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FINAL ROAD CONSTRUCTION, GRADING AND SEDIMENT CONTROL PLANS

GTW'S WAVERLY WOODS

SECTION 11 AREA 1

(A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION,
LIBER 4879, FOLIO 307)

ZONED R-20, RSC AND R-SA-8

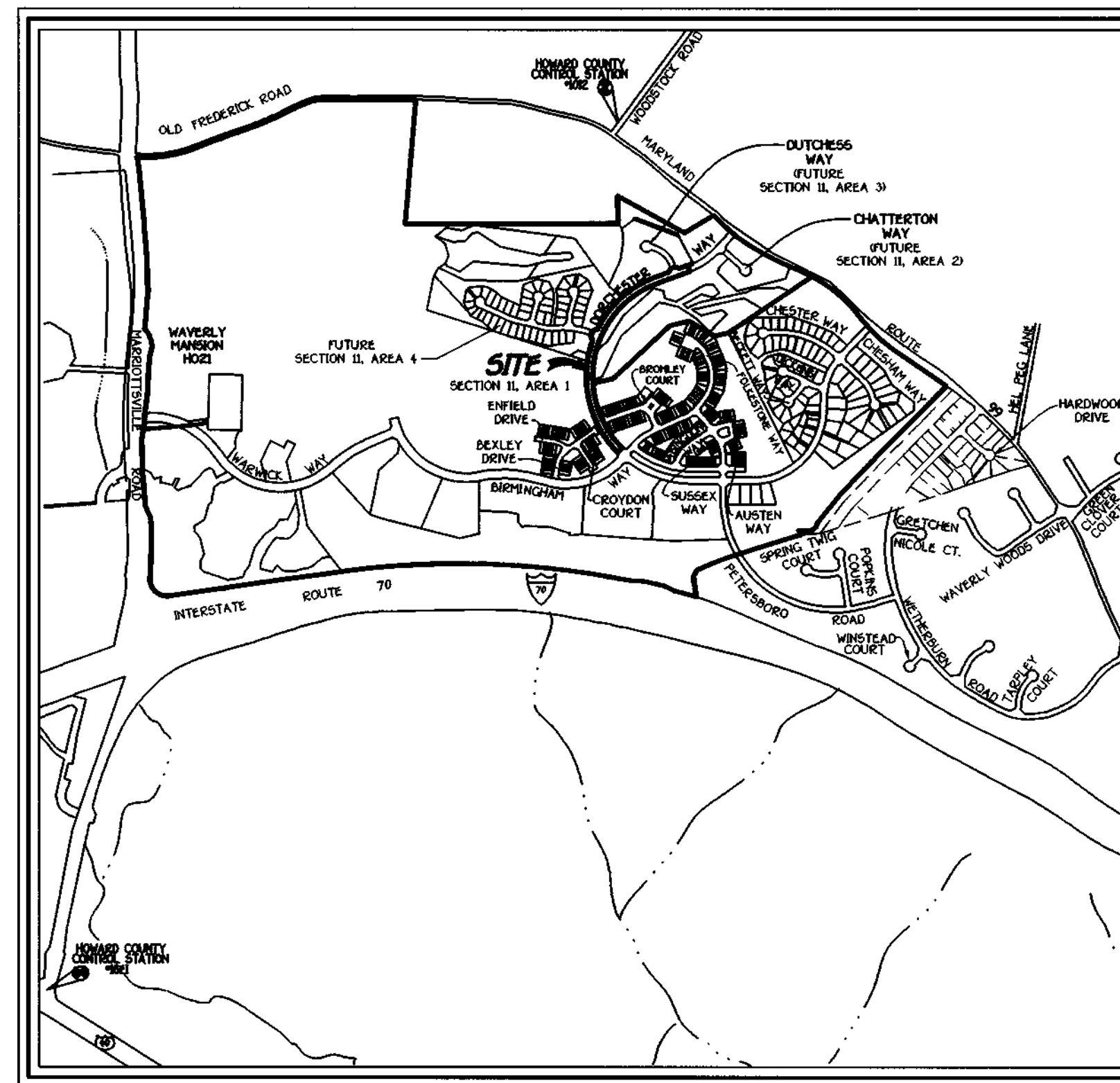
TAX MAP No. 16, PART OF PARCEL No. 20

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS <i>Alfredo M. Davila</i>	5-11-01 DATE
APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT <i>Cindy Kammer</i>	5/12/01 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION <i>Alfredo M. Davila</i>	5/14/01 DATE

ROAD CLASSIFICATION CHART		
ROAD	CLASSIFICATION	R/W WIDTH
DORCHESTER WAY	MINOR COLLECTOR	60'
HOUNSLOW DRIVE	PUBLIC ACCESS STREET	50'
DUTCHESS WAY	PUBLIC ACCESS PLACE	50'

STREET LIGHT CHART				
DWG No.	STREET NAME	STATION	OFF-SET	FIXTURE/POLE TYPE
2	DORCHESTER WAY	CL. STA. 34+32	22' L	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
2	DORCHESTER WAY	CL. STA. 40+00	22' L	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
2	DORCHESTER WAY	CL. STA. 43+20	30' L (ANGLE TO CENTER OF INTERSECTION)	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
3	DORCHESTER WAY	CL. STA. 46+25	22' L	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
3	DORCHESTER WAY	CL. STA. 49+35	22' L	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
3	DORCHESTER WAY	CL. STA. 52+52	29' L (ANGLE TO CENTER OF INTERSECTION)	150-WATT H.P.S. VAPOR PENDANT FIXTURE (CUT-OFF) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM

TRAFFIC CONTROL SIGNS				
STREET NAME	CL. STATION	OFFSET	POSTED SIGN	SIGN CODE
DORCHESTER WAY	32+40	21' R	SPEED LIMIT 35	R2-1
DORCHESTER WAY	51+00	21' L	SPEED LIMIT 35	R2-1



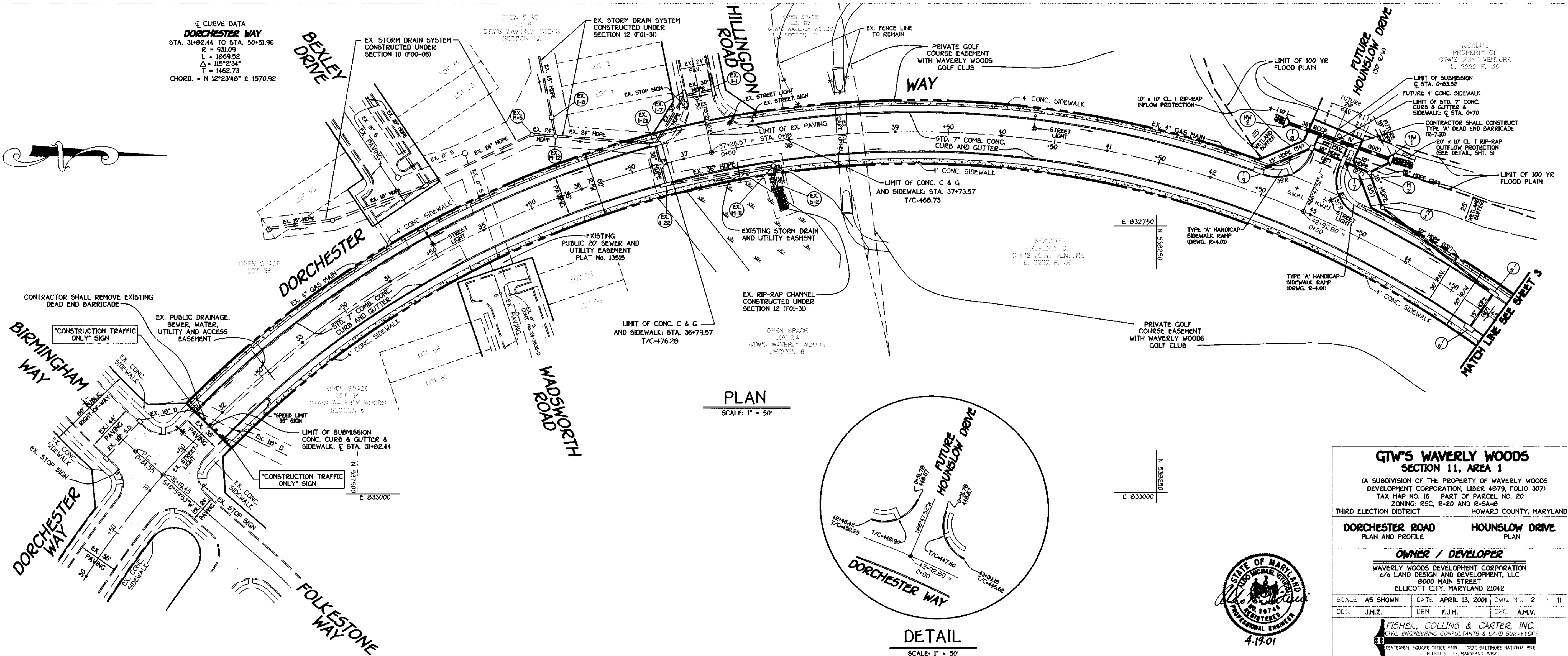
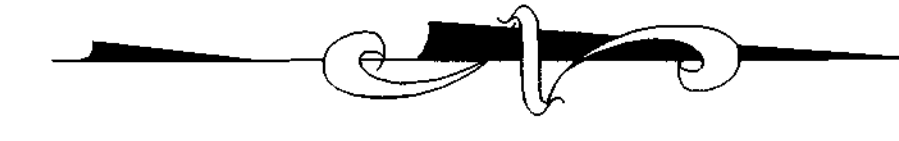
VICINITY MAP
SCALE: 1" = 1200'

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

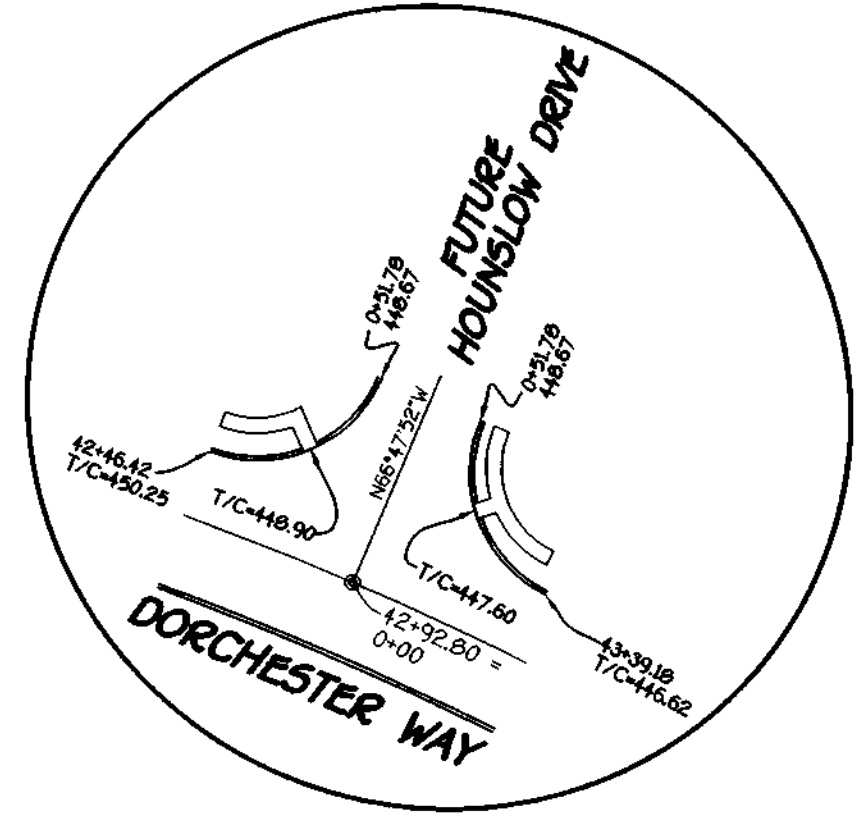
GENERAL NOTES

- ALL ASPECTS OF THE PROJECT ARE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS ARE APPROVED.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, DIVISION OF CONSTRUCTION INSPECTION AT 410-313-1060 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY "MESS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.
- LOCATION: SOUTHSIDE OF OLD FREDERICK ROAD (MARYLAND ROUTE 99) AND NORTHSIDE OF BIRMINGHAM WAY. TAX MAP: '16, PART OF PARCEL 20.
- THIS PLAN IS SUBJECT TO ZONING BOARD CASE No. ZB929-M WHICH APPROVED ON MARCH 22, 1993, A REQUEST TO REZONE 682.19 ACRES OF RURAL LAND INTO THE MIXED USE AREAS.
- TOPOGRAPHY SHOWN HEREON IS FROM AERIAL MAPS FLOWN WITH 2 FOOT CONTOUR INTERVALS PREPARED BY HARFORD AERIAL SURVEYS DATED NOVEMBER 1998.
- PROPERTY IS LOCATED WITHIN METROPOLITAN DISTRICT.
- PUBLIC WATER AND SEWER ARE TO BE UTILIZED FOR THIS SITE AND WILL BE EXTENDED FROM THE LIMITS OF CONTRACT Nos. 24-3469-D AND 24-3566-D.
- STORMWATER MANAGEMENT FOR THIS DEVELOPMENT WILL BE DONE BY THE RETENTION METHOD PROVIDED UNDER EX. POND 1 OF 99-174. THE S.W.M. REPORT IS PROVIDED BY MILDENBURG ASSOCIATES, INC. (APPROVED 3/26/96).
- THIS HORIZONTAL AND VERTICAL DATUM SHOWN ARE BASED ON THE FOLLOWING M.D. '83 HOWARD COUNTY CONTROL STATIONS:
HOWARD COUNTY MONUMENT 1012 N 601060.177 ELEV. = 445.577
E 134536.7580
HOWARD COUNTY MONUMENT 10E1 E 253250.9322 ELEV. = 509.924
E 1340192.710
- AREA TABULATION:
SECTION 11, AREA 1
TOTAL NUMBER OF BUILDABLE LOTS TO BE RECORDED 0
TOTAL NUMBER OF OPEN SPACE LOTS TO BE RECORDED 0
TOTAL NUMBER OF LOTS TO BE RECORDED 0
TOTAL AREA OF BUILDABLE LOTS TO BE RECORDED 0.000 AC.
TOTAL AREA OF OPEN SPACE LOTS TO BE RECORDED 0.000 AC.
TOTAL AREA OF LOTS TO BE RECORDED 0.000 AC.
TOTAL AREA OF ROADWAY (R-20) TO BE RECORDED 0.561 AC.
TOTAL AREA OF ROADWAY (RSC) TO BE RECORDED 0.515 AC.
TOTAL AREA OF ROADWAY (R-SA-8) TO BE RECORDED 2.083 AC.
TOTAL AREA OF ROADWAY TO BE RECORDED 3.159 AC.
TOTAL AREA TO BE RECORDED 3.159 AC.
- THE NOISE STUDY FOR GTW'S WAVERLY WOODS WAS PROVIDED BY WILDMAN ENVIRONMENTAL SERVICES, INC. ON NOVEMBER 1, 1994.
- THE FOREST CONSERVATION OBLIGATION FOR THIS SECTION HAS BEEN MET WITH 1.30 ACRES OF OFFSITE FOREST RETENTION, LOCATED ON A PORTION OF THE G.T.W. WAVERLY WOODS PROPERTY, WEST OF MARIOTTVILLE ROAD. THE SURETY OBLIGATION FOR THIS AREA IS \$5,063.00.
- THERE IS A PUBLIC 100 YEAR FLOODPLAIN WITHIN SECTION 11.
- THE WETLANDS STUDY FOR GTW'S WAVERLY WOODS WAS PREPARED BY EXPLORATION RESEARCH, INC. AND WAS COMPILED ON 9/5/91.
- THE TRAFFIC STUDY FOR GTW'S WAVERLY WOODS WAS PREPARED BY THE TRAFFIC GROUP AND APPROVED ON JULY 14, 1994.
- THE SOILS INVESTIGATION REPORT WAS PREPARED BY I.T.E., INC. ON JUNE 20, 1994.
- THE SKETCH PLAN No. 5 94-07 WAS APPROVED ON 11/30/93. THE PRELIMINARY PLAN P 00-18 WAS APPROVED ON 7/7/00. THE PRELIMINARY PLAN CONCORDS WITH THE PHASING PLAN FOR THE YEAR OF 2002 AS SHOWN UNDER THE SKETCH PLAN AND MODIFIED PHASING PLAN FOR PHASING 2002 THRU 2010 APPROVED BY THE PLANNING DIRECTOR ON JUNE 21, 1999.
- STREET LIGHTS WILL BE REQUIRED IN THIS DEVELOPMENT IN ACCORDANCE WITH THE DESIGN MANUAL, STREET LIGHT PLACEMENT AND TYPE OF FIXTURE AND POLE SELECTED SHALL BE IN ACCORDANCE WITH THE LATEST HOWARD COUNTY DESIGN MANUAL, VOLUME III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)." THE JUNE 1993 POLICY INCLUDES GUIDELINES FOR LATERAL AND LONGITUDINAL PLACEMENT. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN AND STREET LIGHT AND ANY TREE.
- PERMITS APPLICABLE FOR THIS SUBDIVISION ARE AS FOLLOWS:
WETLAND PERMIT AUTHORIZATION No. CENAB-OP-RP (GTW PROPERTY) 91-0921-5.
MDE WATER QUALITY CERTIFICATION No. 91-WQ-0488 AND MDE WATER MANAGEMENT ADMINISTRATION LETTER OF RECEIPT TRACKING Nos. 199100921 AND 199191509 (91-WC-0812).
- ALL HANDICAP RAMPS SHALL MEET CURRENT ADA REQUIREMENTS.
- MP 95-23 WAS APPROVED ON 1/23/95 FOR DISTURBANCE TO WETLANDS, FLOODPLAIN, STREAMS, OR THEIR BUFFERS IN CERTAIN AREAS THROUGHOUT THE "WAVERLY WOODS" PROJECT. THE AREAS OF THIS SECTION 11, AREA 1 PLAN APPROVED UNDER THIS WAIVER FOR DISTURBANCE ARE AS FOLLOWS:
a) SHEET 5 - FLOODPLAIN NEAR DORCHESTER WAY FOR STORM DRAIN CULVERT.
b) SHEET 5 - WETLANDS AND BUFFER ON OPEN SPACE LOT 34 (SECTION 6) FOR STORM DRAIN OUTFALL.
THE FOLLOWING AREAS OF DISTURBANCE ARE APPROVED UNDER SECTION 16.16(b.c.) OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AS A NECESSARY DISTURBANCE AND ESSENTIAL DISTURBANCE IN ACCORDANCE WITH THE ORIGINAL SKETCH PLAN LAYOUT IS 94-07.
c) SHEET 5 - STREAM BUFFER, WETLANDS & BUFFER, FLOODPLAIN AND PRIORITY FOREST ON OPEN SPACE LOT 36 FOR STORM DRAIN OUTFALL AND CULVERT UNDER HOUNSLOW DRIVE.

CURVE DATA
DORCHESTER WAY
 STA. 31+02.44 TO STA. 50+51.96
 R = 531.09
 L = 1869.52
 Δ = 115°2'34"
 T = 1462.73
 CHORD = N 12°23'40" E 1570.92



PLAN
 SCALE: 1" = 50'



DETAIL
 SCALE: 1" = 50'

APPROVED FOR THE FRONT OF PLANS AND ZONING:
Linda Hamilton 5/17/01
 DEVELOPMENT ENGINEERING DIVISION

APPROVED FOR THE REAR AND ZONING:
Chris DeWitt 5/14/01
 DEVELOPMENT ENGINEERING DIVISION

APPROVED FOR THE COUNTY DEPARTMENT OF PUBLIC WORKS:
Andrew M. Davelle 5-11-01
 COUNTY BUREAU OF HIGHWAYS

GTW'S WAVERLY WOODS SECTION 11, AREA 1
 (A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4879, FOLIO 3077)
 TAX MAP NO. 16 PART OF PARCEL NO. 20
 ZONING: RSC, R-20 AND R-5A-6
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

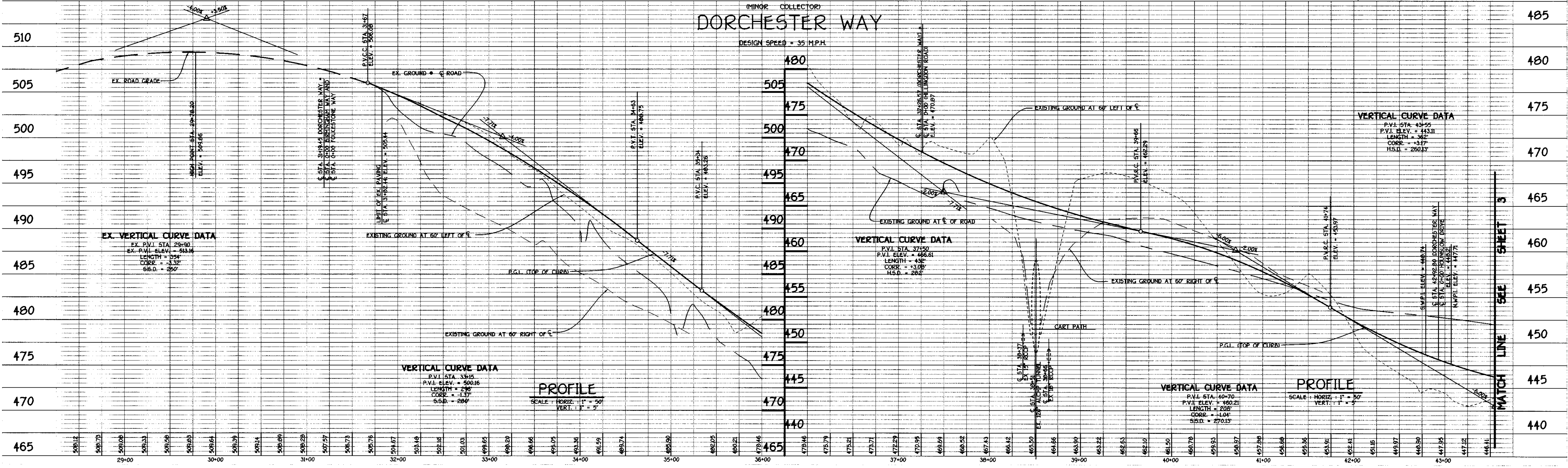
DORCHESTER ROAD HOUNSLOW DRIVE
 PLAN AND PROFILE

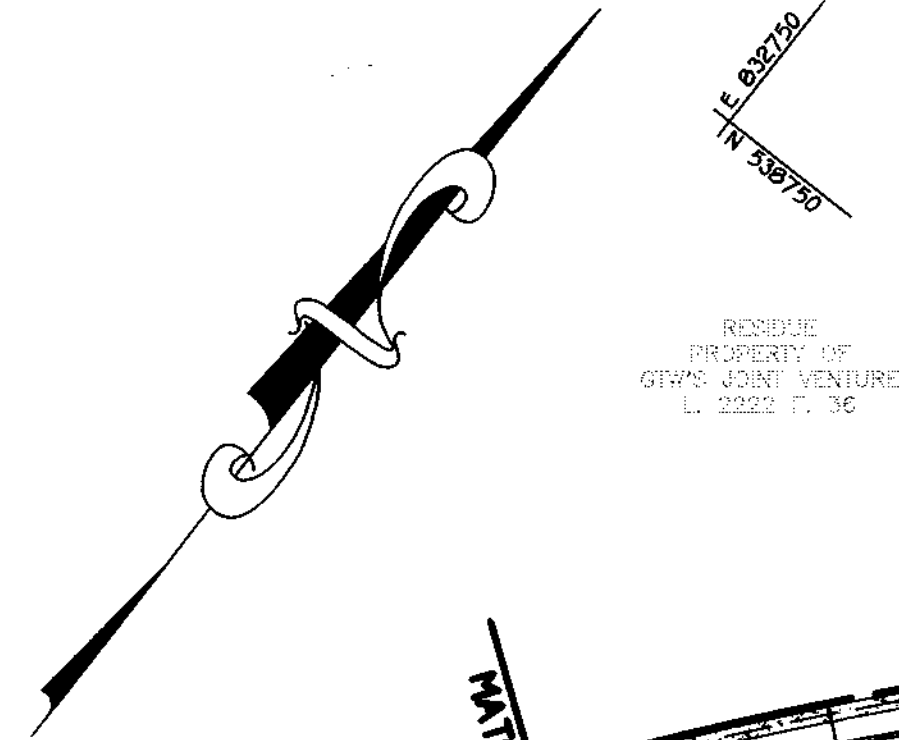
OWNER / DEVELOPER
 WAVERLY WOODS DEVELOPMENT CORPORATION
 c/o LAND DESIGN AND DEVELOPMENT, LLC
 8000 MAIN STREET
 ELLICOTT CITY, MARYLAND 21042

SCALE: AS SHOWN DATE: APRIL 13, 2001 DWG. NO.: 2 OF 11
 DES: J.M.Z. DRN: F.J.M. CHK: A.M.V.

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK 10275 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21114
 410.461.5274

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 J.M.Z. 4-19-01

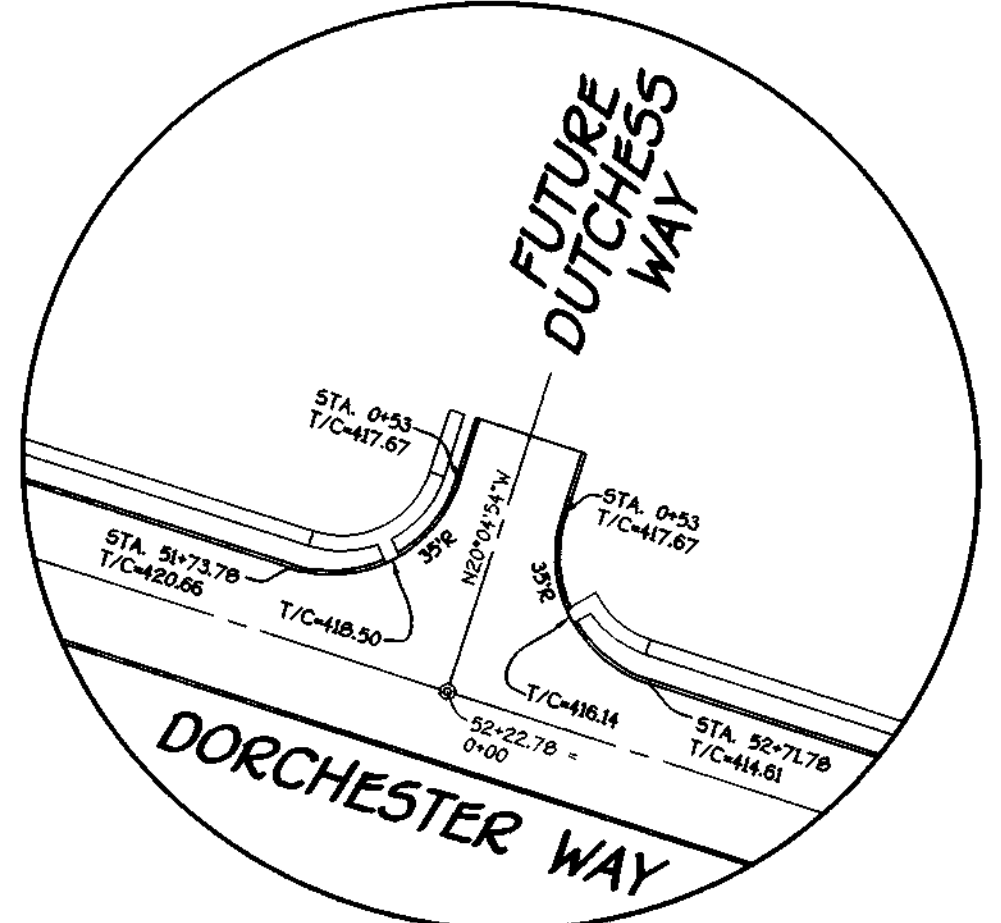
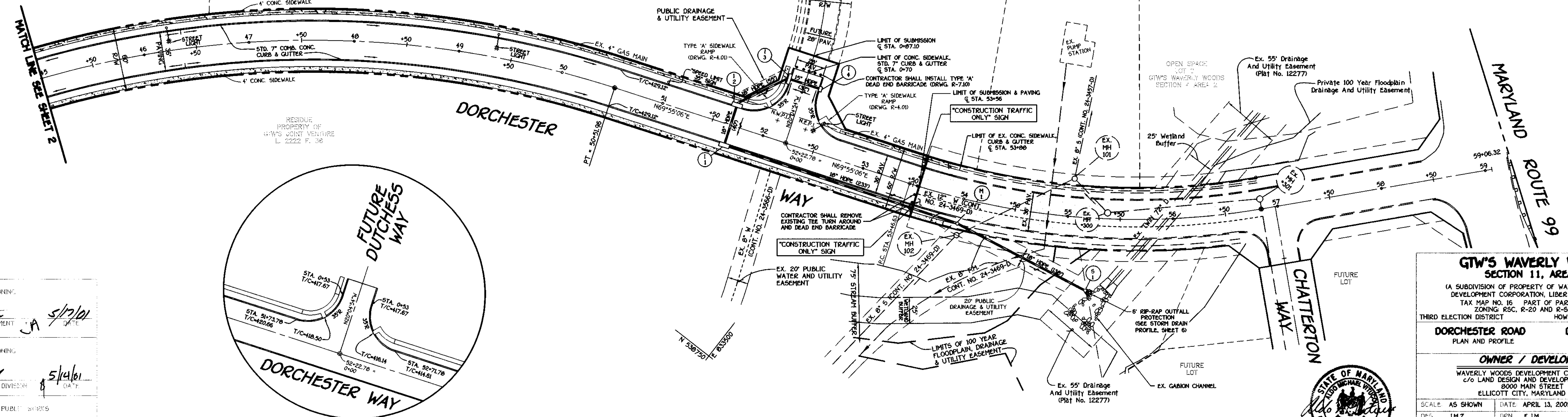




RESIDUE PROPERTY OF GW'S JOINT VENTURE L 2222 F. 36

☺ CURVE DATA
DORCHESTER WAY
 STA. 31+02.44 TO STA. 50+51.96
 R = 931.09
 L = 1069.52
 Δ = 115°02'36"
 T = 1462.73
 CHORD = N 12°23'48" E 1570.92

☺ CURVE DATA
DORCHESTER WAY
 STA. 53+46.63 TO STA. 53+56
 R = 700.00'
 L = 8.57'
 Δ = 90°46'01"
 T = 4.69'
 CHORD = N 69°32'06" E 9.37'



DETAIL
 SCALE: 1" = 50'

PLAN
 SCALE: 1" = 50'

GTW'S WAVERLY WOODS SECTION 11, AREA 1
 (A SUBDIVISION OF PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4879, FOLIO 3077)
 TAX MAP NO. 16 PART OF PARCEL NO. 20
 ZONING RSC, R-20 AND R-SA-8
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DORCHESTER ROAD DUTCHESS WAY
 PLAN AND PROFILE PLAN

OWNER / DEVELOPER
 WAVERLY WOODS DEVELOPMENT CORPORATION
 C/O LAND DESIGN AND DEVELOPMENT, LLC
 8000 MAIN STREET
 ELLICOTT CITY, MARYLAND 21042

SCALE: AS SHOWN DATE: APRIL 13, 2001 DWG. NO.: 3 11
 DES: J.M.Z. DRN: F.J.M. TRK: A.M.V.

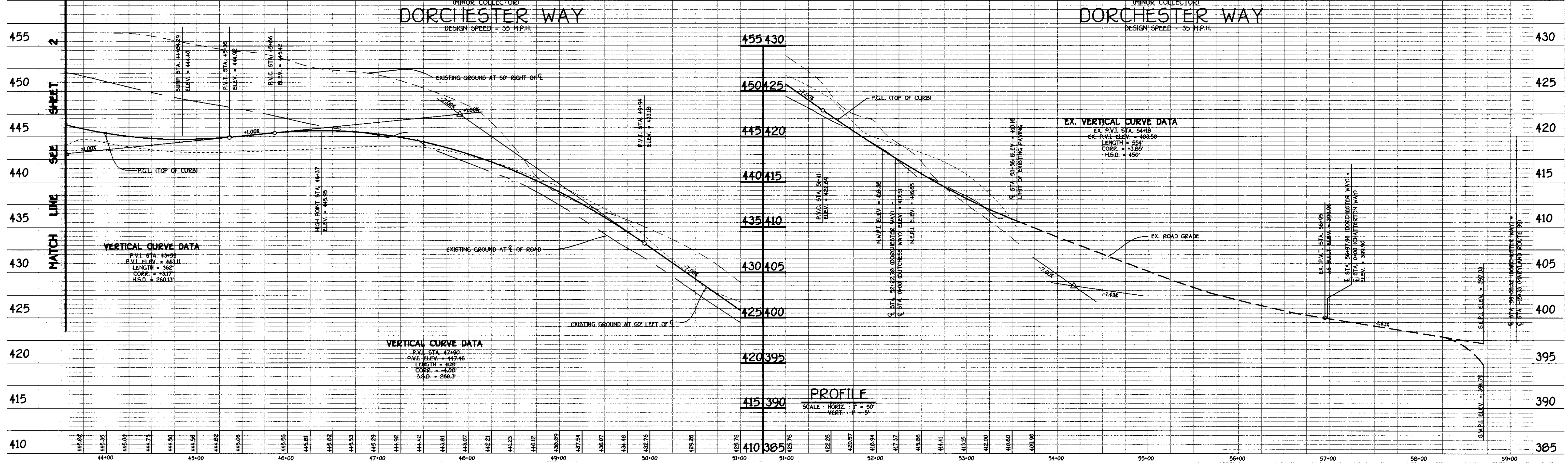
FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PREL
 ELICOTT CITY, MARYLAND 21042
 (410) 461-2855



APPROVED FOR THE COUNTY DEPARTMENT OF PLANNING AND ZONING
Cindy Hamilton 5/17/01 DATE

APPROVED FOR THE COUNTY DEPARTMENT OF PLANNING AND ZONING
Andrew M. Daniele 5/14/01 DATE

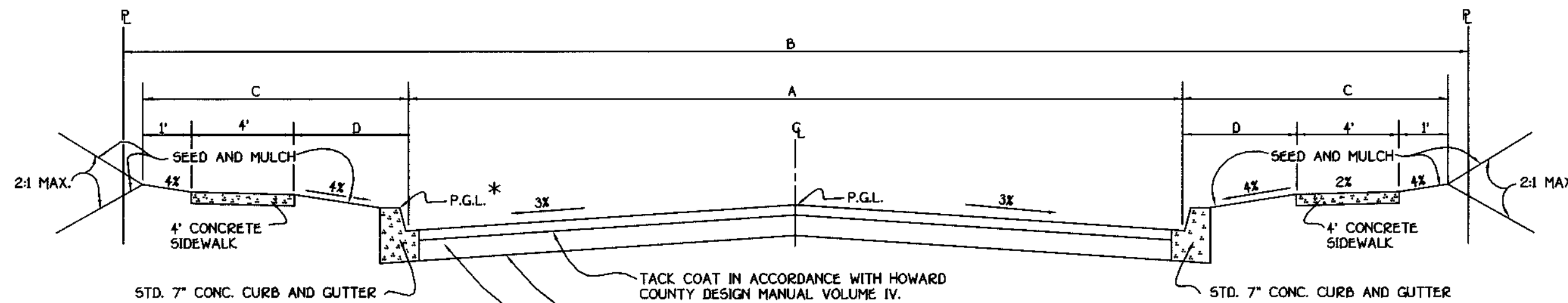
APPROVED FOR THE COUNTY DEPARTMENT OF PUBLIC WORKS
Andrew M. Daniele 5-11-01 DATE



APPROVED: DEPARTMENT OF PUBLIC WORKS
Andrew M. Sauer 5-11-01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Andy Hamble 5/17/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

M. J. ... 5/14/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



NOTE:
 ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATION AND DETAILS FOR CONSTRUCTION.

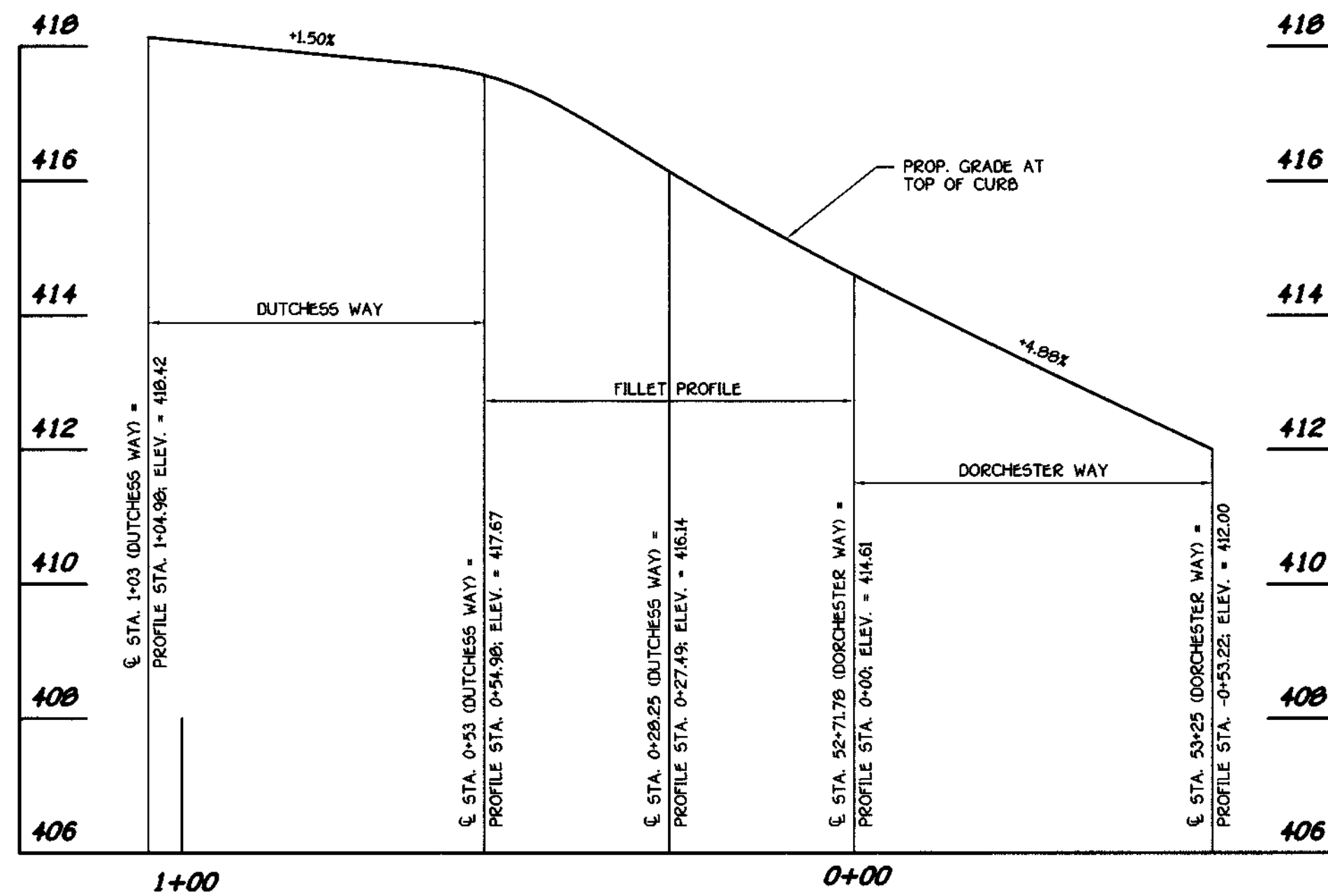
TYPICAL ROADWAY SECTION

NO SCALE

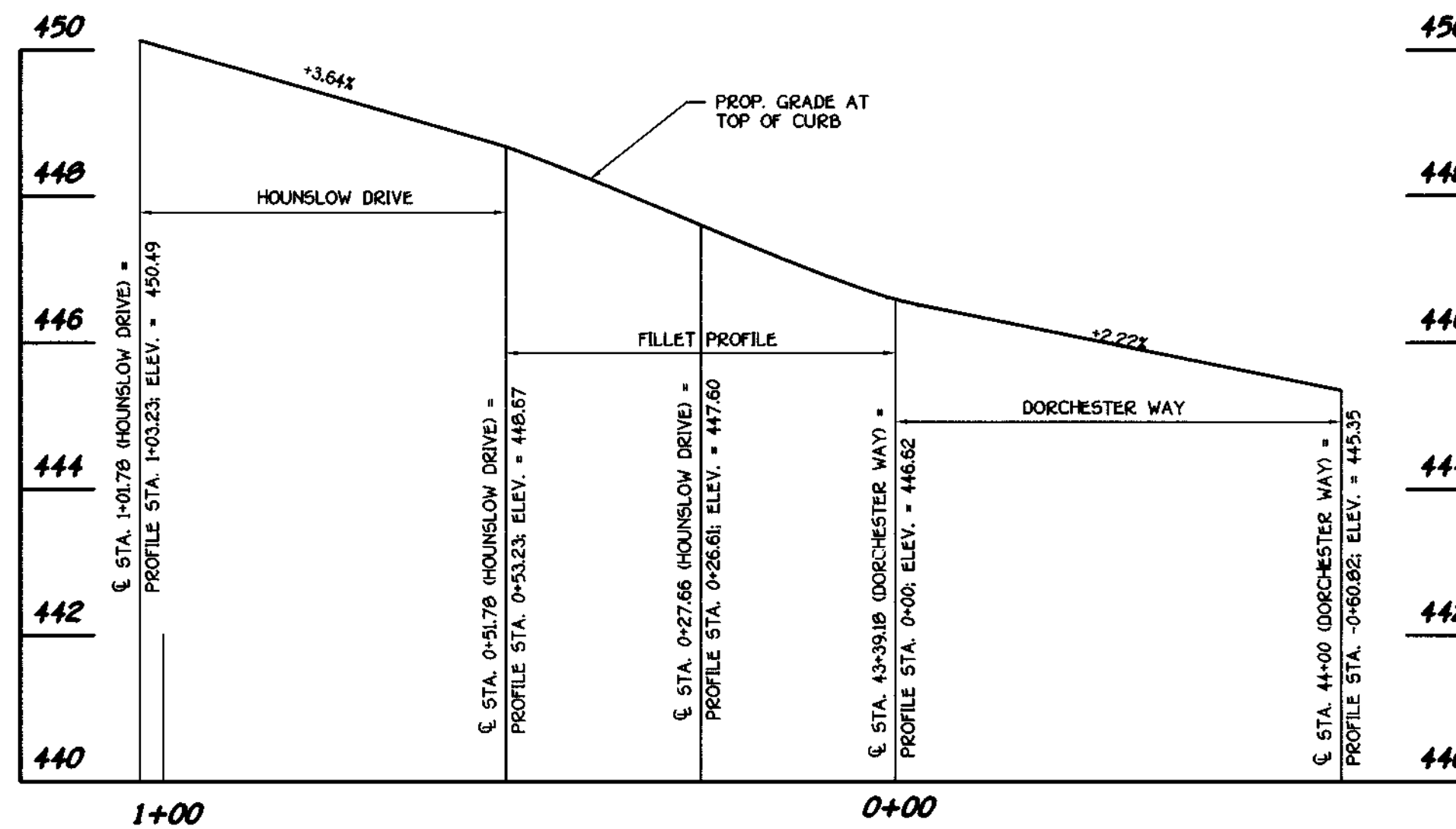
ROAD NAME	CLASSIFICATION	C.L. STA. TO C.L. STA.	A	B	C	D	PAVING SECTION	DESIGN SPEED
* DORCHESTER WAY	MINOR COLLECTOR	3+63 TO 53+75	30'	60'	12'	7'	P-3	35 MPH
DUTCHESS WAY	PUBLIC ACCESS PLACE	0+00 TO 0+70	22'	50'	9'	4'	P-2	25 MPH
HOUNSLOW DRIVE	PUBLIC ACCESS STREET	0+00 TO 0+70	22'	50'	9'	4'	P-2	25 MPH

NOTES: * P.G.L. FOR DORCHESTER WAY IS TOP OF CURB

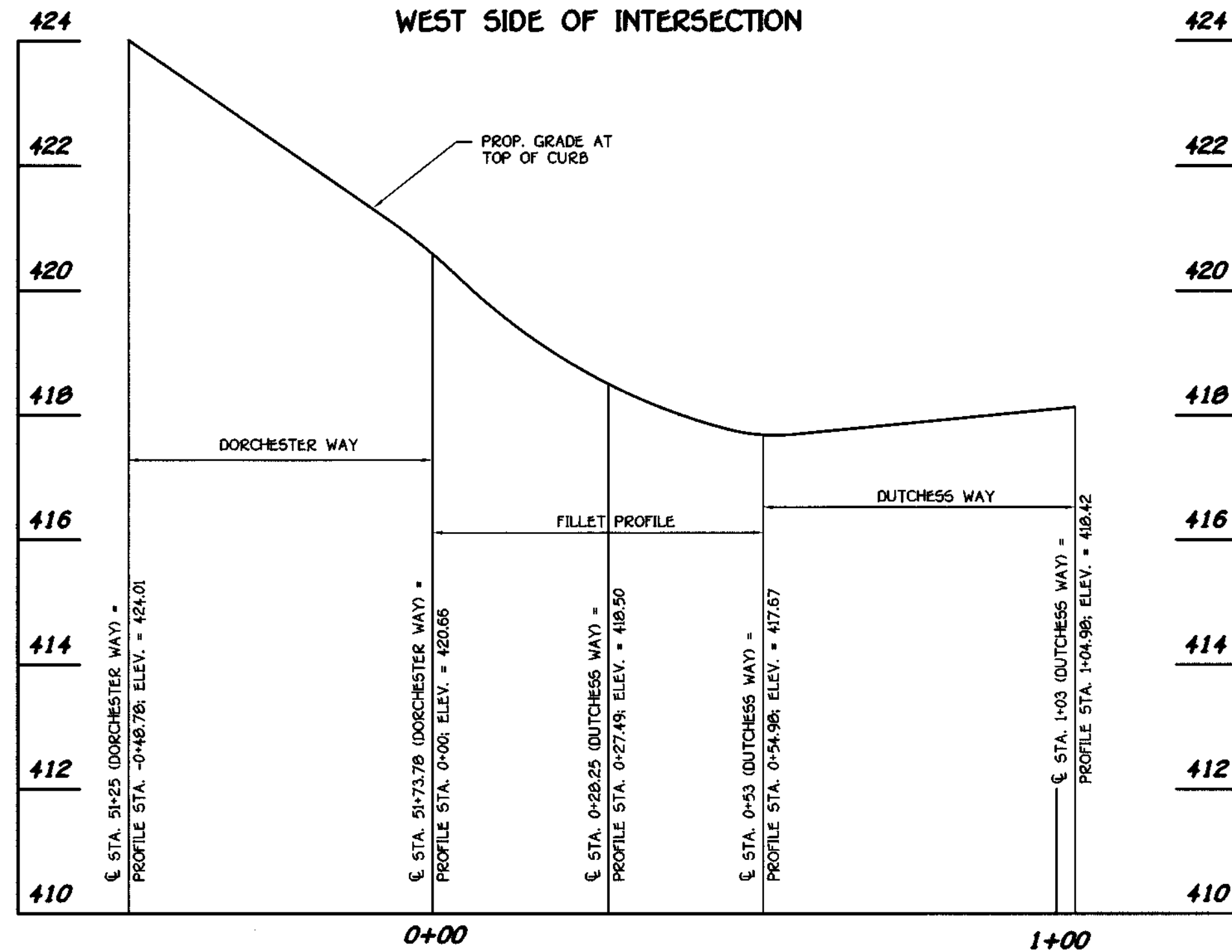
EAST SIDE OF INTERSECTION



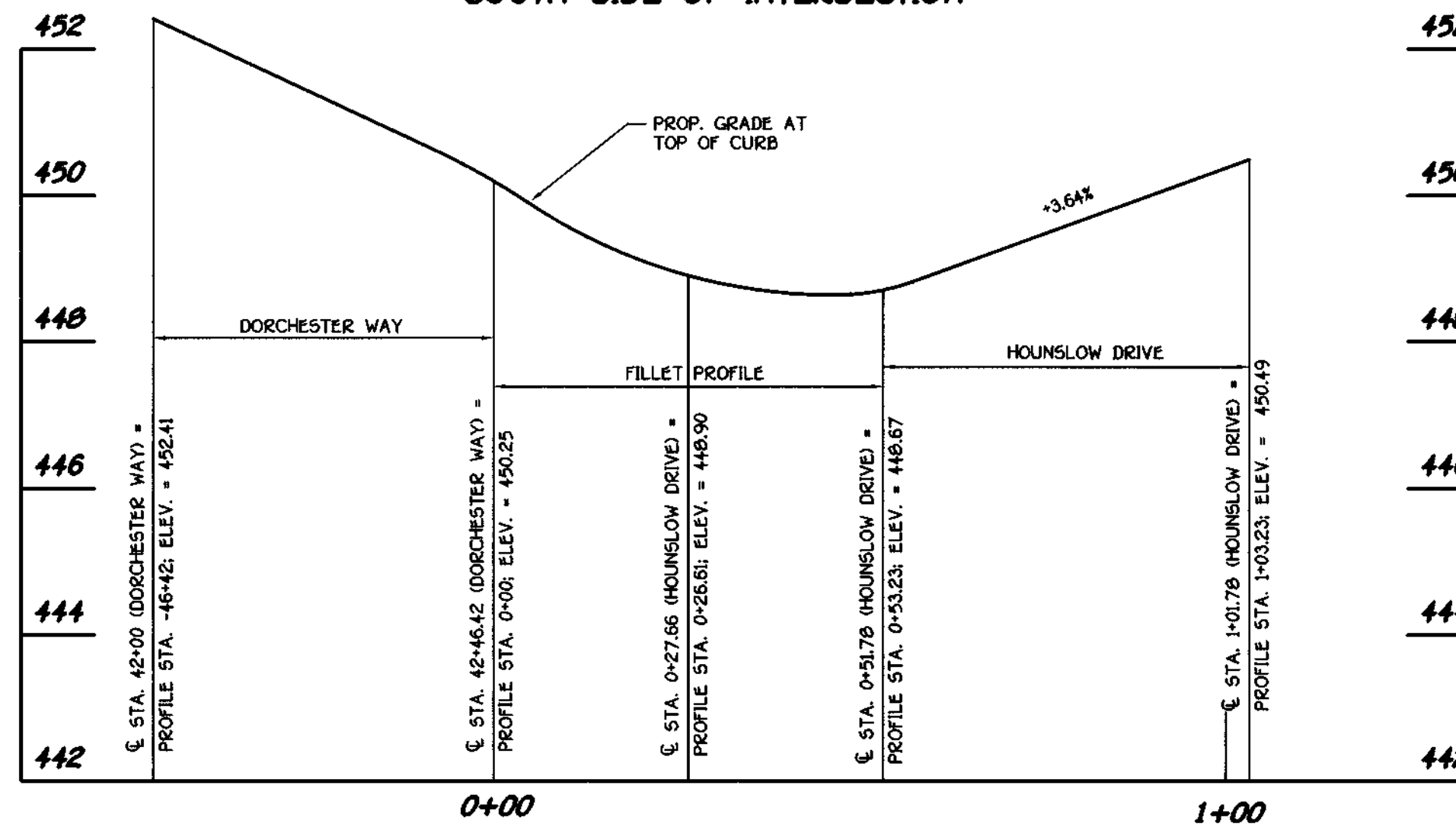
NORTH SIDE OF INTERSECTION



WEST SIDE OF INTERSECTION

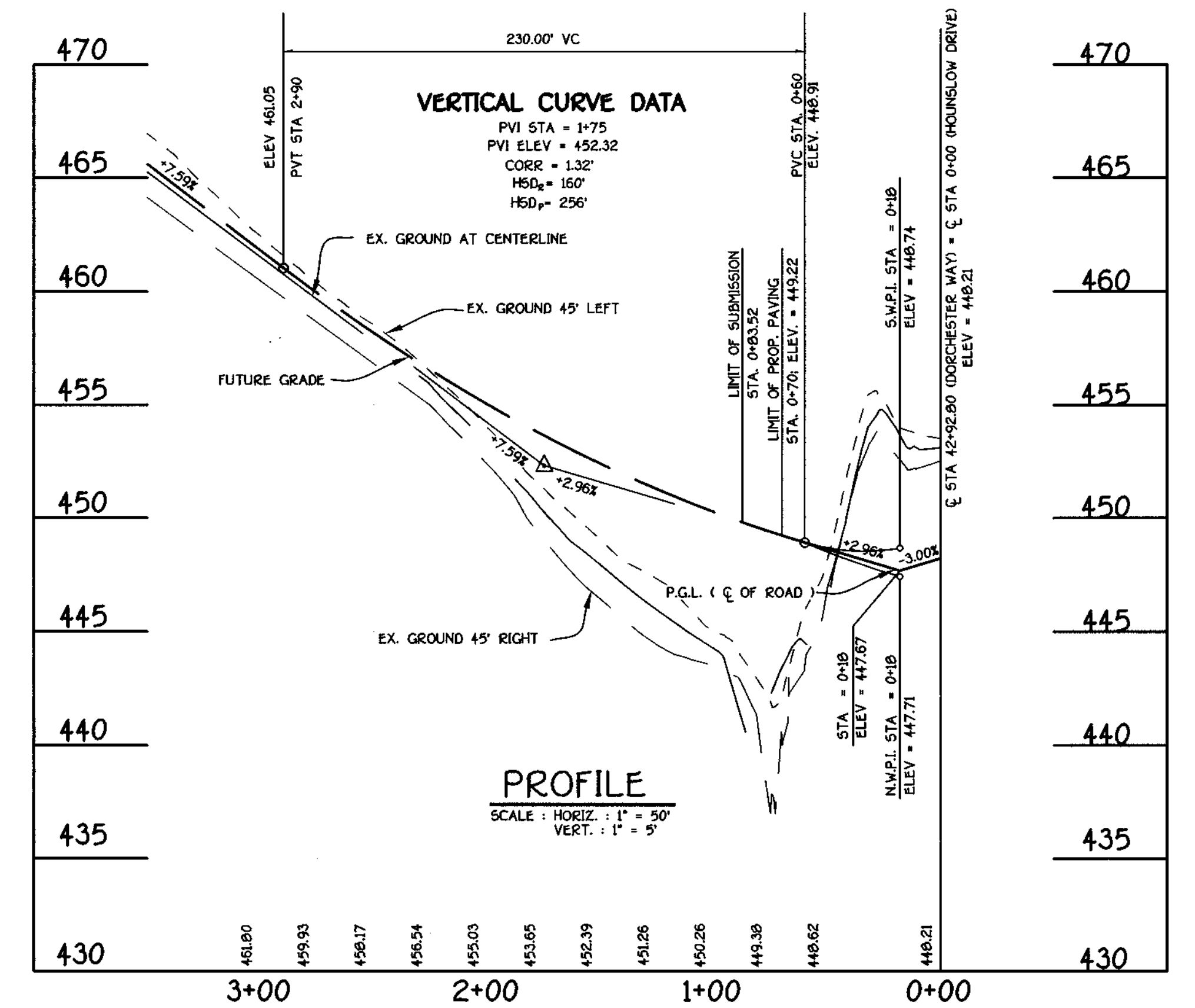


SOUTH SIDE OF INTERSECTION



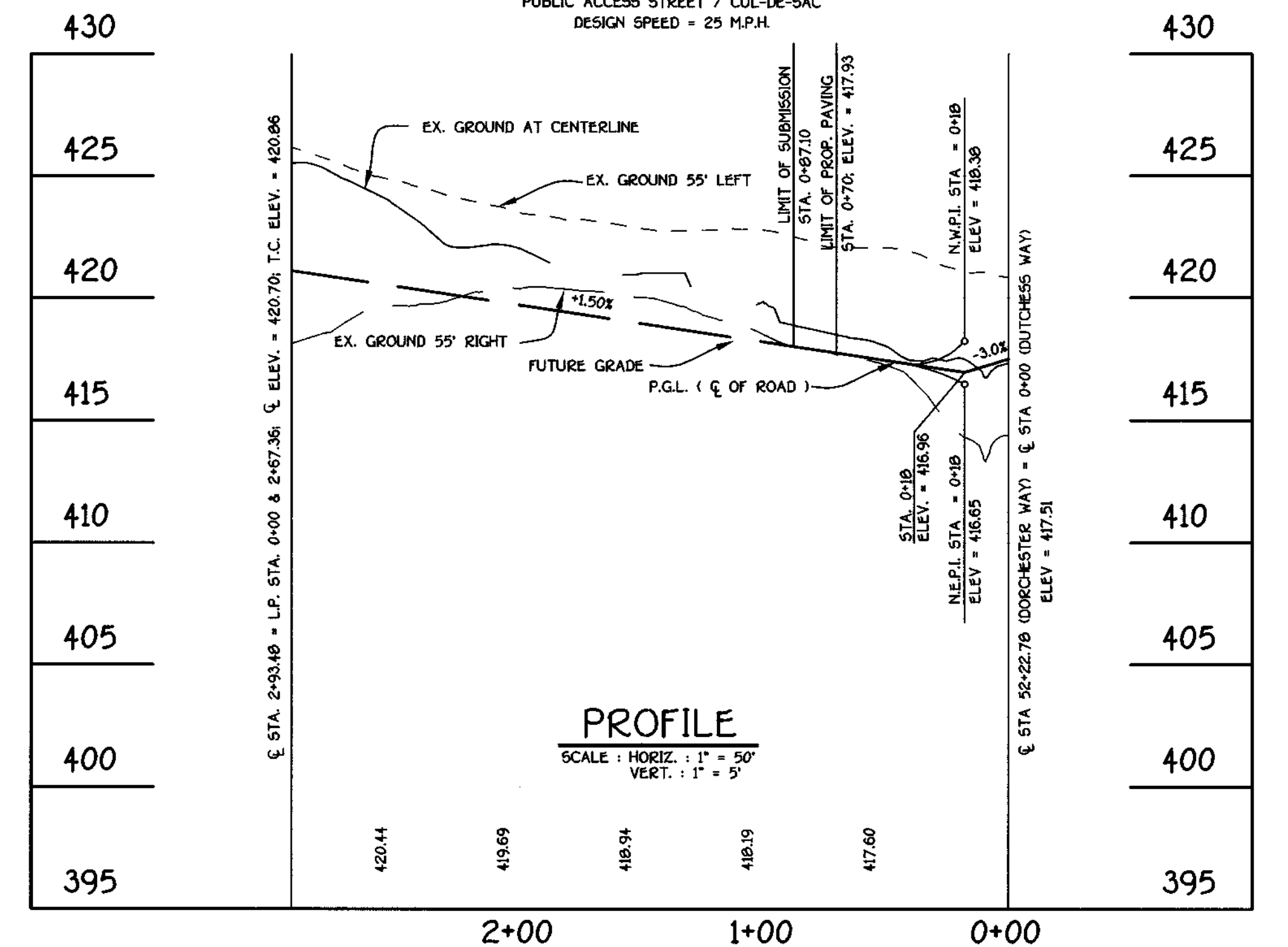
HOUNSLOW DRIVE

PUBLIC ACCESS STREET / CUL-DE-SAC
 DESIGN SPEED = 25 MPH



DUTCHESS WAY

PUBLIC ACCESS STREET / CUL-DE-SAC
 DESIGN SPEED = 25 MPH



FILLET PROFILES (DUTCHESS WAY AT DORCHESTER WAY)

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

FILLET PROFILES (HOUNSLOW DRIVE AT DORCHESTER WAY)

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

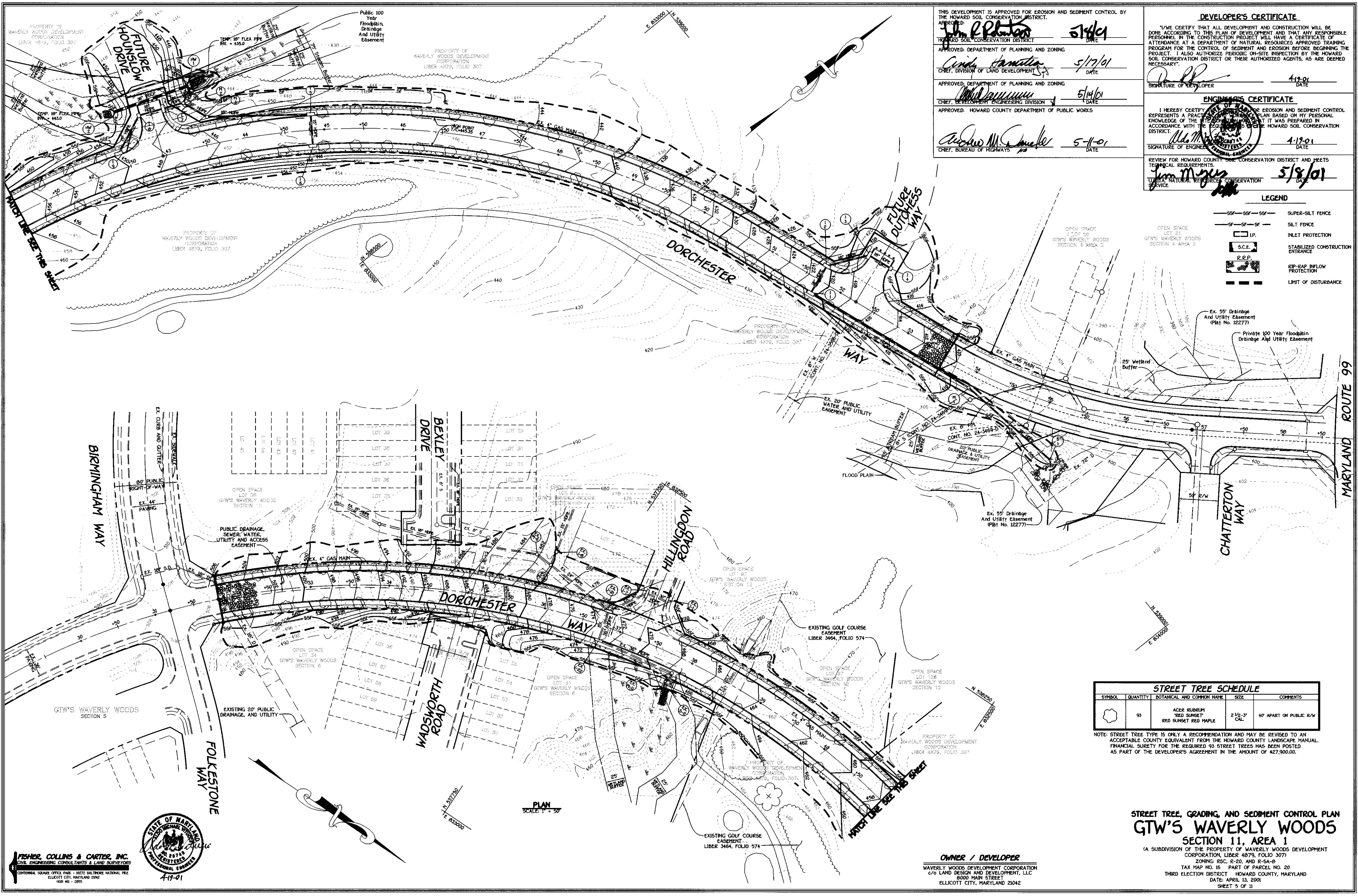


OWNER / DEVELOPER

WAVERLY WOODS DEVELOPMENT CORPORATION
 c/o LAND DESIGN AND DEVELOPMENT, LLC
 8000 MAIN STREET
 ELLICOTT CITY, MARYLAND 21042

**FILLET PROFILES, ROADWAY PROFILES & DETAILS
 GTW'S WAVERLY WOODS
 SECTION 11, AREA 1**

(A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4679, FOLIO 307)
 ZONING: R-2, R-20, AND R-5A-0
 TAX MAP NO. 16 PART OF PARCEL NO. 20
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: APRIL 13, 2001
 SHEET 4 OF 11



THIS DEVELOPMENT IS APPROVED FOR EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

APPROVED: *[Signature]* 5/14/01
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/17/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[Signature] 5/14/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
[Signature] 5-11-01
 CHIEF, BUREAU OF HIGHWAYS DATE

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

[Signature] 4-19-01
 SIGNATURE OF DEVELOPER DATE

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THE EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

[Signature] 4-19-01
 SIGNATURE OF ENGINEER DATE

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.
[Signature] 5/8/01
 JIM MAYER
 URBAN NATURAL RESOURCES CONSERVATION SERVICE DATE

LEGEND

- SF --- SF --- SF --- SUPER-SILT FENCE
- SF-SF-SF- SILT FENCE
- [Symbol] I.P. INLET PROTECTION
- [Symbol] S.C.E. STABILIZED CONSTRUCTION ENTRANCE
- [Symbol] R.R.P. RIB-RAP INFLOW PROTECTION
- LIMIT OF DISTURBANCE

STREET TREE SCHEDULE

SYMBOL	QUANTITY	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
[Symbol]	93	ACER RUBRUM "RED SUNSET" RED SUNSET RED MAPLE	2 1/2" - 3" CAL.	40' APART ON PUBLIC R/W

NOTE: STREET TREE TYPE IS ONLY A RECOMMENDATION AND MAY BE REVISED TO AN ACCEPTABLE COUNTY EQUIVALENT FROM THE HOWARD COUNTY LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED 93 STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$27,900.00.

STREET TREE, GRADING, AND SEDIMENT CONTROL PLAN
GTW'S WAVERLY WOODS
 SECTION 11, AREA 1
 (A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4879, FOLIO 307)
 ZONING: R-5C, R-20, AND R-5A-10
 TAX MAP NO. 16 PART OF PARCEL NO. 20
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: APRIL 13, 2001
 SHEET 5 OF 11

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PkE
 ELLICOTT CITY, MARYLAND 21042
 410-461-2000



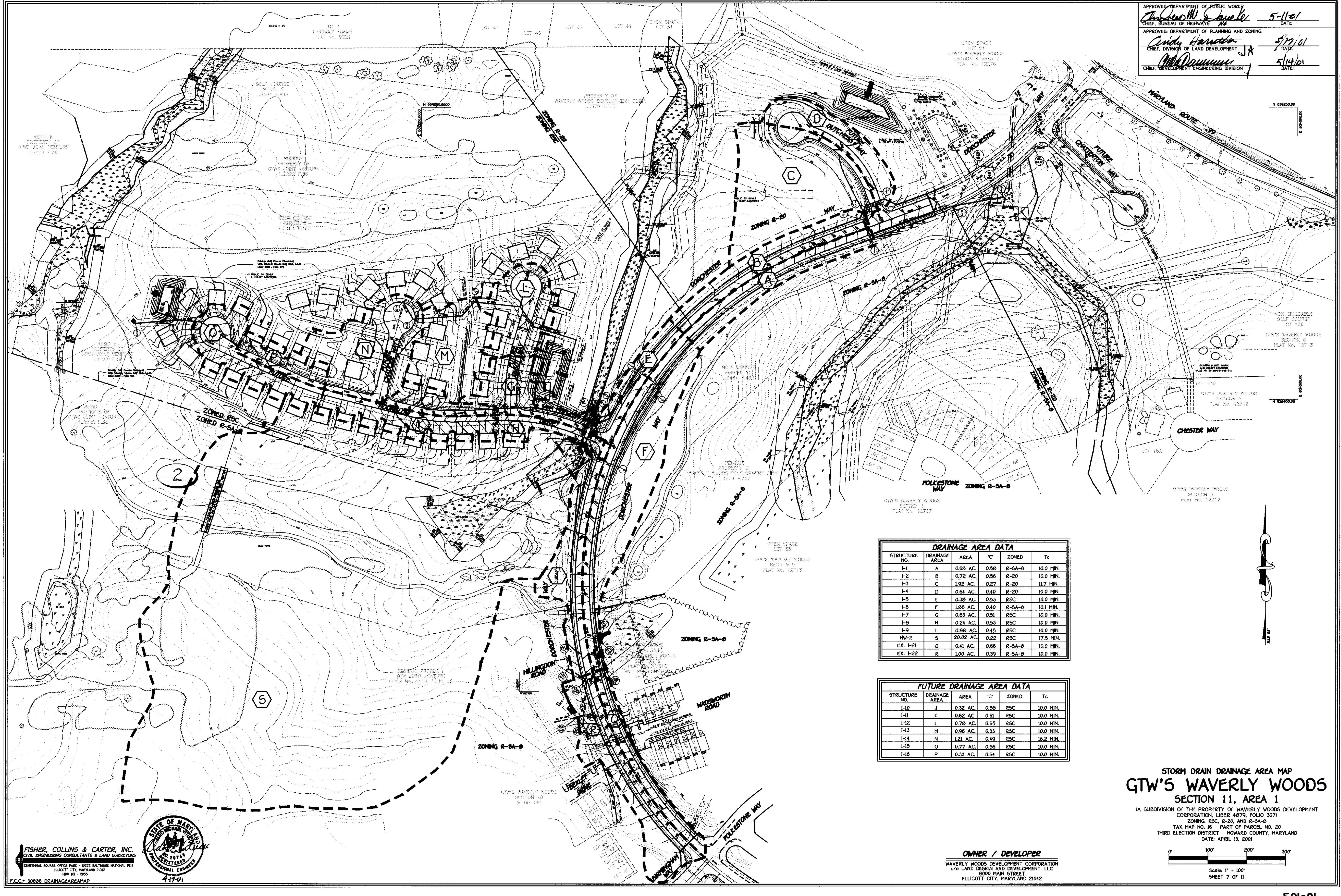
PLAN SCALE: 1" = 50'

K:\Drawings\3\30686 GTW Section 11\FINAL\AREA 1\GRA.DWG

APPROVED DEPARTMENT OF PUBLIC WORKS
Charles M. J. Buehler 5-11-01
 CHIEF, BUREAU OF HIGHWAYS
 DATE

APPROVED DEPARTMENT OF PLANNING AND ZONING
Cindy Harwood 5/19/01
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

Michael J. ... 5/14/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE



DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA	C	ZONED	Tc
I-1	A	0.68 AC.	0.58	R-5A-B	10.0 MIN.
I-2	B	0.72 AC.	0.56	R-20	10.0 MIN.
I-3	C	1.92 AC.	0.27	R-20	11.7 MIN.
I-4	D	0.64 AC.	0.40	R-20	10.0 MIN.
I-5	E	0.38 AC.	0.53	RSC	10.0 MIN.
I-6	F	1.86 AC.	0.40	R-5A-B	10.1 MIN.
I-7	G	0.63 AC.	0.51	RSC	10.0 MIN.
I-8	H	0.24 AC.	0.53	RSC	10.0 MIN.
I-9	I	0.88 AC.	0.45	RSC	10.0 MIN.
I-10	J	20.02 AC.	0.22	RSC	17.5 MIN.
EX. I-21	Q	0.41 AC.	0.66	R-5A-B	10.0 MIN.
EX. I-22	R	1.00 AC.	0.39	R-5A-B	10.0 MIN.

FUTURE DRAINAGE AREA DATA

STRUCTURE NO.	DRAINAGE AREA	AREA	C	ZONED	Tc
I-10	J	0.32 AC.	0.58	RSC	10.0 MIN.
I-11	K	0.62 AC.	0.61	RSC	10.0 MIN.
I-12	L	0.78 AC.	0.65	RSC	10.0 MIN.
I-13	M	0.96 AC.	0.33	RSC	10.0 MIN.
I-14	N	1.21 AC.	0.49	RSC	16.2 MIN.
I-15	O	0.77 AC.	0.56	RSC	10.0 MIN.
I-16	P	0.33 AC.	0.64	RSC	10.0 MIN.

STORM DRAIN DRAINAGE AREA MAP
GTW'S WAVERLY WOODS
SECTION 11, AREA 1
 (A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4879, FOLIO 307)
 ZONING RSC, R-20, AND R-5A-B
 TAX MAP NO. 15 PART OF PARCEL NO. 20
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: APRIL 13, 2001

OWNER / DEVELOPER
 WAVERLY WOODS DEVELOPMENT CORPORATION
 c/o LAND DESIGN AND DEVELOPMENT, LLC
 8000 MAIN STREET
 ELLICOTT CITY, MARYLAND 21042

Scale 1" = 100'
 SHEET 7 OF 11

FISHER, COLLINS & CARTER, INC.
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21042
 (410) 461-2855

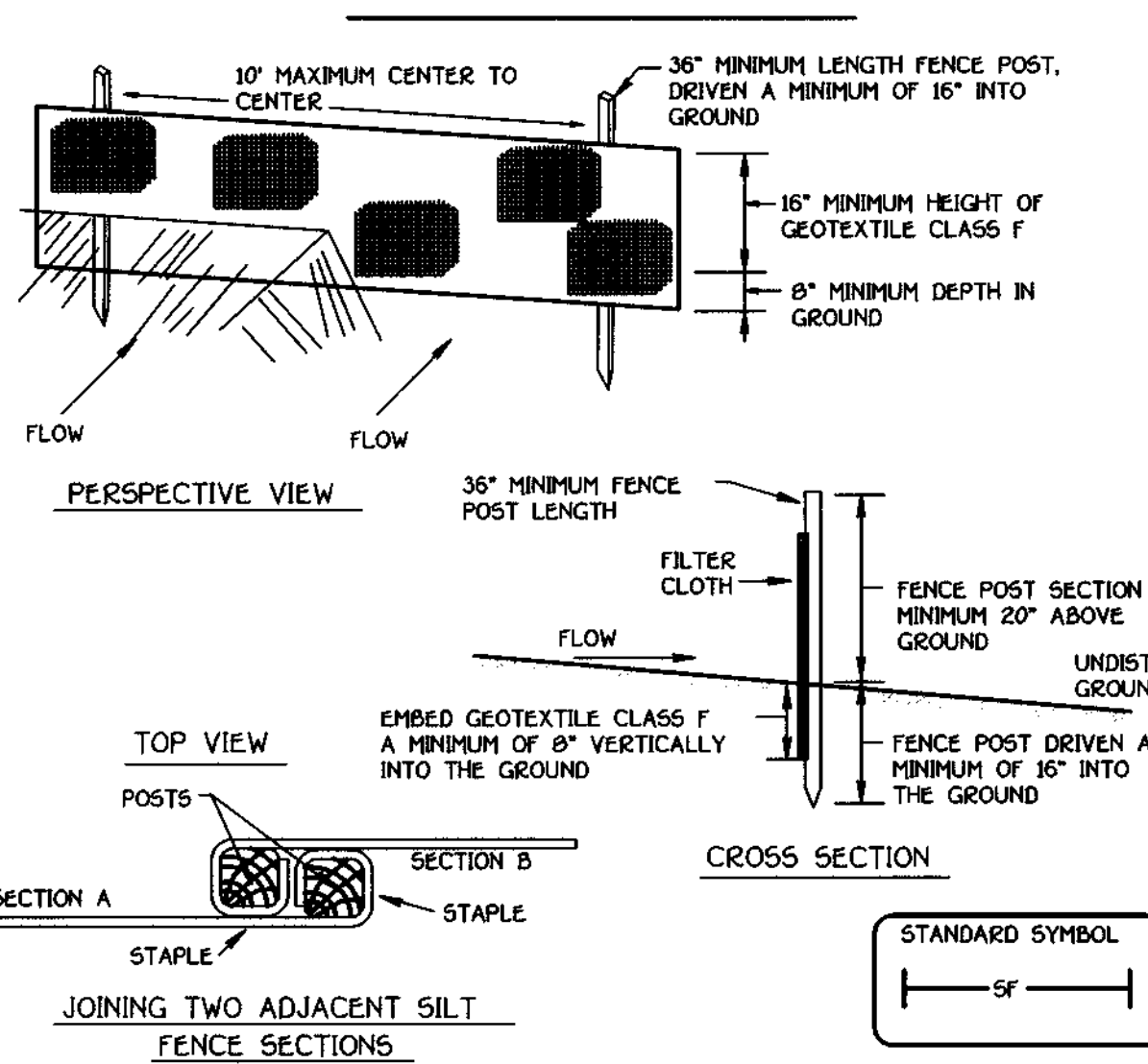


PERMIT CONTROL NOTES

- A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION (1310-1055).
- ALL VEGETATIVE AND STRUCTURAL DEVICES 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 THEREOF.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 30 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, BY 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE. GRADING NECESSARY TO INSTALL STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES TO BE PERFORMED FIRST. REMAINDER OF THE GRADING TO BE PERFORMED AFTER STORM DRAINS, SEDIMENT TRAP AND EARTH DIKES ARE INSTALLED.
- ALL SEDIMENT TRAPPING DEVICES MUST BE FENCED AND WARNING SIGNS PLACED 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 PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, FOR PERMANENT SEEDING (SEC. 501, 502 (SEC. 501), TEMPORARY SEEDING (SEC. 501 AND MULCHING (SEC. 502), 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 PERMSSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- SITE ANALYSIS:

TOTAL AREA OF SITE	27.006 ACRES
AREA DISTURBED	15.425 ACRES
AREA TO BE ROOFED OR PAVED	7.150 ACRES
AREA TO BE VEGETATIVELY STABILIZED	8.275 ACRES
TOTAL CUT	12,800 CU.YDS.
TOTAL FILL	12,400 CU.YDS.
OFFSITE WASTE/BORROW AREA LOCATION	N/A
- 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 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 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 SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

SILT FENCE



- Construction Specifications**
- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
 - Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min)	Test: MSMT 509
Flow Rate	0.3 gal/ft / minute (max)	Test: MSMT 322
Filtering Efficiency	75% (min)	Test: MSMT 322
 - Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
 - Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

Silt Fence Design Criteria

Slope Steepness	Maximum Slope Length	Maximum Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2:1 slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence will be the only perimeter control required.

SOIL STANDARDS AND SPECIFICATIONS

VEGETATIVE STABILIZATION

DEFINITION

Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving visual resources.

CONDITIONS WHERE PRACTICE APPLIES

This practice shall be used on denuded areas as specified on the plan and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetation. Examples of suitable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth sites, etc. and for Permanent Seeding are lawns, down, cut and fill slopes and other areas at final grade, former stockpiles and staging areas, etc.

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect ground water from leaching by those substances present within the root zone.

Sediment control devices must remain in place during grading, seeded preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

- SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS**
- Site Preparation
 - Install erosion and sediment control structures (either temporary or permanent) such as diversion, grade stabilization structures, berms, waterways, or sediment control basins.
 - Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.
 - Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed areas over 2 acres.
 - Soil Amendments (Fertilizer and Lime Specifications)
 - Soil tests must be performed to determine the exact ratio and application rates for both lime and fertilizer on sites having disturbed areas over 5 acres. Soil analysis may be performed by the University of Maryland or a recognized commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
 - Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Fertilizer shall be substituted for fertilizer with approval from the appropriate approval authority. Fertilizers shall all be delivered to the site fully labeled according to the applicable state fertilizer laws and shall bear the name, trade name or trademark and warranty of the producer.
 - Lime materials shall be ground limestone hydrated or burnt lime may be substituted which contains at least 50% total calcium oxide plus maximum amount of water. Limestone shall be ground to such fineness that at least 50% will pass through a 100 mesh sieve and 90-100% will pass through a 20 mesh sieve.
 - Seeded Preparation
 - Temporary Seeding
 - Seeded preparation shall consist of loosening soil to a depth of 3" to 5" by means of suitable agricultural or construction equipment, such as disc harrow or chisel plow or ripper mounted on construction equipment. After the soil is loosened it should not be rolled or dragged smooth, but left in the roughened condition. Sloped areas greater than 3:1 should be trenched between the surface in an irregular condition with ridges running parallel to the contour of the slope.
 - Apply fertilizer and lime as specified on the plan.
 - In appropriate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.
 - Permanent Seeding
 - Primary soil conditions required for permanent vegetative establishment:
 - Soil pH shall be between 6.0 and 7.0.
 - Soluble salts shall be less than 500 parts per million (ppm).
 - The soil shall contain less than 40% clay, but enough fine grained material (30% silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception is if loesslike or sereck loesslike soils to be planted, then a sandy silt (50% silt plus clay) would be acceptable.
 - Soil shall contain 1.5% minimum organic matter by weight.
 - Soil must contain sufficient pore space to permit adequate root penetration.
 - DRIVEN AERATION shall be required.
 - If these conditions cannot be met by soils on site, adding topsoil is required.
 - In accordance with Section 21 Standard and Specification for Topsoil.
 - Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of material to the surface and to create horizontal erosion check slots to prevent topsoil to the surface area and to create horizontal erosion check slots to prevent topsoil from sliding down a slope.
 - Apply soil amendments as per soil test or as indicated on the plan.
 - Mix soil amendments into the top 3-5" of topsoil by diking or other suitable means. Lawn areas should be raked to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application. Where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface. Steep slopes (steeper than 3:1) should be trenched by a doker leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.

- Seed Specifications
 - All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to recertifying by a recognized seed laboratory. DRIVER AERATION shall be required within the months immediately preceding the date of sowing such material on the job.
 - Note: Seed lots shall be made available to the inspector to verify type and rate of seed used.
 - Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of rhizobium bacteria which will provide good seed to soil contact and will not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the amount of inoculant for seed lots which are not certified. Use four times the amount of inoculant for seed lots which are not certified. Use four times the amount of inoculant for seed lots which are not certified.
 - Method of Seeding
 - Hydroseeding - Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seed, or a cutspreader seeder.
 - If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen maximum of 100 lbs. per acre total of soluble nitrogen; P2O5 (phosphorous) 200 lbs/acre; K2O (potassium) 200 lbs/acre.
 - Lime - use only ground agricultural limestone, up to 3 tons per acre may be applied by hydroseeding. Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.
 - Dry Seeding - This includes use of conventional drop or broadcast spreaders.
 - Seed spreader dry shall be incorporated into the substrate at the rates prescribed on the Temporary or Permanent Seeding Summaries or Tables 265 or 26. The seeded area shall then be rolled or otherwise smoothed to provide good seed to soil contact.
 - Where practical, seeds should be applied in two directions perpendicular to each other.
 - Apply the seeding rate in each direction.
 - Drill or Cutspreader Seeding - Mechanized seeders that apply and cover seed with soil.
 - Cultivating tools are required to bury the seed in a minimum of 1/2" to 1" depth.
 - Where practical, seeds should be applied in two directions perpendicular to each other.
 - Apply the seeding rate in each direction.
- Mulch Specifications (in order of preference)
 - Mulch shall consist of shredded wheat, rice or oat straw, reasonable bright in color, and shall not be matted, mold, caked, decayed, or excessively dusty and shall be free of noxious weed seeds.
 - Apply the seeding rate in each direction.
 - Wood Cellulose Fiber Mulch (WCFF)
 - WCFF shall consist of specially prepared wood cellulose processed into a uniform fibrous material.
 - WCFF shall be dried green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the mulch.
 - WCFF including dye, shall contain no germination or growth inhibiting factors.
 - WCFF material shall be manufactured and processed in a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seed.
 - WCFF material shall contain no elements or compounds at concentration levels that will be phytotoxic.
 - WCFF must conform to the following physical requirements: fiber length to approximately 10 mm, diameter to approximately 1.0 to 1.5, ash content of 1.5% maximum and water holding capacity of 90% minimum.
- Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.
 - If grading or other work is to be done on the site, mulch shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.
 - When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used, the rate should be increased to 2.5 tons/acre.
 - Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be moist with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per gallon of water.
 - Securing Straw Mulch Mulch Anchoring - Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods listed by preference, depending upon site of area and erosion hazard:
 - A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can be used.
 - Wood cellulose fiber may be used for anchoring straw mulch. Fiber binder shall be applied at a net dry weight of 250 pounds/acre.
 - Wood cellulose fiber shall be moist with water, and the mixture shall contain a minimum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be applied uniform after binding.
 - Synthetic binders, such as Acrylic Diethylene Glycol (Dyegol), C-70 Petrocol, Terra Tac II, Terra Tac AK, or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
- Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is readily available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

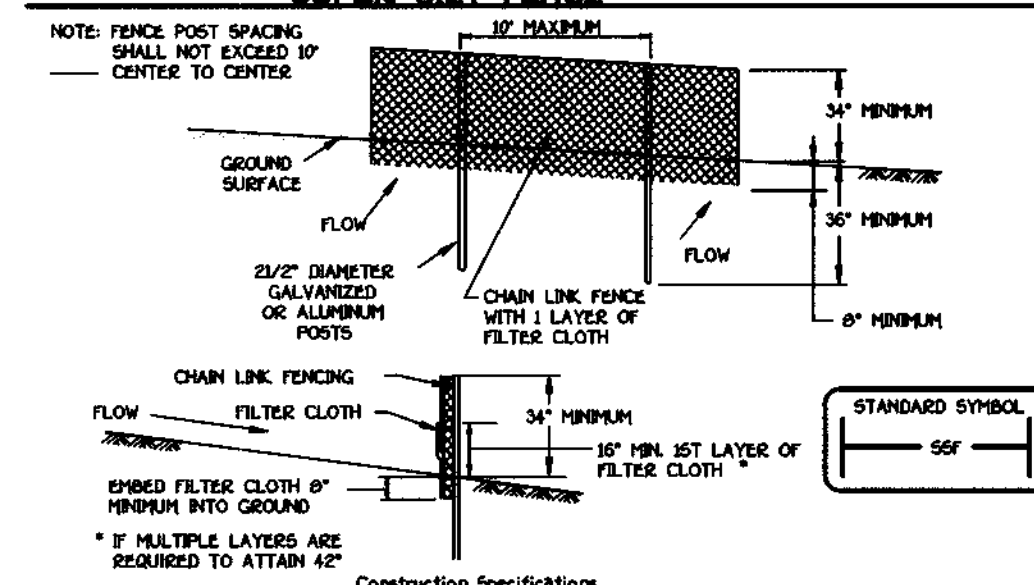
- Incremental Stabilization - Cut Slopes
 - All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and established in equal increments not to exceed 15'.
 - Construction sequence (Refer to Figure 3) below:
 - Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.
 - Perform Phase 1 excavation, dress, and stabilize.
 - Perform Phase 2 excavation, dress and stabilize. Overseed Phase 1 areas as necessary.
 - Perform final phase excavation, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruption in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

- Incremental Stabilization of Embankments - Fill Slopes
 - Embankments shall be constructed in lifts as prescribed on the plan.
 - Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation is in the plan.
 - At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to prevent erosion of the topsoil and convert it down the slope in a non-erosive manner to a sediment trapping device.
- Construction sequence (Refer to Figure 4) below:
 - Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct pipe slope drains on low side of fill as shown in Figure 4, where other methods apply to the fill.
 - Place Phase 1 embankment, dress and stabilize.
 - Place Phase 2 embankment, dress and stabilize.
 - Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of topsoil placement of remaining embankment and any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

SUPER SILT FENCE



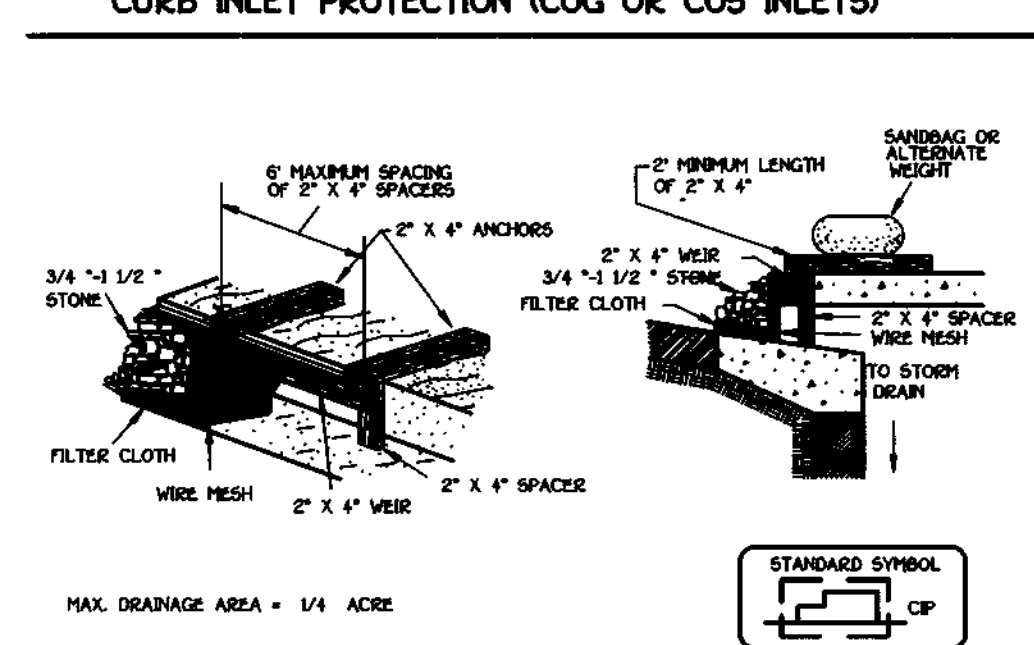
- Construction Specifications**
- Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
 - Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, fence and frame rods, drive anchors and post caps are not required except on the side of the fence.
 - Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
 - Filter cloth shall be embedded a minimum of 6" into the ground.
 - When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and stapled.
 - Maintenance shall be performed as needed and all bulges removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.
 - Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min)	Test: MSMT 509
Flow Rate	0.3 gal/ft / minute (max)	Test: MSMT 322
Filtering Efficiency	75% (min)	Test: MSMT 322

Design Criteria

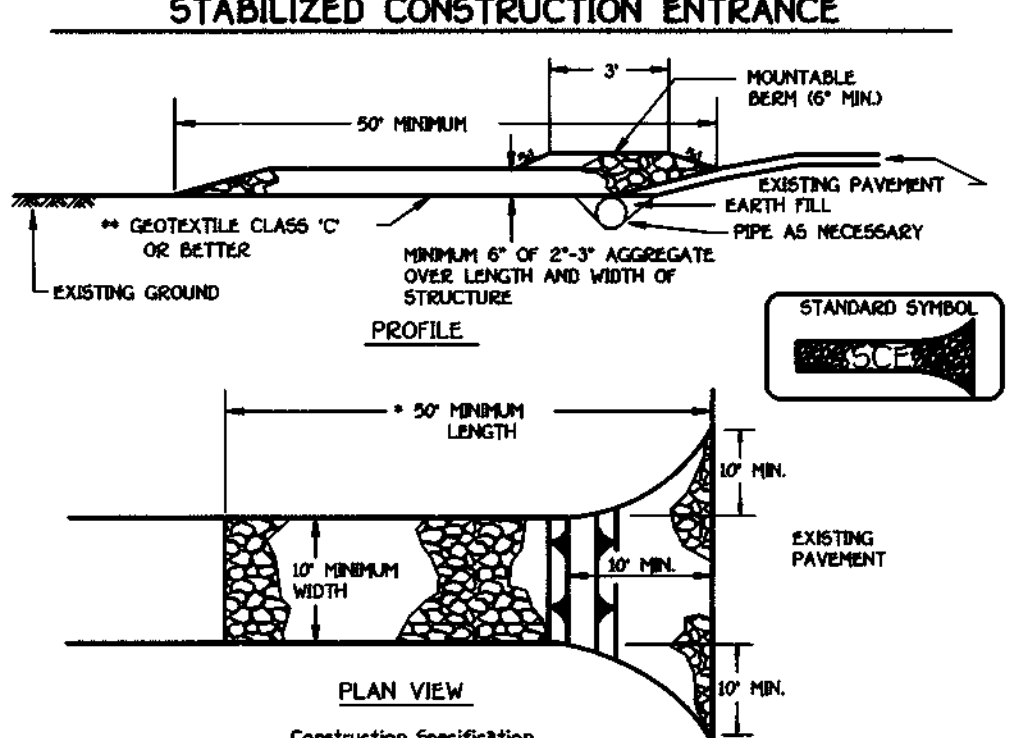
Slope	Slope Steepness	Slope Length (Maximum)	Silt Fence Length (Minimum)
0 - 10%	0 - 1:1	Unlimited	Unlimited
10 - 20%	1:1 - 3/4:1	200 feet	1,500 feet
20 - 33%	3/4:1 - 3:4	100 feet	1,000 feet
33 - 50%	3:4 - 2:1	50 feet	750 feet
50% +	2:1 +	50 feet	250 feet

CURB INLET PROTECTION (COG OR CO5 INLETS)



- Construction Specifications**
- Attach a continuous piece of wire mesh (30" minimum width by throat length plus 6") to the 2' x 4" curb (minimum throat length plus 6") as shown on the standard drawing.
 - Place a continuous piece of Geotextile Class F (the same dimensions as the wire mesh) over the wire mesh and securely attach it to the 2' x 4" curb.
 - Securely fill the 2' x 4" curb with a 9" long vertical spacer to be located between the curb and the inlet face (max. 4" apart).
 - Place the assembly against the inlet throat and roll (minimum 2" length of 2" x 4" to the top of the curb at inlet location). These 2' x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
 - The assembly shall be placed so that the end spacers are a minimum 1" beyond both ends of the throat opening.
 - Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place chain 3/4" x 1/2" wire over the wire mesh and geotextile in such a manner to prevent water from circumventing the curb.
 - The wire mesh shall be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
 - Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

STABILIZED CONSTRUCTION ENTRANCE



- Construction Specifications**
- Length - minimum of 50' (50' for single residence lots).
 - Width - 10' minimum, should be fitted at the existing road to provide a turning radius.
 - Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
 - Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
 - Surface Water - All surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a moustache berm with 5:1 slopes and a minimum of 6" of stone over the slope. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
 - Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

DEVELOPER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN OF DEVELOPMENT AND THAT ANY RESPONSIBLE PERSONNEL IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF NATURAL RESOURCES APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT OR THEIR AUTHORIZED AGENTS, AS ARE DEEMED NECESSARY.

Signature of Developer: _____ DATE: 4-19-01

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND FEASIBLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE PROJECT AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Signature of Engineer: _____ DATE: 4-19-01

REVIEW FOR HOWARD COUNTY SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENTS.

Signature of Reviewer: _____ DATE: 5/18/01

Signature of Reviewer: _____ DATE: 5/18/01

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Signature: _____ DATE: 5/17/01

Signature: _____ DATE: 5/14/01

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

SEQUENCE OF CONSTRUCTION

- OBTAIN THE REQUIRED GRADING PERMIT. (1 DAY)
- NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK (1-800-257-7777). NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION 24 HOURS BEFORE STARTING ANY WORK (410-313-1870). (1 DAY)
- CLEAR AND GRUB FOR SEDIMENT CONTROL MEASURES ONLY. INSTALL STABILIZED CONSTRUCTION ENTRANCES. (2 WEEKS)
- INSTALL THE REQUIRED SEDIMENT AND EROSION CONTROL DEVICES AS INDICATED ON THE PLAN SHEETS. (2 WEEKS)
- OBTAIN PERMISSION OF THE SEDIMENT CONTROL INSPECTOR PRIOR TO PROCEEDING.
- CLEAR AND GRUB FOR THE REMAINDER OF THE SITE. (1 WEEK)
- GRADE SITE TO THE PROPOSED SUBGRADE. INSTALL THE TEMPORARY DIVERSION PIPE NEAR HW-1 AND HW-2 AS SHOWN ON THE PLAN SHEETS. (1 WEEK)
- INSTALL THE WATER AND SEWER MAINS AND THE ENTIRE STORM DRAIN SYSTEMS. INSTALL INLET PROTECTION AS INDICATED ON THE PLAN SHEETS. (3 WEEKS)
- THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON AFTER EACH RAINFALL AND ON A DAILY BASIS. HAVE BEEN COMPLETELY INSTALLED. (2 DAYS)
- INSTALL CURB AND GUTTER PLUS ROAD BASE COURSE. (1 WEEK)
- STABILIZE ALL DISTURBED AREAS AND OBTAIN PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR TO PROCEED. (2 DAYS)
- APPLY TACK COAT TO SUB-BASE AND LAY SURFACE COURSE. (1 WEEK)
- FOLLOWING SUCCESSFUL STABILIZATION OF ALL DISTURBED AREAS IN ACCORDANCE WITH THE PERMANENT SEEDING NOTES, AND AFTER PERMISSION HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, ALL EROSION AND SEDIMENT CONTROL DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE AFTER THE STORM DRAIN SYSTEM HAS BEEN FISHED TO REMOVE TRAPPED SEDIMENT. (2 WEEKS)
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR A FINAL INSPECTION OF THE COMPLETED PROJECT.

SEDIMENT CONTROL NOTES AND DETAILS

GTW'S WAVERLY WOODS

SECTION 11, AREA 1

(A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBERTY 4879, FOLIO 3077)

2000 MAIN STREET

TAX MAP NO. 16 PART OF PARCEL NO. 20

THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DATE: APRIL 13, 2001

SHEET 8 OF 11

OWNER / DEVELOPER

WAVERLY WOODS DEVELOPMENT CORPORATION

c/o LAND DESIGN AND DEVELOPMENT, LLC

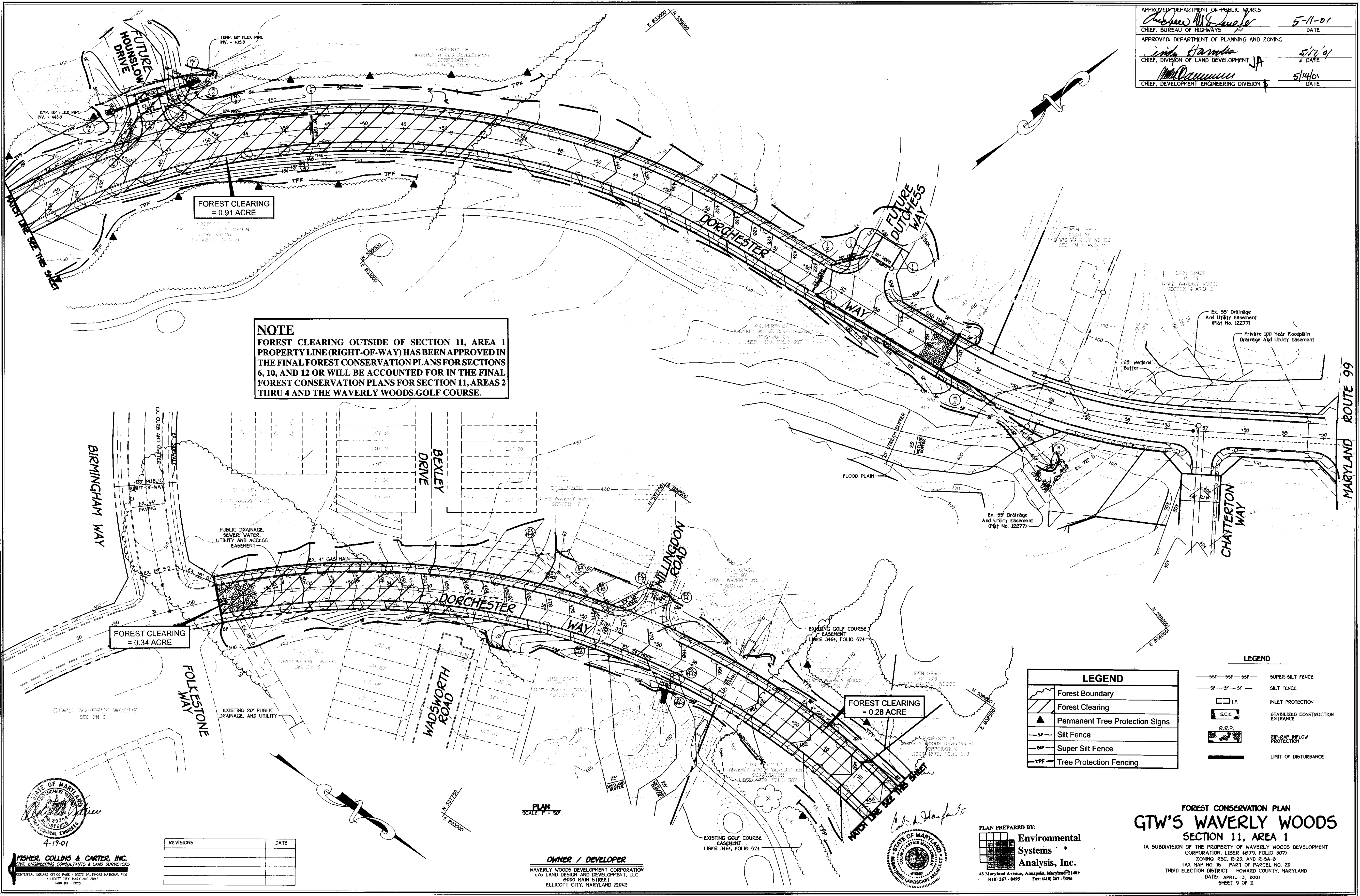
8000 MAIN STREET

ELLICOTT CITY, MARYLAND 21042

APPROVED: DEPARTMENT OF PUBLIC WORKS
Christopher M. Sandoz 5-11-01
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Indy Hamada 5/12/01
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

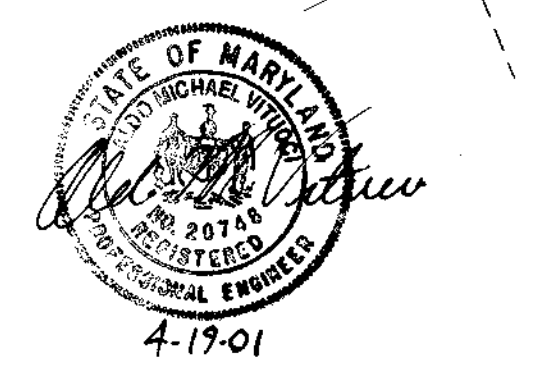
Michael J. ... 5/14/01
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE



NOTE
 FOREST CLEARING OUTSIDE OF SECTION 11, AREA 1 PROPERTY LINE (RIGHT-OF-WAY) HAS BEEN APPROVED IN THE FINAL FOREST CONSERVATION PLANS FOR SECTIONS 6, 10, AND 12 OR WILL BE ACCOUNTED FOR IN THE FINAL FOREST CONSERVATION PLANS FOR SECTION 11, AREAS 2 THRU 4 AND THE WAVERLY WOODS GOLF COURSE.

LEGEND

	Forest Boundary
	Forest Clearing
	Permanent Tree Protection Signs
	Silt Fence
	Super Silt Fence
	Tree Protection Fencing
	SUPER-SILT FENCE
	SILT FENCE
	INLET PROTECTION
	STABILIZED CONSTRUCTION ENTRANCE
	S&P INFLOW PROTECTION
	LIMIT OF DISTURBANCE



REVISIONS	DATE

PLAN SCALE: 1" = 50'

OWNER / DEVELOPER
 WAVERLY WOODS DEVELOPMENT CORPORATION
 c/o LAND DESIGN AND DEVELOPMENT, LLC
 8000 MAIN STREET
 ELLICOTT CITY, MARYLAND 21042

PLAN PREPARED BY:
Environmental Systems Analysis, Inc.
 45 Maryland Avenue, Annapolis, Maryland 21401
 (410) 267-0495 Fax: (410) 267-0496

FOREST CONSERVATION PLAN
GTW'S WAVERLY WOODS
 SECTION 11, AREA 1
 (A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4873, FOLIO 307)
 ZONING: RES. R-20, AND R-5A-B
 TAX MAP NO. 16 PART OF PARCEL NO. 20
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: APRIL 13, 2001
 SHEET 9 OF 11

NARRATIVE

The Waverly Woods Property is a 682 acre tract which contains a combination of commercially and residentially zoned property. The site is to be slowly developed in a series of phases. A Preliminary Forest Conservation Plan was prepared for the property in August of 1993. In February of 1996, this plan was revised and approved by the Howard County Department of Planning and Zoning. Since that time, Final Forest Conservation Plans have been prepared for each development section as they are phased in. These Final Forest Conservation Plans have included revised Forest Conservation Worksheets to reflect changes in forest clearing and forest preservation from the 1996 Preliminary Plan.

This Final Forest Conservation Plan has been prepared for Waverly Woods Section 11, Area 1 which is located within the residentially zoned portion of the development. Like the Final Forest Conservation Plans for the previous sections of Waverly Woods, the reforestation requirement for this section has been calculated on a percentage basis (see "Section 11, Area 1 Forest Conservation Calculations" on this sheet). Based on the percentage of forest clearing being performed within Section 11, Area 1, a total of 1.3 acres of reforestation must be performed.

To satisfy the reforestation requirement for this section, 1.3 acres of additional forest conservation will be provided on Waverly Woods Commercial Property. This area has been delineated on Sheet 10 of this plan set. A revised Forest Conservation Worksheet for the commercial property (including the Golf Course) is also provided on Sheet 10 to reflect this change and to demonstrate that there is surplus forest retention. The relevant numbers from this worksheet are provided below.

Total Forest On Commercial Property	158.30 Acres
Total Forest Retention On Commercial Property	73.21 Acres
Forest Conservation Threshold (15%)	49.02 Acres
Credit For Retention Above Conservation Threshold (Retention minus Threshold)	24.19 Acres
Total Reforestation For Commercial Property Clearing	21.27 Acres
Surplus Forest Retention (Credit Minus Reforestation)	2.92 Acres

GENERAL NOTES

- This forest conservation plan has been prepared by Environmental Systems Analysis, Inc. (ESA, Inc.) for GTW Joint Venture (hereinafter referred to as "Owner") in accordance with the requirements set forth by the Howard County Forest Conservation Act. The preparation of this plan, the notes and details were prepared using the guidelines of the Howard County Forest Conservation Manual.
- Base sheet information was provided by Fisher, Collins and Carter, Inc.
- All appropriate bonds shall be posted prior to the issuance of any permits per Howard County Forest Conservation Act. These bonds will be retained as surety until all required activities have been satisfied.
- Reforestation planting and related work must be performed by a contractor who is knowledgeable and experienced in reforestation planting techniques and proper plant handling.

FOREST PROTECTION MEASURES

- After the limits of disturbance (LOD) and the location of all Tree Protection Devices (TPDs) have been staked and/or flagged in the field, an on-site pre-construction meeting shall be held. During this meeting, the limits of clearing specified on the approved plan shall be field-verified and authorization shall be given for the installation of TPDs with any necessary adjustments. This meeting shall include the owner or their representative, the on-site foreman in charge of land disturbance, ESA, Inc., and the appropriate county inspectors. Upon approval of the flagged or staked locations by Howard County, installation may begin. TPD installation shall be completed prior to installation of initial Sediment Controls. No cutting or clearing of trees may begin before final approval of TPD installation.
- Silt fence and orange plastic mesh fencing shall be the short-term forest protection devices and shall be located along the limit of clearing as shown on these plans. Installation shall be conducted in accordance with the details and notes provided on this sheet.
- Short-term forest protection devices shall be installed prior to any land clearing or grading and shall be maintained during the entire construction phase including fine grading and final seeding.
- Equipment, machinery, vehicles, materials, or debris shall not be allowed within forest areas located outside of the limits of disturbance.
- After construction activities have been completed, an on-site inspection by Howard County will be conducted to evaluate the remaining trees for damage or impacts which may have occurred during the construction process. If trees along the forest perimeter are found to be damaged or dead as a direct result of the construction process, corrective action must be taken. The measures may include the following and must be carried out by a qualified tree professional:
 - Removal of dead or dying trees located within 20 feet of the limits of disturbance which are potentially hazardous. Dead or dying trees which are not potentially hazardous shall be left to provide wildlife habitat. Removal should be authorized by Howard County.
 - Pruning of dead or declining limbs
 - Soil aeration
 - Fertilizing
 - Watering
 - Wound repair
 - Clean-up retention areas
- No temporary forest protection devices shall be removed until all construction activities are complete and the adjacent areas have been properly stabilized.
- When removing the temporary tree protection devices, care shall be taken to not disturb or clear additional area within the limit of disturbance. Hand removal of vines, excessive dead material and trash is permitted. The burial of discarded materials is not permitted on the site.
- Once all temporary tree protection devices are removed, permanent tree protection signs shall be installed along the boundaries of all forest retention areas in accordance with these plans and specifications. They will inform residents and grounds maintenance personnel that these areas are protected in perpetuity. Signs shall be installed on their own poles and shall NOT be fastened to trees.

Long Term Management Plan

- All forest conservation areas shall be protected by conservation easements which will be recorded at record plat (refer to the latest edition of the Howard County Forest Conservation Manual for activities permitted within the forest conservation easement).
- The periodic removal of vines and or other invasive and non-native vegetation along the perimeter of the forest conservation area may be conducted to control the intrusion and development of such vegetation and maintain forest productivity.
- Woody vegetation located within 20' from the forest perimeter susceptible to windthrow and dead or diseased trees along the forest perimeter shall be selectively thinned if potentially hazardous.

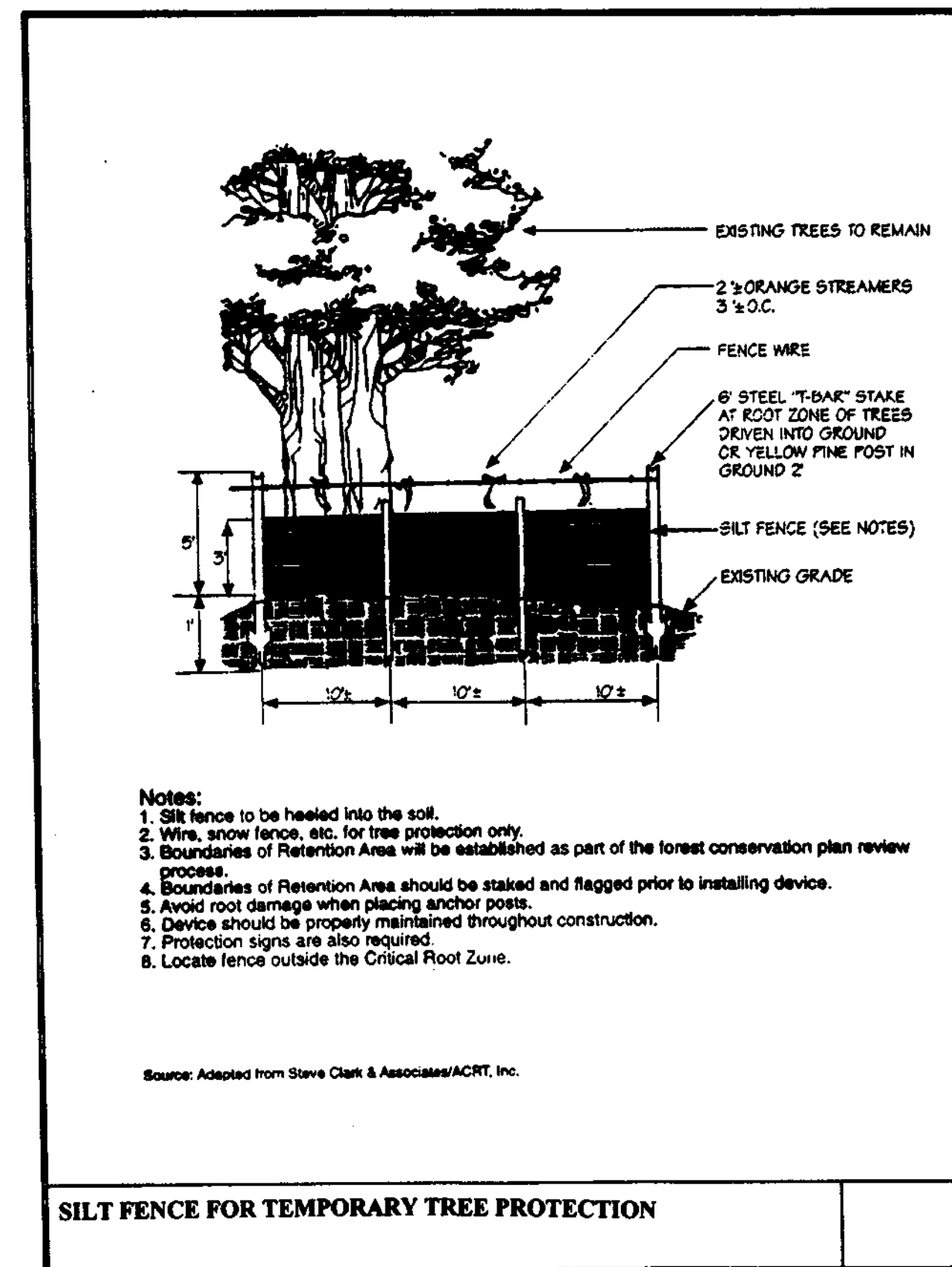
SECTION 11/AREA 1 FOREST CONSERVATION CALCULATIONS

Forest Preservation in Section 11/Area 1 Development (acres)	0
Forest Clearing in Section 11/Area 1 Development (acres)	1.53
Total Forest Clearing within Residentially Zoned Areas of Waverly Woods (acres)	69.17
Percentage of Forest Clearing Within Section 11/Area 1 Development	2.21%
Total Reforestation Required for Waverly Woods Residential Development (acres)	58.65
Reforestation for Section 11/Area 1 Development (acres)	1.30

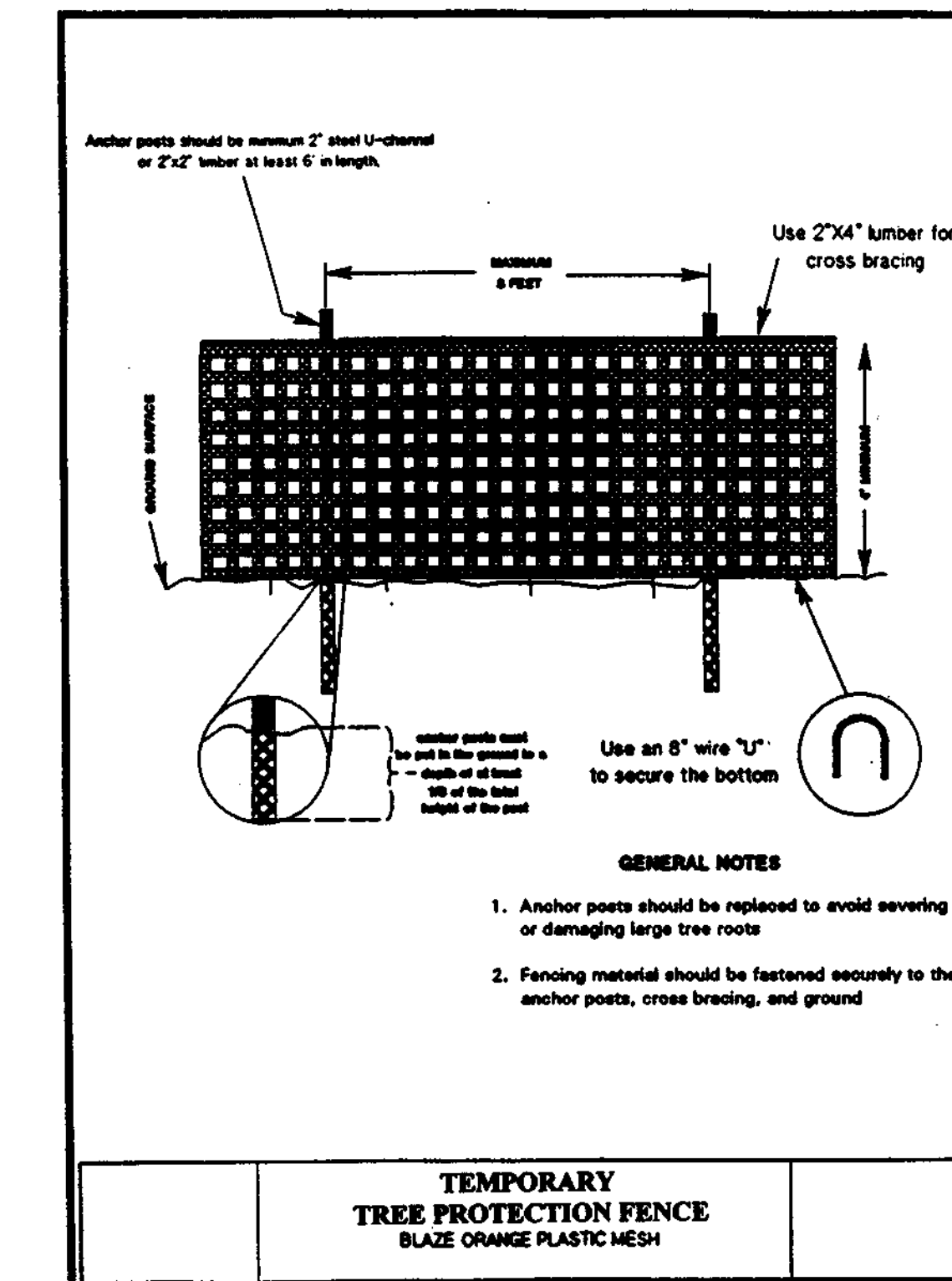
Calculation Notes

- The "Forest Conservation Worksheet" above includes the preliminary forest conservation calculations (from the Preliminary Forest Conservation Plan revised on February 26, 1996) and the latest forest conservation calculations (thru Sect 11, Area 1) for residentially zoned development at Waverly Woods. Forest retention and clearing differences in the two worksheets reflect minor changes from preliminary to final plan. With the exception of the Golf Course, Section 11 will be the final residentially zoned portion of Waverly Woods. Section 11 consists of four areas which will be developed separately.
- Section 11, Area 1 accounts for 2.21% or 1.30 acres of the 58.65 acres of reforestation currently required for residential development on the Waverly Woods property. This requirement will be met by dedicating 1.30 acres of the forest retention surplus on Waverly Woods commercially zoned property to Section 11, Area 1.
- Including Section 11, Area 1, a total of 9.05 acres of on-site reforestation, 1.30 acres of on-site retention, and 8.13 acres of off-site reforestation (see January 1996 Final FCP for Waverly Woods Section 4, Areas 1 and 2) has been planned for the Waverly Woods residentially zoned property to date. This leaves a balance of 40.17 acres of reforestation to be performed for the Golf Course and the remaining areas of Section 11.

Waverly Woods (Residential) Forest Conservation Worksheet		
Input Parameter:	Preliminary FCP	Thru Section 11/Area 1
Tract Area	291.90	291.90
100-Year Floodplain Area	4.10	4.81
Other ROW/Easements to be Excluded from Net Tract Area	2.04	2.09
Disturbance within Floodplain to be added to Net Tract Area	0.00	2.32
Existing Forest Area within Net Tract Area	103.00	103.00
Afforestation Threshold Percentage	0.15	0.15
Conservation Threshold Percentage	0.20	0.20
Total Area of Forest to be Cleared	65.55	69.17
Calculated Parameters:		
Net Tract Area	285.76	287.32
Afforestation Threshold	42.86	43.10
Conservation Threshold	57.15	57.46
Area of Forest Above Afforestation Threshold	60.14	59.90
Area of Forest Above Conservation Threshold	45.85	45.54
Break Even Point	66.32	66.57
Clearing Permitted with no Mitigation	36.68	36.43
Total Area of Forest to be Retained	37.45	33.83
Reforestation for Clearing Above Conservation Threshold	11.46	11.38
Reforestation for Clearing Below the Conservation Threshold	39.40	47.27
Credit for Retention Above the Conservation Threshold	0.00	0.00
Total Reforestation Required	50.87	58.65
Total Afforestation Required	0.00	0.00
TOTAL Afforestation/Reforestation Required	50.87	58.65

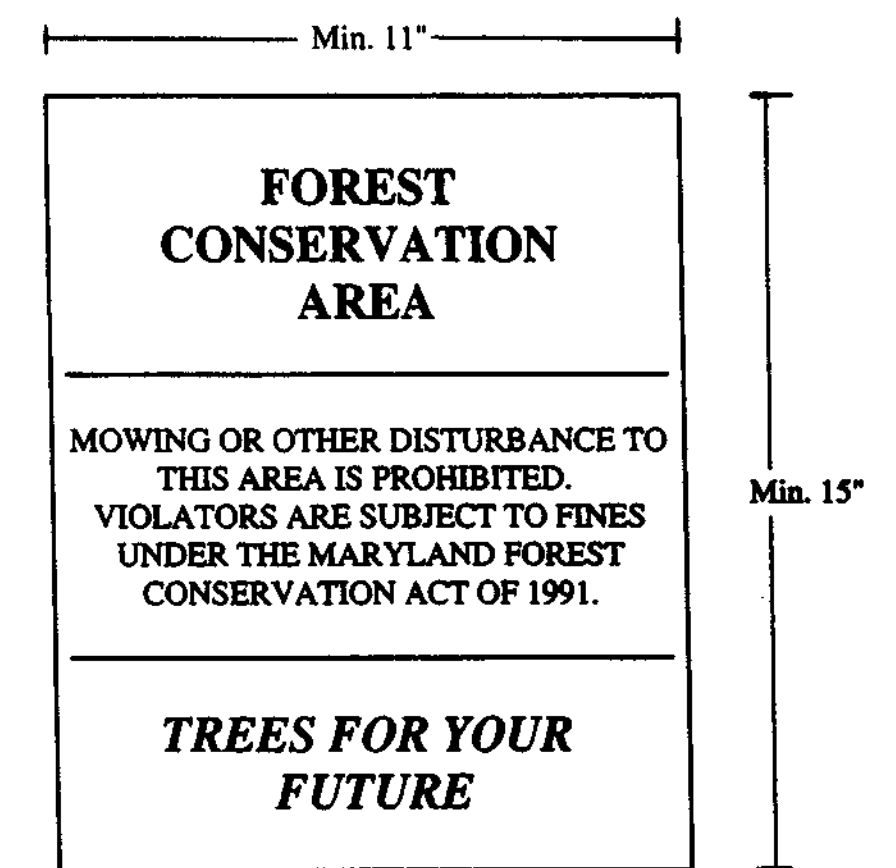


SILT FENCE FOR TEMPORARY TREE PROTECTION



**TEMPORARY TREE PROTECTION FENCE
BLAZE ORANGE PLASTIC MESH**

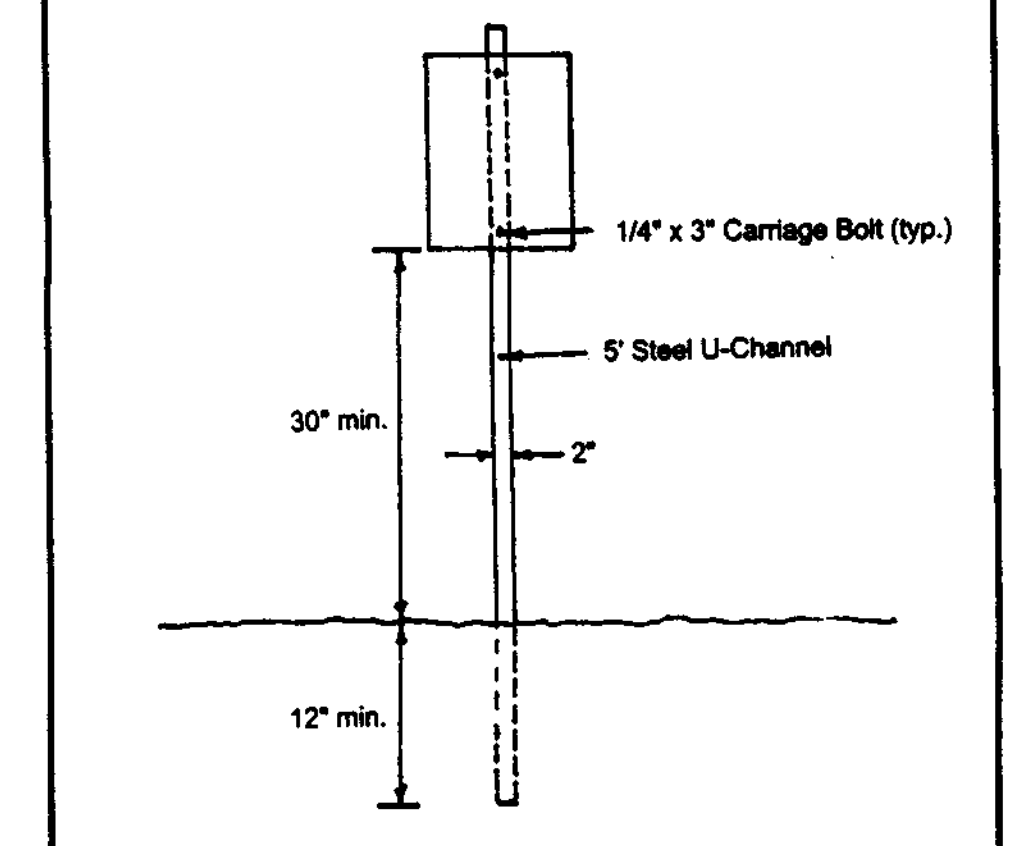
PERMANENT TREE PROTECTION SIGN DETAIL



NOTES:

- Signs shall be made of aluminum or fiberglass.
- Signs shall be installed on their own poles and NOT mounted onto trees.

TYPICAL DETAIL SIGN INSTALLATION



APPROVED: DEPARTMENT OF PUBLIC WORKS
Christopher M. Daniels 5-11-01
 CHIEF, DEPARTMENT OF PUBLIC WORKS
 APPROVED: DEPARTMENT OF PLANNING & ZONING
Candy Krawinkel 5/17/01
 CHIEF, DIVISION OF LAND DEVELOPMENT
Michael J. ... 5/14/01
 CHIEF, DEVELOPMENT ENGINEERING-INTERIM & DATE



REVISIONS	DATE



John H. ...

PLAN PREPARED BY:
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DETAIL SHEET
GTW'S WAVERLY WOODS
 SECTION 11, AREA 1
 (A SUBDIVISION OF THE PROPERTY OF WAVERLY WOODS DEVELOPMENT CORPORATION, LIBER 4679, FOLIO 307)
 ZONING: RSC, R-20, AND R-5A-5
 TAX MAP NO. 15 PART OF PARCEL NO. 20
 THIRD ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 DATE: APRIL 13, 2001
 SHEET 8 OF 11