HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2)
LOTS 3 THRU 8, OPEN SPACE LOT 9
AND NON-BUILDABLE BULK PARCEL 'A'
PARCEL 253 / ZONE: R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
REVISED FINAL ROAD CONSTRUCTION PLANS F-07-110

GENERAL NOTES

1.) THE SUBJECT PROPERTY IS ZONED R-20 PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER COMP. LITE ZONING AMENDMENTS EFFECTIVE 7/28/08
2.) ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS ASHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
3.) THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.
4.) THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" @ 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
5.) ALL ASPECTS OF THIS PROJECT SHALL BE IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVER(S) HAVE BEEN APPROVED.
6.) THE BOUNDARY SHOWN IS BASED ON A MONUMENTED FIELD-RUN SURVEY PERFORMED BY BENCHMARK ENGINEERING, INC., DATED MARCH, 2003..
7.) THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, MONUMENTS 24FB & 2413, WHICH ARE BASED ON THE MARYLAND STATE PLANE COORDINATE SYSTEM.
8.) EXISTING TOPOGRAPHY SHOWN HEREON WAS FIELD RUN BY BENCHMARK ENGINEERING, INC., DATED MARCH 2003 AND SUPPLEMENTED IN NOVEMBER 2006. CONTOUR INTERVAL IS 2 FEET. ADDITIONAL OFFSITE TOPOGRAPHY WAS PURCHASED FROM HOWARD COUNTY GEOGRAPHICAL INFORMATION SYSTEMS.
9.) EXISTING UTILITIES SHOWN HEREON ARE BASED ON FIELD LOCATIONS AND RECORD DRAWINGS.
10.) CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND RIM ELEVATIONS AS NEEDED TO MATCH THIS PLAN
11.) THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT. WATER AND SEWER SHALL BE PUBLIC, CONNECTING TO EX. CONTRACT No.845-W&S UNDER CONTR. No.R-3463. DRAINAGE AREA IS WITHIN THE PATAPSCO RIVER WATERSHED.
12.) FOREST STAND DELINEATION PLAN WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED MAY, 2003 AND APPROVED UNDER S-03-017.
13.) NO WETLANDS OR 100-YEAR FLOODPLAIN EXIST WITHIN THE LIMITS OF PROJECT AS PER A CERTIFICATION LETTER PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. DATED APRIL, 2003 AND APPROVED UNDER S-03-017.
14.) NOISE LINE SHOWN ON PLANS FOR THIS PROJECT BASED ON DATA PROVIDED BY THE MSHA AS PER CONTRACT NO.HO6625170 AND APPROVED UNDER S-03-017.
15.) THE NOISE CONTOUR LINE DRAWN ON THIS PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY 1992, AND CANNOT BY CONSIDERED TO EXACTLY LOCATE THE 65dBA EXPOSURE. THE 65dBA EXPOSURE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOSE LEVELS ESTABLISHED BY THE US DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.
16.) A.P.F.O. TRAFFIC STUDY WAS PREPARED BY THE MARS GROUP, INC. DATED MAY, 2003 AND APPROVED UNDER S-03-017.
17.) THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, DATED NOVEMBER 30, 2005 AND APPROVED UNDER P-06-008.
18.) THERE IS AN EXISTING DWELLING LOCATED ON-SITE (LOT 1) TO REMAIN. NO NEW BUILDINGS, EXTENSIONS OR ADDITIONS TO THE EXISTING DWELLING ARE TO BE CONSTRUCTED AT A DISTANCE LESS THAN THE ZONING REGULATIONS REQUIRE.
19.) TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERY LOCATIONS ON-SITE.
20.) UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
21.) ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
22.) BRL INDICATES BUILDING RESTRICTION LINE.
23.) ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
24.) THIS PLAN IS SUBJECT TO THE AMENDED 5th EDITION OF THE HOWARD COUNTY SUBDIVISION REGULATIONS AND THE AMENDED HOWARD COUNTY ZONING REGULATIONS. IT ALSO FALLS UNDER THE CRITERIA ESTABLISHED IN THE INFILL DEVELOPMENT REGULATIONS OF COUNCIL BILL 45-2003, EFFECTIVE OCTOBER 2, 2003.
25.) STORMWATER MANAGEMENT SHALL BE PROVIDED FOR THIS PROJECT BASED ON GUIDELINES ESTABLISHED BY THE 2007 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I AND II. QUALITY CONTROL WILL BE PROVIDED BY A SWM POND WITH SAND FILTER, MICRO-BIORETENTION FACILITIES, ROOFTOP AND NON-ROOFTOP DISCONNECTION. QUANTITY CONTROL SHALL BE PROVIDED BY THE SWM POND.
26.) ALL MICRO-BIORETENTION FACILITIES EXCEPT FOR 'MB-A' WILL BE PRIVATELY OWNED AND MAINTAINED MICRO-BIORETENTION FACILITY 'MB-A' AND THE SWM POND WILL BE PRIVATELY OWNED AND JOINTLY MAINTAINED.
27.) TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
28.) ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED, SQUARE TUBE POST (14 GAUGE), INSERTED INTO A 2-½" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
29.) EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS; STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SEC.134 OF THE HOWARD COUNTY ZONING REGULATIONS, THE HOWARD COUNTY DESIGN MANUAL, VOL.III. (1993), AND AS MODIFIED BY GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (1996). A MINIMUM SPACING OF TWENTY FEET (20') SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
30.) PERIMETER LANDSCAPING AND TRASH PAD SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL AND AS SHOWN ON THE LANDSCAPE PLAN SHEET OF THE ROAD CONSTRUCTION DRAWINGS FOR F-07-110. SURETY IN THE AMOUNT OF $13,500.00 FOR 35 SHADE TREES, 18 EVERGREENS AND $54,667.80 SHRUBS SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR THIS PLAN, F-07-110.
31.) FOR FLAG OR PIPESTEM LOTS, REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE OR PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND ROAD RIGHT-OF-WAY AND NOT TO THE PIPESTEM LOT DRIVEWAY.
32.) DRIVEWAYS SHALL BE PROVIDED PRIOR TO ISSUANCE OF A USE AND OCCUPANCY PERMIT FOR ANY NEW DWELLINGS FOR FIRE AND EMERGENCY VEHICLES FOR THE FOLLOWING MINIMUM REQUIREMENTS:
   A) WIDTH - 12' (16' SERVING MORE THAN ONE RESIDENCE).
   B) SURFACE - 6" OF COMPACT CRUSHER RUN BASE WITH TAR AND CHIP COATING.
   C) GEOMETRY - MAX. 15% GRADE, MAX. 10% GRADE CHANGE & MIN. 45' TURNING RADIUS.
   D) STRUCTURES(CULVERTS/BRIDGES) - CAPABLE OF SUPPORTING 25 GROSS TONS (H25 LOAD)
   E) DRAINAGE ELEMENTS - CAPABLE OF SAFELY PASSING 100 YEAR FLOODPLAIN WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY.
   F) STRUCTURE CLEARANCES - MINIMUM 12 FEET.
   G) MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
33.) WAIVER PETITION WP-04-72 WAS REQUESTED AND APPROVED ON DECEMBER 28, 2003 TO WAIVE SECTION 16.121(a)(2) PER THE FOLLOWING CONDITIONS; THE PROPOSED OPEN SPACE LOT 9 SHALL BE DEDICATED TO THE H.O.A FOR SWMF PURPOSES; MINIMUM RESIDENTIAL LOT SIZES MIST BE 20,000 S.F. OR GREATER; AND ACCESS TO THESE OPEN SPACE LOTS SHALL BE DIRECTLY FROM THE PROPOSED PUBLIC RIGHT-OF-WAY EXTENSION OF VIEW TOP ROAD.
34.) WAIVER PETITION WP-03-137 WAS REQUESTED AND APPROVED ON SEPTEMBER 23, 2003 TO WAIVE SECTION 16.120(c)(2) PER THE FOLLOWING CONDITIONS; THE PROPOSED USE-IN-COMMON MAINTENANCE AGREEMENT FOR LOT 1 OF THE HAWES PROPERTY, LOT 4 OF THE MOSNER PROPERTY AND PARCEL 384 SHALL BE RECORDED SIMULTANEOUSLY WITH THE PLAT IN THE LAND RECORDS OFFICE OF HOWARD COUNTY, MD; AND THAT ANY FUTURE RE-SUBDIVISION OF NON-BUILDABLE LOT 2 WILL BE SUBJECT TO COMPLIANCE WITH ALL APPLICABLE SUBDIVISION, APFO, STORMWATER MANEGEMENT, FOREST CONSERVATION AND LANDSCAPE REQUIREMENTS IN EFFECT AT THAT TIME.
35.) WAIVER PETITION WP-04-31, REQUESTED TO WAIVE SECTION 16.120(b)(4)(iii)(a), WAS ALLOWED TO EXPIRE AND BECOME NULL & VOID DUE TO INACTIVITY.
36.) APPLICABLE HOWARD COUNTY DPZ FILE REFERENCES FOR THIS PROJECT INCLUDE: F-03-190, WP-03-137, WP-04-72, S-03-017, CONTR. #14-4481-D, P-06-008)
37.) A DESIGN MANUAL WAIVER WAS SUBMITTED TO THE DEVELOPMENT ENGINEERING DIVISION AND APPROVED BY LETTER DATED JUNE 22, 2006 FOR DMV III, CHAPTER 2, SECTION 2.4.1. TO ALLOW FOR GRADING DEVIATIONS FROM THE TYICAL ROADWAY SECTION FOR A PUBLIC ACCESS PLACE (FIGURE 2.09 IN CONJUNCTION WITH TABLE 2.01) IN ORDER TO MEET EXISTING CONDITIONS FOR THE PROPOSED PUBLIC RIGHT-OF-WAY EXTENSION OF VIEW TOP ROAD. HOWARD COUNTY WILL NOT BE LIABLE FOR ANY DAMAGES TO THE PUBLIC R/W INCURRED DURING NECESSARY MAINTENANCE OF THE EXISTING RETAINING WALL LOCATED ON LOT 1.
38.) A DESIGN MANUAL WAIVER WAS SUBMITTED TO THE DEVELOPMENT ENGINEERING DIVISION AND APPROVED BY LETTER DATED JULY 26, 2003, FOR DMV III, CHAPTER 2, SECTION 2.3.2.D.3 TO ALLOW FOR THE MINIMUM LENGTH OF A HORIZONTAL CURVE IN A PUBLIC ROADWAY TO BE LESS THAN 100' FOR A CUL-DE-SAC OR LOCAL ROAD IN ORDER TO MEET EXISTING CONDITIONS FOR THE PROPOSED PUBLIC RIGHT-OF-WAY EXTENSION OF VIEW TOP ROAD.
39.) FOREST CONSERVATION IN ACCORDANCE WITH SECTION 16.1202 OF THE FOREST CONSERVATION MANUAL IS PROVIDED BY PLACEMENT OF 2.5AC.(108,900 SF) OF REQUIRED REFORESTATION INTO AN OFF-SITE EASEMENT ON THE MAPLEWOOD FARMS, FOREST MITIGATION BANK UNDER F-13-060 (PLATS 22666-22667). THE FOREST CONSERVATION EASEMENT CHART HAS BEEN SHOWN ON SDP-13-040-FC. NO SURETY IS REQUIRED WITH THE DEVELOPERS AGREEMENT FOR THE FINAL PLAN UNDER F-07-110 HAWES PROPERTY.
40.) ALL AREAS OF CONTROLLED FILL TO BE AT 95% COMPACTION PER AASHTO-T180 STANDARDS.
41.) SHA APPROVAL IS REQUIRED FOR THE PROPOSED OUTFALL AND STORM DRAIN SYSTEM WITHIN THE SHA RIGHT-OF-WAY.
42.) THE DRIVEWAY RELOCATION FOR EXISTING PARCELS 384 AND 257 MUST BE RESOLVED PRIOR TO FINAL PLAN APPROVAL.
43.) THE HOMEOWNER'S ASSOCIATION SHALL BE RESPONSIBLE FOR REMOVAL OF GRAFFITI FROM THE RETAINING WALLS.
44.) THE CURRENT OWNERS (VIVENCIO R. & JEANNE C. REYES) OF THE ADJOINING PARCEL (P.755, LOT 9) TO THE NORTH OF THIS PROPERTY HAVE SIGNED A LETTER OF ACKNOWLEDGEMENT STATING THEY ARE AWARE THAT; AN EXISTING DRAINAGE SWALE IS LOCATED AT THE REAR OF THEIR PROPERTY; THAT THIS SWALE CURRENTLY, AND WILL AFTER DEVELOPMENT OF THIS PROJECT, CONVEY RUNOFF FROM THIS SITE; THAT ANY NEW HOMES TO BE BUILDT ON THEIR PROPERTY SHOULD NOT BE LOCATED IN THIS AREA UNLESS PROVISIONS ARE MADE TO RE-ROUTE THE WATER FLOW; AND THAT THIS SITUATION WILL NOT BE ELIMINATED BY THIS PROJECT. A COPY OF THIS LETTER IS ON FILE WITH THE DEVELOPER AND WITH PERTINENT HOWARD COUNTY REVIEW AGENCIES.
45.) FOREST CONSERVATION IN ACCORDANCE WITH SECTION 16.1202 OF THE FOREST CONSERVATION MANUAL SHALL BE PROVIDED BY PLACEMENT OF 2.51 ACRES OF REQUIRED AFFORESTATION INTO AN OFF-SITE EASEMENT ON PROPERTY IDENTIFIED AS THE ROSEBAR PROPERTY, PRESERVATION PARCEL A, LOCATED ON TAX MAP NO. 14 AND IDENTIFIED AS PARCEL 221, SITUATED ON THE WEST SIDE HOBBS ROAD. THE ROSEBAR FOREST CONSERVATION EASEMENT HAS BEEN SHOWN ON SHEET 18 OF SDP-97-115/NEW COLONY VILLAGE. DPZ HAS DETERMINED THAT A REDLINE REVISION SHALL BE MADE TO SDP-97-115 TO SHOW 2.51 ACRES OF AFFORESTATION DEDUCTED FROM THE TOTAL FC EASEMENT LOCATED ON ROSEBAR. SURETY IN THE AMOUNT OF $54,667.80 FOR 2.51 ACRES OF REQUIRED AFFORESTATION SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THE FINAL PLAN, F-07-110/HAWES PROPERTY.
46.) WAIVER PETITION WP-12-61, REQUESTED TO WAIVE SECTION 16.144(p) and (q) REGARDING PAYMENT OF FEES, POSTING OF ALL MONEYS AND FILING OF APPROPRIATE SURETY AND SUBMITTAL OF THE ORIGINAL PLAT MYLAR FOR PROCESSING. WP-12-061 WAS APPROVED ON NOVEMBER 3, 2011 AND EXTENDED THE DEADLINE FOR PAYMENT OF FEES AND POSTING OF SURETY TO OCTOBER 30, 2012 AND SUBMITTAL OF THE FINAL PLAT MYLAR TO DECEMBER 30, 2012.

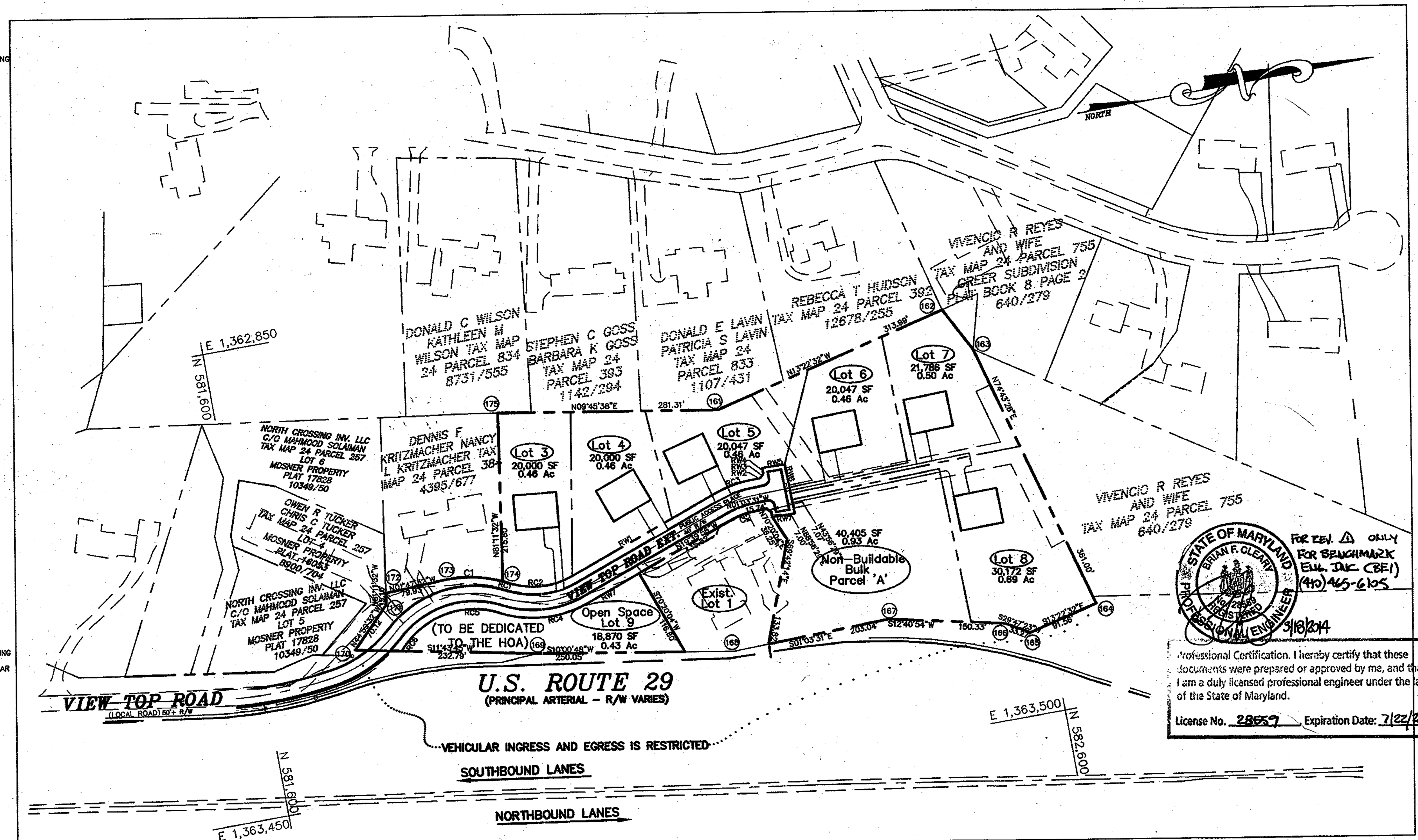
OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

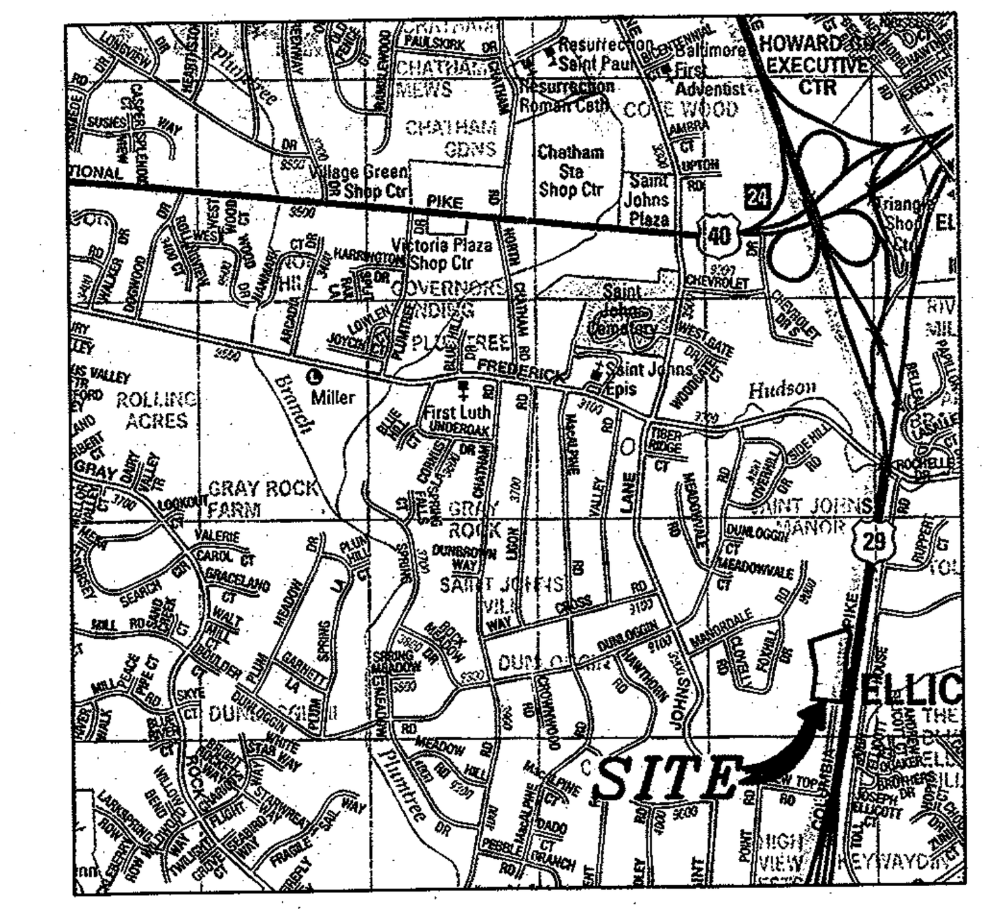
BENCH MARKS - NAD '83

HO. CO. #24FB EL.=423.279
N-582652.103 E-1,364,255.930
STAMPED DISC ON CONC. MONUMENT 42' NW FROM PK SET ALONG N. EDGE OF MANAHAN ROAD; 128' FROM EX. TWNHSE.; WITHIN TRANSMISSION LINE R/W

HO. CO. #2413 EL.=404.482
N-580,648.904 E-1,364,974.471
STAMPED DISC ON CONC. MONUMENT 159' NE FROM BGE POLE #501794; 97.3' SE FROM EX. 10" CEDAR TREE IN CENTER OF TRANSMISSION LINE R/W



LOCATION PLAN
SCALE: 1"=100'



VICINITY MAP
ADC MAP 4815 GRID J-8
SCALE: 1"=2000'

LEGEND

- SOILS CLASSIFICATION — AbC1
- SOILS DELINEATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- STEEP SLOPES 15% TO 24.9%
- STEEP SLOPES 25% OR GREATER
- LIMIT OF DISTURBANCE — LOD
- STABILIZED CONSTRUCTION ENTRANCE
- SILT DIVERSION FENCE — SDF
- SUPER SILT FENCE — SSF
- INLET PROTECTION
- EARTH DIKE — A-2
- RIP-RAP
- PIPE SLOPE DRAIN — PSD

MINIMUM LOT SIZE CHART

LOT #	GROSS AREA (SF)	PIPESTEM AREA (SF)	MIN. LOT SIZE (SF)
7	23,021	1,235	21,786
8	31,711	1,539	30,172

RIGHT-OF-WAY CURVE DATA

CURVE	RADIUS	ARC	DELTA	TANGENT	CHORD	
RC1	164.87'	8.27'	02°52'26"	4.14'	N26°24'42"E	8.27'
RC2	101.00'	83.76'	47°30'57"	44.46	N04°05'29"E	81.38'
RC3	140.00'	45.46'	18°36'25"	22.93'	N10°21'43"W	45.27'
RC4	141.00'	116.97'	47°31'51"	62.08'	S04°05'58"W	113.64'
RC5	107.30'	125.70'	67°07'07"	71.18'	S05°29'43"E	118.63'
RC6	188.00'	14.32'	04°21'54"	7.16'	S39°59'37"E	14.32'

SITE DATA TABULATION

1) GENERAL SITE DATA
a. PRESENT ZONING: R-20
b. LOCATION: TAX MAP 24 - GRID 17 - PARCEL 253
c. APPLICABLE DPZ FILE REFERENCES: S-03-017, F-03-190, WP-03-137, WP-04-072, P-06-008, CONTR. #14-4481-D
d. DEED REFERENCE: L.7868 / F.646 (PLAT REFERENCE: 16323)
e. PROPOSED USE OF SITE: 7 SFD HOMES (INLUDES 1 EXIST. SFD ON LOT 1)
f. PROPOSED WATER AND SEWER SYSTEMS: PUBLIC

2) AREA TABULATION
a. TOTAL AREA OF SITE......5.61 Ac.± (INCL. LOT 1)
b. AREA OF 100 YEAR FLOODPLAIN (APPROX.)......N/A
c. AREA OF STEEP SLOPES (25% OR GREATER)......0.84 Ac.±
d. NET AREA OF SITE......4.77 Ac.±
e. AREA OF THIS PLAN SUBMISSION......5.61 Ac.±
f. LIMIT OF DISTURBANCE (APPROX.)......5.02 Ac.±
h. AREA OF OPEN SPACE LOTS......0.43 Ac.±
i. AREA OF PROPOSED PUBLIC ROAD......0.59 Ac.±
j. AREA OF PROPOSED PUBLIC R/W DEDICATION......0.59 Ac.±

3) UNIT/LOT TABULATION
a. TOTAL NUMBER OF RESIDENTIAL LOTS PROPOSED ON THIS SUBMISSION......7 (INCL. 1 EXIST. ON LOT 1)
b. TOTAL NUMBER OF OPEN SPACE LOTS PROPOSED ON THIS SUBMSSION......1

4) OPEN SPACE DATA
a. MINIMUM RESIDENTIAL LOT SIZE SELECTED......20,000 S.F.
b. OPEN SPACE REQUIRED FOR TOTAL AREA OF SITE (6% OF 5.61 Ac.)......0.34 Ac.
c. TOTAL AREA OF PROPOSED OPEN SPACE LOTS PROVDED WITH THIS SUBMISSION......0.43 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)......0.43 Ac.±
d. AREA OF RECREATIONAL OPEN SPACE REQUIRED......N/A
   1) TOTAL AREA OF RECREATIONAL OPEN SPACE PROVIDED......0.00 Ac.

SHEET INDEX

BOUNDARY CURVE DATA

CURVE	RADIUS	ARC	DELTA	TANGENT	CHORD	
C1	164.87'	72.13'	25°04'05"	36.65'	S12°26'28"W	71.56'
C2	100.00'	32.47'	18°36'24"	16.38'	S10°21'44"E	32.33'

BOUNDARY COORDINATE TABLE (NAD '83)

NO.	NORTHING	EASTING
161	582,233.9625	1,363,040.6109
162	582,539.4354	1,362,967.9745
163	582,568.6933	1,363,024.9128
164	582,663.8030	1,363,373.1586
165	582,574.7231	1,363,394.3404
166	582,545.8458	1,363,377.8090
167	582,399.1802	1,363,344.8060
168	582,196.1755	1,363,348.5575
169	581,949.9344	1,363,305.0797
170	581,722.0094	1,363,257.7577
171	581,771.5999	1,363,208.1806
172	581,773.9120	1,363,193.2587
173	581,853.8017	1,363,190.7589
174	581,923.6813	1,363,206.1755
175	581,956.7245	1,362,992.9202

RIGHT-OF-WAY BEARINGS AND DISTANCES

LINE	BEARING	DIST.
RW1	N19°39'56"W	211.22'
RW2	N01°03'31"W	15.72'
RW3	N46°03'31"W	7.07'
RW4	S88°56'29"W	7.00'
RW5	N01°03'31"E	29.00'
RW6	N88°56'29"E	64.00'
RW7	S01°03'31"E	29.00'
RW8	S19°39'56"E	75.40'

THE PURPOSE OF THESE PLANS IS TO PROVIDE A REVISED LOT LAYOUT AND TO REVISE THE STORMWATER MANAGEMENT DESIGN.

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

John R Robertson 4/10/12
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

4-16-12
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

4/27/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. — DATE

Kent Sheubrooks 4/30/12
CHIEF, DIV. ~~DIRECTOR~~ OF LAND DEVELOPMENT BB — DATE

BY THE OWNER / DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 INSPECTIONS BY THE HOWARD CONSERVATION DISTRICT."

3/1/12
OWNER / DEVELOPER - OWNER'S AGENT

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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.

3/1/12
ENGINEER - JEFFREY SLOMAN, PE #40091

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. 40091 Expiration Date 2-13-2013

STATE OF MARYLAND — JEFFREY L. SLOMAN — PROFESSIONAL ENGINEER — 3-1-12

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. 28657 Expiration Date: 7/22/2014

FOR REV. 3 ONLY FOR BENCHMARK ENG. INC (BEI) (410) 465-6105

H:\10-024 HAWES\DWG\24-Revised F Plan Cover Sheet.dwg

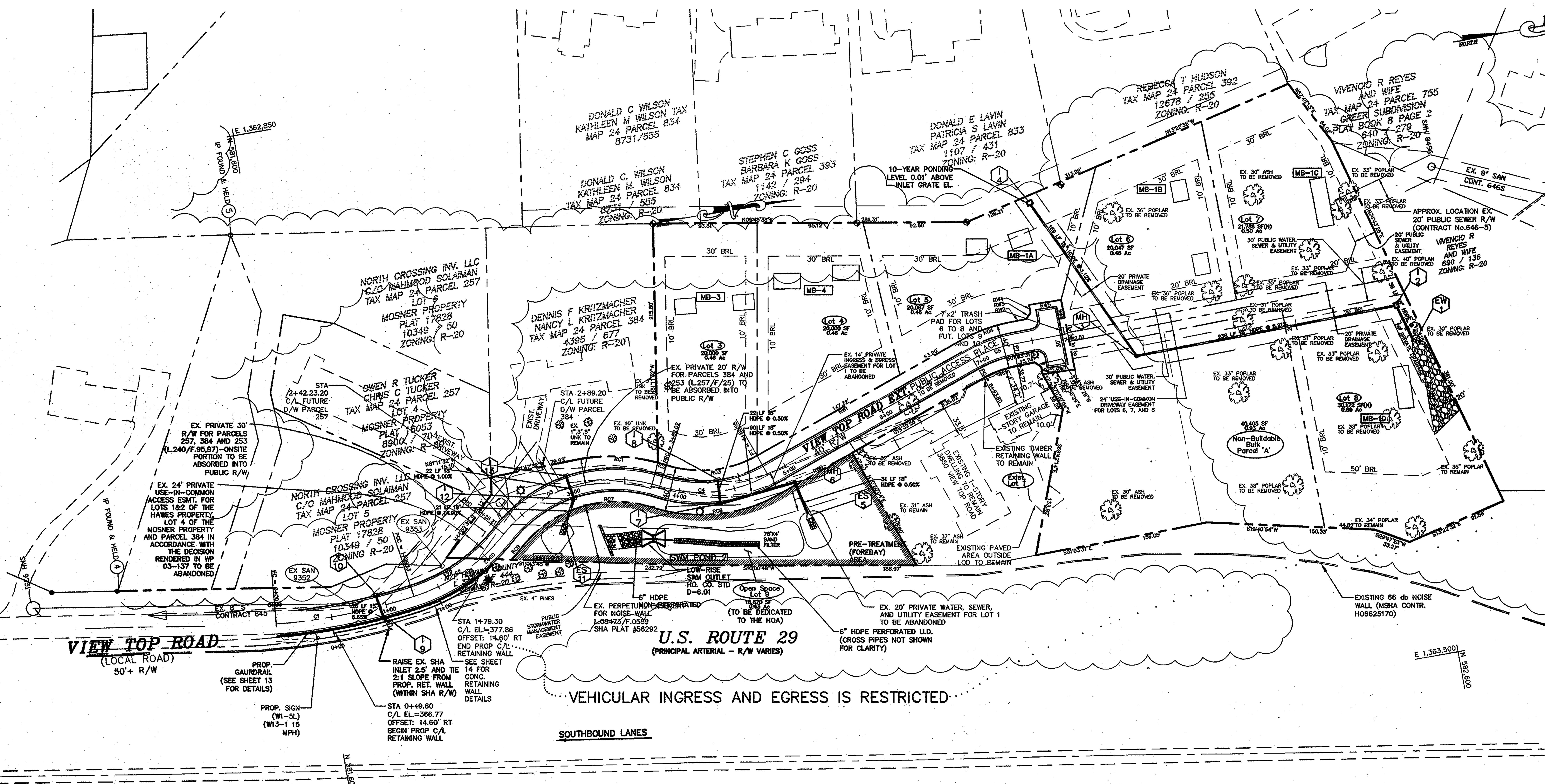
no.	description	date
3	BEI-REVISED PLANS TO SHOW UPDATED FCE FULFILLMENT	3-18-14
2	REVISED NOT #26 PER HOWARD COUNTY COMMENTS	2/2/2012
1	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011

revisions

project	date
10-024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
1"=50'	RJH

HAWES PROPERTY
LOTS 3 THRU 8, O.S. LOT 9, AND NON-BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT — HOWARD COUNTY, MARYLAND
COVER SHEET

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 997-0296 Balt. (410) 997-0298 Fax.



NOTE: THIS SHEET REPLACES SHEET 2 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F-07-110) BY BENCHMARK ENGINEERING

NOTE: MODIFIED CURB AND GUTTER PER HO. CO. STD. R-3.01 TO BE USED EXCEPT WHERE NOTED OTHERWISE

SEE SHEET 16 FOR MICROBIORETENTION DETAILS AND STRUCTURE DATA

NOTE: TRANISITION CURB AND GUTTER PER HO. CO. STD R-3.06 TO BE USED AT PROPOSED CURB INLETS

VIEW TOP ROAD – STREET LIGHT SCHEDULE

SYMBOL	DESCRIPTION	LOCATION
✱	150 WATT HPS PREMIERE PO I-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	STA 1+88.9 OFFSET: 19.3' R
☼	100 WATT HPS PREMIERE PO I-TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE	* STA 2+62.0 OFFSET: 18.0' L STA 4+18.9 OFFSET: 17.1' R STA 7+50.0 OFFSET: 13.0' R

* LIGHT FIXTURE SHALL HAVE A "BLACKOUT LENS" IN THE REAR PLANE FACING ADJOINING PARCELS 384 AND 257

STORMWATER MANAGEMENT POND 'SWM POND 2' AND MICRO-BIORETENTION FACILITY 'MB-A' ARE TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.

NOTE: THE HOMEOWNER'S ASSOCIATION SHALL BE RESPONSIBLE FOR REMOVAL OF GRAFFITI FROM RETAINING WALLS

STORM LEGEND

EW 100	END WALL NUMBER
ES 100	END SECTION NUMBER
MH 100	STORM MANHOLE NUMBER
I 100	STORM INLET NUMBER
MB-Z	MICRO-BIORETENTION FACILITY NUMBER

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

CENTERLINE CURVE DATA

CURVE	STATION	RADIUS	ARC LENGTH	DELTA	TANGENT	CHORD BEARING & DISTANCE
C1	PC=0+00.00 PCC=1+26.13	551.00'	126.13'	13°06'56"	63.34'	N01°29'11"W 125.85'
C2	PCC=1+26.13 PRC=2+26.21	168.00'	100.08'	34°07'55"	51.57'	N25°06'37"W 98.61'
C3	PRC=2+26.21 PRC=3+82.02	127.30'	155.81'	70°07'40"	89.35'	S07°06'44"E 146.26'
C4	PRC=3+82.02 PT=4+82.58	121.00'	100.56'	47°37'01"	53.39'	N04°08'35"E 97.69'
C5	PC=6+93.80 PT=7+32.77	120.00'	38.97'	18°36'24"	19.66'	S10°21'44"E 38.80'

CENTERLINE CONTROL DATA – COORDINATES

DESCRIPTION	STATION	NORTHING	EASTING
POB = PC C1	0+00.00	581,561.3241	1,363,290.6520
PCC C1 – C2	1+26.13	581,687.1365	1,363,287.3872
PCC C2 – C3	2+26.13	581,776.4242	1,363,245.5424
PCC C3 – C4	3+82.02	581,921.5636	1,363,227.4326
PT – C4	4+82.58	582,018.9993	1,363,234.4903
C5 – PC	6+93.80	582,217.8994	1,363,163.4086
PT – C5	7+32.77	582,256.0656	1,363,156.4299
EOP TEE – TURNAROUND	7+75.51	582,299.0901	1,363,155.6348
END PUBLIC R/W	7+82.51	582,305.7971	1,363,155.5108

CENTERLINE CONTROL DATA – BEARINGS

DESCRIPTION	STATIONS	BEARING	DISTANCE
PT C4 – PC C51	4+82.58 – 6+93.80	N19°39'56"W	211.22
PT C5 – END PUBLIC R/W	7+32.77 – 7+82.51	N01°03'31"W	49.74

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 4-16-12
CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 4/27/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[signature] 4/30/12
CHIEF, DIV. ~~DIRECTOR~~ LAND DEVELOPMENT DATE

H:\10-024 HAWES\10-024 HAWES\DWG\24-ECP-AuGUST 2011.DWG

THE PURPOSE OF THESE PLANS IS TO PROVIDE A REVISED LOT LAYOUT AND TO REVISE THE STORMWATER MANAGEMENT DESIGN FOR THE HAWES PROPERTY PROJECT

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. 40091 Expiration Date 2-13-2013

[Seal: STATE OF MARYLAND JEFFREY L. SLOMAN No. 40091 PROFESSIONAL ENGINEER] 3-30-12

project	date
10-024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
1"=50'	RJH

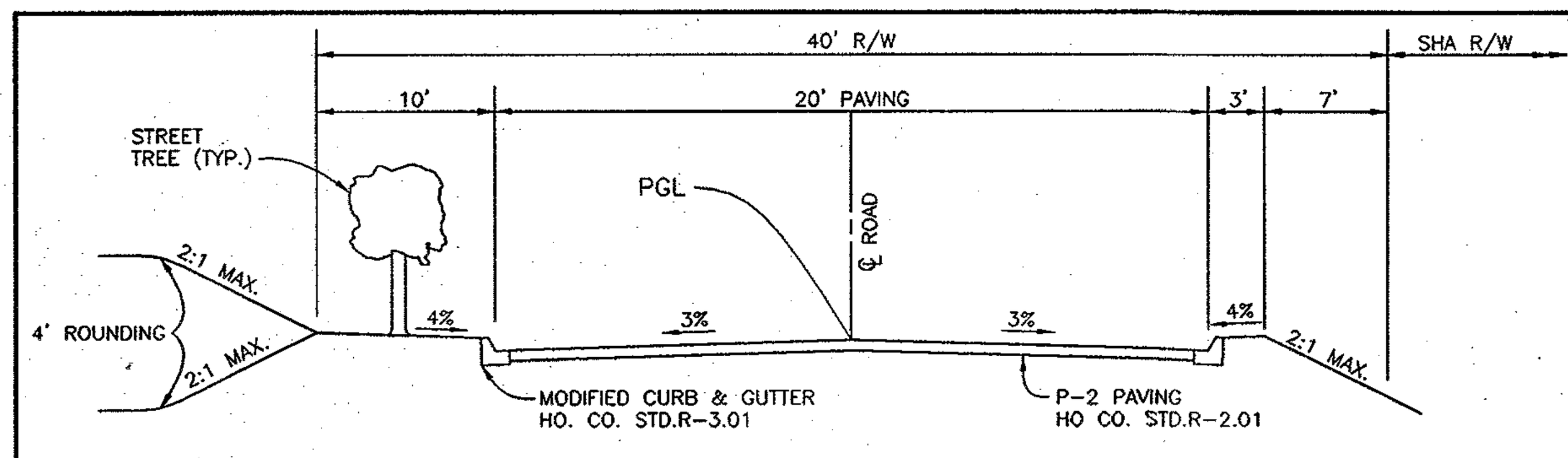
no.	description	date
3	CHANGED SWM POND TO PUBLIC (PER HOWARD .CO)	2/2/2012
2	RESPOND TO HOWARD COUNTY COMMENTS	1/19/2012
1	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011
	revisions	

HAWES PROPERTY

LOTS 3 THRU 8, O.S. LOT 9, AND NON-BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

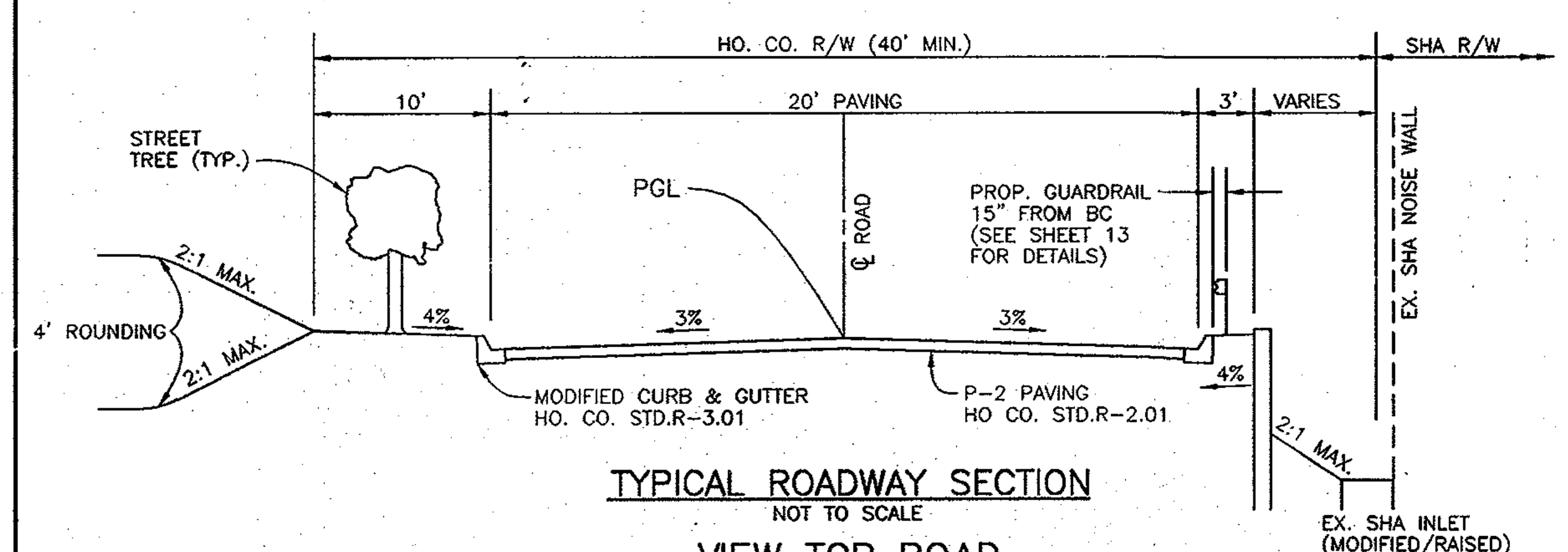
REVISED FINAL ROAD CONSTRUCTION PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 997-0296 Balt. (410) 997-0298 Fax.



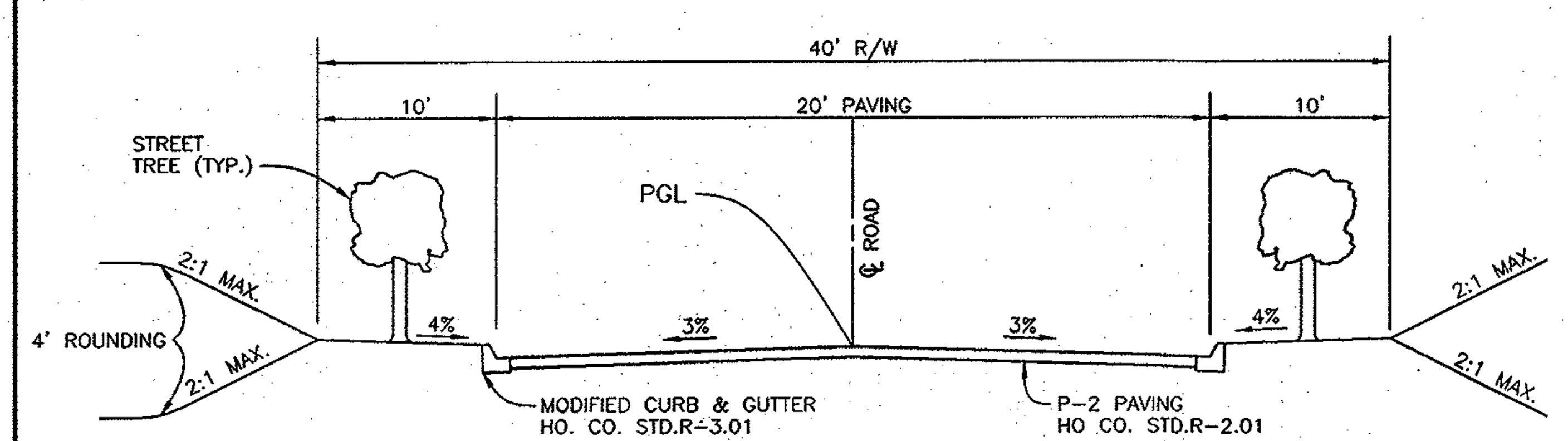
TYPICAL ROADWAY SECTION
NOT TO SCALE

VIEW TOP ROAD
PUBLIC ACCESS PLACE – LESS THAN 200 ADT
POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH)
FROM STA. 0+00.00 (BEGIN ROADWAY IMPROVEMENTS)
TO STA. 0+49.60 (PROP. RETAINING WALL) AND



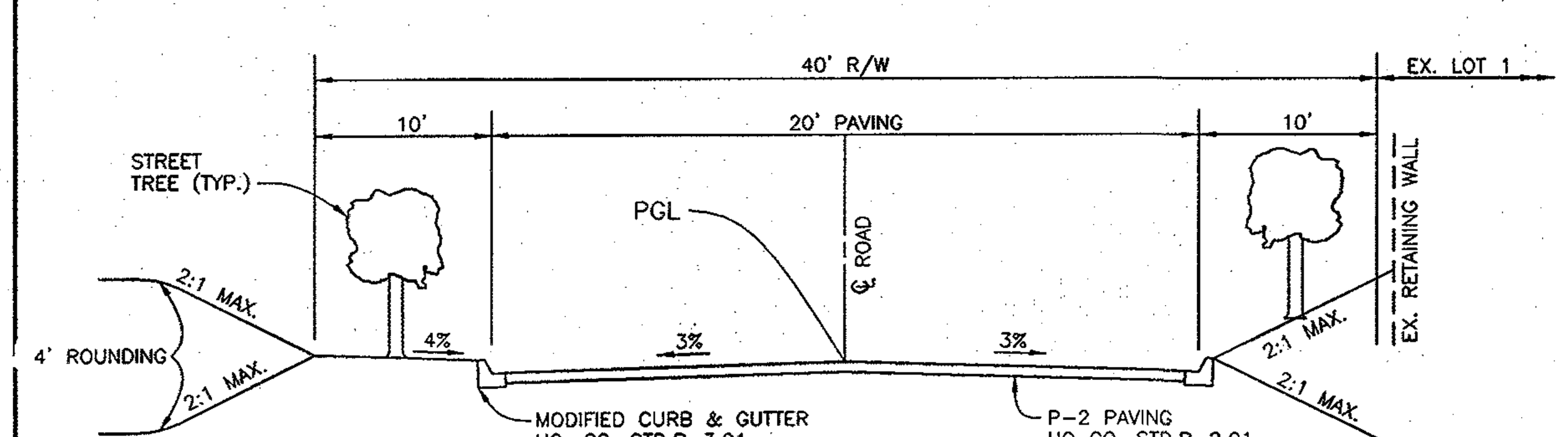
TYPICAL ROADWAY SECTION
NOT TO SCALE

VIEW TOP ROAD
PUBLIC ACCESS PLACE – LESS THAN 200 ADT
POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH)
FROM STA. 0+49.60 (PROP. RETAINING WALL)
TO STA. 1+79.30 (END PROP. RETAINING WALL)



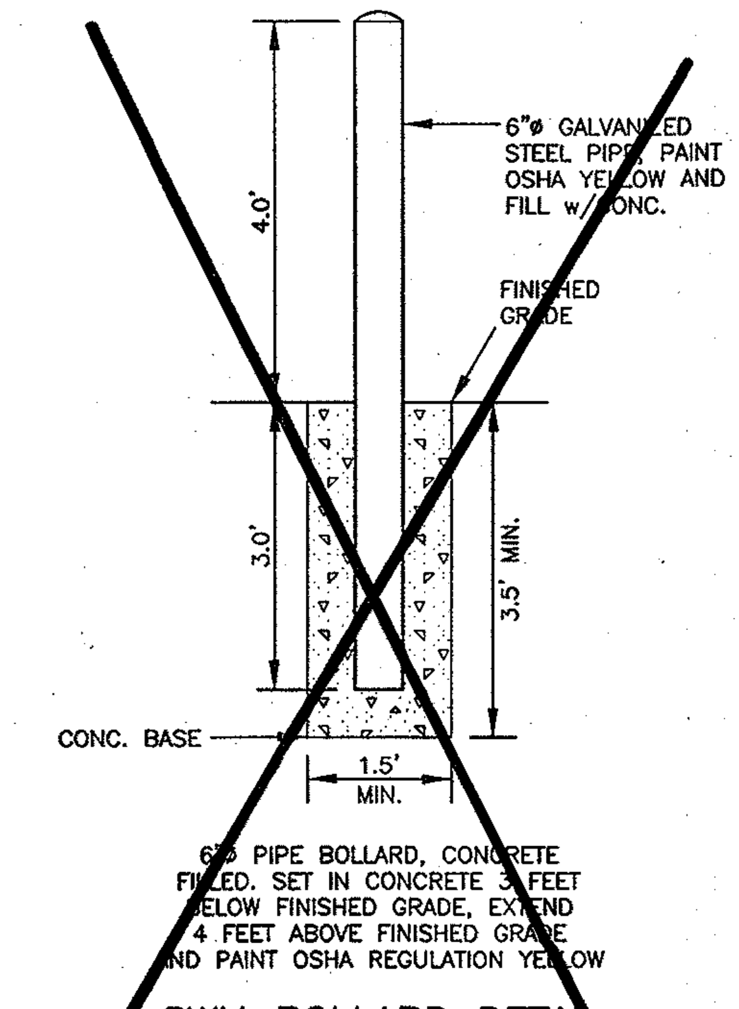
TYPICAL ROADWAY SECTION
NOT TO SCALE

VIEW TOP ROAD
PUBLIC ACCESS PLACE – LESS THAN 200 ADT
POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH)
FROM STA. 1+79.30 (END PROP. RETAINING WALL)
TO STA. 5+65.98 (C/L NEW DRIVEWAY EX. LOT 1)

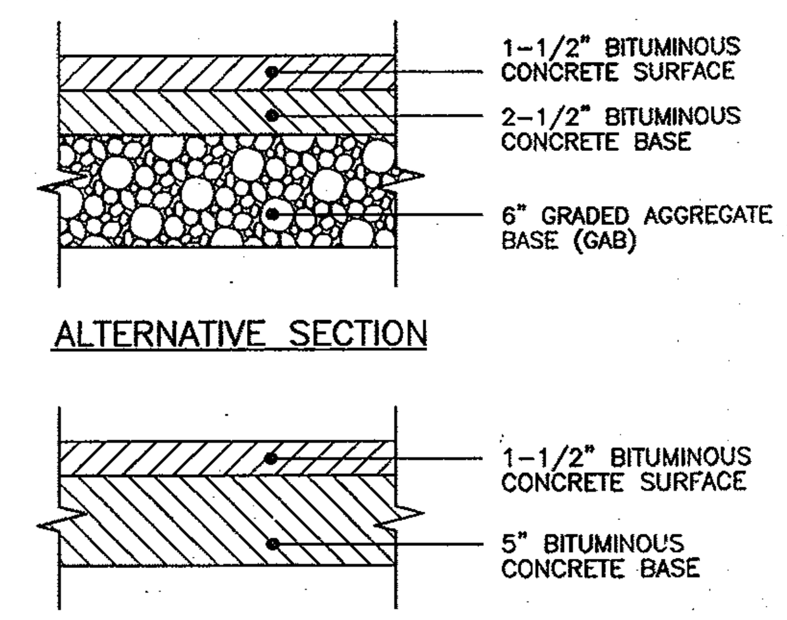


TYPICAL ROADWAY SECTION
NOT TO SCALE

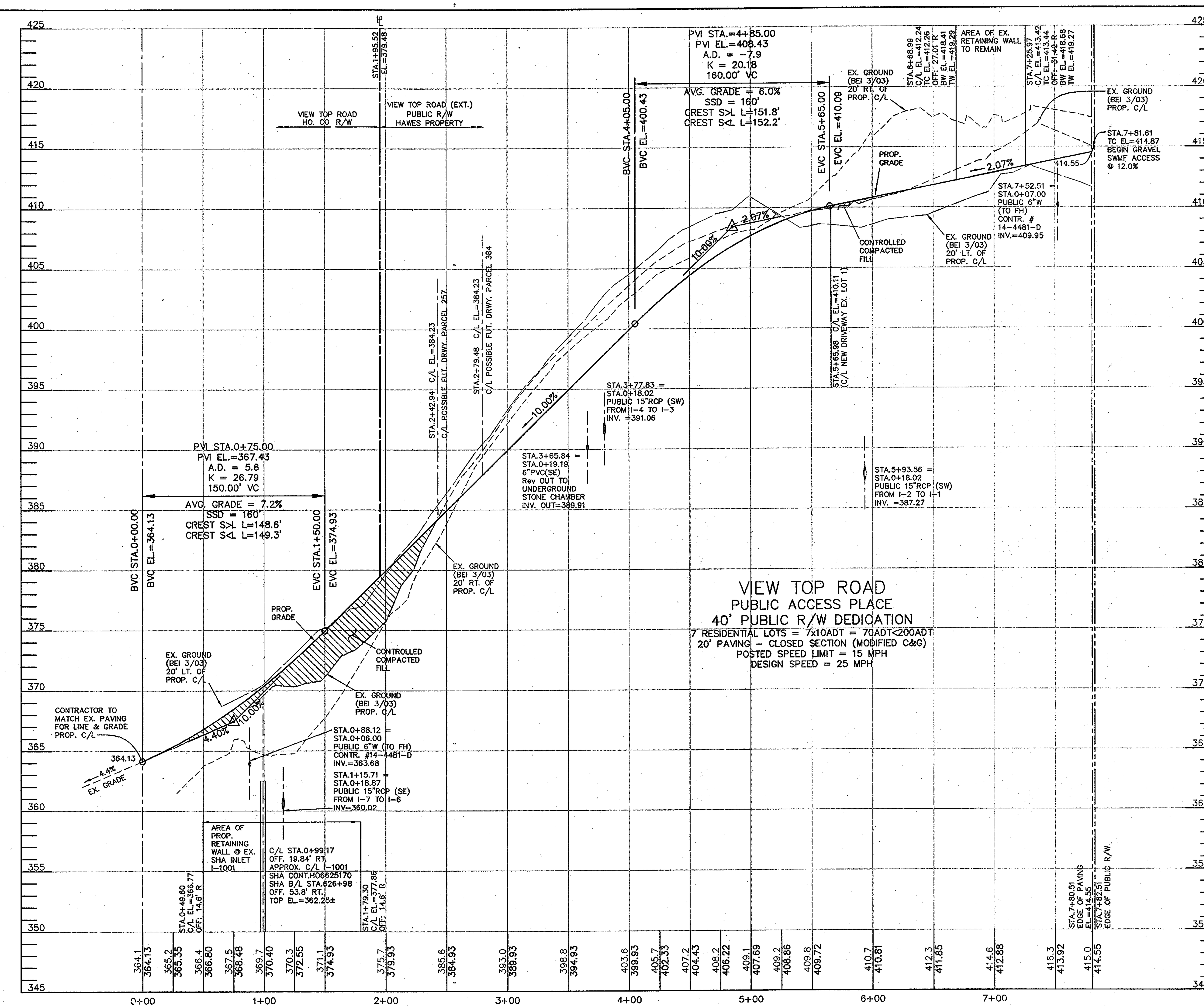
VIEW TOP ROAD
PUBLIC ACCESS PLACE – LESS THAN 200 ADT
POSTED SPEED: 15 MPH (DESIGN SPEED: 25 MPH)
FROM STA. 5+65.98 (C/L NEW DRIVEWAY EX. LOT 1)
TO STA. 7+55.79 (END FILLETS @ TEE-TURNAROUND)



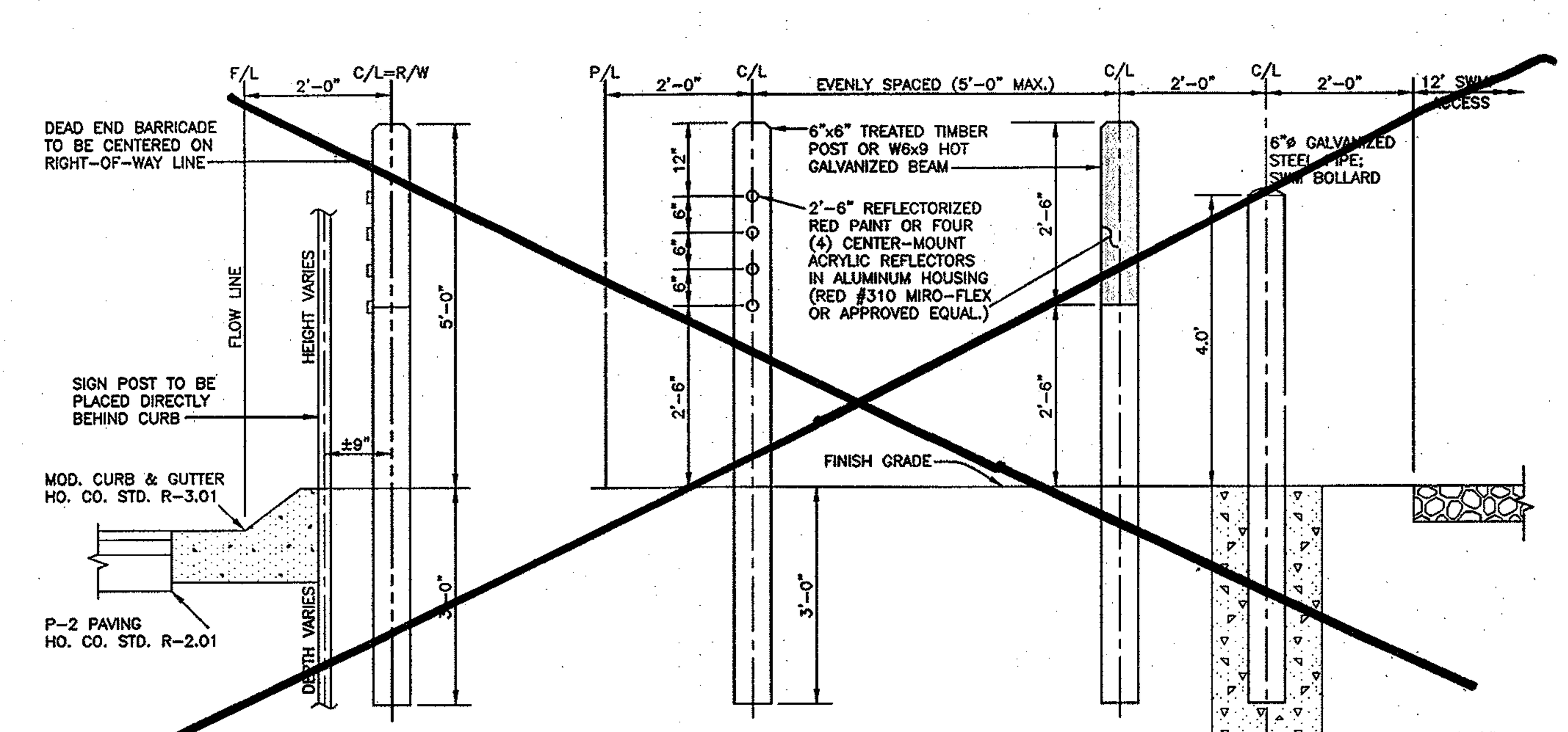
SWM BOLLARD DETAIL
SCALE: 1" = 2'



P-2 PAVEMENT DETAIL
NOT TO SCALE



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



NOTE: THIS DETAIL CONFORMS TO HO.CO. STD.R-7.10

DEAD END BARRICADE DETAIL
SCALE: 1" = 2'

NO.	DATE	REVISION
1	9/13/11	Revised Lot Layout, Stormwater Management and Lot Grading

2-24-12

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@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: 12-21-2008

3-13-09

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 5-5-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 5/7/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 5/1/08

DEVELOPER/CONTRACT PURCHASER:
SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE: (410) 465-4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2)
LOTS 1 & 5-10 AND O.S. LOTS 3 & 4

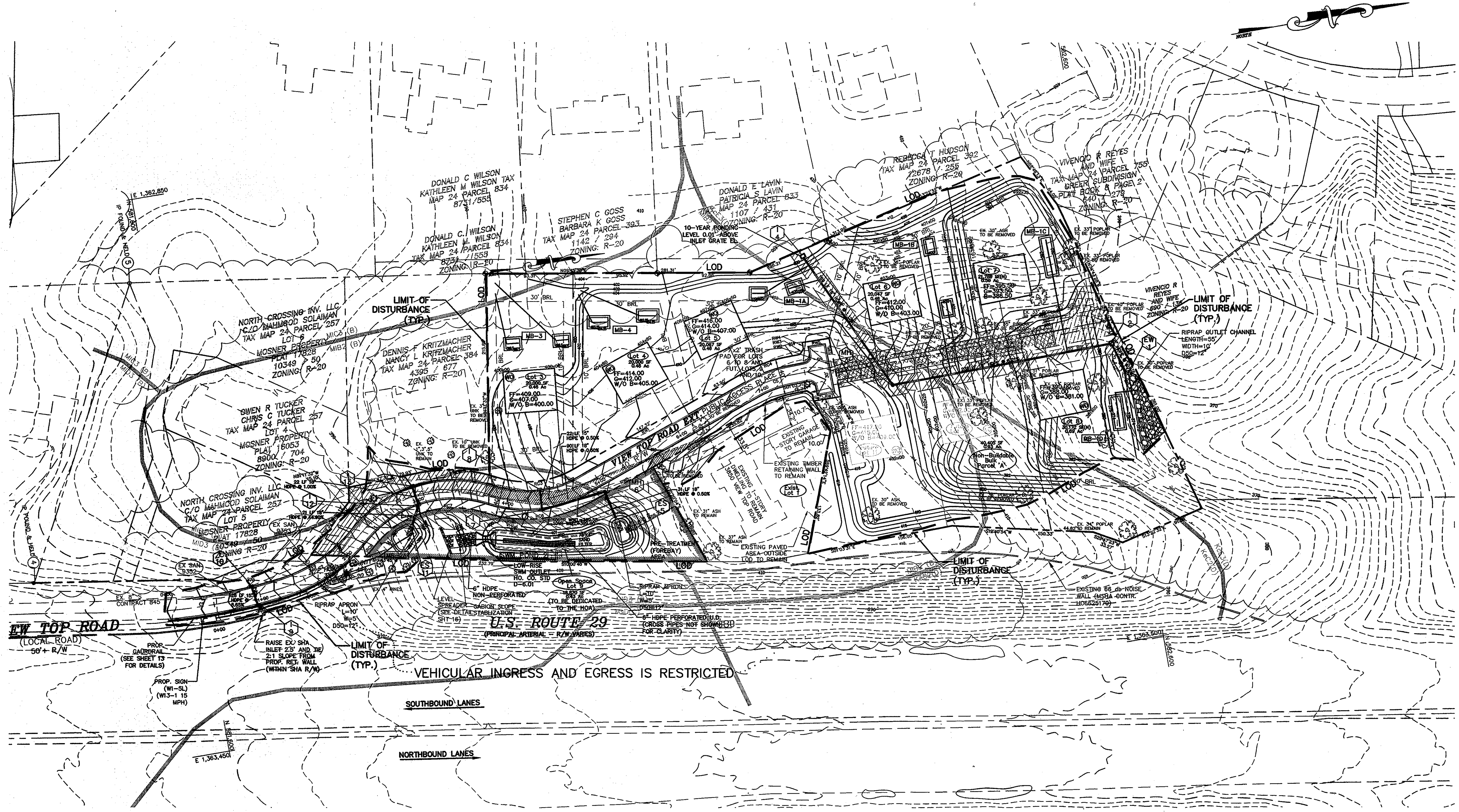
LOCATION: TAX MAP 24 – GRID 17
PARCEL 253 – ZONE: R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLAN
ROAD PROFILE, NOTES AND DETAILS

DATE:	DECEMBER 20, 2006 / MARCH 14, 2008	PROJECT NO.	1574
Des: MCR/DAM	Draft: MCR	Check: DAM	SCALE: AS SHOWN
		DRAWING	3 OF 16

F-07-110

P:\1574\dwg\7017V6.dwg, BASE, 3/12/2008 10:34:10 PM, mcr



~~THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.~~ ~~HOWARD SOIL CONSERVATION DISTRICT~~ ~~DATE~~
APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS [signature] 4-16-12 CHIEF, BUREAU OF HIGHWAYS DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING [signature] 4/27/12 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE [signature] 4/30/12 ~~DIRECTOR~~ CHIEF, DIV. OF LAND DEVELOPMENT DATE

BY THE OWNER / DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 INSPECTIONS BY THE HOWARD CONSERVATION DISTRICT."

[signature] 3/30/12

OWNER / DEVELOPER – OWNER'S AGENT

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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.

[signature] 3/30/12

ENGINEER – JEFFREY SLOMAN, PE #40091

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

STORM LEGEND

- EW 100 — END WALL NUMBER
- ES 100 — END SECTION NUMBER
- MH 100 — STORM MANHOLE NUMBER
- I 100 — STORM INLET NUMBER
- MB-Z — MICRO-BIORETENTION FACILITY NUMBER

STORMWATER MANAGEMENT POND 'SWM POND 2' AND MICRO-BIORETENTION FACILITY 'MB-A' ARE TO BE PRIVATELY OWNED AND JOINTLY MAINTAINED.

SEE SHEET 16 OF 16 FOR MICROBIORETENTION FACILITY PLANTINGS

NOTE: SPOIL FROM TRACKING IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

NOTE: THIS SHEET IS FOR FINAL GRADING PURPOSES ONLY.

NOTE: THIS SHEET REPLACES SHEET 4 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F-07-110) BY BENCHMARK ENGINEERING

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. 40091 Expiration Date 2-13-2013

STATE OF MARYLAND · JEFFREY L. SLOMAN · No. 40091 · PROFESSIONAL ENGINEER
3-30-12

project	date
10-024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
1"=50'	RJH

no.	description	date
4	CHANGED SWM POND TO PUBLIC (PER HOWARD .CO)	2/2/2012
3	RESPOND TO HOWARD COUNTY COMMENTS	1/19/2012
2	RESPOND TO HCSD COMMENTS	12/15/2011
1	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011
	revisions	

HAWES PROPERTY

LOTS 3 THRU 8, O.S. LOT 9, AND NON-BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

GRADING PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 997-0296 Balt. (410) 997-0298 Fax.

H:\10-024 HAWES\10-024 HAWES\DWG\24-ECP-AuGUST 2011.DWG

SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION.
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 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL AND REVISIONS THERETO.
3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDINGS (SEC. 51) SOD (SEC. 54), TEMPORARY SEEDING (SEC. 50) AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.
6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
7. SITE ANALYSIS:

TOTAL AREA OF SITE	5.61	ACRES
TOTAL AREA DISTURBED	5.00	ACRES
AREA TO BE ROOFED OR PAVED	1.44	ACRES
AREA TO BE VEGETATIVELY STABILIZED	3.56	ACRES
TOTAL CUT	500	CU. YDS.
TOTAL FILL	500	CU. YDS.
OFFSITE FILL	*OFF-SITE HAUL	

8. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
9. ADDITIONAL SEDIMENT CONTROLS MUST BE PROVIDED, IF DEEMED NECESSARY BY THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
10. ON ALL SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES ARE LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

* – IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO IDENTIFY AN OFF-SITE SPOIL AREA WITH AN APPROVED SEDIMENT & EROSION CONTROL PLAN AND PERMIT.

TEMPORARY SEEDBED PREPARATION

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED WHERE A SHORT-TERM VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: APPLY 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT).

SEEDING: FOR PERIOD MARCH 1 THROUGH APRIL 30 AND FROM AUGUST 15 THROUGH NOVEMBER 15, SEED WITH 2-1/2 BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT). FOR THE PERIOD MAY 1 THROUGH AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT). FOR THE PERIOD NOVEMBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOD.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

PERMANENT SEEDBED PREPARATION

SEEDBED PREPARATION: LOOSEN UPPER THREE INCHES OF SOIL BY RAKING, DISCING OR OTHER ACCEPTABLE MEANS BEFORE SEEDING, IF NOT PREVIOUSLY LOOSENED.

SOIL AMENDMENTS: IN LIEU OF SOIL TEST RECOMMENDATIONS, USE ON OF THE FOLLOWING SCHEDULES:

1. PREFERRED – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0- UREAFORM FERTILIZER (9 LBS/1000 SQ FT).
2. ACCEPTABLE – APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 1000 LBS PER ACRE 10-10-10 FERTILIZER (23 LBS/1000 SQ FT) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIODS MARCH 1 THROUGH APRIL 30 AND AUGUST 1 THROUGH OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT) OF KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THROUGH FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELL ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOD. OPTION (3) SEED WITH 60 LBS PER ACRE OF KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE OF WELL ANCHORED STRAW.

MULCHING: APPLY 1-1/2 TO 2 TONS PER ACRE (70 TO 90 LBS/1000 SQ FT) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GALLONS PER ACRE (5 GAL/1000 SQ FT) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT) FOR ANCHORING.

MAINTENANCE: INSPECT ALL SEEDED AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Definition

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

Purpose

To provide a suitable medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

Conditions Where Practice Applies

I. This practice is limited to areas having 2:1 or flatter slopes where:

a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.

b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.

c. The original soil to be vegetated contains material toxic to plant growth.

d. The soil is so acidic that treatment with limestone is not feasible. II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:

i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 ½" in diameter.

ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nutsedge, poison ivy, thistle, or others as specified.

iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:

i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

i. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:

a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.

b. Organic content of topsoil shall be not less than 1.5 percent by weight.

c. Topsoil having soluble salt content greater than 500 parts per million shall not be used.

d. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization – Section I – Vegetative Stabilization Methods and Materials.

V. Topsoil Application

i. When topsoiling, maintain needed erosion and sediment control practices such as diversion, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.

ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher in elevation.

iii. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.

iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation. G-21-2

VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:

i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribed amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.

b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.

c. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.

iv. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

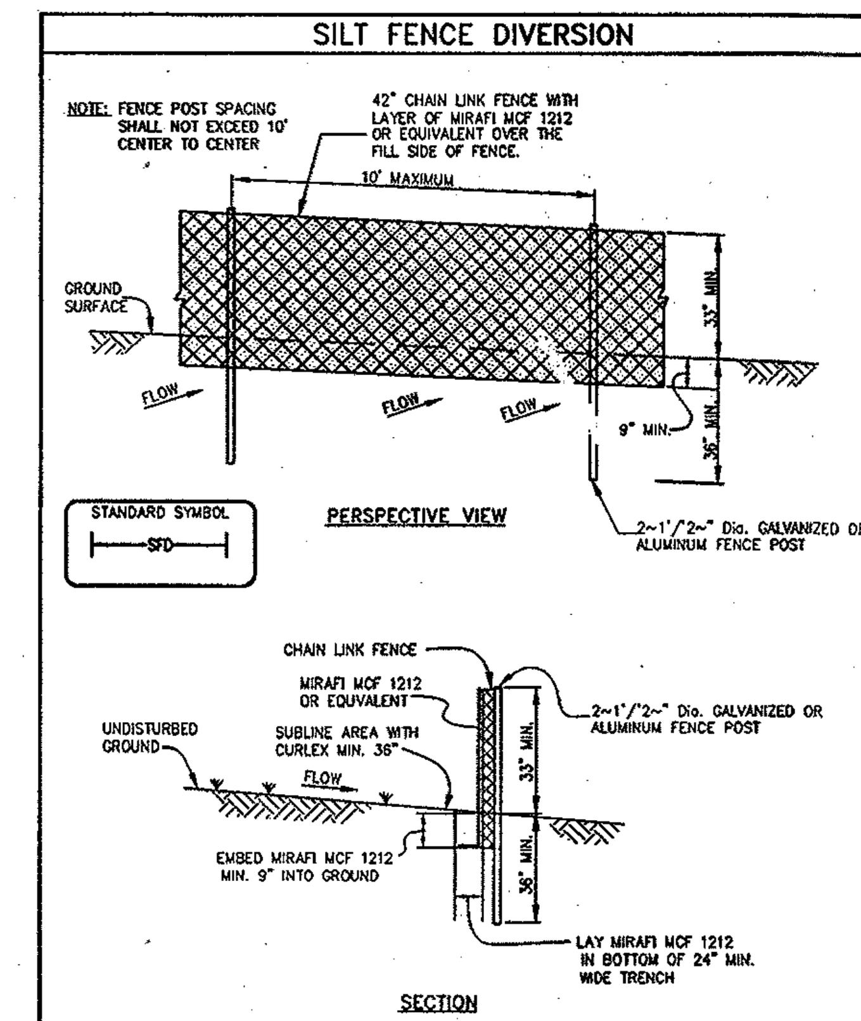
References: Guideline Specifications, Soil Preparation and Sodding. MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

SEQUENCE OF CONSTRUCTION

NOTIFY SEDIMENT CONTROL DIVISION 48 HOURS PRIOR TO START OF CONSTRUCTION ACTIVITY

DAY 1	OBTAIN GRADING PERMIT
DAY 2-5	INSTALL CONSTRUCTION ENTRANCE; CLEAR & GRUB FOR PERIMETER SEDIMENT CONTROL DEVICES
DAY 6-15	INSTALL PERIMETER SEDIMENT CONTROL DEVICES, INLETS AND STORM DRAINS AND SEDIMENT TRAPS. INLETS AND PIPES TO BE INSTALLED PRIOR TO CONSTRUCTING TRAPS. BLOCKING OF INLETS IS TO BE REMOVED ONCE STORM DRAINS ARE OUTLETTING TO THE PROPOSED TRAPS. SUPER-SILT-FENCE INLET PROTECTION FOR STRUCTURES I-4, I-7 AND I-10.
DAY 16-20	TEST PIT AREA OF EXISTING UTILITY CONNECTIONS TO DETERMINE EXACT LOCATIONS AND ELEVATIONS; RAZE EXISTING STRUCTURES.
DAY 21-22	TIE INTO EX. WATER MAIN AND PROVIDE TEMPORARY WHC'S AS SPECIFIED UNDER CONTR. #14-4481-D
DAY 23-35	INSTALL STORM DRAIN PIPES AND STRUCTURES FROM EX. SHA I-1001 TO PROP. I-9 RAISE EX. SHA INLET I-1001 AND CONSTRUCT RETAINING WALL AT SITE ENTRANCE; ADJUST EX. SHA SWALE AS REQUIRED AND TEMPORARY STABILIZE AFFECTED AREAS. THESE ACTIVITIES TO OCCUR WITHIN A FIVE(5) DAY CLEAR WEATHER (NO PRECIPITATION) FORECAST BY THE NATIONAL WEATHER SERVICE (NWS).
DAY 36-50	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, CLEAR & GRUB REMAINDER OF SITE
DAY 51-70	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, BEGIN MASS GRADING OF THE SITE. INSTALL PIPE SLOPE DRAINS. GRADED AREA OF I-4 IS TO BE IMMEDIATELY STABILIZED WITH SOD.
DAY 71-83	BEGIN INSTALLATION OF PROPOSED UTILITIES AND BRING PROP. ROADWAY TO SUBGRADE UP TO STA.3+77.81 AND TIE INTO EX. DRIVEWAY
DAY 84-103	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, FINISH UTILITY AND STORM DRAIN INSTALLATION;
DAY 104-105	STABILIZE SITE IN ACCORDANCE WITH TEMPORARY SEEDBED NOTES.
DAY 106-120	BRING REMAINING ROADWAY TO SUBGRADE AND FINISH INSTALLING BASE COURSE PAVING.
DAY 121-125	FINAL GRADE REMAINDER OF SITE AND STABILIZE IN ACCORDANCE WITH PERMANENT SEEDING NOTES.
DAY 126-130	UPON APPROVAL FROM HO. CO. CID, REMOVE TEMPORARY UTILITY CONNECTIONS AND BEGIN SERVICE TO AFFECTED PARCELS/LOTS
DAY 131-140	INSTALL REQUIRED LANDSCAPING AS SPECIFIED ON THESE PLANS.
DAY 141-185	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, FILL IN SEDIMENT TRAPS. , INSTALL REMAINING SWMF APPURTENANCES AND PERMANENTLY STABILIZE SLOPES; INSTALL MICRO-BIORETENTION FACILITIES
DAY 186-192	UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND PERMANENTLY STABILIZE ANY REMAINING DISTURBED AREAS.

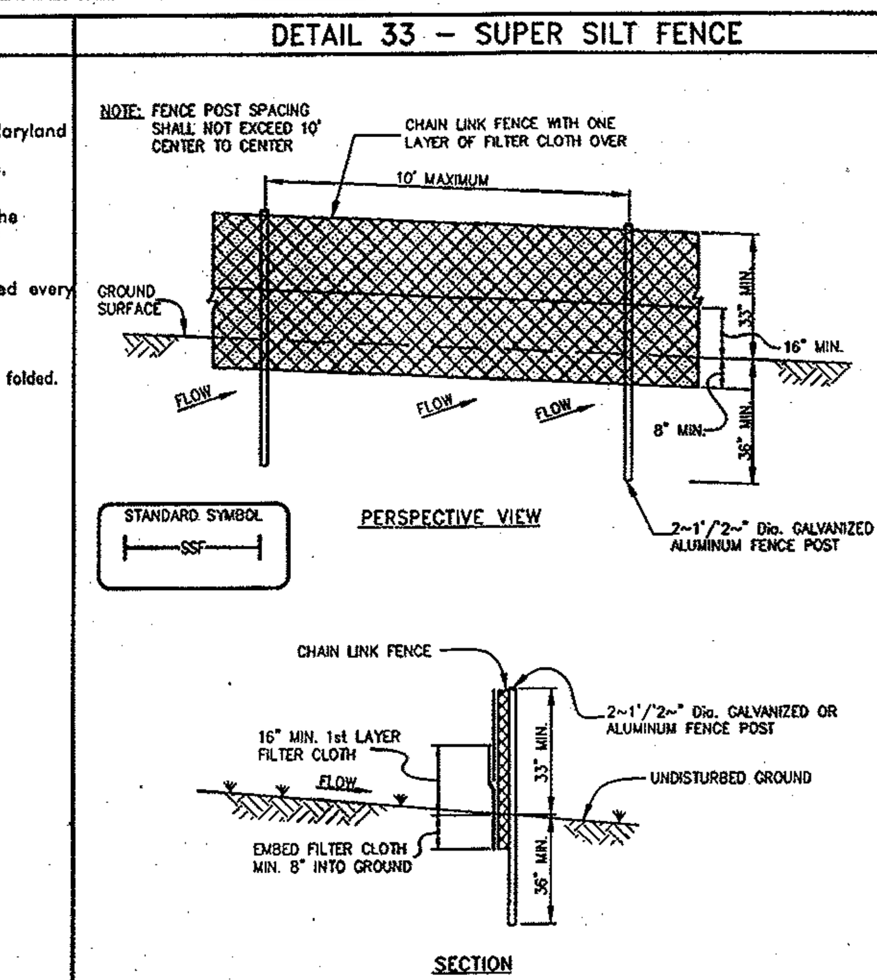
SILT FENCE DIVERSION



CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Standard Details 690.01 & 690.02 for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric & 70" posts. Posts shall be placed without concrete embedment.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Diversion cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Diversion cloth shall be embedded a minimum of 9" into the ground.
5. When two sections of diversion cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed.

DETAIL 33 – SUPER SILT FENCE



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SUPER SILT FENCE

CONSTRUCTION SPECIFICATIONS

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6' fence shall be used, substituting 42" fabric and 6' length posts.
2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.
3. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
4. Filter cloth shall be embedded a minimum of 8" into the ground.
5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.
6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height
7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

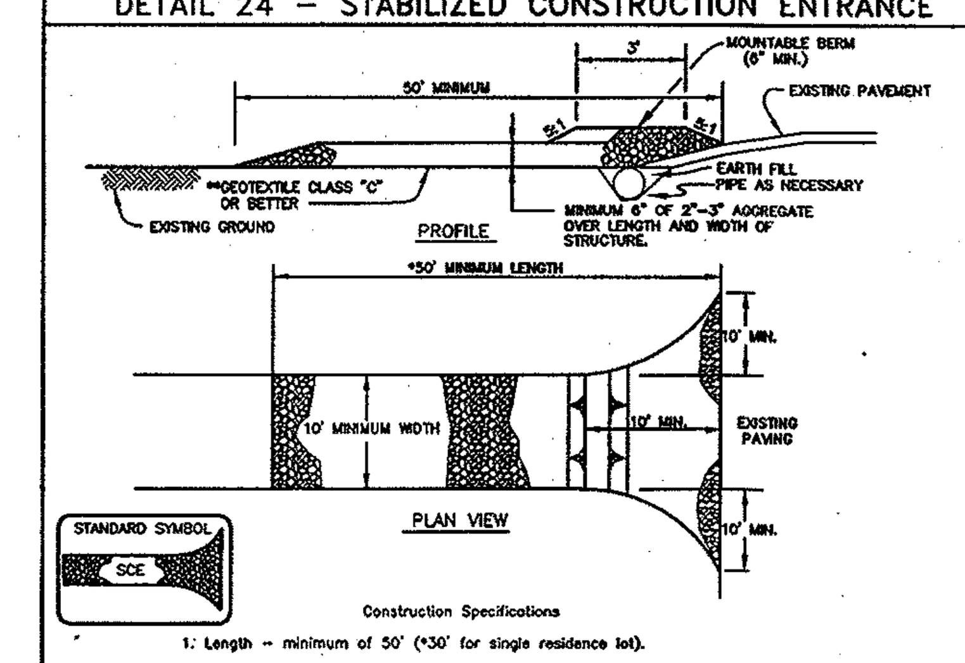
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

SUPER SILT FENCE DESIGN CRITERIA

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 – 10%	0 – 10:1	Unlimited	Unlimited
10 – 20%	10:1 – 5:1	200 feet	1,500 feet
20 – 33%	5:1 – 3:1	100 feet	1,000 feet
33 – 50%	3:1 – 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 26 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specifications

1. Length – minimum of 50' (*30' for single residence lot).
2. Width– 10' minimum, should be flared at the existing road to provide a turning radius.
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residence to use geotextile.
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mounted berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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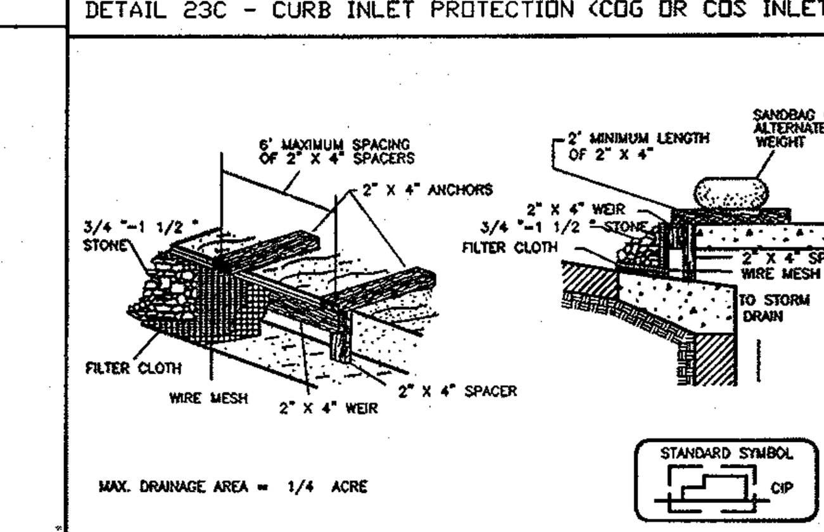
DETAIL 23C – CURB INLET PROTECTION (COG OR COS INLETS)



Construction Specifications

1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
3. Securely nail the 2" X 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4' apart).
4. Place the assembly against the inlet throat and nail (minimum 2' lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
5. The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
6. Form the 1/2 " x 1/2 " wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4 " x 1 1/2 " stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
7. This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
8. Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

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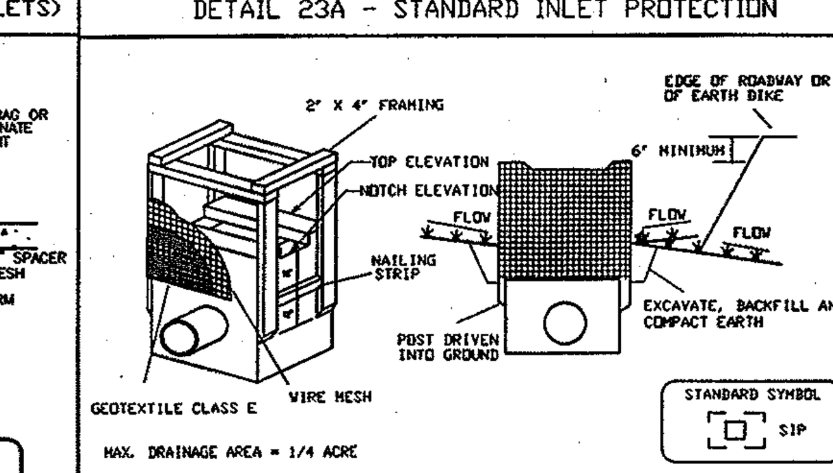
DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.
2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.
3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.
4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.
5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.
7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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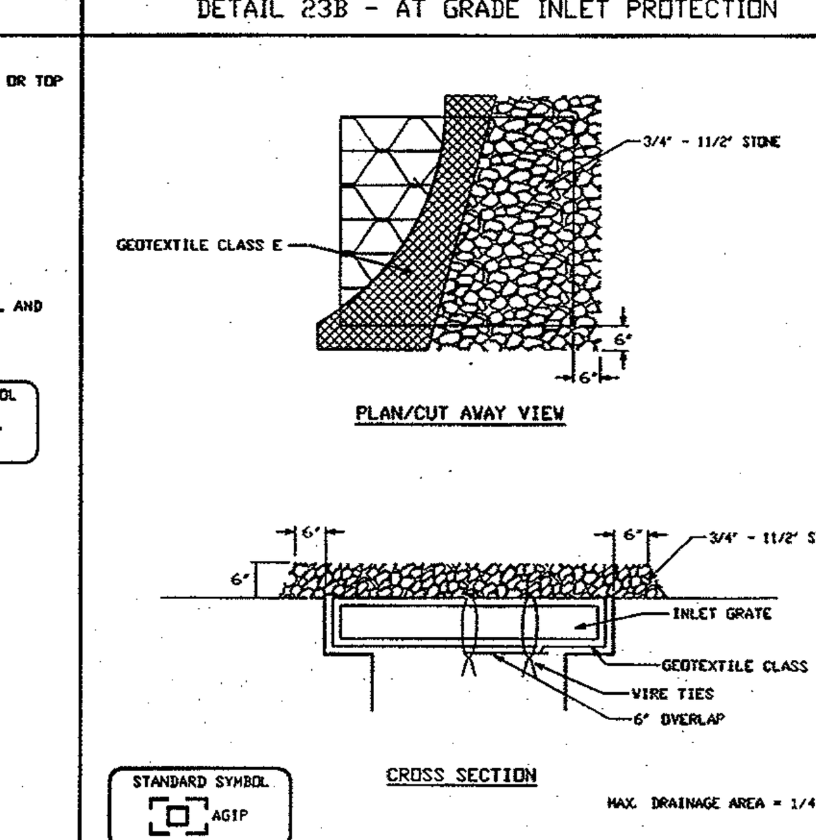
DETAIL 23B – AT GRADE INLET PROTECTION



MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
2. Place 3/4" to 11/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

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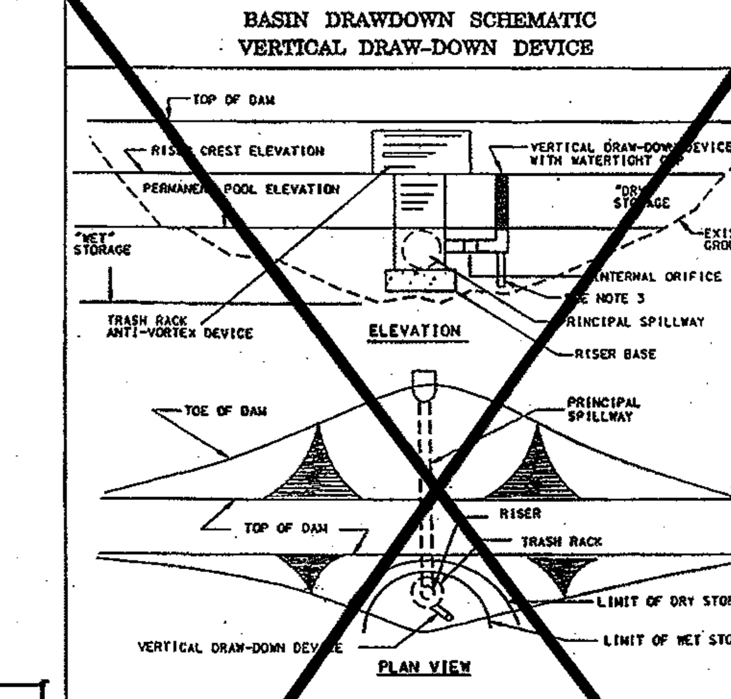
BASIN DRAWDOWN SCHEMATIC
VERTICAL DRAW-DOWN DEVICE



Construction Specifications

1. Perforations in the draw-down device may not extend into the wet storage.
2. The total area of the perforations must be greater than 2 times the area of the internal orifice.
3. The perforated portion of the draw-down device shall be wrapped with 1/2" hardware cloth and geotextile fabric. The geotextile fabric shall meet the specifications for Geotextile Class E.
4. Provide support of draw-down device to prevent sagging and floatation. An acceptable preventative measure is to stake both sides of draw-down device with 1" steel angle, or 1" by 4" square or 2" round wooden posts set 3' minimum into the ground then joining them to the device by wrapping with 12 gauge minimum wire.

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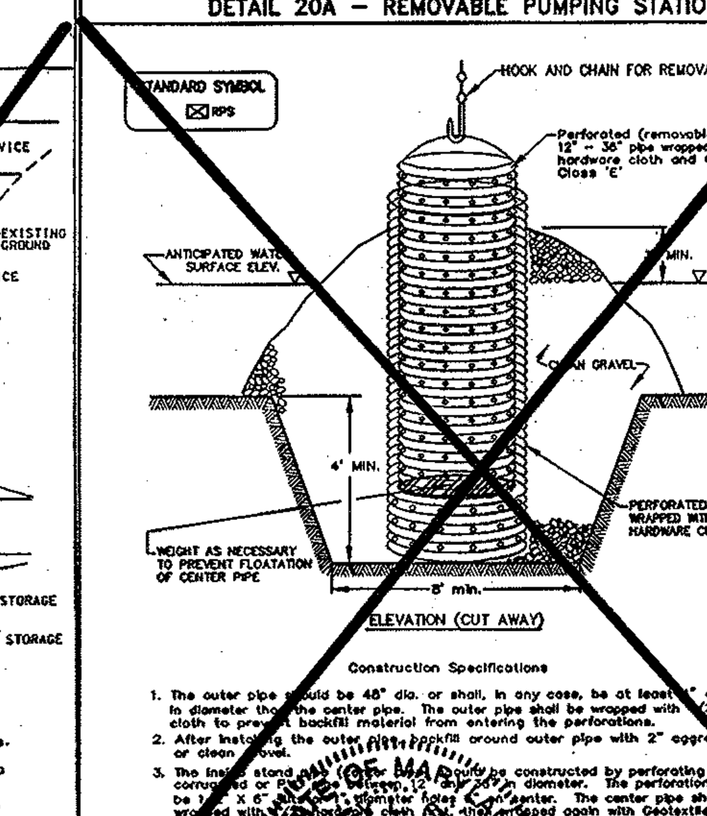
DETAIL 20A – REMOVABLE PUMPING STATION



Construction Specifications

1. The outer pipe should be 48" dia. or shall, in any case, be at least 4" greater in diameter than the center pipe. The outer pipe shall be wrapped with 1/2" hardware cloth to prevent backfill material from entering the perforations.
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.
3. The inside stand pipe (center pipe) should be constructed by perforating a corrugated or PVC pipe between 12" and 36" in diameter. The perforations shall be 1/2" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with 1/2" hardware cloth first, then wrapped again with Geotextile Class C.
4. The center pipe should extend 12" to 18" above the anticipated water surface elevation or riser crest elevation when dewatering a basin.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 4 – PIPE SLOPE DRAIN

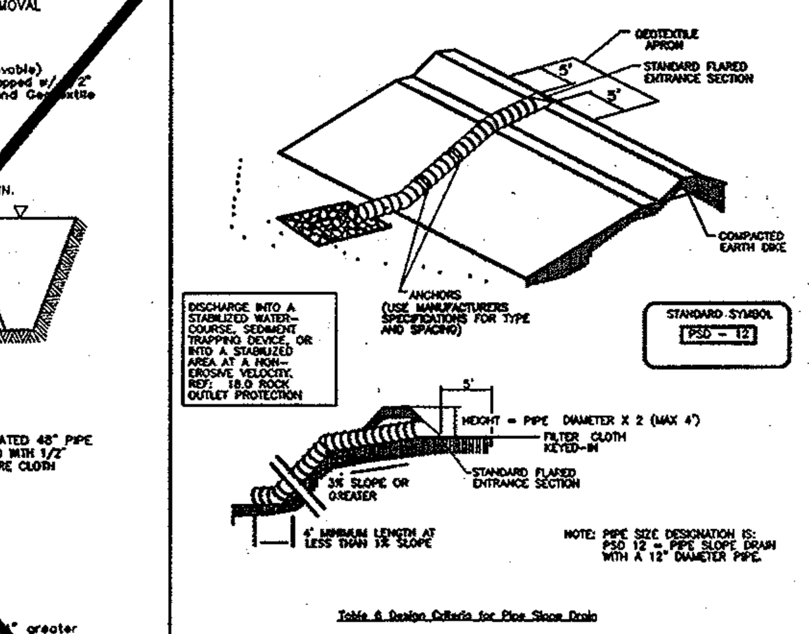


Table 6 Design Criteria for Pipe Slope Drain

Size	Pipe/Tubing Diameter (D) In	Maximum Drainage Area (Acres)
PSD-12	12	0.5
PSD-18	18	1.5
PSD-21	21	2.5
PSD-24	24	3.5
PSD-24 (2)	24	5.0

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PIPE SLOPE DRAIN

Construction Specifications – Pipe Slope Drain

1. The Pipe Slope Drain (PSD) shall have a slope of 3 percent or steeper.
2. The top of the earth dike over the inlet pipe shall be at least 2 times the pipe diameter measured at the invert of the pipe.
3. Flexible tubing is preferred. However, corrugated metal pipe or equivalent PVC pipe can be used. All connections shall be watertight. pipe.
4. A flared end section shall be attached to the inlet end of pipe with a watertight connection. Filter cloth shall be placed under the inlet of the pipe slope drain and shall extend out 5' from the inlet. The filter cloth shall be "keyed in" on all sides. pipe.
5. The Pipe Slope Drain shall be securely anchored to the slope by staking at the grommets provided. Spacing for anchors shall be as provided by manufacturer's specification. In no case shall less than two (2) anchors be provided, equally spaced along the length of pipe. These details should be provided by pipe suppliers. pipe.
6. The soil around and under the pipe and end section shall be hand tamped in 4 inch lifts to the top of the earth dike.
7. All pipe connections shall be watertight.
8. Whenever possible where a PSD drains an unstabilized area, it shall outlet into a sediment trap or basin. If this is not possible then the slope drain will discharge into a stable conveyance that leads to a sediment trap or basin. When discharging into a trap or basin the PSD shall discharge at the same elevation as the wet pool elevation. The discharge from the PSD must be as far away from the sediment control outlet as possible.
9. When the drainage area is stabilized, the PSD shall discharge onto a stabilized area at a non-erosive velocity.
10. Inspection and any required maintenance shall be performed periodically and after each rain event.
11. The inlet must be kept open at all times.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE 3 – 5 – 4A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT

HOWARD SOIL CONSERVATION DISTRICT DATE

ALL PERIMETER SEDIMENT & EROSION CONTROL FEATURES ARE TO BE INSTALLED AT THE LIMIT OF DISTURBANCE

ALL SEDIMENT & EROSION CONTROL FEATURES ARE TO BE REPAIRED IMMEDIATELY IF DISRUPTED BY UTILITY INSTALLATION

SUPER SILT FENCE IS TO INSPECTED FREQUENTLY & CLEANED, REPAIRED AND/OR RE-INSTALLED IMMEDIATELY AS NECESSARY

SEDIMENT CONTROL LOCATION AND IMPLEMENTATION SHOWN ON THIS PLAN IS SUBJECT TO REVISIONS IN THE FIELD AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR

ALL SEDIMENT CONTROL FEATURES SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS SHOWN IN THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL PURPOSES ONLY

BY THE OWNER/DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SECURITY DEVELOPMENT LLC
BY [signature] MEMBER [signature] Member 3-14-08
OWNER/DEVELOPER – OWNER'S AGENT DATE:
STEVEN K BREEDEN James R. Moxley III

BY THE ENGINEER:

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason 3-13-08
ENGINEER – DONALD A. MASON, P.E. # 21443 DATE

~~THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION AND SEDIMENT CONTROL.~~

~~NATURAL RESOURCES CONSERVATION SERVICE DATE~~

~~THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.~~

~~[signature] 3/20/08~~
~~HOWARD SOIL CONSERVATION DISTRICT DATE~~

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 5-5-08
CHIEF, BUREAU OF HIGHWAYS DATE:

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 5/8/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE:

[signature] 5/1/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE:

2-24-12

NO.	DATE	REVISION
1	9/13/11	REVISED LOT LAYOUT, STORMWATER MANAGEMENT AND LOT GRADING

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@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: 12-21-2008
STATE OF MARYLAND DONALD ALAN MASON No. 21443 PROFESSIONAL ENGINEER
3-13-08

DEVELOPER/CONTRACT PURCHASER:
SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE: (410) 465-4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2)
LOTS 1 & 5-10 AND O.S. LOTS 3 & 4

LOCATION: TAX MAP 24 – GRID 17
PARCEL 253 – ZONE: R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLAN
SEDIMENT & EROSION CONTROL PLAN, NOTES AND DETAILS

DATE: DECEMBER 20, 2006 / MARCH 14, 2008
PROJECT NO. 1574

Des: MCR/DAM Draft: MCR Check: DAM
SCALE: AS SHOWN
DRAWING 5 OF 16

F-07-110

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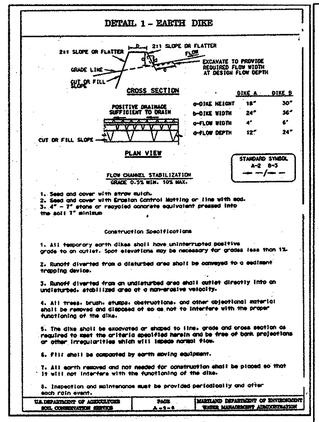
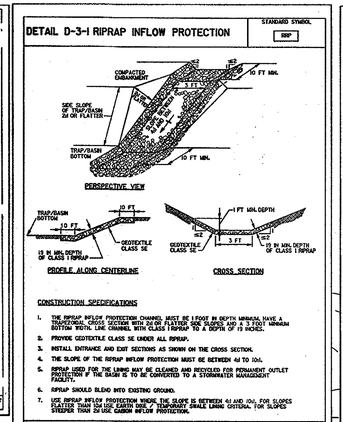
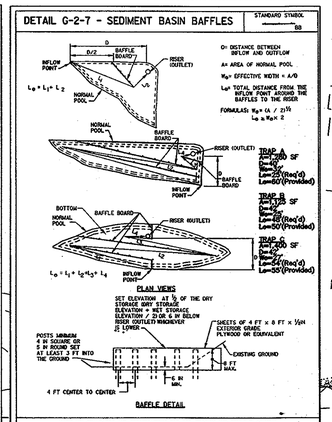
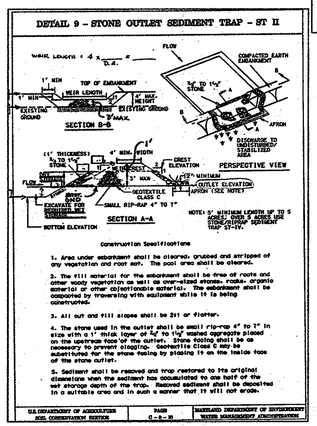
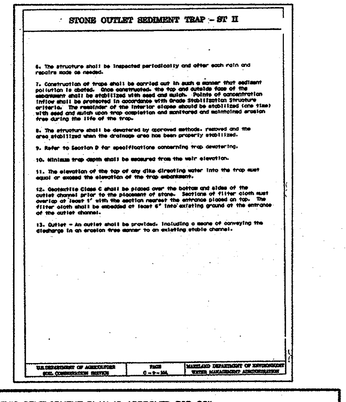










THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE 4/10/12

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-16-12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/20/12

CHIEF, DIV. DIRECTOR LAND DEVELOPMENT — DATE 4/30/12

BY THE OWNER / DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 INSPECTIONS BY THE HOWARD CONSERVATION DISTRICT."

OWNER / DEVELOPER – OWNER'S AGENT — 3/30/12

BY THE ENGINEER:

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION 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 – JEFFREY SLOMAN, PE #40091 — 3/30/12

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

STONE/RIPRAP OUTLET SEDIMENT TRAP I–II (A)	
PROPOSED DRAINAGE AREA	2.00 Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	3600 CF
WET STORAGE PROVIDED	3774 CF
DRY STORAGE REQUIRED	3600 CF
DRY STORAGE PROVIDED	3631 CF
EXISTING GROUND ELEVATION AT OUTLET	371.00
TRAP BOTTOM ELEVATION	373.00
TRAP BOTTOM DIMENSIONS	40'x32'
WEIR CREST (DRY STORAGE ELEVATION)	377.00
OUTLET (WET STORAGE) ELEVATION	375.30
CLEANOUT ELEVATION	374.15
EMBANKMENT HEIGHT ELEV.	378.00
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	375.30 – 377.00
WET STORAGE ZONE (ELEV.)	373.00 – 375.30

STONE/RIPRAP OUTLET SEDIMENT TRAP I–II (B)	
PROPOSED DRAINAGE AREA	0.72 Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	1296 CF
WET STORAGE PROVIDED	1310 CF
DRY STORAGE REQUIRED	1296 CF
DRY STORAGE PROVIDED	1400 CF
EXISTING GROUND ELEVATION AT OUTLET	372.00
TRAP BOTTOM ELEVATION	385.00
TRAP BOTTOM DIMENSIONS	45'X25'
WEIR CREST (DRY STORAGE ELEVATION)	387.50
OUTLET (WET STORAGE) ELEVATION	386.40
CLEANOUT ELEVATION	385.70
EMBANKMENT HEIGHT ELEV.	388.50
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	385.00 – 386.40
WET STORAGE ZONE (ELEV.)	386.40 – 387.50

STONE/RIPRAP OUTLET SEDIMENT TRAP I–II (C)	
PROPOSED DRAINAGE AREA	0.83 Ac
EXISTING DRAINAGE AREA	N/A
WET STORAGE REQUIRED	1494 Ac
WET STORAGE PROVIDED	1537 CF
DRY STORAGE REQUIRED	1494 Ac
DRY STORAGE PROVIDED	1620 CF
EXISTING GROUND ELEVATION AT OUTLET	401.00
TRAP BOTTOM ELEVATION	400.00
TRAP BOTTOM DIMENSIONS	58'X25'
WEIR CREST (DRY STORAGE ELEVATION)	402.50
OUTLET (WET STORAGE) ELEVATION	401.40
CLEANOUT ELEVATION	400.70
EMBANKMENT HEIGHT ELEV.	403.50
SIDE SLOPE	2:1 (H/V)
WEIR LENGTH	2'
DRY STORAGE ZONE (ELEV.)	400.00 – 401.40
WET STORAGE ZONE (ELEV.)	401.40 – 402.50

ALL INTERIOR EARTH DIKES DAMAGED BY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY

NOTE: THIS SHEET IS FOR THE PURPOSES OF CONSTRUCTING EROSION AND SEDIMENT CONTROL ONLY.

NOTE: THIS SHEET REPLACES SHEET 4 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F-07-110) BY BENCHMARK ENGINEERING

FOR AREAS OF INLET PROTECTION DENOTED WITH "SSF", SUPER SILT FENCE IS TO BE INSTALLED

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. 40091 Expiration Date 2-13-2013

STATE OF MARYLAND JEFFREY SLOMAN No. 40091 PROFESSIONAL ENGINEER
3-30-12

project	date
10-024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
1"=60'	RJH

no.	description	date
1	CHANGED SWM POND TO PUBLIC (PER HOWARD. CO)	2/2/2012
2	RESPOND TO HCSD COMMENTS	1/19/2012
3	RESPOND TO HOWARD COUNTY COMMENTS	12/15/2011
4		11/28/2011

HAWES PROPERTY

LOTS 3 THRU 8, O.S. LOT 9, AND NON-BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

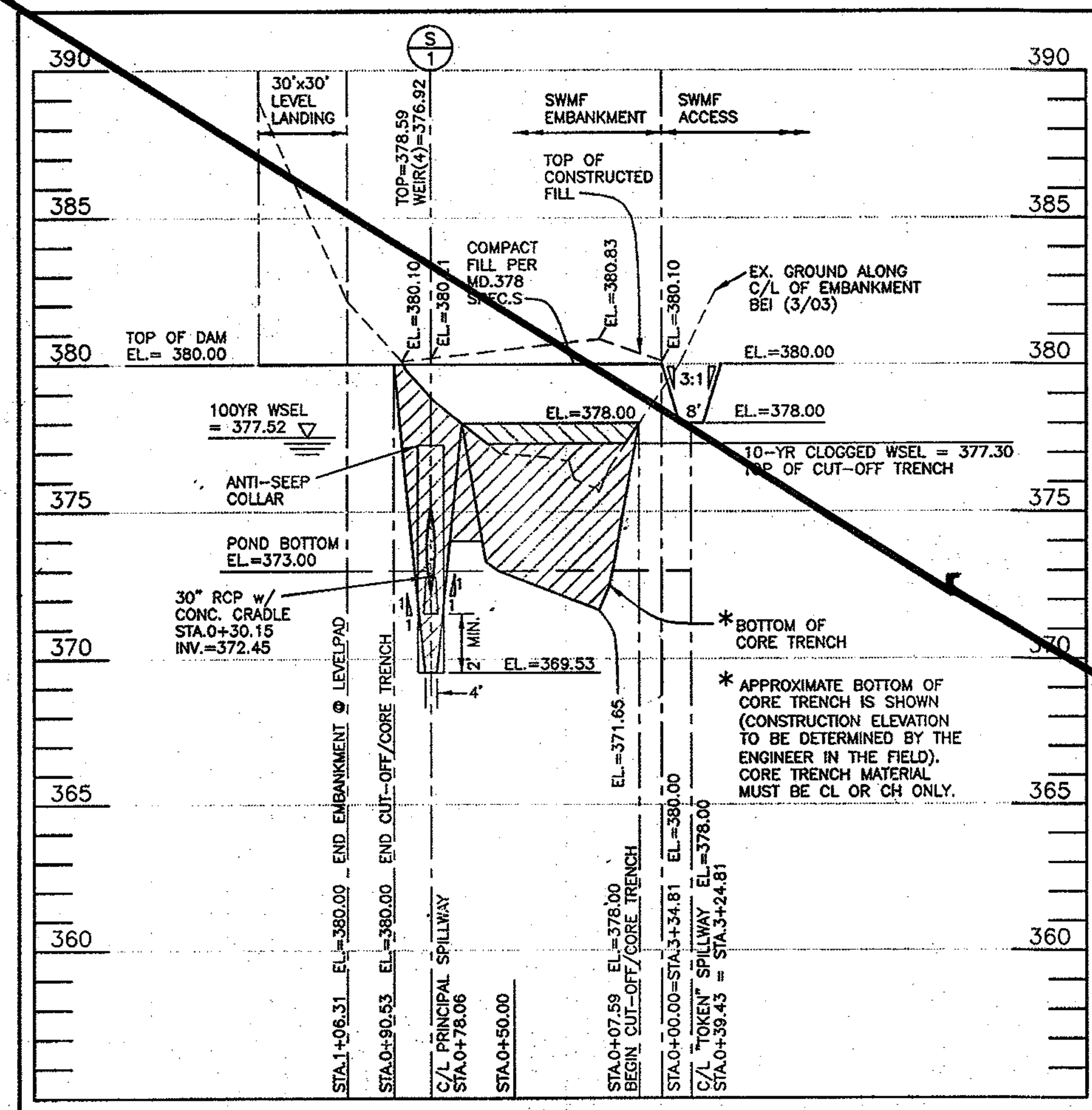
EROSION AND SEDIMENT CONTROL PLAN

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 997-0296 Balt. (410) 997-0298 Fax.

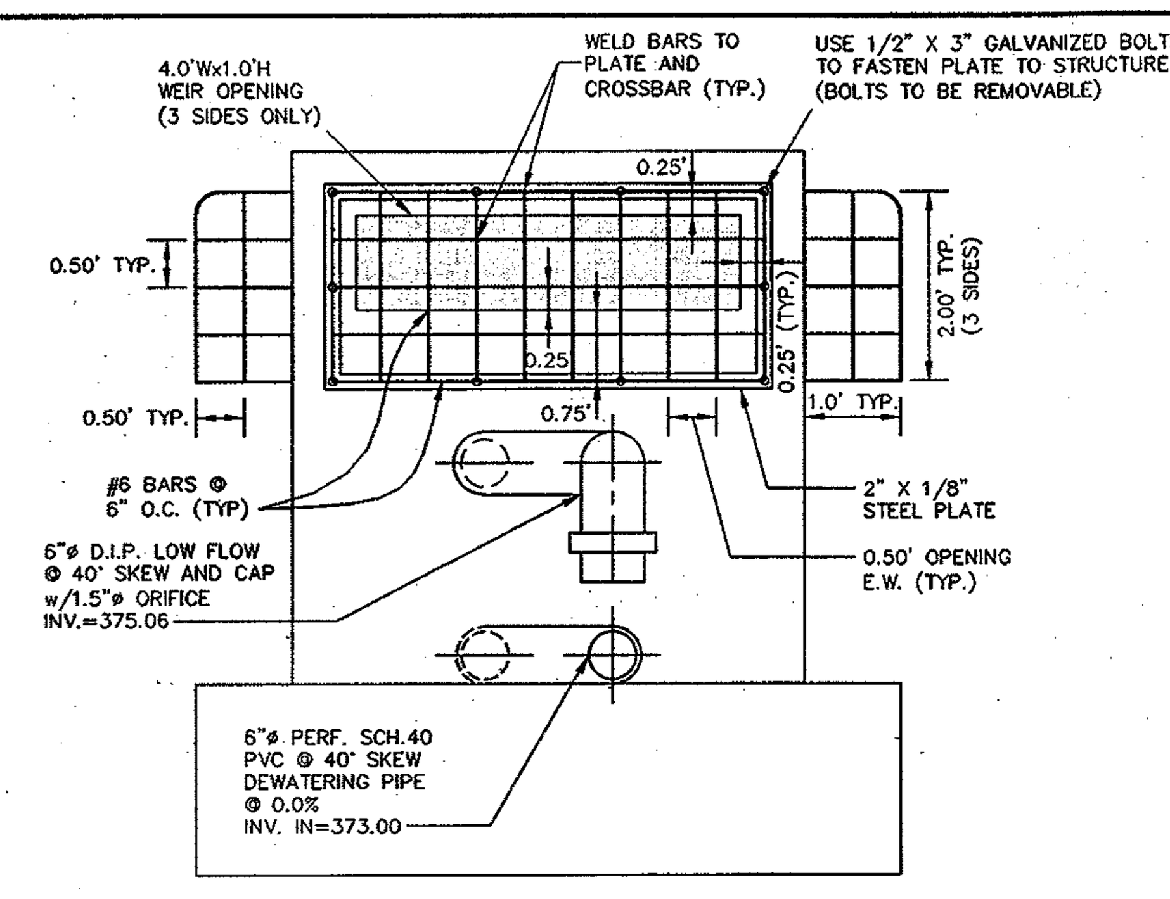
6 OF 16

F-07-110

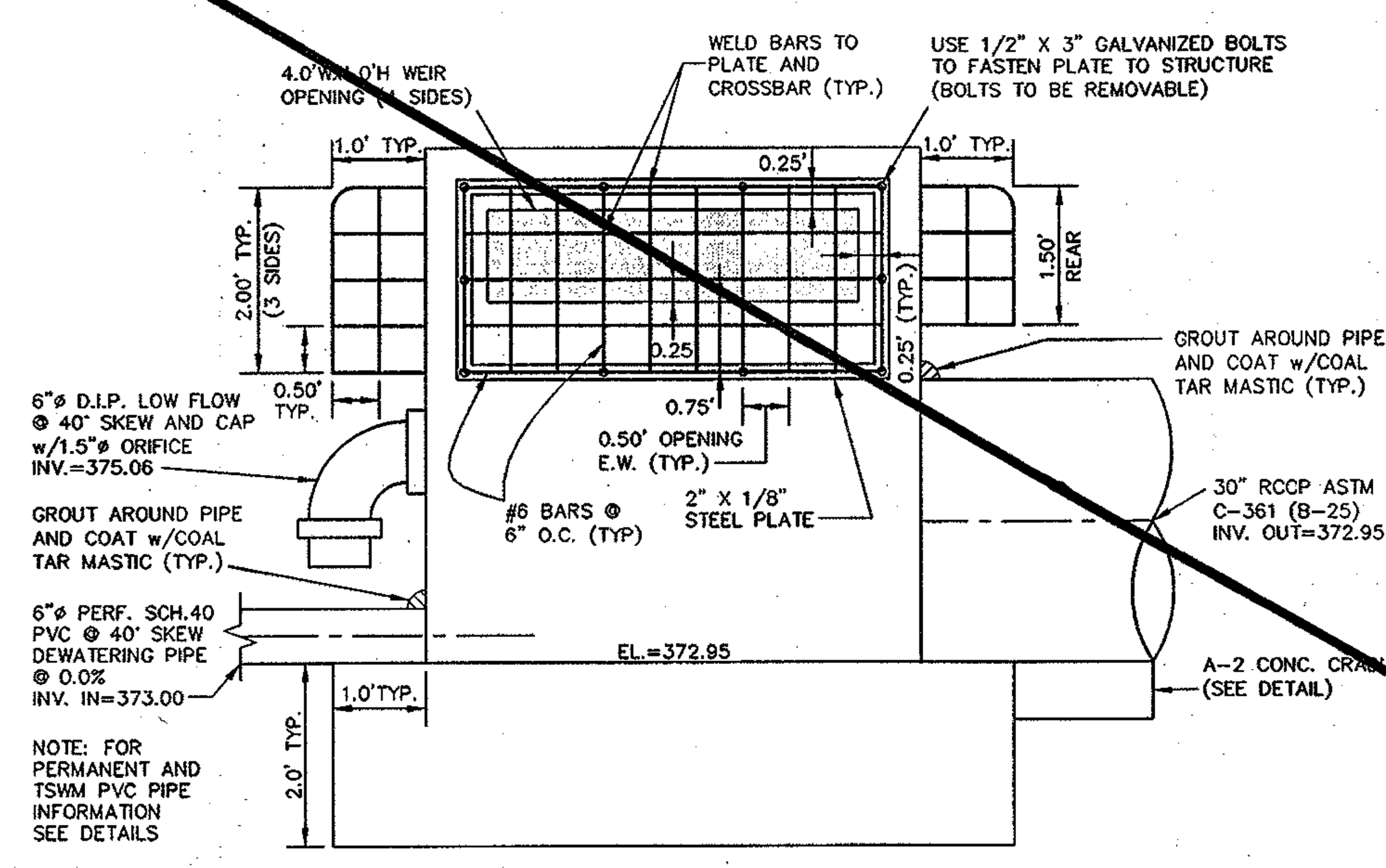
H:\10-024 HAWES\10-024 HAWES\DWG\24-ECP-AuGUST 2011.DWG



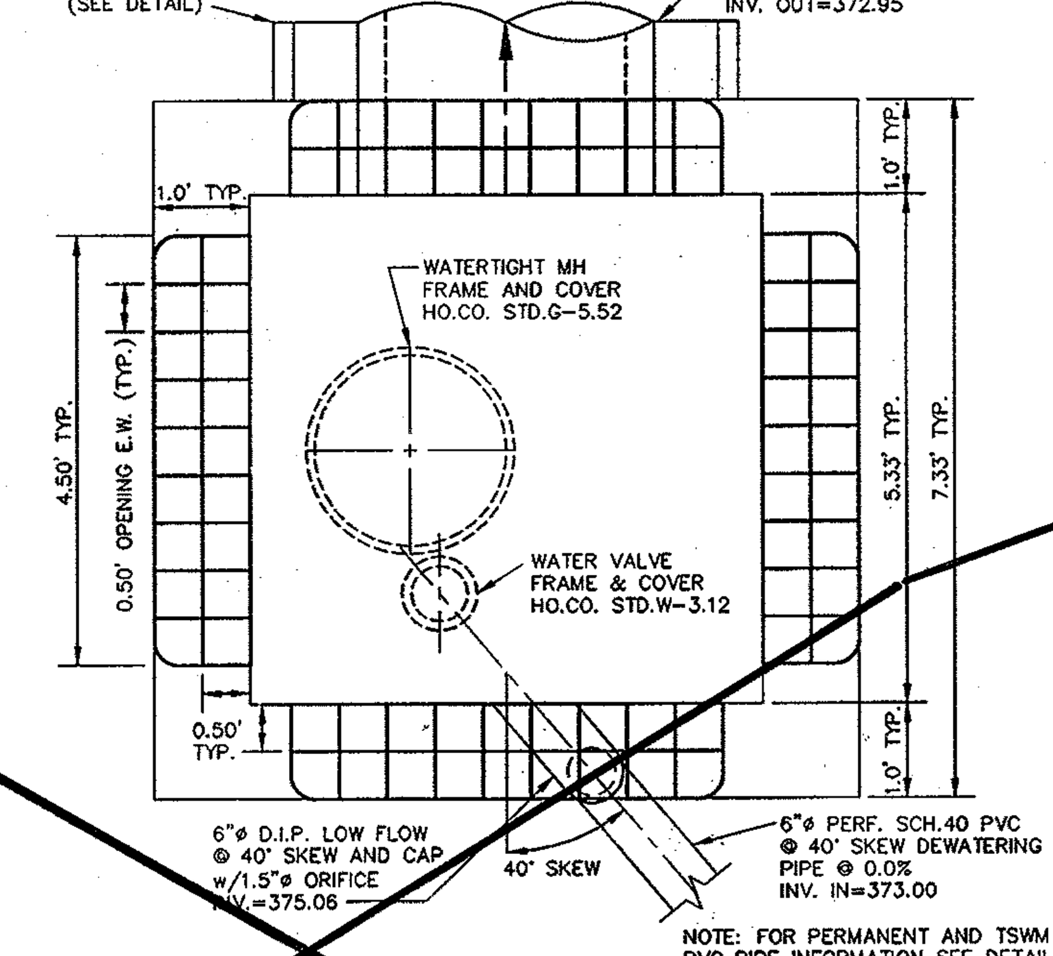
PROFILE ALONG C/L EMBANKMENT
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



FRONT VIEW



SIDE VIEW (TYP.)



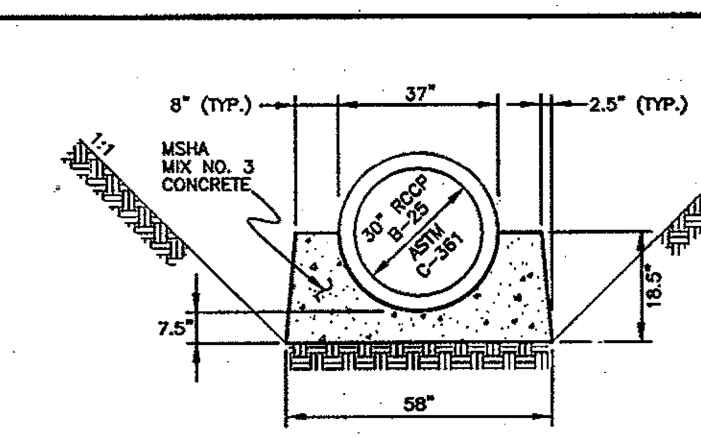
TOP VIEW

TRASH RACK DETAIL

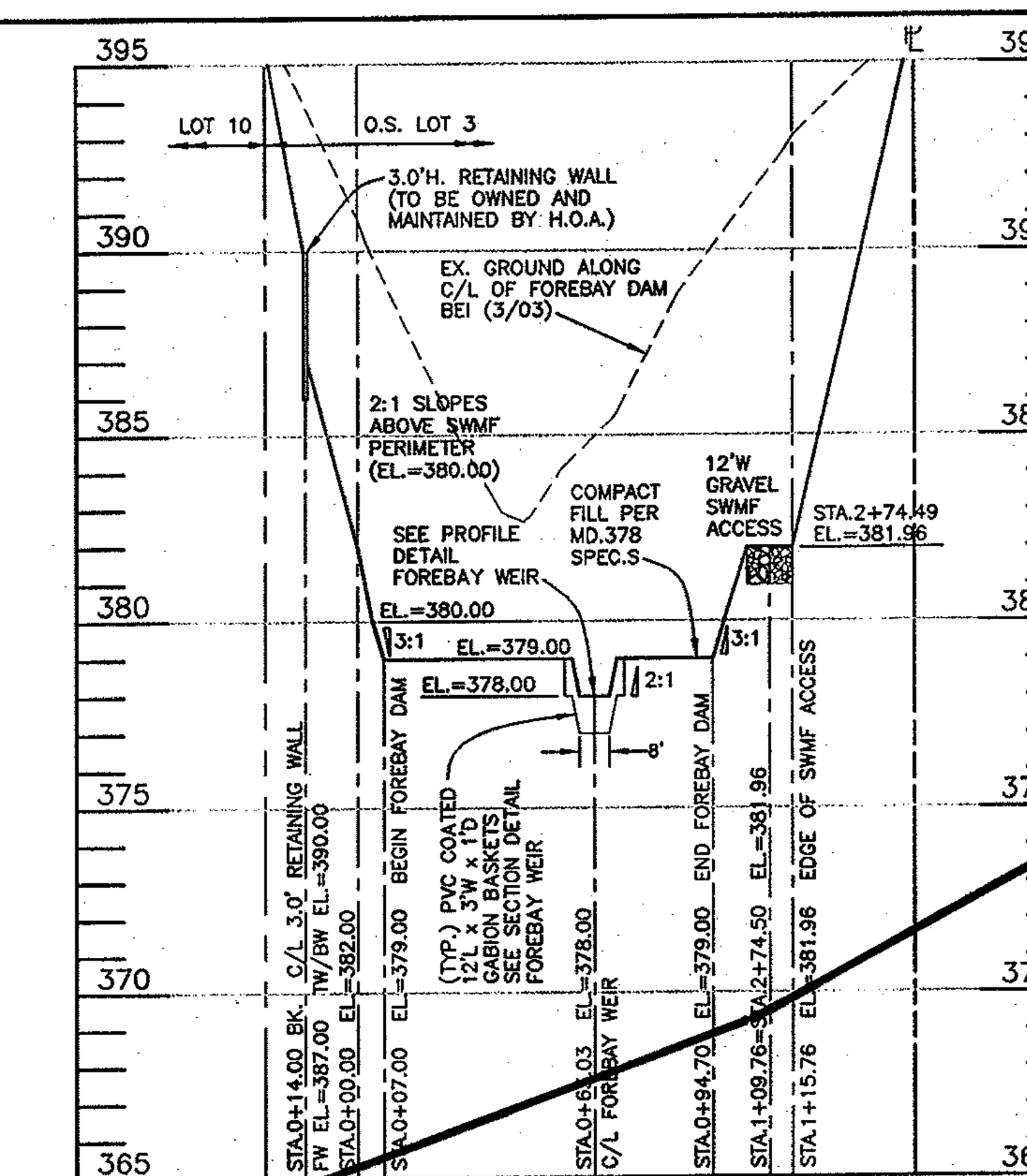
SCALE: 1"=2'

NOTES:

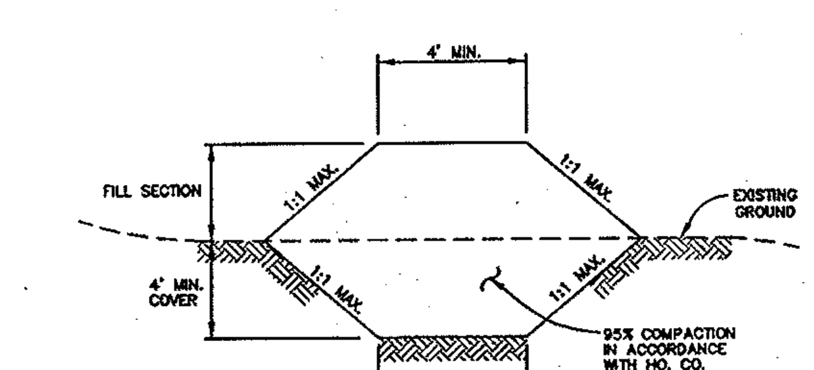
1. TRASH RACKS SHALL BE GALVANIZED AFTER FABRICATION
2. TRASH RACKS SHALL BE PAINTED BATTLESHIP GRAY.
3. TRASH RACKS SHALL BE PLACED ON ALL FOUR (4) SIDES OF RISER/OPENINGS
4. FOR ALL INVERTS, ELEVATIONS, AND LOCATIONS, REFER TO STRUCTURE SCHEDULE.



TYPE A-2
CONCRETE CRADLE
NOT TO SCALE



PROFILE ALONG C/L FOREBAY DAM
HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'



NOTES:

1. IF WATER IS ENCOUNTERED DURING THE CONSTRUCTION OF THE CORE TRENCH, IT IS TO BE REMOVED BY PUMPING.
2. CORE TRENCH SHALL CONSIST OF IMPERVIOUS MATERIAL (GC, SC, CL, CH) AS DIRECTED BY A GEOTECHNICAL ENGINEER ONSITE AND MAY REQUIRE TO BE HAULED FROM AN OFFSITE LOCATION.

TYPICAL SECTION
CUT-OFF/CORE TRENCH
NOT TO SCALE

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.

DONALD A. MASON — PE NO. 21443 — DATE

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ONSITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ONSITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER NOR DOES AN ENGINEER'S CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

BY THE OWNER/DEVELOPER:

"I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, 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 SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT."

SECURITY DEVELOPMENT LLC
OWNER/DEVELOPER — James R. Moxley, III — Member — 3-14-08 DATE:
STEVEN K BREEDEN — James R. Moxley, III

BY THE ENGINEER:

"I/WE CERTIFY THAT THIS PLAN FOR POND CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I HAVE NOTIFIED THE DEVELOPER THAT HE/SHE MUST ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION."

Donald Mason — 3/13/08
ENGINEER – DONALD A. MASON, P.E. # 21443 — DATE

[illegible] HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT [illegible] TECHNICAL [illegible] FOR SMALL POND CONSTRUCTION, SOIL EROSION [illegible] CONTROL.

[illegible] RESOURCES CONSERVATION SERVICE

THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — 3/20/08 DATE

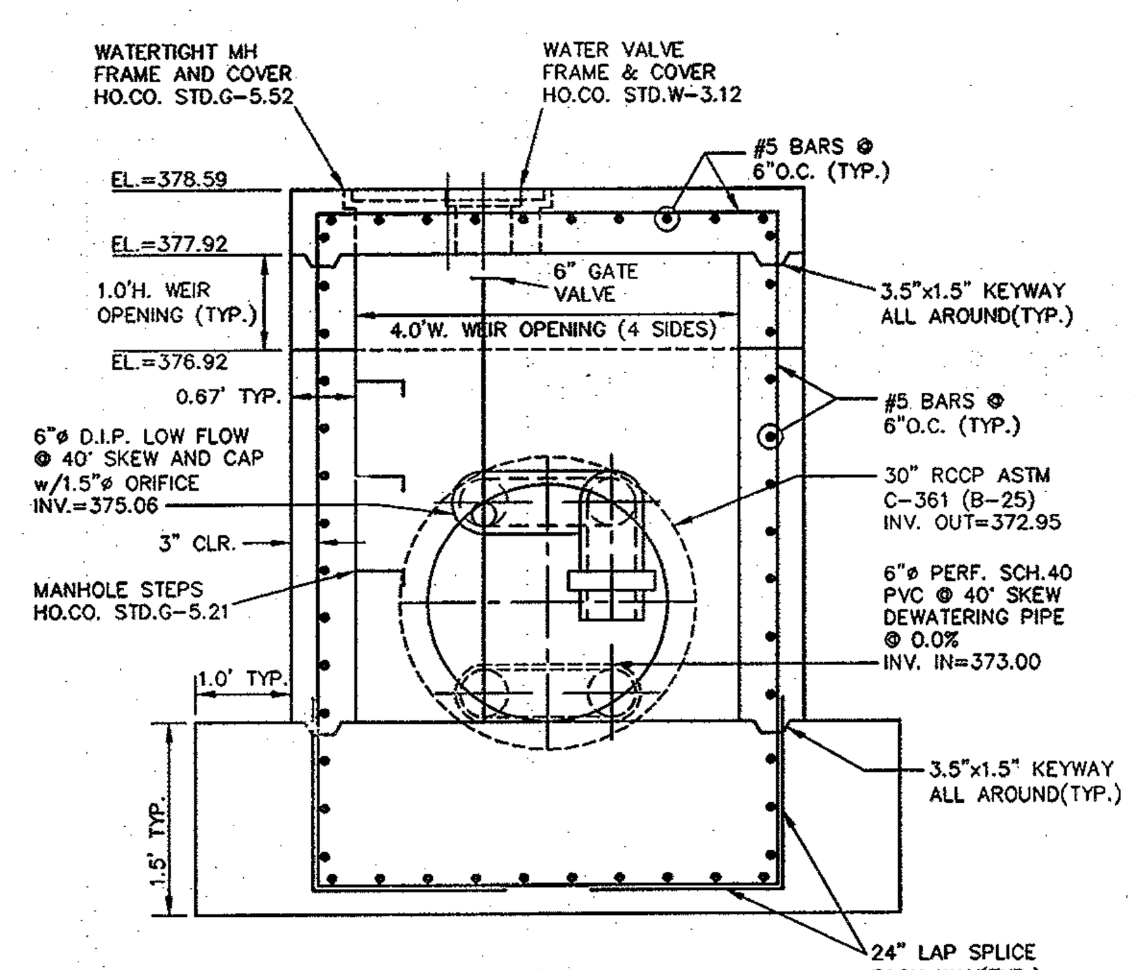
APPROVED: DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 5-5-08 DATE

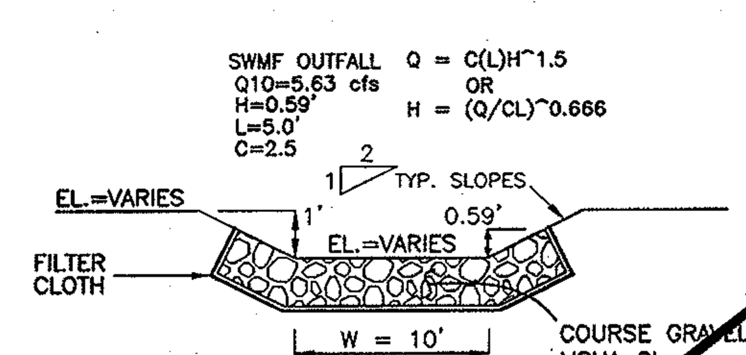
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — 5/8/08 DATE

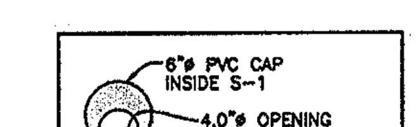
CHIEF, DEVELOPMENT ENGINEERING DIVISION — 5/1/08 DATE



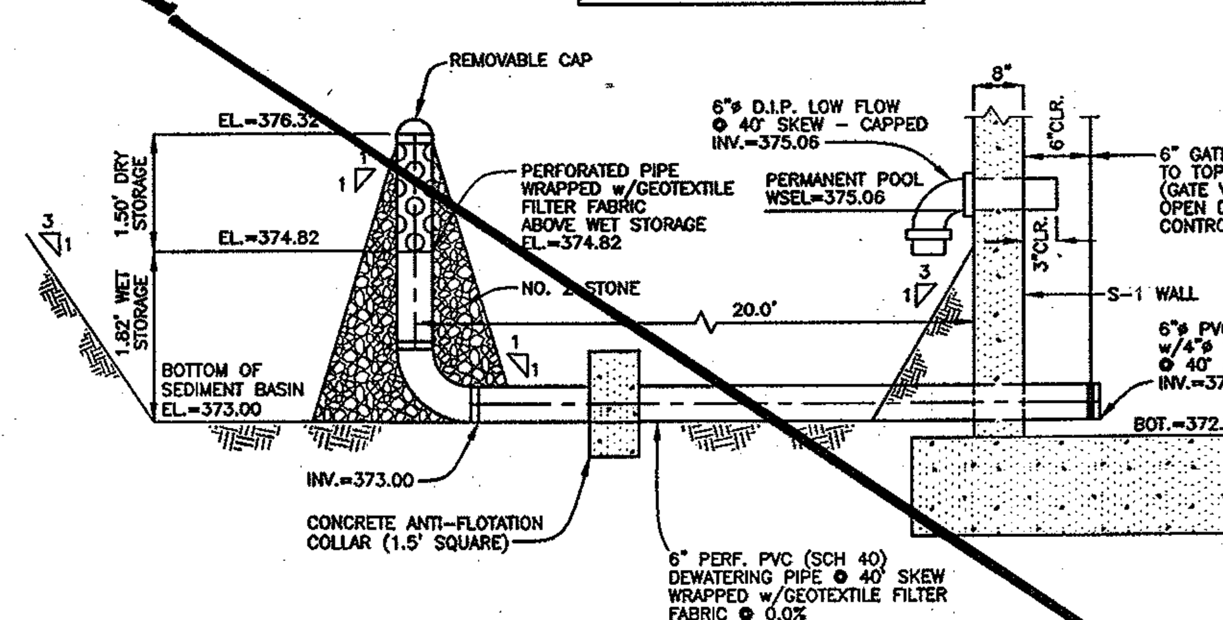
SECTION B-B



TYPICAL SECTION
GRAVEL OUTFALL CHANNEL
NOT TO SCALE



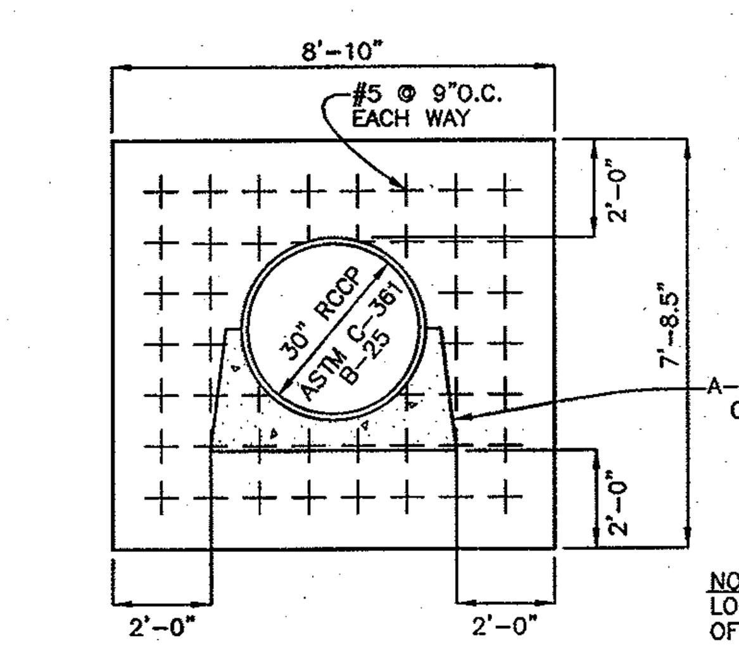
TSWM – CAP DETAIL
N.T.S.



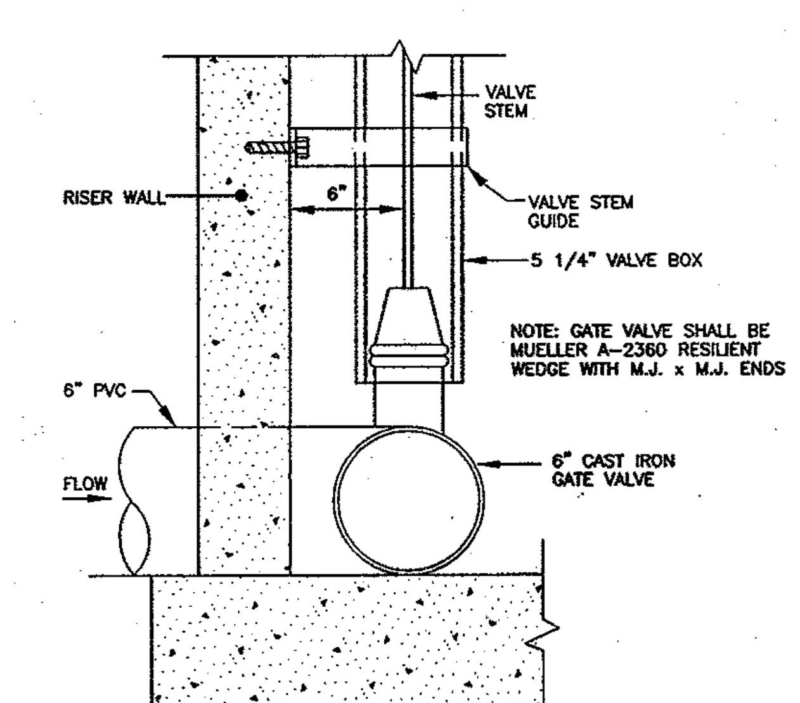
NOTE: UPON CONVERSION TO A PERMANENT SWMF THE 6" PVC DEWATERING PIPE SHALL BE CUT TO PERMANENT POOL ELEVATION; INFLOW SHALL BE REPLACED WITH 6" PERFORATED PVC AND INTERIOR CAP REMOVED

THIS PRACTICE CONFORMS TO MDE DETAIL C-10-30

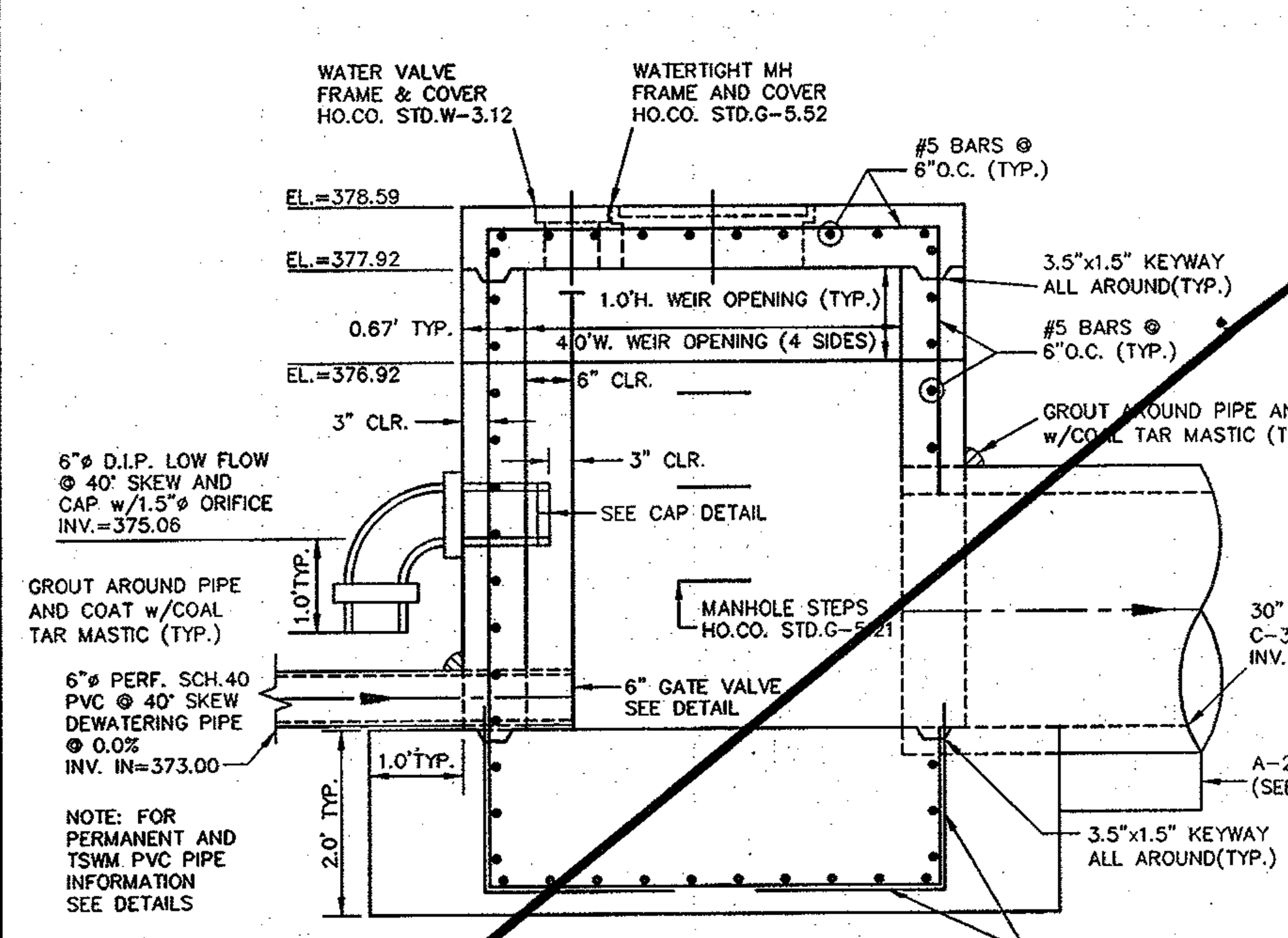
6" TSWM BASIN
VERTICAL DRAW-DOWN DEVICE
NOT TO SCALE



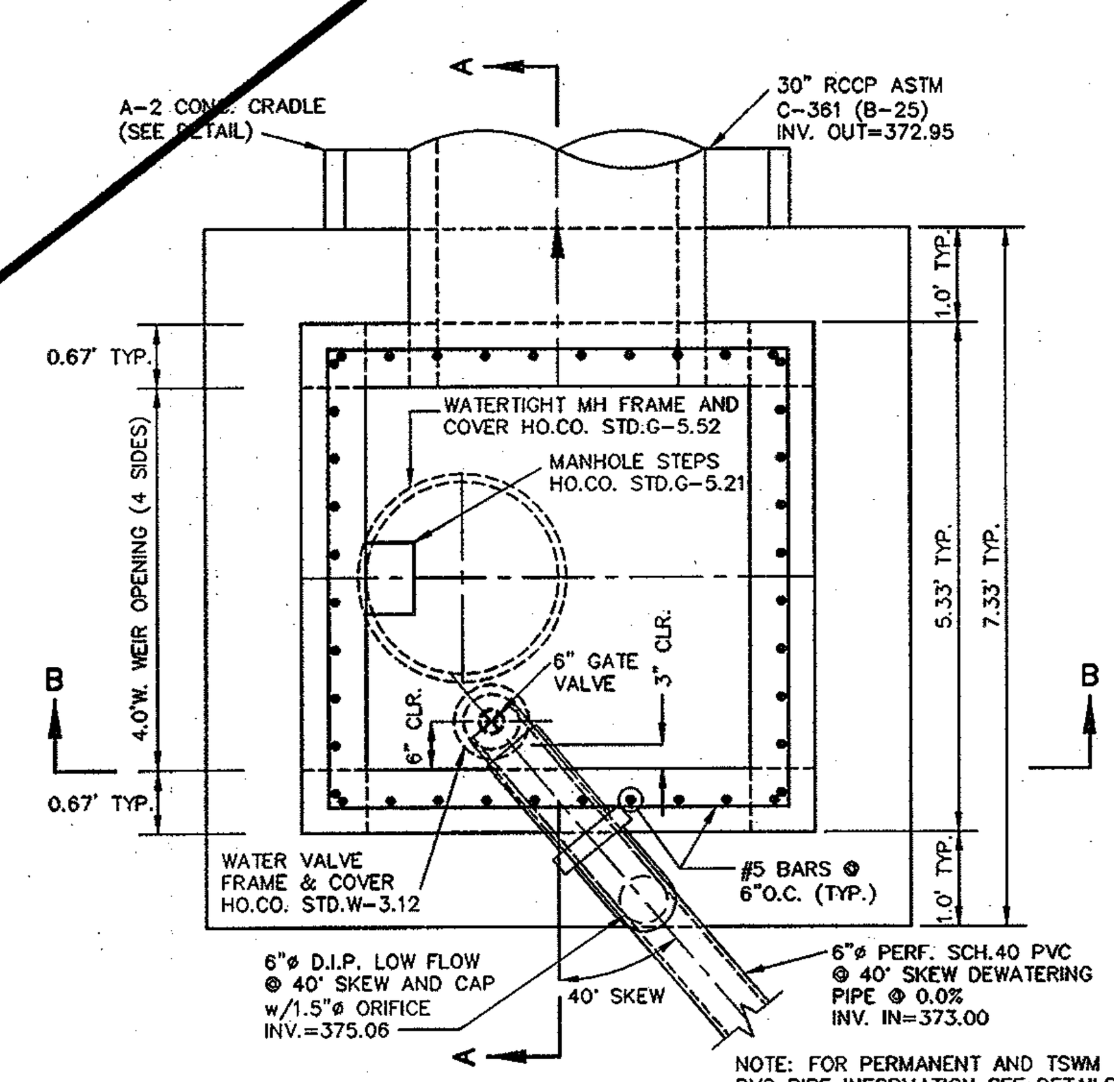
COLLAR SIZE: 8'-10"L x 7'-8.5"H x 6"W
ANTI-SEEP COLLAR
NOT TO SCALE



ANCHOR DETAIL
FOR VALVE STEM
NOT TO SCALE



SECTION A-A



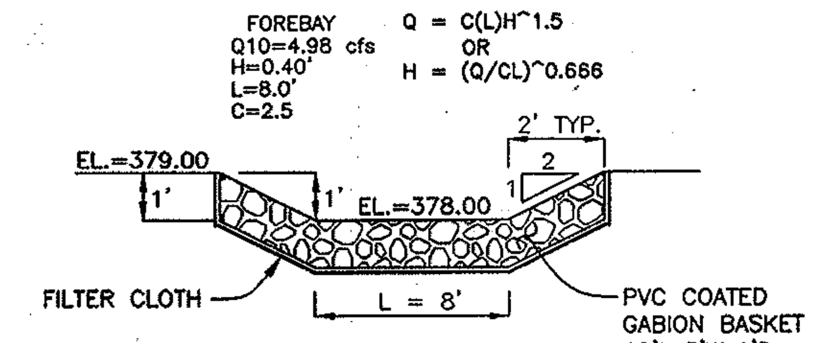
PLAN – BELOW SLAB

CONTROL/OUTLET STRUCTURE

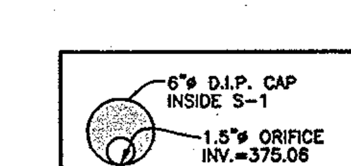
SCALE: 1"=2'

NOTES

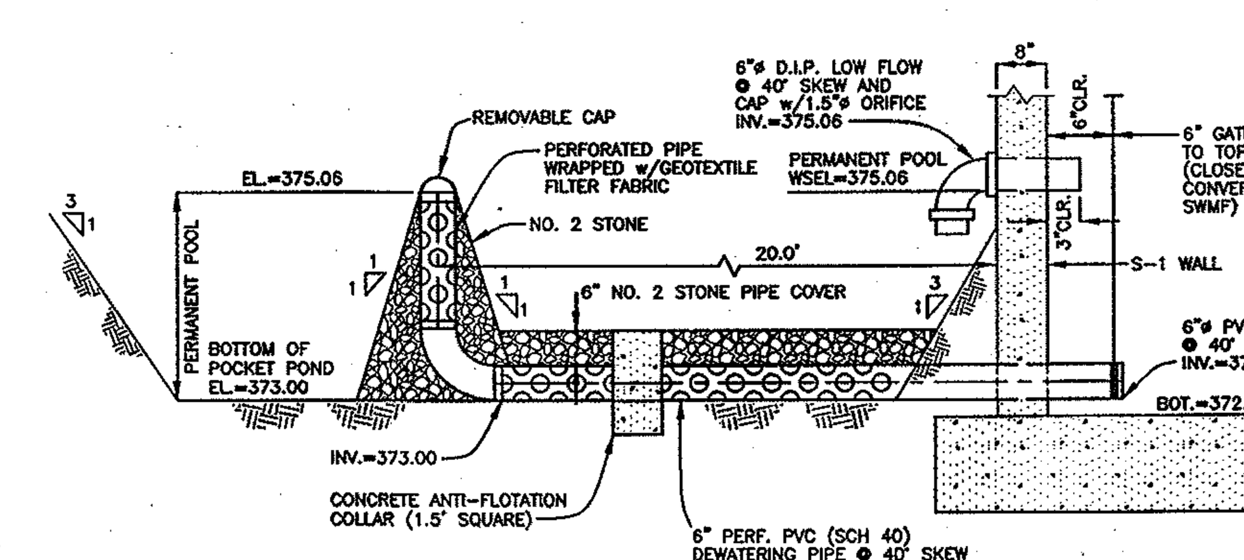
1. ENTIRE STRUCTURE TO BE MSHA MIX NO.3 CONCRETE.
2. FOR ALL INVERTS, ELEVATIONS, AND LOCATIONS, REFER TO STRUCTURE SCHEDULE.



PROFILE DETAIL
FOREBAY WEIR
NOT TO SCALE



SWM – CAP DETAIL
N.T.S.



NOTE: UPON CONVERSION TO A PERMANENT SWMF THE 6" PVC DEWATERING PIPE SHALL BE CUT TO PERMANENT POOL ELEVATION; INFLOW SHALL BE REPLACED WITH 6" PERFORATED PVC AND INTERIOR CAP REMOVED

THIS PRACTICE CONFORMS TO MDE DETAIL C-10-30

6" DEWATERING PIPE DETAIL AND
PERMANENT EXTENDED DETENTION CONTROL ORIFICE
NOT TO SCALE

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@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: 12-21-2008

STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — PROFESSIONAL ENGINEER — 3/13/08

DEVELOPER/CONTRACT PURCHASER:
SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE: (410) 465-4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2)
LOTS 1 & 5-10 AND O.S. LOTS 3 & 4

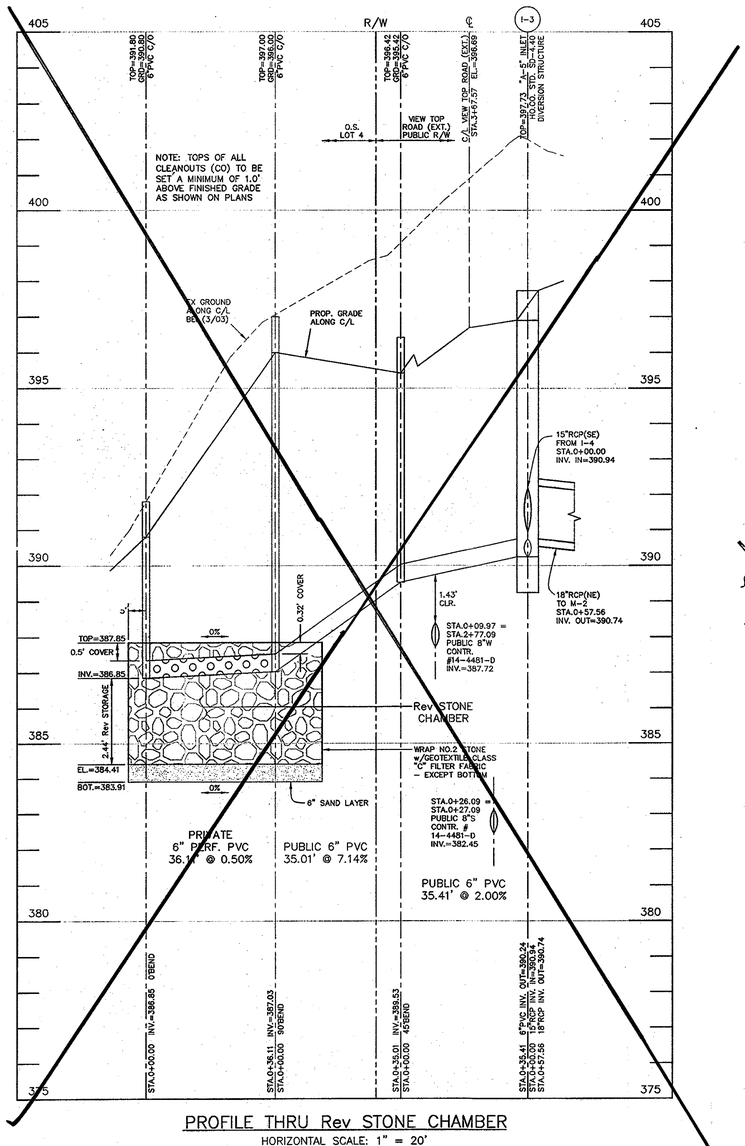
LOCATION: TAX MAP 24 – GRID 17
PARCEL 253 – ZONE: R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLAN
STORMWATER MANAGEMENT
PROFILES, NOTES, AND DETAILS

DATE: DECEMBER 20, 2006 / MARCH 14, 2008 — PROJECT NO. 1574

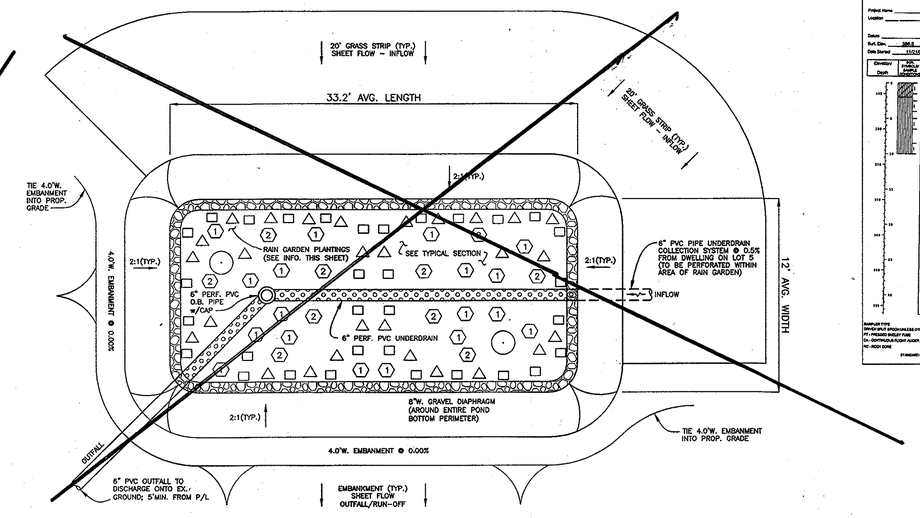
Des: MCR/DAM — Draft: MCR — Check: DAM — SCALE: AS SHOWN — DRAWING 7 OF 16

F-07-110

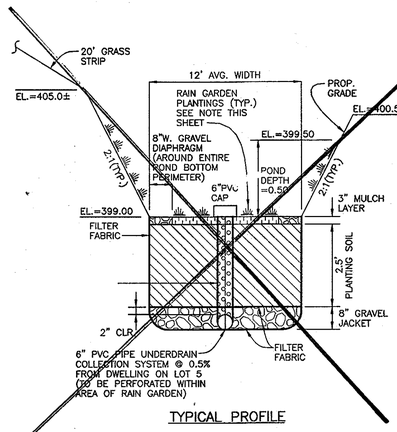


PROFILE THRU Rev STONE CHAMBER

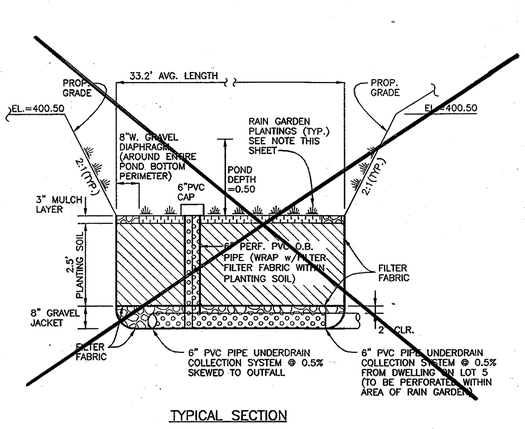
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'



SCHEMATIC PLAN VIEW



TYPICAL PROFILE



TYPICAL SECTION

RAIN GARDEN DETAIL

NOT TO SCALE

MATERIALS AND SPECIFICATIONS FOR RAIN GARDEN

MATERIAL	SPECIFICATION	SIZE	NOTES:
PLANTINGS	SEE APPENDIX 'A' TABLE A.4	N/A	PLANTINGS ARE SITE SPECIFIC
PLANTING SOIL (2.5' TO 4.0' DEEP)	SAND: 30–60% SILT: 30–55% CLAY: 0–25%	N/A	USDA SOIL TYPES: LOAMY SAND, SANDY LOAM OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS MINIMUM
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4751) GRAB TENSILE STRENGTH: (ASTM D-4632) PUNCTURE RESISTANCE: (ASTM D-4833)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" TO 0.750"	
UNDERDRAIN PIPING	F758, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCH.40 PVC, SDR35 OR HDPE	3/8" PERF. @ 6" O/C, 4 HOLES PER ROW; MINIMUM OF 3" OF GRAVEL OVER PIPES, NOT NECESSARY UNDERNEATH PIPES

RAIN GARDEN – PLANTING DATA

1. PLANTINGS WITHIN THE PONDING AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE
   SUGGESTED SPECIES:
   CREEPING BUGLEWEED (AJUGA REPTANS)
   COMMON PERIWINKLE (VINCA MINOR)
   LILY–TURF (LIRIOPE, SP.)
2. PLANTINGS ALONG THE PERIMETER (BERM) AREA OF THE RAIN GARDEN ARE TO BE OF A LOW TO MEDIUM WATER TOLERANCE
   SUGGESTED SPECIES: (PERENNIALS/ANNUALS)
   IRIS (IRIS VERSICOLOR)
   DAYLILY (HEMEROCALLIS SP.)
   WHITE GLORY (ASTIBLE SP.)
3. AVOID PLANTINGS WITH EXCESSIVE ROOT MASS IN POND AREA OF THE RAIN GARDEN NEAR O.B. PIPE AND UNDERDRAIN.

RAIN GARDEN – PLANTING SCHEDULE

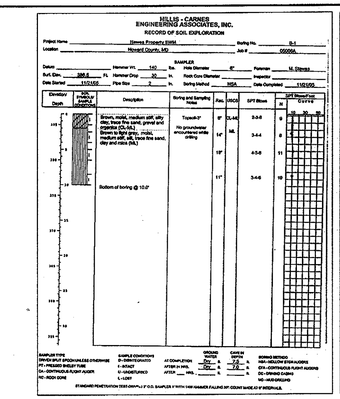
1	VINCA MINOR (COMMON PERIWINKLE)	34
△	AJUSTA REPTAN S (CREEPING BUGLEWEED)	30
□	IRIS VERSICOLOR (IRIS)	16
2	HEMEROCALLIS SP (DAYLILY)	10
⊙	ACER RUBRUM (RED MAPLE)	2

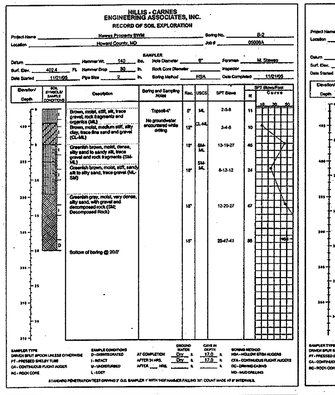
IN–SITU INFILTRATION

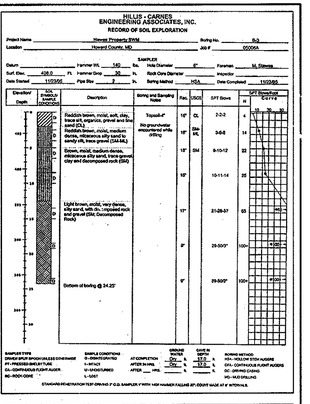
BORING NO.	DEPTH OF TEST	MEASURED RATE (IN./HR.)
B–1	7.0'	0.1875
B–2	17.0'	0.25
B–3	18.0'	0.0625
B–4	9.0'	0.125
B–5	11.0'	0.25
B–6	13.0'	0.3125
B–7	9.0'	0.1875

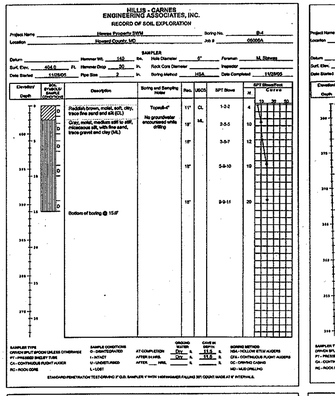
OPERATION & MAINTENANCE SCHEDULE FOR RAIN GARDENS

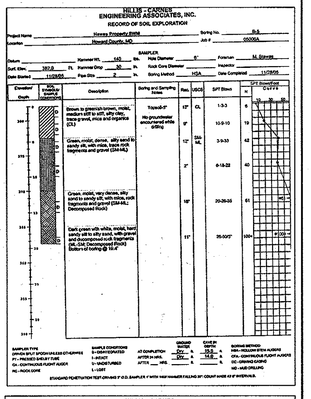
1. ANNUAL MAINTENANCE OF PLANT MATERIAL AND MULCH LAYER IS REQUIRED. MAINTENANCE OF MULCH IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH–OUT. ANY REPLACEMENT OF MULCH SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE & INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL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

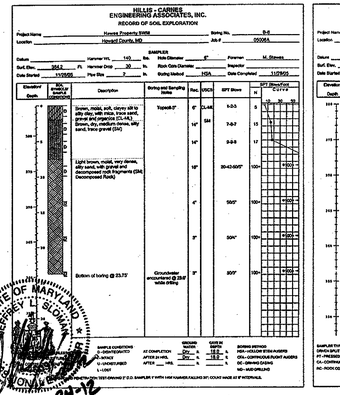


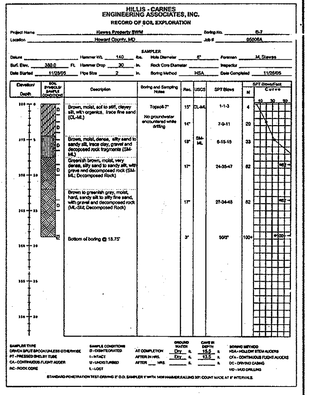












APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE: 5-5-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 5/8/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE: 5/9/08

NO.	DATE	REVISION
1	9/13/11	REVISED LOT LAYOUT, STORMWATER MANAGEMENT, AND LOT GRADING

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410–465–6105 FAX: 410–465–6644
E–MAIL: bei@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. 21439, Expiration Date: 12-21-2008

STATE OF MARYLAND — DONALD ALAN MASON — No. 21439 — PROFESSIONAL ENGINEER — 3-13-08

DEVELOPER/CONTRACT PURCHASER:

SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE: (410) 465–4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE–SUBDIVISION OF LOT 2) LOTS 1 & 5–10 AND O.S. LOTS 3 & 4

LOCATION: TAX MAP 24 – GRID 17
PARCEL 253 – ZONE: R–20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLAN
STORMWATER MANAGEMENT PROFILES, NOTES, AND DETAILS

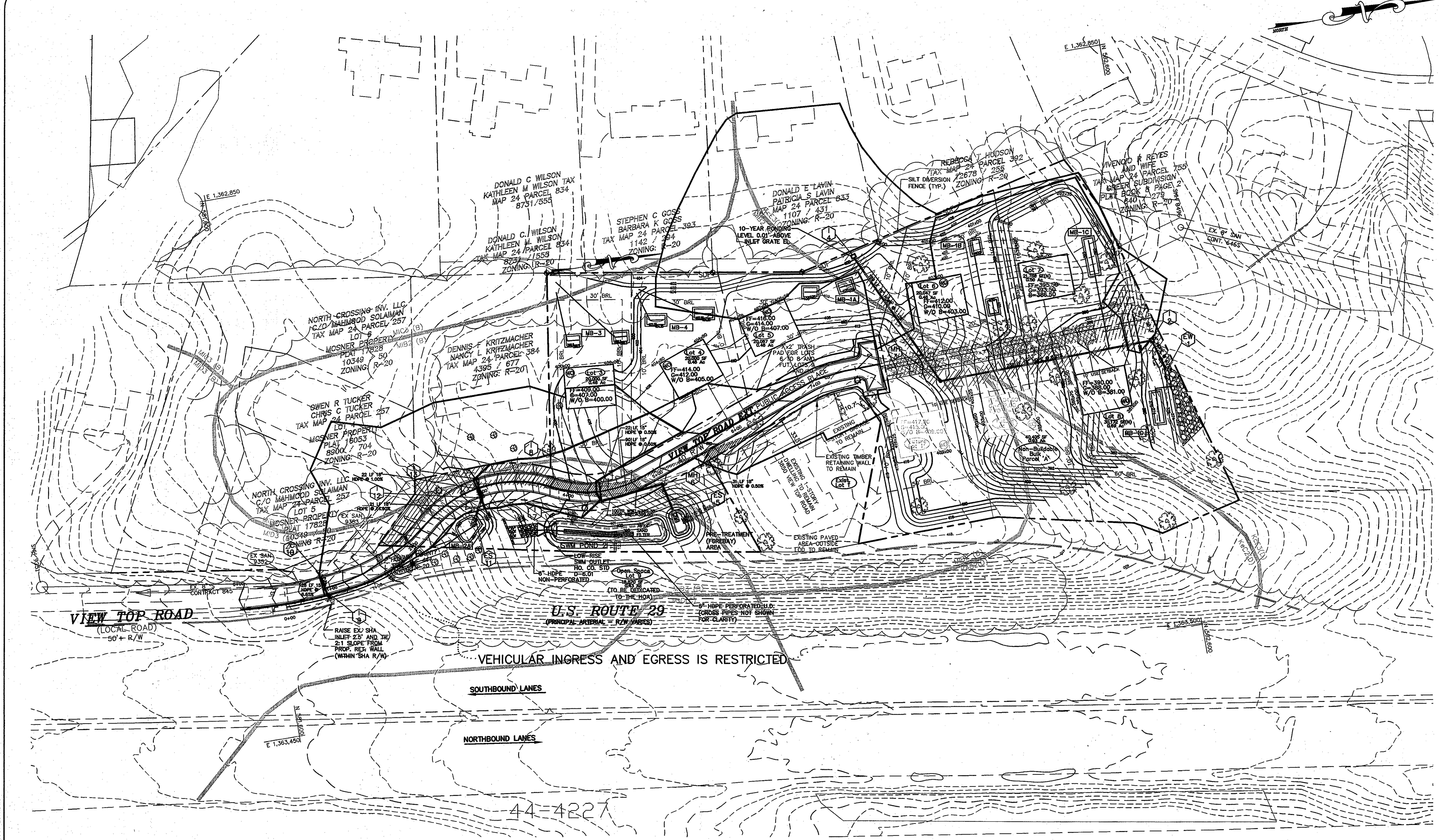
DATE: DECEMBER 20, 2006 / MARCH 14, 2008 — PROJECT NO. 1574

Des: MCR/DAM | Draft: MCR | Check: DAM

SCALE: AS SHOWN — DRAWING 8 OF 16

F–07–110

P:\1574\dwg\7024V6.dwg, SWM-3, 3/12/2008 10:59:05 PM, mcr



APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

[signature] 4-16-12
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

[signature] 4/17/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

[signature] 4/30/12
CHIEF, DLD ~~DIRECTOR~~ — DATE

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

DRAINAGE AREA SUMMARY

STRUCTURE NUMBER	DRAINAGE AREA (AC)	C FACTOR (10 YEAR)	TIME OF CONC. (MIN)
ES-1	N/A	N/A	10
I-2	0.12	0.24	10
MH-3	1.92**	0.43	10
I-4	1.37	0.23	10
ES-5	N/A	N/A	10
MH-6	N/A	N/A	10
I-7	0.30	0.87	10
I-8	0.18	0.58	10
I-9	0.06	0.68	10
I-10	0.74	0.68	10
ES-11	N/A	0.31	10
I-12	0.07	0.51	10
I-13	0.18	0.33	10

**FLOW FROM LOTS 6 THRU 8, BULK PARCEL 'A', AND THE USE-IN-COMMON DRIVEWAY IS ASSUMED TO ENTER THE SYSTEM AT MH-3 FOR THE PURPOSE OF STORM DRAIN ANALYSIS

NOTE: THIS SHEET IS FOR DRAINAGE AREA DELINEATION ONLY

NOTE: THIS SHEET REPLACES SHEET 9 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F-07-110) BY BENCHMARK ENGINEERING

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. 40091 Expiration Date 2-13-2013

STATE OF MARYLAND — JEFFREY L. SLOAN — 40091 — PROFESSIONAL ENGINEER
2-24-12

H:\10-024 HAWES\10-024 HAWES\DWG\24-ECP-AUGUST 2011.DWG

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 997-0296 Balt. (410) 997-0298 Fax.

HAWES PROPERTY

LOTS 3 THRU 8, O.S. LOT 9, AND NON-BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

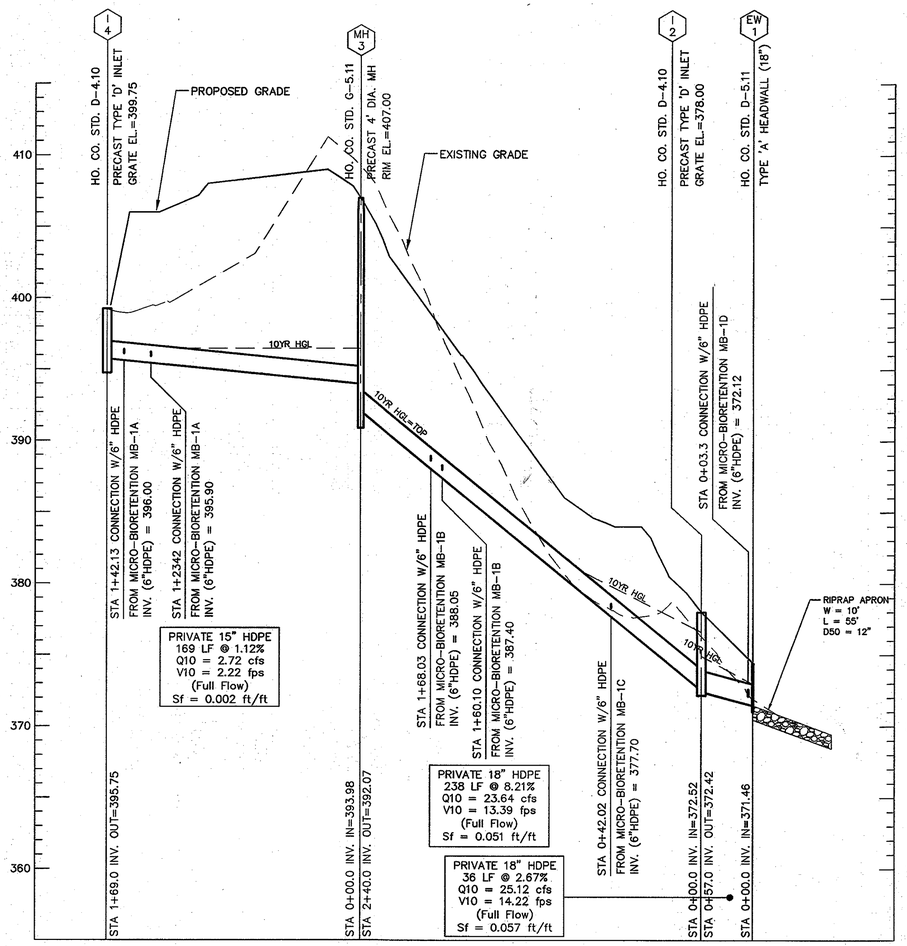
PROPOSED DRAINAGE AREA MAP (STORM DRAIN)

no.	description	date
1	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011

revisions

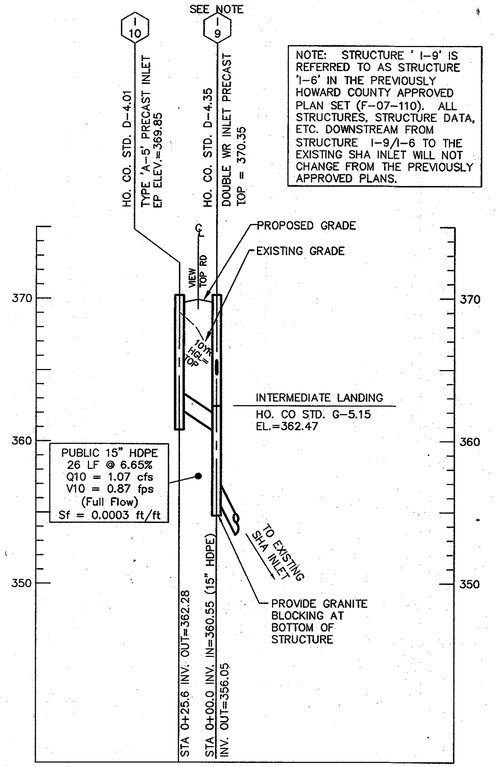
project	date
10-024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
1"=40'	RJH

F-07-110



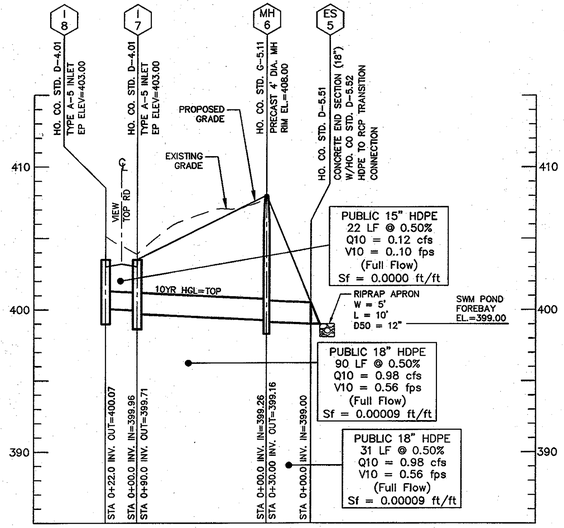
PROFILE – STRUCTURES I–4 TO ES–1

SCALE: 1"=50' HOR
1"=5' VER



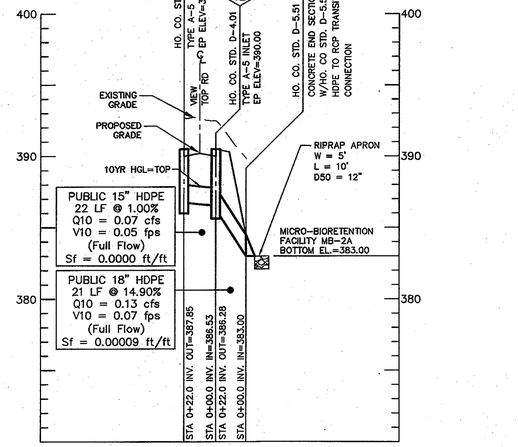
PROFILE – STRUCTURES I–10 TO I–9

SCALE: 1"=50' HOR
1"=5' VER



PROFILE – STRUCTURES I–8 TO ES–5

SCALE: 1"=50' HOR
1"=5' VER



PROFILE – STRUCTURES I–13 TO ES–11

SCALE: 1"=50' HOR
1"=5' VER

STRUCTURE SCHEDULE

STRUCTURE	TYPE	LOCATION	COORDINATES	TOP/RIM/ GRATE EL.	INV. IN	INV. OUT
EW–1	TYPE 'A' HEADWALL HO.CO. STD. D–5.11		N = 582,611.7856 E = 1,363,214.0246	N/A	371.46	N/A
I–2	PRECAST TYPE 'D' INLET HO.CO. STD. D–4.10		N = 582,594.2534 E = 1,363,162.2900	378.00 (GRATE)	374.25	374.15
MH–3	PRECAST 4' DIA. MANHOLE HO.CO. STD. G–5.11		N = 582,354.0465 E = 1,363,165.9681	409.00 (RIM)	394.11	393.96
I–4	PRECAST TYPE 'D' INLET HO.CO. STD. D–4.10		N = 582,282.7564 E = 1,363,033.3021	399.75 (GRATE)	N/A	395.75
ES–5	END SECTION HO.CO. STD. D–5.51	VIEW TOP ROAD EXT. STA. 4+98.4, 48.0' R		N/A	399.00	N/A
MH–6	PRECAST 4' DIA. MANHOLE HO.CO. STD. G–5.11	VIEW TOP ROAD EXT. STA. 5+00.1, 17.5' R		408.00 (RIM)	399.26	399.16
I–7	PRECAST TYPE 'A–5' INLET HO.CO. STD. D–4.01	VIEW TOP ROAD EXT. STA 4+35.6, 11.0' R		403.00 (EP)	399.96	399.71
I–8	PRECAST TYPE 'A–5' INLET HO.CO. STD. D–4.01	VIEW TOP ROAD EXT. STA 4+36.2, 11.0' L		403.00 (EP)	N/A	400.07
I–9	PRECAST TYPE 'A–5' INLET HO.CO. STD. D–4.01	VIEW TOP ROAD EXT. STA 0+95.1, 11.0' R		369.85 (EP)	360.55	356.05
I–10	PRECAST TYPE 'A–5' INLET HO.CO. STD. D–4.01	VIEW TOP ROAD EXT. STA 0+93.5, 11.0' L		369.85 (EP)	N/A	362.28
ES–11	END SECTION HO.CO. STD. D–5.51	VIEW TOP ROAD EXT. STA 2+82.4, 11.0' R		N/A	383.00	N/A
I–12	PRECAST TYPE 'A–5' INLET HO.CO. STD. D–4.01	VIEW TOP ROAD EXT. STA 3+00.0, 11.0' R		390.00 (EP)	386.53	386.28
I–13	PRECAST TYPE 'A–5' INLET HO.CO. STD. D–4.01	VIEW TOP ROAD EXT. STA 3+00.0, 11.0' L		390.00 (EP)	N/A	387.85

NOTE: STRUCTURE ' I–9' IS REFERRED TO AS STRUCTURE 'I–6' IN THE PREVIOUSLY HOWARD COUNTY APPROVED PLAN SET (F–07–110). ALL STRUCTURES, STRUCTURE DATA, ETC. DOWNSTREAM FROM STRUCTURE I–9/I–6 TO THE EXISTING SHA INLET WILL NOT CHANGE FROM THE PREVIOUSLY APPROVED PLANS.

PIPE SCHEDULE

SIZE	LENGTH	TYPE / CLASS
6"	215 LF	HDPE (PERFORATED)
6"	643 LF	HDPE (NON–PERFORATED)
15"	216 LF	HDPE
18"	439 LF	HDPE

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — DATE 4-16-12

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/27/12

CHIEF, DLD DIRECTOR — DATE 4/30/12

ALL MEASUREMENTS TO MANHOLES AND INLETS ARE TO THE CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.

NOTE: THIS SHEET REPLACES SHEET 10 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F–07–110) BY BENCHMARK ENGINEERING

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. 40091 Expiration Date 2–13–2013

STATE OF MARYLAND — JEFFREY L. BLOOM — REG. NO. 40091 — PROFESSIONAL ENGINEER — 2-24-12

project	date
10–024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
AS SHOWN	RJH

no.	description	date
1	RESPOND TO HOWARD COUNTY COMMENTS	1/19/2012
2	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011

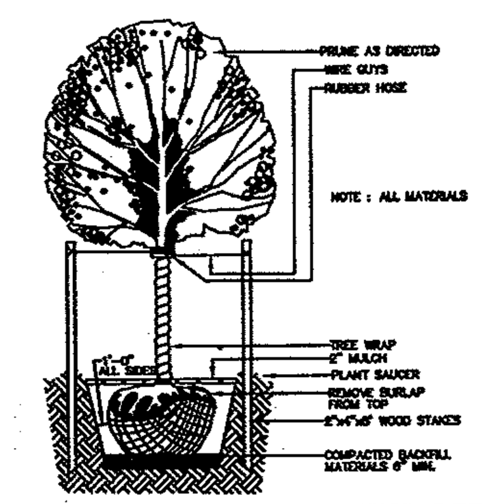
HAWES PROPERTY

LOTS 3 THRU 8, O.S. LOT 9, AND NON–BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

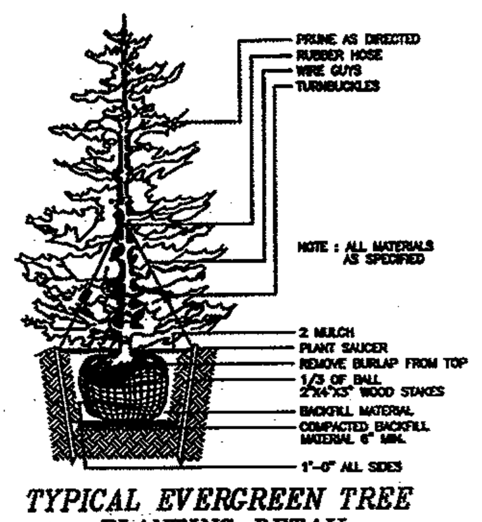
STORM DRAIN PROFILES

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 397–0296 Balt. (410) 997–0298 Fax.

H:\10–024 HAWES\10–024 HAWES\DWG\24–ECP–AUGUST 2011.DWG



DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE



TYPICAL EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE

SCHEDULE B : STORMWATER MANAGEMENT AREA LANDSCAPING

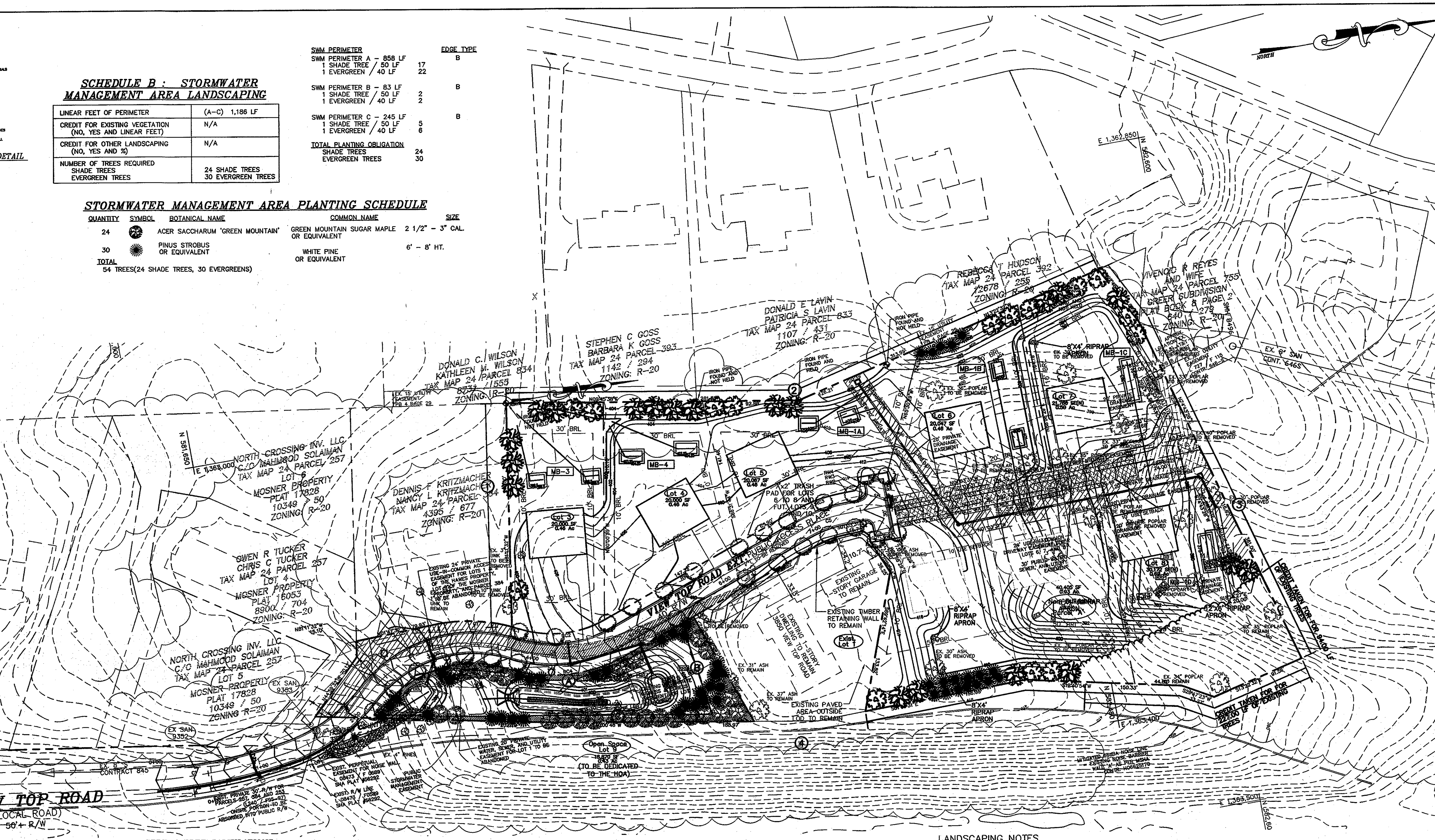
LINEAR FEET OF PERIMETER	(A–C) 1,186 LF
CREDIT FOR EXISTING VEGETATION (NO, YES AND LINEAR FEET)	N/A
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	N/A
NUMBER OF TREES REQUIRED SHADE TREES EVERGREEN TREES	24 SHADE TREES 30 EVERGREEN TREES

SWM PERIMETER		EDGE TYPE
SWM PERIMETER A – 858 LF		B
1 SHADE TREE / 50 LF	17	
1 EVERGREEN / 40 LF	22	
SWM PERIMETER B – 83 LF		B
1 SHADE TREE / 50 LF	2	
1 EVERGREEN / 40 LF	2	
SWM PERIMETER C – 245 LF		B
1 SHADE TREE / 50 LF	5	
1 EVERGREEN / 40 LF	6	
TOTAL PLANTING OBLIGATION		
SHADE TREES	24	
EVERGREEN TREES	30	

STORMWATER MANAGEMENT AREA PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
24		ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE OR EQUIVALENT	2 1/2" – 3" CAL.
30		PINUS STROBUS OR EQUIVALENT	WHITE PINE OR EQUIVALENT	6' – 8' HT.

TOTAL
54 TREES(24 SHADE TREES, 30 EVERGREENS)



SCREEN CALCULATIONS

TRASH PAD – 11 LF – TYPE C BUFFER
1 EVERGREENS REQUIRED
10 SHRUBS PROVIDED.
NOTE– EVERGREEN SHRUBS HAVE BEEN PROPOSED TO BUFFER THE TRASH PAD AREA.

STREET TREE CALCULATIONS

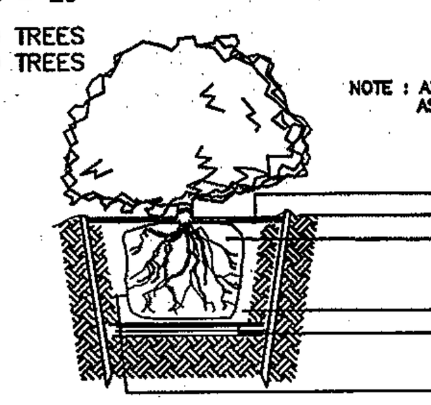
VIEW TOP ROAD – 1170 / 40 = 29

TOTAL TREES REQUIRED = 29 TREES
TOTAL TREES PROVIDED = 29 TREES

STREET TREE PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
29		PRUNUS SARGENTII OR EQUIVALENT	SARGENT CHERRY OR EQUIVALENT	2-1/2"– 3" CAL.

TOTAL
29 TREES



TYPICAL SHRUB PLANTING DETAIL
NOT TO SCALE

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

APPROVED:

Walter T. Malarkey (signature) 4-16-12
CHIEF, BUREAU OF HIGHWAYS — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

(signature) 4/27/12
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Kent Sheubrooks (signature) 4/30/12
CHIEF, DIV. ~~DIRECTOR~~ LAND DEVELOPMENT — DATE

AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.

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 LANDSCAPING 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.

(signature) 3/1/12
DEVELOPER/CONTRACT PURCHASER — DATE

MB-Z MICRO-BIORETENTION FACILITY NUMBER

LANDSCAPE REQUIREMENT PLANTING SCHEDULE

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
15		QUERCUS RUBRA OR EQUIVALENT	RED OAK OR EQUIVALENT	2 1/2" – 3" CAL.
20		PRUNUS SARGENTII OR EQUIVALENT	SARGENT CHERRY OR EQUIVALENT	2-1/2"– 3" CAL.
18		PINUS STROBUS OR EQUIVALENT	WHITE PINE OR EQUIVALENT	6' – 8' HT.
10		TAXUS MEDIA 'HICKSII'	HICKS YEW OR EQUIVALENT	2 1/2' – 3' HT.

TOTAL
53 TREES (35 SHADE TREES, 18 EVERGREENS, 10 SHRUBS)

SCHEDULE A : PERIMETER LANDSCAPED EDGE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES			ADJACENT TO ROADWAYS	TRASH PAD	
LANDSCAPE TYPE	A (PERIMETER 1)	A (PERIMETER 2)	A (PERIMETER 3)	B (PERIMETER 4)*	C	TOTAL
LINEAR FEET OF PERIMETER	215.80' LF	595.30 LF	425.02 LF	961.04 LF	11 LF	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET)	NO	NO	YES, 94.00 LF.	YES, 227.00 LF		
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET)	NO	NO	NO	NO		
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	10 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	6 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	15 SHADE TREES 18 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 1 EVERGREEN TREES 0 SHRUBS	35 SHADE TREES 19 EVERGREEN TREES 0 SHRUBS
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SHRUBS	4 SHADE TREE 0 EVERGREEN TREES 0 SHRUBS	10 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	6 SHADE TREES 0 EVERGREEN TREES 0 SHRUBS	15 SHADE TREES 18 EVERGREEN TREES 0 SHRUBS	0 SHADE TREES 0 EVERGREEN TREES 10 SHRUBS	35 SHADE TREES 18 VERGREEN TREES 10 SHRUBS

* NOTE THAT PART OF PERIMETER 4 HAS BEEN EXCLUDED SINCE THERE IS AN EXISTING HOUSE TO REMAIN.

LANDSCAPING NOTES

1) THE PROPOSED LANDSCAPING SHALL BE PROVIDED BY THE PLANTINGS SHOWN ON THESE PLANS
2) THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL INTERNAL PLANTINGS; THE PRESERVATION OF THE EXISTING PERIMETER VEGETATION; AND FOR THE PERIMETER PLANTINGS AS SHOWN ON THESE PLANS. BONDING FOR THE PROPOSED PLANTINGS IS THE OBLIGATION OF THE DEVELOPER AS PART OF THE DEVELOPER'S AGREEMENT.
3) TREES MUST BE A MINIMUM OF FOUR (4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.
4) A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND FROM STREET LIGHTS.
5) TREES MUST BE PLANTED A MINIMUM OF FIVE (5) FEET FROM AN OPEN SPACE ACCESS STRIP AND TEN (10) FEET FROM A DRIVEWAY.
6) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SEC.–16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
7) STREET TREES SHALL BE PLANTED SIX (6) FEET BEHIND THE FACE OF CURB WHEN THERE ARE NO SIDEWALKS.
8) ALL LANDSCAPING PLANT TYPES SHOWN ON THESE PLANS ARE RECOMMENDATIONS AND MAY BE SUBSTITUTED WITH APPROVED EQUIVALENTS FROM THE HOWARD COUNTY LANDSCAPE MANUAL.
9) NO TREES SHALL BE PLACED WITHIN 10' BEHIND A RETAINING WALL OR WITHIN A RELATED MAINTENANCE EASEMENT, WHICHEVER IS GREATER.
10) PERIMETER LANDSCAPING AND TRASH PAD SCREENING SHALL BE PROVIDED IN ACCORDANCE WITH SECTION 16.124 OF THE LANDSCAPE MANUAL AND AS SHOWN ON THIS LANDSCAPE PLAN SHEET OF THE ROAD CONSTRUCTION DRAWINGS FOR F–07–110. SURETY IN THE AMOUNT OF **$13,500** FOR THE REQUIRED **35** SHADE TREES, **18** EVERGREEN TREES, AND **10** SHRUBS SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN, F–07–110.

NOTE: THIS SHEET REPLACES SHEET 11 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F–07–110) BY BENCHMARK ENGINEERING

STATE OF MARYLAND — JEFFREY L. SLOMAN — 40091 — PROFESSIONAL ENGINEER (seal)
2-24-12

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. 40091
Expiration Date 2–13–2013

project	date
10–024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
1"=50'	RJH

no.	description	date
△	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011

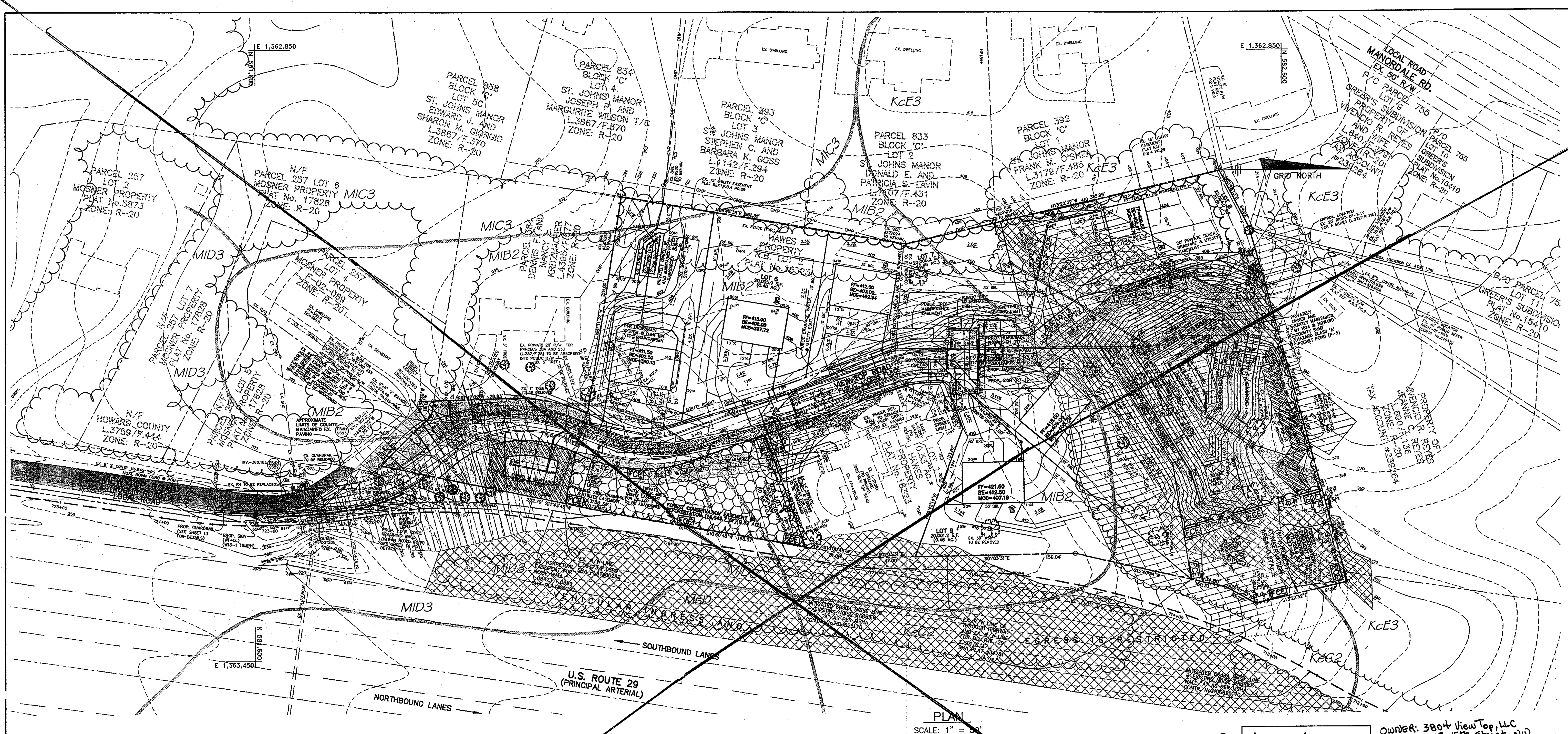
revisions

HAWES PROPERTY

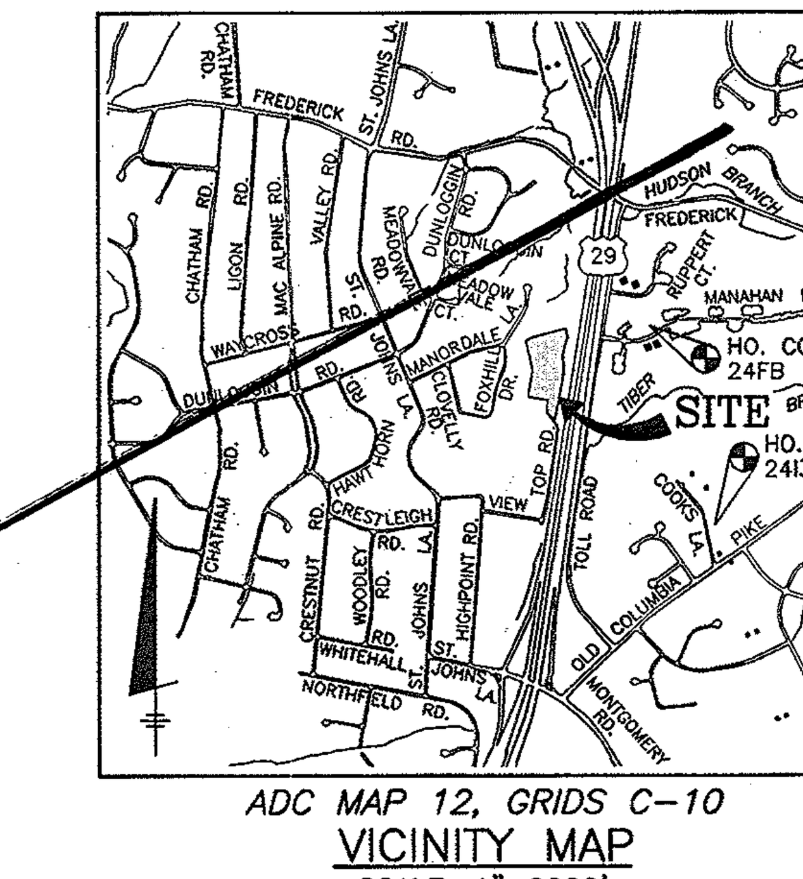
LOTS 3 THRU 8, O.S. LOT 9, AND NON–BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT — HOWARD COUNTY, MARYLAND

LANDSCAPING PLAN, NOTES, AND DETAILS

MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
6800 Deerpath Road, Suite 150, Elkridge, Maryland 21075
(410) 997–0296 Balt. (410) 997–0298 Fax.



PLAN
SCALE: 1" = 30'



ADC MAP 12, GRIDS C-10
VICINITY MAP
SCALE: 1"=2000'

FOREST DATA

GROSS AREA (INCL. ALL PROP. LOTS) . . . 5.61 AC.±
100 YEAR FLOOD PLAIN . . . 0.00 AC.±
EX. APPLICABLE LOT AREA . . . 0.00 AC.±
NET TRACT AREA (NTA) . . . 5.61 AC.±
EXISTING FOREST (NTA) . . . 2.2 AC.±
AFFORESTATION THRESHOLD . . . 0.84 AC.±
CONSERVATION THRESHOLD . . . 1.12 AC.±
FOREST TO BE CLEARED (NTA) . . . 1.93 AC.±
FOREST TO BE RETAINED (NTA) . . . 0.32 AC.±
FOREST TO BE RETAINED IN FCE . . . 0.27 AC.±

FOREST CONSERVATION TABULATION

DESIGNATION:	TYPE:	ACREAGE:
1	RETENTION	0.27 (5.61 NTA)
2	PLANTINGS	0.32 (5.61 NTA)
TOTALS:	–	0.59 AC.±

LEGEND

SOILS CLASSIFICATION	AbC1
SOILS DELINEATION	
EXISTING CONTOURS	999
PROPOSED CONTOURS	999
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
EXISTING STRUCTURE	
PROPOSED STRUCTURE	
STEEP SLOPES 15% TO 24.9%	
STEEP SLOPES 25% OR GREATER	
PROP. EASEMENTS	
EX. EASEMENTS	
SWM 15' NO-WOODY VEGETATION ZONE	
PROP. FOREST CONSERVATION ESMT.	
TREE PROTECTION FENCE	TF
FCE PERMANENT SIGNAGE	FCE

OWNER: 3804 View Top, LLC
1015 15th Street, NW
Suite 300
Washington, DC 20005
Att: William Gessner

FOREST CONSERVATION WORKSHEET
Version 1.0

Project: Hawes Property
Date: November 30, 2005

NET TRACT AREA		Acres
A. Total tract area		5.61
B. Area within 100 Year Floodplain		0
C. Area to remain in agricultural production		0
D. Net Tract Area		5.61
LAND USE CATEGORY: (from table 3.2.1, page 40, Manual) ARA MDR IDA HDR MPD CIA — X (HDR)		
E. Afforestation Threshold (percentage)	15%	0.84
F. Conservation Threshold (percentage)	20%	1.12
EXISTING FOREST COVER:		
G. Existing forest cover (excluding floodplain)		2.2
H. Area of forest above afforestation threshold		1.36
I. Area of forest above conservation threshold		1.08
BREAK EVEN POINT:		
J. Forest retention above threshold with no mitigation		0.21
Break-Even Point		1.06
K. Clearing permitted without mitigation		1.14
PROPOSED FOREST CLEARING		
L. Total area of forest to be Cleared or Retained Outside FCE		1.93
M. Total area of forest to be Retained in FCE		0.27
PLANTING REQUIREMENTS		
N. Reforestation for clearing above Conservation Threshold		0.27
P. Reforestation for clearing below Conservation Threshold		1.7
Q. Credit for retention above conservation threshold		0
R. Total reforestation required		1.97
S. Total afforestation required		0
T. Total reforestation and afforestation required		1.97

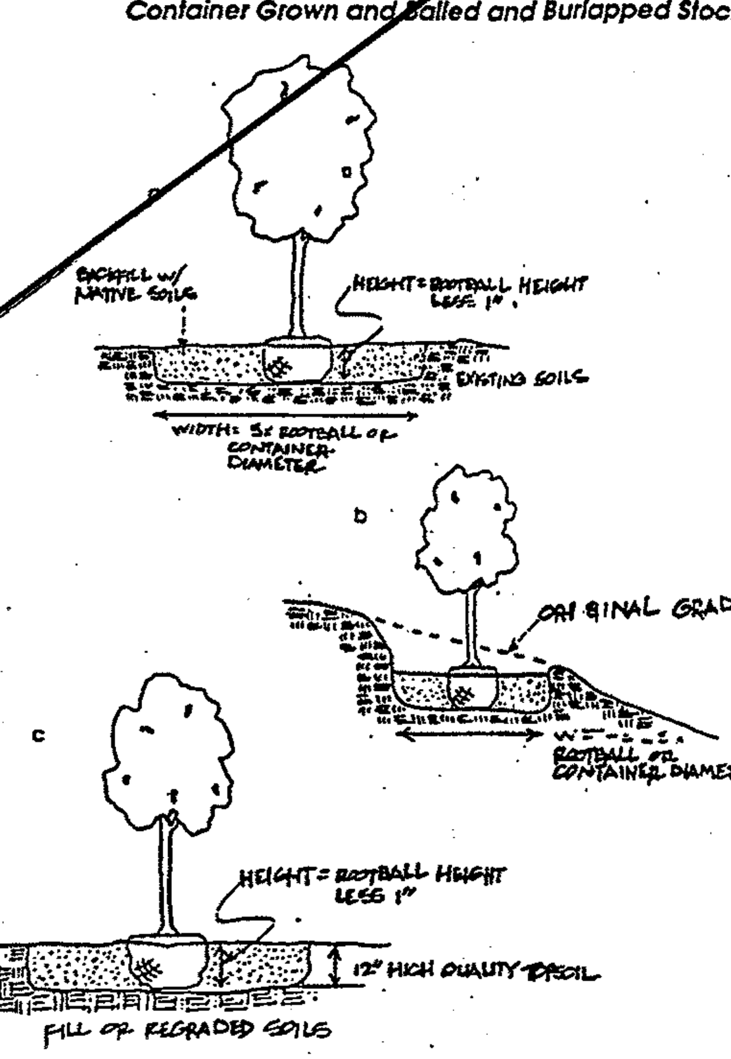
FCP NOTES

1. Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
2. Forested areas occurring outside of the FCE shall not be considered part of the FCE and shall not be subject to protective land covenants.
3. Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or the FCE boundary, whichever is greater.
4. There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ.
5. No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
6. Temporary fencing shall be used to protect forest resources during construction. Fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed FCE limits. Permanent signage will be posted a at 50-100 foot intervals along all FCE limits.
7. THE FOREST CONSERVATION OBLIGATIONS FOR THIS PROJECT WILL BE MET THROUGH THE RETENTION OF 0.27 AC. OF FOREST AND 0.32 AC. OF ON-SITE REFORESTATION. THE BALANCE OF REQUIRED REFORESTATION IN THE AMOUNT OF 1.65 AC. SHALL BE PROVIDED OFF-SITE ON PARCEL 90, TAX MAP 21, BLOCK NO. 22, EDGEWOOD FARM, PHASE 1. SURETY IN THE AMOUNT OF $2,352.24 (11,761.20 SF x $0.20) FOR 0.27 AC. OF RETENTION AND $42,906.60 (85,813.20 SF x $0.50) FOR 1.97 AC. OF REQUIRED REFORESTATION FOR A TOTAL OF $45,258.84 SHALL BE POSTED WITH THE DEVELOPER'S AGREEMENT UNDER THIS FINAL PLAN, F-07-110

Planting Notes:

- Planting density based on 700 planting units per acre. 1" caliper trees = 3.5 planting units, whips with shelter = 2 planting units.
- 1" caliper trees should be staggered along the outer perimeter of the planting area to serve as demarcation of the boundary. The trees should be no closer than 15 foot spacing.
- Planting shall be made in a curvilinear fashion along contour. The planting should avoid a grid appearance but should be spaced to facilitate maintenance
- Multiflora rose/heavy brush removal/control may be required prior to installation of planting.
- All whips are required to be installed with tree shelters per Howard County FCA requirements.

Planting Specifications:
Container Grown and Balled and Burlapped Stock

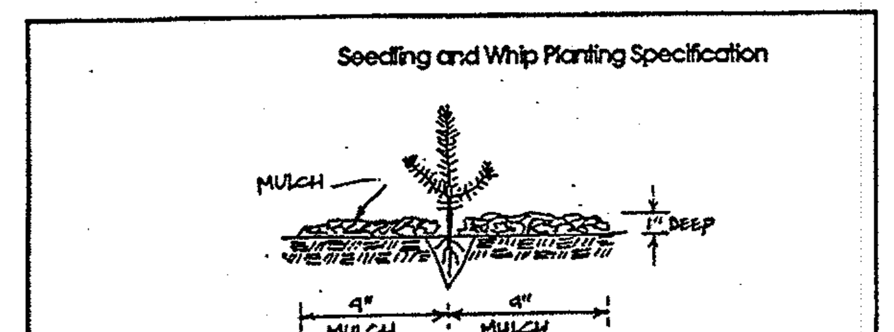


PLANTING SCHEDULE

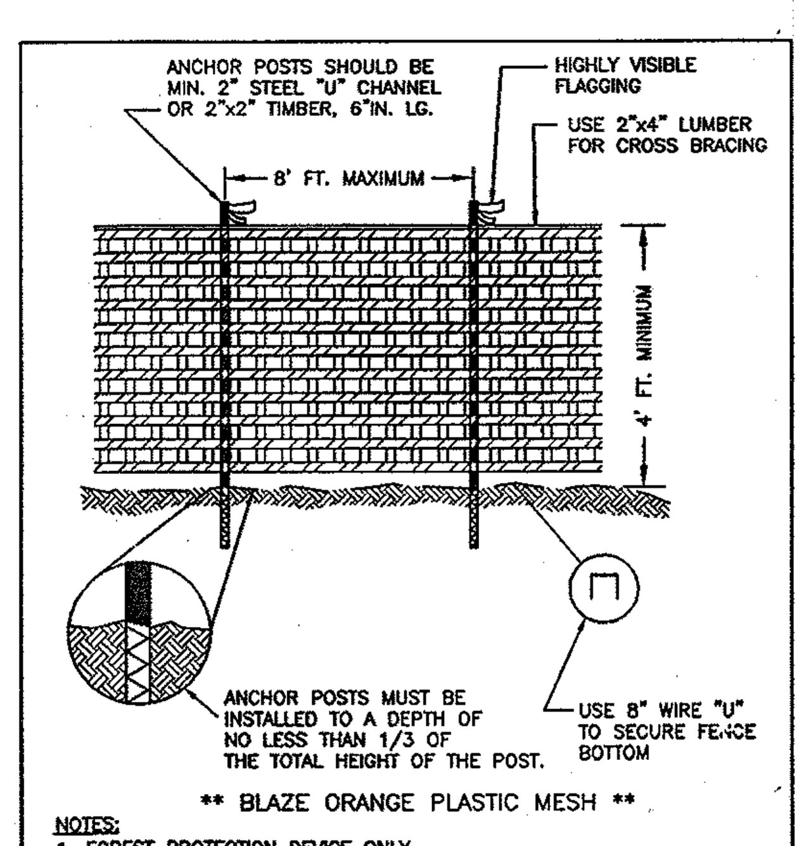
FCE # 2 - 0.32 acres
Planting units Required: 224
Planting units Provided: 226

Qty	Species	Size	Spacing	Total FCA Units
4	Acer rubrum - Red maple	1" cal.	15' o.c.	
4	Liriodendron tulipifera - Tulip poplar	1" cal.	15' o.c.	
4	Platanus occidentalis - Sycamore	1" cal.	15' o.c.	
4	Quercus alba - White oak	1" cal.	15' o.c.	
16	Total 1" caliper trees x 3.5 units/tree = FCA unit credit			56
10	Acer rubrum - Red maple	2-3' whip	11' o.c.	
10	Diospyros virginiana - Persimmon	2-3' whip	11' o.c.	
10	Liriodendron tulipifera - Tulip poplar	2-3' whip	11' o.c.	
10	Nyssa sylvatica - Black gum	2-3' whip	11' o.c.	
10	Platanus occidentalis - Sycamore	2-3' whip	11' o.c.	
10	Prunus serotina - Black cherry	2-3' whip	11' o.c.	
10	Quercus alba - White oak	2-3' whip	11' o.c.	
15	Viburnum prunifolium - Blackhaw	2-3' whip	11' o.c.	
85	Total whip plantings x 2 units /tree = FCA unit credit			170
	Total Unit Credit			226

Seeding and Whip Planting Specification



Mulching newly planted seedlings is suggested as it helps the soil retain moisture and it protects the seedling from compaction and stem injury.



NOTES:
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICES.
4. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS.
5. DEVICE SHOULD BE PROPERLY MAINTAINED DURING CONSTRUCTION
6. PROTECTIVE SIGNAGE IS ALSO REQUIRED.

TEMPORARY TREE PROTECTION FENCE
SCALE: NTS

FOREST CONSERVATION AREA

REFORESTATION PROJECT

Trees for your Future

MIN. 15"

MIN. 11" (TYP.)

FOREST RETENTION AREA

MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS IS

PROHIBITED

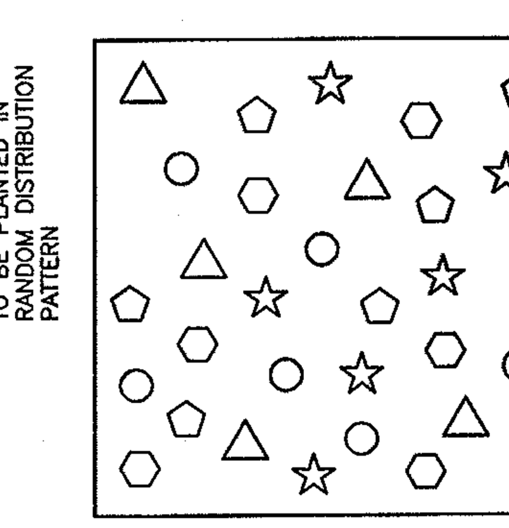
VIOLATORS ARE SUBJECT TO FINES AS IMPOSED BY THE HOWARD COUNTY FOREST CONSERVATION ACT OF 1992

MIN. 15"

PERMANENT SIGNAGE DETAILS
SCALE: NTS

- ○ MAPLE/POPLAR
- ☆ SYCAMORE/OAK
- ⬡ PERSIMMON/GUM
- △ SYCAMORE/CHERRY
- ⬠ BLACKHAW

TO BE PLANTED IN RANDOM DISTRIBUTION PATTERN



TREE DISTRIBUTION PLANTING DETAIL
NOT TO SCALE

SEQUENCE OF CONSTRUCTION

1. SEDIMENT CONTROL AND TREE PROTECTION DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. SITE SHALL BE GRADED IN ACCORDANCE WITH THE GENERAL CONSTRUCTION PLANS.
2. REMOVE HAZARDOUS TREES (DEAD, DISEASED OR THOSE SUBJECT TO WIND THROWS) ALONG THE EDGE OF THE FOREST RETENTION AREAS AS WELL AS WITHIN OTHER TREE SAVE AREAS.
3. SIGNAGE SHALL BE INSTALLED AS PER THE FOREST PROTECTION DEVICES SHOWN ON THE FOREST CONSERVATION PLAN.

SOILS LEGEND

MAP SYMBOL	SOIL TYPE	MAPPING UNIT
KcE3	D	KELLY CLAY LOAM – 15 TO 30 PERCENT SLOPES – SEVERELY ERODED
KcC2	D	KELLY SILT LOAM – 8 TO 15 PERCENT SLOPES – MODERATELY ERODED
MIB2	B	MANOR LOAM – 3 TO 8 PERCENT SLOPES – MODERATELY ERODED
MIC3	B	MANOR LOAM – 8 TO 15 PERCENT SLOPES – SEVERELY ERODED
MID3	B	MANOR LOAM – 15 TO 25 PERCENT SLOPES – SEVERELY ERODED
MsD	C	MONTALTO & RELAY VERY STONY SILT LOAMS – 3 TO 25 PERCENT SLOPES

HO. CO. USDA SOILS MAP No.16
* – INDICATES HYDRIC SOILS INCLUSIONS

Eco-Science Professionals, Inc.
CONSULTING ECOLOGISTS
P.O. Box 5006 Glen Arm, MD 21057 (410) 592-6752

MD DNR Qualified Professional
USACOE Wetland Delineator
Certification # WDCP93MD0610044B2
3/12/08
John P. Canoles

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 5-5-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 5/8/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE:

NO.	DATE	REVISION

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@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: 12-21-2008
STATE OF MARYLAND — DONALD ALAN MASON — No. 21443 — PROFESSIONAL ENGINEER
3-13-08

DEVELOPER/CONTRACT PURCHASER:
SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE: (410) 465-4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2)
LOTS 1 & 5-10 AND O.S. LOTS 3 & 4

LOCATION: TAX MAP 24 – GRID 17
PARCEL 253 – ZONE: R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLAN
ON-SITE FOREST CONSERVATION PLAN, NOTES, AND DETAILS

DATE: DECEMBER 20, 2006 / MARCH 14, 2008 — PROJECT NO. 1574
Des: MCR/DAM — Draft: MCR — Check: DAM — SCALE: AS SHOWN — DRAWING 12 OF 16

F-07-110

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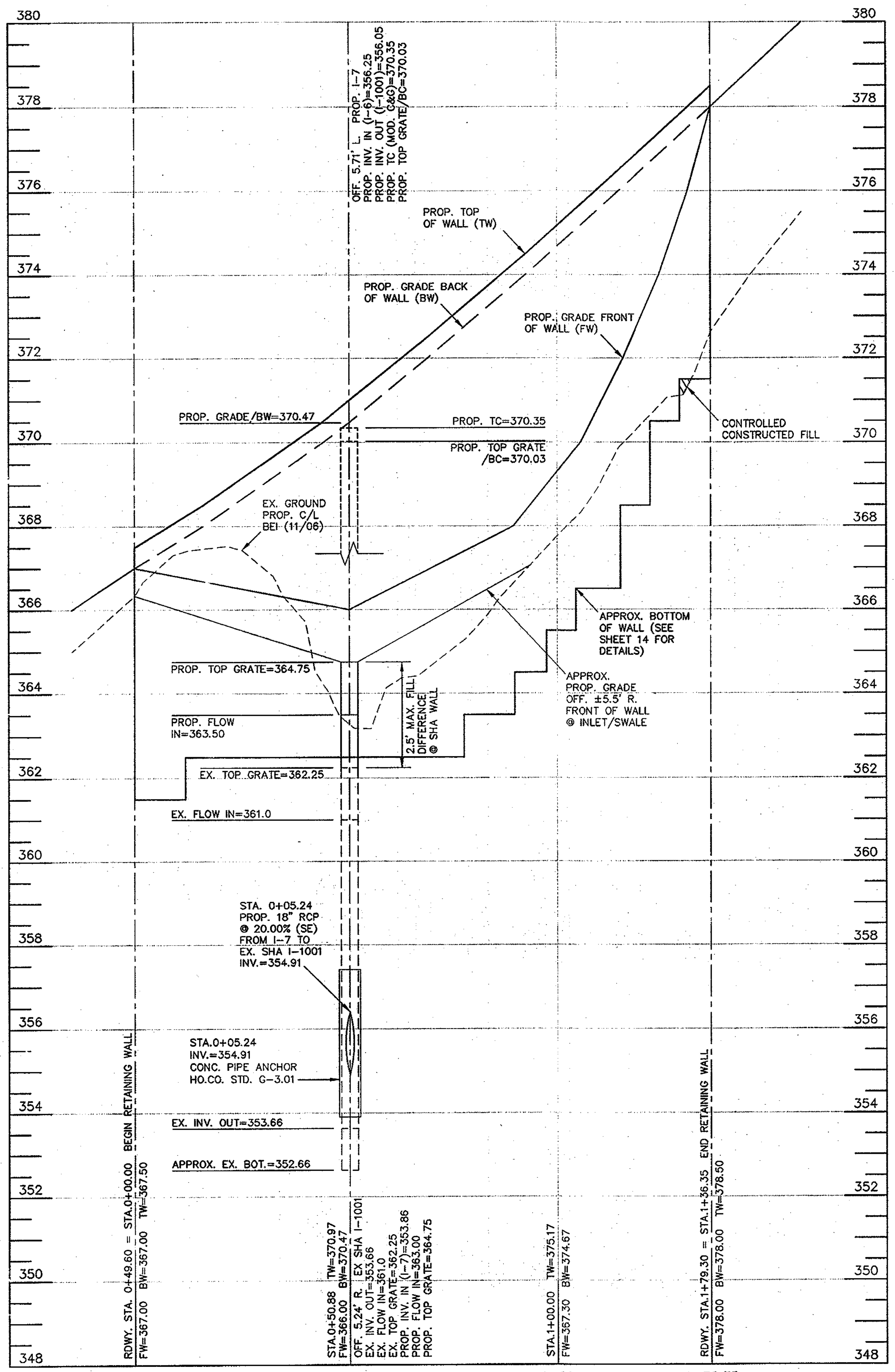
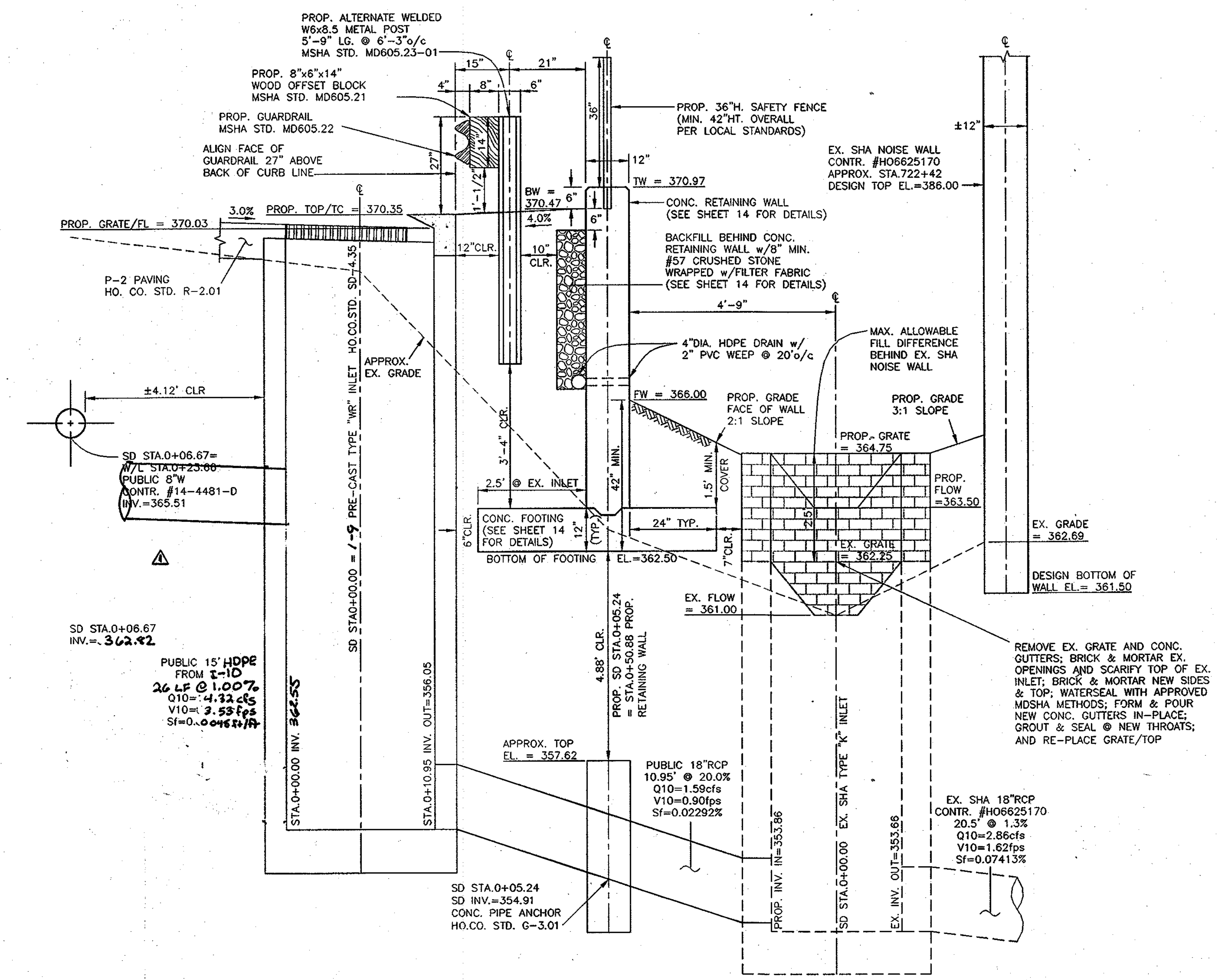


PROFILE – RETAINING WALL

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 2'

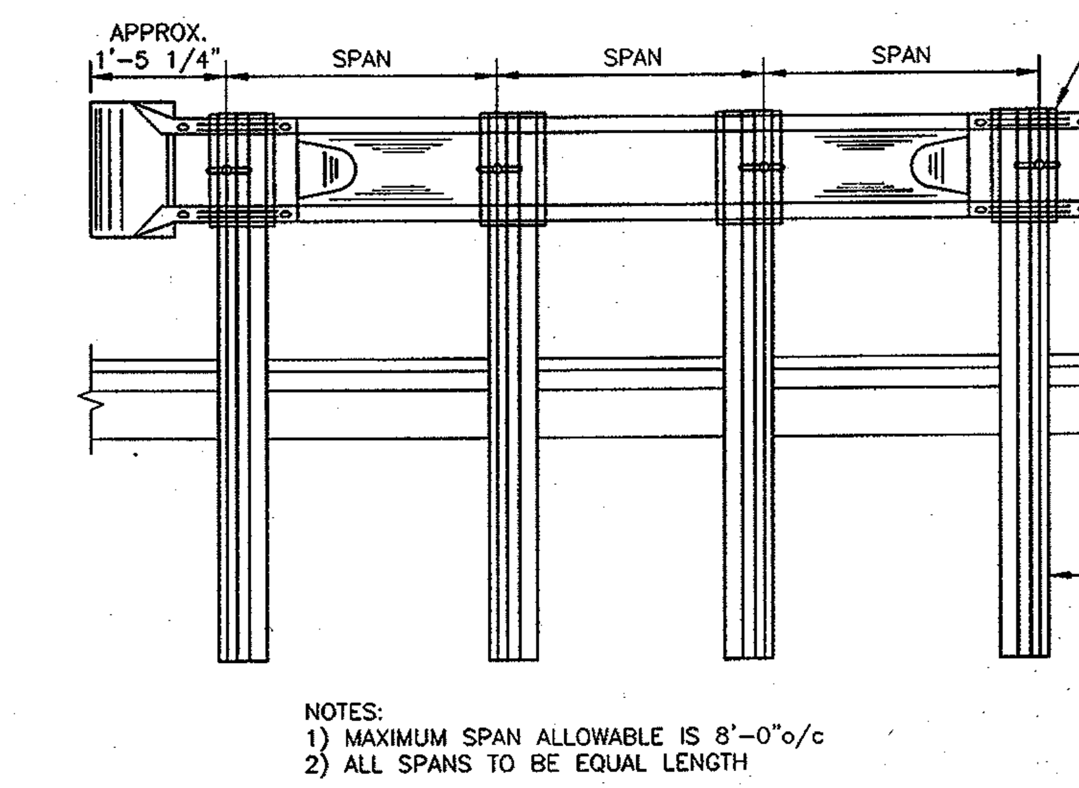
THE HOMEOWNER'S ASSOCIATION SHALL BE RESPONSIBLE FOR REMOVAL OF GRAFFITI FROM THE RETAINING WALLS



RDWY. C/L STA. 0+99.17 OFF.19.84' R
C/L WALL STA. 0+50.55

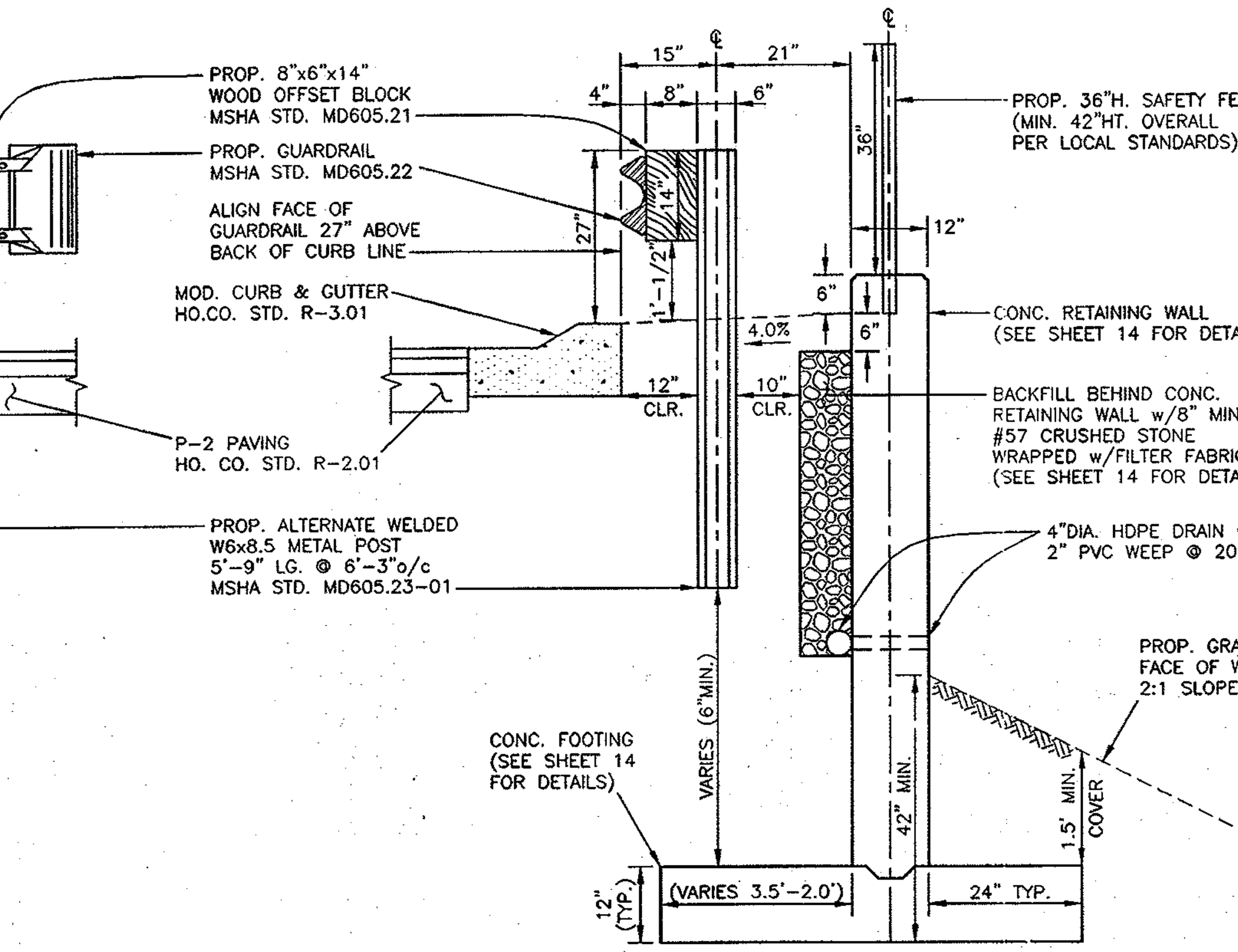
SECTION/DETAIL IMPROVEMENTS @ EX. SHA INLET

SCALE: 1" = 2'



NOTES:
1) MAXIMUM SPAN ALLOWABLE IS 8'-0"o/c
2) ALL SPANS TO BE EQUAL LENGTH

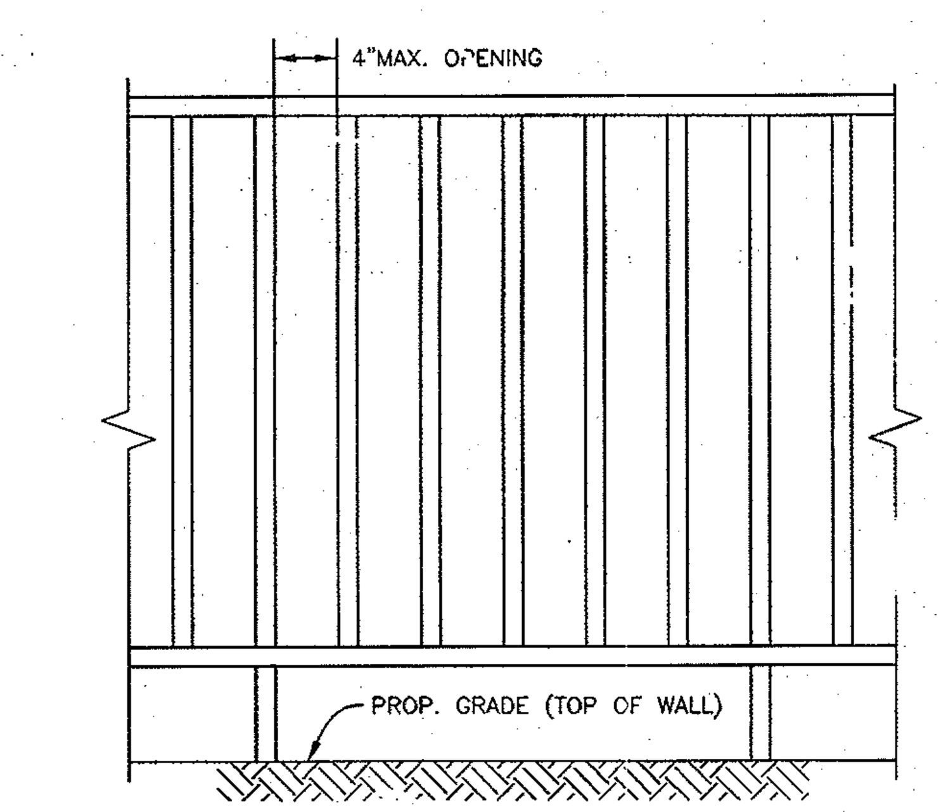
FRONT VIEW



GUARDRAIL DETAIL

NOT TO SCALE

TYPICAL SECTION



SECTION 1021.0 GUARDS

1021.1 General: Where required by the provisions of Sections 406.5, 408.3.2, 1005.5, 1014.7, 1016.5 and 1825.5, guards shall be designed and constructed in accordance with the requirements of this section and Section 1615.8. A guardrail system is a system of building components located near the open sides of elevated walking surfaces for the purpose of minimizing the possibility of an accidental fall from the walking surface to the lower level.

1021.2 Height: The guards shall be at least 42 inches (1067 mm) in height measured vertically above the leading edge of the tread or adjacent walking surface.

Exceptions
1. In other than occupancies in Use Group E, guards shall not be less than 34 inches (864 mm) in height above the leading edge of the tread along stairs which are not more than 20 feet (6096 mm) in height or which reverse direction at an intermediate landing with 12 inches (305 mm) or less measured horizontally between successive flights.
2. Guards along open-sided floor areas, mezzanines and landings in occupancies in Use Group R-3 shall not be less than 36 inches (914 mm) in height.

1021.3 Opening limitations: In occupancies in Use Groups A, B, E, H-4, I-1, I-2, M and R, and in public garages and open material such that a sphere with a diameter of 4 inches (102 mm) cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect.

TYPICAL SAFETY FENCE

NOT TO SCALE

NO.	DATE	REVISION
1	2-28-12	To revise storm drains and storm water management MBA

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@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: 12-21-2008
3-13-08

2-28-12

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 5-5-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 5/8/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE:

DEVELOPER/CONTRACT PURCHASER:
SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE. (410) 465-4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2)
LOTS 1 & 5-10 AND O.S. LOTS 3 & 4

LOCATION: TAX MAP 24 – GRID 17
PARCEL 253 – ZONE: R-20
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

TITLE: FINAL/CONSTRUCTION PLAN
MISCELLANEOUS SITE PLAN
PROFILES, NOTES, AND DETAILS

DATE: DECEMBER 20, 2006 / MARCH 14, 2008 — PROJECT NO. 1574

Des: MCR/DAM — Draft: MCR — Check: DAM — SCALE: AS SHOWN — DRAWING 13 OF 16

F-07-110

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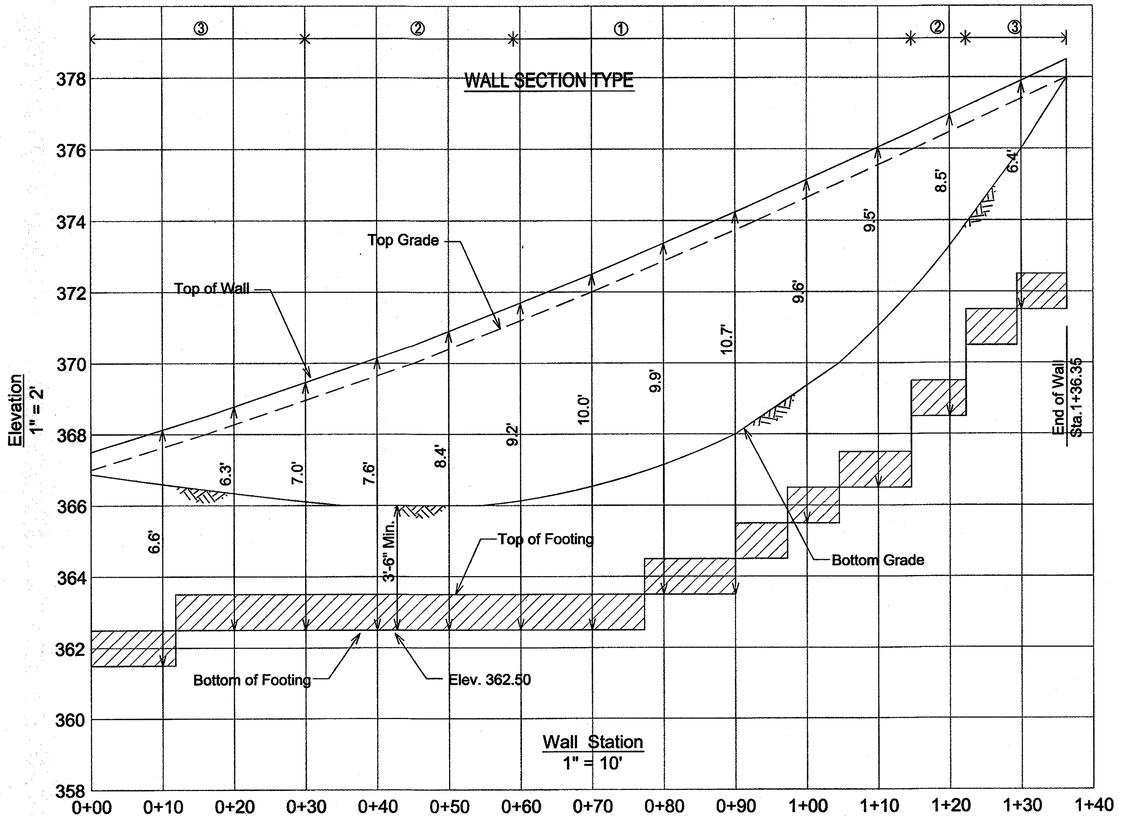
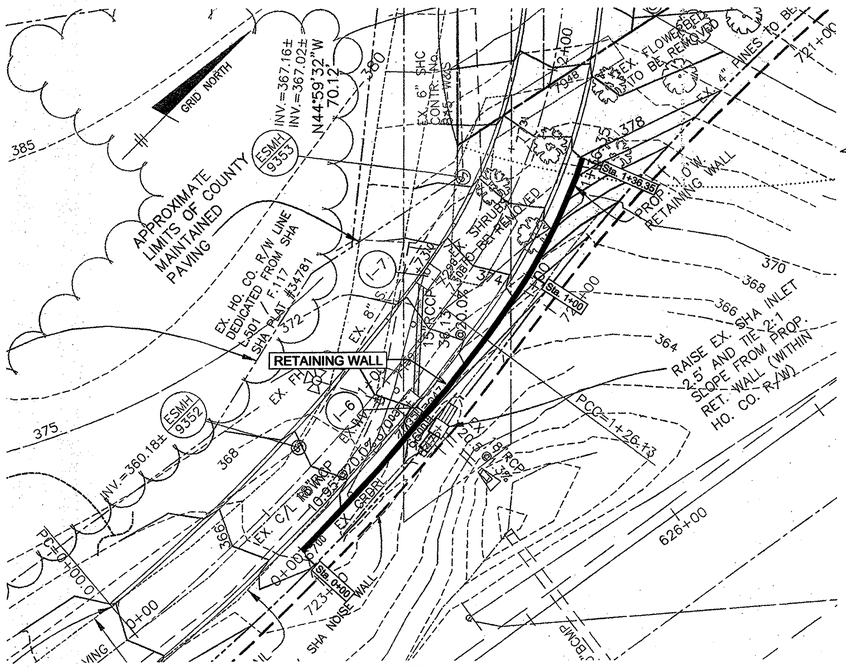
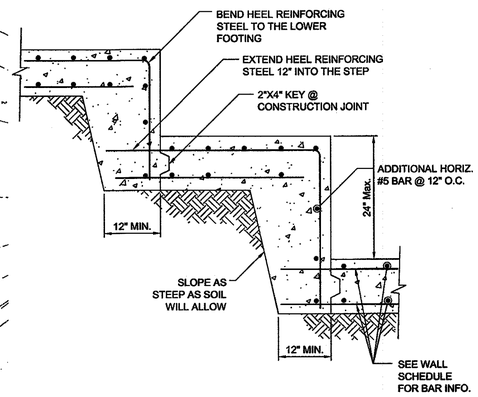


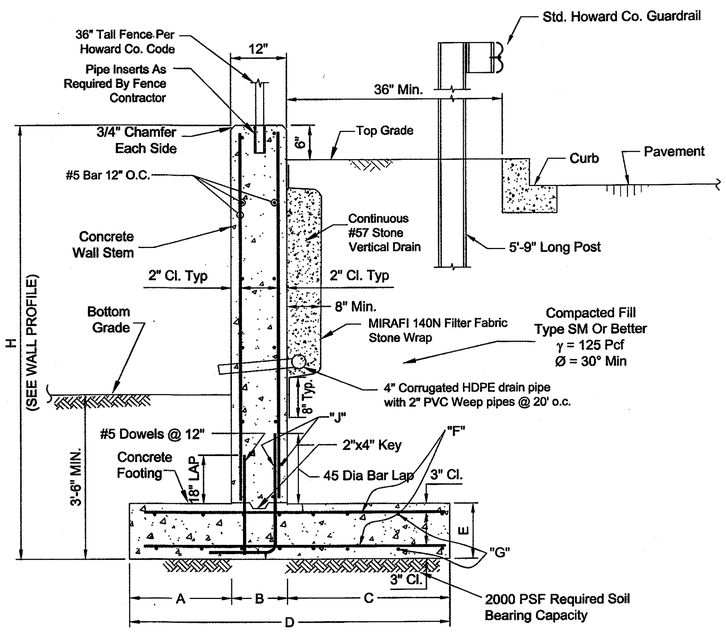
RETAINING WALL PROFILE



WALL LOCATION PLAN
1" = 20'

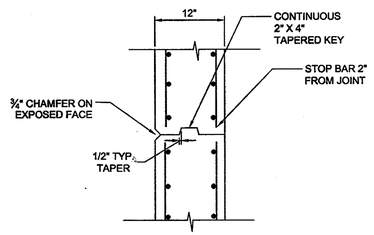


WALL STEP DETAIL
NTS



WALL SECTION
NTS

WALL SCHEDULE									
Wall Type	Max. H	Toe "A"	B	Heel "C"	D	E	"F" Footing Reinf	"G" Footing Reinf	"J" Stem Reinf
1	10'-6"	2'-0"	12"	3'-6"	6'-6"	12"	#5 @ 12"	#5 @ 12"	#6 @ 12"
2	9'-0"	2'-0"	12"	2'-6"	5'-6"	12"	#5 @ 12"	#5 @ 12"	#5 @ 12"
3	7'-0"	2'-0"	12"	2'-0"	5'-0"	12"	#5 @ 12"	#5 @ 12"	#5 @ 12"



WALL STEM VERTICAL CONTRACTION JOINT C.J. DETAIL
NTS

NOTES:
1. JOINT KEY MUST BE UNIFORMLY TAPERED TO PREVENT BINDING WHEN SEPARATING DURING WALL CONTRACTION
2. SPACE CONTRACTION JOINTS MAX. 20' ON CENTER

WALL CONSTRUCTION NOTES:
1. All retaining wall concrete shall be 4000 psi at 28 days with air entrainment.
2. Reinforcing steel shall conform to ASTM-615 Grade 60.
3. Wall backfill shall be compacted to 95% of T-180.
4. Concrete work shall comply with the latest ACI 318 Building code for concrete structures.
5. All rebar splices not shown shall be a minimum 35 bar diam.
6. All wall exposed surfaces shall be mortar patched and sack-rubbed finished with grout and burlap.

GENERAL NOTES:
1. Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
2. One soil boring shall be required every one hundred feet along the entire length of the wall. Copies of all boring reports shall be provided to the Howard County Inspector Prior to the start of construction.
3. The required bearing pressure beneath the wall system shall be verified in the field by a certified soils technician. Testing documentation must be provided to the Howard County Inspector prior to start of construction. The required bearing test shall be the Dynamic Cone Penetrometer test ASTM STP-399.
4. The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% modified proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.

HOA NOTE:
The Homeowner's Association shall be responsible for the removal of graffiti from the retaining wall.

NO.	DATE	REVISION

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.
10975 GUILFORD RD - SUITE A, ANNAPOLIS JUNCTION, MD 20701
PHONE: 410-880-0780 FAX: 410-880-4098

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 14434, EXPIRATION DATE: 05/13/09.

BENCHMARK
ENGINEERS ▲ LAND SURVEYORS ▲ PLANNERS
ENGINEERING, INC.
8480 BALTIMORE NATIONAL PIKE ▲ SUITE 418
ELLICOTT CITY, MARYLAND 21043
PHONE: 410-465-6105 FAX: 410-465-6644
E-MAIL: bei@bei-civilengineering.com

STATE OF MARYLAND · RICHARD W. STURGIS · No. 14434 · PROFESSIONAL ENGINEER

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
CHIEF, BUREAU OF HIGHWAYS — DATE: 5-5-08

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE: 5/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE:

DEVELOPER/CONTRACT PURCHASER:
SECURITY DEVELOPMENT, L.L.C.
P.O. BOX 417
ELLICOTT CITY, MARYLAND 21041
PHONE: (410) 465-4244

PROJECT: HAWES PROPERTY
SUBDIVISION (RE-SUBDIVISION OF LOT 2) LOTS 1 & 5-10 AND O.S. LOTS 3 & 4

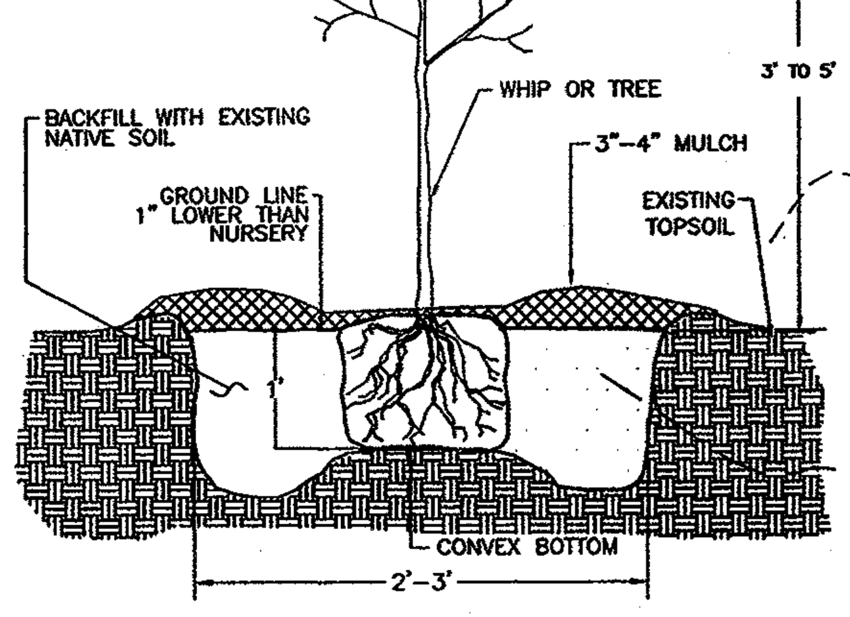
LOCATION: TAX MAP 24 - GRID 17 PARCEL 253 - ZONE: R-20 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: RETAINING WALL CONSTRUCTION DETAILS

DATE: MARCH 14, 2008 | PROJECT NO. 05006-B

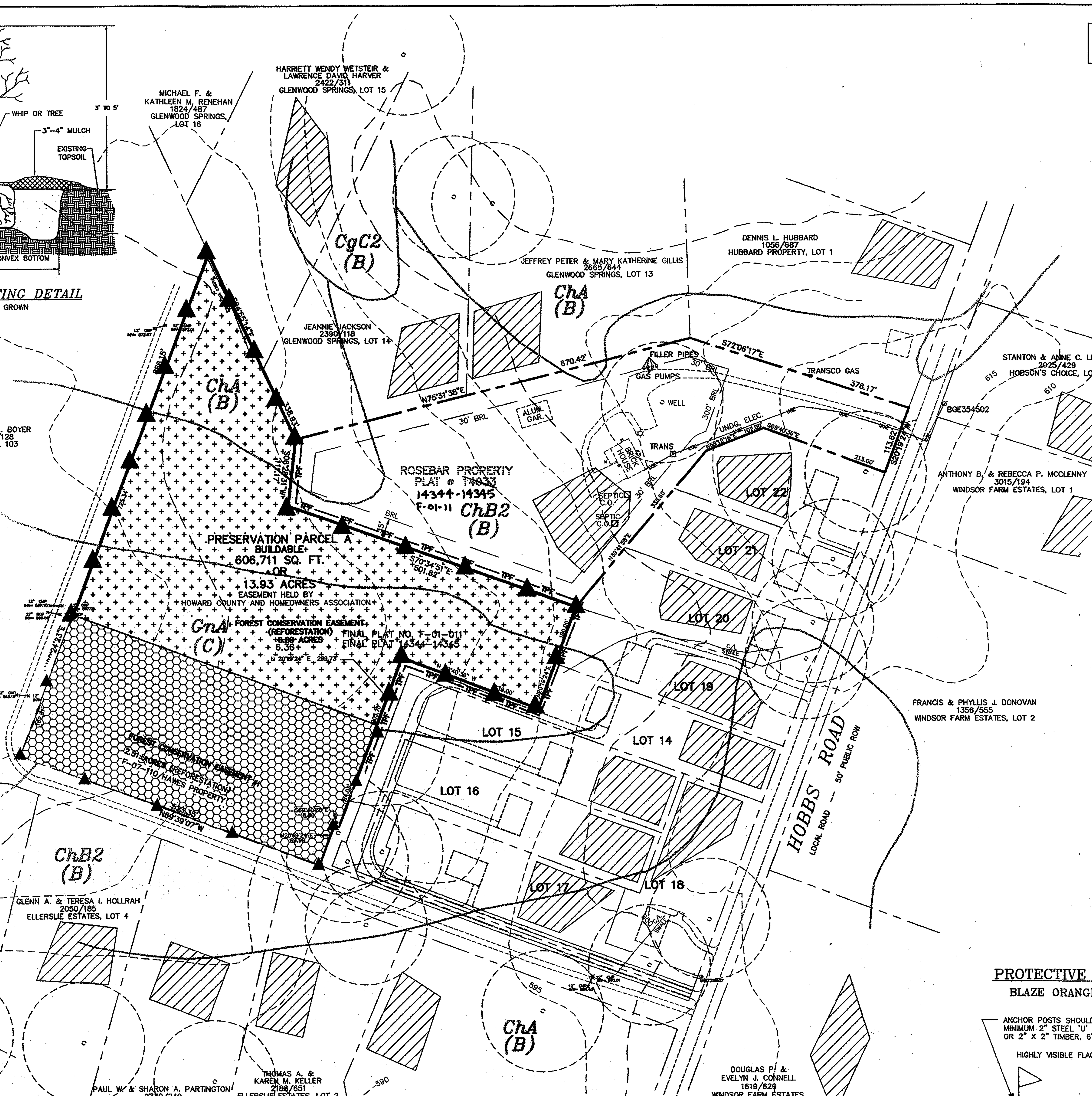
Des: RWS | Draft: AM | Check: JJC | SCALE: AS SHOWN | DRAWING 14 OF 15

F-07-110



TREE PLANTING DETAIL

CONTAINER GROWN



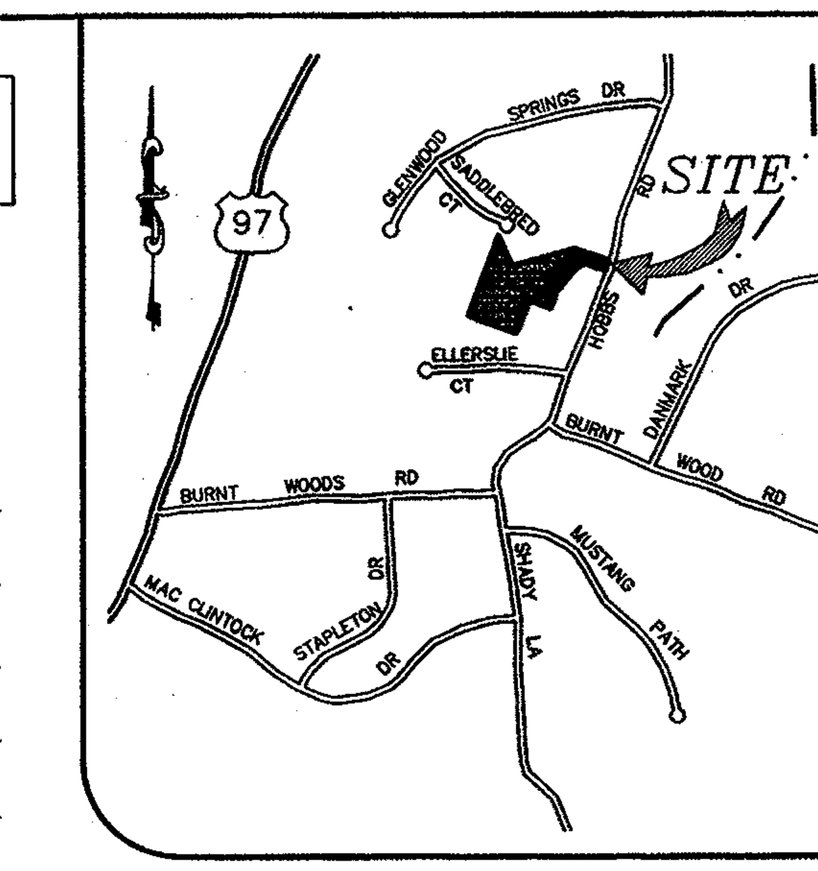
NOTE: THIS PLAN IS TO BE USED FOR FOREST CONSERVATION PURPOSES ONLY.

NOTE :
- NO 15% TO 25% SLOPES OR SLOPES GREATER THAN 25% EXIST ON-SITE.
- THE EXISTING 1.98 ACRES AFFORESTATION IS TO SATISFY THE ON-SITE REQUIREMENTS FOR F-99-19, ROSEBAR PROPERTY.

AFFORESTATION PLANT LIST

QTY.	SPECIES	SHADE TOL.	MOIST. REGIME	WET. STATUS	MIN.O.C. SPACING	SIZE & REMARKS
	Acer rubrum Red Maple	VT	D-W	FAC	11'	CONT/BARE ROOT 3' - 5' HT. *
	Nyssa sylvatica Black Gum	T	M-W	FAC	11'	CONT/BARE ROOT 3' - 5' HT. *
	Prunus serotina Black Cherry	I	M-W	FAC+	11'	CONT/BARE ROOT 3' - 5' HT. *
	Quercus alba White Oak	I	M-W	FAC+	11'	CONT/BARE ROOT 3' - 5' HT. *
	Quercus rubra Red Oak	MT	D-M	UPL	11'	CONT/BARE ROOT 3' - 5' HT. *
	Quercus velutina Black Oak	MT	M	FAC+	11'	CONT/BARE ROOT 3' - 5' HT. *
	Sassafras albidum Common Sassafras	MT	D-M	FACU	11'	CONT/BARE ROOT 3' - 5' HT. *
TOTAL	TREES					

* NOTE : SEEDLINGS CAN BE USED IN PLACE OF THE 3' - 5' TREES. IN ORDER TO DETERMINE THE NUMBER OF SEEDLINGS REQUIRED, MULTIPLY THE QUANTITY LISTED BY 2. ALSO, MINIMUM ON-CENTER SPACING SHOULD BE REDUCED TO 8'.



VICINITY MAP

SCALE : 1" = 2000'

NOTE :

IF CONSTRUCTION SHOULD TAKE PLACE ON LOT 14, 15, 16, 18, 19, OR 20 AFTER THE AFFORESTATION AREA HAS BEEN INSTALLED, PROTECTIVE FENCING SHALL BE INSTALLED AT THE COMMON PROPERTY LINE WITH THE PRESERVATION PARCEL.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION OR DISTURBANCE OF VEGETATION IN THE FOREST CONSERVATION EASEMENTS EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, SOIL COMPACTION, OR EXCAVATION, INTRODUCTION OF TOXIC CHEMICALS OR OTHER DISTURBANCES DETRIMENTAL TO THE LIVE SPECIMEN TREES OR CRITICAL ROOT ZONES FOR THESE TREES EXCEPT AS PERMITTED BY THE HOWARD COUNTY FOREST CONSERVATION PROGRAM.

PLANTING SPECIFICATIONS AND NOTES

SITE PREPARATION AND SOILS

1. IF NECESSARY, PROTECTIVE FENCING IS TO BE INSTALLED AS A FIRST ORDER OF BUSINESS PER PLAN LOCATIONS. PROTECTIVE FENCING WILL NOT BE NECESSARY ALONG THOSE PERIMETERS WHERE SILT FENCE HAS BEEN INSTALLED FOR SEDIMENT CONTROL.
2. DISTURBANCE OF SOILS SHOULD BE LIMITED TO THE PLANTING FIELD FOR EACH PLANT.
3. SOIL MIX FOR ALL PLANTS EXCEPT ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME OF COMPOSTED SLUDGE.
4. SOIL MIX FOR ERICACEOUS MATERIAL: SOIL MIX SHALL CONSIST OF EXISTING NATIVE TOPSOIL MIXTURE AT EACH PLANTING FIELD LOCATION INTO WHICH THE CONTRACTOR SHALL THOROUGHLY INCORPORATE 25% BY VOLUME PEAT MOSS.
5. ALL MIXING IN 3 AND 4 SHALL BE LIMITED TO CONTAINER GROWN OR BALL AND BURLAP STOCK ONLY AND CONFINED TO THE PLANTING FIELD AND IMMEDIATE ADJACENT SOIL SURFACE AREA AND SHALL BE DONE TO THE SATISFACTION OF THE DESIGN TEAM OR ENGINEER.

PLANT STORAGE AND INSPECTION

1. FOR CONTAINER GROWN NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN 2 WEEKS AFTER DELIVERY TO THE SITE.
2. FOR BALL AND BURLAP NURSERY STOCK, PLANTING SHOULD OCCUR WITHIN THREE DAYS AFTER DELIVERY TO THE SITE.
3. PLANTING STOCK SHOULD BE INSPECTED PRIOR TO PLANTING. PLANTS NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS AND DISEASE SHOULD BE REPLACED.
4. UNTIL PLANTED, ALL PLANT STOCK SHALL BE KEPT IN A SHADED, COOL, AND MOISTENED ENVIRONMENT.

FOREST CONSERVATION IN ACCORDANCE WITH SECTION 16.1202 OF THE FOREST CONSERVATION MANUAL SHALL BE PROVIDED BY PLACEMENT OF 2.51 ACRES OF REQUIRED AFFORESTATION INTO AN OFF-SITE EASEMENT ON PROPERTY IDENTIFIED AS THE ROSEBAR PROPERTY, PRESERVATION PARCEL A, LOCATED ON TAX MAP NO. 14 AND IDENTIFIED AS PARCEL 221, SITUATED ON THE WEST SIDE OF HOBBS ROAD. THE ROSEBAR FOREST CONSERVATION EASEMENT HAS BEEN SHOWN ON SHEET 18 OF SDP-97-115/NEW COLONY VILLAGE. DPZ HAS DETERMINED THAT A RED-LINE REVISION SHALL BE MADE TO SDP-97-115 TO SHOW 2.51 ACRES OF AFFORESTATION DEDUCTED FROM THE TOTAL FC EASEMENT LOCATED ON ROSEBAR. SURETY IN THE AMOUNT OF $54,667.80 FOR 2.51 ACRES OF REQUIRED AFFORESTATION SHALL BE POSTED WITH THE DEVELOPERS AGREEMENT FOR THE FINAL PLAN, F-07-110/HAWES PROPERTY.

PLANT INSTALLATION

1. THE PLANTING FIELD SHOULD BE PREPARED AS SPECIFIED (SEE DETAIL). NATIVE STOCKPILED SOILS SHOULD BE USED FOR SOIL MIX AND BACKFILL FOR PLANTING FIELD. AFTER PLANT INSTALLATION, RAKE SOILS EVENLY OVER THE PLANTING FIELD AND COVER WITH AT LEAST 4 INCHES OF MULCH. WATER, GENEROUSLY, TO SETTLE SOIL BACKFILLED AROUND TREES.
2. PLANTING FIELD DIAMETERS SHOULD BE REDUCED OR PLANTING FIELD MOVED IF IT APPEARS THAT EXCESSIVE EXISTING ROOT DAMAGE MAY OCCUR DURING DIGGING OPERATION NEAR EXISTING FOREST.
3. CARE SHALL BE TAKEN WHEN DIGGING PLANTING FIELDS NOT TO CHOP THROUGH LARGER EXISTING ROOTS FROM EXISTING MATURE TREES. IF ROOTS GREATER THAN 1/2 INCH ARE ENCOUNTERED DIG AROUND THEM AS MUCH AS POSSIBLE TO MINIMIZE IMPACT TO EXISTING TREES.
4. CONTAINER GROWN STOCK SHOULD BE REMOVED FROM THE CONTAINER AND ROOTS GENTLY LOOSENED FROM THE SOIL. IF THE ROOTS ENCIRCLE THE ROOT BALL, SUBSTITUTION IS STRONGLY RECOMMENDED. J-SHAPED OR KINKED ROOT SYSTEMS SHOULD ALSO BE NOTED. ROOTS MAY NOT BE TRIMMED ON SITE, DUE TO THE INCREASED CHANCES OF SOIL BORNE DISEASES.
5. FOR BALL AND BURLAP STOCK, PLACE TREE IN PREPARED PLANTING FIELD AND REMOVE WIRE AND/OR STRING FROM ROOT BALL. THEN PEEL BACK BURLAP TO BASE OF ROOT BALL AND COVER ENTIRE ROOT BALL WITH TOPSOIL MIXTURE INDICATED ABOVE AND WATER GENEROUSLY.
6. THE CONTRACTOR SHALL EVENLY DISPERSE SPECIES IN GROUPS OF TWO (2) TO FIVE (5) PER SPECIES, OVER THE DESIGNATED AREA TO BE PLANTED WHILE MAINTAINING AN AVERAGE RANDOM SPACING OF INDIVIDUAL TREES AT PROPER SPACING INDICATED IN THE PLANT LIST.
7. A STRAIGHT GRID PATTERN SPACING IS TO BE AVOIDED. TREES SHALL BE PLANTED ON AN AVERAGE SPACING AS INDICATED IN THE PLANT LIST TO OBTAIN A MORE NATURAL APPEARANCE.
8. NEWLY PLANTED TREES MAY NEED WATERING AS MUCH AS ONCE A WEEK FOR THE ENTIRE GROWING SEASON, DUE TO THE VERY DEEP, WELL DRAINED NATURE OF THE NATIVE SOILS FOUND ON THIS SITE COMBINED WITH THE LOOSENESS OF THE BACKFILLED AREA WITHIN THE PLANTING FIELD. THE NEXT TWO YEARS MAY REQUIRE WATERING ONLY A FEW TIMES A YEAR DURING SUMMER AND DRY MONTHS. AFTER THAT PERIOD, TREES SHOULD ONLY NEED WATER IN SEVERE DROUGHTS. ANY WATERING PLAN SHOULD COMPENSATE FOR RECENT RAINFALL PATTERNS.

FERTILIZING

1. DO NOT FERTILIZE NEWLY PLANTED TREES WITHIN THE FIRST GROWING SEASON AFTER PLANTING. DOING SO MAY CAUSE A SPURT OF CANOPY GROWTH WHICH THE ROOTS CANNOT SUPPORT AND ADD ADDITIONAL SHOCK TO THE ALREADY DISTURBED PLANT.
2. NOTHING SHOULD BE ADDED TO THE SOIL WITHOUT TESTING IT FIRST TO DETERMINE WHAT IS NEEDED.
3. IF AND WHEN IT IS TIME TO FERTILIZE, ORGANIC FERTILIZERS ARE PREFERRED TO SYNTHETIC FERTILIZERS. BONE MEAL OR SEAWEED BASED PRODUCTS ARE AVAILABLE COMMERCIALLY AND ARE RECOMMENDED. THEY HAVE THE ABILITY TO SUPPLY NUTRIENTS TO THE PLANT AS NEEDED WHILE MINIMIZING THE RISK OF EXCESS NUTRIENTS ENTERING THE FOREST SYSTEM AND WATER SUPPLY.

MAINTENANCE SCHEDULE

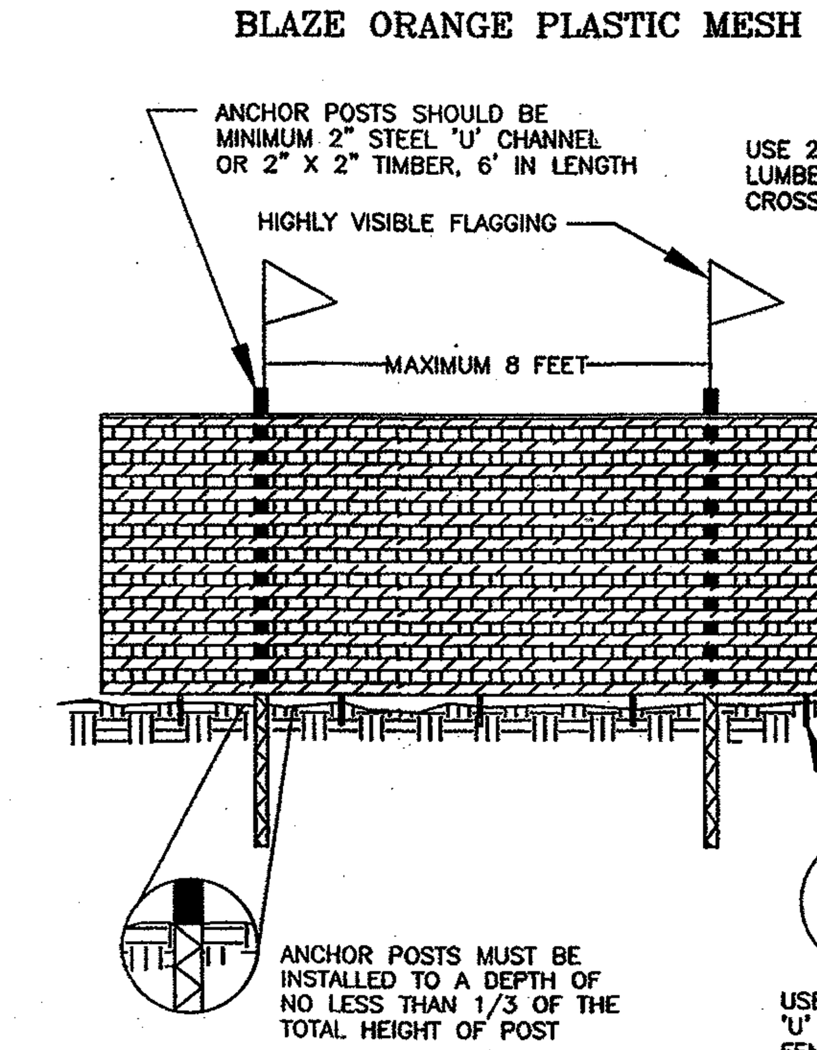
1. ANNUAL MAINTENANCE DURING THE GROWING SEASON, FOR A MINIMUM OF TWO (2) YEAR PERIOD.
2. INSPECT PLANTED STOCK FOR MORTALITY. REMOVE AND REPLACE ANY DEAD OR DISEASED PLANTINGS.
3. EXPECT VOLUNTEER SEEDING OF NATIVE, LOCAL AND ENDEMIC VEGETATION TO OCCUR. DO NOT DISCOURAGE THIS GROWTH UNLESS IT NEGATIVELY EFFECTS THE PLANTED STOCK.
4. MANUALLY REMOVE AGGRESSIVE, NOXIOUS, INVASIVE SPECIES AND ALL HERBACEOUS VEGETATION WITHIN A 3-FOOT RADIUS SURROUNDING THE PLANTED WOODY NURSERY STOCK.
5. REMOVE AND DISPOSE OF ANY MAN-MADE TRASH, INCLUDING ITEMS CONTAINED WITHIN THE PLANTING AREA. DO NOT REMOVE DOWN AND DEAD MATERIAL NATURALLY OCCURRING OR ACCUMULATING, UNLESS IT IS SMOTHERING PLANTING STOCK OR INTERFERES WIHT THE REFORESTATION PLANTING.
6. A 75 PERCENT SURVIVAL OF PLANTED STOCK MUST BE ACHIEVED AT THE END OF THE 24 MONTH MANAGEMENT PERIOD. IF NOT, ADDITIONAL PLANTINGS WILL BE REQUIRED TO BRING THE PLANTED STOCK SURVIVAL RATE UP TO 75%.

SUPERVISION

1. ALL FOREST CONSERVATION ACTIVITIES SHALL BY DONE UNDER THE DIRECT SUPERVISION OF SOMEONE FROM THE DESIGN TEAM OR OTHER "QUALIFIED PROFESSIONAL" AS DETERMINED BY THE REQUIREMENTS OF COMAR 08.19.06.01 AND THE MARYLAND DEPARTMENT OF NATURAL RESOURCES, PUBLIC LANDS AND FORESTRY DIVISION.

PROTECTIVE FENCE DETAIL

BLAZE ORANGE PLASTIC MESH



NOTES
1. FOREST PROTECTION DEVICE ONLY.
2. RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
4. ROOT DAMAGE SHOULD BE AVOIDED.
5. PROTECTIVE SIGNAGE MAY ALSO BE USED.
6. DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

SOILS DESCRIPTIONS:

SYMBOL	DESCRIPTION
CgC2	CHESTER GRAVELLY SILT LOAM, 8% TO 15% SLOPES, MODERATELY ERODED -- TYPE B
ChA	CHESTER SILT LOAM, 0% TO 3% SLOPES -- TYPE B
ChB2	CHESTER SILT LOAM, 3% TO 8% SLOPES, MODERATELY ERODED -- TYPE B
GnA	GLENVILLE SILT LOAM, 0% TO 3% SLOPES -- TYPE C

MD DNR QUALIFIED PROFESSIONAL

MASHID TRINGA

OWNERS

ROSEBAR LIMITED PARTNERSHIP, LLLP (LOTS 10 THRU 12) & ROBERT WAYNE NEWSOME AND MELISSA NEWSOME (LOT 13)
P.O. BOX 39
COLUMBIA, MARYLAND 21045
(410) 792-2100

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
APT. 330
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

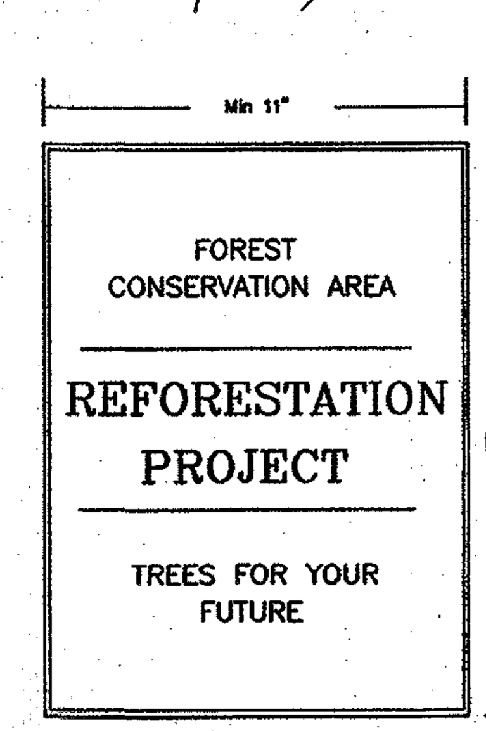
NOTE : SIGNS ARE PERMANENT AND TO BE MOUNTED ON DURABLE POSTS OR POLES (4"X4" PRESSURE TREATED LUMBER OR 2 1/2" DIAMETER GALVANIZED OR ALUMINUM POST, OR EQUIVALENT).

APPROVED: DEPARTMENT OF PUBLIC WORKS
CHIEF BUREAU OF HIGHWAYS — DATE 4-16-12

APPROVED: DEPARTMENT OF PLANNING AND ZONNING
~~CHIEF, DIVISION OF LAND DEVELOPMENT~~ CHIEF, DLD — DATE 4/30/12

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 4/27/12

94044\DWG\PHASE4\SDP\44-4-REFOREST



SIGNAGE DETAIL

NOT TO SCALE

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:

A. Total tract area....=5.61
B. Area within 100 year floodplain ....=0.00
C. Area to remain in agricultural production ....=0.00
D. Net tract area....=5.61

LAND USE CATEGORY:
(from table 3.2.1, page 40, Manual)
Input the number "1" under the appropriate land use zoning, and limit to only one entry.

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

E. Afforestation Threshold.... 15% x D =0.84
F. Conservation Threshold....20% x D =1.12

EXISTING FOREST COVER:
G. Existing forest cover (excluding floodplain)....=2.20
H. Area of forest above afforestaion threshold ....=1.36
I. Area of forest above conservation threshold ....=1.08

BREAK EVEN POINT:
J. Forest retention above threshold with no mitigation....=1.34
K. Clearing permitted without mitigation....=0.86

PROPOSED FOREST CLEARING:
L. Total area of forest to be cleared....=2.20
M. Total area of forest to be retained....=0.00

PLANTING REQUIREMENTS:
N. Reforestation for clearing above conservation threshold....=0.27
P. Reforestation for clearing below conservation threshold....=2.24
Q. Credit for retention above conservation threshold....=0.00
R. Total reforestation required....=2.51
S. Total afforestation required....=0.00
T. Total reforestation and afforestation required....=2.51

LEGEND

- EXISTING SEPTIC EASEMENT
- PROPOSED 24' USE-IN-COMMON DRIVEWAY EASEMENT
- FOREST CONSERVATION EASEMENT
- FOREST CONSERVATION EASEMENT (REFORESTATION)
- EXISTING WELL (DUG PER PERC PLAT SIGNED BY HOWARD COUNTY HEALTH OFFICER ON 7/1/98)
- FOREST CONSERVATION SIGNAGE
- TPF — TREE PROTECTIVE FENCING

project	date
96087	MAR 2000
illustration	engineering
SJD	SJD
scale	approval
1"=100'	RJH

no.	description	date
	revisions	

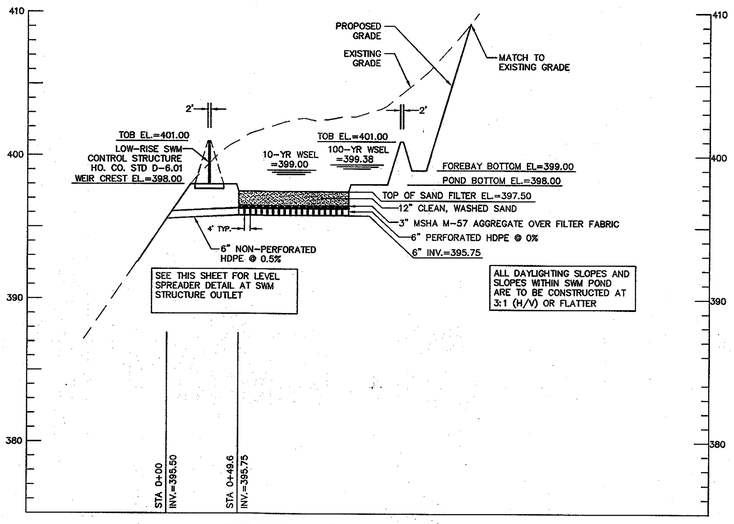
HAWES PROPERTY

FOREST CONSERVATION EASEMENT GRANTED FROM ROSEBAR PROPERTY, PRESERVATION PARCEL A
TAX MAP 14 - PARCEL 221 - BLOCK 23
FOURTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

OFF-SITE REFORESTATION PLAN

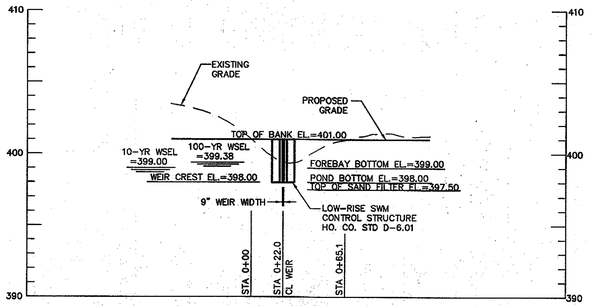
MILDENBERG, BOENDER & ASSOC., INC.
Engineers Planners Surveyors
5072 Dorsey Hall Drive, Suite 202, Ellicott City, Maryland 21042

F-07-110



SECTION – SWM POND 2

SCALE: 1"=50' HOR
1"=5' VER



PROFILE – CL EMBANKMENT SWM POND 2

SCALE: 1"=50' HOR
1"=5' VER

POND DATA:

HAZARD CLASSIFICATION:	N/A (NON MD-378)
F-1, SAND FILTER	
DRAINAGE AREA:	0.93 Ac
PROPOSED RCN:	68
PROPOSED Tc:	11.5 MINS.
SAND FILTER AREA:	120 SF
10-YR Q:	3.65 CFS
10-YR WSEL:	399.00
100-YR Q:	6.00 CFS
100-YR WSEL:	399.38
WQv + ReV REQUIRED:	3,009 CF
WQv + ReV PROVIDED:	3,274 CF (INCLUDING FOREBAY)
MAINTENANCE:	JOINTLY MAINTAINED
OWNERSHIP:	PRIVATE

SWM POND AND MICRO-BIORETENTION FACILITY 'MB-2A' ARE TO BE PUBLICLY OWNED AND JOINTLY MAINTAINED. ALL OTHER MICRO-BIORETENTION FACILITIES ARE TO BE PRIVATELY OWNED AND MAINTAINED.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED DISCONNECTION OF ROOFTOP RUNOFF (N-1), DISCONNECTION OF NON-ROOFTOP RUNOFF (N-2)

A. 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 OF DEVELOPMENT OF IMPERVIOUS AREA. IN COMMERCIAL AREAS, FOOT TRAFFIC SHOULD BE DISCOURAGED AS WELL.

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

A. ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.

B. SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.

C. MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.

D. SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS (F-1)

A. THE STORMWATER FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.

B. THE TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF ONCE PER YEAR, WHEN VEGETATION REACHES 18" IN HEIGHT OR AS NEEDED.

C. FILTERS THAT HAVE A GRASS COVER SHALL BE MOWED A MINIMUM OF THREE (3) TIMES PER GROWING SEASON TO MAINTAIN A MAXIMUM GRASS HEIGHT OF LESS THAN 12 INCHES.

D. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.

E. VISIBLE SIGNS OF EROSION IN THE FACILITY SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

F. REMOVE SILT WHEN IT EXCEEDS FOUR (4) INCHES DEEP IN THE FOREBAY.

G. WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED BY THE OWNER.

H. A LOG BOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.

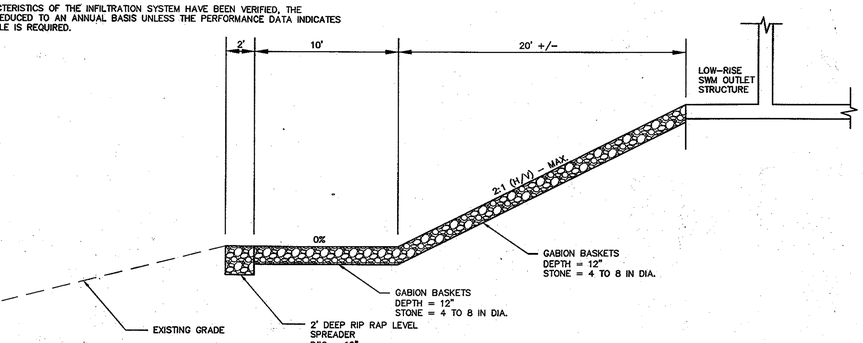
I. THE MAINTENANCE LOG BOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.

J. ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM 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.

Appendix B.4. Construction Specifications for Environmental Site Design Practices

Table B.4.1 Materials Specifications for Micro-Bioretention, Rain Gardens & Landscape Infiltration-

Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil [2' to 4' deep]	loamy sand (60 - 65%) & compost (35 – 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" to 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes. Perforated pipe shall be wrapped with ¼-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.



LEVEL SPREADER DETAIL

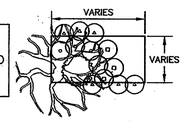
N.T.S.

PLANT LIST

QUANTITY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE
1		PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2-1/2" - 3" CAL.
1		ILEX GLABRA	INK BERRY	2' - 3' HT.
6		LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	1 GAL. CONTAINER
4		ONOCLEA SENSIBILIS	SENSITIVE FERN	1 GAL. CONTAINER
3		ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	1 GAL. CONTAINER

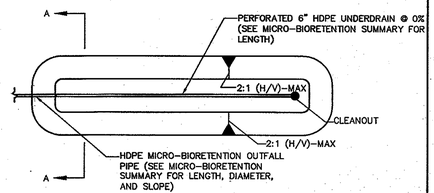
TOTAL: 13 PERENNIALS, 1 SHRUB, 1 TREE (PER EACH FACILITY EXCEPT FOR MB-2A)

FOR MICROBIORETENTION FACILITY MB-2A, QUANTITY FOR EACH PERENNIALS IS TO BE DOUBLED FROM WHAT IS SHOWN IN THE CHART

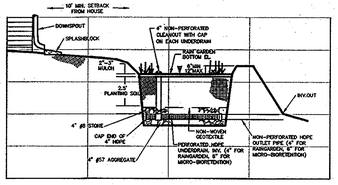


MICRO-BIORETENTION PLANTING DETAIL

N.T.S.



PLAN



TYPICAL MICRO-BIORETENTION DETAILS

NOT TO SCALE

MICRO-BIORETENTION FACILITY SUMMARY

FACILITY	BIORETENTION SURFACE AREA (Af) / DIMENSIONS	TOP OF MULCH EL.	UNDERDRAIN DIA. & OUTFALL PIPE DIA.	UNDERDRAIN INV. EL.	PERFORATED HDPE UNDERDRAIN LENGTH	PERFORATED HDPE UNDERDRAIN SLOPE(TO OVERFLOW INLET)	HDPE MICROBIORTENTION OUTFALL LENGTH (TO CONNECTION PIPE OR OUTLET)	HDPE MICROBIORTENTION OUTFALL ELEVATION (CONNECTION PIPE OR OUTLET)	HDPE MICRO-BIORETENTION OUTFALL SLOPE (TO CONNECTION PIPE OR OUTLET)	TOP OF BANK EL.
MB-1A	300 SF (15'x10' EACH COMPONENT)	405.00	6"	402.00	14 LF (EACH COMPONENT)	0%	57 LF, 19 LF	396.00, 395.90	10.5%, 32.1%	406.00
MB-1B	300 SF (15'x10' EACH COMPONENT)	400.00	6"	397.00	14 LF (EACH COMPONENT)	0%	111 LF, 41 LF	388.05, 387.40	8.1%, 23.4%	401.00
MB-1C	400 SF (40'x10')	392.00	6"	389.00	39 LF	0%	65 LF	377.70	17.4%	393.00
MB-1D	335 SF (33.5'x10')	374.00	6"	371.00	32 LF	0%	26 LF	370.75	1.0%	375.00
MB-3	300 SF (15'x10' EACH COMPONENT)	398.00	6"	395.00	14 LF (EACH COMPONENT)	0%	65 LF, 94 LF	394.00	1.5%, 1.1%	399.00
MB-4	400 SF (20'x10' EACH COMPONENT)	403.00	6"	400.00	19 LF (EACH COMPONENT)	0%	15 LF, 67 LF	399.80	1.3%, 0.3%	404.00

NOTE: EACH MICRO-BIORETENTION DESIGNATION ("MB-1A, MB-3", ETC.) REPRESENTS THE ONE OR TWO MICRO-BIORETENTION COMPONENTS ON EACH LOT

NOTE: THIS SHEET REPLACES SHEET 6 OF 15 OF THE PREVIOUSLY APPROVED PLANS (F-07-110) BY BENCHMARK ENGINEERING

OWNER/DEVELOPER

3804 VIEW TOP, LLC
1055 WEST JOPPA ROAD
SUITE 320
TOWSON, MARYLAND 21204
ATTN: RUSSELL HAWES

THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

CHIEF, BUREAU OF HIGHWAYS — 4-16-12 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 4/20/12 DATE

CHIEF, DW. DIRECTOR LAND DEVELOPMENT — 4/30/12 DATE

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. 40091 Expiration Date 2-13-2013

STATE OF MARYLAND — JEFFREY L. SLOWIK — 40091 — REGISTERED PROFESSIONAL ENGINEER — 2-24-12

project	date
10-024	SEP 2011
illustration	engineering
JLS	JLS
scale	approval
AS SHOWN	RJH

no.	description	date
1	ADDED NOTE REGARDING FACILITY OWNERSHIP	2/2/2012
2	RESPOND TO HOWARD COUNTY COMMENTS	1/19/2012
3	RESPOND TO HCSD COMMENTS	12/15/2011
4	RESPOND TO HOWARD COUNTY COMMENTS	11/2/2011
	revisions	

HAWES PROPERTY

LOTS 3 THRU 8, O.S. LOT 9, AND NON-BUILDABLE BULK PARCEL 'A'
TAX MAP 24 GRID 17 PARCEL 253
2nd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

MICRO-BIORETENTION AND SWM POND SECTIONS AND DETAILS

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Engineers Planners Surveyors
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(410) 997-0296 Balt. (410) 997-0298 Fax.

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