

**LEGEND:**

- EXISTING CONTOUR =
- EXISTING WETLANDS =
- EXISTING TREELINE =
- PROPOSED TREELINE =
- SOILS CLASSIFICATION =
- SOILS DELINEATION =
- PROPOSED SOIL BORING =
- PROPOSED ROAD SIGN =
- PROPOSED STREET LIGHT =
- FOREST CONSERVATION EASEMENT =
- NATURAL CONSERVATION AREA = STORM WATER MANAGEMENT CREDIT AND UTILITY EASEMENT =

CENTERLINE CURVE DATA						
ROAD	STATION	RADIUS	LENGTH	TANGENT	DELTA	CHORD
ROYAL COACHMAN DRIVE	2+35.27 TO 4+06.02	150.00'	170.74'	95.96'	65°13'06"	N64°42'16"E 161.67'
	4+06.02 TO 6+89.61	250.00'	283.59'	159.25'	64°59'38"	N64°49'01"E 268.63'
	10+03.94 TO 11+92.37	172.00'	188.42'	104.92'	62°46'00"	S55°11'14"E 48.56'
	11+92.37 TO 12+90.19	500.00'	97.82'	49.07'	11°12'35"	N88°28'54"E 97.67'
	15+01.72 TO 16+82.14	150.00'	180.42'	102.93'	68°54'55"	N49°25'09"E 169.74'
	17+50.03 TO 18+57.26	100.00'	107.24'	59.43'	61°26'31"	N49°40'57"E 102.17'
PALE MORNING DUN ROAD	2+63.08 TO 3+52.34	75.00'	89.26'	50.77'	68°11'29"	S19°03'28"W 84.09'
	5+09.88 TO 5+72.71	60.00'	62.83'	34.84'	60°00'00"	S23°09'10"W 60.00'
	6+52.32 TO 6+66.74	100.00'	14.42'	7.22'	08°15'46"	S10°58'43"E 14.41'
	7+11.92 TO 8+16.64	100.00'	104.72'	57.74'	60°00'00"	S14°53'24"W 100.00'
GREEN DRAKE ROAD	0+47.78 TO 1+32.04	150.00'	84.26'	43.27'	32°11'02"	S41°44'52"E 83.15'
	0+91.46 TO 1+29.86	32.00'	38.39'	21.89'	68°44'40"	N70°48'03"W 36.13'
LIGHT CAHILL COURT	1+29.86 TO 1+77.05	30.00'	47.19'	30.07'	90°08'05"	N60°06'21"W 42.48'

TENTATIVELY APPROVED  
DEPT. OF PLANNING AND  
ZONING OF  
HOWARD COUNTY

*[Signature]*  
PLANNING DIRECTOR  
10/29/02  
DATE

NO	DATE	REVISION

**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

10/15/02

PLAN VIEW  
SCALE: 1" = 50'

OWNERS:  
WAYNE D. AND SANDRA N. PFAU  
4948 LANDING ROAD  
ELLICOTT CITY, MD 21043  
SECURITY DEVELOPMENT, L.L.C.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
CLIFFORD J. BOBO  
4885 ILCHESTER ROAD  
ELLICOTT CITY, MD 21043  
CRAIG R. AND KAREN C. MARTIN  
4937 LANDING ROAD  
ELKRIDGE, MD 21075

DEVELOPER/CONTRACT PURCHASER:  
SECURITY DEVELOPMENT, L.L.C.  
P.O. BOX 417  
ELLICOTT CITY, MD 21041  
(410) 465-4244

PROJECT:  
**CASCADE OVERLOOK**

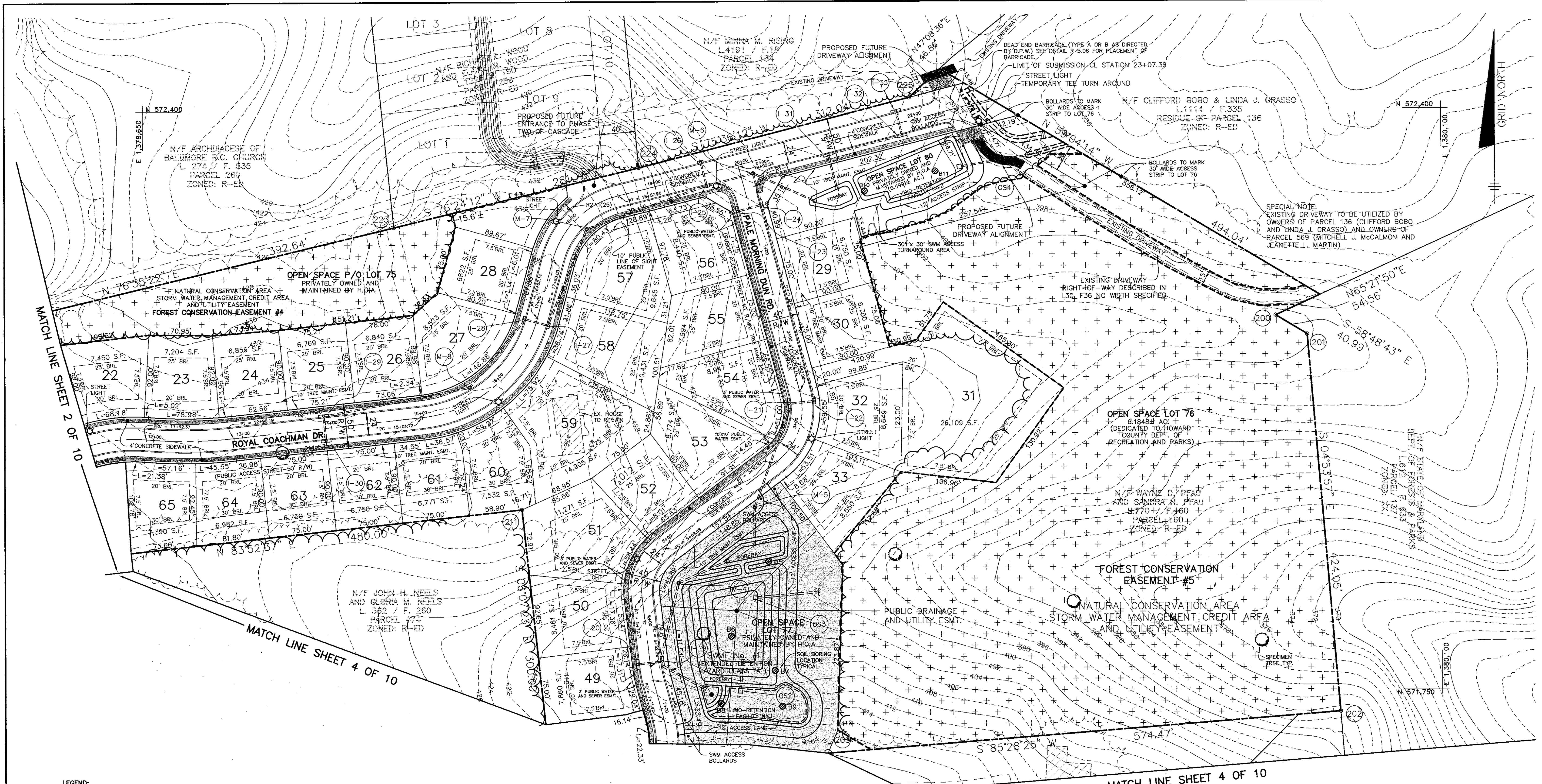
LOCATION:  
TAX MAP 31, GRID 10 & 11, PARCELS 160, 161, 788, & 791  
1 st. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE:  
**PRELIMINARY PLAN**

DATE: NOVEMBER, 2001  
OCTOBER, 2002

PROJECT NO.: 1383  
SCALE: AS SHOWN  
DRAWING 2 OF 10

DES: DAM DRN: RPS CHK:   
P-02-11



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

**LEGEND:**

- EXISTING CONTOUR = [Symbol]
- EXISTING WETLANDS = [Symbol]
- EXISTING TREELINE = [Symbol]
- PROPOSED TREELINE = [Symbol]
- SOILS CLASSIFICATION = [Symbol]
- SOILS DELINEATION = [Symbol]
- PROPOSED SOIL BORING = [Symbol]
- PROPOSED ROAD SIGN = [Symbol]
- PROPOSED STREET LIGHT = [Symbol]
- FOREST CONSERVATION EASEMENT = [Symbol]
- NATURAL CONSERVATION AREA = [Symbol]
- STORM WATER MANAGEMENT CREDIT AND UTILITY EASEMENT = [Symbol]

**TENTATIVELY APPROVED**  
**DEPT. OF PLANNING AND ZONING OF HOWARD COUNTY**  
*10/29/02*  
**PLANNING DIRECTOR** **DATE**

NO	DATE	REVISION

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

8480 BALTIMORE NATIONAL PIKE SUITE 418  
ELlicOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

10/15/02

**OWNERS:**  
WAYNE D. AND SANDRA N. PFAU  
4949 LANDING ROAD  
ELlicOTT CITY, MD 21043

**DEVELOPER/CONTRACT PURCHASER:**  
SECURITY DEVELOPMENT, L.L.C.  
P.O. BOX 417  
ELlicOTT CITY, MD 21041  
(410) 465-4244

**PROJECT:**  
**CASCADE OVERLOOK**

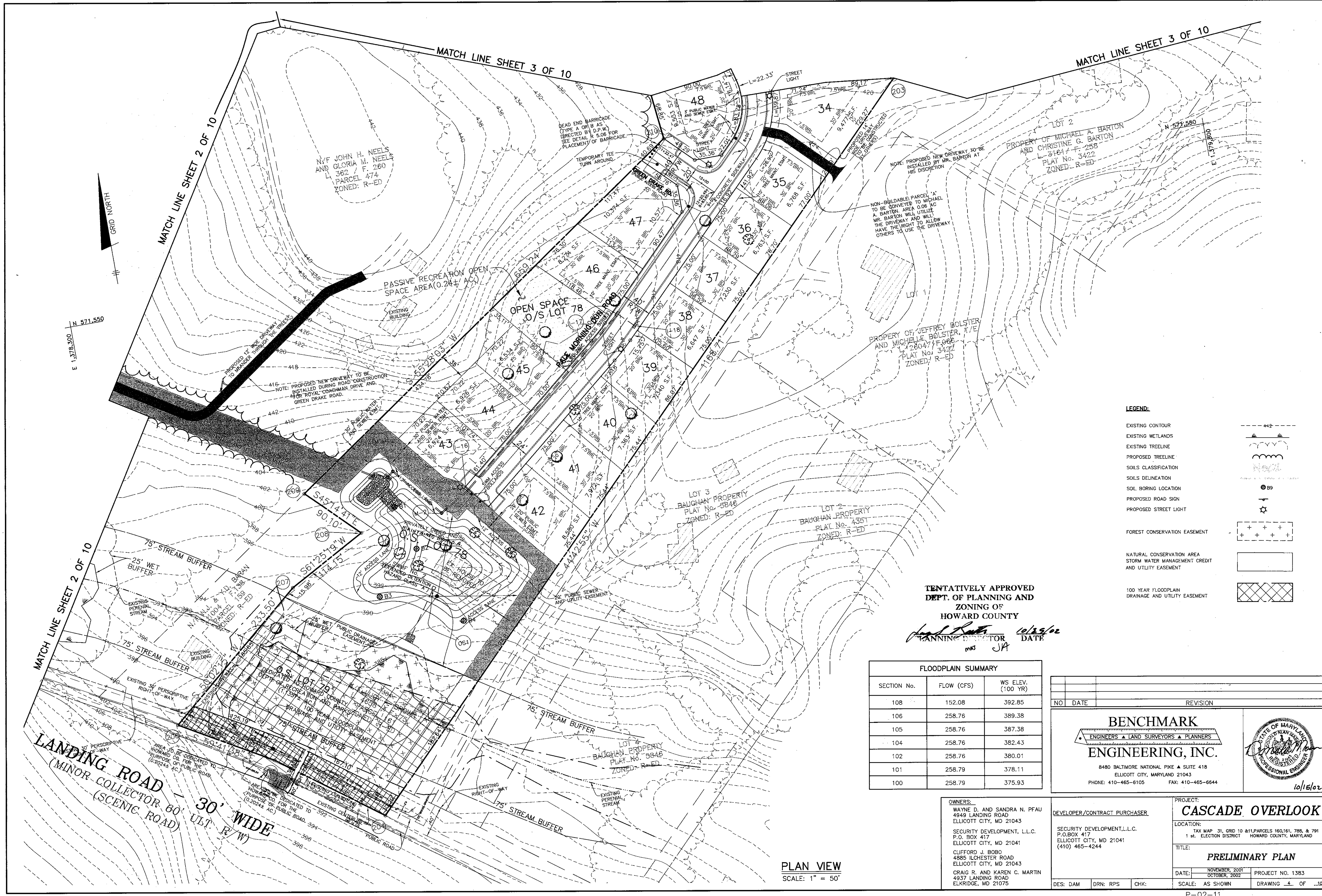
**LOCATION:**  
TAX MAP 31, GRID 10 & 11, PARCELS 160, 161, 786, & 791  
1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**TITLE:**  
**PRELIMINARY PLAN**

**DATE:** NOVEMBER, 2001 PROJECT NO. 1383  
OCTOBER, 2002

**SCALE:** AS SHOWN DRAWING 3 OF 10

DES: DAM DRN: RPS CHK:



MATCH LINE SHEET 2 OF 10

MATCH LINE SHEET 3 OF 10

MATCH LINE SHEET 3 OF 10

GRID NORTH  
E 1,378,300  
N 571,550

MR. JOHN H. NEEDS  
AND  
GLORIA M. NEEDS  
L 362 F. 260  
PARCEL 474  
ZONED: R-ED

LOT 2  
PROPERTY OF MICHAEL A. BARTON  
AND CHRISTINE G. BARTON  
L 3164 F. 3422  
PLAT No. 3422  
ZONED: R-ED

PROPERTY OF JEFFREY BOLSTER  
AND MICHELLE BOLSTER, T/E  
L 2604 F. 066  
PLAT No. 3422  
ZONED: R-ED

LOT 3  
BAUGHAN PROPERTY  
PLAT No. 5846  
ZONED: R-ED

LOT 2  
BAUGHAN PROPERTY  
PLAT No. 4351  
ZONED: R-ED

MATCH LINE SHEET 2 OF 10

LANDING ROAD  
(MINOR COLLECTOR 60' ULT. R/W)  
30' WIDE  
ULT. R/W

**LEGEND:**

- EXISTING CONTOUR
- EXISTING WETLANDS
- EXISTING TREELINE
- PROPOSED TREELINE
- SOILS CLASSIFICATION
- SOILS DELINEATION
- SOIL BORING LOCATION
- PROPOSED ROAD SIGN
- PROPOSED STREET LIGHT
- FOREST CONSERVATION EASEMENT
- NATURAL CONSERVATION AREA  
STORM WATER MANAGEMENT CREDIT  
AND UTILITY EASEMENT
- 100 YEAR FLOODPLAIN  
DRAINAGE AND UTILITY EASEMENT

**TENTATIVELY APPROVED  
DEPT. OF PLANNING AND  
ZONING OF  
HOWARD COUNTY**

*Handwritten Signature* 10/25/02  
PLANNING DIRECTOR DATE  
ms JA

FLOODPLAIN SUMMARY		
SECTION No.	FLOW (CFS)	WS ELEV. (100 YR)
108	152.08	392.85
106	258.76	389.38
105	258.76	387.38
104	258.76	382.43
102	258.76	380.01
101	258.79	378.11
100	258.79	375.93

NO.	DATE	REVISION

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

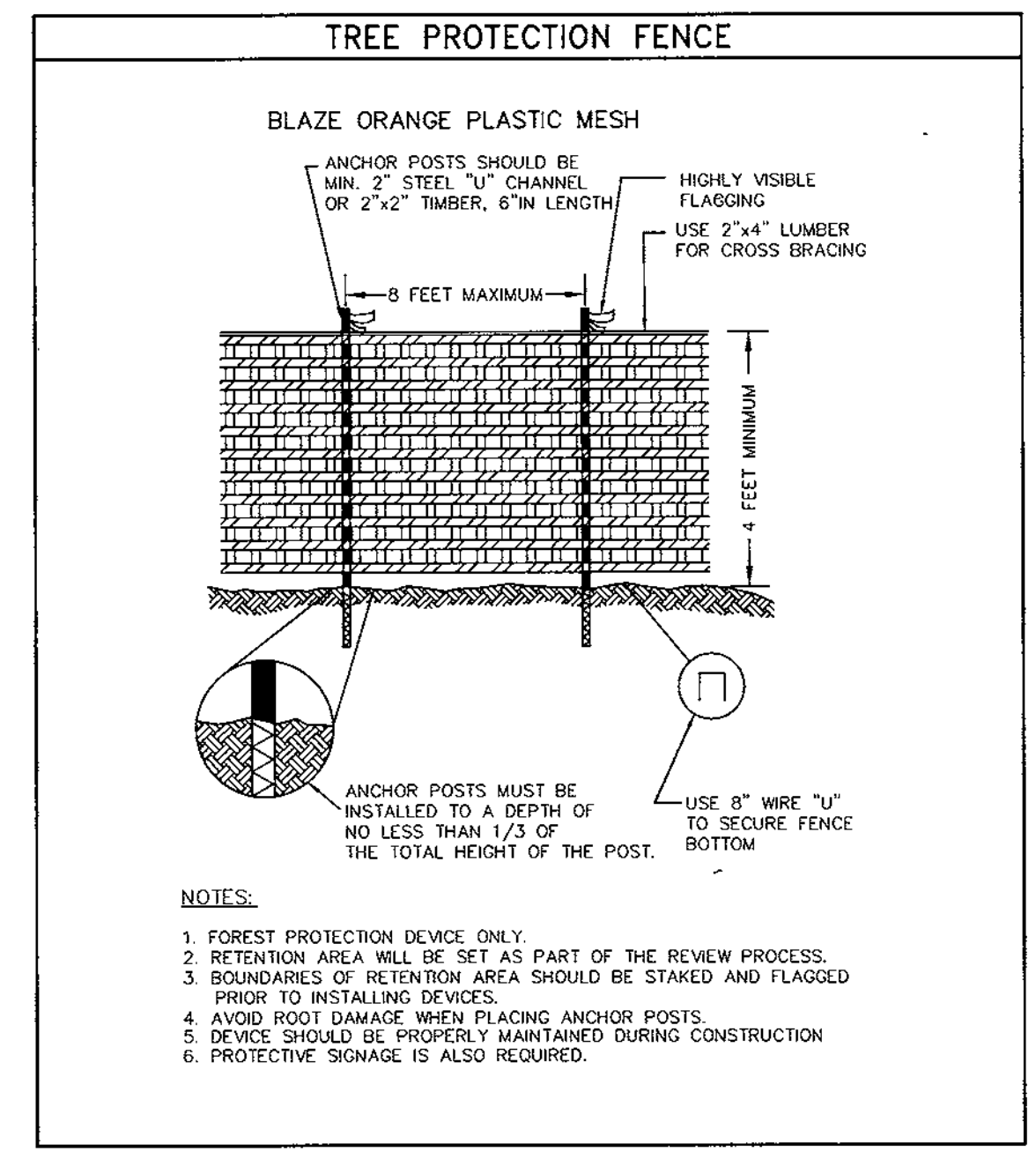
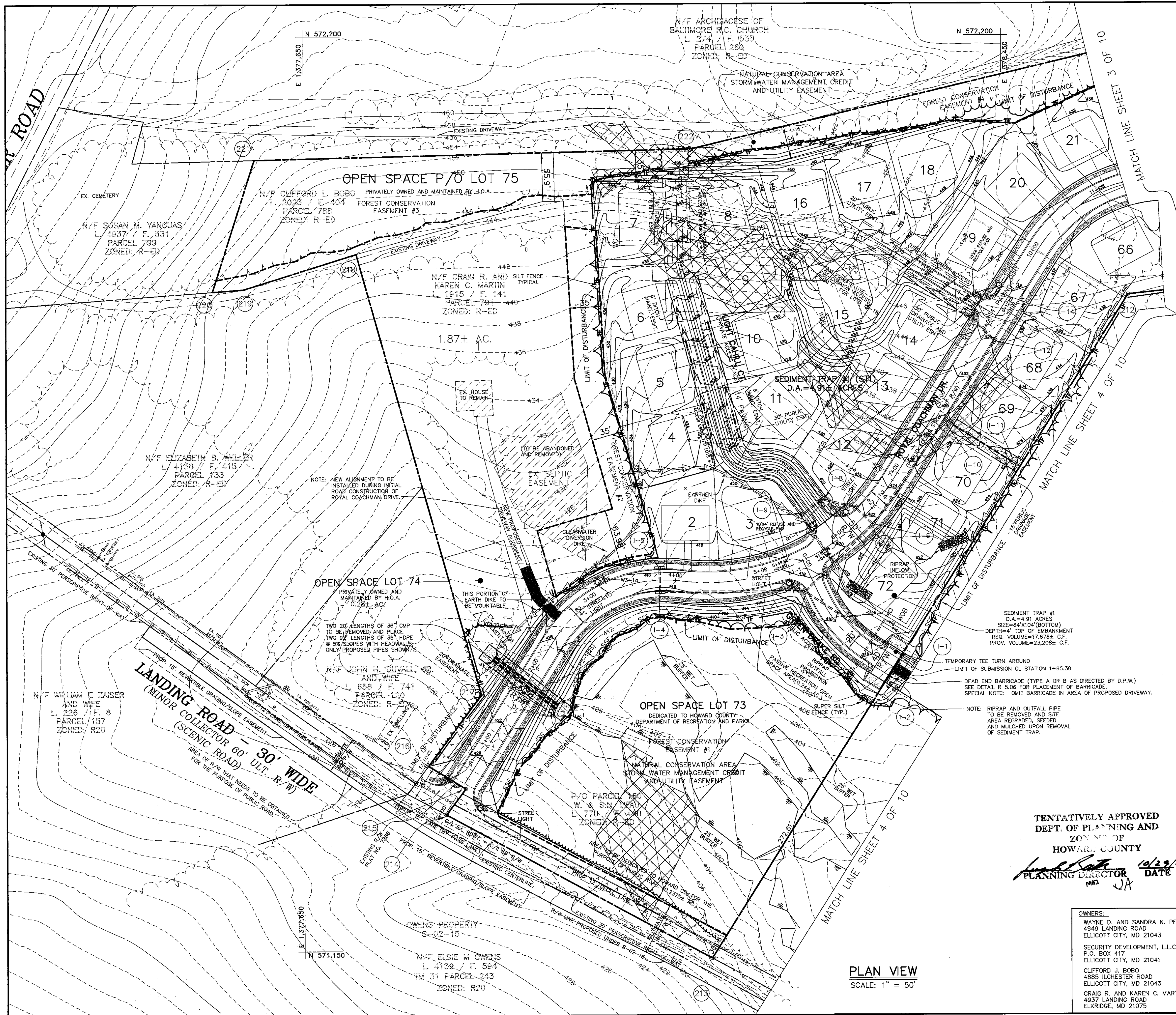
10/16/02

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

**OWNERS:**  
WAYNE D. AND SANDRA N. PFAU  
4949 LANDING ROAD  
ELLCOTT CITY, MD 21043  
SECURITY DEVELOPMENT, L.L.C.  
P.O. BOX 417  
ELLCOTT CITY, MD 21041  
CLIFFORD J. BOBO  
4885 ILCHESTER ROAD  
ELLCOTT CITY, MD 21043  
CRAIG R. AND KAREN C. MARTIN  
4937 LANDING ROAD  
ELKRIDGE, MD 21075

**DEVELOPER/CONTRACT PURCHASER:**  
SECURITY DEVELOPMENT, L.L.C.  
P.O. BOX 417  
ELLCOTT CITY, MD 21041  
(410) 465-4244

**PROJECT:**  
**CASCADE OVERLOOK**  
**LOCATION:**  
TAX MAP 31, GRID 10 & 11, PARCELS 160,161, 788, & 791  
1 st. ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
**TITLE:**  
**PRELIMINARY PLAN**  
**DATE:** NOVEMBER, 2001 PROJECT NO. 1383  
OCTOBER, 2002  
**SCALE:** AS SHOWN DRAWING 4 OF 10



**LEGEND:**

EXISTING CONTOUR =	--- 430 ---
PROPOSED CONTOUR =	--- 440 ---
LIMIT OF DRAINAGE AREA =	-----
EARTH DIKE =	←←←←←
EXISTING WETLANDS =	~~~~~
EXISTING TREELINE =	~~~~~
PROPOSED TREELINE =	~~~~~
LIMIT OF DISTURBANCE =	.....
TREE PROTECTION FENCE =	--- TF ---
DRAINAGE FLOW ARROW =	→
SILT FENCE =	--- SF ---
SUPER SILT FENCE =	--- SSF ---
SLOPES BETWEEN =	15% AND 24.9%
HOUSE BOX (NTS) =	□
RIPRAP PROTECTION =	▨
NATURAL CONSERVATION AREA =	STORM WATER MANAGEMENT CREDIT AND UTILITY EASEMENT

TENTATIVELY APPROVED  
DEPT. OF PLANNING AND ZONING OF  
HOWARD COUNTY

*Handwritten Signature*  
PLANNING DIRECTOR DATE 10/29/02  
MJD JA

NO	DATE	REVISION

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

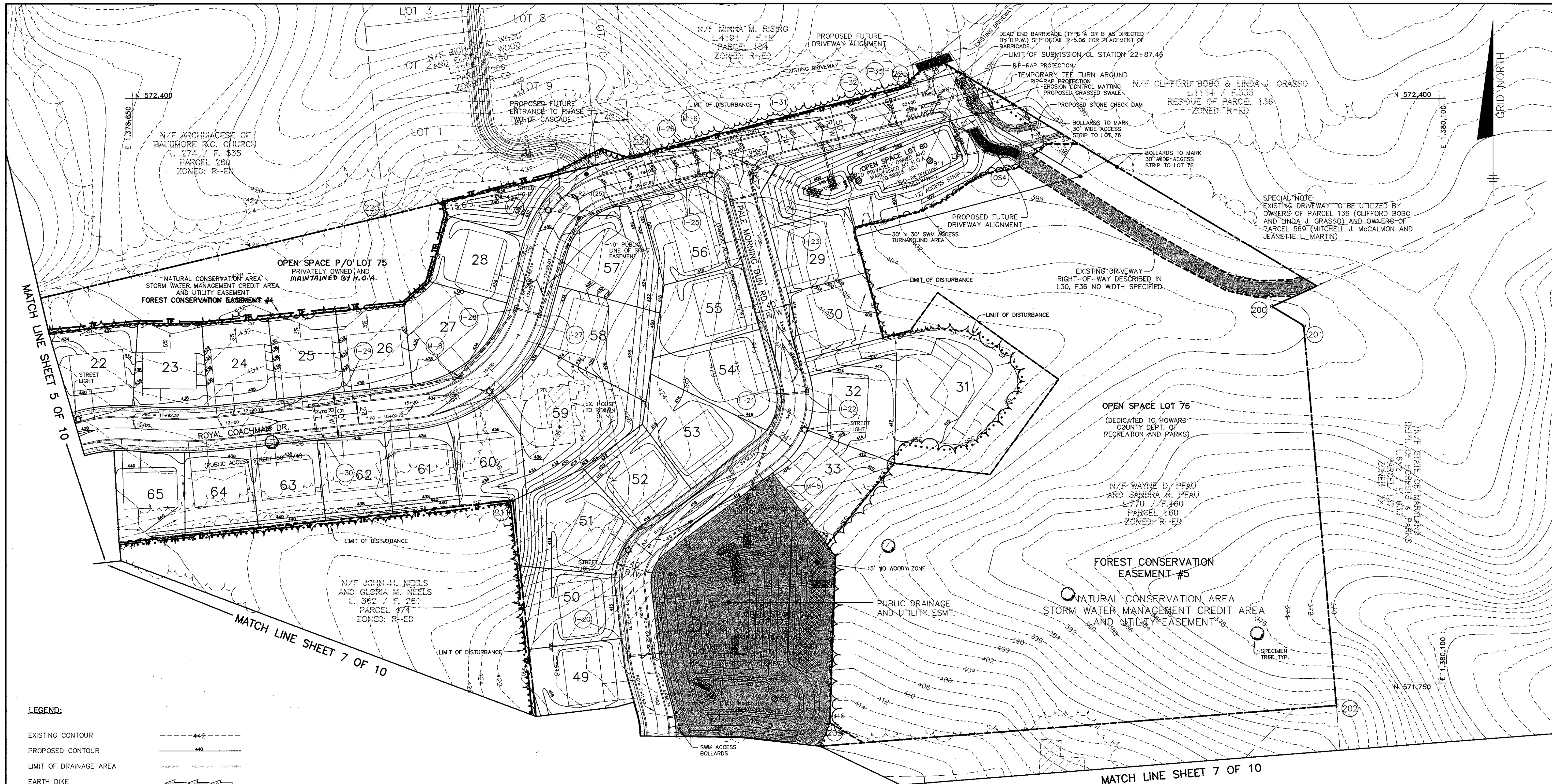
**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644

10/15/02

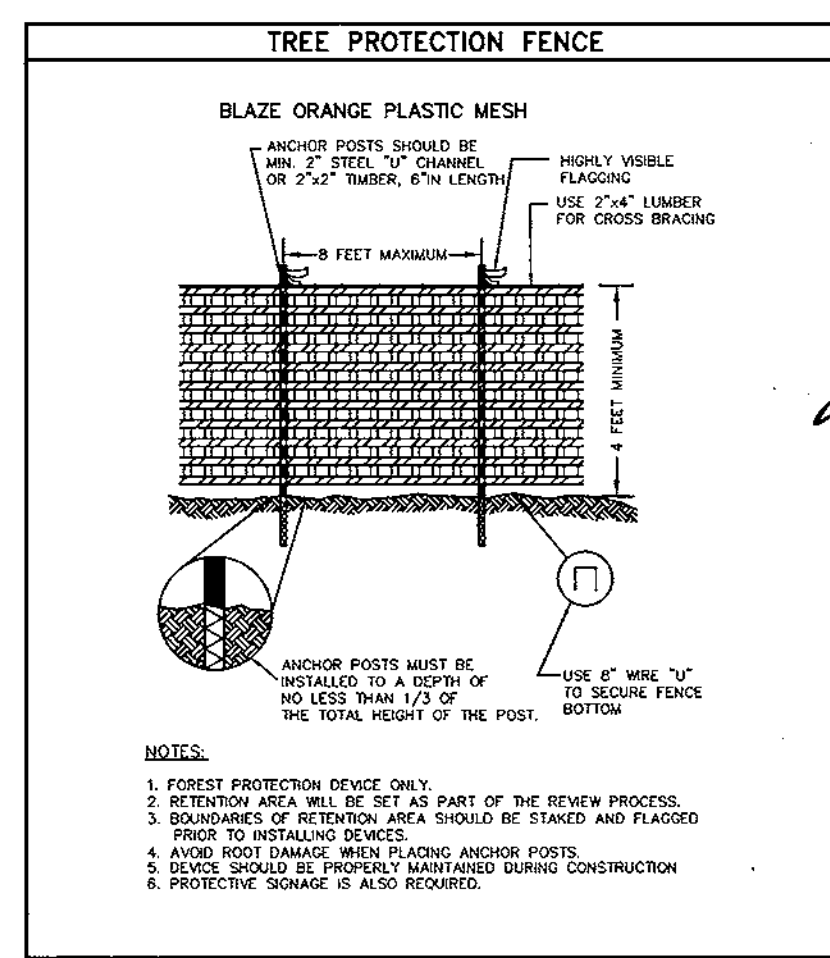
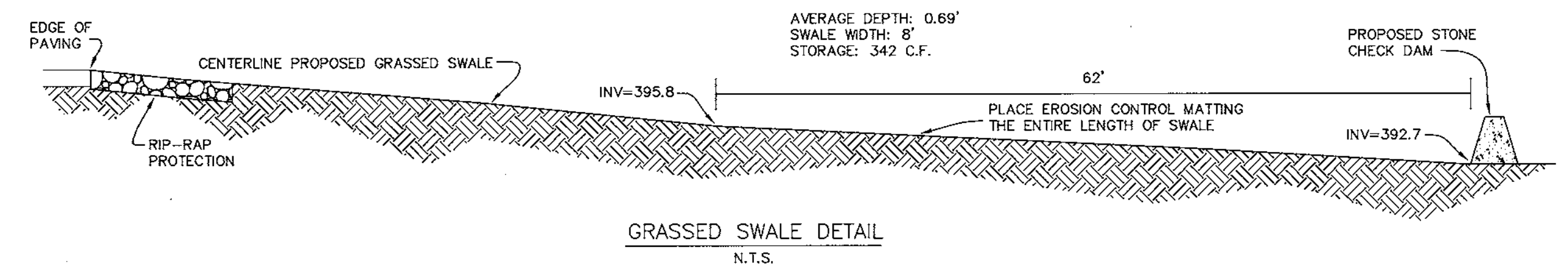
<b>OWNERS:</b> WAYNE D. AND SANDRA N. PFAU 4949 LANDING ROAD ELLCOTT CITY, MD 21043	<b>DEVELOPER/CONTRACT PURCHASER:</b> SECURITY DEVELOPMENT, L.L.C. P.O. BOX 417 ELLCOTT CITY, MD 21041 (410) 465-4244	<b>PROJECT:</b> <b>CASCADE OVERLOOK</b>
<b>SECURITY DEVELOPMENT, L.L.C.</b> P.O. BOX 417 ELLCOTT CITY, MD 21041 (410) 465-4244	<b>CLIFFORD J. BOBO</b> 4885 LICHETER ROAD ELLCOTT CITY, MD 21043	<b>LOCATION:</b> TAX MAP 31, GRID 10 & 11, PARCELS 160,161, 788, & 791 1 st. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
<b>CRAG R. AND KAREN C. MARTIN</b> 4937 LANDING ROAD ELKRIDGE, MD 21075	<b>CLIFFORD J. BOBO</b> 4885 LICHETER ROAD ELLCOTT CITY, MD 21043	<b>TITLE:</b> <b>PRELIMINARY GRADING, EROSION AND SEDIMENT CONTROL PLAN</b>
<b>DATE:</b> NOVEMBER, 2001 OCTOBER, 2002	<b>SCALE:</b> AS SHOWN	<b>PROJECT NO. 1383</b> <b>DRAWING 5_ OF 12</b>

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



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

- LEGEND:**
- EXISTING CONTOUR 442
  - PROPOSED CONTOUR 440
  - LIMIT OF DRAINAGE AREA
  - EARTH DIKE
  - EXISTING WETLANDS
  - EXISTING TREELINE
  - PROPOSED TREELINE
  - LIMIT OF DISTURBANCE
  - TREE PROTECTION FENCE
  - DRAINAGE FLOW ARROW =
  - SILT FENCE
  - SUPER SILT FENCE
  - SLOPES BETWEEN 15% AND 24.9%
  - HOUSE BOX (NTS)
  - RIPRAP PROTECTION
  - NATURAL CONSERVATION AREA STORM WATER MANAGEMENT CREDIT AND UTILITY EASEMENT
  - 15' NO WOODY ZONE



TENTATIVELY APPROVED  
DEPT. OF PLANNING AND ZONING OF  
HOWARD COUNTY

*[Signature]*  
PLANNING DIRECTOR

*[Signature]*  
DATE

NO	DATE	REVISION

**BENCHMARK**  
ENGINEERS • LAND SURVEYORS • PLANNERS

**ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE • SUITE 418  
ELLICOTT CITY, MARYLAND 21043  
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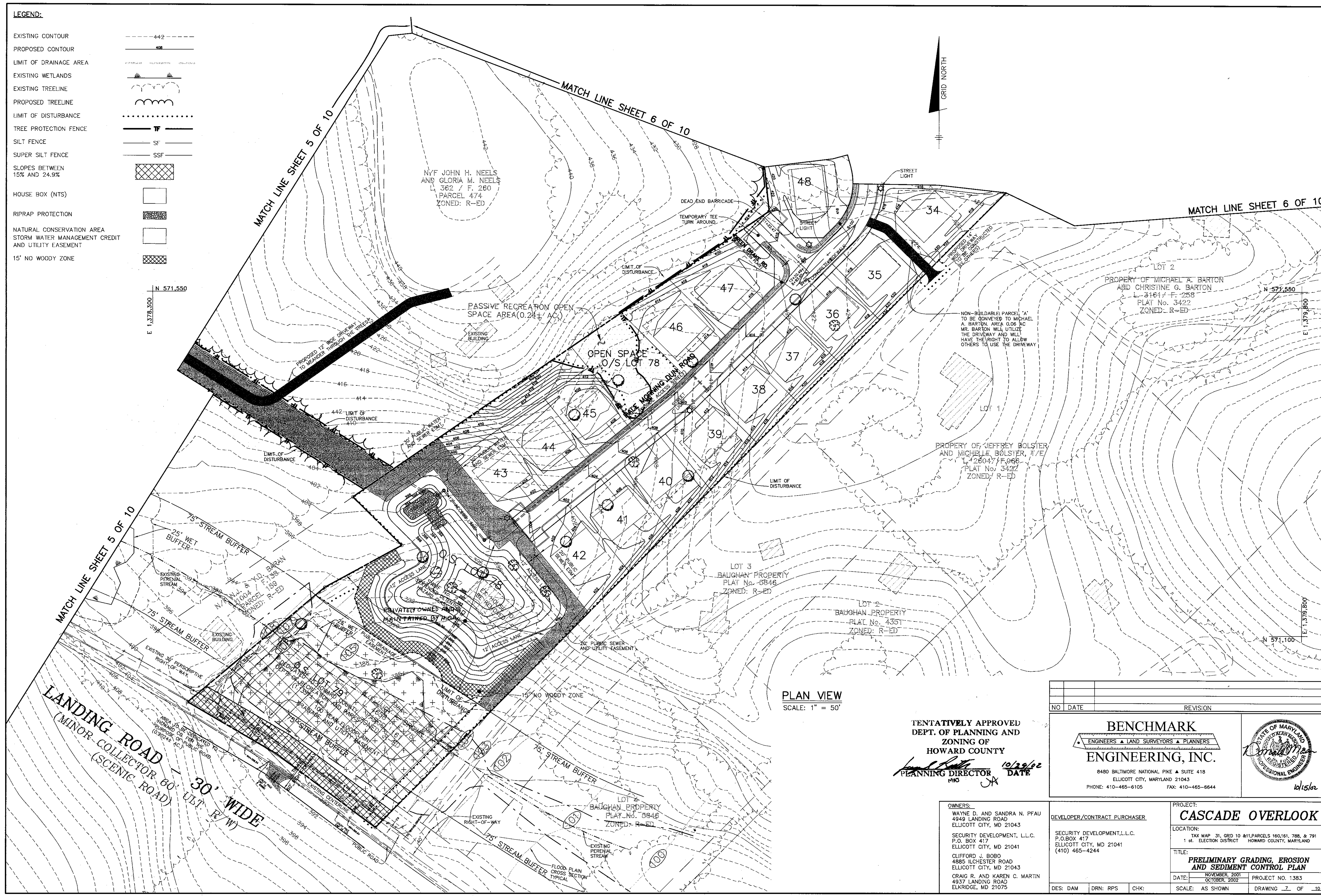
*[Professional Engineer Seal]*  
10/15/02

OWNERS: WAYNE D. AND SANDRA N. PFAU 4949 LANDING ROAD ELLICOTT CITY, MD 21043	DEVELOPER/CONTRACT PURCHASER: SECURITY DEVELOPMENT, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041	PROJECT: <b>CASCADE OVERLOOK</b>
SECURITY DEVELOPMENT, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041	CLIFFORD J. BOBO 4885 ILCHESTER ROAD ELLICOTT CITY, MD 21043	LOCATION: TAX MAP 31, GRID 10 & 11; PARCELS 160, 161, 788, & 791 1 st. ELECTION DISTRICT HOWARD COUNTY, MARYLAND
CRAIG R. AND KAREN C. MARTIN 4937 LANDING ROAD ELK RIDGE, MD 21075	CLIFFORD J. BOBO & LINDA J. GRASSO RESIDUE OF PARCEL 136 ZONED: R-ED	TITLE: <b>PRELIMINARY GRADING, EROSION AND SEDIMENT CONTROL PLAN</b>
DATE: NOVEMBER, 2001	PROJECT NO. 1383	SCALE: AS SHOWN
DES: DAM	DRN: RPS	CHK:
DATE: OCTOBER, 2002	DRAWING 6 OF 10	

**LEGEND:**


- EXISTING CONTOUR - - - - - 442
- PROPOSED CONTOUR ————— 408
- LIMIT OF DRAINAGE AREA - - - - -
- EXISTING WETLANDS [Symbol]
- EXISTING TREELINE [Symbol]
- PROPOSED TREELINE [Symbol]
- LIMIT OF DISTURBANCE - · - · - · -
- TREE PROTECTION FENCE — TF —
- SILT FENCE — SF —
- SUPER SILT FENCE — SSF —
- SLOPES BETWEEN 15% AND 24.9% [Symbol]
- HOUSE BOX (NTS) [Symbol]
- RIPRAP PROTECTION [Symbol]
- NATURAL CONSERVATION AREA STORM WATER MANAGEMENT CREDIT AND UTILITY EASEMENT [Symbol]
- 15' NO WOODY ZONE [Symbol]

N 571,550  
E 1,378,300



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

TENTATIVELY APPROVED  
DEPT. OF PLANNING AND ZONING OF  
HOWARD COUNTY  
*[Signature]* 10/29/02  
PLANNING DIRECTOR DATE

<p>NO. DATE REVISION</p>	<p>REVISION</p>
<p><b>BENCHMARK</b> ENGINEERS • LAND SURVEYORS • PLANNERS <b>ENGINEERING, INC.</b></p> <p>8480 BALTIMORE NATIONAL PIKE • SUITE 418 ELLCOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644</p>	
	

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ELLCOTT CITY, MD 21043  
SECURITY DEVELOPMENT, L.L.C.  
P.O. BOX 417  
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**PROJECT:**  
**CASCADE OVERLOOK**

**LOCATION:**  
TAX MAP 31, GRID 10 & 11, PARCELS 160, 161, 788, & 791  
1 st. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

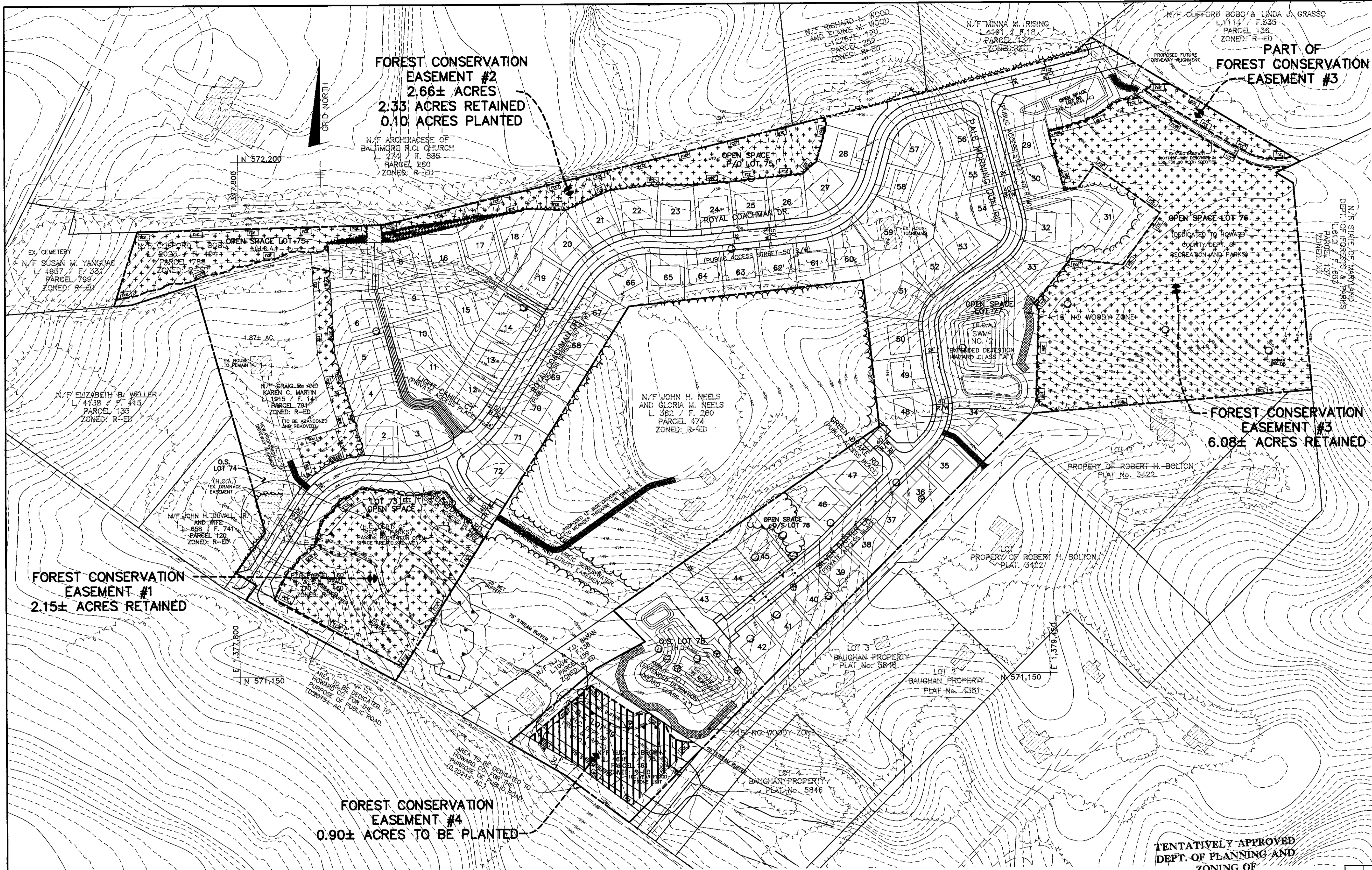
**TITLE:**  
**PRELIMINARY GRADING, EROSION AND SEDIMENT CONTROL PLAN**

**DATE:** NOVEMBER, 2001 PROJECT NO. 1383  
OCTOBER, 2002

**SCALE:** AS SHOWN **DRAWING** 7 OF 10

DES: DAM DRN: RPS CHK: SCALE: AS SHOWN DRAWING 7 OF 10

\\tsawel1\Engineer\PROJECTS\1383 PFAU\dwg\3026507.dwg, SHEET 7, 10/15/02 07:37:28 AM, rps



**FOREST CONSERVATION EASEMENT #2**  
2.66± ACRES  
2.33 ACRES RETAINED  
0.10 ACRES PLANTED

**PART OF FOREST CONSERVATION EASEMENT #3**

**FOREST CONSERVATION EASEMENT #1**  
2.15± ACRES RETAINED

**FOREST CONSERVATION EASEMENT #3**  
6.08± ACRES RETAINED

**FOREST CONSERVATION EASEMENT #4**  
0.90± ACRES TO BE PLANTED

APPENDIX G  
FOREST CONSERVATION WORKSHEET

I. BASIC SITE DATA

	ACRES (1/10 acre)
GROSS SITE AREA	36.8
AREA WITHIN 100 YEAR FLOODPLAIN	0.7
AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (IF APPLICABLE)	N/A
NET TRACT AREA	36.1
LAND USE CATEGORY (R-RLD, R-RMD, R-S, C/1/0, I)	R-ED

II. INFORMATION FOR CALCULATIONS

A. NET TRACT AREA	36.1
B. REFORESTATION THRESHOLD (20% x A)	7.2
C. AFFORESTATION MINIMUM (15% x A)	5.4
D. EXISTING FOREST ON NET TRACT AREA	27.6
E. FOREST AREAS TO BE CLEARED	17.0
F. FOREST AREAS TO BE RETAINED	10.6
G. BREAK EVEN POINT	11.3

III. DETERMINING REQUIREMENTS: AFFORESTATION OR REFORESTATION

1. **Reforestation**  
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and clearing of forest areas is proposed, reforestation requirements may apply.  
GO TO SECTION IV  
If existing forest areas equal or exceed the afforestation minimum (if D equals or is more than C), and no clearing of existing forest resources is proposed, no reforestation is required. No further calculations are needed.
2. **Afforestation**  
If existing forest areas are less than the afforestation minimum (if D is less than C), afforestation requirements apply.  
GO TO SECTION V

IV. REFORESTATION CALCULATIONS

	ACRES (1/10 acre)
A. NET TRACT AREA	36.1
B. REFORESTATION THRESHOLD (20% x A)	7.2
C. EXISTING FOREST ON NET TRACT AREA	27.6
D. FOREST AREAS TO BE CLEARED	17.0
E. FOREST AREAS TO BE RETAINED	10.6
F. FOREST AREAS CLEARED ABOVE REFORESTATION THRESHOLD (D-B, IF F equals or is greater than B, Alternate 1) (D-B, IF F is less than B, Alternate 2)	N/A
G. FOREST AREAS CLEARED BELOW REFORESTATION THRESHOLD (B-F, IF applicable)	N/A
H. FOREST AREAS RETAINED ABOVE REFORESTATION THRESHOLD (F-B, Retention Credit, if applicable)	3.4

SELECT THE ALTERNATE THAT APPLIES:

1. **Clearing above the threshold only**  
If forest areas to be retained equal or are greater than the reforestation threshold (if F equals or is greater than B), the following calculations apply:

REFORESTATION FOR CLEARING ABOVE THRESHOLD	4.3
G x 1/4	1.8
CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD	3.4
I = Retention Credit	
TOTAL REFORESTATION REQUIRED (G x 1/4) - I	0.9

If the total reforestation requirement is equal to or less than 0, no reforestation is required.

2. **Clearing below the threshold**  
If forest areas to be retained are less than the reforestation threshold (if F is less than B), the following calculations apply:

REFORESTATION FOR CLEARING ABOVE THRESHOLD	
G x 1/4	
REFORESTATION FOR CLEARING BELOW THRESHOLD	
H x 2	
TOTAL REFORESTATION REQUIRED (G x 1/4) + (H x 2)	

Since clearing occurs below the threshold, no forest retention credit is possible.

**Eco-Science Professionals, Inc.**  
CONSULTING ECOLOGISTS  
MD DNR Qualified Professional  
USACOE Wetland Deliberator  
Certification # 100100010442  
John E. Canales  
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

TENTATIVELY APPROVED  
DEPT. OF PLANNING AND ZONING OF  
HOWARD COUNTY  
*James R. Smith*  
PLANNING DIRECTOR  
DATE 10/29/02

PLAN VIEW  
SCALE: 1" = 100'

SITE DATA

	ACRES
GROSS AREA:	36.8
EX. LOTS/UNFORESTED PRESERVATION	0.7
PARCEL/FLOODPLAIN:	36.1
NET TRACT AREA (NTA):	27.6
EXISTING FOREST ON NTA:	27.6
REFORESTATION THRESHOLD:	7.2
FOREST TO BE CLEARED:	17.0
FOREST TO BE RETAINED (NTA):	10.6
REFORESTATION REQUIRED:	0.9
REFORESTATION PROPOSED:	1.00

SURETY AMOUNT:  
RETENTION \$10 X 10.6 ACRES = \$46,173.00  
REFORESTED \$30 X 1.00 ACRES = \$13,068.00

LEGEND

- EXISTING CONTOURS
- PROPOSED CONTOURS
- LIMIT OF WETLANDS
- 100 YEAR FLOODPLAIN
- FOREST TO BE RETAINED
- EXISTING SPECIMEN TREE
- LIMITS OF FOREST CONSERVATION EASEMENT
- TEMPORARY PROTECTIVE FENCING
- PERMANENT PROTECTIVE SIGNAGE
- FOREST CONSERVATION EASEMENT RETENTION

SPECIMEN TREE  
DO NOT REMOVE  
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED  
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992

FOREST RETENTION AREA  
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS PROHIBITED  
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992

Forest Conservation Easement  
Unauthorized disturbances of vegetation is prohibited. Violators are subject to fines as imposed by the Howard County Forest Conservation Act of 1992  
Trees for Your Future

OWNERS:  
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ELLICOTT CITY, MD 21041  
CLIFFORD J. BOBQ  
4885 LANCHESTER ROAD  
ELLICOTT CITY, MD 21043  
CRAIG R. AND KAREN C. MARTIN  
4937 LANDING ROAD  
ELKRIDGE, MD 21075

NO DATE REVISION

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

PROJECT: **CASCADE OVERLOOK**  
LOCATION: TAX MAP 31, GRID 10 & 11, PARCELS 160, 161, 788, & 791  
1st ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
TITLE: **FOREST CONSERVATION PLAN**  
DATE: NOVEMBER, 2001 / OCTOBER, 2002 PROJECT NO. 1383  
SCALE: 1" = 100' DRAWING 8 OF 10

See FCP Sheet 2 for FCP notes, details and specifications

**FOREST PROTECTION PROCEDURES - Preconstruction Phase**

- The edge of the woods to be protected will be marked (staked or flagged) in the field per the limits of forest conservation easement shown in the approved site development plan prior to the start of construction activity. All areas within protective easement are to be considered "off limits" to any construction activities. The optional protective fencing shall be installed at the outside edge of forested areas and should be combined with sediment control devices when possible. The limit of the critical root zone and therefore the location of the protective devices is to be determined as follows:

Edge of Forested Area - 1 foot of protective radius/inch of DBH or an eight foot protective radius, whichever is greater.

Critical Root Zone for the forest on this site is an average of 12 feet from the trunk of the tree. Critical root zones for Specimen Tree #1 and #2 are 34' and 30'.

- Construction activities expressly prohibited within the preservation areas are:

Placing or stockpiling backfill or top soil in protected areas  
 Felling trees into protected areas  
 Driving construction equipment into or through protected areas  
 Burning in or in close proximity to protected areas  
 Stacking or storing supplies of any kind  
 Concrete wash-off areas  
 Conducting trenching operations  
 Grading beyond the limits of disturbance  
 Parking vehicles or construction equipment  
 Removal of root mat or topsoil  
 Siting and construction of:  
   Utility lines  
   Access roads  
   Impervious surfaces  
   Stormwater management devices  
   Staging areas

- Protective fencing (see Figure "Protective Fencing") shall be the responsibility of the general contractor. The general contractor shall affix signs to the fencing at 25' minimum intervals indicating that these areas are "Forest Retention Area" (see Figure "Signage"). The general contractor shall take great care to assure the restricted areas are not violated and that root systems are protected from smothering, flooding, excessive wetting from dewatering operations, off-site runoff, spillage, and drainage or solutions containing materials hazardous to tree roots.
- The general contractor shall be responsible for any tree damaged or destroyed within the preservation areas whether caused by the contractor, his agents, employees, subcontractors, or licensees.
- Foot traffic shall be kept to a minimum in the protective areas.
- All trees which are not to be preserved within fifty feet of any tree preservation areas are to be removed in a manner that will not damage those trees that are designated for preservation. It is highly recommended that tree stumps within this fifty foot area be ground out with a stump grinding machine to minimize damage.
- The general contractor shall designate a "wash out" area onsite for concrete trucks which will not drain toward a protected area.
- A pre-construction meeting shall be held with local authorities before any disturbance has taken place on site.

**FOREST PROTECTION PROCEDURES - Construction Phase**

Forest and tree conditions should be monitored during construction and corrective measures taken when appropriate.

The following shall be monitored:

- Soil compaction
- Root injury - prune and monitor; consider crown reduction
- Limb injury - prune and monitor
- Flooded conditions - drain and monitor; correct problem when possible
- Drought conditions - water and monitor; correct problem when possible
- Other stress signs - determine reason, correct, and monitor

**FOREST PROTECTION PROCEDURES - Post Construction Phase**

The following measures shall be taken:

- Corrective measures if damages were incurred due to negligence:
  - Stress reduction
  - Removal of dead or dying trees. This may be done only if trees pose an immediate safety hazard.
- Removal of temporary structures:
  - No burial of discarded materials will occur onsite within the conservation area.
  - No open burning within 100 feet of a wooded area.
  - All temporary forest protection structures will be removed after construction.
  - Remove temporary roads by removing stone or broadcasting mulch; pre-construction elevation should be maintained.
  - Aerate compacted soil.
  - Replant disturbed sites with trees, shrubs and/or herbaceous plants.
  - Retain signs for retention areas or specimen trees.
  - A County official shall inspect the entire site.
- Future protection measures:
  - Howard County and the developer shall arrange for the dedication of an appropriate forest conservation easement at a later date.

**FOREST PROTECTION PROCEDURES - Preconstruction Phase**

Stress Reduction and Protection of Specimen Trees Isolated from Forest Retention Areas and General Forest Retention Areas (as they may apply)

Isolated specimen trees that are to be preserved will be examined to determine if stress reduction techniques are needed. Protective measures and their evaluation criteria are provided on this plan only if they are employed herein.

**Root Pruning**

**Evaluation Criteria**

Will the critical root zone be affected by construction activities such as grade changes, digging for foundations and roads or utility installation?

**Design Considerations**

- Prune prior to construction as shown on the plan (see Figure "Root Pruning Detail").
- Prune root with a clean cut using proper pruning equipment such as a vibratory knife.
- Exact location of pruning trench should be identified, and immediately backfilled to cover exposed roots after pruning with soil removed other topsoil, peat moss, or other suitable material or with other high organic soil.
- For trees over 15" in diameter, root pruning may be done up to one year in advance of construction.
- Tree(s) will be monitored for signs of stress.

**Crown Reduction or Pruning**

**Evaluation Criteria**

Has the root system been significantly reduced (>30%) or are there dead, damaged, or diseased limbs?

**Design Considerations**

- Reduce only at specified times of the year:  
 Flowering trees - only after flowering and before bud set  
 Non-Flowering trees - in late winter, early spring or mid summer
- No more than 1/3 of the crown should be removed at one time using acceptable pruning methods (see Figure "Crown Reduction Detail")
- Monitor for signs of stress

**Watering**

**Evaluation Criteria**

Will construction activities alter the hydrology of the site? Has or will root pruning occur?

**Design Considerations**

- Water only as necessary
- Monitor for signs of stress (see Figure "Tree Planting and Maintenance Calendar")

**Fertilizing**

**Evaluation Criteria**

Is or will be tree(s) be under stressful conditions? Has or will root pruning occur?

**Design Considerations**

- Use low nitrogen and slow release fertilizers.
- Apply in late fall or early spring (see Figure "Tree Planting and Maintenance Calendar")
- For small trees (<3" in diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
- For larger trees (>3" diameter), use punch hole method or pressurized injection method (see Figure "Application of Fertilizers by Injection.")
- Do not apply fertilizer any closer than 3' from tree trunk for pressurized injection method.
- Monitor for signs of stress.

**Planting Schedule**

**FCE Planting Area 2 (0.12 acres)**

Qty.	Species	Size	Spacing
3	Acer rubrum - Red maple	2" cal.	*
3	Fraxinus pennsylvanica - Green ash	2" cal.	*
6	Quercus alba - White oak	2" cal.	*

**FCE Planting Area 4 (0.9 acres)**

Qty.	Species	Size	Spacing
60	Acer rubrum - Red maple	2-3 whip	**
60	Betula nigra - River birch	2-3 whip	**
70	Fraxinus pennsylvanica - Green ash	2-3 whip	**
45	Nyssa sylvatica - Black gum	2-3 whip	**
40	Quercus palustris - Pin oak	2-3 whip	**
60	Salix nigra - Black willow	2-3 whip	**

**Key:**

\* - landscape sized trees shall be installed on 20 foot centers in a random pattern throughout the easement. The trees should not be placed in a grid.

\*\* Plantings to be spaced on 11 foot centers, plantings should be installed in rows to facilitate future maintenance. Where possible rows should be made along contour. Shelters required per County regulations.

**Planting Notes:**

- No motorized vehicles permitted within wetlands.
- Plants should be flagged to aid on location during maintenance, 2-3' whip plantings should also be planted in grid pattern to facilitate maintenance and removal of invasive and exotic species.

**PLANTING SPECIFICATIONS**

**Planting/Soil Specifications**

- Planting of nursery stock shall take place between March 15th and April 30th. Container stock may be planted September 1-October 30.
- A twelve (12) inch layer of topsoil shall be spread over all afforestation areas impacted by site grading to assure 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. Backfill in the planting pits 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**

- 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 Retention Area Protection Devices shown on Sheet 2 of 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 exotics and noxious weeds will be removed from reforestation 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 branches will be pruned from plantings.

**Guarantee Requirements**

- After one growing season, plant material shall be maintained at 90% survival threshold. 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.
- 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.

TENTATIVELY APPROVED  
 DEPT. OF PLANNING AND ZONING OF  
 HOWARD COUNTY

*Handwritten Signature*  
 PLANNING DIRECTOR  
 10/29/02 DATE  
 JA

NO.	DATE	REV PER HO. CO. COMMENTS OF 7-02-02	REVISION
1	7/12/02		

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

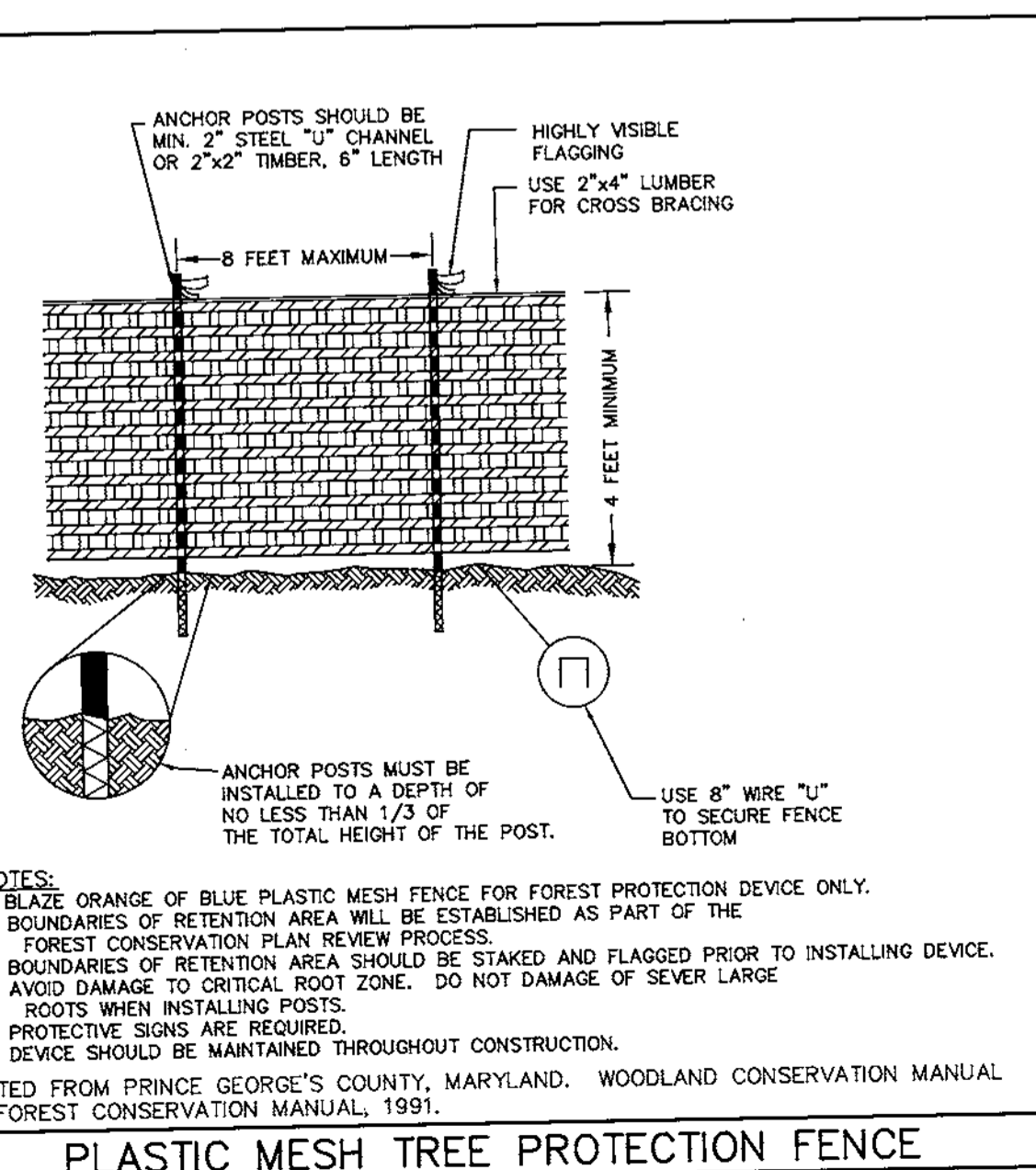
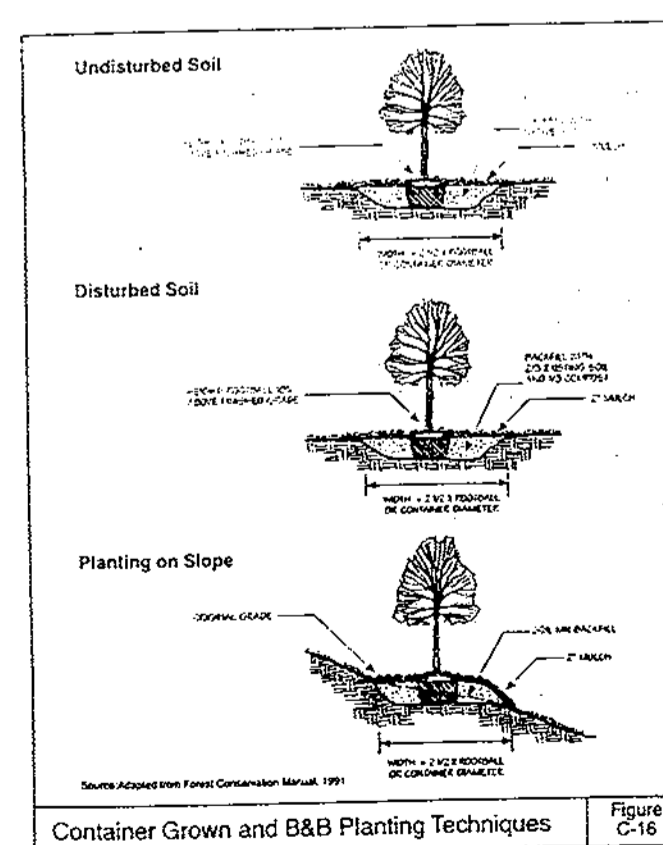
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 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644

*Handwritten Signature*  
 PROFESSIONAL ENGINEER

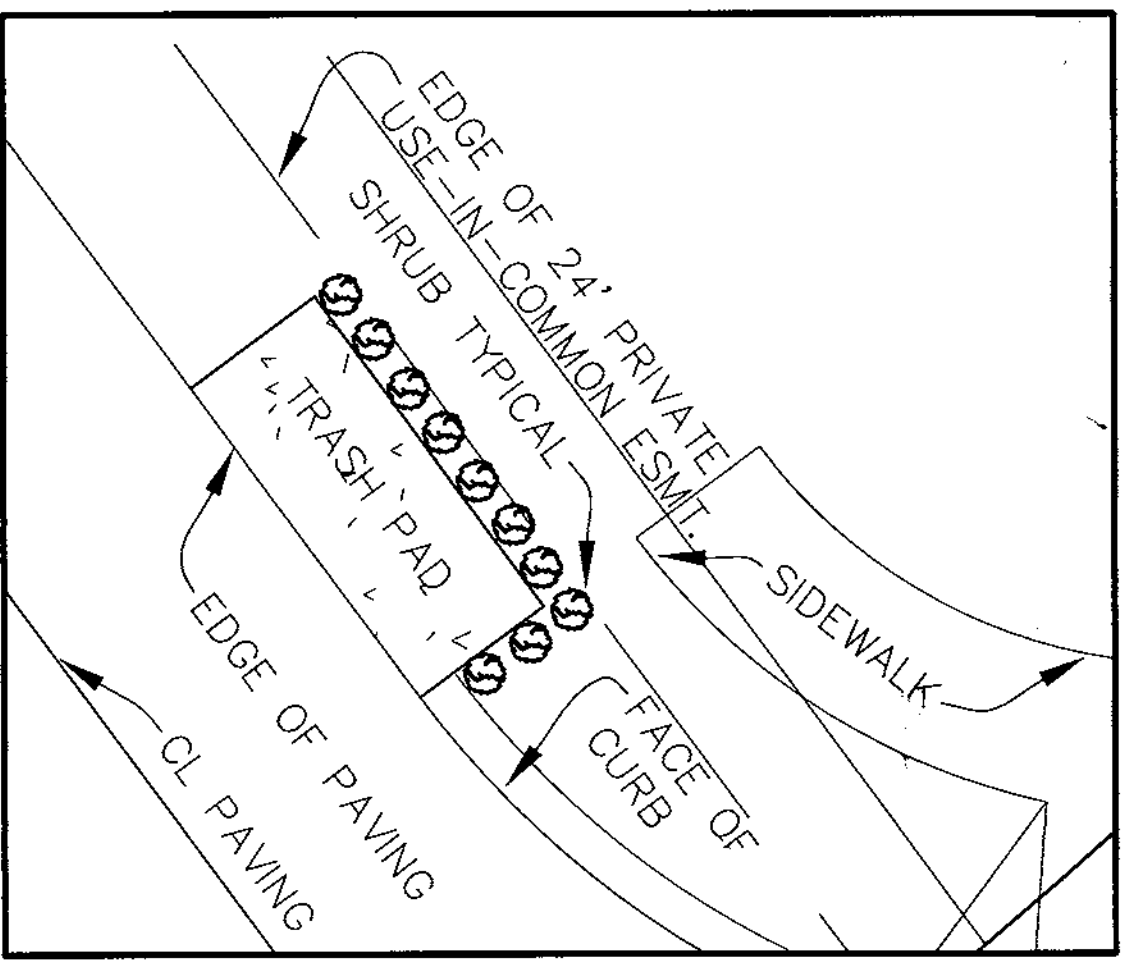
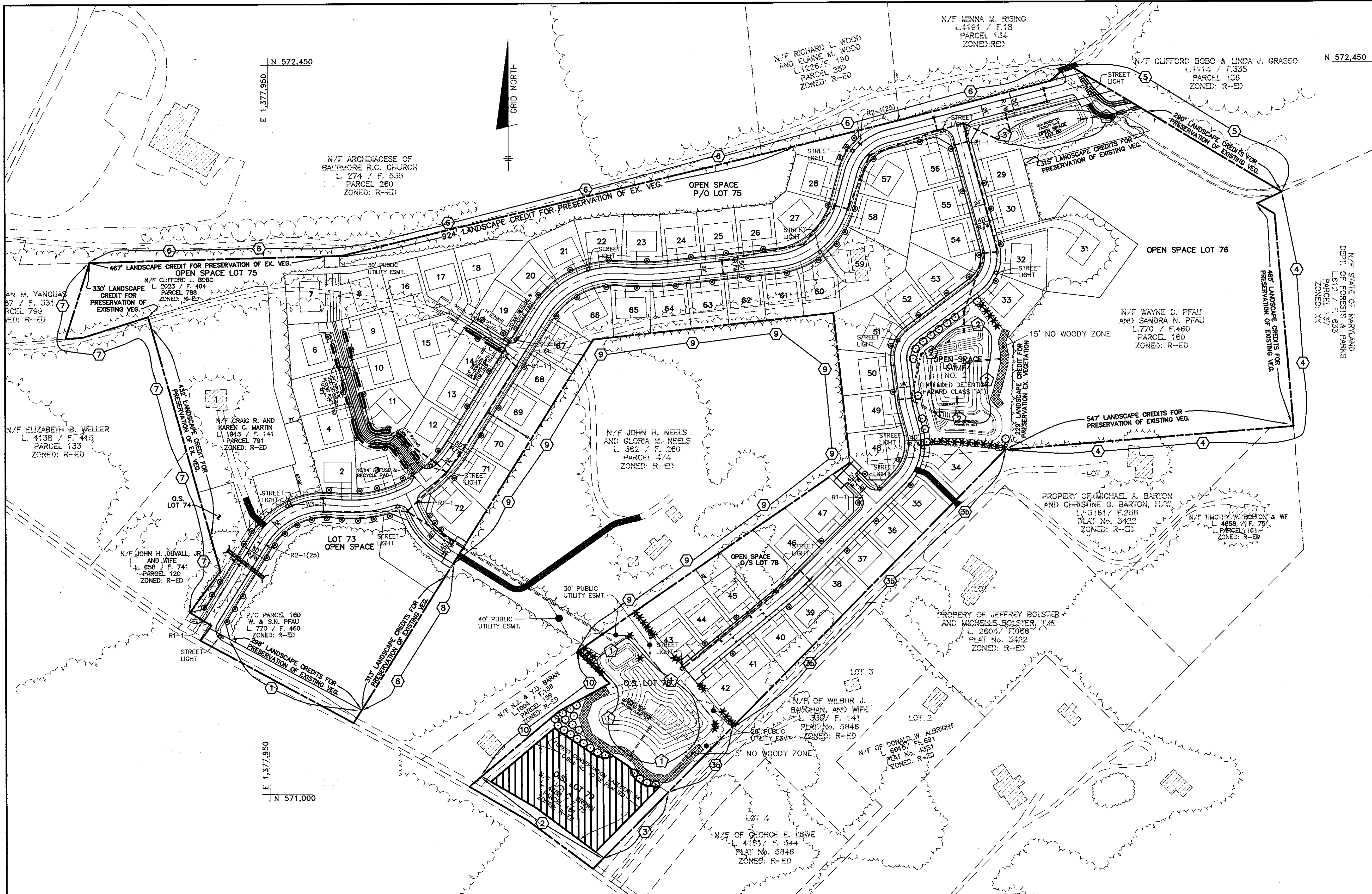
<b>OWNERS:</b> WAYNE D. AND SANDRA N. PFAU 4949 LANDING ROAD ELLICOTT CITY, MD 21043	<b>DEVELOPER/CONTRACT PURCHASER:</b> SECURITY DEVELOPMENT, L.L.C. P.O. BOX 417 ELLICOTT CITY, MD 21041 (410) 465-4244	<b>PROJECT:</b> <b>CASCADE OVERLOOK</b>
<b>SECURITY DEVELOPMENT, L.L.C.</b> P.O. BOX 417 ELLICOTT CITY, MD 21041 (410) 465-4244	<b>CLIFFORD J. BOBO</b> 4885 ILCHESTER ROAD ELLICOTT CITY, MD 21043	<b>LOCATION:</b> TAX MAP 31, GRID 10 & 11, PARCELS 180,181, 788, & 791 1 st. ELECTOR DISTRICT HOWARD COUNTY, MARYLAND
<b>CRAIG R. AND KAREN C. MARTIN</b> 4937 LANDING ROAD ELKRIDGE, MD 21075	<b>DATE:</b> NOVEMBER, 2001 OCTOBER, 2001	<b>TITLE:</b> <b>FOREST CONSERVATION PLAN</b>
<b>DES:</b> DAM <b>DRN:</b> RPS <b>CHK:</b>	<b>SCALE:</b> AS SHOWN	<b>PROJECT NO.</b> 1383 <b>DRAWING</b> 9 OF 10

**FCP 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.
- THE FOREST CONSERVATION EASEMENTS HAVE BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENTS; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- FORESTED AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
- 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 AREA INCLUDED IN FOREST CONSERVATION EASEMENTS.
- THE FOREST CONSERVATION OBLIGATIONS INCURRED BY THIS SITE DEVELOPMENT PLAN HAVE BEEN MET THROUGH THE RETENTION, IN AN EASEMENT, OF 10.6 ACRES OF EXISTING FOREST AND THE REFORESTATION OF 1.02 ACRES. A TOTAL OF 11.52 ACRES OF FOREST CONSERVATION EASEMENTS WILL BE CREATED FOR THIS PROJECT







**TRASH PAD SHRUB PLANTING DETAIL**  
N.T.S.

N/F STATE OF MARYLAND  
DEPT. OF FORESTS & PARKS  
L 612 / F. 633  
PARCEL 157  
ZONED: R-ED

**STREET TREE CALCULATIONS**  
STREET TREES REQUIRED FOR 4,369 LF OF RIGHT-OF-WAY WITH 750 LF OF CREDIT FOR PRESERVING EXISTING VEGETATION (4,369 - 750) / 40 = 91 TREES REQUIRED  
91 TREES PROVIDED

**TENTATIVELY APPROVED**  
**DEPT. OF PLANNING AND ZONING OF HOWARD COUNTY**

*[Signature]* 10/29/02  
PLANNING DIRECTOR DATE

NO. DATE REVISION

**BENCHMARK ENGINEERING, INC.**  
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PHONE: 410-465-6105 FAX: 410-465-6644

STATE OF MARYLAND  
REGISTERED PROFESSIONAL ENGINEER  
10/15/02

**SCHEDULE A PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO PERIMETER PROPERTIES										ADJACENT TO TRASH PAD		
	① B	② A	③ A	④ A	⑤ A	⑥ A	⑦ A	⑧ A	⑨ A	⑩ A		B	
LANDSCAPE BUFFER TYPE	298'	292'	183'	182'	773'	1095'	494'	2000'	957'	343'	1965'	406'	28'(EA.)
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	**YES 298'	NO	NO	NO	NO	**YES 1012'	**YES 290'	**YES 1591'	**YES 762'	**YES 313'	NO	NO	NO
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED		5	3	4	13	2	4	10	4	1	33	7	
SHADE TREES													
EVERGREEN TREES													
OTHER TREES (2:1 SUBSTITUTE) SHRUBS (10:1 SUBSTITUTE)													10 (EA. PAD)

\* EXISTING VEGETATION TO REMAIN

**SCHEDULE D STORMWATER MANAGEMENT AREA LANDSCAPING**

LINEAR FEET OF PERIMETER	① 1115' TYPE 'B'	② 850' TYPE 'B'	③ 820' TYPE 'B'
	NUMBER OF TREES REQUIRED	22	13
SHADE TREES (1:50)	27	16	13
EVERGREEN TREES (1:40)			
CREDIT FOR EXISTING VEGETATION (NO, YES AND %) **YES (38%)	NO	**YES (27%)	**YES (38%)
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %) **YES (62%)	NO	NO	**YES (62%)

\* EXISTING VEGETATION TO REMAIN  
① BIO-RETENTION PLANTINGS WILL TAKE THE PLACE OF BUFFER

**LANDSCAPE LEGEND**

SYMBOL	DESCRIPTION
○	STREET TREES TO BE PROVIDED BY THE DEVELOPER TO BE INCORPORATED ON FINAL PLANS.
○	SHADE TREES ALONG STORMWATER MANAGEMENT TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.
✱	EVERGREEN TREES ALONG STORMWATER MANAGEMENT AREA TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.
⊗	EVERGREEN SHRUBS TO BE PLANTED ALONGSIDE TRASH PAD LOCATIONS TO BE PROVIDED BY THE DEVELOPER AND INCORPORATED ON FINAL PLANS.

**OWNERS:**  
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4949 LANDING ROAD  
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CRAIG R. AND KAREN C. MARTIN  
4937 LANDING ROAD  
ELKRIDGE, MD 21075

PROJECT: **CASCADE OVERLOOK**

LOCATION: TAX MAP 31, GRID 10 & 11, PARCELS 160, 161, 788, & 791  
1 st. ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: **PRELIMINARY LANDSCAPE PLAN**

DATE: NOVEMBER, 2001 PROJECT NO. 1383  
OCTOBER, 2002

SCALE: AS SHOWN DRAWING 10 OF 10

DES: DAM DRN: RPS CHK: