

BOHLER ENGINEERING

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 TAMPA, FL

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS			
REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

THE FOLLOWING STATES REQUIRE NOTIFICATION BY ENGINEERS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811
 (VA 1-800-245-4545) (PA 1-800-245-1770) (DC 1-800-257-7777) (MD 1-800-552-7001) (DE 1-800-357-7777) (DE 1-800-282-8555)

PROJECT No.: MD142038
 DRAWN BY: JMA
 CHECKED BY: JMA
 DATE: 8/21/16
 SCALE: 1" = 200'
 CAD I.D.: SS2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR
CRAWFORD & O'KEEFE PROPERTIES
 PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G
 LOCATION OF SITE
 6780 HAVILAND MILL ROAD
 CLARKSVILLE,
 HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD,
 SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7300
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 No. 40808
 PROFESSIONAL ENGINEER

OWNER:
 MARJORIE F. CRAWFORD
 STEPHEN C. CRAWFORD
 19612 ISLANDER ST.
 OLNEY, MD 20832
 TEL.: (240) 330-2199

DONALD O'KEEFE
 SALLY O'KEEFE
 6950 HAVILAND MILL ROAD
 CLARKSVILLE, MD 21029
 TEL.: (410) 556-6941

DEVELOPER:
 ELM STREET DEVELOPMENT
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 34 & 39
 PARCEL: 52 & 1
 ZONED: RR-DEO
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE No.: ECP-15-051
 WP-15-122

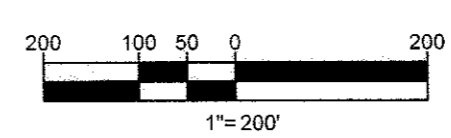
PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/31/2015

APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE: July 21, 2016

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
 DATE: 9/23/16

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
 HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT
 DATE: 9/23/16

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORKS BEFORE THE START OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD BY WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL CONFORMANCE WITH LOCAL, STATE, FEDERAL AND CODES.



SHEET TITLE:
OVERALL EXISTING CONDITION AND DEMOLITION PLAN
 SHEET NUMBER:
2 of 25

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No. MD142038
DRAWN BY: AVG
DATE: 9/2/16
SCALE: 1" = 50'
CAD I.D.: SS2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR **CRAWFORD & O'KEEFE PROPERTIES**
PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G
LOCATION OF SITE
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CLARKSVILLE, HOWARD COUNTY, MD

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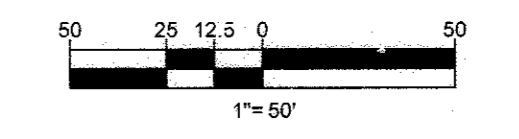
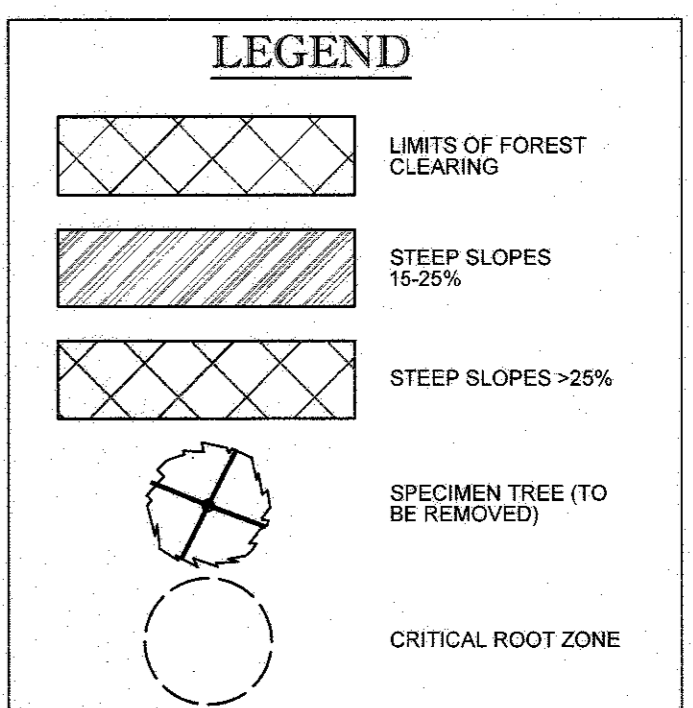


EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER: **3 of 25**



NOTE:
1. THE EXISTING WELL MUST BE PROPERLY ABANDONED BY A LICENSED WELL DRILLER WITH AN ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT. THE EXISTING SEWAGE SYSTEM MUST BE PUMPED OUT BY A LICENSED SEWAGE HAULER AND PROPERLY ABANDONED WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO HEALTH DEPARTMENT APPROVAL OF THE RECORD PLAT.



SUBDIVISION NAME: SECTION/AREA N/A
DEED # 0895700532 & 08989100490

TAX MAP: 34 & 39 GRID: 19 & 5 ZONED: RR-DEO
PARCEL: 52 & 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: EOP-15-051
WP-15-122

SOILS TABLE					
SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR	AREA - AC.
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	CD	YES	0.37	3.90
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	0.32	
GaC	GALA LOAM, 0 TO 15 PERCENT SLOPES	B	YES	0.55	0.40
GaA	GLENELG LOAM, 0 TO 3 PERCENT SLOPES	B	NO	0.28	
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	NO	0.28	
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	NO	0.28	
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	YES	0.43	3.40
GmC	GLENVILLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	YES	0.43	1.90
GnB	GLENVILLE BAILE SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	YES	0.43	1.90
GnB	GLENVILLE-CODORUS SILT LOAMS, 0 TO 8 PERCENT SLOPES	C	YES	0.43	11.50
Ha	HATBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	BD	YES	0.37	10.90
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	NO	0.28	
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	0.28	
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	NO	0.28	
McD	MANOR LOAM, 15 TO 25 PERCENT SLOPES, VERY ROCKY	B	NO	0.28	
MkF	MANOR-BRINKLOW COMPLEX, 25 TO 65 PERCENT SLOPES, VERY ROCKY	B	NO	0.32	

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

APPROVED
PLANNING BOARD OF HOWARD COUNTY
July 21, 2016

DATE: 9/2/16

PROFESSIONAL CERTIFICATION
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FORT LAUDERDALE, FL
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SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE BY VARIATION, MARYLAND, THE DISTRICT OF COLUMBIA AND DELAWARE CALL - 811
 MD 1-800-245-4648 PA 1-800-245-1778 DC 1-800-257-7777 VA 1-800-662-7011

NOT APPROVED FOR CONSTRUCTION

PROJECT No.:	MD142038
DRAWN BY:	AVS
CHECKED BY:	JMA
DATE:	8/2/16
SCALE:	1"=50'
CAD I.D.:	SSZ

PRELIMINARY EQUIVALENT SKETCH PLAN

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BRANDON R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 40888
 EXPIRATION DATE: 7/31/2015

EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
4 of 25

LEGEND

- LIMITS OF FOREST CLEARING
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE

OWNER:
 MARJORIE F. CRAWFORD
 STEPHEN C. CRAWFORD
 19612 ISLANDER ST.
 OLNEY, MD 20832
 TEL: (240) 330-2199

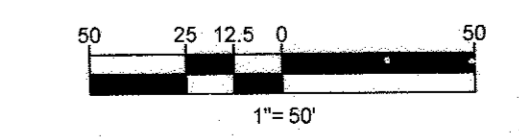
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DEVELOPER:
 ELM STREET DEVELOPMENT
 6074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 725-3021

TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO PARCEL: 52 & 1

6TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
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SUBDIVISION NAME:
 SECTIONAREA N/A
 DEED # 08967/00532 & 05889/00490

PREVIOUS FILE NO.: ECP-15-051
 WP-15-122

APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 July 21, 2016

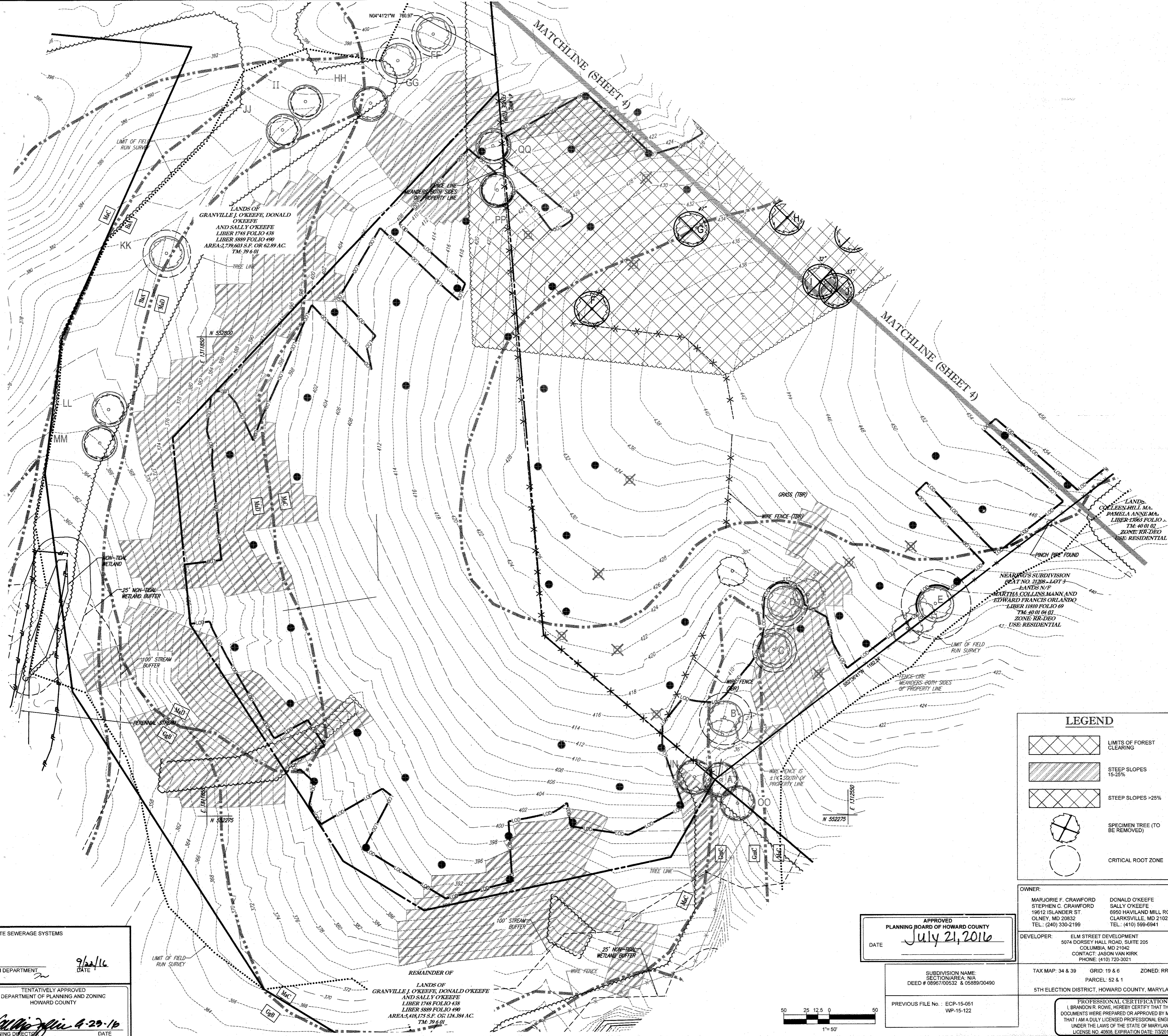
TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

Walter J. ... 9-23-16
 PLANNING DIRECTOR DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

...
 HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT DATE

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND ALL CONTINGENCIES WITH LOCAL REGULATIONS AND CODES.



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

[Signature] Per: *[Signature]* 7/21/16
 HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT DATE

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

[Signature] 7-22-16
 PLANNING DIRECTOR DATE

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APPROVED
 PLANNING BOARD OF HOWARD COUNTY

DATE July 21, 2016

SUBDIVISION NAME:
 SECTION 19A, N/A
 DEED # 08867/00532 & 08889/00490

TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO
 PARCEL: 52 & 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: ECP-15-051
 WP-15-122

LEGEND

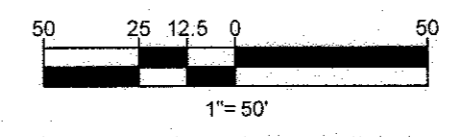
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	STEEP SLOPES 15-25%
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REVISIONS

REV	DATE	COMMENT	BY

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PROJECT No. MD142038
 DRAWN BY: AVG
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PRELIMINARY EQUIVALENT SKETCH PLAN

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 LOCATION OF SITE
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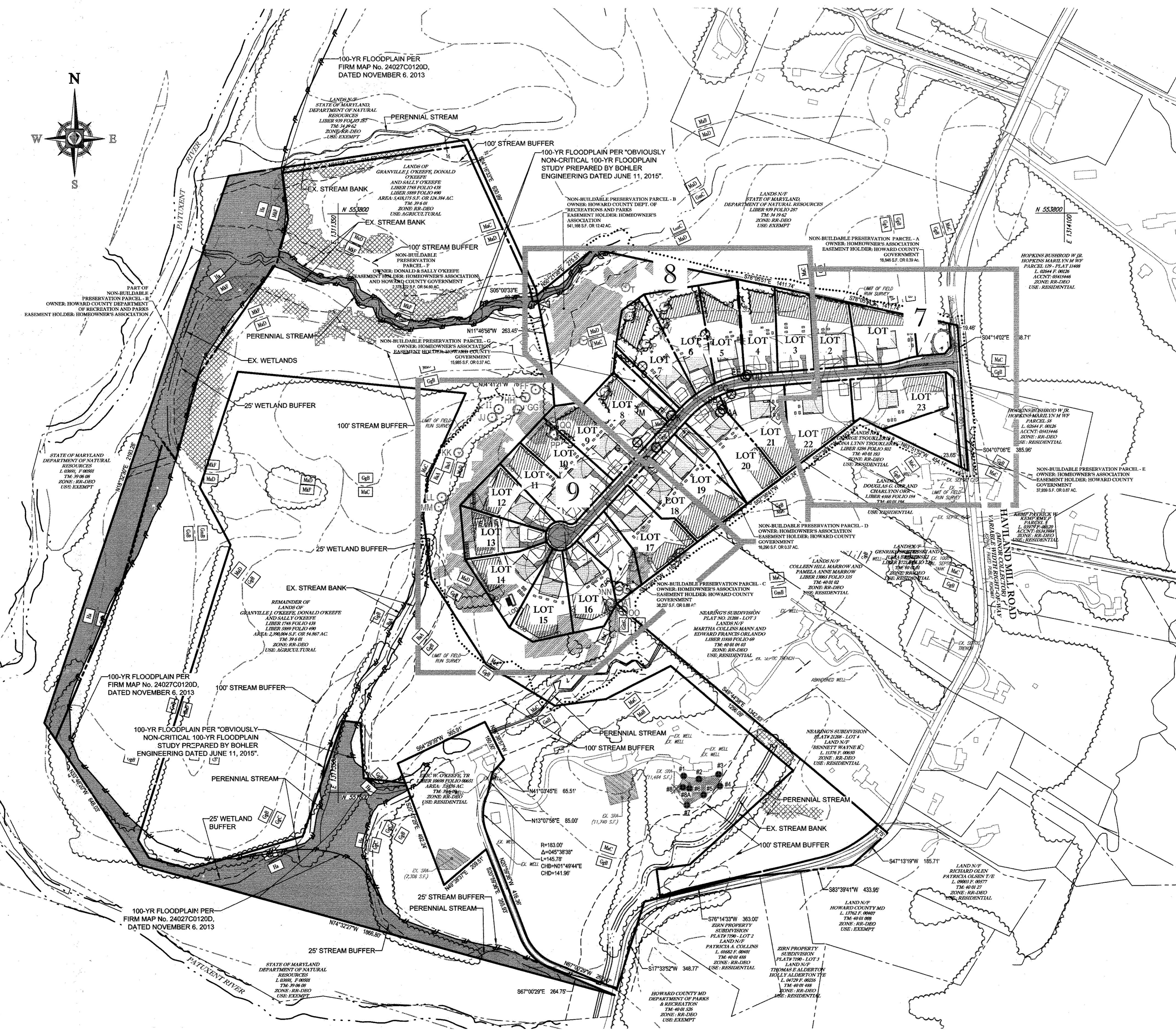
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B.R. ROWE
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 LICENSE NO. 40808
 EXPIRATION DATE: 7/31/2015

SHEET TITLE:
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
5 of 25



LEGEND

	PRIVATE SEWAGE DISPOSAL AREA (SEE GENERAL NOTE 8)
	EXISTING SEPTIC FIELD
	PROPOSED WELL BOX 1,500 S.F.
	FOREST CONSERVATION AREA
	15-25% STEEP SLOPES
	25% STEEP SLOPES OR GREATER
	SOIL DELINEATION
	STREAM
	WETLANDS
	100' STREAM AND WETLANDS BUFFER
	PROPOSED HOUSE
	EXISTING WELL

BOHLER ENGINEERING

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WARREN, NJ

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ROCKY HILL, CT
CENTER VALLEY, PA
PHILADELPHIA, PA
PHOENIX, AZ
TOWSON, MD
FARMINGTON, CT
PORT LAUDERDALE, FL
PAMPONA, PA

REVISIONS

REV	DATE	COMMENT	BY

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NOT APPROVED FOR CONSTRUCTION

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B.R. ROWE

PROFESSIONAL ENGINEER
MARYLAND LICENSE #6808

OVERALL SITE PLAN

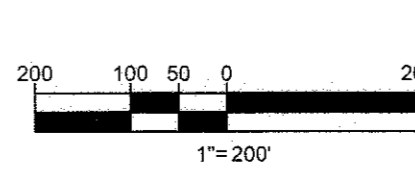
SHEET NUMBER:
6 of 25

APPROVED
PLANNING BOARD OF HOWARD COUNTY
DATE: July 21, 2016

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY
DATE: 9-23-16

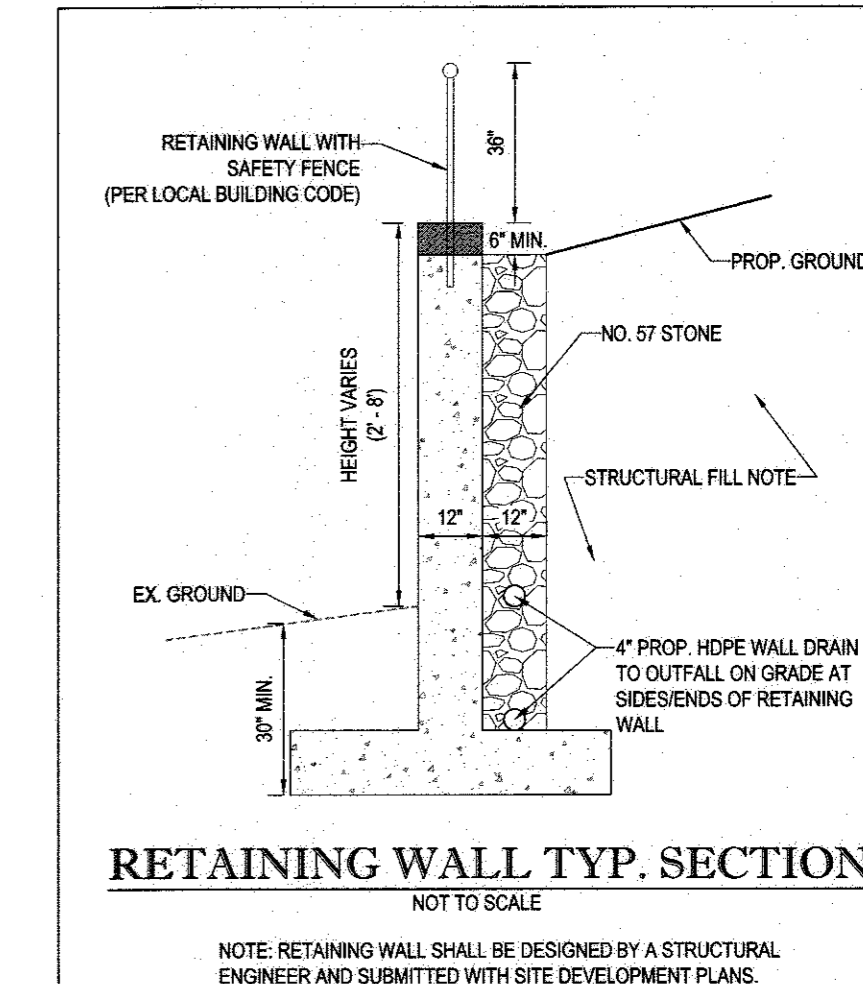
APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
DATE: 7/21/16

SUBDIVISION NAME: SECTION 19A, N/A DEED # 0887700532 & 06888900490	TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO
PREVIOUS FILE NO.: ECP-15-051 WP-15-122	PARCEL: 52 & 1 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



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THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERFECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION COMPLETION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION SATISFACTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION HAPPINESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION WELL-BEING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PEACE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION LOVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION HOPE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION FAITH. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION CHARITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION KINDNESS. 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CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-4	110.91'	67.83'	N65°03'07"E	85.56'	045°22'31"	46.37'



BOHLER ENGINEERING

CORPORATE OFFICE: WARREN, NJ

OFFICES: SOUTH BRIDGE, MA; TOWSON, MD; FORT LAUDERDALE, FL; WASHINGTON, VA; WARRINGTON, VA; FORT VALLEY, PA; WASHINGTON, DC

CIVIL & CONSULTING ENGINEERS

SURVEYORS

PROJECT MANAGERS

ENVIRONMENTAL CONSULTANTS

LANDSCAPE ARCHITECTS

REVISIONS			
REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No: MD142038
DRAWN BY: AVG
CHECKED BY: JMA
DATE: 02/16
SCALE: 1" = 50'
CAD I.D.: SS2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR **CRAWFORD & O'KEEFE PROPERTIES**

PROPOSED LOTS 1-23 & NON-BUILDABLE PRESERVATION PARCELS A-G

LOCATION OF SITE: 6780 HAVILAND MILL ROAD, CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

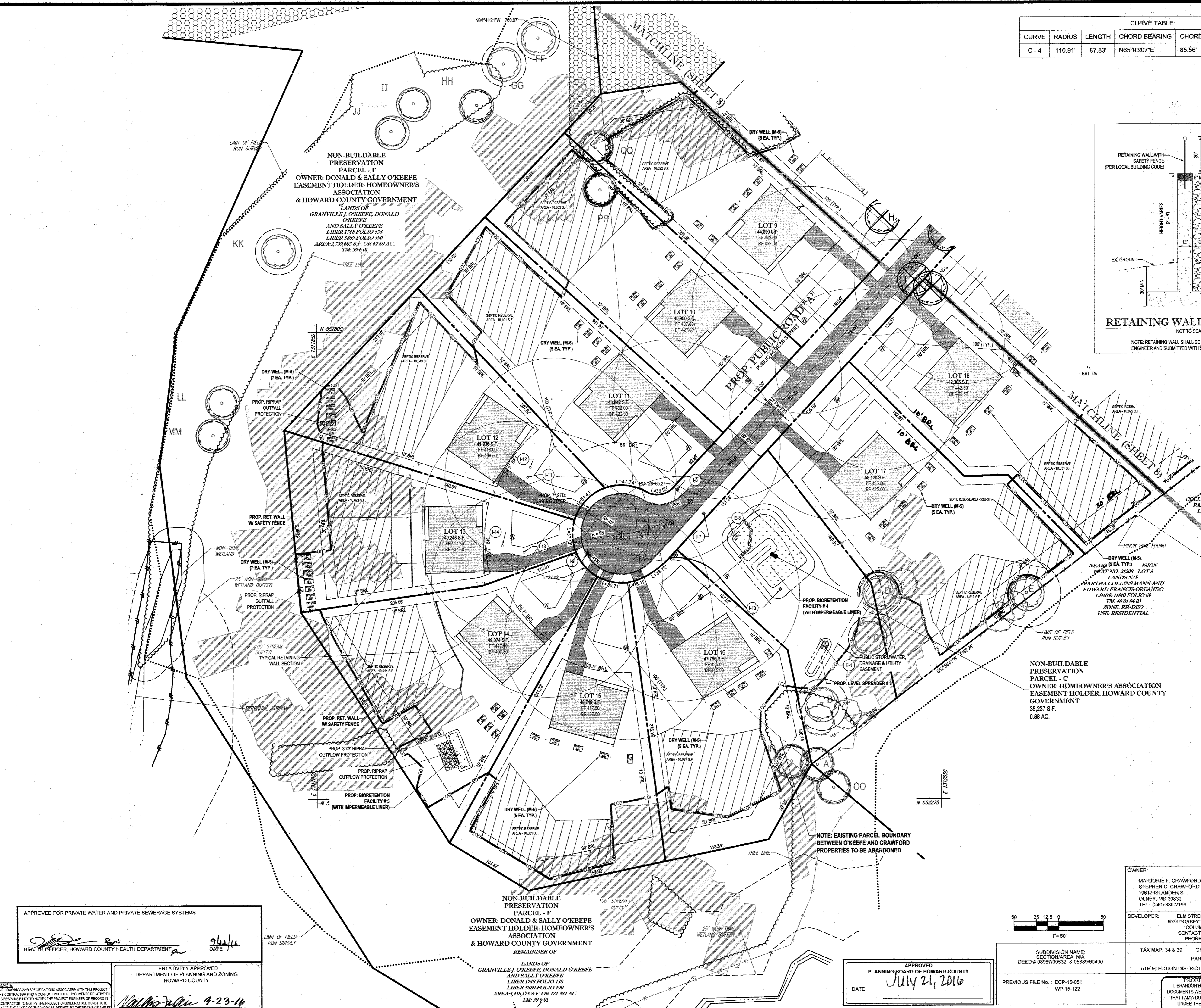
B.R. ROWE

PROFESSIONAL ENGINEER

40808
LICENSED PROFESSIONAL ENGINEER

SHEET TITLE: **SITE PLAN**

SHEET NUMBER: **9 of 25**



APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT

DATE: 9/23/16

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING HOWARD COUNTY

DATE: 9-23-16

NON-BUILDABLE PRESERVATION PARCEL - F

OWNER: DONALD & SALLY O'KEEFE EASEMENT HOLDER, HOMEOWNER'S ASSOCIATION & HOWARD COUNTY GOVERNMENT

REMAINDER OF LANDS OF GRANVILLE, O'KEEFE, DONALD O'KEEFE AND SALLY O'KEEFE LIBER 1768 FOLIO 438 LIBER 5889 FOLIO 490 AREA 2,739.03 S.F. OR 0.28 AC. TM. 39 6 01

APPROVED PLANNING BOARD OF HOWARD COUNTY

DATE: July 21, 2016

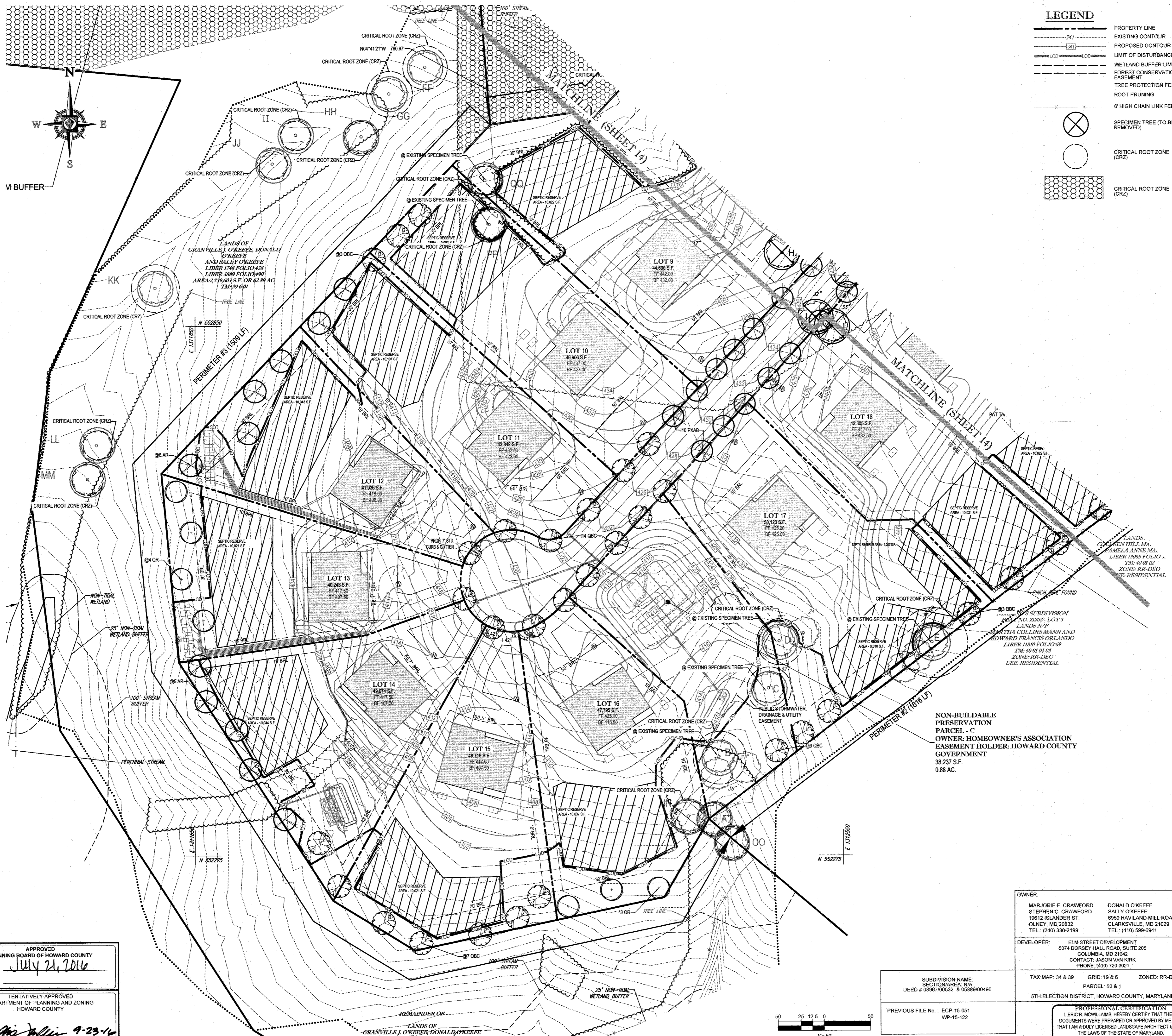
PREVIOUS FILE No.: ECP-15-051 WP-15-122

DEVELOPER: ELM STREET DEVELOPMENT 5074 DORSEY HALL ROAD, SUITE 205 COLUMBIA, MD 21042 CONTACT: JASON VAN KIRK PHONE: (410) 726-3021

TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO PARCEL: 52 & 1 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

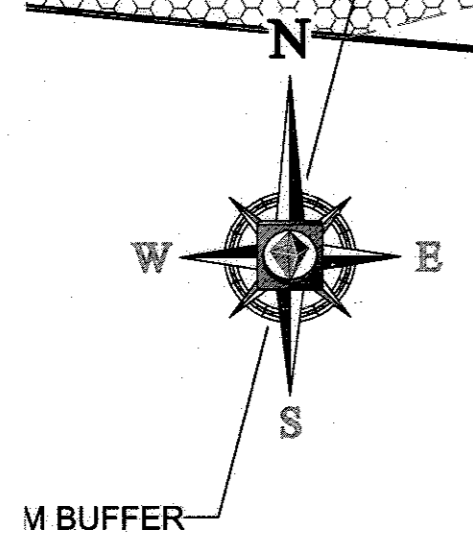
PROFESSIONAL CERTIFICATION (BRANDON R. ROWE HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 40808, EXPIRATION DATE: 7/3/2015)

PLANNING DIRECTOR



LEGEND

	PROPERTY LINE
	EXISTING CONTOUR
	PROPOSED CONTOUR
	LIMIT OF DISTURBANCE
	WETLAND BUFFER LIMITS
	FOREST CONSERVATION EASEMENT
	TREE PROTECTION FENCE
	ROOT PRUNING
	6' HIGH CHAIN LINK FENCE
	SPECIMEN TREE (TO BE REMOVED)
	CRITICAL ROOT ZONE (CRZ)
	CRITICAL ROOT ZONE (CRZ)
	CRITICAL ROOT ZONE (CRZ)



BOHLER ENGINEERING

CIVIL & CONSULTING ENGINEERS

SUBDIVISIONS

PROJECT MANAGERS

ENVIRONMENTAL CONSULTANTS

LANDSCAPE ARCHITECTS

CONSULTING OFFICE:

WARRING, NJ

SOUTHBRIDGE, MA

BOWIE, MD

ALBANY, NY

ALBANY, NY

CHALFONT, PA

CHALFONT, PA

TAMPA, FL

PHILADELPHIA, PA

PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA AND DELAWARE CALL: 811 (WWW.811.COM) (PA 1-800-242-1776) (DC 1-800-257-7777) (VA 1-800-852-7001) (MD 1-800-257-7777) (DE 1-800-282-8659)

PROJECT: MD142038

DRAWN BY: AVG

CHECKED BY: JMA

DATE: 8/2/16

SCALE: 1"=50'

CAD I.D.: L52

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR CRAWFORD & O'KEEFE PROPERTIES

PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G

LOCATION OF SITE

6780 HAVILAND MILL ROAD
CLARKSVILLE, MD
HOWARD COUNTY, MD

BOHLER ENGINEERING

961 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS

REGISTERED LANDSCAPE ARCHITECT

PRELIMINARY LANDSCAPE PLAN

SHEET NUMBER: 15 of 25

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: July 21, 2016

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Valerie J. ... 9-23-16
PLANNING DIRECTOR

SUBDIVISION NAME: SECTION AREA, N/A
DEED # 08867/00532 & 05889/00490

PREVIOUS FILE NO.: ECP-15-051
WP-15-122

TAX MAP: 34 & 39 GRID: 19 & 5 ZONED: RR-DEO
PARCEL: 52 & 1

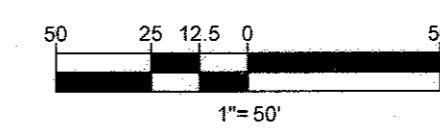
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

OWNER:
MARJORIE F. CRAWFORD
STEPHEN C. CRAWFORD
19512 ISLANDER ST.
OLNEY, MD 20832
TEL.: (240) 330-2199

DONALD O'KEEFE
SALLY O'KEEFE
6950 HAVILAND MILL ROAD
CLARKSVILLE, MD 21029
TEL.: (410) 599-6941

DEVELOPER:
ELM STREET DEVELOPMENT
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

PROFESSIONAL CERTIFICATION
I, ERIC R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3997, EXPIRATION DATE: 9/20/14



IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK. SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPROVED CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEPICTED BY THE DRAWINGS AND FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK: THE LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO PERFORM ALL CLEARING, FINISHED GRADING, SOIL PREPARATION, PERMANENT SEEDING OR SODDING, PLANTING AND MULCHING INCLUDING ALL LABOR, MATERIALS, TOOLS AND EQUIPMENT NECESSARY FOR THE COMPLETION OF THIS PROJECT, UNLESS OTHERWISE CONTRACTED BY THE GENERAL CONTRACTOR.

2. MATERIALS: A. GENERAL - ALL HARDSCAPE MATERIALS SHALL MEET OR EXCEED SPECIFICATIONS AS OUTLINED IN THE STATE DEPARTMENT OF TRANSPORTATION'S SPECIFICATIONS.

B. TOPSOIL - NATURAL, FRIABLE, LOAMY SILT SOIL HAVING AN ORGANIC CONTENT NOT LESS THAN 5%, A PH RANGE BETWEEN 4.5-7.0. IT SHALL BE FREE OF DEBRIS, ROCKS LARGER THAN ONE INCH (1"), WOOD, ROOTS, VEGETABLE MATTER AND CLAY CLODS.

C. LAWN - ALL DISTURBED AREAS ARE TO BE TREATED WITH A MINIMUM SIX INCH (6") THICK LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, AND SEEDED OR SODDED IN ACCORDANCE WITH THE PERMANENT STABILIZATION METHODS INDICATED WITHIN THE SOIL EROSION AND SEDIMENT CONTROL NOTES.

D. MULCH - THE MULCH AROUND THE PERIMETER OF THE BUILDING SHALL BE A 3" LAYER OF DOUBLE SHREDDED BLACK CEDAR MULCH ONLY. ALL OTHER AREAS SHALL BE MULCHED WITH A 3" LAYER OF DOUBLE SHREDDED DARK BROWN HARDWOOD BARK MULCH, UNLESS OTHERWISE STATED ON THE LANDSCAPE PLAN.

E. FERTILIZER: 1.1 FERTILIZER SHALL BE DELIVERED TO THE SITE MIXED AS SPECIFIED IN THE ORIGINAL UNOPENED STANDARD BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. FERTILIZER SHALL BE STORED IN A WEATHERPROOF PLACE SO THAT IT CAN BE KEPT DRY PRIOR TO USE.

F. PLANT MATERIAL: 1.1 ALL PLANTS SHALL IN ALL CASES CONFORM TO THE REQUIREMENTS OF THE "AMERICAN STANDARD FOR NURSERY STOCK" (ANSI Z90.1), LATEST EDITION, AS PUBLISHED BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.

1.2 IN ALL CASES, BOTANICAL NAMES SHALL TAKE PRECEDENCE OVER COMMON NAMES FOR ANY AND ALL PLANT MATERIAL.

1.3 PLANTS SHALL BE LEGIBLY TAGGED WITH THE PROPER NAME AND SIZE. TAGS ARE TO REMAIN ON AT LEAST ONE PLANT OF EACH SPECIES FOR VERIFICATION PURPOSES DURING THE FINAL INSPECTION.

1.4 TREES WITH ABRADED OR THE BARK, SUN SCALDS, DISFIGURATION OR FRESH CUTS OF LIMBS OVER 1", WHICH HAVE NOT BEEN COMPLETELY CALLED, SHALL BE REJECTED. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE THE BARK OR BREAK BRANCHES.

1.5 ALL PLANTS SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY AND SHALL HAVE A NORMAL HABIT OF GROWTH WITH WELL DEVELOPED BRANCHES, DENSELY FOLIATED, VIGOROUS ROOT SYSTEMS AND BE FREE OF DISEASE, INSECTS, PESTS, EGGS OR LARVAE.

1.6 CALIPER MEASUREMENTS OF NURSERY GROWN TREES SHALL BE TAKEN AT A POINT ON THE TRUNK SIX INCHES (6") ABOVE THE NATURAL GRADE FOR TREES UP TO AND INCLUDING A FOUR INCH (4") CALIPER SIZE.

1.7 SHRUBS SHALL BE MEASURED TO THE AVERAGE HEIGHT OR SPREAD OF THE SHRUB, AND NOT TO THE LONGEST BRANCH.

1.8 TREES AND SHRUBS SHALL BE HANDLED WITH CARE BY THE ROOT BALL.

3. GENERAL WORK PROCEDURES: A. CONTRACTOR TO UTILIZE WORKMANLIKE INDUSTRY STANDARDS IN PERFORMING ALL LANDSCAPE CONSTRUCTION. THE SITE IS TO BE LEFT IN A CLEAN STATE AT THE END OF EACH WORKDAY. ALL DEBRIS, MATERIALS AND TOOLS SHALL BE PROPERLY STORED, STOCKPILED OR DISPOSED OF.

B. WASTE MATERIALS AND DEBRIS SHALL BE COMPLETELY DISPOSED OF AT THE CONTRACTOR'S EXPENSE. DEBRIS SHALL NOT BE BURIED, INCLUDING ORGANIC MATERIALS, BUT SHALL BE REMOVED COMPLETELY FROM THE SITE.

4. SITE PREPARATIONS: A. BEFORE AND DURING PRELIMINARY GRADING AND FINISHED GRADING, ALL WEEDS AND GRASSES SHALL BE DUG OUT BY THE ROOTS AND DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES OUTLINED HEREIN.

B. ALL EXISTING TREES TO REMAIN SHALL BE PRUNED TO REMOVE ANY DAMAGED BRANCHES. THE ENTIRE LIMB OF ANY DAMAGED BRANCH SHALL BE CUT OFF AT THE TRUNK. CONTRACTOR SHALL ENSURE THAT CUTS ARE SMOOTH AND STRAIGHT. ANY EXPOSED ROOTS SHALL BE CUT BACK WITH CLEAN, SHARP TOOLS AND TOPSOIL SHALL BE PLACED AROUND THE ROOTS. EXISTING TREES SHALL BE MONITORED ON A REGULAR BASIS FOR ADDITIONAL ROOT OR BRANCH DAMAGE AS A RESULT OF CONSTRUCTION. ROOTS SHALL NOT BE LEFT EXPOSED FOR MORE THAN ONE (1) DAY. CONTRACTOR SHALL WATER EXISTING TREES AS NEEDED TO PREVENT SHOCK OR DECLINE.

C. CONTRACTOR SHALL ARRANGE TO HAVE A UTILITY STAKE-OUT TO LOCATE ALL UNDERGROUND UTILITIES PRIOR TO INSTALLATION OF ANY LANDSCAPE MATERIAL. UTILITY COMPANIES SHALL BE CONTACTED THREE (3) DAYS PRIOR TO THE BEGINNING OF WORK.

5. TREE PROTECTION: A. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES TO REMAIN. A TREE PROTECTION ZONE SHALL BE ESTABLISHED AT THE DRIP LINE OR 15 FEET FROM THE TRUNK OR AT THE LIMIT OF CONSTRUCTION DISTURBANCE, WHICHEVER IS GREATER. LOCAL STANDARDS THAT MAY REQUIRE A MORE STRICT TREE PROTECTION ZONE SHALL BE HONORED.

B. A FORTY-EIGHT INCH (48") HIGH WOODEN SNOW FENCE OR ORANGE COLORED HIGH-DENSITY "VIS-FENCE", OR APPROVED EQUAL, MOUNTED ON STEEL POSTS SHALL BE PLACED ALONG THE BOUNDARY OF THE TREE PROTECTION ZONE. POSTS SHALL BE LOCATED AT A MAXIMUM OF EIGHT FEET (8') ON CENTER OR AS INDICATED WITHIN THE TREE PROTECTION DETAIL.

C. WHEN THE TREE PROTECTION FENCING HAS BEEN INSTALLED, IT SHALL BE INSPECTED BY THE APPROVING AGENCY PRIOR TO DEMOLITION, GRADING, TREE CLEARING OR ANY OTHER CONSTRUCTION. THE FENCING ALONG THE TREE PROTECTION ZONE SHALL BE REGULARLY INSPECTED BY THE LANDSCAPE CONTRACTOR AND MAINTAINED UNTIL ALL CONSTRUCTION ACTIVITY HAS BEEN COMPLETED.

D. AT NO TIME SHALL MACHINERY, DEBRIS, FALLEN TREES OR OTHER MATERIALS BE PLACED, STOCKPILED OR LEFT STANDING IN THE TREE PROTECTION ZONE.

6. SOIL MODIFICATIONS: A. CONTRACTOR SHALL OBTAIN A SOIL TEST FOR ALL AREAS OF THE SITE PRIOR TO CONDUCTING ANY PLANTING. SOIL TESTS SHALL BE PERFORMED BY A CERTIFIED SOIL LABORATORY.

B. LANDSCAPE CONTRACTOR SHALL REPORT ANY SOIL OR DRAINAGE CONDITIONS CONSIDERED DETRIMENTAL TO THE GROWTH OF PLANT MATERIAL. SOIL MODIFICATIONS, AS SPECIFIED HEREIN, MAY NEED TO BE CONDUCTED BY THE LANDSCAPE CONTRACTOR DEPENDING ON SITE CONDITIONS.

C. THE FOLLOWING AMENDMENTS AND QUANTITIES ARE APPROXIMATE AND ARE FOR BIDDING PURPOSES ONLY. COMPOSITION OF AMENDMENTS SHOULD BE REVISED DEPENDING ON THE OUTCOME OF A TOPSOIL ANALYSIS PERFORMED BY A CERTIFIED SOIL LABORATORY.

1.1. TO INCREASE A SANDY SOIL'S ABILITY TO RETAIN WATER AND NUTRIENTS, THOROUGHLY TILL ORGANIC MATTER INTO THE TOP 6-12". USE COMPOSTED BARK, COMPOSTED LEAF MULCH OR PEAT MOSS. ALL PRODUCTS SHOULD BE COMPOSTED TO A DARK COLOR AND BE FREE OF PIECES WITH IDENTIFIABLE LEAF OR WOOD STRUCTURE. AVOID MATERIAL WITH A PH HIGHER THAN 7.5.

1.2. TO INCREASE DRAINAGE, MODIFY HEAVY CLAY OR SILT (MORE THAN 40% CLAY OR SILT) BY ADDING COMPOSTED PINE BARK (UP TO 30% BY VOLUME) AND/OR AGRICULTURAL GYPSUM. COARSE SAND MAY BE USED IF ENOUGH IS ADDED TO BRING THE SAND CONTENT TO MORE THAN 60% OF THE TOTAL MIX.

1.3. MODIFY EXTREMELY SANDY SOILS (MORE THAN 85%) BY ADDING ORGANIC MATTER AND/OR DRY, SHREDDED CLAY LOAM UP TO 30% OF THE TOTAL MIX.

7. FINISHED GRADING: A. UNLESS OTHERWISE CONTRACTED, THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF TOPSOIL AND THE ESTABLISHMENT OF FINE GRADING WITHIN THE DISTURBANCE AREA OF THE SITE.

B. LANDSCAPE CONTRACTOR SHALL VERIFY THAT SUBGRADE FOR INSTALLATION OF TOPSOIL HAS BEEN ESTABLISHED. THE SUBGRADE OF THE SITE MUST MEET THE FINISHED GRADE LESS THE REQUIRED TOPSOIL THICKNESS (1").

C. ALL LAWN AND PLANTING AREAS SHALL BE GRADED TO A SMOOTH, EVEN AND UNIFORM PLANE WITH NO ABRUPT CHANGE OF SURFACE AS DEPICTED WITHIN THIS SET OF CONSTRUCTION PLANS, UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER OR LANDSCAPE ARCHITECT.

D. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED TO ALLOW FREE FLOW OF SURFACE WATER IN AND AROUND THE PLANTING BEDS. STANDING WATER SHALL NOT BE PERMITTED IN PLANTING BEDS.

8. TOPSOILING: A. CONTRACTOR SHALL PROVIDE A SIX INCH (6") THICK MINIMUM LAYER OF TOPSOIL, OR AS DIRECTED BY THE LOCAL ORDINANCE OR CLIENT, IN ALL PLANTING AREAS. TOPSOIL SHOULD BE SPREAD OVER A PREPARED SURFACE IN A UNIFORM LAYER TO ACHIEVE THE DESIRED COMPACTED THICKNESS.

B. ON-SITE TOPSOIL MAY BE USED TO SUPPLEMENT THE TOTAL AMOUNT REQUIRED. TOPSOIL FROM THE SITE MAY BE REJECTED IF IT HAS NOT BEEN PROPERLY REMOVED, STORED AND PROTECTED PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL FURNISH TO THE APPROVING AGENCY AN ANALYSIS OF BOTH IMPORTED AND ON-SITE TOPSOIL TO BE UTILIZED IN ALL PLANTING AREAS. THE PH AND NUTRIENT LEVELS MAY NEED TO BE ADJUSTED THROUGH SOIL MODIFICATIONS AS NEEDED TO ACHIEVE THE REQUIRED LEVELS AS SPECIFIED IN THE MATERIALS SECTION ABOVE.

D. ALL PLANTING AND LAWN AREAS ARE TO BE CULTIVATED TO A DEPTH OF SIX INCHES (6"). ALL DEBRIS EXPOSED FROM EXCAVATION AND CULTIVATION SHALL BE DISPOSED OF IN ACCORDANCE WITH GENERAL WORK PROCEDURES SECTION ABOVE. THE FOLLOWING SHALL BE FILLED INTO THE TOP FOUR INCHES (4") IN TWO DIRECTIONS (QUANTITIES BASED ON A 1,000 SQUARE FOOT AREA): 1.1 20 POUNDS GROW POWER OR APPROVED EQUAL. 1.2 20 POUNDS NITRO-FORM (COURSE) 38-0-0 BLUE CHIP.

9. PLANTING: A. INsofar as IT IS FEASIBLE, PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY. IN THE EVENT THAT THIS IS NOT POSSIBLE, LANDSCAPE CONTRACTOR SHALL PROTECT UNINSTALLED PLANT MATERIAL. PLANTS SHALL NOT REMAIN UNPLANTED FOR LONGER THAN A THREE DAY PERIOD AFTER DELIVERY. PLANTS THAT WILL NOT BE PLANTED FOR A PERIOD OF TIME GREATER THAN THREE DAYS SHALL BE HEALED IN WITH TOPSOIL OR MULCH TO HELP PRESERVE ROOT MOISTURE.

B. PLANTING OPERATIONS SHALL BE PERFORMED DURING PERIODS WITHIN THE PLANTING SEASON WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE AND IN ACCORDANCE WITH ACCEPTED LOCAL PRACTICE. PLANTS SHALL NOT BE INSTALLED IN TOPSOIL THAT IS IN A MUDDY OR FROZEN CONDITION.

C. ANY INJURED ROOTS OR BRANCHES SHALL BE PRUNED TO MAKE CLEAN-CUT ENDS PRIOR TO PLANTING. UTILIZING CLEAN, SHARP TOOLS. ONLY INJURED OR DISEASED BRANCHING SHALL BE REMOVED.

D. ALL PLANTING CONTAINERS AND NON-Biodegradable MATERIALS SHALL BE REMOVED FROM ROOT BALLS DURING PLANTING. NATURAL FIBER BURLAP MUST BE CUT FROM THE TRUNK OF THE TREE AND FOLDED DOWN AGAINST THE ROOT BALL PRIOR TO BACKFILLING.

E. POSITION TREES AND SHRUBS AT THEIR INTENDED LOCATIONS AS PER THE PLANS AND SECURE THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO EXCAVATING PITS, MAKING NECESSARY ADJUSTMENTS AS DIRECTED.

F. PRIOR TO THE ISSUANCE OF ANY CERTIFICATE OF OCCUPANCY, THE PROPOSED LANDSCAPE, AS SHOWN ON THE APPROVED LANDSCAPE PLAN, MUST BE INSTALLED, INSPECTED AND APPROVED BY THE APPROVING AGENCY. THE APPROVING AGENCY SHALL TAKE INTO ACCOUNT SEASONAL CONSIDERATIONS IN THIS REGARD AS FOLLOWS: THE PLANTING OF TREES, SHRUBS, VINES OR GROUND COVER SHALL OCCUR ONLY DURING THE FOLLOWING PLANTING SEASONS:

1.1 PLANTS: MARCH 15 TO DECEMBER 15
1.2 LAWN: MARCH 15 TO JUNE 15 OR SEPT. 1 TO DECEMBER 1

G. PLANTINGS REQUIRED FOR A CERTIFICATE OF OCCUPANCY SHALL BE PROVIDED DURING THE NEXT APPROPRIATE SEASON AT THE MUNICIPALITY'S DISCRETION. CONTRACTOR SHOULD CONTACT APPROVING AGENCY FOR POTENTIAL SUBSTITUTIONS.

H. FURTHERMORE, THE FOLLOWING TREE VARIETIES ARE UNUSUALLY SUSCEPTIBLE TO WINTER DAMAGE WITH TRANSPLANT SHOCK AND THE SEASONAL LACK OF NITROGEN AVAILABILITY, THE RISK OF PLANT DEATH IS GREATLY INCREASED. IT IS NOT RECOMMENDED THAT THESE SPECIES BE PLANTED DURING THE FALL PLANTING SEASON:

ACER RUBRUM PLATANUS X ACERIFOLIA
BETULA VARIETIES POPULUS VARIETIES
CARPINUS VARIETIES PRUNUS VARIETIES
CRATAEGUS VARIETIES PRUNUS VARIETIES
KOELBUTERIA QUERCUS VARIETIES
LIQUIDAMBER STYACIFLUA TILIA TOMENTOSA
LIROIDENDRON TULIPIFERA ZELKOVA VARIETIES

I. PLANTING PITS SHALL BE DUG WITH LEVEL BOTTOMS, WITH THE WIDTH TWICE THE DIAMETER OF ROOT BALL. THE ROOT BALL SHALL REST ON UNDISTURBED GRADE. EACH PLANT PIT SHALL BE BACKFILLED IN LAYERS WITH THE FOLLOWING PREPARED SOIL MIXED THOROUGHLY:

1 PART PEAT MOSS
1 PART COMPOSTED COW MANURE BY VOLUME
3 PARTS TOPSOIL BY VOLUME
21 GRAMS AGRI-FORM PLANTING TABLETS (OR APPROVED EQUAL) AS FOLLOWS:
A) 2 TABLETS PER 1 GALLON PLANT
B) 3 TABLETS PER 5 GALLON PLANT
C) 4 TABLETS PER 15 GALLON PLANT
D) LARGER PLANTS: 2 TABLETS PER 1" CALIPER OF TRUNK

J. FILL PREPARED SOIL AROUND BALL OF PLANT HALF-WAY AND INSERT PLANT TABLETS. COMPLETE BACKFILL AND WATER THOROUGHLY.

K. ALL PLANTS SHALL BE PLANTED SO THAT THE TOP OF THE ROOT BALL, THE POINT AT WHICH THE ROOT FLARE BEGINS, IS SET AT GROUND LEVEL AND IN THE CENTER OF THE PIT. NO SOIL IS TO BE PLACED DIRECTLY ON TOP OF THE ROOT BALL.

L. ALL PROPOSED TREES DIRECTLY ADJACENT TO WALKWAYS OR DRIVEWAYS SHALL BE PRUNED AND MAINTAINED TO A MINIMUM BRANCHING HEIGHT OF 7' FROM GRADE.

M. GROUND COVER AREAS SHALL RECEIVE A 1" LAYER OF HUMUS RAKED INTO THE TOP 1" OF PREPARED SOIL PRIOR TO PLANTING. ALL GROUND COVER AREAS SHALL BE WEEDED AND TREATED WITH A PRE-EMERGENT CHEMICAL AS PER MANUFACTURER'S RECOMMENDATION.

N. NO PLANT, EXCEPT GROUND COVERS, GRASSES OR VINES, SHALL BE PLANTED LESS THAN TWO FEET (2') FROM EXISTING STRUCTURES AND SIDEWALKS.

O. ALL PLANTING AREAS AND PLANTING PITS SHALL BE MULCHED AS SPECIFIED HEREIN TO FILL THE ENTIRE BED AREA OR SAUCER. NO MULCH IS TO TOUCH THE TRUNK OF THE TREE OR SHRUB.

P. ALL PLANTING AREAS SHALL BE WATERED IMMEDIATELY UPON INSTALLATION IN ACCORDANCE WITH THE WATERING SPECIFICATIONS AS LISTED HEREIN.

10. TRANSPLANTING (WHEN REQUIRED): A. ALL TRANSPLANTS SHALL BE DUG WITH INTACT ROOT BALLS CAPABLE OF SUSTAINING THE PLANT.

B. IF PLANTS ARE TO BE STOCKPILED BEFORE REPLANTING, THEY SHALL BE HEALED IN WITH MULCH OR SOIL, ADEQUATELY WATERED AND PROTECTED FROM EXTREME HEAT, SUN AND WIND.

C. PLANTS SHALL NOT BE DUG FOR TRANSPLANTING BETWEEN APRIL 10 AND JUNE 30.

D. UPON REPLANTING, BACKFILL SOIL SHALL BE AMENDED WITH FERTILIZER AND ROOT GROWTH HORMONE.

E. TRANSPLANTS SHALL BE GUARANTEED FOR THE LENGTH OF THE GUARANTEE PERIOD SPECIFIED HEREIN.

F. IF TRANSPLANTS DIE, SHRUBS AND TREES LESS THAN SIX INCHES (6") DBH SHALL BE REPLACED IN KIND. TREES GREATER THAN SIX INCHES (6") DBH MAY BE REQUIRED TO BE REPLACED IN ACCORDANCE WITH THE MUNICIPALITY'S TREE REPLACEMENT GUIDELINES.

11. WATERING: A. NEW PLANTINGS OR LAWN AREAS SHALL BE ADEQUATELY IRRIGATED BEGINNING IMMEDIATELY AFTER PLANTING. WATER SHALL BE APPLIED TO EACH TREE AND SHRUB IN SUCH MANNER AS NOT TO DISTURB BACKFILL AND TO THE EXTENT THAT ALL MATERIALS IN THE PLANTING HOLE ARE THOROUGHLY SATURATED. WATERING SHALL CONTINUE AT LEAST UNTIL PLANTS ARE ESTABLISHED.

B. SITE OWNER SHALL PROVIDE WATER IF AVAILABLE ON SITE AT TIME OF PLANTING. IF WATER IS NOT AVAILABLE ON SITE, CONTRACTOR SHALL SUPPLY ALL NECESSARY WATER. THE USE OF WATERING BAGS IS RECOMMENDED FOR ALL NEWLY PLANTED TREES.

C. IF AN IRRIGATION SYSTEM HAS BEEN INSTALLED ON THE SITE, IT SHALL BE USED TO WATER PROPOSED PLANT MATERIAL, BUT ANY FAILURE OF THE SYSTEM DOES NOT ELIMINATE THE CONTRACTOR'S RESPONSIBILITY OF MAINTAINING THE DESIRED MOISTURE LEVEL FOR VIGOROUS, HEALTHY GROWTH.

12. GUARANTEE: A. LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANTS FOR A PERIOD OF ONE (1) YEAR FROM APPROVAL OF LANDSCAPE INSTALLATION BY THE APPROVING AGENCY. CONTRACTOR SHALL SUPPLY THE OWNER WITH A MAINTENANCE BOND FOR TEN PERCENT (10%) OF THE VALUE OF THE LANDSCAPE INSTALLATION WHICH WILL BE RELEASED AT THE CONCLUSION OF THE GUARANTEE PERIOD AND WHEN A FINAL INSPECTION HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.

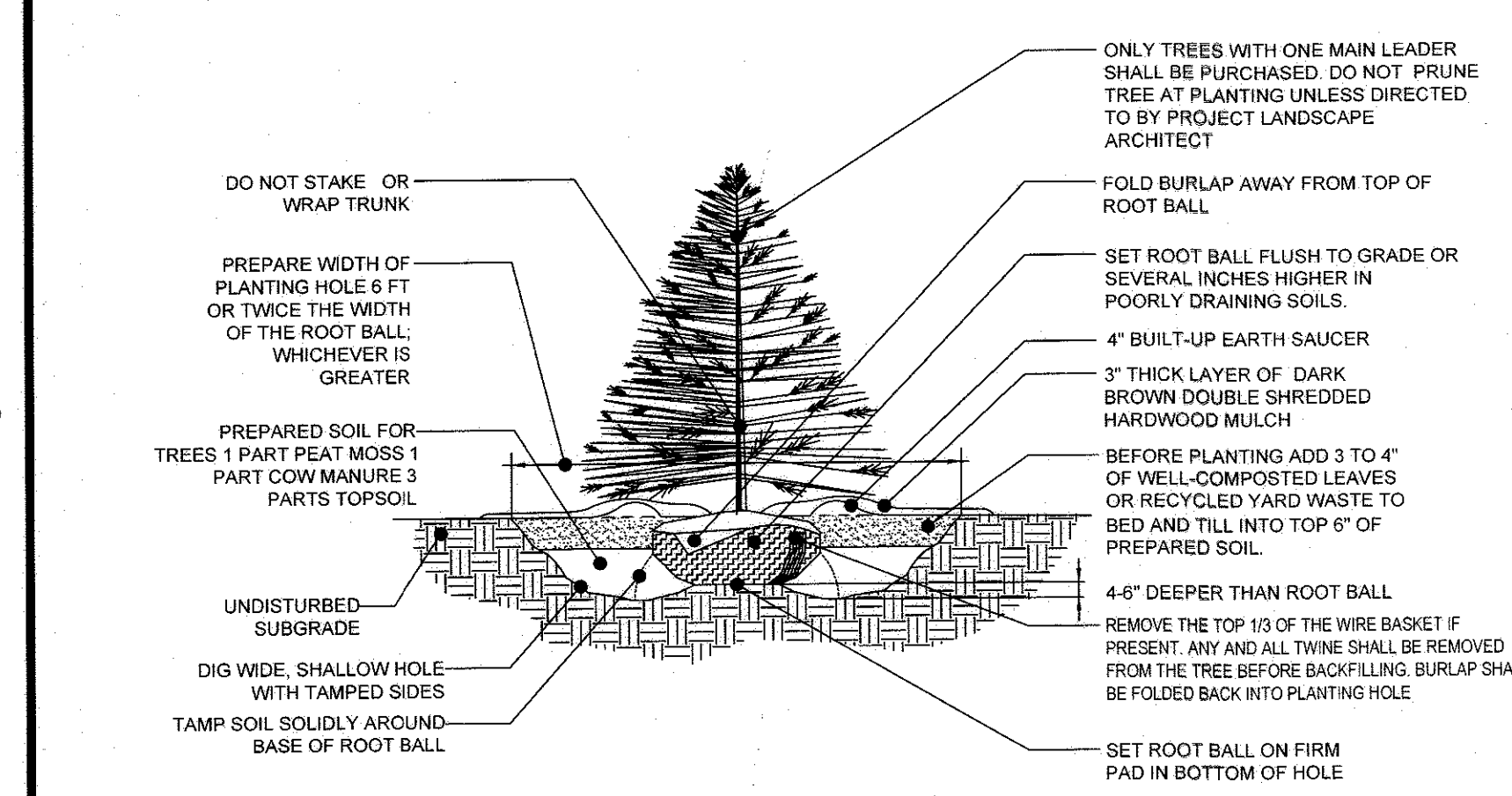
B. ANY DEAD OR DYING PLANT MATERIAL SHALL BE REPLACED FOR THE LENGTH OF THE GUARANTEE PERIOD. REPLACEMENT OF PLANT MATERIAL SHALL BE CONDUCTED AT THE FIRST SUCCEEDING PLANTING SEASON. ANY DEBRIS SHALL BE DISPOSED OF OFF-SITE, WITHOUT EXCEPTION.

C. TREES AND SHRUBS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND THROUGHOUT THE 90 DAY MAINTENANCE PERIOD AS SPECIFIED HEREIN. CULTIVATION, WEEDING, WATERING AND THE PREVENTATIVE TREATMENTS SHALL BE PERFORMED AS NECESSARY TO KEEP PLANT MATERIAL IN GOOD CONDITION AND FREE OF INSECTS AND DISEASE.

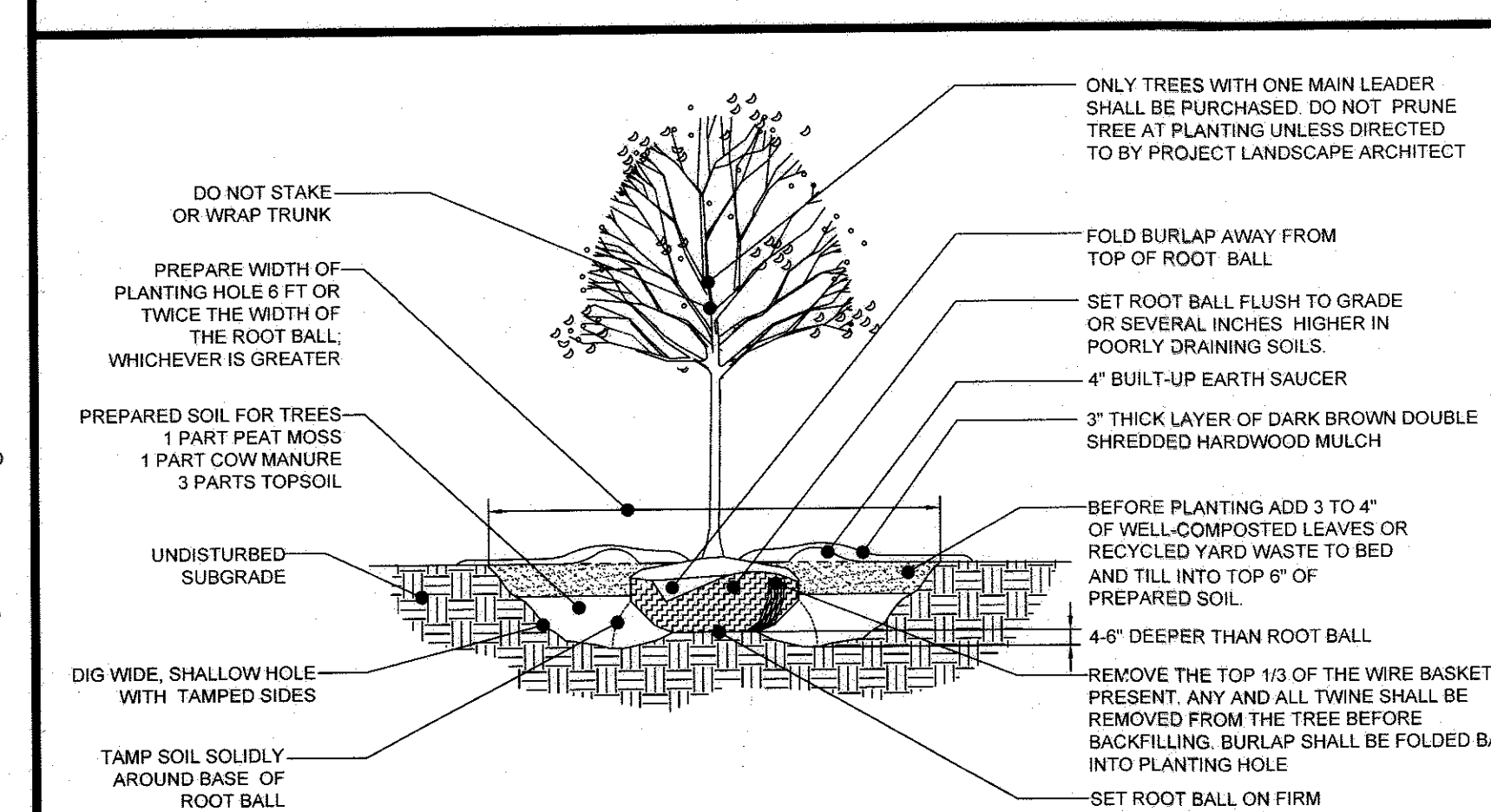
D. LAWNS SHALL BE MAINTAINED THROUGH WATERING, FERTILIZING, WEEDING, MOWING, TRIMMING AND OTHER OPERATIONS SUCH AS ROLLING, REGARDING AND REPLANTING AS REQUIRED TO ESTABLISH A SMOOTH, ACCEPTABLE LAWN, FREE OF FROED OR BARE AREAS.

13. CLEANUP: A. UPON THE COMPLETION OF ALL LANDSCAPE INSTALLATION AND BEFORE THE FINAL ACCEPTANCE, THE CONTRACTOR SHALL REMOVE ALL UNUSED MATERIALS, EQUIPMENT AND DEBRIS FROM THE SITE. ALL PAVED AREAS ARE TO BE CLEANED.

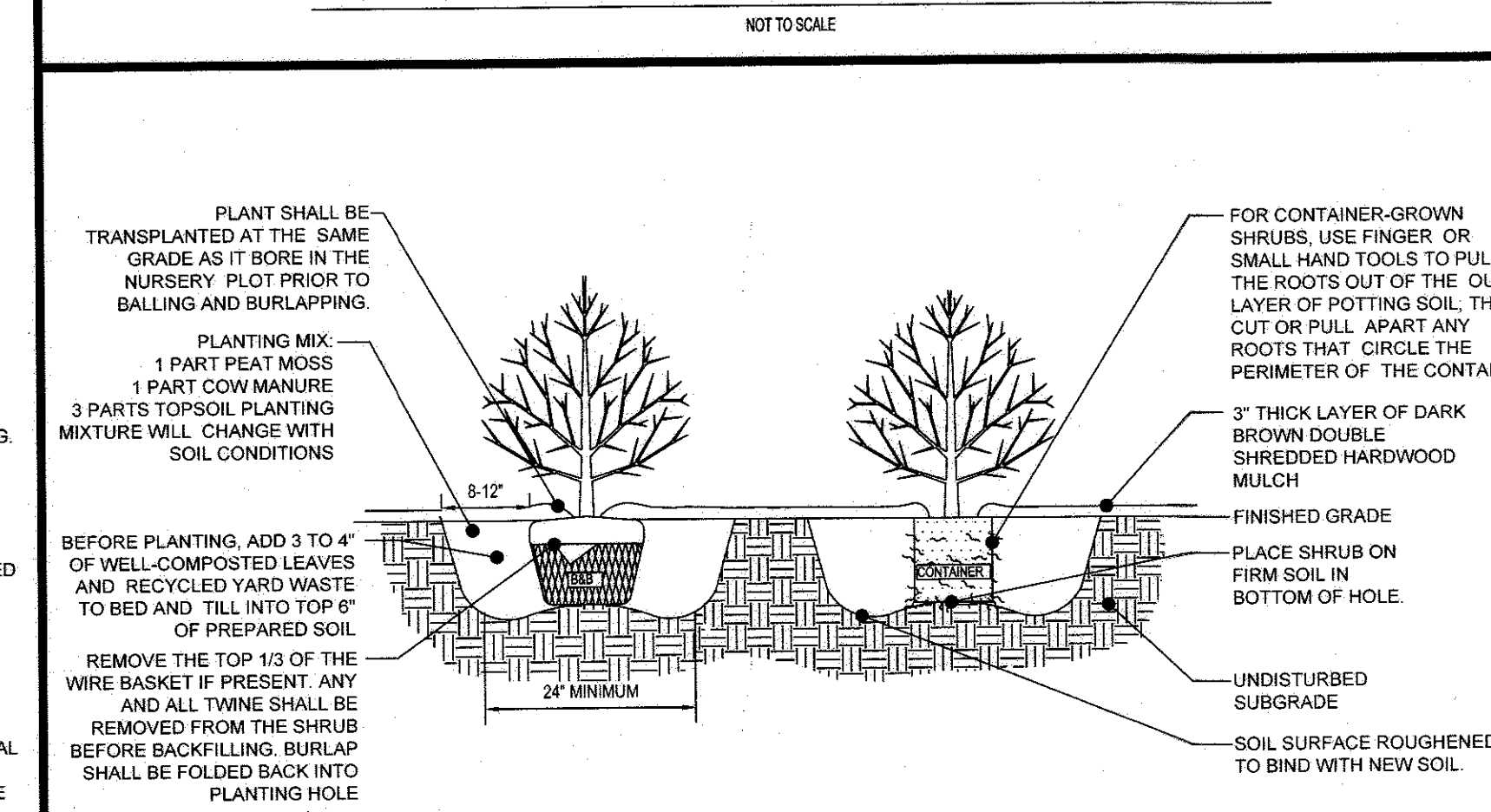
B. THE SITE SHALL BE CLEANED AND LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER OR AUTHORIZED REPRESENTATIVE.



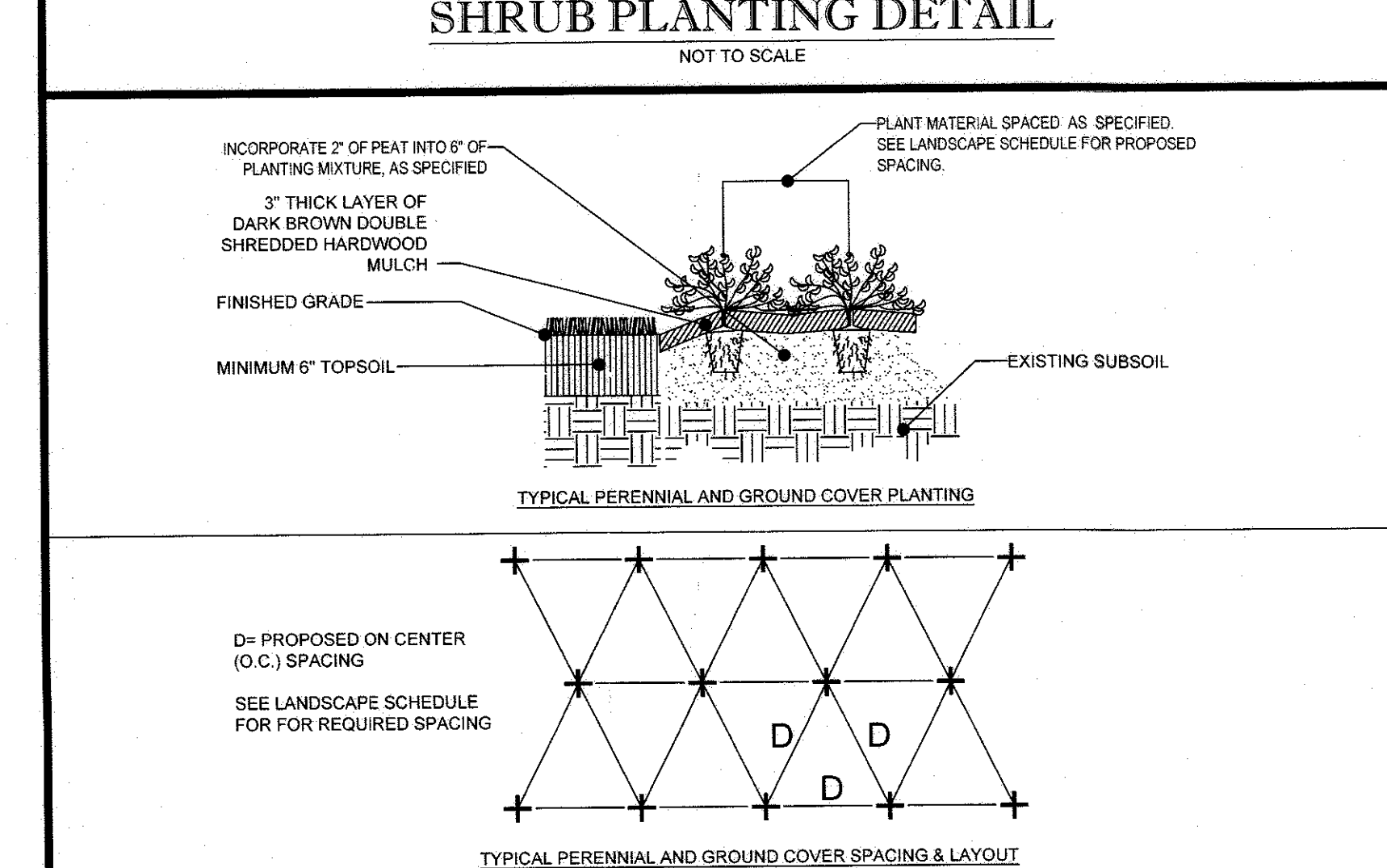
EVERGREEN TREE PLANTING DETAIL



DECIDUOUS TREE PLANTING DETAIL

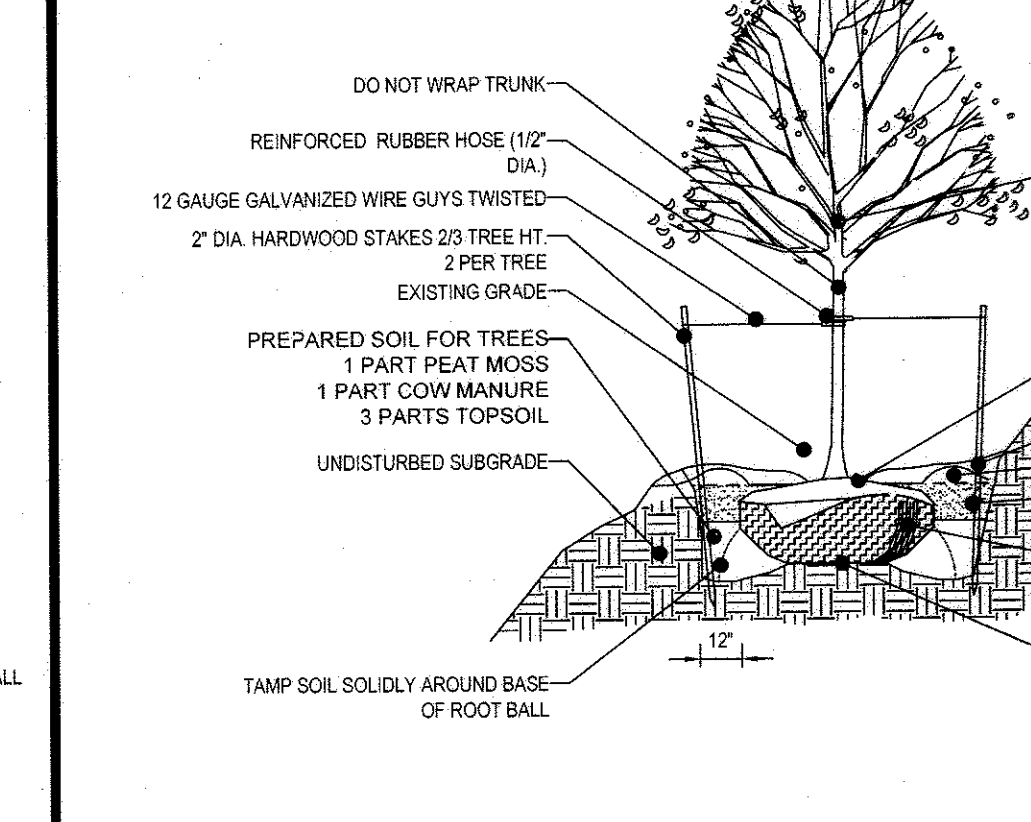


DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL

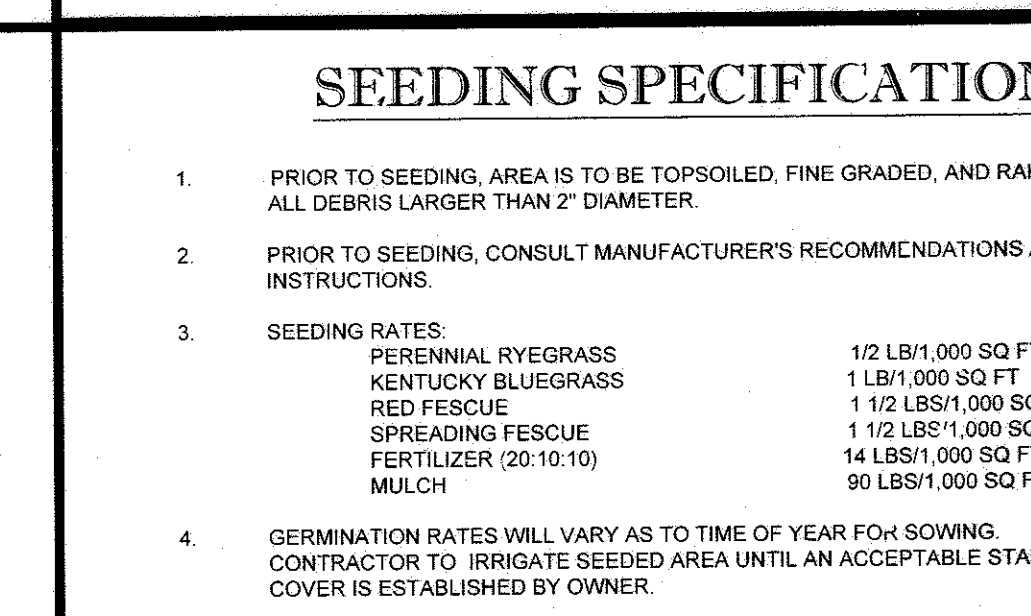


PERENNIAL/GROUND COVER PLANTING DETAIL

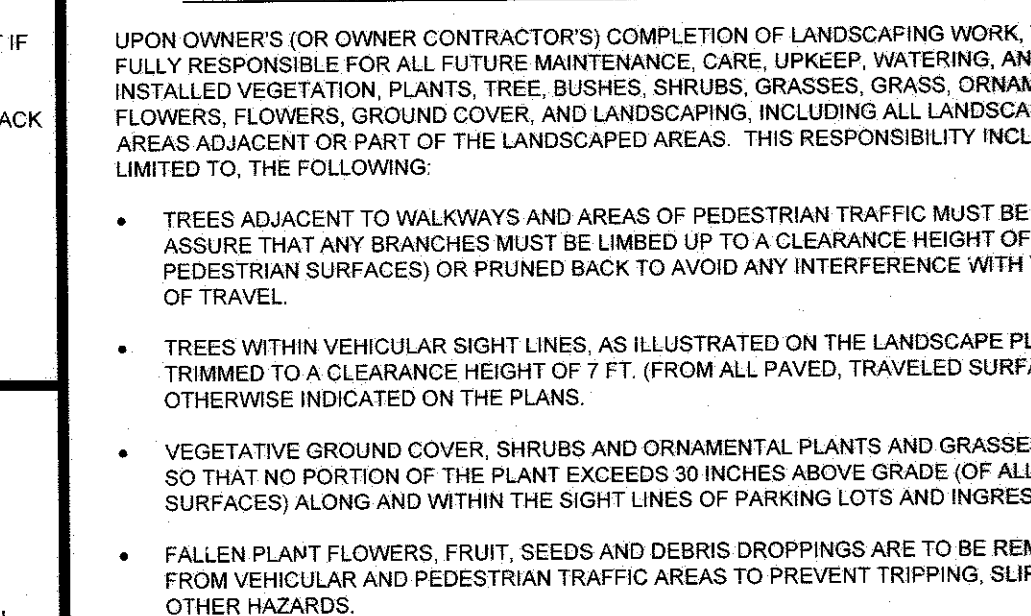
NOTE: TREE STAKING TO BE REMOVED AFTER 2 GROWING SEASONS



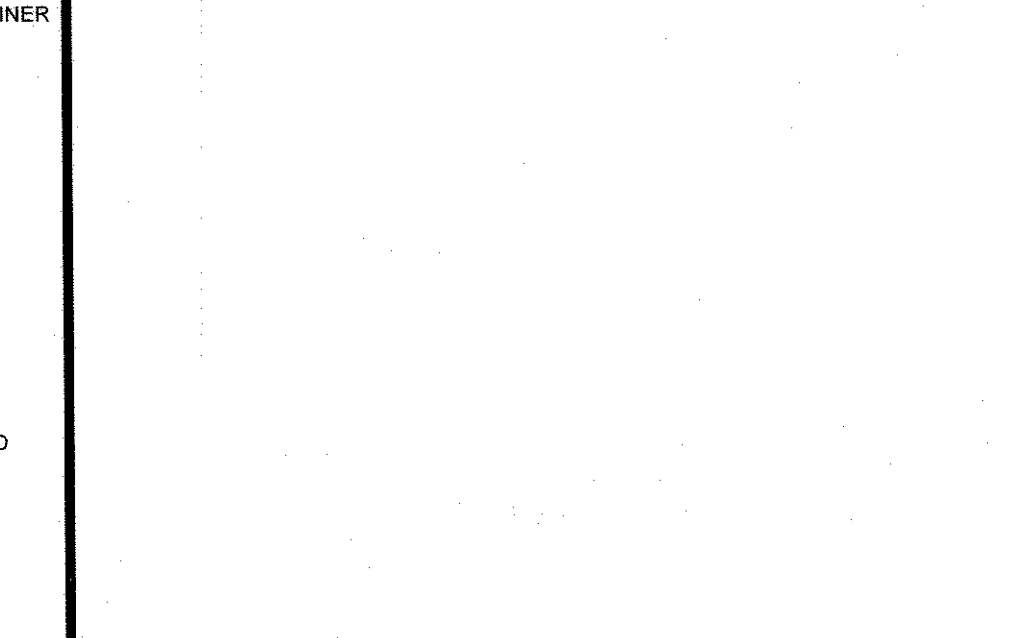
TREE PLANTING ON SLOPE DETAIL



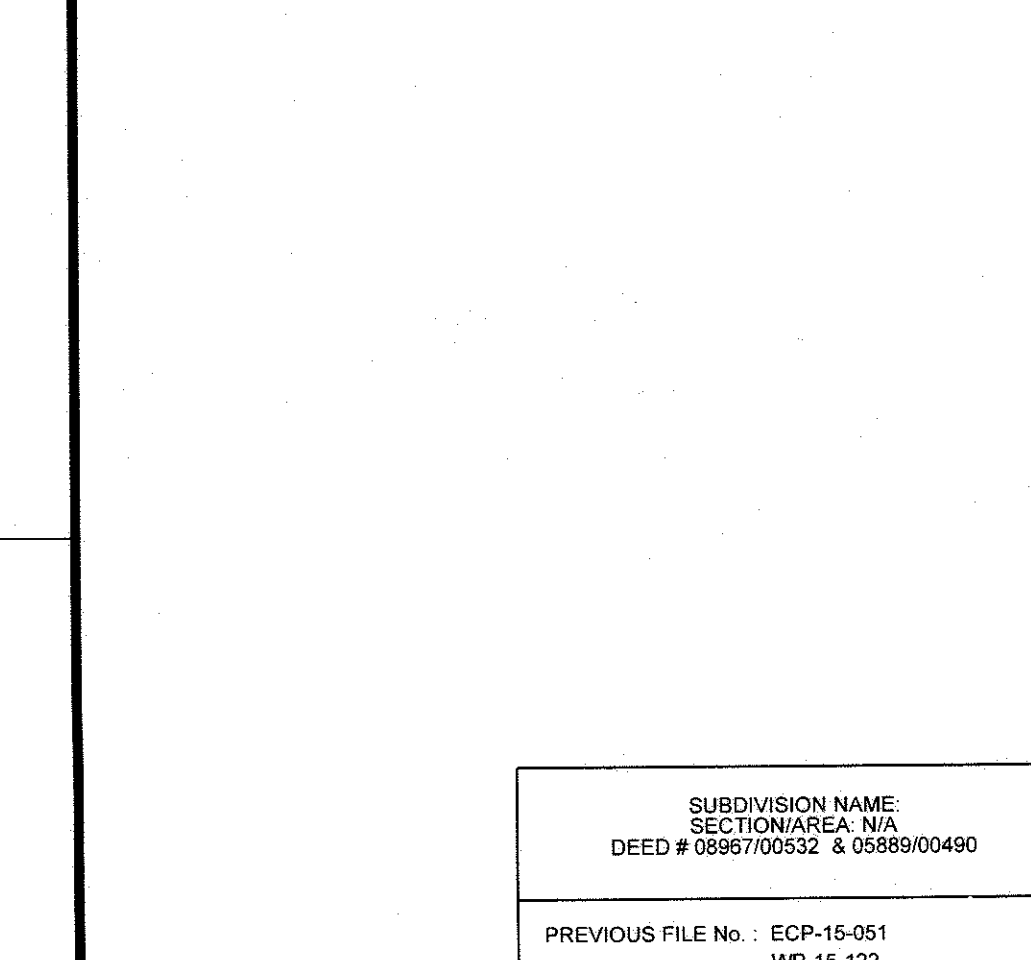
SEEDING SPECIFICATIONS



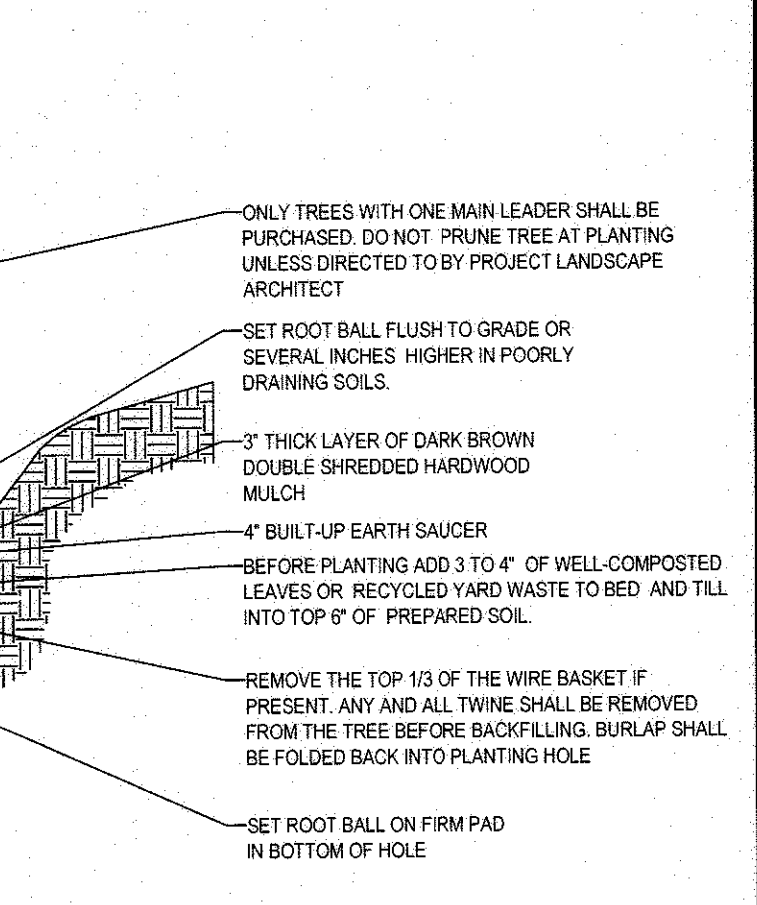
OWNER MAINTENANCE RESPONSIBILITIES



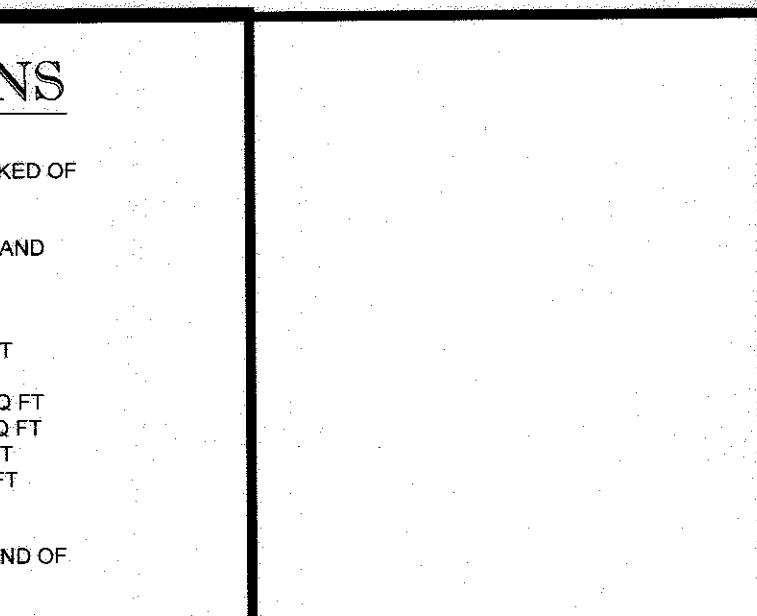
DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL



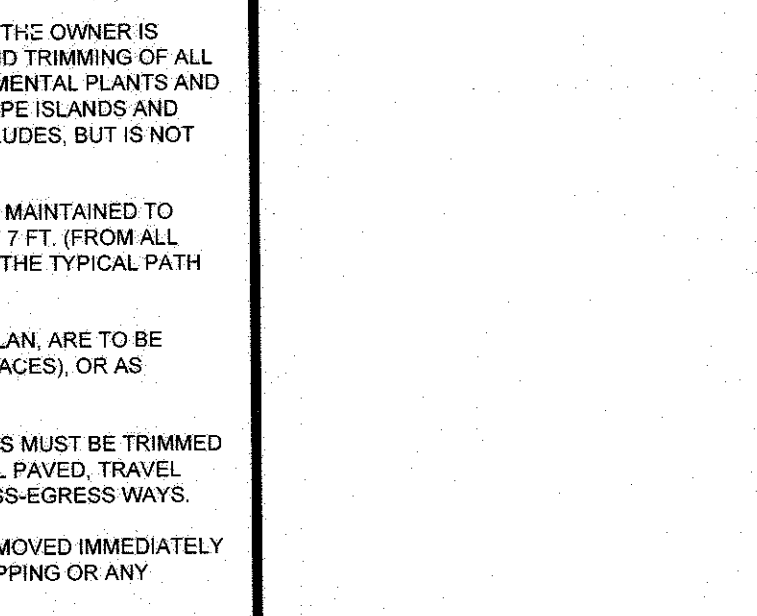
PERENNIAL/GROUND COVER PLANTING DETAIL



TREE PLANTING ON SLOPE DETAIL



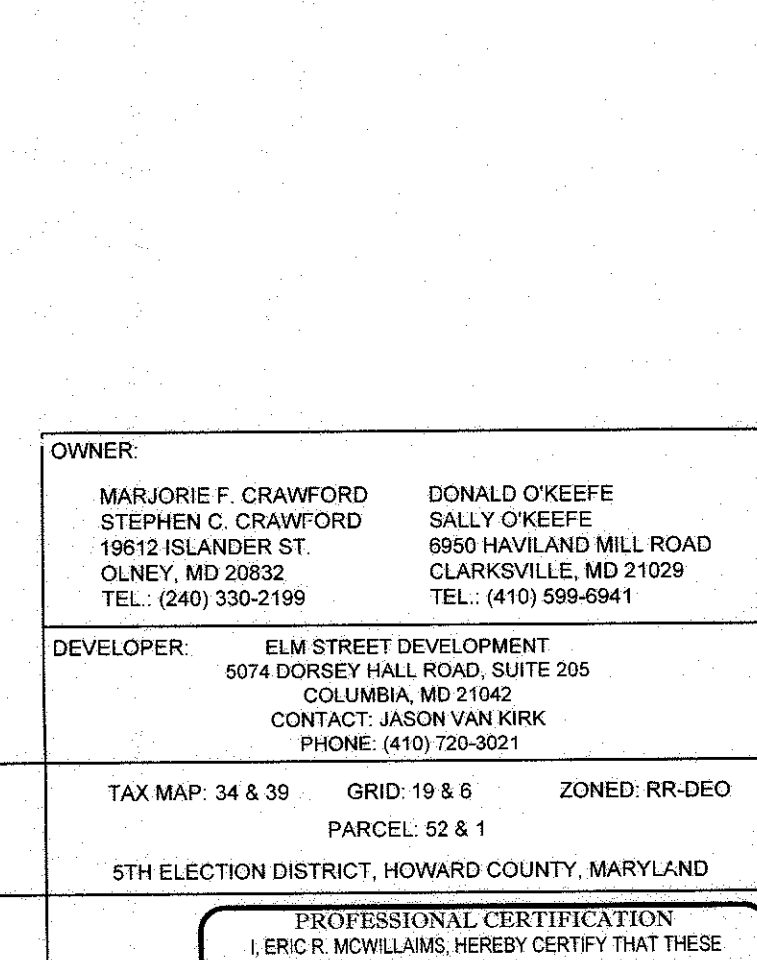
SEEDING SPECIFICATIONS



OWNER MAINTENANCE RESPONSIBILITIES



DECIDUOUS AND EVERGREEN SHRUB PLANTING DETAIL



PERENNIAL/GROUND COVER PLANTING DETAIL

BOHLER ENGINEERING logo and contact information.

REVISIONS table with columns for REV, DATE, COMMENT, and BY.

NOT APPROVED FOR CONSTRUCTION stamp with project details.

PRELIMINARY EQUIVALENT SKETCH PLAN stamp.

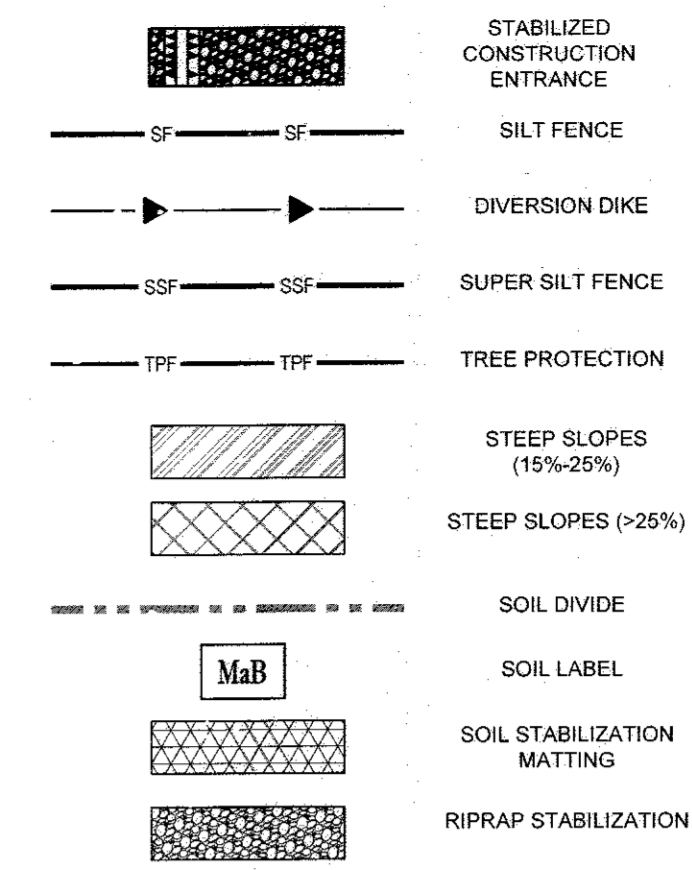
CRAWFORD & O'KEEFE PROPERTIES stamp with address and phone.

BOHLER ENGINEERING logo and address.

E.R. McWILLIAMS stamp with registration number.

LANDSCAPE DETAILS & NOTES stamp with page number 16 of 25.

EROSION AND SEDIMENT CONTROL LEGEND



EROSION AND SEDIMENT CONTROL NOTES

- TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS WILL BE PROVIDED DURING FINAL PLAN PHASE OF THE PROJECT.
- ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
- PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
- EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SWALES AND ON ALL SLOPES 3:1 OR GREATER.
- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

CRAWFORD & O'KEEFE PROPERTIES

23 SINGLE FAMILY DETACHED UNITS

CUT/FILL ANALYSIS

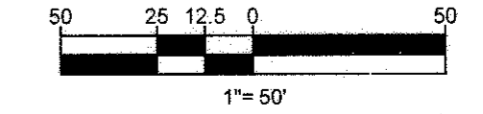
TOTAL CUT = 81,360 CY
 TOTAL FILL = 58,820 CY (15% SHRINKAGE FACTOR APPLIED)
 TOTAL EXPORT = 22,460 CY
 LIMIT OF DISTURBANCE: 26.33 AC.

NOTES

- ALL UNDERGROUND ROOF LEADERS WILL BE 6" PVC PIPE.
- ALL BIO-RETENTION FACILITIES LEADING TO THEIR OWN OUTFALL POINT MUST HAVE OUTFALL PIPES SIZED TO HANDLE THE 10-YR STORM EVENT.
- STORMWATER QUALITY MANAGEMENT WILL BE PROVIDED BY 5 BIO-RETENTION FACILITIES AND 119 DRYWELLS.

PIPE OUTLET SEDIMENT TRAP

TRAP NO.	WIDTH	LENGTH	BOTTOM ELEV.	D.A.
1	40'	80'	432.00	2.8 AC.
2	25'	110'	441.00	3.3 AC.



SUBDIVISION NAME: SECTION/AREA, N/A
 DEED # 0886700532 & 0599900490
 PREVIOUS FILE NO.: ECP-15-051
 WP-15-122

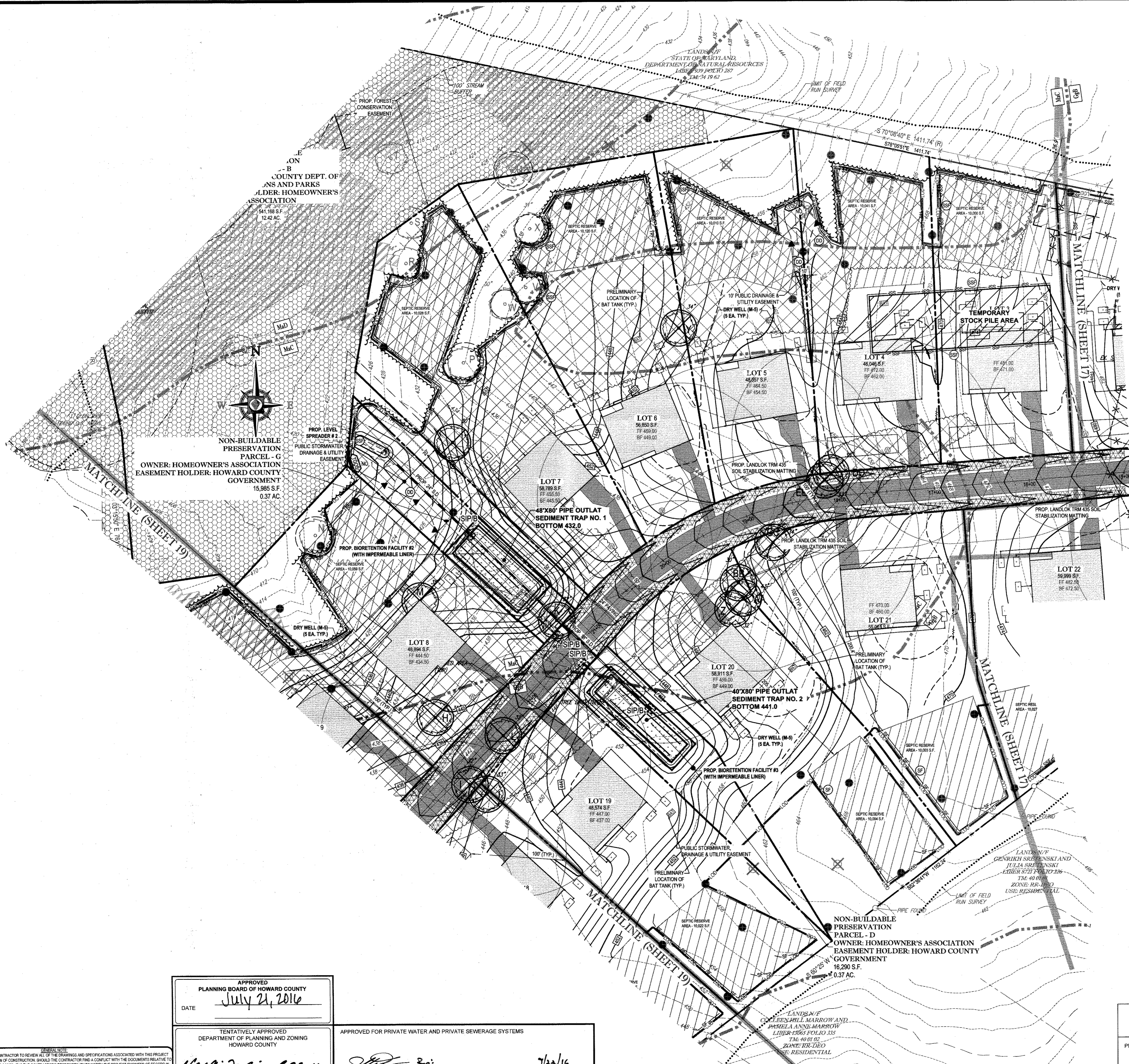
OWNER:
 MARJORIE F. CRAWFORD
 STEPHEN C. CRAWFORD
 19512 ISLANDER ST.
 OLNEY, MD 20832
 TEL.: (240) 335-2199

DONALD O'KEEFE
 SALLY O'KEEFE
 6950 HAVILAND MILL ROAD
 CLARKSVILLE, MD 21029
 TEL.: (410) 599-6941

DEVELOPER: ELM STREET DEVELOPMENT
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 34 & 39 **GRID:** 19 & 6 **ZONED:** RR-DEO
PARCEL: 52 & 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 40008, EXPIRATION DATE: 7/30/2015



APPROVED
PLANNING BOARD OF HOWARD COUNTY
 DATE: July 21, 2016

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
 DATE: 9-29-16

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
 HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT
 DATE: 9/29/16

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE BEGINNING OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS AND CODES.

BOHLER ENGINEERING
 CORPORATE OFFICE: WARREN, NJ
 OFFICES: SOUTH BRITAIN, WA; TOWSON, MD; WESTLAND, MI; FORT LAUDERDALE, FL; PHILADELPHIA, PA
 SURVEYORS: ALBANY, NY; ALBANY, NY; ALBANY, NY
 PROJECT MANAGERS: ALBANY, NY; ALBANY, NY; ALBANY, NY
 ENVIRONMENTAL CONSULTANTS: ALBANY, NY; ALBANY, NY; ALBANY, NY
 LANDSCAPE ARCHITECTS: ALBANY, NY; ALBANY, NY; ALBANY, NY

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD142038
 AVG. DRAWN BY: JMA
 CHECKED BY: JMA
 DATE: 8/2/16
 SCALE: 1" = 50'
 CAD I.D.: EP2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR **CRAWFORD & O'KEEFE PROPERTIES**
 PROPOSED LOTS 1-23 & NON-BUILDABLE PRESERVATION PARCELS A-G
 LOCATION OF SITE
 6780 HAVILAND MILL ROAD
 CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE
 PROFESSIONAL ENGINEERING
 LICENSE NO. 40008
 EXPIRATION DATE: 7/30/2015

EROSION AND SEDIMENT CONTROL PLAN
 SHEET TITLE:
 SHEET NUMBER:
18 of 25

EROSION AND SEDIMENT CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- SILT FENCE
- DIVERSION DIKE
- SUPER SILT FENCE
- TREE PROTECTION
- STEEP SLOPES (15%-25%)
- STEEP SLOPES (>25%)
- SOIL DIVIDE
- SOIL LABEL
- SOIL STABILIZATION MATTING
- RIPRAP STABILIZATION

EROSION AND SEDIMENT CONTROL NOTES

1. TEMPORARY DIVERSION DIKES SHALL HAVE A MIN. SLOPE OF 0.50%.
2. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SDP APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
3. SEQUENCE OF CONSTRUCTION, SEDIMENT CONTROL NOTES, AND SEDIMENT CONTROL DETAILS WILL BE PROVIDED DURING FINAL PLAN PHASE OF THE PROJECT.
4. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY.
5. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
6. ALL EARTH DIKES INTERRUPTED BY THE INSTALLATION OF STORM DRAINS ARE TO BE REPAIRED IMMEDIATELY - SAME DAY.
7. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
8. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SLOPES 2:1 OR GREATER.
9. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
10. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.

CRAWFORD & O'KEEFE PROPERTIES

23 SINGLE FAMILY DETACHED UNITS

CUT/FILL ANALYSIS

TOTAL CUT = 81,360 CY
 TOTAL FILL = 58,900 CY (15% SHRINKAGE FACTOR APPLIED)
 TOTAL EXPORT = 22,460 CY
 LIMIT OF DISTURBANCE: 26.33 AC.

NOTES

1. ALL UNDERGROUND ROOF LEADERS WILL BE OF PVC PIPE.
2. ALL BIO-RETENTION FACILITIES LEADING TO THEIR OWN OUTFALL POINT WILL HAVE OUTFALL PIPES SIZED TO HANDLE THE 10-YR STORM EVENT.
3. STORMWATER QUALITY MANAGEMENT WILL BE PROVIDED BY 5 BIO-RETENTION FACILITIES AND 115 DRYWELLS.

NOTE: HAZARD CLASS FOR ALL S.W.M. FACILITIES IS 'A' DUE TO NO LIFE LOSS FOR FAILURE.

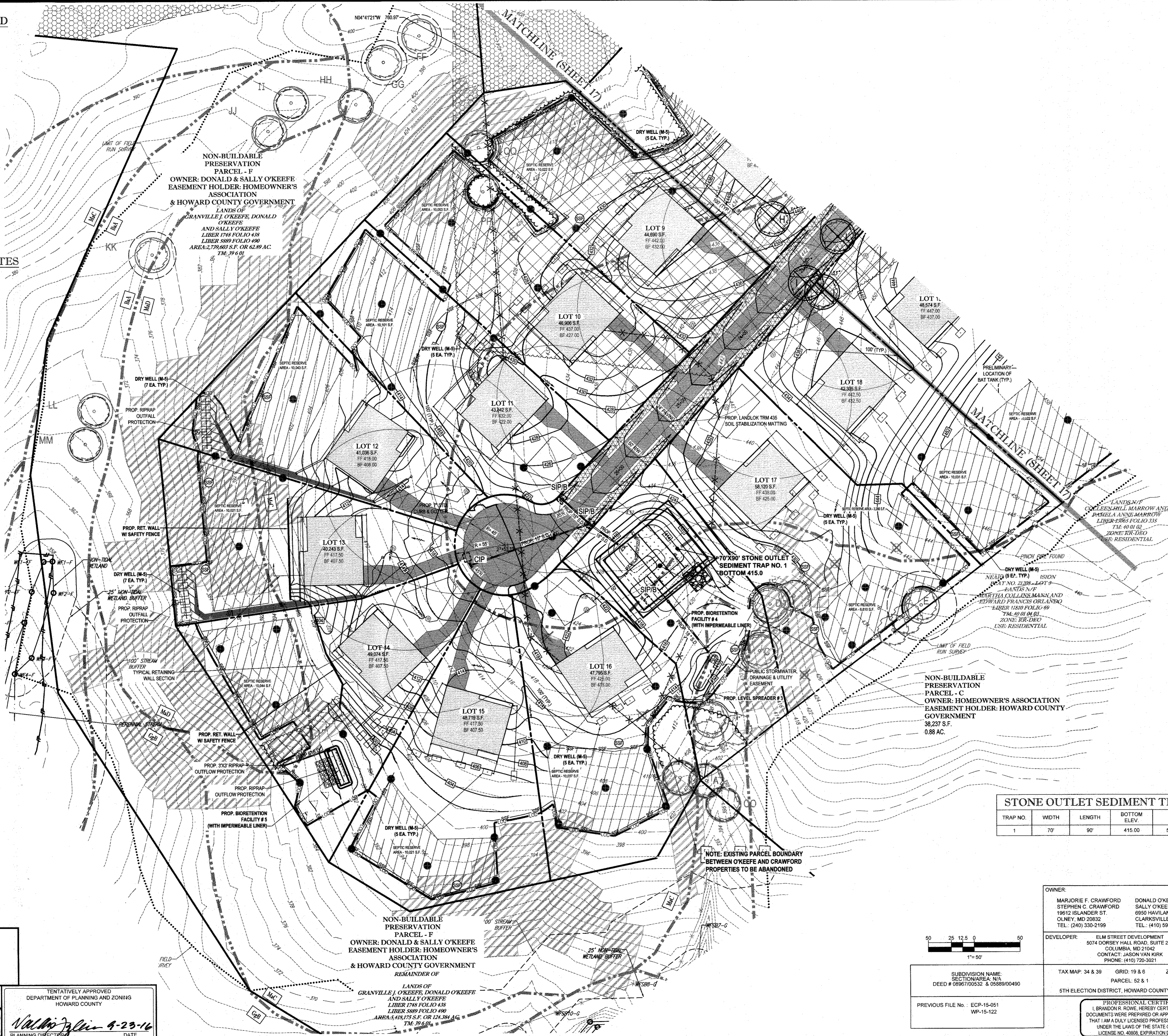
APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE: July 21, 2016

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT

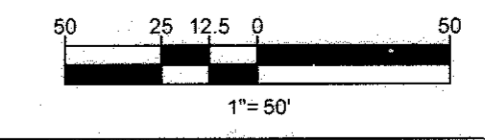
TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

PLANNING DIRECTOR
 DATE: 9-23-16



STONE OUTLET SEDIMENT TRAP

TRAP NO.	WIDTH	LENGTH	BOTTOM ELEV.	D.A.
1	70'	90'	415.00	5.0 AC.



SUBDIVISION NAME: SECTION 4, N/A
 DEED # 0896700532 & 05889/00490
 PREVIOUS FILE No.: ECP-15-051
 WP-15-122

OWNER:
 MARJORIE F. CRAWFORD
 STEPHEN C. CRAWFORD
 19512 ISLANDER ST.
 OLNEY, MD 20832
 TEL: (240) 330-2199

DONALD O'KEEFE
 SALLY O'KEEFE
 6950 HAVLAND MILL ROAD
 CLARKSVILLE, MD 21029
 TEL: (410) 598-6941

DEVELOPER:
 ELM STREET DEVELOPMENT
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 34 & 39
 GRID: 19 & 6
 PARCEL: 52 & 1
 ZONED: RR-DEO
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
 I, BRADON R. ROWE, 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. 40888, EXPIRATION DATE: 7/3/2015

BOHLER ENGINEERING

CORPORATE OFFICE:
 WARREN, NJ

CIVIL & CONSULTING ENGINEERS
 SURVEYORS

PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

OFFICES:
 BOSTON, MA
 ALBANY, NY
 RICHMOND, VA
 CENTER VALLEY, PA
 TAMPA, FL
 PHILADELPHIA, PA

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO RESTORE THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL 811

(VA 1-800-245-4848) (PA 1-800-942-1776) (DC 1-800-257-7777) (VA 1-800-552-7001) (MD 1-800-257-7777) (DE 1-800-282-8659)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: M0142038
 DRAWN BY: AVS
 CHECKED BY: JMA
 DATE: 8/2/16
 SCALE: 1" = 50'
 CAD I.D.: EP2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR
CRAWFORD & O'KEEFE PROPERTIES
 PROPOSED LOTS 1-23 & NON-BUILDABLE PRESERVATION PARCELS A-G
 LOCATION OF SITE
 6780 HAVLAND MILL ROAD
 CLARKSVILLE, MD
 HOWARD COUNTY, MD

BOHLER ENGINEERING

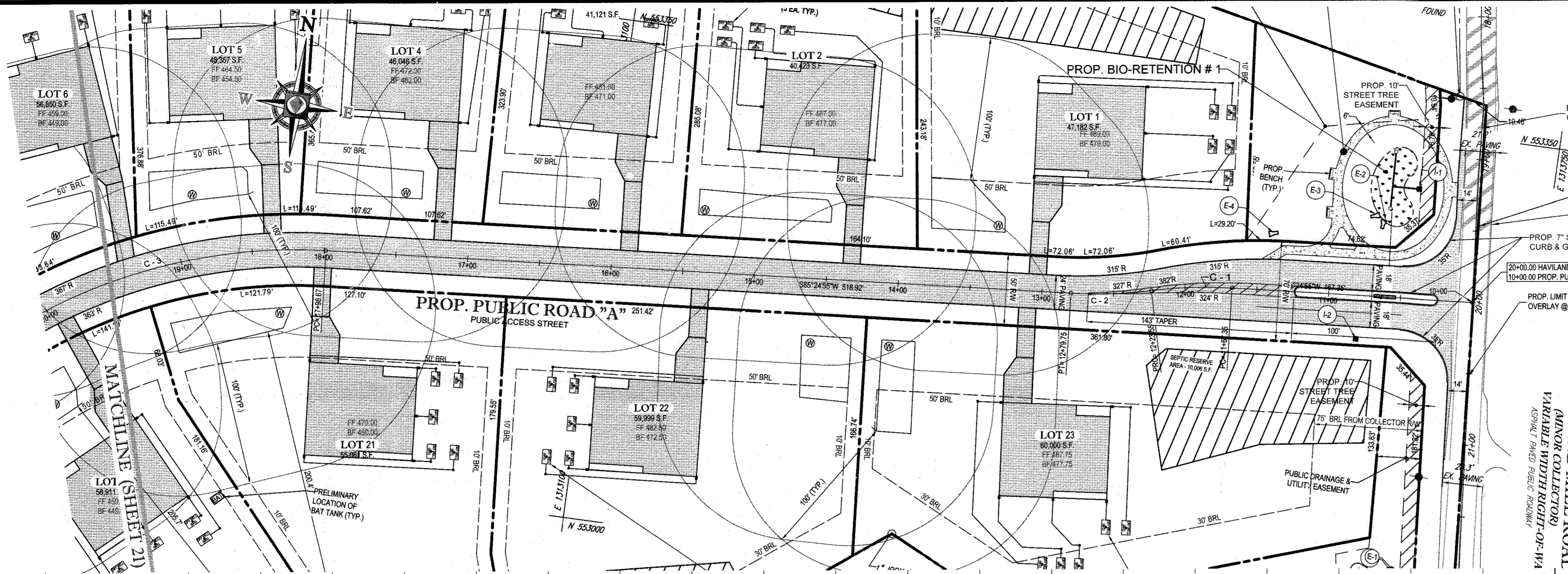
901 DULANEY VALLEY ROAD,
 SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B.R. ROWE

PROFESSIONAL ENGINEER
 LICENSE NO. 40888
 EXPIRATION DATE: 7/3/2015

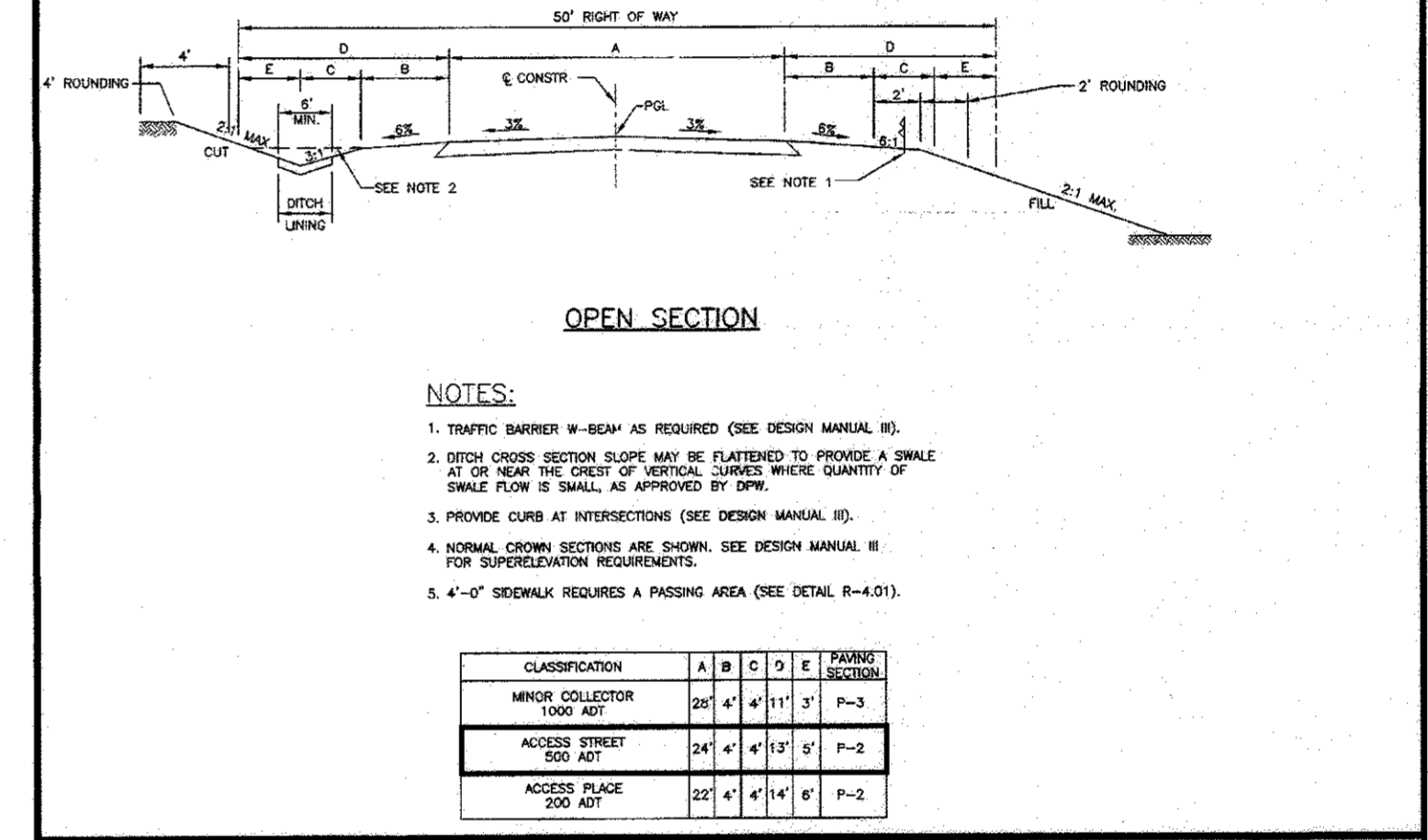
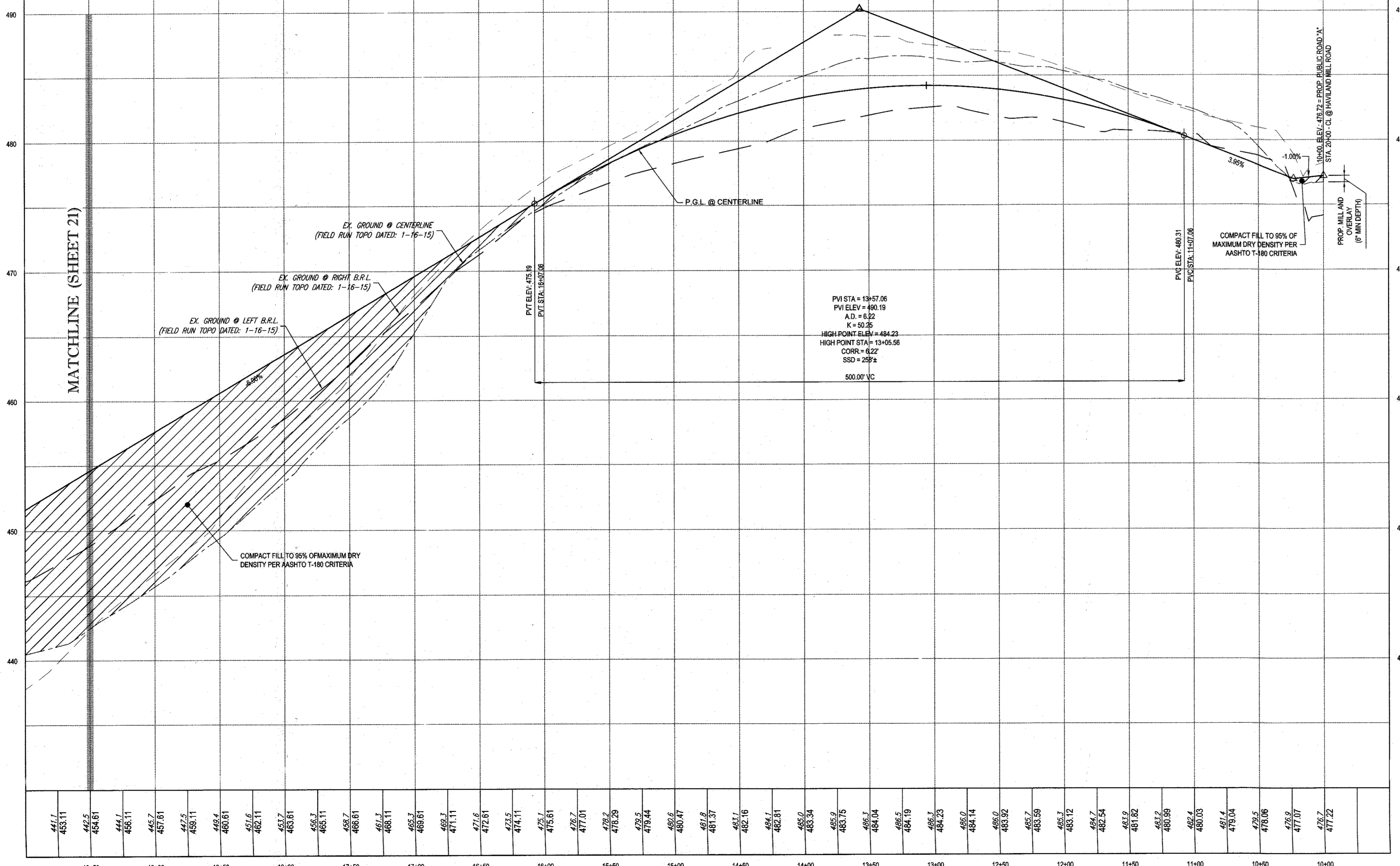
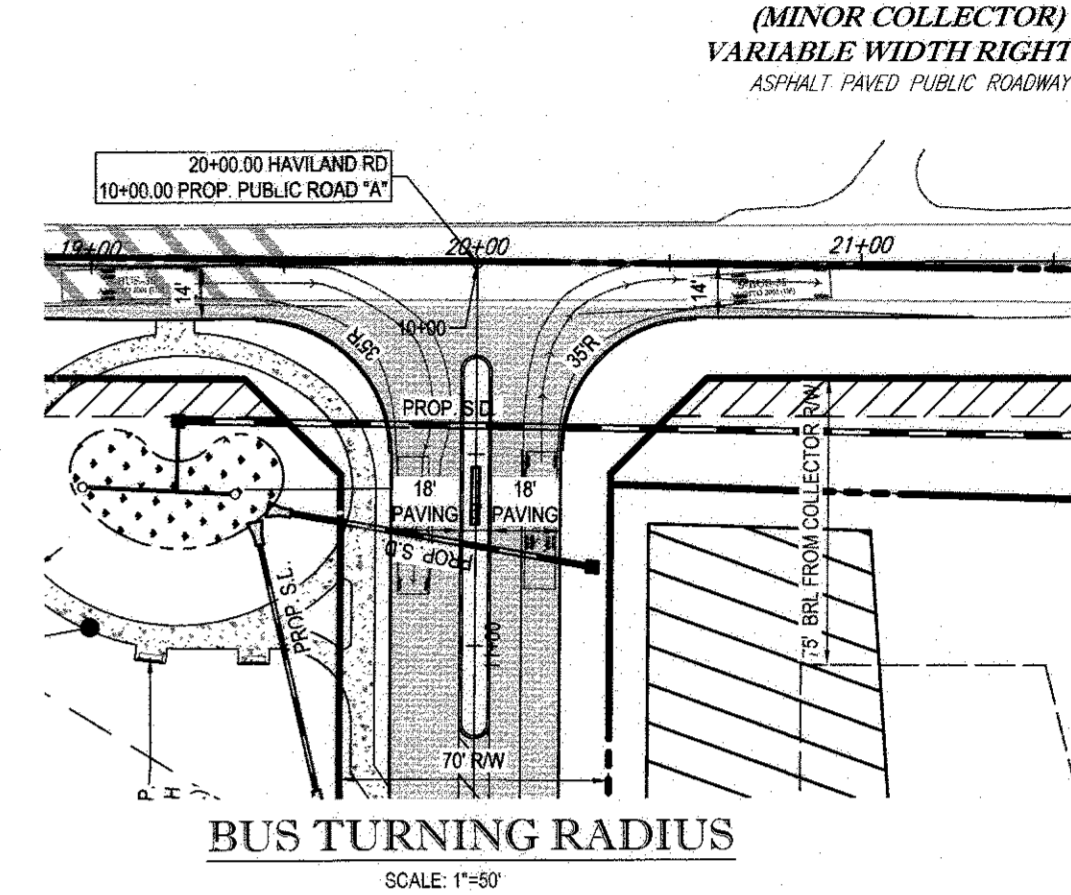
SHEET TITLE:
EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER:
19 of 25



CURVE TABLE						
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	DELTA	TANGENT
C-1	315.00'	56.20'	S80°18'15"W	56.12'	010°13'20"	28.17'
C-2	315.00'	56.20'	N80°18'15"E	56.12'	010°13'20"	28.17'
C-3	375.00'	281.77'	S63°53'23"W	275.19'	043°03'04"	147.91'

ROADWAY INFORMATION CHART				
ROAD NAME	CLASSIFICATION	DESIGN SPEED	CL. STATION LIMITS	PAVING SECTION
PUBLIC ROAD "A"	PUBLIC ACCESS STREET	30 M.P.H.	STA 10+11.00 TO STA 27+53.11	P-2



SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR)	3 TO <4	5 TO <7	7 TO <9	9 TO <12	12 TO <15	15 TO <20	20 TO <30
P-1	MINOR COLLECTOR 1000 ADT	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
P-2	ACCESS STREET 500 ADT	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
P-3	ACCESS PLAZA 200 ADT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
P-4	ACCESS PLAZA 200 ADT	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

SECTION	PAVING SECTION
P-1 to P-4	R-2.01

APPROVED PLANNING BOARD OF HOWARD COUNTY
 DATE: July 21, 2016

DEVELOPER: ELM STREET DEVELOPMENT
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 40838. EXPIRATION DATE: 7/31/2015

BOHLER ENGINEERING

CORPORATE OFFICE:
 WARRREN, NJ

CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REGISTRATION STATES:
 ALABAMA, VA, ARIZONA, MD, CALIFORNIA, VA, COLORADO, FL, ILLINOIS, IN, IOWA, KY, MISSISSIPPI, NC, NEW YORK, OH, PENNSYLVANIA, PA, TEXAS, VA, VIRGINIA, VA, WISCONSIN, WI

REVISIONS			
REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD142038
 DRAWN BY: AVS
 CHECKED BY: JMA
 DATE: 8/2/16
 SCALE: AS SHOWN
 CAD I.D.: PF2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR CRAWFORD & O'KEEFE PROPERTIES
 PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G
 LOCATION OF SITE
 6780 HAVILAND MILL ROAD
 CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 501
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

PROFESSIONAL ENGINEER
 BRANDON R. ROWE
 LICENSE NO. 40838
 EXPIRATION DATE: 7/31/2015

SHEET TITLE: ROAD PLAN AND PROFILE

SHEET NUMBER: 20 of 25

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK. SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO CORRECT THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND ALL CONFORMANCE WITH ALL APPLICABLE CODES.

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY

PLANNING DIRECTOR: *Valerie J. J...*
 DATE: 9-23-16

PROP. PUBLIC ROAD "A" - PROFILE
 PUBLIC ACCESS STREET
 DESIGN SPEED - 30 MPH
 SCALE: 1"=50' HORIZONTAL
 1"=5' VERTICAL

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

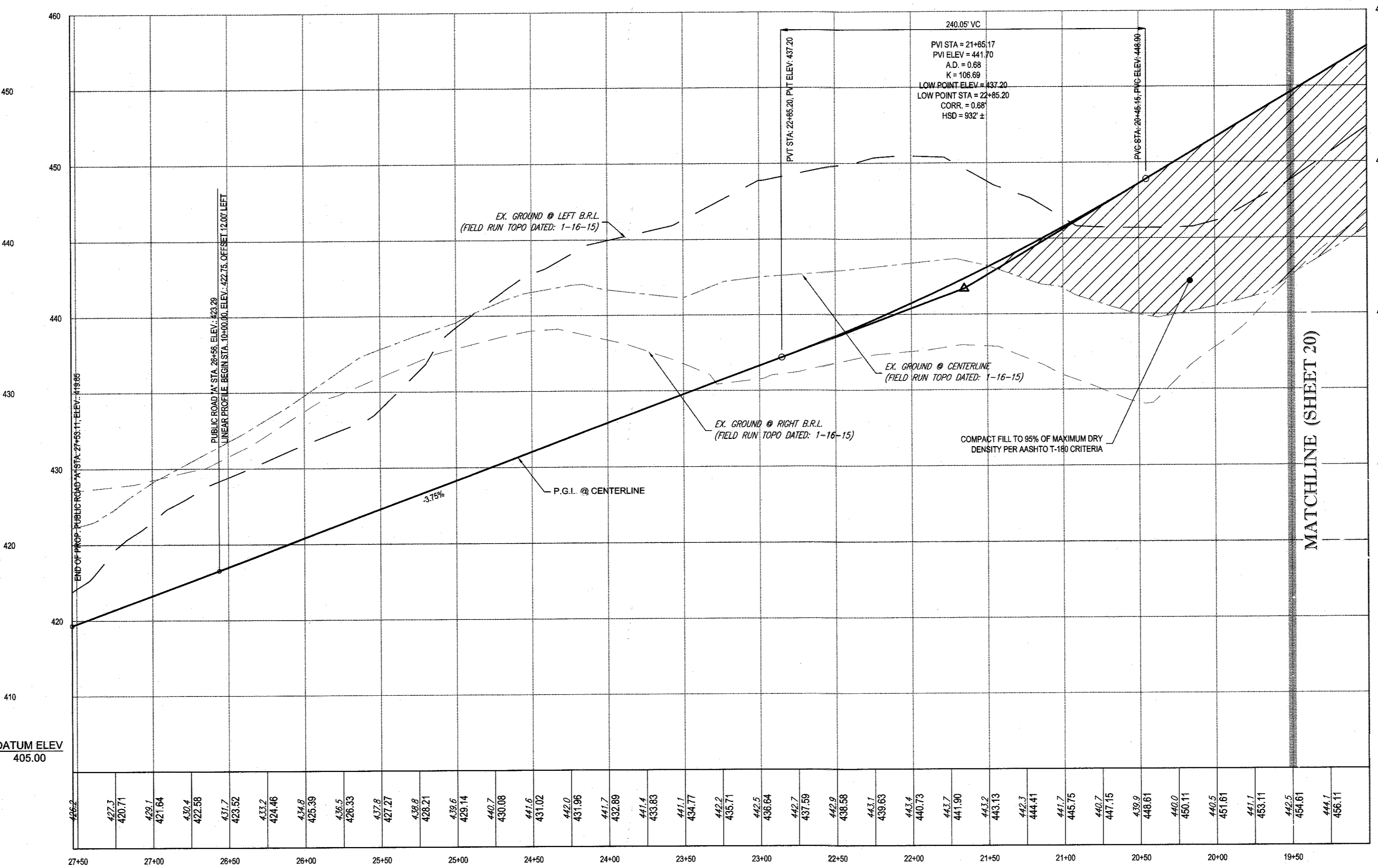
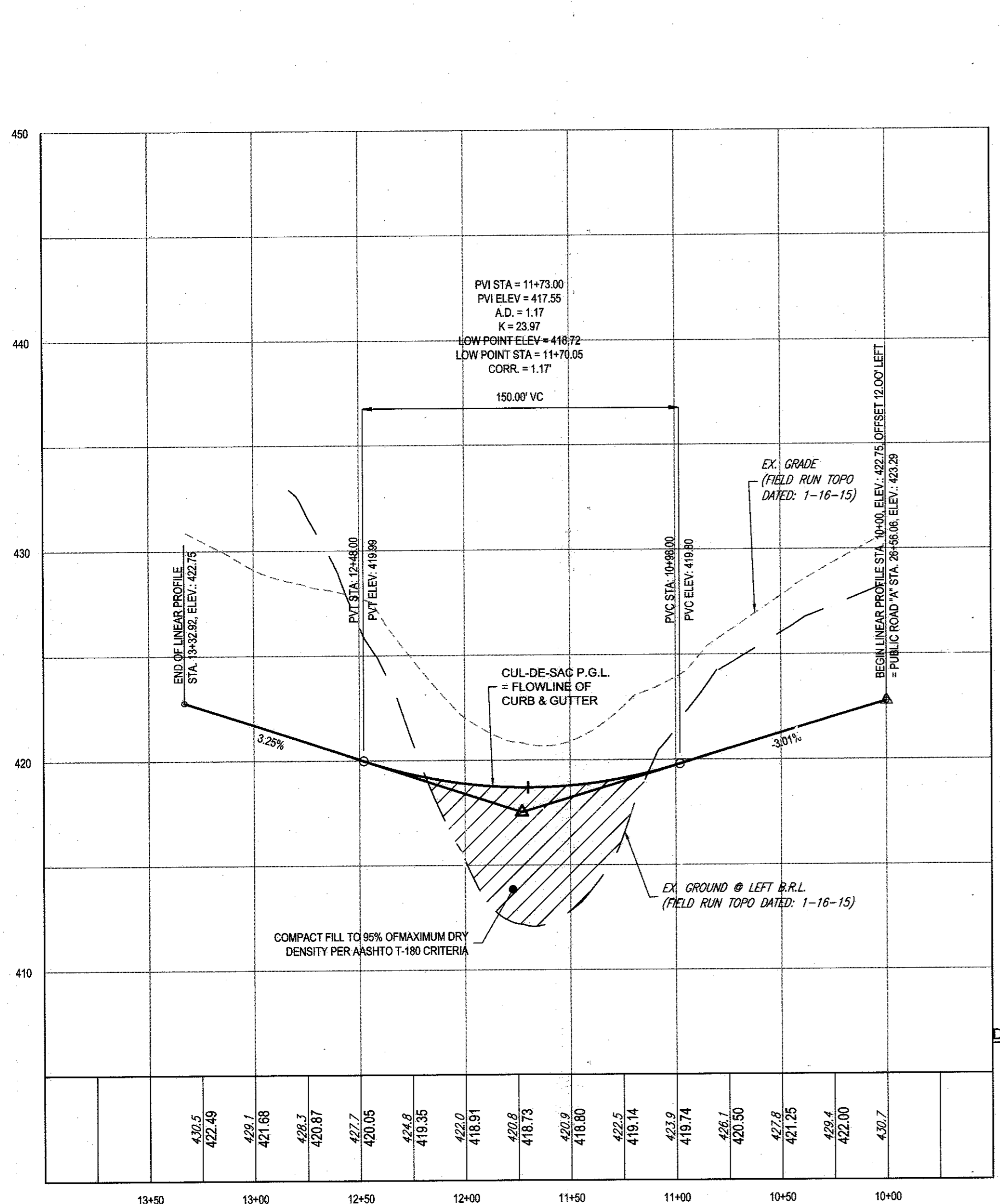
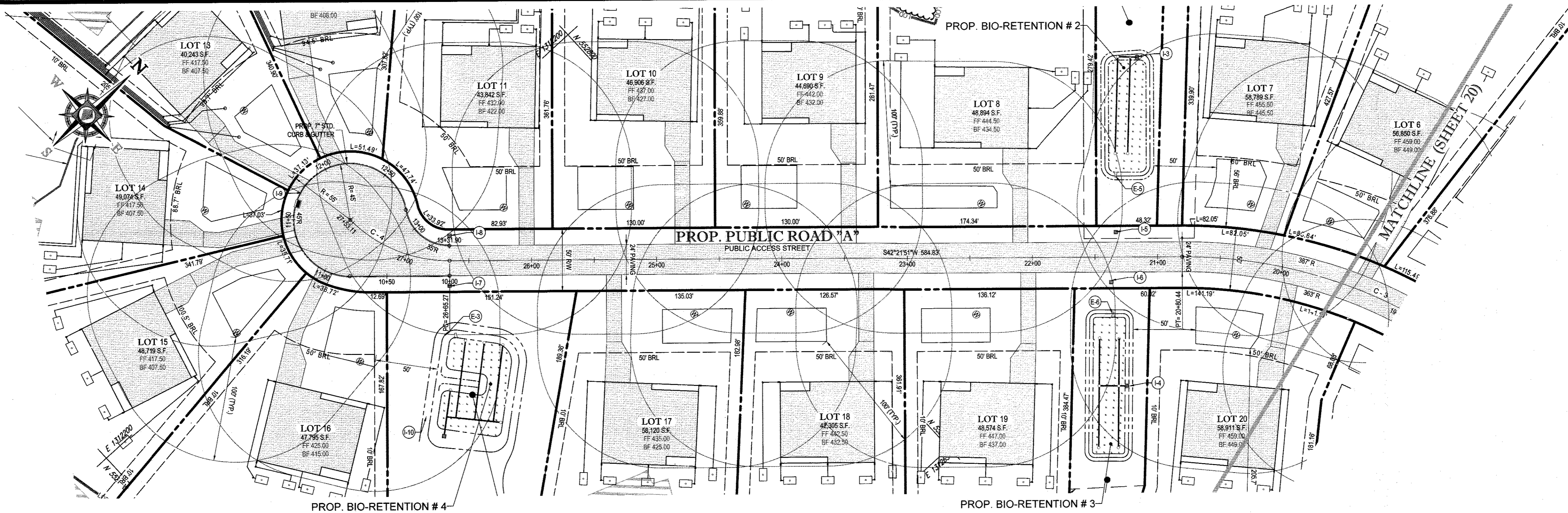
HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT: *J...*
 DATE: *7/21/16*

PREVIOUS FILE No.: ECP-15-051
 WP-15-122

SUBDIVISION NAME: SECTION 10, AREA 1A, VA
 DEED # 0899700532 & 0588900490

TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO
 PARCEL 52 & 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

CURVE TABLE					
CURVE	RADIUS	LENGTH	CHORD BEARING	CHORD	TANGENT
C-3	375.00'	281.77'	S63°53'23"W	275.19'	043°03'04" 147.91'
C-4	110.91'	87.83'	N65°03'07"E	85.56'	045°22'31" 46.37'



CUL-DE-SAC LINEAR PROFILE
 SCALE: 1" = 50' HORIZONTAL
 1" = 5' VERTICAL

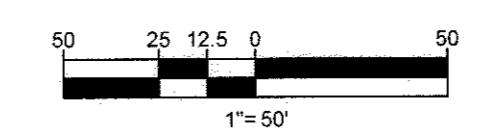
PROP. PUBLIC ROAD "A" - PROFILE
 PUBLIC ACCESS STREET
 DESIGN SPEED - 30 MPH
 SCALE: 1" = 50' HORIZONTAL
 1" = 5' VERTICAL

GENERAL NOTE:
 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SHOWN PRIOR TO THE INITIATION OF CONSTRUCTION SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE ACCURACY OF THE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.

TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
 Planning Director
 DATE: 9-23-16

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
 HEALTH DEPARTMENT, HOWARD COUNTY HEALTH DEPARTMENT
 APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
 HEALTH DEPARTMENT, HOWARD COUNTY HEALTH DEPARTMENT

APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 DATE: July 21, 2016



SUBMISSION NAME
 DEED # 0896700532 & 08889100490
 PREVIOUS FILE No.: ECP-15-051
 WP-15-122

OWNER:
 MARJORIE F. CRAWFORD
 STEPHEN C. CRAWFORD
 1912 ISLANDER ST.
 OLNEY, MD 20832
 TEL: (240) 330-2199

DONALD O'KEEFE
 SALLY O'KEEFE
 6550 HAVILAND MILL ROAD
 CLARKSVILLE, MD 21029
 TEL: (410) 599-6941

DEVELOPER:
 ELM STREET DEVELOPMENT
 5074 DORSEY HALL ROAD, SUITE 205
 COLUMBIA, MD 21042
 CONTACT: JASON VAN KIRK
 PHONE: (410) 720-3021

TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO
 PARCEL: 52 & 1
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER ENGINEERING

CORPORATE OFFICE:
 WILMINGTON, NJ

SURVEYORS
 CIVIL & CONSULTING ENGINEERS

PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

OTHER OFFICES:
 SOUTHBOURGH, MA
 ALBANY, NY
 CHAUNTY, VA
 TAMPA, FL
 BOWEN, MD
 TOWSON, MD
 WASHINGTON, VA
 FORT LAUDERDALE, FL
 PORTLAND, ME

REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 811
 (VA 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (MD 1-800-552-7031) (DE 1-800-282-3888)

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD142036
 DRAWN BY: AVG
 CHECKED BY: JMA
 DATE: 8/2/16
 SCALE: AS SHOWN
 CAD I.D.: PZZ

PRELIMINARY EQUIVALENT SKETCH PLAN FOR CRAWFORD & O'KEEFE PROPERTIES PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G LOCATION OF SITE 6780 HAVILAND MILL ROAD CLARKSVILLE, HOWARD COUNTY, MD

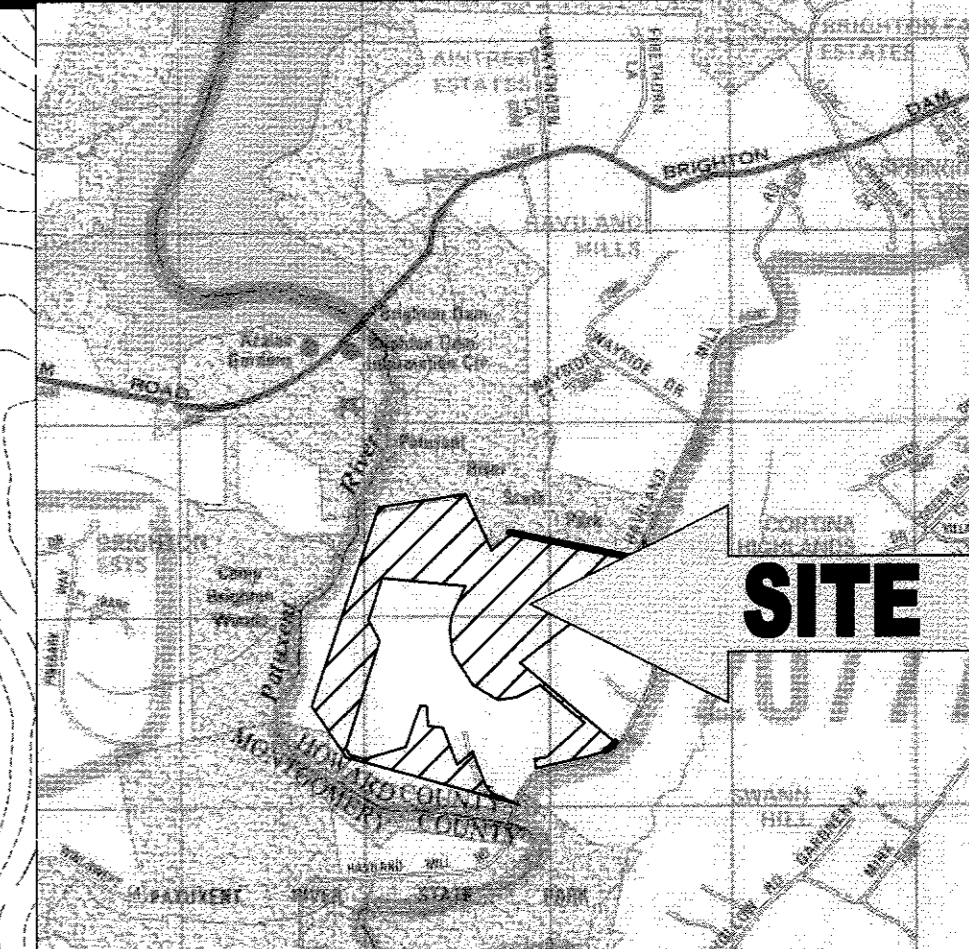
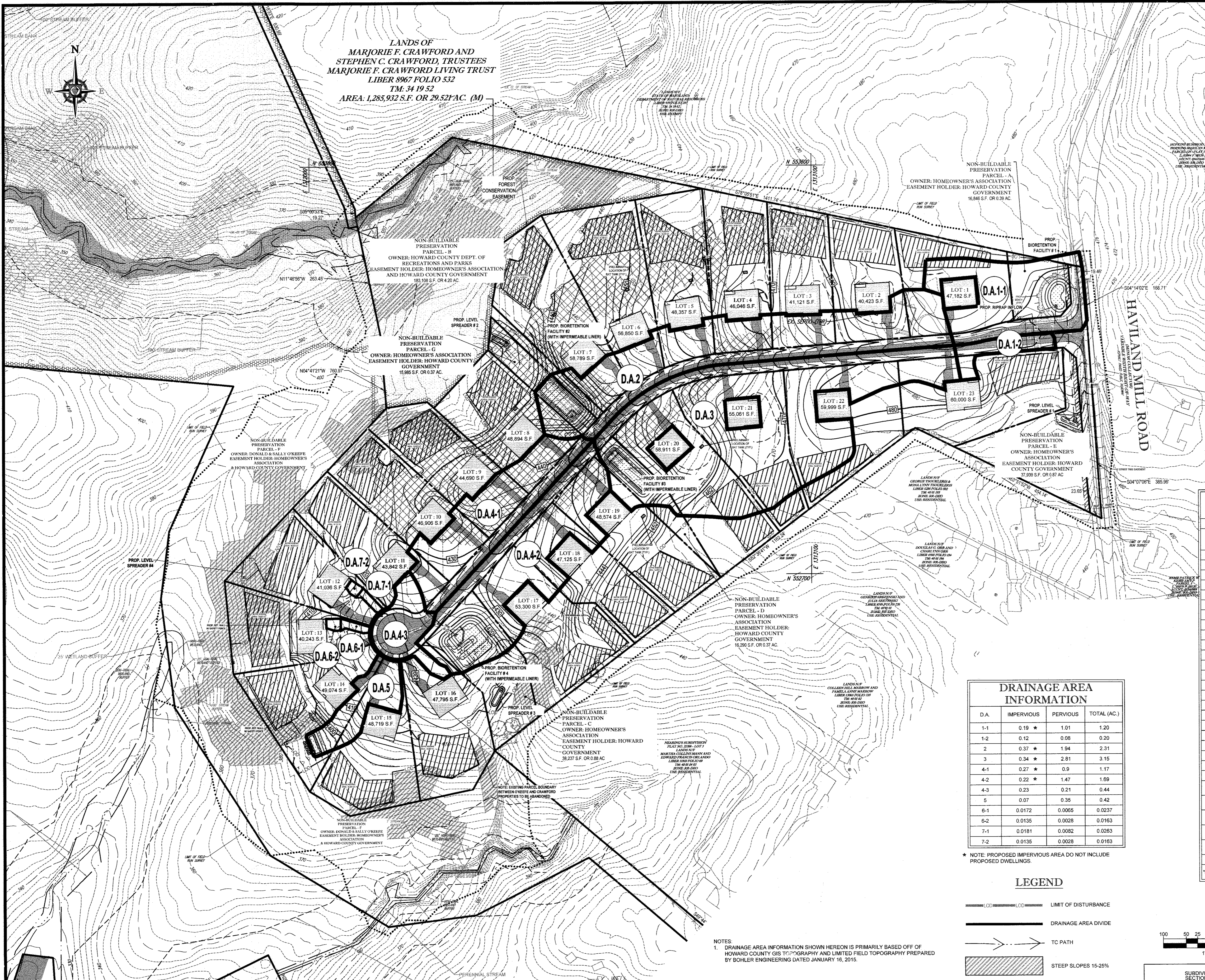
BOHLER ENGINEERING

801 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

BRANDON R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 40808
 EXPIRATION DATE: 7/31/2015

SHEET TITLE:
ROAD PLAN AND PROFILE

SHEET NUMBER:
21 of 25



VICINITY MAP
 COPYRIGHT ADC THE MAP PEOPLE
 PERMIT USE NO. 20602153-5
 SCALE: 1"=2000'
 ADC MAP COORDINATES: 5051414

STORMWATER MANAGEMENT PRACTICES

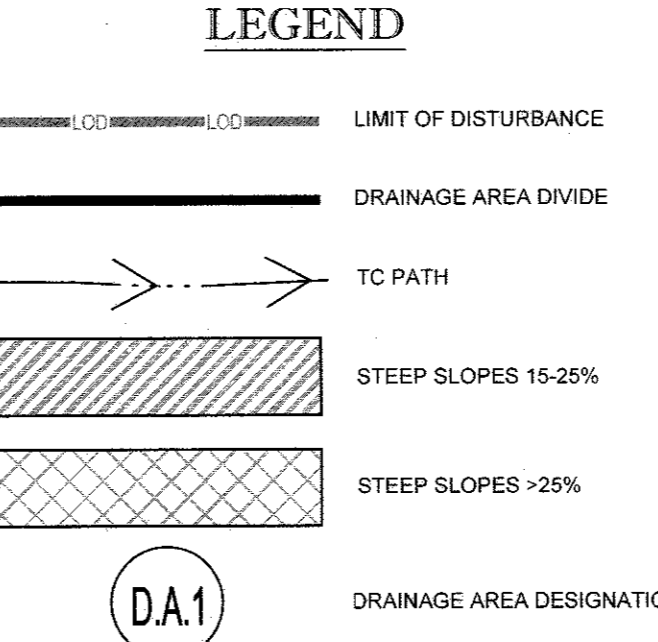
LOT NO.	PERMEABLE PAVING A? (Y/N)	ESD FACILITY TYPE AND NUMBER	TOTAL AREA (AC)	ESD	
				REQUIRED (C.F.)	PROVIDED (C.F.)
1	N	(5) DRYWELLS (M-5)	0.09	554	554
2	N	(5) DRYWELLS (M-5)	0.09	554	554
3	N	(5) DRYWELLS (M-5)	0.09	554	554
4	N	(5) DRYWELLS (M-5)	0.09	554	554
5	N	(5) DRYWELLS (M-5)	0.09	554	554
6	N	(5) DRYWELLS (M-5)	0.09	554	554
7	N	(5) DRYWELLS (M-5)	0.09	554	554
8	N	(5) DRYWELLS (M-5)	0.09	554	554
9	N	(5) DRYWELLS (M-5)	0.09	554	554
10	N	(5) DRYWELLS (M-5)	0.09	554	554
11	N	(5) DRYWELLS (M-5)	0.09	554	554
12	N	(7) DRYWELLS (M-5)	0.16	742	741
13	N	(7) DRYWELLS (M-5)	0.16	754	754
14	N	(5) DRYWELLS (M-5)	0.09	554	554
15	N	(5) DRYWELLS (M-5)	0.09	554	554
16	N	(5) DRYWELLS (M-5)	0.09	554	554
17	N	(5) DRYWELLS (M-5)	0.09	554	554
18	N	(5) DRYWELLS (M-5)	0.09	554	554
19	N	(5) DRYWELLS (M-5)	0.09	554	554
20	N	(5) DRYWELLS (M-5)	0.09	554	554
21	N	(5) DRYWELLS (M-5)	0.09	554	554
22	N	(5) DRYWELLS (M-5)	0.09	554	554
23	N	(5) DRYWELLS (M-5)	0.09	554	554
PUBLIC ROAD	N	BIORETENTION FACILITY #1	1.36	1540	1904
PUBLIC ROAD	N	BIORETENTION FACILITY #2	2.37	2065	4104
PUBLIC ROAD	N	BIORETENTION FACILITY #3	3.17	1933	4197
PUBLIC ROAD	N	BIORETENTION FACILITY #4	3.30	3594	4484
DRIVEWAYS 14 & 15'	N	MICRO-BIORETENTION FACILITY #5	0.42	344	757
TOTALS			12.86	22810	25579

* LOT 12 & 13 PROVIDES ESDs FOR THE PROPOSED DWELLING (5 DRYWELLS), AS WELL AS, THE DRIVEWAY (2 DRYWELLS)

DRAINAGE AREA INFORMATION

D.A.	IMPERVIOUS	PERVIOUS	TOTAL (AC.)
1-1	0.19 *	1.01	1.20
1-2	0.12	0.08	0.20
2	0.37 *	1.94	2.31
3	0.34 *	2.81	3.15
4-1	0.27 *	0.9	1.17
4-2	0.22 *	1.47	1.69
4-3	0.23	0.21	0.44
5	0.07	0.35	0.42
6-1	0.0172	0.0065	0.0237
6-2	0.0135	0.0028	0.0163
7-1	0.0181	0.0082	0.0263
7-2	0.0135	0.0028	0.0163

* NOTE: PROPOSED IMPERVIOUS AREA DO NOT INCLUDE PROPOSED DWELLINGS.



NOTES:
 1. DRAINAGE AREA INFORMATION SHOWN HEREON IS PRIMARILY BASED OFF OF HOWARD COUNTY GIS TOPOGRAPHY AND LIMITED FIELD TOPOGRAPHY PREPARED BY BOHLER ENGINEERING DATED JANUARY 16, 2015.

BOHLER ENGINEERING

CORPORATE OFFICE: WARREN, NJ
 OFFICES: BOSTON, MA; CHICAGO, IL; COLUMBIA, MD; FORT LAUDERDALE, FL; HARTFORD, CT; PHOENIX, AZ; RICHMOND, VA; WASHINGTON, DC; WEST PALM BEACH, FL

SUBSIDIARIES:
 CIVIL & CONSULTING ENGINEERS
 SURVEYORS
 PROJECT MANAGERS
 ENVIRONMENTAL CONSULTANTS
 LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL 811 (WWW.811.COM) (VA 1-800-245-4848) (PA 1-800-242-1776) (DC 1-800-257-7777) (MD 1-800-652-7001) (DE 1-800-257-7777) (DE 1-800-252-8556)

NOT APPROVED FOR CONSTRUCTION

PROJECT No. MD142038
 DRAWN BY: AVG
 CHECKED BY: JMA
 DATE: 8/2/16
 SCALE: AS NOTED
 CAD I.D.: DA2

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR **CRAWFORD & O'KEEFE PROPERTIES**
 PROPOSED LOTS 1-23 & NON-BUILDABLE PRESERVATION PARCELS A-G
 LOCATION OF SITE
 6780 HAVILAND MILL ROAD
 CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 301
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 www.BohlerEngineering.com

B. ROWE
 STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 4088

SHEET TITLE:
PROPOSED SWM/STORM DRAIN DRAINAGE AREA MAP

SHEET NUMBER:
22 of 25

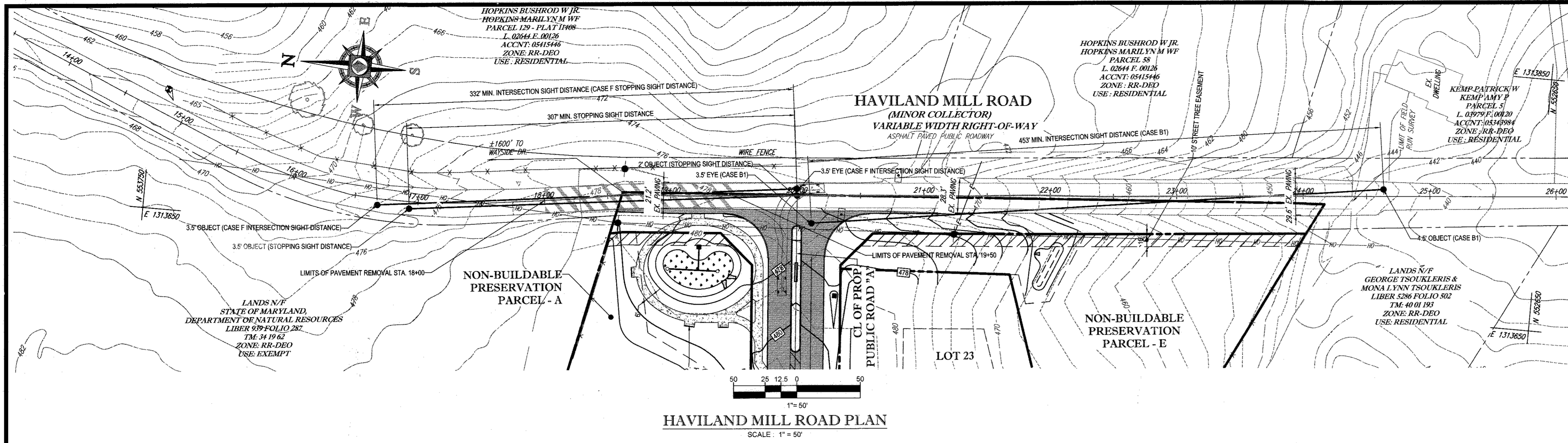
GENERAL NOTE:
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TENTATIVELY APPROVED
 DEPARTMENT OF PLANNING AND ZONING
 HOWARD COUNTY
 Planning Director
 Date: 8-23-16

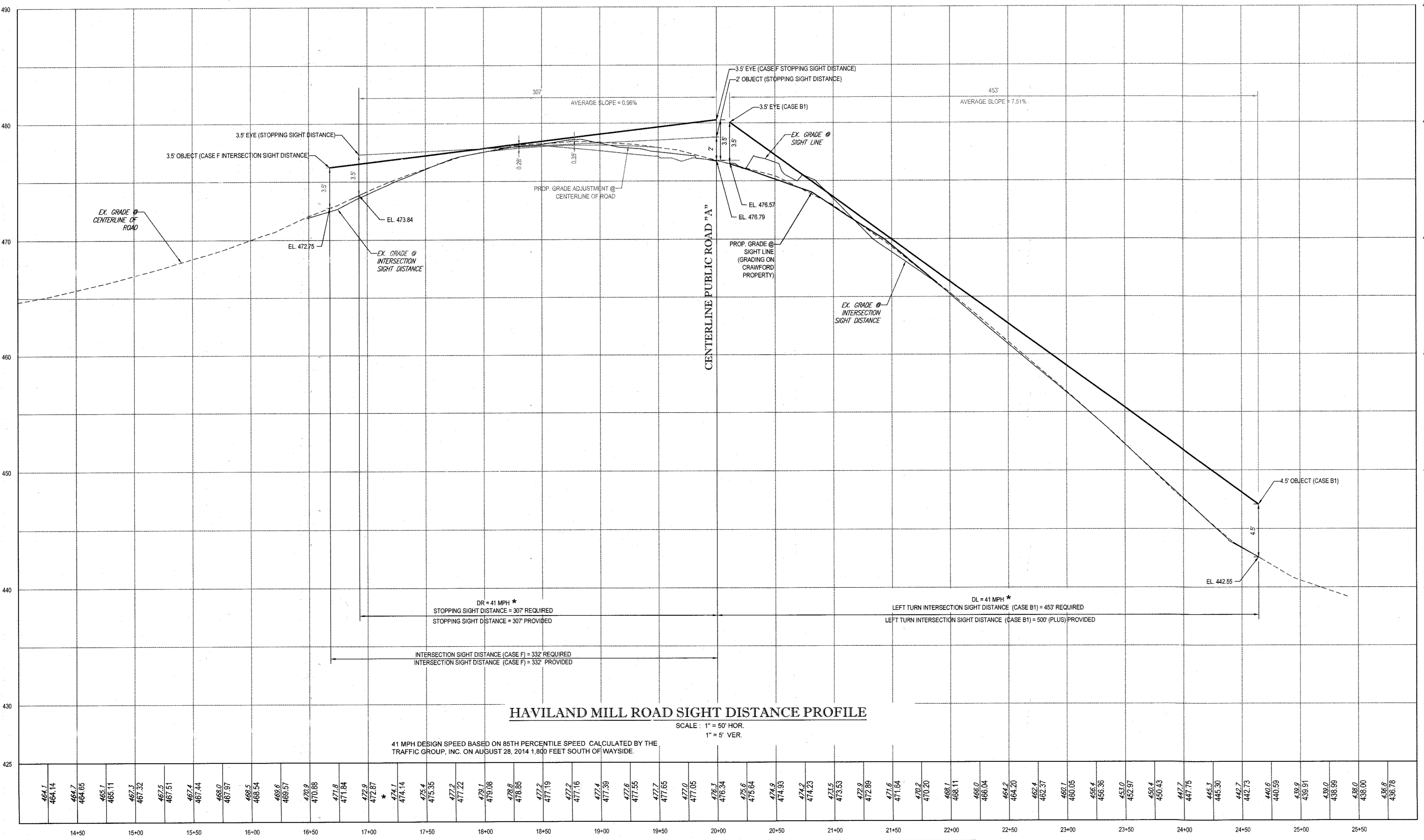
APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS
 Health Officer, HOWARD COUNTY HEALTH DEPARTMENT
 Date: 8/23/16

APPROVED
 PLANNING BOARD OF HOWARD COUNTY
 July 21, 2016
 DATE

PROFESSIONAL CERTIFICATION
 I, BRANDON R. ROWE, 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. 4088, EXPIRATION DATE: 7/31/2015



HAVILAND MILL ROAD PLAN
SCALE: 1" = 50'



HAVILAND MILL ROAD SIGHT DISTANCE PROFILE
SCALE: 1" = 50' HOR.
1" = 5' VER.

41 MPH DESIGN SPEED BASED ON 85TH PERCENTILE SPEED CALCULATED BY THE TRAFFIC GROUP, INC. ON AUGUST 28, 2014 1,850 FEET SOUTH OF WAYSIDE.

Project	Crawford Property	By	BRR
Location	Howard County, MD	Chkd	DW
Road Name	Haviland Mill Road	Date	6/12/2015
Posted Speed Limit	30 mph	Job#	MD142038

SIGHT DISTANCE ANALYSIS	
V _{major} = 41	(Design Speed, mph - Major Road)
V = 41	(Design Speed, mph)
a = 11.2	(Deceleration Rate, ft/s ² (Std decel rate for Passenger Cars = 11.2 sec))
G _L = 7.6	(Road Grade % - To Right (for left turn))
G _R = 1.15	(Road Grade % - To Left (for right turn))
t ₀ (Case B1) = 7.5	- Passenger Car = 7.5 sec - Single Unit Truck = 9.5 sec - Combination truck = 11.5 sec
t ₀ (Case B2) = 6.5	- Passenger Car = 6.5 sec - Single Unit Truck = 8.5 sec - Combination truck = 10.5 sec
t ₀ (Case F) = 5.5	- Passenger Car = 5.5 sec - Single Unit Truck = 6.5 sec - Combination truck = 7.5 sec
t = 2.5	Brake Reaction Time, seconds
BRT =	Distance traveled during braking reaction time (braking to a stopped position)
BDG =	Distance traveled during braking (braking to a stopped position)

CASE B1 - Intersection Sight Distance (left turn from minor street)	
ISD =	1.47 x V _{major} x t ₀
ISD =	1.47 x 41 x 7.5
ISD =	452.03 ft

CASE B2 - Intersection Sight Distance (right turn from minor street)	
ISD =	1.47 x V _{major} x t ₀
ISD =	1.47 x 41 x 6.5
ISD =	391.76 ft

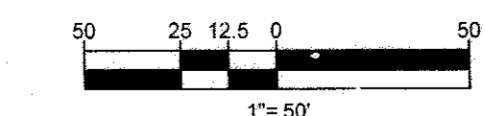
CASE F - Intersection Sight Distance (left turn from major street)	
ISD =	1.47 x V _{major} x t ₀
ISD =	1.47 x 41 x 5.5
ISD =	331.49 ft

Stopping Sight Distance	
d =	1.47 Vt + 1.075 (V ² / a)
d =	1.47 x 41 x 2.5 + 1.075 x 41 ² / 11.2
d =	312.02

Stopping Sight Distance (on Grades)	
SSD =	BRT + BDG
Braking Reaction Time =	Distance Traveled
BRT =	1.47Vt
BRT =	1.47 x 41 x 2.5
BRT =	150.675 ft

Left Turn	
BDG =	$\frac{V^2}{30((a/32.2) \pm G_L)}$
BDG =	$\frac{41^2}{30((11.2 / 32.2) \pm 7.6\%)}$
BDG =	1681 / 12.71
BDG =	132.24 ft
BRT + BDG =	SSD (Left)
151 + 132 =	283 ft

Right Turn	
BDG =	$\frac{V^2}{30((a/32.2) \pm G_R)}$
BDG =	$\frac{41^2}{30((11.2 / 32.2) \pm 1.15\%)}$
BDG =	1681 / 10.78
BDG =	155.94 ft
BRT + BDG =	SSD (Right)
151 + 156 =	307 ft



1" = 50'

SUBDIVISION NAME: SECTION/AREA, N/A
DEED # 08867/00532 & 05889/00490

OWNER:
MARJORIE F. CRAWFORD
STEPHEN C. CRAWFORD
19812 ISLANDER ST.
OLNEY, MD 20832
TEL: (240) 330-2199

DONALD O'KEEFE
SALLY O'KEEFE
6950 HAVILAND MILL ROAD
CLARKSVILLE, MD 21029
TEL: (410) 599-9941

DEVELOPER:
ELM STREET DEVELOPMENT
6074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN KIRK
PHONE: (410) 720-3021

TAX MAP: 34 & 39 GRID: 19 & 6 ZONED: RR-DEO
PARCEL: 52 & 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PROFESSIONAL CERTIFICATION
I, BRANDON R. ROWE, 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. 40808, EXPIRATION DATE: 7/31/2015

BOHLER ENGINEERING

CORPORATE OFFICE:
WARREN, NJ

OFFICES:
BOSTON, MA
BIRMINGHAM, AL
CHICAGO, IL
COLUMBIA, MD
DENVER, CO
FORT LAUDERDALE, FL
HARTFORD, CT
PHILADELPHIA, PA
RICHMOND, VA
ST. LOUIS, MO
TOWSON, MD

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REVISIONS			
REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY ENGINEERS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE OF VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL - 811

HW 1-800-345-6888 (PA 1-800-245-1778) DC 1-800-557-7777
VA 1-800-552-7001 MD 1-800-257-7777 DE 1-800-282-8555

NOT APPROVED FOR CONSTRUCTION

PROJECT No: MD142038
DRAWN BY: AVG
CHECKED BY: JMA
DATE: 12/21/15
SCALE: AS SHOWN
CAD I.D.: SAS

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR
CRAWFORD & O'KEEFE PROPERTIES
PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G
LOCATION OF SITE
6780 HAVILAND MILL ROAD
CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD,
SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
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www.BohlerEngineering.com

BRANDON R. ROWE
PROFESSIONAL ENGINEER
LICENSE NO. 40808
EXPIRATION DATE: 7/31/2015

SHEET TITLE:
FINAL SIGHT DISTANCE ANALYSIS

SHEET NUMBER:
23 of 25

GENERAL NOTE:
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT WORK PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH ALL APPLICABLE CODES AND REGULATIONS.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

DATE: July 21, 2016

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: July 21, 2016

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS

HEALTH OFFICER, HOWARD COUNTY HEALTH DEPARTMENT

DATE: 7/21/16

FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

1. PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN DEVELOPER, CONTRACTOR, AND COUNTY INSPECTOR.
2. SEDIMENT SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. TEMPORARY PROTECTIVE FENCING AND CONSERVATION SIGNAGE SHALL BE INSTALLED AS PER FOREST CONSERVATION PLAN.
3. SITE SHALL BE GRADED, INFRASTRUCTURE INSTALLED, AND HOUSES CONSTRUCTED. DISTURBED AREAS SHALL BE STABILIZED. PERMANENT SIGNAGE IN POOR CONDITION SHALL BE REPLACED.
4. POSTCONSTRUCTION MEETING SHALL BE HELD WITH COUNTY INSPECTOR TO ENSURE COMPLIANCE WITH DEVELOPMENT PLAN, SEDIMENT CONTROL, AND TEMPORARY PROTECTIVE FENCING UPON STABILIZATION OF SITE AND COMPLETION OF CONSTRUCTION ACTIVITIES.

FOREST CONSERVATION EASEMENT AREA TABULATION

EASEMENT	GROSS FOREST AREA (AC)	FOREST AREA NONCREDITED FOR FOREST LESS THAN 10,000 S.F. (AC)	FOREST AREA NONCREDITED (100 YEAR FLOODPLAIN) (AC)	NET FOREST (RETAINED) (CREDITED) (AC)	PLANTED AREA (REFORESTATION) (CREDITED) (AC)	CREDITED EASEMENT AREA (AC)	TOTAL EASEMENT AREA (AC)
FOE #1	24.32	0.00	1.12	24.32	0.00	23.20	24.32

FOREST CONSERVATION WORKSHEET APPENDIX L, OPTION B

BASIC SITE DATA		ACRES
GROSS SITE ACREAGE		99.07
AREA WITHIN FLOODPLAIN		15.84
AREA IN OVERHEAD TRANSMISSION LINE EASEMENT		0
NET TRACT AREA		83.2
LAND USE CATEGORY		MDR
INFORMATION FOR CALCULATIONS		ACRES
NET TRACT AREA		83.2
FOREST CONSERVATION THRESHOLD (PERCENTAGE OF NET TRACT AREA)	25.00%	20.8
AFFORESTATION THRESHOLD (PERCENTAGE OF NET TRACT AREA)	20.00%	16.6
EXISTING FOREST ON NET TRACT AREA		33.5
EXISTING FOREST ABOVE FOREST CONSERVATION THRESHOLD		12.7
BREAK-EVEN POINT		23.3
FOREST TO BE CLEARED		10.2
FOREST TO BE RETAINED		23.3
REFORESTATION CALCULATIONS		ACRES
NO FOREST CLEARING - AFFORESTATION THRESHOLD - EXISTING FOREST		N/A
FOREST CLEARING (AFF. THRESH. - EX. FOREST) * (FOREST TO BE CLEARED X2)		N/A
REFORESTATION CALCULATIONS		ACRES
FOREST CLEARED ABOVE THRESHOLD 10.2 X 1/4		2.6
FOREST REMOVED BELOW THRESHOLD 0.0 X 2		0.0
FOREST RETAINED ABOVE THRESHOLD		2.6
REFORESTATION REQUIRED		0
ON-SITE REFORESTATION PROVIDED		0
OFF-SITE REFORESTATION PROVIDED		0

FOREST STAND / VEGETATIVE COVER

KEY	COMMUNITY TYPE	ACREAGE	DOMINANT VEGETATION	GENERAL CONDITION
F1	MIXED OAK/POPLAR	11.5 AC (NTA)	LIRIODENDRON TULIPIFERA, ACER RUBRUM, QUERCUS SSP. NYSSA SYLVATICA, CARYA GLABRA	FAIR
F2	TULIP POPLAR/OAK	24.6 AC (20.1 AC NTA)	LIRIODENDRON TULIPIFERA, ACER RUBRUM, QUERCUS ALBA, NYSSA SYLVATICA, CARYA GLABRA	FAIR
F3	TULIP POPLAR	1.5 AC (0.4 AC NTA)	LIRIODENDRON TULIPIFERA, ACER RUBRUM	F. GOOD
F5	MIXED OAK/POPLAR	2.1 AC	LIRIODENDRON TULIPIFERA, ACER RUBRUM, QUERCUS ALBA, NYSSA SYLVATICA, PRUNUS SEROTINA	POOR

SITE AREA COMPUTATIONS

GROSS TRACT AREA = 99.07 AC
100 YEAR FLOODPLAIN = 15.82 AC
NET TRACT AREA = 83.2 AC
ZONING = RR-DEO

FOREST CLEARING

FOREST TO BE CLEARED = 10.2 AC

WETLAND DATA

WETLAND SYSTEM	COWARDIN CLASSIFICATION	DOMINANT VEGETATION
A	R3UB1	NOT APPLICABLE
B	PEM2C	EULALIA VIMINEA POLYGONUM PERSICARIA, PILEA PUMILA, PERILLA FRUTICOSA
C	PEM1F	CAREX SP, EULALIA VIMINEA, JUNCUS EFFUSUS, BOEMERIA CYLINDRICA, TYPHA LATIFOLIA
D	R3UB1	NOT APPLICABLE
E	PEM1F	JUNCUS EFFUSUS, SCIRPUS SP., TYPHA LATIFOLIA, CINNA ARUNDINACEA, ONOCLEA SENBILIUS, SYMPLOCARPUS FEOTIDUS
F	PEM1F/S3UB1	SALIX NIGRA, ALNUS SERRULATA, ILEX VERITICOLLATA, JUNCUS EFFUSUS, SCIRPUS SP., VERNONIA NOBILICENSIS
G	R3UB1	NOT APPLICABLE
H	R3UB1	NOT APPLICABLE

SPECIMEN TREES

KEY	SPECIES NAME	SIZE	CONDITION	CRITICAL ROOT ZONE	REMARK
A	TULIP POPLAR	36"	GOOD	0.02 AC.	
B	TULIP POPLAR	38"	GOOD	0.06 AC.	
C	TULIP POPLAR	32"	POOR	0.04 AC.	
D	TULIP POPLAR	33"	GOOD	0.05 AC.	
E	TULIP POPLAR	51"	POOR	0.10 AC.	
F	BLACK OAK	34"	FAIR		TO BE REMOVED
G	BLACK OAK	47"	F. GOOD		TO BE REMOVED
H	SCARLET OAK	31"	POOR		TO BE REMOVED
I	TULIP POPLAR	32"	GOOD		TO BE REMOVED
J	TULIP POPLAR	33"	GOOD		TO BE REMOVED
K	TULIP POPLAR	32"	GOOD		TO BE REMOVED
L	TULIP POPLAR	32"	GOOD		TO BE REMOVED
M	BLACK OAK	35"	F. GOOD		TO BE REMOVED
N	RED OAK	42"	GOOD	0.03 AC.	
O	TULIP POPLAR	30"	F. GOOD		TO BE REMOVED
P	TULIP POPLAR	31"	F. GOOD	0.04 AC.	
Q	TULIP POPLAR	35"	POOR	0.02 AC.	
R	TULIP POPLAR	34"	F. GOOD	0.02 AC.	
S	WHITE OAK	36"	GOOD	0.02 AC.	
T	RED OAK	37"	F. GOOD	0.02 AC.	
U	WHITE OAK	41"	V. POOR	0.03 AC.	
V	WHITE OAK	31"	V. POOR	0.02 AC.	
W	WHITE OAK	30"	GOOD	0.02 AC.	
X	SCARLET OAK	31"	F. GOOD	0.02 AC.	
Y	TULIP POPLAR	34"	GOOD		TO BE REMOVED
Z	TULIP POPLAR	32"	GOOD		TO BE REMOVED
AA	TULIP POPLAR	45"	FAIR		TO BE REMOVED
BB	TULIP POPLAR	30"	GOOD		TO BE REMOVED
CC	TULIP POPLAR	34"	GOOD		TO BE REMOVED
DD	TULIP POPLAR	33"	GOOD		TO BE REMOVED
EE	TULIP POPLAR	30"	GOOD		TO BE REMOVED
FF	TULIP POPLAR	32"	FAIR	0.04 AC.	
GG	TULIP POPLAR	33"	F. GOOD	0.04 AC.	
HH	AM. SYCAMORE	35"	F. GOOD	0.02 AC.	
II	TULIP POPLAR	32"	GOOD	0.02 AC.	
JJ	AM. SYCAMORE	30"	FAIR	0.02 AC.	
KK	AM. SYCAMORE	52"	GOOD	0.05 AC.	
LL	AM. SYCAMORE	31"	F. GOOD	0.02 AC.	
MM	AM. SYCAMORE	34"	F. GOOD	0.02 AC.	
NN	TULIP POPLAR	56"	F. GOOD	0.02 AC.	
OO	TULIP POPLAR	31"	FAIR	0.02 AC.	
PP	TULIP POPLAR	34"	FAIR	0.02 AC.	
QQ	BLACK OAK	31"	FAIR	0.02 AC.	

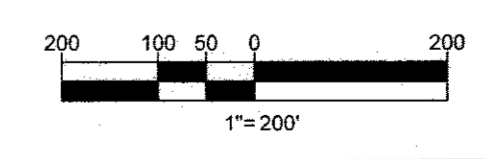
LEGEND

- PROPERTY LINE
- WETLAND BUFFER LIMITS
- SUPER SILT FENCE
- LIMIT OF DISTURBANCE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- TREE PROTECTION FENCE
- FOREST CONSERVATION EASEMENT
- REFORESTATION AREA
- PREVIOUSLY RECORDED FOREST CONSERVATION EASEMENT
- FOREST RETENTION AREA
- WETLANDS
- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- 100 YR. FLOODPLAIN
- FOREST CONSERVATION SIGNAGE
- SPECIMEN TREE (TO REMAIN)
- SPECIMEN TREE (TO BE REMOVED)

SOILS TABLE

SOILS NAME	SOILS DESCRIPTION	HYDROLOGIC SOILS GROUP	HIGHLY ERODIBLE SOIL	K FACTOR	AREA - AC.
BaA	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	NO	0.37	3.90
Co	COODRUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	NO	0.32	
GaC	GALILEE SILT LOAM, 0 TO 3 PERCENT SLOPES	B	YES	0.55	0.40
OgA	GLENGLE LOAM, 0 TO 3 PERCENT SLOPES	B	NO	0.28	
OgB	GLENGLE LOAM, 3 TO 8 PERCENT SLOPES	B	NO	0.28	
OgC	GLENGLE LOAM, 8 TO 15 PERCENT SLOPES	B	NO	0.28	
GmB	GLENGLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	YES	0.43	3.40
GmC	GLENGLE SILT LOAM, 8 TO 15 PERCENT SLOPES	C	YES	0.43	1.90
Ob	GLENGLE-BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C	YES	0.43	1.90
OgB	GLENGLE-COODRUS LOAMS, 0 TO 3 PERCENT SLOPES	C	YES	0.43	11.50
Ha	HATBORO-COODRUS LOAMS, 0 TO 3 PERCENT SLOPES	B/D	YES	0.37	10.90
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	NO	0.28	
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	NO	0.28	
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	NO	0.28	
MaE	MANOR LOAM, 25 TO 35 PERCENT SLOPES	B	NO	0.28	
MaF	MANOR-SPRINGLAW SILT LOAM, 25 TO 35 PERCENT SLOPES	B	NO	0.32	

APPROVED PLANNING BOARD OF HOWARD COUNTY
DATE July 21, 2016



SUBDIVISION NAME: SECTION 24, N/A
DEED # 08967/00532 & 05889/00490
TAX MAP: 34 & 39
GRID: 19 & 6
ZONED: RR-DEO
SHEET: 52 & 1
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

OWNER: MARJORIE F. CRAWFORD & DONALD O'KEEFE
STEPHEN J. CRAWFORD & SALLY O'KEEFE
19612 ISLANDER ST. 6950 HAVILAND MILL ROAD
CLINEY, MD 20832 CLARKSVILLE, MD 21029
TEL: (410) 338-2199 TEL: (410) 566-6941

DEVELOPER: ELM STREET DEVELOPMENT
5074 DORSEY HALL ROAD, SUITE 205
COLUMBIA, MD 21042
CONTACT: JASON VAN NINK
PHONE: (410) 723-3021

PROFESSIONAL CERTIFICATION
I, ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3697, EXPIRATION DATE: 9/20/16

BOHLER ENGINEERING

CORPORATE OFFICE: WARRENS, NJ
OFFICES: SOUTH BRIDGE, MA; WASHINGTON, DC; WASHINGTON, VA; CENTER VALLEY, PA; PHILADELPHIA, PA; ALBANY, NY; CONCORD, MA; PHOENIX, AZ; TAMPA, FL

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

REVISIONS

REV	DATE	COMMENT	BY

THE FOLLOWING STATES REQUIRE NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE IN VIRGINIA, MARYLAND, THE DISTRICT OF COLUMBIA, AND DELAWARE CALL: 911
WV 1-800-245-8448/PA 1-800-245-1778/DC 1-800-297-7777/VA 1-800-552-7001/MD 1-800-257-7777/DE 1-800-382-8585

NOT APPROVED FOR CONSTRUCTION

PROJECT No. MD142038
DRAWN BY: JMA
CHECKED BY: AS
DATE: 8/21/16
SCALE: AS SHOWN
CAD I.D.: FCZ

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR CRAWFORD & O'KEEFE PROPERTIES
PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G
LOCATION OF SITE
6780 HAVILAND MILL ROAD
CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 901
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS

REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

SHEET TITLE: **PRELIMINARY FOREST CONSERVATION PLAN**

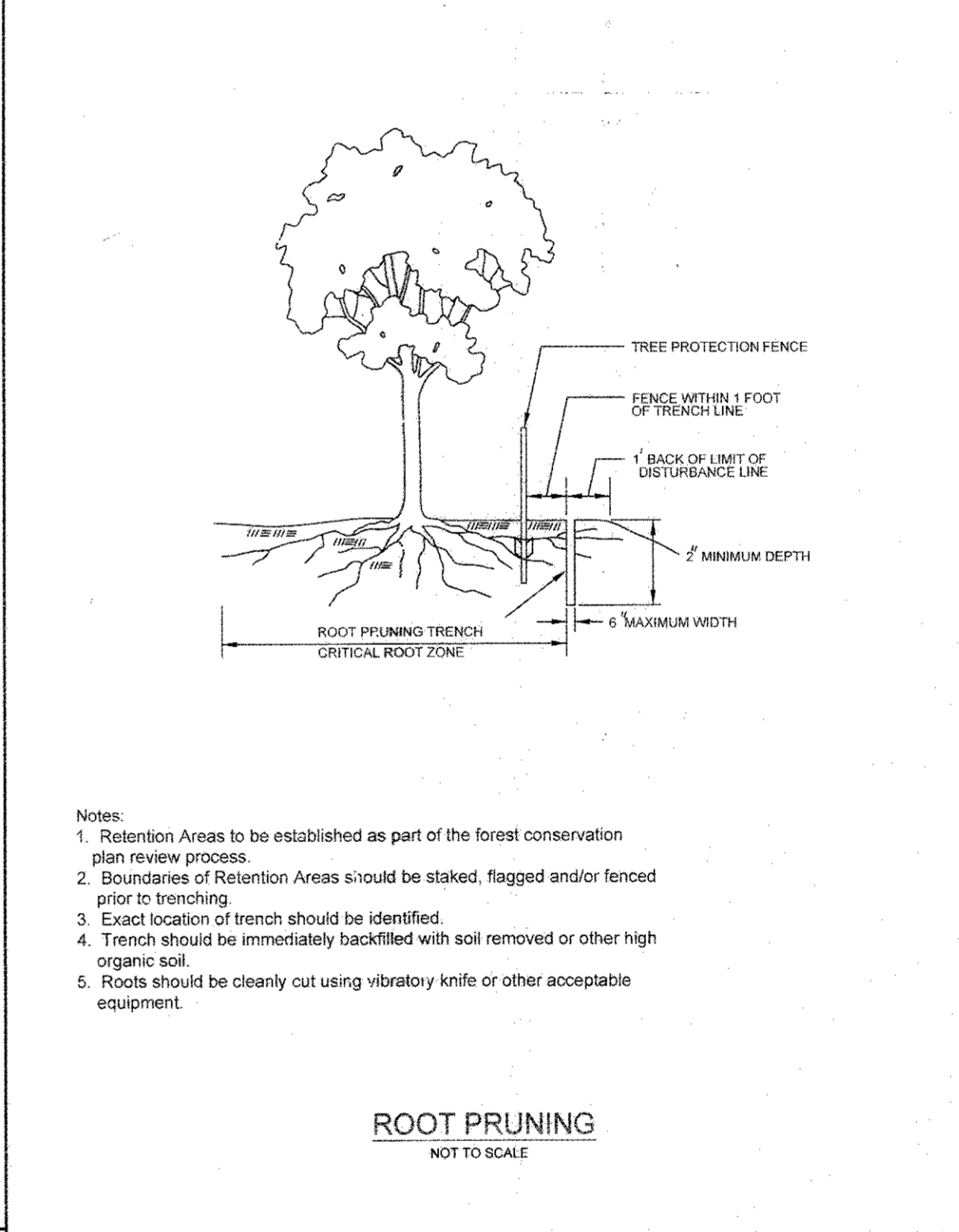
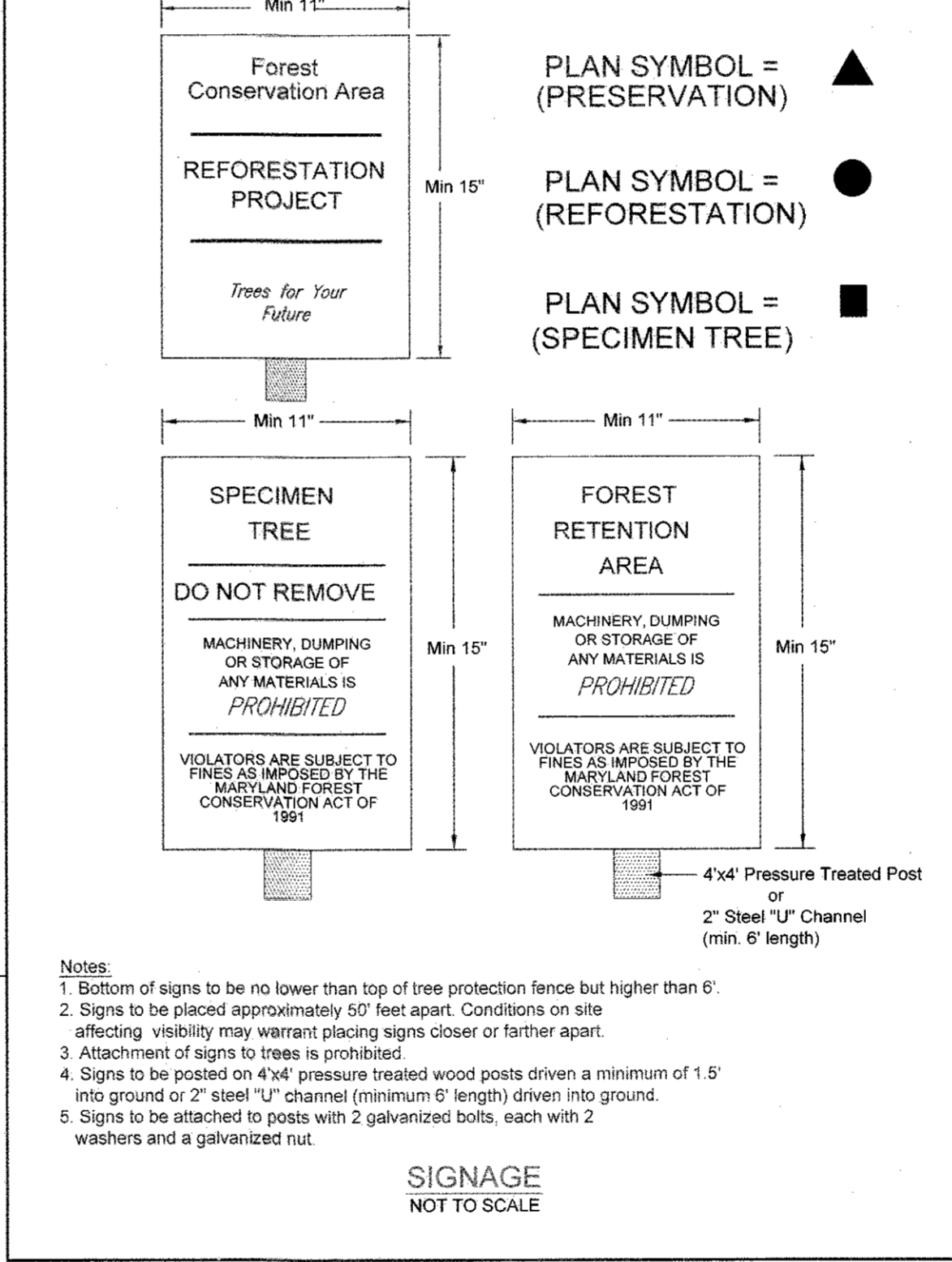
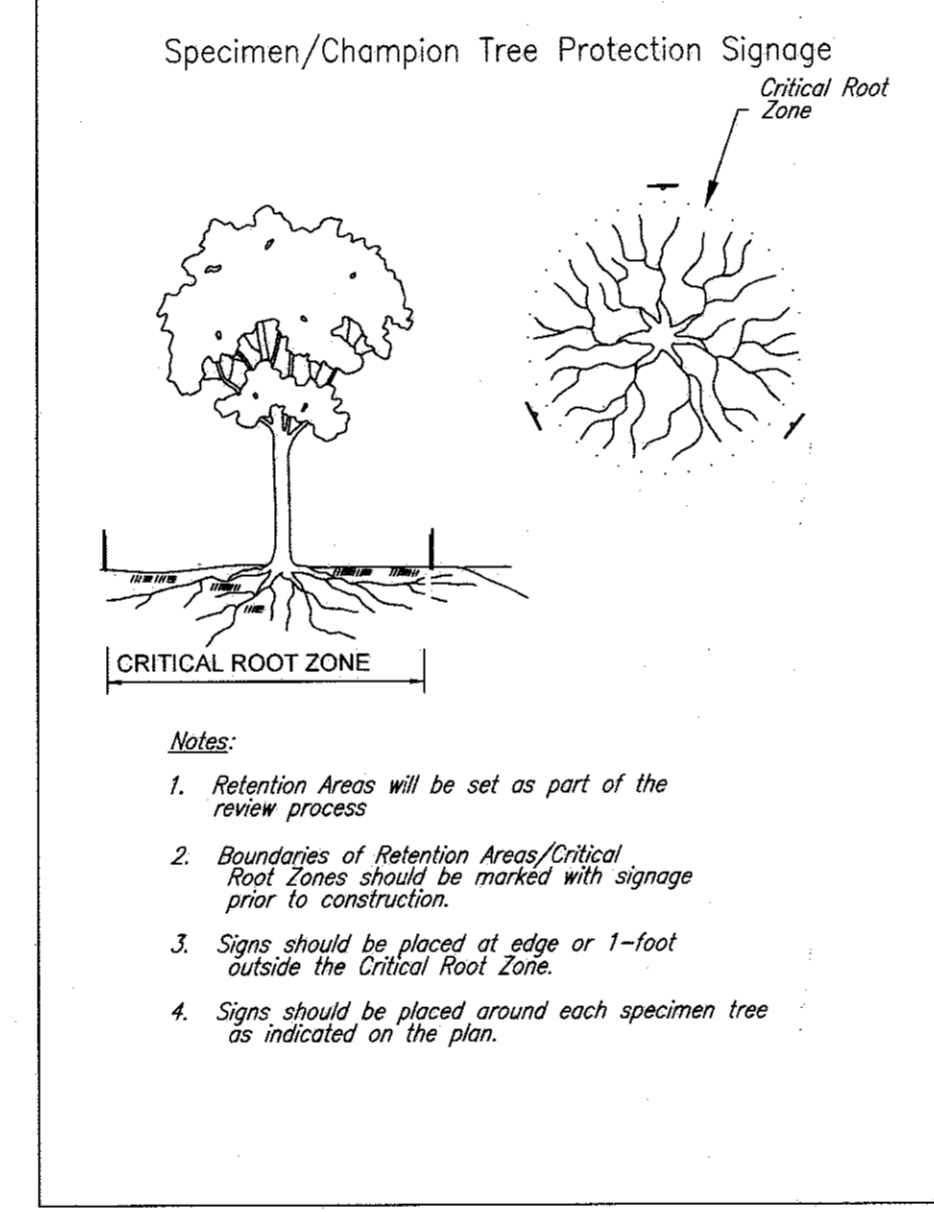
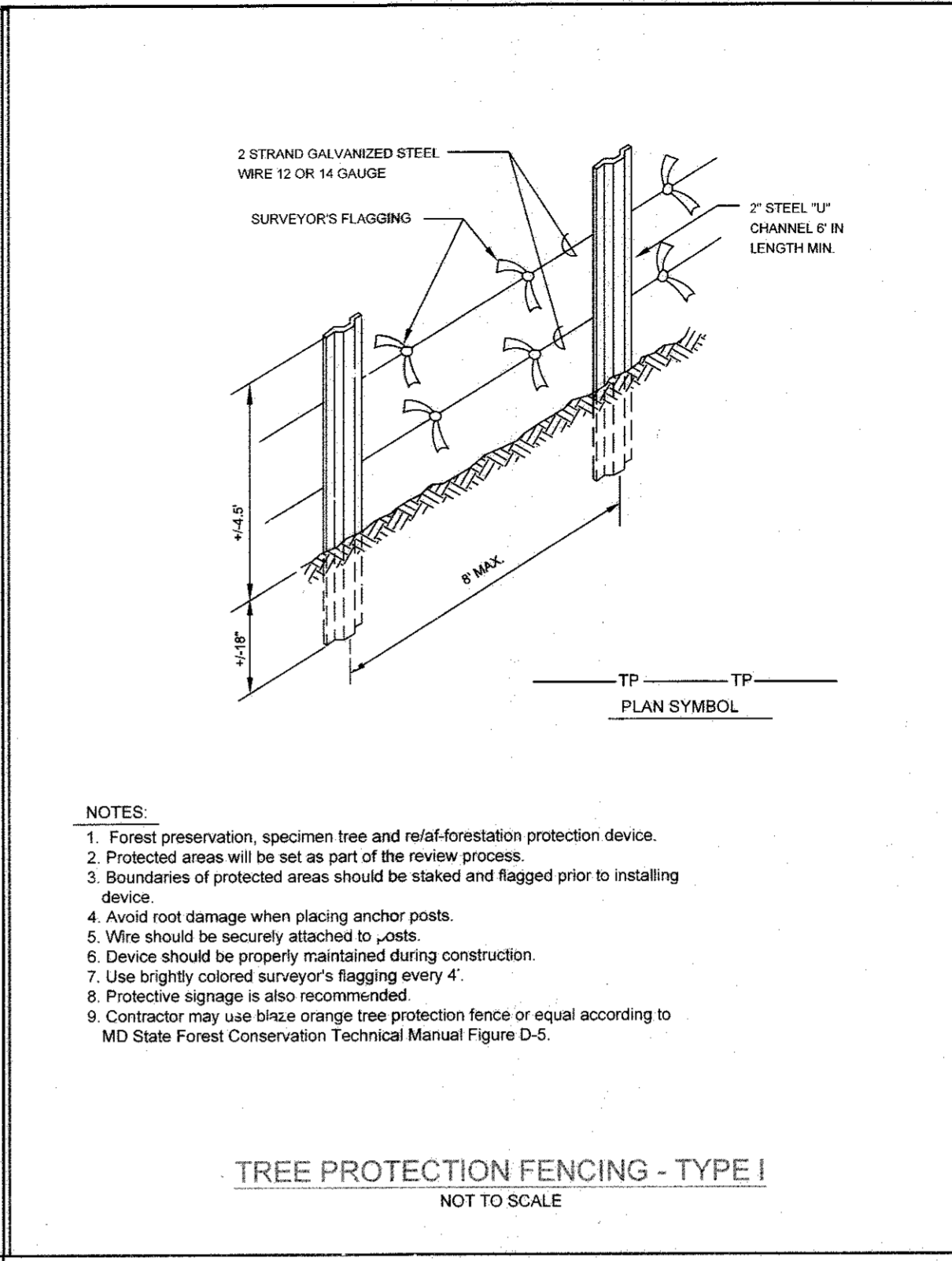
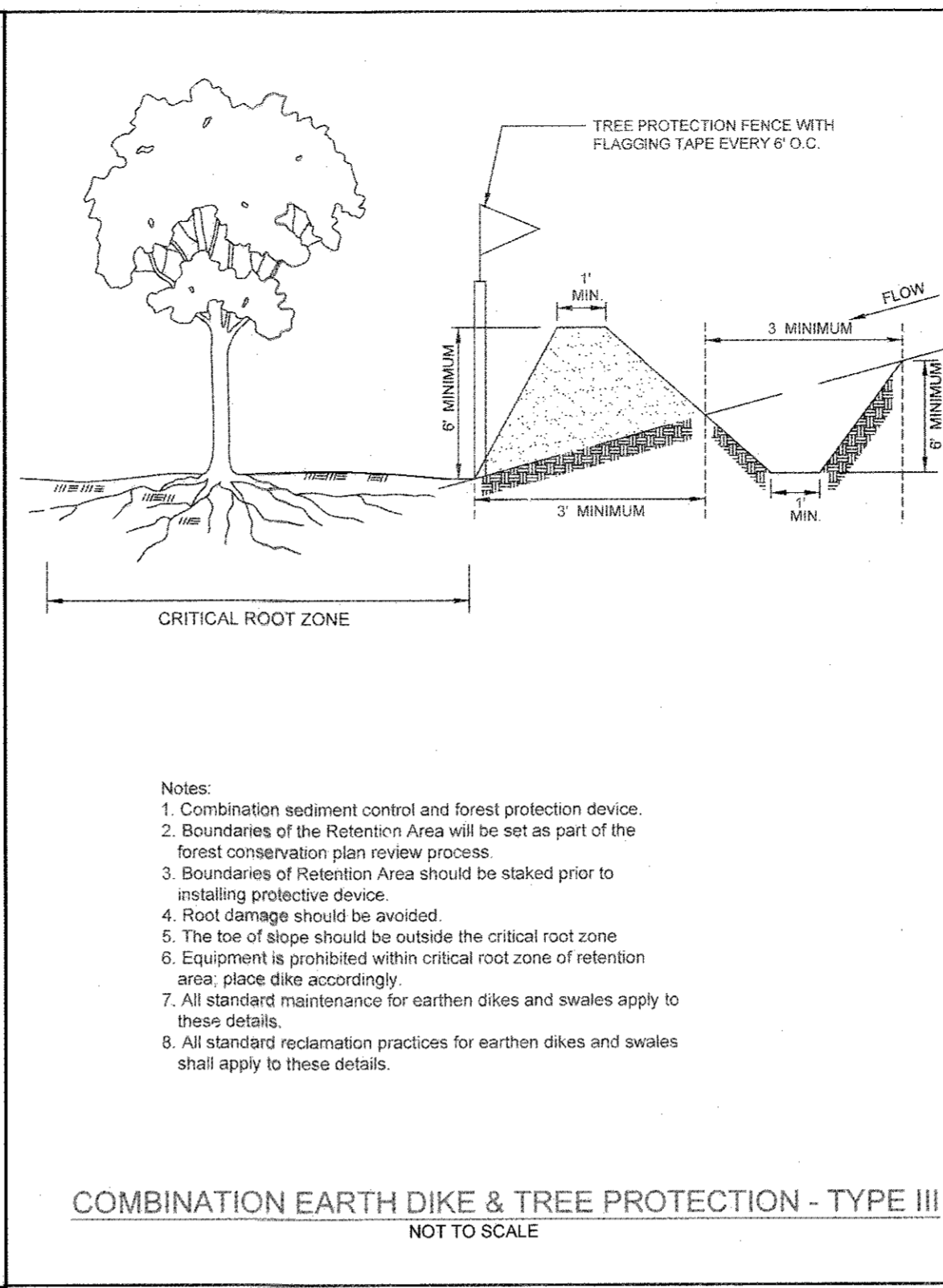
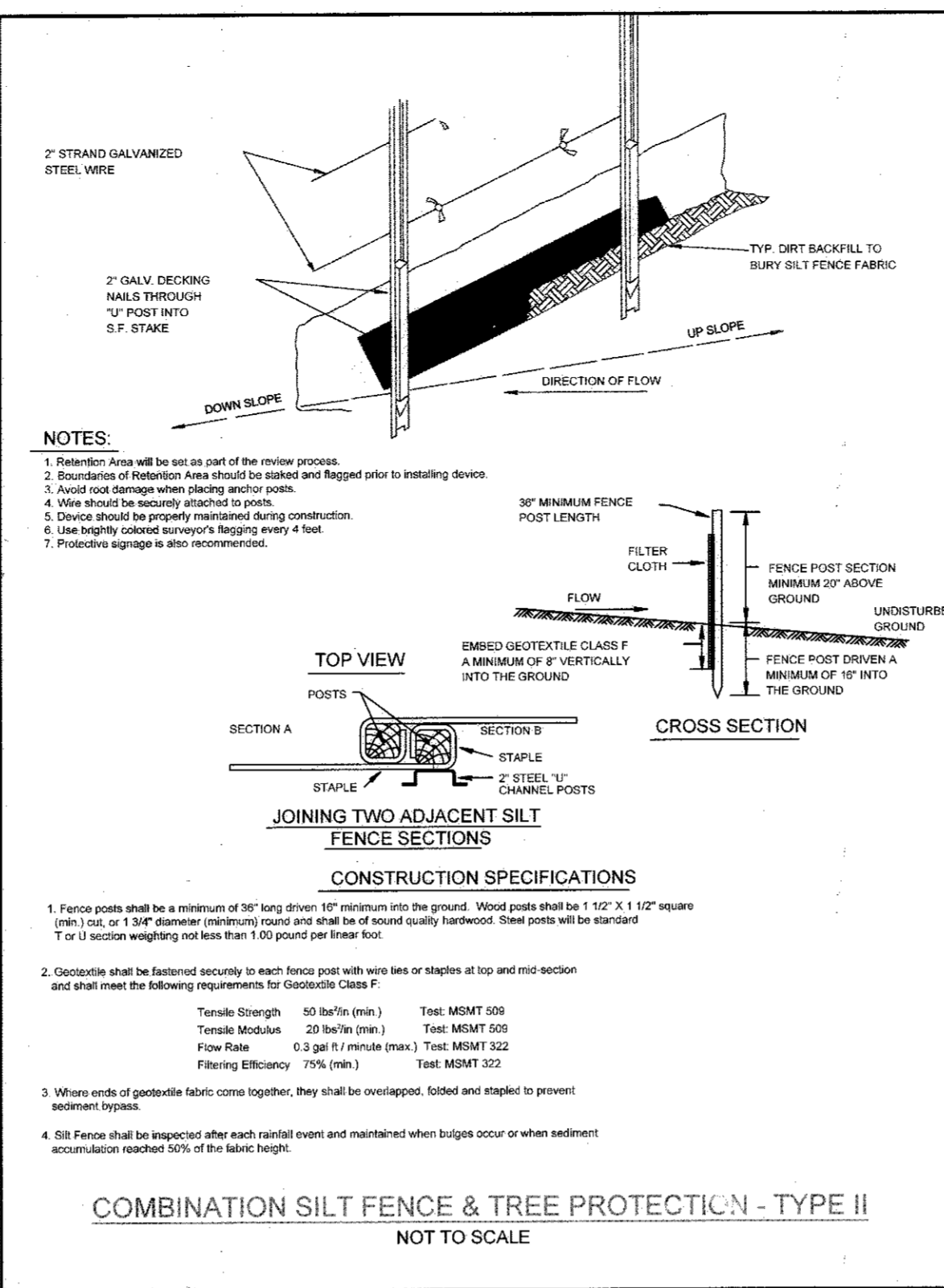
SHEET NUMBER: **24 of 25**

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO OBTAIN ANY SUCH PERMITS OR APPROVALS SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY FOR THE CONTRACTOR'S COMPLIANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS AND CODES.

TENTATIVELY APPROVED DEPARTMENT OF PLANNING AND ZONING
DATE: 11/16/15
PLANNING DIRECTOR

MIDDLE PATUXENT RIVER FLOODPLAIN DELINEATED PER FEMA FIRM MAP No. 24027C0120D, DATED NOVEMBER 6, 2013.

HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
DATE: 11/16/15



FCP NOTES

- ANY FOREST CONSERVATION EASEMENT (FCE) AREA SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- FORESTED AREAS OCCURRING OUTSIDE OF THE FCE SHALL NOT BE CONSIDERED PART OF THE FCE AND SHALL NOT BE SUBJECT TO PROTECTIVE LAND COVENANTS.
- LIMITS OF DISTURBANCE SHALL BE RESTRICTED TO AREAS OUTSIDE THE LIMIT OF TEMPORARY FENCING OR THE FCE BOUNDARY, WHICHEVER IS GREATER.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENT, EXCEPT AS PERMITTED BY HOWARD COUNTY DPZ.
- NO STOCKPILES, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED AS FOREST CONSERVATION EASEMENTS.
- TEMPORARY FENCING SHALL BE USED TO PROTECT FOREST RESOURCES DURING CONSTRUCTION. FENCING SHALL BE INSTALLED ALONG LIMITS OF DISTURBANCE OCCURRING WITHIN 50 FEET OF THE PROPOSED FCE LIMITS.
- PERMANENT SIGNAGE WILL BE POSTED AT 50-100 FOOT INTERVALS ALONG ALL FCE LIMITS.
- FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 23.3 ACRES FOR A TOTAL CONSERVATION EASEMENT AREA OF 24.42 ACRES (THIS INCLUDES 1.12 AC. OF EXISTING FLOODPLAIN).

OWNER: MARJORIE F. CRAWFORD STEPHEN C. CRAWFORD 19612 ISLANDER ST. CLARKSVILLE, MD 21032 TEL: (240) 330-2199	DONALD O'KEEFE SALLY O'KEEFE 6950 HAVILAND MILL ROAD CLARKSVILLE, MD 21029 TEL: (410) 599-6941
DEVELOPER: ELM STREET DEVELOPMENT 5074 DORSEY HALL ROAD, SUITE 205 COLUMBIA, MD 21042 CONTACT: JASON VAN NINK PHONE: (410) 720-3021	TAX MAP: 34 & 39 GRID: 19 & 5 ZONED: RR-DEO PARCEL: 52 & 1 6TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME:
SECTION/AREA: N/A
DEED #: 08967/00532 & 05889/00490

PREVIOUS FILE No.: ECP-15-051
WP-15-122

PROFESSIONAL CERTIFICATION
ERIC R. MCWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 3897, EXPIRATION DATE: 8/20/16

BOHLER ENGINEERING

CORPORATE OFFICE
100 W. WASHINGTON ST.
COLUMBIA, MD 21042
TEL: (410) 821-7900

CIVIL & CONSULTING ENGINEERS
SURVEYORS
PROJECT MANAGERS
ENVIRONMENTAL CONSULTANTS
LANDSCAPE ARCHITECTS

OFFICES:
BOWNE, MD
COLUMBIA, MD
FARMERSVILLE, MD
GREENBELT, MD
HAGERSTOWN, VA
HARRISBURG, PA
HUNTSVILLE, AL
LITTLE ROCK, AR
MEMPHIS, TN
NEW YORK, NY
PHILADELPHIA, PA
RICHMOND, VA
ROCKFORD, IL
TAMPA, FL
WASHINGTON, DC

REVISIONS

REV	DATE	COMMENT	BY

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD142038
DRAWN BY: AVG
CHECKED BY: JMA
DATE: 8/2/16
SCALE: AS SHOWN
CAD I.D.: FCZ

PRELIMINARY EQUIVALENT SKETCH PLAN

FOR **CRAWFORD & O'KEEFE PROPERTIES**
PROPOSED LOTS 1-23 & NONBUILDABLE PRESERVATION PARCELS A-G

LOCATION OF SITE
6780 HAVILAND MILL ROAD
CLARKSVILLE, HOWARD COUNTY, MD

BOHLER ENGINEERING

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
www.BohlerEngineering.com

E.R. McWILLIAMS

REGISTERED LANDSCAPE ARCHITECT

PRELIMINARY FOREST CONSERVATION NOTES & DETAILS

SHEET NUMBER:
25 of 25

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THIS PROJECT. WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR APPLICABLE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OR RECORD WRITER PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY IN THE CONTRACT OR TO COMPLETE THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND FULL CONFORMANCE WITH LOCAL REGULATIONS AND CODES.

TENTATIVELY APPROVED
DEPARTMENT OF PLANNING AND ZONING
HOWARD COUNTY

Nalwa Joffe 9-23-16
PLANNING DIRECTOR DATE

APPROVED
PLANNING BOARD OF HOWARD COUNTY

DATE: July 21, 2016