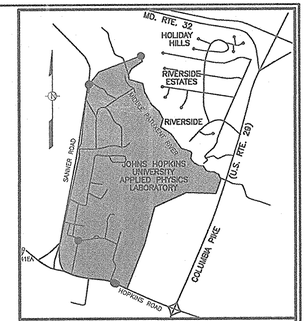
MP-6 CONDUIT PATHWAY

GENERAL NOTES

1. ACCESS TO THE CONSTRUCTION AREA THROUGH THE SECURE AREA OF THE APPLIED PHYSICS LABORATORY (WITHIN THE FENCED ENCLOSURE) MUST BE ARRANGED IN ADVANCE BY CONTACTING THE PROGRAM MANAGER.
2. SECURITY MUST BE MAINTAINED WITHIN THE EXISTING FENCED AREA. ALL REQUIRED FENCE CONSTRUCTION AND RELOCATION SHALL BE BY JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LAB (JHU-APL). HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH JHU-APL AS TO WHEN SUCH WORK IS REQUIRED.
3. THE CONTRACTOR OR DEVELOPER SHALL CONTACT THE CONSTRUCTION INSPECTION DIVISION 24 HOURS IN ADVANCE OF COMMENCEMENT OF WORK AT 410-313-1880.
4. THE CONTRACTOR SHALL CONTACT THE JHU-APL AT LEAST 5 WORKING DAYS PRIOR TO COMMENCING ANY WORK OR SHUTTING DOWN ANY UTILITIES.
5. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY SPECIFICATIONS AND DETAILS FOR CONSTRUCTION PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
6. THE SUBJECT PROPERTY IS ZONED PEC PER THE FEBRUARY 2, 2004 COMPREHENSIVE ZONING PLAN AND THE COMP-LITE ZONING AMENDMENTS DATED 7/28/06.
7. NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAM(S) OR THEIR REQUIRED BUFFERS AND FOREST CONSERVATION EASEMENTS.
8. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. NO LANDSCAPE PLANTINGS ARE REQUIRED FOR THIS PLAN SINCE NO PROPOSED IMPROVEMENTS ARE ADJACENT TO A PUBLIC ROAD OR ADJOINING PROPERTIES. AS SUCH, NO SURETY IS REQUIRED FOR THE LANDSCAPING.
9. THE TOPSOIL AND SEEDING SPECIFICATIONS FOUND ON THE EROSION AND SEDIMENT CONTROL DRAWINGS CONTAINED IN THIS SET ARE THE STANDARDS FOR ALL PROJECTS PERMITTED IN HOWARD COUNTY. JHU/APL HAS ADOPTED A HIGHER STANDARD FOR THE PERMANENT SEEDING AND LANDSCAPING OF THE MAINTAINED PORTION OF THE CAMPUS. PERMANENT SEEDING AND LANDSCAPING FOR THIS PROJECT, UNLESS SPECIFICALLY DETAILED TO THE CONTRARY, SHALL BE IN STRICT ACCORDANCE WITH THE JHU/APL SPECIFICATIONS.
10. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION AS APPROVED UNDER F-04-188. F-02-040 FOREST CONSERVATION EASEMENTS WERE BONDED FOR AND CREATED UNDER THIS FILE NUMBER.
11. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
12. WATER IS PUBLIC (HOWARD COUNTY). WATER MAINS ON PROPERTY ARE PRIVATELY OWNED AND MAINTAINED.
13. SEWER IS PUBLIC (HOWARD COUNTY). SEWER MAINS ON PROPERTY ARE PRIVATELY OWNED AND MAINTAINED.
14. THERE ARE NO WETLANDS OR FLOODPLAIN WITHIN THE LIMITS OF THIS PLAN SUBMISSION.
15. THE COORDINATES SHOWN HEREON ARE BASED UPON THE MARYLAND STATE ELEVATIONS SHOWN ARE BASED ON NAVD 88. AERIAL SURVEYS OF JHU-APL PLANE COORDINATE SYSTEM (NAD 83).
16. WERE PERFORMED BY WHITMAN REQUARDT AND ASSOCIATES LLP (WRA) IN NOVEMBER 1998. ADDITIONAL FIELD SURVEYS OF THE SITE WERE PERFORMED BY WRA IN OCTOBER 2006. ADDITIONAL UTILITY INFORMATION WAS PROVIDED BY JHU-APL AND MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY CURRENT TOPOGRAPIC AND UTILITY INFORMATION.
17. ALL SITE UTILITIES ARE THE PROPERTY OF JHU-APL. JHU-APL WILL APPROXIMATELY LOCATE HORIZONTAL LOCATIONS OF ALL ACTIVE UTILITIES FOR THE CONTRACTOR.
18. APPROXIMATE LOCATION AND INVERTS OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND TO MAINTAIN AN UNINTERRUPTED SERVICE. DUE TO THE PROXIMITY OF LIVE UNDERGROUND UTILITIES, THE OWNER AND WHITMAN, REQUARDT & ASSOCIATES ARE NOT RESPONSIBLE FOR ANY DAMAGE OR INJURY SUSTAINED DURING CONSTRUCTION BY ANY PERSON, VEHICLES OR EQUIPMENT USED ON OR ADJACENT TO THE SITE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE EXACT HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES BY TEST PIT OR OTHER MEANS OF INVESTIGATION APPROVED BY THE OWNER WELL IN ADVANCE OF CONSTRUCTION. UTILITY PROFILES ON THESE PLANS ARE BASED ON DRAWINGS AND RECORDS PROVIDED BY JHU-APL. CONTRACTOR SHALL CONFIRM ACTUAL DEPTH AND PREPARE REVISED PROFILES IF REQUIRED BY CONFLICTS. THE OWNER SHALL APPROVE ALL REVISIONS BEFORE THE START OF THE UTILITY'S CONSTRUCTION. ANY DAMAGE BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE.
19. TRENCH AND INSTALLATION OF NEW UTILITIES SHALL BE SCHEDULED SO THAT ALL TRENCHES WILL BE BACKFILLED AT THE END OF EACH DAY. NO OPEN TRENCHES WILL BE ALLOWED AT THE END OF EACH WORK DAY. TRENCH AREAS SHALL BE MULCHED AND TEMPORARILY SEEDED IN NON-PAVED AREAS AND TRAFFIC BEARING SURFACES SHALL BE INSTALLED IN PAVED AREAS.
20. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM. COORDINATE WITH THE OWNER AS NECESSARY. IF EXISTING SERVICE CANNOT BE MAINTAINED DURING NORMAL WORK HOURS, THE CONTRACTOR SHALL SCHEDULE SHUT DOWN AND TIE-IN TO THE EXISTING UTILITIES AFTER NORMAL WORKING HOURS AT JHU-APL. NORMAL WORKING HOURS ARE 8:30 AM TO 5:00 PM, MONDAY THROUGH FRIDAY.
21. THE CONTRACTOR SHALL PERMANENTLY STABILIZE AND SEED ALL DISTURBED AREAS THAT ARE NOT TO BE PAVED.
22. ALL DRIVEWAYS ARE PRIVATELY OWNED AND MAINTAINED.
23. THE CONTRACTOR SHALL TAKE PROPER PRECAUTIONS SO AS NOT TO DAMAGE EXISTING ADJACENT FACILITIES AND STRUCTURES. THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS TO THEIR ORIGINAL CONDITION OR BETTER, UNLESS NOTED OTHERWISE.
24. ACCESS TO ALL EXISTING FACILITIES SHALL BE MAINTAINED AT ALL TIMES.
25. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNER OF ANY DEVIATION FROM THESE PLANS PRIOR TO ANY CHANGES. ANY DEVIATION FROM THESE PLANS WITHOUT WRITTEN AUTHORIZATION BY THE OWNER WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
26. SURFACED STREETS AND PARKING AREAS SHALL BE MAINTAINED IN A CLEAN CONDITION, MUD AND DUST FREE AT ALL TIMES.
27. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT TO MINIMIZE DAMAGE TO EXISTING TREES DURING CONSTRUCTION.
28. EXISTING SIGNS, GUARDRAILS AND OTHER MINOR SITE FEATURES IN THE LIMIT OF PROPOSED CONSTRUCTION, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.
29. SEE DETAIL SHEETS FOR OTHER ITEMS THAT APPLY TO THIS PROJECT.
30. THIS SDP-07-080 CREATES NO NEW TRAFFIC AND THEREFORE, IS EXEMPT FROM APFO TRAFFIC STUDY.
31. THIS PLAN IS EXEMPT FROM STORMWATER MANAGEMENT REQUIREMENTS.
32. PREVIOUS RELATED FILE NUMBERS: F-98-45, F-00-49, SDP-00-112 AND SDP-06-097.

LOCATION PLAN
SCALE: 1=400'



VICINITY MAP
SCALE: 1" = 2000'

SHEET INDEX

SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA: 361 Ac.+/-
AREA OF PLAN SUBMISSION: 1.8 Ac.+/-
LIMIT OF DISTURBANCE: 1.8 Ac.+/-
PRESENT ZONING: PEC
PROPOSED USE: UTILITY INFRASTRUCTURE
EXISTING MAXIMUM NUMBER OF JHU/APL EMPLOYEES: 4600
EXISTING MAXIMUM NUMBER OF PARKING SPACES REQUIRED BY ZONING: 2859 (SDP-05-133)
EXISTING ONSITE PARKING SPACES: 4798
NO PARKING PROPOSED AS PART OF THIS SUBMISSION

EXISTING OPEN SPACE AREA = (LOT AREA MINUS PARKING & BUILDINGS)
277.5 ACRES, 78.6% OF TOTAL LOT AREA (SDP 05-043)
PROPOSED OPEN SPACE AREA = 278.2 ACRES, 77.1% OF TOTAL LOT AREA)

CASE NUMBERS APPLICABLE:
F-02-40 - SWM BASIN A, APFO,
F-07-035 - FOREST CONSERVATION

SANITARY SEWER/WATER SERVICE - PRIVATE ONSITE SYSTEM, PUBLIC CONNECTION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/5/07
DIRECTOR — DATE 4/5/07

PERMIT INFORMATION CHART				
OWNER:	WATER CODE: E-21	SEWER CODE: 6480000	BUILDING: N/A	STREET ADDRESS: 11100 JOHNS HOPKINS ROAD LAUREL, MARYLAND 20723
THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY 11100 JOHNS HOPKINS ROAD LAUREL MARYLAND 20723 ATTN: MR. JAMES LOESCH, VOICE (443) 778-5134 FAX (443) 778-6122	SUBDIVISION NAME: PARCEL 1 JOHNS HOPKINS UNIVERSITY PROPERTY (APPLIED PHYSICS LABRATORY SITE)		SECTION/AREA: N/A	PARCEL: 1
	PLAT: 18968-18972	FOREST CONS. PLAT: GRID #16	ZONE: PEC	TAX MAP: 41 BLOCK: 11 ELEC. DIST: 5TH CENSUS TRACT: 605102

SDP-07-080

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

THE JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY

MP-6 CONDUIT PATHWAY

GRAPHIC SCALES

400' 200' 0' 400' 800'
SCALE: 1" = 400'

2000' 1000' 0' 2000' 4000'
SCALE: 1" = 2000'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

COVER SHEET

STATE OF MARYLAND — ANTHONY W. OLIVER — No. 22276 — PROFESSIONAL ENGINEER

DRAWING NO. C-001

Sheet 1 of 16

Scale: AS SHOWN
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Mar 14, 2007 - 11:03am

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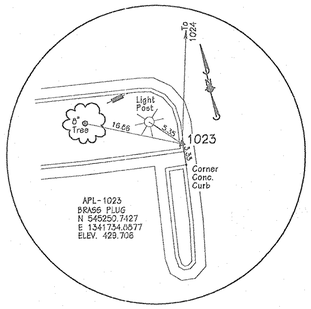

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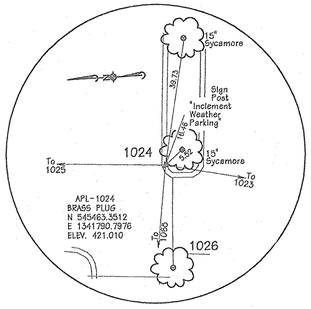

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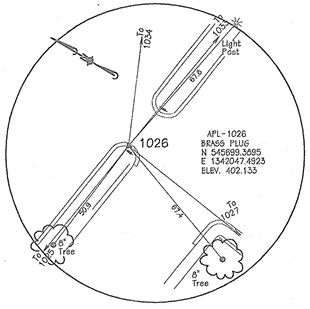

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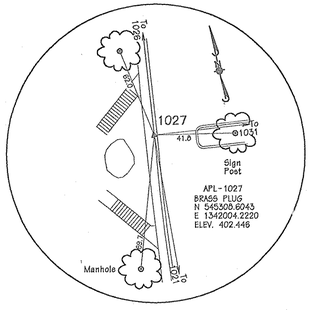

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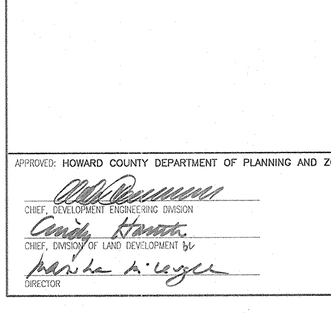

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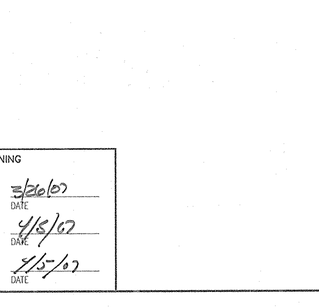

APL-1031

APL-1032

APL-1064

APL-1069

APL-1113

APL-1114

SURVEY LEGEND

- CONTOURS
- GPS TRAVERSE STATION
- TRAVERSE STATION
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- STORM DRAIN MANHOLE
- SAN. SEWER MANHOLE
- SAN. CLEANOUT
- FIRE HYDRANT
- WATER METER
- WATER VALVE
- LIGHT POLE
- UTILITY POLE
- GUY WIRE
- ELECTRIC MANHOLE
- ELECTRIC JUNCTION BOX
- TRANSFORMER
- UNKNOWN VALVE
- UNKNOWN MANHOLE
- BOLLARD
- RIP RAP
- G1B2 SOIL TYPE

ABBREVIATIONS

ABAND	ABANDON
APPROX	APPROXIMATELY
BC	BOTTOM OF CURB
BIT	BITUMINOUS
BLDG	BUILDING
B.M.	BENCH MARK
BOTT	BOTTOM
C/L	CENTERLINE
CONC	CONCRETE
CMP	CORRUGATED METAL PIPE
DIP	DUCTILE IRON PIPE
DEMO	DEMOLITION
DWG, DRWG	DRAWING
E	EAST
EL	ELECTRICAL
ELEV	ELEVATION
EX, EXIST	EXISTING
EXP JT	EXPANSION JOINT
FH	FIRE HYDRANT
FF	FIRST FLOOR
FT	FEET
HO. CO.	HOWARD COUNTY
HW	HEADWALL
IN	INCH
INV	INVERT
LF	LINEAR FEET
MAC	MACADAM
MH	MANHOLE
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH
N.T.S.	NOT TO SCALE
PVMT	PAVEMENT
PK	PK NAIL
PP	POWER POLE
RD	ROOF DRAIN
SAN	SANITARY
SHT	SHEET
SC	STORM SEPTOR
SD	STORM DRAIN
S	SOUTH
TC	TOP OF CURB
T/G	TOP OF GRATE
T/C	TOP OF COVER
TELE	TELEPHONE
TYP	TYPICAL
TW	TOP OF WALL
UG	UNDERGROUND
UC	UNDERGROUND COMUNICATION
UE	UNDERGROUND ELECTRIC DUCT
UT	UNDERGROUND TELEPHONE DUCT
UMH	UNKNOWN MANHOLE
W	WEST, WATER

UTILITY LEGEND

PROPOSED	DESCRIPTION
4-4" OR 2-4"	UNDERGROUND COMMUNICATION

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT &C	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

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GRAPHIC SCALES

WHITMAN, REQUARDT AND ASSOCIATES,LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

LEGEND, ABBREVIATIONS, AND SURVEY REFERENCE

DRAWING NO. C-002

Sheet 2 of 16

Scale: AS SHOWN	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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N 546200
E 134250

N 545500
E 134250

DWG C-102 & C-108

DWG C-103 & C-109

DWG C-104 & C-110

DWG C-105 & C-111

MONTPELIER RESEARCH PARK
PLAT M.D.R. NO. 13329
HOPKINS ROAD
LIMITED PARTNERSHIP
L.1768 F.616

MP BLDG.#5

PARCEL E-2
SDP-00-112

MP BLDG.#4

MP BLDG. #3

MP BLDG.#6

PARCEL A
SDP-06-097

MONTPELIER RESEARCH PARK
PLAT M.D.R. NO. 13329
P.124
HOPKINS ROAD
LIMITED PARTNERSHIP
L.1768 F.616

EQUIPMENT STORAGE
SEE SPECIFICATIONS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 2/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

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LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

GRAPHIC SCALES

100 50 0 100 200

SCALE: 1" = 100'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

OVERALL SITE PLAN

STATE OF MARYLAND — ANTHONY U. OLIVER — No. 22976 — PROFESSIONAL ENGINEER

DRAWING NO. C-101

Sheet 3 of 16

Scale: 1" = 100'	
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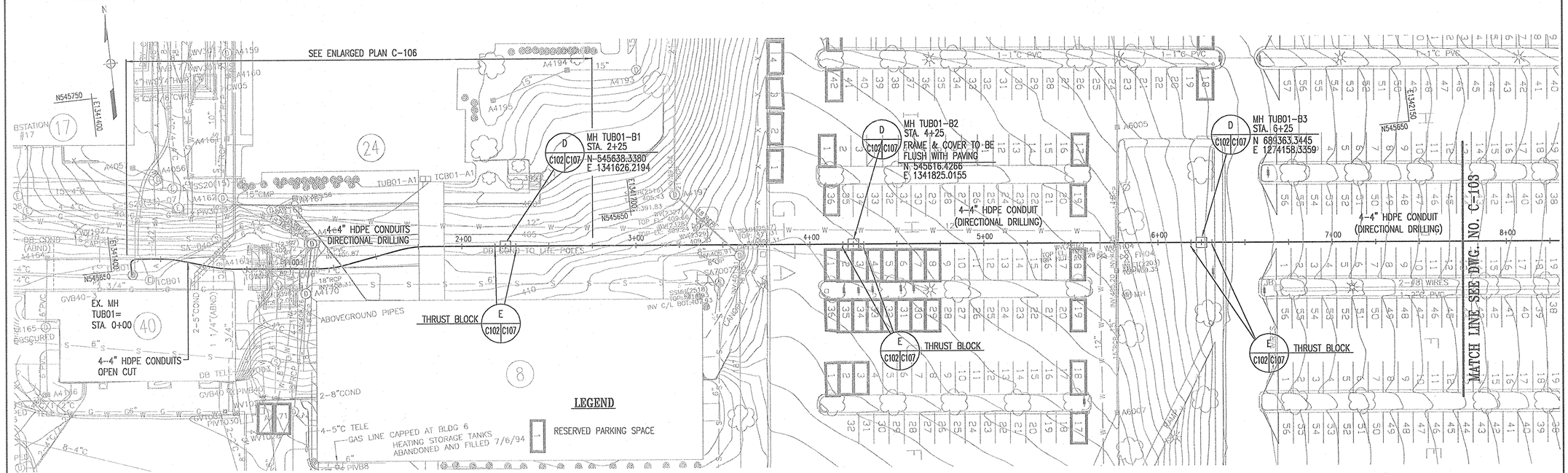
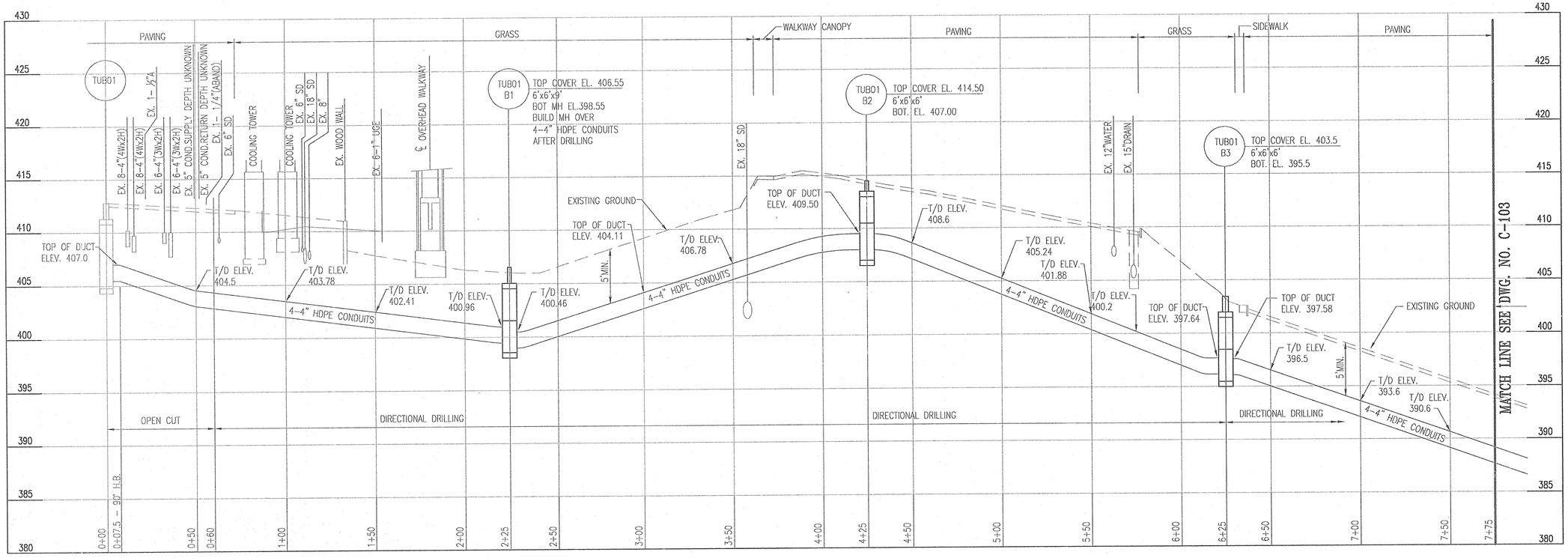


PLAN
SCALE:1"=30'



PROFILE
HORIZ:1"=30'
VERT:1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/30/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

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MP-6 CONDUIT PATHWAY

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GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

5 4 3 2 1 0 5 10
SCALE: 1" = 5'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

PLAN AND PROFILE

DRAWING NO. C-102
Sheet 4 of 16

Scale: 1" = 30' HORIZ.	1" = 5' VERT.
Designed By: R.B.C.	Drawn By: C.J.K.
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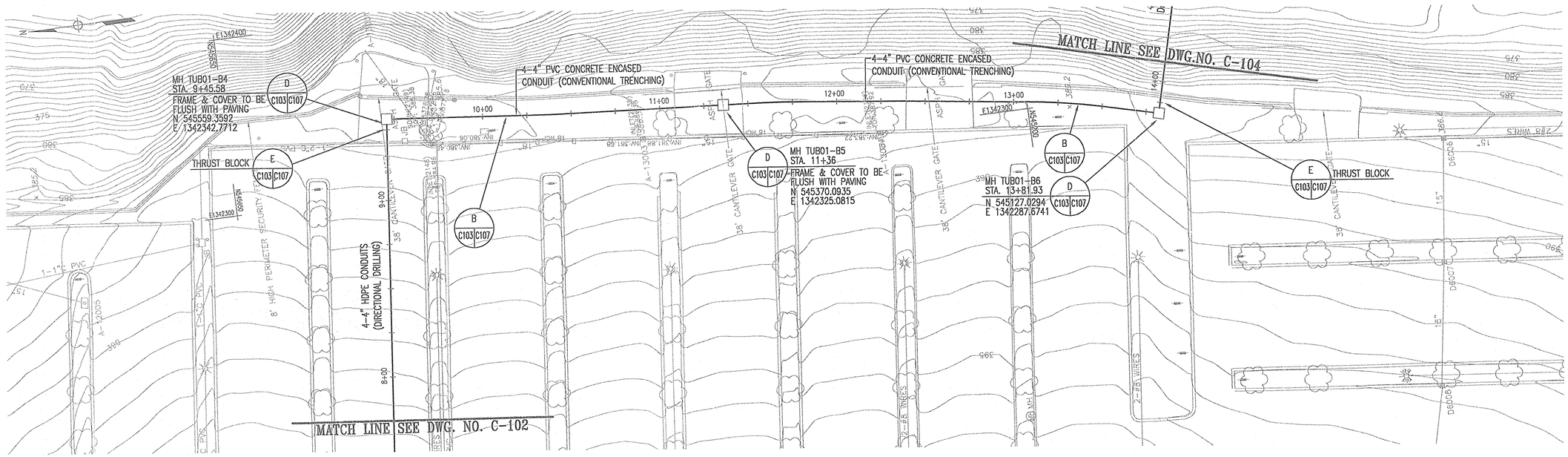

PLAN
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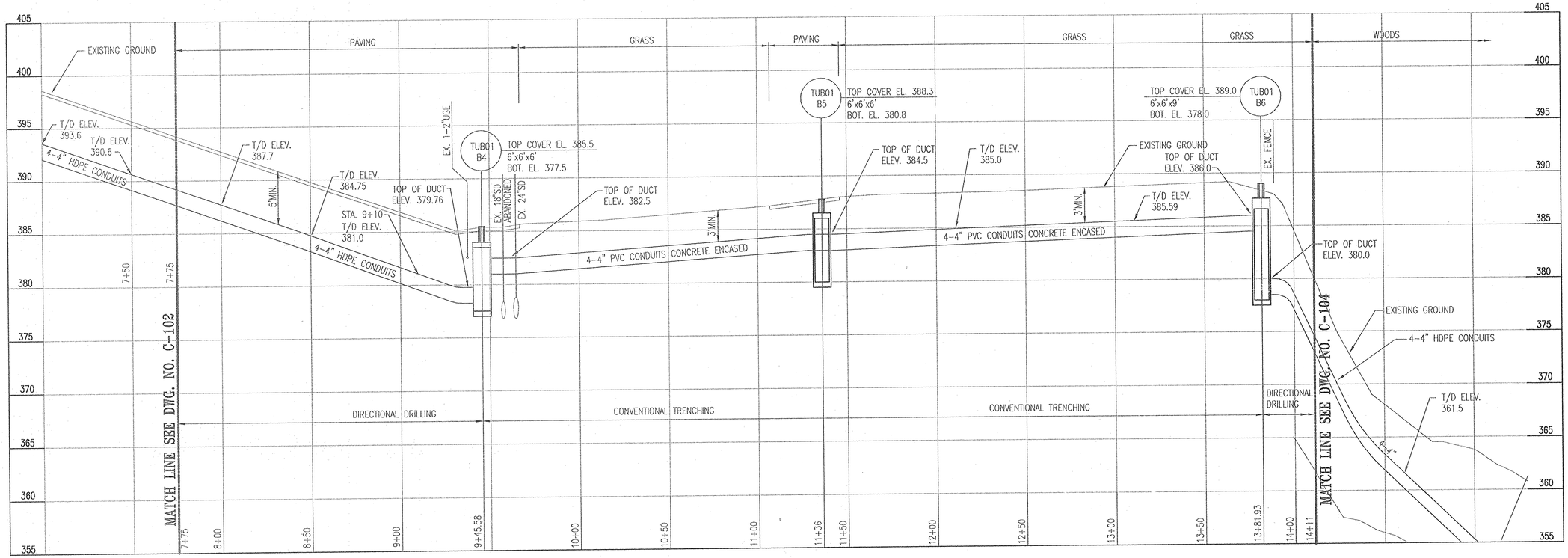

PROFILE
SCALE: HORIZ: 1"=30'
VERT: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 5/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/13/07
DIRECTOR	DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

JHU/APL INTERNAL USE

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GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

5 4 3 2 1 0 5 10
SCALE: 1" = 5'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

PLAN AND PROFILE

DRAWING NO. C-103

Sheet 5 of 16

Scale: 1" = 30' HORIZ.	1" = 5' VERT.
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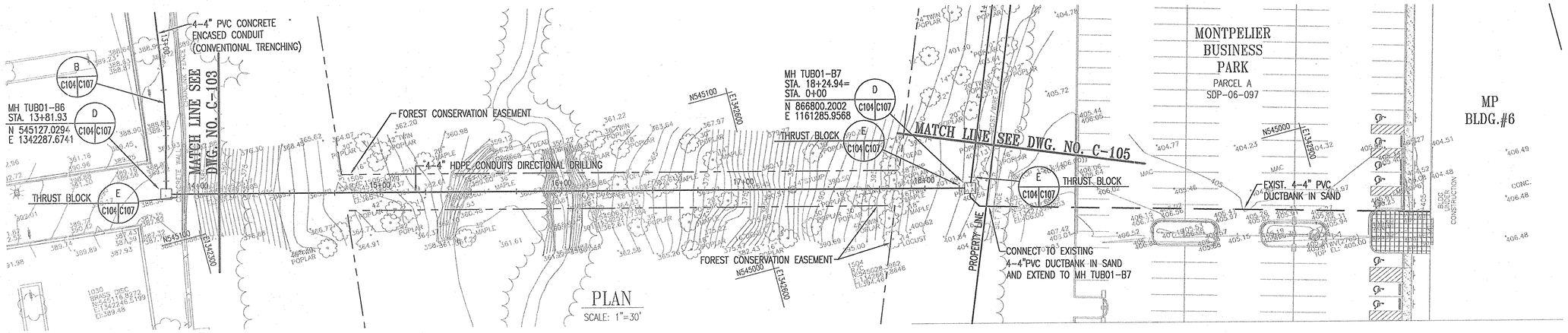

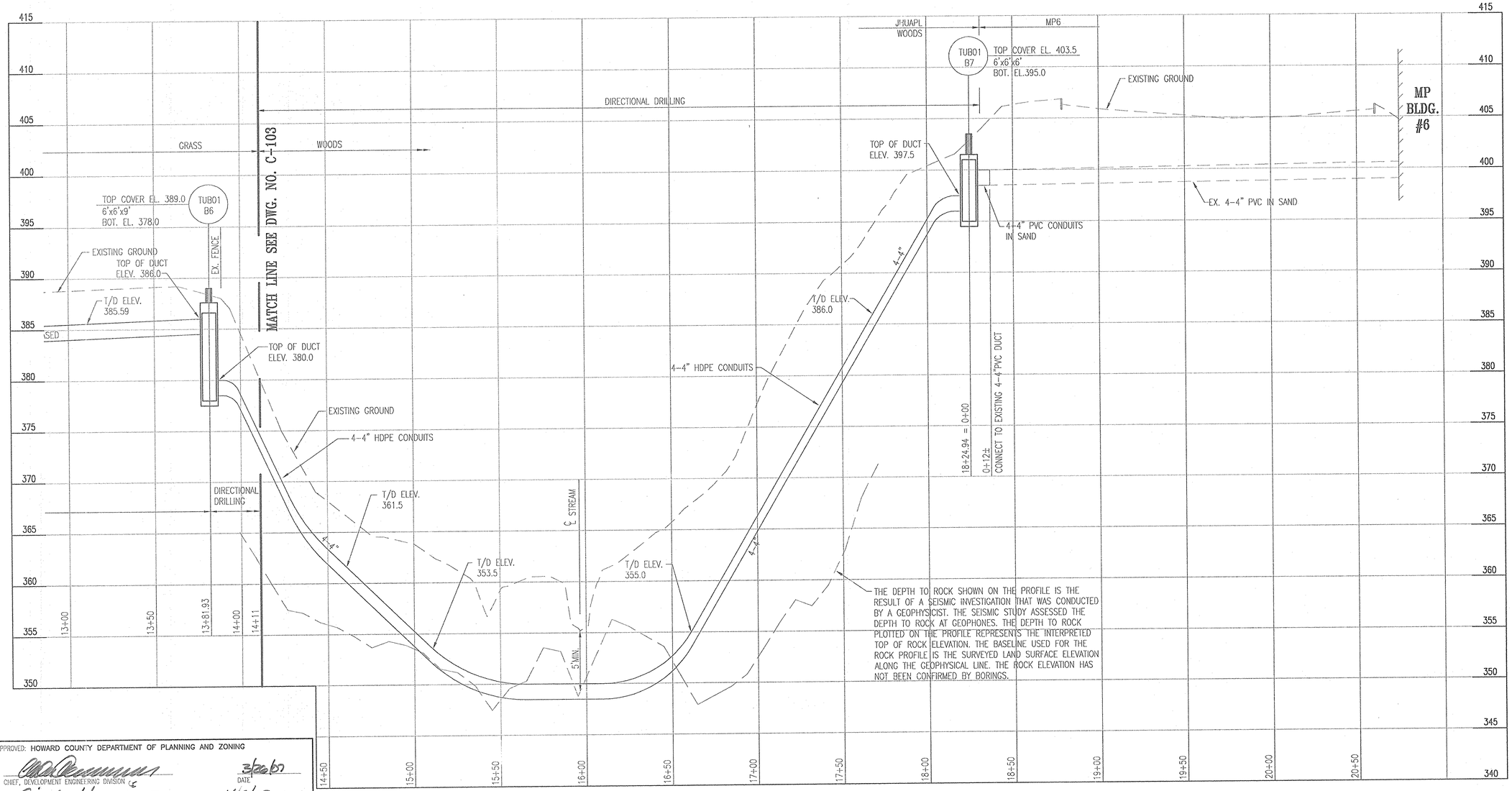

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
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MP-6 CONDUIT PATHWAY

JHU/APL INTERNAL USE

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GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

5 4 3 2 1 0 5 10
SCALE: 1" = 5'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

PLAN AND PROFILE

DRAWING NO. C-104

Sheet 6 of 16

Scale: 1" = 30' HORIZ.	1" = 5' VERT.
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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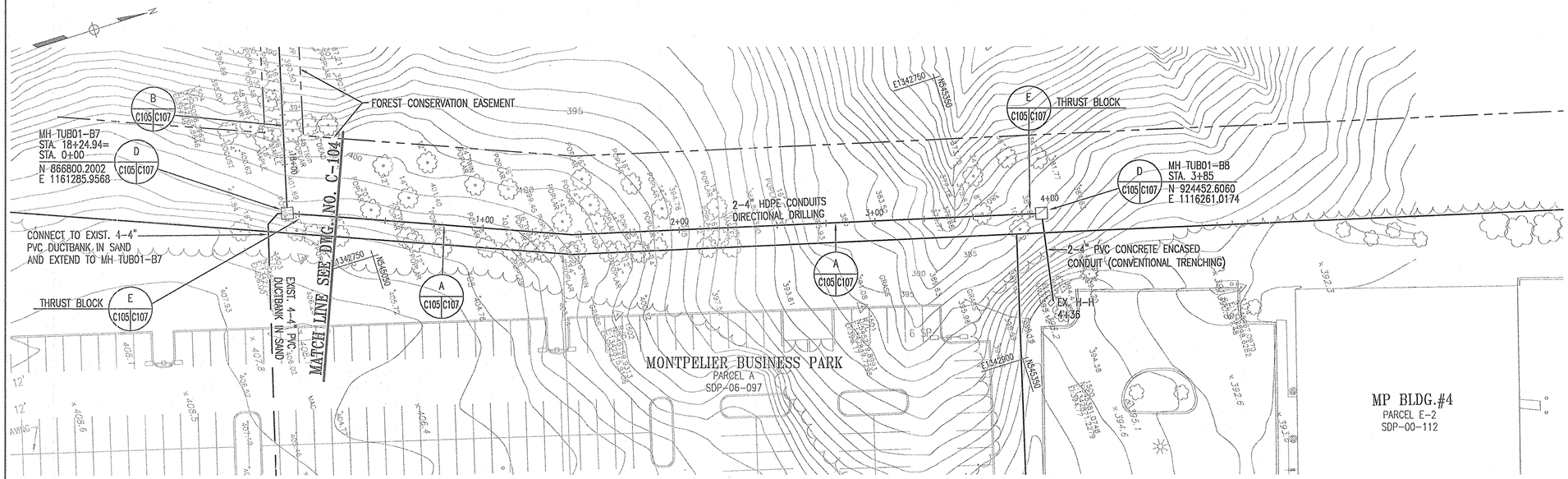
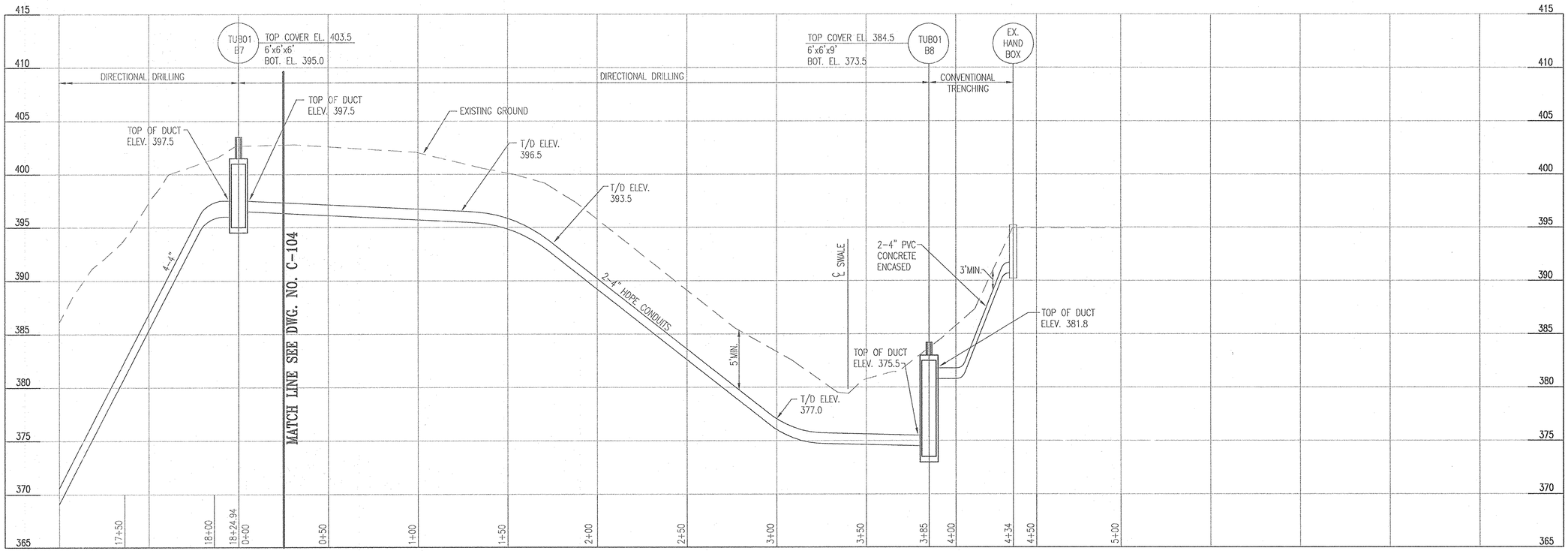
Mar 14, 2007 - 11:07am



PLAN

SCALE: 1"=30'



PROFILE

SCALE: HORIZ: 1"=30'
VERT: 1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/20/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

JHU/APL INTERNAL USE

THIS DATA SHALL NOT BE DISCLOSED TO A THIRD PARTY AND SHALL NOT BE DUPLICATED, USED, OR DISCLOSED IN WHOLE OR IN PART FOR ANY PURPOSE OTHER THAN TO EVALUATE THIS RFP OR, IN THE CASE OF A CONTRACT AWARD, TO PERFORM THE WORK REQUIRED HEREUNDER, WITHOUT THE EXPRESS WRITTEN CONSENT OF JHU/APL.

GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

5 4 3 2 1 0 5 10
SCALE: 1" = 5'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

PLAN AND PROFILE

DRAWING NO. C-105

Sheet 7 of 16

Scale: 1" =30' HORIZ. 1" = 5' VERT.	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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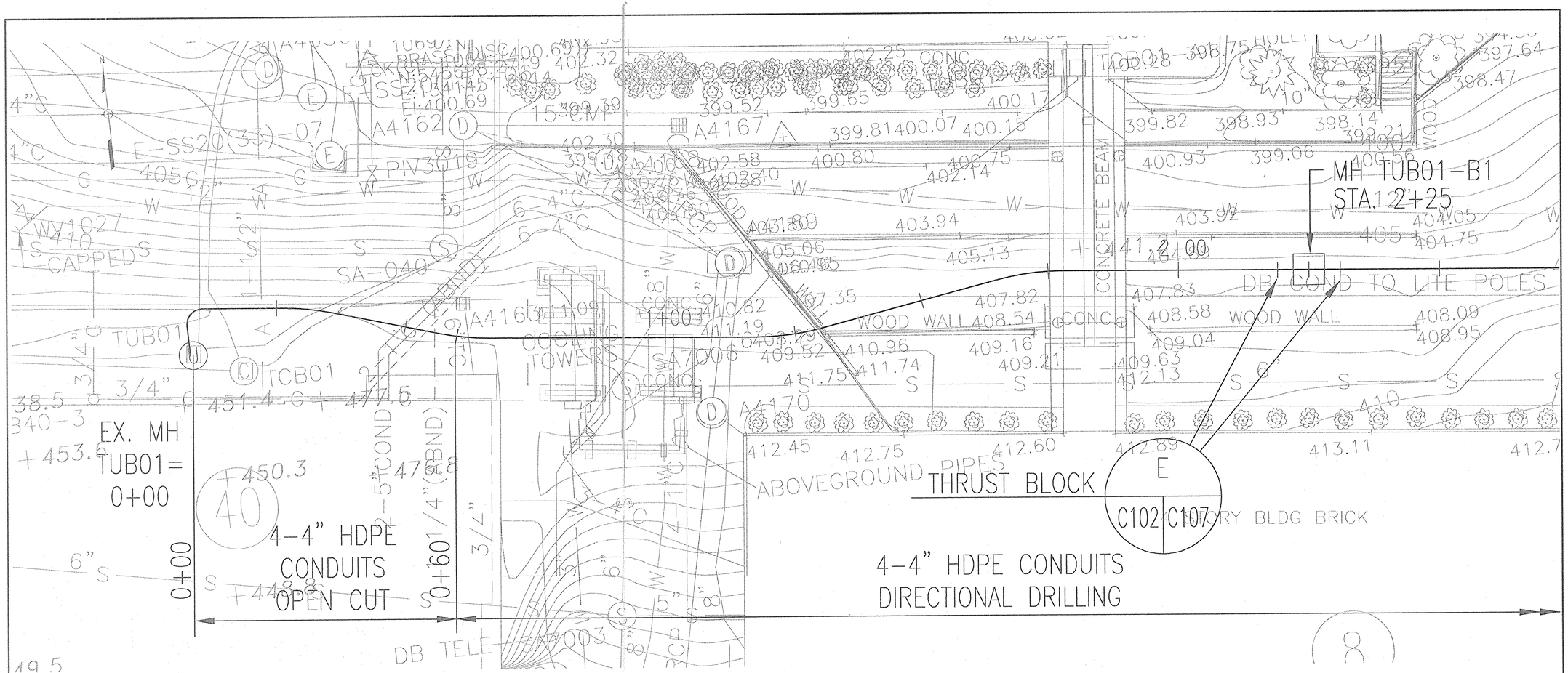
Mar 14, 2007 - 11:08am



PLAN
SCALE:1"=10'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6
CONDUIT
PATHWAY

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GRAPHIC SCALES

10 5 0 10 20
SCALE: 1" = 10'

WHITMAN, REQUARDT AND ASSOCIATES,LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

ENLARGED PLAN

DRAWING NO.
C-106
Sheet 8 of 16

Scale: 1" = 10'	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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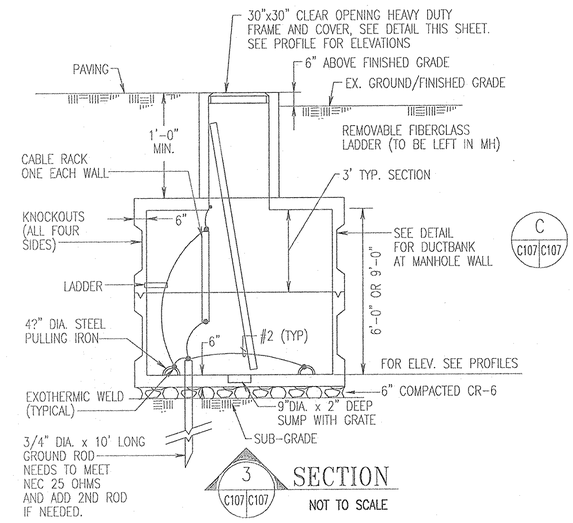
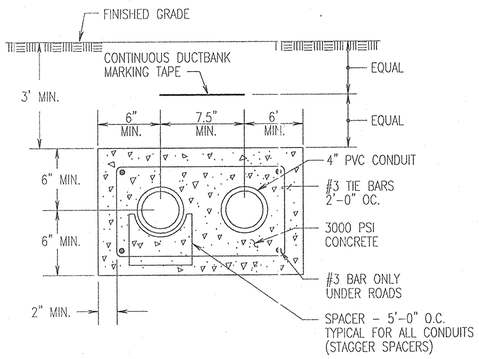
Mar 14, 2007 - 11:09am



3 C107 C107 SECTION

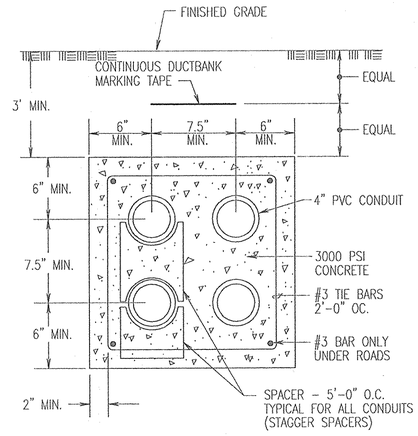
NOT TO SCALE



2-WAY CONCRETE ENCASED UNDERGROUND DUCTBANK (4" CONDUITS)

A C105 C107

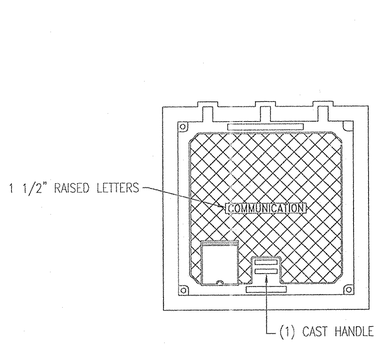
NOT TO SCALE



4-WAY CONCRETE ENCASED UNDERGROUND DUCTBANK (4" CONDUITS)

B C102 C107

NOT TO SCALE



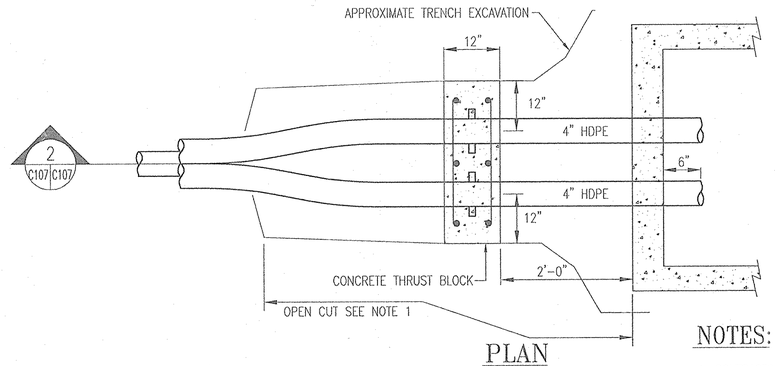
PLAN
PRECAST MANHOLE (FOR TELECOMMUNICATIONS)

D C102 C107

NOT TO SCALE

C103, C104, C105, C106

PLAN



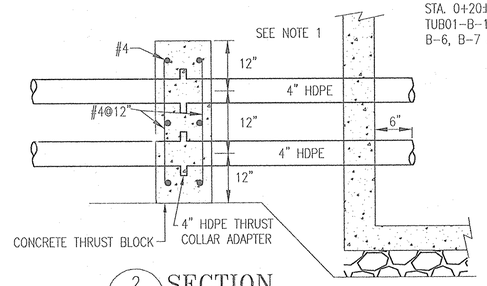
2 C107 C107

PLAN

NOT TO SCALE

NOTES:

1. CONTRACTOR SHALL BACKFILL AREA BETWEEN THE THRUST BLOCK AND MANHOLE WITH CR-6 OR DENSE GRADED AGGREGATE TO A MINIMUM DEPTH OF 1 FOOT BELOW AND ABOVE THE PIPE CENTERLINE AND A MINIMUM WIDTH OF 1 FOOT ON EACH SIDE OF THE PIPE CENTERLINE.
2. CONCRETE THRUST BLOCK AND COLLAR SHALL BE INSTALLED AT STA. 0+20± AND MANHOLES TUB01-B-1, B-2, B-3, B-4, B-6, B-7 & B-8 AS SHOWN.



2 C107 C107 SECTION

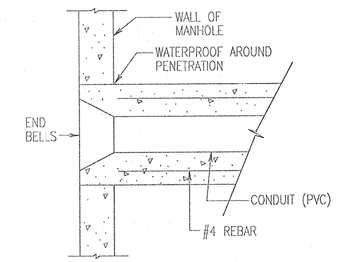
NOT TO SCALE

E C107 C107

THRUST BLOCK DETAIL - HDPE PIPE

NOT TO SCALE

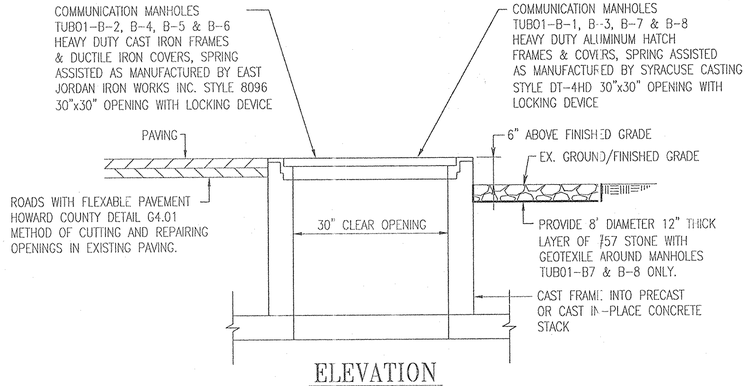
C-102, C-103, C-104 & C-105



DETAIL
TYPICAL PVC DUCTBANK AT MANHOLE WALL

C C107 C107

NOT TO SCALE



ELEVATION
TYPICAL FRAME AND COVER

NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/26/07

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/5/07

DIRECTOR — DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

JHU/APL INTERNAL USE

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GRAPHIC SCALES

WHITMAN, REQUARDT AND ASSOCIATES,LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

UTILITY DETAILS

STATE OF MARYLAND — TIMOTHY C. CARR — No. 19276 — PROFESSIONAL ENGINEER

DRAWING NO. C-107

Sheet 9 of 16

Scale: AS SHOWN

Designed By: R.B.C. | Drawn By: C.J.K.

Checked By: A.U.O. | Date: 2/14/07

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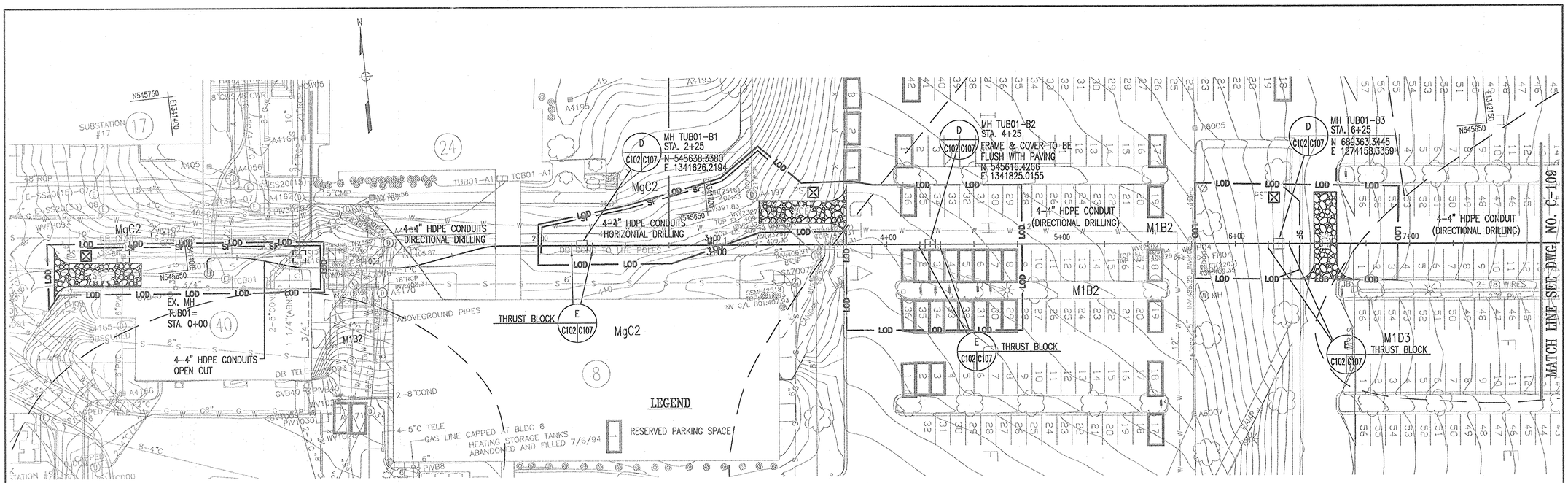
Mar 14, 2007 - 11:09am



SEDIMENT AND EROSION CONTROL LEGEND

- SCE — STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- SIP — STANDARD INLET PROTECTION
- CIP — CURB INLET PROTECTION
- PST — PORTABLE SEDIMENT TANK
- MOUNTABLE BERM (SEE STABILIZED CONSTRUCTION ENTRANCE DETAIL)

SEQUENCE OF CONSTRUCTION

1. NOTIFY THE SEDIMENT CONTROL INSPECTION OFFICE 24 HOURS PRIOR TO CONSTRUCTION.
2. THIS EROSION AND SEDIMENT CONTROL PLAN HAS SIX SEPARATE AREAS DEFINED BY CLOSED LIMITS OF DISTURBANCE. THE CONTRACTOR SHALL HAVE A MAXIMUM OF TWO AREAS ACTIVE AT ANY TIME.
3. EXCESS CLEAN SPOIL MATERIAL (NO ROCK OR CONCRETE LARGER THAN 2" ON A SIDE MAY BE DISPOSED OF AT THE JHU/APL WEST STOCKPILE AREA (GP# 07000024), CONTAMINATED EXCESS MATERIAL SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED AT A PROPERLY PERMITTED FACILITY). LOCATE TEMPORARY STOCKPILE AREAS IN THE FIELD WITH THE APPROVAL OF THE SEDIMENT CONTROL INSPECTOR. (1 DAY)
4. CLEAR AND GRUB FOR SEDIMENT CONTROL DEVICES ONLY WITHIN THE PROPOSED ACTIVE AREA(S) INCLUDING STABILIZED CONSTRUCTION ENTRANCE, MOUNTABLE BERM, SILT FENCE AND INLET PROTECTION. (3 DAYS PER AREA)
5. CONSTRUCT AND STABILIZE SEDIMENT CONTROL DEVICES PRIOR TO ANY MASS GRADING OR CLEARING OPERATIONS. (1 WEEK PER AREA)
6. WITH THE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, EXCAVATE DRILL PITS AND UTILITY TRENCHES, INSTALL CONDUITS AND INSTALL JUNCTION BOXES. (2 WEEKS PER AREA)
7. RETURN EXCAVATED AREAS TO EXISTING GRADES. REPAIR ANY DAMAGED PARKING LOT PAVING.(2 DAYS PER AREA)
8. STABILIZE AND SEED ALL DISTURBED AREAS. (2 DAYS PER AREA)
9. WITH THE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING ACCUMULATED SEDIMENT AND ALL REMAINING SEDIMENT CONTROL MEASURES. STABILIZE ALL AREAS DISTURBED BY SEDIMENT CONTROLS WITHIN THE ACTIVE AREA. (2 DAYS PER AREA)
10. WITH THE PRIOR APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, PROCEED TO NEXT AREA AND REPEAT SEQUENCE OF CONSTRUCTION, STARTING AT 4. ABOVE.

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".

Anthony M. Olsen — 3/14/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE
Anthony M. Olsen

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

James E. Loesch — 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE
James E. Loesch

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

3/23/07
USDA-Natural Resources Conservation Service — DATE

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

3/23/07
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

3/26/07
CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE

4/5/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE

4/5/07
DIRECTOR — DATE

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

WHITMAN, REQUARDT AND ASSOCIATES,LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

EROSION AND SEDIMENT CONTROL PLAN

STATE OF MARYLAND — ANTHONY M. OLSEN — No. 19276 — PROFESSIONAL ENGINEER

DRAWING NO. C-108
Sheet 10 of 16

Scale: 1" = 30'	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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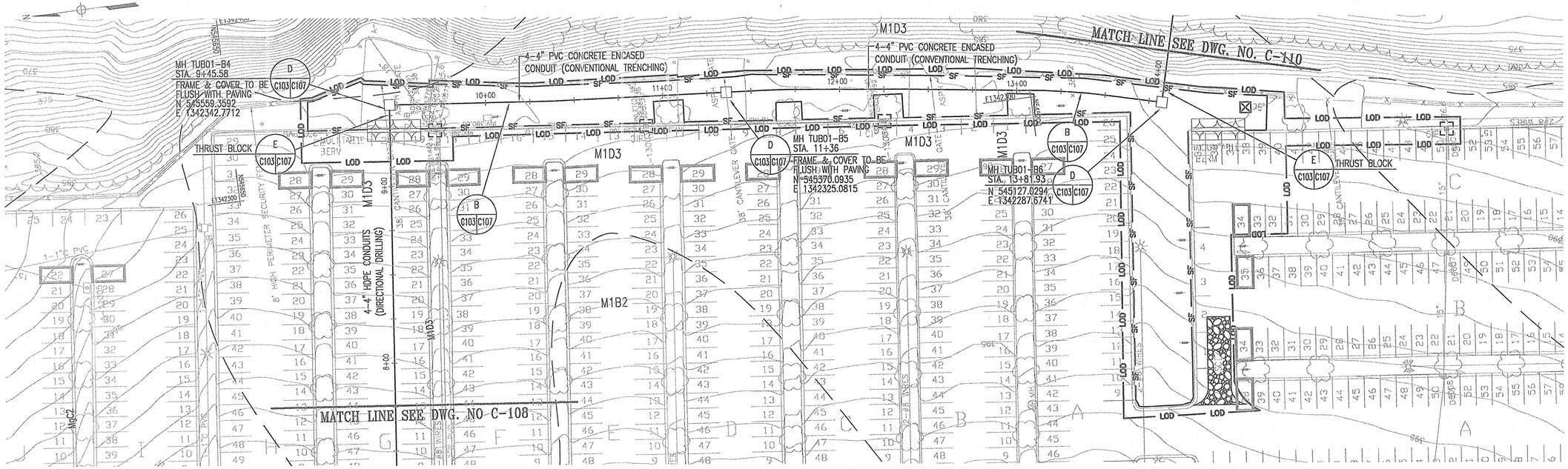

PLAN
SCALE: 1"=30'

SEDIMENT AND EROSION CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- -LOD- — -LOD- LIMIT OF DISTURBANCE
- SIP STANDARD INLET PROTECTION
- CIP CURB INLET PROTECTION
- PST PORTABLE SEDIMENT TANK
- MOUNTABLE BERM (SEE STABILIZED CONSTRUCTION ENTRANCE DETAIL)

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".

Anthony M. Olsen — 3/09/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

James E. Leasch — James E. Leasch — 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

3/23/07
USDA—Natural Resources Conservation Service — DATE

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

3/23/07
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	3/26/07 DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	4/5/07 DATE
DIRECTOR	4/5/07 DATE

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6
CONDUIT
PATHWAY

GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

WHITMAN, REQUARDT AND ASSOCIATES,LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

EROSION AND SEDIMENT CONTROL PLAN

DRAWING NO. C-109
Sheet 11 of 16

Scale: 1" = 30'	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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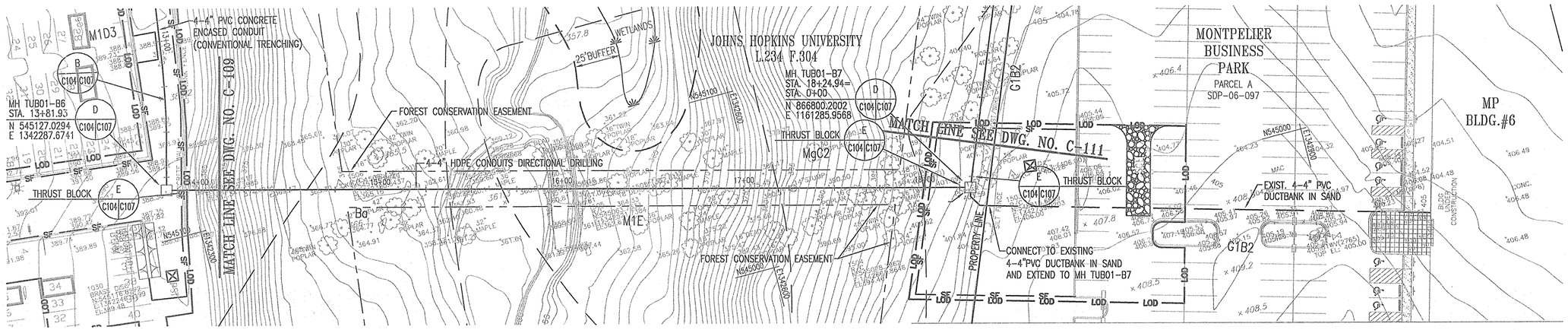

PLAN
SCALE: 1"=30'

SEDIMENT AND EROSION CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- LOD — LOD — LIMIT OF DISTURBANCE
- SI — STANDARD INLET PROTECTION
- C I P — CURB INLET PROTECTION
- PST — PORTABLE SEDIMENT TANK
- MOUNTABLE BERM (SEE STABILIZED CONSTRUCTION ENTRANCE DETAIL)

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".

Anthony V. Olsen — 3/14/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

James E. Loesch James E. Loesch 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

3/23/07
USDA-Natural Resources Conservation Service — DATE

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

3/23/07
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE 3/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE 4/5/07
DIRECTOR	DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
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JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

JHU/APL INTERNAL USE

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GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

WHITMAN, REQUARDT AND ASSOCIATES,LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

EROSION AND SEDIMENT CONTROL PLAN

STATE OF MARYLAND — ANTHONY V. OLSEN — No. 21276 — PROFESSIONAL ENGINEER

DRAWING NO. C-110
Sheet 12 of 16

Scale: 1" = 30'	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.V.O.	Date: 2/14/07

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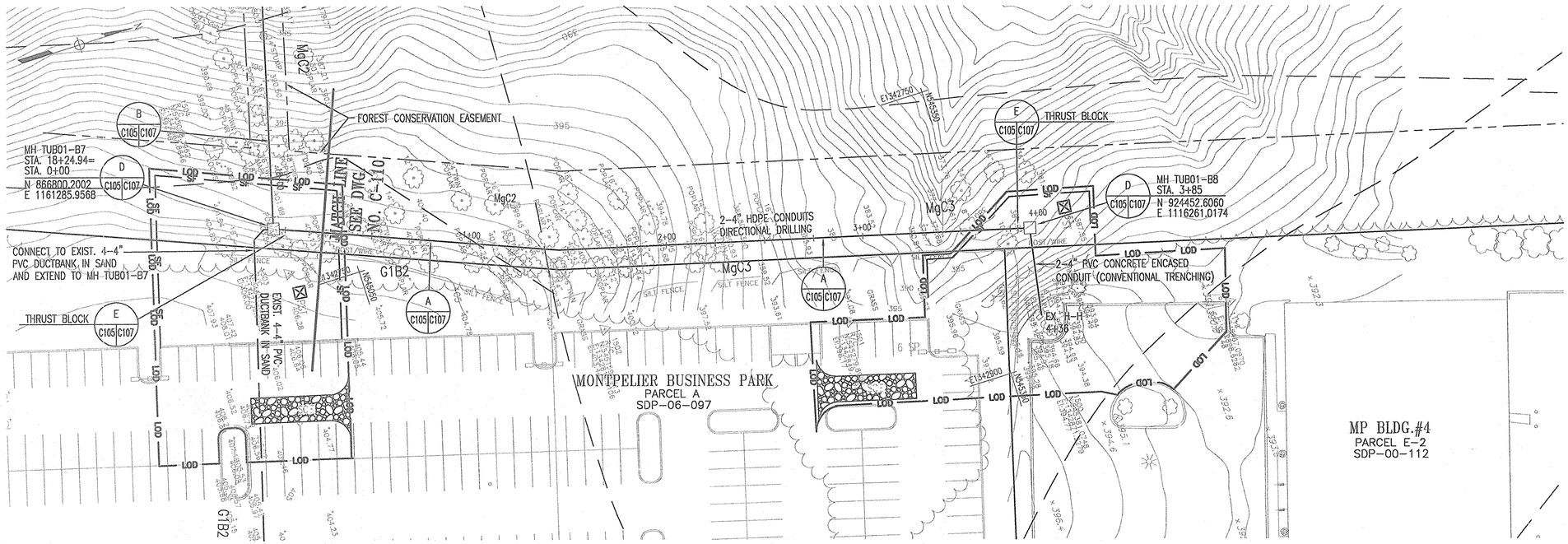
Mar 14, 2007 - 11:11am



PLAN

SCALE: 1"=30'

SEDIMENT AND EROSION CONTROL LEGEND

- STABILIZED CONSTRUCTION ENTRANCE
- SF — SILT FENCE
- LOD — LIMIT OF DISTURBANCE
- SP — STANDARD INLET PROTECTION
- CIP — CURB INLET PROTECTION
- PSF — PORTABLE SEDIMENT TANK
- MOUNTABLE BERM (SEE STABILIZED CONSTRUCTION ENTRANCE DETAIL)

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Anthony U. Olsen — 3/14/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE
Anthony U. Olsen

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James E. Lasseh James F. Lasseh — 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

USDA-Natural Resources Conservation Service — 3/23/07 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 3/23/07 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/26/07 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 4-5-07 DATE

DIRECTOR — 4/5/07 DATE

SDP-07-080

REVISIONS

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JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6 CONDUIT PATHWAY

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GRAPHIC SCALES

30 20 10 0 30 60
SCALE: 1" = 30'

WHITMAN, REQUARDT AND ASSOCIATES, LLP
801 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 - 235 - 3450

EROSION AND SEDIMENT CONTROL PLAN

DRAWING NO. C-111

Sheet 13 of 16

Scale: 1" = 30'	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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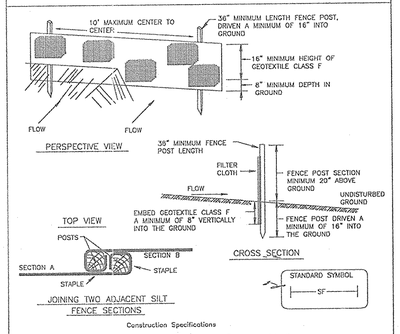
Mar 14, 2007 - 11:12am

DETAIL 22 – SILT FENCE



Construction Specifications

1. Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1½" x 1½" square (minimum) cut, or 1¾" 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 fastenec securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

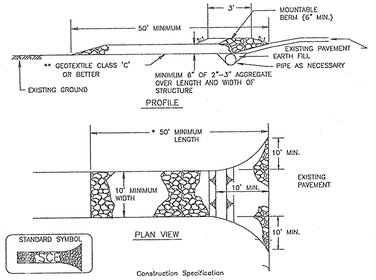
Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft / minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322

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

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

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

DETAIL 24 – STABILIZED CONSTRUCTION ENTRANCE



Construction Specification

1. Length – minimum of 50' (*30' for single residence lot).

2. Width – 10' minimum, should be flared at the existing road to provide a turning radius.

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

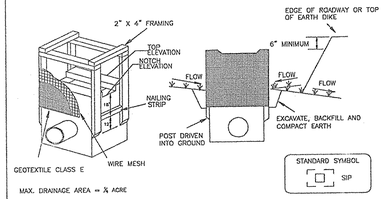
4. Stone – crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.

5. Surface Water – all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location – A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

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

DETAIL 23A – STANDARD INLET PROTECTION



MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Excavate completely around the inlet to a depth of 18" below the notch elevation.

2. Drive the 2" x 4" construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2" x 4" frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6" below adjacent roadways where flooding and safety issues may arise.

3. Stretch the 1/2" x 1/2" wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a post.

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotextile extending from the top of the frame to 18" below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6" higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

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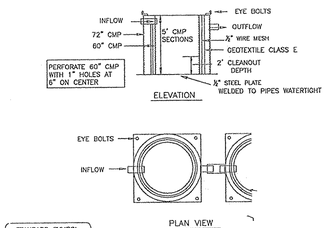
DETAIL 21 – PORTABLE SEDIMENT TANK



Construction Specifications

1. The following formula should be used in determining the storage volume of the sediment tank: 1 cubic foot of storage for each gallon per minute of pump discharge capacity.

2. An example of a typical sediment tank is shown above. Other container designs can be used if the storage volume is adequate and approval is obtained from the local approving agency.

3. Tanks may be connected in series.

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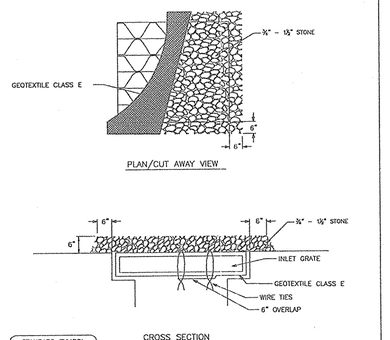
DETAIL 23B – AT GRADE INLET PROTECTION



MAX. DRAINAGE AREA = ¼ ACRE

Construction Specifications

1. Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.

2. Place ¾" to 1½" stone, 4"–6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE	PAGE E – 16 – 3A	MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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".

Anthony W. Olsen — 3/19/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE

Anthony W. Olsen

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

James E. Loesch — 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE

James E. Loesch

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

3/23/07
USDA–Natural Resources Conservation Service — DATE

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

3/23/07
HOWARD SOIL CONSERVATION DISTRICT — DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/26/07

CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/5/07

DIRECTOR — DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
JOHNS HOPKINS ROAD
LAUREL MARYLAND 20723-6099

MP-6
CONDUIT
PATHWAY

GRAPHIC SCALES

WHITMAN, REQUARDT AND ASSOCIATES, LLP
601 S. CAROLINE STREET
BALTIMORE, MARYLAND 21231
410 – 235 – 3450

EROSION AND SEDIMENT CONTROL DETAILS

DRAWING NO. C-601

Sheet 14 of 16

Scale: NOT TO SCALE	
Designed By: R.B.C.	Drawn By: C.J.K.
Checked By: A.U.O.	Date: 2/14/07

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Mar 14, 2007 – 11:12am

HOWARD COUNTY 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 ureaform fertilizer (9lbs/1000 sq. ft.)

2. Acceptable--Apply 2 tones/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 - Seed 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/1000sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

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

HOWARD COUNTY 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 bushels 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 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/1000sq. 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 slopes 8 ft. or higher, use 348 gal. per acre (8 gal/1000 sq. ft.) for anchoring.

Refer to the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSIONS AND SEDIMENT CONTROL for additional rates and methods not covered.

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) 313-2437.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL 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 AND PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1, B) 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.

4. ALL SEDIMENT TRAPS/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.

5. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 51), SOD (SEC.54), TEMPORARY SEEDINGS (SEC. 50), AND MULCHING (SEC. 52). TEMPORARY STABILIZATION WITH MULCH ALONE, CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

6. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE AND ARE TO BE MAINTAINED IN OPERATIVE CONDITIONS UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.

7. SITE ANALYSIS:

TOTAL AREA OF SITE	= 14.8 ACRES
AREA DISTURBED	= 1.8 ACRES
AREA TO BE ROOFED OR PAVED	= 0.022 ACRES
AREA TO BE VEGETATIVELY STABILIZED	= 0.055 ACRES
TOTAL CUT	= 840 CU. YDS.
TOTAL FILL	= 555 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	= AS SHOWN ON SEDIMENT & EROSION CONTROL SHEETS

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 SITES WITH DISTURBED AREAS IN EXCESS OF 2 ACRES, APPROVAL OF THE INSPECTION AGENCY SHALL BE REQUESTED UPON COMPLETION OF INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.

11. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO 3 PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED BY THE END OF EACH WORK DAY, WHICHEVER IS SHORTER.

12. TEMPORARY STOCKPILES. ALL MATERIALS (INCLUDING SOIL) SHALL BE TRUCKED DIRECTLY IN OR OUT OF THE LIMITS OF DISTURBANCE SHOWN ON THESE DRAWINGS AND EITHER USED ON OTHER SITES WITHIN THE APL CAMPUS WITH CURRENTLY ACTIVE EROSION AND SEDIMENT CONTROL PLANS OR REMOVED OFF SITE IN ACCORDANCE WITH MARYLAND REQUIREMENTS FOR THE DISPOSAL OF EXCAVATED MATERIAL. NO TEMPORARY STOCKPILE AREAS ARE SHOWN ON THIS PLAN.

13. UTILITY TRENCHES EXCAVATED TRENCH MATERIAL SHALL BE PLACED ON THE HIGH SIDE OF THE TRENCH. TRENCHES FOR UTILITY INSTALLATION SHALL BE BACKFILLED, COMPACTED AND STABILIZED AT THE END OF EACH WORKING DAY. NO MORE TRENCH SHALL BE OPENED THAN CAN BE COMPLETED UNLESS TEMPORARY SILT FENCE SHALL BE PLACED IMMEDIATELY DOWNSTREAM OF ANY DISTURBED AREA INTENDED TO REMAIN DISTURBED FOR MORE THAN ONE DAY.

14. IMMEDIATELY STABILIZE ALL AREAS OUTSIDE CONTROLS WITH EROSION CONTROL MATTING.

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

Definition

Using vegetation as cover for barren soil to protect it from forces that cause erosion.

Purpose

Vegetative Stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and runoff to downstream areas, and improving wildlife habitat and visual resources.

Conditions Where Practice Applies

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary soil stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

Effects on Water Quality and Quantity

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth.

Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone.

Sediment control devices must remain in place during grading, seedbed preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

Section I - Vegetative Stabilization Methods and Materials

A. Site Preparation

i. install erosion and sediment control structures (either temporary or permanent) such as diversions, grade stabilization structures, berms, waterways, or sediment control basins.

ii. Perform all grading operations at right angles to the slope. Final grading and shaping is not usually necessary for temporary seeding.

iii. Schedule required soil tests to determine soil amendment composition and application rates for sites having disturbed area over 5 acres.

B. Soil Amendments (Fertilizer and Lime Specifications)

i. See Howard County Seeding Notes on this Sheet.

C. Seedbed Preparation

i. See Howard County Seeding Notes on this Sheet.

D. Seed Specifications

i. All seed must meet the requirements of the Maryland State Seed Law. All seed shall be subject to re-testing by a recognized seed laboratory. All seed used shall have been tested within the 6 months immediately preceding the date of sowing such material on this job.

Note: Seed tags shall be made available to the inspector to verify type and rate of seed used.

ii. Inoculant - The inoculant for treating legume seed in the seed mixtures shall be a pure culture of nitrogen-fixing bacteria prepared specifically for the species. Inoculants shall not be used later than the date indicated on the container. Add fresh inoculant as directed on package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 - 80 F. can weaken bacteria and make the inoculant less effective.

E. Methods of Seeding

i. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer), broadcast or drop seeder, or a cultipacker seeder.

a. If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen; maximum of 100 lbs. per acre total of soluble nitrogen; P205 (phosphorous): 200 lbs/ac; K20 (potassium): 200 lbs/ac.

b. Lime - use only ground agricultural limestone, (Up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.

c. Seed and fertilizer shall be mixed on site and seeding shall be done immediately and without interruption.

ii. Dry Seeding: This includes use of conventional drop or broadcast spreaders.

a. Seed spread dry shall be incorporated into the subsoil at the rates prescribed on the temporary or Permanent Seeding Summaries or Tables 25 or 26. The seeded area shall then be rolled with a weighted roller to provide good seed to soil contact.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

iii. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.

a. Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.

b. Where practical, seed should be applied in two directions perpendicular to each other. Apply half the seeding rate in each direction.

F. Mulch Specifications (in order of preference)

i. Straw shall consist of thoroughly threshed wheat, rye or oat straw, reasonably bright in color, and shall not be musty, moldy, caked, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.

ii. Wood Cellulose Fiber Mulch (WCFM)

a. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.

b. WCFM shall be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.

c. WCFM, including dye, shall contain no germination or growth inhibiting factors.

d. WCFM materials shall be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material shall form a blotter-like ground cover, on application, having moisture absorption and percolation properties and shall cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.

e. WCFM material shall contain no elements or compounds at concentration levels that will be phyto-toxic.

f. WCFM must conform to the following physical requirements: fiber length to approximately 10 mm., diameter approximately 1 mm., pH range of 4.0 to 8.5, ash content of 1.6% maximum and water holding capacity of 90% minimum.

Note: Only sterile straw mulch should be used in areas where one species of grass is desired.

G. Mulching Seeded Areas - Mulch shall be applied to all seeded areas immediately after seeding.

i. If grading is completed outside of the seeding season, mulch alone shall be applied as prescribed in this section and maintained until the seeding season returns and seeding can be performed in accordance with these specifications.

ii. When straw mulch is used, it shall be spread over all seedbed areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform loose depth of between 1" and 2". Mulch applied shall achieve a uniform distribution and depth so that the soil surface is not exposed. If a mulch anchoring tool is to be used , the rate should be increased to 2.5 tons/acre.

iii. Wood cellulose fiber used as a mulch shall be applied at a net dry weight of 1,500 lbs. per acre. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. Securing Straw Mulch (Mulch Anchoring): Mulch anchoring shall be performed immediately following mulch application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:

i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two (2) inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.

ii. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.

iii. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should be appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.

iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer's recommendations. Netting is usually available in rolls 4' to 15' feet wide and 300 to 3,000 feet long.

I. Incremental Stabilization - Cut Slopes

i. All cut slopes shall be dressed, prepared, seeded and mulched as the work progresses. Slopes shall be excavated and stabilized in equal increments not to exceed 15'.

ii. Construction sequence (Refer to Figure 4 below):

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to convey runoff from the excavation.

b. Perform phase 1 excavation, dress, and stabilize.

c. Perform phase 2 excavation, dress, and stabilize. Overseed phase 1 areas as necessary.

d. Perform final phase excavation, dress, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

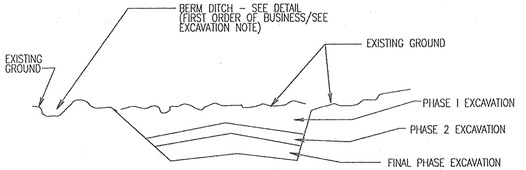

Figure 4 Incremental Stabilization - Cut

J. Incremental Stabilization of Embankments - Fill Slopes

i. Embankments shall be constructed in lifts as prescribed on the plans.

ii. Slopes shall be stabilized immediately when the vertical height of the multiple lifts reaches 15', or when the grading operation ceases as prescribed in the plans.

iii. At the end of each day, temporary berms and pipe slope drains should be constructed along the top edge of the embankment to intercept surface runoff and convey it down the slope in a non-erosive manner to a sediment trapping device.

iv. Construction sequence: Refer to Figure 5 (below).

a. Excavate and stabilize all temporary swales, side ditches, or berms that will be used to divert runoff around the fill. Construct Slope Silt Fence on low side of fill as shown in Figure 5, unless other methods shown on the plans address this area.

b. Place phase 1 embankment, dress and stabilize.

c. Place phase 2 embankment, dress and stabilize.

d. Place final phase embankment, dress and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

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".

Anthony U. Olsen — Anthony U. Olsen — 3/14/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) — DATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

James E. Leach James E. Leased — 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) — DATE

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

USDA-Natural Resources Conservation Service — DATE 3/23/07

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

HOWARD SOIL CONSERVATION DISTRICT — DATE 3/23/07

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — DATE 3/26/07
CHIEF, DIVISION OF LAND DEVELOPMENT — DATE 4/5/07
DIRECTOR — DATE 4/5/07

SDP-07-080

REVISIONS		

THE JOHNS HOPKINS UNIVERSITY
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EROSION AND SEDIMENT CONTROL NOTES

STATE OF MARYLAND — ANTHONY U. OLSEN — 21525 — PROFESSIONAL ENGINEER

DRAWING NO. C-602
Sheet 15 of 16

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Checked By: A.U.O. | Date: 2/14/07

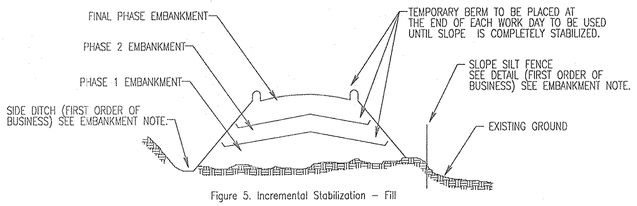

Figure 5. Incremental Stabilization – Fill

Section II – Temporary Seeding

Vegetation – annual grass or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed Mixtures – Temporary Seeding

i. See Howard County Seeding Notes on Sheet C602.

Section III: Permanent Seeding
Seeding grass and legumes to establish ground cover for a minimum period of one year on disturbed areas generally receiving low maintenance.

A. Seed Mixtures – Permanent Seeding

i. See Howard County Seeding Notes on Sheet C602.

TABLE 24 MAINTENANCE FERTILIZATION FOR PERMANENT SEEDINGS

Use Soil Test Results or Rates Shown Below

Seeding Mixture	Type	lb/ac	lb/1000 sf	Time	Mowing
Tall fescue makes up 70% or more of cover	10–10–10 or 30–10–10	500 400	11.5 9.2	Yearly or as needed. Fall	Not closer than 3" if occasional mowing is desired.
Crownvetch Sericea Lespedeza Birdsfoot Trefoil	0–20–0	400	9.2	Spring, the year following establishment and every 4–5 years thereafter	Do not mow crownvetch
Fairly uniform stand of tall fescue and sericea lespedeza, or birdsfoot trefoil	5–10–10	500	11.5	Fall the year following establishment and every 4–5 years thereafter	Not required, no closer than 4" in the fall after seed has matured.
Weeping lovegrass & sericea lespedeza fairly uniform plant distribution.	5–10–10	500	11.5	Spring, the year following establishment and every 3–4 years thereafter	Not required, not closer than 4" in fall after seed has matured.
Red & chewing fescue, Kentucky bluegrass, hard fescue mixtures	20–10–10	250 100	5.8 2.3	September, 30 days later. December, May 20, June 30, if needed	Mow no closer than 2" for red fescue and K. bluegrass 3" for fescue.

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".

Anthony H. Olsen — 3/14/07
SIGNATURE OF ENGINEER (PRINT NAME BELOW SIGNATURE) DATE

"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF 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".

James E. Leasch James E. Leasch — 3/19/07
SIGNATURE OF DEVELOPER (PRINT NAME BELOW SIGNATURE) DATE

REVIEWED FOR HOWARD SCD AND MEET THE TECHNICAL REQUIREMENTS.

USDA–Natural Resources Conservation Service — 3/23/07 DATE

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

HOWARD SOIL CONSERVATION DISTRICT — 3/23/07 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION — 3/26/07 DATE

CHIEF, DIVISION OF LAND DEVELOPMENT — 4/5/07 DATE

DIRECTOR — 4/5/07 DATE

Section IV – Sod: To provide quick cover on disturbed areas (2:1 grade or flatter).

A. General Specifications

i. Class of turfgrass sod shall be Maryland or Virginia State Certified or Approved. Sod labels shall be made available to the job foreman and inspector.

ii. Sod shall be machine cut at a uniform soil thickness of 3/4 ", plus or minus 1/4 ", at the time of cutting. Measurement for thickness shall exclude top growth and thatch. Individual pieces of sod shall be cut to the suppliers width and length. Maximum allowable deviation from standard widths and lengths shall be 5 percent. Broken pads and torn or uneven ends will not be acceptable.

iii. Standard size sections of sod shall be strong enough to support their own weight and retain their size and shape when suspended vertically with a firm grasp on the upper 10 percent of the section.

iv. Sod shall not be harvested or transplanted when moisture content (excessively dry or wet) may adversely affect its survival.

v. Sod shall be harvested, delivered, and installed within a period of 36 hours. Sod not transplanted within this period shall be approved by an agronomist or soil scientist prior to its installation.

B. Sod Installation

i. During periods of excessively high temperature or in areas having dry subsoil, the subsoil shall be lightly irrigated immediately prior to laying the sod.

ii. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and tightly wedged against each other. Lateral joints shall be staggered to promote more uniform growth and strength. Ensure that sod is not stretched or overlapped and that all joints are butted tight in order to prevent voids which would cause air drying of the roots.

iii. Wherever possible, sod shall be laid with the long edges parallel to the contour and with staggering joints. Sod shall be rolled and tamped, pegged or otherwise secured to prevent slippage on slopes and to ensure solid contact between sod roots and the underlying soil surface.

iv. Sod shall be watered immediately following rolling or tamping until the underside of the new sod pad and soil surface below the sod are thoroughly wet. The operations of laying, tamping and irrigating for any piece of sod shall be completed within eight hours.

C. Sod Maintenance

i. In the absence of adequate rainfall, watering shall be performed daily or as often as necessary during the first week and in sufficient quantities to maintain moist soil to a depth of 4". Watering should be done during the heat of the day to prevent wilting.

ii. After the first week, sod watering is required as necessary to maintain adequate moisture content.

iii. The first mowing of sod should not be attempted until the sod is firmly rooted. No more than 1/3 of the grass leaf shall be removed by the initial cutting or subsequent cuttings. Grass height shall be maintained between 2" and 3" unless otherwise specified.

SECTION IV – TURFGRASS ESTABLISHMENT

Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites which will receive a medium to high level of maintenance. Areas to receive seed shall be tilled by disking or other approved methods to a depth of 2 to 4 inches, leveled and raked to prepare a proper seedbed. Stones and debris over 1 1/2 inches in diameter shall be removed. The resulting seedbed shall be in such condition that future mowing of grasses will pose no difficulty.

NOTE: Choose certified material. Certified material is the best guarantee of cultivar purity. The certification program of the Maryland Department of Agriculture, Turf and Seed Section, provides a reliable means of consumer protection and assures a pure genetic line.

A. Turfgrass Mixtures

i. Kentucky Bluegrass – Full sun mixture – For use in areas that receive intensive management. Irrigation required in the areas of central Maryland and eastern shore. Recommended Certified Kentucky Bluegrass Cultivars Seeding Rate: 1.5 to 2.0 pounds/1000 square feet. A minimum of three bluegrass cultivars should be chosen ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

ii. Kentucky Bluegrass/Perennial Rye – Full sun mixture – For use in full sun areas where rapid establishment is necessary and when turf will receive medium to intensive management. Certified Perennial Ryegrass Cultivars/Certified Kentucky Bluegrass Seeding rate: 2 pounds mixture/1000 square feet. A minimum of 3 Kentucky Bluegrass Cultivars must be chosen, with each cultivar ranging from 10% to 35% of the mixture by weight.

iii. Tall Fescue/Kentucky Bluegrass – Full sun mixture – For use in drought prone areas and/or for areas receiving low to medium management in full sun to medium shade. Recommended mixture includes; certified Tall Fescue Cultivars 95 – 100%, certified Kentucky Bluegrass Cultivars 0 – 5%. Seeding rate: 5 to 8 lb/1000 sf. One or more cultivars may be blended.

iv. Kentucky Bluegrass/Fine Fescue – Shade Mixture – For use in areas with shade in Bluegrass lawns. For establishment in high quality, intensively managed turf area. Mixture includes; certified Kentucky Bluegrass Cultivars 30–40% and certified Fine Fescue and 60–70%. Seeding rate: 1 1/2 – 3 lbs/1000 square feet. A minimum of 3 Kentucky bluegrass cultivars must be chosen, with each cultivar ranging from a minimum of 10% to a maximum of 35% of the mixture by weight.

NOTE: Turfgrass varieties should be selected from those listed in the most current University of Maryland Publication, Agronomy Mimeo #77, "Turfgrass Cultivar Recommendations for Maryland".

B. Ideal times of seeding

Western MD: March 15 – June 1, August 1 – October 1
(Hardiness Zones – 5b, 6a)

Central MD: March 1 – May 15 , October 15
(Hardiness Zone – 6b)

Southern MD, Eastern Shore: March 1 – May 15, August 15 – October 15
(Hardiness Zones – 7a, 7b)

C. Irrigation

If soil moisture is deficient, supply new seedings with adequate water for plant growth (1/2" – 1" every 3 to 4 days depending on soil texture) until they are firmly established. This is especially true when seedings are made late in the planting season, in abnormally dry or hot seasons, or on adverse sites.

D. Repair and Maintenance

Inspect all seeded areas for failures and make necessary repairs, replacements, and reseedings within the planting season.

i. Once the vegetation is established, the site shall have 95% groundcover to be considered adequately stabilized.

ii. If the stand provides less than 40% ground coverage, reestablish following original lime, fertilizer, seedbed preparation and seeding recommendations.

iii. If the stand provides between 40% and 94% ground coverage, overseeding and fertilizing using half of the rates originally applied may be necessary.

iv. Maintenance fertilizer rates for permanent seedings are shown in Table 24. For lawns and other medium to high maintenance turfgrass areas, refer to the University of Maryland publication "Lawn Care in Maryland" Bulletin No.171.

20.0 STANDARDS AND SPECIFICATIONS FOR TOPSOIL

Definition

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

Purpose

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

Conditions Where Practice Applies

I. This practice is limited to areas having 2.1 or flatter slopes where:
   a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
   b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
   c. The original soil to be vegetated contains materials toxic to plant growth.
   d. The soil is so acidic that treatment with limestone is not feasible.

II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2.1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2.1 shall have the appropriate stabilization shown on the plans.

Construction and Material Specifications

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

II. Topsoil Specifications – Soil to be used as topsoil must meet the following:
   i. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, course fragments, gravel, sticks, roots, trash, or other materials larger than 1–1/2" in diameter.
   ii. Top soil must be free of plants or plant parts such as Bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
   iii. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4–8 tons/acre (200–400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres:
   i. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stablization – **Section I – Vegetative Stabilization Methods and Materials.**

IV. For sites having disturbed areas under 5 acres:
   i. On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
      a. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
      b. Organic content of topsoil shall not be 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 week control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto–toxic materials.

   Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
   ii. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stablization – **Section I – Vegetative Stabilization Methods and Materials.**

V. Topsoil Application
   i. When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slop Silt Fence and Sediment Traps and Basins.
   ii. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" – 8" higher elevation.
   iii. Topsoil shall be uniformly distributed in a 4" – 8" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected to prevent the formation of depressions or water pocket.
   iv. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparations.

VI. Alternative for Permanent Seeding – Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below:
   i. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements.
      a. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
      b. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have 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.
   v. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 41b/1,000 square feet, and 1/3 the normal lime application rate.

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

SDP–07–080

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EROSION AND SEDIMENT CONTROL NOTES

STATE OF MARYLAND — ANTHONY U. OLSEN — NO. 19376 — PROFESSIONAL ENGINEER

DRAWING NO. C–603

Sheet 16 of 16

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Checked By: A.U.O. | Date: 2/14/07

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