SITE DEVELOPMENT PLAN
JHU/APL - SOUTH CAMPUS - BUILDING 200
11101 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-2608

GENERAL NOTES

1. THIS PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY DESIGN STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. IV "STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION" FOR WORK IN THE COUNTY RIGHT-OF-WAY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.

2. APPROXIMATE LOCATION OF EXISTING UTILITIES ARE PER HOWARD COUNTY RECORDS.

3. ALL EXISTING UNDERGROUND UTILITIES TO BE FIELD VERIFIED. UTILITIES CONTRACTOR SHALL VERIFY THE SIZE AND LOCATIONS OF ALL UNDERGROUND UTILITIES AND TEST PIT ALL UTILITIES, INCLUDING PROPOSED TIE IN LOCATIONS, AT LEAST 5 DAYS PRIOR TO STARTING ANY WORK ON THESE DRAWINGS. DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IN ADVANCE OF CONSTRUCTION START.

4. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL PHOTOGRAMETRY DATED APRIL 9, 2005, WITH ONE-FOOT CONTOUR INTERVALS PREPARED BY WRA DATED NOVEMBER 23, 2005. THIS TOPOGRAPHY WAS SUPPLEMENTED BY FIELD RUN SURVEY WITH TWO-FOOT CONTOUR INTERVALS BY christopher consultants, ltd. DATED NOVEMBER 2008.

5. BASED ON WRA SURVEY MARYLAND COORDINATE SYSTEM NAD 83/91 ESTABLISHED BY GPS AND PREVIOUS TRAVERSE RUNS, NAV '88 ESTABLISHED ELEVATIONS SHOW CONVENTIONAL METHODS.

6. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.

7. TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE STATE HIGHWAY ADMINISTRATION (SHA). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.

8. 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, THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS BUREAU OF HIGHWAYS AT (410) 313-2450 AT LEAST FIVE (5) WORKING DAYS BEFORE ANY OPEN CUT OF ANY COUNTY ROAD OR BORING/JACKING OPERATION IN COUNTY ROADS FOR LAYING WATER AND SEWER MAINS.

9. WATER IS PUBLIC. CONTRACT #44-1882-D. HOWEVER, A NEW CONTRACT HAS BEEN SUBMITTED AS PART OF THE DEVELOPMENT OF THIS SITE. THE EXISTING CONTRACT DRAWINGS SHALL BE REDLINED TO REFLECT ALL CHANGES APPROVED UNDER THIS DEVELOPMENT. A NEW PUBLIC WATER AND UTILITY EASEMENT PLAT SHALL BE RECORDED PRIOR TO SDP APPROVAL ILLUSTRATING THE NEW EASEMENT ALIGNMENT AND THE ABANDONMENT OF THE EXISTING EASEMENT.

10. IN THE EX. CONDITIONS THE SEWER IS PRIVATE. HOWEVER,ON 4/24/09 JHU/APL REQUESTED THAT HOWARD COUNTY ACCEPT OWNERSHIP AND OPERATIONAL RESPONSIBILITIES FOR THE SEWER LINE. IN A LETTER FROM DPW DATED 7/13/09 THE COUNTY ISSUED TENATIVE ACCEPTANCE OF THE LINE PENDING THE INSPECTION. A NEW CONTRACT HAS BEEN SUBMITTED AS PART OF THE DEVELOPMENT OF THIS SITE. PUBLIC SEWER TO THE PROPOSED BUILDING WILL BE PROVIDED IN ACCORDANCE WITH SECTION 18.122B OF THE HOWARD COUNTY CODE. PUBLIC SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME.

11. EXISTING UTILITIES ARE BASED ON HOWARD COUNTY RECORDS. ALL EXISTING UNDERGROUND UTILITIES TO BE FIELD VERIFIED. UTILITIES CONTRACTOR SHALL VERIFY THE SIZE AND LOCATIONS OF ALL UNDERGROUND UTILITIES AND TEST PIT ALL UTILITIES, INCLUDING PROPOSED TIE IN LOCATIONS, AT LEAST 5 DAYS PRIOR TO STARTING ANY WORK ON THESE DRAWINGS. DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IN ADVANCE OF CONSTRUCTION START.

12. THIS SITE IS LOCATED IN THE HAMMOND BRANCH WATERSHED.

13. PER FEMA MAP# 2400440038B DATED DECEMBER 04, 1986, THIS SITE IS LOCATED WITHIN THE 100 YR FLOODPLAIN. HOWEVER THE WORK TAKING PLACE ON THIS SITE IS APPROXIMATELY. 200 FEET AWAY FROM AND APPROXIMATELY 32 FEET ABOVE THE FLOODPLAIN LIMITS. THE WORK ON THIS SITE WILL NOT REQUIRE FEMA LOMA/LOMR REVISIONS. A NON-CRITICAL FLOODPLAIN STUDY HAS BEEN SUBMITTED TO DED FOR REVIEW AND WAS APPROVED AS PART OF THE PRELIMINARY EQUIVALENT SKETCH APPROVAL PLAN APPROVAL.

14. THERE ARE EXISTING WETLANDS ON SITE AS DETERMINED BY McCARTHY AND ASSOCIATES, IN A REPORT DATED MAY 2008.

15. THERE ARE STEEP SLOPES AND SOME HIGHLY ERODIBLE SOILS ON THIS SITE.

16. THERE ARE NO KNOWN CEMETERIES OR BURIAL GROUNDS ON THIS SITE. HOWEVER, UPON DISCOVERY OF ANY EVIDENCE OF BURIAL OR GRAVES, THE DEVELOPER WILL BE SUBJECT TO SECTION 16.1305 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

17. THE SUBJECT PROPERTY IS ZONED PEC (PLANNED EMPLOYMENT CENTER) PER THE COMPREHENSIVE ZONING PLAN (02/02/2004) AND THE COMPLETE ZONING REGULATION AMENDMENTS EFFECTIVE JULY 28, 2006.

18. THE SITE IS SUBJECT TO DEVELOPMENT CRITERIA FOR STORMWATER MANAGEMENT. THE DEVELOPMENT INCLUDES WATER QUALITY MANAGEMENT WHICH WILL BE PROVIDED IN AN EXTENDED DETENTION WET POND (P-3) AND THROUGH THE USE OF VARIOUS SWM CREDITS. RECHARGE WILL BE PROVIDED IN A TRENCH LOCATED ON THE SOUTHERN SIDE OF THE SITE, A FLOW SPLITTER WILL BE INSTALLED TO CONVEY RUNOFF TO THE RECHARGE AREAS, IN ACCORDANCE WITH THE 2000 MDE DESIGN REQUIREMENTS. CHANNEL PROTECTION WILL BE PROVIDED IN THE POND. ALL FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. 10 YR & 100 YR MANAGEMENT ARE NOT REQUIRED AS POND DISCHARGES TO ESTABLISHED FLOODPLAIN.

19. A TOTAL OF 5.58 ACRES OF FOREST RETENTION AND 3.81 ACRES OF AFFORESTATION ARE PROPOSED UNDER THIS PLAN. THE REQUIRED SURETY AMOUNT FOR THE RETENTION ACREAGE IS $48,613 AND THE REQUIRED SURETY AMOUNT FOR THE AFFORESTATION IS $82,982 THE TOTAL AMOUNT OF THE REQUIRED FOREST CONSERVATION SURETY IS $131,595. THE REMAINING 0.80 AC OF REQUIRED REFORESTATION WILL BE SATISFIED BY FEE-IN-LIEU PAYMENT OF $0.75 PER SQUARE FOOT, TOTALING $26,136.

20. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 71 SHADE TREES AND 64 EVERGREEN TREES ARE PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $30,900 WITH THE DPW DEVELOPER'S AGREEMENT. LANDSCAPE SURETY IS BASED ON THE NUMBER OF REQUIRED PLANTS PER THE LANDSCAPE MANUAL (71 SHADE TREES x $300.00 EA. AND 64 EVERGREEN TREES x $150.00 EA.).

21. THE EXISTING BUILDINGS ON SITE HAVE BEEN DEMOLISHED UNDER GP-09-034.

22. UNLESS OTHERWISE NOTED, DIMENSIONS FROM CURB ARE MEASURED AT FACE OF CURB.

23. THE TRAFFIC STUDY WAS PREPARED BY WRA, ON OCTOBER 8, 2008.

24. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLS CARNES BASED ON A FIELD EXPLORATION COMPLETED IN JAN-2009.

25. NO NOISE STUDY IS REQUIRED FOR THIS SITE.

26. FOREST STAND DELINEATION WAS PREPARED BY CPJ ENVIRONMENTAL SERVICES.

27. PREVIOUS CASE FILES: F-09-117 APPROVED 11/3/09 FOR THE ROAD IMPROVEMENTS, PLAT OF EASEMENT, AND RIGHT-OF-WAYS. WP-10-010 APPROVED JULY 13, 2009 TO WAIVE SECTIONS 16.155(a)(1), A WAIVER OF THE SITE DEVELOPMENT PLAN REQUIREMENT TO GRADE THE SITE,AND INSTALL THE STORMWATER MANAGEMENT PRIOR TO ISSUANCE OF A GRADING PERMIT AND SECTION 16.1202 DEFERRAL OF THE FOREST CONSERVATION OBLIGATION AS PART OF THE SITE DEVELOPMENT PLAN.

WP-09-039 - APPROVED NOVEMBER 10, 2008 TO WAIVE SECTION 16.155(a)(1) FOR WAIVER OF SITE DEVELOPMENT PLAN REQUIREMENT TO REMOVE EXISTING BUILDINGS AND PREPARE THE SITE FOR NEW CONSTRUCTION ON THE SUBJECT PROPERTY PRIOR TO THE ISSUANCE OF A GRADING PERMIT.

SDP-89-060 APPROVED 1/20/1989 FOR THE CONSTRUCTION OF THE EXISTING BUILDING AND FACILITIES ON THE SUBJECT SITE.

SP-09-007, PRELIMINARY EQUIVALENT SKETCH SP-09-007 WAS APPROVED ON MAY 14, 2009 TO ESTABLISH SETBACKS, FOREST CONSERVATION REQUIREMENTS, AND FLOODPLAIN APPROVAL.

CONTRACT NUMBER 24-4614-D WAS APPROVED ON 11/4/09 BY THE HOWARD COUNTY DEPARTMENT OF PLANNING AND PUBLIC WORKS AND THE DEPARTMENT OF PLANNING AND ZONING TO PROVIDE WATER AND SEWER SERVICE TO THE SITE.

GP-09-34 APPORVED DECEMBER 8, 2008 FOR THE REMOVAL OF EX. BUILDINGS AND MINOR GRADING TO PREPARE THE SITE FOR NEW CONSTRUCTION. PERMITS ASSOCIATED WITH THIS PLAN: B0802742 AND G08000268.

28. A KNOX BOX FOR FIRE DEPARTMENT ACCESS IS REQUIRED TO BE PLACED ON THE FRONT OF THE BUILDING AND AT EACH GATE. IT SHALL BE PLACED TO THE RIGHT OF THE MAIN ENTRANCE APPROXIMATELY 4-5' IN HEIGHT AND NO MORE THAN 6' LATERALLY FROM THE DOOR. THE BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED. ALL GATES SHALL BE REQUIRED TO HAVE KNOX BOX(FIRE DEPARTMENT ACCESS BOX) OR KNOX BOX KEY OVERRIDE CONTROL TO INSURE TIMELY FIRE DEPARTMENT ACCESS.

29. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.

30. CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ON THESE PLANS:
- -MISS UTILITY 1-800-257-7777
- -HOWARD COUNTY DPWT, BUREAU OF UTILITIES (410) 313-4900
- -BALTIMORE GAS AND ELECTRIC COMPANY CONTRACTOR SERVICES (410)850-4620
- -BALTIMORE GAS AND ELECTRIC COMPANY UNDERGROUND DAMAGE CONTROL (410)787-9068
- -VERIZON 1-800-446-5266

31. CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS AS NECESSARY TO GRADE THE SITE AND COMPLETE ANY REQUIRED EXCAVATIONS.

32. christopher consultants, ltd. SHALL NOT BE RESPONSIBLE FOR CONSTRUCTION, MEANS, METHODS, TECHNIQUES, OR PROCEDURES, UTILIZED BY THE CONTRACTOR , NOR FOR THE SAFETY OF PUBLIC OR CONTRACTOR'S EMPLOYEES, OR FOR THE FAILURE OF THE CONTRACTOR TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND STANDARD CONSTRUCTION PRACTICES.

33. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING UTILITIES WHICH ARE TO REMAIN FREE FROM DAMAGE AND MAINTAIN UNINTERRUPTED SERVICE TO ALL USERS. ANY DAMAGE INCURRED DUE TO THE CONTRACTOR'S OR SUBCONTRACTOR'S ACTIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.

34. SCALING OF THESE PLANS IS DISCOURAGED UNLESS DIRECTED BY THE ENGINEER. IN THE EVENT OF A DISCREPANCY BETWEEN THE SCALED AND THE FIGURED DIMENSIONS, THE FIGURED DIMENSIONS SHALL BE HELD.

35. PROVIDE SIGNAGE ON THE BUILDING AND AT THE STREET IDENTIFYING THE BUILDING ADDRESS; IDENTIFY EACH SEPARATE SUITE BY LETTER.

36. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT 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 TOP OF EACH POST.

37. PER HOWARD COUNTY BUILDING CODE SECTION 904.1.1 ALL BUILDINGS IN EXCESS OF 5,000 SF IN SIZE WILL HAVE A COMPLETE AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM DESIGNED IN ACCORDANCE WITH NFPA #13.

38. TREES WITH MATURE HEIGHTS GREATER THAN 25' SHALL NOT BE PLANTED WITHIN 20' OF EITHER SIDE OF THE UTILITY POLE LINES. TREES WITH MATURE HEIGHTS GREATER THAN 40' SHALL NOT BE PLACED WITHIN 45' OF THE UTILITY POLE LINES. TREES PLANTED OR RETAINED TO COMPLY WITH THE FOREST CONSERVATION PLAN OR OTHER PERPETUAL EASEMENT REQUIREMENTS SHALL MET THE ABOVE CONDITIONS. BGE SHALL HAVE THE PERPETUAL RIGHT TO TRIM OR REMOVE ANY PROTECTED TREES IF IN THE SOLE OPINION OF BGE, THE TREE OR TREES ARE ENDANGERING THE OVERHEAD ELECTRIC FACILITIES.

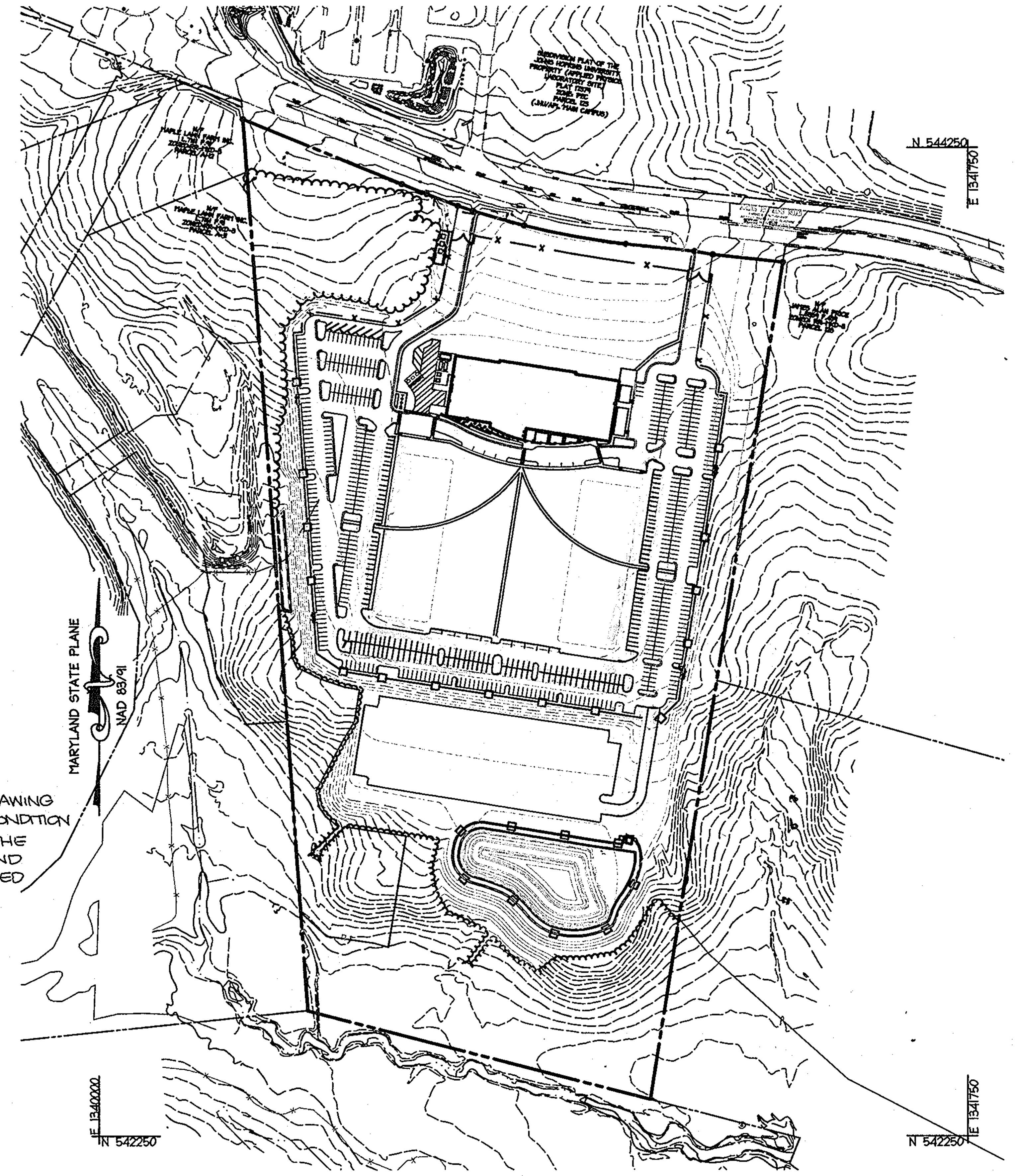
39. NO GRADING, REMOVAL OF VEGETATION COVER OR TREES, PAVING, FOREST CONSERVATION EASEMENT AREAS, STREAMS, 100 YR FLOODPLAIN AND THEIR BUFFERS AND/OR NEW STRUCTURES SHALL BE PERMITTED WITHIN THE EXISTING WETLANDS AND WETLAND BUFFERS.

40. ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING RESIDENTIAL PROPERTIES AND PUBLIC ROADS AND SHALL BE IN COMPLIANCE WITH THE SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.

41. THIS SITE COMPLIES WITH HOWARD COUNTY GREEN BUILDINGS LAW SET FORTH UNDER TITLE 3, SUBTITLE 10 OF THE HOWARD COUNTY CODE AND SECTION 3.10005(A) OF THE CODE. REGISTRATION WITH THE GREEN BUILDING COUNCIL AND THE APPLICABLE LEED REGISTRATION FEE AS PAID ON OCTOBER 21,2008 THE LEED NEW CONSTRUCTION CHECKLIST WAS PREPARED, SIGNED AND DATED BY THE PROJECT LEED ACCREDITED PROFESSIONAL AND WAS RECEIVED BY DPZ ON AUGUST 19,2009 THE PROPOSED BUILDING IS REGISTERED BY 10321278 WITH A GOLD RATING.

42. NO PRIVATELY OWNED STRUCTURES, FENCE POSTS OR STORMDRAIN SHALL BE LOCATED WITHIN THE PUBLIC UTILITY EASEMENTS.

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.



OVERALL SITE PLAN
SCALE: 1" = 200'

LEGEND

- EXISTING CONTOURS — 324
- EXISTING STORMDRAIN — EX. 12" RCP
- EXISTING SANITARY SEWER — EX. 8" SAN
- EXISTING FENCE
- PROPERTY LINE
- TREELINE
- SETBACK LINES
- FLOODPLAIN — FP
- STREAM
- PROPOSED CONTOUR — 400
- PROPOSED STORM DRAIN
- PROPOSED SANITARY SEWER
- PROPOSED WATER
- PROPOSED FIRE HYDRANT
- PROPOSED TREELINE
- PROPOSED POLES & OVERHEAD LINES 34 KV — OHU
- PROPOSED POLES & UNDERGROUND LINES 34 KV — OHE
- BORING LOCATION
- SOILS DIVIDES — GlB2 / ChB2
- SETBACK
- EXISTING CURB & GUTTER
- PROPOSED CURB AND GUTTER
- PROPOSED DEPRESSED CURB
- PROPOSED SPILL GUTTER
- PARKING COUNT — (4)
- WETLANDS — WL
- WETLANDS BUFFER — WB
- STREAM BUFFER — SB
- FOREST CONSERVATION EASEMENT — FCE
- PARKING LOT - P3 PAVING
- LOADING DOCK AND MAIN ENTRANCE - P5 PAVING
- CP-1 HANOVER CONCRETE PAVER CHARCOL; TUDOR FINISH ORTHOGONAL PATTERN
- PAVING PATCH
- CP-2 HANOVER CONCRETE PAVER NATURAL; TUDOR FINISH RADIAL PATTERN
- PROPOSED 5' CONCRETE SIDEWALK
- PROPOSED 5' ASPHALT SIDEWALK
- PROPOSED 8' CHAINLINK FENCE
- PROPOSED 8' WROUGHT-IRON FENCE — X
- PROPOSED LIMIT OF DISTURBANCE — LOD
- PROPOSED SILT FENCE — SF
- PROPOSED STREET LIGHT
- PROPOSED PARKING LIGHT — A2, A
- PROPOSED SITE LIGHT
- PROPOSED SITE LIGHT
- PROPOSED SITE LIGHT — B

BENCHMARK

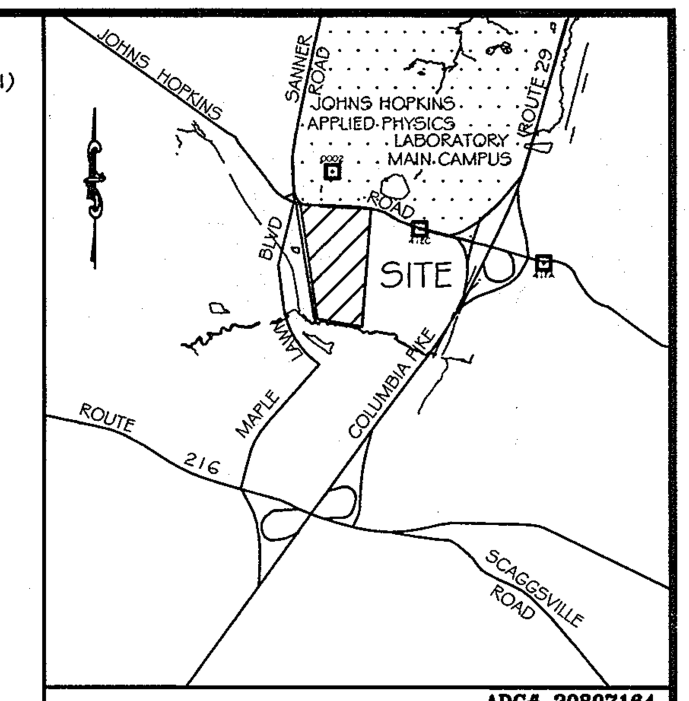
HORIZONTAL: MARYLAND NAD83 (ADJ 1991)
VERTICAL: NAVD88

GEODETIC SURVEY CONTROL: 0002
NORTHING: 544836.517
EASTING: 1340825.327
ELEVATION: 444.835

GEODETIC SURVEY CONTROL: 41EC
NORTHING: 543588.817
EASTING: 1342628.748
ELEVATION: 430.262

GEODETIC SURVEY CONTROL: 41FA
NORTHING: 543109.896
EASTING: 1344797.481
ELEVATION: 407.532

DESCRIPTIONS:
STAMPED DISC SET ON 3' DEEP COLUMN OF CONCRETE



VICINITY MAP
ADC# 20807164
SCALE 1"=2000'

HOWARD COUNTY MAP PAGE 19 - GRID A-3 & B-3

DEVELOPMENT PHASE CHART

PHASE-DATE	IMPERVIOUS & COVERAGE (ac)	OPEN SPACE (ac)	REMAINING STORAGE IN POND	BUILDING COVERAGE	PARKING SPACES
	9.68	23.89AC.		200,000 SF	1017

ADDRESS CHART

PARCEL NO.	ADDRESS
300	11101 JOHNS HOPKINS ROAD

48 Hours
Before You Dig
Call
"MISS UTILITY"
Service Protection Center
MEMBER
ONE CALL SYSTEMS INTERNATIONAL
CALL TOLL FREE
1-800-257-7777

SITE ANALYSIS DATA CHART

SITE ADDRESS: 11101 JOHNS HOPKINS ROAD, LAUREL, MD 20723
LEGAL DESCRIPTION: 34.85 AC. 11101 JOHNS HOPKINS ROAD, LAUREL, MD 20723
TAX MAP: 41, GRID: 22, PARCEL: 300
LIBER: 10412 FOLIO: 396
TAX ACCOUNT: 371767
ELECTION DISTRICT: 05
PROPERTY AREA: 35.10 AC. (1,528,956 SQFT)
EXISTING ZONING: PLANNED EMPLOYMENT CENTER (PEC) DISTRICT
PROPOSED ZONING: PLANNED EMPLOYMENT CENTER (PEC) DISTRICT
CURRENT USE: RESEARCH AND DEVELOPMENT CENTER (USE BY RIGHT)
PROPOSED USE: RESEARCH AND DEVELOPMENT CENTER (USE BY RIGHT)
BULK REGULATIONS:
-AT LEAST 25% OF THE GROSS AREA OF THE PEC SHALL BE OPEN SPACE =8.76 AC (±382,239 SQ FT)
-LOT COVERAGE: 421,847 SF. (9.68AC)
-OPEN SPACE PROVIDED: 1,040,800 SF (23.89AC 68%)

HEIGHT LIMITATIONS:
-STRUCTURE WITH MINIMUM SETBACK FROM A PUBLIC STREET: 80'
-STRUCTURE WITH MINIMUM SETBACK FROM A RESIDENTIAL DISTRICT: 50'
-STRUCTURE WITH AN ADDITIONAL ONE FOOT IN HEIGHT FOR EVERY 2' OF SETBACK ABOVE THE MINIMUM FROM A RESIDENTIAL DISTRICT: 80'

MINIMUM SITE AREA: 50 CONTINUOUS ACRES, HOWEVER AREAS LESS THAN 50 ACRES ARE PERMITTED IF CONTIGUOUS TO AN EXISTING PLANNED EMPLOYMENT CENTER.

STRUCTURES & USE SETBACKS:
1.) FROM RESIDENTIAL DISTRICT, EXCEPT FOR RESIDENTIAL DISTRICT WITHIN A SITE PLAN APPROVED UNDER SECTION 100.G.2: 75'
2.) FROM ALL OTHER DISTRICTS, EXCEPT NON-RESIDENTIAL DISTRICT WITHIN THE SAME PROJECT: 30'
3.) FROM A PUBLIC STREET RIGHT OF WAY: 30' EXCEPT PARKING USES: 10'

PHASE I PARKING: (PARKING REQUIRED IS 3.3 PER 1000 SF OF BUILDING COVERAGE. BASED ON USE STUDIES SUBMITTED TO THE COUNTY 2.5 SPACES WILL BE PROVIDED FOR EVERY 1,000 SF OF BUILDING COVERAGE).
OFFICE SPACE: 200,000 SQ FT
PARKING REQUIRED=200,000/1000 X 2.5: 500 SPACES
PARKING PROVIDED: 696SPACES (INCLUDING HANDICAP SPACES)
HANDICAP PARKING REQUIRED: 9 HANDICAP PARKING SPACES REQUIRED
HANDICAP PARKING PROVIDED: 15 SPACES

SHEET INDEX

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5	SITE, GRADING AND UTILITY PLAN	29	OVERALL SEDIMENT AND EROSION CONTROL PLAN	53	SOIL BORING LOGS
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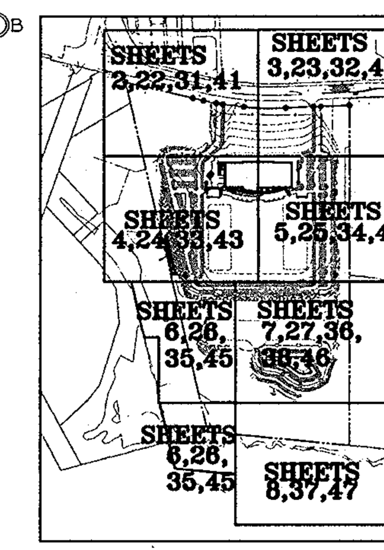


OVERALL KEY PLAN
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 11/17/09
Chief, Division of Land Development	Date 1/08/10
Director	Date 1/11/10

Date	No.	Revision Description
1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB&GUTTER & GRADING
2	2.26.13	REDLINED FOR STORM SEWER
3	6.14.13	REDLINED FOR PARKING TABULATIONS, ADD REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
PHONE: 443.778.5134 FAX 443.778.6122

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

LEED ACCREDITED PROFESSIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

10.9.09
SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE

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

HOWARD SCD — DATE 11/10/09

DEVELOPER'S CERTIFICATE

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

DATE 11/5/09
SIGNATURE OF DEVELOPER
Richard T Roca
PRINT NAME BELOW SIGNATURE

ENGINEER'S CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

10.9.09 DATE
SIGNATURE OF ENGINEER
PRINT NAME BELOW SIGNATURE
JOHN HOUSEHOLDER, P.E.

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.

SIGNATURE OF ENGINEER — 8/21/13 DATE
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20507
EXPIRATION DATE: 09-26-2014

8/21/13
DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — NO. 20507 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

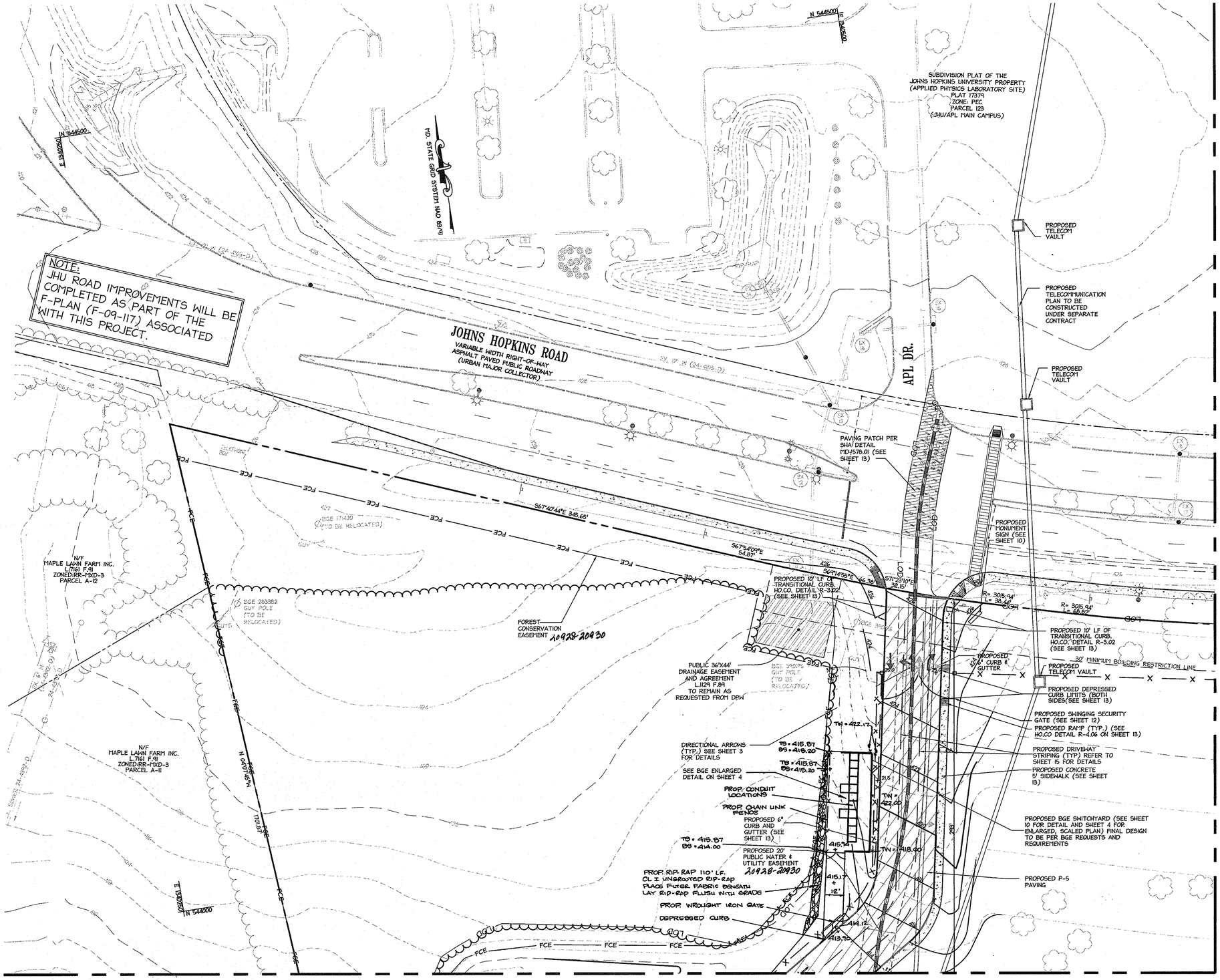
PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928-20930				

TITLE:
COVER SHEET

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	01 of 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



NOTES:

THE DUCTS WILL NOT BE CONSTRUCTED UNDER THIS SITE DEVELOPMENT PLAN AND HAVE ONLY BEEN SHOWN FOR INFORMATIONAL PURPOSES.

NOTE:

THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/2/09

Chief, Division of Land Development — Date 11/03/10

Director — Date 11/1/10

1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB & GUTTER AND ASSOC. GRADING
2	9.29.10	ADJ #30 BGE SWITCHYARD
3	10.14.13	ADDED REDLINE SUMMARY NOTE
Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
PHONE: 443.778.5134 FAX 443.778.6122

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0140 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41		ELECTION DISTRICT 5th
11/07/09 20928-20930					

TITLE: SITE, GRADING & UTILITY PLAN

DESIGN: CRH/SJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	02 OF 54
CHECKED: JMH	APPROVED: JMH	

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 8/21/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 03-20-2014

8/21/13 DATE

STATE OF MARYLAND · WILLIAM RAYMOND ZINK · NO. 20587 · REGISTERED PROFESSIONAL ENGINEER

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 2 OF 54

MD STATE GRID SYSTEM NAD 83/91

N 544250 E 1345500

SUBDIVISION PLAT OF THE JOHNS HOPKINS UNIVERSITY PROPERTY (APPLIED PHYSICS LABORATORY SITE) PLAT 17379 ZONE: PEC PARCEL 123 (JHU/APL MAIN CAMPUS)

JOHNS HOPKINS ROAD
VARIABLE WIDTH RIGHT-OF-WAY
ASPHALT PAVED PUBLIC ROADWAY
(URBAN MAJOR COLLECTOR)

NOTE:
JHU ROAD IMPROVEMENTS WILL BE COMPLETED AS PART OF THE F-PLAN (F-09-117) ASSOCIATED WITH THIS PROJECT.

EX. 12" W (24"-1105')

PAVING PATCH PER SHA DETAIL MD-578.01 (SEE SHEET 13)

PROP. 12"V

PROP 12" x 12" x 12" TEE @ STA. 29+90 INV = 413.4
BLIND FLANGE AND BUTTRESS TO BE INSTALLED ON THE SOUTH SIDE OF THE TEE

12" ¼ HB @ 30+85

PROPOSED WHITE STRIPING

EX. 12" W (14"-1605')

BEGIN CRIMP @ STA. 30+13 (300'R)

END CRIMP @ STA. 30+28 (300'R)

N83°42'32"W 141.84'

N 544000 E 1345000

RIGHT-OF-WAY EASEMENT L. 437 F. 466

R= 1655.79' L= 208.33'

N83°53'03"W 134.02'

PROPOSED MONUMENT SIGN SEE SHEET 16

30' MINIMUM BUILDING RESTRICTION LINE

FOR INFORMATIONAL PURPOSES ONLY

LIMITS OF PROPOSED DEPRESSED CURB (TYP.) (SEE SHEET 13)

PROPOSED SWINGING SECURITY GATE (SEE SHEET 12)

PROPOSED 20' PUBLIC WATER UTILITY EASEMENT

PROPOSED 5' CONCRETE SIDEWALK (TYP.) (REFER TO SHEET 13)

PROPOSED 6" CURB AND GUTTER (SEE SHEET 13)

BEGIN 10' OF TRANSITIONAL CURB HO.CO DETAIL R-3.02 (SEE SHEET 13)

LIMITS OF PROPOSED DEPRESSED CURB (TYP.) (SEE SHEET 13)

PROPOSED RAMP (TYP.) (SEE HO.CO DETAIL R-4.06 ON SHEET 13)

PROPOSED WROUGHT-IRON FENCE WITH 2' MOW-STRIP (SEE SHEET 12)

PROPOSED DRIVEWAY STRIPING (TYP.) REFER TO SHEET 15 FOR DETAILS

PUBLIC 20' WATER AND UTILITY EASEMENT PLAT 7629 (FEB. 22, 1988) EASEMENT AND AGREEMENT L. 2312 F. 726 (TO BE ABANDONED)

N/F JAMES ALAN PRICE L. 5364 F. 484 ZONED: RR-MXD-3 PARCEL 120

N 543950 E 1345850 1756.82'

IP RCP

MATCHLINE – FOR CONTINUATION SEE SHEET 5 OF 54

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 11/08/10

Director — Date 11/11/10

1	8910	REDLINED FOR ADDITIONAL PARKING, CURB AND GUTTER AND ASSOC. GRADING
2	6.14.13	ADDED REDLINE SUMMARY NOTE
Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8080 · metro 301.861.0140 · fax 410.872.8800

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L10412 , F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref 20928, 20930			

TITLE: **SITE, GRADING & UTILITY PLAN**

DESIGN: CRH/SJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	03 OF 54
CHECKED: JMH	APPROVED: JMH	

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND MORGABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. 10909 — DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE 8/21/13

WILLIAM R. SLUSK, P.E.
MD LICENSE NUMBER: 20507
EXPIRATION DATE: 09-20-2014

8/21/13 DATE

STATE OF MARYLAND — WILLIAM RAYMOND SLUSK — NO. 20507 — REGISTERED PROFESSIONAL ENGINEER

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 2 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 6 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 5 OF 54

PROPOSED CHAIN-LINK FENCE WITH MOW-STRIP

PROPOSED EDGE OF PAVEMENT

PROPOSED CHAIN-LINK FENCE WITH MOW-STRIP

FOREST CONSERVATION EASEMENT

N/F MAPLE LAWN FARM INC. L.7161 F.91 ZONED:RR-MXD-3 PARCEL A-9

PROPOSED CAR POOL VAN POOL PARKING (SEE SHEET 15 FOR ENLARGED DETAIL)

PROPOSED DUMPSTER AREA (SEE DETAIL SHEET 5)

PROPOSED CONCRETE PAD (SEE DETAIL SHEET 13)

PROPOSED BIKE PARKING (SEE DETAIL SHT. 13)

DEPRESSED CURB (SEE 407.7 SHEET 13)

PROPOSED SNOW REMOVAL GATE (SEE DETAIL SHT. 12)

PROPOSED SEWER MANHOLE

PROPOSED HANDICAP RAMP (TYP.) (REFER TO HO.CO. DETAIL R-4.06 ON SHEET 13)

PROPOSED HANDICAP PARKING SPACE (SEE DETAIL SHEET 14)

PROPOSED DEPRESSED CURB (SEE SHEET 13)

PROPOSED EGRESS LIGHTING FLUSH MOUNTED TO KNEE WALL 14" ABOVE PAVER (TYP) (SEE SHEET 10)

PROPOSED HANDICAP RAMP (TYP.) (REFER TO HO.CO. DETAIL R-4.06 ON SHEET 14)

PROPOSED 30' PUBLIC WATER, SEWER & UTILITY EASEMENT

PROPOSED TELECOM VAULTS TO BE CONSTRUCTED UNDER SEPARATE CONTRACT

PROPOSED 2' MOW STRIP (SEE SHEET 12)

NITROGEN TANKS

PROPOSED GENERATORS

PROPOSED TRANSFORMERS

PROPOSED BUILDING 200
5 STORIES
200,000 SQFT
FFE: = 412.0

PROPOSED LOADING AREA

PROPOSED 2.5' KNEE WALL (SEE SHEET 12)

MAIN ENTRANCE TO BE HANDICAP ACCESSIBLE

PROPOSED IN-GRADE FLUSH MOUNTED UPLIGHT (TYP)

PROP. CONC. PAVE. WITH 5'-0" (SCORED)

PROPOSED CONCRETE (SEE DETAIL SHEET 5)

PROPOSED 5' CONCRETE SIDEWALK SEE DETAIL SHEET 13

PROPOSED 5' ASPHALT SIDEWALK SEE DETAIL SHEET 13

PROPOSED CONCRETE SIDEWALK

PROPOSED 5' SIDEWALK ENDS

PROPOSED P-3 PAVING

PROPOSED P-5 PAVING

12" WATER (DIP)

8" SAN (DIP)

27" RCP L=165'

27" RCP L=165'

21" RCP L=426'

18" RCP L=119'

15" RCP L=110'

12" PVC

18" RCP L=67'

15" RCP L=207'

15" RCP L=30'

24" RCP L=171'

24" RCP L=432'

18" RCP L=429'

6" PVC L=46'

8" SAN L=76'

EPHEMERAL CHANNEL

N/F MAPLE LAWN FARM INC. L.7161 F.91 ZONED:RR-MXD-3 PARCEL A-9

N/F MAPLE LAWN FARM INC. L.7161 F.91 ZONED:RR-MXD-3 PARCEL A-13

MD STATE GRID SYSTEM NAD 83/91

N 746750 E 1236750

N 746500 E 1236750

N 0470'45"W 565'

NOTE:
SEE SHEET 11 FOR HANDICAP ACCESSIBLE ROUTE BLOW UP DETAIL.

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

06/14/2013
DATE

STATE OF MARYLAND · WILLIAM RAYMOND ZINK · NO. 20587 · REGISTERED PROFESSIONAL ENGINEER

5/31/13

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.

5/31/13
SIGNATURE OF ENGINEER — DATE: 06-14-2013

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — DATE: 10-9-09

PROP. WROUGHT IRON FENCE
PROP. 3' WROUGHT IRON ACCESS GATE
PROP. RIP RAP-PROVIDE 110 LF CLASS 1 UNGROUTED RIP-RAP. PLACE FILTER FABRIC BENEATH RIP-RAP. LAY RIP-RAP FLUSH WITH GRADE d_{50}=6" d_{max}= 1' THICKNESS= 1' LAYER OF STONE
PROP. CHAIN-LINK FENCE
PROP. 10' CHAIN-LINK ACCESS GATE
PROP. WALL
PROP. 3' CHAIN-LINK ACCESS GATE
PROP. DRIVE AISLE (P-3 ASHPHALT)
PROP. 6" CONDUIT LOCATIONS
CONTROL OR CONSTRUCTION JOINT RE: 4/S4.1 (TYP)
DIMENSIONS ARE MEASURED FROM ℄ OF (2) 6" CONDUITS

TW=422.0 TS=415.87 BS=415.2 TW=422.7 TS=415.87 BS=415.0 TW=420.0 TS=415.87 BS=414.0 TW=418.0 TW=416.0

BAY 10 BAY 9 BAY 8 BAY 7 BAY 6 BAY 5 BAY 4 BAY 3 BAY 2 BAY 1

2'-9" 6'-6" 27'-9" 4'-10" 14'-3" 10' 12' 5' 61'-3"

415.93 416.14 415.94 416.01 416.05 414.14 415.89 415.95 415.07 415.17 415.27

BLOW-UP OF BGE SWITCHYARD NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date: 8/29/13
Chief, Division of Land Development — Date: 9/04/13
Director — Date: 9/4/13

Date	No.	Revision Description
	1	8.9.10 REDLINED FOR ADDITIONAL PARKING, CURB & GUTTER AND ASSOC. GRADING
	2	9.29.10 ASI #96 - BGE SWITCHYARD
	3	6.14.13 ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
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410-872.8650 · metro 301.881.8148 · fax 410.872.8653

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22 / ZONE PEC / TAX MAP 41		ELECTION DISTRICT 5th

Revised SDP

TITLE: SITE, GRADING & UTILITY PLAN

DESIGN: CRH/SJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	04 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 3 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 4 OF 48

MATCHLINE – FOR CONTINUATION SEE SHEET 7 OF 54

PROPOSED BUILDING 200
5 STORIES
200,000 SQFT
FFE: = 412.0

PROPOSED 21' MOH STRIP SEE SHEET 12

PROPOSED CAR POOL & VAN POOL PARKING (SEE SHEET 15 FOR ENLARGED DETAIL)

PROPOSED HANDICAP RAMP (TYP.) (REFER TO HO.CO. DETAIL R-4.06 ON SHEET 14)

LIMITS OF PROPOSED DEPRESSED CURB

HANDICAP PARKING SIGN (SEE SHEET 14)

PROPOSED BLDG. OVERHANG

PROPOSED FIRE DEPARTMENT CONNECTION

PROPOSED IN-GRADE FLUSH MOUNTED UPLIGHT (TYP.) (SEE SHEET 10)

PROP. CONC. PAVE. WITH 5'-0" (SCORED)

PASSENGER LOADING AREA

PROPOSED CROSSWALK

PROPOSED HANDICAP RAMP (TYP.) (REFER TO HO.CO. DETAIL R-4.06 ON SHEET 14)

PROPOSED 5' ASPHALT SIDEWALK (SEE DETAIL SHEET 13)

PROPOSED 30' PUBLIC WATER UTILITY EASEMENT

PROPOSED CONCRETE SIDEWALK (SEE SHEET 13)

PROPOSED CONCRETE SIDEWALK (TYP.) (SEE DETAIL SHEET 13)

PROPOSED P-3 PAVING

PROPOSED SNOW REMOVAL GATE (SEE DETAIL SHT. 12)

DEPRESSED CURB (SEE SHEET 13)

PROPOSED EDGE OF PAVEMENT

LIMITS OF PROPOSED HIROUGHT-IRON FENCE WITH MOH-STRIP ENDS, AND PROPOSED CHAIN LINK FENCE WITH MOH-STRIP BEGINS

PUBLIC 20' WATER AND UTILITY EASEMENT PLAT 7629 (FEB. 22, 1986) EASEMENT AND AGREEMENT L. 2312 F. 728 (TO BE ABANDONED)

N/F JAMES ALAN PRICE L.5364 F.484 ZONED: RR-MXD-3 PARCEL 123

N/F JAMES ALAN PRICE L.5364 F.484 ZONE: RR-MIX-3 PARCEL 146

MD. STATE GRID SYSTEM NAD 83/91

N 543500 E 1345000

N 543250 E 1345250

PROPOSED 15' CONCRETE SIDEWALK AREA

TEMP. 5' ASPHALT SIDEWALK

5' CONCRETE SIDEWALK

TEMPORARY SIDEWALK DETAIL
(NOT TO SCALE)

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

NOTE:
SEE SHEET 11 FOR HANDICAP ACCESSIBLE ROUTE BLOW UP DETAIL.

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.

SIGNATURE OF ENGINEER — DATE 8/21/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20537
EXPIRATION DATE: 09-20-2014

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — DATE 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB AND GUTTER AND ASSOC. GRADING
2	6.14.13	ADDED REDLINE SUMMARY NOTE
Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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PERMIT INFORMATION CHART

PROJECT NAME:	LOT/PARCEL NO.	CENSUS TRACT
JHU/APL– SOUTH CAMPUS BUILDING 200	300	6051.02

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22	PEC	41	5th

PART OF 20930 & 20931

8/21/13 DATE

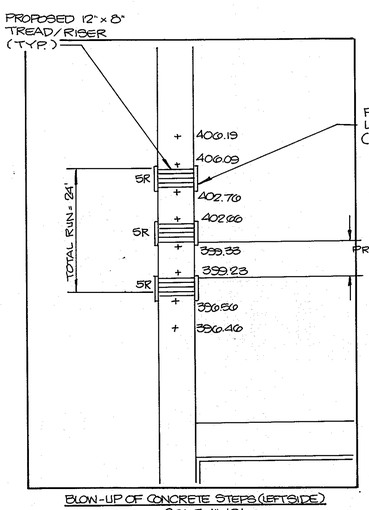
TITLE:
SITE, GRADING & UTILITY PLAN

DESIGN: CRH/SJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	05 OF 54
CHECKED: JMH	APPROVED: JMH	

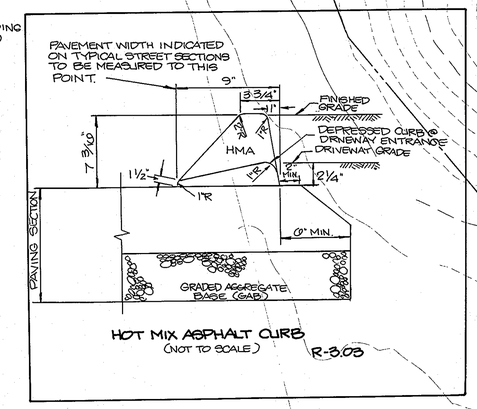
SDP-09-047

MDC-930(SDP)

MATCHLINE – FOR CONTINUATION SEE SHEET 4 OF 54



BLOW-UP OF CONCRETE STEPS (LEFT SIDE)
SCALE: 1"= 10'



HOT MIX ASPHALT CURB
(NOT TO SCALE)
R-3.03

PROPOSED WROUGHT-IRON FENCE WITH MOW-STRIP ENDS, PROPOSED CHAIN-LINK FENCE WITHOUT MOW-STRIP SEE SHEET 12

PROPOSED CONCRETE SIDEWALK (TYP.) (SEE DETAIL SHEET 13)

PROPOSED SHORING REMOVAL GATE (SEE SHEET 12)

PROPOSED PARKING SPACES

DEPRESSED CURB (SEE SHEET 13)

PROPOSED FENCE

PROPOSED ASPHALT PAD (P-3)

PROPOSED ASPHALT CURB (SEE THIS SHEET FOR DETAIL)

PROPOSED ASPHALT CURB ENDS & 6" CONC. CURB & GUTTER BEGINS (SEE SHEET 13 FOR CONC. CURB & GUTTER DETAIL)

PROPOSED 5' SIDEWALK

PROPOSED STAIRS & HANDRAIL (SEE DETAIL THIS SHEET)

TEMP. STOCKPILE AREA
(70'X100')
(TO BE STABILIZED)
MAXIMUM HEIGHT: 11'
MAXIMUM SLOPE: 3:1

6" CONC. CURB & GUTTER

PROPOSED FENCE

RECHARGE AREA (REFER TO SHEET 24 FOR DETAILS)

OBSERVATION WELL

6" PERF. HDPE

6"X6" TEE

6" SOLID HDPE

EX. WELL TO REMAIN

EX. WELL ABANDONED

MATCHLINE – FOR CONTINUATION SEE THIS SHEET

MATCHLINE – FOR CONTINUATION SEE SHEET 7 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 8 OF 54

N/F
MAPLE LAWN FARM INC.
L. 2113 F. 597
L. 2133 F. 600
L. 7161 F. 91
ZONE: RR-MXD-3

MD. STATE GRID SYSTEM NAD 83/91

N 542504.28
E 1340420.39

N 07°07'45"W 170.87'

N 75°25'05"W 712.67'

C/L DITCH (NATURAL FEATURE) NO FLOWING WATER AT TIME OF FIELD SURVEY

LIMITS OF FLOODPLAIN

N 542750
E 1339250

N 07°07'45"W 170.87'

N 542501
E 1340501

MATCHLINE – FOR CONTINUATION SEE THIS SHEET

NOTE:

THE CHANGES SHOWN ON THIS PLAN ARE RECORD THE AS-BUILT CONDITIONS OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 8/21/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-20-2014

NOTE:

THE STOCKPILE WILL REMAIN ON SITE UNTIL THE GARAGE IS CONSTRUCTED VEGETATIVELY STABILIZE MAX SIDE SLOPES WILL BE 3:1 MAX HEIGHT: 10'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09

Chief, Division of Land Development — Date 1/8/10

Director — Date 1/11/10

No.	Date	Revision Description
1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB & GUTTER AND ASSOC. GRADING
2	2.20.13	REDLINED FOR STORM SEWER
3	8.14.13	ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E. CFM
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.861.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL– SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
PLAT REF. 20688, 20930				

TITLE:

SITE, GRADING & UTILITY PLAN

DESIGN: CRH/SJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	06 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

MATCHLINE – FOR CONTINUATION SEE SHEET 5 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 6 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 8 OF 54

PROPOSED CURB CUT

PROPOSED STAIRS & HANDRAIL (SEE DETAIL THIS SHEET.)

PROPOSED ASPHALT CURB (SEE SHEET 6 FOR DETAIL

PROPOSED 5' SIDEWALK

PROPOSED SHED

PROPOSED ASPHALT PAD (P-3)

STORMWATER FACILITY ACCESS ROAD

PROPOSED CURB ENDS

PROVIDE 20' LF (12'WIDE) OF CLASS I UNGROUTED RIP-RAP PLACE FILTER FABRIC BENEATH RIP-RAP LAY FLUSH WITH PROPOSED GRADE

END PROPOSED 6' CONCRETE CURB & GUTTER (PROVIDE NOSE DOWN CURB AT END

PROVIDE 80' LF (20'WIDE) CL I UNGROUTED RIP-RAP PLACE FILTER FABRIC BENEATH RIP-RAP LAY FLUSH WITH PROPOSED GRADE
d_{50} = 1' d_{max} = 1.2' THICKNESS = 20'
Q_{max} = + = 15 CFS, V_{ip} = 10 FPS

15" INV. @ 45° BEND = 381.90

15" HDPE

STORMWATER FACILITY ACCESS ROAD

PROPOSED FENCE

6" SOLID HDPE

6" PERF. HDPE

6" PERF. HDPE

6" PERF. HDPE

OBSERVATION WELL

PROVIDE 10 L.F. OF CLASS II UNGROUTED RIPRAP WITH FILTER CLOTH (SUPAC OR APPROVED EQUAL)
Q = 0.16 CFS
V = 0.83 FPS
SF = 0.43%
CLI
d_{50} = 0.8'
d_{MAX} = 1.2'

10% SLOPE BETWEEN ELEV. 380.27 & ELEV. 380.00

SLOPE NOT TO EXCEED 3:1 BETWEEN ELEV. 380 TO ELEV. 378

PROPOSED SWM POND TYPE 'A' HAZARD CLASSIFICATION PRIVATELY OWNED & MAINTAINED

FOREBAY

BASIN

PROPOSED SWM FACILITY

20928.20930

12' MAINTENANCE BENCH, ELEV. 382.20

5' AQUATIC SAFETY BENCH ELEV. = 381.00

12' SAFETY BENCH ELEV. 380.0

NOV ELEV. 382.30

CPV ELEV. 380.27

STR 2 ELEV. 379.04

LOWER ELEV. 378.00

15' NON-WOODY BUFFER

PROPOSED MODIFIED CURB AT DRIVEWAY (SEE SHEET 13)

PROPOSED CHAIN-LINK FENCE WITH MOW-STRIP (SEE SHEET 12)

PROPOSED BOLLARDS (SEE BELOW FOR DETAIL)

PROPOSED CHAIN-LINK FENCE GATE (SEE SHEET 12)

PROPOSED 24' DRIVE AISLE (P-3)

PROPOSED FENCE

PROPOSED CHAIN-LINK FENCE GATE (SEE SHEET 12)

PROPOSED CHAIN-LINK FENCE (SEE SHEET 12)

EX. PRIVATE 20' EASEMENT AGREEMENT L.1635 F.214 (TO BE CONVEYED TO COUNTY)

143' FROM 100' WSEL TO PROPERTY LINE

N/F JAMES ALAN PRICE L.5359 F.499 ZONE: IRR-MIX-3 PARCEL 146

MD STATE GRID SYSTEM NAD 83/91

PROPOSED BOLLARD LOCATIONS (SEE SHEET 12 FOR DETAIL)

BLOW-UP OF BOLLARD AREA 1"=10'

BLOW-UP OF CONCRETE STEPS (RIGHT SIDE) 1" = 10'

PROPOSED 12"x 8" TREAD/RISER (TYP.)

PROPOSED STEPS (10 RISERS 4'-5' LANDINGS) & HANDRAIL (SEE SHEET 13 FOR DETAIL)

PROPOSED 5' LANDING (2% MAX.)

TOTAL RUN = 20'

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.

SIGNATURE OF ENGINEER — DATE: 8/21/13

WILLIAM R. ZINK, PE.
MD LICENSE NUMBER: 20987
EXPIRATION DATE: 09-20-14

POND SUMMARY TABLE

BMP #1	ELEVATION
POND BOTTOM	378.00
NORMAL POOL	382.3
CPV	380.00
SPILLWAY	N/A
10-YEAR (BLOCKED)	389.76
100-YEAR (BLOCKED)	390.27
TOP OF POND	392.3

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — DATE: 10.9.09

REQUIREMENT SUMMARY TABLE

REQUIREMENTS	BEFORE CREDITS	AFTER CREDITS	CREDITS / BMP's	
WQv	2.40 AC.-FT.	1.09 AC.-FT.	NATURAL AREA POND	13.87 AC (39.2%) 1.09 AC.-FT.(60.8%)
Rev	0.62 AC.-FT.	0.381 AC.-FT.	RECHARGE AREAS NATURAL AREA	0.381 AC.-FT. (60.8%) 13.87 AC (39.2%)

NOTES:

1. DUE TO THE INFILTRATION RATE AND THE PRESENCE OF FRACTURED ROCK NEAR THE BOTTOM ELEVATION OF THE POND, A 6' CLAY LINER SHALL BE PROVIDED UP TO THE PERMANENT POOL ELEVATION TO HELP MAINTAIN A CONSTANT WET POOL.

SEWER NOTE:

EXISTING 8" PRIVATE SANITARY SEWER AND EASEMENT TO BE PUBLIC & CONVEYED TO COUNTY UNDER PUBLIC WATER & SEWER PLAN CONTRACT NO. 24-4614-D

NOTE:

THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITIONS OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2005

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date: 11/7/09

Chief, Division of Land Development — Date: 1/08/10

Director — Date: 1/11/10

1	09.10	REDUNED FOR ADDITIONAL PARKING
		CURB & GUTTER AND ASSOC. GRADING
2	2.20.13	REDLINED FOR STORM SEWER
3	10.14.13	ADDED REDLINE SUMMARY NOTE
Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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11100 JOHNS HOPKINS ROAD
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PHONE: 443.778.5134 FAX: 443.778.6122

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8000 · metro 301.861.0145 · fax 410.872.8003

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL – SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412, F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref: 20928, 20930				

8/21/13 DATE

STATE OF MARYLAND — RICHARD RAYMOND ZINK — NO. 20987 — REGISTERED PROFESSIONAL ENGINEER

TITLE: SITE, GRADING & UTILITY PLAN

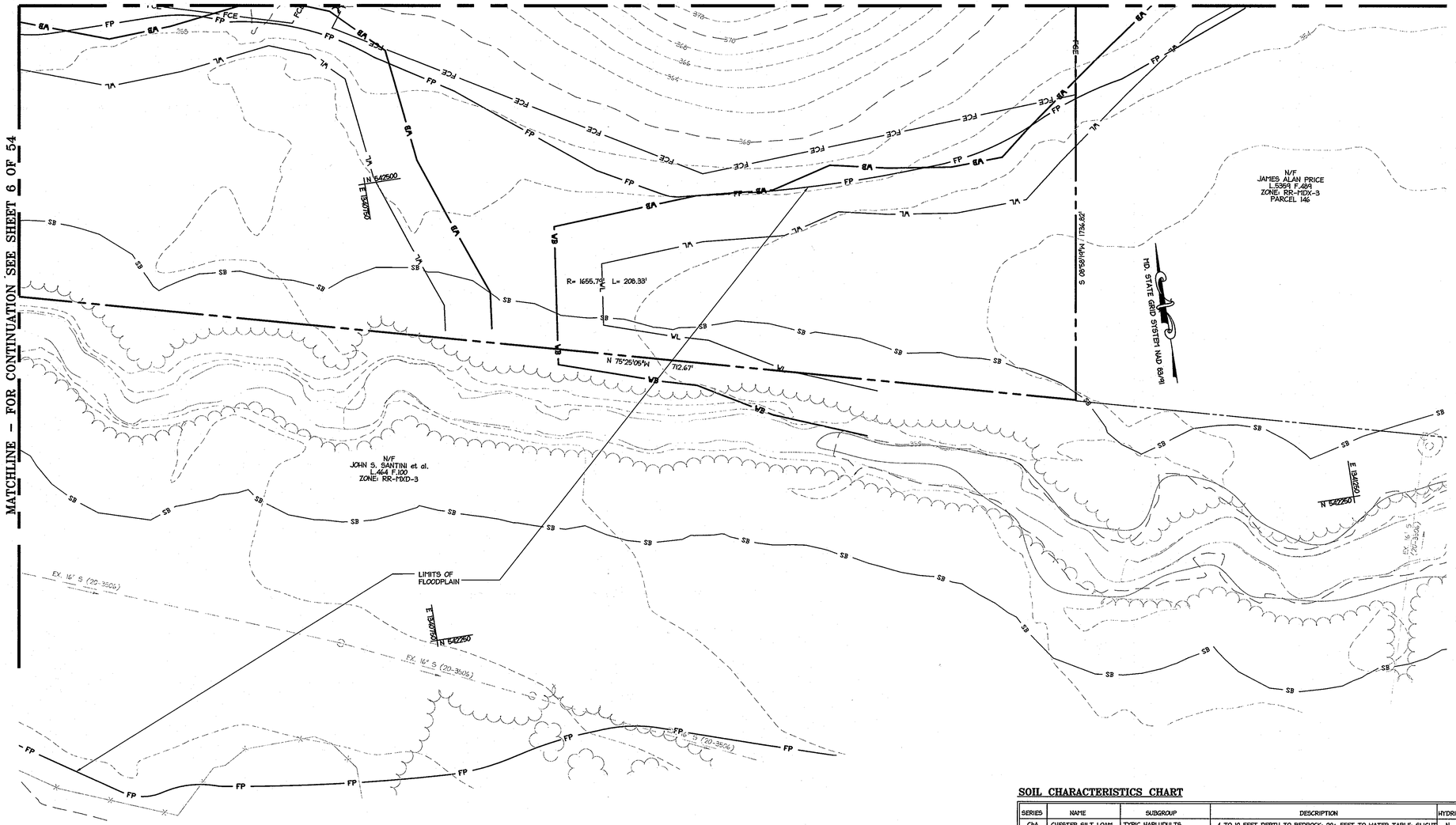
DESIGN: EJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	07 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE - FOR CONTINUATION SEE SHEET 7 OF 54

MATCHLINE - FOR CONTINUATION SEE SHEET 6 OF 54



SOIL CHARACTERISTICS CHART

SERIES	NAME	SUBGROUP	DESCRIPTION	HYDRIC	K-FACTOR
ChA	CHESTER SILT LOAM, 0-3%	TYPIC HAPLUDULTS	4 TO 10 FEET DEPTH TO BEDROCK; 20+ FEET TO WATER TABLE; SLIGHT TO MODERATE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPE; EROSION HAZARD.	N	0.32
Co	CODORUS SILT LOAM	FLUVENTIC DYSTROCHREPTS	-	N	0.37
GgA	GLENELG LOAM, 0-3%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
GgB	GLENELG LOAM, 3-8%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
GgC	GLENELG LOAM, 8-15%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
GnB	GLENVILLE-BAILE SILT LOAM, 0-8%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
Ha	HATBORO SILT LOAM	FLUVENTIC HAPLUDULTS	-	Y	0.37
MgB2	MANOR GRAVELLY LOAM, 3-8%	TYPIC DYSTROCHREPTS	6 TO 10 FEET TO BEDROCK; 20+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.43

WARNING: ALL SOILS HAVE LIMITATIONS, RANGING FROM SLIGHT TO SEVERE, FOR BUILDING HOMES, CONSTRUCTING ROADS AND PONDS AND VARIOUS OTHER USES. PLEASE CONSULT THE SOIL SURVEY OF HOWARD COUNTY FOR DETERMINING SOIL TYPES AND THEIR SUITABILITY FOR DEVELOPMENT, ENGINEERING AND BUILDING.

10.9.09
DATE

STATE OF MARYLAND
JOHN M. HOUSEHOLDER
NO. 29907
REGISTERED
PROFESSIONAL ENGINEER

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.

SIGNATURE OF ENGINEER — DATE: 10-9-09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE: 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
PLAT REF. 20928- 20930			

TITLE:

SITE, GRADING & UTILITY PLAN

DESIGN: EJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	08 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

JOHNS HOPKINS ROAD
VARIABLE WIDTH RIGHT-OF-WAY
ASPHALT PAVED PUBLIC ROADWAY
(LOCAL COLLECTOR ROAD)

MD. STATE GRID SYSTEM NAD 83/91

N/F JAMES ALAN PRICE L. 4648 F. 290 ZONED: RR-MXD-3

50' NATURAL AREA CONSERVATION (TYP.)

PROPOSED BUILDING 200
5 STORIES
200,000 SQFT
FFE= 422.0

TEMP. STOCKPILE AREA (TO BE STABILIZED) SEE SHEET 3 FOR MORE INFO

SWM EMBANKMENT (L.948 F.230)

PRIVATE EASEMENT AGREEMENT L.888 F.634

PUBLIC DRAINAGE EASEMENT AND AGREEMENT (SEE PLAT)

N/F MAPLE LAWN FARM INC. L. 2133 F. 620 ZONED: RR-MXD-3 PARCEL A-12

N/F MAPLE LAWN FARM INC. L. 2133 F. 620 ZONED: RR-MXD-3 PARCEL A-11

N/F MAPLE LAWN FARM INC. L. 2133 F. 620 ZONED: RR-MXD-3 PARCEL A-14

N/F MAPLE LAWN FARM INC. L. 2133 F. 620 ZONED: RR-MXD-3 PARCEL A-13

N/F MAPLE LAWN FARM INC. L. 2133 F. 620 ZONED: RR-MXD-3

N/F MAPLE LAWN FARM INC.

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITIONS OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

APPROVED: DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 1/7/09

Chief, Division of Land Development — Date 1/28/10

Director — Date 1/11/10

1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB & GUTTER AND ASSOCIATED GRADING
2	2.20.13	REDLINED FOR STORM SEWER
3	6.14.13	
Date	No.	Revision Description

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL-SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

Plat Ref. 30928, 30930

TITLE:
OVERALL SITE, GRADING & UTILITY PLAN

DESIGN: ENJ	SCALE: 1" = 60'	PROJECT: 08A901.00
DRAWN: BBM/SSA	DATE: SEPTEMBER 2009	09 OF 54
CHECKED: ENJ/JMH	APPROVED: JMH	

LEED ACCREDITED PROFESSIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 8/21/13

WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-20-2014

8/21/13 DATE

STATE OF MARYLAND — WILLIAM RAYMOND ZINK — 20587 — REGISTERED PROFESSIONAL ENGINEER

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SDP-09-047

MDC-930(SDP)

INVUE — SQS/SQF SOLAS SERIES SQUARE

DESCRIPTION

The SOLAS Series family of modular faceplate designs provide a tasteful architectural statement equally suitable for indoor and outdoor environments. Available solid stainless and copper faceplate covers add a premium look to flush faceplate fixtures. SOLAS Series luminaires are for recessed wall mounted applications only.

Catalog #		Type
Project		
Comments		Date
Prepared by		

SPECIFICATION FEATURES

A ... Housing
One piece die-cast aluminum construction for precise tolerance control and repeatability in manufacturing. Silicone wireway plug on housing back wall seals incoming electrical leads to prevent moisture and dust entry.

B ... Faceplate
One piece die-cast aluminum faceplate utilizes a continuous silicone gasket to seal securely to housing. Available in two different light distribution arrangements; flush and scoop with cutoff control. Faceplate is mounted with two (2) and four (4) point screws. All SOLAS Series faceplates are ADA compliant.

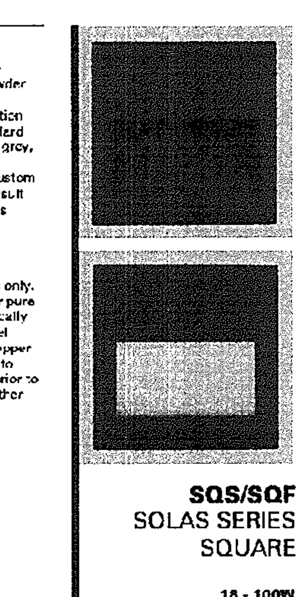
C ... Optical System
High efficiency optical system constructed of premium 95% reflective anodized aluminum sheet. Optical segments are rigidly mounted inside a heavy wall aluminum housing for superior protection.

D ... Electrical Components
Ballast and related electrical components are connected to a removable power tray for ease of maintenance. Conduit splice box provides six (6) 3/4" NPS hubs for supply connection.

E ... Mounting
Available for indoor and outdoor applications utilizing drywall, OSB, concrete pour and brick/masonry. Back housing is ordered per appropriate mounting material type; combustible materials such as drywall or non-combustible materials such as concrete or masonry brick. Faceplates mount to an installed recessed back housing and protrudes 1/2" or less from mounting surfaces. Maximum depth back housing protrudes into wall is 5 3/4".

F ... Finish
Housing finished in a 5 stage premium TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Standard colors include black, bronze, grey, white, dark platinum, and graphite metallic. RAL and custom color matches available. Consult your INVUE Lighting Systems Representative for more information.

G ... Decorative Covers
Available on flush faceplates only. Available in stainless steel or pure copper and comes with vertically brushed finish. Stainless steel cover has a natural finish. Copper cover is finished with lacquer to resist immediate corrosion prior to installation. Copper will weather naturally to a patina finish.



SQS/SQF
SOLAS SERIES
SQUARE

18 - 100W
Pulse Start Metal Halide
High Pressure Sodium
Compact Fluorescent
LED

ARCHITECTURAL
RECESSED LOW-LEVEL
WALL LUMINAIRE

Certifications

IP66 Rated	U.L. 1598	ADA Compliant	CO Cutoff
CSA Listed	25° C Rated	ISO 9001	

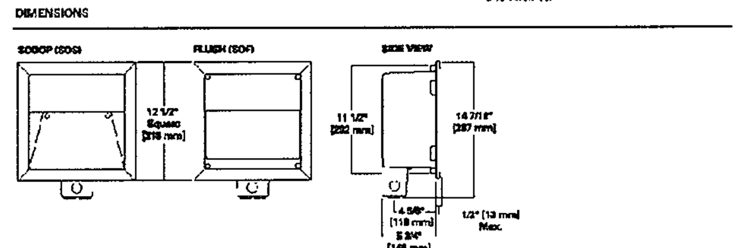
NOTE: Recessed wall mount only

Wattage Table	SQS | SQF
Pulse Start Metal Halide ED-17	50, 70, 100W
High Pressure Sodium ED-17	35, 50, 70W
Pulse Start Metal Halide T6	39, 70W
Compact Fluorescent	26, 32, 42, 57, 69W
Dual Compact Fluorescent	(2) 26, (2) 32, (2) 42W
LED High Output	18W

Shipping Data	SQS	SQF
BACK HOUSING		
Net Weight (lbs.)	8.5	8.5
Volume (cu. ft.)	0.85	0.85
FACEPLATE + POWERTRAY		
Net Weight (lbs.)	13.0	12.0
Volume (cu. ft.)	0.85	0.85

NOTE: The above are approximate weights and volumes.

DIMENSIONS



DARK SKY COMPLIANT CO Cutoff

COOPER Lighting www.cooperlighting.com

Specifications and Dimensions subject to change without notice.

AVJ052718 03/17/2003 3 03:56 PM

SQS/SQF SOLAS SERIES SQUARE

ORDERING INFORMATION

Sample Number: SQS-D-70-MH-DT-MB-FR-BK (Back housing and faceplate/power tray must be ordered separately.)

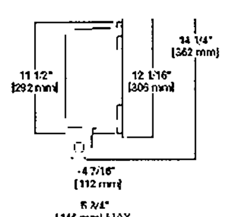
Product Family	Lamp Wattage	Lamp Type	Ballast	Options
SQS=SOLAS Series Square Scoop; SQF=SOLAS Series Square Flush	MP: 50=50W, 70=70W, 100=100W; MP T6 Lamps: 39=39W, 70=70W; HPS: 35=35W, 50=50W, 70=70W; Compact Fluorescent: 26=26W, 32=32W, 42=42W, 52=(2)26W, 57=57W, 68=69W, 64=(2)32W, 84=(2)42W; LED H.O.: 18=18W	MP=Pulse Start Metal Halide; HPS=High Pressure Sodium; MPT6=Pulse Start Metal Halide T6; CF=Compact Fluorescent; LEDRD=LED Red Lamps; LEDBL=LED Blue Lamps; LEDGN=LED Green Lamps; LEDOR=LED Orange Lamps; LEDCH=LED Cyan Lamps; LEDWH=LED White Lamps	MR=Magnetic Ballast; FR=Electronic Ballast	F=Single Fuse (120, 277 or 347V) Specify Voltage; FF=Double Fuse (208, 240 or 480V) Specify Voltage; TP=Tamper Proof Hardware; CF/EM=Emergency Battery Pack; EM/SC=Quartz Emergency Separate Circuit; L=Lamp Included
Wall Type: D=Dry Wall; C=Concrete Pour; M=Masonry Wall		Voltage: 120=120V, 208=208V, 240=240V, 277=277V, 347=347V, 480=480V, DT=Dual Tap wired 277V, MT=Multi Tap wired 277V, TT=Triple Tap wired 347V, UNV=120-277V Universal Electronic Ballast	Lens Type: Scoop Faceplates: FR=Frosted Flat Glass; Flush Faceplates: FR=Frosted Flat Glass, SL=Clear Prismatic Spread Lens, PC=Polycarbonate Lens, Translucent White	Accessories: LED RD/RK, LED BL/RK, LED GN/RK, LED OR/RK, LED CN/RK, LED WH/RK (LED Lamp Replacement Kits); SSSFC=Stainless Steel Square Flush Cover; CUSFC=Copper Square Flush Cover
			Color: BK=Black, AP=Grey, BZ=Bronze, WH=White, DP=Dark Platinum, GM=Graphite Metallic	

ORDERING INFORMATION (Back Housing - Must be ordered separately)

SAMPLE NUMBER: SQBH-D

SQBH - [ ]

Product Family: SQBH=SOLAS Series Square Back Housing
Wall Type: D=Dry Wall; CM=Concrete Pour or Masonry Wall



COOPER Lighting www.cooperlighting.com

Specifications and Dimensions subject to change without notice.
Invue • Customer First Center • 1121 Highway 74 South • Peachtree City, GA 30269 • TEL 770.486.4800 • FAX 770.486.4801

LITHONIA LIGHTING — OMERO MR2

Catalog Number	
Notes	Type

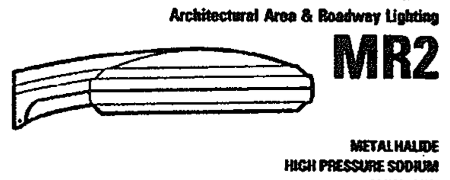
Architectural Area & Roadway Lighting

MR2

METAL HALIDE
HIGH PRESSURE SODIUM
200W-400W

FEATURES & SPECIFICATIONS

INTENDED USE — Streets, walkways, parking lots and surrounding areas.
CONSTRUCTION — Rugged, die-cast, single piece aluminum housing with nominal wall thickness of 1/8". Die-cast doorframe has impact-resistant, tempered, glass lens (3/16" thick). Doorframe is fully gasketed with one-piece tubular silicone.
U.S. Patent No. D556,357.
FINISH — Standard finish is dark bronze (DDB) corrosion-resistant polyester powder finish, with other architectural colors available.
OPTICAL SYSTEM
MIRO finish, segmented reflectors for superior uniformity and control. Reflectors attach with tool-less fastener and are rotatable and interchangeable. Five full cutoff distributions available: Type II (roadway), Type III (asymmetric), Type IV (forward throw), Type IV (forward throw sharp cutoff) and Type V (symmetric square).
ELECTRICAL SYSTEM — Ballast is a constant-wattage autotransformer standard. 200W, 320W, and 350W require Super SCWA Pulse Start ballast (must order SCWA option). All ballasts are mounted on a removable power tray. Ballasts are copper-wound and 100% factory-tested. Porcelain, mogul-based socket with copper alloy, nickel-plated screw shell and center contact.
Super CWA pulse start ballasts, 88% efficient and EISA compliant, are required for 200-400W (must order SCWA option) for US shipments only. CSA, NOM or INTL required for probe start shipments outside the US.
LISTING — Listed and labeled to UL standards for wet locations. Listed and labeled to CSA standards (see Options). NOM Certified (see Options). IP65 Rated.



Specifications
Length: 32.875" (83.5025cm)
Diameter: 25" (63.5cm)
Overall Height: 8.25" (20.955cm)
Max. Weight: 46 lb. (20.9 kg)
EPA: 0.914

All dimensions are inches (centimeters) unless otherwise specified.

ORDERING INFORMATION — Example: MR2 400M SR3 TB SCWA LPI

Choose the boldface catalog nomenclature that best suits your needs and write it on the appropriate line.

MR2

Series	Wattage	Distribution	Voltage	Ballast	Mounting	Options	Lamp	Finish
MR2	Metal halide: 200M, 250M, 320M, 350M, 400M; High pressure sodium: 200S, 250S, 400S	SR2 Segmented Type II roadway; SR3 Segmented Type III asymmetric; SR4SC Segmented Type IV forward throw, sharp cutoff; SR4W Segmented Type IV wide, forward throw; SR5S Segmented Type V symmetric square	120, 208, 240, 277, 347, 480, TB	Metal halide and high pressure sodium: (blank) Standard magnetic ballast; CWI Constant wattage isolated; PulseStart: SCWA Super CWA pulse start ballast. NOTE: For shipments to U.S. territories, SCWA must be specified to comply with EISA.	SPA Square pole mounting (std.); RPA Round pole mounting; WBA Wall bracket (up or down); DCMR2 Decorative curved arm, (square pole only); DCMR2R Decorative curved arm, (round pole only)	Shipped installed in fixture: SF Single fuse (120, 277, 347V); DF Double fuse (208, 240, 480V); PER NEMA twist-lock receptacle only (no photocontrol); CR Corrosion-resistant finish (epoxy clear coat over paint); QRS Quartz restrike system; HS Houseside shield (SR2, SR3); EC Emergency circuit; TP Tamper-proof; CSA Listed and labeled to Canadian safety standards; NOM NOM Certified; INTL Available for MH probe start shipping outside the U.S. Shipped separately: PE1 NEMA twist-lock PE (120, 208, 240V); PE3 NEMA twist-lock PE (347V); PE4 NEMA twist-lock PE (480V); PE7 NEMA twist-lock PE (277V); SC Shorting cap for PER option; VG Vandal guard	LPI Lamp included; L/LP Less lamp	(blank) Dark bronze; DBL Black; DGC Charcoal gray; DMB Medium bronze; DNA Natural aluminum; DWH White; CR Enhanced corrosion-resistance

NOTES:
1 Must order SCWA.
2 Must use reduced jacket lamp ED28.
3 Consult factory for availability in Canada.
4 Optional multi-tap ballast (120, 208, 240, 277V; 120, 277, 347V in Canada).
5 Isolated two-coil system meets Canadian electrical code requirements for 200V, 240V and 480V applications.
6 Mounted in lens up orientation, fixture is damp location rated.
7 Shipped separately.
8 Must specify voltage. Not available with TB.
9 SF, DF or QRS options cannot be ordered together.
10 Max allowable wattage lamp included.
11 May be ordered as an accessory.
12 Must be specified.

When ordering poles, specify the appropriate drilling pattern. See below example.

Example: SSA 20 4C DM19AS
DM19AS 1 at 90 degrees
DM28AS 2 at 180 degrees
DM29AS 2 at 90 degrees
DM39AS 3 at 90 degrees
DM49AS 4 at 90 degrees
DM32AS 3 at 120 degrees (round poles only)

NIGHTTIME FRIENDLY — Consistent with LEED® goals & Green Globes™ criteria for light pollution reduction

Accessories: Tenon Mounting Slipfitter
Order as separate catalog number. Must be used with round pole mounting (RPA).

Tenon O.D.	One	Two@180°	Two@90°	Three@120°	Three@90°	Four@90°
2-3/8"	AST20-190	AST20-280	AST20-290	AST20-320	AST20-390	AST20-490
2-7/8"	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

MRVG Vandal guard

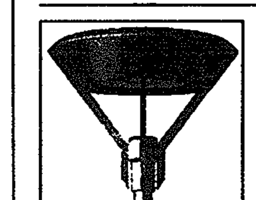
Outdoor — Sheet #: MR2-M-S — AL-163

Quadro HO — se'lux

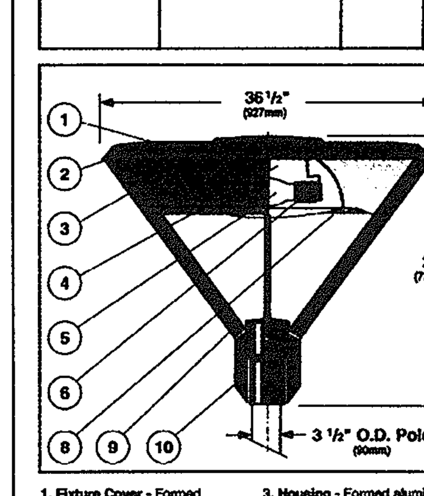
Project: ____ Type: ____ Qty: ____

QHO - ____ - ____ - 1 - ____ - ____ - ____
Fixture Series / Reflector / Mounting / Lamp Type/Wattage / Finish / Voltage

____ - ____ - ____ - ____
Pole Series / Height / Finish / Options



Series	Reflector	Mounting	Lamp Type / Wattage	Finish	Voltage	Options
QHO Quadro HO	R2 Type II Aluminum reflector; R5 Type V Aluminum reflector	1 Single	Metal Halide: H100 100w, H150 150w, H250 250w, H400 400w; HPS: S100 100w, S150 150w, S200 200w, S250 250w, S400 400w	WH White, BK Black, BZ Bronze, SV Silver, SP Specify RAL#	120, 208, 240, 277, 347	HS* House Side Shield (180°); QR Quartz Restrike. *HS only available with R2 reflector



1. Fixture Cover - Formed aluminum cover removes by loosening four stainless steel screws for easy access to ballast chamber.

2. Gasketing - Continuous molded gasket provides weather-proofing, dust and insect control at all fixture connections.

3. Housing - Formed aluminum, houses reflector, socket, and high power factor core and coil ballast on tool-less exchangeable ballast tray.

4. Reflector - Precision formed, completely sealed aluminum reflector system with a Type II or Type V distribution.

5. Lamp - Choose between One coated, ED17 medium base metal halide up to 150w or high pressure sodium up to 150w; one clear, mogul base ED-28 250w metal halide; one clear, mogul base ED-18 high pressure sodium 200w to 400w; or one horizontal mogul base ED-28 400w metal halide. Lamp provided by others.

6. Socket - 4KV Pulse rated porcelain medium base socket for lamps up to 150w or mogul base for 250w and 400w lamps. Socket is pre-wired to ballast at factory.

7. Ballast - (Not shown) A high efficiency, pulse start, core and coil ballast regulates voltage for H.I.D. lamp. Consult factory for detailed ballast information.

8. Access Door - Formed aluminum door, with molded tempered glass lens, opens for easy relamping.

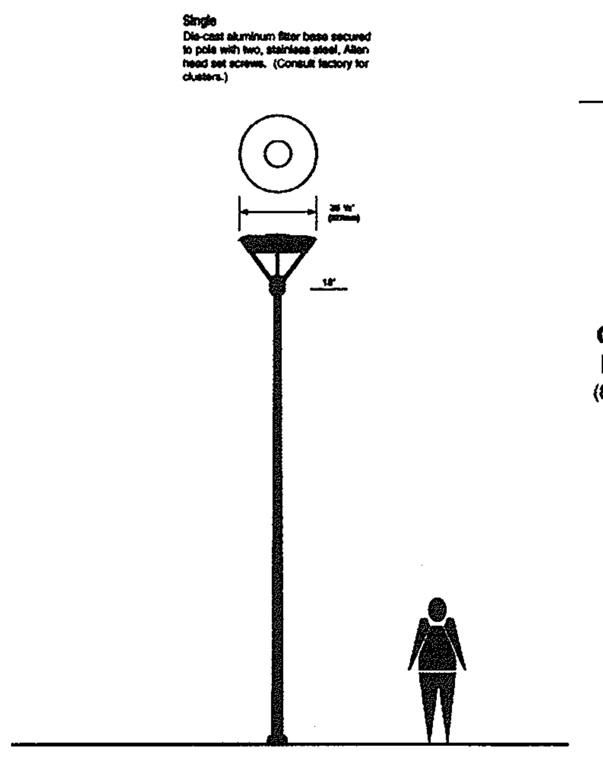
9. Fixture Frame - Four cast aluminum arms attach to pole fitter with recessed stainless steel Allen head screws

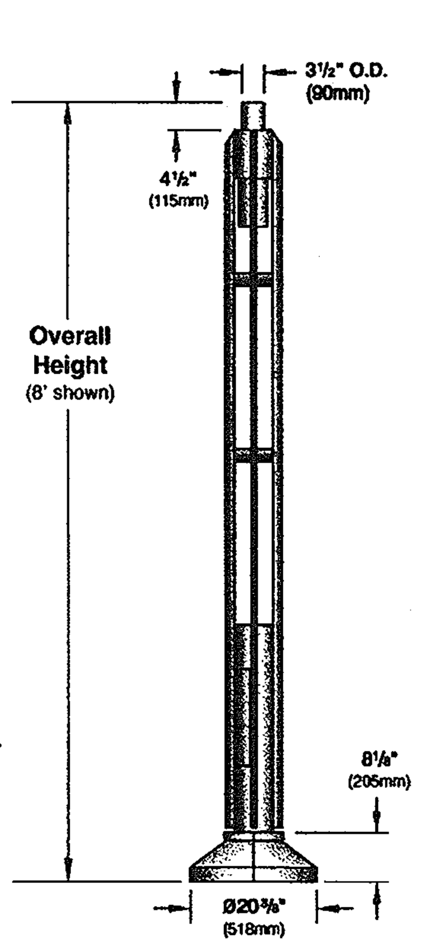
10. Pole Fitter - Self-leveling, die-cast aluminum, fitter base secured to pole with two, stainless steel, Allen head set screws. Fitter for 3 1/2" (90mm) O.D. poles.

Exterior Luminaire Finish - SELUX utilizes a high quality Polyester Powder Coating. All SELUX luminaires and poles undergo a five stage intensive pretreatment process where product is thoroughly cleaned, phosphated and sealed. SELUX powder coated products provide excellent salt and humidity resistance as well as ultra violet resistance for color retention. All products are tested in accordance with test specifications for coatings from ASTM and PCI.

Standard exterior colors are White (WH), Black (BK), Bronze (BZ), and Silver (SV). Custom RAL colors are available upon request. Please provide RAL#.

Mounting





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QHO-0109-03

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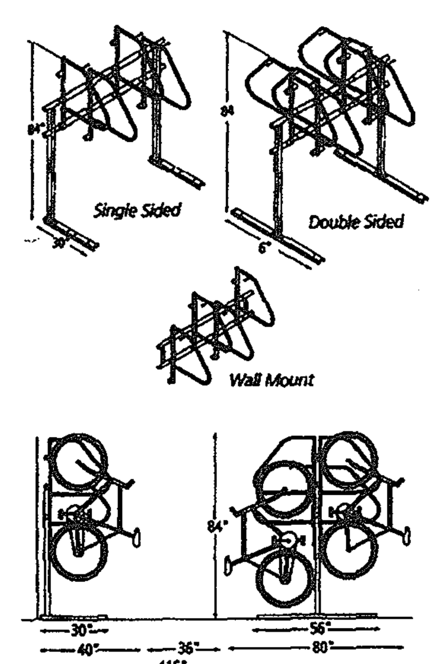
QHO-0109-01 (SS-v3.51)

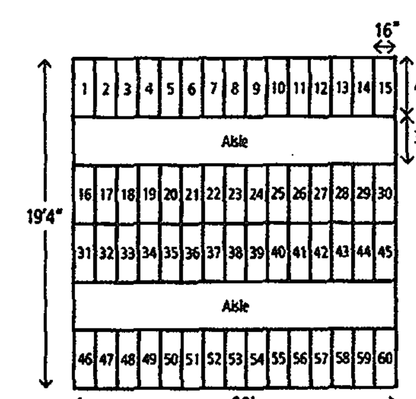
In a continuing effort to offer the best product possible, we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product. Specification sheets found at www.selux.com/usa are the most recent versions and supercede all other printed or electronic versions.

EGRESS LIGHTING DETAILS
NOT TO SCALE

ULTRA SPACE SAVER — Specifications and Space Use



Product	Dero Ultra Space Saver As manufactured by Dero Bike Racks
Capacity	Modular construction 1 Bike per arm
Materials	Hanger is 1" diameter tube with 1/2" steel rod and retaining disk at each end. Upright is 2" square tube.
Finishes	Black powder coat Cross bars: hot dipped galvanized Hanger rods: rubber coated Spacers: plastic
Installation Methods	**Floor mounted** Ultra Space Savers have steel channel feet (30" for single sided and 56" for double sided units) which must be anchored to the floor. A **wall mounted** unit which contains special brackets is also available.
Space Use and Setbacks	See diagram at left



As a general rule of thumb, a 20'x20' space can fit approximately 60 bicycles.

Estimating Your Bike Capacity

Estimating the maximum number of bikes you can park using a Ultra Space Saver in a typical rectangular space is usually fairly straight forward.

The Ultra Space Saver parks one bike every 16" with a typical bike extending out 40" from the wall. Imagine a 16"x40" block of floor space as representing each bike that can be parked. Arrange the blocks in rows, leaving a 36" aisle between rows.

If you have a large space, you may be able to fit in double rows of Ultra Space Savers. In this case you could fit 2 bikes in a 16"x80" space.

Let us Help! As a free service, Dero will provide a complete CAD layout of your space. Just send us the dimensions of your room, being sure to note the location of doors, columns, etc. and let us maximize your bike storage capacity.

DERO BIKE RACKS — www.dero.com 1-800-298-4915

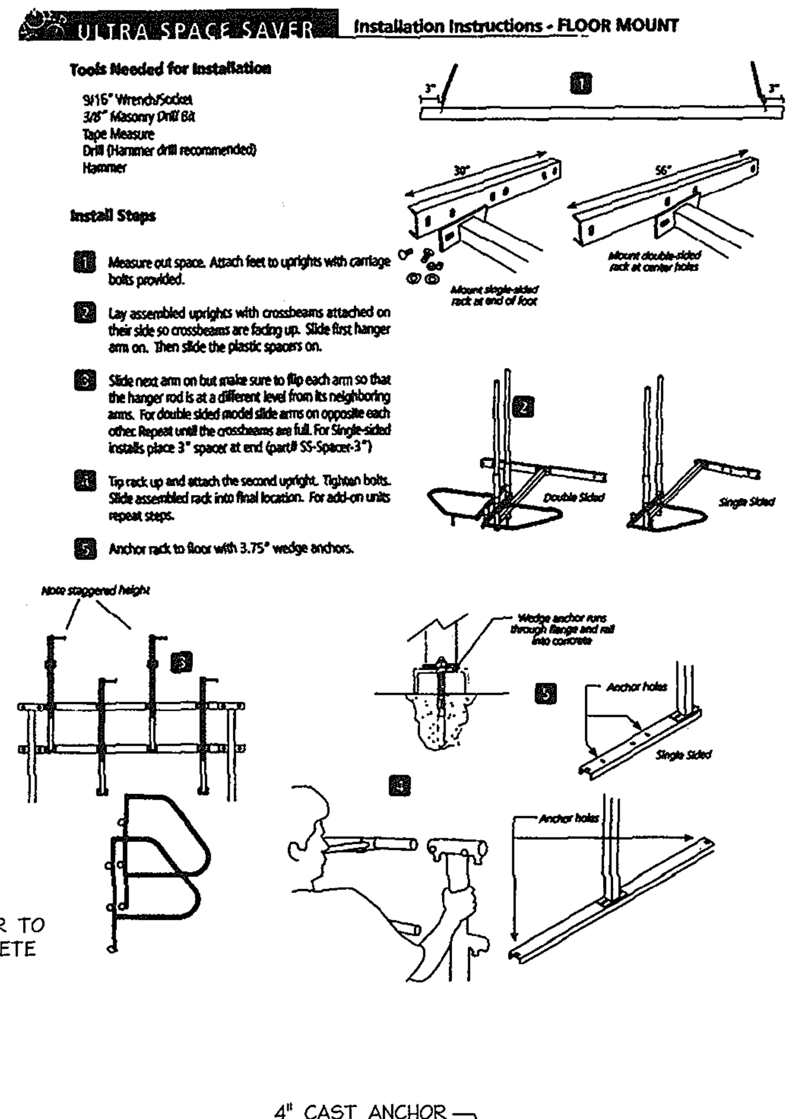
BACK RACK DETAILS
NOT TO SCALE

ULTRA SPACE SAVER — Installation Instructions - FLOOR MOUNT

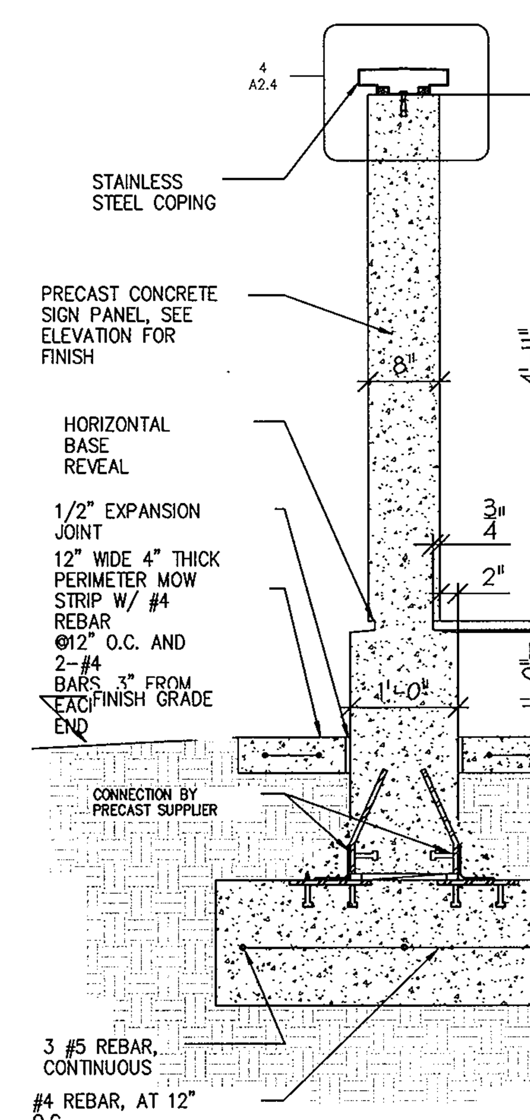
Tools Needed for Installation
9/16" Wrench/Socket
3/8" Masonry Drill Bit
Tape Measure
Drill (Hammer drill recommended)
Hammer

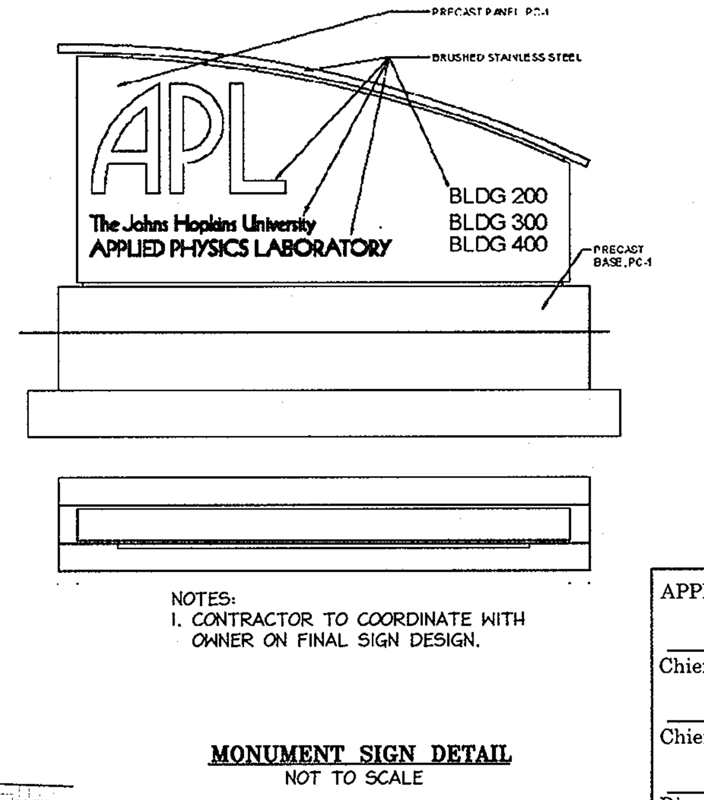
Install Steps

1. Measure out space. Attach feet to uprights with carriage bolts provided.
2. Lay assembled uprights with crossbeams attached on their side so crossbeams are facing up. Slide first hanger arm on. Then slide the plastic spacers on.
3. Slide next arm on but make sure to flip each arm so that the hanger rod is at a different level from its neighboring arms. For double sided model slide arms on opposite each other. Repeat until the crossbeams are full. For Single-sided installs place 3" spacer at end (part# SS-Spacer-3")
4. Tip rack up and attach the second upright. Tighten bolts. Slide assembled rack into final location. For add-on units repeat steps.
5. Anchor rack to floor with 3.75" wedge anchors.



SITE LIGHTING DETAILS
SCALE: NOT TO SCALE

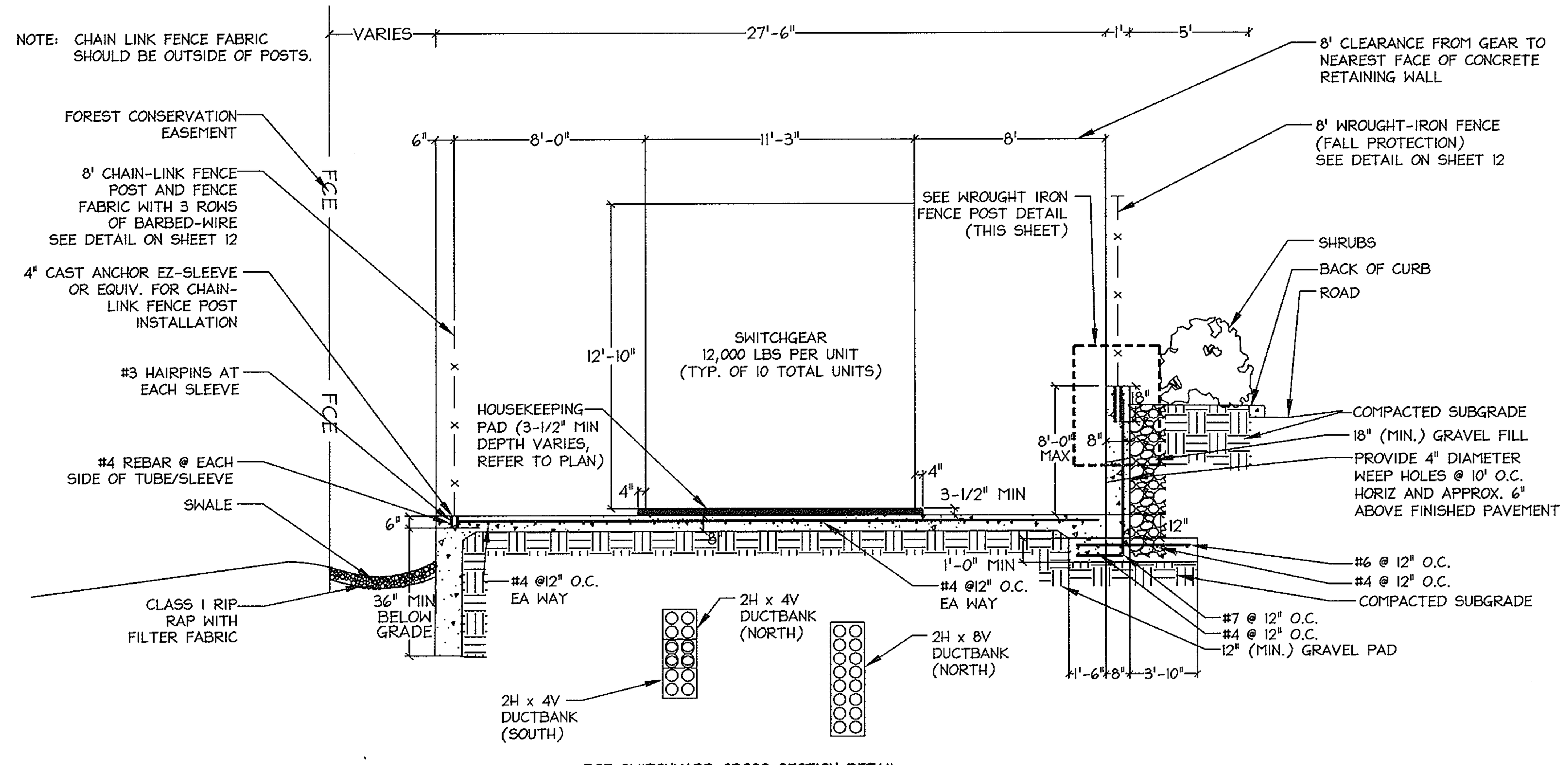




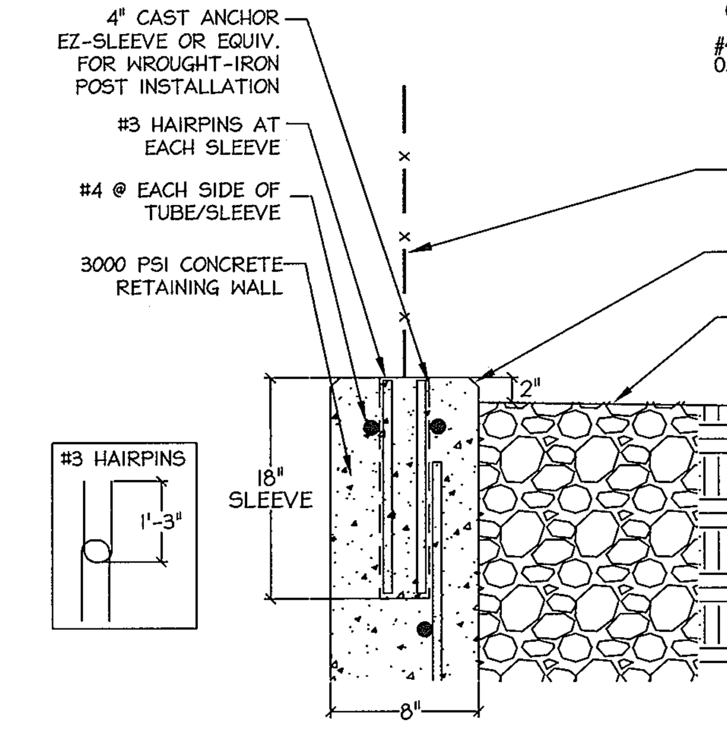
NOTES:
1. CONTRACTOR TO COORDINATE WITH OWNER ON FINAL SIGN DESIGN.

MONUMENT SIGN DETAIL
NOT TO SCALE

NOTE: CHAIN LINK FENCE FABRIC SHOULD BE OUTSIDE OF POSTS.



BGE SWITCHYARD CROSS SECTION DETAIL
NOT TO SCALE



BGE SWITCHYARD WROUGHT IRON FENCE POST INSTALLATION DETAIL
NOT TO SCALE

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

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.

[signature] 8/8/13 — SIGNATURE OF ENGINEER
06-14-2013 — DATE
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

[signature] 10-9-09
SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — DATE

06/14/2013
DATE

[signature] 8/8/13

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] Chief, Development Engineering Division	8/29/13 Date
[signature] Chief, Division of Land Development	9/04/13 Date
[signature] Director	9/4/13 Date

No.	Date	Revision Description
1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB & GUTTER AND ASSOC. GRADING
2	9.29.10	ASI #96 - BGE SWITCHYARD
3	6.14.13	ADDED REDLINE SUMMARY NOTE

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PERMIT INFORMATION CHART

PROJECT NAME:	LOT/PARCEL NO.	CENSUS TRACT
JHU/APL- SOUTH CAMPUS BUILDING 200	300	6051.02

DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22	PEC	41	5th

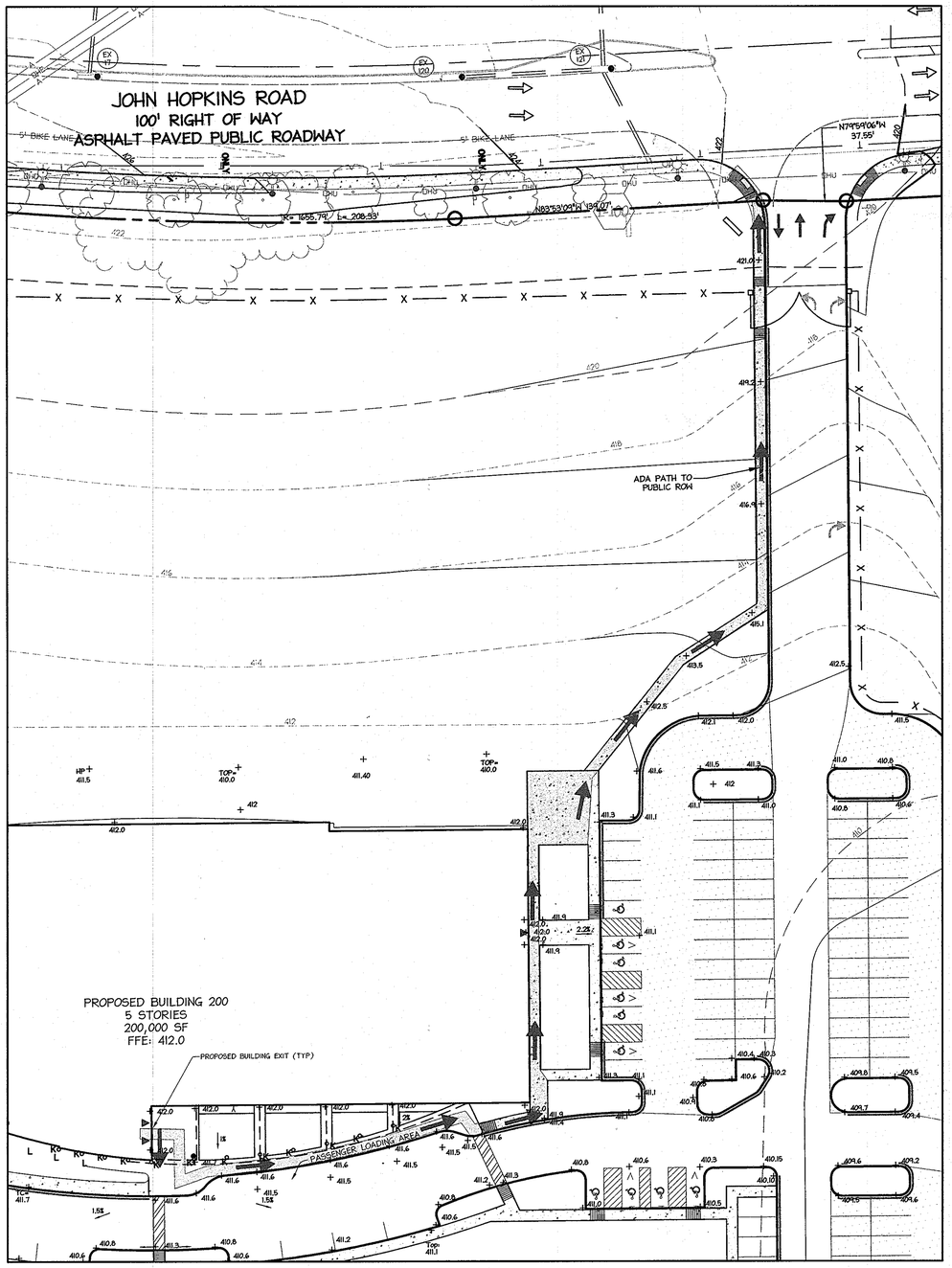
Revised SDP

TITLE:
SITE NOTES & DETAILS SHEET

DESIGN: CRH	SCALE: VARIES	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	10 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



ADA PATH OF TRAVEL TO PUBLIC ROW
SCALE: 1"=30'

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref. 20928-20930

10-9-09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29690 — REGISTERED PROFESSIONAL ENGINEER

TITLE: ADA ROUTES SHEET

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	11 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

GENERAL SPECIFICATIONS (APL SPECIFIC)

·FENCE SHALL BE 84 INCHES HIGH WITH A 12 INCH BARBED WIRE TOP GUARD ANGLED OUTWARD AT 45 DEGREES.
·BARBED WIRE SHALL CONSIST OF 3 STRANDS OF 12 GAUGE (0.106 INCH) GALVANIZED STEEL WIRE WITH 4 POINT BARBS SPACED NOT MORE THAN 5 INCHES APART. ONE WIRE SHOULD BE INTERLACED VERTICALLY MIDWAY BETWEEN POSTS.
·CHAIN LINK MESH MUST REACH WITHIN 2 INCHES OF HARD GROUND OR PAVEMENT.
·CHAIN LINK MESH SHALL BE TWISTED AND BARBED AT TOP AND BOTTOM.
OR
TO DISPLAY EVIDENCE OF ANY SURREPTITIOUS ENTRY ATTEMPTS.
·ANY FENCING ADJACENT TO STRUCTURES MUST BE INSTALLED IN SUCH A MANNER THAT THE FENCING POSTS BUTT AGAINST THE STRUCTURE FORMING A SECURE BARRIER TO ENTRY.
·THE NUMBER OF GATES AND PERIMETER ENTRANCES SHALL BE THE MINIMUM REQUIRED FOR SAFE AND EFFICIENT OPERATION OF THE LABORATORY.
·WHEN CLOSED, GATES MUST PROVIDE A BARRIER STRUCTURALLY COMPARABLE TO THE ASSOCIATED FENCING.

TECHNICAL SPECIFICATIONS

1) THE CONTRACTOR SHALL EXERCISE CARE WHILE WORKING ON THE PROJECT. THE AREA OF THE PROJECT IS OPEN TO APL STAFF AND OTHER CONTRACTOR PERSONNEL, THEREFORE CONTRACTOR SHALL ENSURE THAT THE WORK SITE IS SAFE FOR VEHICLE AND PEDESTRIAN TRAFFIC AT ALL TIMES.
2) THE CONTRACTOR SHALL LAYOUT THE FENCE LINES IN ACCORDANCE WITH DRAWINGS AND SKETCHES PROVIDED BY APL AND THEIR CONSULTANTS.
3) THE CONTRACTOR SHALL ESTABLISH THE FENCE ALIGNMENT WITH STAKES AND FLAGS. THE STAKES SHALL BE AT A SUITABLE OFF SET FROM EVERY CORNER POST AND FLAGS INSTALLED NOT GREATER THAN EVERY 50 FEET ALONG A TANGENT SECTION AND AT EVERY OTHER POST ON A CURVED SECTION.
4) THE FENCE ALIGNMENT WILL BE MARKED IN THE FIELD AS INDICATED IN 3 ABOVE. APL SHALL HAVE ONE WEEK TO REVIEW THE ALIGNMENT PRIOR TO ANY CONSTRUCTION. THIS REQUIREMENT DOES NOT REMOVE THE RESPONSIBILITY FROM THE CONTRACTOR FOR PROVIDING AN ACCURATE ALIGNMENT. THE CONTRACTOR SHALL NOT START CONSTRUCTION PRIOR TO RECEIVING SPECIFIC APPROVAL FROM APL.
5) THE FENCE WILL INCLUDE THE FOLLOWING SWING GATES:
A) 1 EACH ±13 FOOT (SWM GATE)
B) 4 EACH 20 FOOT (SNOW REMOVAL GATES)
C) 2 EACH ±47 FOOT DOUBLE LEAF (ENTRY GATES)

6) EVERY FENCE POST SHALL BE IMBEDDED IN A CONCRETE FOOTING. THE FOOTING SHALL BE 3 TIMES THE POST OUTER DIAMETER OR 1 FOOT DIAMETER WHICHEVER IS GREATER AND SHALL EXTEND A MINIMUM OF 36 INCHES BELOW FINISH GRADE. EACH BASE SHALL BE CROWNED AT LEAST 1/2 INCH.
7) ALL INSTALLATION PROCEDURES SHALL MEET THE MANUFACTURER'S RECOMMENDED STANDARDS.
8) ANY NICKS OR MARS IN THE FENCE OR ANY OF ITS COMPONENTS SHALL BE FIELD REPAIRED IN ACCORDANCE WITH THE MANUFACTURES RECOMMENDATION.
9) CHAIN LINK FENCE REQUIREMENTS:

A) STEEL CHAIN LINK FENCE FABRIC:

I) MESH AND WIRE SIZE: 2 INCH MESH, 0.148 INCH DIAMETER. ZINC-COATED FABRIC: ASTM A-392, WITH ZINC COATING APPLIED TO STEEL WIRE BEFORE WEAVING ACCORDING TO ASTM 817, TYPE A II, ZINC COATED (GALVANIZED) WITH THE FOLLOWING MINIMUM COATING WEIGHT: CLASS 2; NOT LESS THAN 2 OZ./SQ. FT

B) FENCE FRAMING:

I) ROUND STEEL PIPE: STANDARD WEIGHT, SCHEDULE 40, GALVANIZED STEEL PIPE COMPLYING WITH ASTM F 1083. COMPLY WITH ASTM F 1043, MATERIAL DESIGN GROUP IA, EXTERNAL AND INTERNAL COATING TYPE A, CONSISTING OF NOT LESS THAN 1.8 OZ./SQ. FT. ZINC; AND THE FOLLOWING STRENGTH AND STIFFNESS REQUIREMENTS:

(1) LINE END, CORNER, AND PULL POSTS AND TOP RAIL: PER MANUFACTURER'S REQUIREMENTS FOR HEAVY INDUSTRIAL FENCE.
(2) TOP RAIL: FABRICATE TOP RAIL FROM LENGTHS 21 FEET OR LONGER, WITH SWEDGEDEND OR FABRICATED FOR EXPANSION-TYPE COUPLING, FORMING A CONTINUOUS RAIL ALONG TOP OF CHAIN LINK FABRIC.

C) TENSION WIRE:

I) GENERAL: PROVIDE HORIZONTAL TENSION WIRE EXTENDED ALONG BOTTOM OF FENCE FABRIC. METALLIC COATED STEEL WIRE: COATING TYPE II, ZINC COATED (GALVANIZED) BY THE HOT-DIP PROCESS MATCHING CHAIN LINK FABRIC COATING WEIGHT.

D) SWING GATES:

I) GENERAL: COMPLY WITH ASTM F 900 FOR THE FOLLOWING SWING-GATE TYPES:
(1) SINGLE GATE
(2) DOUBLE GATE

II) METALLIC PIPE AND TUBING: GALVANIZED STEEL. COMPLY WITH ASTM F 1083 AND ASTM F-1043 FOR MATERIALS AND PROTECTIVE COATINGS.

(1) FRAMES AND BRACING: FABRICATE MEMBERS FROM ROUND GALVANIZED STEEL TUBING WITH OUTSIDE DIMENSION AND WEIGHT ACCORDING TO ASTM F 900 FOR GATE FABRIC MORE THAN 6 FEET HEIGHT. FRAME CORNER CONSTRUCTION: WELDED.
(2) GATE POSTS: FABRICATE MEMBERS FROM ROUND GALVANIZED STEEL PIPE WITH OUTSIDE DIMENSION AND WEIGHT ACCORDING TO ASTM F 900 FOR GATE FABRIC AND LEAF WIDTHS AS INDICATED.

E) BARBED WIRE. THREE-STRANDS, OUTBOARD ZINC-COATED STEEL BARBED WIRE: COMPLY WITH ASTM A-121, STANDARD GRADE FOR THE STANDARD SIZE (0.099 INCH DIAMETER LINE WIRE WITH 0.080 INCH DIAMETER, 4 POINT ROUND BARBS SPACED NOT MORE THAN 5 INCHES O.C.)

F) FENCE GROUNDING:

I) CONDUCTORS: BARE, SOLID WIRE FOR NO. 6 AWG AND SMALLER; STRANDED WIRE FOR NO. 4 AWG AND LARGER.
II) MATERIAL ON OR BELOW FINISHED GRADE: COPPER.

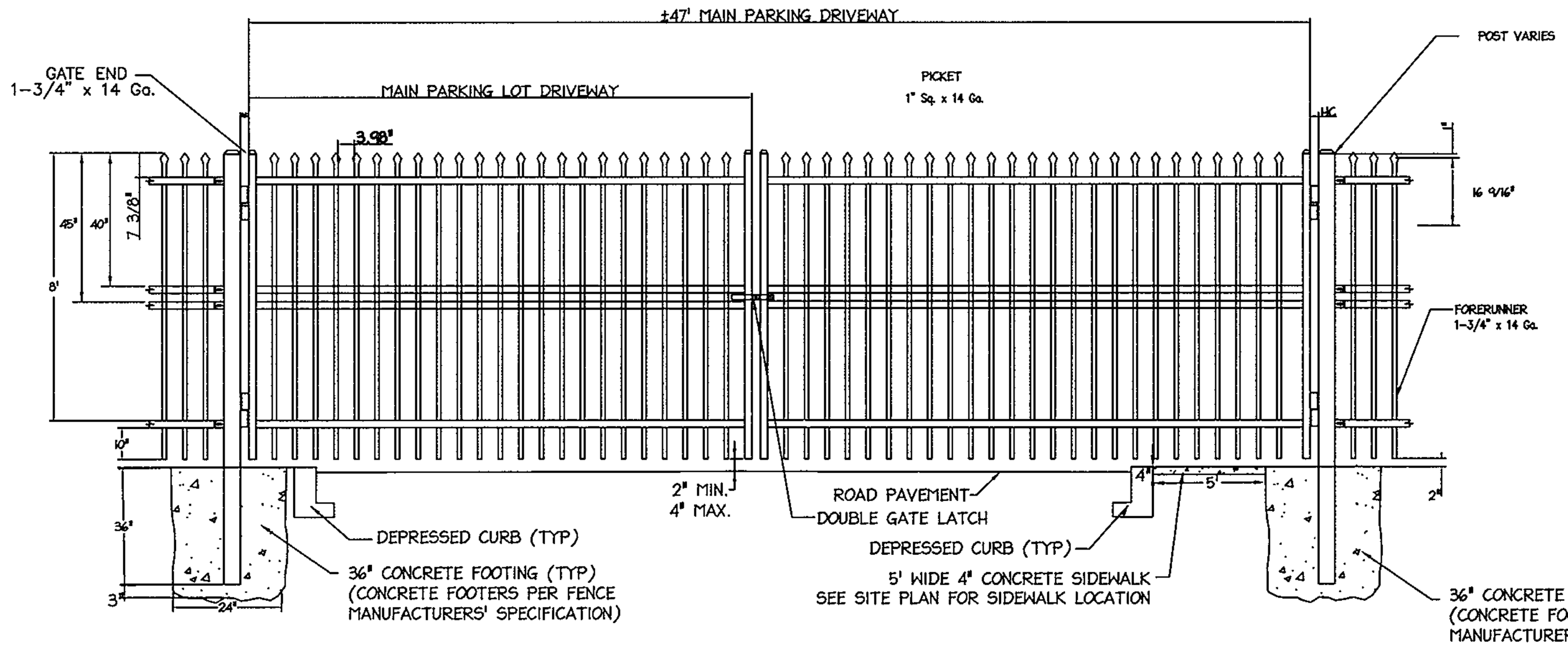
III) BONDING JUMPERS: BRAIDED COPPER TAPE, 1 INCH WIDE, WOVEN OF NO. 30 AWG BARE COPPER WIRE, TERMINATED WITH COPPER FERRULES.

IV) CONNECTORS AND GROUND RODS: LISTED IN UL 467.
V) CONNECTORS FOR BELOW-GRADE USE: EXOTHERMIC WELDED TYPE.
VI) GROUND RODS: COPPER-CLAD STEEL.
(1) SIZE: 5/8 INCH BY 96 INCHES.
G) GROUNDING AND BONDING.
I) FENCE GROUNDING: INSTALL AT MAXIMUM INTERVALS OF 500 FEET EXCEPT AS FOLLOWS:

(1) FENCES WITHIN 100 FEET OF BUILDINGS, STRUCTURES, WALKWAYS, AND ROADWAYS: GROUND AT MAXIMUM INTERVALS OF 500 FEET.
(2) GATES AND OTHER FENCE OPENINGS: GROUND FENCE ON EACH SIDE OF OPENING.
(3) BOND METAL GATES TO GATE POSTS. BOND ACROSS OPENINGS, WITH GATES. USE NO. 2 AWG WIRE AND BURY IT AT LEAST 18 INCHES BELOW FINISHED GRADE.
(4) PROTECTION AT CROSSINGS OF OVERHEAD ELECTRICAL POWER LINES: GROUND FENCE AT LOCATION OF CROSSING AND AT A MAXIMUM DISTANCE OF 150 FEET ON EACH SIDE OF CROSSING.

II) GROUNDING METHOD: AT EACH GROUNDING LOCATION, DRIVE A GROUND ROD VERTICALLY UNTIL THE TOP IS 6 INCHES (150 MM) BELOW FINISHED GRADE. CONNECT ROD TO FENCE WITH NO. 6 AWG CONDUCTOR. CONNECT CONDUCTOR TO EACH FENCE COMPONENT AT THE GROUNDING LOCATION, INCLUDING THE FOLLOWING:

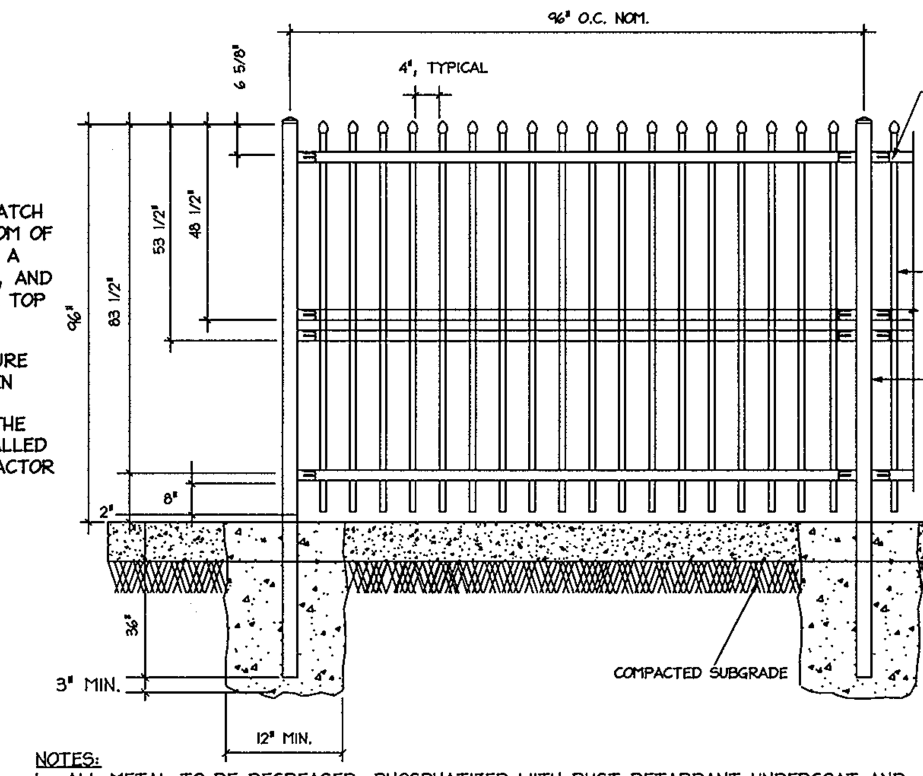
(1) EACH BARBED WIRE STRAND. MAKE GROUNDING CONNECTIONS TO BARBED WIRE WITH WIRE-TO-WIRE CONNECTORS DESIGNED FOR THIS PURPOSE.
(2) BONDING METHOD FOR GATES: CONNECT BONDING JUMPER BETWEEN GATE POST AND GATE FRAME.
(3) CONNECTIONS: MAKE CONNECTIONS SO POSSIBILITY OF GALVANIC ACTION OR ELECTROLYSIS IS MINIMIZED. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS, AND CONNECTION METHODS SO METALS IN DIRECT CONTACT WILL BE GALVANICALLY COMPATIBLE.
(4) USE ELECTROPLATED OR HOT-TIN-COATED MATERIALS TO ENSURE HIGH CONDUCTIVITY AND TO MAKE CONTACT POINTS CLOSER IN ORDER OF GALVANIC SERIES.
(5) MAKE CONNECTIONS WITH CLEAN, BARE METAL AT POINTS OF CONTACT.
(6) COAT AND SEAL CONNECTIONS HAVING DISSIMILAR METALS WITH INERT MATERIAL TO PREVENT FUTURE PENETRATION OF MOISTURE TO CONTACT SURFACES.
REFERENCE MATERIALS
ARMY FIELD MANUAL 3-19.30 "PHYSICAL SECURITY"
OPNAVINST 5530.14C. ©NAVY PHYSICAL SECURITY"
FEDERAL SPECIFICATION SHEET RR-F-191K/2D, 14 MAY 1990, SUBJ: FENCING, WIRE AND POST METAL (CHAIN-LINK FENCE GATES)
PROTECTION OF ASSETS MANUAL, CHAPTER 3, PART 3 ©CHAIN LINK FENCING"2004



TYPICAL DOUBLE LEAF SWING GATE
(LOCATED AT THE EAST AND WEST ENTRANCES)
NOT TO SCALE

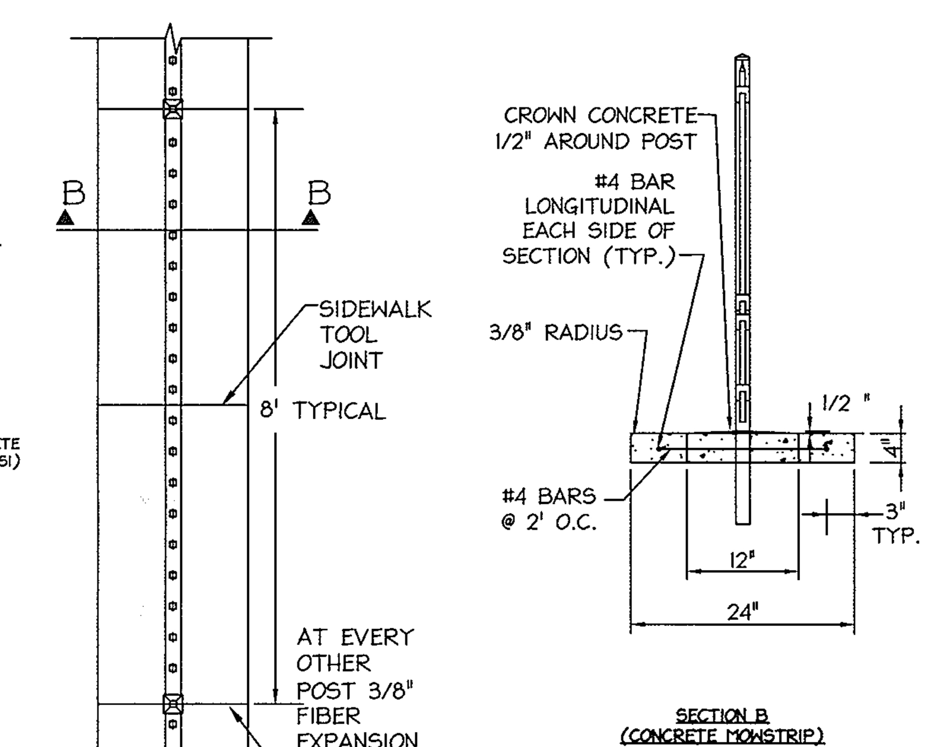
NOTES:
1. FENCE GATE LEAFS SHALL BE MANUFACTURED TO ASSURE SAG AT LATCH POINT (WHEN CLOSED) SET THE BOTTOM OF THE GATE LEAF A MINIMUM OF 2" AND A MAXIMUM OF 4" ABOVE THE PAVEMENT, AND WHEN OPEN MINIMUM OF 2" ABOVE THE TOP OF CURB.

2. A STEEL POST WITH CHAIN TO SECURE THE GATE LEAF (ONE PER LEAF), WHEN GATE IS OPEN, SET IN CONCRETE AND FINISHED IN THE SAME MATERIAL AS THE FENCE SHALL BE PROVIDED AND INSTALLED 2' BEHIND THE BACK OF CURB. CONTRACTOR SHALL SUBMIT A SHOP DRAWING AND OBTAIN APL APPROVAL BEFORE FABRICATION.



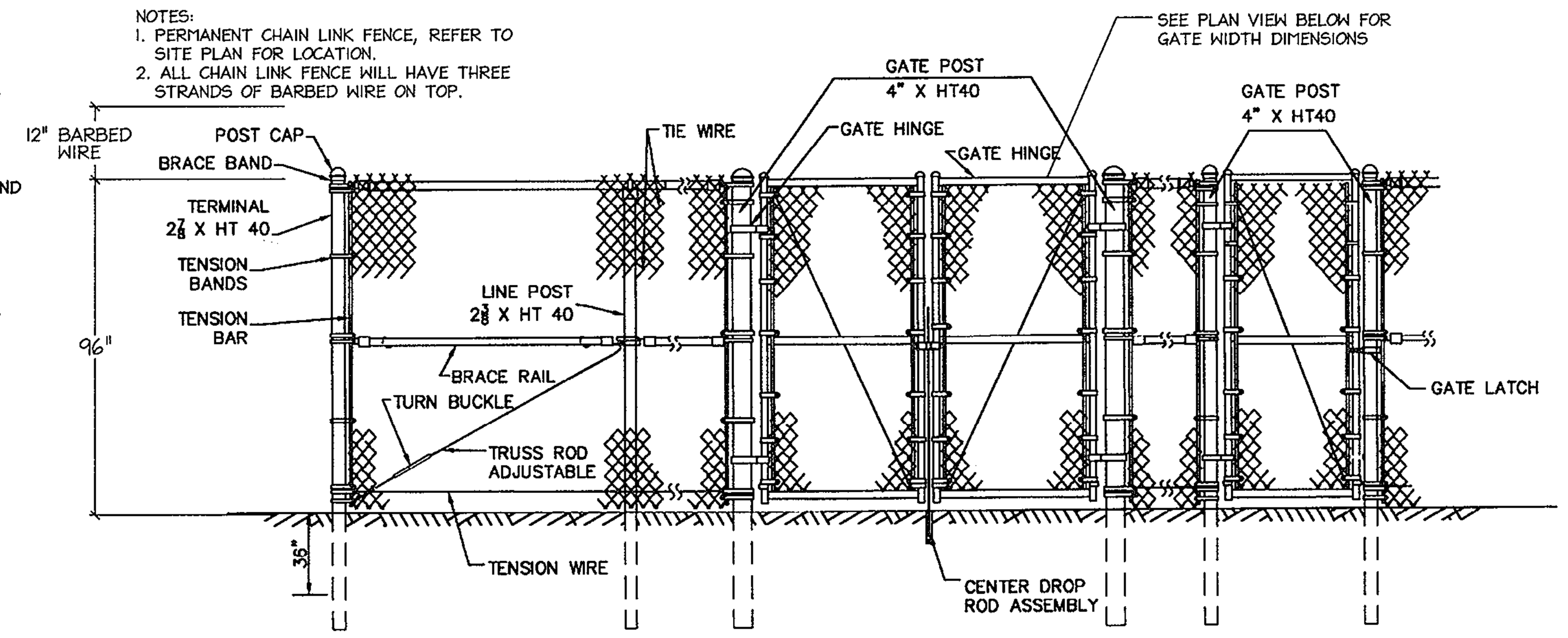
NOTES:
1. ALL METAL TO BE DEGREASED, PHOSPHATIZED WITH RUST RETARDANT UNDERCOAT AND DIP COATED WITH TWO COATS OF INDUSTRIAL GRADE FLAT BLACK ENAMEL.
2. SEE SITE PLANS FOR FENCE LOCATION.

WROUGHT IRON FENCE WITH CONCRETE MOW STRIP
NOT TO SCALE

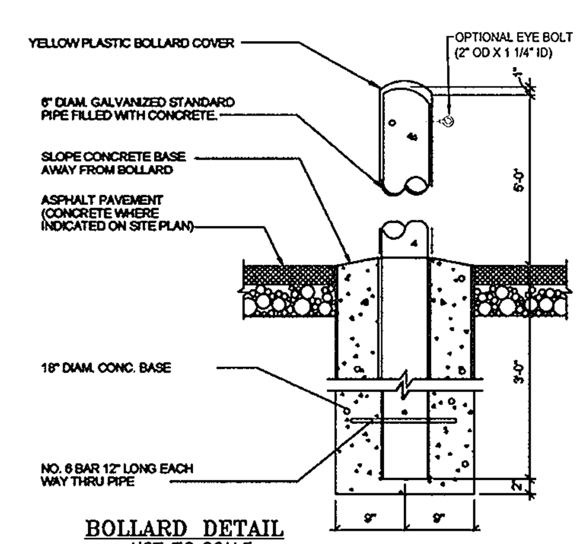


PROPOSED MOW STRIP
NOT TO SCALE

NOTES:
1. PERMANENT CHAIN LINK FENCE, REFER TO SITE PLAN FOR LOCATION.
2. ALL CHAIN LINK FENCE WILL HAVE THREE STRANDS OF BARBED WIRE ON TOP.

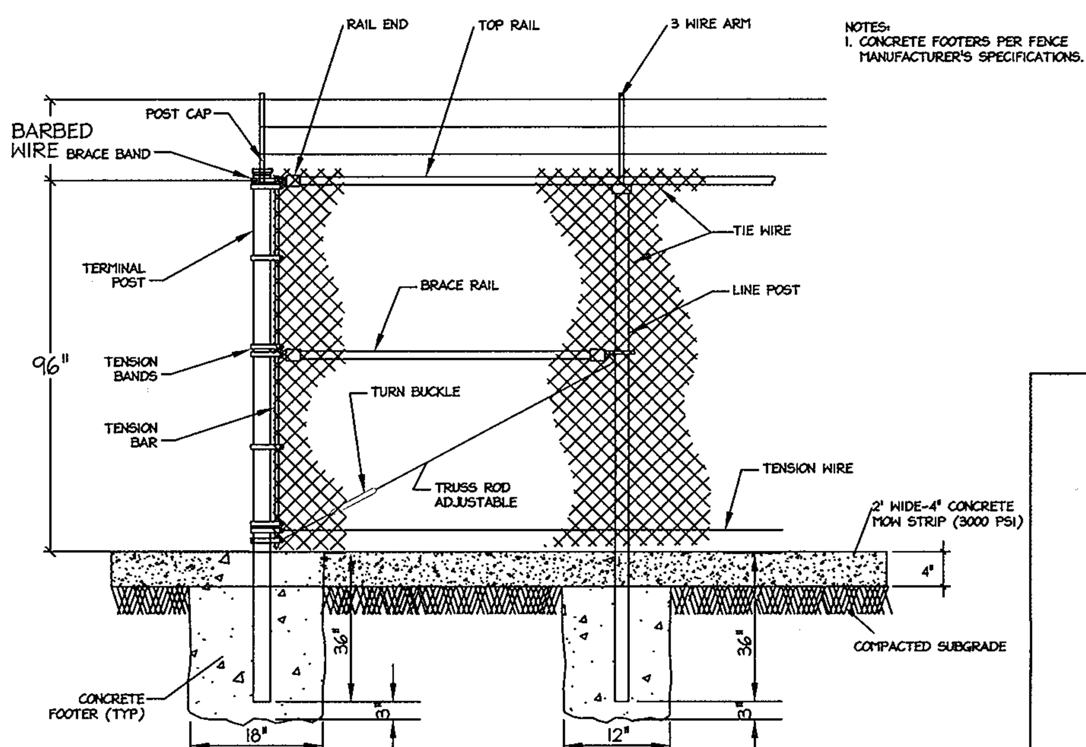


8' PERMANENT CHAIN LINK FENCE WITH GATE
NOT TO SCALE

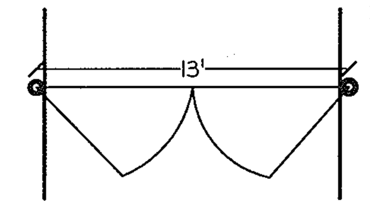


BOLLARD DETAIL
NOT TO SCALE

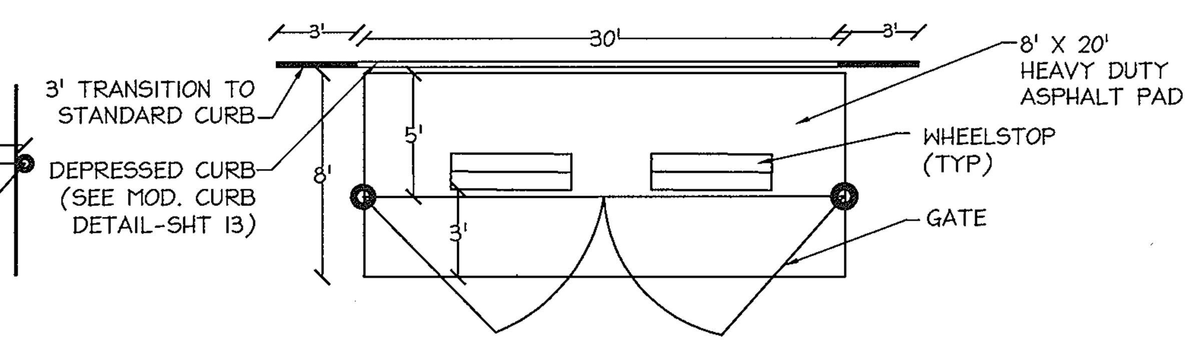
NOTES:
1. CONCRETE FOOTERS PER FENCE MANUFACTURER'S SPECIFICATIONS.



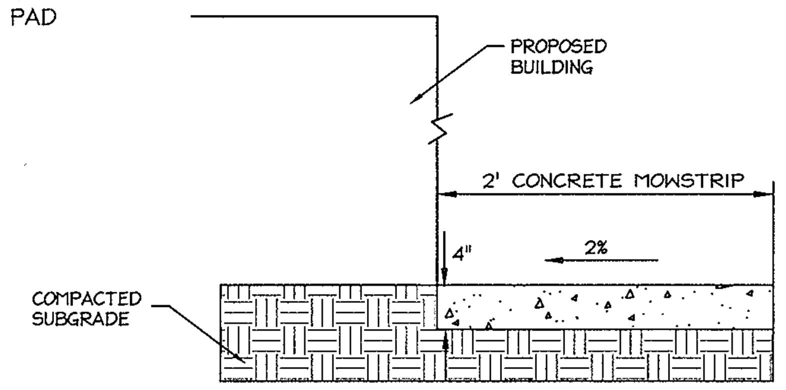
PERMANENT CHAIN LINK FENCE WITH MOW STRIP
NOT TO SCALE



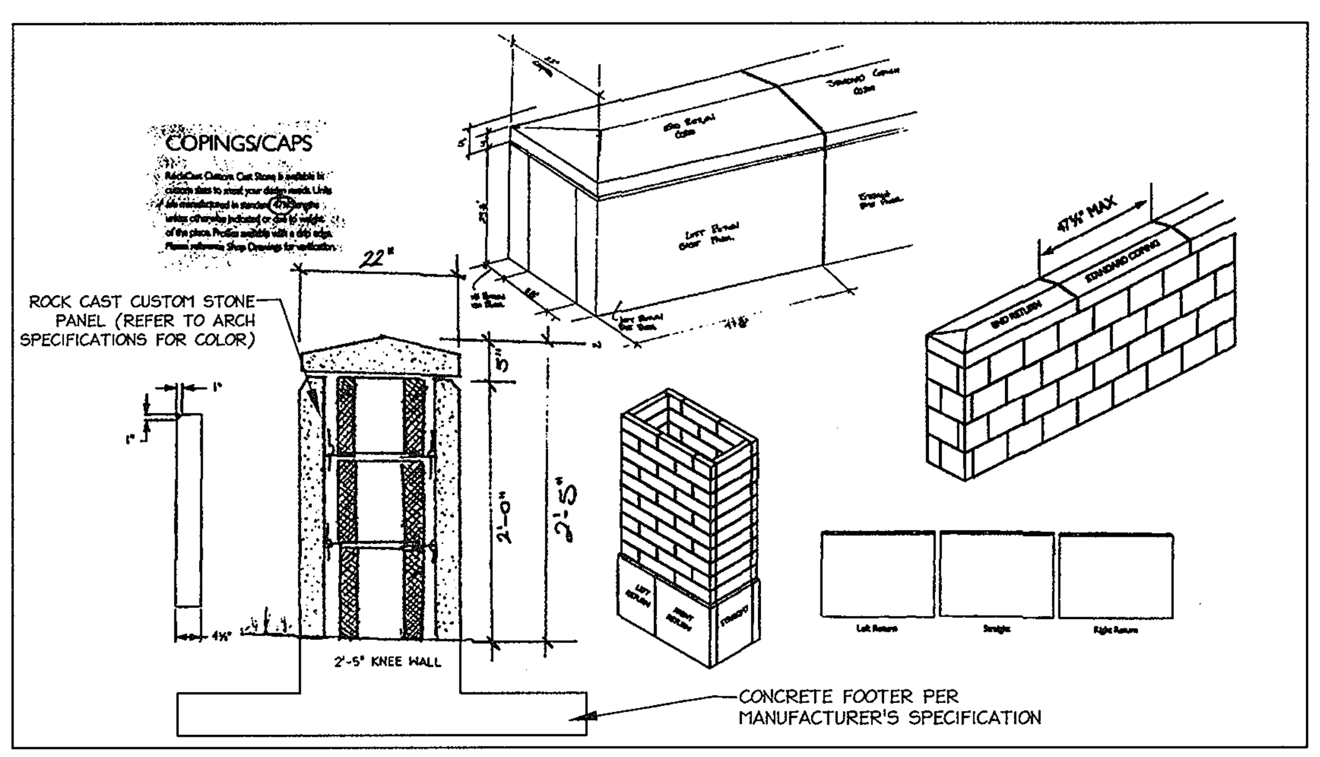
TYPICAL PLAN OF SWM ACCESS GATES
N.T.S.



TYPICAL PLAN OF SNOW REMOVAL GATES
N.T.S.



MOW STRIP AT BUILDING DETAIL
NOT TO SCALE



KNEE WALL DETAILS
SCALE: NOT TO SCALE

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES
I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.
[signature] 10-9-09
SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE

PROFESSIONAL CERTIFICATION
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
[signature] 8/8/13 06-14-2013
SIGNATURE OF ENGINEER DATE
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

06/14/2013
DATE
STATE OF MARYLAND · WILLIAM RAYMOND ZINK · No. 20587 REGISTERED · PROFESSIONAL ENGINEER
[signature] 8/8/13

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] 8/29/13
Chief, Development Engineering Division Date
[signature] 9/04/13
Chief, Division of Land Development Date
[signature] 9/?/13
Director Date

Date	No.	Revision Description
1	8.9.10	REDLINED FOR ADDITIONAL PARKING, CURB & GUTTER AND ASSOC. GRADING
2	6.14.13	ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

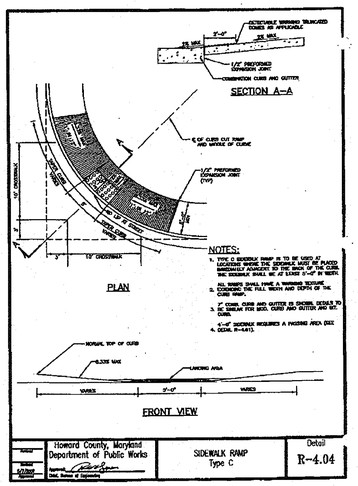
Revised SDP

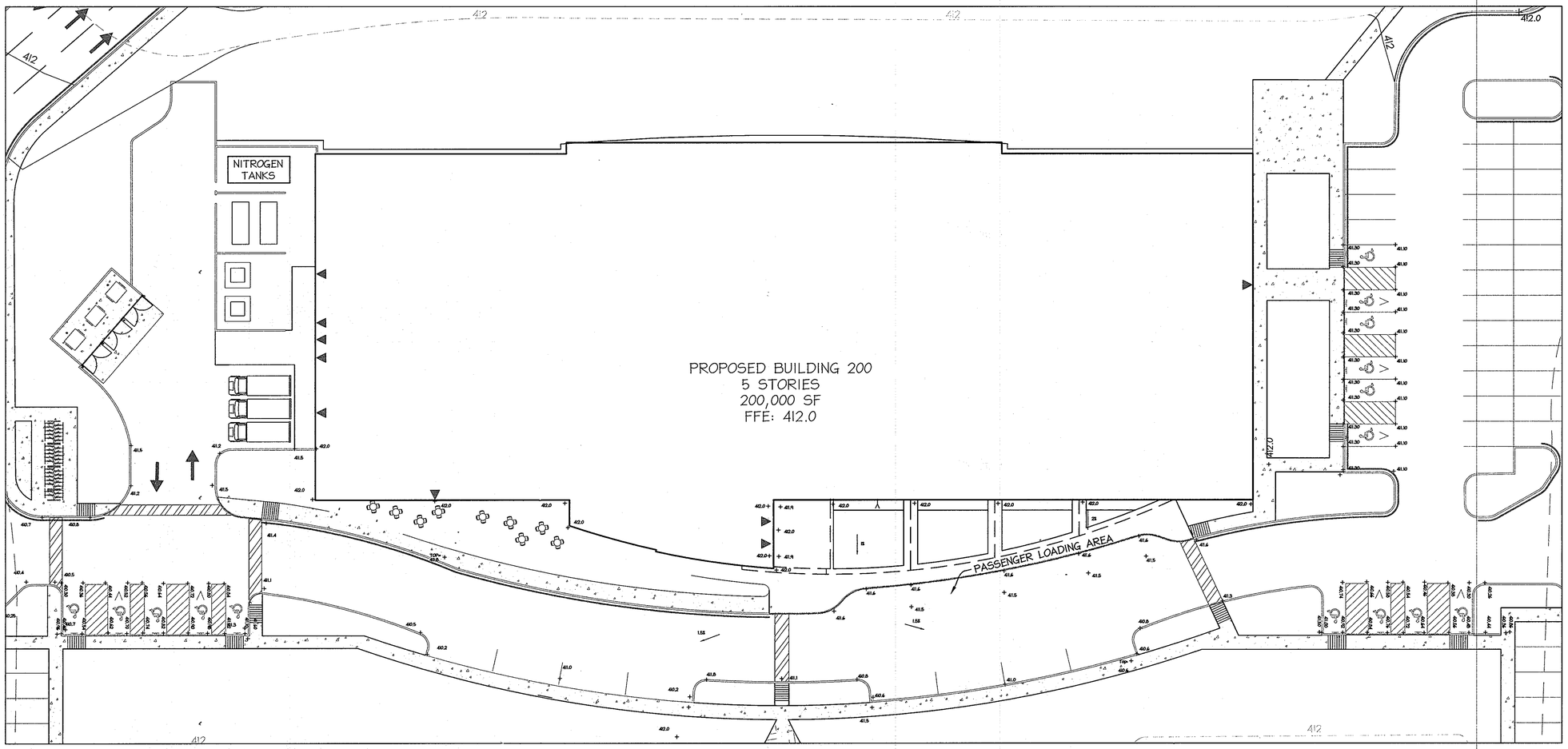
TITLE: SITE NOTES & DETAILS SHEET

DESIGN: CRH	SCALE: VARIES	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	12 OF 54
CHECKED: JMH	APPROVED: JMH	

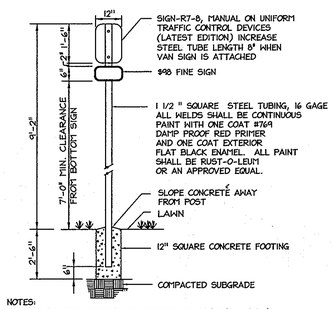
SDP-09-047

MDC-930(SDP)


DETECTABLE WARNING TRUNCATED DOMES AS APPROVED
3'-0"
1/2" PREFORMED EXPANSION JOINT
CONCRETE CURB AND GUTTER
SECTION A-A
2% MAX.
4% MAX.
4% MAX.
2% MAX.
VARIES
VARIES
VARIES
VARIES
5'-0" MIN.
5'-0" MIN.
4'-0" MIN.
4'-0" MIN.
4



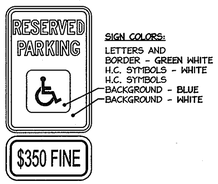
PASSENGER LOADING AREA DETAIL
SCALE: 1"=20'



NOTES:
1. DISTANCE FROM GROUND TO BOTTOM OF SIGN SHALL BE 7'.
2. SEE HANDICAPPED PARKING SPACE DETAIL THIS SHEET FOR LOCATION OF HANDICAP SIGN.
3. SIGNS SHALL CONFORM TO CURRENT ADA CRITERIA.

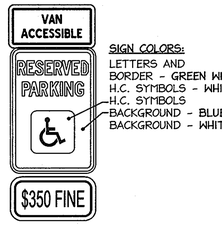
SIGN COLORS:
LETTERS AND BORDER - GREEN
WHITE H.C. SYMBOLS ON BLUE BACKGROUND
BACKGROUND - WHITE

N.T.S.



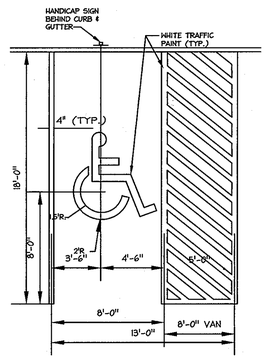
SIGN COLORS:
LETTERS AND BORDER - GREEN WHITE
H.C. SYMBOLS - WHITE
H.C. SYMBOLS BACKGROUND - BLUE
BACKGROUND - WHITE

HANDICAP PARKING SIGN
NOT TO SCALE



SIGN COLORS:
LETTERS AND BORDER - GREEN WHITE
H.C. SYMBOLS - WHITE
H.C. SYMBOLS BACKGROUND - BLUE
BACKGROUND - WHITE

VAN ACCESSIBLE HANDICAP PARKING SIGN
NOT TO SCALE



HANDICAP PARKING SPACE
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10.9.09
DATE

STATE OF MARYLAND · JOHN M. HOUSEHOLDER · NO. 29907 · REGISTERED · PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME:		LOT/PARCEL NO.	CENSUS TRACT
JHU/APL- SOUTH CAMPUS BUILDING 200		300	6051.02
DEED REF.	GRID NO. / ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22 / PEC	41	5th
Plat Ref. 20928: 20930			

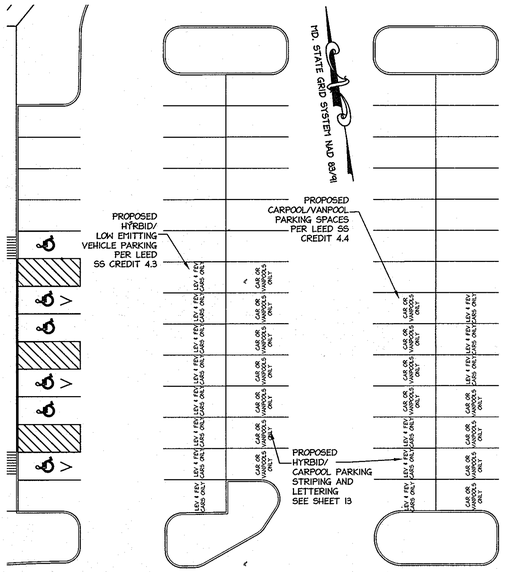
TITLE:

HANDICAP PARKING DETAILS AND NOTES

DESIGN:	SCALE: 1" = 10'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	14 OF 54
CHECKED: JMH	APPROVED: JMH	

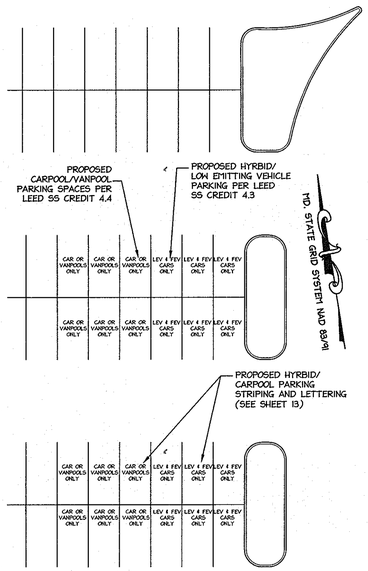
MDC-930(SDP)

SDP-09-047



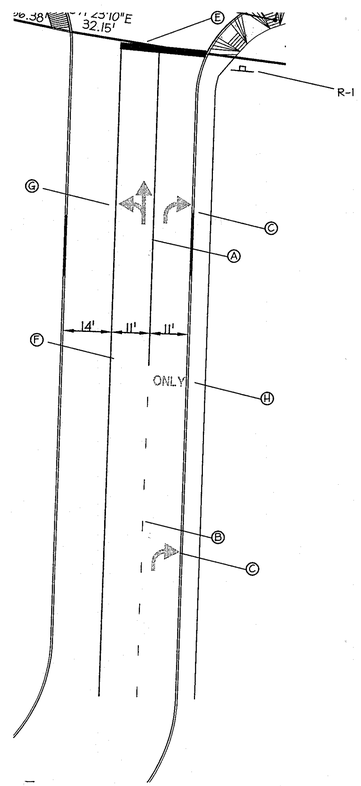
ENLARGED PROPOSED HYBRID/CARPOOL PARKING SPACES-EAST DETAIL (SEE SHEET 5)

SCALE: 1" = 30'



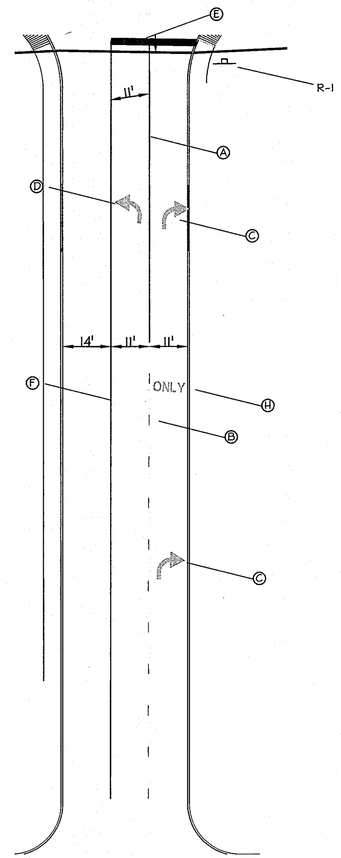
ENLARGED PROPOSED HYBRID/CARPOOL PARKING SPACES-WEST DETAIL (SEE SHEET4)

SCALE: 1" = 30'



ENLARGED PROPOSED WESTERN ENTRANCE

SCALE: 1" = 20'



ENLARGED PROPOSED EASTERN ENTRANCE

SCALE: 1" = 20'

PAVEMENT MARKING LEGEND

- (A) 5" SOLID WHITE
- (B) 5" PUPPY TRACKS (3'/9'/3')
- (C) RIGHT TURN ARROW
- (D) LEFT TURN ARROW
- (E) 24" WIDE STOPBAR (THERMO)
- (F) 5" WIDE DOUBLE YELLOW
- (G) LEFT TURN WITH STRIAGHT ARROW
- (H) "ONLY" PAVEMENT MARKING
- FUTURE PAVEMENT MARKINGS

SIGNING NOTES:

1. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PPERFORATED, SQUARE TUBE SLEEVE (12 GUAGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUTED ON TOP OF EACH POST.

2. ALL SIGN LOCATIONS WITHIN THE PUBLIC RIGHT OF WAY SHALL BE APPROVED BY THE HOWARD COUNTY TRAFFIC DIVISION PRIOR TO ANY INSTALLATIONS.

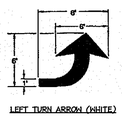
PAVEMENT MARKING NOTES

1. ALL PAVEMENT MARKING TO BE APPLIED USING ©SETFAST PREMIUM ALKYD THERMOPLASTIC OR APPROVED EQUAL.

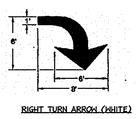
2. ALL PAVEMENT MARKINGS ARE TO BE EITHER LOCATED OR APPROVED BY THE TRAFFIC DIVISION PRIOR TO THE PLACEMENT OF ANY MARKINGS

3. MARKINGS THAT ARE NO LONGER BEING USED SHALL BE REMOVED OR OBLITERATED TO BE UNINDENTIFIABLE AS A MARKING.

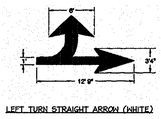
4. PAVEMENT MARKINGS FOR THE DIRECTIONAL ARROWS SHALL BE WHITE. THE DIMENSIONS HAVE BEEN PROVIDED ON THIS SHEET.



LEFT TURN ARROW (WHITE)



RIGHT TURN ARROW (WHITE)



LEFT TURN STRAIGHT ARROW (WHITE)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8800 · metro 301.261.0140 · fax 410.872.8800

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref: 20498 & 20930				

TITLE: SITE, GRADING & UTILITY PLAN

DESIGN: CRH/SJ	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	15 OF 54
CHECKED: JMH	APPROVED: JMH	

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.

SIGNATURE OF ENGINEER — DATE 10.9.09

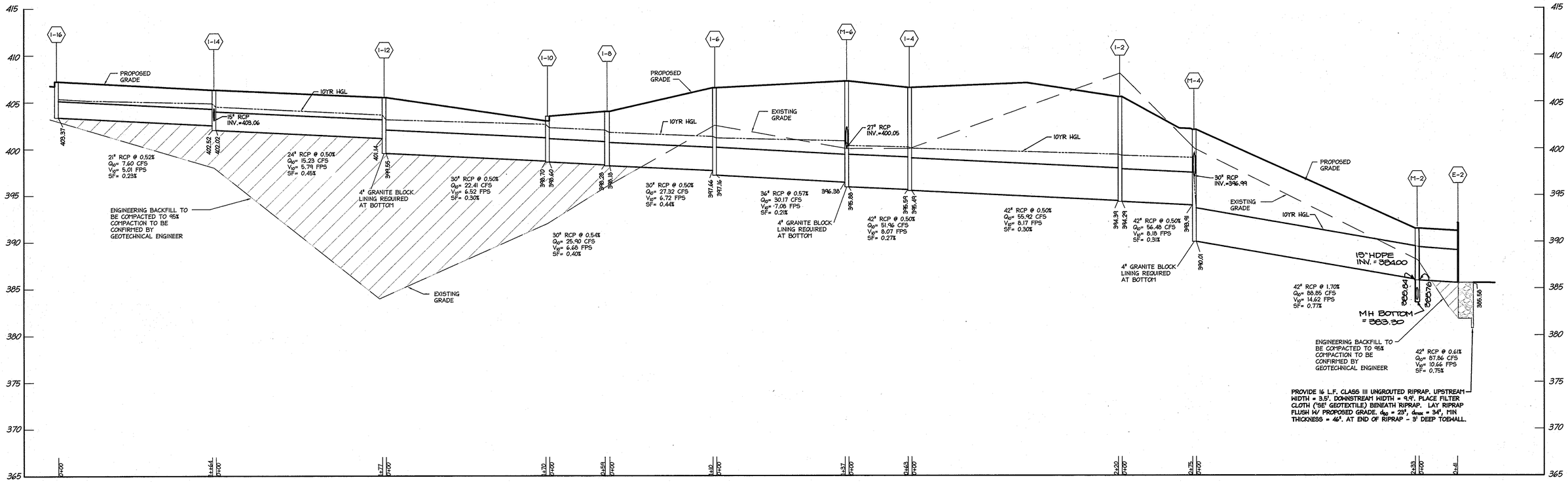
JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

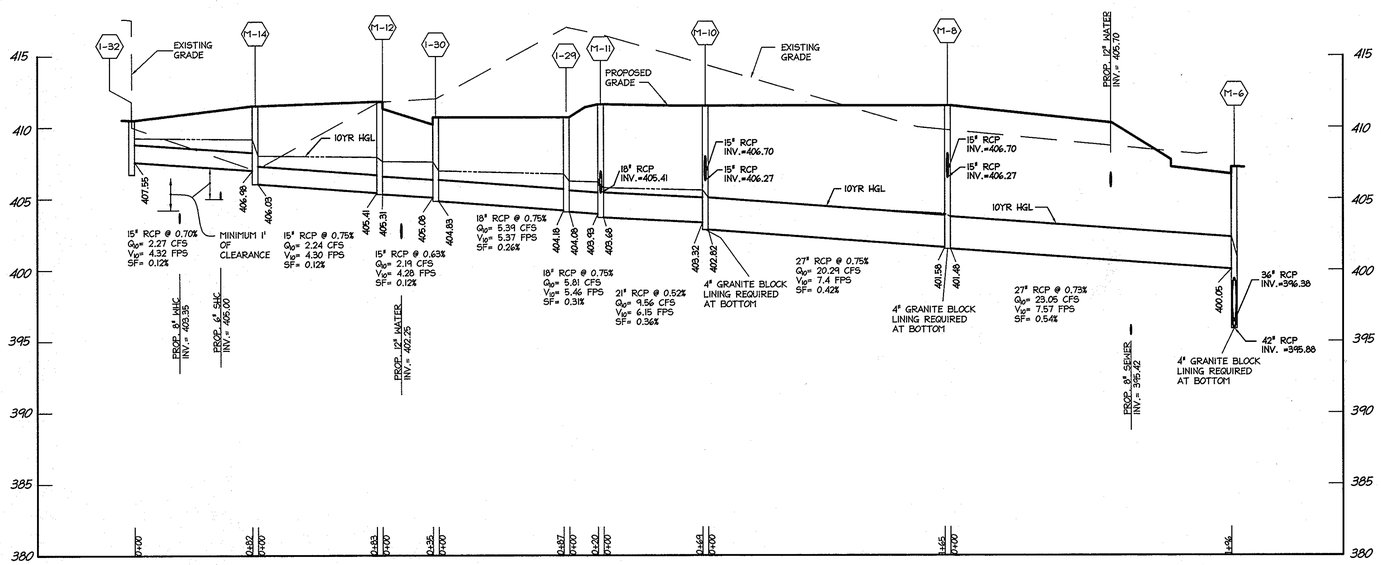
MDC-930(SDP)

SDP-09-047



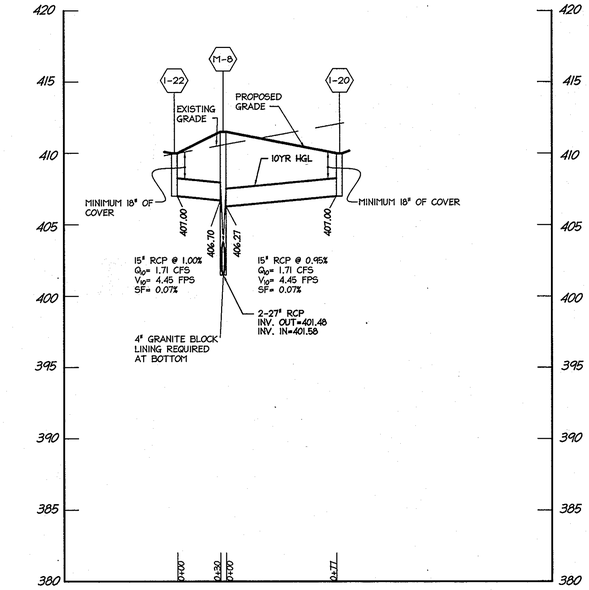
STORM DRAIN PROFILE - INLET 16 TO ENDWALL E2

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



STORM DRAIN PROFILE - INLET 32 TO MANHOLE 6

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



STORM DRAIN PROFILE - INLET 22 TO INLET 20

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

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

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.

SIGNATURE OF ENGINEER
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20087
EXPIRATION DATE: 09-20-2014

8/21/13
DATE

STATE OF MARYLAND — WILLIAM RANDOLPH ZINK — NO. 20087 — REGISTERED PROFESSIONAL ENGINEER

LEED ACCREDITED PROFEESIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.2.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09
Chief, Division of Land Development — Date 11/08/10
Director — Date 11/11/10

1	2.20.13	REDLINED FOR STORM SEWER
2	4.10.13	REDLINED FOR LOWERING STORM INVERT
3	6.14.13	ADDED REDLINE SUMMARY NOTE
Date	No.	Revision Description

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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8550 · metro 301.861.0140 · fax 410.872.8553

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref. 20928-20930				

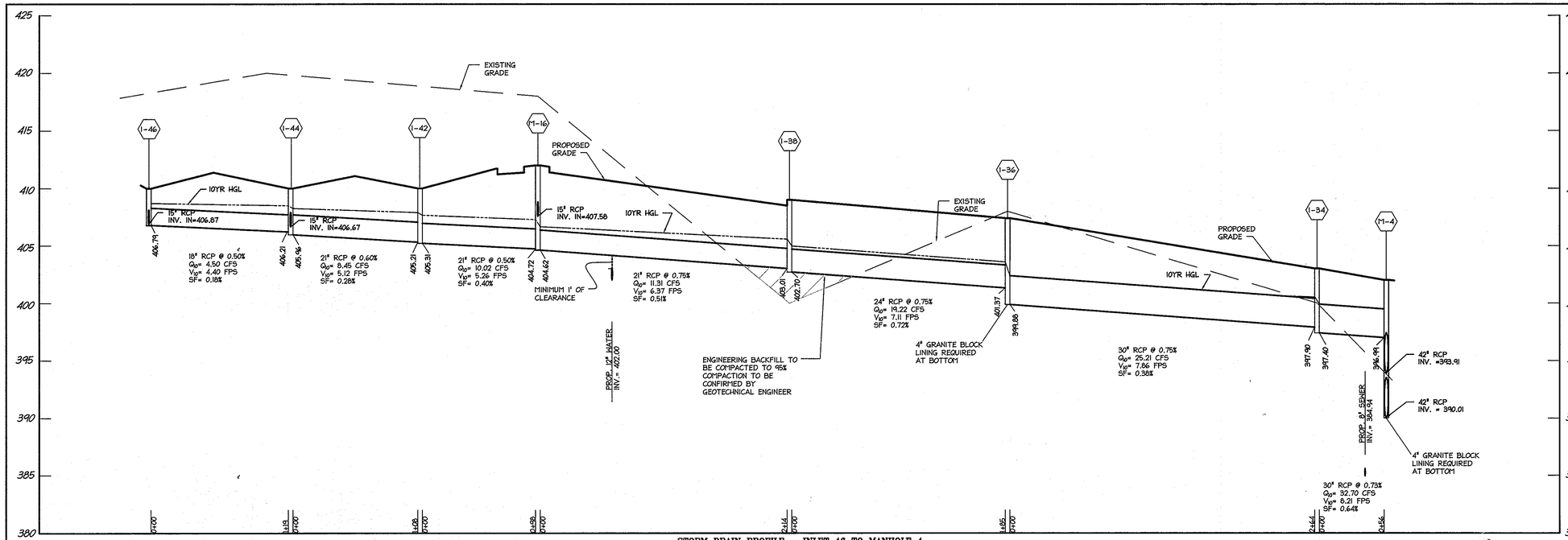
TITLE:

UTILITY PROFILES

DESIGN:	SCALE: 1" = 50'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	16 OF 54
CHECKED: JMH	APPROVED: JMH	

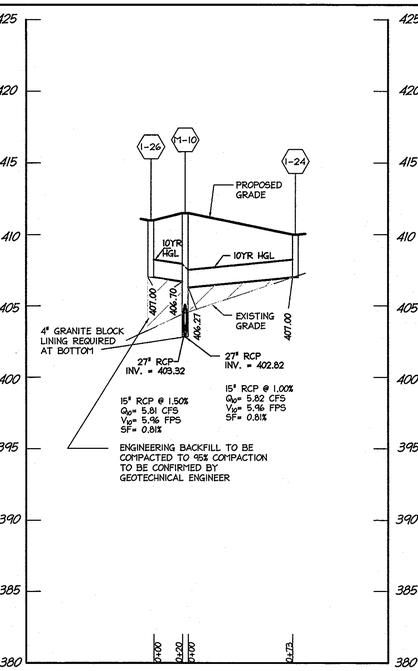
SDP-09-047

MDC-930(SDP)



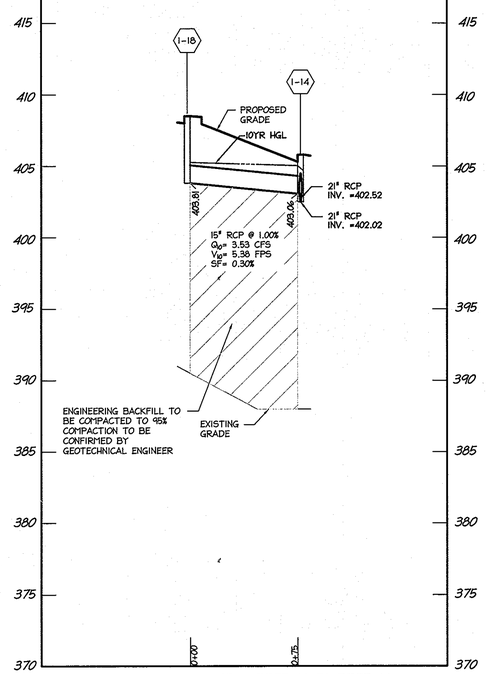
STORM DRAIN PROFILE – INLET 46 TO MANHOLE 4

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



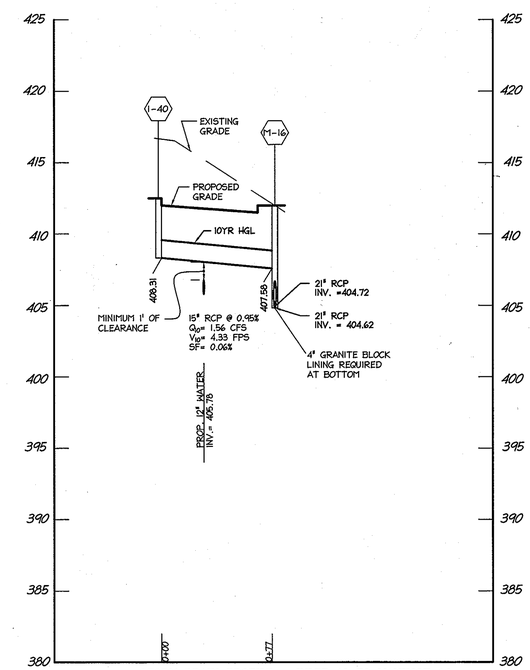
STORM DRAIN PROFILE – INLET 26 TO MANHOLE 24

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



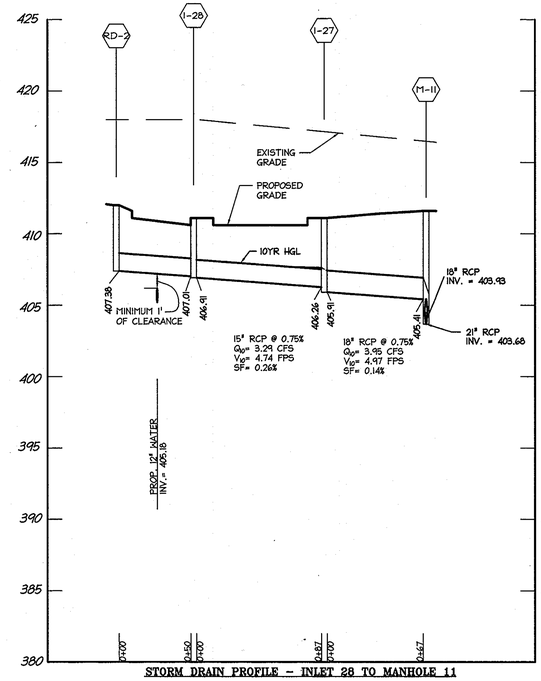
STORM DRAIN PROFILE – INLET 18 TO INLET 14

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



STORM DRAIN PROFILE – INLET 40 TO MANHOLE 16

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



STORM DRAIN PROFILE – INLET 28 TO MANHOLE 11

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

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.

SIGNATURE OF ENGINEER — DATE: 10.9.09

JOHN M. HOUSEHOLDER
PE LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

LEED ACCREDITED PROFEESIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE: 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date: 11/17/09
Chief, Division of Land Development — Date: 1/08/10
Director — Date: 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099
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410.872.1800 · metro 301.861.0140 · fax 410.872.9663

PERMIT INFORMATION CHART

PROJECT NAME:		LOT/PARCEL NO.	CENSUS TRACT
JHU/APL- SOUTH CAMPUS BUILDING 200		300	6051.02
DEED REF.	GRID NO. / ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22 / PEC	41	5th
1st ref. 20938- 20930			

TITLE:

UTILITY PROFILES

DESIGN:	SCALE: 1" = 50'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	17 OF 54
CHECKED: JMH	APPROVED: JMH	

10.9.09 DATE

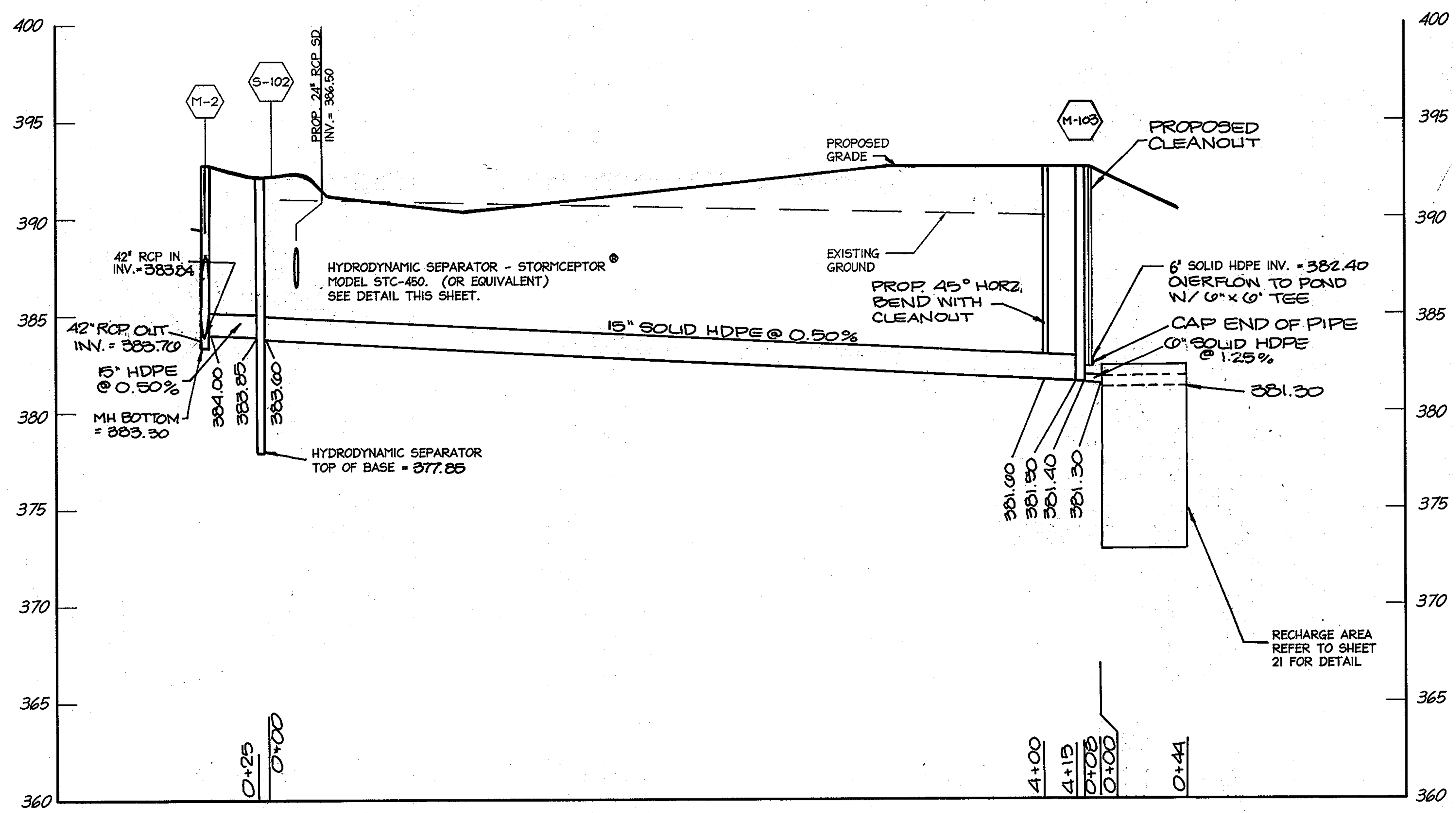
STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

MDC-930(SDP)

SDP-09-047

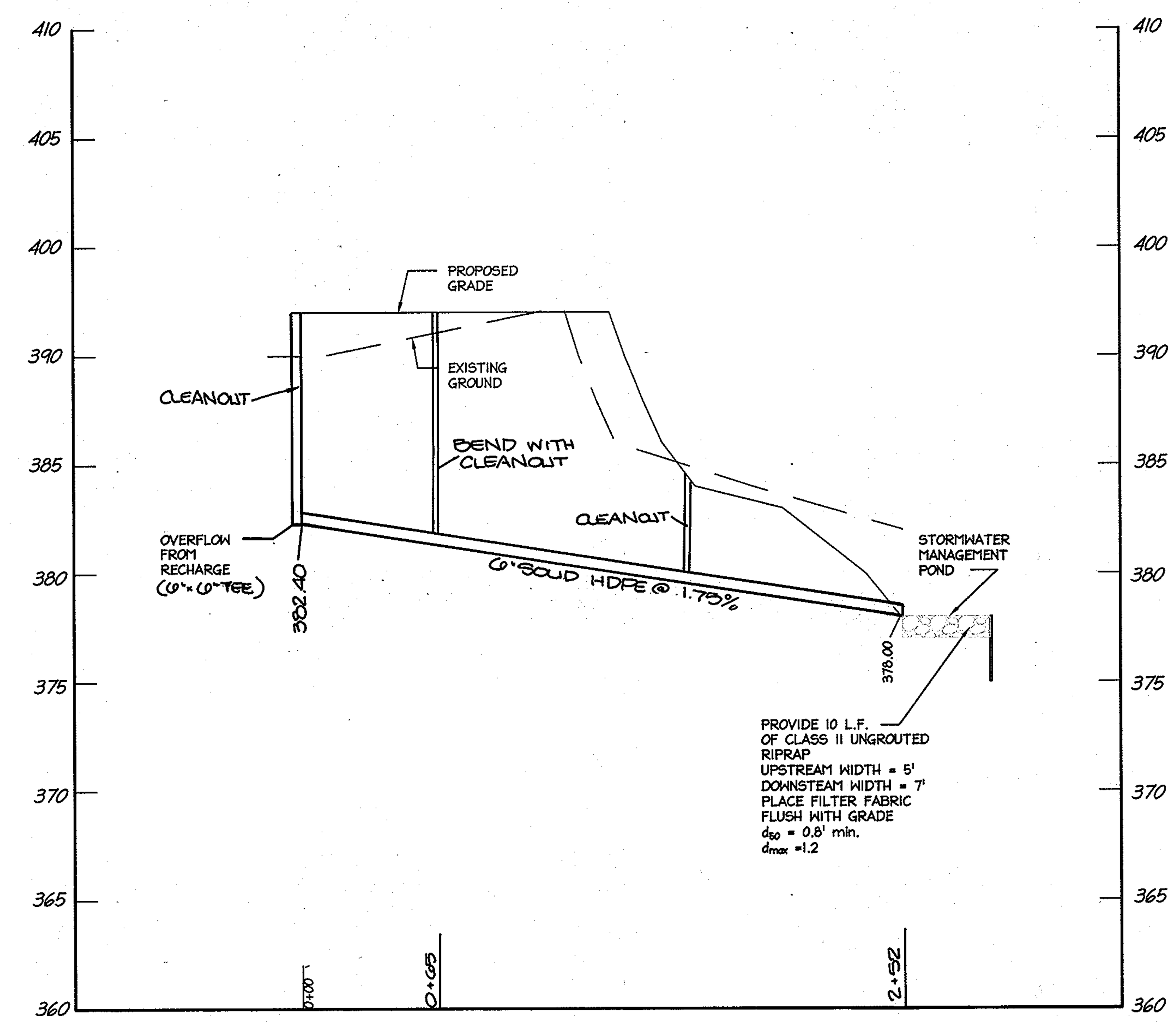
STANDARD STRUCTURE SCHEDULE						
NO.	TYPE	WIDTH / DIAMETER	INVERT IN ELEVATION	INVERT OUT ELEVATION	TOP ELEVATION	STANDARD DETAIL
I-2	"A-5" INLET	5'-0" DIAM	394.39	394.29	405.50	D.4.01/G5.13
I-4	"A-5" INLET	5'-0" DIAM	395.59	395.49	406.50	D.4.01/G5.13
I-6	"A-5" INLET	5'-0" DIAM	397.66	397.16	406.50	D.4.01/G5.13
I-8	"A-5" INLET	5'-0" DIAM	398.28	398.18	403.50	D.4.01/G5.13
I-10	"A-5" INLET	5'-0" DIAM	398.70	398.60	403.50	D.4.01/G5.13
I-12	"A-5" INLET	3'-6"	401.14	399.55	404.50	D.4.02
I-14	"A-5" INLET	2'-6"	15" INV=403.06, 21" INV= 402.52	402.02	406.00	D.4.01
I-16	"A-5" INLET	2'-6"	403.37	403.67	407.20	D.4.01
I-18	"A-5" INLET	2'-6"	403.81	403.81	408.50	D.4.01
I-20	YARD INLET	4'-0"	407.00	407.00	410.00	D.4.14
I-22	YARD INLET	4'-0"	407.00	407.00	410.00	D.4.14
I-24	YARD INLET	4'-0"	407.00	407.00	410.00	D.4.14
I-26	YARD INLET	4'-0"	407.00	407.00	410.00	D.4.14
I-27	"A-5" INLET	2'-6"	406.26	405.91	411.10	D.4.01
I-28	"A-5" INLET	2'-6"	407.01	406.91	411.10	D.4.01
I-29	"A-5" INLET	2'-6"	404.18	404.08	411.10	D.4.01
I-30	WR INLET	2'-6"	405.08	404.83	410.70	D.4.01
I-32	WR INLET	2'-6"	406.70	406.70	410.50	D.4.37
I-34	"A-5" INLET	5'-0" DIAM	397.90	397.40	403.00	D.4.01/G5.13
I-36	"A-5" INLET	5'-0" DIAM	401.37	399.88	407.40	D.4.01/G5.13
I-38	"A-10" INLET	4'-0" DIAM	403.01	402.70	409.00	D.4.03/G5.12
I-40	"A-10" INLET	2'-6"	408.31	408.31	412.50	D.4.03
I-42	YARD INLET	3'-0"	405.31	405.21	410.00	D.4.14
I-44	YARD INLET	4'-0"	18" INV=406.21, 15" INV=406.67	406.96	410.00	D.4.14
I-46	YARD INLET	4'-0"	15" INV.=406.87 18"INV.=406.79	406.79	410.00	G5.13
M-2	STD MANHOLE	6'-0"	385.84	42" INV=385.76 15' INV 384.00	392.69	G5.13
M-4	STD MANHOLE	5'-0"	30" INV =396.99 42" INV=393.91	390.01	402.00	G5.13
M-6	STD MANHOLE	5'-0"	27" INV=400.05, 36" INV=396.38	395.88	407.20	G5.13
M-8	STD MANHOLE	5'-0"	15" INV=406.70, 15" INV=406.27, 27" INV=401.58	401.48	411.50	G5.13
M-10	STD MANHOLE	5'-0"	15" INV=406.70, 15" INV=406.27, 21" INV=403.32	402.82	411.50	G5.13
M-11	STD MANHOLE	4'-0"	18" INV=405.41, 18" INV=403.93	403.68	411.60	G5.12
M-12	STD MANHOLE	4'-0"	405.41	405.31	411.80	G5.12
M-14	STD MANHOLE	4'-0"	406.98	406.03	411.50	G5.12
M-16	STD MANHOLE	4'-0"	21" INV=404.72, 15" INV=407.58	404.62	412.00	G5.12
E-2	TYPE "A" ENDWALL	42"		385.58	392.00	D5.11
S-102	STORMCEPTOR	4'-0"	383.85	383.60	392.00	RINKOR 027
M-103	STD MANHOLE	4'-0"	381.80		392.49	G5.12
R-100	STD MANHOLE	4'-0"		379.40	392.00	G5.12

6" 382.40
6" 381.40



STORM DRAIN PROFILE - MANHOLE 2 TO MANHOLE 103
6" PIPE TO HYDRODYNAMIC SEPARATOR AND RECHARGE AREA

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



RECHARGE OVERFLOW PROFILE

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

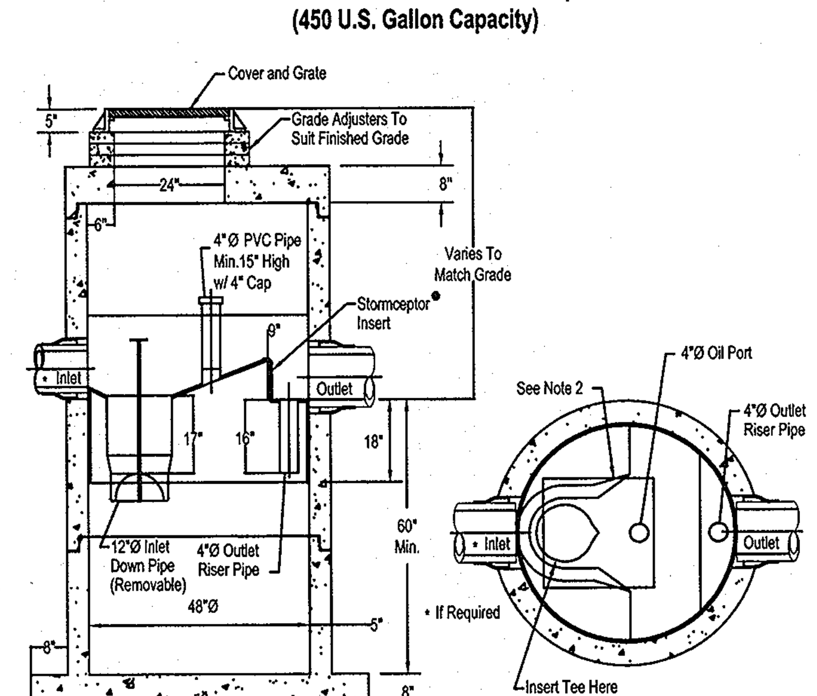
PIPE SUMMARY				
FROM	TO	SIZE	TYPE	LENGTH
I-46	I-44	18	RCP CL-IV	119
I-44	I-42	21	RCP CL-IV	108
I-42	M-16	21	RCP CL-IV	98
I-40	M-16	15	RCP CL-IV	77
M-16	I-38	21	RCP CL-IV	214
I-38	I-36	24	RCP CL-IV	185
I-36	I-34	30	RCP CL-IV	264
I-34	M-4	30	RCP CL-IV	56
I-32	M-14	15	RCP CL-IV	82
M-14	M-12	15	RCP CL-IV	85
M-12	I-30	15	RCP CL-IV	33
I-30	I-29	18	RCP CL-IV	87
I-29	M-11	18	RCP CL-IV	20
I-28	I-27	15	RCP CL-IV	87
I-27	M-11	18	RCP CL-IV	67
M-11	M-10	21	RCP CL-IV	69
I-26	M-10	15	RCP CL-IV	20
I-24	M-10	15	RCP CL-IV	73
M-10	M-8	27	RCP CL-IV	165
I-22	M-8	15	RCP CL-IV	30
I-20	M-8	15	RCP CL-IV	77
M-8	M-6	27	RCP CL-IV	196
I-16	I-14	21	RCP CL-IV	164
I-18	I-14	15	RCP CL-IV	75
I-14	I-12	24	RCP CL-IV	177
I-12	I-10	30	RCP CL-IV	170
I-10	I-8	30	RCP CL-IV	59
I-8	I-6	30	RCP CL-IV	110
I-6	M-6	36	RCP CL-IV	137
M-6	I-4	42	RCP CL-IV	63
I-4	I-2	42	RCP CL-IV	220
I-2	M-4	42	RCP CL-IV	75
M-4	M-2	42	RCP CL-IV	233
M-2	E-2	42	RCP CL-IV	41
M-2	S-102	15"	HDPE	25
S-102	M-103	15"	HDPE	415

PIPE SUMMARY		
SIZE	TYPE	LENGTH
15"	RCP CL-IV	639
18"	RCP CL-IV	293
21"	RCP CL-IV	653
24"	RCP CL-IV	362
27"	RCP CL-IV	361
30"	RCP CL-IV	659
36"	RCP CL-IV	137
42"	RCP CL-IV	632
15"	HDPE SOLID	440
6"	HDPE SOLID	260
6"	HDPE PERF.	555
		0
TOTAL	-	4991

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

Rinker MATERIALS™ Concrete Pipe Division

STC 450i Precast Concrete Stormceptor®
(450 U.S. Gallon Capacity)

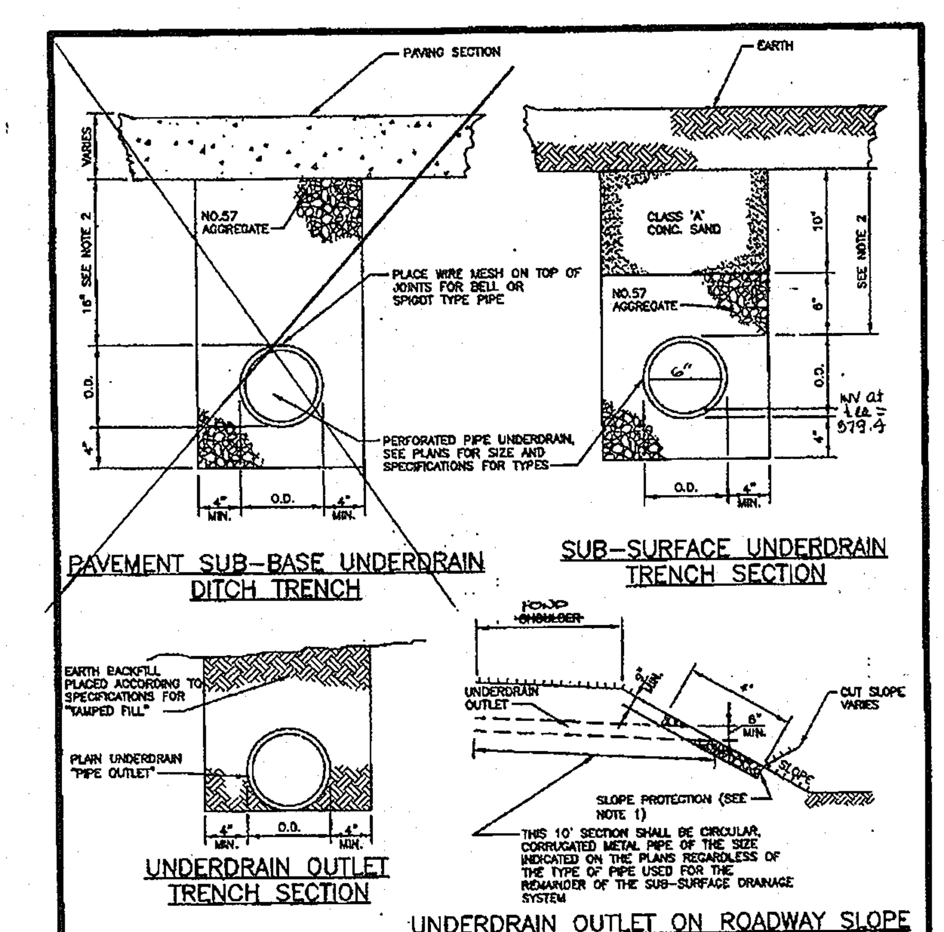


Section Thru Chamber

Plan View

Notes:
1. The Use Of Flexible Connection is Recommended at The Inlet and Outlet Where Applicable.
2. The Cover Should be Positioned Over The Inlet Drop Pipe and The Oil Port.
3. The Stormceptor System is protected by one or more of the following U.S. Patents: #4985148, #5498331, #5725760, #5753115, #5849181, #6068765, #6371690.
4. Contact a Concrete Pipe Division representative for further details not listed on this drawing.

Rinker 027



NOTES:
1. SLOPE PROTECTION USING 4" TO 7" STONE SHALL BE USED. THE WIDTH OF STONE PROTECTION TO BE 2'.
2. WITH THE APPROVAL OF THE ENGINEER, THE DIMENSIONS SHOWN MAY BE VARIED WHERE UNDERDRAIN DISCHARGED INTO AN INLET OR WHERE OTHER UNUSUAL CONDITIONS PREVAIL. SEE SPECIFICATIONS PERTAINING TO PAYMENT FOR EXTRA TRENCH DEPTH.
3. UNDERDRAIN SHALL BE LAID ON A MINIMUM 0.5% GRADE UNLESS OTHERWISE APPROVED BY THE ENGINEER.
4. UNDERDRAINS SHALL BE DISCHARGED INTO INLETS AND MANHOLES WHERE POSSIBLE AND SHALL BE DISCHARGED ONTO THE ROADWAY SLOPES ONLY WHERE NO INLETS OR MANHOLES ARE AVAILABLE FOR CONNECTION.
5. FOR JOINTS, REFER TO SPECIFICATIONS.

Revised / Revised / 5/7/2007 Approved	Howard County, Maryland Department of Public Works Approved: Chief, Bureau of Engineering	Modified. 6" overflow From Recharge To Pond Underdrain	Detail R-1.09

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.
SIGNATURE OF ENGINEER 8/21/13 DATE
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-20-2014

8/21/13
DATE
STATE OF MARYLAND WILLIAM RAYMOND ZINK NO. 20587 REGISTERED PROFESSIONAL ENGINEER

LEED ACCREDITED PROFEESIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES
I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.
SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description
1	2.26.13	REDLINED FOR STORM SEWER
2	4.18.13	REDLINED FOR LOWERING OF STORM INVERTS
3	4.29.13	REDLINED FOR LOWERING STORMCEPTOR BOTTOM
4	6.14.13	ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
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LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
PHONE: 443.778.5134 FAX 443.778.6122

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

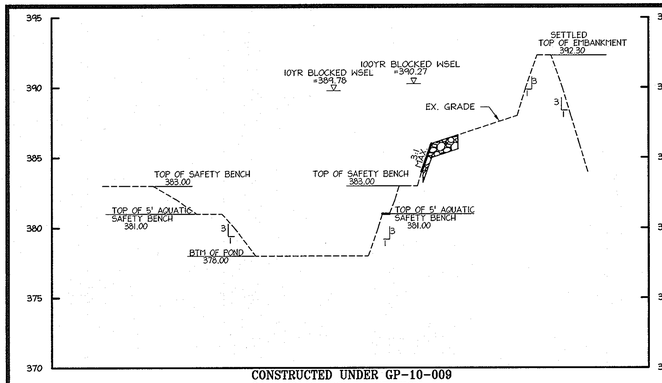
plat ref. 20928-20930

TITLE:
UTILITY PROFILES

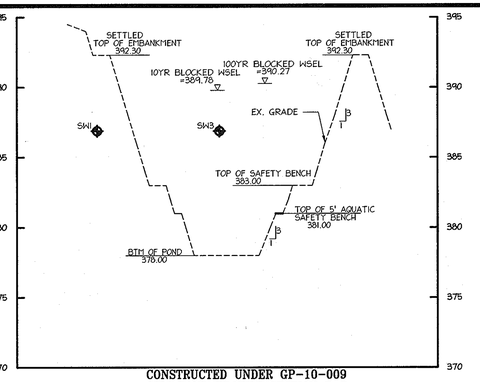
DESIGN:	SCALE: 1" = 50'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	18 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

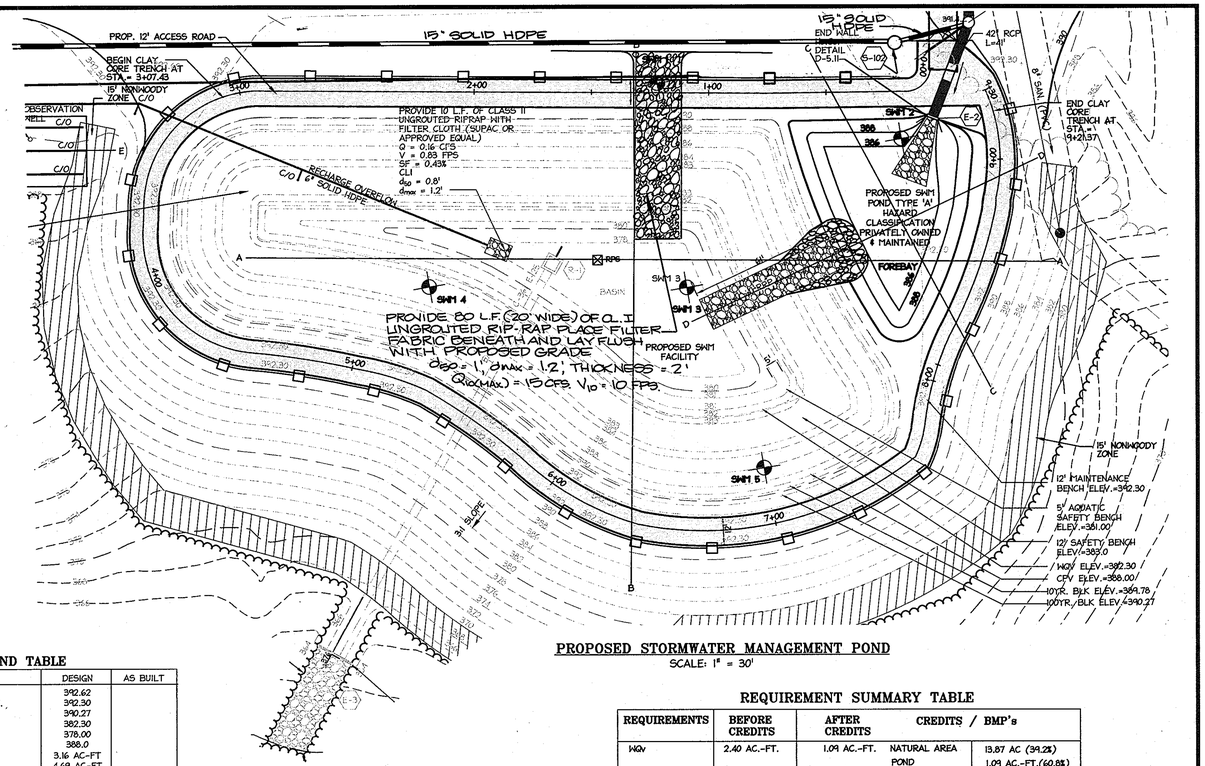
MDC-930(SDP)



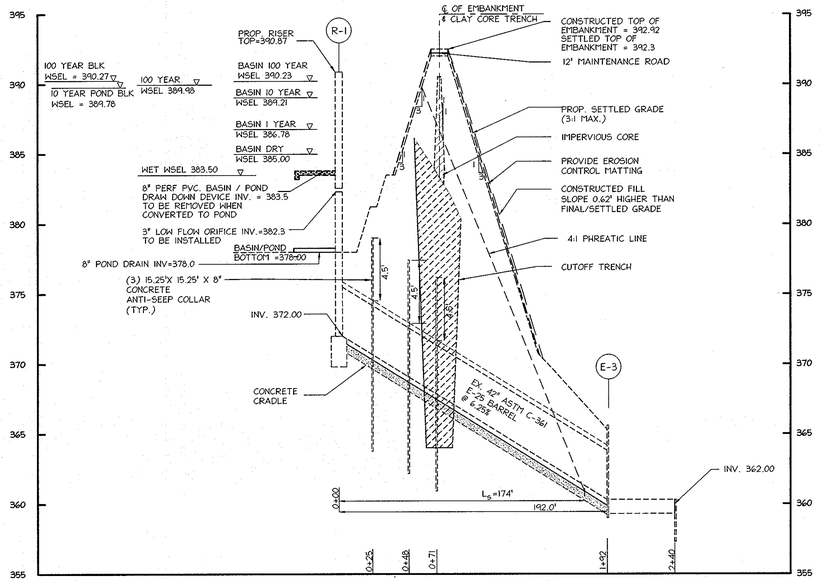
CONSTRUCTED UNDER GP-10-009
SWM POND PROFILE SECTION A-A
HOR 1"=50'
VER 1"= 5'



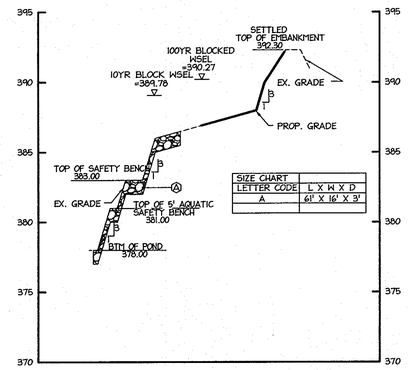
CONSTRUCTED UNDER GP-10-009
SWM POND PROFILE SECTION B-B
HOR 1"=50'
VER 1"= 5'



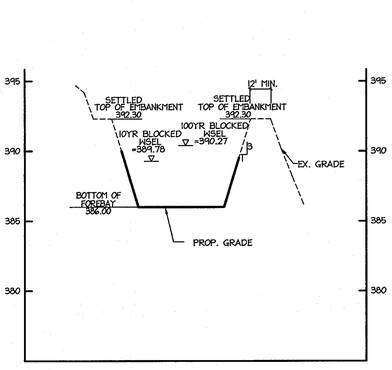
PROPOSED STORMWATER MANAGEMENT POND
SCALE: 1" = 30'



CONSTRUCTED UNDER GP-10-009
SWM PRINCIPAL SPILLWAY PROFILE
HOR 1"=50'
VER 1"= 5'



SWM POND PROFILE SECTION D-D
HOR 1"=50'
VER 1"= 5'



SWM POND PROFILE SECTION C-C
HOR 1"=50'
VER 1"= 5'

POND TABLE

ITEM	DESIGN	AS BUILT
CON. TOP OF DAM ELEV.	392.62	
SETTLED TOP OF DAM ELEV.	392.30	
100 YR. WSEL (BLOCKED)	390.27	
PERM. POOL ELEV (WQV).	382.30	
POND BOTTOM ELEV.	378.00	
CPV WSEL	388.0	
STORAGE AT CPV WSEL	3.16 AC-FT	
STORAGE AT 100YR WSEL	4.69 AC-FT	

REQUIREMENT SUMMARY TABLE

REQUIREMENTS	BEFORE CREDITS	AFTER CREDITS	CREDITS / BMP's	
WQv	2.40 AC.-FT.	1.09 AC.-FT.	NATURAL AREA	13.87 AC (39.2%)
			POND	1.09 AC.-FT.(60.8%)
Rev	0.62 AC.-FT.	0.381 AC.-FT.	RECHARGE AREAS	0.381 AC.-FT. (60.8%)
			NATURAL AREA	13.87 AC (39.2%)

NOTES:

1. POND WILL BE CONSTRCTED UNDER GP-10-009 INFORMATION PROVIDED ON THIS SHEET IS FOR THE CONSTRUCTION OF THE FOREBAY
2. DUE TO THE INFILTRATION RATE AND THE PRESENCE OF FRACTURED ROCK NEAR THE BOTTOM ELEVATION OF THE POND, A 6' CLAY LINER SHALL BE PROVIDED UP TO THE PERMANENT POOL ELEVATION TO HELP MAINTAIN A CONSTANT WET POOL.
3. CONTRACTOR TO REFER TO SEDIMENT CONTROL SEQ. OF CONSTRUCTION FOR INSTRUCTIONS ON BASIN REMOVAL AND POND (FOREBAY) CONSTRUCTION AND STABILIZATION.

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITIONS OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS IDENTIFIED IN 2009.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/27/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description
	1	2.26.13 REDLINED FOR STORM SEWER
	2	10.14.13 ADDED REDLINE SUMMARY

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8660 · metro 301.854.8148 · fax 410.872.8650

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200	LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396	GRID NO. 22 / ZONE PEC / TAX MAP 41	ELECTION DISTRICT 5th
WaterShed 209 & 209 30		

TITLE:
STORMWATER MANAGEMENT NOTES & PROFILES

DESIGN: ENJ	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	19 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

DEVELOPER'S CERTIFICATE

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

Signature of Developer — Date 11/5/09
Richard T Reca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — Date 10.9.09
JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date 11/10/09

NOTE: THE SWM FACILITY TO BE CONSTRUCTED UNDER GRADING PERMIT GP-10-009

LEED ACCREDITED PROFEESIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 8/21/13
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20807
EXPIRATION DATE: 09-20-2014

8/21/13
DATE

STATE OF MARYLAND · WILLIAM RAYMOND ZINK · NO. 20807 · REGISTERED · PROFESSIONAL ENGINEER

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER POND

ROUTINE MAINTENANCE:

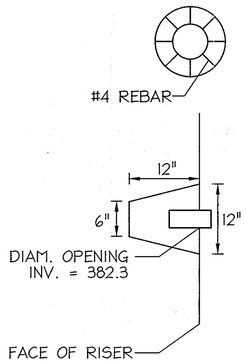
1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

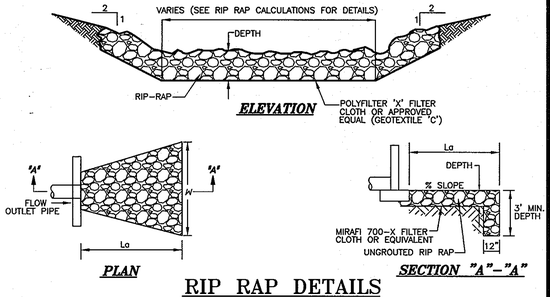
1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON THE DETECTION OF ANY DAMAGE. THE COMPONENTS SHALL BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
2. SEDIMENT SHALL BE REMOVED FROM THE POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS

OPERATION, MAINTENANCE AND INSPECTION

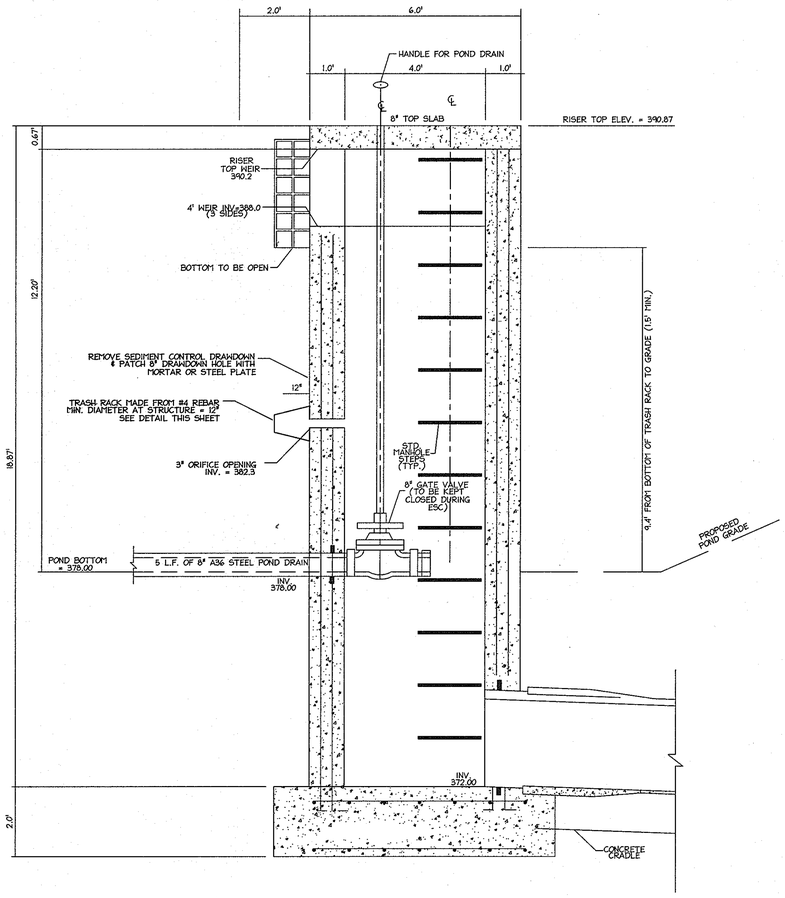
INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (YID-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING, OR SLUMPING.



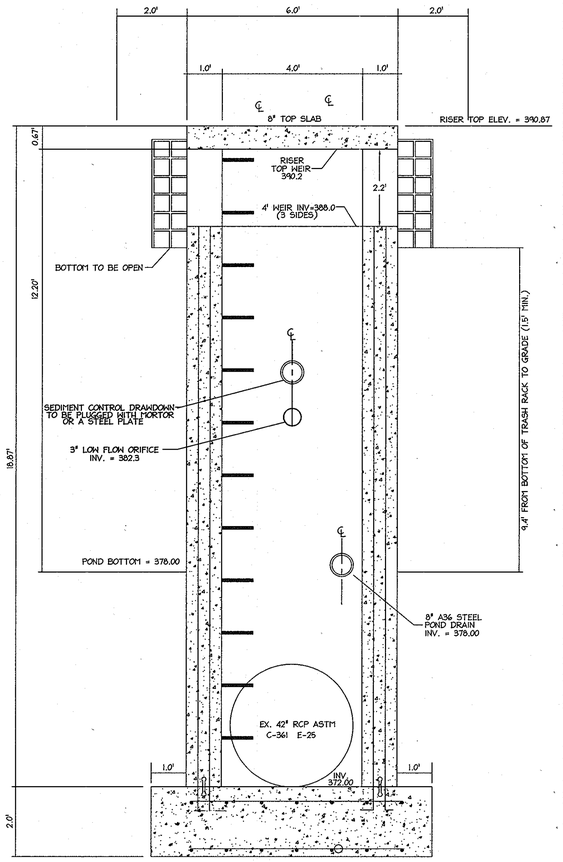
TRASH RACK DETAIL
SCALE: 1" = 1'
TO BE BOLTED TO STRUCTURE'



RIP RAP DETAILS
(N.T.S.)



EXISTING **RISER DETAIL -- SECTION A**
SCALE: 1" = 2'



EXISTING **RISER DETAIL -- SECTION B**
SCALE: 1" = 2'

DEVELOPER'S CERTIFICATE

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

Signature of Developer — 11/5/09 Date

Richard T Racca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — 10.9.09 Date

JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — 11/10/09 Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — 11/17/09 Date

Chief, Division of Land Development — 1/29/10 Date

Director — 2/11/10 Date

Date	No.	Revision Description

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410.872.8660 · metro 301.881.0149 · fax 410.872.8693

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 20967 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME:			LOT/PARCEL NO.	CENSUS TRACT
JHU/APL- SOUTH CAMPUS BUILDING 200			300	6051.02
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22	PEC	41	5th
Plat ref. 20928-20930				

TITLE:
SWM RISER CONVERSION NOTES & DETAILS

DESIGN: ENJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	20 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MD-378 CONSTRUCTION SPECIFICATIONS

THESE SPECIFICATIONS ARE APPROPRIATE TO ALL PONDS WITHIN THE SCOPE OF THE STANDARDS FOR PRACTICE MD-378. ALL REFERENCE TO ASTM AND AASHTO SPECIFICATIONS APPLY TO THE MOST RECENT VERSION.

SITE PREPARATION

AREAS DESIGNATED TO BORROW AREAS, EMBANKMENT, AND STRUCTURAL WORKS SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL. ALL TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIALS SHALL BE REMOVED. CHANNEL BANKS AND SHARP BREAKS SHALL BE SLOPED TO NO STEEPER THAN 1:1. ALL TREES SHALL BE CLEARED AND GRUBBED WITHIN 15 FEET OF THE TOE OF THE EMBANKMENT.

AREAS TO BE COVERED BY THE RESERVOIR WILL BE CLEARED FOR ALL TREES, BRUSH, LOGS, FENCES, RUBBISH AND OTHER OBJECTIONABLE MATERIALS UNLESS OTHERWISE DESIGNATED ON THE PLANS. TREES, BRUSH AND STUMPS SHALL BE CUT APPROXIMATELY LEVEL WITH GROUND SURFACE. FOR DRY STORMWATER MANAGEMENT PONDS, A MINIMUM OF A 25-FOOT RADIUS AROUND THE INLET STRUCTURE SHALL BE CLEARED.

ALL CLEARED AND GRUBBED MATERIALS SHALL BE DISPOSED OF OUTSIDE AND BELOW THE LIMITS OF THE DAM AND RESERVOIR AS DIRECTED BY THE OWNER OR HIS REPRESENTATIVE. WHEN SPECIFIED, A SUFFICIENT QUANTITY OF TOPSOIL WILL BE STOCKPILED IN A SUITABLE LOCATION FOR THE USE ON THE EMBANKMENT AND OTHER DESIGNATED AREAS.

EARTH FILL

MATERIAL - THE FILL MATERIAL SHALL BE TAKEN FORM APPROVED DESIGNATED BORROW AREAS. IT SHALL BE FREE OF ROOTS, STUMPS, WOOD, RUBBISH, STONES GREATER THAN 6", FROZEN OR OTHER OBJECTIONABLE MATERIALS. FILL MATERIALS FOR THE CENTER OF THE EMBANKMENT, AND CUT OFF TRENCH SHALL CONFORM TO UNIFIED SOIL CLASSIFICATION GC, SC, CH, OR CL AND MUST HAVE AT LEAST 30% PASSING THE #200 SIEVE. CONSIDERATION MAY BE GIVEN TO THE USE OF OTHER MATERIALS IN THE EMBANKMENT IF DESIGNATED BY A GEOTECHNICAL ENGINEER. SUCH SPECIAL DESIGNS MUST HAVE CONSTRUCTION SUPERVISED BY A GEOTECHNICAL ENGINEER.

EMBANKMENT CORE - THE CORE SHALL BE PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE TOP WIDTH OF THE CORE SHALL BE A MINIMUM OF FOUR FEET. THE HEIGHT SHALL EXTEND UP TO AT LEAST THE 10-YEAR WATER ELEVATION OR AS SHOWN ON THE PLANS. THE SIDE SLOPES SHALL BE 1 TO 1 OR FLATTER. THE CORE SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS, OR HAND TEMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY. IN ADDITION, THE CORE SHALL BE PLACED CONCURRENTLY WITH THE OUTER SHELL OF THE EMBANKMENT.

MATERIALS USED IN THE OUTER SHELL OF THE EMBANKMENT MUST HAVE THE CAPABILITY TO SUPPORT VEGETATION OF THE QUALITY REQUIRED TO PREVENT EROSION OF THE EMBANKMENT.

PLACEMENT - AREAS ON WHICH FILL IS TO BE PLACED SHALL BE SCARIFIED PRIOR TO PLACEMENT OF FILL. FILL MATERIALS SHALL BE PLACED IN MAXIMUM 8-INCH THICK (BEFORE COMPACTION) LAYERS WHICH ARE TO BE CONTINUOUS OVER THE ENTIRE LENGTH OF THE FILL. THE MOST PERMEABLE BORROW MATERIAL SHALL BE PLACED IN THE DOWNSTREAM PORTIONS OF THE EMBANKMENT. THE PRINCIPAL SPILLWAY MUST BE INSTALLED CONCURRENTLY WITH FILL PLACEMENT AND NOT EXCAVATED INTO THE EMBANKMENT.

COMPACTION - THE MOVEMENT OF THE HAULING AND SPREADING EQUIPMENT OVER THE FILL SHALL BE CONTROLLED SO THAT THE ENTIRE SURFACE OF EACH LIFT SHALL BE TRAVERSED BY NOT LESS THAN ONE THREAD TRACK OF HEAVY EQUIPMENT OR COMPACTION SHALL BE ACHIEVED BY A MINIMUM OF FOUR COMPLETE PASSES OF A SHEEPFOOT, RUBBER TIRED OR VIBRATORY ROLLER. FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SUCH THAT THE REQUIRED DEGREE OF COMPACTION WILL BE OBTAINED WITH THE EQUIPMENT USED. THE FILL MATERIAL SHALL CONTAIN SUFFICIENT MOISTURE SO THAT IF FORMED INTO A BALL IT WILL NOT CRUMBLE, YET NOT BE SO WET THAT WATER CAN BE SQUEEZED OUT.

WHEN REQUIRED BY THE REVIEWING AGENCY THE MINIMUM REQUIRED DENSITY SHALL NOT BE LESS THAN 95% OF MAXIMUM DRY DENSITY WITH A MOISTURE CONTENT WITHIN +/- 2% OF THE OPTIMUM. EACH LAYER OF FILL SHALL BE COMPACTED AS NECESSARY TO OBTAIN THAT DENSITY, AND IS TO BE CERTIFIED BY THE ENGINEER AT THE TIME ON CONSTRUCTION. ALL COMPACTION IS TO BE DETERMINED BY AASHTO METHOD T-99 (STANDARD PROCTOR).

CUT-OFF TRENCH - THE CUT-OFF TRENCH SHALL BE EXCAVATED INTO IMPERVIOUS MATERIAL ALONG OR PARALLEL TO THE CENTERLINE OF THE EMBANKMENT AS SHOWN ON THE PLANS. THE BOTTOM WIDTH OF THE TRENCH SHALL BE GOVERNED BY THE EQUIPMENT USED FOR EXCAVATION, WITH THE MINIMUM WIDTH BEING FOUR FEET. THE DEPTH SHALL BE AT LEAST FOUR FEET BELOW EXISTING GRADE OR AS SHOWN ON THE PLANS. THE SIDE SLOPES OF THE TRENCH SHALL BE 1 TO 1 OR FLATTER. THE BACKFILL SHALL BE COMPACTED WITH CONSTRUCTION EQUIPMENT, ROLLERS OR HAND TEMPERS TO ASSURE MAXIMUM DENSITY AND MINIMUM PERMEABILITY.

STRUCTURE BACKFILL

BACKFILL ADJACENT TO PIPES OR STRUCTURES SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED FOR THE ADJOINING FILL MATERIAL. THE FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TEMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL NEEDS TO FILL COMPLETELY ALL SPACES UNDER AND ADJACENT TO THE 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 A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A CONCRETE STRUCTURE OR PIPE, UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE PIPE.

STRUCTURE BACKFILL MAY BE FLOWABLE FILL MEETING THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 313 AS MODIFIED. THE MIXTURE SHALL HAVE A 100-200 PSI: 28 DAY UNCONFINED COMPRESSIVE STRENGTH. THE FLOWABLE FILL SHALL HAVE A MINIMUM PH OF 4.0 AND A MINIMUM RESISTIVITY OF 2,000 OHM-CM. MATERIALS SHALL BE PLACED SUCH THAT A MINIMUM OF 6" (MEASURED PERPENDICULAR TO THE OUTSIDE OF THE PIPE) OF FLOWABLE FILL SHALL BE UNDER (BEDDING), OVER AND, ON THE SIDES OF THE PIPE. IT ONLY NEEDS TO EXTEND UP TO THE SPRING LINE FOR RIGID CONDUITS. AVERAGE SLUMP OF THE FILL SHALL BE 7" TO ASSURE FLOWABILITY OF THE MATERIAL. ADEQUATE MEASURES SHALL BE TAKEN (SAND BAGS, ETC.) TO PREVENT FLOATING OF PIPE. WHEN USING FLOWABLE FILL, ALL METAL PIPE SHALL BE BITUMINOUS COATED. ANY ADJOINING SOIL FILL SHALL BE PLACED IN HORIZONTAL LAYERS NOT THE EXCEED FOUR INCHES IN THICKNESS AND COMPACTED BY HAND TEMPERS OR OTHER MANUALLY DIRECTED COMPACTION EQUIPMENT. THE MATERIAL SHALL COMPLETELY FILL ALL VOIDS ADJACENT TO THE FLOWABLE FILL ZONE. AT NO TIME DURING THE BACKFILLING OPERATION SHALL DRIVEN EQUIPMENT BE ALLOWED TO OPERATE CLOSER THAN FOUR FEET, MEASURED HORIZONTALLY, TO ANY PART OF A STRUCTURE. UNDER NO CIRCUMSTANCES SHALL EQUIPMENT BE DRIVEN OVER ANY PART OF A STRUCTURE OR PIPE UNLESS THERE IS A COMPACTED FILL OF 24" OR GREATER OVER THE STRUCTURE OR PIPE. BACKFILL MATERIAL OUTSIDE THE STRUCTURAL BACKFILL (FLOWABLE FILL) ZONE SHALL BE OF THE TYPE AND QUALITY CONFORMING TO THAT SPECIFIED OF THE CORE OF THE EMBANKMENT OR OTHER EMBANKMENT MATERIALS.

PIPE CONDUITS

ALL PIPES SHALL BE CIRCULAR IN CROSS SECTION.

CORRUGATED METAL PIPE ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR CORRUGATED METAL PIPE:

1. MATERIALS - (POLYMER COATED STEEL PIPE) - STEEL PIPE WITH POLYMERIC COATING SHALL HAVE A MINIMUM COATING THICKNESS OF 0.01 INCH (10 MIL) ON BOTH SIDES OF THE PIPE. THIS PIPE AND IT APPURTENANCES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO SPECIFICATION M-196 OR M-211 WITH WATERTIGHT COUPLING BANDS OR FLANGES. ALUMINUM PIPE WHEN USED WITH FLOWABLE FILL OR WHEN SOIL AND/OR WATER CONDITIONS WARRANT INCREASED DURABILITY, SHALL BE FULLY BITUMINOUS COATED PER REQUIREMENTS OF AASHTO SPECIFICATIONS M-190 TYPE A. ALUMINUM SURFACES THAT ARE TO BE IN CONTACT WITH CONCRETE SHALL BE PAINTED WITH ONE COAT OF ZINC CHROMATE PRIMER OR TWO COATS OF ASPHALT. HOT DIP GALVANIZED BOLTS MAY BE USED FOR CONNECTIONS. THE PH OF THE SURROUNDING SOILS SHALL BE BETWEEN 4 AND 9.

2. COUPLING BANDS, ANTI-STEEP COLLARS, END SECTIONS, ETC., MUST BE COMPOSED OF THE SAME MATERIAL AND COATINGS AS THE PIPE. METALS MUST BE INSULATED FOR DISSIMILAR MATERIALS WITH USE OF RUBBER OR PLASTIC INSULATING MATERIALS AT LEAST 24 MILS IN THICKNESS.

3. CONNECTIONS - ALL CONNECTIONS WITH PIPES MUST BE COMPLETELY WATERTIGHT. THE DRAINPIPE OR BARREL CONNECTION TO THE RISER SHALL BE WELDED ALL AROUND WHEN THE PIPE AND RISER ARE METAL. ANTI-SEEP COLLARS SHALL BE CONNECTED TO THE PIPE IN SUCH A MANNER AS TO BE COMPLETELY WATERTIGHT. DIMPLE BANDS ARE NOT CONSIDERED TO BE WATERTIGHT.

ALL CONNECTIONS SHALL USE A RUBBER OR NEOPRENE GASKET WHEN JOINING PIPE SECTIONS. THE END OF EACH PIPE SHALL BE RE-ROLLED AN ADEQUATE NUMBER IF CORRUGATIONS TO ACCOMMODATE THE BANDWIDTH. THE FOLLOWING TYPE CONNECTIONS ARE ACCEPTABLE FOR PIPES LESS THAN 24 INCHES IN DIAMETER: FLANGES ON BOTH ENDS OF THE PIPE WITH A CIRCULAR 3/8 INCH CLOSED CELL NEOPRENE GASKET, PRE-PUNCHED TO THE FLANGE BOLT CIRCLE, SANDWICHED BETWEEN ADJACENT FLANGES; A 12-INCH WIDE STANDARD LAP TYPE BAND WITH 12-INCH BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE; AND A 12-INCH WIDE HUGGER TYPE BAND WITH O-RING GASKETS HAVING A MINIMUM DIAMETER OF ? INCH GREATER THAN THE CORRUGATION DEPTH. PIPES 24 INCHES IN DIAMETER AND LARGER SHALL BE CONNECTED BY A 24 INCH LONG ANNULAR CORRUGATED BAND USING A MINIMUM OF 4 (FOUR) RODS AND LUGS, 2 ON EACH CONNECTING PIPE END. A 24-INCH WIDE BY 3/8-INCH THICK CLOSED CELL CIRCULAR NEOPRENE GASKET WILL BE INSTALLED WITH 12 INCHES ON THE END OF EACH PIPE. FLANGED JOINTS WITH 3/8 INCH CLOSED CELL GASKETS THE FULL WIDTH OF THE FLANGE IS ALSO ACCEPTABLE.

HELICALLY CORRUGATED PIPE SHALL HAVE EITHER CONTINUOUSLY WELDED SEAMS OR HAVE LOCK SEAMS WITH INTERNAL CAULKING OR A NEOPRENE BEAD.

4. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

5. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

6. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

REINFORCED CONCRETE PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR REINFORCED CONCRETE PIPE.

1. MATERIALS - REINFORCED CONCRETE PIPE SHALL HAVE BELL AND SPIGOT JOINTS WITH RUBBER GASKETS AND SHALL EQUAL OR EXCEED ASTM C-361.

2. BEDDING - REINFORCED CONCRETE PIPE CONDUITS SHALL BE LAID IN A CONCRETE BEDDING/ CRADLE FOR THEIR ENTIRE LENGTH. THIS BEDDING / CRADLE SHALL CONSIST OF HIGH SLUMP CONCRETE PLACED UNDER THE PIPE AT LEAST 50% OF ITS OUTSIDE DIAMETER WITH A MINIMUM THICKNESS OF 6 INCHES. WHERE A CONCRETE CRADLE IS NOT NEEDED FOR STRUCTURAL REASONS, FLOWABLE FILL MAY BE USED AS DESCRIBED IN THE "STRUCTURE BACKFILL" SECTION OF THIS STANDARD. GRAVEL BEDDING IS NOT PERMITTED.

3. LAYING PIPE - BELL AND SPIGOT PIPE SHALL BE PLACED WITH THE BELL END UPSTREAM. JOINTS SHALL BE MADE IN ACCORDANCE WITH RECOMMENDATIONS OF THE MANUFACTURER OF THE MATERIAL. AFTER THE JOINTS ARE SEALED FOR THE ENTIRE LINE, THE BEDDING SHALL BE PLACED SO THAT ALL SPACES UNDER THE PIPE ARE FILLED. CARE SHALL BE EXERCISED TO PREVENT ANY DEVIATION FORM THE ORIGINAL LINE AND GRADE OF THE PIPE. THE FIRST JOINT MUST BE LOCATED WITHIN 4 FEET FROM THE RISER.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

PLASTIC PIPE - THE FOLLOWING CRITERIA SHALL APPLY FOR PLASTIC PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241. CORRUGATED HIGH DENSITY POLYETHYLENE (HDPE) PIPE, COUPLINGS AND FITTINGS SHALL CONFORM TO THE FOLLOWING: 4" - 10" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M252 TYPE S, AND 12" - 24" INCH PIPE SHALL MEET THE REQUIREMENTS OF AASHTO M294

2. JOINTS AND CONNECTIONS TO ANTI-STEEP COLLARS SHALL BE COMPLETELY WATERTIGHT

3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT SPONGY OR OTHER UNSTABLE SOIL IN ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILL"

5. OTHER DETAILS (ANTI-STEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

POLYVINYL CHLORIDE (PVC) PIPE - ALL OF THE FOLLOWING CRITERIA SHALL APPLY FOR POLYVINYL CHLORIDE (PVC) PIPE:

1. MATERIALS - PVC PIPE SHALL BE PVC-1120 OR PVC-1220 CONFORMING TO ASTM D-1785 OR ASTM D-2241.

2. JOINTS AND CONNECTIONS TO ANTI-SEEP COLLARS SHALL BE COMPLETELY WATERTIGHT.
3. BEDDING - THE PIPE SHALL BE FIRMLY AND UNIFORMLY BEDDED THROUGHOUT ITS ENTIRE LENGTH. WHERE ROCK OR SOFT, SPONGY OR OTHER UNSUITABLE SOIL IS ENCOUNTERED, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH SUITABLE EARTH COMPACTED TO PROVIDE ADEQUATE SUPPORT.

4. BACKFILLING SHALL CONFORM TO "STRUCTURE BACKFILLING."

5. OTHER DETAILS (ANTI-SEEP COLLARS, VALVES, ETC.) SHALL BE AS SHOWN ON THE DRAWINGS.

ROCK RIPRAP

ROCK RIPRAP SHALL BE PLACED TO THE REQUIRED THICKNESS IN ONE OPERATION. THE ROCK SHALL BE DELIVERED AND PLACED IN A MANNER THAT WILL INSURE THAT RIPRAP IN PLACE SHALL BE REASONABLY HOMOGENEOUS WITH THE LARGER ROCKS UNIFORMLY DISTRIBUTED AND FIRMLY IN CONTACT ONE TO ANOTHER WITH THE SMALL ROCKS FILLING THE VOIDS BETWEEN THE LARGER ROCKS. FILTER CLOTH SHALL BE PLACED UNDER RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS, SECTION 919.12.

DRAINAGE DIAPHRAGMS - WHEN A DRAINAGE DIAPHRAGM IS USED, A REGISTERED PROFESSIONAL ENGINEER WILL SUPERVISE THE DESIGN AND CONSTRUCTION INSPECTION.

CONCRETE

CONCRETE SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS, SECTION 414, MIX NO. 3.

NOTES:

1. ANTI-SEEP COLLARS SHALL BE PLACED A MINIMUM OF 2.0 FT. FROM PIPE JOINTS.

2. THE FIRST JOINT WHILE LAYING MUST BE LOCATED WITH 4.0 FT. FROM THE RISER.

3. ALL ANTI-SEEP COLLARS AND PIPE CONNECTION WITH RISER STRUCTURE SHALL BE WATERTIGHT.

4. FILL MATERIAL FOR THE CENTER OF THE EMBANKMENT AND CUT OFF TRENCH SHALL CONFORM TO UNIFORM SOIL CLASSIFICATION GC, SC, CH OR CL.

5. OFF-SITE BORROW OR SPOIL AREAS MUST HAVE AN APPROVED AND ACTIVE SEDIMENT CONTROL PLAN.

STABILIZATION

ALL BORROW AREAS SHALL BE GRADED TO PROVIDE PROPER DRAINAGE AND LEFT IN A SIGHTLY CONDITION. ALL EXPOSED SURFACES OF THE EMBANKMENT, SPILLWAY, SPOIL AND BORROW AREAS, AND BERMS SHALL BE STABILIZED BY SEEDING, LIMING, FERTILIZING AND MULCHING IN ACCORDANCE WITH THE NATURAL RESOURCE CONSERVATION SERVICE STANDARDS AND SPECIFICATIONS FOR CRITICAL AREA PLANTING (MD-342) OR AS SHOWN ON THE ACCOMPANYING DRAWINGS.

EROSION AND SEDIMENT CONTROL

CONSTRUCTION OPERATIONS WILL BE CARRIED OUT IN SUCH A MANNER THAT EROSION WILL BE CONTROLLED AND WATER AND AIR POLLUTION MINIMIZED. STATE AND LOCAL LAWS CONCERNING POLLUTION ABATEMENT WILL BE FOLLOWED. CONSTRUCTION PLANS SHALL DETAIL EROSION AND SEDIMENT CONTROL MEASURES.

ROCK RIPRAP SHALL MEET THE REQUIREMENT OF MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS, SECTION 311.

GEOTEXTILE SHALL BE PLACED UNDER ALL RIPRAP AND SHALL MEET THE REQUIREMENTS OF MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIALS, SECTION 921.09, CLASS C

CARE OF WATER DURING CONSTRUCTION

ALL WORK ON PERMANENT STRUCTURES SHALL BE CARRIED OUT IN AREAS FREE FROM WATER. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN ALL TEMPORARY DIKES, LEVEES, COFFERDAMS, DRAINAGE CHANNELS AND STREAM DIVERSIONS NECESSARY TO PROTECT THE AREAS TO BE OCCUPIED BY THE PERMANENT WORKS. THE CONTRACTOR SHALL ALSO FURNISH, INSTALL, OPERATE, AND MAINTAIN ALL NECESSARY PUMPING AND OTHER PARTS OF THE WORK FREE FROM WATER AND FOR MAINTAINING THE EXCAVATIONS, FOUNDATION, AND OTHER PARTS OF THE WORK FREE FROM WATER AS REQUIRED OR DIRECTED BY THE ENGINEER FOR CONSTRUCTING EACH ART OF THE WORK. AFTER HAVING SERVED THEIR PURPOSE, ALL TEMPORARY PROTECTIVE WORKS SHALL BE REMOVED OR LEVELED AND GRADED TO THE EXTENT REQUIRED TO PREVENT OBSTRUCTION IN ANY DEGREE WHATSOEVER OF THE FLOW OF WATER TO THE SPILLWAY OR OUTLET WORKS AND SO AS NOT TO INTERFERE IN ANY WAY WITH THE OPERATION OR MAINTENANCE OF THE STRUCTURE. STREAM DIVERSIONS SHALL BE MAINTAINED UNTIL FULL FLOW CAN BE PASSED THROUGH THE PERMANENT WORKS. THE REMOVAL OF WATER FROM THE REQUIRED EXCAVATION AND THE FOUNDATION SHALL BE ACCOMPLISHED IN A MANNER AND TO THE EXTENT THAT WILL MAINTAIN STABILITY OF THE EXCAVATED SLOPES AND BOTTOM REQUIRED EXCAVATIONS AND WILL ALLOW SATISFACTORY PERFORMANCE OF ALL CONSTRUCTED OPERATIONS. DURING THE PLACING AND COMPACTING OF MATERIAL IN REQUIRED EXCAVATIONS BEING REFILLED SHALL BE MAINTAINED BELOW THE BOTTOM OF THE EXCAVATION AT SUCH LOCATIONS WHICH MAY REQUIRE DRAINING THE WATER SUMPS FROM WHICH THE WATER SHALL BE PUMPED.

STORMWATER MANAGEMENT STUDY
APL SOUTH CAMPUS
HOWARD COUNTY, MARYLAND
HCEA JOB NO. 09017A

PURPOSE AND SCOPE

The purpose of this study was to evaluate the subsurface conditions as they relate to the design and construction of the proposed SWM facility.

PROJECT DESCRIPTION

The project site is located at 11101 Johns Hopkins Road in the Laurel area of Howard County, Maryland as shown on the Project Location Map (Figure 1) in the Appendix and is the location of the APL South Campus.

Based on the plan provided to this office by the Civil Engineer (Christopher Consultants), we understand that the proposed construction at the site is to include several new building structures along with associated pavement areas and a stormwater management facility. This report deals solely with the SWM facility as separate studies are to be performed for the proposed building structures and pavement areas.

The site presently is occupied by several existing building structures in the north of the site, which were in the process of being razed at the time this report was prepared. The site also contains several paved parking and drive aisles as well as an existing SWM pond facility located immediately behind the existing pavement areas towards the south end of the project site. The proposed new SWM facility will be located in the wooded area to the south of the existing SWM facility.

Existing site grades in the location of the proposed SWM facility appear range from El 390± to El 384± with the grades sloping downward in a north to south direction. The plans provided indicate the pond facility will have a bottom elevation of 374.0. At the time of our subsurface exploration, several sewer manholes were observed within the northern portion of the pond footprint. It was not known at the time this report was prepared if this sewer was still active.

FIELD TESTING

In order to determine the general subsurface conditions, five SPT borings labeled SWM-1 through SWM-5 were drilled at locations specified by the Civil Engineer. The SPT borings were drilled to depths ranging from 19.0 ft to 26.5 ft below existing site grades. In-situ infiltration testing was performed at a depth of 20± ft below the existing site grade in a

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

Stormwater Management Study
APL South Campus — Page 2

borehole offset from the location of boring SWM-3. The boring locations are shown on the Boring Location Plan (Figure 2) in the Appendix.

RESULTS

We have evaluated the site subsurface conditions at the boring locations drilled in the vicinity of the proposed pond facility in accordance with the State of Maryland's, "2000 Maryland Stormwater Design Manual, Volumes I & II". The following information is provided for planning stormwater management measures:

1. Location of seasonal high groundwater table.

   Groundwater was monitored in the open boreholes. Groundwater was monitored during drilling operations, upon completion of drilling, and 24 hours after completion of the drilling operations. Groundwater was not encountered in any of the borings within the depths explored and the caved boreholes remained dry both at completion and 24 hours after completion of the drilling operations.

   An accurate determination of the hydrostatic water table would require the installation of perforated pipes or piezometers which could be monitored over an extended period of time. The actual level of the hydrostatic water table and the amount and level of perched water should be anticipated to fluctuate throughout the year, depending on variations in precipitation, surface run-off, infiltration, site topography, and drainage. Site grading operations at other parts of the site can also influence the level of the groundwater at the stormwater management area significantly. HCEA cannot be responsible for changes in groundwater conditions at the site due to seasonal variation and changes caused by other factors such as grading operations at the site.

2. Subsurface Conditions

   Based on our subsurface exploration, the site is covered by a surficial topsoil layer measuring approximately 2-inches to 4-inches thick at the specific boring locations. However, the topsoil thickness should be expected to vary across the site. Therefore, the reported topsoil measurements should not be used to estimate topsoil quantities across the site.

   Beneath the topsoil layer, the borings showed the underlying soils to be natural soils. The soils encountered in the borings were visually identified as sandy silt (ML), sandy clay (CL), elastic silt (MH), elastic clay (CH), silty sand (SM), silty sand and gravel (GM-SM) and combinations thereof.

   In-situ infiltration testing was performed through a 5-inch PVC pipe set in a borehole offset from the original location of boring SWM-3. The infiltration testing was performed at a depth of 20± ft below the existing site grade. The infiltration

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Stormwater Management Study
APL South Campus — Page 3

testing resulted in an infiltration rate of 2.40 in/hr; however, it should be noted that a factor of safety has not been applied to the infiltration rate obtained.

3. Depth to Bedrock/Decomposed Rock

   Residual materials having Standard Penetration Test N-values in the range of 60 blows/ft to 100 blows/2-inches are typically identified as decomposed rock. Decomposed Rock materials were encountered at the following locations:

Boring	Approximate Depth to Decomposed Rock (ft)	Corresponding Elevation (+/-)
SWM-2	15.0	379
SWM-5	16.0	375

   Refusal to augering and/or spoon refusal occurred in one of the borings above the proposed termination depth of the boring. Refusal is a designation typically applied to material having a penetration resistance in excess of 100 blows per inch. Refusal may result from hard cemented soil, soft weathered rock, coarse gravel or boulders, thin rock seams, or the upper surface of sound continuous rock. Core drilling procedures are required to determine the character and continuity of the refusal materials.

   Refusal was encountered in boring SWM-1 at a depth of 19.0 ft below the existing site grade corresponding to an elevation of 376±.

EVALUATION

Based on the State of Maryland's "2000 Maryland Stormwater Design Manual, Volumes I & II", infiltration basins and trenches are not acceptable practices when an infiltration rate of less than 0.52 inches per hour is obtained. Bioretention facilities in areas with in-situ infiltration rates of less than 0.52 inches per hour require underdrains. Also, the bottom of the facility should be located a minimum of 4 ft above the seasonally high water table and/or bedrock. Additionally, Howard County requires a minimum infiltration rate of 1.02 inches per hour.

Although the infiltration rate obtained adjacent to boring SWM-3 exceeded the minimum rate required by Howard County, decomposed rock and/or apparent bedrock materials were encountered in other borings at the site at or above the proposed bottom of pond elevation. Based on these conditions, the above-outlined criteria, and our experience with the residual soils in the project area, infiltration methods of stormwater management are not recommended for the proposed SWM facility.

It should be anticipated, based on the presence of the decomposed rock and/or refusal materials, that more intensive methods of excavations such as ripping, jack hammering,

HILLIS-CARNES ENGINEERING ASSOCIATES, INC.

Stormwater Management Study
APL South Campus — Page 4

or blasting may be required in some areas within the footprint of the SWM facility in order to establish the necessary grades.

It is further anticipated that the existing sewer line that runs through the footprint of the proposed pond facility will need to abandoned or relocated prior to construction of the SWM pond.

EMBANKMENT AND CUT-OFF TRENCH CONSTRUCTION

Areas of SWM pond facility should be stripped of topsoil and any other unsuitable materials from the embankment or structure areas in accordance with Soil Conservation Guidelines. After stripping operations have been completed, the exposed subgrade materials should be proofrolled with a loaded dump truck or similar equipment in the presence of a geotechnical engineer or his representative. For areas that are not accessible to a dump truck, the exposed materials should be observed and tested by a geotechnical engineer or his representative utilizing a Dynamic Cone Penetrometer. Any excessively soft or loose materials identified by proofrolling or penetrometer testing should be excavated to suitable firm soil, and then grades re-established by backfilling with suitable soil.

A representative of the Geotechnical Engineer should be present to monitor placement and compaction of fill for the embankment and cut-off trench. In accordance with NRCS-MD Code No. 378 Pond Standards/Specifications, soils considered suitable for the center of embankment and cut-off trench shall conform to Unified Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #200 sieve.

It is our professional opinion that in addition to the soil materials described above a fine-grained soil, including Silt (ML) with a plasticity index of 10 or more can be utilized for the center of the embankment and core trench. All fill materials must be placed and compacted in accordance with NRCS-MD Code No. 378 specifications.

The results of our laboratory testing, which have been included in the Appendix of this report, indicate that materials meeting the above outlined criteria for use in the center of embankment and core trench were indentified in several of the borings performed. In general, where encountered, these materials were typically located within the upper 5± ft of the boreholes. Additional test pitting should be performed at the start of construction to assist in identifying other locations across the site in which potential core trench materials may be located. During the initial excavation consideration should be given to separating these materials and potentially stockpiling them for use in the core trench and/or center of embankment in attempts to avoid or minimize the need to import off-site materials for these purposes.

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REMARKS

The evaluations contained in this report are based on our understanding of the proposed construction, the data obtained from our field exploration, and our experience with the soils and subsurface conditions in this area. If there are any changes to the project characteristics, this office should be advised so that the evaluations made in this report may be re-evaluated.

The reader is referred to the Records of Soil Exploration in the Appendix for details related to the subsurface conditions encountered in the borings. It should be noted that stratification lines shown on the Records of Soil Exploration represent approximate transitions between material types. In-situ, strata changes could occur gradually or at slightly different levels. Also, it should be noted that the soil borings depict conditions at the particular locations and at the particular times indicated. Some conditions, particularly groundwater conditions, could change with time.

We appreciate having been of service to you in the subsurface exploration of this project and we are prepared to assist you during the construction phase as well. If you have any questions concerning the contents of this report or any of our consulting, design, testing, and inspection services, please contact this office.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER POND

ROUTINE MAINTENANCE:

1. FACILITY SHALL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS PROPERLY.
2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED A MINIMUM OF TWO (2) TIMES PER YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED.
3. DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
4. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS THE RIPRAP OR GABION OUTLET AREA SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

NON-ROUTINE MAINTENANCE:

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, 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 POND, AND FOREBAY, NO LATER THAN WHEN THE CAPACITY OF THE POND, OR FOREBAY, IS HALF FULL OF SEDIMENT, OR, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, UPON APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS

OPERATION, MAINTENANCE AND INSPECTION

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNS SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING, OR SLUMPING.

NOTES:

THIS PLAN IS FOR THE CONVERSION OF THE SWM RISER. THE RISER WILL BE CONSTRUCTED UNDER GP-10-009.

STR NO.	PIPE DIAMETER (INCHES)	DISCHARGE (CFS)	PIPE SLOPE (%)	10-YR PIPE VELOCITY (FT/S)	RIPRAP SLOPE (%)	10-YR RIPRAP VELOCITY (FT/S)	RIPRAP			DIMENSIONS	
							CLASS	d50	DEPTH	La	W
FOREBAY	42	80.07	0.80	9.35	0.00	7.50	Class II	9.5"	19"	14'	14.0'
OUTFALL (E-2)	42	74.57	8.98	7.80	0.00	7.50	Class II	9.5"	19"	28'	18.0'

FLOW SUMMARY SHEET

Study Point	Area	RCN	TC	1 Yr	10Yr	100 Yr	Notes
	(acres)		(hr)	cfs	cfs	cfs	
Existing Conditions							
Subarea #1	12.55	88	0.25	0.7	4.65	8.86	To the ex. pond
Subarea #2	30.07	55	0.23	1.39	13.18	26.12	undeveloped areas and offsite
Total leaving the Site				22.8	90.6	168.6	Study point 1
Proposed Conditions with credits							
Subarea #1	23.2	92	0.3	46.15	103.98	151.59	onsite to the pond
Pond				0.52	46.37	104.67	
WSEL				387.34	388.87	389.98	
Subarea #1	23.2	92	0.3	46.15	103.98	151.59	low flow blocked
Pond				39.94	91.72	131.22	Study point 1
WSEL				388.94	389.78	390.27	
Subarea #2	19.92	72	0.19	12.05	58.71	104.44	undeveloped areas and offsite
Total leaving the Site				13.34	62.85	172.95	Study point 1
Total leaving the Site				49.48	138.78	216.56	Low flow blocked to Study Point 1

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.

[signature] 10.9.09
SIGNATURE OF ENGINEER — DATE

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

DEVELOPER'S CERTIFICATE

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

[signature] 11/5/09
Signature of Developer — Date
Richard T Roca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

[signature] 10.9.09
Signature of Engineer — Date
JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

[signature] 11/10/09
Howard Soil Conservation District — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[signature] 11/17/09
Chief, Development Engineering Division — Date
[signature] 1/08/10
Chief, Division of Land Development — Date
[signature] 1/11/10
Director — Date

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
1100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200	LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396 / GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928-20930		

TITLE:
STORMWATER MANAGEMENT NOTES & PROFILES

DESIGN: ENJ	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	21 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER RECHARGE TRENCHES

1. THE MONITORING WELLS AND STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.

2. WATER LEVELS AND SEDIMENT BUILD UP IN THE MONITORING WELLS SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE TRENCH DRAINAGE.

3. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.

4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.

5. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.

6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE RECHARGE FACILITY HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

RECHARGE TRENCH GENERAL NOTES AND SPECIFICATIONS

A RECHARGE TRENCH MAY NOT RECEIVE RUN-OFF UNTIL THE ENTIRE CONTRIBUTING DRAINAGE AREA TO THE RECHARGE TRENCH HAS RECEIVED FINAL STABILIZATION.

1. HEAVY EQUIPMENT AND TRAFFIC SHALL BE RESTRICTED FROM TRAVELING OVER THE PROPOSED LOCATION OF THE RECHARGE TRENCH TO MINIMIZE COMPACTION OF THE SOIL.

2. EXCAVATE THE RECHARGE TRENCH TO THE DESIGN DIMENSIONS. EXCAVATED MATERIALS SHALL BE PLACED AWAY FROM THE TRENCH SIDES TO ENHANCE TRENCH WALL STABILITY. LARGE TREE ROOTS MUST BE TRIMMED FLUSH WITH THE TRENCH SIDES IN ORDER TO PREVENT FABRIC PUNCTURING OR TEARING OF THE FILTER FABRIC DURING SUBSEQUENT INSTALLATION PROCEDURES. THE SIDEWALLS OF THE TRENCH SHALL BE ROUGHENED WHERE SHEARED AND SEALED BY HEAVY EQUIPMENT.

3. A CLASS "C" GEOTEXTILE OR BETTER (SEE SECTION 24.0, MATERIAL SPECIFICATIONS, 1994 STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, MDE, 1994) SHALL INTERFACE BETWEEN THE TRENCH SIDEWALLS AND EARTH AND ¼" GALVANIZED MESH CLOTH BETWEEN THE SAND AND GRAVEL LAYER. A PARTIAL LIST OF NON-WOVEN FILTER FABRICS THAT MEET THE CLASS "C" CRITERIA FOLLOWS. ANY ALTERNATIVE FILTER FABRIC MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.

AMOCO 4552 — CARTHAGE FX-80S
GEOLON N70 — MIRAFI 180-N
WEBTEC N07

THE WIDTH OF THE GEOTEXTILE MUST INCLUDE SUFFICIENT MATERIAL TO CONFORM TO TRENCH PERIMETER IRREGULARITIES AND FOR A 6" MINIMUM TOP OVERLAP AND 1' AT JOINT. STONES OR OTHER ANCHORING OBJECTS SHOULD BE PLACED ON THE FABRIC AT THE EDGE OF THE TRENCH TO KEEP THE TRENCH OPEN DURING WINDY PERIODS. WHEN OVERLAPS ARE REQUIRED BETWEEN ROLLS, THE UPHILL ROLL SHOULD LAP A MINIMUM OF 2 FEET OVER THE DOWNHILL ROLL IN ORDER TO PROVIDE A SHINGLED EFFECT.

4. IF A 6 INCH SAND FILTER LAYER IS PLACED ON THE BOTTOM OF THE RECHARGE TRENCH, THE SAND FOR THE RECHARGE TRENCH SHALL BE WASHED AND MEET AASHTO-M-43, SIZE NO. 9 OR NO. 10. ANY ALTERNATIVE SAND GRADATION MUST BE APPROVED BY THE PLAN APPROVAL AUTHORITY.

5. THE STONE AGGREGATE SHOULD BE PLACED IN A MAXIMUM LOOSE LIFT THICKNESS OF 12 INCHES. THE GRAVEL (ROUNDED "BANK RUN" GRAVEL IS PREFERRED) FOR THE RECHARGE TRENCH SHALL BE WASHED AND MEET ONE OF THE FOLLOWING AASHTO-M-43, SIZE NO. 2 OR NO. 3.

6. FOLLOWING THE STONE AGGREGATE PLACEMENT, THE FILTER FABRIC SHALL BE FOLDED OVER THE STONE AGGREGATE TO FORM A 12-INCH MINIMUM LONGITUDINAL LAP. THE DESIRED FILL SOIL OR STONE AGGREGATE SHALL BE PLACED OVER THE LAP AT SUFFICIENT INTERVALS TO MAINTAIN THE LAP DURING SUBSEQUENT BACKFILLING.

7. CARE SHALL BE EXERCISED TO PREVENT NATURAL OR FILL SOILS FROM INTERMIXING WITH THE STONE AGGREGATE. ALL CONTAMINATED STONE AGGREGATE SHALL BE REMOVED AND REPLACED WITH UNCONTAMINATED STONE AGGREGATE.

8. VOIDS MAY OCCUR BETWEEN THE FABRIC AND THE EXCAVATION SIDES SHALL BE AVOIDED. REMOVING BOULDERS OR OTHER OBSTACLES FROM THE TRENCH WALLS IS ONE SOURCE OF SUCH VOIDS. THEREFORE, NATURAL SOILS SHOULD BE PLACED IN THESE VOIDS AT THE MOST CONVENIENT TIME DURING CONSTRUCTION TO ENSURE FABRIC CONFORMITY TO THE EXCAVATION SIDES.

9. VERTICALLY EXCAVATED WALLS MAY BE DIFFICULT TO MAINTAIN IN AREAS WHERE SOIL MOISTURE IS HIGH OR WHERE SOFT COHESIVE OR COHESIVENESS SOILS ARE DOMINANT. THESE CONDITIONS MAY REQUIRE LAYING BACK OF THE SIDE SLOPES OR MECHANICAL SUPPORT OF EXCAVATION METHODS TO MAINTAIN STABILITY.

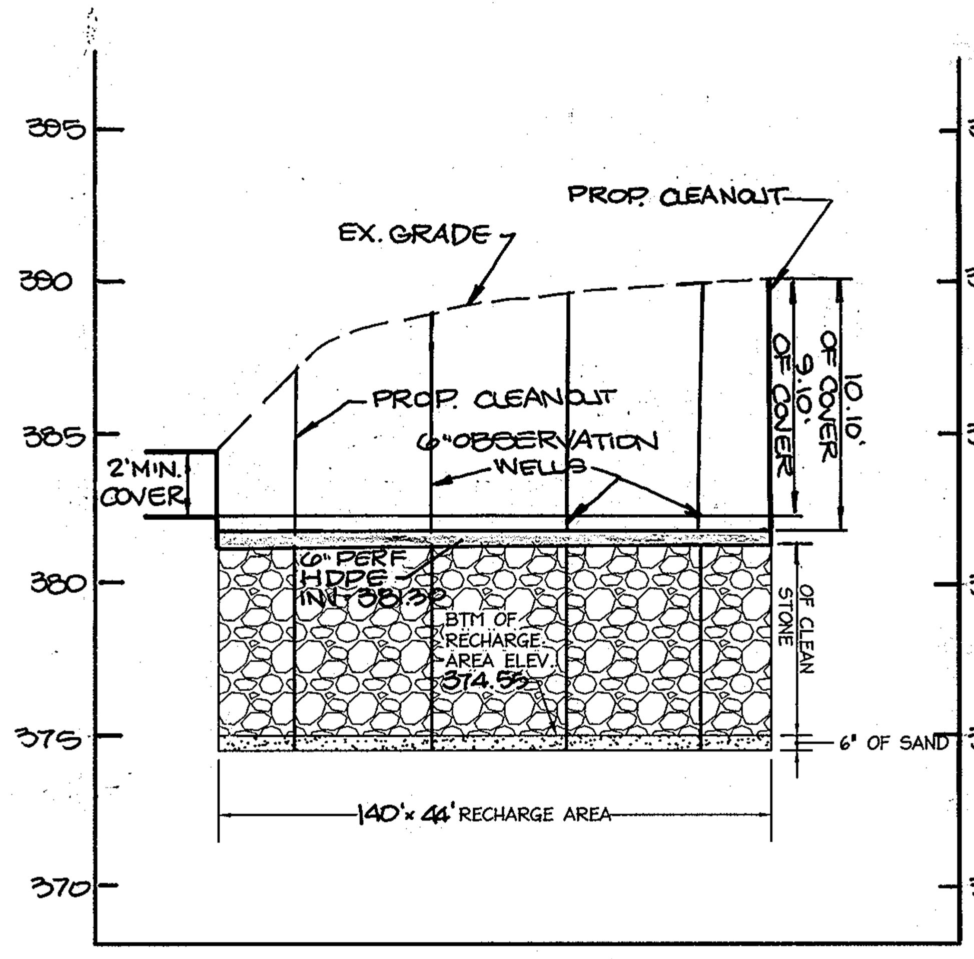
10. THE OBSERVATION WELL IS TO CONSIST OF 6-INCH DIAMETER PERFORATED PVC SCHEDULE 40 PIPE (M 278 OR F758, TYPE PS 28) WITH A CAP SET 6 INCHES ABOVE GROUND LEVEL AND IS TO BE LOCATED NEAR THE LONGITUDINAL CENTER OF THE RECHARGE TRENCH. THE PIPE SHALL HAVE A PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING THE CAP. THE SCREW TOP LID SHALL BE A CLEANOUT WITH A LOCKING MECHANISM OR SPECIAL BOLT TO DISCOURAGE VANDALISM. THE DEPTH TO THE INVERT SHALL BE MARKED WITH A LOCKING LID. THE PIPE SHALL BE PLACED VERTICALLY WITHIN THE GRAVEL PORTION OF THE RECHARGE TRENCH AND A CAP PROVIDED AT THE BOTTOM OF THE PIPE. THE BOTTOM OF THE CAP SHALL REST ON A PIECE OF MARINE PLYWOOD ON THE RECHARGE TRENCH BOTTOM.

11. CORRUGATED METAL DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, AND SHALL BE ALUMINIZED IN ACCORDANCE WITH AASHTO-M-274. ALUMINIZED PIPE IN CONTACT WITH CONCRETE SHALL BE COATED WITH AN INERT COMPOUND CAPABLE OF PREVENTING THE DELETERIOUS EFFECT OF THE ALUMINUM ON THE CONCRETE. PERFORATED DISTRIBUTION PIPES SHALL CONFORM TO AASHTO-M-36, CLASS 2 AND SHALL BE PROVIDED ONLY WITHIN THE RECHARGE TRENCH AND SHALL TERMINATE 1 FOOT SHORT OF THE RECHARGE TRENCH WALL. AN ALUMINIZED METAL PLATE SHALL BE WELDED TO THE END OF THE PIPE.

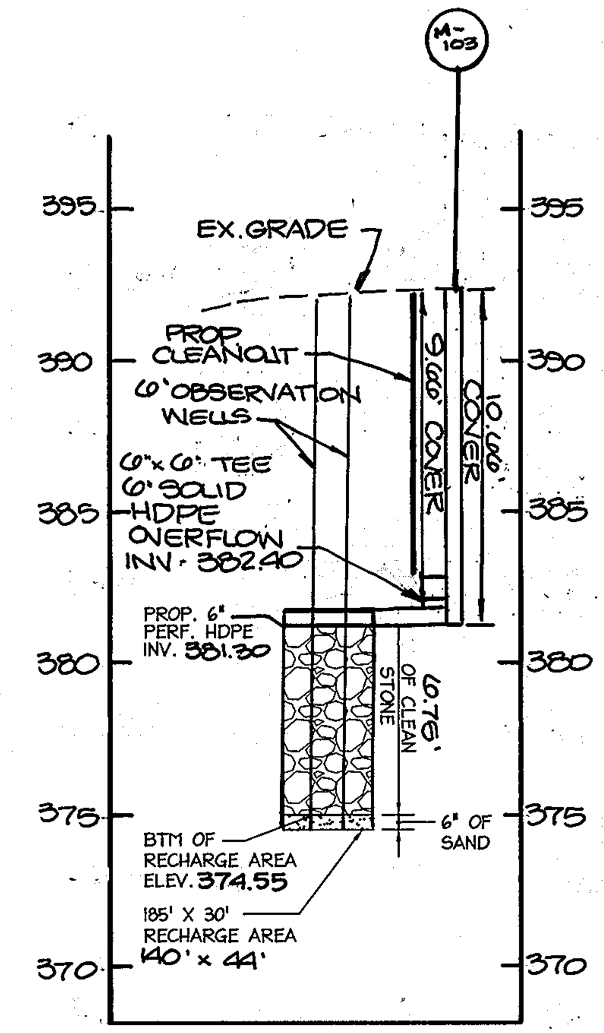
12. IF A DISTRIBUTION STRUCTURE WITH A WET WELL IS USED, A 4-INCH DRAIN PIPE SHALL BE PROVIDED AT OPPOSITE ENDS OF THE RECHARGE TRENCH DISTRIBUTION STRUCTURE. TWO (2) CUBIC FEET OF POROUS BACKFILL MEETING AASHTO-M-43, SIZE NO. 57 SHALL BE PROVIDED AT EACH DRAIN.

13. IF A DISTRIBUTION STRUCTURE IS USED, THE MANHOLE COVER SHALL BE BOLTED TO THE FRAME.

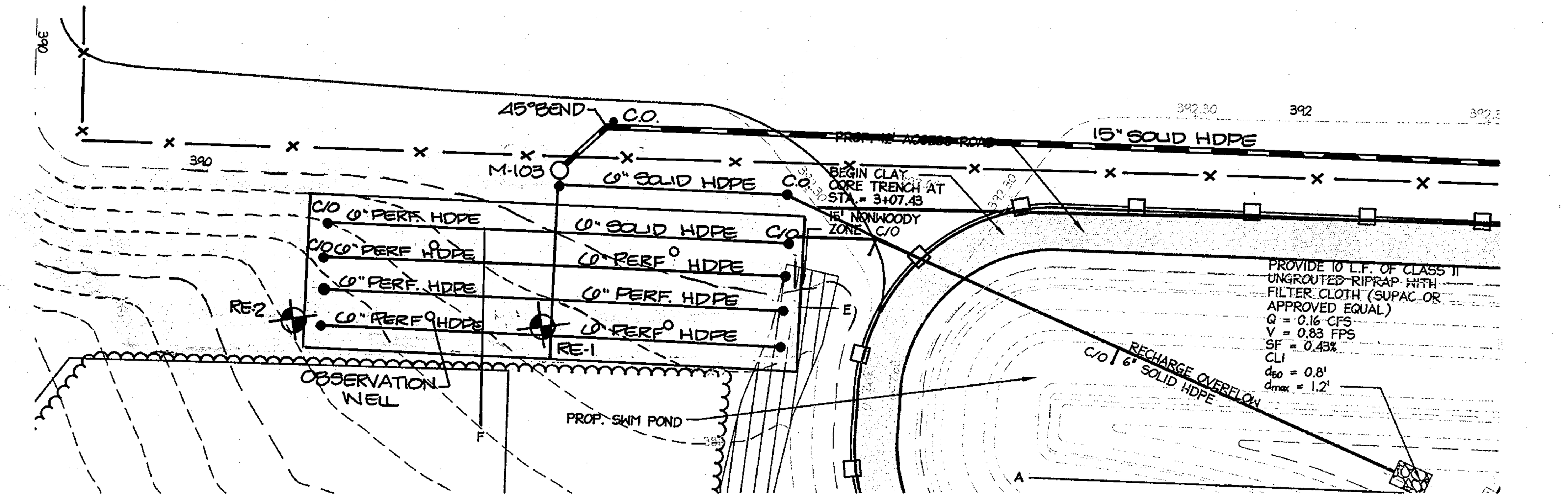
NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.



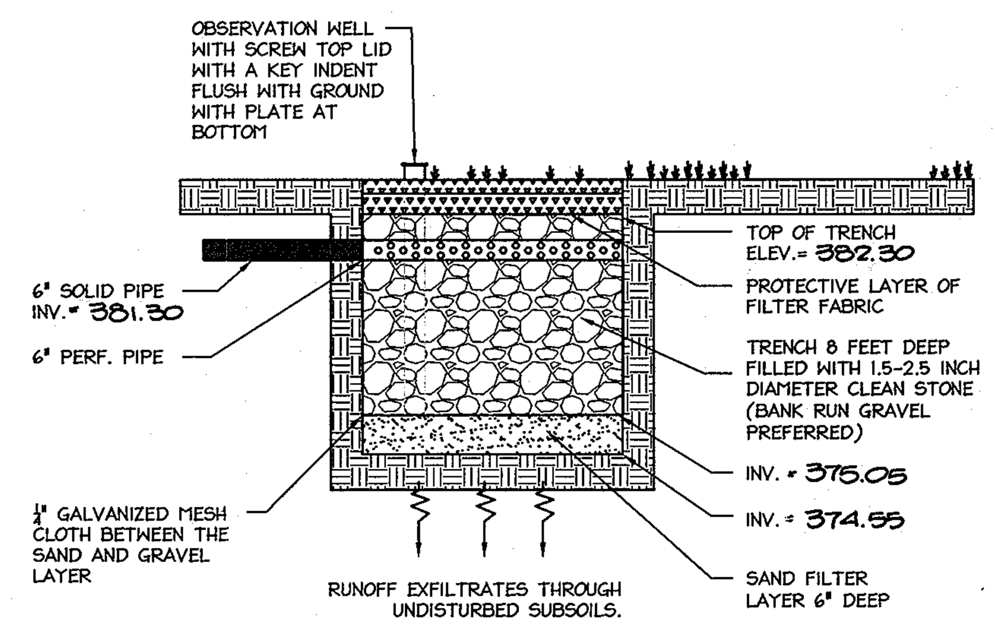
SWM RECHARGE AREA PROFILE E-E
HOR 1"=50'
VER 1"= 5'



SWM RECHARGE AREA PROFILE F-F
HOR 1"=50'
VER 1"= 5'



PROPOSED RECHARGE AREA
SCALE: 1" = 30'



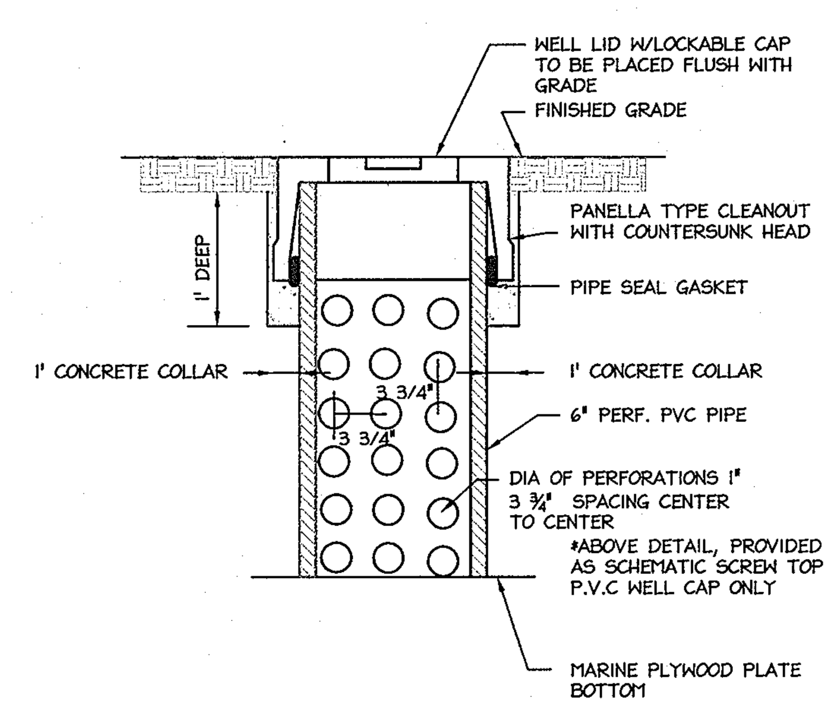
RECHARGE AREA
NOT TO SCALE

NOTES:

1. THIS TRENCH IS FOR RECHARGE ONLY.

2. REFER TO TABLE D.2 IN THE 2000 MDE STORMWATER DESIGN MANUAL FOR MATERIAL SPECIFICATIONS FOR INFILTRATION PRACTICES.

3. FILTER FABRIC SHALL ONLY BE PROVIDED ALONG TOP AND SIDES OF THE TRENCH WITH A 1' OVERLAP AT FABRIC JOINTS.



EACH OBSERVATION WELL/CLEANOUNT SHALL INCLUDE THE FOLLOWING:

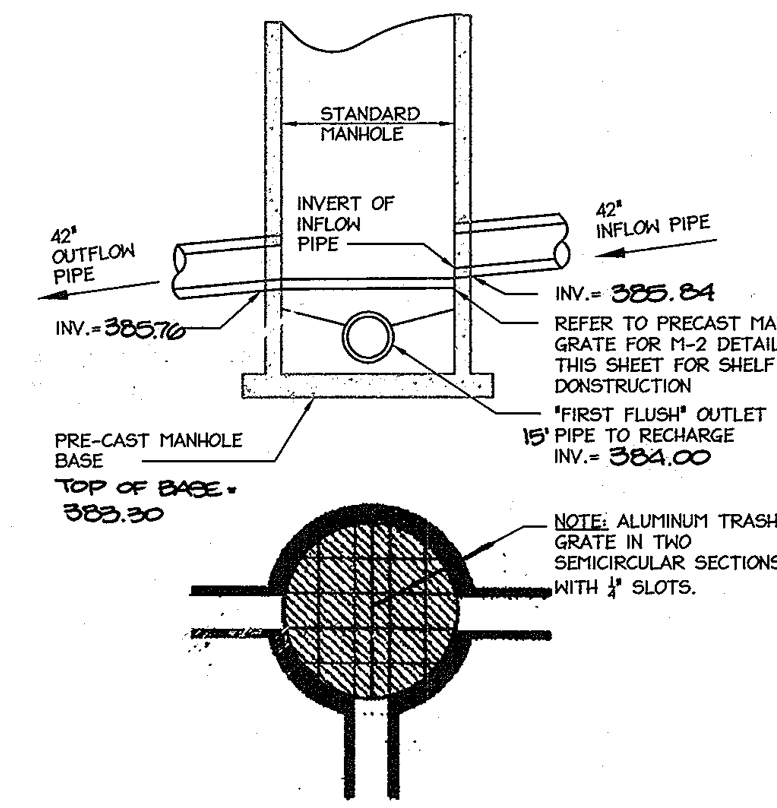
1. FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL/CLEANOUNT. PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.

2. THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.

3. LID SHALL HAVE A LOCKABLE CAP. THE SCREW TOP.

4. A PLATE BOTTOM SHALL BE PROVIDED AT THE BOTTOM OF THE TRENCH.

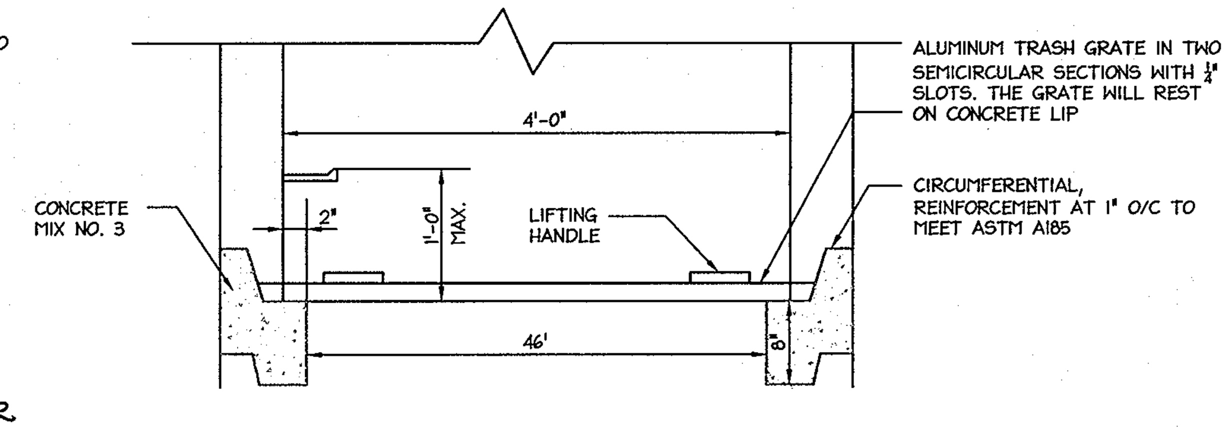
OBSERVATION WELL DETAIL
NOT TO SCALE



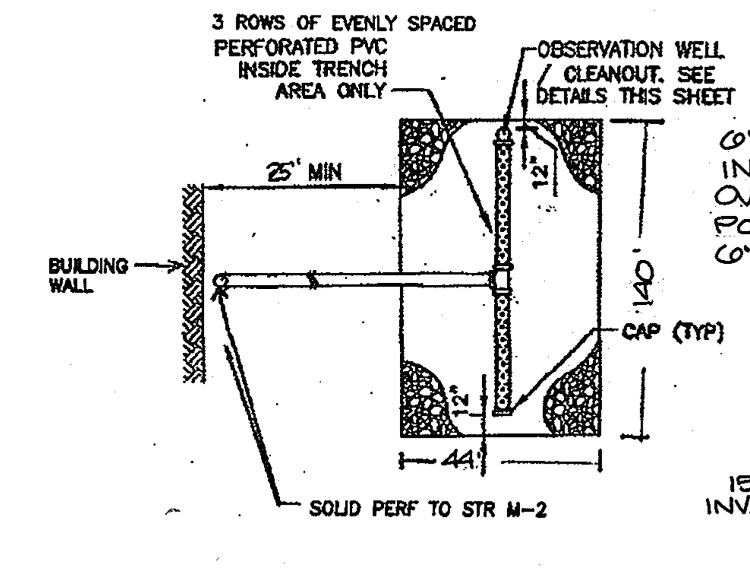
STR M-2

NOTES:

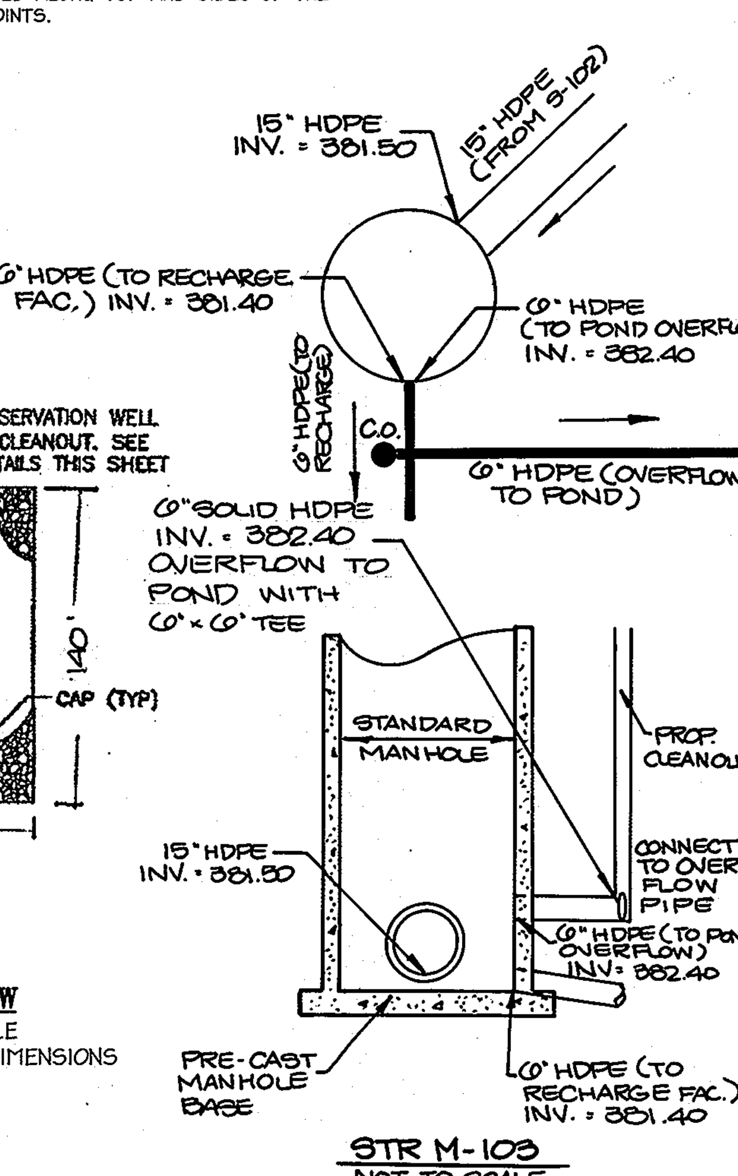
1. REFER TO HOWARD COUNTY STD. DETAIL G.903 FOR MANHOLE CONSTRUCTION.



PRECAST MANHOLE GRATE FOR M-2
NOT TO SCALE



PLAN VIEW
NOT TO SCALE
SEE PLAN FOR ALL DIMENSIONS



STR M-103
NOT TO SCALE

LEED ACCREDITED PROFEESIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

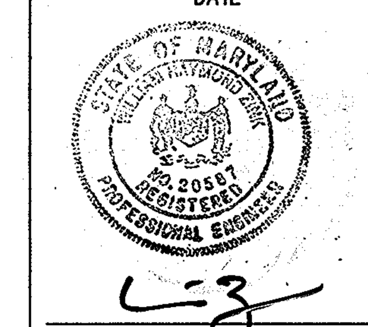
SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — DATE 10-9-09

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.

SIGNATURE OF ENGINEER — DATE 8/21/13
WILLIAM R. ZINK, P.E.
MD LICENSE NUMBER: 20587
EXPIRATION DATE: 09-26-2014

8/21/13
DATE



DEVELOPER'S CERTIFICATE

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

Signature of Developer — Date 11/5/09
Richard T Roca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — Date 10.9.09
JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date 11/10/09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description
1	2.26.13	REDLINED FOR STORM SEWER
2	4.18.13	REDLINED FOR LOWERING OF STORM INV.
3	6.14.13	ADDED REDLINE SUMMARY NOTE

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

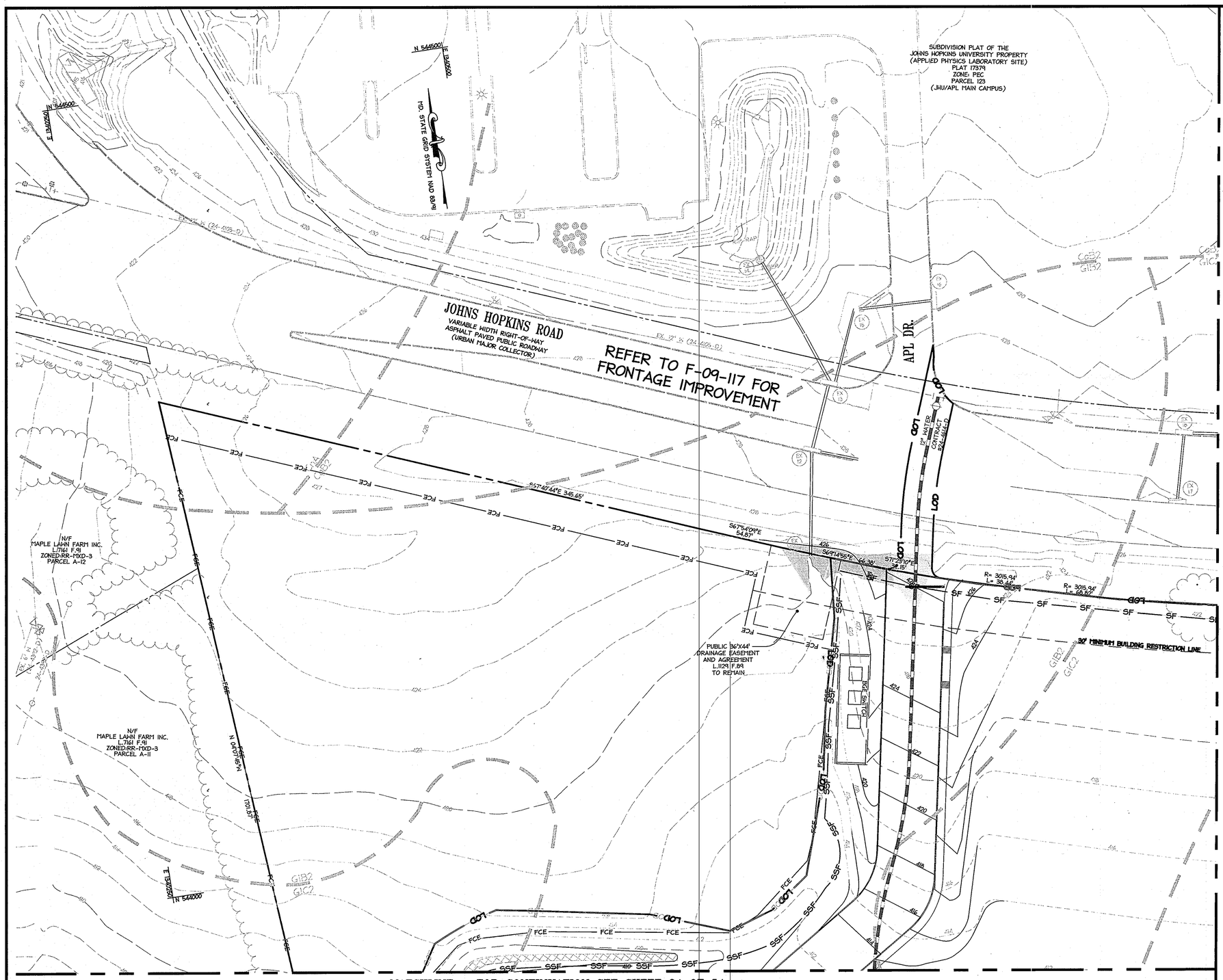
PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref. 20928-20930

TITLE:
STORMWATER MANAGEMENT NOTES & PROFILES

DESIGN: ENJ	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	22 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)



LEGEND

EXISTING CONTOURS	324
EXISTING STORMDRAIN	EX. 12" RCP
EXISTING SANITARY SEWER	EX. 8" SAN
EXISTING FENCE	X
EXISTING SILT FENCE	SF
EXISTING SUPER SILT FENCE	SSF
EX. LIMIT OF DISTURBANCE	LOD
EXISITING/PROP. LIMIT OF DISTURBANCE	LOD
EXISTING EARTH DIKE	
PROPERTY LINE	
TREELINE	
PROPOSED SETBACK LINES	
SILT FENCE	SF
SUPER SILT FENCE	SSF
LIMIT OF DISTURBANCE	LOD
PROPOSED CONTOUR	418
BORING LOCATION	SM#1
FOREST CONSERVATION EASEMENT	FCE
STEEP SLOPES 15% TO 25%	
STEEP SLOPES 25% & ABOVE	
EARTH DIKE	
EROSION CONTROL MATTING	
WETLAND BUFFER	WB
WETLANDS	WL
FLOODPLAIN	FP

DEVELOPER'S CERTIFICATE

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Signature of Developer — Date: 11/5/09

Richard T Roca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — Date: 10.9.09

JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date: 11/6/09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date: 11/7/09

Chief, Division of Land Development — Date: 11/08/10

Director — Date: 11/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
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NOTES:

1. SUPER SILT FENCE AND LIMIT OF DISTURBANCE ARE SHOWN OUTSIDE THE PROPERTY LINE FOR DISPLAY PURPOSE ONLY. ALL WORK WITH THE EXCEPTION OF RIGHT-OF-WAY IMPROVEMENTS IS TO BE DONE ON SITE.
2. SILT FENCE IS TO BE INSTALLED ALONG THE SOUTHWESTERN L.O.D. AT THE DISCRETION OF THE SEDIMENT CONTROL INSPECTOR.
3. ALL FENCING SHALL BE INSTALLED WITH A "J" HOOK CONFIGURATION AT APPROXIMATELY 35-FOOT INTERVALS.
4. LIMIT OF DISTURBANCE SHALL NOT INCLUDE RIGHT OF WAY IMPROVEMENTS ON JOHNS HOPKINS ROAD. LIMIT OF DISTURBANCE SHALL BE MAINTAINED ON THE LIMITS ON THE PROPERTY AND SHALL NOT EXCEED PROPERTY LIMITS.
5. STOCKPILING IS PERMITTED ON THIS SITE.
6. ALL SEDIMENT CONTROLS INSTALLED UNDER GP-10-09 SHALL REMAIN ACTIVE UNTIL SUPERCEDED BY THESE PLANS. CONTROLS FROM GP-10-09 SHALL ONLY BE REMOVED WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR.
7. STEEP SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING (GP-010-09)

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE: 10.9.09

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.

SIGNATURE OF ENGINEER — DATE: 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 29907 — REGISTERED — PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref. 20928- 20930				

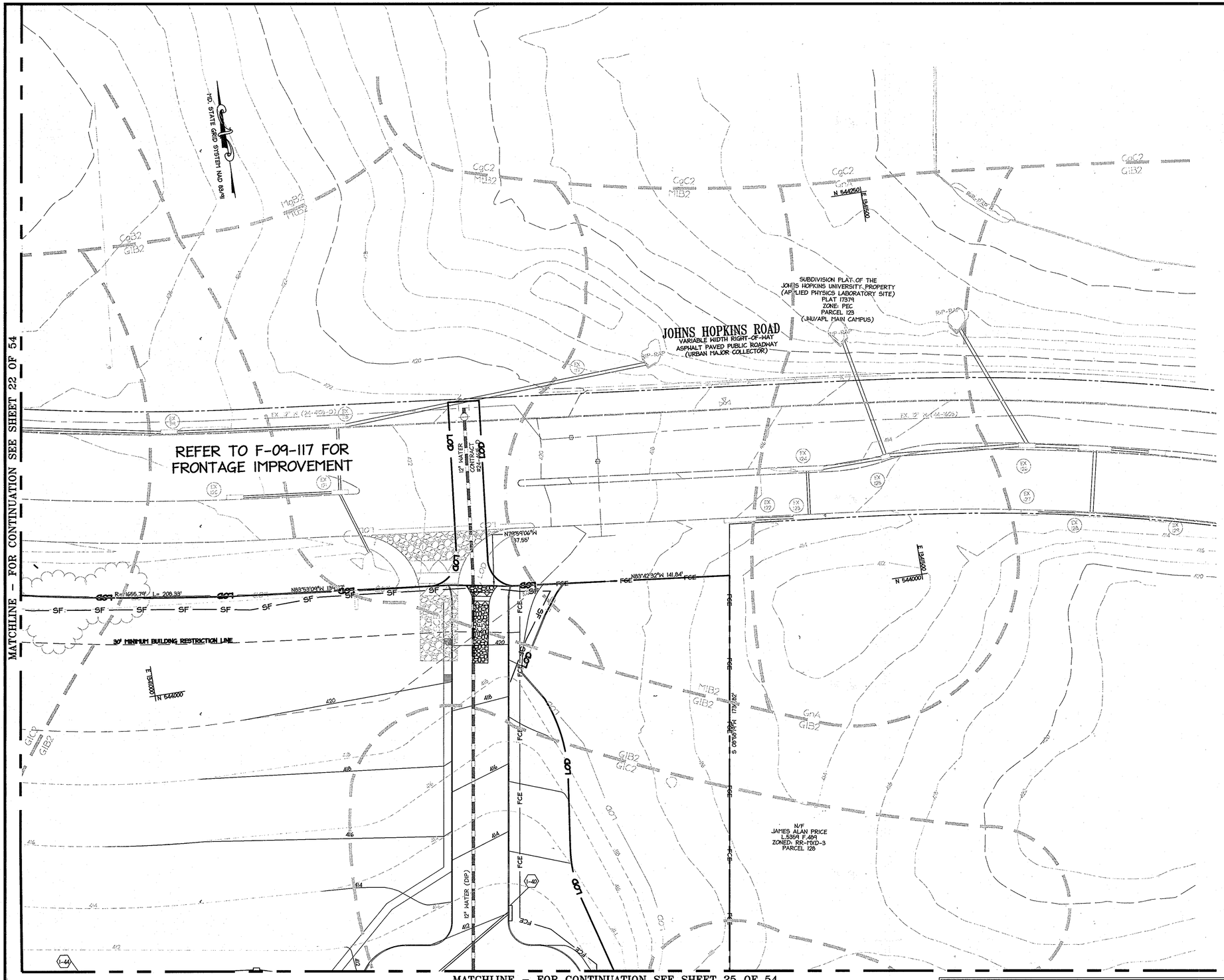
TITLE:

SEDIMENT AND EROSION CONTROL PLANS

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	23 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047



NOTE

1. ALL SEDIMENT CONTROLS INSTALLED UNDER GP-10-09 SHALL REMAIN ACTIVE UNTIL SUPERCEDED BY THESE PLANS. CONTROLS FROM GP-10-09 SHALL ONLY BE REMOVED WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR.

2. STEEP SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING (GP-010-09)

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

DEVELOPER'S CERTIFICATE

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

Signature of Developer — Date 11/5/09

Richard T Reca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — Date 10.9.09

JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date 11/10/09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/03/10

Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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410.872.8600 · metro 301.854.0140 · fax 410.872.8610

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
17379 P.123 20738-309930				

TITLE:

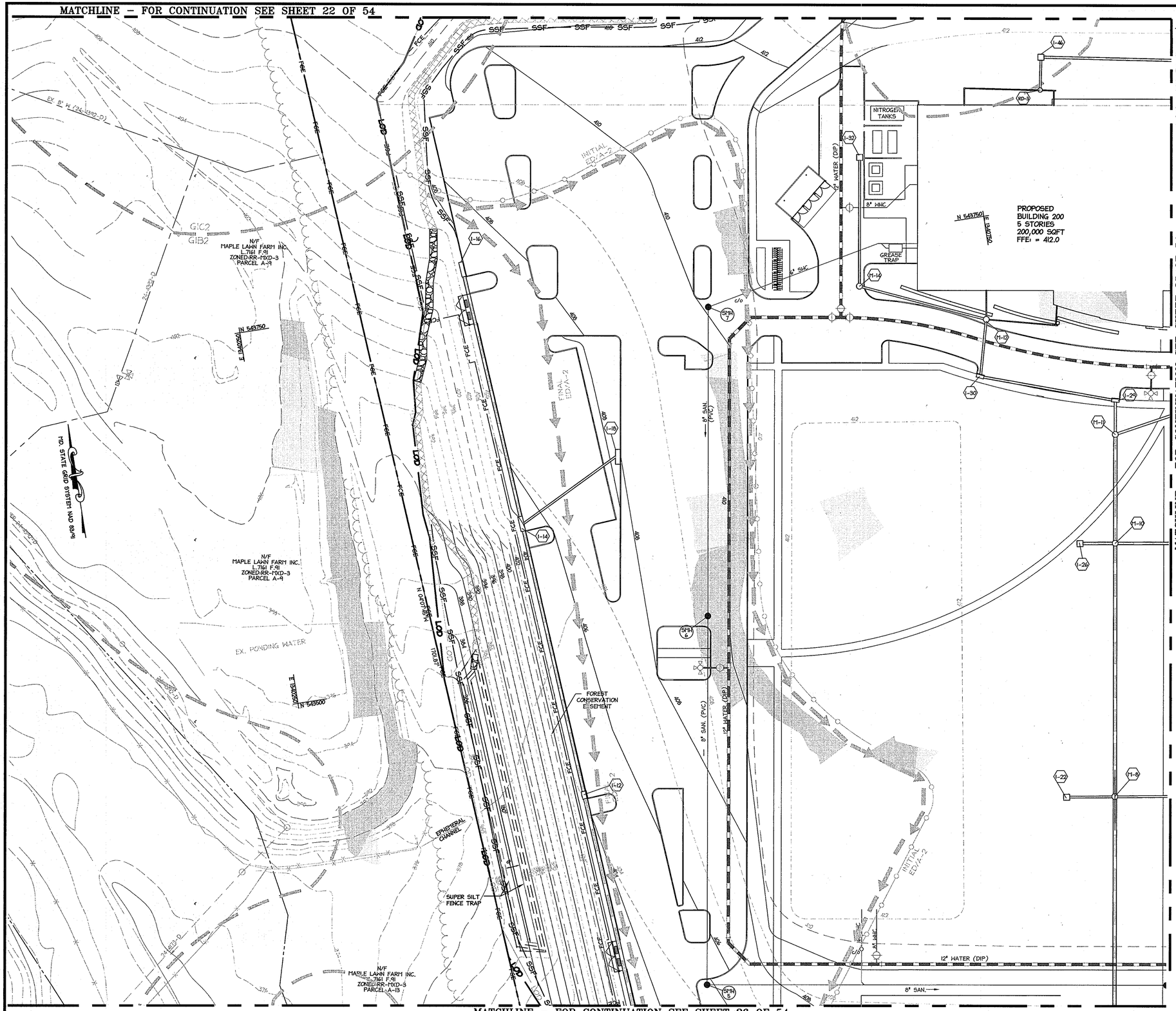
SEDIMENT AND EROSION CONTROL PLANS

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	24 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 22 OF 54



NOTES:

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3. ALL FENCING SHALL BE INSTALLED WITH A "J" HOOK CONFIGURATION AT APPROXIMATELY 35-FOOT INTERVALS.
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5. STOCKPILING IS PERMITTED ON THIS SITE.
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7. STEEP SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING (GP-010-09)

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10/23/09

DEVELOPER'S CERTIFICATE

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

Signature of Developer — Date 11/5/09

Richard T Rocca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — PE# 200451 — Date 11/06/09

WILLIAM F. WHELAN III, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date 11/10/09

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.

SIGNATURE OF ENGINEER — DATE 11/06/09

WILLAM F. WHELAN III
MD LICENSE NUMBER: 200451
EXPIRATION DATE: 9-17-2011

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 11/09/10
Director — Date 11/10/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8600 · metro 301.551.0140 · fax 410.872.8603

6/23/09 DATE

STATE OF MARYLAND — WILLIAM F. WHELAN III — No. 20045 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
TAX ACCT. NO. 3062828930				

TITLE:

SEDIMENT AND EROSION CONTROL PLANS

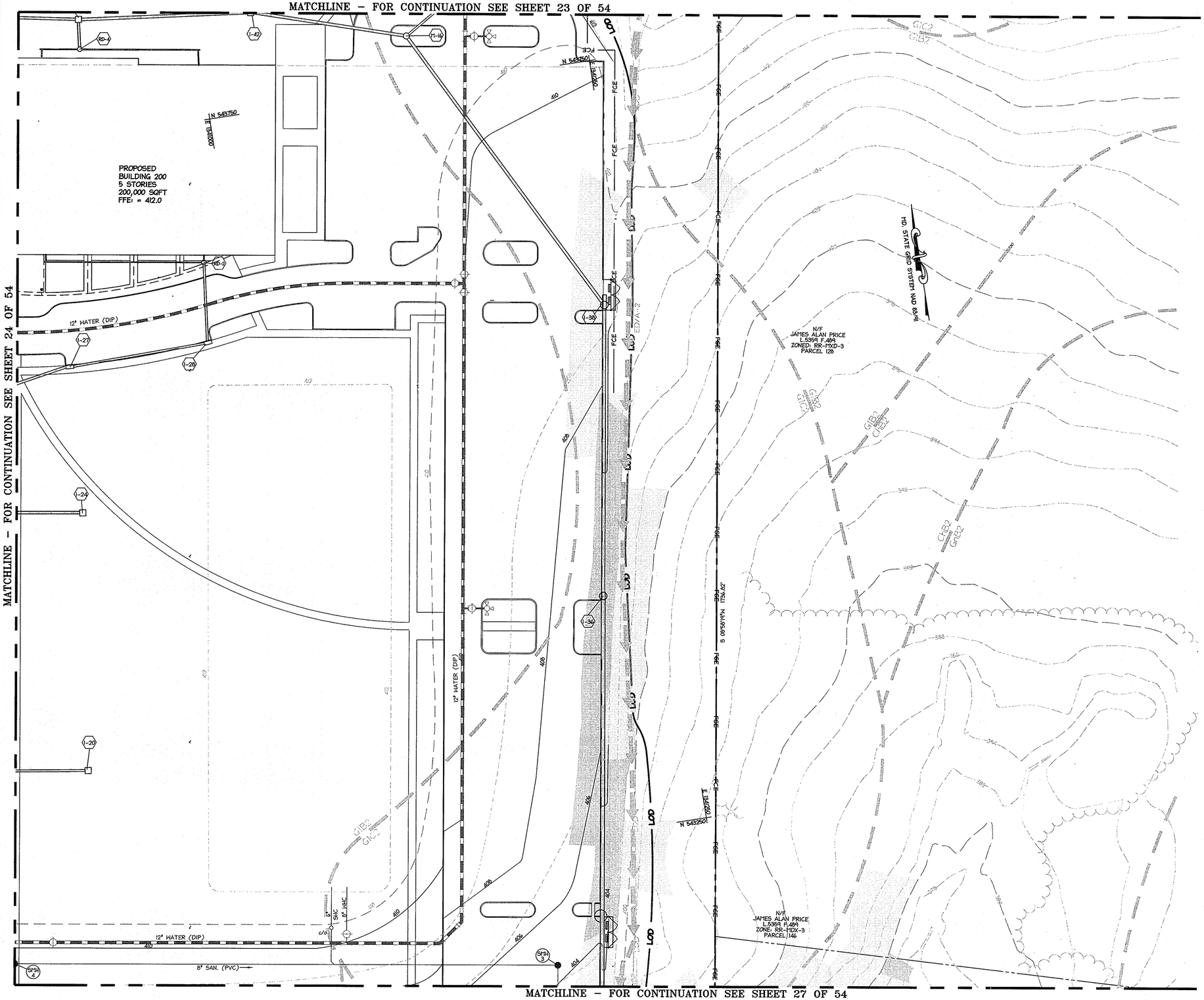
DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	25 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 23 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 24 OF 54



MATCHLINE – FOR CONTINUATION SEE SHEET 27 OF 54

NOTE

1. ALL SEDIMENT CONTROLS INSTALLED UNDER GP-10-09 SHALL REMAIN ACTIVE UNTIL SUPERCEDED BY THESE PLANS. CONTROLS FROM GP-10-09 SHALL ONLY BE REMOVED WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR.

STEEP SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING (GP-010-09)

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

DEVELOPER'S CERTIFICATE

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

Signature of Developer — Date 11/5/09

Richard T Rocca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — Date 10.9.09

JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date 11/10/09

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.

SIGNATURE OF ENGINEER — DATE 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/29/10

Director — Date 1/1/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
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410.872.1660 · metro 301.621.0140 · fax 410.872.0820

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL– SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref 20428-20430				

10-9-09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 29907 — REGISTERED PROFESSIONAL ENGINEER

TITLE:

SEDIMENT AND EROSION CONTROL PLANS

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	26 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

NOTE

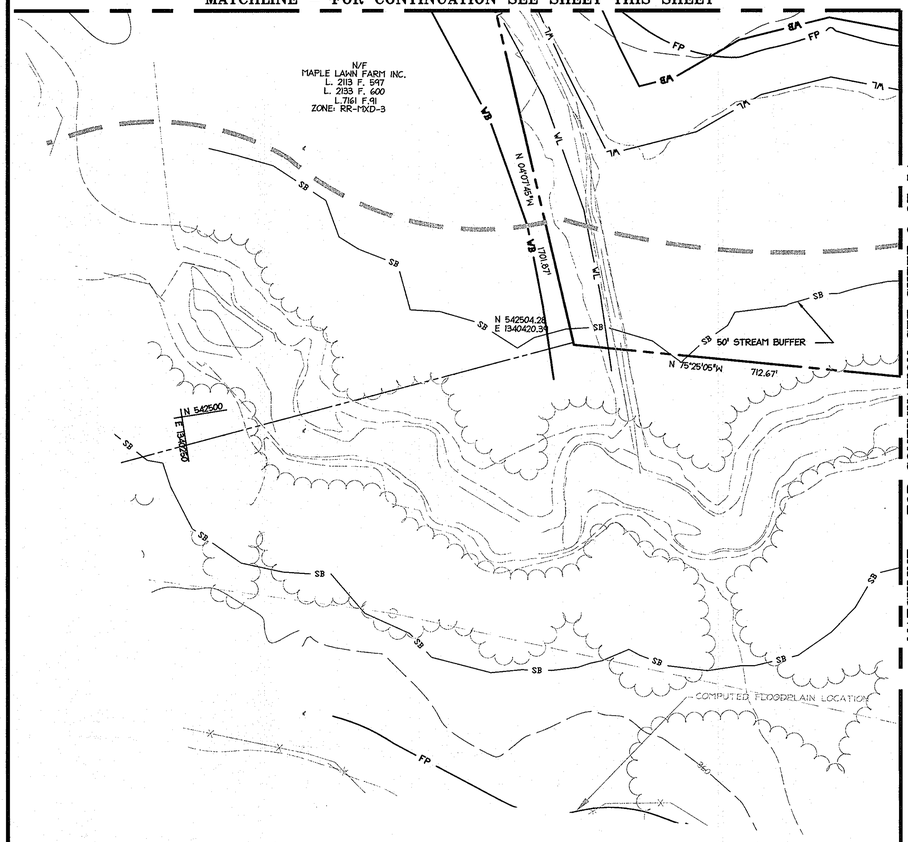
1. ALL SEDIMENT CONTROLS INSTALLED UNDER GP-10-09 SHALL REMAIN ACTIVE UNTIL SUPERCEDED BY THESE PLANS. CONTROLS FROM GP-10-09 SHALL ONLY BE REMOVED WITH PERMISSION OF SEDIMENT CONTROL INSPECTOR.

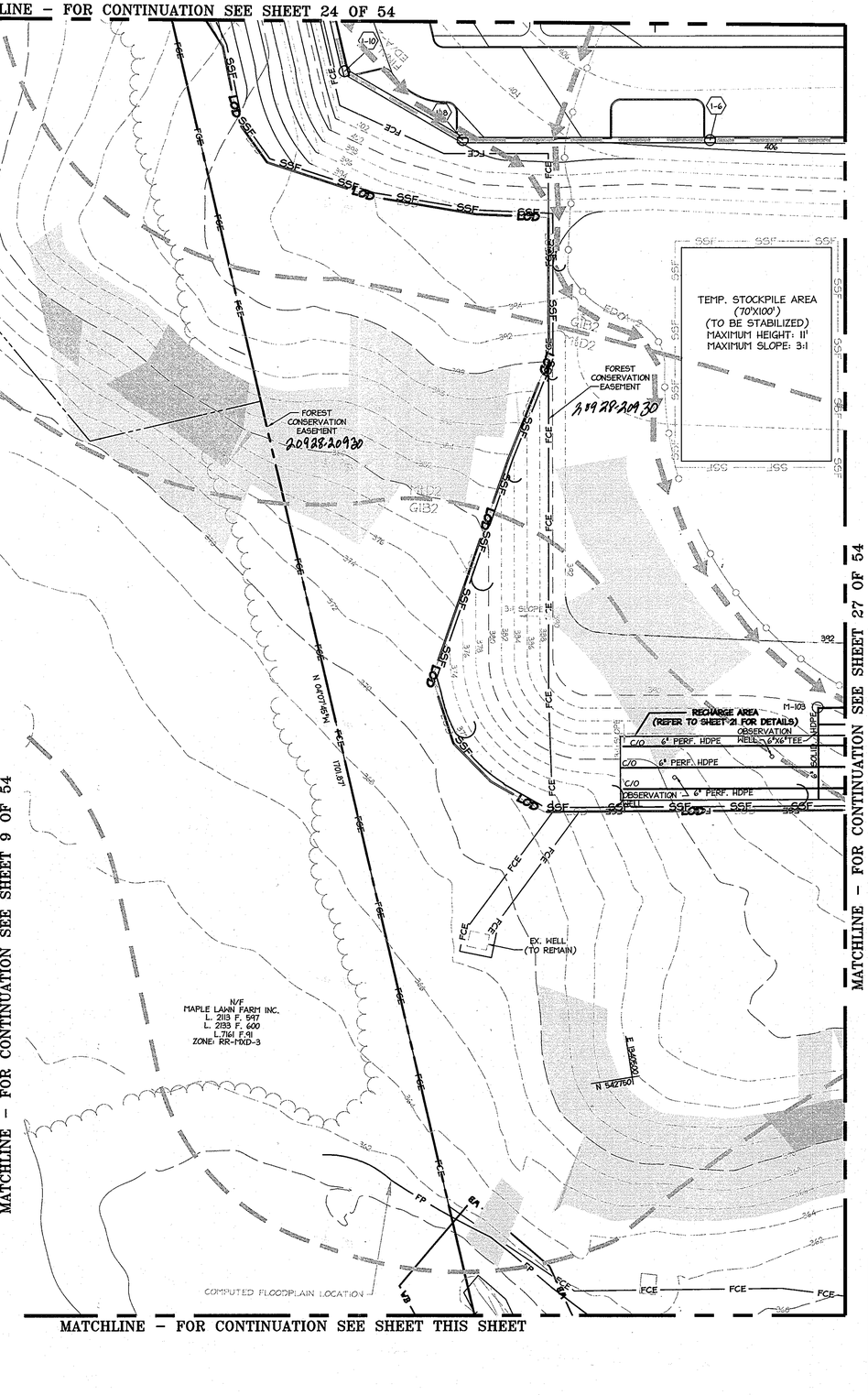
2. STEEP SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING (GP-010-09)

STOCKPILE NOTES:

1. SLOPES IN THE STOCKPILE SHALL NOT EXCEED 3:1.

2. THE STOCKPILE SHALL BE STABILIZED WITH GRASS IF IT IS REMAINING UNDISTURBED FOR MORE THAN 7 DAYS.





LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

DEVELOPER'S CERTIFICATE

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

Signature of Developer — Date 11/5/09

Richard T Roca
Print name below signature

ENGINEER CERTIFICATE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

Signature of Engineer — Date 10.9.09

JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — Date 11/10/09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09

Chief, Division of Land Development — Date 11/08/10

Director — Date 1/10/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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410.872.8800 · metro 301.861.0149 · fax 410.872.9693

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 29907 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref. 20928-20930				

TITLE:

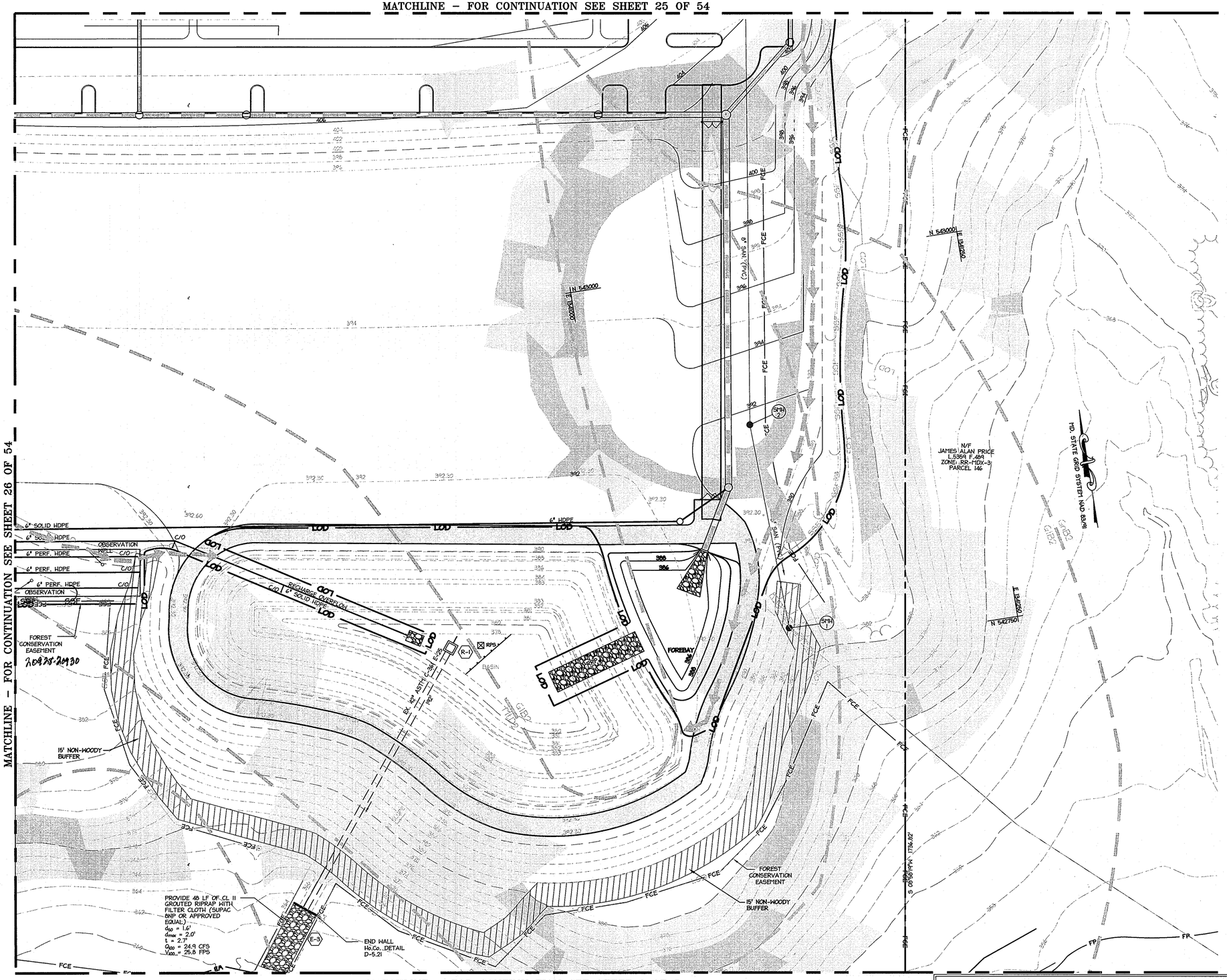
SEDIMENT AND EROSION CONTROL PLANS

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	27 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 25 OF 54



Basin		1	
Existing Drainage Area (acres)		3.07	
Proposed Drainage Area (acres)		23.2	
Storage Required (cubic feet)	Cleanout	20,880	
	Wet	41,760	
	Total	83,520	
Storage Provided (cubic feet)	Cleanout	20,880	Elev. = 381.90
	Wet	41,760	Elev. = 383.50
	Total	83,520	Elev. = 385.00
Basin Depth	Cleanout	4	
	Wet	5.5	
	Total	10	
Existing Ground Elevation		394.0	
Top Embankment Elevation		392.2	
Riser Crest Elevation		385.5	
Permanent pool elevation		383.5	
Cleanout Elevation		382.0	
Bottom Elevation		378.0	
Freeboard Provided		2	
Barrel Diameter		42	
Riser Size		6'x6'	
Bottom Dimensions		120'x150'	
10 Year WSEL		389.06	
100 Year WSEL		390.23	
Q1 existing (cfs)		0.00	
Q1 during (cfs)		2.68	
Q1 ultimate (cfs)		2.88	

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Signature of Developer — 11/5/09 Date

Richard T Rocca
Print name below signature

ENGINEER CERTIFICATE

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Signature of Engineer — 10.9.09 Date

JOHN HOUSEHOLDER, P.E.
Print name below signature

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS.

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

Howard Soil Conservation District — 11/10/09 Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — 11/17/09 Date

Chief, Division of Land Development — 1/08/10 Date

Director — 1/11/10 Date

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.398	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
PLAT NO.'S 20928-20930				

TITLE:

SEDIMENT AND EROSION CONTROL PLANS

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	28 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

NOTE:

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2. STEEP SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING (GP-010-09)

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — 10.9.09 DATE

PROFESSIONAL CERTIFICATION

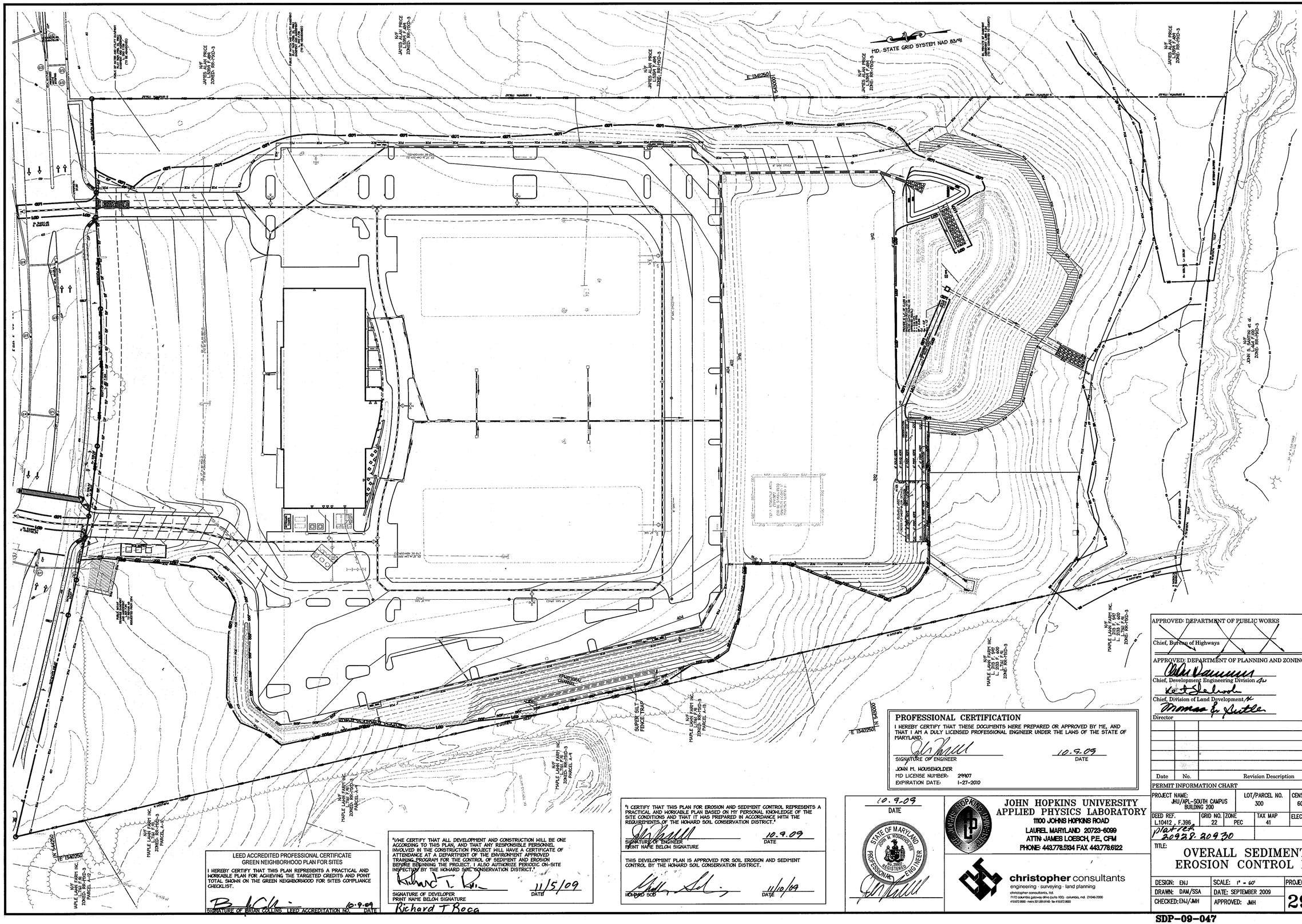
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — 10.9.09 DATE

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10.9.09 DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 29907 — REGISTERED PROFESSIONAL ENGINEER



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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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SIGNATURE OF DEVELOPER — DATE 11/5/09
PRINT NAME BELOW SIGNATURE
Richard J. Rocca

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 10.9.09
PRINT NAME BELOW SIGNATURE

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

HOWARD SCD — DATE 11/10/09

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

APPROVED: DEPARTMENT OF PUBLIC WORKS

Chief, Bureau of Highways — Date

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL-SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat(s) 20928-20930			

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410.872.8690 · metro 301.854.6148 · fax 410.872.8693

TITLE:
OVERALL SEDIMENT & EROSION CONTROL PLAN

DESIGN: ENJ	SCALE: 1" = 60'	PROJECT: 08A901.00
DRAWN: DAM/SSA	DATE: SEPTEMBER 2009	
CHECKED: ENJ/JMH	APPROVED: JMH	29 OF 53

SDP-09-047

MDC-930(SDP)

19.0 Standards and Specifications
For Land Grading

Definitions

Reshaping of the existing land surface in accordance with a plan as determined by engineering survey and layout.

Purpose

The purpose of a land grading specification is to provide for erosion control and vegetative establishment on those areas where the existing land surface is to be reshaped by grading according to plan.

Design Criteria

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surrounding to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measured for drainage and water removal and vegetative treatment, etc.

Many counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they should be followed. The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (including grade and cross-section), grade stabilization structures, retaining walls, and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

1. Provisions shall be made to safely conduct surface runoff to storm drains, protected outlets or to stable water courses to insure that surface runoff will not damage slopes or other graded areas.

2. Cut and fill slopes that are to be stabilized with grasses shall not be steeper then 2:1. (Where the slope is to be mowed the slope should be no steeper then 3:1; 4:1 is preferred because of safety factors related to mowing steep slopes.)

3. Reverse benches shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet; for 3:1 slopes it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located to divide the slopes face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.

   a. Benches shall be a minimum of six-feet wide to provide ease of maintenance.

   b. Benches shall be designed with a reverse slope of 6:1 or flatter to the toe of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.

   c. The flow length within a bench shall not exceed 800' unless accompanied by appropriate design and computations. For flow channel stabilization see temporary swales.

4. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of earth dikes, ditches and swales or conveyed downslope by the use of a designated structure, except where:

   a. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected for surface runoff until they are stabilized.

   b. The face of the slope shall not be subjected to any concentrated slows of surface water such as from natural drainways, graded swales, downspouts, etc.

   c. The face of the slope will be protected by special erosion control materials, to include, but not limited to: approved vegetative stabilization practices (see section G), rip-rap or other approved stabilization methods.

5. Cut slopes occurring in ripable rock shall be serrated as shown on the following diagram. These serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut as nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1:1. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and carried to a suitable outlet.

6. Surface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

7. Slopes shall not be created too close to property lines as the endanger adjoining properties without adequately protecting such properties against sediment, erosion, slippage, settlement, subsidence or other related damages.

8. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tempers over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.

9. Stockpiles, borrow areas and spoil shall be shown on the plans and shall be subjected to the provisions of the Standard and Specifications.

All disturbed areas shall be stabilized structurally or vegetatively in compliance with 20.0 Standards and Specifications for Vegetative Stabilization.

21.0 Standards and Specifications For Topsoil

Definitions

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

Purpose

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

Conditions Where Practice Applies
This practice is limited to areas having 2:1 or flatter slopes where:

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

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

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

   d. The soil is so acidic that treatment with limestone is not feasible.

For the purpose of these Standards and Specification, areas having slopes steeper that 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper that 2:1 shall have the appropriate stabilization shown on the plans.

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

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 both 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 large than 1 ½" in diameter.

   ii. Topsoil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or other as specified.

   iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread to 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 in to the soil in conjunction with tillage operations as described in the following procedures.

For sites having disturbed areas under 5 acres:

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

For sites having disturbed areas over 5 acres:

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 tested soil demonstrates a pH of less the 6.0, sufficient lime shall be prescribed to raise 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 day min.) to permit dissipation of phyto-toxic materials.

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

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

Topsoil Application

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

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

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.

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

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:

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

   a. Composted sludge shall be supplied by, or originated 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.

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 Extention Service, University of Maryland and Virginia Polytechnic Institutes. Revised 1973.

30.0 Dust Control

Definition
Controlling dust blowing and movement on construction sites and roads.

Purpose
To prevent blowing and movement of dust from exposed soil surfaces, reduce on and off-site damage, health hazards, and improve traffic safety.

Conditions Where Practice Applies
This practice is applicable to areas subject to dust blowing and movement where in and off-site damage is likely without treatment.

Specifications
Temporary Methods

1. Mulches - See standards for vegetative stabilization with mulches only. Mulch should be crimped or tacked to prevent blowing.

2. Vegetative Cover - See standards for temporary vegetative cover.

3. Tillage - To roughen surface and bring clumps to the surface. This is an emergency measure which should be used before soil blowing starts. Begin plowing on windward side of site. Chisel-type plows spaced about 12" apart, spring-toothed harrows, and similar plows are examples of equipment which may produce the desired effect.

4. Irrigation - This is generally done as an emergency treatment. Site is sprinkled with water until the surface is moist. Repeat as needed. At no time should the site be irrigated to the point that runoff begins to flow.

5. Barriers - Solid board fences, silt fences, snow fences, burlap fences, straw bales, and similar materials can be used to control air currents and soil blowing. Barriers placed at right angles to prevailing currents at intervals of about 10 times their height are effective in controlling soil blowing.
6. Calcium Chloride - Apply at rates that will keep surface moist. May need retreatment.

Permanent Methods

1. Permanent Vegetation - See standards for permanent vegetative cover, and permanent stabilization with sod. Existing trees or large shrubs may afford valuable protection if left in place.

2. Topsoil - Covering with less erosive materials. See Standards for Topsoiling.

3. Stone - Cover surface with crushed stone or coarse gravel.

References

1. Agriculture Handbook 346. Wind Erosion Forces in the United State and Their Use in Predicting Soil Loss.

2. Agriculture Information Bulletin 354. How to Control Wind Erosion, USDA - ARS.

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: Loosen upper three inches of soil by raking, disking 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/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding apply 400 lbs/acre 30-0-0 urea form fertilizer (9 lbs/1000 sq. ft.)
   2. Acceptable--Apply 2 tons/acre dolomitic limestone (92 lbs/1000 sq. ft.) and 1000 lbs/acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.

Seeding -- For the periods March 1 -- April 30, and August 1 -- October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 -- July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 -- February 28, protect site by:
   Option 1 - Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring.
   Option 2 - Use sod. Option 3 -- Seer: with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

Mulching -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool of 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

Maintenance -- Inspect all seeding areas and make needed repairs, replacements and reseedings.

TEMPORARY SEEDING NOTES.

Apply to graded or cleared areas likely to be re-disturbed where a short-term vegetative cover is needed.

Seedbed preparation: -- Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

Soil Amendments: -- Apply 600 lbs/acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.).

Seeding: -- For periods March 1 -- April 30 and from August 15 -- October 15, seed with 2-1/2 bushel per acre of annual rye (3.2 lbs/1000 sq. ft.). For the period May 1 -- August 14, seed with 3 lbs/acre of weeping lovegrass (.07 lbs/1000 sq. ft.). For the period November 16 -- February 28 protect the site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: -- Apply 1-1/2 to 2 tons/acre (70 to 90 lbs/1000 sq. ft.) of unrotted weed-free, small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gal. per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.)for anchoring.

Refer to the 1994 Maryland Standards and Specification for Soil Erosion and Sediment Control for additional rates and methods not covered.

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

SIGNATURE OF DEVELOPER Richard T Roos DATE 11/5/09
PRINT NAME BELOW SIGNATURE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

PE # 20045I
SIGNATURE OF ENGINEER DATE 11/05/09
WILLIAM F. WHELAN III
PRINT NAME BELOW SIGNATURE

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

HOWARD SCD DATE 11/10/09

SEQUENCE OF CONSTRUCTION

NOTE: THIS WORK CAN BE DONE SIMULTANEOUSLY WITH WORK SHOWN THE OTHER ASSOICATED PROJECTS F-09-047 AND GP-10-09.

1. OBTAIN THE GRADING PERMIT FROM HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS DIVISION. (1 DAY)

2. ARRANGE AN ON-SITE PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTORS, THE CONTRACTOR, AND ENGINEER PRIOR TO THE START OF CONSTRUCTION OF THIS PLAN. (1 DAY)

3. CONTRACT A PRIVATE UTILITY LOCATING COMPANY TO ADEQUATELY MARK ALL EXISTING UTILITIES. (2 DAYS)

4. USE STABILIZED CONSTRUCTION ENTRANCES FROM GP-10-09 AND THEN RELOCATE AS SHOWN ON THIS PLAN. (1 DAY)

5. VERIFY ALL EXISTING CONTROL DEVICES FROM MASS GRADING PLAN GP-10-09 ARE STILL IN PLACE. PERIMETER CONTROLS MAY NEED TO BE RELOCATED AND/OR RE-ESTABLISHED AS SHOWN ON THIS PLAN. OBTAIN INSPECTOR'S APPROVAL PRIOR TO GRADING. (2 DAYS)

6. ONCE INSPECTOR'S APPROVAL IS OBTAINED, BEGIN ON-SITE GRADING. MAINTAIN POSITIVE DRAINAGE TO EXISTING SEDIMENT BASIN AT ALL TIMES. (28 DAYS)

7. BEGIN INSTALLATION OF THE UNDERGROUND UTILITIES, INCLUDING STORMWATER RECHARGE FACILITIES. STORMDRAIN SHALL BE CONSTRUCTED FROM DOWNSTREAM TO UPSTREAM. (15 DAYS).

8 BEGIN FINE GRADING OF THE SITE AND BUILDING CONSTRUCTION. INSTALL BASE PAVEMENT FOR THE PARKING LOTS. BEGIN CURB AND GUTTER CONSTRUCTION AND ALL OTHER SITE IMPROVEMENTS(SIDEWALK, RAMPS, ETC.) (15 DAYS)

9. REMOVE STABILIZED CONSTRUCTION ENTRANCES AND BASE PAVE ANY REMAIN AREAS. SURFACE PAVE ALL ROADWAYS. (7 DAYS)

10. IMMEDIATELY UPON COMPLETION OF GRADING, PROVIDE STABILIZATION PER THE SEEDING TABLES PROVIDED ON THE PLANS. (7 DAYS)

11. ONCE ALL GRADING, PAVEMENT, CURB AND GUTTER ARE COMPLETED AND THE SITE IS STABILIZED, OBTAIN INSPECTOR'S APPROVAL PRIOR TO REMOVAL OF ANY SEDIMENT CONTROL DEVICES AND THE CONVERSION OF THE ON-SITE SEDIMENT BASIN TO A PERMANENT STORMWATER MANAGEMENT FACILITY AS SHOWN AND APPROVED UNDER SDP-09-047. (10 DAYS)
CONVERT SEDIMENT BASIN TO SWM POND PER SHEETS 18,19, AND 20.
   A. TO REMOVE WATER FROM BASIN USE REMOVEABLE PUMPING STATION (1 DAY)
   B. REMOVE SEDIMENT AND DISPOSE OF ON-SITE OR AT SITE WITH AN APPROVED AND ACTIVE SEDIMENT CONTOL PLAN. (1 DAY)
   C. REMOVE DEWATERING DEVICE AND REGRADE POND AS NEEDED TO CONFORM TO THE FINAL POND GRADING INCLUDING FOREBAY. (3 DAYS)
   D CONVERT THE RISER AS DETAILED ON SHEET 19 (5 DAYS)
   E. STABILIZE ALL REMAINING DISTURBED AREAS (5 DAYS)

12. REMOVE ALL REMAINING SEDIMENT CONTROL DEVICES. (5 DAYS)

13. STABILIZE ANY REMAINING DISTURBED AREAS ON-SITE. (4 DAYS)

14. ONCE ALL SEDIMENT CONTROL DEVICES ARE REMOVED AND THE SITE IS STABILIZED, OBTAIN FINAL APPROVAL FROM INSPECTOR. (2 DAYS)

ESTIMATED CONSTRUCTION TIME: 115 DAYS

WETLAND NOTE:

IT IS THE APPLICANT'S RESPONSIBILITY TO OBTAIN ANY STATE PERMITS, IF REQUIRED, FOR ANY CONSTRUCTION ACTIVITY COVERED BY THIS PLAN WHICH IMPACTS A STATE REGULATED WETLAND. ANY CHANGES TO PLANS FOR THIS DEVELOPMENT WHETHER REQUIRED BY THE STATE OR INITIATED BY THE APPLICANT TO MEET STATE REQUIREMENTS, MUST BE APPROVED BY HOWARD SCD.

SOIL CHARACTERISTICS CHART

SERIES	NAME	SUBGROUP	DESCRIPTION	HYDRIC	K-FACTOR
ChA	CHESTER SILT LOAM, 0-3%	TYPIC HAPLUDULTS	4 TO 10 FEET DEPTH TO BEDROCK; 20+ FEET TO WATER TABLE; SLIGHT TO MODERATE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPE; EROSION HAZARD.	N	0.32
Co	CODORUS SILT LOAM	FLUVENTIC DYSTROCHREPTS	-	N	0.37
GgA	GLENELG LOAM, 0-3%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
GgB	GLENELG LOAM, 3-8%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
GgC	GLENELG LOAM, 8-15%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
GnB	GLENVILLE-BAILE SILT LOAM, 0-8%	TYPIC HAPLUDULTS	4 TO 10 FEET TO BEDROCK; 10+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.20
Ha	HATBORO SILT LOAM	FLUVENTIC HAPLUDULTS	-	Y	0.37
MgB2	MANOR GRAVELLY LOAM, 3-8%	TYPIC DYSTROCHREPTS	6 TO 10 FEET TO BEDROCK; 20+ FEET TO WATER TABLE; SLIGHT TO SEVERE LIMITATIONS FOR SEWAGE DISPOSAL FIELDS AND HOMES WITH BASEMENTS DEPENDING ON SLOPES; EROSION HAZARD.	N	0.43

WARNING: ALL SOILS HAVE LIMITATIONS, RANGING FROM SLIGHT TO SEVERE, FOR BUILDING HOMES, CONSTRUCTING ROADS AND PONDS AND VARIOUS OTHER USES. PLEASE CONSULT THE SOIL SURVEY OF HOWARD COUNTY FOR DETERMINING SOIL TYPES AND THEIR SUITABILITY FOR DEVELOPMENT, ENGINEERING AND BUILDING.

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 7 DATE 10/23/09

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.

SIGNATURE OF ENGINEER DATE 10/23/09

WILLIAM F. WHELAN III
MD LICENSE NUMBER: 20045I
EXPIRATION DATE: 09-17-2011

10/23/09
DATE

STATE OF MARYLAND — WILLIAM FRANCIS WHELAN III — NO. 20045 — REGISTERED — PROFESSIONAL ENGINEER

HOWARD COUNTY SOIL CONSERVATION DISTRICT STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (410-313-1855).

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 most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.

3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.

4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol 1, Chapter 12 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.

5. All disturbed areas must be stabilized within the time period specific above in accordance with the 1995 MARYLAND STANDARD AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Section 52). Temporary stabilization with mulch along can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.

6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained by the Howard County Sediment Control Inspector.

7. Site Analysis:
Total Area of Site 35.10 Acres
Area Disturbed 22.73 Acres
Area to be roofed or paved 9.04 Acres
Area to be vegetatively stabilized 16.51 Acres
Total Cut 0 Cu. Yds.
Total Fill 0 Cu. Yds.
Offsite waste/borrow area location: To a site with approved sediment control plan and 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 control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.

10. On all site 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 any construction as shown on these plans by the end of each work day, whichever is shorter. Secure an As-built approval letter from Howard SCD and County.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09
Chief, Land Development — Date 11/08/10
Director — Date 11/10/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E. CFM
PHONE: 443.778.5134 FAX 443.778.6122

christopher consultants
engineering · surveying · land planning
christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.2690 · metro 301.861.0148 · fax 410.872.2693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat #: 20938-20930			

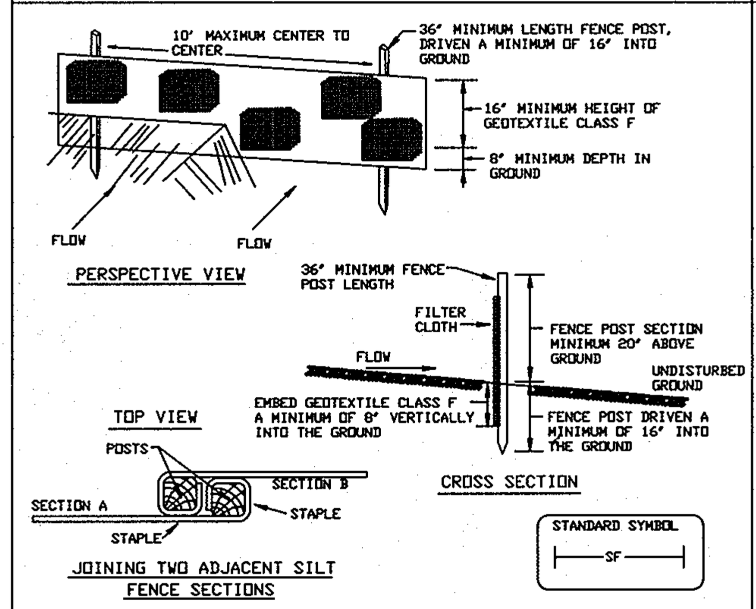
TITLE:
SEDIMENT AND EROSION NOTES & DETAILS

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	
CHECKED: JMH	APPROVED: JMH	30 OF 54

SDP-09-047

MDC-930(SDP)

DETAIL 22 - SILT FENCE



STANDARD SYMBOL: —SF—

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 ft²/ 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

SILT FENCE

Silt Fence Design Criteria

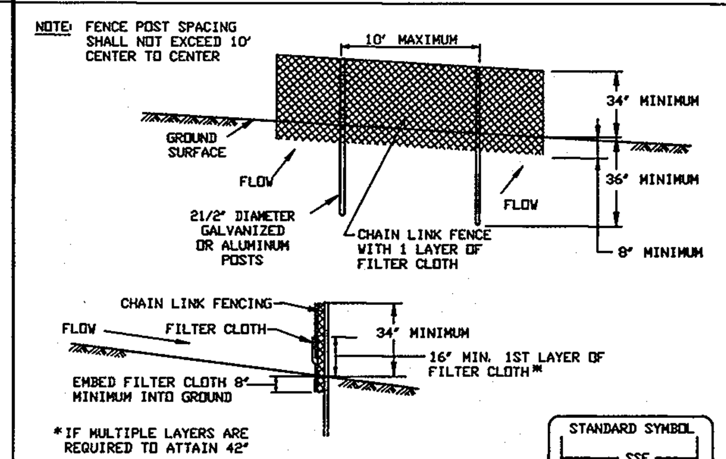
Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2% slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

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

DETAIL 33 - SUPER SILT FENCE

NOTE: FENCE POST SPACING SHALL NOT EXCEED 10' CENTER TO CENTER



*IF MULTIPLE LAYERS ARE REQUIRED TO ATTAIN 42"

STANDARD SYMBOL: —SSF—

Construction Specifications

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

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence.

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

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

5. When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and folded.

6. Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height

7. Filter cloth shall be fastened securely to each fence post with wire ties or staples at top and mid section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal/ft²/minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

SUPER SILT FENCE

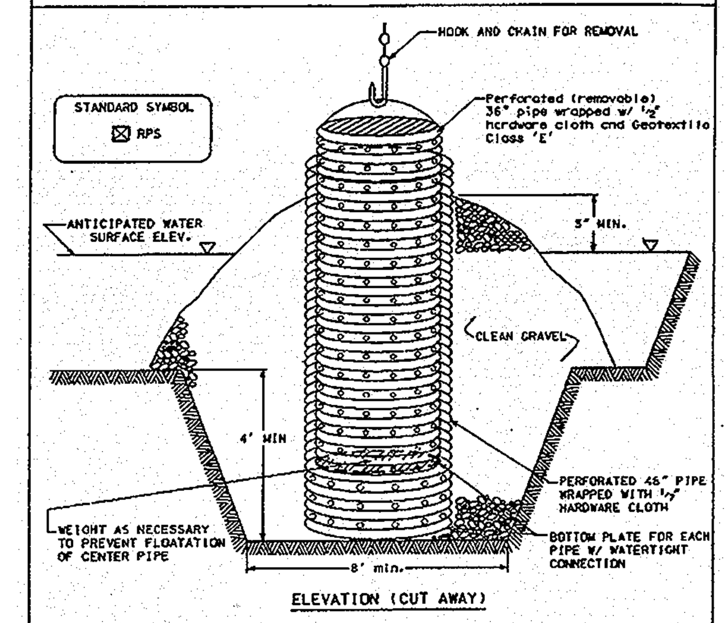
Design Criteria

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

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

DETAIL 20A - REMOVABLE PUMPING STATION

STANDARD SYMBOL: RPS



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 ½" hardware cloth to prevent backfill material from entering the perforations.

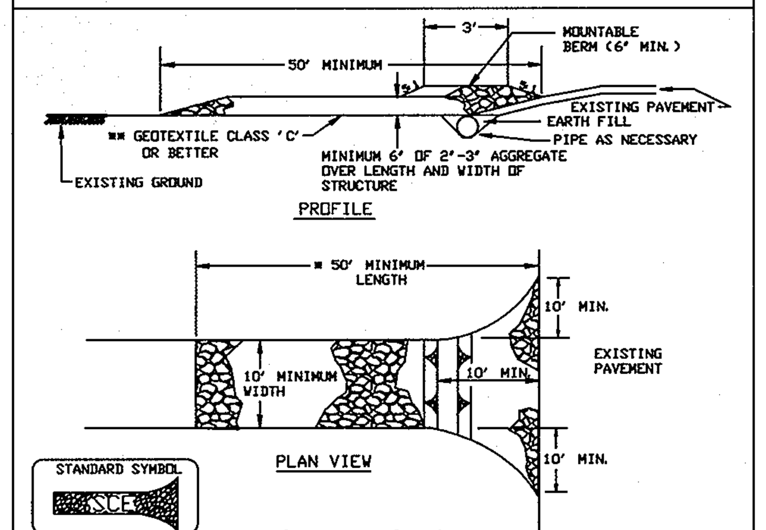
2. After installing the outer pipe, backfill around outer pipe with 2" aggregate or clean gravel.

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 ½" X 6" slits or 1" diameter holes 6" on center. The center pipe shall be wrapped with ½" hardware cloth first, then wrapped again with Geotextile Class E.

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 - 5	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



STANDARD SYMBOL: SCE

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.

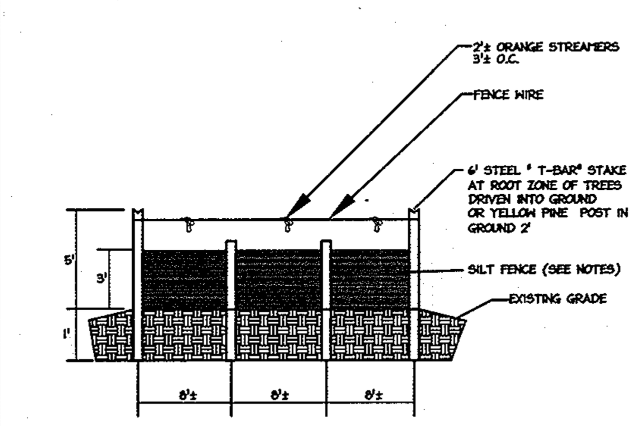
3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

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



NOTES:
1. SILT FENCE TO BE INSTALLED PER SCS DETAIL.
2. WIRE, SNOW FENCE, ETC. FOR TREE PROTECTION ONLY.
3. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
4. LIMITS OF DISTURBANCE SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
5. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS. (SEE ROOT PRUNING DETAIL)
6. DEVICE SHOULD BE PROPERLY MAINTAINED THROUGHOUT CONSTRUCTION.
7. PROTECTION SIGNS MAY BE PLACED ON FENCE AS NOTED ON PLAN.
8. LOCATE FENCE OUTSIDE THE CRITICAL ROOT ZONE.

COMBINATION SILT FENCE AND TREE PROTECTION DEVICE- TYPE II

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

SIGNATURE OF DEVELOPER Richard T Rocco — DATE 11/5/09
PRINT NAME BELOW SIGNATURE

"I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

SIGNATURE OF ENGINEER — DATE 10.9.09
PRINT NAME BELOW SIGNATURE

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

HOWARD SCD — DATE 11/10/09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division	Date 11/17/09
Chief, Division of Land Development	Date 1/08/10
Director	Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
PHONE: 443.778.5134 FAX 443.778.6122

christopher consultants
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christopher consultants, ltd.
7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.8690 · metro 301.881.0148 · fax 410.872.8693

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE 10.9.09

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.

SIGNATURE OF ENGINEER — DATE 10.9.09
JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10.9.09
DATE

STATE OF MARYLAND · JOHN M. HOUSEHOLDER · No. 29907 REGISTERED · PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928-20930				

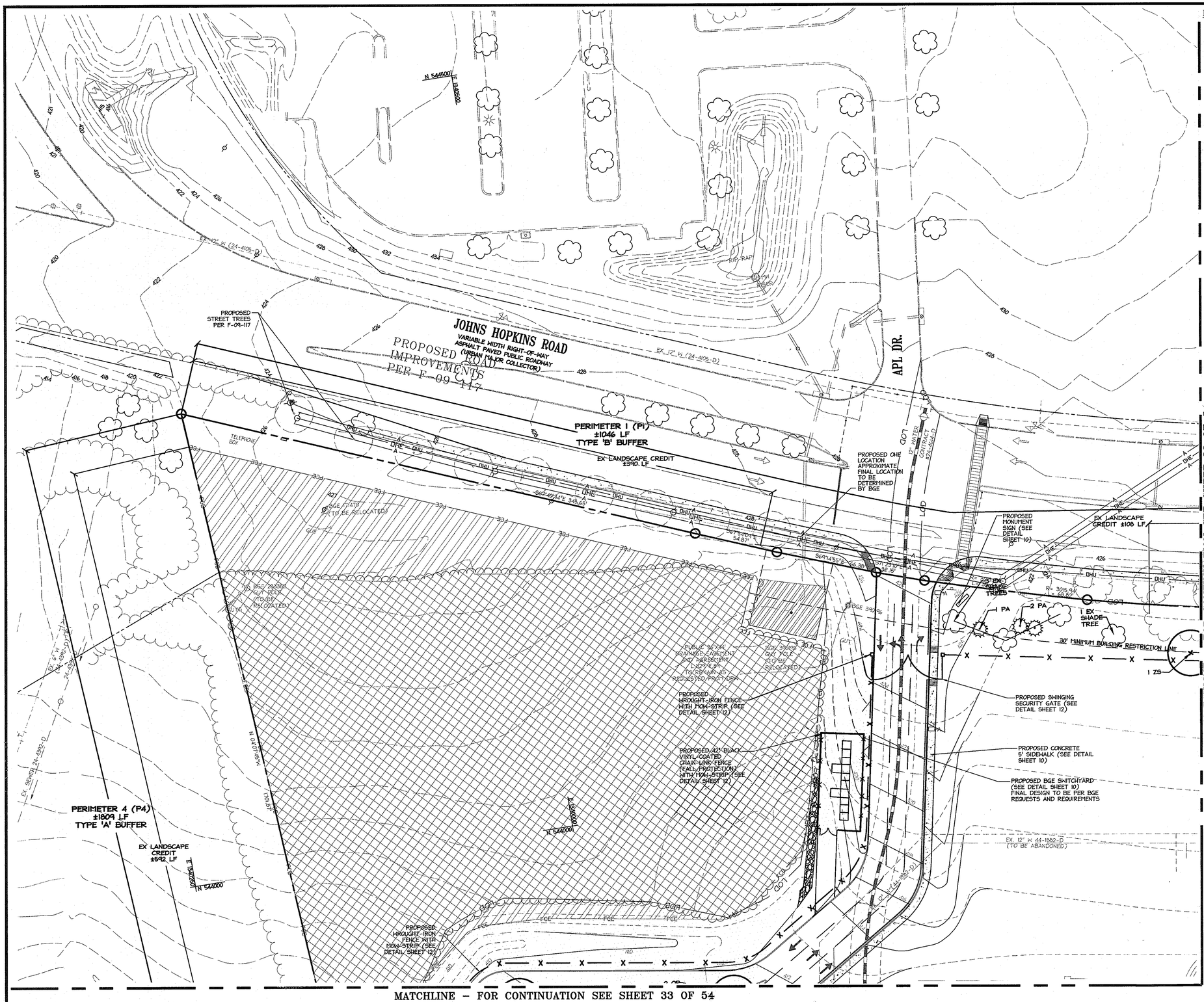
TITLE:

SEDIMENT AND EROSION NOTES & DETAILS

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	31 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



PLANT LIST:

SYMBOL	SCIENTIFIC NAME	COMMON NAME	QTY.	SIZE	REMARKS
ZS	ZELKOVA SERRATA	JAPANESE ZELKOVA	1	2½" - 3" caliper	B&B
GT	GLEDITSIA TRIACANTHOS INERMIS 'IMPERIAL'	THORNLESS HONEYLOCUST	8	2½" - 3" caliper	B&B
QR	QUERCUS RUBRA	RED OAK	50	2½" - 3" caliper	B&B
AR	ACER RUBRUM 'RED SUNSET'	RED SUNSET RED MAPLE	31	2½" - 3" caliper	B&B
BN	BETULA NIGRA	RIVER BIRCH	4	2½" - 3" caliper	B&B
PA	PICEA ABIES	SERBIAN SPRUCE	6	6-8' HT.	B&B
CD	CEDRUS DEODORA	DEODAR CEDAR	8	6-8' HT.	B&B
IO	ILEX OPACA	AMERICAN HOLLY	51	6-8' HT.	B&B
PS	PINUS STROBUS	EASTERN WHITE PINE	4	6-8' HT.	B&B

LEGEND

EXISTING CONTOURS
PROPOSED CONTOUR
EXISTING SANITARY SEWER — EX. 8" SAN
EXISTING WATER — EX. 8" WATER
PROPOSED 6' WROUGHT IRON FENCE
PROPOSED 6' CHAIN LINK FENCE
PROPERTY LINE
STREAM CENTERLINE
WETLAND LIMITS
25' WETLAND BUFFER
LIMIT OF DISTURBANCE
EXISTING TREELINE
PROPOSED FOREST CON ESMT
PROPOSED CURB AND GUTTER
PROPOSED DEPRESSED CURB
PROPOSED SPILL CURB
EXISTING TREE
FOREST PRESERVATION AREA
FOREST CLEARING AREA
FOREST REFORESTATION AREA
100 YEAR FLOODPLAIN
PROPOSED SHADE TREE
PROPOSED EVERGREEN TREE
PROPOSED ORNAMENTAL TREE
PROPOSED STREET TREES UNDER F-09-117
PROPOSED PARKING LIGHT A1 A2
PROPOSED LIGHTING B
PROPOSED STREET LIGHTS
PROPOSED SITE LIGHT
PROPOSED SITE LIGHT

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITIONS OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

No.	Date	Revision Description
1	6.14.13	REDLINED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
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410.872.9690 · metro 301.861.0145 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L10412, F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat ref: 20928, 20930				

6/14/13 DATE

STATE OF MARYLAND — BRIAN KEITH COLLINS — NO. 3171 — REGISTERED LANDSCAPE ARCHITECT

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	32 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

MATCHLINE – FOR CONTINUATION SEE SHEET 31 OF 54

MD. STATE GRID SYSTEM NAD 83/91

N 544250 E 345600

N 544000 E 345600

JOHNS HOPKINS ROAD
VARIABLE WIDTH RIGHT-OF-WAY
ASPHALT PAVED PUBLIC ROADWAY
(URBAN MAJOR COLLECTOR)

PROPOSED ROAD IMPROVEMENTS PER F-09-117

BGE OVERHEAD UTILITY LINES

EX. 12" W (24-4105-D)

EX. 12" W (44-1605)

EX. 12" W 44-1982-D (TO BE ABANDONED)

12" WATER (DIP)

10" WATER CONTRACT #24-1609

PERIMETER 1 (P1)
±1046 LF
TYPE 'B' BUFFER

EX LANDSCAPE CREDIT
±108 LF

PROPOSED WHITE STRIPING

1 EX SHADE TREE

N79°54'06"W 37.55'

2 CD (P1)

25 10

N83°43'32"W 141.84'

R= 1655.79' L= 308.53'

SIGN-DY-MATLASE INC.
L. 437 F. 466

3 PA

30' MINIMUM BUILDING RESTRICTION LINE

1 ZS

5 EX SHADE TREES

3 CD

9 CD

5 EX SHADE TREES

PROPOSED MONUMENT SIGN (SEE DETAIL SHEET 10)

PROPOSED DROUGHT IRON FENCE WITH 2' NON-STRIP (SEE DETAIL SHEET 12)

PROPOSED SWINGING SECURITY GATE (SEE DETAIL SHEET 12)

PROPOSED 5' SIDEWALK (TYP) (SEE DETAIL SHEET 10)

PROPOSED 6" CURB AND GUTTER (SEE DETAIL SHEET 10)

PUBLIC 20' WATER AND UTILITY EASEMENT PLAT 7629 (FEB. 22 1980) EASEMENT AND AGREEMENT L. 2392 F. 726 (TO BE ABANDONED)

PERIMETER 2 (P2)
±1715 LF
TYPE 'C' BUFFER

S 05°56'16"E 1736.82'

4 EX EVERGREEN TREES

MATCHLINE – FOR CONTINUATION SEE SHEET 34 OF 54

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 1249.09 DATE

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/17/09

Chief, Division of Land Development — Date 1/03/10

Director — Date 1/11/10

Date	No.	Revision Description
	1	6.14.13 REDLINED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

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6/14/13 DATE

STATE OF MARYLAND · BRIAN KEITH COLLINS · NO. 3171 · REGISTERED LANDSCAPE ARCHITECT

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
PLAT REF. 20938: 20930				

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	33 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

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GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

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APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/14/10

Date	No.	Revision Description
1	6.14.13	REDLINED FOR PARKING REVISION, ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

platref 20928. 20930

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	34 OF 54
CHECKED: JMH	APPROVED: JMH	

6/14/13 DATE

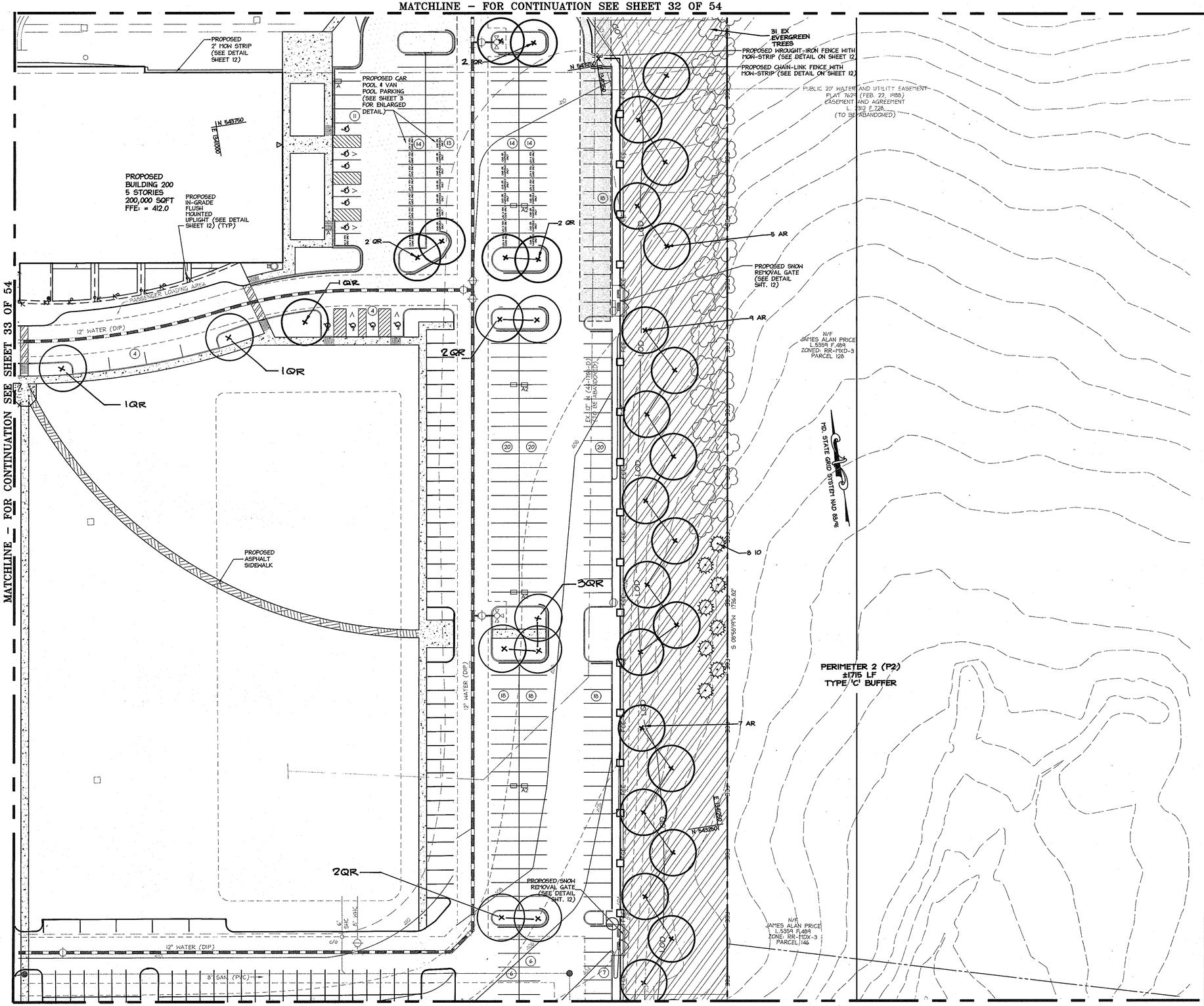
STATE OF MARYLAND BRIAN KEITH COLLINS NO. 3171 REGISTERED LANDSCAPE ARCHITECT

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 32 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 33 OF 54



MATCHLINE – FOR CONTINUATION SEE SHEET 36 OF 54

LEED ACCREDITED PROFESSIONAL CERTIFICATE
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 4/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description
	1	6.14.13 REDLINED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412, F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref. 20938 20930				

4/9/13 DATE

STATE OF MARYLAND — BRIAN KEITH COLLINS — NO. 3171 — REGISTERED LANDSCAPE ARCHITECT

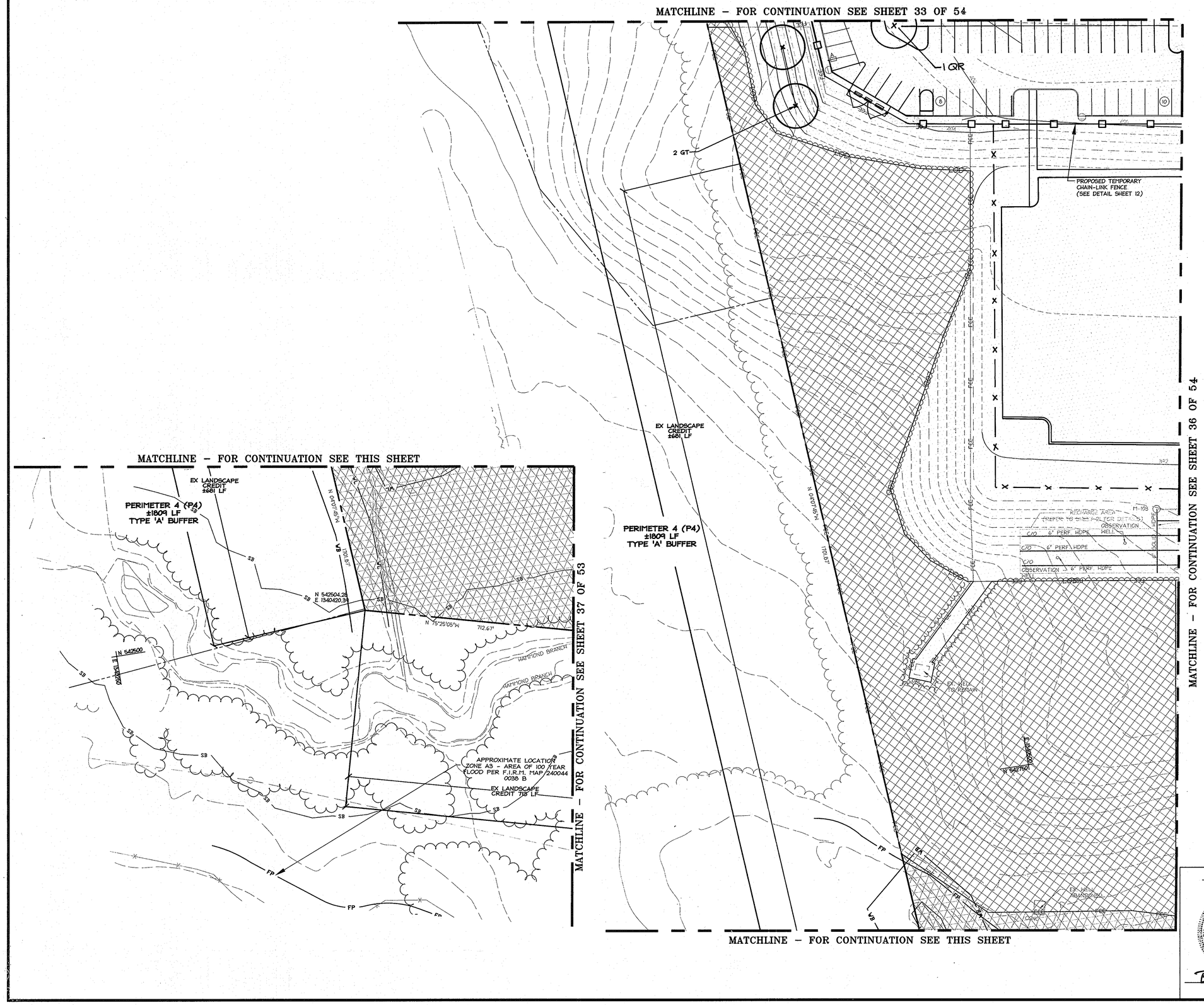
TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	35 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

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APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/03/10

Director — Date 1/11/10

Date	No.	Revision Description
1	6.14.13	REDUNED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL– SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref. 20928-20930

6/14/13
DATE

STATE OF MARYLAND
SHAN SEITH COLLINS
NO. 3171
REGISTERED LANDSCAPE ARCHITECT

TITLE:
LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	36 OF 54
CHECKED: JMH	APPROVED: JMH	

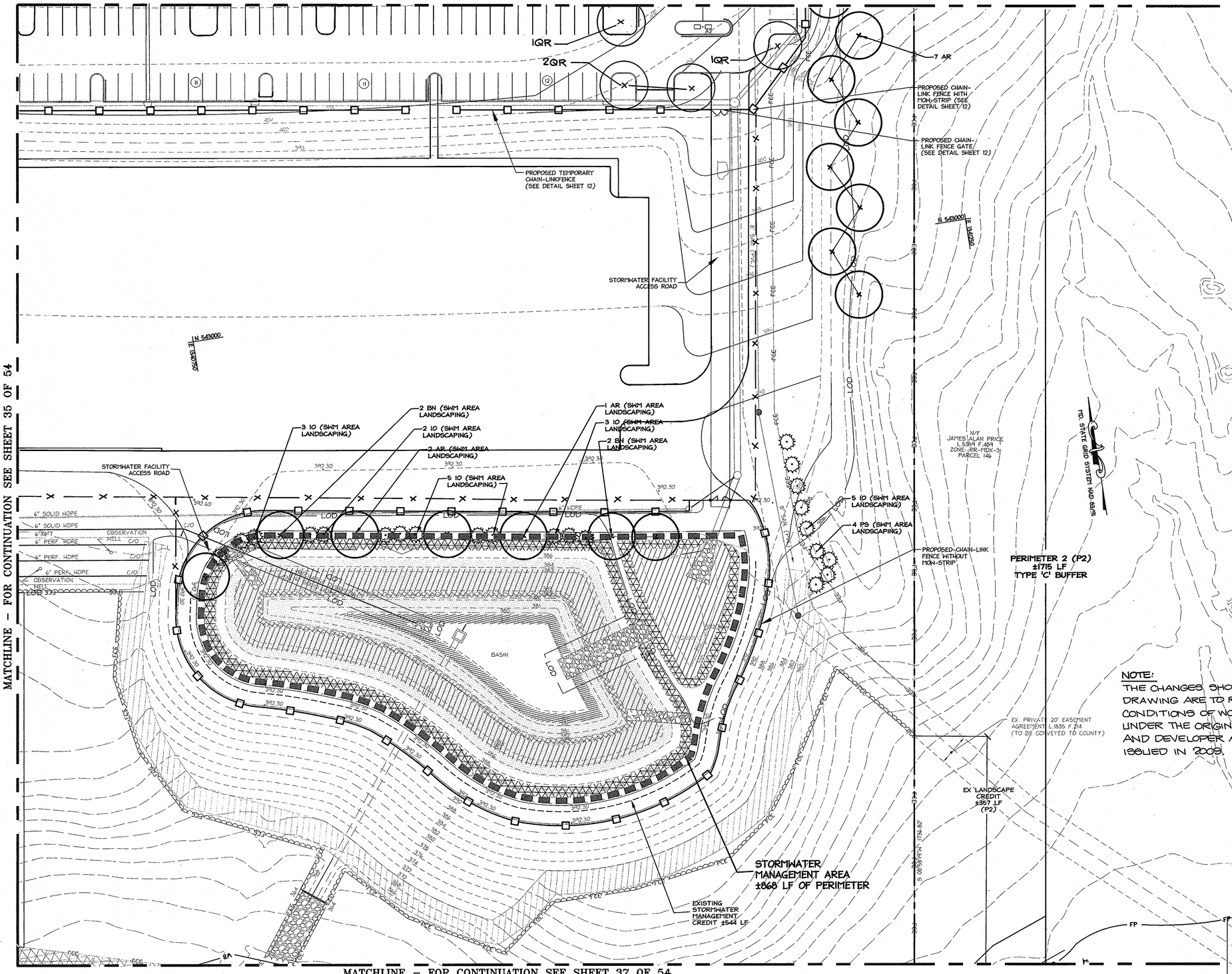
MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 34 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 35 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 37 OF 54



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SIGNATURE OF BRIAN COLLINS | LEED ACCREDITATION NO. | DATE 10.9.09

PLANT LIST-STORMWATER MANAGEMENT POND

ZONE 1 (12"-36" DEPTH BELOW NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
230	NYMPHAE ODORATA	WHITE WATER LILY	36" O.C.	OBL
230	SAGITTARIA FALCATA	DEEPWATER DUCK POTATO	36" O.C.	OBL
230	VALLISNERIA AMERICANA	WILD CELERY	36" O.C.	OBL

ZONE 2 (0"-12" DEPTH BELOW NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
66	LOBELIA CARDINALIS	CARDINAL FLOWER	36" O.C.	FACW
66	SAGITTARIA LATIFOLIA	DUCK POTATO	36" O.C.	OBL
66	IRIS VIRGINICA SHREVEI	BLUE FLAG IRIS	36" O.C.	FACW

ZONE 3 (0"-12" ELEVATION ABOVE NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
70	RUDBECKIA HIRTA	BLACK EYED SUSAN	36" O.C.	OBL
70	ASTER NOVAR-ANGLIAE	NEW ENGLAND ASTER	36" O.C.	FACW+
70	ECHINACEA PURPUREA	PURPLE CONEFLOWER	36" O.C.	OBL

ZONE 4 (1'-4' ELEVATION ABOVE NORMAL POOL ELEVATION)

QUANTITY	LATIN NAME	COMMON NAME	SPACING	REMARKS
700	DICHANTHELIUM CLANDESTINUM	DEER TONGUE GRASS	36" O.C.	OBL
700	LOTUS CORNICULATUS	BIRDS FOOT TREFOIL	36" O.C.	OBL
700	PANICUM VIRGATUM	SWITCHGRASS	36" O.C.	OBL
700	LESPEDEZA CUNEATA	LESPEDEZA	36" O.C.	FACU

LEGEND

- ZONE 1 WATER QUALITY PLANTINGS
- ZONE 2 WATER QUALITY PLANTINGS
- ZONE 3 WATER QUALITY PLANTINGS
- ZONE 4 WATER QUALITY PLANTINGS

NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD AS-BUILT CONDITIONS OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMIT AND DEVELOPER AGREEMENTS ISSUED IN 2009.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 1/7/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description
1	6.14.13	REDLINED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL– SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat Ref. 20928-20930				

6/14/13 DATE

BRIAN KEITH COLLINS — STATE OF MARYLAND — NO. 917 — REGISTERED LANDSCAPE ARCHITECT

TITLE:

LANDSCAPE PLAN

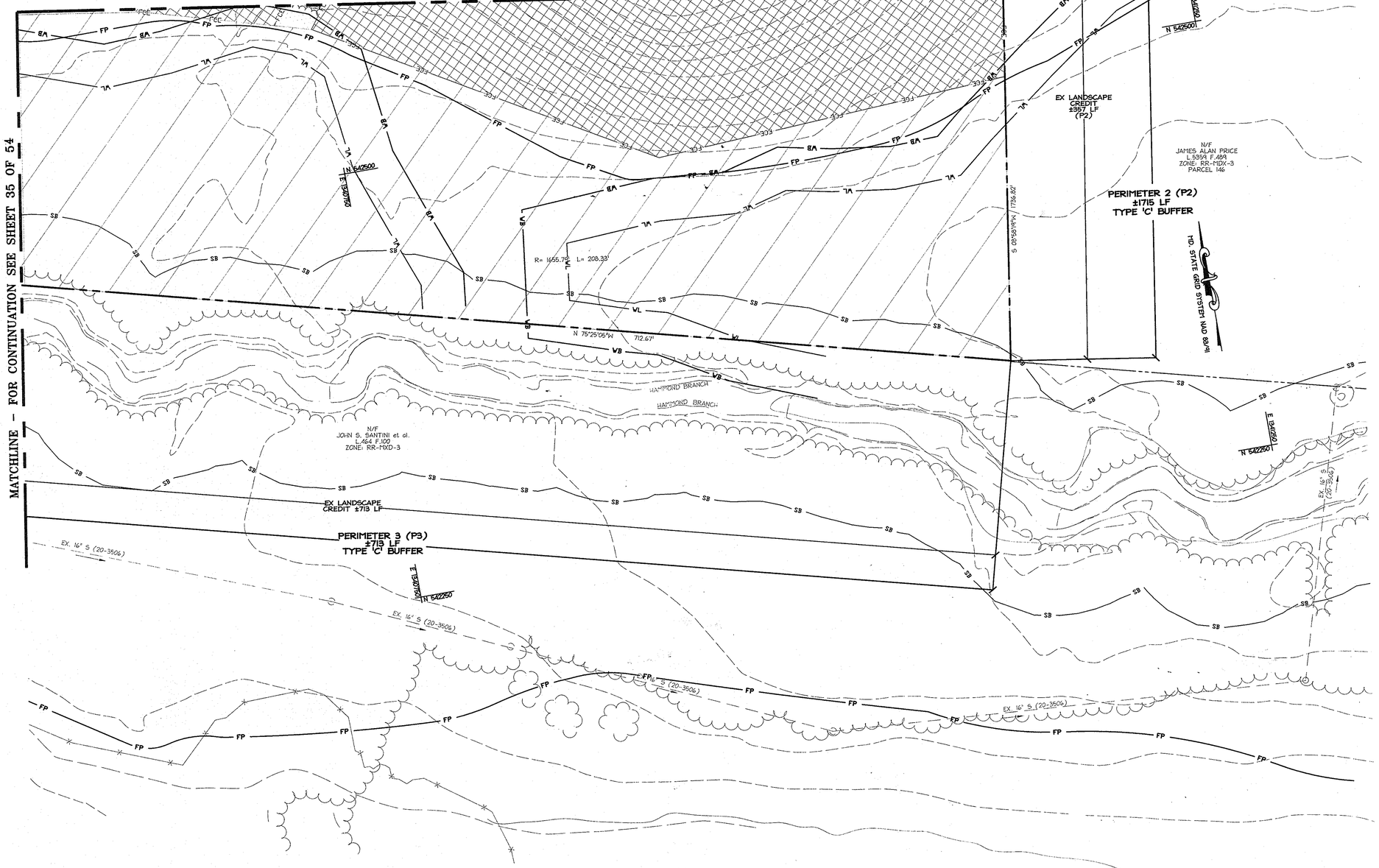
DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	37 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

MATCHLINE – FOR CONTINUATION SEE SHEET 36 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 35 OF 54



LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

B. J. Ch. 10.9.09

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE

NOTE:
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APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description
	1	4.16.13 REDLINED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL– SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928 & 20930				

TITLE:

LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	38 OF 54
CHECKED: JMH	APPROVED: JMH	

6/14/13
DATE

STATE OF MARYLAND BRIAN COLLINS NO. 9171 REGISTERED LANDSCAPE ARCHITECT

B. J. Ch.

MDC-930(SDP)

SDP-09-047

GENERAL PLANTING NOTES

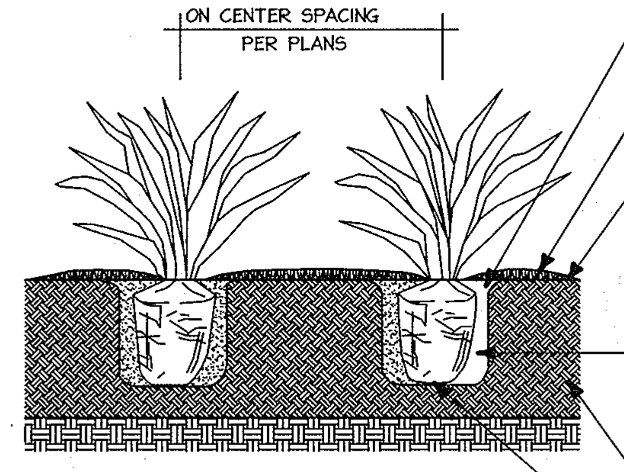
1. ALL PLANT MATERIAL TO MEET A.A.N. STANDARDS.
2. LANDSCAPING CONTRACTOR TO FOLLOW LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE WASHINGTON METRO AREA APPROVED BY LCAMW.
3. NO SUBSTITUTIONS TO BE MADE WITHOUT CONSENT OF LANDSCAPE ARCHITECT OR OWNER.
4. IN THE EVENT OF VARIATION BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND THE PLANS, THE PLANS SHALL CONTROL. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT QUANTITIES PRIOR TO THE COMMENCEMENT OF WORK. SOD QUANTITY TAKE-OFFS ARE THE RESPONSIBILITY OF THE CONTRACTOR. ALL DISCREPANCIES SHALL BE REPORTED TO THE LANDSCAPE ARCHITECT FOR CLARIFICATION PRIOR TO BIDDING. THE CONTRACTOR SHALL FURNISH PLANT MATERIAL IN SIZES AS SPECIFIED IN THE PLANT LIST.
5. ALL BEDS TO BE TOPPED WITH THREE INCHES OF HARDWOOD MULCH.
6. LANDSCAPE CONTRACTOR TO VERIFY LOCATION OF UTILITIES WITH OWNERS BEFORE PLANTING.
7. LANDSCAPE ARCHITECT/OWNER SHALL SELECT, VERIFY AND/OR APPROVE ALL PLANT MATERIAL. AT OWNER'S DISCRETION, SPECIMEN AND OTHER PLANT MATERIAL WILL BE SELECTED.
8. LANDSCAPE CONTRACTOR SHALL COORDINATE PLANT BED FILLING OPERATIONS AND PLANT MATERIAL INSTALLATION WITH GENERAL CONTRACTOR AND UTILITIES CONTRACTOR. AT THE TIME OF FINAL INSPECTION WITH ACCEPTANCE, ALL ELECTRIC,WATER,DRAINAGE, AND FOUNTAIN UTILITIES,AS WELL AS ALL PLANT MATERIALS, SHALL REMAIN UNDAMAGED. LIKEWISE, LANDSCAPE CONTRACTOR AND UTILITIES CONTRACTOR SHALL COORDINATE EFFORTS TO ENSURE THAT SURFACE UTILITIES ARE AT THE PROPER ELEVATION RELATIVE TO FINAL GRADES.
9. CONTRACTOR SHALL NOTIFY MISS UTILITY 72 HOURS PRIOR TO CONSTRUCTION.
10. THE OWNER,TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERMS, FENCES AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION, AND WHEN NECESSARY, REPAIRED OR REPLACED.
11. TOPSOIL MIX
   A. PLANTING MIX SHALL BE PREPARED AT APPROVED ON-SITE STAGING AREA USING APPROVED ON-SITE EXISTING SOIL. MIX MINIMUM QUANTITIES OF 20 CUBIC YARDS OR SUFFICIENT MIX FOR ENTIRE JOB IF LESS THAN 20 CUBIC YARDS IS REQUIRED.
   B. THOROUGHLY MIXED IN THE FOLLOWING PROPORTIONS FOR TREE AND SHRUB PLANTING MIX: .5 CY EXISTING SOIL .2 CY SHARP SAND .3 CY WOOD RESIDUALS 4.5 LBS TREBLE SUPERPHOSPHATE 5 LBS DOLMONITE LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
   C. FOR BED PLANTING, SHRUBS AND GROUNDCOVER SPACES 24 INCHES OR CLOSER, INCORPORATE THE FOLLOWING INGREDIENTS PER 20 SF AND INCORPORATE INTO TOP 8 INCHES OF EXISTING SOILS BY ROTOTILLING OR SIMILAR METHOD OF INCORPORATION. .2 CY SHARP SAND .3 CY ORGANIC MATERIAL 4.5 LBS TREBLE SUPERPHOSPHATE 5 LBS DOLMONITE LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)
12. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 69 SHADE TREES AND 69 EVERGREEN TREES ARE PROVIDED WITH LANDSCAPE SURETY IN THE AMOUNT OF $31,050 WITH THE DPW DEVELOPER'S AGREEMENT. LANDSCAPE SURETY IS BASED ON THE NUMBER OF REQUIRED PLANTS PER THE LANDSCAPE MANUAL (69 SHADE TREES x $300.00 EA. AND 69 EVERGREEN TREES x $150.00 EA.).
13. AT THE TIME OF PLANT INSTALLATION, ALL SHRUBS AND TREES LISTED AND APPROVED ON THE LANDSCAPE PLAN, SHALL COMPLY WITH THE PROPER HEIGHT REQUIREMENT IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THE APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO THE APPLICABLE PLANS.
14. THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, AND IS THE RESPONSIBILITY OF THE DEVELOPER (AT FINAL PLAT) OR THE BUILDER (INTERNAL LANDSCAPING AT SITE DEVELOPMENT PLAN), PER SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPING MANUAL. UPON TREES 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.
15. A TOPSOIL SAMPLE SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT/OWNER FOR REVIEW AND APPROVAL. TOPSOIL SPECIFICATIONS SHOULD BE IN ACCORDANCE WITH SPECIFICATIONS NOTED ON THE SEDIMENT AND EROSION NOTES AND DETAILS (SHEET 29).

DEVELOPER'S/BUILDER'S CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPING MANUAL. I/WE FURTHER CERTIFY THAT UPON TREES 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.

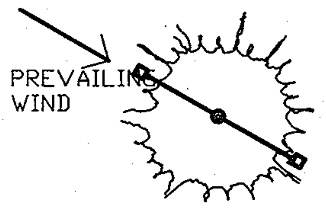
Richard T. Roca (signature) 11/5/09

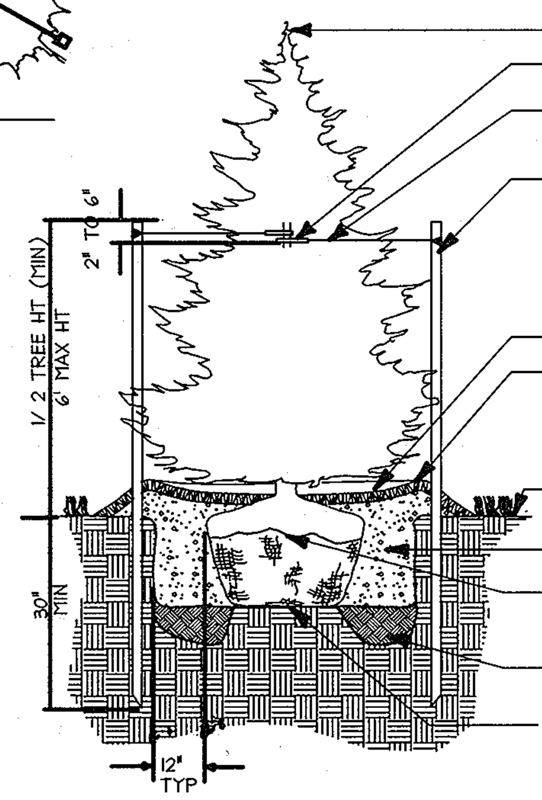
NAME Richard T Roca DATE



BEFORE PLANTING, BIODEGRADABLE POTS SHALL BE SLIT IN THREE PLACES AND NON-BIODEGRADABLE SHALL BE REMOVED. (SCARIFY THE BOTTOM OF THE ROOTBALL).

(B) PERENNIAL PLANTING
Not To Scale





(C) EVERGREEN TREE PLANTING
Not To Scale

SCHEDULE A
PERIMETER LANDSCAPE EDGE

CATEGORY	ADJACENT TO ROADWAYS	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	ADJACENT TO PERIMETER PROPERTIES	
PERIMETER	P1	P2	P3	P4	
LANDSCAPE TYPE "A" 1 SHADE TREE PER 60 L.F.				±1702 LF	
LANDSCAPE TYPE "B" 1 SHADE TREE PER 50 L.F. 1 EVERGREEN TREE PER 40 L.F.	±1046 LF				
LANDSCAPE TYPE "C" L.F. OF PER. 1 SHADE TREE PER 40 L.F. AND 1 EVERGREEN TREE PER 20 L.F.		±1715 LF	713 LF		
CREDIT FOR EX. VEG. BELOW IF NEEDED	*YES, 496 LF EX VEG & 10 EX SHADE TREES	YES, 357 LF EX VEG & 35 EX EVERGREEN TREES & 5 EX SHADE TREES	YES, 100% 713 LF EX VEG	YES, 1273 LF OF EX VEG	
CREDIT FOR WALL, FENCE, OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	NO	
NO. OF PLANTS REQ. SHADE TREES EVG. TREES SHRUBS	1 14 0	28 33 0	0 0 0	8 0 0	Plant Totals 37 SHADE TREES 47 EVG. TREES 0 SHRUBS
NO. OF PLANTS PROV. SHADE TREES EVG. TREES OTHER TREES SHRUBS	1 14 0 0	28 33 0 0	0 0 0 0	8 0 0 0	Plant Totals 37 SHADE TREES 47 EVG. TREES 0 SHRUBS

SCHEDULE B
PARKING LOT INTERNAL LANDSCAPING

NUMBER OF PROPOSED PARKING SPACES	690
INTERNAL ISLANDS REQUIRED (1 ISLAND/ 20 PARKING SPACES)	35
INTERNAL ISLANDS PROVIDED (200 SQ. FT./ISLAND)	45
NUMBER OF TREES REQUIRED (1 SHADE TREE/ 20 PARKING SPACES)	35
NUMBER OF TREES PROVIDED SHADE TREES OTHER TREES (2:1 SUBSTITUTION)	50 0

SCHEDULE D
STORMWATER MANAGEMENT AREA LANDSCAPING

LINEAR FEET OF PERIMETER	892
NUMBER OF TREES REQUIRED LANDSCAPE TYPE "C" L.F. OF PER. 1 SHADE TREE PER 40 L.F. AND 1 EVERGREEN TREE PER 20 L.F.	 9 18
CREDIT FOR EXISTING VEGETATION (NO, YES AND %)	YES, 60% (530 LF)
CREDIT FOR OTHER LANDSCAPING (NO, YES AND %)	NO
NUMBER OF TREES PROVIDED SHADE TREES EVERGREEN TREES OTHER TREES (2:1 SUBSTITUTION)	 7 18 *4

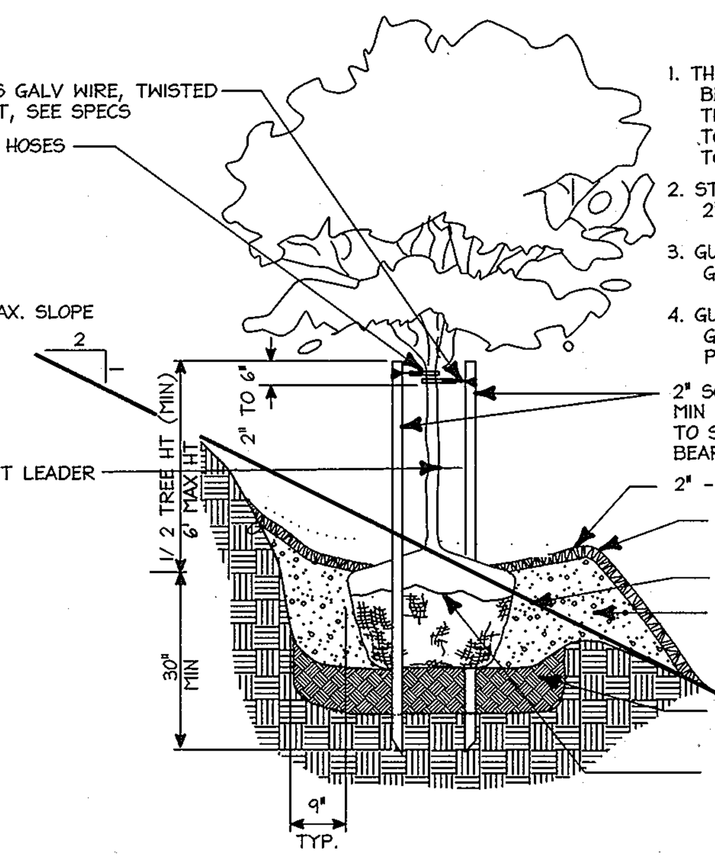
*4 EVERGREEN TREES TO BE SUBSTITUTED FOR 2 SHADE TREES, BECAUSE OF A LACK OF PLANTING SPACE.

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

(signature) 10.9.09

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE



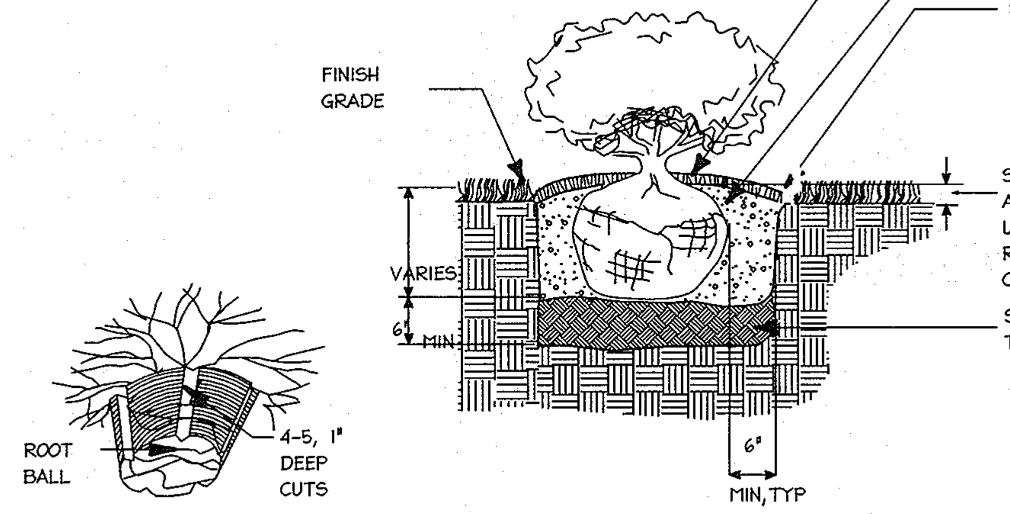
1. THE SIZE OF THE PLANTING PIT SHALL BE AS SHOWN PERPENDICULAR TO THE SLOPE BUT SHALL BE INCREASED TO 24" MIN. ON EACH SIDE PARALLEL TO THE SLOPE.
2. STAKE TREES UP TO 3" CAL WITH TWO 2" SQ. HARDWOOD STAKES PER TREE.
3. GUY TREES 3" TO 6" CAL WITH THREE GUYING STAKES PER TREE
4. GUY TREES OVER 6" CAL WITH THREE GROUND ANCHORS OR DEADMEN PER TREE.

(E) TREE PLANTING ON SLOPE DETAIL
Not To Scale

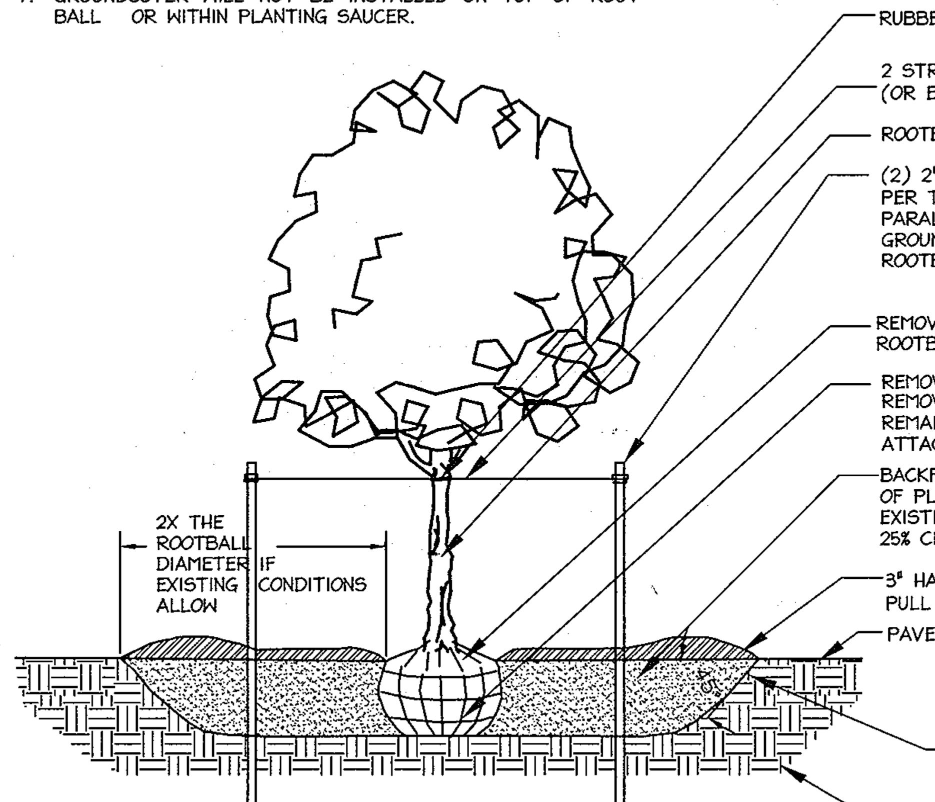
NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

NOTES:
1. PRUNE TO REMOVE DAMAGED, DISEASED OR BROKEN BRANCHES
2. DO NOT REMOVE MORE THAN ⅓ OF BRANCH SYSTEM.
3. DO NOT CUT LEADER. TREE MUST RETAIN NATURAL CROWN SHAPE.
4. REMOVE ALL STAKES WITHIN THE REQUIRED PERIOD.
5. MULCH AND SOIL SHALL BE HELD AWAY FROM TREE TRUNK AT TOP OF ROOT BALL
6. TREE TRENCHES SHALL HOLD A MINIMUM OF 300 CUBIC FEET OF SOIL PER TREE
7. GROUNDCOVER WILL NOT BE INSTALLED ON TOP OF ROOT BALL OR WITHIN PLANTING SAUCER.

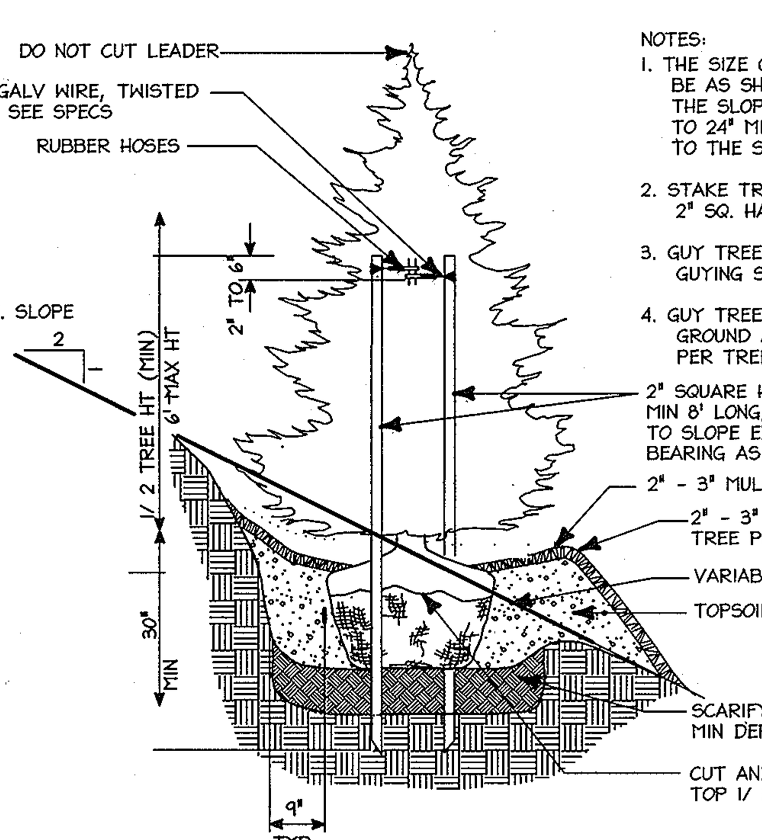
NOTES:
1. FOR CONTAINER SHRUBS, COMPLETELY REMOVE ALL NON-BIODEGRADABLE CONTAINERS AND SCARIFY ROOTBALL BY USING A SHARP BLADE AND MAKING 4 TO 5 ONE INCH CUTS THE LENGTH OF THE ROOTBALL.
2. FOR B&B SHRUBS, CUT AND REMOVE BURLAP FROM TOP 1/ 3 OF ROOT BALL



(A) SHRUB BED PLANTING
NOT TO SCALE



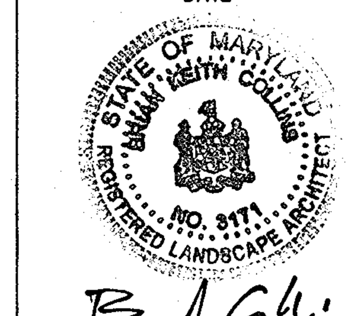
(D) TREE PLANTING IN TURF OR PLANTED AREA
NOT TO SCALE



NOTES:
1. THE SIZE OF THE PLANTING PIT SHALL BE AS SHOWN PERPENDICULAR TO THE SLOPE BUT SHALL BE INCREASED TO 24" MIN. ON EACH SIDE PARALLEL TO THE SLOPE.
2. STAKE TREES UP TO 12" HT WITH TWO 2" SQ. HARDWOOD STAKES PER TREE.
3. GUY TREES 12'-20' HT WITH THREE GUYING STAKES PER TREE
4. GUY TREES OVER 20' HT WITH THREE GROUND ANCHORS OR DEADMEN PER TREE.

(F) EVERGREEN TREE PLANTING ON SLOPE DETAIL
Not To Scale

6/14/13
DATE



(signature)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

(signature) Chief, Development Engineering Division	11/17/09 Date
(signature) Chief, Division of Land Development	1/08/10 Date
(signature) Director	1/11/10 Date

Date	No.	Revision Description
1	6.14.13	REDLINED FOR PARKING LOT LANDSCAPING TABULATIONS
		ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

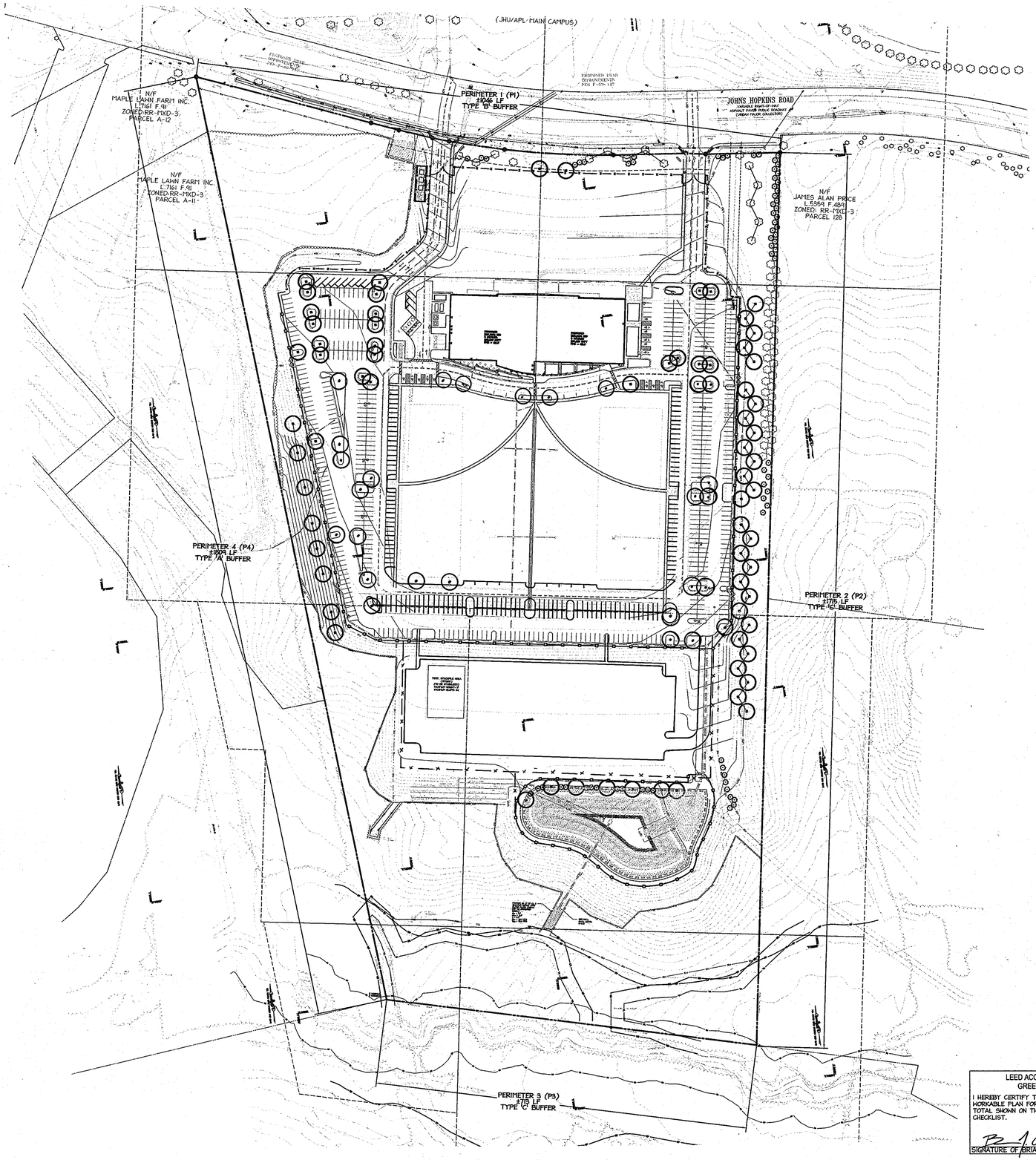
PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref 20928. 20930				

TITLE:
LANDSCAPE NOTES & DETAILS

DESIGN: CRH	SCALE: VARIES	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	39 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



NOTE:
THE CHANGES SHOWN ON THIS DRAWING ARE TO RECORD THE AS-BUILT CONDITION OF WORK PERFORMED UNDER THE ORIGINAL PROJECT PERMITS AND DEVELOPER AGREEMENTS ISSUED IN 2009.

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10/23/09 DATE

6/14/13
DATE

STATE OF MARYLAND
BRIAN KEITH COLLINS
NO. 3171
REGISTERED LANDSCAPE ARCHITECT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description
1	6.14.13	REDLINED FOR PARKING LOT REVISION
		ADDED REDLINE SUMMARY NOTE

JOHNS HOPKINS UNIVERSITY
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref. 20928-20930

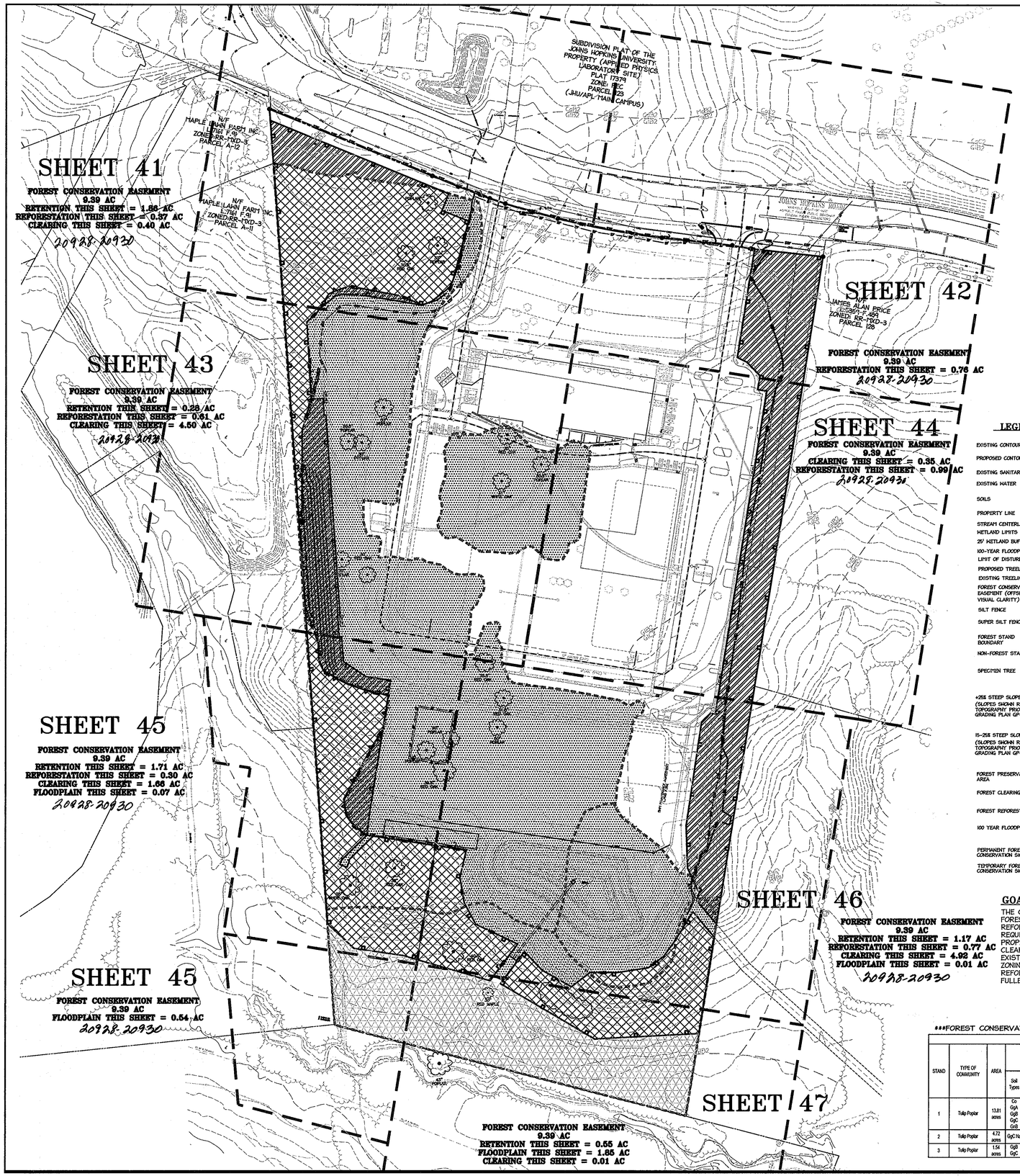
TITLE:

OVERALL LANDSCAPE PLAN

DESIGN: CRH	SCALE: 1" = 100'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	40 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047



FOREST STAND NARRATIVES

F1 - FOREST STAND ONE

Stand One is approximately 13.7 acres in size and runs along the western edge of the parcel to its southern limit where it is delineated from Stand #2 by the change in topography and associated soil type. Stand #1 does not continue offsite to the west and is bounded on its eastern edge by the existing site development. This mature stand is dominated by 20 to 30 inch dbh Tulip Poplars (Liriodendron tulipifera), Red Oak (Quercus rubra), and White Oak (Quercus alba) within the canopy.

The understory was dominated by Black Cherry (Prunus serotina) and Bush Honeysuckle (Lonicera sp.) with other species such as Oak (Quercus sp.), American holly (Ilex opaca), Flowering Dogwood (Cornus florida), Spicebush (Lindera benzoin), Multiflora rose (Rosa Multiflora) and Greenbrier (Smilax rotundifolia) recorded. Due to winter survey no herbaceous layer was noted, but leaf litter was noted as well developed (greater than 4 inches).

Stand #1 contains the highest quality forest on the site from the perspective of timber quality and biodiversity. The structural diversity of this stand is high and there is healthy regeneration of oak species. The intermittent stream, its buffer and the 19 specimen trees should be given high priority for retention. Invasive species were located throughout the stand but were concentrated along the edges and in the southwestern section. Some distress was seen in the oak community and several dead oaks were observed. It is believed that this decline was due to past gypsy moth damage and should be monitored and treated as necessary.

F2 - FOREST STAND TWO

Stand Two is a mid-successional stage forest approximately 4.7 acres in size and is located along the southern portion of the property within or adjacent to the floodplain of Hammond Branch. Stand #2 extends offsite to the East, West, and South and is delineated from Stands #1 and #3 by topography as it is associated with the floodplain. The stand is dominated by 12 to 20 inch dbh Red Maples (Acer rubra) with Tulip Poplars, Black Cherry, Green Ash (Fraxinus pennsylvanica), and Pin Oaks (Quercus palustris) also noted. The understory of Stand #2 was comparible to Stand #1 with the addition of Musclewood (Carpinus caroliniana) and Arrowood (Viburnum dentatum). The herbaceous layer was lacking due to winter survey but the emergence of Skunk Cabbage (Symplocarpus foetidus) within the delineated wetland areas was noted. A small isolated stand of mature Loblolly Pines (Pinus taeda) was noted near the northern edge of the stand and a large bird, possibly a barred owl, was noted on several occasions roosting in this area.

Due to its location within the 100 yr floodplain and the presence of delineated wetlands Stand #2 represents the highest priority stand for retention and contains 2 specimen trees. Multiflora Rose and Honeysuckle were found in dense concentrations at regular intervals throughout the stand.

F3 - FOREST STAND THREE

Forest Stand Three is approximately 1.6 acres in size and located on a small knoll between Stand #2 and the existing stormwater management pond. The stand is essentially a monoculture of young Tulip Poplar trees under 15" in diameter though Black Cherry and Red Maples were also observed. The understory contained species similar to Stand #1, however, invasive shrubs and vines were more prevalent and quite dense in many areas.

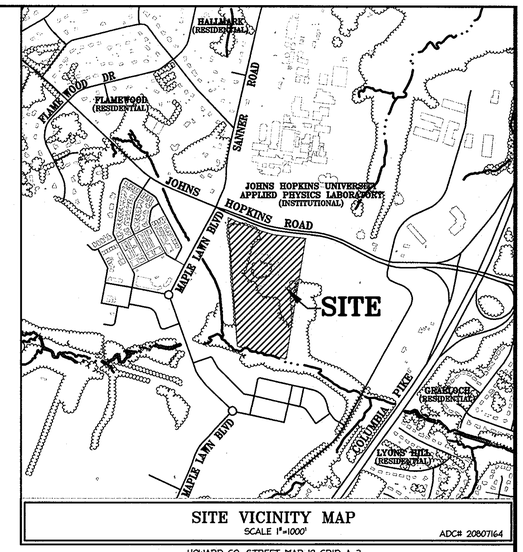
Stand #3 does not contain any specimen trees. Due to a lack of diversity, low species value, and the extensive presence of invasive species Stand #3 should be considered of low retention value where other environmental factors such as slope are not an issue.

H1 & H2 - HEDGEROWS ONE AND TWO

Two hedgerows exist along the eastern edge of the property. H1 consists of a buffer planting of White Pine trees cuurently approximately 20' in height. H2 is a scrubby mix of young Tulip Poplars, Black cherries, Tree of Heaven, and other opportunistic species which are becoming increasingly overgrown by invasive vines and shrubs. Currently the hedgerows are not serving as a buffer to adjacent land uses (vacant) so retention is not a high priority. Selective thinning and invasives control is recommended if these areas are retained.

T1 & L1 LAWN AREAS

Two distinct manicured areas exist on the site. Lawn Area #1 consists of the existing stormwater management dry detention pond to the south of the southern most parking area. Lawn Area #1 consists entirely of manicured turf with no woody growth. Lawn Area #2 consists of the remaining lawn area within the campus area. This area contains various grouping and singular plantings of trees planted for aesthetic value. Many of these trees are mature in size although none have reached specimen size (>30" dbh).



SITE VICINITY MAP
SCALE 1"=1000' ADC# 20807164

HOWARD CO. STREET MAP 19 GRID A-3

LEGEND

EXISTING CONTOURS — 416 — 410 —
PROPOSED CONTOUR — 410 —
EXISTING SANITARY SEWER — EX. 8" SAN —
EXISTING WATER — EX. 6" WATER —
SOILS — ChC2 — ChB2 —
PROPERTY LINE
STREAM CENTERLINE
WETLAND LIMITS — WL —
25' WETLAND BUFFER — WB —
100-YEAR FLOODPLAIN — FP —
LIMIT OF DISTURBANCE — LOD —
PROPOSED TREELINE
EXISTING TREELINE
FOREST CONSERVATION EASEMENT (OFFSET FOR VISUAL CLARITY)
SILT FENCE — SF — SF —
SUPER SILT FENCE — SSF — SSF —
FOREST STAND BOUNDARY
NON-FOREST STAND OUTLINES
SPECIMEN TREE — dbh SPECIES SP#
+25% STEEP SLOPES (SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING PLAN GP-09-10)
15-25% STEEP SLOPES (SLOPES SHOWN REFLECT EXISTING TOPOGRAPHY PRIOR TO MASS GRADING PLAN GP-09-10)
FOREST PRESERVATION AREA
FOREST CLEARING AREA
FOREST REFORESTATION AREA
100 YEAR FLOODPLAIN
PERMANENT FOREST CONSERVATION SIGN
TEMPORARY FOREST CONSERVATION SIGN

SOIL CHARACTERISTICS

SERIES	NAME	SUBGROUP	WOODLAND SUITABILITY GROUP	HYDRIC?	K FACTOR
CgB2	Chester gravelly silt loam, 3-8% slopes, moderately eroded	Typic Hapludults	30	No	0.32
CgC2	Chester gravelly silt loam, 8-15% slopes, mod. eroded	Typic Hapludults	31	No	0.32
ChA	Chester silt loam, 0-3% slopes	Typic Hapludults	30	No	0.32
Co	Codorus Silt Loam	Fluvaquentic Dystrochrepts	4	No	0.37
GlB2	Glenelg Loam, 3-8%, mod. eroded	Typic Hapludults	30	N	0.32
GlC2	Glenelg Loam, 8-15%, mod. eroded	Typic Hapludults	30	N	0.32
GnA	Glenville Silt Loam, 0-3% slopes	Typic Hapludults	12	N	0.32
Ha	Hatboro Silt Loam	Fluvaquentic Hapludolls	2	Y	0.37
MgB2	Manor gravelly loam, 3-8% slopes, moderately eroded	Typic Dystrochrepts	43	No	0.43
MtB2	Mt. Airy channery loam, 3-8% slopes, mod. eroded	Typic Dystrochrepts	51	No	0.28
MtC3	Mt. Airy channery loam, 8-15% slopes, severly eroded	Typic Dystrochrepts	51	No	0.28
MtD2	Mt. Airy channery loam, 15-25% slopes, mod. eroded	Typic Dystrochrepts	52	No	0.28

SPECIMEN TREE LIST

ID	Species	Common Name	DBH	Condition	Trunk	CRZ
225	*Liriodendron tulipifera*	Tulip Poplar	31	Good	Single	46.5
226	*Acer rubrum*	Red Maple	30	Poor	Single	45
227	*Quercus falcata*	Southern Red Oak	40.5	Good	Single	60.75
228	*Liriodendron tulipifera*	Tulip Poplar	43	Good	Double	64.5
229	*Quercus alba*	White Oak	38	Good	Single	57
230	*Quercus falcata*	Southern Red Oak	33	Good	Single	49.5
231	*Quercus falcata*	Southern Red Oak	39.5	Good	Single	59.25
232	*Liriodendron tulipifera*	Tulip Poplar	30	Fair	Single	45
233	*Liriodendron tulipifera*	Tulip Poplar	33	Good	Single	49.5
234	*Liriodendron tulipifera*	Tulip Poplar	30	Good	Single	45
235	*Quercus falcata*	Southern Red Oak	31.5	Good	Single	47.25
236	*Quercus falcata*	Southern Red Oak	35.5	Good	Single	53.25
237	*Quercus falcata*	Southern Red Oak	30	Good	Single	45
238	*Liriodendron tulipifera*	Tulip Poplar	30	Good	Single	45
239	*Liriodendron tulipifera*	Tulip Poplar	30.5	Good	Single	45.75
240	*Liriodendron tulipifera*	Tulip Poplar	30	Good	Single	45
241	*Liriodendron tulipifera*	Tulip Poplar	33	Good	Single	49.5
242	*Quercus alba*	White Oak	31	Good	Single	46.5
243	*Liriodendron tulipifera*	Tulip Poplar	30.5	Good	Single	45.75
244	*Quercus falcata*	Southern Red Oak	35	Good	Single	52.5
245	*Quercus falcata*	Southern Red Oak	30.5	Good	Single	45.75
246	*Liriodendron tulipifera*	Tulip Poplar	33	Good	Single	49.5

LEED ACCREDITED PROFEESIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHEIVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

GOALS & OBJECTIVES

THE GOAL OF THIS PLAN IS TO ADDRESS THE FOREST CONSERVATION ACT AND ANY REFORESTATION/AFFORESTATION THAT MAY BE REQUIRED FOR THE DEVELOPMENT OF THE PROPERTY. THIS PROJECT PROPOSES SITE CLEARING TO ALLOW FOR DEVELOPMENT OF THE EXISTING LOTS IN ACCORDANCE WITH THE ZONING CODE. PROPOSED PRESERVATION AND REFORESTATION LOCATED ON-SITE ARE TO THE FULLEST EXTENT POSSIBLE.

FOREST CONSERVATION NOTES

1. TOTAL FORESTED AREA ON SITE (EXCLUDING FLOODPLAINS)= 17.41 AC
2. FOREST CLEARING PROPOSED = 11.83 AC
3. ON-SITE RETENTION = 5.58 AC
4. ON-SITE REFORESTATION = 3.81 AC
5. TOTAL REFORESTATION REQUIRED = 4.61 AC
6. REMAINING 0.80 AC OF REFORESTATION REQUIRED WILL BE SATISFIED BY FEE-IN-LIEU.
7. STEEP SLOPES (15%-25% OR 25% OR GREATER) HAVE BEEN IDENTIFIED ON THE SITE.
8. THE 100 YEAR FLOODPLAIN AREA HAS BEEN IDENIFIED ON-SITE.
9. NONTIDAL WETLAND, WETLAND BUFFERS STREAMS OR STREAM BUFFERS DO EXIST ON SITE.

FOREST CONSERVATION WORKSHEET LOCATED ON SHEET 48

FOREST STAND ANALYSIS TABLE

STAND	TYPE OF COMMUNITY	AREA	SOIL INFORMATION			EXISTING VEGETATION (Dominant Species and Approx.%)	STAND CHARACTERISTICS			FOREST AREA IN SENSITIVE ENVIRONMENTS (Acres)	HABITAT VALUE
			Soil Types	Typical forest cover for soil type	Woodland Suitability Index		Size (Dia.)	Age (Years)	General Conditions		
1	Tulip Poplar	13.81 acres	Co GgA GgB GgC GnB	Upland Hardwood Upland Hardwood Upland Hardwood Tolerant Hardwood Tolerant Hardwood	30 30 30 12 4	Tulip Poplar 50% Red Oak 15% White Oak 15%	20"-30"	60-80	Good	0.46	Good
2	Tulip Poplar	4.72 acres	GgC Ha	Upland Hardwood Bottom Hardwood	30 2	Red Maple 50% Tulip Poplar 20%	12"-20"	30-50	Good	2.30	Good
3	Tulip Poplar	1.54 acres	GgB GgC	Upland Hardwood Upland Hardwood	30 30	Tulip Poplar 80%	8"-15"	10-20	Good	0.00	Good

10.9.09
DATE

STATE OF MARYLAND BRIAN KEITH COLLINS NO. 917 REGISTERED LANDSCAPE ARCHITECT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099
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410.872.8000 · metro 301.831.0145 · fax 410.872.8033

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat # 20428-20930			

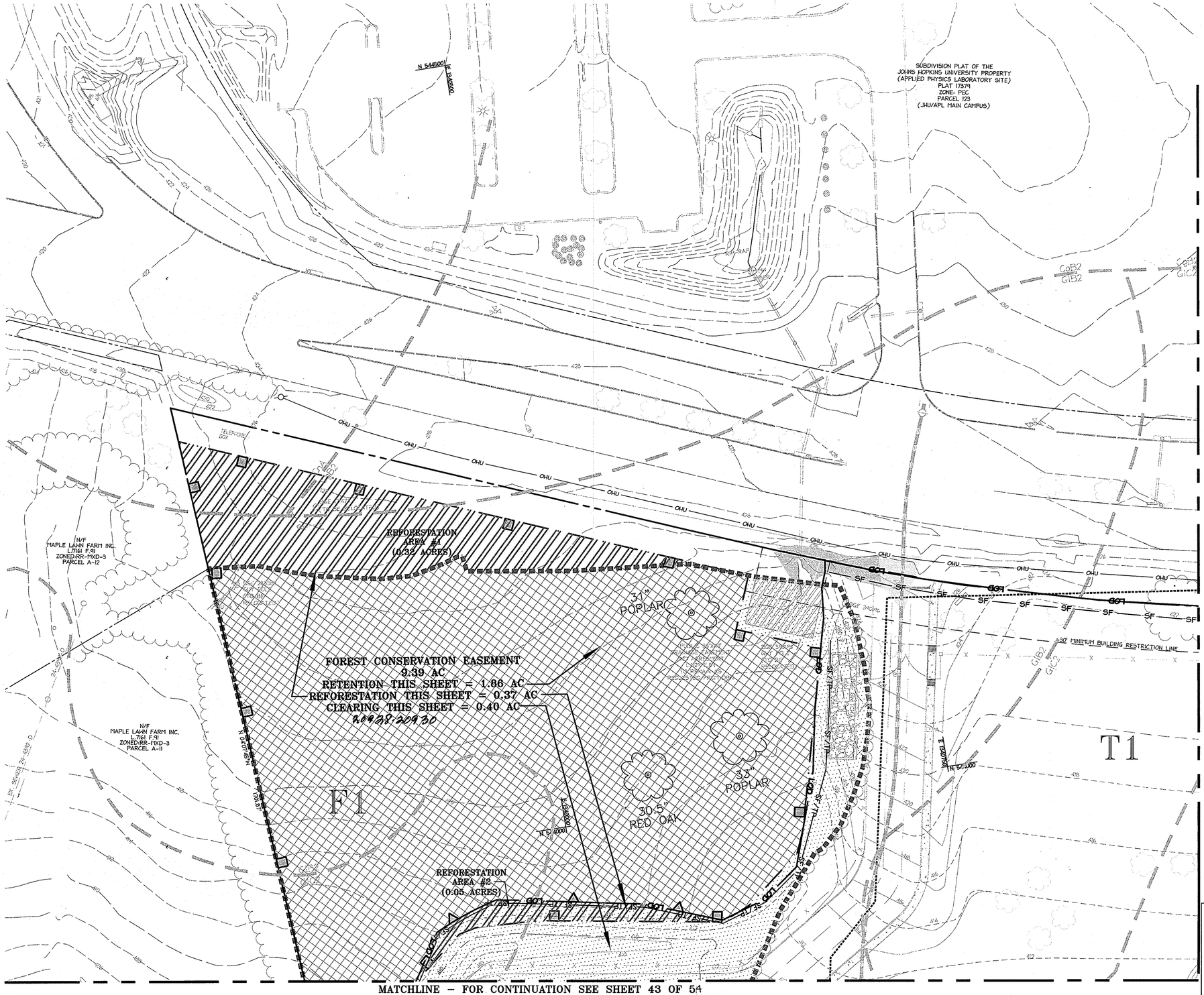
TITLE:

OVERALL FOREST CONSERVATION PLAN

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	41 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930/SDP(



LEED ACCREDITED PROFEESIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref. 20928-20930

10.9.09 DATE

STATE OF MARYLAND BRIAN KEITH COLLINS NO. 3171 REGISTERED LANDSCAPE ARCHITECT

TITLE:

FOREST CONSERVATION PLAN

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	42 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 41 OF 54

CENTERLINE RIGHT-OF-WAY
HOWARD COUNTY
DEPARTMENT OF PUBLIC WORKS
RIGHT-OF-WAY PLAT FOR ROAD WIDENING
PLAT NOS. J-471-12 AND J-471-13
(EXHIBIT "A" OF L. 5247 F. 416 DATED OCT. 3, 2002)

N 544250
E 1347250

SUBDIVISION PLAT OF THE
JOHNS HOPKINS UNIVERSITY PROPERTY
(APPLIED PHYSICS LABORATORY SITE)
PLAT 17379
ZONE: PEC
PARCEL 123
(JHU/APL MAIN CAMPUS)

JOHNS HOPKINS ROAD
VARIABLE WIDTH-OF-WAY
ASPHALT PAVED PUBLIC ROADWAY
(URBAN MAJOR COLLECTOR)

EASEMENT
RIGHT-OF-WAY EASEMENT
L. 437 F. 446

30' MINIMUM BUILDING RESTRICTION LINE

T1

REFORESTATION
AREA #5

PUBLIC 20' WATER AND UTILITY EASEMENT
PLAT 7629 (FEB. 22, 1980)
EASEMENT AND AGREEMENT
L. 2512 F. 728
(TO BE ABANDONED)

FOREST CONSERVATION EASEMENT
9.39 AC
REFORESTATION THIS SHEET = 0.76 AC
20928 20930

S 08°58'19"W 175.82'

N/F
JAMES ALAN PRICE
L. 5359 F. 491
ZONED: RR-MXD-3
PARCEL 126

MATCHLINE – FOR CONTINUATION SEE SHEET 44 OF 54

LEED ACCREDITED PROFEESIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN SOLLINS LEED ACCREDITATION NO. 10.9.09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 11/09/10
Director — Date 11/10/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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10.9.09
DATE

STATE OF MARYLAND · BRIAN SOLLINS · NO. 9171 · REGISTERED LANDSCAPE ARCHITECT

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
WAIVER 20928-20930				

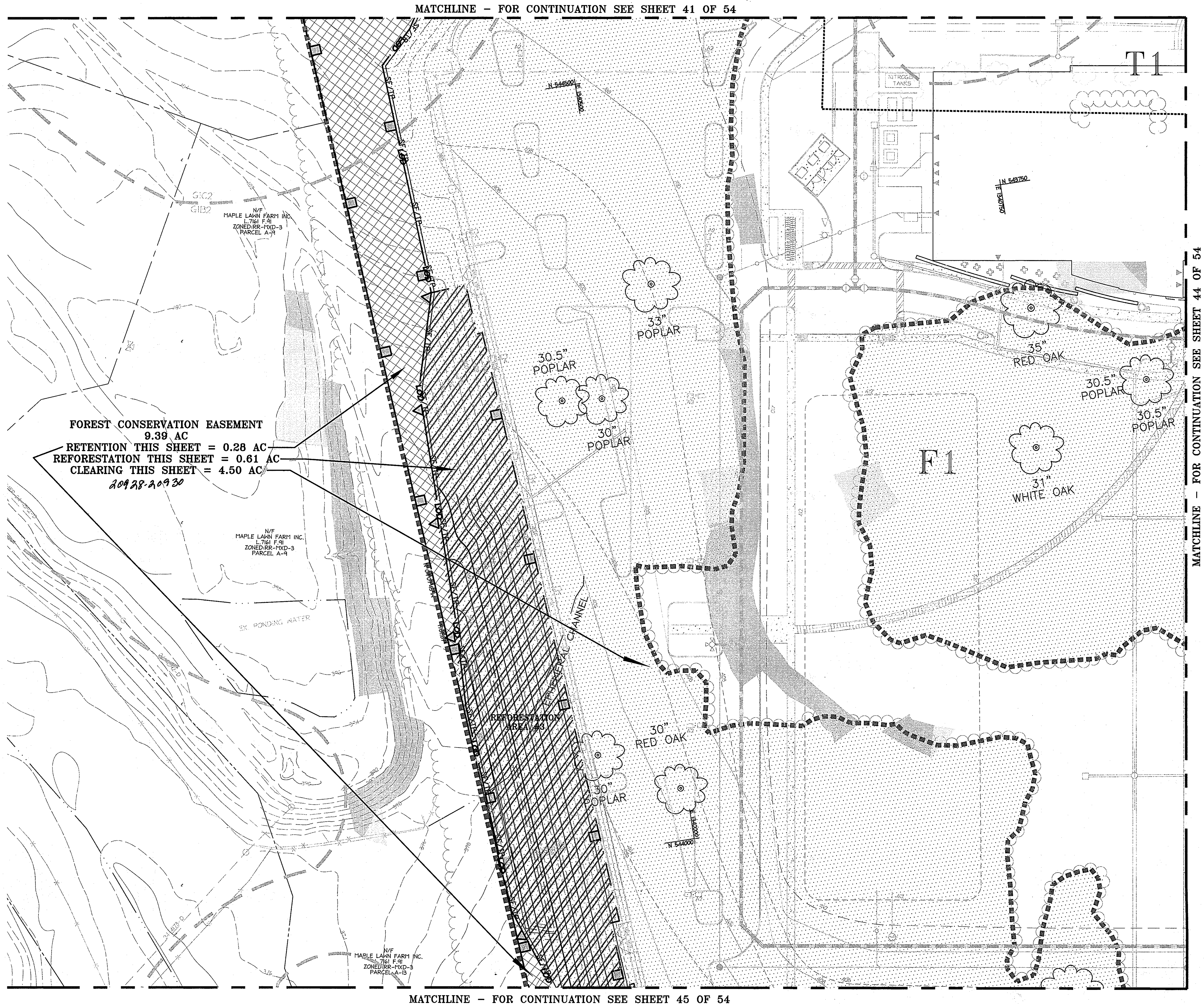
TITLE:

FOREST CONSERVATION PLAN

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	43 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/11/10

Date	No.	Revision Description

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

10.9.09
DATE

STATE OF MARYLAND — BRIAN KEITH COLLINS — NO. 3171 — REGISTERED LANDSCAPE ARCHITECT

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928-20930				

TITLE:
FOREST CONSERVATION PLAN

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	44 OF 54
CHECKED: JMH	APPROVED: JMH	

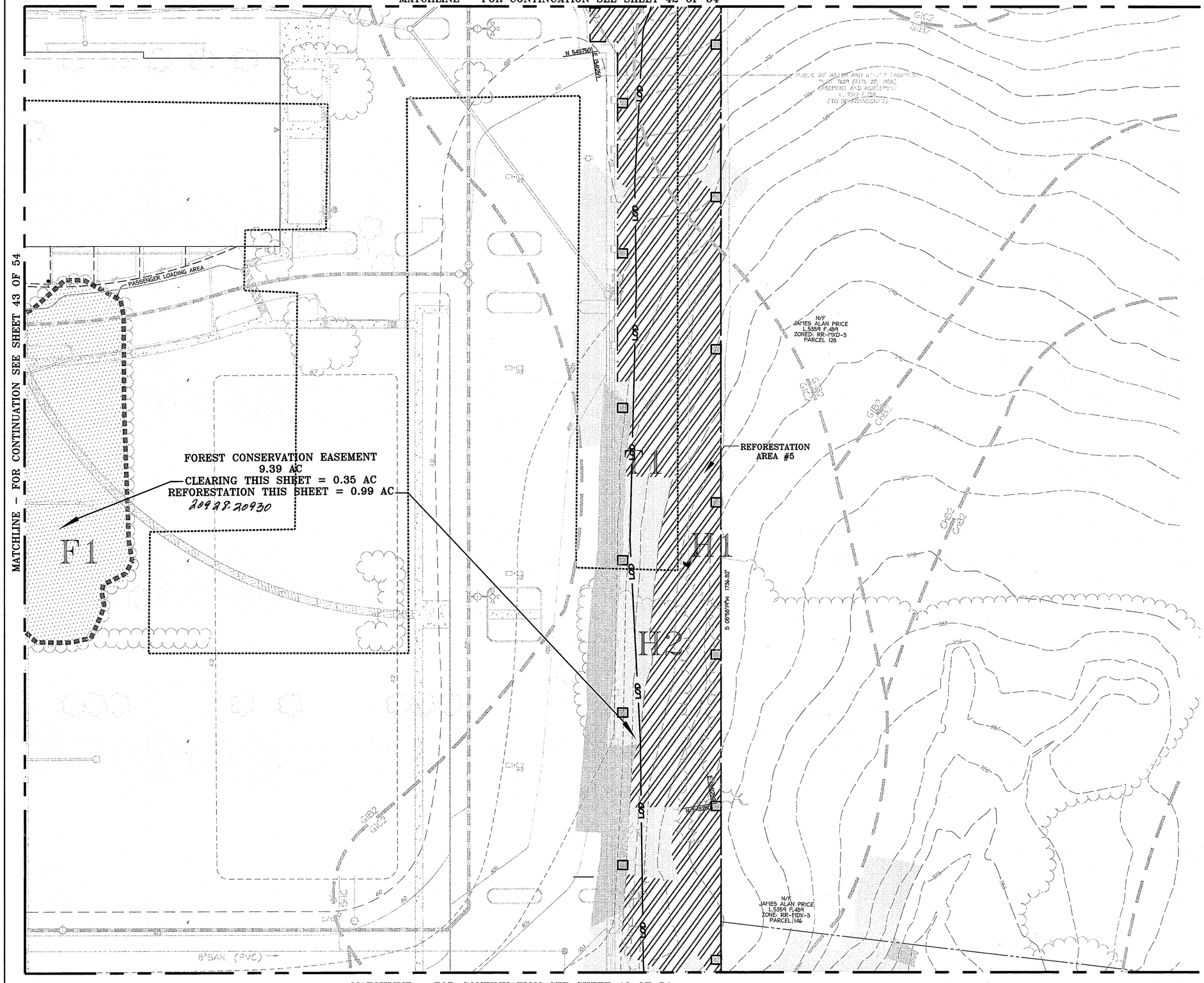
SDP-09-047

MDC-930(SDP)

MATCHLINE – FOR CONTINUATION SEE SHEET 42 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 43 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 46 OF 54



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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10-9-09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/14/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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410.872.8800 · metro 301.861.0143 · fax 410.872.8633

PERMIT INFORMATION CHART

PROJECT NAME:		LOT/PARCEL NO.	CENSUS TRACT
JHU/APL– SOUTH CAMPUS BUILDING 200		300	6051.02
DEED REF.	GRID NO.	ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22	PEC	41	5th

11/4/09
20928.20930

TITLE:

FOREST CONSERVATION PLAN

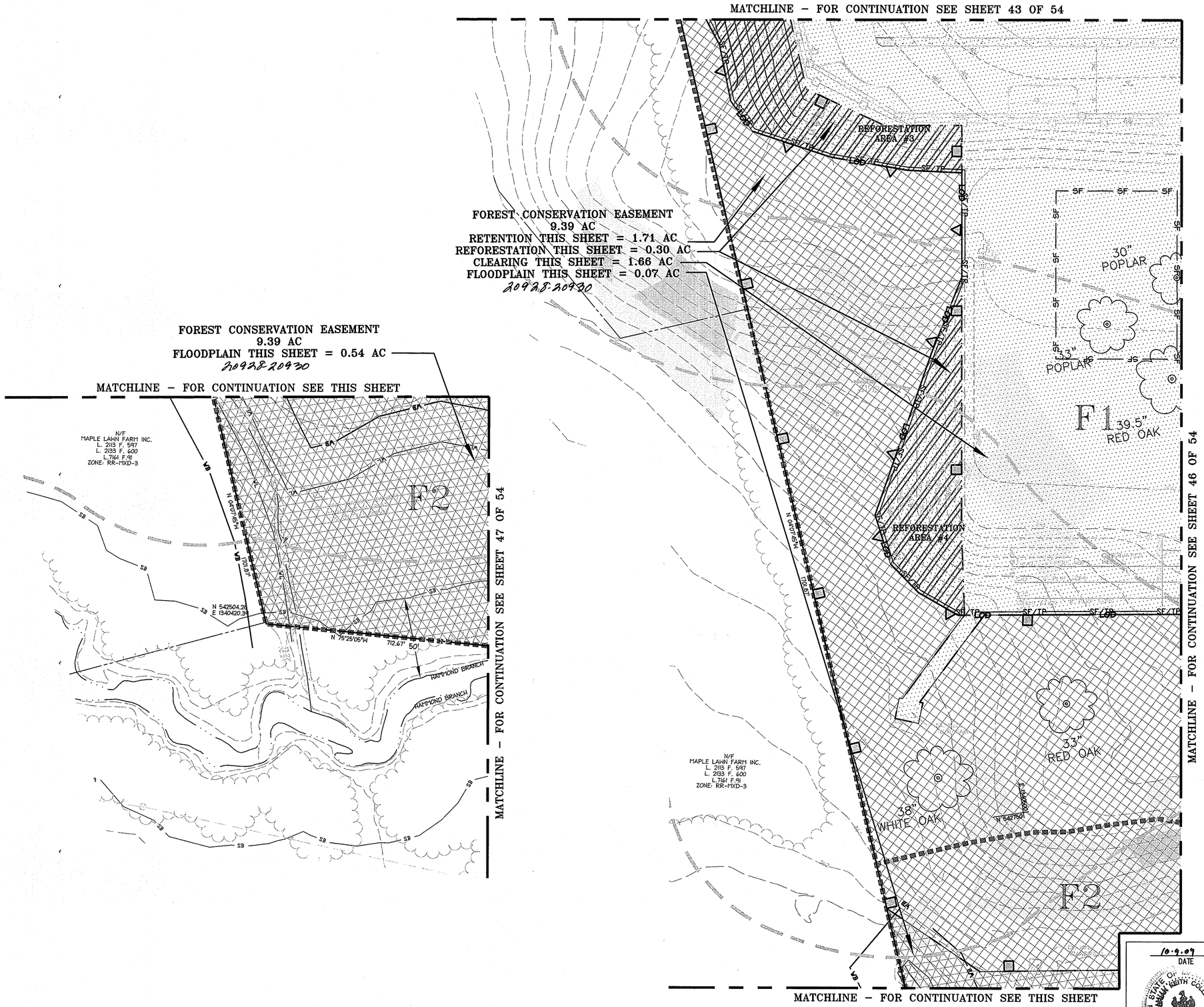
10.9.09
DATE

STATE OF MARYLAND · BRIAN KEITH COLLINS · NO. 911 · REGISTERED LANDSCAPE ARCHITECT

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	45 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047



LEED ACCREDITED PROFEESIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09

Chief, Division of Land Development — Date 1/08/10

Director — Date 1/10/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
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410.872.8690 · mco 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref 20928-20930

10.9.09 DATE

STATE OF MARYLAND — BRIAN KEITH COLLINS — NO. 3171 — REGISTERED LANDSCAPE ARCHITECT

TITLE:

FOREST CONSERVATION PLAN

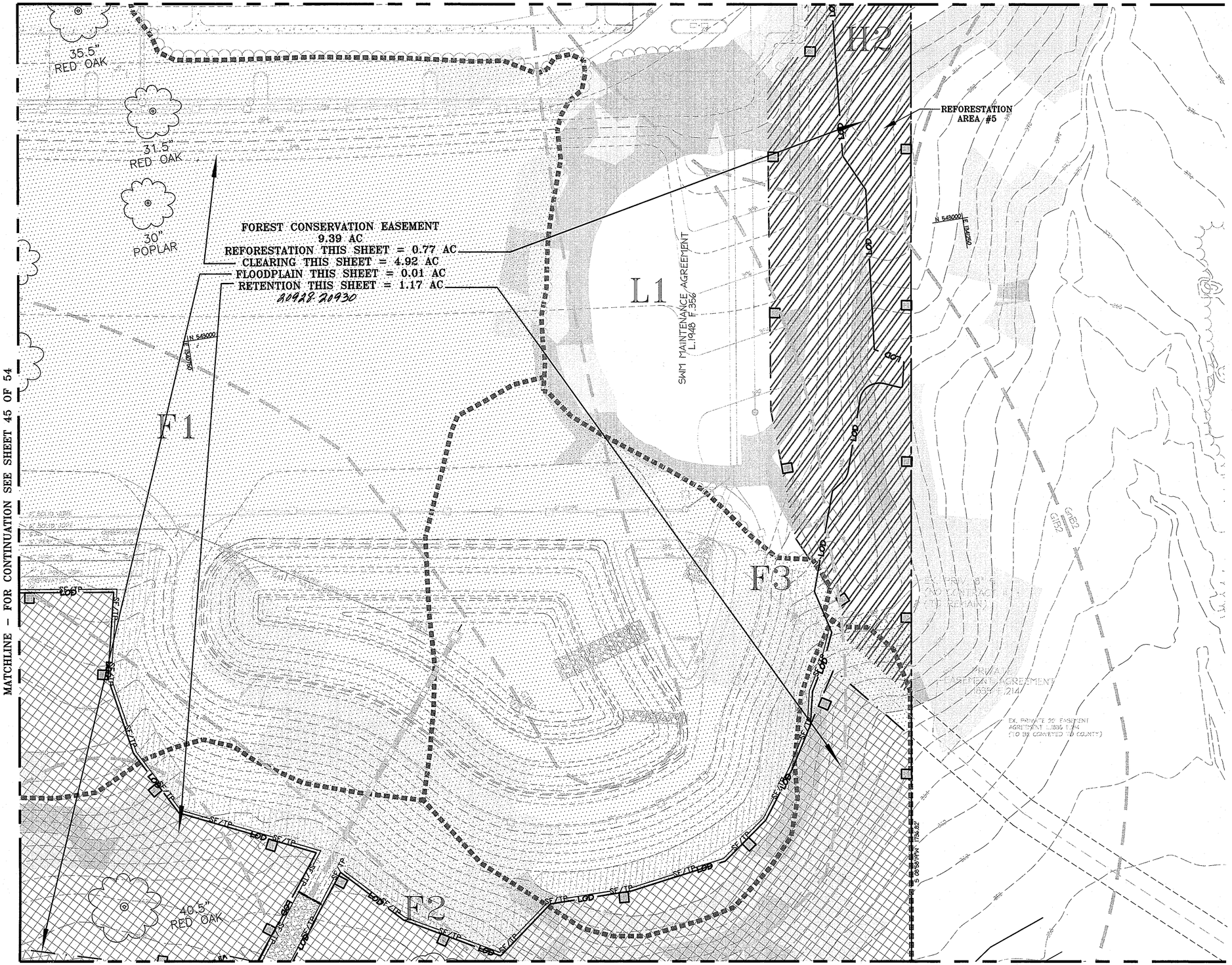
DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	46 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 44 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 45 OF 54



MATCHLINE – FOR CONTINUATION SEE SHEET 47 OF 54

LEED ACCREDITED PROFEESIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. 10.9.09 DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09

Chief, Division of Land Development — Date 11/09/10

Director — Date 1/11/10

Date	No.	Revision Description

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10.9.09 DATE

STATE OF MARYLAND — BRIAN KEITH COLLINS — NO. 3171 — REGISTERED LANDSCAPE ARCHITECT

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL– SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 F.396 & Plat Ref. 20928-20930	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

TITLE:

FOREST CONSERVATION PLAN

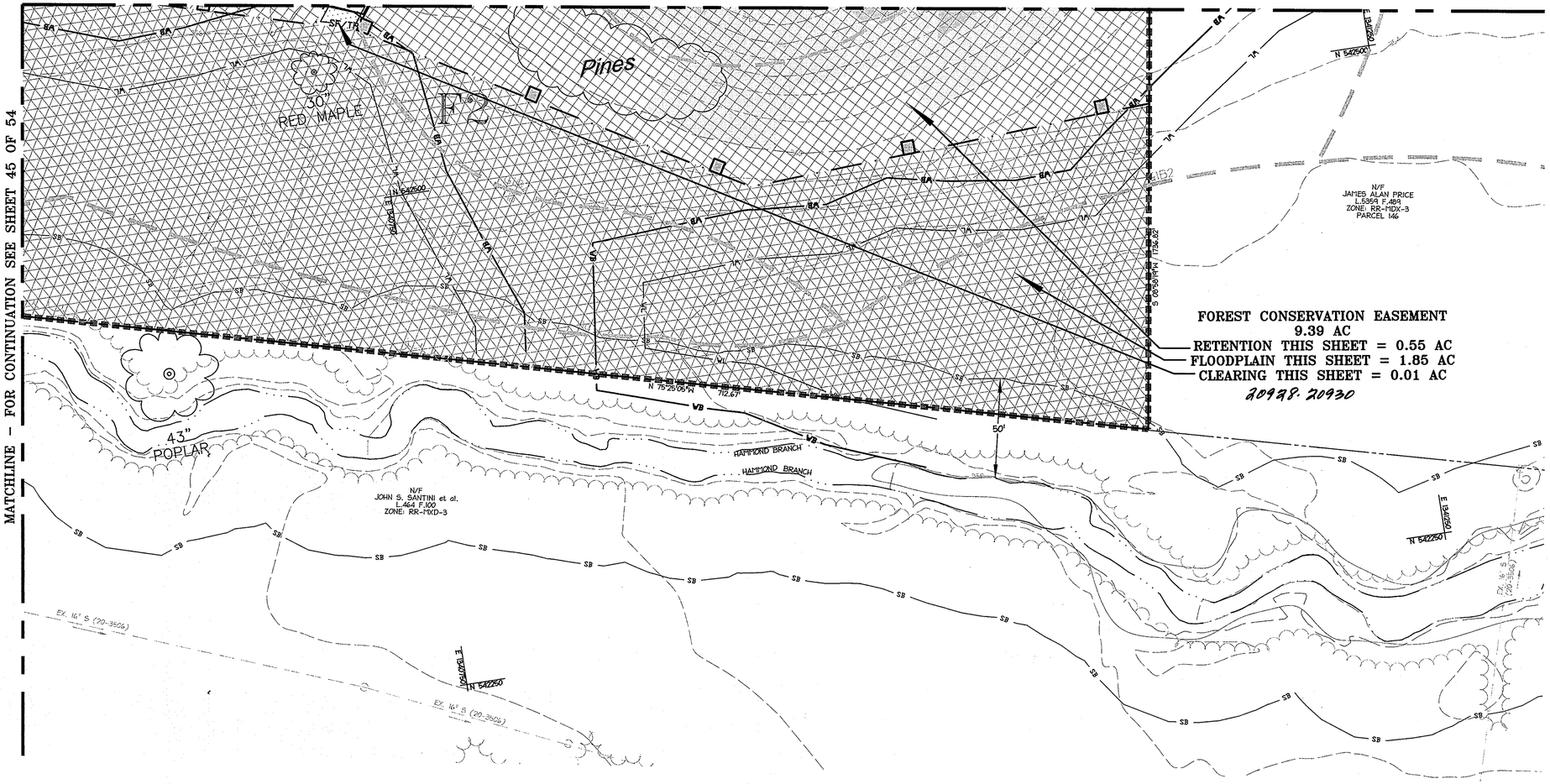
DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	47 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

MATCHLINE – FOR CONTINUATION SEE SHEET 46 OF 54

MATCHLINE – FOR CONTINUATION SEE SHEET 45 OF 54



FOREST CONSERVATION EASEMENT
9.39 AC
RETENTION THIS SHEET = 0.55 AC
FLOODPLAIN THIS SHEET = 1.85 AC
CLEARING THIS SHEET = 0.01 AC
20928. 20930

LEED ACCREDITED PROFEESIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

B. A. Collins 10.9.09
SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE

11" MINIMUM
15" MINIMUM
FOREST CONSERVATION AREA
REFORESTATION PROJECT
Trees for Your Future

Permanent Signage
Not To Scale

PLAN SYMBOL =
(TO REMAIN IN PERPETUITY)

11" MINIMUM
15" MINIMUM
FOREST RETENTION AREA
MACHINERY, DUMPING OR STORAGE OF ANY MATERIALS PROHIBITED
VIOLATORS ARE SUBJECT TO FINES IMPOSED BY THE MARYLAND FOREST CONSERVATION ACT OF 1991

Signs May Not be Attached to Trees.

Temporary Signage
Not To Scale

PLAN SYMBOL =
TEMPORARY SIGNAGE IS USED IN AREAS WHERE CONSTRUCTION AND GRADING WILL OCCUR PRIOR TO REFORESTATION. PERMANENT SIGNAGE WILL BE PLACED AROUND THE REFORESTATION ONCE IT IS IN PLACE.

JHU
Job# 08A901.00
07-Aug-09

FOREST CONSERVATION WORKSHEET

NET TRACT AREA:

A. Total tract area.....=			35.10
B. Area within 100 year floodplain.....=			2.47
C. Miscellaneous Area: Steep Slopes (above 25%).....=			0.00
D. Net tract area.....=			32.63
E. Afforestation Threshold.....	15%	x D =	4.89
F. Conservation Threshold.....	20%	x D =	6.53

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).....=	17.41
H. Area of forest above afforestaion threshold .....=	12.52
I. Area of forest above conservation threshold .....=	10.88

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation.....=	8.70
K. Clearing permitted without mitigation.....=	8.71

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared.....=	11.83
M. Total area of forest to be retained.....=	5.58

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold...=	2.72
P. Reforestation for clearing below conservation threshold...=	1.89
Q. Credit for retention above conservation threshold.....=	0.00
R. Total reforestation required.....=	4.61
S. Total afforestation required.....=	0.00
T. Reforestation and afforestation required.....=	4.61

#4.61 AC OF REFORESTATION REQUIRED ON-SITE
OF THAT 3.81 AC OF REFORESTATION WILL BE SATISFIED ON-SITE
OF THAT 0.80 AC OF REFORESTATION WILL BE SATISFIED BY FEE-IN-LIEU

10.9.09
DATE

STATE OF MARYLAND
BRIAN KEITH COLLINS
NO. 9111
REGISTERED LANDSCAPE ARCHITECT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/7/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
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7172 columbia gateway drive (suite 100) · columbia, md. 21046-2990
410.872.0800 · metro 301.596.6148 · fax 410.872.0803

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200			LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
Plat ref 20928 20930				

TITLE:
FOREST CONSERVATION PLAN & WORKSHEET

DESIGN:	SCALE: 1" = 30'	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	48 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

REMOVAL OF HAZARDOUS TREES OR LIMBS by developers or builders

1. THE DEVELOPER AND/OR BUILDER IS RESPONSIBLE FOR THE COMPLETE PRESERVATION OF ALL FORESTED AREAS SHOWN ON THE APPROVED PLAN TO REMAIN UNDISTURBED. ONLY TREES OR PARTS THEREOF DESIGNATED BY THE DEPARTMENT OF PLANNING AND ZONING AS DEAD, DYING, OR HAZARDOUS MAY BE REMOVED.
2. CORRECTIVE MEASURES REQUIRING THE REMOVAL OF THE HAZARDOUS TREE OR PORTIONS THEREOF SHALL REQUIRE AUTHORIZATION BY THE BUILDING OR GRADING INSPECTOR IF THERE IS A VALID GRADING OR BUILDING PERMIT FOR THE SUBJECT LOTS OR PARCELS ON WHICH THE TREES ARE LOCATED. ONLY AFTER APPROVAL OF THE APPROPRIATE INSPECTOR MAY THE TREE BE CUT BY CHAINSAW TO NEAR THE EXISTING GROUND LEVEL. THE STUMP MAY NOT BE REMOVED OR COVERED WITH SOIL, MULCH OR OTHER MATERIALS THAT WOULD INHIBIT SPROUTING.

WOODCHIP MULCH SPECIFICATIONS

WOODHCIP MULCH SHALL BE COMPOSTED A MINIMUM OF 2-3 MONTHS TO MINIMIZE AND CONTROL INVASIVE SEED SPROUTING. MULCH SHALL BE PLACED IN A 3 INCH LAYER IN AN AREA 2.5 TIMES THE ROOTBALL DIAMETER OF EACH PLANTED TREE (APPROXIMATELY 2.5 FEET FROM THE TRUNK).

TEMPORARY TREE PROTECTION DEVICE

THE TPD SHALL BE PLACED AS INDICATED AT THE BEGINNING OF THE SITE DEVELOPMENT PROCESS. SIGNAGE SHALL BE PLACED ON THE FENCE POSTS TO INDICATE A FOREST RETENTION AREA. THESE FENCES AND SIGNS SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF GRADING WITHIN 50 FEET OF THE RETENTION AREA, UNLESS THE COUNTY INSPECTOR APPROVES THEIR REMOVAL, OR AS NECESSARY TO GAIN ENTRY TO AND REMOVE INVASIVE VEGETATION FROM THE RETENTION AREA.

FINAL TREE PROTECTION DEVICE

UPON COMPLETION OF ALL GRADING, PLANTING AND INVASIVE SPECIES REMOVAL ACTIVITIES NEAR AND WITHIN THE FOREST RETENTION AND AFFORESTATION AREA, THE FINAL TPD AND SIGNAGE SHALL BE PLACED AS INDICATED ON THE PLAN. THE FINAL TPD AND SIGNS SHALL REMAIN IN PLACE IN ACCORDANCE WITH THE MANAGEMENT PLAN INCLUDED ON THIS PLAN OR UNTIL APPROVAL IS GIVEN BY THE HOWARD COUNTY INSPECTOR TO REMOVE THEM.

FOREST RETENTION

WOODLAND CONSERVATION AREAS WILL BE DELINEATED WITH HIGH VISIBILITY FENCING AND TEMPORARY SIGNAGE AS SPECIFIED (SEE TREE PRPTECTION FENCE AND TEMPORARY SIGNAGE DETAILS) PRIOR TO THE BEGINNING OF ANY CONSTRUCTION ACTIVITIES OCCURRING ADJACENT TO THESE AREAS. FENCING SHALL NOT BE CONSIDERED INSTALLED CORRECTLY UNTIL REVIEWED BY A LANDSCAPE ARCHITECT OR QUALIFIED NATURAL RESOURCE PROFESSIONAL FAMILIAR WITH THE PLAN. ATTACHMENT OF SIGNS TO TREES IS PROHIBITED

PRECONSTRUCTION MEETING/CONSTRUCTION PERIOD PRACTICES

1. THE HOWARD COUNTY INSPECTOR MUST BE CONTACTED PRIOR TO THE START OF ANY WORK ON THE SITE TO ADDRESS IMPLEMENTATION OF TREE CONSERVATION MEASURES SHOWN ON THIS PLAN.

2. ALL APPROPRIATE BONDS WILL BE POSTED WITH THE BUILDING OFFICIAL PRIOR TO THE ISSUANCE OF ANY PERMITS. THESE BONDS WILL BE RETAINED AS SURETY BY THE BUILDING OFFICIAL UNTIL ALL REQUIRED ACTIVITIES HAVE BEEN SATISFIED.

3. THE LOCATION OF ALL TREE PROTECTION DEVICES (TPD) SHOWN ON THIS PLAN SHALL BE FLAGGED OR STAKED IN THE FIELD PRIOR TO THE PRE-CONSTRUCTION MEETING WITH THE SEDIMENT AND EROSION CONTROL INSPECTOR FROM HOWARD COUNTY. UPON APPROVAL OF THE FLAGGED OR STAKED TPD LOCATIONS BY THE INSPECTOR, INSTALLATION OF THE TPDS MAY BEGIN. TPD INSTALLATION SHALL BE COMPLETED PRIOR TO THE INSTALLATION OF THE INITIAL SEDIMENT CONTROLS. NO CUTTING OR CLEARING OF TREES MAY BEGIN BEFORE FINAL APPROVAL OF TPD INSTALLATION.

4. WOODLAND CONSERVATION-TREE SAVE AREAS SHALL BE POSTED AS SHOWN AT THE SAME TIME AS THE TREE PROTECTIVE DEVICE INSTALLATION. THESE SIGNS SHALL REMAIN IN PLACE.

5. NO GRADING, EXCAVATION, UTILITY PLACEMENT, SEDIMENT AND EROSION CONTROL DEVICES, OR VEHICULAR TRAFFIC WILL OCCUR WITHIN WOODLAND CONSERVATION AREAS.

6. STORAGE OF EQUIPMENT AND MATERIALS SHALL NOT BE PERMITTED IN THE WOODLAND CONSERVATION AREAS.

7. THERE WILL BE NO BURIAL OR DISPOSAL OF DISCARDED MATERIAL ON SITE WITHIN THE WOODLAND CONSERVATION AREAS.

8. THERE WILL BE NO OPEN BURNING WITHIN 100 FEET OF WOODLAND CONSERVATION AREAS.

9. TEMPORARY STRUCTURES INCLUDING, BUT NOT LIMITED TO CONSTRUCTION TRAILERS, SANITARY FACILITIES, ETC. SHALL NOT BE PLACED WITHIN THE WOODLAND CONSERVATION AREAS.

10. EMPLOYEE PARKING SHALL NOT BE PERMITTED IN THE WOODLAND CONSERVATION AREAS

REFORESTATION PLANTING NOTES

1. ALL PLANTING STOCK SHALL BE A SEED SOURCE SUITED TO THIS GEOGRAPHIC REGION.
2. ROOT PRUNING OF THE PLANTING STOCK SHALL BE DONE AT THE NURSERY.
3. PLANTING WILL BE DONE BETWEEN FEBRUARY 15 AND MAY 1, AS LONG AS THE GROUND IS NOT FROZEN.
4. DISTURBED SOILS WITHIN THE REFORESTATION AREA SHOULD HAVE ORGANIC MULCH INCORPORATED WITHIN THE TOP 12 INCHES AND HAVE ADDITIONAL SOIL AMENDMENTS AS DETERMINED BY A SOILS ANALYSIS.
5. SITE PREPARATION FOR TREE PLANTING SHALL MINIMIZE ADVERSE COMPETITION FROM HERBACEOUS GROWTH IN THE REFORESTATION AREAS BY USING THE FOLLOWING METHODS:
   A. MOW REFORESTATION AREA CLOSE TO GROUND ONE WEEK (OR LESS) PRIOR TO PLANTING DATE.
   B. USE CHEMICAL HERBACEOUS VEGETATION CONTROL PRODUCT AFTER MOWING TO ENSURE REMOVAL OF ALL HERBACEOUS VEGETATION.
   C. MULCH THE PLANTED TREE IN AN AREA 2.5 TIMES THE DIAMETER OF THE ROOTBALL WITH COMPOSTED WOOD CHIPS IN A 3 INCH LAYER.
   D. CONTROL PLANTS AND WEEDS AROUND TREE PLANTINGS BY HAND AS NEEDED TO ENSURE SURVIVAL (NO MECHANICAL MOWING IN REFORESTATION AREA)
6. THE TREE SPECIES PLANTED SHALL MIMIC NATURAL SPECIES COMPOSITION AND DISTRIBUTION PATTERNS. AS INDICATED ON THE PLANTING DESIGN DETAIL ON THIS SHEET.
7. THE MANAGEMENT PLAN FOR THIS SITE INCLUDES THE FOLLOWING SCHEDULE OF ACTIVITIES:

YEAR 1 FEB-APRIL SITE PREPARATION AND TREE PLANTING
JUNE VEGETATION CONTROL IF NEEDED
SEPTEMBER VEGETATION CONTROL IF NEEDED
DECEMBER SURVIVAL CHECK (75% MINIMUM)

YEAR 2 FEB-APRIL REPLACEMENT TREE PLANTING IF NEEDED
JUNE VEGETATION CONTROL IF NEEDED
SEPTEMBER VEGETATION CONTROL IF NEEDED
DECEMBER SURVIVAL CHECK (75% MINIMUM)

FOREST CONSERVATION SURETY NOTE

A TOTAL OF 5.58 ACRES OF FOREST RETENTION AND 3.81 ACRES OF AFFORESTATION ARE PROPOSED UNDER THIS PLAN. THE REQUIRED SURETY AMOUNT FOR THE RETENTION ACREAGE IS $48,613 AND THE REQUIRED SURETY AMOUNT FOR THE AFFORESTATION IS $82,982 THE TOTAL AMOUNT OF THE REQUIRED FOREST CONSERVATION SURETY IS $131,595. THE REMAINING 0.80 AC OF REQUIRED REFORESTATION WILL BE SATISFIED BY FEE-IN-LIEU PAYMENT OF $0.75 PER SQUARE FOOT, TOTALING $26,136.

NOTE

ALL FOREST RETENTION, REFORESTATION AND AFFORESTATION AREAS SHOWN ON THIS PLAN SHALL BE PLACED IN A FOREST CONSERVATION EASEMENT.

POST CONSTRUCTION MANAGEMENT/MAINTENANCE BY CONTRACTOR

A 2-YEAR CONTRACTOR'S MAINTENANCE AND MONITORING PERIOD SHALL BEGIN AT MOBILIZATION. SEVENTY FIVE PERCENT SURVIVORSHIP MUST BE GUARANTEED FOR THIS PERIOD. THE SITE SHALL BE INSPECTED AT THE END OF THE TWO-YEAR PERIOD TO ASCERTAIN SURVIVORSHIP AND PROVIDE FOR REPLACEMENT IF NECESSARY.

THE CONTRACTOR'S MAINTENANCE OF NEW PLANTING SHALL CONSIST OF WATERING, CULTIVATING, WEEDING, AND MULCHING AS NECESSARY TO INSURE SURVIVAL.

CONTRACTOR SHALL PROTECT PLANTING AREAS AND PLANTS AT ALL TIMES AGAINST DAMAGE OF ALL KINDS FOR DURATION OF MAINTENANCE PERIOD. MAINTENANCE INCLUDES TEMPORARY PROTECTION BARRIERS AND SIGNS AS REQUIRED FOR PROTECTION. IF ANY PLANTS BECOME DAMAGED OR INJURED, BECAUSE SUFFICIENT PROTECTION WAS NOT PROVIDED, TREAT OR REPLACE AS DIRECTED BY LANDSCAPE ARCHITECT AT NO ADDITIONAL COST TO OWNER.

STANDARDS AND SPECIFICATIONS FOR PLANTING

1. PLANT MATERIAL SELECTION
A. NURSERY GROWN PLANT MATERIALS GREATER THAN 1" CALIPER SHOULD MEET OR EXCEED THE REQUIREMENTS OF THE INTERNATIONAL SOCIETY OF ARBORICULTURE AND AMERICAN NURSERYMAN SPECIFICATIONS, I.E. SHOULD BE TYPICAL OF THE SPECIES AND VARIETY, HAVE A NORMAL HABIT OF GROWTH, BE FIRST QUALITY, SOUND, VIGOROUS, WELL-BRANCHED, HAVE HEALTHY, WELL FURNISHED ROOT SYSTEMS, AND BE FREE OF DISEASE, INSECT PESTS AND MECHANICAL INJURIES. PLANTING STOCK SEED SOURCE SHALL BE FROM WITHIN GEOGRAPHIC REGION SUITABLE TO THE SITE.

B. PLANTING STOCK LESS THAN 1" CALIPER SHOULD MEET THE FOLLOWING STANDARDS
SEEDLING/WHIPS:
HARDWOODS -- 1/4" TO 1/2" CALIPER WITH ROOTS NOT LESS THAN 8" LONG
SHRUBS - 1/8" OR LARGER CALIPER WITH 8" ROOT SYSTEM.
CONIFERS -- 1/8" TO 1/4" CALIPER WITH ROOTS NOT LESS THAN 8" LONG AND TOP HEIGHT OF 6" OR MORE.

C. THERE SHALL BE NO ROOT RUNNING ON THE SITE.

2. PLANTING SITE PREPARATION
SOILS SHALL NOT BE DISTURBED OUTSIDE THE AREA NECESSARY FOR PLANTING INDIVIDUAL SPECIMENS AND THE REMOVAL OF EXOTIC INVASIVE PLANT MATERIAL.

3. PLANTING PERIOD
ALL MATERIAL SHALL BE PLANTED BETWEEN SEPTEMBER 15 AND MAY 31. MATERIAL SHALL NOT BE INSTALLED WHEN GROUND IS FROZEN. SEEDLING PLANTING ONLY BETWEEN DECEMBER AND APRIL..

4. PLANT MATERIAL STORAGE
PLANTS SHOULD BE PLANTED WITHIN 24 HOURS OF DELIVERY IF POSSIBLE. PLANT MATERIAL, WHICH IS LEFT UNPLANTED FOR MORE THAN 24 HOURS, SHALL BE PROTECTED FROM DIRECT SUN AND WEATHER AND KEPT MOIST. NURSERY STOCK SHOULD NOT BE LEFT UNPLANTED FOR MORE THAN TWO WEEKS.

5. ON-SITE INSPECTION
PRIOR TO PLANTING, PLANTING STOCK SHALL BE INSPECTED BY THE LANDSCAPE ARCHITECT OR OTHER QUALIFIED PROFESSIONAL FAMILIAR WITH THIS PLAN. PLANT MATERIAL NOT CONFORMING TO STANDARD NURSERYMAN SPECIFICATIONS FOR SIZE, FORM, VIGOR, ROOTS, TRUNK WOUNDS, INSECTS, AND DISEASE SHOULD BE REPLACED.

6. TOPSOIL FOR PLANTING
A.ON-SITE MATERIAL OR IMPORTED FROM SAME SOURCE AS TOPSOIL USED ON SITE FOR FINISH GRADING.
1) UNIFORM COMPOSITION, FREE OF SUBSOIL, CLAY LUMPS, STONES, STUMPS, ROOTS OR SIMILAR OBJECTS LARGER THAN 1 INCH.
2) TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS OF BERMUDAGRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, CANADA THISTLE, OR OTHERS AS SPECIFIED. SOIL MUST ALSO BE FREE OF CONTAMINANTS (IE: OIL PRODUCTS, CONCENTRATED SOLUBLE SALTS,SOLUBLE ALUMINUM/ MANGANESE, AND HERBICIDES, ETC.)
3) ALL TOPSOIL SHALL BE TESTED BY A RECOGNIZED LABORATORY FOR PH AND SOLUBLE SALTS. A PH OF 4.5 TO 7.5 IS REQUIRED. SOLUBLE SALTS SHALL NOT BE HIGHER THAN 500 PARTS PER MILLION.

7. ADDITIVE FOR BACKFILL MIX
A. WOOD RESIDUALS:
1) SOURCE SHALL BE WELL COMPOSTED, NOT CHEMICALLY TREATED.
2) PHYSICAL PROPERTIES - GRADING:

U.S. SIEVE	DRY WEIGHT PERCENT PASSING
3/8"	100
1/4"	90-100
NO. 8	70-100
NO. 35	0-30

B. ORGANIC CONTENT BY ASH ANALYSIS: 90 - 100 PERCENT DRY WEIGHT
1) CHEMISTRY RANGE:
A. SATURATION EXTRACT CONDUCTIVITY (EC) ---------- NIL - 3.5
B. REACTION (PH) ----------------------------------3.0 - 5.5
2) SALINITY: MAXIMUM SATURATION EXTRACT CONDUCTIVITY 1.0 MILLIMHOS PER CM AT 25 DEGREES CENTIGRADE.

C. SAND
1) PHYSICAL PROPERTIES - GRADING:

U.S. SIEVE	DRY WEIGHT PERCENT PASSING
No. 4	100
No. 10	90-100
No. 18	90-100
No. 35	65-100
No. 60	0-50
No. 140	0-20
No. 270	0-7

2) CHEMISTRY:
A. SATURATION EXTRACT CONDUCTIVITY (EC) ---------------NIL - 3.0
SODIUM ABSORPTION RATIO (SAR) -------------------------NIL - 6.0
BORON - PPM IN SATURATION EXTRACT SOLUTION -----------NIL - 1.0
REACTION (PH) --6.0 - 7.5
AVAILABLE CALCIUM - SODIUM ACETATE EXTRACTABLE - PPM -NIL - 2000 DRY WEIGHT
B. TREBLE SUPERPHOSPHATE: COMMERCIAL PRODUCT CONTAINING 19 TO 20 PERCENT AVAILABLE PHOSPHORIC ACID.

8. MULCH
A. SHREDDED LONG FIBER HARDWOOD

B. MULCH SHALL HAVE BEEN SHREDDED WITHIN THE LAST SIX (6) MONTHS.

9. PLANTING MIX
A. PLANTING MIX SHALL BE PREPARED AT APPROVED ON-SITE STAGING AREA USING APPROVED ON-SITE EXISTING SOIL. MIX MINIMUM QUANTITIES OF 20 CUBIC YARDS OR SUFFICIENT MIX FOR ENTIRE JOB IF LESS THAN 20 CUBIC YARDS IS REQUIRED.

B. THOROUGHLY MIXED IN THE FOLLOWING PROPORTIONS FOR TREE AND SHRUB PLANTING MIX:
.5 CY EXISTING SOIL
.2 CY SHARP SAND
.3 CY WOOD RESIDUALS
4.5 LBS. TREBLE SUPERPHOSPHATE
5 LBS. DOLOMITE LIMESTONE (ELIMINATE FOR ACID LOVING PLANTS)

10. LAYOUT AND EXCAVATION OF PLANTING AREAS
A. PLANTS SHALL BE PLACED IN EACH ZONE AT RANDOM LOCATIONS SHOWN AT SPACING AS INDICATED ON THE PLAN.

B. THE LANDSCAPE ARCHITECT OR QUALIFIED PROFESSIONAL WILL CHECK LOCATION OF PLANTS IN THE FIELD AND SHALL ADJUST TO EXACT POSITION BEFORE PLANTING BEGINS.

C. SUBSOIL SHALL NOT BE WORKED WHEN MOISTURE CONTENT IS SO GREAT THAT EXCESSIVE COMPACTION WILL OCCUR, NOR WHEN IT IS SO DRY THAT CLODS WILL NOT READILY BREAK. WATER SHALL BE APPLIED, IF NECESSARY, TO BRING SOIL TO AN OPTIMUM MOISTURE CONTENT BEFORE TILLING AND PLANTING.

D. TREE PITS SHALL NOT BE EXCAVATED MORE THAN 24 HOURS IN ADVANCE OF PLANTING OPERATION.
TREE PITS SHALL BE EXCAVATED TO THE FOLLOWING DIMENSIONS:

EXCAVATION FOR	WIDTH	DEPTH
CANNED TREE	CAN + 12 IN.	CAN + 4 IN.
B&B TREES	BALL + 12 IN.	BALL + 4 IN.

E. EXCAVATE SHRUB PITS TO THE FOLLOWING DEPTHS:

EXCAVATION FOR	WIDTH	DEPTH
SHRUB	BALL OR CAN + 8 IN.	CAN + 4 IN., NOT LESS THAN 12 IN.

11. PREPARING PLANT MATERIALS FOR PLANTING
A. CONTAINER STOCK SHALL BE REMOVED CAREFULLY AFTER CANS HAVE BEEN CUT ON TWO SIDES WITH APPROVED CUTTER. DO NOT USE SPADE TO CUT CANS. DO NOT LIFT OR HANDLE CONTAINER PLANTS BY TOPS, STEMS OR TRUNKS AT ANY TIME.

B. DO NOT BIND OR HANDLE ANY PLANT WITH WIRE OR ROPE AT ANY TIME SO AS TO DAMAGE BARK OR BREAK BRANCHES. LIFT AND HANDLE PLANTS ONLY FROM BOTTOM OF BALL.

C. BALLED AND BURLAPPED (B&B) PLANTS SHALL HAVE FIRM BALLS OF EARTH. PLANTS MOVED WITH A BALL WILL NOT BE ACCEPTED IF THE BALL IS CRACKED OR BROKEN BEFORE OR DURING PLANTING OPERATIONS. B&B MATERIAL SHALL BE DUG ONLY WHEN DORMANT. PRE-DUG STORED B&B MATERIAL SHALL BE INSPECTED AND APPROVED AT THE STORAGE SITE.

D. DO NOT FORCE ROOTS FOR BARE ROOTED TREES INTO EXCAVATED PITS - CUSTOM DIG PITS TO RECEIVE ROOTS WITHOUT DEFORMATION.

12. MIXING
A. MIX SOIL BASE, AMENDMENTS AND CHEMICAL ADDITIVES BY MECHANICAL MEANS.

B. SOIL AND SAND BASES SHALL BE COMPLETELY PULVERIZED AND FREE OF LUMPS OR AGGREGATED MATERIAL. MOISTURE CONTENT OF BASE MATERIALS SHALL NOT BE SUCH THAT CHEMICAL GRANULAR OR PALLETIZED ADDITIVES BECOME DISSOLVED DURING THE MIXING PROCESS.

C. MIX MEDIA IN QUANTITIES OF NOT LESS THAN 20 CUBIC YARDS OF MIX TOTAL QUANTITY REQUIRED IF LESS THAN 50 CUBIC YARDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTINUITY BETWEEN BATCHES.

D. CONTAMINATED BACKFILL MIX WITH UNMIXED SOIL IN BACKFILL MIXING LOTS SHALL BE AVOIDED.

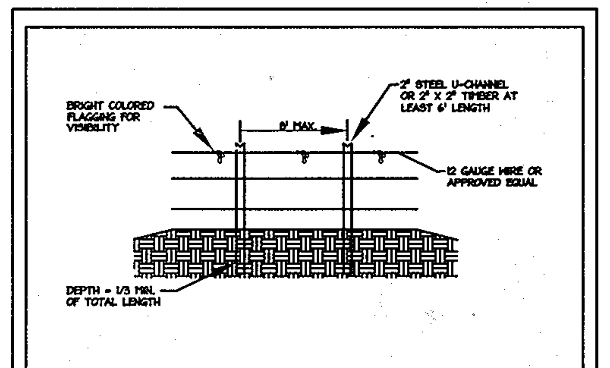
13. INSTALLATION OF PLANT MATERIAL
A. SCARIFY THE WALLS AND BOTTOM OF ALL PLANT PITS IMMEDIATELY PRIOR TO THE PLACEMENT OF PLANT AND BACKFILL MIX. THE CONTRACTOR SHALL REMOVE ALL GLAZING OF SOIL CAUSED BY AN AUGER OR MECHANICAL HOLE DIGGER.

B. WELLS AROUND TREES AND SHRUBS: AFTER PLANTING IS COMPLETE, FORM A SOIL WELL 3 INCHES HIGH AROUND EACH PLANT, EXTENDING TO THE OUTER LIMIT OF THE PLANT PIT IN ACCORDANCE WITH PLANTING DETAILS SHOWN ON THE DRAWINGS.

C. SMOOTH PLANTED AREAS TO CONFORM TO SPECIFIED GRADES AFTER FULL SETTLEMENT AS OCCURRED. CONTRACTOR SHALL BEAR FINAL RESPONSIBILITY FOR PROPER SURFACE DRAINAGE OF PLANTED AREAS. ANY DISCREPANCY IN THE DRAWINGS OR SPECIFICATIONS, OBSTRUCTIONS ON THE SITE, OR PRIOR WORK DONE BY ANOTHER PARTY, WHICH CONTRACTOR FEELS PRECLUDES ESTABLISHING PROPER DRAINAGE, SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT IN WRITING.

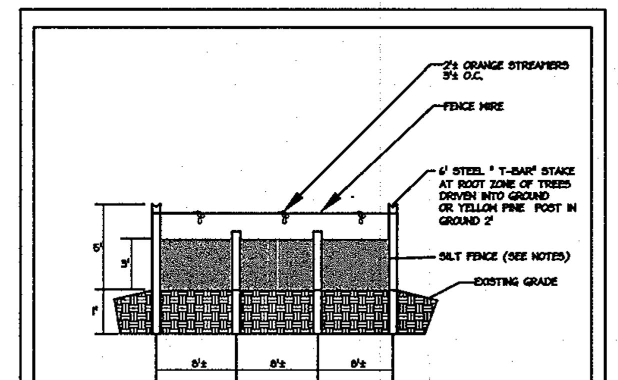
D. WATER ALL PLANTS IMMEDIATELY AGAIN AFTER PLANTING.

E. SPREAD MULCH IN REQUIRED AREAS TO THE COMPACTED DEPTH OF 2 INCHES.



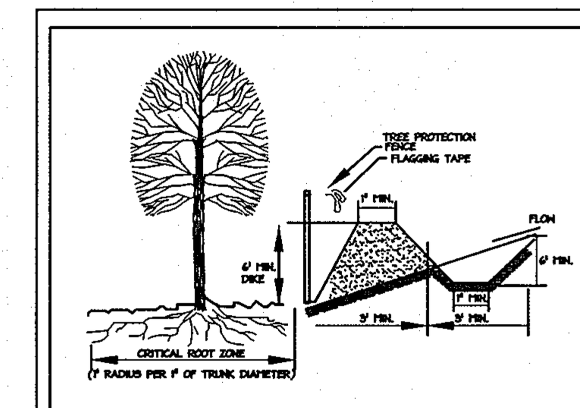
NOTES:
1. PLACE TREE PROTECTION DEVICES AS NOTED ON APPROVED TREE CONSERVATION PLAN, STAKED LIMIT OF DISTURBANCE, OR AS NOTED.
2. TREE PROTECTION DEVICES SHALL BE IN PLACE PRIOR TO PRE-CONSTRUCTION MEETING WITH COUNTY INSPECTORS.
3. FENCE POST SHALL BE PLACED TO AVOID SEVERING OR DAMAGING LARGE TREE ROOTS (SEE ROOT PRUNING DETAIL)
4. FENCING MATERIAL SHALL BE SECURELY FASTNED TO FENCE POSTS.
5. FOREST CONSERVATION SIGNS MAY BE PLACED ON FENCE POST AS INDICATED ON APPROVED TREE CONSERVATION PLAN.
6. DEVICE TO BE MAINTAINED THROUGHOUT CONSTRUCTION.

TREE PROTECTION DEVICE TYPE I (THREE STRAND WIRE FENCING)



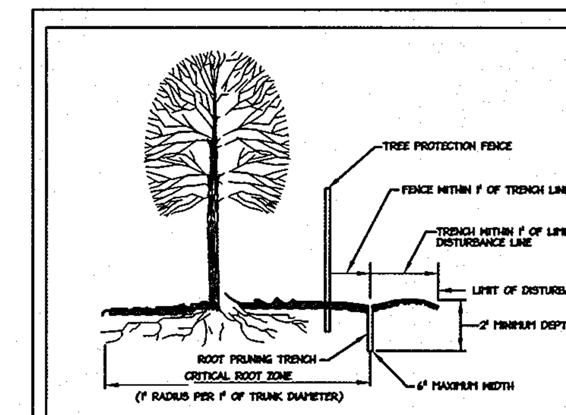
NOTES:
1. SILT FENCE TO BE INSTALLED PER SCS DETAIL.
2. WIRE, SNOW FENCE, ETC. FOR TREE PROTECTION ONLY.
3. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
4. LIMITS OF DISTURBANCE SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
5. AVOID ROOT DAMAGE WHEN PLACING ANCHOR POSTS. (SEE ROOT PRUNING DETAIL)
6. DEVICE SHOULD BE PROPERLY MAINTAINED THROUGHOUT CONSTRUCTION.
7. PROTECTION SIGNS MAY BE PLACED ON FENCE AS NOTED ON PLAN.
8. LOCATE FENCE OUTSIDE THE CRITICAL ROOT ZONE.

COMBINATION SILT FENCE AND TREE PROTECTION DEVICE- TYPE II



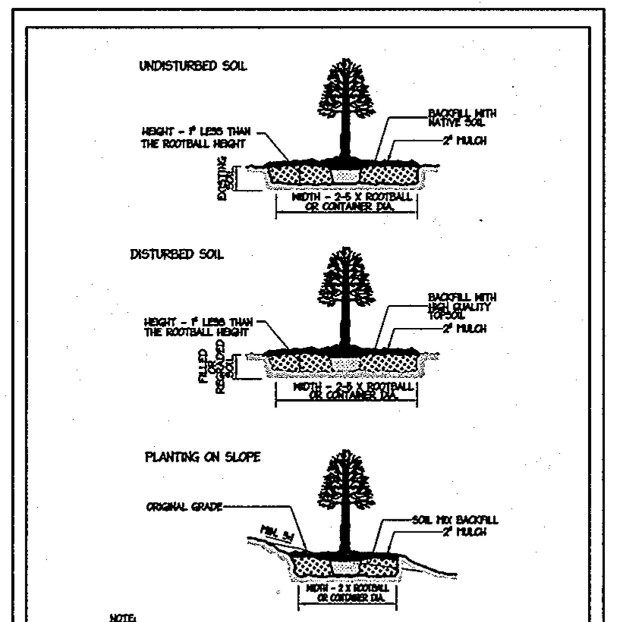
NOTES:
1. COMBINE SEDIMENT CONTROL AND FOREST PROTECTION DEVICE.
2. BOUNDARIES OF RETENTION AREA WILL BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
3. BOUNDARIES OF RETENTION AREA SHOULD BE STAKED PRIOR TO INSTALLING PROTECTION DEVICES.
4. ROOT DAMAGE SHOULD BE AVOIDED. (SEE ROOT PRUNING DETAIL)
5. TOE OF SLOPE SHOULD BE OUTSIDE THE CRITICAL ROOT ZONE.
6. EQUIPMENT IS PROHIBITED WITHIN CRITICAL ROOT ZONE OF RETENTION AREA; PLACE DIKE ACCORDINGLY.
7. ALL STANDARD MAINTENANCE OF EARTH DIKES AND SWALES APPLY TO THESE DETAILS.
8. ALL STANDARD RECLAMATION PRACTICE FOR EARTH DIKES AND SWALES SHALL APPLY TO THESE DETAILS.
9. SIGNAGE MAY BE PLACED ON POSTS AS INDICATED ON PLAN.

COMBINATION EARTH DIKE AND TREE PROTECTION DEVICE- TYPE III



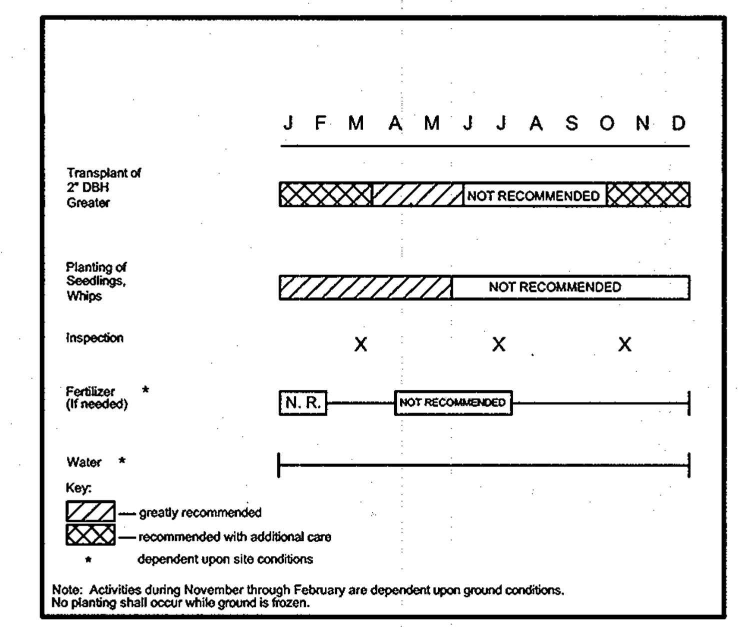
NOTES:
1. RETENTION AREAS TO BE ESTABLISHED AS PART OF THE FOREST CONSERVATION PLAN REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS TO BE STAKED, FLAGGED AND/OR FENCED PRIOR TO TRENCHING.
3. EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
4. TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR ORGANIC SOIL.
5. ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.

ROOT PRUNING



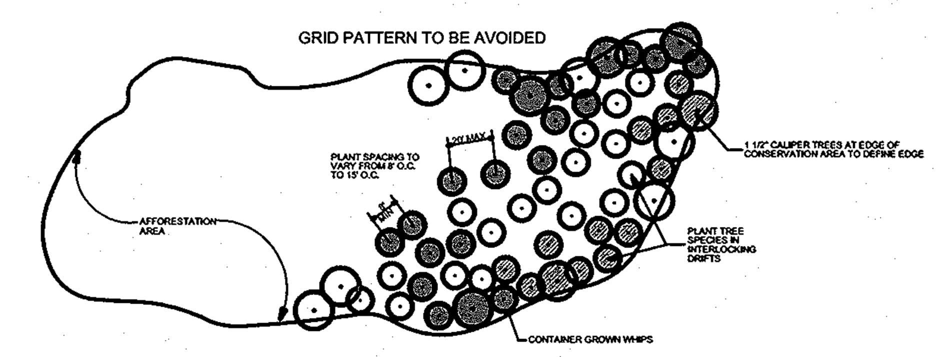
NOTE:
TREE PIT TO BE FIVE TIMES THE ROOTBALL IS PREFERRED, PARTICULARLY IN POOR SOIL.

CONTAINER GROWN AND B&B PLANTING TECHNIQUES



The planting and care of trees is most successful when coordinated with the local climatic conditions. This calendar summarizes some of the recommended time frames for basic reforestation and stress reduction activities.

Tree Planting and Maintenance Calendar
General Guidelines



Planting Design Schematic
Not To Scale

Johns Hopkins University Reforestation Plant Calcs									
Proposed reforestation plant size = whips with plant density of 700 per acre									
RA #	Area Before Reduction (square feet)	Area Before Reduction (acres)	# of trees 2-2.5" caliper = 400 sq. ft.	# of trees 2-2.5" caliper = 225 sq. ft.	Total credits to be counted toward reforestation (sq. ft.)	Area After Reduction (square feet)	Area After Reduction (acres)	Original # Whips Required	New # Whips Required
1	13991	0.32	0	0	0	13,991	0.32	225	225
2	2162	0.05	0	0	0	2,162	0.05	35	35
3	33321	0.76	8	0	3200	30,121	0.69	535	484
4	6,611	0.15	0	0	0	6,611	0.15	106	106
5	109,824	2.52	28	45	21325	88,499	2.03	1765	1422
TOTAL	**165909**	**3.81**	**36**	**45**	**24525**	**141,384**	**3.25**	**2666**	**2272**

GENERAL NOTES:

1. NO RARE, THREATENED OR ENDANGERED SPECIES OR HABITATS WERE OBSERVED DURING ANY SITE VISIT.
2. THERE ARE 22 SPECIMEN TREES ON THE SITE.
3. THE EXISTING TOPOGRAPHY IS TAKEN FROM AERIAL PHOTOGRAMETRY DATED APRIL 9, 2005, WITH ONE-FOOT CONTOUR INTERVALS PREPARED BY WRA DATED NOVEMBER 23, 2005. THIS TOPOGRAPHY WAS SUPPLEMENTED BY FIELD RUN SURVEY WITH TWO-FOOT CONTOUR INTERVALS BY christopher consultants, ltd. DATED NOVEMBER 2008.
4. THERE ARE EXISTING WETLANDS ON SITE AS DETERMINED BY McCARTHY AND ASSOCIATES, IN A REPORT BY CPJ DATED MAY 2008.
5. THERE ARE NO CEMETERIES, HISTORIC STRUCTURES, OR RESOURCES ON THE SITE.
6. PER FEMA MAP# 2400440038B DATED DECEMBER 04, 1986, THIS SITE IS LOCATED WITHIN THE 100 YR FLOODPLAIN. HOWEVER THE WORK TAKING PLACE ON THIS SITE IS APPROX. 200 FEET AWAY FROM AND APPROXIAMTELY 32 FEET ABOVE THE FLOODPLAIN LIMITS. THE WORK ON THIS SITE WILL NOT REQUIRE FEMA LOMA/LOMR REVISIONS. A NON-CRITICAL FLOODPLAIN STUDY HAS BEEN SUBMITTED TO DED FOR REVIEW AND WAS APPROVED AS PART OF THE PRELIMINARY EQUIVALENT SKETCH APPROVAL PLAN APPROVAL.
7. THIS SITE ADJACENT TO HAMMOND BRANCH WHICH IS IN THE PATUXENT WATERSHED (HUC 20060006).

REFORESTATION PLANT SCHELDULE							
SPECIES	SIZE	RA-1 QTY	RA-2 QTY	RA-3 QTY	RA-4 QTY	RA-5 QTY	TOTAL
RED OAK	WHIPS	0	9	121	27	355	512
RED MAPLE	WHIPS	0	9	121	26	355	511
WHITE OAK	WHIPS	0	9	121	26	356	512
TULIP POPULAR	WHIPS	0	8	121	27	356	512
E. REDBUD	WHIPS	75	0	0	0	0	75
DOGWOOD	WHIPS	75	0	0	0	0	75
AM. HOLLY	WHIPS	75	0	0	0	0	75
TOTAL PER RA		225	35	484	106	1422	2272

-700 WHIPS PER ACRE OF REFORESTATION
-TOTALS ACCOUNT FOR THE LANDSCAPE CREDIT SQUARE FOOTAGE REDUCTIONS
-REFORESTATION AREA IA REFERS TO THE FIRST 25 FEET ADJACENT TO JOHNS HOPKINS ROAD AND THE ASSOCIATED BGE POWER LINES
THESE SPECIES WERE SELECTED TO MEET A BGE REQUIREMENT THAT TREES PLANTED IN A FOREST CONSERVATION EASEMENT WITH IN THIS PROXIMITY BE NATIVE SPECIES WHICH DO NOT REACH MAXIMUM HEIGHTS ABOVE 40 FEET.
-THE REMAINING REFORESTATION AREA I OUTSIDE OF THE FIRST 25 FEET ADJACENT TO JOHNS HOPINS ROAD IS 1B

LEED ACCREDITED PROFEESIONAL CERTICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

[signature] 10.9.09
SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. DATE

PROTECTION OF REFORESTATION/AFFORESTATION AREAS by developers and builders

1. Reforestation and afforestation areas shall be planted within one growing season after the rough stabilization of the rough graded site. If planting cannot occur due to planting conditions, the developer or property owner shall install the fencing and signage in accordance with the approved Forest Conservation Plan. Planting shall then be accomplished during the next planting season. If planting is delayed beyond the transfer of the property title to another purchaser, the developer shall obtain a signed statement from the purchaser indicating that they understand that the reforestation area is located on their property and that reforestation will occur during the next planting seaon. A copy of that document shall be presented to the Grading Inspector and the Department of Planning and Zoning.

2. Reforestation areas are not to be mowed, however, the management of competing vegetation around individual trees is acceptable.

10.9.09
DATE
STATE OF MARYLAND — NO. 3171 — REGISTERED LANDSCAPE ARCHITECT
COMAR QUALIFIED FOREST PROFESSIONAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING
[signature] Chief, Development Engineering Division — Date 11/17/09
[signature] Chief, Division of Land Development — Date 1/08/10
[signature] Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
PHONE: 443.778.5134 FAX 443.778.6122

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

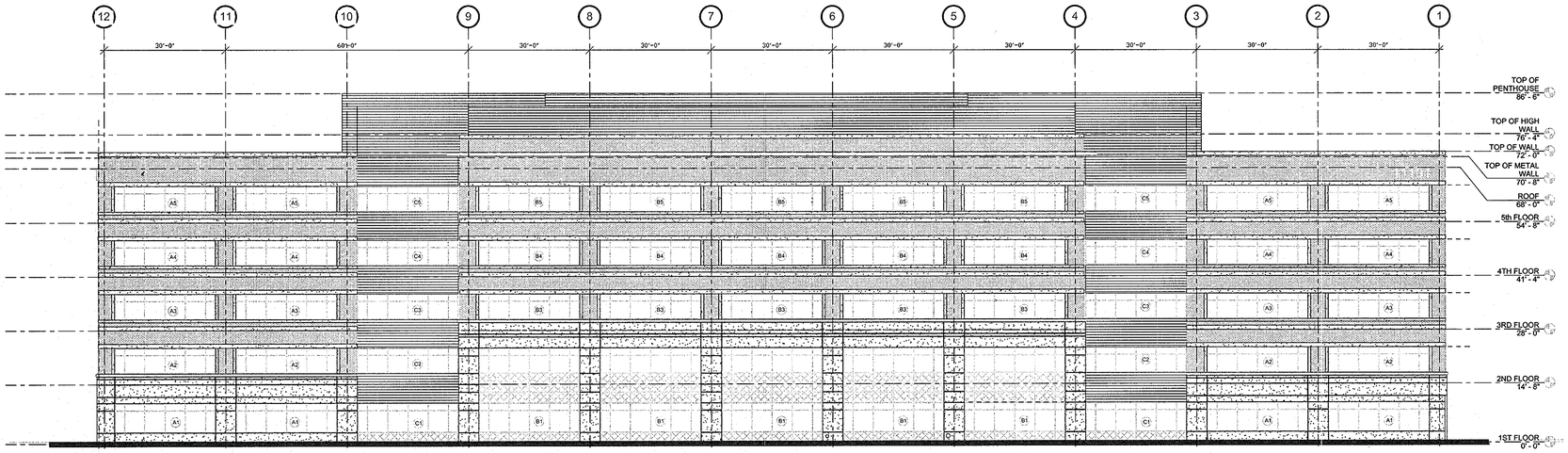
PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928-20930			

TITLE:
FOREST CONSERVATION PLAN DETAILS

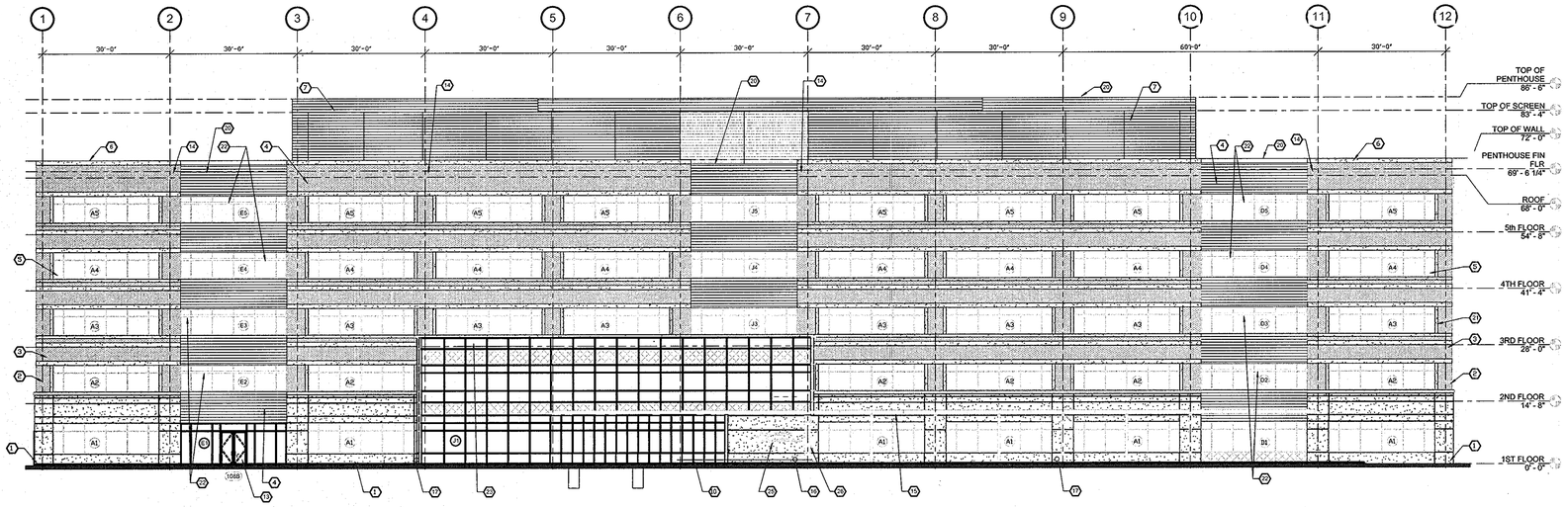
DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	49 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)



NORTH ELEVATION
NOT TO SCALE



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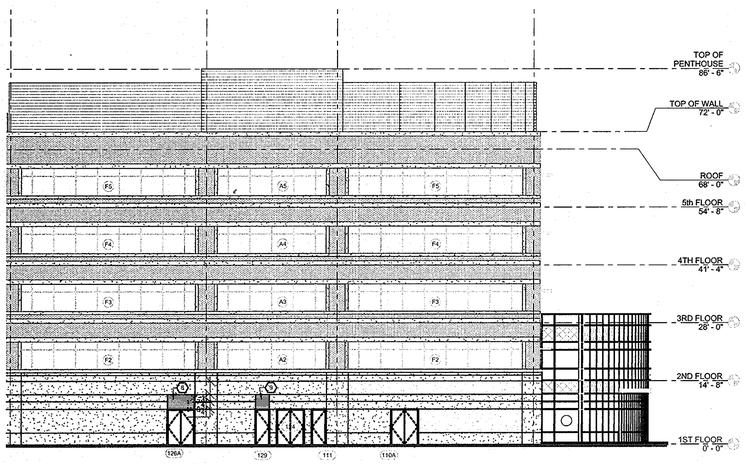

WEST ELEVATION
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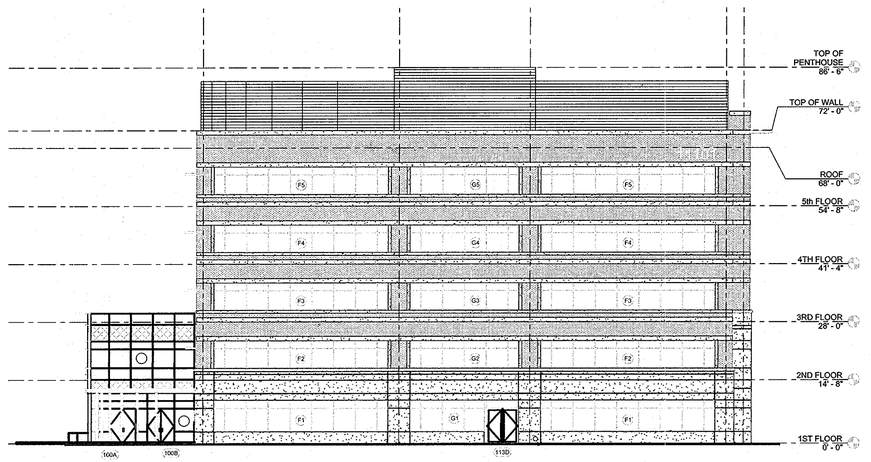

EAST ELEVATION
NOT TO SCALE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

SIGNATURE OF ENGINEER — DATE: 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

I HEREBY CERTIFY THAT THIS PLAN REPRESENTS A PRACTICAL AND WORKABLE PLAN FOR ACHIEVING THE TARGETED CREDITS AND POINT TOTAL SHOWN ON THE GREEN NEIGHBORHOOD FOR SITES COMPLIANCE CHECKLIST.

SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — DATE: 10.9.09

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date: 11/17/09
Chief, Division of Land Development — Date: 1/08/10
Director — Date: 1/11/10

Date	No.	Revision Description
		46 ARCHITECTURE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
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410.872.8890 · metro 301.861.0148 · fax 410.872.8893

PERMIT INFORMATION CHART

PROJECT NAME:		LOT/PARCEL NO.	CENSUS TRACT
JHU/APL- SOUTH CAMPUS BUILDING 200		300	6051.02
DEED REF.	GRID NO. / ZONE	TAX MAP	ELECTION DISTRICT
L.10412 , F.396	22 / PEC	41	5th
plat refs 20988-20930			

10.9.09 DATE

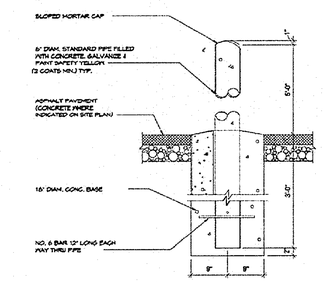
STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

TITLE: ARCHITECTURE

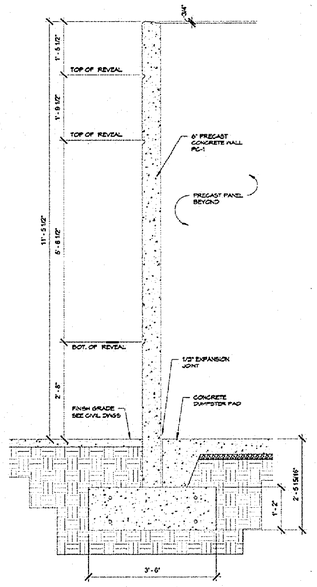
DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	50 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

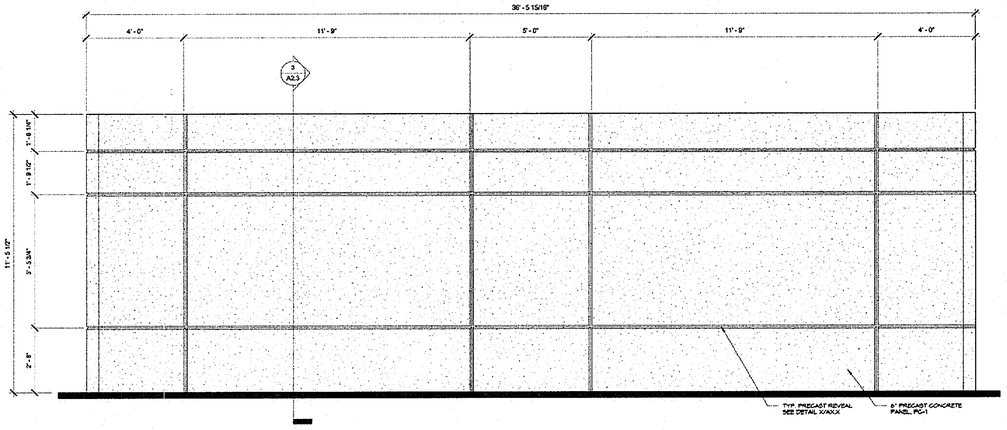
SDP-09-047



4 PIPE BOLLARD DETAIL
NOT TO SCALE



3 SERVICE AREA WALL SECTION
NOT TO SCALE



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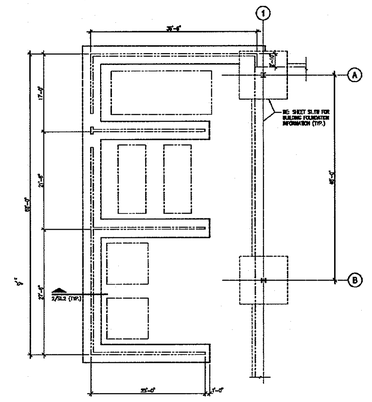
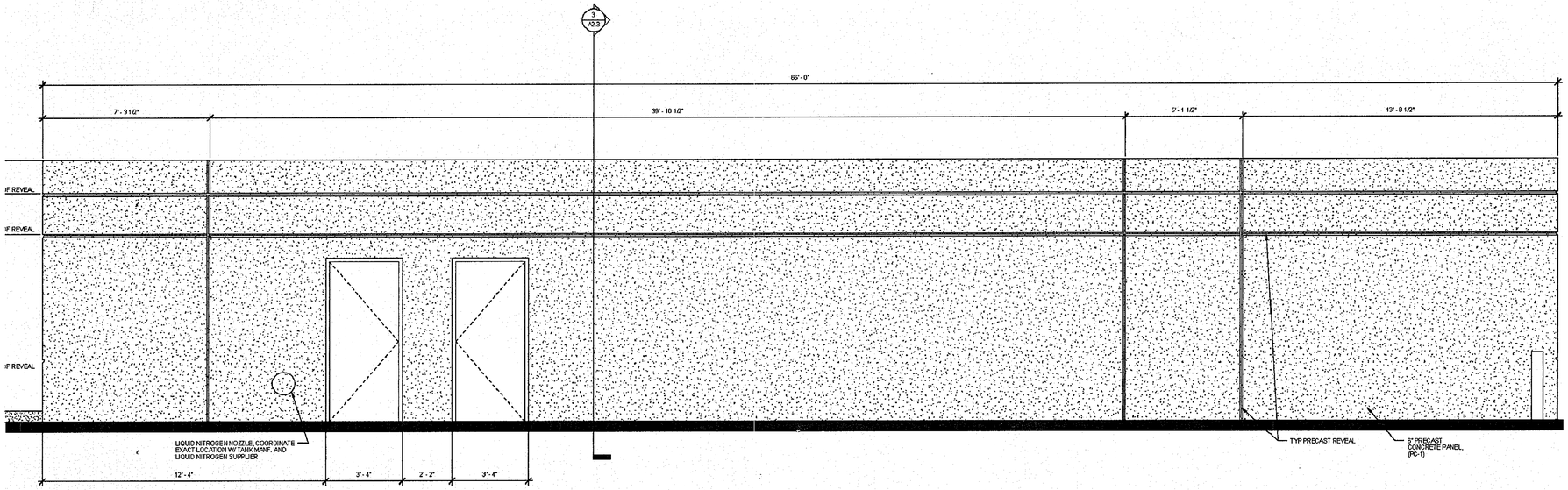
NOT TO SCALE



SERVICE AREA PLAN
NOT TO SCALE



SERVICE AREA WALL ELEVATIONS
NOT TO SCALE

LEED ACCREDITED PROFESSIONAL CERTIFICATE
GREEN NEIGHBORHOOD PLAN FOR SITES

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SIGNATURE OF BRIAN COLLINS LEED ACCREDITATION NO. — 10-9-09 DATE

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — 10.7.09 DATE

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10-09-09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 29907 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description
		46 ARCHITECTURE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412 , F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat #'s: 20928 & 20930			

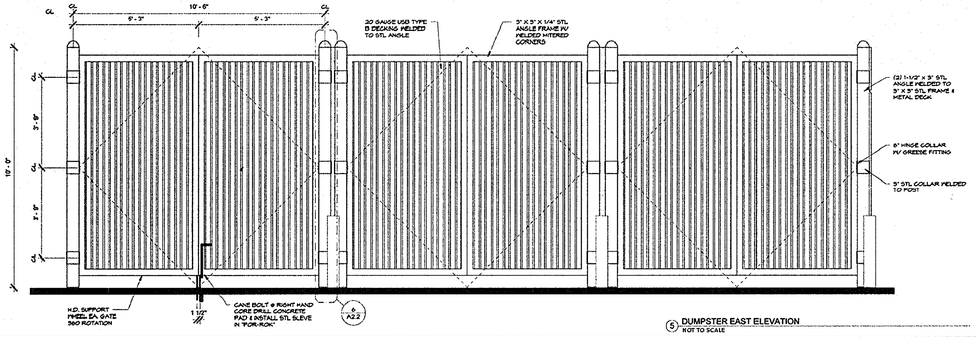
TITLE:

ARCHITECTURE

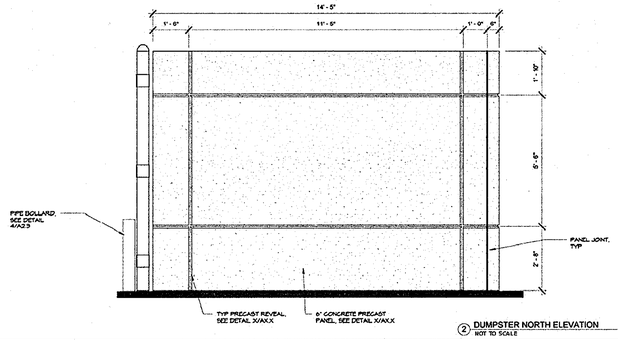
DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	51 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047



5 DUMPSTER EAST ELEVATION
NOT TO SCALE



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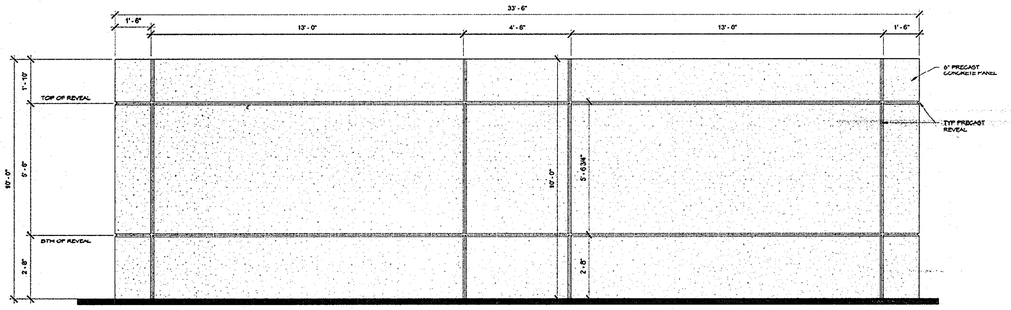
NOT TO SCALE



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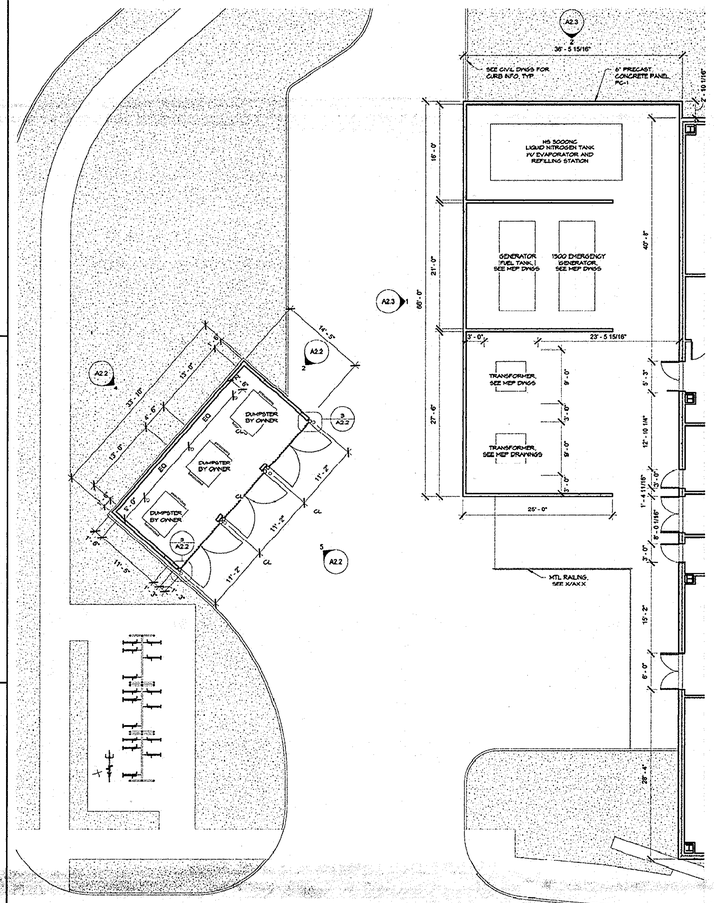
NOT TO SCALE



1 WEST SERVICE AREA
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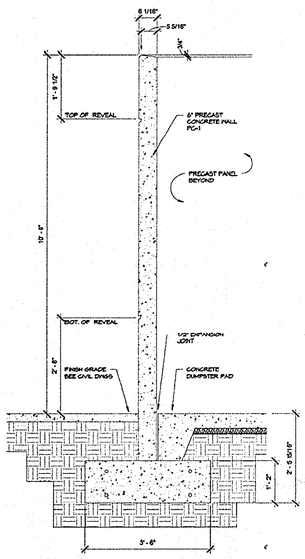

7 DUMPSTER WALL SECTION
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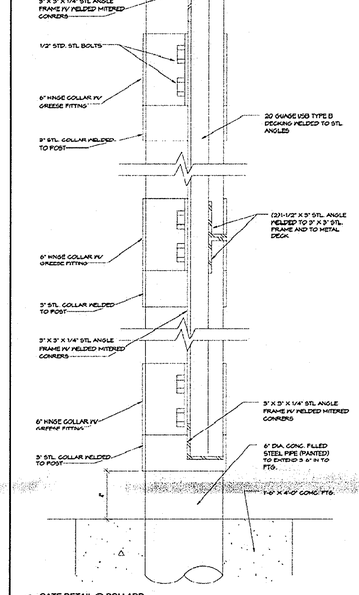
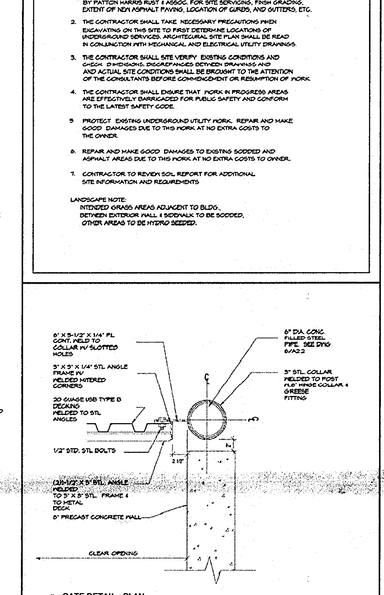


6 GATE DETAIL @ BOLLARD
NOT TO SCALE



3 GATE DETAIL - PLAN
NOT TO SCALE

SITE NOTES:

1. REFER TO SITE PLAN, UTILITY PLAN, AND DIMENSION PLAN PREPARED BY PATTON HARRIS RUST & ASSOC. FOR SITE SERVICING, FINISH GRADING, EXTENT OF NEW ASPHALT PAVING, LOCATION OF CURBS, AND GUTTERS, ETC.
2. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS PRIOR EXCAVATING ON THIS SITE TO FIRST DETERMINE LOCATIONS OF UNDERGROUND SERVICES. ARCHITECTURAL SITE PLAN SHALL BE READ IN CONJUNCTION WITH MECHANICAL AND ELECTRICAL UTILITY DRAWINGS.
3. THE CONTRACTOR SHALL SITE VERIFY EXISTING CONDITIONS AND CHECK DIMENSIONS, ELEVATIONS BETWEEN DRAWINGS AND AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONSULTANTS BEFORE COMMENCEMENT OR RESUMPTION OF WORK.
4. THE CONTRACTOR SHALL ENSURE THAT WORK IN PROGRESS AREAS ARE EFFECTIVELY BARRICADED FOR PUBLIC SAFETY AND CONFORM TO THE LATEST SAFETY CODE.
5. PROTECT EXISTING UNDERGROUND UTILITY WORK. REPAIR AND MAKE GOOD DAMAGES DUE TO THIS WORK AT NO EXTRA COSTS TO THE OWNER.
6. REPAIR AND MAKE GOOD DAMAGES TO EXISTING SODDED AND ASPHALT AREAS DUE TO THIS WORK AT NO EXTRA COSTS TO OWNER.
7. CONTRACTOR TO REVIEW SOIL REPORT FOR ADDITIONAL SITE INFORMATION AND REQUIREMENTS

LANDSCAPE NOTE:
INTENDED GRASS AREAS ADJACENT TO BLDG., BETWEEN EXTERIOR WALL & SIDEWALK TO BE SODDED, OTHER AREAS TO BE HYDRO SEEDED.

DUMPSTER AREA DETAILS
NOT TO SCALE

PROFESSIONAL CERTIFICATION

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SIGNATURE OF ENGINEER — DATE: 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

LEED ACCREDITED PROFESSIONAL CERTIFICATE
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SIGNATURE OF BRIAN COLLINS — LEED ACCREDITATION NO. — DATE: 10.9.09

10.7.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — NO. 29907 — REGISTERED PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/04/10
Director — Date 1/11/10

Date	No.	Revision Description
		46 ARCHITECTURE

JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
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PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200		LOT/PARCEL NO. 300		CENSUS TRACT 6051.02
DEED REF. L.10412 F.396	GRID NO. 22	ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat # 20928-20930				

TITLE: ARCHITECTURE

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	52 OF 54
CHECKED: JMH	APPROVED: JMH	

MDC-930(SDP)

SDP-09-047

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-1
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 416.7 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-10-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		7-15-31	48
		10"		32-51/4"	51/4"
Bottom of Hole at 39.3'					

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER: AT COMPLETION 30 ft.; AFTER 24 HRS. 26.5 ft.; AFTER ___ HRS. ___ ft.
CAVE IN DEPTH: 34.0 ft.; 30.0 ft.; ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-1
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 416.7 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-10-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown/Red, moist, loose to medium dense micaceous silty sand to sandy silt (SM-ML) Fill	0" Topsoil	4"		1-2-4	6
		10"		6-6-8	14
		18"		2-3-3	6
Red/Brown, moist, soft sandy silt, trace clay and mica (ML)		18"		2-2-2	4
Brown, moist, loose to medium dense micaceous silty sand (SM)	Groundwater encountered at 29.0' while drilling	18"		4-4-6	10
		18"		3-4-4	8
		12"		8-8-9	17
Brown/Gray, very moist to wet, medium dense to very dense micaceous silty sand with weathered rock (SM)		16"		5-6-10	16
		14"		9-12-16	28

GROUND WATER: AT COMPLETION 30 ft.; AFTER 24 HRS. 25.5 ft. CAVE IN DEPTH: 34.0 ft.; 30.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-2
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 419.7 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-10-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, very loose to medium dense silty sand to sandy silt, trace clay and mica (SM-ML) Fill	0" Topsoil	7"		1-2-2	4
		10"		6-7-12	19
Light Brown, moist, medium stiff silt, trace sand, clay, and mica (ML)		18"		3-4-6	10
Tan/White, moist to wet, loose to medium dense silty sand with weathered rock (SM)		12"		3-5-6	11
	Groundwater encountered at 31.0' while drilling	18"		4-4-7	11
		18"		3-3-5	8
		16"		3-4-4	8
		18"		2-2-4	6
		16"		2-3-6	8

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. Dry ft. CAVE IN DEPTH: 27.0 ft.; 25.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-2
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 419.7 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-10-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		3-4-7	11
		15"		4-8-9	17
Bottom of Hole at 40.0'					

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. Dry ft. CAVE IN DEPTH: 27.0 ft.; 25.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-3
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 419.4 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-10-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		13-15-21	36
		18"		17-24-30	54
Green/Gray, wet, very dense micaceous silty sand with rock fragments (SM) Decomposed Rock		18"		26-29-44	73
		15"		20-37-51/4"	88/10"
Bottom of Hole at 51.3'					

GROUND WATER: AT COMPLETION 29.0 ft.; AFTER 24 HRS. 29.0 ft. CAVE IN DEPTH: 29.7 ft.; 31.7 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-3
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 419.4 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-10-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Red/Brown, moist, loose to medium dense micaceous silty sand (SM)	6" Topsoil	14"		2-3-3	6
		14"		3-4-4	8
		13"		5-6-6	12
		13		6-8-11	19
Brown, moist, medium dense to very dense micaceous silty sand with weathered rock (SM)	Groundwater encountered at 29.0' while drilling	14"		6-8-9	17
		14"		5-9-14	23
		16"		6-9-26	35
		15"		18-24-29	53
Brown, wet, dense to very dense micaceous silty sans with weathered rock (SM)		16"		14-20-19	39

GROUND WATER: AT COMPLETION 29.0 ft.; AFTER 24 HRS. 29.0 ft. CAVE IN DEPTH: 29.7 ft.; 31.7 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-4
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 405.99 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-11-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-11-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, dry to moist, fine silty sand, trace gravel (SM) Fill	0" Topsoil	6"		3-5-6	11
		8"		4-6-6	12
Brown, moist, medium dense micaceous silty sand (SM)		12"		12-19-8	27
		13"		5-7-10	17
	Groundwater encountered at 20.0' while drilling	13"		7-7-11	18
		14"		6-12-14	26
Brown, very moist to wet, medium dense to dense micaceous silty sand with weathered rock (SM)		13"		6-10-15	25
		15"		10-14-18	32
		16"		8-11-15	26

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. Dry ft. CAVE IN DEPTH: 12.3 ft.; 12.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-4
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 405.99 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-11-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-11-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		3-7-9	16
		16"		10-10-11	21
Bottom of Hole at 40.0'					

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. Dry ft. CAVE IN DEPTH: 12.3 ft.; 12.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-5
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 406.7 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-11-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-11-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, very loose to medium dense micaceous silty sand (SM)	0" Topsoil	6"		1-1-3	4
		11"		3-4-5	9
		16"		5-6-9	15
		13"		3-6-8	14
	Groundwater encountered at 28.0' while drilling	10"		6-7-8	15
		12"		4-6-8	14
		11"		6-7-7	14
Tan, wet, medium dense silty sand, trace mica (SM)		18"		5-6-8	14
		16"		5-6-8	14

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. ___ ft. CAVE IN DEPTH: 12.6 ft.; ___ ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-5
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 406.7 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-11-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-11-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		5-10-13	23
		16"		3-8-16	24
Bottom of Hole at 40.0'					

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. ___ ft. CAVE IN DEPTH: 12.6 ft.; ___ ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-6
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 406.6 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-6-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-6-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Dark Brown to Brown, moist, loose silty sand, some gravel, trace clay (SM) Fill	0" Topsoil	5"		1-3-3	6
		5"		9-5-3	8
Brown, moist, soft silt, little sand and clay (ML) Possible Fill		12"		1-1-1	2
Red/Brown, moist, loose micaceous silty sand (SM)		14"		2-6-5	10
	Groundwater encountered at 25.0' while drilling	14"		2-3-3	6
Brown/Gray, moist, loose to medium dense micaceous silty sand (SM)		14"		4-5-5	10
		14"		4-6-6	11
Brown/Gray, wet, very dense to dense micaceous silty sand with weathered rock (SM) Decomposed Rock		12"		40-51/6"	51/6"
		4"		51/4"	51/4"

GROUND WATER: AT COMPLETION 26.0 ft.; AFTER 24 HRS. 24.0 ft. CAVE IN DEPTH: 27.5 ft.; 26.4 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-6
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 406.6 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-6-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-6-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		15"		11-16-26	42
Bottom of Hole at 40.2'		2"		51/2"	51/2"

GROUND WATER: AT COMPLETION 26.0 ft.; AFTER 24 HRS. 24.0 ft. CAVE IN DEPTH: 27.5 ft.; 26.4 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-7
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 420.0 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-12-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, loose to medium dense sandy silt to silty sand, trace clay, mica, and gravel (SM-ML) Fill	0" Topsoil	10"		5-5-4	9
		9"		5-7-17	24
		4"		4-5-6	11
Red/Brown, moist, loose to medium dense micaceous sandy silt to silty sand (SM-ML)		16"		3-4-5	9
	Groundwater encountered at 44.0' while drilling	16"		6-6-7	13
Brown, moist to very moist, medium dense micaceous silty sand with weathered rock (SM)		18"		4-4-6	10
		14"		4-5-6	11
		18"		5-5-6	11
		16"		3-4-4	8

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. Dry ft. CAVE IN DEPTH: 23.5 ft.; 23.3 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 Boring No.: B-7
Location: Howard County, Maryland Job #: 09017B

SAMPLER
Datum: ___ Hammer Wt.: 140 lbs. Hole Diameter: 6" Foreman: L. Smith
Surf. Elev.: 420.0 Ft. Hammer Drop: 30 in. Rock Core Diameter: ___ Inspector: ___
Date Started: 3-12-09 Pipe Size: 2.0 in. Boring Method: HSA Date Completed: 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		5-5-6	11
		18"		4-6-8	14
		18"		3-5-9	14
		18"		5-7-5	12
Bottom of Hole at 50.0'					

GROUND WATER: AT COMPLETION Dry ft.; AFTER 24 HRS. Dry ft. CAVE IN DEPTH: 23.5 ft.; 23.3 ft.

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.

SIGNATURE OF ENGINEER — DATE 10-9-09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

10-9-09 DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 REGISTERED — PROFESSIONAL ENGINEER

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099
ATTN: JAMES LOESCH, P.E., CFM
PHONE: 443.778.5134 FAX 443.778.6122

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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200	LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396 / GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th

plat ref. 20928-20930

TITLE:

SOIL BORING LOGS

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	53 OF 54
CHECKED: JMH	APPROVED: JMH	

SDP-09-047

MDC-930(SDP)

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - SWM | Boring No. SWM-1
Location: Howard County, Maryland | Job # 09017A

SAMPLER — Datum: ___ | Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 395.20 Ft. | Hammer Drop 30 in. | Rock Core Diameter ___ | Inspector ___
Date Started 1-15-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 1-15-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown to Red Brown, moist, medium stiff to stiff, sandy clay, trace mica and rootmatter (CL-CH)	4" Topsoil	18"		4-5-6	11
		12"		6-4-4	8
Tan to White, moist to dry, medium dense to very dense silty sand and quartz gravel (GM-SM)		10"		6-8-22	30
		0"		51/0"	51/0"
	No groundwater encountered while drilling	12"		15-15-26	41
Brown, moist, medium dense micaceous silty sand to sandy silt (ML-SM)		10"		9-8-7	15
Bottom of Hole at 19.0' Auger & Spoon Refusal		0"		51/0"	51/0"

SAMPLER TYPE: DRIVEN SPLIT SPOON UNLESS OTHERWISE; PT - PRESSED SHELBY TUBE; CA - CONTINUOUS FLIGHT AUGER; RC - ROCK CORE
SAMPLE CONDITIONS: D - DISINTEGRATED; I - INTACT; U - UNDISTURBED; L - LOST
GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 14.0 ft.; AFTER 24 HRS. Dry ft. 13.8 ft.; AFTER ___ HRS. ___ ft. ___ ft.
BORING METHOD: HSA - HOLLOW STEM AUGERS; CFA - CONTINUOUS FLIGHT AUGERS; DC - DRIVING CASING; MD - MUD DRILLING
STANDARD PENETRATION TEST-DRIVING 2" O.D. SAMPLER 1" WITH 140# HAMMER FALLING 30"; COUNT MADE AT 6" INTERVALS.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - SWM | Boring No. SWM-2
Location: Howard County, Maryland | Job # 09017A

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 393.85 Ft. | Hammer Drop 30 in.
Date Started 1-16-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 1-16-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Tan, moist, medium dense silty sand with quartz gravel and mica (SM)	3" Topsoil	10"		1-6-8	14
Red Brown, moist, stiff to hard clayey silt with sand, rock fragments, and mica (MI-MH)		15"		7-8-9	17
		3"		46-51/5"	51/5"
Brown, moist, medium dense micaceous silty sand with rock fragments (SM)		10"		5-4-7	11
	No groundwater encountered while drilling	15"		15-12-18	30
Brown/Gray, moist to dry, very dense micaceous silty sand with rock fragments (GM-SM) Decomposed Rock		14"		20-42-51/5"	93/11"
		4"		51/4"	51/4"
Bottom of Hole at 26.4'		16"		45-48-51/5"	99/11"

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 17.5 ft.; AFTER 24 HRS. Dry ft. 16.9 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - SWM | Boring No. SWM-3
Location: Howard County, Maryland | Job # 09017A

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 394.80 Ft. | Hammer Drop 30 in.
Date Started 1-16-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 1-16-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, soft, sandy silt with organics and rootmatter (ML)	4" Topsoil	2"		3-2-3	5
Red, moist, loose micaceous silty sand (SM)		17"		3-4-4	8
		10"		4-4-5	9
Brown, moist, medium dense to dense micaceous sandy silt to silty sand (ML-SM)		15"		5-6-9	15
	No groundwater encountered while drilling	18"		13-17-18	35
		16"		10-15-20	35
	In-Situ infiltration pipe set at 20.0'	15"		8-10-15	25
Bottom of Hole at 26.5'		14"		7-11-13	24

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 17.0 ft.; AFTER 24 HRS. Dry ft. 17.4 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - SWM | Boring No. SWM-4
Location: Howard County, Maryland | Job # 09017A

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 388.89 Ft. | Hammer Drop 30 in.
Date Started 1-15-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 1-15-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown to Red Brown, moist, medium stiff to stiff sandy silty clay, trace gravel and mica (ML-CL)	2" Topsoil	6"		3-3-4	7
		10"		9-15-18	16
		11"		8-7-8	15
Brown, moist, medium dense clayey sand, trace mica and gravel (SC)		12"		8-9-11	20
Brown, moist, medium dense silty sand, trace clay, gravel, and mica (SM)	No groundwater encountered while drilling	7"		6-6-10	16
		5"		6-6-7	13
Orange/Brown/Black, moist medium stiff silt, trace sand and clay (ML) Bottom of Hole at 21.5'		16"		4-6-8	14

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 16.0 ft.; AFTER 24 HRS. Dry ft. 15.7 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - SWM | Boring No. SWM-5
Location: Howard County, Maryland | Job # 09017A

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 389.36 Ft. | Hammer Drop 30 in.
Date Started 1-16-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 1-16-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown to Red Brown, moist, soft silty sandy clay with rootmatter, mica, and gravel (ML-CL)	4" Topsoil	10"		3-2-3	5
Brown/Orange, moist, medium dense micaceous silty sand with quartz gravel (SM)		14"		3-4-7	11
		10"		16-10-6	16
Brown, moist, medium dense micaceous silty sand, trace rock fragments (SM)		10"		5-7-8	15
	No groundwater encountered while drilling	10"		8-8-11	19
Light Brown/Gray, dry, very dense micaceous silty sand with rock fragments (GM-SM) Decomposed Rock		14"		16-40-30	70
Bottom of Hole at 20.9'		11"		22-51/5"	51/5"

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 14.0 ft.; AFTER 24 HRS. Dry ft. 13.8 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. I-1
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 410.2 Ft. | Hammer Drop 30 in.
Date Started 3-12-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Dark Brown, moist, very soft silt with clay, sand, and organics (ML) Possible Fill	0" Topsoil	7"		1-1-1	2
Red Brown, moist, medium stiff to stiff micaceous sandy silt, trace clay (ML)		14"		3-4-4	8
		18"		4-6-8	13
Brown, moist, loose to medium dense micaceous silty sand (SM)		10"		7-7-9	16
Sample S-5 is very dense	No groundwater encountered while drilling	5"		51/5"	51/5"
	In-situ infiltration pipe set at 17.0'	18"		3-4-4	8
		18"		4-7-8	15
Bottom of Hole at 25.0'		18"		8-13-13	26

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 11.0 ft.; AFTER 24 HRS. Dry ft. 11.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. I-2
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 416.5 Ft. | Hammer Drop 30 in.
Date Started 3-12-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Red/Brown, moist, soft to medium stiff sandy silt with clay and mica (ML)	4" Topsoil	8"		3-2-3	5
		6"		1-2-1	3
		15"		3-4-4	8
Tan, moist, loose to medium dense silty sand, trace mica and weathered rock (SM)		10"		3-5-5	10
	No groundwater encountered while drilling	11"		3-3-4	7
		10"		3-4-5	9
	In-situ Infiltration pipe set at 22.0'	12"		3-5-6	11
		11"		4-5-6	11
Bottom of Hole at 30.0'		15"		6-7-7	14

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 15.3 ft.; AFTER 24 HRS. Dry ft. 15.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. PL-2
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 394.7 Ft. | Hammer Drop 30 in.
Date Started 3-12-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, very soft sandy silt, little clay (ML)	6" Topsoil	8"		1-1-1	2
Brown, moist, medium dense to loose micaceous silty sand (SM)		18"		3-6-9	15
	No groundwater encountered while drilling	18"		3-4-4	8
Bottom of Hole at 10.0'		18"		4-4-5-5	9

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 4.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. PL-3
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 412.4 Ft. | Hammer Drop 30 in.
Date Started 3-12-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, medium dense silty sand, some gravel (SM-GM) Fill	4" Asphalt	5"		6-10-4	14
Brown/Red, moist, medium dense silty sand to sandy silt with mica (SM-ML) Possible Fill		18"		6-4-7	11
	No groundwater encounterd while drilling	18"		6-8-7	15
Red, moist, stiff, micaceous sandy silt, little clay (ML) Bottom of Hole at 10.0'		18		10-12-9-13	21

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 5.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. PL-4
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 419.1 Ft. | Hammer Drop 30 in.
Date Started 3-12-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-12-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Red, moist, medium stiff sandy silty clay, trace mica (ML-CL)	4" Topsoil	11"		2-3-6	9
Red/Brown, moist, loose to medium dense micaceous silty sand (SM)		18"		3-4-3	7
	No groundwater encountered while drilling	18"		2-3-5	8
Bottom of Hole at 10.0'		18"		5-7-8-9	15

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 3.7 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. B-8
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 419.8 Ft. | Hammer Drop 30 in.
Date Started 3-10-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
		18"		9-13-14	27
Bottom of Hole at 40.0'		18"		9-12-13	25

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 31.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. B-8
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman L. Smith
Surf. Elev. 419.6 Ft. | Hammer Drop 30 in.
Date Started 3-10-09 | Pipe Size 2.0 in. | Boring Method HSA | Date Completed 3-10-09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown/Red, moist, very loose to loose micaceous sandy silt to silty sand (SM-ML) Fill	0" Topsoil	8"		1-2-2	4
		13"		3-3-3	6
Red, moist, soft, silt, trace sand, mica, and clay (ML)		18"		2-2-3	5
Red/Brown, moist to very moist, very loose to dense micaceous silty sand (SM)		10"		2-2-3	5
	Groundwater encountered at 38.5' while drilling	18"		4-5-4	9
		18"		4-6-9	15
		18"		4-5-6	11
		18"		10-12-14	26
		18"		8-18-18	36

GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 31.0 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. RE-1
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 387 Ft. | Hammer Drop 30 in.
Date Started 7/22/09 | Pipe Size 2 in. | Boring Method HSA | Date Completed 7/22/09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Brown, moist, soft to stiff, very fine sandy SILT, no to with mica (ML)	Topsoil-3"; No groundwater encountered while drilling.	12"		1-2-3	5
		18"		6-6-7	13
Light brown to tan, moist, loose to medium dense, micaceous silty SAND (SM)		18"		12-10-8	18
		18"		6-7-8	15
		9"		5-5-4	9
		18"		8-7-8	15
Bottom of Boring at 24.0'		18"		12-12-9	21

SAMPLE CONDITIONS: S - SOIL; R - ROCK
GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 13.0 ft.; AFTER 24 HRS. Dry ft. 12.5 ft.

HILLIS - CARNES ENGINEERING ASSOCIATES, INC.
RECORD OF SOIL EXPLORATION

Project Name: APL South Campus - Building 200 | Boring No. RE-2
Location: Howard County, Maryland | Job # 09017B

Hammer Wt. 140 lbs. | Hole Diameter 6" | Foreman R. Rider
Surf. Elev. 383 Ft. | Hammer Drop 30 in.
Date Started 7/22/09 | Pipe Size 2 in. | Boring Method HSA | Date Completed 7/22/09

Description	Boring and Sampling Notes	Rec.	NM	SPT Blows	N
Light brown, moist, soft to stiff, very fine sandy SILT (ML)	Topsoil-3"; No groundwater encountered while drilling.	18"		1-2-3	5
		18"		5-7-5	12
Light brown to tan, moist, medium dense to dense, micaceous silty SAND, trace to some rock fragments (SM)		18"		5-6-9	15
		18"		9-14-21	35
		18"		7-10-14	24
Tan, moist, very dense, micaceous silty SAND (SM; Decomposed ROCK) Bottom of Boring at 19.4'		11"		45-50/5"	100+

SAMPLE CONDITIONS: S - SOIL; R - ROCK
GROUND WATER / CAVE IN DEPTH: AT COMPLETION Dry ft. 6.8 ft.; AFTER 24 HRS. Dry ft. 8.3 ft.

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.

SIGNATURE OF ENGINEER — DATE 10.9.09

JOHN M. HOUSEHOLDER
MD LICENSE NUMBER: 29907
EXPIRATION DATE: 1-27-2010

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division — Date 11/17/09
Chief, Division of Land Development — Date 1/08/10
Director — Date 1/11/10

Date	No.	Revision Description

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
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410.872.8690 · metro 301.881.0148 · fax 410.872.8693

10.9.09
DATE

STATE OF MARYLAND — JOHN M. HOUSEHOLDER — No. 29907 — REGISTERED PROFESSIONAL ENGINEER

PERMIT INFORMATION CHART

PROJECT NAME: JHU/APL- SOUTH CAMPUS BUILDING 200	LOT/PARCEL NO. 300	CENSUS TRACT 6051.02
DEED REF. L.10412, F.396 / GRID NO. 22 / ZONE PEC	TAX MAP 41	ELECTION DISTRICT 5th
plat ref. 20928-20930		

TITLE: **SOIL BORING LOGS**

DESIGN:	SCALE: AS SHOWN	PROJECT: 08A901.00
DRAWN: SSA	DATE: OCTOBER, 2009	
CHECKED: JMH	APPROVED: JMH	54 OF 54

SDP-09-047

MDC-930 (SDP)