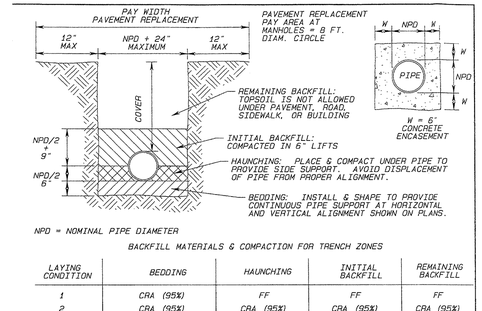
TABLE OF CONTACT AREAS (SQ. FT)

PIPE DIA.	11¼°, 22½°, 45° BEND			90° BEND - FIRE HYD.			TEE & DEAD END			CROSS		
INCHES	100 PSI	200 PSI	300 PSI	100 PSI	200 PSI	300 PSI	100 PSI	200 PSI	300 PSI	100 PSI	200 PSI	300 PSI
2	1	1	1	1	1	1	1	1	1	1	2	3
4	1	2	2	2	3	4	1	2	3	2	4	6
6	2	3	5	3	5	8	2	4	6	4	8	12
8	3	5	8	5	10	15	4	7	10	8	16	24
10	4	8	12	7	15	22	5	11	16	10	20	30
12	6	12	18	11	21	32	7	15	23	14	28	42
14	9	20	29	15	29	44	10	21	31	18	36	54

- CONCRETE SHALL BE 3000 PSI.
- THRUST BLOCKS SHALL BE EMBEDDED IN UNDISTURBED SOIL.
- 3000 PSF ASSUMED SOIL BEARING CAPACITY; FOR OTHER SOILS, CONTACT AREAS SHALL BE PROPORTIONED INVERSELY TO SOIL STRENGTH.
- FOR OTHER WORKING PRESSURES, CONTACT AREAS MAY BE INTERPOLATED.

THRUST BLOCKS

DETAIL 2



NPD = NOMINAL PIPE DIAMETER

BACKFILL MATERIALS & COMPACTION FOR TRENCH ZONES

LAYING CONDITION	BEDDING	HAUNCHING	INITIAL BACKFILL	REMAINING BACKFILL
1	CRA (95%)	FF	FF	FF
2	CRA (95%)	CRA (95%)	CRA (95%)	CRA (95%)
3	CRA (95%)	CRA (95%)	CRA (95%)	LM
4	CRA (95%)	CRA (95%)	SLM (95%)	LM
5	CRA (90%)	SLM (90%)	SLM (90%)	LM
6	(NONE) BOTTOM FREE FROM ROCK	SLM (85%)	SLM (85%)	LM
7	CONCRETE ENCASEMENT			LM
8	CML (65%)	CML (95%)	CML (95%)	CML (95%)

- COMPACTION SHOWN IN PARENTHESIS SHALL BE DETERMINED BY ASTM D 698.
- MINIMUM SPECIFICATION: TRENCHES UNDER PAVEMENTS, SIDEWALKS, ROADS, AND BUILDINGS SHALL BE COMPACTED TO 95% DENSITY AS DETERMINED BY ASTM D 698 STANDARD, 6" MAXIMUM LIFTS.
- IF NOT SPECIFIED OTHERWISE, MINIMUM COMPACTION SHALL BE BY ROLLING WITH EARTH MOVING EQUIPMENT.

DESIGNATION	DESCRIPTION OF BACKFILL MATERIALS
CRA	COARSE AGGREGATE, VDOT SIZE 78, TABLE II-3.
SLM	SELECT LOCAL MATERIAL: FREE OF STONES GREATER THAN 1" DIAM., DRY OR FROZEN LUMPS, & FOREIGN MATERIAL.
LM	LOCAL MATERIAL: FREE OF STONES GREATER THAN 6" DIAM., AND FOREIGN MATERIALS.
FF	VDOT FLOWABLE FILL
CML	CL OR ML GROUP SOILS PER ASTM D-2487. PROVIDE SPECIAL CARE FOR PLACING AND COMPACTING TO PROVIDE A WATERTIGHT BARRIER AGAINST THE FLOW OF WATER ALONG THE PIPE EXTERIOR.

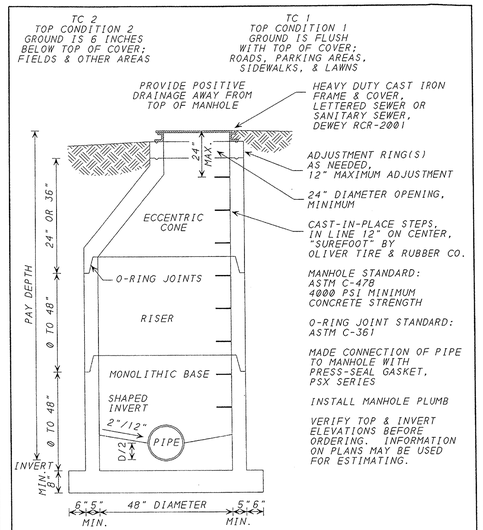
BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

TRENCH DETAILS

NOT TO SCALE

LAST REV. 5-19-99

© DETAIL 03

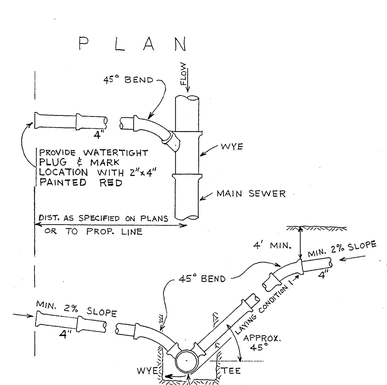


PRECAST CONCRETE MANHOLE

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
703 234-9112

LAST REV. 02-05-93

© DETAIL 04



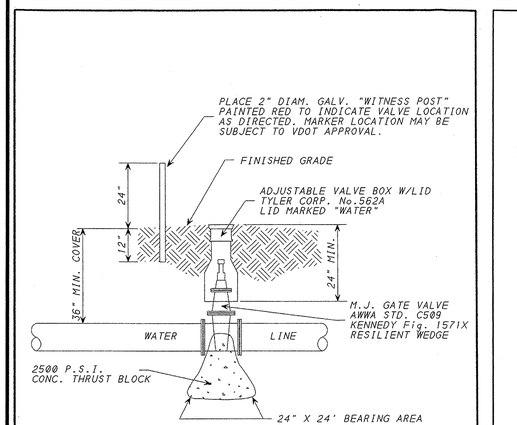
ELEVATION

NOT TO SCALE

- CONNECTIONS TO MANHOLES SHALL CONFORM GENERALLY TO THESE DETAILS. NO BENDS SHALL BE USED. MATCH CROWNS OF MAIN SEWER & CONNECTION, EXCEPT WHERE INVERT ELEV. IS SPECIFIED.
- USE SAME LAYING CONDITION AS MAIN SEWER.
- CONNECT TO BUILDING SEWER WITH FITTINGS ONLY.
- FOR DOUBLE CONNECTIONS, INSTALL WYE AND 2 WATERTIGHT PLUGS AT END OF CONNECTION
- SEE DETAIL 28 FOR TAPPED CONNECTIONS

SEWER SERVICE CONNECTION

© DETAIL 5



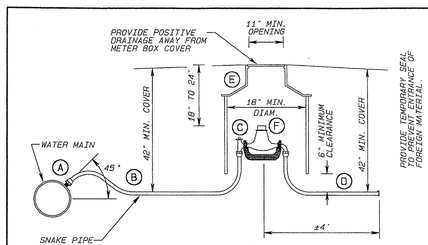
TYPICAL GATE VALVE ASSEMBLY

NOT TO SCALE

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
703 234-9112

LAST REV. 09-29-93

© DETAIL 06



(A) CORPORATION STOP - MUELLER NO. H-15000. IF WATER MAIN IS OTHER THAN DUCTILE IRON OR HAS THIN WALL, USE A STAINLESS STEEL SERVICE SADDLE.

(B) SERVICE PIPE - PROVIDE SIZE AS SPECIFIED IN NOTES OR ON PLANS (3/4" MINIMUM SIZE) FOR SINGLE CONNECTION. PROVIDE 3" SCH. 40 PVC CASING PIPE FOR SERVICE LINES UNDER ALL ROAD & PARKING SURFACES. EXTEND ENDS OF CASING 12" BEYOND PAVEMENT OR CURBING. USE TYPE K, SOFT COPPER FOR SERVICE LINES.

(C) ANGLE YOKE KEY VALVE - FORD NO. AV92-323W ANGLE VALVE. PROVIDE 2x4 PAINTED BLUE WITH 2' MIN. BURY DEPTH AND 5' MIN. EXPOSED HEIGHT TO MARK ANGLE VALVE LOCATION.

(D) PROVIDE SIZE AS SPECIFIED IN NOTES OR ON PLANS (3/4" MINIMUM SIZE). SAME TYPE AS IN ITEM B. (PROVIDE BY LOT BUILDER).

(E) METER BOX - PROVIDED AND INSTALLED BY CITY OR COUNTY WATER DEPARTMENT.

(F) WATER METER - AWWA STANDARD C 708. PROVIDED & INSTALLED BY CITY OR COUNTY WATER DEPARTMENT.

- FOR DOUBLE CONNECTION, TWO OF ITEMS C THROUGH F ARE REQUIRED.
- LOCATE METER AS INDICATED ON PLANS.
- OTHER PRODUCTS OF EQUAL OR BETTER QUALITY MAY BE USED WITH PRIOR WRITTEN APPROVAL OF THE PROJECT ENGINEER.

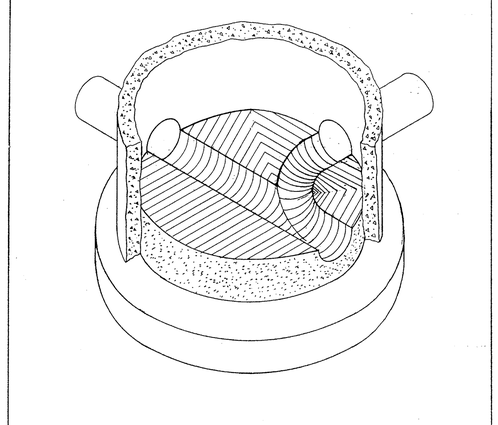
WATER SERVICE CONNECTION

NOT TO SCALE

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 12-17-97

© DETAIL 11

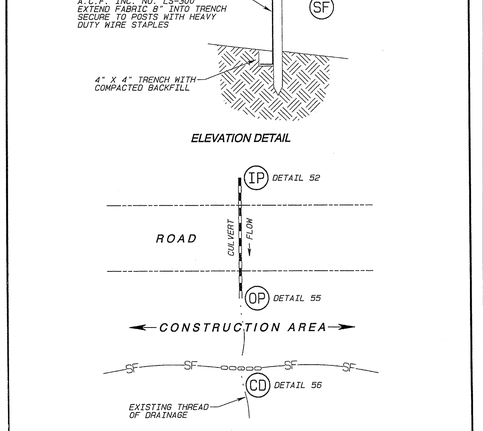


- SHAPE INVERT OF EACH MANHOLE INDIVIDUALLY TO BEST FIT EACH PARTICULAR ALIGNMENT.
- CONSTRUCT SMOOTH FLOW CHANNELS WITH LARGEST RADIUS AS PERMITTED BY THE MANHOLE.
- FLOW CHANNELS SHALL BE A PORTION OF A CIRCLE, WITH A MINIMUM DEPTH OF HALF OF THE PIPE DIAMETER.
- SLOPE BENCHES 2 INCHES PER 12 INCHES.
- CONSTRUCT INVERT OF PORTLAND CEMENT CONCRETE MIX EXCEPT. THAT 50% OF COURSE AGGREGATE MAY BE ≤ 4" DIA. & MAY CONSIST OF STONE OR BROKEN BRICK, CONCRETE, OR CONCRETE BLOCK.
- SMOOTH SURFACE BY HAND TROWELING & LEAVE NONE OF THE COURSE AGGREGATE EXPOSED.

MANHOLE INVERT

NOT TO SCALE

© DETAIL 15



PLAN OF SILT FENCE CROSSING DRAINAGE THREAD

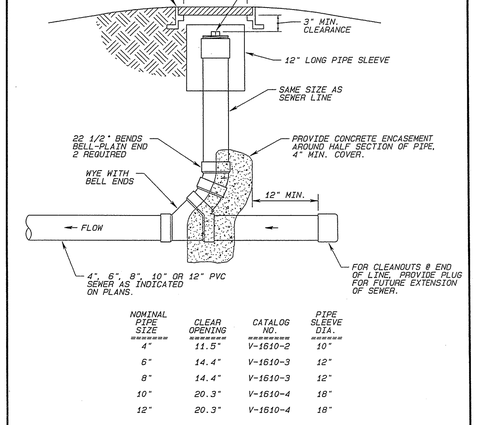
SILT FENCE

NOT TO SCALE

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 04-25-02

© DETAIL 16



NOMINAL PIPE SIZE	CLEAR OPENING	CATALOG NO.	PIPE SLEEVE DIA.
4"	11.5"	V-1610-2	10"
6"	14.4"	V-1610-3	12"
8"	14.4"	V-1610-3	12"
10"	20.3"	V-1610-4	18"
12"	20.3"	V-1610-4	18"

CATALOG NUMBERS REFER TO EAST JORDAN IRON WORKS, INC. PH: 804 513-0674
LOCAL SOURCE: AMERICAST, HARRISONBURG, VA. PH: 540 434-6979

CLEANOUTS FOR SEWER LINES

NOT TO SCALE

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 01-04-04

© DETAIL 23

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

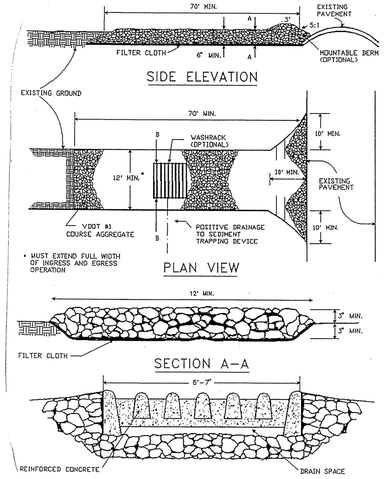
DETAILS
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053

DATE: MAR. 20, 2006 | PLOTTED: Apr 7, 2006 | SCALE: NONE | SHEET 9 OF 12

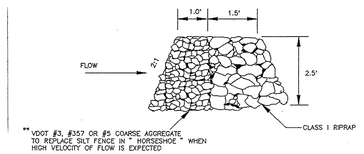


STONE CONSTRUCTION ENTRANCE (CE)

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
703 234-9112

LAST REV. 08-26-93

© DETAIL 48



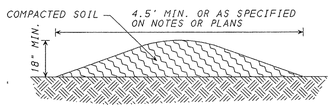
STONE CULVERT INLET PROTECTION (CIP)²

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 04-23-04

© DETAIL 52B

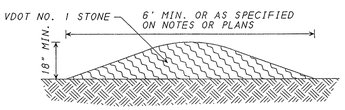
DIVERSION DIKE (DD)



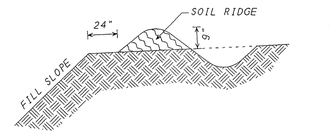
FOR PERMANENT DIVERSION DIKES:

1. REMOVE TOPSOIL UNDER DIVERSION DIKE.
2. KEY DIKE INTO CUT AREA.
3. PLACE A MAXIMUM OF 8" OF SOIL AND THEN COMPACT. REPEAT AS NECESSARY TO OBTAIN FULL HEIGHT.
4. AFTER THE MINUMUM HEIGHT FOR THE COMPACTED DIKE IS ACHIEVED, PLACE 4" MINIMUM LAYER OF TOPSOIL AND ESTABLISH PERMANENT VEGETATION FOR ENTIRE DISTURBED WIDTH.

RIGHT-OF-WAY DIVERSION (RWD)



TEMPORARY FILL DIVERSION (FD)

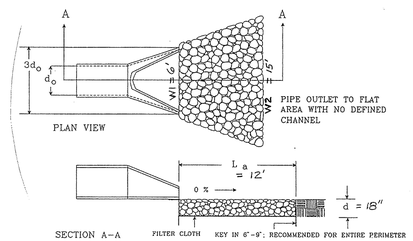


BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 08-27-96

© DETAIL 53

PIPE OUTLET CONDITIONS



NOTES

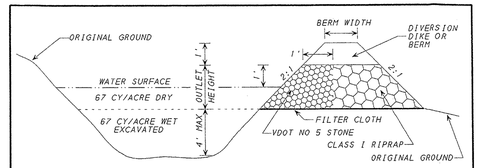
1. APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, GIBION BASKET, OR CONCRETE.
2. PROVIDE FLARED END SECTIONS, VDOT STANDARD ES-1, WHERE ALL STORM SEWERS AND CULVERTS MEET DAYLIGHT.
3. USE NATIONAL STONE ASSOCIATION NO. R-5 STONE, WHERE MAXIMUM SIZE IS 15 INCHES, D50 (AVERAGE) SIZE IS 9 INCHES, AND D15 (MINIMUM) SIZE IS 5 INCHES; OR VDOT CLASS AI RIPRAP.

OUTLET PROTECTION (OP)

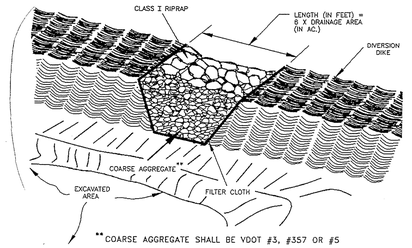
BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
703 234-9112

LAST REV. 11-03-93

© DETAIL 55



CROSS SECTION OF OUTLET



**COARSE AGGREGATE SHALL BE VDOT #3, #357 OR #5

OUTLET (PERSPECTIVE VIEW)

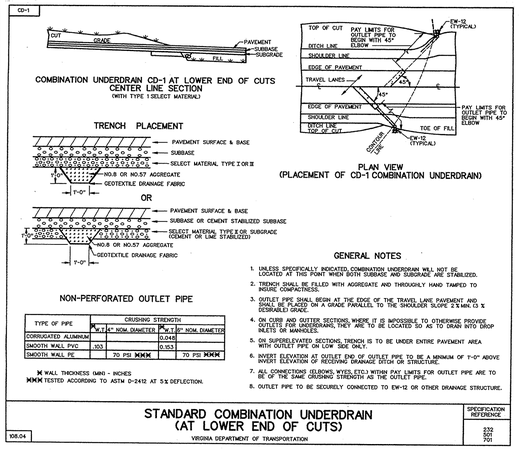
TEMPORARY SEDIMENT TRAP

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
703 234-9112

LAST REV. 10-30-93

© DETAIL 63

CD-1

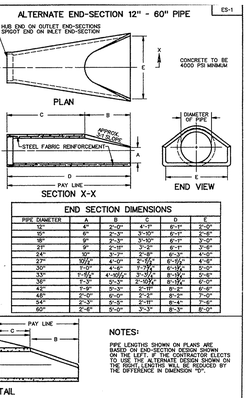


STANDARD COMBINATION UNDERDRAIN (AT LOWER END OF CUTS)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 232, 302, 701

108.04

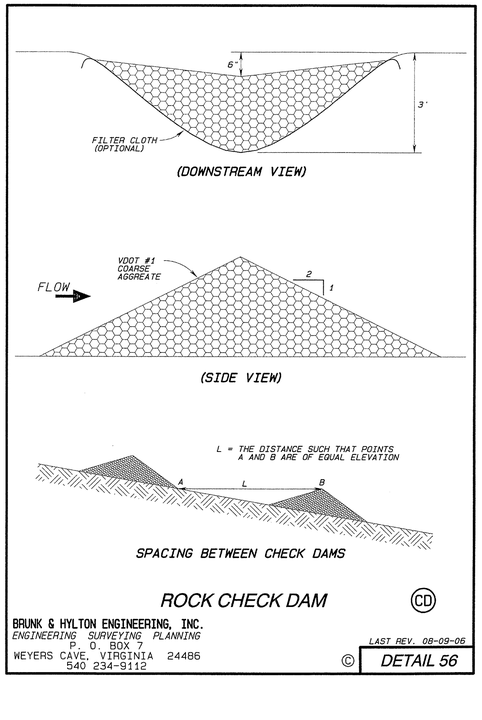


FLARED END-SECTION FOR 12"-60" CONCRETE PIPE CULVERTS

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 302

302.01



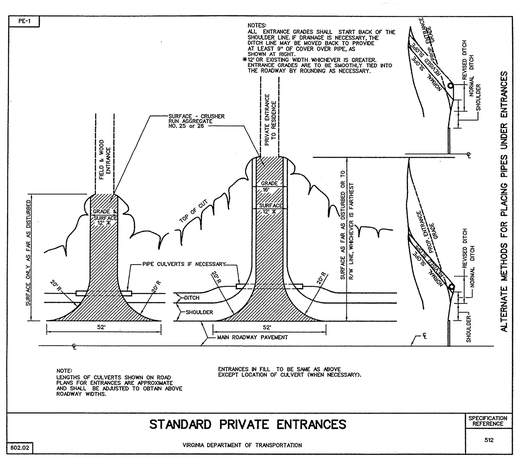
ROCK CHECK DAM (CD)

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

LAST REV. 08-09-06

© DETAIL 56

PE-1



STANDARD PRIVATE ENTRANCES

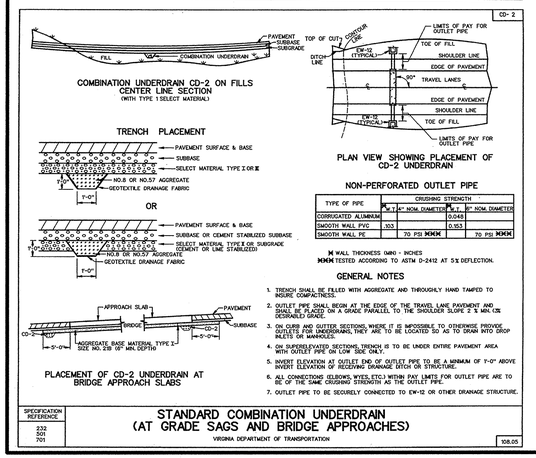
VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 512

602.02

MINIMUM LENGTH OF ENTRANCE CULVERT IS 30'.
IF DRIVEWAY SLOPE IS 10% OR GREATER, PROVIDE PAVED DRIVEWAY 20' BACK OF PROPERTY LINE.
PROVIDE 3:1 TIE SLOPES.

CD-2

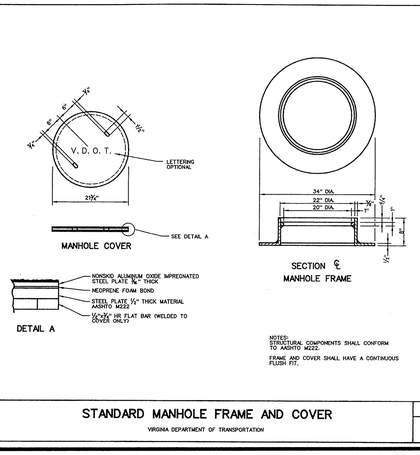


STANDARD COMBINATION UNDERDRAIN (AT GRADE SAGS AND BRIDGE APPROACHES)

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 232, 302, 701

108.05



STANDARD MANHOLE FRAME AND COVER

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 302

106.05

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

REV	DATE	DESCRIPTION
1	10-16-06	REVIEW COMMENTS

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053

DATE: MAR. 20, 2006
PLOTTED: Apr 7, 2006

SCALE: NONE

SHEET 10 OF 12

DETAILS
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

SECTION 02480 LANDSCAPING

1. RELATED WORK

A. Street and utility work for a residential subdivision.

2. REFERENCES

A. Virginia Erosion and Sediment Control Handbook, (V.E.S.C.H.), Third Edition, 1992, and in particular the following standards contained therein:

1. Topsoiling, Std. & Spec. 3.30
2. Temporary Seeding, Std. & Spec. 3.31
3. Permanent Seeding, Std. & Spec. 3.32
4. Sodding, Std. & Spec. 3.33
5. Mulching, Std. & Spec. 3.35
6. Trees, Shrubs, Vines and Ground Cover, Std. & Spec. 3.37
7. Tree Preservation & Protection, Std. & Spec. 3.38

3. SUBMITTALS

A. Provide delivery tickets, weigh tickets, and other records to specifically identify the quantity and the volume or weight of materials installed on the project.

4. MATERIALS

A. Lime: Ground agricultural limestone with at least 90% passing a no. 10 mesh screen and at least 45% passing a no. 100 mesh screen.

B. Fertilizer: Granular uniform composition with an analysis of 10-10-10.

C. Permanent Seed Mixture: Seeds shall comply with applicable state and federal law. Provide the following composition by law:

Lawn Mixture (Turf Type Tall Fescue)		Field Mixture	
"Shenandoah"	35%	Kentucky 31 Tall Fescue	50%
"Winchester"	25%	Orchard Grass	35%
"Jaguar II"	25%	Ryegrass	15%
"Short Stop"	15%		

Provide lawn mixture above for all permanent seeding, unless noted otherwise.

D. Temporary Seed:

1. For months of March, April, Aug., Sept., Oct., Nov.: Rye, "Secale Cereale, Abruzzi Variety".
2. For months of May, June, July: Weeping Lovegrass, "Erogrostis Curvula".

E. Mulch: Mulch shall consist of hay, straw, wood cellulose fiber or other approved material. The source of supply shall be subject to the approval of the Engineer. The Engineer reserves the right to reject mulch that contains weeds or weed seed classified as noxious by the Department of Agriculture.

5. SOIL PREPARATION

A. Prepare and seed all soil areas disturbed by the Contractor during and by his construction operation.

B. Prepare a three inch minimum depth seed bed, by spreading topsoil as required and cultivating. Remove all clods, loose stones, and other foreign material larger than three inches in any dimension.

C. Soil samples may be required by the Owner or Engineer. If collected they shall be analyzed by an approved laboratory and their recommendations shall be followed by the Contractor.

6. SEEDING

A. Permanent seeding shall be done only between March 1 and May 15 or between August 15 and October 15, unless otherwise authorized.

B. Apply at the following minimum rates lime, fertilizer, and seed; one-half in one direction and the remaining half in a direction perpendicular to the first.

1. Lime	90 lbs per 1000 sq. ft.
2. Fertilizer	25 lbs per 1000 sq. ft.
3. Permanent seed mixture	8 lbs per 1000 sq. ft.
4. Temporary Rye	3 lbs per 1000 sq. ft.
5. Temporary Weeping Lovegrass	1/16 lbs per 1000 sq. ft.

C. Cover seed by rolling and mulching to retain moisture and prevent erosion.

D. Where wood cellulose fiber, hay or straw mulch is used, mulch shall be applied to the seeded area at the rate of at least 50 pounds per 1000 sq. ft.

E. Where jute or other mulches are used, mulch shall be applied in accordance with manufacturer/supplier's instructions and the Engineer's approved methods of application.

7. MAINTENANCE

A. The Contractor shall water as required, mow and otherwise properly maintain all seeded areas until an acceptable and uniform stand of grass is obtained. Such maintenance shall include reseeding, where necessary, and the replacement of all mulch destroyed or removed by any cause.

B. An area which contains at least a 90% cover and has no bare areas of over 1 sq. ft. shall be considered acceptable.

END OF SECTION

SECTION 02500 PAVING AND SURFACING

G E N E R A L

1. WORK INCLUDED

A. Construction of pavement for new roads, streets, and parking areas.

B. Resurfacing of current roads, streets, and parking areas.

C. Repair of roads, streets, driveways, and parking lots as a result of other construction.

2. RELATED WORK

A. Section 02200: Earthwork

3. REFERENCES

A. Virginia Department of Transportation, "Road and Bridge Specifications, 2001".

B. National Crushed Stone Association, "Design Guide for Low Volume Rural Roads".

4. SUBMITTALS

A. Provide delivery tickets, weigh tickets, and other records to specifically identify the quality and the quantity and volume or weight of materials installed on the project.

5. MEASUREMENT AND PAYMENT

A. The area of surface for repair work will be determined by multiplying the disturbed length by the pay width. Payment will be made per the area units on the bid form.

M A T E R I A L S

6. BITUMINOUS SURFACE TREATMENT

A. Layer 1: 0.40 gal./sq. yd. of RC250 covered with 30 lbs/sq. yd. of size 68 aggregate.

B. Layer 2: 0.30 gal./sq. yd. of RC250 covered with 30 lbs./sq. yd. of size 78 aggregate.

C. Layer 3: 0.30 gal./sq. yd. of RC250 covered with 25 lbs./sq. yd. of size 8 aggregate.

D. Use sandstone aggregate where light colored surface is specified.

7. BITUMINOUS CONCRETE

A. Prime Coat: Layer 1 as specified in the preceding section for bituminous surface treatment.

B. Base Course: Type BM-2

C. Intermediate Course: Type IM-1A

D. Surface Course: Type SM-2A

8. PORTLAND CEMENT CONCRETE

A. Provide materials in accordance with Section 321, VDOT Road and Bridge Specifications.

B. Provide a minimum 28-day compressive strength of 4000 psi. Minimum mix requirements are as follows:

Coarse Aggregate nominal max. size, in.	Portland cement, min. lb per cu yd	Water maximum lb per cy yd	Air entrainment % by volume
1	564	254	6 to 8
3/4	586	264	6 1/2 to 8 1/2
1/2	640	288	7 to 9

C. Maximum slump for hand methods of strikeoff and consolidation is 5 inches. Maximum slump for mechanical strikeoff and consolidation is 3 inches.

D. Poured joint sealer shall conform to the requirements of ASTM D 1190.

E. Preformed joint filler shall conform to the requirements of ASTM D 1751.

F. Liquid membrane-forming curing compound shall conform to the requirements of ASTM C 309.

9. AGGREGATE BASE MATERIAL

A. VDOT Type II, Size No. 21A.

10. CONCRETE SIDEWALKS

A. Provide a minimum 28-day compressive strength of 3000 psi.

B. Provide P4 pavement type per Detail 70. 2 inch minimum stone depth may be used instead 4 inches.

C. Provide 5% - 7% air entrainment

D. Provide light broom finish

E. Tool edges after broom finish

F. Provide quarter round tooled joints 4 to 5 feet on center. Minimum joint depth is 1/4 of slab thickness.

11. PRECAST CONCRETE PARKING CURBS

A. Approximate size: 6 feet long x 6 inches tall x 6 inches wide, weighing approximately 220 lbs.

B. Provide two vertical holes approximately 4 feet apart, to secure curb with No. 4 reinforcing bar, 36 inch minimum length.

E X E C U T I O N

12. PROTECTION OF THE WORK AND THE PUBLIC

A. Provide, erect, and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices. Take all necessary precautions to protect the work and to safeguard the public. Using effective barricades, protect streets closed to traffic. During hours of darkness, illuminate all obstructions. Provide suitable warning signs to control and direct traffic properly.

13. PREPARATION FOR SURFACE

A. Furnish and install aggregate Base Material as needed in full accordance with Section 309, VDOT Road and Bridge Specifications.

B. Within the limits of pavement width, backfill the full depth of all trenches with aggregate base material in full accordance with Section 309, VDOT Road and Bridge Specifications.

C. For repair work, cut existing surface back to undisturbed material to provide uniform division lines between existing and new work.

D. Butt new repair work to the existing surface to result in a smooth and uniform cross section.

E. Before placing surface, inspect the subgrade for conformity with the cross section shown in the plans. If necessary, remove or add material to bring all portions of the subgrade to the correct elevation. Thoroughly compact and inspect the adjusted subgrade after corrections.

F. Inspect the subgrade by observing depressions from a moving heavy wheel load, minimum axle loading of 20,000 lbs. Excavate and recompact any areas with noticeable depression or pumping of the subgrade.

14. SURFACE

A. Within 2 weeks of disturbing pavement, provide temporary bituminous surface. Provide permanent surface within 6 months of disturbing pavement.

B. Furnish and install the specified or required type in full accordance with the following sections, VDOT Road and Bridge Specifications.

1. Bituminous Surface Treatment: Section 313
2. Bituminous Concrete: Section 315
3. Portland Cement Concrete: Section 316

15. CONSTRUCTION PROCEDURES

A. Where possible, keep construction equipment off of the area to be paved. If equipment operating in the proposed paving area causes ruts or displacement of the subgrade, provide lighter equipment of suitable runways.

B. For portland cement concrete paving, keep all traffic off of newly paved areas for 7 days.

C. Provide a slump test per ASTM C 143 for each load of concrete or when conditions change.

D. Minimum slope is 1% unless specifically directed otherwise.

E. Moisten subgrade just prior to placement of portland cement concrete.

F. Portland cement concrete finish: Avoid overfinishing. Generally a bullfloat finish is adequate. Provide a skid resistant texture with a burlap drag, a broom, or an astroturf drag. Provide a liquid membrane-forming curing compound.

G. Provide pavement markings per Virginia Department of Transportation Road & Bridge Specifications, Section 704,Yellow Paint.

1. Mark side lines of all spaces per Drawing.
2. Mark international handicap symbol in spaces indicated on the drawings.
3. Mark a one-directional arrow as indicated on the drawings.

H. Provide precast concrete parking curbs where shown on the Plans. Center each curb, as indicated on the Drawing, in the space after they have been marked. Secure each curb with two No. 4 reinforcing bars, 36 inches long. Drive reinforcing bar flush with the top of the curb.

END OF SECTION

PRESSURE & LEAKAGE TEST — STANDARD 1

1. All completed pressure pipelines shall be tested as described below. The Engineer shall be notified 2 days prior to the beginning of the test, and may observe the testing methods and procedures. Before the pipeline can be accepted and placed into service, the Contractor shall provide all materials, equipment, water, and supporting means to conduct this test at his expense. All defective elements shall be repaired or removed and replaced and the test repeated until the allowable leakage requirements have been met.
2. Sufficient backfill shall be placed prior to filling with water and field testing to prevent lifting of pipe. At least 7 days shall elapse after the last thrust block has been constructed.
3. Each section of the pipeline shall be filled slowly with water and all air expelled by means of taps at high points. The specified test pressure shall be applied by means of a pump and shall be maintained for the specified time during which the system and all exposed pipe, fittings, valves, and hydrants shall be carefully examined for leakage.
4. The minimum duration of each test shall be 6 hours and the specified test pressure shall be a minimum of 150% of working pressure at the highest location, but not more than the pressure class of the pipe at the lowest elevation. Leakage shall be defined as the quantity of water that must be supplied to the test section to maintain pressure within 5 psi of the specified test pressure. Allowable leakage is designated on the Plans. A test is acceptable when the actual leakage is less than the allowable leakage.

WATERLINE DISINFECTION — STANDARD 2

1. After an acceptable pressure and leakage test and before the pipeline can be accepted and placed into service, the contractor shall provide all materials, equipment, and supporting means to disinfect the water lines. Procedures shall conform to AWWA Standard C651 and the following requirements. Upon request, the Owner will provide the Contractor one (1) copy of AWWA Standard C651. Notify the Engineer two days prior to the beginning of disinfection. The Engineer may observe the disinfection methods and procedures.
2. Unless the Contractor adheres to AWWA Standard C651 concerning pipe cleanliness and prevents contaminations of pipe, fittings, valves, and openings during construction, disinfection will be difficult.
3. The pipeline shall be flushed with potable water at a minimum velocity of 2.5 feet per second. In cases where this velocity is not attainable or is ineffective, cleaning devices such as foam swabs or "pigs" will be considered. Operate all valves and hydrants during flushing.
4. The pipeline shall be filled with potable water containing at least 50 mg/l of available chlorine. An approved hypochlorite solution injected by a metering pump or liquid chlorine injected by a solution-feed chlorinator and booster pump may be used. Care shall be taken to prevent entrapping air. The chlorine residual shall be checked at intervals to ensure a concentration of at least 50 mg/l throughout the pipeline. The water shall remain in the pipeline for a minimum of 24 hours, during which time all valves, hydrants, and service connections must be operated to ensure their disinfection. Following the 24 hour period, the chlorine residual shall not be less than 10 mg/l.
5. Following the 24 hour disinfection period, flush the entire system with potable water until chlorine measurements show a concentration no greater than that generally prevailing in the potable water. Comply with AWWA Standard C651 requirements for disposal of disinfecting water with high chlorine concentrations.
6. Sets of two consecutive bacteriological samples, taken at least 24 hours apart, which show no contamination, will indicate acceptable disinfection. Collect one set of samples at intervals of 1200 ft. of waterline, plus one set of samples at the end of the line and at the end of each branch.
7. The Contractor is responsible for all expenses for disinfection and bacteriological sampling and testing.

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

SPECIFICATIONS & STANDARDS
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053
DATE: MAR. 20, 2006 PLOTTED: Apr 7, 2006 | SCALE: NONE | SHEET 11 OF 12

LEAKAGE TESTS FOR NON-PRESSURE PIPELINES

STANDARD 3
Revised 7-1-97

1. All completed non-pressure pipelines shall be tested under the observation of the engineer and as described below. Before the pipeline can be accepted and placed into service, and prior to all tests, the Contractor shall clean and inspect the system for major defects. The Engineer will then visually inspect the pipeline to verify accuracy of alignment and freedom from debris and obstructions. According to site conditions the Engineer will specify one of the following three tests to be conducted by the Contractor at the Contractor's expense. All defective elements shall be repaired or removed and replaced and the test shall be repeated until the allowable leakage requirements have been met.

2. The infiltration test will be acceptable only when the ground water level is a minimum of 4 feet above the top of the pipe throughout the length being tested. The actual infiltration shall be measured by a watertight weir for a period of at least 24 hours.

3. The exfiltration test will be acceptable only in dry areas or when the ground water level is below the pipe. The section to be tested shall have watertight seals at each end. The section shall then be filled with water resulting in a minimum head of water 2 ft. above the top of the pipe and a maximum head of water of 25 ft. The actual exfiltration shall be defined as that volume of water required to maintain the same test head of water during the test duration of 24 hours minimum.

4. Actual infiltration of actual exfiltration for any section of pipe between two consecutive manholes shall be less than the allowable of 50 gallons per day per inch of interval pipe diameter per mile.

5. The Engineer may specify an air test when other methods are not acceptable. The air test shall conform to these Standards and Standard UNI-B-6-90, Recommended Practice for Low-Pressure Air Testing by Uni-bell Plastic Pipe Association. Pump air slowly into the pipeline until a pressure of 4.0 psig greater than the average back pressure of any groundwater above the pipeline is obtained. Maintain this constant pressure for at least 2 minutes and allow the pressure to stabilize. Begin timing for the test at any convenient pressure reading between 3.5 psig and 4.0 psig (greater than the average groundwater back pressure.) The pressure drop shall not exceed 0.5 psig for the duration specified in the following table:

Minimum Duration for Air Test

	Minimum Time in Minutes for Length			
Pipe Size	100 Ft.	200 Ft.	300 Ft.	400 Ft.
4	2	2	2	2
6	3	3	3	3
8	4	4	4	5
10	5	5	6	8
12	6	6	8½	11½
15	7½	9	13½	18
18	8½	13	19½	26

6. Test manholes either by exfiltration or vacuum. For exfiltration, plug lines into and out of the manhole with inflatable stoppers. Do NOT plug pipe stubs. (They must be tested with the manhole.) Position the stoppers in the lines far enough from the manhole to ensure testing of those portions of the lines not air tested. Fill manhole to the top with water. Provide a twelve (12) hour soak. Leakage shall not exceed 0.25 gallons per hour for the four (4) hour test period.

7. For vacuum testing, test the manhole after assembly and prior to backfilling. Test must include all pipe stubs. Secure stubouts, manhole boots and pipe plugs to prevent movement while the vacuum is drawn. Install and operate vacuum equipment and indicating devices in accordance with equipment specifications for which performance information has been provided by the manufacturer and approved by the Engineer.

   Establish a measured vacuum of 10 inches of mercury in the manhole. Record the time for the vacuum to drop to 9 inches of mercury. Compare the time recorded to minimum times in the table below. If the recorded time for a 4 foot diameter manhole is equal to or greater than the minimum, an acceptable leakage standard has been reached.

	MINIMUM ELAPSED TIME FOR PRESSURE CHANGE
MANHOLE DEPTH	OF 1 INCH OF MERCURY
10 FT. OR LESS	60 SECONDS
10 FT., BUT LESS THAN 15 FT.	75 SECONDS
15 FT., BUT LESS THAN 25 FT.	90 SECONDS

   FOR MANHOLES FIVE FEET IN DIAMETER, ADD AN ADDITIONAL 15 SECONDS AND FOR MANHOLES 6 FEET IN DIAMETER, ADD AN ADDITIONAL 10 SECONDS TO THE TIME REQUIREMENTS FOR FOUR FOOT DIAMETER MANHOLES.

   If a manhole fails the test, make any necessary repairs and repeat the vacuum test. Continue the process of repair and retesting until an acceptable leakage test is made. As an alternate, test by the exfiltration method as outlined above.

   If manhole joint mastic is completely pulled out during the vacuum test, disassemble the manhole, replace the mastic and repeat the vacuum test.

SEPARATION OF WATER LINES & SANITARY AND/OR COMBINED SEWERS
STANDARD 4

Comply with the following conditions and minimum requirements unless written authorization to deviate from these conditions is provided by the Engineer.

I. PARALLEL PIPES

A. Normal conditions - Water lines shall be at least ten feet horizontally from a sewer or sewer manhole whenever possible, the distance shall be measured edge-to-edge.

B. Unusual conditions - When local conditions prevent a horizontal separation of ten feet, the water line may be laid closer to a sewer or sewer manhole provided that:

1. The bottom (invert) of the water main shall be at least eighteen inches above the top (crown) of the sewer.

2. Where this vertical separation cannot be obtained, the sewer shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling.

3. The sewer manhole shall be of water-tight construction and tested in place.

II. CROSSING PIPES

A. Normal conditions - water lines crossing sewers shall be laid to provide a separation of at least 18 inches between the bottom of the water line and the top of the sewer whenever possible.

B. Unusual conditions - When local conditions prevent an 18" vertical separation, the following construction shall be used:

1. Sewers passing over or under water lines shall be constructed of AWWA approved water pipe, pressure tested in place without leakage prior to backfilling.

2. Water lines passing under sewers shall, in addition, be protected by providing:

   a. a vertical separation of at least 18" between the bottom of the sewer and the top of the water line.

   b. adequate structural support for the sewers to prevent excessive deflection of the joints and settling on and breaking the water line.

   c. that the length of the water line be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewer.

3. No water pipes shall pass through or come in contact with any part of a sewer or sewer manhole.

EROSION AND SEDIMENT CONTROL PLAN NARRATIVE
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VIRGINIA

A. PROJECT DESCRIPTION

The purpose of this project is the construction of a residential subdivision. The project is located at the northeast corner of the Town of Shenandoah at the east end of Marcus Street. The development will be on 10.2 acres. The development is comprised of 22 existing single-family lots. No more than 6 acres will be disturbed during any phase of construction.

B. EXISTING SITE CONDITIONS

The proposed site is an open field. The site drains primarily to the north.

C. ADJACENT PROPERTY

This proposed subdivision is bordered by existing residential on the south and west. Undeveloped farmland is located to the north and east.

D. SOILS

Soils that are likely to be disturbed and corresponding information are listed below. Refer to the Soil Survey of Page County, Virginia and the descriptions of the soil units for more detailed information. See Exhibit A for physical soil properties for soils on this project.

E. CRITICAL AREAS

There are no critical areas on this site.

F. EROSION AND SEDIMENT CONTROL MEASURES

1. Structural Practices

   a. A construction entrance is required at all locations where construction vehicles enter a public right-of-way. During wet weather conditions, the wheels of construction vehicles shall be cleaned prior to entering the highway.

   b. Silt fence barriers are indicated on the construction plans. Sediment loss should be closely observed during construction and erect additional silt fences as necessary.

   c. Diversion dikes to be constructed are indicated on the construction plans.

   d. All driveways and parking areas shall be stabilized with gravel immediately after subbase grading. Construction traffic should be limited to access driveway and parking areas.

   e. Sediment will be controlled by sediment traps, diversion dikes, and silt fence during construction.

   f. All storm drain inlets and outlets shall be protected during construction.

2. Vegetation Practices

   a. Strip and stockpile topsoil for later use.

   b. Immediately following grading, provide temporary vegetation by using a fast germinating seed mixture. Select an appropriate seed mixture for the time of year for which it is to be applied.

   c. All man made ditches will be sodded or seeded and protected with an erosion control mat.

3. Management Strategies

   a. Construction shall be sequenced so that grading operations can begin and end as quickly as possible. Provide, and make functional, items b, c, and d, which follow, prior to all other construction.

   b. Erect silt fences along lower side of disturbed areas first to trap sediment.

   c. Construct and make functional all sediment traps and diversion dikes.

   d. Limit topsoil stripping and construction to as small an area as possible. Maintain strips of existing grass vegetation to filter out sediment.

   e. Immediately following grading, provide temporary seeding or other stabilization methods.

   f. Provide permanent soil stabilization to denuded areas within 7 days after final grade is obtained. When the season is not suitable for permanent soil stabilization, provide temporary seeding until the next permanent seeding period; at that time, establish permanent soil stabilization. Provide temporary soil stabilization within 7 days to denuded areas that may not be at final grade, but will remain dormant (undisturbed) for longer than 30 days. Provide permanent stabilization to areas that are to be left dormant for more than one year.

   g. During construction of the project, stabilize and protect soil stockpiles with sediment trapping measures.

   h. Before any upslope land disturbance takes place, provide functional sediment barriers and other measures intended to trap sediment as a first step in any land-disturbing activity.

   i. Provide stabilization measures to earthen structures such as dams, dikes, and diversions immediately after installation.

   j. Construct underground utility lines in accordance with the following standards in addition to other applicable criteria:

      1) Limit opened trench to less than 500 linear feet at one time.

      2) Place excavated material on the uphill side of trenches.

      3) Filter or direct effluent from dewatering operations through an approved sediment trapping device, and discharge in a manner that does not adversely affect flowing streams or off-site property.

   k. Where construction vehicle access routes intersect paved public roads, minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a public road surface, clean the road thoroughly at the end of each day. Remove sediment from the roads by shoveling or sweeping and transporting to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. Coordinate with Virginia Department of Transportation

   l. Remove temporary Erosion and Sediment Control Measures within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the local Program Administrator. Permanently stabilize trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures to prevent further erosion and sedimentation.

   m. Submit a supplementary Erosion Control Plan to Page County prior to beginning land disturbing activities in areas other than those indicated on the attached Plans, including, but not limited to, off site borrow or waste areas.

G. STORMWATER MANAGEMENT

The detention basin constructed for this project is proposed to detain the 2-year and 10-year storm from this development.

H. MAINTENANCE

1. In general, weekly and after each significant rainfall, check all erosion and sediment control measures. Reseed as necessary to maintain a dense stand of vegetation. Repair any damage to drainage and/or erosion control facilities immediately. Relocate erosion control fence as necessary.

2. Check inlet protection regularly for sediment buildup which will prevent drainage. Remove and clean or replace any gravel that is clogged by sediment. Immediately replace ineffective protection devices and clean the inlet. Flushing will not be an accepted method of cleaning.

3. Check the silt fence barrier regularly for undermining or deterioration of the fabric. Remove sediment when the level of sediment deposition reaches halfway to the top of the barrier.

4. Provide another construction entrance per specification when soil covers existing stone or when stone has been pushed into the subgrade by construction traffic.

5. Check sediment traps regularly and remove sediment when the level of sediment deposition reaches one-half of the wet storage depth.

GENERAL EROSION AND SEDIMENT CONTROL NOTES

1. Construct and maintain all vegetative and structural erosion and sediment control practices 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.

2. Place all erosion and sediment control measures prior to or as the first step in clearing.

3. Keep and maintain a copy of the approved erosion and sediment control plan on the site at all times.

4. Submit a supplementary erosion and sediment control plan to the Owner for review and approval by the Plan Approving authority prior to beginning land disturbing activities in areas other than indicated on these plans, including, but not limited to, off site borrow or waste areas.

5. Construct and install any additional erosion control measures necessary to prevent erosion and sedimentation, as determined by the Plan approving Authority.

6. Drain all disturbed areas to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved.

7. Pump all water from dewatering operations into an approved filtering device.

8. Inspect all erosion control measures periodically and after each runoff-producing rainfall event. Immediately repair and/or clean up the erosion control devices to maintain their effectiveness.

9. Provide temporary seeding to disturbed areas that will not be brought to final grade for a period of more than 30 days.

10. Establish permanent seeding in areas which will not be brought to final grade for a year or more.

11. Schedule a pre-construction conference with the plan approving authority.

12. Notify the plan approving authority one week prior to the preconstruction conference, one week prior to beginning land disturbing activity, and one week prior to final inspection.

13. These notes supplement the Erosion and Sediment Control Plan.

EXHIBIT A

Physical Soil Properties

Page County, Virginia

[Entries under "Erosion Factors--T" apply to the entire profile. Entries under "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
3B:														
Braddock	0-7	---	---	10-25	1.20-1.50	4.00-42.00	0.14-0.19	0.0-2.9	1.0-2.0	.32	.32	5	8	0
	7-43	---	---	35-55	1.20-1.50	4.00-14.00	0.12-0.17	3.0-5.9	0.0-0.5	.24	.28			
	43-62	---	---	20-45	1.20-1.50	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
3C:														
Braddock	0-7	---	---	10-25	1.20-1.50	4.00-42.00	0.14-0.19	0.0-2.9	1.0-2.0	.32	.32	5	8	0
	7-43	---	---	35-55	1.20-1.50	4.00-14.00	0.12-0.17	3.0-5.9	0.0-0.5	.24	.28			
	43-62	---	---	20-45	1.20-1.50	4.00-42.00	0.06-0.12	0.0-2.9	0.0-0.5	.24	.32			
11B:														
Cotaco	0-9	---	---	7-27	1.20-1.40	4.00-42.00	0.12-0.20	0.0-2.9	0.5-4.0	.28	.28	3	5	56
	9-52	---	---	18-35	1.20-1.50	4.00-14.00	0.07-0.15	0.0-2.9	0.5-1.0	.32	.32			
	52-72	---	---	18-35	1.20-1.50	4.00-14.00	0.07-0.15	0.0-2.9	0.0-0.5	.32	.32			
Wet spots	---	---	---	---	---	---	---	---	---	---	---	---	---	---
49B:														
Unison	0-10	---	---	10-25	1.35-1.65	4.00-42.00	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	10-72	---	---	30-70	1.30-1.60	4.00-14.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.28			
49C:														
Unison	0-10	---	---	10-25	1.35-1.65	4.00-42.00	0.14-0.20	0.0-2.9	1.0-3.0	.32	.32	5	3	86
	10-72	---	---	30-70	1.30-1.60	4.00-14.00	0.12-0.18	3.0-5.9	0.0-0.5	.24	.28			

USDA Natural Resources Conservation Service

Tabular Data Version: 2
Tabular Data Version Date: 03/04/2006

Page 1 of 2

COMMONWEALTH OF VIRGINIA
NO. 7705
JERRY L. BRUNK
PROFESSIONAL ENGINEER

STANDARDS
EROSION & SEDIMENT CONTROL
MOUNTAIN VIEW SUBDIVISION
TOWN OF SHENANDOAH, VA.

REV	DATE	DESCRIPTION

BRUNK & HYLTON ENGINEERING, INC.
ENGINEERING SURVEYING PLANNING
P. O. BOX 7
WEYERS CAVE, VIRGINIA 24486
540 234-9112

DSN: RKH & JLB | DWG: RKH | FILE: 02069.pro | PROJ: 05053
DATE: MAR. 20, 2006 | PLOTTED: Apr 7, 2006 | SCALE: NONE | SHEET 12 OF 12