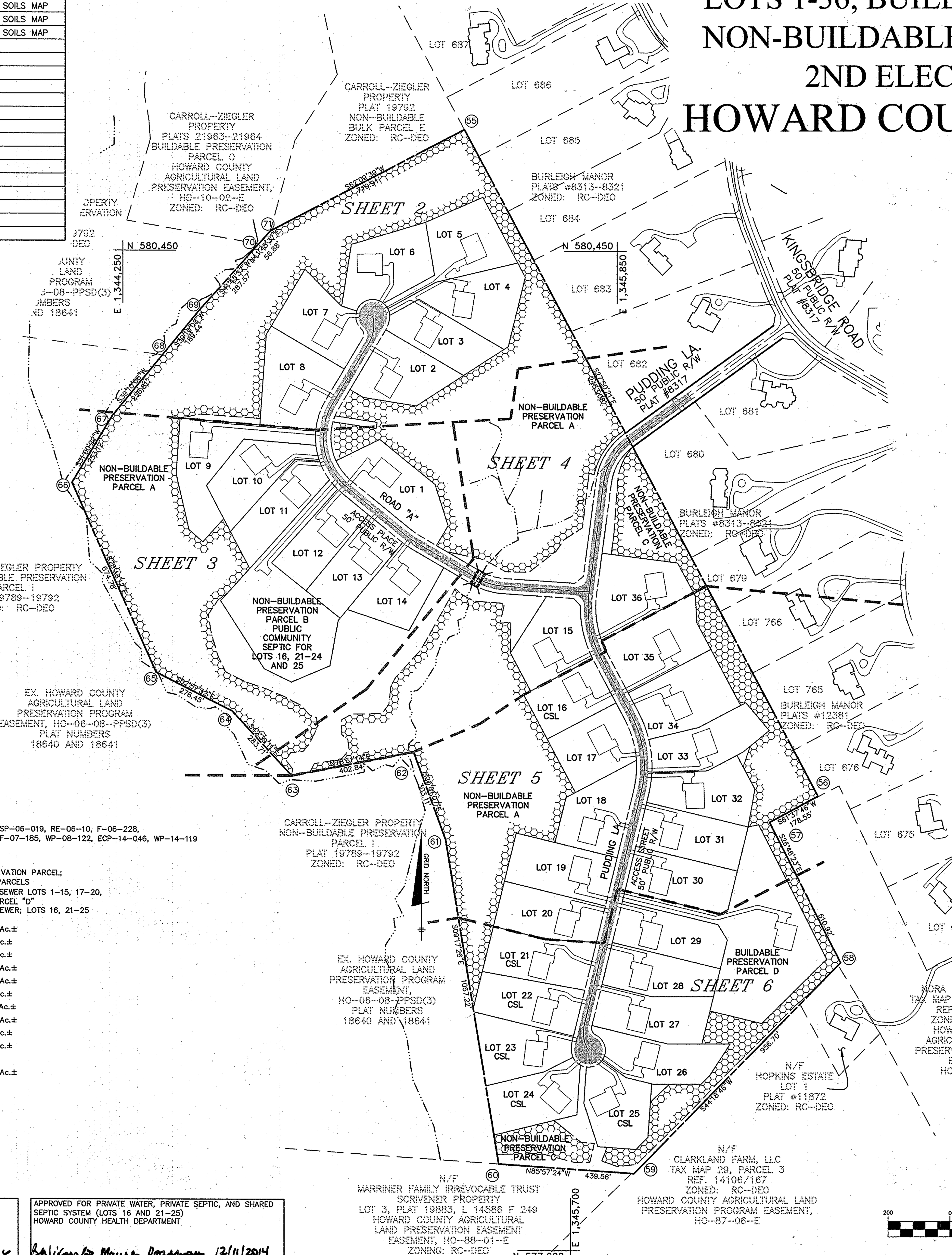
PRELIMINARY EQUIVALENT SKETCH PLAN
KINGS FOREST
LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B AND C
2ND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

DENSITY EXCHANGE CHART	
RECEIVING PARCEL INFORMATION	TAX MAP 23, GRID 23, PARCEL 148
TOTAL AREA OF SUBDIVISION	97.74 AC
DENSITY UNITS ALLOWED BY RIGHT	97.74 / 4.25 = 22 D.U.
MAXIMUM DEO UNITS ALLOWED	94.42 / 2 = 47 D.U.
NUMBER OF UNITS PROPOSED	37 (36 LOTS AND 1 BUILDABLE PRESERVATION PARCEL)
CEO DENSITY UNITS TO BE RECEIVED FROM SENDING PARCEL	15
SENDING PARCEL INFORMATION	TBD

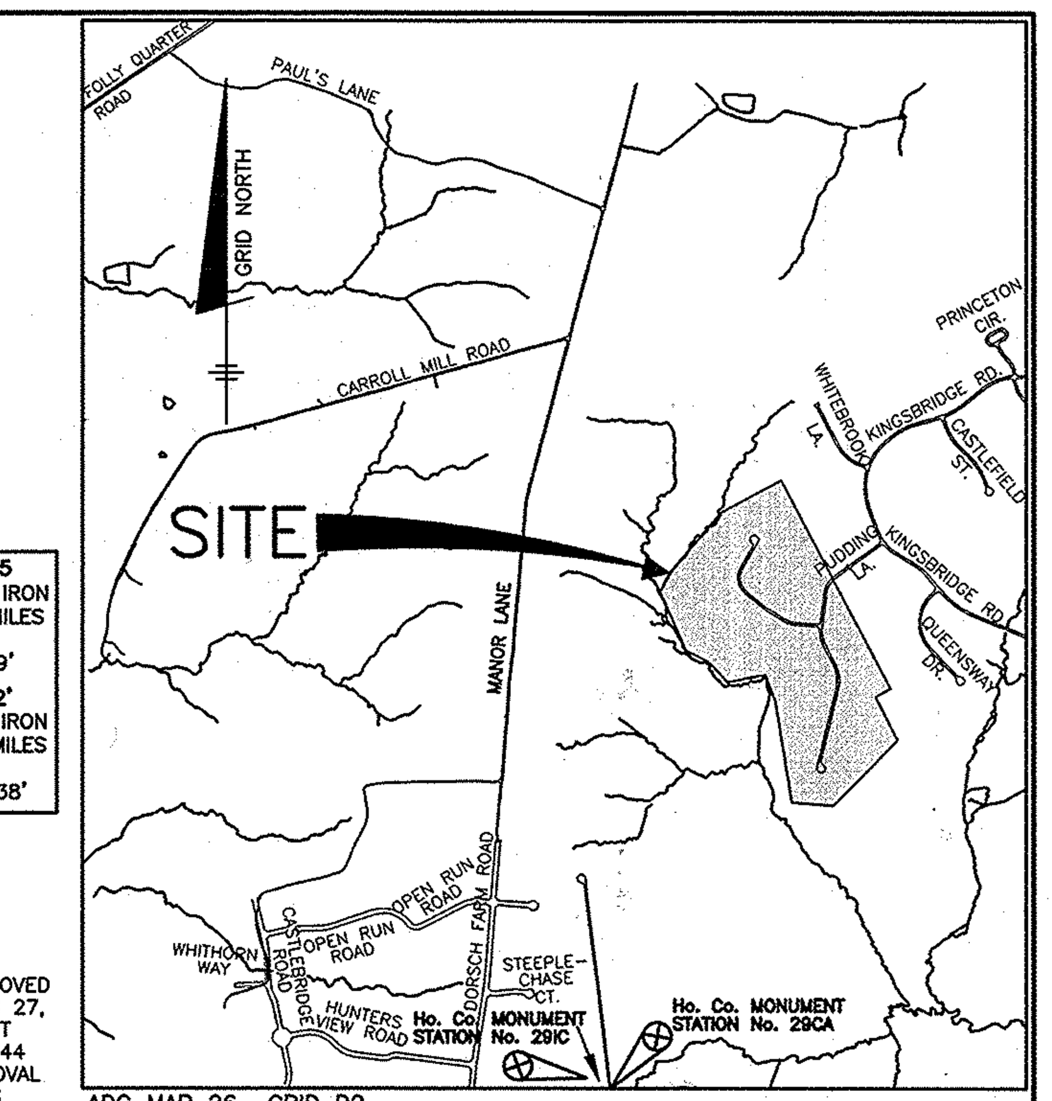


GENERAL NOTES

1. SUBJECT PROPERTY ZONED RC-DEO PER COMPREHENSIVE ZONING PLAN EFFECTIVE 10-6-13.
2. THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE OCTOBER 6, 2013.
3. THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
4. THE TOPOGRAPHY SHOWN HEREON IS BASED ON FIELD VERIFIED INFORMATION BY BENCHMARK ENGINEERING, INC., DATED FEBRUARY, 2014. IN THE AREA OF THE ROADWAY, LOTS AND STREAM CROSSING. GIS INFORMATION IS SHOWN ON THE PLANS.
5. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. #29IC AND #29CA WERE USED FOR THIS PROJECT.
6. STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT BASED ON GUIDELINES ESTABLISHED BY THE 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II AS AMENDED BY THE STORMWATER MANAGEMENT ACT OF 2007. ENVIRONMENTAL SITE DESIGN METHODS SHALL BE UTILIZED, INCLUDING ROOFTOP DISCONNECTION (N1), NON-ROOFTOP DISCONNECTION (N-2), ROADSIDE GRASS SWALES (M-8), DRY WELLS (M-5) AND MICROBIORETENTION (M-6) FACILITIES.
7. THE STORMWATER MANAGEMENT SYSTEMS SHOWN ON THIS PLAN ARE CONCEPTUAL IN SIZE, SHAPE AND LOCATION. THE ACTUAL DESIGN MAY CHANGE WITH FINAL DESIGN.
8. THE WETLANDS DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DECEMBER, 2013, AND WILL BE APPROVED WITH THIS SKETCH PRELIMINARY PLAN.
9. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE MARS GROUP, DATED MARCH, 2014, AND WILL BE APPROVED WITH THIS SKETCH PRELIMINARY PLAN.
10. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAM, OR THEIR REQUIRED BUFFERS, 100-YR. FLOODPLAIN, STEEP SLOPES AND FOREST CONSERVATION EASEMENTS UNLESS DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING OR APPROVED VIA A WAIVER PETITION.
11. THERE ARE NO STEEP SLOPES (25% OR GREATER) IN EXCESS 20,000 S.F. ON THIS SITE.
12. A FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DECEMBER, 2013.
13. THE FLOOD STUDY FOR THIS PROJECT WAS PREPARED BY BENCHMARK ENGINEERING, INC., DATED MARCH, 2014, REVISED JULY, 2014 AND WILL BE APPROVED WITH THIS SKETCH PRELIMINARY PLAN.
14. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED ON THIS SITE.
15. A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT.
16. THIS SITE IS NOT LOCATED WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER WILL BE PRIVATE ON-SITE FACILITIES OR PRIVATE WATER AND SHARED SEPTIC DISPOSAL AREA. CONTRACT DRAWINGS 50-4866-D ARE THE PUBLIC SEWER PLANS FOR THIS PROJECT.
17. THE FOREST CONSERVATION ACT OBLIGATION FOR THIS PROJECT WILL BE MET BY THE ON-SITE RETENTION OF FOREST.
18. THE PREVIOUS DPZ FILES FOR THIS SITE ARE: F-06-228, WP-06-068, SP-06-019, RE-06-10, WP-07-038, F-07-022, F-07-185, WP-08-122, ECP-14-046, WP-14-119.
19. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY GTA, DATED 5/17/13 AND WILL BE APPROVED WITH THIS SKETCH PRELIMINARY PLAN.
20. COMMUNITY MEETING WAS HELD ON MARCH 10, 2014.
21. LOTS 1, 4-6, 8, 9, 19, 27 AND 34-36 EXCEED 50,000 SF. IN ACCORDANCE WITH SECTION 104.0(E)(1)(c) OF THE ZONING REGULATIONS, LOTS CAN EXCEED 50,000 SF BUT MUST STAY UNDER 60,000 SF IF IT IS NECESSARY TO PROVIDE SWM, SEPTIC RESERVE AREA AND WELLS ON THE LOTS. A DETAILED JUSTIFICATION HAS BEEN PROVIDED TO THE DEPARTMENT OF PLANNING AND ZONING FOR WHY EACH OF THESE LOTS EXCEEDS 50,000 SQUARE FEET. THE HOWARD COUNTY HEALTH DEPARTMENT HAS APPROVED THE LOTS BEING OVER 50,000 SF IN A MEMO DATED 10/8/14
22. NO PUBLIC ROAD CONNECTIONS PROPOSED TO CARROLL-ZIEGLER PROPERTY, PARCEL "E" BECAUSE OF THE PUBLIC ROAD FRONTAGE PROVIDED TO PARCEL "E" BY WHITEBROOK LANE. ALL OTHER ADJOINING PARCELS ARE EITHER ENCUMBERED BY A PRESERVATION EASEMENT OR FULLY DEVELOPED.
23. THE DEPARTMENT OF PLANNING AND ZONING HAS DETERMINED THAT THE ENVIRONMENTAL DISTURBANCE ASSOCIATED WITH THE EXTENSION OF PUDDING LANE INTO THE SITE IS NECESSARY IN ORDER TO PROVIDE ACCESS TO THE SITE IN ACCORDANCE WITH SECTION 16.116(c) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. THE TURN IN THE ROADWAY AND THE USE OF STANDARD CURB AND GUTTER ARE INTENDED TO MINIMIZE THE ENVIRONMENTAL IMPACT. THE ENVIRONMENTAL DISTURBANCE ASSOCIATED WITH THE CONSTRUCTION OF ROAD 'A' HAS BEEN APPROVED UNDER WP-14-119.
24. THIS AREA DESIGNATES A PRIVATE SEWERAGE EASEMENT OF AT LEAST 10,000 S.F. AS REQUIRED BY THE MARYLAND STATE DEPARTMENT OF THE ENVIRONMENT FOR INDIVIDUAL SEWERAGE DISPOSAL. IMPROVEMENTS OF ANY NATURE IN THIS AREA ARE RESTRICTED UNTIL PUBLIC SEWER IS AVAILABLE. THIS EASEMENT SHALL BECOME NULL AND VOID UPON CONNECTION TO A PUBLIC SEWER SYSTEM. THE COUNTY HEALTH OFFICER SHALL HAVE THE AUTHORITY TO GRANT ADJUSTMENTS TO THE PRIVATE SEWERAGE EASEMENT. RECORDATION OF A MODIFIED SEWERAGE EASEMENT PLAT SHALL NOT BE REQUIRED.
25. NON-BUILDABLE PRESERVATION PARCELS 'A' AND 'C' ARE TO BE OWNED BY HOWARD COUNTY, MARYLAND WITH THE HOMEOWNERS ASSOCIATION AS AN EASEMENT HOLDER. THE INTENDED USE OF THE PARCELS IS ENVIRONMENTAL PRESERVATION.
26. NON-BUILDABLE PRESERVATION PARCEL 'B' IS TO BE OWNED BY HOWARD COUNTY, MARYLAND, WITH THE HOMEOWNERS ASSOCIATION AS AN EASEMENT HOLDER. THE INTENDED SOLE AND ONLY PURPOSE OF THIS PARCEL IS TO PROVIDE A SHARED SEPTIC DISPOSAL AREA FOR LOTS 16 AND 21-25.
27. BUILDABLE PRESERVATION PARCEL 'D' IS TO BE PRIVATELY OWNED, WITH HOWARD COUNTY, MARYLAND AND THE HOMEOWNER'S ASSOCIATION AS EASEMENT HOLDERS. PARCEL 'D' IS TO BE IMPROVED WITH RESIDENTIAL STRUCTURE(S) PER SECTION 104.0 OF THE ZONING REGULATIONS.
28. THE MODERATE INCOME HOUSING UNIT REQUIREMENT OF FOUR (4) UNITS FOR THIS SUBDIVISION WILL BE FULFILLED BY PAYMENT OF FEE-IN-LIEU OF CONSTRUCTION.
29. TRAFFIC CONTROL DEVICES:
    - a.) THE R1-1("STOP") SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
    - b.) THE TRAFFIC CONTROL DEVICES LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION 410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
    - c.) ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES." (MdMUTCD).
    - d.) ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE(12 GAUGE)-3' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
30. THE MARYLAND DEPARTMENT OF THE ENVIRONMENT HAS APPROVED A VARIANCE TO ALLOW THE SEPTIC DISPOSAL AREAS ON LOTS 27, 28 AND 34, AND PRESERVATION PARCEL D TO BE UPGRADIENT OF WELLS ON LOTS 17, 26, 27, 34, 35, 36 AND HO-88-0744 AT 10410 QUEENSWAY DRIVE. AS A CONDITION OF THE APPROVAL FOR THE LOCATIONS OF THE SEPTIC SYSTEMS AND WELLS, AS SHOWN ON THIS PLAN, THE INITIAL AND ALL REPLACEMENT WELLS ON LOTS 17, 26, 27, AND 33-35 WILL REQUIRE STEEL CASINGS TO BE INSTALLED TO 50' OR 10' INTO COMPETENT BEDROCK, WHICHEVER IS DEEPER; ALL SEPTIC SYSTEMS TO BE INSTALLED SHALL UTILIZE BEST AVAILABLE TECHNOLOGIES TO TREAT SEPTIC EFFLUENT; AND THE SEPTIC SYSTEMS ON LOTS 26, 27, 33 AND 34 SHALL BE LOW PRESSURE DOSE SYSTEMS.
31. A GROUNDWATER APPROPRIATIONS PERMIT MUST BE ISSUED BY MARYLAND DEPARTMENT OF THE ENVIRONMENT PRIOR TO HEALTH DEPARTMENT ISSUANCE OF WELL PERMITS.
32. ALL WELLS MUST BE DRILLED PRIOR TO HEALTH OFFICER SIGNATURE OF THE RECORD PLAT.
33. THIS PROPERTY IS DESIGNATED A TIER III PROPERTY PER THE SUSTAINABLE GROWTH AND AGRICULTURAL PRESERVATION ACT OF 2012, MAP 6-3, AS APPROVED BY THE HOWARD COUNTY COUNCIL AS PART OF PLANHOWARD 2030.
34. WP-14-119 WAS APPROVED SEPTEMBER 4, 2014, TO WAIVE SECTION 16.115(c)(2) WHICH DISALLOWS DISTURBANCE WITHIN FLOODPLAINS, SECTION 16.116(a)(2) WHICH CONTROLS DISTURBANCE WITHIN ENVIRONMENTAL BUFFERS, SECTION 16.1205(a)(7)&(10) REGARDING RETENTION OF SPECIMEN TREES, AND SECTION 16.126(b) WHICH SPECIFIES THAT WELLS ON RESIDENTIAL LOTS MUST BE AT LEAST 50 FEET FROM AGRICULTURAL PRESERVATION EASEMENTS. THE WAIVER WAS APPROVED SUBJECT TO THE FOLLOWING CONDITIONS:
    1. DISTURBANCES TO THE ENVIRONMENTAL AREAS SHALL BE LIMITED TO THAT REQUIRED FOR ROADWAY CONSTRUCTION, AND SHALL BE PROPERLY STABILIZED. THE ROAD 'A' CROSSING SHALL BE A BOTTOMLESS ARCH CULVERT.
    2. THE APPLICANT SHALL OBTAIN MARYLAND DEPARTMENT OF THE ENVIRONMENT PERMITTING AND REFERENCE PERMIT NUMBER ON THE PLAN SUBMISSIONS.
    3. APPROVAL TO REMOVE SPECIMEN TREES IS LIMITED TO TREES #5, 6, 7, 8, 11 AND 15, AND SIX MITIGATION TRESS (3"-4" CALIPER) SHALL BE PROVIDED AND BONDED WITH THE LANDSCAPING.
    4. COMMENTS FOR SP-14-004 MUST BE ADDRESSED.
35. Lots in which the well box is less than the standard setback to SWM devices and Storm Drains the primary well location will be at the furthest point from such features, within the well box.
36. On 12/2/14 the Chief of The Department of Planning and Zoning, Development Engineering Division, approved a waiver to Design Manual Volume III, Section 4.5.c which requires a mitigation plan and the construction of roadway improvements due to projects related impacts to study intersections. The developer shall make a payment for fee-in-lieu of construction of the intersection improvement associated with this project due to the minor contribution to an existing constrained intersection. The developer shall pay $16,022.00 to the County for future improvements to the subject intersection (Centennial Lane at Old Annapolis Road and Breconshire Road). The fee must be paid prior to the recordation of the Final record plat and/or road construction drawings.

HO. CO. #29IC (NAD '83) ELEV. 468.785
3" STAMPED ALUMINUM DISC SET ON 3/4" IRON ROD ON EAST SIDE OF MANOR LANE, 0.2 MILES NORTH OF RT. 108
E 1,3344,112.295' N 572,323.559'

HO. CO. #29CA (NAD '83) ELEV. 423.532'
3" STAMPED ALUMINUM DISC SET ON 3/4" IRON ROD ON WEST SIDE OF MANOR LANE, 0.6 MILES NORTH OF RT 108
E 1,343,533.820' N 574,526.138'



ADC MAP 26 GRID D2

VICINITY MAP
SCALE: 1" = 2000'

LEGEND

PROPERTY BOUNDARY	N85°57'24"W 439.56'
STREAM	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
COMMUNITY SEPTIC LOT	CSL
FOREST CONSERVATION AREA	
COORDINATE	66

COORDINATE CHART (NAD '83)		
No.	NORTH	EAST
55	580846.1491	1345355.8769
56	578676.9887	1346501.4446
57	578592.1455	1346344.3375
58	578136.0007	1346574.4827
59	577451.4474	1345906.1544
60	577482.4407	1345467.6865
61	578535.6569	1345295.3915
62	578820.4505	1345191.6310
63	578742.5757	1344796.3855
64	578951.2327	1344604.1581
65	579076.9141	1344357.9307
66	579694.2941	1344085.5910
67	579911.2469	1344215.9805
68	580110.3504	1344378.1849
69	580257.2190	1344497.8349
70	580471.7260	1344689.3580
71	580514.1578	1344727.243

SITE DATA TABULATION

1) GENERAL SITE DATA
- a. PRESENT ZONING: RC-DEO
- b. LOCATION: TAX MAP 23 – GRID 23 – PARCEL 148
- c. APPLICABLE DPZ FILE REFERENCES: F-06-228, WP-06-068, SP-06-019, RE-06-10, F-06-228, WP-07-038, F-07-022, F-07-185, WP-08-122, ECP-14-046, WP-14-119
- d. DEED REFERENCE: L.11372 / F.00431
- e. PROPOSED USE OF SITE: 36 SFD LOTS; 1 BUILDABLE PRESERVATION PARCEL; 3 NON-BUILDABLE PRESERVATION PARCELS
- f. PROPOSED WATER AND SEWER: PRIVATE WATER AND PRIVATE SEWER LOTS 1-15, 17-20, 26-36 AND PRESERVATION PARCEL "D"; PRIVATE WATER AND PUBLIC SEWER; LOTS 16, 21-25

2) AREA TABULATION
- a. TOTAL AREA OF SITE .... 97.74 Ac.±
- b. AREA OF 100 YEAR FLOODPLAIN (APPROX.) .... 2.83 Ac.±
- c. AREA OF STEEP SLOPES (25% OR GREATER) .... 0.49 Ac.±
- d. NET AREA OF SITE .... 94.42 Ac.±
- e. AREA OF THIS PLAN SUBMISSION .... 97.74 Ac.±
- f. LIMIT OF DISTURBANCE (APPROX.) .... 36.6 Ac.±
- g. AREA OF PROPOSED BUILDABLE LOTS .... 45.41 Ac.±
- h. AREA OF NON-BUILDABLE PRESERVATION PARCELS .... 47.90 Ac.±
- i. AREA OF PROPOSED PUBLIC ROAD .... 2.63 Ac.±
- j. AREA OF PROPOSED PUBLIC R/W DEDICATION .... 4.43 Ac.±

3) DENSITY TABULATION
- a. NET AREA OF SITE .... 94.42 Ac.±
- b. TOTAL NUMBER OF LOTS ALLOWED PER ZONING
  - 1 UNIT PER 4.25 GROSS ACRES ALLOWED BY RIGHT.... 22
  - 1 UNIT PER 2 NET ACRES (MAX) PER DEO PROVISION. 47

4) UNIT/LOT TABULATION
- a. TOTAL NUMBER OF BUILDABLE LOTS PROPOSED ON THIS SUBMISSION 36
- b. TOTAL NUMBER OF NON-BUILDABLE PRESERVATION PARCELS PROPOSED ON THIS SUBMISSION 3
- c. TOTAL NUMBER OF BUILDABLE PRESERVATION PARCELS PROPOSED ON THIS SUBMISSION 1

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

[signature] 12/22/14
PLANNING DIRECTOR DATE

APPROVED FOR PRIVATE WATER, PRIVATE SEPTIC, AND SHARED SEPTIC SYSTEM (LOTS 16 AND 21-25)
HOWARD COUNTY HEALTH DEPARTMENT

[signature] 12/11/2014
HOWARD COUNTY HEALTH OFFICER DATE

MINIMUM LOT SIZE CHART			
LOT NO.	GROSS AREA	PIPESTEM AREA	MIN. LOT SIZE
4	56,726 SF	2,300 SF	54,426 SF
5	55,313 SF	4,024 SF	51,289 SF
9	63,643 SF	11,548 SF	52,095 SF
PARCEL 'B'	105,555 SF	12,922 SF	92,633 SF
PARCEL 'C'	298,992 SF	3,321 SF	295,671 SF

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	**D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	** C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	** D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND JOHN M. CARNEY No. 45577 PROFESSIONAL ENGINEER 12/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS:
NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23, P/O PARCEL 148, PUDDING LANE, ELLICOTT CITY, MD 21042, SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: **COVER SHEET**

DATE:	OCTOBER, 2014	PROJECT NO.	2501
SCALE:	AS SHOWN	SHEET	1 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C7	210.00'	298.30'	180.59'	273.85'	S10°08'15"E	81°23'14"
C8	110.50'	87.69'	46.30'	85.40'	N07°49'31"E	45°27'59"

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR | DATE

APPROVED FOR PRIVATE WATER, PRIVATE SEPTIC, AND SHARED SEPTIC SYSTEM (LOTS 16 AND 21-25)
HOWARD COUNTY HEALTH DEPARTMENT

for: Maura Rossman 12/22/14
HOWARD COUNTY HEALTH OFFICER | DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND
JOHN M. CARNEY
No. 45577
PROFESSIONAL ENGINEER
12/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

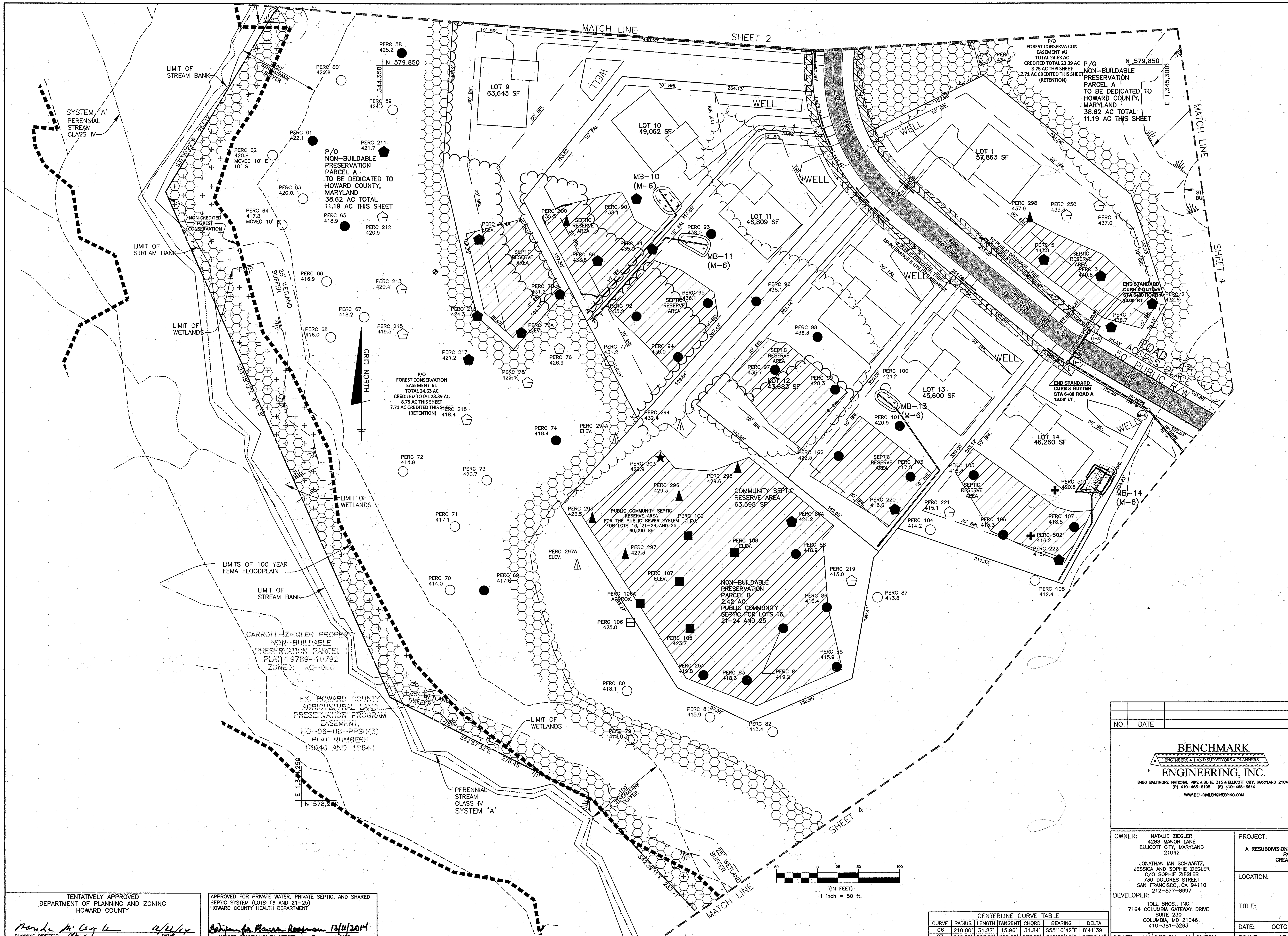
PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LAYOUT PLAN

DRAFT: AM	DESIGN: AM	CHECK:	DATE: OCTOBER, 2014	PROJECT NO. 2501
			SCALE: AS SHOWN	SHEET 2 OF 26

SP-14-004



LEGEND

EXISTING CONTOURS	480 / 478
LIMIT OF WETLANDS	
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
SEPTIC RESERVE AREA	
BIO-RETENTION AREAS (M-6)	
PROPOSED WELL BOX	WELL
25% AND GREATER SLOPES	
STREAM	
PREVIOUSLY TESTED AND PASSED PERCOLATION TEST	■
PREVIOUSLY TESTED AND FAILED PERCOLATION TEST	⊟
PASSING TEST LOCATION 3/13	●
FAILING TEST LOCATION 3/13	○
PASSING TEST LOCATION 5/13 - 6/13	⬟
FAILING TEST LOCATION 5/13 - 6/13	⬠
PASSING TEST LOCATION 7/13	▲
FAILING TEST LOCATION 7/13	△
PASSING TEST LOCATION 3/14	★
FAILING TEST LOCATION 3/14	☆
PASSING TEST LOCATION 5/14	+

CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C6	210.00'	31.87'	15.96'	31.84'	S55°10'42"E	8°41'39"
C7	210.00'	298.30'	180.59'	273.85'	S10°08'15"E	81°23'14"

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR 12/22/14 DATE

APPROVED FOR PRIVATE WATER, PRIVATE SEPTIC, AND SHARED SEPTIC SYSTEM (LOTS 16 AND 21-25)
HOWARD COUNTY HEALTH DEPARTMENT

[signature] for Maura Rossman 12/11/2014
HOWARD COUNTY HEALTH OFFICER DATE

P:\2501 Carroll-Ziegler Parcel K\dwg\4000-PES parcel k.dwg, pes 3, 10/9/2014 4:16:57 PM, ecd

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND JOHN M. CARNEY No. 45577 PROFESSIONAL ENGINEER 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

DRAFT: AM | DESIGN: AM | CHECK:

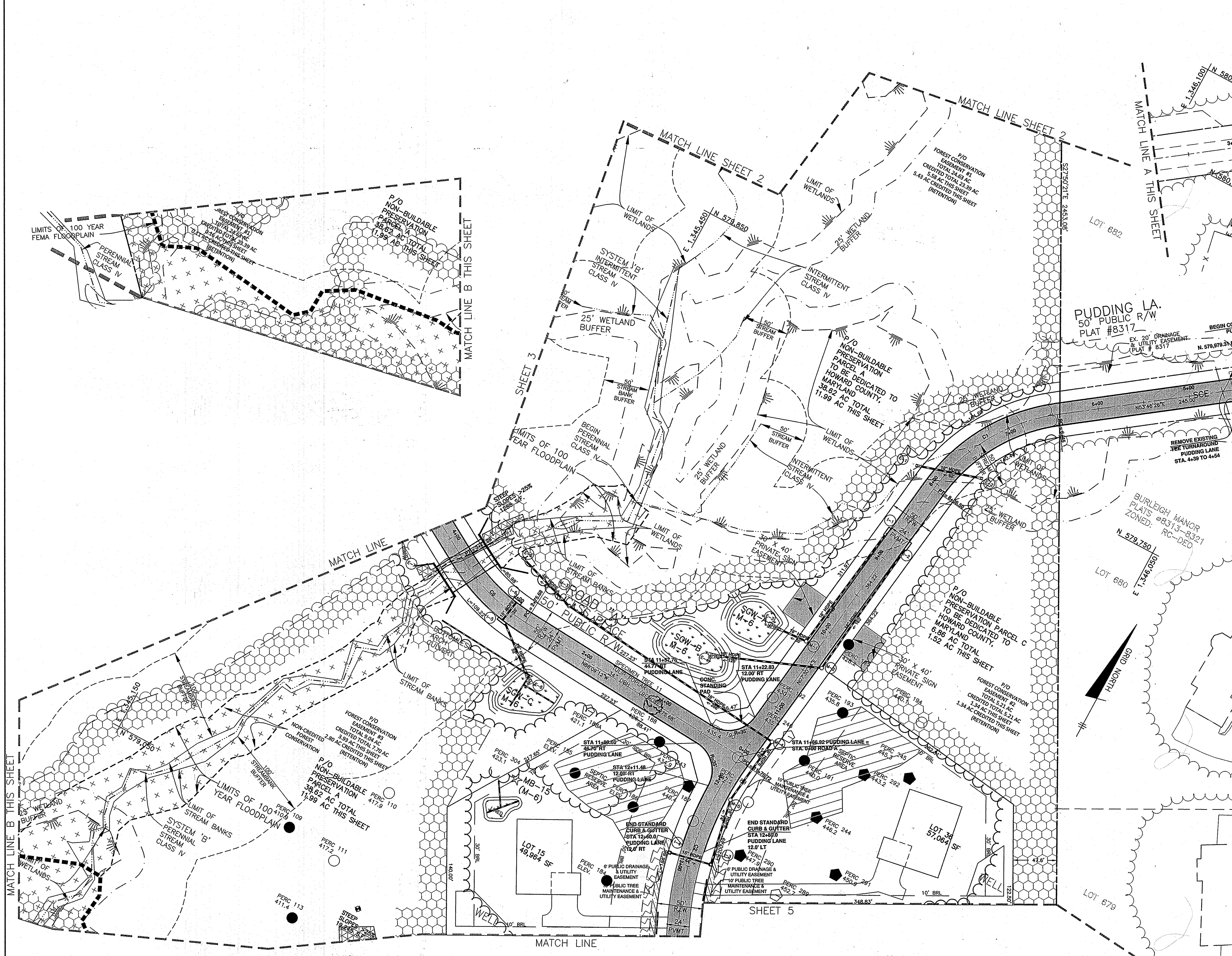
PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

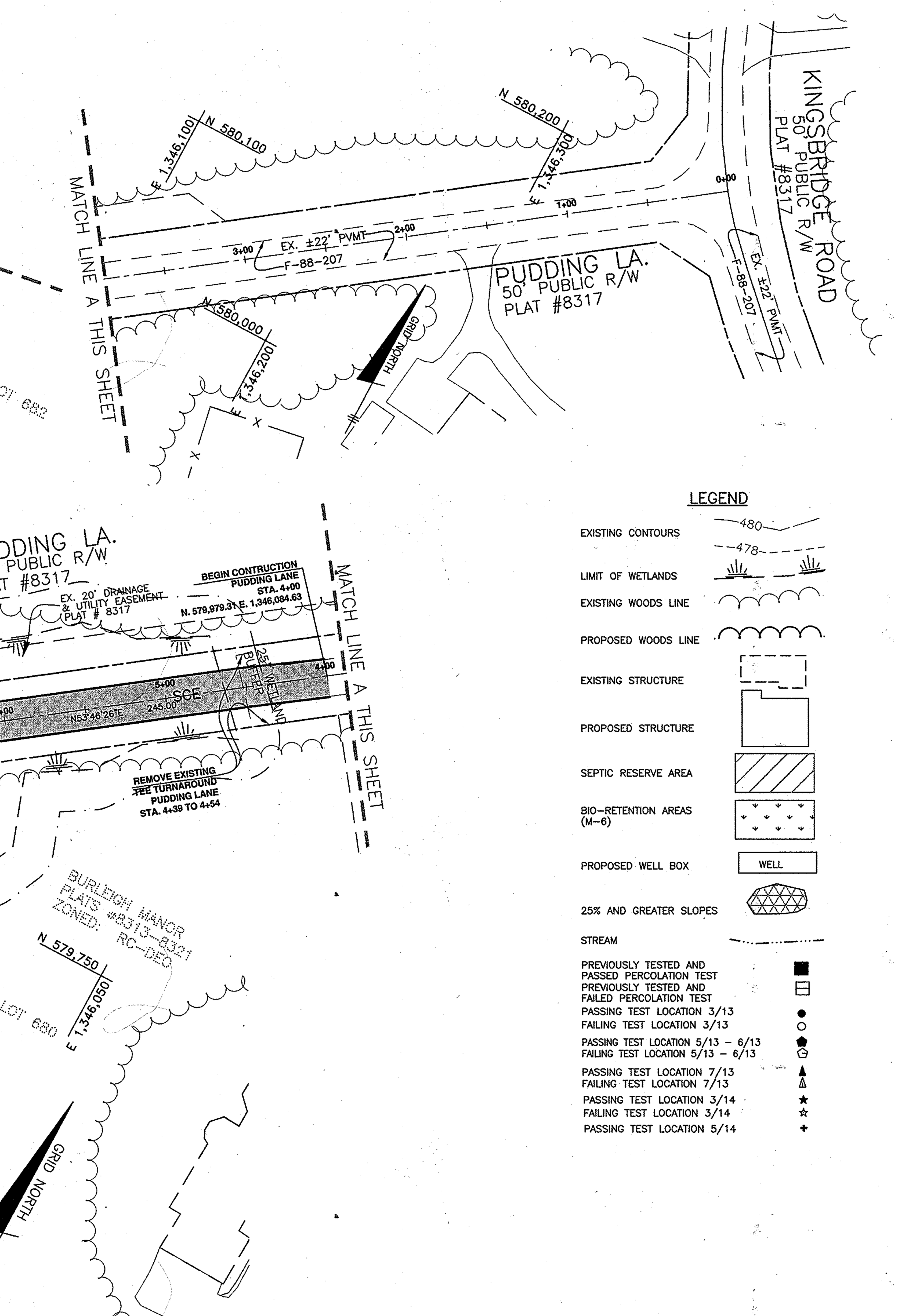
LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LAYOUT PLAN

DATE: OCTOBER, 2014 | PROJECT NO. 2501
SCALE: AS SHOWN |

SP-14-004





NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.

ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS

8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER
10/4/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LAYOUT PLAN

DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 4 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR 12/22/14 DATE

APPROVED FOR PRIVATE WATER, PRIVATE SEPTIC, AND SHARED SEPTIC SYSTEM (LOTS 16 AND 21-25)
HOWARD COUNTY HEALTH DEPARTMENT

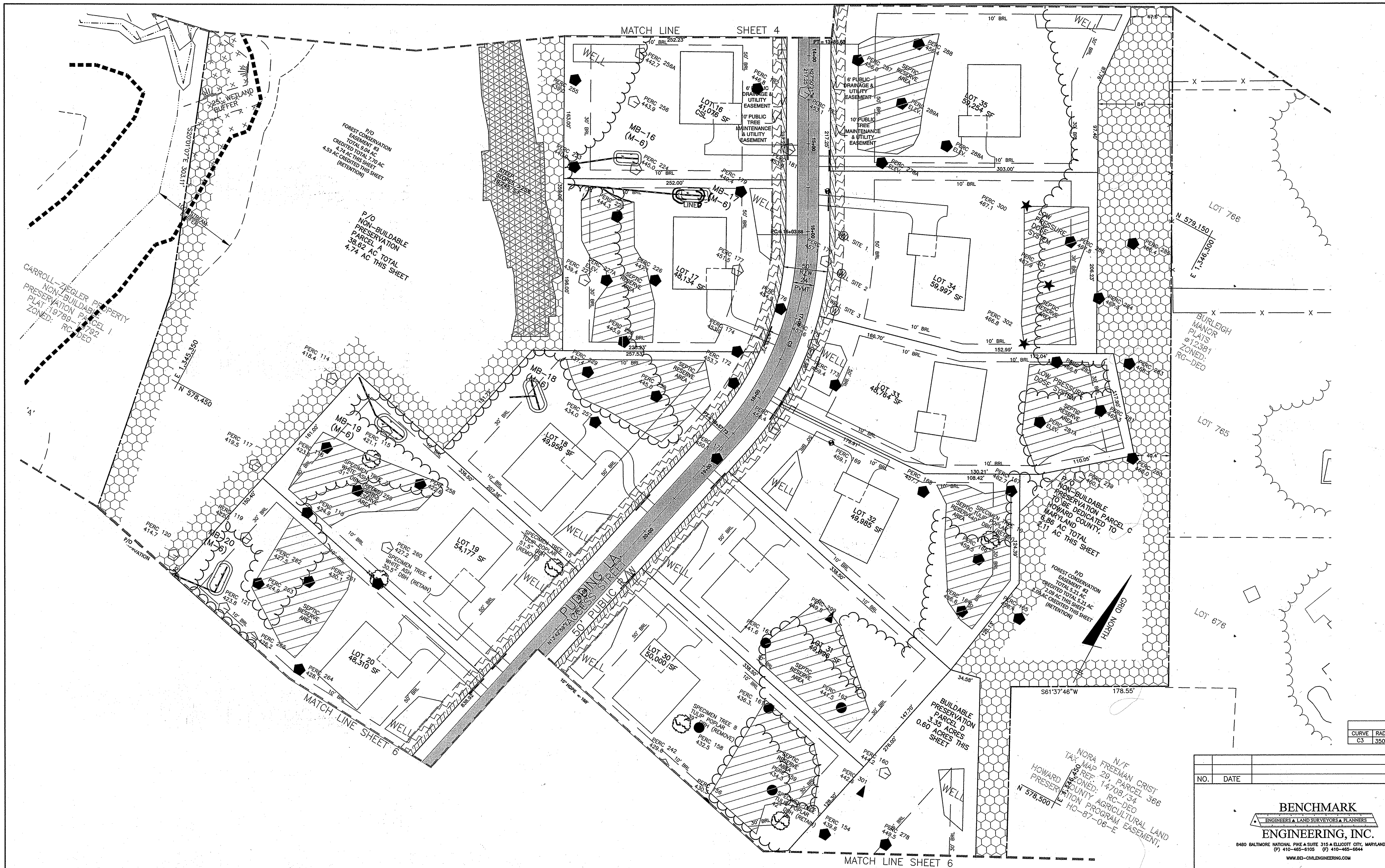
HOWARD COUNTY HEALTH OFFICER 12/11/2014 DATE

CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	200.00'	161.50'	85.45'	157.15'	S30°38'25"W	46°16'03"
C2	350.00'	215.92'	111.52'	212.51'	S10°09'59"E	35°20'45"
C5	210.00'	97.60'	49.70'	96.72'	S72°50'21"E	26°37'41"

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

P:\2501 Carroll-Ziegler Parcel K\dwg\4000-PES parcel K.dwg, pez 4, 10/9/2014 4:16:24 PM, edd



LEGEND

- EXISTING CONTOURS
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- 25% AND GREATER SLOPES
- STREAM
- PREVIOUSLY TESTED AND PASSED PERCOLATION TEST ■
- PREVIOUSLY TESTED AND FAILED PERCOLATION TEST ⊟
- PASSING TEST LOCATION 3/13 ●
- FAILING TEST LOCATION 3/13 ○
- PASSING TEST LOCATION 5/13 – 6/13 ⬟
- FAILING TEST LOCATION 5/13 – 6/13 ⬠
- PASSING TEST LOCATION 7/13 ▲
- FAILING TEST LOCATION 7/13 △
- PASSING TEST LOCATION 3/14 ★
- FAILING TEST LOCATION 3/14 ☆
- PASSING TEST LOCATION 5/14 ✚

CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C3	350.00'	253.85'	132.80'	248.32'	N07°03'41"W	41°33'20"

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND JOHN M. CARNEY No. 45577 PROFESSIONAL ENGINEER
10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LAYOUT PLAN

DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 5 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
PLANNING DIRECTOR 12/22/14 DATE

APPROVED FOR PRIVATE WATER, PRIVATE SEPTIC, AND SHARED SEPTIC SYSTEM (LOTS 16 AND 21-25)
HOWARD COUNTY HEALTH DEPARTMENT
HOWARD COUNTY HEALTH OFFICER 12/11/2014 DATE

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

P:\2501 Carroll-Ziegler Parcel K\dwg\4000-PES parcel k.dwg, pes 5, 10/9/2014 4:13:16 PM

LEGEND

- EXISTING CONTOURS
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- 25% AND GREATER SLOPES
- STREAM
- PREVIOUSLY TESTED AND PASSED PERCOLATION TEST
- PREVIOUSLY TESTED AND FAILED PERCOLATION TEST
- PASSING TEST LOCATION 3/13
- FAILING TEST LOCATION 3/13
- PASSING TEST LOCATION 5/13 - 6/13
- FAILING TEST LOCATION 5/13 - 6/13
- PASSING TEST LOCATION 7/13
- FAILING TEST LOCATION 7/13
- PASSING TEST LOCATION 3/14
- FAILING TEST LOCATION 3/14
- PASSING TEST LOCATION 5/14

CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C4	110.50'	87.69'	46.30'	85.40'	S09°00'52"E	45°27'59"

NO.	DATE	REVISION

STATE OF MARYLAND JOHN M. CARNEY No. 45577 PROFESSIONAL ENGINEER 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER: TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: LAYOUT PLAN

DATE: OCTOBER, 2014 | PROJECT NO. 2501
SCALE: AS SHOWN | SHEET 6 OF 26
DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

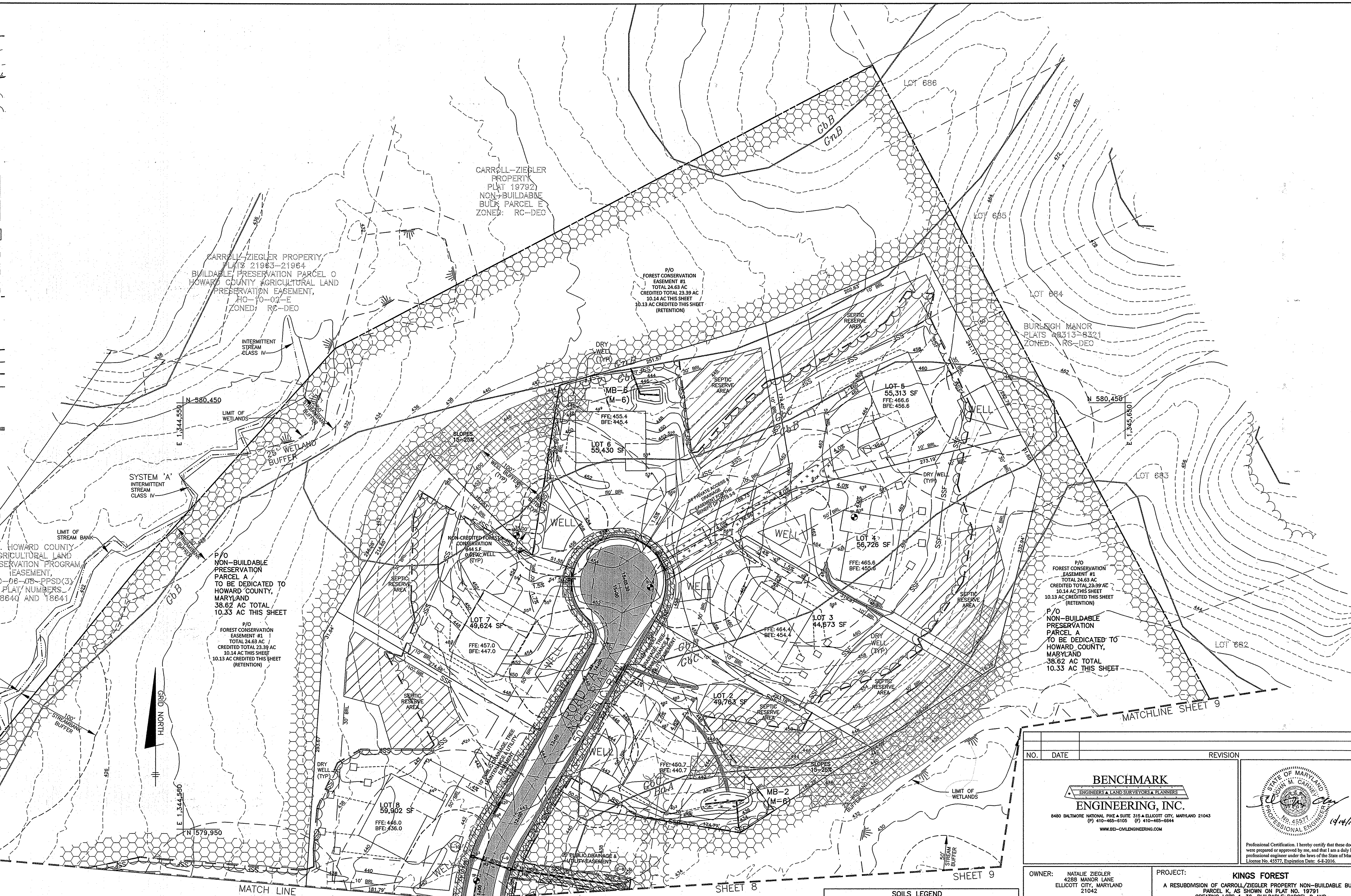
TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
PLANNING DIRECTOR 12/24/14 DATE

APPROVED FOR PRIVATE WATER, PRIVATE SEPTIC, AND SHARED SEPTIC SYSTEM (LOTS 16 AND 21-25)
HOWARD COUNTY HEALTH DEPARTMENT
HOWARD COUNTY HEALTH OFFICER 12/11/2014 DATE

(IN FEET)
1 inch = 50 ft.

LEGEND

SOILS CLASSIFICATION	ChB2
SOILS DELINEATION	
EXISTING CONTOURS	480 / 478
LIMIT OF WETLANDS	
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
SEPTIC RESERVE AREA	
BIO-RETENTION AREAS (M-6)	
PROPOSED WELL BOX	WELL
PRIVATE USE-IN-COMMON EASEMENT	
PUBLIC DRAINAGE AND UTILITY EASEMENT	
PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT	
15% TO 25% SLOPES	
25% AND GREATER SLOPES	
100-YEAR FLOODPLAIN	
STREAM	
LIMIT OF DISTURBANCE	
SUPER SILT FENCE	SSF
STABILIZED CONSTRUCTION ENTRANCE	SCE
EROSION CONTROL MATTING	



CARROLL-ZIEGLER PROPERTY
PLAT 19792
NON-BUILDABLE BULK PARCEL E
ZONED: RC-DEO
CARROLL-ZIEGLER PROPERTY
PLATS 21963-21964
BUILDABLE PRESERVATION PARCEL O
HOWARD COUNTY AGRICULTURAL LAND PRESERVATION EASEMENT,
HO-10-02-E
ZONED: RC-DEO
P/O FOREST CONSERVATION EASEMENT #1
TOTAL 24.63 AC
CREDITED TOTAL 23.39 AC
10.14 AC THIS SHEET
10.13 AC CREDITED THIS SHEET
(RETENTION)
LOT 686
LOT 685
LOT 684
LOT 683
LOT 682
BURLEIGH MANOR
PLATS 6313-6321
ZONED: RC-DEO
N 580,450
E 1,344,550
E 1,345,650
N 579,950
INTERMITTENT STREAM CLASS IV
LIMIT OF WETLANDS
25' WETLAND BUFFER
SYSTEM 'A'
INTERMITTENT STREAM CLASS IV
LIMIT OF STREAM BANK
EX. HOWARD COUNTY AGRICULTURAL LAND PRESERVATION PROGRAM EASEMENT,
HO-06-08-PPSD(3)
PLAT NUMBERS 18640 AND 18641
P/O NON-BUILDABLE PRESERVATION PARCEL A
TO BE DEDICATED TO HOWARD COUNTY, MARYLAND
38.62 AC TOTAL
10.33 AC THIS SHEET
SYSTEM 'A'
BEGIN PERENNIAL STREAM CLASS IV
100' STREAMBANK BUFFER
GRID NORTH
MB-6 (M-6)
LOT 6
55,430 SF
FFE: 455.4
BFE: 445.4
LOT 5
55,313 SF
FFE: 466.6
BFE: 456.6
LOT 4
56,726 SF
FFE: 465.6
BFE: 455.6
LOT 3
44,673 SF
FFE: 464.4
BFE: 454.4
LOT 2
49,763 SF
FFE: 450.7
BFE: 440.7
LOT 7
49,624 SF
FFE: 457.0
BFE: 447.0
LOT 8
59,902 SF
FFE: 446.0
BFE: 436.0
SEPTIC RESERVE AREA
DRY WELL (TYP)
WELL
SLOPES 15-25%
NON-CREDITED FOREST CONSERVATION
MB-2 (M-6)
LIMIT OF WETLANDS
50' STREAM BUFFER
ROAD 'A'
50' PUBLIC R/W
MATCHLINE SHEET 9
SHEET 9
SHEET 8
MATCH LINE

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

SCALE: 50 0 25 50 100 (IN FEET)
1 inch = 50 ft.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 12/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

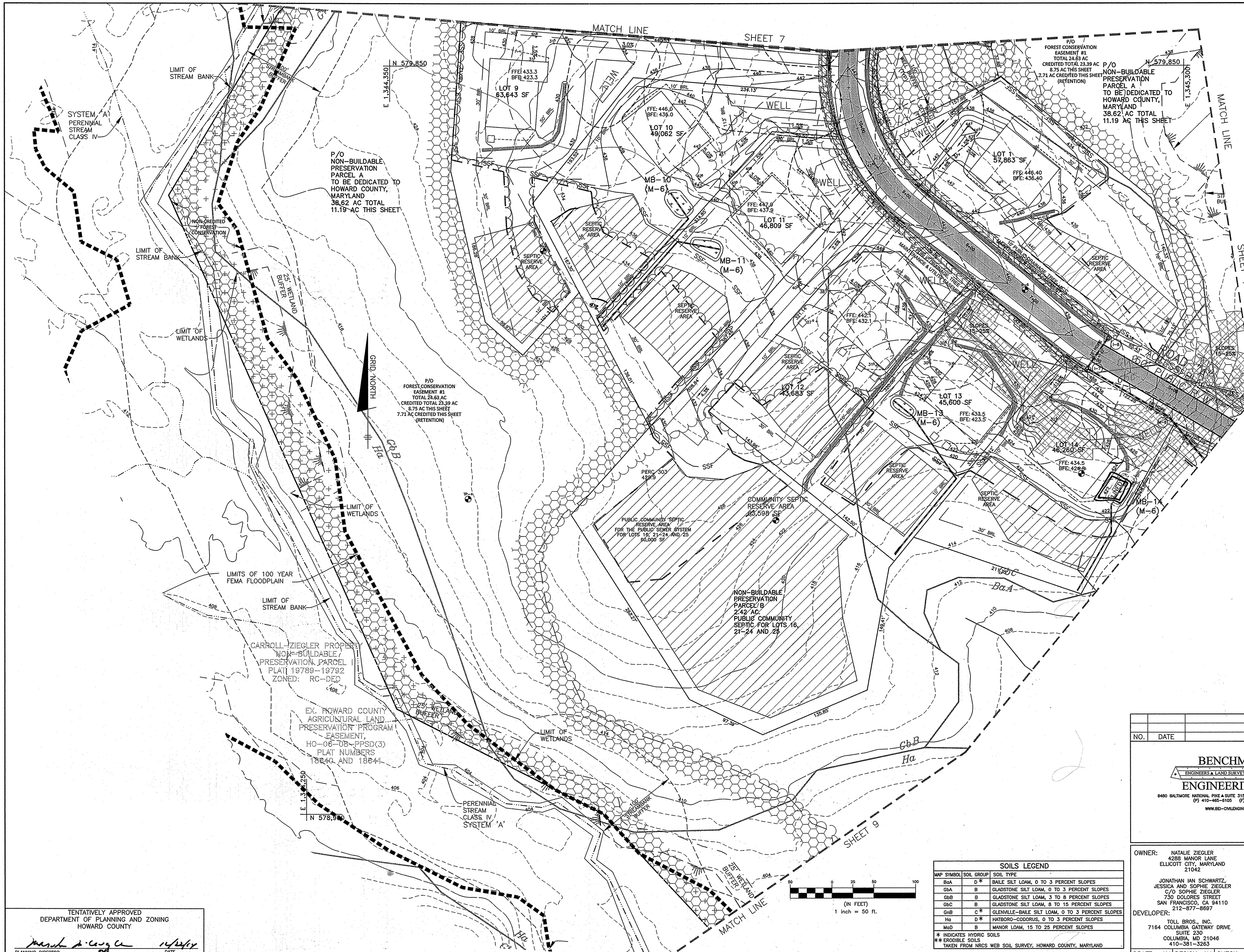
PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN & SOILS MAP**

DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 7 OF 26

DRAFT: AM | DESIGN: AM | CHECK:



LEGEND

SOILS CLASSIFICATION	ChB2
SOILS DELINEATION	
EXISTING CONTOURS	480 / 478
LIMIT OF WETLANDS	
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
SEPTIC RESERVE AREA	
BIO-RETENTION AREAS (M-6)	
PROPOSED WELL BOX	WELL
PRIVATE USE-IN-COMMON EASEMENT	
PUBLIC DRAINAGE AND UTILITY EASEMENT	
PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT	
15% TO 25% SLOPES	
25% AND GREATER SLOPES	
100-YEAR FLOODPLAIN	
STREAM	
LIMIT OF DISTURBANCE	
SUPER SILT FENCE	SSF
STABILIZED CONSTRUCTION ENTRANCE	SCE
EROSION CONTROL MATTING	

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

0 25 50 100
(IN FEET)
1 inch = 50 ft.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 10/24/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

DRAFT: AM | DESIGN: AM | CHECK:

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN & SOILS MAP**

DATE: OCTOBER, 2014 | PROJECT NO. 2501
SCALE: AS SHOWN | SHEET 8 OF 26

SP-14-004

LEGEND

SOILS CLASSIFICATION — ChB2
SOILS DELINEATION
EXISTING CONTOURS — 480, 478
LIMIT OF WETLANDS
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING STRUCTURE
PROPOSED STRUCTURE
SEPTIC RESERVE AREA
BIO-RETENTION AREAS (M-6)
PROPOSED WELL BOX — WELL
PRIVATE USE-IN-COMMON EASEMENT
PUBLIC DRAINAGE AND UTILITY EASEMENT
PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
15% TO 25% SLOPES
25% AND GREATER SLOPES
100-YEAR FLOODPLAIN
STREAM
LIMIT OF DISTURBANCE
SUPER SILT FENCE — SSF
STABILIZED CONSTRUCTION ENTRANCE — SCE
EROSION CONTROL MATTING

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE

(IN FEET)
1 inch = 50 ft.

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER
10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

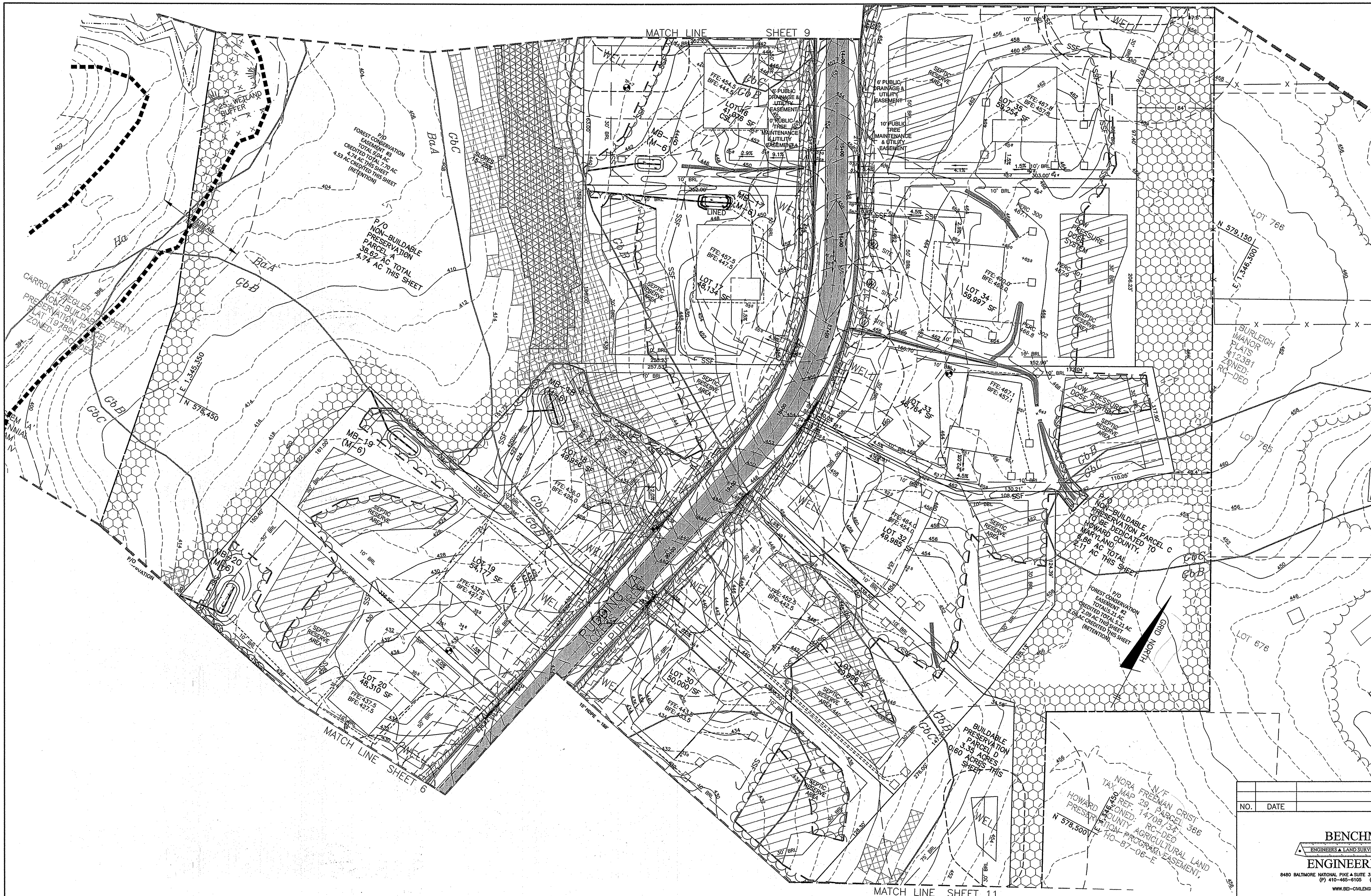
LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN & SOILS MAP**

DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 9 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004



LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE — SSF
- STABILIZED CONSTRUCTION ENTRANCE — SCE
- EROSION CONTROL MATTING

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/24/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER: TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

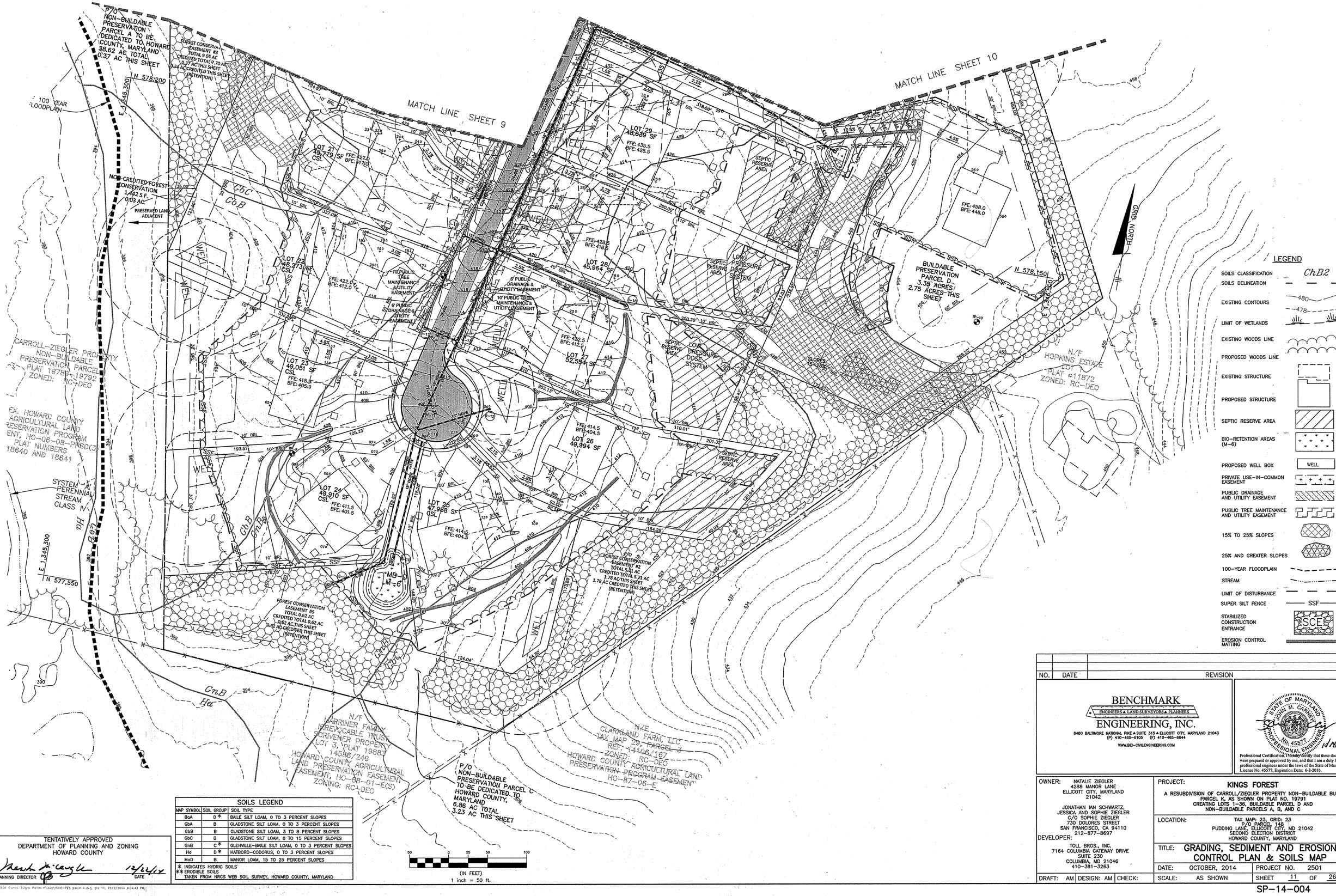
TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN & SOILS MAP**

DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 10 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

P:\2501 Carroll-Ziegler Parcel K\dwg\4000-PZS parcel k.dwg, grd 10, 10/9/2014 4:06:48 PM, ead



LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE — SSF
- STABILIZED CONSTRUCTION ENTRANCE — SCE
- EROSION CONTROL MATTING

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D *	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MoD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARIELLO — No. 45577 — PROFESSIONAL ENGINEER — 12/11/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER, 4288 MANOR LANE, ELLICOTT CITY, MARYLAND 21042
JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER, C/O SOPHIE ZIEGLER, 730 DOLORES STREET, SAN FRANCISCO, CA 94110, 212-877-8697
DEVELOPER: TOLL BROS., INC., 7164 COLUMBIA GATEWAY DRIVE SUITE 230, COLUMBIA, MD 21046, 410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23 C/O PARCEL 148 PUDDING LANE, ELLICOTT CITY, MD 21042 SECOND ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: **GRADING, SEDIMENT AND EROSION CONTROL PLAN & SOILS MAP**

DATE: OCTOBER, 2014 | PROJECT NO. 2501
DRAFT: AM | DESIGN: AM | CHECK:
SCALE: AS SHOWN | SHEET 11 OF 26

SP-14-004

P:\2501 Comm-Ziegler Parcel K\dwg\4206-PES parcel k.dwg, grd 11, 10/9/2014 8:04:43 PM, [illegible]

B-4 STANDARDS AND SPECIFICATIONS
FOR VEGETATIVE STABILIZATION

Definition: Using vegetation as cover to protect exposed soil from erosion.
Purpose: To promote the establishment of vegetation on exposed soil.

Conditions Where Practice Applies

On all disturbed areas not stabilized by other methods. This specification is divided into sections on incremental stabilization; soil preparation, soil amendments and topsoiling; seeding and mulching; temporary stabilization; and permanent stabilization.

Effects on Water Quality and Quantity

Stabilization practices 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 runoff to downstream areas.
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. Over time, vegetation will increase organic matter content and improve the 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 groundwater supplies by assimilating those substances present within the root zone.
Sediment control practices must remain in place during grading, seedbed preparation, seeding, mulching, and vegetative establishment.

Adequate Vegetative Establishment

Inspect seeded areas for vegetative establishment and make necessary repairs, replacements, and reseedings within the planting season.
1. Adequate vegetative stabilization requires 95 percent groundcover.
2. If an area has less than 40 percent groundcover, restabilize following the original recommendations for lime, fertilizer, seedbed preparation, and seeding.
3. If an area has between 40 and 94 percent groundcover, over-seed and fertilize using half of the rates originally specified.
4. Maintenance fertilizer rates for permanent seeding are shown in Table B.6.

B-4-1 STANDARDS AND SPECIFICATIONS
FOR INCREMENTAL STABILIZATION

Definition: Establishment of vegetative cover on cut and fill slopes.
Purpose: To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes
1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
   a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
   b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
   c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
   d. Perform final phase excavation, prepare seedbed, 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 interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

B. Incremental Stabilization - Fill Slopes
1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
   a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
   b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
   c. Place Phase 1 fill, prepare seedbed, and stabilize.
   d. Place Phase 2 fill, prepare seedbed, and stabilize.
   e. Place final phase fill, prepare seedbed, 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 grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.
Figure B.

B-4-4 STANDARDS AND SPECIFICATIONS
FOR TEMPORARY STABLIZATION

Definition: To stabilize disturbed soils with vegetation for up to 6 months.
Purpose: To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies

Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

1. Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
2. For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
3. When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

B-4-8 STANDARDS AND SPECIFICATIONS
FOR STOCKPILE AREA

Definition: A mound or pile of soil protected by appropriately designed erosion and sediment control measures.
Purpose: To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies

Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

1. The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
2. The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
3. Runoff from the stockpile area must drain to a suitable sediment control practice.
4. Access the stockpile area from the upgrade side.
5. Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
6. Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
7. Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
8. If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance

The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

H-5 STANDARDS AND SPECIFICATIONS
FORDUST CONTROL

Definition: Controlling the suspension of dust particles from construction activities.
Purpose: To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards.

Conditions Where Practice Applies

Areas subject to dust blowing and movement where on and off-site damage is likely without treatment.

Specifications

1. Mulches: See Section B-4-2 Soil Preparation, Topsoiling, and Soil Amendments, Section B-4-3 Seeding and Mulching, and Section B-4-4 Temporary Stabilization. Mulch must be anchored to prevent blowing.
2. Vegetative Cover: See Section B-4-4 Temporary Stabilization.
3. Tillage: Till to roughen surface and bring clods to the surface. Begin plowing on windward side of site. Chisel-type plows spaced about 12 inches apart, spring-toothed harrows, and similar plows are examples of equipment that may produce the desired effect.
4. Irrigation: Sprinkle site with water until the surface is moist. Repeat as needed. The site must not be irrigated to the point that runoff occurs.
5. Barriers: Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar material can be used to control air currents and soil blowing.
6. Chemical Treatment: Use of chemical treatment requires approval by the appropriate plan review authority.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR 12/22/14
DATE

B-4-2 STANDARDS AND SPECIFICATIONS
FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition: The process of preparing the soils to sustain adequate vegetative stabilization.
Purpose: To provide a suitable soil medium for vegetative growth.
Conditions Where Practice Applies: Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation
1. Temporary Stabilization
   a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
   b. Apply fertilizer and lime as prescribed on the plans.
   c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
   a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
      i. Soil pH between 6.0 and 7.0.
      ii. Soluble salts less than 500 parts per million (ppm).
      iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
      iv. Soil contains 1.5 percent minimum organic matter by weight.
      v. Soil contains sufficient pore space to permit adequate root penetration.
   b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
   c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.
   d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
   e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling
1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains material toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
   a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1½ inches in diameter.
   b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
   c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsoil Application
   a. Erosion and sediment control practices must be maintained when applying topsoil.
   b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
   c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)
1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION(CONTINUED)

d. Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches, level and rake the areas to prepare a proper seedbed. Remove stones and debris over 1 ½ inches in diameter. The resulting seedbed must be in such condition that future mowing of grasses will pose no difficulty.
e. If soil moisture is deficient, supply new seedings with adequate water for plant growth (½ to 1 inch every 3 to 4 days depending on soil texture) until they are firmly established. This is not especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

A. Sod: to provide quick cover on disturbed areas (2:1 grade or flatter).
1. General Specifications
   a. Class of turfgrass must be Maryland State Certified. Sod labels must be made available to the job foreman and inspector.
   b. Sod must be machine cut at a uniform soil thickness of ¾ inch, plus or minus ¼ inch, at the time of cutting. Measurement for thickness must exclude top growth and thatch. Broken pads and torn or uneven ends will not be acceptable.
   c. Standard size sections of sod must be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.
   d. Sod must not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.
   e. Sod must be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period must be approved by an agronomist or soil scientist prior to its installation.
2. Sod Installation
   a. During periods of excessively high temperature or in areas having dry subsoil, lightly irrigate the subsoil immediately prior to laying the sod.
   b. Lay the first row of sod in a straight line with subsequent rows placed parallel to it and tightly wedged against each other. Stagger lateral joints to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.
   c. Wherever possible, lay sod with the long edges parallel to the contour and with staggering joints. Roll and tamp, peg or otherwise secure the sod to prevent slippage on slopes. Ensure solid contact exists between sod roots and the underlying soil surface.
   d. Water the sod immediately following rolling and tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. Complete the operations of laying, tamping and irrigating for any piece of sod within eight hours.
3. Sod Maintenance
   a. In the absence of adequate rainfall, water daily during the first week or as often and sufficiently as necessary to maintain moist soil to a depth of 4 inches. Water sod during the heat of the day to prevent wilting.
   b. After the first week, sod watering is required as necessary to maintain adequate moisture content.
   c. Do not mow until the sod is firmly rooted. No more than 1/3 of the grass leaf must be removed by the initial cutting or subsequent cuttings. Maintain a grass height of at least 3 inches unless otherwise specified.

B-4-5 STANDARDS AND SPECIFICATIONS
FOR PERMANENT STABILIZATION

Definition: To stabilize disturbed soils with permanent vegetation.
Purpose: To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils.
Conditions Where Practice Applies: Exposed soils where ground cover is needed for 6 months or more.

Criteria

A. Seed Mixtures
1. General Use
   a Select one or more of the species or mixtures listed in Table B.3 for the appropriate Plant Hardiness Zone (from Figure B.3) and based on the site condition or purpose found on Table B.2. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The Summary is to be placed on the plan.
   b Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-NRCS Technical Field Office Guild, Section 342 - Critical Area Planting.
   c For sites having disturbed areas over 5 acres, use and show the rates recommended by the soil testing agency.
   d For areas receiving low maintenance, apply urea form fertilizer (46-0-0) at 3 ½ pounds per 1000 square feet (150 pounds per acre) at the time of seeding in addition to the soil amendments shown in the Permanent Seeding Summary.
2. Turfgrass Mixtures
   a. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance.
   b. Select one or more of the species or mixtures listed below based on the site conditions or purpose. Enter selected mixture(s), application rates, and seeding dates in the Permanent Seeding Summary. The summary is to be placed on the plan.
   i. Kentucky Bluegrass: Full sun Mixture: For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and Eastern Shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
   ii. Kentucky Bluegrass/Perennial Rye: Full Sun Mixture: For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding Rate: 2 pounds mixture per 1000 square feet. Choose a minimum of three Kentucky Bluegrass Cultivars with each ranging from 10 to 35 percent of the total mixture by weight.
   iii. Tall Fescue/Kentucky Bluegrass: Full Sun Mixture: For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; Certified Tall Fescue Cultivars 95 to 100 percent, Certified Kentucky Bluegrass Cultivars 0 to 5 percent. Seeding Rate: 5 to 8 pounds per 1000 square feet. One or more cultivars may be blended.
   iv. Kentucky Bluegrass/Fine Fescue: Shade Mixture: For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes Certified Kentucky Bluegrass Cultivars 30 to 40 percent and Certified Fine Fescue and 60 to 70 percent. Seeding Rate: 1 ½ to 3 pounds per 1000 square feet.
   Notes:Select turfgrass varieties from those listed in the most current University of Maryland Publication, Agronomy Memo #77, "Turfgrass Cultivar Recommendations for Maryland" Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.
   c. Ideal Times of Seeding for Turf Grass Mixtures
   Western MD: March 15 to June 1, August 1 to October 1 (Hardiness Zones: 5b, 6a)
   Central MD: March 1 to May 15, August 15 to October 15 (Hardiness Zone: 6b)
   Southern MD, Eastern Shore: March 1 to May 15, August 15 to October 15 (Hardiness Zones: 7a, 7b)

B-4-3 STANDARDS AND SPECIFICATIONS
FOR SEEDING AND MULCHING

Definition: The application of seed and mulch to establish vegetative cover.
Purpose: To protect disturbed soils from erosion during and at the end of construction.
Conditions Where Practice Applies: To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

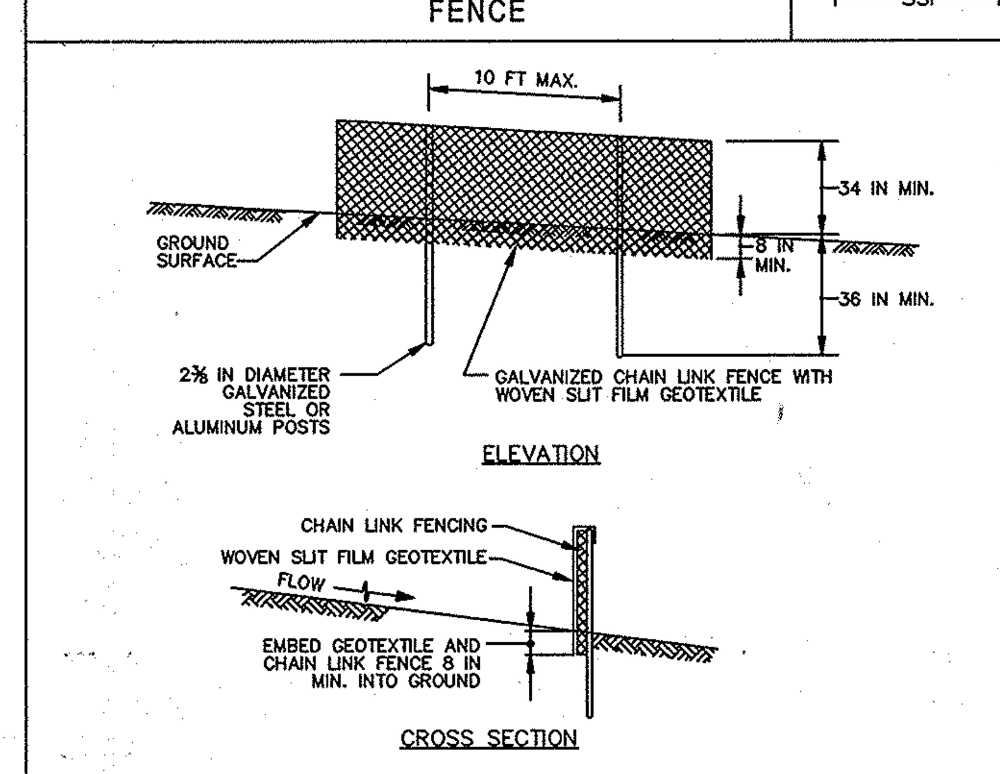
Criteria

A. Seeding
1. Specifications
   a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
   b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
   c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
   d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
2. Application
   a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
      i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.
   b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
      i. Cultipacking seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
      ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
   c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
      i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P2O5 (phosphorous), 200 pounds per acre; K2O (potassium), 200 pounds per acre.
      ii. 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.
      iii. Mix seed and fertilizer on site and seed immediately and without interruption.
      iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching
1. Mulch Materials (in order of preference)
   a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. Note: Use only sterile straw mulch in areas where one species of grass is desired.
   b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
      i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
      ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
      iii. WCFM materials are to be manufactured and processed in such 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 must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
      iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
      v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.
2. Application
   a. Apply mulch to all seeded areas immediately after seeding.
   b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
   c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
3. Anchoring
   a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
      i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
      ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
      iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. Use of asphalt binders is strictly prohibited.
      iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: —SSF—



CONSTRUCTION SPECIFICATIONS

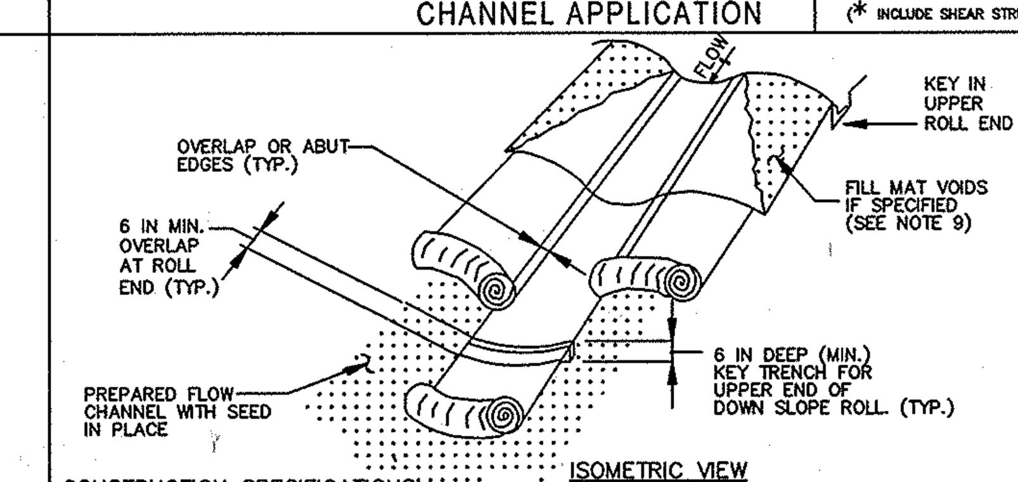
1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2⅜ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-4-6-C PERMANENT SOIL STABILIZATION MATTING CHANNEL APPLICATION

STANDARD SYMBOL: PSSMC – * lb/ft² (* INCLUDE SHEAR STRESS)



CONSTRUCTION SPECIFICATIONS

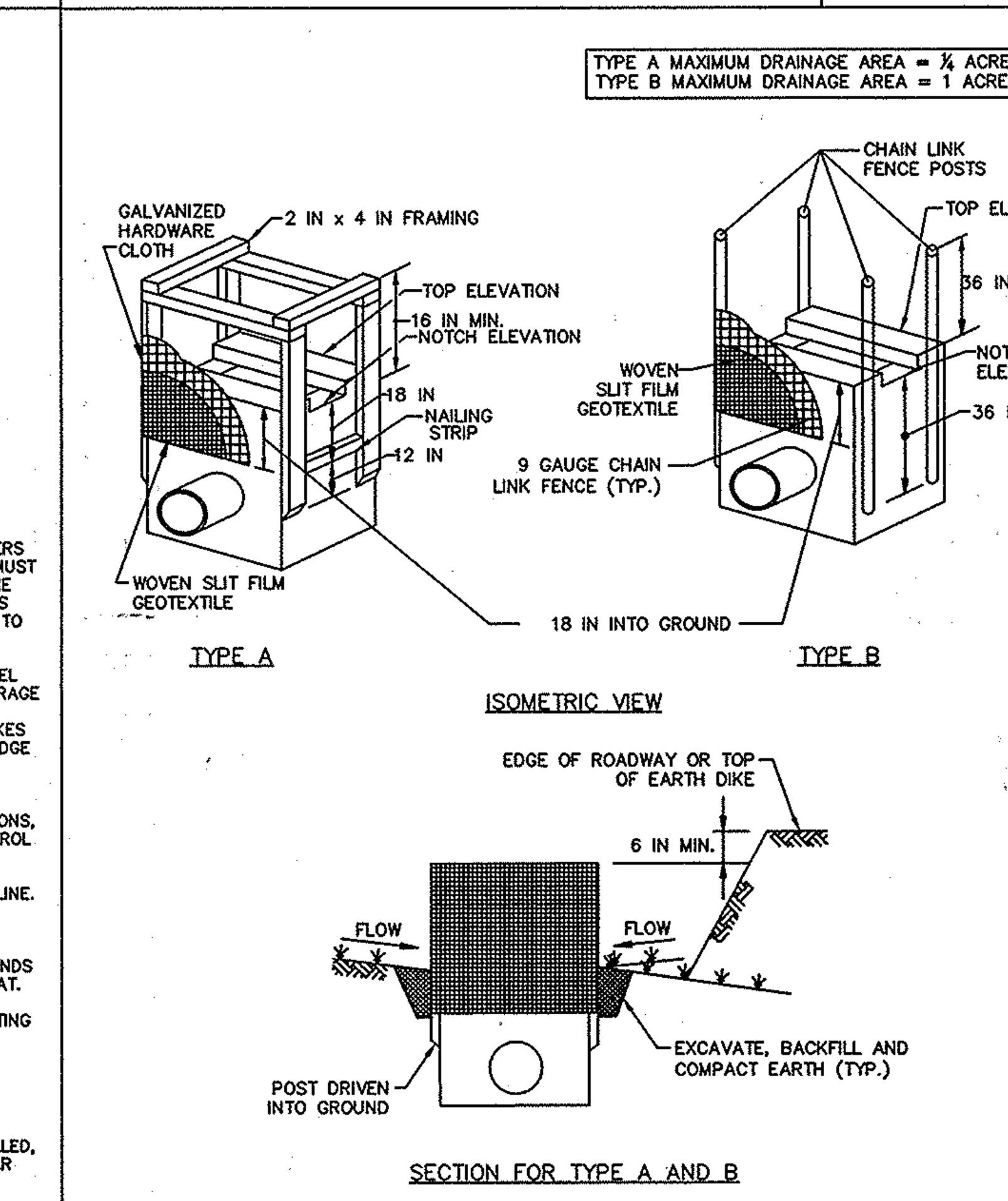
1. USE MATTING THAT HAS A DESIGN VALUE FOR SHEAR STRESS EQUAL TO OR HIGHER THAN THE SHEAR STRESS DESIGNATED ON APPROVED PLANS.
2. USE PERMANENT SOIL STABILIZATION MATTING MADE OF OPEN WEAVE SYNTHETIC, NON-DEGRADABLE FIBERS OR ELEMENTS OF UNIFORM THICKNESS AND DISTRIBUTION THROUGHOUT. CHEMICALS USED IN THE MAT MUST BE NON-LEACHING AND NON-TOXIC TO VEGETATION AND SEED GERMINATION AND NON-INJURIOUS TO THE SKIN. IF PRESENT, NETTING MUST BE EXTRUDED PLASTIC WITH A MAXIMUM MESH OPENING OF 2x2 INCHES AND SUFFICIENTLY BONDED OR SEWN ON 2 INCH CENTERS ALONG LONGITUDINAL AXIS OF THE MATERIAL TO PREVENT SEPARATION OF THE NET FROM THE PARENT MATERIAL.
3. SECURE MATTING USING STEEL STAPLES OR WOOD STAKES. STAPLES MUST BE "U" OR "T" SHAPED STEEL WIRE HAVING A MINIMUM GAUGE OF NO. 11 AND NO. 8 RESPECTIVELY. "U" SHAPED STAPLES MUST AVERAGE 1 TO 1 ½ INCHES WIDE AND BE A MINIMUM OF 6 INCHES LONG. "T" SHAPED STAPLES MUST HAVE A MINIMUM 8 INCH MAIN LEG, A MINIMUM 1 INCH SECONDARY LEG, AND MINIMUM 4 INCH HEAD. WOOD STAKES MUST BE ROUGH-SAWN HARDWOOD, 12 TO 24 INCHES IN LENGTH, 1x3 INCH IN CROSS SECTION, AND WEDGE SHAPE AT THE BOTTOM.
4. PERFORM FINAL GRADING, TOPSOIL APPLICATION, SEEDBED PREPARATION, AND PERMANENT SEEDING IN ACCORDANCE WITH SPECIFICATIONS. PLACE MATTING WITHIN 48 HOURS OF COMPLETING SEEDING OPERATIONS, UNLESS END OF WORKDAY STABILIZATION IS SPECIFIED ON THE APPROVED EROSION AND SEDIMENT CONTROL PLAN.
5. UNROLL MATTING IN DIRECTION OF WATER FLOW, CENTERING THE FIRST ROLL ON THE CHANNEL CENTER LINE. WORK FROM CENTER OF CHANNEL OUTWARD WHEN PLACING ROLLS. LAY MATTING SMOOTHLY AND FIRMLY UPON THE SEEDED SURFACE. AVOID STRETCHING THE MATTING.
6. OVERLAP OR ABUT EDGES OF MATTING ROLLS PER MANUFACTURER RECOMMENDATIONS. OVERLAP ROLL ENDS BY 6 INCHES (MINIMUM), WITH THE UPSTREAM MAT OVERLAPPING ON TOP OF THE NEXT DOWNSTREAM MAT.
7. KEY IN THE TOP OF SLOPE END OF MAT 6 INCHES (MINIMUM) BY DIGGING A TRENCH, PLACING THE MATTING ROLL END IN THE TRENCH, STAPLING THE MAT IN PLACE, REPLACING THE EXCAVATED MATERIAL, AND TAMPING TO SECURE THE MAT END IN THE KEY.
8. STAPLE/STAKE MAT IN A STAGGERED PATTERN ON 4 FOOT (MAXIMUM) CENTERS THROUGHOUT AND 2 FOOT (MAXIMUM) CENTERS ALONG SEAMS, JOINTS, AND ROLL ENDS.
9. IF SPECIFIED BY THE DESIGNER OR MANUFACTURER AND DEPENDING ON THE TYPE OF MAT BEING INSTALLED, ONCE THE MATTING IS KEYED AND STAPLED IN PLACE, FILL THE MAT VOIDS WITH TOP SOIL OR GRANULAR MATERIAL AND LIGHTLY COMPACT OR ROLL TO MAXIMIZE SOIL/MAT CONTACT WITHOUT CRUSHING MAT.
10. ESTABLISH AND MAINTAIN VEGETATION SO THAT REQUIREMENTS FOR ADEQUATE VEGETATIVE ESTABLISHMENT ARE CONTINUOUSLY MET IN ACCORDANCE WITH SECTION B-4 VEGETATIVE STABILIZATION.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP



1 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

CONSTRUCTION SPECIFICATIONS

1. USE WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
2. EXCAVATE COMPLETELY AROUND THE INLET TO A DEPTH OF 18 INCHES BELOW THE NOTCH ELEVATION.
3. FOR TYPE A, USE NOMINAL 2 INCH X 4 INCH CONSTRUCTION GRADE LUMBER POSTS, DRIVEN 1 FOOT INTO THE GROUND AT EACH CORNER OF THE INLET. PLACE NAIL STRIPS BETWEEN THE POSTS ON THE ENDS OF THE INLET. ASSEMBLE THE TOP PORTION OF THE 2X4 FRAME AS SHOWN. STRETCH ½ INCH GALVANIZED HARDWARE CLOTH TIGHTLY AROUND THE FRAME AND FASTEN SECURELY. FASTEN GEOTEXTILE SECURELY TO THE HARDWARE CLOTH WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND HARDWARE CLOTH A MINIMUM OF 18 INCHES BELOW THE WEIR CREST. THE ENDS OF THE GEOTEXTILE MUST MEET AT A POST, BE OVERLAPPED AND FOLDED, THEN FASTENED TO THE POST.

   FOR TYPE B, USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND 6 FOOT LENGTH, DRIVEN A MINIMUM OF 36 INCHES BELOW THE WEIR CREST AT EACH CORNER OF THE STRUCTURE. FASTEN 9 GAUGE OR HEAVIER CHAIN LINK FENCE, 42 INCHES IN HEIGHT, SECURELY TO THE FENCE POSTS WITH WIRE TIES. FASTEN GEOTEXTILE SECURELY TO THE CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 18 INCHES BELOW THE WEIR CREST.
4. BACKFILL AROUND THE INLET IN LOOSE 4 INCH LIFTS AND COMPACT UNTIL SOIL IS LEVEL WITH THE NOTCH ELEVATION ON THE ENDS AND TOP ELEVATION ON THE SIDES.
5. STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

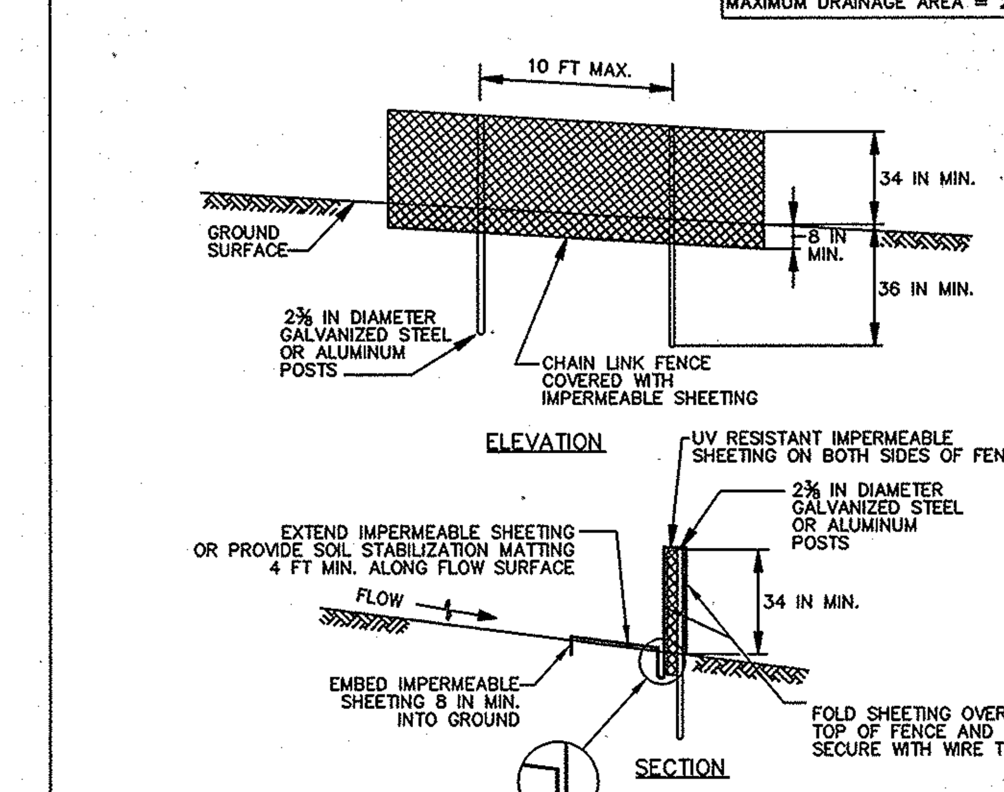
2 OF 2

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL C-9 DIVERSION FENCE

STANDARD SYMBOL: — DF —



CONSTRUCTION SPECIFICATIONS

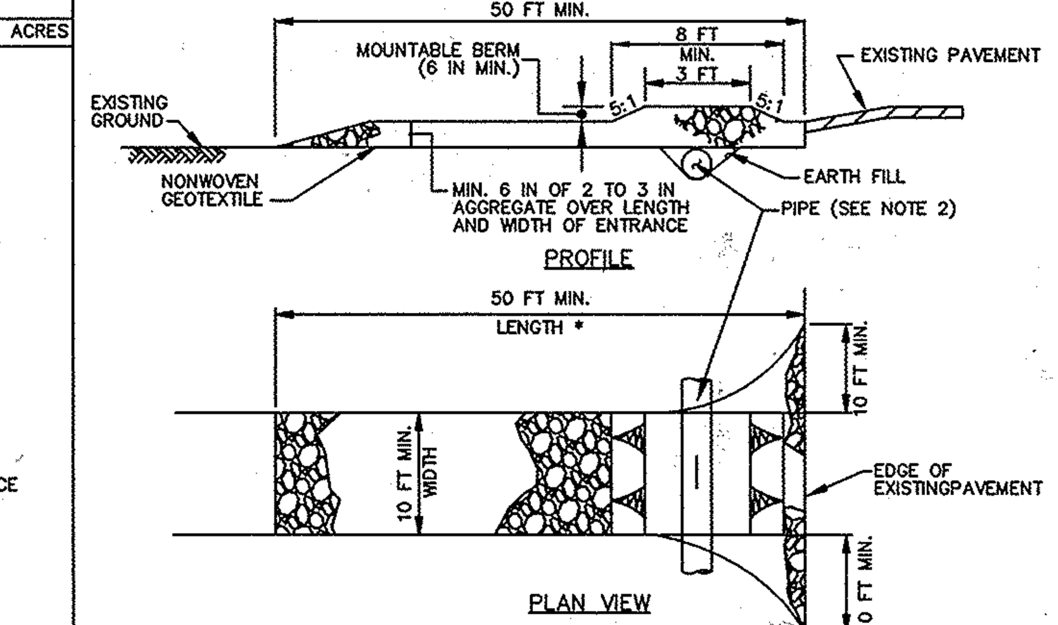
1. USE 42 INCH HIGH, 9 GAUGE OR THICKER CHAIN LINK FENCING (2⅜ INCH MAXIMUM OPENING).
2. USE 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. THE POSTS DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO THE FENCE POSTS WITH WIRE TIES.
4. SECURE 10 MIL OR THICKER UV RESISTANT, IMPERMEABLE SHEETING TO CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT TOP, MID SECTION, AND BELOW GROUND SURFACE.
5. EXTEND SHEETING A MINIMUM OF 4 FEET ALONG FLOW SURFACE AND EMBED END A MINIMUM OF 8 INCHES INTO GROUND. SOIL STABILIZATION MATTING MAY BE USED IN LIEU OF IMPERMEABLE SHEETING ALONG FLOW SURFACE.
6. WHEN TWO SECTIONS OF SHEETING ADJOIN EACH OTHER, OVERLAP BY 6 INCHES AND FOLD WITH SEAM FACING DOWNGRADE.
7. KEEP FLOW SURFACE ALONG DIVERSION FENCE AND POINT OF DISCHARGE FREE OF EROSION. REMOVE ACCUMULATED SEDIMENT AND DEBRIS. MAINTAIN POSITIVE DRAINAGE. REPLACE IMPERMEABLE SHEETING IF TORN. IF UNDERMINING OCCURS, REINSTALL FENCE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL B-1 STABILIZED CONSTRUCTION ENTRANCE

STANDARD SYMBOL: SCE



CONSTRUCTION SPECIFICATIONS

1. PLACE STABILIZED CONSTRUCTION ENTRANCE IN ACCORDANCE WITH THE APPROVED PLAN. VEHICLES MUST TRAVEL OVER THE ENTIRE LENGTH OF THE SCE. USE MINIMUM LENGTH OF 50 FEET (*30 FEET FOR SINGLE RESIDENCE LOT). USE MINIMUM WIDTH OF 10 FEET. FLARE SCE 10 FEET MINIMUM AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
2. PIPE ALL SURFACE WATER FLOWING TO OR DIVERTED TOWARD THE SCE UNDER THE ENTRANCE, MAINTAINING POSITIVE DRAINAGE. PROTECT PIPE INSTALLED THROUGH THE SCE WITH A MOUNTABLE BERM WITH 5:1 SLOPES AND A MINIMUM OF 12 INCHES OF STONE OVER THE PIPE. PROVIDE PIPE AS SPECIFIED ON APPROVED PLAN. WHEN THE SCE IS LOCATED AT A HIGH SPOT AND HAS NO DRAINAGE TO CONVEY, A PIPE IS NOT NECESSARY. A MOUNTABLE BERM IS REQUIRED WHEN SCE IS NOT LOCATED AT A HIGH SPOT.
3. PREPARE SUBGRADE AND PLACE NONWOVEN GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
4. PLACE CRUSHED AGGREGATE (2 TO 3 INCHES IN SIZE) OR EQUIVALENT RECYCLED CONCRETE (WITHOUT REBAR) AT LEAST 6 INCHES DEEP OVER THE LENGTH AND WIDTH OF THE SCE.
5. MAINTAIN ENTRANCE IN A CONDITION THAT MINIMIZES TRACKING OF SEDIMENT. ADD STONE OR MAKE OTHER REPAIRS AS CONDITIONS DEMAND TO MAINTAIN CLEAN SURFACE, MOUNTABLE BERM, AND SPECIFIED DIMENSIONS. IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING. WASHING ROADWAY TO REMOVE MUD TRACKED ONTO PAVEMENT IS NOT ACCEPTABLE UNLESS WASH WATER IS DIRECTED TO AN APPROVED SEDIMENT CONTROL PRACTICE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE	2011	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION

Day 1: Obtain grading permit. A letter of Authorization from MDE must be obtained prior to disturbances to the stream, floodplain or wetlands for the road and/or utility crossings. Stream closure shall be between March 1st and May 31st.

Day 2: Install stabilized construction entrance at Pudding Lane.

Day 3-18: Install clean water diversion fence to direct clean water flow around the disturbed area at culvert crossings E-1 to E-2. Construct culvert complete with riprap outfalls and headwalls and stabilize immediately.

Day 19-34: Install clean water diversion dike to direct clean water flow around the disturbed area at culvert crossings E-3 to E-4. Construct culvert complete with riprap outfalls and headwalls and stabilize immediately.

Day 35-45: Upon approval of the Howard County Sediment Control Inspector, install perimeter controls for the remainder of the site.

Day 48-68: With perimeter controls in place install the bottomless arch crossing at Road A.

Day 69-74: Upon approval of the Howard County Sediment Control Inspector, bring the road beds subgrade and stabilize slopes in accordance with temporary seedbed notes. This construction can take place prior to the completion of the stream crossings for the work that is outside of the environmental areas. Note that once the arch is installed access is prohibited from anywhere except defined roadways.

Day 75-89: Install pressure sewer main and storm drain systems including outfall locations. This construction can take place prior to the completion of the stream crossings for the work that is outside of the environmental areas.

Day 90-108: Complete grading of the disturbed area and stabilize disturbed areas in accordance with the permanent seedbed notes. Install the wetland mitigation area. This construction can take place prior to the completion of the stream crossings for the work that is outside of the environmental areas.

Day 109-128: Install the community septic reserve area including tanks and trenches. This construction can take place prior to the completion of the stream crossings for the work that is outside of the environmental areas.

Day 129-148: Pave roads and stabilize disturbed areas in accordance with permanent stabilization notes. This construction can take place prior to the completion of the stream crossings for the work that is outside of the environmental areas.

Day 149-164: With disturbed areas stabilized and with inspector's approval install micro-bioretention facilities MB-A thru MB-D and stabilize.

Day 165 to 170: Upon approval of the Howard County Sediment Control Inspector, remove remaining sediment control devices and stabilize disturbed areas in accordance with the permanent seedbed notes.

NOTE:
1. EROSION CONTROL MATTING SHALL BE PLACED IN SWALES WHERE DEEMED NECESSARY UNTIL VEGETATION IS ESTABLISHED OR SOLID SOD SHOULD BE USED.
2. ON-LOT STORMWATER MANAGEMENT FACILITIES SHALL BE CONSTRUCTED AS A PART OF THE HOUSE CONSTRUCTION AND LOT DEVELOPMENT.

SEDIMENT CONTROL NOTES

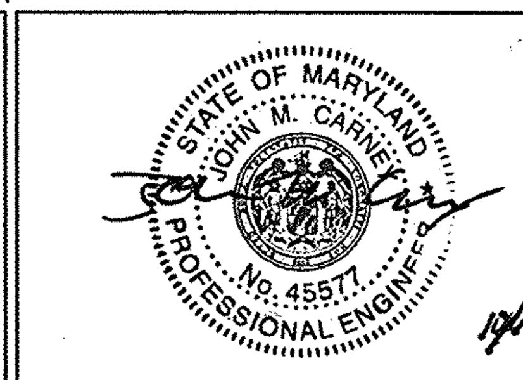
1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (313-1855).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 3 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 7 days as to all other disturbed or graded areas on the project site.
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. B-4-5), temporary seeding (Sec. B-4-4) and mulching (Sec.B-4-3). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
5. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.

Total Area of Site	97.74	Acres
Area Disturbed	36.6	Acres
Area to be roofed or paved	9.0	Acres
Area to be vegetatively stabilized	27.6	Acres
Total Cut	7,377	Cu. Yds.
Total Fill	13,976	Cu. Yds.
Offsite waste/borrow are location	N/A*	

7. Any sediment control practice that is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
9. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
10. Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each workday, whichever is shorter.
11. Any changes or revisions to the sequence of construction must be reviewed and approved by the plan approval authority prior to proceeding with construction.
12. A project is to be sequenced so that grading activities begin on one grading unit (maximum acreage of 20 ac. per grading unit) at a time. Work may proceed to a subsequent grading unit when at least 50 percent of the disturbed area in the preceding grading unit has be stabilized and approved by the enforcement authority. Unless otherwise specified and approved by the approval authority, no more than 30 acres cumulatively may be disturbed at a given time. Rev. 4/2013

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS:
NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

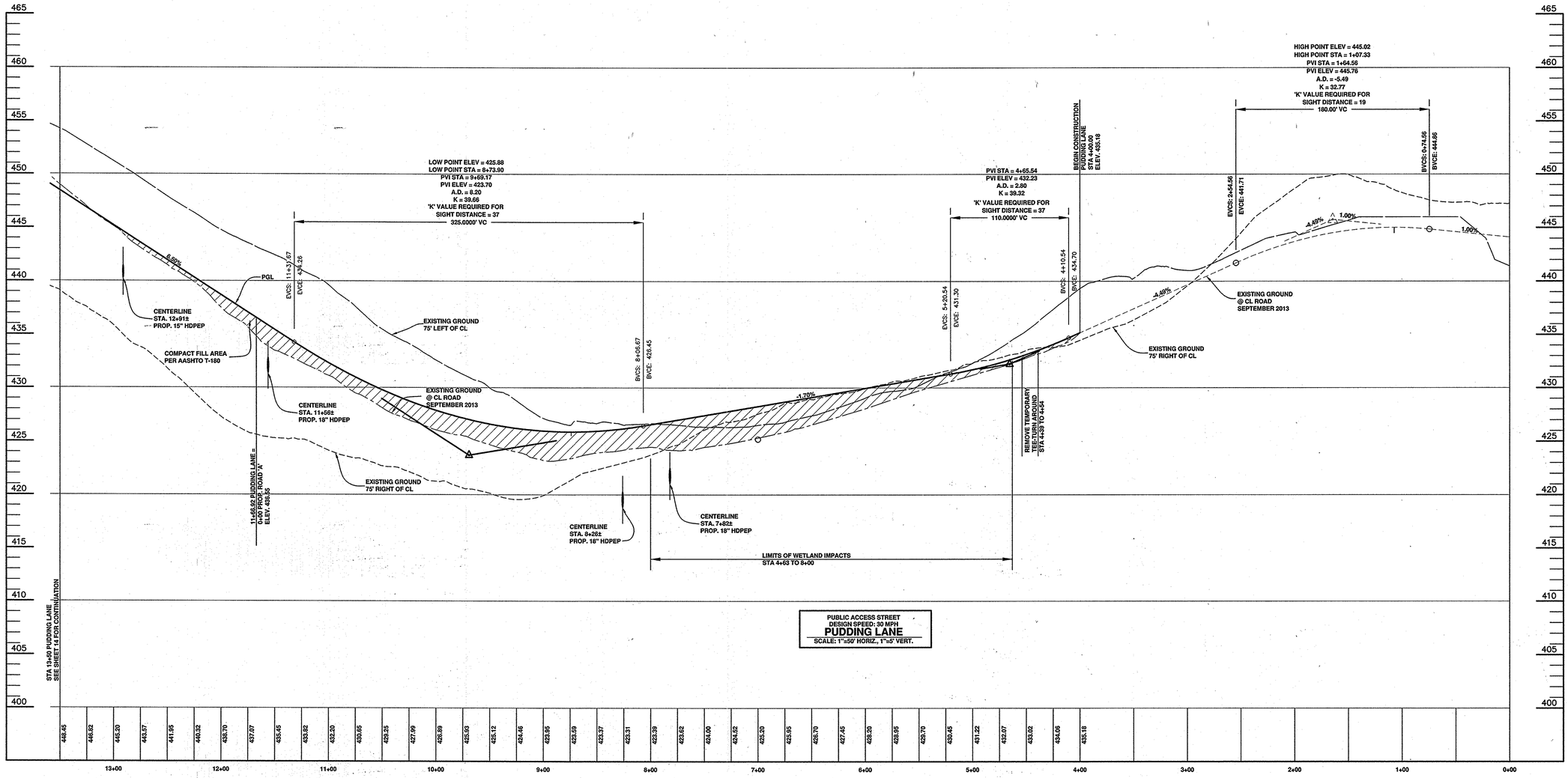
TITLE: SEDIMENT CONTROL NOTES AND DETAILS

DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 12 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

P:\2501 Carroll-Ziegler Parcel K\dwg\4017-PES parcel k.DWG, SC notes 12, 10/3/2014 4:35:03 PM,

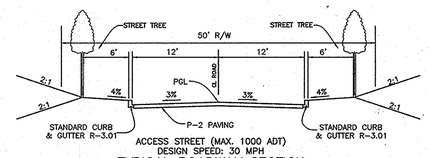


50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

HMA SUPERPAVE FINAL SURFACE
HMA SUPERPAVE INTERMEDIATE SURFACE
HMA SUPERPAVE BASE
GRADED AGGREGATE BASE (GAB)

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			MIN HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0

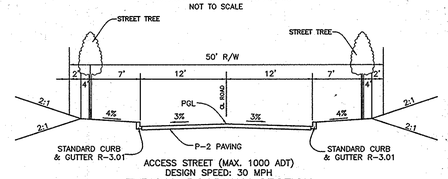
P-2 PAVING DETAIL



ACCESS STREET (MAX. 1000 ADT)
DESIGN SPEED: 30 MPH

TYPICAL ROADWAY SECTION PROPOSED PUDDING LANE

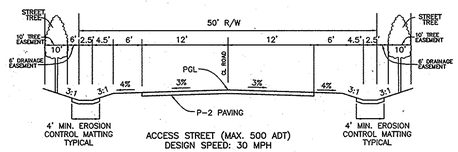
STATIONS 4+00.00 TO 6+50.00
NOT TO SCALE



ACCESS STREET (MAX. 1000 ADT)
DESIGN SPEED: 30 MPH

TYPICAL ROADWAY SECTION PROPOSED PUDDING LANE

STATIONS 6+50.00 TO 12+80.00
NOT TO SCALE



ACCESS STREET (MAX. 500 ADT)
DESIGN SPEED: 30 MPH

TYPICAL ROADWAY SECTION PROPOSED PUDDING LANE

STATIONS 12+80 TO 26+34
NOT TO SCALE

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN H. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 12/12/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

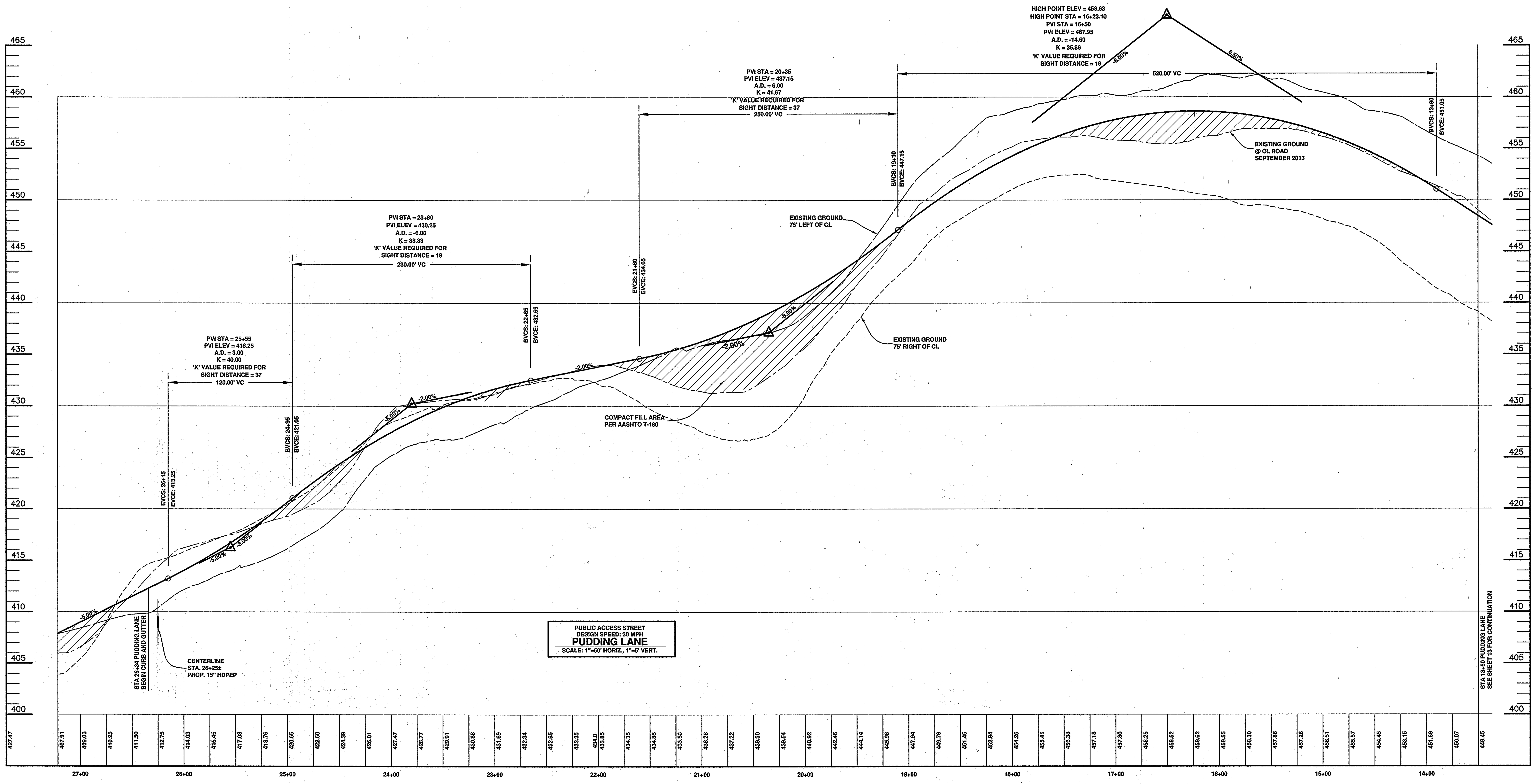
TITLE: **ROAD PROFILE - PUDDING LANE**

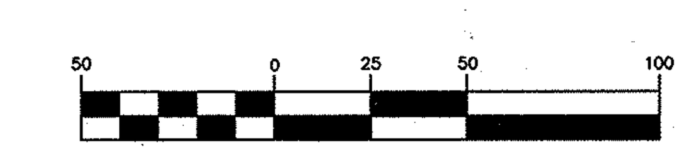
DATE: OCTOBER, 2014 | PROJECT NO. 2501

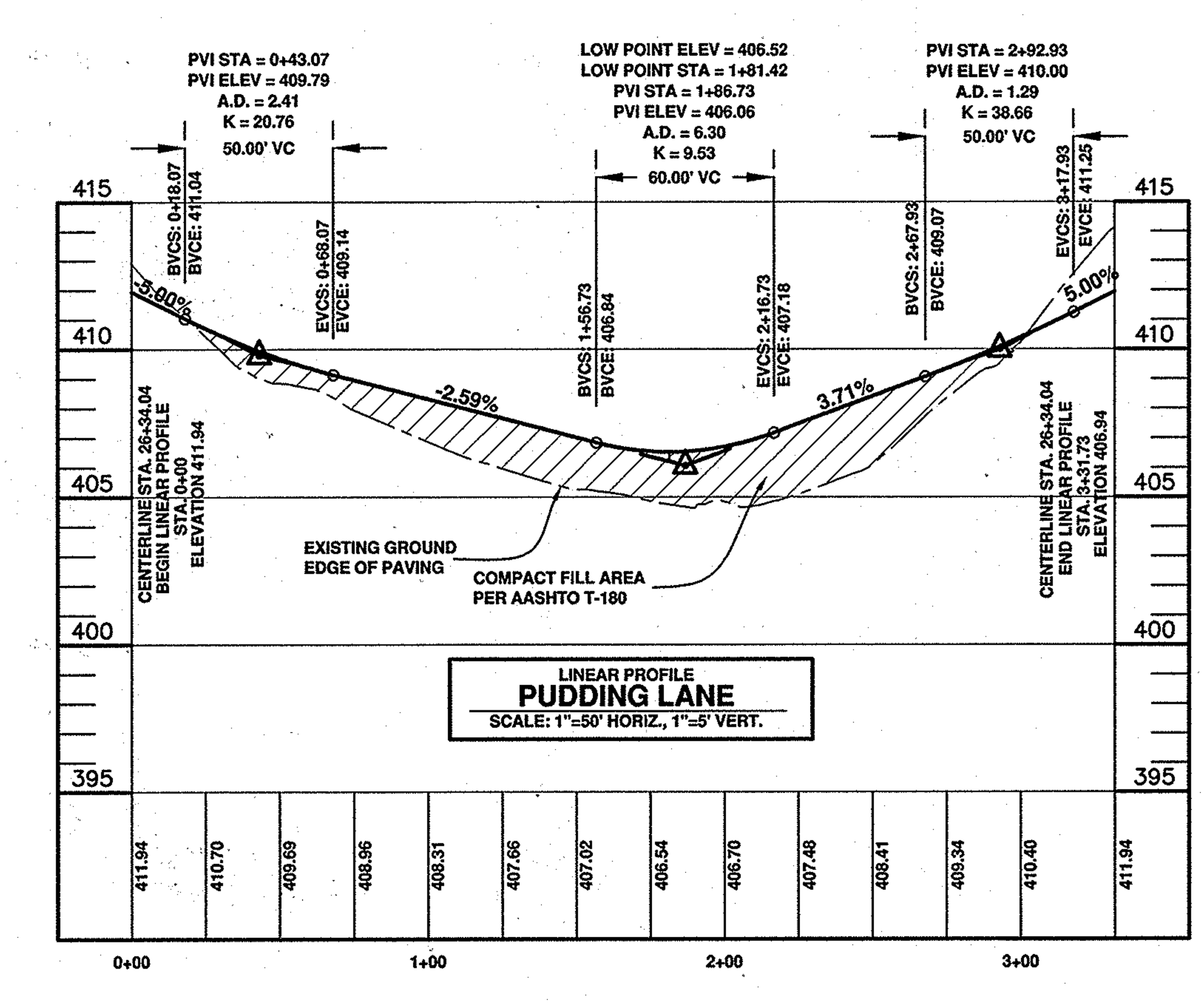
DRAFT: AM | DESIGN: AM | CHECK: | SCALE: AS SHOWN | SHEET 13 OF 26

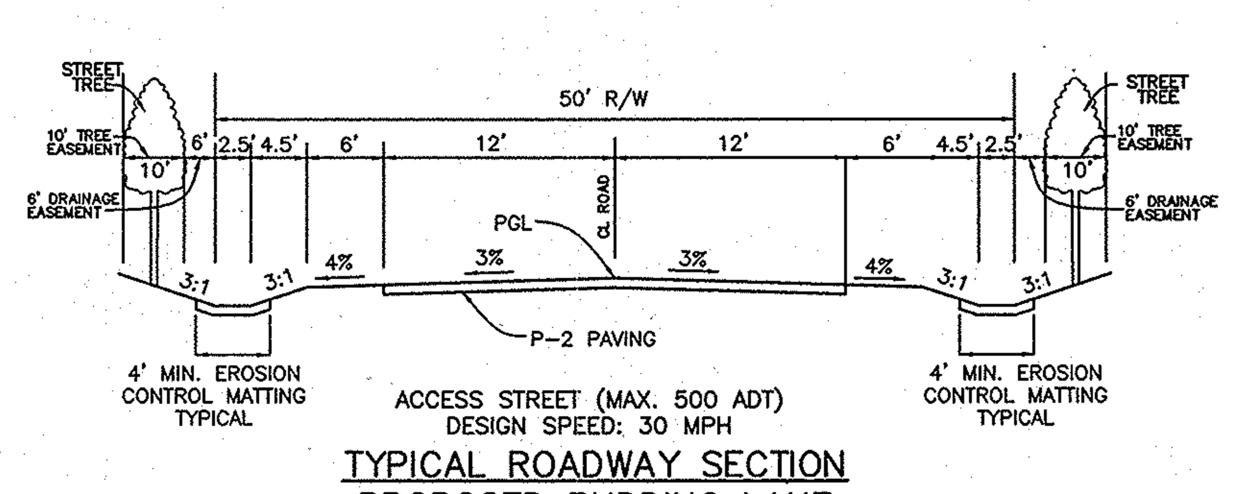
SP-14-004

P:\2501 Carroll-Ziegler Parcel K\dwg\4017-REC parcel x.DWG, profile 13, 12/9/2014 4:56:48 PM, dan









TYPICAL ROADWAY SECTION
PROPOSED PUDDING LANE
STATIONS 12+80 TO 26+34
NOT TO SCALE

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR	12/22/14 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND
JOHN M. CARNEY
No. 45577
PROFESSIONAL ENGINEER
12/4/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS:
NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

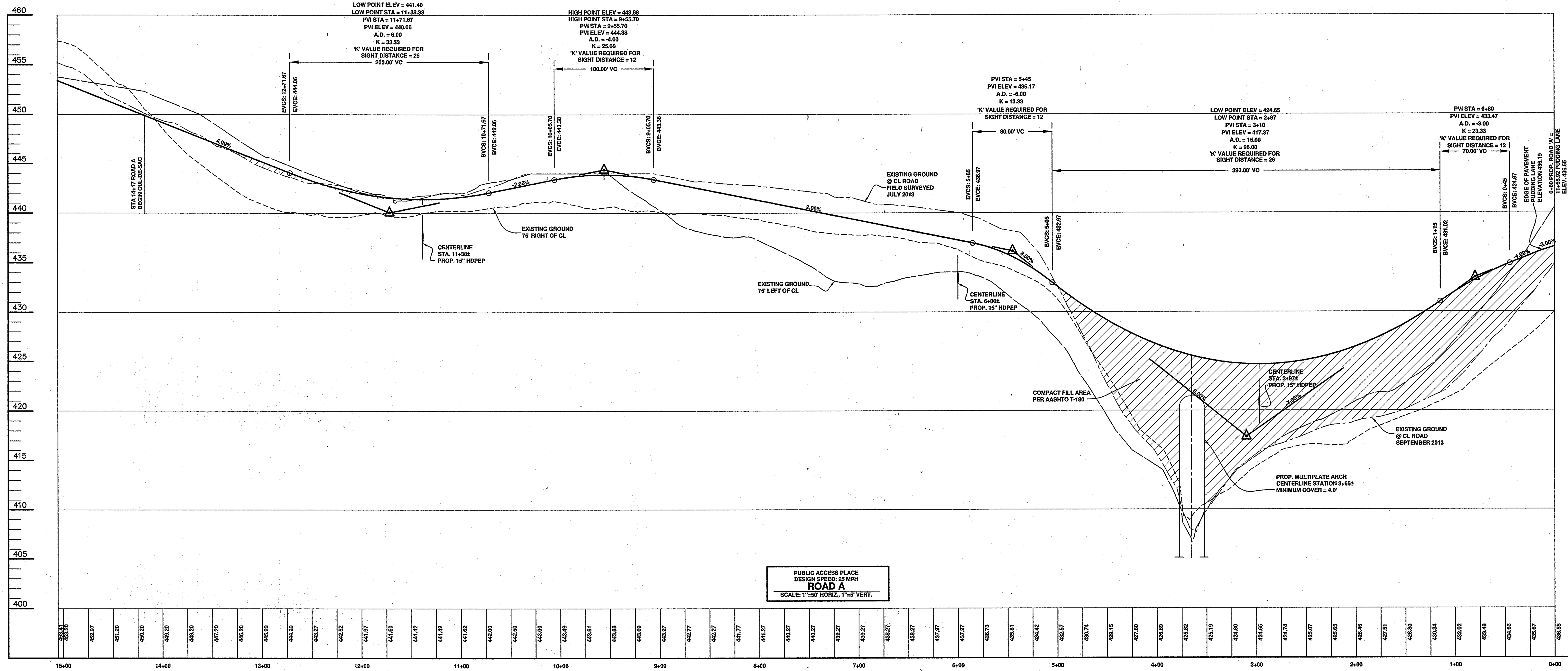
LOCATION:
TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

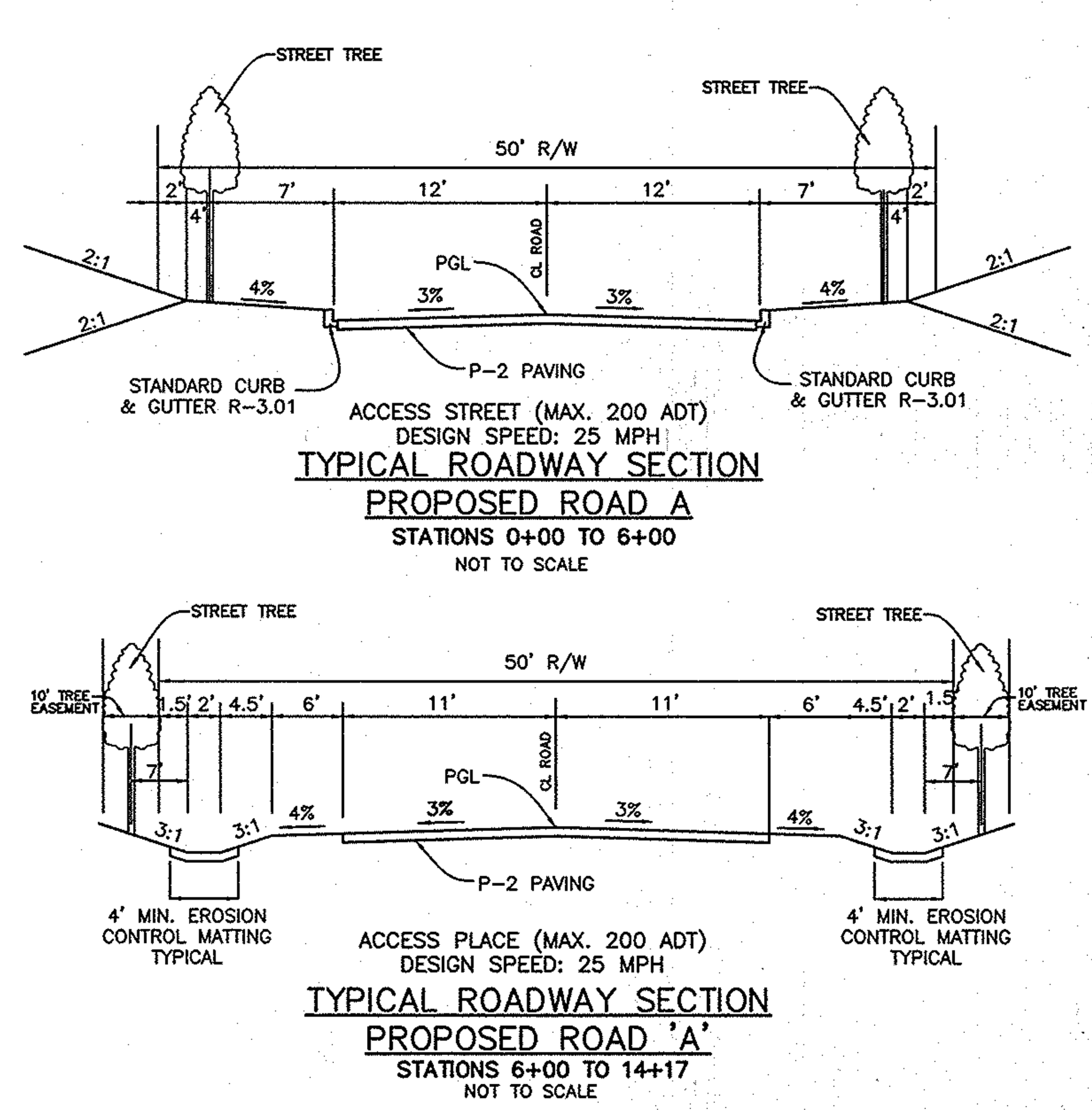
TITLE: **ROAD PROFILE – PUDDING LANE**

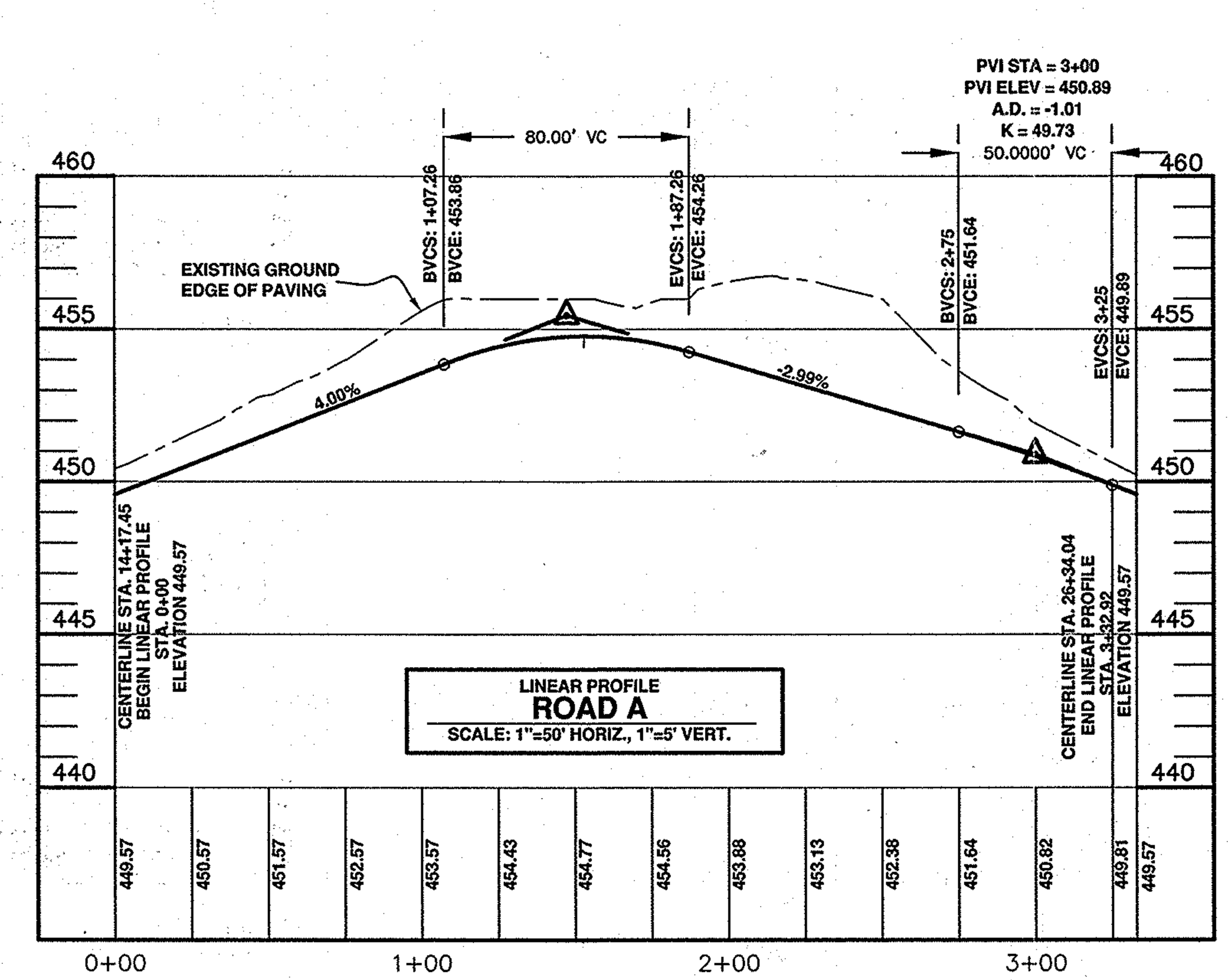
DATE: OCTOBER, 2014	PROJECT NO. 2501
SCALE: AS SHOWN	SHEET 14 OF 26

DRAFT: AM | DESIGN: AM | CHECK:

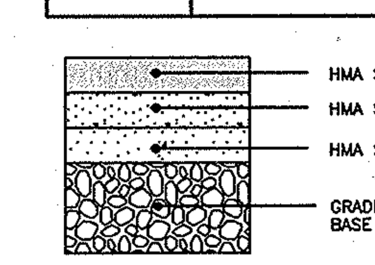
SP-14-004







SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <5	5 TO <7	≥7	3 TO <5	5 TO <7	≥7
		PAVEMENT MATERIAL (INCHES)	MIN HMA WITH GAB			HMA WITH CONSTANT GAB		
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY; LOCAL ROADS: ACCESS PLACE, ACCESS STREET; CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.5	1.5	1.5	1.5	1.5	1.5
		HMA SUPERPAVE INTERMEDIATE SURFACE 9.5 MM PG 64-22, LEVEL 1 (LOW ESAL)	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE 19.0 MM PG 64-22, LEVEL 1 (LOW ESAL)	2.0	2.0	2.0	3.5	2.0	2.0
		GRADED AGGREGATE BASE (GAB)	8.0	4.0	3.0	4.0	4.0	4.0



P-2 PAVING DETAIL

(IN FEET)
1 inch = 50 ft.

THE FOLLOWING STANDARD SIGN DESIGN SPECIFICATIONS SHALL APPLY:

1. THE SIGN SIZE SHALL BE 12" x 18".

2. THE SIGN MATERIAL SHALL BE 0.080 GAUGE THICKNESS ANODIZED ALUMINUM.

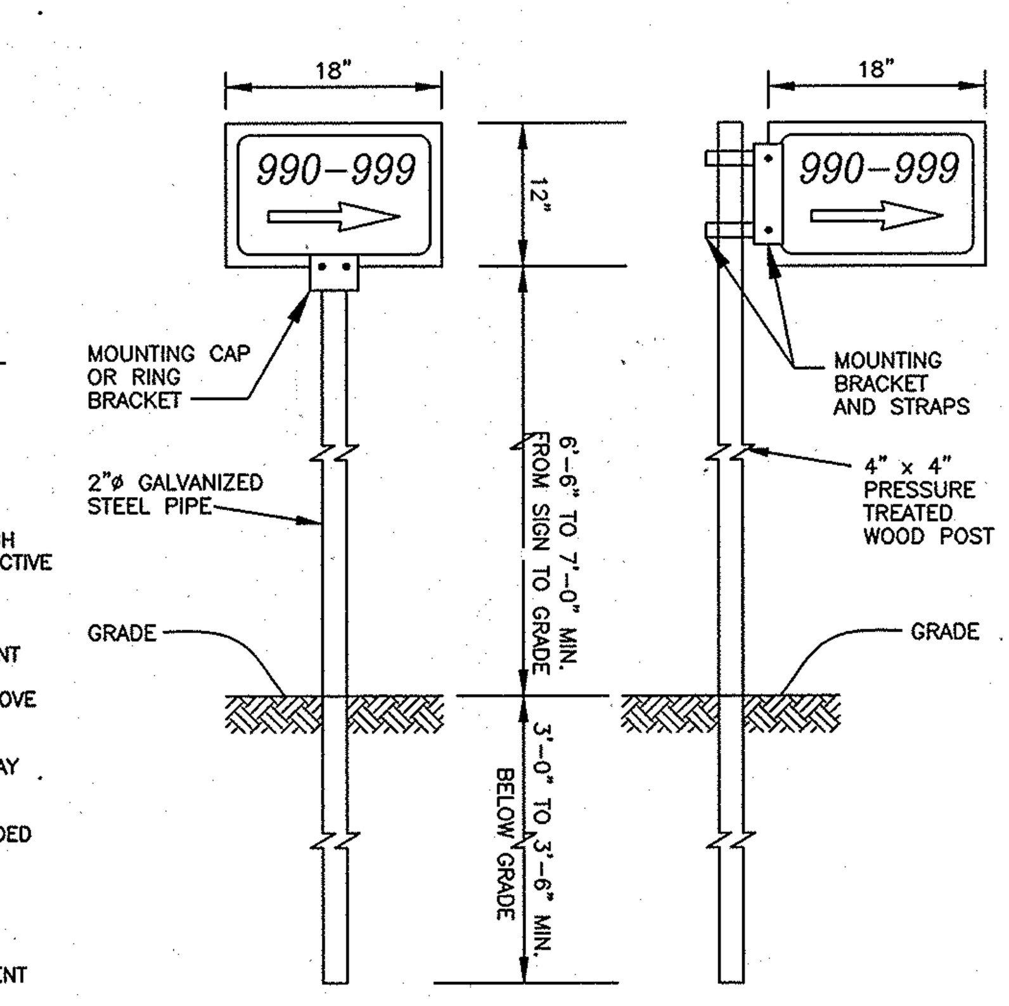
3. THE SIGN SHALL HAVE A GREEN BACKGROUND WITH 3" HIGH WHITE REFLECTIVE NUMBERS AND ARROW WITH A WHITE REFLECTIVE BORDER.

4. WHERE A PRIVATE ROAD NAME IS IN USE OR PART OF A PRIVATE HOMEOWNER'S ARTICLES OF INCORPORATION AGREEMENT THE SIGN SIZE WILL BE ENLARGED TO ACCOMODATE THE NECESSARY LETTERING BUT REMAIN PROPORTIONAL TO THE ABOVE DESIGN LIMITS.

5. THE SIGN WILL BE INSTALLED WITHIN THE COMMON DRIVEWAY EASEMENT AREA AS NOTED ON THE FINAL PLAT.

6. ADDRESS NUMBER IDENTIFICATION SIGNS ARE TO BE PROVIDED UNDER THE TENANTS OF THE HOMEOWNER'S ASSOCIATION INCORPORATION OR A PROPERTY MANAGEMENT COMPANY FOR INSTALLATION AND MAINTENANCE IN ACCORDANCE WITH THE DEPARTMENT OF PLANNING AND ZONING ADDRESS NUMBERING SYSTEM AND PER SECTION 3.503(a) OF THE HOWARD COUNTY CODE – PUBLIC SIGNS. MAINTENANCE/REPAIR AND REPLACEMENT OF THE ADDRESS NUMBER DIRECTIONAL SIGNS WILL BE THE RESPONSIBILITY OF THE HOMEOWNER'S ASSOCIATION OR A PROPERTY MANAGEMENT COMPANY.

7. COMPLIANCE REGARDING THE INSTALLATION OF THE NEW ADDRESS NUMBER DIRECTIONAL SIGNS WILL BE ENFORCED BY THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF FINAL APPROVAL FOR ISSUANCE OF THE USE AND OCCUPANCY PERMITS.



HO. CO. APPROVED SIGN DESIGN AND INSTALLATION DETAIL

NOT TO SCALE

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

12/22/14

PLANNING DIRECTOR | DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND – JOHN M. CARNEY – No. 45577 – PROFESSIONAL ENGINEER – 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS:
NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

DRAFT: AM | DESIGN: AM | CHECK:

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **ROAD PROFILE – ROAD A**

DATE: OCTOBER, 2014 | PROJECT NO. 2501
SCALE: AS SHOWN | SHEET 15 OF 26

SP-14-004

LEGEND

SOILS CLASSIFICATION / SOILS DELINEATION — ChB2
EXISTING CONTOURS — 480 / 470
LIMIT OF WETLANDS
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING STRUCTURE
PROPOSED STRUCTURE
SEPTIC RESERVE AREA
FOREST CONSERVATION AREA (RETENTION)
BIO-RETENTION AREAS
PROPOSED WELL BOX — WELL
15% TO 25% SLOPES
25% & GREATER SLOPES
100-YEAR FLOODPLAIN
STREAM
LIMIT OF DISTURBANCE
FCE PERMANENT SIGNAGE

LANDSCAPING NOTES

1. THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS. THE FINAL LANDSCAPE PLAN WILL BE APPROVED WITH THE FINAL SUBDIVISION PLAN.
2. THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS; THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION; AND FOR THE PERIMETER PLANTINGS. LANDSCAPE PLANS WILL BE FINALIZED AND BONDED WITH THE FINAL PLAN SUBMISSION.
3. A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
4. TREES MUST BE PLANTED A MINIMUM OF FIVE (5) FEET FROM AN OPEN SPACE ACCESS STRIP, TEN (10) FEET FROM A DRIVEWAY AND FIVE (5) FEET FROM A STORM DRAIN.
5. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
6. STREET TREES SHALL BE PLANTED SIX (6) FEET BEHIND FACE OF CURB WHEN THERE ARE NO SIDEWALKS
7. ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
8. NO TREES SHALL BE PLACED WITHIN 10' BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.

SCHEDULE A
PERIMETER LANDSCAPE EDGE

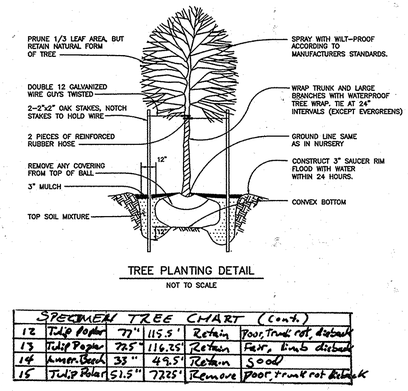
CATEGORY	ADJACENT TO ROADWAY	NO	NO	NO	TOTAL
	ADJACENT TO PERIMETER PROPERTIES	YES	YES	YES	
PERIMETER NO. / LANDSCAPE TYPE		(1) A	(2) A	(3) A	
LINEAR FEET OF PERIMETER (FRONTAGE/ROADWAY)		4283	605	5162	
CREDIT FOR EXISTING VEGETATION: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		YES 3441	YES 605	YES 5083	
LINEAR FEET OF REQUIRED PERIMETER LANDSCAPING		–	–		
CREDIT FOR WALL FENCE OR BERM: NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)		NO –	NO	NO	
NUMBER OF PLANTS REQUIRED:					
	SHADE TREES 1:60	14	–	1	15
	EVERGREEN TREES –	–	–	–	–
	OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–
	SHRUBS	–	–	–	–
NUMBER OF PLANTS PROVIDED:					
	SHADE TREES	14	–	1	15
	EVERGREEN TREES	–	–	–	–
	OTHER TREES (2:1 SUBSTITUTE)	–	–	–	–
	SHRUBS (10:1 SUBSTITUTE)	–	–	–	–
	(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	–	–	–	–

STREET TREE REQUIREMENTS

ROADWAY NAME:	PUDDING LANE	ROAD A	TOTAL
LINEAR FEET OF ROAD FRONTAGE	4731	3148	7879
LINEAR FEET OF CREDIT	1198	754	1952
LINEAR FEET OF OBLIGATION	3533	2394	5927
STREET TREES REQUIRED (1:40)	88	60	148
NUMBER OF SHADE TREES PROVIDED:	88	60	148

Specimen Tree Chart

Key	Species	Size (in.dbh)	CRZ (feet radius)	Comments
1	Tulip poplar	52	78	poor, trunk rot severe
2	Tulip poplar	30	45	good
3	White ash	31	46.5	good
4	White ash	30.5	45.75	good
5	Tulip poplar	32	48	good
6	Tulip poplar	54	81	fair, trunk rot noted
7	Tulip poplar	38	57	good
8	Tulip poplar	39	58.5	good
9	Tulip poplar	42	63	fair, crown dieback noted
10	Tulip poplar	40	60	good
11	Tulip poplar	34	51	good



TREE PLANTING DETAIL
NOT TO SCALE

SPECIMEN TREE CHART (cont.)				
12	Tulip Poplar	77"	115.5'	Retain	poor, Trunk rot, disturb
13	Tulip Poplar	78.5"	116.25'	Retain	Fair, limb disturb
14	American Beech	33"	49.5'	Retain	Good
15	Tulip Poplar	51.5"	77.25'	Remove	poor, Trunk rot, disturb

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 6/4/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3283

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PRELIMINARY LANDSCAPE PLAN

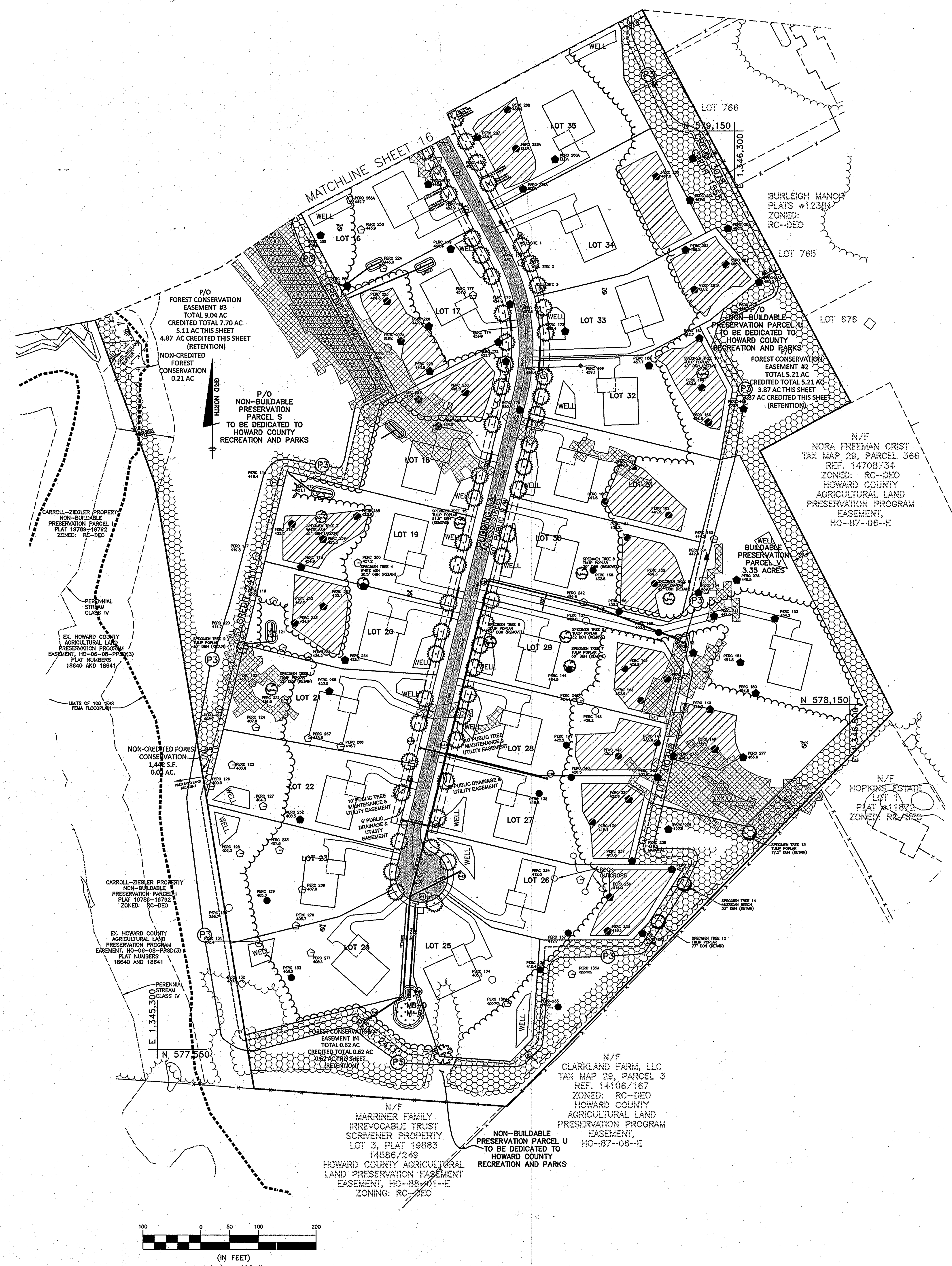
DATE: OCTOBER, 2014 | PROJECT NO. 2501
SCALE: AS SHOWN | SHEET 16 OF 26
DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

P:\2501 Ziegler Parcel K\dwg\4052-RES parcel k.dwg, LS 16, 10/9/2013 4:29:20 PM

LEGEND

- SOILS CLASSIFICATION / SOILS DELINEATION — ChB2
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- FOREST CONSERVATION AREA (RETENTION)
- BIO-RETENTION AREAS
- PROPOSED WELL BOX — WELL
- 15% TO 25% SLOPES
- 25% & GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- LIMIT OF DISTURBANCE
- FCE PERMANENT SIGNAGE



TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR 12/22/14
DATE

P:\2501 Carroll-Ziegler Parcel K\dwg\4052-PES parcel k.dwg, LS 17, 10/9/2014 4:28:39 PM, edd

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND JOHN M. CARNEY No. 45577 PROFESSIONAL ENGINEER
10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER: TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PRELIMINARY LANDSCAPE PLAN

DATE:	OCTOBER, 2014	PROJECT NO.	2501
SCALE:	AS SHOWN	SHEET 17	OF 26

DRAFT: AM | DESIGN: AM | CHECK:

SP-14-004

LEGEND

- SOILS CLASSIFICATION / SOILS DELINEATION — ChB2
- EXISTING CONTOURS
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- FOREST CONSERVATION AREA (RETENTION)
- BIO-RETENTION AREAS
- PROPOSED WELL BOX — WELL
- 15% TO 25% SLOPES
- 25% & GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- LIMIT OF DISTURBANCE
- FCE PERMANENT SIGNAGE

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D *	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ho	D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

Wetland Data

WETLAND SYSTEM	COWARDIN CLASSIFICATION	DOMINANT VEGETATION
A	PFO1A-C R3/4UB1	Acer rubrum, Fraxinus pennsylvanica, Lindera benzoin, Symplocarpus foetidus, Boehmeria cylindrica, Impatiens capensis
B	PFO1A-E R3/4UB	Acer rubrum, Fraxinus pennsylvanica, Lindera benzoin, Viburnum dentatum, Ilex verticillicata, Symplocarpus foetidus, Boehmeria cylindrica, Cinna arundinacea, Impatiens capensis

Specimen Tree Chart

Key	Species	Size (in.dbh)	CRZ (feet radius)	Remove Or Retain	Comments
1	Tulip poplar	52	78	Retain	poor, trunk rot severe
2	Tulip poplar	30	45	Retain	good
3	White ash	31	46.5	Retain	good
4	White ash	30.5	45.75	Retain	good
5	Tulip poplar	32	48	Remove	good
6	Tulip poplar	54	81	Remove	fair, trunk rot noted
7	Tulip poplar	38	57	Remove	good
8	Tulip poplar	39	58.5	Remove	good
9	Tulip poplar	42	63	Retain	fair, crown dieback noted
10	Tulip poplar	40	60	Retain	good
11	Tulip poplar	34	51	Remove	good
12	Tulip poplar	77	115.5	Retain	poor, trunk rot, limb dieback
13	Tulip poplar	77.5	116.25	Retain	fair condition, some limb dieback
14	American beech	33	49.5	Retain	good
15	Tulip poplar	51.5	77.25	Remove	poor, trunk rot, limb dieback

Forest Stand Data

Key	Community Type	Acreage (gross)	Dominant Vegetation	General Condition	Priority Acreage
F1	Oak-Poplar	52.8	Liriodendron tulipifera, Quercus alba, Fagus grandifolia, Carya glabra, Prunus serotina	Good	52.8 +/- buffers, slopes FIBB
F2	Poplar	35.8	Liriodendron tulipifera, Acer rubrum, Fraxinus pennsylvanica, Platanus occidentalis, Prunus serotina	Fair -	35.8 +/- wetland, buffers FIBB

See accompanying report for complete stand descriptions

FSD NOTES:

1. No rare, threatened or endangered species or critical habitats were observed on the property. No historic sites/features were observed on the property.
2. Surrounding land use is primarily medium density residential development and agriculture.
3. Approximately 17 acres of forest is present within 100 feet of the subject property.
4. All wetlands and streams on the property are part of a Use IV watershed. Perennial streams will require 100 foot buffers, intermittent streams will require 50 foot buffers and wetlands will require 25 foot buffers.
5. The Wetland and Forest Stand Delineation Report indicates that ATV paths and hunting practices are present within the forest. Be advised, these practices are not permitted within forest conservation easements and must cease if the forest is placed into a conservation easement. Also please be advised, upon inspection of these easements additional mitigation plantings may be required if the site does not meet the standards as specified in the Howard County Code and Forest Conservation Manual.

FOREST CONSERVATION EASEMENT CHART

EASEMENT	TYPE	NON-CREDITED	CREDITED	TOTAL AREA
1	RETENTION	1.23 AC.	23.39 AC.	24.62 AC.
2	RETENTION	0 AC.	5.21 AC.	5.21 AC.
3	RETENTION	1.37 AC.	7.67 AC.	9.04 AC.
4	RETENTION	0 AC.	0.62 AC.	0.62 AC.
TOTAL	RETENTION	2.60 AC.	36.89 AC.	39.49 AC.

FOREST CONSERVATION WORKSHEET

KINGS FOREST

Computations by: JC | BEI JOB No. 2501 | Date: 9/9/2014

NET TRACT AREA:

A.	Total tract area	97.70 ac.
B.	Land Dedication acres (parks, county facility, etc.)	0.00 ac.
C.	Area within underground transmissions lines but not Floodplain	0.00 ac.
D.	Area to remain in Commercial Agricultural Production/use	0.00 ac.**
E.	Other deductions: (floodplain)	2.83 ac.
F.	Net Tract Area	94.87 ac.**

LAND USE CATEGORY:

Select category (RLD, RMD, Sub., CIO, Inst.) RMD

G.	Afforestation Threshhold — 20% x "F"	=	18.97 ac.
H.	Conservation threshhold — 25% x "F"	=	23.72 ac.

EXISTING FOREST COVER:

I.	Existing forest cover	88.60 ac.
J.	Area of forest above afforestation threshold	12.97 ac.
K.	Area of forest above conservation threshold	64.88 ac.

BREAK EVEN POINT:

L.	Forest retention above threshold with no mitigation	36.70 ac.
M.	Clearing permitted without mitigation	51.90 ac.
	Break Even Point	36.69 ac.

PROPOSED FOREST CLEARING:

N.	Total area of forest to be cleared	51.71 ac.
O.	Total area of forest to be retained	36.89 ac.

PLANTING REQUIREMENTS:

P.	Reforestation for clearing above conservation threshold	12.93 ac.
Q.	Reforestation for clearing below conservation threshold	0.00 ac.
R.	Credit for retention above conservation threshold	13.17 ac.
S.	Total reforestation required	0.00 ac.
T.	Total afforestation required	0.00 ac.
U.	Credit for landscaping - may not exceed 20% of "S."	0.00 ac.
V.	Total reforestation and afforestation required	0.00 ac.

The Forest Conservation Oligations for this project will be met by:
36.89 ac. of ex. forest retained within an on-site Forest Conservation Easement,
0.00 ac. of total reforestation and afforestation

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 1/22/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 9/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS: NATALIE ZIEGLER, 4288 MANOR LANE, ELLICOTT CITY, MARYLAND 21042
JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER, C/O SOPHIE ZIEGLER, 730 DOLORES STREET, SAN FRANCISCO, CA 94110, 212-877-8697
DEVELOPER: TOLL BROS., INC., 7164 COLUMBIA GATEWAY DRIVE, SUITE 230, COLUMBIA, MD 21046, 410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23, P/O PARCEL 148, PUDDING LANE, ELLICOTT CITY, MD 21042, SECOND ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

TITLE: PRELIMINARY FOREST CONSERVATION PLAN

DATE: OCTOBER, 2014 | PROJECT NO. 2501

DRAFT: AM | DESIGN: AM | CHECK: | SCALE: AS SHOWN | SHEET 18 OF 26

SP-14-004

P:\2501 Carroll-Ziegler Parcel K\dwg\4052-FES parcel k.dwg, PFCP-18, 10/9/2014 4:27:47 PM, rod

LEGEND

SOILS CLASSIFICATION / SOILS DELINEATION — ChB2
EXISTING CONTOURS
LIMIT OF WETLANDS
EXISTING WOODS LINE
PROPOSED WOODS LINE
EXISTING STRUCTURE
PROPOSED STRUCTURE
SEPTIC RESERVE AREA
FOREST CONSERVATION AREA (RETENTION)
BIO-RETENTION AREAS
PROPOSED WELL BOX
15% TO 25% SLOPES
25% & GREATER SLOPES
100-YEAR FLOODPLAIN
STREAM
LIMIT OF DISTURBANCE
FCE PERMANENT SIGNAGE

100 0 50 100 200
(IN FEET)
1 inch = 100 ft.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/16/14

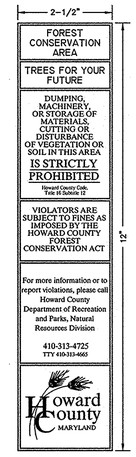
Specimen Tree Chart

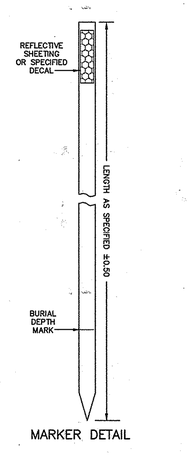
Key	Species	Size (in.dbh)	CRZ (feet radius)	Remove Or Retain	Comments
1	Tulip poplar	52	78	Retain	poor, trunk rot severe
2	Tulip poplar	30	45	Retain	good
3	White ash	31	46.5	Retain	good
4	White ash	30.5	45.75	Retain	good
5	Tulip poplar	32	48	Remove	good
6	Tulip poplar	54	81	Remove	fair, trunk rot noted
7	Tulip poplar	38	57	Remove	good
8	Tulip poplar	39	58.5	Remove	good
9	Tulip poplar	42	63	Retain	fair, crown dieback noted
10	Tulip poplar	40	60	Retain	good
11	Tulip poplar	34	51	Remove	good
12	Tulip poplar	77	115.5	Retain	poor, trunk rot, limb dieback
13	Tulip poplar	77.5	116.25	Retain	fair condition, some limb dieback
14	American beech	33	49.5	Retain	good
15	Tulip poplar	51.5	77.25	Remove	poor, trunk rot, limb dieback

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

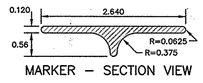




MARKER DETAIL

Materials:
Number 3690 Scotchcal non-reflective substrate.

Color:
Dark green text and border on beige background.



MARKER – SECTION VIEW

FCE CARSONITE MARKER
NOT TO SCALE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARLSON — No. 45577 — PROFESSIONAL ENGINEER — 12/16/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: PRELIMINARY FOREST CONSERVATION PLAN

DATE: OCTOBER, 2014 | PROJECT NO. 2501

DRAFT: AM | DESIGN: AM | CHECK: | SCALE: AS SHOWN | SHEET 19 OF 26

SP-14-004

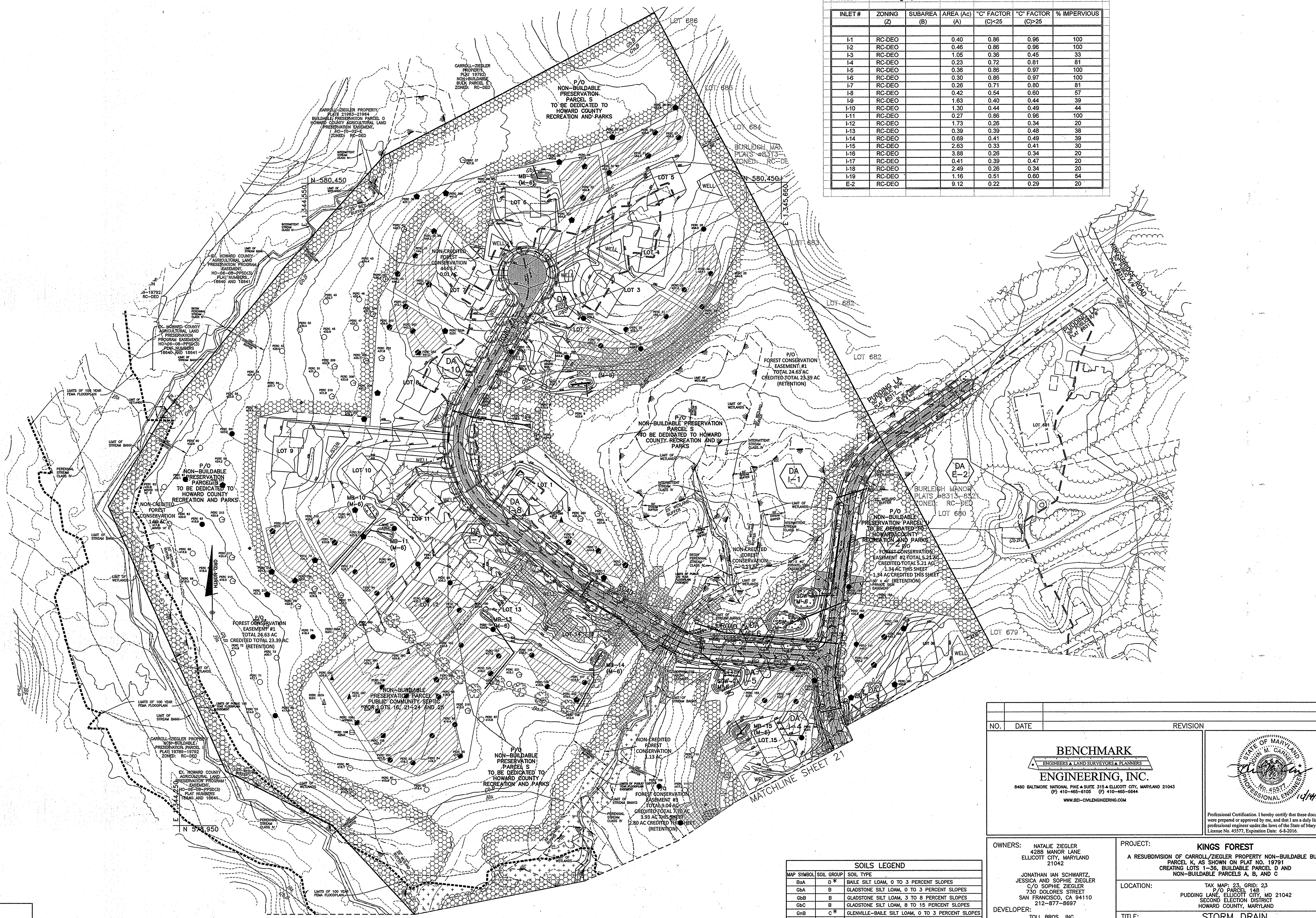
P:\2501 Carroll-Ziegler Parcel K\dwg\4052-PFS parcel k.dwg, PFCP-15, 10/3/2014 4:26:44 PM, rick

LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- FOREST CONSERVATION AREA (RETENTION)
- BIO-RETENTION AREAS
- PROPOSED WELL BOX — WELL
- 15% TO 25% SLOPES
- 25% & GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- LIMIT OF DISTURBANCE
- FCE PERMANENT SIGNAGE

AREA AND "C" FACTOR TABULATION

PROJECT:	Carroll Ziegler, Parcel K	DATE :	3/6/2014	BY: AAM	BEI JOB # 2501	
INLET #	ZONING (Z)	SUBAREA (B)	AREA (Ac) (A)	"C" FACTOR (C)<25	"C" FACTOR (C)>25	% IMPERVIOUS
I-1	RC-DEO		0.40	0.86	0.96	100
I-2	RC-DEO		0.46	0.86	0.96	100
I-3	RC-DEO		1.05	0.36	0.45	33
I-4	RC-DEO		0.23	0.72	0.81	81
I-5	RC-DEO		0.36	0.86	0.97	100
I-6	RC-DEO		0.30	0.86	0.97	100
I-7	RC-DEO		0.26	0.71	0.80	81
I-8	RC-DEO		0.42	0.54	0.60	57
I-9	RC-DEO		1.63	0.40	0.44	39
I-10	RC-DEO		1.30	0.44	0.49	44
I-11	RC-DEO		0.27	0.86	0.96	100
I-12	RC-DEO		1.73	0.26	0.34	20
I-13	RC-DEO		0.39	0.39	0.48	38
I-14	RC-DEO		0.69	0.41	0.49	39
I-15	RC-DEO		2.63	0.33	0.41	30
I-16	RC-DEO		3.88	0.26	0.34	20
I-17	RC-DEO		0.41	0.39	0.47	20
I-18	RC-DEO		2.49	0.26	0.34	20
I-19	RC-DEO		1.16	0.51	0.60	54
E-2	RC-DEO		9.12	0.22	0.29	20



100 0 50 100 200

(IN FEET)
1 inch = 100 ft.

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D *	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND
JOHN M. CARNEY
No. 45577
PROFESSIONAL ENGINEER
10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

DRAFT: AM | DESIGN: AM | CHECK:

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN
DRAINAGE AREA MAP

DATE: OCTOBER, 2014 | PROJECT NO. 2501
SCALE: AS SHOWN | SHEET 20 OF 26

SP-14-004

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

P:\2501 Carroll-Ziegler Parcel K\dwg\4052-PES parcel k.dwg, 500A-20, 10/9/2014 4:25:29 PM

LEGEND

SOILS CLASSIFICATION	ChB2
SOILS DELINEATION	
EXISTING CONTOURS	480 / 478
LIMIT OF WETLANDS	
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
SEPTIC RESERVE AREA	
FOREST CONSERVATION AREA (RETENTION)	
BIO-RETENTION AREAS	
PROPOSED WELL BOX	WELL
15% TO 25% SLOPES	
25% & GREATER SLOPES	
100-YEAR FLOODPLAIN	
STREAM	
LIMIT OF DISTURBANCE	
FCE PERMANENT SIGNAGE	

100 0 50 100 200

(IN FEET)
1 inch = 100 ft.

AREA AND "C" FACTOR TABULATION

PROJECT:	Carroll Ziegler, Parcel K		DATE :	3/6/2014	BY: AAM	BEI JOB # 2501
INLET #	**ZONING (Z)**	**SUBAREA (B)**	**AREA (Ac) (A)**	**"C" FACTOR (C)<25**	**"C" FACTOR (C)>25**	**% IMPERVIOUS**
I-1	RC-DEO		0.40	0.86	0.96	100
I-2	RC-DEO		0.46	0.86	0.96	100
I-3	RC-DEO		1.05	0.36	0.45	33
I-4	RC-DEO		0.23	0.72	0.81	81
I-5	RC-DEO		0.36	0.86	0.97	100
I-6	RC-DEO		0.30	0.86	0.97	100
I-7	RC-DEO		0.26	0.71	0.80	81
I-8	RC-DEO		0.42	0.54	0.60	57
I-9	RC-DEO		1.63	0.40	0.44	39
I-10	RC-DEO		1.30	0.44	0.49	44
I-11	RC-DEO		0.27	0.86	0.96	100
I-12	RC-DEO		1.73	0.26	0.34	20
I-13	RC-DEO		0.39	0.39	0.48	38
I-14	RC-DEO		0.69	0.41	0.49	39
I-15	RC-DEO		2.63	0.33	0.41	30
I-16	RC-DEO		3.88	0.26	0.34	20
I-17	RC-DEO		0.41	0.39	0.47	20
I-18	RC-DEO		2.49	0.26	0.34	20
I-19	RC-DEO		1.16	0.51	0.60	54
E-2	RC-DEO		9.12	0.22	0.29	20

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D *	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 10/22/14

P:\2501 Carroll-Ziegler Parcel K\dwg\4052-PES parcel k.dwg, SDDA-21, 10/9/2014 4:24:20 PM, add

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNERS:
NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION:
TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN DRAINAGE AREA MAP

DRAFT: AM	DESIGN: AM	CHECK:	DATE: OCTOBER, 2014	PROJECT NO. 2501
			SCALE: AS SHOWN	SHEET 21 OF 26

SP-14-004

LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- NON-ROOFTOP DISCONNECTION AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA (N-2)
- FACILITY DRAINAGE AREA
- DRY WELL (M-5)

DESIGN NARRATIVE:

The Effective Site Area was analyzed as woods in good condition and a target RCN was determined. The Effective Site Area is comprised of the area of the site which will be developed and excludes protected environmental areas which will be preserved. A target rainfall depth treatment (Pe) was determined based on the measured impervious areas and HSG soil types. The target Pe for this site is 1.18 inches. The target Pe was treated using Environmental Site Design practices as outlined in Chapter 5 of the 2000 Maryland Stormwater Design Manual, as amended by Maryland's Stormwater Management Act of 2007. The selected methods include non-rooftop disconnects (N-2), submerged gravel wetlands (M-2), dry wells (M-5), bioretention facilities (M-6), and grass swales (M-8).

This site contains a stream which bisects the property, and with associated wetlands. The site has some areas of steep slopes in excess of 25%. To protect natural resource areas, it is important to delay release of stormwater runoff from new impervious areas to avoid increasing peak runoffs, and to adequately treat the stormwater to avoid damage to sensitive species. In addition it is necessary to maintain adequate runoff to wetland areas. The design incorporates large lots with minimum width driveways in order to create the least possible stormwater runoff, and provided runoff release in multiple locations to maintain sufficient water to wetland areas.

Treatment has been designed based on preliminary grading, the site topography and the house, well and septic locations. The roads will be treated using grass swales and micro-bioretention. Driveway areas may be treated by disconnection, grass swales or on-lot micro-bioretention. Some driveway areas will be treated in the roadside grass swales. Non-rooftop disconnection of driveways will provide treatment of the 1.0" quality runoff. Additional ESD volume will be provided in the dry wells, retention facilities and roadside swales. Generally rooftop runoff will be piped to on-site dry wells or micro-bioretention facilities. Micro-bioretention facilities may be required to have impervious lining, depending on proximity to well locations. Multiple outfalls are provided to generally release runoff in natural drainage patterns for the site.

Access for the site will disturb wetland and buffer areas. Mitigation for this disturbance will be provided as required, in coordination with MDE reviews and requirement.

Sediment and erosion controls have been designed based on the 2011 Maryland Specifications for Soil Erosion and Sediment Control. Erosion control matting and super silt fence will be used to prevent runoff containing unacceptable levels of TSS from leaving the site and entering the adjacent wetlands during the construction. It will be the obligation of the contractor to install, inspect and maintain these practices.

The target Pe for this site is 1.18 inches. By using Environmental Site Design practices as outlined in Chapter 5 of the 2000 Maryland Stormwater Design Manual as amended by Maryland Stormwater Management Act of 2007, full treatment of the target Pe of 1.18 will be achieved.

No Design Manual waivers are anticipated at this time. A Waiver Petition will be required to allow disturbance of wetlands, streams and their buffers.

PROJECT:	Carroll-Zeigler Parcel K		DATE:					03/12/14		
	Facility Summary									
		Pe:	1.2	inches						
BIORETENTION FACILITIES										
Facility	Drainage Area	Impervious	I (%)	Rv	ESDv (cf)	Req'd Storage (75%)	Actual Storage (cf)	Total ESDv*	Pe Treated	Notes
MB-2	16436	6431	39%	0.402	648	486	792	1056	1.92	
MB-6	6391	3924	61%	0.603	377	283	411	548	1.71	
MB-10	9038	6655	74%	0.713	631	473	636	848	1.58	
MB-11	12075	6618	55%	0.543	643	482	612	816	1.49	
MB-13	9032	4580	51%	0.506	448	336	408	544	1.43	
MB-14	16064	6988	44%	0.442	695	521	784	1045	1.77	LINED
MB-15	13734	7344	53%	0.531	715	536	702	936	1.54	LINED
MB-16	9476	4272	45%	0.456	423	317	366	488	1.36	
MB-17	6956	5160	74%	0.718	489	367	431	575	1.38	LINED
MB-18	13698	7137	52%	0.519	696	522	570	760	1.28	
MB-19	7034	5160	73%	0.710	489	367	517	689	1.66	
MB-20	6186	5160	83%	0.801	485	364	570	760	1.84	
Parcel V	14994	2430	16%	0.196	288	216	434	579	2.36	
SGW-A	23196	10734	46%	0.466	1060	795	1758	2344	2.60	**
SGW-B	29478	11891	40%	0.413	1193	895	1978	2637	2.60	**
SGW-C	33640	16637	49%	0.495	1632	1224	2245	2993	2.16	**
MB-D	15269	9610	63%	0.616	922	692	1529	2039	2.60	**
SWALES										
Road A	130986.0	28355	22%	0.245	3142			5000	1.87	
Pudding Lane	242562	37426	15%	0.189	4488			4673	1.22	
DRYWELLS										
TYPICAL	1000.0	1000	100%	0.950	93			128	1.62	

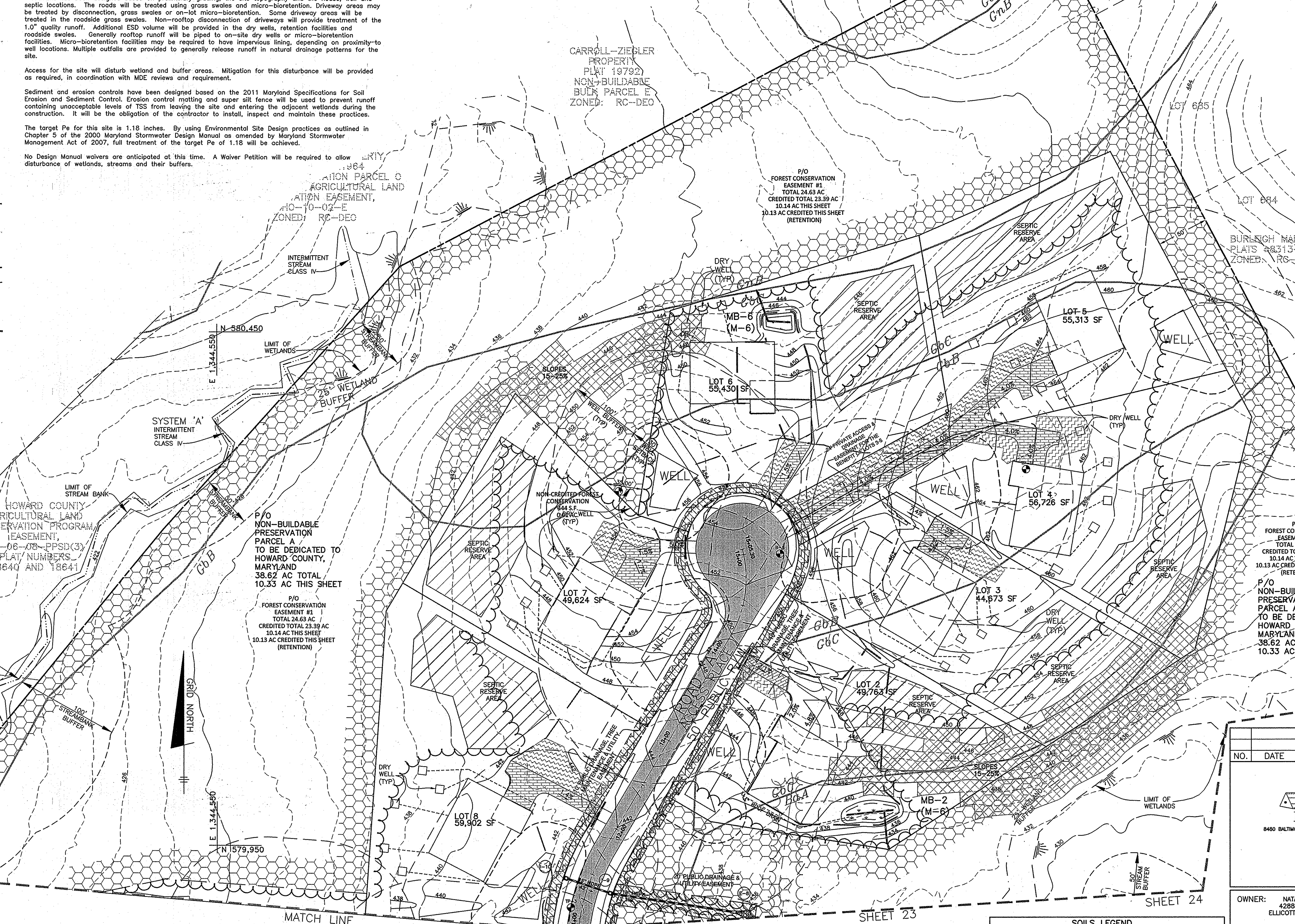
Micro-Bioretention facilities within the 100' well radius must be provided with an impermeable liner.

Pre-treatment for Submerged Gravel Wetlands will be provided in the final design.

Detailed swale computations will be provided with final plans.

*Total ESDv is the treated ESDv divided by 0.75.

**The ESDv summary table portrays storage in excess of that required for Environmental Site Design requirements. The final plans will refine practices to eliminate treatment in excess of 2.6" of Pe and verify the best distribution of treatment across the site.



0 25 50 100
(IN FEET)
1 inch = 50 ft.

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND 21042

JONATHAN IAN SCHWARTZ, JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER: TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

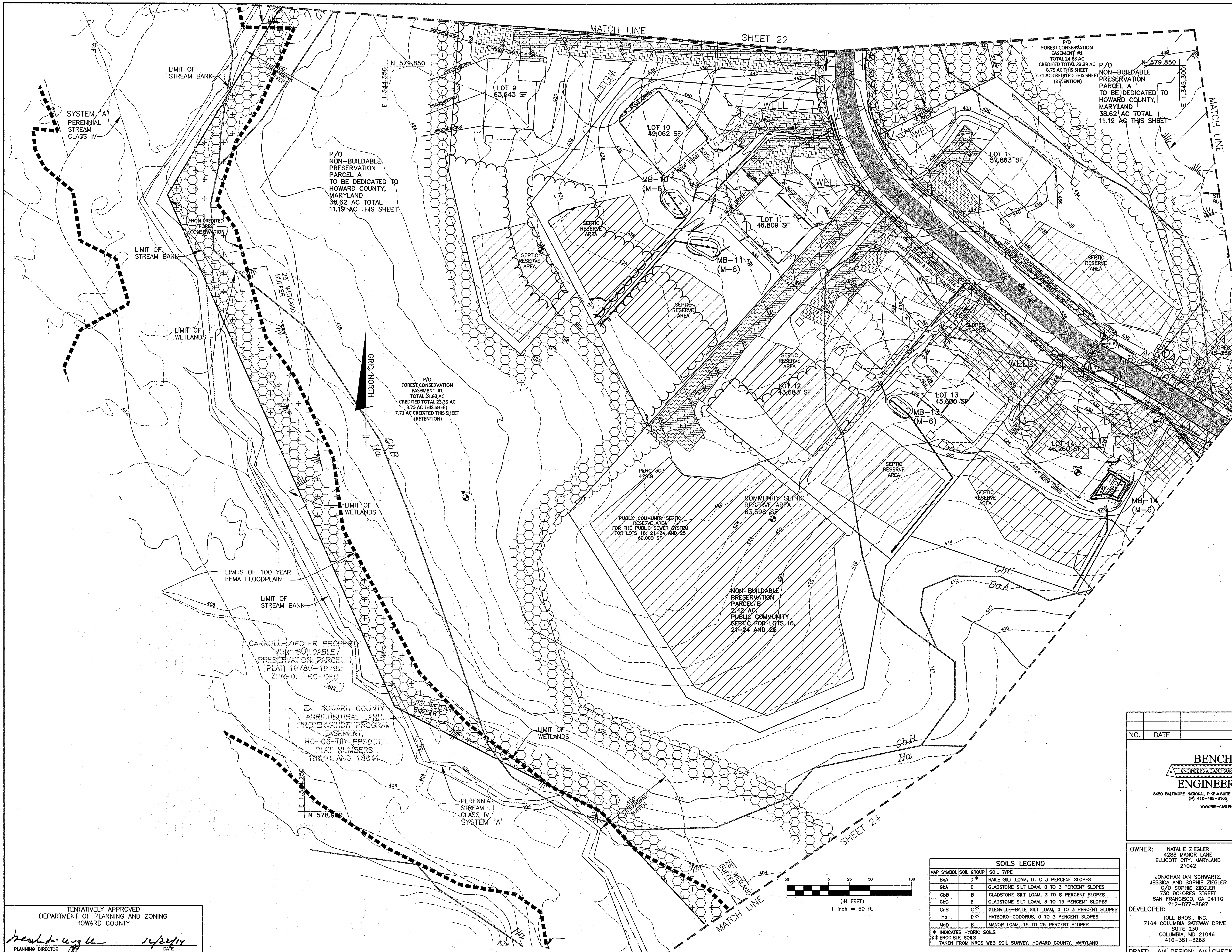
PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **PRELIMINARY STORMWATER MANAGEMENT PLAN**

DRAFT: AM	DESIGN: AM	CHECK:	
DATE:	OCTOBER, 2014	PROJECT NO.	2501
SCALE:	AS SHOWN	SHEET 22	OF 26

SP-14-004



LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480, 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- NON-ROOFTOP DISCONNECTION AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA (N-2)
- FACILITY DRAINAGE AREA
- DRY WELL (M-5)

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D *	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR 12/22/14 DATE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND JOHN M. CARNEY No. 45577 PROFESSIONAL ENGINEER 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **PRELIMINARY STORMWATER MANAGEMENT PLAN**

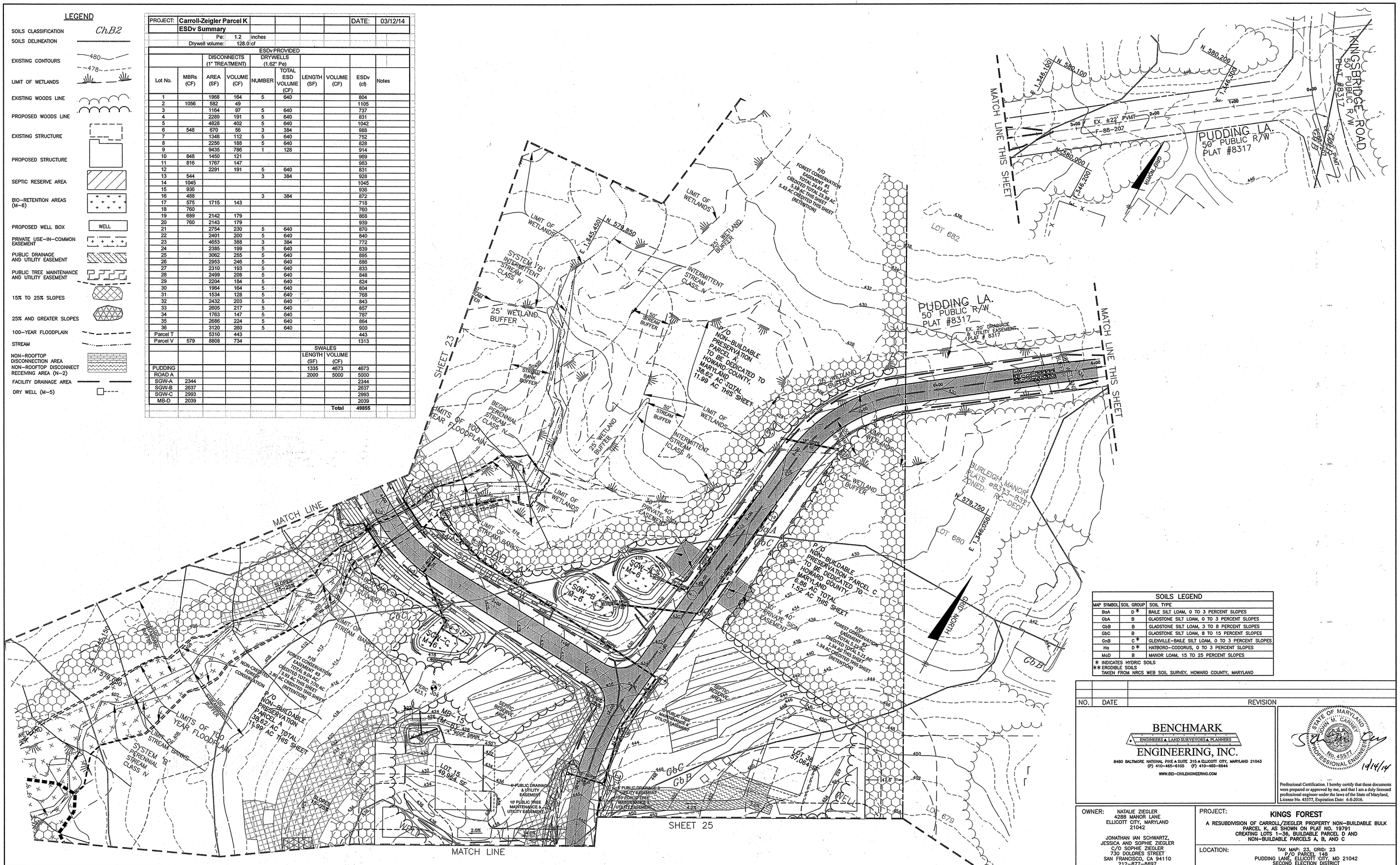
DRAFT: AM	DESIGN: AM	CHECK:	DATE: OCTOBER, 2014	PROJECT NO. 2501
			SCALE: AS SHOWN	SHEET 23 OF 26

SP-14-004

LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- NON-ROOFTOP DISCONNECTION AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA (N-2)
- FACILITY DRAINAGE AREA
- DRY WELL (M-5)

PROJECT:	Carroll-Zeigler Parcel K						DATE:	03/12/14
	ESDv Summary							
	Pe: 1.2 inches							
	Drywell volume: 128.0 cf							
ESDv PROVIDED								
		DISCONNECTS (1" TREATMENT)		DRYWELLS (1.62" Pe)				
Lot No.	MBRs (CF)	AREA (SF)	VOLUME (CF)	NUMBER	TOTAL ESD VOLUME (CF)	LENGTH (SF)	VOLUME (CF)	ESDv (cf)	Notes
1		1968	164	5	640			804	
2	1056	582	49					1105	
3		1164	97	5	640			737	
4		2289	191	5	640			831	
5		4828	402	5	640			1042	
6	548	670	56	3	384			988	
7		1348	112	5	640			752	
8		2256	188	5	640			828	
9		9435	786	1	128			914	
10	848	1450	121					969	
11	816	1767	147					963	
12		2291	191	5	640			831	
13	544			3	384			928	
14	1045							1045	
15	936							936	
16	488			3	384			872	
17	575	1715	143					718	
18	760							760	
19	689	2142	179					868	
20	760	2143	179					939	
21		2754	230	5	640			870	
22		2401	200	5	640			840	
23		4653	388	3	384			772	
24		2385	199	5	640			839	
25		3062	255	5	640			895	
26		2953	246	5	640			886	
27		2310	193	5	640			833	
28		2499	208	5	640			848	
29		2204	184	5	640			824	
30		1964	164	5	640			804	
31		1534	128	5	640			768	
32		2432	203	5	640			843	
33		2605	217	5	640			857	
34		1763	147	5	640			787	
35		2686	224	5	640			864	
36		3120	260	5	640			900	
Parcel T		5310	443					443	
Parcel V	579	8808	734					1313	
						SWALES			
						LENGTH (SF)	VOLUME (CF)		
PUDDING						1335	4673	4673	
ROAD A						2000	5000	5000	
SGW-A	2344							2344	
SGW-B	2637							2637	
SGW-C	2993							2993	
M5-D	2039							2039	
							Total	49855	



SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
BoA	D *	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C *	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ho	D *	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MoD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARRIE — No. 45577 — PROFESSIONAL ENGINEER

14/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **PRELIMINARY STORMWATER MANAGEMENT PLAN**

DRAFT: AM	DESIGN: AM	CHECK:

DATE: OCTOBER, 2014 — PROJECT NO. 2501
SCALE: AS SHOWN — SHEET 24 OF 26

SP-14-004

P:\2501 Carroll-Zeigler Parcel K\dwg\4000-PFS parcel k.dwg, SW24, 10/9/2014 4:01:07 PM, ccz

LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480 / 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- NON-ROOFTOP DISCONNECTION AREA
  NON-ROOFTOP DISCONNECT RECEIVING AREA (N-2)
- FACILITY DRAINAGE AREA
- DRY WELL (M-5)

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MsD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNE — No. 45577 — PROFESSIONAL ENGINEER — 12/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791 CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **PRELIMINARY STORMWATER MANAGEMENT PLAN**

DATE: OCTOBER, 2014 | PROJECT NO. 2501

DRAFT: AM | DESIGN: AM | CHECK:

SCALE: AS SHOWN | SHEET 25 OF 26

SP-14-004

P:\2501 Carroll-Ziegler Parcel K\dwg\4000-PCS parcel k.dwg, SHT25, 10/9/2014 3:55:48 PM, ehg

P/O NON-BUILDABLE PRESERVATION PARCEL A TO BE DEDICATED TO HOWARD COUNTY, MARYLAND 38.62 AC TOTAL 0.37 AC THIS SHEET
MATCH LINE SHEET 25
LIMITS OF 100 YEAR FEMA FLOODPLAIN
NON-CREDITED FOREST CONSERVATION 1,442 S.F. 0.03 AC
PRESERVED LAND ADJACENT
CARROLL-ZIEGLER PROPERTY NON-BUILDABLE PRESERVATION PARCEL PLAT 19789-19792 ZONED: RC-DEO
SYSTEM "A" PERENNIAL STREAM CLASS IV
LOT 21 49,779 SF CSL
LOT 22 48,273 SF CSL
LOT 23 49,051 SF CSL
LOT 24 49,910 SF CSL
LOT 25 47,988 SF CSL
LOT 26 49,994 SF
LOT 27 52,554 SF
LOT 28 45,964 SF
LOT 29 45,639 SF
WELL
SEPTIC RESERVE AREA
LOW PRESSURE DOSE SYSTEM
BUILDABLE PRESERVATION PARCEL D 3.35 ACRES/ 2.75 ACRES THIS SHEET
SLOPES 15-25%
N 578,150
GRID NORTH
N/F HOPKINS ESTATE PLAT #11872 ZONED: RC-DEO
FOREST CONSERVATION EASEMENT #5 TOTAL 0.62 AC CREDITED TOTAL 0.62 AC 0.62 AC THIS SHEET 0.62 AC CREDITED THIS SHEET (RETENTION)
P/O FOREST CONSERVATION EASEMENT #2 TOTAL 5.21 AC CREDITED TOTAL 5.21 AC 1.78 AC THIS SHEET 1.78 AC CREDITED THIS SHEET (RETENTION)
MB M-6
N/F HARRINER FAMILY IRREVOCABLE TRUST SCRIVENER PROPERTY LOT 3, PLAT 19883 14586/249 HOWARD COUNTY AGRICULTURAL LAND PRESERVATION EASEMENT, HO-88-01-E(S) ZONING: RC-DEO
P/O NON-BUILDABLE PRESERVATION PARCEL C TO BE DEDICATED TO HOWARD COUNTY, MARYLAND 6.86 AC TOTAL 3.23 AC THIS SHEET
N/F CLARKLAND FARM, LLC TAX MAP 23, PARCEL 3 REF: 14106/167 ZONED: RC-DEO HOWARD COUNTY AGRICULTURAL LAND PRESERVATION PROGRAM EASEMENT HO-87-06-E
N 577,550
E 1,345,300
(IN FEET)
1 inch = 50 ft.

LEGEND

- SOILS CLASSIFICATION — ChB2
- SOILS DELINEATION
- EXISTING CONTOURS — 480
- PROPOSED CONTOURS — 478
- LIMIT OF WETLANDS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- SEPTIC RESERVE AREA
- BIO-RETENTION AREAS (M-6)
- PROPOSED WELL BOX — WELL
- PRIVATE USE-IN-COMMON EASEMENT
- PUBLIC DRAINAGE AND UTILITY EASEMENT
- PUBLIC TREE MAINTENANCE AND UTILITY EASEMENT
- 15% TO 25% SLOPES
- 25% AND GREATER SLOPES
- 100-YEAR FLOODPLAIN
- STREAM
- NON-ROOFTOP DISCONNECTION AREA
- NON-ROOFTOP DISCONNECT RECEIVING AREA (N-2)
- FACILITY DRAINAGE AREA
- DRY WELL (M-5)

SOILS LEGEND

MAP SYMBOL	SOIL GROUP	SOIL TYPE
BaA	D*	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbA	B	GLADSTONE SILT LOAM, 0 TO 3 PERCENT SLOPES
GbB	B	GLADSTONE SILT LOAM, 3 TO 8 PERCENT SLOPES
GbC	B	GLADSTONE SILT LOAM, 8 TO 15 PERCENT SLOPES
GnB	C*	GLENVILLE-BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES
Ha	D*	HATBORO-CODORUS, 0 TO 3 PERCENT SLOPES
MaD	B	MANOR LOAM, 15 TO 25 PERCENT SLOPES

* INDICATES HYDRIC SOILS
** ERODIBLE SOILS
TAKEN FROM NRCS WEB SOIL SURVEY, HOWARD COUNTY, MARYLAND

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

PLANNING DIRECTOR — DATE 12/22/14

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 315 ▲ ELLICOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CIVILENGINEERING.COM

STATE OF MARYLAND — JOHN M. CARNEY — No. 45577 — PROFESSIONAL ENGINEER — 10/14/14

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 45577, Expiration Date: 6-8-2016.

OWNER: NATALIE ZIEGLER
4288 MANOR LANE
ELLICOTT CITY, MARYLAND
21042

JONATHAN IAN SCHWARTZ,
JESSICA AND SOPHIE ZIEGLER
C/O SOPHIE ZIEGLER
730 DOLORES STREET
SAN FRANCISCO, CA 94110
212-877-8697

DEVELOPER:
TOLL BROS., INC.
7164 COLUMBIA GATEWAY DRIVE
SUITE 230
COLUMBIA, MD 21046
410-381-3263

PROJECT: **KINGS FOREST**
A RESUBDIVISION OF CARROLL/ZIEGLER PROPERTY NON-BUILDABLE BULK PARCEL K, AS SHOWN ON PLAT NO. 19791
CREATING LOTS 1-36, BUILDABLE PARCEL D AND NON-BUILDABLE PARCELS A, B, AND C

LOCATION: TAX MAP: 23, GRID: 23
P/O PARCEL 148
PUDDING LANE, ELLICOTT CITY, MD 21042
SECOND ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: **PRELIMINARY STORMWATER MANAGEMENT PLAN**

DRAFT: AM	DESIGN: AM	CHECK:	DATE: OCTOBER, 2014	PROJECT NO. 2501
			SCALE: AS SHOWN	SHEET 26 OF 26

SP-14-004

P:\2501 Carroll-Ziegler Parcel K\dwg\4000-PES parcel k.dwg, SWM26, 10/9/2014 3:57:56 PM, cdd