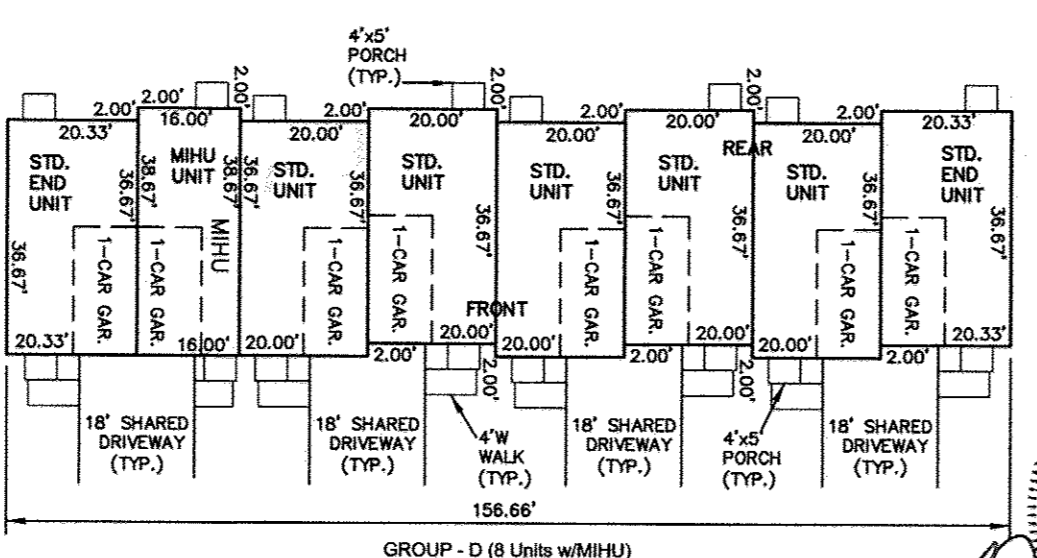
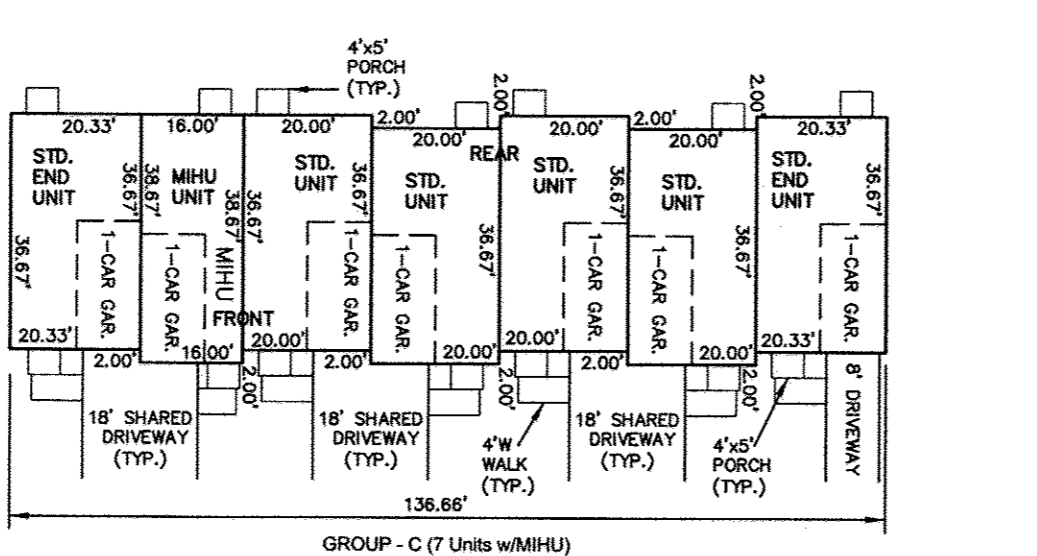
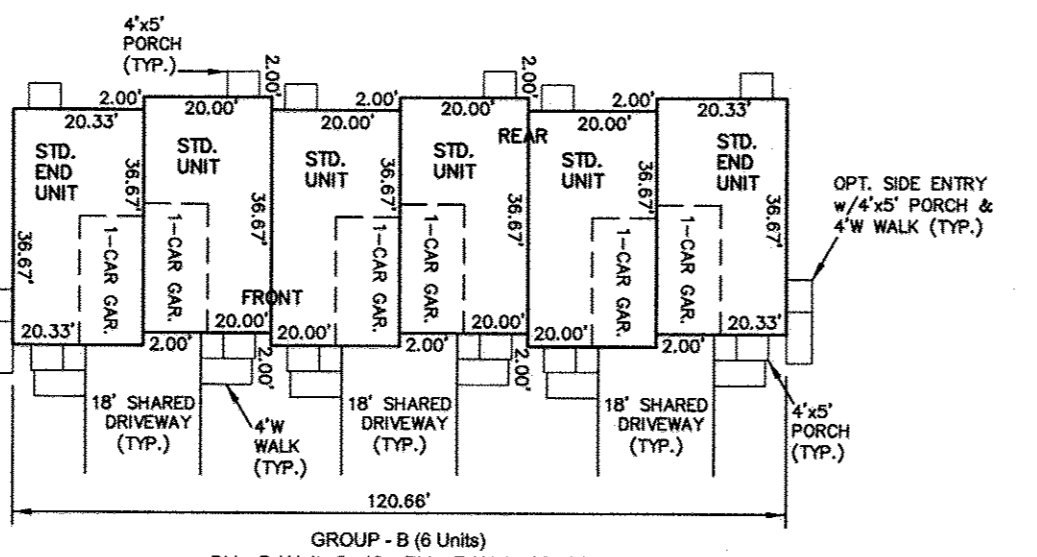
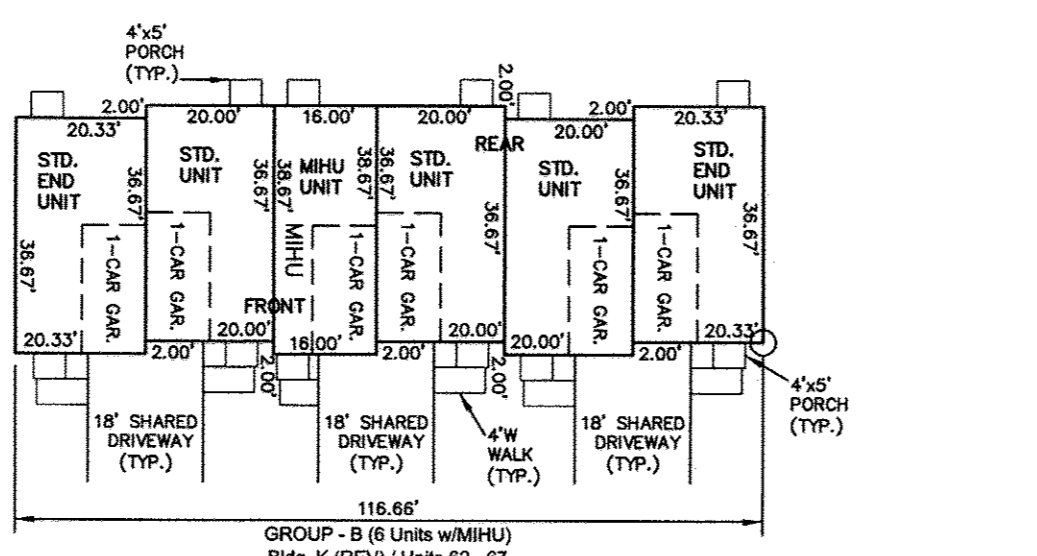
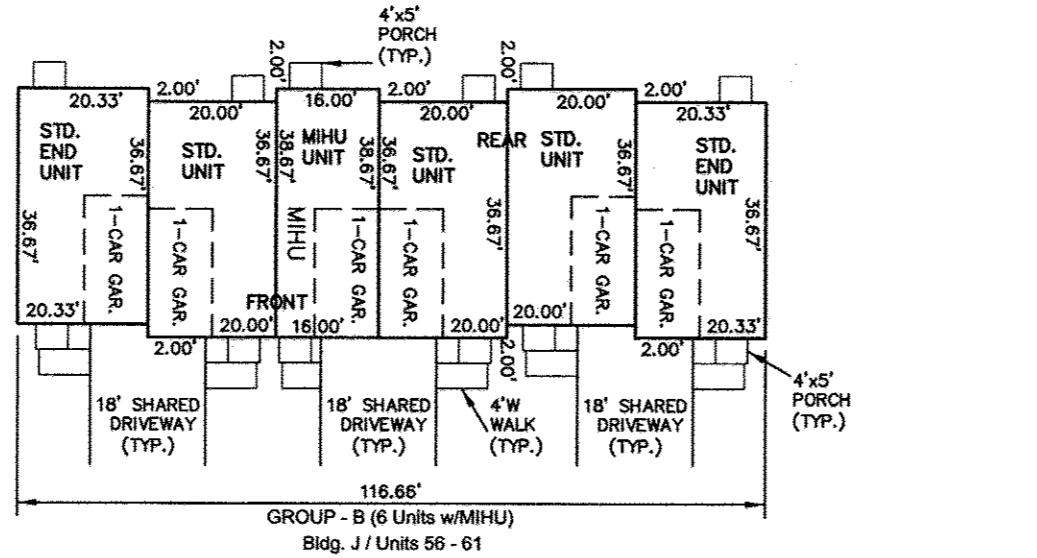
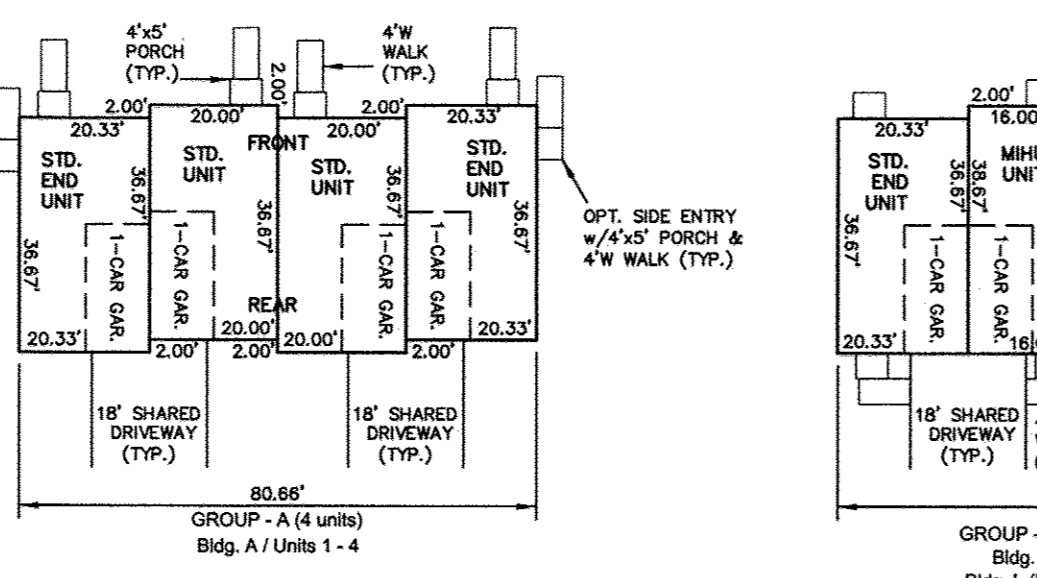
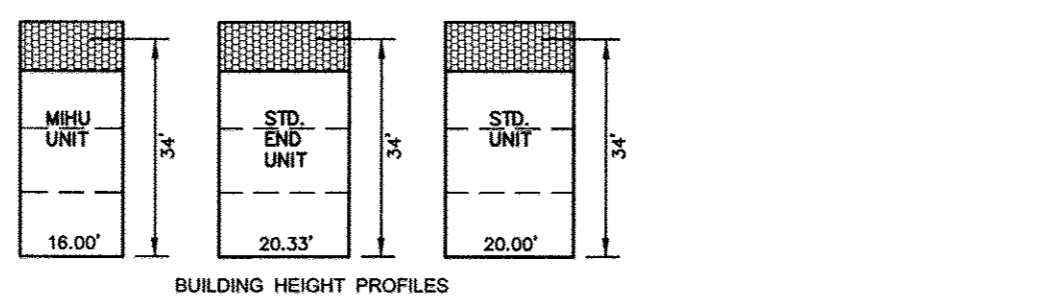


GENERAL NOTES

- SUBJECT PROPERTY ZONED R-A-15 PER THE 2-2-04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING AMENDMENTS EFFECTIVE 7-28-08.
- THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION & LAND DEVELOPMENT REGULATIONS AND THE ZONING REGULATIONS EFFECTIVE APRIL, 2007.
- TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD-RUN TOPOGRAPHIC SURVEY PERFORMED BY BENCHMARK ENGINEERING DATED SEPTEMBER, 2011 AND SUPPLEMENTED WITH HOWARD COUNTY GIS CONTOURS ARE AT 2' INTERVALS.
- 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. #0066 AND #2485 WERE USED FOR THIS PROJECT.
- TRACT BOUNDARY IS BASED ON A FIELD BOUNDARY SURVEY PERFORMED ON OR ABOUT SEPTEMBER, 2011 BY BENCHMARK ENGINEERING, INC.
- THERE ARE NO STEEP SLOPES (20% OR GREATER) IN EXCESS 20,000 S.F. ON THIS SITE.
- A FOREST STAND DELINEATION WAS PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC., DATED AUGUST 2012.
- A WETLANDS DELINEATION REPORT WAS PREPARED BY GEO-TECHNOLOGY ASSOCIATES, INC. DATED AUGUST, 2012.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERIES LOCATED ON THIS SITE.
- A NOISE STUDY IS NOT REQUIRED FOR THIS DEVELOPMENT.
- THIS SITE IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- THERE ARE NO HISTORIC SITES/FEATURES LOCATED ON THIS SITE.
- EXISTING UTILITIES SHOWN HAVE BEEN TAKEN FROM CONTRACT DRAWINGS AND FIELD SURVEY LOCATIONS. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND ERM ELEVATIONS AS NEEDED TO MATCH THIS PLAN.
- THIS SUBDIVISION IS SUBJECT TO SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC WATER AND/OR SEWER ALLOCATIONS WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.
- WATER AND SEWER SERVICE SHALL BE PUBLIC, CONNECTING TO EXISTING CONTRACTS UNDER CONTRACT NO.14-4767-D; DRAINAGE AREA IS WITHIN THE LITTLE PATUXENT RIVER WATERSHED.
- MAA APPROVAL IS NOT REQUIRED FOR THIS DEVELOPMENT.
- THE APFO TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY MARS GROUP, INC. DATED MARCH, 2013 AND APPROVED UNDER THIS SDP ON AUGUST 21, 2013.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" @ 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THERE ARE NO WETLANDS, STREAMS, 100-YEAR FLOODPLAIN OR STEEP SLOPES LOCATED ON THIS SITE. THERE IS APPROXIMATELY 0.1 ACRES OF STREAM BANK BUFFER ASSOCIATED WITH THE FIRST ORDER PERENNIAL STREAM LOCATED ON THE ADJOINING PARCEL 647, LOT 1 ALONG THE NORTHERN BOUNDARY.
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE STREAMS, OR THEIR REQUIRED BUFFERS UNLESS DEMONSTRATED BY THE DEPARTMENT OF PLANNING AND ZONING.
- THE FOREST CONSERVATION EASEMENT HAS BEEN ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 18.1200 OF THE HOWARD COUNTY CODE AND FOREST CONSERVATION ACT. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT; HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED.
- FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH THE FOREST CONSERVATION MANUAL SHALL BE FULFILLED BY: RE-FORESTATION OF 2.9 ACRES TO MEET THIS REQUIREMENT. THE DEVELOPER HAS PURCHASED 8.5 ACRES (2:1 RATIO) OF OFF-SITE FOREST RETENTION FROM AN APPROVED FOREST CONSERVATION BANK. AN EASEMENT HAS BEEN FURNISHED AT THE PROPERTY OF DENSITY SOLUTIONS, L.L.C. UNDER SDP-13-054. NO SURVEY IS REQUIRED FOR RETENTION.
- PERIMETER LANDSCAPING, UNIT PLANTINGS, TRASH PAD SCREENING AND STREET TREE PLANTINGS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 18.124 OF THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$40,380.00 FOR 78 SHADE TREES, 70 EVERGREENS, AND 216 SHRUBS SHALL BE POSTED WITH THE DEVELOPER AGREEMENT FOR THIS SITE DEVELOPMENT PLAN. SDP-13-054.
- STORMWATER MANAGEMENT FOR THIS PROJECT IS PROVIDED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT ACT OF 2007. ENVIRONMENTAL SITE DESIGN (ESD) HAS BEEN IMPLEMENTED TO THE MAXIMUM EXTENT PRACTICAL (MEP) BY THE USE OF DRY WELLS (M-S), MICRO-BIORETENTION (M-B), AND PRACTICAL UTILIZATION OF DISCONNECTION OF IMPERVIOUS RUNOFF (M-2). ALL ESD PRACTICES SHALL BE PRIVATELY OWNED AND MAINTAINED.
- TRAFFIC CONTROL DEVICES SHOWN ON THESE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO INSTALLATION.
- ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED (QUICK PUNCH), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- PRIVATE RANGE OF ADDRESS SIGNAGE ASSEMBLY SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-5752 FOR DETAILS AND COST ESTIMATES.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
- ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- STREET LIGHT PLACEMENT AND TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME II (2006), SECTION 5.5.A. A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- ALL AREAS OF CONTROLLED FILL TO BE AT A MINIMUM COMPACTED TO 95% RELATIVE DENSITY TO MAINTAIN EASEMENT ACCESS.
- UNLESS OTHERWISE NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
- BRL INDICATES BUILDING RESTRICTION LINE.
- WAVER PETITION WP-13-146 WAS APPROVED ON JUNE 27, 2013 TO WAIVE SECTION 16.1205(A)(7) OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS TO ALLOW FOR THE REMOVAL OF SPECIMEN TREES HAVING A DIAMETER OF 30" OR GREATER PER THE FOLLOWING CONDITIONS: THE DEVELOPER SHALL BE REQUIRED TO PROVIDE A CERTIFIED PLAN BY A LANDSCAPE ARCHITECT UNDER THE SITE DEVELOPMENT PLAN (SDP-13-054) WHICH WILL ENSURE THAT PERMITTED OPEN SPACE, STORMWATER MANAGEMENT AND LANDSCAPING ARE DESIGNED TO OPTIMIZE AND ENHANCE THE USABILITY OF PROPOSED RECREATIONAL AND COMMUNITY OPEN SPACE AREAS.
- A DESIGN MANUAL WAIVER WAS APPROVED ON JUNE 18, 2013 TO WAIVE SDP, R.1.03 OF THE HOWARD COUNTY DESIGN MANUAL VOL. IV TO ALLOW FOR THE USE OF A MODIFIED SECTION FOR PUBLIC ROWWAY IMPROVEMENTS WITHIN THE METROPOLITAN DISTRICT AND TO ALLOW FOR THE MINIMUM LENGTH OF HORIZONTAL CURVE TO BE LESS THAN THE MINIMUM REQUIRED FOR A PRIVATE ROAD PER THE FOLLOWING CONDITIONS: 1) THE JUSTIFICATION PROVIDED BY BENCHMARK ENGINEERS IN LETTER 2; 2) THE ROAD IS PRIVATE. THE GRADING OF THIS WAIVER WILL NOT IMPACT THE COUNTY'S ROAD AND STORM DRAINAGE INFRASTRUCTURE; AND 3) ADD A GENERAL NOTE IN THE COVER SHEET OF SDP-13-054 TO STATE, FIRE LANE MAY BE REQUIRED TO MAINTAIN EASEMENT ACCESS.
- THIS PROJECT IS SUBJECT TO THE VARIANCE UNDER THE BOARD OF APPEALS CASE #BA-13-006V DECIDED ON APRIL 25, 2013 TO ALLOW FOR: REDUCTION OF THE REQUIRED SETBACKS BETWEEN DWELLING UNITS (SPECIFICALLY FROM 60 FEET TO 38.5 FEET FOR REAR TO REAR AND FROM 100 FEET TO 67 FEET FOR FACE TO REAR); AND TO REDUCE RESTRICTION LINES FOR MULTIPLE SETBACK VARIANCES RELATED TO A PROPOSED SINGLE-FAMILY ATTACHED DWELLING DEVELOPMENT IN AN R-A-15 (RESIDENTIAL-APARTMENTS) ZONING DISTRICT IS HEREBY GRANTED, PROVIDED HOWEVER THAT: 1) THE VARIANCES SHALL APPLY ONLY TO THE USES AND STRUCTURES AS DESCRIBED IN THE PETITION AND THE FEBRUARY, 2013 VARIANCE PLAN SUBMITTED AND NOT TO ANY OTHER ACTIVITIES, USES, STRUCTURES, OR ADJACENT TO THE PROPERTY.
- MODERATE INCOME HOUSING DOCUMENTS WERE RECORDED ON 02-28-09 UNDER LIBER 15754, FOLIO 2911 AMONG THE LAND RECORDS OF HOWARD COUNTY, MARYLAND.
- WRITTEN APPROVAL BY BG&E OF THE LANDSCAPING ALONG PINE ORCHARD LANE IS NOT REQUIRED FOR THIS DEVELOPMENT.
- THE PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL COMMON OPEN SPACE AND APPLICABLE FEATURES WITHIN. REFUSE COLLECTION, SNOW REMOVAL, AND ROAD MAINTENANCE IS INCLUDED WITH THIS RESPONSIBILITY.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY SERVICES PER THE FOLLOWING MINIMUM REQUIREMENTS:
 - WIDTH - 12' (1" SERVING MORE THAN ONE RESIDENCE).
 - SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH 1-1/2" MIN. TAR & CHIP COATING.
 - GEOMETRY - MAX. 10% GRADE CHANGE & MAX. 15% TURNING RADII.
 - STRUCTURES/CURBS/CURBSIDES - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD).
 - DRAINAGE ELEMENTS - CAPABLE OF PASSING 100 G.P.M. FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
 - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
 - MAINTENANCE - SUFFICIENT TO ENSURE ALL WEATHER USE.
- THIS PROJECT WAS PRESENTED TO THE ROUTE 40 DESIGN ADVISORY PANEL ON FEBRUARY 13, 2013 AND WAS APPROVED WITH THE FOLLOWING COMMENTS: 1) THAT THE VARIANCES BEING APPLIED FOR, REGARDING SETBACKS BE APPROVED SO THE PLAN CAN MOVE FORWARD AS PRESENTED; 2) THAT THE APPLICANT TAKES ANOTHER LOOK AT THE CENTER PATHWAY SYSTEM AND LOOK FOR WAYS TO CREATE A SPACE THAT USES THE MICRO-BIORETENTION AND SIDEWALKS TO DEFINE A CORE COMMUNITY SPACE FOR THE SITE; AND 3) THAT THE APPLICANT TAKES ONE MORE PASS AT THE ENTRY ELEMENT AND BRING IT INTO A MORE REFINED CHARACTER THAT WAS BROUGHT TO THE TOWNSHIPS.
- DPZ HAS APPROVED SINGLE-FAMILY ATTACHED MODEL GROUPINGS TO EXCEED 120' MAXIMUM LENGTH SINCE THE DESIGN WILL MITIGATE THE VISUAL IMPACT OF THE INCREASED LENGTH.

NOTE: GARAGE AREAS NOT BE USED FOR LIVING SPACE



TYPICAL FOOTPRINTS SCALE: 1" = 30'

TOWNS AT PATUXENT ORCHARD

71 SFA TOWNHOMES

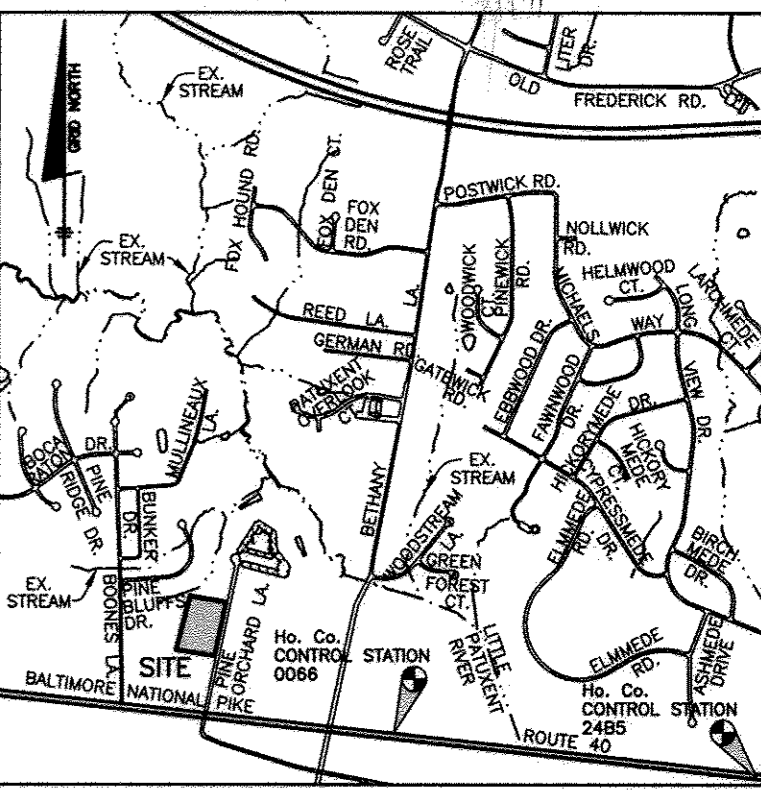
LOT 2 (PLAT #22989)

2nd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

SITE DEVELOPMENT PLAN

SDP-13-054



VICINITY MAP SCALE: 1" = 2000' ADC MAP 20 GRID A6

BENCH MARKS

HO. CO. #0068 (NAD '83)	ELEV. 396.52
STANDARD DISC ON CONCRETE MONUMENT	
RT. 40 BY ENCHANTED GARDEN SHOPPING CENTER	
N 587380.50	E 1,352603.44
HO. CO. #2485 (NAD '83)	ELEV. 390.17
STANDARD DISC ON CONCRETE MONUMENT	
ISLAND AT CORNER OF RT. 40 AND HOWARD DR.	
N 586956.27	E 1356570.78

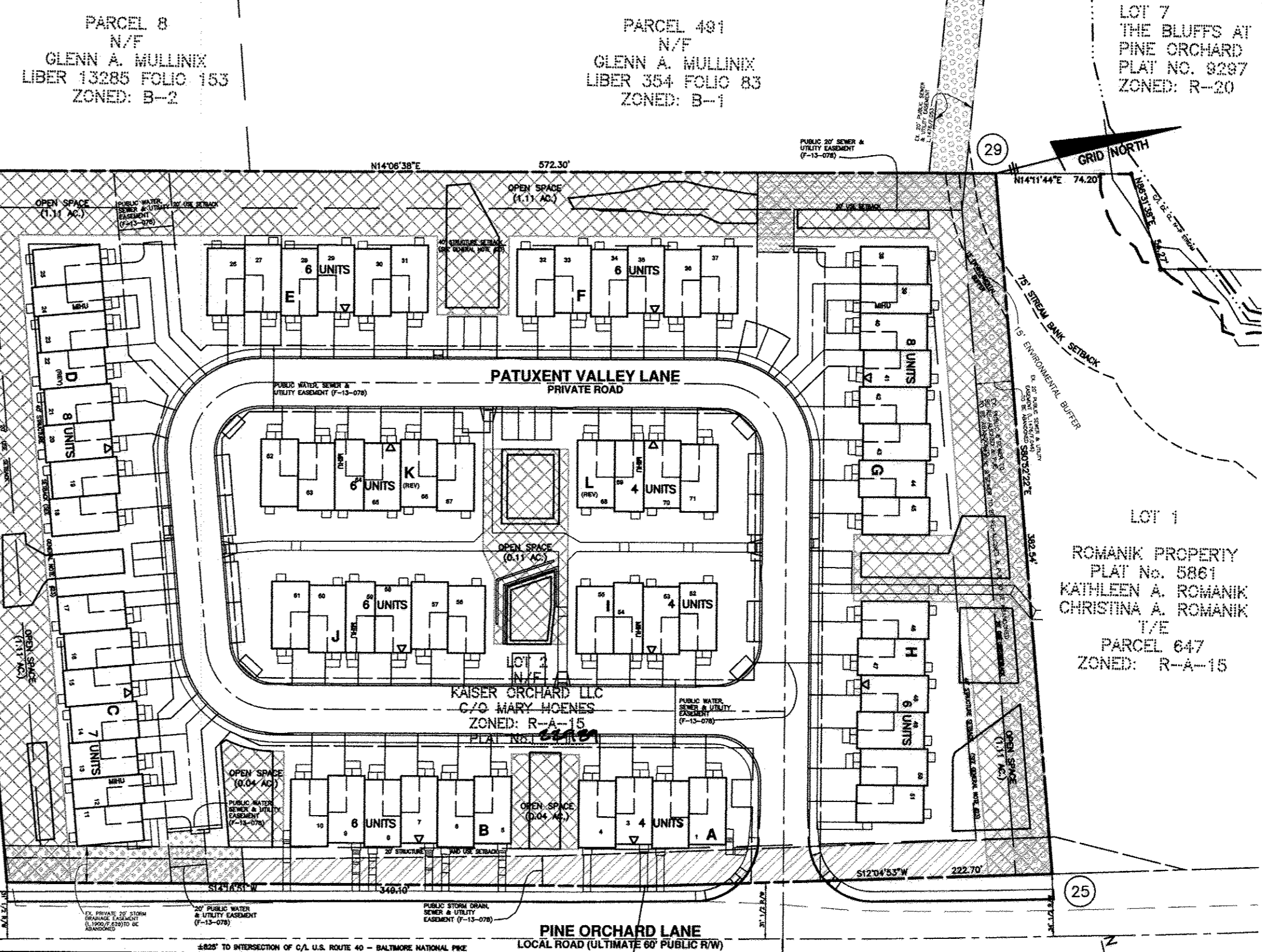
LEGEND

- SOILS CLASSIFICATION
- SOILS DELINEATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING SPECIMEN TREE
- EXISTING STREAM
- EXISTING STREAM BANK
- EXISTING STREAM BUFFER
- EXISTING 100-YR FLOODPLAIN
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE
- SUPER SILT FENCE
- SILT FENCE DIVERSION
- EARTH DIKE
- TEMPORARY SWALE
- INLET PROTECTION
- DRAINAGE AREA
- DRAINAGE DIVIDE
- TO STUDY PATH
- PUBLIC STORM DRAIN, SEWER & UTILITY EASEMENTS
- EX. PUBLIC SEWER & UTILITY EASEMENTS
- PUBLIC WATER, SEWER & UTILITY EASEMENTS
- CREDITED OPEN SPACE AREAS
- EX. PRIVATE STORM DRAINAGE EASEMENT
- PUBLIC SEWER & UTILITY EASEMENTS
- PUBLIC WATER & UTILITY EASEMENTS
- RECREATIONAL OPEN SPACE AREAS

COORDINATE TABLE (NAD '83)

NO.	NORTHING	EASTING
25	588,482,571	1,350,806,870
26	588,284,812	1,350,780,264
27	587,928,370	1,350,674,678
28	587,988,242	1,350,289,653
29	588,543,253	1,350,428,173

LOT A N/F
GODFREY GARVEY & WIFE
LIBER 587 FOLIO 486
ZONED: B-1



LOCATION PLAN GRAPHIC SCALE (IN FEET) 1 inch = 60 ft.

SITE ANALYSIS DATA/TABULATION

GENERAL SITE DATA
PRESENT ZONING: R-A-15
LOCATION: TAX MAP 24 - GRID 01 - PARCEL 0647
APPLICABLE DPZ FILE REFERENCES: EOP-13-014, F-13-078, BA-13-006V #14-4737-7
#13-146, SEC.16.1205.(g)(7) SPECIMEN TREE REMOVAL
DEED REFERENCES: L13817/F.00429, PLAT #CMP-5861
PROPOSED USE OF SITE: RESIDENTIAL - 71 SFA AND OPEN SPACE AREA
PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

1) AREA TABULATION

UNIT	STREET ADDRESS	UNIT	STREET ADDRESS
1	3252 PINE ORCHARD LANE	37	10224 PATUXENT VALLEY LANE
2	3254 PINE ORCHARD LANE	38	10220 PATUXENT VALLEY LANE
3	3256 PINE ORCHARD LANE	39	10228 PATUXENT VALLEY LANE
4	3258 PINE ORCHARD LANE	40	10226 PATUXENT VALLEY LANE
5	3262 PINE ORCHARD LANE	41	10224 PATUXENT VALLEY LANE
6	3264 PINE ORCHARD LANE	42	10222 PATUXENT VALLEY LANE
7	3266 PINE ORCHARD LANE	43	10220 PATUXENT VALLEY LANE
8	3268 PINE ORCHARD LANE	44	10218 PATUXENT VALLEY LANE
9	3270 PINE ORCHARD LANE	45	10216 PATUXENT VALLEY LANE
10	3272 PINE ORCHARD LANE	46	10214 PATUXENT VALLEY LANE
11	10292 PATUXENT VALLEY LANE	47	10212 PATUXENT VALLEY LANE
12	10290 PATUXENT VALLEY LANE	48	10210 PATUXENT VALLEY LANE
13	10288 PATUXENT VALLEY LANE	49	10208 PATUXENT VALLEY LANE
14	10286 PATUXENT VALLEY LANE	50	10206 PATUXENT VALLEY LANE
15	10284 PATUXENT VALLEY LANE	51	10202 PATUXENT VALLEY LANE
16	10282 PATUXENT VALLEY LANE	52	10301 PATUXENT VALLEY LANE
17	10280 PATUXENT VALLEY LANE	53	10319 PATUXENT VALLEY LANE
18	10278 PATUXENT VALLEY LANE	54	10317 PATUXENT VALLEY LANE
19	10274 PATUXENT VALLEY LANE	55	10315 PATUXENT VALLEY LANE
20	10272 PATUXENT VALLEY LANE	56	10311 PATUXENT VALLEY LANE
21	10270 PATUXENT VALLEY LANE	57	10309 PATUXENT VALLEY LANE
22	10268 PATUXENT VALLEY LANE	58	10307 PATUXENT VALLEY LANE
23	10266 PATUXENT VALLEY LANE	59	10305 PATUXENT VALLEY LANE
24	10264 PATUXENT VALLEY LANE	60	10303 PATUXENT VALLEY LANE
25	10262 PATUXENT VALLEY LANE	61	10301 PATUXENT VALLEY LANE
26	10258 PATUXENT VALLEY LANE	62	10293 PATUXENT VALLEY LANE
27	10256 PATUXENT VALLEY LANE	63	10291 PATUXENT VALLEY LANE
28	10254 PATUXENT VALLEY LANE	64	10249 PATUXENT VALLEY LANE
29	10252 PATUXENT VALLEY LANE	65	10247 PATUXENT VALLEY LANE
30	10250 PATUXENT VALLEY LANE	66	10245 PATUXENT VALLEY LANE
31	10248 PATUXENT VALLEY LANE	67	10243 PATUXENT VALLEY LANE
32	10244 PATUXENT VALLEY LANE	68	10237 PATUXENT VALLEY LANE
33	10242 PATUXENT VALLEY LANE	69	10235 PATUXENT VALLEY LANE
34	10240 PATUXENT VALLEY LANE	70	10233 PATUXENT VALLEY LANE
35	10238 PATUXENT VALLEY LANE	71	10231 PATUXENT VALLEY LANE
36	10236 PATUXENT VALLEY LANE		

2) NET AREA OF SITE: 5.09 Ac.±
a. TOTAL AREA OF SITE: 5.09 Ac.±
b. AREA OF 100 YEAR FLOODPLAIN: 0.00 Ac.±
c. AREA OF STEEP SLOPES (20% OR GREATER): 0.00 Ac.±
1) STEEP SLOPES OUTSIDE OF 100YR FLOODPLAIN: 0.00 Ac.±
2) STEEP SLOPES INSIDE OF 100YR FLOODPLAIN: 0.00 Ac.±
d. NET AREA OF SITE: 5.09 Ac.±
e. AREA OF THIS PLAN SUBMISSION: 5.09 Ac.±
f. LIMIT OF DISTURBANCE: 5.40 Ac.±
g. PROPOSED BUILDABLE AREA: 5.09 Ac.±
h. OPEN SPACE AREA: 1.30 Ac.±
i. AREA OF PROPOSED PUBLIC ROAD: 0.00 Ac.±
j. AREA OF PROPOSED PUBLIC R/W DEDICATION: 0.00 Ac.±
3) DENSITY TABULATION
a. NET AREA OF SITE: 5.09 Ac.±
b. ALLOWABLE RESIDENTIAL LOT YIELD (15 per/acre * 5.09) = 76
3) UNIT/LOT TABULATION
a. TOTAL NUMBER OF RESIDENTIAL UNITS PROPOSED ON THIS SUBMISSION: 71
b. TOTAL NUMBER OF OPEN SPACE UNITS PROPOSED ON THIS SUBMISSION: 1
c. TOTAL NUMBER OF MIHU UNITS REQUIRED (LOOK OF TOTAL UNIT YIELD): 7
d. TOTAL NUMBER OF MIHU UNITS PROVIDED: 7
4) OPEN SPACE DATA
a. MINIMUM RESIDENTIAL LOT SIZE SELECTED: N/A(1,200sf)
b. MAXIMUM LOT COVERAGE PERMITTED: 60%
c. TOTAL AREA REQUIRED FOR TOTAL AREA OF SITE (20% OF 5.09 AC.): 1.02 Ac.±
d. TOTAL AREA OF PROPOSED OPEN SPACE PROVIDED WITH THIS DEVELOPMENT: 1.30 Ac.±
1) OPEN SPACE AREAS LESS THAN 35' IN WIDTH (NON-CREDITED): 0.00 Ac.±
2) TOTAL AREA OF OPEN SPACE MEETING MINIMUM OPEN SPACE REQUIREMENTS (CREDITED): 1.30 Ac.±
e. RECREATIONAL OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (400 SF./UNIT): 0.65 Ac.±
f. TOTAL AREA OF RECREATIONAL OPEN SPACE PROVIDED: 0.86 Ac.±
5) PARKING TABULATION
a. TOTAL NUMBER OF RESIDENTIAL UNITS PROPOSED ON THIS SUBMISSION: 71
b. TOTAL NUMBER OF PARKING SPACES REQUIRED (2.3 PER SFA-UNIT): 163
c. NUMBER OF PARKING SPACES PROVIDED (2.0 PER SFA-UNIT GARAGE/DRIV): 142
d. NUMBER OF OVERFLOW SPACES REQUIRED: 21
e. NUMBER OF OVERFLOW SPACES PROVIDED: 21
f. TOTAL NUMBER OF PARKING SPACES PROVIDED: 163

SHEET INDEX

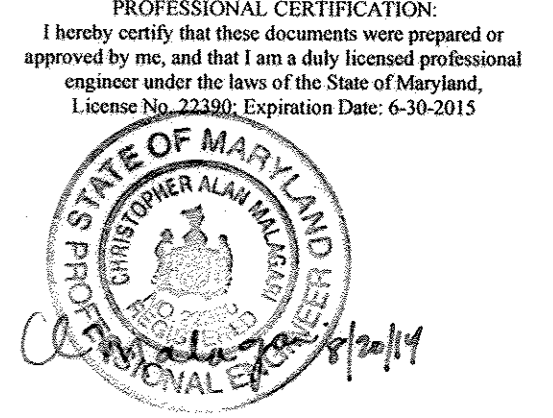
NO.	DESCRIPTION
1	COVER SHEET, NOTES AND DETAILS
2	EXISTING CONDITIONS PLAN, BORING LOGS AND SOILS MAP
3	SITE GRADING PLAN, NOTES AND DETAILS
4	ROADWAY/LAYOUT PLAN, NOTES, AND DETAILS
5	ROADWAY PROFILES, NOTES, AND DETAILS
6	SEDIMENT & EROSION CONTROL PLAN, NOTES AND DETAILS
7	SEDIMENT & EROSION CONTROL PLAN, NOTES AND DETAILS
8	STORM DRAIN DRAINAGE AREA MAP
9	STORM DRAIN PROFILES, NOTES, AND DETAILS
10	STORM DRAIN PROFILES, NOTES, AND DETAILS
11	SWM-ESD PLAN, NOTES, AND DETAILS
12	SWM-ESD NOTES, AND DETAILS
13	LANDSCAPE PLAN, NOTES, AND DETAILS
14	SIGHT DISTANCE ANALYSIS, NOTES, AND DETAILS
15	FOREST CONSERVATION PLAN, NOTES, AND DETAILS
16	FOREST CONSERVATION PLAN, NOTES, AND DETAILS

NOTE: CONTRACTORS TO EXERCISE EXTREME CAUTION WHEN WORKING IN AREA OF EXIST. OVERHEAD LINES ALONG PINE ORCHARD LANE

PERMIT INFORMATION CHART

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL
TOWNS AT PATUXENT ORCHARD	N/A	LOT 2
PLAT No.	BLOCK No.	ZONING
PLAT # 22989	01	R-A-15
TAX MAP	ELEC. DIST.	CENSUS
24	2nd	6022.00
WATER CODE	SEWER CODE	
630-W	780	

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



OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778

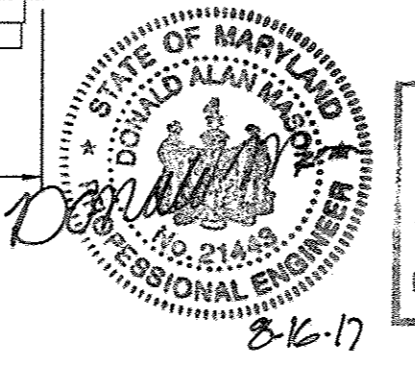
PROJECT: LOT 2 TOWNS AT PATUXENT ORCHARD LOT 2 OF ROMANIK PROPERTY (PLAT #22989) TOWNS AT PATUXENT ORCHARD 71 SFA TOWNHOMES

LOCATION: TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN COVER SHEET NOTES AND DETAILS

DATE: DECEMBER, 2013 PROJECT NO. 2429
MAY, 2014

Design: MCR Draft: MCR Check: BFC SCALE: AS SHOWN DRAWING 1 OF 16



NO AS BUILT INFORMATION PROVIDED ON THIS SHEET

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. 21443 Expiration Date: 12-21-18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division DATE: 9-11-14

Chief, Division of Land Development DATE: 10/20/14

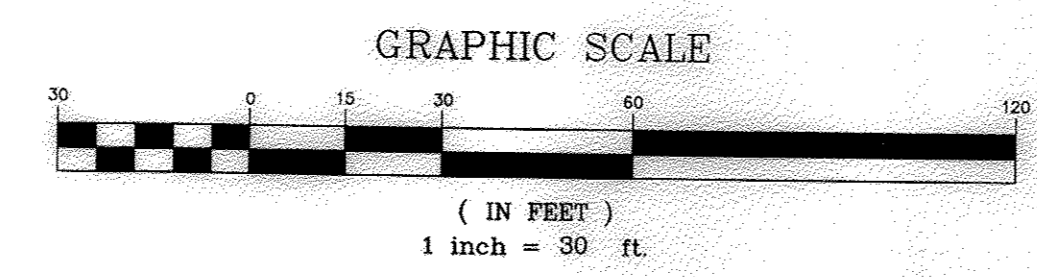
Director DATE: 10/14/14



BORING LOG		BORING LOG		BORING LOG	
geolab		geolab		geolab	
LOG OF BORING NO. B-1		LOG OF BORING NO. B-2		LOG OF BORING NO. B-3	
LOG OF BORING NO. B-4		LOG OF BORING NO. B-5		LOG OF BORING NO. B-6	
LOG OF BORING NO. B-7		LOG OF BORING NO. B-8		LOG OF BORING NO. B-9	
LOG OF BORING NO. B-10		LOG OF BORING NO. B-11		LOG OF BORING NO. B-12	

MAP SYMBOL	SOIL GROUP	SOIL TYPE
GgB	B	OLENELO LOAM, 3 TO 8 PERCENT SLOPES
GnB*	C	OLENELO-SALE SILT LOAM, 0 TO 8 PERCENT SLOPES
MaC	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES
UuB	D	URBAN LAND-UDORTMENTS COMPLEX, 0 TO 8 PERCENT SLOPES

FROM NATURAL RESOURCES CONSERVATION SERVICES WEB SOIL SURVEY 2.0
* HYDRIC SOILS



NO AS-BUILT INFORMATION PROVIDED ON THIS SHEET

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. 21343 Expiration Date: 12-31-13

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 9-11-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Keith ... 10-02-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

David ... 10/2/14
DIRECTOR DATE

10-10-2016 REV. EX. 8" SEWER FROM REMOVED TO ABANDONED

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE
SUITE 315
ELLCOTT CITY, MARYLAND 21043
(P) 410-465-6105 (F) 410-465-6644
WWW.BEI-CVLENGINEERING.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. 22380; Expiration Date: 6-30-2015

OWNER/DEVELOPER: KAISER ORCHARD, LLC
c/o RANDOLPH HOENES
8198 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
PHONE: 410-900-9778

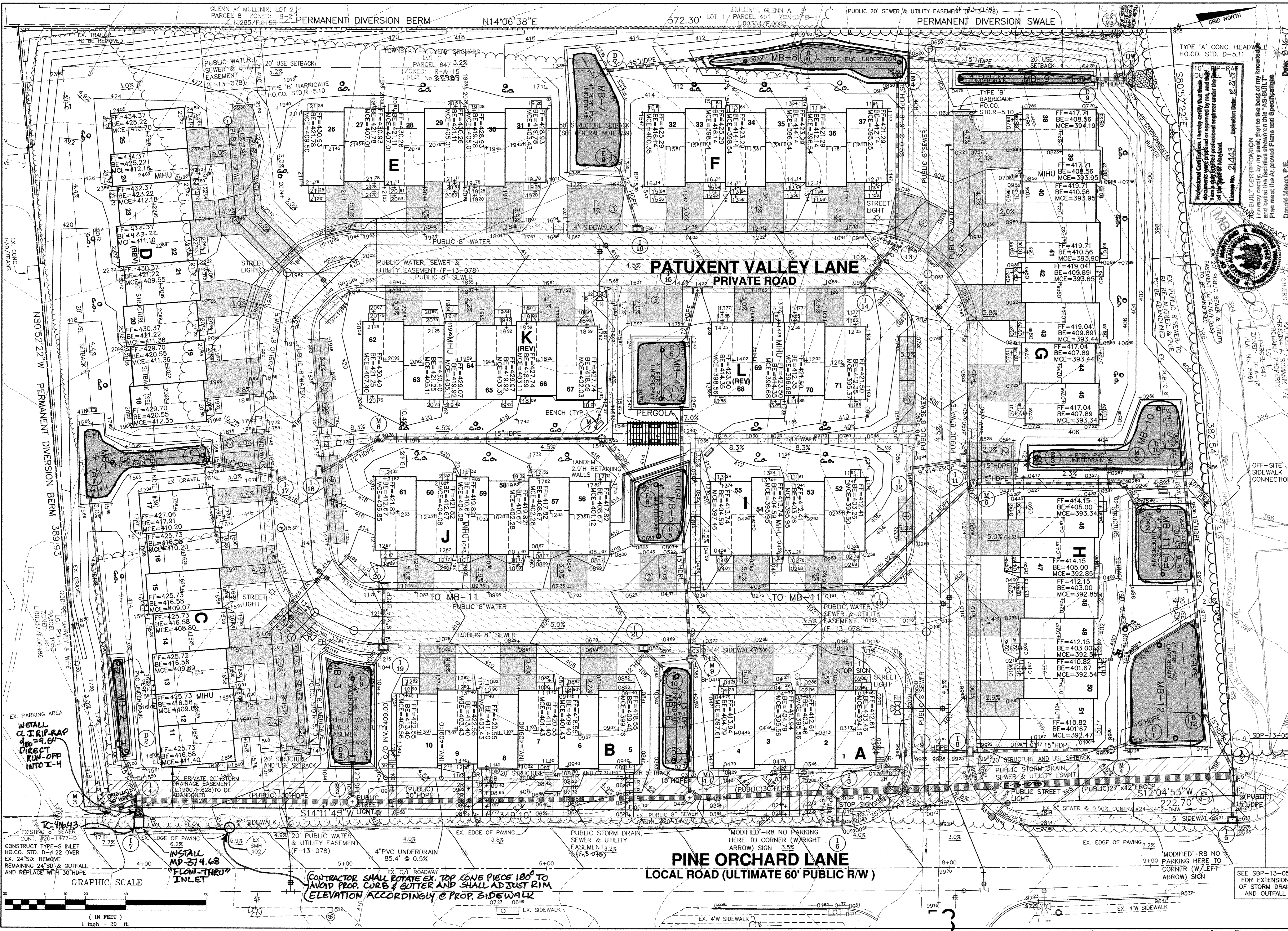
PROJECT: LOT 2 TOWNS AT PATUXENT ORCHARD
LOT 2 OF ROMANIK PROPERTY (PLAT #22922 TOWNS AT PATUXENT ORCHARD)
71 SFA TOWNHOMES

LOCATION: TAX MAP: 24 / GRID: 01
PARCEL: 0647 / ZONE: R-A-15
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN
EXISTING CONDITIONS PLAN,
BORING LOGS AND SOILS MAP

DATE: FEBRUARY, 2014 PROJECT NO. 2429
MAY, 2014

Design: MCR Draft: MCR Check: BFC SCALE: AS SHOWN DRAWING 2 OF 16



GRAPHIC SCALE
 1 inch = 20 ft

INSTALL CLIP-RAP DE=9.5' DIRECT RUN-OFF INTO T-4

INSTALL MD-374.68 FLOW-THRU INLET

CONTRACTOR SHALL ROTATE EX. TOP CONE PIECE 180° TO AVOID PROP. CURB & GUTTER AND SHALL ADJUST RIM ELEVATION ACCORDINGLY @ PROP. SIDEWALK

CONSTRUCT TYPE-S INLET HO.CO. STD. D-4.22 OVER EX. 24" SD. REMOVE REMAINING 24" SD. & OUTFALL AND REPLACE WITH 30" HDPE

EXISTING 8" SEWER CONT. #20-1477-D

EXISTING 30" HDPE

EXISTING 24" SD. REMOVE

EXISTING 18" SD. REMOVE

EXISTING 12" HDPE

EXISTING 6" HDPE

EXISTING 4" HDPE

EXISTING 3" HDPE

EXISTING 2" HDPE

EXISTING 1.5" HDPE

EXISTING 1" HDPE

EXISTING 0.75" HDPE

EXISTING 0.5" HDPE

EXISTING 0.375" HDPE

EXISTING 0.25" HDPE

EXISTING 0.1875" HDPE

EXISTING 0.125" HDPE

EXISTING 0.09375" HDPE

EXISTING 0.0625" HDPE

EXISTING 0.046875" HDPE

EXISTING 0.035156" HDPE

EXISTING 0.026375" HDPE

EXISTING 0.019781" HDPE

EXISTING 0.014838" HDPE

EXISTING 0.011128" HDPE

EXISTING 0.008346" HDPE

EXISTING 0.00625" HDPE

EXISTING 0.004688" HDPE

EXISTING 0.003516" HDPE

EXISTING 0.002638" HDPE

EXISTING 0.001979" HDPE

EXISTING 0.001484" HDPE

EXISTING 0.001113" HDPE

EXISTING 0.000834" HDPE

EXISTING 0.000625" HDPE

EXISTING 0.000469" HDPE

EXISTING 0.000352" HDPE

EXISTING 0.000264" HDPE

EXISTING 0.000198" HDPE

EXISTING 0.000149" HDPE

EXISTING 0.000112" HDPE

EXISTING 0.000084" HDPE

EXISTING 0.000063" HDPE

EXISTING 0.000047" HDPE

PROFESSIONAL CERTIFICATION
 I hereby certify that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, and that I have prepared the plans and specifications shown on this drawing to the best of my knowledge and belief, and that I am not providing engineering services under the name of any other firm or individual.

AS-BUILT CERTIFICATION
 I hereby certify that the information shown on this AS-BUILT plan meets the approved Plans and Specifications.

DATE: 8-16-17
 DONALD MASON, P.E.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 REVISION: 6-6-2016 REVISE T-7 EX 5MH-402
 DATE: 9-11-17
 DATE: 10-22-17

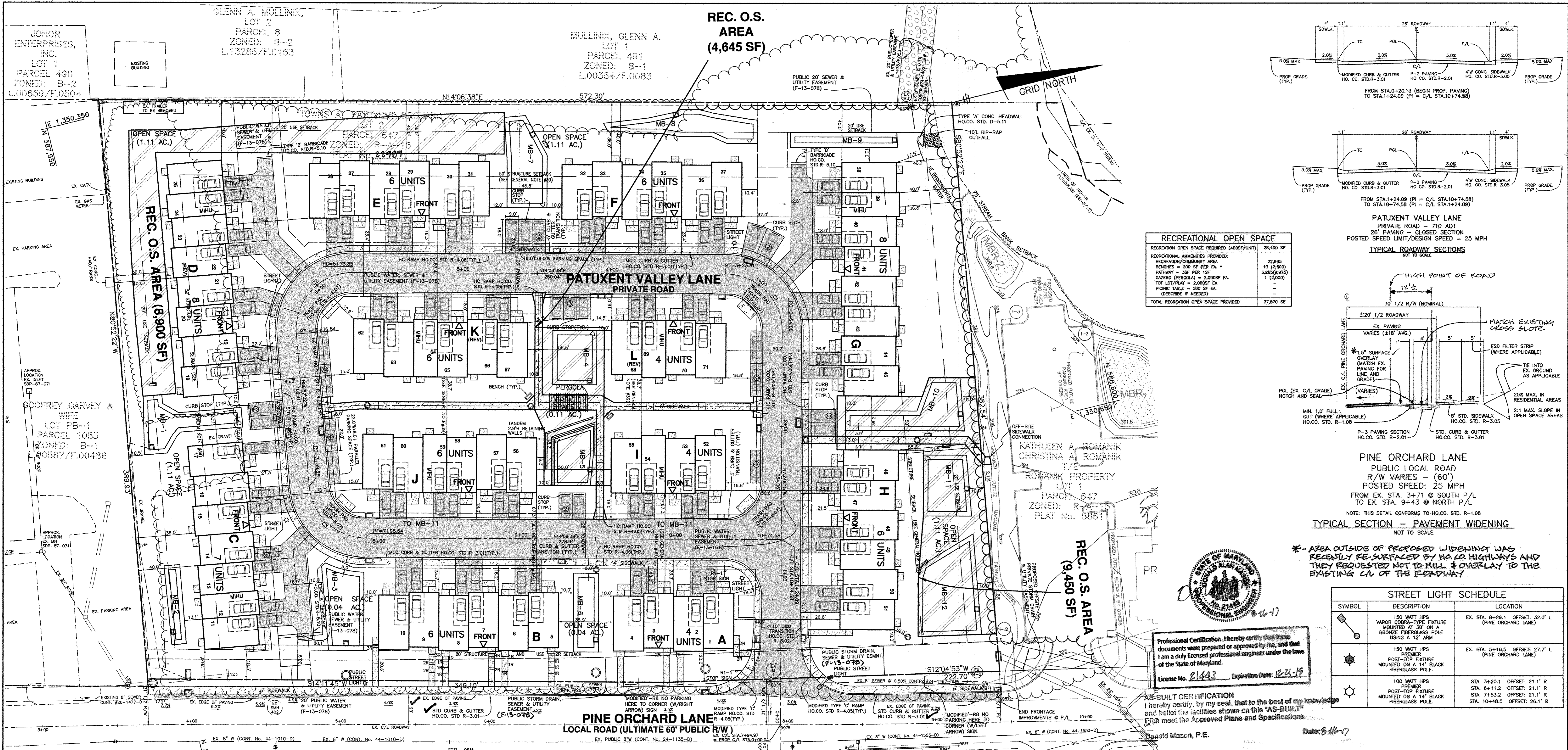
CHIEF, DEVELOPMENT ENGINEERING DIVISION
 V. J. Stalder
 CHIEF, DIVISION OF LAND DEVELOPMENT
 M. A. Taylor
 DIRECTOR

BENCHMARK ENGINEERING, INC.
 ENGINEERS & LAND SURVEYORS & PLANNERS
 8460 BALDOR NATIONAL PIKE
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-900-9778
 WWW-BV-ENGINEERING.COM

KANSER ORCHARD, LLC
 RANDOLPH HOENES
 C/O 8188 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-900-9778

TOWNS AT PATUXENT ORCHARD
 LOT 2 OF ROMANK PROPERTY (PART OF PATUXENT ORCHARD)
 LOCATION: TOWN MAP 24 ZONE R-4-15
 PARCEL 0647 DISTRICT 2ND ELECTION DISTRICT HOWARD COUNTY, MARYLAND
 TITLE: SITE DEVELOPMENT PLAN FOR EXTENSION OF PINE ORCHARD LANE
 DATE: FEBRUARY 2014 PROJECT NO. 2429
 SCALE: AS SHOWN DRAWING 3 OF 16
 DESIGN: MCR Draft: MCR Check: BFC

OWNER/DEVELOPER: KANSER ORCHARD, LLC
DESIGNER: BENCHMARK ENGINEERING, INC.



CENTERLINE CONTROL DATA - COORDINATES

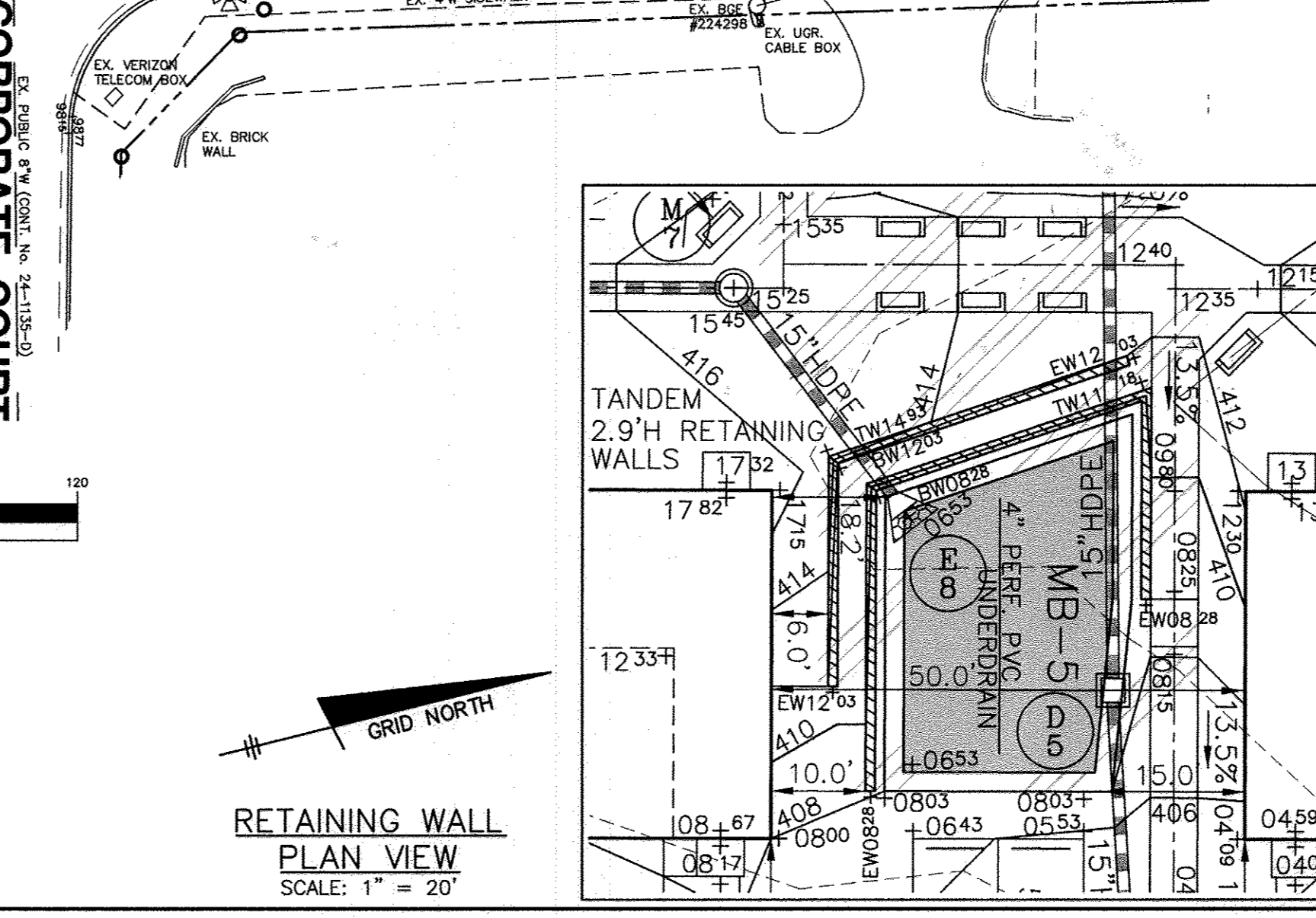
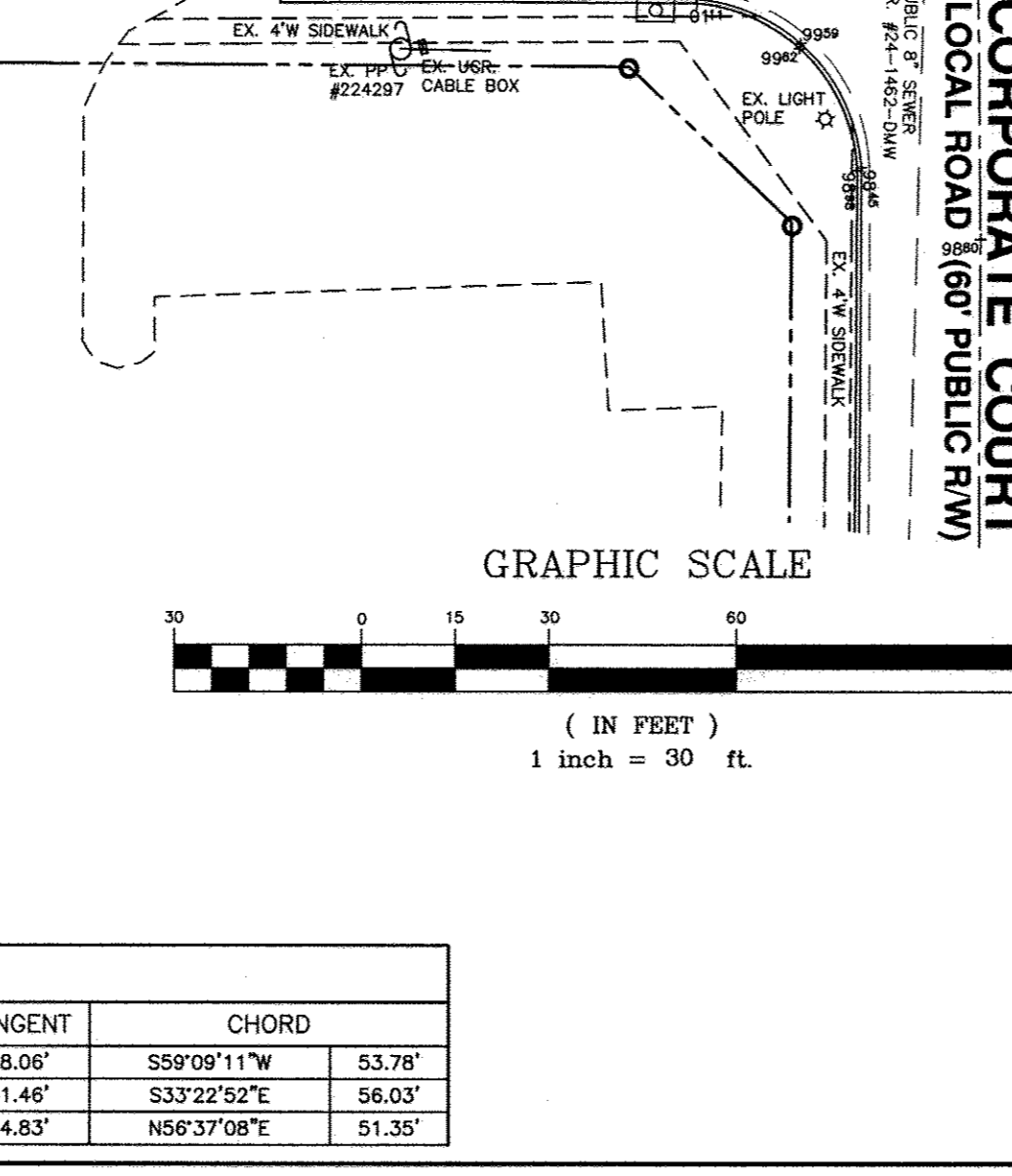
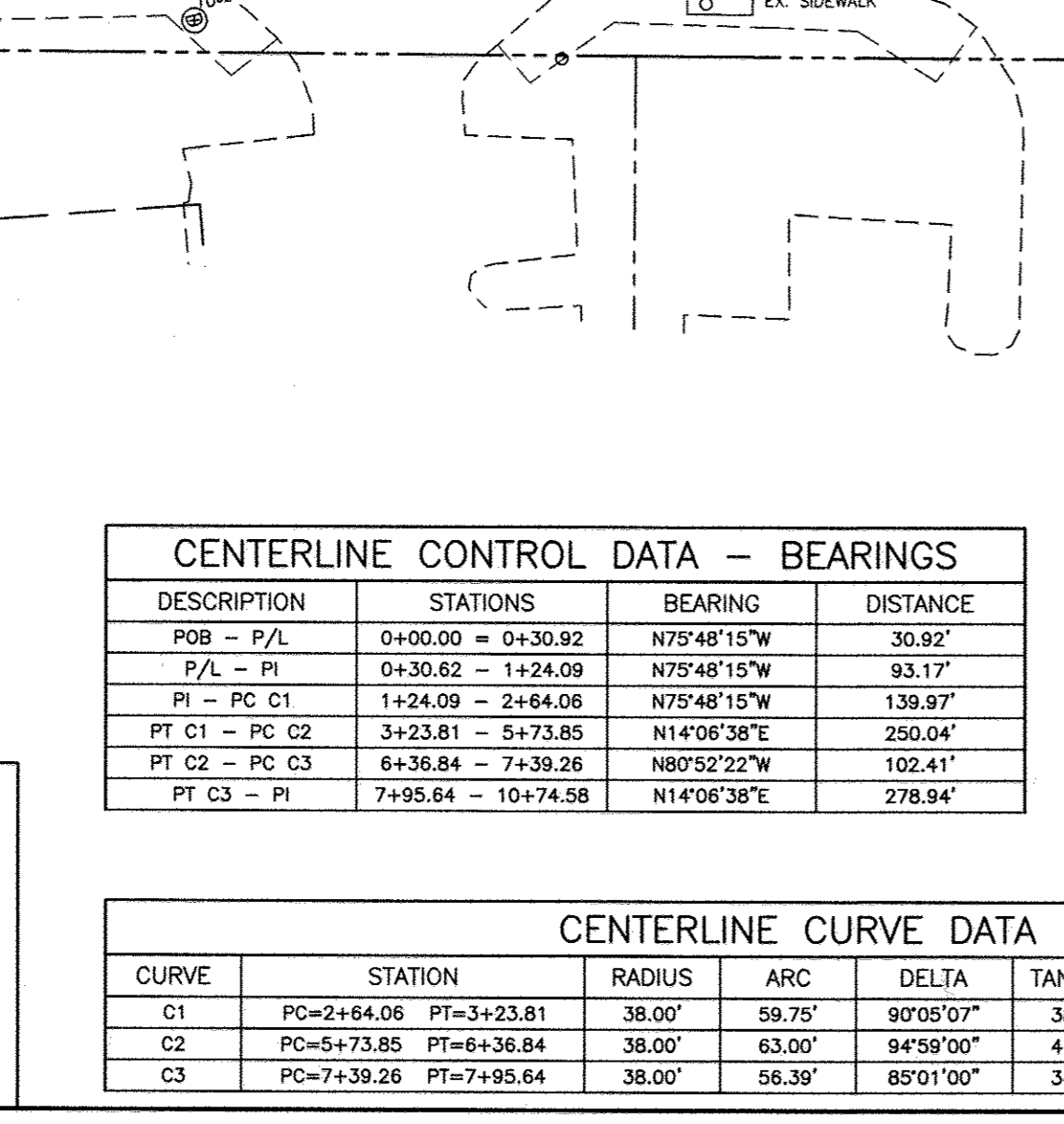
DESCRIPTION	STATION	NORTH	EAST
POB - Ex. C/L	0+00.00 = 7+95	588,331.3	1,350,806.1
INT - P/L	0+30.92	588,338.85	1,350,776.11
PI	1+24.09 = 10+74.58	588,384.31	1,350,691.61
PC C1	2+64.06	588,396.03	1,350,550.09
PT C1	3+23.81	588,368.45	1,350,503.91
PC C2	5+73.85	588,125.95	1,350,442.95
PT C2	6+36.84	588,079.17	1,350,473.78
PC C3	7+39.26	588,062.92	1,350,574.90
PT C3	7+95.64	588,091.18	1,350,617.78
PI	10+74.58 = 1+24.09	588,384.31	1,350,691.61

CENTERLINE CONTROL DATA - BEARINGS

DESCRIPTION	STATIONS	BEARING	DISTANCE
POB - P/L	0+00.00 = 0+30.92	N75°48'15"W	30.92'
P/L - PI	0+30.92 = 1+24.09	N75°48'15"W	93.17'
PI - PC C1	1+24.09 = 2+64.06	N75°48'15"W	139.97'
PT C1 - PC C2	3+23.81 = 5+73.85	N14°06'38"E	250.04'
PT C2 - PC C3	6+36.84 = 7+39.26	N80°52'22"W	102.41'
PT C3 - PI	7+95.64 = 10+74.58	N14°06'38"E	278.94'

CENTERLINE CURVE DATA

CURVE	STATION	RADIUS	ARC	DELTA	TANGENT	CHORD
C1	PC=2+64.06 PT=3+23.81	38.00'	59.75'	90°05'07"	38.06'	S99°09'11"W 53.78'
C2	PC=5+73.85 PT=6+36.84	38.00'	63.00'	94°59'00"	41.46'	S33°22'52"E 56.03'
C3	PC=7+39.26 PT=7+95.64	38.00'	56.39'	85°01'00"	34.83'	N56°37'08"E 51.35'



STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
☀	150 WATT HPS VAPOR COBRA-TYPE FIXTURE MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM	EX. STA. 8+20.11 OFFSET: 32.0' L (PINE ORCHARD LANE)
☀	150 WATT HPS POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	EX. STA. 5+16.55 OFFSET: 27.7' L (PINE ORCHARD LANE)
☀	100 WATT HPS PREMIER POST-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE.	STA. 3+20.11 OFFSET: 21.1' R STA. 6+11.2 OFFSET: 21.1' R STA. 7+53.2 OFFSET: 21.1' R STA. 10+48.5 OFFSET: 26.1' R

REVERSE WIDENING DETAIL

NO. DATE REVISION

BENCHMARK ENGINEERING, INC.

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

PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21443 Expiration Date: 6-30-2015

OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778

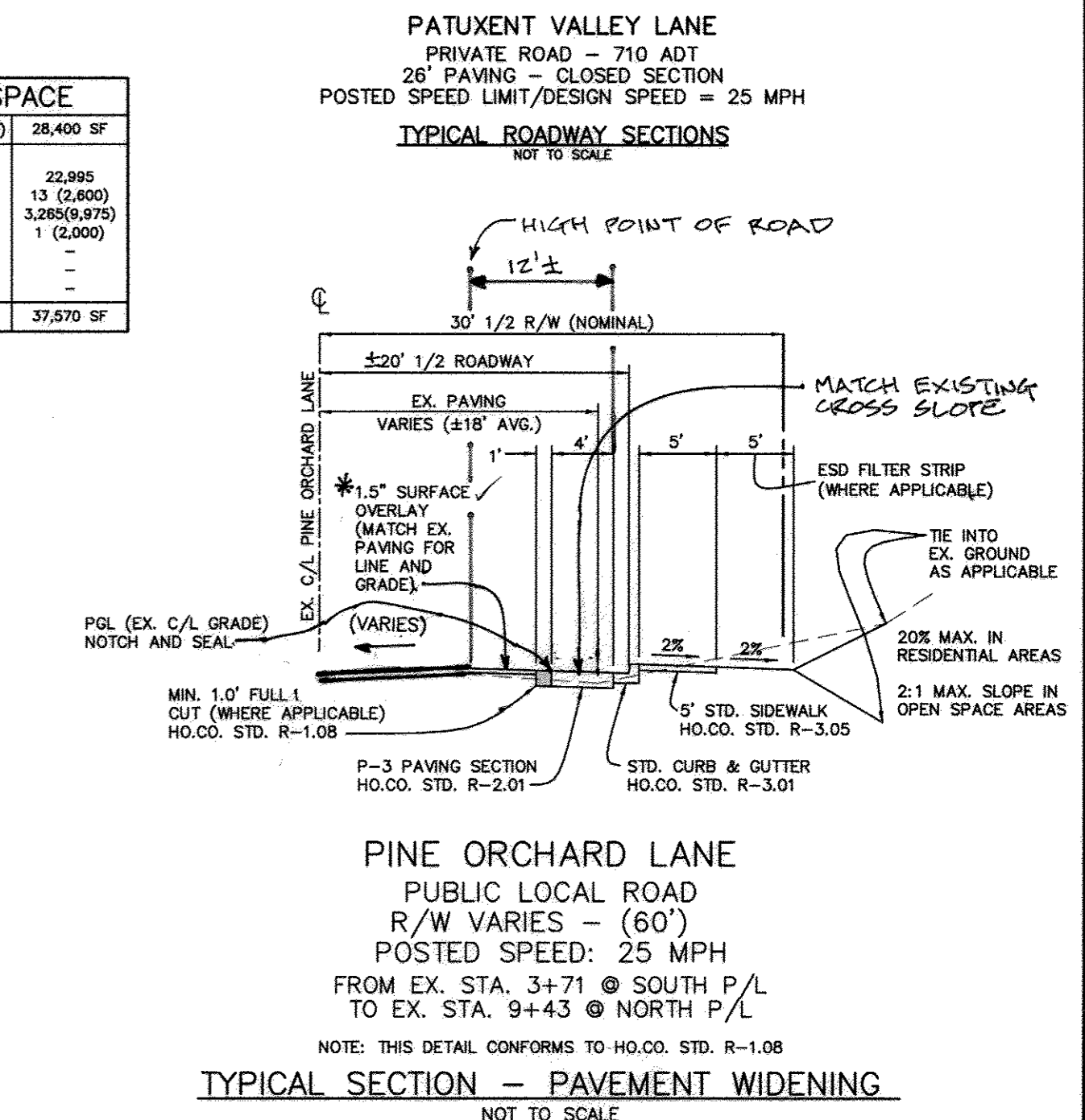
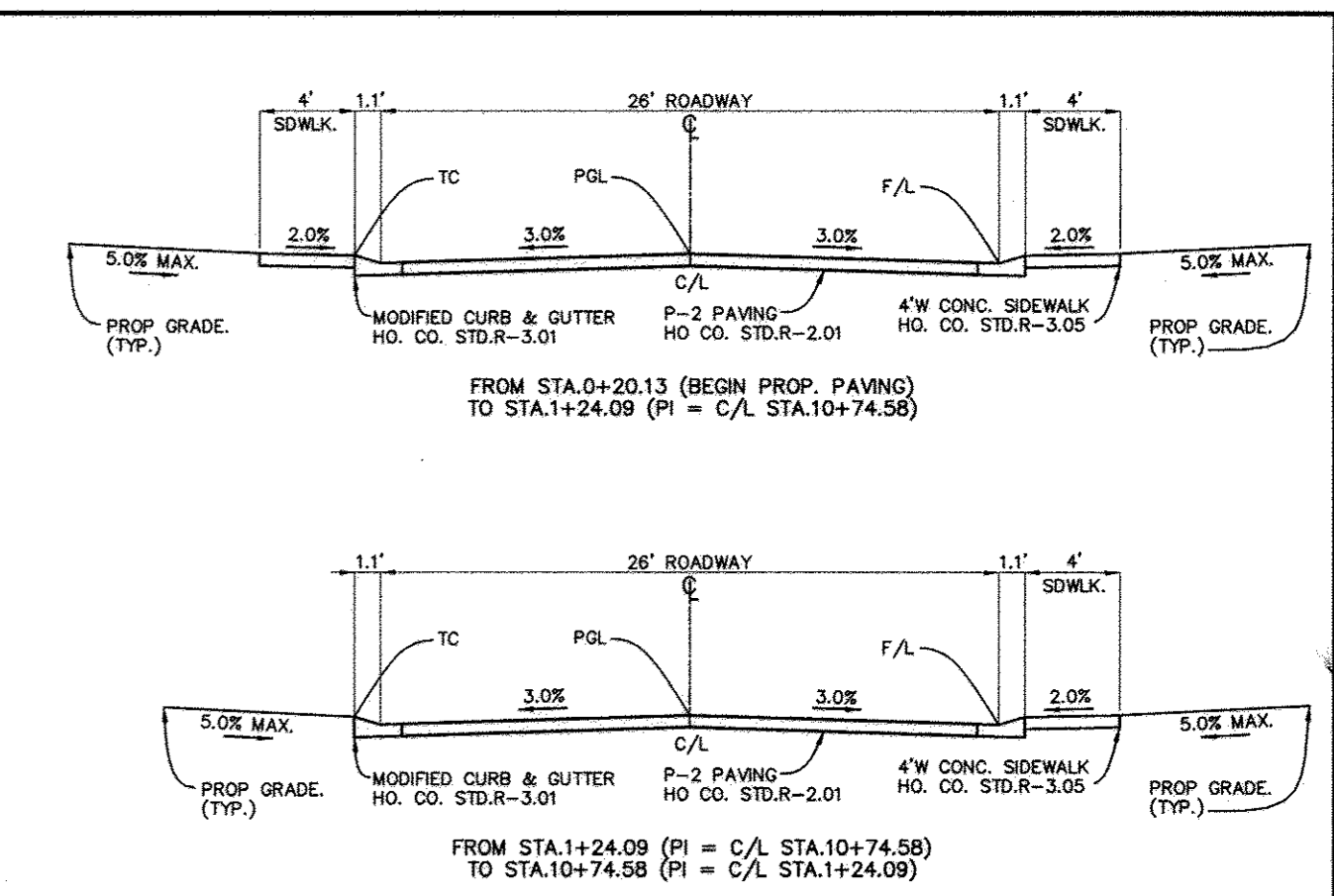
PROJECT: TOWNS AT PATUXENT ORCHARD LOT 2 OF ROMANIK PROPERTY (PLAT # 2237) TOWNS AT PATUXENT ORCHARD 71 SFA TOWNHOMES

LOCATION: TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN ROADWAY/LAYOUT PLAN NOTES AND DETAILS

DATE: MAY, 2014 **PROJECT NO.:** 2429

Design: MCR Draft: MCR Check: BFC SCALE: AS SHOWN DRAWING NO. OF 16



* AREA OUTSIDE OF PROPOSED WIDENING WAS RECENTLY RE-SURFACED BY H.O. CO. HIGHWAYS AND THEY REQUESTED NOT TO MILL & OVERLAY TO THE EXISTING C/L OF THE ROADWAY

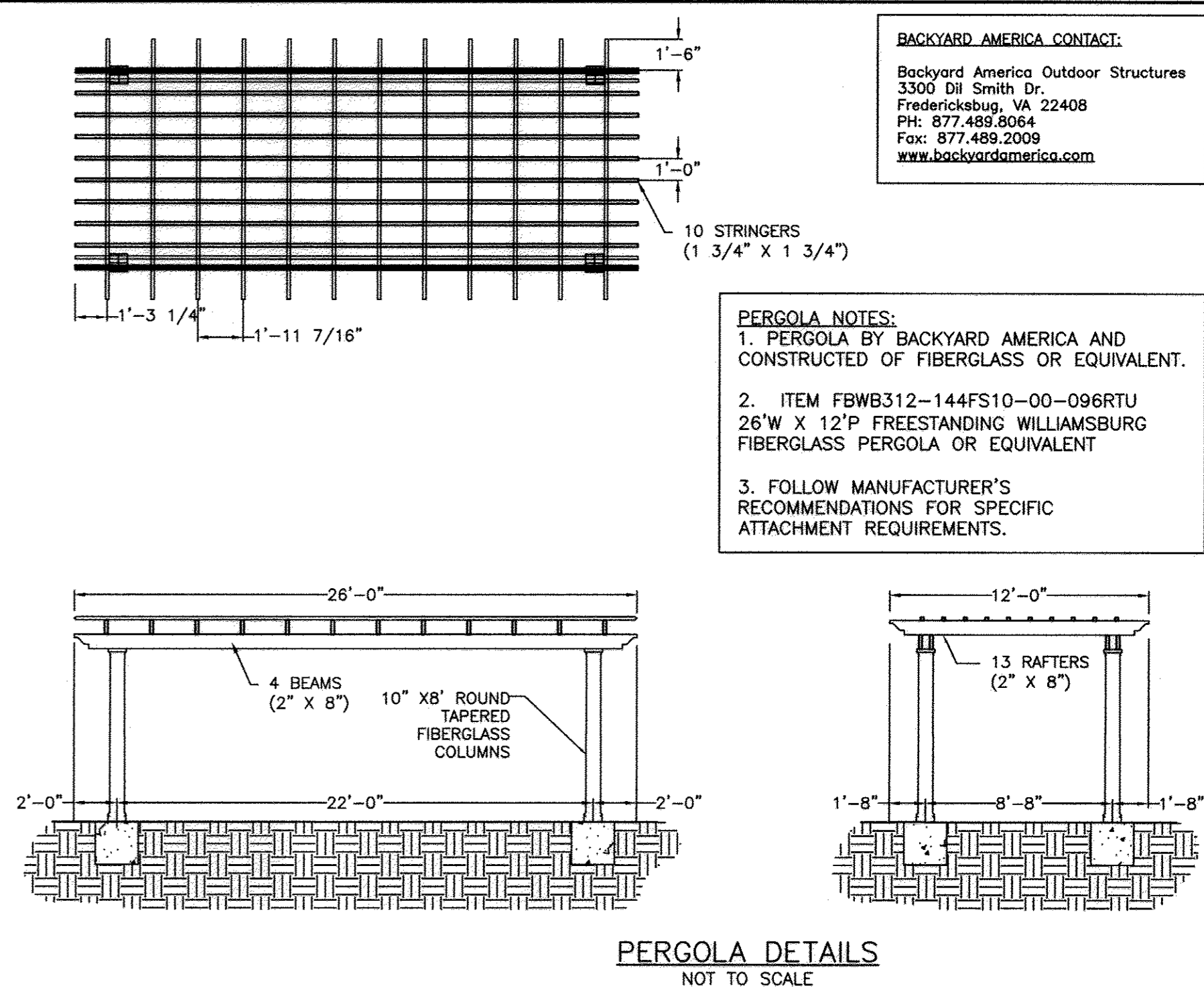
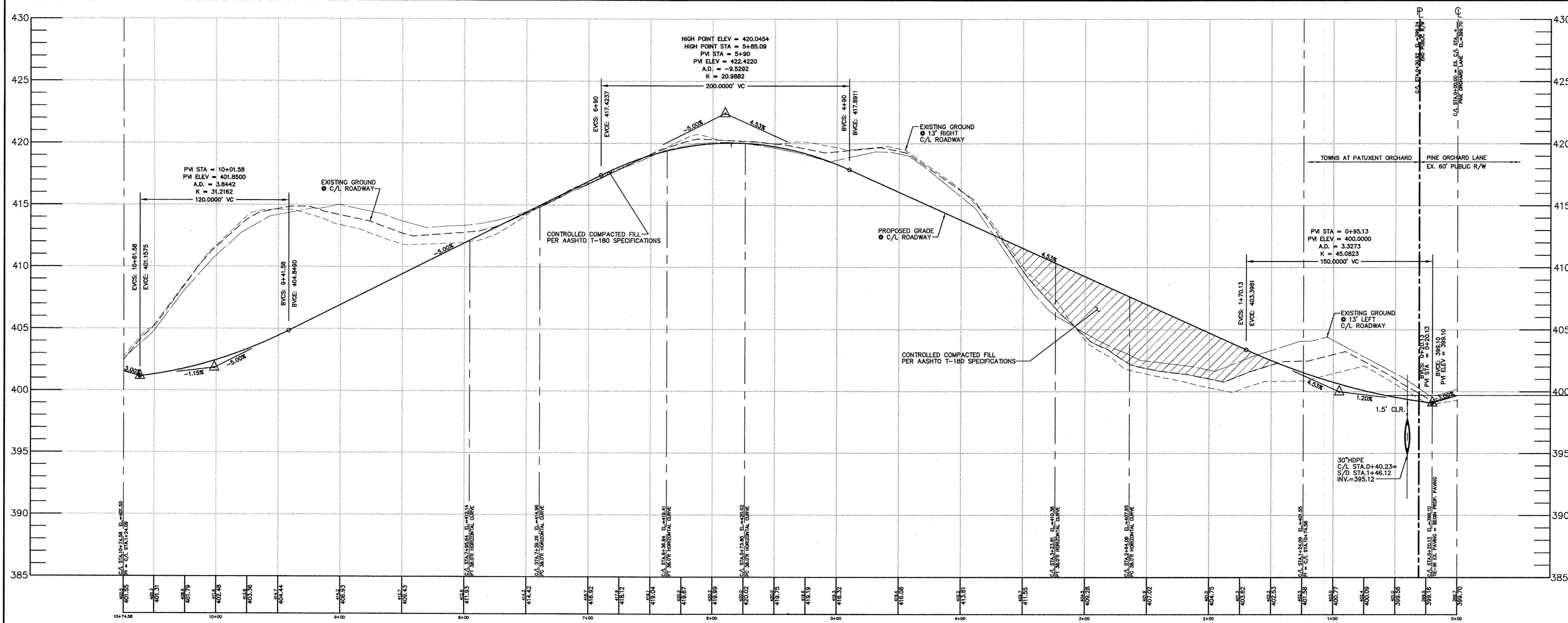
RECREATIONAL OPEN SPACE

RECREATIONAL OPEN SPACE REQUIRED (400SF/UNIT)	28,400 SF
RECREATIONAL AMENITIES PROVIDED:	22,995
RECREATION/COMMUNITY AREA	13 (2,600)
PATHWAY = 350 SF PER EA.	3,280 (6,575)
GAZEBO (PERGOLA) = 2,000SF EA.	1 (2,000)
TOT. LOT/PLAY = 2,000SF EA.	-
PIPING TABLE = 300 SF EA.	-
(DESCRIBE IF NEEDED)	-
TOTAL RECREATIONAL OPEN SPACE PROVIDED	37,670 SF

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. 21443 Expiration Date: 6-30-15

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" plan meet the Approved Plans and Specifications.
Donald Mason, P.E.

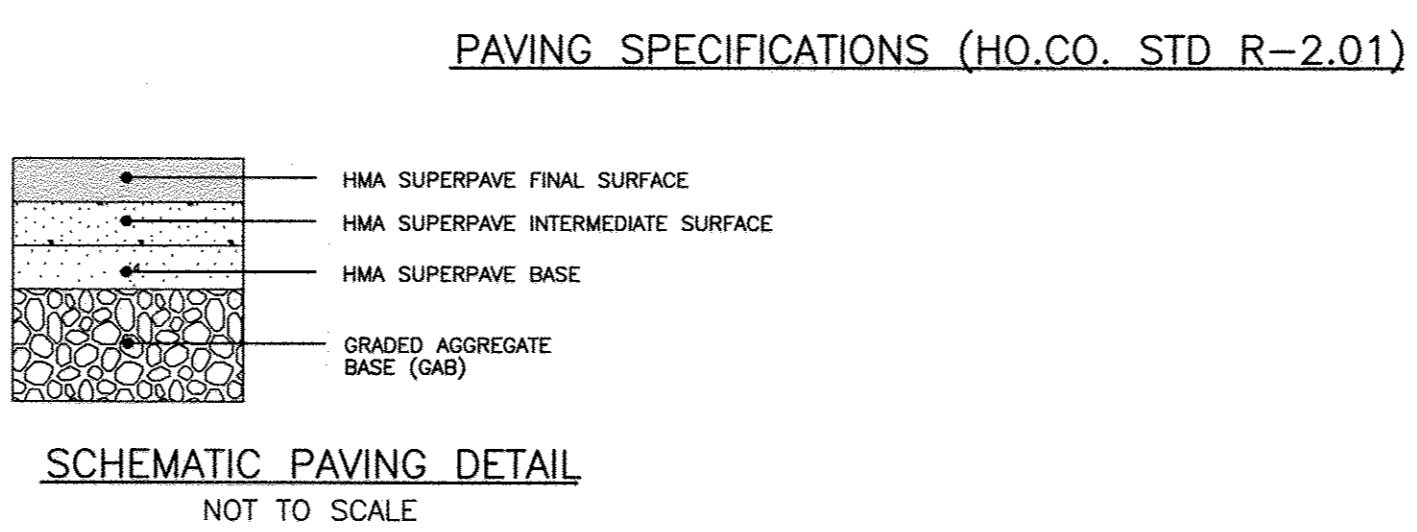




PATUXENT VALLEY LANE PRIVATE ROAD
 26' CLOSED PAVING SECTION
 71 RESIDENTIAL LOTS = 71 x 180' x 710' ADT
 26' PAVING - CLOSED SECTION
 POSTED SPEED LIMIT/DESIGN SPEED = 25 MPH

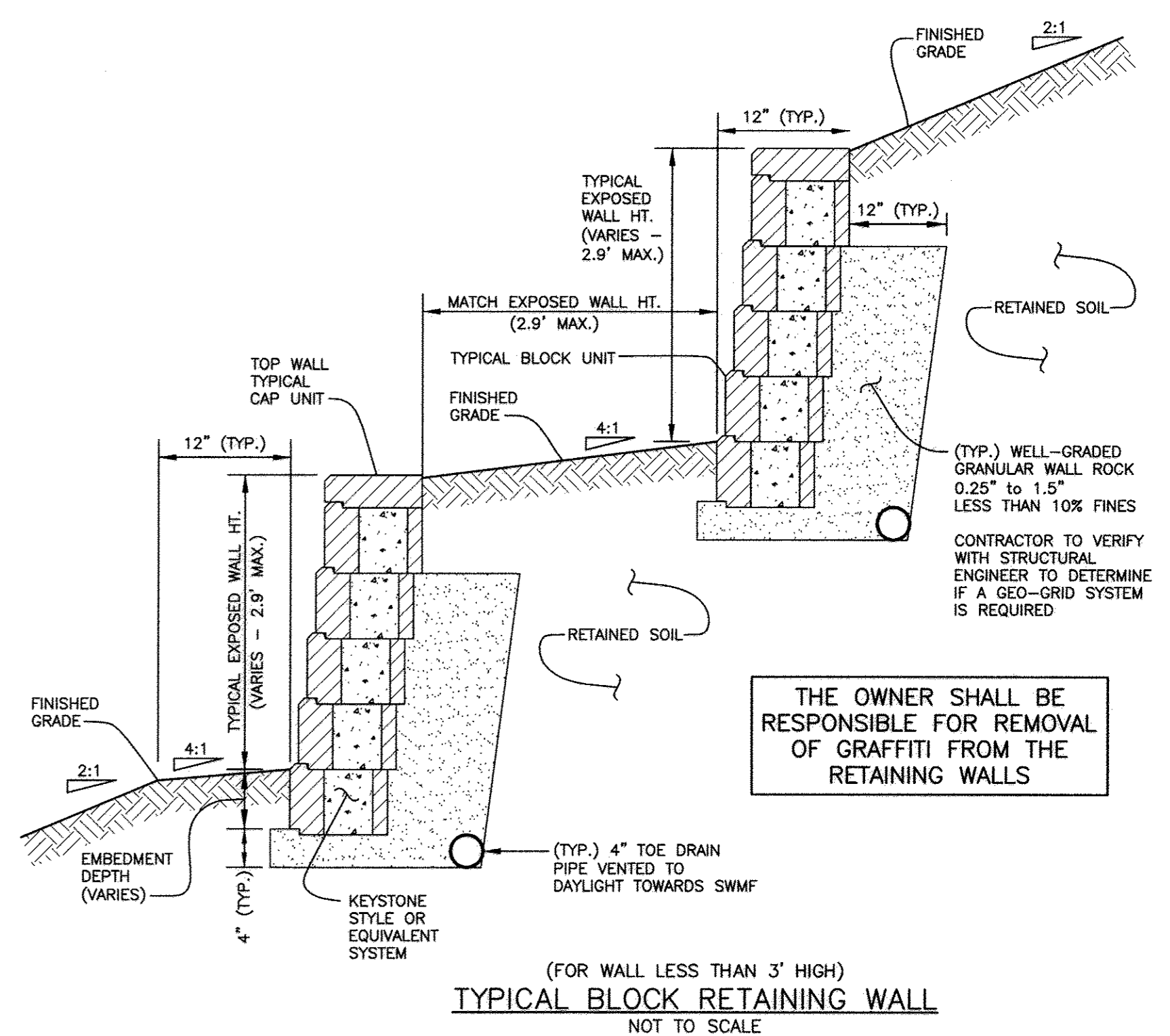
ROADWAY PROFILE
 VERTICAL SCALE: 1" = 5'
 HORIZONTAL SCALE: 1" = 50'

SECTION NUMBER	ROAD AND STREET CLASSIFICATION	CALIFORNIA BEARING RATIO (CBR) 3 to <5 to <7 to >7				MIN. HMA WITH GAB				HMA WITH CONSTANT GAB				
		3 to <5	5 to <7	7 to >7	>7	3 to <5	5 to <7	7 to >7	>7	3 to <5	5 to <7	7 to >7	>7	
P-2	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
		HMA SUPERPAVE INTERMEDIATE SURFACE		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE		2.0	2.0	2.0	3.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0
P-3	PARKING DRIVE AISLES: RESIDENTIAL AND NON-RESIDENTIAL WITH NO MORE THAN 10 HEAVY TRUCKS PER DAY LOCAL ROADS: ACCESS PLACE, ACCESS STREET CUL-DE-SAC: NON-RESIDENTIAL MINOR COLLECTORS: RESIDENTIAL	HMA SUPERPAVE FINAL SURFACE		1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
		HMA SUPERPAVE INTERMEDIATE SURFACE		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
		HMA SUPERPAVE BASE		3.0	3.0	3.0	4.5	3.0	2.0	2.0	2.0	2.0	2.0	2.0
		GRADED AGGREGATE BASE (GAB)		8.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	



NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

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. 21443, Expiration Date: 10-21-15



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chief of Development Engineering Division DATE: 9/11/14

Chief, Division of Land Development DATE: 10/21/14

Director DATE: 10/21/14

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

PROFESSIONAL CERTIFICATION:
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21443, Expiration Date: 6-30-2015

PROJECT: TOWNS AT PATUXENT ORCHARD
 LOT 2 OF ROMANK PROPERTY (PLAT #2227 TOWNS AT PATUXENT ORCHARD) 71 SFA TOWNHOMES

OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778

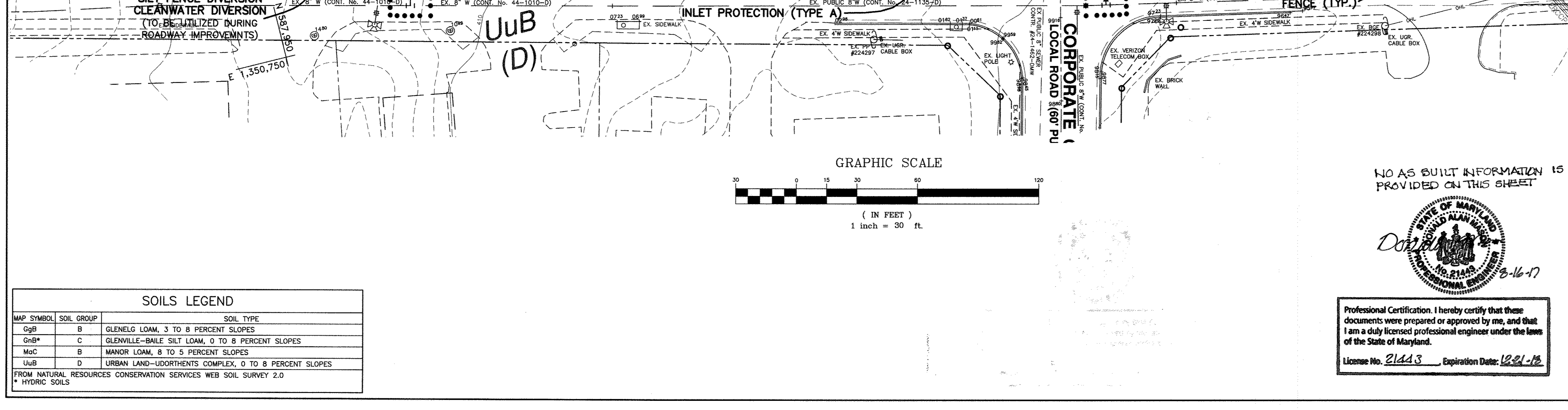
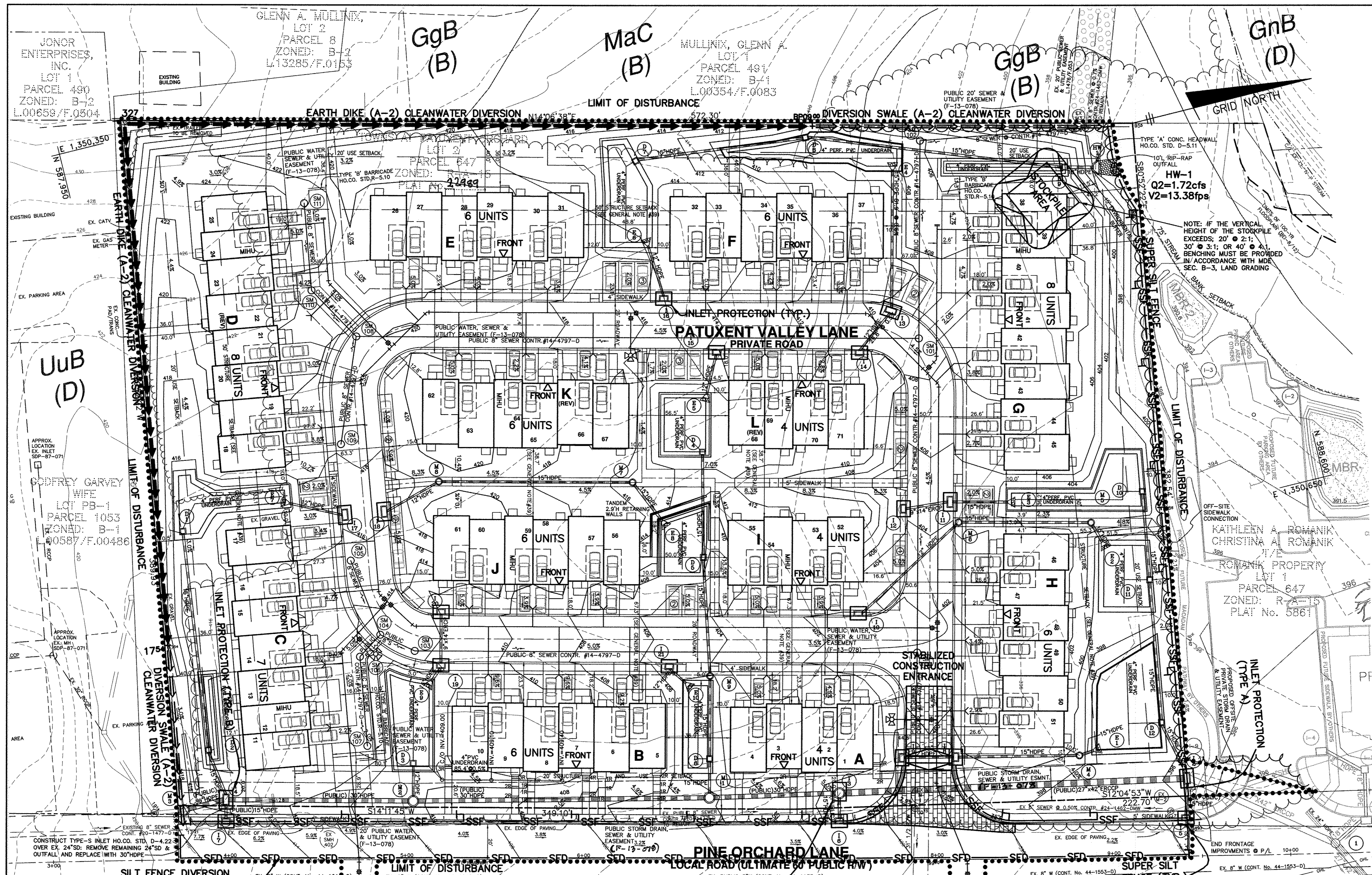
LOCATION: TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN ROADWAY PROFILES NOTES AND DETAILS

DATE: FEBRUARY, 2014 PROJECT NO. 2429
 MAY, 2014

SCALE: AS SHOWN DRAWING 5 OF 16

Design: MCR Draft: MCR Check: BFC



BY THE DEVELOPER:
 "I WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT."
 DEVELOPER: *Keith Hoens* 8/20/14 DATE
Randolph Hoens - Managing Member

BY THE ENGINEER:
 "I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."
 ENGINEER: *Clayton M. Magan* 8/20/14 DATE
John C. Whitford 9/2/14 DATE
 APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
John C. Whitford 9-11-14 DATE
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
V. Stalwood 10-02-14 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT
Mark D. Cagle 10/14/14 DATE
 DIRECTOR

NO.	DATE	REVISION

BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE
 SUITE 315
 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-8105 (F) 410-465-8644
 WWW.BEI-CVLENGINEERING.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. 21443, Issuance Date: 6-30-2015

OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENS 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778	PROJECT: LOT 2 TOWNS AT PATUXENT ORCHARD LOT 2 OF ROMANIK PROPERTY (PLAT #2227 TOWNS AT PATUXENT ORCHARD) 71 SFA TOWNHOMES
TITLE: SEDIMENT & EROSION CONTROL PLAN, NOTES AND DETAILS	DATE: FEBRUARY, 2014 MAY, 2014
Design: MCR Draft: MCR Check: BFC	PROJECT NO. 2429 SCALE: AS SHOWN DRAWING 6 OF 16

NO AS BUILT INFORMATION IS PROVIDED ON THIS SHEET

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. 21443 Expiration Date: 12-31-15

B-4 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION... Using vegetation as cover to protect exposed soil from erosion... To promote the establishment of vegetation on exposed soil...

B-4-1 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION... Establishment of vegetative cover on out and fill slopes... To provide timely vegetative cover on out and fill slopes as work progresses...

B-4-5 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION... To stabilize disturbed soils with permanent vegetation... To use long-lived perennial grasses and legumes to establish permanent ground cover on disturbed soils...

H-5 STANDARDS AND SPECIFICATIONS FOR DUST CONTROL... To prevent blowing and movement of dust from exposed soil surfaces to reduce on and off-site damage including health and traffic hazards...

B-4-4 STANDARDS AND SPECIFICATIONS FOR PERMANENT STABILIZATION (CONTINUED)... Till areas to receive seed by disking or other approved methods to a depth of 2 to 4 inches... If soil moisture is deficient, supply new seedlings with adequate water for plant growth...

B-4-2 STANDARDS AND SPECIFICATIONS FOR SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS... The process of preparing the soils to sustain adequate vegetative stabilization... To provide a suitable soil medium for vegetative growth...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING... The application of seed and mulch to establish vegetative cover... To protect disturbed soils from erosion during and at the end of construction...

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION... To stabilize disturbed soils with vegetation for up to 6 months... To use fast growing vegetation that provides cover on disturbed soils...

B-4-4 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA... A mound or pile of soil protected by appropriately designed erosion and sediment control measures... To provide a designated location for the temporary storage of soil that controls the potential for erosion...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (CONTINUED)... All seed must meet the requirements of the Maryland State Seed Law... All seed must be tested within the most recent date of testing...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (CONTINUED)... All seed must meet the requirements of the Maryland State Seed Law... All seed must be tested within the most recent date of testing...

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B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (CONTINUED)... All seed must meet the requirements of the Maryland State Seed Law... All seed must be tested within the most recent date of testing...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (CONTINUED)... All seed must meet the requirements of the Maryland State Seed Law... All seed must be tested within the most recent date of testing...

B-4-3 STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (CONTINUED)... All seed must meet the requirements of the Maryland State Seed Law... All seed must be tested within the most recent date of testing...

SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 24 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION, (313--1850).
- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT 'MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL', REVISIONS THERO.

Table with 2 columns: Description and Value. Includes TOTAL AREA OF SITE (THIS SUBMISSION) 5.09 ACRES, AREA DISTURBED 2.4 ACRES, AREA TO BE ROOFED OR PAVED 5.8 ACRES, AREA TO BE VEGETATIVELY STABILIZED 12.6 ACRES, TOTAL CUT 14,680 CY**.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY THE SPOIL/BORROW SITE AND NOTIFY AND GAIN APPROVAL FROM THE SEDIMENT CONTROL INSPECTOR OF THE SITE AND ITS GRADING METHOD AT THE TIME OF CONSTRUCTION.

NOTE: THE AREAS OF ESD IMPLEMENTATION SHALL HAVE LIMITED ACCESS FROM HEAVY CONSTRUCTION EQUIPMENT TO AVOID UNNECESSARY COMPACTION WHEN PRACTICAL.

NOTE: ALL SUPER SILT FENCES TO BE CHECKED DAILY TO ENSURE COMPLIANCE AND REPAIRED IMMEDIATELY AS REQUIRED.

NOTE: NO CHANGES ARE ALLOWED TO THE SEQUENCE OF CONSTRUCTION WITHOUT PRIOR HOWARD SCD APPROVAL.

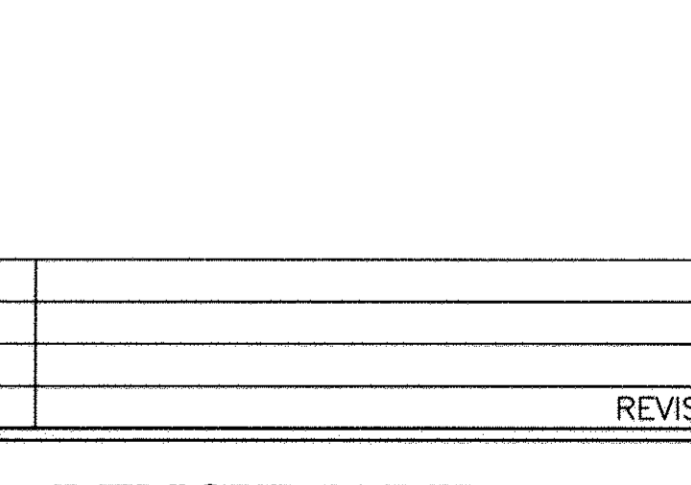
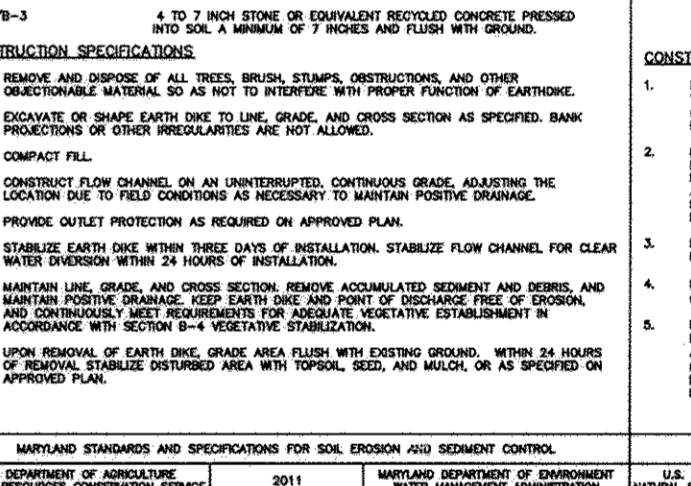
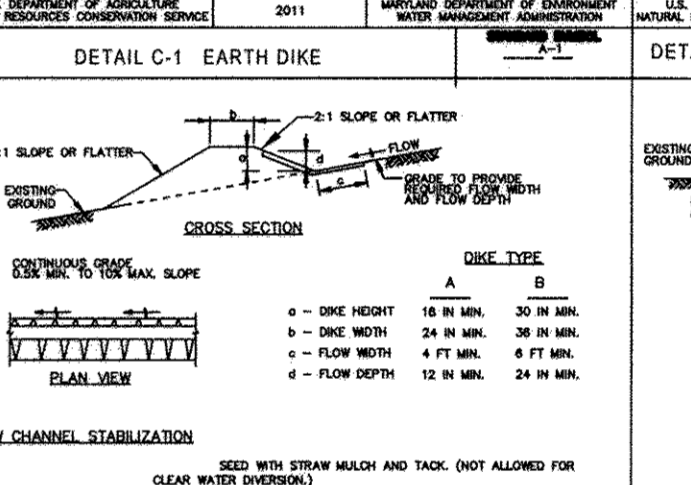
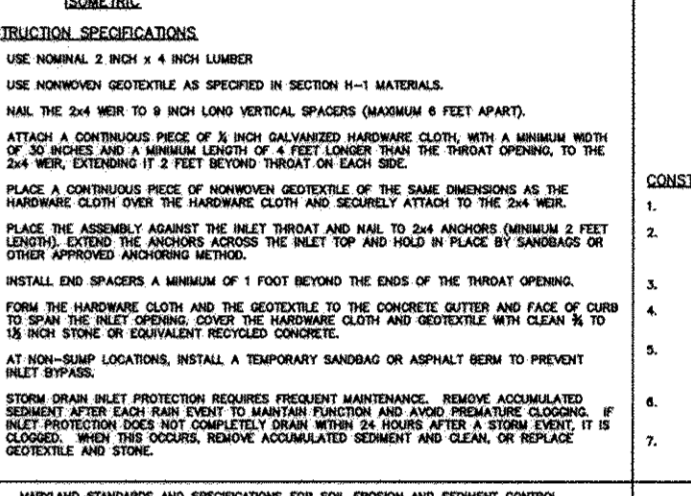
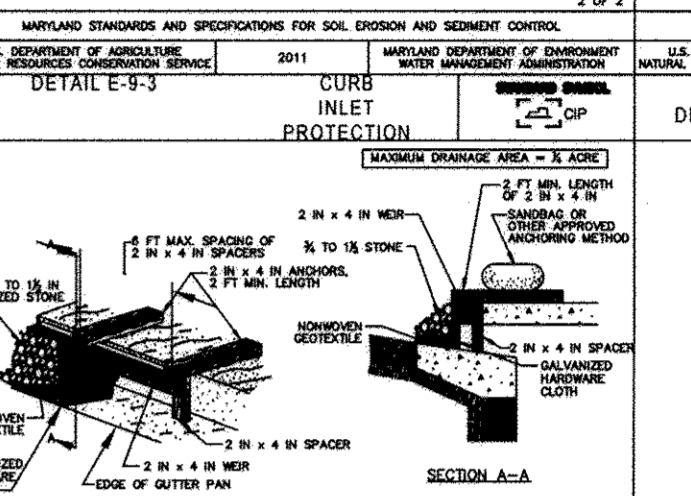
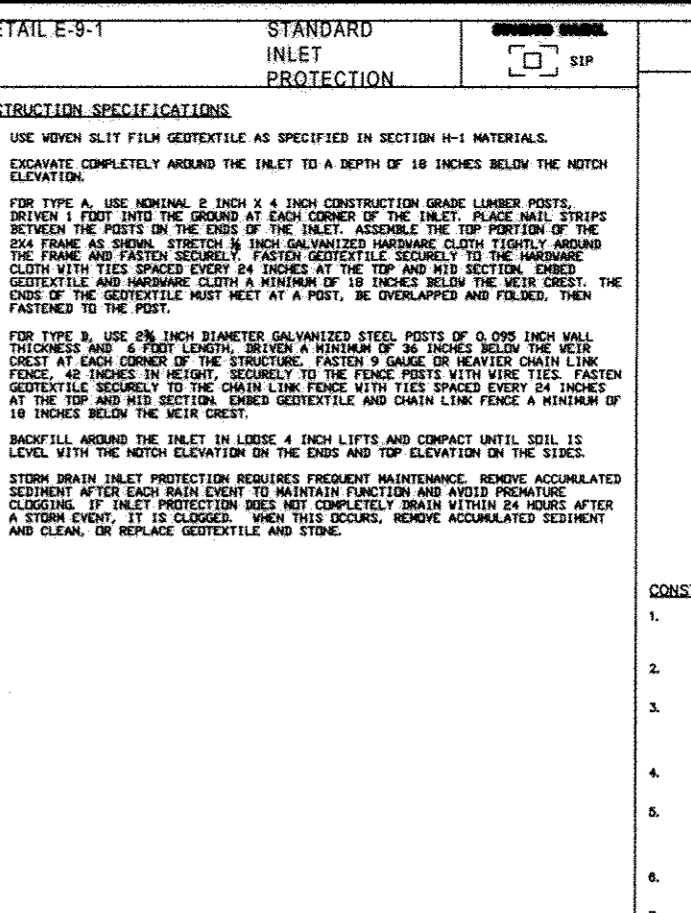
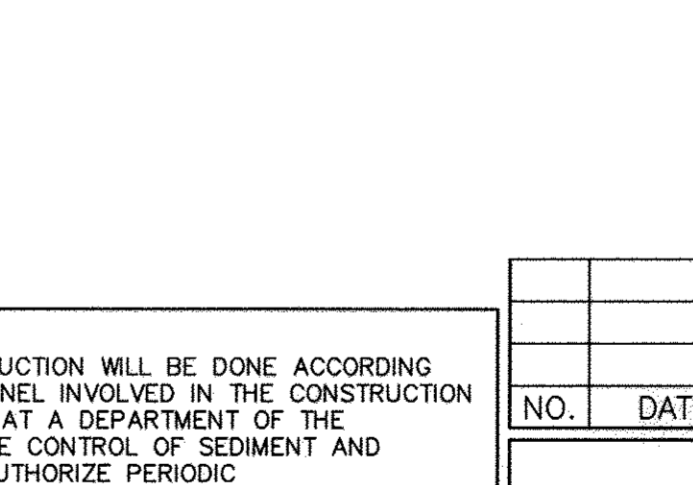
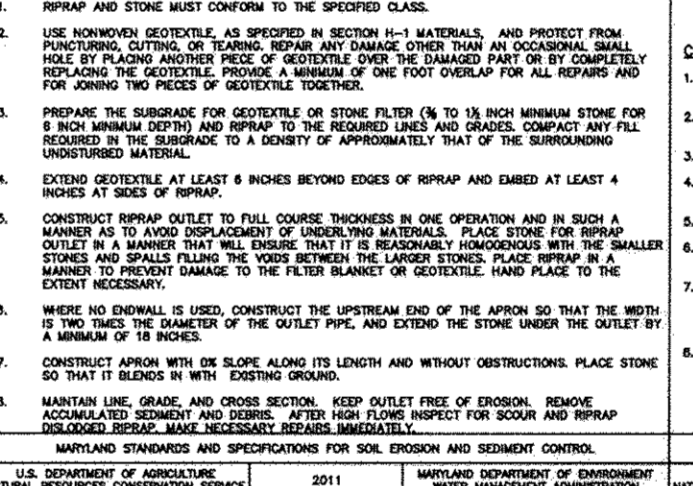
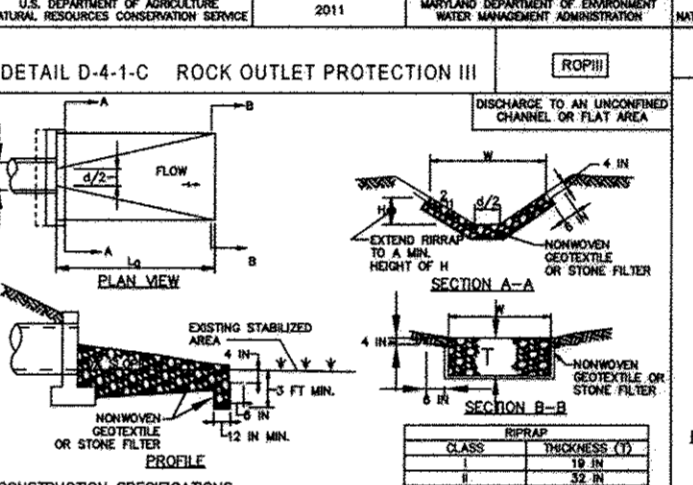
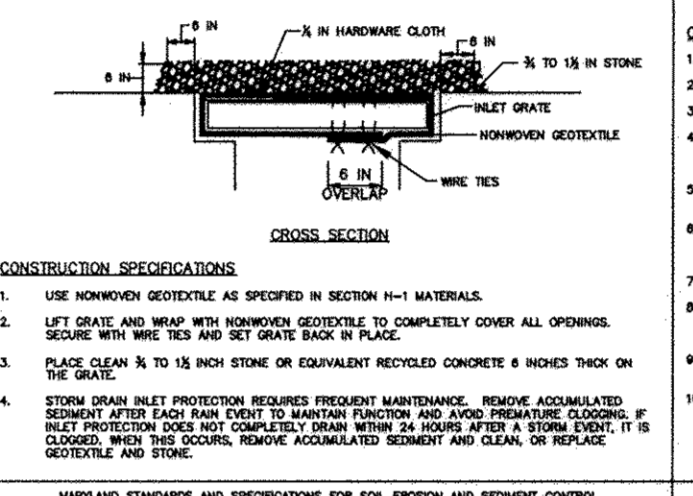
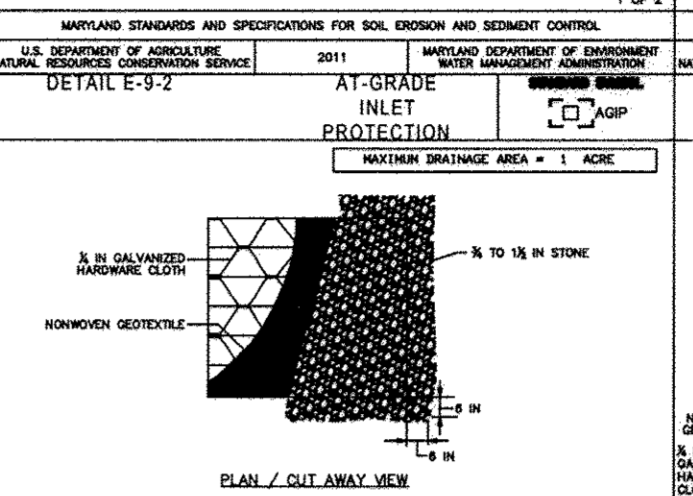
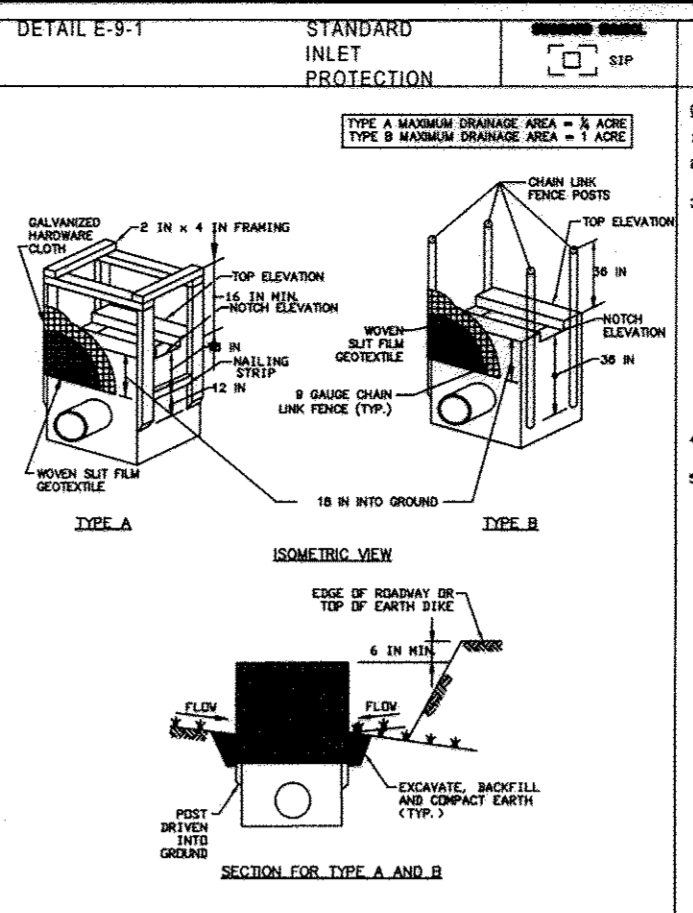
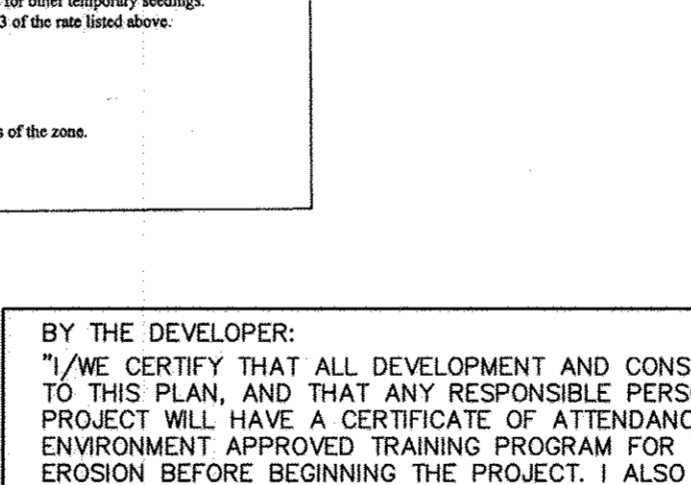
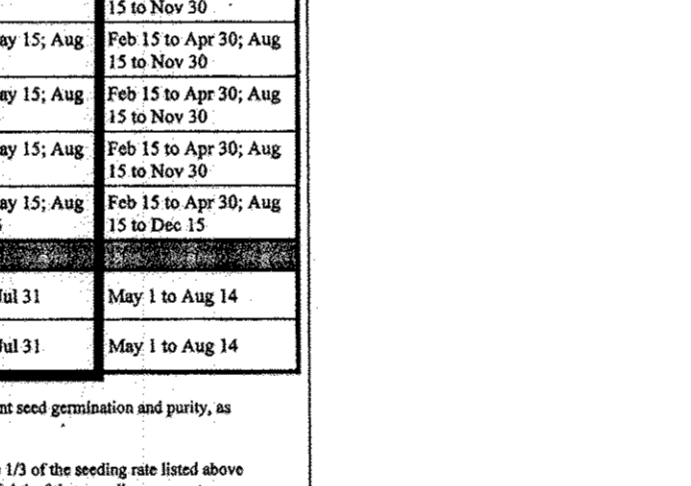
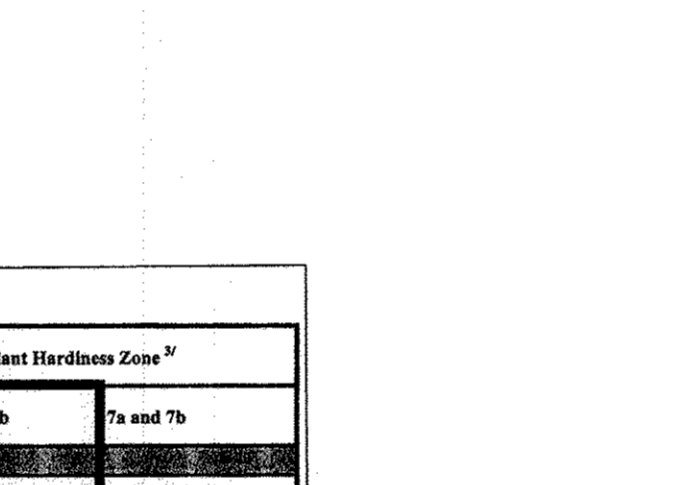
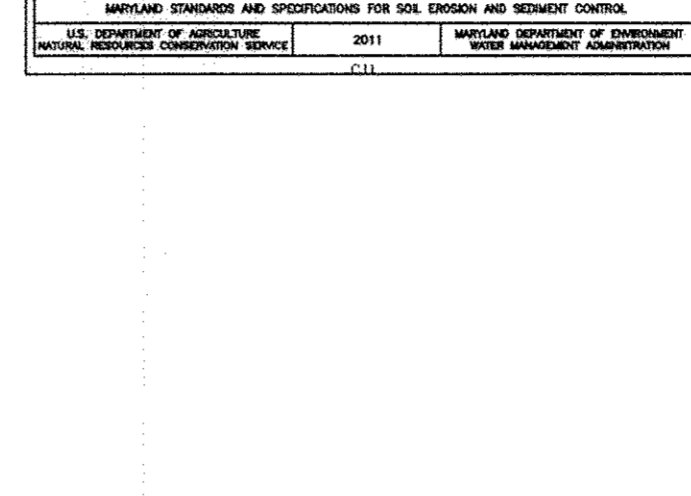
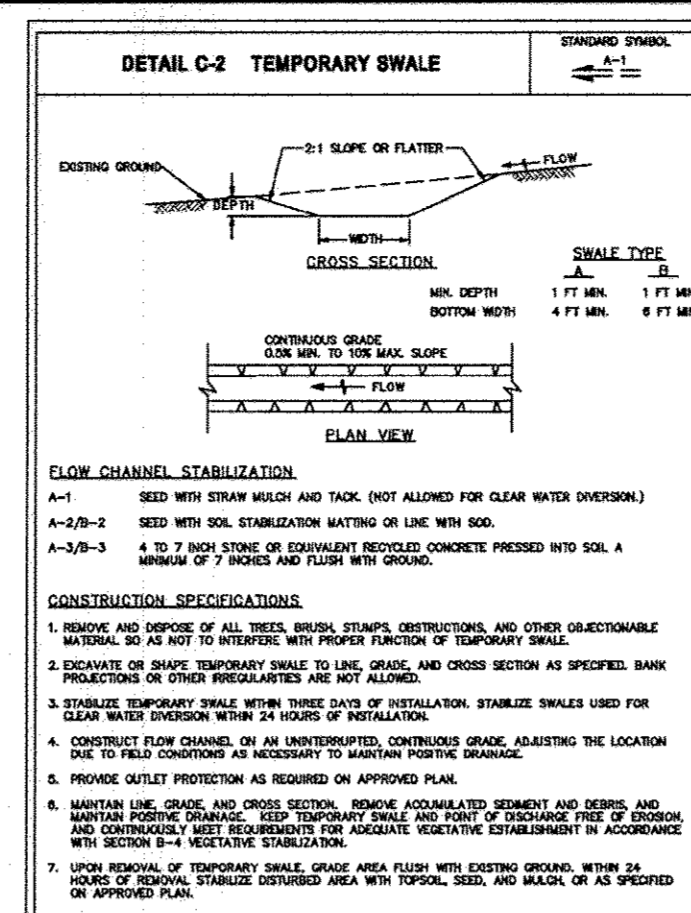
Table B.1: Temporary Seeding for Site Stabilization. Columns: Plant Species, Seeding Rate, Seeding Depth, Recommended Seeding Dates by Plant Hardiness Zone.

Notes regarding seeding rates for warm-season grasses in pounds of Pure Live Seed (PLS), Annual planting rates shall be adjusted to reflect percent seed germination and purity, etc.

SEQUENCE OF CONSTRUCTION

- DAY 1 Obtain grading permit.
- DAY 2-10 Clear and grub site within L.O.D. for installation of perimeter sediment control devices established under the approved Site Development Plans.
- DAY 11-14 Stabilize all disturbed areas in accordance with the temporary seeding notes.
- DAY 15-45 Install/renovate existing culvert under Pine Orchard Lane (in conjunction with construction activity on adjoining parcel under SDP-13-055). This work shall be approved by the inspector prior to proceeding with further disturbance/grading.

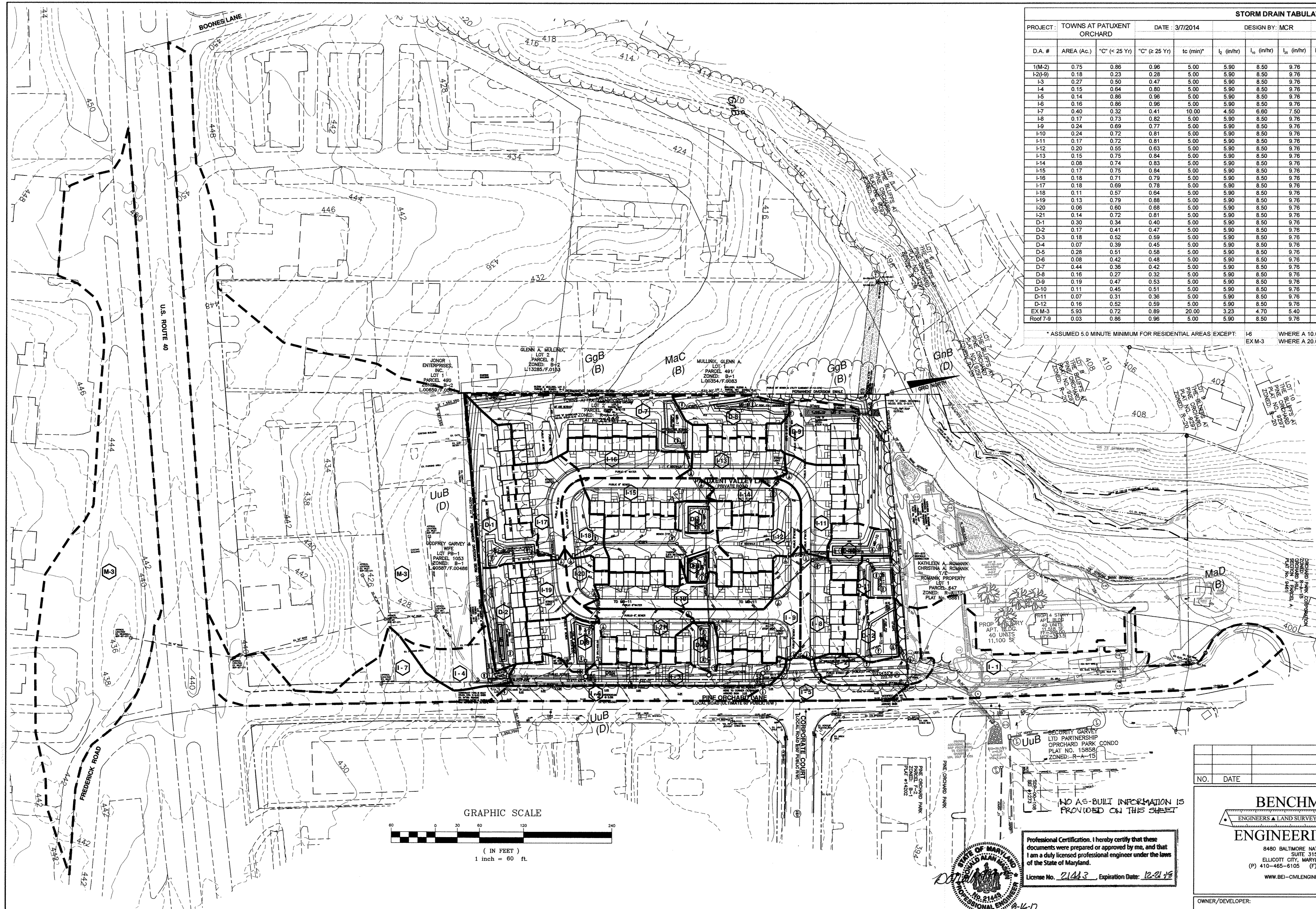
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 21463, Expiration Date: 2/21/18.



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. 21463, Expiration Date: 2/21/18.

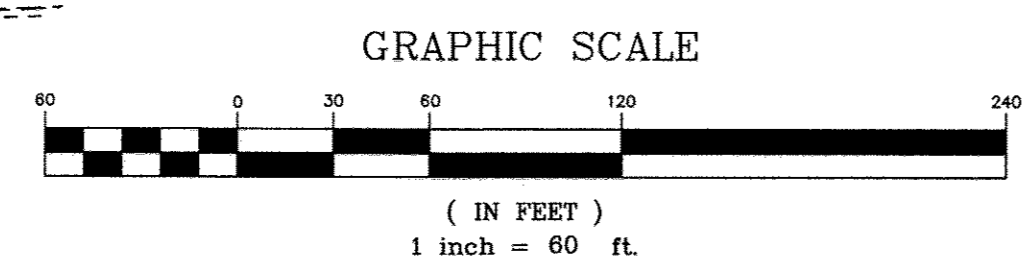
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STORM DRAIN TABULATIONS														
PROJECT:	TOWNS AT PATUXENT ORCHARD	DATE:	3/7/2014	DESIGN BY:	MCR	BEI JOB NO.:	2429							
D.A. #	AREA (Ac.)	"C" (< 25 Yr)	"C" (≥ 25 Yr)	tc (min)	t_2 (in/hr)	t_3 (in/hr)	t_4 (in/hr)	t_{10} (in/hr)	Q_2 (cfs)	Q_5 (cfs)	Q_{10} (cfs)	Q_{100} (cfs)	ZONING (Z)	% IMPERVIOUS (P)
I(1-2)	0.75	0.86	0.96	5.00	5.90	8.50	9.76	12.50	3.82	5.51	7.06	9.04	R-A-15	N/A
I(2-9)	0.18	0.23	0.28	5.00	5.90	8.50	9.76	12.50	0.24	0.35	0.48	0.62	R-A-15	0.10
I-3	0.27	0.50	0.47	5.00	5.90	8.50	9.76	12.50	0.80	1.15	1.24	1.59	R-A-15	0.35
I-4	0.15	0.64	0.80	5.00	5.90	8.50	9.76	12.50	0.55	0.80	1.13	1.45	R-A-15	0.73
I-5	0.14	0.86	0.96	5.00	5.90	8.50	9.76	12.50	0.71	1.02	1.31	1.68	R-A-15	1.00
I-6	0.16	0.86	0.96	5.00	5.90	8.50	9.76	12.50	0.83	1.20	1.53	1.96	R-A-15	1.00
I-7	0.40	0.32	0.41	10.00	4.50	6.60	7.50	10.00	0.58	0.85	1.24	1.66	R-A-15	0.66
I-8	0.17	0.73	0.82	5.00	5.90	8.50	9.76	12.50	0.74	1.06	1.37	1.75	R-A-15	0.81
I-9	0.24	0.69	0.77	5.00	5.90	8.50	9.76	12.50	0.99	1.42	1.83	2.35	R-A-15	0.76
I-10	0.24	0.72	0.81	5.00	5.90	8.50	9.76	12.50	1.03	1.49	1.92	2.48	R-A-15	0.80
I-11	0.17	0.72	0.81	5.00	5.90	8.50	9.76	12.50	0.72	1.04	1.34	1.72	R-A-15	0.80
I-12	0.20	0.55	0.63	5.00	5.90	8.50	9.76	12.50	0.65	0.94	1.22	1.56	R-A-15	0.56
I-13	0.15	0.75	0.84	5.00	5.90	8.50	9.76	12.50	0.65	0.94	1.21	1.54	R-A-15	0.84
I-14	0.08	0.74	0.83	5.00	5.90	8.50	9.76	12.50	0.37	0.53	0.68	0.87	R-A-15	0.82
I-15	0.17	0.75	0.84	5.00	5.90	8.50	9.76	12.50	0.76	1.09	1.41	1.80	R-A-15	0.84
I-16	0.18	0.71	0.79	5.00	5.90	8.50	9.76	12.50	0.77	1.11	1.43	1.83	R-A-15	0.78
I-17	0.18	0.69	0.78	5.00	5.90	8.50	9.76	12.50	0.72	1.03	1.33	1.71	R-A-15	0.76
I-18	0.11	0.57	0.64	5.00	5.90	8.50	9.76	12.50	0.38	0.55	0.72	0.92	R-A-15	0.58
I-19	0.13	0.79	0.88	5.00	5.90	8.50	9.76	12.50	0.59	0.85	1.10	1.41	R-A-15	0.88
I-20	0.06	0.60	0.68	5.00	5.90	8.50	9.76	12.50	0.22	0.32	0.41	0.53	R-A-15	0.63
I-21	0.14	0.72	0.81	5.00	5.90	8.50	9.76	12.50	0.59	0.85	1.10	1.40	R-A-15	0.80
D-1	0.30	0.34	0.40	5.00	5.90	8.50	9.76	12.50	0.61	0.88	1.17	1.50	R-A-15	0.26
D-2	0.17	0.41	0.47	5.00	5.90	8.50	9.76	12.50	0.41	0.59	0.78	1.00	R-A-15	0.36
D-3	0.18	0.52	0.59	5.00	5.90	8.50	9.76	12.50	0.56	0.80	1.05	1.34	R-A-15	0.52
D-4	0.07	0.39	0.45	5.00	5.90	8.50	9.76	12.50	0.17	0.25	0.33	0.42	R-A-15	0.33
D-5	0.28	0.51	0.58	5.00	5.90	8.50	9.76	12.50	0.83	1.19	1.56	2.00	R-A-15	0.49
D-6	0.08	0.42	0.48	5.00	5.90	8.50	9.76	12.50	0.20	0.29	0.38	0.49	R-A-15	0.37
D-7	0.44	0.36	0.42	5.00	5.90	8.50	9.76	12.50	0.94	1.36	1.81	2.31	R-A-15	0.29
D-8	0.16	0.27	0.32	5.00	5.90	8.50	9.76	12.50	0.26	0.37	0.50	0.64	R-A-15	0.16
D-9	0.19	0.47	0.53	5.00	5.90	8.50	9.76	12.50	0.52	0.75	0.98	1.25	R-A-15	0.44
D-10	0.11	0.45	0.51	5.00	5.90	8.50	9.76	12.50	0.28	0.40	0.53	0.67	R-A-15	0.41
D-11	0.07	0.31	0.36	5.00	5.90	8.50	9.76	12.50	0.13	0.18	0.24	0.31	R-A-15	0.21
D-12	0.16	0.52	0.59	5.00	5.90	8.50	9.76	12.50	0.48	0.69	0.90	1.15	R-A-15	0.51
EX M-3	5.93	0.72	0.89	20.00	3.23	4.70	5.40	7.15	13.79	20.06	28.50	37.73	R-A-15	0.85
Roof 7-9	0.03	0.86	0.96	5.00	5.90	8.50	9.76	12.50	0.13	0.19	0.24	0.31	R-A-15	1.00

* ASSUMED 5.0 MINUTE MINIMUM FOR RESIDENTIAL AREAS EXCEPT: I-6 WHERE A 10.0 MINUTE t_c IS ASSUMED
 EX M-3 WHERE A 20.0 MINUTE t_c IS ASSUMED



NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET

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. 21443 Expiration Date: 12-31-18

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) 410-465-8644
 WWW.BEI-CVLENGINEERING.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. 22990, Expiration Date: 6-30-2015

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
GgB	B	GLENELG LOAM, 3 TO 8 PERCENT SLOPES
GgB*	C	GLENVILLE-BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES
MaC	B	MANOR LOAM, 8 TO 5 PERCENT SLOPES
UuB	D	URBAN LAND-UDORTMENTS COMPLEX, 0 TO 8 PERCENT SLOPES

FROM NATURAL RESOURCES CONSERVATION SERVICES WEB SOIL SURVEY 2.0
 * HYDRIC SOILS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Howard
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY 9/11/14 DATE

Kathleen Lewis
 CHIEF, DIVISION OF LAND DEVELOPMENT 10-02-14 DATE

David de Long
 DIRECTOR 10/2/14 DATE

OWNER/DEVELOPER: KAISER ORCHARD, LLC
 c/o RANDOLPH HOENES
 8198 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-900-9778

PROJECT: TOWNS AT PATUXENT ORCHARD
 LOT 2 OF ROMANIK PROPERTY (PLAT #22727 TOWNS AT PATUXENT ORCHARD)
 71 SFA TOWNHOMES

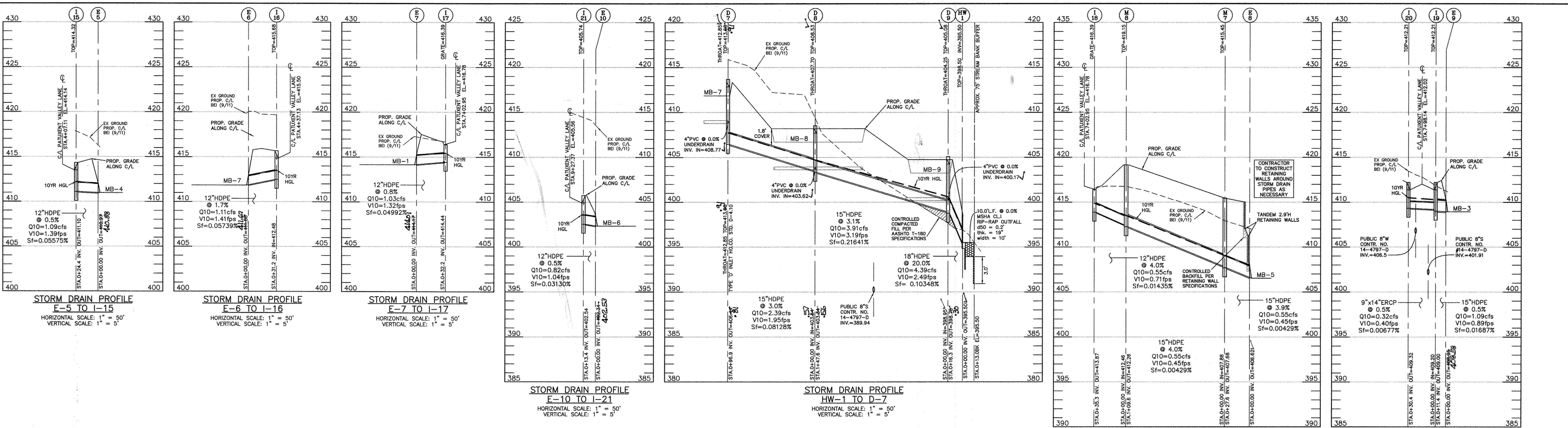
LOCATION: TAX MAP: 24 / GRID: 01
 PARCEL: 0647 / ZONE: R-A-15
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN
 STORM DRAIN DRAINAGE AREA MAP

DATE: FEBRUARY, 2014 PROJECT NO. 2429
 MAY, 2014

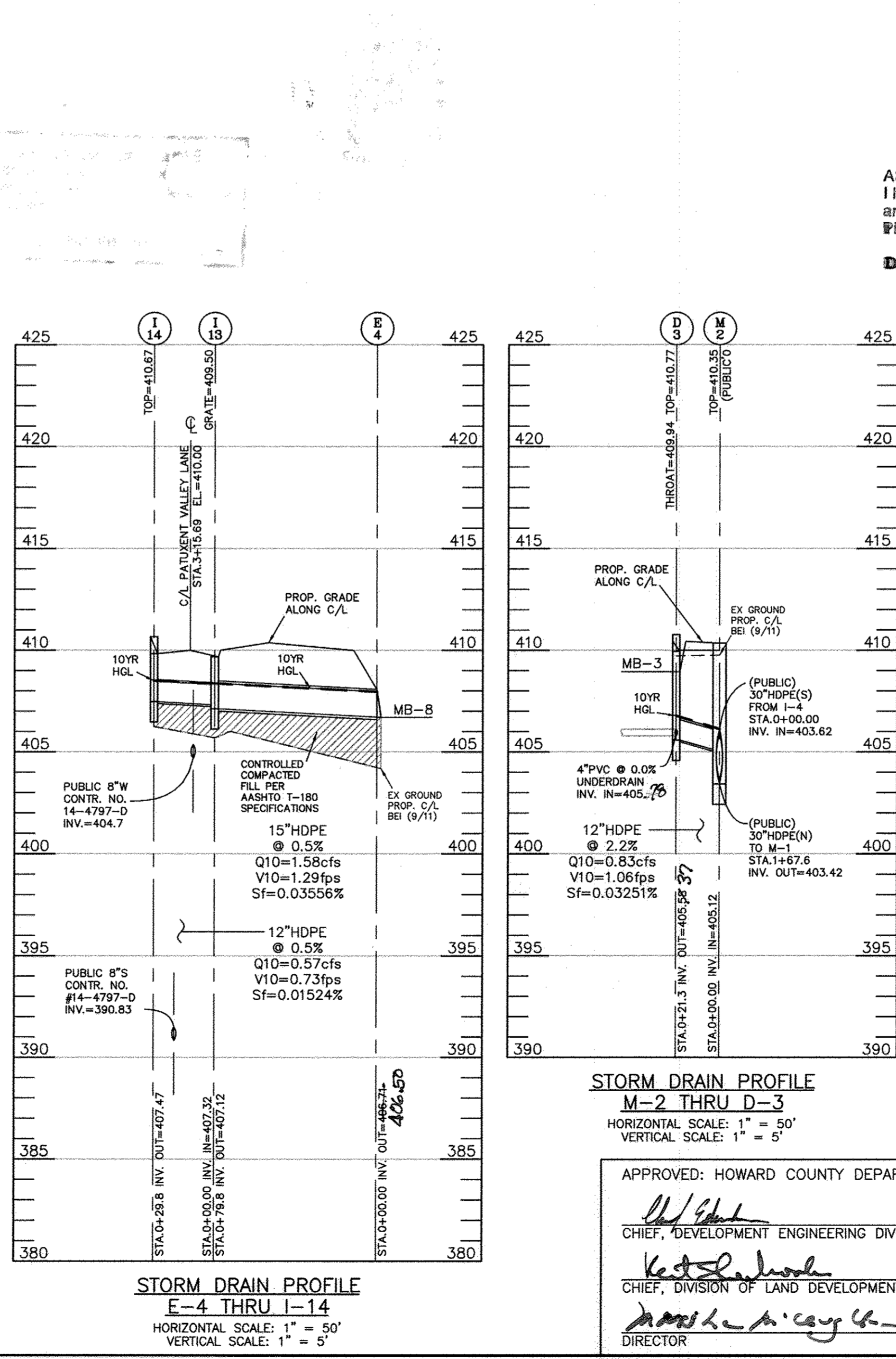
SCALE: AS SHOWN DRAWING 8 OF 16

Design: MCR Draft: MCR Check: BFC



STORM DRAIN STRUCTURE SCHEDULE										
NO.	TYPE	COORDINATES	INVERT IN	INVERT OUT	TOP ELEV.	THROAT EL.	HO. CO. STD.	REMARKS	MAINT.	
1	SD STRUCTURE	N 588,578.83 E 1,350,844.80	391.46	391.46	391.36	-	D-4.23	M-2 SDP-13-055 ROMANKI LOT 1	PUBLIC	
I-2	DOUBLE TYPE "S"	N 588,484.1635 E 1,350,796.8845	392.20	392.20	392.00	-	D-4.23	I-9 SDP-13-055 ROMANKI LOT 1	PUBLIC	
I-3	MODIFIED SHA 60" x 90"	N 588,291.4814 E 1,350,757.5291	396.33	397.58	396.13	-	MD-384.03	SEE DETAIL SHEET 10	PUBLIC	
I-4	DOUBLE TYPE "S"	N 587,953.5722 E 1,350,677.9675	407.54	408.79	407.34	-	D-4.23	-	PUBLIC	
I-5	PRE-CAST A-5	N 588,478.2513 E 1,350,818.4793	-	-	392.65	-	D-4.01	-	PUBLIC	
I-6	PRE-CAST A-5	N 588,287.6320 E 1,350,772.7541	-	-	401.67	-	D-4.01	-	PUBLIC	
I-7	PRE-CAST A-5	N 588,360.1755 E 1,350,753.7073	396.57	396.37	399.89	-	D-4.01	-	PRIVATE	
I-8	PRE-CAST A-5	N 588,330.6282 E 1,350,746.7220	-	-	396.75	-	D-4.01	-	PRIVATE	
I-10	PRE-CAST A-5	N 588,326.1780 E 1,350,681.1978	-	-	401.80	-	D-4.01	-	PRIVATE	
I-11	DOUBLE TYPE "S"	N 588,391.7763 E 1,350,612.4936	401.20	-	404.48	-	D-4.23	-	PRIVATE	
I-12	PRE-CAST A-5	N 588,365.2456 E 1,350,609.8686	-	-	401.33	-	D-4.01	-	PRIVATE	
I-13	DOUBLE TYPE "S"	N 588,385.3002 E 1,350,499.0862	407.32	-	407.12	-	D-4.01	-	PRIVATE	
I-14	PRE-CAST A-5	N 588,362.3250 E 1,350,518.0253	-	-	407.47	-	D-4.01	-	PRIVATE	
I-15	PRE-CAST A-5	N 588,283.8587 E 1,350,498.3257	-	-	411.10	-	D-4.01	-	PRIVATE	
I-16	PRE-CAST A-5	N 588,262.2455 E 1,350,461.5635	-	-	412.48	-	D-4.01	-	PRIVATE	
I-17	DOUBLE TYPE "S"	N 588,057.6387 E 1,350,537.2726	-	-	414.44	-	D-4.23	-	PRIVATE	
I-18	DOUBLE TYPE "S"	N 588,079.7255 E 1,350,540.8211	-	-	413.87	-	D-4.23	-	PRIVATE	
I-19	PRE-CAST A-5	N 588,089.9012 E 1,350,633.1075	409.20	-	409.00	-	D-4.01	-	PRIVATE	
I-20	PRE-CAST A-5	N 588,097.3028 E 1,350,603.6635	-	-	409.32	-	D-4.01	-	PRIVATE	
I-21	PRE-CAST A-5	N 588,215.2284 E 1,350,684.6115	-	-	402.54	-	D-4.01	-	PRIVATE	
M-1	STD. 4.0' PRE-CAST	N 588,219.4606 E 1,350,742.3190	398.40	398.40	398.20	-	D-5.13	-	PUBLIC	
M-2	STD. 5.0' PRE-CAST	N 588,056.2848 E 1,350,703.9498	403.62	405.12	403.42	-	D-5.13	-	PUBLIC	
M-3	STD. 5.0' PRE-CAST	N 587,990.2 E 1,350,799.4	409.6 (6x)	409.6 (6x)	417.50	-	D-5.14	"DOGHOUSE" OVER EX. 24" RCP	PUBLIC	
M-4	STD. 4.0' PRE-CAST	N 588,428.2389 E 1,350,769.2389	396.00	-	395.80	-	D-5.12	SHALLOW MH	PRIVATE	
M-5	STD. 4.0' PRE-CAST	N 588,466.1838 E 1,350,643.1781	397.70	-	397.50	-	D-5.12	-	PRIVATE	
M-6	STD. 4.0' PRE-CAST	N 588,393.7209 E 1,350,624.9478	398.27	-	398.07	-	D-5.12	-	PRIVATE	
M-7	STD. 4.0' PRE-CAST	N 588,320.1370 E 1,350,558.4118	407.88	-	407.68	-	D-5.12	-	PRIVATE	
M-8	STD. 4.0' PRE-CAST	N 588,113.8346 E 1,350,531.6888	412.46	-	419.15	-	D-5.12	-	PRIVATE	
M-9	STD. 4.0' PRE-CAST	N 588,236.2823 E 1,350,675.4956	399.60	399.40	404.00	-	D-5.12	-	PRIVATE	
E-1	15" HDPE END SEC.	N 588,436.8730 E 1,350,769.0331	395.75	-	-	-	N/A	MB-12	PRIVATE	
E-2	15" HDPE END SEC.	N 588,469.6850 E 1,350,655.4770	397.40	-	-	-	N/A	MB-11	PRIVATE	
E-3	15" HDPE END SEC.	N 588,423.2893 E 1,350,620.4675	400.80	-	-	-	N/A	MB-10	PRIVATE	
E-4	15" HDPE END SEC.	N 588,405.2899 E 1,350,421.8738	406.70	-	-	-	N/A	MB-8	PRIVATE	
E-5	12" HDPE END SEC.	N 588,272.7789 E 1,350,520.0300	410.97	-	-	-	N/A	MB-4	PRIVATE	
E-6	12" HDPE END SEC.	N 588,260.8667 E 1,350,430.3568	411.85	-	-	-	N/A	MB-7	PRIVATE	
E-7	12" HDPE END SEC.	N 588,028.5782 E 1,350,523.3488	414.16	-	-	-	N/A	MB-1	PRIVATE	
E-8	15" HDPE END SEC.	N 588,231.1520 E 1,350,583.6906	406.53	-	-	-	N/A	MB-5	PRIVATE	
E-9	15" HDPE END SEC.	N 588,082.5260 E 1,350,640.5950	408.94	-	-	-	N/A	MB-3	PRIVATE	
E-10	12" HDPE END SEC.	N 588,222.5221 E 1,350,676.7880	402.33	-	-	-	N/A	MB-6	PRIVATE	
D-1	PRE-CAST TYPE "D"	N 587,966.3726 E 1,350,524.3742	-	411.08 (4')	411.00	415.99	415.16	D-4.10	MB-1 OPEN ON THREE SIDES	PRIVATE
D-2	PRE-CAST TYPE "D"	N 587,950.6349 E 1,350,648.2797	408.34	408.42 (4')	408.14	413.33	412.50	D-4.10	MB-2 OPEN ON THREE SIDES	PRIVATE
D-3	PRE-CAST TYPE "D"	N 588,061.4336 E 1,350,683.2840	-	405.86 (4')	405.58	410.77	409.94	D-4.10	MB-3 OPEN ON THREE SIDES	PRIVATE
D-4	PRE-CAST TYPE "D"	N 588,262.6236 E 1,350,551.3027	-	407.89 (4')	407.61	412.80	411.97	D-4.10	MB-4 OPEN ON THREE SIDES	PRIVATE
D-5	PRE-CAST TYPE "D"	N 588,248.7732 E 1,350,609.2873	403.37	403.45 (4')	403.17	408.36	407.53	D-4.10	MB-5 OPEN ON THREE SIDES	PRIVATE
D-6	PRE-CAST TYPE "D"	N 588,224.8505 E 1,350,721.0119	399.17	399.25 (4')	398.97	404.16	403.33	D-4.10	MB-6 OPEN ON THREE SIDES	PRIVATE
D-7	PRE-CAST TYPE "D"	N 588,265.5540 E 1,350,381.9007	-	408.77 (4')	408.44	413.88	412.85	D-4.10	MB-7 OPEN ON THREE SIDES	PRIVATE
D-8	PRE-CAST TYPE "D"	N 588,361.8659 E 1,350,392.2011	403.54	403.62 (4')	403.34	408.53	407.70	D-4.10	MB-8 OPEN ON THREE SIDES	PRIVATE
D-9	PRE-CAST TYPE "D"	N 588,500.0744 E 1,350,444.0971	398.95	400.17 (4')	398.75	405.08	404.25	D-4.10	MB-9 OPEN ON THREE SIDES	PRIVATE
D-10	PRE-CAST TYPE "D"	N 588,498.9939 E 1,350,633.1355	-	397.72 (4')	397.44	402.83	401.80	D-4.10	MB-10 OPEN ON THREE SIDES	PRIVATE
D-11	PRE-CAST TYPE "D"	N 588,490.8348 E 1,350,682.6746	394.24	394.32 (4')	394.04	399.23	398.40	D-4.10	MB-11 OPEN ON THREE SIDES	PRIVATE
D-12	PRE-CAST TYPE "D"	N 588,477.9069 E 1,350,762.9109	392.59	392.67 (4')	392.39	397.58	396.75	D-4.10	MB-12 OPEN ON THREE SIDES	PRIVATE
HW-1	TYPE 'A' HEADWALL	N 588,515.8505 E 1,350,448.0828	-	-	395.50	-	D-3.11	OUTFALL @ P/L - 75' BUFFER	PRIVATE	

NOTES:
 1. STRUCTURE LOCATION FOR INLETS IS AT THE TOP AND CENTER OF STRUCTURE.
 2. STRUCTURE LOCATION FOR ENDSECTIONS IS AT THE CONNECTION OF PIPE AND END SECTION.
 3. STRUCTURE LOCATION FOR MANHOLES IS AT THE CENTER OF THE STRUCTURE.



AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications

Donald Mason, P.E. Date: 8-16-17

STORM DRAIN PROFILE E-8 TO I-18
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

STORM DRAIN PROFILE E-9 TO I-20
 HORIZONTAL SCALE: 1" = 50'
 VERTICAL SCALE: 1" = 5'

OUTLET PROTECTION DETAIL
 NOT TO SCALE

CONSTRUCTION SPECIFICATIONS:
 1. THE SUBGRADE FOR THE FILTER, RIP-RAP, OR GABION SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL.
 2. THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LINES WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
 3. GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE PREPARED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETING REPAIRS TO THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
 4. STONE FOR THE RIP-RAP OR GABION OUTLETS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID DISPLACEMENT OF UNDERLYING MATERIALS. THE STONE FOR THE RIP-RAP OR GABION OUTLETS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE Voids BETWEEN THE LARGER STONES. RIP-RAP SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
 5. THE STONE SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GRADUE IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

PUBLIC PIPE SCHEDULE

SIZE	LENGTH	TYPE & CLASS
15"	50	HDPE
30"	372	HDPE
27"x42"	197	ELLIPTICAL RCP CL/V

PRIVATE PIPE SCHEDULE

SIZE	LENGTH	TYPE & CLASS
9"x14"	53	ELLIPTICAL RCP CL/V
12"	308	HDPE
15"	1200	HDPE
18"	18	HDPE

BENCHMARK ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE SUITE 315
 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-8644
 WWW.BEI-CIVILENGINEERING.COM

PROFESSIONAL CERTIFICATION:
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443 Expiration Date: 12-2-18

OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778

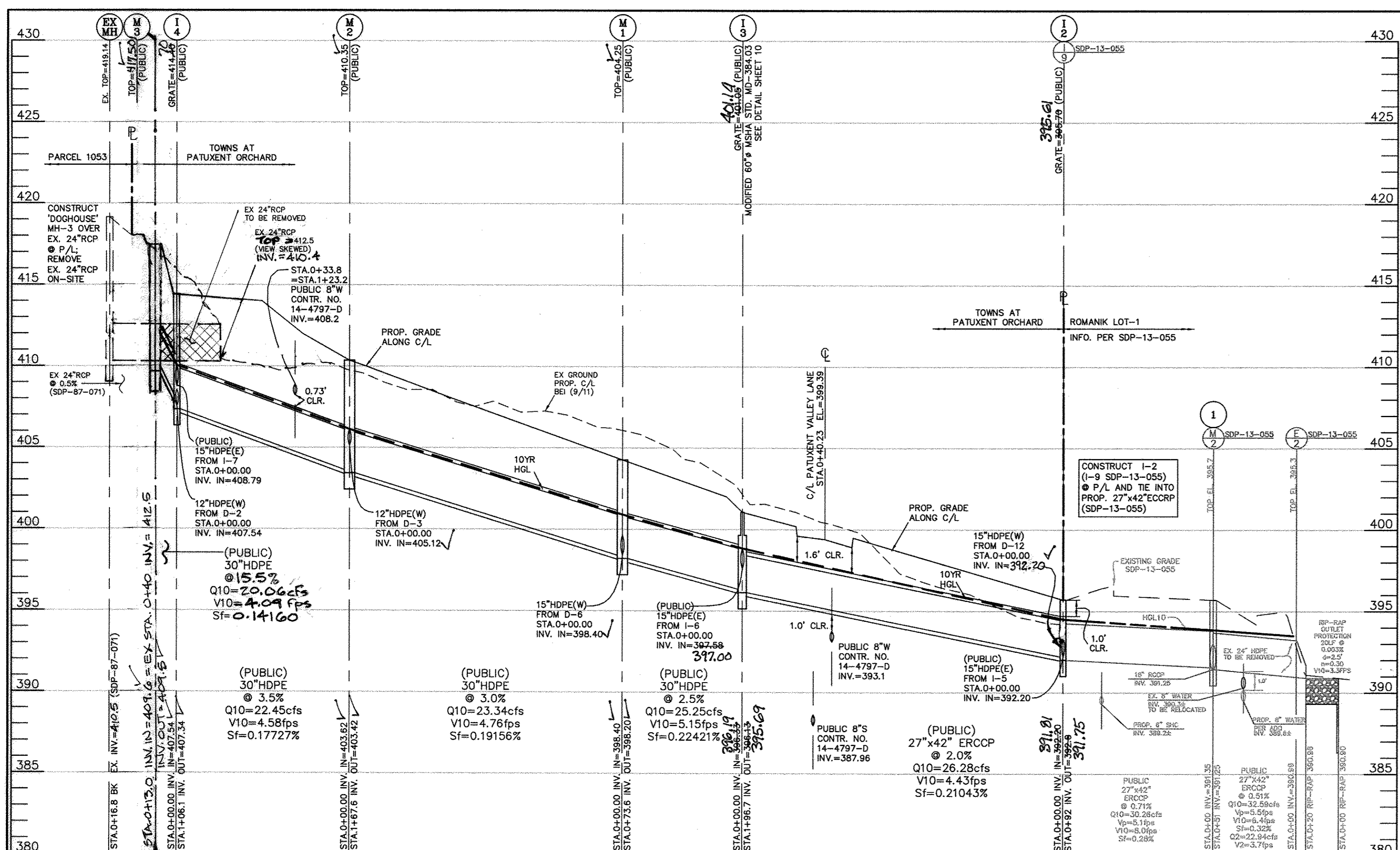
TOWNS AT PATUXENT ORCHARD
 LOT 2
 LOT 2 OF ROMANKI PROPERTY (PLAT #2227 TOWNS AT PATUXENT ORCHARD) 71 SPA TOWNHOMES

LOCATION: TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN STORM DRAIN PROFILES, NOTES AND DETAILS

DATE: FEBRUARY, 2014 PROJECT NO. 2429
 MAY, 2014

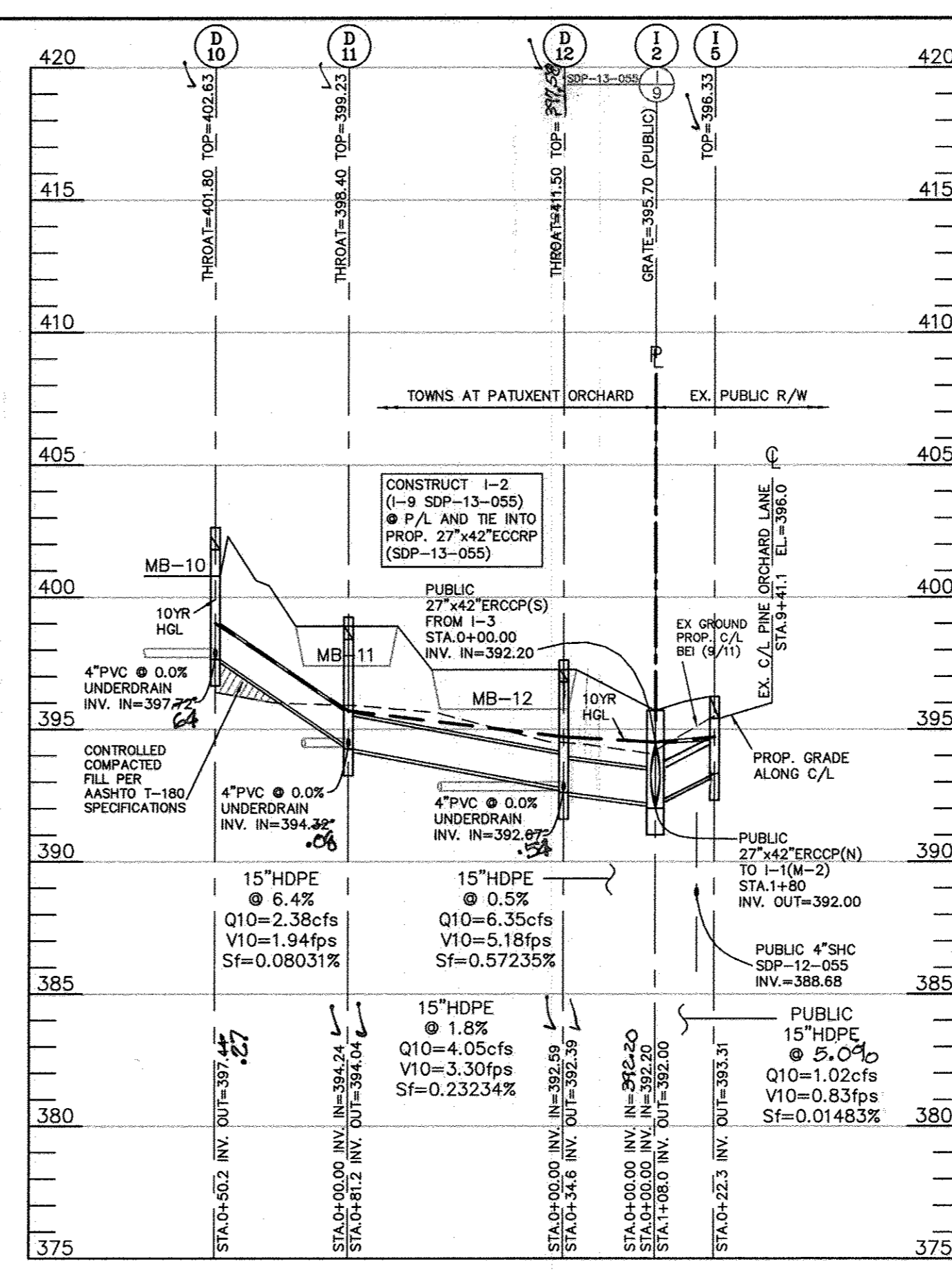
Design: MCR **Draft:** MCR **Check:** BFC **SCALE:** AS SHOWN **DRAWING:** 9 OF 16



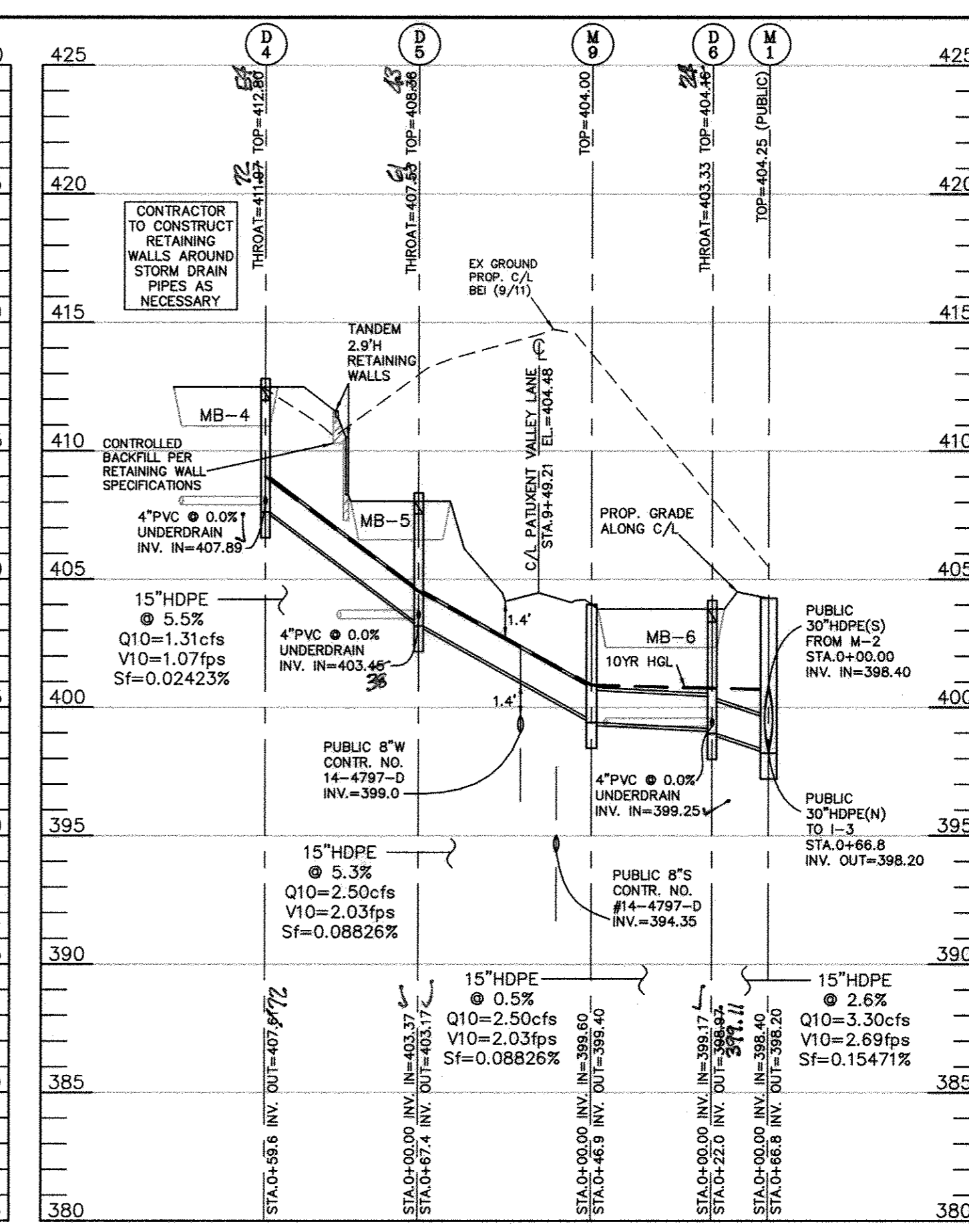
**STORM DRAIN PROFILE
M-3 (EX CONNECTION) THRU I-2 (I-9 OFF-SITE CONNECTION)**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

AS-BUILT CERTIFICATION
I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
Donald Mason, P.E. Date: 8-16-17

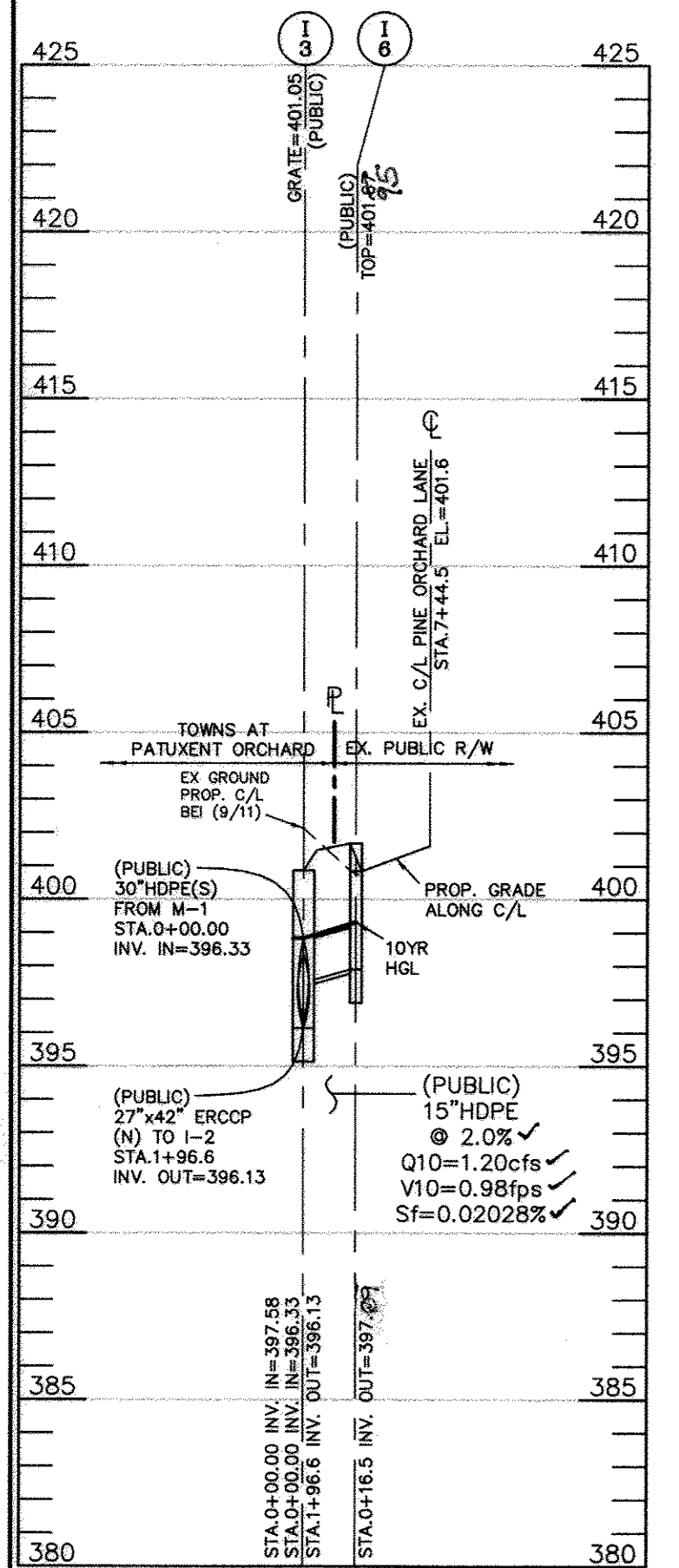
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 12-21-18



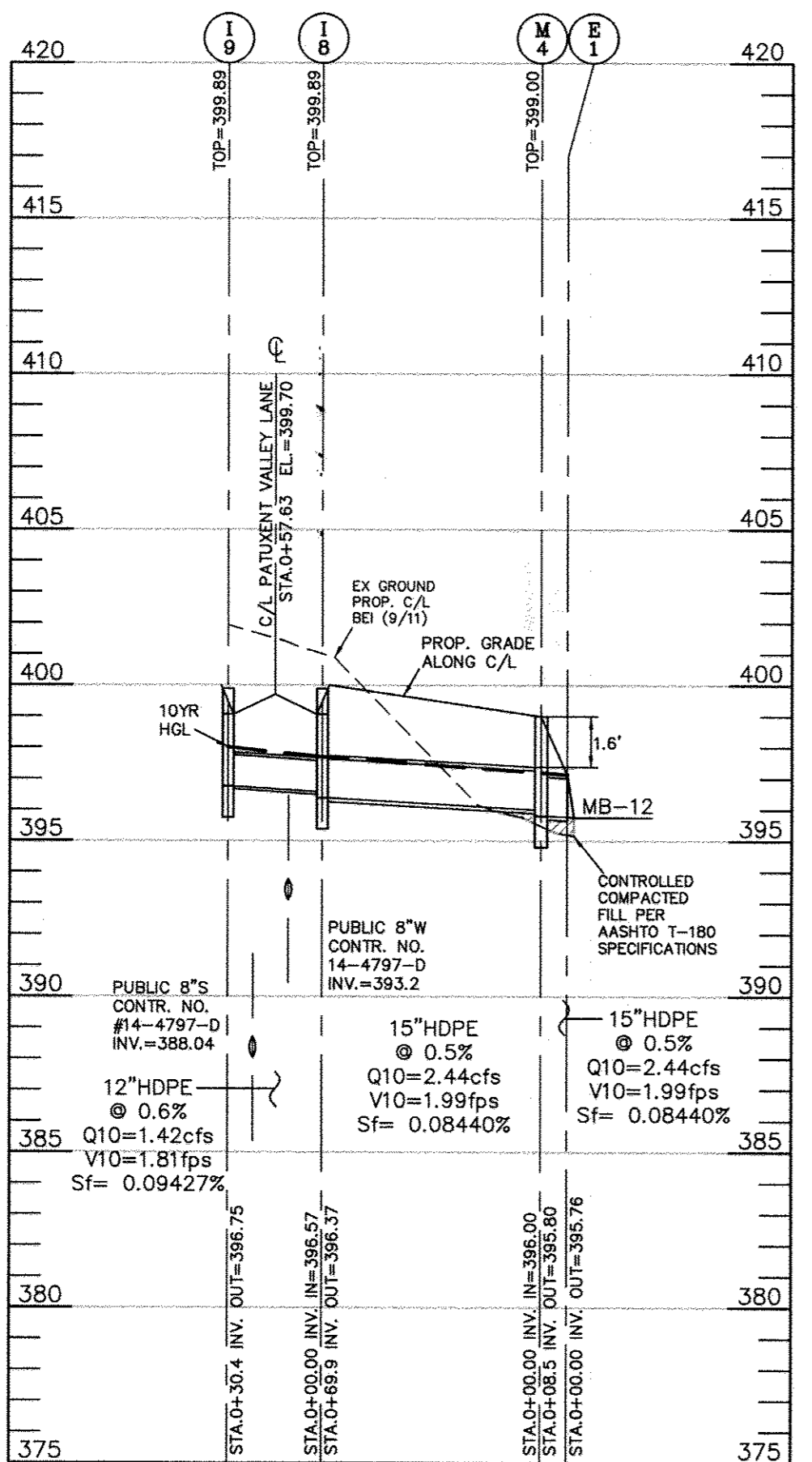
**STORM DRAIN PROFILE
D-10 THRU I-5**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



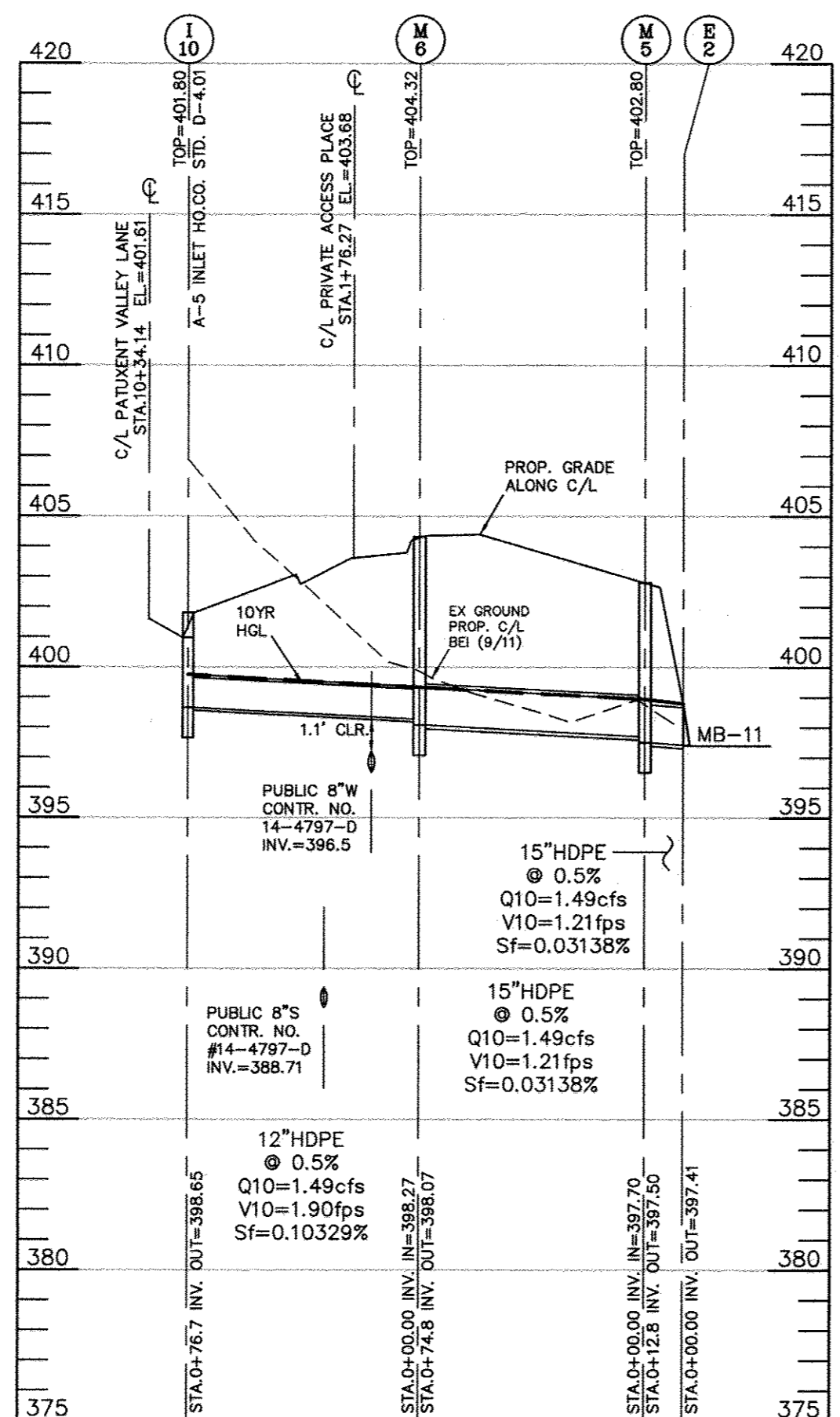
**STORM DRAIN PROFILE
D-7 THRU M-1**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



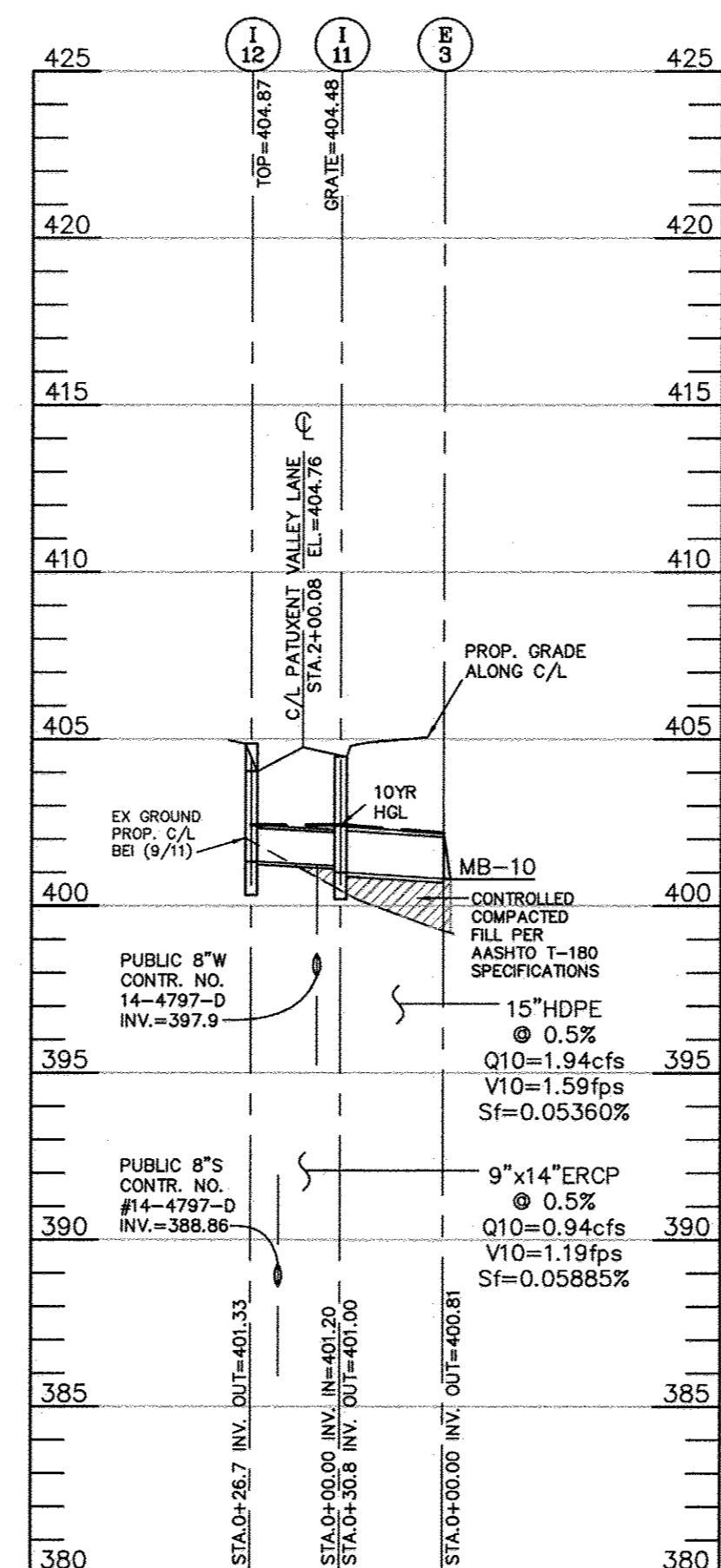
**STORM DRAIN PROFILE
I-6 TO I-3**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



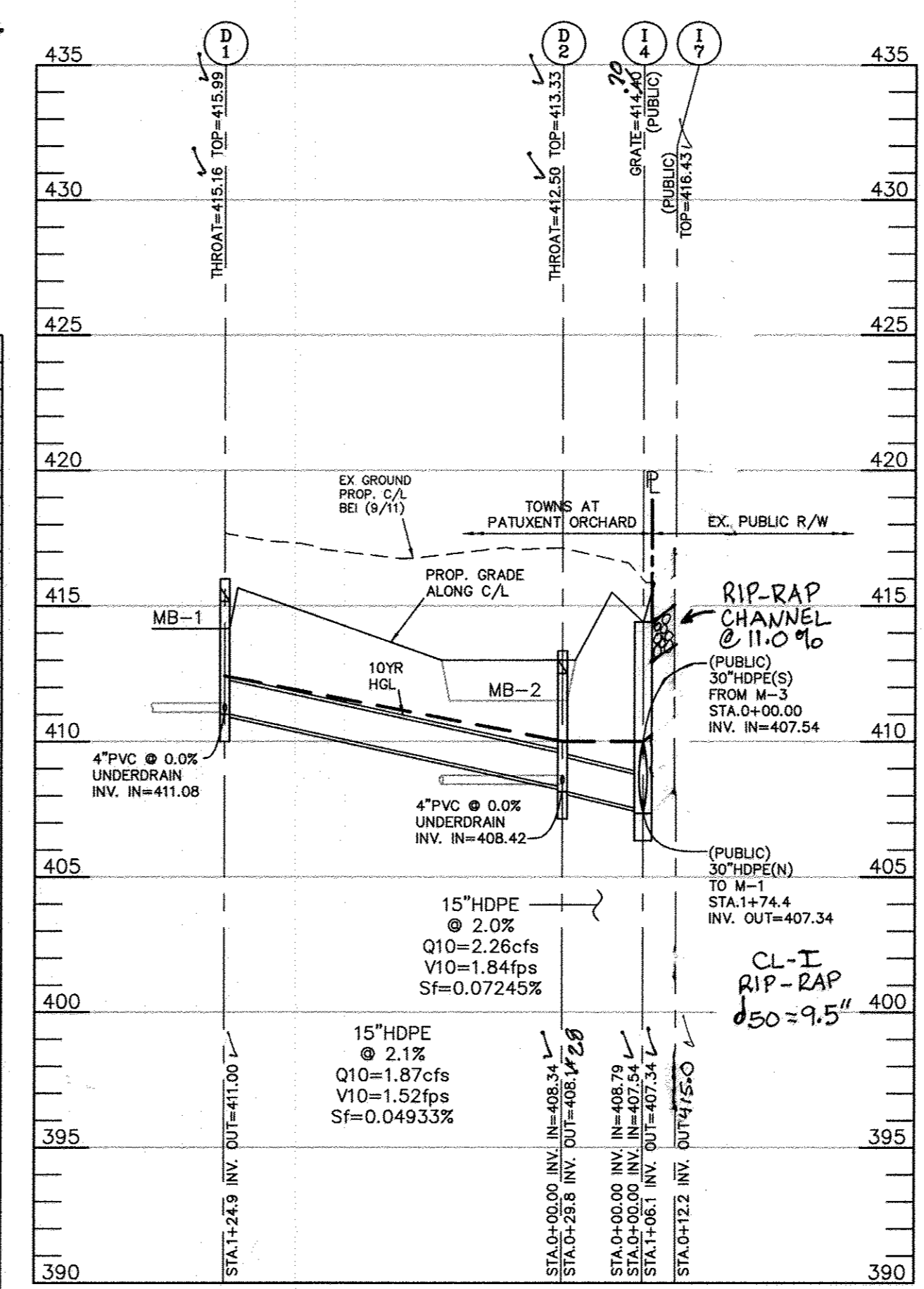
**STORM DRAIN PROFILE
E-1 TO I-9**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



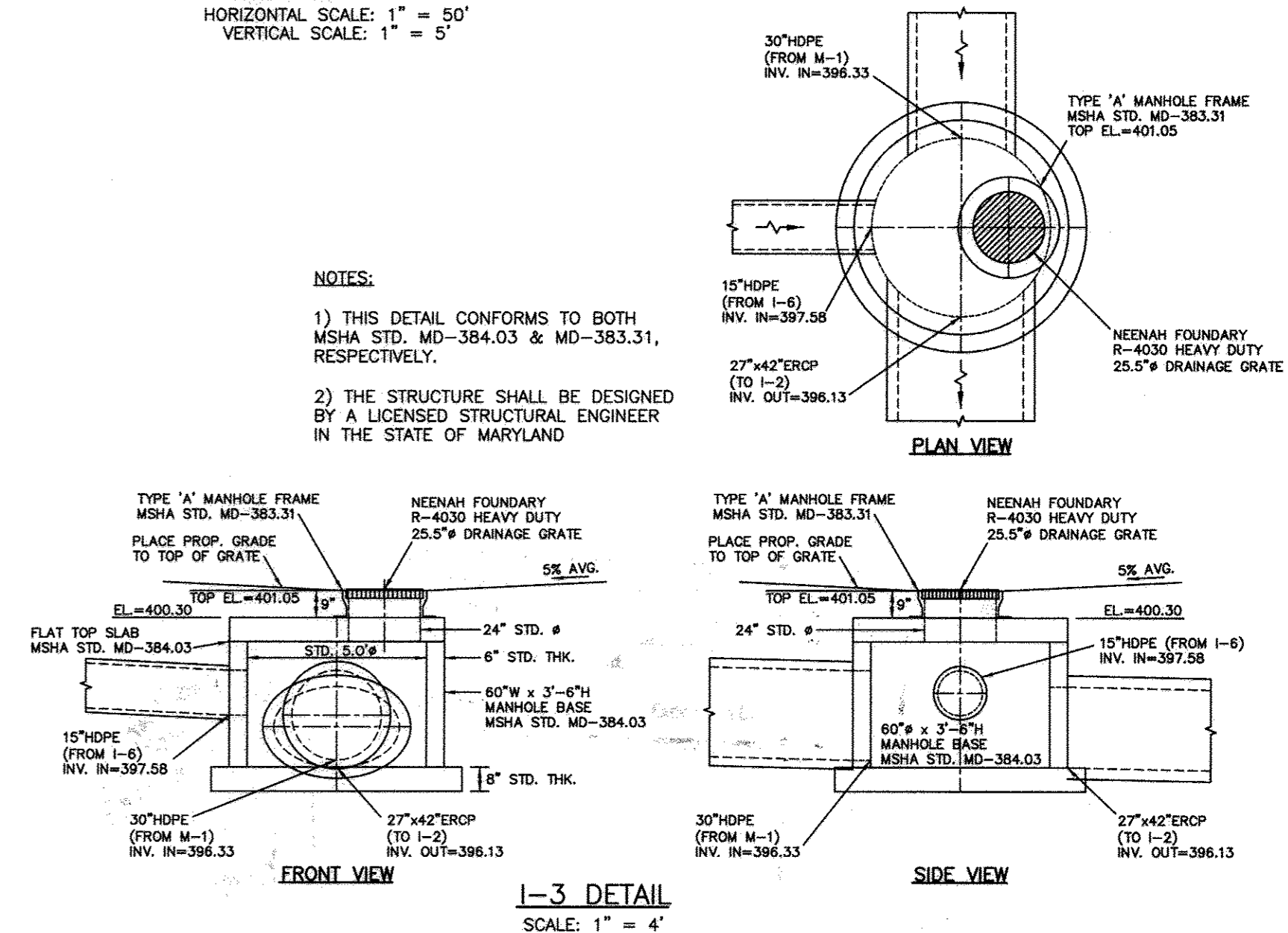
**STORM DRAIN PROFILE
E-2 THRU I-10**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



**STORM DRAIN PROFILE
E-3 THRU I-12**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



**STORM DRAIN PROFILE
D-1 THRU I-7**
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



NOTES:
1) THIS DETAIL CONFORMS TO BOTH MSHA STD. MD-384.03 & MD-383.31, RESPECTIVELY.
2) THE STRUCTURE SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF MARYLAND

NO.	DATE	REVISION
2	7-5-17	REVISE M-3 & STORM DRAIN FOR AS-BUILT CONDITION
1	6-6-2016	REVISE I-7 AND M-3, MISCELL. ELEV'S.

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

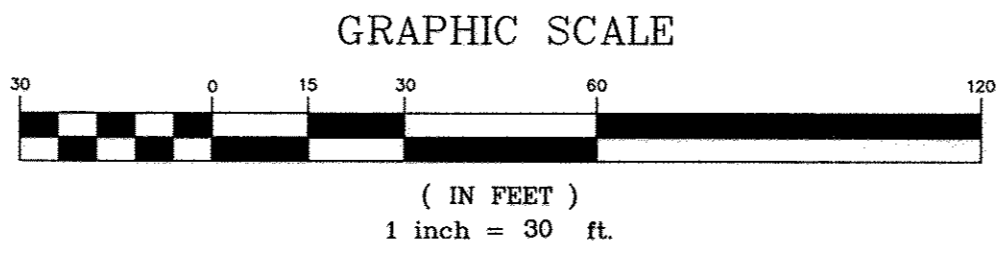
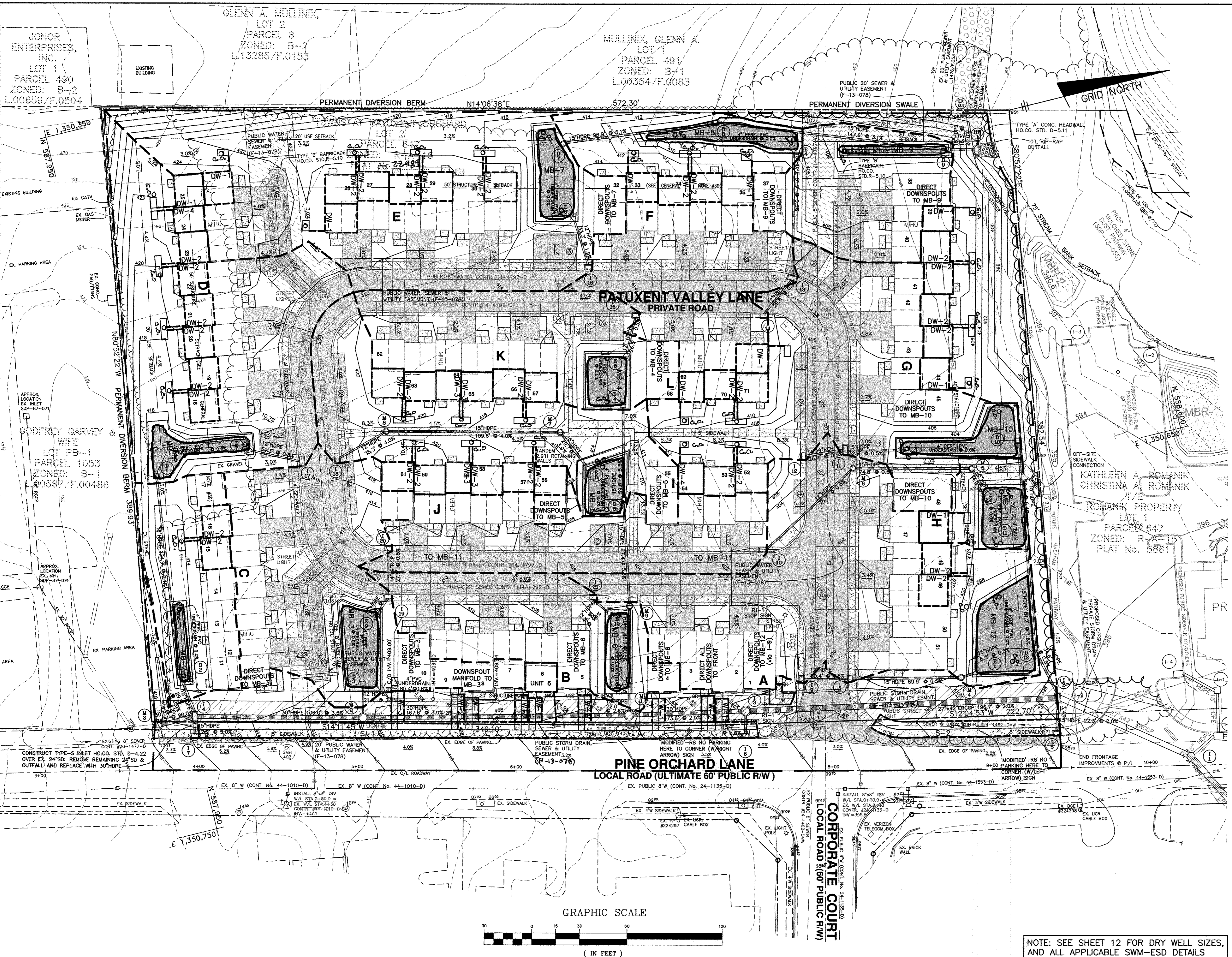
PROFESSIONAL CERTIFICATION:
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
License No. 21443 Expiration Date: 6-30-2015

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
9-11-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION
10-02-14
10/2/14

OWNER/DEVELOPER:	KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLCOTT CITY, MARYLAND 21043 PHONE: 410-900-9778
PROJECT:	LOT 2 TOWNS AT PATUXENT ORCHARD LOT 2 OF ROMANIK PROPERTY (PLAT #2227) TOWNS AT PATUXENT ORCHARD) 71 SFA TOWNHOMES
LOCATION:	TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	SITE DEVELOPMENT PLAN STORM DRAIN PROFILES, NOTES AND DETAILS
DATE:	FEBRUARY, 2014 PROJECT NO. 2429 MAY, 2014
Design: MGR	Draft: MGR
Check: BFC	SCALE: AS SHOWN
	DRAWING 10 OF 16

AS-BUILT

SDP-13-054



NOTE: SEE SHEET 12 FOR DRY WELL SIZES, AND ALL APPLICABLE SWM-ESD DETAILS

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. 21443 Expiration Date: 12-31-18



AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 8-16-17

NO.	DATE	REVISION

BENCHMARK
 ENGINEERS • LAND SURVEYORS • PLANNERS
ENGINEERING, INC.
 8480 BALTIMORE NATIONAL PIKE
 SUITE 315
 ELLICOTT CITY, MARYLAND 21043
 (P) 410-465-6105 (F) 410-465-6644
 WWW.BEI-CVLENGINEERING.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. 21443, Expiration Date: 6-30-2015

OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778		PROJECT: LOT 2 TOWNS AT PATUXENT ORCHARD LOT 2 OF ROMANIK PROPERTY (PLAT # 22272) TOWNS AT PATUXENT ORCHARD 71 SFA TOWNHOMES
TITLE: SITE DEVELOPMENT PLAN SWM-ESD PLAN NOTES AND DETAILS		LOCATION: TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY, 2014 MAY, 2014	PROJECT NO.: 2429	DESIGN: MCR DRAFT: MCR CHECK: BFC SCALE: AS SHOWN DRAWING 11 OF 16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad... 9-11-14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION NY DATE

Kat... 10-02-14
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

M... 10/2/14
 DIRECTOR DATE

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SAND (2.0" TO 4.0" DEEP)	TABLE A.4 (60-80% SAND & 20-40% COMPOST) (35-40%)	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM, CLAY CONTENT <5%
ORGANIC CONTENT	MIN. 10% BY DRY WEIGHT (ASTM D2954)	N/A	
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
PEA GRAVEL DAPHRAGM	PEA GRAVEL: ASTM D-448	#8 OR #9 (1/8" TO 3/8")	
GEOTEXTILE	ASHTO M-43	N/A	PE TYPE 1 - NONWOVEN
GRAVEL (UNDERDRAINS & BERMS)	#57 OR #66 (ASPHALT) (1/2" TO 3/4")	#8 STONE	
UNDERDRAIN PIPING	F756, TYPE P528 OR ASHTO M-278	4" TO 6" RIGID SCHED 40 PVC OR SDR35	SLOTTED OR PERFORATED: 3/8" PERFS. @ 6" O/C. 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERDRAIN PIPES. REINFORCED PIPES SHALL BE WRAPPED WITH 1/4" GALVANIZED HARDWARE CLOTH
POURED-IN-PLACE CONC. (IF REQUIRED)	MISHA MIX NO. 3, F=3500psi @ 28 DAYS, NORMAL WEIGHT AIR ENTRAINED, REINFORCING TO MEET ASTM 615-80	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED: 28 DAY STRENGTH TEST AND SLUMP TEST. ALL CONC. DESIGN (CAST AND CURED) SHALL BE APPROVED BY STATE OR LOCAL STANDARDS. DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES) AND ANALYSIS OF POTENTIAL CRACKING
SAND (1.0" DEEP)	ASHTO M-33 OR ASTM C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DUNESAND AND GRAVSTONE (ASHTO) ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR ORGANIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO ROCK DUST CAN BE USED FOR SAND

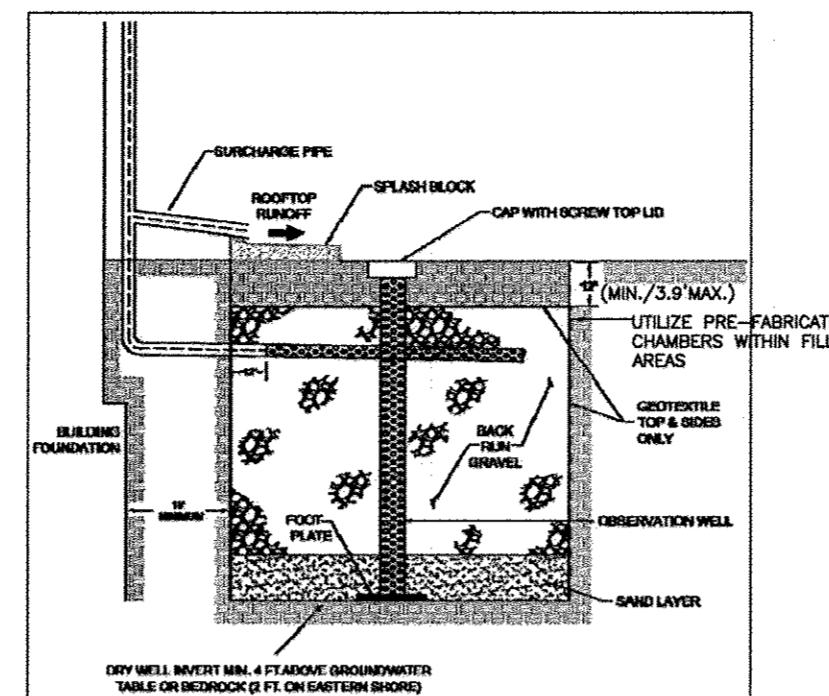
OPERATION & MAINTENANCE SCHEDULE FOR (M-6) MICRO-BIORETENTION

- The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any such 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. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.
- The Owner shall perform a plant in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.
- The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

MICRO-BIORETENTION (M-6) CONSTRUCTION SPECIFICATIONS

- THE SUBGRADE FOR ALL BIORETENTION COMPONENTS SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES. ANY FILL REQUIRED IN THE SUBGRADE SHALL BE COMPACTED TO A DENSITY OF APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED MATERIAL. EMBANKMENTS SHALL BE PREPARED BY STRIPPING TOPSOIL AND ANY OTHER UNSUITABLE MATERIALS FROM THE AREAS, AND BE COMPACTED TO A MINIMUM OF 95% OF MAXIMUM DRY DENSITY REFERENCED TO ASTM T-99 (STANDARD PRACTICE).
- THE ROCK OR GRAVEL SHALL CONFORM TO THE SPECIFIED GRADING LIMITS WHEN INSTALLED RESPECTIVELY IN THE RIP-RAP OR FILTER.
- GEOTEXTILE CLASS C28 OR BETTER SHALL BE PROTECTED FROM PUNCHING, CUTTING, OR TEARING. ANY DAMAGE OTHER THAN AN OCCASIONAL SMALL HOLE SHALL BE REPAIRED BY PLACING ANOTHER PIECE OF GEOTEXTILE FABRIC OVER THE DAMAGED PART OR BY COMPLETELY REPLACING THE GEOTEXTILE FABRIC. ALL OVERLAPS WHETHER FOR REPAIRS OR FOR JOINING TWO PIECES OF GEOTEXTILE FABRIC SHALL BE A MINIMUM OF ONE FOOT.
- STONE FOR THE RIP-RAP OR LEVEL SPREADERS MAY BE PLACED BY EQUIPMENT. THEY SHALL BE CONSTRUCTED TO THE FULL COURSE THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO AVOID THE USE OF UNDERLIERING MATERIALS. THE STONE FOR THE RIP-RAP OR LEVEL SPREADERS SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL ENSURE THAT IT IS REASONABLY HOMOGENEOUS WITH THE SMALLER STONES AND SPALLS FILLING THE VOIDS BETWEEN THE LARGER STONES. STONE SHALL BE PLACED IN A MANNER TO PREVENT DAMAGE TO THE FILTER BLANKET OR GEOTEXTILE FABRIC. HAND PLACEMENT WILL BE REQUIRED TO THE EXTENT NECESSARY TO PREVENT DAMAGE TO THE PERMANENT WORKS.
- THE STONE LAYER SHALL BE PLACED SO THAT IT BLENDS IN WITH THE EXISTING GROUND. IF THE STONE IS PLACED TOO HIGH THEN THE FLOW WILL BE FORCED OUT OF THE CHANNEL, AND SCOUR ADJACENT TO THE STONE WILL OCCUR.

MB-1 (M-6)	MB-2 (M-6)	MB-3 (M-6)
4" PVC	4" PVC	4" PVC
Elevation 1: 415.16	Elevation 1: 412.50	Elevation 1: 409.94
Elevation 2: 414.76	Elevation 2: 411.50	Elevation 2: 408.94
Elevation 3: 413.59	Elevation 3: 408.77	Elevation 3: 408.77
Elevation 4: 411.98	Elevation 4: 409.33	Elevation 4: 406.77
Elevation 5: 411.66	Elevation 5: 409.00	Elevation 5: 406.44
Elevation 6: 411.08	Elevation 6: 408.42	Elevation 6: 405.86
Elevation 7: 411.00	Elevation 7: 408.34	Elevation 7: 405.78
Elevation 8: 410.80	Elevation 8: 408.14	Elevation 8: 405.58

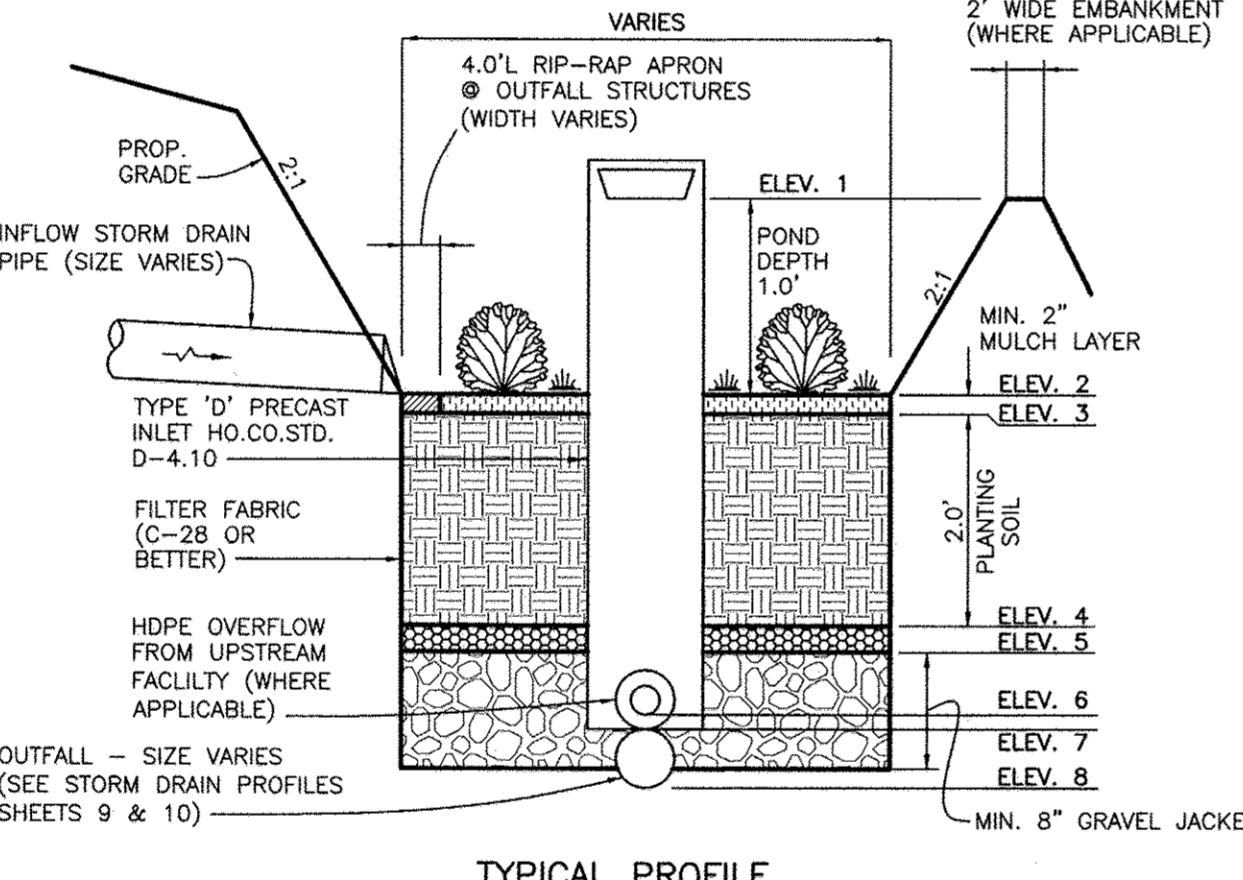


TYPICAL (M-5) DRYWELL DETAIL NOT TO SCALE

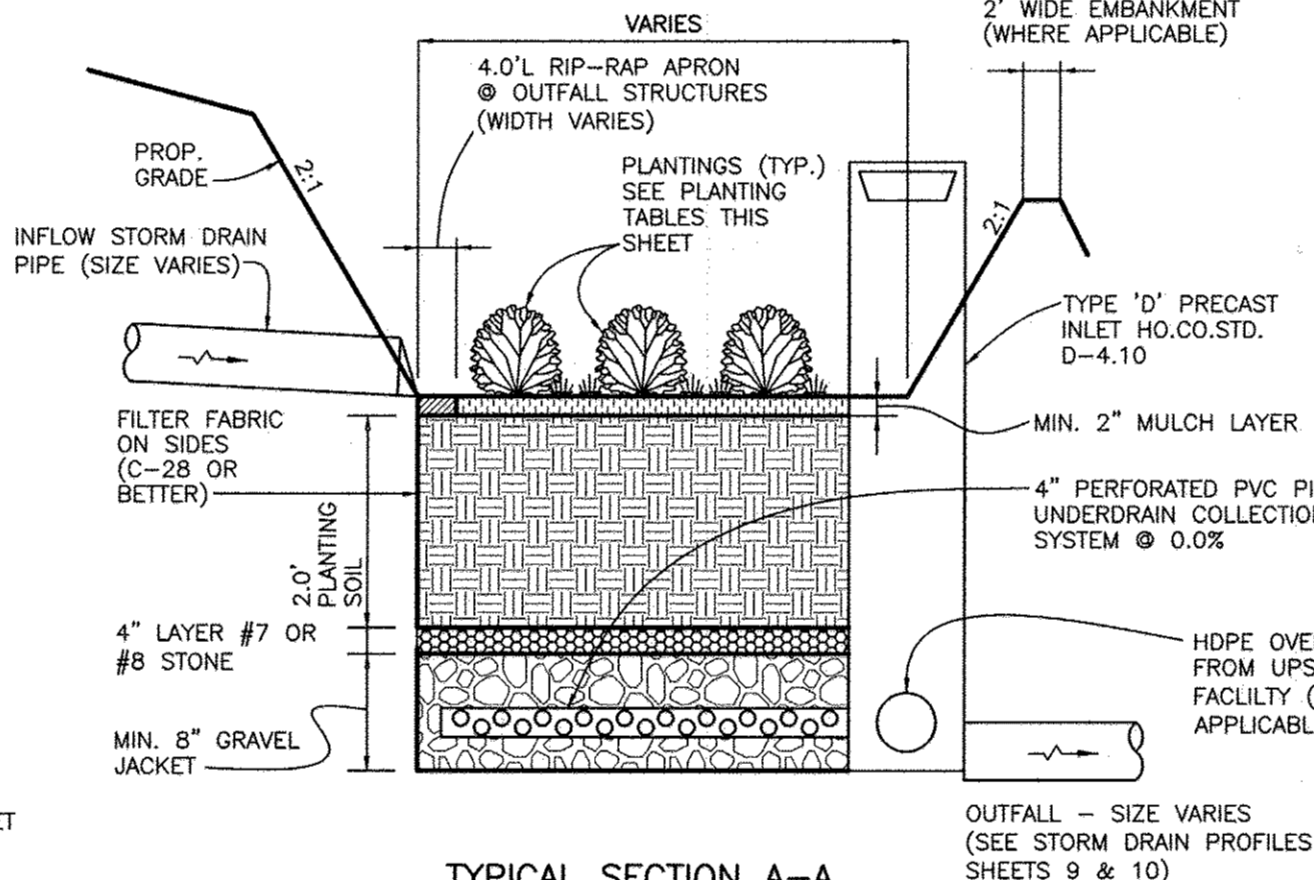
DW-1 Typ (M-5)	DW-2 Typ (M-5)	DW-3 Typ (M-5)
Dry Well	Dry Well	Dry Well
Drywell Length (Ld) 5.67	Drywell Length (Ld) 13.25	Drywell Length (Ld) 11.83
Drywell Width (Wd) 4.00	Drywell Width (Wd) 4.00	Drywell Width (Wd) 4.00
Drywell Depth (Dd) 5.00	Drywell Depth (Dd) 5.00	Drywell Depth (Dd) 5.00
Amount Utilized 8	Amount Utilized 17	Amount Utilized 2

OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED & MAINTAINED DRY WELLS (M-5)

- The Owner shall inspect the monitoring wells and structures on a quarterly basis and after every heavy storm event.
 - The Owner shall record the water levels and sediment build up in the monitoring wells over a period of several days to insure trench drainage.
 - The Owner shall maintain a log book to determine the rate at which the facility drains.
 - When the facility becomes clogged so that it does not drain down within a seventytwo (72) hour time period, corrective action shall be taken.
 - The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- Once the performance characteristics of the infiltration facility have been verified, the monitoring schedule can be reduced to an annual basis unless the performance data indicates that a more frequent schedule is required.



TYPICAL PROFILE



TYPICAL SECTION A-A

TYPICAL MICRO-BIORETENTION (M-6) DETAILS NOT TO SCALE

LANDSCAPE DATA	HYDROLOGIC ZONE 3 - REGULARLY INUNDATED ARE TO BE OF A MEDIUM TO HIGH WETLAND FRINGE (HIGH MARSH)
1. PLANTINGS WITHIN THE PONDING AREA OF THE LS INFILTRATION ARE TO BE OF A MEDIUM TO HIGH WETLAND FRINGE (HIGH MARSH)	HYDROLOGIC CONDITION = 0" TO 1"-0" DEEP HARDNESS = TEMPERATE ZONE B (-C TO D)
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE LS INFILTRATION ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE	SEE SHEET FOR SEQUENCE OF CONSTRUCTION

MB-1 (M-6)	MB-2 (M-6)	MB-3 (M-6)
Pond Surface Area (sf) = 770.0	Pond Surface Area (sf) = 179.4	Pond Surface Area (sf) = 1084.0
ANDROPOGON VIRGINICUS (Broomsedge) 74	ANDROPOGON VIRGINICUS (Broomsedge) 17	ANDROPOGON VIRGINICUS (Broomsedge) 102
JUNCUS EFFUSUS (Soft Rush) 65	JUNCUS EFFUSUS (Soft Rush) 15	JUNCUS EFFUSUS (Soft Rush) 90
IRIS VERSICOLOR (Iris) 35	IRIS VERSICOLOR (Iris) 8	IRIS VERSICOLOR (Iris) 48
LLILLUM CANADENSE (Canada Lily) 22	LLILLUM CANADENSE (Canada Lily) 5	LLILLUM CANADENSE (Canada Lily) 30
ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 2

MB-4 (M-6)	MB-5 (M-6)	MB-6 (M-6)
Pond Surface Area (sf) = 715.0	Pond Surface Area (sf) = 671.0	Pond Surface Area (sf) = 551.1
ANDROPOGON VIRGINICUS (Broomsedge) 68	ANDROPOGON VIRGINICUS (Broomsedge) 64	ANDROPOGON VIRGINICUS (Broomsedge) 53
JUNCUS EFFUSUS (Soft Rush) 60	JUNCUS EFFUSUS (Soft Rush) 57	JUNCUS EFFUSUS (Soft Rush) 46
IRIS VERSICOLOR (Iris) 32	IRIS VERSICOLOR (Iris) 30	IRIS VERSICOLOR (Iris) 25
LLILLUM CANADENSE (Canada Lily) 20	LLILLUM CANADENSE (Canada Lily) 19	LLILLUM CANADENSE (Canada Lily) 15
ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 1

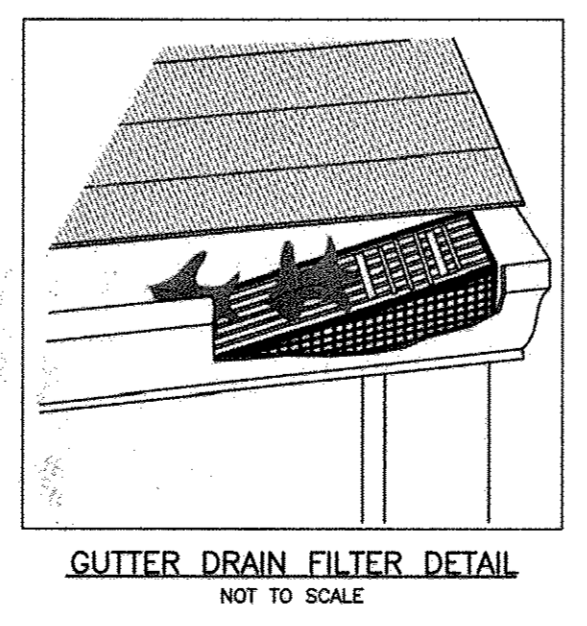
MB-7 (M-6)	MB-8 (M-6)	MB-9 (M-6)
Pond Surface Area (sf) = 1016.0	Pond Surface Area (sf) = 770.0	Pond Surface Area (sf) = 264.0
ANDROPOGON VIRGINICUS (Broomsedge) 97	ANDROPOGON VIRGINICUS (Broomsedge) 74	ANDROPOGON VIRGINICUS (Broomsedge) 25
JUNCUS EFFUSUS (Soft Rush) 86	JUNCUS EFFUSUS (Soft Rush) 65	JUNCUS EFFUSUS (Soft Rush) 22
IRIS VERSICOLOR (Iris) 46	IRIS VERSICOLOR (Iris) 35	IRIS VERSICOLOR (Iris) 12
LLILLUM CANADENSE (Canada Lily) 29	LLILLUM CANADENSE (Canada Lily) 22	LLILLUM CANADENSE (Canada Lily) 7
ACER RUBRUM (Red Sunset Red Maple) 2	ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 1

MB-10 (M-6)	MB-11 (M-6)	MB-12 (M-6)
Pond Surface Area (sf) = 994.0	Pond Surface Area (sf) = 853.0	Pond Surface Area (sf) = 1720.0
ANDROPOGON VIRGINICUS (Broomsedge) 95	ANDROPOGON VIRGINICUS (Broomsedge) 81	ANDROPOGON VIRGINICUS (Broomsedge) 164
JUNCUS EFFUSUS (Soft Rush) 84	JUNCUS EFFUSUS (Soft Rush) 72	JUNCUS EFFUSUS (Soft Rush) 145
IRIS VERSICOLOR (Iris) 45	IRIS VERSICOLOR (Iris) 38	IRIS VERSICOLOR (Iris) 77
LLILLUM CANADENSE (Canada Lily) 28	LLILLUM CANADENSE (Canada Lily) 24	LLILLUM CANADENSE (Canada Lily) 48
ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 1	ACER RUBRUM (Red Sunset Red Maple) 2

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1)

- Maintenance of areas receiving disconnected runoff is generally no different than that required for other lawn or landscaped areas. The Owner shall ensure the areas receiving runoff are protected from future compaction or development of impervious area. In commercial areas, foot traffic should be discouraged as well.

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS (IF REQUIRED)	SEE APPENDIX A, TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SAND (2.5" TO 4.0" DEEP)	SAND: 35-60% SAND, 30-55% SILT, 10-25% CLAY	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	2" TO 3" DEPTH, AGED 6 MONTHS, MINIMUM
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: ASTM D-4751	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN PIPING	F756, TYPE P528 OR ASHTO M-278	3/8" PERF. @ 6" O/C. 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERDRAIN PIPES	
POURED-IN-PLACE CONC. (IF REQUIRED)	MISHA MIX NO. 3, F=3500psi @ 28 DAYS, NORMAL WEIGHT AIR ENTRAINED, REINFORCING TO MEET ASTM 615-80	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED: 28 DAY STRENGTH TEST AND SLUMP TEST. ALL CONC. DESIGN (CAST AND CURED) SHALL BE APPROVED BY STATE OR LOCAL STANDARDS. DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND. DESIGN TO INCLUDE ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES) AND ANALYSIS OF POTENTIAL CRACKING
CHECK DAM (TREATED WOOD)	AWPA STANDARD C6	6"X6" OR 6"X8"	DO NOT COAT WITH GEOTEKTE, DAMED AT LEAST 3" INTO SIDE SLOPES



GUTTER DRAIN FILTER DETAIL NOT TO SCALE

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. 21443, Expiration Date: 12-31-16

AS-BUILT CERTIFICATION
 I hereby certify, by my seal, that to the best of my knowledge and belief the facilities shown on this "AS-BUILT" Plan meet the Approved Plans and Specifications
 Donald Mason, P.E. Date: 8-16-17

NO.	DATE	REVISION

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

PROFESSIONAL CERTIFICATION:
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 22346, Expiration Date: 6-30-2015

TOWNS AT PATUXENT ORCHARD
 LOT 2
 LOT 2 OF ROMANK PROPERTY (PFA #22737) TOWNS AT PATUXENT ORCHARD
 71 SFA TOWNHOMES

OWNER/DEVELOPER: KAISER ORCHARD, LLC
 c/o RANDOLPH HOENES
 8198 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-900-9778

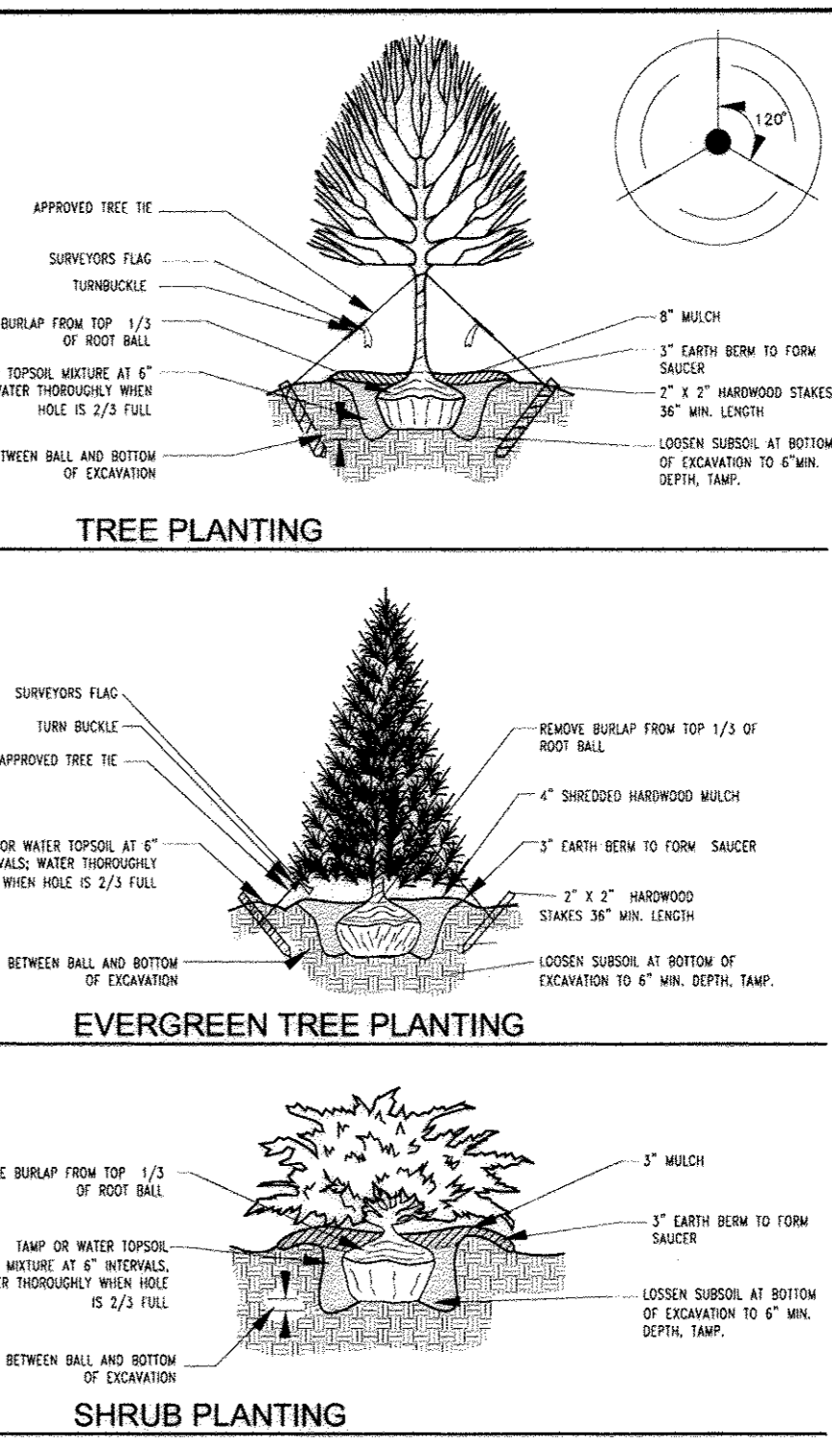
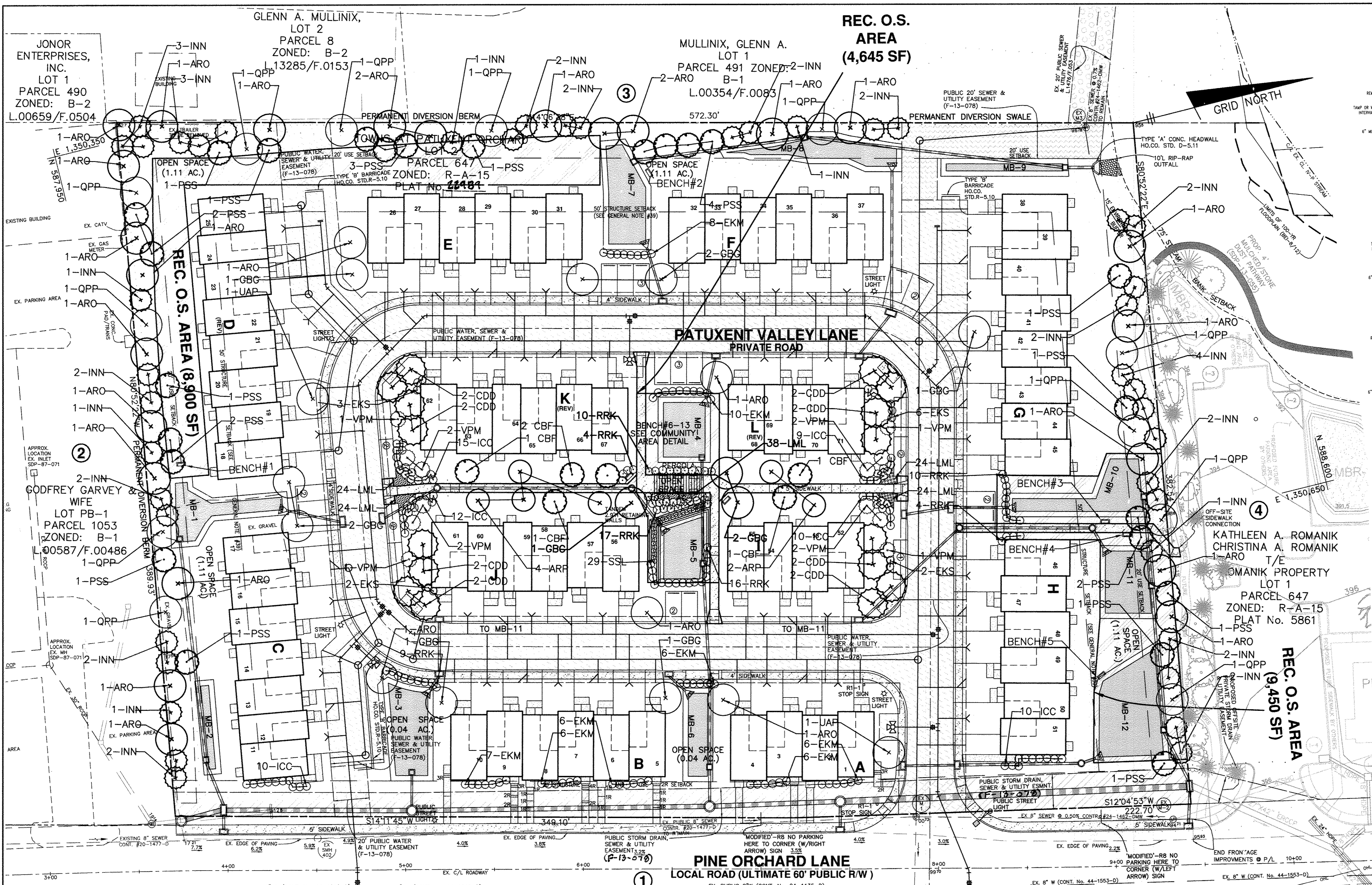
PROJECT: SITE DEVELOPMENT PLAN
 SWM-ESD PLAN
 NOTES AND DETAILS

DATE: FEBRUARY, 2014
 MAY, 2014

PROJECT NO. 2429

Design: MCR Draft: MCR Check: BFC SCALE: AS SHOWN DRAWING 12 OF 16

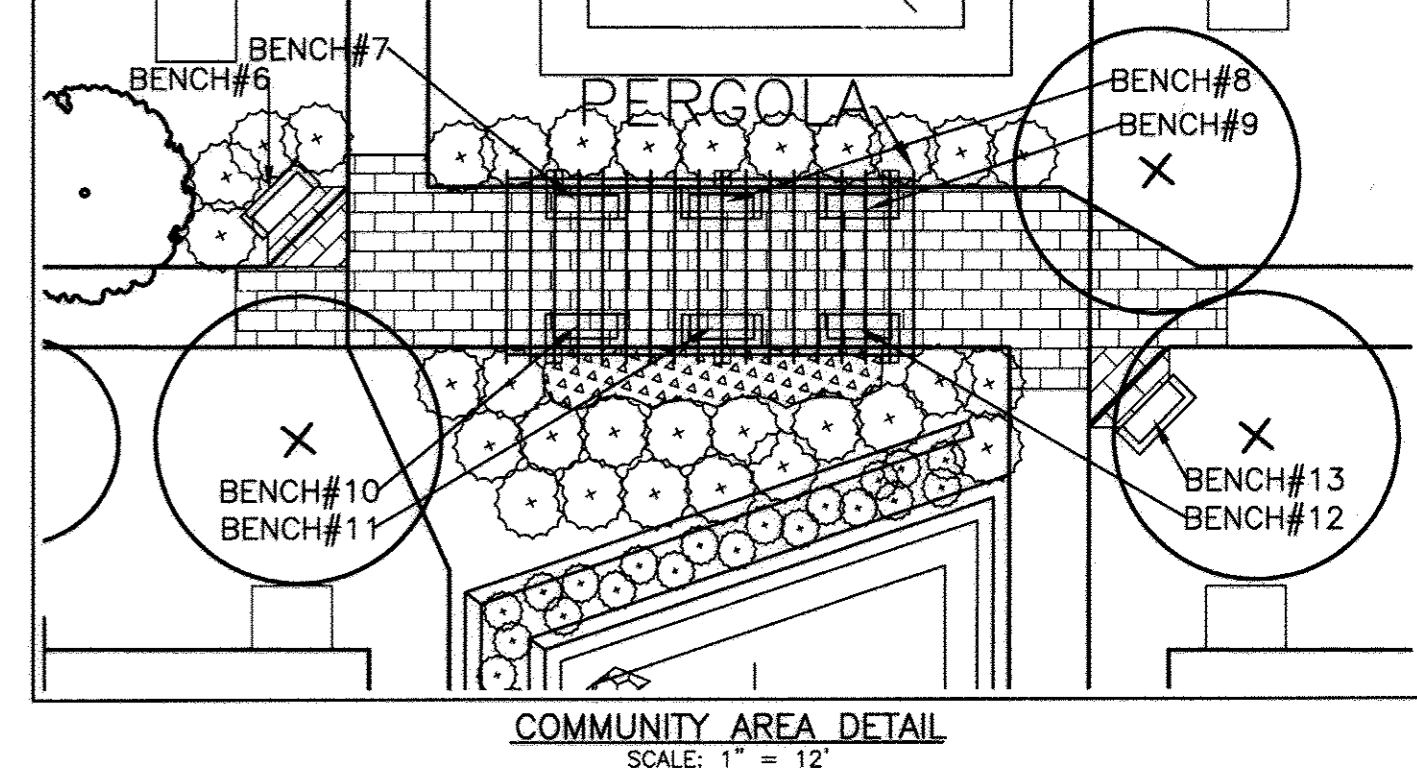
AS-BUILT SDP-13-054



PERIMETER PLANTING LIST				
CODE	TYPE	QUANTITY	NAME	REMARKS
PSS	CPT	24	FRUNUS SARGENTI SARGENT CHERRY	2 1/2" MIN. CAL. B & B FULL HEAD
TYPE KEY: OPT=OPTIMIZED TREE EGT=EVERGREEN TREE EGS=EVERGREEN SHRUB FLW=FLOWER/WHIP LST=UNDERSTORY TREE DES=DECIDUOUS SHRUB				
RESIDENTIAL INTERNAL PLANTING LIST				
CODE	TYPE	QUANTITY	NAME	REMARKS
ARO	CPT	24	ACER RUBRUM 'OCTOBER GLORY' 'OCTOBER GLORY RED MAPLE'	2 1/2" MIN. CAL. FULL HEAD
GBG	CPT	3	GINKGO BILOBA 'AUTUMN GOLD' 'AUTUMN GOLD GINKGO'	2 1/2" MIN. CAL. FULL HEAD
ARP	LST	6	ACER GRIBOSUM 'PAPERBARK MAPLE'	1 1/2" MIN. CAL. FULL HEAD
CBF	LST	6	CARPANUS BETULUS 'TARTAGATA' 'EUROPEAN HORNBARK'	1 1/2" MIN. CAL. FULL HEAD
CDD	EGT	8	CEDRUS DEODARA 'TODIGAN CEDAR'	6" - 8" HT. UNSHEARED
INN	EGT	42	ILEX 'NELLIE R. STEVENS' 'NELLIE R. STEVENS HOLLY'	5" - 8" HT. UNSHEARED
EXM	EGS	55	EUNOMIUS KALTSCHOWICUS 'MANSATTAN EQUINUMUS'	2.5" - 3.0" MIN. HT.
EXS	EGS	13	EUNOMIUS KALTSCHOWICUS 'TUTTLE EQUINUMUS'	2.5" - 3.0" MIN. HT.
ICC	EGS	66	ILEX 'CORNUTA' 'COMPACT' 'COMPACT JAPANESE HOLLY'	2.5" - 3.0" MIN. HT.
RRK	EGS	70	ROSA 'RADIOSA' 'KNOCK OUT ROSE'	2.5" - 3.0" MIN. HT.
VPM	EGS	12	VIBURNUM PLICATUM 'MARESS' 'MARESS' DOUBLEFILE VIBURNUM'	2.5" - 3.0" MIN. HT.
LML	FLW	134	LILY TURK	1.0 GAL
SSL	FLW	29	SCHIZACHYRIUM SCOPARIUM 'TUTTLE OW'	1.0 GAL
DUE TO LACK OF AVAILABLE SUITABLE PLANTING AREAS, SOME INTERNAL PLANTINGS ARE DISTRIBUTED ALONG LS PERIMETERS				
DUMPSTER/SCREENING PLANTING LIST				
CODE	TYPE	QUANTITY	NAME	REMARKS
CDD	EGT	8	CEDRUS DEODARA 'TODIGAN CEDAR'	6" - 8" HT. UNSHEARED
STREET TREE PLANTING LIST				
CODE	TYPE	QUANTITY	NAME	REMARKS
ARO	CPT	5	ACER RUBRUM 'OCTOBER GLORY' 'OCTOBER GLORY RED MAPLE'	2 1/2" MIN. CAL. B & B FULL HEAD
GBG	CPT	8	GINKGO BILOBA 'AUTUMN GOLD' 'AUTUMN GOLD GINKGO'	2 1/2" MIN. CAL. FULL HEAD
UAP	CPT	2	ULMUS AMERICANA 'PRINCETON' 'PRINCETON AMERICAN ELM'	2 1/2" MIN. CAL. FULL HEAD
OPP	CPT	12	QUERCUS PALustris 'TUM OAK'	2 1/2" MIN. CAL. FULL HEAD
DUE TO LACK OF AVAILABLE SUITABLE PLANTING AREAS, SOME STREET TREE PLANTINGS ARE DISTRIBUTED ALONG LS PERIMETERS				

LANDSCAPING NOTES

- THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS AS SHOWN ON THESE PLANS.
- THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS, INCLUDING THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS PROJECT.
- TREES MUST BE A MINIMUM OF TWO(2) FEET FROM THE BACK OF CURB & SIDEWALK (PER DMW APPROVED 12/13/11) AND MUST BE A MINIMUM OF FIVE(5) FEET FROM ANY STORM DRAIN.
- A MINIMUM DISTANCE OF TWENTY(20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
- TREES MUST BE PLANTED A MINIMUM OF FIVE(5) FEET FROM AN OPEN SPACE STRIP AND TEN(10) FEET FROM A DRIVEWAY.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC. 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
- STREET TREES SHALL BE PLANTED A MINIMUM OF TWO(2) FEET BEHIND BACK OF CURB WHEN THERE ARE NO SIDEWALKS PER DMW APPROVED 12/13/11.
- ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
- NO TREES SHALL BE PLACED WITHIN 10' BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.
- PERIMETER LANDSCAPING, UNIT PLANTINGS, TRASH PAD SCREENING AND STREET TREE PLANTINGS SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$40,380.00 FOR 78 SHADE TREES, 70 ORNAMENTAL/EVERGREENS, AND 216 SHRUBS SHALL BE POSTED WITH THE DEVELOPER AGREEMENT FOR THIS DEVELOPMENT PER PLAN SDP-13-054.
- WRITTEN APPROVAL FROM B&E FOR THE PROPOSED LANDSCAPING ALONG PINE ORCHARD LANE IS NOT REQUIRED FOR THIS DEVELOPMENT.



BENCHMARK ENGINEERING, INC.
 ENGINEERS • LAND SURVEYORS • PLANNERS
 8480 BALTIMORE NATIONAL PIKE SUITE 315
 ELLICOTT CITY, MARYLAND 21043
 (P) 410-455-6100 • (F) 410-455-6644
 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 landscape architect under the laws of the State of Maryland.
 License No. 3314; Expiration Date: 10-04-2015

OWNER/DEVELOPER: KAISER ORCHARD, LLC
 c/o RANDOLPH HOENES
 8198 MAIN STREET
 ELLICOTT CITY, MARYLAND 21043
 PHONE: 410-900-9778

PROJECT: LOT 2 TOWNS AT PATUXENT ORCHARD
 LOT 2 OF ROMANIK PROPERTY (PLAT # 22997 TOWNS AT PATUXENT ORCHARD) 71 SFA TOWNHOMES

LOCATION: TAX MAP: 24 / GRID: 01
 PARCEL: 0647 / ZONE: R-A-15
 2nd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN
 LANDSCAPE PLAN
 NOTES AND DETAILS

DATE: MARCH, 2013 PROJECT NO. 2429
 MAY, 2014

SCALE: AS SHOWN DRAWING 13 OF 16

SCHEDULE A - PERIMETER LANDSCAPE EDGE				
CATEGORY	ADJACENT TO ROADWAY	YES	NO	NO
PERIMETER NO. 7 LANDSCAPE TYPE	NO	YES	YES	YES
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)	571.8	389.9	571.8	382.5
CREDIT FOR EXISTING VEGETATION:				
NO OR YES (✓/LINEAR FEET)	NO	NO	NO	NO
DESCRIBE BELOW IF NEEDED				
CREDIT FOR WALL, FENCE OR BURN:	NO	NO	NO	NO
NO OR YES (✓/LINEAR FEET)	NO	NO	NO	NO
DESCRIBE BELOW IF NEEDED				
NUMBER OF PLANTS REQUIRED:				
SHADE TREES	0	7	10	7
EVERGREEN TREES	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0
SHRUBS	0	0	0	0
NUMBER OF PLANTS PROVIDED:				
SHADE TREES	0	7	10	7
EVERGREEN TREES	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0
SHRUBS (10:1 SUBSTITUTE)	0	0	0	0
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED				

SCHEDULE C - RESIDENTIAL INTERNAL LANDSCAPING				
CATEGORY	ADJACENT TO ROADWAY	YES	NO	NO
PERIMETER NO. 7 LANDSCAPE TYPE	NO	YES	YES	YES
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)	571.8	389.9	571.8	382.5
CREDIT FOR EXISTING VEGETATION:				
NO OR YES (✓/LINEAR FEET)	NO	NO	NO	NO
DESCRIBE BELOW IF NEEDED				
CREDIT FOR WALL, FENCE OR BURN:	NO	NO	NO	NO
NO OR YES (✓/LINEAR FEET)	NO	NO	NO	NO
DESCRIBE BELOW IF NEEDED				
NUMBER OF PLANTS REQUIRED:				
SHADE TREES	0	7	10	7
EVERGREEN TREES	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0
SHRUBS	0	0	0	0
NUMBER OF PLANTS PROVIDED:				
SHADE TREES	0	7	10	7
EVERGREEN TREES	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0
SHRUBS (10:1 SUBSTITUTE)	0	0	0	0
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED				

DUMPSTER/LOADING/SERVICE AREA LANDSCAPING				
CATEGORY	ADJACENT TO ROADWAY	YES	NO	NO
PERIMETER NO. 7 LANDSCAPE TYPE	NO	YES	YES	YES
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)	571.8	389.9	571.8	382.5
CREDIT FOR EXISTING VEGETATION:				
NO OR YES (✓/LINEAR FEET)	NO	NO	NO	NO
DESCRIBE BELOW IF NEEDED				
CREDIT FOR WALL, FENCE OR BURN:	NO	NO	NO	NO
NO OR YES (✓/LINEAR FEET)	NO	NO	NO	NO
DESCRIBE BELOW IF NEEDED				
NUMBER OF PLANTS REQUIRED:				
SHADE TREES	0	7	10	7
EVERGREEN TREES	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0
SHRUBS	0	0	0	0
NUMBER OF PLANTS PROVIDED:				
SHADE TREES	0	7	10	7
EVERGREEN TREES	0	0	0	0
OTHER TREES (2:1 SUBSTITUTE)	0	0	0	0
SHRUBS (10:1 SUBSTITUTE)	0	0	0	0
DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED				

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. 21443, Expiration Date: 12-12-18

AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWIT 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 CERTIFICATES.

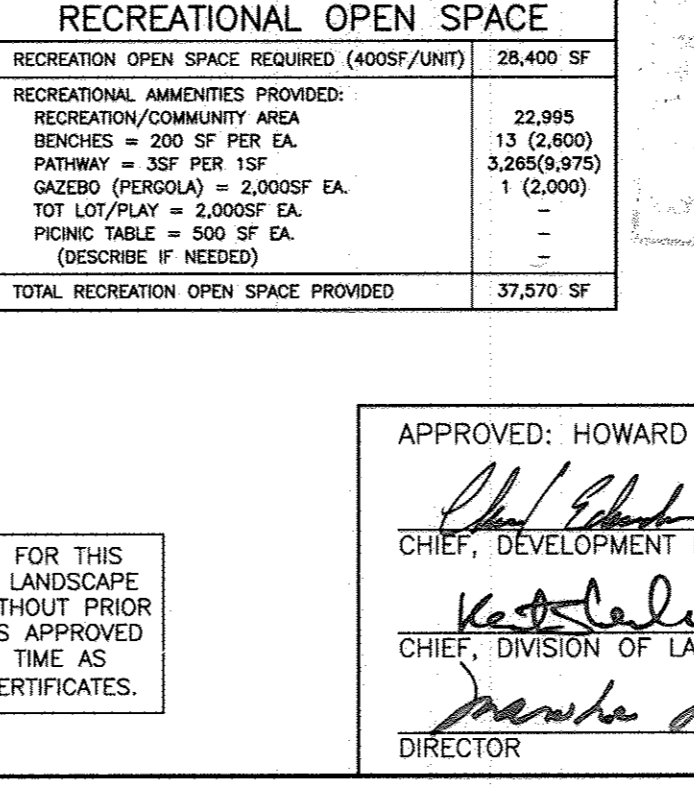
RECREATIONAL OPEN SPACE
 RECREATION OPEN SPACE REQUIRED (4000/FUFT) 28,400 SF
 RECREATION AMENITIES PROVIDED:
 RECREATION/COMMUNITY AREA 22,995
 BENCHES = 200 SF PER EA 13 (2,600)
 PATHWAY = 35 SF PER 15' 3,265 (9,975)
 GAZEBO (PERGOLA) = 2,000 SF EA 1 (2,000)
 TOTAL RECREATION OPEN SPACE PROVIDED 37,570 SF

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 CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION 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.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 9/11/14

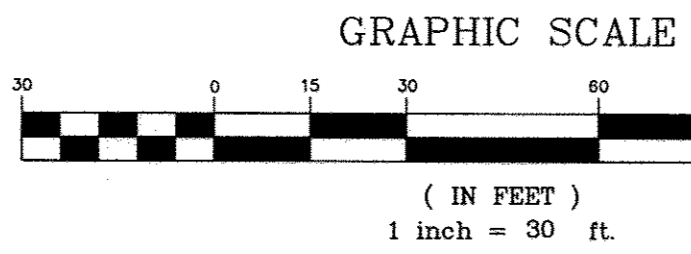
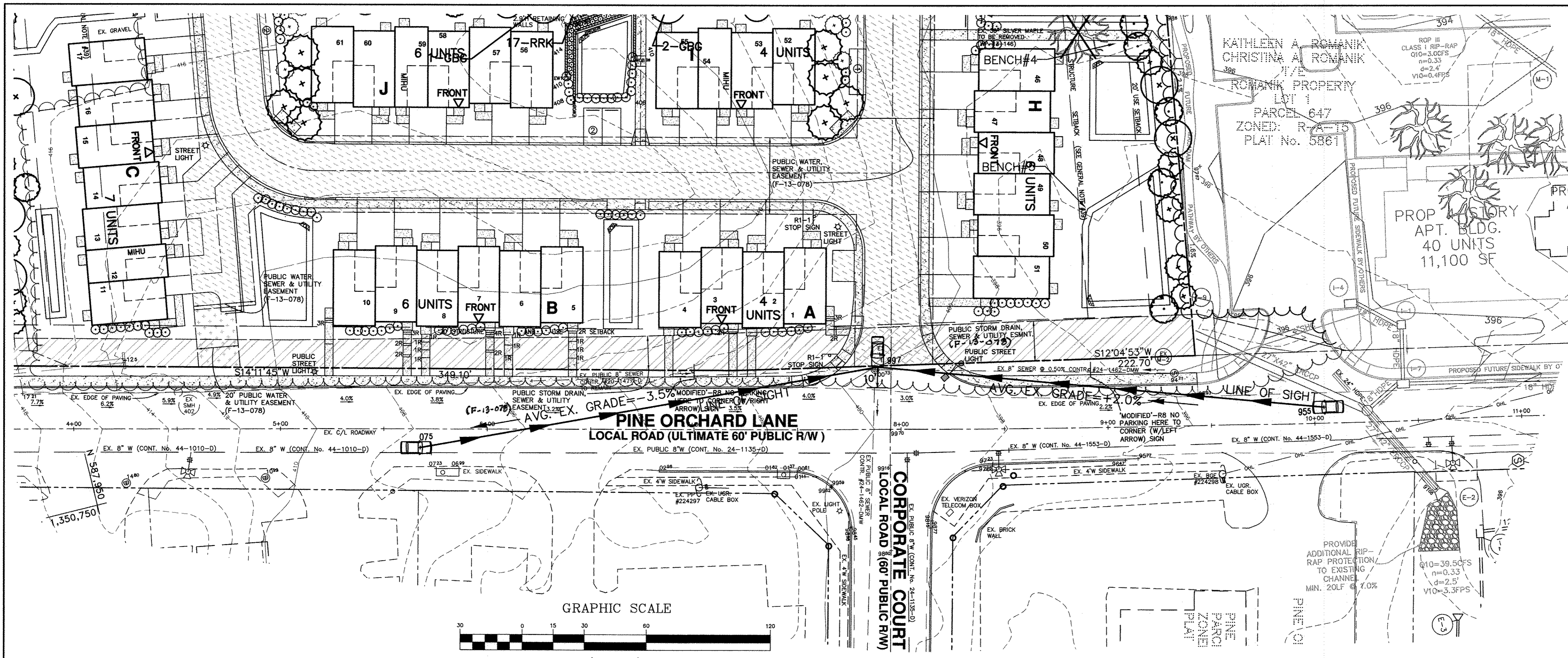
CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 10-02-14

DIRECTOR
 DATE: 10/2/14

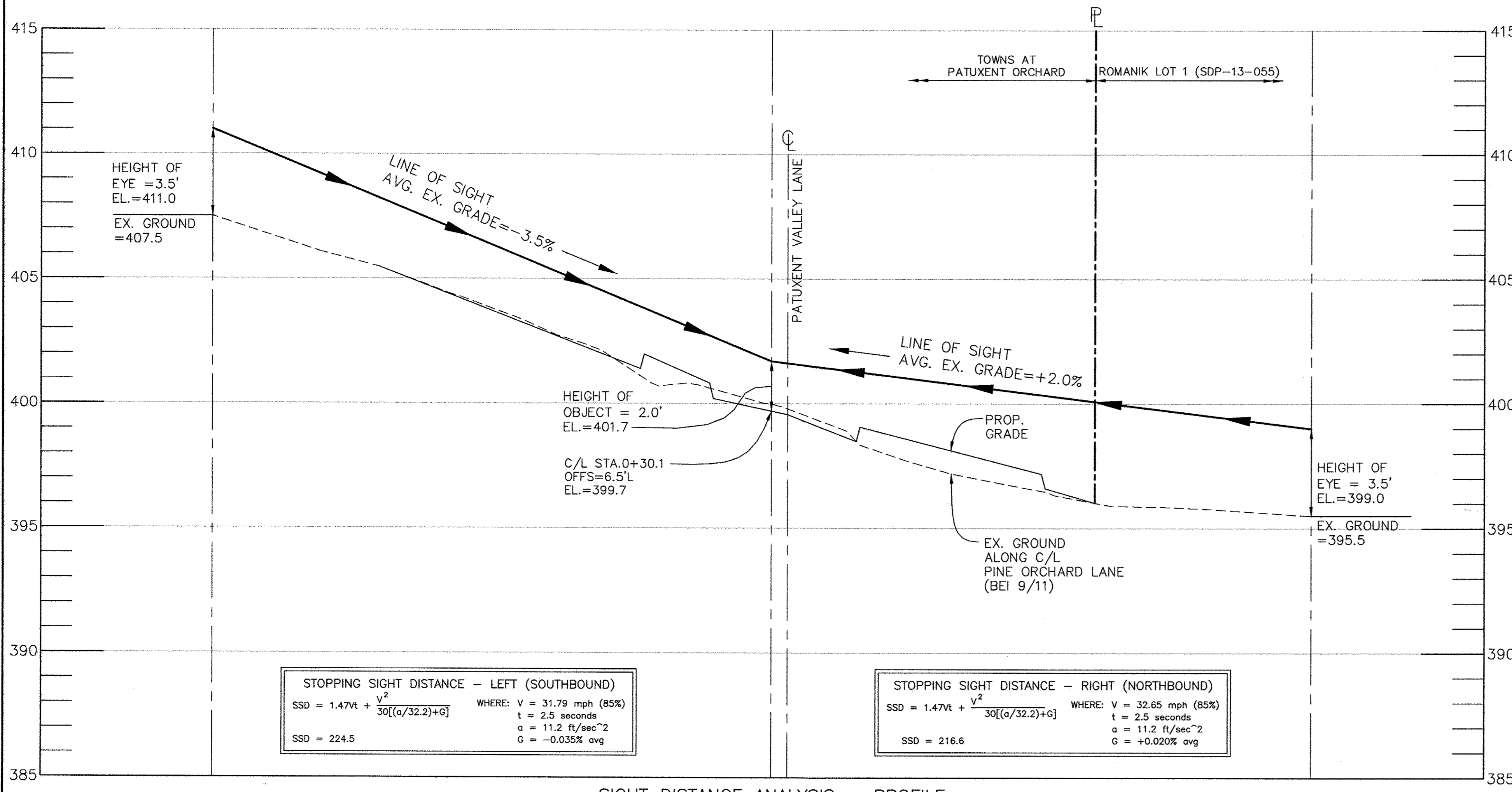


Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland.
 License No. 21443, Expiration Date: 12-12-18

AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWIT 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 CERTIFICATES.



NOTE: TOPOGRAPHY SHOWN HEREON IS BASED ON A FIELD-RUN TOPOGRAPHIC SURVEY PERFORMED BY BENCHMARK ENGINEERING DATED SEPTEMBER, 2011 AND SUPPLEMENTED WITH HOWARD COUNTY GIS; CONTOURS ARE AT 2' INTERVALS.



SIGHT DISTANCE ANALYSIS - PROFILE
VERTICAL SCALE: 1" = 3'
HORIZONTAL SCALE: 1" = 30'

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET



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. 21443, Expiration Date: 12-21-16

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chad E. ... 9/1/14
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
Mark ... 10-02-14
 CHIEF, DIVISION OF LAND DEVELOPMENT
Mark ... 10/2/14
 DIRECTOR

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) 410-465-8644
 WWW.BEI-CIVILENGINEERING.COM

PROFESSIONAL CERTIFICATION:
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 21443, Expiration Date: 6-30-2015

OWNER/DEVELOPER: KAISER ORCHARD, LLC c/o RANDOLPH HOENES 8198 MAIN STREET ELLICOTT CITY, MARYLAND 21043 PHONE: 410-900-9778	PROJECT: LOT 2 TOWNS AT PATUXENT ORCHARD LOT 2 OF ROMANK PROPERTY (PLAT #22237 TOWNS AT PATUXENT ORCHARD) 71 SFA TOWNHOMES
TITLE: SITE DEVELOPMENT PLAN SIGHT DISTANCE ANALYSIS NOTES AND DETAILS	LOCATION: TAX MAP: 24 / GRID: 01 PARCEL: 0647 / ZONE: R-A-15 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
DATE: FEBRUARY, 2014 MAY, 2014	PROJECT NO.: 2429
Design: MCR Draft: MCR Check: BFC	SCALE: AS SHOWN DRAWING 14 OF 16

AS-BUILT

SDP-13-054



LEGEND

- SITE BOUNDARY
- - - EX. EASEMENT LINE
- - - EX. 2' CONTOURS
- - - EX. 10' CONTOURS
- - - EX. PAVEMENT
- - - EX. STRUCTURE
- - - APPROXIMATE SOIL BOUNDARY
- - - APPROXIMATE CENTERLINE OF INTERMITTENT STREAM CHANNEL (PROVIDED BY BENCHMARK ENGINEERING, INC.)
- - - 75' STREAM BANK SETBACK (PROVIDED BY BENCHMARK ENGINEERING, INC.)
- - - APPROXIMATE FOREST STAND BOUNDARY
- - - EX. FOREST ON-SITE
- - - EX. HEDGEROW, SCURB/SHRUB VEGETATION, OR TREE GROUP ON-SITE
- - - PLANT COMMUNITY TYPE SYMBOL (KEYED TO STAND AND VEGETATION NARRATIVES ON THIS PLAN AND TO INFORMATION LISTED IN ACCOMPANYING FOREST STAND ANALYSIS TABLES)
- - - SPECIMEN TREE WITH KEY# (SHOWN IN SURVEYED LOCATION AT SIZE OF CRITICAL ROOT ZONE)
- PROPOSED LIMIT OF DISTURBANCE
- ~ ~ ~ PROPOSED TREE LINE
- PROPOSED 2' FOOT CONTOUR
- PROPOSED 10' FOOT CONTOUR
- PROPOSED PAVEMENT
- PROPOSED TOWNHOME UNIT (TYP.)
- PROPOSED OPEN SPACE
- PROPOSED LANDSCAPE PLANTINGS
- SPECIMEN TREE TO BE REMOVED

F-1

PLANT COMMUNITY TYPE SYMBOL (KEYED TO STAND AND VEGETATION NARRATIVES ON THIS PLAN AND TO INFORMATION LISTED IN ACCOMPANYING FOREST STAND ANALYSIS TABLES)

ST-2

SPECIMEN TREE WITH KEY# (SHOWN IN SURVEYED LOCATION AT SIZE OF CRITICAL ROOT ZONE)

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET



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. 21423, Expiration Date: 8-16-17

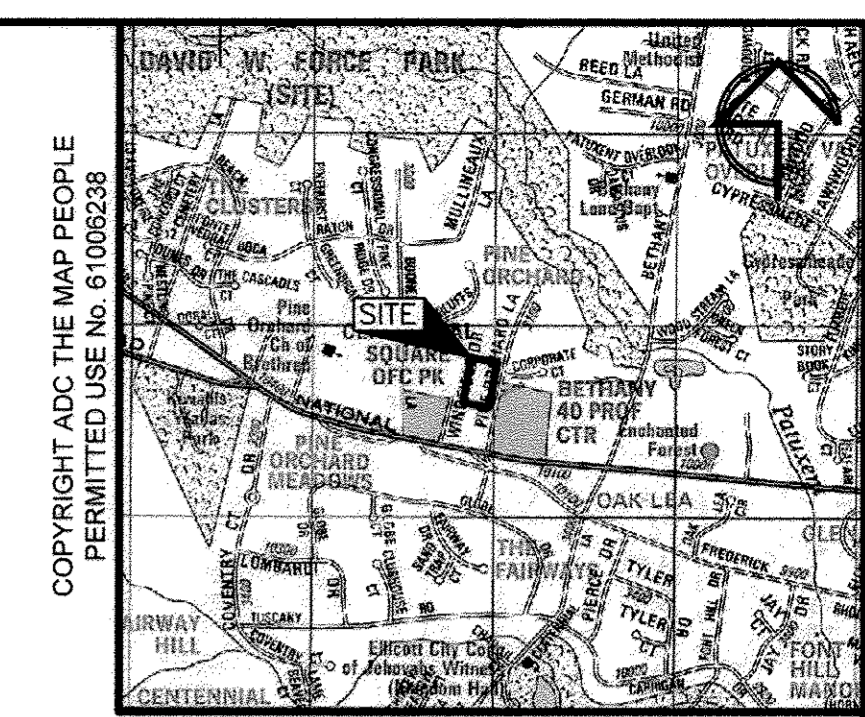
SOILS CHART

SYMBOL	NAME/DESCRIPTION	K FACTOR	HYDRIC SOIL	HYDRIC COMPONENT	PERCENTAGE OF MAPPING UNIT	POSITION IN LANDSCAPE
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	0.20	NO			
McC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	0.24	NO			

1. UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCES CONSERVATION SERVICE'S WEB SOIL SURVEY FOR HOWARD COUNTY, MARYLAND, ON JULY 6, 2012, AT <HTTP://WWW.MD.NRCS.USDA.GOV/TECHNICAL/SOILS.HTML>
2. NATURAL RESOURCES CONSERVATION SERVICE'S HYDRIC SOILS LIST BY STATE, ON JULY 6, 2012, AT <HTTP://SOILS.USDA.GOV/USE/HYDRIC/LISTS/STATE.HTML>

OWNER, DEVELOPER, PLAN PREPARER:

- OWNER/APPLICANT: KAISER ORCHARD, LLC
8198 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
ATTN: RANDOLPH HOENES
PHONE: 410-900-9778
- PLAN PREPARED FOR: KAISER ORCHARD, LLC.
8198 MAIN STREET
ELLCOTT CITY, MARYLAND 21043
ATTN: RANDOLPH HOENES
PHONE: 410-900-9778
- PLAN PREPARED BY: GEO-TECHNOLOGY ASSOCIATES, INC. (GTA)
3445-A BOX HILL CORPORATE CENTER DR.
ABINGDON, MARYLAND 21009
ATTN: ANDY STANSFIELD
PHONE: 410-515-9446



GENERAL NOTES:

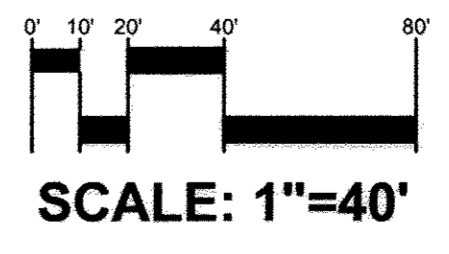
- PROJECT NAME: TOWNS AT PATUXENT ORCHARD, LOT 2
- LOCATION: 3250 PINE ORCHARD LANE, ELLICOTT CITY, MARYLAND.
- TAX MAP INFO: HOWARD COUNTY TAX MAP 24, PARCEL 647, LOT 2
- SITE AREA: 5.1 +/- AC
- ZONING DESIGNATION: RESIDENTIAL: APARTMENTS (R-A-15)
- THIS FOREST CONSERVATION PLAN WAS PREPARED ON AN UNTITLED AND UNDATED TOPOGRAPHIC BASE PROVIDED BY BENCHMARK ENGINEERING, INC.
- BOUNDARY INFORMATION SHOWN HEREON IS BASED ON A FIELD RUN BOUNDARY SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC. IN DECEMBER 2011. COORDINATES AND COURSES SHOWN HEREON ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM (NAD 83/07) PROJECTED FROM HOWARD COUNTY GEODETIC SURVEY CONTROL STATIONS: 0066 AND 24B5. VERTICAL DATUM IS NAVD 88.
- SOILS SHOWN ON THIS PLAN ARE MAPPED AND LABELED IN ACCORDANCE WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE, NATURAL RESOURCE CONSERVATION SERVICE'S WEB SOIL SURVEY. FOR PURPOSES OF ESTABLISHING TYPICAL FOREST COVER TYPES AND WOODLAND SUITABILITY INDEXES FOR FOREST AREAS REVIEWED, NEW SOIL TYPES WERE APPROXIMATELY CORRELATED WITH THE 1968 SOIL TYPES BY DIGITALLY OVERLAYING AND ALIGNING MAPS OF THE NEW AND OLD SOILS.
- NO ROCK OUTCROPPINGS WERE OBSERVED ON THE SUBJECT PROPERTY.
- ACCORDING TO FLOOD INSURANCE RATE MAP #240044 0023 B; NO 100-YEAR FLOODPLAINS ARE ON THE SUBJECT PROPERTY.
- THE SITE DRAINS TO THE PATUXENT RIVER WATERSHED (DNR# 021311050957).
- STEEP SLOPES 25% AND 15%-25% ARE NOT PRESENT ON-SITE.
- FOUR SPECIMEN TREES WERE IDENTIFIED ON-SITE. SPECIMEN TREES WERE FIELD SURVEY LOCATED BY BENCHMARK ENGINEERING, INC. THESE SPECIMEN TREES WERE MARKED IN THE FIELD BY BLUE FLAGGING TIED AROUND THEIR TRUNKS. ALL SPECIMEN TREES ARE SHOWN ON THIS PLAN AT THE SIZE OF THEIR CRITICAL ROOT ZONES. THE FOUR SPECIMEN TREES ARE PROPOSED TO BE CLEARED.
- ACCORDING TO MERLIN ON-LINE, MARYLAND'S ENVIRONMENTAL RESOURCE AND LAND INFORMATION NETWORK, THERE ARE NO HISTORIC OR CULTURAL RESOURCES IDENTIFIED BY THE NATIONAL REGISTER OF HISTORIC PLACES OR THE MARYLAND INVENTORY OF HISTORIC PROPERTIES. FURTHERMORE, THE WEBSITE SHOWS NO MARYLAND HISTORIC TRUST EASEMENTS ON-SITE.
- ACCORDING TO MERLIN ON-LINE, MARYLAND'S ENVIRONMENTAL RESOURCE AND LAND INFORMATION NETWORK, THERE ARE NO RARE, THREATENED OR, ENDANGERED SPECIES IDENTIFIED ON-SITE.
- THE FOREST STAND DELINEATION FIELD WORK WAS PERFORMED BY GTA IN JULY 2012.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN WETLANDS, WETLAND BUFFERS, AND FOREST CONSERVATION EASEMENT AREAS, EXCEPT AS PERMITTED BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING, THE MARYLAND DEPARTMENT OF THE ENVIRONMENT, AND THE U.S. ARMY CORPS OF ENGINEERS.
- THIS FOREST CONSERVATION PLAN IS ACCOMPANIED BY A FOREST CONSERVATION NARRATIVE.
- A WETLAND DELINEATION WAS PERFORMED BY GTA DURING JULY 2012. NO WETLANDS OR WATERS WERE IDENTIFIED ON-SITE.
- THE SITE DRAINS TO AN UNNAMED TRIBUTARY OF THE LITTLE PATUXENT RIVER. WITHIN THE VICINITY OF THE SITE, THE CODE OF MARYLAND REGULATIONS STREAM USE CLASSIFICATION INDEX LISTS THE LITTLE PATUXENT RIVER AND ALL TRIBUTARIES AS USE I-P (WATER CONTACT RECREATION, PROTECTION OF AQUATIC LIFE, AND PUBLIC WATER SUPPLY).
- THIS PLAN WAS PREPARED BY GTA FOR THE SOLE AND EXCLUSIVE USE OF KAISER ORCHARD, LLC. ANY REPRODUCTION OF THIS PLAN BY ANY OTHER PERSON WITHOUT THE EXPRESSED WRITTEN PERMISSION OF GTA AND KAISER ORCHARD, LLC IS UNAUTHORIZED, AND SUCH USE IS AT SOLE RISK OF THE USER.

ANDY STANSFIELD
DNR QUALIFIED PROFESSIONAL
5-13-2014
DATE

GTA
GEO-TECHNOLOGY ASSOCIATES, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
3445-A BOX HILL CORPORATE CENTER DRIVE
ABINGDON, MARYLAND 21009
410-515-9446
FAX: 410-515-4885
WWW.MRAGTA.COM
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FOREST CONSERVATION PLAN
TOWNS AT PATUXENT ORCHARD, LOT 2
TAX MAP 0024 ~ GRID 0001 ~ PARCEL 0647 ~ LOT 2 ~ LIBER 13817
FOLIO 00429 ~ PLAT# CMP-5861 ~ ELECTION DISTRICT# 2
HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.	SCALE:
5/21/2013	REVISED PER COUNTY COMMENTS DATED 3/29/2013	120598X1	1"=40'
11/13/2013	REVISED PER COUNTY COMMENTS DATED 9/11/2013		DATE: MARCH 6, 2013
5/12/2014	REVISED PER UPDATED SITE DESIGN		DRAWN BY: DY
			DESIGN BY:
			REVIEW BY: AS
			SHEET: 15 OF 16



FILE# SDP-13-054
(SDP 13-059/FC)

AS-BUILT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Masha A. Leight 10/14/14
DIRECTOR, DEPARTMENT OF PLANNING AND ZONING DATE

Chad Eden 9.11.14
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Karl Sanderson 10-02-14
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

G:\GTA\120598-Romanik Lot 2\PlotFCP.dwg - 5/13/2014 3:06:56 PM - HP 500_M\lcr_x64.p3

**FOREST STAND SUMMARY NARRATIVE -
- STANDS & VEGETATION:**

OVERALL PROPERTY

THE ROMANICK PROPERTY-LOT 2 IS PREDOMINANTLY WOODED WITH SCRUB-SHRUB AND GRAVEL PARKING AREAS ON THE SOUTHERN PORTION OF THE SITE. THE PROPERTY IS LOCATED AT 3250 PINE ORCHARD LANE, IN THE ELLICOTT CITY AREA OF HOWARD COUNTY, MARYLAND. THE OVERALL PROPERTY IS BOUNDED BY PINE ORCHARD LANE TO THE EAST, COMMERCIAL DEVELOPMENT TO THE SOUTH AND WEST, AND FORESTED LAND TO THE NORTH. A RESIDENTIAL DEVELOPMENT IS PROPOSED ON-SITE.

GTA'S FIELD REVIEW IDENTIFIED THREE FOREST STANDS THAT TOTAL 4.5± ACRES. THE REMAINING LAND COVER CONSISTS OF SCRUB-SHRUB (0.5 AC) AND A PARKING LOT (0.1 AC). A SUMMARY DESCRIPTION OF EACH OF THESE AREAS FOLLOWS:

F-1

FOREST STAND F-1 ENCOMPASSES 0.6 AC± AND IS LOCATED ON THE NORTH-CENTRAL PORTION OF THE SITE. THIS STAND IS AN EARLY SUCCESSIONAL STAGE FOREST COMPRISED ENTIRELY OF WHITE PINES. THE WHITE PINES HAVE APPARENTLY BEEN PLANTED; HOWEVER, THE STAND DOES NOT APPEAR TO HAVE BEEN MAINTAINED OR FARMED. TREES WITHIN THIS STAND RANGE FROM 7" TO 26" DBH WITH APPROXIMATELY 80-90% CLOSURE OF THE CANOPY. THE UNDERSTORY IS COMPRISED OF POISON IVY AND RASPBERRY. THIS STAND HAS LITTLE RETENTION POTENTIAL AS IT PROVIDES LITTLE MORE THAN COVER IN THE WAY OF WILDLIFE HABITAT.

F-2

THIS FOREST STAND IS BORDERED BY FOREST STAND F-2 TO THE NORTH, WEST, AND EAST AND FOREST STAND F-3 TO THE SOUTH. THIS STAND CONTAINS NO FOREST AREAS IN SENSITIVE ENVIRONMENTS. THIS STAND APPEARS TO PROVIDE LITTLE MORE THAN COVER IN THE WAY OF WILDLIFE HABITAT IN THIS MOSTLY URBAN AND RESIDENTIAL CORRIDOR ALONG U.S. ROUTE 40. ACCORDING TO THE 1968 SOIL SURVEY OF HOWARD COUNTY, THE SUITABILITY INDEX FOR THE SOIL TYPES WITHIN THIS STAND ARE 12, 30, AND 41, AND THE TYPICAL FOREST COVER FOR THESE SOILS TYPES ARE "OAKS AND OTHER UPLAND HARDWOODS" AND "WATER TOLERANT HARDWOODS."

F-2

FOREST STAND F-2 ENCOMPASSES 0.8 AC± ON-SITE AND IS LOCATED ON THE NORTHERN PORTION OF THE SITE. THIS STAND IS A MIDDLE SUCCESSIONAL STAGE FOREST COMPRISED OF SILVER MAPLE, RED MAPLE, TULIPTREE, BOX ELDER, AND BLACK WILLOW. TREES WITHIN THIS STAND RANGE FROM 5" TO 48" DBH WITH APPROXIMATELY 90-100% CLOSURE OF THE CANOPY. THE UNDERSTORY IS COMPRISED OF POISON IVY, WHITE ASH, MULTIFLORA ROSE, SPICEBUSH, NORTHERN DEWBERRY, BLACKBERRY AND RASPBERRY. THIS STAND ALSO CONTAINS A DENSE STAND OF BAMBOO BENEATH THE CANOPY. THE MAJORITY OF THE BAMBOO IS LOCATED DIRECTLY NORTH OF THE SITE; HOWEVER, THE BAMBOO APPEARS TO BE EXPANDING INTO THE SITE. THIS STAND HAS LITTLE RETENTION POTENTIAL AS IT PROVIDES LITTLE MORE THAN COVER IN THE WAY OF WILDLIFE HABITAT AND CONTAINS INVASIVE SPECIES SUCH AS BAMBOO AND MULTIFLORA ROSE.

F-3

THIS FOREST STAND EXTENDS OFF-SITE TO THE NORTH AND WEST AND IS BORDERED BY FOREST STANDS F-1 AND F-3 TO THE SOUTH AND PINE ORCHARD LANE TO THE EAST. THIS STAND CONTAINS NO FOREST AREAS IN SENSITIVE ENVIRONMENTS. THIS STAND APPEARS TO HAVE THE POTENTIAL TO PROVIDE HABITAT FOR WILDLIFE IN THIS MOSTLY URBAN AND RESIDENTIAL CORRIDOR ALONG U.S. ROUTE 40. ACCORDING TO THE 1968 SOIL SURVEY OF HOWARD COUNTY, THE SUITABILITY INDEX FOR THE SOIL TYPES WITHIN THIS STAND ARE 12, 30, AND 41, AND THE TYPICAL FOREST COVER FOR THESE SOILS TYPES ARE "OAKS AND OTHER UPLAND HARDWOODS" AND "WATER TOLERANT HARDWOODS."

F-3

FOREST STAND F-3 ENCOMPASSES 3.1 AC± ON-SITE AND IS LOCATED ON THE CENTRAL AND SOUTHERN PORTIONS OF THE SITE. THIS STAND IS AN EARLY SUCCESSIONAL STAGE FOREST COMPRISED OF BLACK WALNUT, BLACK LOCUST, RED MAPLE, CRABAPPLE, MULBERRY, SASSAFRAS, WILLOW OAK, CALLERY PEAR, ELDER, CATALPA, AND TULIPTREE. TREES WITHIN THIS STAND RANGE FROM 2" TO 26" DBH WITH APPROXIMATELY 60-70% CLOSURE OF THE CANOPY. THE UNDERSTORY IS COMPRISED OF AUTUMN OLIVE, RASPBERRY, MULTIFLORA ROSE, FOXGRAPE, ORIENTAL BITTERSWEET, POISON IVY, TRUMPET CREEPER, AND VIRGINIA CREEPER. THIS STAND HAS LITTLE RETENTION POTENTIAL AS IT IS AN EARLY STAGE FOREST THAT CONTAINS INVASIVE SPECIES SUCH AS MULTIFLORA ROSE AND ORIENTAL BITTERSWEET AND PROVIDES LITTLE MORE THAN COVER IN THE WAY OF WILDLIFE HABITAT.

SS-1

THIS FOREST STAND EXTENDS OFF-SITE TO THE WEST AND IS BORDERED BY FOREST STANDS F-1 AND F-2 TO THE NORTH, PINE ORCHARD LANE TO THE EAST, COMMERCIAL DEVELOPMENT TO THE WEST, AND ON-SITE PARKING AND SCRUB-SHRUB AREAS TO THE SOUTH. THIS STAND CONTAINS NO FOREST AREAS IN SENSITIVE ENVIRONMENTS. THIS STAND APPEARS TO HAVE THE POTENTIAL TO PROVIDE HABITAT FOR WILDLIFE IN THIS MOSTLY URBAN AND RESIDENTIAL CORRIDOR ALONG U.S. ROUTE 40. ACCORDING TO THE 1968 SOIL SURVEY OF HOWARD COUNTY, THE SUITABILITY INDEX FOR THE SOIL TYPES WITHIN THIS STAND ARE 4, 30, 41, AND 43, AND THE TYPICAL FOREST COVER FOR THESE SOILS TYPES ARE "OAKS AND OTHER UPLAND HARDWOODS," "MOSTLY OAK WITH HICKORY, BEECH, ELM, LOCUST, AND MAPLES," AND "MIXED UPLAND HARDWOODS, MAINLY OAKS."

SS-1

SCRUB-SHRUB AREA SS-1 ENCOMPASSES 0.5 AC± ON-SITE AND IS LOCATED ON THE WEST-CENTRAL AND SOUTHWESTERN PORTIONS OF THE SITE. THIS AREA IS COMPRISED OF SPARSE BLACK LOCUST AND BLACK CHERRY SAPLINGS UNDER 10 FEET, AS WELL AS POISON IVY, BLACKBERRY, GOLDENROD, AND AMERICAN POKEWEE. TREE STUMPS WERE OBSERVED IN THIS AREA BASED ON AERIAL PHOTOGRAPH INTERPRETATION. THIS AREA APPEARED TO PREVIOUSLY CONSIST OF DECIDUOUS TREES THAT WERE CUT AROUND 2007-2008. SINCE THEN THE AREA APPEARS TO HAVE BEEN ALLOWED TO REGENERATE NATURALLY.

SPECIMEN TREE LIST

NUMBER	SCIENTIFIC NAME	COMMON NAME	DBH	CONDITION
ST-1	ACER RUBRUM	RED MAPLE	39"	FAIR
ST-2	ACER SACCHARINUM	SILVER MAPLE	36"	GOOD
ST-3	ACER SACCHARINUM	SILVER MAPLE	31"	GOOD
ST-4	ACER SACCHARINUM	SILVER MAPLE	48"	GOOD

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Chad E. ... 9-11-14
CHIEF, DEVELOPMENT ENGINEERING DIVISION
Keith ... 10-02-14
CHIEF, DIVISION OF LAND DEVELOPMENT
Frank ... 10/2/14
DIRECTOR

FOREST CONSERVATION WORKSHEET

PROJECT NAME: PINE ORCHARD DATE: 3/4/2013
 LOCATION: HOWARD COUNTY REVISION:
 REVIEWED BY: APPROVAL DATE:

I. BASIC SITE DATA ACRES (0.1 acre)

GROSS SITE AREA (development site only) 5.1
 AREA WITHIN 100 YEAR FLOODPLAIN 0.0
 AREA WITHIN AGRICULTURAL USE OR PRESERVATION PARCEL (if applicable) 0.0

AREA IN OVERHEAD TRANSMISSION LINE EASEMENTS (if applicable) 0.0
 NET TRACT AREA 5.1
 LAND USE CATEGORY RESIDENTIAL

II. INFORMATION FOR CALCULATIONS ACRES (0.1 acre)

A. NET TRACT AREA 5.1
 B. FOREST CONSERVATION THRESHOLD (20% X A) 1.0
 C. AFFORESTATION THRESHOLD (15% X A) 0.8
 D. EXISTING FOREST ON NET TRACT AREA 4.5
 E. EXISTING FOREST ABOVE FOREST CONSERVATION THRESHOLD 3.5
 F. BREAK-EVEN POINT (the amount of forest to be retained for no mitigation) (E x 0.2) + B) 1.7
 G. FOREST TO BE CLEARED 4.5
 H. FOREST TO BE RETAINED 0.0

III. APPLICABILITY OF AFFORESTATION AND REFORESTATION TO SITE ACRES (0.1 acre)

1. Afforestation Only
 If existing forest areas are below the Afforestation Threshold (if D is less than C), and no forest clearing is proposed, afforestation requirements apply.

GO TO SECTION IV

2. Combined Afforestation and Reforestation
 If existing forest areas are below the Afforestation Threshold (if D is less than C) AND clearing of forest is proposed, both afforestation and reforestation are required.

GO TO SECTION IV

a) If existing forest areas are at or above the Afforestation threshold (if D is equal to or greater than C) and no clearing of existing forest resources is proposed, no reforestation is required. STOP. No further calculations are needed.

b) If existing forest areas are retained at or above the breakeven point (if H is equal to or greater than F), STOP. No further calculations are needed and no mitigation is required.

c) If existing forest areas are at or above the Afforestation Threshold (if D is equal to or greater than C), and clearing of forest areas is proposed, reforestation requirements may apply.

GO TO SECTION V

IV. AFFORESTATION CALCULATIONS ACRES (0.1 acre)

A. NET TRACT AREA N/A
 C. AFFORESTATION THRESHOLD (15% X A) N/A
 D. EXISTING FOREST ON NET TRACT AREA N/A
 G. FOREST AREAS TO BE CLEARED N/A
 H. FOREST AREAS TO BE RETAINED N/A

Select the alternative that applies:

1. No clearing:
 If existing forest areas are below the Afforestation Threshold (if D is less than C) and no clearing is proposed, the following calculations apply:
 TOTAL AFFORESTATION REQUIRED C - D N/A
 Afforestation must make the forest area equal to the minimum required by the Afforestation Threshold.

2. Clearing:
 If existing forest areas are below the Afforestation Threshold (if D is less than C) and clearing is proposed, the following calculations apply:
 AFFORESTATION FOR UNFORESTED AREAS BELOW AFFORESTATION THRESHOLD C - D N/A
 REFORESTATION FOR CLEARING BELOW AFFORESTATION THRESHOLD G x 2 N/A
 TOTAL PLANTING REQUIRED (C - D) + (G X 2) N/A
 The afforestation planting brings the site up to the minimum forest required (the Afforestation Threshold). The reforestation component compensates for clearing.

V. REFORESTATION CALCULATIONS

	ACRES (0.1 acre)
A. NET TRACT AREA	5.1
B. FOREST CONSERVATION THRESHOLD (20% X A)	1.0
D. EXISTING FOREST ON NET TRACT AREA	4.5
E. EXISTING FOREST ABOVE FOREST CONSERVATION THRESHOLD	3.5
G. FOREST AREAS TO BE CLEARED	4.5
H. FOREST AREAS TO BE RETAINED	0.0
I. FOREST AREAS CLEARED ABOVE FOREST CONSERVATION THRESHOLD (If H equals or is greater than B, Alternate 1. If H is less than B, Alternate 2.)	3.5
J. FOREST AREAS CLEARED BELOW FOREST CONSERVATION THRESHOLD (B-H, if applicable)	1.0
K. FOREST AREAS RETAINED ABOVE FOREST CONSERVATION THRESHOLD (H-B, Retention Credit, if applicable)	0.0

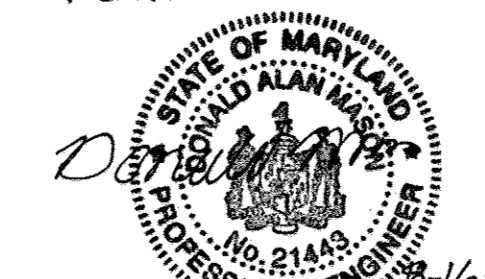
Select the alternative that applies:
 1. Clearing Above the Forest Conservation Threshold Only
 If forest areas to be retained are at or above the Forest Conservation Threshold (if H is equal to or greater than B), the following calculations apply:
 REFORESTATION FOR CLEARING ABOVE THRESHOLD I x 1/4 0.0
 CREDIT FOR FOREST AREAS RETAINED ABOVE THRESHOLD K = Retention Credit 0.0
 TOTAL REFORESTATION REQUIRED (I x 1/4) - K 0.0
 If the total reforestation requirement is equal to or less than 0, no reforestation is required.

2. Clearing Below the Forest Conservation Threshold
 If forest areas to be retained are below the Forest Conservation Threshold (if H is less than B), the following calculations apply:
 REFORESTATION FOR CLEARING ABOVE THRESHOLD I x 1/4 0.9
 REFORESTATION FOR CLEARING BELOW THRESHOLD J x 2 2.0
 TOTAL REFORESTATION REQUIRED (I x 1/4) + (J x 2) 2.9

OPTION 3: PREVIOUSLY ADDRESSED (INCLUDING USE OF A FC BANK)	FOREST CONSERVATION DATA SUMMARY
FILE NUMBER: FILE# SDP-13-054 (SDP-13-059/FC)	PROJECT/SUBDIVISION NAME: TOWNS AT PATUXENT ORCHARD, LOT 2
COMMENT: ADDRESSED BY PROPOSED RETENTION BANK - PROPERTY OF DENSITY SOLUTIONS, LLC (SDP-13-059; RE 13-003 S1*)	

*FOREST CONSERVATION OBLIGATIONS IN ACCORDANCE WITH THE FOREST CONSERVATION MANUAL SHALL BE FULFILLED BY RE-FORESTATION OF 2.9 ACRES. TO MEET THIS REQUIREMENT, THE DEVELOPER PROPOSED TO PURCHASE 5.8 ACRES (2:1 RATIO) OF OFF-SITE FOREST RETENTION FROM AN APPROVED FOREST CONSERVATION BANK. AN EASEMENT SHALL BE PURCHASED AT THE PROPERTY OF DENSITY SOLUTIONS, L.L.C. UNDER SDP-13-059 FC. NO SURETY IS REQUIRED FOR RETENTION.

NO AS-BUILT INFORMATION IS PROVIDED ON THIS SHEET



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. 21443, Expiration Date: 8-16-17

FILE# SDP-13-054 (SDP-13-059/FC)

GTA
GEO-TECHNOLOGY ASSOCIATES, INC.
 GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
 3445-A BOX HILL CORPORATE CENTER DRIVE
 ABINGDON, MARYLAND 21009
 410-515-9446
 FAX: 410-515-4895
 WWW.MRAGTA.COM
 © 2013 GEO-TECHNOLOGY ASSOCIATES, INC.

FOREST CONSERVATION PLAN
TOWNS AT PATUXENT ORCHARD, LOT 2
 TAX MAP 0024 ~ GRID 0001 ~ PARCEL 0647 ~ LOT 2 ~ LIBER 13817
 FOLIO 00429 ~ PLAT# CMP-5961 ~ ELECTION DISTRICT# 2
 HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO:	SCALE:
5/21/2013	REVISED PER COUNTY COMMENTS DATED 3/29/2013	120598X1	NA
11/13/2013	REVISED PER COUNTY COMMENTS DATED 9/11/2013	DATE:	MARCH 6, 2013
5/12/2014	REVISED PER UPDATED CAD FILES	DRAWN BY:	DY
		DESIGN BY:	
		REVIEW BY:	AS
		SHEET:	16 OF 16

AS-BUILT

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