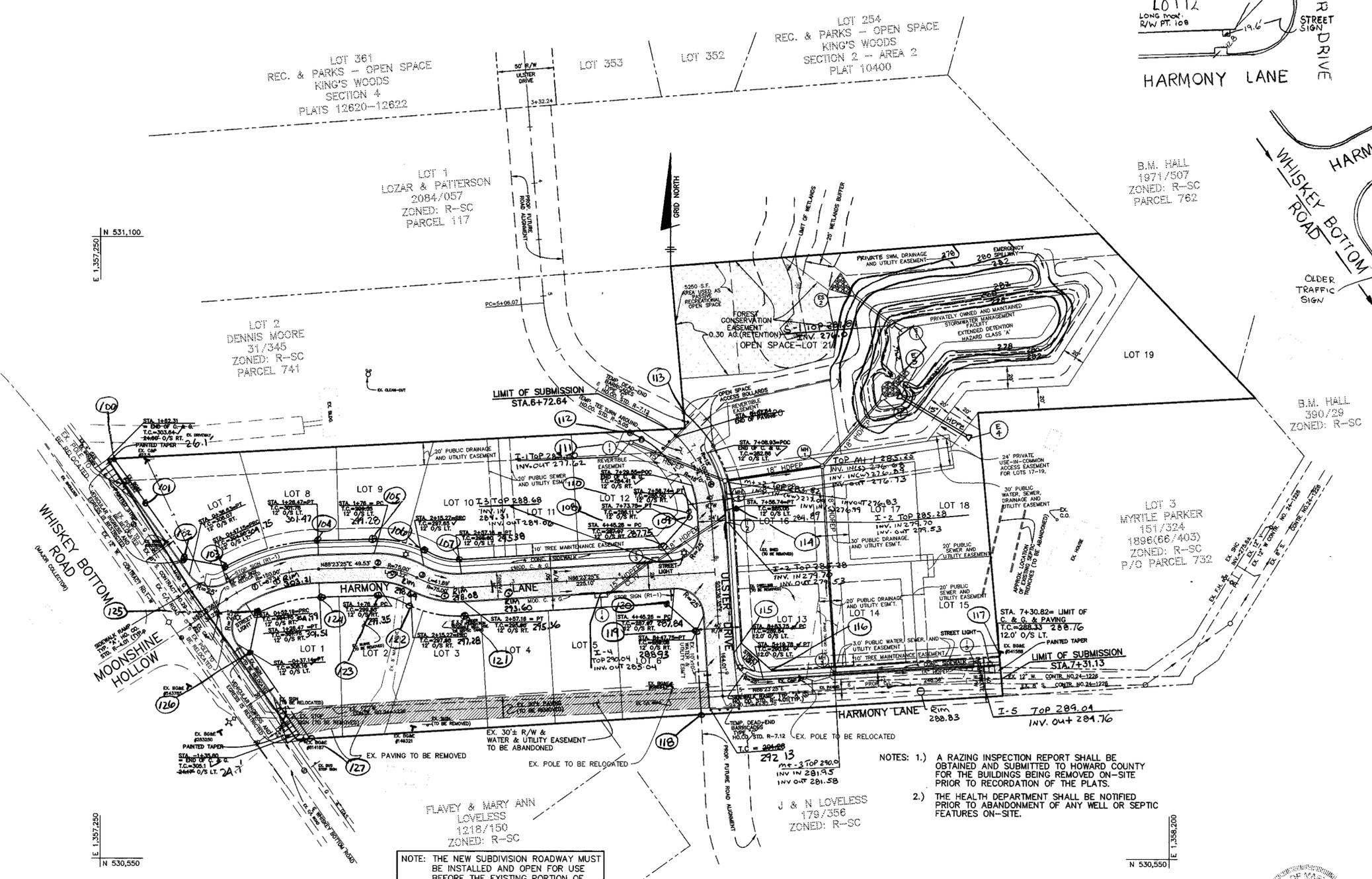
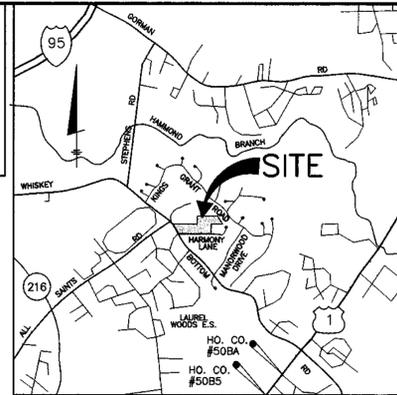


**CENTERLINE CURVE DATA**

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA	PC STATION	PT STATION
1	150.00'	87.24'	44.90'	86.02'	N71°43'40"E	33°19'30"	0+39.22	1+26.47
2	75.00'	39.27'	20.10'	38.82'	S76°36'35"E	30°00'00"	1+76.00	2+15.27(PRC)
3	75.00'	41.89'	21.51'	41.35'	S77°36'35"E	32°00'00"	2+15.27(PRC)	2+57.16
4	100.00'	74.10'	38.84'	72.42'	N24°50'17"W	42°27'24"	6+82.64	7+56.74

**BENCH MARKS--(NAD'83)**

HO. CO. #508A	EL. N/A
STANDARD DISC ON CONC. MONUMENT	
N 527561.6702'	E 1359772.5936'
HO. CO. #5085	EL. 178.242'
STANDARD DISC ON CONC. MONUMENT	
N 524999.3640'	E 1357925.6751'



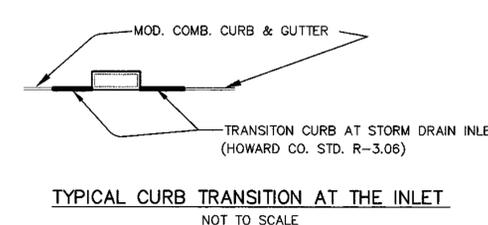
- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARD AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
  - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
  - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
  - PROJECT BACKGROUND:
    - LOCATION: TAX MAP: 47, GRIDS 21 & 22, PARCELS 169, 731, P/O 732
    - ZONING: R-SC
    - ELECTION DISTRICT: 6th
    - TOTAL TRACT AREA: 5.83 AC.
    - NUMBER OF PROPOSED LOTS: 20
    - NUMBER OF PROPOSED OPEN SPACE LOT: 1
    - DPZ REFERENCE FILE: S-98-02, P-98-27
    - PRELIMINARY PLAN APPROVED ON AUG. 14, 1998.
  - TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
  - TOPOGRAPHY SHOWN HEREON WAS TAKEN FROM FIELD RUN SURVEY DONE BY TSA GROUP, INC. DATED 1/98. CONTOURS SHOWN ARE AT 2 FOOT INTERVALS.
  - COORDINATES ARE BASED ON NAD 83, MARYLAND STATE PLAN GRID AS PROJECTED BY HOWARD CO. GEODETIC CONTROL STATIONS NO. 508A AND 5085.
  - THE PROJECT IS WITHIN THE METROPOLITAN DISTRICT, WATER AND SEWER FOR THIS PROJECT SHALL BE PUBLIC AND WILL BE PROVIDED TO THE LOTS.
  - WATER QUALITY AND QUANTITY TREATMENT FOR THE PROPOSED ROADWAY AND THE SITE IS BEING PROVIDED BY EXTENDED DETENTION. THIS FACILITY WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A.
  - NETLAND LIMITS SHOWN HEREON ARE BASED ON A DELINEATION BY ECO-SCIENCE PROFESSIONAL, INC. DATED JUNE 2, 1997.
  - ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS WAS PREPARED BY LEE CUNNINGHAM & ASSOCIATES, DATED JULY 1997.
  - NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
  - THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLES-CARNES AND ASSOCIATES, DATED FEB. 9, 1998.
  - EXISTING UTILITIES SHOWN ARE TAKEN FROM RECORD INFORMATION AND FIELD LOCATIONS.
  - FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONAL, INC. DATED JUNE 2, 1998 AND APPROVED PER S-98-02.
  - NO DISTURBANCE SHALL OCCUR IN THE WETLANDS OR 25' WETLAND BUFFER.
  - A RESOLUTION BY THE COUNTY COUNCIL TO ABANDON THE RIGHT-OF-WAY FOR A PORTION OF HARMONY LANE AND RELOCATING THE ROAD AS SHOWN ON THESE PLANS WAS FILED AS COUNCIL RESOLUTION 120-1998 AND ADOPTED BY THE COUNTY COUNCIL ON OCT. 5, 1998.
  - CONTRACTOR SHALL VERIFY ALL UTILITIES LOCATIONS PRIOR TO ANY CONSTRUCTION.
  - THE FOREST CONSERVATION EASEMENT(S) HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 15.1200 OF HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING OR SITE DEVELOPMENT PLAN.

- NOTES:**
- A RAZING INSPECTION REPORT SHALL BE OBTAINED AND SUBMITTED TO HOWARD COUNTY FOR THE BUILDINGS BEING REMOVED ON-SITE PRIOR TO RECORDATION OF THE PLATS.
  - THE HEALTH DEPARTMENT SHALL BE NOTIFIED PRIOR TO ABANDONMENT OF ANY WELL OR SEPTIC FEATURES ON-SITE.

**PLAN VIEW**

SCALE: 1" = 50'

RIGHT OF WAY			ELEVATION CHART (NAD83)		
R/W/PT. NO.	DESCRIPTION	ELEV.	R/W/PT. NO.	DESCRIPTION	ELEV.
100	Rebar & Cap	303.23	120	Rebar & Cap	289.38
101	Rebar & Cap	304.77	121	Rebar & Cap	296.18
102	Rebar & Cap	306.62	122	Rebar & Cap	298.14
103	Rebar & Cap	307.50	123	Rebar & Cap	299.97
104	Rebar & Cap	308.27	124	Rebar & Cap	302.22
105	Rebar & Cap	300.06	125	CONC. MON.	304.95
106	P.K. Nail in Driveway	298.07	126	Rebar & Cap	306.34
107	Rebar & Cap	296.38	127	Rebar & Cap	305.27
108	Conc. Mon.	288.37			
109	Rebar & Cap	286.08			
110	Rebar & Cap	285.82			
111	Rebar & Cap	282.89			
112	Rebar & Cap	282.83			
113	Rebar & Cap	280.74			
114	Rebar & Cap	285.88			
115	Rebar & Cap	289.80			
116	Rebar & Cap	290.77			
117	Rebar & Cap	288.22			
118	Rebar & Cap	291.99			
119	Rebar & Cap	289.74			



**STREET LIGHT SCHEDULE**

SYMBOL	DESCRIPTION	LOCATION
(Symbol)	100 WEST WPS WAPOR "TRADITION" POST TOP FIXTURE MOUNTED ON 1 1/2" BLACK FIBERGLASS POLE.	19' LT., STA. 0+38, HARMONY LANE 15' LT., STA. 1+98, HARMONY LANE 20' LT., STA. 4+57, HARMONY LANE 14' LT., STA. 7+22, HARMONY LANE 17' LT., STA. 8+96, ULSTER DRIVE

NOTE: A MINIMUM OF TWENTY (20) FEET SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Richard M. Daniels* 2-22-99  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cinda Hammit* 3/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*McRannan* 2/05/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Donald Mason*  
 AS-BUILT 3/5/02

NO.	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.
2	4-5-00	ADD STREET DRAIN PIPE & ROAD

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844

**OWNERS:**  
 CHARLES GREEN  
 P.O. BOX 213  
 LAUREL, MARYLAND 20725

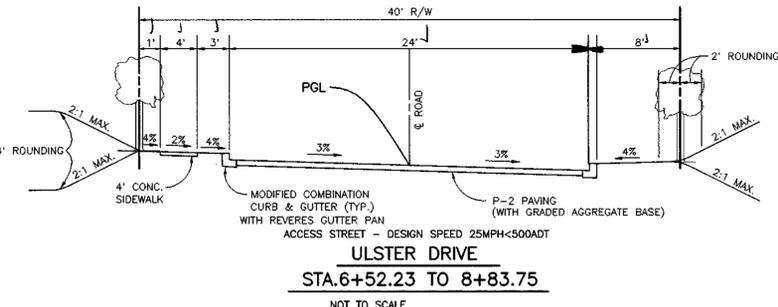
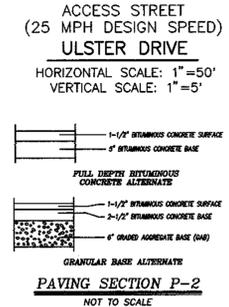
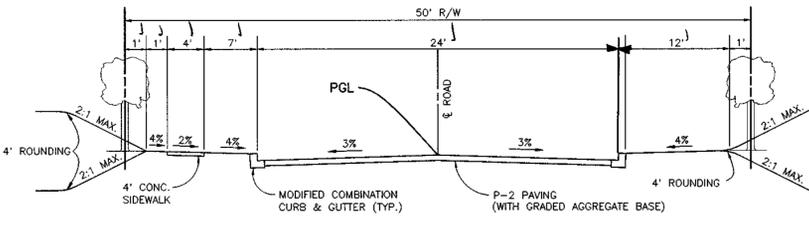
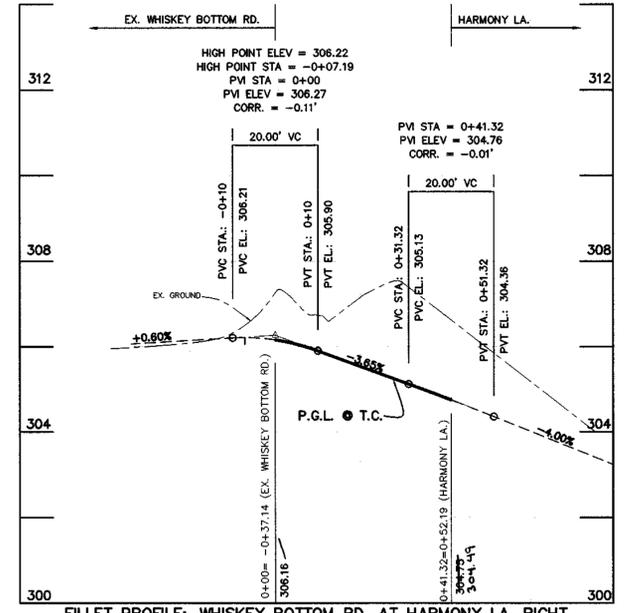
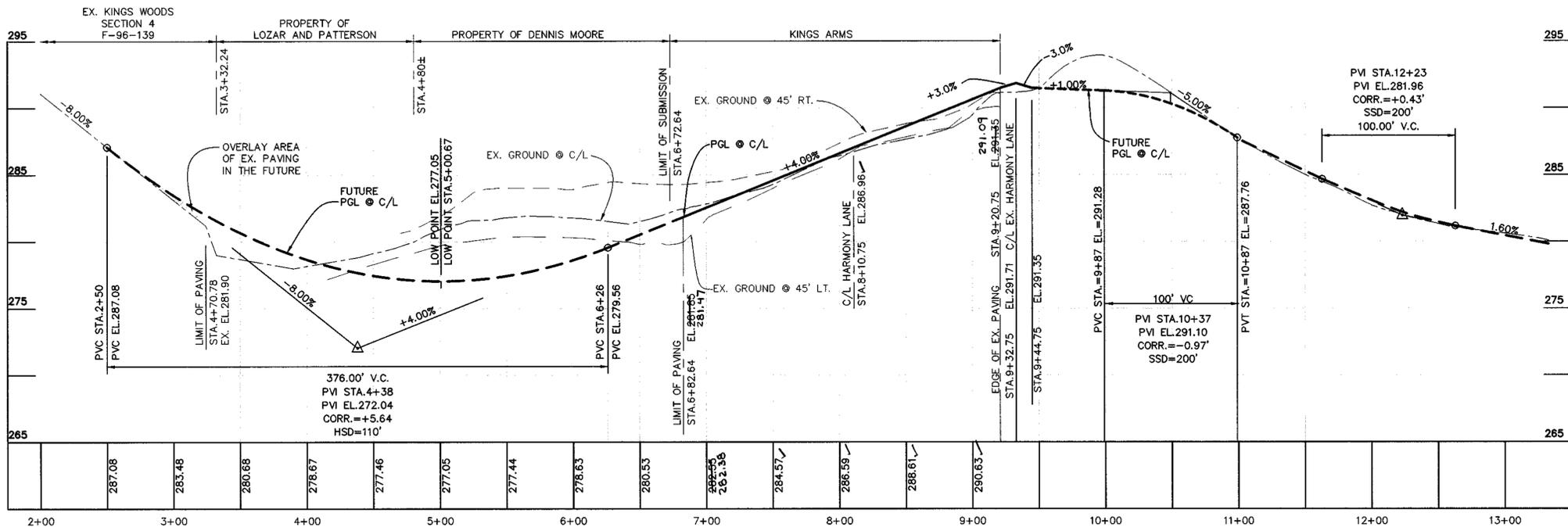
**DEVELOPER/CONTRACT PURCHASER:**  
 SDC GROUP, INC.  
 P.O. BOX 417  
 ELLICOTT CITY, MARYLAND 21041  
 (410) 442-4244

**PROJECT:**  
**KINGS ARMS**  
 SECTION 1, AREA 1  
**LOTS 1 THRU 21**  
 (S-98-02, P-98-27)

**LOCATION:**  
 TAX MAP 47 - GRIDS 21 & 22, PARCELS 169, 731, P/O 732  
 6th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

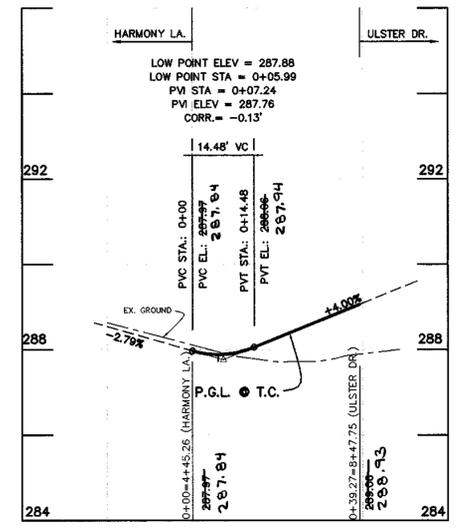
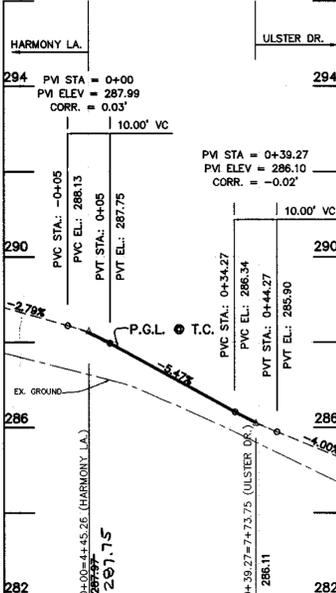
**TITLE:**  
**ROAD PLAN**  
**HARMONY LANE & ULSTER DRIVE**

DATE: SEPT. 1998 PROJECT NO. 0729  
 DESIGN: YSL DRAFT: YSL CHECK: DAM SCALE: AS SHOWN DRAWING 1 OF 13



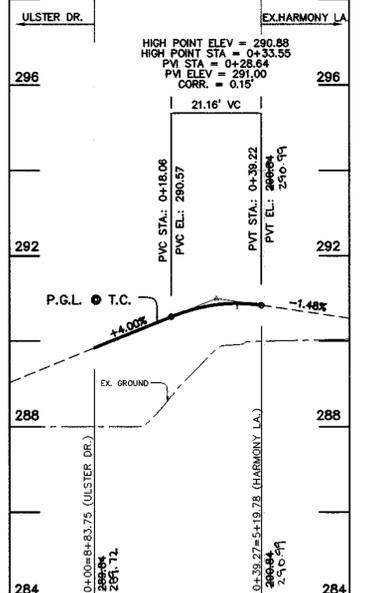
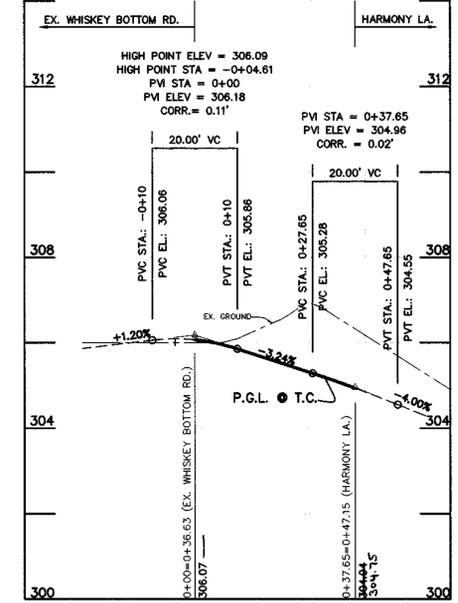
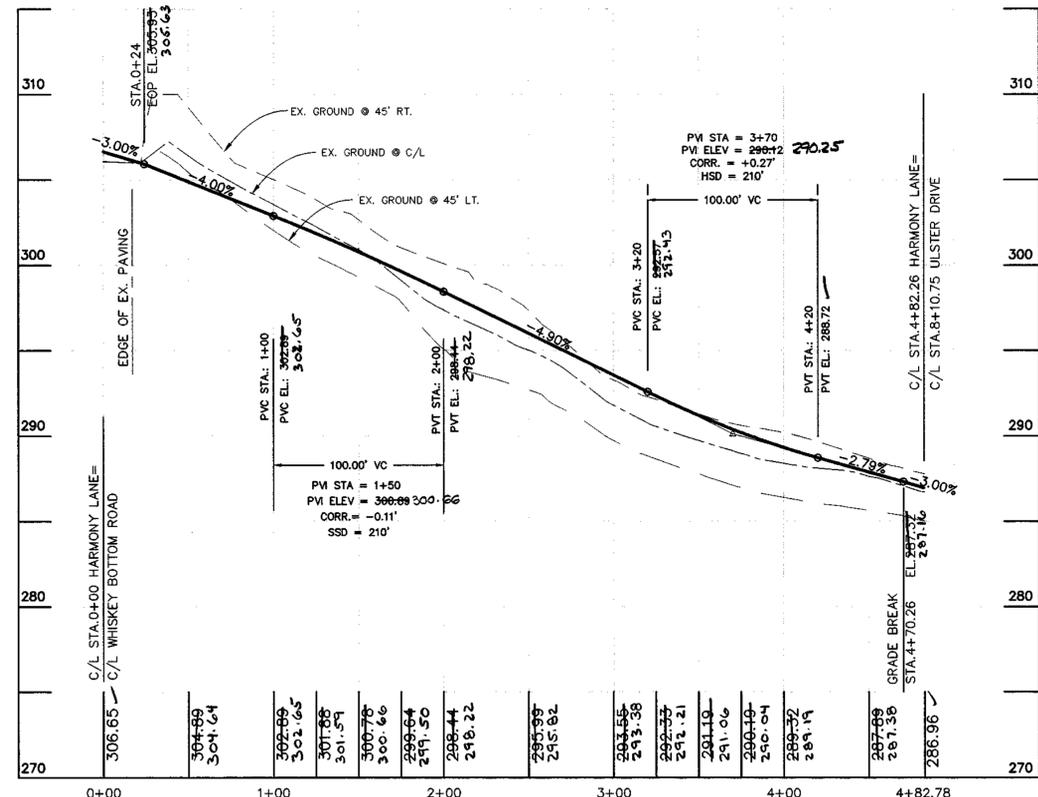
ACCESS STREET - DESIGN SPEED 25MPH/500-1000 ADT  
**HARMONY LANE**  
 STA.0+49 TO 4+45  
 NOT TO SCALE

ACCESS STREET - DESIGN SPEED 25MPH/500ADT  
**ULSTER DRIVE**  
 STA.6+52.23 TO 8+83.75  
 NOT TO SCALE



FILLET PROFILE: HARMONY LANE  
 AT ULSTER DRIVE -LEFT  
 HORIZONTAL SCALE: 1"=20'  
 VERTICAL SCALE: 1"=2'

FILLET PROFILE: HARMONY LANE  
 AT ULSTER DRIVE -RIGHT  
 HORIZONTAL SCALE: 1"=20'  
 VERTICAL SCALE: 1"=2'



FILLET PROFILE: WHISKEY BOTTOM RD.  
 AT HARMONY LA. LEFT  
 HORIZONTAL SCALE: 1"=20'  
 VERTICAL SCALE: 1"=2'

FILLET PROFILE: ULSTER DRIVE  
 AT EX. HARMONY LA.  
 HORIZONTAL SCALE: 1"=20'  
 VERTICAL SCALE: 1"=2'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Doncker* 2/22/99  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Hamata* 3/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*William M. ...* 2/25/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

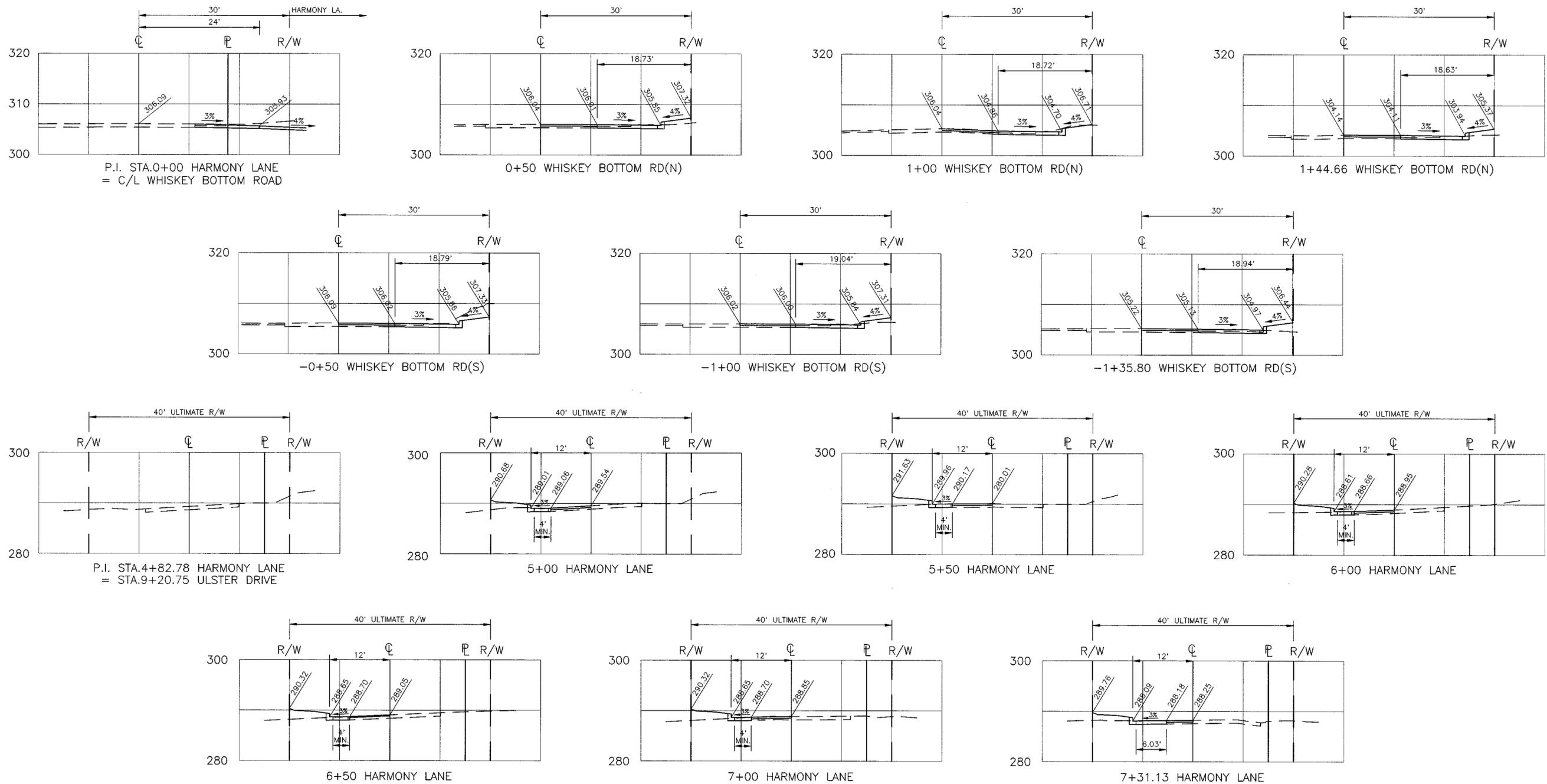
*Donald M. ...*  
 PROFESSIONAL ENGINEER  
 No. 11111  
 As-Built 3/5/02

OWNERS:  
 CHARLES GREEN  
 P.O. BOX 213  
 LAUREL, MARYLAND 20725  
 WILLIAM H. GREEN  
 39 N. 62nd STREET  
 PHILADELPHIA, PA 19139  
 CHARLES & HAROLD KELLER  
 2934 STRANDEN ROAD  
 BALTIMORE, MARYLAND 21230  
 WILLIAM H. CARROLL, JR.  
 1703 CRYSTAL AVENUE  
 BALTIMORE, MD 21213  
 RALPH PARKER, JR.  
 9910 HARMONY LANE  
 LAUREL, MD 20723

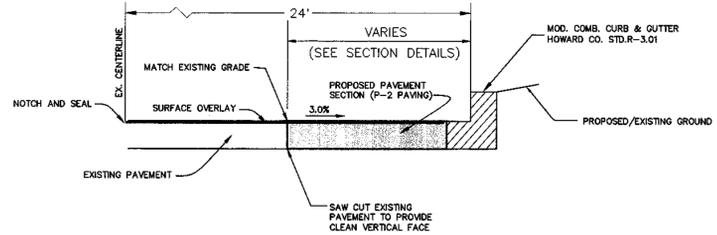
NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

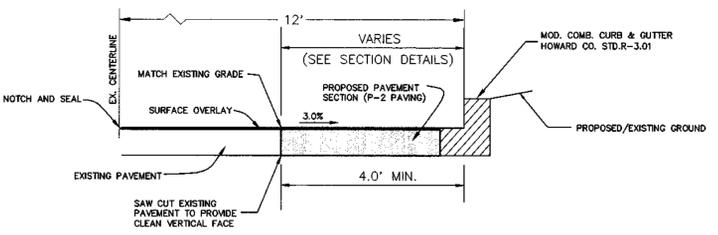
PROJECT: **KINGS ARMS**  
 SECTION 1, AREA 1  
 LOTS 1 THRU 21  
 (S-98-02, P-98-27)  
 DEVELOPER/CONTRACT PURHASER:  
 SDC GROUP, INC.  
 P.O. BOX 417  
 ELLICOTT CITY, MARYLAND 21041  
 (410) 442-4244  
 TITLE: **ROAD PROFILES & DETAILS**  
**HARMONY LANE & ULSTER DRIVE**  
 DATE: SEPT. 1998 PROJECT NO. 0729  
 DESIGN: YSL DRAFT: YSL CHECK: DAM SCALE: AS SHOWN DRAWING: 2 OF 13



**PROFILES**  
 HORIZONTAL SCALE: 1"=10'  
 VERTICAL SCALE: 1"=10'



STA. 0+36.63 TO 1+62.31 (RT.)  
 STA. -0+37.14 TO -1+35.80 (LT.)  
**PAVEMENT DETAIL FOR WHISKEY BOTTOM ROAD WIDENING**  
 NOT TO SCALE



STA. 5+19.78 TO 7+30.82 (LT.)  
**PAVEMENT DETAIL FOR EX. HARMONY LANE WIDENING**  
 NOT TO SCALE

- NOTES:
1. THE SURFACE OVERLAY SHALL BE CARRIED TO THE CENTERLINE OF THE ROAD AND NOTCHED AND SEALED.
  2. SURFACE OVERLAY COURSE TO BE EQUAL TO SURFACE COURSE OF TYPICAL PAVING SECTION OF SUBDIVISION.
  3. CENTERLINE OF ROAD TO BE MILLED AT DEPTH OF 1-1/2" x 1' WIDE USING A MILLING MACHINE.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Casade* 2/22/99  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cathy Hamilton* 5/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*William H. Green* 2/25/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

OWNERS:  
 CHARLES GREEN  
 P.O. BOX 213  
 LAUREL, MARYLAND 20725  
 WILLIAM H. GREEN  
 39 N. 62nd STREET  
 PHILADELPHIA, PA 19139  
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 WILLIAM H. CARROLL, JR.  
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 BALTIMORE, MD 21213  
 RALPH PARKER, JR.  
 9910 HARMONY LANE  
 LAUREL, MD 20723

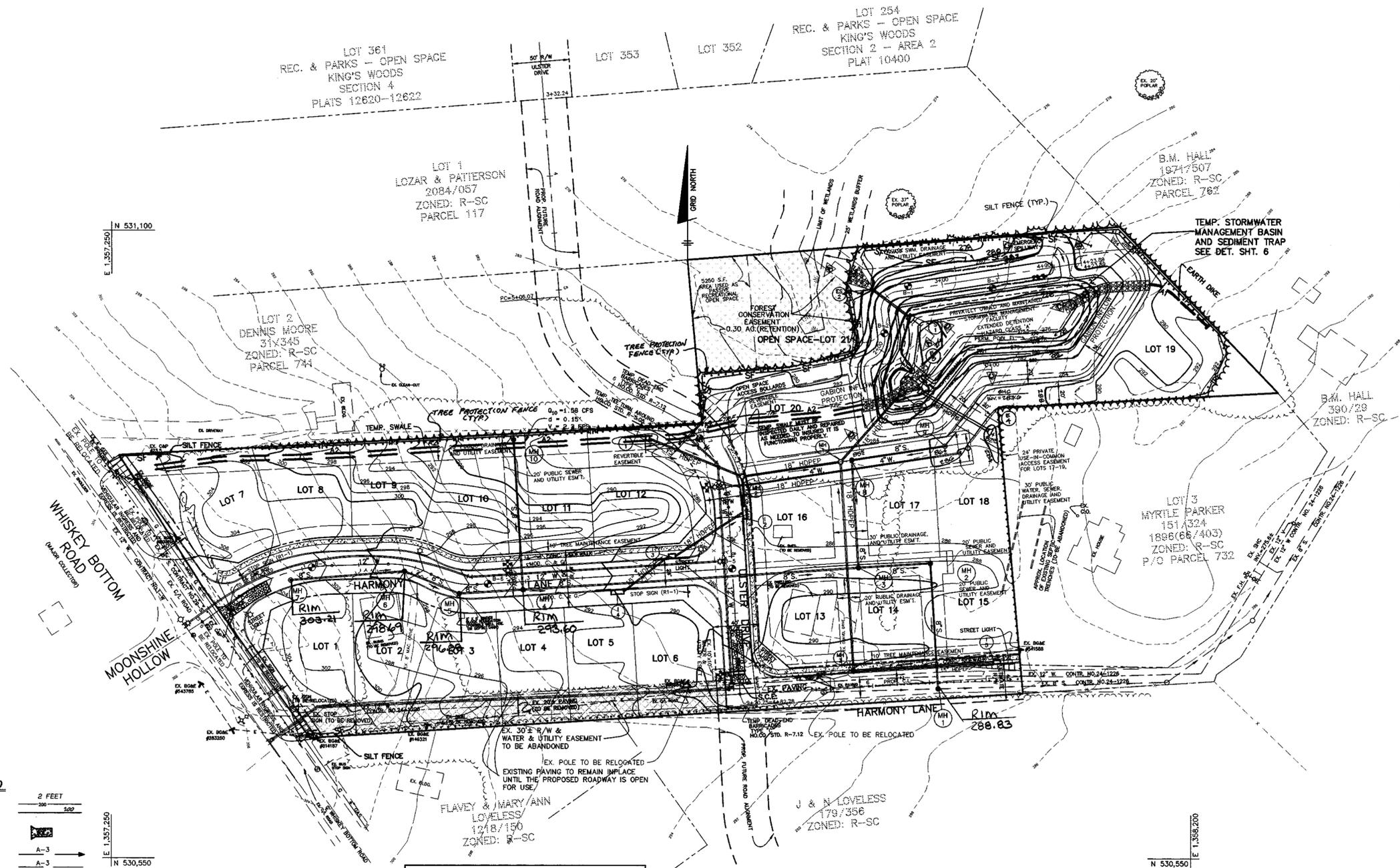
NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8490 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

PROJECT:	<b>KINGS ARMS SECTION 1, AREA 1 LOTS 1 THRU 21 (S-98-02, P-98-27)</b>
DEVELOPER/CONTRACT PURCHASER:	SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 442-4244
LOCATION:	TAX MAP 47 - GRIDS 21 & 22, PARCELS 169.731, P/O 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	<b>ROAD SECTION DETAILS HARMONY LANE &amp; WHISKEY BOTTOM ROAD</b>
DATE:	SEPT. 1998
PROJECT NO.	0729
DESIGN:	YSL
DRAFT:	YSL
CHECK:	DAM
SCALE:	AS SHOWN
DRAWING	_3_ OF _13_

**SEQUENCE OF CONSTRUCTION**

- DAY 1 OBTAIN A GRADING PERMIT.
- DAY 2 INSTALL TREE PROTECTION FENCE AS SHOWN IN THE PLANS.
- DAY 3-7 INSTALL STABILIZED CONSTRUCTION ENTRANCE, SILT FENCE BELOW THE SEDIMENT BASIN AND CLEAR ONLY THE AREA FOR THE SEDIMENT BASIN CONSTRUCTION.
- DAY 8-14 INSTALL SEDIMENT BASIN/TEMPORARY STORMWATER MANAGEMENT FACILITY.
- DAY 15-17 INSTALL THE REMAINING SEDIMENT CONTROL DEVICES.
- DAY 18-23 CLEAR REMAINING AREA OF DISTURBANCE.
- DAY 24-34 GRADE SITE TO SUBGRADE.
- DAY 35-65 COMMENCE UTILITY CONSTRUCTION. REMOVE THE TEMPORARY SWALE WHERE IT CROSSES ULSTER DRIVE AFTER THE INSTALLATION OF STORM DRAIN STRUCTURES I-1, M-1, M-2 AND ES-1.
- DAY 66-96 COMPLETE CURB AND GUTTER, SIDEWALK AND PAVING EXCEPT ALONG EXISTING HARMONY LANE.
- DAY 97-100 RE-ROUTE TRAFFIC ALONG EXISTING HARMONY LANE ONTO THE NEW ROADWAY AND REMOVE THE EXISTING PORTION OF HARMONY LANE TO BE ABANDONED.
- DAY 101-108 FINE GRADE SITE AND STABILIZE IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES.
- DAY 109-116 UPON APPROVAL OF SEDIMENT CONTROL INSPECTOR REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES. STABILIZE DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES AND CONVERT THE TEMPORARY STORMWATER MANAGEMENT FACILITY TO THE FINAL GRADES AND STRUCTURE CONFIGURATION.



NOTE: THE NEW SUBDIVISION ROADWAY MUST BE INSTALLED AND OPEN FOR USE BEFORE THE EXISTING PORTION OF HARMONY LANE IS REMOVED.

**PLAN VIEW**

SCALE: 1" = 50'

**LEGEND**

CONTOUR INTERVAL	2 FEET
EXISTING CONTOUR	---
PROPOSED CONTOUR	---
STABILIZED CONSTRUCTION ENTRANCE	---
PROPOSED EARTH DIKE	A-3
PROP. TEMP. SWALE	A-3
SILT FENCE	---
TREE PROTECTION FENCE	---
LIMIT OF DISTURBED AREA	---
EXISTING TREE LINE	---
PROPOSED TREE LINE	---

**STORMWATER MANAGEMENT SUMMARY DATA**

STORM FREQUENCY	PRE-DEVELOPED COMBINED DISCHARGE (CFS) AT DESIGN POINT	POST-DEVELOPED COMBINED DISCHARGE (CFS) WITH SWM AT DESIGN POINT
	DESIGN POINT #1	DESIGN POINT #1
2	0.1	0.1
10	3.5	3.5
100	-	22.7

STORM FREQUENCY	FACILITY #1		
	2	10	100
INFLOW (CFS)	9.6	20.4	32.9
DISCHARGE (CFS)	0.1	3.1	20.7
ELEVATION	279.46	280.23	281.14
STORAGE VOLUME (AC-FT)	0.558	0.737	0.999
DRAINAGE AREA	5.70 AC.		

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE AS-BUILT PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald Mason* PE NO. 21443 DATE 3/5/02  
DONALD A. MASON

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

**BY THE DEVELOPER:**

I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Donald Mason* 2/5/99 DATE  
DEVELOPER - SDC GROUP, INC.

**BY THE ENGINEER:**

I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL, REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN AS-BUILT PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Donald Mason* 2/4/99 DATE  
ENGINEER - DONALD A. MASON, P.E. # 21443

NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.
2	4-5-00	ADD STORM DRAIN PIPE & POND, REVISE GRADES ACCORDINGLY

*Donald Mason*  
AS-BUILT 3/5/02

**OWNERS:**  
CHARLES GREEN  
P.O. BOX 213  
LAUREL, MARYLAND 20725  
WILLIAM H. GREEN  
39 N. 62nd STREET  
PHILADELPHIA, PA 19139  
CHARLES & HAROLD KELLER  
2934 STRANDEN ROAD  
BALTIMORE, MARYLAND 21230  
WILLIAM H. CARROLL, JR.  
1703 CRYSTAL AVENUE  
BALTIMORE, MD 21213  
RALPH PARKER, JR.  
9910 HARMONY LANE  
LAUREL, MD 20723

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

**PROJECT:** KINGS ARMS SECTION 1, AREA 1 LOTS 1 THRU 21 (S-98-02, P-98-27)  
**DEVELOPER/CONTRACT PURCHASER:** SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 465-9244  
**LOCATION:** TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
**TITLE:** GRADING, STORM DRAIN, SEDIMENT & EROSION CONTROL PLAN  
**DATE:** SEPT. 1998 PROJECT NO. 0729  
**DESIGN:** YSL **DRAFT:** YSL **CHECK:** DAM **SCALE:** AS SHOWN **DRAWING** 4 OF 13

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 2/22/99 DATE  
CHIEF, BUREAU OF HIGHWAYS

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cynthia Hammett* 3/1/99 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT

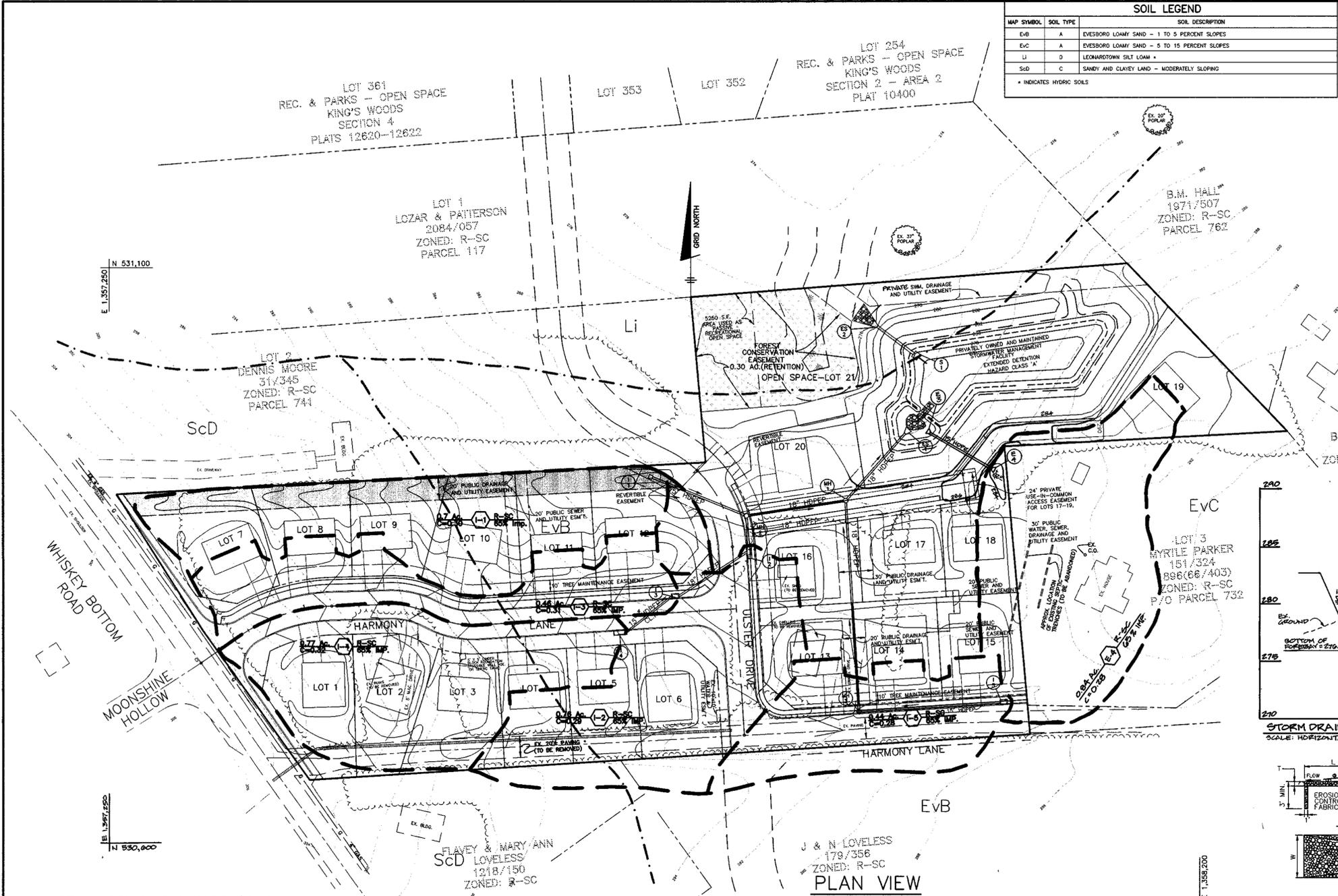
*Chad Deane* 2/25/99 DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**APPROVED:** THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.  
*Scotty Selig* 2/14/99 DATE  
HOWARD SOIL CONSERVATION DISTRICT

**APPROVED:** THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.  
*Cheryl Simmons* 2/14/99 DATE  
NATURAL RESOURCES CONSERVATION SERVICE

MAP SYMBOL	SOIL TYPE	SOIL DESCRIPTION
EVB	A	EVESBORO LOAMY SAND - 1 TO 5 PERCENT SLOPES
EVC	A	EVESBORO LOAMY SAND - 5 TO 15 PERCENT SLOPES
LI	D	LEONAROTOWN SILT LOAM *
ScD	C	SANDY AND CLAYEY LOAM - MODERATELY SLOPING

\* INDICATES HYDRIC SOILS



STORM DRAIN STRUCTURE SCHEDULE

STRUCTURE	TYPE	INVERT (OUT)	INVERT (IN)	TOP ELEVATION	LOCATION	REMARKS
E-3	HOPE END SECTION	276.0	276.0	---	N 530,965 E 1,357,100	---
E-4	HOPE END SECTION	281.91	281.91	---	N 530,925 E 1,358,020	---
I-1	YARD INLET	279.53	---	283.00	N 530918.33 E 135721.42	HOWARD COUNTY STD. SD -4.14
I-2	"A"-10" INLET	279.53	279.70	285.28	STA. 7+62.41 12.43' O/S LT. HARMONY LANE	HOWARD COUNTY STD. SD-4.02 OR SD-4.41
I-3	"A"-5" INLET	284.06	284.31	286.68	STA. 4+29.86 12.43' O/S LT. HARMONY LANE	HOWARD COUNTY STD. SD-4.01 OR SD-4.40
I-4	"A"-10" INLET	284.06	---	290.23	STA. 3+79.97 12.43' O/S RT. HARMONY LANE	HOWARD COUNTY STD. SD-4.02 OR SD-4.41
I-5	"A"-5" INLET	284.06	---	289.04	STA. 7+10.37 12.43' O/S LT. EX. HARMONY LANE	HOWARD COUNTY STD. SD-4.01 OR SD-4.40
ES-1	END SECTION	275.75	---	---	N 530956.02 E 1357943.34	HOWARD COUNTY STD. SD-5.51
ES-2	END WALL	275.75	---	---	N 531048.91 E 1357919.27	HOWARD COUNTY STD. SD-5.51
MH-1	MANHOLE	276.88	276.88	285.5	N 530897.59 E 1357891.50	HOWARD COUNTY STD. 05.11
MH-2	MANHOLE	276.88	276.88	284.82	STA. 7+34.35 16.8' O/S LT. ULSTER DR.	HOWARD COUNTY STD. 05.11
MH-3	MANHOLE	281.58	281.58	290.0	STA. 5+83.88 13.90' O/S LT. EX. HARMONY LANE	HOWARD COUNTY STD. 05.11
S-1	PRINCIPLE STRUCTURE	276.00	---	---	N 531023.71 E 1357953.01	SEE DETAIL SHEET 7

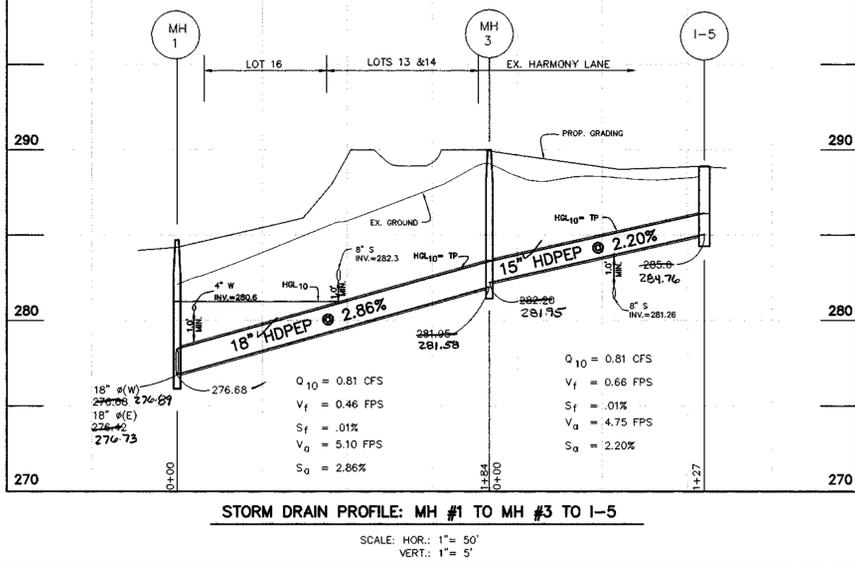
NOTES: 1.) STRUCTURE ELEVATION FOR MANHOLE IS AT THE TOP CENTER OF THE RIM.  
2.) STRUCTURE ELEVATION FOR THE INLET IS THE TOP OF CURB ELEVATION LOCATED AT THE MID-POINT OF THE INLET.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Donohue* 2/22/99  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD COUNTY SOIL CONSERVATION DISTRICT.  
*Jeffrey S. [Signature]* 2/16/99  
 HOWARD COUNTY SOIL CONSERVATION DISTRICT

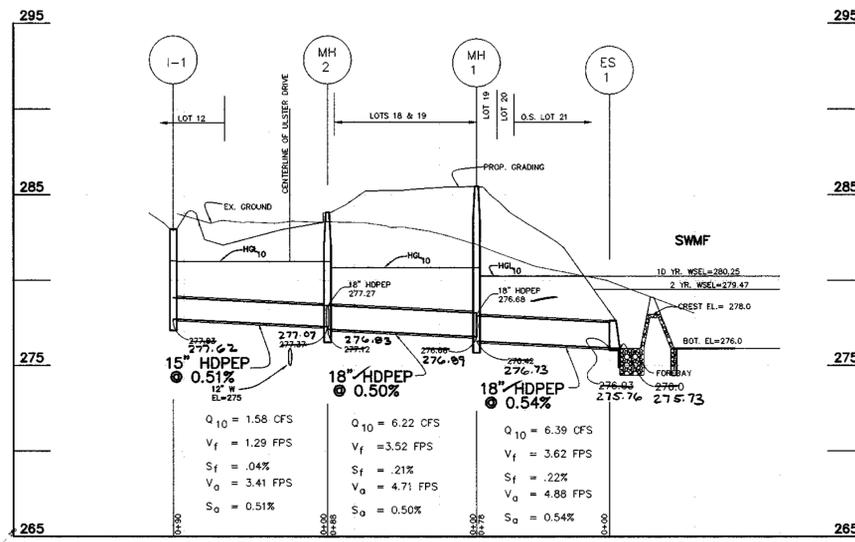
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Clark Hamilton* 3/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR HOWARD COUNTY CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.  
*Chief [Signature]* 2/16/99  
 NATURAL RESOURCES CONSERVATION SERVICE



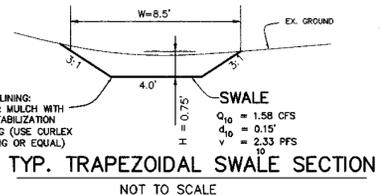
STORM DRAIN PROFILE: MH #1 TO MH #3 TO I-5

SCALE: HOR.: 1" = 50'  
VERT.: 1" = 5'



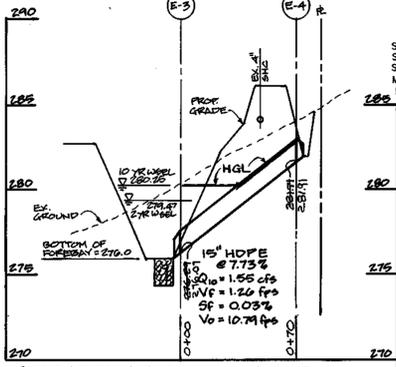
STORM DRAIN PROFILE: ES-1 TO MH #2 TO I-1

SCALE: HOR.: 1" = 50'  
VERT.: 1" = 5'



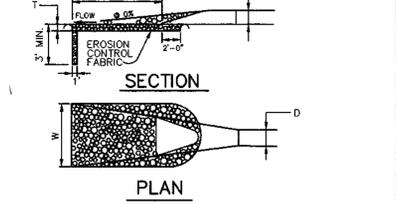
TYP. TRAPEZOIDAL SWALE SECTION

NOT TO SCALE



STORM DRAIN PROFILE: E-4 TO E-3

SCALE: HORIZONTAL 1" = 50' / VERTICAL 1" = 5'



OUTLET PROTECTION DETAIL

NOT TO SCALE

STRUCTURE	D-50	LENGTH (L)	WIDTH (W)	THICKNESS (T)	SHA CLASS
ES-1	0.79'	10.0'	5.5'	1.58'	I
ES-2	0.79'	16.0'	18.0'	1.58'	I

**ROCK OUTLET PROTECTION I**  
CONSTRUCTION SPECIFICATIONS

- The subgrade for the filter, rip-rap, or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Geotextile shall be protected from puncturing, cutting, or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of geotextile over the damaged part or by completely replacing the geotextile. All overlaps whether for repairs or for joining two pieces of geotextile shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment. They shall be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will ensure that it is reasonably homogeneous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or geotextile. Hand placement will be required to the extent necessary to prevent damage to the pavement works.
- The stone shall be placed so that it blends in with the existing ground. If the stone is placed too high then the flow will be forced out of the channel and scour adjacent to the stone will occur.

U.S. DEPARTMENT OF AGRICULTURE F-19-8A MARYLAND DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES WATER MANAGEMENT ADMINISTRATION



OWNERS:  
 CHARLES GREEN  
 P.O. BOX 213  
 LAUREL, MARYLAND 20725

WILLIAM H. GREEN  
 39 N. 62ND STREET  
 PHILADELPHIA, PA 19139

CHARLES & HAROLD KELLER  
 2934 STRANDEN ROAD  
 BALTIMORE, MARYLAND 21230

WILLIAM H. CARROLL, JR.  
 1703 CRYSTAL AVENUE  
 BALTIMORE, MD 21213

RALPH PARKER, JR.  
 9910 HARMONY LANE  
 LAUREL, MD 20723

NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98
2	4-5-00	ADD EXVERTS, PLAN & PROFILE, REV. STRUCTURE SCHEDULE, REV. D.A. MAP

**BENCHMARK ENGINEERING, INC.**  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

PROJECT: **KING'S ARMS SECTION 1, AREA 1 LOTS 1 THRU 21** (S-99-02, P-99-27)

DEVELOPER/CONTRACT PURHASER: SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 465-4244

LOCATION: TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

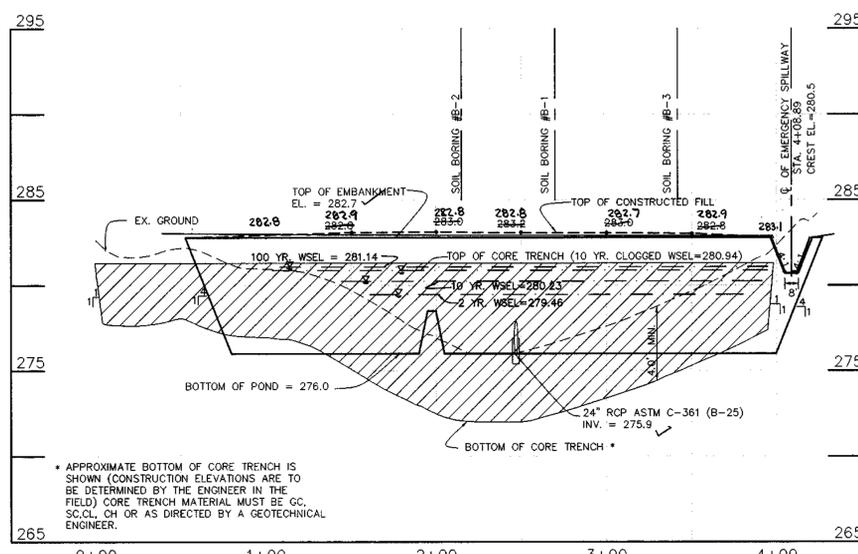
TITLE: **STORM DRAIN PROFILES, AND DRAINAGE AREA MAP**

DATE: SEPT. 1998 PROJECT NO. 0729

DESIGN: YSL DRAFT: YSL CHECK: DAM SCALE: 1" = 50' DRAWING 5 OF 13

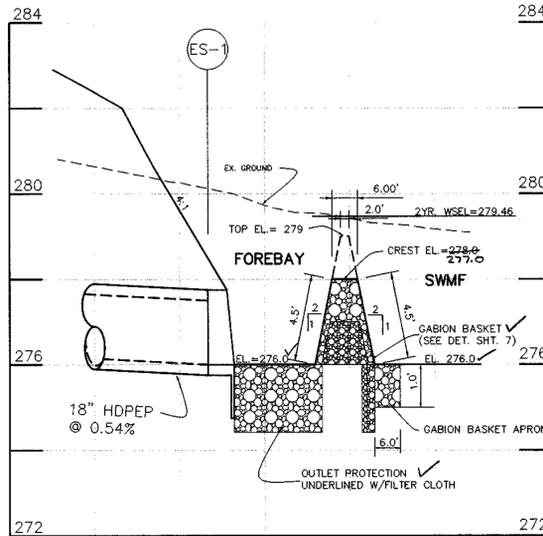
AS-BUILT

F-99-58



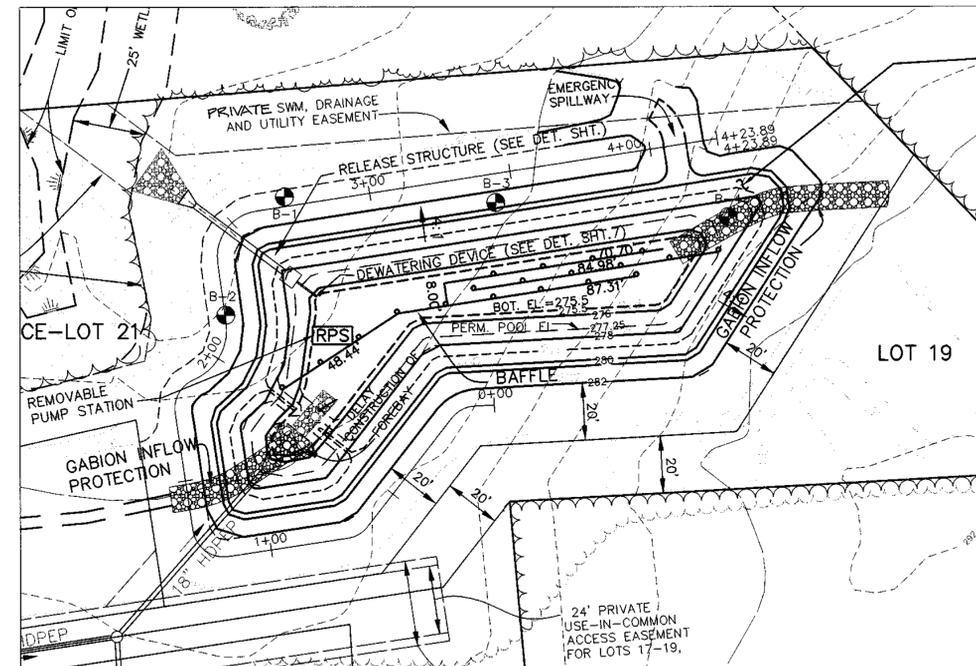
SECTION C-C: PROFILE ALONG CENTERLINE OF EMBANKMENT

SCALE: HOR.: 1" = 50'  
VERT.: 1" = 5'



SECTION D-D: VIEW THRU FOREBAY

SCALE: HOR.: 1" = 20'  
VERT.: 1" = 2'

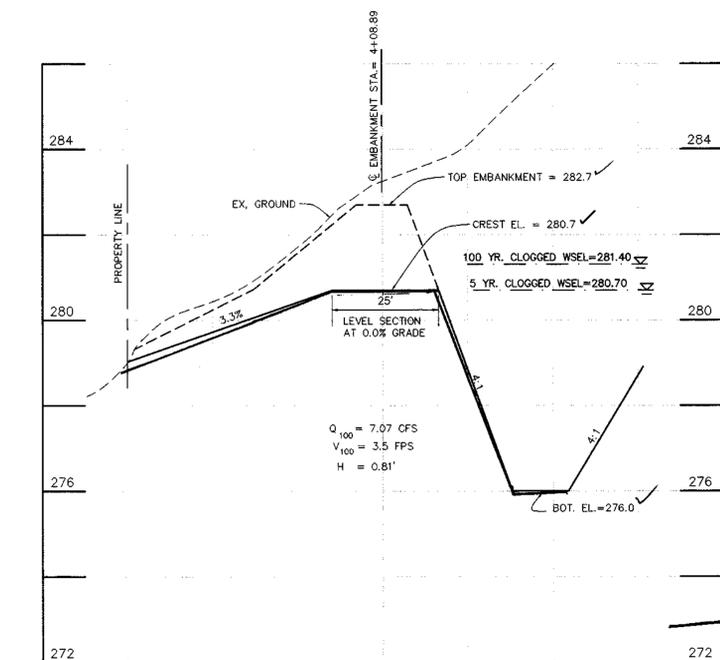


TEMP. STORMWATER MANAGEMENT FACILITY: PLAN VIEW

SCALE: 1" = 30'

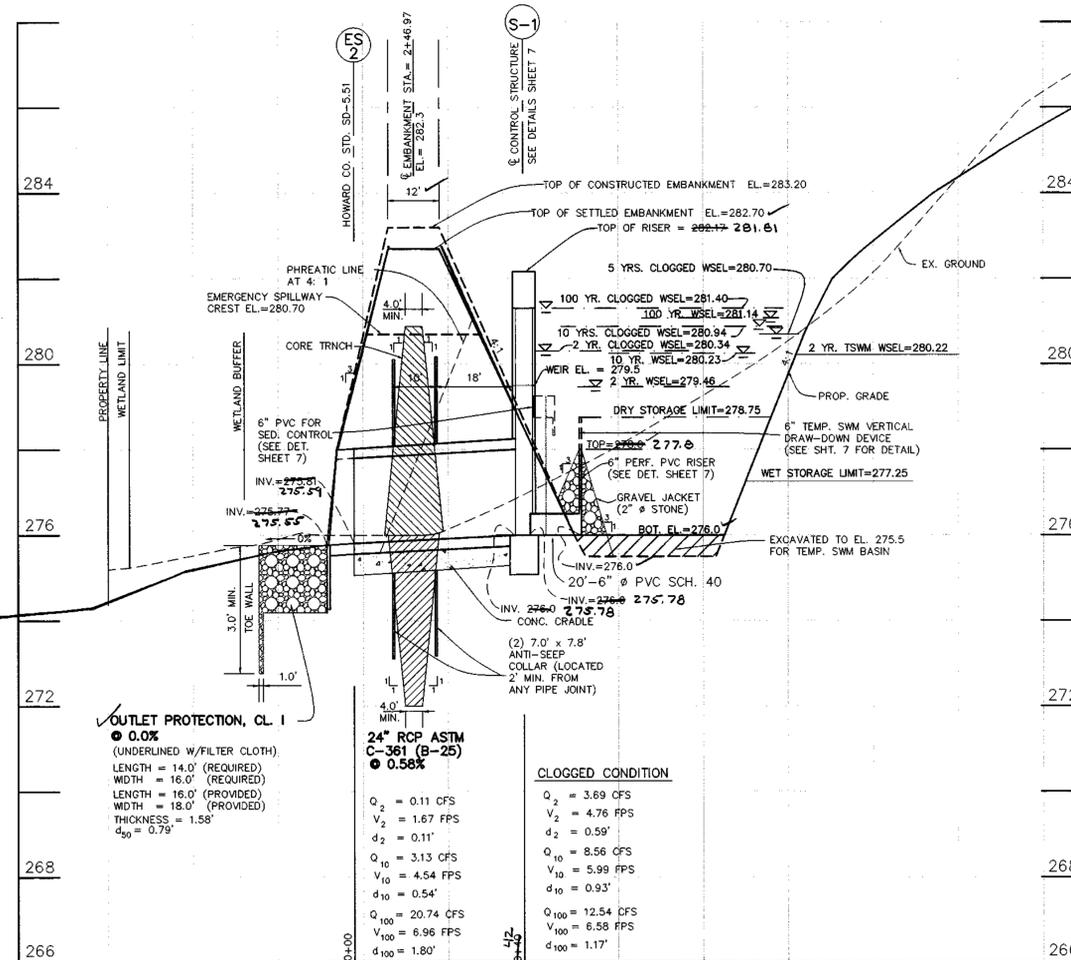
TEMP. STORMWATER MANAGEMENT/SEDIMENT BASIN DATA

BOTTOM DIM. = 25' x 160' (AVG.)  
 BOTTOM EL. = 275.5  
 TOP EMBANKMENT EL. = 282.0  
 DRY STORAGE REQUIRED: 9504 CF  
 WET STORAGE REQUIRED: 9504 CF  
 WET STORAGE PROVIDED: 10698 CF  
 DRY STORAGE PROVIDED: 11454 CF  
 WET STORAGE LIMIT EL. = 277.25  
 DRY STORAGE LIMIT EL. = 278.75  
 EMERGENCY SPILL EL. = 280.50  
 WEIR EL. = 280.22  
 CLEANOUT EL. = 276.36  
 6" DEWATERING PIPE EL. = 278.75  
 4" ORIFICE PIPE EL. = 276.00



SECTION B-B: VIEW THRU EMERGENCY SPILLWAY

SCALE: HOR.: 1" = 20'  
VERT.: 1" = 2'



SECTION A-A: VIEW THRU PRINCIPAL SPILLWAY

SCALE: HOR.: 1" = 20'  
VERT.: 1" = 2'

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitably firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the geotechnical engineer should be present to monitor placement and compaction of fill for the embankment and cut off trench. In accordance with Maryland soil conservation specification 378, soils considered suitable for the center of embankment and cut off trench shall conform to unified soil classification gc, sc, ch, or cl. Per scs 378 consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

It is our professional opinion that in addition to the soil materials described above a fine grained soil, including silt (ml) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. Exploration with test pits and additional laboratory testing can be conducted prior to construction to identify and quantify potential borrow areas. All fill materials must be placed and compacted in accordance with MD scs 378 specifications.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald A. Mason* PE NO. 21443  
 DONALD A. MASON DATE 2/16/99

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE DEVELOPER:  
 \*I/VE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Shawn D. Harty* 2/5/99  
 DEVELOPER - SDC GROUP, INC. DATE

BY THE ENGINEER:  
 \*I/VE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION.

*Donald A. Mason* 2/16/99  
 ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
 8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6844

*Donald A. Mason*

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 CHARLES GREEN  
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 1703 CRYSTAL AVENUE  
 BALTIMORE, MD 21213

RALPH PARKER, JR.  
 9910 HARMONY LANE  
 LAUREL, MD 20723

PROJECT: **KINGS ARMS**  
 SECTION 1, AREA 1  
 LOTS 1 THRU 21  
 (S-98-02, P-98-27)

DEVELOPER/CONTRACT PURCHASER:  
 SDC GROUP, INC.  
 P.O. BOX 417  
 ELLICOTT CITY, MARYLAND 21041  
 (410) 465-4244

LOCATION:  
 TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732  
 5th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE:  
**STORMWATER MANAGEMENT FACILITY PROFILES**

DATE: SEPT. 1998 PROJECT NO. 0729

DESIGN: YSL DRAFT: YSL CHECK: DAM SCALE: AS SHOWN DRAWING 6 OF 13

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Pauley* 2/22/99  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.  
*Shawn D. Harty* 2/16/99  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Hamilton* 2/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.  
*Cheryl Simons* 2/16/99  
 NATURAL RESOURCES CONSERVATION SERVICE DATE



**POND CONSTRUCTION SPECIFICATIONS**

**Site Preparation**

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences and other objectionable material unless otherwise designated on the plans. Trees, brush and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of 50 foot radius around the inlet structure shall be cleared.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

**Earth Fill**

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment and cut-off trench shall conform to Unified Soil Classification CC, SC, CH, or CL. Consideration may be given to the use of other materials in the embankment if design and construction are supervised by a geotechnical engineer.

Placement - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

Compaction - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each lift shall be traversed by not less than one tread track of the equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble yet not be so wet that water can be squeezed out.

Where a minimum required density is specified, it shall not be less than 95% of maximum dry density with a moisture content within +/- 2% of the optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. All compaction is to be determined by AASHTO Method T-99.

Out Off Trench - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the structure. The rock fragments shall be angular to subangular in shape. The least dimension of an individual rock fragment shall be not less than one time the greatest dimension of the fragment.

**Structure Backfill**

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall be placed in layers not to exceed 4 inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall be placed in layers not to exceed 4 inches in thickness and compacted by hand tampers or other manually directed compaction equipment.

**Pipe Conduits**

All pipes shall be circular in cross section.

**Corrugated Metal Pipe**

1. Materials - (Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-190 Type A with a minimum coating thickness of 0.01 inch (0.25 mil) on both sides of the pipe. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soil shall be between 4 and 9.

2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill."

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

**Reinforced Concrete Pipe**

1. Materials - Reinforced concrete pipe shall have ball and spigot joints with rubber gaskets and shall equal or exceed ASTM Designation C-361. An approved equivalent is AWWA Specification C-302.

2. Bedding - All reinforced concrete pipe conduits shall be laid in a concrete bedding for their entire length. This bedding shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 10% of its outside diameter with a minimum thickness of 3 inches, or as shown on the drawings.

3. Laying pipe - Ball and spigot pipe shall be placed with the ball end upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 2 feet from the riser.

**Polyvinyl Chloride (PVC) Pipe**

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill."

**Concrete**

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 608, Mix No. 3.

**Rock Riprap**

All rock shall be dense, sound, and free from cracks, seams, and other defects which would reduce the strength of the rock. The rock fragments shall be angular to subangular in shape. The least dimension of an individual rock fragment shall be not less than one time the greatest dimension of the fragment.

The rock shall have the following properties:

1. Bulk specific gravity (saturated surface-dry basis) not less than 2.5.
2. Absorption not more than three percent.
3. Soundness: Weight loss in five cycles not more than 20 percent when sodium sulfate is used.

Bulk specific gravity and absorption shall be determined according to ASTM C 88.

The riprap shall be placed to the required thickness in one operation. The rock shall be delivered and placed in a manner that will insure the riprap in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks filling the voids between the larger rocks. Filter cloth shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 919.12.

**Care of Water during Construction**

All work on permanent structures shall be carried out in areas free from water. The contractor shall protect and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from the various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere with the operation or maintenance of the structure. Stream diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water from the required excavation and foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom of required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to pumps from which the water shall be pumped.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-198 or M-211 with watertight coupling bands or flanges. Aluminum surfaces that are to be in contact with concrete shall be painted with one coat of zinc chromate primer. Hot dip galvanized bolts may be used for connections. The pH of the surrounding soil shall be between 4 and 9.

2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

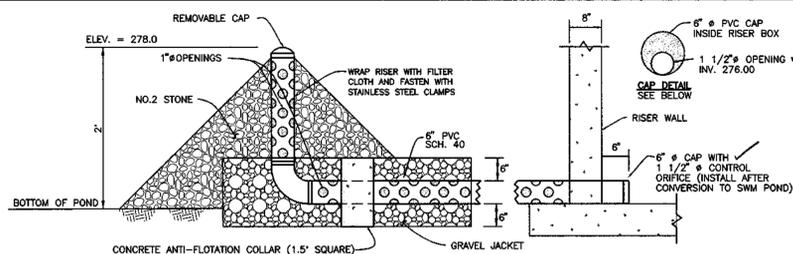
5. Backfilling shall conform to "Structure Backfill."

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

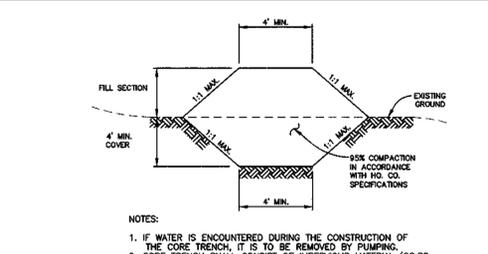
7. Erosion and Sediment Control

The site should be stripped of topsoil and any other unsuitable materials from the embankment or structure area in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be protected with a loaded damppack or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

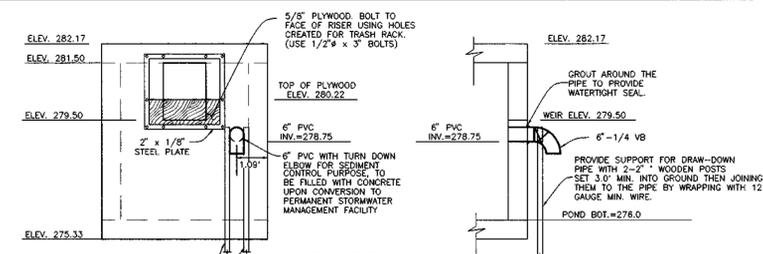
A representative of the geotechnical engineer should be present to monitor placement and compaction of fill for each embankment and cut-off trench. In accordance with Maryland Soil Conservation Specification 378, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification CC, SC, CH, or CL. A review of the site borings did not indicate the presence of suitable core or cut-off trench materials at the tested locations. All fill materials must be placed and compacted in accordance with MD SCS 378 specifications.



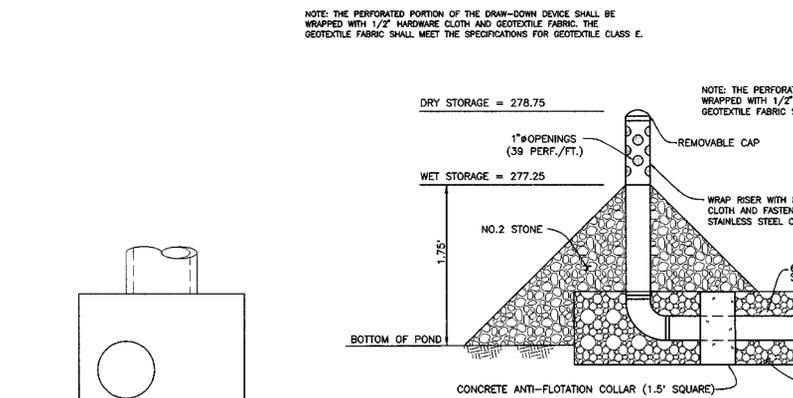
**6" DEWATERING PIPE DETAIL AND PERMANENT EXTENDED DETENTION CONTROL ORIFICE**  
NOT TO SCALE



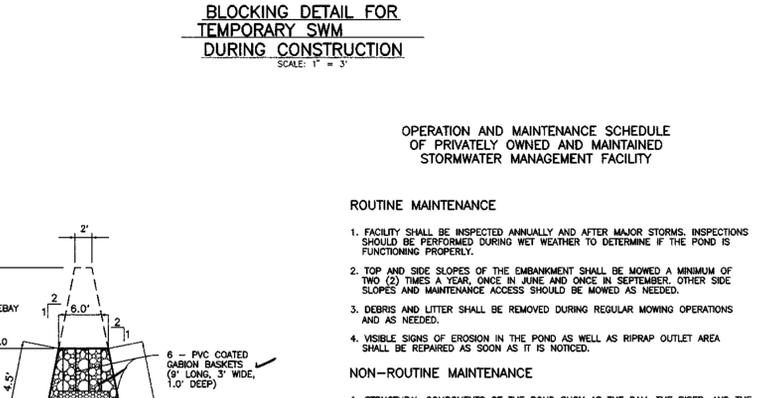
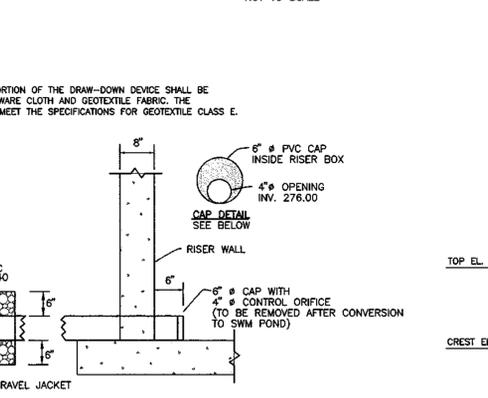
**CORE TRENCH SECTION**  
NOT TO SCALE



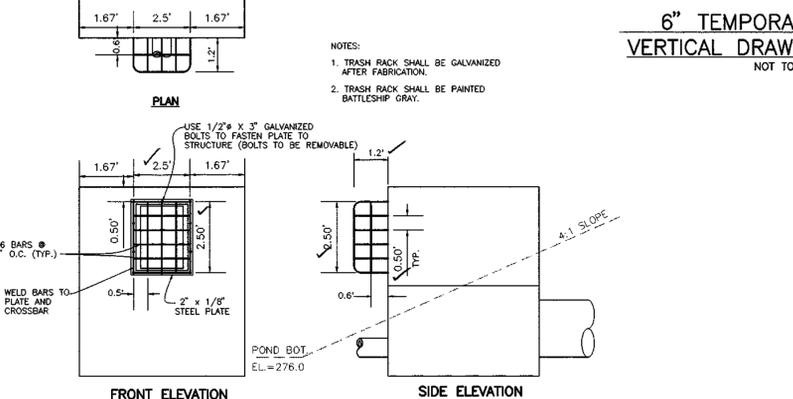
**BLOCKING DETAIL FOR TEMPORARY SWM DURING CONSTRUCTION**  
SCALE: 1" = 3'



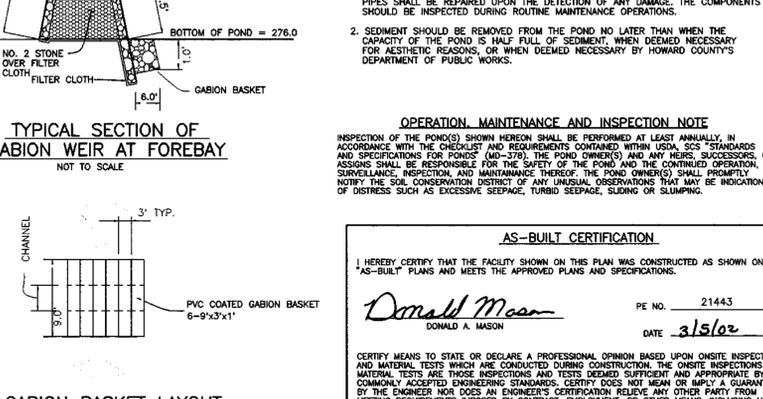
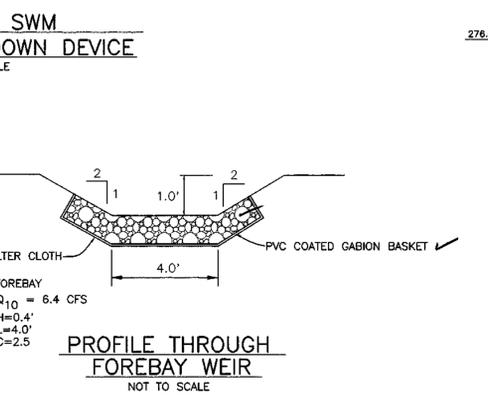
**6" TEMPORARY SWM VERTICAL DRAW-DOWN DEVICE**  
NOT TO SCALE



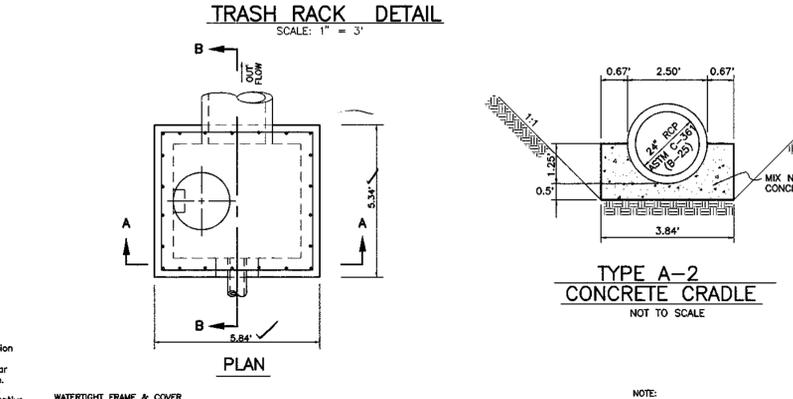
**PROFILE THROUGH FOREBAY WEIR**  
NOT TO SCALE



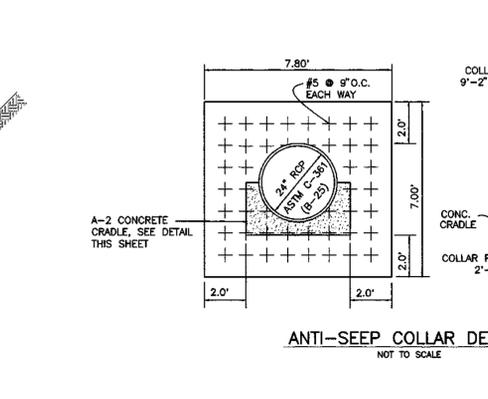
**TRASH RACK DETAIL**  
SCALE: 1" = 3'



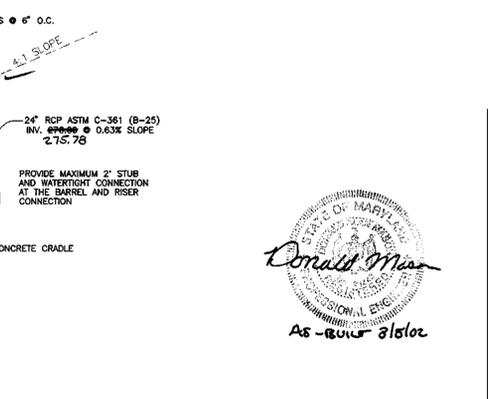
**ANTI-SEEP COLLAR DETAIL**  
NOT TO SCALE



**TYPE A-2 CONCRETE CRADLE**  
NOT TO SCALE



**SECTION A-A FRONT VIEW**



**SECTION B-B SIDE VIEW**

**SWM CONTROL STRUCTURE**  
SCALE: 1" = 3'

**OPERATION AND MAINTENANCE SCHEDULE OF PRIVATELY OWNED AND MAINTAINED STORMWATER MANAGEMENT FACILITY**

**ROUTINE MAINTENANCE**

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE POND IS FUNCTIONING PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

**NON-ROUTINE MAINTENANCE**

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHOULD BE REMOVED FROM THE POND NO LATER THAN WHEN THE CAPACITY OF THE POND IS HALF FULL OF SEDIMENT, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY HOWARD COUNTY'S DEPARTMENT OF PUBLIC WORKS.

**OPERATION, MAINTENANCE AND INSPECTION NOTE**

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN SCS "STANDARDS AND MATERIALS TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

**AS-BUILT CERTIFICATION**

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

*Donald Mason* PE NO. 21443 DATE 3/5/02  
DONALD A. MASON

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

**BY THE DEVELOPER:**

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR EROSION AND SEDIMENT CONTROL BEFORE BEGINS THE PROJECT. I/WE SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I/WE ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

*Shawn Hester* 2/5/00  
DEVELOPER - SDC GROUP, INC. DATE

**BY THE ENGINEER:**

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

*Donald Mason* 2/6/02  
ENGINEER - DONALD A. MASON, P.E. # 21443 DATE

NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6444

**OWNERS:**  
CHARLES GREEN  
P.O. BOX 213  
LAUREL, MARYLAND 20725  
WILLIAM H. GREEN  
39 N. 62ND STREET  
PHILADELPHIA, PA 19139  
CHARLES & HAROLD KELLER  
2934 S STRANDEN ROAD  
BALTIMORE, MARYLAND 21230  
WILLIAM H. CARROLL, JR.  
1703 CRYSTAL AVENUE  
BALTIMORE, MD 21213  
RALPH PARKER, JR.  
9910 HARMONY LANE  
LAUREL, MD 20723

**PROJECT:**  
**KINGS ARMS**  
LOTS 1 THRU 21  
(S-98-03, WP-98-72, P-98-24)

**DEVELOPER/CONTRACT PURHASER:**  
SDC GROUP, INC.  
P.O. BOX 417  
ELLICOTT CITY, MARYLAND 21041  
(410) 465-4244

**TITLE:**  
**STORMWATER**  
**MANAGEMENT FACILITY DETAILS**

**DATE:** SEPT. 1998 **PROJECT NO.:** 0729  
**DESIGN:** YSL **DRAFT:** YSL **CHECK:** DAM **SCALE:** AS SHOWN **DRAWING:** 7 OF 13

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 2/25/02  
CHIEF, BUREAU OF HIGHWAYS DATE

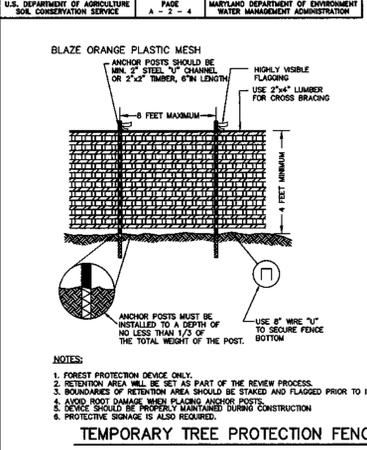
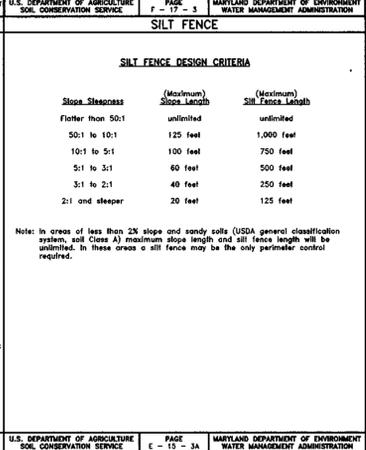
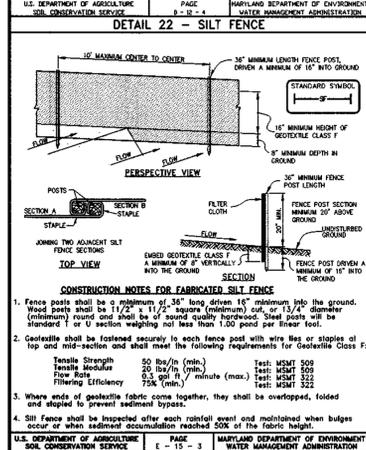
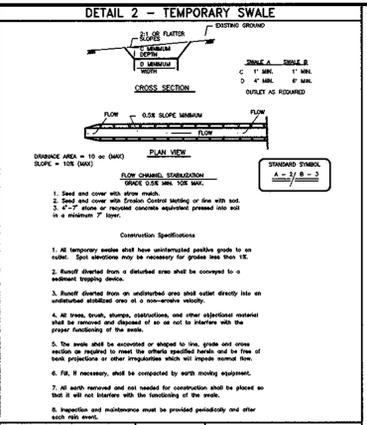
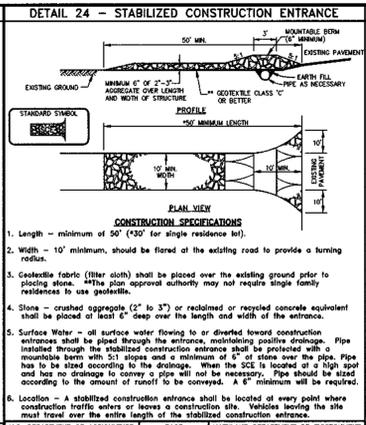
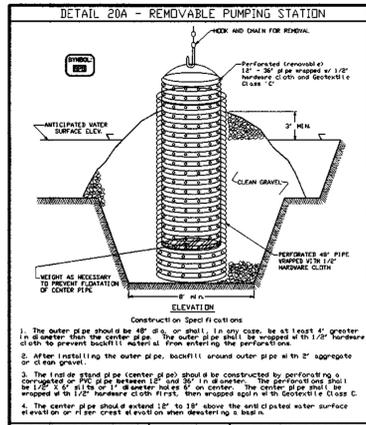
**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Carina Hamilton* 2/1/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cheryl Simms* 2/25/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**APPROVED:** THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL, MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.  
*Shawn Hester* 2/1/02  
HOWARD SOIL CONSERVATION DISTRICT DATE

**APPROVED:** THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.  
*Cheryl Simms* 2/1/02  
NATURAL RESOURCES CONSERVATION SERVICE DATE





**PERMANENT SEEDING NOTES**

Apply to graded or cleared area not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

**Seedbed Preparation:** Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. (If not previously loosened)

**Soil Amendments:** In lieu of soil test recommendations, use on the following schedules:

- Preferred - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000 sf).
- Acceptable - Apply 2 tons per acre dolomitic limestone (92 lbs/1000 sf) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sf) before seeding. Harrow or disc into upper three inches of soil.

**Seeding:** For the periods March 1 through April 30 and August 1 through October 15, seed with 60 lbs per acre (14 lbs/1000 sf) of Kentucky 31 Tall Fescue. For the period May 1 through July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs per acre (0.05 lbs/1000 sf) of Weeping Lovegrass. During the period of October 16 through February 28, protect site by: Option 1) 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2) use sod. Option 3) seed with 60 lbs/acre Kentucky 31 Tall Fescue and mulch with 2 tons/acre well anchored straw.

**Mulching:** Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

**Maintenance:** Inspect all seeded areas and make needed repairs, replacements and reseedings.

**SEDIMENT CONTROL NOTES**

- A minimum of 48 hours notice must be given to the Howard County Department of Inspections and Permits/Sediment Control Division prior to the start of any construction (313-1855).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "Maryland Standards and Specifications for Soil Erosion and Sediment Control", and revisions thereto.
- Following initial soil disturbances or redisturbances, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 calendar days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the "Howard County Design Manual, Storm Drainage".
- All disturbed areas must be stabilized within the time period specified above in accordance with the "1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control" for Permanent Seeding (Sec. 5.1) Sod (Sec. 5.4), Temporary Seeding (Sec. 5.0) and Mulching (Sec. 5.2). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:
 

Total Area of Site:	5,632 acres
Area to be Disturbed:	5,272 acres
Area to be seeded or paved:	1,288 acres
Area to be vegetatively stabilized:	3,994 acres
Total Cut:	5,387 C.Y.
Total Fill:	8,123 C.Y.

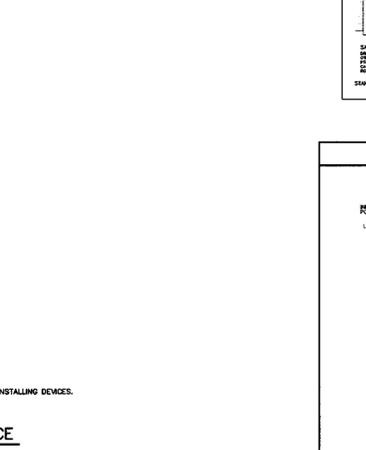
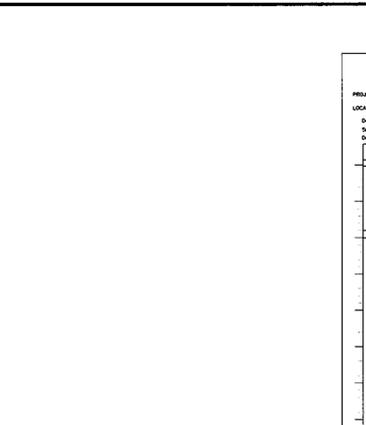
 Offsite Waste/Borrow Area Location: \*\*
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County DPW Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.
- Quantities and estimates shown are for sediment control purposes only. Contractor shall prepare his/her own quantity estimates to his/her satisfaction.

\*\* IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AN OFF-SITE BORROW AREA WITH AN APPROVED GRADING PERMIT FOR THIS SITE.

**2.1.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL**

**CONSTRUCTION AND MATERIAL SPECIFICATIONS**

- TOPSOIL SALVAGED FROM THE EXISTING SITE MAY BE USED PROVIDED THAT IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-SCS IN COOPERATION WITH MARYLAND AGRICULTURAL EXPERIMENTAL STATION.
- TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:
  - TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS, TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSTRALS AND SHALL CONTAIN LESS THAN 5% BY VOLUME OF CHICKENS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2" IN DIAMETER.
  - WHERE THE SUBSOIL IS EITHER AODIC OR COMPOSED OF HEAVY CLAYS, GROUND LIME/STONELIME SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.
- FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES:
  - ON SOIL MEETING TOPSOIL SPECIFICATIONS, OBTAIN TEST RESULTS INDICATING FERTILIZER AND LIME ADJUSTMENTS REQUIRED TO BRING THE SOIL INTO COMPLIANCE WITH THE FOLLOWING:
    - PH FOR TOPSOIL SHALL BE BETWEEN 6.0 AND 7.5. IF THE TESTED SOIL DEMONSTRATES A PH OF LESS THAN 6.0, SUFFICIENT LIME SHALL BE PRESCRIBED TO RAISE THE PH TO 6.5 OR HIGHER.
    - ORGANIC CONTENT OF TOPSOIL SHALL BE NOT LESS THAN 1.5 PERCENT BY WEIGHT.
    - TOPSOIL HAVING SOLUBLE SALT CONTENT GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
    - NO SOD OR SEED SHALL BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN) TO PERMIT DEGRADATION OF PHOTO-TOXIC MATERIALS.
  - PLACE TOPSOIL (IF REQUIRED) AND APPLY SOIL AMENDMENTS AS SPECIFIED IN 2.0.0 VEGETATIVE STABILIZATION - SECTION 1 - I.
- TOPSOIL APPLICATION
  - WHEN TOP SOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.
  - GRADES ON THE AREAS TO BE TOP SOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBERT 4"-8" HIGHER IN ELEVATION.
  - TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 3". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SOILING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOP SOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
  - TOPSOIL SHALL NOT BE PLACED WHERE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS NOT MEET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDING OPERATIONS.
- ALTERNATIVE FOR PERMANENT SEEDING - INSTEAD OF APPLYING THE FULL AMOUNTS OF LIME AND COMMERCIAL FERTILIZER, COMPOSTED SLUDGE AND AMENDMENTS MAY BE APPLIED AS SPECIFIED BELOW:
  - COMPOSTED SLUDGE MATERIAL FOR USE AS A SOIL CONDITIONER FOR SITES HAVING DISTURBED AREAS OVER 5 ACRES SHALL BE TESTED TO PRESCRIBE AMENDMENTS AND FOR SITES HAVING DISTURBED AREAS UNDER 5 ACRES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
    - COMPOSTED SLUDGE SHALL BE SUPPLIED BY OR ORIGINATE FROM, A PERSON OR PERSONS THAT ARE PERMITTED (AT THE TIME OF ACQUISITION OF THE COMPOST) BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT UNDER COMAR 26.06.01.
    - COMPOSTED SLUDGE SHALL CONTAIN AT LEAST 1 PERCENT NITROGEN, 1.5 PERCENT PHOSPHORUS, AND 0.2 PERCENT POTASSIUM AND HAVE A PH OF 7.0 TO 8.0. IF COMPOST DOES NOT MEET THESE REQUIREMENTS, THE APPROPRIATE CONSTITUENTS MUST BE ADDED TO MEET THE REQUIREMENTS PRIOR TO USE.
    - COMPOSTED SLUDGE SHALL BE APPLIED AT A RATE OF 1 TON/1,000 SQUARE FEET.
    - COMPOSTED SLUDGE SHALL BE AMENDED WITH A POTASSIUM FERTILIZER APPLIED AT THE RATE OF 4 LB/1,000 SQUARE FEET, AND 1/3 THE NORMAL LIME APPLICATION RATE.
  - REFERENCES: GUIDELINE SPECIFICATIONS, SOIL PREPARATION AND SOODING, MD-NR-PUB #1, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF MARYLAND AND VIRGINIA POLYTECHNIC INSTITUTES, REVISED 1973.



HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 11

PROJECT NAME: Hillis-Carnes Property, BORING # B-1

LOCATION: Howard County, Maryland, JOB # 80024

DATE	NO.	DESCRIPTION	BY	DATE	NO.	DESCRIPTION	BY
01-11-98	1	ISSUED FOR PERMIT	JCH	01-11-98	1	ISSUED FOR PERMIT	JCH
01-11-98	2	REVISED PERMIT	JCH	01-11-98	2	REVISED PERMIT	JCH

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 11

PROJECT NAME: Hillis-Carnes Property, BORING # B-2

LOCATION: Howard County, Maryland, JOB # 80024

DATE	NO.	DESCRIPTION	BY	DATE	NO.	DESCRIPTION	BY
01-11-98	1	ISSUED FOR PERMIT	JCH	01-11-98	1	ISSUED FOR PERMIT	JCH
01-11-98	2	REVISED PERMIT	JCH	01-11-98	2	REVISED PERMIT	JCH

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 11

PROJECT NAME: Hillis-Carnes Property, BORING # B-3

LOCATION: Howard County, Maryland, JOB # 80024

DATE	NO.	DESCRIPTION	BY	DATE	NO.	DESCRIPTION	BY
01-11-98	1	ISSUED FOR PERMIT	JCH	01-11-98	1	ISSUED FOR PERMIT	JCH
01-11-98	2	REVISED PERMIT	JCH	01-11-98	2	REVISED PERMIT	JCH

HILLIS-CARNES ENGINEERING ASSOCIATES, INC. Page 1 of 11

PROJECT NAME: Hillis-Carnes Property, BORING # B-4

LOCATION: Howard County, Maryland, JOB # 80024

DATE	NO.	DESCRIPTION	BY	DATE	NO.	DESCRIPTION	BY
01-11-98	1	ISSUED FOR PERMIT	JCH	01-11-98	1	ISSUED FOR PERMIT	JCH
01-11-98	2	REVISED PERMIT	JCH	01-11-98	2	REVISED PERMIT	JCH

**TEMPORARY SEEDING NOTES**

Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.

**Seedbed Preparation:** Loosen upper three inches of soil by raking, discing or other acceptable means before seeding. (If not previously loosened)

**Soil Amendments:** Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sf).

**Seeding:** For periods March 1 through April 30 and August 15 through November 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sf). For the period May 1 through August 14, seed with 3 lbs per acre of Weeping Lovegrass (0.07 lbs/1000 sf). For the period November 16 through February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

**Mulching:** Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sf) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sf) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sf) for anchoring.

Refer to the 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control for rate and methods not covered.

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Daniels* 2/22/99  
CHIEF, BUREAU OF HIGHWAYS

**APPROVED:** THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

*John A. Smith* 2/16/99  
HOWARD SOIL CONSERVATION DISTRICT

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Cynthia Hamilton* 3/1/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

**APPROVED:** THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

*Cheryl Simmons* 2/16/99  
NATURAL RESOURCES CONSERVATION SERVICE

**ENGINEER'S CERTIFICATE**

I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

*Donald M. Man* 12/14/98  
Date

**DEVELOPER'S CERTIFICATE**

I/We certify that all development and construction will be done in accordance with this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction of this project will have a certificate of attendance at a Department of the Environment approved training program for the control of sediment and erosion before beginning the project. I also authorize periodic onsite inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.

*James R. Malley* 12/14/98  
Signature of Developer Date

NO.	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-8105 FAX: 410-465-6844

**OWNERS:**

CHARLES GREEN  
P.O. BOX 213  
LAUREL, MARYLAND 20725

WILLIAM H. GREEN  
39 N. 62ND STREET  
PHILADELPHIA, PA 19139

CHARLES & HAROLD KELLER  
2934 STRANDEN ROAD  
BALTIMORE, MARYLAND 21230

WILLIAM H. CARROLL, JR.  
1703 CRYSTAL AVENUE  
BALTIMORE, MD 21213

RALPH PARKER, JR.  
9910 HARMONY LANE  
LAUREL, MD 20723

**PROJECT:** KINGS ARMS SECTION 1, AREA 1 LOTS 1 THRU 21 (S-98-02, P-98-27)

**LOCATION:** TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 SECTION DISTRICT HOWARD COUNTY, MARYLAND

**TITLE:** EROSION & SEDIMENT CONTROL NOTES AND DETAILS

**DATE:** SEPT. 1998 **PROJECT NO.:** 0729

**DESIGN:** YSL **DRAFT:** YSL **CHECK:** DAM **SCALE:** AS SHOWN **DRAWING:** 8 OF 12

**DEVELOPER/CONTRACT PURCHASER:** SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 442-2101

**STATE OF MARYLAND**

**REGISTERED PROFESSIONAL ENGINEER**

*Donald M. Man*

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Daniels* 2/22/99  
CHIEF, BUREAU OF HIGHWAYS

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Cynthia Hamilton* 3/1/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

**APPROVED:** THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF HOWARD SOIL CONSERVATION DISTRICT.

*John A. Smith* 2/16/99  
HOWARD SOIL CONSERVATION DISTRICT

**APPROVED:** THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

*Cheryl Simmons* 2/16/99  
NATURAL RESOURCES CONSERVATION SERVICE

**ENGINEER'S CERTIFICATE**

I hereby certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

*Donald M. Man* 12/14/98  
Date

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*James R. Malley* 12/14/98  
Signature of Developer Date

NO.	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-8105 FAX: 410-465-6844

**OWNERS:**

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P.O. BOX 213  
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1703 CRYSTAL AVENUE  
BALTIMORE, MD 21213

RALPH PARKER, JR.  
9910 HARMONY LANE  
LAUREL, MD 20723

**PROJECT:** KINGS ARMS SECTION 1, AREA 1 LOTS 1 THRU 21 (S-98-02, P-98-27)

**LOCATION:** TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 SECTION DISTRICT HOWARD COUNTY, MARYLAND

**TITLE:** EROSION & SEDIMENT CONTROL NOTES AND DETAILS

**DATE:** SEPT. 1998 **PROJECT NO.:** 0729

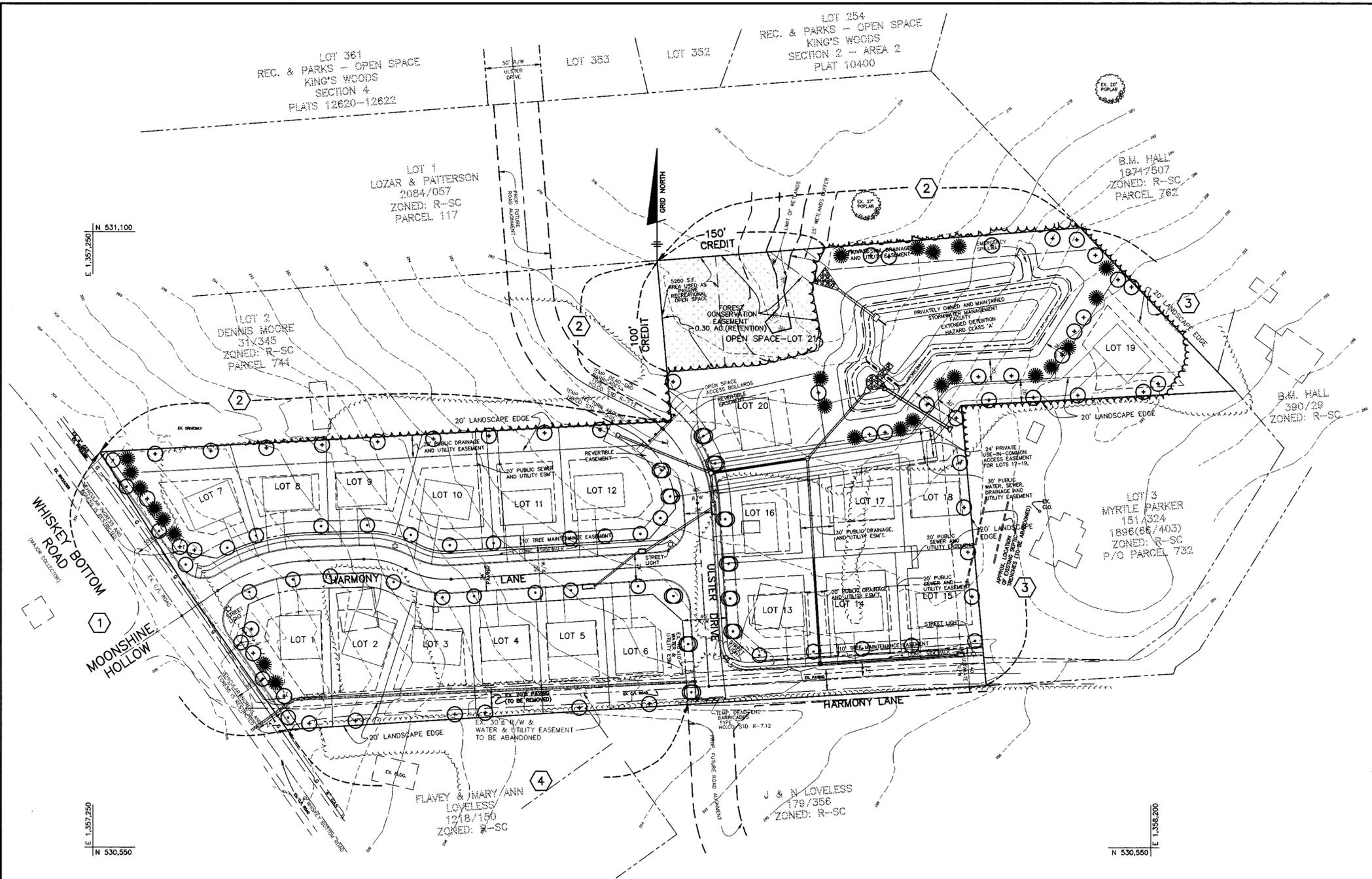
**DESIGN:** YSL **DRAFT:** YSL **CHECK:** DAM **SCALE:** AS SHOWN **DRAWING:** 8 OF 12

**DEVELOPER/CONTRACT PURCHASER:** SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 442-2101

**STATE OF MARYLAND**

**REGISTERED PROFESSIONAL ENGINEER**

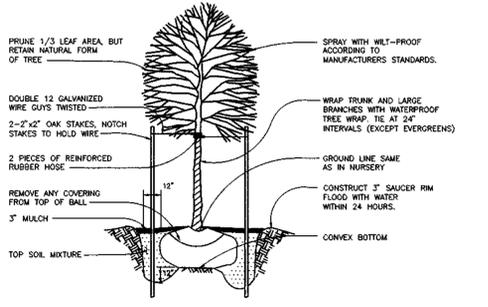
*Donald M. Man*



PLAN  
SCALE: 1"=50'

**LEGEND**

EXISTING CONTOURS	---
PROPOSED CONTOURS	---
LIMIT OF WETLANDS	---
EXISTING WOODS LINE	---
PROPOSED WOODS LINE	---



- NOTES**
- 1) TREES MUST BE A MINIMUM OF FOUR(4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.
  - 2) TREE MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN(10) FEET FROM A DRIVEWAY.
  - 3) SEE PLANTING LIST, THIS SHEET.

**LANDSCAPING NOTES**

- 1) PERIMETER LANDSCAPING SHALL BE PROVIDED BY THE EXISTING VEGETATION TO REMAIN AND BY THE PLANTINGS AS SHOWN ON THESE PLANS.
  - 2) THE DEVELOPER SHALL BE RESPONSIBLE FOR THE STREET TREES, STORMWATER MANAGEMENT POND PLANTING, THE PRESERVATION OF THE PERIMETER VEGETATION AS SHOWN ON THESE PLANS AND FOR THE PERIMETER PLANTING ON PERIMETERS BOUNDING FOR PERIMETER PLANTING IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
  - 3) A MINIMUM OF TWENTY(20) FEET SHALL BE MAINTAINED BETWEEN TREES AND STREET LIGHTS.
- NOTES:**
- 1) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 18.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPE TREES IN THE AMOUNT OF \$18,300.00 MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT.
  - 2) THE REQUIRED TYPE "B" PLANTING WHERE THE SIDE AND/OR REAR OF A LOT IS ORIENTED TOWARD A ROAD ON LOTS 6,12 AND 13 SHALL BE ADDRESSED ON THE FUTURE SDP(S) FOR THESE LOTS.

**DEVELOPER'S/BUILDER'S CERTIFICATE**

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 18.124 OF HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ON YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*Shawn M. Dwyer* 7/5/99  
NAME DATE

**LANDSCAPE LEGEND**

SYMBOL	DESCRIPTION
(Symbol)	STREET TREES TO BE PROVIDED BY THE DEVELOPER AND TO BE INCORPORATED ON THE FINAL PLANS.
(Symbol)	SHADE TREES ALONG PERIMETER AND STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.
(Symbol)	EVERGREEN TREES ALONG PERIMETER AND STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.

**LANDSCAPE PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS
(Symbol)	49	PLANTANUS ACERIFOLIA "BLOODGOOD" (BLOODGOOD LONDON PLANE)	2 1/2" MIN. CAL. B & B FULL HEAD
(Symbol)	24	PINUS STROBUS (EASTERN WHITE PINE)	5'-6" HT. UNSHEARED

**STREET TREE PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS
(Symbol)	11	ACER RUBRA (RED MAPLE)	2 1/2" MIN. CAL. B & B FULL HEAD
(Symbol)	31	ACER SACCHARUM (SUGAR MAPLE)	2 1/2" MIN. CAL. B & B FULL HEAD

**SCHEDULE A PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAY	ADJACENT TO PERIMETER PROPERTIES	YES	NO	NO	NO
PERIMETER NO. / LANDSCAPE TYPE			(1) B	(2) A	(3) A	(4) A
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	300	1036	700	360		
CREDIT FOR EXISTING VEGETATION (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	YES	250	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (NO OR YES W/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO		
NUMBER OF PLANTS REQUIRED:	300 L.F.	789 L.F.	700 L.F.	360 L.F.		
SHADE TREES	6	13	12	6		
EVERGREEN TREES	8	-	-	-		
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-		
SHRUBS	-	-	-	-		
NUMBER OF PLANTS PROVIDED:	6	13	12	6		
SHADE TREES	6	13	12	6		
EVERGREEN TREES	-	-	-	-		
OTHER TREES (2:1 SUBSTITUTE)	-	-	-	-		
SHRUBS (10:1 SUBSTITUTE)	-	-	-	-		
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)						

**SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING TYPE "B" BUFFER**

SWIM FACILITY NO.	1
LINEAR FEET OF PERIMETER	650
LINEAR FEET OF EX. WOODS LINE	60
LINEAR FEET OF BUFFER LENGTH	650
NUMBER OF TREES REQUIRED:	
SHADE TREES	12
EVERGREEN TREES	16
CREDIT FOR EXISTING VEGETATION (NO OR YES W/L.F.)	YES
	60
CREDIT FOR OTHER LANDSCAPING (NO OR YES W/R)	NO
NUMBER OF TREES PROVIDED:	
SHADE TREES	12
EVERGREEN TREES	16
OTHER TREES (2:1 SUBSTITUTE)	-

**OWNERS:**  
 CHARLES GREEN  
 P.O. BOX 213  
 LAUREL, MARYLAND 20725  
 WILLIAM H. GREEN  
 39 N. 62nd STREET  
 PHILADELPHIA, PA 19139  
 CHARLES & HAROLD KELLER  
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 BALTIMORE, MD 21213  
 RALPH PARKER, JR.  
 9910 HARMONY LANE  
 LAUREL, MD 20723

NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.
2	4-5-00	ADD STORM DRAIN PIPE & POND

**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS - LAND SURVEYORS - PLANNERS  
 8480 BALTIMORE NATIONAL PIKE - SUITE 418 - ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

**DEVELOPER/CONTRACT PURCHASER:** SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 465-4244

**LOCATION:** TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**TITLE:** LANDSCAPING PLAN

**DATE:** SEPT. 1998 **PROJECT NO. 0729**

**DESIGN:** YSL **DRAFT:** YSL **CHECK:** DAM **SCALE:** AS SHOWN **DRAWING** 9 **OF** 13

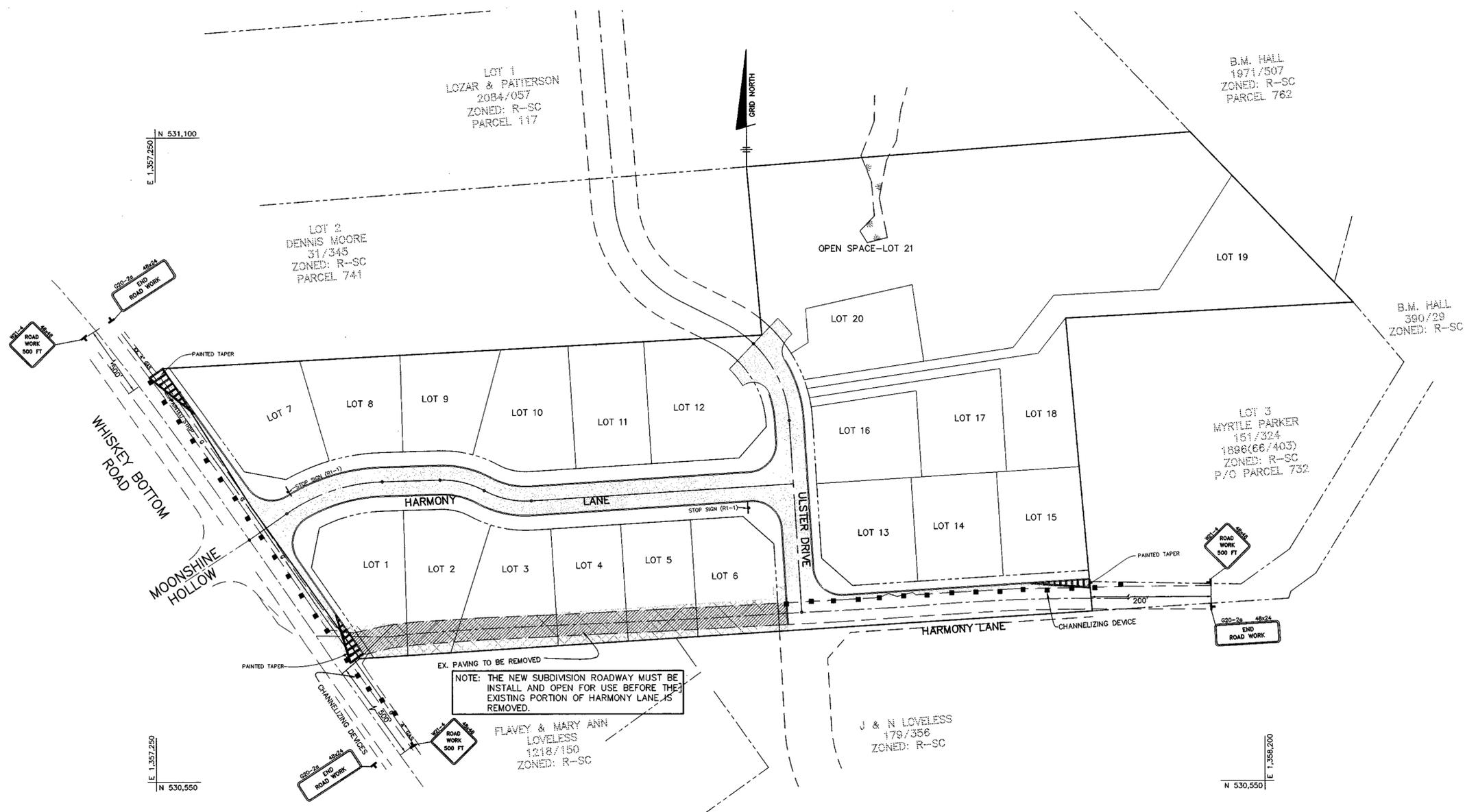
**APPROVED:** HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Richard M. Dwyer* 2/22/99  
 CHIEF, BUREAU OF HIGHWAYS DATE

**APPROVED:** HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Conrad Hendon* 3/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*William H. Green* 2/05/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

**LEGEND:**

- REFLECTORIZED TRAFFIC CONTROL DRUMS (CHANNELIZING DEVICES)
- SIGN SUPPORT
- SIGN FACE



**PLAN VIEW**  
SCALE: 1" = 50'

NOTE: THE NEW SUBDIVISION ROADWAY MUST BE INSTALLED AND OPEN FOR USE BEFORE THE EXISTING PORTION OF HARMONY LANE IS REMOVED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Stephen M. Daniels* 2-22-99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Horvath* 3/1/99  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*John P. ...* 2/25/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**OWNERS:**  
CHARLES GREEN  
P.O. BOX 213  
LAUREL, MARYLAND 20725  
WILLIAM H. GREEN  
39 N. 62nd STREET  
PHILADELPHIA, PA 19139  
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2934 STRANDEN ROAD  
BALTIMORE, MARYLAND 21230  
WILLIAM H. CARROLL, JR.  
1703 CRYSTAL AVENUE  
BALTIMORE, MD 21213  
RALPH PARKER, JR.  
9910 HARMONY LANE  
LAUREL, MD 20723

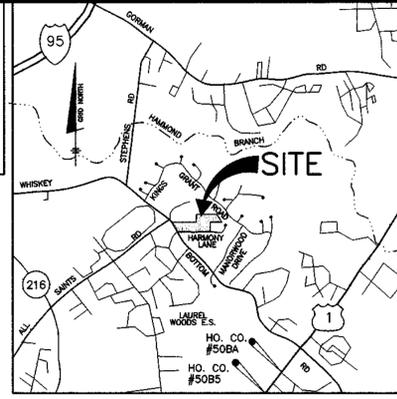
NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-0105 FAX: 410-465-6644

DEVELOPER/CONTRACT PURHASER: SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 442-4244		PROJECT: <b>KINGS ARMS</b> LOTS 1 THRU 21 (S-98-03, WP-98-72, P-98-24)
LOCATION: TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		TITLE: <b>WHISKEY BOTTOM RD. &amp; HARMONY LANE</b> <b>TRAFFIC CONTROL PLAN</b>
DATE: SEPT. 1998	PROJECT NO. 0729	
DESIGN: YSL	DRAFT: YSL	CHECK: DAM
SCALE: AS SHOWN	DRAWING 10 OF 13	

**BENCH MARKS--(NAD'83)**

HO. CO. #50BA STANDARD DISC ON CONC. MONUMENT	EL. N/A
N 527561.6702'	E 1359772.5936'
HO. CO. #50B5 STANDARD DISC ON CONC. MONUMENT	EL. 178.242'
N 524999.3640'	E 1357925.6751'



**VICINITY MAP**  
SCALE: 1" = 2000'

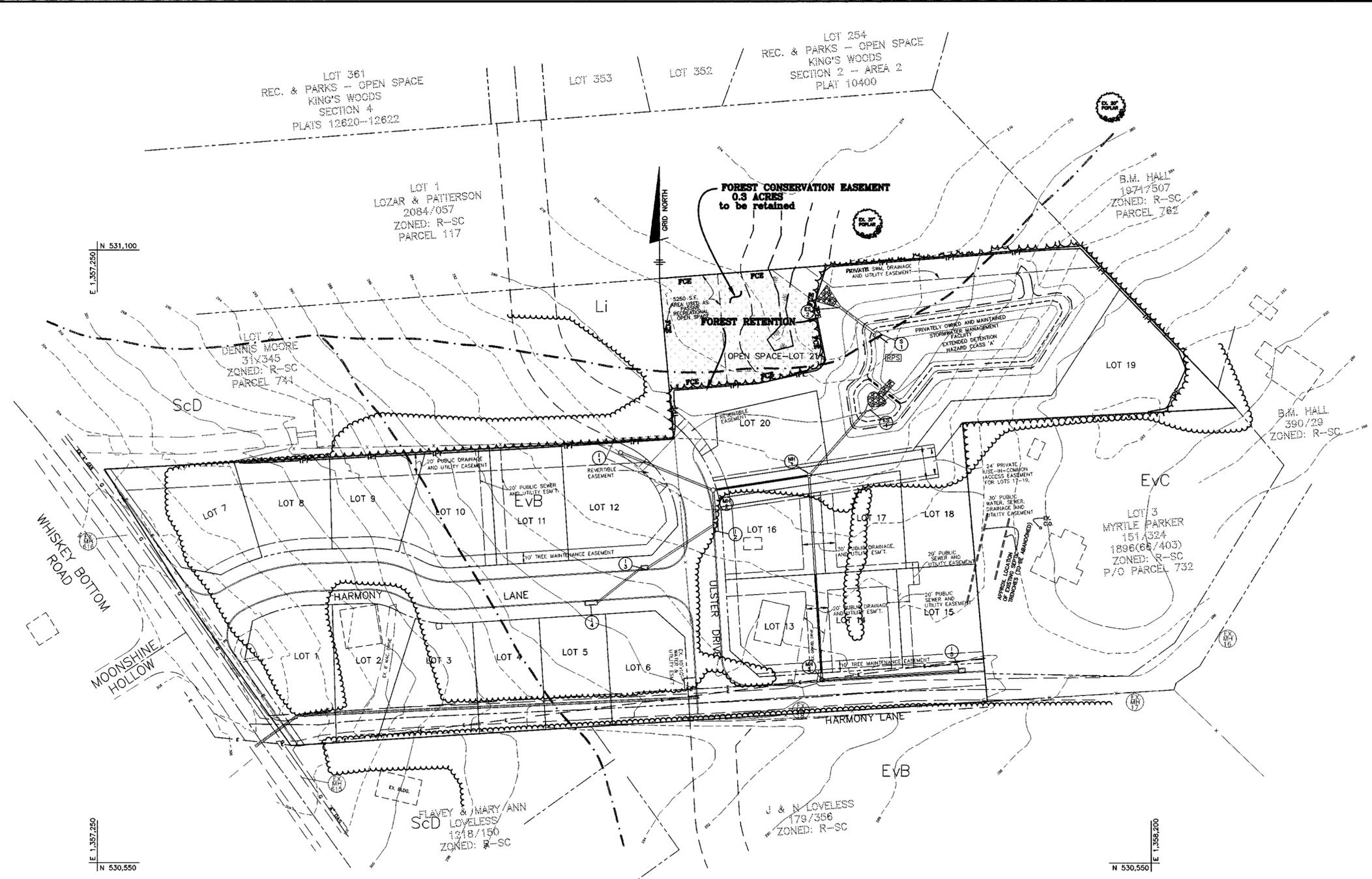
**SOILS LEGEND**

MAP SYMBOL	SOIL TYPE	MAPPING UNIT
EVB	A	EVESBORO LOAMY SAND - 1 TO 5 PERCENT SLOPES
EVC	A	EVESBORO LOAMY SAND - 5 TO 15 PERCENT SLOPES
LI	D	LEONARDTOWN SILT LOAM
ScD	C	SANDY AND CLAYEY LAND - MODERATELY SLOPING

\* INDICATES HYDRIC SOILS  
SOILS MAP No.XX

**SITE DATA TABULATION**

- GENERAL SITE DATA
- PRESENT ZONING: R-SC
  - APPLICABLE DPZ FILE REFERENCES: S-98-02
  - PROPOSED USE OF SITE: SFD HOMES
  - PROPOSED WATER AND SEWER SYSTEMS: \_I\_PUBLC
- AREA TABULATION
- TOTAL AREA OF SITE: 5.63 AC.
  - APPROXIMATE AREA OF 100 YEAR FLOODPLAIN: N/A
  - APPROX. AREA OF STEEP SLOPES (25% OR MORE): N/A
  - NET AREA OF SITE: 5.63 AC.



**PLAN**  
SCALE: 1" = 50'

**FCE LEGEND**

- 999--- EXISTING CONTOURS
- 999--- EXISTING FOREST
- 999--- FOREST TO BE RETAINED
- FCE--- PERMANENT PROTECTIVE SIGNAGE
- TPF--- TEMPORARY PROTECTIVE FENCING

See Sheet 13 for FCP notes, schedules, specifications and details.  
See Sheet 12 for offsite reforestation plan.

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Andrew M. Daniels* 2-22-99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Cindy Hamstra* 3/1/99  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*Chris P. ...* 2/25/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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9910 HARMONY LANE  
LAUREL, MD 20723

**ECO-SCIENCE PROFESSIONALS, INC.**  
CONSULTING ECOLOGISTS  
P.O. BOX 5006  
GLEN ARD, MD 21057  
(410) 682-6762

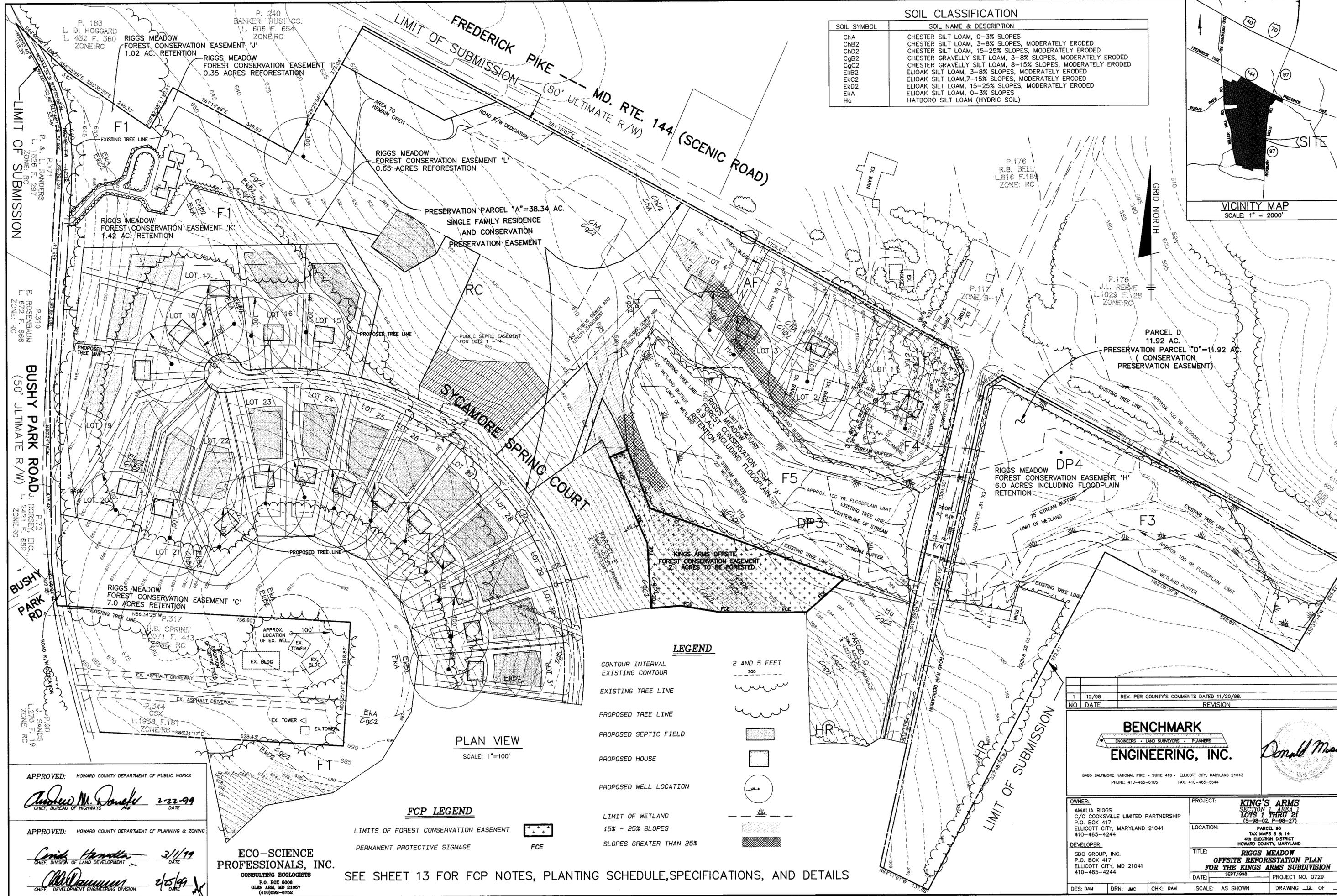
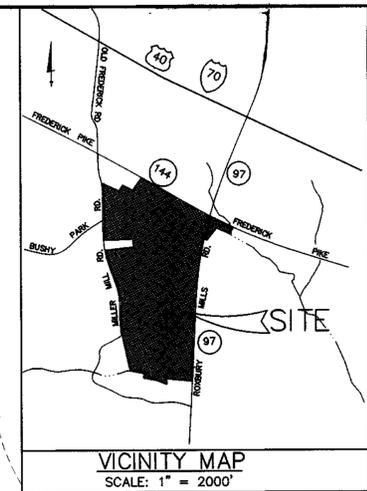
NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL
1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.

**BENCHMARK ENGINEERING, INC.**  
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8480 BALTIMORE NATIONAL PIKE • SUITE 418 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

DEVELOPER/CONTRACT PURHASER: SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 465-4244	PROJECT: <b>KINGS ARMS SECTION 1, AREA 1 LOTS 1 THRU 21</b> (S-98-02, P-98-27)
TITLE: <b>FOREST CONSERVATION PLAN</b>	LOCATION: TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/O 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: SEPT., 1998	PROJECT NO. 0729
DESIGN: YSL	DRAFT: YSL
CHECK: DAM	SCALE: AS SHOWN
DRAWING 11 OF 13	

**SOIL CLASSIFICATION**

SOIL SYMBOL	SOIL NAME & DESCRIPTION
ChA	CHESTER SILT LOAM, 0-3% SLOPES
ChB2	CHESTER SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
ChD2	CHESTER SILT LOAM, 15-25% SLOPES, MODERATELY ERODED
CgB2	CHESTER GRAVELLY SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
CgC2	CHESTER GRAVELLY SILT LOAM, 8-15% SLOPES, MODERATELY ERODED
EkB2	ELIOAK SILT LOAM, 3-8% SLOPES, MODERATELY ERODED
EkC2	ELIOAK SILT LOAM, 7-15% SLOPES, MODERATELY ERODED
EkD2	ELIOAK SILT LOAM, 15-25% SLOPES, MODERATELY ERODED
EKA	ELIOAK SILT LOAM, 0-3% SLOPES
Ho	HATBORO SILT LOAM (HYDRIC SOIL)



**PLAN VIEW**  
SCALE: 1"=100'

**LEGEND**

- CONTOUR INTERVAL 2 AND 5 FEET
- EXISTING CONTOUR 200
- EXISTING TREE LINE
- PROPOSED TREE LINE
- PROPOSED SEPTIC FIELD
- PROPOSED HOUSE
- PROPOSED WELL LOCATION
- LIMIT OF WETLAND
- 15% - 25% SLOPES
- SLOPES GREATER THAN 25%

**FCP LEGEND**

- LIMITS OF FOREST CONSERVATION EASEMENT
- PERMANENT PROTECTIVE SIGNAGE
- FCE

SEE SHEET 13 FOR FCP NOTES, PLANTING SCHEDULE, SPECIFICATIONS, AND DETAILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Andrew M. Daniels* 2/22/99  
CHIEF, BUREAU OF HIGHWAYS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING

*Chris Chandler* 3/11/99  
CHIEF, DIVISION OF LAND DEVELOPMENT

*William* 2/25/99  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

**ECO-SCIENCE PROFESSIONALS, INC.**  
CONSULTING ECOLOGISTS  
P.O. BOX 6006  
GLEN ARM, MD 21067  
(410)592-0762

1	12/98	REV. PER COUNTY'S COMMENTS DATED 11/20/98.
NO	DATE	REVISION

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS  
8480 BALTIMORE NATIONAL PIKE • SUITE 415 • ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-5844

*Donald Moon*

<b>OWNER:</b> AMALIA RIGGS C/O COOKSVILLE LIMITED PARTNERSHIP P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 410-465-4244	<b>PROJECT:</b> <b>KING'S ARMS</b> SECTION 1, AREA 1 <b>LOTS 1 THRU 21</b> (S-98-02, P-98-27)
<b>DEVELOPER:</b> SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MD 21041 410-465-4244	<b>LOCATION:</b> PARCEL 06 TAX MAPS 8 & 14 4th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
<b>TITLE:</b> <b>RIGGS MEADOW</b> <b>OFFSITE REFORESTATION PLAN</b> <b>FOR THE KING'S ARMS SUBDIVISION</b>	<b>DATE:</b> SEPT. 1998
<b>DES:</b> DAM	<b>DRN:</b> JMC
<b>CHK:</b> DAM	<b>SCALE:</b> AS SHOWN
<b>PROJECT NO.</b> 0729	<b>DRAWING</b> 12 OF 13

# Planting Schedule

## Forest Conservation Easement #1 (2.1 acres)

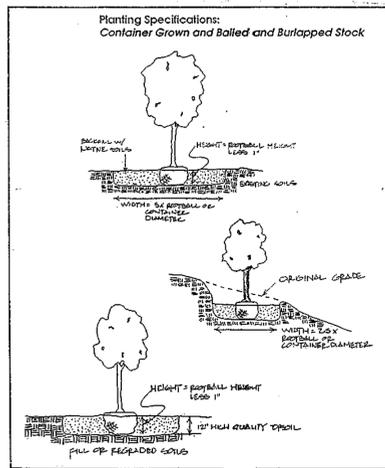
Qty.	Species	Size	Spacing
20	Acer rubrum - Red maple	1" cal.	##
20	Liriodendron tulipifera - Tulip poplar	1" cal.	##
104	Acer rubrum - Red maple	2-3' cont.	**
57	Cornus florida - Flowering dogwood	2-3' cont.	**
47	Juniperus virginiana - Red cedar	2-3' cont.	**
113	Liriodendron tulipifera - Poplar	2-3' cont.	**
66	Prunus serotina - Black cherry	2-3' cont.	**
51	Robinia pseudo-acacia - Black locust	2-3' cont.	**
47	Quercus alba - White oak	2-3' cont.	**
66	Quercus rubra - Red oak	2-3' cont.	**
47	Sassafras albidum - Sassafras	2-3' cont.	**
67	Viburnum dentatum - Arrowwood	18-24" b.t.	**

### KEY:

cal. - caliper cont. - container grown b.t. branched transplant

## - one inch caliper trees shall be spaced around perimeter of FCE easement that occur adjacent to private lots or unforested open space, approximate locations shown. Trees should be planted within 10 feet of FCE boundary.

\*\* - trees and shrubs shall be planted, on average, at a spacing of 11 feet on center, not in a grid pattern. Limited clumping of shrubs is permitted.



### Planting/Soil Specifications

- Planting of nursery stock shall take place between March 15th and April 30th.
- A twelve (12) inch layer of topsoil shall be spread over all forestation areas impacted by site grading to ensure a suitable planting area. Disturbed areas shall be seeded and stabilized as per general construction plan for project. Planting areas not impacted by site grading shall have no additional topsoil installed.
- All bare-root planting stock shall have their root systems dipped into an anti-desiccant gel prior to planting.
- Plants shall be installed so that the top of root mass is level with the top of existing grade. Stock shall have planting pit shall consist of 3 parts existing soil to 1 part pine fines or equivalent. Fertilizer shall consist of Agriform 22-8-2, or equivalent, applied as per manufacturer's specifications.
- A two (2) inch layer of hardwood mulch shall be placed over the root area of all plantings.
- Plant material shall be transported to the site in a tarp or covered truck. Plants shall be kept moist prior to planting.
- All non-organic debris associated with the planting operation shall be removed from the site by the contractor.

### Sequence of Construction

- Sediment control and tree protection devices shall be installed in accordance with general construction plan for site. Site shall be graded in accordance with general construction plans.
- Proposed forestation areas impacted by site grading shall be topsoiled and stabilized as per #2 of Planting/Soil Specifications for project.
- Plants shall be installed as per Plant Schedule and the Planting/Soil Specifications for the project.
- Upon completion of the planting, signage shall be installed as per the Forest Protection Devices shown on the Forest Conservation Plan.
- Plantings shall be maintained and guaranteed in accordance with the Maintenance and Guarantee requirements for project.

### Maintenance of Plantings

- Maintenance of plantings shall last for a period of 24 months.
- All plant material shall be watered twice a month during the 1st growing season. Watering may be more or less frequent depending on weather conditions. During second growing season, once a month during May-September, if needed.
- Invasive exotic and noxious weeds will be removed from forestation areas. Old field successional species will be retained.
- Plants will be examined a minimum two times during the growing season for serious plant pests and diseases. Serious problems will be treated with the appropriate agent.
- Dead specimens will be pruned from plantings.

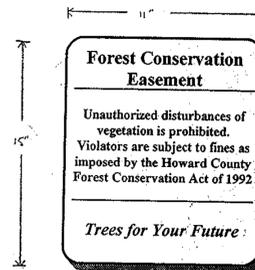
### Guarantee Requirements

- A 75 percent survival rate of forestation plantings will be required at the end of the 24 month maintenance period. All plant material below the 75 percent threshold will be replaced at the beginning of the next growing season. After one growing season, plant material shall be maintained at 50% survival threshold. The contractor will not be liable for plant loss due to theft or vandalism.

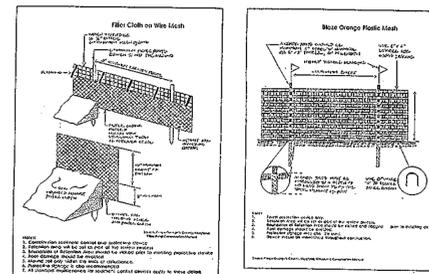
### Surety for Reforestation

- The developer shall post a surety (bond, letter of credit) to ensure that reforestation plantings are completed. Upon acceptance of the plantings by the County, the bond shall be released.

### Permanent Protective Signage



### Temporary Protective Fencing



### FCE NOTES

- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
- Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants. Reforestation, at a 1:1 ratio, is proposed for the forest acreage to be retained outside the FCE. This amount, 0.1 acre, has been added to the reforestation obligation required for the amount of actual clearing proposed on the site, 2.0 acres.
- Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
- There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
- No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
- Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
- Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.

### FOREST DATA

	Acres
Gross Area:	5.6
Net Tract Area (NTA):	5.6
Existing Forest (NTA):	3.6
Afforestation Threshold:	0.8
Reforestation Threshold:	1.1
Forest to be Cleared:	3.2
Forest to be Retained:	0.4
Forest to be Retained in FCE:	0.3
Reforestation Required:	2.1
Offsite Forestation Proposed:	2.1

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
*Charles W. Duncanson* 2-22-99  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING  
*Andi Hamilton* 3/1/99  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*John Duncanson* 2/25/99  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

NO	DATE	REVISION
0	9/98	SUBMISSION TO COUNTY FOR REVIEW AND APPROVAL.

**BENCHMARK**  
 ENGINEERS • LAND SURVEYORS • PLANNERS  
**ENGINEERING, INC.**

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 LAUREL, MD 20723

DEVELOPER/CONTRACT PURCHASER: SDC GROUP, INC. P.O. BOX 417 ELLICOTT CITY, MARYLAND 21041 (410) 442-2101	PROJECT: <b>KINGS ARMS</b> SECTION 1, AREA 1 LOTS 1 THRU 21 (S-98-02, F-98-27)
LOCATION: TAX MAP 47 - GRIDS 21 & 22, PARCELS 169,731, P/ 732 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	TITLE: <b>FOREST CONSERVATION PLAN</b>
DATE: SEPT. 1998	PROJECT NO. 0729
DESIGN: YSL	DRAFT: YSL
CHECK: DAM	SCALE: AS SHOWN
DRAWING 13 OF 13	

**Eco-Science Professionals, Inc.**  
 CONSULTING ECOLOGISTS

MD DNR Qualified Professional  
 USACE Wetland Delimitator  
 Certification # WD092300061004402  
*John E. Casale*