CITY OF ROANOKE, VIRGINIA

OFFICE OF THE CITY ENGINEER

215 CHURCH AVE. SW, ROOM 350
ROANOKE, VIRGINIA 24011

FY 15 - CURB | GUTTER | SIDEWALK
OAKLAND BOULEVARD NW
(TM#2101204) & (TM#3190401)

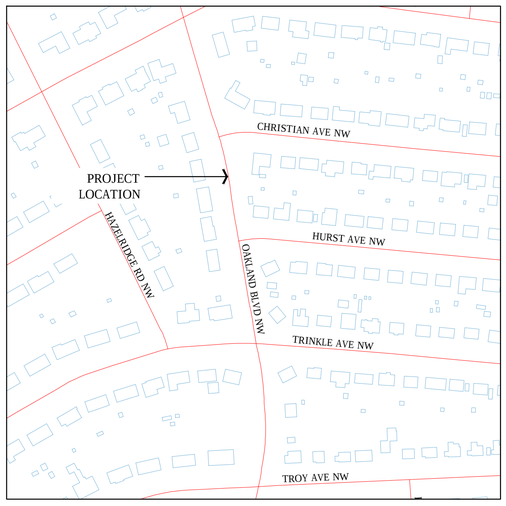
NOTICE: ALL LANDOWNERS, DEVELOPERS AND CONTRACTORS

FAILURE TO COMPLY WITH THE CONSTRUCTION PROCEDURE REQUIREMENTS LISTED BELOW MAY RESULT IN THE COSTLY REMOVAL OF STRUCTURES, TIME DELAYS OR THE ISSUANCE OF A STOP WORK ORDER.

CONSTRUCTION PROCEDURE REQUIREMENTS

1. RIGHT–OF–WAY EXCAVATION PERMIT – PRIOR TO THE COMMENCEMENT OF ANY DIGGING, ALTERATION OR CONSTRUCTION WITHIN THE PUBLIC RIGHT–OF–WAY (STREETS, ALLEYS, PUBLIC EASEMENTS), A RIGHT–OF–WAY EXCAVATION PERMIT SHALL BE APPLIED FOR AND OBTAINED BY THE CONTRACTOR FROM THE CITY OF ROANOKE.
2. LAND DISTURBANCE PERMIT – AN APPROVED EROSION AND SEDIMENT CONTROL PLAN FOR ANY BORROW/FILL SITES ASSOCIATED WITH THE PROJECT MUST BE SUBMITTED PRIOR TO THE ISSUANCE OF A LAND DISTURBANCE PERMIT.
3. PLANS AND PERMITS – A COPY OF THE PLANS AS APPROVED BY THE CITY (SIGNED BY THE PROPER CITY OFFICIALS) AND ALL PERMITS ISSUED BY THE CITY SHALL BE AVAILABLE AT THE CONSTRUCTION SITE AT ALL TIMES OF ONGOING CONSTRUCTION.
4. LOCATION OF UTILITIES – THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION
5. CONSTRUCTION ENTRANCE – THE CONTRACTOR SHALL INSTALL AN ADEQUATE CONSTRUCTION ENTRANCE FOR ALL CONSTRUCTION RELATED EGRESS FROM THE SITE. SIZE AND COMPOSITION ENTRANCE SHALL BE AS SHOWN ON THE PLANS.
6. STREETS TO REMAIN CLEAN – IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSURE THAT THE PUBLIC STREET ADJACENT TO THE CONSTRUCTION ENTRANCE REMAINS FREE OF MUD, DIRT, DUST AND/OR ANY TYPE OF CONSTRUCTION MATERIALS OR LITTER AT ALL TIMES.
7. BARRICADES/DITCHES – THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF ALL EXCAVATED DITCHES AND SHALL FURNISH AND ENSURE THAT ALL BARRICADES PROPER AND NECESSARY FOR THE SAFETY OF THE PUBLIC ARE IN PLACE.
8. SEWER AND PAVEMENT REPLACEMENT – CONSTRUCTION OF SANITARY SEWERS AND THE REPLACEMENT OF PAVEMENT SHALL BE IN ACCORDANCE WITH APPROVED STANDARDS AND SPECIFICATIONS OF THE CITY OF ROANOKE AND THE WESTERN VIRGINIA WATER AUTHORITY.
9. APPROVED PLANS / CONSTRUCTION CHANGES – ANY CHANGE OR VARIATION FROM CONSTRUCTION DESIGN AS SHOWN ON THE OFFICIALLY APPROVED PLANS SHALL BE APPROVED BY THE EROSION AND SEDIMENT CONTROL AGENT PRIOR TO SAID CHANGES OR VARIATION IN CONSTRUCTION BEING MADE.
10. FINAL ACCEPTANCE / CITY – THE OWNER OR DEVELOPER SHALL FURNISH THE CITY OF ROANOKE'S PLANNING BUILDING AND DEVELOPMENT DEPARTMENT WITH A FIELD SURVEYED FINAL CORRECT SET OF AS–BUILT PLANS OF THE NEWLY CONSTRUCTED STORM DRAIN AND/OR STORMWATER MANAGEMENT FACILITY PRIOR TO FINAL ACCEPTANCE AND ISSUANCE OF A CERTIFICATE OF OCCUPANCY BY THE CITY. AS–BUILT PLANS SHALL BE PROVIDED IN THE STATE PLANE VIRGINIA SOUTH COORDINATE SYSTEM, NAD 1983, FIPS 4502 FEET, US SURVEY FEET, DATUM NA 83, IN THE FORM OF 1 PAPER COPY AND 1 DIGITAL AUTOCAD FILE.

VICINITY MAP
SCALE: 1" = 8000'



LOCATION MAP
SCALE: 1" = 200'

LEGEND / ABBREVIATIONS

CLF	CHAIN LINK FENCE
CONC	CONCRETE
E	EAST
ELEV	ELEVATION
(F)	FOUND
FH	FIRE HYDRANT
FL	FLOW LINE ELEVATION
GV	GAS VALVE
HOL	HOLLY TREE
INV	INVERT
N	NORTH
PP	POWER POLE
RCP	REINFORCED CONCRETE PIPE
R/W	RIGHT–OF–WAY
S	SOUTH
SDMH	STORM DRAIN MANHOLE
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB ELEVATION
TN	TOP OF NUT
UTO	UNABLE TO OPEN
VCP	VITRIFIED CLAY PIPE
W	WEST
WM	WATER METER
WMH	WATER MANHOLE

T	OVERHEAD TELEPHONE
E	OVERHEAD ELECTRIC
GUY	GUY WIRE
UGT	WATER LINE
W	WATER LINE
SS	SANITARY SEWER
	STORM DRAIN
X	FENCELINE
	EDGE OF SHRUBS
	EDGE OF ASPHALT PAVEMENT

SHEET INDEX

SHEET NUMBER	SHEET TITLE	90% PLAN SUBMISSION 6-2-2014	100% PLAN SUBMISSION 6-30-2014
2.001	TITLE SHEET	○	●
2.100	GENERAL NOTES	○	●
2.200	PROPOSED SITE PLAN (TM#2101204)	○	●
2.201	PROPOSED SITE PLAN (TM#3190401)	○	●
2.202	EROSION & SEDIMENT CONTROL NARRATIVE	○	●
2.203	EROSION AND SEDIMENT CONTROL DETAILS	○	●
2.204	TYPICAL CONSTRUCTION DETAILS	○	●
2.205	TYPICAL CONSTRUCTION DETAILS	○	●
2.206	TYPICAL CONSTRUCTION DETAILS	○	●

APPROVED FOR CONSTRUCTION

ROANOKE CITY ENGINEER	DATE
DIRECTOR OF PUBLIC WORKS	DATE
DIRECTOR OF UTILITIES AND OPERATIONS	DATE
	DATE
	DATE

ADVERTISED DATE: _____

SET NUMBER: _____

COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

REVISIONS | DATE | NO.

CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA

OAKLAND BOULEVARD NW
TITLE SHEET

MMM DESIGN GROUP
ARCHITECTS•ENGINEERS•PLANNERS
102 5TH STREET N.E.
CHARLOTTESVILLE, VA 22902
434–923–8788

DRAWN:	ZQD
CHECKED:	DCH
APPROVED:	DCH
DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00
SHEET NUMBER:	2.001
SHEET	-- OF --

GENERAL CONSTRUCTION NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONDITIONS, MATERIALS, DIMENSIONS LOCATIONS AND EXISTING ELEMENTS TO REMAIN IN THE FIELD BEFORE PROCEEDINGS WITH ANY WORK. IF CONDITIONS VARY FROM WHAT IS REPRESENTED IN THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.
2. VEHICULAR AND PEDESTRIAN TRAFFIC MUST BE MAINTAINED AT ALL TIMES. PROVIDE ADEQUATE PROTECTION FOR THE EXISTING BUILDINGS, BUILDING OCCUPANTS, VEHICLES AND PEDESTRIANS AT ALL TIMES IN ACCORDANCE WITH OSHA AND ALL APPLICABLE STATE AND LOCAL CODES.
3. WALKING PATHS ADJACENT TO THE WORK AREAS WILL REMAIN IN USE DURING THE WORK. MATERIALS AND EQUIPMENT SHALL BE STORED IN APPROVED AREAS TO PREVENT IMPACTS ON VEHICLES AND PEDESTRIANS. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR MEASURES TAKEN TO ENSURE VEHICULAR AND PEDESTRIAN SAFETY THROUGH THE ENTIRE DURATION OF THE WORK. SAFETY IS PARAMOUNT.
4. EQUIPMENT AND MATERIALS SHALL BE STORED IN DESIGNATED AREAS AND SHALL NOT ENCUMBER THE OWNER'S OPERATIONS, SURROUNDING RIGHT OF WAY, OR ADJOINING GROUNDS.
5. ALL WORK AREAS SHALL BE CLEANED DAILY.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF BUILDINGS ADJACENT TO WORK AREAS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS OF DAMAGES RESULTING FROM CONSTRUCTION ACTIVITIES.
7. SECTION CUTS AND DETAIL CALLOUTS INDICATED IN THE DRAWINGS ARE TYPICAL FOR THE PROJECT. THEY ARE TO BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS AND HAVE NOT BEEN SHOWN EVERYWHERE THEY APPLY.
8. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY.
9. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL CONSTRUCTION.
10. SYMBOLS IN THE DRAWINGS ARE NOT TO SCALE.
11. DO NOT START INSTALLATION OF WORK UNTIL POTENTIAL CONFLICTS HAVE BEEN IDENTIFIED AND ADDRESSED.
12. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL DAMAGE TO THE EXISTING BUILDINGS AND ADJACENT GROUNDS AND PROPERTY CAUSE BY THE CARELESSNESS OR NEGLECT OF HIS WORKMEN. DAMAGE TO PORTIONS OF THE PROPERTY NOT SUBJECT TO WORK UNDER THE CONTRACT SHALL BE REPAIRED TO THE FULL SATISFACTION OF THE OWNER AND ENGINEER, AT THE CONTRACTOR'S EXPENSE.
13. PROTECTION OF THE WORK: PROTECT EFFECTIVELY ALL MATERIALS AND EQUIPMENT DURING THE ENTIRE PERIOD OF CONSTRUCTION. REPLACE MATERIALS AND EQUIPMENT DAMAGED, LOST OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
14. PROTECT EXISTING MATERIALS DURING INSTALLATION OF TEMPORARY PROTECTION AND CONSTRUCTION. DO NOT DEFACE OR REMOVE EXISTING MATERIALS IF INTENDED TO STAY. ATTACHMENTS OF TEMPORARY PROTECTION TO EXISTING CONSTRUCTION SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
15. OBTAIN ENGINEER REVIEW AND WRITTEN APPROVAL IN THE FORM OF A CONSTRUCTION CHANGE DIRECTIVE OR SUPPLEMENTAL INSTRUCTION BEFORE MAKING CHANGES OR ADDITIONS TO CONSTRUCTION OR REMOVING MATERIALS THAT WERE INTENDED TO REMAIN.
16. CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE FIRE PROTECTION IN THE FORM OF FIRE EXTINGUISHER OR OTHER EFFECTIVE MEANS OF EXTINGUISHING FIRE, READY FOR INSTANT USE, DISTRIBUTED AROUND THE PROJECT AND IN AND ABOUT TEMPORARY, INFLAMMABLE STRUCTURES DURING CONSTRUCTION OF WORK. EXISTING FIRE HOSE CONNECTIONS SHALL BE ACCESSIBLE AT ALL TIMES BY FIRE DEPARTMENT PERSONNEL. MATERIAL SAND DEBRIS SHALL NOT BE STORED IN FRONT OF THE CONNECTION, THUS PREVENTING ACCESS. THE CONTRACTOR SHALL COORDINATE ACCESS PROCEDURES WITH THE FIRE MARSHALL.
17. GASOLINE AND OTHER FLAMMABLE LIQUIDS SHALL BE STORED AND DISPENSED FROM UL LISTED SAFETY CONTAINERS IN CONFORMANCE WITH THE NATIONAL BOARD OF FIRE UNDERWRITERS' RECOMMENDATIONS.
18. CONTRACTOR SHALL CALL MISS UTILITY AT 1–800–552–7001 BEFORE CONSTRUCTION COMMENCES.

GENERAL LAYOUT NOTES:

1. ALL ROADWAY DIMENSIONS ARE TO FACE OF CURB. ALL FILLET RADII SHALL BE MEASURED TO FACE OF CURB.
2. ALL CURVE DATA PERTAINS TO THE ALIGNMENT AS DEFINE IN THE DRAWINGS.
3. ALL STORM DRAIN DIMENSIONS ARE FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE OR FROM CENTER OF STRUCTURE TO END OF FLARED END SECTION.
4. ANY EXISTING DRIVEWAY WIDTH THAT DOES NOT CONFORM TO THE ZONING ORDINANCE SHALL NOT BE INCREASED.

GRADING, PAVING AND DRAINAGE NOTES:

1. CONTRACTOR SHALL CONSTRUCT AND MAINTAIN APPROPRIATE MINIMUM STANDARD PROVISIONS IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK TO PREVENT SOIL FROM BEING ERODED FROM SITE INTO ADJACENT DRAINAGE SYSTEMS, DITCHES, OR WATERCOURSES. ANY MATERIAL THAT IS SO ERODED SHALL BE PROMPTLY REMOVED. SOIL SEDIMENT AND EROSION CONTROL TO BE UTILIZED IN ACCORDANCE WITH MINIMUM CRITERIA OF VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
2. PAVEMENT REPAIR SHALL CONSIST OF MILLING AND REPAVING 10' FROM THE EDGE OF THE GUTTER PAN.
3. GRADING AND PAVING TO BE CONSTRUCTED IN ACCORDANCE WITH THE 2007 VDOT "ROAD & BRIDGE SPECIFICATIONS".
4. ALL SIDEWALKS SHALL HAVE TRANSVERSE DUMMY JOINTS AT 5–FOOT INTERVALS; 1/2–INCH TRANSVERSE EXPANSION JOINTS SPACED AT 30–FOOT INTERVALS. DUMMY JOINTS SHALL BE 1 INCH DEEP BY 3/16 INCH WIDE, USING A 1/2–INCH RADIUS. EXPANSION JOINTS ARE TO BE CONSTRUCTED USING EXPANSION MATERIAL PLACED 2 INCH BELOW FINISHED SURFACE. ROUND EDGES OF CONCRETE WITH 1/2–INCH RADIUS.
5. CURB CUT RAMPS SHALL BE IN ACCORDANCE WITH UNIFORM FEDERAL ACCESSIBILITY STANDARDS.
6. PAVEMENT MARKINGS AND PAINT LINES SHALL BE TYPE A AS DEFINED BY THE 2007 VDOT ROAD AND BRIDGE SPECIFICATIONS, AND PLACED AS INDICATED IN THE DRAWINGS. PAINT SHALL BE APPLIED TO DRY AND THOROUGHLY CLEAN SURFACE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. FINISH CONTOURS INDICATE SLOPE OF LAND AND DIRECTION OF DRAINAGE, AS WELL AS ELEVATION.
8. ALL TRANSITIONS IN GRADING SHALL BE SMOOTH ROUNDED CURVES.
9. DRAINAGE COURSES ACROSS GRASSED AREAS SHALL BE ROUNDED SWALES AND NOT CUT DITCHES WITH STRAIGHT SLOPING SIDES, UNLESS NOTED OTHERWISE.
10. FINISHED GRADE SHALL SLOPE UNIFORMLY BETWEEN CONTOURS AND/OR SPOT ELEVATIONS SHOWN.

EXISTING UTILITY NOTES:

1. THE CONTRACTOR SHALL VERIFY THE LOCATION OF EXISTING UTILITIES IN THE FIELD PRIOR TO COMMENCING CONSTRUCTION. LOCATIONS AND SIZE OF EXISTING UTILITIES WERE LOCATED USING ABOVE GRADE FEATURES AND USING THE BEST AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY THEIR LOCATION IN THE FIELD BEFORE CONSTRUCTION COMMENCES. NO GUARANTEE IS MADE THAT UTILITIES SHOWN COMPRISE ALL UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED.
2. ALL EXISTING UTILITIES SHALL REMAIN IN PLACE, UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL CARRY ON HIS WORK AROUND SUCH UTILITIES AT HIS OWN RISK. ALL DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.
3. THE REMOVAL AND RELOCATION OF ALL UTILITIES AND APPURTENANCES WILL BE AT THE RISK OF THE CONTRACTOR. THESE INCLUDE, BUT ARE NOT LIMITED TO, POWER, SEWER, WATER, GAS, TELEPHONE, COMMUNICATION, CABLE, FIBER OPTICS, ETC. REMOVAL AND RELOCATION OF PRIVATE UTILITIES SHALL BE COORDINATED WITH THE UTILITY OWNER.

PROPOSED UTILITY NOTES:

1. ALL UTILITY INSTALLATION WORK SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS, REGULATIONS, AND ORDINANCES. WATER AND SEWER INSTALLATION SHALL BE IN ACCORDANCE WITH VIRGINIA DEPARTMENT OF HEALTH REGULATIONS, VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY, AND ANY LOCAL REGULATIONS OR ORDINANCES.
2. THE CONTRACTOR SHALL RELOCATE WATER METERS AND LATERALS, AS REQUESTED, SUBJECT TO INSPECTION BY WESTERN VIRGINIA WATER AUTHORITY.
3. ALL UTILITY TRENCHING EARTHWORK SHALL BE IN ACCORDANCE WITH THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS (VDOT RBS&S) EXCEPT WHERE OTHERWISE INDICATED ON THE TRENCHING DETAILS INCLUDED IN THESE DOCUMENTS.
4. CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL, DETAILED AND TO SCALE, PROFILE SHOP DRAWINGS FOR WATER DISTRIBUTION PIPING, SEWER PIPING, AND STORM DRAINAGE PIPING THAT INCLUDE LOCATIONS OF EXISTING AND NEW PIPES CROSSING THE MAIN BEING PROFILED. INCLUDE ALL FITTINGS, MANHOLES, AND/OR STORM INLET LOCATIONS ON THE SHOP DRAWINGS. INDICATE THE CLEARANCE BETWEEN PIPES AT UTILITY CROSSINGS.
5. CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL PRODUCT INFORMATION DATA SHEETS FOR ALL PIPING AND APPURTENANCES FOR WATER DISTRIBUTION PIPING, SANITARY SEWER PIPING, AND STORM DRAINAGE PIPING TO BE USED IN THE PROJECT.
6. CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL SHOP DRAWINGS FOR ALL SEWER MANHOLES, STORM DRAIN MANHOLES AND STORM DRAIN INLETS. SHOP DRAWINGS SHALL INDICATE OVERALL HEIGHT OF THE STRUCTURE, INVERTS OF ALL PIPES ENTERING THE STRUCTURE, ANGLE BETWEEN PIPES ENTERING THE STRUCTURE, FRAME AND COVER (OR GRATE) PRODUCT INFORMATION INCLUDING DIMENSIONS, STRUCTURE WALL AND BASE THICKNESS, AND REQUIRED INTERIOR COATINGS.

SUGGESTED CONSTRUCTION SEQUENCING:

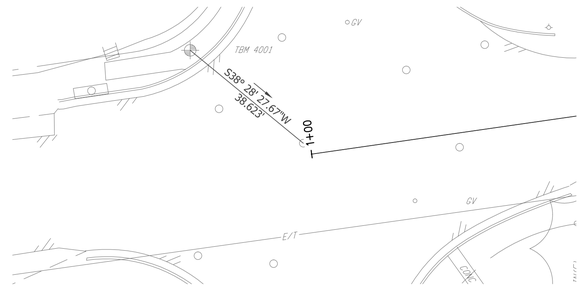
1. INSTALL SILT FENCE AS INDICATED IN THE DRAWINGS.
2. INSTALL STORMWATER INLET PROTECTION AROUND EXISTING DRAINAGE STRUCTURES.
3. PROTECT PERMANENT VEGETATION FOR THE DURATION OF THE PROJECT.
4. DEMOLISH EXISTING ITEMS MARKED FOR DEMOLITION AS INDICATED IN THE DRAWINGS.
5. RELOCATE EXISTING UTILITIES ARE REQUIRED AND OR SHOWN IN THE DRAWINGS.
6. CONSTRUCT NEW STORM STRUCTURES, IF APPLICABLE, STARTING AT THE DOWNSTREAM TERMINUS OR TIE–IN.
7. BACKFILL EXCAVATION AND TRENCH AREA.
8. INSTALL NEW CURB, GUTTER AND OR SIDEWALK AS INDICATED IN THE DRAWINGS, AS APPLICABLE.
9. FOR GRASSY AREAS: INSTALL PERMANENT SEEDING AND MULCH. STABILIZE ALL DISTURBED AREAS.
10. FOR GRAVEL AREAS: RESTORE GRAVEL AFTER TRENCHING AND EXCAVATION OPERATIONS ARE COMPLETE.
11. REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION.
12. DRESS AND OVER SEED ALL DISTURBED AREAS AS NECESSARY TO AFFECT PERMANENT VEGETATIVE COVER.
13. STABILIZE ALL REMAINING DISTURBED AREAS WITH TOPSOIL, SEED AND STRAW ONCE WORK IS COMPLETE.
14. AFTER FINAL SITE STABILIZATION AND APPROVAL FROM THE APPROPRIATE EROSION AND SEDIMENT CONTROL AUTHORITY, THE REMOVE SILT FENCE, INLET PROTECTION AND OTHER STABILIZATION MEASURES.

SURVEY NOTES:

1. THE PROPERTY SHOWN HEREON APPEARS TO FALL INSIDE ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN) AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR THE CITY OF ROANOKE, VIRGINIA, MAP NO. 51161C0162G, MAP REVISED: SEPTEMBER 28, 2007. FLOOD ZONE DETERMINATION IS BASED ON F.I.R.M. AND DOES NOT IMPLY THAT THIS PROPERTY WILL OR WILL NOT BE FREE FROM FLOODING OR DAMAGE. CONTACT THE LOCAL COMMUNITY FLOOD OFFICIAL TO CONFIRM THE ABOVE INFORMATION. FLOOD ZONE INFORMATION WAS SCALED FROM F.E.M.A. F.I.R.M. BALDWIN & GREGG, LTD. IS NOT A PARTY IN DETERMINING THE REQUIREMENTS FOR FLOOD INSURANCE ON THE PROPERTY SHOWN HEREON.
2. THE MERIDIAN SOURCE OF THIS SURVEY IS BASED ON VIRGINIA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM OF 1983/1993 (NAD 83 /93). COORDINATE VALUES SHOWN ARE EXPRESSED IN U.S. SURVEY FEET.
3. CITY OF ROANOKE STATIONS USED: WISE 1, BRIDGE STREET/ROANOKE RIVER BRIDGE, SALEM TURNPIKE 2, BRIDGE (ROANOKE 2000) AND MONTEREY (T/R/S).
4. ELEVATIONS SHOWN HEREON ARE IN FEET AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).
5. CITY OF ROANOKE STATIONS USED: WISE 1, BRIDGE STREET/ROANOKE RIVER BRIDGE, SALEM TURNPIKE 2, BRIDGE (ROANOKE 2000) AND MONTEREY (T/R/S).
6. SITE 2 TEMPORARY BENCHMARKS ARE SHOWN THUS:
   A. TBM 4000 IS A DRILLED CROSS AT THE NORTHEAST CORNER OF TROY AVENUE AND OAKLAND BOULEVARD.
      ELEVATION = 1056.56
   B. TBM 4001 IS A DRILLED CROSS AT THE NORTHEAST CORNER OF TRINKLE AVENUE AND OAKLAND BOULEVARD
      ELEVATION = 1059.80
7. SITE 3 TEMPORARY BENCHMARKS ARE SHOWN THUS:
   A. TBM CHRISTIAN IS A CHISELED SQUARE IN TOP OF CURB OPPOSITE 4120 OAKLAND BOULEVARD.
      ELEVATION = 1062.22
   B. TBM HURST IS A CROSS CUT IN THE NORTHWEST BOLT OF A FIRE HYDRANT AT THE SOUTHEAST CORNER OF HURST AVENUE AND OAKLAND BOULEVARD.
      ELEVATION = 1063.04
8. THIS SURVEY DOES NOT GUARANTEE THE EXISTENCE, SIZE OR HORIZONTAL LOCATION OF ANY UNDERGROUND UTILITIES. THE UNDERGROUND UTILITIES SHOWN ON THIS SURVEY WERE ESTABLISHED USING ABOVE GROUND STRUCTURES (VALVES, MANHOLES, ETC.) AND PAINT MARKINGS. NO GUARANTEE IS MADE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED.
9. LAST DATE OF FIELD SURVEY: APRIL 22, 2014 (F.B. 1412, P. 17–21)
10. TOPOGRAPHIC SURVEY PROVIDED BY:
    BALDWIN & GREGG, LTD.
    300 EAST MAIN STREET,
    NORFOLK, VIRGINIA 23510
    PHONE: 757–623–7300
    FAX 757–622–4665

RESPONSIBLE LAND DISTURBER

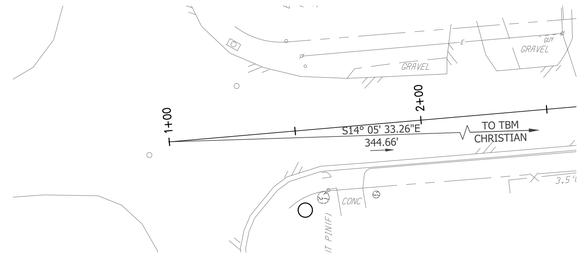
THE RESPONSIBLE LAND DISTURBER FOR THIS PROJECT SHALL BE THE ENGINEER OF RECORD. DANIEL C. HYER, P.E. DURING THE PROCESS OF DESIGN, REVIEW AND APPROVAL. PRIOR TO LAND DISTURBANCE, THE CONTRACTOR SHALL NAME A QUALIFIED INDIVIDUAL AS THE RESPONSIBLE LAND DISTURBER FOR THIS PROJECT AND INFORM THE DEQ PRIOR TO ANY LAND DISTURBANCE ACTIVITIES.



SITE NO. 2 ALIGNMENT TIE–DOWN

SCALE: 1" = 20'

ALIGNMENT DATA				
Number	Radius	Length	Line/Chord Direction	A Value
C1	762.26	270.37	S0° 29' 57.18"W	



SITE NO. 3 ALIGNMENT TIE–DOWN

SCALE: 1" = 20'

SITE NO. 3 ALIGNMENT DATA				
Number	Radius	Length	Line/Chord Direction	A Value
L1		333.13	S17° 11' 24.09"E	
C1	500.00	65.25	S13° 27' 04.58"E	
L2		484.02	S9° 42' 45.08"E	

ESTIMATED QUANTITIES:

Site No. 2 - Oakland Blvd. from Trinkle to Troy						
Item	Quantity	Linear Feet	Width (ft)	Area (square feet)	Land Disturbance (YES or NO)	Disturbed Area (square feet)
Curb and Gutter (CG-6)	-	680	2	1360	YES	117
Sidewalk	-	315	5	1575	YES	1653
ADA Accessible Ramp (CG-12)	4	-	-	-		
Residential Entrance (CG-9D)	5	-	-	-	NO	
Curb Inlet (DI-2B)	2				NO	
Curb Inlet (DI-3C)	1				NO	
Stormdrain Pipe (15" RCP)		132	-	-	NO	
Trench Excavation	-	40	3.5	140	NO	
Asphalt Restoration				11614	NO	

Total Land Disturbance (SF)	1770

Site No. 3 - Oakland Blvd. from Christian to Trinkle						
Item	Quantity	Linear Feet	Width (ft)	Area (square feet)	Land Disturbance (YES or NO)	Disturbed Area (square feet)
Curb and Gutter (CG-6)	-	619	2	1238	YES	170
Sidewalk	-	618	5	3090	YES	2580
ADA Accessible Ramp (CG-12)	6	-	-	-	NO	
Residential Entrance (CG-9D)	5	-	-	-	NO	
Curb Inlet (DI-2B)	4	-	-	-	NO	
Curb Inlet (DI-3C)	1	-	-	-	NO	
Curb Inlet (DI-2A)	1	-	-	-	NO	
VDOT MH-1	3	-	-	-	NO	
Stormdrain Pipe (15" RCP)	-	245	-	-	NO	
Stormdrain Pipe (18" RCP)	-	362	-	-	NO	
Trench Excavation	-	607	3.5	2124.5	NO	
Asphalt Restoration	-	-	-	12570	NO	

Total Land Disturbance (SF)	2750

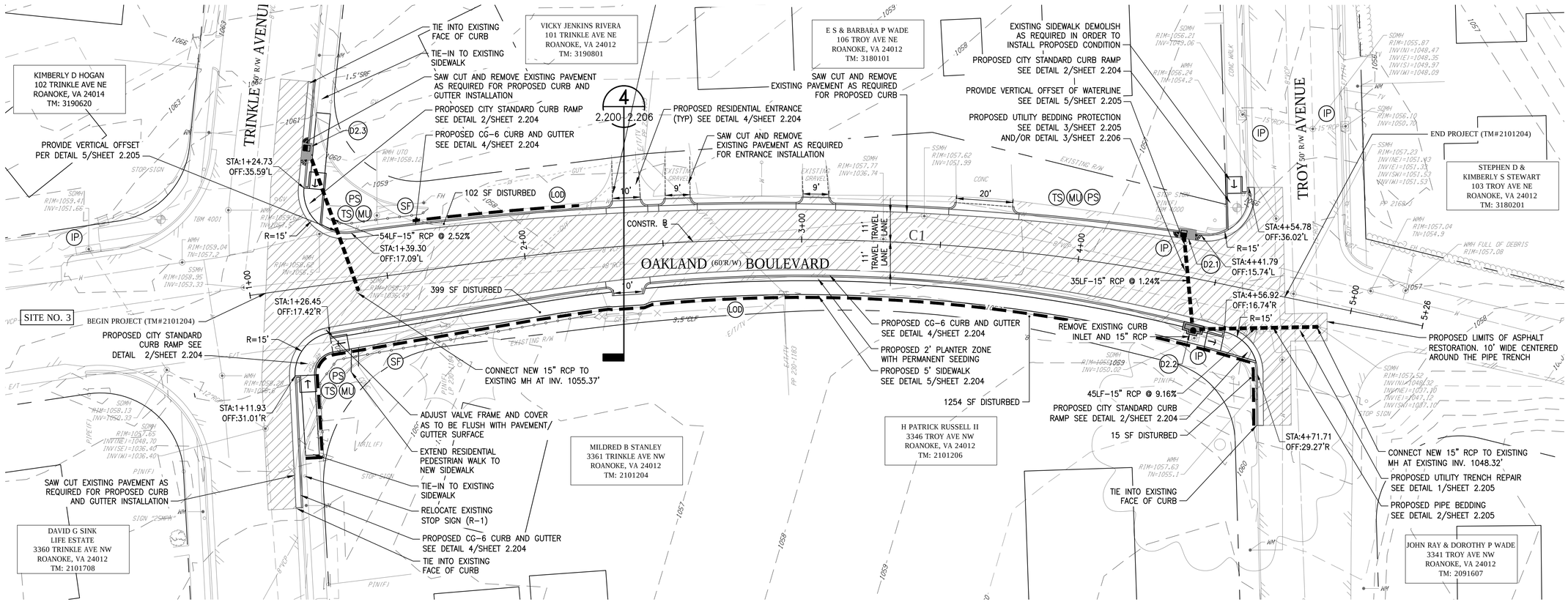
COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

REVISIONS | DATE | NO.

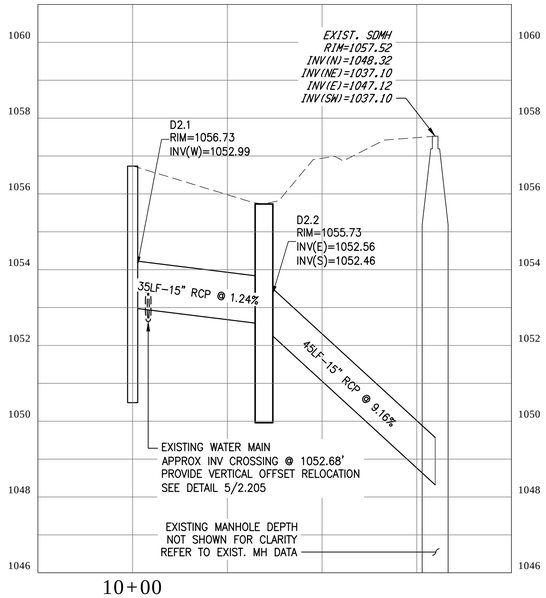
CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA
OAKLAND BOULEVARD NW
GENERAL NOTES

MMM DESIGN GROUP
ARCHITECTS+ENGINEERS+PLANNERS
102 5TH STREET N.E.
CHARLOTTESVILLE, VA 22902
434–923–8788

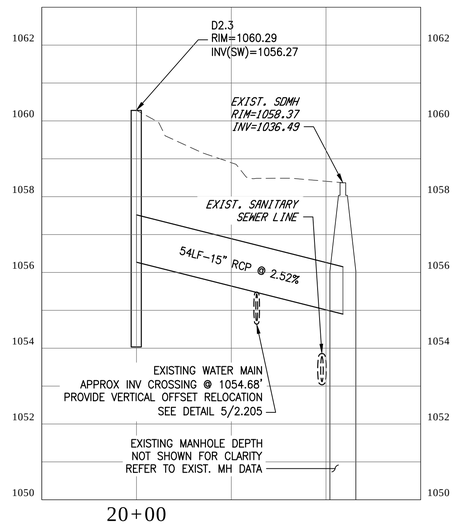
DRAWN: –
CHECKED: –
APPROVED: DCH
DATE: JUNE 30, 2014
MMM PROJ. NO: 11664.00
SHEET NUMBER: 2.100
SHEET -- OF --



1 PROPOSED SITE PLAN
2.200 | 2.200 SCALE: 1" = 20'



2 PROFILE – D2.1 TO EX SDMH
2.200 | 2.200 SCALE: HORIZ.: 1" = 20', VERT.: 1" = 2'



3 PROFILE – D2.3 TO EX SDMH
2.200 | 2.200 SCALE: HORIZ.: 1" = 20', VERT.: 1" = 2'

NOTES:

1. PAVEMENT REPAIR SHALL REQUIRE MILLING AND REPAVING FOR A MINIMUM WIDTH OF 10' ADJACENT TO REPAIR.
2. CONTRACTOR SHALL MAINTAIN TWO–WAY TRAFFIC IN ACCORDANCE WITH VIRGINIA WORK AREA PROTECTION MANUAL OR AS INDICATED IN THESE DRAWINGS. STREET CLOSURES ARE NOT PERMITTED UNLESS AUTHORIZED BY THE CITY TRAFFIC ENGINEER.
3. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL PLAN TO TRAFFIC ENGINEERING PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE UPON COMPLETION OF THE WORK.
5. CONTRACTOR SHALL BACKFILL TO THE TOP OF THE BACK OF CURB SUCH THAT THE ADJACENT LANDSCAPED AREA HAS A SURFACE FLUSH WITH THE TOP OF CURB.
6. CONTRACTOR SHALL SEED ALL AREAS BEHIND THE BACK OF CURB DISTURBED DURING CONSTRUCTION.
7. ALL EXCAVATED AREAS THAT ARE NOT TO BE PAVED SHALL BE SEEDED IN ACCORDANCE WITH THE CURRENT EROSION AND SEDIMENT CONTROL STANDARDS.
8. ADJUSTMENTS AND RELOCATION OF WATER METERS AND/OR VALVES SHALL BE DONE BY A CONTRACTOR WITH A WESTERN VIRGINIA WATER AUTHORITY.
9. ALL WORK WITHIN THE CITY RIGHT–OF–WAY SHALL CONFORM TO THE CITY OF ROANOKE RIGHT–OF–WAY EXCAVATION AND RESTORATION STANDARDS.
10. CONTRACTOR SHALL REESTABLISH ALL EXISTING RESIDENTIAL AND COMMERCIAL ENTRANCES.

STORM STRUCTURE SCHEDULE	
STRUCTURE ID:	DETAILS:
D2.1	VDOT DI–2B L6 RIM = 1056.73 INV(W)= 1052.99
D2.2	VDOT DI–3C L6 RIM = 1055.73 INV(E)= 1052.56 INV(S)= 1052.46
D2.3	VDOT DI–2B L6 RIM = 1060.29 INV(W)= 1056.27

NORTH

GRAPHIC SCALES:

1" = 2' (2' 1' 0 2' 4')

1" = 20' (20' 10' 0 20' 40')

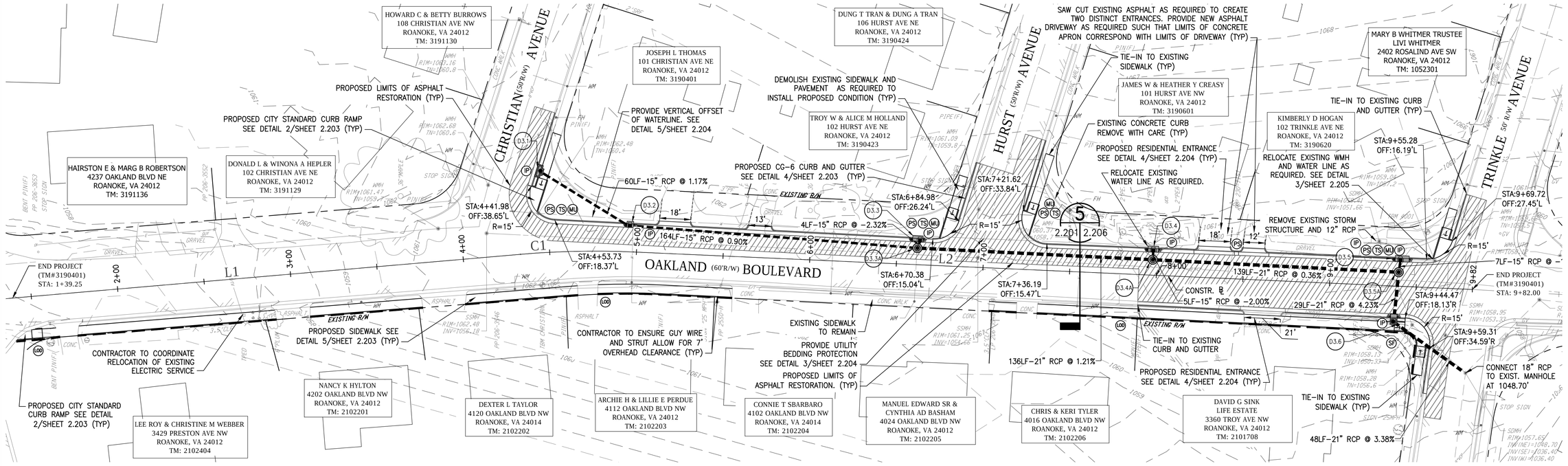
COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA
OAKLAND BOULEVARD NW
PROPOSED SITE PLAN

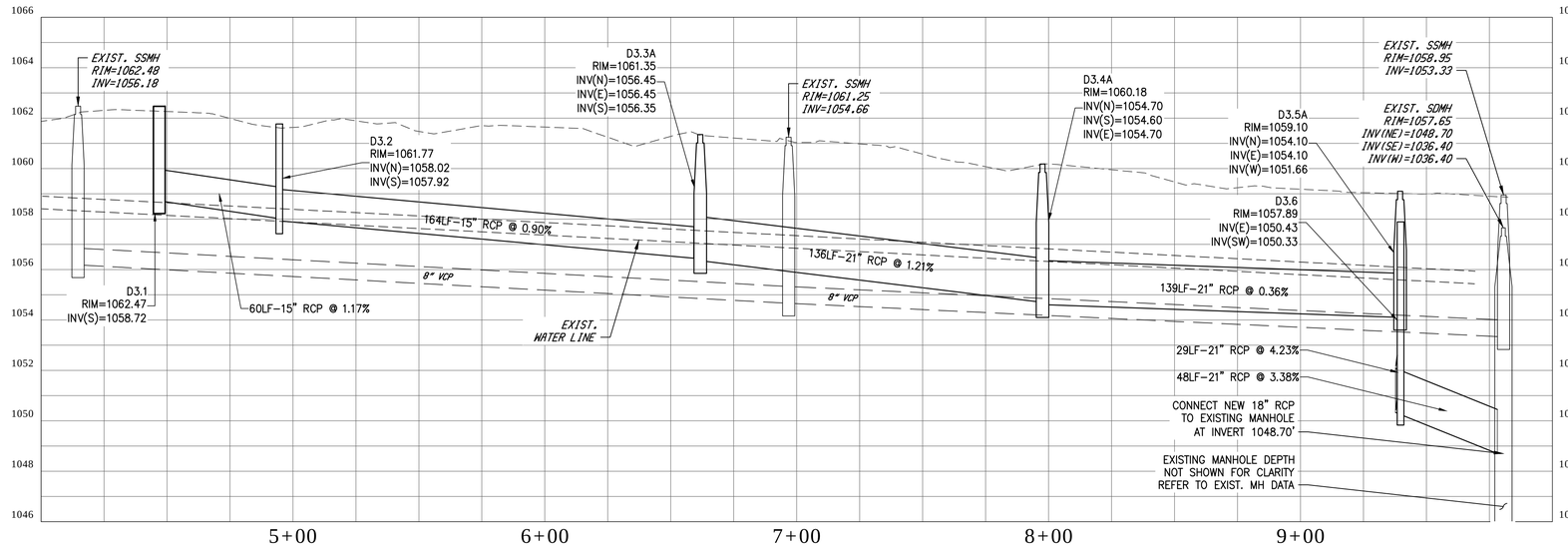
MMM DESIGN GROUP
ARCHITECTS+ENGINEERS+PLANNERS
102 5TH STREET N.E.
CHARLOTTESVILLE, VA 22902
434–923–8788

DRAWN:	ZQD
CHECKED:	DCH
APPROVED:	DCH
DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00
SHEET NUMBER:	2.200
SHEET -- OF --	



STORM STRUCTURE SCHEDULE

STRUCTURE ID:	DETAILS:
D3.1	VDOT DI-3C L6 RIM = 1062.47 INV(S)= 1058.72
D3.2	VDOT D1-2A L2.5 RIM = 1061.77 INV(N)= 1058.02 INV(S)= 1057.92
D3.3	VDOT DI-2B L6 RIM = 1062.66 INV(W)= 1056.55
D3.3A	VDOT MH-1 RIM = 1061.35 INV(N)= 1056.45 INV(E)= 1056.45 INV(S)= 1056.35
D3.4	VDOT DI-2C L6 RIM = 1061.62 INV(W)= 1054.80
D3.4A	VDOT MH-1 RIM = 1060.18 INV(N)= 1054.70 INV(S)= 1054.60 INV(E)= 1054.70
D3.5	VDOT DI-2C L8 RIM = 1060.23 INV(W)= 1054.20
D3.5A	VDOT MH-1 RIM = 1059.10 INV(N)= 1054.10 INV(E)= 1054.10 INV(W)= 1051.66
D3.6	VDOT DI-3A L2.5 RIM = 1057.89 INV(E)= 1050.43 INV(SW)= 1050.33



2 2.201 2.201 PROFILE
SCALE: HORIZ.: 1" = 30', VERT.: 1" =3'

NORTH

GRAPHIC SCALE:
1" = 3' (3' 0 3' 6')
1" = 30' (30' 0 30' 60')

COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA
OAKLAND BOULEVARD NW
PROPOSED SITE PLAN

MMM DESIGN GROUP
ARCHITECTS•ENGINEERS•PLANNERS
102 5TH STREET N.E.
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DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00
SHEET NUMBER:	2.201
SHEET -- OF --	

DAHLZ:R:\11664\00_ROANOKE SIDEWALKS\WORKING DRAWINGS\ROANOKE SIDEWALKS\SHEETS\CONSTRUCTION\C-CIVIL\2.201 PROPOSED SITE PLAN.DWG LAYOUT: 2.201 PROPOSED SITE PLAN 6/30/2014 5:01PM DINSCALE: 1 R18.1

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO IMPROVE DRAINAGE CONDITION ALONG OAKLAND BLVD. NW BETWEEN CHRISTIAN AVE. NW (TO THE NORTH) AND TROY AVE. NW (TO THE SOUTH). ADDITIONAL IMPROVEMENTS INCLUDE A NEW 5' SIDEWALK ALONG THE WEST SIDE OF OAKLAND BLVD. NW WHICH WILL EXTEND THE SAFE ROUTE TO SCHOOL NETWORK FOR PRESTON PARK ELEMENTARY SCHOOL. THE PROPOSED ROADWAY WILL BE SLIGHTLY NARROWER THAN THE EXISTING ROADWAY, AND THE CURB RADII AT CROSSING STREETS WILL BE SMALLER. THUS CREATING A SAFER CROSSING FOR PEDESTRIANS. THE PROPOSED WORK GENERALLY TAKES PLACE WITHIN EXISTING PERVIOUS SURFACES. HOWEVER, THE PROPOSED WORK WILL INCLUDE APPROXIMATELY 4520 SQUARE FEET. OF LAND DISTURBANCE.

PROPOSED DRAINAGE IMPROVEMENTS HAVE BEEN DESIGNED TO CONVEY THE 10-YEAR STORM EVENT. ALL IMPROVEMENTS PROPOSED AS A PART OF THIS PROJECT TIE-IN TO AN EXISTING STORM DRAINAGE NETWORK.

OALKLAND BLVD. NW IS CONSIDERED A LOCAL STREET WITHIN A SUBURBAN NEIGHBORHOOD AS DEFINED BY THE CITY OF ROANOKE'S STREET DESIGN GUIDELINES. THIS PROJECT SITE (SITE NO. 2 – TM# 2101204) IS DIRECTLY ADJACENT TO ANOTHER PROJECT SITE (SITE NO. 3 – TM# 3190401) WHICH IS ALSO INCLUDED AS A PART OF THE FISCAL YEAR 15 – CURB, GUTTER AND SIDEWALK ENGINEERING DESIGN SERVICES. THESE PROJECTS HAVE BEEN COMBINED UNDER A SINGLE COVER FOR THE PURPOSES PERMIT APPROVAL.

EXISTING SITE CONDITIONS

THE EXISTING SITE CONSISTS OF APPROXIMATELY 1,195 LINEAR FEET ALONG OAKLAND BLVD. NW. THE SLOPES ALONG THE ROAD ARE MINIMAL, GENERALLY BETWEEN 0.4% AND 0.6%. THE PAVEMENT SURFACE SLOPES CONSISTENTLY FROM NORTH TO SOUTH AND THE EXISTING PAVEMENT HAS A DEFINED CROWN. CURB AND GUTTER EXISTS SPORADICALLY AT THE CURB RADII OF CROSSING STREETS. THERE ARE SEVERAL EXISTING CURB INLETS ALONG OAKLAND ALONG THIS CORRIDOR.

ADJACENT AREAS

THE PROJECT AREA IS ENTIRELY LOCATED WITHIN PUBLIC RIGHT-OF-WAY. MULTIPLE RESIDENTIAL PRIVATE PROPERTIES SURROUND THE PROJECT AREA.

OFFSITE AREAS

IT IS NOT ANTICIPATED THAT ANY OFF-SITE AREAS WILL BE DISTURBED DURING CONSTRUCTION. HOWEVER, SHOULD UNSUITABLE MATERIALS BE DISCOVERED, THESE MATERIALS SHALL BE HAULED FROM THE SITE AND DISPOSED OF AT A LAND DISTURBANCE PERMITTED SITE. SHOULD ANY OFFSITE AREAS BE DISTURBED DURING CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTAL EROSION AND SEDIMENT CONTROL PLAN TO THE CITY OF ROANOKE FOR THE LOCATION OF THE LAND DISTURBANCE FOR REVIEW AND APPROVAL BEFORE ANY OFFSITE DISTURBANCE COMMENCES.

SOILS

ACCORDING TO THE USDA-NRCS WEB SOIL SURVEY THE SOILS IN THIS AREA ARE CLASSIFIED AS:

100% 21C – FREDERICK URBAN LAND, 2-15% SLOPES CATEGORIZED AS HYDROLOGIC SOIL GROUP B AND IS WELL DRAINED. A TYPICAL PROFILE IS AS FOLLOWS:

SURFACE LAYER: 0 TO12 INCHES: SILY LOAM, STRONGLY ACIDIC
SUBSOIL: 12 TO 72 INCHES: CLAY, STRONGLY ACIDIC

CRITICAL AREAS

THERE ARE NO CRITICAL AREAS ON SITE.

EROSION AND SEDIMENT CONTROL MEASURES

UNLESS OTHERWISE INDICATED, ALL EROSION AND SEDIMENT CONTROL PRACTICES LISTED BELOW, AND ANY OTHER EROSION CONTROL PRACTICES REQUIRED SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE LATEST EDITION OF THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS AND VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, OR TOWN OF CULPEPER STANDARDS, WHICHEVER ARE MORE STRINGENT.

SILT FENCE – 3.05

THE SILT FENCE SHALL BE INSTALLED ALONG PERIMETER OF SITE AS SHOWN IN THE DRAWINGS TO INTERCEPT AND DETAIN SEDIMENT AND DECREASE FLOW VELOCITIES FROM DRAINAGE AREAS OF LIMITED SIZE.

STORM DRAIN INLET PROTECTION – 3.07

STORM DRAIN INLET PROTECTION SHALL BE INSTALLED AT ALL DROP INLETS AS SHOWN IN THE DRAWINGS AS TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEMS. INSTALL INLET PROTECTION AT EXISTING INLETS PRIOR TO ANY UP SLOPE LAND DISTURBANCE AND AT NEW INLETS IMMEDIATELY FOLLOWING INSTALLATION.

TEMPORARY SEEDING – 3.31

TEMPORARY SEEDING IS A TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR PERIODS OF 30 DAYS TO ONE YEAR BY SEEDING WITH APPROPRIATE RAPIDLY-GROWING PLANTS.

PERMANENT SEEDING – 3.32

PERMANENT SEEDING IS THE ESTABLISHMENT OF PERENNIAL VEGETATIVE COVER BY PLANTING SEED ON ROUGH-GRADED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE FOR A YEAR OR MORE OR WHERE PERMANENT VEGETATIVE COVER IS NEEDED ON FINE-GRADED AREAS IN ACCORDANCE WITH EROSION AND SEDIMENT CONTROL TECHNICAL BULLETIN NO. 4: NUTRIENT MANAGEMENT FOR DEVELOPMENT SITES.

MULCHING – 3.35

APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO DISTURBED SURFACES TO PREVENT EROSION AND REDUCE OVERLAND FLOW VELOCITIES. FOSTERS PLANT GROWTH BY INCREASING AVAILABLE MOISTURE AND PROVIDING INSULATION AGAINST EXTREME HEAT OR COLD. SHOULD BE APPLIED TO ALL SEEDING OPERATION, OTHER PLANT MATERIALS WHICH DO NOT PROVIDE ADEQUATE SOIL PROTECTION BY THEMSELVES, AND BARE AREAS WHICH CANNOT BE SODDED DUE TO THE SEASON BUT WHICH STILL NEED PROTECTION TO PREVENT SOIL LOSS.

MANAGEMENT STRATEGIES

THE FOLLOWING SEQUENCE OF EVENTS AND EROSION CONTROL MEASURES SHALL BE INCORPORATED INTO THE CONSTRUCTION SCHEDULE FOR THIS PROJECT AND SHALL APPLY TO ALL CONSTRUCTION ACTIVITIES WITHIN PROJECT LIMITS.

1. CONSTRUCTION WILL BE SEQUENCED SO THAT TRENCHING AND EXCAVATION OPERATIONS CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. SOIL STOCKPILES WILL NOT BE ALLOWED.
3. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIEMTN.
4. PREVIOUSLY GRASSED AREAS SHALL BE SEEDED AND STRAW MULCHED IMMEDIATELY AFTER TRENCHING OPERATION.
5. ALL THE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER EVERY RAIN EVENT AND PERIODICALLY EVEN IF A RAIN EVENT DOES NOT OCCUR. REQUIRED REPAIRS SHALL BE MADE AS NEEDED TO MAINTAIN DESIGNED STANDARD.
6. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVERED IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.

MAINTENANCE:

IN GENERAL, ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED AFTER EACH RAINFALL OR WEEKLY, WHICHEVER IS MOST FREQUENT, AND SHOULD BE CLEANED AND REPAIRED ACCORDING TO THE FOLLOWING SCHEDULE AND THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK:

1. THE STORM SEWER INLET PROTECTION SHALL BE CHECKED REGULARLY FOR SEDIMENT CLEANOUT.
2. SILT FENCE AND OTHER EROSION AND SEDIMENT CONTROL WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION AND BUILDUP OR CLOGGING WITH SEDIMENT. CORRECTIVE ACTION WILL BE TAKEN IMMEDIATELY.
3. ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED AND RESEEDED AS NEEDED.
4. ALL TEMPORARY EROSION AND SEDIMENT MEASURES SHALL BE DISPOSED OF WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED AND VEGETATION IS ESTABLISHED. FINAL SITE STABILIZATION SHALL BE APPROVED BY THE OWNER AFTER THE TOWN HAS DETERMINED THAT THE SITE IS STABILIZED.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS (4VAC50-30).

ES-2: THE CITY OF ROANOKE MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE CITY OF ROANOKE.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE CITY OF ROANOKE'S EROSION CONTROL INSPECTOR.

ES-7: ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND IMMEDIATELY AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY

SEQUENCE OF CONSTRUCTION:

1. INSTALL SILT FENCE AS INDICATED IN THE DRAWINGS.
2. INSTALL STORMWATER INLET PROTECTION AROUND EXISTING DRAINAGE STRUCTURES.
3. PROTECT PERMANENT VEGETATION FOR THE DURATION OF THE PROJECT.
4. CONSTRUCT NEW STORM STRUCTURES, IF APPLICABLE, STARTING AT THE DOWNSTREAM TERMINUS OR TIE-IN.
5. BACKFILL EXCAVATION AND TRENCH AREA.
6. FOR GRASSY AREAS: INSTALL PERMANENT SEEDING AND MULCH. STABILIZE ALL DISTURBED AREAS.
7. FOR GRAVEL AREAS: RESTORE GRAVEL AFTER TRENCHING AND EXCAVATION OPERATIONS ARE COMPLETE.
8. REPAIR ANY INADVERTENT EROSION AND REMOVE ANY INADVERTENT SEDIMENTATION.
9. DRESS AND OVER SEED ALL DISTURBED AREAS AS NECESSARY TO AFFECT PERMANENT VEGETATIVE COVER.
10. STABILIZE ALL REMAINING DISTURBED AREAS WITH TOPSOIL, SEED AND STRAW ONCE WORK IS COMPLETE.
11. AFTER FINAL SITE STABILIZATION AND APPROVAL FROM THE APPROPRIATE EROSION AND SEDIMENT CONTROL AUTHORITY, THE REMOVE SILT FENCE, INLET PROTECTION AND OTHER STABILIZATION MEASURES.

STORMWATER MANAGEMENT:

THERE ARE NO PROPOSED STORMWATER MANAGEMENT FACILITIES.

MINIMUM STANDARD COMPLIANCE

A VESCP MUST BE CONSISTENT WITH THE FOLLOWING CRITERIA, TECHNIQUES AND METHODS:

MS-1 PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR. REQUIRED IN SOME AREAS FOLLOWING THE INSTALLATION OF SIDEWALK OR CURB AND GUTTER.

MS-2 DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM THE PROJECT SITE. NOT APPLICABLE.

MS-3A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL INHIBIT EROSION. NOT APPLICABLE.

MS-4 SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. NOT APPLICABLE.

MS-5 STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION. NOT APPLICABLE.

MS-6 SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. NOT APPLICABLE.

a. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES.

b. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

MS-7 CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED. NOT APPLICABLE.

MS-8 CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE. NOT APPLICABLE.

MS-9 WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED. NOT APPLICABLE.

MS-10 ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT. NOT APPLICABLE.

MS-11 BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL. NOT APPLICABLE.

MS-12 WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS. NOT APPLICABLE.

MS-13 WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED. NOT APPLICABLE.

MS-14 ALL APPLICABLE FEDERAL, STATE AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET. NOT APPLICABLE.

MS-15 THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED. NOT APPLICABLE.

c. MS-16 UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA: NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.

d. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

e. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.

f. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

g. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.

h. APPLICABLE SAFETY CHAPTERS SHALL BE COMPLIED WITH.

MS-17 WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.NOT APPLICABLE.

MS-18 ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE VESCP AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION. AS DIRECTED AND APPROVED BY THE CITY OF ROANOKE OR THE ENGINEER OF RECORD, MEASURES WILL BE REMOVED ACCORDINGLY.

MS-19 PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS: THIS PROJECTS HAS BEEN DESIGNED IN ACCORDANCE WITH APPLICABLE REGULATIONS WHICH UPHOLD MS-19.

a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR

2) (A) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.

(B) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND

(C) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:

1) IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR

2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;

3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PREDEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR

4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.

d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.

f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.

g. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.

h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.

j. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

l. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MANMADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MANMADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 10.1-562 OR 10.1-570 OF THE ACT.

m. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 10.1-561 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 10.1-603.2 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES ARE IN ACCORDANCE WITH 4VAC50-60-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS.

n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 4VAC50-60-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) PERMIT REGULATIONS SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF MINIMUM STANDARD 19.

COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

REVISIONS	DATE	NO.

CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA

OAKLAND BOULEVARD NW
EROSION & SEDIMENT CONTROL NARRATIVE

MMM DESIGN GROUP
ARCHITECTS+ENGINEERS+PLANNERS
102 5TH STREET N.E.
CHARLOTTESVILLE, VA 22902
434-923-8788

DRAWN:	ZQD
CHECKED:	DCH
APPROVED:	DCH
DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00

SHEET NUMBER:
2.202
SHEET -- OF --

SEEDING TABLES

TABLE 3.32-C
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR APPALACHIAN/MOUNTAIN AREA

SEED[1]		
LAND USE	**SPECIES**	**APPLICATION RATES**
Minimum Care Lawn (Commercial or Residential)	Tall Fescue[1] Perennial Ryegrass[2] Kentucky Bluegrass[1]	90-100% 0-10% 0-10% TOTAL: 200-250 lbs.
High-Maintenance Lawn	Minimum of three (3) up to five (5) varieties of Kentucky Bluegrass from approved list for use in Virginia[1]	TOTAL: 125 lbs.
General Slope (3:1 or less)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3]	128 lbs. 2 lbs. 20 lbs. TOTAL: 150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[3] Crownvetch[4]	108 lbs. 2 lbs. 20 lbs. 20 lbs. TOTAL: 150 lbs.

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://sudan.cses.vt.edu/html/TurfTurfpublications/publications2.html

2 - Perennial Ryegrass will germinate faster and at lower soil temperatures than Tall Fescues, thereby providing cover and erosion resistance for seedbed.

3 - Use seasonal nurse crop in accordance with seeding dates as stated below:

March, April - May 15th	Annual Rye
May 16th - August 15th	Foxtail Millet
August 16th - September, October	Annual Rye
November - February	Winter Rye

4 - All legume seed must be properly inoculated. If Flatpea is used, increase to 30 lbs/acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40 lbs/acre.

FERTILIZER & LIME

- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

SEED		
APPLICATION DATES	**SPECIES**	**APPLICATION RATES**
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

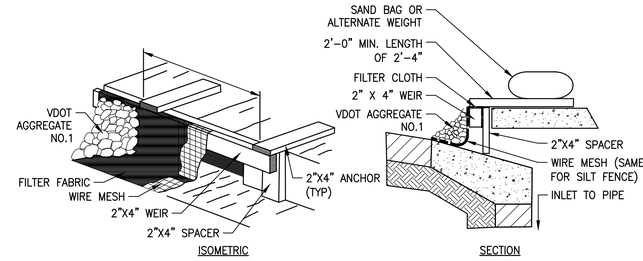
FERTILIZER & LIME

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

EROSION AND SEDIMENT CONTROL LEGEND

3.05	SILT FENCE	SF	
3.07	STORM DRAIN INLET PROTECTION	IP	
3.31	TEMPORARY SEEDING	TS	TS
3.32	PERMANENT SEEDING	PS	PS
3.35	MULCHING	MU	MU
3.38	TREE PRESERVATION & PROTECTION	TP	
	LIMITS OF DISTURBANCE	LOD	



1 CURB INLET PROTECTION
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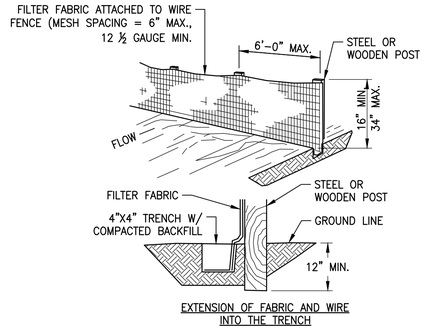

2 TEMPORARY SILT FENCE
2.203 | 2.203 SCALE: 1" = 1'–0"

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COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA
OAKLAND BOULEVARD NW
EROSION AND SEDIMENT CONTROL DETAILS

MMM DESIGN GROUP
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102 5TH STREET N.E.
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DRAWN:	–
CHECKED:	–
APPROVED:	DCH
DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00
SHEET NUMBER:	2.203
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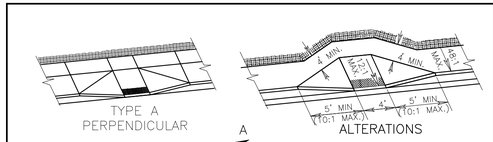
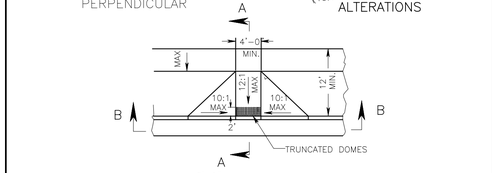
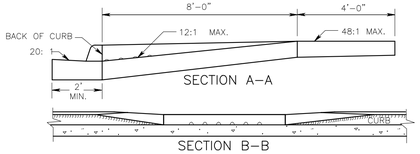
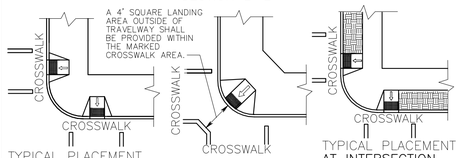
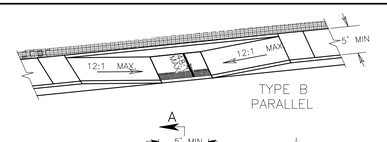
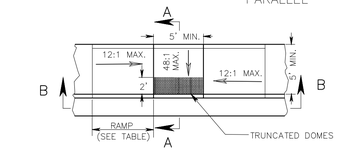


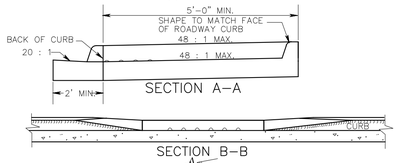


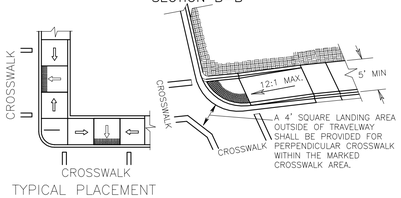


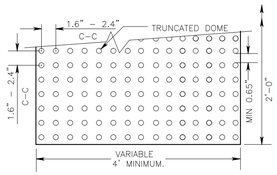


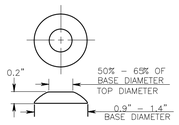












TYPE B
PARALLEL APPLICATION

ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15

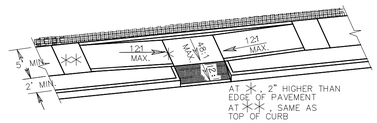
NOTE:
THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.

TYPE C
PARALLEL & PERPENDICULAR APPLICATION

ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	2	4
1	2	5
2	3	5
3	3	6
4	4	8
5	5	10
6	7	14
7	13	15
8	15	15

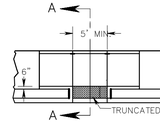
NOTES:

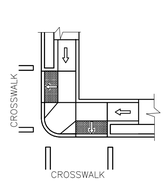
1. THE DETECTABLE WARNING SHALL BE PROVIDED BY CAST IRON TRUNCATED DOMES PLATE, POWDER–COATED RED.
2. SLOPING SIDES OF CURB RAMP SHALL BE POURED MONOLITHICALLY WITH RAMP FLOOR.
3. CURB RAMPS ARE TO BE LOCATED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. THEY ARE TO BE PROVIDED AT INTERSECTIONS WHEREVER AN ACCESSIBLE ROUTE WITHIN THE RIGHT OF WAY OF A HIGHWAY FACILITY CROSSES A CURB REGARDLESS OF WHETHER SIDEWALK IS EXISTING, PROPOSED, OR NONEXISTENT. THEY MUST BE LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER, AND SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES. EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. ACCESSIBLE ROUTES PROVIDE A CONTINUOUS UNOBSTRUCTED, STABLE, FIRM AND SLIP RESISTANT PATH CONNECTING ALL ACCESSIBLE ELEMENTS OF A FACILITY THAT CAN BE APPROACHED, ENTERED AND USED BY PEDESTRIANS.
4. RAMPS MAY BE PLACED ON RADIAL OR TANGENTIAL SECTIONS PROVIDED THAT THE CURB OPENING IS PLACED WITHIN THE LIMITS OF THE CROSSWALK AND THAT THE SLOPE AT THE CONNECTION OF THE CURB OPENING IS PERPENDICULAR TO THE CURB.
5. MINIMUM RAMP THICKNESS IS 7".
6. WHEN CURB RAMPS ARE USED IN CONJUNCTION WITH A SHARED USE PATH, THE MINIMUM WIDTH SHALL BE THE WIDTH OF THE SHARED USE PATH.

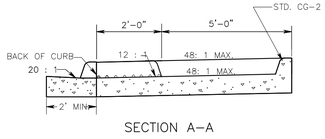


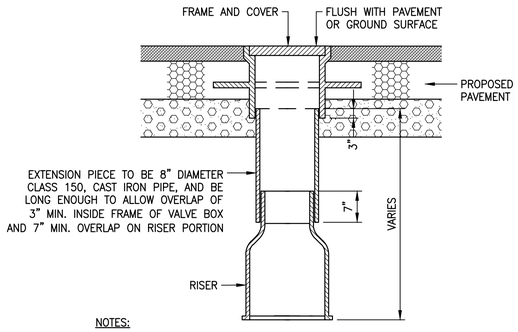
THE SELECTION OF CURB TYPE AND THE CONFIGURATION OF THE UTILITY STRIP MAY VARY TO MEET EXISTING FIELD CONDITIONS AND ROADWAY GEOMETRICS PROVIDING THE DIMINSIONS AND SLOPES ARE AS NOTED.

THIS COMBINED (PARALLEL & PERPENDICULAR) DESIGN FOR ALTERATIONS CAN BE USED WITH ADJOINING BUFFER STRIP. LANDING AT BOTTOM OF TWO SLOPING SIDES WITH 60" X 60" MIN. DIMENSIONS. THE SHORT PERPENDICULAR RUN TO THE STREET CAN BE PROTECTED BY A LANDSCAPED SETBACK OR CONNECTED TO THE SIDEWALK WITH A WARPED SURFACE.





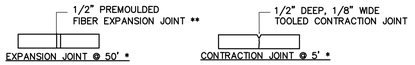




NOTES:

1. (RAISED) EXISTING VALVE BOX FRAME AND COVER TO BE REMOVED AND RESET TO FINISHED GRADE OF CONSTRUCTION. SHOULD ADJUSTMENT BE 6" OR GREATER, EXTENSION PIECE IS TO BE REPLACED AS NOTED IN DETAIL.
2. (LOWERED) EXISTING VALVE BOX FRAME AND COVER TO BE REMOVED AND RESET TO FINISHED GRADE OF CONSTRUCTION. SHOULD ADJUSTMENT BE 6" OR GREATER, EXTENSION PIECE IS TO BE CUT TO REQUIRED LENGTH AND RESET ON RISER.

1 ADJUSTMENT OF VALVE BOX
2.204 | 2.204 SCALE: 1" = 1'–0"

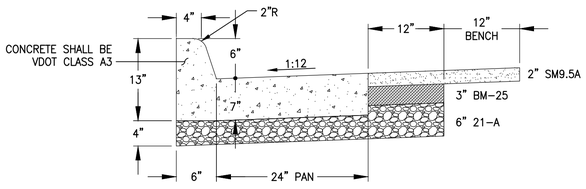


* UNLESS PLAN SHOWS OR SPECIFIES OTHERWISE.

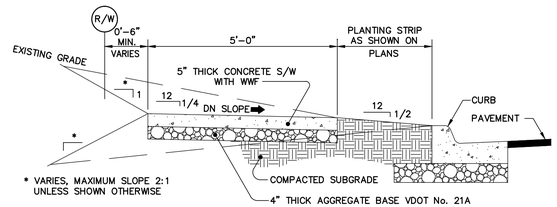
** FIBERBOARD SHALL BE TRIMMED TO ALLOW FOR SEALANT. SEE PROJECT MANUAL SPECIFICATIONS FOR THE REQUIRED USE OF SEALANT.

2 CITY STANDARD CURB RAMP
2.200 | 2.204 SCALE: 3/4" = 1'–0"

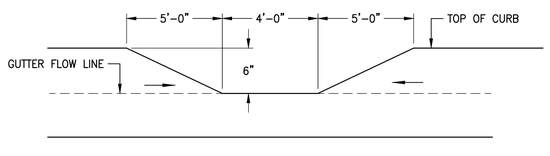
3 JOINT DETAILS
2.204 | 2.204 SCALE: 1" = 1'–0"



4 CG–6 CURB AND GUTTER
2.200 | 2.204 SCALE: 1" = 1'–0"



5 TYPICAL SIDEWALK WITH PLANTING STRIP
2.200 | 2.204 SCALE: 1" = 1'–0"



6 CURB CUT DETAIL
2.204 | 2.204 SCALE: N.T.S.

GRAPHIC SCALES:

3/4" = 1'–0" (12" 6" 0 1' 2' 3')

1" = 1' (1' 0 1' 2')

1 1/2" = 1'–0" (12" 9" 6" 3" 0 1')

COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

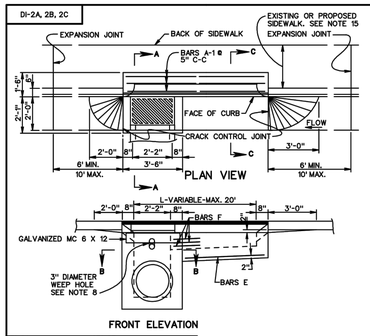
CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA

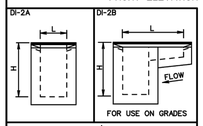
OAKLAND BOULEVARD NW
TYPICAL CONSTRUCTION DETAILS

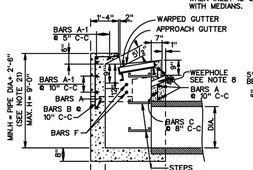
MMM DESIGN GROUP
ARCHITECTS+ENGINEERS+PLANNERS
102 5TH STREET N.E.
CHARLOTTESVILLE, VA 22902
434–923–8788

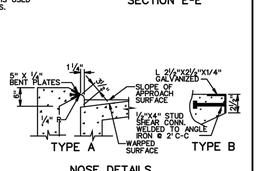
DRAWN:	ZQD
CHECKED:	DCH
APPROVED:	DCH
DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00
SHEET NUMBER:	2.204
SHEET -- OF --	

DI-2A, 2B, 2C





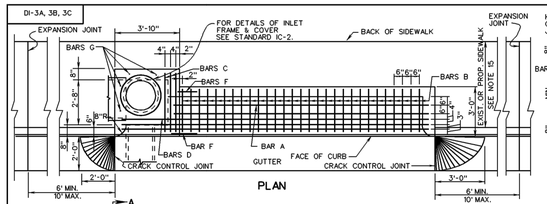


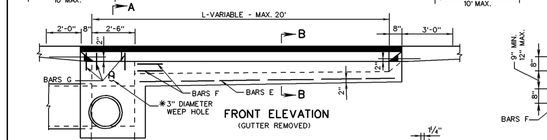


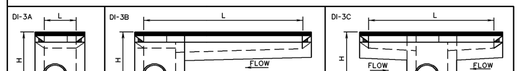
VDOT ROAD AND BRIDGE STANDARDS		STANDARD CURB DROP INLET	SPECIFICATION REFERENCE
SHEET 1 OF 2	REVISION DATE	12" - 24" PIPE: MAXIMUM DEPTH (H) = 9'	233 302
104.03		VIRGINIA DEPARTMENT OF TRANSPORTATION	

1 DETAIL 2.200 | 2.205 SCALE: N.T.S.

DI-3A, 3B, 3C



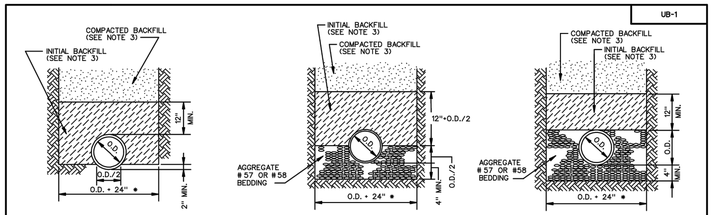


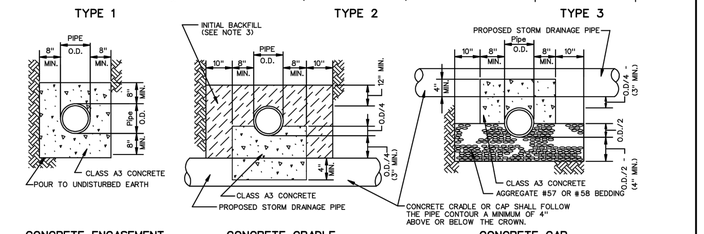


VDOT ROAD AND BRIDGE STANDARDS		STANDARD CURB DROP INLET	SPECIFICATION REFERENCE
SHEET 1 OF 2	REVISION DATE	12" - 30" PIPE: MAXIMUM DEPTH (H) = 8'	233 302
104.09	08/10	VIRGINIA DEPARTMENT OF TRANSPORTATION	

2 DETAIL 2.200 | 2.205 SCALE: N.T.S.

UB-1





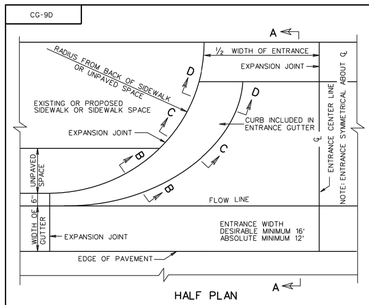
NOTES:

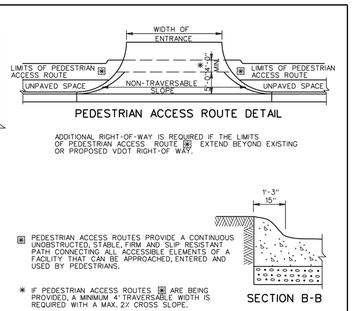
1. WHERE THE TRENCH BOTTOM IS IN ROCK, IT SHALL BE EXCAVATED TO A MINIMUM OF 8" BELOW THE BOTTOM OF THE PIPE BACKFILLED WITH BEDDING MATERIAL.
2. WHERE PIPE FOUNDATIONS ARE YIELDING, PIPE SHALL BE BEDDED ON A MINIMUM OF 8" BEDDING MATERIAL.
3. INITIAL AND COMPACTED BACKFILL SHALL MEET THE REQUIREMENTS OF SECTION 520.03 OF THE VDOT SPECIFICATIONS. CRUSHED GLASS CONFORMING TO THE SIZE REQUIREMENTS FOR CRUSHER RUN AGGREGATE, SIZE 2S OR 21A AND MEETING THE REQUIREMENTS OF SECTION 520.03 OF THE VDOT SPECIFICATION MAY BE USED AS BACKFILL MATERIAL.
* FOR PIPE LESS THAN 12" THE TRENCH WIDTH MAY BE 36" MAXIMUM.

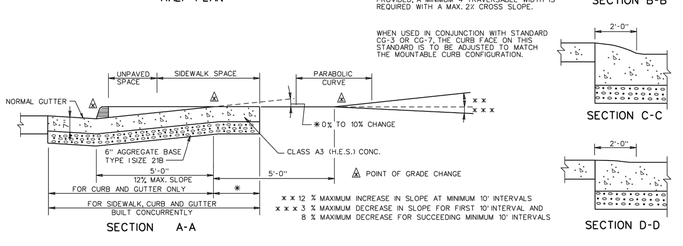
SPECIFICATION REFERENCE	UTILITY BEDDING AND PROTECTION (WATER AND SANITARY SEWER FACILITES) VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS
520		REVISION DATE: SHEET 1 OF 1 — 1401.01

3 DETAIL 2.200 | 2.205 | 2.201 SCALE: N.T.S.

CG-9D





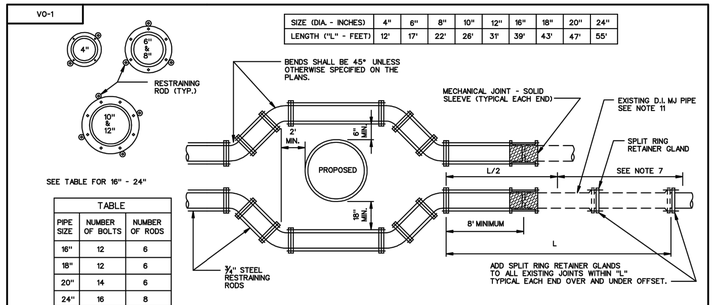


VDOT ROAD AND BRIDGE STANDARDS		STANDARD ENTRANCE GUTTER	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE 01/13	VIRGINIA DEPARTMENT OF TRANSPORTATION	502
203.03			

4 DETAIL 2.200 | 2.205 SCALE: N.T.S.

VO-1

SIZE (DIA. - INCHES)	4"	6"	8"	10"	12"	16"	18"	20"	24"
LENGTH ("L" - FEET)	12'	17'	22'	26'	31'	39'	43'	47'	55'



TABLE

PIPE SIZE	NUMBER OF BOLTS	NUMBER OF RODS
16"	12	6
18"	12	6
20"	14	6
24"	16	8

SEE NOTE 7 FOR REDUCTION IN NUMBER OF RODS REQUIRED.

DESIGN CONDITIONS

PRESSURE - 150 PSI — TYPE SOIL - SILT
DEPTH OF COVER - 3 FEET — ROD STRESS - 25,000 PSI

NOTES:

1. RETAINER GLANDS ARE REQUIRED AT EACH FITTING.
2. ALL PIPE AND FITTINGS SHALL BE DUCTILE IRON, MECHANICAL JOINT, CLASS 52 (MIN). WATER MAIN AND FITTINGS SHALL BE CEMENT MORTAR LINED.
3. FOR 12" AND SMALLER LINES, MECHANICAL JOINT OFFSET FITTINGS MAY BE USED IN LIEU OF THE 45° BENDS SHOWN SUBJECT TO THE APPROVAL OF THE ENGINEER. IF USED, THE OFFSETS MUST RESULT IN THE CLEARANCES SHOWN BEING MET OR EXCEEDED.
4. RODS MAY BE INSERTED THROUGH BOLT HOLES IN LIEU OF USING TIE-BOLTS. IF USED, KEEPER NUT & WASHER MUST BE INSTALLED BEHIND GLAND.
5. BOLT HOLES ARE SHOWN AS NORMALLY PROVIDED IN MECHANICAL JOINT FITTINGS, I.E. STRADDLING THE VERTICAL AXIS WHEN FITTING IS POSITIONED FOR A HORIZONTAL CHANGE OF DIRECTION. FITTINGS WITH BOLT HOLES OTHERWISE ORIENTED SHOULD NOT BE USED IN RODDED ASSEMBLIES.
6. TIE BOLTS AND THREADED RODS SHALL BE ¾" WITH A MINIMUM YIELD STRENGTH OF 7550 POUNDS EACH. SPACE SYMMETRICALLY AROUND PIPE.
7. NUMBER OF RODS MAY BE REDUCED TO 50% OF THE NUMBER INDICATED AT L/2 FROM THE BEND AND BEYOND. TWO RODS MINIMUM REQUIRED PER JOINT.
8. ALL RODS AND FASTENERS SHALL BE GIVEN TWO COATS OF ASPHALTIC PAINT AFTER ASSEMBLY.
9. EXISTING C.I. PIPE SHALL BE REPLACED WITH AN 8' MINIMUM LENGTH OF D.I. PIPE AT BOTH ENDS OF THE OFFSET AND RETAINER GLANDS INSTALLED.
10. THE EXISTING PIPING SHALL HAVE ALL JOINTS WITHIN THE LENGTH "L" RESTRAINED BY ADDING A SPLIT RING RETAINER GLAND ("MEGA-A-LUG" OR EQUAL) WITH BOLTS TO THE M.J. BELL.
11. LENGTH "L" IN FEET SHALL CONFORM TO THE TABLE ABOVE.
12. SPLIT RING RETAINER GLANDS ARE FOR USE ON DUCTILE IRON MECHANICAL JOINT PIPE ONLY. IF EXISTING PIPE IS ANY OTHER MATERIAL, REMOVE AND REPLACE WITH D.I. MECHANICAL JOINT PIPE FOR THE LENGTH "L" SPECIFIED.

VDOT ROAD AND BRIDGE STANDARDS		VERTICAL OFFSET (WATER AND SANITARY SEWER FACILITIES) VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 1	REVISION DATE		
1403.01			

5 DETAIL 2.200 | 2.205 | 2.201 SCALE: N.T.S.

COMMONWEALTH OF VIRGINIA
06/30/2014
DANIEL C. HYER
Lic. No. 45596
PROFESSIONAL ENGINEER

NO.	DATE	REVISIONS

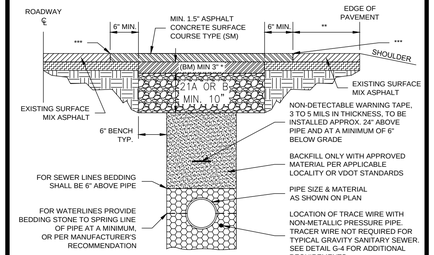
CURB, GUTTER & SIDEWALK IMPROVEMENTS
CITY OF ROANOKE, VIRGINIA

OAKLAND BOULEVARD NW
TYPICAL CONSTRUCTION DETAILS

MMM DESIGN GROUP
ARCHITECTS+ENGINEERS+PLANNERS
102 5TH STREET N.E.
CHARLOTTESVILLE, VA 22902
434-923-8788

DRAWN:	ZQD
CHECKED:	DCH
APPROVED:	DCH
DATE:	JUNE 30, 2014
MMM PROJ. NO:	11664.00
SHEET NUMBER:	2.205
SHEET -- OF --	

1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #58 STONE.
3. IN VDOT ROW, THE CONTRACTOR SHALL REPLACE THE OPEN CUT WITH A MINIMUM TOP COURSE OF 1.5" (MINIMUM) VDOT SM-9.5A, BASE COURSE OF 3" VDOT BM-25.0, AND SUBBASE OF 10" VDOT 21B, OR AS REQUIRED BY VDOT. IN ROANOKE CITY, CONTRACTOR SHALL REPLACE PAVEMENT AS REQUIRED BY CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS.
4. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT OR APPLICABLE LOCALITY.
5. PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT AND/OR APPLICABLE LOCALITY.
6. IN AREAS SUBJECTED TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
7. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE SEWER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
8. BENCHCUT ON EACH SIDE OF PAVEMENT: CITY OF ROANOKE EQUALS 12". VDOT RIGHT-OF-WAY EQUALS 6". ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."
9. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.



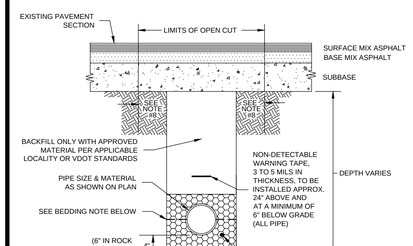
PAVING NOTES:
- * THE BASE ASPHALT MIX SHALL BE EQUAL TO THE EXISTING PAVEMENT THICKNESS OR 3 INCHES, WHICHEVER IS GREATER.
- ** IF THE REMAINING DISTANCE TO THE EXISTING EDGE OF PAVEMENT IS LESS THAN 2 FEET, THE REMOVAL AND REPLACEMENT OF NEW SURFACE MIX ASPHALT SHALL EXTEND TO THE ORIGINAL EDGE OF PAVEMENT.
- *** EXISTING PAVEMENT SURFACE MIX TO BE SAWCUT AND TACK COATED FOR A CLEAN CONTINUOUS JOINT.

WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

PAVEMENT RESTORATION FOR LONGITUDINAL TRENCHING PARALLEL TO THE VDOT ROADWAY CENTERLINE — G-14 — 01/01/14

1 DETAIL
2.200 | 2.206 SCALE: N.T.S.

1. BEDDING, HAUNCHING AND INITIAL BACKFILL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THIS DETAIL AND MANUFACTURER'S RECOMMENDATION.
2. ALL PVC PIPE SHALL BE BEDDED IN COMPACTED VDOT #57 OR #58 STONE.
3. IN VDOT ROW, THE CONTRACTOR SHALL REPLACE THE PAVEMENT AS REQUIRED AND SPECIFIED BY VDOT. IN ROANOKE CITY, CONTRACTOR SHALL REPLACE PAVEMENT AS REQUIRED BY CITY OF ROANOKE RIGHT OF WAY EXCAVATION AND RESTORATION STANDARDS, LATEST EDITION.
4. ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE AS SPECIFIED BY VDOT OR APPLICABLE LOCALITY.
5. PRIOR TO CONSTRUCTION, CONTRACTOR IS RESPONSIBLE FOR SECURING ALL REQUIRED PERMITS FROM VDOT AND/OR APPLICABLE LOCALITY.
6. IN AREAS SUBJECTED TO VEHICULAR TRAFFIC, BEDDING STONE AND FILL SHALL BE PLACED IN 6" LIFTS AND SHALL BE COMPACTED TO AT LEAST 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D 698.
7. ALL SEWER LINE PIPE SHALL BE BEDDED IN COMPACTED GRANULAR MATERIAL. BEDDING REQUIREMENTS FOR DUCTILE SEWER LINE ARE DEPENDENT ON MANUFACTURER'S BEDDING CRITERIA.
8. BENCH CUT ON EACH SIDE OF PAVEMENT SHALL BE IN ACCORDANCE WITH VDOT OR APPLICABLE LOCALITY'S SPECIFICATIONS.
9. ALL EXCAVATIONS SHALL COMPLY WITH OSHA TECHNICAL MANUAL, CHAPTER 2, TITLED "EXCAVATIONS: HAZARD RECOGNITION IN TRENCHING AND SHORING."
10. THE TRACER WIRE SHALL BE PLACED ALONG THE LOWER QUADRANT OF THE PIPE. THE WIRE SHALL NOT TOUCH THE PIPE, BUT SHALL BE A MAXIMUM OF 6" FROM THE PIPE. NON-METALLIC SPACERS MAY BE USED TO MAINTAIN A SET DISTANCE FROM THE UTILITY.



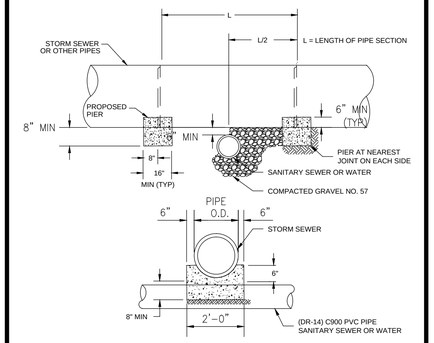
BEDDING: FOR WATERLINES, INSTALL BEDDING STONE TO SPRING LINE OF PIPE AT A MINIMUM, OR PER MANUFACTURER'S RECOMMENDATION. FOR SEWER LINES, BEDDING SHALL BE MINIMUM 6" ABOVE PIPE.

WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

BEDDING AND BACKFILL UNDER PAVEMENT AND IN RIGHT-OF-WAY — G-12 — 01/01/14

2 DETAIL
2.200 | 2.206 SCALE: N.T.S.

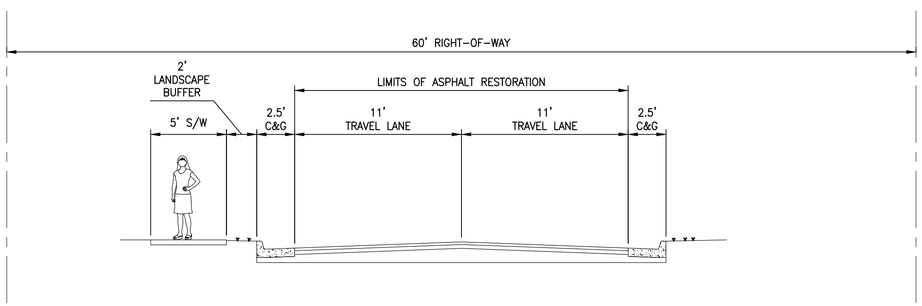
1. PIER REQUIRED WHEN STORM DRAIN OR OTHER PIPES CROSSES OVER THE OTHER UTILITY WITH A VERTICAL CLEARANCE OF LESS THAN 18".
2. PIER TO BE BUILT ON UNDISTURBED EARTH.
3. CONCRETE TO BE READY MIX, CLASS A3.



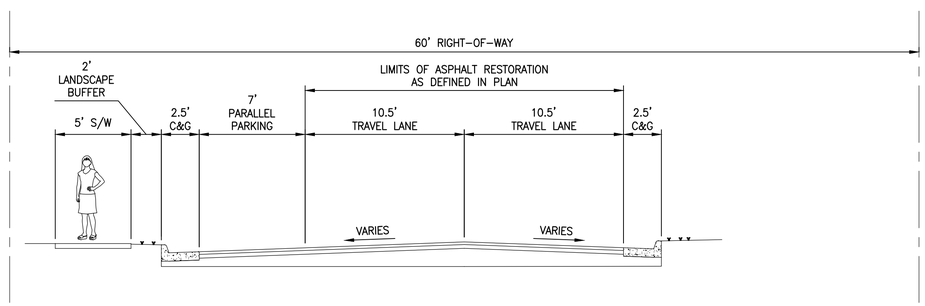
WESTERN VIRGINIA REGIONAL – CONSTRUCTION DETAIL

CONCRETE PIER — G-8 — 01/01/14

3 DETAIL
2.200 | 2.206 SCALE: N.T.S.



4 TYPICAL SECTION – SITE 2 (TRINKLE TO TROY)
2.206 | 2.206 SCALE: 2 51/128" = 1'–0"



5 TYPICAL SECTION – SITE 3 (CHRISTIAN TO TRINKLE)
2.206 | 2.206 SCALE: 1" = 5'

COMMONWEALTH OF VIRGINIA
06/30/2014
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