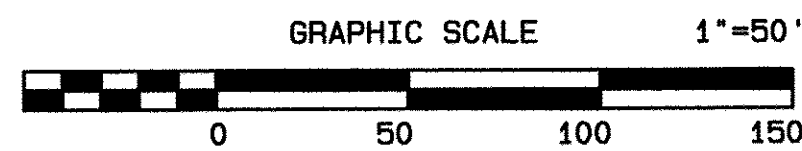


**EROSION CONTROL LEGEND**

SYMBOL	VESCH STD #	DESCRIPTION	QUANTITY
(CE)	3.02	CONSTRUCTION ENTRANCE	1 EA.
(SF)	3.05	SILT FENCE	1635 L.F.
(CIP)	3.08	CULVERT INLET PROTECTION	1 EA.
(CD)	3.20	ROCK CHECK DAM	5 EA.
(TS)	3.31	TEMPORARY SEEDING	0.4± AC.
(PS)	3.32	PERMANENT SEEDING	2.3± AC.

**SEQUENCE OF EVENTS**

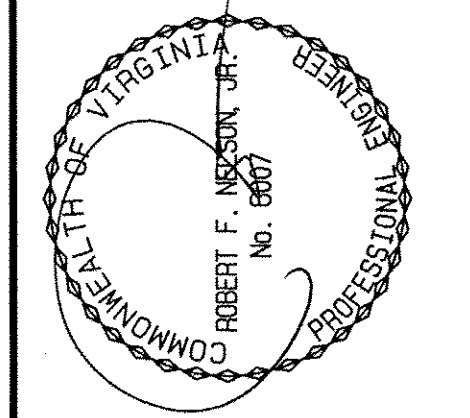
1. THE CONTRACTOR SHALL OBTAIN COPIES OF ALL NECESSARY PERMITS AND APPROVED PLAN SETS AND KEEP ONSITE AT ALL TIMES. TREE PROTECTION TAPE (TP-2) MUST BE INSTALLED BEFORE RECEIVING PLANS.
2. THE CONTRACTOR SHALL INSTALL THE CONSTRUCTION ENTRANCE, SILT FENCE AND CULVERT INLET PROTECTION ON EXISTING INLETS. CLEAR ONLY ENOUGH REQUIRED TO INSTALL THE ABOVE DEVICES.
3. ONCE THE COUNTY INSPECTOR HAS APPROVED THE INSTALLATION OF THE EROSION CONTROL DEVICES, THE CONTRACTOR SHALL PROCEED WITH CLEARING THE REMAINING SITE AREA.
4. ALL EROSION CONTROL DEVICES SHALL BE INSPECTED DAILY AND MAINTAINED OR REPAIRED AS NEEDED. NO EROSION CONTROL DEVICES CAN BE REMOVED WITHOUT APPROVAL OF THE COUNTY INSPECTOR.
5. AS FINAL GRADE IS REACHED, PERMANENTLY SEED ALL DISTURBED AREAS NOT RECEIVING PAYMENT, SCARIFY AND RESEED BARE PATCHES UNTIL ADEQUATE GROUND COVER HAS BEEN ACHIEVED.
6. NO STOCKPILES WILL BE LOCATED ON THE SITE.



REF CSB & CWB 46 NE & 45 SE

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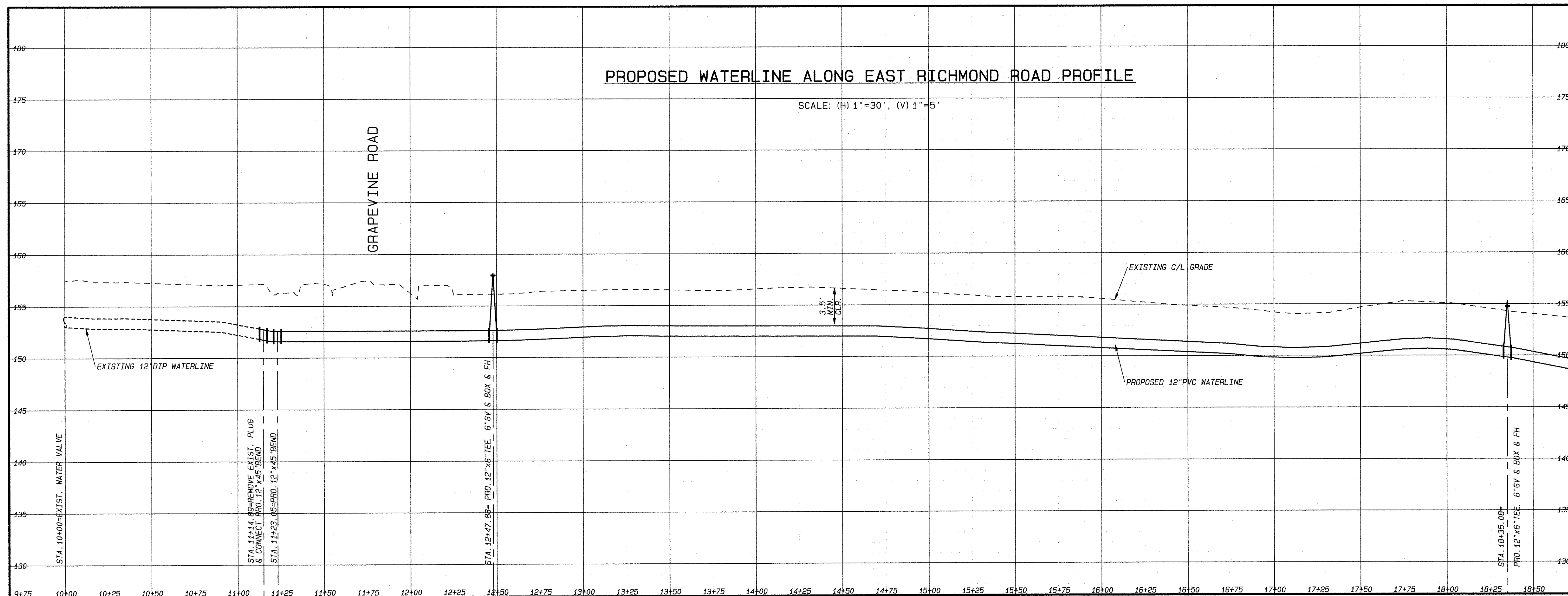
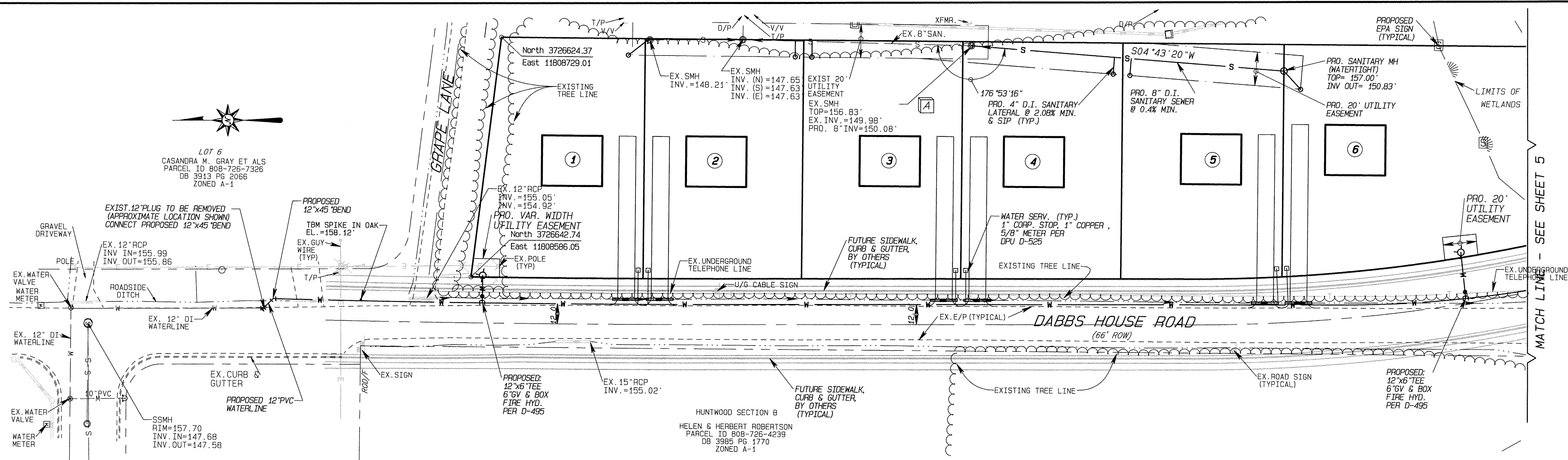
REVISION:	NO.	DATE:	DESCRIPTION:

**KINGS MANOR SUBDIVISION  
SECTION A**  
VARINA DISTRICT, HENRICO COUNTY, VIRGINIA  
**EXIST. COND., DEMO. & PH 1 ESC PLAN**  
DESIGN BY: RFG  
DRAWN BY: CTA  
CHECKED BY: RFG  
SCALE: AS NOTED  
DATE: AUGUST 17, 2015  
PROJECT NO: 07007









# EDA

## ENGINEERING DESIGN ASSOCIATES

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REVISION:		DESCRIPTION:
NO.	DATE:	

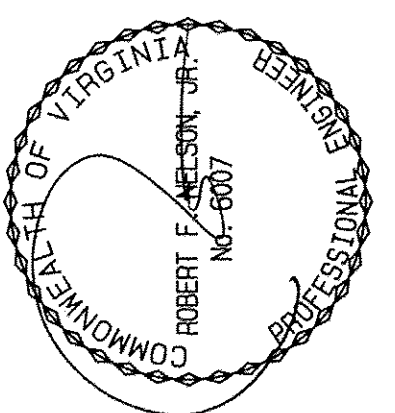
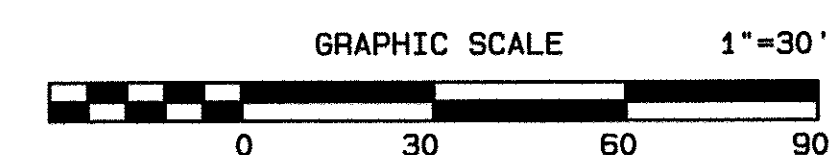
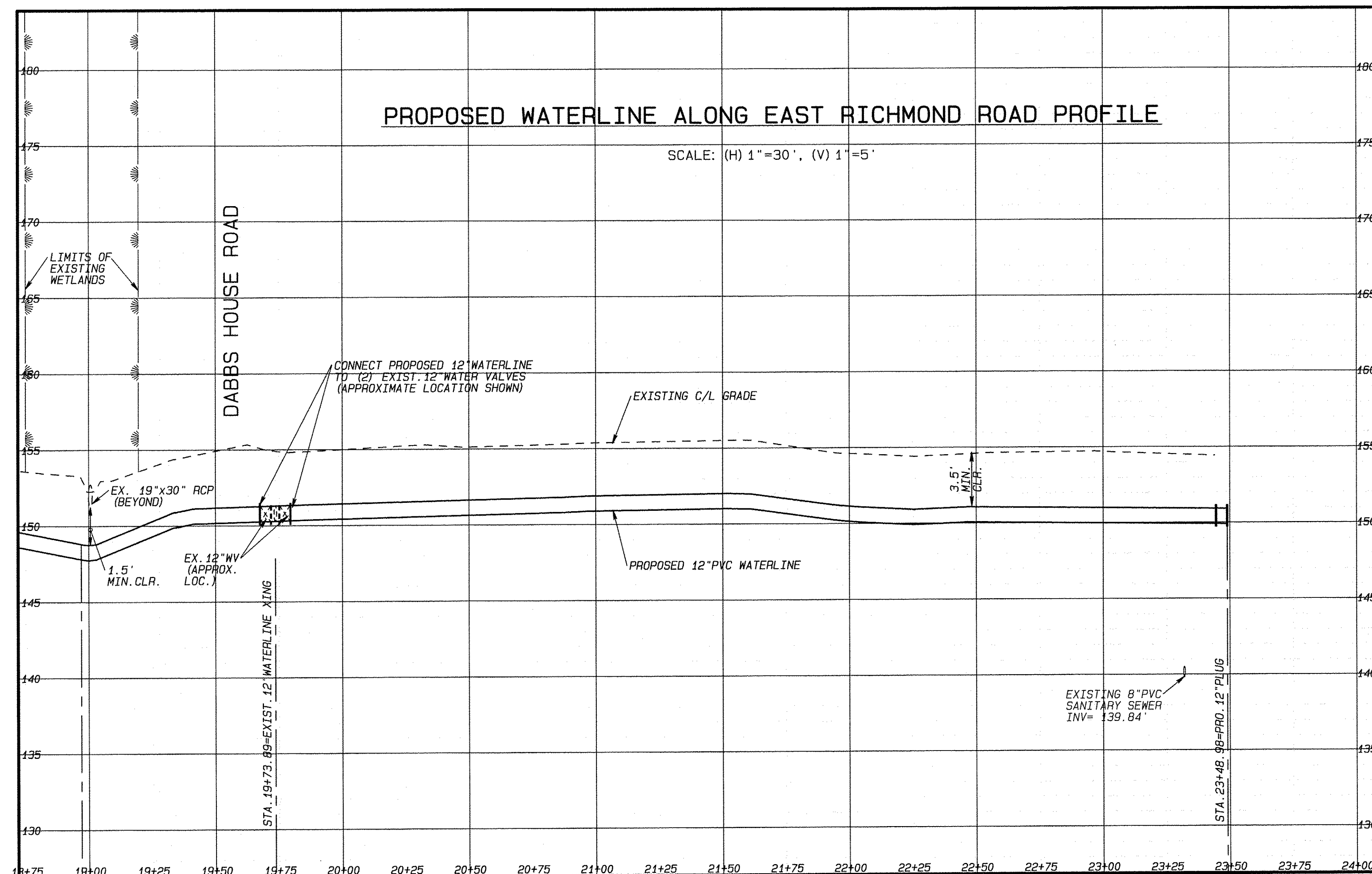
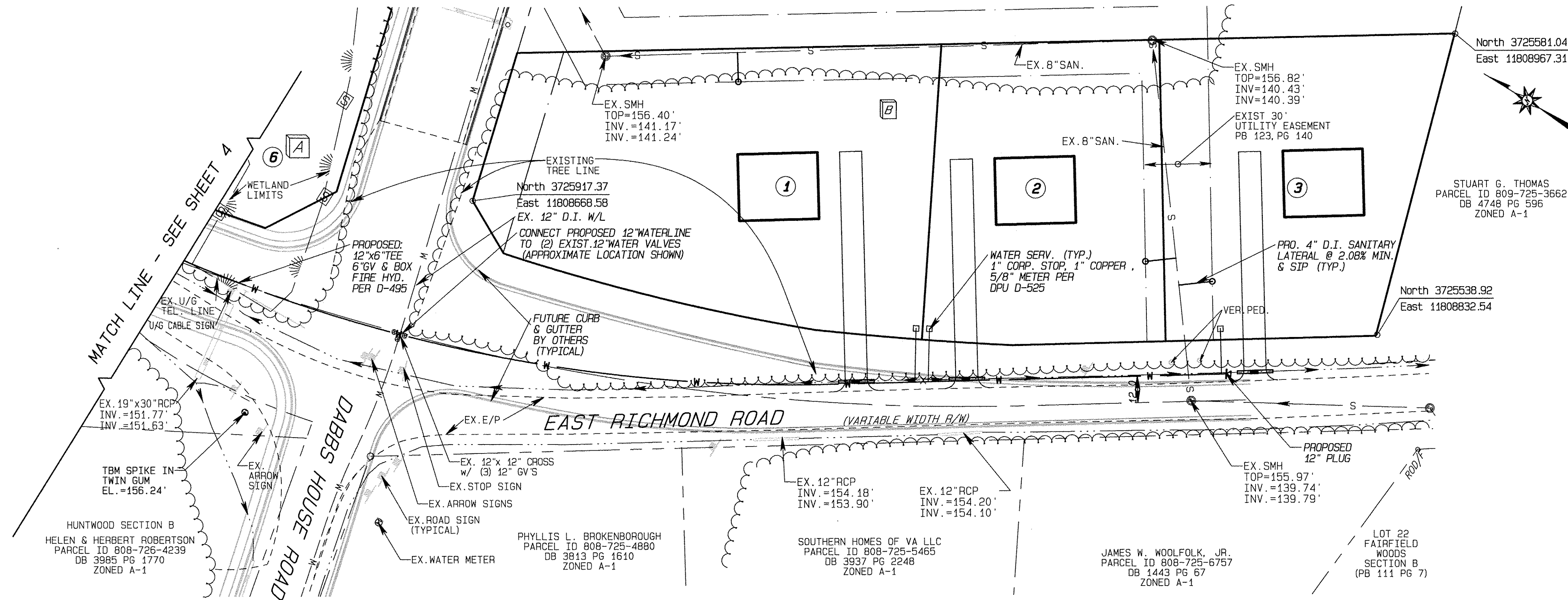
**KINGS MANOR SUBDIVISION**  
**SECTION A**  
VARINA DISTRICT, HENRICO COUNTY, VIRGINIA

**UTILITY PLAN & PROFILE**

DESIGN BY: RFB  
CHECKED BY: RFB  
SCALE: AS NOTED . DATE: AUGUST 17, 2015 . PROJECT NO: 07007


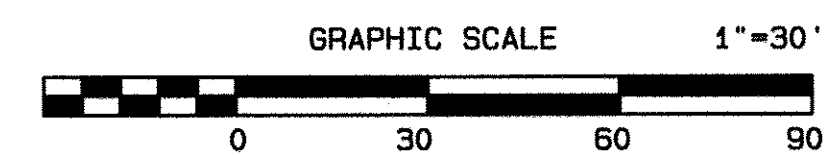
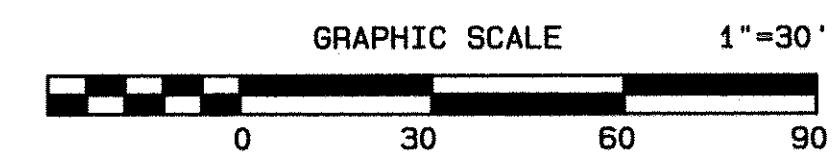
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**4** of **13**



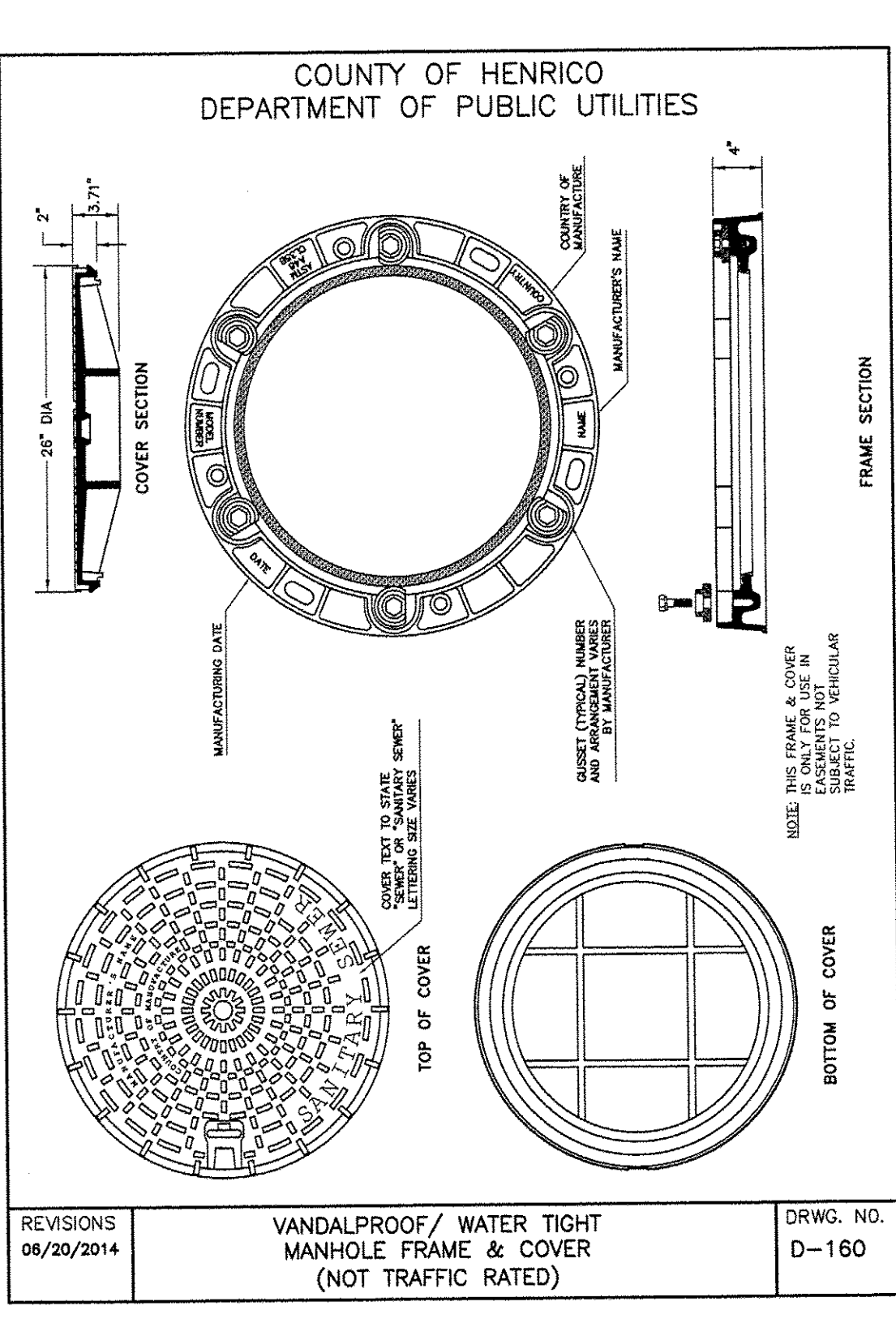
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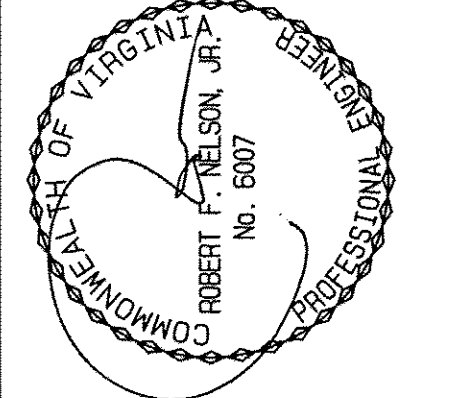




- 06/14 Form F-11

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PHONE: 804-580-2227  
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REVISION:

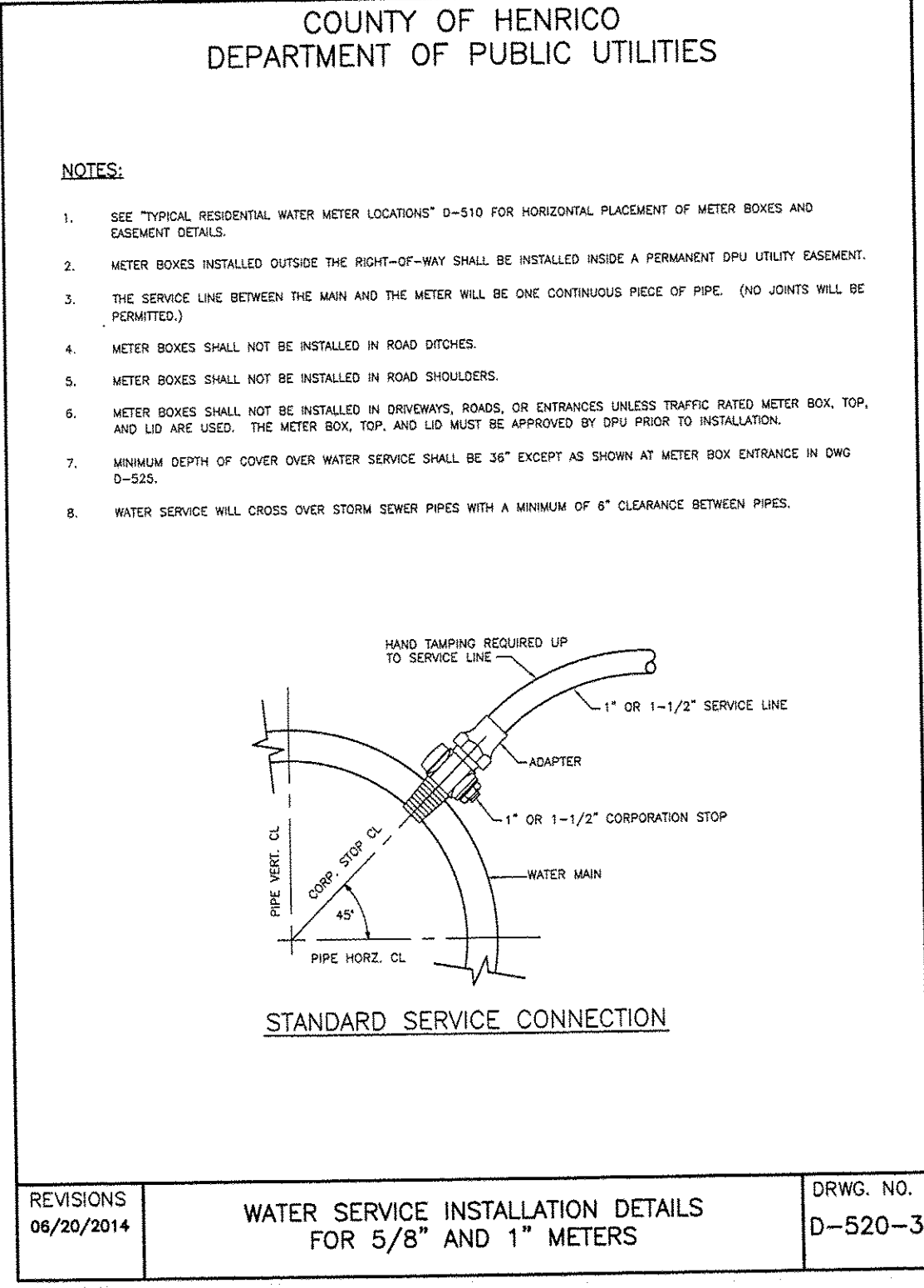
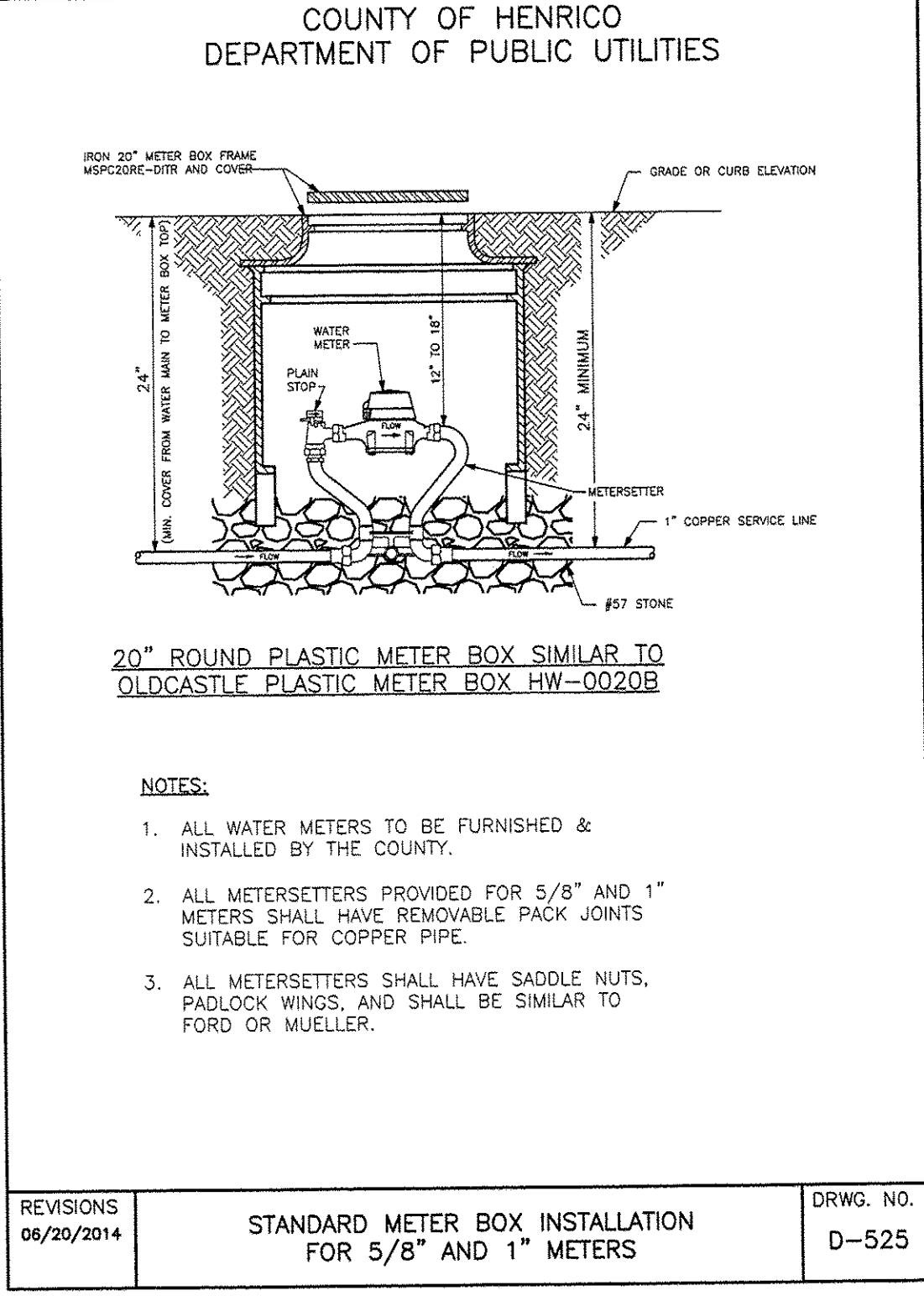
**KINGS MANOR SUBDIVISION**  
**SECTION A**  
WARINA DISTRICT, HENRICO COUNTY, VIRGINIA

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**UTILITY DETAILS**

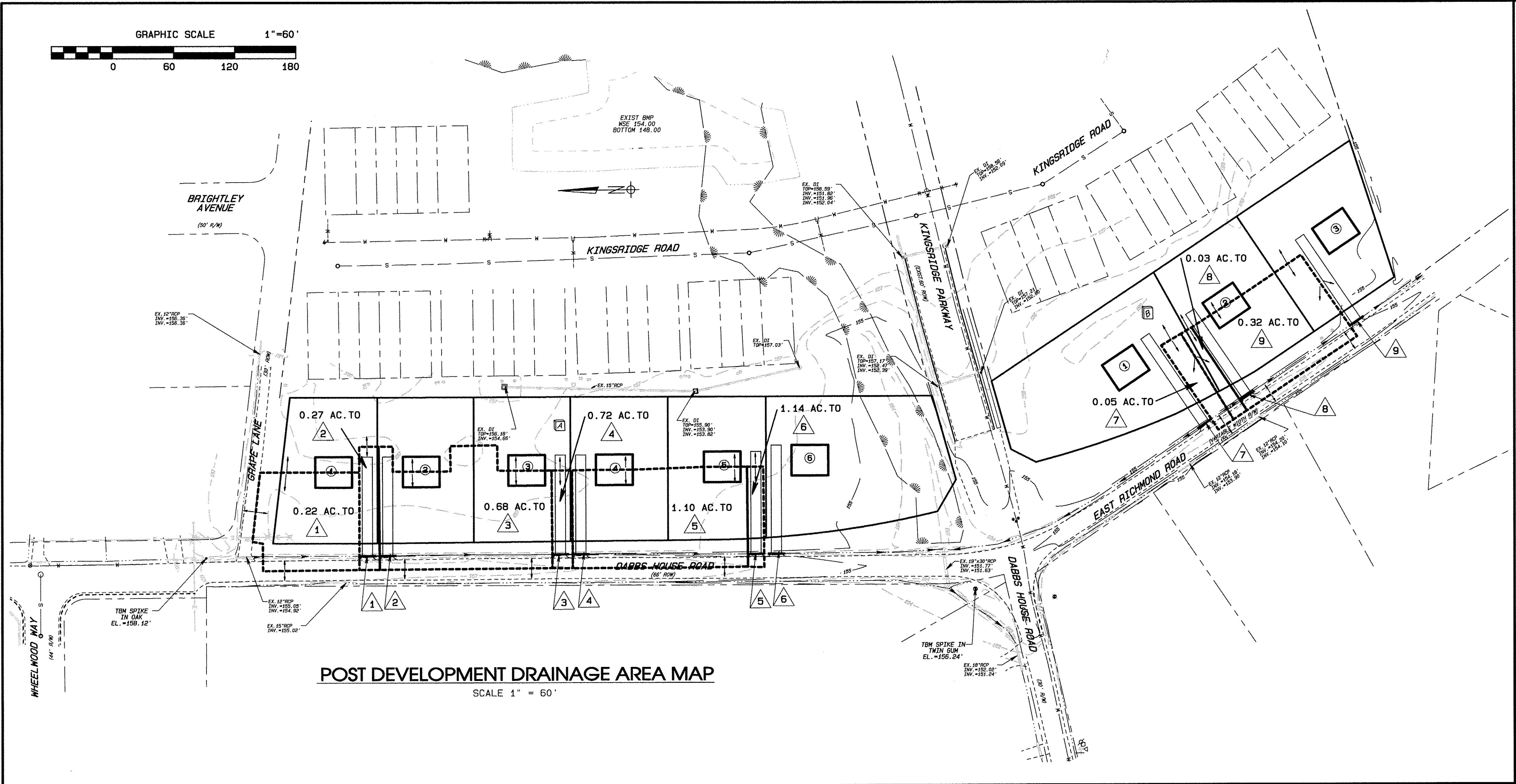
DRAWING NO.

7 OF 13



REF CSB & CWB 46 NE & 45 SE





CULVERT DRAINAGE CALCULATIONS									
CULVERT	SUB AREA (AC.)	TOTAL DA (AC.)	C	tC (MIN.)	i <sub>2</sub>	Q <sub>2</sub> (cfs)	i <sub>0</sub>	Q <sub>0</sub> (cfs)	
1	0.22	0.22	0.24	5	5.6	0.30	7.2	0.38	
2	0.05	0.27	0.31	5	5.6	0.47	7.2	0.60	
3	0.41	0.68	0.30	6	5.4	1.10	6.9	1.41	
4	0.04	0.72	0.32	6	5.4	1.24	6.9	1.59	
5	0.38	1.10	0.31	8	5.0	1.70	6.5	2.22	
6	0.04	1.14	0.33	8	5.0	1.88	6.5	2.44	
7	0.05	0.05	0.29	5	5.6	0.08	7.2	0.10	
8	0.03	0.03	0.39	5	5.6	0.06	7.2	0.08	
9	0.29	0.32	0.31	6	5.4	0.54	6.9	0.68	

Project Kings Manor CULVERT 6		Plan sheet No. _____ Rev. Date _____	Designer _____ Date _____	RFN3	Sheet 1 of 1
HYDROLOGICAL DATA DA = 1.14 ac Q <sub>10</sub> = 1.68 cfs Q <sub>2</sub> = 0.44 cfs		STATION 100 yr. AHW _____ Design AHW depth _____ Structures _____			
DISCHARGE USED Q <sub>10</sub> = 1.68 cfs Q <sub>2</sub> = 0.44 cfs		RISK ASSESSMENT Detour Available _____ Overlapping Slope _____ Floodplain Management _____ Criteria and Significant Impact _____			
CULVERT TYPE & SIZE 15" RCP		HEADWATER COMPUTATIONS INLET CONTROL HWID HW K <sub>s</sub> d <sub>s</sub> d <sub>2</sub> H <sub>0</sub> H L <sub>s</sub> HW ELV. C.M. Smooth		OUTLET CONTROL End Treat Treat	
		COMMENTS Design Flood Exceed Prob. Overflow Flood Exceed Prob. Base Flood 1% Exceed Prob.			

Project Kings Manor CULVERT 7		Plan sheet No. _____ Rev. Date _____	Designer _____ Date _____	RFN3	Sheet 1 of 1
HYDROLOGICAL DATA DA = 0.05 ac Q <sub>10</sub> = 0.08 cfs Q <sub>2</sub> = 0.03 cfs		STATION 100 yr. AHW _____ Design AHW depth _____ Structures _____			
DISCHARGE USED Q <sub>10</sub> = 0.08 cfs Q <sub>2</sub> = 0.03 cfs		RISK ASSESSMENT Detour Available _____ Overlapping Slope _____ Floodplain Management _____ Criteria and Significant Impact _____			
CULVERT TYPE & SIZE 15" RCP		HEADWATER COMPUTATIONS INLET CONTROL HWID HW K <sub>s</sub> d <sub>s</sub> d <sub>2</sub> H <sub>0</sub> H L <sub>s</sub> HW ELV. C.M. Smooth		OUTLET CONTROL End Treat Treat	
		COMMENTS Design Flood Exceed Prob. Overflow Flood Exceed Prob. Base Flood 1% Exceed Prob.			

Project Kings Manor CULVERT 8		Plan sheet No. _____ Rev. Date _____	Designer _____ Date _____	RFN3	Sheet 1 of 1
HYDROLOGICAL DATA DA = 0.03 ac Q <sub>10</sub> = 0.06 cfs Q <sub>2</sub> = 0.03 cfs		STATION 100 yr. AHW _____ Design AHW depth _____ Structures _____			
DISCHARGE USED Q <sub>10</sub> = 0.06 cfs Q <sub>2</sub> = 0.03 cfs		RISK ASSESSMENT Detour Available _____ Overlapping Slope _____ Floodplain Management _____ Criteria and Significant Impact _____			
CULVERT TYPE & SIZE 15" RCP		HEADWATER COMPUTATIONS INLET CONTROL HWID HW K <sub>s</sub> d <sub>s</sub> d <sub>2</sub> H <sub>0</sub> H L <sub>s</sub> HW ELV. C.M. Smooth		OUTLET CONTROL End Treat Treat	
		COMMENTS Design Flood Exceed Prob. Overflow Flood Exceed Prob. Base Flood 1% Exceed Prob.			

Project Kings Manor CULVERT 9		Plan sheet No. _____ Rev. Date _____	Designer _____ Date _____	RFN3	Sheet 1 of 1
HYDROLOGICAL DATA DA = 0.32 ac Q <sub>10</sub> = 0.34 cfs Q <sub>2</sub> = 0.08 cfs		STATION 100 yr. AHW _____ Design AHW depth _____ Structures _____			
DISCHARGE USED Q <sub>10</sub> = 0.34 cfs Q <sub>2</sub> = 0.08 cfs		RISK ASSESSMENT Detour Available _____ Overlapping Slope _____ Floodplain Management _____ Criteria and Significant Impact _____			
CULVERT TYPE & SIZE 15" RCP		HEADWATER COMPUTATIONS INLET CONTROL HWID HW K <sub>s</sub> d <sub>s</sub> d <sub>2</sub> H <sub>0</sub> H L <sub>s</sub> HW ELV. C.M. Smooth		OUTLET CONTROL End Treat Treat	
		COMMENTS Design Flood Exceed Prob. Overflow Flood Exceed Prob. Base Flood 1% Exceed Prob.			

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REVISION:  
NO. DATE: DESCRIPTION:

KINGS MANOR SUBDIVISION  
SECTION A  
VARINA DISTRICT, HENRICO COUNTY, VIRGINIA

DRAINAGE CALCULATIONS

DRAWING NO: 8 OF 13

DESIGN BY: RFN3  
CHECKED BY: CJA  
SCALE: AS NOTED  
DATE: AUGUST 17, 2015  
PROJECT NO: 07007



Project Kings Manor CULVERT 1

Plan sheet No. \_\_\_\_\_ Designer RFN3 Sheet 1 1

Rev. Date \_\_\_\_\_ Date \_\_\_\_\_

HYDROLOGICAL DATA  
DA = 0.22ac  
Q<sub>10</sub> = 0.30 cfs  
Q<sub>100</sub> = 0.38 cfs

AHW Controls  
100 yr. AHW \_\_\_\_\_ elev.  
Design AHW depth \_\_\_\_\_ elev.  
Structures \_\_\_\_\_ elev.

STATION \_\_\_\_\_

freq. \_\_\_\_\_ Twelv. \_\_\_\_\_

DISCHARGE USED  
Q<sub>10</sub> = 0.38 cfs CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS

RISK ASSESSMENT  
Detour Available \_\_\_\_\_ Length \_\_\_\_\_  
Over topping Stage \_\_\_\_\_  
Floodplain Management \_\_\_\_\_  
Criteria and Significant Impact \_\_\_\_\_

shoulder elev. \_\_\_\_\_ CL elev. \_\_\_\_\_  
L=16' S=0.50%  
Inv. El. 154.50 Orig. Gr. Elev. \_\_\_\_\_  
Inv. El. 154.42 Orig. Gr. Elev. \_\_\_\_\_

CULVERT TYPE & SIZE Q Q/B INLET CONTROL HEADWATER COMPUTATIONS OUTLET CONTROL CONT. HW. ELV. OUTLET VELOCITY End Treat COMMENTS  
HW/D HW K<sub>0</sub> d<sub>c</sub> d<sub>c</sub>+D 2 Ho H L S<sub>0</sub> HW C.M. Smooth

15" RCP 0.38 0.38 0.50 0.62 0.50 0.2 0.72 0.7 0.1 0.08 0.72 155.1 2.26

SUMMARY & RECOMMENDATIONS

Design Flood Exceed Prob.  
Overtop Flood Exceed Prob.  
Base Flood 1% Exceed Prob.

Project Kings Manor CULVERT 2

Plan sheet No. \_\_\_\_\_ Designer RFN3 Sheet 1 1

Rev. Date \_\_\_\_\_ Date \_\_\_\_\_

HYDROLOGICAL DATA  
DA = 0.27ac  
Q<sub>10</sub> = 0.47 cfs  
Q<sub>100</sub> = 0.60 cfs

AHW Controls  
100 yr. AHW \_\_\_\_\_ elev.  
Design AHW depth \_\_\_\_\_ elev.  
Structures \_\_\_\_\_ elev.

STATION \_\_\_\_\_

freq. \_\_\_\_\_ Twelv. \_\_\_\_\_

DISCHARGE USED  
Q<sub>10</sub> = 0.60 cfs CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS

RISK ASSESSMENT  
Detour Available \_\_\_\_\_ Length \_\_\_\_\_  
Over topping Stage \_\_\_\_\_  
Floodplain Management \_\_\_\_\_  
Criteria and Significant Impact \_\_\_\_\_

shoulder elev. \_\_\_\_\_ CL elev. \_\_\_\_\_  
L=16' S=0.50%  
Inv. El. 154.40' Orig. Gr. Elev. \_\_\_\_\_  
Inv. El. 154.32' Orig. Gr. Elev. \_\_\_\_\_

CULVERT TYPE & SIZE Q Q/B INLET CONTROL HEADWATER COMPUTATIONS OUTLET CONTROL CONT. HW. ELV. OUTLET VELOCITY End Treat COMMENTS  
HW/D HW K<sub>0</sub> d<sub>c</sub> d<sub>c</sub>+D 2 Ho H L S<sub>0</sub> HW C.M. Smooth

15" RCP 0.6 0.6 0.50 0.62 0.50 0.2 0.72 0.7 0.1 0.08 0.72 155 2.58

SUMMARY & RECOMMENDATIONS

Design Flood Exceed Prob.  
Overtop Flood Exceed Prob.  
Base Flood 1% Exceed Prob.

Project Kings Manor CULVERT 3

Plan sheet No. \_\_\_\_\_ Designer RFN3 Sheet 1 1

Rev. Date \_\_\_\_\_ Date \_\_\_\_\_

HYDROLOGICAL DATA  
DA = 0.68ac  
Q<sub>10</sub> = 1.10 cfs  
Q<sub>100</sub> = 1.41 cfs

AHW Controls  
100 yr. AHW \_\_\_\_\_ elev.  
Design AHW depth \_\_\_\_\_ elev.  
Structures \_\_\_\_\_ elev.

STATION \_\_\_\_\_

freq. \_\_\_\_\_ Twelv. \_\_\_\_\_

DISCHARGE USED  
Q<sub>10</sub> = 1.41 cfs CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS

RISK ASSESSMENT  
Detour Available \_\_\_\_\_ Length \_\_\_\_\_  
Over topping Stage \_\_\_\_\_  
Floodplain Management \_\_\_\_\_  
Criteria and Significant Impact \_\_\_\_\_

shoulder elev. \_\_\_\_\_ CL elev. \_\_\_\_\_  
L=16' S=0.50%  
Inv. El. 154.56' Orig. Gr. Elev. \_\_\_\_\_  
Inv. El. 154.48' Orig. Gr. Elev. \_\_\_\_\_

CULVERT TYPE & SIZE Q Q/B INLET CONTROL HEADWATER COMPUTATIONS OUTLET CONTROL CONT. HW. ELV. OUTLET VELOCITY End Treat COMMENTS  
HW/D HW K<sub>0</sub> d<sub>c</sub> d<sub>c</sub>+D 2 Ho H L S<sub>0</sub> HW C.M. Smooth

15" RCP 1.41 1.41 0.52 0.65 0.50 0.3 0.78 0.8 0.10 0.08 0.80 155.3 3.28

SUMMARY & RECOMMENDATIONS

Design Flood Exceed Prob.  
Overtop Flood Exceed Prob.  
Base Flood 1% Exceed Prob.

Project Kings Manor CULVERT 4

Plan sheet No. \_\_\_\_\_ Designer RFN3 Sheet 1 1

Rev. Date \_\_\_\_\_ Date \_\_\_\_\_

HYDROLOGICAL DATA  
DA = 0.72ac  
Q<sub>10</sub> = 1.24 cfs  
Q<sub>100</sub> = 1.59 cfs

AHW Controls  
100 yr. AHW \_\_\_\_\_ elev.  
Design AHW depth \_\_\_\_\_ elev.  
Structures \_\_\_\_\_ elev.

STATION \_\_\_\_\_

freq. \_\_\_\_\_ Twelv. \_\_\_\_\_

DISCHARGE USED  
Q<sub>10</sub> = 1.59 cfs CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS

RISK ASSESSMENT  
Detour Available \_\_\_\_\_ Length \_\_\_\_\_  
Over topping Stage \_\_\_\_\_  
Floodplain Management \_\_\_\_\_  
Criteria and Significant Impact \_\_\_\_\_

shoulder elev. \_\_\_\_\_ CL elev. \_\_\_\_\_  
L=16' S=0.50%  
Inv. El. 154.45' Orig. Gr. Elev. \_\_\_\_\_  
Inv. El. 154.37' Orig. Gr. Elev. \_\_\_\_\_

CULVERT TYPE & SIZE Q Q/B INLET CONTROL HEADWATER COMPUTATIONS OUTLET CONTROL CONT. HW. ELV. OUTLET VELOCITY End Treat COMMENTS  
HW/D HW K<sub>0</sub> d<sub>c</sub> d<sub>c</sub>+D 2 Ho H L S<sub>0</sub> HW C.M. Smooth

15" RCP 1.59 1.59 0.57 0.71 0.50 0.4 0.82 0.8 0.20 0.08 0.92 155.3 3.39

SUMMARY & RECOMMENDATIONS

Design Flood Exceed Prob.  
Overtop Flood Exceed Prob.  
Base Flood 1% Exceed Prob.

Project Kings Manor CULVERT 5

Plan sheet No. \_\_\_\_\_ Designer RFN3 Sheet 1 1

Rev. Date \_\_\_\_\_ Date \_\_\_\_\_

HYDROLOGICAL DATA  
DA = 1.10ac  
Q<sub>10</sub> = 1.70 cfs  
Q<sub>100</sub> = 2.22 cfs

AHW Controls  
100 yr. AHW \_\_\_\_\_ elev.  
Design AHW depth \_\_\_\_\_ elev.  
Structures \_\_\_\_\_ elev.

STATION \_\_\_\_\_

freq. \_\_\_\_\_ Twelv. \_\_\_\_\_

DISCHARGE USED  
Q<sub>10</sub> = 2.22 cfs CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS  
Q \_\_\_\_\_ = \_\_\_\_\_ CFS

RISK ASSESSMENT  
Detour Available \_\_\_\_\_ Length \_\_\_\_\_  
Over topping Stage \_\_\_\_\_  
Floodplain Management \_\_\_\_\_  
Criteria and Significant Impact \_\_\_\_\_

shoulder elev. \_\_\_\_\_ CL elev. \_\_\_\_\_  
L=16' S=0.50%  
Inv. El. 152.60' Orig. Gr. Elev. \_\_\_\_\_  
Inv. El. 152.52' Orig. Gr. Elev. \_\_\_\_\_

CULVERT TYPE & SIZE Q Q/B INLET CONTROL HEADWATER COMPUTATIONS OUTLET CONTROL CONT. HW. ELV. OUTLET VELOCITY End Treat COMMENTS  
HW/D HW K<sub>0</sub> d<sub>c</sub> d<sub>c</sub>+D 2 Ho H L S<sub>0</sub> HW C.M. Smooth

15" RCP 2.22 2.22 0.68 0.85 0.50 0.6 0.92 0.9 0.25 0.08 1.07 153.6 3.7

SUMMARY & RECOMMENDATIONS

Design Flood Exceed Prob.  
Overtop Flood Exceed Prob.  
Base Flood 1% Exceed Prob.

STREAM ASSESSMENT / WATERSHED MANAGEMENT PROGRAM

WORKSHEET 2.1 - PROGRAM IMPLEMENTATION

PROJECT NAME KINGS MANOR - SECT A

PROJECT DESCRIPTION

WATERSHED (circle one) JAMES RIVER CHICKAHOMINY RIVER

SUB-WATERSHED STONY RUN #37

STREAM PRESENT ON-SITE? YES 1/NO

PARCEL SIZE (acres) 3.308

PRE-DEVELOPMENT IMPERVIOUS COVER (%) 0%

POST-DEVELOPMENT IMPERVIOUS COVER (%) 11%

POLLUTANT REMOVAL REQUIREMENT 0

WATERSHED MANAGEMENT AREA (circle one)

DESIGNATE STREAM PROTECTION AREAS

PROVIDE FORESTED STREAM PROTECTION AREAS

PROVIDE ENERGY DISSIPATORS AT OUTFALLS THAT DISCHARGE TO STREAM PROTECTION AREAS

ADDRESS POLLUTANT REMOVAL REQUIREMENT WITH A BMP

ADDRESS POLLUTANT REMOVAL REQUIREMENT WITH A FUND CONTRIBUTION

Submitted by: ROBERT F. NELSON III Date: 1-9-07

Approved by: Date:

HENRICO COUNTY ENVIRONMENTAL PROGRAM MANUAL  
WORKSHEET 2.1

STORMWATER POLLUTANT REMOVAL CHAPTER 3

WORKSHEET 3.01 - SITUATION ONE

Compile existing site-specific data and determine existing site imperviousness (I<sub>EXIST</sub>). For the purposes of these calculations, site area (A<sub>SITE</sub>) is defined as the entire parcel. A<sub>EXIST</sub> represents the actual amount of existing impervious cover on the site.

A<sub>SITE</sub> = 3.308 acres

A<sub>EXIST</sub> structures = -0- acres

parking lot = -0- acres

roadway = -0- acres

other = -0- acres

Total A<sub>EXIST</sub> = -0- acres

I<sub>EXIST</sub> = (Total A<sub>EXIST</sub> ÷ A<sub>SITE</sub>) x 100

I<sub>EXIST</sub> = -0- % (expressed in whole numbers)

Compile post-development site-specific data and determine post-development site imperviousness (I<sub>POST</sub>). For the purposes of these calculations, site area (A<sub>SITE</sub>) is defined as the entire parcel. A<sub>POST</sub> represents the actual amount of impervious cover on the site once the proposed development is complete.

A<sub>SITE</sub> = 3.308 acres

A<sub>POST</sub> structures = 0.22 acres

parking lot = -0- acres

roadway = -0- acres

other = 0.15 acres

Total A<sub>POST</sub> = 0.37 acres

I<sub>POST</sub> = (Total A<sub>POST</sub> ÷ A<sub>SITE</sub>) x 100

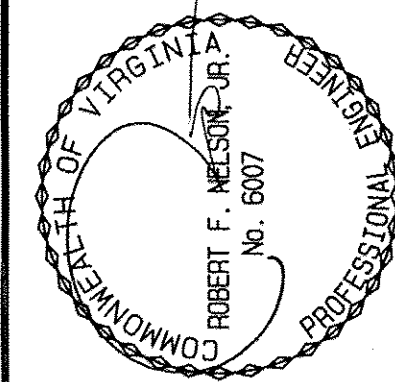
I<sub>POST</sub> = 11% (expressed in whole numbers)

If I<sub>EXIST</sub> ≤ 16% and I<sub>POST</sub> ≤ 16%, STOP. There is no pollutant removal requirement. Otherwise, refer to Section 3.4 of the Manual for development situation determination.

HENRICO COUNTY ENVIRONMENTAL PROGRAM MANUAL  
WORKSHEET 3.01 - 1

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REVISION:	NO.	DATE:	DESCRIPTION:

KINGS MANOR SUBDIVISION  
SECTION A  
VARINA DISTRICT, HENRICO COUNTY, VIRGINIA  
DRAINAGE CALCULATIONS  
DESIGN BY: RFN3 DRAWN BY: CIA CHECKED BY: RFN3  
SCALE: AS NOTED DATE: AUGUST 17, 2015 PROJECT NO: 07007

DRAWING NO:





## MINIMUM STANDARDS FOR EROSION AND SEDIMENT CONTROL

- MS-1** Any area that has reached final grade must receive temporary or permanent soil stabilization within seven days. Areas not at final grade that will remain dormant longer than 30 days must have temporary soil stabilization within seven days. Areas that will be dormant longer than one year must have permanent soil stabilization.
- MS-2** All soil stockpiles and borrow areas must be stabilized or protected with sediment trapping measures. Temporary protection and permanent stabilization shall be applied to all on-site soil stockpiles and borrow areas and soil intentionally transported from the project site.
- MS-3** 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.
- MS-4** Sediment basins and traps, and perimeter ESC measures intended to trap sediment must be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.
- MS-5** Stabilization measures shall be applied to earthen structures such as dams, dikes, and diversions immediately upon installation.
- MS-6** Sediment basin and trap design information. \*\*
- MS-7** Cut and fill slopes must 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.
- 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.
- MS-9** Whenever water seeps from a slope face, adequate drainage or other protection must be provided.
- MS-10** Inlet protection is required for all storm inlets that will be made operable during construction
- MS-11** Before newly constructed storm water conveyance systems are made operational, adequate outlet protection and any required channel lining must be installed in both the conveyance channel and receiving channel.
- MS-12** When work in a live watercourse is performed, precautions must be taken to minimize encroachment, control sediment transport, and stabilize the work area to the greatest extent during construction. Non-erodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used if armored by non-erodible cover materials.
- 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 non-erodible material must be provided.
- MS-14** All applicable federal, state, and local regulations related to working in or crossing live watercourses must be met.
- MS-15** The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
- MS-16** Underground utility lines shall be installed in accordance with the following standards in additions to other applicable criteria:
- No more than 500 linear feet of trench may be opened at one time.
  - Excavated material shall be placed on the uphill side of trenches.
  - Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged so that it does not adversely affect flowing streams or off-site property.
  - Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
  - Re-stabilization shall be accomplished in accordance with these regulations.
  - Comply with all applicable safety regulations.
- MS-17** Construction entrances are required at all access points to the construction site. 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 applies to individual development lots as well as to larger land-disturbing activities.
- 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 local program authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures must be permanently stabilized to prevent further erosion and sedimentation.
- MS-19** Adequate outfall information \*\*

\*\* MS-6 and MS-19 deal with the design aspects of the plan. For further information, please consult the latest edition of the Virginia Erosion and Sediment Control Handbook. Also, refer to the sediment basin/trap design tables and the adequate outfall table located on the "Erosion and Sediment Control - Standard Details/Calcs." sheet.

Any variance to the above listed minimum standards must be requested and approved in writing.

### UTILITY NOTES

All excavated material is to be placed on the uphill side of trench.

All storm and sanitary sewer lines not in streets are to be mulched and seeded within 7 days after backfill. No more than 500 feet of trench is to be open at one time.

Construction access roads shall be located on the uphill side of the trench or over the trench whenever possible.

All construction discharge water shall be adequately filtered to remove silt prior to discharge into waterways and wetlands.

Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.

All work must be in compliance with applicable safety regulations.

All stream crossings and stream diversions require approval from the Environmental Engineer prior to any instream work (see STREAM CROSSINGS / DIVERSIONS / WORK IN STREAMS).

### SILT FENCE NOTES

Silt fence and filter fabric must be entrenched.

Posts for silt fences shall be either 2-inch diameter oak, 4-inch diameter pine or 1.33 pounds per linear foot steel. Posts will be a minimum of 5 feet in length. Steel posts shall have projections for fastening wire to them.

Wire fence reinforcement for silt fences using standard strength filter cloth shall be a minimum of 42 inches in height, a minimum of 14 gauge and shall have a maximum mesh spacing of 6 inches.

Post shall be spaced a maximum of 10 feet apart at the barrier location and driven securely into the ground (min. of 12 inches) when extra strength fabric is used. Without the wire support fence, post spacing shall not exceed 6 feet.

When extra strength filter fabric and closer post spacing are used, the wire mesh support fence may be eliminated. In such a case, the filter fabric is stapled or wired directly to the post.

Sediment must be removed when deposits reach approximately one - half the height of the barrier.

Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform with the existing grade, prepared, and seeded.

Under no circumstances should silt fence be installed in live streams.

Silt fence shall be removed upon completion of the project.

### STREAM CROSSINGS / DIVERSIONS / WORK IN STREAMS

When a live watercourse must be crossed by construction vehicles or temporarily diverted, a plan/sketch showing appropriate details of the crossing/diversion must be submitted for approval to Henrico County's Environmental Engineer prior to any work involving the stream. The plan shall include but is not limited to: all pipes, mats, channel details, erosion control devices, sequence for construction, etc. Guidelines for pipe diameters can be found in table 3.24-A of the Virginia Erosion and Sediment Control Handbook. Channel liners will be in accordance with Section 3.25 of the Handbook.

No motorized equipment will at any time be within a waterway unless supported by floatation equipment or a temporary construction pad composed of clean non-erodible material (rocks, rip-rap, mats).

Clearing and grubbing of wetland areas will be kept to a minimum. All wetlands temporarily disturbed during construction will be restored to their original elevation, by removing excess material, grading and seeding with a wetland seed mix. In no case shall wetland areas be reseeded with any species of fescue.

The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse has been completed.

### BMP INSPECTIONS / CERTIFICATIONS

Inspections of proposed BMPs must be conducted at two phases of construction - "rough grading" and "final conformance". County staff, the Developer or his/her representative, and the Developer's engineer should be present at the inspections.

The Developer or his/her representative is responsible for notifying the Environmental Inspector at the appropriate times during construction when the inspections should occur. Failure to request the inspections may result in delay of final acceptance of the BMP. Three inches of topsoil is required for areas of the BMP that will be stabilized with vegetation.

The Developer's Engineer/Surveyor will provide a letter of conformance once the final conformance inspection has been performed and all issues resolved.

Prior to release of the Erosion and Sediment Control bond, the Developer's Engineer/Surveyor will provide a BMP Certification using standard County forms.

### RESPONSIBLE LAND DISTURBER (RLD) POLICY

As a prerequisite to engaging in the land-disturbing activities shown on this plan, the individual responsible for carrying out the plan and holding a certificate of competence shall be identified (the RLD).

The RLD will:

- Attend the Pre-Construction meeting and sign the approved plans,
- Inspect the ESC measures periodically at least once every two weeks, or within 48 hours of any runoff producing storm event,
- For projects with site area of 1 acre or greater, submit inspection reports using a standard form supplied by the County to the Environmental Inspector listing all deficiencies or stating no deficiencies were found, and
- Coordinate the implementation and maintenance of all erosion and sediment control measures in accordance with the approved plan.

### MOSQUITO CONTROL NOTES

All construction sites and erosion and sediment control measures must be inspected and maintained to eliminate or minimize areas that promote mosquito breeding. Remove or empty all containers and trapped water in tarps. Fill and grade tire ruts or other imperfections in grade. Any standing water that remains for FIVE (5) days or more must be treated with an appropriate larvicide, including water in sediment basins and traps.

When a mosquito breeding area is found, removal or treatment of the area is required immediately. Inspection and treatment questions may be directed to Henrico County at (804) 501-7333. Other pesticide application questions should be directed to the Virginia Department of Agricultural & Consumer Services (VDACS) at (804) 371-6560.

### GENERAL EROSION AND SEDIMENT CONTROL NOTES

Henrico County's Environmental Inspector (804-727-8328) must be contacted at least 48 hours prior to any land disturbing activity.

All activities on the site must comply with Chapter 10 of the Henrico County Code.

All erosion and sediment control (ESC) measures must be placed prior to, or as the first step in grading. The preliminary limits of disturbance must be the minimum necessary to allow installation of the ESC measures and should include all areas necessary for installing the initial ESC measures, including stockpiles, borrow areas, staging areas, etc. Disturbance outside of the preliminary limits of land disturbance may not occur until the Environmental Inspector has approved the ESC measure installation.

If additional ESC devices are found necessary during construction, they must be installed as directed by the Environmental Inspector for Henrico County.

Unless otherwise approved by the Environmental Engineer, all runoff must drain to a sediment basin or trap during all phases of construction.

All ESC devices must be installed and maintained in accordance with the latest version of the Virginia Erosion and Sediment Control Handbook and the Virginia Erosion and Sediment Control Regulations.

A construction entrance must be constructed and properly maintained in accordance with Std. & Spec. 3.05 - Construction Entrance, in the latest version of the Virginia Erosion and Sediment Control Handbook. If mud tracking becomes a problem, the Environmental Inspector will require additional measures (i.e. wash rack).

If dust becomes a problem during construction, a water truck will be required on-site at all times, and dust must be controlled in accordance with Std. & Spec. 3.39 - Dust Control, in the latest version of the Virginia Erosion and Sediment Control Handbook.

Dewatering of footings, excavated trenches, sediment basins/traps, etc. must be done in accordance with Std. & Spec. 3.26 - Dewatering Structure, in the latest version of the Virginia Erosion and Sediment Control Handbook. The Environmental Inspector must approve the method prior to beginning dewatering.

All temporary stockpile locations must be shown on the plan. Stockpiles may remain in place one year from the final plan approval date, unless the Director of Public Works grants an extension in response to a written request.

Any soil or fill material intentionally transported from the project site must be taken to an approved location, such as an active landfill or other active site that is operating under an approved Erosion and Sediment Control Plan.

In subdivision developments, temporary sediment basins/traps must remain in place until at least 80% of homes that drain to the basins/traps are complete and the associated disturbed areas are stabilized. Sediment basins/traps cannot be removed without approval of the Environmental Inspector. Once the temporary sediment basin/traps have been removed, the developer, contractor, and/or homebuilder are responsible for erosion and sediment control on individual lots until stabilization is achieved.

In the event a contractor dumps, discharges or spills any oil or chemical that reaches or has the potential to reach a waterway, the contractor shall immediately notify all appropriate jurisdictional State, Federal, and County (501-6000) agencies and shall take immediate actions for containment and removal of the oil or chemical.

### SEEDING NOTES

All stabilization/seeding will be accomplished in accordance with the Virginia Erosion and Sedimentation Control Handbook.

Any disturbed area not paved, sodded, or built upon, will have a vegetative cover prior to final inspection, and in the opinion of the Environmental Engineer will be mature enough to control soil erosion satisfactorily and survive severe weather conditions.

Stream diversion areas, waterways, banks, and related areas will be seeded and mulched immediately after work in watercourse is completed. In no case shall wetland areas be reseeded with any species of fescue.

Winterization - any disturbed area not paved, sodded, or built upon by October 15 is to be seeded and mulched on that date unless waived by the Environmental Engineer.

Permanent or temporary soil stabilization shall be applied to denuded areas with in seven (7) days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven (7) days to denuded areas that may not be at final grade, but will remain dormant for longer than thirty (30) days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.

Electric power, telephone, and gas supply trenches must be compacted, seeded, and mulched within 7 days after backfill.

All temporary earth berms, diversions, and silt dams are to be mulched and seeded for vegetative cover immediately after grading. Straw or hay mulch is required. The same applies to all stockpiles, on site as well as soil (intentionally) transported from the project site.

Nutrients shall be applied in accordance with manufacturer's recommendations or an approved nutrient management plan and shall not be applied during rainfall events.

### RESOURCE PROTECTION AREAS, STREAM PROTECTION AREAS, WETLANDS, AND WATERS OF THE U.S.

Prior to beginning any land disturbing activity, all Resource Protection Areas (RPAs), Stream Protection Areas (SPAs), wetlands, and Waters of the U.S. (WOUS) not permitted for impact shall be delineated for protection with orange safety fence or non-tearable yellow and black barricade tape. This includes, but is not limited to, clearing limits associated with roadways, utilities, and buildings.

Additional restoration or replanting may be required for RPAs, SPAs, wetlands, and WOUS disturbed during construction.

## ENVIRONMENTAL SITE ASSESSMENT INFORMATION

Plans must accurately show all RPA, SPA, and RMA features.

### RESOURCE PROTECTION AREAS (RPA):

- Is there a tributary stream located on the parcel? .....YES ☒ NO ☐
- Are there any tidal wetlands present on the parcel? .....YES ☐ NO ☒
- Are there any non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or tributary streams? .....YES ☐ NO ☒
- Are there any tidal shores on the parcel? .....YES ☐ NO ☒
- Does the site lie within 100 feet of any of the above site characteristics designated as Resource Protection Areas (RPAs)? .....YES ☐ NO ☒

If the answer to any of the above questions is "YES", the parcel contains a Resource Protection Area (RPA).

### RESOURCE MANAGEMENT AREAS (RMA):

- Are there any special flood hazard areas (100-year floodplain) located on the parcel? .....YES ☐ NO ☒
- Are highly erodible soils, including steep slopes, present on the parcel and contiguous to any of the above RPA features? .....YES ☐ NO ☒
- Does the parcel contain any highly permeable soils contiguous to an RPA? .....YES ☐ NO ☒
- Does any portion of the parcel lie within 100 feet of a Resource Protection Area? .....YES ☐ NO ☒
- Does the entire site (outside of the RPA) lie within a Resource Management Area? .....YES ☐ NO ☒

### STREAM PROTECTION AREAS (SPA):

- Is there any non-perennial stream with greater than 100 acres of contributing drainage area located on the parcel? .....YES ☐ NO ☒
- Does any of the site lie within 50 feet of the stream bank of a SPA stream? .....YES ☐ NO ☒

### OTHER ENVIRONMENTAL SITE INFORMATION:

- Are there any wetlands/waters of the United States located on the parcel? .....YES ☐ NO ☒
- Is development or land disturbance proposed in any wetlands/waters of the United States? .....YES ☐ NO ☒

Parcels containing RPAs/RMAs/SPAs must satisfy all requirements of the Henrico County Code applicable to development within Chesapeake Bay Preservation Areas. Land disturbance in wetlands and/or waters of the United States requires either a evidence of U.S. Army Corps of Engineers/Virginia Department of Environmental Quality (DEQ) permits or a certification from a principal in the engineering firm that the proposed wetland impacts are authorized by law.

I hereby certify that the above information is based on a field visit at (project name)

performed on 5-10-15 KINGS MANOR

and that I have reviewed all maps and other documentation deemed necessary to certify the accuracy of this information.

[Signature]  
Signature

ROBERT F. NELSON, III  
Name (please print)

8-21-15  
Date

My Virginia License or Certificate Number is: # 2040

### ACKNOWLEDGMENTS

I hereby acknowledge that prior to any land disturbing activity, all buffer areas and wetlands as defined in the Henrico County code shall be conspicuously flagged or otherwise identified and not disturbed unless authorized by law, and that the applicant shall notify the Engineering and Environmental Services Division (EESD) upon completion of flagging. (Contact the EESD at 727-8328 to arrange a pre-construction meeting to verify the limits of flagging.)

I hereby certify that no more land is being disturbed than is necessary to provide for the desired development use.

I hereby certify that all erosion and sediment control measures shall be maintained, and the owner and/or agent will inspect the erosion and sediment control measures at least once every two week period, and within 48 hours following rainstorm events during construction to ensure compliance with the approved plan. Records of self-inspection shall be maintained on the site and available for review by County Inspectors.

I hereby acknowledge that the U.S. Army Corps of Engineers and/or Virginia Department of Environmental Quality may have additional jurisdiction over wetlands not regulated by Henrico County.

I hereby acknowledge that a Virginia Pollutant Discharge Elimination System (VPDES) permit application [including a Virginia Stormwater Management Program (VSPM) permit application], if required, has been made for land disturbing activities of 2,500 square feet or greater.

Signature (Owner/Developer): [Signature]

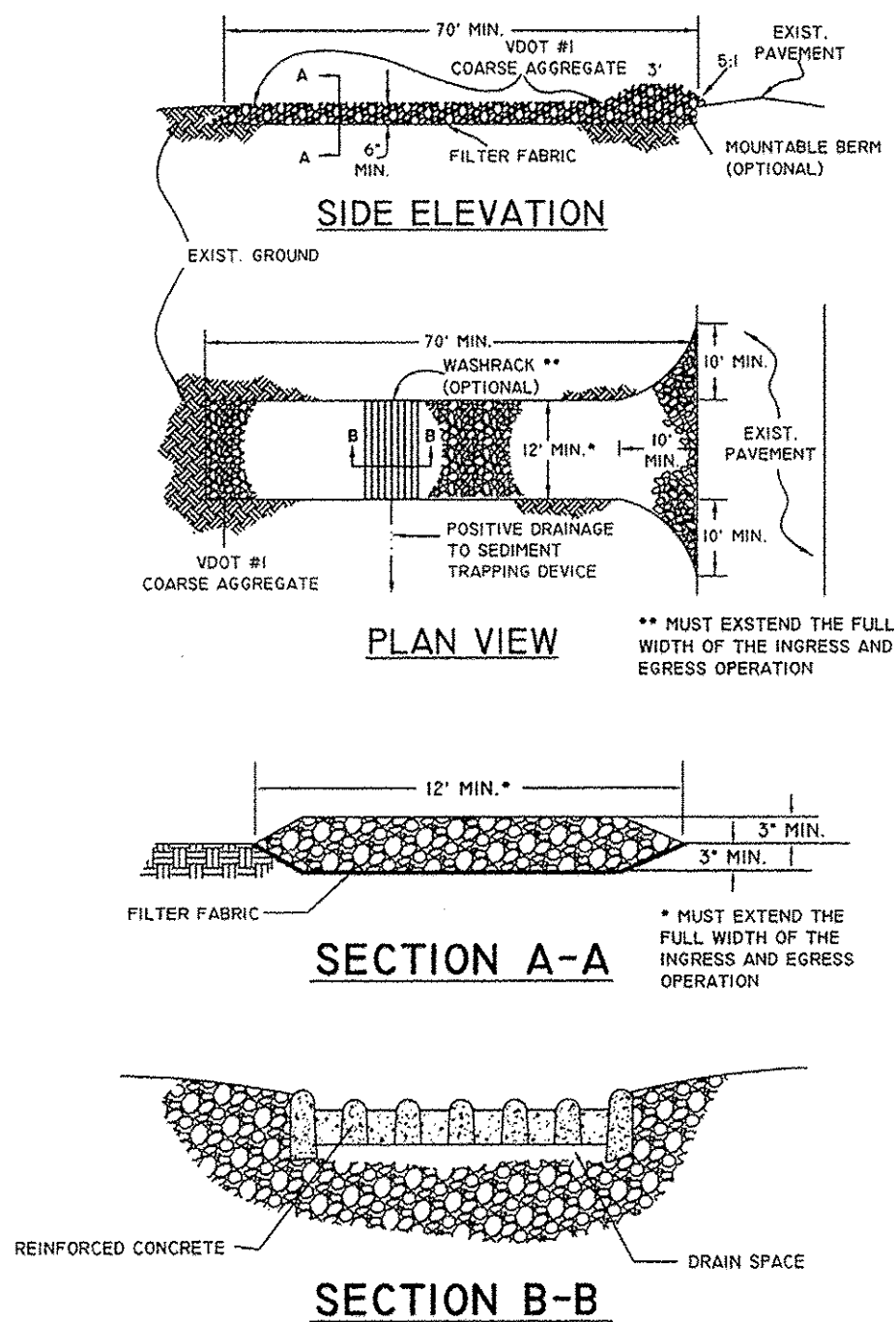
Name (please print): MARK MOTLEY

Date: 6/8/2011



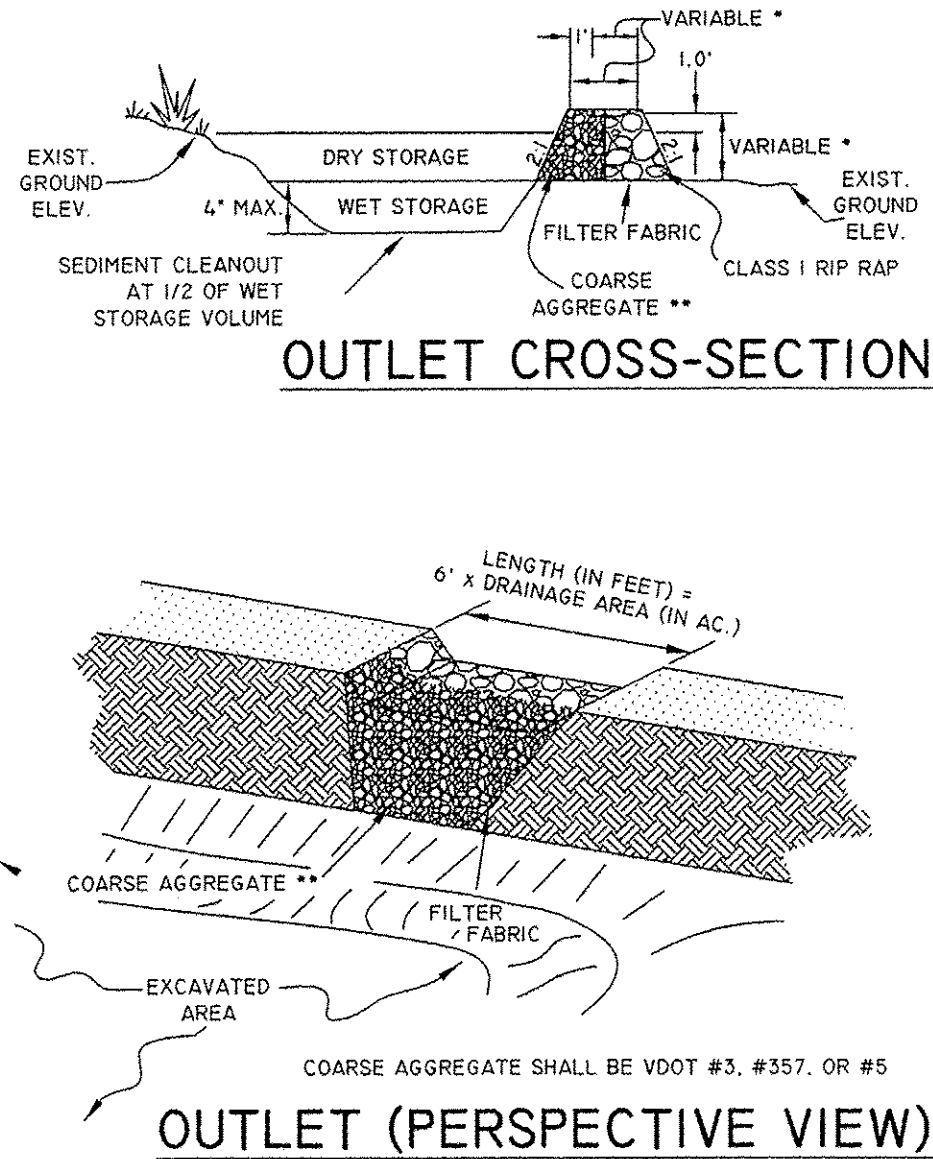
### STONE CONSTRUCTION ENTRANCE

STD. & SPEC. 3.02 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)

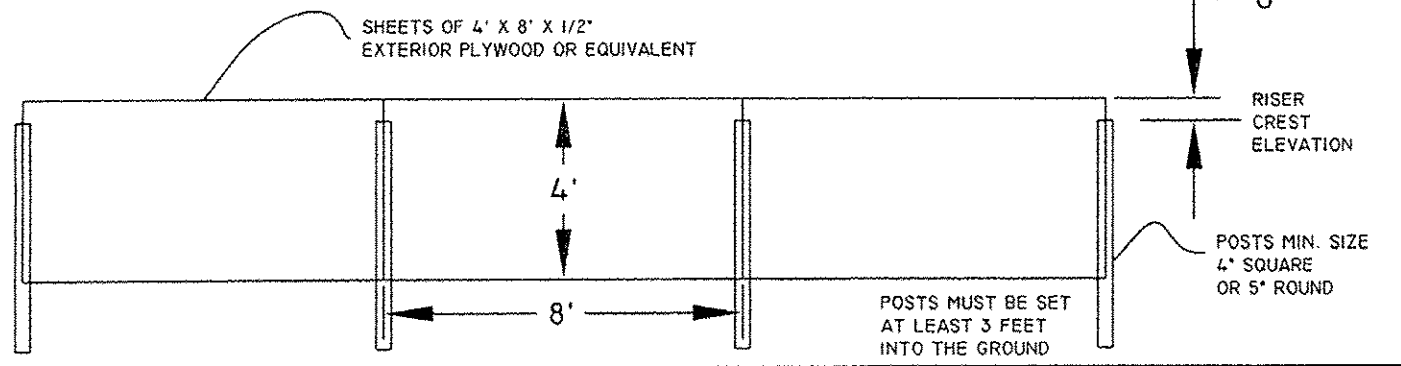


### TEMPORARY SEDIMENT TRAP

STD. & SPEC. 3.13 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)

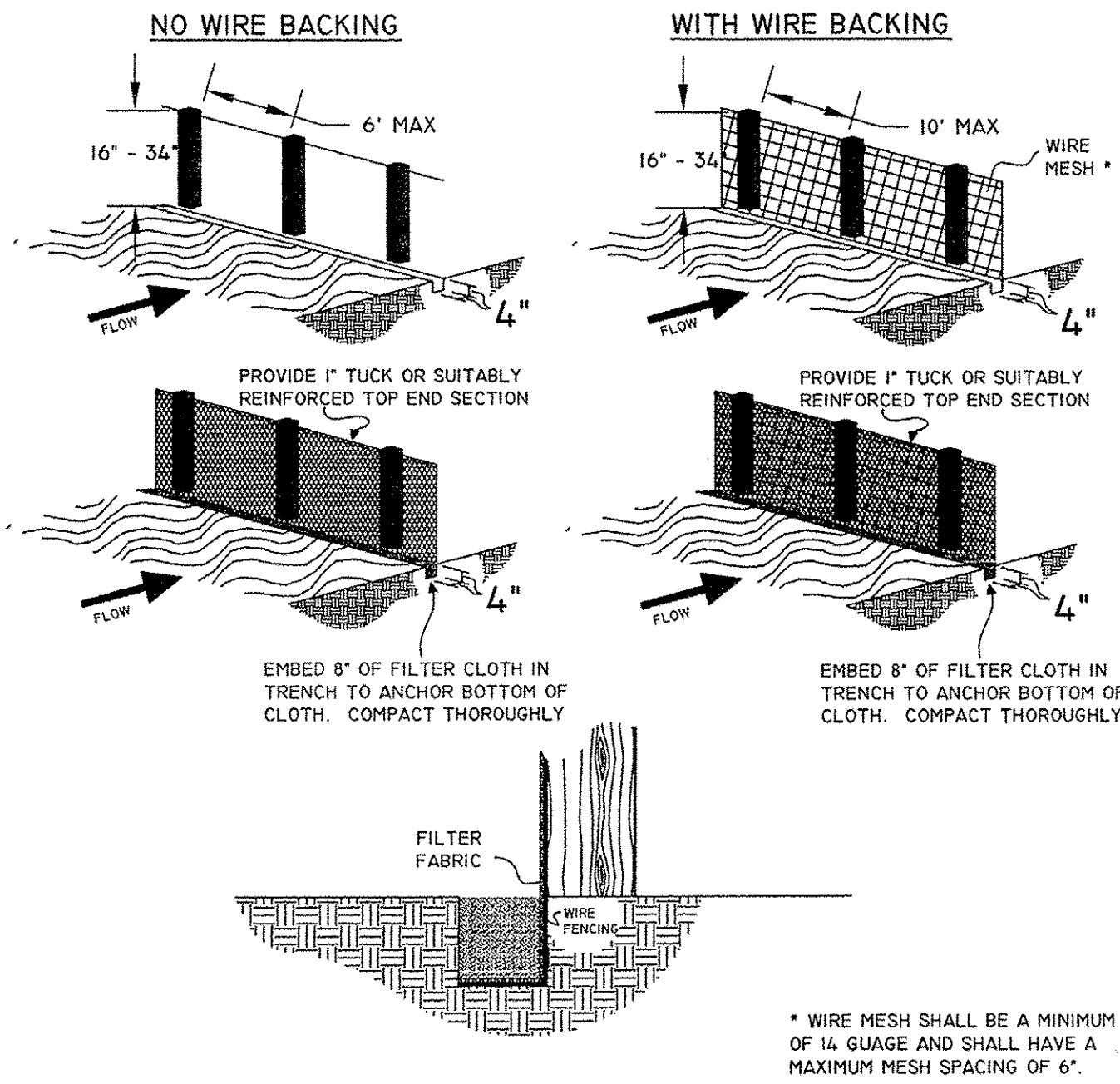


### BAFFLE DETAIL



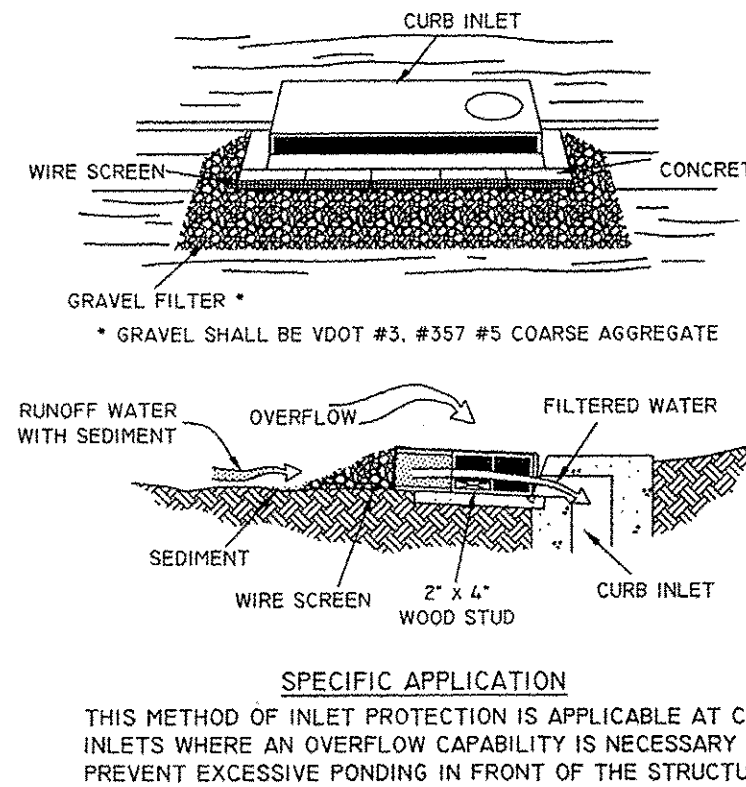
### SILT FENCE

STD. & SPEC. 3.05 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



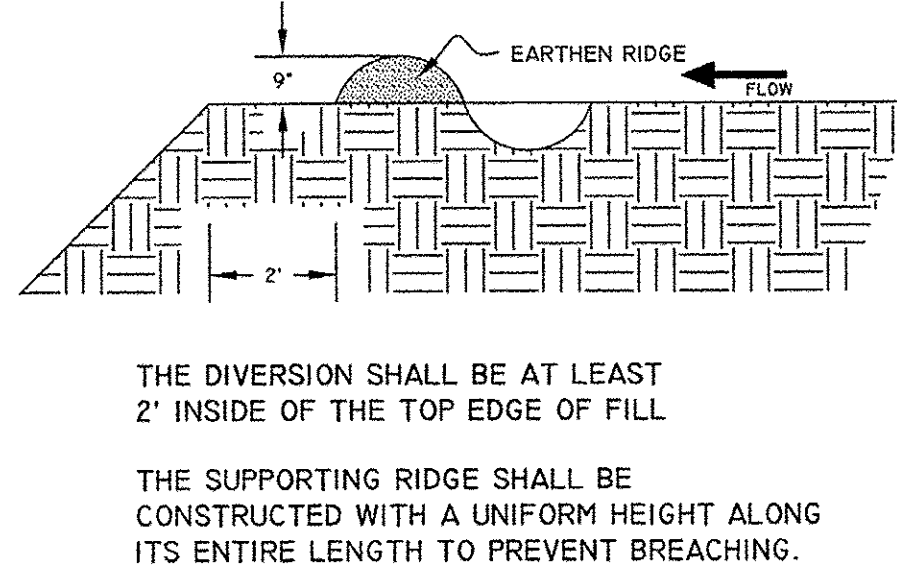
### BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER

STD. & SPEC. 3.07 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



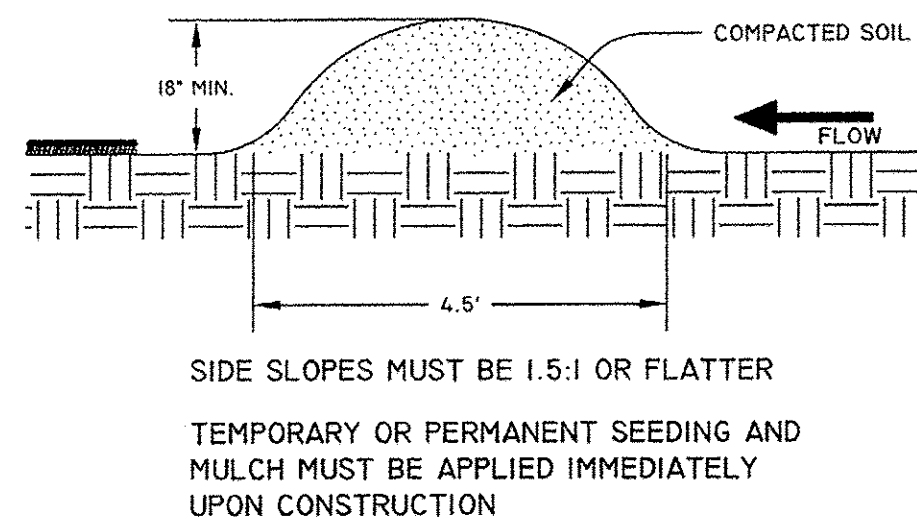
### TEMPORARY FILL DIVERSION

STD. & SPEC. 3.10 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



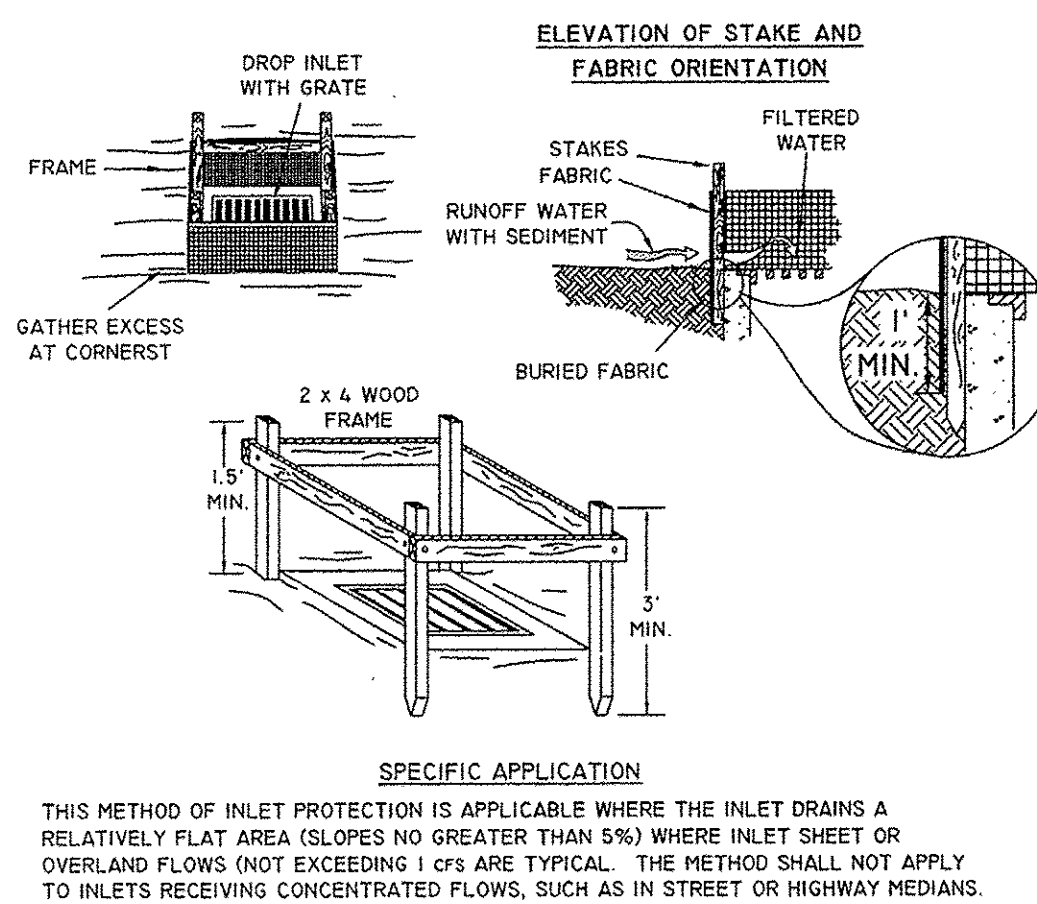
### TEMPORARY DIVERSION DIKE

STD. & SPEC. 3.09 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



### SILT FENCE DROP INLET PROTECTION

STD. & SPEC. 3.07 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)



### SEDIMENT TRAPS

TRAP #	DRAINAGE AREA (ACRES)	WET STORAGE			DRY STORAGE			OUTLET LENGTH (FEET)	BOTTOM ELEVATION	TOP OF BERM ELEVATION	TOP OF BERM WIDTH	DIMENSIONS (L x W)
		VOLUME REQUIRED (CU. YD.)	VOLUME PROVIDED (CU. YD.)	ELEVATION	VOLUME REQUIRED (CU. YD.)	VOLUME PROVIDED (CU. YD.)	ELEVATION					

### SEDIMENT BASINS

SEDIMENT BASINS																					
BASIN #	DRAINAGE AREA (ACRES)	WET STORAGE		DRY STORAGE		BOTTOM ELEVATION	RISER CREST ELEVATION	RISER DIAMETER	DEWATERING DEVICE ELEVATION	DEWATERING DEVICE DIAMETER	25- YR. STORM ELEVATION	EMERGENCY SPILLWAY ELEVATION	ANTI-VORTEX DEVICE DIAMETER	TOP OF DAM ELEVATION	TOP OF DAM WIDTH	BAFFLE		BARREL			
		VOLUME REQUIRED (Cu. Yd.)	VOLUME PROVIDED (Cu. Yd.)	VOLUME REQUIRED (Cu. Yd.)	VOLUME PROVIDED (Cu. Yd.)											FLOWLENGTH TO WIDTH RATIO	BAFFLE LENGTH	TOP OF BAFFLE	PIPE LENGTH	PIPE DIAMETER	INVERT IN
										N/A											

### CHANNEL PROTECTION COMPLIANCE SUMMARY TABLE

Discharge Point	Conditions within Limits of Analysis	Applicable Channel Protection Criteria										
		Criteria A				Criteria B		Criteria C				
		Q <sub>2</sub>	Q <sub>cap</sub>	V <sub>2</sub>	V <sub>allowable</sub>	Project consistent with design of restored system	Q <sub>developed</sub>	RV <sub>developed</sub>	IF	Q <sub>pre-developed</sub>	RV <sub>pre-developed</sub>	Q <sub>developed</sub> x RV <sub>developed</sub>
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES						≤
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES						≤
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES		N/A				≤
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES						≤
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES						≤
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES						≤
	<input type="checkbox"/> Manmade <input type="checkbox"/> Restored <input type="checkbox"/> Natural					<input type="checkbox"/> YES						≤

#### Channel Protection Criteria

- A. The stormwater conveyance system conveys the post-development peak flow rate from the two-year 24-hour storm event without causing erosion of the system (V<sub>2</sub> must be shown to be non-erosive)
- B. The development project, in combination with other stormwater runoff, is consistent with the design parameters of the restored stormwater conveyance and the restored stormwater conveyance system is functioning as designed
- C. The discharge from the development satisfies the Energy Balance requirement  
 $(Q_{developed} \times RV_{developed}) \leq IF \times (Q_{pre-developed} \times RV_{pre-developed})$   
where:  
Q<sub>developed</sub> = the peak flow rate of runoff from the developed site  
RV<sub>developed</sub> = the volume of runoff from the site based on developed conditions  
IF = an improvement factor (0.8 for sites > 1 acre, 0.9 for sites ≤ 1 acre)  
Q<sub>pre-developed</sub> = the peak flow rate of runoff from the pre-developed site  
RV<sub>pre-developed</sub> = the volume of runoff from the site based on pre-developed conditions

### FLOOD PROTECTION COMPLIANCE SUMMARY TABLE

Discharge Point	Conditions within Limits of Analysis	APPLICABLE FLOOD PROTECTION CRITERIA				
		Criteria A		Criteria B		
		Q <sub>10-post</sub>	Q <sub>capacity</sub>	Q <sub>10-post</sub> (Required for Criteria B.1 and B.2)	Q <sub>capacity</sub> (Required for Criteria B.1)	Q <sub>10-pre-developed</sub> (Required for Criteria B.2)
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding					
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding					
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding			N/A		
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding					
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding					
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding					
	<input type="checkbox"/> No Localized Flooding <input type="checkbox"/> Existing Localized Flooding					

#### Flood Protection Criteria

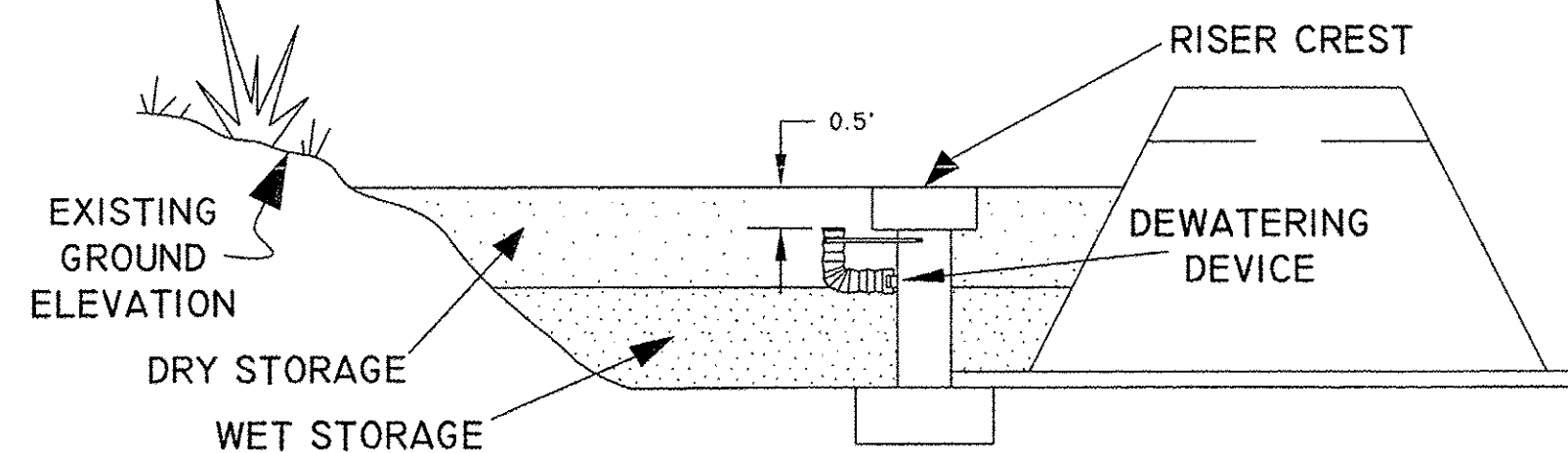
- A. Where localized flooding does not currently exist, the 10-year 24-hour storm event must be confined to the most restrictive stormwater conveyance system within the limits of analysis.
- B. Where localized flooding exists within the limits of analysis, the 10-year 24-hour storm event must:  
a. be confined within the most restrictive stormwater conveyance system within the limits of analysis (detention or downstream improvements may be provided to meet this criterion), or  
b. be released at a rate that is less than the pre-development peak flow rate from the 10-year 24-storm event.

### 50/10 DETENTION SUMMARY

	Q (CFS)	AREA (ACRES)	C	I	C ADJ. FACTOR
Q <sub>10</sub> PRE-DEVELOPMENT (A)					
Q <sub>50</sub> POST-DEVELOPMENT (ON-SITE BYPASS) (B)		N/A			
Q <sub>50</sub> POST-DEVELOPMENT (OFF-SITE THROUGH PROJECT) (C)					
Q <sub>50</sub> ALLOWABLE (A - B + C)					
Q <sub>50</sub> FROM BASIN/PIPE (ROUTED)					

### TEMPORARY SEDIMENT BASIN

STD. & SPEC. 3.14 - VA. EROSION AND SEDIMENT CONTROL HANDBOOK (1992)





**GENERAL NOTES**

- All construction and materials shall be in accordance with the current Virginia Department of Transportation Road and Bridge Specifications, Virginia Department of Transportation Road and Bridge Standards, and Henrico County Specifications and Standards where applicable.
- Incidental concrete must be Class A3 in accordance with VDOT specifications.
- A permit must be secured from the Henrico County Department of Public Works before any work is performed within an existing County right-of-way or easement.
- The Department of Public Works must be notified at least 24 hours prior to beginning any construction work.
- The contractor shall notify the Henrico County Department of Public Utilities prior to doing any utility work.
- The location of existing utilities, as shown, is approximate. The contractor shall verify the location of existing utilities prior to any construction work.
- A permit must be obtained from the Virginia Department of Transportation for any work performed within the State right-of-way.
- The contractor shall notify "Miss Utility" at 1-800-552-7001 prior to any construction work in this area.
- When it appears that the proposed work may have some impact to adjacent private or commercial properties, the applicant must inform the property owners of the proposed work and keep them apprised of time schedules, delays, impacts, changes in pedestrian and vehicle access or traffic patterns, and final restoration plans.
- When a temporary cul-de-sac is no longer required due to a road extension, the developer of the road being extended is responsible for removing the temporary cul-de-sac and extending the road and property components (curb and gutter, gravel driveways, paved driveways, sidewalks, mailboxes, etc.) to the new road section and re-grading areas to finished contours acceptable to the adjacent property owners and to Henrico County.
- No driveway access points shall be allowed within the radius of a public road intersection.
- When driveways are located within roll face curb and gutter, transitions to a drop inlet, curb cuts and aprons are required.
- Prior to the issuance of any building permits, all signs and barricades for dead end stub roads must be in place.

**CURB AND GUTTER**

- All curb and gutter and storm sewer/inlets located within the existing County right-of-way shall be staked by the County upon written request being made to the County Engineer or by calling 501-4619.
- All curb and gutter shall be Henrico County standard curb and gutter, except as noted.
- This plan establishes curb and gutter elevations along the public right-of-way. The County reserves the right to modify the proposed grades, if necessary.
- All curb and gutter in the County right-of-way must be wet curb and gutter. The use of dry curb and gutter is prohibited in the County right-of-way.
- The transition from standard six (6) inch curb to roll-faced curb shall be at intersections at the point of curvature (PC) of curb returns.
- Where sidewalks are present or proposed, all driveways must be concrete from the back of curb to at least the rear of the sidewalk.
- Class 57 stone must be placed under all curb and gutter and must extend one foot beyond the back of the curb.
- CG-12's must be installed at curb returns where there is existing or proposed sidewalks. In locations where there is no sidewalk being proposed, the curb must be depressed for the future location of a CG-12.

**CONDITIONS FOR GUARDRAIL**

Guardrail is typically required on sections of roadway when any of the following conditions exist within the clear zone:

- A roadside parallel embankment (fill slope) of 3:1 or steeper and a depth of four feet or more.
- A water hazard with a depth of two feet or more.
- A ditch section with a depth of three feet or more (as measured from the near edge of pavement).
- A fixed object (such as a culvert, pipe, headwall, retaining wall, bridge pier, or abutment).
- Other hazards as determined by the Traffic Engineer.
- Additional right-of-way or permanent easements may be required to accommodate the guardrail in its entirety.

All guardrail must be approved by the Department of Public Works and shown on the plans, including any necessary details, type, and lengths of rail.

**PAVEMENT**

- The pavement section is subject to change based on soil conditions at the time of construction, as determined by the Construction Engineer for Henrico County.
- Any necessary pavement widening between the existing pavement and the proposed improvements is the responsibility of the developer.
- All medians for turn lanes must be VDOT Std. MS-1. For turn lanes being constructed on existing roads, the old median must be removed entirely and the solid raised median poured on the asphalt base course in accordance with the standards for MS-1 Median. Standard MS-1A or variations of the same will not be permitted.
- Pavement sections for through lanes and turn lanes must be the same as the existing pavement section. These turn lanes must have underdrains.
- No pavement open cuts are allowed on existing County maintained roads unless specifically approved by the Construction Engineer for Henrico County.
- If utility connections are located outside of the pavement and right-of-way, no pavement disturbance is required and all utility crossings must be bored.
- Soil tests and CBR information, with an appropriate pavement design, must be performed and made available to the Construction Engineer prior to subgrade approval

**DRAINAGE**

- All storm sewer within the County right-of-way and easements must be ASTM C-76, Class III or better, reinforced concrete pipe with sealed joints in accordance with VDOT specifications.
- Precast drop inlets are not permitted at locations where the grade of the adjacent curb and gutter is less than 1.5%. Precast drop inlets with flat inverts are not permitted in sag locations when the total length of the required throat opening exceeds six (6) feet.
- All storm sewer within a County easement or right-of-way must have a minimum of four (4) inches of aggregate bedding material and must be backfilled in accordance with the detail on this sheet.
- All drop inlets must have Type B noses.
- Drop inlets on grade must be poured with the throat on the same grade as the adjoining curb and gutter.
- #4 x 8" dowels must be placed at approximately 12" c-c in all areas adjacent to abutting concrete to prevent settlement
- When using non-concrete pipe for private areas, the connection to the structure in the County easement or right-of-way must be concrete. Non-concrete pipe must terminate in a concrete structure and continue concrete to the point where it ties into the County easement or right-of-way. All manholes and inlets must be concrete.
- UD-4 underdrains are required along the entire length of all proposed roads and/or road widening within the public right-of-way unless waived by the Director of Public Works.
- Irrigation is not permitted in the shoulder area within the County right-of-way unless specifically approved by the County Engineer.
- CD-1 underdrains are required on all vertical sags.
- UD-2 underdrains are required in all raised grass medians and islands within the public right-of-way.
- The outlet end of all underdrains must terminate in drainage structures or daylight out of fill slopes with a standard EW-12 endwall placed at the outlet end of the underdrain.

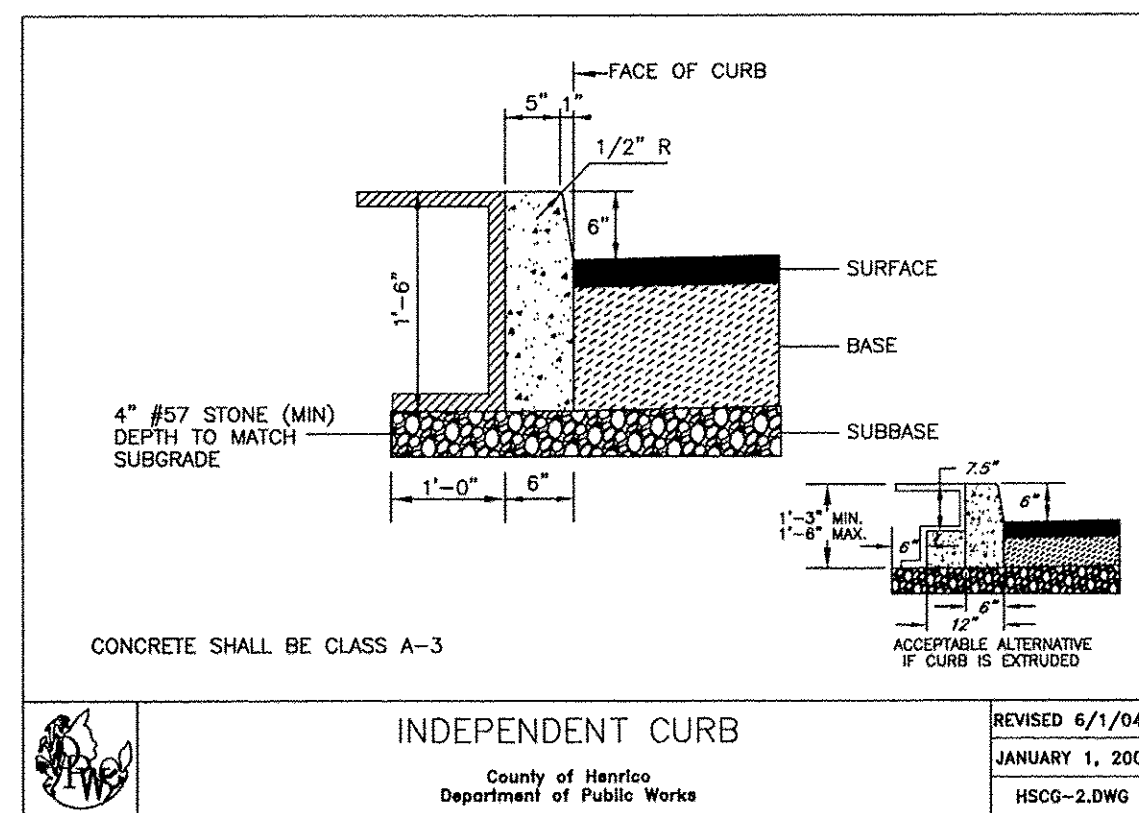
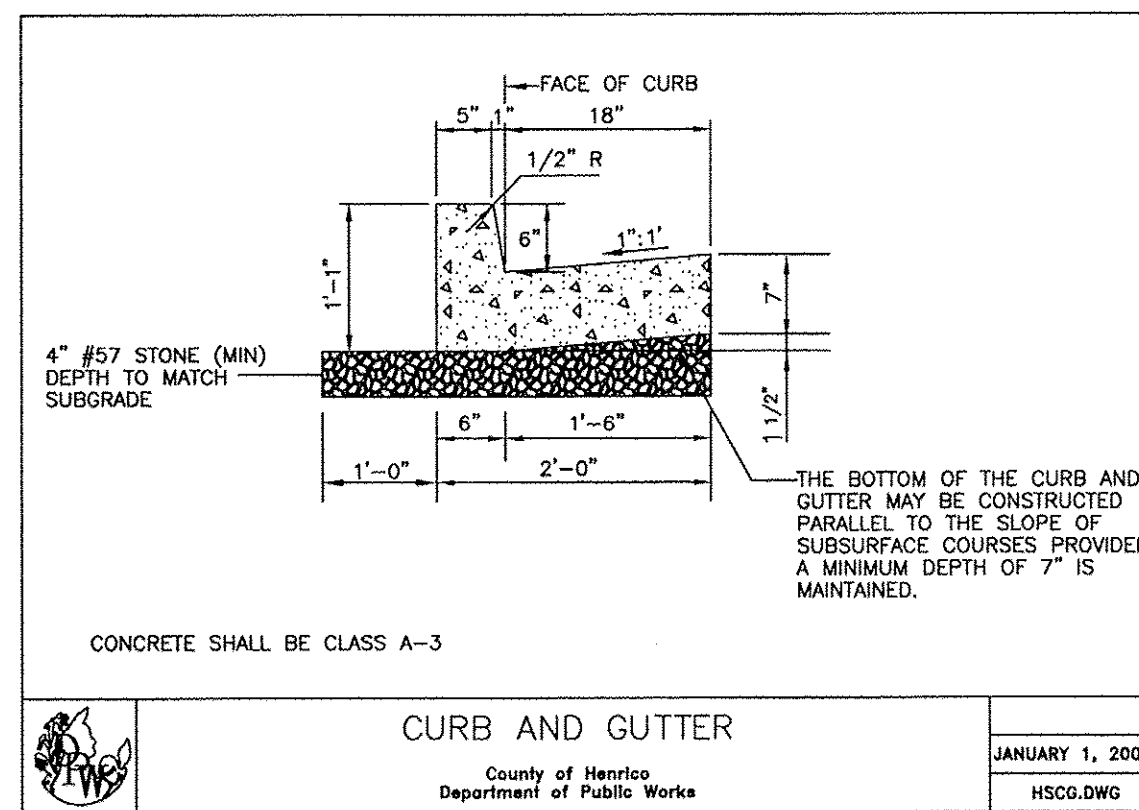
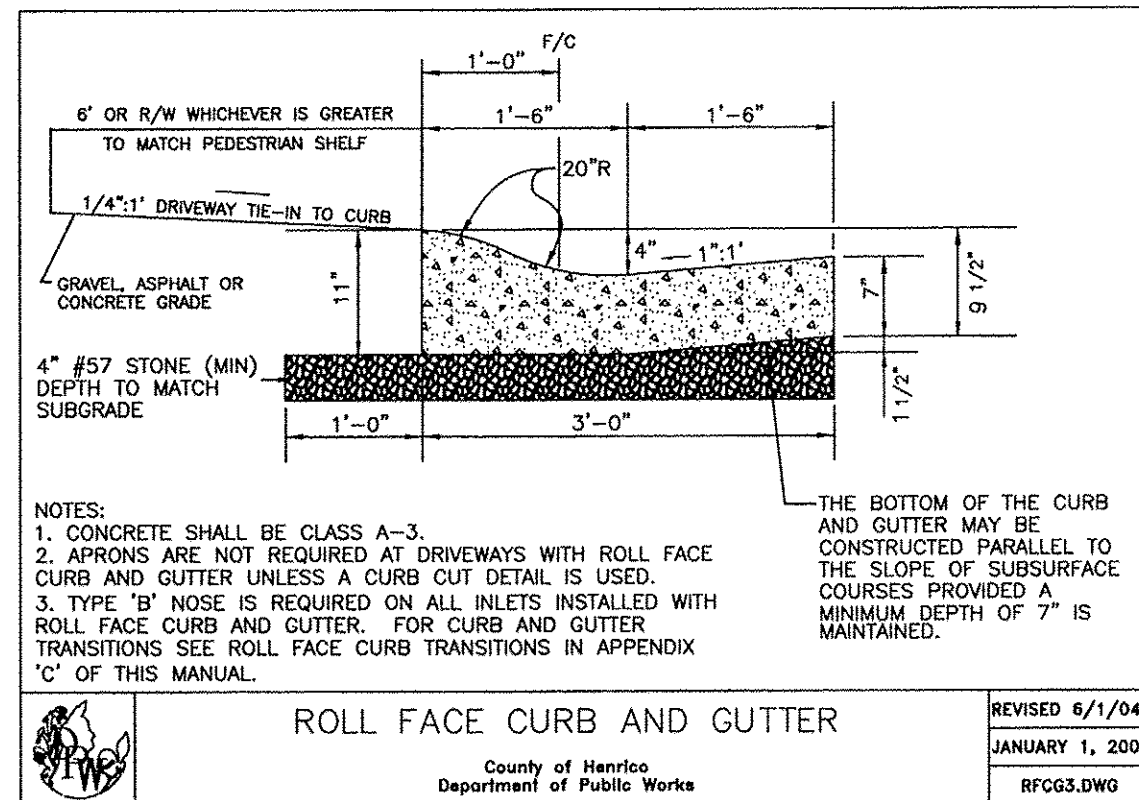
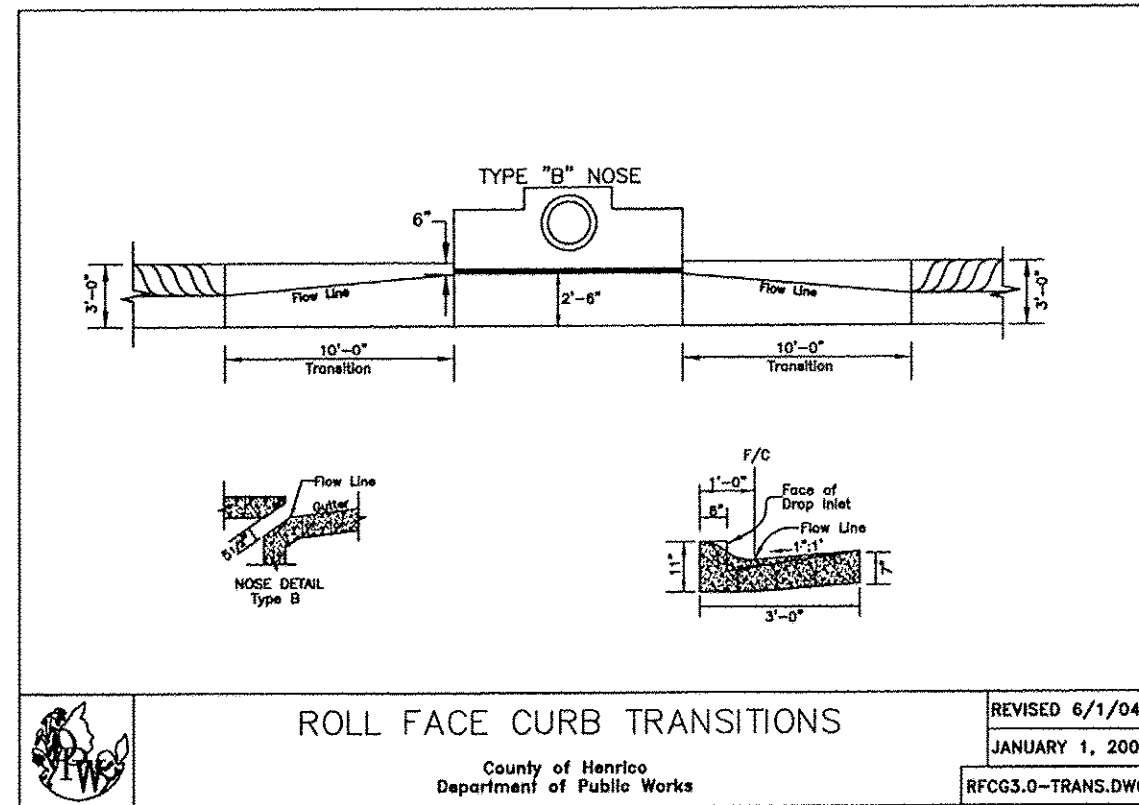
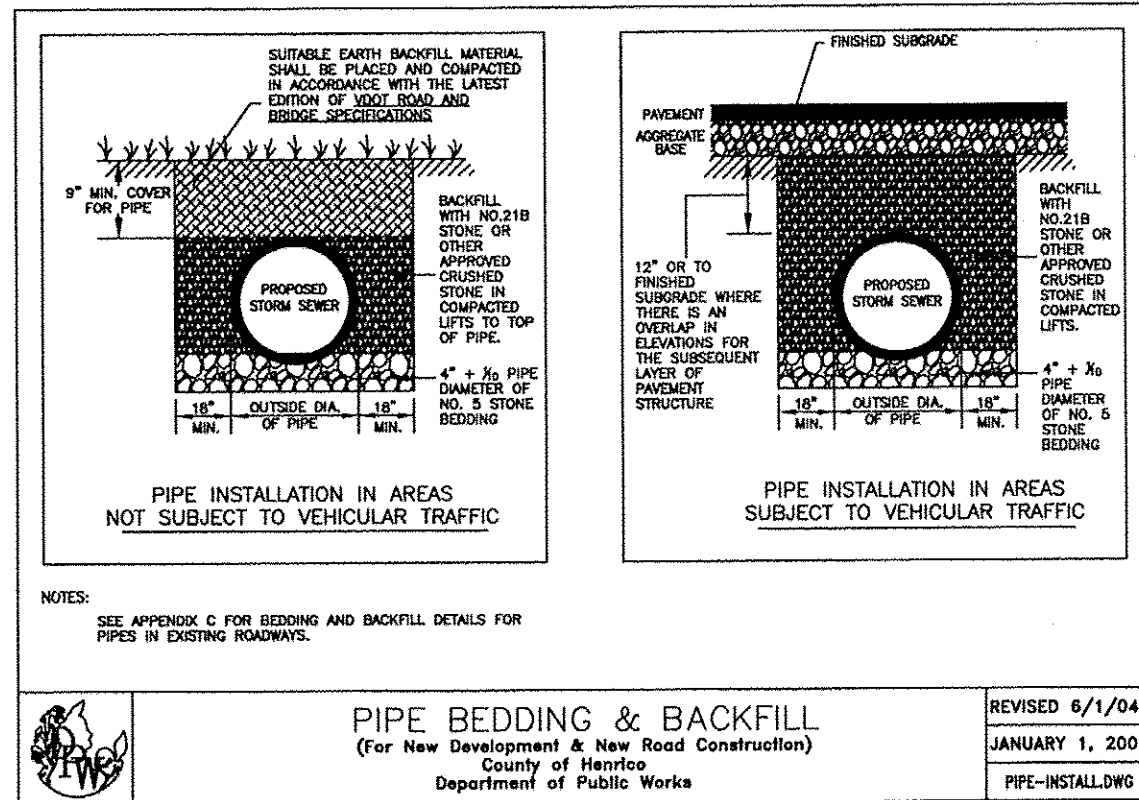
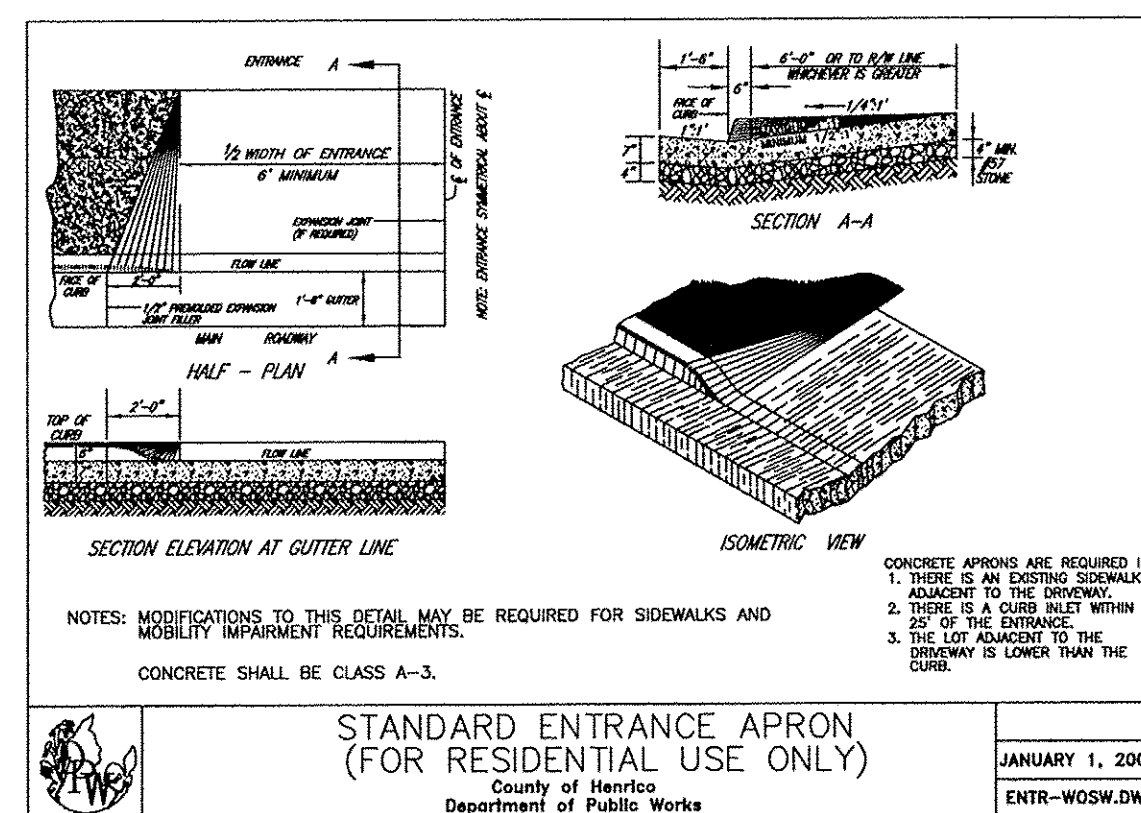
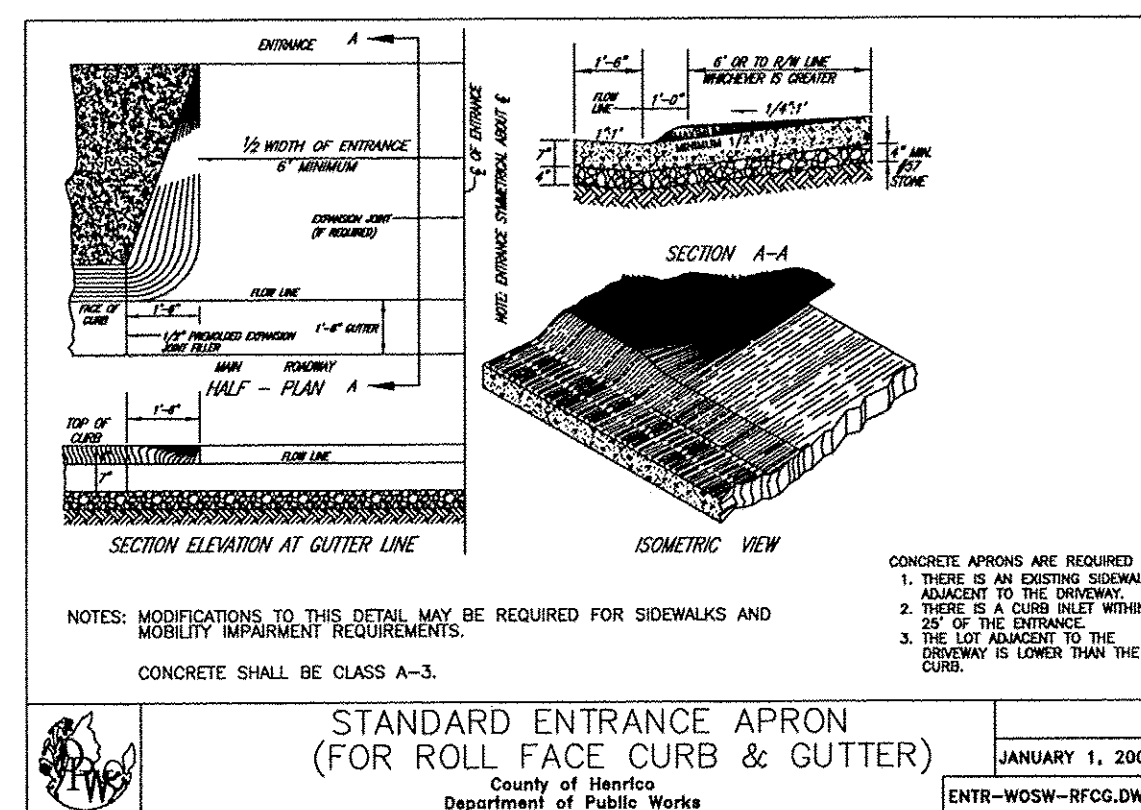
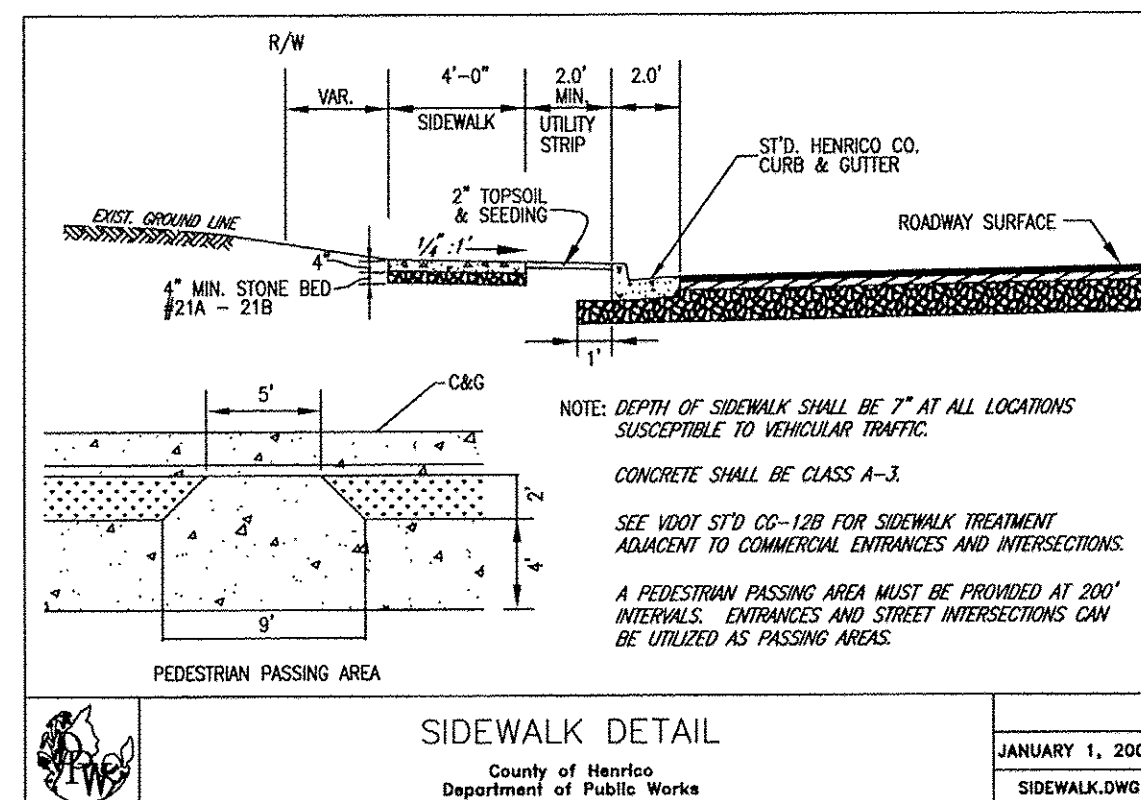
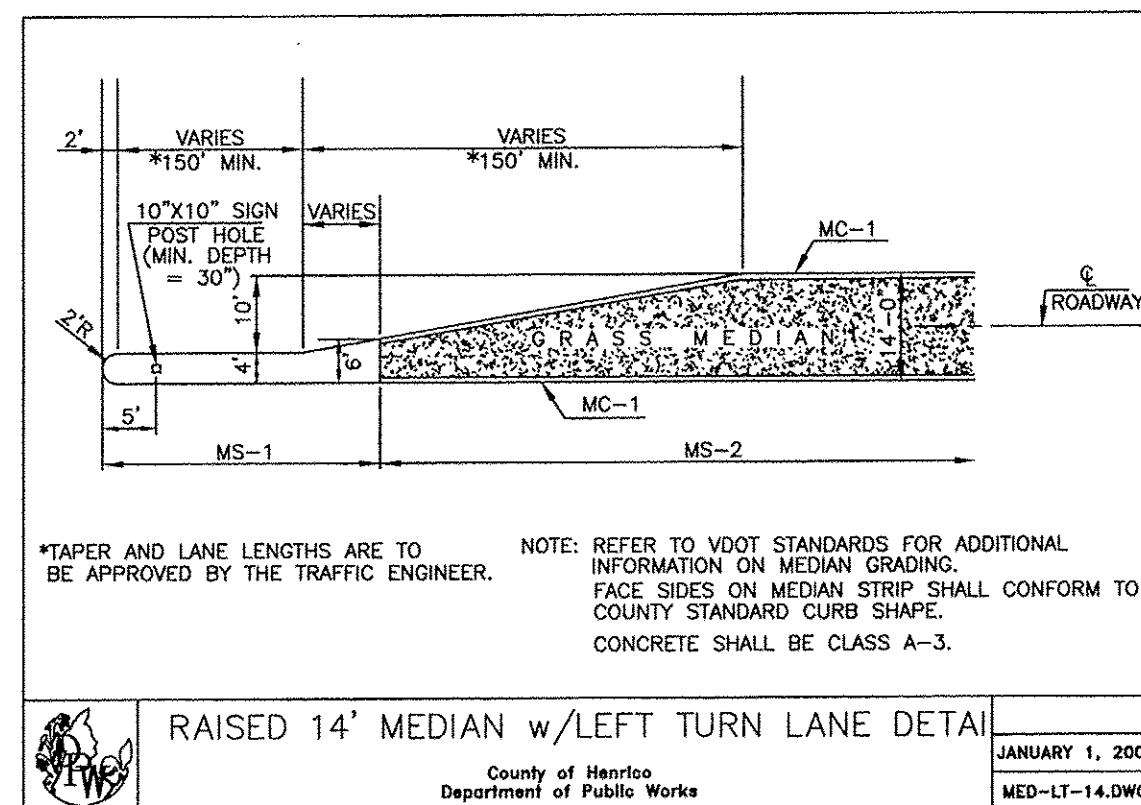
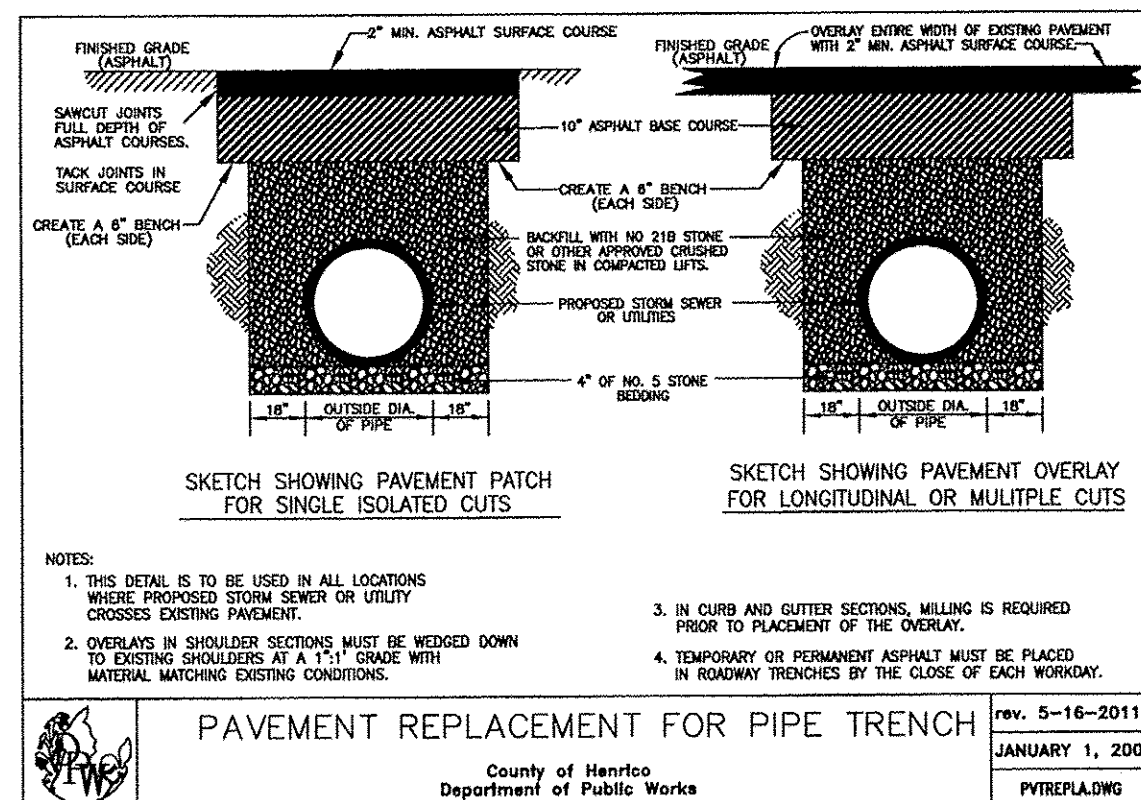
**GRADING**

- The subgrade area shall be scarified to a depth of eight inches for a minimum of two feet beyond the proposed edges of the pavement on both sides (or from the curb and gutter) and compacted to a density of not less than 95 percent.
- When materials which are unsuitable for foundation, subgrade, or other roadway purposes occur within the roadway limits, such materials must be excavated below the grade shown on the plans as directed by the geotechnical engineer or as approved by the Henrico County Construction Engineer and the areas must be backfilled with suitable material.
- All solid rock or boulders found in the roadway shall be excavated to the full roadway width to a depth of one foot below subgrade and then backfilled to the proper grade with suitable materials.
- A six (6) feet wide pedestrian shelf is required behind all curb and gutter in the County right-of-way. The shelf must be cleared/constructed at the time of road construction, including the relocation of all power poles and other above ground obstacles.
- All graded islands must be graded to 1/4" rise to minimize sight distance problems.
- All areas to be filled within the buildable area (ponds, sediment basins, sediment traps, wetlands, etc.) must be backfilled with structural fill and compacted to 95% compaction.
- All grading shown on lots must be done prior to building permit issuance.
- The design and construction of basins must in compliance with the general requirements for dams in the *Virginia Stormwater Management Program Manual*. A geotechnical engineer must certify that the construction compaction requirements have been achieved. BMPs for subdivisions will not be accepted for County maintenance until the geotechnical certification is provided and accepted by the Department of Public Works.

**SURVEY**

- All roadways must be cleared in the area of proposed construction prior to requesting staking from the County.
- All utility poles, fire hydrants, and other above ground obstacles located within the public right-of-way and conflict with the proposed sidewalk shelf, curb and gutter, and/or the pavement widening shall be relocated at the developer's expense prior to Henrico County staking the curb and gutter.
- This plan approval establishes the curb and gutter and storm sewer/inlet elevations along the public right-of-way. These elevations (located within the existing County right-of-way) shall be staked by Henrico County upon written request being made to the County Engineer or by calling 501-4619. The County reserves the right to modify the proposed grades, if necessary.
- Prior to requesting County stakeout, all appropriate information necessary for stakeout must be provided to the Henrico County Survey Department.
- Right-of-way and baseline information must be established in the field and clearly tied to monuments/benchmarks prior to requesting stakeout by the County.

## WHERE CONFLICTS EXIST, THE NOTES AND DETAILS ON THIS SHEET SUPERCEDE THE CURRENT VERSION OF THE HENRICO COUNTY DESIGN MANUAL.

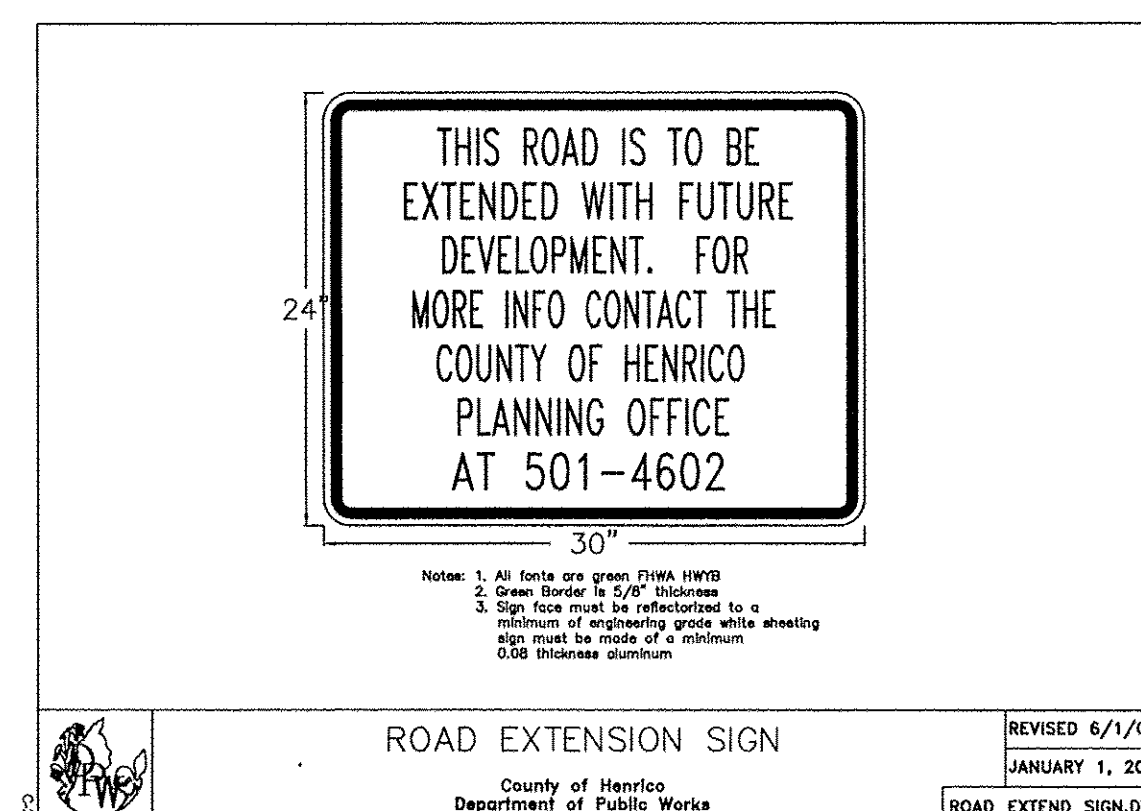
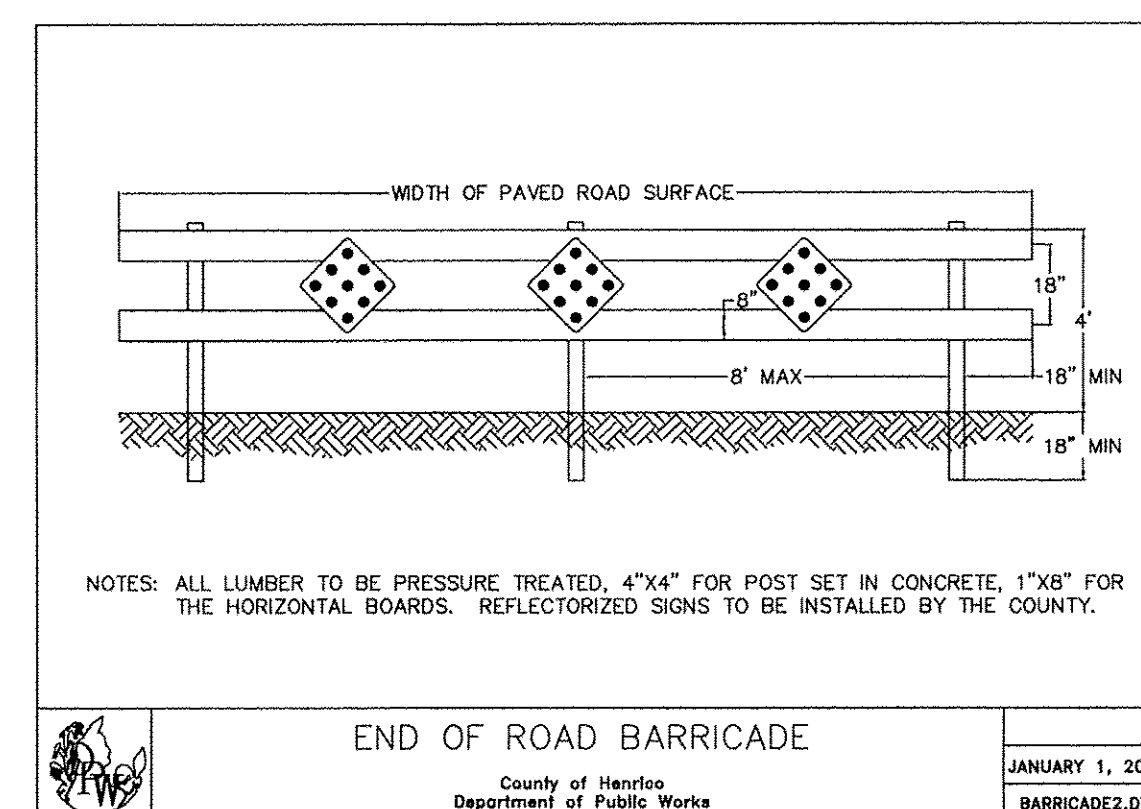
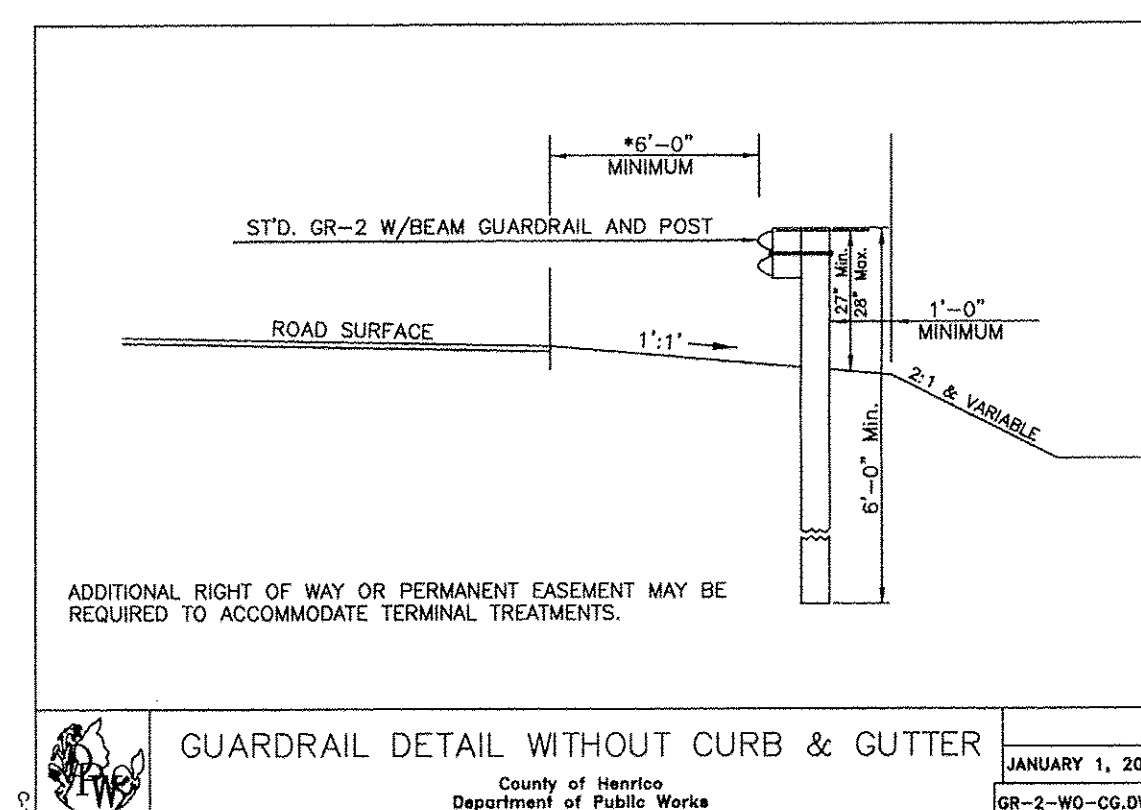
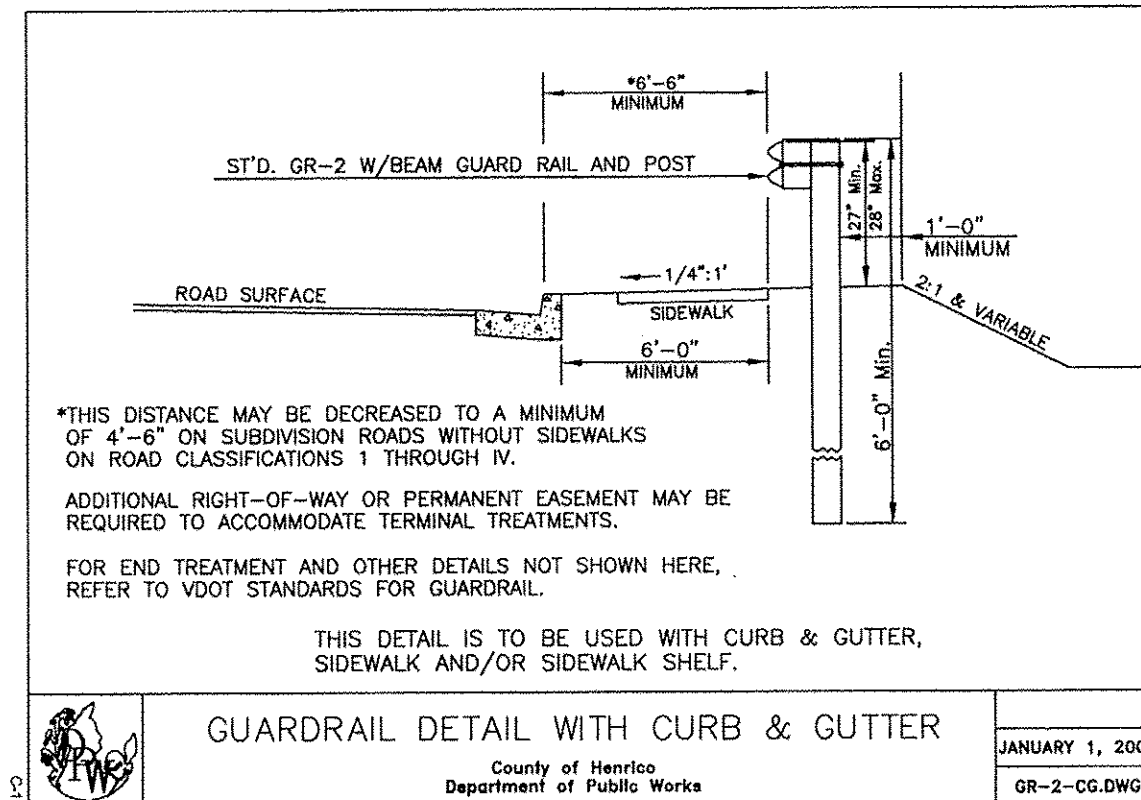


# County Of Henrico

## Department of Public Works

**STANDARD CONSTRUCTION NOTES AND DETAILS**

### REFER TO HENRICO COUNTY DESIGN MANUAL FOR ADDITIONAL DETAILS



KINGS MANOR SUBDIVISION, SECT. A  
VARINA DISTRICT, HENRICO COUNTY, VIRGINIA  
DATE: AUGUST 17, 2015 J.N. 07007





## PURPOSE

4VAC50-60-54 of the Virginia Stormwater Management Program (VSMP) Permit Regulations requires that Stormwater Pollution Prevention Plan (SWPPP) be developed for all regulated land disturbing activities. The SWPPP must include, but not be limited to, an approved erosion and sediment control plan, an approved stormwater management plan, and this **Pollution Prevention Plan (PPP)** for regulated land disturbing activities, and a description of any additional control measures necessary to address a TMDL as applicable.

The plan for implementing pollution prevention measures during construction activities developed on this sheet must be implemented and updated as necessary. Any PPP requirements not included on this sheet must be incorporated into the SWPPP required by 4VAC50-60-54 that must be developed before land disturbance commences. This PPP identifies potential sources of pollutants that may reasonably be expected to affect the quality stormwater discharges from the construction site (both on- and off-site activities) and describes control measures that will be used to minimize pollutants in stormwater discharges from the construction site.

## OTHER REFERENCED PLANS

SWPPP requirements may be fulfilled by incorporating, by reference, other plans. All plans incorporated by reference become enforceable under the VSMP Permit Regulations and General Permit VAR10 for Discharges of Stormwater from Construction Activities. If a plan incorporated by reference does not contain all of the required elements of the PPP, the operator must develop the missing elements and include them in the SWPPP.

Independent Plans Incorporated by Reference	Date Approved
Stormwater Management Plans (Regional or Master)	
Spill Prevention, Control, and Countermeasure Plans	
Off-Site Stockpile	
Off-Site Borrow Area	

## POTENTIAL POLLUTANT SOURCES

The following sources of potential pollutants must be addressed in the Pollution Prevention Plan. Various controls and/or measures designed to prevent and/or minimize pollutants in stormwater discharges from the project site must be applied to the sources found on the site. Additional information concerning the following controls and/or measures may be found in the SWPPP. Deviations from the location criteria may be approved by the Henrico County Environmental Inspector.

## LEAKS, SPILLS, AND OTHER RELEASES

- The operator(s) shall ensure procedures are in place to prevent and respond to all leaks, spills and other releases of pollutants.
- The operator(s) shall ensure all leaks, spills and other releases of pollutant are contained and cleaned immediately upon discovery. Any contaminated materials are to be disposed in accordance with federal, state, and/or local requirements.
- The operator(s) shall ensure spill containment kits containing appropriate materials (e.g., absorbent material and pads, brooms, gloves, sand, etc.) are available at appropriate locations, including, but not limited to: designated areas for vehicle and equipment maintenance; vehicle and equipment fueling; storage and disposal of construction materials, products, and waste; and storage and disposal of hazardous and toxic materials; and sanitary waste facilities.
- The locations of the spill containment kits are identified as described below:

Date	Shown on Plan Sheet # (s)	Location
Approved Plan	2	LOTS 4 & 5, BLK A
REVISIONS TO LOCATIONS		
Date	Shown on Plan Sheet # (s)	Location

- The operator(s) shall notify the Department of Environmental Quality of leaks, spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery.
- The operator(s) shall notify the Department of Environmental Quality (DEQ) of leaks, spills, and other releases that discharge to or have the potential to discharge to surface waters immediately upon discovery of the discharge but in no case later than 24 after the discovery. Written notice of the discharge must be sent to DEQ and Henrico County Department of Public Works within five (5) days of the discovery.

Virginia Department of Environmental Quality NEED ADDRESS (804) 786-3998 (phone) (804) 786-1798 (fax) (800) 468-8892 (outside normal working hours)	Henrico County Department of Public Works P. O. Box 90775 Henrico, VA 23273 (804) 501-4393 (phone) (804) 501-7475 (fax)
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## EQUIPMENT / VEHICLE WASHING

- Washing must be conducted in a **dedicated area** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- All wash water used in vehicle wheel washing must be directed to a sediment basin/trap.
- All vehicle washing activities other than wheel washing must have secondary containment.
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Activity	Location of <i>Dedicated Area(s)</i>	Shown on Plan Sheet # <i>(s)</i>	Water Source Location	
Wheel Wash				
Other Wash Areas				
REVISIONS TO LOCATIONS				
Activity	Location of <i>Dedicated Area(s)</i>	Shown on Plan Sheet # <i>(s)</i>	Water Source Location	Operator's Initials

## VEHICLE FUELING AND MAINTENANCE

- Conduct regular maintenance in a **dedicated area** that is located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- If fueling is conducted at a **dedicated area**, the location must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- The **dedicated areas** must be designed to eliminate the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities by providing secondary containment (spill berms, decks, spill containment pallets, providing cover where appropriate, and having spill kits readily available).
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet #(s)	Location of <b>Dedicated Area(s)</b>	
Approved Plan	2	lots 4 & 5, Block A	
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location of <b>Dedicated Area(s)</b>	Operator's Initials

- If mobile fueling will be used, the fueling must be done in an area that located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- Spill kits must be readily available at all mobile fueling locations.
- On-site storage tanks must have a means of secondary containment (spill berms, decks, spill containment pallets, etc.) and must be covered where appropriate.
- All vehicles on site must be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.

## DISCHARGE FROM STORAGE, HANDLING, AND DISPOSAL OF CONSTRUCTION PRODUCTS, MATERIALS, AND WASTE

- Storage of construction products, materials, and waste is to be conducted in **dedicated areas**.
- The **dedicated area** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- The **dedicated areas** must be designed to minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials and wastes including (i) building products such as asphalt sealants, copper flashing, roofing materials, adhesives, concrete admixtures; (ii) pesticides, herbicides, insecticides, fertilizers, and landscape materials; and (iii) construction and domestic wastes such as packaging materials, scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, Styrofoam, concrete and other trash or building products..
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet #(s)	Location(s) of <b><i>Dedicated Area(s)</i></b> for storage of construction products and materials	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location(s) of <b><i>Dedicated Area(s)</i></b> for storage of construction products and materials	Operator(s) Initials

Date	Shown on Plan Sheet # (s)	Location(s) of <b><i>Dedicated Area(s)</i></b> for waste from construction products and materials	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet # (s)	Location(s) of <b><i>Dedicated Area(s)</i></b> for waste from construction products and materials	Operator(s) Initials

- Follow all federal, state, and local requirements that apply to the use, handling and disposal of pesticides, herbicides, and fertilizers.
- Keep chemicals on-site in small quantities and in closed, well marked containers.
- Clean up solid waste, including building materials, garbage, and debris on a daily basis and deposit into covered dumpsters that are periodically emptied.
- Schedule waste collection to prevent exceeding the capacity of onsite containers. Additional containers may be necessary depending on the phase of construction (e.g., demolition, etc.)
- Dispose of all solid waste at an authorized disposal site.
- Ensure that containers have lids or are otherwise protected from exposure to precipitation.

## DISCHARGES FROM OTHER POTENTIAL POLLUTANT SOURCES

- Discharges from other pollutant sources (e.g., water line flushing, storm sewer flushing, above ground storage tanks, etc.) not mentioned elsewhere must be addressed.

Other Potential Pollutant Sources	Location(s) of Potential Pollutant Sources

- Above ground oil storage tanks with a storage capacity exceeding 1,320 gallons and have a reasonable expectation of a discharge into or upon Waters of the United States are required to have a Spill Prevention Control and Countermeasure (SPCC) Plan.
- The discharge of contaminated flush water and material removed during flushing operations must be collected and disposed of in accordance with appropriate federal, state, and local requirements.

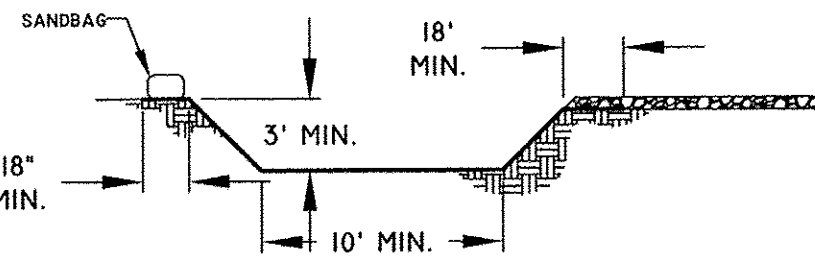
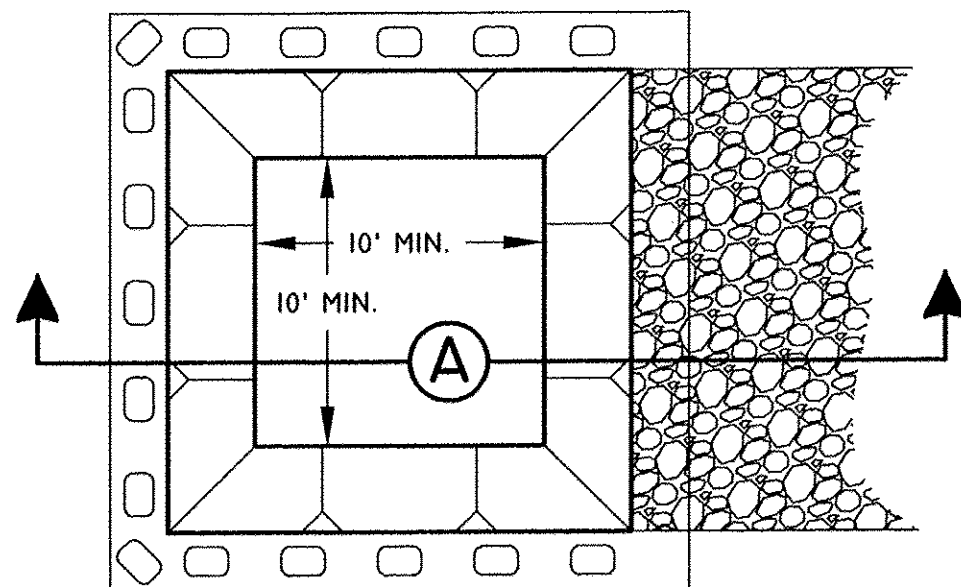
## DISCHARGES FROM CONCRETE RELATED WASH ACTIVITIES

- Concrete trucks are not allowed to wash out or discharge surplus concrete or drum wash water on site except in a **dedicated area(s)** that is located to prevent discharge to storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features.
- Each facility must have a stabilized access to prevent mud tracking into the street.
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet #(s)	Location of <b>Dedicated Area(s)</b>	
Approved Plan	2	LOTS 4 & 5, BLK A	
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location of <b>Dedicated Area(s)</b>	Operator's Initials

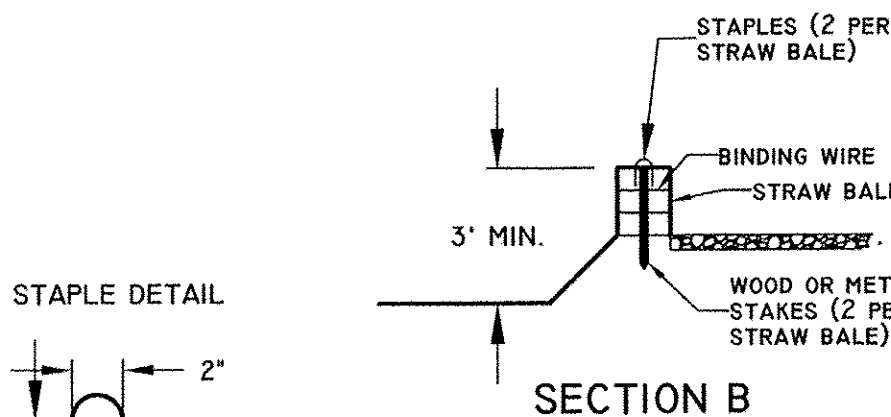
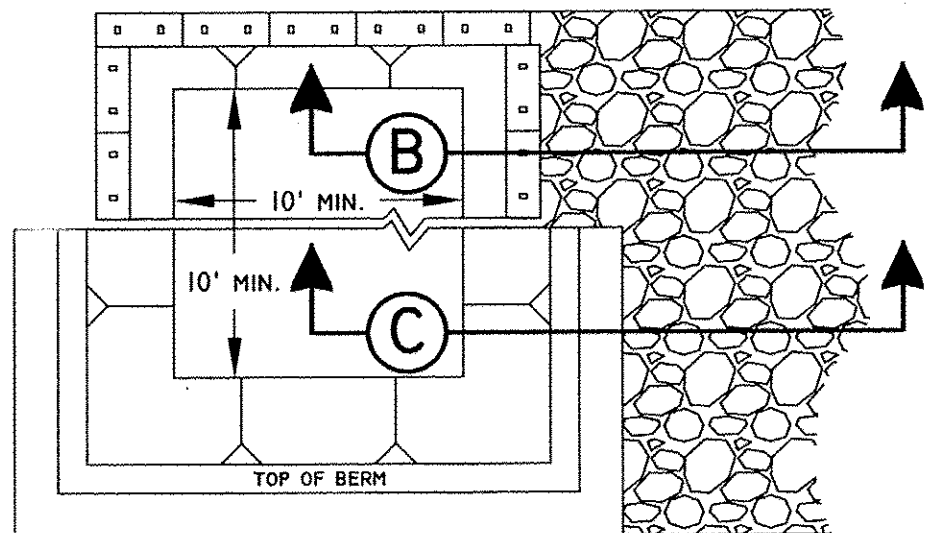
- Facilities must be cleaned, or new facilities constructed, once the washout area is two-thirds (2/3) full.

## BELOW GRADE CONCRETE WASHOUT AREA

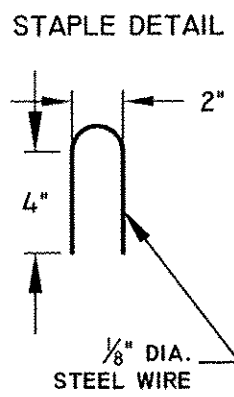


## SECTION A

## ABOVE GRADE CONCRETE WASHOUT AREA



## SECTION B



## SECTION C

## CONCRETE WASHOUT AREA NOTES

- The facility must be lined with 10 mil plastic lining that is free from holes, tears, or other defects that might compromise the material's impermeability.
- The lining must be anchored with staples (2' spacing) or sandbags.
- Side slopes must be 1:1 (horizontal:vertical) or flatter.
- Stone access must be provided between the street and the concrete washout area.
- A "Concrete Washout" sign must be installed within 30 feet of the washout facility. The sign must be no smaller than 2' tall by 4' wide.

## DISCHARGES OF SOAPS, DETERGENTS, SOLVENTS, AND WASH WATER FROM CONSTRUCTION ACTIVITIES SUCH AS CLEANUP OF STUCCO, PAINT, FORM RELEASE OILS, AND CURING COMPOUNDS

- Washing activities associated with construction activities other than vehicle and equipment washing, such as clean up of stucco, paint, form release oils, and curing compounds are to be conducted in a **dedicated area**.
- The **dedicated area** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- The **dedicated areas** must be designed to prevent the discharge of soaps, detergents, solvents, and wash water.

Date	Shown on Plan Sheet #(s)	Location(s) of <b>Dedicated Area(s)</b>	
Approved Plan	2	LOTS 4 & 5, BLK A	
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location(s) of <b>Dedicated Area(s)</b>	Operator(s) Initials

- The **dedicated area** must be covered (e.g., plastic sheeting, temporary roof, etc.) to prevent contact with stormwater.
- The contaminated wastewater from the **dedicated area** must be collected for disposal by a waste hauler or discharged to the sanitary sewer.
- In situations where these pollutants are or could be generated at locations other than at the **designated area** (e.g., concrete pours, building washing, etc.), cover (e.g., plastic sheeting, temporary roof, etc.) must be provided to prevent contact with stormwater and the contaminated wastewater from the activity must be collected for disposal by a waste hauler or discharged to the sanitary sewer.

## DISCHARGES OF HAZARDOUS, TOXIC, AND SANITARY WASTE

- Storage and disposal of hazardous, toxic and sanitary wastes are to be conducted in **dedicated areas**.
- The **dedicated areas** must be located to maximize the distance from storm drain inlets, ditches, waterbodies or wetlands but no less than 50 feet from those features. Separations of less than 50 feet may be approved by the Environmental Inspector.
- The **dedicated areas** must be designed to prevent the discharge of hazardous, toxic and sanitary waste by avoiding contact with precipitation
- Each facility must have appropriate signage to inform users where the **dedicated area(s)** are located.

Date	Shown on Plan Sheet #(s)	Location(s) of <b>Dedicated Area(s)</b> for storage and disposal of hazardous and toxic wastes	
Approved Plan	2	LOTS 4 & 5, BLK A	
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location(s) of <b>Dedicated Area(s)</b> for storage and disposal of hazardous and toxic wastes	Operator(s) Initials

Date	Shown on Plan Sheet #(s)	Location(s) of <b>Dedicated Area(s)</b> for portable toilets	
Approved Plan			
REVISIONS TO LOCATIONS			
Date	Shown on Plan Sheet #(s)	Location(s) of <b>Dedicated Area(s)</b> for portable toilets	Operator(s) Initials

- Consult with local waste management authorities or private firms about the requirements for disposing of hazardous materials and/or soils that may be contaminated with hazardous materials.
- Never remove the original product label from the container. Follow the manufacturer's recommended method of disposal.
- Schedule periodic pumping of portable toilets and dispose of waste
- Dispose of all solid waste at an authorized disposal site.

## SWPPP MODIFICATIONS AND REVISIONS

The operator(s) shall ensure the SWPPP is modified and/or revised to reflect:

- Changes in qualified personnel; delegated authorities or other personnel required as a condition of the General Construction Permit;
- Changes in site conditions;
- Changes in the design, construction, operation, or maintenance of the construction site that affect the potential for discharges of pollutants that are not addressed in the normal implementation of the plan; and
- Ineffective control measures identified during inspections or investigations conducted by the operator's qualified personnel or local, state or federal officials.

Modifications/revisions to the SWPPP shall include additional or modified control measures to address the identified deficiencies.

If the necessary modifications/revisions require approval by the Administrator or DEQ, the modifications/revisions must be implemented no later than seven (7) calendar days following approval.

If the necessary modifications/revisions do not require approval by the Administrator, the modifications/revisions must be implemented prior to the next anticipated storm event or as soon as practicable.

## SWPPP UPDATES

The operator(s) shall update the SWPPP to include:

- A record of dates when 1) major grading activities occur, 2) construction activities temporarily or permanently cease on a portion of the site, and 3) stabilization measures are initiated;
- Documentation of modifications and revisions to the SWPPP;
- Areas that have reached final stabilization where no further SWPPP or inspection requirements apply;
- All properties that are no longer under the legal control of the operator and the dates on which the operator no longer had legal control over each property; and
- The date, volume, and corrective/preventative actions implemented for any prohibited discharge.

The operator(s) shall update the SWPPP no later than seven (7) days following any of the situations identified above.

## OPERATOR INSPECTIONS

The operator(s) identified below shall provide for inspections of the permitted land-disturbing activities by the qualified personnel identified below. The inspections will be conducted (select one the following options):

- ☐ at least once every four (4) business days; or
- ☒ at least once every five (5) business days and no later than 48 hours following any measurable storm event.

Where areas are in a stabilized condition or runoff is unlikely due to winter conditions, the inspection frequency may be reduced to once every 30 days while these conditions exist. Otherwise, the operator(s) shall resume the regular inspection frequency identified above.

The operator(s) shall provide for inspections of the permitted land-disturbing activity to ensure implementation and continued maintenance of all requirements of the Stormwater Pollution Prevention Plan (Erosion and Sediment Control Plan, Stormwater Management Plan, Pollution Prevention Plan, TMDL requirements, etc.).

Records of the required inspections must be maintained and included in the SWPPP binder. The qualified personnel are encouraged to use the Operator Inspection form provided in the SWPPP binder to document the required inspections. If inspections are conducted once every five (5) business days and no later than 48 hours following any measurable storm event, the location of the rain gauge used to determine the amount of rain must be included in the SWPPP and documented in the inspection report.

## ACKNOWLEDGEMENTS

I certify under penalty of law that the qualified personnel identified below:

- has been designated by the Operator to conduct inspections of the permitted site;
- is knowledgeable in the principles and practices of erosion and sediment control and stormwater management;
- possesses the skills to assess conditions at the permitted site for the Operator(s) that could impact stormwater quality and quantity;
- will assess the effectiveness of any erosion and sediment control measures or stormwater management facilities selected to control the stormwater discharges from the permitted site; and
- will conduct inspections in accordance with the frequency noted above in the OPERATOR INSPECTIONS section of this sheet.

QUALIFIED PERSONNEL	
Name (print)	
Phone	
Additional information is located in Tab 6 of the SWPPP Binder.	

As the Operator(s) or Delegated Authority, I/we understand that prior to initiating land disturbance, the potential pollutant sources, appropriate control measures, and all responsible parties (operator, qualified inspection personnel, contractors, etc.) required as a condition of the General Construction Permit (GCP) and the Stormwater Pollution Prevention Plan (SWPPP) must be identified. I also understand this information must be updated as necessary throughout all phases of construction until the GCP is terminated.

Furthermore,

I/we certify under penalty of law that I/we have read and understand all requirements of the SWPPP (erosion and sediment control plan, stormwater management plan, pollution prevention plan, TMDL provisions, administrative requirements, etc.) and GCP and that the information herein is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

I/we understand that I/we are ultimately responsible for compliance with all conditions and requirements of the SWPPP and GCP and for ensuring all contractors and subcontractors on the permitted site are aware of the conditions and requirements of the SWPPP and GCP.

I/we shall comply with all conditions and requirements of the SWPPP and shall at all times properly operate and maintain all measures and control (and related appurtenances) which are installed or used to achieve compliance with the conditions of the GCP. Proper operation and maintenance also includes adequate funding and adequate staffing.

I/we shall take all reasonable steps to minimize or prevent any discharge in violation of the SWPPP and/or GCP.

I/we understand that if it determined by the Department of Environmental Quality (DEQ) in consultation with the State Water Control Board at any time that stormwater discharges are causing, have reasonable potential to cause, or contribute to and excursion above any applicable water quality standard, the DEQ may, in consultation with the Administrator, take appropriate enforcement action and require:

- Modification of control measures to adequately address water quality concerns;
- Submission of valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is attaining water quality standards; or
- Cessation of discharges of pollutants from construction activity and submit an individual permit application according to 4VAC25-870-410.

OPERATOR(S) / DELEGATED AUTHORITY		
Name (print)	Signature	Date

Additional contact information can be found in the SWPPP Binder.