KING ROAD SUBDIVISION
PHASE ONE
CONCEPT
STORMWATER MANAGEMENT PLAN

GENERAL NOTES

1. THE PROPERTY IS ZONED TC(R) AND CONTAINS 160.5 ACRES. THE PHASE ONE DEVELOPMENT AREA IS 48.31 ACRES, AND INCLUDES FOREST CONSERVATION AREAS FOR THE REMAINING FUTURE DEVELOPMENT WITHIN THE REFERENCED RECORDS PARCELS.

2. IN ACCORDANCE WITH THE MARYLAND 2007 STORMWATER DESIGN MANUAL, THE TOWN OF BOONSBORO LAND SUBDIVISION ORDINANCE, THE WASHINGTON COUNTY FOREST CONSERVATION ORDINANCE AND FLOODPLAIN ORDINANCE, AND THE STATE FOREST CONSERVATION TECHNICAL MANUAL, THE SITE DEVELOPMENT LIMIT WAS DETERMINED BY USING THE MOST RESTRICTIVE OF:

   - 100 YEAR FLOOD PLAIN;
   - STEEP SLOPES ≥25% WITH AREA≥10,000 sf;
   - SLOPE ≥15% AND "WHOLE SOIL" ERODIBILITY FACTOR OF k≥0.35 (EXCEPT FOR ISOLATED SMALL AREAS NOT HIGH PRIORITY WHERE NOTED);
   - EXISTING FOREST STANDS (EXCEPT WHERE THEY MAY BE CLEARED FOR UTILITIES AND/OR SWM);
   - STREAM BUFFERS (WIDTH VARIES BASED ON SLOPE PERPENDICULAR TO STANC GENERALLY 24' OR 100');
   - NON-TIDAL WETLANDS, THEIR 25' BUFFER, AND/OR WATERS OF THE U.S.

   SEE CONCEPT STORMWATER MANAGEMENT PLAN FOR PROVISION OF ENVIRONMENTAL SITE DESIGN (ESD) REQUIREMENTS TO THE MAXIMUM EXTENT PRACTICABLE (MEP) THAT DIRECTED THE PROPOSED YIELD SHOWN HEREON.

3. ALL OPEN SPACE PARCELS TO BE OWNED AND MAINTAINED BY A HOMEOWNER'S ASSOCIATION OR A PRIVATE ENTITY TO BE DETERMINED BY THE DEVELOPER AND THE TOWN OF WOODSBORO.

4. IN ORDER TO ACHIEVE THE REPRESENTED YIELD SHOWN HERON, MODIFICATIONS WILL BE REQUIRED FROM THE TOWN OF BOONSBORO LAND SUBDIVISION ORDINANCE FROM THE PLANNING COMMISSION FOR:

   - ROAD RIGHT-OF-WAY AND CROSS-SECTION WIDTHS AND DETAILS;
   - PERIMETER LANDSCAPE BUFFER DESIGN WIDTHS;
   - PROVISION OF SIDEWALK ON ONLY ONE SIDE OF STREETS, AND MODIFYING STANDARD WIDTH.

5. SITE TO BE SERVED BY TOWN OF BOONSBORO WATER & SEWER SYSTEMS VIA DEVELOPER-INSTALLED EXTENSIONS, INCLUDING GRAVITY WATER LINES, AND GRAVITY AND/OR PRESSURE (I.E. - GRINDER PUMP AND/OR PUMP STATION/FORCEMAIN) SEWER LINES.

6. EXISTING ON-SITE FOREST TO BE RETAINED WHERE POSSIBLE. ADDITIONAL FOREST (AFFORESTATION) TO BE PLANTED WITHIN SENSITIVE AREAS SHOWN WITHIN PHASE ONE; SEE PRELIMINARY FOREST CONSERVATION WORKSHEET.

7. PROPOSED FEATURES SHOWN HEREON SUBJECT TO FINAL ENGINEERING, AND ACCEPTANCE BY THE TOWN OF BOONSBORO.

8. THE PHASE ONE AREA IS BEING DEVELOPED FOR SINGLE-FAMILY RESIDENTIAL USES PER THE TOWN OF BOONSBORO'S ZONING AND SUBDIVISION ORDINANCES, BASED ON THE FOLLOWING (NOTE MINIMUM LOT AREA PER TOWN REQUIREMENTS IS 5,000 SF):

	MIN. LOT DIMENSIONS		MIN. LOT AREA	SETBACKS					
UNIT TYPE	WIDTH (FT)	DEPTH (FT)	SF	FRONT (FT)	SIDE (FT)	INTERIOR (FT)	REAR (FT)	# UNITS	% OF TOTAL
SINGLE FAMILY DETAGHED WITH FRONT-LOADED INTERIOR DOUBLE-GARAGES	60	100	6,000	10	8	N/A	20	*103*	*100%*
TOTAL								*103*	*100%*

9. DENSITY TABULATIONS:

ITEM	*AREA (ACRES)*	%
PHASE ONE AREA	48.31	100.0%
FEMA FLOOD PLAIN, STEEP SLOPES, HIGHLY-ERODIBLE SOILS (K>0.35 ON >15% SLOPES),ETC.	21.61	44.7%
NET DEVELOPABLE AREA	26.70	55.3%
MAXIMUM PERMITTED RESIDENTIAL UNITS (GROSS AREA) @ 10 DUS/ACRE	483	
NUMBER OF UNITS PROPOSED	*103*	
PROPOSED GROSS DENSITY: DU's/ACRE	*2.13*	
PROPOSED NET DENSITY: DU's/ACRE	*3.86*	

10. AREA SUMMARY:

ITEM	*AREA (ACRES)*	*% OF TOTAL*
LOTS	16.90	35%
ROAD RIGHT OF WAY DEDICATION	5.47	11%
OPEN SPACE PARCELS	25.94	54%
TOTAL:	48.31	100%

11. LOT MIX:

MIN. LOT WIDTH AT FRONT BRL (ft)	*# LOTS*	*% OF TOTAL*
60'	42	41%
70'	61	59%
TOTAL:	103	100%

BASE NOTES

1. THE PROPERTY IS ZONED TC(R) AND IS COMPRISED OF FIVE PARCELS AS SHOWN ON WASHINGTON COUNTY TAX MAP 73 , PARCELS 10, 18, 200, AND 256.

2. THE PROPERTY WAS ACQUIRED BY KING ROAD ASSOCIATES MARYLAND LIMITED PARTNERSHIP FROM THE FOLLOWING DEEDS RECORDED AMONG THE LAND RECORDS OF WASHINGTON COUNTY, MARYLAND:

DEED BOOK	*PAGE*	*DATE*	*DEED PARCEL*	*AREA (ACRES)*
857	1006	10/01/87	N/A	0.93
857	1033	09/29/87	N/A	22.20
875	388	05/06/88	PARCEL 1	13.14
875	388	05/06/88	PARCEL 2	0.64
1219	384	07/06/95	N/A	123.59
		TOTAL		*160.50*

3. BOUNDARY INFORMATION IS BASED ON A BOUNDARY SURVEY ENTITLED *"BOUNDARY SURVEY KING ROAD ASSOCIATES"* DATED AUGUST 30, 2005, PREPARED BY FOX & ASSOCIATES, INC. HORIZONTAL DATUM IS TOWN OF BOONSBORO.

4. TOPOGRAPHIC INFORMATION WAS PROVIDED FROM AERIAL PHOTOGRAMMETRIC MAPPING BY POTOMAC AERIAL SURVEYS AND MACRIS, HENDRICKS & GLASCOCK, PA. VERTICAL DATUM IS NAVD88.

5. THE PROPERTY SHOWN HEREON IS LOCATED WITHIN ZONE A (*"AREAS OF 100 YEAR FLOOD; BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS NOT DETERMINED"*), ZONE A2 (*"AREAS OF 100 YEAR FLOOD; BASE FLOOD ELEVATIONS AND FLOOD HAZARD FACTORS DETERMINED"*), ZONE B (*"AREAS BETWEEN ELEVATIONS OF 100-YEAR FLOOD AND 500-YEAR FLOOD; OR CERTAIN AREAS SUBJECT TO 100-YEAR FLOODING WITH AVERAGE DEPTHS LESS THAN ONE (1) FOOT OR WHERE THE CONTRIBUTING DRAINAGE AREA IS LESS THAN ONE SQUARE MILE; OR AREAS PROTECTED FROM BASE FLOOD BY LEVEES (MEDIUM SHADING)"*); AND ZONE C (*"AREAS OF MINIMAL FLOODING (NO SHADING)"*), AS DEPICTED ON FEMA FLOOD INSURANCE RATE MAP - COMMUNITY PANEL 2400?1 0001 A, EFFECTIVE JULY 6, 1990, AND PANEL 240070 0170 A, EFFECTIVE MAY 1, 1978. THE FLOOD PLAIN WAS TRANSPOSED AND ADJUSTED TO SUIT ACTUAL TOPOGRAPHIC CONDITIONS UTILIZING THE DETAILED STUDY FLOOD DEPTHS ON PROFILE SHEET 18 & 19. MDE MAY BE PERFORMING A DETAILED STUDY TO AMEND THAT PORTION WITHIN FIRM PANEL NO. 2400?1 0001 A, THEREFORE THE 100-YEAR FLOODPLAIN IS SUBJECT TO CHANGE.

6. WETLANDS SHOWN HEREON WERE DERIVED FROM NATIONAL WETLANDS INVENTORY (NWI) MAP NO. 301 AND TRANSPOSED AND ADJUSTED TO SUIT ACTUAL TOPOGRAPHIC CONDITIONS. WETLANDS LOCATIONS ARE NOT TO BE USED FOR DESIGN AND/PERMITTING PURPOSES SINCE A DETAILED DELINEATION HAS NOT BEEN PERFORMED.

7. ACCORDING TO THE WASHINGTON COUNTY WEB SOILS SURVEY, THE SOIL TYPES ON THIS SITE INCLUDE:

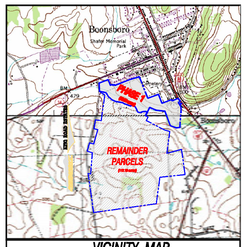
BASE NOTES - CONT'D.

7. ACCORDING TO THE NRCS WEB SOILS SURVEY, THE SOIL TYPES ON THIS SITE INCLUDE:

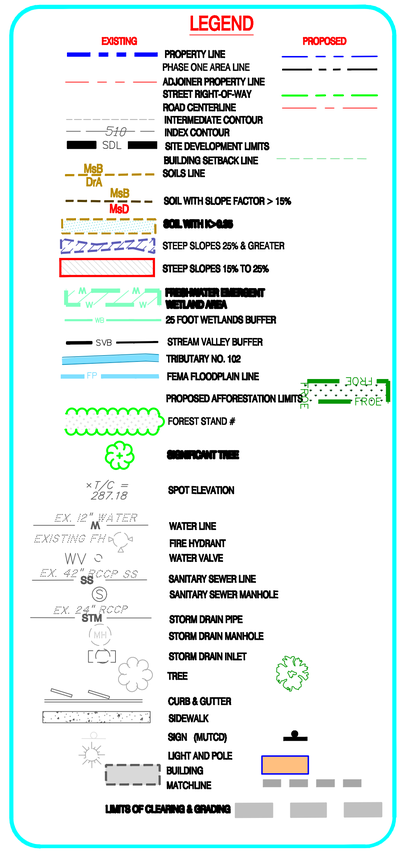
Map Unit Symbol	Map Unit Name
At	Atkins silt loam
Cp	Combs silt loam
Dk	Depaxel gravelly loam
DrA	Drynun gravelly loam, 0 to 3 percent slopes
DsB	Duffield silt loam, 3 to 8 percent slopes
DsC	Duffield silt loam, 8 to 15 percent slopes
DsD	Duffield silt loam, 15 to 25 percent slopes
HaB	Hagerstown silt loam, 3 to 8 percent slopes
HaC	Hagerstown silt loam, 8 to 15 percent slopes
HcB	Hagerstown-Rock outcrop complex, 3 to 8 percent slopes
HcC	Hagerstown-Rock outcrop complex, 8 to 15 percent slopes
Ln	Lindside silt loam
MsB	Murrill gravelly loam, 3 to 8 percent slopes
MsC	Murrill gravelly loam, 8 to 15 percent slopes
MsD	Murrill gravelly loam, 15 to 25 percent slopes
MuB	Murrill-Urban land complex, 0 to 8 percent slopes
Po	Pope gravelly loam
RmC	Ryder-Duffield channery silt loams, 8 to 15 percent slopes
SpA	Swanpond silt loam, 0 to 3 percent slopes
TrA	Trego gravelly loam, 0 to 3 percent slopes
TrB	Trego gravelly loam, 3 to 8 percent slopes

SHEET INDEX

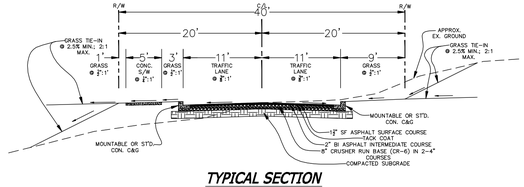
TITLE	*NUMBER*
COVER	SWM-1
SITE DEVELOPMENT LIMITS STUDY	SWM-2
YIELD STUDY	SWM-3
CONCEPT STORMWATER MANAGEMENT PLAN	SWM-4
CONCEPT STORMWATER MANAGEMENT PLAN	SWM-5
SWM DETAILS	SWM-6



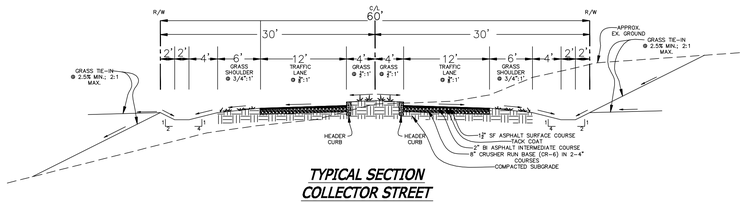
VICINITY MAP
SCALE: 1"=2000'
TAX MAP 73 PARCELS 10, 18, 200, 256
ADC MAP #32 GRID D4



	State Forest Conservation Manual	Appendix C: Worksheet and Preparation Guidelines			
Project Name:	KING ROAD PHASE ONE				
Date:	March 23, 2010				
Net Tract Area					*Acres*
A.	*Total Tract Area*		A	=	*160.50* *NOTE: INCLUDES PHASE ONE & REMAINDER PARCELS*
B.	*Other Deductions*		B	=	
C.	*Net Tract Area* Net Tract Area = (A-B-C)		C	=	*160.50*
Land Use Category: PUD					
D.	*Afforestation Threshold* (Net Tract Area X 15%		D	=	*24.08* *NOTE: HIGH-DENSITY RESIDENTIAL*
E.	*Conservation Threshold* (Net Tract Area X 20%		E	=	*32.10* *NOTE: HIGH-DENSITY RESIDENTIAL*
Existing Forest Cover					
F.	***Existing Forest Cover within the Net Tract Area***		F	=	*7.43* *NET ON-SITE AREA OF FOREST STANDS #6-9*
G.	*Area of Forest Above Conservation Threshold*		G	=	*0.00*
	If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then				
	G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0				
Break Even Point					
H.	*Break Even* (Amount of forest that must be retained so that no mitigation is required)		H	=	*7.43*
	(1) If the area of forest above the Conservation Threshold (G) is greater than zero, then				
	H = (0.2 X the area of forest above Conservation Threshold (G)) ÷ the Conservation Threshold (E)				
	(2) If the area of forest above the Conservation Threshold (G) is equal to zero, then				
	H = Existing Forest Cover (F)				
I.	*Forest Clearing Permitted Without Mitigation*		I	=	*0.00*
	I = Existing Forest Cover (F) - Break Even Point (H)				
Proposed Forest Clearing					
J.	***Total Area of Forest to be Cleared***		J	=	*0.41*
K.	*Total Area of Forest to be Retained*		K	=	*7.02*
	K = Existing Forest Cover (F) - forest to be cleared (J)				
Planting Requirements					
If the Total Area of Forest to be Cleared (K) is at or above the Breakeven Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0);					
If not, calculate the planting requirement below:					
L.	*Reforestation for Clearing Above the Conservation Threshold*		L	=	*0.00*
	(1) if the total area of forest to be retained (K) is greater than the Conservation Threshold (E), then				
	L = the area of forest to be cleared (J) X 0.25; or				
	(2) If the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then				
	L = area of forest above Conservation Threshold (G) X 0.25				
M.	*Reforestation for Clearing Below the Conservation Threshold*		M	=	*0.83*
	(1) if Existing Forest Cover (F) is greater than Conservation Threshold (E) and the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then				
	M = 2.0 X (the Conservation Threshold (E) - the forest to be retained (K))				
	(2) If Existing Forest (F) is less than or equal to the Conservation Threshold (E), then				
	M = 2.0 X Forest to be cleared (J).				
N.	*Credit for Retention Above the Conservation Threshold*		N	=	*0.00*
	If the area o' forest to be retained (K) is greater than the Conservation Threshold (E), then N = K - E				
P.	*Total Reforestation Required* P = L + M - N		P	=	*0.83*
Q.	*Total Afforestation Required*		Q	=	*16.64*
	(1) If Existing Forest Cover (F) is less than the Afforestation Threshold (D) then Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)				
R.	*Total Planting Requirement* R = P + Q		R	=	*17.47*



TYPICAL SECTION
LOCAL STREET
(NO PARKING)



TYPICAL SECTION
COLLECTOR STREET
(NO PARKING)

CONCEPT STORMWATER MANAGEMENT PLAN NOTES
(SEE PLAN HEREIN AND SEPARATE NARRATIVE FOR ADDITIONAL DETAILS)

SWM IMPLEMENTATION

IN ORDER TO IMPLEMENT ESD'S, THE PROJECT PROPOSES THE FOLLOWING CONCEPTUAL GRADING, DRAINAGE, AND SWM SCHEME, BASED ON THE CONCEPT STORMWATER MANAGEMENT PLAN:

LOT LAYOUT "A" DRAINS FROM FRONT TO BACK. THE ROOFTOP RUNOFF IS DISCONNECTED AND SHEET FLOWS ARE DIRECTED TO BUFFERS AND ON-LOT RAIN GARDENS. A PORTION OF PAVEMENT ALONG THE LOT FRONTAGE WILL ALSO BE CAPTURED, DISCONNECTED, AND TREATED ON THE ADJOINING LOT WITHIN RAIN GARDENS.

LOT LAYOUT "B" DRAINAGE IS SPLIT EITHER AT THE BACK OF CURB OR FRONT SETBACK. ROOFTOP RUNOFF IS DISCONNECTED AND SHEET FLOWS ARE DIRECTED TO ON-LOT RAIN GARDENS. A PERIMETER EARTH DIKE SHALL BE INSTALLED ALONG THE PROPERTY LINE TO CAPTURE OFFSITE RUNOFF AND CONVEY IT THROUGH THE SITE, BYPASSING THE ON-LOT PRACTICES.

LOT LAYOUT "C" IS SIMILAR TO LAYOUT "A". HOWEVER, DUE TO SLOPES OVER 9% BUT LESS THAN 15%, THE SWM PRACTICES INCLUDE UTILIZING INFILTRATION BERMS. IN ADDITION GRADING WILL REQUIRE TERRACING, TIMBER, OR BLOCK RETAINING WALLS ON MODERATE SLOPES.

LOT LAYOUT "D" IS PRIMARILY LOCATED ADJACENT TO THE LARGER OPEN SPACES AND CONSISTS OF A VARIETY OF OPTIONS TO MEET ROAD RUNOFF AND REMAINING ESD LOT REQUIREMENTS. OTHER ESD PRACTICES MAY INCLUDE SHEET FLOW TO CONSERVATION AREAS, LANDSCAPE INFILTRATION, INFILTRATION BERMS, RAIN GARDENS, AND/OR GRASS SWALES.

STRUCTURAL PRACTICES WILL INCLUDE DRY PONDS AT THE SDL FRINGE FOR INCREASED NET *I.E. - REDUCED BY THE WQV AND CPV TREATED WITHIN THE ON-LOT PRACTICES* RUNOFF TO PRE-DEVELOPED FLOWS FOR THE QP (I.E. - 2 AND 10-YEAR) STORMS, AND SAFELY PASS THE QF (I.E. 100-YEAR) STORMS THROUGH THE SITE FACILITIES;

SPECIFIC *NONSTRUCTURAL PRACTICES* UTILIZED IN A-D WILL INCLUDE:

- DISCONNECTION OF ROOFTOP RUNOFF DIRECTING FLOWS ONTO VEGETATED AREAS AND/OR MICRO-SCALE PRACTICES;
- DISCONNECTION OF NON-ROOFTOP RUNOFF DIRECTING FLOWS FROM IMPERVIOUS AREAS ONTO VEGETATED AREAS AND/OR MICRO-SCALE PRACTICES WILL PROVIDE TREATMENT FOR THE ROADWAY AND SIDEWALK PAVEMENT;
- SHEET FLOW TO CONSERVATION AREAS SHALL BE UTILIZED FOR TREATMENT OF ANY REMAINING UNMANAGED PAVEMENT RUNOFF.

SPECIFIC *MICRO-SCALE PRACTICES* UTILIZED IN A-D WILL INCLUDE:

- LANDSCAPE INFILTRATION UTILIZING ON-SITE VEGETATIVE PLANTING AREAS TO CAPTURE SHEET FLOW RUNOFF FROM PIPES, SWALES AND/OR CURB OPENINGS SHALL BE DESIGNED IN OPEN SPACE AREAS FOR TREATMENT OF PAVEMENT AND EXCESS LOT IMPERVIOUS RUNOFF;
- ON-SITE RAIN GARDENS WILL CAPTURE SHEET FLOW RUNOFF FROM DOWNSPOUTS, ROOF DRAINS, PIPES, SWALES AND/OR CURB OPENINGS FOR TREATMENT OF LOT IMPERVIOUS RUNOFF AND PORTIONS OF LOT FRONTAGE PAVEMENT AND SIDEWALK DRAINAGE;
- GRASS SWALES SHALL BE USED FOR ROADWAY APPLICATIONS TO PROVIDE CONVEYANCE, WATER QUALITY TREATMENT, AND FLOW ATTENUATION TO STORM WATER FACILITIES FOR QUANTITY CONTROL AND SAFE CONVEYANCE.

STRUCTURAL BMP'S UTILIZED IN E WILL INCLUDE:

- STORMWATER QUANTITY FACILITIES WILL BE UTILIZED TO REGULATE INCREASED RUNOFF TO PRE-DEVELOPED FLOWS FOR THE QP (I.E. - 2 AND 10-YEAR) STORMS, AND SAFELY PASS THE QF (I.E. 100-YEAR) STORMS.

ESD SIZING AND METHODOLOGY

SITE SOILS ARE CLASSIFIED IN HYDROLOGIC SOIL GROUPS B, C, AND D. THE "D" SOILS CONSUME 0.6% OF THE SITE AREA AND WILL REMAIN UNDISTURBED. B AND C SOILS OVER THE REMAINING SITE ARE USED FOR ESD REQUIREMENTS. THESE SOILS WILL ALLOW MICRO-SCALE PRACTICES TO TREAT DEVELOPMENT RUNOFF.

FOR CONSERVATIVE AND CONCEPTUAL PURPOSES, 10,000 SQ. FT DRAINAGE AREAS WITH 55% IMPERVIOUS WILL BE UTILIZED FOR ON-LOT PE COMPUTATIONS. 55% IMPERVIOUS COVER IN B AND C SOILS WILL REQUIRE A PE = 1.8 INCHES. ON-LOT RAIN GARDENS WILL BE DESIGNED TO MEET THESE REQUIREMENTS. USING 55% IMPERVIOUS COVER AND 10,000 SQ. FT. DRAINAGE AREA, THE RAIN GARDENS WILL BE APPROXIMATELY 336 SQ. FT. OR 7 FT WIDE AND 80 FT LONG. SMALLER DRAINAGE AREAS WILL REQUIRE SMALLER RAIN GARDENS.

OTHER UNMANAGED PAVEMENT RUNOFF WILL BE DISCONNECTED TO GRASS SWALES DIRECTING FLOWS TO LANDSCAPE INFILTRATION AREAS AND RAIN GARDENS.

FLOWS FROM OP STORMS SHALL BE DIRECTED TO STORM WATER QUANTITY FACILITIES VIA OVERFLOW CONVEYANCE SYSTEMS INCLUDED IN THE RAIN GARDENS AND LANDSCAPE INFILTRATION AREAS AND/OR GRASSED SWALES.

DOWNSTREAM DRAINAGE EASEMENT EVALUATION STATEMENT:

THIS PROJECT DRAINS TO AN UNNAMED TRIBUTARY NO. 102 OF LITTLE ANTIETAM CREEK. THE TRIBUTARY CROSSES THE PROPERTY AT FOUR (4) DISTINCT POINTS, OF WHICH ONE FLOWS OFF-SITE TO THE OLDEN PROPERTY BEFORE FLOWING BACK ON-SITE, AND THE OTHER TO A PARCEL OWNED BY THE TOWN OF BOONSBORO. BECAUSE THIS CONCEPT STORMWATER MANAGEMENT PLAN PROPOSES QUANTITY MANAGEMENT FOR THE REQUIRED STORMS, NO INCREASE IN DISCHARGE FLOWING TO OFF-SITE PROPERTIES IS ANTICIPATED. THEREFORE, DOWNSTREAM DRAINAGE EASEMENTS SHOULD NOT BE NECESSARY.

THE CONCEPT STORMWATER MANAGEMENT PLAN SHOWN HEREON IS APPROVED.

WASHINGTON COUNTY DIVISION OF PUBLIC WORKS — DATE
LAND DEVELOPMENT - ENGINEERING

COVER

KING ROAD SUBDIVISION
PROPERTY OF KING ROAD ASSOCIATES, MARYLAND LIMITED PARTNERSHIP

SITUATED ALONG THE EAST AND WEST SIDES OF KING ROAD, SOUTH OF SHEPHERDSTOWN PIKE/POTOMAC STREET (MD. RT. 34), WEST OF ROHRERSVILLE ROAD (MD. RT. 67), AND WEST OF OLD NATIONAL PIKE/MAIN STREET (ALT. U.S. RT. 40) IN THE TOWN OF BOONSBORO, MD.
WASHINGTON ELECTION DISTRICT NO. 6, WASHINGTON COUNTY TAX MAP/PARCEL 73/10, 73/18, 73/47, 73/200, 73/256, TOWN OF BOONSBORO, WASHINGTON COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18221, EXPIRATION DATE: APRIL 12, 2011.

DATE	REVISION DESCRIPTION
.	

OWNER/DEVELOPER
KING ROAD ASSOCIATES, MARYLAND LIMITED PARTNERSHIP
c/o THE ARCLAND GROUP, LLC
P.O. BOX 25223
WASHINGTON, DC 20027
(202) 441-6156

SEAL
STATE OF MARYLAND
MICHAEL T. WILEY
NO. 18221
REGISTERED PROFESSIONAL ENGINEER

PIEDMONT Design Group, LLC
5283 Corporate Drive
Suite 300
Frederick, MD 21703
301-695-5614

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SCALE	NTS
DESIGNED BY: EJS	CHECKED BY: MTW
APPROVED BY: EEW	
SHEET	SWM-1
DATE	APRIL 2010
DRAWING FILE	SWM COVER SHEET.dwg

Plotted: May 21, 2010 at 10:36am
S:\CIVIL\KING ROAD\ENGINEERING\SWM PLANS\SWM COVER SHEET.dwg

MONUMENT ROAD

YOUNG AVE.

KING ROAD ESTATES

PHASE ONE AREA
2,104,775 sf or
48.31 Acres

ALT 40 S. MAIN ST.

MAIN COLLECTOR ROAD

LOCAL ROAD

OPEN SPACE

TRIBUTARY NO. 102

PROPOSED
AFFORESTATION AREA #1
(7.85 Acres)

PROPOSED
AFFORESTATION AREA #1
(2.74 Acres)

FOREST STAND #7:
5.85 ACRES

FOREST STAND #6:
1.93 ACRES

FOREST STAND #6:
0.62 ACRES

FOREST STAND #5:
0.17 ACRES

Mid 19th Century
Farm Complex
(WA-II-046)

BOONSBORO CEMETARY ASSOCIATION
208/92

DONALD E. OLDEN, SR.
L.701 F.104

PARCEL 2 OF L.875 F.388 IS SUBJECT TO A RIGHT OF WAY FOR INGRESS AND EGRESS FOR LAND LOCKED PARCEL AS PER L.701 F.104

Gravel Drive

Mulberry Trail

Gate

INSET VIEW
SCALE: 1" = 100'

PLAN
GRAPHIC SCALE
100 0 50 100 200 HORZ.
(IN FEET)
SCALE: 1" = 100 FT. HORZ.

OWNER/DEVELOPER
KING ROAD ASSOCIATES,
MARYLAND LIMITED PARTNERSHIP
c/o THE ARCLAND GROUP, LLC
P.O. BOX 25523
WASHINGTON, DC 20027
(202) 441-6156

DATE	REVISION DESCRIPTION
.	

YIELD STUDY

KING ROAD SUBDIVISION

PROPERTY OF KING ROAD ASSOCIATES,
MARYLAND LIMITED PARTNERSHIP

SITUATED ALONG THE EAST AND WEST SIDES OF KING ROAD, SOUTH OF SHEPHERDSTOWN PIKE/POTOMAC STREET (MD. RT. 34), WEST OF ROHRERSVILLE ROAD (MD. RT. 67), AND WEST OF OLD NATIONAL PIKE/MAIN STREET (ALT. U.S. RT. 40) IN THE TOWN OF BOONSBORO, MD.
WASHINGTON ELECTION DISTRICT NO. 6, WASHINGTON COUNTY TAX MAP/PARCEL 73/10, 73/18, 73/47, 73/200, 73/256, TOWN OF BOONSBORO, WASHINGTON COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION:
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18221, EXPIRATION DATE: APRIL 12, 2011.

SEAL
STATE OF MARYLAND
MICHAEL T. WILEY
No. 18221
REGISTERED
PROFESSIONAL ENGINEER

PIEDMONT
Design Group, LLC
5283 Corporate Drive
Suite 300
Frederick, MD 21703
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SCALE	1"=100'	
DESIGNED BY: EJS	CHECKED BY: MTW	APPROVED BY: EEW
SHEET	SWM-3	
DATE	APRIL 2010	
DRAWING FILE	YIELD STUDY SHEETS--MODIFIED-- for SWM.dwg	

Plotted: May 21, 2010 at 10:58am
S:\CIVIL\KING ROAD\ENGINEERING\SWM PLANS\YIELD STUDY SHEETS--MODIFIED-- for SWM.dwg

MONUMENT ROAD

YOUNG AVE.

KING ROAD ESTATES

Piedmont Design Group, LLC

PHASE ONE AREA
2,104,775 sf or
48.31 Acres

LINE TABLE		
LINE	LENGTH	BEARING
L1	88.69	N03°44'59"E
L2	62.72	N00°24'59"E
L3	70.12	N02°36'41"W
L4	48.75	N08°13'56"W
L5	15.00	N77°47'42"E
L6	49.10	N10°25'12"W
L7	86.01	N67°48'50"E
L8	28.79	S24°14'53"E
L9	64.00	N65°46'22"E
L10	33.59	S24°14'53"E
L11	48.00	S24°34'21"E
L12	130.34	N66°24'20"E
L13	89.51	S39°07'29"E
L14	150.03	N52°06'22"E
L15	63.80	S39°07'29"E
L16	132.00	S54°25'43"W
L17	70.95	S37°19'17"E
L18	18.15	N56°10'43"E
L19	11.57	N09°58'03"W
L20	121.75	N50°11'07"E
L21	18.03	S41°02'36"E
L22	95.00	S48°54'11"W
L23	25.18	S08°11'32"W
L24	116.00	S13°55'49"E
L25	112.88	S02°44'55"W
L26	23.00	S48°34'11"W
L27	50.00	N41°25'49"W
L28	209.15	S48°34'11"W
L29	127.60	N40°27'36"W
L30	16.18	S35°00'36"E
L31	157.57	S00°30'36"E
L32	138.05	S81°03'33"W
L33	139.00	N79°26'27"W
L34	26.00	N60°26'27"W
L35	58.36	N59°54'39"W
L36	23.10	N25°52'21"E
L37	54.50	N50°22'39"W
L38	118.73	S76°00'44"W
L39	165.62	N76°00'44"E
L40	40.00	S09°29'16"E
L41	161.99	N76°14'11"E
L42	114.59	S11°22'17"E
L43	157.98	N81°52'37"E
L44	130.37	S08°33'26"E
L45	166.68	N10°28'41"W
L46	7.50	S79°30'19"W
L47	44.74	N52°36'17"W
L48	24.71	S87°05'35"W

CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	11600.16	305.48	152.75	305.47	S18°15'40"W	1°30'32"
C2	150.00	62.85	31.89	62.39	S22°29'52"E	24°00'23"

LEGEND

EXISTING	PROPOSED	
		PROPERTY LINE
		PHASE ONE AREA LINE
		ADJOINER PROPERTY LINE
		STREET RIGHT-OF-WAY
		ROAD CENTERLINE
510		INTERMEDIATE CONTOUR
510		INDEX CONTOUR
SDL		SITE DEVELOPMENT LIMITS
		BUILDING SETBACK LINE
MsB DrA		SOILS LINE
MsB MsD		SOIL WITH SLOPE FACTOR > 15%
		SOIL WITH K>0.35
		STEEP SLOPES 25% & GREATER
		STEEP SLOPES 15% TO 25%
		FRESHWATER EMERGENT WETLAND AREA
WB		25 FOOT WETLANDS BUFFER
SVB		STREAM VALLEY BUFFER
		TRIBUTARY NO. 102
FP		FEMA FLOODPLAIN LINE
		PROPOSED AFFORESTATION LIMITS
		FOREST STAND #
		SIGNIFICANT TREE
×T/C = 287.18		SPOT ELEVATION
EX. 12" WATER		WATER LINE
EXISTING FH		FIRE HYDRANT
WV		WATER VALVE
EX. 42" RCCP SS		SANITARY SEWER LINE
SS (MH)		SANITARY SEWER MANHOLE
EX. 24" RCCP STM		STORM DRAIN PIPE
(MH)		STORM DRAIN MANHOLE
		STORM DRAIN INLET
		TREE
		CURB & GUTTER
		SIDEWALK
		SIGN (MUTCD)
		LIGHT AND POLE
		BUILDING
		MATCHLINE

DATE	REVISION DESCRIPTION
.	

SITE DEVELOPMENT LIMITS STUDY

KING ROAD SUBDIVISION

PROPERTY OF KING ROAD ASSOCIATES, MARYLAND LIMITED PARTNERSHIP

SITUATED ALONG THE EAST AND WEST SIDES OF KING ROAD, SOUTH OF SHEPHERDSTOWN PIKE/POTOMAC STREET (MD. RT. 34), WEST OF ROHRERSVILLE ROAD (MD. RT. 67), AND WEST OF OLD NATIONAL PIKE/MAIN STREET (ALT. U.S. RT. 40) IN THE TOWN OF BOONSBORO, MD.
WASHINGTON ELECTION DISTRICT NO. 6, WASHINGTON COUNTY TAX MAP/PARCEL 73/10, 73/18, 73/47, 73/200, 73/256, TOWN OF BOONSBORO, WASHINGTON COUNTY, MARYLAND

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PLAN

GRAPHIC SCALE
100 0 50 100 200 HORZ.
(IN FEET)
SCALE: 1" = 100 FT. HORZ.

OWNER/DEVELOPER
KING ROAD ASSOCIATES, MARYLAND LIMITED PARTNERSHIP
c/o THE ARCLAND GROUP, LLC
P.O. BOX 25523
WASHINGTON, DC 20027
(202) 441-6156

SEAL
STATE OF MARYLAND
MICHAEL T. WILEY
NO. 18221
REGISTERED PROFESSIONAL ENGINEER

PIEDMONT Design Group, LLC
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301-695-5614

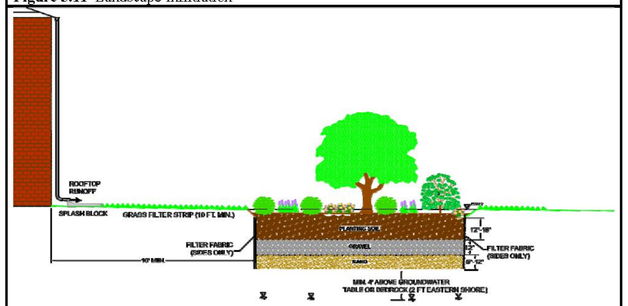
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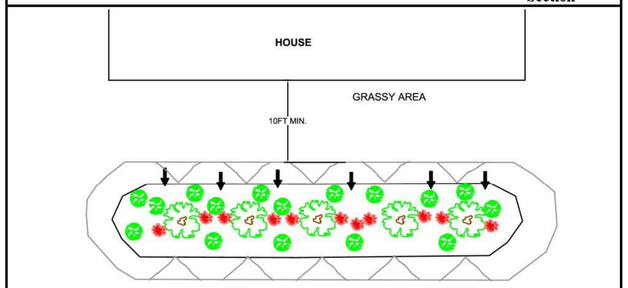
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INSET VIEW
SCALE: 1" = 100'

Figure 5.11 Landscape Infiltration

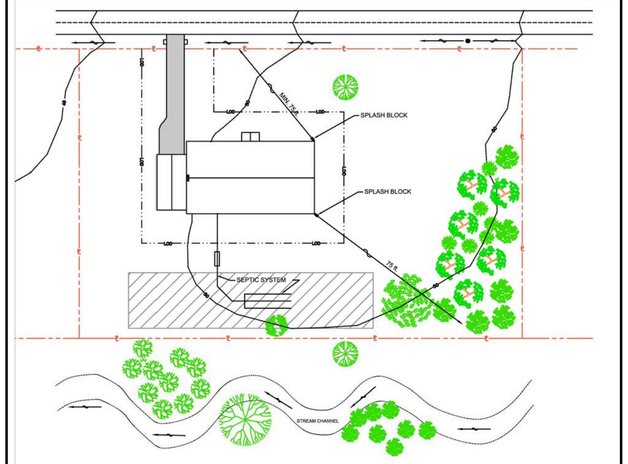


Section



Plan View

Figure 5.4 Disconnection of Rooftop Runoff

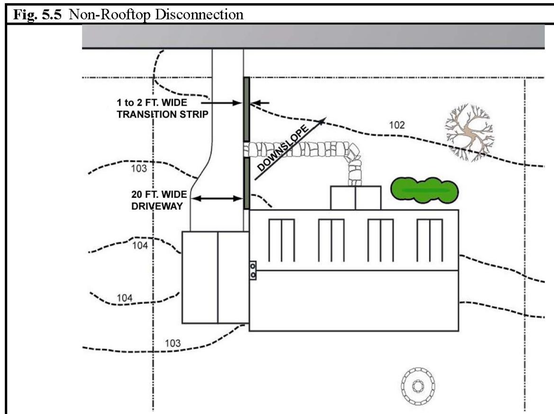


Plan View

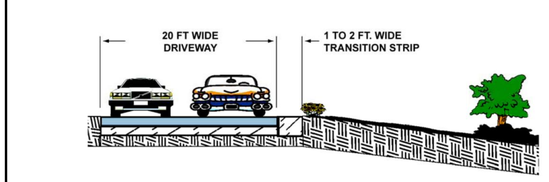


Profile

Fig. 5.5 Non-Rooftop Disconnection

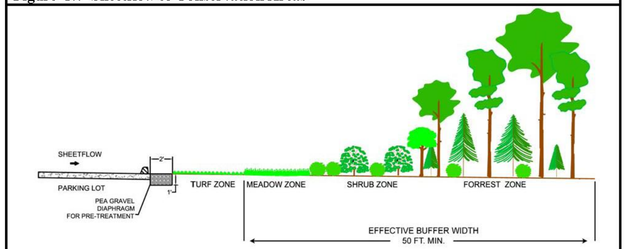


Plan View

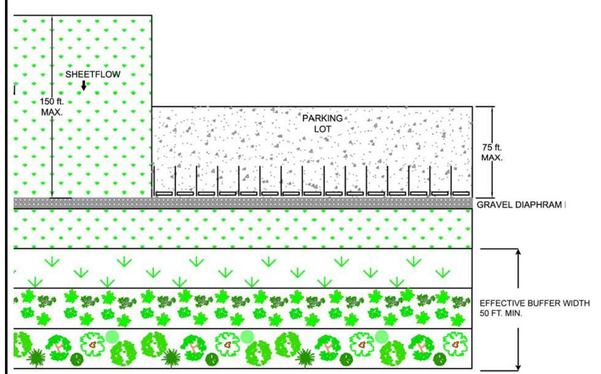


Profile

Figure 5.7 Sheetflow to Conservation Areas

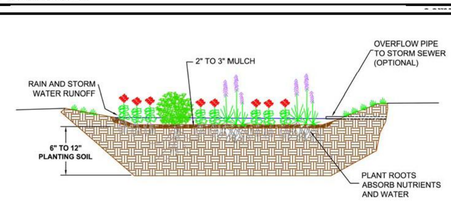


Profile



Plan View

Figure 5.17 Rain Garden



Section

DATE	REVISION DESCRIPTION
.	

DETAILS

KING ROAD SUBDIVISION

PROPERTY OF KING ROAD ASSOCIATES,
MARYLAND LIMITED PARTNERSHIP

SITUATED ALONG THE EAST AND WEST SIDES OF KING ROAD, SOUTH OF SHEPHERDSTOWN PIKE/POTOMAC STREET (MD. RT. 34), WEST OF ROHRERSVILLE ROAD (MD. RT. 67), AND WEST OF OLD NATIONAL PIKE/MAIN STREET (ALT. U.S. RT. 40) IN THE TOWN OF BOONSBORO, MD.
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SEAL
STATE OF MARYLAND · MICHAEL T. WILEY · NO. 18221 · REGISTERED PROFESSIONAL ENGINEER

PIEDMONT Design Group, LLC
5283 Corporate Drive
Suite 300
Frederick, MD 21703
301-695-6614

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OWNER/DEVELOPER
KING ROAD ASSOCIATES,
MARYLAND LIMITED PARTNERSHIP
c/o THE ARCLAND GROUP, LLC
P.O. BOX 25523
WASHINGTON, DC 20027
(202) 441-6156

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POST
Sassafras
Multiflorarose
Black Cherry
DIVERSION BERM (TYP)
N67°08'59"E
116.70'
POST
N24°11'15"W
349.63'
LIMITS OF CLEARING AND GRADING (TYP.)
LOCAL ROAD
OPEN SPACE
SWM
M WATER
TITY FACILITY
POST
DIVERSION BERM (TYP)
N66°52'28"E
381.56'
POST
KING ROAD ESTATES
BOONSBORO CEMETARY ASSOCIATION
REBAR
DIVERSION BERM (TYP)
L11
L12
REBAR
REBAR
POST
REBAR
RAILROAD SPIKE
ALT 40 S. MAIN ST.
66'
LOCAL ROAD
MAIN COLLECTOR ROAD
OPEN SPACE
SWM
STORM WATER QUANTITY FACILITY
22" Black Walnut
18x18x24x24" Silver Maple
26" Black Cherry Poor/Dead
30" Box Elder
Grass
L28
LIMITS OF CLEARING AND GRADING (TYP.)
N52°40'27"E
376.43'
30" Black Cherry
STORM WATER QUANTITY FACILITY
SWM
S02°23'39"E
223.59'
L30
20"-2
30" Box Elder
MATCHLINE (SEE INSET)
MATCHLINE (SEE SHEET SWM-4)
LIMITS OF CLEARING AND GRADING (TYP.)
N88°41'50"W
245.56'
28" White Ash
N86°10'33"W
337.16'
POST
30" White Ash
POST
N39°41'18"W
98.7
S23°58'10"W
349.31'
POST
TRIBUTARY NO. 102
N20°03'21"W
409.9'
DONALD E. OPDEN, SR.
L731 F104
PARCEL 2 OF L875 F388 SUBJECT TO RIGHT OF WAY FOR INGRESS AND EGRESS FOR LANDS OF SMITH AS PER L731 F104
White Ash
Hackberry
Sycamore
Mulberry TP
FOREST STAND #6:
0.62 ACRES
68°29'22"E
05.54'
POST
S17°23'07"W
141.32'
REBAR
Gravel Drive
S65°17'16"E
REBAR
L37
L36
L35
L31
TRIBUTARY NO. 102

PLAN

GRAPHIC SCALE
50 0 25 50 100 HORZ.
(IN FEET)
SCALE: 1" = 50 FT. HORZ.

OWNER/DEVELOPER
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c/o THE ARCLAND GROUP, LLC
P.O. BOX 25523
WASHINGTON, DC 20027
(202) 441-6156

DATE	REVISION DESCRIPTION
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CONCEPT STORMWATER MANAGEMENT PLAN

KING ROAD SUBDIVISION

PROPERTY OF KING ROAD ASSOCIATES, MARYLAND LIMITED PARTNERSHIP

SITUATED ALONG THE EAST AND WEST SIDES OF KING ROAD, SOUTH OF SHEPHERDSTOWN PIKE/POTOMAC STREET (MD. RT. 34), WEST OF ROHRERSVILLE ROAD (MD. RT. 67), AND WEST OF OLD NATIONAL PIKE/MAIN STREET (ALT. U.S. RT. 40) IN THE TOWN OF BOONSBORO, MD.
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SEAL
STATE OF MARYLAND
MICHAEL T. WILEY
NO. 18221
REGISTERED
PROFESSIONAL ENGINEER

PIEDMONT
Design Group, LLC
5283 Corporate Drive
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Frederick, MD 21703
301-695-6614

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SHEET	SWM-5	
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PLAN

GRAPHIC SCALE
50 0 25 50 100 HORZ.
(IN FEET)
SCALE: 1" = 50 FT. HORZ.

MATCHLINE (SEE INSET)

YOUNG AVE.

KING ROAD ESTATES

N64°10'22"E 40.13'

POST

LIMITS OF CLEARING AND GRADING (TYP)

N71°10'05"E 368.94'

REBAR

548.14'

DIVERSION BERM (TYP)

N65°46'22"E

S24°01'45"E 511.71'

DIVERSION BERM (TYP)

LOCAL ROAD

L10

L9

RAIN GARDEN (TYP)

REBAR

28" Pignut Hickory

OPEN SPACE

OPEN SPACE

D

S24°14'58"E 382.85'

MAIN COLLECTOR ROAD

SWM

RM WATER
NTITY FACILITY

LANDSCAPE INFILTRATION (TYP)

24" Sage Orange

SWM

SWM

N89°34'59"E 352.27'

STORM WATER QUANTITY FACILITY

REBAR

N85°53'07"E 300.14'

REBAR

S24°01'45"E

RAIN GARDEN (TYP)

REBAR

LIMITS OF CLEARING AND GRADING (TYP)

STORM WATER QUANTITY FACILITY

TRIBUTARY NO. 102

28" Sycamore

PROPOSED
AFFORESTATION AREA #1
(7.85 Acres)

Gravel Drive

EX. FENCE TYP.

48" Kentucky Coffe Tree
Poor Hollow Base

28" Mulberry Poor

FOREST STAND #7:
5.85 ACRES

S24°45'08"E 351.69'

S24°28'28"W 251.28'

D

MAIN COLLECTOR ROAD

Sassafras
Multiflorarose
Black Cherry

DIVERSION BERM (TYP)

N67°08'59"E 216.70'

POST

REBAR

STORM WATER QUANTITY FACI

MATCHLINE (SEE SHEET SWM-5)

KING ROAD ESTATES

FOREST STAND #9:
0.17 ACRES

30" Sycamore

REBAR

OPEN SPACE

REBAR

INSET VIEW
SCALE: 1" = 50'

PHASE ONE AREA
2,104,775 sf or
48.31 Acres

OWNER/DEVELOPER
KING ROAD ASSOCIATES,
MARYLAND LIMITED PARTNERSHIP
c/o THE ARCLAND GROUP, LLC
P.O. BOX 25523
WASHINGTON, DC 20027
(202) 441-6156

BOONSBORO CEMETARY ASSOCIATION
209/92

DATE	REVISION DESCRIPTION
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CONCEPT STORMWATER MANAGEMENT PLAN

KING ROAD SUBDIVISION

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