

GENERAL NOTES

- THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED.
- THE SUBJECT PROPERTY IS ZONED R-SC PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENTS NO. 47GD AND 47GE WERE USED FOR THIS PROJECT.
- TRACT BOUNDARY IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED ON OR ABOUT FEBRUARY, 2014 BY BENCHMARK ENGINEERING, INC.
- THE NOISE STUDY IS NOT REQUIRED FOR THIS PROJECT.
- THE TRAFFIC STUDY WAS PREPARED BY MARS GROUP, INC. IN DECEMBER, 2014.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT. THE WATER AND SEWER IS PUBLIC. THE CONTRACT NUMBER IS 24-4896-D.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER SERVICE HAS BEEN GRANTED UNDER THE TERMS AND PROVISIONS, THEREOF, EFFECTIVE TBD, ON WHICH DATE DEVELOPERS AGREEMENT NUMBER F-15-049/24-4896 WAS FILED AND ACCEPTED.
- TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- THERE ARE NO HISTORIC SITES/FEATURES LOCATED ON THIS SITE.
- THERE ARE NO WETLANDS, STREAMS, THEIR REQUIRED BUFFERS, OR 100YR FLOODPLAIN LOCATED ON THIS SITE.
- THERE ARE NO STEEP SLOPES THAT 25% OR GREATER THAT IS MORE THAN A CONTIGUOUS 20,000 sf LOCATED ON THIS SITE.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO INSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING (1-1/2" MIN.).
 - GEOMETRY - MAXIMUM 15% GRADE, MAXIMUM 10% GRADE CHANGE AND MINIMUM 45' TURNING RADIUS.
 - STRUCTURES (CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOADING).
 - DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
 - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- THE WETLAND DELINEATION AND FOREST STAND DELINEATION WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. IN MARCH, 2014.
- THE GEOTECHNICAL REPORT WAS PREPARED BY GEOTECHNICAL LABORATORIES, INC. IN NOVEMBER, 2014.
- STORMWATER MANAGEMENT ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN PROVIDED IN ACCORDANCE WITH THE MARYLAND DEPARTMENT OF THE ENVIRONMENT STORMWATER MANAGEMENT ACT OF 2007 AND THE HOWARD COUNTY DESIGN MANUAL VOLUME 1, CHAPTER 5 TO THE MAXIMUM EXTENT PRACTICAL (MEP) VIA FIVE (5) M-6 MICRO-BIORETENTION PRACTICES AND AN AREA OF N-2 DISCONNECTION OF NONROOFTOP RUNOFF. THE PRACTICES ARE PRIVATELY OWNED AND MAINTAINED.
- ALL AREAS ARE "MORE" OR "LESS".
- THERE IS AN EXISTING STRUCTURE ON THIS PROPERTY. IT SHALL BE DEMOLISHED PRIOR TO PLAT RECORDATION.
- LANDSCAPING IS PROVIDED WITH A CERTIFIED LANDSCAPE PLAN IN ACCORDANCE ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$7,200.00 FOR THE REQUIRED PERIMETER LANDSCAPING SHALL BE POSTED AS PART OF THE GRADING PERMIT UNDER THE SITE DEVELOPMENT PLAN.
- THE FOREST CONSERVATION OBLIGATION AMOUNT OF 0.69 ACRES SHALL BE MET BY OFFSITE WITHIN THE FOREST MITIGATION BANK ESTABLISHED WITHIN PARK OVERLOOK SUBDIVISION (F-13-093) RECORDED AS PLAT #22785-22788.
- FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY LINE AND NOT ONTO THE PIPESTEM LOT DRIVEWAY.
- THE PURPOSE OF OPEN SPACE LOT 6 IS FOR THE PROTECTION OF ENVIRONMENTAL AREAS SUCH AS EXISTING TREES AND VEGETATION. IT WILL ALSO CONTAIN AN ESD SWM MICRO-BIORETENTION FACILITY. IT SHALL BE DEDICATED TO THE HOMEOWNERS ASSOCIATION. THE PURPOSE OF OPEN SPACE LOT 7 IS FOR THE PROTECTION OF ENVIRONMENTAL AREAS SUCH AS EXISTING VEGETATION, TREES AND STEEP SLOPES. IT SHALL BE DEDICATED AND MAINTAINED BY THE HOMEOWNERS ASSOCIATION. THE OPEN SPACE HEREON IS HEREBY DEDICATED TO THE PROPERTY OWNERS ASSOCIATION FOR THE RESIDENTS OF THIS SUBDIVISION AND RECORDING REFERENCES OF THE ARTICLES OF INCORPORATION AND RESTRICTIONS ARE SHOWN HEREON.
- THE RECREATIONAL OPEN SPACE REQUIREMENT FOR THIS PROJECT IS NOT REQUIRED SINCE THERE ARE LESS THAN 10 LOTS.
- WP-14-123, A REQUEST TO WAIVE SECTIONS 16.121(a)(2)(i), SECTION 16.134(c)(1), SECTION 16.144(b) AND SECTION 16.144(g) WAS APPROVED ON JULY 28, 2014 SUBJECT TO THE FOLLOWING CONDITIONS:
 - SUBMISSION OF A FINAL SUBDIVISION PLAN AND APPLICATION UPON APPROVAL OF ECP-14-054.
 - COMPLY WITH ALL ATTACHED AGENCY COMMENTS ON THE SUBMITTED ECP PLANS.
 - COMPLIANCE WITH THE DEVELOPMENT ENGINEERING DIVISION COMMENTS DATED JULY 17, 2014 REGARDING THE PAYMENT OF A FEE-IN-LIEU FOR THE SIDEWALK ALONG ALL SAINTS ROAD.
 - COMPLIANCE WITH THE DEPARTMENT OF FIRE AND RESCUE SERVICES COMMENTS DATED MAY 15, 2014, AND DPW REAL ESTATE SERVICES COMMENTS DATED MAY 6, 2014 ON THE FINAL PLAN SUBMISSION.
- RESERVATION OF PUBLIC UTILITY EASEMENTS
DEVELOPER RESERVES UNTO ITSELF, ITS SUCCESSORS AND ASSIGNS, ALL EASEMENTS SHOWN ON THIS PLAN FOR WATER, SEWER, STORM DRAINAGE, OTHER PUBLIC UTILITIES LOCATED IN, ON, OVER AND THROUGH LOTS 1-5 AND OPEN SPACE LOTS 6-7, ANY CONVEYANCES OF THE AFORESAID LOTS/PARCELS SHALL BE SUBJECT TO THE EASEMENTS HEREIN RESERVED, WHETHER OR NOT EXPRESSLY STATED IN THE DEED(S) CONVEYING SAID LOT(S)/PARCELS, UPON COMPLETION OF THE PUBLIC UTILITIES AND THEIR ACCEPTANCE BY HOWARD COUNTY, THE COUNTY SHALL ACCEPT THE EASEMENTS AND RECORD THE DEED(S) OF EASEMENT IN THE LAND RECORDS OF HOWARD COUNTY.
- THE PRIVATE MAINTENANCE ACCESS AGREEMENT FOR LOTS 1-5 SHALL BE RECORDED SIMULTANEOUSLY WITH THE RECORDATION OF THE PLAT.
- WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND SEWERAGE ALLOCATION WILL BE GRANTED AT TIME OF ISSUANCE OF BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- THE MODERATE INCOME HOUSING UNIT REQUIREMENT (COUNCIL BILL 35-2013) SHALL BE FULFILLED BY PAYMENT OF A FEE-IN-LIEU IN AN AMOUNT THAT IS TO BE CALCULATED BY THE DEPARTMENT OF INSPECTIONS LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT. THE FEE-IN-LIEU SHALL BE PAID FOR ALL LOTS/RESIDENTIAL UNITS WITHIN THIS SUBDIVISION AT TIME OF BUILDING PERMIT ISSUANCE.
- THE REQUIRED COMMUNITY MEETING FOR THIS PROJECT WAS HELD ON JANUARY 6, 2014.

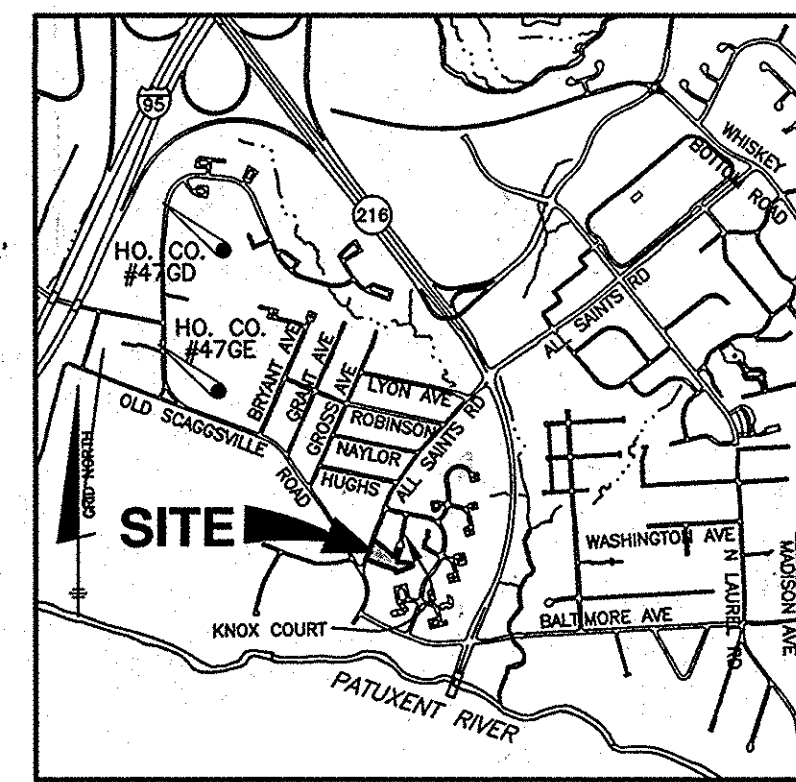
KNOX LANDING II

LOTS 1 thru 5 AND OPEN SPACE LOTS 6 and 7

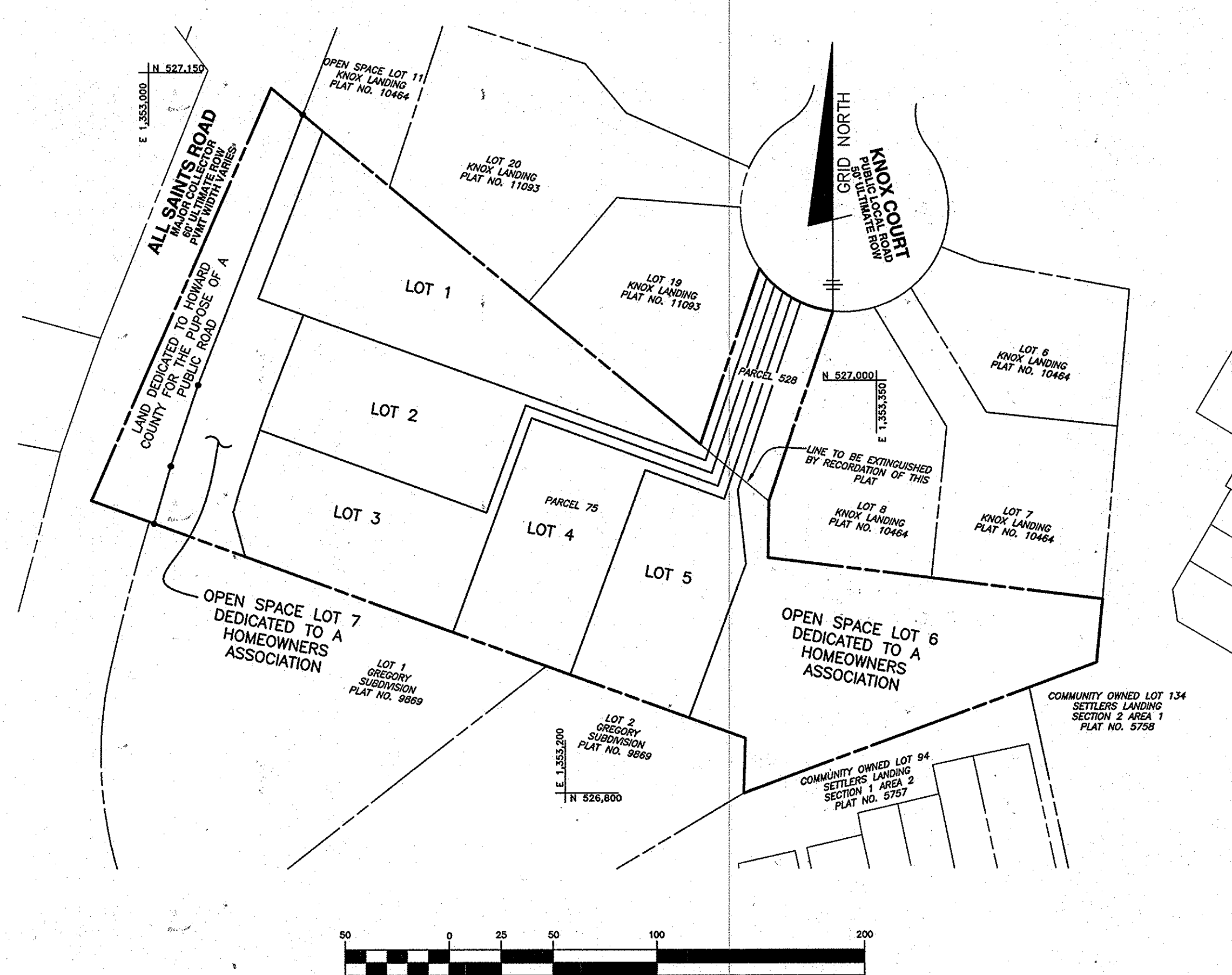
A SUBDIVISION OF PARCELS 75 AND 528

SUPPLEMENTAL PLANS

BENCH MARKS (NAD83)
 HO. CO. No. 479D ELEV. 312.32'
 NEAR 9028 OLD SCAGGSVILLE ROAD
 6 FEET FROM FIRE HYDRANT
 33.9 FEET FROM BGE 315258
 N 530494.447 E 1350872.301
 HO. CO. No. 479E ELEV. 335.756'
 BY 9160 OLD SCAGGSVILLE ROAD
 19.8 FEET FROM WATER METER
 76.5 FEET FROM BGE 31000
 N 529044.964 E 1350854.953

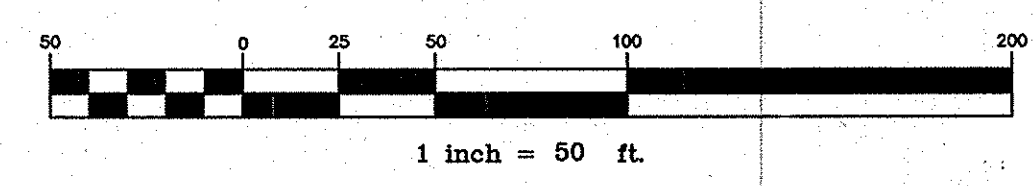


VICINITY MAP ADC MAP: 40
 SCALE: 1" = 2000' -ADC GRID: B8



| SHEET INDEX | |
|-------------|---|
| NO. | TITLE |
| 1 | TITLE SHEET |
| 2 | GRADING, SEDIMENT AND EROSION CONTROL PLAN |
| 3 | STORMWATER MANAGEMENT NOTES, CHARTS & DETAILS |
| 4 | STORM DRAIN DRAINAGE MAP, PROFILES & DETAILS |
| 5 | LANDSCAPE PLAN AND FCQN CALCULATIONS |

| Site Analysis Data Chart | | |
|---|----------------|------|
| Zoning | | R-SC |
| Gross Area | 1.54 ac | |
| 100Yr Floodplain | 0.00 ac | |
| Steep Slopes 25% or >(outside floodplain) | 0.00 ac | |
| Net Area | 1.54 ac | |
| Number of Buildable Lots/Units | 5 | |
| Area of Buildable Lots | 0.94 ac | |
| Area of Open Space Lots | 0.48 ac | |
| Area of Proposed Right-of-way Dedication | 0.12 ac | |
| Open Space Calculations | | |
| Area of Open Space Required (25%) | 0.39 ac | |
| Area of Open Space Provided | 0.48 ac | |
| Area of Non-Credited Open Space | 0.07 ac | |
| Area of Credited Open Space | 0.41 ac | |
| Recreational Open Space Required | NA | |
| Recreational Open Space Provided | | |



DESIGN NARRATIVE:

FOR THE PROPOSED IMPERVIOUS AREAS OF THIS SUBDIVISION, (M-6) MICRO BIO-RETENTION AND (N-2) DISCONNECTION OF NON-ROOFTOP RUNOFF HAS BEEN PROPOSED FOR TREATMENT.

NATURAL RESOURCE PROTECTION IS BEING ACHIEVED SINCE NO ENVIRONMENTAL AREAS OR BUFFERS ARE BEING DISTURBED BY THE PROPOSED DESIGN.

NATURAL FLOW PATTERNS HAVE BEEN PRESERVED BY PLACING THE ESD PRACTICES AROUND THE OUTER PERIMETER OF THE SITE AND HAVING THEM DISCHARGE ALONG THIS PERIMETER IN VARIOUS LOCATIONS AS OPPOSED TO ONE CONCENTRATED AREA. THIS SHALL MIMIC THE EXISTING CONDITION OF FLOW.

REDUCTION OF IMPERVIOUS AREAS HAS BEEN ACHIEVED BY UTILIZING THE NARROWEST POSSIBLE DRIVEWAY WIDTHS AS ALLOWED BY HOWARD COUNTY FOR A USE-IN-COMMON DRIVE.

SEDIMENT AND EROSION CONTROL SHALL MAINLY CONSIST OF DOUBLE ROW OF SUPER SILT FENCE AROUND THE PERIMETER. DIVERSION FENCING SHALL BE UTILIZED ALONG THE NORTH SIDE OF THE PROJECT TO DIVERT RUNOFF AROUND THE SITE. IT IS NOT ANTICIPATED THAT ANY SEDIMENT TRAPS WILL BE NEEDED.

AS A RESULT OF UTILIZING ENVIRONMENTAL SITE DESIGN (ESD) TO THE MAXIMUM EXTENT PRACTICAL (MEP), STORMWATER MANAGEMENT HAS BEEN ADEQUATELY ADDRESSED WITHOUT THE NEED FOR STRUCTURAL PRACTICES.

| ESD STORMWATER MANAGEMENT SUMMARY TABLE | | | | | | | | | | | | |
|---|-------|----------------|----------------------|------------------------------|----------|-----------------------------|----------|-----------------------|-------------|----------|----------|-----------|
| Practice | # | DA to practice | Imp Area to practice | Q ₁ = 0.33 inches | | ESD ₁ = 1705 cfs | | R _v = 0.28 | | REV | | Ownership |
| | | | | Required | Provided | 2% DA? | Required | Provided | Pe Provided | Required | Provided | |
| (M-6) MicroBioretention | #1 | 3,351 | 1,858 | 67 | 68 | PASS | 184 | 209 | 1.2 | | | Private |
| (M-6) MicroBioretention | #2 | 1,776 | 1,040 | 36 | 83 | PASS | 102 | 111 | 1.2 | | | Private |
| (M-6) MicroBioretention | #3 | 5,755 | 2,832 | 115 | 139 | PASS | 284 | 308 | 1.2 | | | Private |
| (M-6) MicroBioretention | #4 | 2,014 | 1,140 | 40 | 59 | PASS | 113 | 162 | 1.2 | | | Private |
| (M-6) MicroBioretention | #5 | 13,031 | 6,495 | 261 | 551 | PASS | 650 | 823 | 1.2 | | | Private |
| (N-2) Disc. of Non-Rooftop Runoff | Lot 3 | 1,243 | 1,243 | | | | | 93 | 1.0 | | | Private |
| Total Treated | | | 27,171 | 14,808 | 519 | 900 | 1,705 | 1,705 | 1.2 | 84 | 110 | |
| Site Total | | | 61,988 | 15,160 | | | | | | | | |

The 552 sf of impervious area that is left untreated is the area at the beginning portion of the use-in-common drive that drains back to the cul-de-sac. Total ESD_v provided meets that which is required.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Keith Deane 8-18-15
 CHIEF, DIVISION OF LAND DEVELOPMENT

Chad Chisholm 8-17-15
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22707, Expiration Date: 6-30-2017

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315 A ELLICOTT CITY, MARYLAND 21043
 (7) 410-465-8100 (7) 410-465-8644
 WWW.BE-CMDENGINEERING.COM

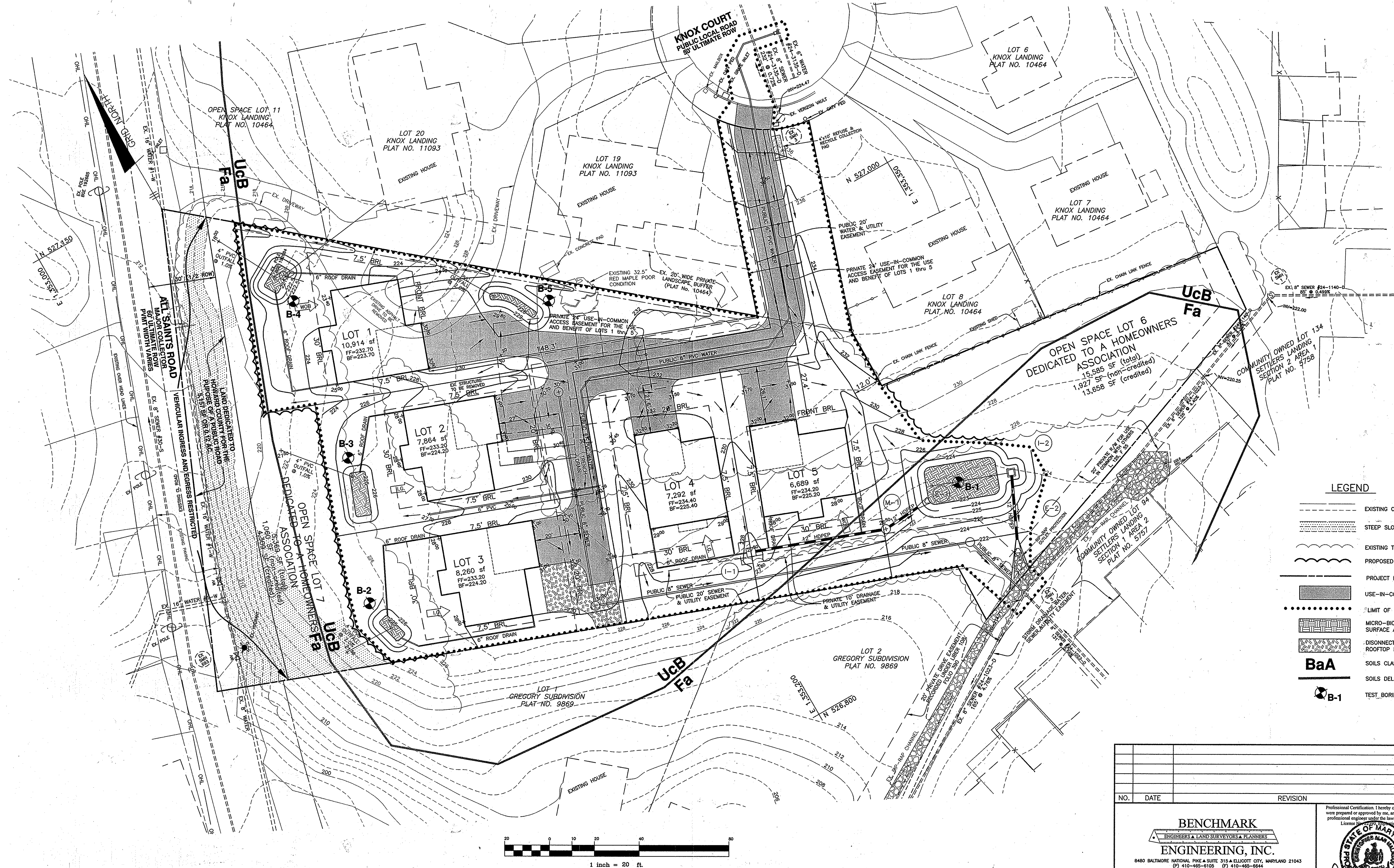
KNOX LANDING II
 LOTS 1 thru 5 AND OPEN SPACE LOTS 6 and 7
 A SUBDIVISION OF PARCELS 75 AND 528
 TAX MAP: 50 GRID: 2 PARCEL: 75 & 528 ZONED: R-SC
 ELECTION DISTRICT NO. 6 HOWARD COUNTY, MARYLAND

SUPPLEMENTAL PLAN
 TITLE SHEET

OWNER: CORNERSTONE HOLDINGS LLC
 9695 NORFOLK AVENUE
 LAUREL MARYLAND 20793
 410-792-2565

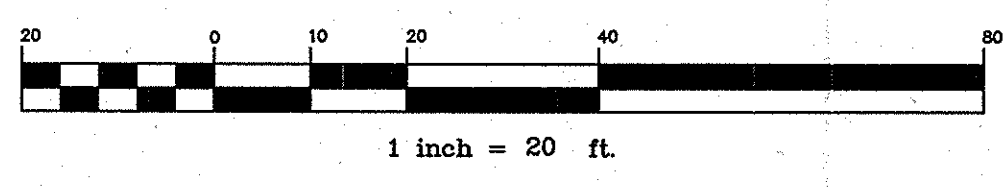
DEVELOPER: CORNERSTONE HOLDINGS LLC
 9695 NORFOLK AVENUE
 LAUREL MARYLAND 20793
 410-792-2565

DATE: AUGUST, 2015 BEI PROJECT NO: 2586
 SCALE: AS SHOWN SHEET 1 OF 5



LEGEND

- EXISTING CONTOURS
- STEEP SLOPES
- EXISTING TREELINE
- PROPOSED TREELINE
- PROJECT BOUNDARY LINE
- USE-IN-COMMON DRIVEWAY
- LIMIT OF DISTURBANCE
- MICRO-BIORETENTION SURFACE AREA
- DISCONNECTION OF NON-ROOFTOP RUNOFF
- SOILS CLASSIFICATION
- SOILS DELINEATION
- TEST BORING LOCATION



NOTE:
THIS PLAN CANNOT BE USED FOR A GRADING PERMIT.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Kevin S. ...
CHIEF, DIVISION OF LAND DEVELOPMENT **8/16/15**

Chad ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION **8-17-15**

| NRCS SOILS CHART - Map No. 28 | | | | |
|-------------------------------|--------|------------------|-----------------------|---|
| SYMBOL | HYDRIC | HYDROLOGIC GROUP | Kw erodibility Factor | NAME |
| Fa* | YES | D | 0.20 | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT |
| UcB | | D | 0.37 | URBAN LAND- CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES |

| | | |
|-----|------|----------|
| NO. | DATE | REVISION |
| | | |

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

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 172715, Expiration Date: 6-30-2017

OWNER:
CORNERSTONE HOLDINGS LLC
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20793
410-792-2585

DEVELOPER:
CORNERSTONE HOLDINGS LLC
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20793
410-792-2585

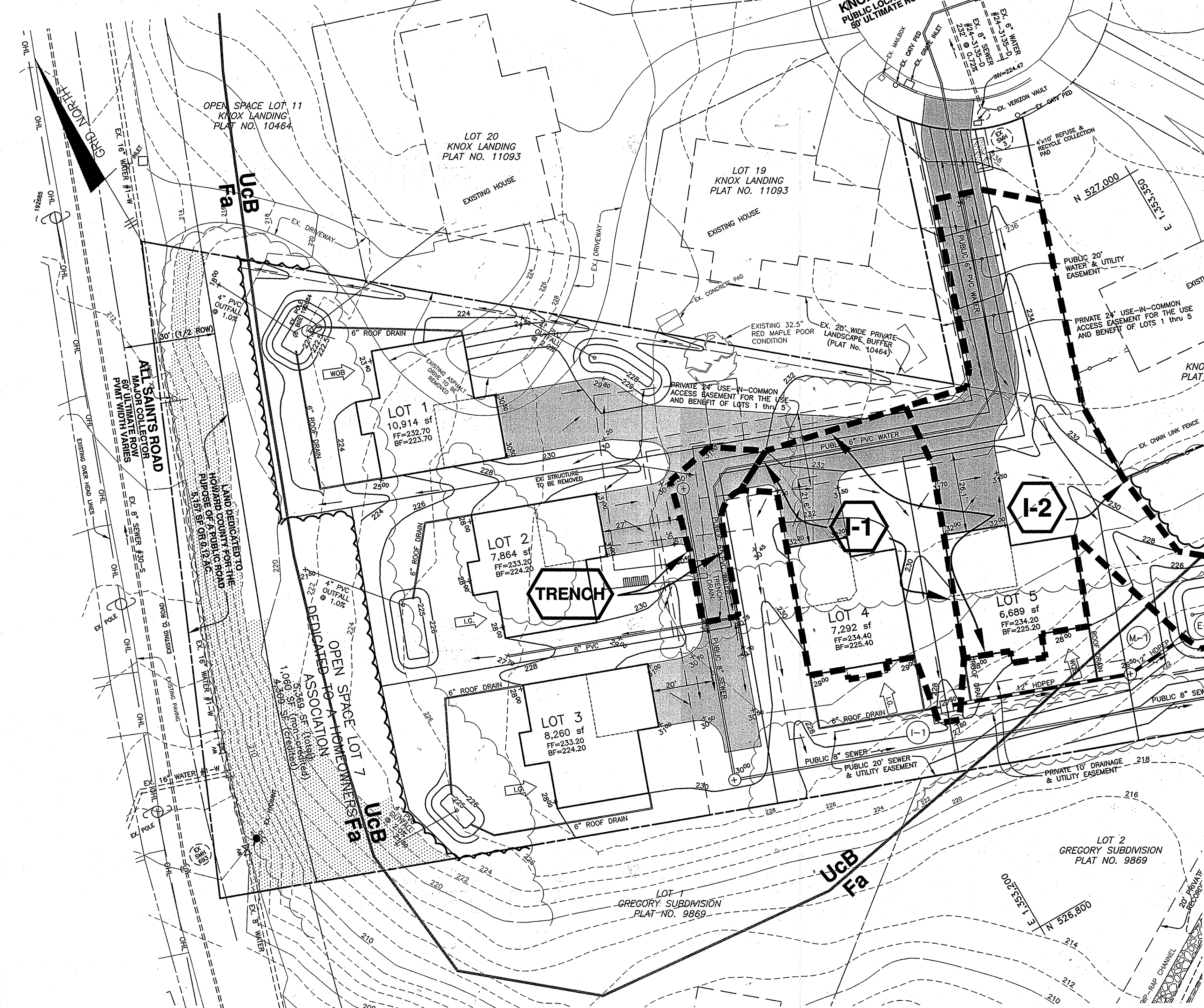
KNOX LANDING II
LOTS 1 thru 5 AND OPEN SPACE LOTS 6 and 7
A SUBDIVISION OF PARCELS 75 AND 258

TAX MAP: 50 GRID: 2 PARCEL: 75 & 528 ZONED: R-SC
9417 ALL SAINTS ROAD
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SUPPLEMENTAL GRADING PLAN

DATE: AUGUST, 2015 BEI PROJECT NO: 2586
SCALE: AS SHOWN SHEET: 2 OF 5

| NRCS SOILS CHART - Map No. 28 | | | | |
|-------------------------------|--------|------------------|-----------------------|--|
| SYMBOL | HYDRIC | HYDROLOGIC GROUP | Kw erodibility Factor | NAME |
| Fa* | YES | D | 0.20 | FALLSINGTON SANDY LOAM, 0 TO 2 PERCENT |
| UcB | | D | 0.37 | URBAN LAND-CHILLUM-BELTSVILLE COMPLEX, 0 TO 5 PERCENT SLOPES |



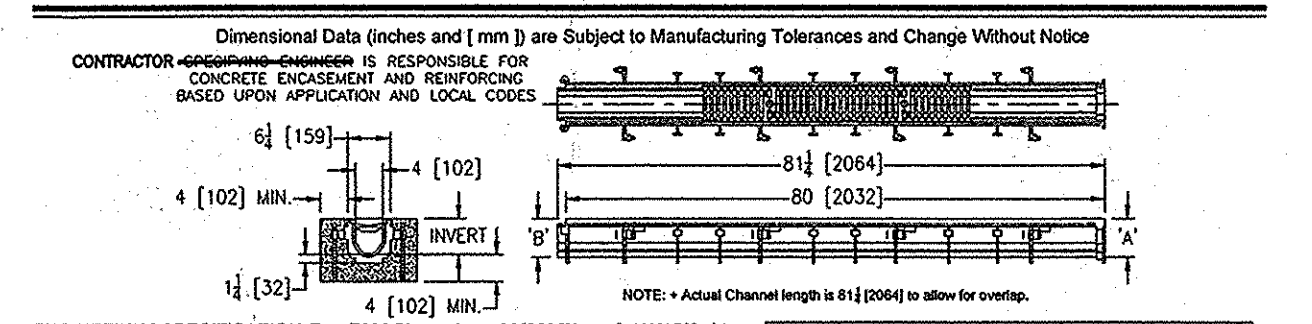
| STRUCTURE TABLE | | | | | | | | | | |
|-----------------|-----------|--------------------------|-------------|------------|-----------|--------------|-------------|-------------------|---------|--|
| STRUCTURE | TYPE | LOCATION | INVERT IN | INVERT OUT | TOP ELEV. | THROAT ELEV. | STD. DETAIL | MAINTENANCE | | |
| INLETS | | | | | | | | | | |
| I-1 | S | N 526876.37 E 1353209.34 | 424.45 (6") | - | 423.95 | 427.50 | NA | HO.CO.STD. D-4.22 | PRIVATE | |
| I-2 | S | N 526851.62 E 1353328.44 | 419.92 (4") | - | 419.92 | 424.00 | NA | HO.CO.STD. D-4.22 | PRIVATE | |
| MANHOLES | | | | | | | | | | |
| M-1 | 4" DIA | N 526855.35 E 1353266.61 | 423.34 | - | 423.24 | 426.50 | | HO.CO.STD. G-5.12 | PRIVATE | |
| END SECTIONS | | | | | | | | | | |
| E-1 | 12" HDPEP | N 526859.13 E 1353290.44 | - | - | 423.00 | NA | | NA | PRIVATE | |
| E-2 | 12" HDPEP | N 526818.63 E 1353313.15 | - | - | 419.50 | NA | | NA | PRIVATE | |

STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE MANHOLE RIM.
 STRUCTURE LOCATION FOR 'S' INLETS IS AT THE CENTER OF THE GRATE.
 STRUCTURE LOCATION FOR END SECTIONS IS AT THE MIDPOINT OF THE END OF THE STRUCTURE
 PRECAST STRUCTURES MEETING HS-20 LOADING MAY BE USED.

| PIPE SCHEDULE | | | |
|---------------|------------------------|---------------|-------------|
| SIZE | TYPE | LENGTH (L.F.) | MAINTENANCE |
| 4" | PVC (MB outfall pipes) | 125 | PRIVATE |
| 6" | PVC (trench drain) | 28 | PRIVATE |
| 6" | PVC (roof manhole) | 423 | PRIVATE |
| 12" | HDPEP | 121 | PRIVATE |

All pipes shall have smooth interior. No interior corrugations.

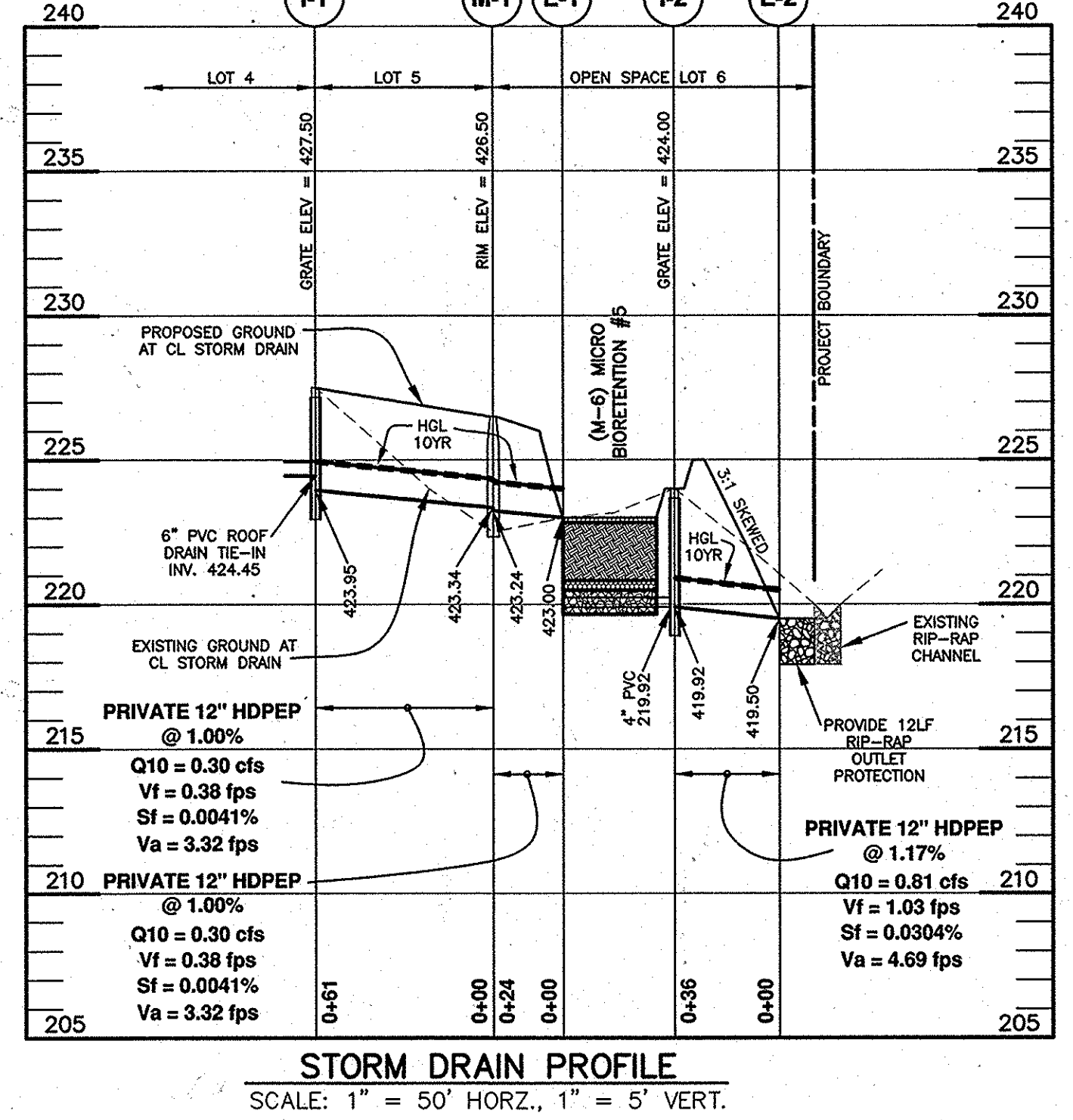
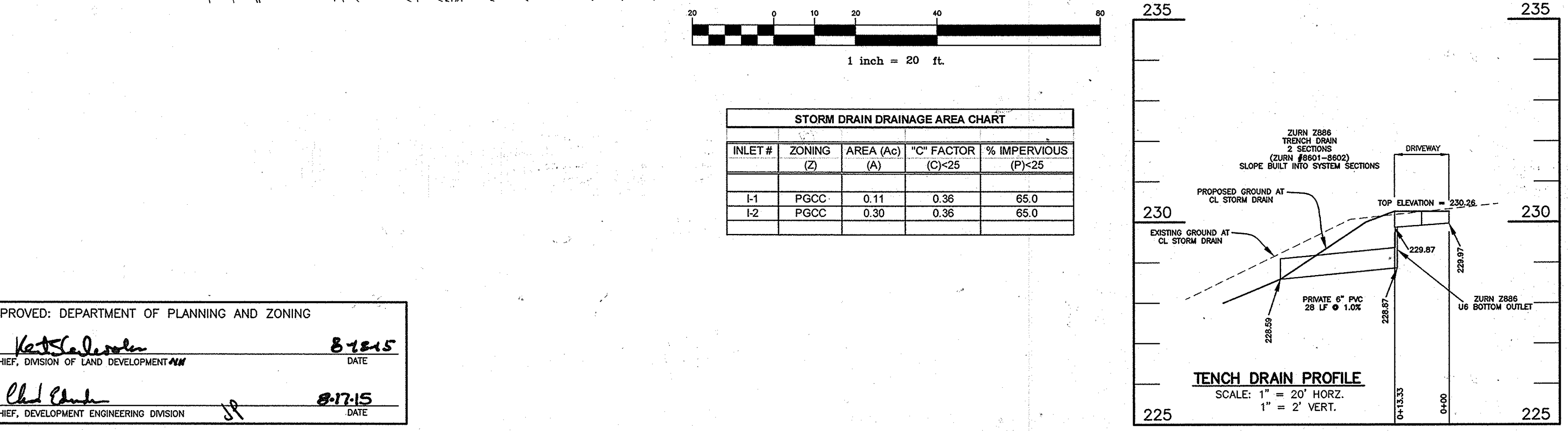
ZURN 2886
 6-1/4" [159] WIDE REVEAL TRENCH DRAIN SYSTEM
 SPECIFICATION SHEET TAG



ENGINEERING SPECIFICATION: Zurn 2886 Channels are made of 6063-T3 aluminum extruded to form a 6-1/4" wide reveal channel with a 1/2" deep U-shaped bottom. Channels have a positive mechanical connection between channel sections that will not separate during the installation and mechanically lock into the concrete support a minimum of every 10' (2540). Channels weigh less than 2.31 lbs (1.05 kg) per linear foot. Have a smooth, 1-1/2" (38) radius self-cleaning bottom with a minimum coefficient of friction of 0.05 and/or 0.08 built in slope. Channels have rebar clips attached to secure trench in its final location. Channels are provided with standard DGC - optional flat top cover with lockdown bars in the channel and flat top for dynamic traffic loadings. Zurn 2886 (1537) reveal ductile iron silted grate conforms to ASTM specification A536, Class 30-46. Ductile iron grate is rated class C per the DIN EN 1433 top load classifications. Supplied in 20' (6096) nominal lengths with 1/2" (12.7) wide slots and 3/4" (19.05) spacing depth. Grate has an open area of 25.1% in per ft. (80,308 sq. mm per meter).

| Trench No. | Shallow Inv. | Deep Inv. | (C/F) | Flow (GPM) |
|------------|--------------|-------------|-------|------------|
| 8801 | 3.50 (89) | 4.10 (104) | 0.21 | 93 |
| 8802 | 4.10 (104) | 4.70 (119) | 0.27 | 112 |
| 8803 | 4.70 (119) | 5.30 (135) | 0.34 | 132 |
| 8804 | 5.30 (135) | 5.90 (150) | 0.41 | 153 |
| 8805 | 5.90 (150) | 6.50 (165) | 0.48 | 174 |
| 8806 | 6.50 (165) | 7.10 (180) | 0.55 | 195 |
| 8807 | 7.10 (180) | 7.70 (195) | 0.62 | 216 |
| 8808 | 7.70 (195) | 8.30 (210) | 0.69 | 237 |
| 8809 | 8.30 (210) | 8.90 (225) | 0.76 | 258 |
| 8810 | 8.90 (225) | 9.50 (240) | 0.83 | 279 |
| 8811 | 9.50 (240) | 10.10 (255) | 0.90 | 300 |
| 8812 | 10.10 (255) | 10.70 (270) | 0.97 | 321 |
| 8813 | 10.70 (270) | 11.30 (285) | 1.04 | 342 |
| 8814 | 11.30 (285) | 11.90 (300) | 1.11 | 363 |
| 8815 | 11.90 (300) | 12.50 (315) | 1.18 | 384 |

- Outlet/Access Add/Each
- E1 Closed End Cap
 - E2 1/2" No-Hub End Outlet
 - E3 3/4" No-Hub End Outlet
 - E4 1" No-Hub End Outlet
 - E5 1 1/2" No-Hub End Outlet
- Frame/Grates
- FR01 Aluminum Veneer Bronze Anodized Frame
 - FR02 Type 304 Stainless Steel Top View Frame
 - FR03 Sidewall Extension - 8" (203) High
 - FR04 Sidewall Extension - 16" (407) High
 - FR05 Aluminum Veneer Bronze Anodized Frame
 - FR06 Ductile Iron Circular Decorative Grate - Class C
 - FR07 Ductile Iron Square Decorative Grate - Class C
 - FR08 Ductile Iron Square Decorative Grate - Class B
 - FR09 Ductile Iron Square Decorative Grate - Class A
 - FR10 Ductile Iron Square Decorative Grate - Class A
 - FR11 Ductile Iron Square Decorative Grate - Class A
 - FR12 Ductile Iron Square Decorative Grate - Class A
 - FR13 Ductile Iron Square Decorative Grate - Class A
 - FR14 Ductile Iron Square Decorative Grate - Class A
 - FR15 Ductile Iron Square Decorative Grate - Class A
 - FR16 Ductile Iron Square Decorative Grate - Class A
 - FR17 Ductile Iron Square Decorative Grate - Class A
 - FR18 Ductile Iron Square Decorative Grate - Class A
 - FR19 Ductile Iron Square Decorative Grate - Class A
 - FR20 Ductile Iron Square Decorative Grate - Class A
 - FR21 Ductile Iron Square Decorative Grate - Class A
 - FR22 Ductile Iron Square Decorative Grate - Class A
 - FR23 Ductile Iron Square Decorative Grate - Class A
 - FR24 Ductile Iron Square Decorative Grate - Class A
 - FR25 Ductile Iron Square Decorative Grate - Class A
 - FR26 Ductile Iron Square Decorative Grate - Class A
 - FR27 Ductile Iron Square Decorative Grate - Class A
 - FR28 Ductile Iron Square Decorative Grate - Class A
 - FR29 Ductile Iron Square Decorative Grate - Class A
 - FR30 Ductile Iron Square Decorative Grate - Class A
 - FR31 Ductile Iron Square Decorative Grate - Class A
 - FR32 Ductile Iron Square Decorative Grate - Class A
 - FR33 Ductile Iron Square Decorative Grate - Class A
 - FR34 Ductile Iron Square Decorative Grate - Class A
 - FR35 Ductile Iron Square Decorative Grate - Class A
 - FR36 Ductile Iron Square Decorative Grate - Class A
 - FR37 Ductile Iron Square Decorative Grate - Class A
 - FR38 Ductile Iron Square Decorative Grate - Class A
 - FR39 Ductile Iron Square Decorative Grate - Class A
 - FR40 Ductile Iron Square Decorative Grate - Class A
 - FR41 Ductile Iron Square Decorative Grate - Class A
 - FR42 Ductile Iron Square Decorative Grate - Class A
 - FR43 Ductile Iron Square Decorative Grate - Class A
 - FR44 Ductile Iron Square Decorative Grate - Class A
 - FR45 Ductile Iron Square Decorative Grate - Class A
 - FR46 Ductile Iron Square Decorative Grate - Class A
 - FR47 Ductile Iron Square Decorative Grate - Class A
 - FR48 Ductile Iron Square Decorative Grate - Class A
 - FR49 Ductile Iron Square Decorative Grate - Class A
 - FR50 Ductile Iron Square Decorative Grate - Class A
 - FR51 Ductile Iron Square Decorative Grate - Class A
 - FR52 Ductile Iron Square Decorative Grate - Class A
 - FR53 Ductile Iron Square Decorative Grate - Class A
 - FR54 Ductile Iron Square Decorative Grate - Class A
 - FR55 Ductile Iron Square Decorative Grate - Class A
 - FR56 Ductile Iron Square Decorative Grate - Class A
 - FR57 Ductile Iron Square Decorative Grate - Class A
 - FR58 Ductile Iron Square Decorative Grate - Class A
 - FR59 Ductile Iron Square Decorative Grate - Class A
 - FR60 Ductile Iron Square Decorative Grate - Class A
 - FR61 Ductile Iron Square Decorative Grate - Class A
 - FR62 Ductile Iron Square Decorative Grate - Class A
 - FR63 Ductile Iron Square Decorative Grate - Class A
 - FR64 Ductile Iron Square Decorative Grate - Class A
 - FR65 Ductile Iron Square Decorative Grate - Class A
 - FR66 Ductile Iron Square Decorative Grate - Class A
 - FR67 Ductile Iron Square Decorative Grate - Class A
 - FR68 Ductile Iron Square Decorative Grate - Class A
 - FR69 Ductile Iron Square Decorative Grate - Class A
 - FR70 Ductile Iron Square Decorative Grate - Class A
 - FR71 Ductile Iron Square Decorative Grate - Class A
 - FR72 Ductile Iron Square Decorative Grate - Class A
 - FR73 Ductile Iron Square Decorative Grate - Class A
 - FR74 Ductile Iron Square Decorative Grate - Class A
 - FR75 Ductile Iron Square Decorative Grate - Class A
 - FR76 Ductile Iron Square Decorative Grate - Class A
 - FR77 Ductile Iron Square Decorative Grate - Class A
 - FR78 Ductile Iron Square Decorative Grate - Class A
 - FR79 Ductile Iron Square Decorative Grate - Class A
 - FR80 Ductile Iron Square Decorative Grate - Class A
 - FR81 Ductile Iron Square Decorative Grate - Class A
 - FR82 Ductile Iron Square Decorative Grate - Class A
 - FR83 Ductile Iron Square Decorative Grate - Class A
 - FR84 Ductile Iron Square Decorative Grate - Class A
 - FR85 Ductile Iron Square Decorative Grate - Class A
 - FR86 Ductile Iron Square Decorative Grate - Class A
 - FR87 Ductile Iron Square Decorative Grate - Class A
 - FR88 Ductile Iron Square Decorative Grate - Class A
 - FR89 Ductile Iron Square Decorative Grate - Class A
 - FR90 Ductile Iron Square Decorative Grate - Class A
 - FR91 Ductile Iron Square Decorative Grate - Class A
 - FR92 Ductile Iron Square Decorative Grate - Class A
 - FR93 Ductile Iron Square Decorative Grate - Class A
 - FR94 Ductile Iron Square Decorative Grate - Class A
 - FR95 Ductile Iron Square Decorative Grate - Class A
 - FR96 Ductile Iron Square Decorative Grate - Class A
 - FR97 Ductile Iron Square Decorative Grate - Class A
 - FR98 Ductile Iron Square Decorative Grate - Class A
 - FR99 Ductile Iron Square Decorative Grate - Class A
 - FR00 Ductile Iron Square Decorative Grate - Class A



Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 2386.

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS, INC.
 8480 BALTIMORE NATIONAL PIKE A SUITE 315 & ELLIOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BE-CMLEENGINEERING.COM

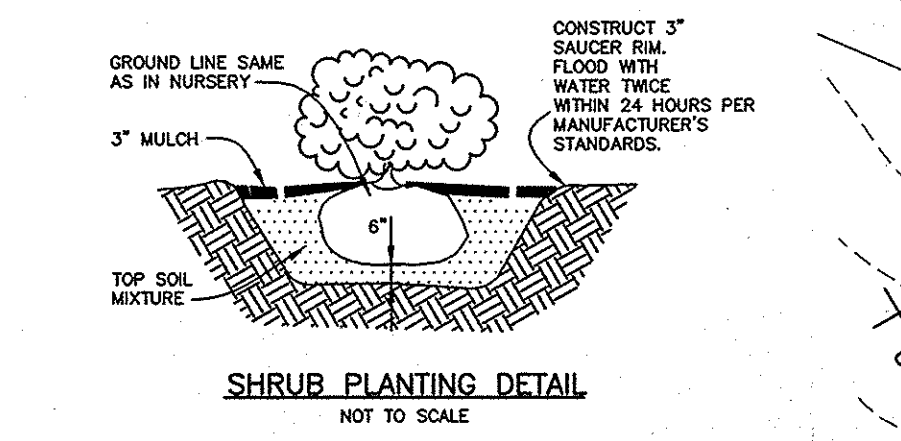
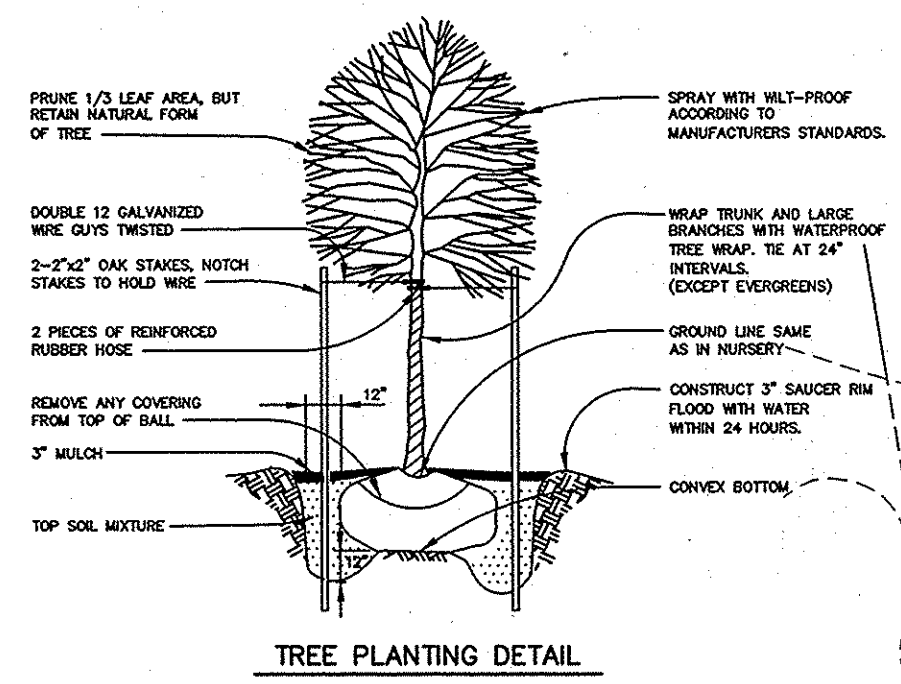
OWNER: CORNERSTONE HOLDINGS LLC
 3695 NORFOLK AVENUE
 LAUREL, MARYLAND 20793
 410-792-2565

DEVELOPER: CORNERSTONE HOLDINGS LLC
 3695 NORFOLK AVENUE
 LAUREL, MARYLAND 20793
 410-792-2565

KNOX LANDING II
 LOTS 1 thru 5 AND OPEN SPACE LOTS 6 and 7
 A SUBDIVISION OF PARCELS 75 AND 528
 TAX MAP: 50 GRID: 2 PARCEL: 75 & 528 ZONED: R-SC
 8-417 ALL SAINTS ROAD
 ELECTION DISTRICT NO. 6
 HOWARD COUNTY, MARYLAND

SUPPLEMENTAL STORM DRAIN DRAINAGE MAP, PROFILES & DETAILS

DATE: AUGUST, 2015 BEI PROJECT NO: 2586
 SCALE: AS SHOWN SHEET 4 OF 5



FOREST CONSERVATION WORKSHEET

5-Aug-02

NET TRACT AREA:

| | |
|--|------|
| A. Total tract area | 1.54 |
| B. Land dedication acres (parks, county facility, etc.) | 0.00 |
| C. Land dedication for roads or utilities (not being constructed by this plan) | 0.00 |
| D. Area to remain in commercial agricultural production/use | 0.00 |
| E. Other deductions (specify) FLOODPLAIN | 0.00 |
| F. Net Tract Area | 1.54 |

LAND USE CATEGORY: (from Trees Technical Manual)
Input the number "1" under the appropriate land use, limit to only one entry.

| | | | | | |
|-----|-----|-----|-----|-----|-----|
| ARA | MDR | IDA | HDR | MPD | CIA |
| 0 | 0 | 0 | 1 | 0 | 0 |

G. Afforestation Threshold ... 15% x F = 0.23
H. Conservation Threshold ... 20% x F = 0.31

EXISTING FOREST COVER:

| | |
|---|------|
| J. Existing forest cover | 0.60 |
| I. Area of forest above afforestation threshold | 0.37 |
| K. Area of forest above conservation threshold | 0.29 |

BREAK EVEN POINT:

| | |
|--|------|
| L. Forest retention above threshold with no mitigation | 0.37 |
| M. Clearing permitted without mitigation | 0.23 |

PROPOSED FOREST CLEARING:

| | |
|--|------|
| N. Total area of forest to be cleared | 0.60 |
| O. Total area of forest to be retained | 0.00 |

PLANTING REQUIREMENTS:

| | |
|--|------|
| P. Reforestation for clearing above conservation threshold | 0.07 |
| Q. Reforestation for clearing below conservation threshold | 0.62 |
| R. Credit for retention above conservation threshold | 0.00 |
| S. Total reforestation required | 0.69 |
| T. Total afforestation required | 0.00 |
| U. Credit for landscaping (may not exceed 20% of "S") | 0.00 |
| V. Total reforestation and afforestation required | 0.69 |

NOTE: THE FOREST CONSERVATION OBLIGATION AMOUNT OF 0.69 ACRES SHALL BE MET BY OFFSITE WITHIN THE FOREST MITIGATION BANK ESTABLISHED WITHIN PARK OVERLOOK SUBDIVISION (F-13-093) RECORDED AS PLAT #22785-22788.

Eco-Science Professionals, Inc.
CONSULTING EC02022523
P.O. Box 5056 Glen Arde, MD 21097 (410) 592-4752
MD 2002 Qualified Professional
USACE/USFWS Registered Professional
Certification # 1000000454433
2015
2015
2015

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AND LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION OF A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

B. R. B. 7/29/15
DEVELOPER DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

W. D. ... 8/1/15
CHIEF, DIVISION OF LAND DEVELOPMENT AND ZONING DATE

Chad ... 8-17-15
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

SCHEDULE A PERIMETER LANDSCAPE EDGE

| CATEGORY | ADJACENT TO ROADWAY (1) | ADJACENT TO PERIM. PROPERTY (2) | ADJACENT TO PERIM. PROPERTY (3) | ADJACENT TO PERIM. PROPERTY (4) | ADJACENT TO PERIM. PROPERTY (5) | ADJACENT TO PERIM. PROPERTY (6) | ADJACENT TO TRASH PAD | TOTALS |
|--|--|---------------------------------|--|---------------------------------|---------------------------------|---------------------------------|--|-----------|
| LANDSCAPE TYPE | B - MODERATE 1:50 shade 1:40 evergreen | A - LIGHT 1:80 shade | D - SCREEN 1:60 shade 1:10 evergreen | A - LIGHT 1:60 shade | A - LIGHT 1:60 shade | A - LIGHT 1:60 shade | B - MODERATE 1:50 shade 1:40 evergreen | |
| LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER | 211 LF | 250 LF | 90 LF | 125 LF | 430 LF | 274 LF | 28 LF | 10+10+4+4 |
| CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | 125 LF | NO | NO | NO | YES* 228 LF | YES* 47 LF | NO | |
| CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED) | NO | NO | NO | NO | NO | NO | NO | |
| NUMBER OF PLANTS PROVIDED | 91 LF | 250 LF | 90 LF | 125 LF | 202 LF | 227 LF | 28 LF | |
| SHADE TREES | 2 | 4 | 2 | 2 | 3 | 4 | 1 | 18 |
| EVERGREEN TREES | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 12 |
| OTHER TREES (2:1 SUBSTITUTE) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SHRUBS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NUMBER OF PLANTS PROVIDED | 2 | 4 | 0 | 5 | 3 | 1 | 0 | 15 |
| SHADE TREES | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 15 |
| EVERGREEN TREES | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OTHER TREES (2:1 SUBSTITUTE) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SHRUBS (10:1 SUBSTITUTE) | 0 | 0 | 0 | 0 | 0 | 0 | 20** | 20 |

* CREDIT BASED ON EXISTING LANDSCAPING 20' OR GREATER IN WIDTH ALONG PROPERTY BOUNDARY
~ EVERGREEN TREES HAVE BEEN SUBSTITUTED FOR THE SHADE TREE REQUIREMENT AT A 2:1 RATIO.
** SHRUBS HAVE BEEN SUBSTITUTED AT A 10:1 RATIO.
13 OF THE REQUIRED TREES FOR PERIMETER 6 HAVE BEEN RELOCATED ALONG PERIMETER 4 FOR ADDITIONAL SCREENING ALONG THE USE-IN-COMMON DRIVE.

PERIMETER LANDSCAPE PLANTING LIST

| SYMBOL | QUANTITY | NAME | REMARKS | DESCRIPTION |
|----------|----------|--|----------------|--|
| (Symbol) | 15 | TILIA CORDATA "GREENSPIRE" (Greenspire Littleleaf Linden) | 2.5' - 3' cal. | SHADE TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE BUILDER. |
| (Symbol) | 20 | JUNIPERUS CHINENSIS (Pfitzerana Compacta) Compact Pfitzer Juniper | 2' - 2.5' hgt. | NEEDLE EVERGREEN SHRUB PLANTED AROUND PERIMETER TO BE PROVIDED BY THE BUILDER. |
| (Symbol) | 15 | ILEX OPACA (American Holly) | 5' - 6' ht. | EVERGREEN TREES ALONG PERIMETER EDGES TO BE PROVIDED BY THE BUILDER. |

LANDSCAPE NOTES:

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATIONS.
- THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
- THE PUBLIC SEWER EASEMENT LOCATED ALONG THE P-6 PERIMETER LIMITS THE AREA WHERE TREES CAN BE PLANTED. THREE OF THE TREES REQUIRED FOR THIS PERIMETER SHALL INSTEAD BE PLANTED ALONG THE P-4 PERIMETER.
- FINANCIAL SURETY IN THE AMOUNT OF \$7,200.00 FOR THE REQUIRED PERIMETER LANDSCAPING SHALL BE POSTED AS PART OF THE GRADING PERMIT UNDER THE SITE DEVELOPMENT PLAN.

SEE SHEET 4 FOR INTERNAL SWMF PLANTING

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
ENGINEERS & LAND SURVEYORS & PLANNERS
8480 BALTIMORE NATIONAL PIKE & SUITE 315 & ELLIOTT CITY, MARYLAND 21043
(P) 410-465-8105 (F) 410-465-8644
WWW.BEI-CVLEENGINEERING.COM

OWNER: CORNERSTONE HOLDINGS LLC
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20793
410-792-2565

DEVELOPER: CORNERSTONE HOLDINGS LLC
9695 NORFOLK AVENUE
LAUREL, MARYLAND 20793
410-792-2565

KNOX LANDING II
LOTS 1 thru 5 AND OPEN SPACE LOTS 6 AND 7
A SUBDIVISION OF PARCELS 75 AND 258

TAX MAP: 50 GRID: 2 PARCEL: 75 & 528 ZONED: R-SC
9417 ALL SAINTS ROAD
ELECTION DISTRICT NO. 6
HOWARD COUNTY, MARYLAND

SUPPLEMENTAL LANDSCAPE PLAN AND FOREST CONSERVATION WORKSHEET

DATE: AUGUST, 2015 BEI PROJECT NO: 2586
SCALE: AS SHOWN SHEET 5 OF 5

DESIGN: DBT DRAWN: DBT