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### LEGEND

- SOILS CLASSIFICATION: A3C1
- SOILS DELINEATION: [Symbol]
- EXISTING CONTOURS: [Symbol]
- PROPOSED CONTOURS: [Symbol]
- EXISTING WOODS LINE: [Symbol]
- PROPOSED WOODS LINE: [Symbol]
- EXISTING STRUCTURE: [Symbol]
- PROPOSED STRUCTURE: [Symbol]
- DRAINAGE AREA: [Symbol]
- DRAINAGE DIVIDE: [Symbol]
- LIMIT OF DISTURBANCE: [Symbol]
- STABILIZED CONSTRUCTION ENTRANCE: [Symbol]
- SUPER SILT FENCE: SSF
- INLET PROTECTION: [Symbol]

# SITE DEVELOPMENT PLAN

## WOODLANDS PROPERTY

### PARCEL 'A'

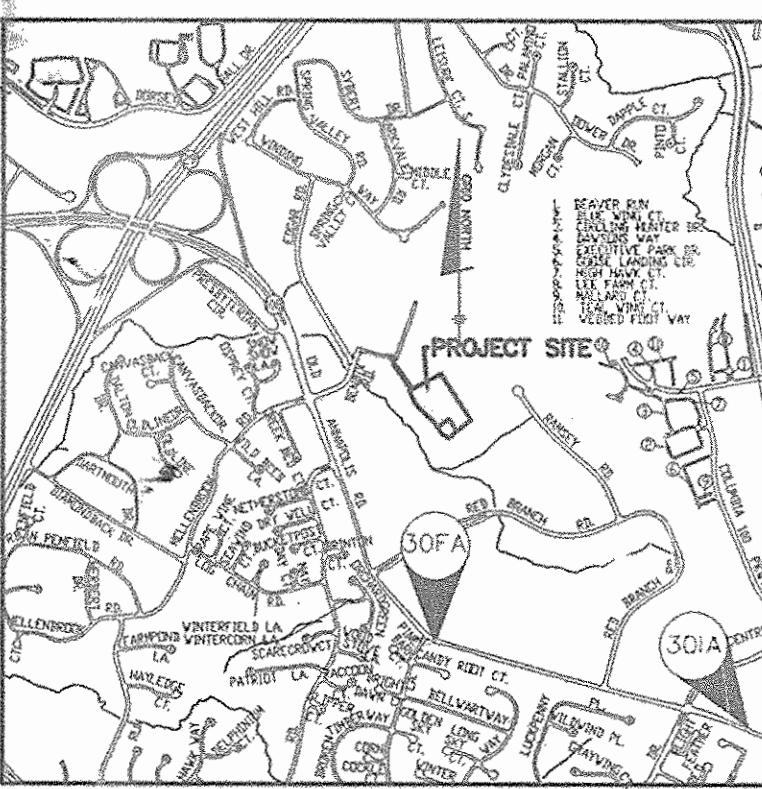
## 2ND ELECTION DISTRICT

## HOWARD COUNTY, MARYLAND

**BENCH MARKS--(NAD'83)**

30FA EL. 441.62'  
STANDARD CONCRETE MONUMENT ON NORTH SIDE OF MD 108, 54.6' EAST OF EVERGREEN, 42.6' WEST OF END OF CURB NOSEDOWN, AND 60.8' NORTH OF 4'x4' ORANGE POST R/W MARKER, NORTHING 568621.34 EASTING 1361563.98

30A EL. 439.92'  
STANDARD CONCRETE MONUMENT ON NORTH SIDE OF MD 108, 37.3' SOUTH EAST OF G&E POLE #501371, 97.1' SOUTH WEST OF SD INLET ALONG WEST SIDE OF HIGH SCHOOL EXIT, 49' WEST OF END OF SIDEWALK NORTHING 567750.06 EASTING 1364842.60



### GENERAL NOTES

- THE SUBJECT PROPERTY IS ZONED FOR PER THE 7/28/06 COMPREHENSIVE ZONING PLAN.
- THERE IS NO FLOOD PLAN ON THIS SITE.
- THERE ARE NO WETLANDS ON THIS SITE.
- ALL LANDSCAPING REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL AND SECTION 16.124 OF THE SUBDIVISION REGULATIONS.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$14,700 SHALL BE POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT UNDER SDP-06-085 FOR THE REQUIRED LANDSCAPING FOR 16 INTERNAL PARKING LOT SHADE TREES AND 33 PERIMETER SHADE TREES PER THE COUNTY FEE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION AT 410-313-1889 AT LEAST FIVE(5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" @ 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK.
- THE CONTOURS SHOWN HEREON HAVE BEEN TAKEN FROM FIELD ROUN TOPOGRAPHIC SURVEYS AT 2' INTERVALS PREPARED BY BENCHMARK ENGINEERING, INC. ON OR ABOUT AUGUST, 2005 AND VOGEL & ASSOCIATES ON OR ABOUT NOVEMBER, 1999.
- VERTICAL CONTROL AND HORIZONTAL CONTROL BASED UPON HOWARD COUNTY NAD '83 CONTROL.
- THIS PROPERTY IS WITHIN THE METROPOLITAN WATER AND SEWER DISTRICT.
- WATER SERVICE FOR THIS PROJECT IS PUBLIC UNDER CONTR. NO.28-4368-D CONNECTING TO CONTR. NO.44-4145 SEWER SERVICE FOR THIS PROJECT IS PUBLIC CONTR. NO. 28-4368-D CONNECTING TO 157-S. DRAINAGE AREA IS IN THE PATAPSCO WATERSHED.
- STORMWATER MANAGEMENT QUANTITY CONTROL FOR THIS SITE IS PROVIDED BY AND UNDERGROUND SWM FACILITY STORMWATER MANAGEMENT QUALITY CONTROL IS BEING PROVIDED BY NON-STRUCTURAL GRASS SWALE AND TWO (2) UNDERGROUND FILTER CHAMBERS. THESE FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED. REFER TO THE SWM SUPPLEMENT REPORT DATED SEPTEMBER 2005 SUBMITTED HERewith.
- AN ADEQUATE PUBLIC FACILITIES ORDINANCE TRAFFIC ANALYSIS FOR THIS PROJECT WAS PREPARED BY LEE CUNNINGHAM, DATED SEPTEMBER, 2005.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PROPOSED EXTERIOR LIGHTING SHALL BE DIRECTED/REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONING DISTRICTS IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- EXISTING UTILITIES SHOWN WERE LOCATED BY RECORD DRAWINGS AND FIELD LOCATIONS.
- UNLESS NOTED AS "PRIVATE", ALL EASEMENTS ARE PUBLIC.
- CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO ANY CONSTRUCTION ACTIVITY AND SHALL ADJUST ALL UTILITIES AND RIM ELEVATIONS AS NEEDED TO MATCH THIS PLAN.
- ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
- ANY DAMAGE TO THE COUNTY'S RIGHT-OF-WAY SHALL BE CORRECTED AT THE BUILDERS EXPENSE.
- TO THE BEST OF OUR KNOWLEDGE THERE ARE NO CEMETERY LOCATIONS ON-SITE.
- THE EXISTING HOUSE IS TO REMAIN. ALL OTHER STRUCTURES SHALL BE REMOVED WITHIN PARCEL A.
- THIS PLAN CONFORMS TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION REGULATIONS. PER COUNCIL BILL NO. 45-2003 EFFECTIVE 10/2/03. DEVELOPMENT OR CONSTRUCTION ON THIS PARCEL MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN WATER PETITION APPLICATION, OR BUILDING PERMIT.
- THE BOUNDARY SURVEY HEREON IS TAKEN FROM THE BOUNDARY SURVEY PREPARED BY BENCHMARK ENGINEERING, INC. ON OR ABOUT AUGUST, 2005.
- PREVIOUS DEPARTMENT OF PLANNING AND ZONING REFERENCE NUMBERS INCLUDE: 44-4145-157-S, WP-06-049, F-06-100, 253 W&S.
- A WAIVER PETITION (WP-06-049) WAS APPROVED ON AUGUST 14, 2006 TO WAIVE THE REQUIREMENTS OF HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS SECTION 16.120(c)(1) REQUIRING 60' OF FRONTAGE ON A PUBLIC ROAD. THE FOLLOWING CONDITIONS MUST BE MET:  
1. IF THE LAND THE EASEMENT IS PROVIDED ON, CURRENTLY OWNED BY HOWARD COUNTY GOVERNMENT DEPARTMENT OF PUBLIC WORKS, IS EVER SOLD A PLAT OF REVISION MUST BE RECORDED AFFORDING THE ABOVE REFERENCED PROPERTY WITH A FERMAMENT ACCESS EASEMENT TO THE PUBLIC RIGHT-OF-WAY.  
2. THE OWNER MUST ABANDON ALL RIGHTS TO THE 20' ACCESS EASEMENT THROUGH THE COLUMBIA ASSOCIATION PROPERTY. F-06-100 MUST REFLECT THE ABANDONMENT OF THIS ACCESS. THE DOCUMENT THROUGH WHICH THIS ACCESS WAS GRANTED MUST BE REVISED TO EXCLUDE PARCELS A & B FROM THIS ACCESS.  
PER LETTER DATED OCTOBER 20, 2006, THE DEPARTMENT OF PLANNING AND ZONING AUTHORIZED PARCELS A AND B TO MAINTAIN THEIR EASEMENTS ALONG TAX MAP 30 PARCEL 267 LOT 62. BUT THAT INGRESS/EGRESS FOR THESE TWO PROPERTIES IS PROHIBITED UNTIL SUCH TIME THAT THE ROAD CONFORMS TO ALL COUNTY STANDARDS FOR A ROAD TO COMMERCIAL PROPERTY.
- THE FOREST CONSERVATION ACT REQUIREMENTS WERE MET THROUGH THE PAYMENT OF A FEE-IN-LIEU IN THE AMOUNT OF \$16,335 FOR 0.15 AC. OF FORESTATION WAS PAID WITH THE CORRESPONDING F-06-100 PLANS.
- ALL WELLS AND SEPTIC SYSTEMS SHALL BE ABANDONED UPON INSTALLATION OF THE PUBLIC ON-SITE WATER AND SEWER SHOWN ON CONTRACT NO. 24-4368-D. A LICENSED WELL DRILLER SHALL ABANDON THE WELLS(S) AND SUBMIT PROPER DOCUMENTATION TO HOWARD COUNTY HEALTH DEPT. THE CONTRACTOR SHALL HAVE THE SEPTIC SEPTIC(S) PUMPED OUT, TANKS AND/OR DRYWELLS CRUSHED AND FILLED WITH SUITABLE MATERIAL.
- A DESIGN MANUAL WAIVER REQUEST TO DMV-I, CHAPTER 5, SECTION 5.2.5.F APPROVED APRIL 21, 2005 ALLOWS FOR MEASURED ON-SITE IMPERVIOUS PERMEABLE AREA TO BE UTILIZED WHEN COMPUTING RCN AND SUBSEQUENT HYDROLOGIC COMPUTATIONS & REQUIREMENTS.
- SWM FOR PARCEL 'B' MUST BE ADDRESSED UPON DEVELOPMENT OF THAT PROPERTY. SWM FOR PARCEL 'B' IS NOT PROVIDED UNDER THIS PLAN.
- ACCESS TO THIS PROPERTY IS PROVIDED ACROSS TAX MAP 30, PARCEL 267, LOT 61-E, AS PART OF THE BENDIX ROAD EXTENSION AS SHOWN ON 07-06-051.

**Drainage Area #1 (Subarea 1 and 2)**

Basic Data  
Location: Howard County, MD  
Drainage Area = 1.58 ac. or 0.06994 sq. mi.  
Impervious Area (per TR-55) = 0%  
Soils Type: 100.0% "B"  
Stream use designation = I-P (Little Patuxent River 2131105)  
Zoning: POR/NT

**Summary of General Storage Requirement Drainage Area #1 (Subarea 1)**

Step	Requirement	Volume Required (ac-ft)	Notes
1	Water Quality Volume (WQV)	0.2581 (11,242.11 c.f.)	Structural methods - Underground Sand Filter WQV#1 and #2
2	Recharge Volume (Rev)	0.0627 (or 0.8398 acres)	Structural methods - Stone Chamber
3	Channel Protection Volume (Cp)	0.3566 (15,270.42 c.f.)	Structural methods - Underground Storage Facility
4	Overbank Flood Protection Volume (Op)	N/A	Not required. Provide safe passage for the 10 year event.
5	Extreme Flood Volume (EQ)	N/A	Not required. Provide safe passage for the 100 year event.

**Summary of General Storage Requirement Drainage Area #1 (Subarea 2)**

Step	Requirement	Volume Required (ac-ft)	Notes
1	Water Quality Volume (WQV)	N/A	No new impervious areas.
2	Recharge Volume (Rev)	N/A	No new impervious areas.
3	Channel Protection Volume (Cp)	N/A	Cp's not required. 1 yr post development discharge is less than 2 cfs.
4	Overbank Flood Protection Volume (Op)	N/A	Not required. Provide safe passage for the 10 year event.
5	Extreme Flood Volume (EQ)	N/A	Not required. Provide safe passage for the 100 year event.

**Drainage Area #2**

Basic Data  
Location: Howard County, MD  
Drainage Area = 0.25 ac. or 0.00919 sq. mi.  
Impervious Area (per TR-55) = 0%  
Soils Type: 100.0% "B"  
Stream use designation = I-P (Little Patuxent River 2131105)  
Zoning: POR/NT

**Summary of General Storage Requirement Drainage Area #2**

Step	Requirement	Volume Required (ac-ft)	Notes
1	Water Quality Volume (WQV)	N/A	No new impervious areas.
2	Recharge Volume (Rev)	N/A	No new impervious areas.
3	Channel Protection Volume (Cp)	N/A	Cp's not required. 1 yr post development discharge is less than 2 cfs.
4	Overbank Flood Protection Volume (Op)	N/A	Not required. Provide safe passage for the 10 year event.
5	Extreme Flood Volume (EQ)	N/A	Not required. Provide safe passage for the 100 year event.

**Drainage Area #3**

Basic Data  
Location: Howard County, MD  
Drainage Area = 0.27 ac. or 0.00942 sq. mi.  
Impervious Area (per TR-55) = 0%  
Soils Type: 100.0% "B"  
Stream use designation = I-P (Little Patuxent River 2131105)  
Zoning: POR/NT

**Summary of General Storage Requirement Drainage Area #3**

Step	Requirement	Volume Required (ac-ft)	Notes
1	Water Quality Volume (WQV)	N/A	No new impervious areas.
2	Recharge Volume (Rev)	N/A	No new impervious areas.
3	Channel Protection Volume (Cp)	N/A	Cp's not required. 1 yr post development discharge is less than 2 cfs.
4	Overbank Flood Protection Volume (Op)	N/A	Not required. Provide safe passage for the 10 year event.
5	Extreme Flood Volume (EQ)	N/A	Not required. Provide safe passage for the 100 year event.

**Drainage Area #4**

Basic Data  
Location: Howard County, MD  
Drainage Area = 0.95 ac. or 0.03918 sq. mi.  
Impervious Area (per TR-55) = 57.3%  
Soils Type: 100.0% "B"  
Stream use designation = I-P (Little Patuxent River 2131105)  
Zoning: POR/NT

**Summary of General Storage Requirement Drainage Area #4**

Step	Requirement	Volume Required (ac-ft)	Notes
1	Water Quality Volume (WQV)	0.0448 (1950.82 c.f.)	Provided within grassed swale
2	Recharge Volume (Rev)	0.0116 (0.1415 ac)	Provided within grassed swale
3	Channel Protection Volume (Cp)	N/A	Cp's not required. 1 yr post development discharge is less than 2 cfs.
4	Overbank Flood Protection Volume (Op)	N/A	Not required. Provide safe passage for the 10 year event.
5	Extreme Flood Volume (EQ)	N/A	Not required. Provide safe passage for the 100 year event.

**SITE ANALYSIS DATA/TABULATION**

A) TOTAL PROJECT AREA.....	4.51± AC.
B) AREA OF 100-YR. FLOODPLAIN.....	N/A
C) AREA OF STEEP SLOPES.....	N/A
D) NET AREA OF SITE(S).....	4.51± AC.
E) NUMBER OF UNITS ALLOWED.....	N/A
F) NUMBER OF RESIDENTIAL UNITS PROPOSED.....	N/A
G) AREA OF PLAN SUBMISSION.....	4.51± AC.
H) LIMIT OF DISTURBED AREA.....	5.05± AC. (INCLUDES ACCESS ROAD)
I) AMENITY AREA REQUIRED.....	N/A
J) PRESENT ZONING DESIGNATION.....	POR
L) PROPOSED USES FOR THE SITE AND STRUCTURES.....	GENERAL OFFICE
M) FLOOR SPACE ON EACH LEVEL OF BUILDING.....	NEW OFFICE BUILDING 1ST FLOOR = 25,728± SQFT 2ND FLOOR = 25,903± SQFT 3RD FLOOR = 20,765± SQFT TOTAL = 72,396± SQFT RENOVATED OFFICE BUILDING TOTAL = 5,000± SQFT N/A
N) MINIMUM LOT SIZE REQUIRED.....	N/A
O) NUMBER OF PARKING SPACES REQUIRED BY ZONING REGULATIONS AND/OR FDP CRITERIA.....	GENERAL OFFICE (3.3 SPACES PER 1,000SQFT) = 255
P) TOTAL NUMBER OF PARKING SPACES PROVIDED ON-SITE.....	TOTAL=301
Q) APPLICABLE DPZ FILE REFERENCES: 44-4145, 157-S, WP-06-049, F-06-100	
R) BUILDING COVERAGE AREA.....	29,044SQFT (4.13%)

**Drainage Area Discharge Summary**

SWM #1	Pre-developed Discharge (cfs)	Post-developed Discharge (cfs)
1-Year Storm	0.1	0.1
DA2	0.2	0.1
DA3	0.1	0.1 < 2CFS
DA4	0.3	0.9 < 2CFS

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

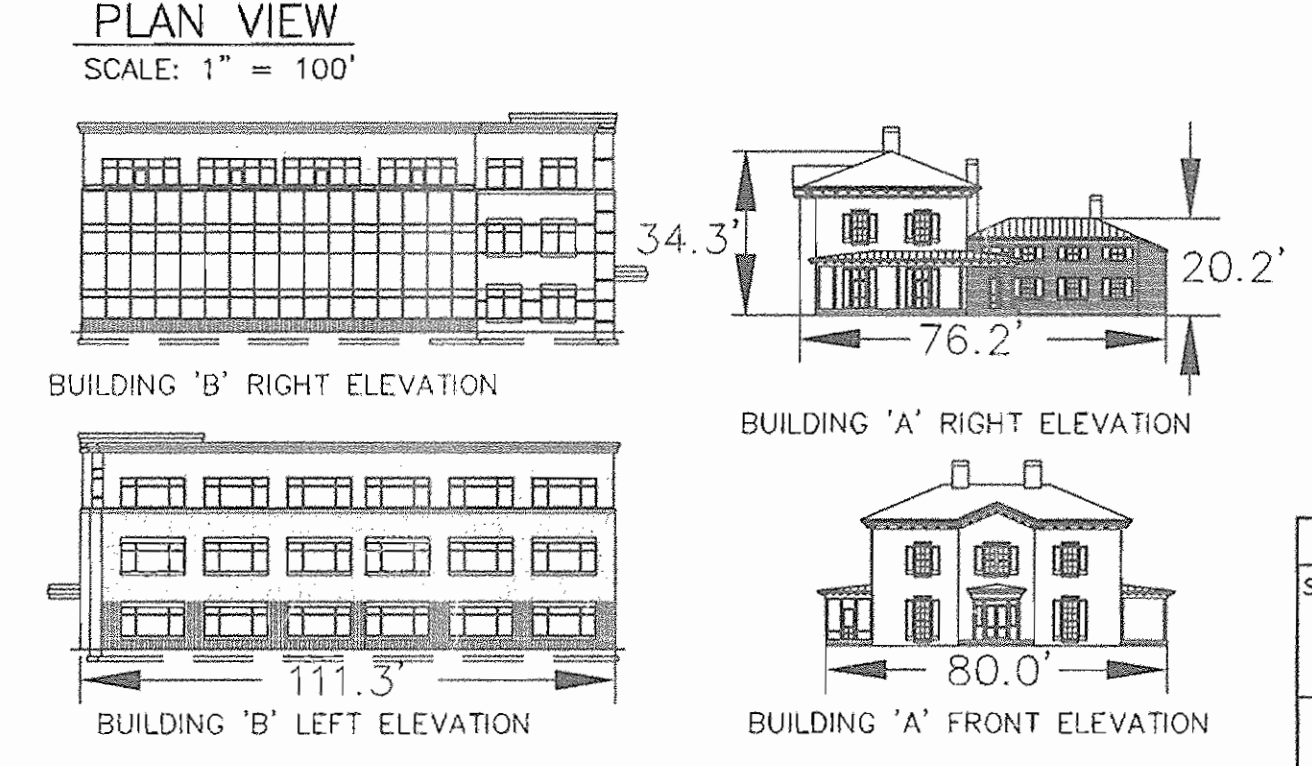
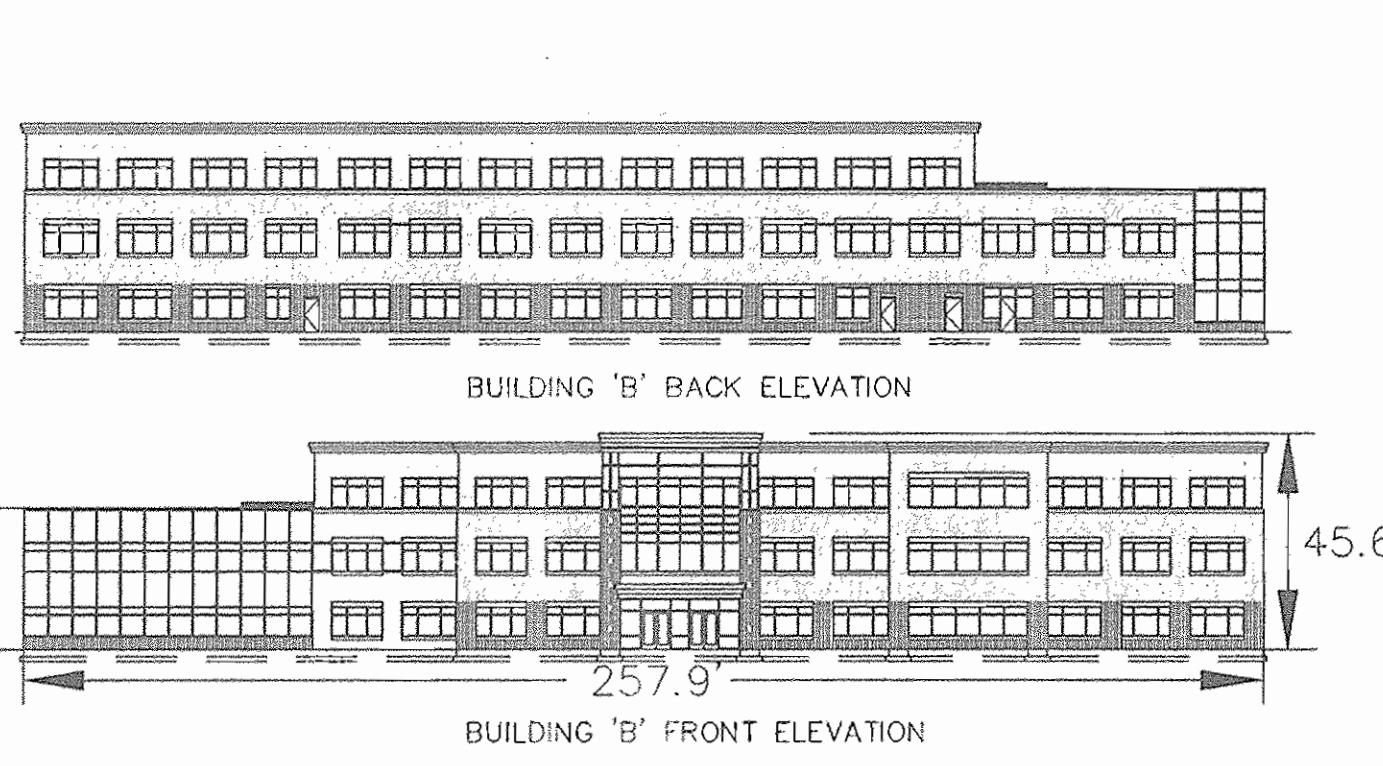
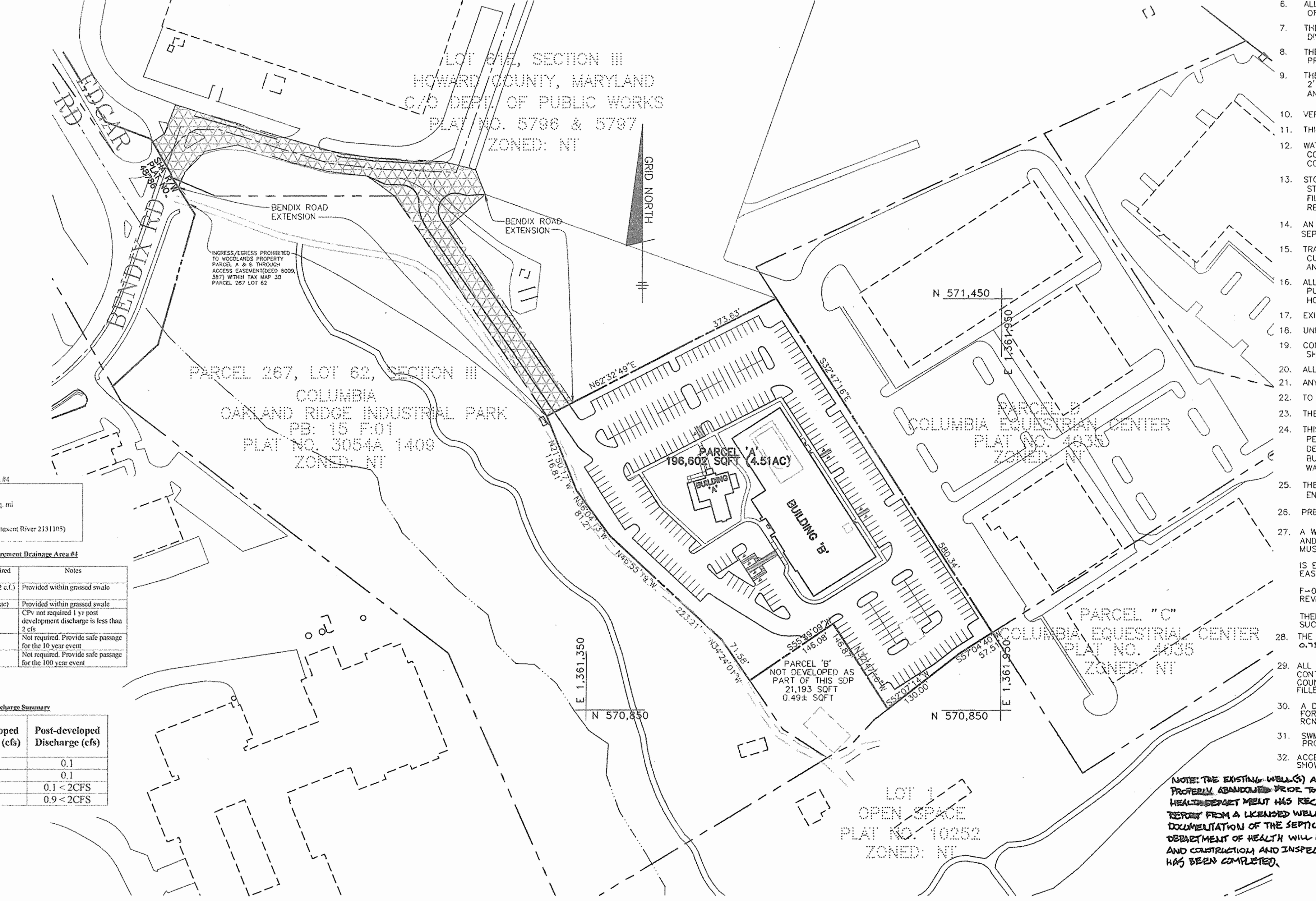
J. Kruta-Messing for C. Handley  
CHIEF, DIVISION OF LAND DEVELOPMENT

4-13-07 DATE

2/20/07 DATE

4/12/07 DATE

DIRECTOR, DEPARTMENT OF PLANNING AND ZONING



**ADDRESS CHART**

LOT No.	STREET ADDRESS
PARCEL A BLDG 'A'	9254 BENDIX RD
PARCEL A BLDG 'B'	9256 BENDIX RD

**PERMIT INFORMATION CHART**

SUBDIVISION NAME	SECTION/AREA	LOT/PARCEL #
WOODLANDS PROPERTY PROFESSIONAL OFFICE DEVELOPMENT	N/A	346 PARCEL A
PLAT No. 18982	GRID No. 11	ZONE POR
TAX MAP 30	ELECTION DISTRICT 2nd	CENSUS TRACT 6023.02
WATER CODE 24-4368-D	SEWER CODE 24-4368-D	

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE & SUITE 418  
ELLIOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
www.bei-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC  
700 KENILWORTH DR. TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY PARCEL 'A' PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30 PARCEL 346 - GRID 11 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE: TITLE SHEET

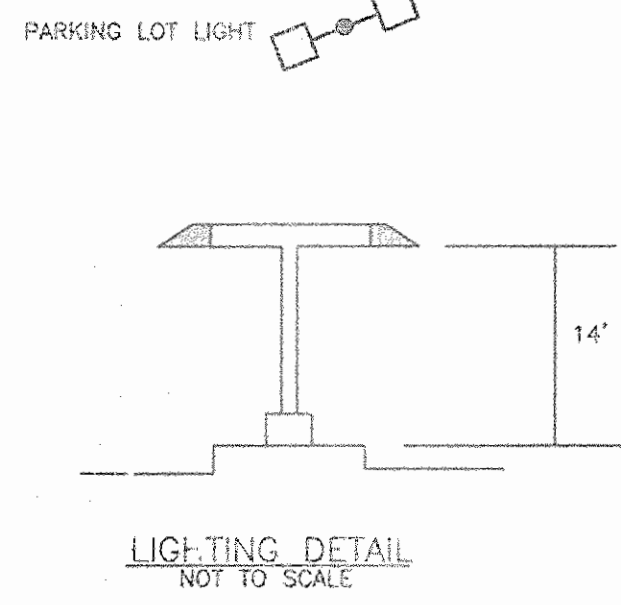
DATE: OCTOBER 2005 NOV. 2006 PROJECT NO. 1806

Design: BFC Draft: BFC Check: DAM SCALE: AS SHOWN DRAWING 1 OF 14

SDP-06-065

MATCHLINE A - SEE SHEET 3 OF 14

PARKING LOT LIGHTS:  
THE LIGHTS IN THE PARKING AREA ARE TO BE AS SHOWN IN THE SUPPLEMENTAL LIGHTING PLAN SUBMITTED WITH THE ARCHITECTURAL PLANS. ANY LIGHTS IN THE PARKING AREAS ARE TO BE INSTALLED ON CONCRETE COLUMNS (SEE SHEET 13 OF 14 FOR FOUNDATION DETAILS). ALL OUTDOOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF ZONING SECTION 134.



LIGHTING DETAIL  
NOT TO SCALE

GRID NORTH

LOT 61E, SECTION III  
HOWARD COUNTY, MARYLAND  
C/O DEPT. OF PUBLIC WORKS  
PLAT NO. 5766 & 5787  
ZONED: NT

PARCEL 'A'  
196,602 SQFT  
BUILDING 'B' (74,000± SQFT)  
F.F. = 428.8

PARCEL 'B'  
21,193 SQFT

PARCEL 'C'  
COLUMBIA EQUESTRIAN CENTER  
PLAT NO. 4035  
ZONED: NT

PARCEL 'D'  
COLUMBIA EQUESTRIAN CENTER  
PLAT NO. 4035  
ZONED: NT

LOT 1  
OPEN SPACE  
PLAT NO. 10252  
ZONED: NT

LOT 2  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 3  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 4  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 5  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 6  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 7  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 8  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 9  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 10  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 11  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 12  
WOODLANDS PROPERTY  
PARCEL A & B

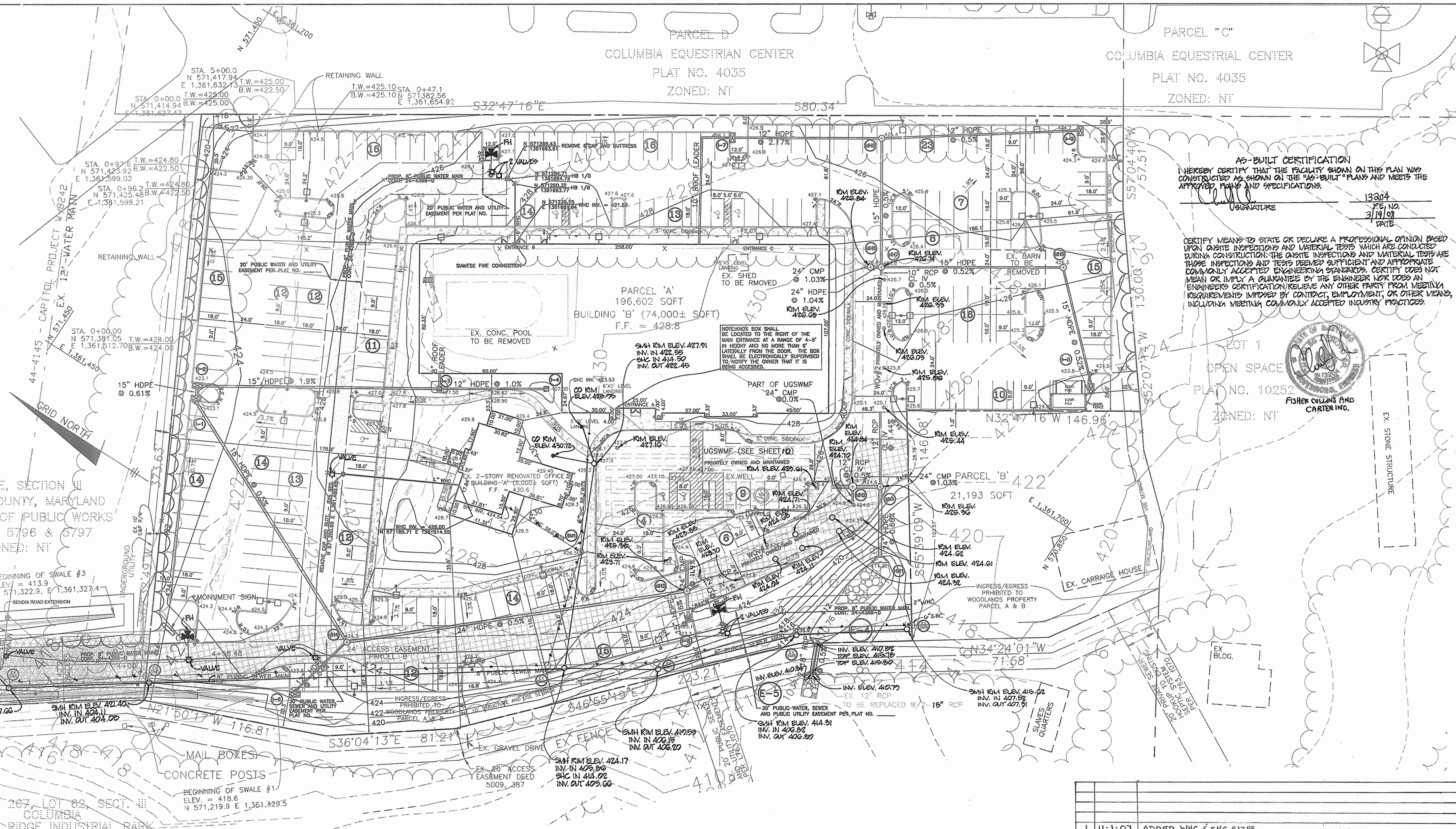
LOT 13  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 14  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 15  
WOODLANDS PROPERTY  
PARCEL A & B

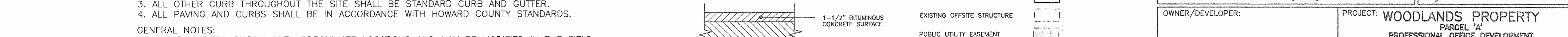
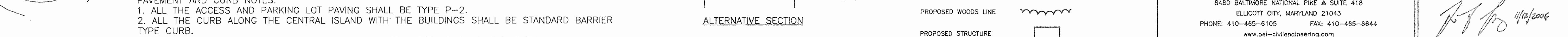
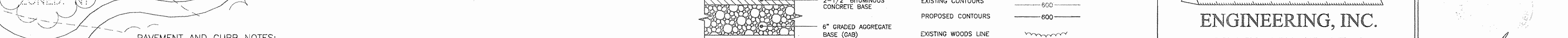
LOT 16  
WOODLANDS PROPERTY  
PARCEL A & B

LOT 17  
WOODLANDS PROPERTY  
PARCEL A & B



# SITE PLAN

SCALE: 1" = 30'



LEGEND	
EXISTING CONTOURS	— 592 —
PROPOSED CONTOURS	— 600 —
EXISTING WOODS LINE	~~~~~
PROPOSED WOODS LINE	~~~~~
PROPOSED STRUCTURE	□
EXISTING OFFSITE STRUCTURE	- - -
PUBLIC UTILITY EASEMENT	▨
UNDERGROUND STORMWATER MANAGEMENT FACILITY (UGSWMF)	▨
ONSITE ACCESS EASEMENT TO PARCEL 'B'	▨
LOT 61E ACCESS PERMIT	▨
RIP RAP	▨
EROSION CONTROL MATING	▨

PAVEMENT AND CURB NOTES:  
 1. ALL THE ACCESS AND PARKING LOT PAVING SHALL BE TYPE P-2.  
 2. ALL THE CURB ALONG THE CENTRAL ISLAND WITH THE BUILDINGS SHALL BE STANDARD BARRIER TYPE CURB.  
 3. ALL OTHER CURB THROUGHOUT THE SITE SHALL BE STANDARD CURB AND GUTTER.  
 4. ALL PAVING AND CURBS SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.

GENERAL NOTES:  
 1. ROOF LEADERS SHOWN ARE APPROXIMATE LOCATIONS AND MAY BE MODIFIED IN THE FIELD.  
 2. CONTACT HOWARD BUREAU OF FACILITIES REGARDING THE RELOCATION OF THE EXISTING LIGHT POLES. THE DEVELOPER WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE LIGHT POLE RELOCATIONS.  
 3. 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, PERFORATED, SQUARE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

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

13804  
 DATE: 3/19/09  
 SIGNATURE: [Signature]

CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE COMMONLY ACCEPTED ENGINEERING STANDARDS. CERTIFY DOES NOT MEAN OR IMPLY A GUARANTEE BY THE ENGINEER FOR ANY ENGINEERING CERTIFICATION RELIEVE ANY OTHER PARTY FROM MEETING REQUIREMENTS IMPOSED BY CONTRACT, EMPLOYMENT, OR OTHER MEANS, INCLUDING MEETING COMMONLY ACCEPTED INDUSTRY PRACTICES.

FISHER COLLINS AND CARTER INC.  
 [Signature]

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 J. Kratochvil  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 4-13-07

CHIEF DEVELOPMENT ENGINEERING DIVISION  
 DATE: 2/20/07

DIRECTOR  
 DATE: 4/12/07

No.	DATE	REVISION
1	11-1-07	ADDED WMC & SHC SIZES

**BENCHMARK ENGINEERING, INC.**  
 8450 BALTIMORE NATIONAL PIKE A SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-465-6105 FAX: 410-465-6644  
 www.bei-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC.  
 700 KENILWORTH DRIVE  
 TOWSON, MD 21204  
 410.995.0015

PROJECT: WOODLANDS PROPERTY  
 PARCEL 'A'  
 PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30  
 PARCEL 346 - GRID 11  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

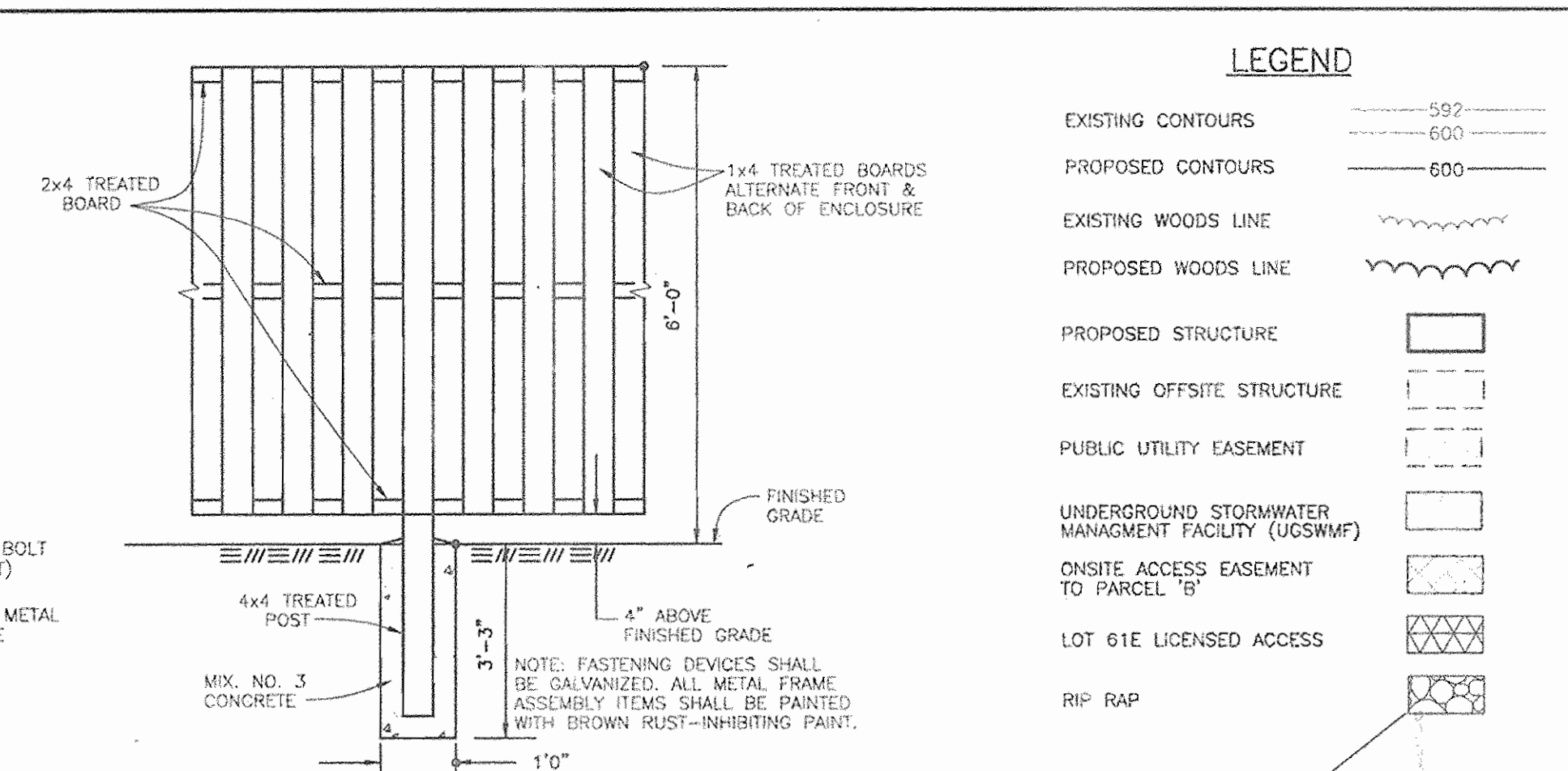
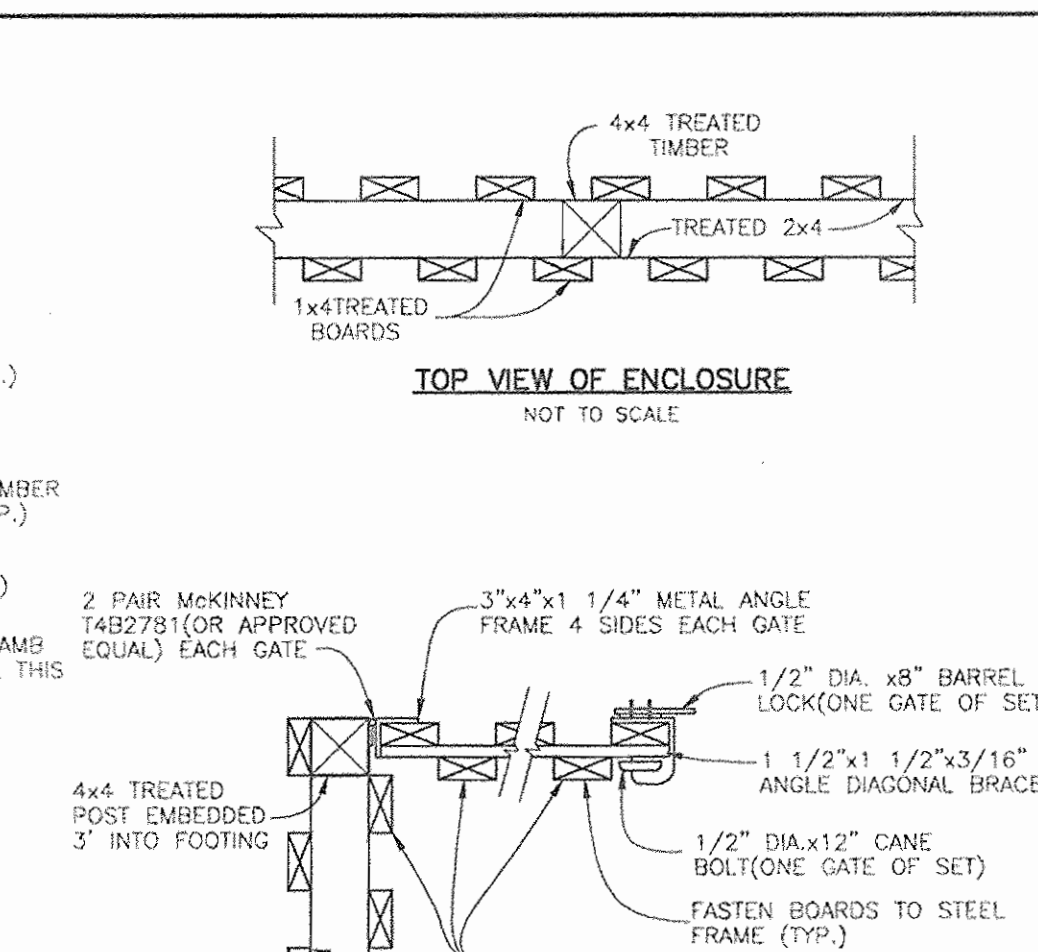
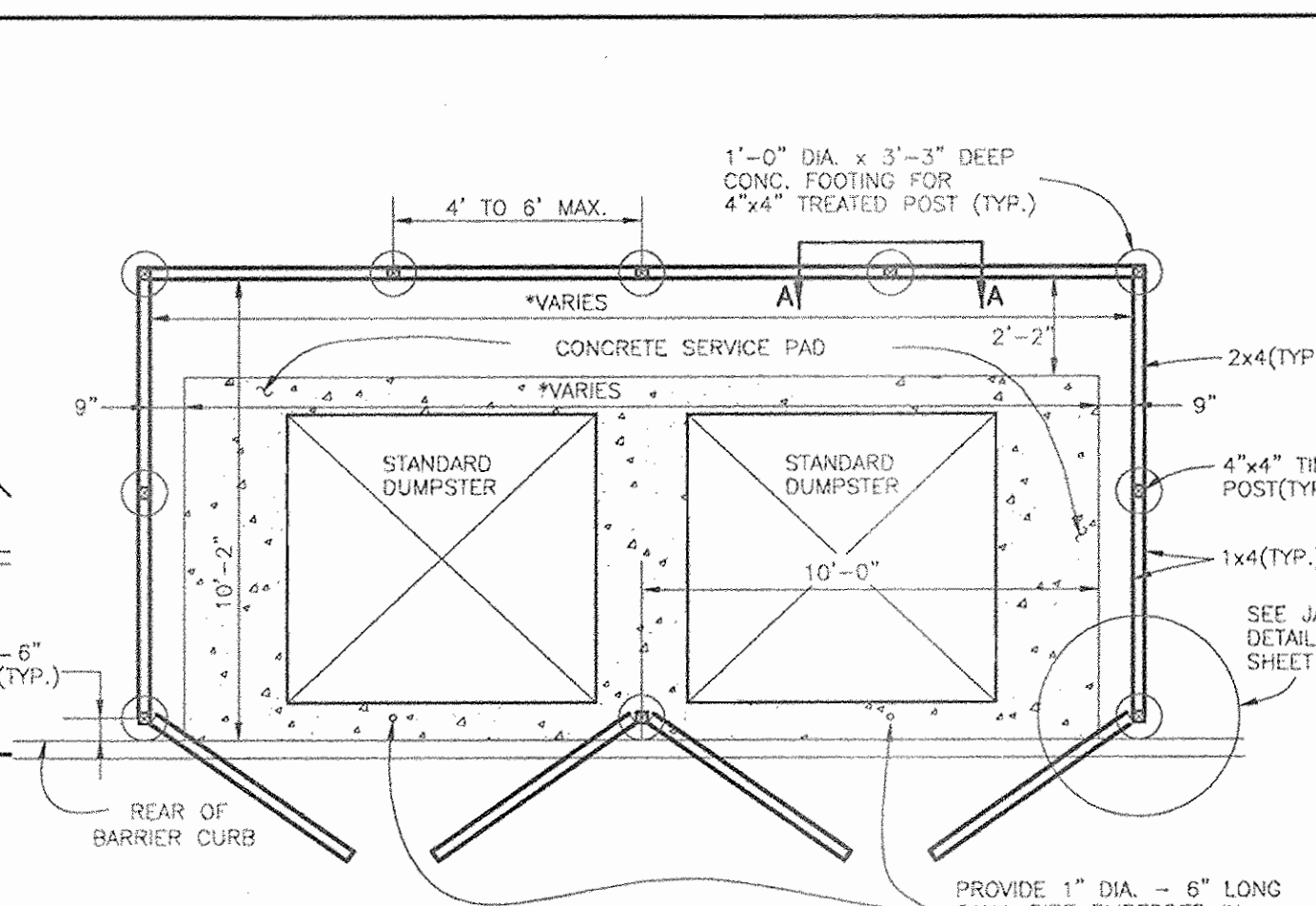
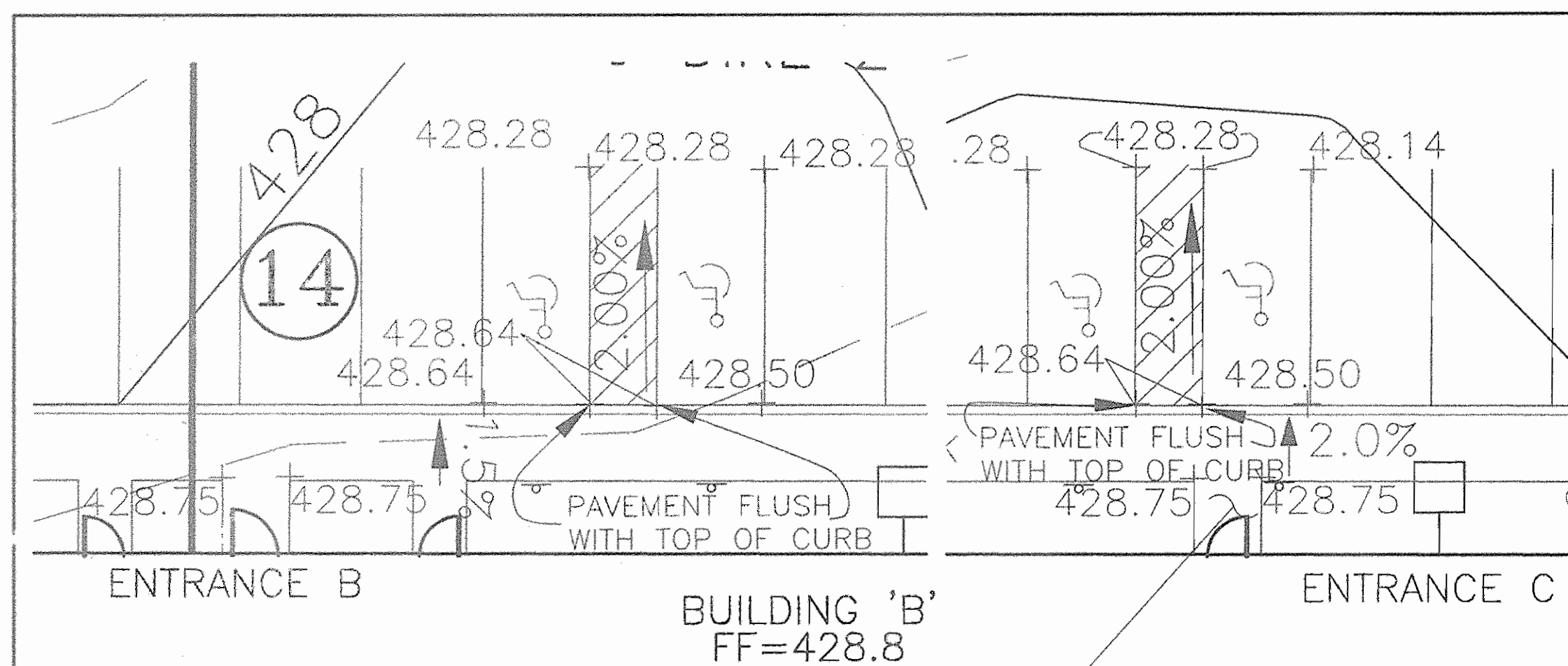
TITLE: SITE DEVELOPMENT PLAN  
 AND GRADING PLAN

DATE: OCTOBER 2005  
 NOV. 2006 PROJECT NO. 1806

SCALE: 1" = 30' DRAWING 2 OF 14

Design: BFC Draft: BFC Check: DAM

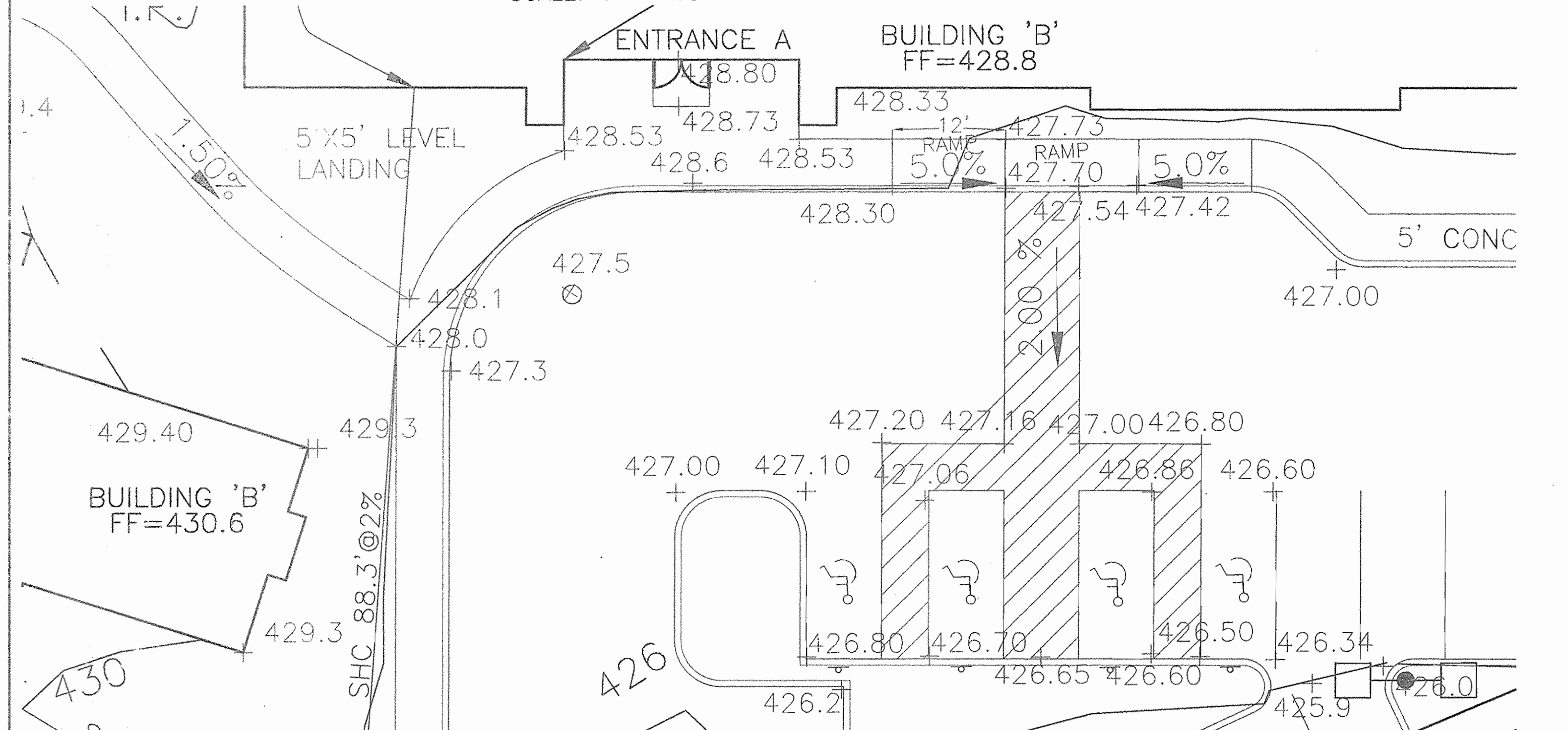
AS BUILT SDP-06-065



EXISTING CONTOURS	597
PROPOSED CONTOURS	600
EXISTING WOODS LINE	
PROPOSED WOODS LINE	
PROPOSED STRUCTURE	
EXISTING OFFSITE STRUCTURE	
PUBLIC UTILITY EASEMENT	
UNDERGROUND STORMWATER MANAGEMENT FACILITY (UGSWMF)	
ONSITE ACCESS EASEMENT TO PARCEL 'B'	
LOT 61E LICENSED ACCESS	
RIP RAP	

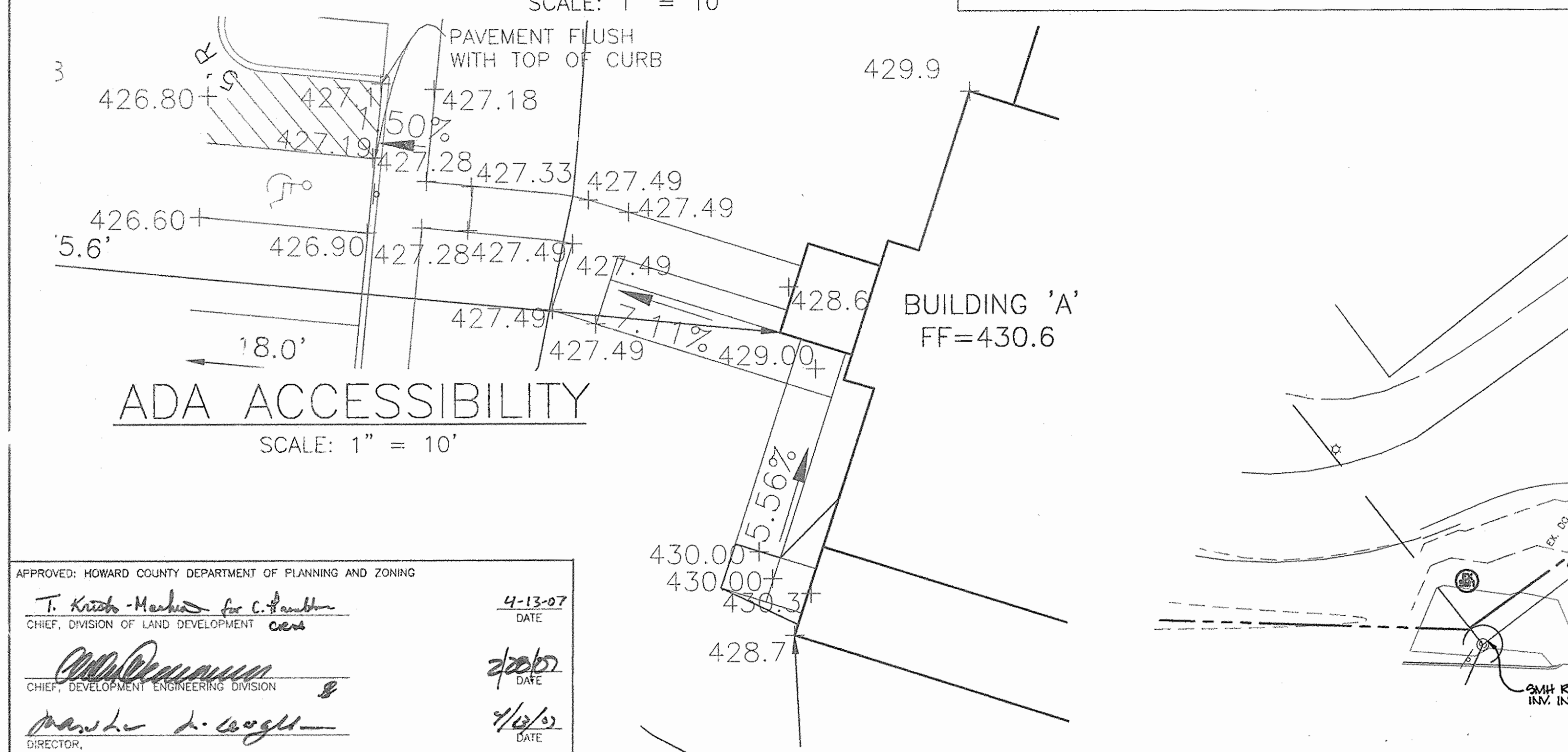
### ADA ACCESSIBILITY

SCALE: 1" = 10'

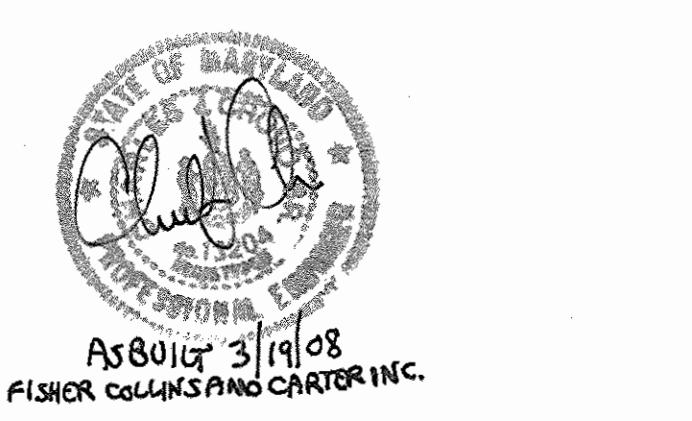
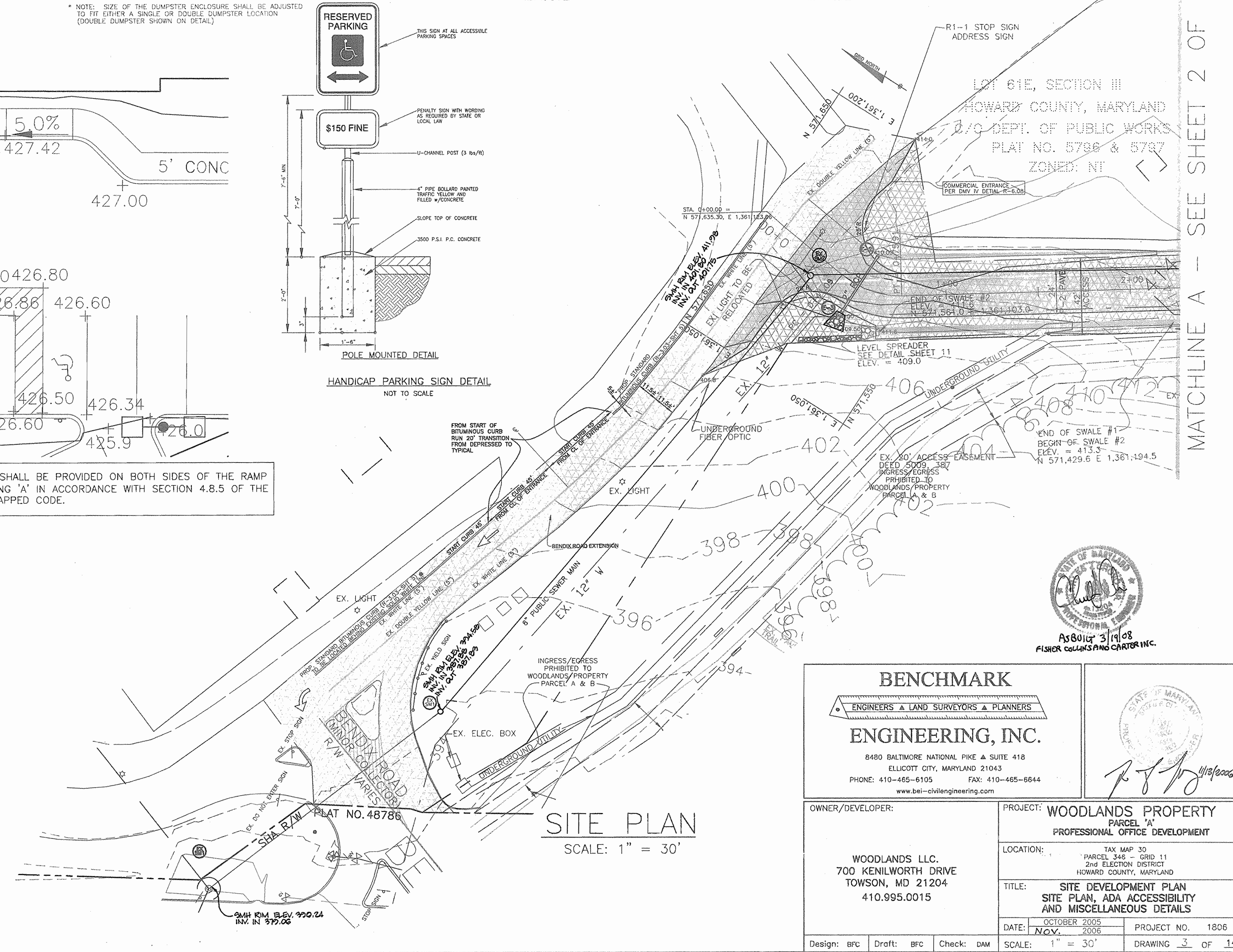
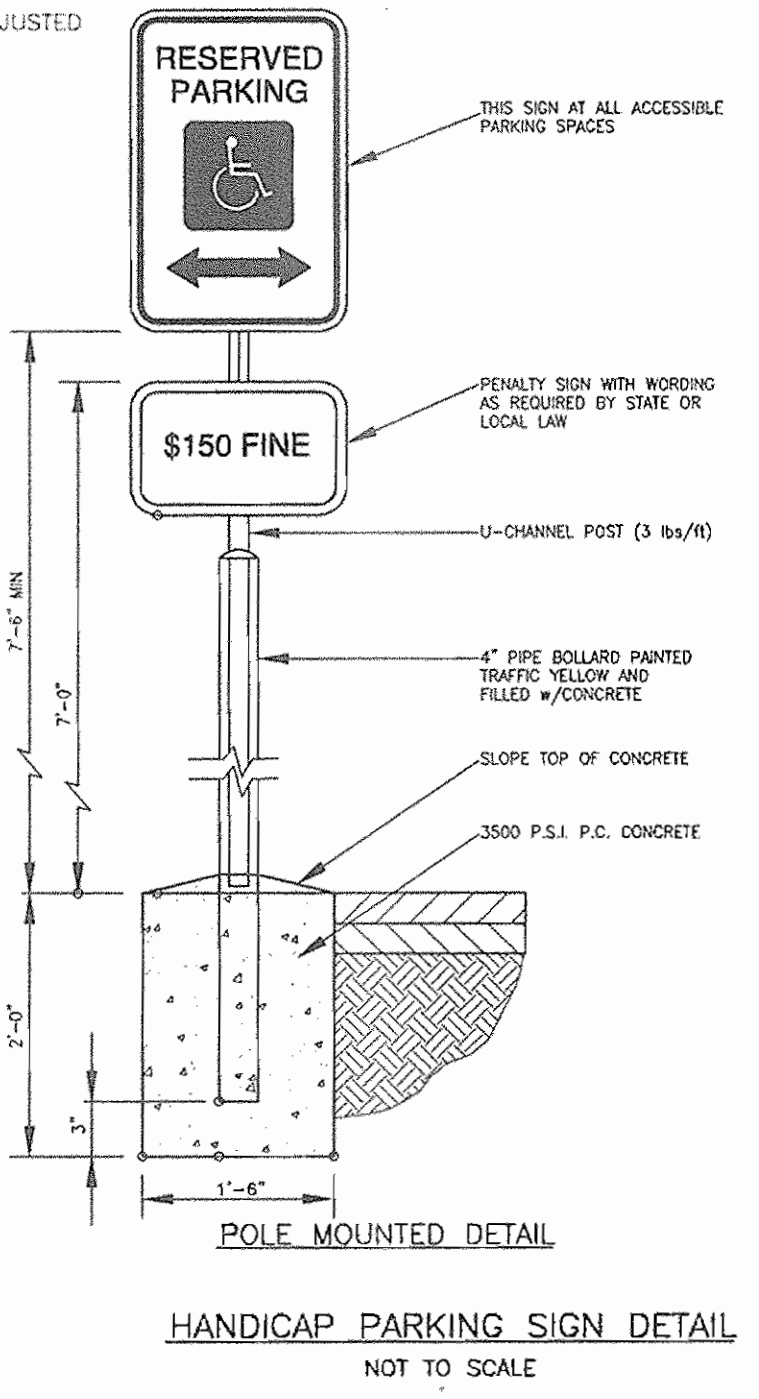


### ADA ACCESSIBILITY

SCALE: 1" = 10'



NOTE: HANDRAILS SHALL BE PROVIDED ON BOTH SIDES OF THE RAMP ACCESSING BUILDING 'A' IN ACCORDANCE WITH SECTION 4.8.5 OF THE MARYLAND HANDICAPPED CODE.



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

OWNER/DEVELOPER:	WOODLANDS LLC. 700 KENILWORTH DRIVE TOWSON, MD 21204 410.995.0015
PROJECT:	WOODLANDS PROPERTY PARCEL 'A' PROFESSIONAL OFFICE DEVELOPMENT
LOCATION:	TAX MAP 30 PARCEL 345 - GRID 11 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	SITE DEVELOPMENT PLAN SITE PLAN, ADA ACCESSIBILITY AND MISCELLANEOUS DETAILS
DATE:	OCTOBER 2005 NOV. 2006
PROJECT NO.:	1806
SCALE:	1" = 30'
DRAWING:	3 OF 14
Design:	BFC
Draft:	BFC
Check:	DAM

P:\5830-cwg\8000\1342-6613-14.dwg, SITE PLAN 3, 11/13/2006 11:43:05 AM, edf

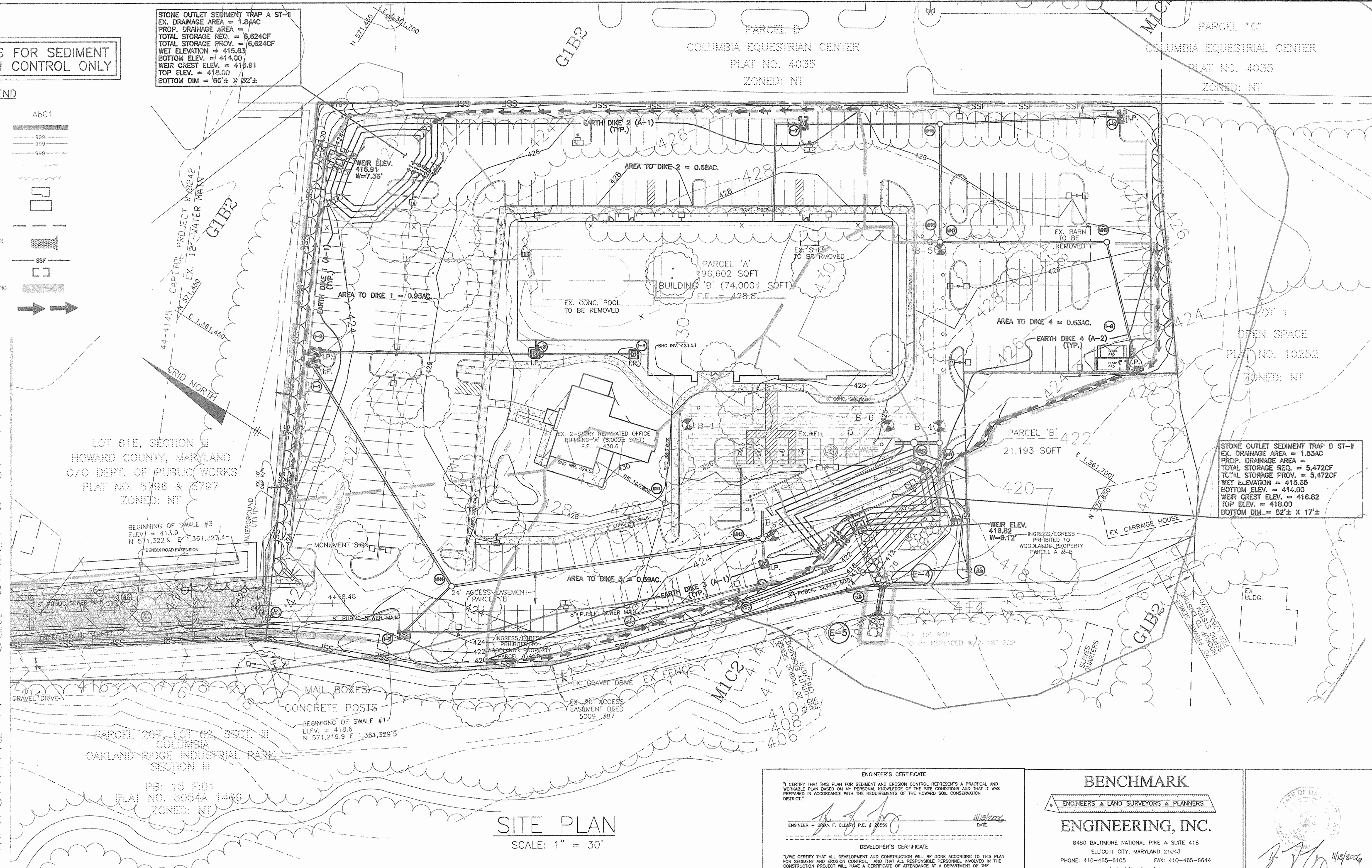
THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY

STONE OUTLET SEDIMENT TRAP ST-II  
 EX. DRAINAGE AREA = 1.84AC  
 PROP. DRAINAGE AREA = 1.84AC  
 TOTAL STORAGE REQ. = 6,624CF  
 TOTAL STORAGE PROV. = 16,624CF  
 WET ELEVATION = 415.63  
 BOTTOM ELEV. = 414.00  
 WEIR CREST ELEV. = 418.91  
 TOP ELEV. = 416.00  
 BOTTOM DIM = 66' ± x 32' ±

LEGEND

- SOILS CLASSIFICATION AbC1
- SOILS DELINEATION
- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- EXISTING STRUCTURE
- PROPOSED STRUCTURE
- LIMIT OF DISTURBANCE
- STABILIZED CONSTRUCTION ENTRANCE
- SUPER SILT FENCE
- INLET PROTECTION
- EROSION CONTROL MATTING
- EARTH DIKE

MATCHLINE A - SEE SHEET 5 OF 14



STONE OUTLET SEDIMENT TRAP B ST-II  
 EX. DRAINAGE AREA = 1.53AC  
 PROP. DRAINAGE AREA = 1.53AC  
 TOTAL STORAGE REQ. = 5,472CF  
 TOTAL STORAGE PROV. = 16,624CF  
 WET ELEVATION = 415.65  
 BOTTOM ELEV. = 414.00  
 WEIR CREST ELEV. = 418.82  
 TOP ELEV. = 418.00  
 BOTTOM DIM = 82' ± x 17' ±

SITE PLAN  
 SCALE: 1" = 30'

SOILS LEGEND		
MAP SYMBOL	SOIL GROUP	SOIL TYPE
ChB2	B	CHESTER SILT LOAM, 3 TO 8 % SLOPES, MODERATELY ERODED
EnA	B	ELINSBORO LOAM, 0 TO 3 % SLOPES
GIB2	B	GLENELG LOAM 3 TO 8 % SLOPED, MODERATELY ERODED
GIC2	B	GLENELG LOAM 8 TO 15 % SLOPED, MODERATELY ERODED
GnA	C	GLENVILLE SILT LOAM 0 TO 3 % SLOPES
MIB2	B	MANOR LOAM, 3 TO 8 % SLOPES, MODERATELY ERODED
MIC2	B	MANOR LOAM, 8 TO 15 % SLOPES, MODERATELY ERODED
MIC3	B	MANOR LOAM, 8 TO 15 % SLOPES, SEVERELY ERODED
MID3	B	MANOR LOAM, 15 TO 25 % SLOPES, SEVERELY ERODED

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 T. Kruetz-Harshbarger for C. Harshbarger  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 4-13-07  
 DATE: 2/20/07  
 DATE: 4/6/07

NOTES:  
 1. STOCKPILING WILL NOT BE PERMITTED ON-SITE.

ENGINEER'S CERTIFICATE  
 I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 ENGINEER - BRIAN F. CLEARY, P.E. # 26559 DATE: 11/22/06  
 DEVELOPER'S CERTIFICATE  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTION BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 D. Ronald Bush DATE: 18 JUN 07  
 REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS  
 Jim Mearns DATE: 2/22/07  
 URM - NATURAL RESOURCES CONSERVATION SERVICE  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 John R. Reister DATE: 2/22/07  
 HOWARD SCD

**BENCHMARK ENGINEERING, INC.**  
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 www.bal-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC.  
 700 KENILWORTH DRIVE  
 TOWSON, MD 21204  
 410.995.0015

PROJECT: WOODLANDS PROPERTY  
 PARCEL 'A'  
 PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30  
 PARCEL 346 - GRID 11  
 2ND ELECTORAL DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN  
 SEDIMENT AND EROSION CONTROL PLAN

DATE: OCTOBER 2005  
 NOV. 2006 PROJECT NO. 1806

SCALE: 1" = 30' DRAWING 4 OF 14

Design: BFC Draft: BFC Check: DAM

SEDIMENT CONTROL NOTES

- 1. A MINIMUM OF 24 HOURS MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTION, LICENSES AND PERMITS, SEDIMENT CONTROL DIVISION PRIOR TO THE START OF ANY CONSTRUCTION...

- 2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS SPECIFICATION WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATION FOR SOIL EROSION AND SEDIMENT CONTROL...

- 3. FOLLOWING INITIAL SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN: A) 7 CALENDAR DAYS FOR ALL PERMITS...

- 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...

PERMANENT SEEDBED PREPARATIONS

- 1. PREFERRED - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT) BEFORE SEEDING...

SEQUENCE OF CONSTRUCTION

- DAY 1 OBTAIN GRADING PERMIT.
DAY 2-9 CLEAR & GRUB FOR SEDIMENT CONTROL DEVICES AND INSTALL SEDIMENT CONTROL DEVICES.

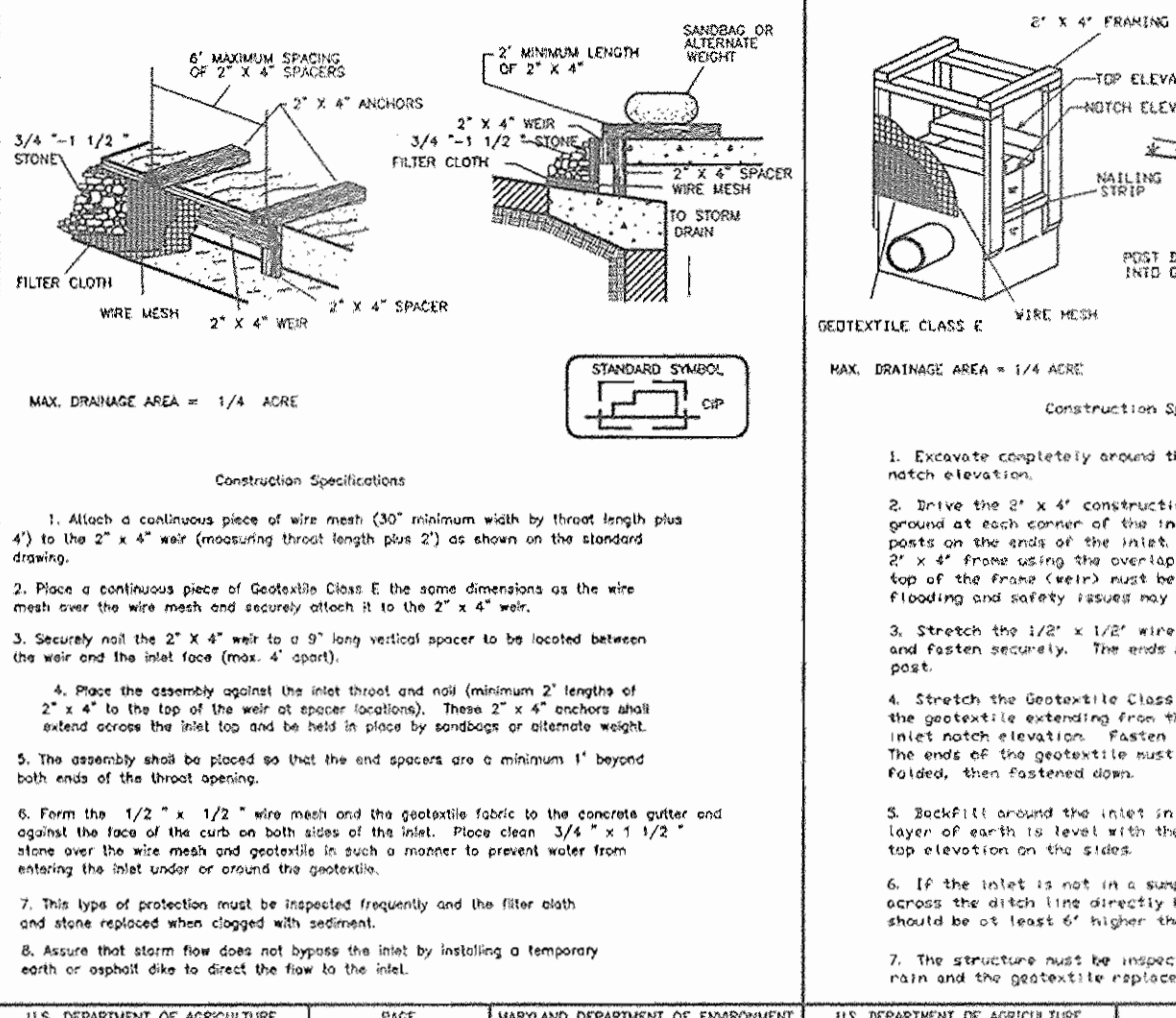
TEMPORARY SEEDBED PREPARATIONS

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

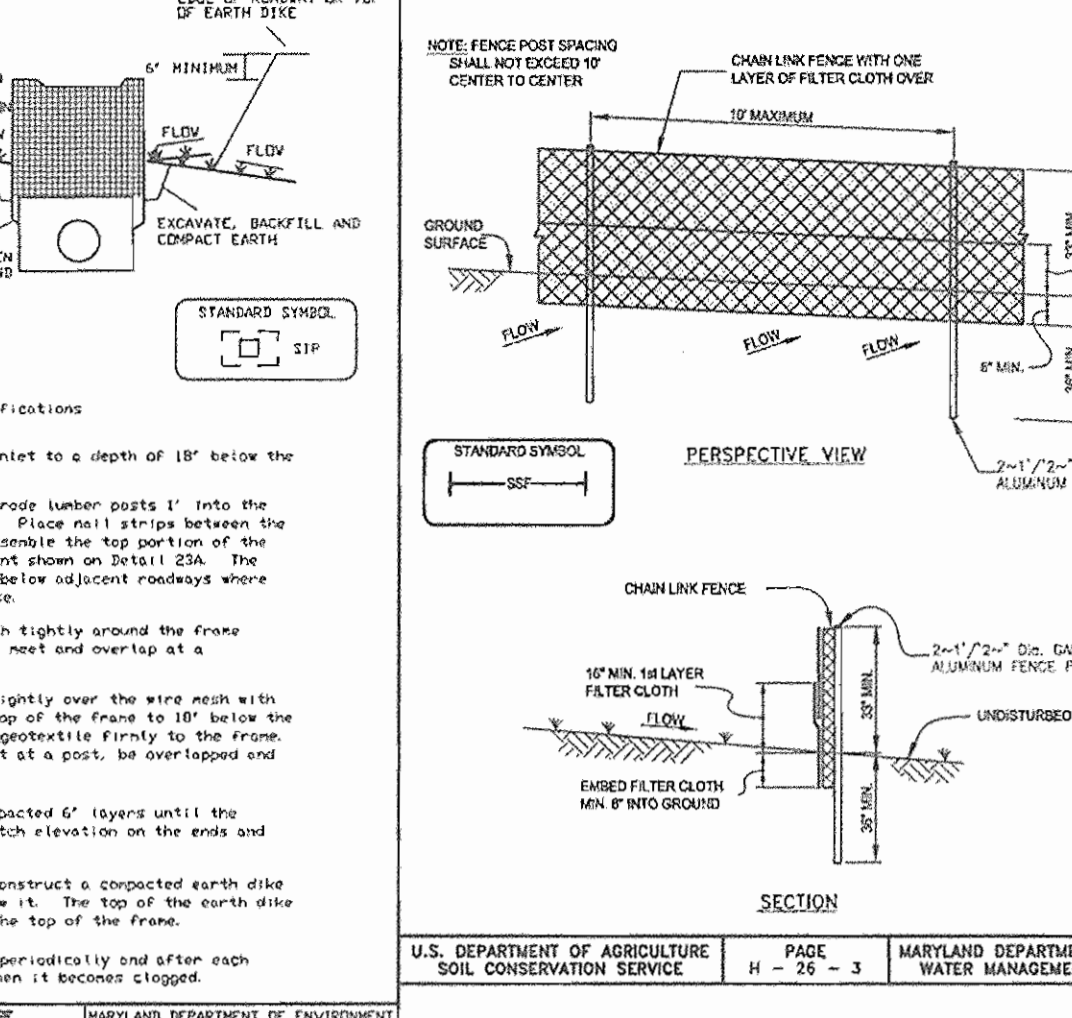
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature blocks for J. Smith-Murphy and M. D. ... with dates 4-13-07, 2/22/07, and 4/16/07.

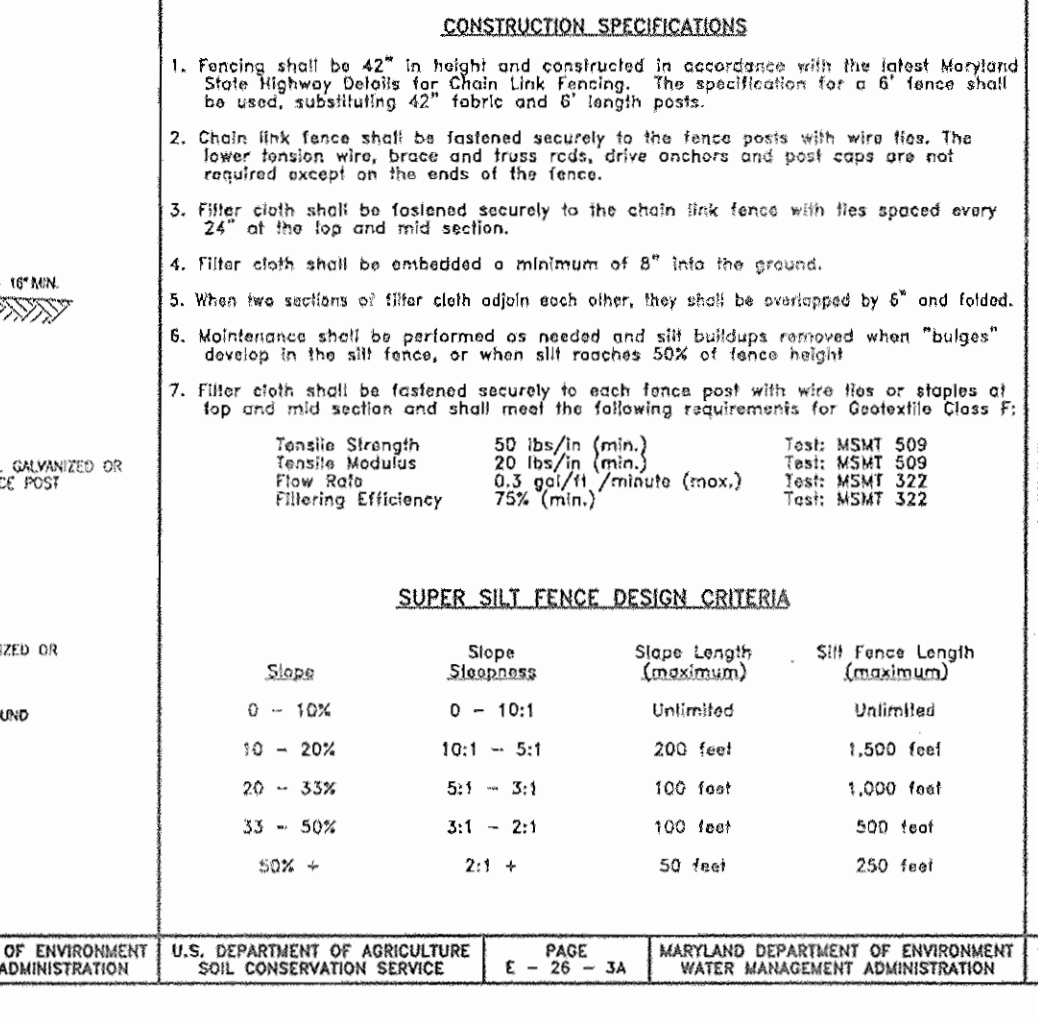
DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)



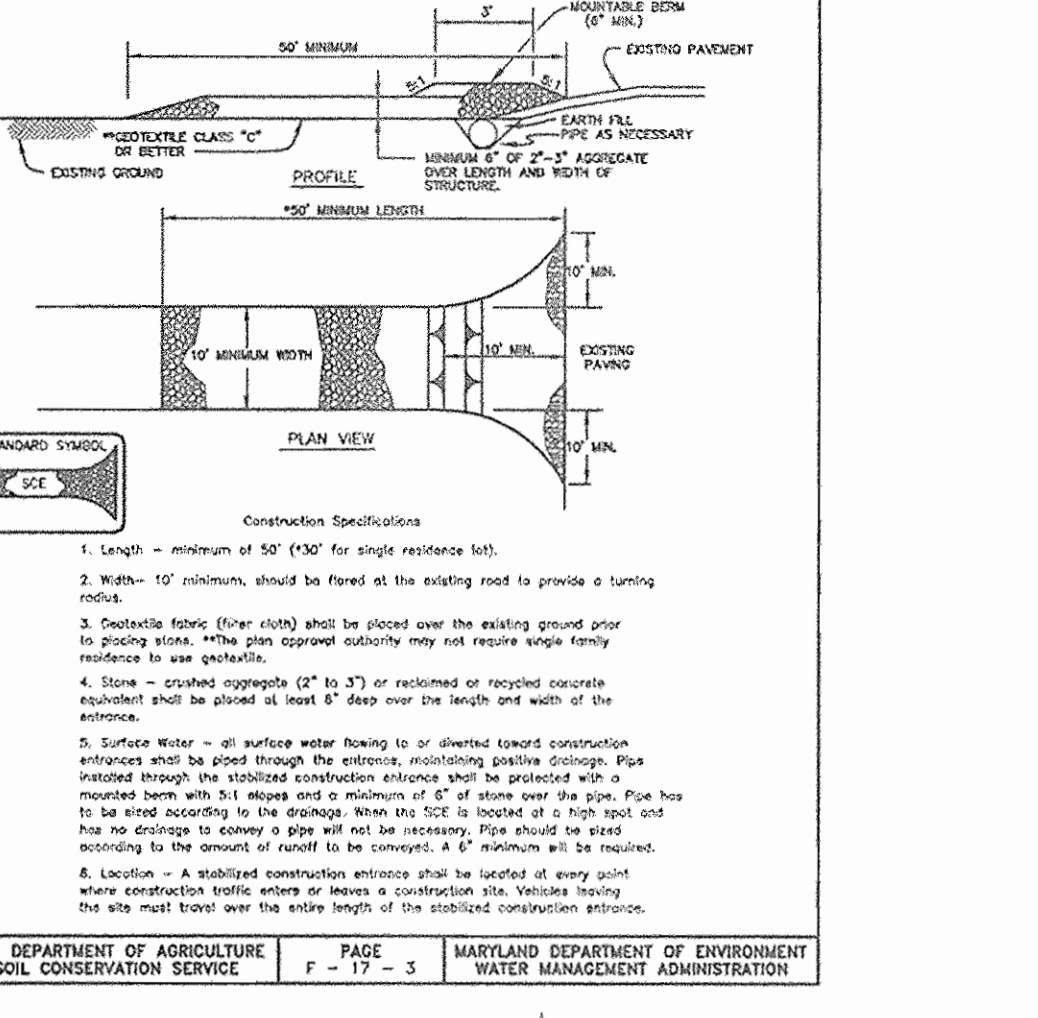
DETAIL 23A - STANDARD INLET PROTECTION



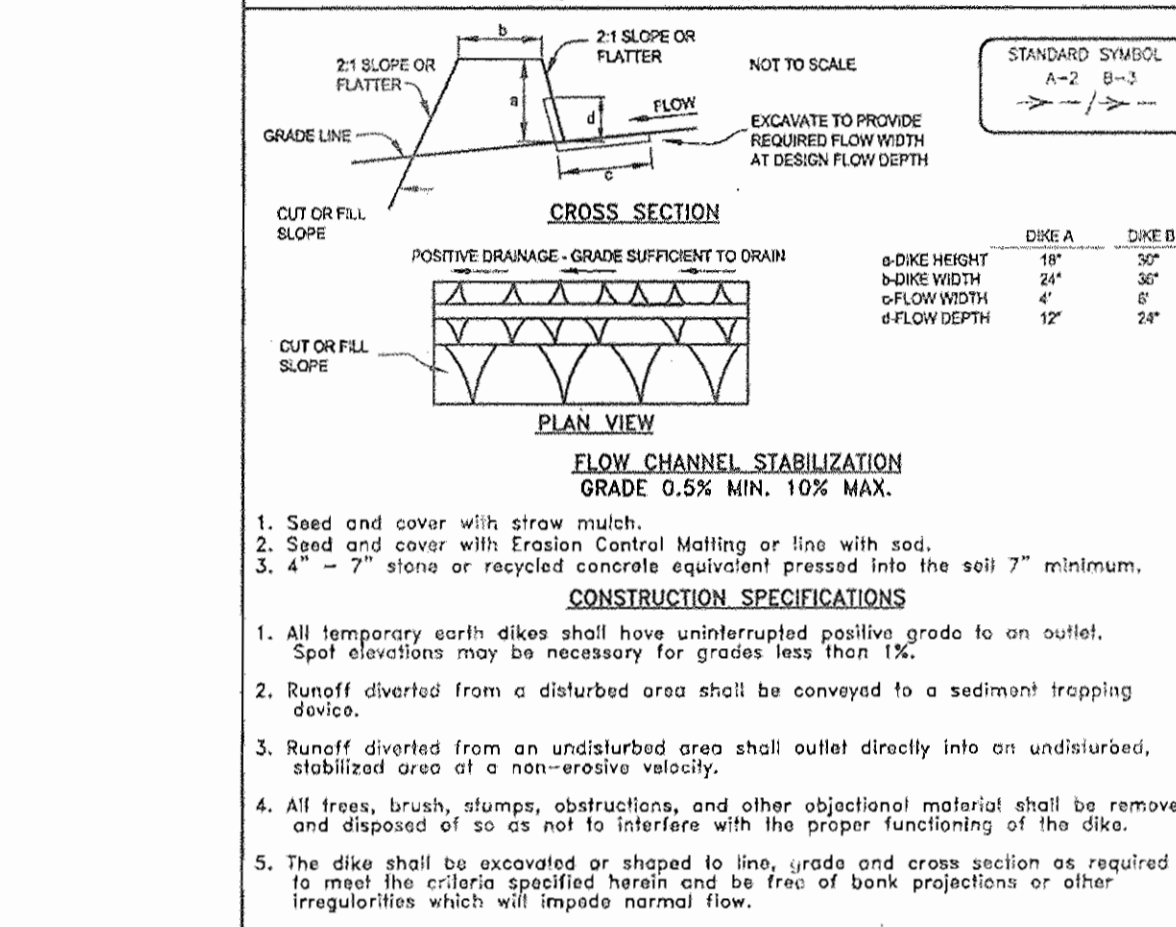
DETAIL 33 - SUPER SILT FENCE



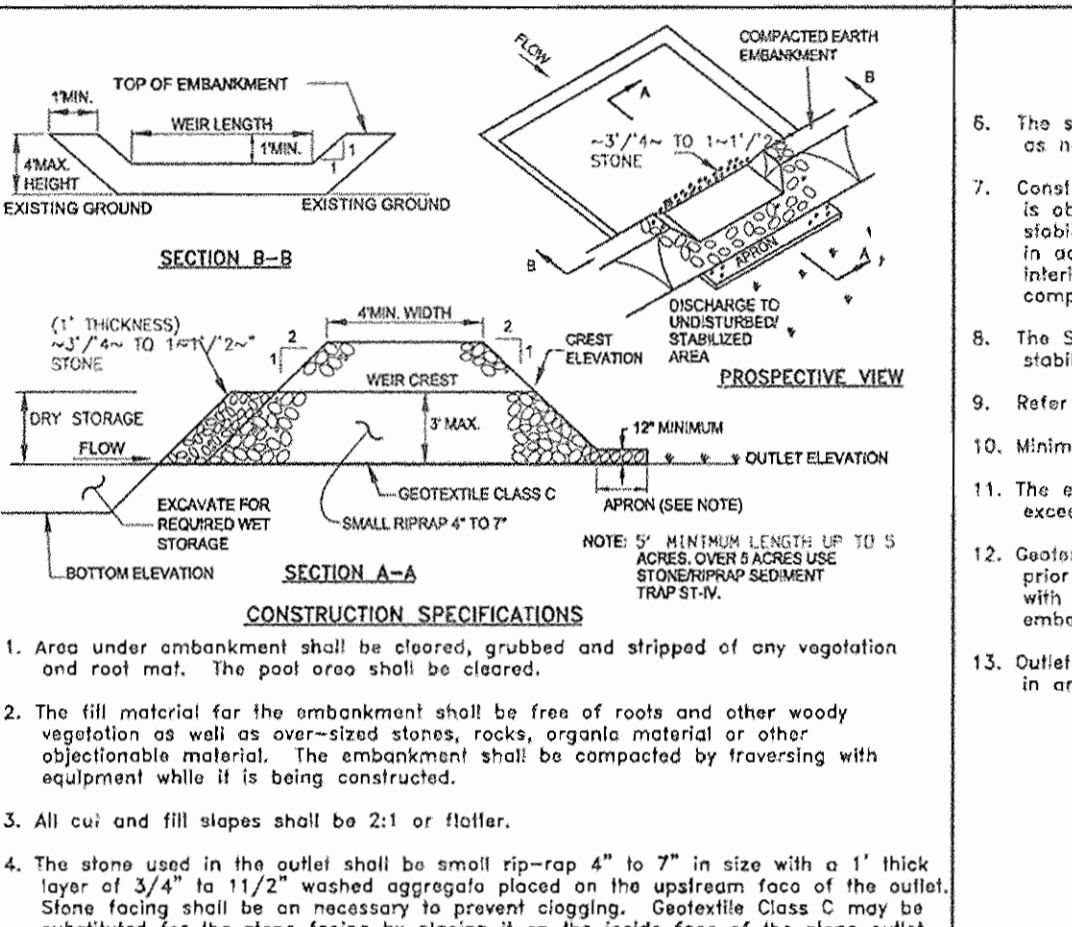
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



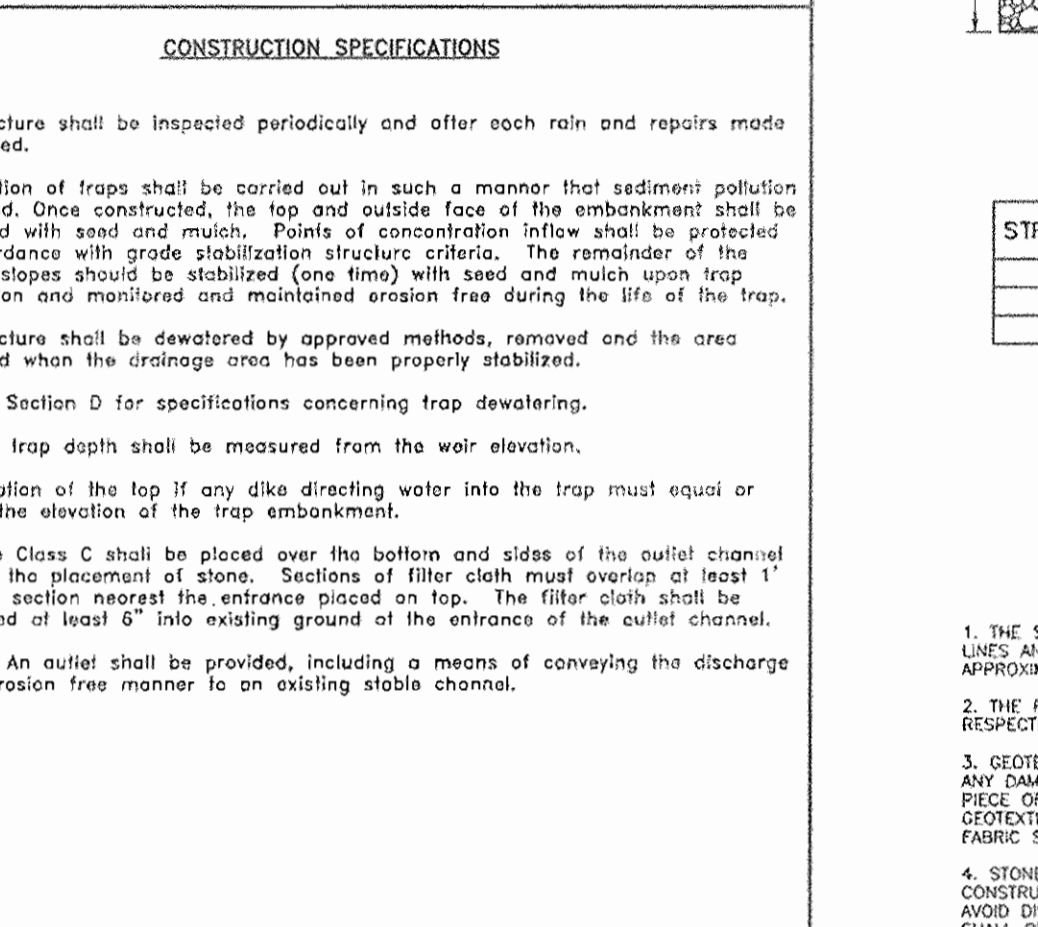
DETAIL 1 - EARTH DIKE



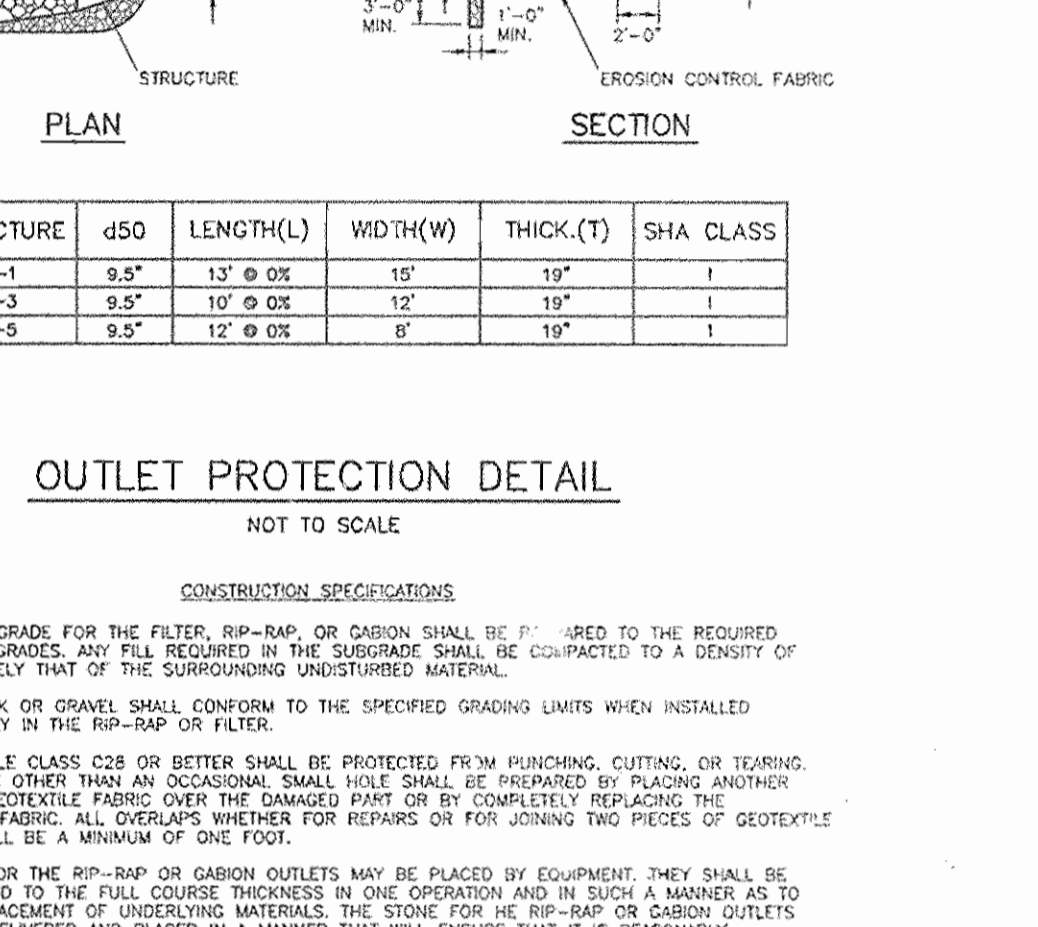
DETAIL 9 - STONE OUTLET SEDIMENT TRAP - ST II



STONE OUTLET SEDIMENT TRAP - ST II

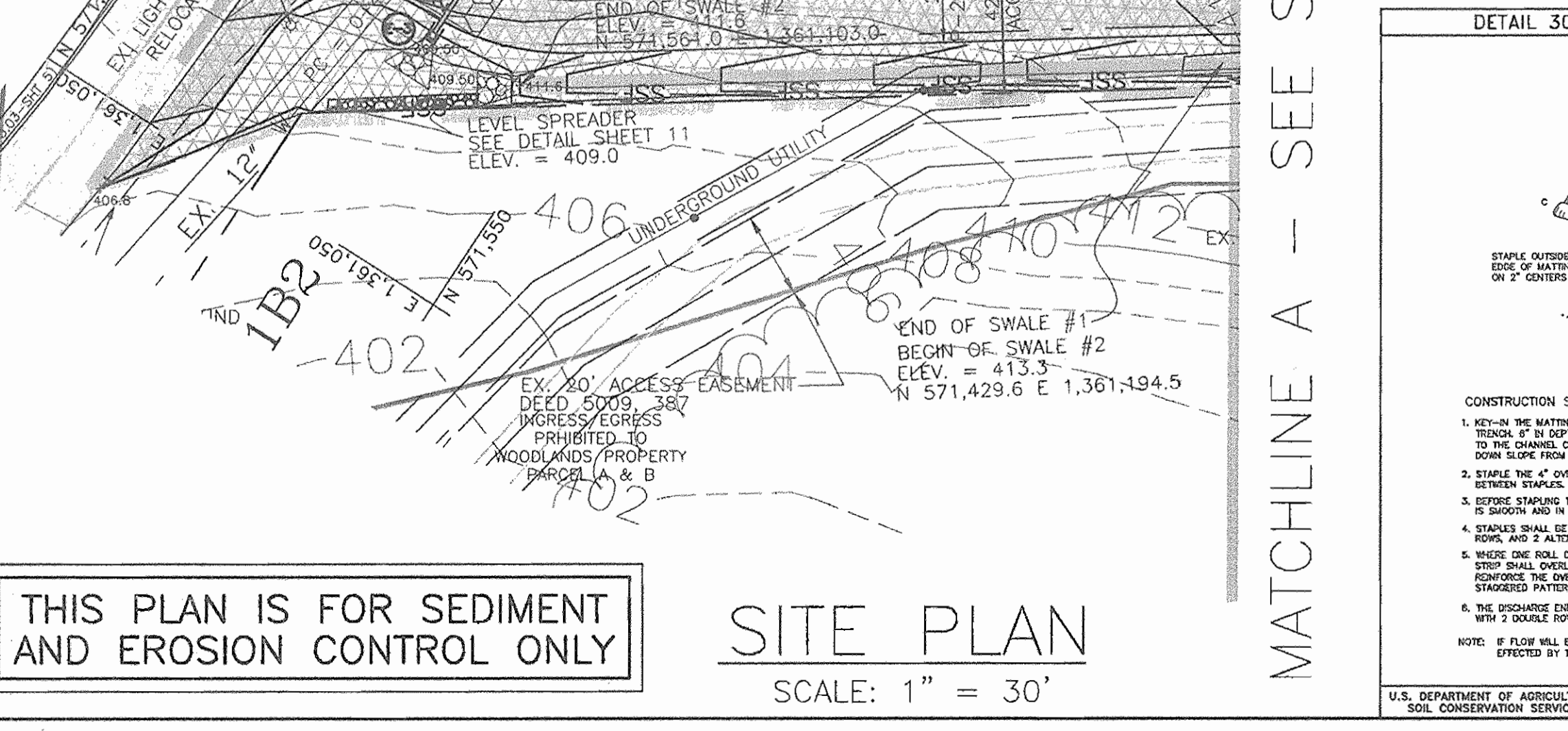


OUTLET PROTECTION DETAIL

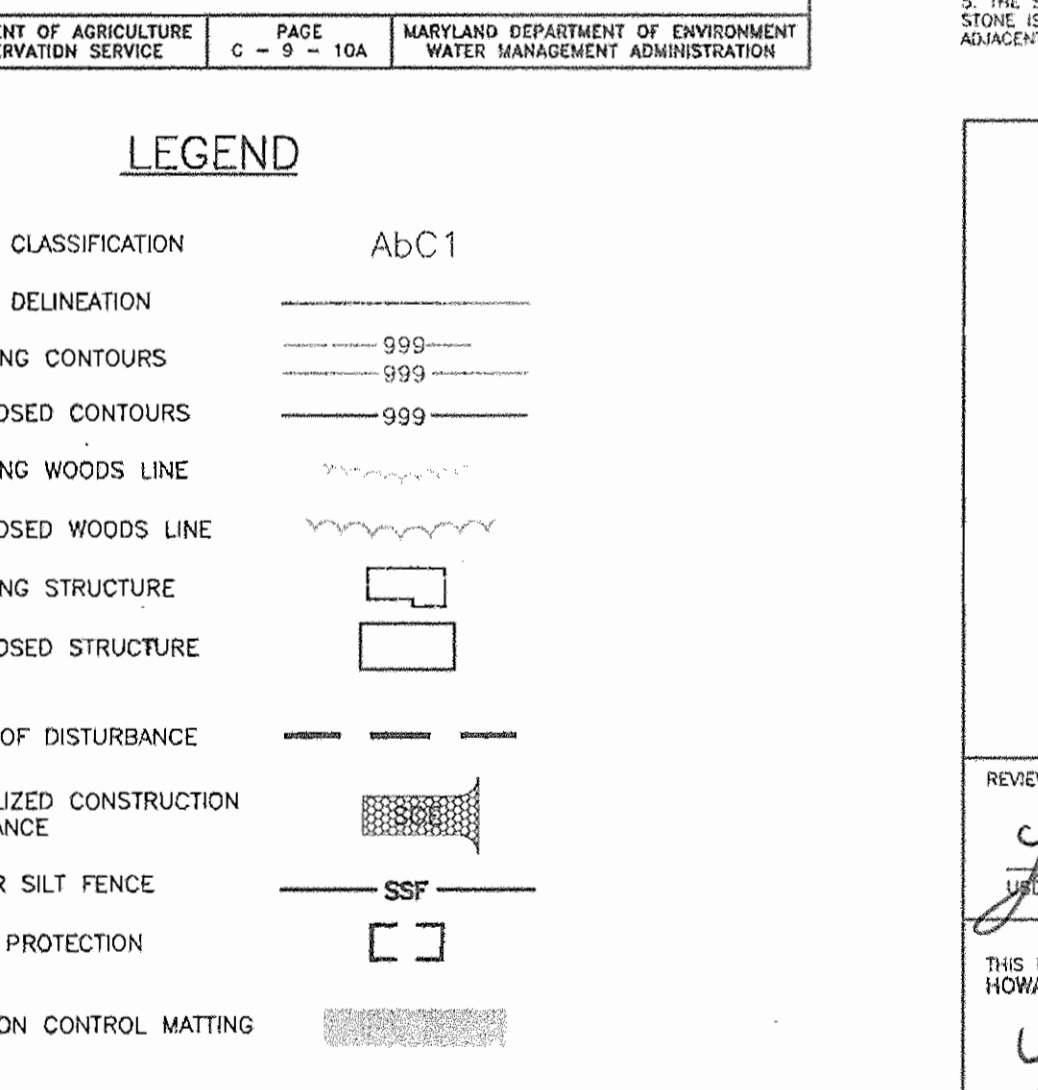


LEGEND

- SOILS CLASSIFICATION ABC1
SOILS DELINEATION
EXISTING CONTOURS
PROPOSED CONTOURS



DETAIL 30 - EROSION CONTROL MATTING



ENGINEER'S CERTIFICATE

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS...

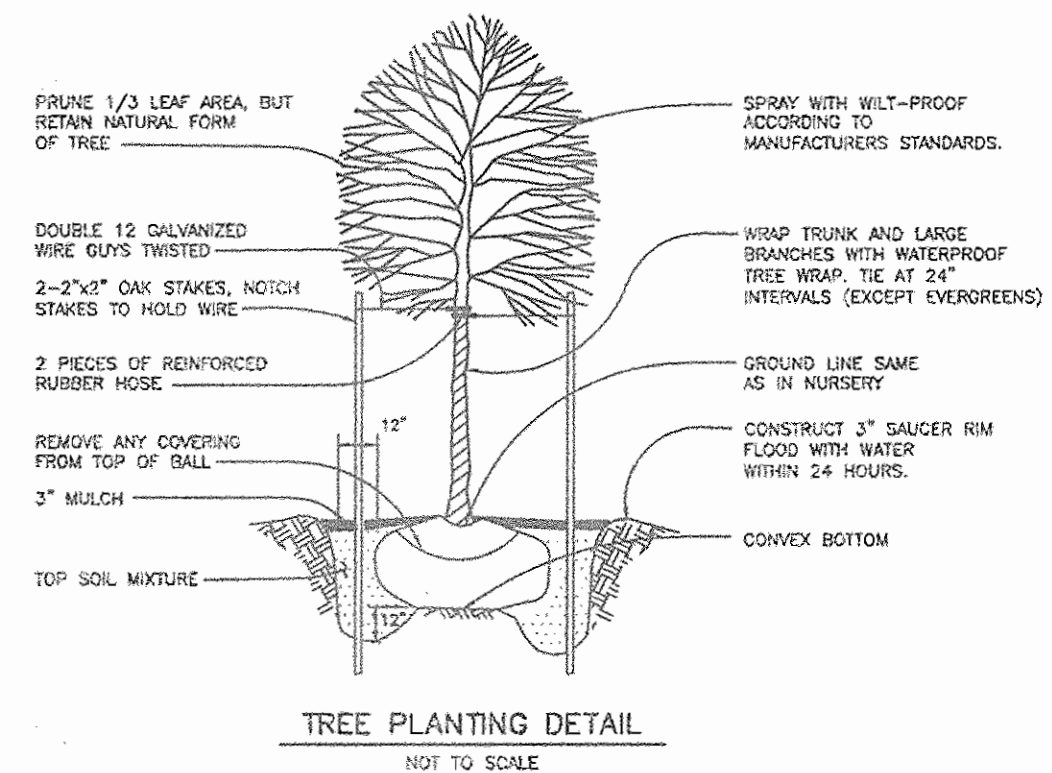
DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL...

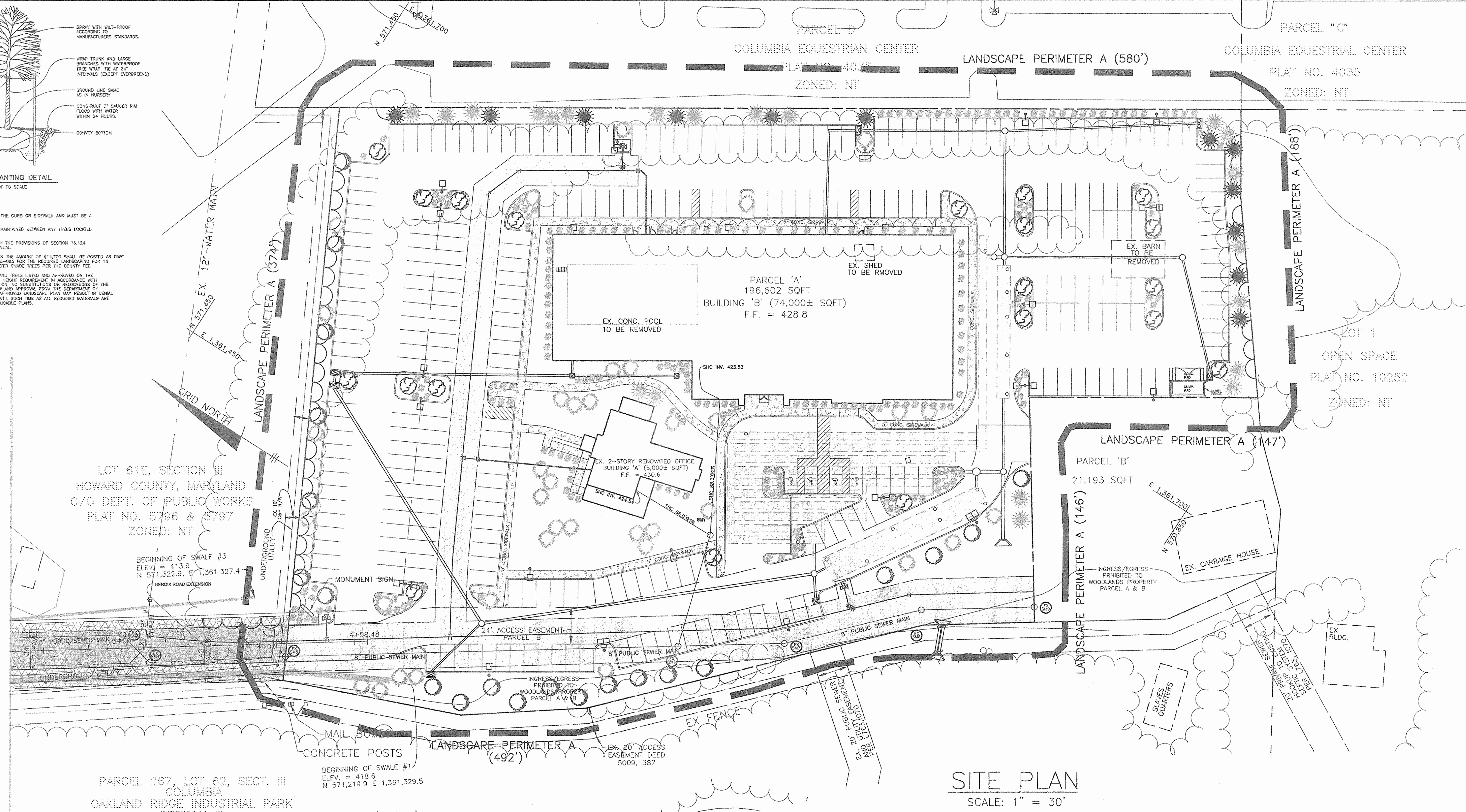
BENCHMARK ENGINEERING, INC. logo and contact information, including address and phone number.

THIS PLAN IS FOR SEDIMENT AND EROSION CONTROL ONLY. SITE PLAN SCALE: 1" = 30'

OWNER/DEVELOPER: WOODLANDS LLC. 700 KENILWORTH DRIVE TOWSON, MD 21204 410.995.0015



- LANDSCAPING NOTES:**
- 1) TREES MUST BE A MINIMUM OF FOUR (4) FEET FROM THE CURB OR SIDEWALK AND MUST BE A MINIMUM OF FIVE (5) FEET FROM ANY STORM DRAIN.
  - 2) A MINIMUM DISTANCE OF TWENTY (20) FEET MUST BE MAINTAINED BETWEEN ANY TREES LOCATED ALONG THE CURB LINE AND ANY STREET LIGHTS.
  - 3) THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL.
  - 4) FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$14,700 SHALL BE POSTED AS PART OF THE DPW DEVELOPERS AGREEMENT UNDER SDP-06-065 FOR THE REQUIRED LANDSCAPING FOR 16 INTERNAL PARKING LOT SHADE TREES AND 33 PERIMETER SHADE TREES PER THE COUNTY FEE.
  - 5) 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, SUBSTITUTIONS OR RELOCATIONS OF THE REQUIRED PLANTINGS MAY BE 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.



**SITE PLAN**  
SCALE: 1" = 30'

**SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING**

NUMBER OF PARKING SPACES:	301
NUMBER OF TREES/SHRUBS REQUIRED:	15
NUMBER OF TREES PROVIDED:	19
OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION)	-

**PARKING LOT INTERNAL PLANTING LIST**

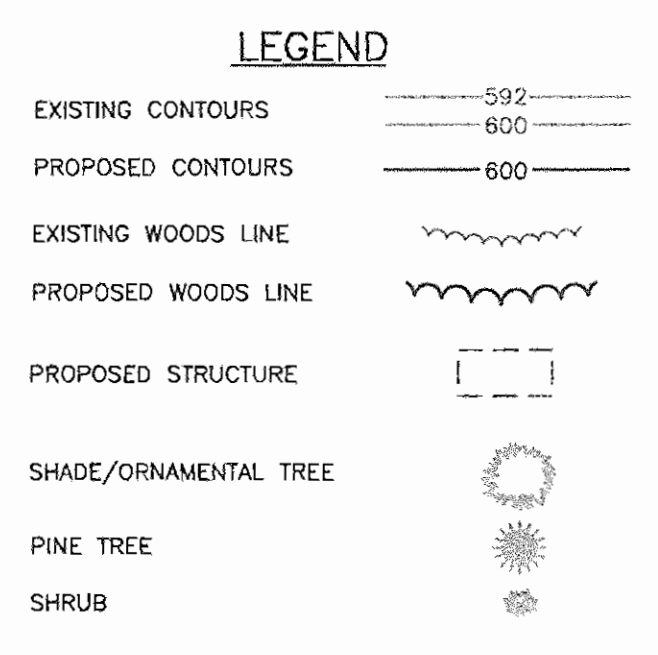
SYMBOL	QUANTITY	NAME	REMARKS
(Symbol)	21	Quercus rubra (RED OAK)	2-1/2" TO 3" CALIPER B & B FULL HEAD

**SCHEDULE A - PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAY	NO
CATEGORY	ADJACENT TO PERIMETER PROPERTIES	YES
PERIMETER NO. / LANDSCAPE TYPE		1 / A
LINEAR FEET OF ROADWAY (FRONTAGE/PERIMETER)		1922'
CREDIT FOR EXISTING VEGETATION:	NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO
CREDIT FOR WALL, FENCE OR BERM:	NO OR YES (w/LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO
NUMBER OF PLANTS REQUIRED:		
SHADE TREES	33	
EVERGREEN TREES	-	
OTHER TREES (2:1 SUBSTITUTION) SHRUBS	-	
NUMBER OF PLANTS PROVIDED:		
SHADE TREES	33	
EVERGREEN TREES	-	
OTHER TREES (2:1 SUBSTITUTION) SHRUBS (10:1 SUBSTITUTION) (DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)	-	

**PERIMETER PLANTING LIST**

SYMBOL	QUANTITY	NAME	REMARKS
(Symbol)	32	Quercus rubra (RED OAK)	2-1/2" TO 3" CALIPER B & B FULL HEAD



NOTE: THE LIGHT SHADED LANDSCAPING SHOWN ON THIS PLAN IS A CONCEPTUAL LAYOUT OF THE LANDSCAPING TO BE PROVIDED ABOVE AND BEYOND THAT WHICH IS REQUIRED BY HOWARD COUNTY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

T. Kristin-M...  
CHIEF, DIVISION OF LAND DEVELOPMENT

4-13-07  
DATE

2/26/07  
DATE

4/12/07  
DATE

D. P...  
DIRECTOR

**DEVELOPER'S/BUILDER'S CERTIFICATE**

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

D. P...  
DEVELOPER

18 JAN 07  
DATE

**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

8480 BALTIMORE NATIONAL PIKE A SUITE 418  
ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
www.bei-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC.  
700 KENILWORTH DRIVE  
TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY  
PARCEL 'A'  
PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30  
PARCEL 345 - GRID 11  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN  
LANDSCAPE PLAN

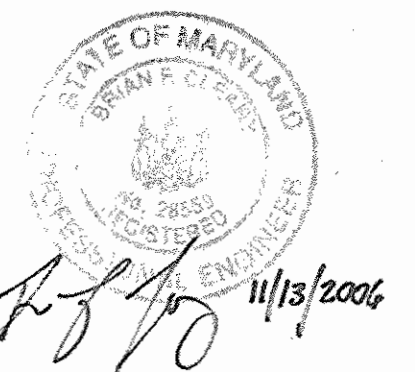
DATE: OCTOBER 2005  
Nov 2006

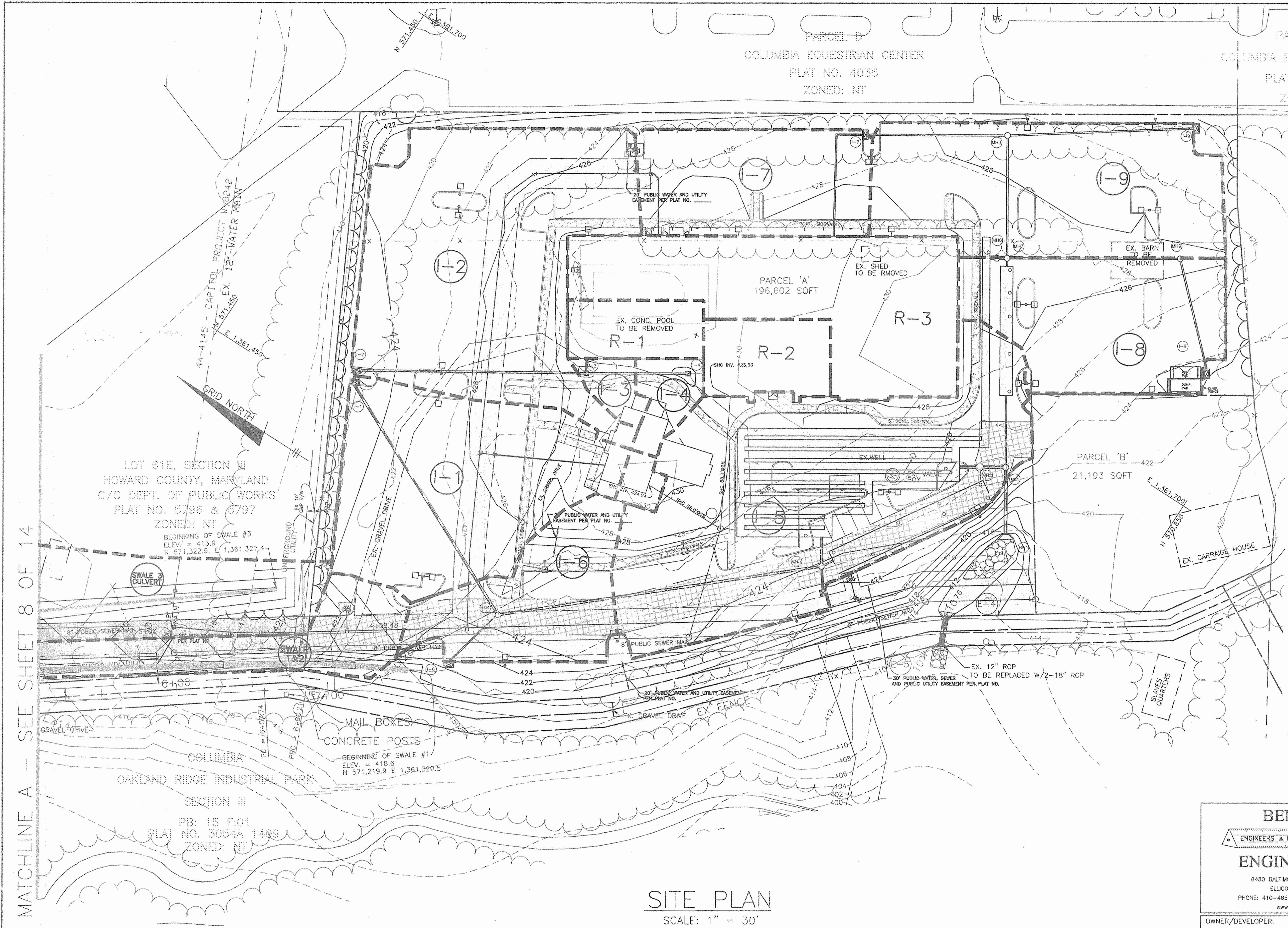
PROJECT NO. 1806

SCALE: 1" = 30'

DRAWING 6 OF 14

Design: BFC Draft: BFC Check: DAM





**LEGEND**

- EXISTING CONTOURS ——— 592
- PROPOSED CONTOURS ——— 600
- EXISTING WOODS LINE ———
- PROPOSED WOODS LINE ———
- PROPOSED STRUCTURE [ ]

**STORM DRAINAGE AREA DATA**

NOTE: B SOIL TYPE ONLY

- (I-1) AREA = 0.47 AC (I-1) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-2) AREA = 0.64 AC (I-2) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-3) AREA = 0.03 AC (I-3) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-4) AREA = 0.05 AC (I-4) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-5) AREA = 0.77 AC (I-5) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-6) AREA = 0.22 AC (I-6) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-7) AREA = 0.26 AC (I-7) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-8) AREA = 0.46 AC (I-8) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (I-9) AREA = 0.31 AC (I-9) ZONE = POR  
"C" FACTOR = 0.72 IMPERVIOUS = 85%
- (R-1) AREA = 0.08 AC (R-1) ZONE = POR  
"C" FACTOR = 0.85 IMPERVIOUS = 100%
- (R-2) AREA = 0.10 AC (R-2) ZONE = POR  
"C" FACTOR = 0.85 IMPERVIOUS = 100%
- (R-3) AREA = 0.38 AC (R-3) ZONE = POR  
"C" FACTOR = 0.85 IMPERVIOUS = 100%
- (SWALE 1&2) AREA = 0.64 AC (SWALE 1&2) ZONE = POR/NT  
"C" FACTOR = 0.64 IMPERVIOUS = 68%
- (CULVERT SWALE 3) AREA = 0.49 AC (CULVERT SWALE 3) ZONE = POR/NT  
"C" FACTOR = 0.39 IMPERVIOUS = 37%

MATCHLINE A - SEE SHEET 8 OF 14

LOT 61E, SECTION III  
HOWARD COUNTY, MARYLAND  
C/O DEPT. OF PUBLIC WORKS  
PLAT NO. 5786 & 5797  
ZONED: NT

BEGINNING OF SWALE #3  
ELEV. = 413.9  
N 571.322.9, E 1,361.327.4

MAIL BOXES  
CONCRETE POSTS

BEGINNING OF SWALE #1  
ELEV. = 418.6  
N 571.219.9, E 1,361.329.5

SECTION III  
PB: 15 F01  
PLAT NO. 3054A 1449  
ZONED: NT


**SITE PLAN**  
SCALE: 1" = 30'

MAP SYMBOL	SOIL GROUP	SOIL TYPE
EnA	B	ELNSBORO LOAM, 0 TO 3% SLOPES
GIB2	B	GLENELG LOAM 3 TO 8% SLOPED, MODERATELY ERODED
MIC2	B	MANOR LOAM, 8 TO 15% SLOPES, MODERATELY ERODED

**BENCHMARK**  
ENGINEERS & LAND SURVEYORS & PLANNERS

**ENGINEERING, INC.**

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ELLCOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
www.bei-civilengineering.com



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*J. Keith-Markham* 4-13-07  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 2/20/05  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 4/16/05  
DIRECTOR DATE

OWNER/DEVELOPER: WOODLANDS LLC  
700 KENILWORTH DRIVE  
TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY  
PARCEL 'A'  
PROFESSIONAL OFFICE DEVELOPMENT

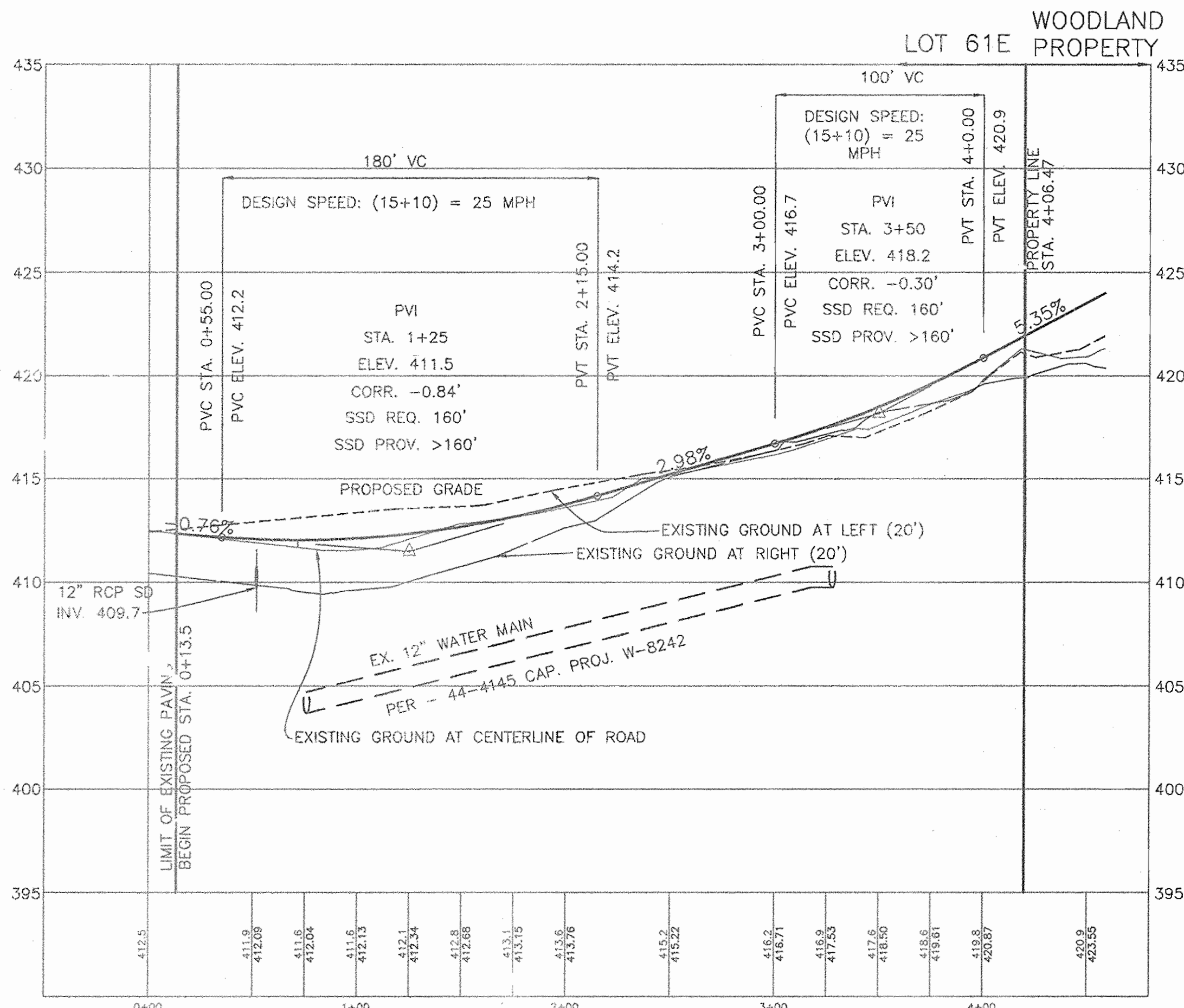
LOCATION: TAX MAP 30  
PARCEL 346 - GRID 11  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN  
STORM DRAINAGE AREA MAP

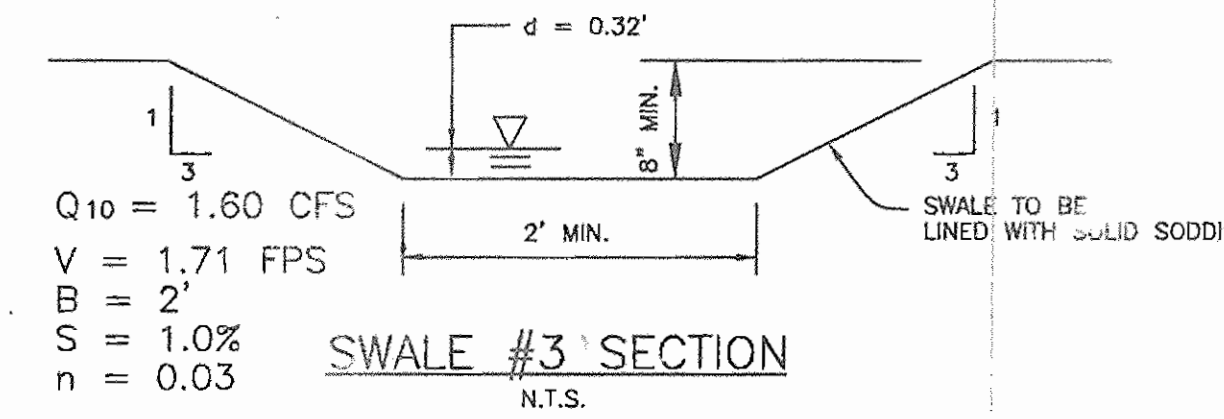
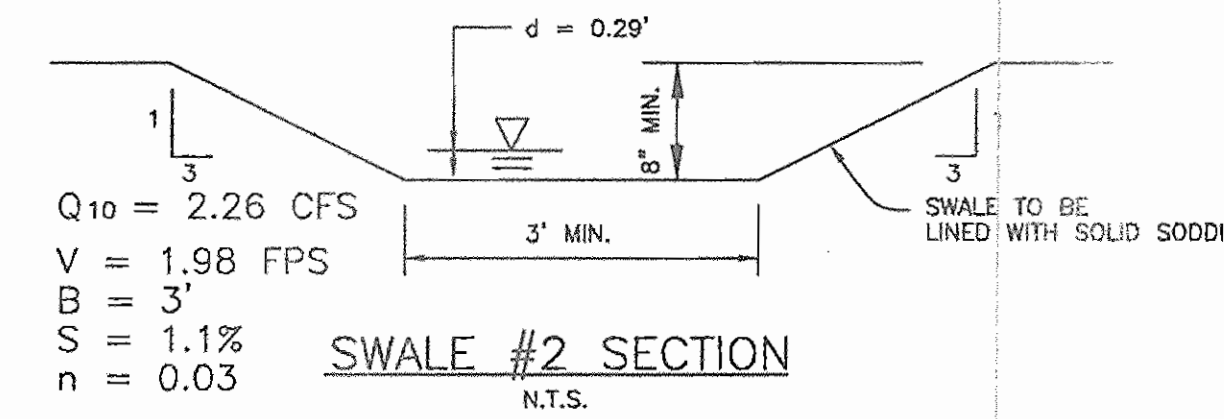
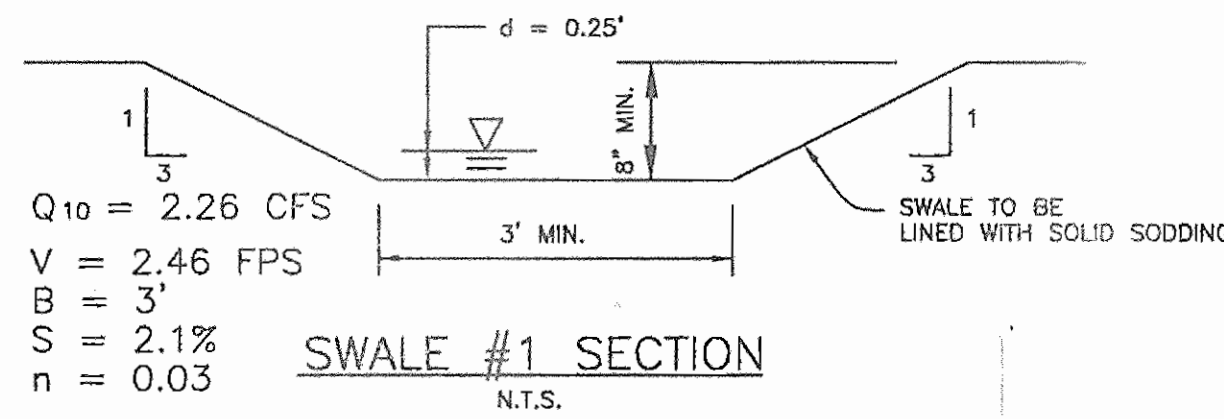
DATE: OCTOBER 2005  
Nov. 2005 PROJECT NO. 1806

SCALE: 1" = 30' DRAWING 7 OF 14

Design: BFC Draft: BFC Check: DAM

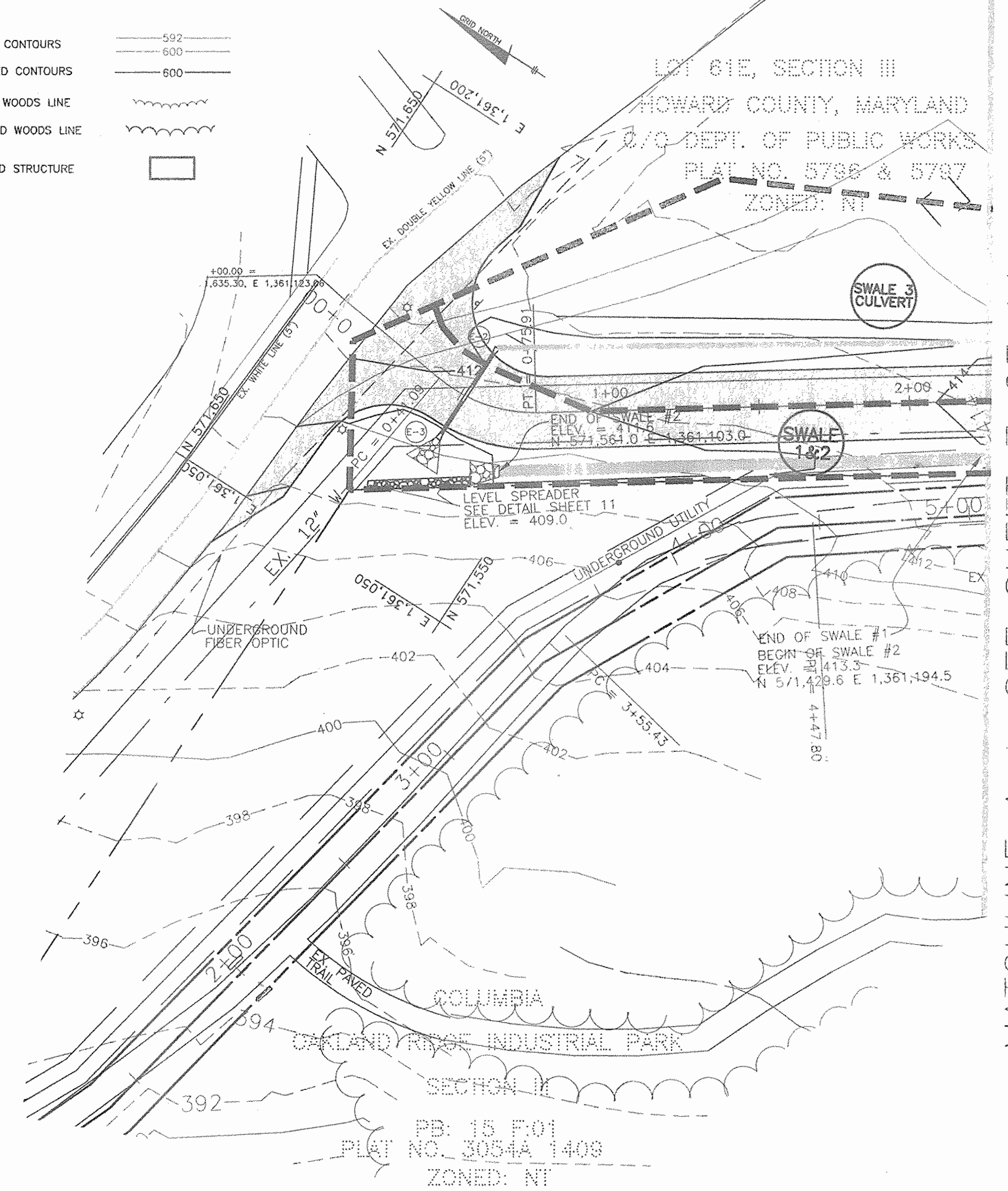


**BENDIX ROAD EXTENSION**  
SCALE: 1"=50' HORIZ., 1"=5' VERT.

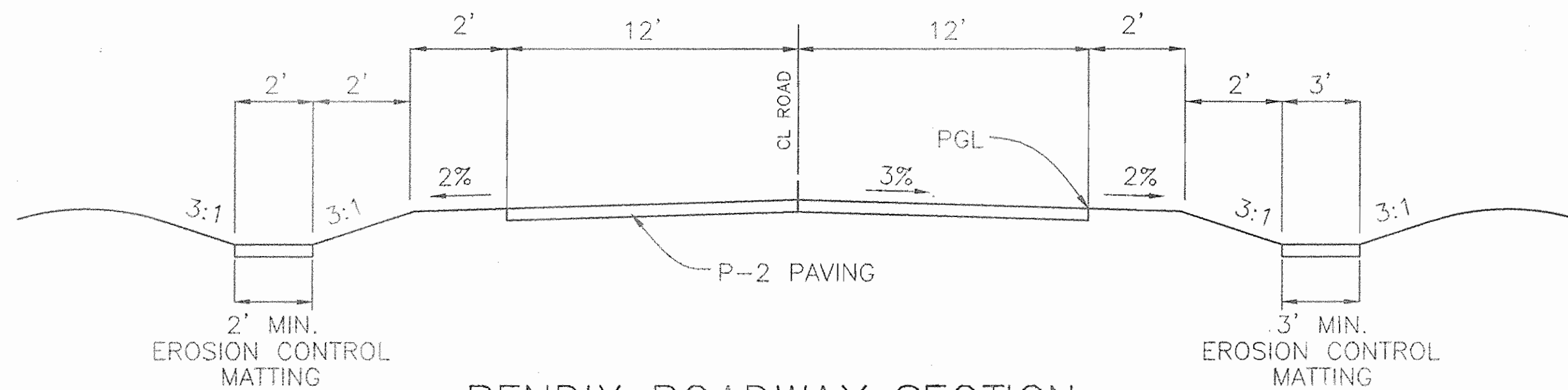


**LEGEND**

- EXISTING CONTOURS
- PROPOSED CONTOURS
- EXISTING WOODS LINE
- PROPOSED WOODS LINE
- PROPOSED STRUCTURE



**SITE PLAN**  
SCALE: 1" = 30'



**BENDIX ROADWAY SECTION**  
DESIGN SPEED: (10+5)=15 MPH  
STATIONING ALONG CENTER LINE OF ACCESS DRIVE  
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

T. Krebs-Mannhold for C. Hamstra  
CHIEF, DIVISION OF LAND DEVELOPMENT

4-13-07  
DATE

2/2/07  
DATE

4/10/07  
DATE

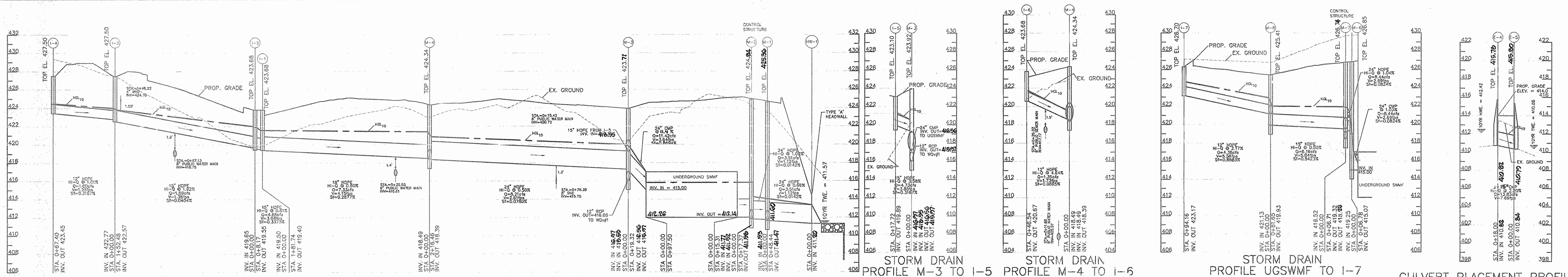
CHIEF, DEVELOPMENT ENGINEERING DIVISION

DIRECTOR

<p align="center"><b>BENCHMARK</b></p> <p align="center">ENGINEERS &amp; LAND SURVEYORS &amp; PLANNERS</p> <p align="center"><b>ENGINEERING, INC.</b></p> <p align="center">8480 BALTIMORE NATIONAL PIKE &amp; SUITE 418 ELLICOTT CITY, MARYLAND 21043 PHONE: 410-465-6105 FAX: 410-465-6644 www.bei-civilengineering.com</p>		
<p>OWNER/DEVELOPER:</p> <p align="center">WOODLANDS LLC 700 KENILWORTH DRIVE TOWSON, MD 21204 410.995.0015</p>	<p>PROJECT: WOODLANDS PROPERTY PARCEL 'A' PROFESSIONAL OFFICE DEVELOPMENT</p> <p>LOCATION: TAX MAP 30 PARCEL 346 - GRID 11 2nd ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> <p>TITLE: ACCESS ROAD PROFILE, DETAILS AND STORM DRAINAGE MAP</p> <p>DATE: OCTOBER 2005 Nov. 2006</p> <p>PROJECT NO. 1806</p> <p>SCALE: AS SHOWN</p> <p>DRAWING 8 OF 14</p>	

MATCHLINE A - SEE SHEET 7 OF 14





STORM DRAIN PROFILE HW-1 TO I-4  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

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

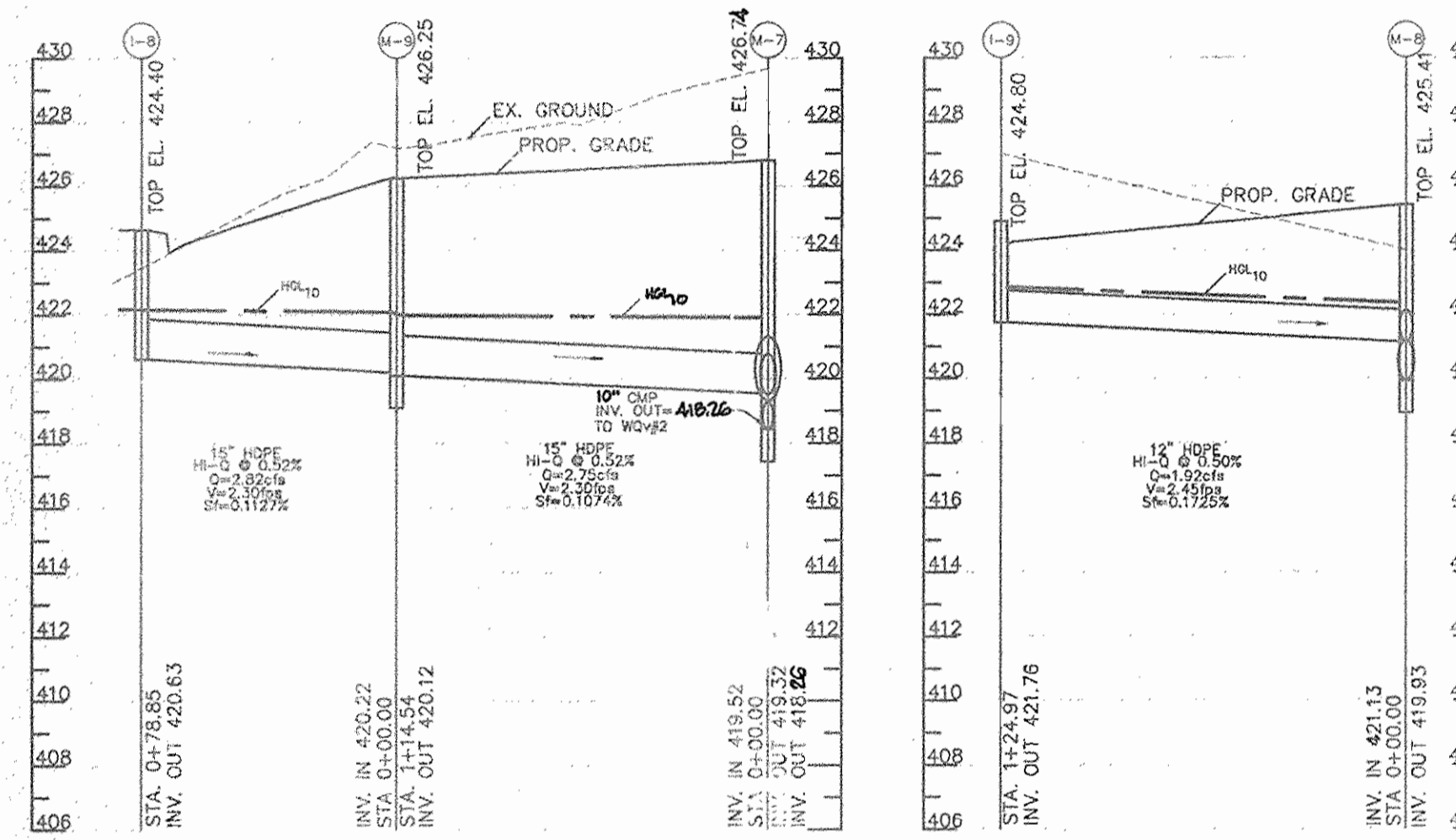
STORM DRAIN PROFILE M-4 TO I-6  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

STORM DRAIN PROFILE UGSWMF TO I-7  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

CULVERT PLACEMENT PROFILE  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

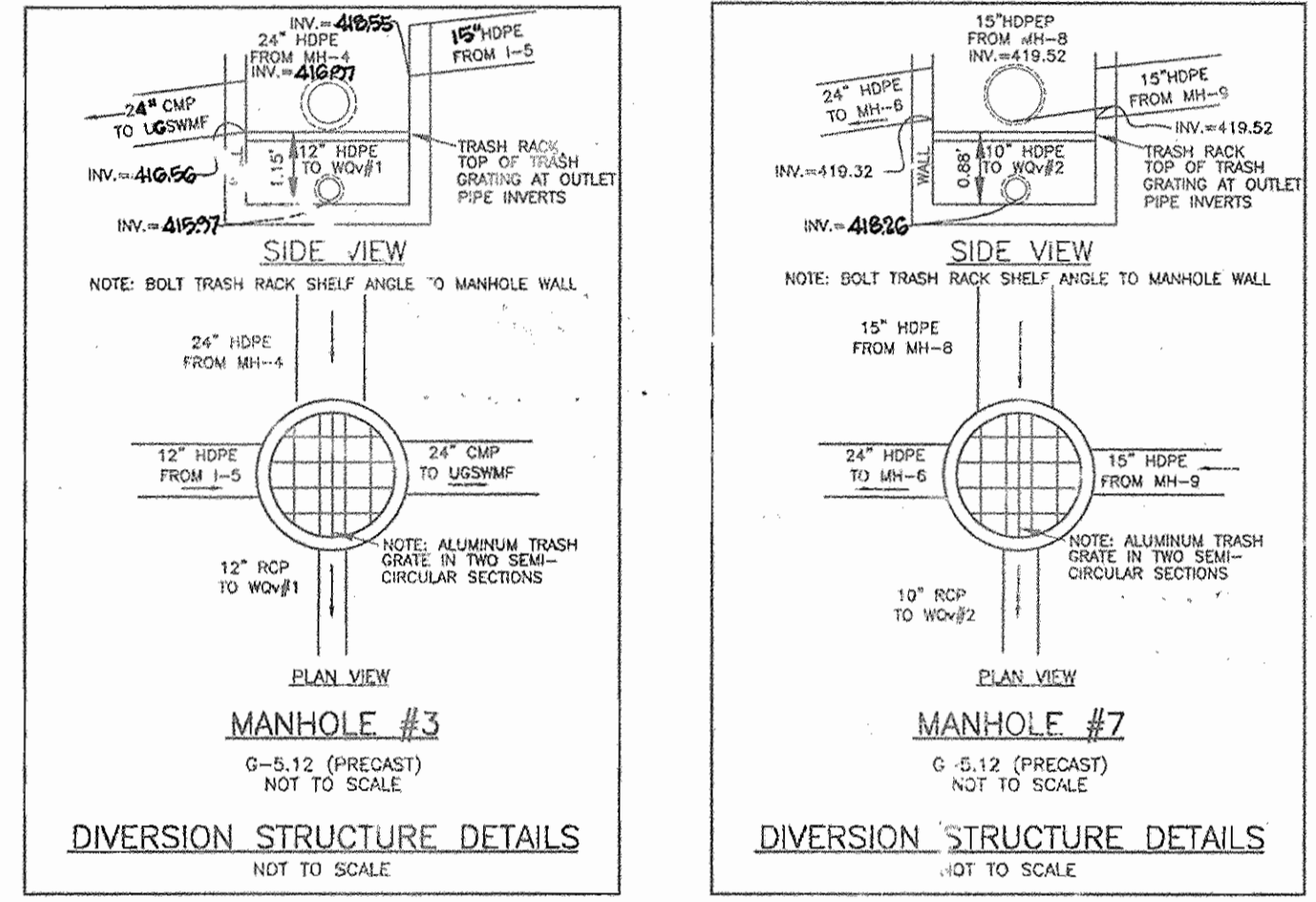
STRUCTURE SCHEDULE										
NO.	TYPE	LOCATION	THROAT INV.	INVERT IN	INVERT OUT	TOP ELEV.	HO. CO. STD.	REMARKS		
I-1	TYPE "A"-5"	N 571,353.99 E 1,361,468.94	419.50	419.40	419.40	423.68	Ho.Co.Std. SD-4.01/4.40	INTERIOR WIDTH = 2.5'		
I-2	TYPE "A"-5"	N 571,359.52 E 1,361,479.99	419.65	419.55	419.55	423.68	Ho.Co.Std. SD-4.01/4.40	INTERIOR WIDTH = 2.5'		
I-3	YARD INLET	N 571,229.54 E 1,361,558.98	422.77	422.57	422.57	427.50	Ho.Co.Std. SD-4.14	YARD INLET		
I-4	YARD INLET	N 571,172.88 E 1,361,595.48	423.45	423.45	423.45	427.50	Ho.Co.Std. SD-4.14	YARD INLET		
I-5	TYPE "S"	N 571,018.18 E 1,361,521.88	419.89	419.89	423.10	423.10	Ho.Co.Std. SD-4.22			
I-6	TYPE "A"-5"	N 571,201.05 E 1,361,348.63	420.67	420.67	423.68	423.68	Ho.Co.Std. SD-4.01/4.40	INTERIOR WIDTH = 2.5'		
I-7	TYPE "A"-5"	N 571,163.24 E 1,361,792.03	423.17	423.17	426.70	426.70	Ho.Co.Std. SD-4.01/4.40	INTERIOR WIDTH = 2.5'		
I-8	TYPE "A"-5"	N 570,886.84 E 1,361,780.94	420.63	420.63	424.40	424.40	Ho.Co.Std. SD-4.01/4.40	INTERIOR WIDTH = 2.5'		
I-9	TYPE "A"-5"	N 570,981.69 E 1,361,914.52	421.76	421.76	424.80	424.80	Ho.Co.Std. SD-4.01/4.40	INTERIOR WIDTH = 2.5'		
MH-1	TYPE "A" HEADWALL	N 570,962.50 E 1,361,157.69	411.59, 411.60	411.47	425.30	425.30	Ho.Co.Std. G-5.12			
MH-2	CONTROL STRUCTURE	N 570,977.10 E 1,361,648.28	411.52, 411.77	411.50	424.04	424.04	SEE DETAIL SHEET 12			
MH-3	DIVERSION STRUCTURE	N 571,028.70 E 1,361,536.15	410.55, 410.97	410.50, 410.97	423.71	423.71	SEE DETAILS OPEN 2 SIDES			
MH-4	DIVERSION STRUCTURE	N 571,190.74 E 1,361,392.62	418.49	418.39	424.34	424.34	SEE DETAILS OPEN 2 SIDES			
MH-5	DIVERSION STRUCTURE	N 57,043.67 E 1,361,771.31	419.25	415.07	426.85	426.85	SEE DETAILS OPEN 2 SIDES			
MH-6	DIVERSION STRUCTURE	N 571,038.03 E 1,361,774.95	419.52, 419.52	418.26, 419.32	426.79	426.79	SEE DETAILS OPEN 2 SIDES			
MH-7	DIVERSION STRUCTURE	N 571,082.25 E 1,361,843.59	421.13, 421.13	419.93	425.41	425.41	SEE DETAILS OPEN 2 SIDES			
MH-8	DIVERSION STRUCTURE	N 570,941.74 E 1,361,836.97	420.22	420.12	426.25	426.25	SEE DETAILS OPEN 2 SIDES			
HW-1	TYPE "A" HEADWALL	N 570,938.26 E 1,361,620.08	411.20	411.20	425.11	425.11	DESIGN FOR 24"			
E-2	METAL END SECTION	N 571,583.92 E 1,361,137.02	409.50	409.50	409.50	409.50	DESIGN FOR 42" USING 2-18"			
E-3	METAL END SECTION	N 571,583.81 E 1,361,109.98	410.00	410.00	410.00	410.00	DESIGN FOR 42" USING 2-18"			
E-4	TYPE "A" HEADWALL	N 570,941.30 E 1,361,552.84	410.84, 410.97	410.82, 410.92	415.78	415.78	DESIGN FOR 42" USING 2-18"			
E-5	TYPE "A" HEADWALL	N 570,933.48 E 1,361,594.80	410.84, 410.97	410.82, 410.92	415.80	415.80	DESIGN FOR 42" USING 2-18"			

- STRUCTURE TOP ELEVATION AND LOCATION FOR MANHOLES IS AT THE TOP AND CENTER OF THE RIM.
- STRUCTURE TOP ELEVATION AND LOCATION FOR INLETS IS AT THE TOP, CENTER FACE OF THE INLET FOR CURB INLETS AND AT THE CENTER TOP FOR YARD INLETS.
- STRUCTURE TOP ELEVATION AND LOCATION FOR HEADWALLS IS AT THE TOP, CENTER FACE OF THE WALL.
- STRUCTURE TOP ELEVATION AND LOCATION FOR METAL END SECTION IS AT THE CENTER BOTTOM OF THE END SECTION.



STORM DRAIN PROFILE M-7 TO I-8  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

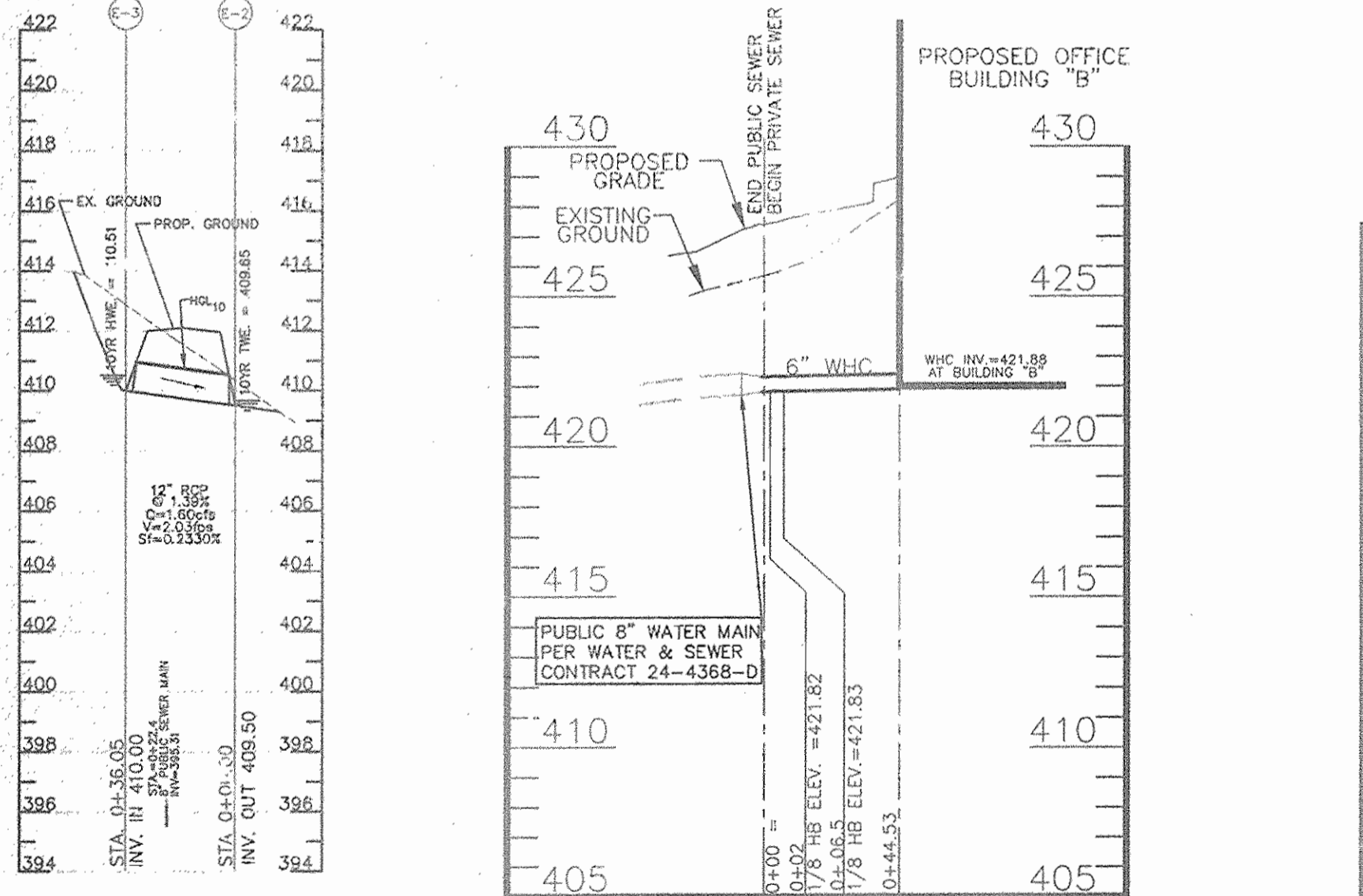
STORM DRAIN PROFILE M-8 TO I-9  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



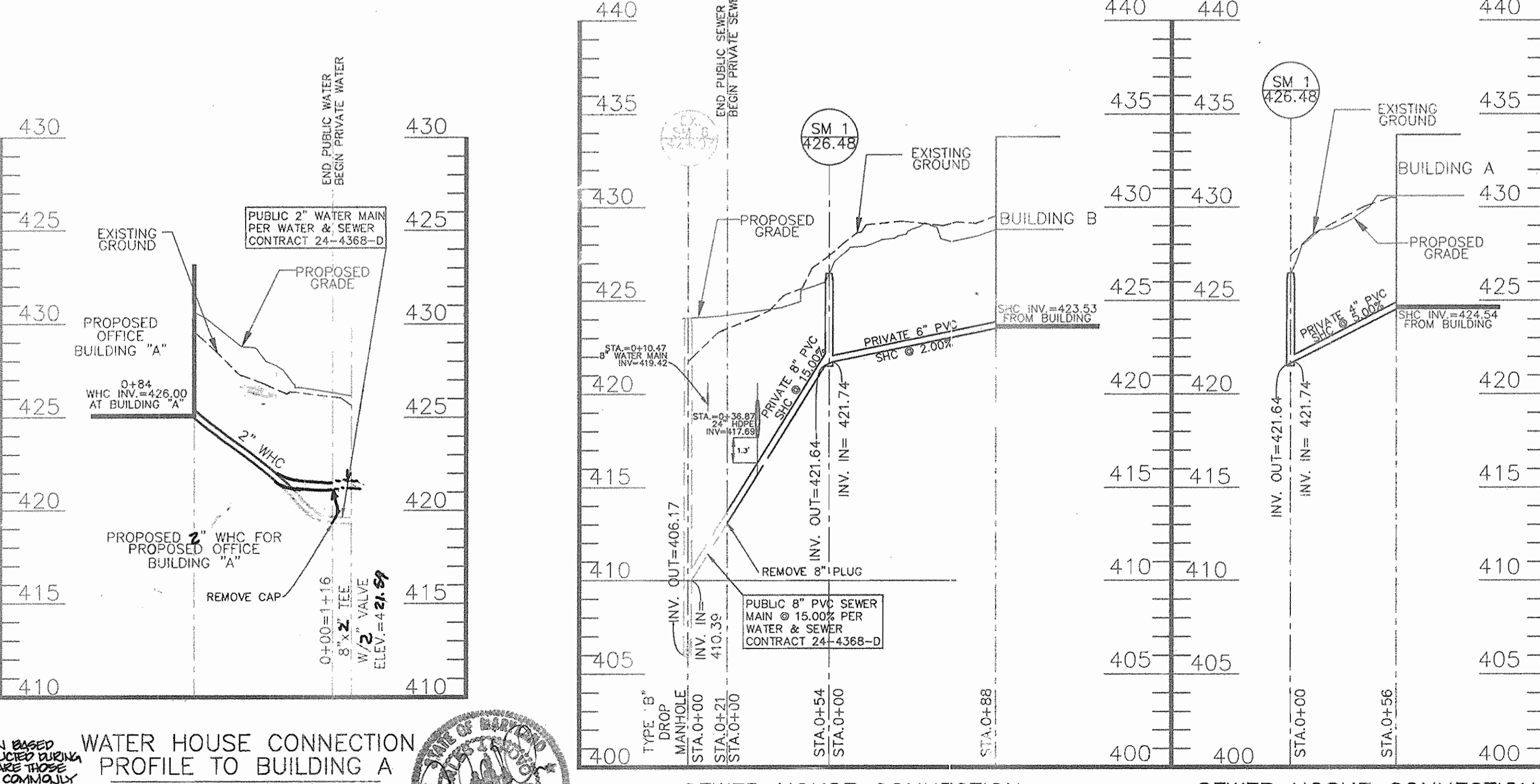
SM NO.	NORTHING	EASTING
1	571,098.50	1,361,520.57

PIPE SCHEDULE		
SIZE	LENGTH	TYPE & CLASS
12"	335'	HDPE HI-0
15"	465'	HDPE HI-0
18"	182'	HDPE HI-0
24"	315'	HDPE HI-0
24"	50'	CMP
18"	37'	RCP
10"	6'	RCP
12"	107'	RCP

QUANTITIES	
ITEMS	QUANTITIES ESTIMATED
6" WHC	45 L.F.
2" WHC	74 L.F.
1" WATER VALVE	2 EA.
6" PVC SHC	89 L.F.
4" PVC SHC	56 L.F.



PROPOSED ACCESS CULVERT PROFILE FROM WATER MAIN TO BUILDING B  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'



WATER HOUSE CONNECTION PROFILE TO BUILDING A  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

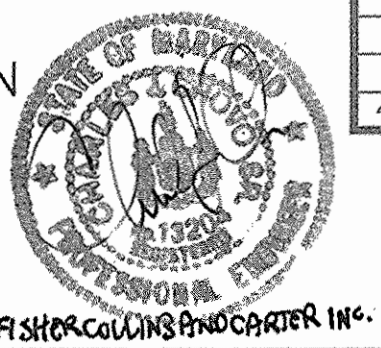
SEWER HOUSE CONNECTION PROFILE SM-5 TO BUILDING B  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

SEWER HOUSE CONNECTION PROFILE SM-3 TO BUILDING A  
HORIZONTAL SCALE: 1" = 50'  
VERTICAL SCALE: 1" = 5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Howard M. Layer*  
 DIRECTOR  
 DATE: 4/15/07

AS-BUILT CERTIFICATION  
 I HEREBY CERTIFY THAT THE FACILITY SHOWN ON THIS PLAN WAS CONSTRUCTED IN ACCORDANCE WITH THE "AS-BUILT" PLANS AND MEETS THE APPROVED PLANS AND SPECIFICATIONS.  
 DATE: 4/13/07  
 DATE: 4/16/07

WATER HOUSE CONNECTION PROFILE TO BUILDING A  
 HORIZONTAL SCALE: 1" = 50'  
 VERTICAL SCALE: 1" = 5'



**BENCHMARK ENGINEERING, INC.**  
 ENGINEERS & LAND SURVEYORS & PLANNERS  
 8490 BALTIMORE NATIONAL PIKE & SUITE 418  
 ELLICOTT CITY, MARYLAND 21043  
 PHONE: 410-485-6105 FAX: 410-485-6644  
 www.bei-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC  
 700 KENILWORTH DRIVE  
 TOWSON, MD 21204  
 410.995.0015

PROJECT: WOODLANDS PROPERTY PARCEL "A"  
 PROFESSIONAL OFFICE DEVELOPMENT

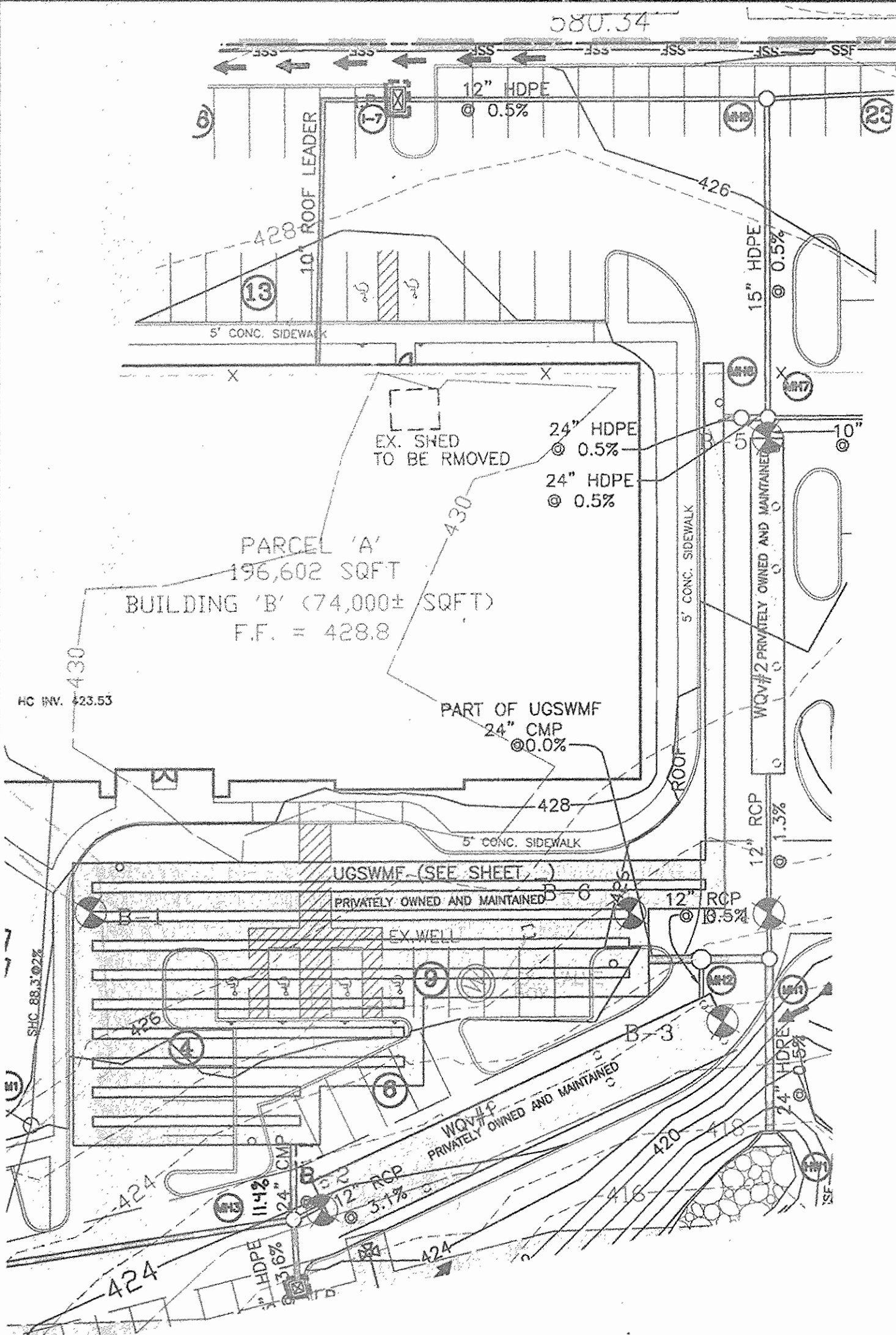
LOCATION: TAX MAP 30  
 PARCEL 346 - CRID 11  
 2nd ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: STORM DRAIN, WHC, SHC PROFILES SCHEDULES AND DETAILS

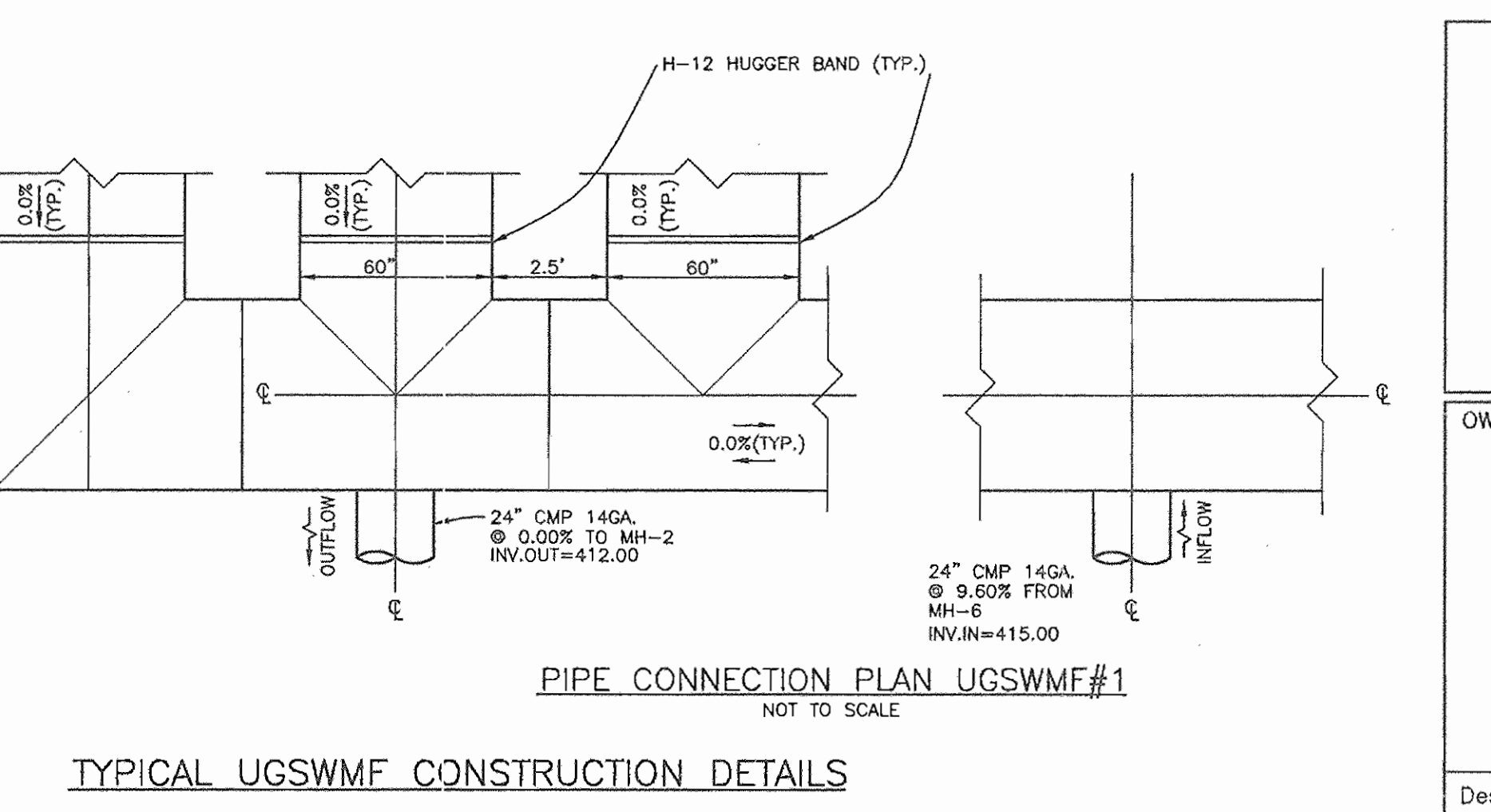
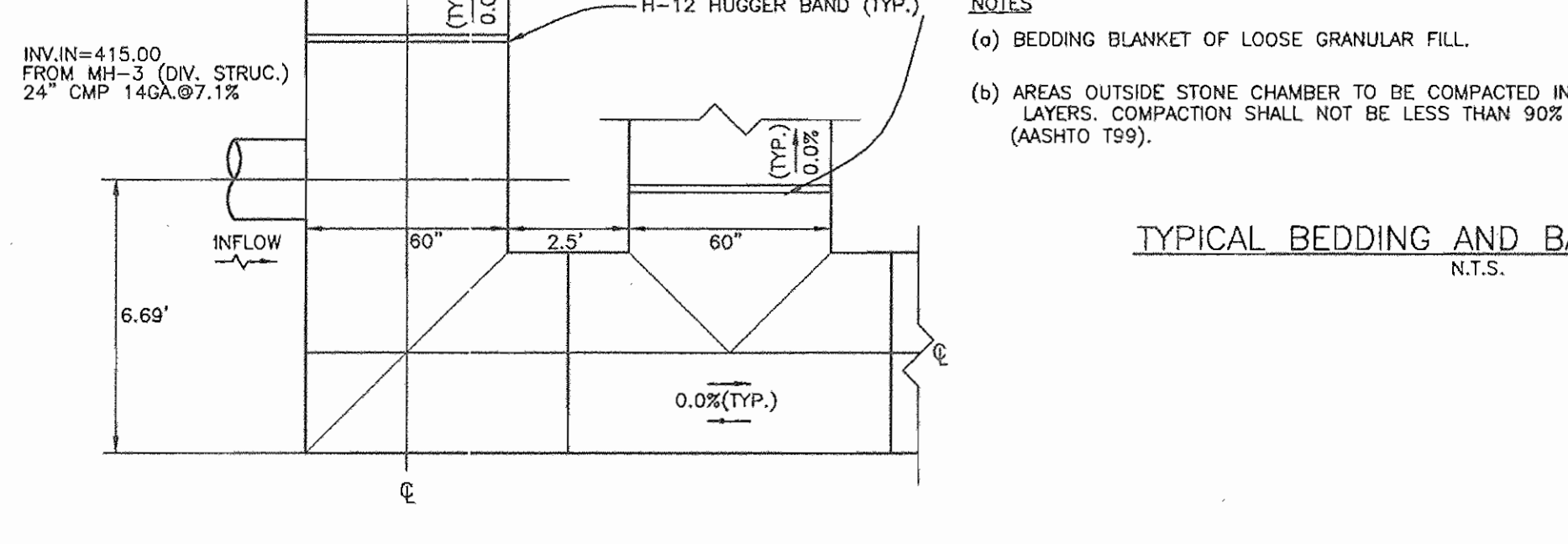
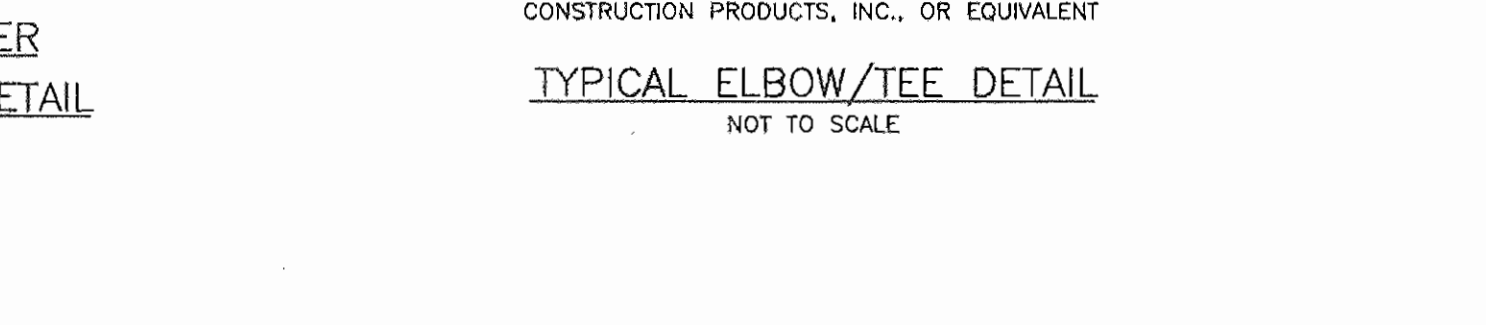
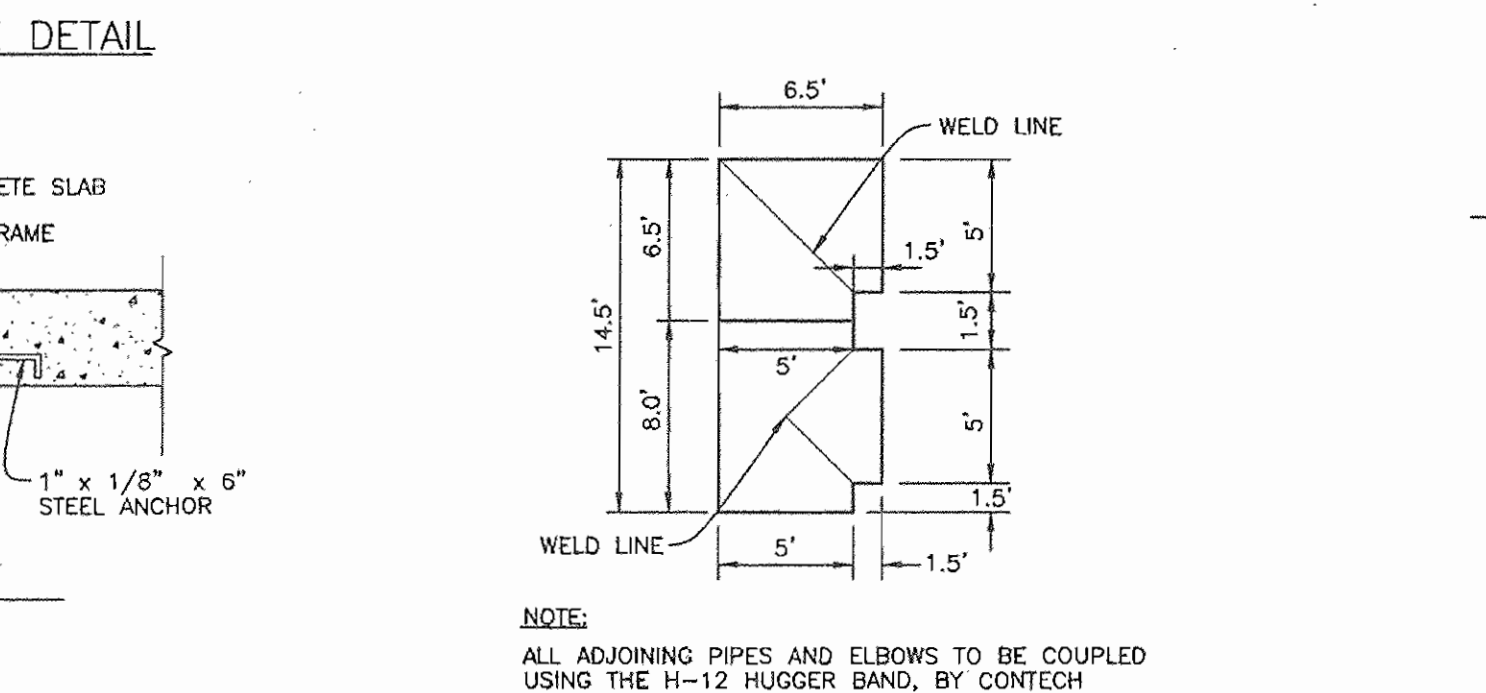
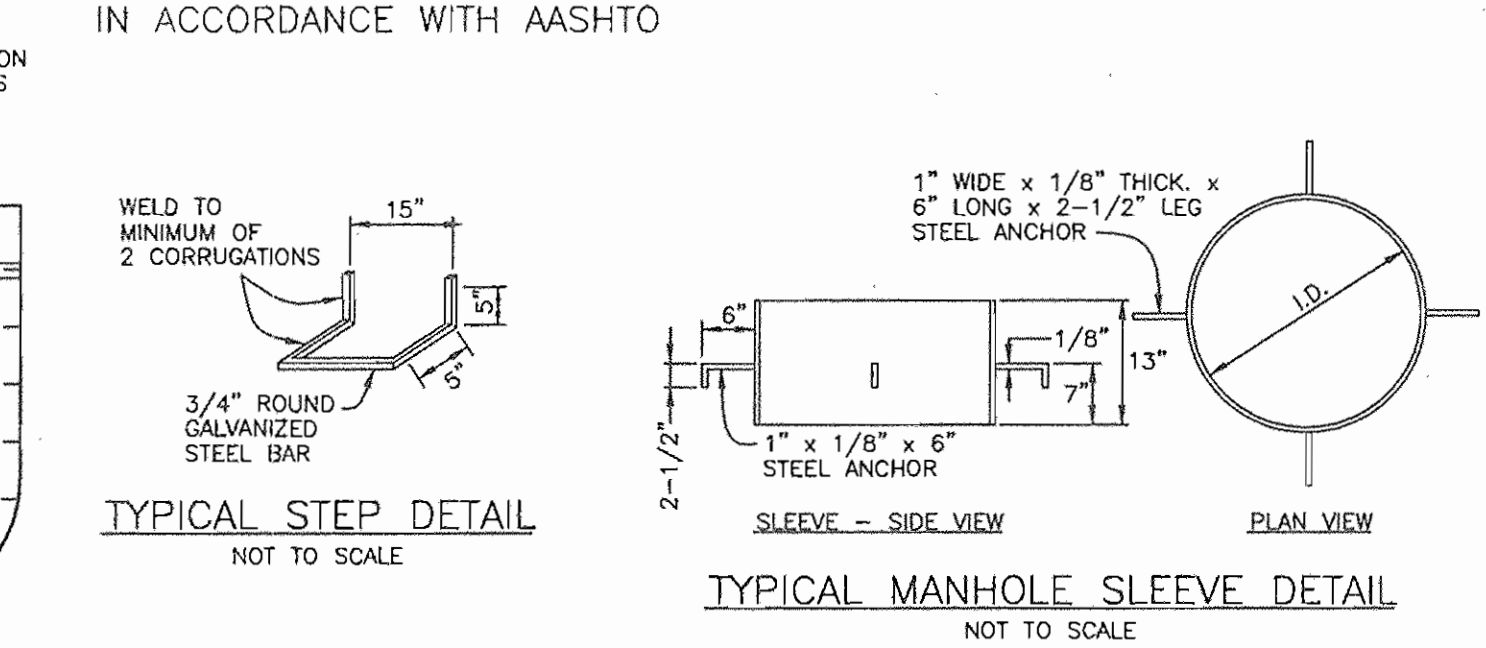
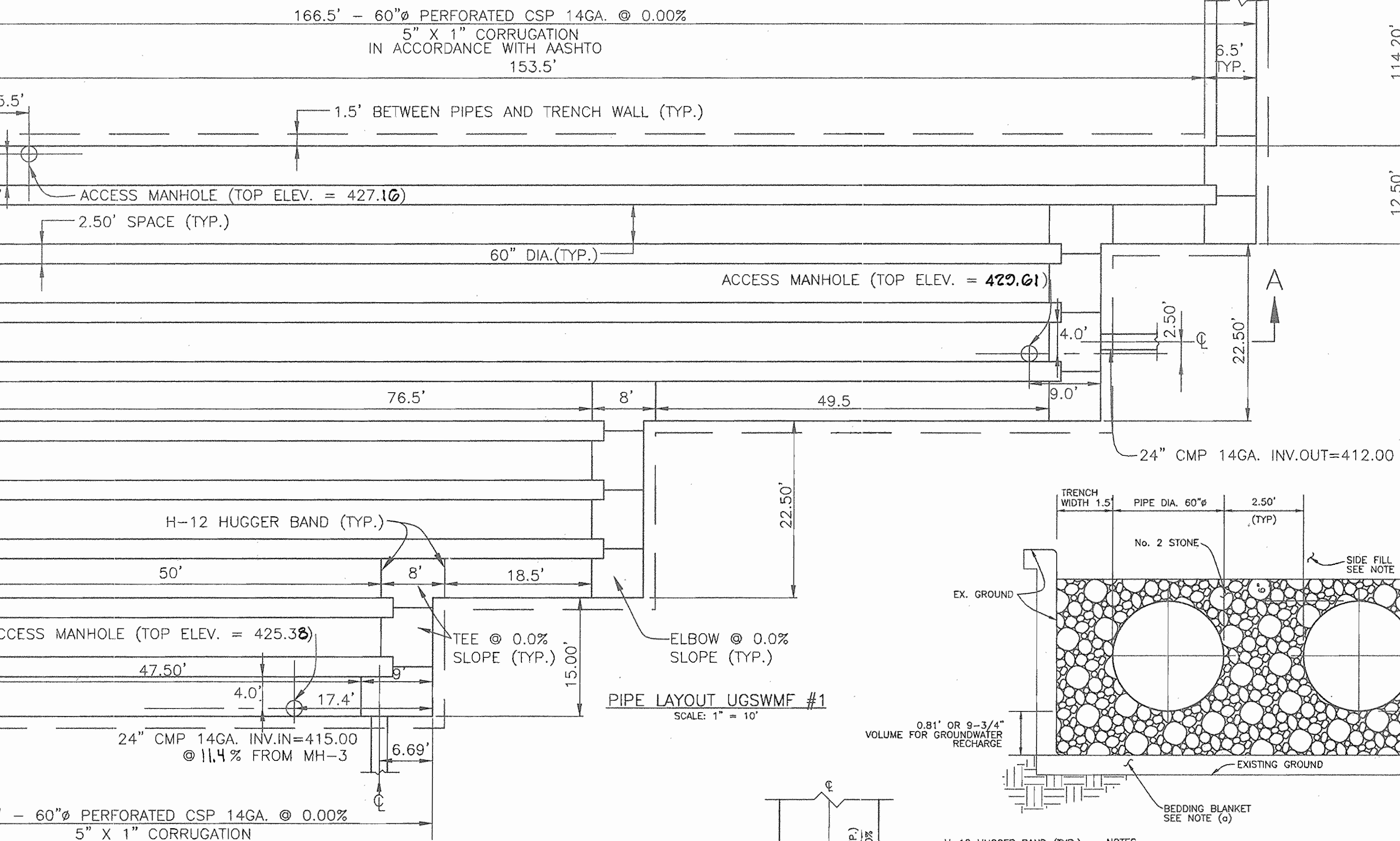
DATE: OCTOBER 2005  
 NCV 2006 PROJECT NO. 1806

SCALE: AS SHOWN DRAWING 9 OF 14

Design: BFC Draft: BFC Check: DAM



SWM SUMMARY TABLE - D.A.=3.80 AC.±			
STORM FREQUENCY (YRS.)	DEVELOPED RUNOFF AND DISCHARGE (cfs)	WSEL (FT.)	STORAGE (AC.-FT.)
1	0.1	414.88	0.468
10	12.5	415.86	0.635
100	20.4	416.63	0.753



- OPERATION AND MAINTENANCE SCHEDULE FOR UNDERGROUND SWM FACILITIES**
- THE UNDERGROUND STORM WATER MANAGEMENT FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
  - THE UNDERGROUND STORM WATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND ESPECIALLY AFTER SEVERE STORM EVENTS.
  - WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.
  - THE FACILITY SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATORY AGENCIES NOTIFYING THEM OF THE SPILL AND CLEAN-UP OPERATIONS.
  - THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORM WATER MANAGEMENT FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.
  - THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX(6) MONTHS. IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.

- CONSTRUCTION SPECIFICATIONS**
- BEDDING**  
1. THE BED SHALL BE PLACED TO UNIFORM GRADE AND LINE TO ENSURE GOOD VERTICAL ALIGNMENT AND TO AVOID EXCESSIVE STRESSES AT PIPE JOINTS. THE BEDDING SHALL BE FREE OF ROCK FORMATIONS, PROTRUDING STONES, FROZEN LUMPS, ROOTS, AND FOREIGN MATERIAL. THE BEDDING FOUNDATION MUST BE A STABLE, WELL GRADED GRANULAR MATERIAL. ANY MATERIAL THAT HAS INADEQUATE BEARING CAPACITY MUST BE REMOVED AND REPLACED WITH A COMPACTED SELECT FILL APPROVED BY THE GEOTECHNICAL ENGINEER.
  - BACKFILL**  
1. THE FILL MATERIAL SHALL BE FREE OF ROCKS, FROZEN LUMPS, AND FOREIGN MATTER THAT COULD CAUSE HARD SPOTS IN BACKFILL OR THAT COULD DECOMPOSE AND CREATE VOIDS.  
2. BACKFILL MATERIAL SHALL BE A WELL GRADED GRANULAR MATERIAL.  
3. HIGHLY PLASTIC SILTS, HIGHLY PLASTIC CLAYS, ORGANIC SILTS, ORGANIC CLAYS AND PEATS SHALL NOT BE USED AS BACKFILL MATERIAL.  
4. BACKFILL SHALL BE PLACED SYMMETRICALLY ON EACH SIDE OF THE STRUCTURE IN SIX-INCH TO EIGHT-INCH LOOSE LAYERS TO ONE FOOT ABOVE THE TOP OF THE PIPE. EACH LAYER IS TO BE COMPACTED TO THE SPECIFIED DENSITY (MINIMUM 90%) BEFORE PLACING THE NEXT LAYER. REFERENCE ASTM A798.
  - PIPE**  
1. THE PIPE FABRICATOR SHALL PROVIDE SPECIFICATIONS OF ALL MATERIALS (BASED ON HSGS LOWMOQ).  
2. SHOP DRAWINGS ARE TO BE PROVIDED BY FABRICATOR. APPROVAL BY ENGINEER IS REQUIRED PRIOR TO CONSTRUCTION.  
3. CONTRACTOR IS REQUIRED TO COORDINATE APPROVAL OF SHOP DRAWINGS AND SPECIFICATIONS AND SHALL BE OBLIGATED FOR ANY COST THEREOF.
  - GENERAL**  
1. DEBRIS IS TO BE KEPT OUT OF THE FACILITY DURING AND AFTER CONSTRUCTION.



**AS-BUILT CERTIFICATION**

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

DATE: 3/19/08

DEVELOPER: D. R. ... 18 Jan 07

BY THE ENGINEER: ... 11/13/2006

DATE: 2/22/07

DATE: 2/22/07

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

J. ... 4-13-07 DATE

... 2/26/07 DATE

... 4/13/07 DATE

**BENCHMARK ENGINEERING, INC.**

8480 BALTIMORE NATIONAL PIKE & SUITE 418  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
www.bal-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC  
700 KENILWORTH DRIVE  
TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY PARCEL 'A'  
PROFESSIONAL OFFICE DEVELOPMENT

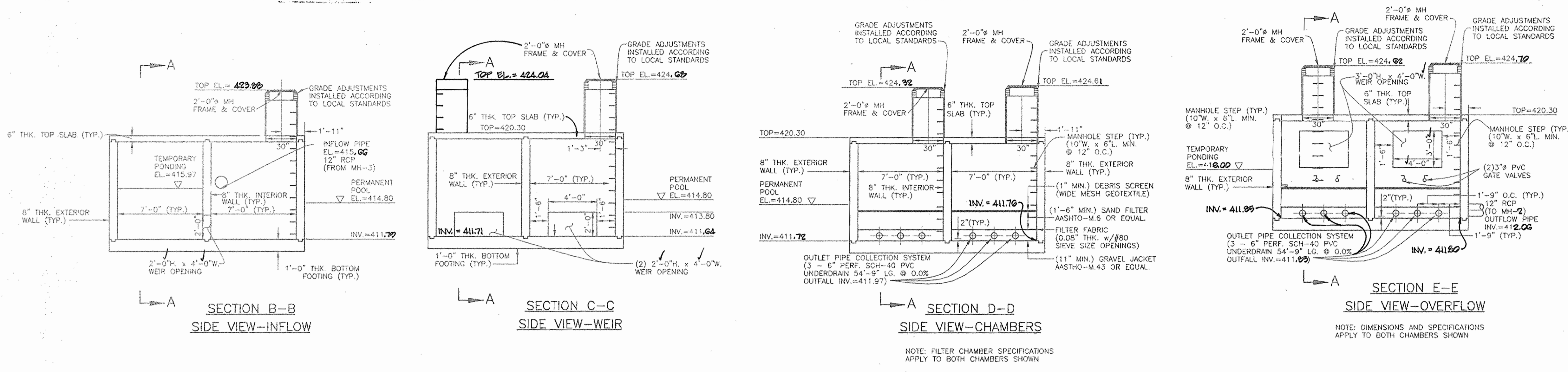
LOCATION: PARCEL 345 - GRID 11  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: UNDERGROUND SWM FACILITY

DATE: OCTOBER 2005  
Nov. 2006 PROJECT NO. 1806

SCALE: AS SHOWN DRAWING 10 OF 14

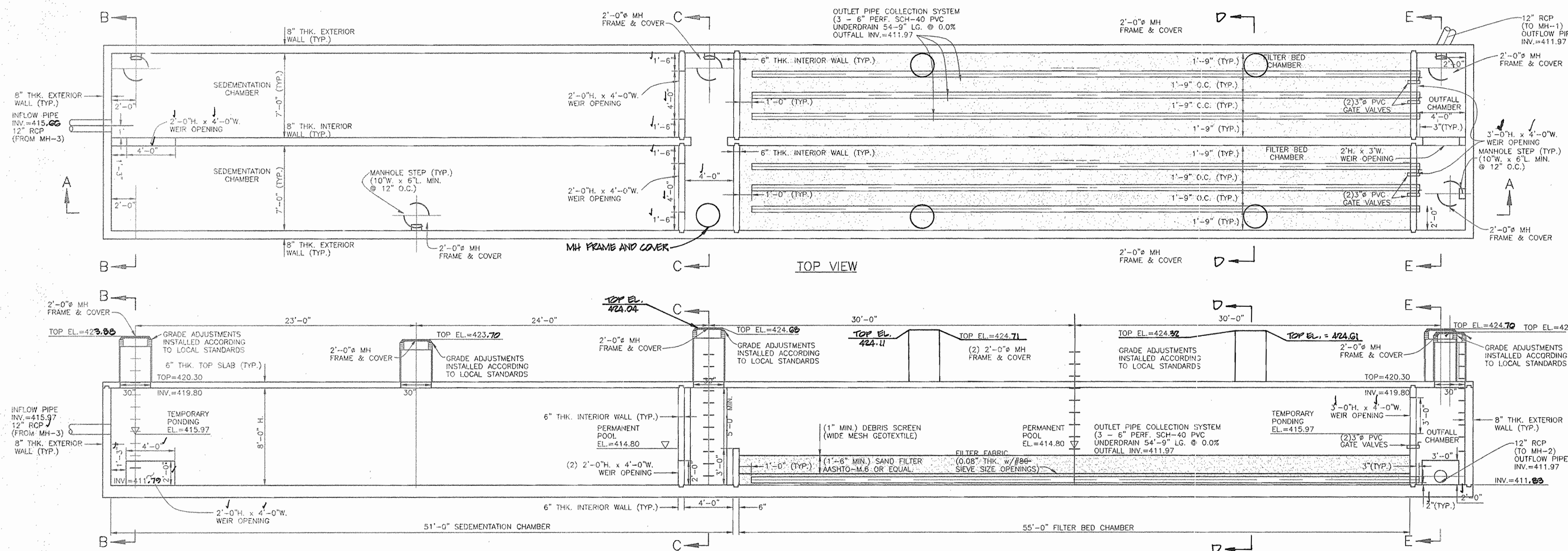
Design: BFC Draft: BFC Check: DAM



MATERIAL	SPECIFICATION	SIZE	NOTES:
NON-REBAR STEEL	ASTM A-36	N/A	STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED ASTM A-123
PER GRAVEL	ASTM D-448	PER GRAVEL	
ORNAMENTAL STONE	ASTM D-448	2" TO 4"	
WASHED COBBLES	ASTM D-448	2" TO 4"	
GEOTEXTILE (CLASS "C")	APPARENT OPENING SIZE: (ASTM D-4751) 0.075" MIN. GRAB TENSILE STRENGTH: (ASTM D-4751) 100 LBS. PUNCTURE RESISTANCE: (ASTM D-4751) 100 LBS.	0.075" MIN. EQUIVALENT OPENING SIZE OF SAND FILTER	MUST MAINTAIN 125 GPM / 50 FT. FLOW RATE. NOTE: A PER GRAVEL LAYER MAY BE SUBSTITUTED FOR GEOTEXTILES MEANT TO "SEPERATE" SAND FILTER LAYERS
UNDERDRAN GRAVEL	AASHTO M-43	0.375" TO 0.750"	3/8" PER 6" O.C. 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES. NOT NECESSARY UNDERNEATH PIPES
UNDERDRAN PIPING	F755, TYPE PS28 OR AASHTO M-278	4" TO 6" RIGID SCHED 40 PVC OR SDR35	
FOURED-IN-PLACE CONC. (IF REQUIRED)	MDA MFC NO.3, Fc=3500psi @ 28 DAYS, NORMAL WEIGHT, AIR ENTRAINMENT PERFORMED TO MEET ASTM 615-09	N/A	ON-SITE TESTING OF FOURED-IN-PLACE CONC. REQUIRED: 28 DAY STRENGTH TEST AND SLUMP TEST. ALL CONC. DESIGN (CAST IN PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS. DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND.
SAND (3/8" DEEP)	AASHTO M-6 OR ASTM C-33	0.075" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DUNESAND OR GRAVELSTONE ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR ORGANIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

**OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS SAND FILTER (WQv#1, WQv#2)**

- THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAINDOWN TIMES WITHIN THE CHAMBER EXCEEDS 36 HOURS.
- DEBRIS & LITTER SHALL BE REMOVED AS NECESSARY TO INSURE PROPER OPERATION OF THE SYSTEM.
- SEDIMENT SHALL BE CLEANED-OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 8 INCHES.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS & LIQUIDS MUST BE FOLLOWED BY THE OWNER.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE FILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.



**AS-BUILT CERTIFICATION**



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

PE NO. 13264  
DATE 3/19/08

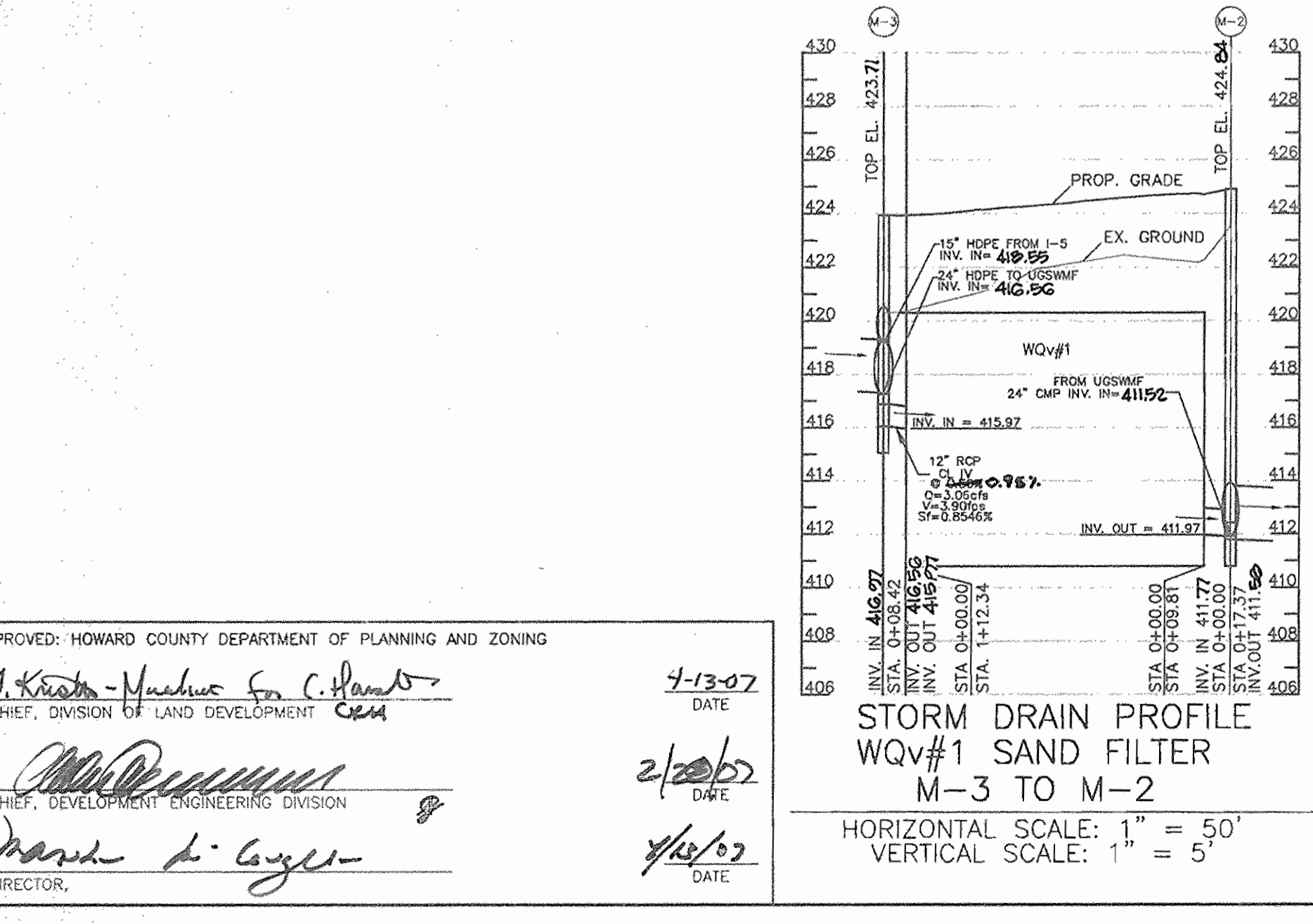
CERTIFY MEANS TO STATE OR DECLARE A PROFESSIONAL OPINION BASED UPON ON-SITE INSPECTIONS AND MATERIAL TESTS WHICH ARE CONDUCTED DURING CONSTRUCTION. THE ON-SITE INSPECTIONS AND MATERIAL TESTS ARE THOSE INSPECTIONS AND TESTS DEEMED SUFFICIENT AND APPROPRIATE BY COMMONLY ACCEPTED ENGINEERING PRACTICES.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

BY THE DEVELOPER:  
D. Ronald Burke  
18 Jan 07

BY THE ENGINEER:  
BRIAN F. CLEARY, P.E. # 18959  
11/13/2006

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

USDA - NATURAL RESOURCES CONSERVATION SERVICE  
HOWARD SOIL CONSERVATION DISTRICT



**UNDERGROUND WATER QUALITY FACILITY #1**  
SCALE: 1"=5'

NOTE: SAND FILTER SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF MARYLAND AND DESIGNED FOR HS25 LOADING.

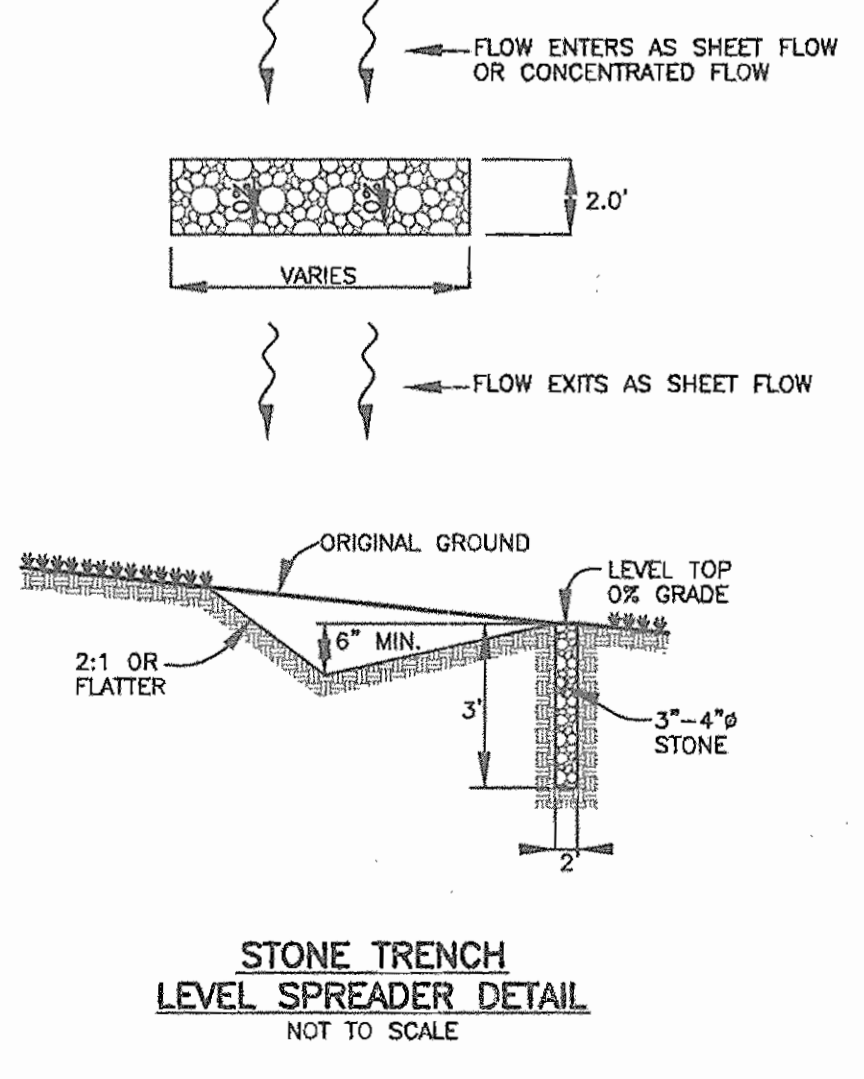
NOTE: THE INCOMING PIPE TO THE FACILITIES SHALL BE CAPPED OFF UNTIL THE CONTRIBUTING AREAS HAVE BEEN STABILIZED

NOTE: DISTANCE THROUGH WQv#1 IN PROFILE IS A STRAIGHT LINE FROM INVERT IN TO INVERT OUT

**SWM Facility Summary**

Drainage Area	Facility	Type	Storage Volume/Elevations		Cpv
			WQv	Req.	
Drainage Area 1 (Subarea 1)	WQv# 1	Underground Sand Filter	1,775 cf	7,100 cf	N/A
	WQv# 2	Underground Sand Filter	1,035 cf	4,142 cf	N/A

Note: The channel protection and water quality control are address fully with SWM Facility #1 and underground sand filters (WQv#1 and WQv#2). The total WQv required for drainage area 1 (subarea 1) is 11,242 cf as indicated on page 10. The total WQv provided by the two facilities is 11,242 cf.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
J. Keith-Machuca for C. Hamant  
4/13/07 DATE  
2/20/07 DATE  
4/18/07 DATE

**BENCHMARK ENGINEERING, INC.**  
8480 BALTIMORE NATIONAL PIKE SUITE 418  
ELLICOTT CITY, MARYLAND 21043  
PHONE: 410-465-6105 FAX: 410-465-6644  
www.bei-civilengineering.com

OWNER/DEVELOPER: WOODLANDS LLC  
700 KENILWORTH DRIVE  
TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY PARCEL "A"  
PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30  
PARCEL 346 - GRID 11  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: WATER QUALITY FACILITY #1 AND LEVEL SPREADER DETAIL

DATE: OCTOBER 2005  
NOV 2006 PROJECT NO. 1806

Design: BFC Draft: BFC Check: DAM SCALE: AS SHOWN DRAWING 11 OF 14

**AS BUILT** SDP-06-065

MATERIAL	SPECIFICATION	SIZE	NOTES
NON-REBAR STEEL	ASTM A-36	N/A	STRUCTURAL STEEL TO BE HOT-DIPPED GALVANIZED ASTM A-123
GRAVEL	ASTM D-448 WASHED COBBLES	1/4" TO 3/8"	PEA GRAVEL: NO. 6 STONE: 2" TO 5"
GEOTEXTILE (GLASS FIBER)	ASTM D-4751 TENSILE STRENGTH: (ASTM D-4832) PUNCTURE RESISTANCE: (ASTM D-4832)	0.87 TYP. EQUIVALENT GRAVEL SIZE OF #20 SIEVE	MUST MAINTAIN 150 GPM / SQ. FT. FLOW RATE. NOTE: A PEA GRAVEL LAYER MAY BE SUBSTITUTED FOR GEOTEXTILES MEANT TO "SEPERATE" SAND FILTER LAYERS
UNDERDRAIN GRAVEL	ASTM M-43	0.375" TO 0.750"	1/2" PEEL @ 6" O.C. 4 HOLES PER ROW. MINIMUM OF 3" OF GRAVEL OVER PIPES. NOT NECESSARY UNDERDRAIN PIPES.
UNDERDRAIN PIPING	7525, TYPE #528 OR AASHTO M-278	4" TO 6" RIGID POLYETHYLENE PIPE OR 50/50S	
POURED-IN-PLACE CONC. (IF REQUIRED)	MSHA MIX NO. 3 FC=2500psi @ 28 DAYS. NORMAL MOD. AIR ENTRAINED. REINFORCING TO MEET ASTM 615-69	N/A	ON-SITE TESTING OF POURED-IN-PLACE CONC. REQUIRED: 28 DAY STRENGTH TEST AND SLUMP TEST. ALL CONC. DESIGN (CAST IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS. REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND.
SAND (SAND DEEP)	AASHTO M-6 OR ASTM C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DUNESAND AND GRAYSTONE TO ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR ORGANIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

**OPERATION & MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND STORMWATER FILTRATION SYSTEMS SAND FILTER (WQV#1, WQV#2)**

- THE SEDIMENT CHAMBER OUTLET DEVICES SHALL BE CLEANED AND/OR REPAIRED WHEN DRAWDOWN TIMES WITHIN THE CHAMBER EXCEEDS 36 HOURS.
- DEBRIS & LITTER SHALL BE REMOVED AS NECESSARY TO INSURE PROPER OPERATION OF THE SYSTEM.
- SEDIMENT SHALL BE CLEANED-OUT OF THE SEDIMENTATION CHAMBER WHEN IT ACCUMULATES TO A DEPTH OF 6 INCHES.
- WHEN WATER PONDS ON THE SURFACE OF THE FILTER BED FOR MORE THAN 72 HOURS, THE TOP FEW INCHES OF DISCOLORED MATERIAL SHALL BE REPLACED WITH FRESH MATERIAL. PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS & LIQUIDS MUST BE FOLLOWED BY THE OWNER.
- A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE FACILITY DRAINS.
- THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
- ONCE THE PERFORMANCE CHARACTERISTICS OF THE INFILTRATION SYSTEM HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.

**AS-BUILT CERTIFICATION**

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

PE NO. \_\_\_\_\_  
DATE \_\_\_\_\_

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

BY THE DEVELOPER:  
I/WE CERTIFY THAT ALL DEVELOPMENT AND/OR CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS, AND THAT ANY RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I SHALL ENGAGE A REGISTERED PROFESSIONAL ENGINEER TO SUPERVISE CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER: *D.P. Bank* DATE: 18JUN07

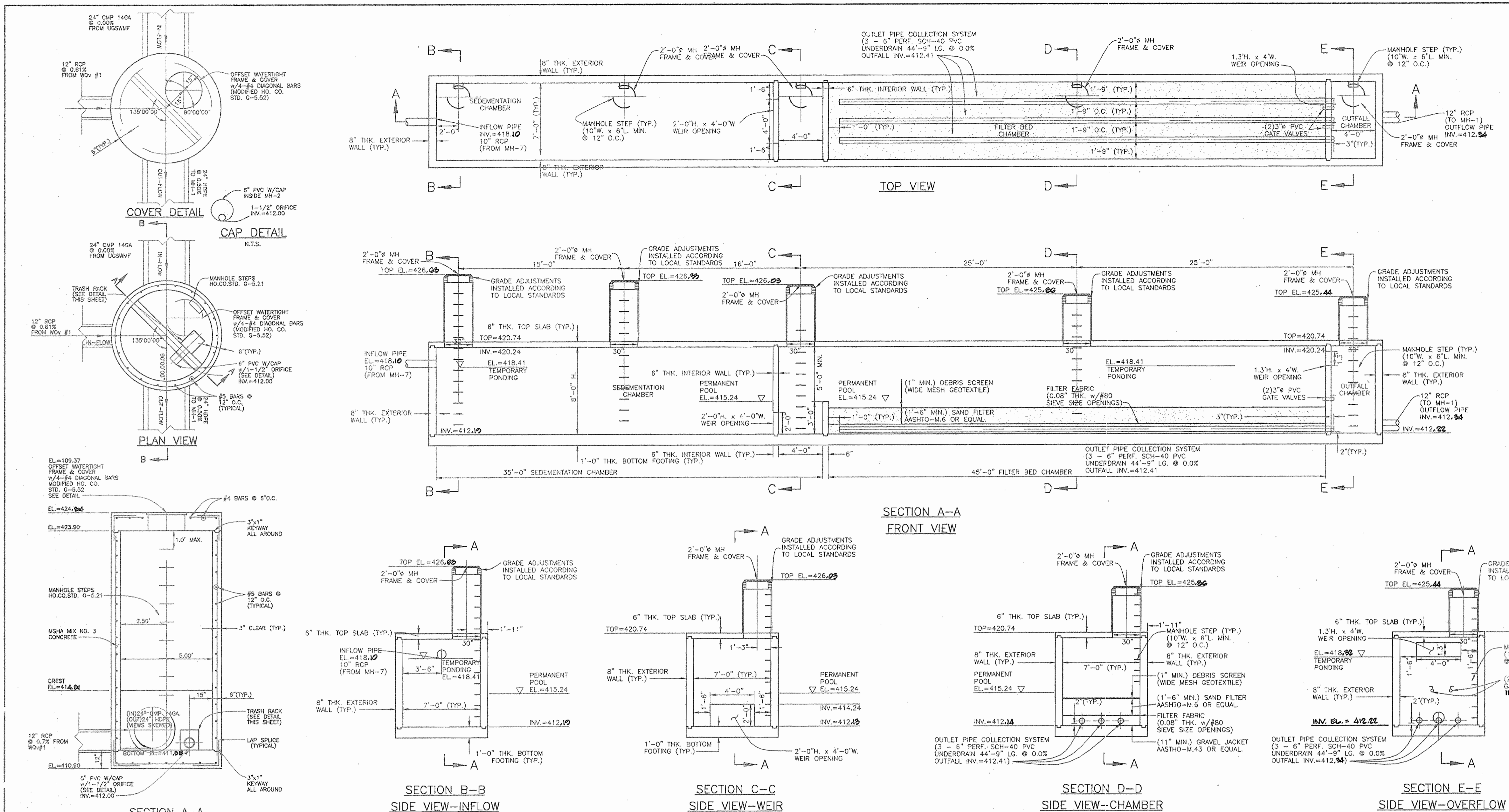
BY THE ENGINEER:  
I/WE CERTIFY THAT THIS PLAN FOR CONSTRUCTION, EROSION AND SEDIMENT CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS. THIS PLAN WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. I AM NOT PROVIDING THIS PLAN AS A GUARANTEE OF THE HOWARD SOIL CONSERVATION DISTRICT'S REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL. THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE REQUIREMENTS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL.

ENGINEER - *BRN F. CLEARY, P.E.* DATE: 11/13/2006

USDA - NATURAL RESOURCES CONSERVATION SERVICE DATE: \_\_\_\_\_

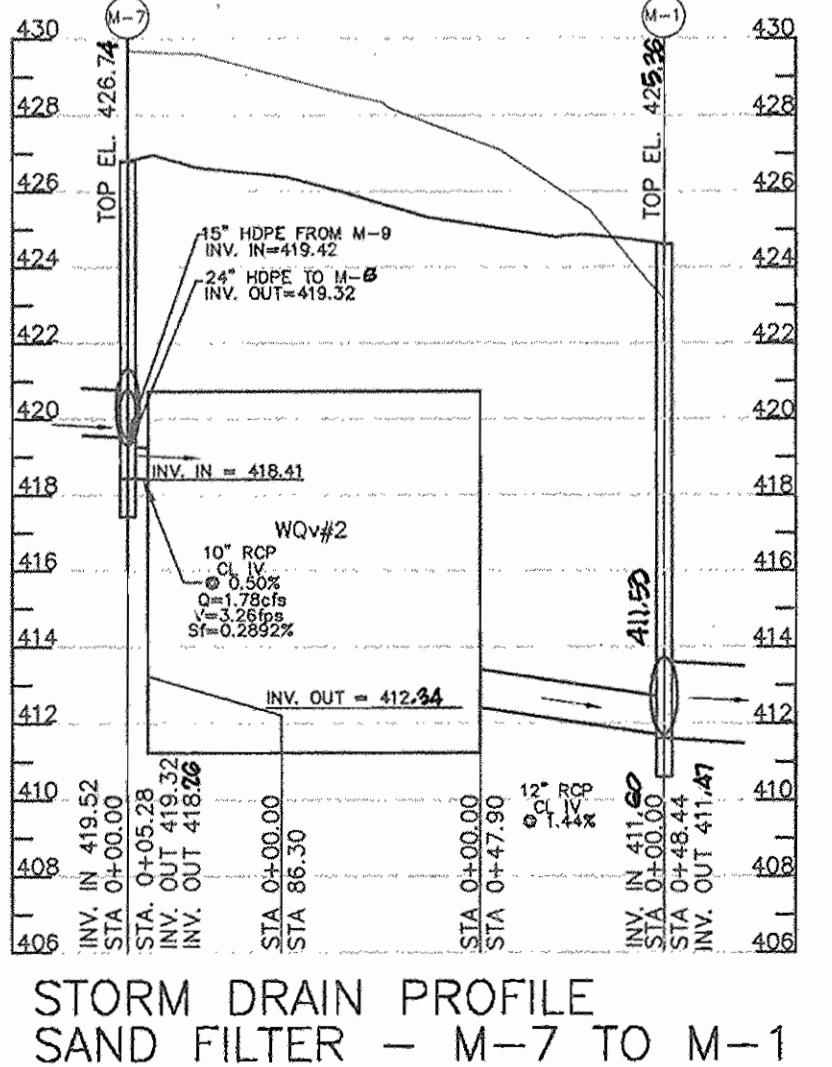
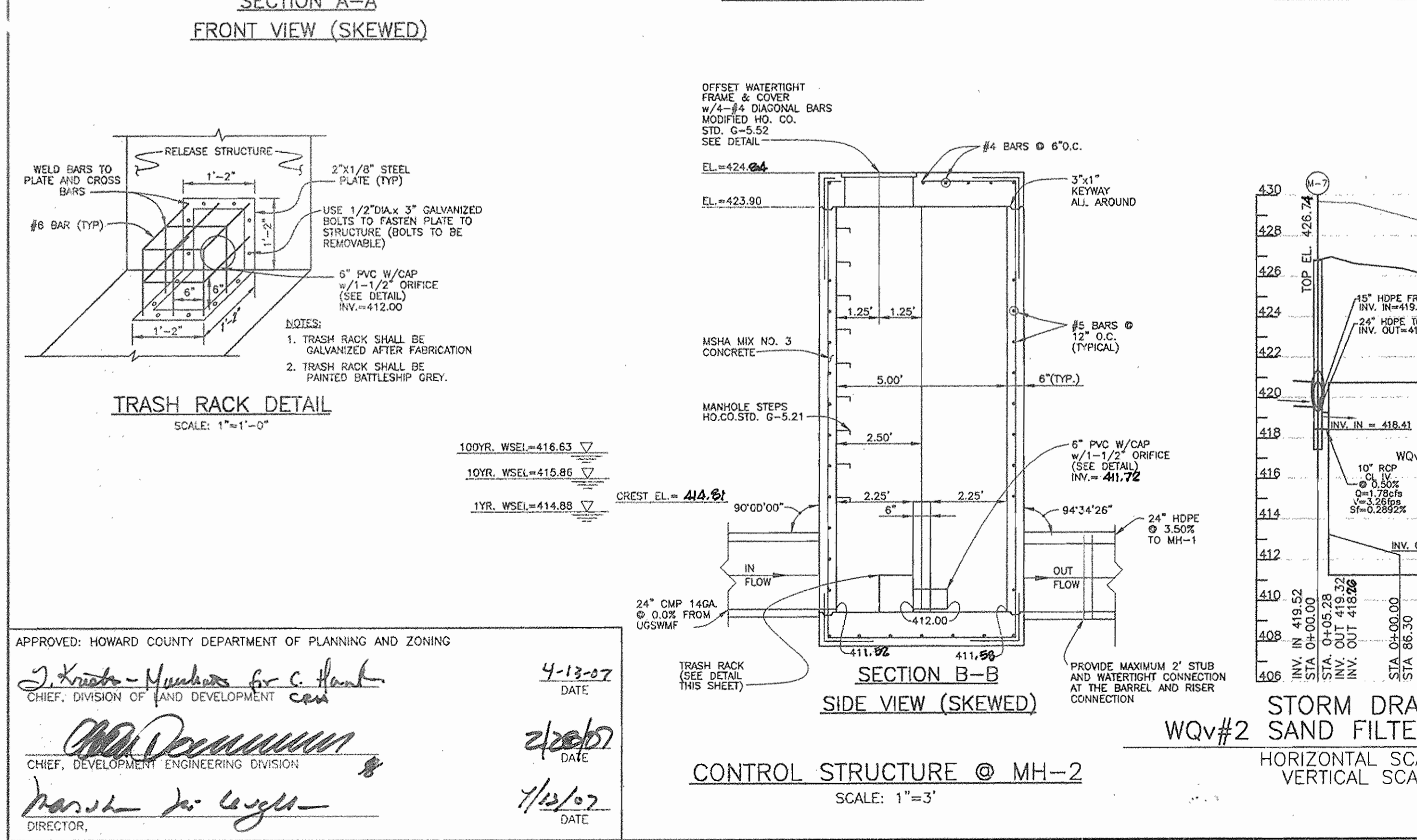
THESE PLANS FOR SMALL POND CONSTRUCTION, SOIL EROSION, AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT DATE: \_\_\_\_\_



**UNDERGROUND WATER QUALITY FACILITY #2**

SCALE: 1"=5'  
NOTE: SAND FILTER SHALL BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE OF MARYLAND AND DESIGNED FOR HS25 LOADING.



NOTE: DISTANCE THROUGH WQV#1 IN PROFILE IS A STRAIGHT LINE FROM INVERT IN TO INVERT OUT

NOTE: THE INCOMING PIPE TO THE FACILITIES SHALL BE CAPPED OFF UNTIL THE CONTRIBUTING AREAS HAVE BEEN STABILIZED

**SWM Facility Summary**

Drainage Area	Facility	Type	Storage Volume/Elevations		Cpv
			WQv	WQv	
Drainage Area 1 (Subarea 1)	WQV# 1	Underground Sand Filter	Req. 1,775 cf	7,100 cf	N/A
	WQV# 2	Underground Sand Filter	Req. 1,035 cf	4,142 cf	N/A
			Prov. 2,856 cf	7,100 cf	
			Prov. 1,470 cf	4,142 cf	

Note: The channel protection and water quality control are address fully with SWM Facility #1 and underground sand filters (WQV#1 and WQV#2). The total WQV required for drainage area 1 (subarea 1) is 11,242 cf as indicated on page 10. The total WQV provided by the two facilities is 11,242 cf.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*J. Krutz - Meadows for C. Bank* 4-13-07 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT  
*Chris DeMunn* 2/26/07 DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Harold W. Lytle* 1/13/07 DATE  
DIRECTOR

NO. \_\_\_\_\_ DATE \_\_\_\_\_ REVISION \_\_\_\_\_

**BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS**

8480 BALTIMORE NATIONAL PIKE & SUITE 418  
ELLICOTT CITY, MARYLAND 21104  
PHONE: 410-465-6105 FAX: 410-465-6644  
www.bjv-engineering.com

OWNER/DEVELOPER: WOODLANDS LLC  
700 KENILWORTH DRIVE  
TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY PARCEL 'A'  
PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30  
PARCEL 346 - GRID 11  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: WATER QUALITY FACILITY #2 CONTROL STRUCTURE DETAIL

DATE: OCTOBER 2005 PROJECT NO. 1806  
NOV 2006 DRAWING 12 OF 14

Design: BFC Draft: BFC Check: DAM SCALE: AS SHOWN

SDP-06-065

Key	Species - dbh (inches)	Condition
A	White oak - 36	Good
B	Tulip poplar - 52	Good
C	Tulip poplar - 74	Good
D	Tulip poplar - 48	Good
E	Tulip poplar - 62	Good
F	Tulip poplar - 62	Good
G	Tulip poplar - 48	Good
H	White oak - 42	Good
I	White oak - 40	Good
J	Tulip poplar - 50	Good
K	Tulip poplar - 30	Good
L	Pignut hickory - 30	Good
M	Black gum - 30	Good
N	White oak - 48	Good
O	White oak - 34	Good
P	Norway maple - 32	Good
Q	White oak - 42	Good
R	White oak - 52	Good
S	Tulip poplar - 50	Good
T	Tulip poplar - 58	Good
U	Tulip poplar - 52	Good

**FOREST CONSERVATION WORKSHEET**  
Version 1.0

Project: Brasher Property  
Date: October 4, 2005

NET TRACT AREA		Acres
A. Total tract area		5.0
B. Area within 100 Year Floodplain		0
C. Area to remain in agricultural production		0
D. Net Tract Area		5.0

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)					
ARA	MDR	IDA	HDR	MPD	CIA
E. Afforestation Threshold	(percentage)	0.15		0.75	
F. Conservation Threshold	(percentage)	0.15		0.75	

EXISTING FOREST COVER:		
G. Existing Forest Cover (excluding floodplain)		0.0
H. Area of forest above afforestation threshold		0.0
I. Area of forest above conservation threshold		0.0

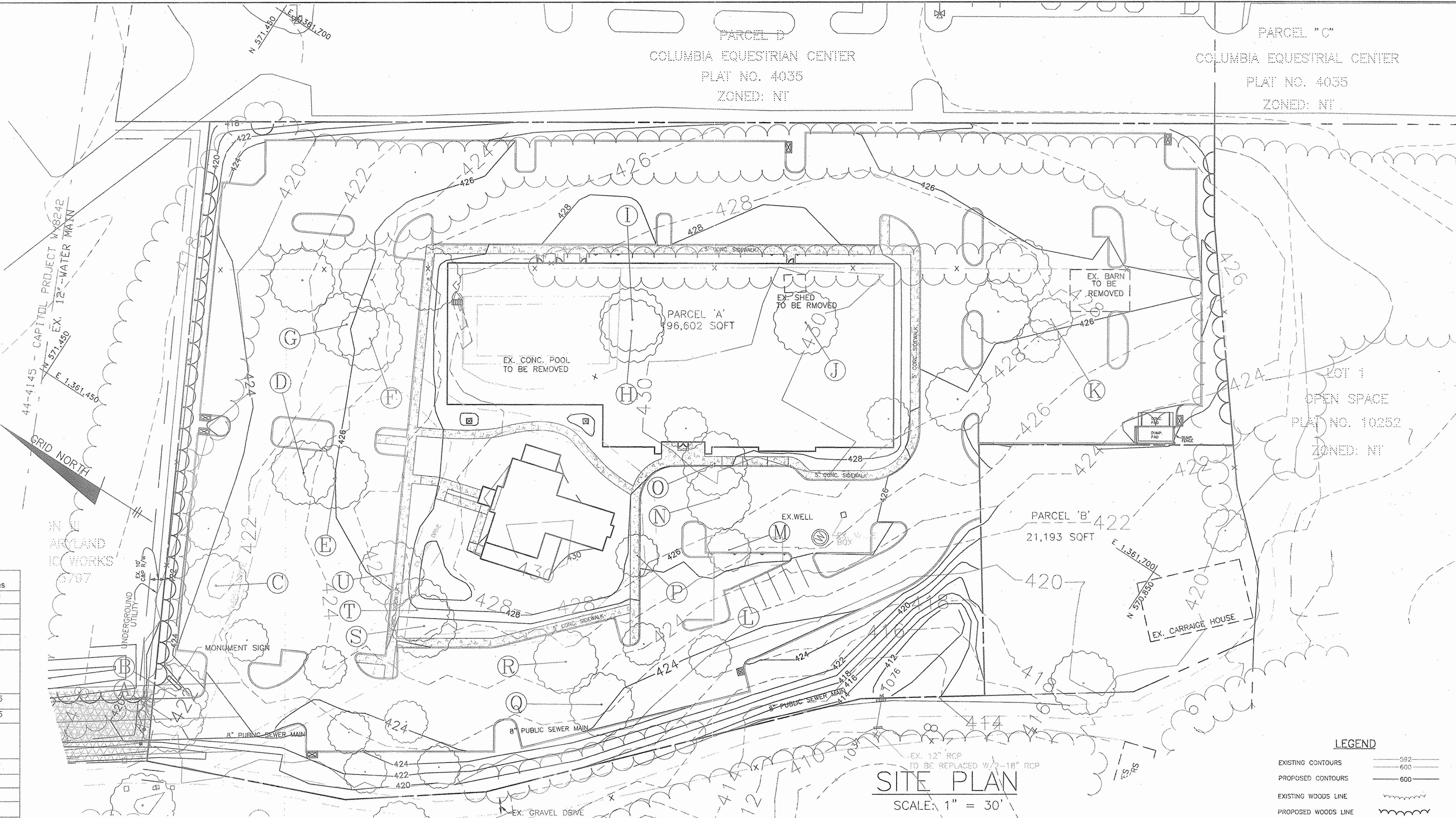
BREAK EVEN POINT:		
J. Forest retention above threshold with no mitigation		NA
K. Clearing permitted without mitigation		NA

PROPOSED FOREST CLEARING		
L. Total area of forest to be cleared or retained Outside FCE		0.0
M. Total area of forest to be retained in FCE		0.0

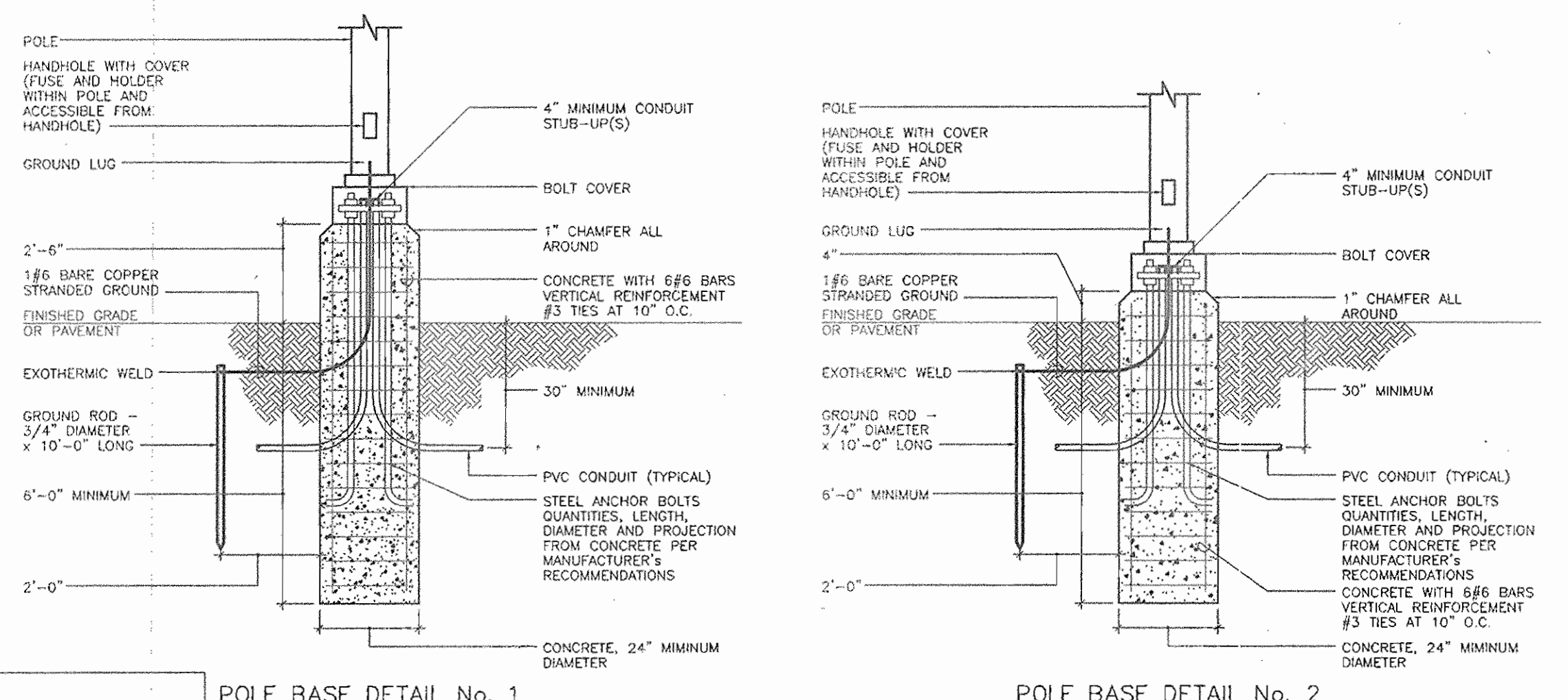
  

PLANTING REQUIREMENTS		
N. Reforestation for clearing above conservation threshold		--
P. Reforestation for clearing below conservation threshold		--
Q. Credit for retention above conservation threshold		--
R. Total reforestation required		0.0
S. Total afforestation required		0.75
T. Total reforestation and afforestation required		0.75



**FCP NOTES**

1. The Forest Conservation Act requirements will be met through the payment of a fee-in-lieu. The cost of this fee will be \$16,335.00. A fee-in-lieu request form has been submitted to the County. Please note that forest conservation for the entire 5 acres (Parcel 'A' and 'B') is being provided by this fee.



**BENCHMARK ENGINEERING, INC.**  
ENGINEERS • LAND SURVEYORS • PLANNERS

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ELLCOTT CITY, MARYLAND 21043  
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STATE OF MARYLAND PROFESSIONAL ENGINEER

OWNER/DEVELOPER: WOODLANDS LLC.  
700 KENILWORTH DRIVE  
TOWSON, MD 21204  
410.995.0015

PROJECT: WOODLANDS PROPERTY  
PARCEL 'A'  
PROFESSIONAL OFFICE DEVELOPMENT

LOCATION: TAX MAP 30  
PARCEL 346 -- GRID 11  
2nd ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: SITE DEVELOPMENT PLAN  
FOREST CONSERVATION PLAN

DATE: OCTOBER 2005  
NOV 2006

PROJECT NO. 1806

SCALE: 1" = 30'

DESIGN: BFC DRAFT: BFC CHECK: DAM

DRAWING 13 OF 14

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

J. Kristo - Headman for C. Hamilton  
CHIEF, DIVISION OF LAND DEVELOPMENT

4-13-07 DATE

2/20/07 DATE

7/13/07 DATE

Director

**Eco-Science Professionals, Inc.**  
CONSULTING ECOLOGISTS

MD DNR Qualified Professional  
USACE/USFWS Wetland/Delineator  
Certification # W020000504422

P.O. Box 3006 Glen Artn, MD 21057 (410) 592-6752

John W. Casalis

CONSTRUCTION SPECIFICATIONS

These specifications are appropriate to conditions within the scope of the Standard for Practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

Site Preparation

Areas designated for borrow areas, embankment and structural works shall be cleared, grubbed and stripped to topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and slope berms 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 of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stream water management ponds, a minimum of a 25-foot radius around the dry structure shall be cleared.

All cleared and grubbed material shall be deposited outside and below the limits of the dam and reservoir as directed by the engineer. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

Fill Material - The fill material shall be taken from approved designated borrow areas if shall be free of roots, stumps, wood, rubbish, stones greater than 6" frozen or other objectionable material. Fill material for the center of the embankment, and cut off trench shall conform to Unified Soil Classification (C, SC, CL, 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 designed by a geotechnical engineer. Such special designs must have construction supervised by a geotechnical engineer.

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 outermost 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 track tread of heavy equipment or compaction. It will be achieved by a minimum of four complete passes of a sheepsfoot, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required density 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 of construction. An exception is to be determined by AASHTO Method T-99 (Standard Practice).

Cut Off Trench - The cutoff 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, roller, or hand tampers to assure a minimum density and minimum permeability.

Embankment Core - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the cores 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 tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

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 tampers 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 allowed over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or 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. Material 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. If 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 flooding the pipe. When using flowable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers 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 for the core of the embankment or other embankment materials.

Flowable Fill - The flowable fill shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

Pipe Conduits

Corrugated Metal Pipe - All of the following shall apply for corrugated metal pipe: 1. Material - (Polymer Coated Steel Pipe) - 18 gauge steel pipe with polymer coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications M-245 & M-246 with watertight coupling bands or flanges.

Aluminum Coated Steel Pipe - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe when used with flowable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification M-190 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with concrete shall be coated with one coat of zinc chromate primer or two coats of asphalt.

Aluminum Pipe - This pipe and its 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 for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification 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-seep collars, and sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials of at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe 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. Flexible bands are not considered to be watertight.

All connection shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the bandwidth. The following type connections are acceptable for pipes less than 24 inches in diameter: flange on both ends of the pipe with a circular 3/8 inch closed cell neoprene gasket, are punched to the flange bolt circle, sandwiched between adjacent flanges; a 12-inch wide standard lap type band with 12-inch wide by 3/8-inch thick closed cell circular neoprene gasket, and a 12-inch wide huggar type band with spring gaskets having a minimum diameter of 1/2 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 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 coupling 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 unstable 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-153.

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 strength concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 5 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 and upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are spaced 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 from 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" through 24" inch shall meet the requirements of AASHTO M254, Type S.

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 unstable 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 Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diagrams

When a drainage diagram is used, a registered professional engineer will supervise the design and construction.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Geotextile

Geotextile shall be placed under all riprap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.09, Class C.

Care of Water during Construction

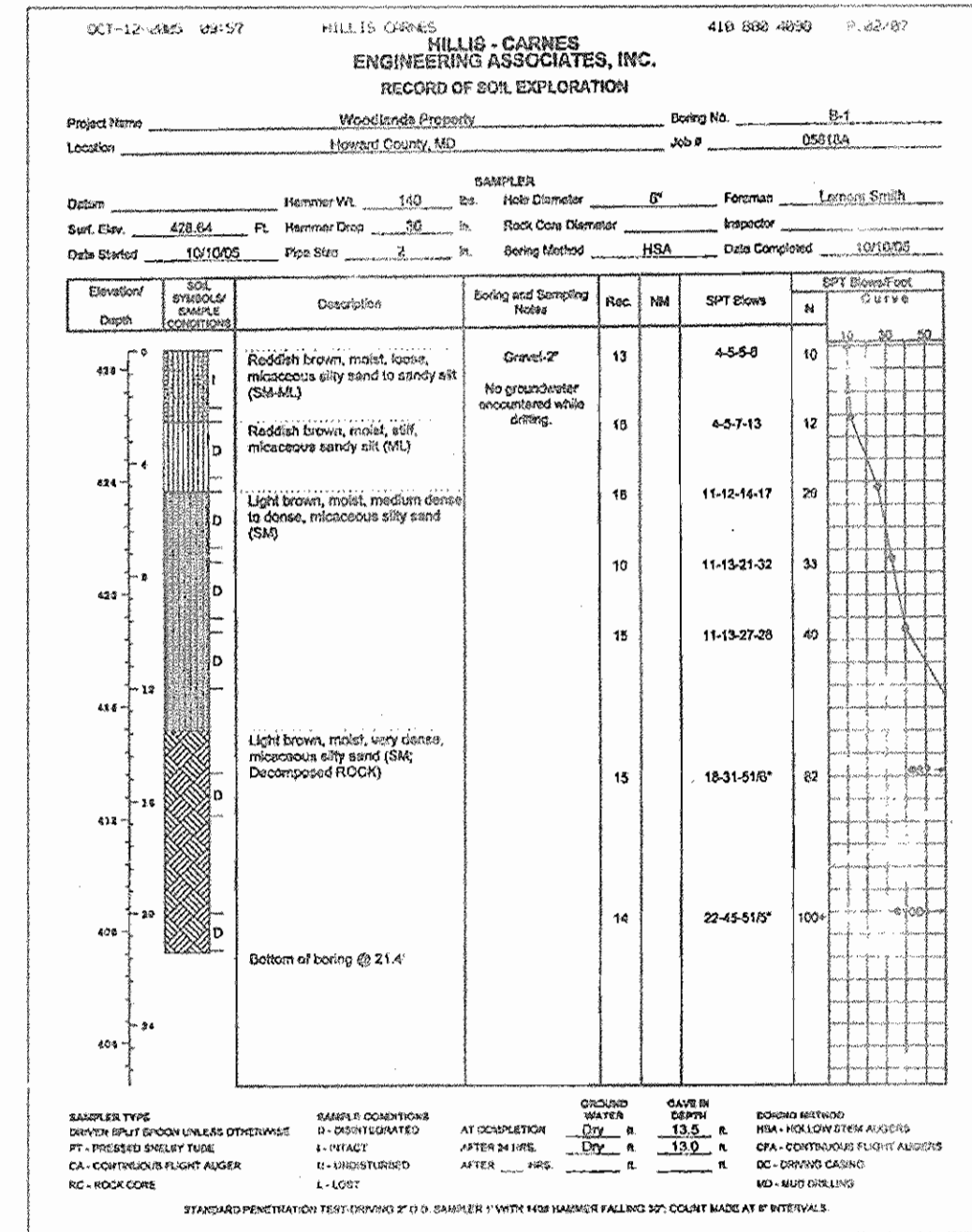
All work on permanent structures shall be carried out in a green free from water. The contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect the areas to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing such part 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 the 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 construction operations. During the placing and compacting of material in required excavations, the water level at the location being refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water pumps from which the water shall be pumped.

Stabilization

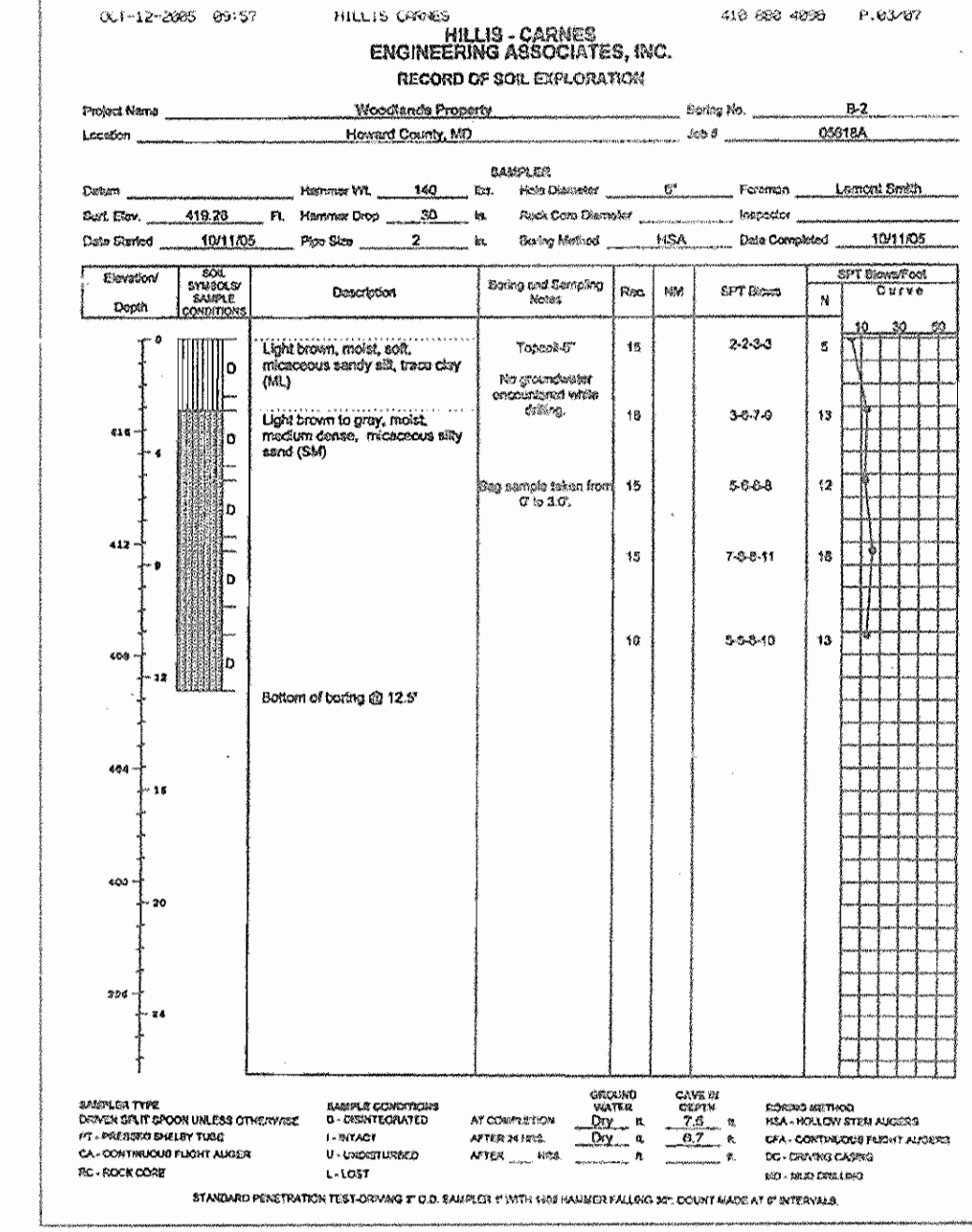
All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spill and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-192) or as shown on the accompanying drawings.

Erosion and Sediment Control

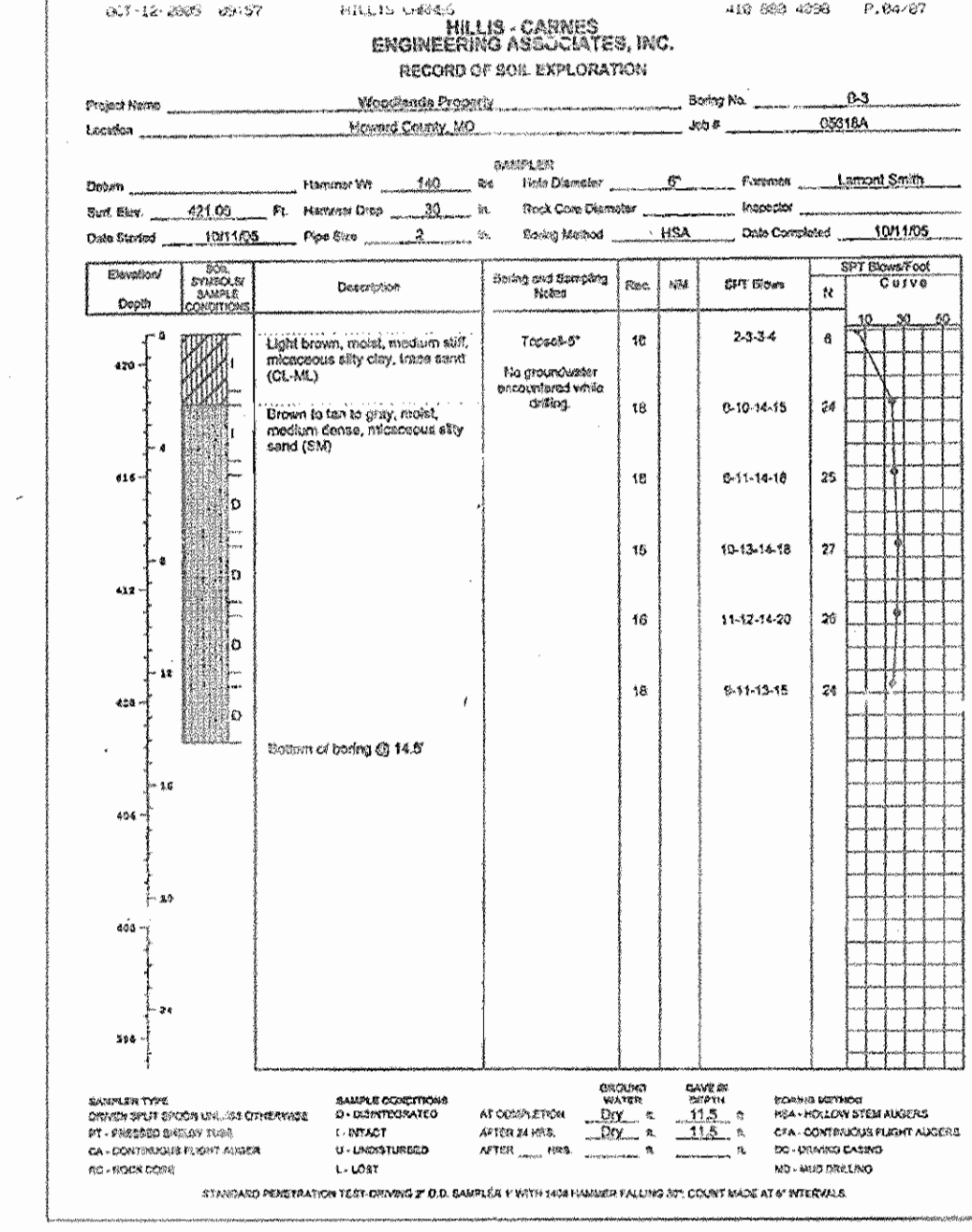
Construction operations will be carried out in such a manner that erosion will be controlled and sediment and pollution minimized. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.



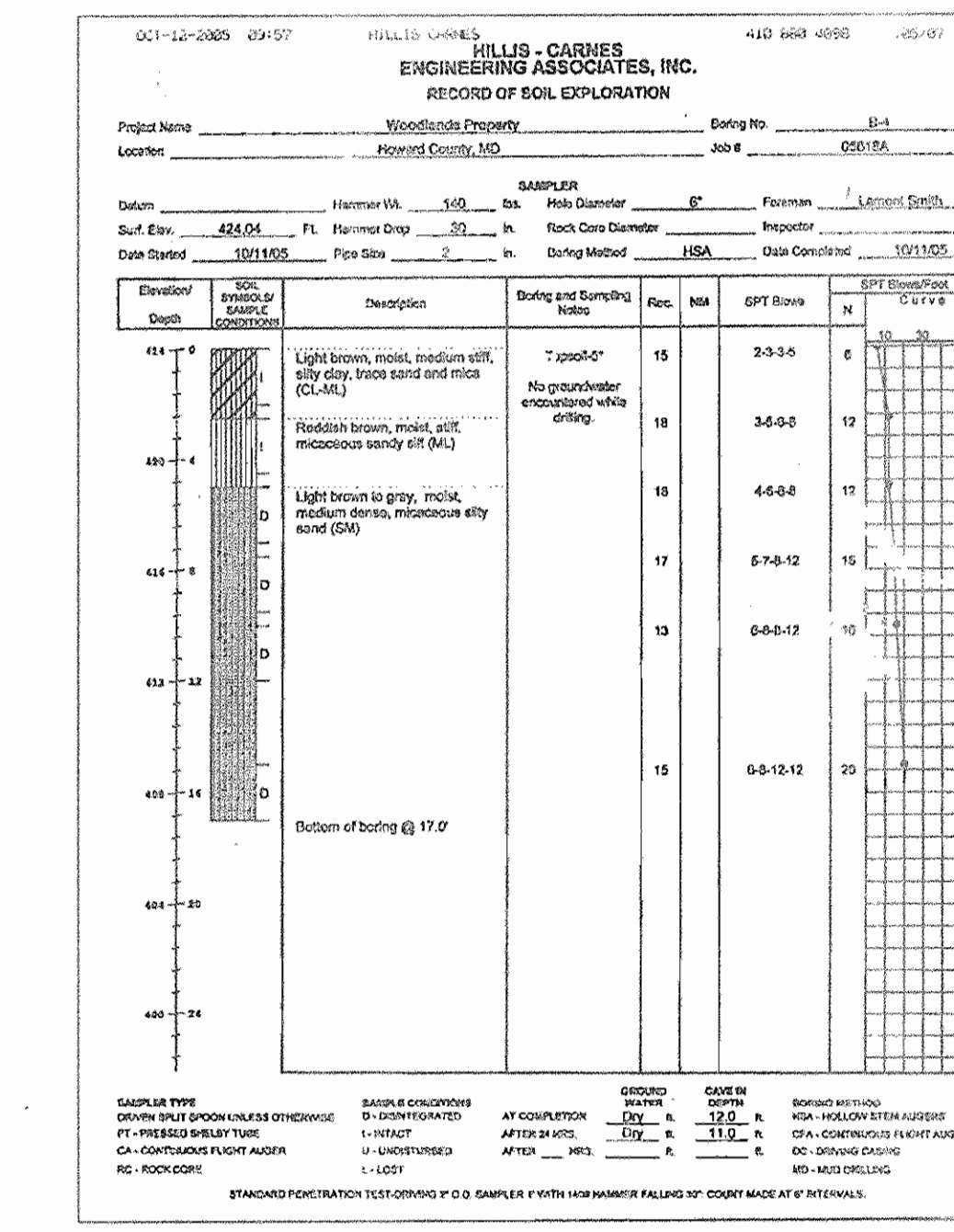
B-1



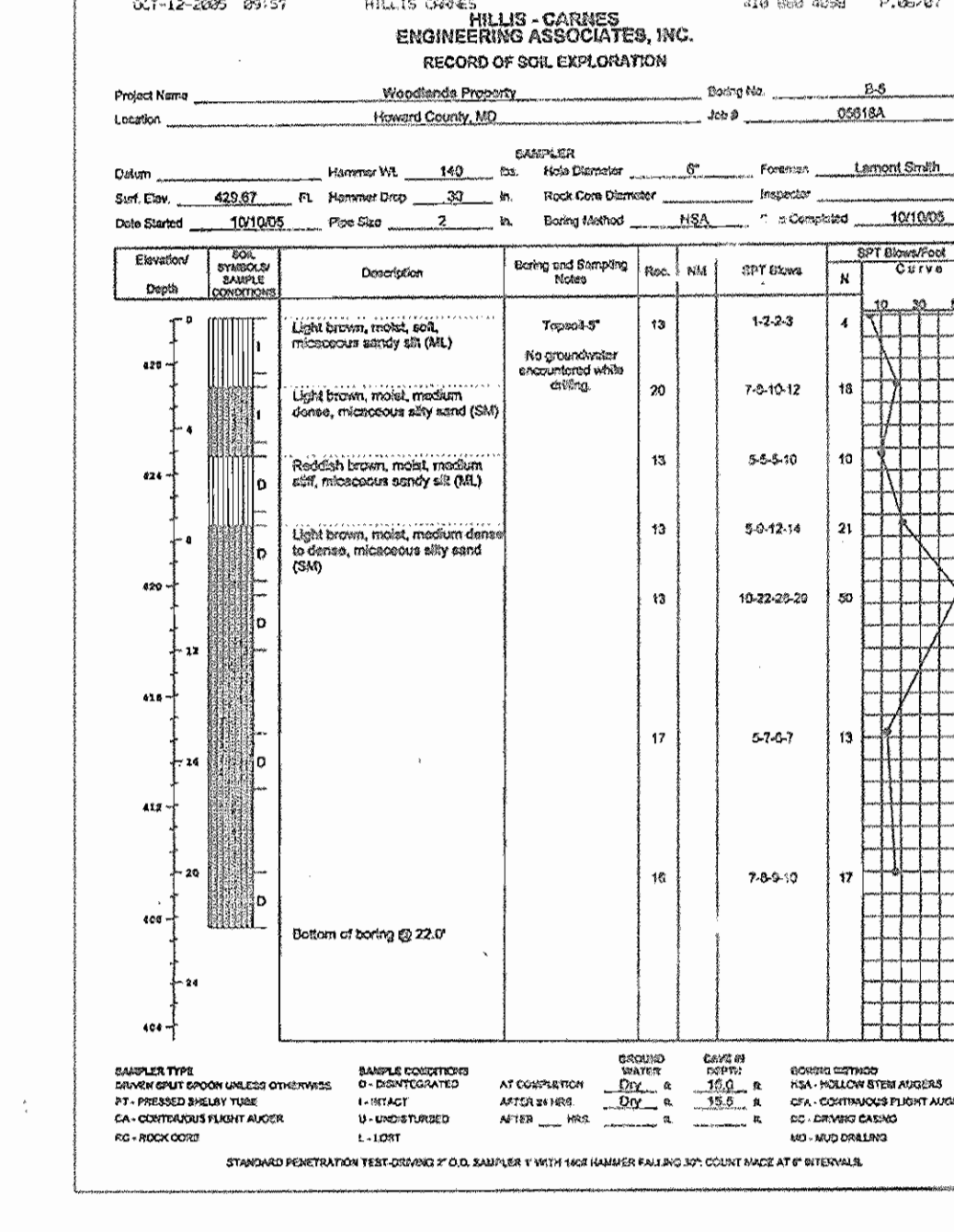
B-2



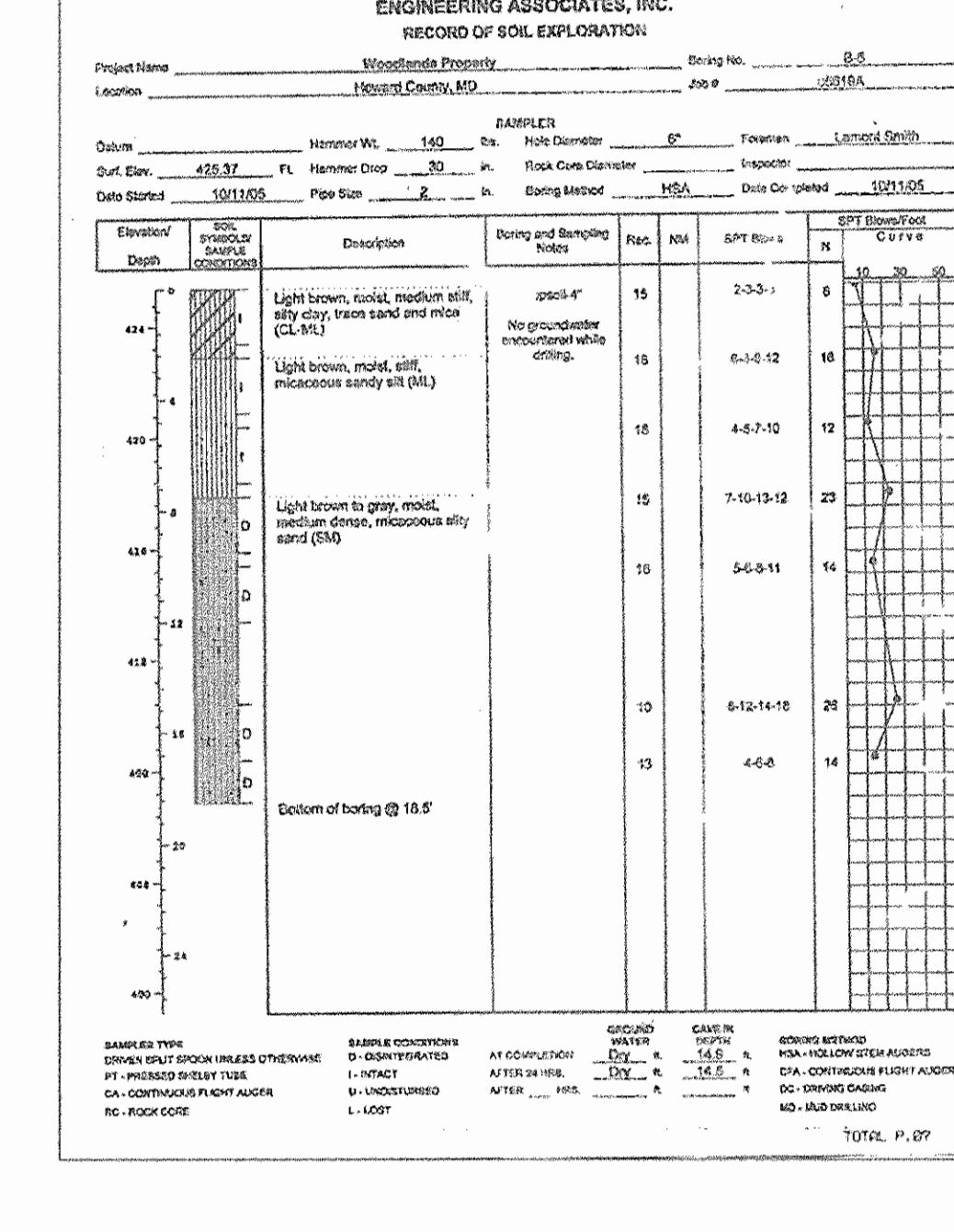
B-3



B-4



B-5



B-6

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. J. Kravitz - Meadows for C. Hamilton, CHIEF, DIVISION OF LAND DEVELOPMENT. DATE: 4-13-07. DATE: 2/20/07. DATE: 1/10/03.

BENCHMARK ENGINEERS & LAND SURVEYORS & PLANNERS. ENGINEERING, INC. 8450 BALTIMORE NATIONAL PIKE & SUITE 418, ELLICOTT CITY, MARYLAND 21043. PHONE: 410-465-6105. FAX: 410-465-6644. www.bei-civilengineering.com. OWNER/DEVELOPER: WOODLANDS LLC. PROJECT: WOODLANDS PROPERTY PARCEL 'A' PROFESSIONAL OFFICE DEVELOPMENT. LOCATION: TAX MAP 30, PARCEL 346 - GRID 11, 2nd ELECTION DISTRICT, HOWARD COUNTY, MARYLAND. TITLE: SITE DEVELOPMENT PLAN SWM BORINGS AND SPECIFICATIONS. DATE: OCTOBER 2005, NOV 2006. PROJECT NO. 1806. SCALE: AS SHOWN. DRAWING 14 OF 14. Design: BFC, Draft: BFC, Check: DAM. SDP-06-065