

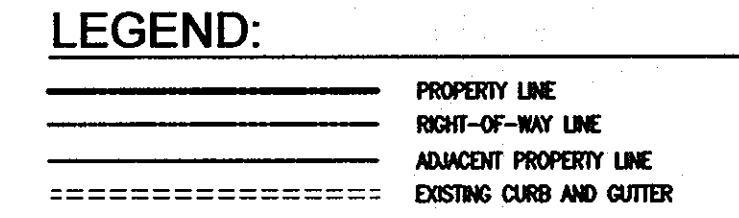
GENERAL NOTES

1. PROPERTY BOUNDARY AND TOPOGRAPHY PREPARED BY ROBERT H. VOGEL ENGINEERING INC., APRIL, 2008.
2. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO CEMETERIES OR GRAVE SITES LOCATED ON THE SUBJECT PROPERTY.
3. STORM WATER MANAGEMENT TO BE PROVIDED FOR THIS DEVELOPMENT BY ENVIRONMENTAL SITE DESIGN UTILIZING MICRO BIOTRETENTIONS FACILITIES & PERMEABLE PAVEMENT.
4. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION, OR BUILDING AND GRADING PERMITS.
5. THE SUBDIVISION PLAN IS SUBJECT TO THE FOLLOWING DPZ FILES: BA-09-027V
6. THE SUBJECT PROPERTY IS ZONED "B-1" IN ACCORDANCE WITH THE 2/2/04 COMPREHENSIVE ZONING PLAN AND THE COMP. USE ZONING REGULATIONS EFFECTIVE ON 7/28/06.
7. THIS SITE IS NOT LOCATED IN A HISTORIC DISTRICT.
8. AS THERE ARE NO ENVIRONMENTAL FEATURES ON SITE, THE PROPOSED FACILITY AND RELATED CONSTRUCTION WILL NOT AFFECT ENVIRONMENTAL FEATURES OR BUFFERS.
9. WATER AND SEWER FOR THIS PROJECT WILL BE PUBLIC. WATER WILL BE PROVIDED THROUGH CONTRACT #713-W. SEWER WILL BE PROVIDED THROUGH CONTRACT #545-S.
10. 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. 2411 AND 2413 WERE USED FOR THIS PROJECT.
11. NO RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED ON THE PROPERTY.
12. THERE IS NO 100-YR FLOODPLAIN WITHIN THE LIMITS OF THIS SITE.
13. SEDIMENT AND EROSION CONTROL WILL BE PROVIDED FOR THIS SITE.
14. MEADOWRIDGE ROAD IS NOT A SCENIC ROAD.
15. APPROVAL OF THIS EDC DOES NOT CONSTITUTE AN APPROVAL OF ANY SUBSEQUENT AND ASSOCIATED SUBDIVISION PLAN, SITE DEVELOPMENT PLAN, OR GRADING OR BUILDING PERMIT. REVIEW OF THIS PROJECT FOR COMPLIANCE WITH THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND THE HOWARD COUNTY ZONING REGULATIONS SHALL OCCUR AT THE SUBDIVISION, SITE DEVELOPMENT PLAN, OR GRADING AND BUILDING PERMIT STAGES.

ENVIRONMENTAL CONCEPT PLAN

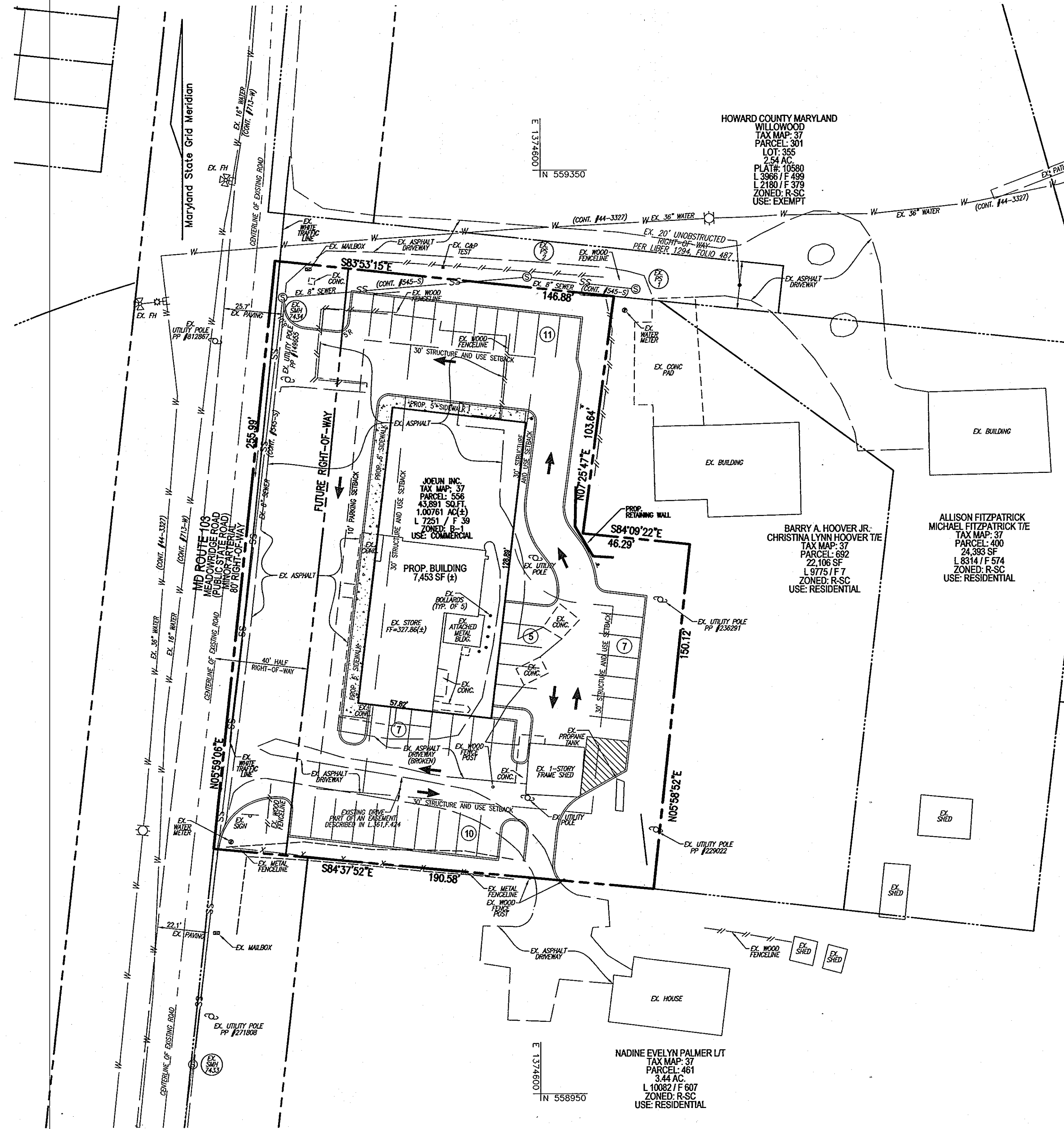
TROY FARM

PARCEL 556 (L. 07251 / F. 00039)



VICINITY MAP
SCALE: 1"=2,000'
ADC MAP COORDINATE: PG. 4936 / F-8

BENCHMARKS
HOWARD COUNTY BENCHMARK 371 (CONC. MON.)
N 556446.39 E 1373465.95 ELEV. 283.75
HOWARD COUNTY BENCHMARK 372 (CONC. MON.)
N 556364.06 E 1375513.20 ELEV. 463.77



PLAN VIEW
SCALE: 1"=30'

TROY FARM ENVIRONMENTAL CONCEPT PLAN

INTRODUCTION

The subject property is located on the east side of Meadowridge Road in the Elkridge community of Howard County, Maryland and is situated south of Route 100.

The adjacent parcels include existing single family residences and Howard County land. The subject property currently contains a commercial structure, associated parking and additional out buildings.

The property is zoned Business Local (B-1) and is proposed to be developed with 7,453 sq commercial building in accordance with the Regulations.

The property does not contain specimen trees. The soils are specified as hydrologic soil group (HSG) 'C' & 'D' and are specified as Russett, Beltsville and Chillum soils in conjunction with the Howard County Soil Survey. The topography does not result in steep slopes and a site visit did not reveal any wetland areas on-site.

METHODOLOGY

The proposed development is comprised of a commercial building with associated parking. The site slopes from north to south. There are no steep slopes, streams, wetlands, or their buffers, floodplain or existing forest conservation easements located on-site. The Maryland Department of the Environment, Environmental Site Design criteria has been implemented. The Environmental Concept Plan addresses the overall requirements for the site. There are 3 drainage sub areas which have been delineated by ESD treatment. The attached spreadsheet tabulates the ESD, by drainage area (minimum, maximum and target). The Environmental Concept Plan utilizes micro-bioreentions facilities and permeable pavement to accommodate the total ESD volume required for the project. Underdrains will be provided at the micro-bioreintion facility and will outfall at the south side of the site.

APPROVED VARIANCES

- SECTION 118.D.2.a TO REDUCE THE REQUIRED 30' STRUCTURE AND USE SETBACK TO 23' FROM MEADOWRIDGE ROAD, FOR THE CONSTRUCTION OF A RETAIL STORE.
- SECTION 118.D.2.b TO REDUCE THE REQUIRED 30' STRUCTURE AND USE SETBACK FROM ADJACENT RESIDENTIAL DISTRICT TO A MINIMUM OF 3'(VARIES BETWEEN 3' TO 16.7') SHOWN ON DRAWING, FOR THE CONSTRUCTION OF PARKING AND DRIVE AISLE.
- SECTION 118.D.2.c TO REDUCE THE REQUIRED 10' PARKING SETBACK FROM MEADOWRIDGE ROAD TO 0', FOR THE CONSTRUCTION OF PARKING AND DRIVE AISLE.

SHEET INDEX	
DESCRIPTION	SHEET NO.
COVER SHEET	1 OF 5
SITE LAYOUT PLAN	2 OF 5
SOILS MAP, GRADING, EROSION AND SEDIMENT CONTROL PLAN	3 OF 5
DRAINAGE AREA MAP	4 OF 5
DETAIL SHEET	5 OF 5

OWNER/DEVELOPER

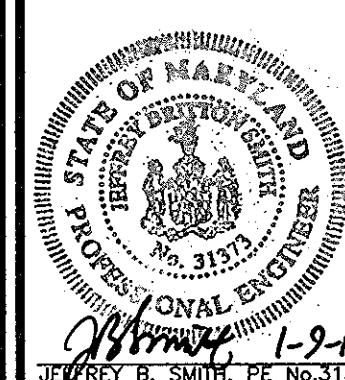
JOEUN INC.
6161 MEADOWRIDGE ROAD
ELKRIDGE, MD 21075
(410) 579-1142

ENVIRONMENTAL CONCEPT PLAN

TROY FARM
6161 MEADOWRIDGE ROAD
PARCEL 556 (L. 07251 / F. 00039)

TAX MAP 37 BLOCK 09
2ND ELECTION DISTRICT
DPZ REF'S: CONT. #545-S & CONT. #713-W
ZONED: B-1
PARCEL #556
HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLSWORTH CITY, MD 21043
TEL: 410.461.7664
FAX: 410.461.8964



DESIGN BY: JBS
DRAWN BY: JMR
CHECKED BY: RHV/JBS
DATE: OCTOBER 2011
SCALE: AS SHOWN
W.O. NO.: 07-06

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND.

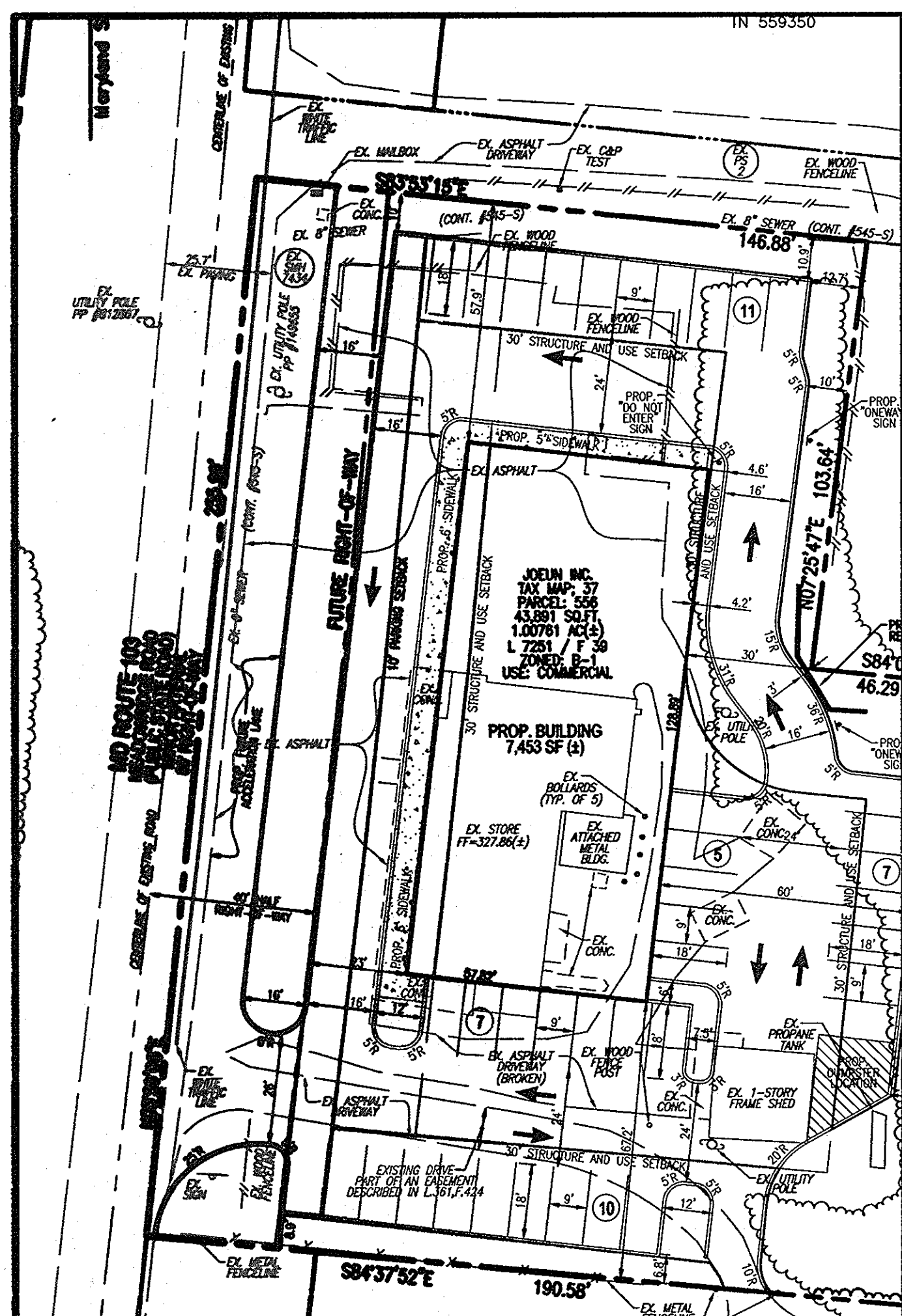
1 SHEET OF 5

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

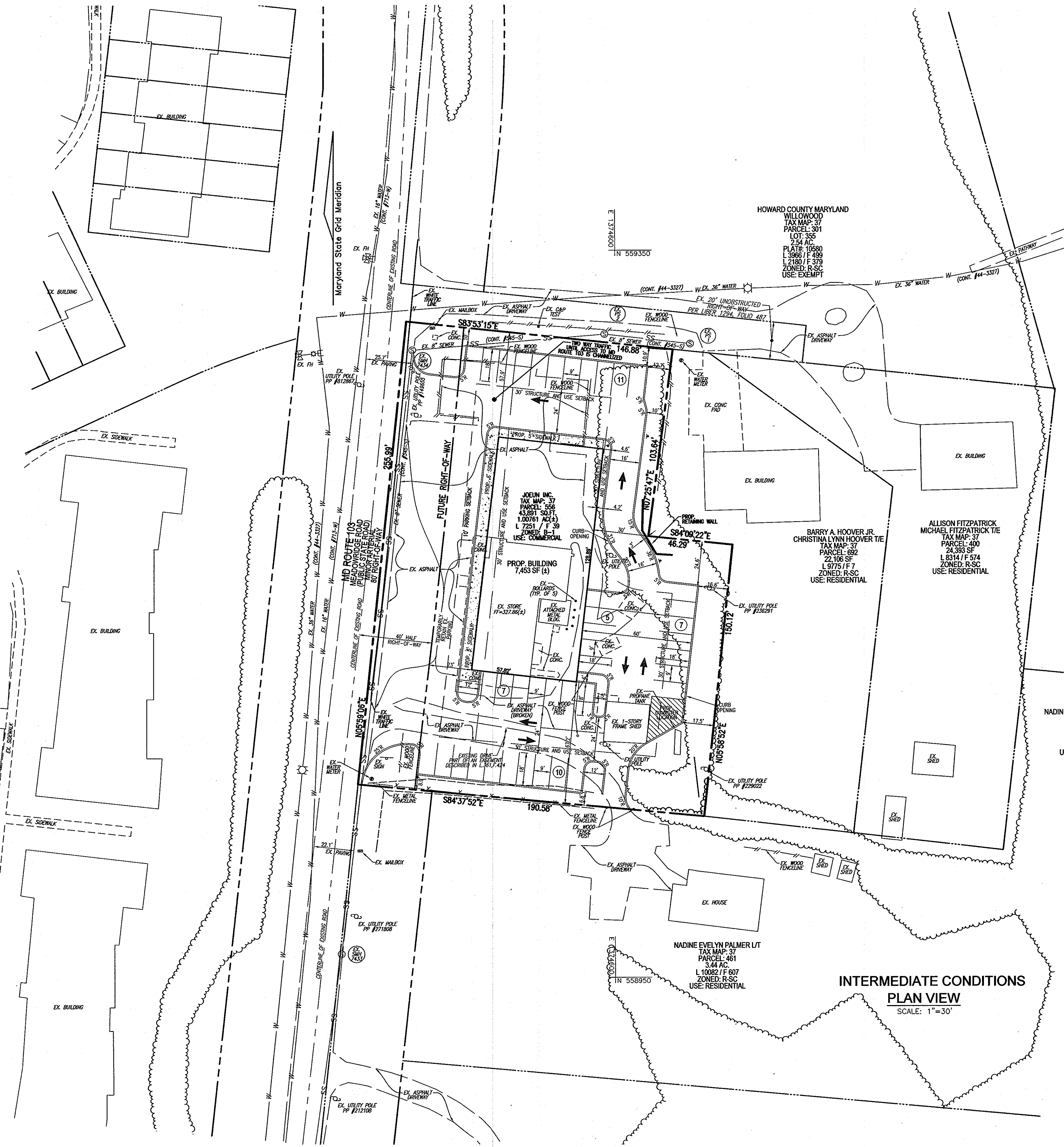
[Signature] 1/24/12
DATE
[Signature] 1/23/12
DATE

SITE DATA

LOCATION: TAX MAP 37, BLOCK 09
PARCEL: 556
2ND ELECTION DISTRICT
PRESENT ZONING: B-1
GROSS AREA OF PROJECT: 1.01 AC.
LIMIT OF DISTURBANCE: 0.91 AC.
PROPOSED USE OF SITE: COMMERCIAL
IMPERVIOUS AREA: 0.63 AC.
DPZ REFERENCES: CONT. #545-S, CONT. #713-W & BA-09-027V
ENVIRONMENTAL FEATURES: NA
WETLAND AREA: NA
FLOODPLAIN AREA: NA
FOREST RESOURCES: NA
STEEP SLOPES: NA
GREEN OPEN AREA: NA



**ULTIMATE CONDITIONS
PLAN VIEW**
SCALE: 1"=30'



**INTERMEDIATE CONDITIONS
PLAN VIEW**
SCALE: 1"=30'

- LEGEND:**
- PROPERTY LINE
 - - - RIGHT-OF-WAY LINE
 - - - ADJACENT PROPERTY LINE
 - - - EXISTING CURB AND GUTTER
 - ⊙ EXISTING UTILITY POLE
 - ⊙ EXISTING LIGHT POLE
 - ⊙ EXISTING MAILBOX
 - ⊙ EXISTING SIGN
 - ⊙ EXISTING SHEDDARY MARKER
 - EXISTING SHEDDARY LINE
 - EXISTING CLEWOUT
 - EXISTING FIRE HYDRANT
 - EXISTING WATER LINE
 - EXISTING TREELINE
 - EXISTING FENCE
 - PROPOSED STORMDRAIN
 - PROPOSED SIDEWALK
 - PROPOSED TREETRUNK
 - PROPOSED CURB
 - ⊙ EXISTING STREET LIGHT
 - EXISTING SOILS
 - CHANGE AREA

HOWARD COUNTY MARYLAND
WILLOWOOD
TAX MAP: 37
PARCEL: 301
LOT: 355
2.34 AC.
PLATE: 10580
L 3885 / F 499
L 2180 / F 378
ZONED: R-SC
USE: EXEMPT

HOWARD COUNTY MARYLAND
WILLOWOOD
TAX MAP: 37
PARCEL: 301
LOT: 383
8.89 AC.
PLATE: 11150
L 4167 / F 54
ZONED: R-SC
USE: EXEMPT

BARRY A. HOOVER JR.
CHRISTINA LYNN HOOVER T/E
TAX MAP: 37
PARCEL: 692
22,106 SF
L 9775 / F 7
ZONED: R-SC
USE: RESIDENTIAL

ALLISON FITZPATRICK
MICHAEL FITZPATRICK T/E
TAX MAP: 37
PARCEL: 400
24,383 SF
L 8314 / F 574
ZONED: R-SC
USE: RESIDENTIAL

NADINE EVELYN PALMER LT
TAX MAP: 37
PARCEL: 461
3.44 AC.
L 10082 / F 607
ZONED: R-SC
USE: RESIDENTIAL

NADINE EVELYN PALMER LT
TAX MAP: 37
PARCEL: 461
3.44 AC.
L 10082 / F 607
ZONED: R-SC
USE: RESIDENTIAL

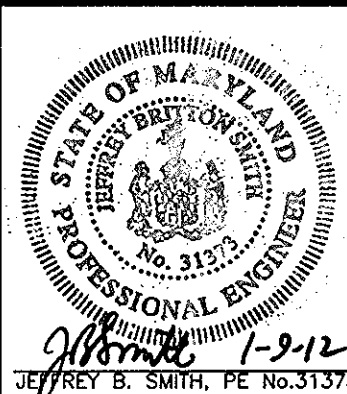
OWNER/DEVELOPER
JOEUN INC.
6161 MEADOWRIDGE ROAD
ELKRIDGE, MD 21075
(410) 579-1142

**ENVIRONMENTAL CONCEPT PLAN
SITE LAYOUT PLAN**

TROY FARM
6161 MEADOWRIDGE ROAD
PARCEL 556 (L. 07251 / F. 0039)

TAX MAP 37 BLOCK 09
2ND ELECTION DISTRICT
DPZ REF'S: CONT. #545-S & CONT. #713-W
ZONED: B-1
PARCEL #556
HOWARD COUNTY, MARYLAND

**ROBERT H. VOGEL
ENGINEERING, INC.**
ENGINEERS • SURVEYORS • PLANNERS
8407 MAIN STREET
ELLSWORTH, MD 21043
TEL: 410-461-7666
FAX: 410-461-8961



DESIGN BY: JBS
DRAWN BY: JMR
CHECKED BY: RHV/JBS
DATE: OCTOBER 2011
SCALE: AS SHOWN
W.O. NO.: 07-06

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT I HAVE REVIEWED THE PROJECT AND APPROVED THE CONCEPT PLAN AND SITE LAYOUT PLAN FOR THE TROY FARM PROJECT AS SHOWN ON SHEET NO. 2 OF 5.

2 SHEET OF 5

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/24/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 1/23/12
CHIEF, DIVISION OF LAND DEVELOPMENT DATE



LEGEND:

- PROPERTY LINE
- RIGHT-OF-WAY LINE
- ADJACENT PROPERTY LINE
- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING WALLBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING CLEANOUT
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREE LINE
- EXISTING FENCE
- PROPOSED STORMDRAIN
- PROPOSED SIDEWALK
- PROPOSED TREE LINE
- PROPOSED CURB
- PROPOSED STREET LIGHT
- EXISTING SOILS
- DRAINAGE AREA
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- PROPOSED SALT FENCE
- PROPOSED LIMIT OF DISTURBANCE

SOILS LEGEND

SYMBOL	NAME / DESCRIPTION	GROUP	HYDRIC	K-FACTOR	PERCENT SAND
RuC	RUSSETT AND BELTSVILLE, 5 TO 10 PERCENT SLOPES	C	NO	0.24	NO
UcB	URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES	D	NO	0.37	NO

OWNER/DEVELOPER

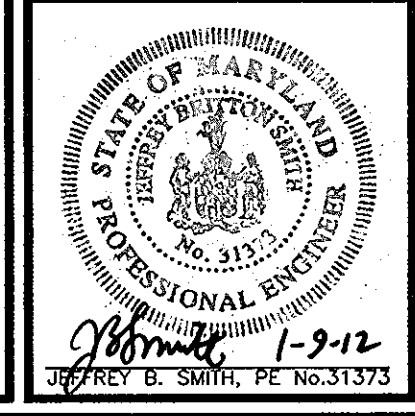
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ELKRIDGE, MD 21075
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**ENVIRONMENTAL CONCEPT PLAN
SOILS MAP, GRADING, EROSION
AND SEDIMENT CONTROL PLAN**

TROY FARM
6161 MEADOWRIDGE ROAD
PARCEL 556 (L. 07251 / F. 0039)

TAX MAP 37 BLOCK 09
2ND ELECTION DISTRICT
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FAX: 410.481.6981



DESIGN BY: JBS
DRAWN BY: JMR
CHECKED BY: RHY/JBS
DATE: OCTOBER 2011
SCALE: AS SHOWN
W.O. NO.: 07-06

PROFESSIONAL CERTIFICATE
I HEREBY CERTIFY THAT THESE ENGINEERING WORKS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND.
DATE: 10/11/11

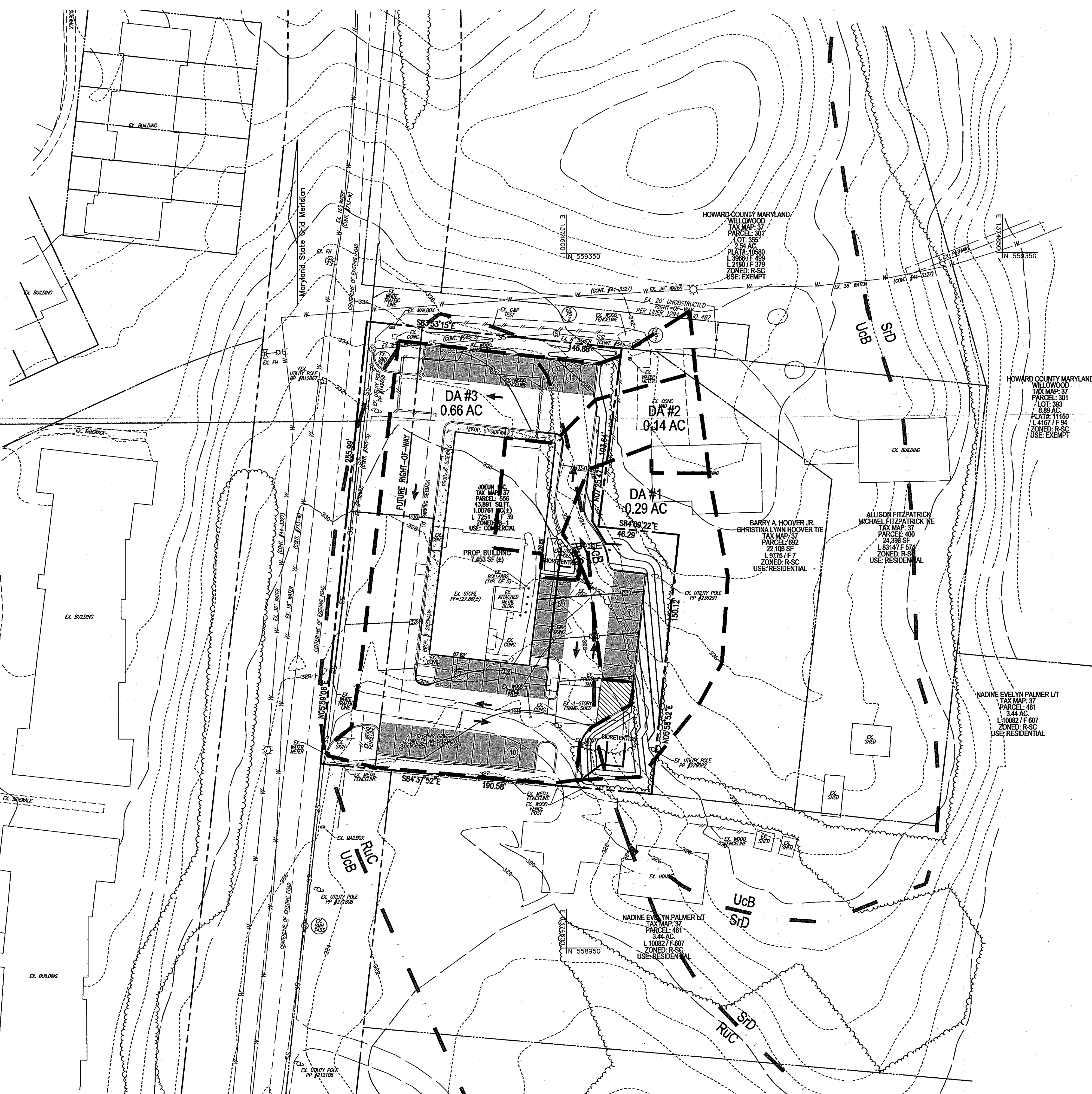
3 SHEET OF 5

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/24/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 1/23/12
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

PLAN VIEW
SCALE: 1"=30'



LEGEND:

	PROPERTY LINE
	RIGHT-OF-WAY LINE
	ADJACENT PROPERTY LINE
	EXISTING CURB AND GUTTER
	EXISTING UTILITY POLE
	EXISTING LIGHT POLE
	EXISTING MAILBOX
	EXISTING SIGN
	EXISTING SANITARY MANHOLE
	EXISTING SANITARY LINE
	EXISTING CLEAFOOT
	EXISTING FIRE HYDRANT
	EXISTING WATER LINE
	EXISTING TRENCH
	EXISTING FENCE
	PROPOSED STORMWATER
	PROPOSED SIDEWALK
	PROPOSED TRENCH
	PROPOSED CURB
	EXISTING STREET LIGHT
	EXISTING SOILS
	DRAINAGE AREA
	PROP. PERMEABLE PAVEMENT

ESD PRACTICES BY DRAINAGE AREA

DRAINAGE AREA	ESD PRACTICE
#1	PERMEABLE PAVEMENT & MICRO BIORETENTION AREA
#2	MICRO BIORETENTION AREA
#3	PERMEABLE PAVEMENT

OWNER/DEVELOPER
 JOELUN INC
 6161 MEADOWRIDGE ROAD
 ELK RIDGE, MD 21075
 (410) 579-1142

**ENVIRONMENTAL CONCEPT PLAN
 DRAINAGE AREA MAP**

TROY FARM
 6161 MEADOWRIDGE ROAD
 PARCEL 556 (L. 07251 / F. 00039)

TAX MAP 37, BLOCK 09, 2ND ELECTION DISTRICT
 DPZ REF'S: CONT. #545-S & CONT. #713-W

ZONED: B-1
 PARCEL #556
 HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL ENGINEERING, INC.
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APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/24/12
 CHIEF, DEVELOPMENT ENGINEERING DIVISION (DATE)

[Signature] 1/23/12
 CHIEF, DIVISION OF LAND DEVELOPMENT (DATE)

PLAN VIEW
 SCALE: 1"=30'

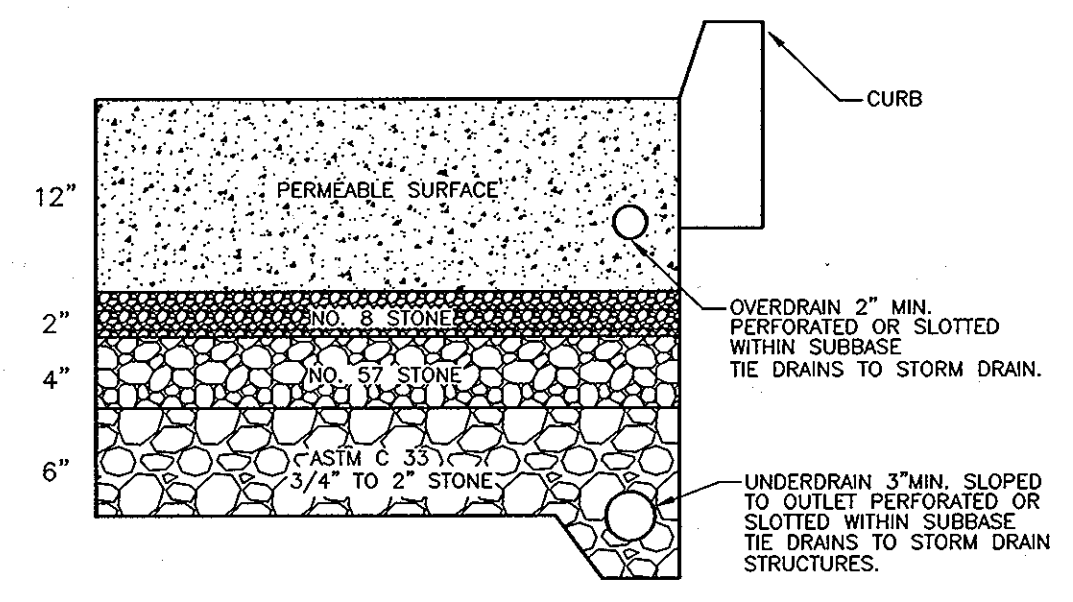
PROFESSIONAL CERTIFICATE

DESIGN BY: JBS
 DRAWN BY: JMR
 CHECKED BY: RHY/JBS
 DATE: OCTOBER 2011
 SCALE: AS SHOWN
 W.O. NO.: 07-06

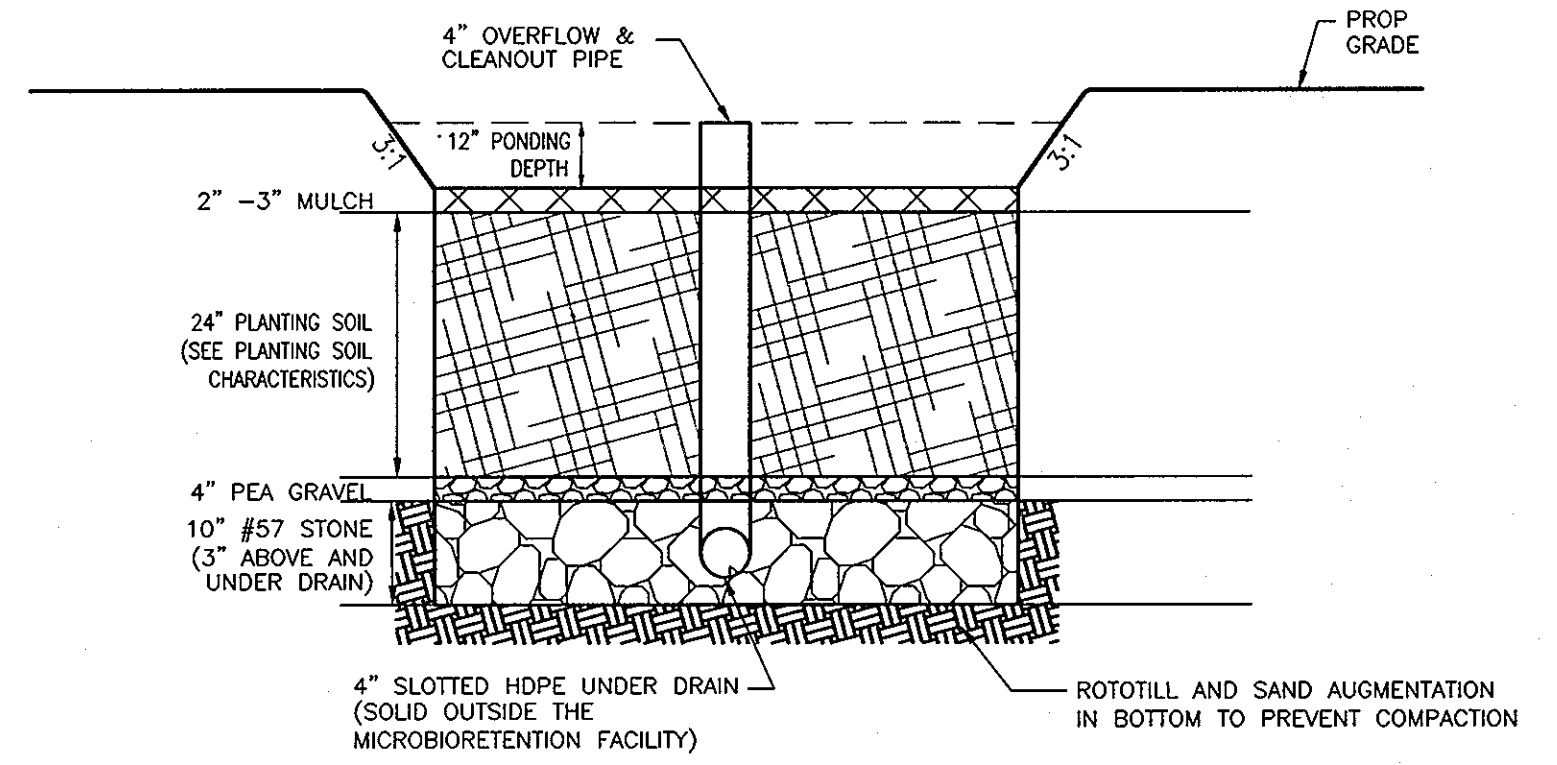
I HEREBY CERTIFY THAT THESE REPRESENTATIONS WERE PREPARED OR REVIEWED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A MEMBER IN GOOD STANDING OF THE PROFESSIONAL SOCIETY OF SURVEYORS OF MARYLAND.

[Signature] 9-12
 JEFFREY B. SMITH, PE No.31373

4 SHEET OF 5



DETAIL -- PERMEABLE PAVEMENT
NOT TO SCALE



DETAIL -- MICROBIORETENTION
NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS

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

APPENDIX B.3. CONSTRUCTION SPECIFICATIONS FOR SAND FILTERS, BIORETENTION AND OPEN CHANNELS

SPECIFICATIONS FOR BIORETENTION

1. MATERIAL SPECIFICATIONS

THE ALLOWABLE MATERIALS TO BE USED IN BIORETENTION AREA ARE DETAILED IN TABLE B.3.2.

2. PLANTING SOIL

THE SOIL SHALL BE A UNIFORM MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES SHALL BE MIXED OR DAMPED WITHIN THE BIORETENTION AREA THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVIDE A HARBORAGE TO THE PLANTING OR MAINTENANCE OPERATIONS. THE PLANTING SOIL SHALL BE FREE OF RESIDUAL GRASS, QUACKGRASS, JOHNSON GRASS, OR OTHER NOXIOUS WEEDS AS SPECIFIED UNDER COMAR 15.08.01.05.

THE PLANTING SOIL SHALL BE TESTED AND SHALL MEET THE FOLLOWING CRITERIA:

PH: RANGE 5.2-7.0
 ORGANIC MATTER: 1.5-4% (BY WEIGHT)
 NITROGEN: 35 LB/AC
 PHOSPHORUS (PHOSPHATE - P2O5): 15 LB/AC
 POTASSIUM (POTASH - K2O): 65 LB/AC
 SOLUBLE SALTS: NOT TO EXCEED 500 PPM

ALL BIORETENTION AREAS SHALL HAVE A MINIMUM OF ONE TEST. EACH TEST SHALL CONSIST OF BOTH THE STANDARD SOIL TEST FOR PH, PHOSPHORUS, AND POTASSIUM AND ADDITIONAL TEST OF ORGANIC MATTER, AND SOLUBLE SALTS. A TEXTURAL ANALYSIS SHALL BE PERFORMED FOR EACH LOCATION WHERE THE TOP SOIL WAS EXCAVATED.

SINCE DIFFERENT LABS CALIBRATE THEIR TESTING EQUIPMENT DIFFERENTLY, ALL TESTING RESULTS SHALL COME FROM THE SAME TESTING FACILITY. SHOULD THE PH FALL OUT OF THE ACCEPTABLE RANGE, IT MAY BE ADJUSTED (HIGHER) WITH LIME OR (LOWER) WITH IRON SULFATE PLUS SULFUR.

3. COMPACTION

IT IS VERY IMPORTANT TO MINIMIZE COMPACTION OF BOTH THE BASE OF THE BIORETENTION AREA AND THE REQUIRED BACKFILL. WHEN POSSIBLE, USE WHEELS TO BACKFILL SOIL. IF BIORETENTION AREAS ARE EXCAVATED USING LOADERS, THE CONTRACTOR SHOULD USE WIDE TRACKS OR HARROW TRACKS EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRE. USE OF EQUIPMENT WITH HARROW TRACKS OR HARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH PRESSURE TIRES WILL CAUSE EXCESSIVE COMPACTION RESULTING IN REDUCED INFILTRATION RATES AND IS NOT ACCEPTABLE. COMPACTION WILL SIGNIFICANTLY CONTRIBUTE TO DESIGN FAILURE.

COMPACTION CAN BE ALLEVIATED AT THE BASE OF THE BIORETENTION FACILITY BY USING A PRIMARY TILLING OPERATION SUCH AS CHISEL PLOW, RIPPER, OR SUBSOILER. THESE TILLING OPERATIONS ARE TO REFRACATURE THE SOIL PROFILE THROUGH THE 12 INCH COMPACTION ZONE. SUBSTITUTE METHODS MUST BE APPROVED BY THE ENGINEER. ROTOTILLERS TYPICALLY DO NOT TILL DEEP ENOUGH TO REDUCE THE EFFECTS OF COMPACTION FROM HEAVY EQUIPMENT.

ROTOTILL 2 TO 3 INCHES OF SAND INTO THE BASE OF THE BIORETENTION FACILITY BEFORE BACKFILLING THE REQUIRED SAND LAYER. PUMP ANY EXCESS WATER BEFORE PREPARING (ROTOTILLING) BASE.

WHEN BACKFILLING THE TOPSOIL OVER THE SAND LAYER, FIRST PLACE 3 TO 4 INCHES OF TOPSOIL OVER THE SAND, THEN ROTOTILL THE SAND/TOPSOIL TO CREATE A GRADATION ZONE. BACKFILL THE REMAINDER OF THE TOPSOIL TO FINAL GRADE.

WHEN BACKFILLING THE BIORETENTION FACILITY, PLACE SOIL IN LIFTS 12" TO 18". DO NOT USE HEAVY EQUIPMENT WITHIN THE BIORETENTION BASIN. HEAVY EQUIPMENT CAN BE USED AROUND THE PERIMETER OF THE BASIN TO SUPPLY SOILS AND SAND. GRADE BIORETENTION MATERIALS WITH LIGHT EQUIPMENT SUCH AS A COMPACT LOADER OR A DOZER/LOADER WITH HARROW TRACKS.

4. PLANT MATERIAL

RECOMMENDED PLANT MATERIAL FOR BIORETENTION AREAS CAN BE FOUND IN APPENDIX A, SECTION A.2.3. OF THE 2010 WARYLAND STORMWATER DESIGN MANUAL.

5. PLANT INSTALLATION

MULCH SHOULD BE PLACED TO A UNIFORM THICKNESS OF 2" TO 2". SHREDDED HARDWOOD MULCH IS THE ONLY ACCEPTED MULCH. FINE MULCH AND WOOD CHIPS WILL FLOAT AND MOVE TO THE PERIMETER OF THE BIORETENTION AREA DURING A STORM EVENT AND ARE NOT ACCEPTABLE. SHREDDED MULCH MUST BE WELL AGED (9 TO 12 MONTHS) FOR ACCEPTANCE.

ROOT STOCK OF THE PLANT MATERIAL SHALL BE KEPT MOIST DURING TRANSPORT AND ON-SITE STORAGE. THE PLANT ROOT BALL SHOULD BE PLANTED SO 10% OF THE BALL IS ABOVE FINAL GRADE SURFACE. THE DIAMETER OF THE PLANTING PIT SHALL BE AT LEAST SIX INCHES LARGER THAN THE DIAMETER OF THE PLANTING BALL. SET AND MAINTAIN THE PLANT STRAIGHT DURING THE ENTIRE PLANTING PROCESS.

TREES SHALL BE BRACED USING 2" BY 2" STAKES ONLY AS NECESSARY AND FOR THE FIRST GROWING SEASON ONLY. STAKES ARE TO BE EQUALLY SPACED ON THE OUTSIDE OF THE TREE BALL.

GRASSES AND LEGUME SEED SHOULD BE DRILLED INTO THE SOIL TO A DEPTH OF AT LEAST ONE INCH. GRASS AND LEGUME PLUGS SHALL BE PLANTED FOLLOWING THE NON-GRASS GROUND COVER PLANTING SPECIFICATIONS.

THE TOPSOIL SPECIFICATIONS PROVIDE ENOUGH ORGANIC MATERIAL TO ADEQUATELY SUPPLY NUTRIENTS FROM NATURAL CYCLING. THE PRIMARY FUNCTION OF THE BIORETENTION STRUCTURE IS TO IMPROVE WATER QUALITY. AGONIC FERTILIZERS, COPOLYS, OR A MINIMAL IMPROVED TWO GOAL ONLY ADD FERTILIZER IF WOOD CHIPS OR MULCH ARE USED TO AMEND THE SOIL. ROTOTILL UREA FERTILIZER AT A RATE OF 2 POUNDS OF NITROGEN PER 1000 SQUARE FEET.

6. UNDERDRAINS

UNDERDRAINS ARE TO BE PLACED ON A 5" WIDE SECTION FILTER CLOTH. PIPE IS PLACED NEXT, FOLLOWED BY THE GRAVEL BEDDING. THE ENDS OF UNDERDRAIN PIPES NOT TERMINATING IN AN OBSERVATION WELL SHALL BE CAPPED.

THE MAIN COLLECTOR PIPE FOR UNDERDRAIN SYSTEMS SHALL BE CONSTRUCTED AT A MINIMUM SLOPE OF 0.5%. OBSERVATION WELL AND/OR CLEANOUT PIPES MUST BE PROVIDED ONE MINIMUM PER EVERY 100 SQUARE FEET OF SURFACE AREA.

7. MISCELLANEOUS

THE BIORETENTION FACILITY MAY NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[Signature] 1/24/12
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 1/23/12
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

OWNER/DEVELOPER
 JOELIN INC.
 6161 MEADOWRIDGE ROAD
 ELKRIDGE, MD 21075
 (410) 579-1142

ENVIRONMENTAL CONCEPT PLAN
SWM DETAILS
TROY FARM
 6161 MEADOWRIDGE ROAD
 PARCEL 556 (L. 07251 / F. 00039)

TAX MAP 37 BLOCK 09 ZONED: B-1
 2ND ELECTION DISTRICT PARCEL #556
 DPZ REF'S: CONT. #545-S & CONT. #713-W HOWARD COUNTY, MARYLAND

ROBERT H. VOGEL
ENGINEERING, INC.
 ENGINEERS • SURVEYORS • PLANNERS
 8407 MAIN STREET TEL: 410-461-7666
 ELICOTT CITY, MD 21043 FAX: 410-461-8961

DESIGN BY: JBS
 DRAWN BY: JMR
 CHECKED BY: RHY/JBS
 DATE: OCTOBER 2011
 SCALE: AS SHOWN
 W.O. NO.: 07-06

PROFESSIONAL CERTIFICATE
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MARYLAND.

5 SHEET OF 5

1-9-12
 JEFFREY B. SMITH, PE No. 31373