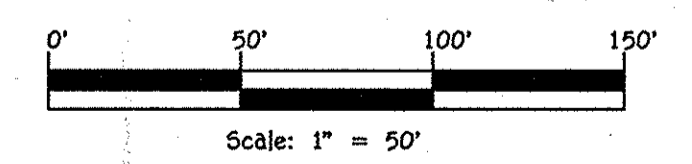


LEGEND	
[Symbol]	EXISTING CONTOUR 2' INTERVAL
[Symbol]	EXISTING CONTOUR 10' INTERVAL
[Symbol]	PROPOSED CONTOUR 10' INTERVAL
[Symbol]	PROPOSED CONTOUR 2' INTERVAL
[Symbol]	SPOT ELEVATION
[Symbol]	PROPOSED STORM DRAIN PIPE
[Symbol]	PROPOSED SEWER
[Symbol]	PROPOSED WATER
[Symbol]	PROPOSED ROAD MIDDING
[Symbol]	BUILDING AND DRIVES TO BE DEMO
[Symbol]	LIMIT OF DISTURBANCE
[Symbol]	SUPER SILT FENCE
[Symbol]	SILT FENCE
[Symbol]	15-24% SLOPES
[Symbol]	25% SLOPES
[Symbol]	100 YEAR FLOODPLAIN
[Symbol]	EXISTING ROAD
[Symbol]	ERODIBLE SOILS
[Symbol]	WETLANDS
[Symbol]	POND SURFACE
[Symbol]	STREAM BUFFER
[Symbol]	DRAINAGE DIVIDE
[Symbol]	DRAINAGE SUB DIVIDE
[Symbol]	DRYWELL (M-5) TYPICAL
[Symbol]	BIO RETENTION FACILITY (F-6) OR (M-6) AS NOTED
[Symbol]	EXISTING TREE
[Symbol]	EXISTING FENCING



EXISTING CONDITIONS & DEMOLITION PLAN

**WARFIELD'S WOODS**  
 LOTS 1 THRU 30 AND  
 OPEN SPACE LOTS 31 THRU 35  
 10501 ROUTE 99  
 ZONED: R-5A-B

PREVIOUS HOWARD COUNTY FILES:  
 SDP-06-08, 594-07, P-95-07, F-95-174, ECP-14-072  
 TAX MAP NO.: 16 GRID NO.: 6 PARCEL NO.: 25  
 THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
 SCALE: AS SHOWN DATE: MARCH, 2016  
 SHEET 2 OF 10 **5P-16-001**

TENTATIVELY APPROVED  
 DEPARTMENT OF PLANNING AND ZONING  
 HOWARD COUNTY

*Naima Jafari*  
 PLANNING DIRECTOR

3-14-16  
 DATE

**OWNER/DEVELOPER**  
 WARFIELD WOODS LLC  
 C/O KENNARD WARFIELD JR  
 14451 TRIADAPHA ROAD  
 PO BOX 30  
 GLENELG, MARYLAND 21737  
 410-442-2337



**PROFESSIONAL CERTIFICATION**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/17.

*Frank J. Hamlansan II*  
 FRANK J. HAMLANSAN II  
 3-3-16  
 DATE

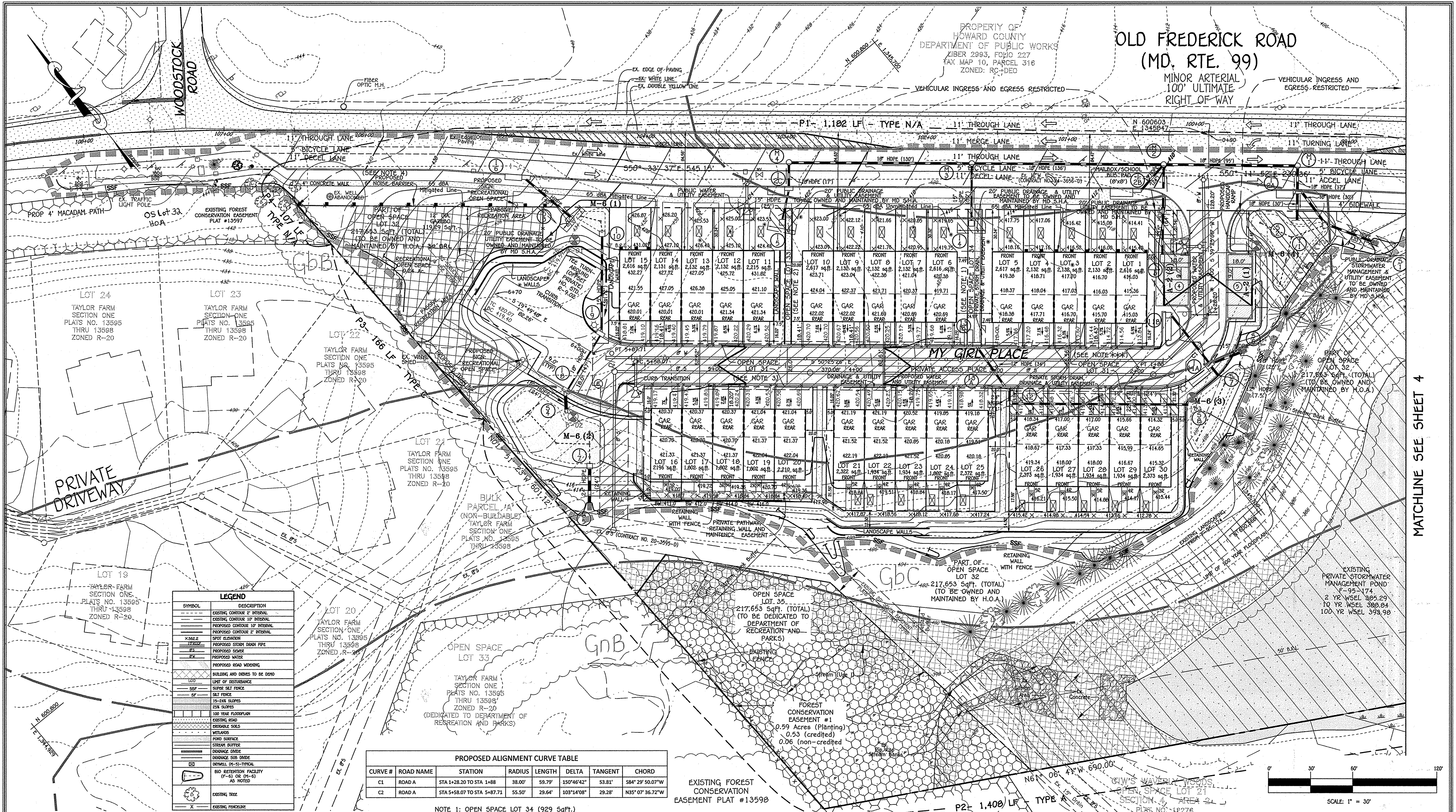
**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895

PROPERTY OF  
HOWARD COUNTY  
DEPARTMENT OF PUBLIC WORKS  
LIBER 2993, FOMD 227  
TAX MAP 10, PARCEL 316  
ZONED: RC-DEG

# OLD FREDERICK ROAD (MD. RTE. 99)

MINOR ARTERIAL  
100' ULTIMATE  
RIGHT OF WAY

VEHICULAR INGRESS AND  
EGRESS RESTRICTED



**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
X 562.2	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED ROAD
---	PROPOSED WATER
---	PROPOSED ROAD WIDENING
---	BUILDING AND DECKS TO BE DEMO
---	LIMIT OF DISTURBANCE
---	SUPER SALT FENCE
---	SALT FENCE
---	15-24% SLOPES
---	24% SLOPES
---	100 YEAR FLOODPLAIN
---	EXISTING ROAD
---	EROSIONABLE SOILS
---	WETLANDS
---	POND SURFACE
---	STREAM BUFFER
---	DRAINAGE DIVIDE
---	DRAINAGE SUB DIVIDE
---	DEWELL (H-3) TYPICAL
---	8'0" RETENTION FACILITY (H-6) OR (H-6) AS NOTED
---	EXISTING TREE
X	EXISTING FENCING

**PROPOSED ALIGNMENT CURVE TABLE**

CURVE #	ROAD NAME	STATION	RADIUS	LENGTH	DELTA	TANGENT	CHORD
C1	ROAD A	STA 1+28.20 TO STA 1+488	38.00'	59.79'	150°46'42"	53.81'	S84°29'50.07"W
C2	ROAD A	STA 5+58.07 TO STA 5+87.71	55.50'	29.64'	103°14'08"	29.28'	N85°07'36.72"W

NOTE 1: OPEN SPACE LOT 34 (929 SqFt.) TO BE OWNED AND MAINTAINED BY THE WARFIELD'S WOOD HOME OWNERS ASSOCIATION.

NOTE 2: OPEN SPACE LOT 33 (486 SqFt.) TO BE OWNED AND MAINTAINED BY THE WARFIELD'S WOOD HOME OWNERS ASSOCIATION.

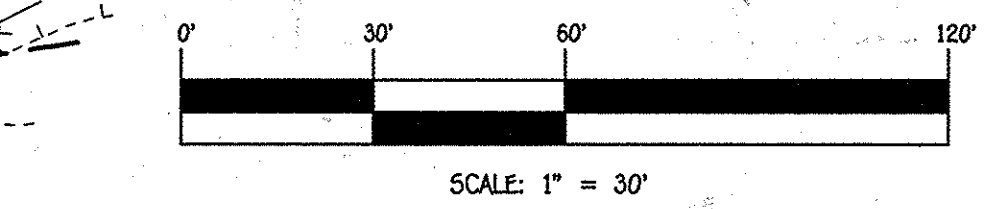
NOTE 3: OPEN SPACE LOT 31 (28,994 SqFt.) TO BE OWNED AND MAINTAINED BY THE WARFIELD'S WOOD HOME OWNERS ASSOCIATION.

NOTE 4: CONSTRUCTION DETAILS RELATING TO NOISE BARRIER WILL BE PROVIDED AT THE FINAL ROAD CONSTRUCTION PLAN STAGE OF THE PROJECT.

**OWNER/DEVELOPER**  
WARFIELD WOODS LLC  
C/O KENNARD WARFIELD JR  
14451 TRIADAPLHIA ROAD  
PO BOX 30  
GLENELG, MARYLAND 21737  
410-442-2337



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*Frank J. Manalansan II*  
FRANK J. MANALANSAN II  
DATE: 3/31/16



PRELIMINARY EQUIVALENT SKETCH PLAN

**WARFIELD'S WOODS**  
LOTS 1 THRU 30 AND  
OPEN SPACE LOTS 31 THRU 35  
10501 ROUTE 99  
ZONED: R-5A-B

PREVIOUS HOWARD COUNTY FILES:  
SOP-06-08, 594-07, P-95-07, F-95-174, ECP-14-072  
TAX MAP NO.: 16 GRID NO.: 6 PARCEL NO.: 25  
THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH, 2016  
SHEET 3 OF 10 5P-16-001

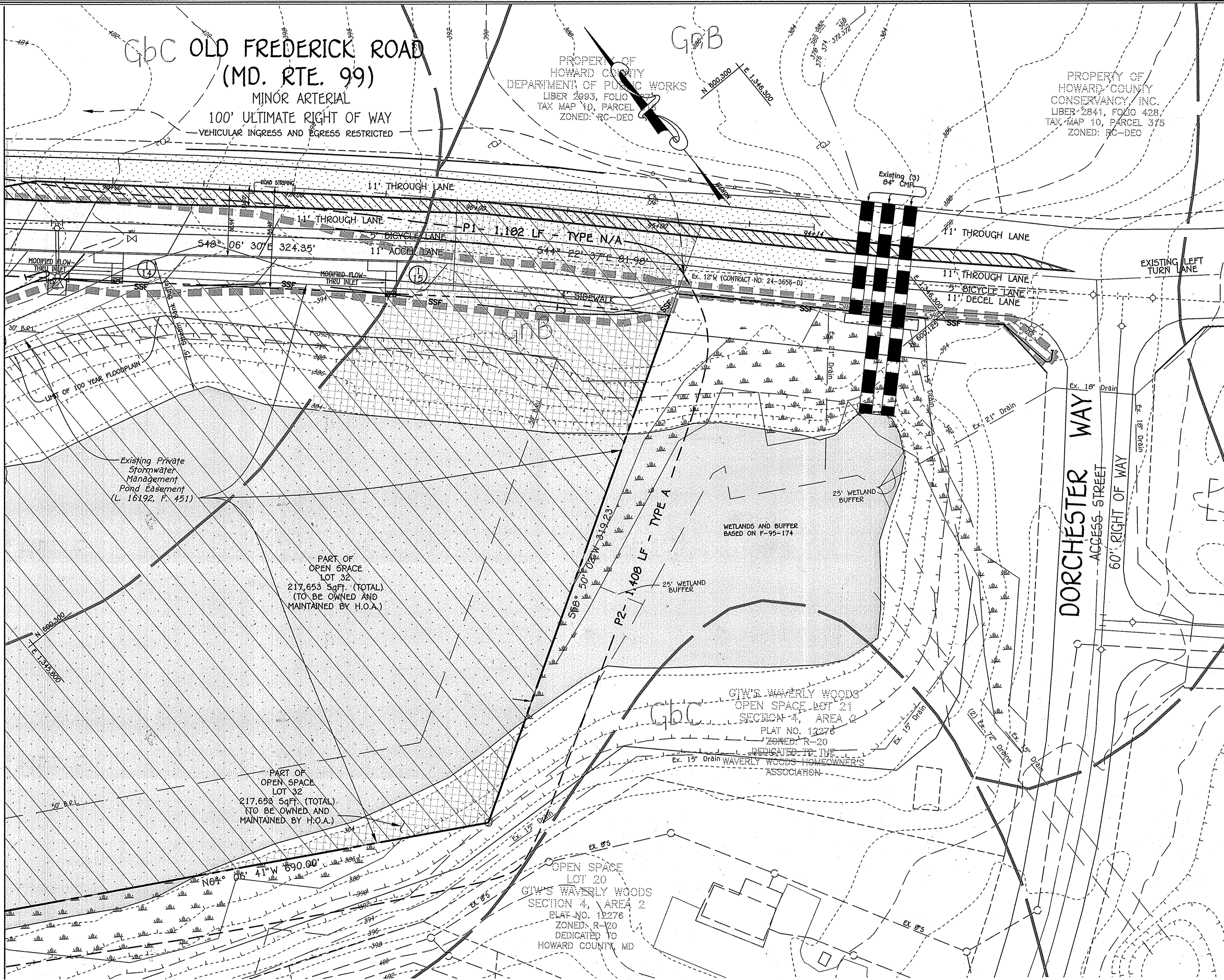
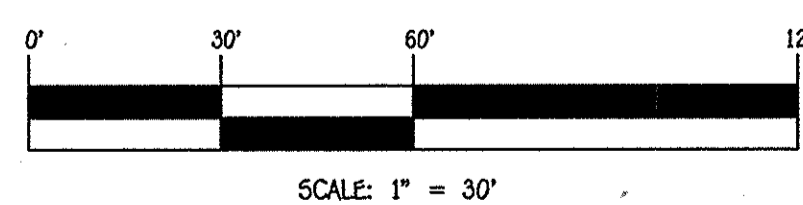
**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 461-2929

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY  
*Valerie J. Klein*  
PLANNING DIRECTOR  
DATE: 3-14-16

MATCHLINE SEE SHEET 4

MATCHLINE SEE SHEET 3

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
K 562.2	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	PROPOSED ROAD WIDENING
---	BUILDING AND DRIVES TO BE DEMO
---	LIMIT OF OBSTRUCTION
---	SUPER SALT FENCE
---	SALT FENCE
---	15-24% SLOPES
---	5% SLOPES
---	100 YEAR FLOODPLAIN
---	EXISTING ROAD
---	ERODIBLE SOILS
---	WETLANDS
---	TOWN SURFACE
---	STREAM BUFFER
---	DRAINAGE DITCH
---	DRAINAGE SUB-DIVIDE
---	DRYWELL (H-2) TYPICAL
---	BIO RETENTION FACILITY (F-5) OR (H-5) AS NOTED
---	EXISTING TREE
X	EXISTING FENCELINE

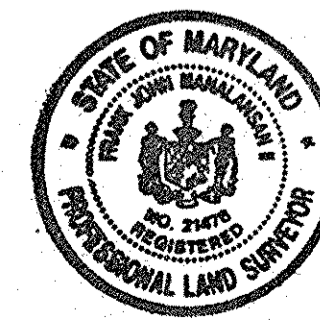


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DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*Natalie Joffin*  
PLANNING DIRECTOR

3-14-16  
DATE

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*Frank J. Havelansky*  
FRANK J. HAVELANSKY  
DATE: 3/13/16

PRELIMINARY EQUIVALENT SKETCH PLAN

**WARFIELD'S WOODS**  
LOTS 1 THRU 30 AND  
OPEN SPACE LOTS 31 THRU 35  
10501 ROUTE 99  
ZONED: R-5A-B

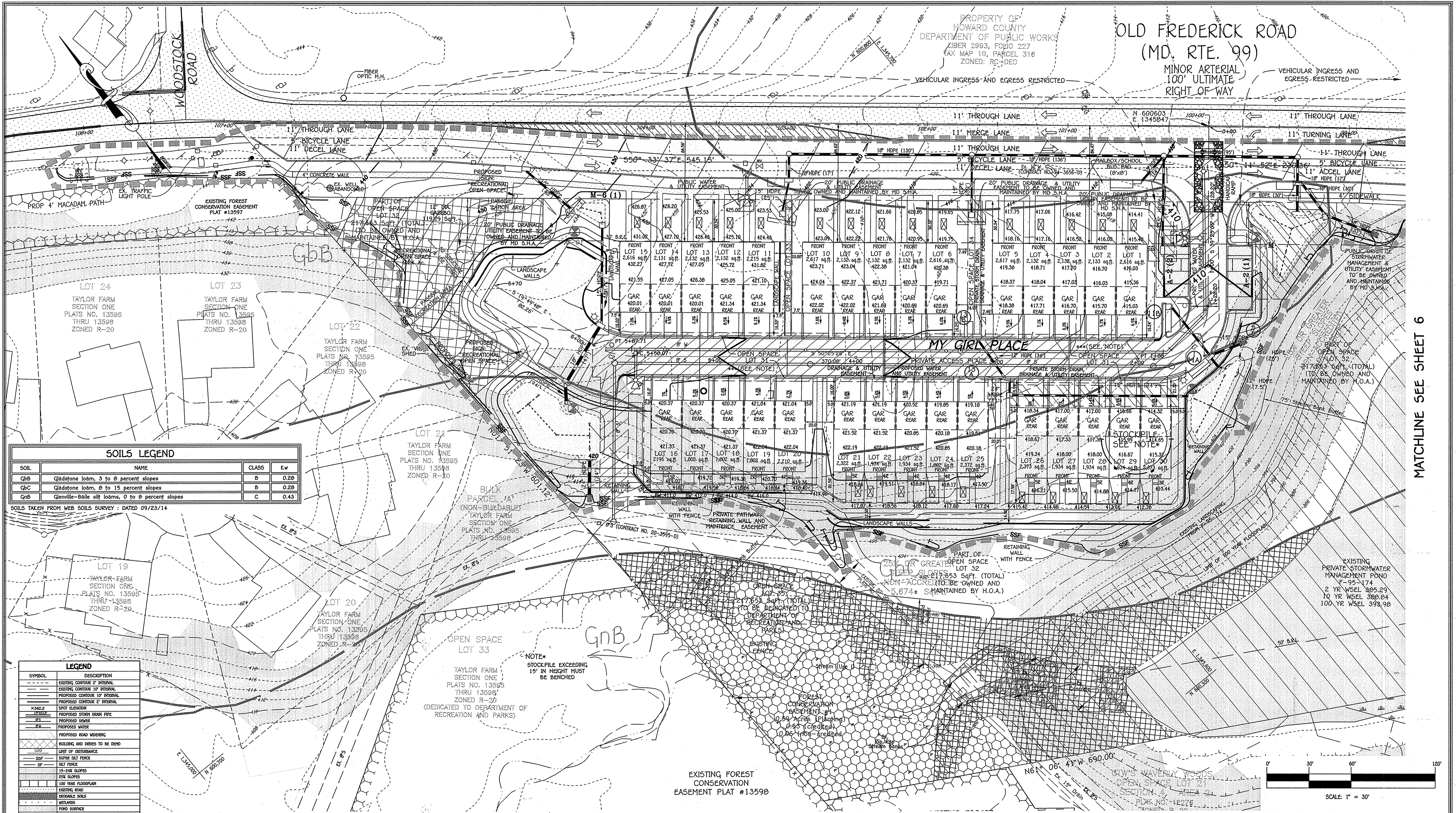
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THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
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SHEET 4 OF 10 5P-16-001

PROPERTY OF  
HOWARD COUNTY  
DEPARTMENT OF PUBLIC WORKS  
ZIBER 2893, FOMO 227  
TAX MAP 10, PARCEL 316  
ZONED: RC-DEC

OLD FREDERICK ROAD  
(MD. RTE. 99)  
MINOR ARTERIAL  
100' ULTIMATE  
RIGHT OF WAY

VEHICULAR INGRESS AND EGRESS RESTRICTED

VEHICULAR INGRESS AND EGRESS RESTRICTED



**SOILS LEGEND**

SOIL	NAME	CLASS	Kw
GbB	Gladstone loam, 3 to 8 percent slopes	B	0.28
GbC	Gladstone loam, 8 to 15 percent slopes	B	0.28
GnB	Glenville-Baile silt loams, 0 to 8 percent slopes	C	0.43

SOILS TAKEN FROM WEB SOILS SURVEY : DATED 09/23/14

**LEGEND**

SYMBOL	DESCRIPTION
(Symbol)	EXISTING CONTOUR 2' INTERVAL
(Symbol)	EXISTING CONTOUR 10' INTERVAL
(Symbol)	PROPOSED CONTOUR 2' INTERVAL
(Symbol)	PROPOSED CONTOUR 10' INTERVAL
(Symbol)	PROPOSED STORM DRAIN PIPE
(Symbol)	PROPOSED SEWER
(Symbol)	PROPOSED WATER
(Symbol)	PROPOSED ROAD WIDENING
(Symbol)	BUILDING AND DRIVES TO BE DEMO
(Symbol)	LIMIT OF DISTURBANCE
(Symbol)	SUPER SILT FENCE
(Symbol)	SET FENCE
(Symbol)	15-24% SLOPES
(Symbol)	25% SLOPES
(Symbol)	100 YEAR FLOODPLAIN
(Symbol)	EXISTING ROAD
(Symbol)	EROSION CONTROL
(Symbol)	NETLANDS
(Symbol)	POND SURFACE
(Symbol)	STREAM BUFFER
(Symbol)	DRAINAGE DITCH
(Symbol)	ORANGE SUB DRAIN
(Symbol)	ORWELL (H-3)-TYPICAL
(Symbol)	810 RETENTION FACILITY (F-6) OR (H-6) AS NOTED
(Symbol)	EXISTING TREE
(Symbol)	EXISTING FENCING

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*Nadine Joffe*  
PLANNING DIRECTOR

3-14-14  
DATE

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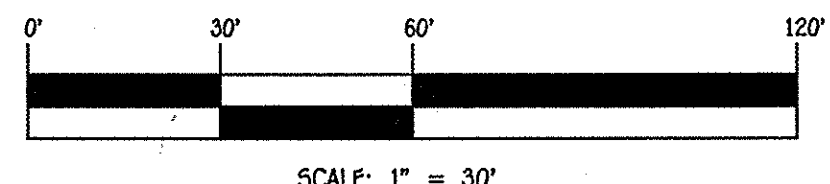
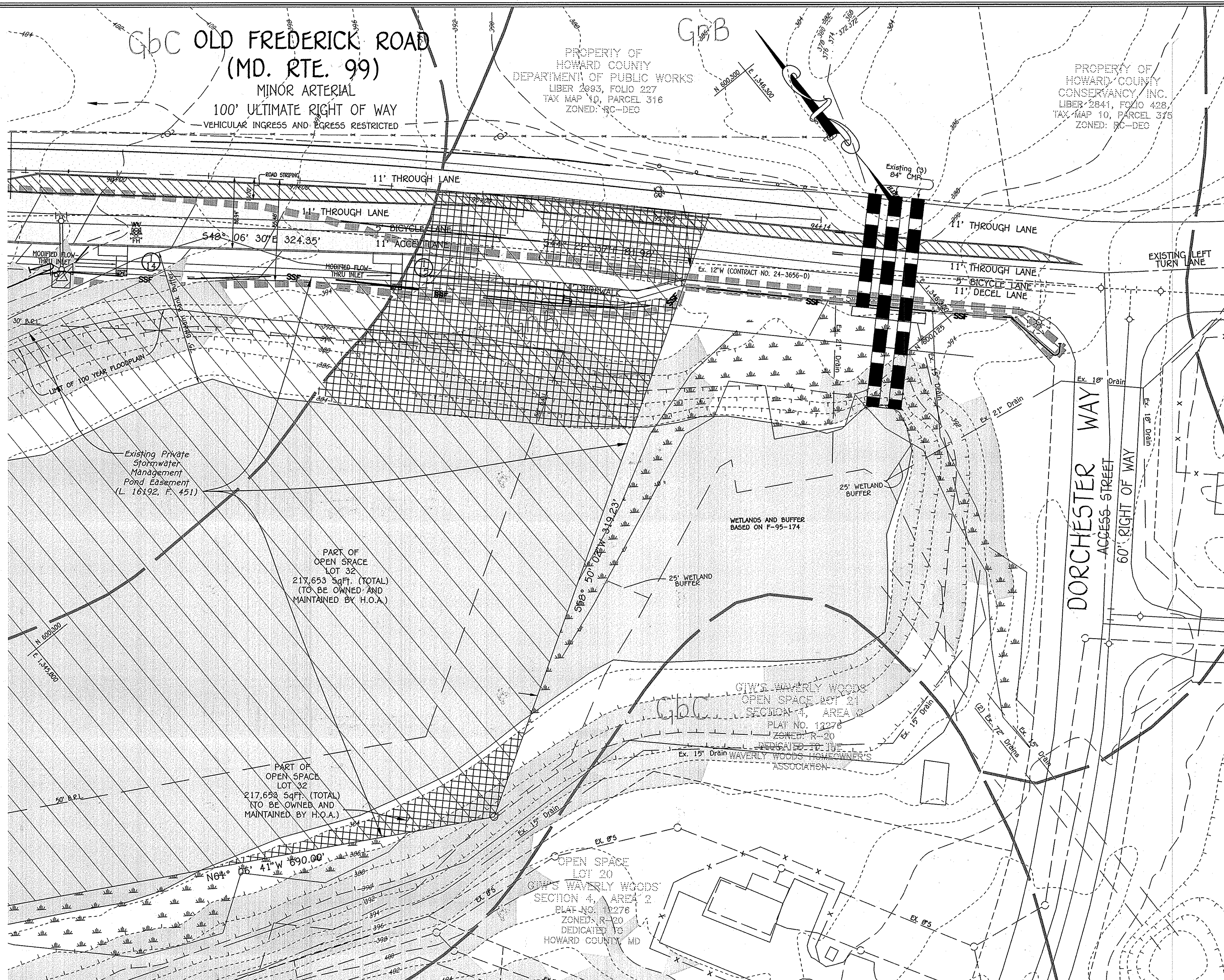
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*Frank J. Manalansan II*  
FRANK J. MANALANSAN II  
DATE: 3/3/16

PRELIMINARY SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP  
**WARFIELD'S WOODS**  
LOTS 1 THRU 30 AND  
OPEN SPACE LOTS 31 THRU 35  
10501 ROUTE 99  
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THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH, 2016  
SHEET 5 OF 10 5P-16-001

MATCHLINE SEE SHEET 6

MATCHLINE SEE SHEET 5



LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
X-362.2	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	PROPOSED ROAD WEARING SURFACE
---	BUILDING AND DRIVES TO BE DEMOLISHED
---	LINE OF DISTURBANCE
---	SUPER SILT FENCE
---	SILT FENCE
---	15-24% SLOPES
---	25% SLOPES
---	100 YEAR FLOODPLAIN
---	EXISTING ROAD
---	ERODIBLE SOILS
---	WETLANDS
---	POND SURFACE
---	STREAM BUFFER
---	DRAINAGE DITCH
---	DRAINAGE SUB DITCH
---	DEWELL (H-3)-TYPICAL
---	BIO RETENTION FACILITY (P-6) OR (H-6) AS NOTED
---	EXISTING TREE
X	EXISTING FENCING

PRELIMINARY SEDIMENT AND EROSION CONTROL PLAN AND SOILS MAP

**WARFIELD'S WOODS**

LOTS 1 THRU 30 AND  
OPEN SPACE LOTS 31 THRU 35  
10501 ROUTE 99  
ZONED: R-5A-B

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THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH, 2016  
SHEET 6 OF 10 **5P-16-001**

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*Nash J. Hanulansan II*  
PLANNING DIRECTOR

3-14-16  
DATE

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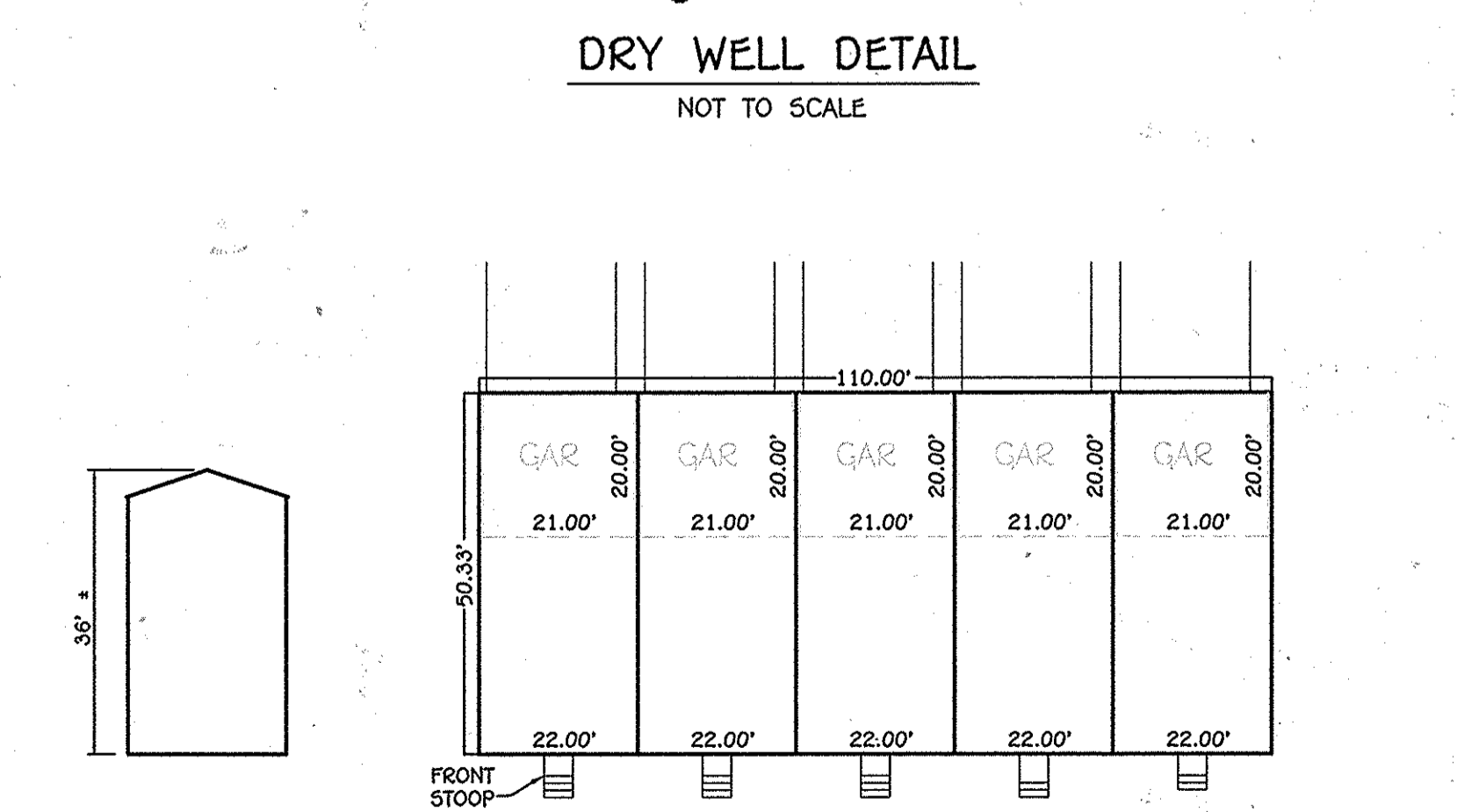
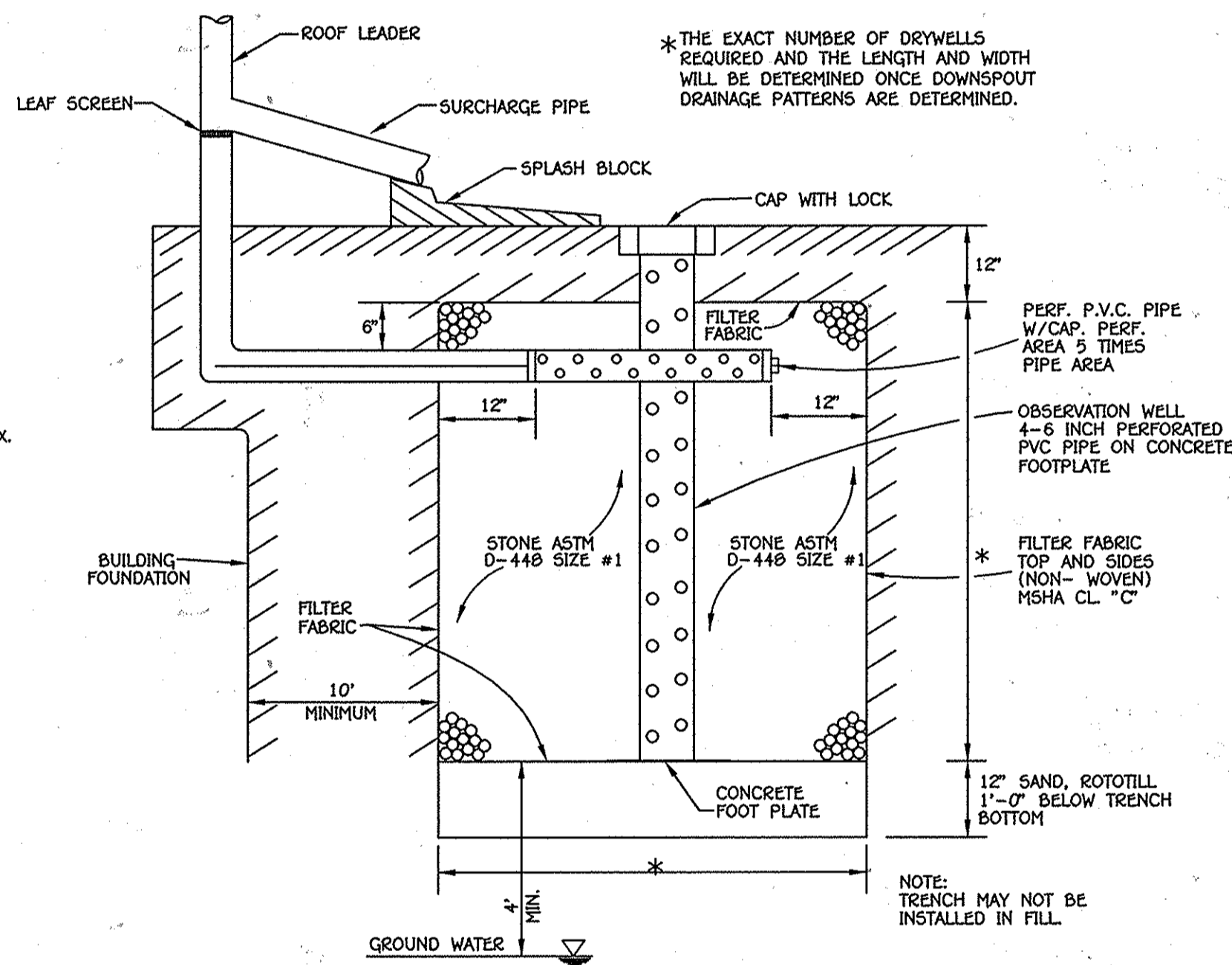
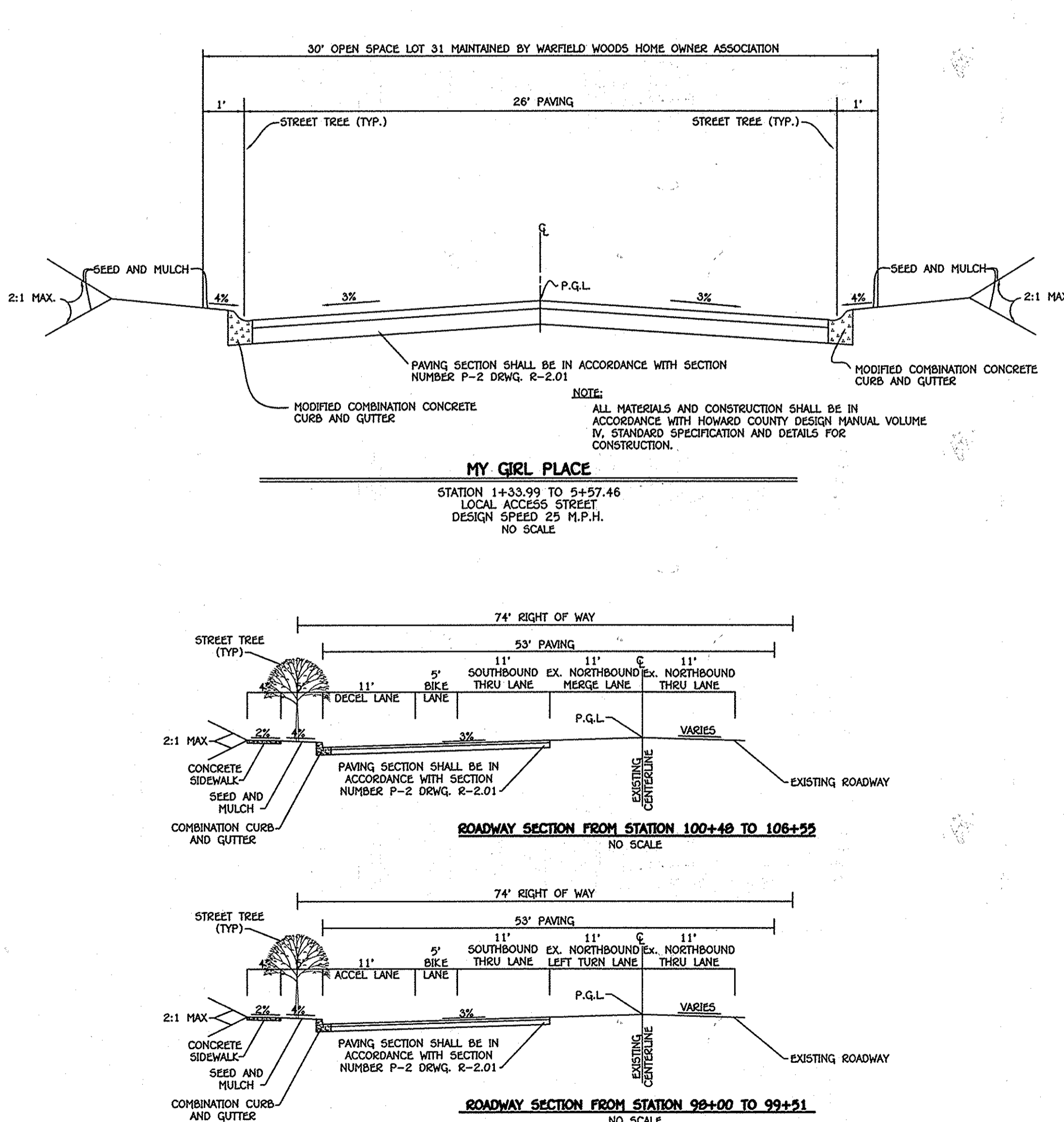
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*Frank J. Hanulansan II*  
FRANK J. HANULANSAN II  
3-3-16  
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**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
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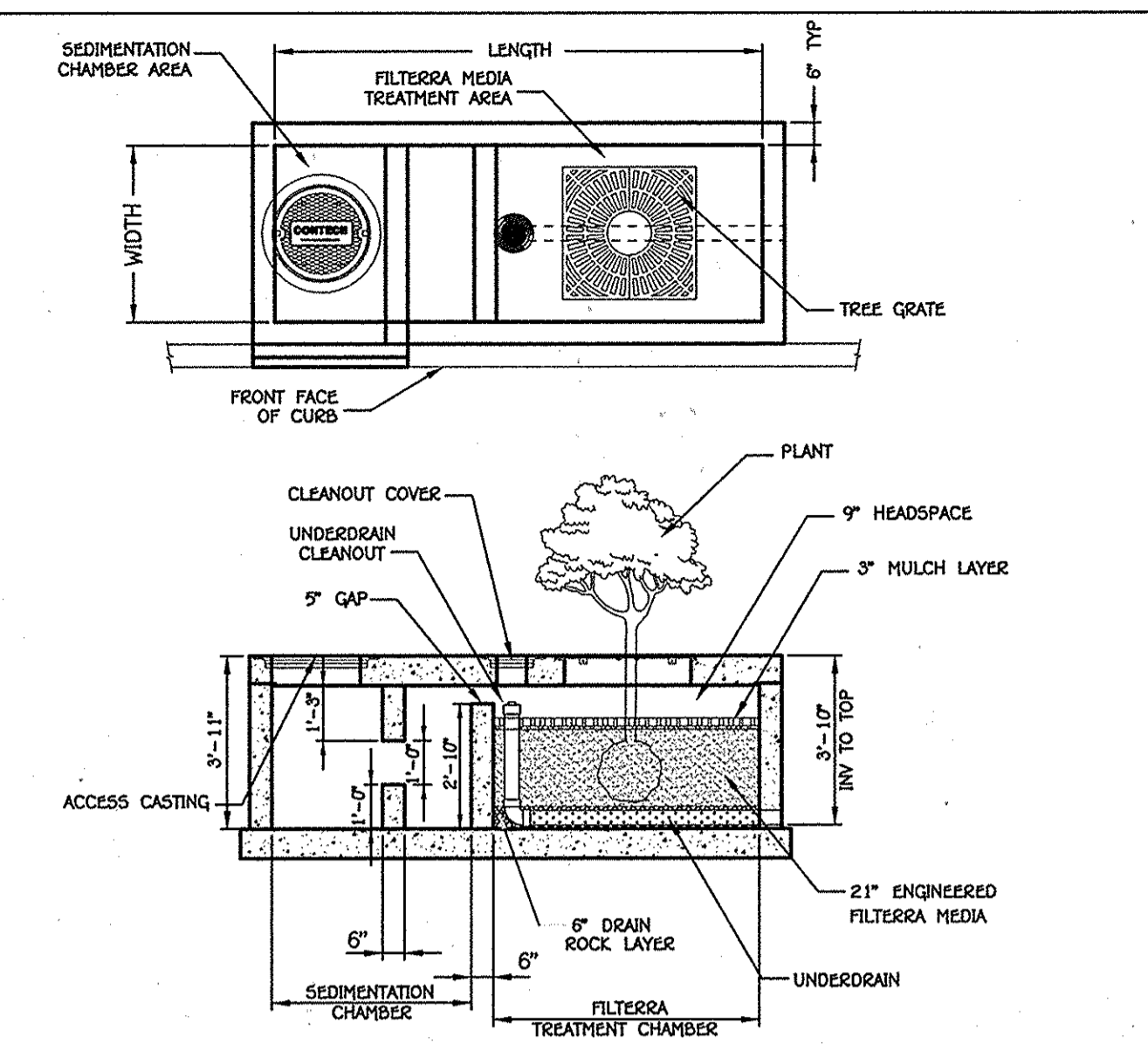
**STORMWATER MANAGEMENT PRACTICES**

AREA ID	DRAINAGE AREA	SUB AREA (FILTERRA INLET)	% IMPERVIOUS	ESDV REQUIRED CUFT.	ESDV PROVIDED CUFT.	DISCONNECTION OF ROOFTOP RUNOFF (Y/N)	DISCONNECTION OF NON-ROOFTOP RUNOFF (Y/N)	DRY WELLS (Y/N)	BIO-RETENTION (Y/N)	BIO-RETENTION (Y/N)	GRASS SWALE (NUMBER)	PERMEABLE (Y/N)
LOT 1	510		100%	79	85							
LOT 2	510		100%	79	85							
LOT 3	510		100%	79	85		Y					
LOT 4	510		100%	79	85			Y				
LOT 5	510		100%	79	85			Y				
LOT 6	510		100%	79	85			Y				
LOT 7	510		100%	79	85			Y				
LOT 8	510		100%	79	85			Y				
LOT 9	510		100%	79	85			Y				
LOT 10	510		100%	79	85			Y				
LOT 11	510		100%	79	85			Y				
LOT 12	510		100%	79	85			Y				
LOT 13	510		100%	79	85			Y				
LOT 14	510		100%	79	85			Y				
LOT 15	510		100%	79	85			Y				
LOT 21	550		100%	79	85			Y				
LOT 22	550		100%	79	85			Y				
LOT 23	550		100%	79	85			Y				
LOT 24	550		100%	79	85			Y				
LOT 25	550		100%	79	85			Y				
LOT 26	550		100%	79	85			Y				
LOT 27	550		100%	79	85			Y				
LOT 28	550		100%	79	85			Y				
LOT 29	550		100%	79	85			Y				
LOT 30	550		100%	79	85			Y				
A-2 (1)	1,727		100%	295 (STORAGE)	295 (STORAGE)							Y
A-2 (2)	2,006		100%	325 (STORAGE)	325 (STORAGE)							Y
M-6 (1)									Y			
INITIAL 1" Pe TREATED BY THREE FILTERRA INLETS REMAINING Pe IN BIO-RETENTION FACILITY	4,939	I-6	100%	98.00 (STORAGE)	98.00 (STORAGE)							
	6,456 (TOTAL)		76%	238.00 (STORAGE)	294.00 (STORAGE)							
				336.00 (STORAGE)	392.00 (STORAGE)							
M-6 (2)	14,246	14,246	31%	471.19 (STORAGE)	930 (STORAGE)				Y			
F-6 (3)										Y		
INITIAL 1" Pe TREATED BY THREE FILTERRA INLETS REMAINING Pe IN BIO-RETENTION FACILITY	10,032	I-11A	68%	137.48 (STORAGE)	137.48 (STORAGE)							
	7,058	I-11B	89%	124.93 (STORAGE)	124.93 (STORAGE)							
	6,984	I-13A	89%	123.94 (STORAGE)	123.94 (STORAGE)							
	7,135	I-13B	82%	117.61 (STORAGE)	117.61 (STORAGE)							
	36,812 (TOTAL)		50%	928 (STORAGE)	1,195 (STORAGE)							
				1,431.86 (STORAGE)	1,698.86 (STORAGE)				Y			
F-6 (4)												
INITIAL 1" Pe TREATED BY THREE FILTERRA INLETS REMAINING Pe IN BIO-RETENTION FACILITY	6,579	I-2A	100%	130.21 (STORAGE)	130.21 (STORAGE)							
	7,352	I-2C	100%	145.51 (STORAGE)	145.51 (STORAGE)							
	46,907 (TOTAL)		57%	1,312.47 (STORAGE)	1,709 (STORAGE)							
				1,688.19 (STORAGE)	1,994.72 (STORAGE)							
I-1	5,719	Y	100%	113.18 (STORAGE)	113.18 (STORAGE)							
I-2	5,267	Y	100%	104.24 (STORAGE)	104.24 (STORAGE)							



**FILTERRA STANDARD PLAN NOTES**

- Construction & Installation**
- A. Each unit shall be constructed at the locations and elevations according to the sizes shown on the approved drawings. Any modifications to the elevation or location shall be at the direction of and approved by the Engineer.
  - B. If the Filterra is stored before installation, the top slab must be placed on the box using the 2x4 wood provided, to prevent any contamination from the site. All internal fittings supplied (if any), must be left in place as per the delivery.
  - C. The unit shall be placed on a compacted sub-grade with a minimum 6-inch gravel base matching the final grade of the curb line in the area of the unit. The unit is to be placed such that the unit and top slab match the grade of the curb in the area of the unit. Compact undisturbed sub-grade materials to 95% of maximum density at +/- 2% of optimum moisture. Unsuitable material below sub-grade shall be replaced to the site engineer's approval.
  - D. Outlet connections shall be aligned and sealed to meet the approved drawings with modifications necessary to meet site conditions and local regulations.
  - E. Once the unit is set, the internal wooden forms and protective mesh cover must be left intact. Remove only the temporary wooden shipping blocks between the box and top slab. The top lid should be sealed onto the box section before backfilling, using a non-shrink grout, butyl rubber or similar waterproof seal. The boards on top of the lid and boards sealed in the unit's throat must NOT be removed. The Supplier (America) or its authorized dealer will remove these sections at the time of activation. Backfilling should be performed in a careful manner, bringing the appropriate fill material up in 6" lifts on all sides. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Filterra unit shall conform to ASTM specification C891 "Standard Practice for Installation of Underground Precast Utility Structures", unless directed otherwise in contract documents.
  - F. The contractor is responsible for inlet protection/sediment control and cleaning around each Filterra unit.
  - G. Curb and gutter construction (where present) shall ensure that the flow-line of the Filterra units is at a greater elevation than the flow-line of the bypass structure or relief (drop inlet, curb cut or similar). Failure to comply with this guideline may cause failure and/or damage to the Filterra environmental device.
  - H. Each Filterra unit must receive adequate irrigation to ensure survival of the living system during periods of drier weather. This may be achieved through a piped system, gutter flow or through the tree grate.
- Activation**
- A. Activation of the Filterra unit is performed ONLY by the Supplier. Purchaser is responsible for Filterra inlet protection and subsequent clean out cost. This process cannot commence until the project site is fully stabilized and cleaned (full landscaping, grass cover, final paving and street sweeping completed), negating the chance of construction materials contaminating the Filterra system. Care shall be taken during construction not to damage the protective throat and top plates.
  - B. Activation includes installation of plant(s) and mulch layers as necessary.

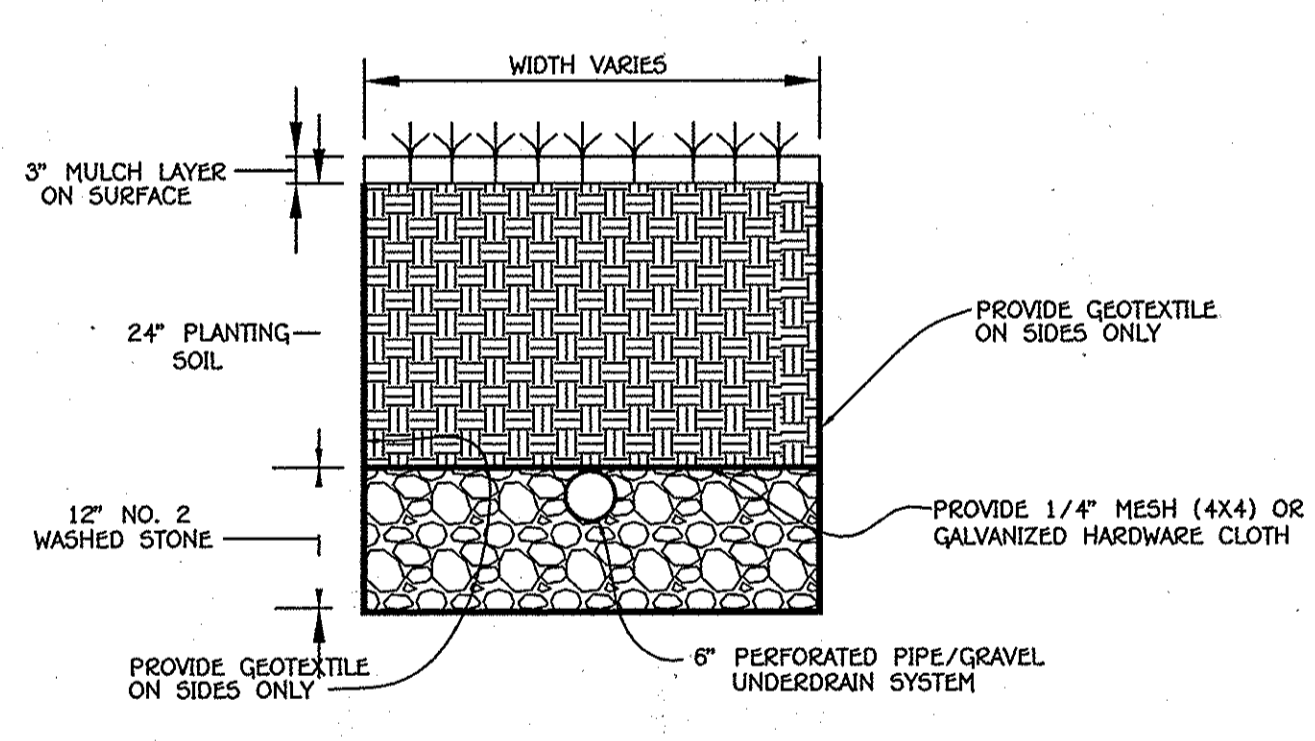


UNIT DESIGNATION	INSIDE VAULT DIMENSIONS	FILTERRA TREATMENT AREA	MAXIMUM DRAINAGE AREA TREATED (SF)	WV STORAGE CAPACITY (CF)
FTSC 6' x 4'	12' x 4'	8' x 4'	5,216	103
FTSC 8' x 4'	16' x 4'	8' x 4'	7,141	141
FTSC 6' x 6'	12' x 6'	6' x 6'	7,847	155
FTSC 8' x 6'	16' x 6'	6' x 6'	10,734	212
FTSC 10' x 6'	19' x 6'	10' x 6'	12,638	250
FTSC 10' x 8'	20' x 8'	10' x 8'	18,178	360
FTSC 11' x 8'	22' x 8'	11' x 8'	20,000	398

- NOTE:**
- MAXIMUM DRAINAGE AREA TREATED ASSUMES 25% WV AND FILTER SURFACE AREA REQUIREMENTS ARE BOTH MET.
  - STORAGE CAPACITY ASSUMES 40% VOIDS IN UNDERDRAIN STONE AND 30% VOIDS IN MULCH AND MEDIA.
  - ALL INFORMATION IS BASED ON STANDARD 3" 8" RIM TO OUTLET DEPTH. CONTACT CONTECH FOR CUSTOM SIZING IF DEPTH IS NOT 3.83". ACCEPTABLE DEPTH IS 3.33" MIN. TO 5.00" MAX. RIM TO INVERT OUT.

**CONTECH ENGINEERED SOLUTIONS LLC**  
www.conteches.com  
429 Newkirk Blvd, Suite 111, Baltimore, MD 21208  
410-528-1000 FAX: 410-528-1011 FAX

**FILTERRA WITH SEDIMENTATION CHAMBER**



**TYPICAL SECTION - BIO-RETENTION FACILITY (M-6)**  
NO SCALE

- MICRO-BIORETENTION (M-6) OPERATION & MAINTENANCE SCHEDULE**
- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING.
  - SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION. CONSIDER BEYOND TREATMENT. TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAGES AND WIRDS.
  - MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PROXIMAL MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
  - SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

**DESIGN GUIDELINES FOR USING FILTERRA**

- Do not place in a sump condition. The standard Filterra cannot be used as a stand alone inlet - it will need effective bypass during high intensity rainfall events. For sump conditions please contact Filterra.
- Plans MUST show Filterra Top Curb (TC) and Flow Line (FL) spot elevations and also bypass TC (where applicable) and bypass FL spot elevations. The Filterra TC and FL elevations MUST be higher than the bypass TC and FL elevations for effective bypass. Use Drawing FLP-2 (p.24) as a detail on the project plans.
- For proper trash collection ensure a minimum 4" and maximum 6" Filterra throat opening depth and use Drawing CGT-5 (p.25) as a detail on the project plans.
- Do not direct surface flow to the standard Filterra in a "head-on" configuration. Refer to Guidelines GUT-1 (p.13) and GUT-2 (p.18) for grading design that encourages flow to enter a Filterra in a cross linear flow -left-to-right or right-to-left in the gutter in front of the throat, as per a wet curb which prevents system damage. During extreme storm events the excess flow should continue past the Filterra to a bypass inlet or other means of relief. Guideline GUS, Parking Lot Corners, shows common situations (p.15).
- To calculate which size Filterra is required, use Table 1, Filterra Quick Sizing Table, appropriate to the project's geographical region and target treatment regime (p.12). The entire contributing drainage area to the Filterra should be considered and the minimum allowable C factors noted. The maximum contributing drainage area will vary with site conditions, for further information resulting to sizing please contact Filterra.
- To ensure correct installation, include the Standard Filterra Plan Notes (p.26-27) on your Filterra detail project sheet, as well as detailed drawings FLP-2 and CGT-5 (p.24,25).
- Positive drainage of each Filterra unit's effluent treatment pipe is required to prevent free standing water from accumulating in the system or underdrain. This could occur due to tidal influences or improper connection of Filterra's effluent pipe to a bypass structure or other outlet.

**DETAIL SHEET**

**WARFIELD'S WOODS**  
LOTS 1 THRU 30 AND  
OPEN SPACE LOTS 31 THRU 35  
10501 ROUTE 99  
ZONED: R-SA-B  
PREVIOUS HOWARD COUNTY FILES:  
SDP-06-08, 594-07, P-95-07, F-95-174, ECP-14-072  
TAX MAP NO.: 16 GRID NO.: 6 PARCEL NO.: 25  
THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH, 2016  
SHEET 7 OF 10 **5P-16-001**

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 1272 BALDORNE NATIONAL PARK  
ELLIOTT CITY, MARYLAND 21042  
(410) 461 - 2899

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*Valerie J. Pappas*  
PLANNING DIRECTOR

3-14-16  
DATE

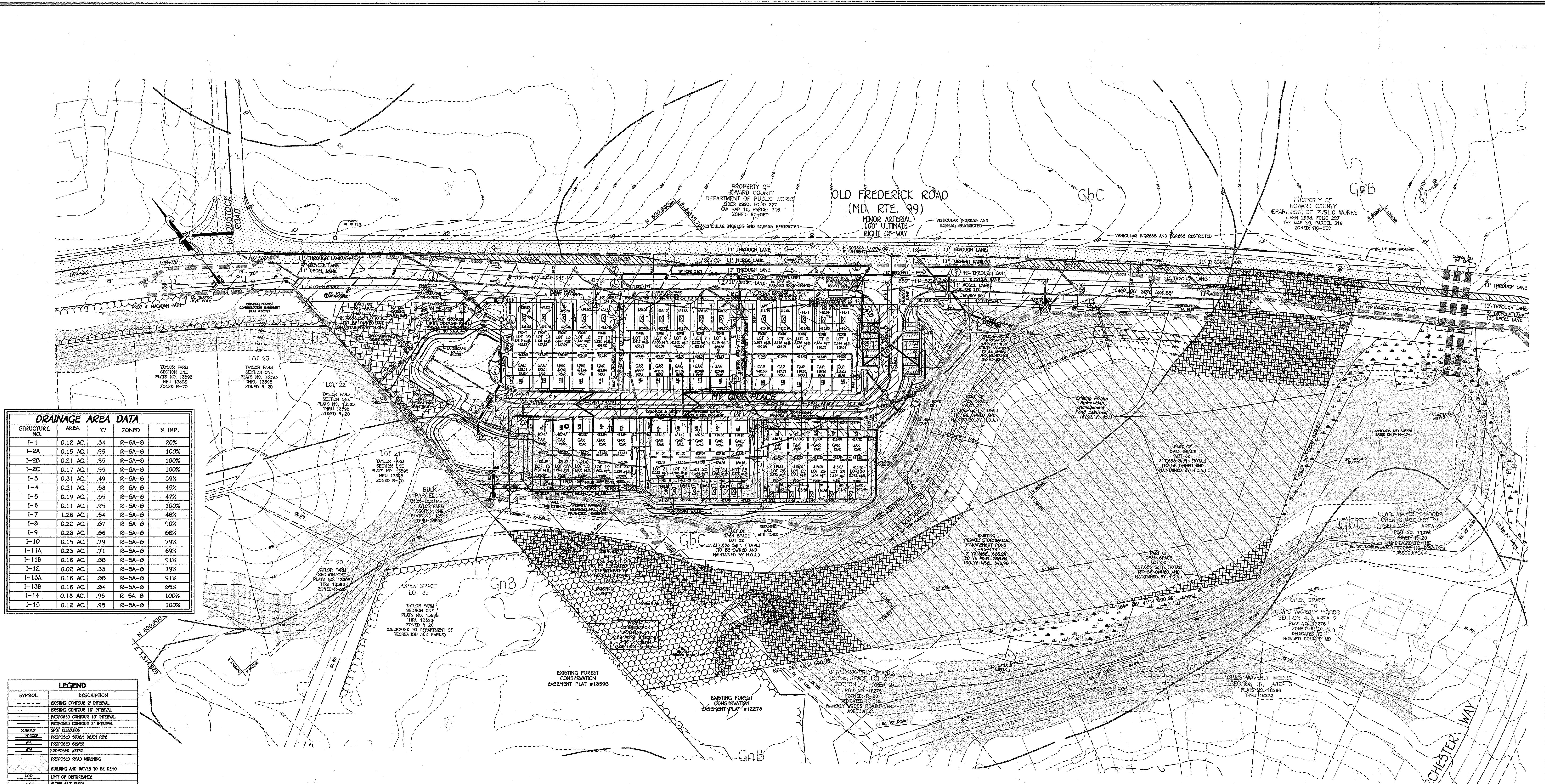
**OWNER/DEVELOPER**  
WARFIELD WOODS LLC  
C/O KENNARD WARFIELD JR  
14451 TRADAPHIA ROAD  
PO BOX 30  
GLENELG, MARYLAND 21737  
410-442-2337



**PROFESSIONAL CERTIFICATION**

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL SURVEYOR UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 21476, EXPIRATION DATE: 7/14/17.

*Frank J. Manalansan II*  
FRANK J. MANALANSAN II  
3/16/16  
DATE



**DRAINAGE AREA DATA**

STRUCTURE NO.	AREA	C'	ZONED	% IMP.
I-1	0.12 AC.	.34	R-SA-B	20%
I-2A	0.15 AC.	.95	R-SA-B	100%
I-2B	0.21 AC.	.95	R-SA-B	100%
I-2C	0.17 AC.	.95	R-SA-B	100%
I-3	0.31 AC.	.49	R-SA-B	39%
I-4	0.21 AC.	.53	R-SA-B	45%
I-5	0.19 AC.	.55	R-SA-B	47%
I-6	0.11 AC.	.95	R-SA-B	100%
I-7	1.26 AC.	.54	R-SA-B	46%
I-8	0.22 AC.	.87	R-SA-B	90%
I-9	0.23 AC.	.86	R-SA-B	80%
I-10	0.15 AC.	.79	R-SA-B	79%
I-11A	0.23 AC.	.71	R-SA-B	69%
I-11B	0.16 AC.	.80	R-SA-B	91%
I-12	0.02 AC.	.33	R-SA-B	19%
I-13A	0.16 AC.	.80	R-SA-B	91%
I-13B	0.16 AC.	.84	R-SA-B	85%
I-14	0.13 AC.	.95	R-SA-B	100%
I-15	0.12 AC.	.95	R-SA-B	100%

**LEGEND**

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	PROPOSED ROAD WEAVING
---	BUILDING AND DRIVE TO BE DEMO
---	LIMIT OF DISTURBANCE
---	SURFS SET FENCE
---	SILT FENCE
---	15-24% SLOPES
---	25% SLOPES
---	100 YEAR FLOODPLAIN
---	EXISTING ROAD
---	ERODIBLE SOILS
---	WETLANDS
---	POND SURFACE
---	STREAM BUFFER
---	DRAINAGE DITCH
---	DRAINAGE SUB DITCH
---	DRYWELL (H-5)-TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (H-6) AS NOTED
---	EXISTING TREE
---	EXISTING FENCELINE

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*Valerie J. Joffe*  
PLANNING DIRECTOR

3-16-16  
DATE

**OWNER/DEVELOPER**  
WARFIELD WOODS LLC  
C/O KENNARD WARFIELD JR  
14451 TRIADAPLHA ROAD  
PO BOX 30  
GLENELG, MARYLAND 21737  
410-442-2337



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*Frank J. Manalansan II*  
FRANK J. MANALANSAN II  
DATE: 3/1/16

0' 50' 100' 200'

SCALE: 1" = 50'

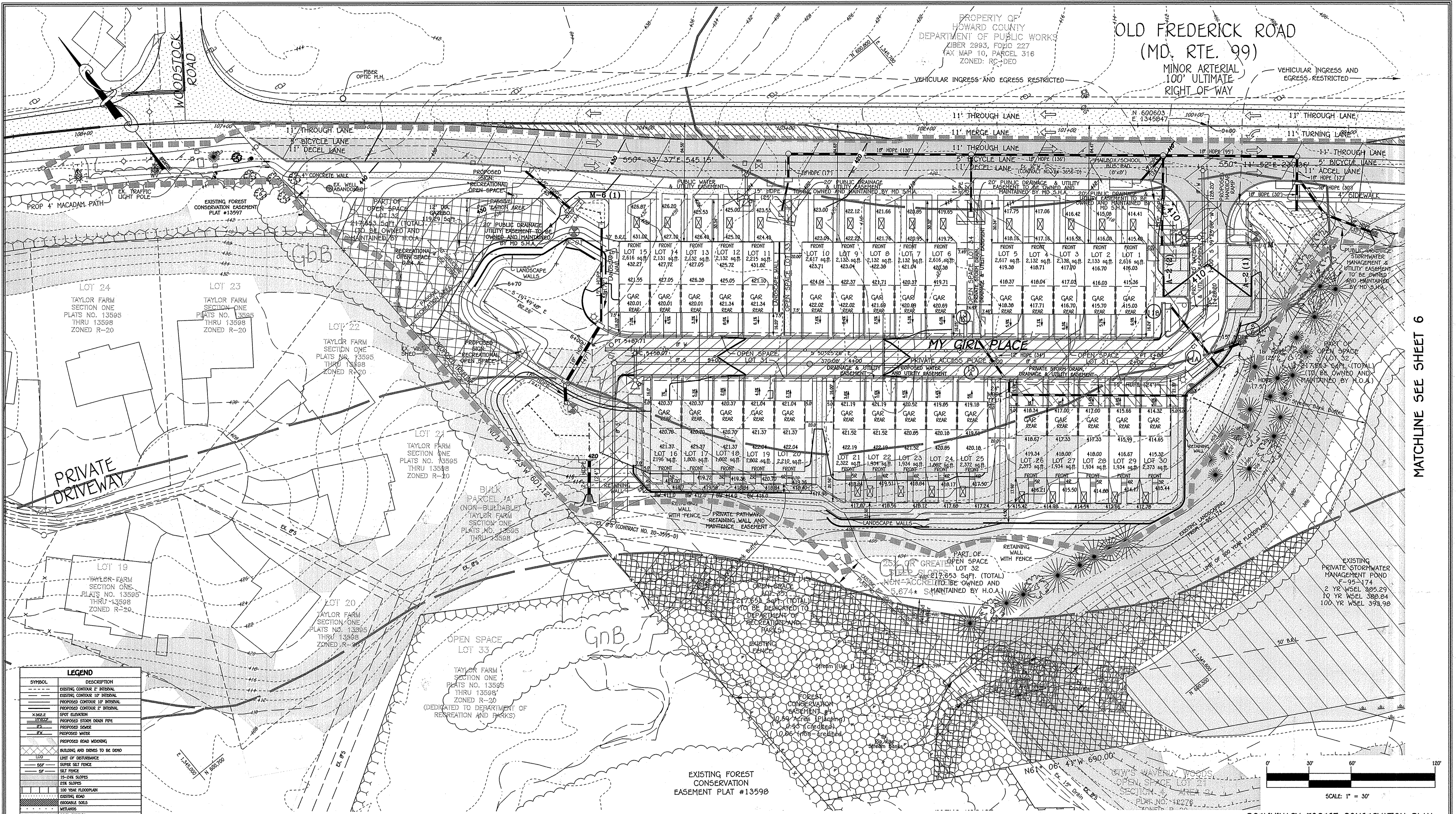
**PRELIMINARY STORM DRAIN DRAINAGE AREA MAP**  
**WARFIELD'S WOODS**  
LOTS 1 THRU 30 AND  
OPEN SPACE LOTS 31 THRU 35  
10501 ROUTE 99  
ZONED: R-SA-B  
PREVIOUS HOWARD COUNTY FILES:  
SDP-06-08, 594-07, P-95-07, F-95-174, ECP-14-072  
TAX MAP NO.: 16 GRID NO.: 6 PARCEL NO.: 25  
THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
SCALE: AS SHOWN DATE: MARCH, 2016  
SHEET 8 OF 10 5P-16-001

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLSWORTH CITY, MARYLAND 21042  
(410) 651-3999



PROPERTY OF  
HOWARD COUNTY  
DEPARTMENT OF PUBLIC WORKS  
ZIBER 2993, FOMO 227  
TAX MAP 10, PARCEL 316  
ZONED: RC-DEO

OLD FREDERICK ROAD  
(MD. RTE. 99)  
MINOR ARTERIAL  
100' ULTIMATE  
RIGHT OF WAY



MATCHLINE SEE SHEET 6

SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
•	SPOT ELEVATION
---	PROPOSED STORM DRAIN PIPE
---	PROPOSED SEWER
---	PROPOSED WATER
---	PROPOSED ROAD WIDENING
---	BUILDING AND DRIVES TO BE DEMO
---	LIST OF DISTURBANCE
---	SURVEY BOUNDARY
---	SILT FENCE
---	15-24% SLOPES
---	25% SLOPES
---	100 YEAR FLOODPLAIN
---	EXISTING ROAD
---	DESIRABLE SOILS
---	WETLANDS
---	POND SURFACE
---	STREAM BUFFER
---	DRAINAGE DITCH
---	DRAINAGE SUB DITCH
---	DEWELL (H-9)-TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (H-6) AS NOTED
---	EXISTING TREE
---	EXISTING FENCING

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*Nancy Jaffee*  
PLANNING DIRECTOR

3-14-10  
DATE

Wetland Descriptions		
WETLAND SYMBOL	COWARDIN SYMBOL	DOMINANT VEGETATION
A	PEM1C-R3UB1	Juncus Effusus, Symplocarpus, Foetidus, Scirpus cyperinus, Salix nigra

OWNER/DEVELOPER  
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C/O KENNARD WARFIELD JR  
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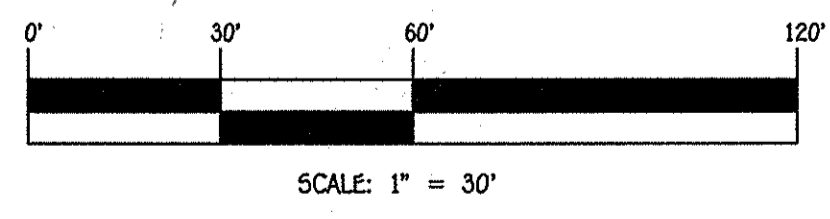
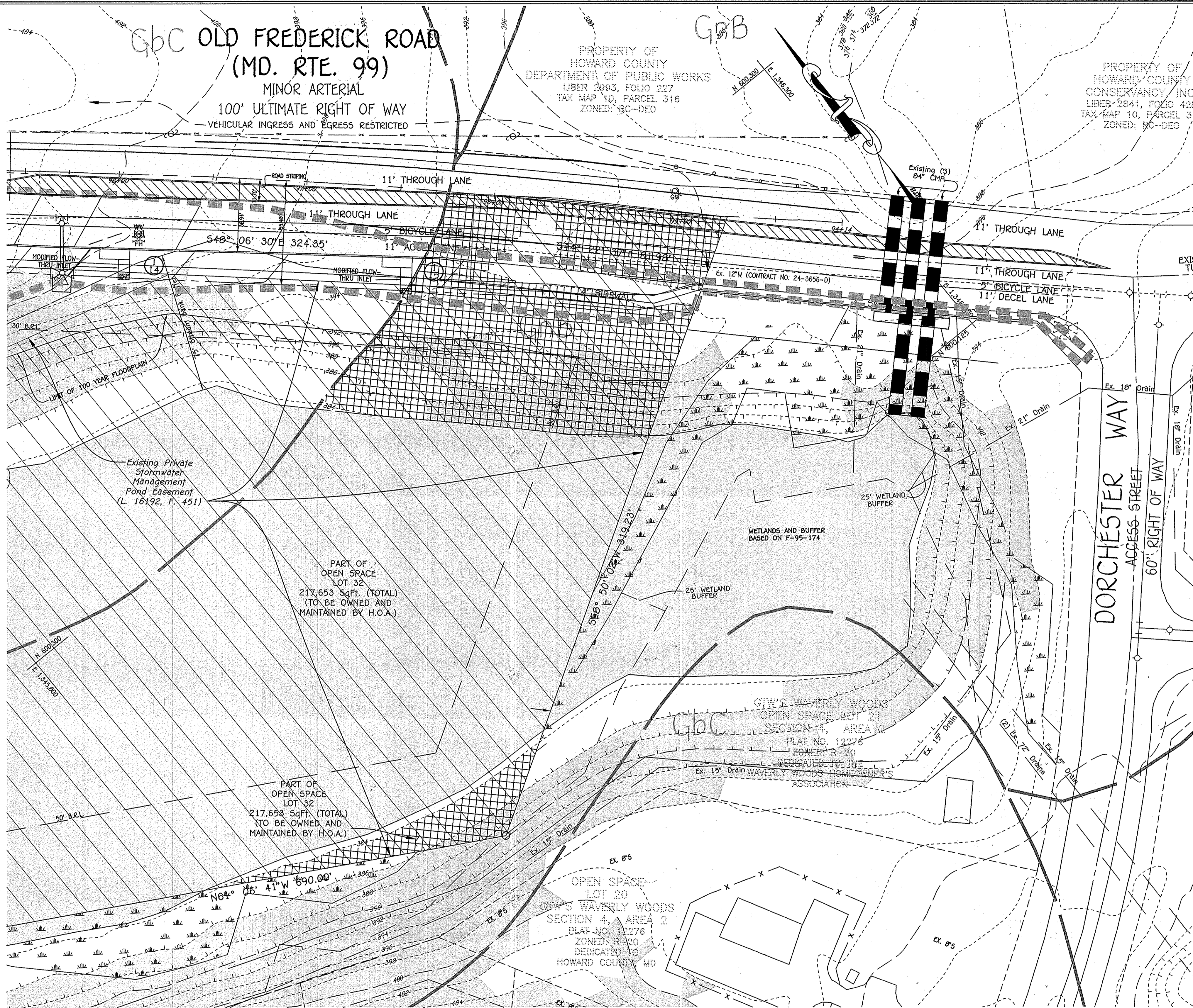
*Frank J. Hamlanson*  
FRANK J. HAMLANSON II  
DATE: 3/11/10

PRELIMINARY FOREST CONSERVATION PLAN

**WARFIELD'S WOODS**  
LOTS 1 THRU 30 AND  
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10501 ROUTE 99  
ZONED: R-5A-B  
PREVIOUS HOWARD COUNTY FILES:  
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THIRD ELECTION DISTRICT, HOWARD COUNTY, MARYLAND  
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SHEET 9 OF 10 5P-16-001

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ELCOTT CITY, MARYLAND 21042  
(410) 461-2955

MATCHLINE SEE SHEET 5

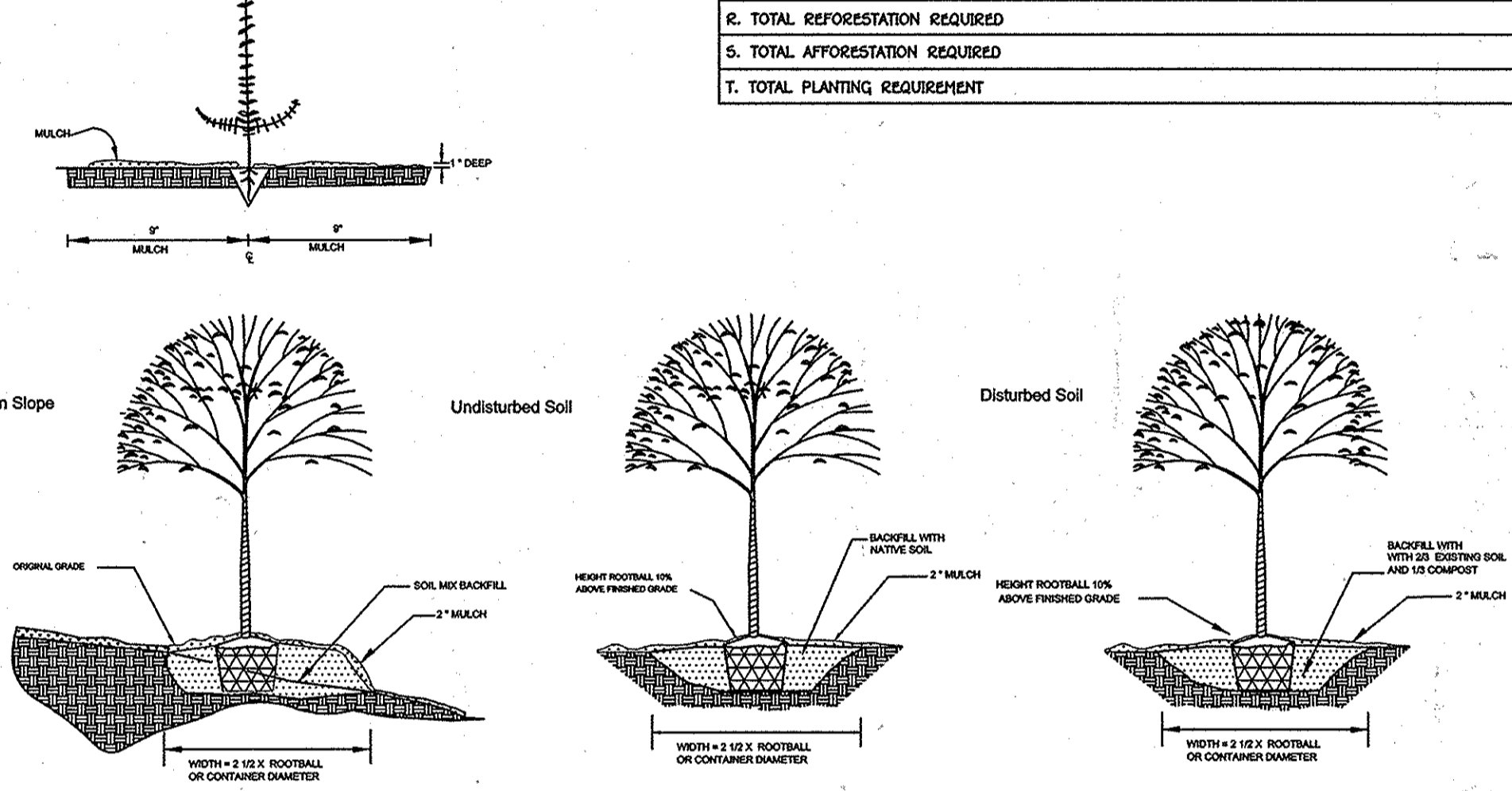


**PFPC NOTES**

- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
- Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
- Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
- There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
- No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
- Temporary fencing shall be used to protect forest resources during construction. The fencing shall be placed along all FCE boundaries which occur within 15 feet of the proposed limits of disturbance.
- Permanent signage shall be placed 50-100' apart along the boundaries of all areas included in Forest Conservation Easements.
- The Forest Conservation Act requirements will be met through the planting of 0.53 acres of forest onsite, and the remaining 0.38 acres provided by a Forest Bank to be named on the Final Plat.

**NOTES:**

- No rare, threatened or endangered species or their habitats were observed on the property.
- Surrounding land use consists of high density residential development, golf course use and county parkland.
- The site is located in the Patapsco River watershed (02-13-09) and all wetlands and waters are classified as Use I - Water Contact Recreation by the Maryland Department of the Environment.
- No forest or specimen trees are present on the project site.
- No historic elements or cemeteries are known to occur on the property.
- 100 year floodplain occupies approximately 3.18 acres of the property.
- Approximately 0.5 acres of forest is present within 100 feet of property boundary.



**Seeding and Whip Planting Specification**

THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, EXCEPT AS SHOWN ON AN APPROVED ROAD CONSTRUCTION DRAWING. HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.

LEGEND	
SYMBOL	DESCRIPTION
---	EXISTING CONTOUR 2' INTERVAL
---	EXISTING CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 10' INTERVAL
---	PROPOSED CONTOUR 2' INTERVAL
X 2.5 2'	PROPOSED SPOT ELEVATION
---	PROPOSED GRADE
---	PROPOSED WATER
---	PROPOSED ROAD WIDENING
---	BUILDING AND DRIVES TO BE DEMO
---	LIMIT OF DISTURBANCE
---	SUPER SALT FENCE
---	SALT FENCE
---	15-20% SLOPES
---	5% SLOPES
---	100 YEAR FLOODPLAIN
---	EXISTING ROAD
---	EXISTING SOILS
---	WETLANDS
---	FLOOD SURFACE
---	STRAIN FILTER
---	DRAINAGE DITCH
---	DRAINAGE SUB DITCH
---	DRIVEWELL (H-2)-TYPICAL
---	BIO RETENTION FACILITY (F-6) OR (H-6) AS NOTED
---	EXISTING TREE
X	EXISTING FENCING

FOREST CONSERVATION DATA	
EASEMENT NO.	TOTAL BASEMENT (PLANTING)
1	0.53 AC.

FOREST CONSERVATION WORKSHEET VERSION 1.0	
NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	9.25
B. DEDUCTIONS (AREA WITHIN 100 YEAR FLOODPLAIN)	5.18
C. LAND DEDICATED FOR ROADS OR UTILITIES	0.00
D. NET TRACT AREA	6.07
LAND USE CATEGORY: HIGH DENSITY RESIDENTIAL	
E. AFFORESTATION THRESHOLD (NET TRACT AREA (C) x 15%)	0.91
F. CONSERVATION THRESHOLD (NET TRACT AREA (C) x 20%)	1.21
EXISTING FOREST COVER	
G. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	0.00
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	0.00
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	0.00
BREAK-EVEN POINT	
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	0.00
BREAK-EVEN POINT	
K. CLEARING PERMITTED WITHOUT MITIGATION	0.00
PROPOSED FOREST CLEARING	
L. TOTAL AREA OF FOREST TO BE CLEARED OR RETAINED OUTSIDE FCE	0.00
M. TOTAL AREA OF FOREST TO BE RETAINED	0.00
PLANTING REQUIREMENTS	
N. REFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	0.00
P. REFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD	0.00
Q. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	0.00
R. TOTAL REFORESTATION REQUIRED	0.00
S. TOTAL AFFORESTATION REQUIRED	0.53
T. TOTAL PLANTING REQUIREMENT	0.91

TENTATIVELY APPROVED  
DEPARTMENT OF PLANNING AND ZONING  
HOWARD COUNTY

*William J. Jellie*  
PLANNING DIRECTOR

3-14-10  
DATE

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