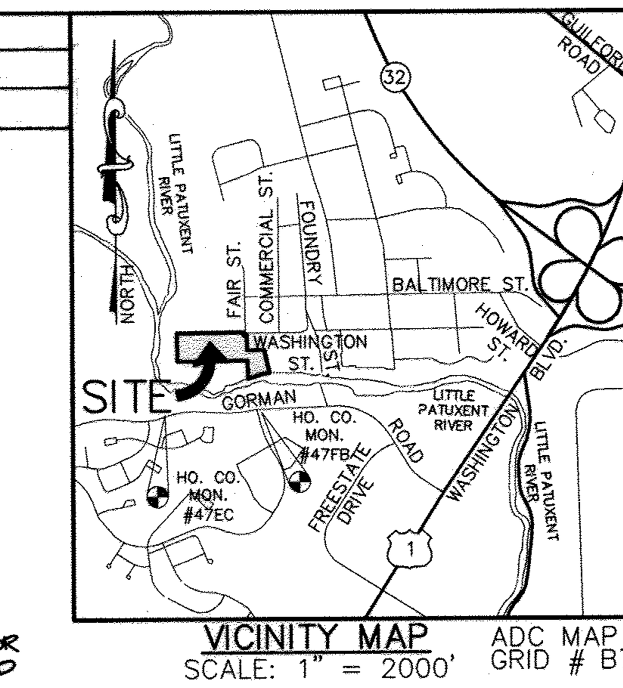
SITE DEVELOPMENT PLAN

SAVAGE MILL HOTELS

PARCEL 93
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

NO	DESCRIPTION
1	TITLE SHEET
2	OVERALL SITE DEVELOPMENT PLAN
3	SITE DEVELOPMENT PLAN
4	SITE DEVELOPMENT PLAN
5	SITE UTILITY AND STORM DRAIN PLAN
6	GRADING & SEDIMENT CONTROL PLAN – PHASE 1
7	GRADING & SEDIMENT CONTROL PLAN – PHASE 1
8	GRADING & SEDIMENT CONTROL PLAN – PHASE 2
9	OUTFALL IMPROVEMENT PLAN
10	UNDERGROUND SWM DETAILS
11	STORM FILTER DETAILS
12	SEDIMENT CONTROL DETAILS AND SEQUENCE OF CONSTRUCTION
13	SEDIMENT CONTROL DETAILS
14	SEDIMENT CONTROL NOTES
15	GRADING AND SEDIMENT CONTROL PLAN – PHASE 3
16	STORM DRAIN PROFILES AND SCHEDULES
17	STORMWATER MANAGEMENT PROFILES
18	STORMWATER MANAGEMENT DETAILS
19	ARCHITECTURAL ELEVATION DETAILS AND POOL GRADING
20	PRIVATE SANITARY SEWER PROFILES AND DUMPSTER DETAIL
21	SITE DETAILS
22	SITE DETAILS
23	LANDSCAPE PLAN
24	LANDSCAPE NOTES AND DETAILS
25	FOREST STAND DELINEATION PLAN
26	FOREST STAND DELINEATION NOTES AND TABULATIONS
27	FOREST CONSERVATION PLAN
28	FOREST CONSERVATION PLAN & NOTES AND TABULATIONS
29	FOREST CONSERVATION DETAILS & SITE DETAILS
30	RETAINING WALL PLAN & DETAILS
31	RETAINING WALL ELEVATIONS
32	SOIL BORING LOGS
33	OUTFALL IMPROVEMENT PLAN STRUCTURAL DETAILS
34	ROPES COURSE PLAN
35	SITE DETAILS AND TABULATIONS
36	REVISED SITE DEVELOPMENT PLAN

DATE	NO.	REVISION
3-26-14	3	ADDED GENERAL NOTES



VICINITY MAP
SCALE: 1" = 2000'
ADC MAP 20
GRID # B7

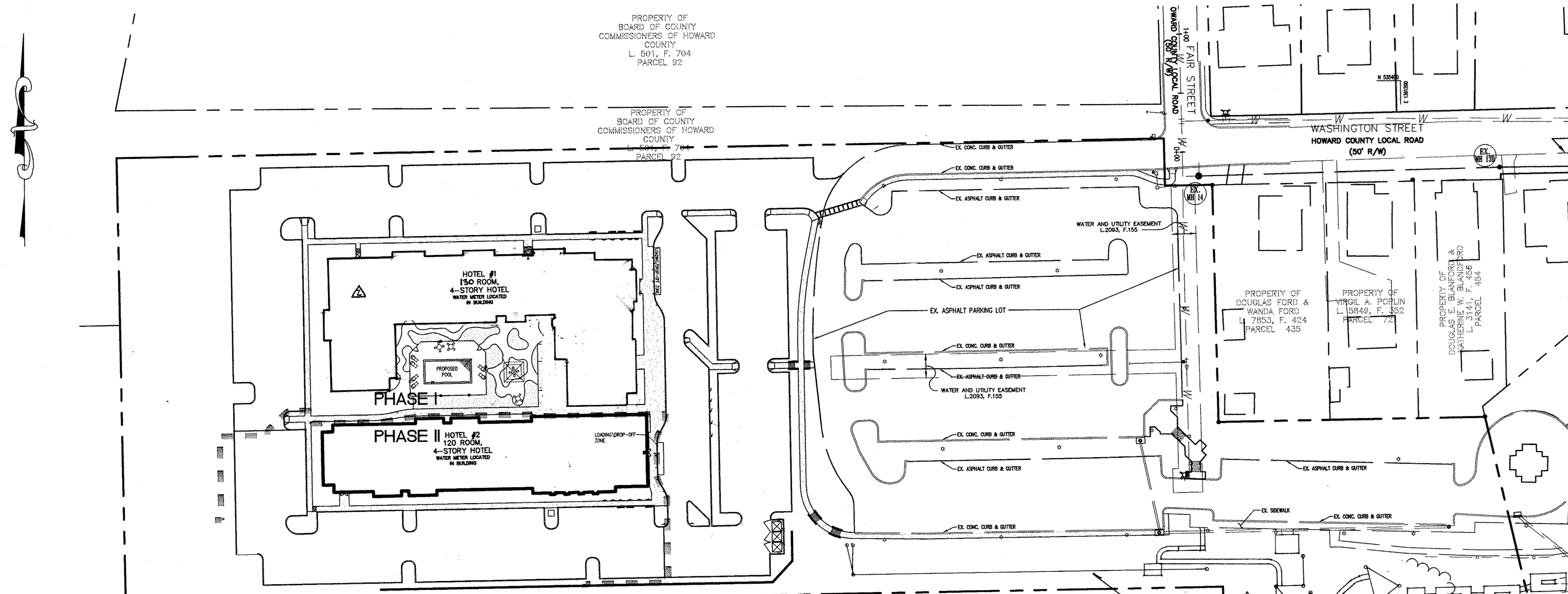
⚠3 NOTE:

1. THE BUILDING PERMIT APPLICATION DEADLINE DATE FOR THE RED LINE FOR THE CONSTRUCTION OF THE PROPOSED BUILDING IS , IF APPLICABLE.

BENCHMARKS

HOWARD COUNTY SURVEY CONTROL: 47EC
ELEVATION 233.691
N 534,261.232 E 1,359,948.1162
LOCATION IS ALONG GORMAN ROAD ±1/2 MILE WEST OF ROUTE 29.

HOWARD COUNTY SURVEY CONTROL: 47FB
ELEVATION 207.423
N 534,295.4111 E 1,361,228.6517
LOCATION IS 2.5' FROM EDGE OF PAVING AT THE INTERSECTION OF GORMAN ROAD AND KNIGHTS BRIDGE DRIVE.



GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
2. 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.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST 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.
5. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PATTON HARRIS RUST & ASSOCIATES DATED NOVEMBER 28, 2006.
7. THE COORDINATES SHOWN HEREON ARE IN MARYLAND COORDINATE SYSTEM NAD 83/91 BASED ON THE HOWARD COUNTY GEODETIC CONTROL. HOWARD COUNTY MONUMENT NOS. 37A4 AND 31GA WERE USED FOR THIS PROJECT. THE ELEVATIONS ARE IN NAVD88 BASED ON THE SAME CONTROL MONUMENT.
8. WATER IS PUBLIC. CONTRACT NO. 74-0952-D & 44-0952-D EXISTING WATER INFORMATION IS FROM AVAILABLE COUNTY RECORDS & PHR+A FIELD SURVEY.
9. SEWER IS PRIVATE CONNECTING TO THE PUBLIC SEWER SYSTEM. THE SEWER CONNECTION IS TO CONTRACT 4-S. EXISTING SEWER INFORMATION IS FROM AVAILABLE COUNTY RECORDS & PHR+A FIELD SURVEY.
10. STORMWATER MANAGEMENT FOR THE SITE IS PROVIDED BY A PRIVATELY OWNED AND MAINTAINED UNDERGROUND DETENTION FACILITY. A STORM FILTER IS PROVIDED FOR WATER QUALITY. A STONE TRENCH IS PROVIDED FOR RECHARGE. ALL STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED.
11. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
12. A 100-YEAR FLOODPLAIN STUDY FOR THIS PROJECT IS NOT REQUIRED. FLOODPLAIN SHOWN IS FROM A HOWARD COUNTY FLOODPLAIN STUDY PREPARED BY CHEM HILL CONSULTANTS AND PROGRESSIVE ENGINEERING CONSULTANTS DATED JANUARY 1986.
13. NO WETLANDS ARE FOUND ON THIS PROJECT PER FIELD VISIT BY PHRA IN DECEMBER 2006.
14. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY STREET TRAFFIC STUDIES DATED JANUARY 2007 AND WAS APPROVED ON MARCH 1, 2007.
15. THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY PATTON HARRIS RUST & ASSOCIATES DATED DECEMBER 5, 2006.
16. SUBJECT PROPERTY ZONED B-2 PER 02-02-04 COMPREHENSIVE ZONING PLAN AND THE COMP LITE ZONING AMENDMENTS DATED 7/28/06.
17. ALL ELEVATIONS SHOWN ARE BASED ON NAVD88.
18. THE CONTRACTOR SHALL TEST PIT EXISTING UTILITIES AT LEAST (5) DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
19. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
20. PIPE SHALL NOT BE INSTALLED BY THE CONTRACTOR UNTIL THE LENGTH CALLED FOR AT EACH STATION HAS BEEN APPROVED BY THE ENGINEER IN THE FIELD.
21. NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE
22. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
23. PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
24. ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T180.
25. ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS. THERE IS NO EXTERIOR BUILDING MOUNTED LIGHTING AT THIS TIME.
26. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPER'S AGREEMENT IN THE AMOUNT OF $9,000.00 FOR 30 SHADE TREES, 0 ORNAMENTAL TREES, 0 EVERGREEN TREES AND 0 SHRUBS.
27. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION WITH AN OBLIGATION OF 2.69 ACRES PROVIDED BY 1.51 ACRES OF ON-SITE RETENTION WITH SURETY IN THE AMOUNT OF $13,155.00 BY 0.07 ACRES OF ON-SITE REFORESTATION WITH SURETY IN THE AMOUNT OF $1,525.00 BY 0.46 ACRES OF OFF-SITE RETENTION AT 2 TO 1 (0.23 CREDITED ACRES) WITH SURETY IN THE AMOUNT OF $5,009.00 (0.23 ACRES AT REFORESTATION RATE), THE TOTAL SURETY AMOUNT IS $19,689.00 AND BY A FEE-IN-LIEU FOR 0.42 ACRES OF REFORESTATION OBLIGATION IN THE AMOUNT OF $13,721.00 AT $0.75/SF. (SEE CONTINUATION THIS SHEET)
28. DUMPSTERS ARE REQUIRED FOR THIS PLAN. TWO DUMPSTERS HAVE BEEN PROVIDED-ONE FOR EACH HOTEL.
29. THERE ARE NO EXISTING STRUCTURES ON SITE.
30. BASED ON AVAILABLE COUNTY MAPS AND RECORDS, THERE ARE NO HISTORIC STRUCTURES OR KNOWN CEMETERIES LOCATED ON THE SUBJECT PROPERTY.
31. ALL PAVING IS TO BE P-3 PAVING OR AS RECOMMENDED BY PROFESSIONAL GEOTECHNICAL ENGINEER.
32. SEE SITE DETAILS SHEET FOR CURB AND GUTTER AND SIDEWALK DETAILS.
33. THE PROPOSED HOTELS AND SHALL BE SPRINKLERED. ALL WATER METERS SHALL BE LOCATED IN BUILDINGS.
34. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) – 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON THE TOP OF EACH POST.
35. AN ADMINISTRATIVE ADJUSTMENT (AA-07-05) WAS APPROVED ON APRIL 23, 2007 TO INCREASE THE BUILDING HEIGHT FROM 40'-0" TO 47'-0". THE CONDITIONS OF APPROVAL ARE AS FOLLOWS:

    1. THE PETITIONER SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND COUNTY LAWS AND REGULATIONS.
    2. A BUILDING PERMIT FOR THE STRUCTURES SHALL BE OBTAINED WITHIN TWO YEARS FROM THE DATE OF THIS ORDER AND SUBSTANTIAL CONSTRUCTION SHALL BE COMPLETED WITHIN THREE YEARS.
    3. THE GRANTED ADMINISTRATIVE ADJUSTMENT SHALL APPLY SOLELY TO THE STRUCTURES AS DEPICTED ON THE ADMINISTRATIVE ADJUSTMENT PLAN SUBMITTED BY THE PETITIONER AND NOT TO ANY OTHER STRUCTURE, ADDITION, BUILDING, OR USE.

36. A BOARD OF APPEALS CASE (BA-07-01V) WAS APPROVED ON APRIL 23, 2007 FOR VARIANCES TO REDUCE THE 30 FOOT SIDE SETBACK FROM A RESIDENTIAL DISTRICT TO 10 FEET FOR 48 PARKING SPACES, TO 12.8 FEET FOR 45 PROPOSED PARKING SPACES AND TO 10 FEET FOR A PROPOSED RETAINING WALL ON THE PROPERTY'S SOUTH AND SOUTHEAST CORNER. THE CONDITIONS OF APPROVAL ARE AS FOLLOWS:

    1. THE VARIANCES SHALL APPLY ONLY TO THE PARKING SPACES AND RETAINING WALLS BEING REQUESTED AND NOT TO ANY NEW STRUCTURES, USES, OR CHANGES IN USES ON THE SUBJECT PROPERTY OR TO ANY ADDITIONS THERETO.
    2. THE LANDSCAPE EDGE ALONG THE WASHINGTON STREET RIGHT-OF-WAY SHALL BE A TYPE E (PARKING BUFFER), OR AS OTHERWISE AGREED UPON BY DPZ, DRP, AND THE PETITIONER.
    3. THE REMAINDER OF THE PERIMETER SHALL BE A TYPE D (SCREEN) LANDSCAPE EDGE, OR AS OTHERWISE AGREED UPON BY DPZ, DRP, AND THE PETITIONER.
    4. THE STORMWATER MANAGEMENT FACILITY SHALL BE AN UNDERGROUND FACILITY AND THE EXISTING WOODED AREA ALONG THE WEST SIDE OF THE PROPERTY SHALL BE RETAINED TO THE GREATEST EXTENT POSSIBLE, OR AS OTHERWISE AGREED UPON BY DPZ, DRP, AND THE PETITIONER.
    5. THE VARIANCE WILL LAPSE OR BECOME VOID IF SUBSTANTIAL CONSTRUCTION IN ACCORDANCE WITH THE REQUIRED PERMITS CONFORMING TO PLANS FOR WHICH THE VARIANCE IS GRANTED IS NOT COMPLETED WITHIN 4 YEARS FROM THE DATE OF THIS DECISION AND ORDER.

37. NO OVERHEAD BGE POWER LINES ARE LOCATED IN THE VICINITY OF THE PROPOSED DEVELOPMENT.
38. ALL OFFSITE DISTURBANCE HAS BEEN COORDINATED WITH HOWARD COUNTY DEPT. OF RECREATION AND PARKS. AN AGREEMENT WITH RECREATION AND PARKS STAFF HAS BEEN PREPARED SHOWING OFFSITE DISTURBANCE FOR A STORM DRAIN OUTFALL (5,179 SF). THE AGREEMENT IS DATED OCTOBER 9, 2007.
39. THIS PROJECT WILL BE CONSTRUCTED IN TWO PHASES, PHASE I WILL INCLUDE THE 130 ROOM HOTEL, STORM WATER MANAGEMENT, AND 185 PARKING SPACES. PHASE II WILL INCLUDE THE 120 ROOM HOTEL AND 85 PARKING SPACES. THE DEVELOPER WILL SEEK EXTENSIONS TO PLAN APPROVAL FOR PURPOSES OF BUILDING PERMIT ISSUANCE IF BUILDING PERMIT FOR PHASE 2 IS GREATER THAN TWO YEARS FROM INITIAL PLAN APPROVAL.

PROPERTY OF HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS L. 527, F. 84 PARCEL 841

40. THIS PROJECT IS SUBJECT TO THE FOLLOWING DPZ FILES: SDP-85-146, SDP-80-155, SDP-85-31, SDP-85-51, SDP-90-191, WP-02-16, WP-07-105, BA-07-01, BA-07-17V, & AA-07-05, AA-08-25, & BA-08-55V.
41. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE WETLANDS, STREAMS OR REQUIRED BUFFERS, 100 YEAR FLOODPLAIN, 25% OR GREATER STEEP SLOPES AND FOREST CONSERVATION EASEMENTS, EXCEPT AS APPROVED BY DPZ AS AN ESSENTIAL DISTURBANCE OR WAIVER PETITION.
42. THIS SDP IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 75-2003. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS.
43. A WAIVER PETITION (WP-07-105) WAS FILED FOR THIS PROJECT ON APRIL 26, 2007 TO WAIVE SECTION 16.116(b)(1) IN ORDER TO ALLOW GRADING, TREE CLEARING, AND CONSTRUCTION DISTURBANCES ON 25% OR GREATER STEEP SLOPES ASSOCIATED WITH PROPOSED RETAINING WALLS AND PARKING SPACES. THE WAIVER WAS DENIED ON JUNE 6, 2007. A RECONSIDERATION REQUEST WAS FILED ON JULY 6, 2007, JULY 19, 2007, AND OCTOBER 11, 2007. THE WAIVER PETITION WAS APPROVED ON NOVEMBER 15, 2007 SUBJECT TO THE FOLLOWING CONDITIONS:

    1. COMPLIANCE WITH THE SRC AGENCY COMMENTS ISSUED FOR SDP-07-76.
    2. COMPLIANCE WITH THE ENCLOSED COMMENTS FROM THE DEVELOPMENT ENGINEERING DIVISION DATED OCTOBER 30, 2007 AND THE DEPARTMENT OF RECREATION AND PARKS DATED NOVEMBER 7, 2007.
    3. THE WAIVER PETITION APPROVAL PERTAINS ONLY TO THE LIMIT OF DISTURBANCE WITHIN THE 25% OR GREATER STEEP SLOPE AREA AS SHOWN ON THE REVISED WAIVER PETITION EXHIBIT DATED OCTOBER 11, 2007, AND SITE DEVELOPMENT PLAN, SDP-07-76. THE LIMIT OF DISTURBANCE SHALL BE THE MINIMUM NECESSARY FOR THE PROPOSED SITE IMPROVEMENTS. PLEASE NOTE THAT THE LIMIT OF DISTURBANCE SHOWN WITHIN THE WOODED STEEP SLOPES AT THE WESTERN SIDE OF THE SITE ASSOCIATED WITH THE SWM OUTFALL PIPE HAS BEEN DETERMINED ESSENTIAL OR NECESSARY PER SECTION 16.116(c) OF THE REGULATIONS.

44. A BOARD OF APPEALS CASE (BA-07-017V) WAS APPROVED ON AUGUST 31, 2007 TO REDUCE THE 30' STRUCTURE AND USE SETBACK FROM A RESIDENTIAL DISTRICT TO 10.5' FOR A PROPOSED RETAINING WALL AT THE PROPERTY'S NORTHWEST CORNER. THE CONDITIONS OF APPROVAL ARE AS FOLLOWS:

    1. THE LANDSCAPE EDGE ALONG THE NORTH AND WEST PROPERTY PERIMETERS SHALL BE A TYPE D (SCREEN) LANDSCAPE EDGE, OR AS OTHERWISE AGREED UPON BY DPZ, DRP, AND THE PETITIONER.
    2. THE STORMWATER MANAGEMENT FACILITY SHALL BE AN UNDERGROUND FACILITY AND THE EXISTING WOODED AREA ALONG THE WEST SIDE OF THE PROPERTY SHALL BE RETAINED TO THE GREATEST EXTENT POSSIBLE, OR AS OTHERWISE AGREED UPON BY DPZ, DRP, AND THE PETITIONER.
    3. THE VARIANCE WILL LAPSE OR BECOME VOID IF SUBSTANTIAL CONSTRUCTION IN ACCORDANCE WITH THE REQUIRED PERMITS CONFORMING TO PLANS FOR WHICH THE VARIANCE IS GRANTED IS NOT COMPLETED WITHIN 4 YEARS FROM THE DATE OF THIS DECISION AND ORDER.

GENERAL NOTES CONT.

45. A COUNTY COUNCIL RESOLUTION (RESOLUTION # CR26-2008) HAS BEEN APPROVED WHICH WILL ALLOW THE CONTSTRUCTION OF THE OFFSITE STORM DRAIN, AND THE DISCHARGE OF STORMWATER ON THE COUNTY PROPERTY. THE RESOLUTION ALSO INCLUDES AN INGRESS, EGRESS, AND MAINTENANCE EASEMENT WHICH HAS BEEN ESTABLISHED BETWEEN THE PROPERTY OWNER AND THE COUNTY. THE MAINTENANCE EASEMENT WILL COVER MAINTENANCE OF THE RETANING WALL AND RETAINING WALL EASEMENT AND MAINTENANCE OF THE MILL RACE. THE RESOLUTION WAS APPROVED ON APRIL 7, 2008.
46. A SHARED PARKING AGREEMENT FOR THE PROPOSED HOTELS AND THE EXISTING SAVAGE MILL HAS BEEN RECORDED AT L. 11191 F. 346 FOR THIS PROJECT.

GENERAL NOTES CONTINUED ON SHEET 35.

REVISION NOTE:

REVISION ⚠2 IS FOR THE PURPOSE OF ELIMINATING THE RESTAURANT AND TO INCREASE THE NUMBER OF GUEST ROOMS IN HOTEL #1 FROM 123 TO 130 ROOMS AND TO INCLUDE 2 MEETING/CONFERENCE ROOMS.

PLAN
SCALE: 1" = 60'

⚠2 SITE DATA ANALYSIS
(SEE SHEET 35 FOR TERRAPIN ADVENTURES SITE DATA ANALYSIS)

AREA OF SITE (PARCEL 93):	10.06 ACRES (438,213.6 SF)
LIMIT OF DISTURBED AREA P. 93:	4.99 ACRES ± (217,577.2 SF±)
LIMIT OF DISTURBED AREA P. 841:	0.10 ACRES ± (4,499.4 SF±)
PRESENT ZONING:	B-2 (BUSINESS GENERAL)
EXISTING USES:	PARKING & VACANT LOT
PROPOSED USES:	2 HOTELS, , AND PARKING
TOTAL NUMBER OF HOTEL ROOMS:	250 ROOMS
FLOOR AREA OF PROPOSED 130 ROOM HOTEL:	1st FLOOR = 22,230 2nd, 3rd, & 4th FLOORS = 21,518 86,784 SF TOTAL (4 FLOORS)
FLOOR AREA OF PROPOSED 120 ROOM HOTEL:	17,393 SF PER FLOOR 69,572 SF TOTAL (4 FLOORS)
% BUILDING COVERAGE	41,659.07 SF/438,213.6 SF = 9.5 %
BUILDING HEIGHT	MAXIMUM ALLOWABLE HEIGHT = 40'
HOTEL: 45'-9"	HEIGHT OF PROPOSED 130 ROOM
HOTEL: 45'-9"	HEIGHT OF PROPOSED 120 ROOM
	(SEE GENERAL NOTE #35 THIS SHEET)
REQUIRED PARKING:	HOTELS: 1 SPACE PER GUEST ROOM 1 SP/ROOM X 250 ROOMS = 250 SPACES REQUIRED FOR HOTEL 1,800 SF OF CONFERENCE/MEETING ROOM USE (10 SPACES PER 1,000 SF = 18 SPACES REQUIRED).
268 SPACES (HOTEL) REQUIRED TOTAL.	
PROPOSED PARKING SPACES)	270 SPACES (INCLUDES 11 HANDICAPPED
AREA OF STEEP SLOPES:	1.51 AC ±

⚠ PROPOSED ROPES COURSE

EX. STONE WALL
100 YEAR FLOODPLAIN
EX. 40' SANITARY RIGHT OF WAY L.457, F.486

PROPERTY OF HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS L. 527, F. 84 PARCEL 841

NOTE 27 CONT.

AND BY 0.46 AC OF OFFSITE FOREST CONSERVATION. THE OFFSITE FOREST CONSERVATION IS LOCATED AT TAX MAP 10, PARCEL 1 890 HENRYTON ROAD, MARRIOTTSVILLE, MD 21104. THE OFFSITE FOREST CONSERVATION BANK WAS APPROVED UNDER SDP-09-031 SHARP-FERGUSON. (0.46 AC X 2 = 0.92 AC. @ 2:1 OFFSITE RATIO). ADDITIONAL OFF-SITE MITIGATION IS LOCATED AT THE QUARTZ HILL III MITIGATION BANK. THE EASEMENT PURCHASED IS 0.6976 ACRES (0.3488 AC AT A 2:1 RATIO).

SEE SHEET 19 FOR BUILDING ELEVATIONS

ADDRESS CHART

PARCEL NUMBER	STREET ADDRESS
P. 93-HOTEL #1	8550 FAIR STREET
P. 93-HOTEL #2	8554 FAIR STREET

SUBDIVISION NAME			SECT./AREA		PARCEL
–			–		93
PLAT NO. OR L/F	GRID #	ZONING	TAX MAP NO.	ELECT. DIST.	CENSUS TRACT
L. 5725 F. 320 PLAT NO. 20205	11	B-2	47	6	6069.02
WATER CODE	C 01 400		SEWER CODE	5090300	

APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS

Barton for Peter Beilenson 10/6/2008

COUNTY HEALTH OFFICER — DATE
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

10/15/08
DIRECTOR — DATE

9/18/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Cindy Hamilton 10/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DATE	NO.	REVISION
4/6/09	2	REVISED BUILDING FOOTPRINT & TABULATIONS
2/9/09	1	ADDED ROPES COURSE

OWNER	SAVAGE MILL REMAINDER, LLC JAY WINER 8373 PINEY ORCHARD PKWY SUITE 102 ODENTON, MD 21113-1580
DEVELOPER	SUMMIT ASSOCIATES, LLC GENE SINGLETON 2200 SUMMITT PARK LANE SUITE 2000 RALEIGH, NC 27612 (919) 279.3031 ⚠ TERRAPIN ADVENTURES MATT BAKER 7551 SUMMER LEAVE LANE COLUMBIA, MD 21046 (410) 925.9574
PROJECT	SAVAGE MILL HOTELS
AREA	TAX MAP 47 PARCEL 93 ZONING: B2 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND PROPOSED 244 ROOM HOTEL COMPLEX
TITLE	TITLE SHEET

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND — SHERRIL CLARKE MITCHELL — No. 33954 — REGISTERED PROFESSIONAL ENGINEER — 9-8-08

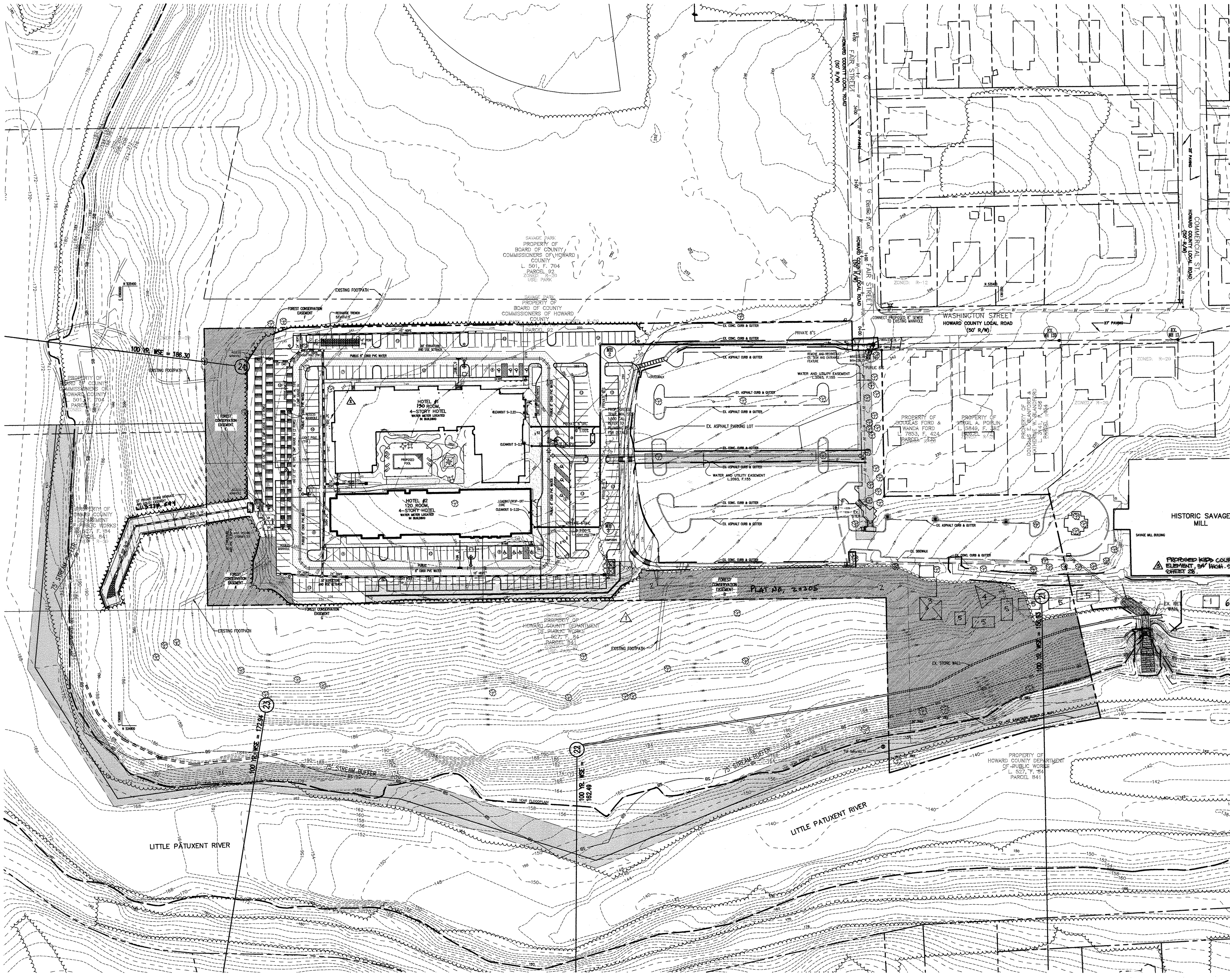
BY: Sherril C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY	PJS/JSN
DRAWN BY	JSN
PROJECT NO	12014-2-0 C400SDP01.DWG
DATE	SEPTEMBER 8, 2008
SCALE	AS SHOWN
DRAWING NO.	1 OF 36

P:\Project\12014\2-0\PLANS\C400SDP01.DWG

SDP-07-076



LEGEND

EXISTING 2'CONTOUR	302
EXISTING 10'CONTOUR	300
PROPOSED 2'CONTOUR	302
PROPOSED 10'CONTOUR	300
PROPERTY LINE AND RIGHT OF WAY	
FLOODPLAIN	
EX. TREELINE	
PROP. TREELINE	
75' STREAM BUFFER	SB
PROPOSED LIGHT POLE	
EX. FIRE HYDRANT	
PROP. FIRE HYDRANT	

DATE	NO.	REVISION
3-25-14	3	ADDED ROPES COURSE ELEMENT

SEE SHEET 34 FOR ROPES COURSE LAYOUT PLAN AND SHEET 4 FOR ROPES COURSE OBSTACLE LEGEND

APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS

B Nixon for Peter Beilenson 10/6/2008
COUNTY HEALTH OFFICER — DATE
HOWARD COUNTY HEALTH DEPARTMENT SS 790

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Marsha McLaughlin 10/15/08
DIRECTOR — DATE

9/18/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

Cindy Hamilton 10/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DATE	NO.	REVISION
4-6-09	2	REVISED BUILDING FOOTPRINT
2/9/09	1	ADDED ROPES COURSE

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
OVERALL SITE DEVELOPMENT PLAN

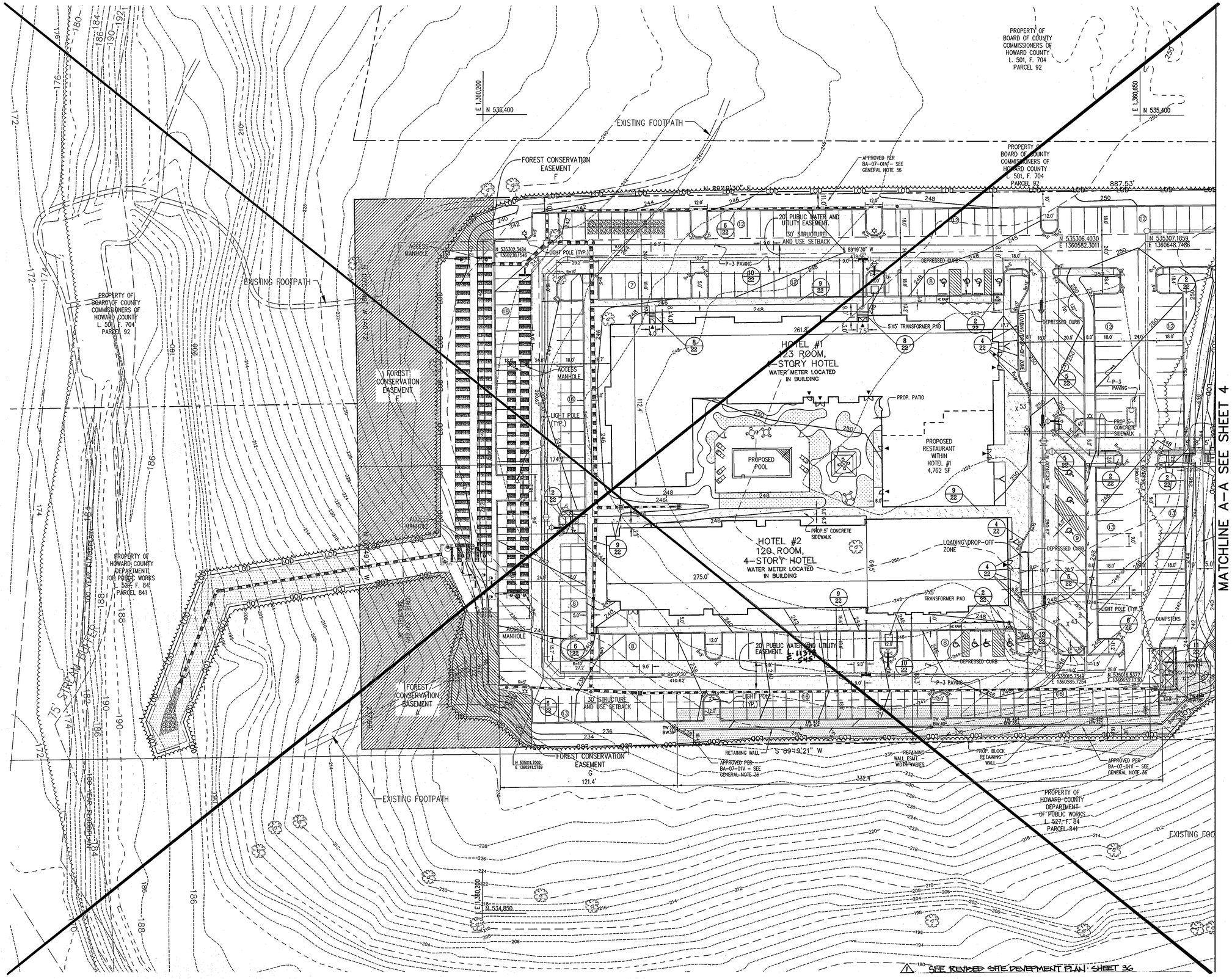
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND — SHERRI CLARKE MITCHELL — No. 33954 — REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherri C. Mitchell
"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PJS/JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP02.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=60'
DRAWING NO. 2 OF 36

P:\Project\12014\2-0\...ANS\C400SDP02.DWG

SDP-07-076



LEGEND

EXISTING 2'CONTOUR	302
EXISTING 10'CONTOUR	300
PROPOSED 2'CONTOUR	302
PROPOSED 10'CONTOUR	300
PROPERTY LINE AND RIGHT OF WAY	
FLOODPLAIN	
EX. TREELINE	
PROP. TREELINE	
TREE PROTECTION DEVICE	TPD
LIMIT OF DISTURBANCE	LOD
STORM DRAIN	
WATER	8" W
SEWER	8"S
PROPOSED LIGHT POLE	
EX. FIRE HYDRANT	
PROP. FIRE HYDRANT	
DETAIL CALLOUT	9/21

APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS

B Nixon for Peter Beilenson 10/6/2008
COUNTY HEALTH OFFICER DATE
HOWARD COUNTY HEALTH DEPARTMENT SO

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Marsha McLaughlin 10/15/08
DIRECTOR DATE

9/18/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. DATE

Cindy Harrat 10/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
4-6-09	1	REVISED BUILDING FOOT PRINT

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SITE DEVELOPMENT PLAN

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

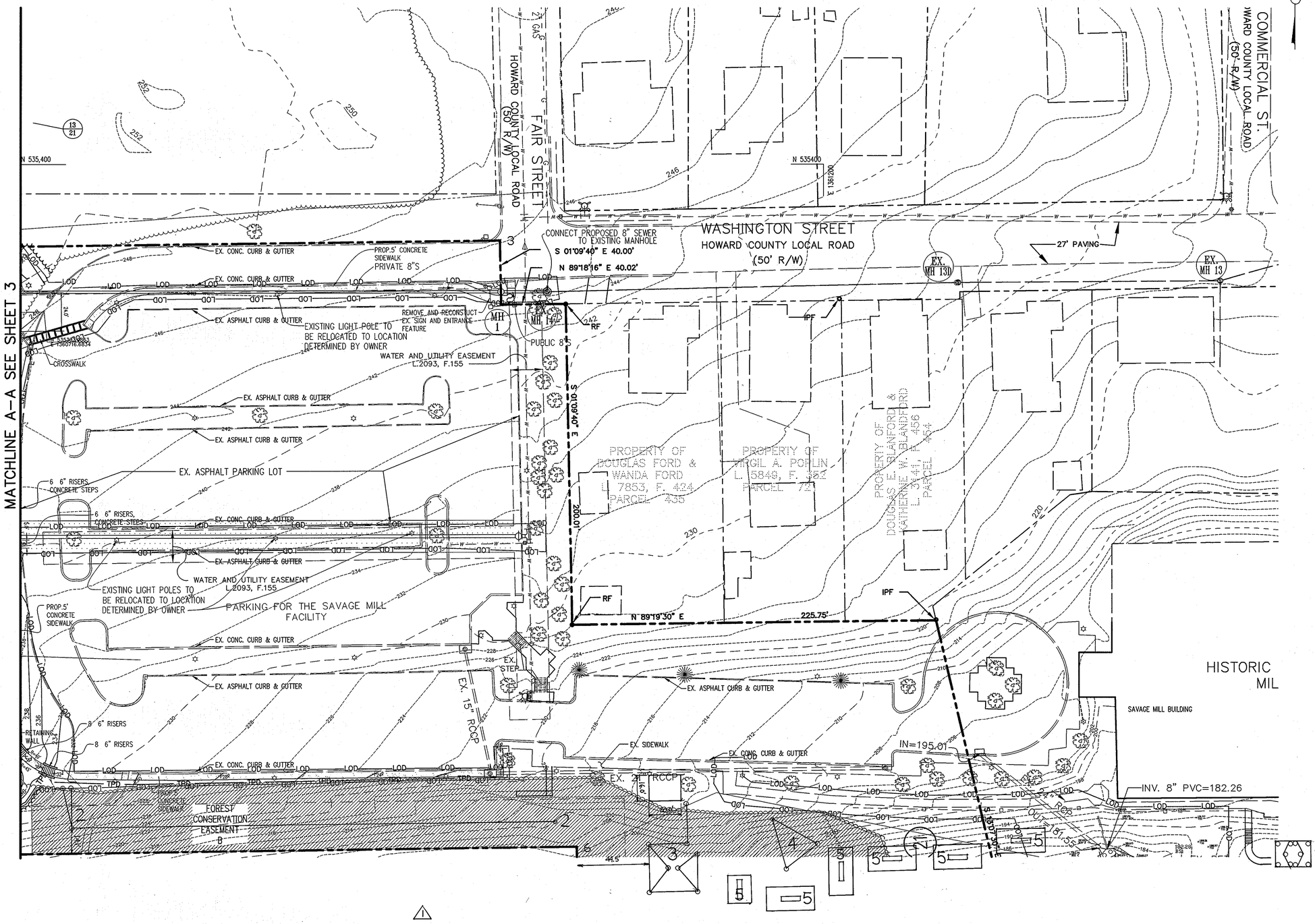
SEAL
STATE OF MARYLAND SHERRY CLARKE MITCHELL REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherry C. Mitchell

"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. 33954. EXPIRATION DATE: 1/24/09."

DESIGNED BY : PJS/JSN
DRAWN BY: JSN/PDK
PROJECT NO : 12014-2-0 C400SDP03.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 3 OF 36

SDP-07-076

P:\Project\12014\2-0\PLANS\C400SDP03.DWG



SEE SHEET 34 FOR ROPES COURSE LAYOUT PLAN

LEGEND

EXISTING 2'CONTOUR	302
EXISTING 10'CONTOUR	300
PROPOSED 2'CONTOUR	302
PROPOSED 10'CONTOUR	300
PROPERTY LINE AND RIGHT OF WAY	
FLOODPLAIN	
EX. TREELINE	
PROP. TREELINE	
TREE PROTECTION DEVICE	TPD
LIMIT OF DISTURBANCE	LOD
STORM DRAIN	
SOIL BORING	B-1
PROPOSED LIGHT POLE	
EX. FIRE HYDRANT	
PROP. FIRE HYDRANT	

ROPES COURSE OBSTACLES LEGEND

SCISSOR PLATFORM	1
ZIP WIRE	2
HIGH CHALLENGE COURSE	3
GIANT SWING	4
LOW INITIATIVES	5

APPROVED: FOR PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS

B Nixon for Peter Beilenson 10/6/2008
COUNTY HEALTH OFFICER DATE
HOWARD COUNTY HEALTH DEPARTMENT SO 17/10

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR 10/15/08 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. 9/18/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 10/14/08 DATE

DATE	NO.	REVISION
2/9/09	1	ADDED ROPES COURSE

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SITE DEVELOPMENT PLAN

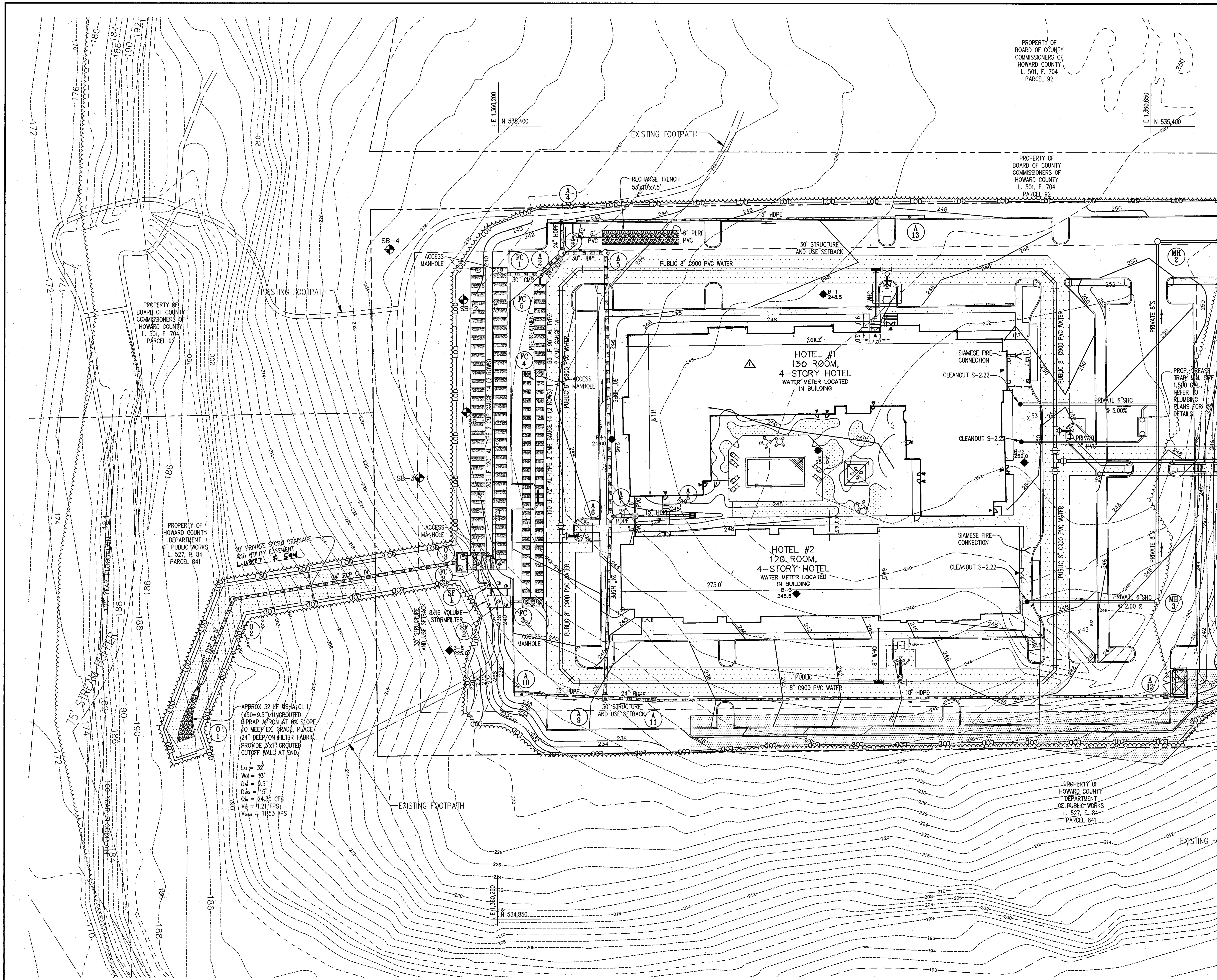
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND SHERRY CLARKE MITCHELL REGISTERED PROFESSIONAL ENGINEER 9-8-08
BY: Sherryl C. Mitchell
"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PJS/JSN
DRAWN BY: JSN/PDK
PROJECT NO : 12014-2-0 C400SDP04.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 4 OF 35

P:\Project\12014\2-0\PLANS\C400SDP04.DWG

SDP-07-076



LEGEND

EXISTING 2'CONTOUR	302
EXISTING 10'CONTOUR	300
PROPOSED 2'CONTOUR	302
PROPOSED 10'CONTOUR	300
PROPERTY LINE AND RIGHT OF WAY	
EX. TREELINE	
PROP. TREELINE	
TREE PROTECTION DEVICE	TPD
LIMIT OF DISTURBANCE	LOD
STORM DRAIN	
WATER	8" W
SEWER	8"S
EX. FIRE HYDRANT	
PROP. FIRE HYDRANT	

APPROVED: FOR ~~PUBLIC WATER & PUBLIC SEWERAGE SYSTEMS~~

B Nyhan for Peter Beilenson 10/6/2008

COUNTY HEALTH OFFICER DATE
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

10/15/08

DIRECTOR DATE

9/18/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Cindy Hamilton 10/14/08

CHIEF, DIVISION OF LAND DEVELOPMENT DATE

DATE	NO.	REVISION
4-6-09	1	REVISED BUILDING FOOTPRINT

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SITE UTILITY AND STORM DRAIN PLAN

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND SHERRY CLARKE MITCHELL No. 33954 REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherry C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

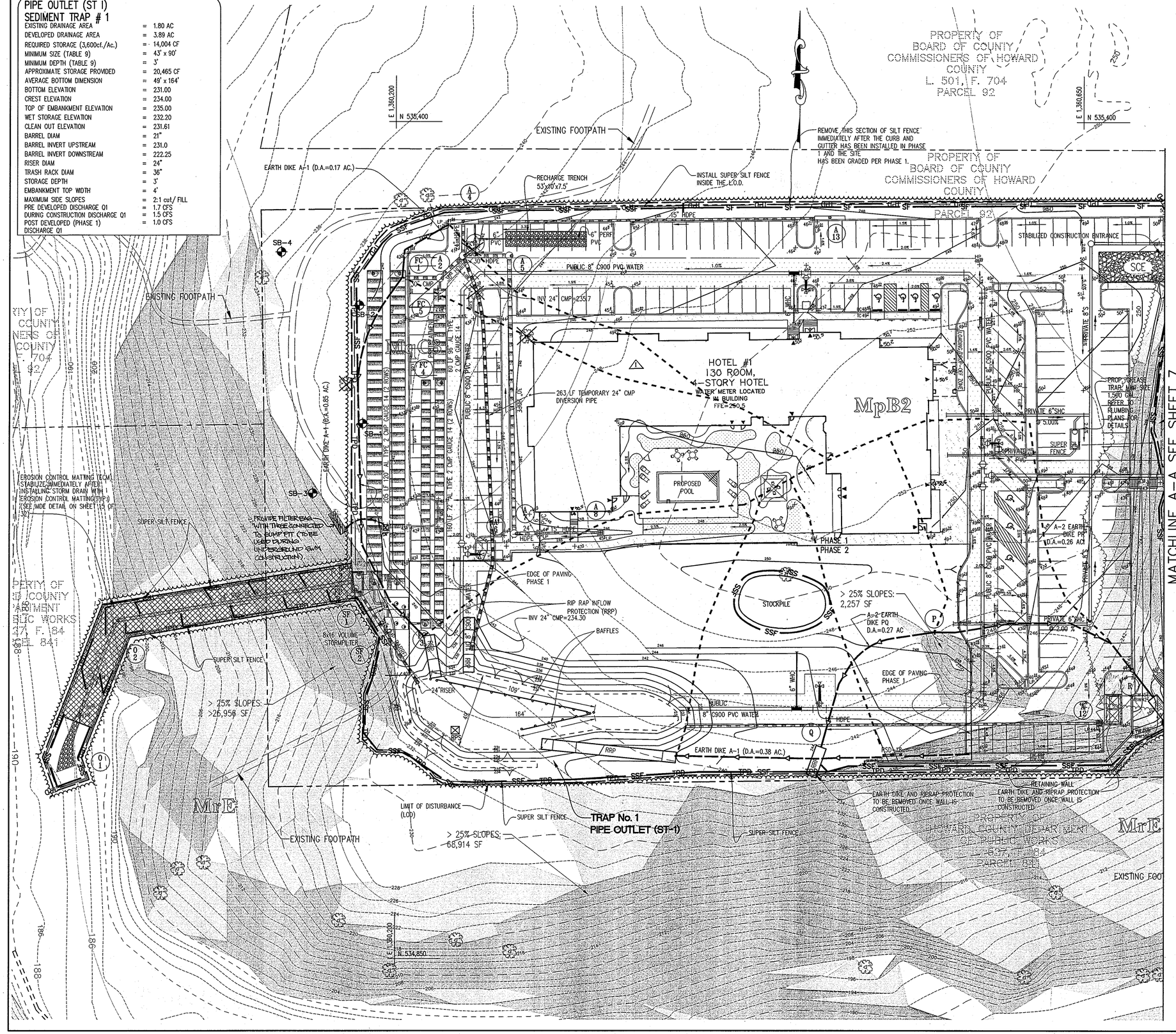
DESIGNED BY : PJS/JSN
DRAWN BY: JSN/PDK
PROJECT NO : 12014-2-0 C400SDP04.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 5 OF 36

P:\Project\12014\2-0\PLANS\C400SDP05.DWG

SDP-07-076

PIPE OUTLET (ST I)
SEDIMENT TRAP # 1

EXISTING DRAINAGE AREA	=	1.80 AC
DEVELOPED DRAINAGE AREA	=	3.89 AC
REQUIRED STORAGE (3,600cf./Ac.)	=	14,004 CF
MINIMUM SIZE (TABLE 9)	=	43' x 90'
MINIMUM DEPTH (TABLE 9)	=	3'
APPROXIMATE STORAGE PROVIDED	=	20,465 CF
AVERAGE BOTTOM DIMENSION	=	49' x 164'
BOTTOM ELEVATION	=	231.00
CREST ELEVATION	=	234.00
TOP OF EMBANKMENT ELEVATION	=	235.00
WET STORAGE ELEVATION	=	232.20
CLEAN OUT ELEVATION	=	231.61
BARREL DIAM	=	21"
BARREL INVERT UPSTREAM	=	231.0
BARREL INVERT DOWNSTREAM	=	222.25
RISER DIAM	=	24"
TRASH RACK DIAM	=	36"
STORAGE DEPTH	=	3'
EMBANKMENT TOP WIDTH	=	4'
MAXIMUM SIDE SLOPES	=	2:1 cut/ FILL
PRE DEVELOPED DISCHARGE Q1	=	1.7 CFS
DURING CONSTRUCTION DISCHARGE Q1	=	1.5 CFS
POST DEVELOPED (PHASE 1) DISCHARGE Q1	=	1.0 CFS



LEGEND

EXISTING 2'CONTOUR 302
EXISTING 10'CONTOUR 300
PROPOSED 2'CONTOUR 302
PROPOSED 10'CONTOUR 300
PROPERTY LINE AND RIGHT OF WAY
FLOODPLAIN
EX. TREELINE
PROP. TREELINE
LIMIT OF DISTURBANCE
STORM DRAIN
SUPER SILT FENCE SSF
DRAINAGE DIVIDE
INLET
PROPOSED LIGHT POLE
EX. FIRE HYDRANT
PROP. FIRE HYDRANT
EROSION CONTROL MATTING (ECM)
SP SUMP PIT
FB FILTER BAG

EARTHDIKE
15-25% SLOPES
>25% SLOPES
STABILIZED CONSTRUCTION ENTRANCE SCE
SILT FENCE SF

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

C E Dingus 9.4.08
DEVELOPER DATE

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.

Sherry C Mitchell 9-8-08
ENGINEER DATE

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

HOWARD SOIL CONSERVATION DISTRICT 9/16/08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR 10/15/08 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 9/18/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 10/14/08 DATE

DATE	NO.	REVISION
4-6-09	1	REVISED BUILDING FOOTPRINT

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
GRADING & SEDIMENT CONTROL PLAN - PHASE 1

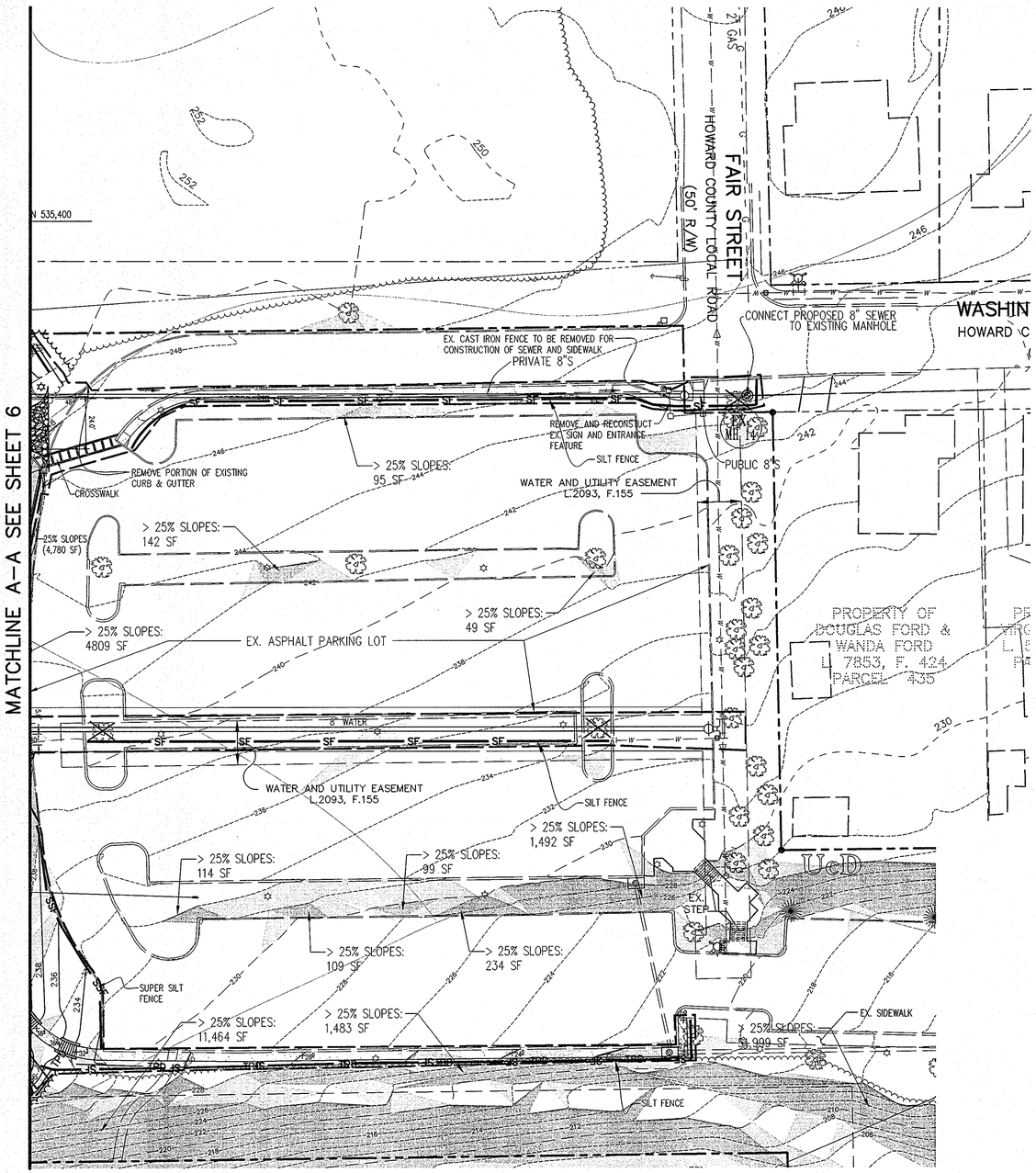
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

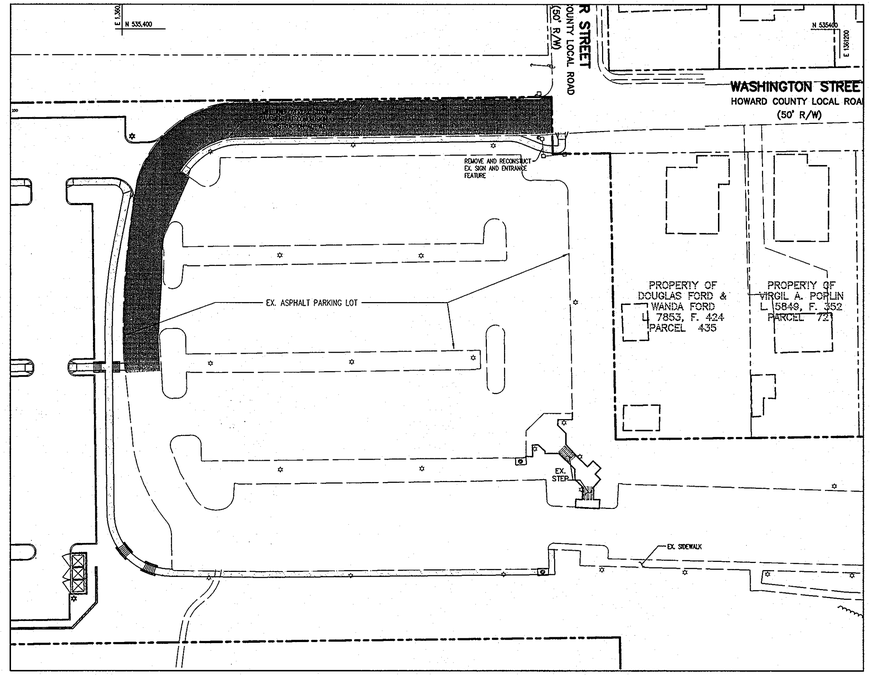
SEAL
STATE OF MARYLAND SHERRY CLARKE MITCHELL 22084 REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherry C Mitchell
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22084, EXPIRATION DATE: 1/24/09."

DESIGNED BY : SCM/HS
DRAWN BY: JSN/PDK
PROJECT NO : 12014-2-0 C400SDP06.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 6 OF 36

P:\Projects\12014\2-0\PLANS\C400SDP06.DWG

SDP-07-076





PAVEMENT MILL AND OVERLAY PLAN
SCALE: 1"=50'

LEGEND

EXISTING 2'CONTOUR 302
EXISTING 10'CONTOUR 300
EXISTING CURB AND GUTTER
EXISTING WATERLINE -W- -W- -W-
PROPOSED 2'CONTOUR 302
PROPOSED 10'CONTOUR 300
PROPERTY LINE AND RIGHT OF WAY
FLOODPLAIN
EX. TREELINE
PROP. TREELINE
LIMIT OF DISTURBANCE
STORM DRAIN
SILT FENCE SF
SUPER SILT FENCE SSF SSF
INLET
SOILS MrE
EARTHDIKE
15-25% SLOPES
>25% SLOPES
STABILIZED CONSTRUCTION ENTRANCE SCE
PROPOSED LIGHT POLE
EX. FIRE HYDRANT
PROP. FIRE HYDRANT

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER 9.4.08 DATE

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 Sheryl C. Mitchell 9-8-08 DATE

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

HOWARD SOIL CONSERVATION DISTRICT 9/15/08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR 10/15/08 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. 9/18/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 10/14/08 DATE

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
GRADING & SEDIMENT CONTROL PLAN - PHASE 1

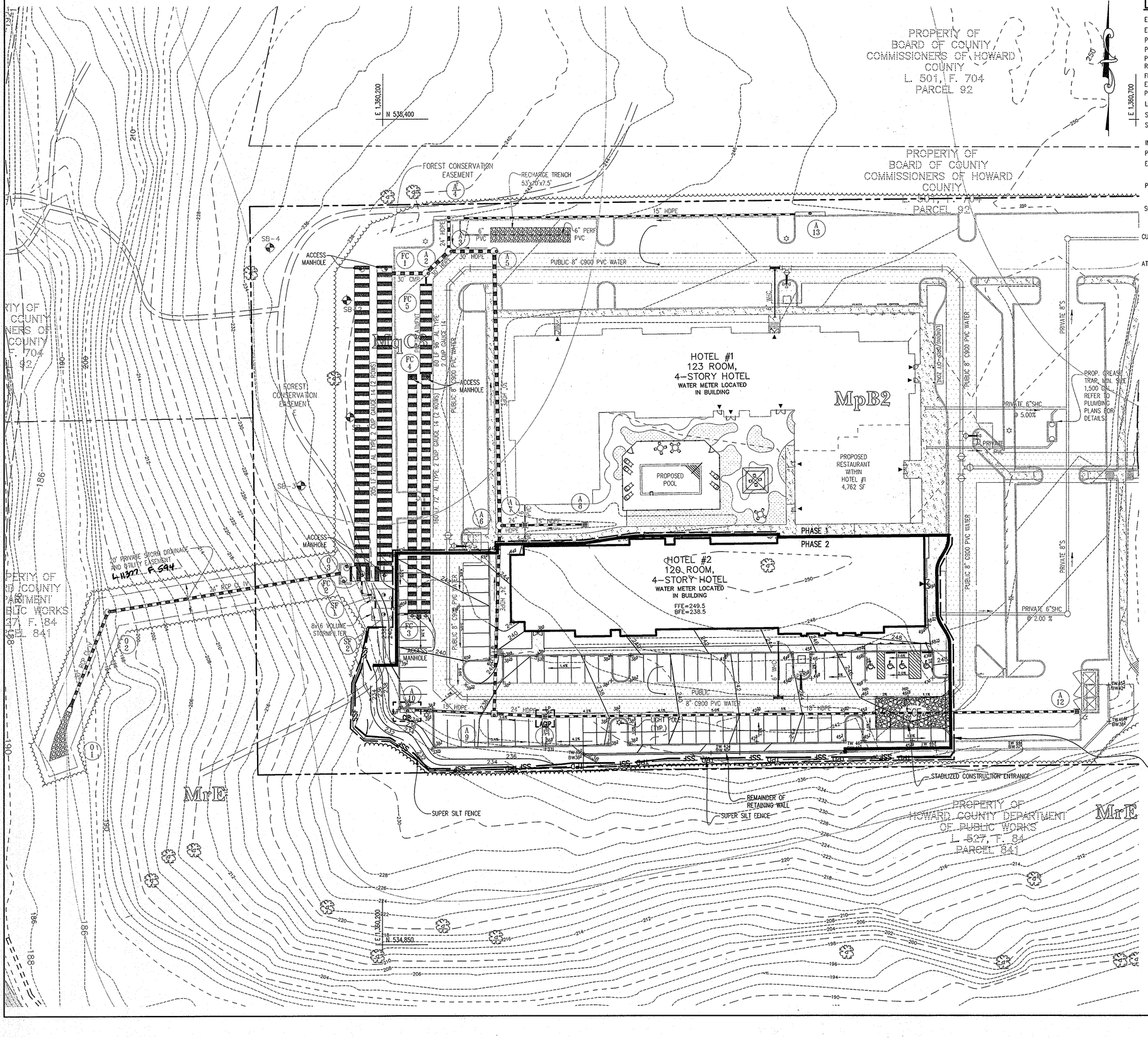
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND · SHERYL CLARKE MITCHELL · No. 22954 · REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sheryl C. Mitchell
"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. 22954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : JSN/HS
DRAWN BY: JSN/HS
PROJECT NO : 12014-2-0 C400SDP07.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 7 OF 33

P:\Project\12014\2-0\PLANS\C400SDP07.DWG

SDP-07-076



LEGEND

EXISTING 2'CONTOUR	302	EARTHDIKE	
EXISTING 10'CONTOUR	300		
PROPOSED 2'CONTOUR	302	STABILIZED CONSTRUCTION ENTRANCE	SCE
PROPOSED 10'CONTOUR	300		
PROPERTY LINE AND RIGHT OF WAY			
FLOODPLAIN			
EX. TREELINE		TREE PROTECTION DEVICE	TPD
PROP. TREELINE			
LIMIT OF DISTURBANCE			
STORM DRAIN			
SUPER SILT FENCE	SSF SSF		
INLET			
PROPOSED LIGHT POLE			
EX. FIRE HYDRANT			
PROP. FIRE HYDRANT			
SOILS	MrE		
CURB INLET PROTECTION	CIP		
AT GRADE INLET PROTECTION	AGIP		

NOTE:
LIMIT OF DISTURBANCE FOR PHASE 2 = 1.32 AC.

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — DATE 9.4.08

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 Sherry C. Mitchell — DATE 9-8-08

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/15/08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/10/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
GRADING & SEDIMENT CONTROL PLAN - PHASE 2

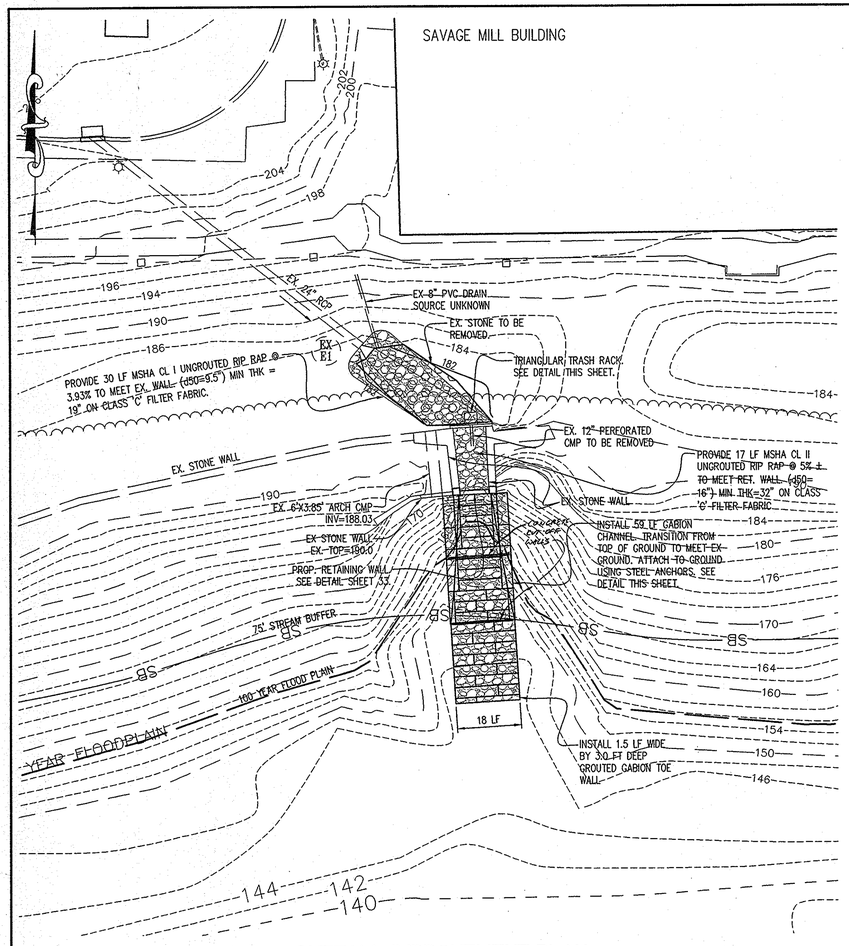
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL — STATE OF MARYLAND — SHERRIL CLARKE MITCHELL — No. 21624 — REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherrill C. Mitchell
"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. 21624, EXPIRATION DATE: 1/24/09."

DESIGNED BY :	PJS/HS
DRAWN BY:	PJS/HS
PROJECT NO :	12014-2-0 C400SDP09.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	1"=30'
DRAWING NO.	8 OF 33

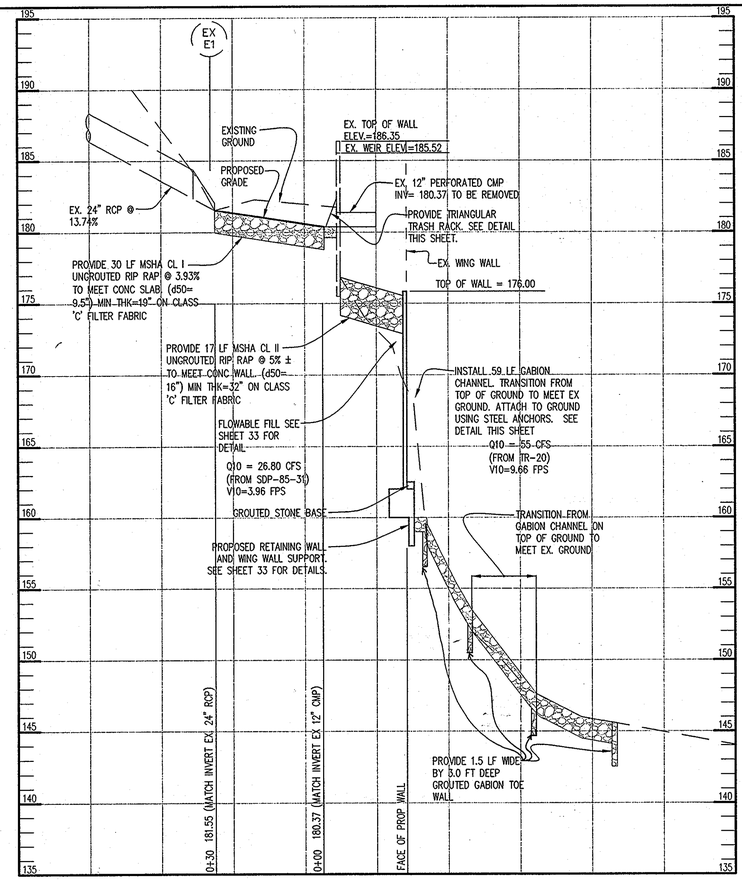
SDP-07-076

P:\Project\12014\2-0\PLANS\C400SDP08.DWG



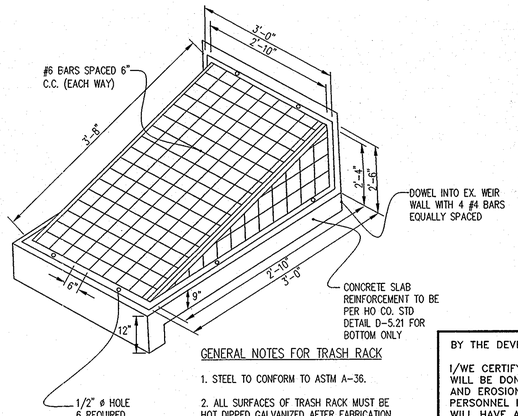
OUTFALL IMPROVEMENT PLAN

SCALE: 1"= 20'



OUTFALL PROFILE

SCALE : HOR: 1"=20'
VERT: 1"=5'

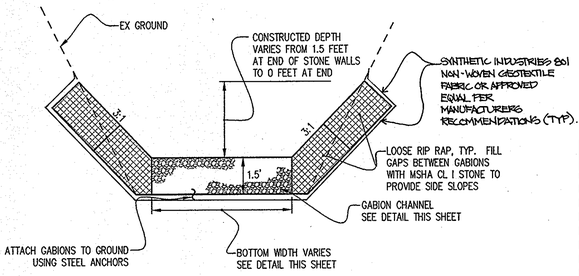


GENERAL NOTES FOR TRASH RACK

1. STEEL TO CONFORM TO ASTM A-36.
2. ALL SURFACES OF TRASH RACK MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. TRASH RACK TO BE FASTENED TO WALL WITH ⅜" MASONRY ANCHORS TRASH RACK TO BE REMOVABLE.
4. TRASH RACK TO BE CENTERED OVER OPENING.
5. HORIZONTAL BARS TO BE BEHIND VERTICAL BARS.

TRIANGULAR TRASH RACK DETAIL

(NOT TO SCALE)

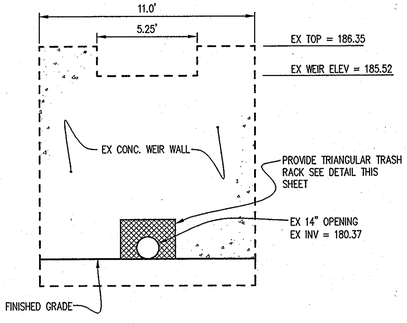


TYPICAL SECTION GABION CHANNEL

NOT TO SCALE

GABION NOTES:

1. GABIONS TO BE MACCAFERRI GALVANIZED GABION MATS OR APPROVED EQUAL. (http://www.maccaferri-northamerica.com/default.aspx)
2. CONSTRUCT AND INSTALL GABION MATS PER MANUFACTURERS SPECIFICATIONS AND PER THESE PLANS.
3. GABIONS TO BE ATTACHED TO GROUND USING #6 REBAR PER GUIDELINES BELOW.
4. WHERE GABIONS REST ON ROCK, OR SOIL LESS THAN 36" DEEP, A 24" DEEP HOLE SHALL BE DRILLED IN ROCK TO ACCOMMODATE A #6 REBAR. HOLE SHALL BE 1/2" LARGER THAN REBAR, AND SHALL BE FILLED WITH HIGH STRENGTH EPOXY NON-SHRINK GROUT. A 3" GAP FILLED WITH GROUT SHALL BE LOCATED BETWEEN THE BOTTOM OF THE HOLE AND THE BOTTOM OF THE REBAR.
5. WHERE GABIONS REST ON SOIL GREATER THAN 36" DEEP, A #6 REBAR SHALL BE DRIVEN INTO SOIL A MINIMUM OF 36" DEEP.
6. REBAR SHALL BE SPACED 24" O.C. EACH GABION BASKET SHALL HAVE A SINGLE ROW OF REBAR LOCATED AT THE LOWER, INSIDE EDGE OF THE GABION BASKET. REBAR SHALL NOT PROJECT ABOVE THE TOP OF THE GABION BASKET, BUT SHALL BE NO LESS THAN 4" BELOW TOP OF BASKET. REBAR SHALL BE SECURED TO GABION BASKET WITH GALVANIZED REBAR TIES. REBAR SHALL BE GALVANIZED.



DETAIL OF EXISTING WEIR WALL

NOT TO SCALE

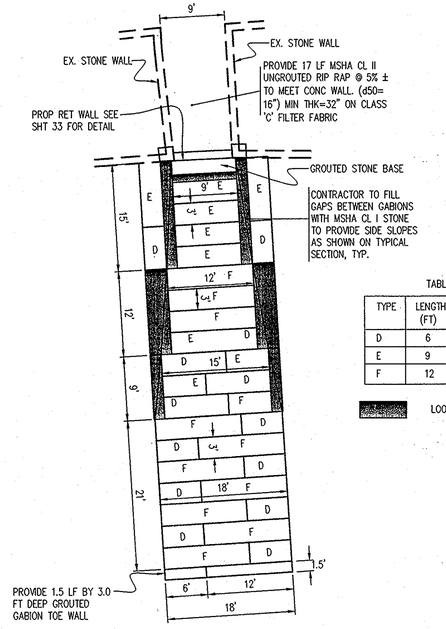


TABLE OF SIZES

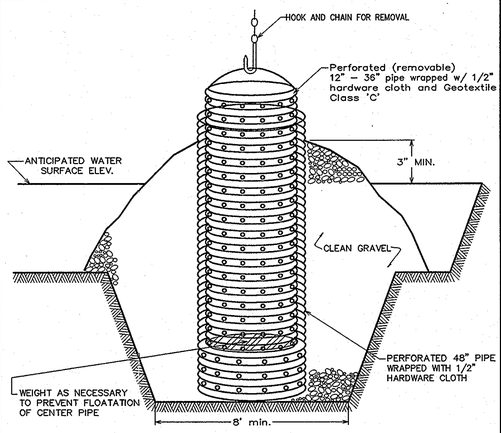
TYPE	LENGTH (FT)	WIDTH (FT)	HEIGHT (FT)
D	6	3	1.5
E	9	3	1.5
F	12	3	1.5

LOOSE RIP RAP

GABION CHANNEL DETAIL

SCALE: 1"=10'

DETAIL 20A – REMOVABLE PUMPING STATION



ELEVATION

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 D – 12 – 4	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

C.E. Dmt — 9/2/08
DEVELOPER — DATE

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.

Margaret C Whitehall — 9.8.08
ENGINEER — DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 9/15/08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — 9/15/08 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 9/18/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 10/4/08 DATE

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
OUTFALL IMPROVEMENT PLAN

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

BY:

"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. 21475 EXPIRATION DATE: 07/1/09"

DESIGNED BY :	SCM
DRAWN BY:	SCM / SGM
PROJECT NO :	12014-2-0 C400SDP09.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	AS SHOWN
DRAWING NO.	9 OF 33

P:\Project\12014-2-0\PLANS\C400SDP09.DWG

SDP-07-076

CONTECH STORMWATER SOLUTIONS

Operation and Maintenance

The Stormwater Management StormFilter®

Volume StormFilter™

Important: These guidelines should be used as a part of your site stormwater management plan.

Description

The Volume StormFilter™, a passive, flow-through, stormwater filtration system, uses a single structure to provide both storage and treatment of a water quality volume.

The system is comprised of a concrete vault that provides substantial internal storage for the water quality volume and houses rechargeable, media-filled, filter cartridges, which provide treatment for that volume. If more capacity is required, multiple structures can be used and plumbed together.

Stormwater that enters the system is passed through the media-filled cartridges, which trap particulates and adsorb materials such as dissolved metals and hydrocarbons. Once filtered through the media, the treated stormwater is directed to a collection pipe or discharged into an open channel drainage way.

Purpose

The StormFilter is a passive, flow-through, stormwater filtration system designed to improve the quality of stormwater runoff from the urban environment before it enters receiving waterways. It is intended to function as a Best Management Practice (BMP) to meet federal, state, and local requirements for treating runoff in compliance with the Clean Water Act.

Sizing

The Volume StormFilter is sized to handle the expected annual mass load of pollutants carried by the water quality volume. The water quality volume is defined by the local stormwater management agency. The particular size of a StormFilter unit is determined by the storage volume and the number of filter cartridges (see Figure 1) required to treat the water quality volume.

The flow rate through each filter cartridge is adjustable, allowing control over the amount of contact time between the influent and the filter media. The flow rate through each cartridge can be adjusted using a calibrated restrictor disc at the base of each filter cartridge (maximum of 2 gpm/sf^2). Adjustments to the cartridge flow rate will affect the number of cartridges required to treat the peak flow.

Basic Function

Stormwater in the conveyance system enters the storage/pretreatment bay of the Volume StormFilter. In this bay, larger particulates settle out and trash and debris are captured. The water is then released at a specific rate into the filtration bay.

Note: Depending on local regulations, some Volume StormFilter systems may contain a certain amount of dead storage.

When stormwater in the unit is directed to the filtration bay, it enters the StormFilter cartridges and begins to percolate horizontally through each cartridge's filter media.

A variety of filter media is available and the cartridges can be customized for each site to target and remove the desired levels of sediments, dissolved phosphorus, dissolved metals, organics, and oil and grease. In many cases, a combination of media is recommended to maximize the effectiveness of the stormwater pollutant removal.

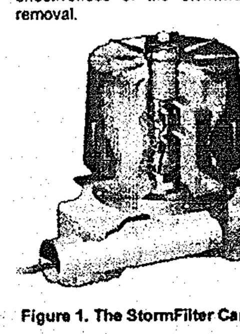


Figure 1. The StormFilter Cartridge

As the stormwater percolates through the media, the filtered water collects in the center tube of the cartridge, where the float in the cartridge is in a closed (downward) position. Water continues to pass through the filter media and into the cartridge's center tube. The air in the cartridge is displaced by the water and purged from beneath the filter hood through the one-way check valve located in the cap.

Once the center tube is filled with water (approximately 18 inches deep), there is enough buoyant force on the float to open the float valve and allow the treated water in the center tube to flow into the under-drain manifold. This causes the check valve to close, initiating a siphon that draws polluted water throughout the full surface area and volume of the filter. Thus, the entire filter cartridge is used to filter water throughout the duration of the storm, regardless of the water surface elevation in the unit. This siphon continues until the water surface elevation drops to the elevation of the hood's scrubbing regulators.

The cartridges are connected to the under-drain manifold with a plastic connector. Since some media used is potentially buoyant, a threaded connector affixed to the under-drain manifold (with glue or other adhesive) is necessary to ensure that the cartridge isn't lifted out of place. For the heavier compost media, a slip connector is used.

The StormFilter may also be equipped with flow spreaders that trap floating debris and surface films, even during overflow conditions. Depending on individual site characteristics, some systems are equipped with high and/or base flow bypasses. High flow bypasses are installed when the calculated peak storm event generates a flow that overcomes the overflow capacity of the system. This is especially important for precast systems. Base flow bypasses are sometimes installed to bypass continuous inflows caused by ground water seepage, which usually do not require treatment. All StormFilter units can be designed with an overflow. The overflow operates when the inflow rate is greater than the treatment capacity of the filter cartridges.

Maintenance Guidelines

The primary purpose of the Volume StormFilter is to provide both storage and treatment of a water quality volume. The storage/pretreatment bay of the system provides settling of particulates and capture of trash and debris, while the system's filter bay uses media-filled filter cartridges to remove pollutants, including finer particles, nutrients, total and dissolved metals, organics, and oil and grease.

Inspection of Storage/Pretreatment Bay

Inspection of the storage/pretreatment bay should occur at a minimum of twice a year. It is recommended to wait 7-14 days after the last storm event, prior to making an inspection. This should allow for improved water clarity for observations in the upstream storage facility. Trash and debris, oil, and robust sediment measurements should be written in an inspection log. Sediment depth can be measured with a rod or with a sludge judge.

If sediment depth is greater than 1 foot, maintenance of the storage facility is warranted. If noticeable oil sheen is present in the bay, additional source control measures should be pursued and the addition of oil absorbents should be placed in the upstream structure.

Filter Bay Maintenance

Periodically pollutants must be removed from the filter bay to restore the system to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site.

Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is also good practice to inspect the system after severe storm events.

Types of Filter Bay Maintenance

Presently, procedures have been developed for two levels of filter bay maintenance:

- Inspection/minor maintenance
- Major maintenance

Inspection/minor maintenance activities are combined since minor maintenance does not require special equipment and typically little or no materials are in need of disposal.

Inspection/minor maintenance typically involves:

- Inspection of the bay itself
- Removal of vegetation and trash and debris

Major maintenance typically includes:

- Cartridge replacement
- Sediment removal from the filter bay
- Sediment removal from the sedimentation forebay

Important: Applicable safety (OSHA) and disposal regulations should be followed during all maintenance activities.

Maintenance Activity Timing

Two scheduled inspections/maintenance activities should take place during the year.

First, an inspection/minor maintenance activity should be done. During the minor maintenance activity (routine inspection, debris removal), the need for major maintenance should be determined and, if disposal during major maintenance will be required, samples of the sediments and media should be obtained.

Second, if required, a major maintenance activity (replacement of the filter cartridges and associated sediment removal) should be performed.

In addition to these two scheduled activities, it is important to check the condition of the StormFilter unit after major storms for damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the maintenance activity schedule depending on the actual operating conditions encountered by the system.

In general, minor maintenance activities will occur late in the rainy season, and major maintenance will occur in late summer to early fall when flows into the system are not likely to be present.

Maintenance Activity Frequency

The primary factor controlling timing of maintenance for the Volume StormFilter is sedimentation. If functioning properly, the upstream storage container will have sediments at the base of the unit. This containment area should be cleaned when a foot or more of sediment has been captured.

A properly functioning StormFilter system will remove solids from water by trapping particulates in the porous structure of the filter media. The flow through the system will naturally decrease as more and more solids are trapped. Eventually the flow through the system will be low enough to require replacement of the cartridges. It may be possible to extend the usable span of the cartridges by keeping the sedimentation forebay clean. This will prevent material from being re-suspended and discharged to the system during periods of heavy flow.

Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction should be inspected and maintained more often than those in fully stabilized areas.

The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after large storms.

Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system. It is recommended that the maintenance agency develop a database to properly manage StormFilter maintenance programs.

Prior to the development of the maintenance database, the following maintenance frequencies should be followed:

Inspection/minor maintenance

- One time per year
- After Major Storms

Major maintenance

- One time per year
- In the event of a chemical spill

Frequencies should be updated as required.

The recommended <u>initial</u> frequency for inspection/minor maintenance is two times per year for the Volume StormFilter unit. StormFilter units should be inspected after all major storms. Sediment removal and cartridge replacement on an annual basis is recommended until further knowledge is gained about a particular system.

Once an understanding of site characteristics has been established, maintenance may not be needed for one to two years, but inspection is warranted.

Maintenance Methods

Inspection/Minor Maintenance

The primary goal of a maintenance inspection is to assess the condition of the cartridges relative to the level of sediment loading and the amount of sediment captured in the sedimentation forebay. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, it is likely that the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct an inspection and/or minor maintenance:

Important: Maintenance must be performed by a utility worker familiar with StormFilter units.

1. If applicable, set up safety equipment to protect pedestrians from fall hazards due to open vault doors or when work is being done near walkways or roadways.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors to the vault and allow the system to air out for 5-10 minutes.
4. Without entering the vault, inspect the inside of the unit, including components.
5. Take notes about the external and internal condition of the vault.

   Be sure to record the level of sediment build-up on the floor of the vault, in the sedimentation forebay, and on top of the cartridges. If flow is occurring, note the level of water and estimate the flow rate per drainage pipe. Record all observations.
6. Remove large loose debris and trash using a pole with a grapple or net on the end.
7. Close and fasten the door.
8. Remove safety equipment.
9. Make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
10. Finally, review the condition reports from the previous minor and major maintenance visits, and schedule cartridge replacement if needed.

Major Maintenance

Depending on the configuration of the particular system, a worker may be required to enter the vault to perform some tasks.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows exist. Standing water present in the vault should be regarded as polluted and should be contained during this operation by temporarily capping the manifold connectors.

Replacement cartridges will be delivered to the site. Information concerning how to obtain the replacement cartridges is available from CONTECH Stormwater Solutions.

> **Warning:** In the case of a spill, the worker should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and CONTECH Stormwater Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect pedestrians from fall hazards due to open vault doors or when work is being done near walkways or roadways.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors to the vault and allow the system to air out for 5-10 minutes.
4. Without entering the vault, give the inside of the unit, including components,

a general condition inspection. Make notes about the external and internal condition of the vault.

Give particular attention to recording the level of sediment build-up on the floor of the vault, in the sedimentation forebay, and on top of the internal components.

5. Remove large loose debris and trash using a pole with a grapple or net on the end.
6. Using a boom, crane, or other device (dolly and ramp), offload the replacement cartridges (up to 300 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:
   Important: This activity will require that workers enter the vault to remove the cartridges from the drainage system.

   Method 1:
   (cartridges and filter bay only)

   a. Using an appropriate sling, attach the cable from the boom, crane, or tripod to the cartridge being removed. Contact CONTECH Stormwater Solutions for specifications on appropriate attachment devices.

   This activity will require that workers enter the vault to remove the cartridges from the drainage system and place them under the vault opening for lifting.

   Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

   b. b. Remove the used cartridges (350 lbs. each) from the vault.

   Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner unless CONTECH Stormwater Solutions performs the maintenance activities and damage is not related to discharges to the system.

   c. Set the used cartridge aside or load onto the hauling truck.

   d. Continue steps a through c until all cartridges have been removed.

   Method 2:
   (cartridges, filter bay, and, if necessary, sedimentation bay)

   a. Unscrew the cartridge cap.

   b. Remove the cartridge hood.

   c. Tip the cartridge on its side.

   Important: Note that cartridges containing media other than the leaf media require unscrewing from their threaded connectors. Take care not to damage the manifold connectors. This connector should remain installed in the manifold and capped if necessary.

   d. Empty the cartridge onto the vault floor.

   e. Set the empty, used cartridge aside or load onto the hauling truck.

   f. Continue steps a through e until all cartridges have been removed.

1. Remove deposited sediment from the floor of filter bay, and, if large amounts are present (1' or more), from the sedimentation forebay. Sediment in the filter bay may be removed by shoveling the sediment into containers, which,

once full, are lifted mechanically from the vault and placed onto the hauling truck. If in Step 8, Method 2 is used to empty the cartridges, a vactor truck will be required in cases of extreme sediment loading, or when the sedimentation bay needs cleaning.

2. Once the sediments are removed, assess the condition of the vault and the condition of the manifold and connectors. The connectors are short sections of 2-inch schedule 40 PVC, or threaded schedule 80 PVC that should protrude above the floor of the vault.

   a. If required, apply a light coating of FDA approved silicon grease to the outside of the exposed portion of the connectors. This ensures a watertight connection between the cartridge and the drainage pipe.

   b. Replace any damaged connectors.
3. Using the boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
4. Close and fasten the door.
5. Remove safety equipment.
6. Make notes about the local drainage area relative to ongoing construction, erosion problems, or high loadings of other materials to the system.
7. Finally, dispose of the residual materials in accordance with applicable regulations. Make arrangements to return the used cartridges to CONTECH Stormwater Solutions, Inc.

Related Maintenance Activities
(Performed on an as-needed basis)

StormFilter units are often just one of many components in a more comprehensive stormwater drainage and treatment system. The entire system may include catch basins, detention vaults, sedimentation vaults and manholes, detention/retention ponds, swales, artificial wetlands, and other miscellaneous components.

In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil and grease loading, and discharges of inappropriate materials.

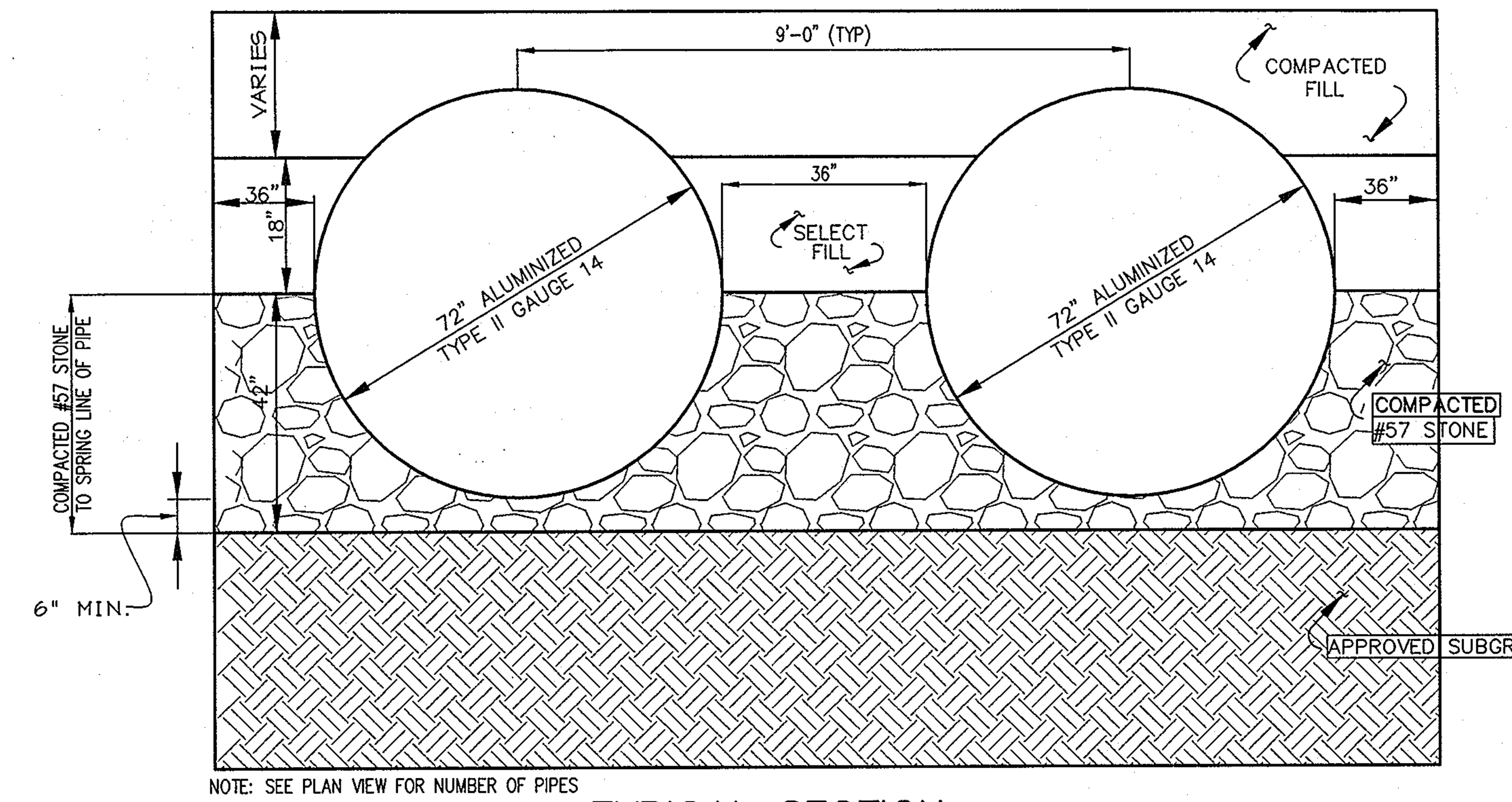
Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in a manner that will not allow the material to affect surface or ground water. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. It is not appropriate to discharge untreated materials back to the stormwater drainage system.

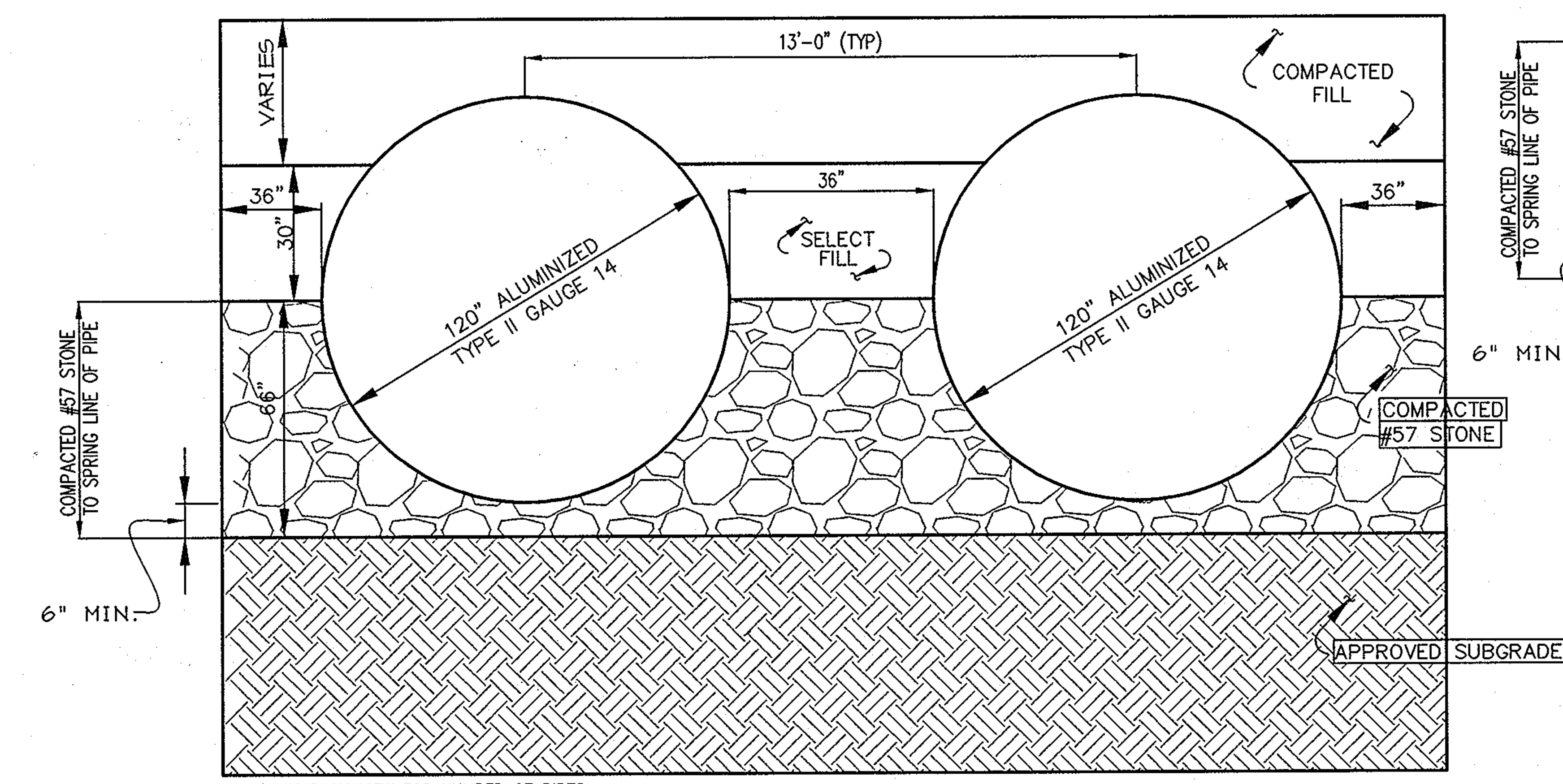
Part of arranging for maintenance to occur should include coordination of disposal of solids (landfill coordination) and liquids (municipal vacuum truck decant facility, local wastewater treatment plant, on-site treatment and discharge).

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals. CONTECH Stormwater Solutions will determine disposal methods or reuse of the media contained in the cartridges. If the material has been contaminated with any unusual substance, the cost of special handling and disposal will be the responsibility of the owner.



NOTE: SEE PLAN VIEW FOR NUMBER OF PIPES

TYPICAL SECTION
NOT TO SCALE

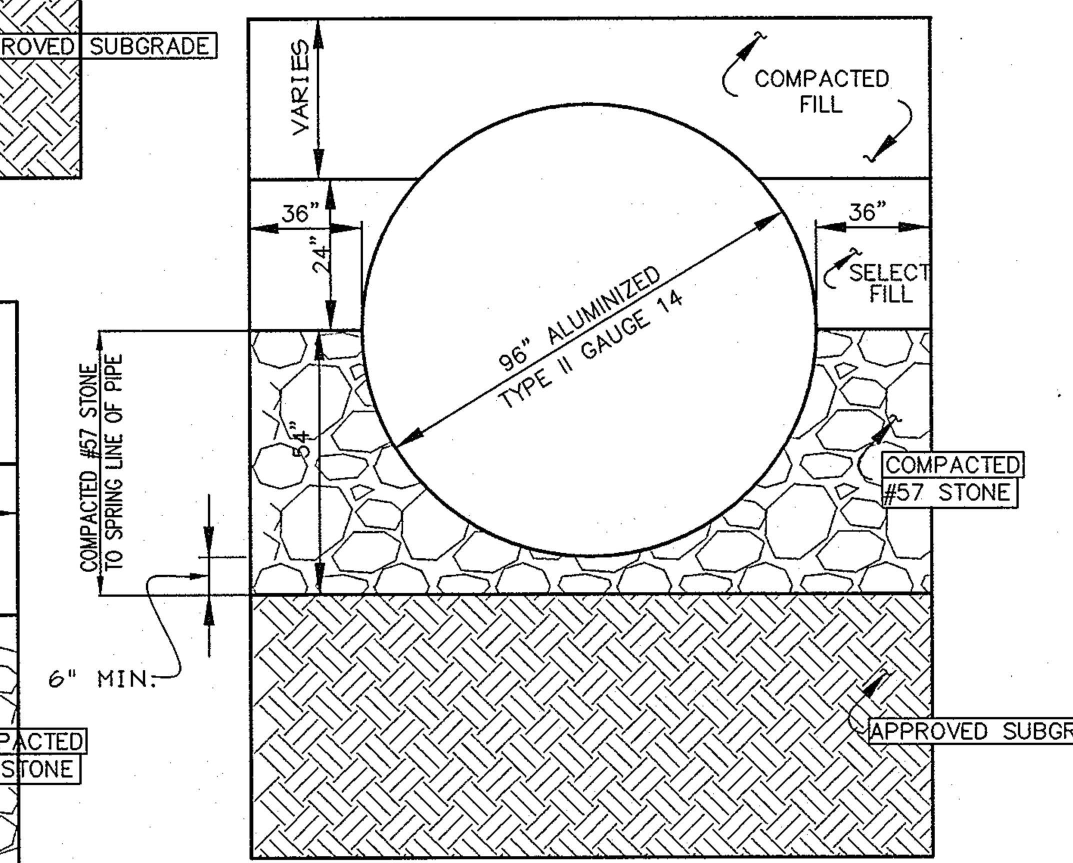


NOTE: SEE PLAN VIEW FOR NUMBER OF PIPES

TYPICAL SECTION
NOT TO SCALE

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL MEET HOWARD COUNTY STANDARDS AND SPECIFICATIONS.
2. CONCRETE STRENGTH SHALL BE 4,000 PSI MIN. AT 28 DAYS.
3. REINFORCEMENT SHALL BE CLEAN AND FREE OF RUST AND MEET ASTM-615 GRADE 60.
4. ALL REINFORCEMENT SHALL HAVE 2" MIN. COVER.
5. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
6. THE STRUCTURE FOUNDATION AND PIPE BEDDING SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO INSTALLATION.
7. CMP PIPE INSTALLATION PER MANUFACTURER'S RECOMMENDATION.
8. CONTRACTOR SHALL EXERCISE CARE DURING CONSTRUCTION SO AS NOT TO DAMAGE UNDERGROUND S.W.M.F. ANY DAMAGE TO CMP, MANHOLES, ETC. SHALL BE REPAIRED BY CONTRACTOR AT HIS/HER EXPENSE TO SATISFACTION OF ENGINEER.
9. ALL DEBRIS SHALL BE KEPT OUT OF THE FACILITY DURING AND AFTER CONSTRUCTION.



NOTE: SEE PLAN VIEW FOR NUMBER OF PIPES

TYPICAL SECTION
NOT TO SCALE

UNDERGROUND STORMWATER MANAGEMENT CONSTRUCTION SPECIFICATIONS

A. SITE PREPARATION

AREAS UNDER THE CULVERTS, STRUCTURAL WORKS, AND STREAM DIVERSION SHALL BE CLEARED, GRUBBED, AND THE TOPSOIL STRIPPED TO REMOVE ALL TREES, VEGETATION, ROOTS, OR OTHER OBJECTIONABLE MATERIAL.

B. SPECIFICATION FOR CORRUGATED STEEL PIPE

DESCRIPTION:

THE ALUMINIZED TYPE II CORRUGATED STEEL SHALL BE FABRICATED IN ACCORDANCE WITH AASHTO DESIGNATION M-274 FROM A BASE METAL MANUFACTURED IN ACCORDANCE WITH ASTM A-525 COATED UNIFORMLY ON BOTH SIDES WITH 1.00 OZ/SQ.FT. OF PURE ALUMINUM.

MATERIAL:

THE <u>72",96",120"</u> DIAMETER CORRUGATED METAL PIPE SHALL BE OF THE CORRUGATION DESIGN AND GAGE INDICATED. THE STEEL PIPE , COUPLERS AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M-36 WITH THE PIPE HAVING A <u>5"</u> X <u>1"</u> CORRUGATION PROFILE AND SHALL BE A MINIMUM <u>14</u> GAUGE (0.<u>079"</u>). THE COUPLING BANDS SHALL BE THE SAME MATERIAL AS THE PIPE AND SHALL BE A MINIMUM OF 10 INCHES WIDE. THE CORRUGATED METAL PIPE SHALL BE MANUFACTURED WITH CONTINUOUS LOCKSEAM OR BUTT WELDED HELICAL CORRUGATIONS AND HAVING NO LESS THAN TWO ANNULAR CORRUGATIONS REROLLED AT BOTH ENDS OF ANY LENGTH OF PIPE. COUPLING BANDS SHALL BE FORMED WITH TWO CORRUGATIONS THAT ARE SPACED TO PROVIDE SEATING IN THE SECOND REROLLED CORRUGATION OF EACH PIPE END, AND PIPE ENDS SHALL BE MATCHED AND NUMBERED. ALL METAL SURFACES SHALL BE GALVANIZED AND PAINTED WITH TWO COATS OF BATTLESHIP GRAY PAINT OR EQUIVALENT.

C. INSTALLATION

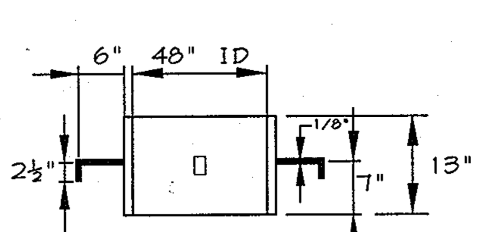
THE CORRUGATED METAL PIPE SHALL BE HANDLED IN A MANNER NOT TO DAMAGE THE PIPE OR COATING. BEDDING AND BACKFILL MATERIAL SHALL BE SELECTED, GRANULAR MATERIAL AND SHALL BE FREE OF ROCKS AND HARD CLODS LARGER THAN 3-INCHES IN SIZE. THE BEDDING AND BACKFILL MATERIAL SHALL BE CAREFULLY PLACED AND CONSOLIDATED EVENLY ON BOTH SIDES OF THE PIPE IN MAXIMUM 8-INCH LOOSE LIFTS. THE PH OF THE SURROUNDING SOIL SHALL BE LESS THAN (9) AND GREATER THAN (4).

THE MATERIAL MUST COMPLETELY FILL ALL SPACES UNDER AND ADJACENT TO THE STRUCTURE OR PIPE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF THE STRUCTURE. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR DRIVE EQUIPMENT OVER A CONCRETE STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24-INCHES OR GREATER OVER THE STRUCTURE OR PIPE.

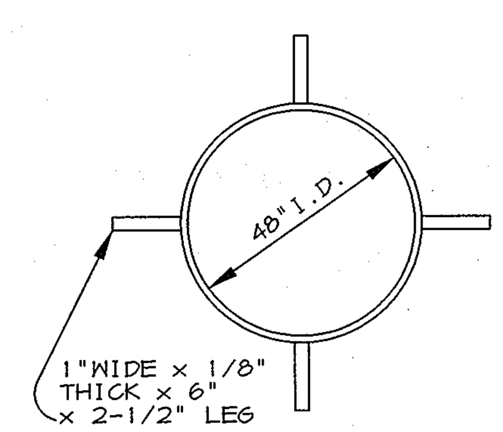
CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SHORING OF TRENCH WALLS TO PREVENT FAILURE DURING CONSTRUCTION.

D. CONNECTIONS

ALL CONNECTIONS SHALL BE COMPLETELY WATERTIGHT. THIS INCLUDES ALL ENDCAPS, PIPES, CONNECTIONS TO AND FROM CONCRETE CONTROL STRUCTURE AND ALL CONNECTIONS FROM STORM DRAINAGE SYSTEM. SEE MATERIAL SPECIFICATIONS ABOVE.

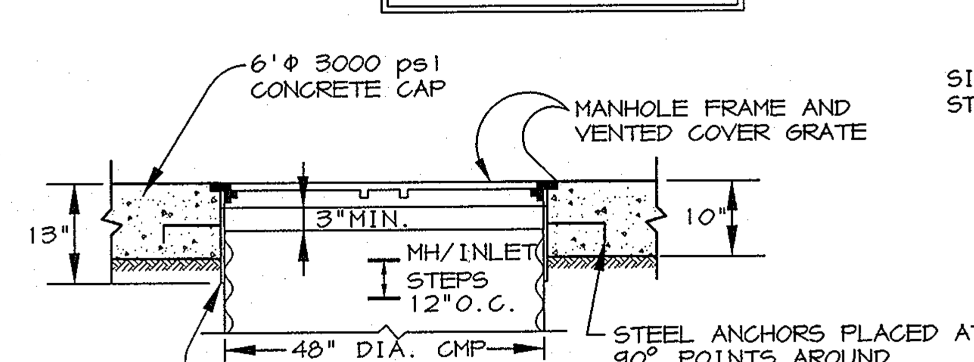


MANHOLE SLEEVE
SIDE VIEW
NO SCALE



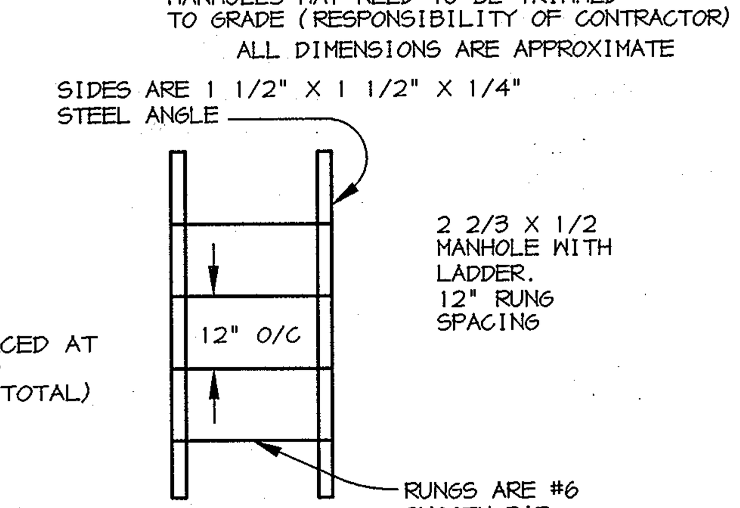
MANHOLE SLEEVE
PLAN VIEW
NO SCALE

ALL PIPE ENDS MUST BE MATCHED AND NUMBERED BY THE MANUFACTURER

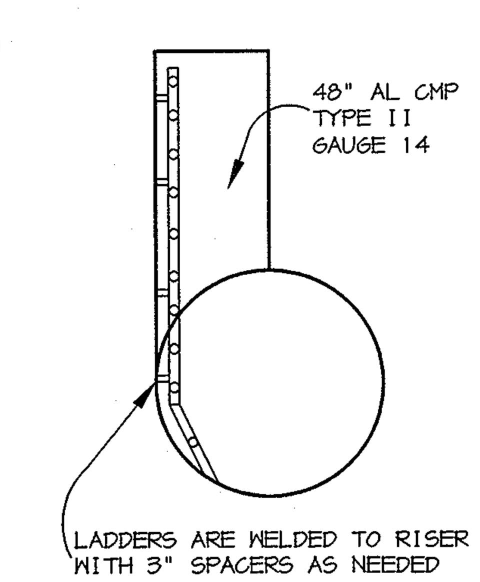


CMP RISER
MANHOLE SLEEVE DETAIL
NO SCALE

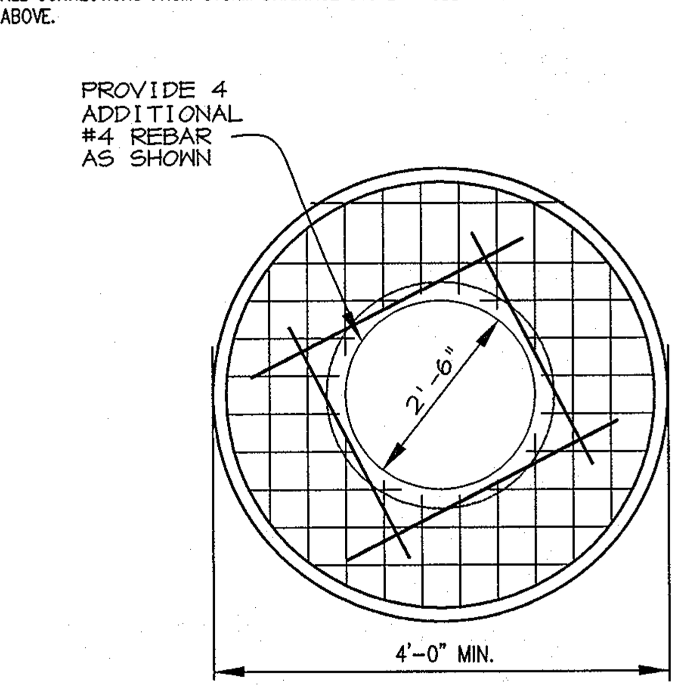
MANHOLES MAY NEED TO BE TRIMMED TO GRADE (RESPONSIBILITY OF CONTRACTOR)
ALL DIMENSIONS ARE APPROXIMATE



RISER LADDER DETAIL
NOT TO SCALE



ACCESS RISER DETAIL
NOT TO SCALE



MANHOLE CONCRETE CAP
SCALE : 1" = 2'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

[signature] 10/15/14
DIRECTOR DATE

[signature] 9/18/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION J.P. DATE

[signature] 10/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT KS DATE

DATE	NO.	REVISION

OWNER: SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT: SAVAGE MILL HOTELS

AREA: TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: UNDERGROUND SWM DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND
SHERRL CLARKE MITCHELL
No. 33954
REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: [signature]

"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PHRA
DRAWN BY: JML
PROJECT NO : 12014-2-0 C400SDP10.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 10 OF 33

SDP-07-076

P:\Project\12014\2-0\PLANS\C400SDP10.DWG

The Stormwater Management StormFilter® Specifications
PRECAST FILTER UNIT

PART 1 GENERAL

1.1 Description

The Contractor shall furnish and install the Stormwater Management StormFilter® stormwater treatment system, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.

StormFilter stormwater treatment system shall consist of an underground Precast structure that houses passive siphon-actuated, radial-flow media-filled filter cartridges.

The siphon actuated radial flow filter cartridges shall be rechargeable and shall incorporate a self actuated surface cleaning mechanism to increase the effective life of the filter media and to reduce the accumulation of material on the cartridge surface.

Each radial flow filter cartridge shall operate at a predetermined flow rate through the use of an integrated flow control orifice located within each filter cartridge outlet manifold.

1.2. Manufacturer

The StormFilter stormwater treatment system shall be of a type that has been installed and in use successfully for a minimum of five (5) or more years. StormFilter stormwater treatment system shall be supplied by CONTECH Stormwater Solutions, Inc., 12021-B NE Airport Way, Portland, OR 97220 (800/548-4667), without exception.

1.3 Related Sections

A. Section [ ]:

1.4 Submittals

A. Submit shop drawings for StormFilter stormwater treatment system vault with filter cartridges and accessory equipment. Drawings shall include principal dimensions, filter placement, location of piping and unit foundation.

B. Submit StormFilter stormwater treatment system Operation and Maintenance Manual upon request.

PART 2 PRODUCTS

2.1 Internal Components

All internal components including ABS and PVC manifold piping, filter cartridge(s), filter media (as specified on the plans in the StormFilter data block or by the Engineer), flow spreaders, and energy dissipators shall be provided by CONTECH Stormwater Solutions, Inc.

A. ABS manifold pipe and fittings shall meet ASTM F628. PVC manifold pipe and fittings shall meet ASTM D1785.

B. Filter cartridge bottom pan, inner ring, and hood shall be constructed from linear low-density polyethylene (LLDPE). Filter cartridge screen shall consist of galvanized 1" x ½" welded wire fabric (16 gauge minimum) with a bonded PVC coating. Internal parts shall consist of ABS or PVC material. Siphon-priming float shall be constructed from linear high-density polyethylene. All miscellaneous nuts, bolts, screws, and other fasteners shall be stainless steel or aluminum.

An orifice plate shall be supplied with each cartridge to restrict flow rate to a maximum of 15 gpm at system design head.

C. Filter media shall be provided by CONTECH Stormwater Solutions, INC. or approved alternate source. Filter media shall consist of one or more of the following, as specified in the StormFilter data block, or by the Engineer:

1. Perlite Media: Perlite media shall be made of natural siliceous volcanic rock free of any debris or foreign matter. The perlite media shall have a bulk density ranging from 6.5 to 8.5 lb/ft³ and particle sizes ranging from that passing through a 0.50 inch screen and retained on a U.S. Standard #8 sieve.

2. CSF Media: CSF media shall be made exclusively of composted fallen deciduous leaves. Filter media shall be granular. Media shall be dry at the time of installation. The CSF leaf media shall have a bulk density ranging from 40 to 50 lb/ft³ and particle sizes ranging from that passing through a 0.50 inch screen to that retained on a U.S. Standard #8 sieve.

3. Metal Rx Media: Metal Rx media shall be made exclusively of composted fallen deciduous leaves. Filter media shall be granular. Media shall be dry at the time of installation. The Metal Rx media shall have a bulk density ranging from 40 to 50 lb/ft³ and particle sizes ranging from that passing through a U.S. Standard #8 sieve to that retained on a U.S. Standard #14 sieve.

4. Zeolite Media: Zeolite media shall be made of naturally occurring clinoptilolite, which has a geological structure of potassium-calcium-sodium aluminosilicate. The zeolite media shall have a bulk density ranging from 44 to 48 lb/ft³, particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #6 sieve.

5. Granular Activated Carbon: Granular activated carbon (GAC) shall be made of lignite coal that has been steam activated. The GAC media shall have a bulk density ranging from 28 to 31 lb/ft³ and particle sizes ranging from that passing through a U.S. Standard #4 sieve to that retained on a U.S. Standard #8 sieve.

6. Zeolite-Perlite-Granular Activated Carbon (ZPG): ZPG is a mixed media that shall be composed of a 1.3 ft³ outer layer of 100% Perlite (see above) and a 1.3 ft³ inner layer consisting of a mixture of 90% Zeolite (see above) and 10% Granular Activated Carbon (see above).

7. Zeolite-Perlite (Zeo/Perl): Zeo/Perl is a mixed media that shall be composed of a 1.3 ft³ outer layer of 100% Perlite (see above) and a 1.3 ft³ inner layer consisting of 100% Zeolite.

8. CSF - Granular Activated Carbon (CSF/GAC): CSF/GAC is a mixed media that shall be composed of a 1.3 ft³ outer layer of 100% CSF media (see above) and a 1.3 ft³ inner layer consisting of 100% Granular Activated Carbon (see above).

9. Perlite - Metal Rx : Perlite/Metal Rx is a mixed media that shall be composed of a 1.3 ft³ outer layer of 100% Perlite (see above) and a 1.3 ft³ inner layer consisting of 100% Metal Rx (see above).

D. Flow spreader shall be constructed of LLDPE.

E. Energy dissipater shall be constructed of polyolefins.

2.2 Precast Concrete Vault Components

A. Precast concrete vault shall be provided according to ASTM C857 and C858.

B. Vault joint sealant shall be Conseal CS-101 or approved equal.

C. If interior concrete baffle walls are provided, baffle walls shall be sealed to the interior vault walls and floor with a polyurethane construction sealant rated for use below the waterline, SikaFlex 1a or equal. Contractor to provide sealant material and installation unless completed prior to shipment.

D. Frames and covers shall be gray cast iron and shall meet AASHTO H-20 loading requirements, and shall be provided according to ASTM A48.

E. Doors shall have hot-dipped galvanized frame and covers. Covers shall have diamond plate finish. Each door to be equipped with a recessed lift handle. Doors shall meet H-20 loading requirements for incidental traffic at a minimum.

F. Steps shall be constructed of copolymer polypropylene conforming to ASTM D-4101. Steps shall be driven into preformed or drilled holes once concrete is cured. Steps shall meet the requirements of ASTM C-478 and AASHTO M-199. The ½" Grade 60 deformed reinforcing bar shall meet ASTM A-615.

G. Ladders shall be constructed of aluminum and steel reinforced copolymer polypropylene conforming to ASTM D-4101. Ladder shall bolt in place. Ladder shall meet all ASTM C-497 load requirements. Ladders provided upon request or where required.

2.3 Contractor Provided Components

All contractor-provided components shall meet the requirements of this section, the plans specifications and contract documents. In the case of conflict, the more stringent specification shall apply.

A. Crushed rock base material shall be six-inch minimum layer of ¾-inch minus rock. Compact undisturbed sub-grade materials to 95% of maximum density at +/-2% of optimum moisture content. Unsuitable material below sub-grade shall be replaced to engineer's approval.

B. Concrete shall have an unconfined compressive strength at 28 days of at least 3000 psi, with ¾-inch round rock, a 4-inch slump maximum, and shall be placed within 90 minutes of initial mixing.

C. Silicone Sealant shall be pure RTV silicone conforming to Federal Specification Number TT S001543A or TT S00230C or Engineer approved.

D. Grout shall be non-shrink grout meeting the requirements of Corps of Engineers CRD-C588. Specimens molded, cured and tested in accordance with ASTM C-109 shall have minimum compressive strength of 6,200 psi. Grout shall not exhibit visible bleeding.

E. Backfill material shall be ¾-inch minus crushed rock, or approved equal.

PART 3 EXECUTION

3.1 Precast Concrete Vault

A. Set precast vault on crushed rock base material that has been placed in maximum 12-inch lifts, loose thickness, and compacted to at least 95-percent of the maximum dry density as determined by the standard Proctor compaction test, ASTM D698, at moisture content of +/-2% of optimum water content.

B. Vault floor shall slope 1/4 inch maximum across the width and slope downstream 1 inch per 12 foot of length. Vault top finish grade shall be even with surrounding finish grade surface unless otherwise noted on plans.

C. Inlet and outlet pipes shall be stubbed in and connected to precast concrete vault according to Engineer's requirements and specifications.

D. If grout is used, Contractor to grout all inlet and outlet pipes flush with or protruding up to 2 inches into interior of vault.

3.2 Ballast

A. When required, ballast shall be placed to the dimensions specified by the engineer and noted on the data block. Ballast shall not encase the inlet and/or outlet piping. Provide 12" clearance from outside diameter of pipes.

3.3 Clean Up

A. Remove all excess materials, rocks, roots, or foreign material, leaving the site in a clean, complete condition approved by the engineer. All filter components shall be free of any foreign materials including concrete and excess sealant.

3.4 Filter Cartridges

A. Filter cartridges shall be delivered with the vault. Contractor shall take appropriate action to protect the cartridges from sediment and other debris during construction. Methods for protecting the cartridges include but are not limited to:

1. Remove cartridges from the vault and store appropriately. Cartridges shall be reinstalled to operate according to 3.4 B (see below).

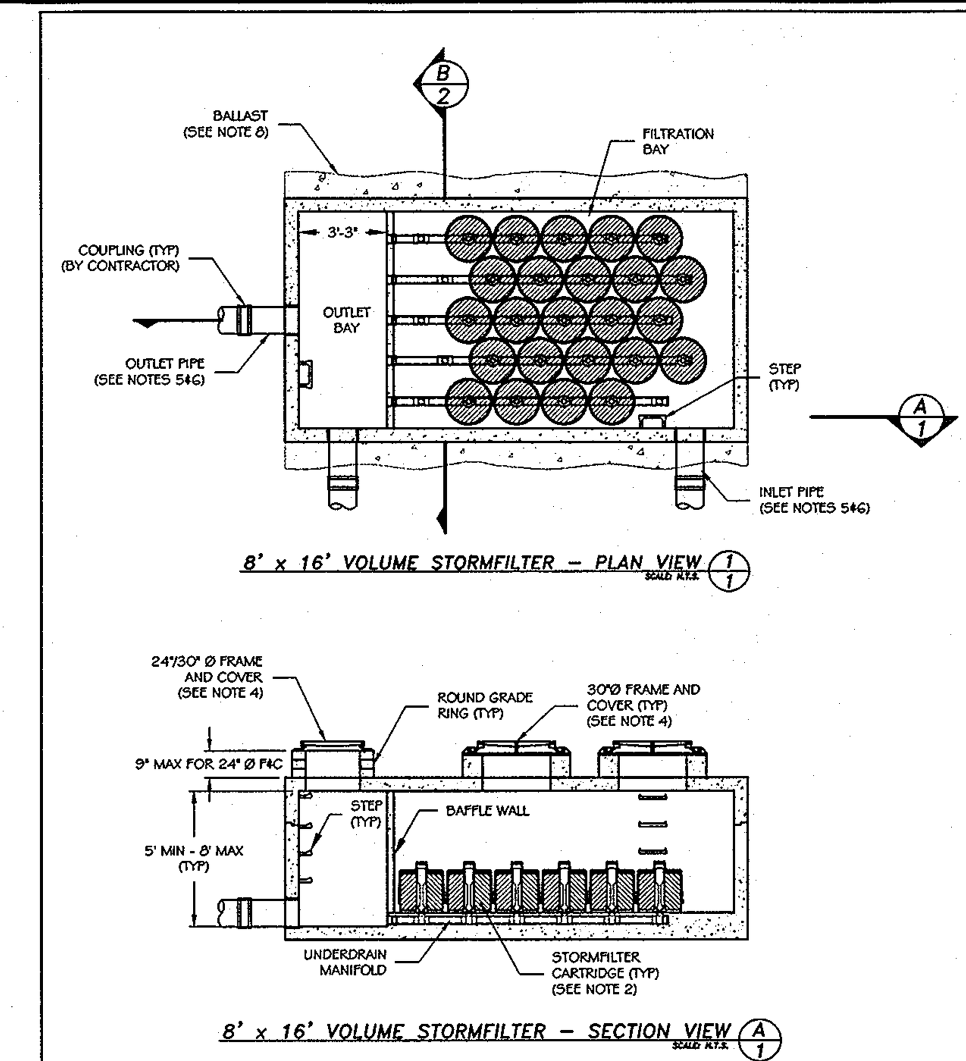
2. If vault is equipped with underdrain bypass piping, Contractor may leave cartridges in the vault and allow stormwater entering collection system to bypass filter bay through underdrain bypass piping.

3. Leave cartridges in the vault and plug inlet and outlet pipe to prevent stormwater from entering the vault.

The method ultimately selected shall be at Contractor's discretion and Contractor's risk.

B. Filter cartridges shall not be placed in operation until the vault is clean and the project site is clean and stabilized. The project site includes any surface that contributes storm drainage to the StormFilter. All impermeable surfaces shall be clean and free of dirt and debris. All catch basins, manholes and pipes shall be free of dirt and sediments. Contact CONTECH Stormwater Solutions, Inc. to assist with system activation and/or inspect the system for proper installation once site is clean and stabilized.

END OF SECTION



©2006 CONTECH Stormwater Solutions

CONTECH STORMWATER SOLUTIONS contechstormwater.com

8' x 16' PRECAST VOLUME STORMFILTER
PLAN AND SECTION VIEWS
STANDARD DETAIL SF-1

DRAWING 1 1/2

DATE: 09/29/05 | SCALE: NONE | FILE NAME: SF816-VOLUME | DRAWN: MJW | CHECKED: ARG

GENERAL NOTES

1) VOLUME STORMFILTER BY CONTECH STORMWATER SOLUTIONS, PORTLAND, OREGON (800) 548-4667.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL DRAWING SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW
3) PRECAST VAULT TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C857 AND C858. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) VOLUME STORMFILTER REQUIRES 2.0 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT CONTECH STORMWATER SOLUTIONS.
6) INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT CONTECH STORMWATER SOLUTIONS FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET ALONG ENTIRE LENGTH OF BOTH SIDES OF THE STRUCTURE.
9) ALL STORMFILTER SYSTEMS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.

8' x 16' PRECAST VOLUME STORMFILTER DATA

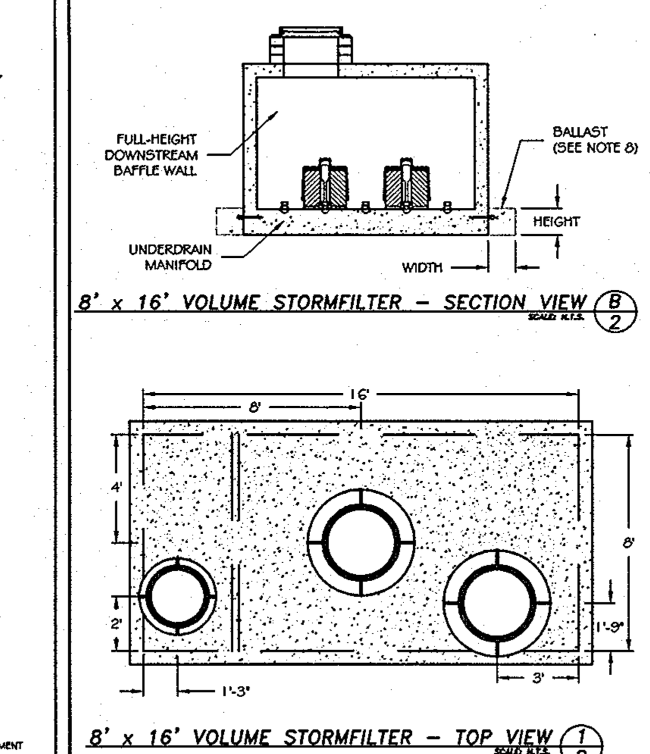
STRUCTURE ID	SF-1
WATER QUALITY VOLUME (ft^3)	5,772.50
STORAGE IN STORMFILTER (ft^3)	757
# OF CARTRIDGES REQUIRED	24
CARTRIDGE FLOW RATE (15 OR 7.5 gpm)	7.5
MEDIA TYPE	XFCSF

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	222.66'	CMP	12"
INLET PIPE #2	N/A	N/A	N/A
OUTLET PIPE	220.66'	CMP	12"

RIM: 240.39' / 238.00' / FLOW / 241.00'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	N/A	N/A

NOTES/SPECIAL REQUIREMENTS:



THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

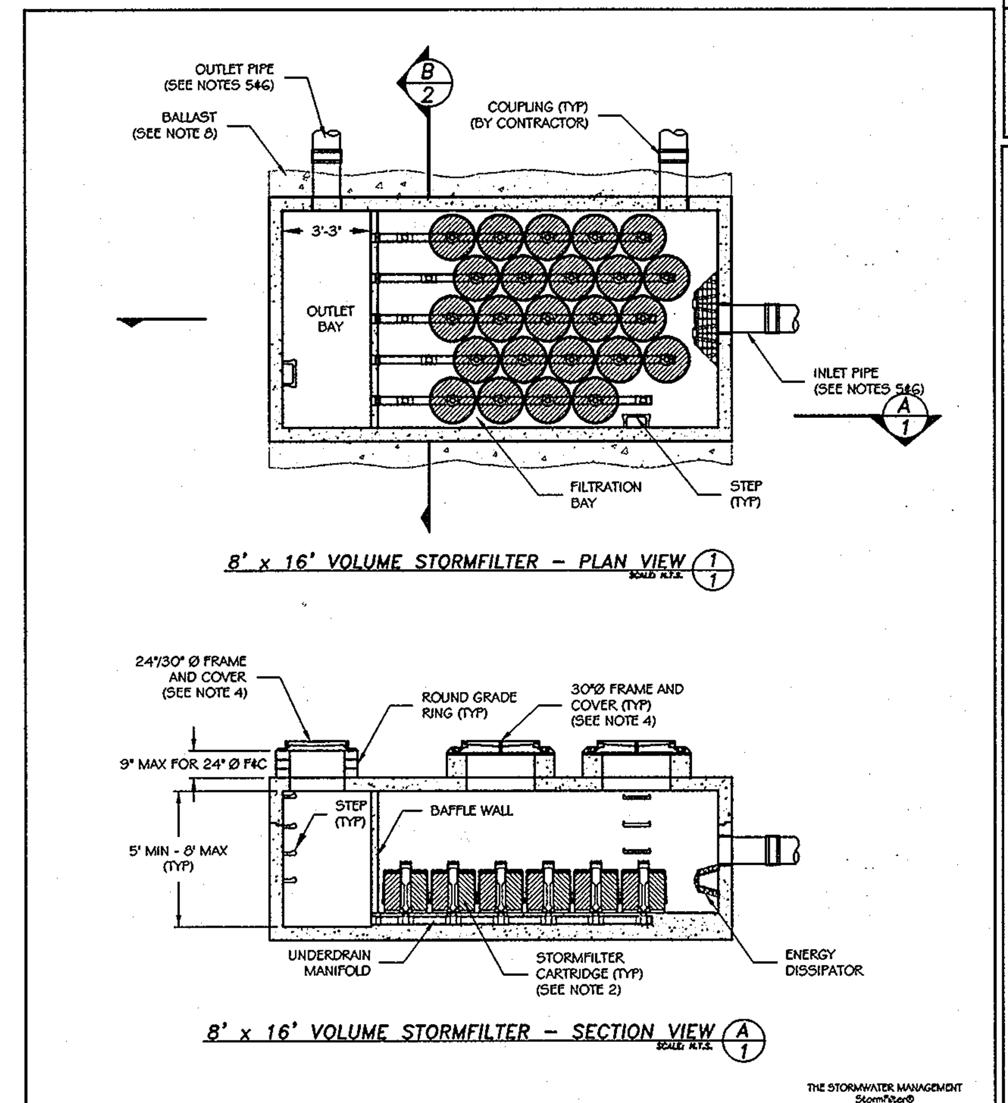
©2006 CONTECH Stormwater Solutions

CONTECH STORMWATER SOLUTIONS contechstormwater.com

8' x 16' PRECAST VOLUME STORMFILTER
TOP AND SECTION VIEWS, NOTES AND DATA
STANDARD DETAIL

DRAWING 2 2/2

DATE: 09/29/05 | SCALE: NONE | FILE NAME: SF816-VOLUME | DRAWN: MJW | CHECKED: ARG



©2006 CONTECH Stormwater Solutions

CONTECH STORMWATER SOLUTIONS contechstormwater.com

8' x 16' PRECAST VOLUME STORMFILTER
PLAN AND SECTION VIEWS
STANDARD DETAIL SF-2

DRAWING 1 1/2

DATE: 09/29/05 | SCALE: NONE | FILE NAME: SF816-VOLUME | DRAWN: MJW | CHECKED: ARG

GENERAL NOTES

1) VOLUME STORMFILTER BY CONTECH STORMWATER SOLUTIONS, PORTLAND, OREGON (800) 548-4667.
2) FILTER CARTRIDGE(S) TO BE SIPHON-ACTUATED AND SELF-CLEANING. STANDARD DETAIL DRAWING SHOWS MAXIMUM NUMBER OF CARTRIDGES. ACTUAL NUMBER REQUIRED TO BE SPECIFIED ON SITE PLANS OR IN DATA TABLE BELOW
3) PRECAST VAULT TO BE CONSTRUCTED IN ACCORDANCE WITH ASTM C857 AND C858. DETAIL DRAWING REFLECTS DESIGN INTENT ONLY. ACTUAL DIMENSIONS AND CONFIGURATION OF STRUCTURE WILL BE SHOWN ON PRODUCTION SHOP DRAWING.
4) STRUCTURE AND ACCESS COVERS TO MEET AASHTO H-20 LOAD RATING.
5) VOLUME STORMFILTER REQUIRES 2.0 FEET OF DROP FROM INLET TO OUTLET. IF LESS DROP IS AVAILABLE, CONTACT CONTECH STORMWATER SOLUTIONS.
6) INLET AND OUTLET PIPING TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR.
7) PROVIDE MINIMUM CLEARANCE FOR MAINTENANCE ACCESS. IF A SHALLOWER SYSTEM IS REQUIRED, CONTACT CONTECH STORMWATER SOLUTIONS FOR OTHER OPTIONS.
8) ANTI-FLOTATION BALLAST TO BE SPECIFIED BY ENGINEER AND PROVIDED BY CONTRACTOR, IF REQUIRED. BALLAST TO BE SET ALONG ENTIRE LENGTH OF BOTH SIDES OF THE STRUCTURE.
9) ALL STORMFILTER SYSTEMS REQUIRE REGULAR MAINTENANCE. REFER TO OPERATION AND MAINTENANCE GUIDELINES FOR MORE INFORMATION.

8' x 16' PRECAST VOLUME STORMFILTER DATA

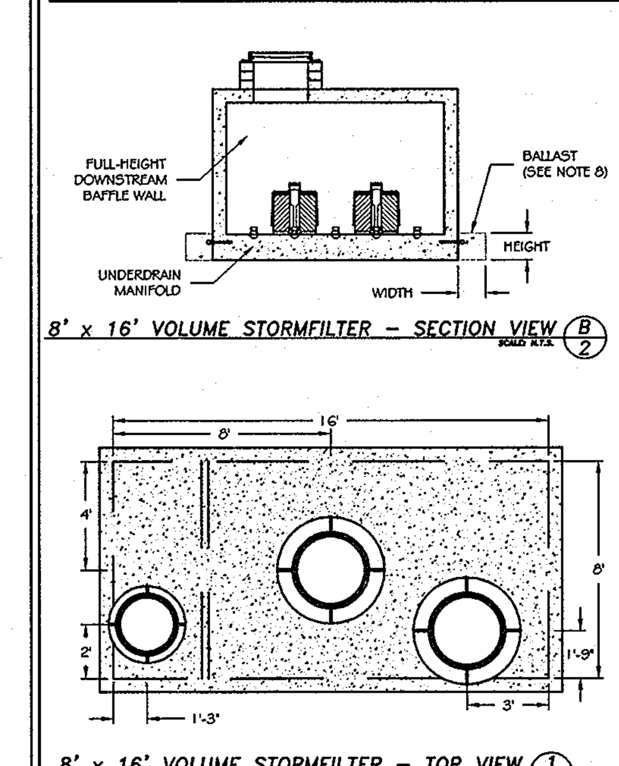
STRUCTURE ID	SF-2
WATER QUALITY VOLUME (ft^3)	5,772.50
STORAGE IN STORMFILTER (ft^3)	757
# OF CARTRIDGES REQUIRED	24
CARTRIDGE FLOW RATE (15 OR 7.5 gpm)	7.5
MEDIA TYPE	XFCSF

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	222.66'	CMP	12"
INLET PIPE #2	N/A	N/A	N/A
OUTLET PIPE	222.66'	CMP	12"

RIM: 238.50' / 236.00' / FLOW / 240.50'

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	N/A	N/A

NOTES/SPECIAL REQUIREMENTS:



THE STORMWATER MANAGEMENT StormFilter® U.S. PATENT No. 5,322,629, No. 5,707,527, No. 6,027,639 No. 6,649,048, No. 5,624,576, AND OTHER U.S. AND FOREIGN PATENTS PENDING

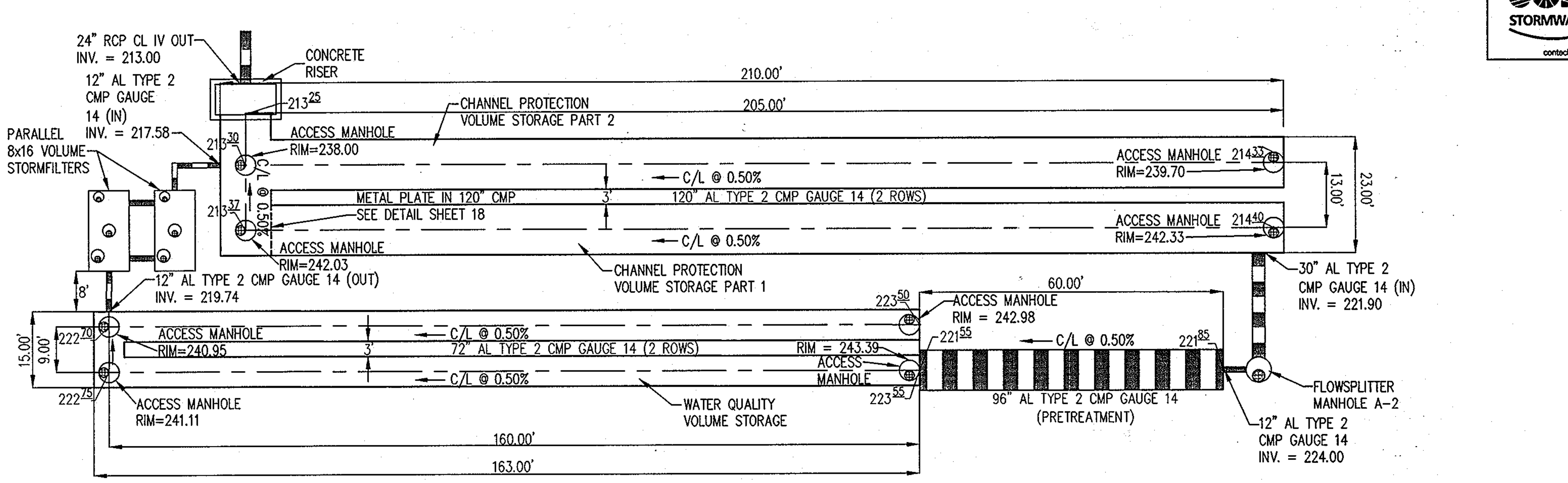
©2006 CONTECH Stormwater Solutions

CONTECH STORMWATER SOLUTIONS contechstormwater.com

8' x 16' PRECAST VOLUME STORMFILTER
TOP AND SECTION VIEWS, NOTES AND DATA
STANDARD DETAIL

DRAWING 2 2/2

DATE: 09/29/05 | SCALE: NONE | FILE NAME: SF816-VOLUME | DRAWN: MJW | CHECKED: ARG



UNDERGROUND STORAGE DETAILS
SCALE: 1"=20'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — J.P. DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER: SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT: SAVAGE MILL HOTELS

AREA: TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: STORM FILTER AND UNDERGROUND STORAGE DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL: STATE OF MARYLAND — SHERYL CLARKE MITCHELL — No. 33954 REGISTERED PROFESSIONAL ENGINEER — 9-8-08

BY: Sheryl C. Mitchell

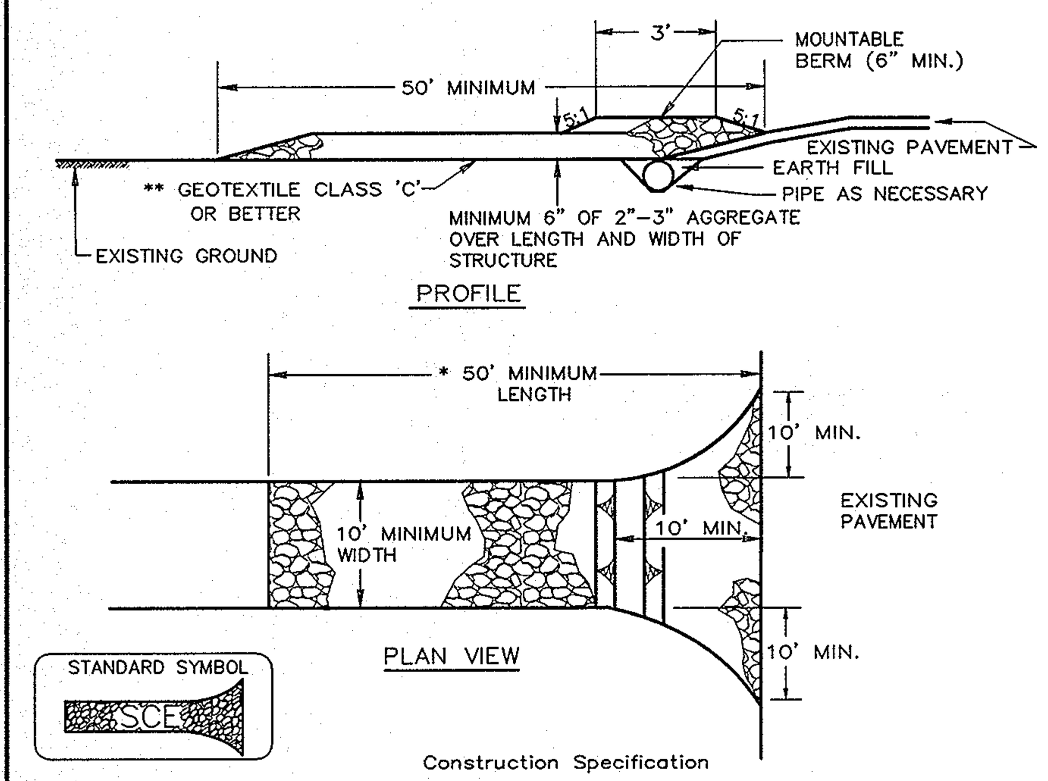
"PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PDS
DRAWN BY: PDS
PROJECT NO : 12014-2-0 C400SDP11.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 11 OF 33

SDP-07-076

P:\Project\12014\2-0\PLANS\C400SDP11.DWG

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

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 residences to use geotextile.

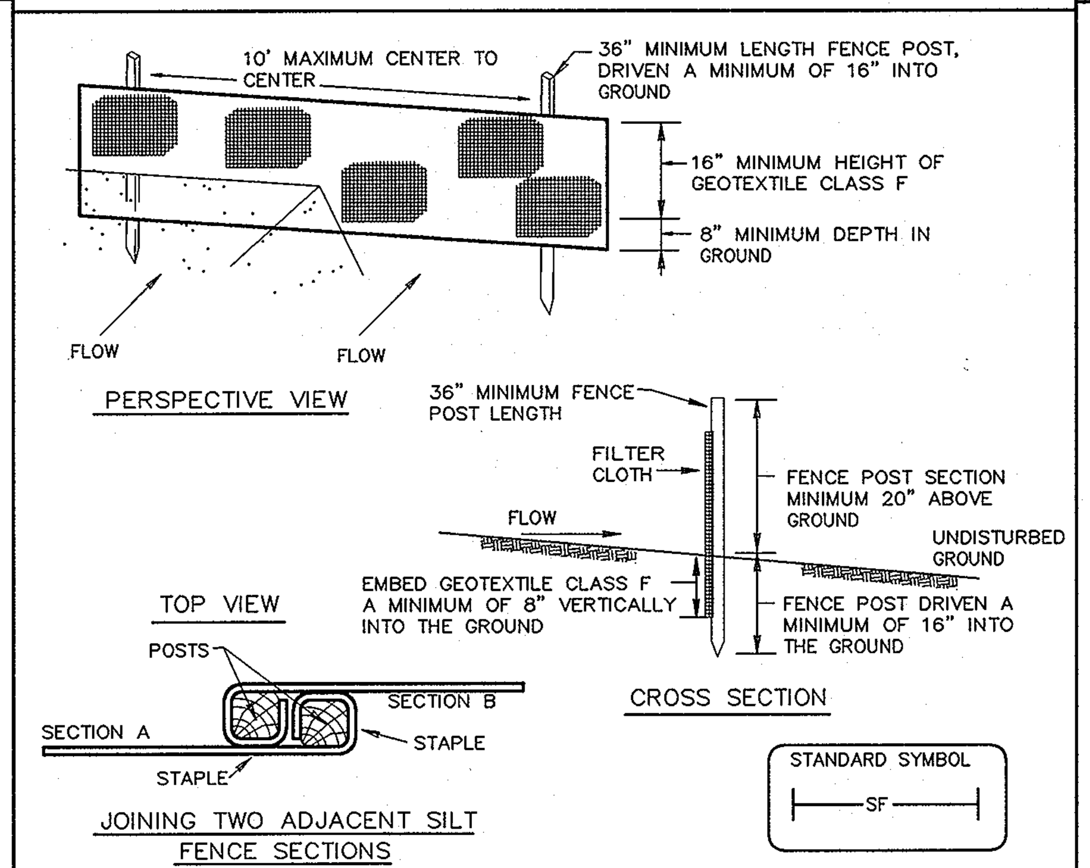
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

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 mountable 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE F – 17 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 11/2" x 11/2" square (minimum) cut, or 13/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pond per linear foot.

2. Geotextile 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:

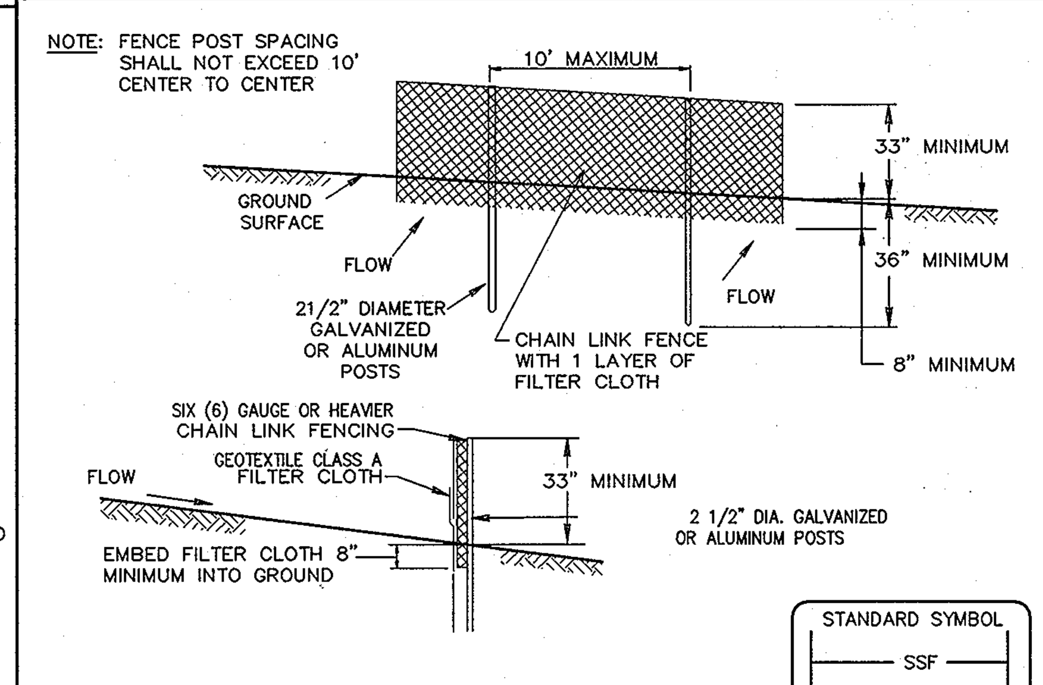
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ²/ minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

3. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.

4. Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 15 – 3	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 – SUPER SILT FENCE



Construction Specifications

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The SHA specifications for a 6 foot fence shall be used, substituting 42" fabric and 6 foot length posts.

2. The posts do not need to be set in concrete.

3. Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.

4. Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.

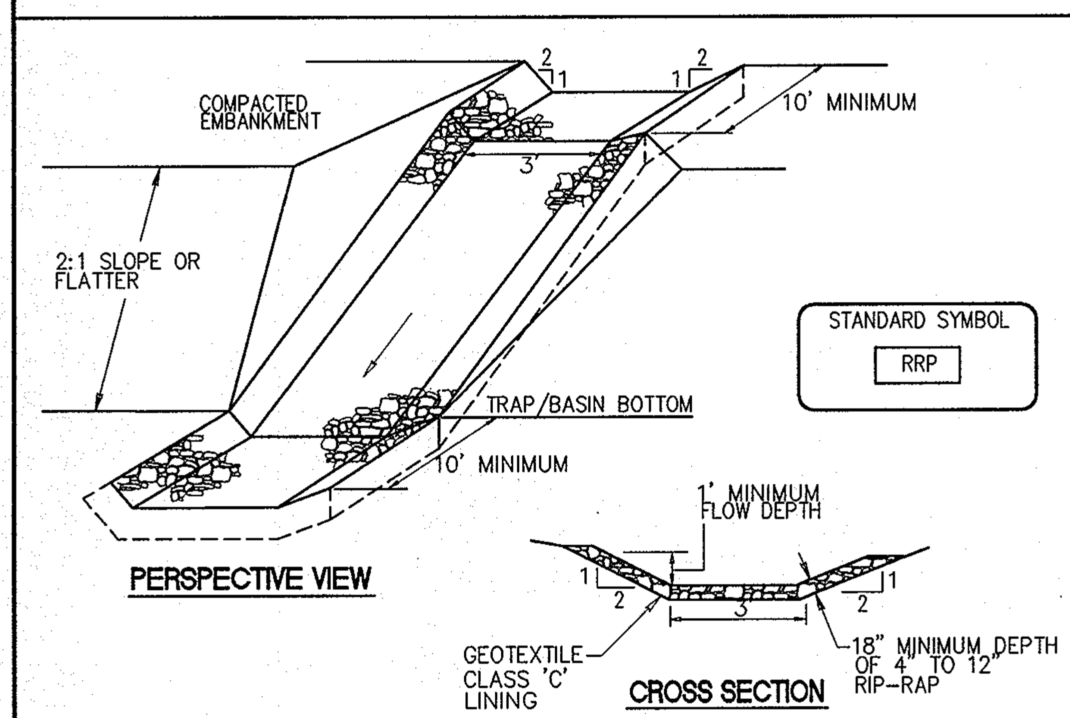
5. Filter cloth shall be embedded a minimum of 8" into the ground.

6. When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.

7. 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

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

DETAIL 5 - RIP-RAP INFLOW PROTECTION

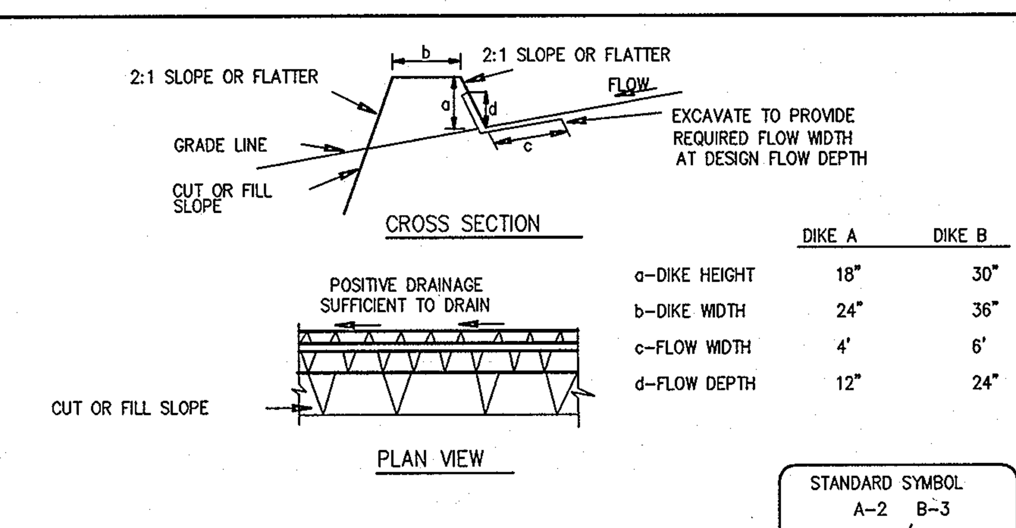


CONSTRUCTION SPECIFICATIONS

1. RIP–RAP LINED INFLOW CHANNELS SHALL BE 1' IN DEPTH, HAVE A TRAPEZOIDAL CROSS SECTION WITH 2:1 OR FLATTER SIDE SLOPES AND 3' (MIN.) BOTTOM WIDTH. THE CHANNEL SHALL BE LINED WITH 4" TO 12" RIP– RAP TO A DEPTH OF 18".
2. FILTER CLOTH SHALL BE INSTALLED UNDER ALL RIP–RAP. FILTER CLOTH SHALL BE GEOTEXTILE CLASS C.
3. ENTRANCE AND EXIT SECTIONS SHALL BE INSTALLED AS SHOWN ON THE DETAIL SECTION.
4. RIP–RAP USED FOR THE LINING MAY BE RECYCLED FOR PERMANENT OUTLET PROTECTION IF THE BASIN IS TO BE CONVERTED TO A STORMWATER MANAGEMENT FACILITY.
5. GABION INFLOW PROTECTION MAY BE USED IN LIEU OF RIP–RAP INFLOW PROTECTION.
6. RIP–RAP SHOULD BLEND INTO EXISTING GROUND.
7. RIP–RAP INFLOW PROTECTION SHALL BE USED WHERE THE SLOPE IS BETWEEN 4:1 AND 10:1, FOR SLOPES FLATTER THAN 10:1 USE EARTH DIKE OR TEMPORARY SWALE LINING CRITERIA.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE B – 6 – 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 1 – EARTH DIKE



	DIKE A	DIKE B
a–DIKE HEIGHT	18"	30"
b–DIKE WIDTH	24"	36"
c–FLOW WIDTH	4'	6'
d–FLOW DEPTH	12"	24"

STANDARD SYMBOL
A–2 B–3

FLOW CHANNEL STABILIZATION
GRADE 0.5% MIN. 10% MAX.

1. Seed and cover with straw mulch.
2. Seed and cover with Erosion Control Matting or line with sod.
3. 4" – 7" stone or recycled concrete equivalent pressed into the soil 7" minimum

Construction Specifications

1. All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.

2. Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.

3. Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non–erosive velocity.

4. All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.

5. The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.

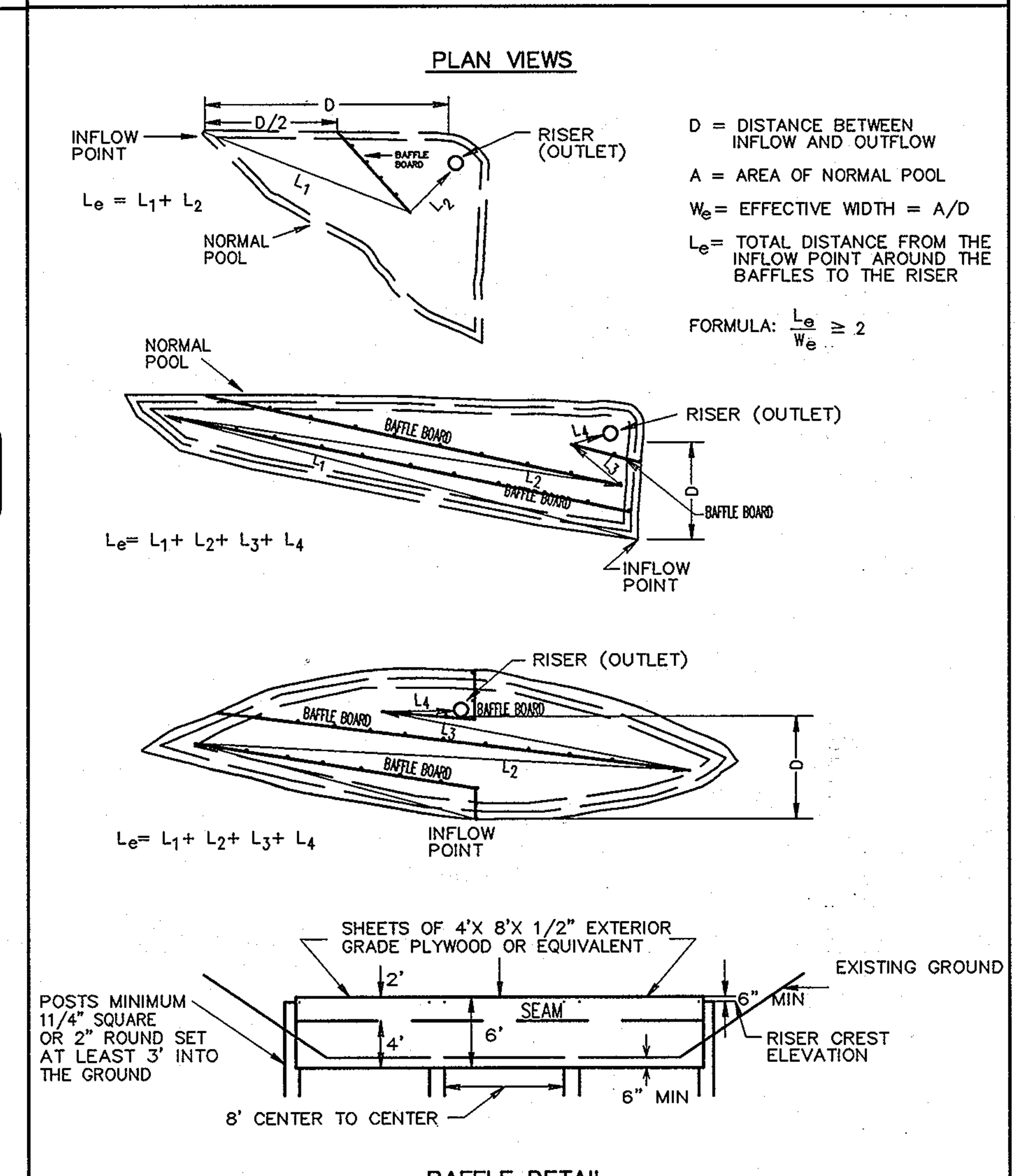
6. Fill shall be compacted by earth moving equipment.

7. All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.

8. Inspection and maintenance must be provided periodically and after each rain event.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE A – 1 – 6	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 18 – SEDIMENT BASIN BAFFLES



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE C – 10 – 28	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SEQUENCE OF CONSTRUCTION

NOTE: THE TOTAL PROJECT SITE HAS BEEN DIVIDED INTO 3 PHASES. PHASE 1 CONSISTS OF HOTEL #1, ASSOCIATED PARKING, PORTION OF RETAINING WALL AT SOUTHEAST CORNER OF SITE, STORM DRAIN, UNDERGROUND STORMWATER MANAGEMENT FACILITIES AND RECHARGE TRENCH, AND ALL OF THE WATER AND SEWER AND CONNECTIONS. PHASE 2 CONSISTS OF HOTEL #2, REMAINING PARKING AND REMAINDER OF RETAINING WALL. PHASE 3 CONSISTS OF OUTFALL IMPROVEMENTS.

1. OBTAIN GRADING PERMIT.

PHASE 1:

2. SCHEDULE AND ATTEND PRE–CONSTRUCTION MEETING. (1 DAY)
3. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON THE PLAN BY SAW CUTTING EXISTING CURB AND GUTTER (AT THE ENTRANCE TO THE SITE FROM EXISTING PARKING LOT). (1 DAY)
4. INSTALL TREE PROTECTION MEASURES AS SHOWN ON FOREST CONSERVATION PLAN. CLEAR THE WOODS ON THE SITE TO INSTALL SILT FENCE AND SUPER SILT FENCE ONLY AS SHOWN ON THE APPROVED PLAN. THE SILT FENCE AND SUPER SILT FENCE SHOULD ALWAYS BE INSTALLED INSIDE THE LIMIT OF DISTURBANCE (L.O.D.) AS SHOWN ON THE PLAN. (4 DAYS)
5. CLEAR ONLY THE AREA NECESSARY TO INSTALL SEDIMENT CONTROL DEVICES AND INSTALL EARTH DIKES P–Q AND P–R AND RIPRAP PROTECTION AT THE END OF THE DIKES AS SHOWN TO DIVERT CLEAN WATER AROUND RETAINING WALL CONSTRUCTION AREA. (4 DAYS)
6. CONSTRUCT RETAINING WALL AS PER DETAILS PROVIDED BY OTHERS AND AS APPROVED BY STRUCTURAL ENGINEER. IMMEDIATELY STABILIZE THE DISTURBED AREA BY TEMPORARY SEEDING. (4 WEEKS)
7. INSTALL SUPER SILT FENCE PARALLEL TO CONTOURS AS SHOWN IN STORM DRAIN OUTFALL AREA. CONSTRUCT STORM DRAIN OUTFALL AND ASSOCIATED RIP RAP FROM STRUCTURES 01, 02 AND 03. CONSTRUCT RISER STRUCTURE 03. CONSTRUCT TEMPORARY BULKHEAD OVER 120" OPENING. INSTALL EROSION CONTROL MATTING (ECM) IMMEDIATELY AFTER CONSTRUCTION OF STRUCTURES 03, 02 AND 01 AND STORM DRAINS BETWEEN STRUCTURES AS SHOWN ON THE APPROVED SEDIMENT CONTROL PLAN FOR PHASE–1. (2 WEEKS)
8. INSTALL SUPER SILT FENCE DOWNSTREAM OF TRAP NO. 1 IF NOT ALREADY IN PLACE. CLEAR AND GRUB FOR INSTALLATION OF TRAP NO. 1. (1 WEEK)
9. CONNECT PIPE OUTLET FOR TRAP NO. 1 TO RISER STRUCTURE 03. (1 DAY)
10. ONCE TRAP NO. 1 IS IN PLACE, AND RETAINING WALL IS IN PLACE, REMOVE EARTH DIKES AND RIP RAP PROTECTION DIVERTING FLOW AROUND RETAINING WALL. INSTALL EARTH DIKES AND RIP RAP PROTECTION TO CONVEY RUNOFF TO TRAP NO. 1. INSTALL 18" PIPE SLOPE DRAIN AT END OF RETAINING WALL AS SHOWN ON PLAN. (3 DAYS)
11. OBTAIN INSPECTORS APPROVAL AND BEGIN CLEARING AND GRADING REMAINDER OF SITE. BEGIN STORM DRAIN INSTALLATION (DELAY CONSTRUCTION OF 6" PVC ROOF LEADERS INTO STRUCTURE A–7). CONSTRUCT STORM DRAIN STRUCTURES A4 TO A3. PROVIDE TEMPORARY BULKHEAD AT 30" OPENING IN STRUCTURE A3. CONSTRUCT TEMPORARY 24" CMP FROM STRUCTURE A3 TO TRAP. (1 WEEK)
12. CONSTRUCT STRUCTURE A12. CONSTRUCT 18" HDPE FROM STRUCTURE A12 TO A11. DO NOT CONSTRUCT STRUCTURE A11 UNTIL TRAP IS REMOVED. (2 DAYS)
13. CONSTRUCT RECHARGE TRENCH. TEMPORARILY BLOCK SHUT 6" OPENING IN STRUCTURE A4 UNTIL SITE IS COMPLETELY STABILIZED. (1 DAY)
14. CONSTRUCT 72" CMP AND 96" CMP. CONSTRUCT 120" CMP WHEN SITE HAS BEEN GRADED TO DRAIN TO STRUCTURE A4. REMOVE EARTH DIKE RUNNING IN SOUTH DIRECTION IN ORDER TO CONSTRUCT 120" CMP. INSTALL EARTH DIKE AS SHOWN ON THE APPROVED PLAN TO DIVERT RUNOFF TO STRUCTURE A4 PRIOR TO COMPLETION OF CURB AND GUTTER CONSTRUCTION. (2 WEEKS)
15. BEGIN WATER AND SEWER CONSTRUCTION, AS PER APPROVED UTILITY PLANS. INSTALL FIRE HYDRANTS, SEWER MANHOLES AND OTHER DETAILS AS SHOWN ON THE APPROVED PLANS. OPERATION OF HEAVY MACHINERY WILL BE RESTRICTED IN AREAS UNDER UTILITY CONSTRUCTION AND UNTIL THE UTILITIES HAVE BEEN INSTALLED TO PROPER COVER AND DESIGN. TRENCH IS NOT TO REMAIN OPEN LONGER THAN ONE DAY. IN AREAS WHERE WATER OR SEWER IS TO BE INSTALLED UNDER EXISTING PAVING OR CURB AND GUTTER, PAVEMENT IS TO BE PATCHED AND CURB AND GUTTER REPLACED AT THE END OF EACH DAY. CAP THE WATER AND SEWER HOUSE CONNECTIONS TO HOTEL #2. (9 WEEKS)
16. AFTER INSTALLING WATER & SEWER UNDER EXISTING TRAFFIC ISLANDS, IMMEDIATELY STABILIZE WITH PERMANENT SEEDING AND LANDSCAPED AS PER REQUIREMENTS. (2 DAYS)
17. UPON COMPLETION OF UTILITY CONSTRUCTION AND COMPLETION OF ALL REQUIRED INSPECTIONS, COMPLETE THE CURB AND GUTTER, SIDEWALK, AND BUILDING CONSTRUCTION (HOTEL # 1). CONNECT ROOF DRAINS FROM HOTEL #1 TO STRUCTURE A–7. (1–2 MONTHS)
18. UPON COMPLETION OF CURB AND GUTTER INSTALLATION, INSTALL THE BASE COURSE PAVING. (3 WEEKS)
19. UPON COMPLETION OF ALL CONSTRUCTION, APPLY TOPSOIL AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (5 DAYS)
20. APPLY FINAL PAVING COURSE. (2 WEEKS)
21. WHEN SITE IS COMPLETELY STABILIZED, OBTAIN PERMISSION FROM INSPECTOR AND FLUSH STORM DRAIN. (1 DAY)
22. WITH PERMISSION OF INSPECTOR, REMOVE TRAP NO. 1 AND ALL REMAINING SEDIMENT CONTROL DEVICES NOT ASSOCIATED WITH PHASE 2. (1 WEEK)
23. AFTER SEDIMENT TRAP HAS BEEN REMOVED AND WITH INSPECTORS APPROVAL, CONSTRUCT STORM DRAIN STRUCTURES A–11 AND A–9 AND CONSTRUCT STORM DRAIN BETWEEN A–9 & A–6 TO COMPLETE THE STORM DRAIN SYSTEM FOR PHASE–1. (1 WEEK)

PHASE 2:

24. CHECK WITH INSPECTOR AND IF REQUIRED, SCHEDULE AND ATTEND PRE–CONSTRUCTION MEETING. (1 DAY)
25. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AS SHOWN ON THE PLAN. (1 DAY)
26. INSTALL SUPER SILT FENCE AS SHOWN ON THE PHASE 2 PLAN. (1 DAY)
27. OBTAIN INSPECTOR'S APPROVAL AND CONSTRUCT THE REMAINDER OF RETAINING WALL. (2 WEEKS)
28. CONSTRUCT STORM DRAIN A–10 AND STORM DRAIN BETWEEN A–10 & A–9. (3–4 DAYS)
29. INSTALL INLET PROTECTION AROUND STRUCTURES A10 AND A11. (1 DAY)
30. OBTAIN INSPECTOR'S APPROVAL AND BEGIN GRADING AS SHOWN ON PHASE 2 PLAN. (2 WEEKS)
31. BEGIN THE CURB AND GUTTER, SIDEWALK, AND BUILDING CONSTRUCTION (HOTEL # 2) AS SHOWN ON PHASE 2 PLAN. CONNECT ROOF DRAINS FROM HOTEL #2 TO STRUCTURE A–9 THROUGH 6" PVC ROOF LEADER AS SHOWN ON THE PLANS. UNCAP WATER AND SEWER HOUSE CONNECTIONS AND CONNECT TO BUILDING. (4 MONTHS)
32. UPON COMPLETION OF CURB AND GUTTER INSTALLATION, INSTALL BASE COURSE PAVING. (1 WEEK)
33. UPON COMPLETION OF ALL CONSTRUCTION, APPLY TOPSOIL AND STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (3 DAYS)
34. APPLY FINAL PAVING COURSE. (1 WEEK)
35. WHEN SITE IS COMPLETELY STABILIZED, OBTAIN PERMISSION FROM INSPECTOR AND REMOVE SEDIMENT CONTROL DEVICES. (1 DAY)

PHASE 3 (OUTFALL IMPROVEMENTS):

36. SCHEDULE AND ATTEND PRE–CONSTRUCTION MEETING.
37. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE AND SUPER SILT FENCE AS SHOWN ON SHEET 15. CONTRACTOR IS TO TAKE CARE TO DISTURB AS FEW TREES AS POSSIBLE TO INSTALL SEDIMENT CONTROL DEVICES AND OUTFALL IMPROVEMENTS. (1 DAY)
ACCESS TO AREA DOWNSTREAM OF WALL IS TO BE FROM SAVAGE MILL SITE.
38. OBTAIN INSPECTORS APPROVAL AND INSTALL RETAINING WALL, CLASS II RIP RAP AND GABION CHANNEL DOWNSTREAM OF WALL. INSTALL EROSION CONTROL MATTING (ECM) AROUND GABION AS SHOWN ON THE APPROVED SEDIMENT CONTROL PLAN FOR PHASE–3. (1 WEEK)
39. REMOVE STONE, SOIL AND ANY EXCESS MATERIALS FROM BASIN ADJACENT TO WEIR WALL. INSTALL TRASH RACK AND CONCRETE PAD OVER 14" OPENING. MAKE SURE THAT 14" OPENING IS CLEAR. REMOVE 12" PERFORATED CMP. (3 DAYS)
40. INSTALL RIPRAP APRON FROM EXISTING STRUCTURE E1 TO WEIR WALL. (1 DAY)
41. UPON COMPLETION OF ALL CONSTRUCTION, STABILIZE ALL DISTURBED AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. (1 DAY)
42. WHEN AREA IS COMPLETELY STABILIZED, OBTAIN PERMISSION FROM INSPECTOR AND REMOVE SEDIMENT CONTROL DEVICES. (1 DAY)

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

9.4.08
DEVELOPER — DATE

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.

Sherryl C. Mitchell 9-8-08
ENGINEER — DATE

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

9/15/08
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

10/15/08
DIRECTOR — DATE

9/10/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

10/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DATE	NO.	REVISION

OWNER: SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113–1580

DEVELOPER: SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT: **SAVAGE MILL HOTELS**

AREA: TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: **SEDIMENT CONTROL DETAILS AND SEQUENCE OF CONSTRUCTION**

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND — SHERRYL CLARKE MITCHELL — No. 33954 — REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherryl C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY	HS
DRAWN BY	HS
PROJECT NO	12014–2–0 C400SDP12.DWG
DATE	SEPTEMBER 8, 2008
SCALE	AS SHOWN
DRAWING NO.	12 OF 33

P:\Project\12014\2–0\PLANS\C400SDP12.DWG

SDP–07–076

DETAIL 4 – PIPE SLOPE DRAIN

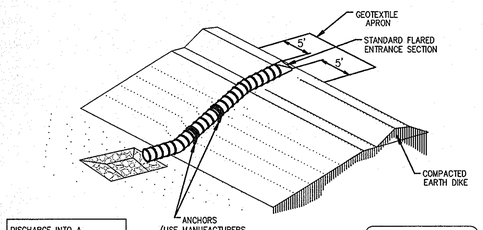


Table 6 Design Criteria for Pipe Slope Drain

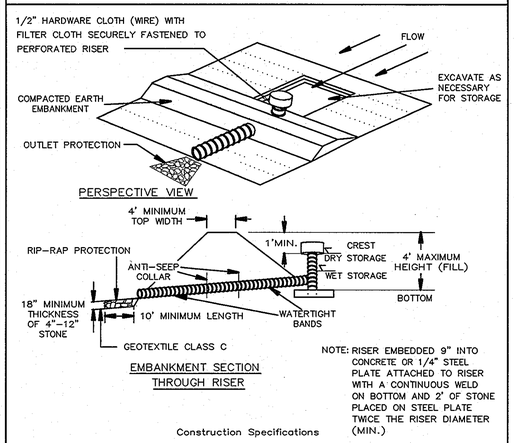
Size	Pipe/Tubing Diameter (D) in	Maximum Drainage Area (Acres)
PSD–12	12	0.5
PSD–18	18	1.5
PSD–21	21	2.5
PSD–24	24	3.5
PSD–24 (2)	24	5.0

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. 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. 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 CONVEYENCE 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.

DETAIL 8 – PIPE OUTLET SEDIMENT TRAP – ST I



NOTE: RISER EMBEDDED 9" INTO CONCRETE OR 1/4" STEEL PLATE ATTACHED TO RISER WITH A CONTINUOUS WELD ON BOTTOM AND 2' OF STONE PLACED ON STEEL PLATE TWICE THE RISER DIAMETER (MIN.)

Construction Specifications

1. The area under the embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
2. The fill material for the embankment shall be free of roots or other woody vegetation as well as oversized stones, rocks, organic material, or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
3. The total trap volume as measured from the bottom to riser crest elevation shall be 3600 cubic feet per acre of drainage area (see Table 9). The top of embankment must be 1' above the riser crest elevation.
4. Sediment shall be removed and the trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap (900cf/ac). The sediment shall be deposited in a suitable area and in such a manner that it will not erode.
5. The structure shall be inspected periodically and after each rain and repairs made as necessary.

DETAIL 16 CONCENTRIC TRASH RACK AND ANTI–VORTEX DEVICE (continued)

Riser Diam., in.	Trash Rack Cylinder Diam. in.	Thick., gage	H, in.	Minimum Size Support Bar	Minimum Top Thickness	Stiffener
12	18	16	6	#6 Rebar	16 ga.	––
15	21	16	7	"	"	––
18	27	16	8	"	"	––
21	30	16	11	"	"	––
24	36	16	13	"	14 ga.	––
27	42	16	15	"	14 ga.	––
36	54	14	17	#8 Rebar	12 ga.	––
42	60	14	19	"	"	––
48	72	12	21	1–1/4" pipe or 1–1/4 x 1–1/4 x1/4 angle	10 ga.	––
54	78	12	25	"	"	––
60	90	12	29	1–1/2" pipe or 1–1/2 x 1–1/2 x1/4 angle	8 ga.	––
66	96	10	33	2" pipe or 2x2x3/16 angle	8 ga., w/stiffener	2x2x1/4 angle
72	102	10	36	"	"	2–1/2x2–1/2x1/4 angle
78	114	10	39	2–1/2" pipe or 2x2x1/4 angle	"	"
84	120	10	42	2–1/2" pipe or 2–1/2x2–1/2x1/4 angle	"	2–1/2 x2–1/2x 5/16 angle

Note: The above trash rack and anti–vortex device information is only for corrugated metal pipe. Concrete risers must meet the requirements of MD 378.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER MANAGEMENT FACILITIES

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHALL BE PERFORMED DURING WET WEATHER TO DETERMINE IF THE FACILITY IS FUNCTIONING PROPERLY.
2. DEBRIS AND LITTER SHALL BE REMOVED AS NEEDED.
3. VISIBLE SIGNS OF EROSION AT THE RIP RAP OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON–ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE RISER, MANHOLES AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM THE FACILITY WHEN DEEMED NECESSARY BY OWNER OR COUNTY.

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON–SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

C E Dingel 9.4.08
DEVELOPER DATE

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.

Shrunil C. Mitchell 9-8-08
ENGINEER DATE

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

9/15/08
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR 10/15/08 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION 9/18/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 10/14/08 DATE

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113–1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SEDIMENT CONTROL DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

STATE OF MARYLAND · GEORGE CLARKE MITCHELL · No. 33954 · REGISTERED PROFESSIONAL ENGINEER · 9-8-08

BY: Shrunil C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

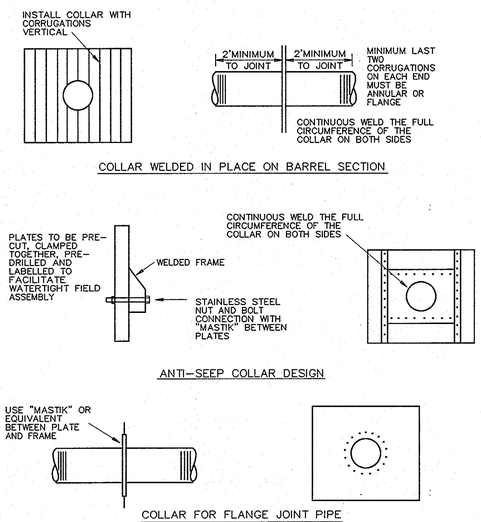
DESIGNED BY : HS
DRAWN BY: JML
PROJECT NO : 12014-2-0 C400SDP07.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 13 OF 33

P:\Project\12014\2-0\PLANS\C400SDP07.DWG

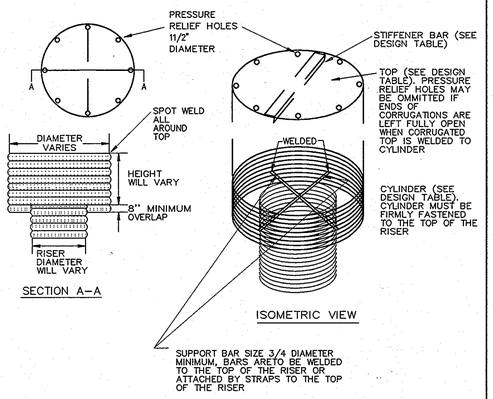
PIPE OUTLET SEDIMENT TRAP – ST I

6. Construction operations shall be carried out in such a manner that erosion and water pollution are abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentrated inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
7. The structure shall be removed and area stabilized when the drainage area has been properly stabilized.
8. All cut and fill slopes shall be 2:1 or flatter.
9. All pipe connections shall be watertight.
10. Above the wet storage elevation, the riser shall be perforated with 1/2" wide by 6" long slits or 1" diameter holes spaced 6" vertically and horizontally. No perforations will be allowed within 6" of the horizontal barrel.
11. The riser shall be wrapped with 1/2" hardware cloth (wire) then wrapped with Geotextile Class E. The filter cloth shall extend 6" above the highest slit and 6" below the lowest slit. Where ends of filter cloth come together, they shall be overlapped, folded and fastened to prevent bypass. Filter cloth shall be replaced as necessary to prevent clogging.
12. Straps or connecting bands shall be used to hold the filter cloth and wire fabric in place. They shall be placed at the top and bottom of the cloth.
13. Fill material around the pipe spillway shall be hand compacted in 4" layers. A minimum of 2' of hand–compacted backfill shall be placed over the pipe spillway before crossing it with construction equipment.
14. The riser shall be anchored with either a concrete base or steel plate base to prevent flotation. Concrete bases shall be at least twice the riser diameter and 12" deep with the riser embedded 9". Steel plate bases shall be at least twice the riser diameter, 1/4" minimum thickness and attached to the bottom of the riser by a continuous weld to form a watertight connection. Then place 2' of stone, gravel or tamped earth on the plate.
15. Anti seep collars shall be constructed in accordance with plans (ref. table 16 and Details 13 and 14).
16. Concentric trash rack and anti–vortex device design details are on Detail 16.
17. Refer to Section D for dewatering requirements of sediment traps.
18. Outlet – An outlet shall be provided, which includes a means of conveying the discharge in an erosion free manner to an existing stable channel.
19. Where discharge occurs at the property line, local ordinances and drainage easement requirements shall be met.

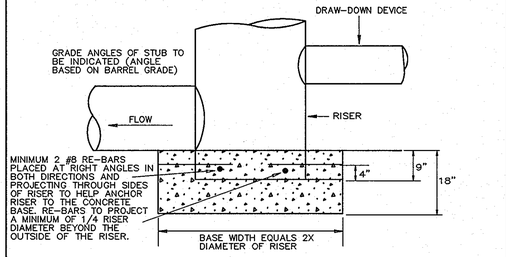
DETAIL 14 – TYPICAL ANTI–SEEP COLLARS



DETAIL 16 – CONCENTRIC TRASH RACK AND ANTI–VORTEX DEVICE



DETAIL 15 – RISER BASE DETAIL



NOTE: ANCHORING BARS SHOULD PROJECT 1/4 DIAMETER BEYOND OUTSIDE OF THE RISER.

Construction Specifications

The riser shall have a base attached with a watertight connection and shall have sufficient weight to prevent flotation of the riser. Two approved bases for risers 10" or less in height are:

1. A concrete base 18" thick with the riser embedded 9" in the base.
2. A 1/4" minimum thickness steel plate attached to the riser by a continuous weld around the circumference of the riser to form a watertight connection. The plate shall have 2' of stone, gravel, or compacted earth placed on it to prevent flotation. In either case, each side of the square base shall be twice the riser diameter.

Note: For risers greater than ten feet high computations shall be made to design a base which will prevent floatation. The minimum factor of safety shall be 1.20 (downward forces = 1.20 x upward forces).

SDP–07–076

VEGETATIVE STABILIZATION METHODS AND MATERIALS

A. SITE PREPARATION

1. INSTALL SEDIMENT AND EROSION CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWATS OR SEDIMENT CONTROL BASINS.

2. PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE FINAL SLOPE, FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.

3. SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.

B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS):

1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES, SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZES COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSIS.

2. FERTILIZERS SHALL BE UNIFORM IN COMPOSTITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WUTH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.

3. LIME MATERIAL SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98-100% WILL PASS THROUGH A #20 MESH SIEVE.

4. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

C. SEEDED PREPARATION:

1. TEMPORARY SEEDING

a. SEEDED PREPARATION SHALL CONSIST OF LOOSENING SOIL, AT A DEPTH OF 3-6' BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHIESEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED, IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHEST CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.

b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.

c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.

2. PERMANENT SEEDING

a. MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT:

I. SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.

II. SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (PPM).

III. THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE, AN EXCEPTION IF LOVEGRASS OR SERECIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.

IV. SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.

V. SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.

VI. IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARDS AND SPECIFICATIONS FOR TOPSOIL.

b. AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3-5' TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.

c. APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.

d. MIX SOIL AMENDMENTS INTO THE TOP 3-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS SUCH AS STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (GREATER THAN 3:1) SHOUL BE TRACKED BY A DOZER LEAVING SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1-3" OF SOIL SHOULD BE LOOSE AND FRIABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.

D. SEED SPECIFICATIONS:

1. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB. NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.

2. INOCULANT - THE INNOCULATION FOR TREATING LEGUME SEEDS IN THE MIXTURE SHALL BE A PURE CULTURE OF NITROGEN-FIXING BATERIA PREPARED ESPECIALLY FOR THE SPECIES. INOCULATNS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. A FRESH INOCULANT AS DIRECTED ON PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WITH HYDROSEEDING. NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80F CAN WEAKER BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

E. METHODS OF SEEDING

1. HYDRO SEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER). BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.
a. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN, MAXIMUM OF 100 LBS/AC. TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHORUS); 200 LBS/AC. K20 (POTASSIUM); 200 LBS/AC.

b. LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE, MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHRN HYDROSEEDING.

c. SEED AND FERTILIZER SHALL BE MIXED ON SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.

2. DRYSEEDING: THIS INCLUDES USE OF CONVENTIONAL, DROP OR BROADCAST SPREADERS.

a. SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26. THE SEEDED AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

3. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.

a. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST ¼ INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.

b. WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

F. MULCH SPECIFICATIONS (IN ORDER OF PREDERENCE):

1. STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE OR OAT STRAW, REASONABLY BRIGHT IN COLOR AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY, AND SHALL BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.

2. WOOD CELLULOSE FIBER MULCH (WCFM).

a. WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.

b. WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN A PACKAGE THAT WILL PROVIE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.

c. WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.

d. WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THA THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APLPICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROUWTH OF THE GRASS SEEDLINGS.

e. WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.

f. SWFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS; FIBER LENGTH TO APPROXIMATELY 10MM, DIAMETER APPROXIMATELY 1MM, pH RANGE OF 4.0-8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM. NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

G. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.

1. IF GRADING IS COMPLETED OUTSIDE THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS ASEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.

2. WHEN STRAW MULCH IS USED IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS/ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 25 TONS/ACRE.

3. WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIZED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

H. SECURING STRAW MULCH (MULCH ANCHORING); MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON SIZE OF AREA AND EROSION HAZARD.

1. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTIUCE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY, IF USED ON SLOPING LAND. THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.

2. WOOD CELLULLOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS/ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE DGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDESR SUCH AS ACRYLIC DLR (AGRO-TACK), DEC-70, PETROSET, TERRA TAX II, TERRA-TACK AR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ACHOR MULCH.

4. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATINOS. NETTING IS USUALLY AVAILABLE IN ROLLS 4-15 FEET WIDE AND 300-3,000 FEET LONG.

TEMPORARY SEEDING NOTES

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. PER 1000 SQ.FT.).

SEEDING: FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU NOVEMBER 15, SEED WITH 2-½ BUSHELS PER ACRE OF ANNUAL RYE (3.2 LBS. PER 1000 SQ.FT). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS. PER ACRE OF WEEPING LOVEGRASS (0.07 LBS. PER 1000 SQ.FT.). FOR THE PERIOD NOVEMBER 16 THRU 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 1-½ TO S TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218 GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL. PER 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 SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS NOT SUBJECT TO IMMEDIATE FURTHER DISTURBANCE WHERE A PERMANENT LONG-LIVED VEGETATIVE COVER IS NEEDED.

SEEDBED PREPARATION: LOSSEN 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 ONE OF THE FOLLOWING SCHEDULES:

1) PREFERRED - APPLY 2 TONS PER ACREA DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 600 LBS. PER ACRE 10-10-10 FERTILIZER (14 LBS. PER 1000 SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER 3 INCHES OF SOIL. AT TIME OF SEEDING, APPLY 400 LBS. PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS. PER 1000SQ.FT.).

2) ACCEPTABLE - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS. PER 1000 SQ.FT.) AND 1000 LBS. PER ACRE 10-10-10 FERTILIZER (23 LBS. PER SQ.FT.) BEFORE SEEDING. HARROW OR DISC INTO UPPER THREE INCHES OF SOIL.

SEEDING: FOR THE PERIOD MARCH 1 THRU APRIL 30 AND FROM AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS. OER ACRE(1.4 LBS. PER 1000 SQ.FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS. KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS. PER ACRE (0.05 LBS. PER 1000 SQ.FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY ONE OF THE FOLLOWING OPTIONS:

1) 2 TONS PER ACRE OF WELL ACHORED MULCH STRAW AND SEED AS SOON AS POSSIBLE IN THE SPRING.

2) USE SOD.

3) SEED WITH 60 LBS. PER ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS PER ACRE WELL ANCHORED STRAW

MULCHING: APPLY 1-½ TO 2 TONS PER ACRE (70 TO 90 LBS. PER 1000 SQ.FT.) OF UNROTTED SMALL GRAIN STRAW IMMEDIATELY AFTER SEEDING. ANCHOR MULCH IMMEDIATELY AFTER APPLICATION USING MULCH ANCHORING TOOL OR 218B GAL. PER ACRE (5 GAL. PER 1000 SQ.FT.) OF EMULSATED ASPHALT ON FLAT AREAS. ON SLOPES, 8 FT. OR HIGHER, USE 347 GAL. PER ACRE (8 GAL PER 1000 SQ.FT.) FOR ANCHORING.

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

STANDARD SEDIMENT CONTROL NOTES

1. A MINIMUM OF 48 HOURS HOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTINO (313-1855).

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 AN 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 STEEPER 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 THE PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER7, 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 SEEDING, SOD, TEMPORARY SEDDING, AND MULCHING (SEC. G). TEMPORARY STABILIZATION WITH MULCH ALONE SHALL ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHED 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	10.06 ACRES
AREA DISTURBED	5.29 ACRES
AREA TO BE ROOFED OR PAVED	4.05 ACRES
AREA TO BE VEGETATIVELY STABILIZED	1.24 ACRES
TOTAL CUT	11,441 CU. YARDS
TOTAL FILL	11,027 CU. YARDS

OFFSITE WASTE AREA LOCATION TO HAVE ACTIVE GRADING PERMIT

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 IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

12. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN A FUNCTIONING CONDITION.

13. SEDIMENT WILL BE REMOVED FROM TRAPS WHEN ITS DEPTH REACHES CLEAN OUT ELEVATION SHOWN ON THE PLANS.

14. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT MATERIAL, NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH SITE CONDITIONS WHICH MAY AFFECT THE WORK

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 SOIL 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 PLANT 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 EXPERIMENTATION 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 1-1/2" IN DIAMETER.
ii. TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
iii. WHERE 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.

IIII. 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 TO 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 DIVERSIONS, 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 SOIL 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.

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 PRESCRIBE AMENDMENTS AND FOR SITE 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.
d. 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.

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

9.4.08
DEVELOPER — DATE

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.

Sherryl C. Mitchell — 9-8-08
ENGINEER — DATE

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

9/15/08
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

10/15/08
DIRECTOR — DATE

9/18/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

10/14/08
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SEDIMENT CONTROL NOTES

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND — SHERRYL CLARKE MITCHELL — No. 33954 — REGISTERED PROFESSIONAL ENGINEER — 9-8-08

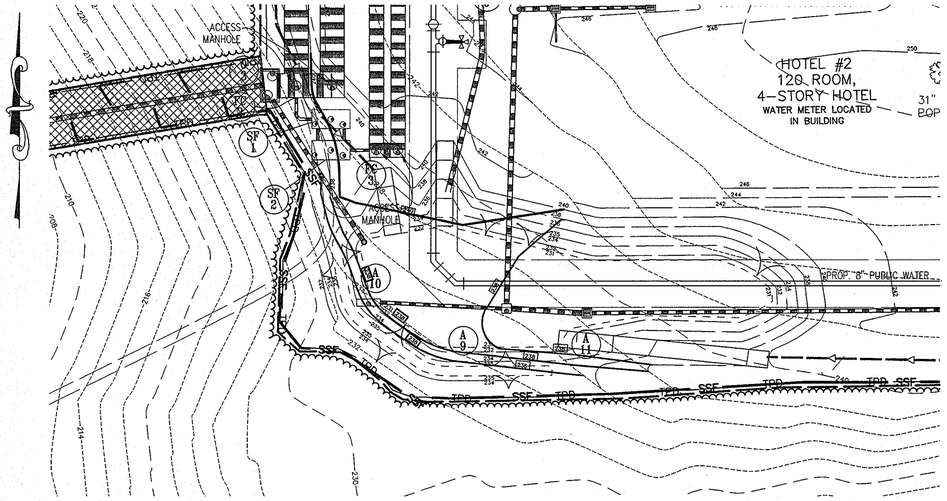
BY: Sherryl C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY :HS
DRAWN BY: HS
PROJECT NO : 12014-2-0 C400SDP14.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 14 OF 33

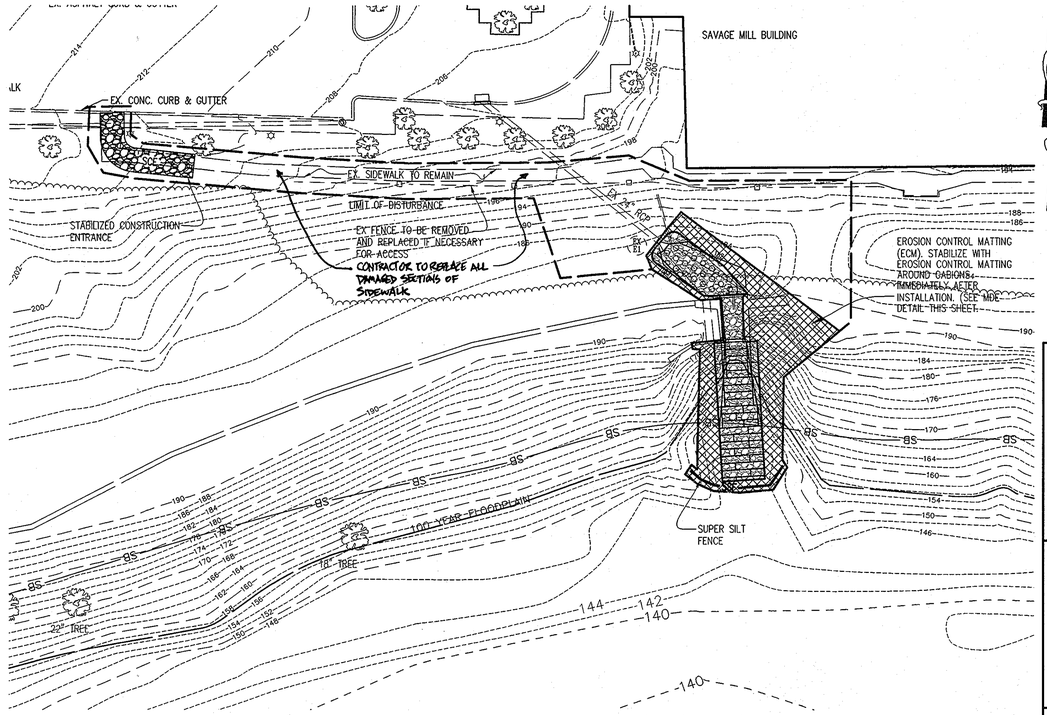
P:\Project\12014\2-0\PLANS\C400SDP14.DWG

SDP-07-076



TRAP REMOVAL PLAN

SCALE: 1" = 30'



GRADING AND SEDIMENT CONTROL PLAN - OUTFALL IMPROVEMENTS

SCALE: 1" = 30'

BY THE DEVELOPER :

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER — DATE 9.8.04

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 — DATE 9-8-08

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 9/15/08

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
GRADING AND SEDIMENT CONTROL PLAN - PHASE 3

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

STATE OF MARYLAND — STEPHEN CLARKE MITCHELL — No. 23654 — REGISTERED PROFESSIONAL ENGINEER

9-8-08

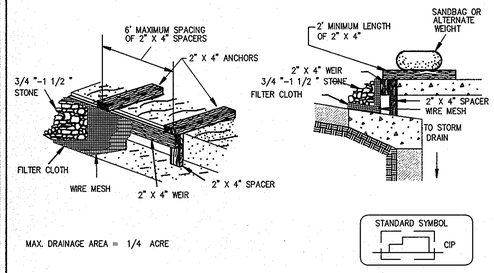
BY: Stephen C. Mitchell

"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. 23654, EXPIRATION DATE: 1/24/09."

DESIGNED BY :	HS
DRAWN BY:	JML
PROJECT NO :	12014-2-0 C400SDP09.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	AS SHOWN
DRAWING NO.	15 OF 33

P:\Project\12014\2-0\PLANS\C400SDP15.DWG

DETAIL 23C - CURB INLET PROTECTION



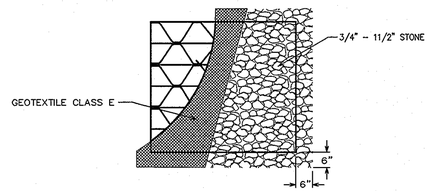
MAX. DRAINAGE AREA = 1/4 ACRE

Construction Specifications

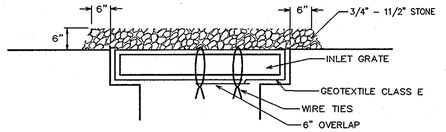
1. Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4') to the 2" x 4" weir (measuring throat length plus 2') as shown on the standard drawing.
2. Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach 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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5B	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B - AT GRADE INLET PROTECTION



PLAN/CUT AWAY VIEW



CROSS SECTION

STANDARD SYMBOL
AGIP

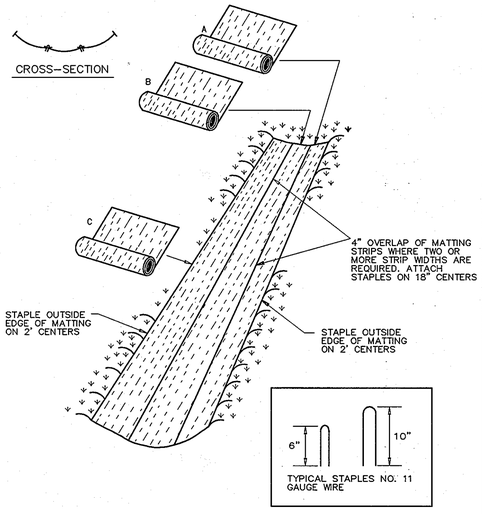
MAX. DRAINAGE AREA = 1/4 ACRE

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.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E - 16 - 5A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

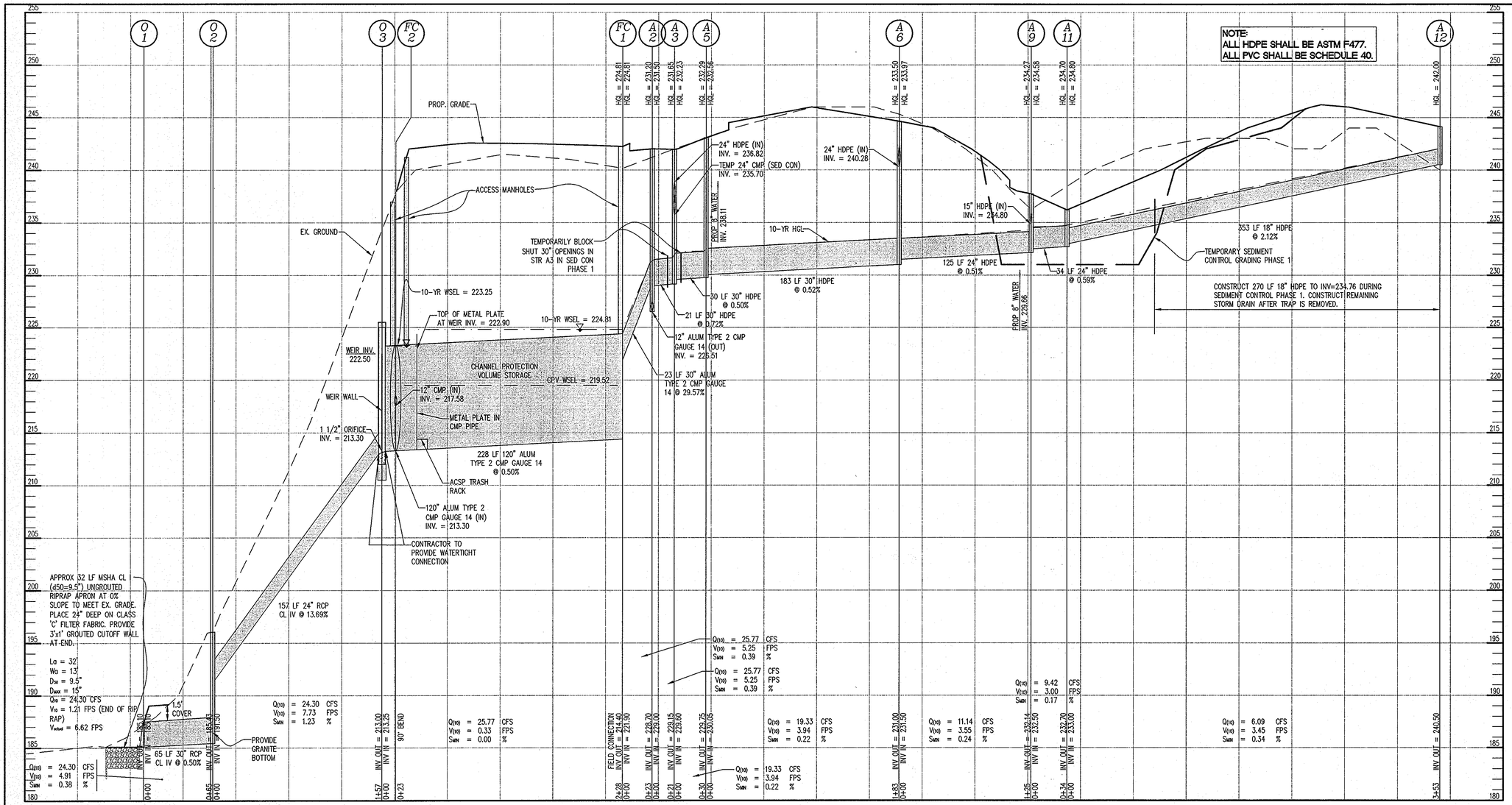
Construction Specifications

1. Key-in the matting by placing the top ends of the matting in a narrow trench, 6" in depth. Backfill the trench and tamp firmly to conform to the channel cross-section. Secure with a row of staples about 4" down slope from the trench. Spacing between staples is 6".
2. Staple the 4" overlap in the channel center using an 18" spacing between staples.
3. Before stapling the outer edges of the matting, make sure the matting is smooth and in firm contact with the soil.
4. Staples shall be placed 2' apart with 4 rows for each strip, 2 outer rows, and 2 alternating rows down the center.
5. Where one roll of matting ends and another begins, the end of the top strip shall overlap the upper end of the lower strip by 4", shiplap fashion. Reinforce the overlap with a double row of staples spaced 6" apart in a staggered pattern on either side.
6. The discharge end of the matting liner should be similarly secured with 2 double rows of staples.

Note: If flow will enter from the edge of the matting then the area effected by the flow must be keyed-in.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE G - 22 - 2A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SDP-07-076



STORM DRAIN PROFILE

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

STRUCTURE SCHEDULE

NUMBER	TYPE	LOCATION		TOP ELEVATION		SIZE	REMARKS
		STATION	OFFSET	UPPER	LOWER		
A2	FLOW SPLITTER 5'-0" MANHOLE	SEE	PLAN	242.00	--	DIA = 5'-0"	MODIFIED G-5.13 SEE SHEET 18
A3	5'-0" MANHOLE	SEE	PLAN	241.95	--	DIA = 5'-0"	G-5.13
A4	A-20 INLET	SEE	PLAN	242.27	--	T = 20'	SD-4.03 MODIFIED TO T=20'
A5	5'-0" MANHOLE	SEE	PLAN	243.06	--	DIA = 5'-0"	G-5.13
A6	5'-0" MANHOLE	SEE	PLAN	244.62	--	DIA = 5'-0"	G-5.13
A7	NYLOPLAST DRAIN BASIN	SEE	PLAN	244.20	--	DIA = 24"	H-25 GRATE
A8	NYLOPLAST DRAIN BASIN	SEE	PLAN	245.60	--	DIA = 24"	H-25 GRATE
A9	4'-0" x 4'-0" MANHOLE	SEE	PLAN	237.72	--	4'-0" x 4'-0"	G-5.05
A10	A-10 INLET	SEE	PLAN	239.40	--	T = 10'	SD-4.03
A11	WR INLET	SEE	PLAN	236.20	--	3'-9 1/8" x 3'-7 1/4"	SD-4.37
A12	WR INLET	SEE	PLAN	244.12	--	3'-9 1/8" x 3'-7 1/4"	SD-4.37

STRUCTURE SCHEDULE

NUMBER	TYPE	LOCATION		TOP ELEVATION		SIZE	REMARKS
		STATION	OFFSET	UPPER	LOWER		
A13	A-20 INLET	SEE	PLAN	246.86	--	T = 20'	SD-4.03 MODIFIED TO T=20'
O1	END SECTION	SEE	PLAN	--	--	DIA = 30"	SD - 5.51
O2	4'-0" MANHOLE	SEE	PLAN	196.07	--	DIA = 4'-0"	G-5.11
O3	CONCRETE RISER	SEE	PLAN	--	--	13'-0" x 7'-0"	SEE DETAIL SHEET 18
SF1	STORM FILTER	SEE	PLAN	--	--	8' x 16'	SEE DETAIL SHEET 11
SF2	STORM FILTER	SEE	PLAN	--	--	8' x 16'	SEE DETAIL SHEET 11

NOTES

1) ALL STRUCTURES ARE HOWARD COUNTY OR MARYLAND STATE HIGHWAY ADMINSTRATION STANDARDS UNLESS NOTED OTHERWISE. CONTRACTOR MAY USE PRECAST ALTERNATE WHERE AVAILABLE.

2) STATIONS ARE GIVEN TO CENTER OF STRUCTURE AT FACE OF CURB FOR CURB INLETS AND TO CENTER OF STRUCTURE FOR ALL OTHER STRUCTURES.

3) ELEVATIONS ARE GIVEN TO TOP OF CURB FOR CURB INLETS, TOP OF GRATE FOR GRATE INLETS AND TOP OF LID FOR MANHOLES.

4) PIPE LENGTHS ARE GIVEN TO THE CENTER OF THE STRUCTURE. CONTRACTOR SHALL ADJUST LENGTH TO OBTAIN ACTUAL PIPE LENGTHS.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/8/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
STORM DRAIN PROFILES AND SCHEDULES

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

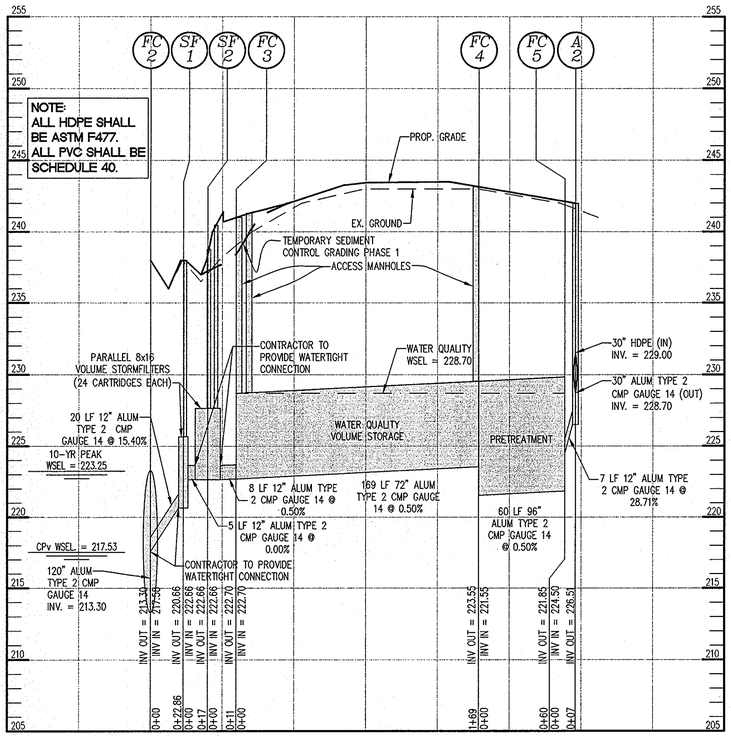
SEAL
STATE OF MARYLAND — SHERRYL CLARKE MITCHELL — No. 21627 — REGISTERED PROFESSIONAL ENGINEER
9-8-08
BY: Sherryl C. Mitchell

"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. 21627, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PDS
DRAWN BY: PDS
PROJECT NO : 12014-2-0 C400SDP16.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 16 OF 33

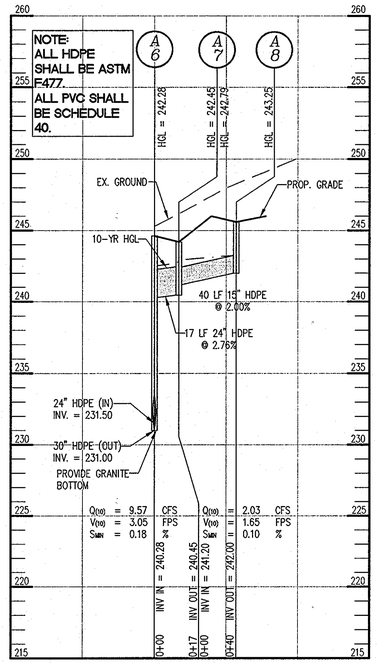
SDP-07-076

P:\Project\12014\2-0\PLANS\C400SDP16.DWG



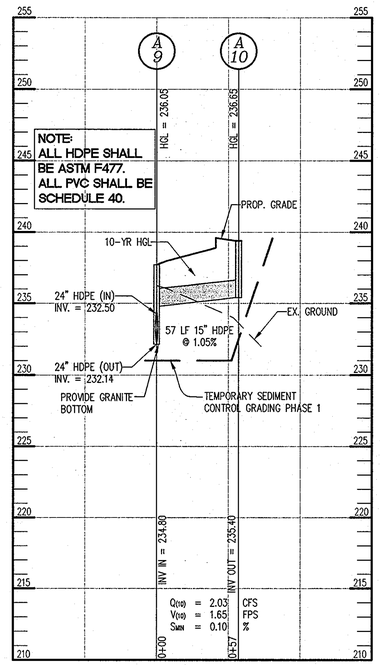
WATER QUALITY PROFILE

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



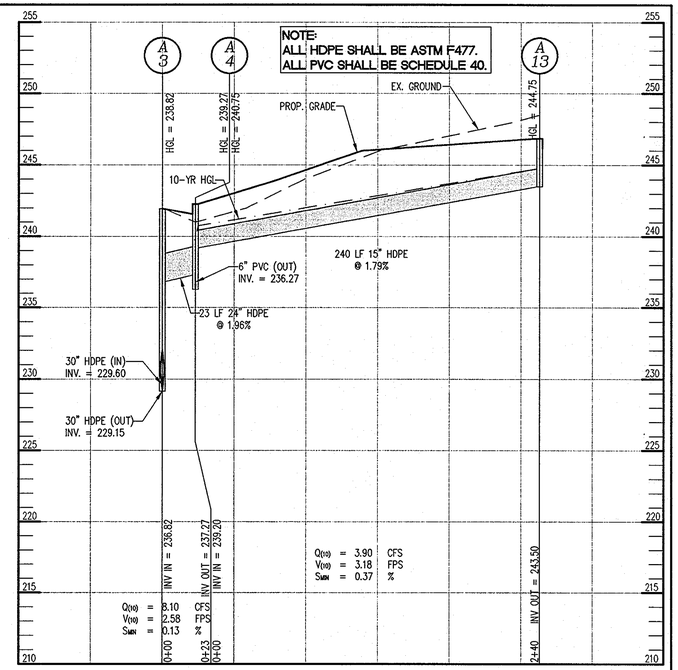
STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

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



STORM DRAIN PROFILE

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

HDPE SPECIFICATIONS

CORRUGATED HIGH-DENSITY POLYETHYLENE STORM DRAIN (HDPE) PIPE FOR ON-SITE DRAINAGE SYSTEM SHALL MEET THE REQUIREMENTS OF AASHTO M294. AASHTO WALL TYPE MAY BE TYPE "S" OR TYPE "D". PIPE AND FITTINGS SHALL BE MANUFACTURED FROM VIRGIN PE COMPOUNDS AND SHALL CONFORM TO THE APPLICABLE CURRENT EDITION OF THE AASHTO MATERIAL SPECIFICATIONS FOR CELL CLASSIFICATIONS AS DEFINED AND DESCRIBED IN ASTM D3350.

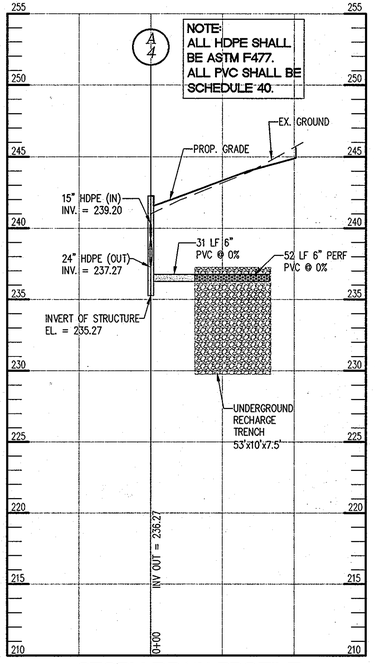
PIPES SHALL BE CONNECTED THROUGH A BELL AND SPIGOT CONNECTION. A RUBBER GASKET MEETING THE REQUIREMENTS OF ASTM F477 SHALL BE SUPPLIED ON THE SPIGOT END. THE PIPE MANUFACTURER SHALL PROVIDE CERTIFICATIONS ON JOINT INTEGRITY.

PIPE TO MANHOLE CONNECTIONS SHALL BE MADE WITH A RUBBER BOOT-TYPE CONNECTION PRECAST INTO THE MANHOLE AND SHALL BE WATERTIGHT.

PIPE SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321 AND MANUFACTURER'S RECOMMENDATIONS.

ALL PIPES SHALL BE BEDDED ON 4" TO 6" OF (CLASS I FILL (UNDER THE PIPE) AND UP TO ½ THE PIPE DIAMETER COMPACTED AT OPTIMUM MOISTURE CONTENT (PLUS OR MINUS 2 PERCENTAGE POINTS), AND TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY AS DETERMINED IN THE LABORATORY BY ASTM TEST METHOS D-1557-78. ALL ADDITIONAL BACKFILL SHALL MEET HOWARD COUNTY SPECIFICATIONS.

CORRUGATED HDPE STORM DRAIN SHALL BE N-12 PRO-LINK WT, AS MANUFACTURED BY ADS, INC., COLUMBUS, OH, OR APPROVED EQUAL.



STORM DRAIN PROFILE

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

PIPE SCHEDULE

SIZE	TYPE	LINEAR FOOTAGE
15"	HDPE ASTM F477 *	337
18"	HDPE ASTM F477 *	353
24"	HDPE ASTM F477 *	199
30"	HDPE ASTM F477 *	262
12"	ALUM TYPE 2 CMP GAUGE 14	40
30"	ALUM TYPE 2 CMP GAUGE 14	23
72"	ALUM TYPE 2 CMP GAUGE 14	329
96"	ALUM TYPE 2 CMP GAUGE 14	60
120"	ALUM TYPE 2 CMP GAUGE 14	425
24"	RCP CL IV	157
30"	RCP CL IV	65
6"	PVC SCH 40	119

* N-12 PRO-LINE WT.AS MANUFACTURED BY ADS., INC., OR APPROVED EQUAL

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/8/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/4/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
STORMWATER MANAGEMENT PROFILES AND SCHEDULES

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND — SHERRY CLARKE MITCHELL — No. 23954 — REGISTERED PROFESSIONAL ENGINEER
9-8-08

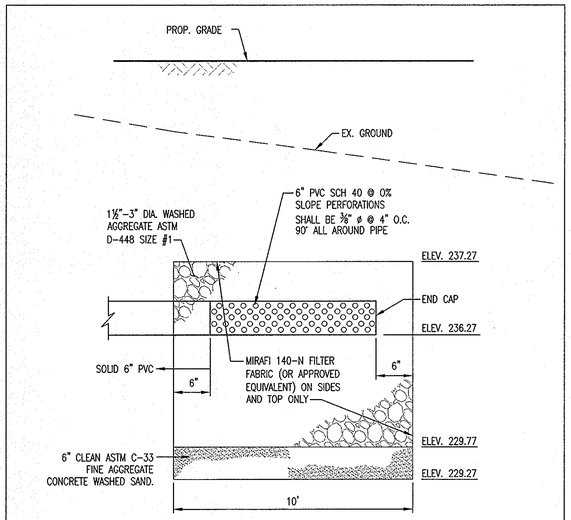
BY: Sherry C. Mitchell

"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. 23954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PDK
DRAWN BY: PDK
PROJECT NO : 12014-2-0 C400SDP17.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 17 OF 33

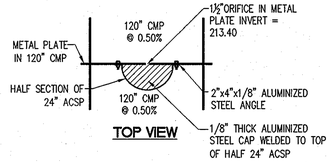
P:\Project\12014\2-0\PLANS\C400SDP17.DWG

SDP-07-076

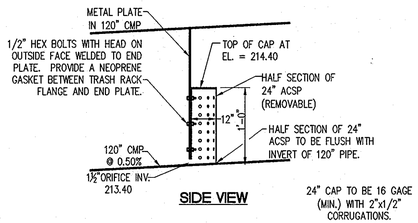


RECHARGE TRENCH TYPICAL SECTION

SCALE : NONE

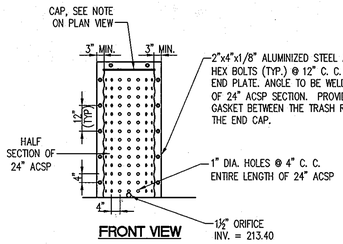


TOP VIEW



SIDE VIEW

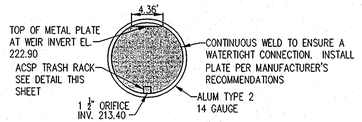
24" CAP TO BE 16 GAGE (MIN.) WITH 2"x1/2" CORRUGATIONS.



FRONT VIEW

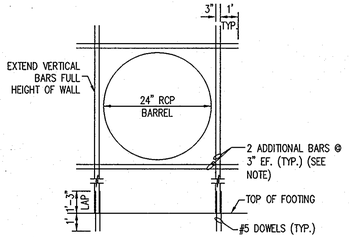
ACSP TRASH RACK

(NOT TO SCALE)



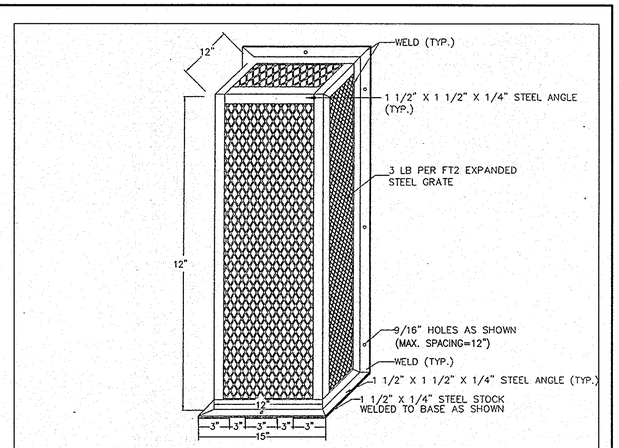
CORRUGATED METAL PLATE IN 120" CMP

SCALE: 1" = 10'



OPENING REINFORCING DETAIL

NOT TO SCALE

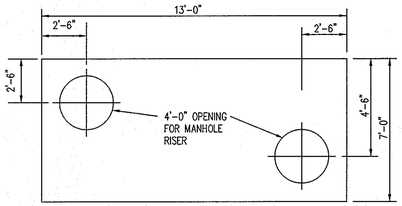


GENERAL NOTES FOR TRASH RACK

1. STEEL TO CONFORM TO ASTM A-36.
2. ALL SURFACES OF TRASH RACK(S) MUST BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. TRASH RACK(S) TO BE FASTENED TO WALL WITH 1/2" MASONRY ANCHORS. TRASH RACK(S) TO BE REMOVABLE.
4. TRASH RACK(S) TO BE CENTERED OVER OPENING.
5. FABRICATOR MAY MODIFY COMPONENTS OF TRASH RACK FRAME TO IMPROVE CONSTRUCTABILITY OF TRASH RACK. SHOP DRAWINGS SHOWING MODIFICATIONS MUST BE APPROVED BY MCDPS PRIOR TO FABRICATION.

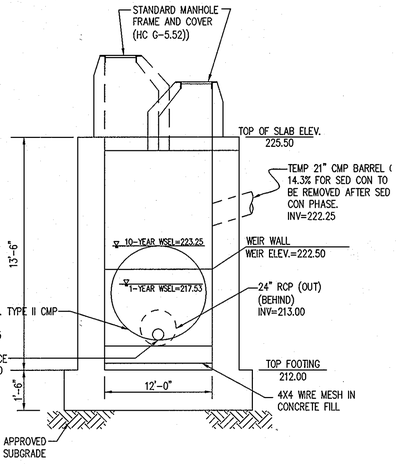
VERTICAL LOW FLOW TRASH RACK

NOT TO SCALE



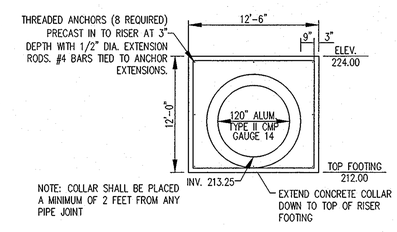
STRUCTURE O-3 TOP SLAB

NOT TO SCALE



SECTION "D-D"

NOT TO SCALE

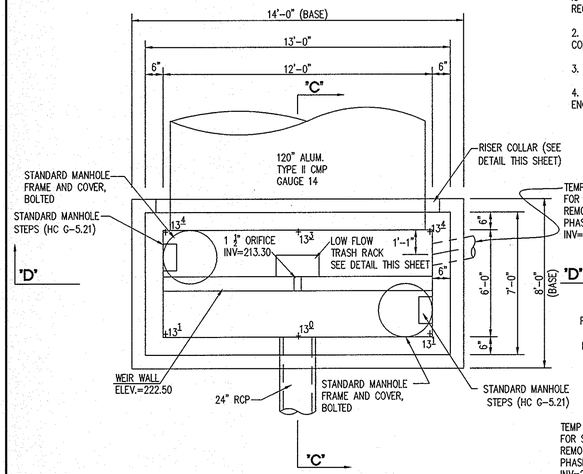


CONCRETE COLLAR DETAIL AT 120" ALUM. TYPE II CMP CONNECTION TO RISER

NOT TO SCALE

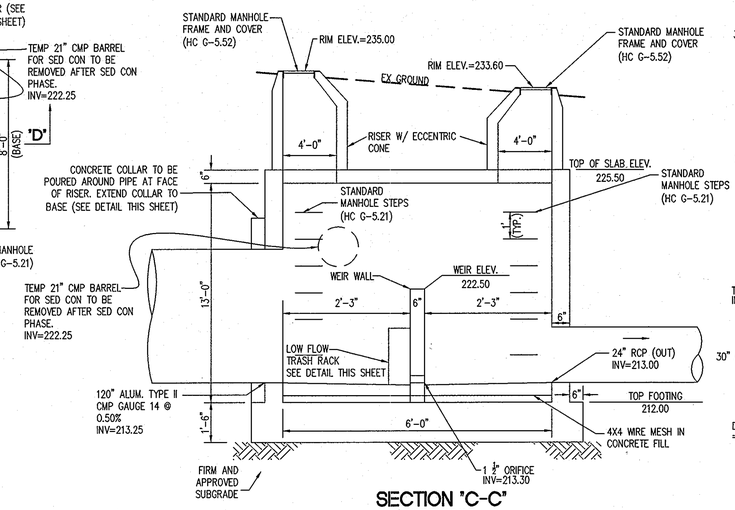
RISER GENERAL NOTES:

1. THIS DETAIL IS FOR A PRECAST RISER. IF RISER IS CAST IN PLACE, STRUCTURAL DRAWINGS ARE REQUIRED.
2. RISER STRUCTURES MUST BE REINFORCED CONCRETE.
3. ALL CONNECTIONS SHALL BE WATERTIGHT.
4. SHOP DRAWINGS ARE TO BE REVIEWED BY THE ENGINEER PRIOR TO FABRICATION.



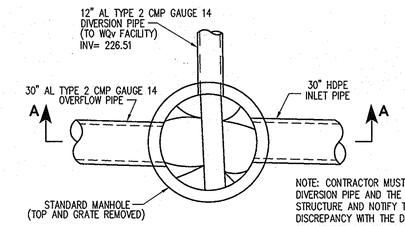
STRUCTURE O-3 PLAN SECTION TOP SLAB REMOVED

NOT TO SCALE



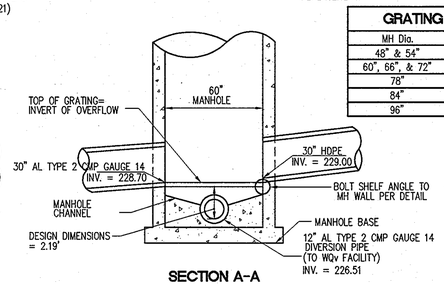
SECTION "C-C"

NOT TO SCALE



PLAN VIEW

NOTE: CONTRACTOR MUST VERIFY THE DIMENSIONS BETWEEN THE DIVERSION PIPE AND THE OVERFLOW PIPE PRIOR TO BACKFILL OF THE STRUCTURE AND NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF ANY DISCREPANCY WITH THE DIMENSIONS ON THE APPROVED PLANS. STRUCTURES BUILT INCORECTLY WILL REQUIRE REMOVAL AND REPLACEMENT.



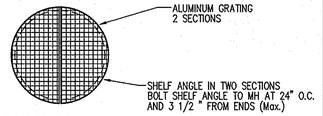
SECTION A-A

GRATING SCHEDULE	
MH Dia.	BEARING BAR
48" & 54"	1- 1/4 " x 1/8 "
60", 66", & 72"	1- 1/4 " x 3/16"
78"	1- 1/2 " x 3/16"
84"	1- 3/4 " x 3/16"
96"	2" x 3/16"

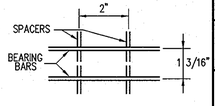
DIVERSION MANHOLE A-2 DETAIL

NOT TO SCALE

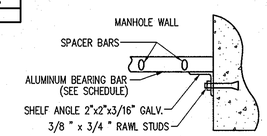
NOTE: SEE STORM DRAIN AND STORMWATER PROFILES DETAILS AND SCHEDULES FOR ADD'L. INFORMATION ABOUT PIPE SIZES, MANHOLE DIAMETERS, INVERTS, ETC.



GRATING PLAN



GRATING DETAIL



NOTE: FASTEN THE GRATING TO SHELF ANGLE WITH GALVANIZED BOLTS AND STANDARD RETAINER CLIPS.

BOLTING DETAIL

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR	10/15/08 DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	9/10/08 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	10/7/08 DATE

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
STORMWATER MANAGEMENT DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

STATE OF MARYLAND · SHERRIL CLARKE MITCHELL · No. 22354 · REGISTERED PROFESSIONAL ENGINEER

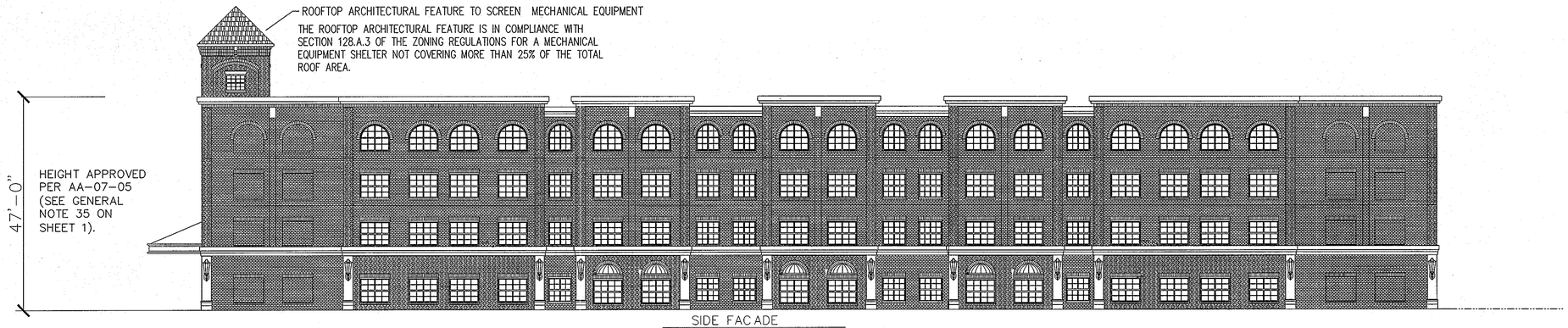
BY: Sherril C. Mitchell 9-8-08

"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. 22354, EXPIRATION DATE: 1/24/09."

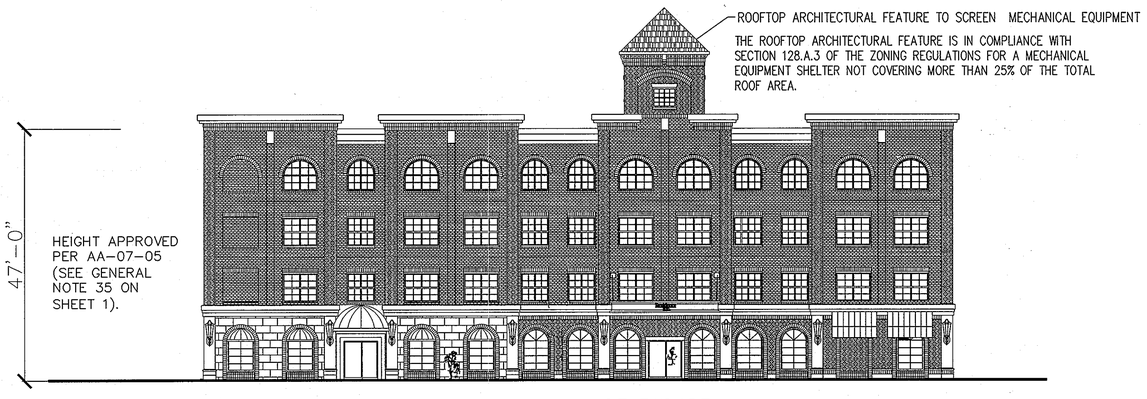
DESIGNED BY :	PDK
DRAWN BY:	PDK
PROJECT NO :	12014-2-0 C400SDP18.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	AS SHOWN
DRAWING NO.	18 OF 33

P:\Project\12014\2-0\PLANS\C400SDP18.DWG

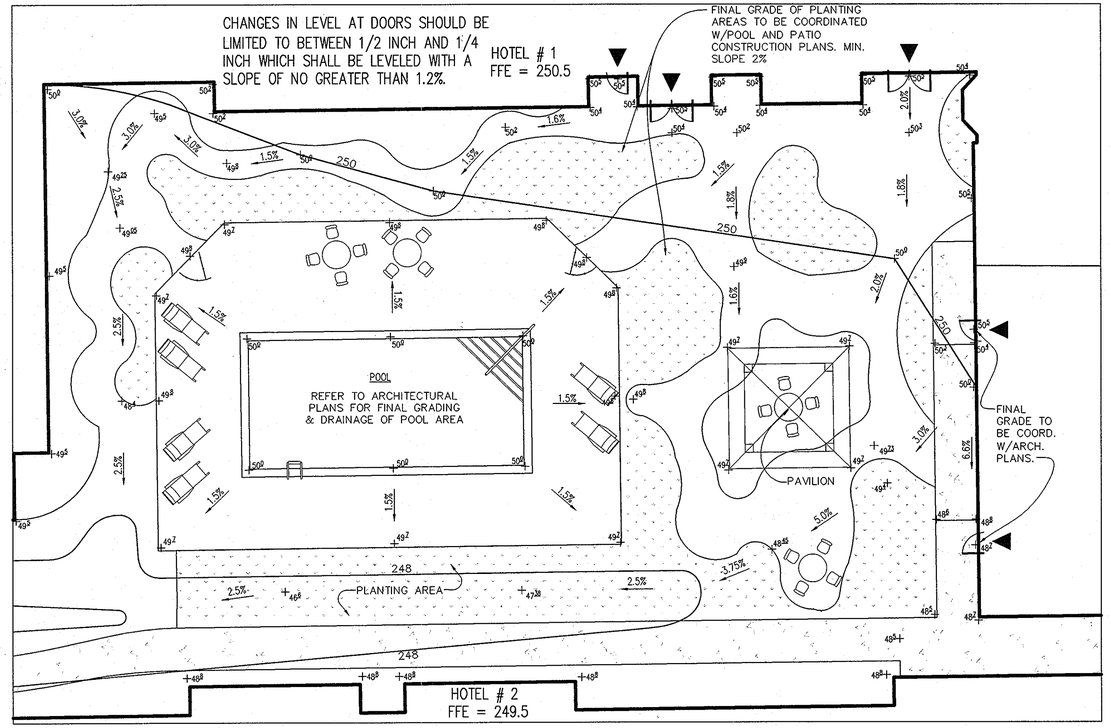
SDP-07-076



SIDE FACADE
NOT TO SCALE



FRONT ENTRANCE FACADE
NOT TO SCALE



POOL DECK LAYOUT DETAIL
SCALE: 1" = 10'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
ARCHITECTURAL ELEVATION DETAILS AND POOL GRADING

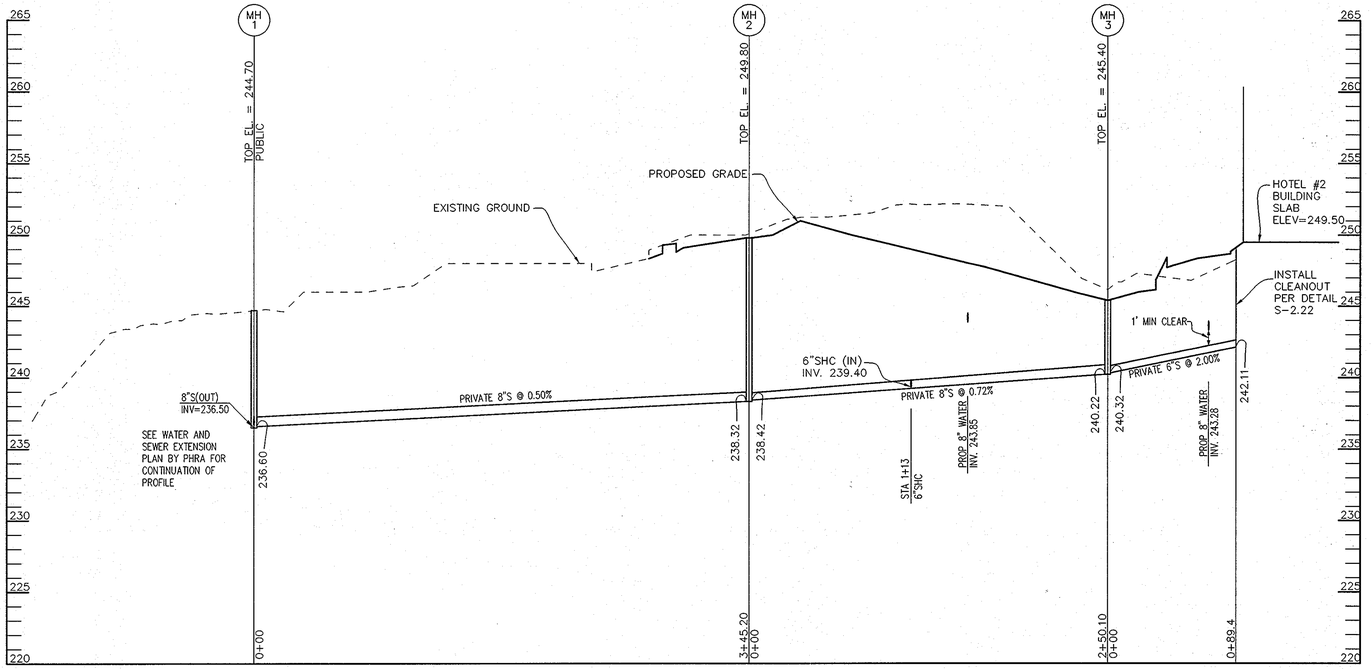
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL
STATE OF MARYLAND — SHERRELL CLARKE MITCHELL — REG. NO. 23954 — PROFESSIONAL ENGINEER
9-8-08
BY: Sherrell C. Mitchell
"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. 23954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : PDK
DRAWN BY: PDK
PROJECT NO : 12014-2-0
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 19 OF 33

P:\Project\12014\2-0\PLANS\C400SDP18.DWG

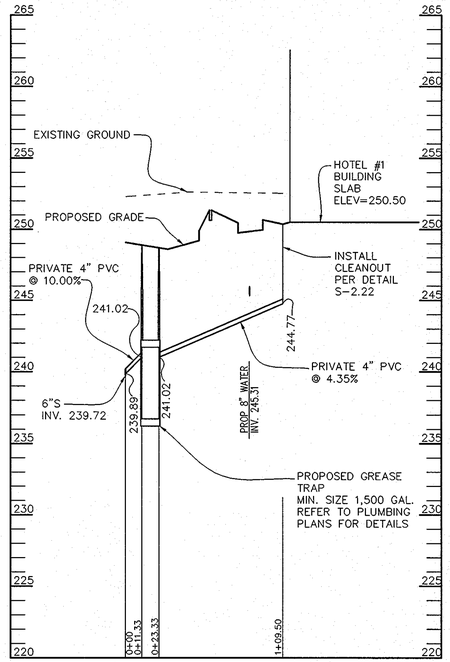
SDP-07-076



SEWER PROFILE

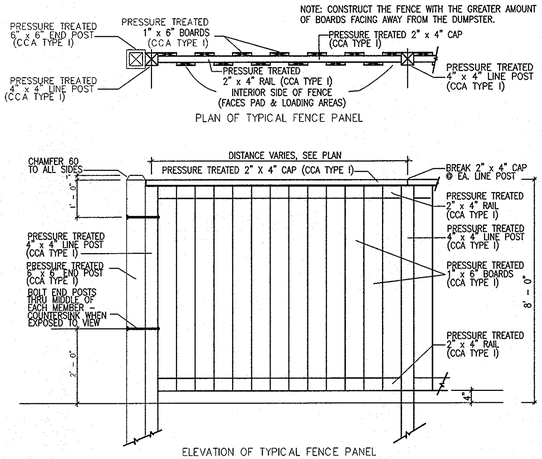
HOR. SCALE: 1" = 50'
VERT. SCALE: 1" = 5'

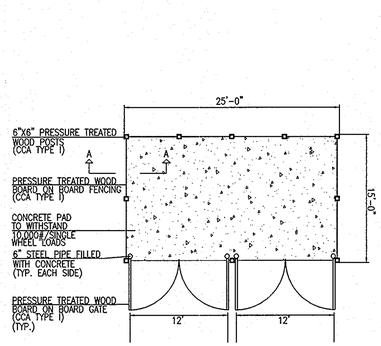
GRAPHIC SCALE
25' 0' 50' 100'

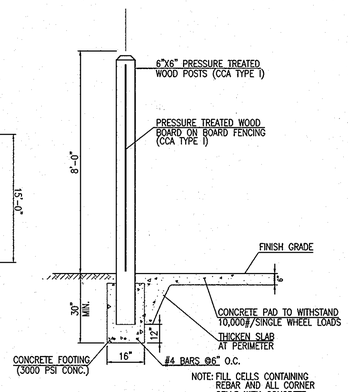


GREASE TRAP PROFILE

HOR. SCALE: 1" = 50'
VERT. SCALE: 1" = 5'

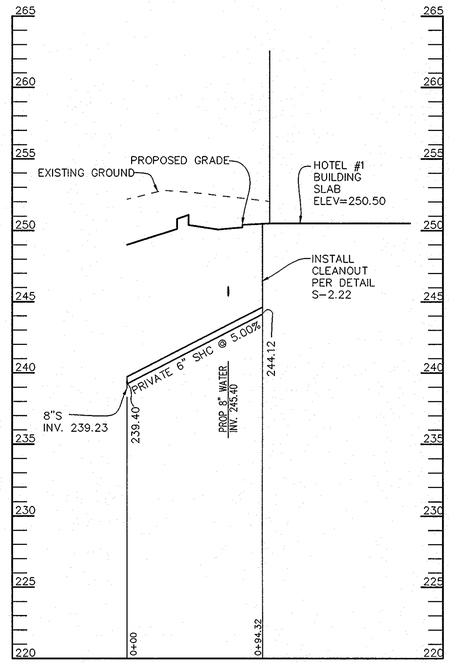






1/20 ALTERNATE WOODEN DUMPSTER ENCLOSURE DETAIL

NOT TO SCALE



SEWER PROFILE

HOR. SCALE: 1" = 50'
VERT. SCALE: 1" = 5'

GRAPHIC SCALE
25' 0' 50' 100'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
PRIVATE SANITARY SEWER PROFILES AND DUMPSTER DETAIL

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL — STATE OF MARYLAND — SHERRIL CLARKE MINSHULL — No. 23954 — REGISTERED PROFESSIONAL ENGINEER

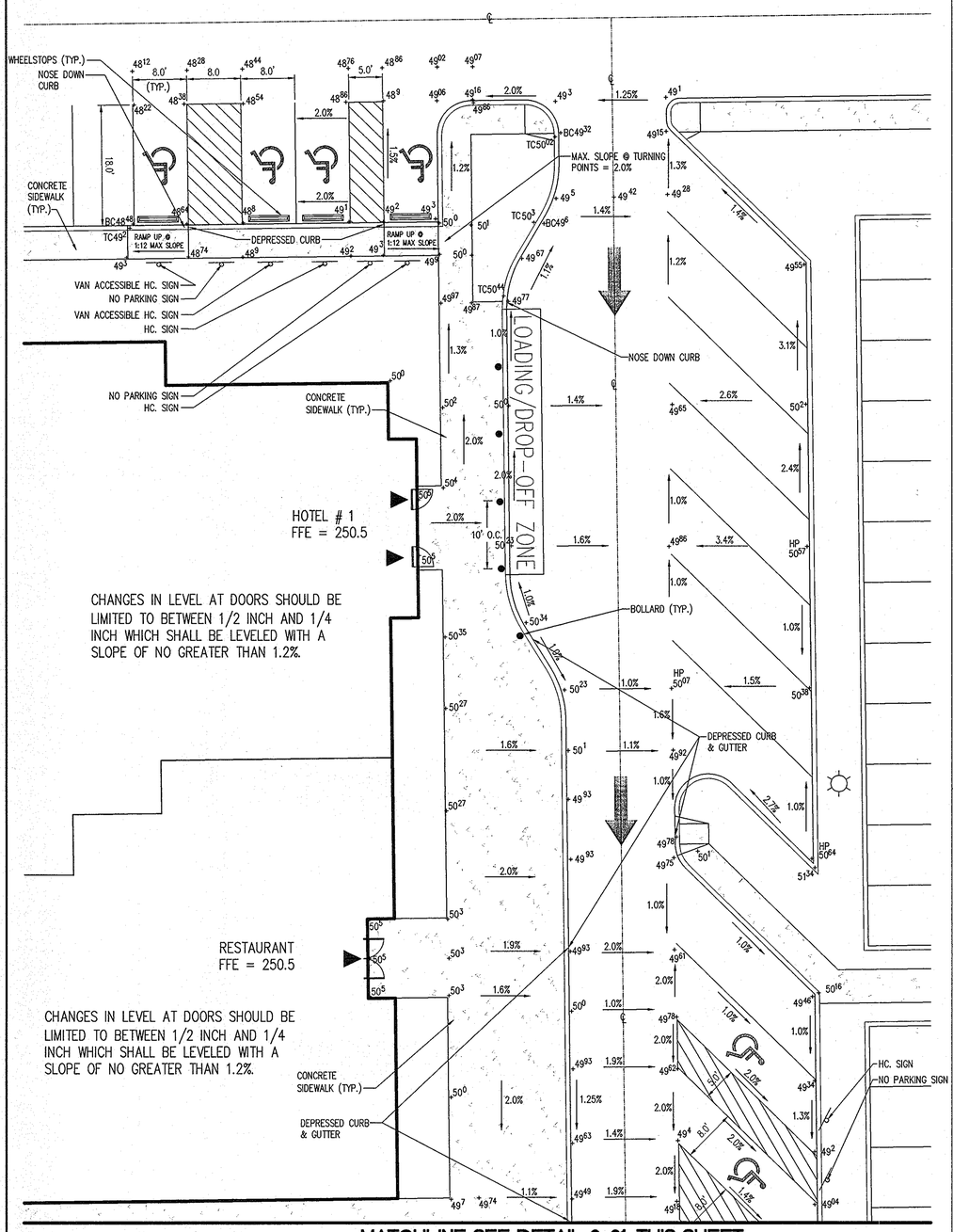
BY: — 9-8-08

"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. 23954, EXPIRATION DATE: 1/24/09."

DESIGNED BY	HS
DRAWN BY	HS
PROJECT NO	12014-2-0 C400SDP20.DWG
DATE	SEPTEMBER 8, 2008
SCALE	AS SHOWN
DRAWING NO.	20 OF 33

P:\Project\12014\2-0\PLANS\C400SDP20.DWG

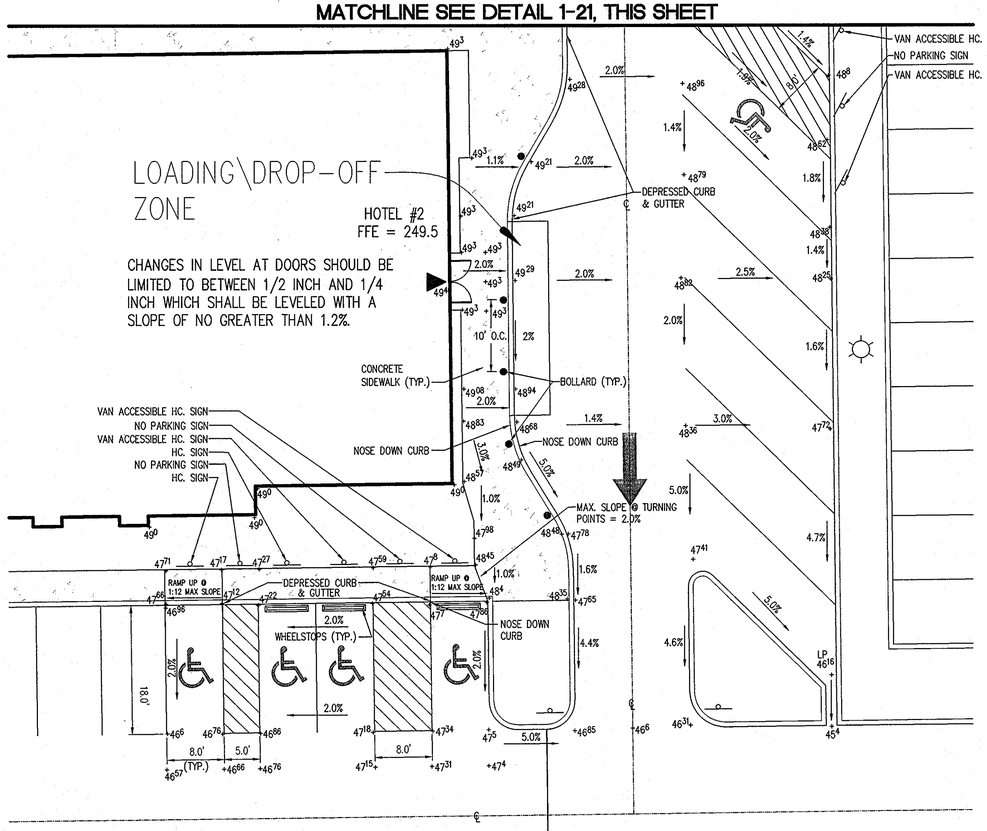
SDP-07-076



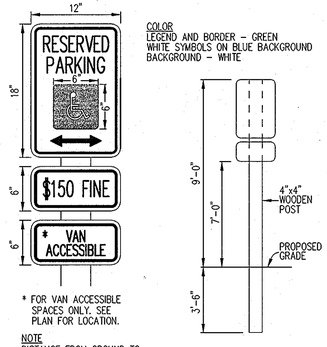
MATCHLINE SEE DETAIL 2-21, THIS SHEET

1/21 **HC LAYOUT DETAIL**
SCALE: 1" = 10'

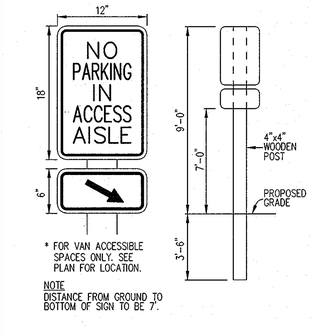
MATCHLINE SEE DETAIL 1-21, THIS SHEET



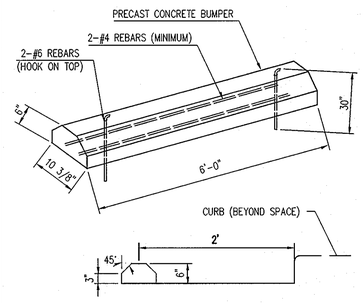
2/21 **HC LAYOUT DETAIL**
SCALE: 1" = 10'



4/21 **HANDICAP SIGN DETAIL**
NOT TO SCALE

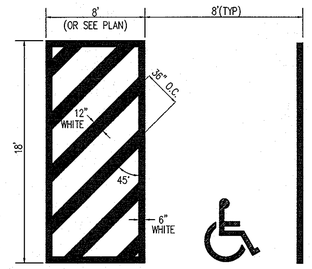


5/21 **ACCESS AISLE SIGN**
NOT TO SCALE

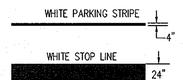


SECTION

6/21 **CONCRETE WHEEL STOP**
NOT TO SCALE



HDCP SPACE



LINE SPECIFICATIONS

3/21 **STRIPING STANDARDS**
NOT TO SCALE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/17/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/16/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SITE DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

STATE OF MARYLAND — SHARON CLARKE MITCHELL — No. 33904 — REGISTERED PROFESSIONAL ENGINEER

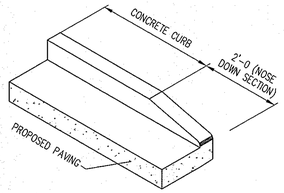
BY: Sharon C. Mitchell 9-8-08

"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. 33904, EXPIRATION DATE: 1/24/09."

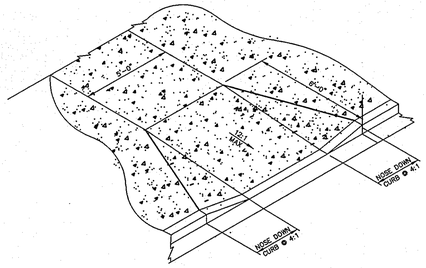
DESIGNED BY :	PJS/JSN
DRAWN BY:	JSN/SGM
PROJECT NO :	12014-2-0 C400SDP20.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	AS SHOWN
DRAWING NO.	21 OF 33

P:\Project\12014\2-0\PLANS\C400SDP21.DWG

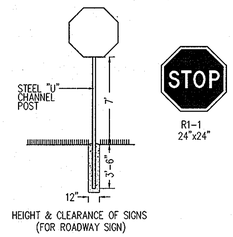
SDP-07-076



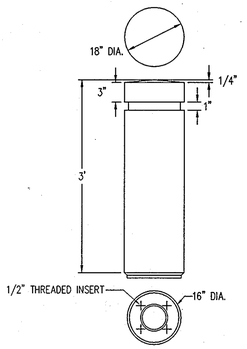
1/22 NOSE DOWN CURB DETAIL
NOT TO SCALE



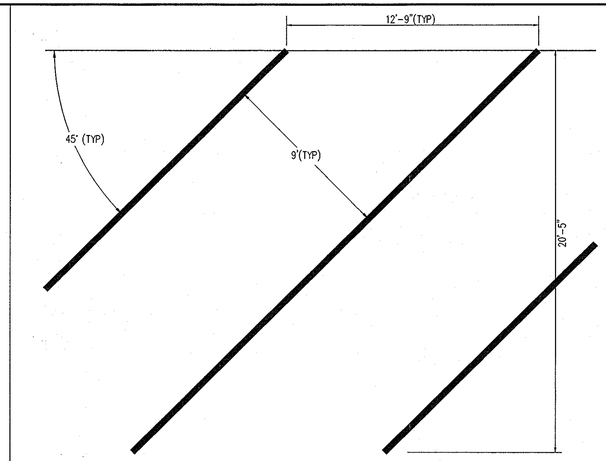
2/22 HANDICAP RAMP
NOT TO SCALE



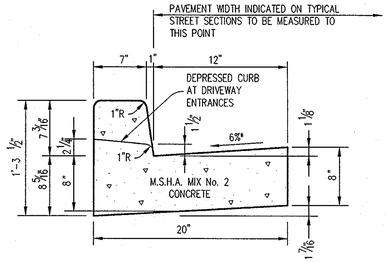
3/22 STOP SIGN DETAIL
NOT TO SCALE



4/22 BOLLARD DETAIL
NOT TO SCALE



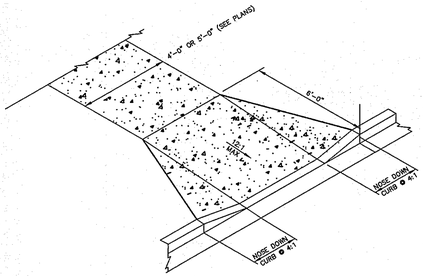
5/22 ANGLED STRIPING STANDARDS
NOT TO SCALE



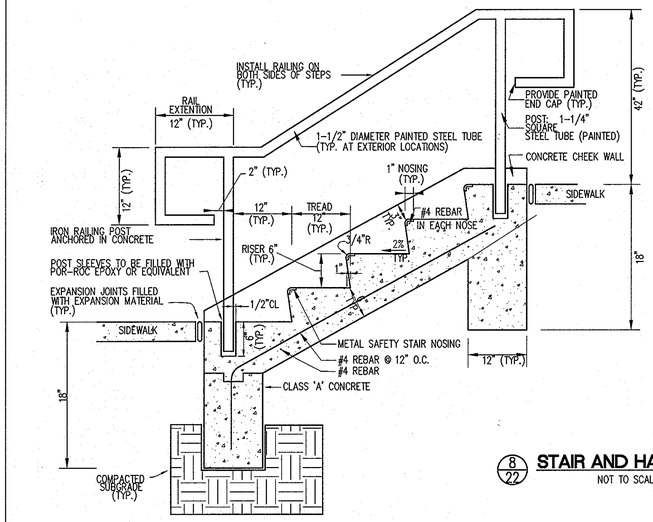
HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-3.01).

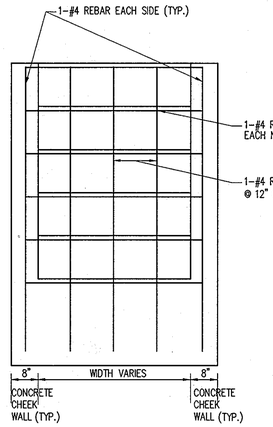
* GUTTER PAN AT THE MEDIAN EDGE OF INTERMEDIATE ARTERIALS OR THE HIGH SIDE OF SUPERELEVATED SECTIONS SHALL BE SLOPED AT THE SAME RATE AS THE PAVEMENT.

6/22 STANDARD 7" COMBINATION CURB AND GUTTER
NOT TO SCALE

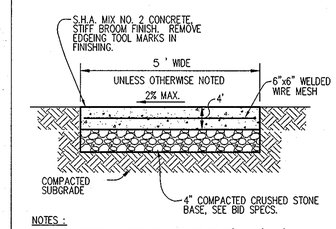


7/22 HANDICAP RAMP
NOT TO SCALE





8/22 STAIR AND HANDRAIL
NOT TO SCALE



NOTES :
PROVIDE LATITUDINAL EXPANSION JOINTS AT 15' O.C. (MAX.)
PROVIDE CONTRACTION (DUMMY) JOINT AT 5' O.C. INTERVALS BETWEEN EXPANSION JOINTS. SIDEWALK TO BE SCRIBED IN 5' MAX. SQUARES.
SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.

9/22 SIDEWALK DETAIL
NOT TO SCALE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/10/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/8/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
SITE DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

STATE OF MARYLAND — SHERRY CLARKE MITCHELL — No. 21551 — REGISTERED PROFESSIONAL ENGINEER

9-8-08

BY: Sherry C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY :	PJS/JSN
DRAWN BY:	JSN
PROJECT NO :	12014-2-0 C400SDSP21.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	AS SHOWN
DRAWING NO.	22 OF 33

P:\Project\12014\2-0\PLANS\C400SDSP21.DWG

BITUMINOUS CONCRETE SURFACE	1 1/2"
BITUMINOUS CONCRETE BASE	4 1/2"
* 6" CRUSHER RUN BASE COURSE OR 4 1/2" DENSE GRADED STABILIZED AGGREGATE BASE COURSE	*

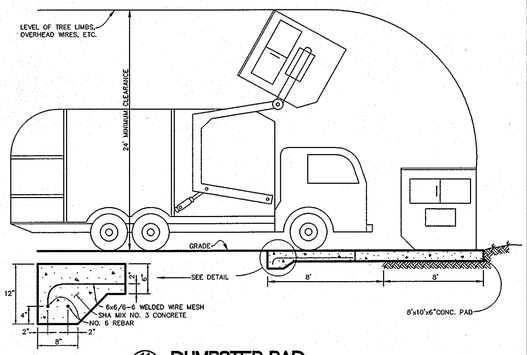
(ALTERNATE)

BITUMINOUS CONCRETE SURFACE	1 1/2"
BITUMINOUS CONCRETE BASE	1 1/2"
BITUMINOUS CONCRETE BASE	5"

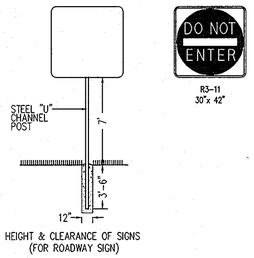
HOWARD COUNTY DESIGN MANUAL VOLUME IV- STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (DRAWING R-2.01)

10/22 P-3 PAVING
NOT TO SCALE

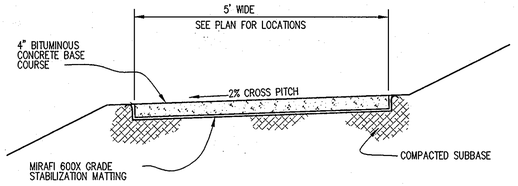
NOTE:
THE PAVING SECTION SHOWN HAS NOT BEEN DESIGNED FOR ACTUAL SOIL CONDITIONS, IN PLACE COMPACTION RESULTS, OR TRAFFIC VOLUMES SPECIFIC TO THIS PROJECT. IT IS RECOMMENDED THAT THE USER CONSULT WITH A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER FOR A SPECIFIC PAVING DESIGN BASED ON THE APPROPRIATE PARAMETERS PRIOR TO INSTALLATION OF THIS PAVING SECITON.



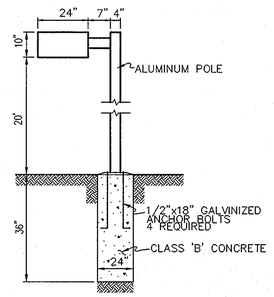
11/22 DUMPSTER PAD
NOT TO SCALE



12/22 DO NOT ENTER SIGN DETAIL
NOT TO SCALE



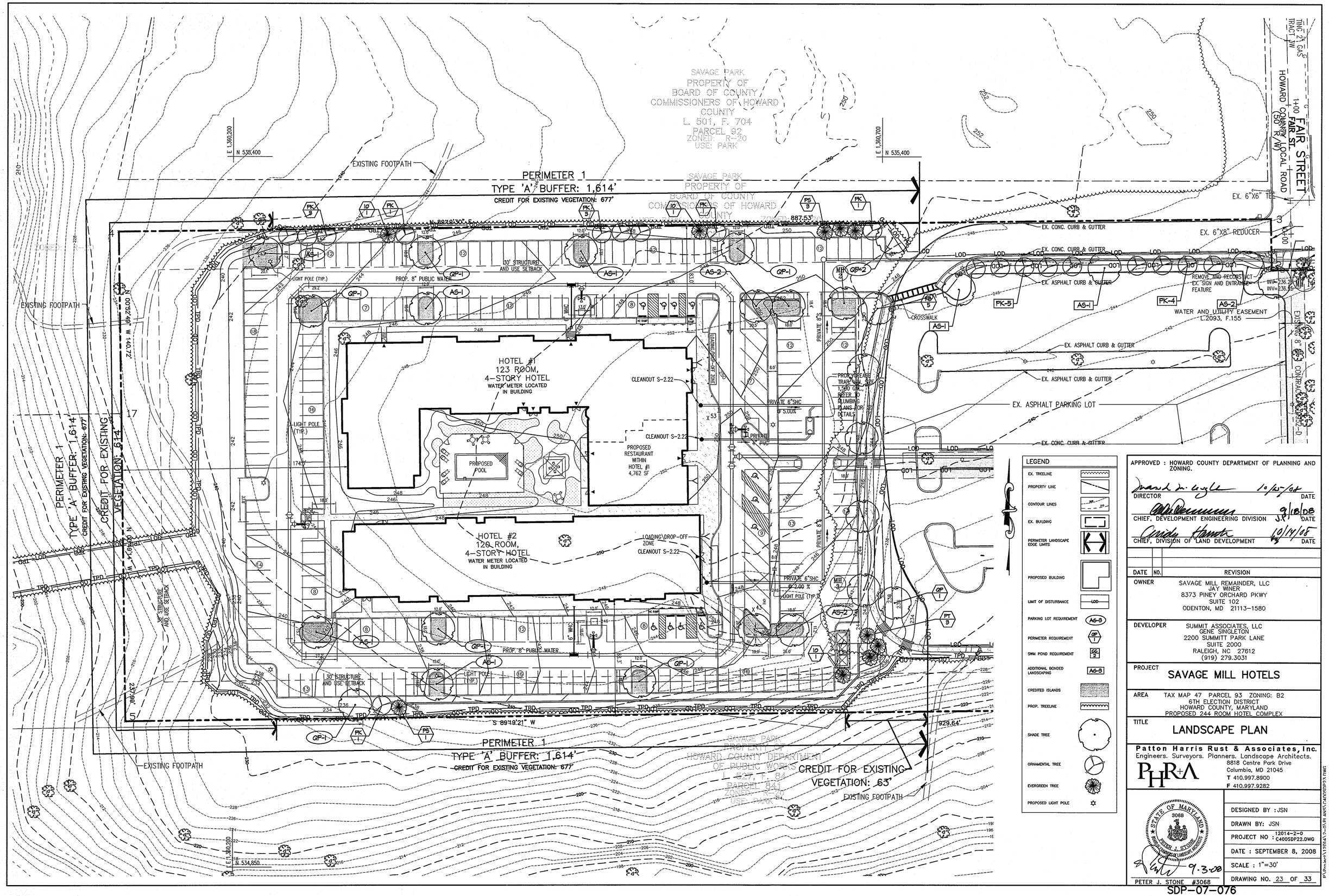
13/22 TYPICAL SECTION - ASPHALT PATHWAY
NOT TO SCALE



1. ALL LIGHT FIXTURES TO BE "CUT-OFF" TYPE (VISUALLY SHIELDED), H.I.D. (HIGH INTENSITY DISCHARGE) LUMINAIRES. METAL HALLIDE TYPE, 175 WATT, 14,000 LUMENS WITH 20' ALUMINUM POLES.
2. LOCATIONS OF LIGHT FIXTURES ARE ON THE PLAN.
3. POLE AND FIXTURE COLOR TO BE DETERMINED BY DEVELOPER.

14/22 LIGHT POLE DETAIL
NOT TO SCALE

SDP-07-076



APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
LANDSCAPE PLAN

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND 3068 PETER J. STONE REGISTERED PROFESSIONAL ENGINEER OF LANDSCAPE ARCHITECTS

9-3-08

PETER J. STONE #3068

DESIGNED BY : JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP22.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 23 OF 33

SDP-07-076

PLANTING SPECIFICATIONS

1. Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.

2. All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, sunscald injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no healed–in plants or plants from cold storage will be accepted.

3. Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.

4. Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.

5. Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.

6. Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.

7. Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or XCupressacyparis leylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.

8. Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.

9. Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.

10. Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plan take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.

11. All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double–shredded hardwood mulch throughout.

12. Positive drainage shall be maintained on planting beds (minimum 2 percent slope).

13. Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5–10–5 fertilizer per cubic yard of planting mix and till. Ericaceous plants (Azaleas, Rhododendrons, etc.): top dress after planting with iron sulfate or comparable product according to package directions. Taxus baccata 'Repandens' (English weeping yews): Top dress after planting with 1/4 to 1/2 cup lime each.

14. Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.

15. Weed & insect control: Incorporate a pre–emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre–emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed–free for the extent of the warranty period. Under no circumstances is a pesticide containing chlorpyrifos to be used as a means of pest control.

16. Water: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid dessication.

17. Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.

18. All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.

SCHEDULE A – PERIMETER LANDSCAPE EDGE

	ADJACENT TO PERIMETER PROPERTIES
PERIMETER	1
LANDSCAPE TYPE	A
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	1,614' ±
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 677'
CREDIT FOR WALL, FENCE, BERM OR DRIVE AISLE (YES/NO/LINEAR FEET)	NO –
LINEAR FEET REMAINING	937' ±
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	 16 0 0
NUMBER OF PLANTS PROVIDED SHADE TREES EVERGREEN TREES SMALL FLOWERING TREES SHRUBS	 6 10 10 0

SUBSTITUTION NOTES:

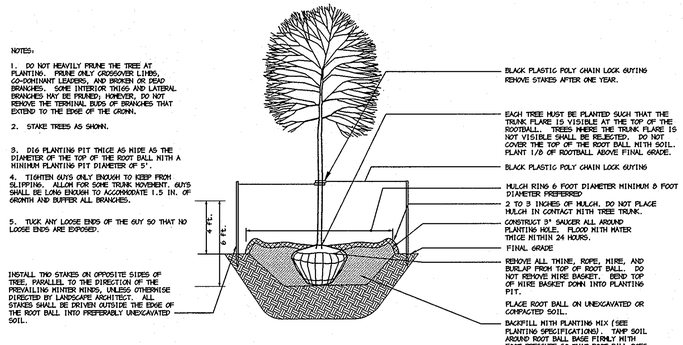
PERIMETER 1: 10 FLOWERING TREES HAVE BEEN SUBSTITUTED FOR 5 SHADE TREES & 10 EVERGREEN TREES HAVE BEEN SUBSTITUTED FOR 5 SHADE TREES.

SCHEDULE B – PARKING LOT INTERNAL LANDSCAPING

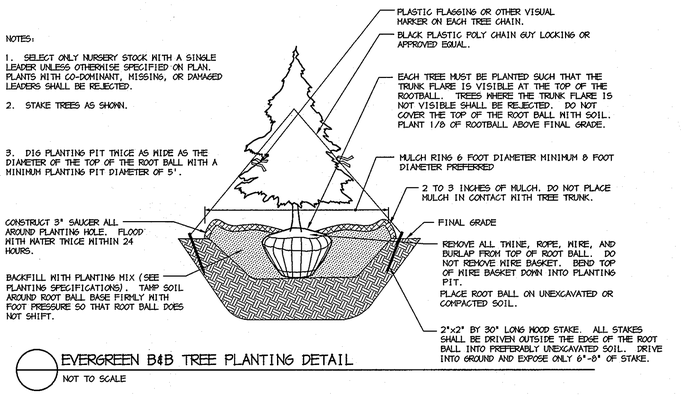
PARKING LOT	1
NUMBER OF PARKING SPACES	270
NUMBER OF SHADE TREES REQUIRED (1/20 SPACES)	14
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	 15 0
NUMBER OF ISLANDS PROVIDED	14

PLANT SCHEDULE

SYMBOL	QTY.	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
SHADE TREES					
AS	13	ACER SACCHARUM 'GREEN MOUNTAIN' GREEN MOUNTAIN SUGAR MAPLE	2.5–3" CAL.	B&B	AS SHOWN
FG	5	FAGUS GRANDIFOLIA AMERICAN BEECH	2.5–3" CAL.	B&B	AS SHOWN
QP	9	QUERCUS PHELLOS WILLOW OAK	2.5–3" CAL.	B&B	AS SHOWN
EVERGREEN TREES					
IO	3	ILEX OPACA AMERICAN HOLLY	6–8' HT.	B&B	AS SHOWN
PS	4	PINUS STROBUS EASTERN WHITE PINE	6–8' HT.	B&B	AS SHOWN
PT	3	PICEA OMORIKA SERBIAN SPRUCE	6–8' HT.	B&B	AS SHOWN
ORNAMENTAL TREES					
PK	19	PRUNUS SERRULATA 'KWANZAN' KWANZAN CHERRY	8–10' HT.	B&B	AS SHOWN



DECIDUOUS B&B TREE PLANTING DETAIL (TREES 3" CAL. OR SMALLER)
NOT TO SCALE



EVERGREEN B&B TREE PLANTING DETAIL
NOT TO SCALE

GENERAL NOTES:

1. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
2. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF $9,000.00.
   30 SHADE TREES @ $300 = $9,000.00
   0 ORNAMENTAL TREES @ $150 = $0.00
   0 EVERGREEN TREES @ $150 = $0
   0 SHRUBS @ $30 = $0
3. THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
4. CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
5. ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
6. ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
7. AT THE TIME OF INSTALLATION, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
8. NO SUBSTITUTIONS OR RELOCATION OF PLANTS MAY BE MADE WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING OF HOWARD COUNTY. ANY DEVIATION FROM THIS LANDSCAPE PLAN MAY RESULT IN A REQUIREMENT FOR SUBMITTAL OF AN OFFICIAL "REDLINE REVISION" TO THE SITE DEVELOPMENT PLAN(S) AND/OR DENIAL IN THE RELEASE OF LANDSCAPE SURETY.

DEVELOPER'S/BUILDER'S CERTIFICATE:

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

SIGNATURE 9.4.08 DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR 10/15/08 DATE

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.R. 9/18/08 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT 10/14/08 DATE

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113–1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
LANDSCAPE NOTES & DETAILS

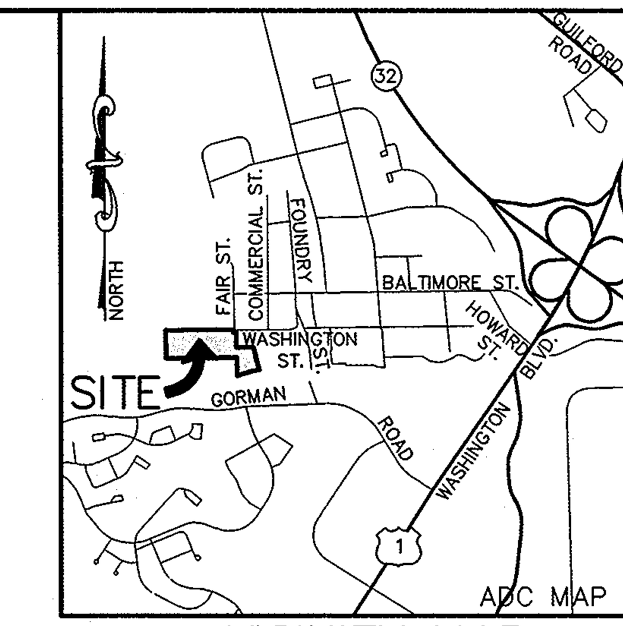
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND 3068 PETER J. STONE PROFESSIONAL ENGINEER
9.3.08
PETER J. STONE #3068

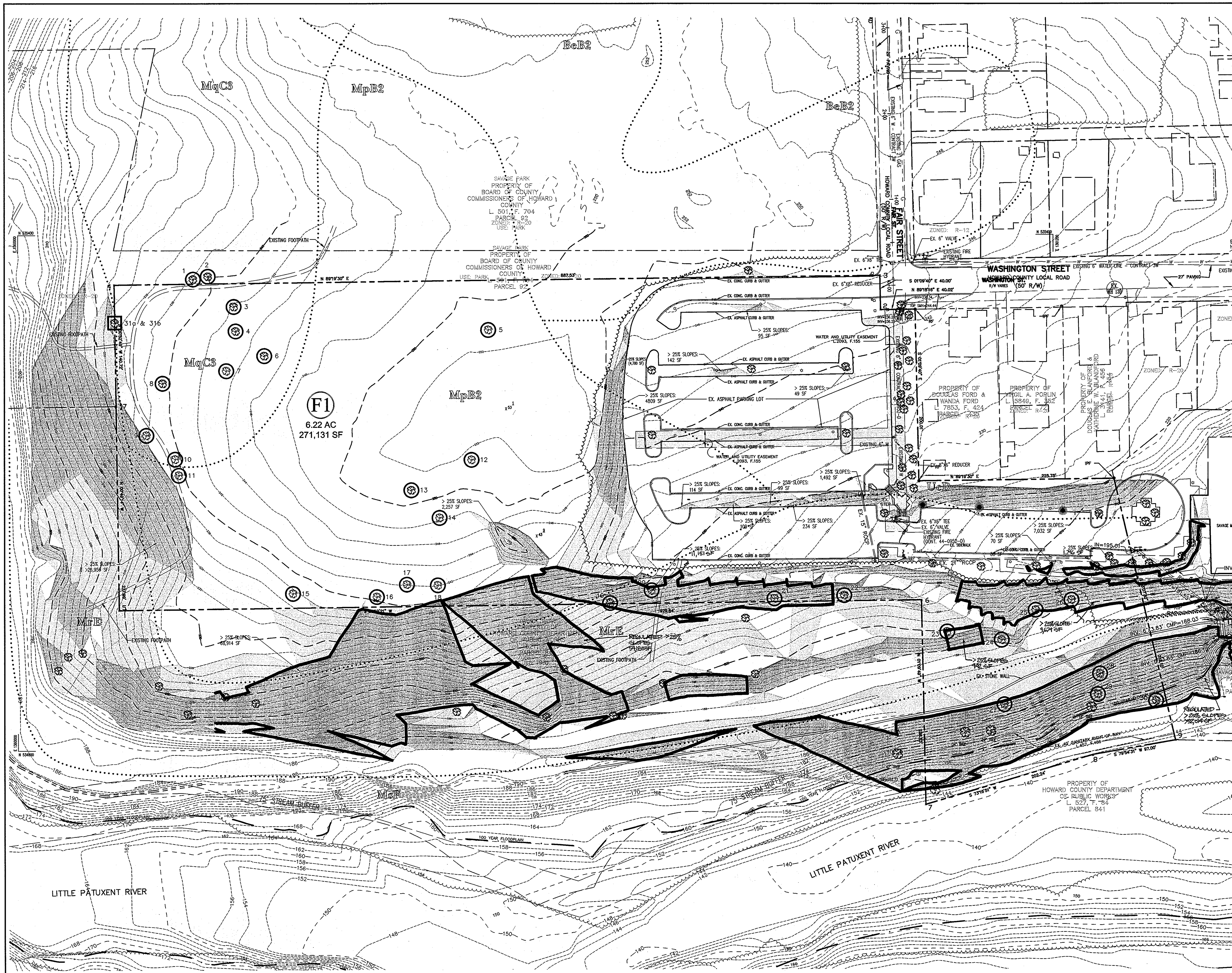
DESIGNED BY :PJS/JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP23.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 24 OF 33

P:\Project\12014\2-0\PLANS\C400SDP24.DWG

SDP-07-076



VICINITY MAP
SCALE: 1" = 2000'



LEGEND

EXISTING 2'CONTOUR	248
EXISTING 10'CONTOUR	250
PROPERTY LINE AND RIGHT OF WAY	
EX. TREELINE	
FLOODPLAIN	
STREAM BUFFER	SB
SOILS	MrE
15–25% SLOPES	
>25% SLOPES	
SPECIMEN TREE	3
MULTIPLE-STEMMED SPECIMEN TREE	31
PLANT COMMUNITY	F1

* NOT ALL SLOPES SHOWN AS >25% QUALIFY AS HOWARD COUNTY REGULATED STEEP SLOPES. SLOPES WHICH ARE REGULATED BY THE DEFINITION SHOWN IN THE SUBDIVISION REGULATIONS ARE NOTED AS SUCH.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR	DATE 10/15/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9/18/08
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 10/14/08

DATE	NO.	REVISION
2/9/09	1	ADDED ROPES COURSE

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113–1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
FOREST STAND DELINEATION PLAN

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS
9-3-08
PETER J. STONE #3068

DESIGNED BY : JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP24.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=50'
DRAWING NO. 25 OF 35

P:\Project\12014\2-0\PLANS\C400SDP25.DWG

SDP-07-076

SOILS CHART

MAP SYMBOL	NAME	STRUCTURAL LIMITATIONS Dwellings w/ Basements	EROSION HAZARD	HYDRIC	SLOPE (%)
BeB2	Beltsville silt loam	Moderate: impeded drainage	Moderate	N	1–5
BeC3	Beltsville silt loam	Moderate: impeded drainage, slopes	Severe	N	5–10
MpB2	Montalto silt loam	Slight	Moderate	N	3–8
MqC3	Montalto silty clay loam	Moderate: slopes	Severe	N	8–15
MrE	Montalto and Relay soils	Severe: slopes	–	N	15–45

SOURCE: SOIL INFORMATION TAKEN FROM HOWARD COUNTY, MARYLAND SOIL SURVEY MAP #34.

PLANT COMMUNITY SUMMARY

SYMBOL	COMMUNITY	AREA	PRIORITY RETENTION
F1	FOREST	6.22 Ac.±	MEDIUM

AREA CHART

AREA	ACRES
TOTAL TRACT AREA	10.06
EXISTING FOREST	6.22
LAND WITHIN STREAM BUFFERS	0
LAND WITHIN FLOODPLAIN	1.24
FOREST WITHIN STREAM BUFFERS	0
FOREST WITHIN FLOODPLAIN	1.17

SPECIMEN TREE CHART

KEY	SPECIES	SIZE	CONDITION
1	TULIP POPLAR (Liriodendron tulipifera)	24"	FAIR
2	TULIP POPLAR (Liriodendron tulipifera)	36'	GOOD
3	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD
4	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD
5	BITTERNUT HICKORY (Carya cordiformis)	36"	GOOD
6	TULIP POPLAR (Liriodendron tulipifera)	28"	POOR
7	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD
8	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD
9	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD
10	TULIP POPLAR (Liriodendron tulipifera)	24"	POOR
11	TULIP POPLAR (Liriodendron tulipifera)	28"	POOR
12	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD
13	TULIP POPLAR (Liriodendron tulipifera)	31"	POOR
14	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD
15	TULIP POPLAR (Liriodendron tulipifera)	25"	GOOD
16	BITTERNUT HICKORY (Carya cordiformis)	27"	GOOD
17	BITTERNUT HICKORY (Carya cordiformis)	29"	GOOD
18	TULIP POPLAR (Liriodendron tulipifera)	25"	GOOD
19	TULIP POPLAR (Liriodendron tulipifera)	27"	GOOD
20	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD
21	SYCAMORE (Platanus occidentalis)	30"	GOOD
22	TULIP POPLAR (Liriodendron tulipifera)	25"	GOOD
23	TULIP POPLAR (Liriodendron tulipifera)	27"	GOOD
24	SYCAMORE (Platanus occidentalis)	30"	GOOD
25	SYCAMORE (Platanus occidentalis)	38"	GOOD
26	SYCAMORE (Platanus occidentalis)	30"	GOOD
27	SYCAMORE (Platanus occidentalis)	30"	GOOD
28	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD
29	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD
30	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD
31a	TULIP POPLAR (Liriodendron tulipifera) TWIN	23"	GOOD
31b	TULIP POPLAR (Liriodendron tulipifera) TWIN	23"	GOOD

GENERAL NOTES:

1. THE SITE IS LOCATED AT FAIR STREET, SAVAGE, MD 20763 (TAX MAP 47, PARCEL 93) AND IS PART OF THE HISTORIC SAVAGE MILL PROPERTY. THE SITE CONSISTS OF 10.06 ACRES.

2. BOUNDARY INFORMATION PROVIDED BY PHR+A, DATED DECEMBER 5, 2006. TOPOGRAPHIC INFORMATION PROVIDED BY PHR+A, DATED NOVEMBER 28, 2006.

3. THE SOILS ON SITE ARE BELTSVILLE SILT LOAM (1–5% SLOPES) – BeB2, BELTSVILLE SILT LOAM (5–10% SLOPES) – BeC3, MONTALTO SILT LOAM (3–8% SLOPES) – MpB2, MONTALTO SILTY CLAY LOAM (8–15% SLOPES) – MqC3, AND MONTALTO AND RELAY SOILS (25–45% SLOPES) – MrE ACCORDING TO THE SOIL SURVEY FOR HOWARD COUNTY, MARYLAND, MAP #34.

4. THE SITE IS ZONED B2 (BUSINESS GENERAL). CURRENTLY, THE SITE IS PARTIALLY USED AS A PARKING LOT & IS PARTIALLY UNDEVELOPED WITH 5.76 ACRES OF FOREST.

5. THIS SITE IS LOCATED IN THE LITTLE PATUXENT RIVER WATERSHED.

6. THERE ARE NO STREAMS OR WETLANDS LOCATED ON THIS SITE. HOWEVER, THERE IS A FEMA FLOODPLAIN LOCATED ON THE PROPERTY.

7. THERE IS ONE EXISTING FOREST STAND LOCATED ON SITE, AS SHOWN ON THE PLAN. IT IS A MEDIUM PRIORITY FOREST STAND DUE TO MINIMAL PROTECTED ENVIRONMENTAL SYSTEMS, SUCH AS STREAMS AND WETLANDS.

8. THERE ARE 31 SPECIMEN TREES LOCATED ON SITE, AS SHOWN ON THE PLAN.

9. FIELD WORK FOR THIS INVENTORY WAS CONDUCTED ON DECEMBER 12, 2006 BY JONATHAN NORMAN, PLANNER OF PATTON HARRIS RUST AND ASSOCIATES, PC UNDER THE SUPERVISION OF PETER J. STONE, RLA AND SCOTT R. WOLFORD RLA OF PATTON HARRIS RUST AND ASSOCIATES, PC.

10. THE SITE HAS A FOREST CONSERVATION THRESHOLD OF 15% AND AN AFFORESTATION THRESHOLD OF 15%.

11. NO EXISTING STRUCTURES OR CEMETERIES ARE PRESENT ON THE SITE.

12. NO RARE, THREATENED, OR ENDANGERED PLANTS OR ANIMALS OR CRITICAL HABITATS WERE OBSERVED IN THE FIELD.

13. THIS FOREST STAND DELINEATION (FSD) HAS BEEN PREPARED IN ACCORDANCE WITH HOWARD COUNTY REGULATIONS.

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 9/27/07

CHIEF, DEVELOPMENT ENGINEERING DIVISION — J.F. DATE 9/18/07

CHIEF, DIVISION OF LAND DEVELOPMENT — K. DATE 10/4/07

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113–1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
FOREST STAND DELINEATION
NOTES & TABULATIONS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

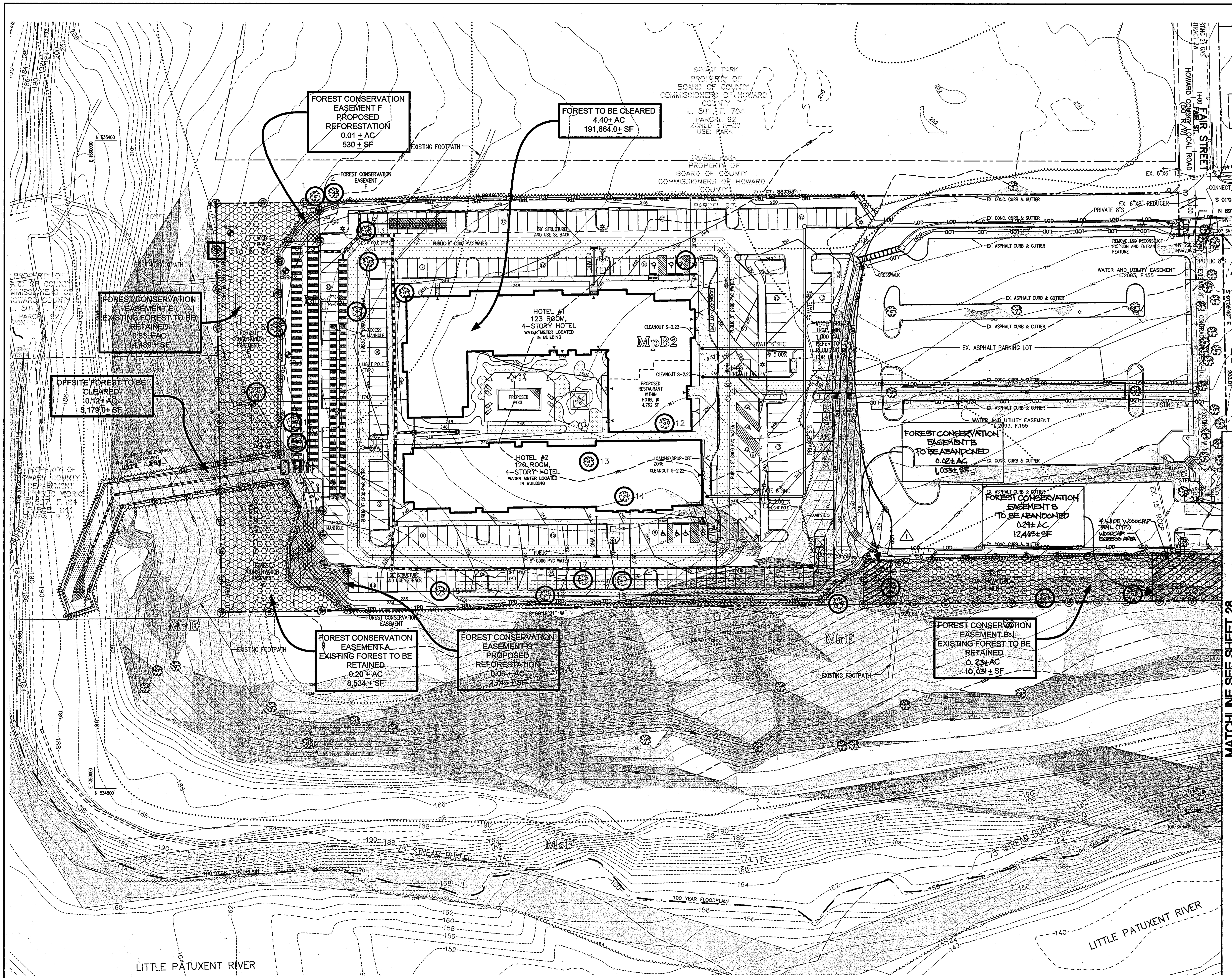
STATE OF MARYLAND 3088 PETER J. STONE REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

9.3.08
PETER J. STONE #3068

DESIGNED BY : JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP25.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 26 OF 33

P:\Project\12014\2-0\PLANS\C400SDP26.DWG

SDP-07-076



*0.92 ACRES RETAINED OFFSITE. 0.46 AC x 2 = 0.92 AC @ 2:1 RATIO.

LEGEND

- PROP. BUILDING
- LIMIT OF DISTURBANCE — LOD —
- TREE PROTECTION FENCE — TPD —
- PROPERTY LINE AND RIGHT OF WAY
- FLOODPLAIN
- EX. TREELINE
- PROP. TREELINE
- FOREST RETENTION AREA
- REFORESTATION AREA
- FOREST CONSERVATION EASEMENT SIGNAGE

FOREST CONSERVATION EASEMENT TABLE

CONSERVATION TYPE	AREA	ACRES
1. ON-SITE RETENTION	A	0.20
	B-1	0.23
	~~B-2~~	~~0.75~~
	E	0.33
TOTAL RETENTION		1.51
2. PLANTING		
	F	0.01
	G	0.06
TOTAL PLANTING		0.07
3. OFF-SITE RETENTION @ 2:1 (0.35/2)	D-1	0.23
4. FEE-IN-LIEU		0.42
TOTAL 2-5		1.18
5. OFF-SITE FOREST CONSERVATION		0.46*

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/14/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — J.P. — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION
4.6.09	2	REVISED BUILDING FOOTPRINT
2/9/09	1	ADDED ROPES COURSE

OWNER: SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT: SAVAGE MILL HOTELS

AREA: TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: FOREST CONSERVATION PLAN

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS
9.3.08
PETER J. STONE #3068

DESIGNED BY : PJS/JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP26.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=40'
DRAWING NO. 27 OF 36

P:\Project\12014\2-0\PLANS\C400SDP27.DWG

SDP-07-076

SEQUENCE OF OPERATIONS

PRE-CONSTRUCTION

1. FIELD STAKE LIMITS OF DISTURBANCE (L.O.D.) AT 25' INTERVALS.

2. REVIEW L.O.D. IN FIELD AND ADJUST IF PRACTICAL.

3. INSTALL TREE PROTECTION FENCE AT THE L.O.D. AND IMPLEMENT TREE PROTECTION METHODS AS SHOWN.

4. CLEAR AND GRUB AS NECESSARY TO FACILITATE ROOT PRUNING TO A DEPTH OF 2-3 FEET WITHIN THE LIMITS OF THE PROPOSED FOREST RETENTION AREA AND AROUND SPECIMEN TREES TO BE SAVED. CLEAR REMAINING TREES IN A WAY THAT "SAVE TREES' ARE NOT DISTURBED. GRIND STUMPS 12" IN DIAMETER AND LARGER THAT ARE WITHIN 25' OF THE L.O.D.

5. DO NOT ATTEMPT TO SAVE TREES WITHIN 25' FROM THE L.O.D. UNLESS, IN THE OPINION OF THE CONSULTING ARBORIST, THEY HAVE A 75% CHANCE OR BETTER OF SURVIVAL.

6. PRUNE AND FERTILIZE DESIRABLE 'EDGE TREES' AS PER CONSULTING ARBORIST'S RECOMMENDATIONS AND DETAILS PROVIDED ON THIS SHEET.

7. THERE SHALL BE NO STAGING, STORAGE, OR STOCKPILING OF MATERIALS OUTSIDE OF THE L.O.D.

8. REMOVE OR TREAT WITH AN ACCEPTABLE METHOD, NOXIOUS PLANT MATERIAL SUCH AS MULTIFLORA ROSE, TEARTHUMB, AND JOHNSON GRASS BEFORE INSTALLING REFORESTATION PLANTS.

9. INSTALL TREE PROTECTION SIGNAGE.

10. STABILIZE ANY DISTURBED AREAS USING THE SPECIFIED STABILIZATION MIXTURE WHICH ALLOWS FOR NATURAL REVEGETATION OF FOREST COMMUNITIES.

FOREST CONSERVATION SEQUENCE OF OPERATIONS

1. Prior to beginning any grading operations on this site or on a respective lot, there may be a preconstruction meeting held at the site which is to include the Contractor and representatives from Patton Harris Rust & Associates, Inc. (PHR+A). The Howard County Department of Planning and Zoning (DPZ) and the owner will be notified by the Contractor as to the time and place of the field meeting, should they wish to send a representative. The purpose of this meeting will be to review the approved FCP and to field verify the correct Limits of Disturbance (LOD).

2. The Limits of Disturbance (LOD) pertinent to the preservation of wooded areas shall be staked in the field with final adjustments being made as necessary to insure adequate protection of the Critical Root Zone of trees designated for retention. Stakes to be used shall be those specified for the "TREE PROTECTION DEVICE" to which approved protective material will be attached. Alternate means of defining the LOD may be used if approved by the DPZ.

3. All forest retention areas shall be protected by highly visible, well anchored temporary protection devices (see detail), which shall be securely in place prior to any clearing or grading operations.

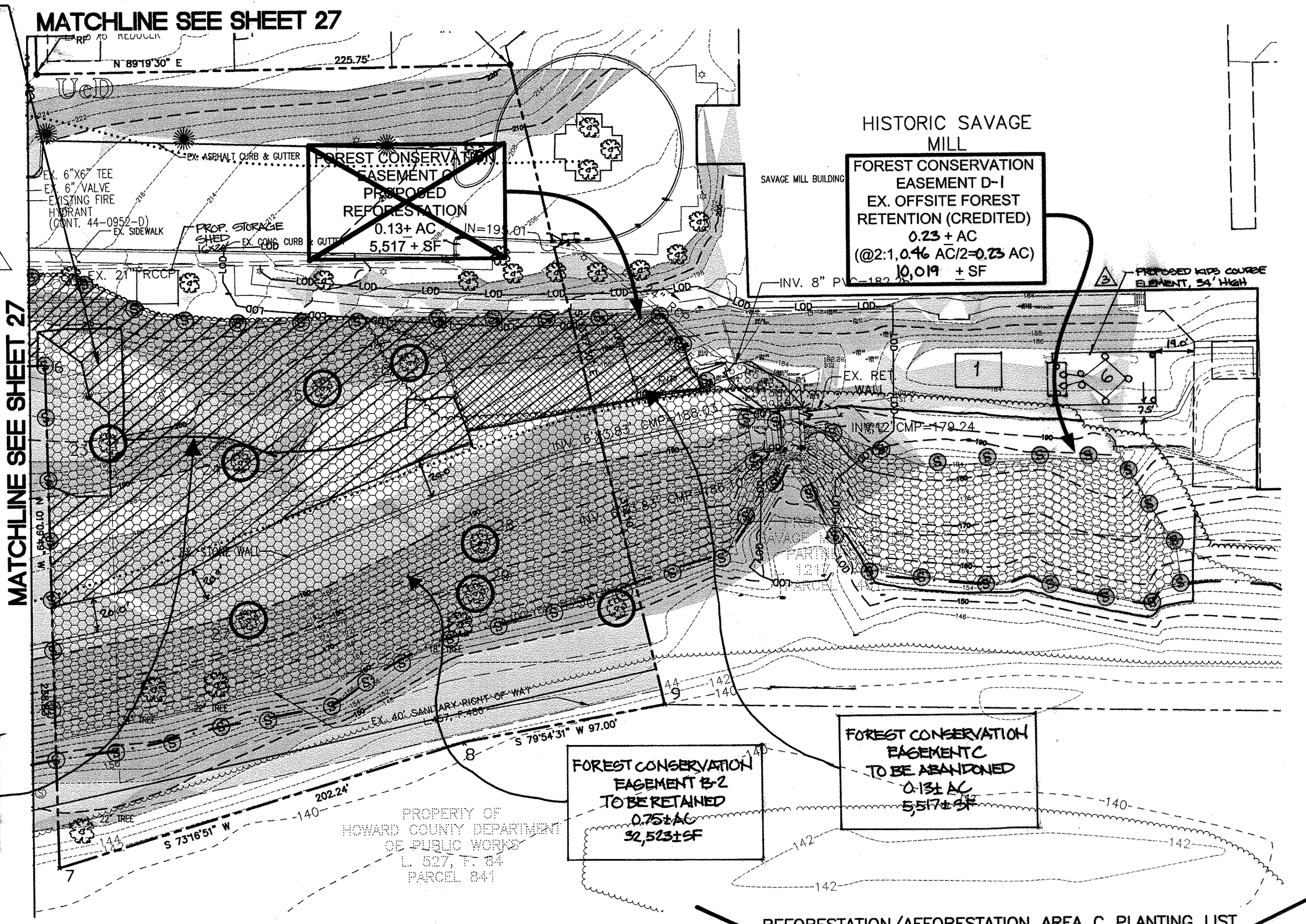
4. Grading operations or other construction operations which could dislodge or otherwise damage the protective devices shall be avoided along the edges of the LOD lines if possible. Any protective devices which are damaged during site construction operations shall be properly repaired immediately by the Contractor.

5. After site grading, retaining wall, and parking lot have been completed, all trees adjacent to the LOD line shall be inspected for indications of crown die-back (summer indicator), damage within respective critical root zones or any dead wood or other conditions which might be hazardous to pedestrians, buildings, utility lines vehicular access ways or parked vehicles.

6. Should there be evidence of any damage to tree trunks, branches or the critical root zone of trees within the protected areas, or to isolated specimen trees to be preserved, the damage shall be examined within a period of two (2) days from the date of observance by a licensed tree care professional. Exposed roots should be covered immediately to a depth of 6 - 8 inches with soil, preferably mixed with 50% peat moss or leaf mold.

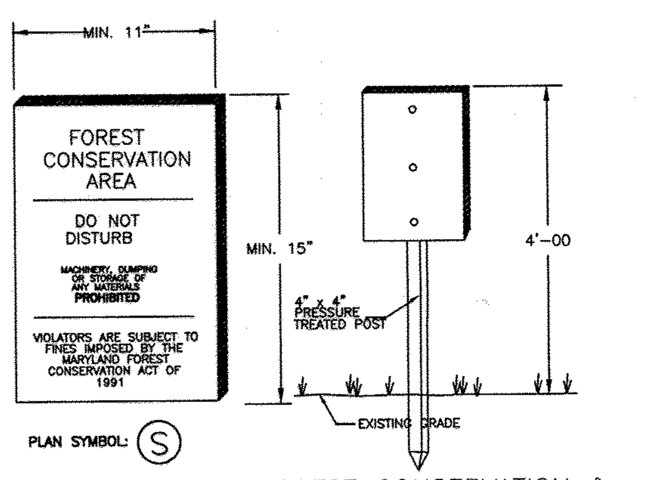
7. Remove damaged, dead or dying trees or limbs only if the trees or limbs pose an immediate safety hazard to buildings, utility lines, vehicles, or access and egress drives or pedestrian areas. Trees designated for pruning or removal shall be pruned or removed using equipment and methods which will not damage or destroy adjacent large trees or understory trees or shrubs designated for retention.

8. All temporary forest protection devices will be carefully removed after all general construction, necessary tree surgery, removal of debris, etc. regrading and reseeding of sediment and erosion control disturbance have been completed and acceptance and approval of the work and site conditions have been given by the DPZ.



LEGEND

PROP. BUILDING	
LIMIT OF DISTURBANCE	LOD
TREE PROTECTION FENCE	TPD
PROPERTY LINE AND RIGHT OF WAY	
FLOODPLAIN	
EX. TREELINE	
PROP. TREELINE	
FOREST RETENTION AREA	
REFORESTATION AREA	
FOREST CONSERVATION EASEMENT SIGNAGE	



FOREST CONSERVATION & REFORESTATION SIGN DETAIL

NOT TO SCALE

NOTES:
1. SIGNAGE SHALL BE LOCATED ON FOREST CONSERVATION / REFORESTATION / AFFORESTATION EASEMENT BORDER.
2. SEE PLAN FOR SPACING.

Howard County Forest Conservation Worksheet

Project Name: Savage Mill Hotels
County File #: SDP-07-076
Date: October 11, 2007

			Acres
Net Tract Area			
A.	*Total Tract Area*	A =	10.18*
B.	*Floodplain*	B =	0.31
C.	*Net Tract Area* Net Tract Area = (A-B-C)	C =	9.87
Land Use Category:			
D.	*Afforestation Threshold* (Net Tract Area X 15%	D =	1.48
E.	*Conservation Threshold* (Net Tract Area X 15%	E =	1.48
Existing Forest Cover			
F.	***Existing Forest Cover within the Net Tract Area***	F =	6.34**
G.	*Area of Forest Above Conservation Threshold* If the Existing Forest Cover (F) is greater than Conservation Threshold (G), then G = Existing Forest Cover (F) - Conservation Threshold (E); Otherwise G = 0	G =	4.86
Break Even Point			
H.	*Break Even* (Amount of forest that must be retained so that no mitigation is required) (1) If the area of forest above the Conservation Threshold (G) is greater than zero, then H = (0.2 X the area of forest above Conservation Threshold (G)) + the Conservation Threshold (E) (2) If the area of forest above the Conservation Threshold (G) is equal to zero, then H = Existing Forest Cover (F)	H =	2.45
I.	*Forest Clearing Permitted Without Mitigation* I = Existing Forest Cover (F) - Break Even Point (H)	I =	3.89
Proposed Forest Clearing			
J.	***Total Area of Forest to be Cleared***	J =	4.83***
K.	***Total Area of Forest to be Retained*** K = Existing Forest Cover (F) - forest to be cleared (J)	K =	1.51
Planting Requirements			
	If the Total Area of Forest to be Cleared (J) is at or above the Breakeven Point (H), no planting is required and no further calculations are necessary (L=0, M=0, N=0, P=0); If not, calculate the planting requirement below:		
L.	*Reforestation for Clearing Above the Conservation Threshold* (1) if the total area of forest to be retained (K) is greater than the Conservation Threshold (E), then L = the area of forest to be cleared (J) X 0.25: or (2) If the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then L = area of forest above Conservation Threshold (G) X 0.25	L =	1.21
M.	*Reforestation for Clearing Below the Conservation Threshold* (1) if Existing Forest Cover (F) is greater than Conservation Threshold (E) and the forest to be retained (K) is less than or equal to the Conservation Threshold (E), then M = 2.0 X (the Conservation Threshold (E) - the forest to be retained (K)) (2) If Existing Forest (F) is less than or equal to the Conservation Threshold (E), then M = 2.0 X Forest to be cleared (J).	M =	0.00
N.	*Credit for Retention Above the Conservation Threshold* If the area of forest to be retained (K) is greater than the Conservation Threshold (E), then N = K - E	N =	0.03
P.	*Total Reforestation Required* P = L + M - N	P =	1.18
Q.	*Total Afforestation Required* (1) If Existing Forest Cover (F) is less than the Afforestation Threshold (D) then Q = the Afforestation Threshold (D) - the Existing Forest Cover (F)	Q =	0.00
R.	*Total Planting Requirement* R = P + Q	R =	1.18

*TOTAL TRACT AREA OF 10.18 ACRES REPRESENTS 10.06 ACRES ON-SITE AND 0.12 ACRES OF OFF-SITE DISTURBANCE ON THE SAVAGE PARK PROPERTY.

**TOTAL EXISTING FOREST AREA OF 6.34 ACRES REPRESENTS 6.22 ACRES OF EXISTING FOREST ON-SITE AND 0.12 ACRES OF OFF-SITE DISTURBED FOREST ON THE SAVAGE PARK PROPERTY.

***TOTAL FOREST TO BE CLEARED AREA OF 4.52 ACRES REPRESENTS 4.40 ACRES OF EXISTING FOREST CLEARED ON-SITE AND 0.12 ACRES OF CLEARED OFF-SITE FOREST ON THE SAVAGE PARK PROPERTY.

FOREST CONSERVATION PROGRAM

I. OBJECTIVE:
IT IS THE OBJECTIVE OF THE FOREST CONSERVATION PLAN OF THE SAVAGE MILL HOTELS TO RETAIN ENVIRONMENTAL INTEGRITY BY PRESERVING EXISTING WOODED AREAS & REFORESTING AREAS ON SITE.

II. PRESERVATION:
FOREST PRESERVATION AREAS SHALL BE PERMANENTLY PROTECTED BY FOREST CONSERVATION EASEMENTS.

III. GENERAL CONSTRUCTION NOTE:
THERE WILL BE NO STAGING OR STORING OF EQUIPMENT OUTSIDE THE LIMIT OF DISTURBANCE.

IV. POST CONSTRUCTION MANAGEMENT PRACTICE:
A TWO-YEAR POSTED CONSTRUCTION AND MANAGEMENT PROGRAM TO ENSURE FOREST HEALTH IS REQUIRED AND INCLUDES THE FOLLOWING:

1-MAINTENANCE OF SIGNS, FENCES, AND TREE PROTECTION DEVICES TO PREVENT UNWARRANTED INTRUSION AND DAMAGE.
2-CAREFUL REMOVAL OF ALL TEMPORARY STRUCTURES AFTER CONSTRUCTION.
3-ROUTINE INSPECTIONS OF FOREST CONSERVATION EASEMENTS.
4-ROUTINE INSPECTIONS AND MAINTENANCE OF REFORESTATION AREAS.

GENERAL NOTES:

1. BOUNDARY INFORMATION PROVIDED BY PHR+A, DATED DECEMBER 5, 2006. TOPOGRAPHIC INFORMATION PROVIDED BY PHR+A, DATED NOVEMBER 28, 2006.

2. NO CRITICAL HABITATS OF RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.

3. NO TREES, SHRUBS, OR PLANTS IDENTIFIED AS RARE, THREATENED OR ENDANGERED SPECIES WERE OBSERVED.

4. THERE ARE NO KNOWN CEMETERIES OR BURIAL PLOTS LOCATED ON THE SITE, ACCORDING TO THE HOWARD COUNTY CEMETERIES INVENTORY.

5. NO EXISTING BUILDINGS ARE PRESENT ON THE SITE.

6. THE SOILS ON SITE ARE BELTSVILLE SILT LOAM (1-5% SLOPES) - BeB2, BELTSVILLE SILT LOAM (5-10% SLOPES) - BeC3, MONTALTO SILT LOAM (3-8% SLOPES) - MpB2, MONTALTO SILTY CLAY LOAM (8-15% SLOPES) - MqC3, AND MONTALTO AND RELAY SOILS (25-45% SLOPES) - MrE ACCORDING TO THE SOIL SURVEY FOR HOWARD COUNTY, MARYLAND, MAP #34

7. THE FSD, DATED FEBRUARY 5, 2007, HAS BEEN PREPARED BY PATTON HARRIS RUST & ASSOCIATES IN CONJUNCTION WITH THESE PLANS.

8. THE HOWARD COUNTY FOREST CONSERVATION MANUAL SUPERCEDES ANY DISCREPANCIES BETWEEN THE MANUAL AND THESE PLANS.

9. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION.

10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION WITH AN OBLIGATION OF 2.69 ACRES PROVIDED BY 1.51 ACRES OF ON-SITE RETENTION WITH SURETY IN THE AMOUNT OF $13,155.00. BY 0.07 ACRES OF ON-SITE REFORESTATION WITH SURETY IN THE AMOUNT OF $1,525.00 BY 0.808 ACRES OF OFF-SITE RETENTION AT 2 TO 1 (0.23 CREDITED ACRES) WITH SURETY IN THE AMOUNT OF $3,703.00 (0.23 ACRES AT REFORESTATION RATE), THE TOTAL SURETY AMOUNT IS $19,689.00 BY A FEE-IN-LIEU FOR 0.42 ACRES OF REFORESTATION OBLIGATION IN THE AMOUNT OF $13,721.00 AT $0.75/SF. AND BY 0.808 AC OF REFORESTATION BY OFF-SITE FOREST CONSERVATION RETENTION AT 2 TO 1 = 1.616 AC.

11. A FOREST CONSERVATION EASEMENT WILL BE ESTABLISHED TO FULFILL THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL. NO CLEARING, GRADING, OR CONSTRUCTION IS PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT, HOWEVER, FOREST MANAGEMENT PRACTICES AS DEFINED IN THE DEED OF FOREST CONSERVATION EASEMENT ARE ALLOWED. THE FOREST CONSERVATION EASEMENT IS SHOWN ON AN EASEMENT PLAT RECORDED IN THE HOWARD COUNTY LAND RECORDS AT PLAT NO. 20205.

NOTE 10 CONT.

THE OFFSITE FOREST CONSERVATION IS LOCATED AT TAX MAP 10, PARCEL 1, 890 HENRYTON ROAD, MARRIOTTSVILLE, MD 21104. THE OFFSITE FOREST CONSERVATION BANK WAS APPROVED UNDER SDP-09-031 SHARP-FERGUSON. ADDITIONAL OFFSITE FOREST CONSERVATION IS LOCATED AT THE QUARTZ PROPERTY, TAX MAP 8, PARCEL 40 APPROVED UNDER F-13-070. 0.6976 OF OFF-SITE FOREST CONSERVATION CREDIT WAS PURCHASED AT THIS BANK (0.3448 AC AT A 2:1 RATIO).

12. THE PROPOSED ZIPLINE COURSE ELEMENT FOR TERRAPIN ADVENTURES IS PERMITTED TO BE LOCATED ABOVE THE LIMITS OF FCE AREA B-1 AS DETERMINED BY DPZ PER THE REVIEW OF THE RED-LINE REVISION FOR SDP-07-76.

13. SEVERAL FOREST CONSERVATION EASEMENTS MAY BE LESS THAN 35' IN WIDTH. HOWEVER, BASED ON THE NOVEMBER 1, 2010 FOREST CONSERVATION POLICY FOR FOREST RETENTION AREA SIZE POLICY MEMORANDUM, THESE EASEMENTS ARE ACCEPTABLE BASED ON THAT THEY ARE LOCATED ADJACENT TO A FORESTED COUNTY PARK.

REFORESTATION/AFFORESTATION AREA C PLANTING LIST

UPLAND PLANT LIST				
*QTY	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
2	LIRIODENDRON TULIPIFERA / TULIP TREE	2" CAL.	CONT.	FULL CROWN PLANT 15' O.C.
2	LIQUIDAMBAR STYRACIFLUA / SWEET GUM			
3	ACER RUBRUM / RED MAPLE			
3	QUERCUS ALBA / WHITE OAK			
3	FAGUS GRANDIFOLIA / AMERICAN BEECH			
TOTAL AREA: 0.13 ACRES				
TREES REQUIRED: 13				
TREES PROVIDED: 13				

*NOTE: CALCULATIONS FOR 2" CAL. PLANTS IS BASED ON 100 PLANTS PER ACRE.

REFORESTATION/AFFORESTATION AREA F PLANTING LIST

UPLAND PLANT LIST				
*QTY	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
1	QUERCUS ALBA / WHITE OAK	2" CAL.	CONT.	FULL CROWN PLANT 15' O.C.
TOTAL AREA: 0.01 ACRES				
TREES REQUIRED: 1				
TREES PROVIDED: 1				

*NOTE: CALCULATIONS FOR 2" CAL. PLANTS IS BASED ON 100 PLANTS PER ACRE.

REFORESTATION/AFFORESTATION AREA G PLANTING LIST

UPLAND PLANT LIST				
*QTY	SCIENTIFIC/ COMMON NAME	SIZE	ROOT	REMARKS
2	LIRIODENDRON TULIPIFERA / TULIP TREE	2" CAL.	CONT.	FULL CROWN PLANT 15' O.C.
2	LIQUIDAMBAR STYRACIFLUA / SWEET GUM			
2	ACER RUBRUM / RED MAPLE			
TOTAL AREA: 0.06 ACRES				
TREES REQUIRED: 6				
TREES PROVIDED: 6				

*NOTE: CALCULATIONS FOR 2" CAL. PLANTS IS BASED ON 100 PLANTS PER ACRE.

DATE	NO.	REVISION
3.25.14	3	ADDED ROPES COURSE ELEMENT AND FOREST CONSERVATION ABANDONMENTS

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION
4.6.09	2	REVISED BUILDING FOOTPRINT
2/9/09	1	ADDED ROPES COURSE

OWNER: SAVAGE MILL REMAINDER, LLC, JAY WINER, 8373 PINEY ORCHARD PKWY, SUITE 102, ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC, GENE SINGLETON, 2200 SUMMITT PARK LANE, SUITE 2000, RALEIGH, NC 27612, (919) 279.3031

PROJECT: **SAVAGE MILL HOTELS**

AREA: TAX MAP 47 PARCEL 93 ZONING: B2, 6TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: **FOREST CONSERVATION PLAN & NOTES AND TABULATIONS**

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND 3068 PETER J. STONE BOARD OF EXAMINERS OF LANDSCAPE ARCHITECTS

9.3.08

PETER J. STONE #3068

DESIGNED BY : PJS/JSN

DRAWN BY: JSN

PROJECT NO : 12014-2-0 C400SDP27.DWG

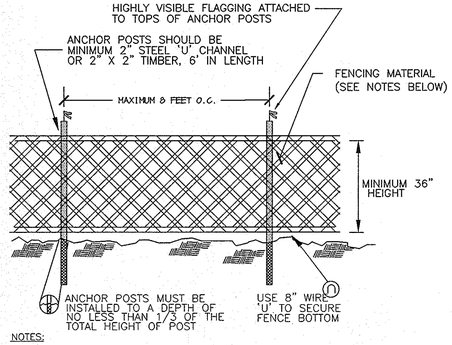
DATE : SEPTEMBER 8, 2008

SCALE : 1"=40'

DRAWING NO. 28 OF 36

P:\Project\12014\2-0\PLANS\C400SDP28.DWG

SDP-07-076

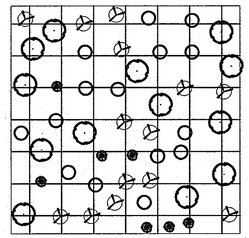


NOTES:

1. BLAZE ORANGE MESH OR SUPER SILT FENCE FOR TREE PROTECTION DEVICE, ONLY.
2. BOUNDARIES OF PROTECTION AREA WILL BE ESTABLISHED PRIOR TO GRADING AND SEDIMENT CONTROL.
3. AVOID DAMAGE TO CRITICAL ROOT ZONE. DO NOT DAMAGE OR SEVER LARGE ROOTS WHEN INSTALLING POSTS.
4. FENCING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION FENCING

NOT TO SCALE



KEY

TREES

- TREE SPECIES 'A'
- TREE SPECIES 'B'
- TREE SPECIES 'C'
- TREE SPECIES 'D'
- TREE SPECIES 'E'

NOTES

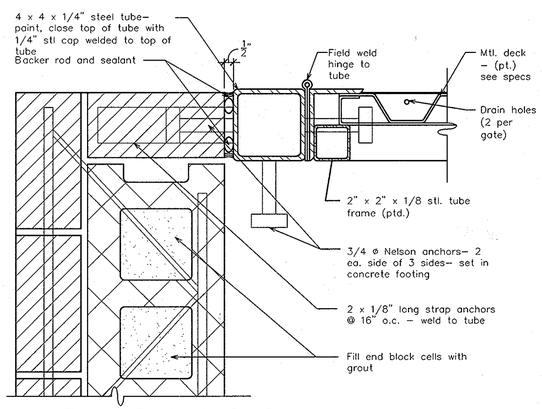
1. RANDOMLY LOCATE GROUPS OF PLANT SPECIES, TAKING CARE NOT TO PLANT IN SUCCESSION MORE THAN 4 OF THE SAME SPECIES.
2. THIS DETAIL PROVIDES A HYPOTHETICAL, GRAPHIC DEPICTION OF A PROPOSED LAYOUT FOR NINE DIFFERENT TREE SPECIES (A-I). IT IS NOT MEANT TO BE FOLLOWED EXACTLY. THE PURPOSE IS TO ACHIEVE THE APPEARANCE OF RANDOM SPACING.
3. SEE PLANT LIST FOR ACTUAL NUMBER OF PLANT SPECIES. SEE PLANT LIST FOR ON-CENTER SPACING REQUIREMENTS.

RANDOM PLANTING LAYOUT DETAIL

NOT TO SCALE

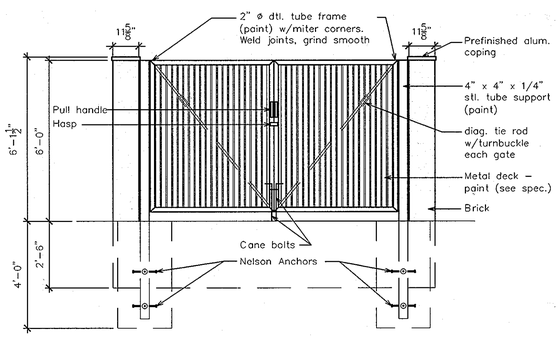
SPECIMEN TREE CHART

KEY	SPECIES	SIZE	CONDITION	REMAIN/ REMOVE
1	TULIP POPLAR (Liriodendron tulipifera)	24"	FAIR	REMAIN
2	TULIP POPLAR (Liriodendron tulipifera)	36'	GOOD	REMAIN
3	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD	REMOVE
4	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD	REMOVE
5	BITTERNUT HICKORY (Carya cordiformis)	36"	GOOD	REMOVE
6	TULIP POPLAR (Liriodendron tulipifera)	28"	POOR	REMOVE
7	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD	REMOVE
8	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD	REMOVE
9	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD	REMAIN
10	TULIP POPLAR (Liriodendron tulipifera)	24"	POOR	REMOVE
11	TULIP POPLAR (Liriodendron tulipifera)	28"	POOR	REMOVE
12	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD	REMOVE
13	TULIP POPLAR (Liriodendron tulipifera)	31"	POOR	REMOVE
14	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD	REMOVE
15	TULIP POPLAR (Liriodendron tulipifera)	25"	GOOD	REMOVE
16	BITTERNUT HICKORY (Carya cordiformis)	27"	GOOD	REMOVE
17	BITTERNUT HICKORY (Carya cordiformis)	29"	GOOD	REMOVE
18	TULIP POPLAR (Liriodendron tulipifera)	25"	GOOD	REMOVE
19	TULIP POPLAR (Liriodendron tulipifera)	27"	GOOD	REMAIN
20	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD	REMAIN
21	SYCAMORE (Platanus occidentalis)	30"	GOOD	REMAIN
22	TULIP POPLAR (Liriodendron tulipifera)	25"	GOOD	REMAIN
23	TULIP POPLAR (Liriodendron tulipifera)	27"	GOOD	REMAIN
24	SYCAMORE (Platanus occidentalis)	30"	GOOD	REMAIN
25	SYCAMORE (Platanus occidentalis)	38"	GOOD	REMAIN
26	SYCAMORE (Platanus occidentalis)	30"	GOOD	REMAIN
27	SYCAMORE (Platanus occidentalis)	30"	GOOD	REMAIN
28	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD	REMAIN
29	TULIP POPLAR (Liriodendron tulipifera)	28"	GOOD	REMAIN
30	TULIP POPLAR (Liriodendron tulipifera)	30"	GOOD	REMAIN
31a	TULIP POPLAR (Liriodendron tulipifera) TWIN	23"	GOOD	REMAIN
31b	TULIP POPLAR (Liriodendron tulipifera) TWIN	23"	GOOD	REMAIN



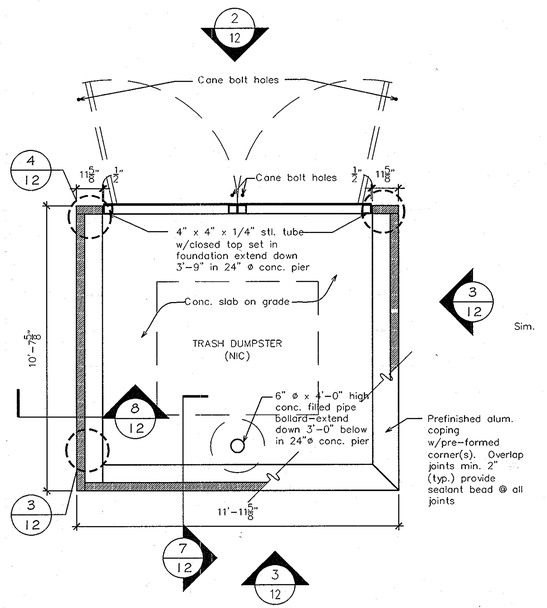
1/29 Plan Detail @ Gate

Scale: 3"=1'-0"



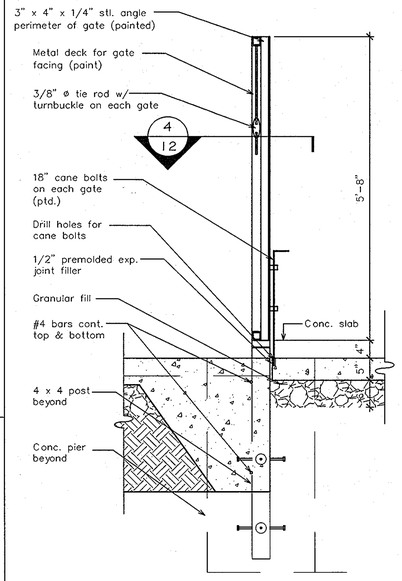
2/29 Dumpster Enclosure Front Elevation

Scale: 3/8"=1'-0"



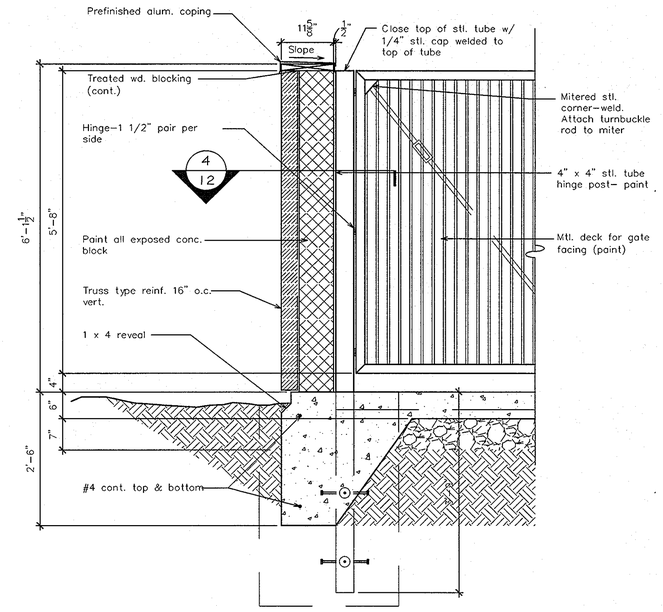
5/29 Dumpster Enclosure Plan

Scale: 3/8"=1'-0"



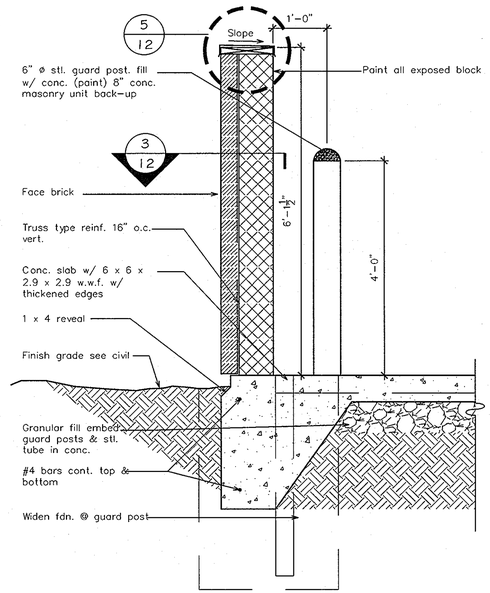
3/29 Section Through Gate

Scale: 3/4"=1'-0"



4/29 Section Through Wall (Looking @ Gate)

Scale: 3/4"=1'-0"



6/29 Section Through Wall (Looking @ Gate)

Scale: 3/4"=1'-0"

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/16/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION J.S. — DATE 9/8/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113–1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
FOREST CONSERVATION DETAILS & SITE DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects:
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

STATE OF MARYLAND 3068 PETER J. STONE REGISTERED PROFESSIONAL ENGINEER
9.3.08
PETER J. STONE #3068

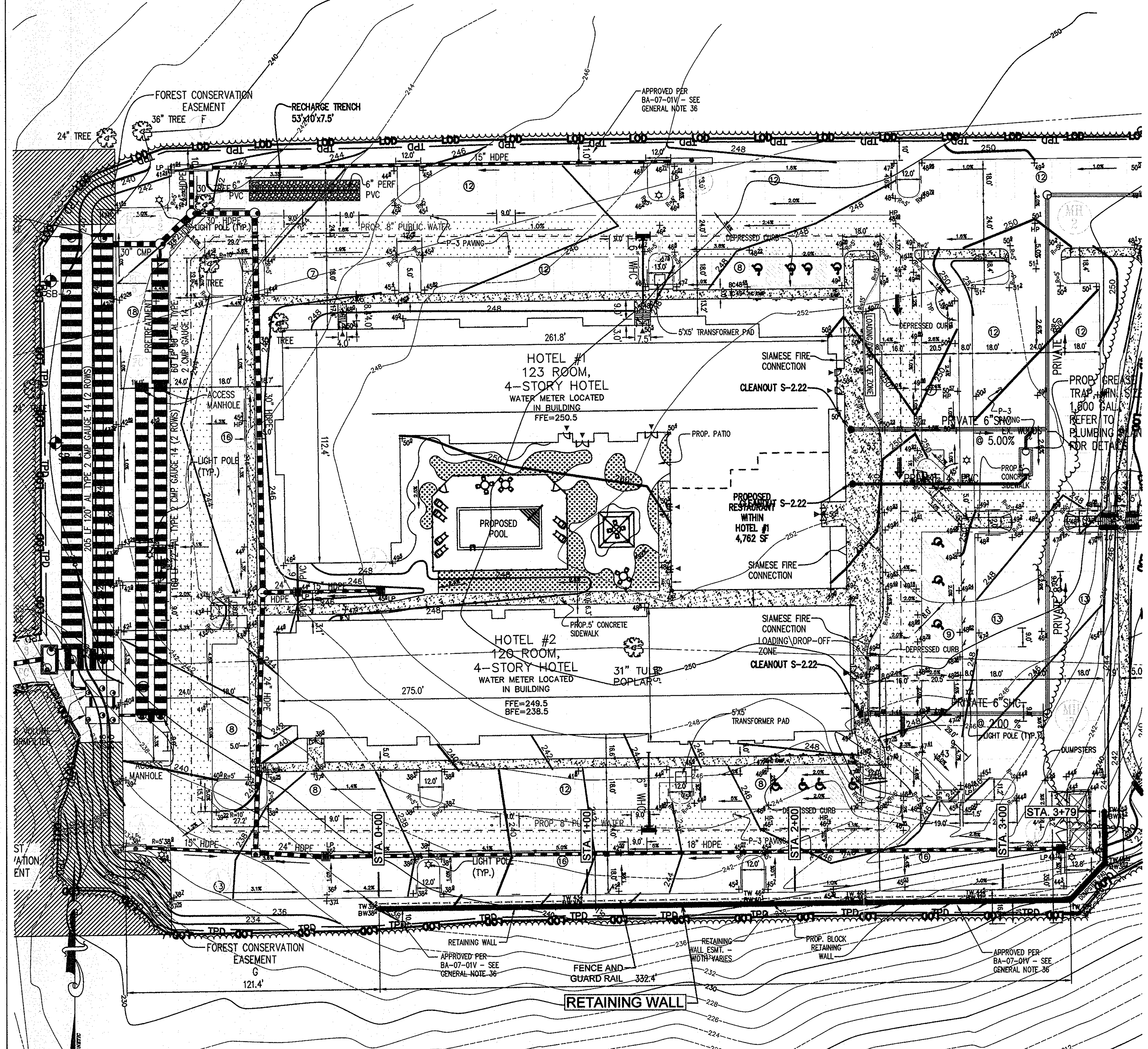
DESIGNED BY : PJS/JSN
DRAWN BY: JSN
PROJECT NO : 12014-2-0 C400SDP28.DWG
DATE : SEPTEMBER 8, 2008
SCALE : 1"=30'
DRAWING NO. 29 OF 33

P:\Project\12014\2-0\PLANS\C400SDP28.DWG

SDP-07-076

NOTES:

1. No trees shall be planted within 10 feet of the top of the retaining wall.
2. Retaining walls shall only be constructed under the observation of a registered professional engineer and a (NICET, WACEL, or equiv.) certified soils technician.
3. 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.
4. 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.
5. The suitability of fill material shall be confirmed by the on-site soils technician. Each 8" lift must be compacted to a minimum 95% standard proctor density and the testing report shall be made available to the Howard County Inspector upon completion of construction.
6. Walls shall not be constructed on uncertified fill materials.
7. Walls shall not be constructed within a Howard Co. right-of-way or easement.



WALL LOCATION PLAN

1"=30'

SPECIFICATIONS

KEYSTONE MODULAR CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 Description

A. Work shall consist of furnishing and construction of a KEYSTONE Retaining Wall System in accordance with these specifications and in reasonably close conformity with the lines, grades, design, and dimensions shown on the plans.

B. Work includes preparing foundation soil, furnishing and installing leveling pad, unit drainage fill and backfill to the lines and grades shown on the construction drawings.

C. Work includes furnishing and installing geogrid soil reinforcement of the type, size, location, and lengths designated on the construction drawings.

1.02 Delivery, Storage and Handling

A. Contractor shall check all materials upon delivery to assure that the proper type, grade, color, and certification has been received.

B. Contractor shall protect all materials from damage due to job site conditions and in accordance with manufacturer's recommendations. Damaged materials shall not be incorporated into the work.

PART 2: PRODUCTS

2.01 Modular Concrete Retaining Wall Units

A. Modular concrete units shall conform to the following architectural requirements:
face color - concrete gray - standard manufacturers' color may be specified by the Owner.
face finish - sculptured rock face in angular tri-planer configuration. Other face finishes will not be allowed without written approval of Owner.
bond configuration - running with bonds nominally located at midpoint vertically adjacent units, in both straight and curved alignments.
exposed surfaces of units shall be free of chips, cracks or other imperfections when viewed from a distance of 10 feet under diffused lighting.

B. Modular concrete materials shall conform to the requirements of ASTM C1372 - Standard Specifications for Segmental Retaining Wall Units.

C. Modular concrete units shall conform to the following structural and geometric requirements measured in accordance with appropriate references:
compressive strength = 3000 psi minimum;
absorption = 8 % maximum (6% in northern states) for standard weight aggregates;
dimensional tolerances = ± 1/8" from nominal unit dimensions not including rough split face, ±1/16" unit height - top and bottom planes;
unit size - 8" (H) x 18" (W) x 12" (D) minimum;
unit weight - 75 lbs/unit minimum for standard weight aggregates;
inter-unit shear strength - 1000 plf minimum at 2 psi normal pressure;
geogrid/unit peak connection strength - 1000 plf minimum at 2 psi normal force.

D. Modular concrete units shall conform to the following constructability requirements:
vertical setback = 1/8"± per course (near vertical) or 1"+ per course per the design;
alignment and grid positioning mechanism - fiberglass pins, two per unit minimum;
maximum horizontal gap between erected units shall be - 1/2 inch.

2.02 Shear Connectors

A. Shear connectors shall be 1/2 inch diameter thermoset isopthalic polyester resin-protruded fiberglass reinforcement rods or equivalent to provide connection between vertically and horizontally adjacent units. Strength of shear connectors between vertical adjacent units shall be applicable over a design temperature of 10 degrees F to + 100 degrees F.

B. Shear connectors shall be capable of holding the geogrid in the proper design position during grid pre-tensioning and backfilling.

2.03 Base Leveling Pad Material

A. Material shall consist of a compacted #57 crushed stone base as shown on the construction drawings.

2.04 Unit Drainage Fill

A. Unit drainage fill shall consist of #57crushed stone

2.05 Reinforced Backfill

A. Reinforced backfill shall type SM, be free of debris and meet the following gradation tested in accordance with ASTM D-422 and meet other properties shown on the plan:

Sieve Size	Percent Passing
2 inch	100-75
3/4 inch	100-75
No. 40	0-60
No. 200	0-40

Plasticity Index (PI) <10 and Liquid Limit <40 per ASTM D-4318.

B. Material can be site excavated soils where the above requirements can be met. Unsuitable soils for backfill (high plastic clays or organic soils) shall not be used in the reinforced soil mass.

2.06 Geogrid Soil Reinforcement

A. Geosynthetic reinforcement shall consist of geogrids manufactured specifically for soil reinforcement applications and shall be manufactured from high tenacity polyester yarn.

2.07 Drainage Pipe

A. The drainage pipe shall be perforated corrugated HDPE pipe manufactured in accordance with ASTM D-1248.

PART 3 EXECUTION

3.01 Excavation

A. Contractor shall excavate to the lines and grades shown on the construction drawings. Owner's representative shall be responsible for inspecting and approving the excavation prior to placement of leveling material or fill soils.

3.02 Base Leveling Pad

A. Leveling pad material shall be placed to the lines and grades shown on the construction drawings, to a minimum thickness of 6 inches and extend laterally a minimum of 6" in front and behind the modular wall unit.

B. Leveling pad shall be prepared to insure full contact to the base surface of the concrete units.

3.03 Modular Unit Installation

A. First course of units shall be placed on the leveling pad at the appropriate line and grade. Alignment and level shall be checked in all directions and insure that all units are in full contact with the base and properly seated.

B. Place the front of units side-by-side. Do not leave gaps between adjacent units. Layout of corners and curves shall be in accordance with manufacturer's recommendations.

C. Install shear/connecting devices per manufacturer's recommendations.

D. Place and compact drainage fill within and behind wall units. Place and compact backfill soil behind drainage fill. Follow wall erection and drainage fill closely with structure backfill.

E. Maximum stacked vertical height of wall units, prior to unit drainage fill and backfill placement and compaction, shall not exceed three courses.

3.04 Structural Geogrid Installation

A. Geogrid shall be oriented with the highest strength axis perpendicular to the wall alignment.

B. Geogrid reinforcement shall be placed at the strengths, lengths, and elevations shown on the construction design drawings or as directed by the Engineer.

C. The geogrid shall be laid horizontally on compacted backfill and attached to the modular wall units. Place the next course of modular concrete units over the geogrid. The geogrid shall be pulled taut, and anchored prior to backfill placement on the geogrid.

D. Geogrid reinforcements shall be continuous throughout their embedment lengths and placed side-by-side to provide 100% coverage at each level. Spliced connections between shorter pieces of geogrid or gaps between adjacent pieces of geogrid are not permitted.

3.05 Reinforced Backfill Placement

A. Reinforced backfill shall be placed, spread, and compacted in such a manner that minimizes the development of slack in the geogrid and installation damage.

B. Reinforced backfill shall be placed and compacted in lifts not to exceed 6 inches where hand compaction is used, or 8 - 10 inches where heavy compaction equipment is used. Lift thickness shall be decreased to achieve the required density as required.

C. Reinforced backfill shall be compacted to 95% of the maximum density as determined by ASTM D698. The moisture content of the backfill material prior to and during compaction shall be uniformly distributed throughout each layer and shall be + 3% to - 3% of optimum.

D. Only lightweight hand-operated equipment shall be allowed within 3 feet from the tail of the modular concrete unit.

E. Tracked construction equipment shall not be operated directly upon the geogrid reinforcement. A minimum fill thickness of 6 inches is required prior to operation of tracked vehicles over the geogrid. Tracked vehicle turning should be kept to a minimum to prevent tracks from displacing the fill and damaging the geogrid.

F. Rubber tired equipment may pass over geogrid reinforcement at slow speeds, less than 10 MPH. Sudden braking and sharp turning shall be avoided.

G. At the end of each day's operation, the Contractor shall slope the last lift of reinforced backfill away from the wall units to direct runoff away from wall face. The Contractor shall not allow surface runoff from adjacent areas to enter the wall construction site.

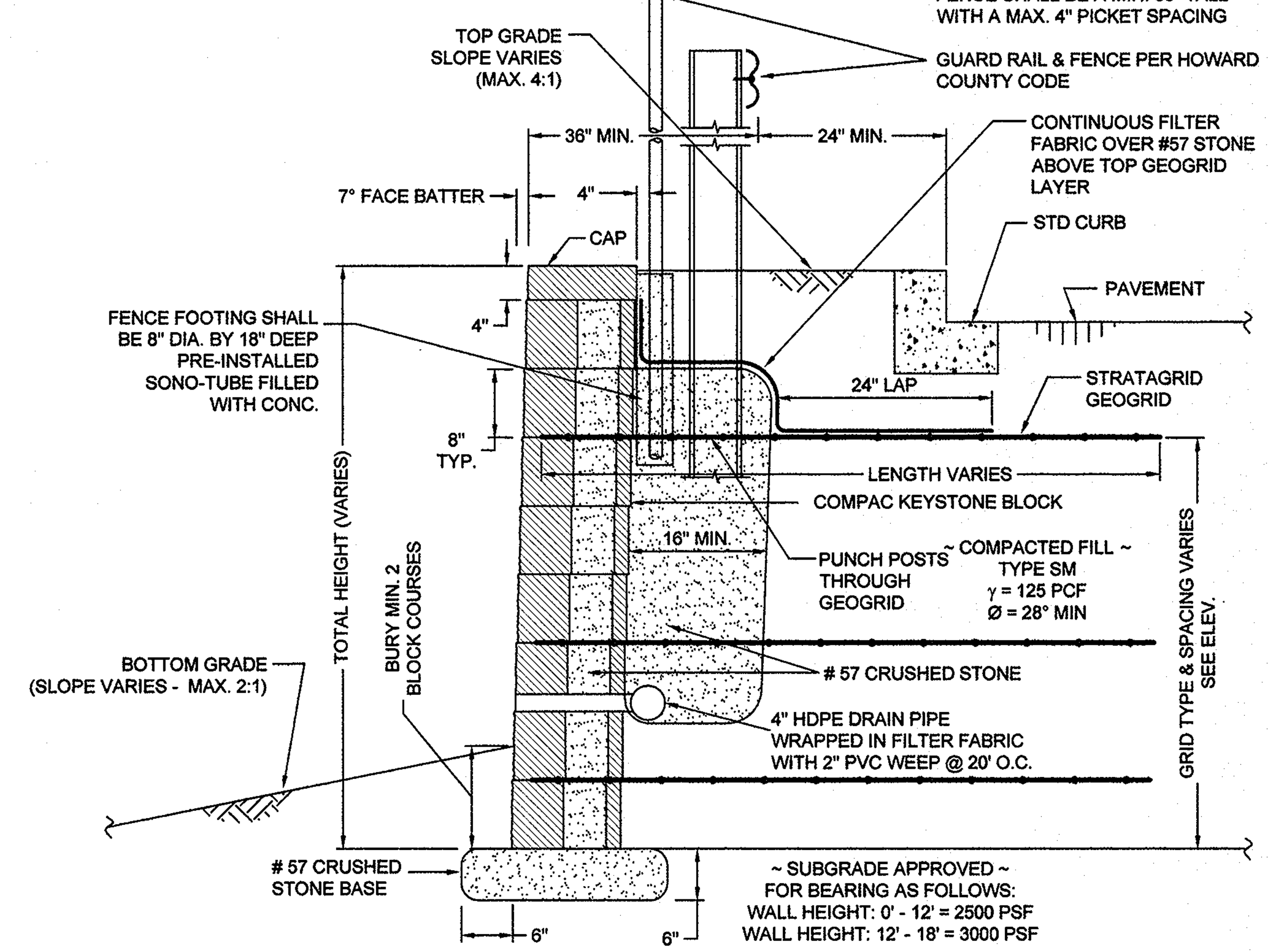
3.06 Cap Installation

A. Cap units shall be glued to underlying units with an all-weather adhesive recommended by the manufacturer.

3.07 Field Quality Control

A. The Owner shall engage inspection and testing services, including independent laboratories, to provide quality assurance and testing services during construction.

B. As a minimum, quality assurance testing should include foundation soil inspection, soil and backfill testing, verification of design parameters, and observation of construction for general compliance with design drawings and specifications.



TYP. WALL SECTION

N.T.S.

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 Fax: (410) 880-4098

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR	DATE 10/15/08
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 9/18/08
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 10/14/08

DATE	NO.	REVISION

OWNER: SAVAGE MILL REMAINDER, LLC, JAY WINER, 8373 PINEY ORCHARD PKWY, SUITE 102, ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC, GENE SINGLETON, 2200 SUMMITT PARK LANE, SUITE 2000, RALEIGH, NC 27612, (919) 279.3031

PROJECT: SAVAGE MILL HOTELS

AREA: TAX MAP 47 PARCEL 93 ZONING: B2, 6TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: **RETAINING WALL PLAN AND DETAILS**

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

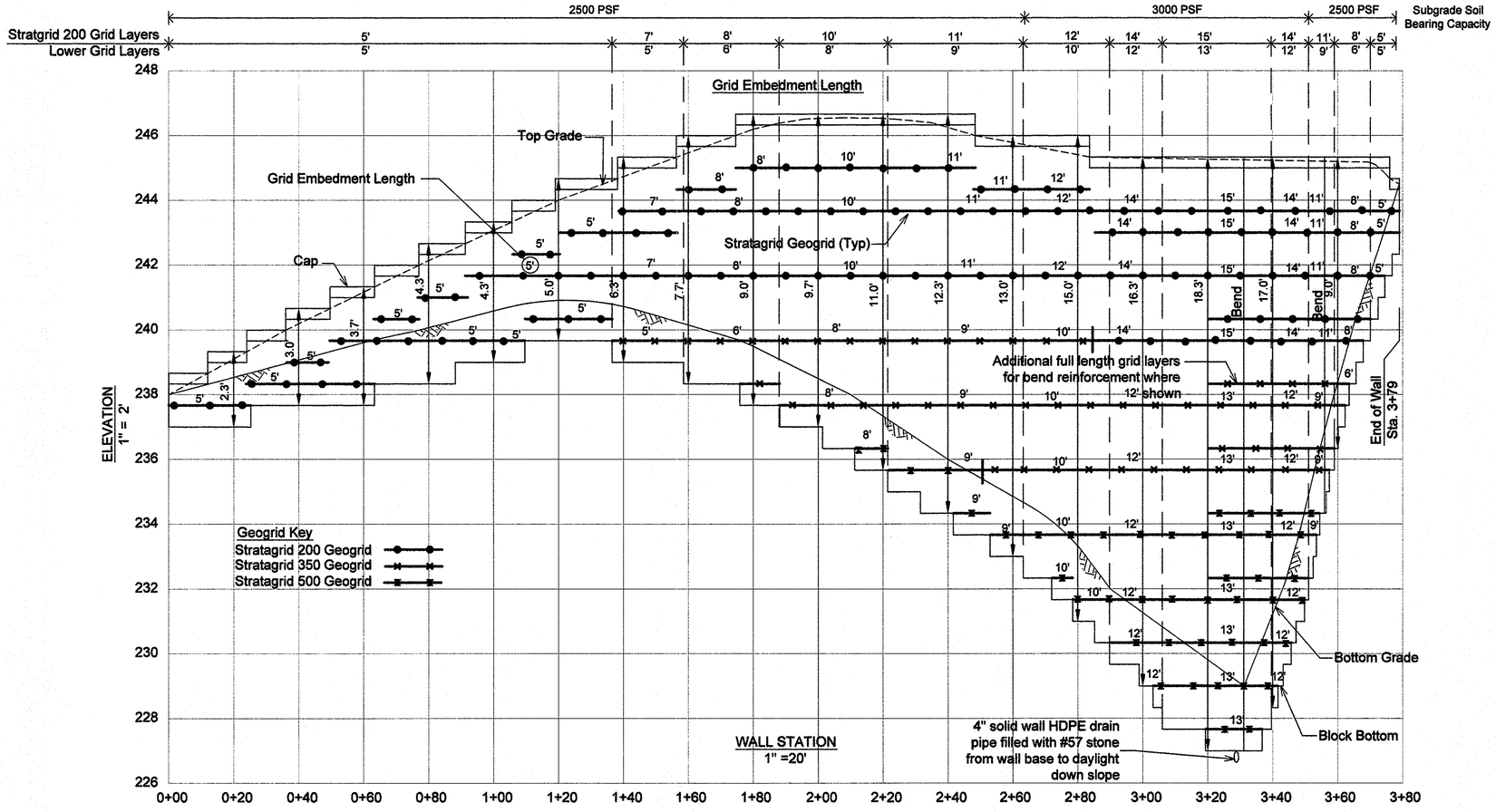
SEAL — STATE OF MARYLAND, RICHARD W. STEWART, No. 14434, PROFESSIONAL ENGINEER

BY:

"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. 14434, EXPIRATION DATE: 05/13/09."

DESIGNED BY :	RWS
DRAWN BY:	AM
PROJECT NO :	07052-A
DATE :	MAY 13, 2008
SCALE :	AS SHOWN
DRAWING NO.	30 OF 33

SDP-07-076



APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — J.P. DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER: SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT: SAVAGE MILL HOTELS

AREA: TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: **RETAINING WALL ELEVATION**

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

STATE OF MARYLAND — HOWARD N. STAMPANT — No. 14434 — PROFESSIONAL ENGINEER

BY:

"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. 14434, EXPIRATION DATE: 05/13/09."

DESIGNED BY : RWS
DRAWN BY: AM
PROJECT NO :07052-A
DATE : MAY 13, 2008
SCALE : AS SHOWN
DRAWING NO. 31 OF 33

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A
(410) 880-4788
Annapolis Junction, Maryland
Fax: (410) 880-4098

SDP-07-076

Soil Boring Logs

Boring B-1

CLIENT: Savage Mill Hotel Group, LLC. | JOB #: 4340-A | BORING #: B-1 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill | ARCHITECT-ENGINEER:

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

ECS LLC MID-ATLANTIC

SURFACE ELEVATION: 248.5

Description of material (English units):
- Topsoil Depth 4"
- Silty CLAY, Trace Sand, Trace Roots, Brown, Moist, Medium Stiff, (CH)
- CLAY, Some Rock, Brown, Moist, Hard, (CL)
- SAND, With Silt, Orangish Brown, Moist, Medium Dense, (SM)
- SILT, Trace to With Sand, Trace Gravel, Orangish Tan to Light Brown, Moist, Very Stiff, (ML)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	12	10 (3-5-5)
2	SS	18	2	34 (14-18-16)
3	SS	18	13	30 (9-14-16)
4	SS	18	12	30 (6-10-20)
5	SS	18	18	17 (3-8-11)
6	SS	18	11	17 (8-8-9)
7	SS	18	13	30 (14-13-17)

[Plastic limit / water content / liquid limit: 23 / 24.9 / 50; water content: 19.7, 15.8, 25.8, 60.5]

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL 16.0' | WS OR WD | BORING STARTED 01/03/07
WL(BCR) | WL(ACR) 14.1' | BORING COMPLETED 01/03/07 | CAVE IN DEPTH @ 22.1'
WL | RIG | FOREMAN DIAMOND | DRILLING METHOD HSA

Boring B-2

CLIENT: Savage Mill Hotel Group, LLC. | JOB #: 4340-A | BORING #: B-2 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 252

Description of material:
- Topsoil Depth 4"
- Silty CLAY, Trace Sand, Brown, Moist, Stiff, (CH)
- Clayey SAND, Trace Gravel, Brown, Moist, Medium Dense, (SC)
- Rocky Layer
- SAND, Some Silt, Trace Gravel, Brown, Moist, Dense, (SM)
- CLAY, Tan and Brown, Moist, Very Stiff, (CL)
- SILT, With Fine Sand, Brown, Moist, Stiff to Hard, (ML)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	12	12 (4-5-7)
2	SS	18	16	26 (6-12-14)
3	SS	18	13	48 (12-27-21)
4	SS	18	18	20 (10-8-12)
5	SS	18	14	29 (9-13-16)
6	SS	18	18	15 (5-6-9)
7	SS	18	11	36 (12-14-22)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY | WS OR WD | BORING STARTED 12/22/06
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 12/22/06 | CAVE IN DEPTH @ 22.1'
WL | RIG | FOREMAN DIAMOND | DRILLING METHOD HSA

Boring B-3

CLIENT: Savage Mill Hotel Group, LLC. | JOB #: 4340-A | BORING #: B-3 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 248.5

Description of material:
- Topsoil Depth 4"
- SILT, Some Rock, Trace Sand, Brown, Moist, Stiff, (ML)
- Rocky Layer, Extremely Dense
- SILT, Trace to Some Sand, Brown, Moist, Very Stiff, (ML)
- Silty Fine SAND, Brown, Moist, Very Dense, (SM)
- Weathered Rock, Black to Greenish Brown, Extremely Dense, (WR)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	11	13 (3-6-7)
2	SS	0	0	50/0 (50/0)
3	SS	18	9	23 (5-9-14)
4	SS	18	15	17 (3-5-12)
5	SS	18	15	53 (19-23-30)
6	SS	15	15	94/9 (12-44-50/3)
7	SS	9	9	50/3 (39-50/3)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL | WS OR WD | BORING STARTED 12/22/06
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 12/22/06 | CAVE IN DEPTH @ 20.8'
WL | RIG | FOREMAN DIAMOND | DRILLING METHOD HSA

Boring B-4

CLIENT: Savage Mill Hotel Group, LLC. | JOB #: 4340-A | BORING #: B-4 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 246

Description of material:
- Topsoil Depth 4"
- Silty CLAY, Trace Sand, Brown to Light Brown, Moist, Stiff to Very Stiff, (CH)
- SILT, Trace to Some Sand, Tan to Brown, Moist, Very Stiff to Very Hard, (ML)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	13	12 (3-5-7)
2	SS	18	18	12 (3-5-7)
3	SS	18	16	17 (5-9-8)
4	SS	18	18	16 (5-7-9)
5	SS	18	15	16 (8-8-8)
6	SS	18	11	31 (9-10-21)
7	SS	18	14	57 (10-26-31)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY | WS OR WD | BORING STARTED 01/04/07
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 01/04/07 | CAVE IN DEPTH @ 20.8'
WL | RIG | FOREMAN DIAMOND | DRILLING METHOD HSA

Boring B-6

CLIENT: Savage Mill Hotel Group, LLC. | JOB #: 4340-A | BORING #: B-6 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 225

Description of material:
- Topsoil Depth 4"
- Silty CLAY, Trace Gravel, Brown, Moist, Stiff to Very Stiff, (CL)
- SILT, Some Clay, Some Gravel, Brown, Moist, Very Stiff, (ML)
- SILT, With Fine Sand, Greenish Brown, Moist, Hard, (ML)
- Weathered Rock, Brown, Very Dense to Extremely Dense, (WR)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	9	14 (2-3-11)
2	SS	18	18	28 (12-12-16)
3	SS	18	18	28 (7-11-17)
4	SS	18	12	45 (10-17-28)
5	SS	18	16	65 (14-26-39)
6	SS	16	11	88/10 (17-38-50/4)
7	SS	8	8	50/2 (67-50/2)

[Water content: 22.5, 21.2, 18.3, 15.0, 15.7]

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL DRY | WS OR WD | BORING STARTED 01/03/07
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 01/03/07 | CAVE IN DEPTH @ 20.3'
WL | RIG | FOREMAN DIAMOND | DRILLING METHOD HSA

Boring SB-1

CLIENT: Savage Mill Hotel Group, LLC | JOB #: 4340-C | BORING #: SB-1 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill - SWM

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 240

Description of material:
- Topsoil Depth 6"
- CLAY, Trace Gravel, Trace Sand, Orangish Brown, Moist, Stiff to Very Stiff, (CH)
- Sandy SILT, Orangish Brown, Moist, Stiff to Very Stiff, (ML)
- CLAY, Some Sand, Orangish Brown, Moist, Very Stiff, (CL)
- Sandy SILT, Green, Moist, Hard, (ML)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	4	11 (4-5-6)
2	SS	18	18	29 (11-15-14)
3	SS	18	18	12 (4-6-6)
4	SS	18	18	24 (13-13-11)
5	SS	18	16	27 (7-15-12)
6	SS	18	16	24 (11-11-13)
7	SS	18	14	20 (9-10-10)
8	SS	18	12	22 (12-11-11)
9	SS	18	18	38 (12-16-22)

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL | WS OR WD | BORING STARTED 04/02/07
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 04/02/07 | CAVE IN DEPTH @ 22.2'
WL | RIG CME750 | FOREMAN D & S | DRILLING METHOD HSA

Boring SB-2

CLIENT: Savage Mill Hotel Group, LLC | JOB #: 4340-C | BORING #: SB-2 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill - SWM

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 239

Description of material:
- Topsoil Depth 6"
- CLAY, With Sand, Light Orangish Brown, Moist, Stiff, (CH)
- Clayey SAND, Trace Gravel, Orangish Brown, Moist, Hard, (SC)
- CLAY, Some Sand, Orangish Brown, Moist, Stiff, (CH)
- Sandy SILT, Orangish Brown, Moist, Medium Stiff to Hard, (ML)
- Weathered Rock, Orangish Brown and Green, Extremely Dense, (WR)
- END OF BORING @ 25.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	16	15 (5-6-9)
2	SS	18	18	33 (16-18-15)
3	SS	18	6	15 (7-9-6)
4	SS	18	16	7 (3-4-3)
5	SS	18	12	7 (4-4-3)
6	SS	18	18	38 (12-16-22)
7	SS	18	18	17 (8-8-9)
8	SS	18	18	36 (19-18-18)
9	SS	11	11	50/5 (41-50/5)

[Water content / plastic limit / liquid limit: 22.7 / 26 / 55]

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL | WS OR WD | BORING STARTED 04/02/07
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 04/02/07 | CAVE IN DEPTH @ 21.3'/20.8' @ 1 HR
WL DRY @ 1 HR | RIG CME750 | FOREMAN D & S | DRILLING METHOD HSA

Boring SB-3

CLIENT: Savage Mill Hotel Group, LLC | JOB #: 4340-C | BORING #: SB-3 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill - SWM

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 237

Description of material:
- Topsoil Depth 7"
- Silty CLAY, Trace Sand, Medium Brown to Orangish Brown, Moist, Very Stiff, (CL)
- SAND With Silt, Orangish Brown, Moist, Medium Stiff to Stiff, (SM)
- END OF BORING @ 15.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	16	19 (4-5-14)
2	SS	18	12	18 (8-8-10)
3	SS	18	18	13 (5-7-6)
4	SS	18	18	14 (5-7-7)
5	SS	18	18	8 (5-3-5)
6	SS	18	10	13 (5-7-6)

[Plastic limit NP; liquid limit 51; water content 51.1]

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL | WS OR WD | BORING STARTED 04/02/07
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 04/02/07 | CAVE IN DEPTH @ 13.5'/12.2' @ 2 HRS
WL DRY @ 2 HRS | RIG CME750 | FOREMAN D & S | DRILLING METHOD HSA

Boring SB-4

CLIENT: Savage Mill Hotel Group, LLC | JOB #: 4340-C | BORING #: SB-4 | SHEET: 1 OF 1

PROJECT NAME: The Hotels at Savage Mill - SWM

SITE LOCATION: Fair Street at Washington Street, Savage, Maryland

SURFACE ELEVATION: 235

Description of material:
- Topsoil Depth 7"
- Silty CLAY, Trace Sand, Orangish Brown, Moist, Stiff to Very Stiff, (CL)
- Silty SAND, Orangish Brown, Moist, Medium Dense to Dense, (SM)
- END OF BORING @ 15.0'

Sample No.	Sample Type	Sample Dist. (IN)	Recovery (IN)	Standard Penetration Blows/Ft.
1	SS	18	3	13 (5-7-6)
2	SS	18	18	18 (7-10-8)
3	SS	18	18	21 (8-9-12)
4	SS	18	16	24 (8-12-12)
5	SS	18	18	26 (12-12-14)
6	SS	18	18	47 (21-22-25)

[Water content: 36.6]

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES IN-SITU THE TRANSITION MAY BE GRADUAL.

WL | WS OR WD | BORING STARTED 04/02/07
WL(BCR) | WL(ACR) DRY | BORING COMPLETED 04/02/07 | CAVE IN DEPTH @ 11.8'/11.8' @ 3 HRS
WL DRY @ 3 HRS | RIG CME750 | FOREMAN D & S | DRILLING METHOD HSA

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER: SAVAGE MILL REMAINDER, LLC, JAY WINER, 8373 PINEY ORCHARD PKWY, SUITE 102, ODENTON, MD 21113-1580

DEVELOPER: SUMMIT ASSOCIATES, LLC, GENE SINGLETON, 2200 SUMMITT PARK LANE, SUITE 2000, RALEIGH, NC 27612, (919) 279.3031

PROJECT: SAVAGE MILL HOTELS

AREA: TAX MAP 47 PARCEL 93 ZONING: B2, 6TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROPOSED 244 ROOM HOTEL COMPLEX

TITLE: SOIL BORING LOGS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL: STATE OF MARYLAND, SHERRI CLARKE MITCHELL, No. 33954, REGISTERED PROFESSIONAL ENGINEER, 9-8-08

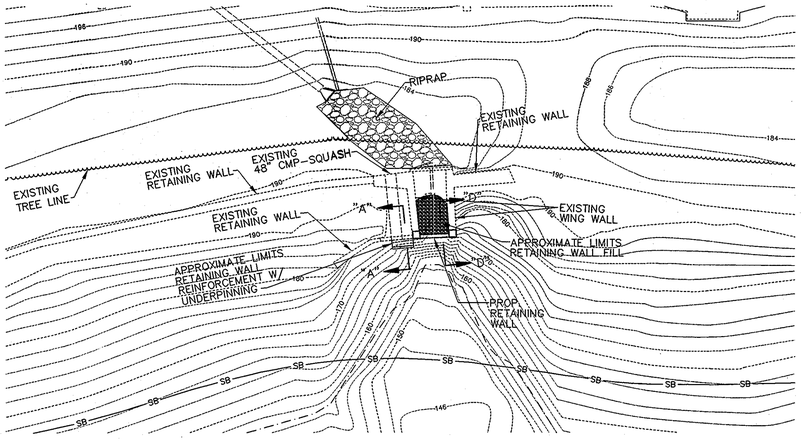
BY: Sheryl C. Mitchell

"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. 33954, EXPIRATION DATE: 1/24/09."

DESIGNED BY : --
DRAWN BY: --
PROJECT NO : 12014-2-0 C400SDP31.DWG
DATE : SEPTEMBER 8, 2008
SCALE : AS SHOWN
DRAWING NO. 32 OF 35

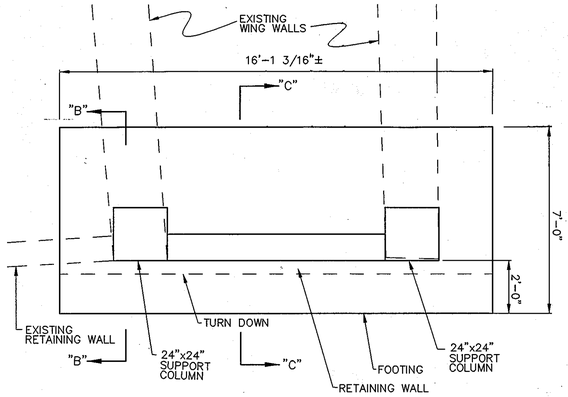
SDP-07-076

P:\Project\12014\2-0\PLANS\C400SDP31.DWG



OUTFALL IMPROVEMENT PLAN

SCALE: 1"= 20'



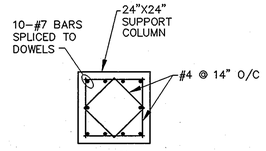
PLAN

RETAINING WALL, SUPPORT COLUMNS FOOTING

SCALE: 3/8"= 1'-0"

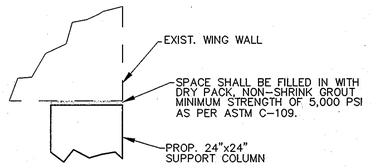
GENERAL NOTES:

1. THE CONTRACTOR SHALL PREPARE AND IMPLEMENT SHORING PLANS TO SUPPORT THE EXISTING STRUCTURES DURING CINSTRUCTION. PLANS SHALL BE SEALED BY AN ENGINEER LICENSED IN THE STATE OF MARYLAND.
2. ALL CONCRETE SHALL MEET MDSHA REQUIREMENTS. CONCRETE SHALL BE MIX #8 (MDSHA 4,000 PSI.)
3. CONCRETE MIX DESIGN FOR EXPOSED CONCRETE SHALL INCLUDE THE USE OF ADMIXTURE TO PROVIDE COLORING TO THE CONCRETE. MIX DESIGN AND COLOR ADMIXTURE SHALL BE SUBMITTED TO THE OWNER AND TO THE ENGINEER FOR APPROVAL.
4. REINFORCEMENT STEEL SHALL HAVE 60 KSI YIELD STRENGTH.
5. REINFORCEMENT STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF CONSTRUCTION.
6. DESIGN HAS BEEN BASED UPON A BEARING CAPACITY OF 8 TONS PER SF ON THE EXISTING SOFT ROCK.
7. BEARING CAPACITY SHALL BE VERIFIED DURING CONSTRUCTION BY A GEOTECHNICAL ENGINEER.
8. ARCHITECTURAL FORMWORK SHALL BE USED ON THE RETAINING WALL AND FRONT FACES OF COLUMNS TO PROVIDE A FINISH RESEMBLING ROCK. THE CONTRACTOR SHALL PROVIDE LITERATURE OF FORMWORK TO BE USED TO THE OWNER, FOR APPROVAL.
9. BOTTOM ELEVATIONS ARE APPROXIMATE AND SHALL BE VERIFIED IN THE FIELD.



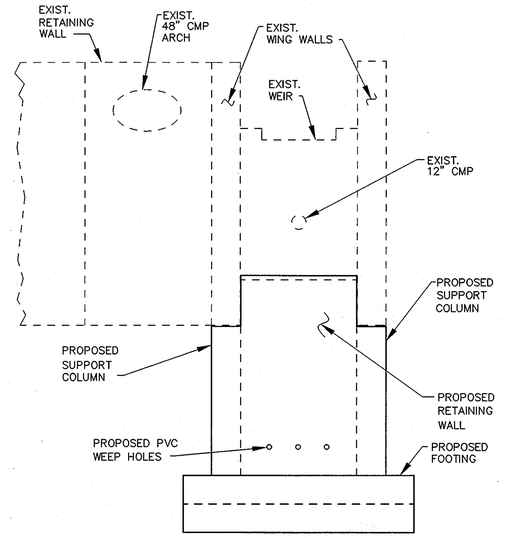
SECTION "E-E"

SCALE: 1/2"= 1'-0"



DETAIL A-A

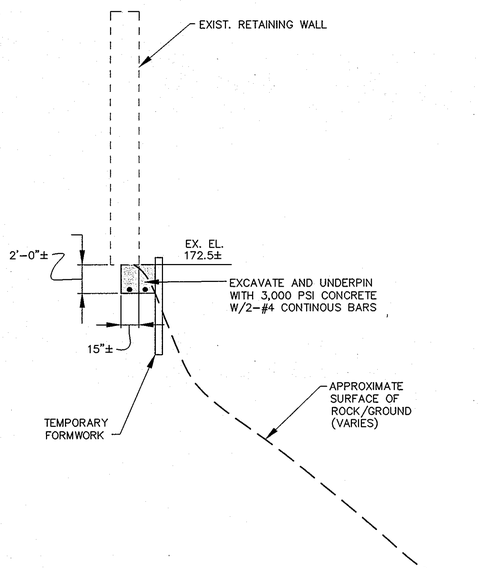
SCALE: 1/2"= 1'-0"



FRONT ELEVATION

SUPPORT COLUMNS AND RETAINING WALL

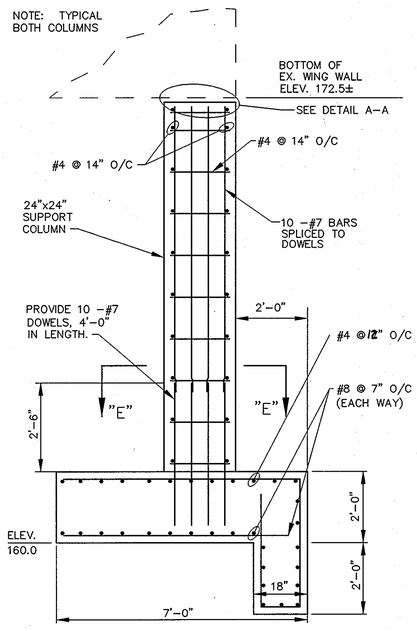
SCALE: 1"=5'



SECTION "A-A"

RETAINING WALL - REINFORCEMENT

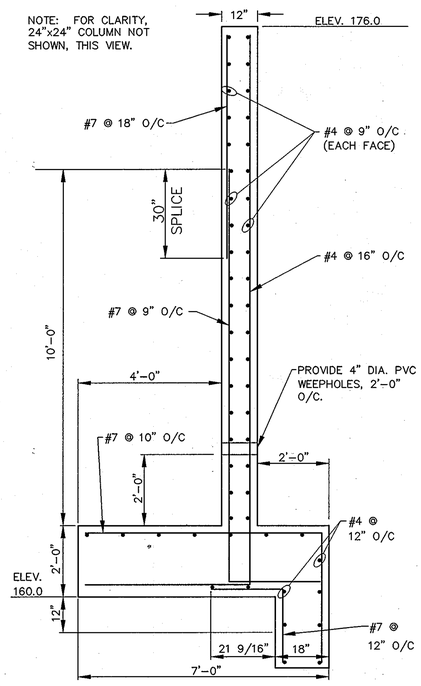
SCALE: 1"=5'



SECTION "B-B"

SUPPORT COLUMN - STEEL REINFORCEMENT

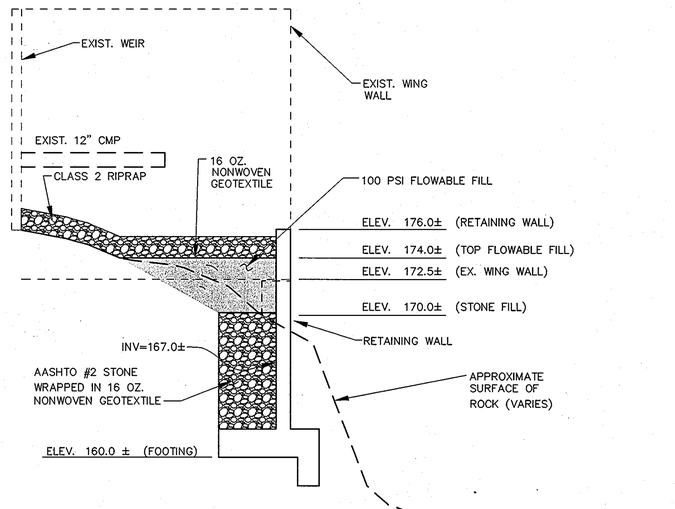
SCALE: 1/2"= 1'-0"



SECTION "C-C"

RETAINING WALL - STEEL REINFORCEMENT

SCALE: 1/2"= 1'-0"



SECTION "D-D"

RETAINING WALL

SCALE: 1"=5'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 10/15/08

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 9/18/08

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 10/14/08

DATE	NO.	REVISION

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
SUMMIT ASSOCIATES, LLC
GENE SINGLETON
2200 SUMMITT PARK LANE
SUITE 2000
RALEIGH, NC 27612
(919) 279.3031

PROJECT
SAVAGE MILL HOTELS

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED 244 ROOM HOTEL COMPLEX

TITLE
OUTFALL IMPROVEMENT PLAN STRUCTURAL DETAILS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL

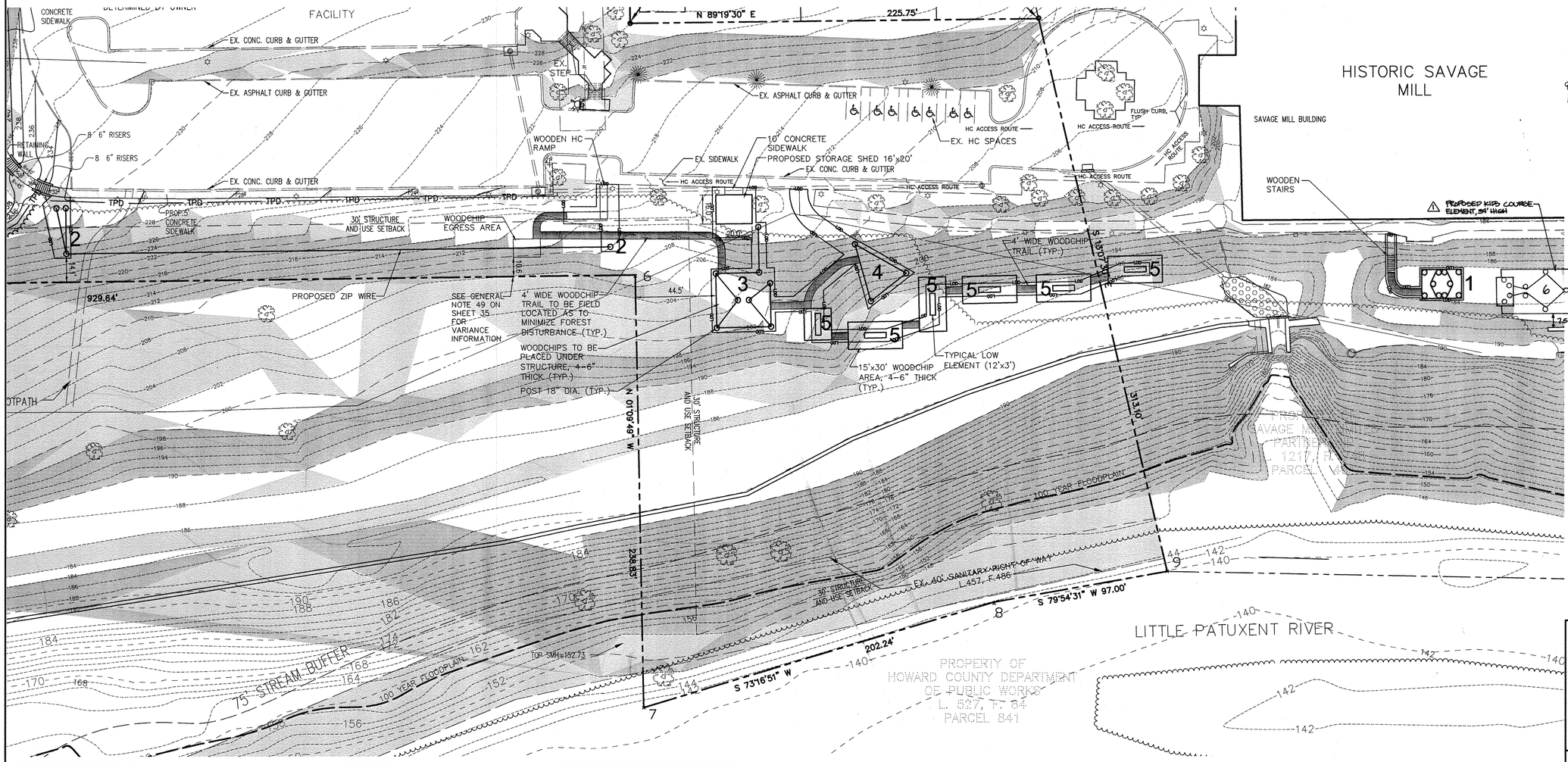
STATE OF MARYLAND — GRAHAM CLIFFORD LANE — NO. 30748 — REGISTERED PROFESSIONAL ENGINEER — 8-08

"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. 30748, EXPIRATION DATE: 09/19/09"

DESIGNED BY :	JHB
DRAWN BY:	RJC
PROJECT NO :	12014-2-0 C400SDP09.DWG
DATE :	SEPTEMBER 8, 2008
SCALE :	AS SHOWN
DRAWING NO.	33 OF 35

D:\Projects\12014\2-0\AS BUILTS\C400SDP09.DWG

SDP-07-076



LEGEND

- EXISTING 2'CONTOUR — 302
- EXISTING 10'CONTOUR — 300
- PROPOSED 2'CONTOUR — 302
- PROPOSED 10'CONTOUR — 300
- PROPERTY LINE AND RIGHT OF WAY
- FLOODPLAIN
- EX. TREELINE
- PROP. TREELINE
- TREE PROTECTION DEVICE — TPD
- LIMIT OF DISTURBANCE — LOD — LOD
- STORM DRAIN
- SOIL BORING — B-1
- PROPOSED LIGHT POLE
- EX. FIRE HYDRANT
- PROP. FIRE HYDRANT
- 15-25% SLOPES
- >25% SLOPES *

* NOT ALL SLOPES SHOWN AS ≥25% ARE REGULATED STEEP SLOPES AS DEFINED IN THE HOWARD COUNTY SUBDIVISION REGULATIONS. REGULATED STEEP SLOPES ARE NOTED AS SUCH ON SHEET 25.

ROPES COURSE OBSTACLES LEGEND

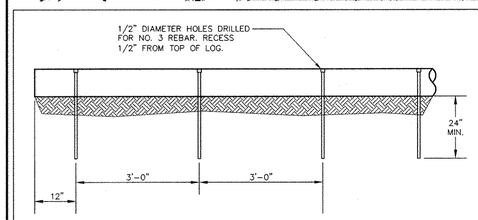
SCISSOR PLATFORM	1
ZIP WIRE	2
HIGH CHALLENGE COURSE	3
GIANT SWING	4
LOW INITIATIVES	5

CHILDREN'S COURSE SITE TABULATIONS:

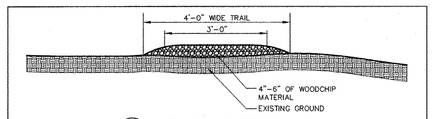
IMPERVIOUS AREA: 713 SF
0.016 AC

DISTURBED AREA: 4,879 SF
0.11 AC*

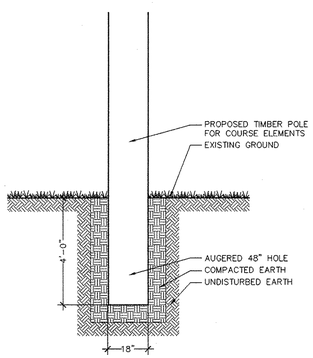
*DISTURBED AREA INCLUDES ONLY THAT AREA WHERE GROUND WILL BE DISTURBED FOR THE INSTALLATION OF STRUCTURES AND POLES.



1/34 WOODCHIP TRAIL ON SLOPE WITH LOG BARRIER
NOT TO SCALE



2/34 WOODCHIP TRAIL
NOT TO SCALE

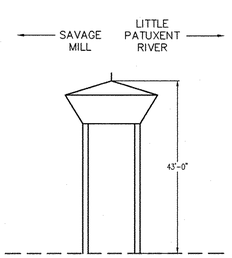


3/34 TIMBER POLE DETAIL
NOT TO SCALE

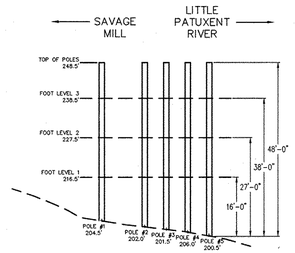
CONSTRUCTION NOTES

1. ALL CONSTRUCTION OF ROPES COURSE ELEMENTS SHALL BE BASED ON PLANS PREPARED BY OTHERS.
2. ALL WODCHIP PATHS SHALL BE CONSTRUCTED USING LOCALLY AVAILABLE WOOD CHIP MATERIAL. WOODCHIPS SHALL BE PLACED ACCORDING TO DETAILS SHOWN ON PLAN. MULCH MATERIAL SHALL NOT BE SUBSTITUTED.
3. WOODCHIP PATHS AND COURSE ELEMENTS SHALL BE ADJUSTED IN FIELD TO MINIMIZE CLEARING AND TO AVOID EXISTING TREES TO THE MAXIMUM EXTENT POSSIBLE
4. WOODCHIP AREAS SHALL BE REFRESHED PERIODICALLY AS NEEDED.

**SEE GENERAL NOTE 48 ON SHEET 35 FOR ADMINISTRATIVE ADJUSTMENT INFORMATION.

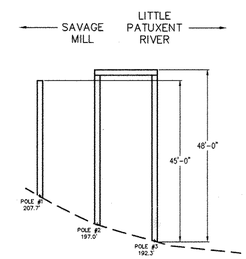


SCISSOR PLATFORM (ELEMENT #1) SECTION
SCALE : 1"=20'



HEIGHT CALCULATIONS:
MAXIMUM HEIGHT OF STRUCTURE = 48.0'
AVERAGE GRADE = 202.5'
AVERAGE HEIGHT OF STRUCTURE = 46.0'

HIGH COURSE (ELEMENT #3) SECTION
SCALE : 1"=20'



HEIGHT CALCULATIONS:
MAXIMUM HEIGHT OF STRUCTURE = 48.0'
AVERAGE GRADE = 200.0'
AVERAGE HEIGHT OF STRUCTURE = 40.3'

GIANT SWING (ELEMENT #4) SECTION
SCALE : 1"=20'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR — DATE 2/24/09

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 2/20/09

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 2/25/09

DATE	NO.	REVISION
3-25-14	1	ADDED ROPES COURSE ELEMENT

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
TERRAPIN ADVENTURES
MATT BAKER
7551 SUMMER LEAVE LANE
COLUMBIA, MD 21046
(410) 925.9574

PROJECT
TERRAPIN ADVENTURES

AREA TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED ROPES COURSE

TITLE
ROPES COURSE PLAN

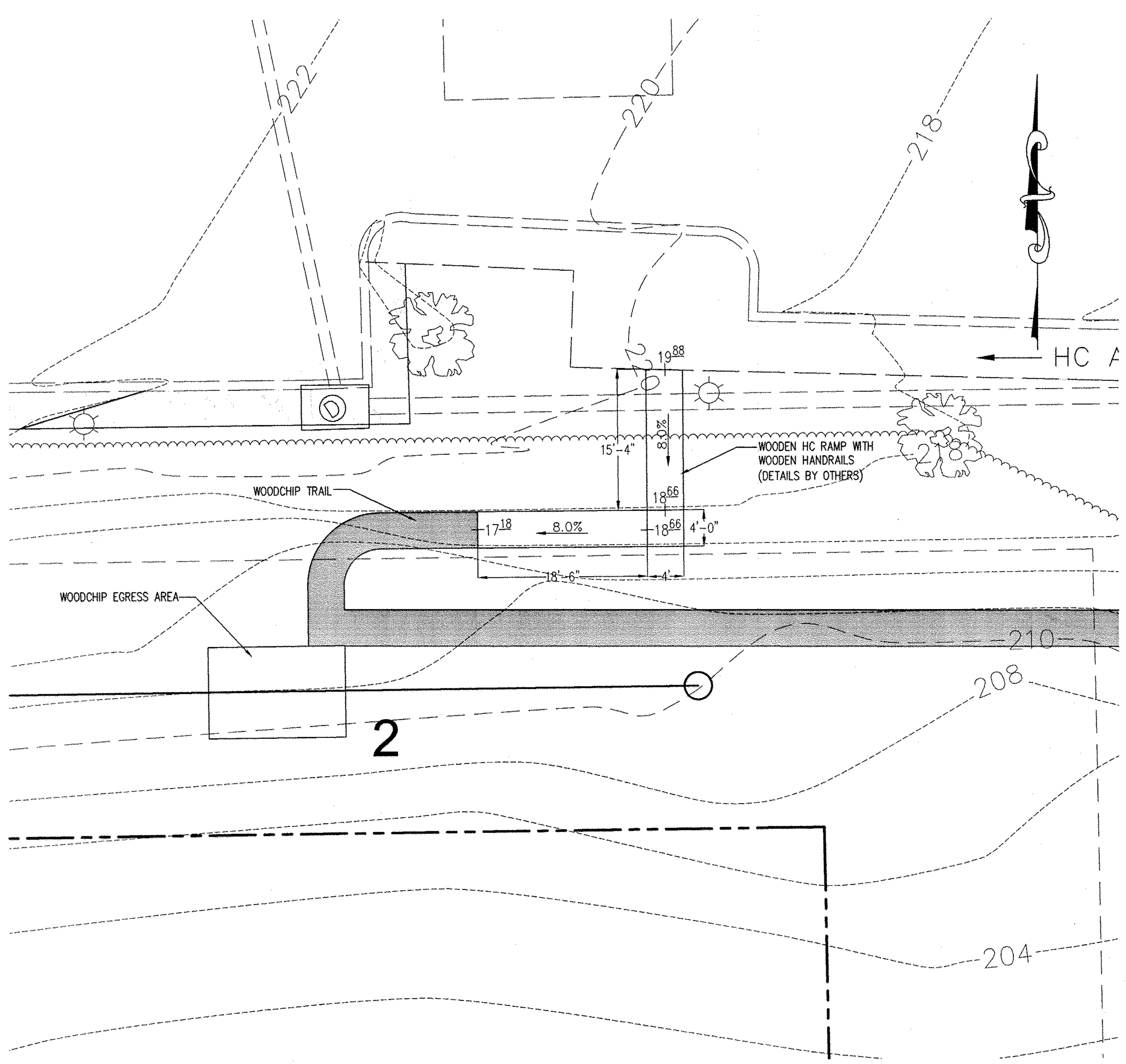
Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL — 2-18-09
STATE OF MARYLAND — JOHN SAMUEL NISTLER — REGISTERED PROFESSIONAL ENGINEER
BY: [signature]
"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. 22894, EXPIRATION DATE: 1/24/2011"

DESIGNED BY :	PJS/JSN
DRAWN BY:	JSN
PROJECT NO :	12014-3-0 C400SDP34.DWG
DATE :	FEBRUARY 9, 2009
SCALE :	1"=30'
DRAWING NO.	34 OF 36

P:\Project\12014\2-0\PLANS\C400SDP-34.DWG

SDP-07-076



HC LAYOUT RAMP DETAIL
(1/35) SCALE: 1" = 10'

Savage Mill/Terrapin Adventures Parking Requirements																		
				Summer Shared Parking Requirements (April - September)														
				Weekday		Weekday		Weekday		Weekday		Weekend[4]		Weekend[4]		Nightime		
Use	Net Usable Area	Standard Parking Ratio Required	Standard Parking Spaces Required	Morning 6am-8am		Mid Day 8am-3pm		Afternoon 3pm-5pm		Evening 5pm-mid		Daytime 6am-6pm		Evening 6pm-mid		mid-6am		
				Sp	%	Sp	%	Sp	%	Sp	%	Sp	%	Sp	%	Sp	%	
Retail[5]	26,547	1 sp/200 sf	133	27	20%	40	30%	40	30%	47	35%	67	50%	93	70%	7	5%	
Antiques[5]	42,959	1 sp/400 sf	108	22	20%	32	30%	32	30%	27	25%	49	45%	54	50%	5	5%	
Craft Studio[5]	15,751	1 sp /600 sf	27	5	20%	8	30%	8	30%	1	5%	7	25%	3	10%	1	5%	
Office	8,014	1 sp /300 sf	27		40%	27	100%	27	100%	3	10%	3	10%	1	5%	1	5%	
Banquet	240 seats	1 sp/4 seats	60	12	20%	24	40%	24	40%	42	70%	30	50%	60	100%	6	10%	
Restaurant	8,462	14 sp/1,000 sf	119	30	25%	60	50%	60	50%	119	100%	60	50%	119	100%	12	10%	
Ropes Course			29	6	20%	29	100%	29	100%	23	80%	29	100%	7	50%	0	0%	
Offsite Adventures			10	2	20%	10	100%	10	100%	5	50%	10	100%	3	50%	0	0%	
Total			515	115		230		230		267		255		340		32		

Savage Mill/Terrapin Adventures Parking Requirements																		
				Winter-Spring-Fall Shared Parking Requirements (October-March)														
				Weekday		Weekday		Weekday		Weekday		Weekend[4]		Weekend[4]		Nightime		
Use	Net Usable Area	Standard Parking Ratio Required	Standard Parking Spaces Required	Morning 6am-8am		Mid Day 8am-3pm		Afternoon 3pm-5pm		Evening 5pm-mid		Daytime 6am-6pm		Evening 6pm-mid		mid-6am		
				Sp	%	Sp	%	Sp	%	Sp	%	Sp	%	Sp	%	Sp	%	
Retail	26,547	1 sp/200 sf	133	27	20%	80	60%	80	60%	93	70%	133	100%	93	70%	7	5%	
Antiques	42,959	1 sp/400 sf	108	22	20%	65	60%	65	60%	54	50%	92	85%	54	50%	5	5%	
Craft Studio	15,751	1 sp /600 sf	27	5	20%	16	60%	16	60%	3	10%	14	50%	3	10%	1	5%	
Office	8,014	1 sp /300 sf	27	11	40%	27	100%	27	100%	3	10%	3	10%	1	5%	1	5%	
Banquet	240 seats	1 sp/4 seats	60	12	20%	24	40%	24	40%	60	100%	24	40%	60	100%	6	10%	
Restaurant	8,462	14 sp/1,000 sf	119	30	25%	60	50%	60	50%	119	100%	60	50%	119	100%	12	10%	
Ropes Course[3]			29	6	20%	7	25%	7	25%	0	0%[1]	7	25%	7	25%	0	0%	
Offsite Adventures[2]			10	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	
Total			513	113		279		279		332		333		337		32		

Notes:
1. Due to lack of daylight, no ropes course activities will occur in evening hours during winter, spring, and fall.
2. Offsite Adventures operate during the months of April - October with the peak period of activity between May and August.
3. Occupancy for the ropes course in the Winter-Spring-Fall season is approximately 25% of the Summer Season
4. Weekend rates for current Mill uses are based on Parking Studies previously submitted to Howard County in 1999 and 2000.
5. Due to the nature of the Mill use, which peaks in the Winter-Spring-Fall months, a reduction of approximately 50% for the summer months has been applied for the Mill retail uses.

GENERAL NOTES CONT. FROM SHEET 1:

47. THE DEVELOPER SHALL MAKE APPLICATION TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS FOR A BUILDING PERMIT (IF REQUIRED) FOR THE PROPOSED ROPES COURSE WITHIN ONE YEAR FROM THE APPROVAL DATE OF THIS REDLINE-REVISION BY DED.

48. AN ADMINISTRATIVE ADJUSTMENT (AA-08-25) WAS APPROVED ON JANUARY 20TH, 2009, TO INCREASE THE ALLOWED HEIGHT OF ADVENTURE COURSE STRUCTURES FROM 40' TO 46'. THE CONDITIONS OF APPROVAL ARE AS FOLLOWS:

1. THE PETITIONER SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND COUNTY LAWS AND REGULATIONS.

2. THE GRANTED ADMINISTRATIVE ADJUSTMENT SHALL APPLY SOLELY TO THE PROPOSED PLATFORM POLES FOR A ROPES OBSTACLE COURSE AS DEPICTED ON THE ADMINISTRATIVE ADJUSTMENT PLAN SUBMITTED BY THE PETITIONER AND NOT TO ANY OTHER STRUCTURE, ADDITION, BUILDING, OR USE.

3. A BUILDING PERMIT FOR THE ROPES OBSTACLE COURSE SHALL BE OBTAINED WITHIN TWO YEARS FROM THE DATE OF THIS ORDER AND SUBSTANTIAL CONSTRUCTION SHALL BE COMPLETED WITHIN THREE YEARS. A BUILDING PERMIT APPLICATION FOR THE PLATFORM POLES FOR THE ROPES OBSTACLE COURSE WILL NOT BE GRANTED ZONING APPROVAL UNLESS A COPY OF THIS DECISION AND ORDER IS SUBMITTED AS DOCUMENTATION WITH THE BUILDING PERMIT APPLICATION.

4. THIS DECISION AND ORDER SHALL BE MAINTAINED IN THE OWNER'S PROPERTY RECORDS AND SHALL BE TRANSFERRED TO ANY SUCCEEDING OWNER OF THE PROPERTY.

49. A BOARD OF APPEALS CASE (BA-08-55V) WAS APPROVED ON FEBRUARY 2, 2009, TO REDUCE THE 30' STRUCTURE AND USE SETBACK TO 10.6' FOR A PROPOSED ZIP LINE. THE CONDITIONS OF APPROVAL ARE AS FOLLOWS: THE VARIANCE WILL APPLY ONLY TO THE USES AND STRUCTURES AS DESCRIBED IN THE PETITION AND SITE DEVELOPMENT PLAN SUBMITTED, AND NOT TO ANY OTHER ACTIVITIES, USES, STRUCTURES, OR ADDITIONS ON THE PROPERTY.

(1) 50. WAIVER PETITION WP-10-123 WAS APPROVED ON APRIL 12, 2010 TO WAIVE SECTION 16.156.01.II AND SECTION 16.156.0.2 TO REACTIVATE AND EXTEND THE APPROVAL PERIOD FOR SDP-07-76 SUBJECT TO THE FOLLOWING CONDITIONS:

1. ENCROACHMENT OF STRUCTURES, PARKING, OR RETAINING WALLS OVER THE BUILDING SETBACK LINES OR INCREASE TO THE MAXIMUM BUILDING HEIGHT RESTRICTION WILL REQUIRE APPLICABLE APPROVALS FOR ADMINISTRATIVE ADJUSTMENTS AND/OR BOARD OF APPEAL VARIANCES.

2. REACTIVATION OF THE SITE DEVELOPMENT PLAN, SDP-07-76, IS APPROVED AND AN EXTENSION OF TIME BY WHICH TO APPLY FOR BUILDING PERMITS FOR ALL CONSTRUCTION IS GRANTED. PERMITS FOR ALL CONSTRUCTION AS SHOWN ON THE SITE DEVELOPMENT PLAN, SDP-07-76, SHALL BE APPLIED FOR WITHIN THE DEADLINE DATES TO APPLY FOR PERMITS AS INDICATED IN THE DECISION AND ORDERS FOR BA-10-05V AND AA-10-06,

3. DEVELOPER AGREEMENT(S) WHICH HAD BEEN PREVIOUSLY VOIDED MUST BE RE-SUBMITTED AND REQUIRED SURETIES POSTED FOR THE SITE DEVELOPMENT PLAN, SDP-07-76.

(1) GENERAL NOTES CONTINUED:

4. THE DEVELOPER SHALL SUBMIT A RED-LINE REVISION FOR SDP-07-76 TO ADD A NOTE INDICATING THIS WAIVER PETITION FILE NUMBER, NEW ADMINISTRATIVE ADJUSTMENTS, BOARD OF APPEALS CASES, DECISIONS, DATES, AND DEADLINES BY WHICH TO APPLY FOR BUILDING PERMITS TO PLAN SHEET NO. 1 OF THE SITE PLAN.

5. THE STATUS OF WAIVER PETITION APPROVAL FOR WP-07-105 IS HEREBY REACTIVATED ALONG WITH SDP-07-76.

51. AN ADMINISTRATIVE ADJUSTMENT (AA-10-06) FROM SECTION 119.D.1 WAS APPROVED ON APRIL 13, 2010 TO INCREASE THE MAXIMUM ALLOWED HEIGHT FROM 40 FEET TO 47 FEET FOR THE TWO PROPOSED HOTEL BUILDINGS AUTHORIZED UNDER THE ADMINISTRATIVE ADJUSTMENT PROCEDURE SECTION 100.F.1. THE CONDITIONS OF THE APPROVAL ARE AS FOLLOWS:

1. THE PETITIONER SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND COUNTY LAWS AND REGULATIONS.

2. THE GRANTED ADMINISTRATIVE ADJUSTMENT SHALL APPLY SOLELY TO THE PROPOSED DEVELOPMENT FOR TWO HOTEL BUILDINGS AS DEPICTED ON THE ADMINISTRATIVE ADJUSTMENT PLAN SUBMITTED BY THE PETITIONER, AND NOT TO ANY OTHER STRUCTURE, ADDITION, BUILDING, OR USE.

3. A BUILDING PERMIT FOR THE DEVELOPMENT SHALL BE OBTAINED WITHIN THREE YEARS FROM THE DATE OF THE ORDER AND SUBSTANTIAL CONSTRUCTION SHALL BE COMPLETED WITHIN FIVE YEARS. A BUILDING PERMIT APPLICATION FOR THE HOTEL(S) WILL NOT BE GRANTED ZONING APPROVAL UNLESS A COPY OF THIS DECISION AND ORDER IS SUBMITTED AS DOCUMENTATION WITH THE BUILDING PERMIT APPLICATION.

4. THIS DECISION AND ORDER SHALL BE MAINTAINED IN THE OWNER'S PROPERTY RECORDS AND SHALL BE TRANSFERRED TO ANY SUCCEEDING OWNER OF THE PROPERTY.

52. A BOARD OF APPEALS CASE (BA-10-05V) WAS APPROVED ON MAY 13 2010 FOR VARIANCES TO REDUCE THE 30 FOOT STRUCTURE AND USE SETBACK FROM A RESIDENTIAL DISTRICT TO 10 FEET FOR 48 PARKING SPACES ALONG THE NORTH SIDE OF THE SITE, TO REDUCE THE 30 FOOT STRUCTURE AND USE SETBACK FROM A RESIDENTIAL DISTRICT TO 16.5 FEET FOR 45 PARKING SPACES ALONG THE SOUTH SIDE OF THE SITE, AND TO REDUCE THE 30 FOOT STRUCTURE AND USE SETBACK FROM A RESIDENTIAL DISTRICT TO 10 FEET FOR A RETAINING WALL ALONG THE SOUTH SIDE OF THE SITE. THE CONDITIONS OF APPROVAL ARE AS FOLLOWS: VARIANCES SHALL APPLY ONLY TO THE USES AND STRUCTURES AS DESCRIBED IN THE PETITION AND SITE DEVELOPMENT PLAN SUBMITTED, THE LANDSCAPE EDGE ALONG THE WASHINGTON STREET RIGHT-OF-WAY SHALL BE A TYPE E WITH THE REMAINDER OF THE PERIMETER BEING A TYPE D LANDSCAPE EDGE, AND THE STORM WATER MANAGEMENT FACILITY SHALL BE AN UNDERGROUND FACILITY AND THE EXISTING WOODED AREA ALONG THE WEST SIDE OF THE PROPERTY SHALL BE RETAINED TO THE GREATEST EXTENT POSSIBLE.

SITE DATA ANALYSIS – TERRAPIN ADVENTURES

PRESENT ZONING: B-2

EXISTING USE: WOODED/UNDEVELOPED

PROPOSED USE: ADVENTURE COURSE

LIMIT OF DISTURBANCE: 4,879 SF (0.11 AC*)

*DISTURBED AREA INCLUDES ONLY THAT AREA WHERE GROUND WILL BE DISTURBED FOR THE INSTALLATION OF STRUCTURES AND POLES. TOTAL AREA WITHIN THE LOD IS 6,884 SF (0.16 AC)

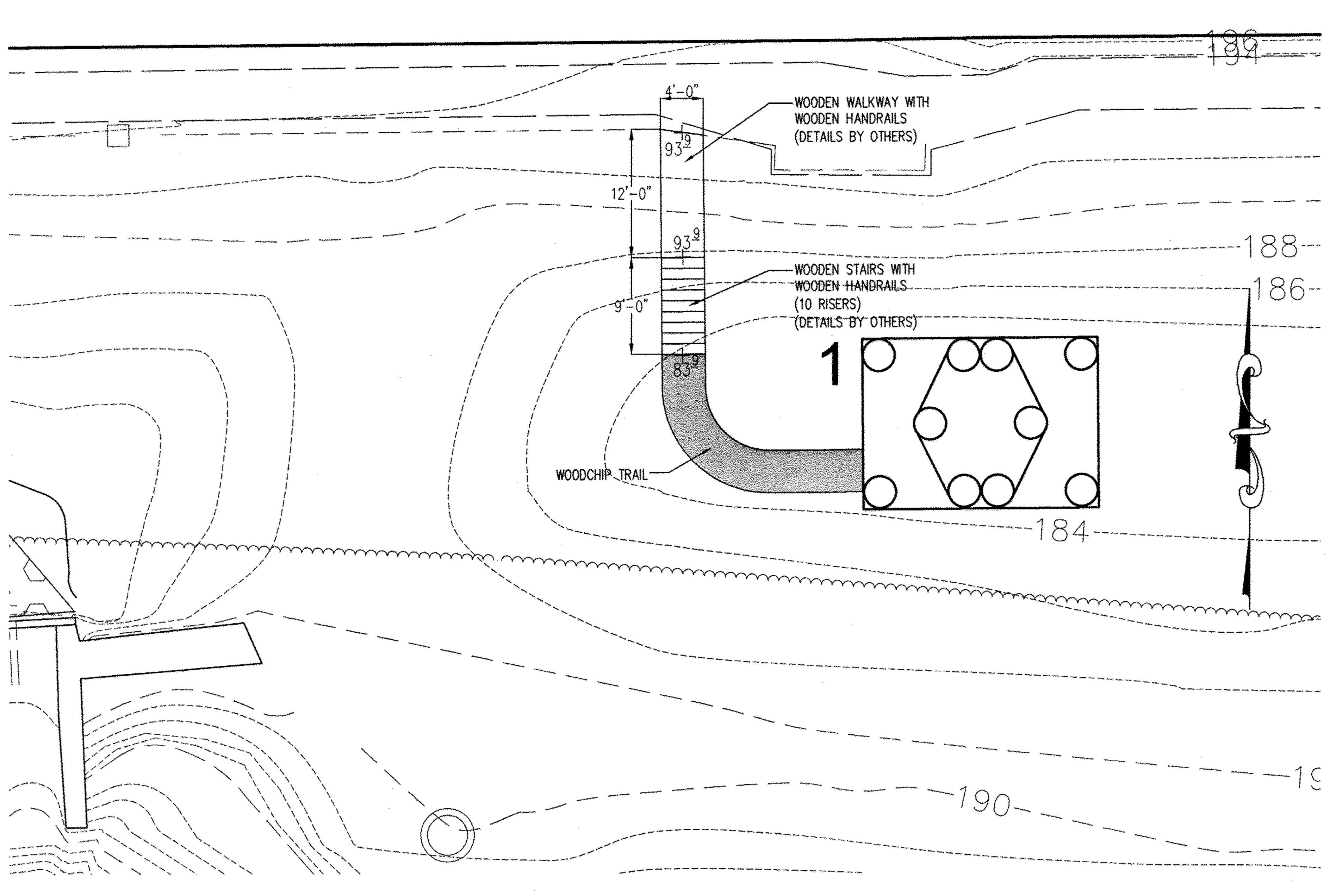
DPZ FILE Nos.: BA-08-55V, AA-08-25, SDP-85-146, SDP-80-155, SDP-85-31, SDP-85-51, SDP-90-191, WP-02-16, WP-07-105, BA-07-01, BA-07-17V, AA-07-05

PARKING TABULATION

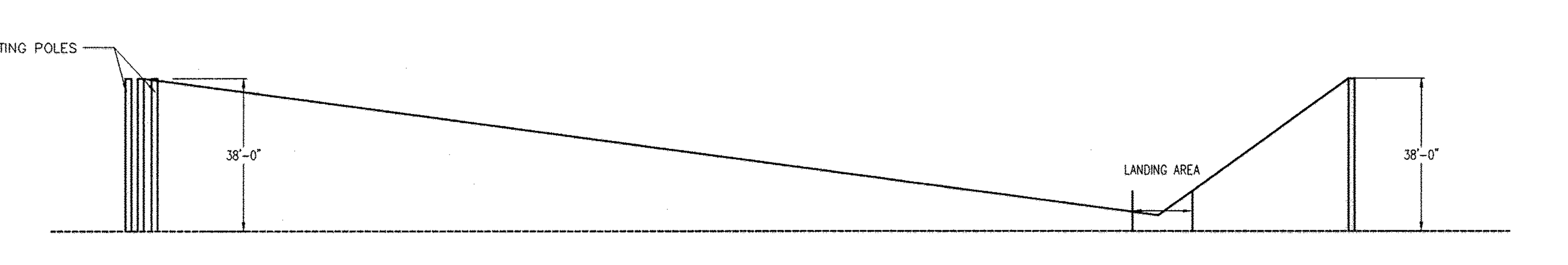
PARKING REQUIRED: 35 SPACES*

PARKING PROVIDED: 35 SPACES*

* A SHARED PARKING ANALYSIS/PARKING NEEDS ANALYSIS FOR THE PROPOSED ADVENTURE COURSE AND USES WITHIN THE SAVAGE MILL HAS BEEN PROVIDED. THE ANALYSIS INDICATES THAT TERRAPIN ADVENTURES WILL REQUIRE 29 PARKING SPACES. THESE ANALYSES INDICATE THAT A TOTAL OF 333 SPACES ARE PROVIDED ON SITE, AND THAT BASED ON THE USES PROPOSED 340 SPACES WILL BE REQUIRED AT THE PEAK DEMAND PERIODS. SEE SHARED PARKING ANALYSIS CHARTS THIS SHEET.



STAIRS TO ELEMENT 1 DETAIL
(2/35) SCALE: 1" = 10'



ZIPWIRE (ELEMENT #2) SECTION
SCALE : 1"=30'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR	DATE 2/26/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 2/20/09
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 2/25/09

DATE	NO.	REVISION
3-25-14	2	REVISE PARKING ANALYSIS CHART
5/20/10	1	ADDED GENERAL NOTES #50-52

OWNER
SAVAGE MILL REMAINDER, LLC
JAY WINER
8373 PINEY ORCHARD PKWY
SUITE 102
ODENTON, MD 21113-1580

DEVELOPER
TERRAPIN ADVENTURES
MATT BAKER
7551 SUMMER LEAVE LANE
COLUMBIA, MD 21046
(410) 925.9574

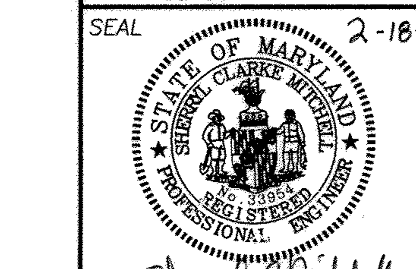
PROJECT
TERRAPIN ADVENTURES

AREA
TAX MAP 47 PARCEL 93 ZONING: B2
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
PROPOSED ROPES COURSE

TITLE
SITE DETAILS AND TABULATIONS

Patton Harris Rust & Associates, Inc.
Engineers. Surveyors. Planners. Landscape Architects.
PHR+A
8818 Centre Park Drive
Columbia, MD 21045
T 410.997.8900
F 410.997.9282

SEAL 2-18-09



BY:

"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. 33954, EXPIRATION DATE: 1/24/11.

DESIGNED BY : JSN
DRAWN BY: JSN
PROJECT NO : 12014-3-0 C400SDP35.DWG
DATE : FEBRUARY 9, 2009
SCALE : 1"=30'
DRAWING NO. 35 OF 36

P:\Project\12014\2-0\PLANS\C400SDP35.DWG

SDP-07-076