

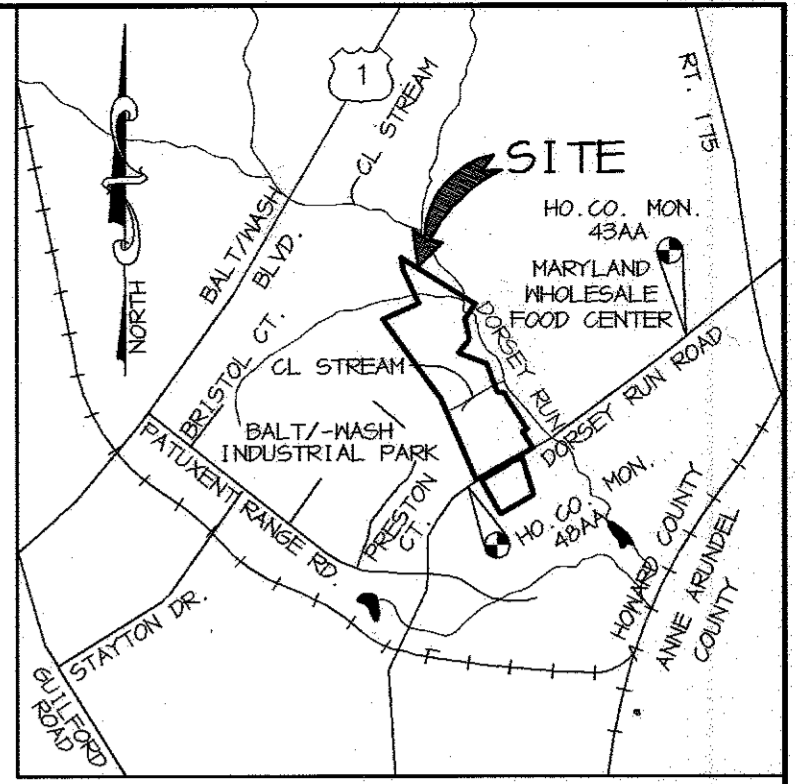
SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
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# SITE DEVELOPMENT PLAN DORSEY WOODS PARCELS 134 & 528 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

### AS-BUILT CONTROL BENCH MARK

HO. CO. SURVEY CONTROL STATION: 48AA  
N 539,314.900 E 1,371,539.251  
ELEVATION: 240.809'  
46' NORTH OF DORSEY RUN ROAD AND  
42.9' SOUTHEAST OF FENCED LOT,  
WEST CORNER.

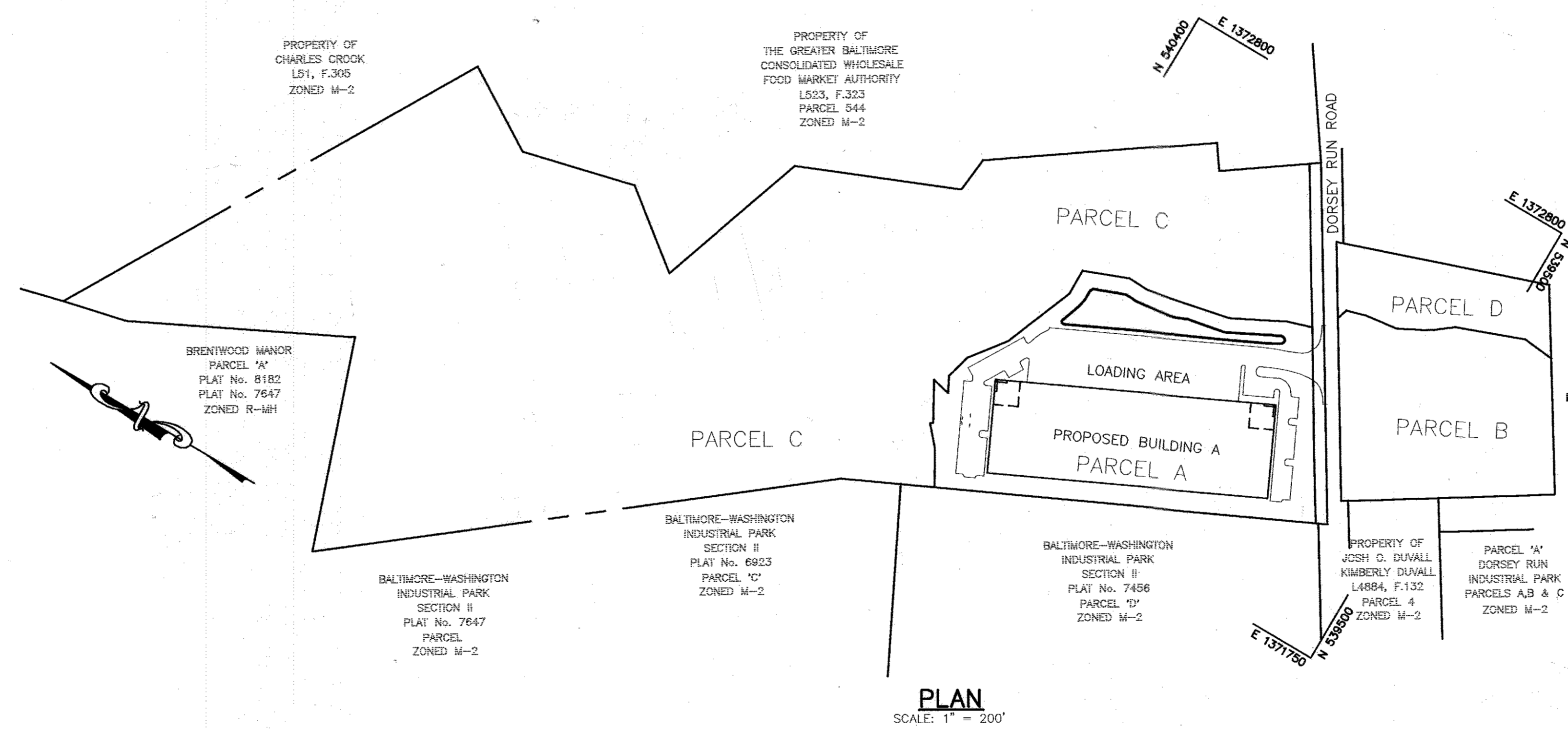
HO. CO. SURVEY CONTROL STATION: 43HA  
N 540,761.716 E 1,373,837.365  
ELEVATION: 224.907'  
70.5' FROM TOP WEST CORNER OF NORMAN  
GEIPE VAN LINE BLDG. HEADING TOWARD  
DORSEY RUN RD. AND 8.3' SOUTH OF  
DORSEY RUN RD. FACE OF CURB.



VICINITY MAP  
SCALE: 1"=2000'

### GENERAL NOTES

- 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/BUREAU OF ENGINEERING/ CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PHR&A DATED OCTOBER 2001.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NOS. 43AA AND 48AA WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC. CONTRACT NO. 454-W
- SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO CONTRACT NO. 487-S
- THE STORMWATER MANAGEMENT FACILITIES PROPOSED FOR THIS SITE ARE A PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND, GRASS CHANNEL, AND BIOTENTION BMP.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- THE 100- YEAR FLOODPLAIN IS PER DORSEY RUN FLOODPLAIN STUDY (HOWARD COUNTY MAP NO. 20-44)
- THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY PHR&A DATED FEBRUARY 2002.
- THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP INC. DATED FEBRUARY 2002.
- THE GEOTECHNICAL STUDY FOR STORMWATER MANAGEMENT FOR THIS PROJECT WAS PREPARED BY SPECIALIZED ENGINEERING DATED FEBRUARY 2002.
- THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY (PHR&A) DATED FEBRUARY 2002.
- SUBJECT PROPERTY ZONED M-2 PER 10-18-93 COMPREHENSIVE ZONING PLAN.
- ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND C.S. MEAN SEA LEVEL DATUM, 1929.
- SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S. F-02-119, WP-02-84.
- THE CONTRACTOR SHALL VERIFY EXISTING UTILITIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.E., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
- PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T99.
- THIS DEVELOPMENT COMPLIES WITH THE REQUIREMENTS OF 16.1200 OF HOWARD COUNTY CODES FOR FOREST CONSERVATION THROUGH THE ESTABLISHMENT OF A FOREST RETENTION EASEMENT THAT ENCOMPASSES 6.853 AC. OF EXISTING FOREST ON F-02-119, PLAT NO. 19610 & 19611.
- WP-02-84 IS A REQUEST TO WAIVE SECTION 16.102 (F)-MERGER OF NON-RESIDENTIAL PARCELS: WHERE TWO OR MORE NON-RESIDENTIAL PARCELS THAT HAVE NOT BEEN PART OF A PREVIOUSLY RECORDED SUBDIVISION ARE TO BE MERGED AND INTERIOR LOT LINES ARE TO BE ELIMINATED, NEITHER A SKETCH OR PRELIMINARY PLAN IS REQUIRED AS LONG AS NO PUBLIC ROAD IMPROVEMENTS ARE REQUIRED. THE INITIAL SUBDIVISION MAY BE A FINAL PLAN WAS APPROVED ON APRIL 15, 2002 WITH CONDITIONS.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR BUFFERS AND FOREST CONSERVATION AREAS.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AND AGREEMENT IN THE AMOUNT OF \$14,670 FOR 29 SHADE TREES, 21 EVERGREEN TREES, 6 ORNAMENTAL TREES, AND 64 SHRUBS.
- A FEE-IN-LIEU PAYMENT WILL BE PAID BY DEVELOPER TO ADDRESS THE REQUIRED DORSEY RUN ROAD IMPROVEMENTS. THE FEE WILL BE APPLIED TO CAPITAL PROJECT J-4182.
- THIS STORMWATER MANAGEMENT FACILITY IS DESIGNED FOR IMPERVIOUS AREAS AS SHOWN ON THE SITE PLAN. NO ADDITIONAL INCREASE AREAS IS ALLOWED WITHOUT ADEQUATE STORMWATER QUALITY MANAGEMENT BEING ADDRESSED.



PLAN  
SCALE: 1" = 200'

### SITE TABULATION

SITE AREA-PARCEL A	7.489 ACRES
LIMIT OF DISTURBED AREA	7.5 ACRES
PRESENT ZONING	M-2
PROPOSED USE	OFFICE/ WAREHOUSE FACILITY (ONE STORY)
120,000 SF FLOOR AREA	
OFFICE 6,000 SF	
WAREHOUSE 114,000 SF	
PARKING SPACES REQUIRED	
OFFICE 3.3 SP/1000 SF	20 SPACES
WAREHOUSE 0.5 SP/1000 SF	57 SPACES
TOTAL	77 SPACES
PARKING SPACES PROVIDED	87 SPACES (INCLUDES 4 HC SPACES)

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

*James R. Smith* 11/24/02  
DIRECTOR DATE

*Christopher J. Reid* 11/14/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Cindy Hammett* 11/23/02  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

4-20-17  REVISOR: PARKING SPACES PROVIDED  
1-17-04  REVISOR: DATED TABULATION

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL  
8101 DORSEY RUN ROAD  
JESSUP, MARYLAND 20794  
410-799-7724

DEVELOPER: OPUS EAST LLC  
2099 GAITHER ROAD, SUITE 101  
ROCKVILLE, MD 20850  
(301) 554-4444  
ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
PARCEL A ZONED M-2  
6th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: TITLE SHEET

Patton Harris Rust & Associates, p.c.  
Engineers, Surveyors, Planners, Landscape Architects.

**PHR+A**  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DESIGNED BY : A.C.R.  
DRAWN BY : DAM  
CHECKED BY : C.J.R.  
PROJECT NO : 01284  
CO00COV.DWG  
DATE : OCTOBER 14, 2002  
SCALE : AS SHOWN  
DRAWING NO. 1 OF 17

AS-BUILT CERTIFICATE

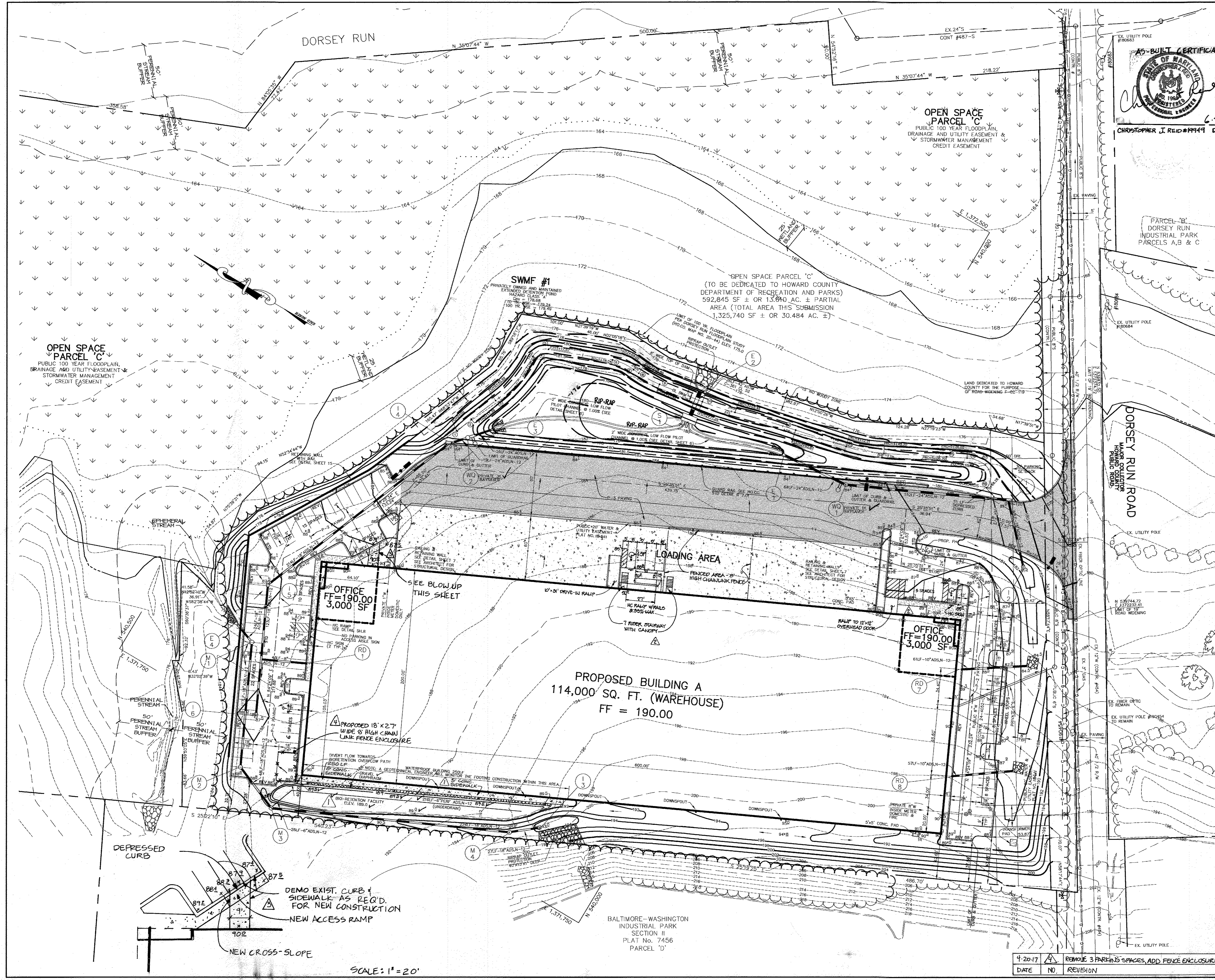
*Christopher J. Reid*  
CHRISTOPHER J. REID #19949  
6-24-04  
DATE

LOT NUMBER	STREET ADDRESS
	8100 DORSEY RUN ROAD

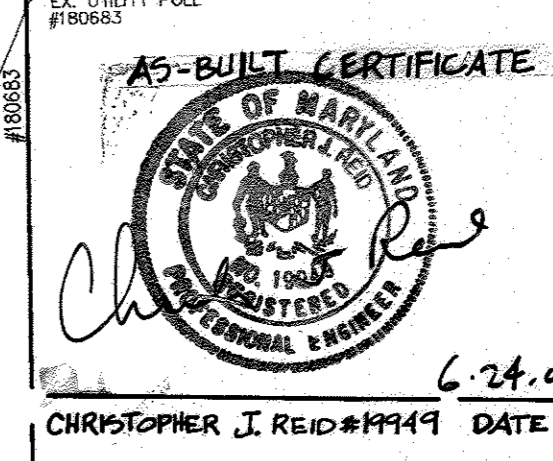
SUBDIVISION NAME	SECT./AREA	PARCEL
DORSEY WOODS		134 AND 528
PLAT # 19611	BLOCK # 2 ZONING M-2	TAX MAP NO. 48 ELEC. DIST. 6 CENSUS TRACT 6069.01
WATER CODE B02	SEWER CODE 3020000	

### BUILDING ELEVATION

SCALE: 1" = 40'



SWMF #1 SUMMARY CHART	
DRAINAGE AREA	6.7 Ac.
RE <sub>v</sub> REQUIRED	0.68 Ac.
RE <sub>v</sub> PROVIDED	0.7 Ac.
WQ <sub>v</sub> REQUIRED	0.125 Ac.-Ft.
WQ <sub>v</sub> PROVIDED	0.125 Ac.-Ft.
CP <sub>v</sub> REQUIRED	0.65 Ac.-Ft.
CP <sub>v</sub> PROVIDED	0.65 Ac.-Ft.



REV IS PROVIDED VIA THE GRASS CHANNEL CREDIT.  
 WQ<sub>v</sub> IS PROVIDED IN A BIORETENTION FACILITY.  
 CP<sub>v</sub> IS PROVIDED IN AN EXTENDED DETENTION POND.  
 Q<sub>p</sub> AND Q<sub>f</sub> ARE NOT REQUIRED FOR THIS SITE.  
 THE 100 YR. W.S.E. IS 179.09 WHICH PROVIDES 2 FEET OF FREEBOARD.  
 THE TOP OF DAM ELEV. IS 181.10.

**LEGEND**

- EX. CONTOUR
- PROP. CONTOUR
- EX. TREELINE
- PROP. TREELINE
- PROP. SPOT ELEVATION
- 100 YEAR FLOODPLAIN
- WETLANDS
- P-2 PAVING
- SIDEWALK
- P-3 PAVING
- LIGHT-ROADWAY/PARKING
- LIGHT-FIELD
- LIMIT OF WETLANDS
- AREA NOT INCLUDED IN APPROVED CONDITIONAL USE

**NOTES:**

1. ALL RADI ARE 5' UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
3. ALL ON-SITE ROADS ARE PRIVATE.
4. ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
5. \* STD/REV - STANDARD TO REVERSE CURB TRANSITION.
6. SITE LIGHTS TO BE 175 WATT MH CUTOFF RECTILINEAR FIXTURE (COOPER) MOUNTED AT 20' ON A EMBEDDED BRONZE FIBERGLASS POLE.

**DAM CENTERLINE DATA**

① - ② R=316.00', L=17.39'	⑩ - ⑪ S 08° 52' 44" E, 43.37'
② - ③ S 68° 10' 31" E, 28.60'	⑪ - ⑫ R=244.85', L=32.16'
③ - ④ R=116.00', L=54.50'	⑫ - ⑬ R=928.85', L=59.16'
④ - ⑤ R=13.75', L=17.07'	⑬ - ⑭ R=13679.71', L=49.59'
⑤ - ⑥ S 21° 17' 55" E, 61.31'	⑭ - ⑮ R=1267.21', L=58.50'
⑥ - ⑦ R=47.00', L=21.98'	⑮ - ⑯ R=1792.51', L=19.32'
⑦ - ⑧ N 04° 25' 46" E, 5.87'	⑯ - ⑰ R=31.14', L=18.46'
⑧ - ⑨ R=113.00', L=22.03'	⑰ - ⑱ R=15.22', L=23.80'
	⑲ - ⑳ N 53° 58' 39.99" E, 1372294.28'

6-14-04 **ADDED 9' SIDEWALK ACCESS RAMP**  
 APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

*Joseph R. Rust* 11/26/02 DATE  
 DIRECTOR  
*Chris H. Rust* 11/14/02 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*Chris H. Rust* 11/22/02 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT

1-7-04 **REV. HC PARKING, ADDED FENCE, RAISED 4 STAIRS**  
 01-03-05 **ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY**

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN W. DUVALL  
 8101 DORSEY RUN ROAD  
 JESSUP, MARYLAND 20794  
 410-799-7724

DEVELOPER: OPLUS EAST LLC  
 2099 GAITHER ROAD, SUITE 101  
 ROCKVILLE, MD 20850  
 (301) 554-4444  
 ATTN: TIM HOGAN

PROJECT: **DORSEY WOODS**  
 PARCEL A, AN OFFICE-WAREHOUSE BUILDING

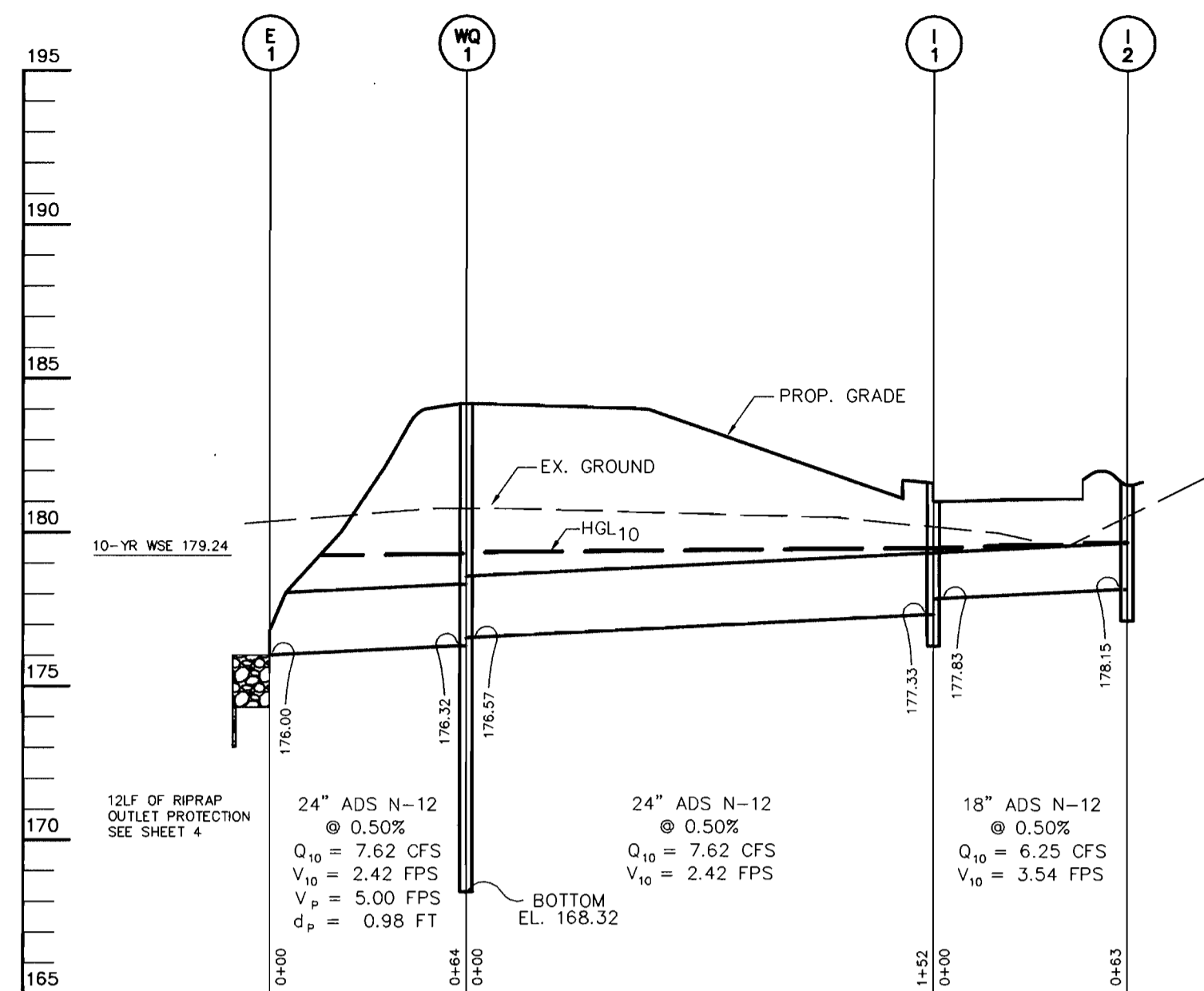
AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
 PARCEL A ZONED M-2  
 6TH ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: **SITE DEVELOPMENT PLAN**

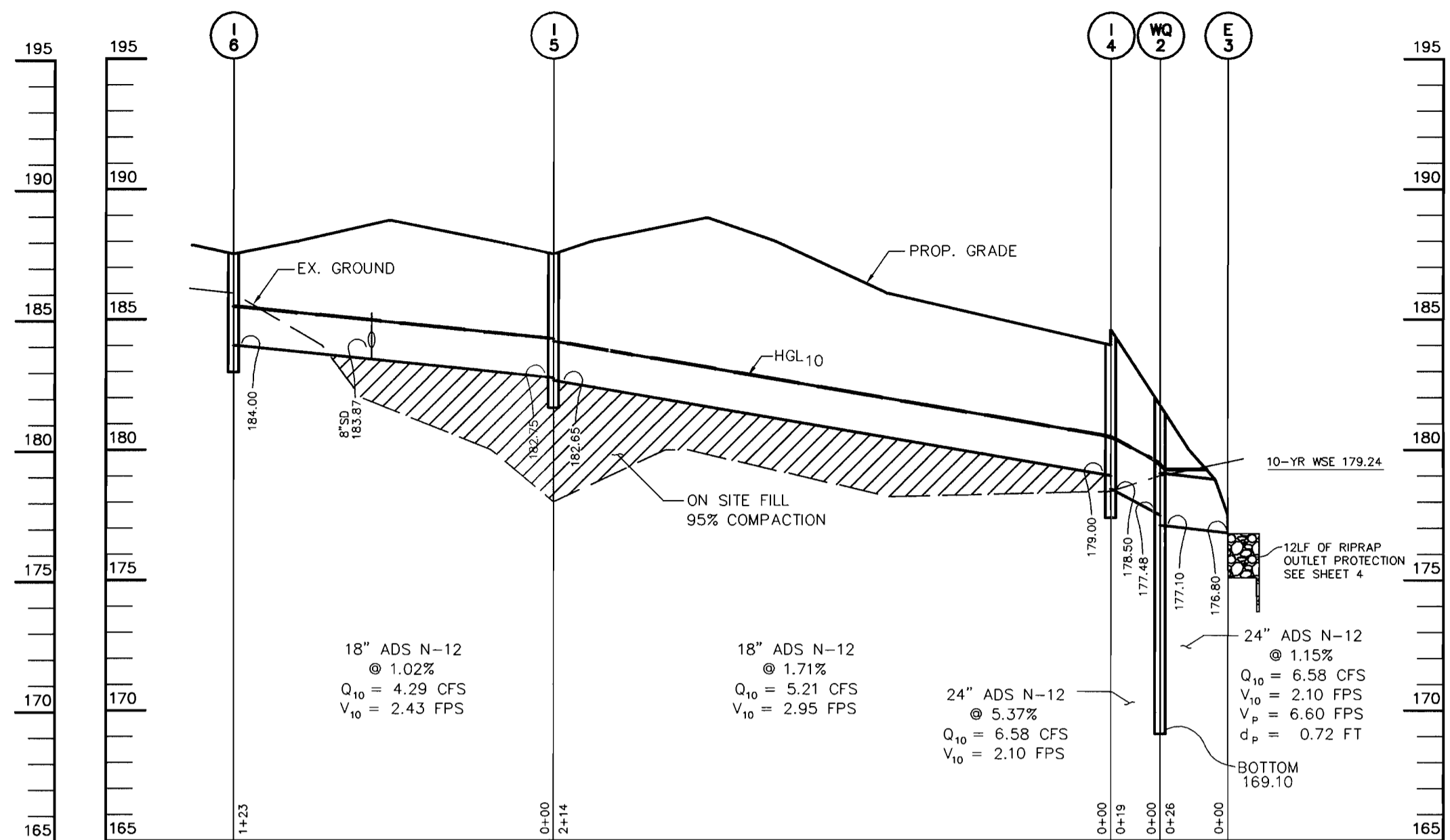
Patton Harris Rust & Associates, p.c.  
 Engineers, Surveyors, Planners, Landscape Architects.

**PHRA**  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

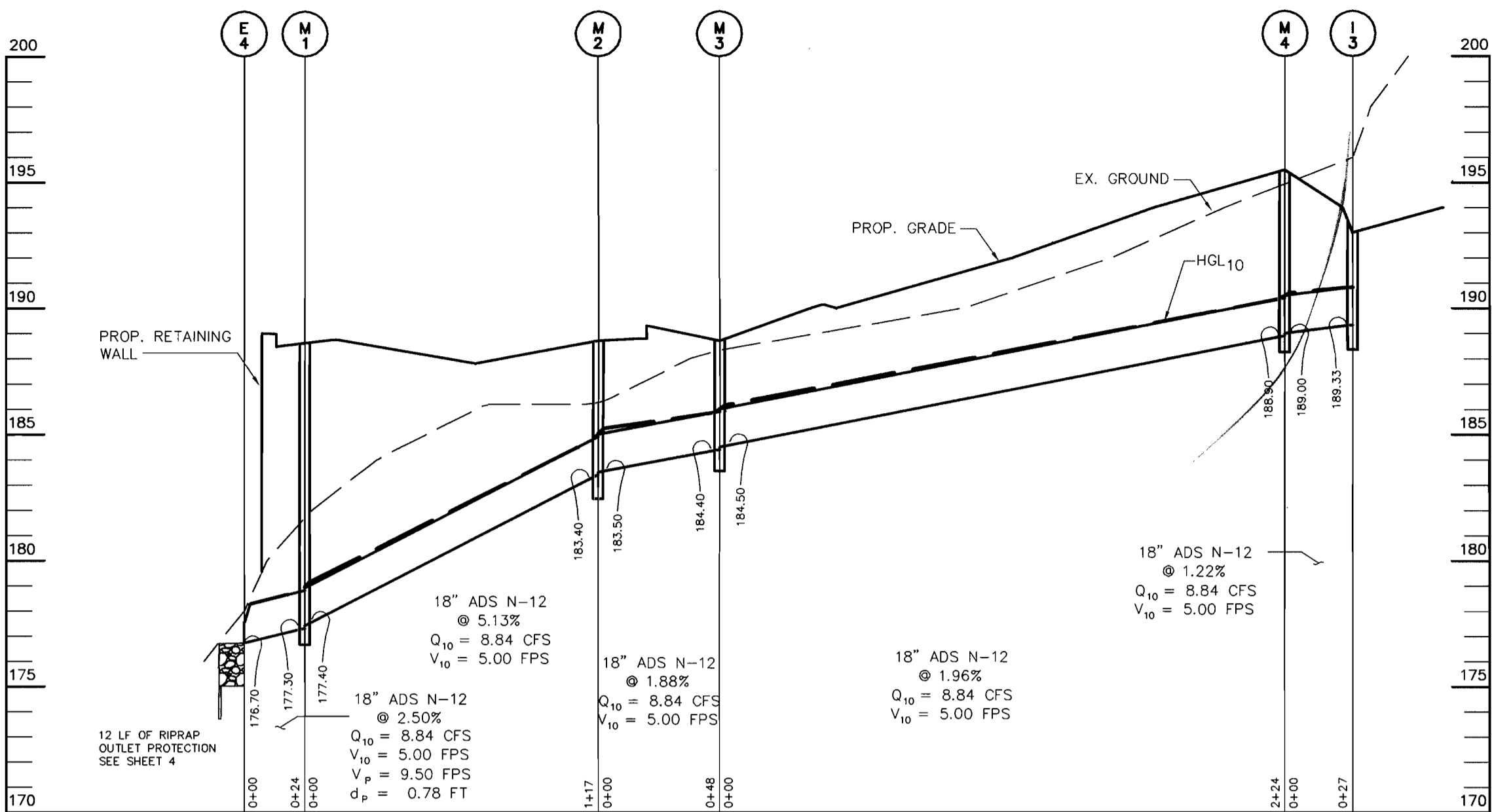
10.15.02 DATE  
 DESIGNED BY : A.C.R.  
 DRAWN BY : DAM  
 CHECKED BY : C.J.R.  
 PROJECT NO : 01284  
 C400SIT.DWG  
 DATE : OCTOBER 14, 2002  
 SCALE : 1" = 40'  
 CHRISTOPHER J. REID #19949 DRAWING NO. 2 OF 17



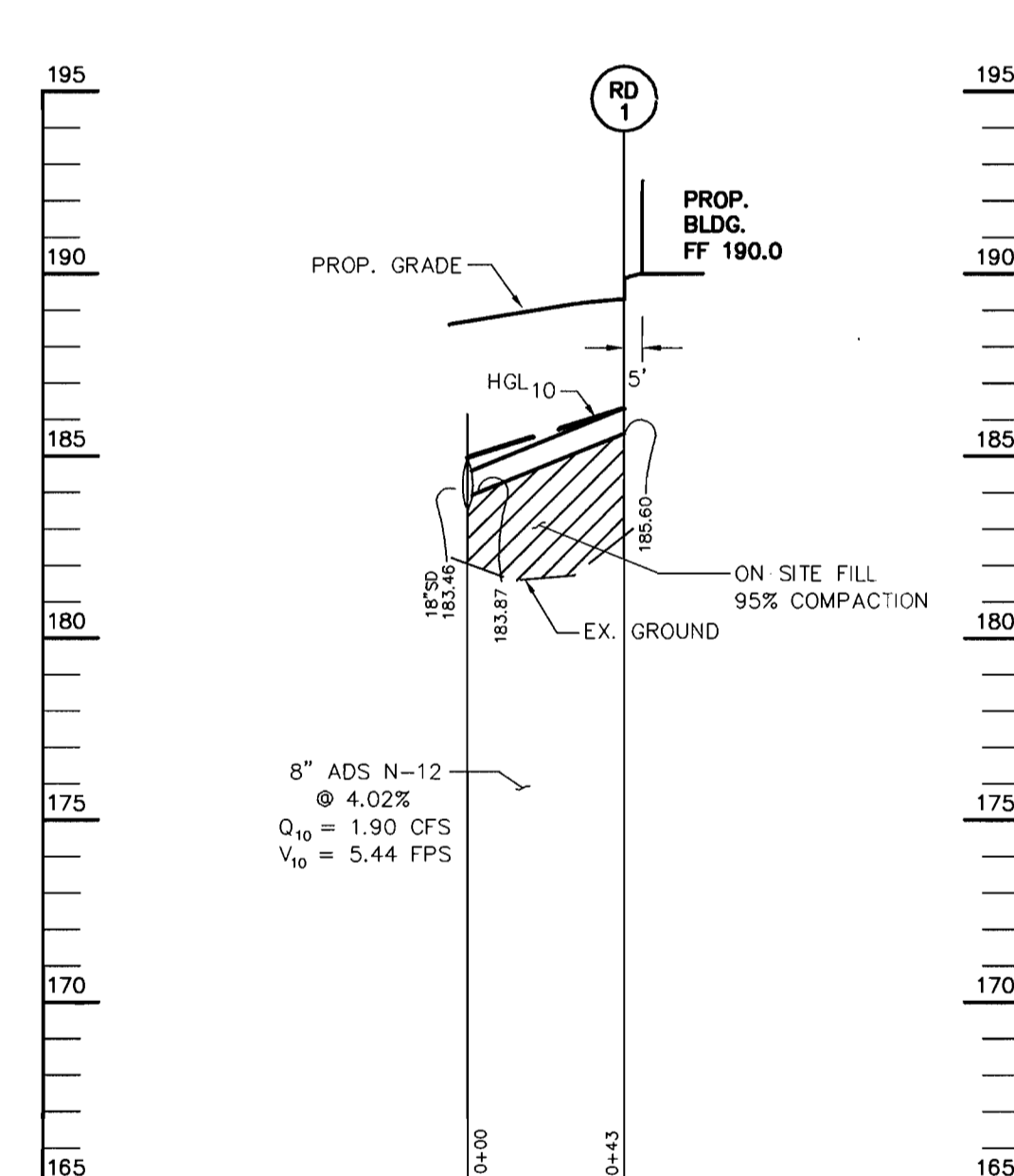
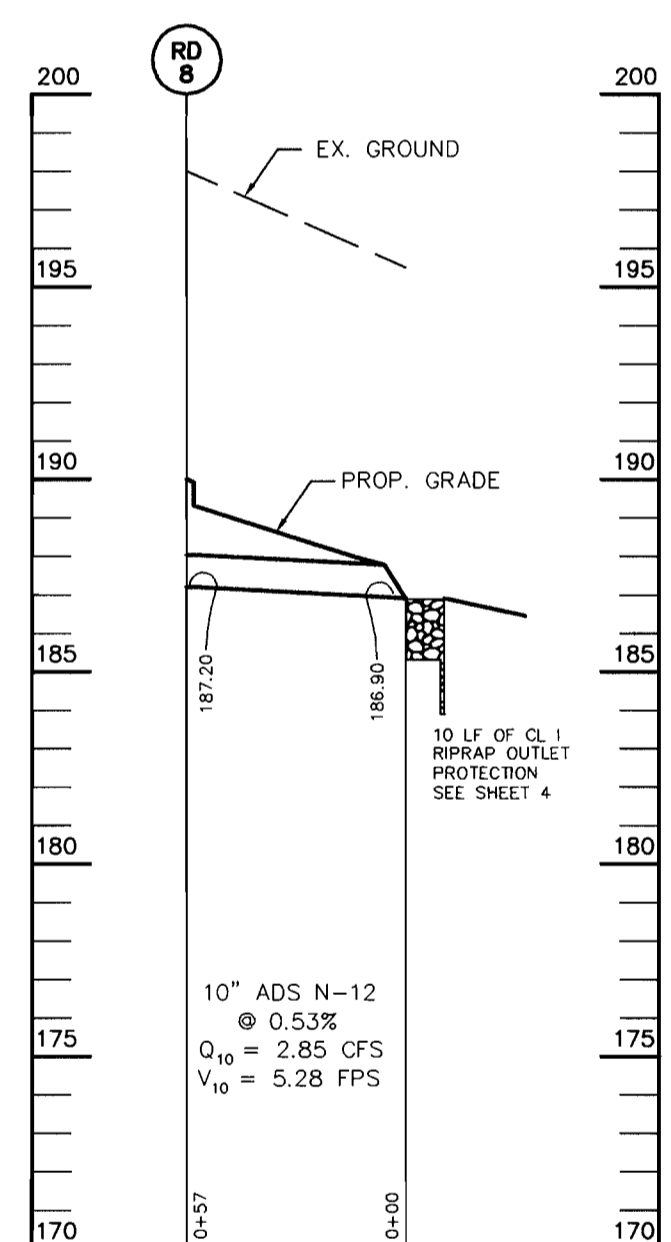
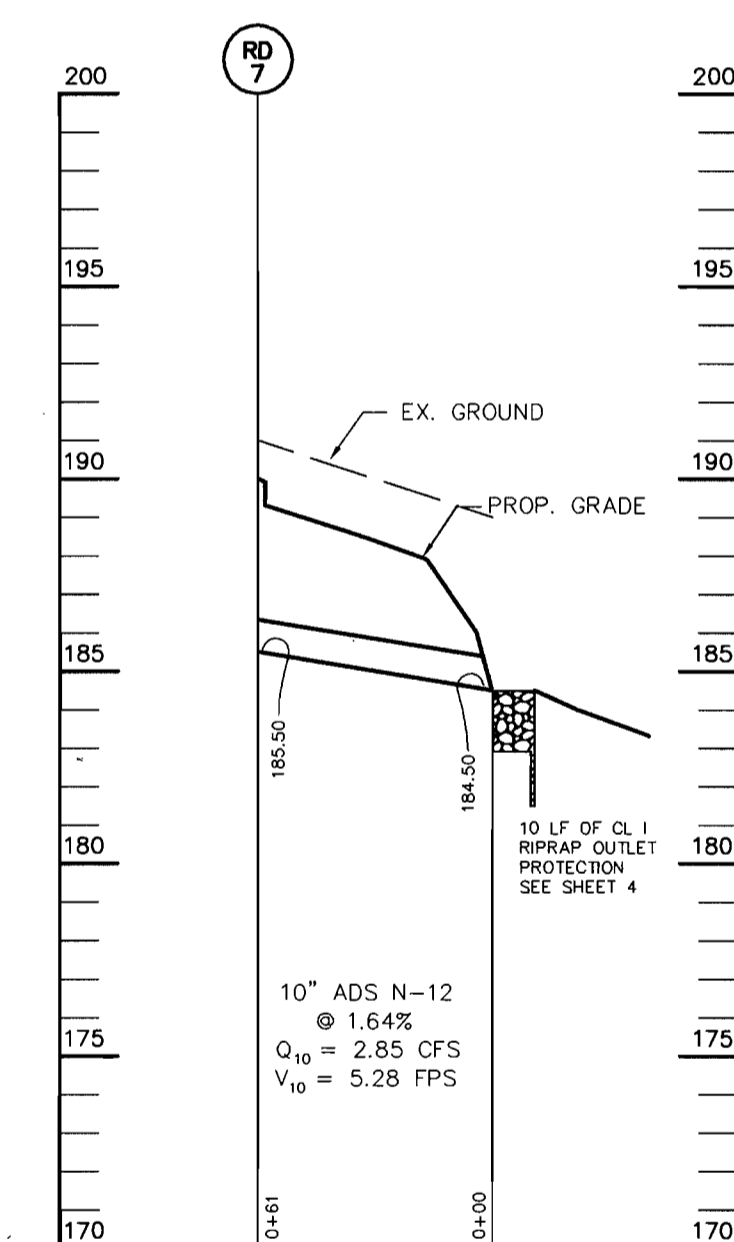
**PROFILE**  
SCALE :  
HOR. - 1" = 50'  
VERT. - 1" = 5'



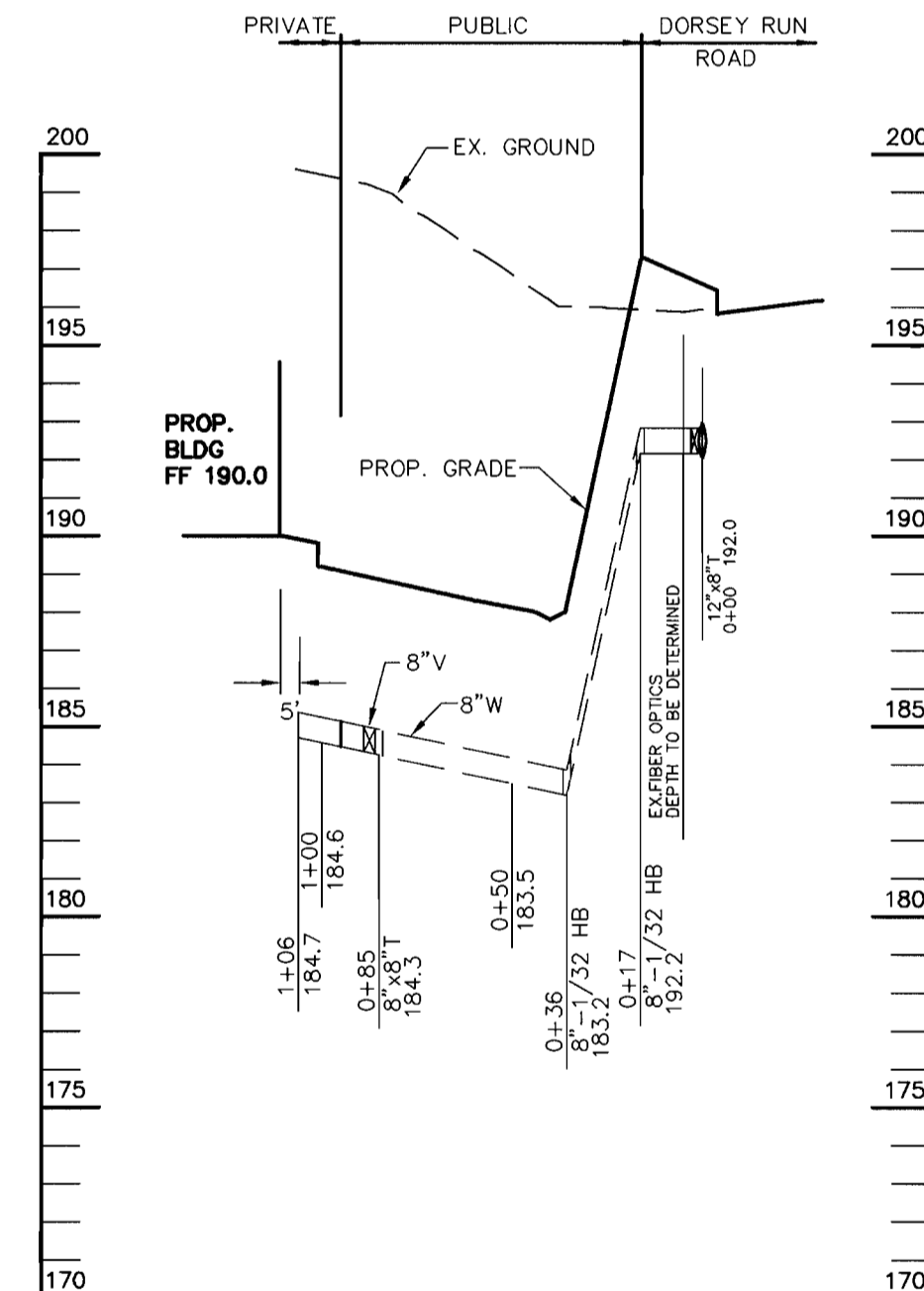
**PROFILE**  
SCALE :  
HOR. - 1" = 50'  
VERT. - 1" = 5'



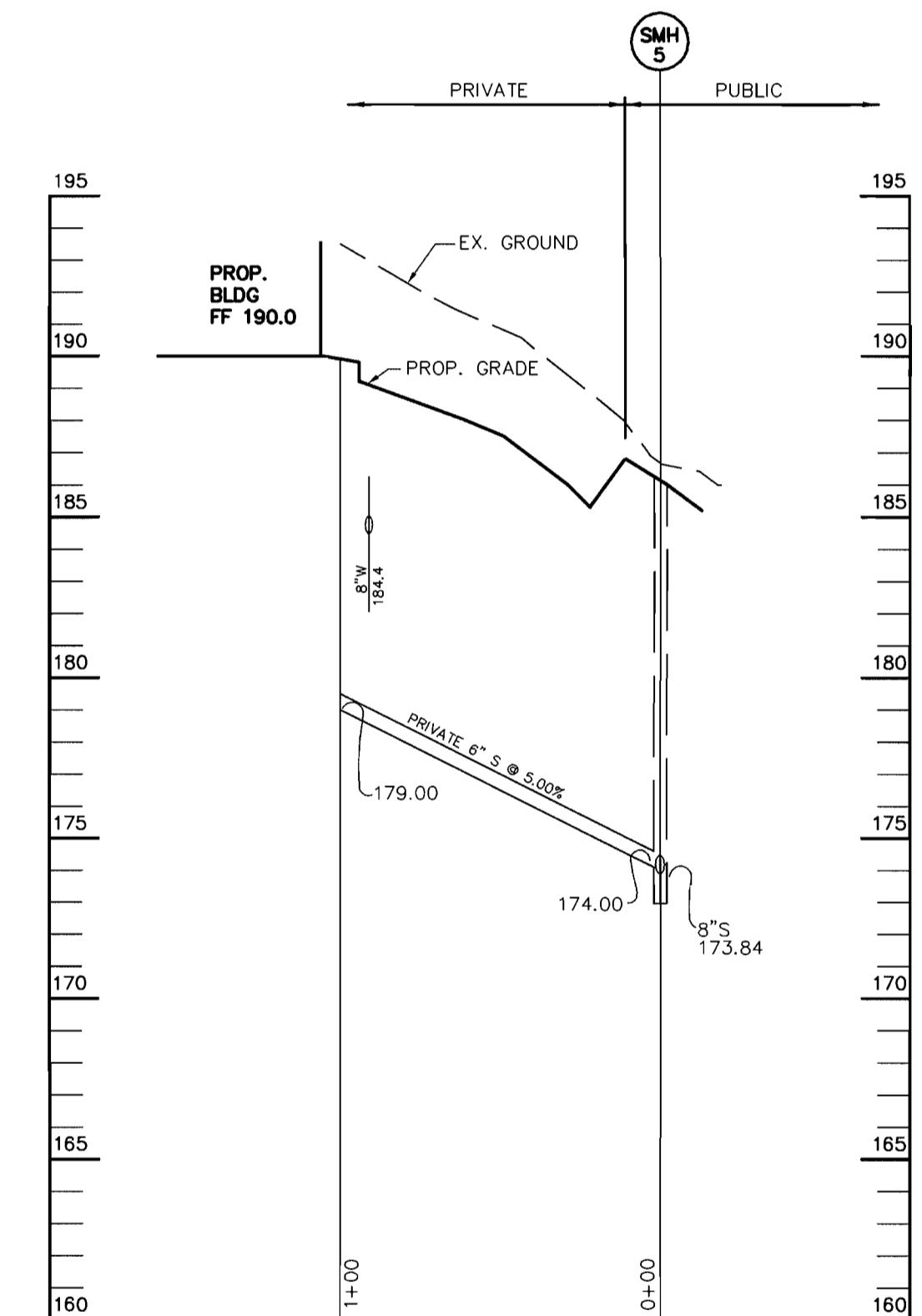
**PROFILE**  
SCALE :  
HOR. - 1" = 50'  
VERT. - 1" = 5'



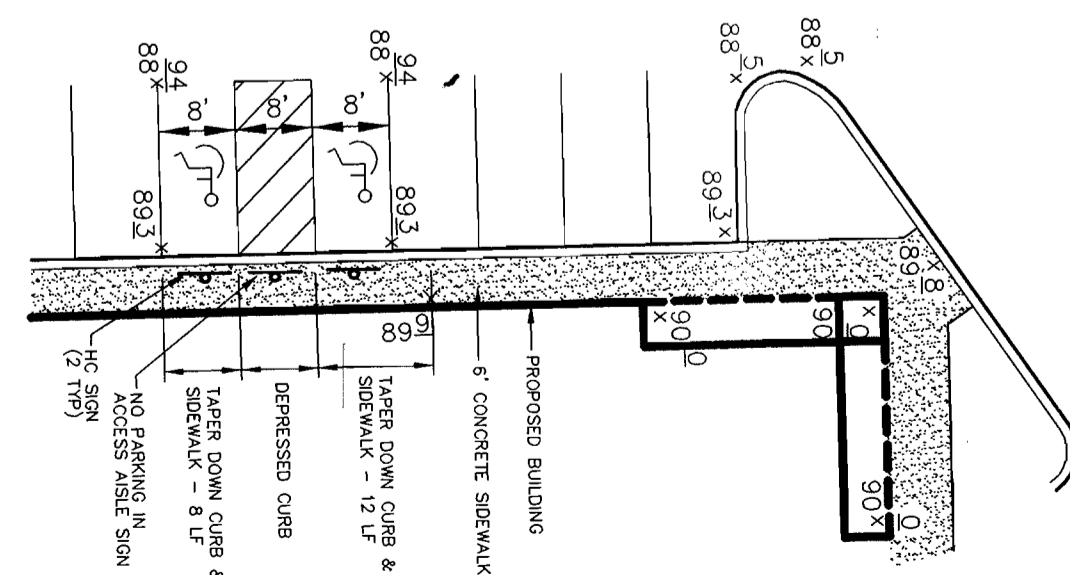
**PROFILE**  
SCALE :  
HOR. - 1" = 50'  
VERT. - 1" = 5'



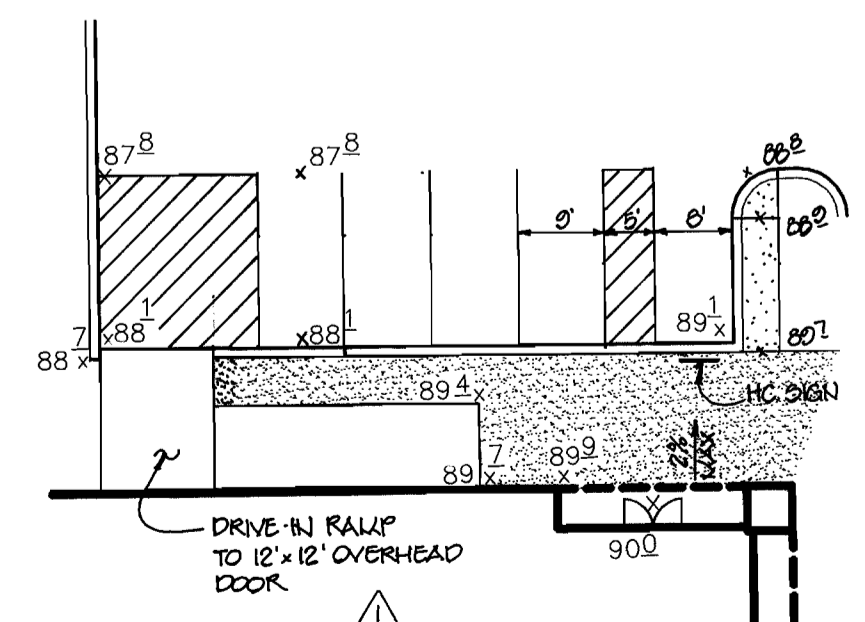
**WATER PROFILE**  
SCALE :  
HOR. - 1" = 50'  
VERT. - 1" = 5'



**SEWER PROFILE**  
SCALE :  
HOR. - 1" = 50'  
VERT. - 1" = 5'



**HC RAMP DETAIL**  
SCALE :  
HOR. - 1" = 20'



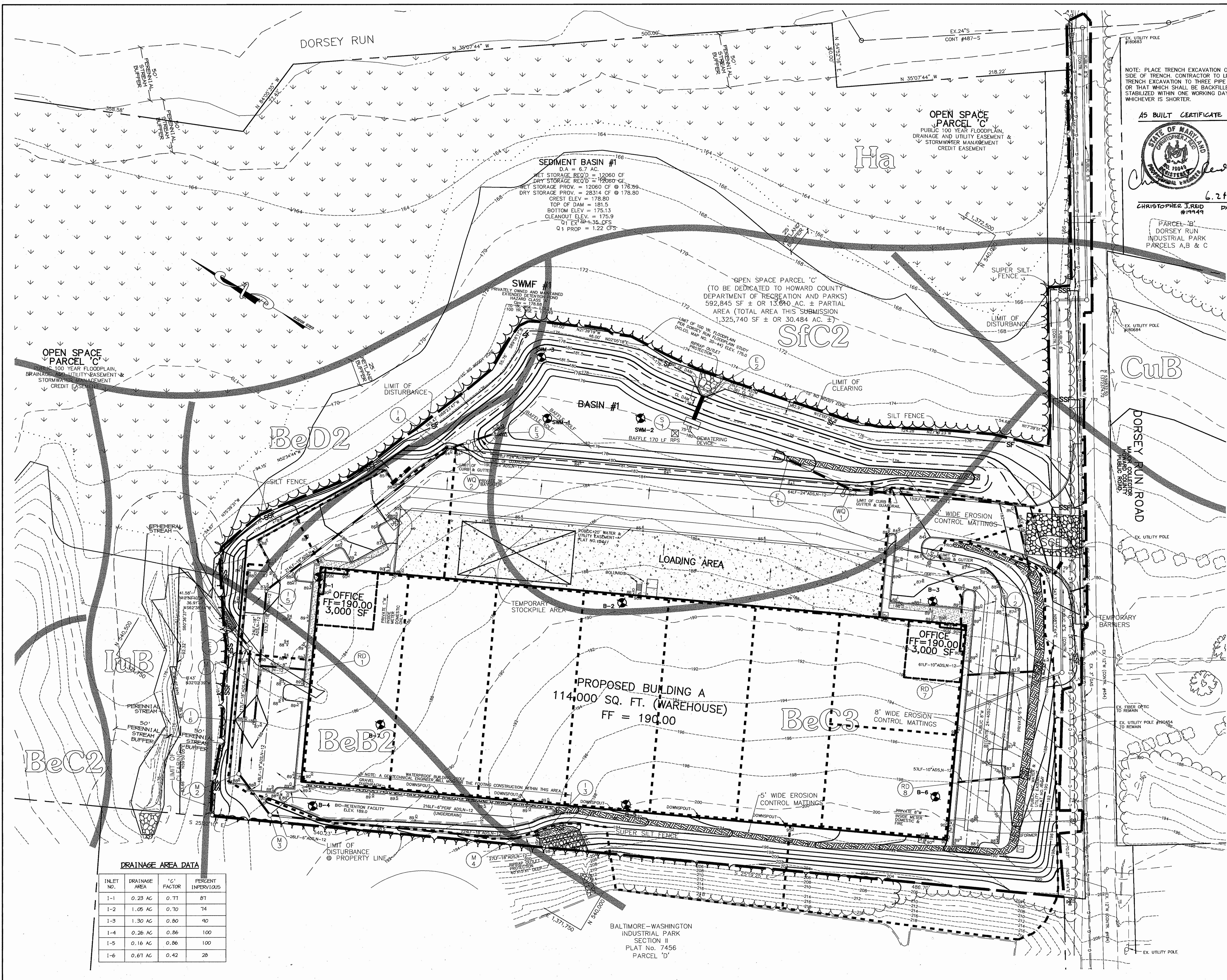
**HC RAMP DETAIL**  
SCALE :  
HOR. - 1" = 20'

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Les S. Ruth</i> DIRECTOR	11/26/02 DATE
<i>John Dammann</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	11/14/02 DATE
<i>Condy Haran</i> CHIEF, DIVISION OF LAND DEVELOPMENT	11/22/02 DATE

1-7-02	REV. HC RAMP DETAIL
DATE	REVISION
OWNER:	MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724
DEVELOPER	OPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 354-4444 ATTN: TIM HOGAN
PROJECT	<b>DORSEY WOODS</b> PARCEL A, AN OFFICE-WAREHOUSE BUILDING
AREA	TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2 PARCEL A ZONED M-2 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE	
<b>PROFILES</b>	
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects.	
8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	

10.15.02 DATE	DESIGNED BY : A.C.R.
	DRAWN BY : DAM
	CHECKED BY : C.J.R.
	PROJECT NO : 01284 C900DETS.DWG
	DATE : OCTOBER 14, 2002
	SCALE : AS SHOWN
CHRISTOPHER J. REID #19949	DRAWING NO. 8 OF 17



**LEGEND**

SILT FENCE	— SF —
SUPER SILT FENCE	— SSF —
LIMIT OF DISTURBANCE	— L —
STABILIZED CONSTRUCTION ENTRANCE	— S —
TEMPORARY BARRIERS	— T —
EROSION CONTROL MATTING	— E —
DRAINAGE AREA LINES	— D —
SOIL LINES	— S —
REMOVABLE PUMPING STATION	— P —
FILTER BAG	— F —
BORING LOCATION	— B —

NOTE: PLACE TRENCH EXCAVATION ON UPHILL SIDE OF TRENCH. CONTRACTOR TO LIMIT TRENCH EXCAVATION TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACKFILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.

**AS BUILT CERTIFICATE**

STATE OF MARYLAND  
 CHRISTOPHER J. REID  
 REGISTERED PROFESSIONAL ENGINEER  
 #19949

DATE: 6.21.04

PARCEL 'D'  
 DORSEY RUN INDUSTRIAL PARK  
 PARCELS A, B & C

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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER: *Tim Hogan* DATE: 10-15-02

BY THE ENGINEER:

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

ENGINEER: *Chris S. Lewis* DATE: 10-15-02

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

NATURAL RESOURCES CONSERVATION SERVICE DATE: 11/13/02

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: 11/13/02

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR: *James R. Roth* DATE: 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *William J. ...* DATE: 11/14/02

CHIEF, DIVISION OF LAND DEVELOPMENT: *Chris ...* DATE: 11/24/02

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL  
 8101 DORSEY RUN ROAD  
 JESSUP, MARYLAND 20794  
 410-799-7724

DEVELOPER: OPUS EAST, LLC  
 2099 GAITHER ROAD, SUITE 101  
 ROCKVILLE, MD 20850  
 (301) 354-4444  
 ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
 PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
 PARCEL A ZONED M-2  
 6th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: DRAINAGE AREA MAP AND SEDIMENT CONTROL PLAN

Patton Harris Rust & Associates, PC  
 Engineers, Surveyors, Planners, Landscape Architects.

PHRA  
 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

DATE: 10

DESIGNED BY: A.C.R.

DRAWN BY: DAM

CHECKED BY: C.J.R.

PROJECT NO: 01284  
 C600ESC.DWG

DATE: OCTOBER 14, 2002

SCALE: 1" = 40'

CHRISTOPHER J. REID #19949

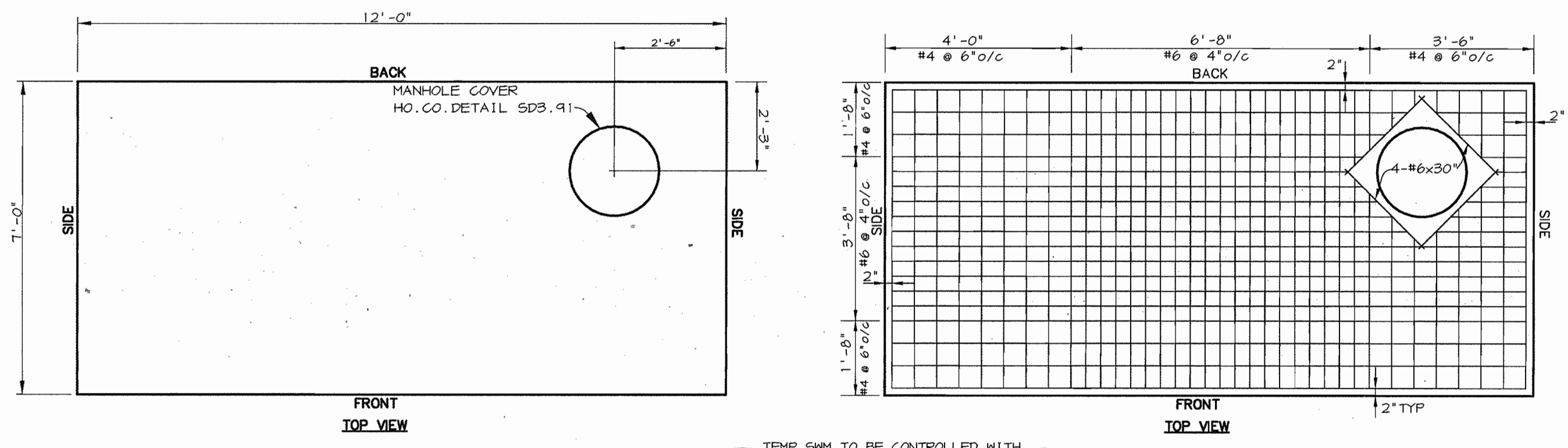
DRAWING NO. 3 OF 17

**DRAINAGE AREA DATA**

INLET NO.	DRAINAGE AREA	'C' FACTOR	PERCENT IMPERVIOUS
1-1	0.23 AC	0.77	81
1-2	1.05 AC	0.70	74
1-3	1.30 AC	0.80	90
1-4	0.26 AC	0.26	100
1-5	0.16 AC	0.86	100
1-6	0.61 AC	0.42	28

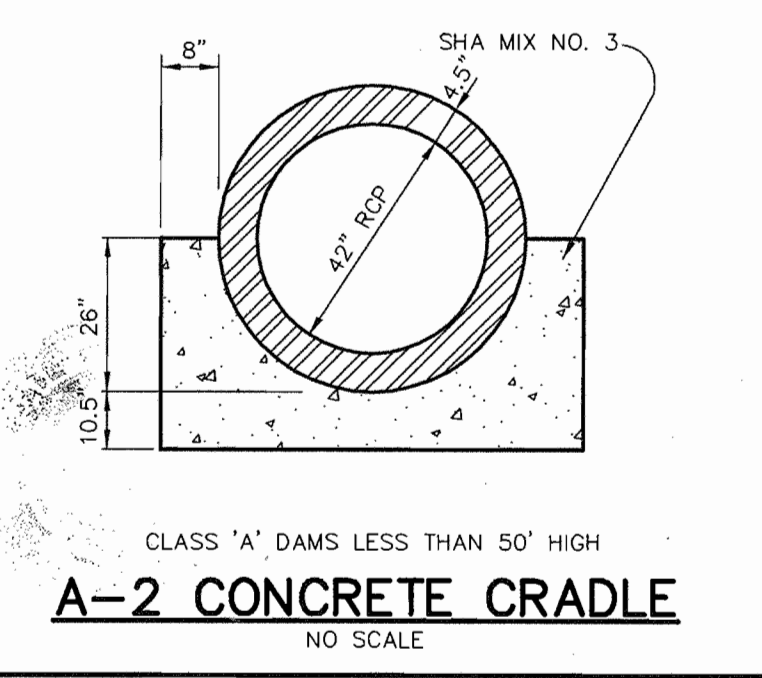
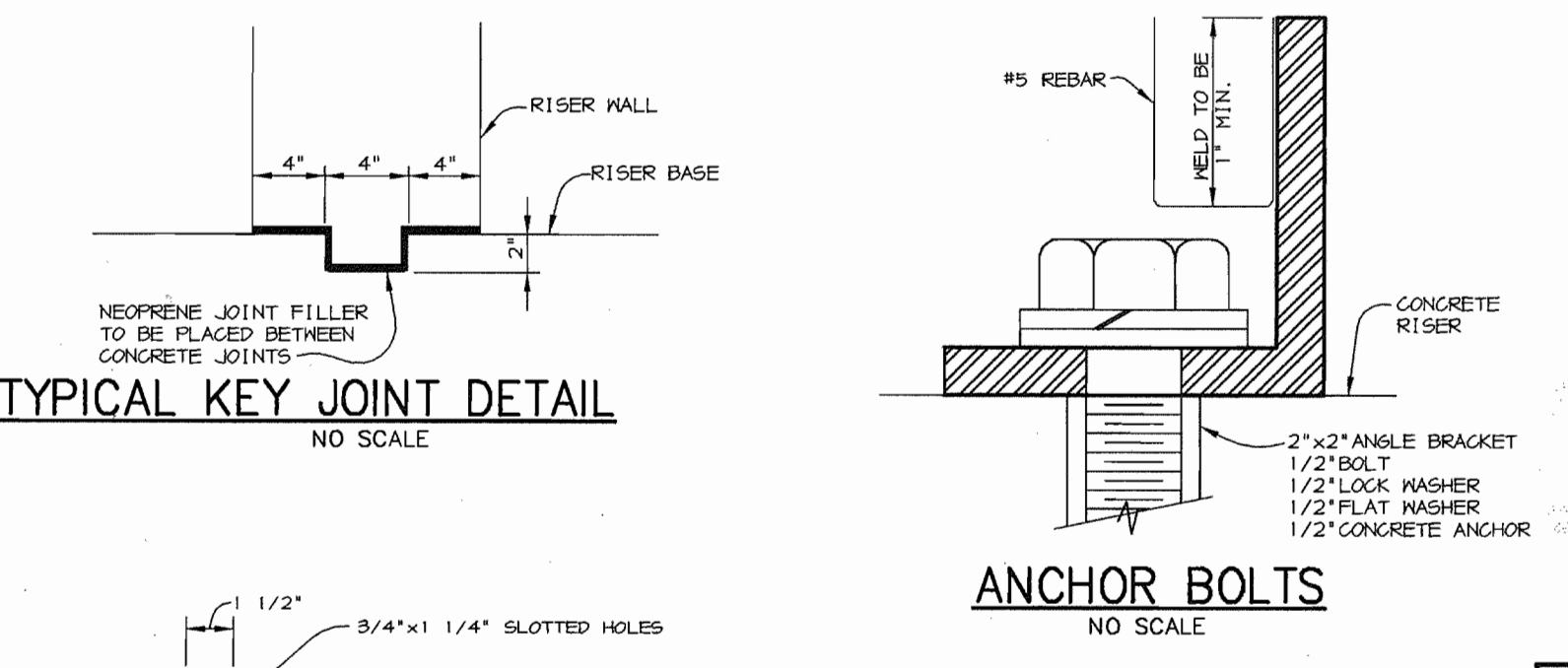
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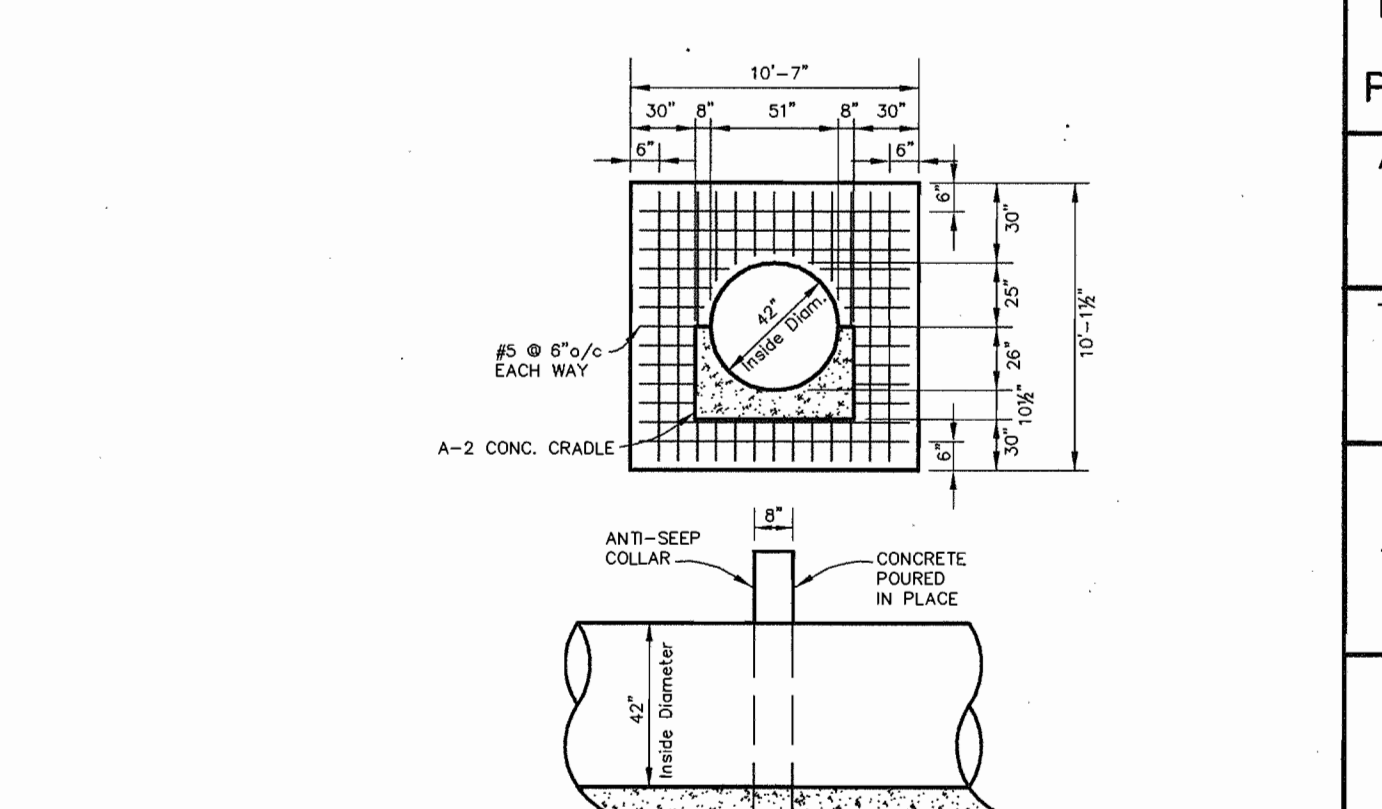
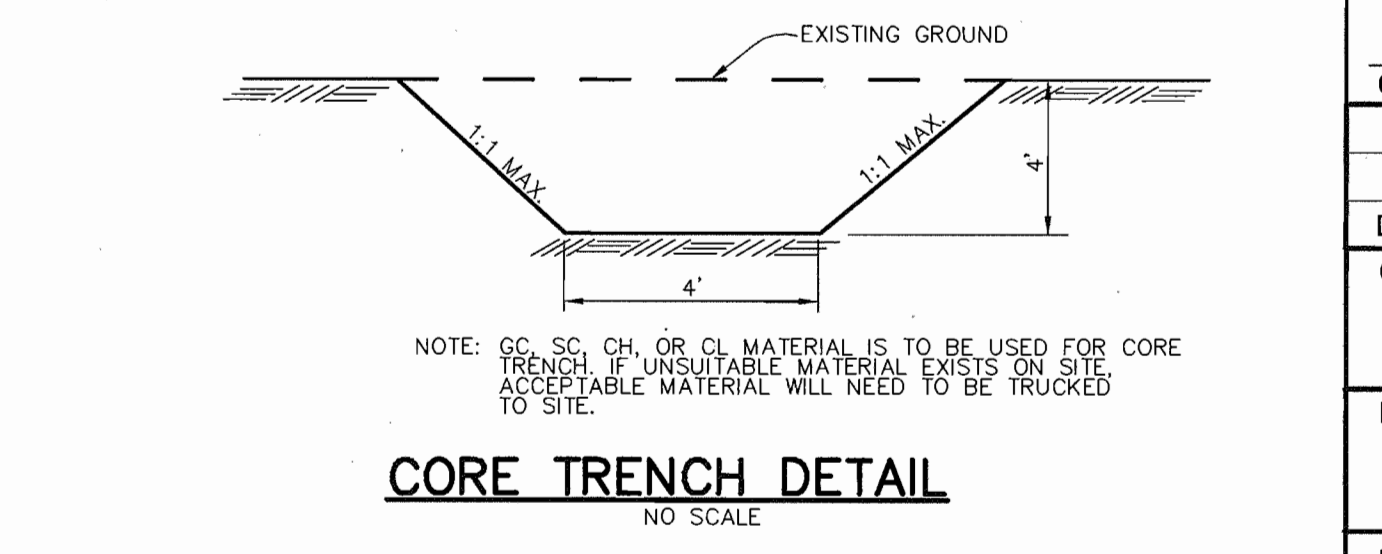
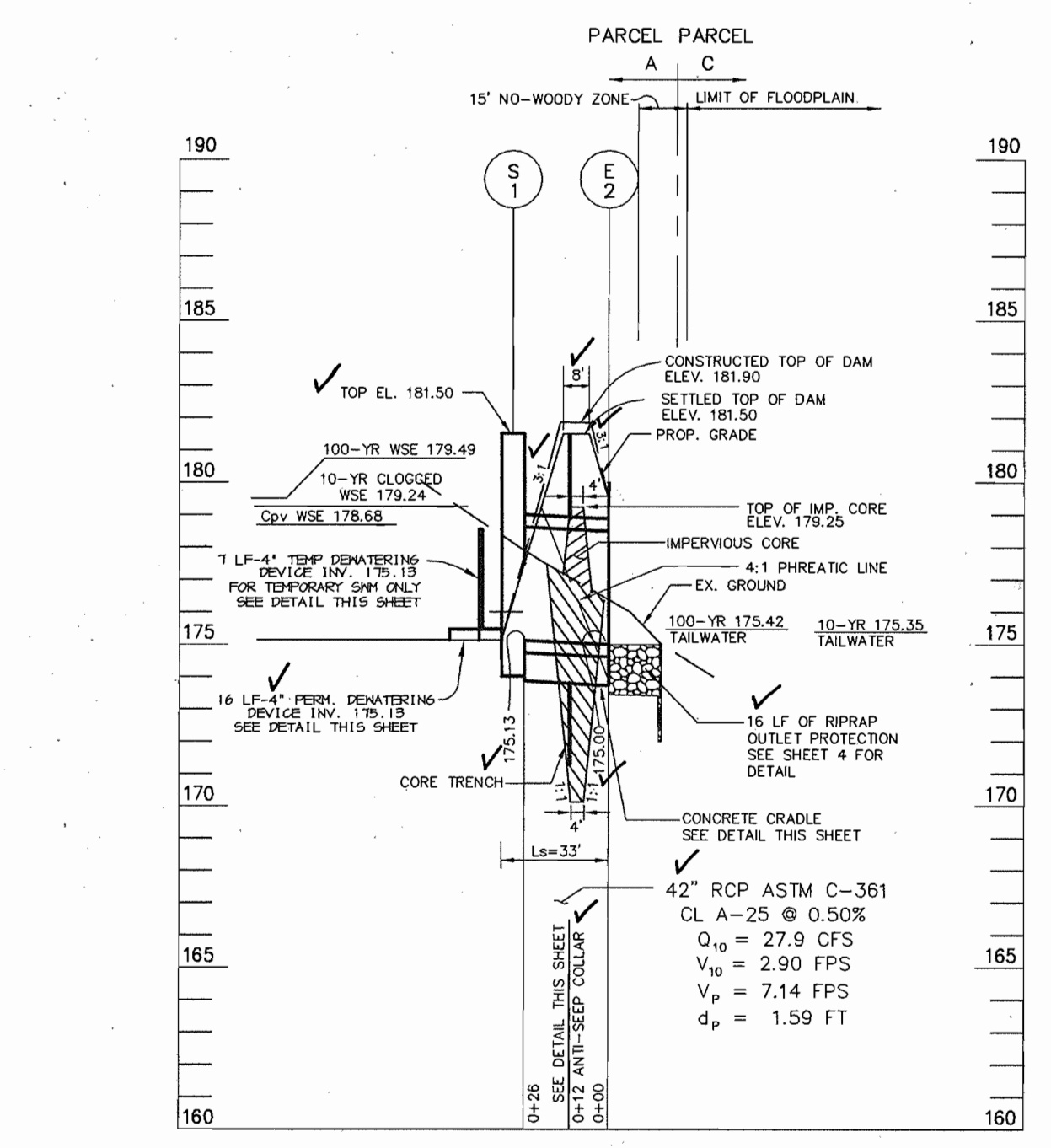
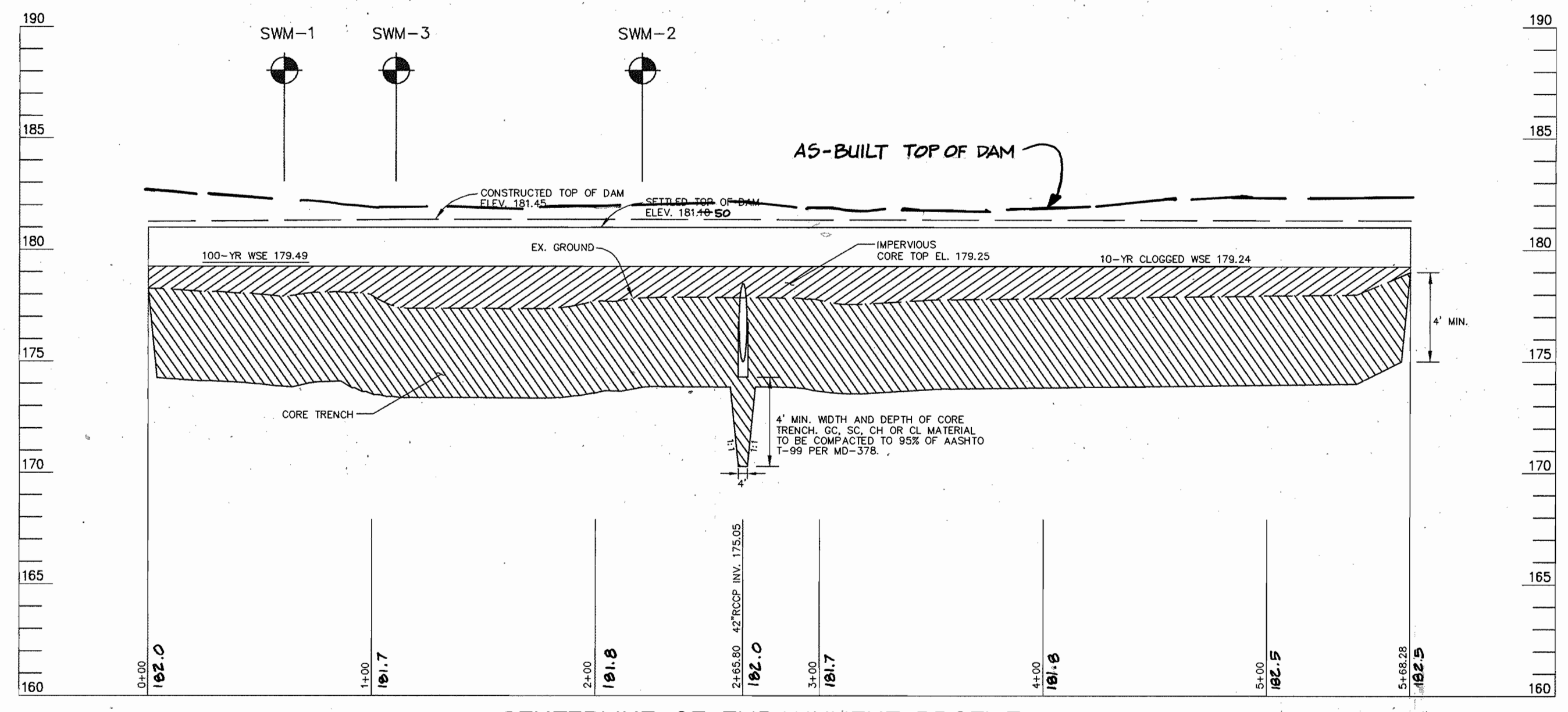
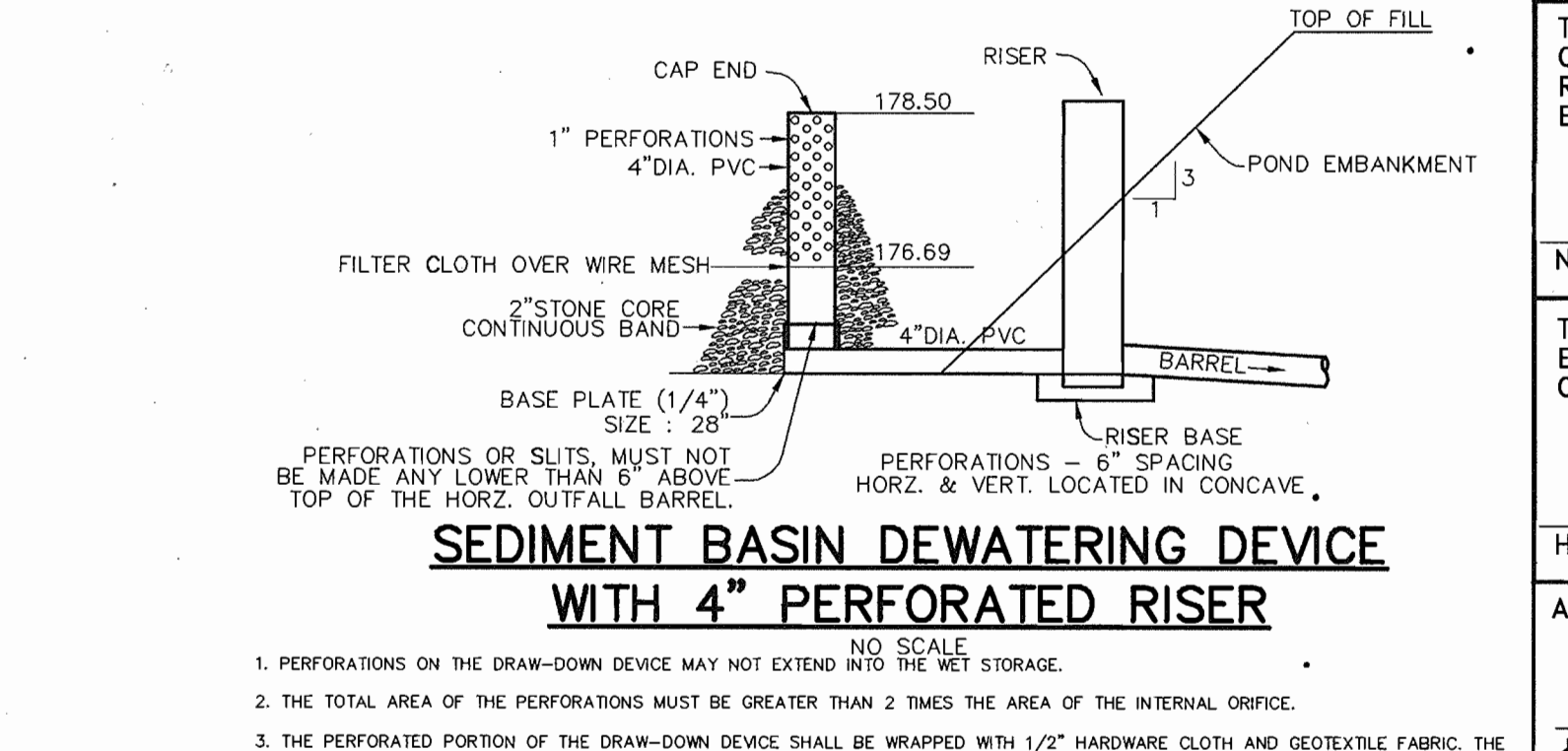
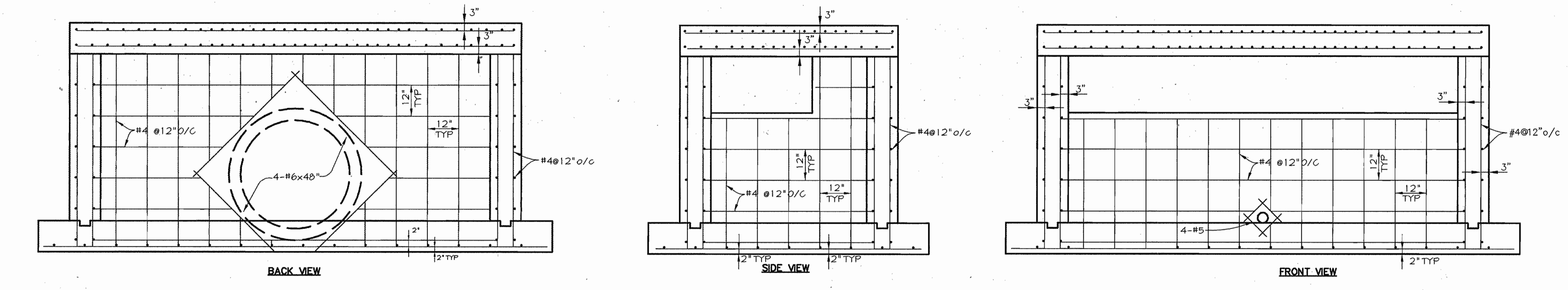
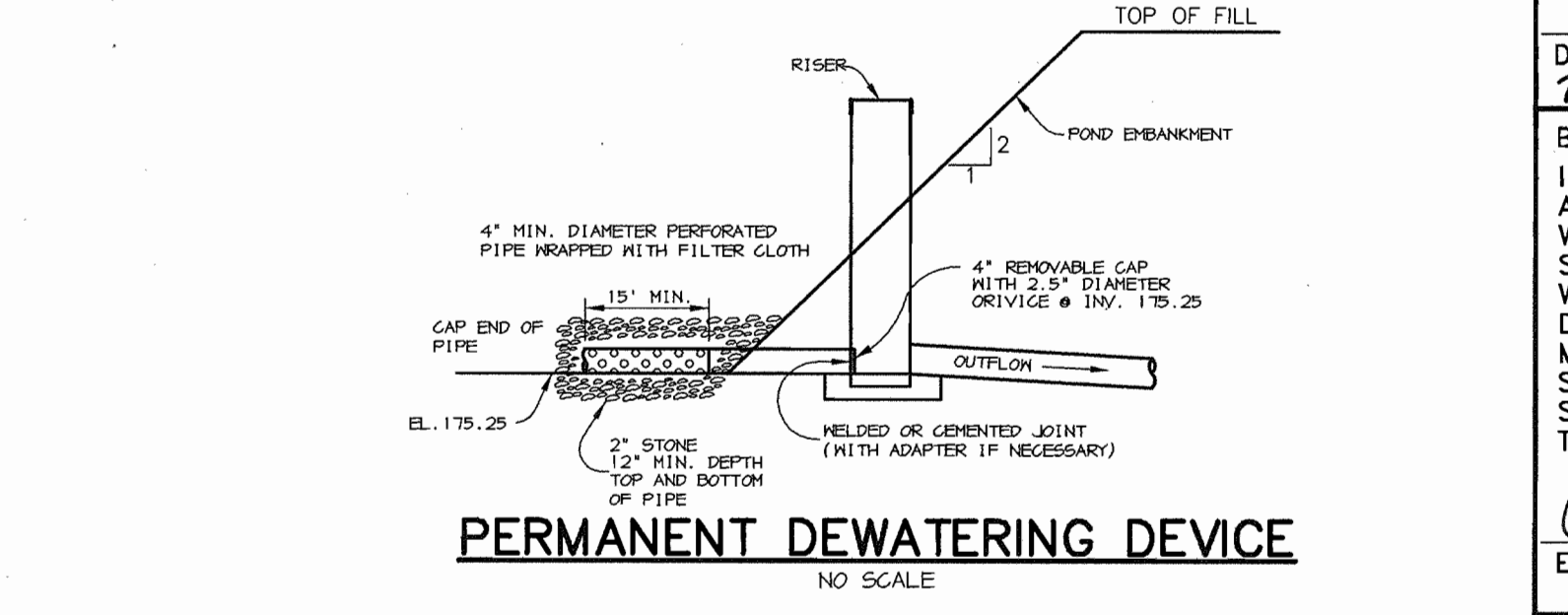
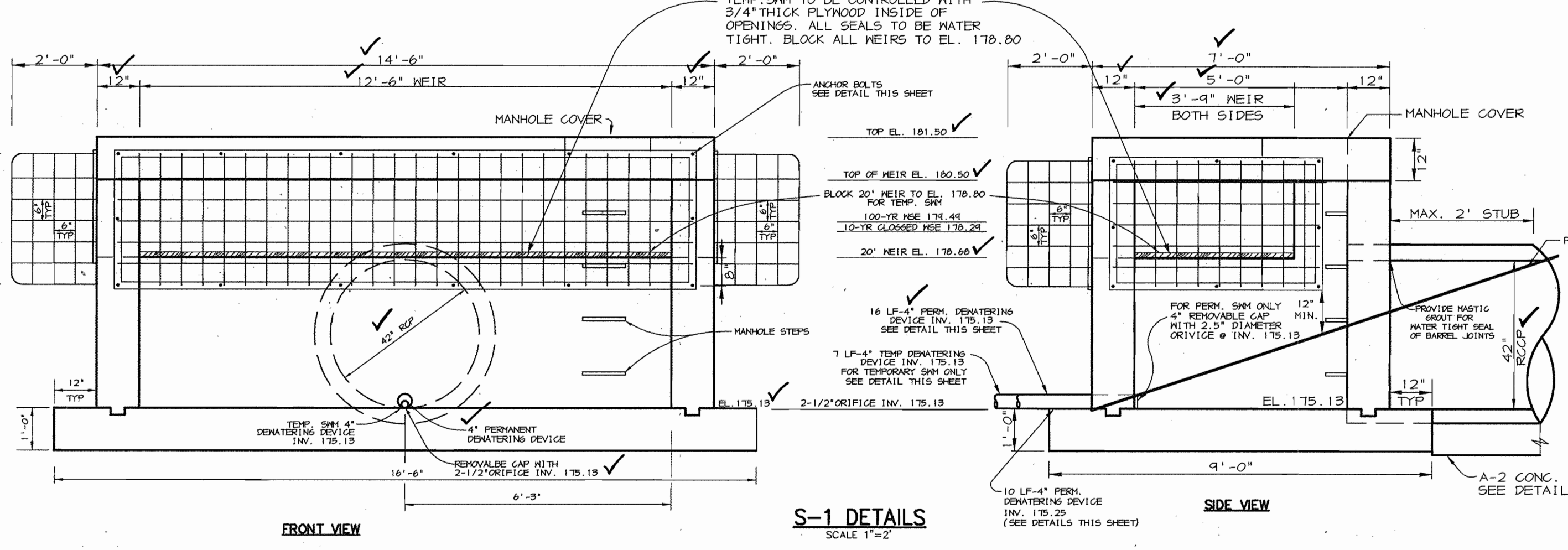
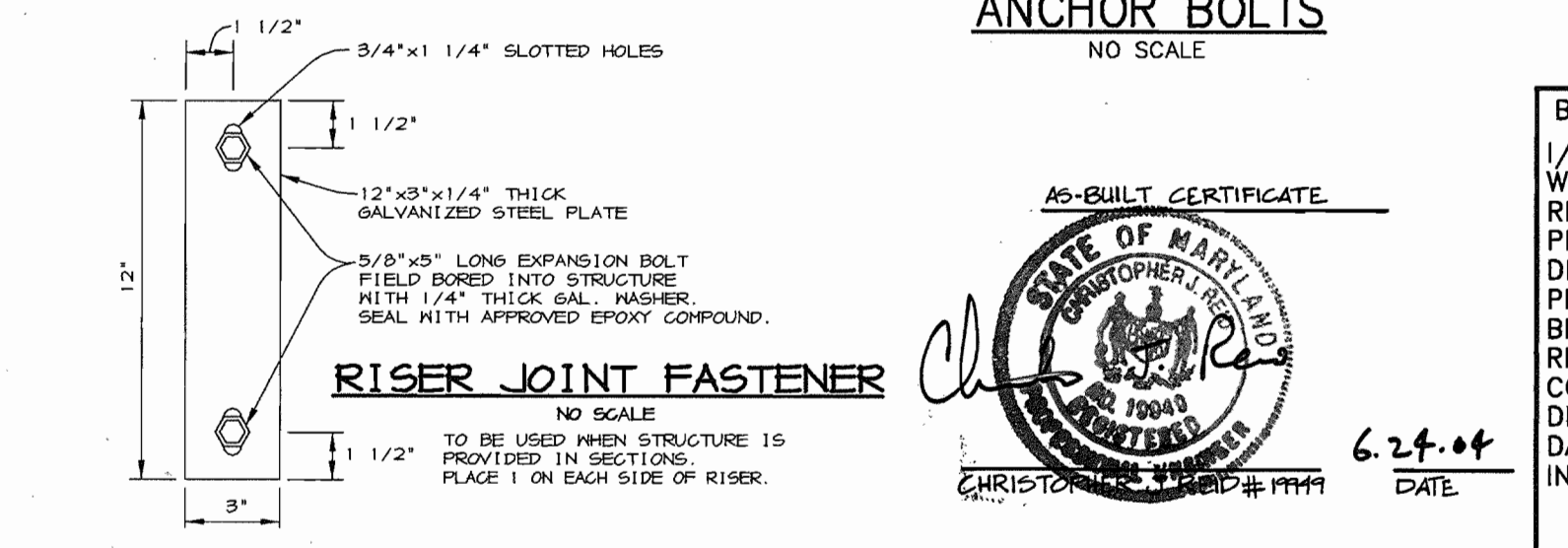
**RISER STRUCTURE NOTES FOR S-1**

- RISER TO BE PRECAST. SHOP DRAWINGS FOR THIS CONCRETE STRUCTURE SHALL MEET THE MINIMUM ASTM REQUIREMENTS FOR CAST IN PLACE STRUCTURES. A SHOP DRAWING SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION AND SHALL BE SIGNED AND SEALED BY A MARYLAND REGISTERED PROFESSIONAL ENGINEER.
- SEE THIS SHEET FOR REINFORCEMENT DETAILS.
- CONCRETE SHALL BE MSHA MIX NO. 3 (FC=3,500 PSI MINIMUM)
- WHEN POND IS CONVERTED INTO A PERMANENT FACILITY, THE TEMPORARY DEWATERING DEVICE SHALL BE REPLACED WITH THE PERM DEWATERING DEVICE AND 7" ORIFICE SHALL BE REMOVED.
- REFER TO HOWARD COUNTY STD. 6-5.21 FOR MANHOLE STEP DETAILS.
- RISER JOINTS SHALL BE WATERTIGHT USING NEOPRENE GASKETS.
- ALL PIPE CONNECTIONS SHALL PROVIDE RUBBER GASKET FOR WATERTIGHTNESS.
- RISER SHALL BE PLACED ON A FIRMLY COMPACTED SUBGRADE AND SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.



**REMOVABLE TRASH RACK NOTES:**

- STEEL TO CONFORM TO ASTM A-36. #5 BARS TO BE SMOOTH. SEE DETAIL FOR SPACINGS. SPACINGS SHALL BE A MAXIMUM OF 8" O/C.
- ALL REBAR TO BE WELDED AT ALL INTERSECTIONS.
- ALL BENDS TO BE 2" RADIUS. 2" x 2" ANGLE IRON AND 1/2" DIAMETER ANCHOR BOLTS TO BE USED FOR TRASH RACK FRAME.
- GALVANIZE TRASH RACK AFTER FABRICATION AND PAINT BATTLESHIP GRAY.
- THE TRASH RACK SHALL BE REMOVABLE.



NOTES:  
1. GEOTECHNICAL ENGINEER TO BE PRESENT DURING CORE TRENCH MATERIAL INSTALLATION.  
2. THE CORE TRENCH SHALL EXTEND 4' MINIMUM BELOW THE LEVEL OF ANY FILL AS DETERMINED BY A GEOTECHNICAL ENGINEER.

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

NOTES:  
1. LOCATE COLLAR A MINIMUM OF TWO FEET FROM PIPE JOINT.  
2. COLLAR/PIPE CONNECTION SHALL BE WATERTIGHT.

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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER: *Tim Hogan* 10-15-02 DATE

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

ENGINEER: *Christy J. Reed* 10-15-02 DATE

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

*Jim Meyer* 11/13/02 DATE

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

*John S. ...* 11/13/02 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

*James S. ...* 11/26/02 DATE  
DIRECTOR

*John A. ...* 11/14/02 DATE  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Cindy ...* 11/22/02 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT

DATE NO. REVISION

OWNER: MS. CHARLOTTE M. DUVAL AND MR. BRYAN M. DUVAL  
8101 DORSEY RUN ROAD  
JESSUP MARYLAND 20794  
410-799-7724

DEVELOPER: OPUS EAST LLC  
2099 GAITHER ROAD, SUITE 101  
ROCKVILLE MD 20850  
(301) 554-4444  
ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
PARCEL A ZONED M-2  
6th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL NOTES AND DETAILS

Patton Harris Rust & Associates, p.c.  
Engineers, Surveyors, Planners, Landscape Architects.

PHRA  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

10.15.02 DATE  
DESIGNED BY: A.C.R.

DRAWN BY: DAM

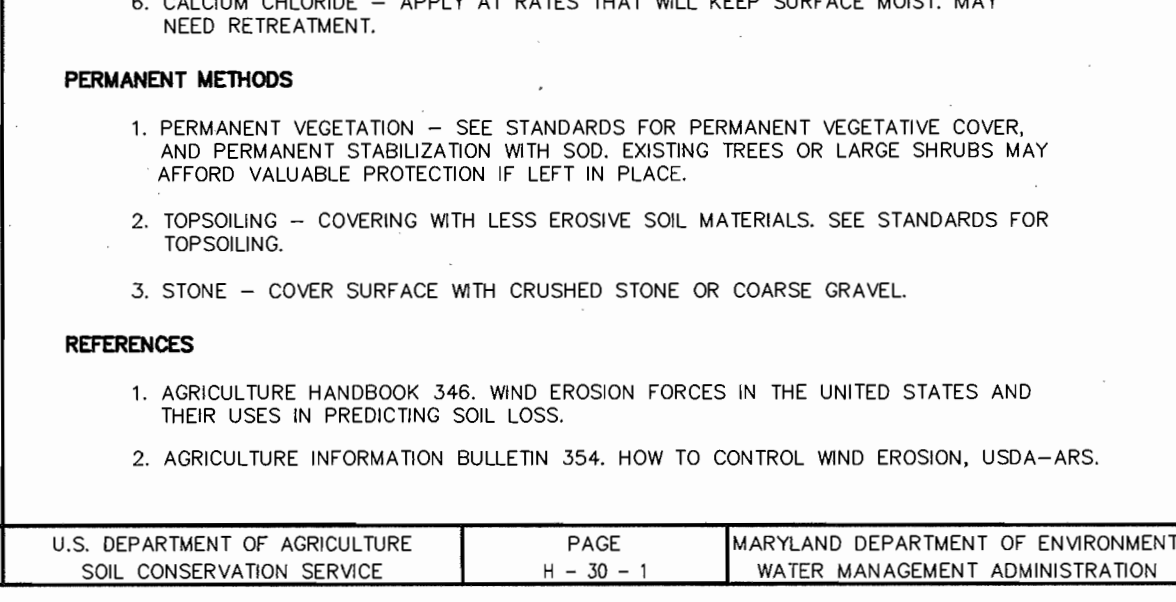
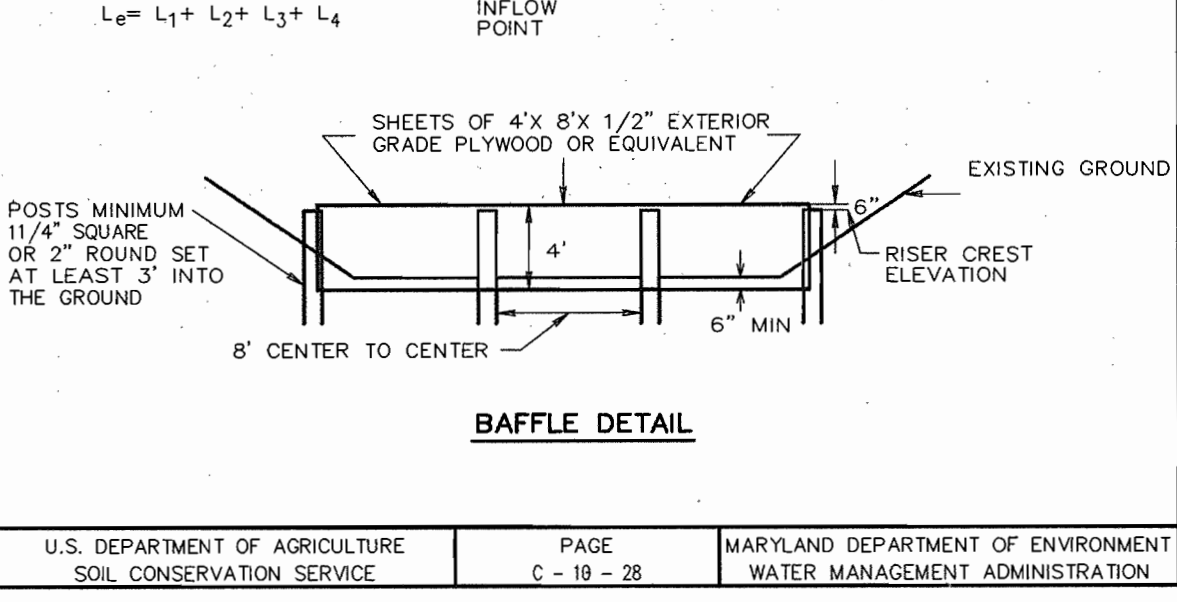
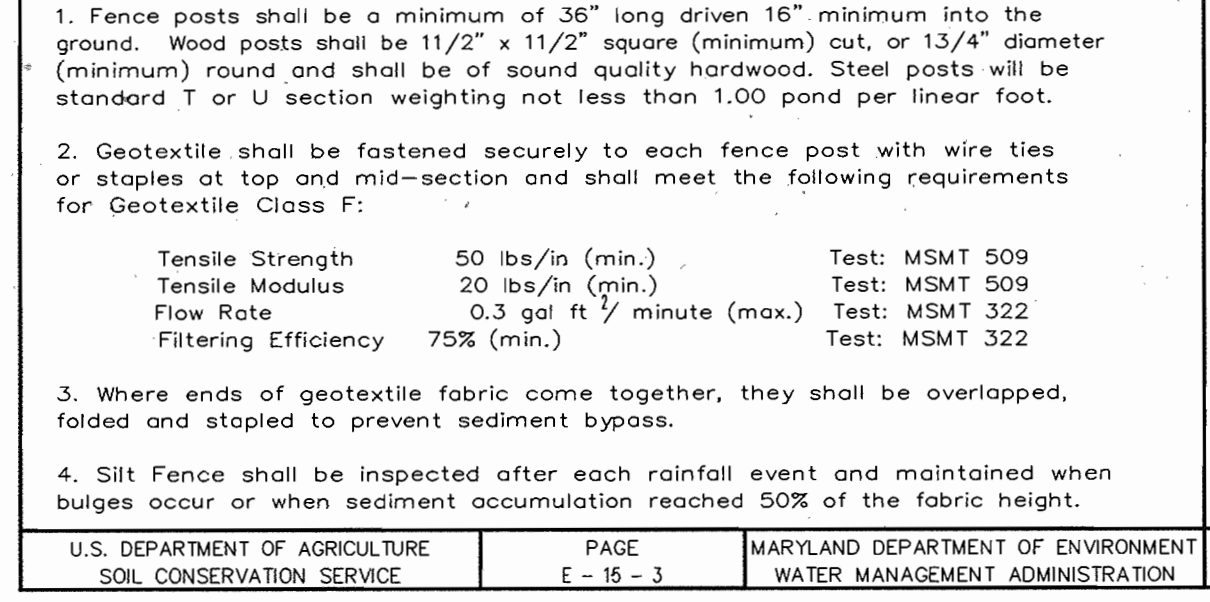
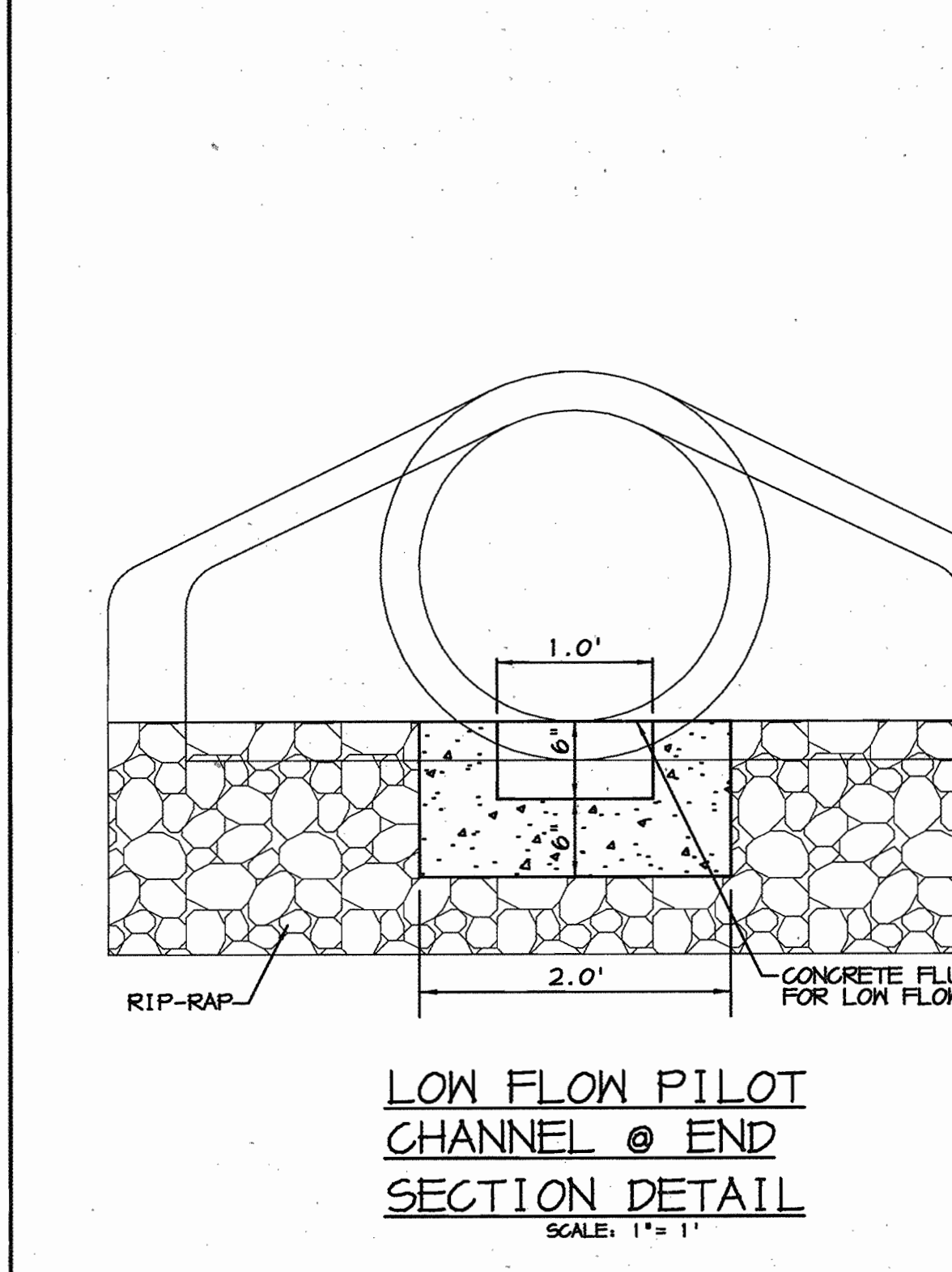
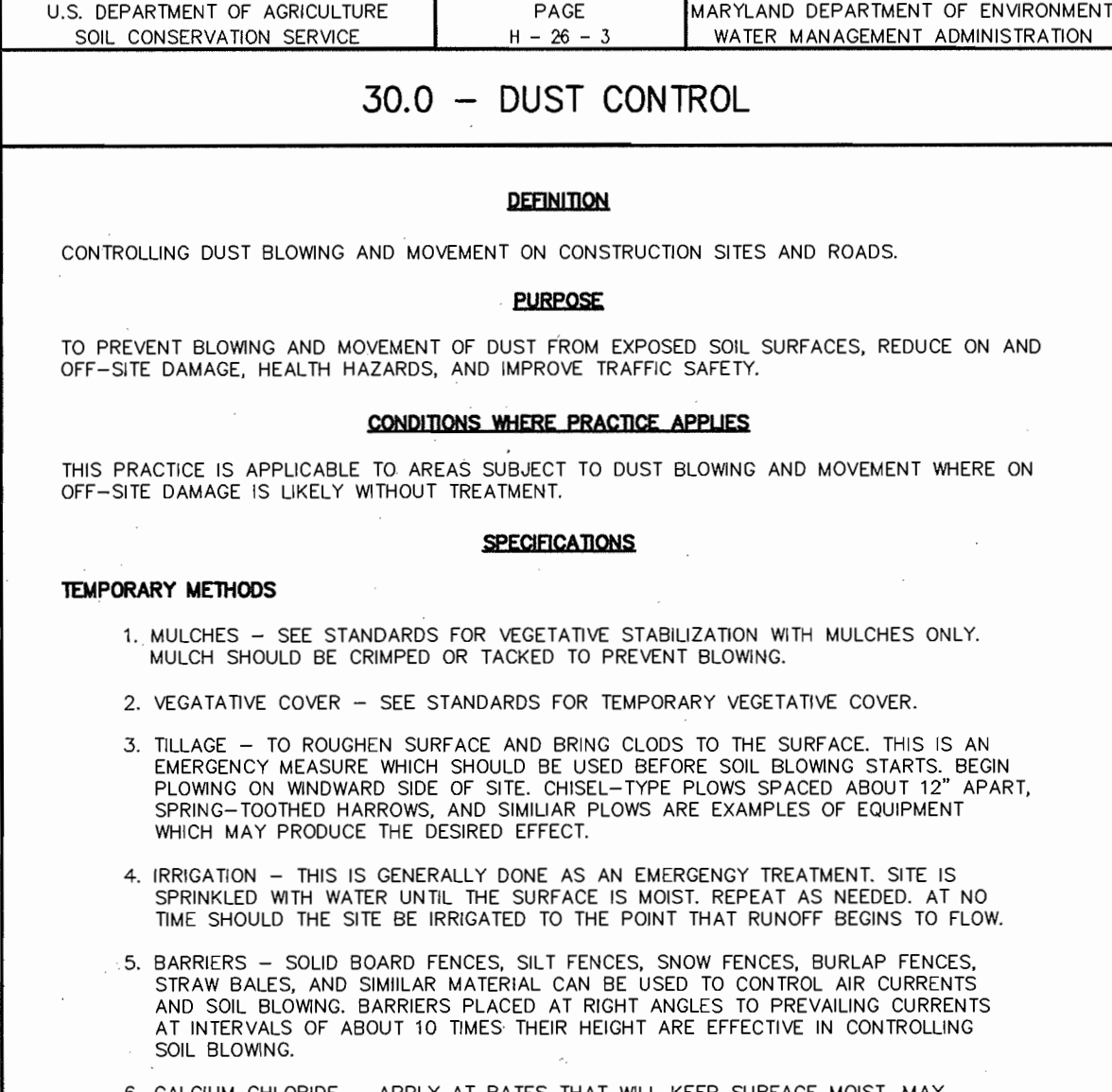
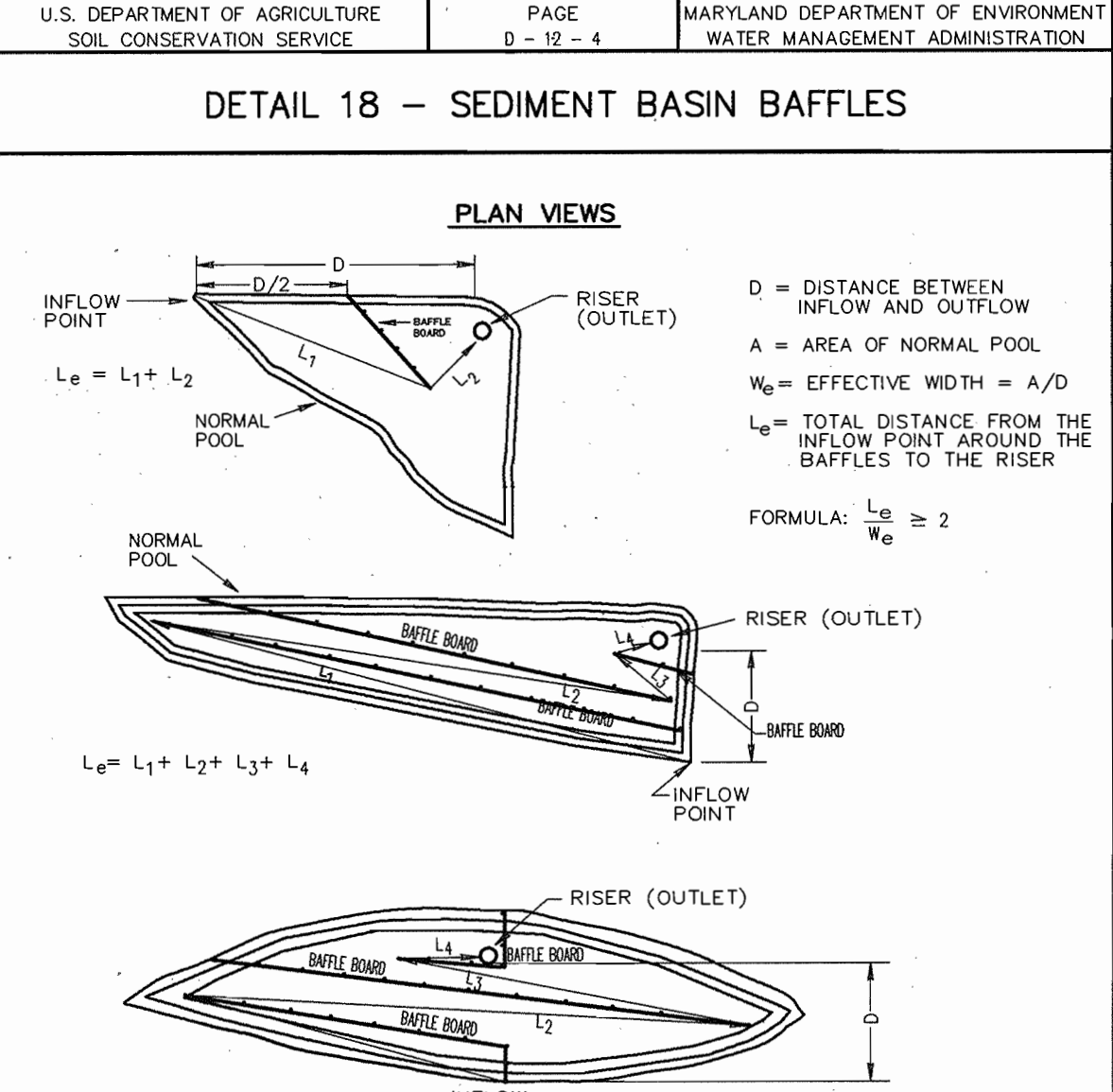
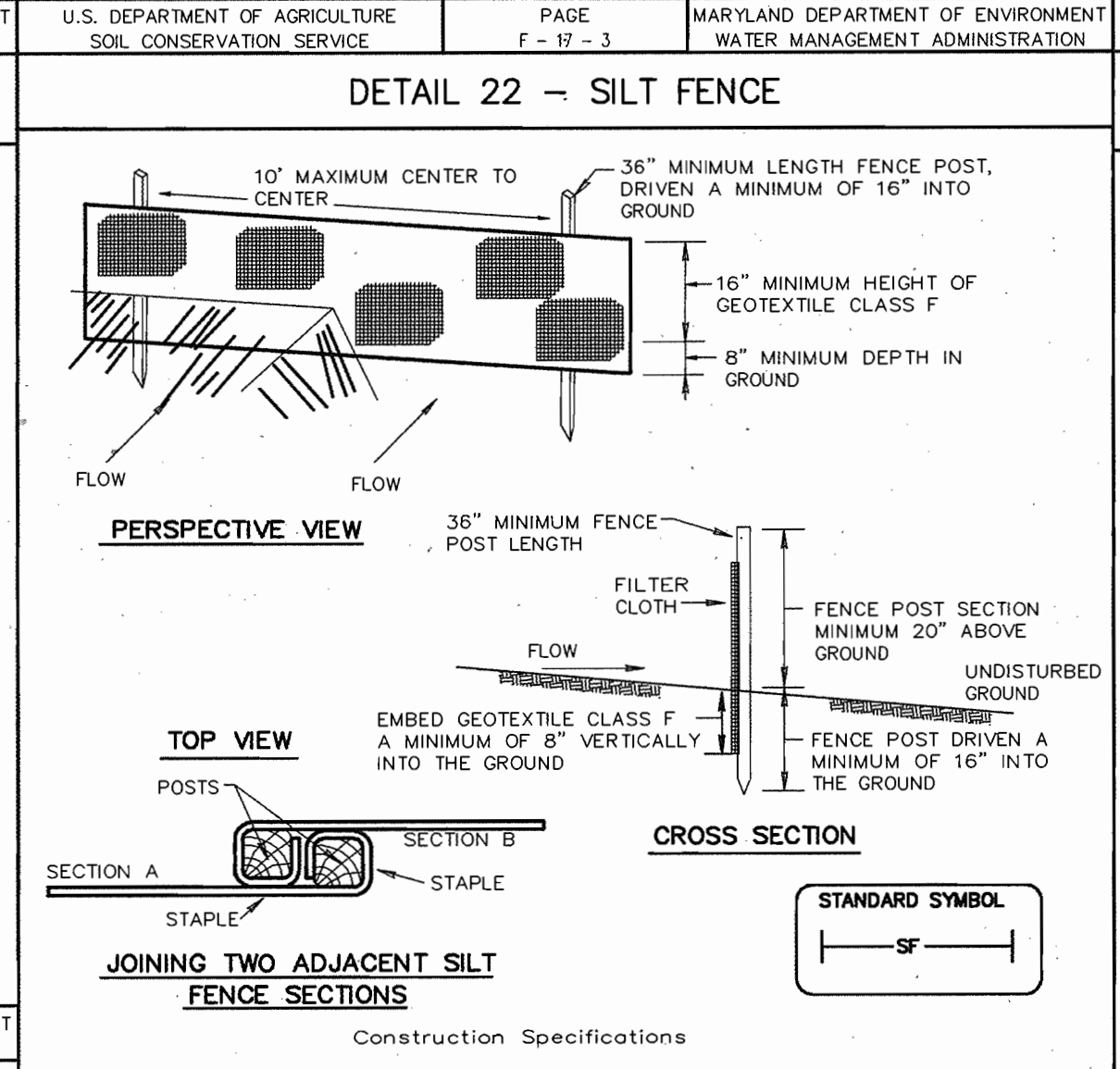
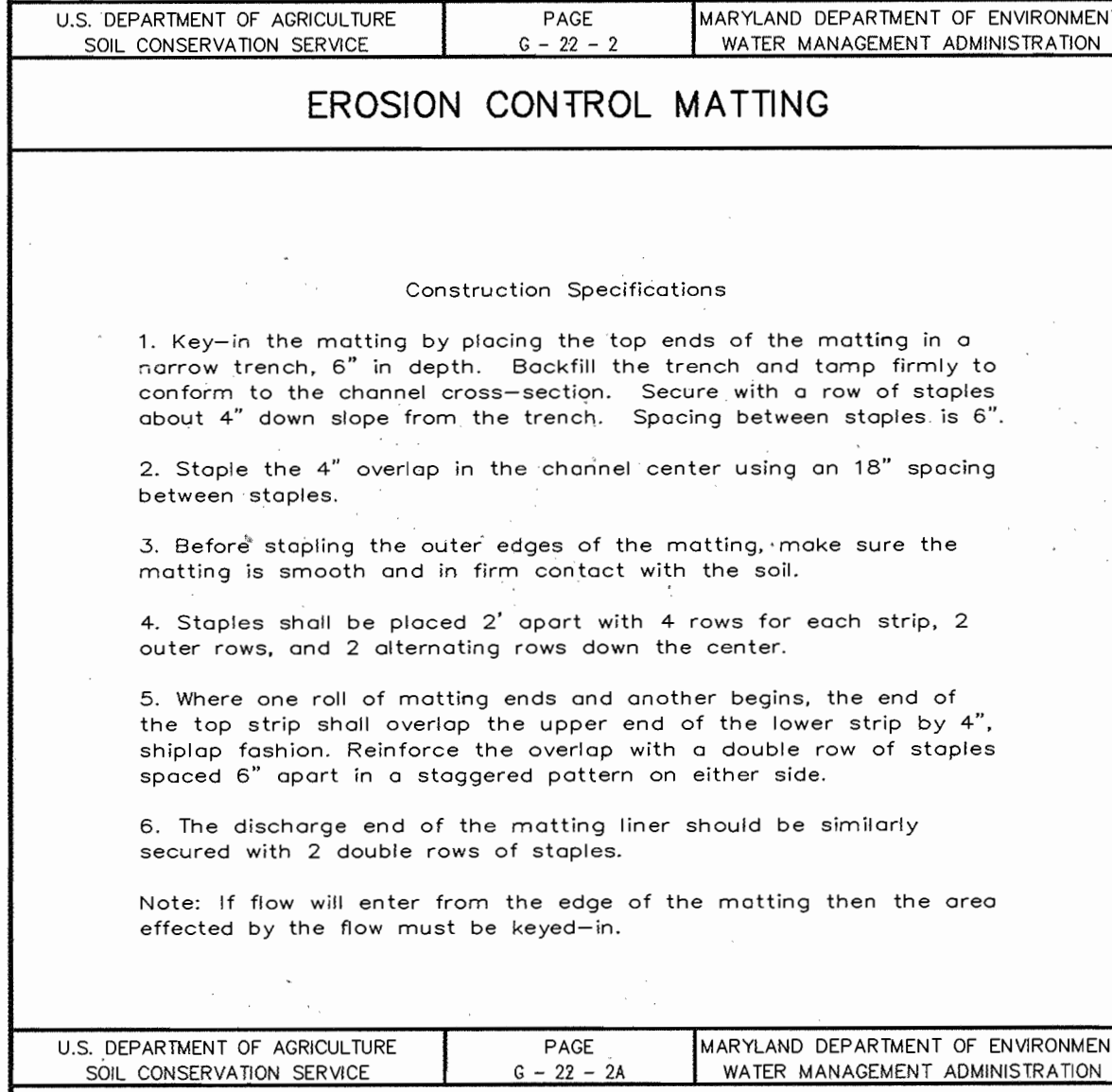
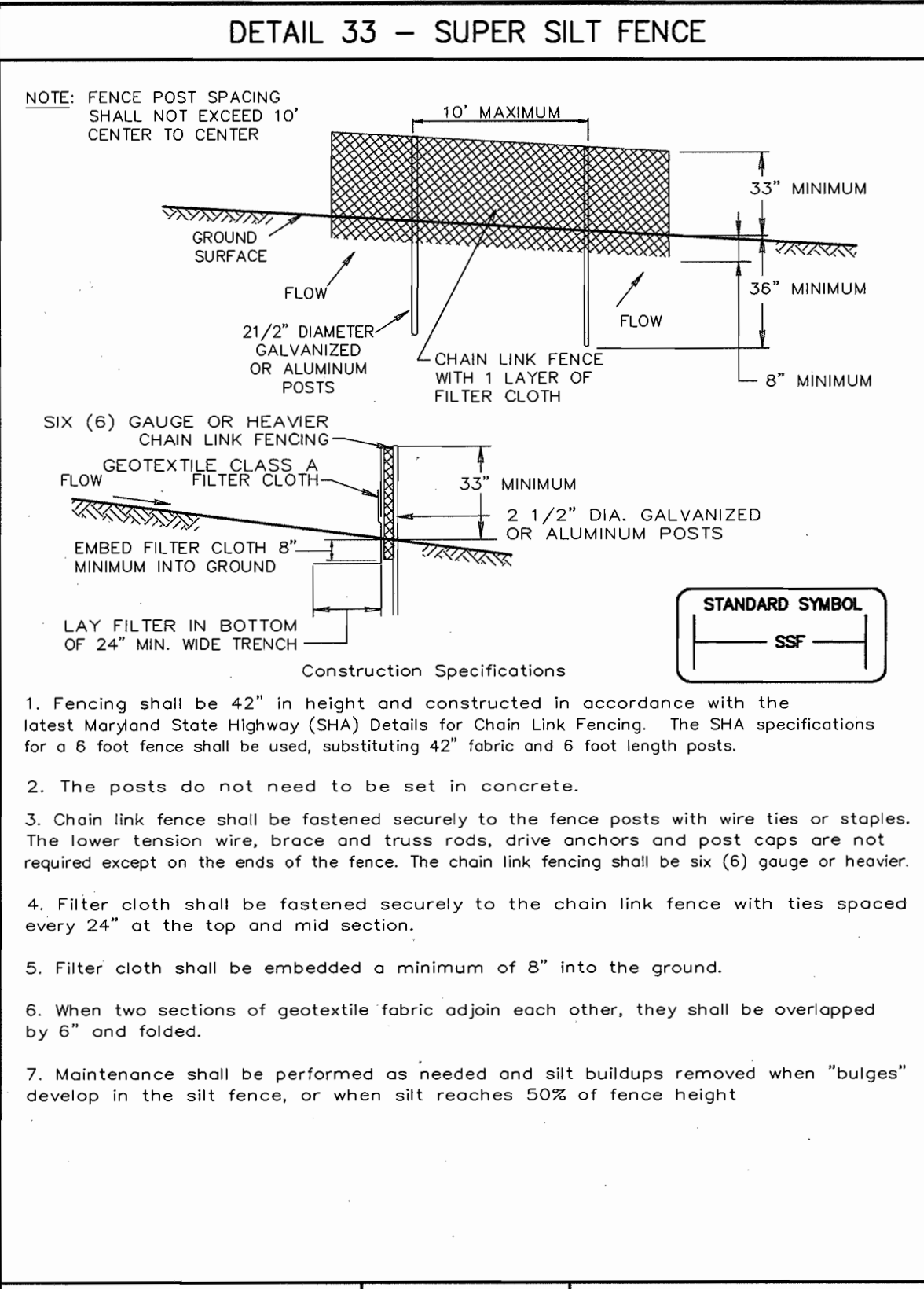
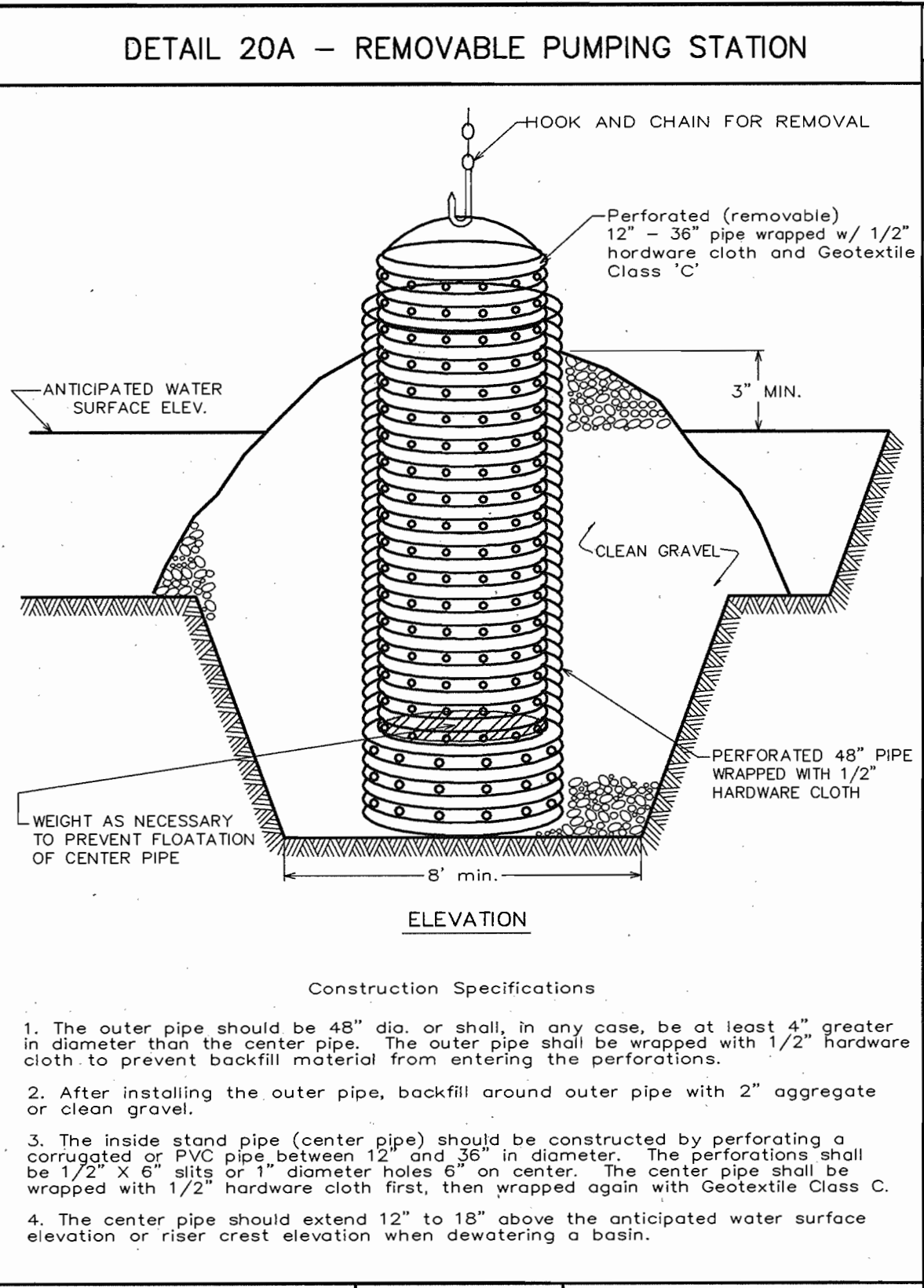
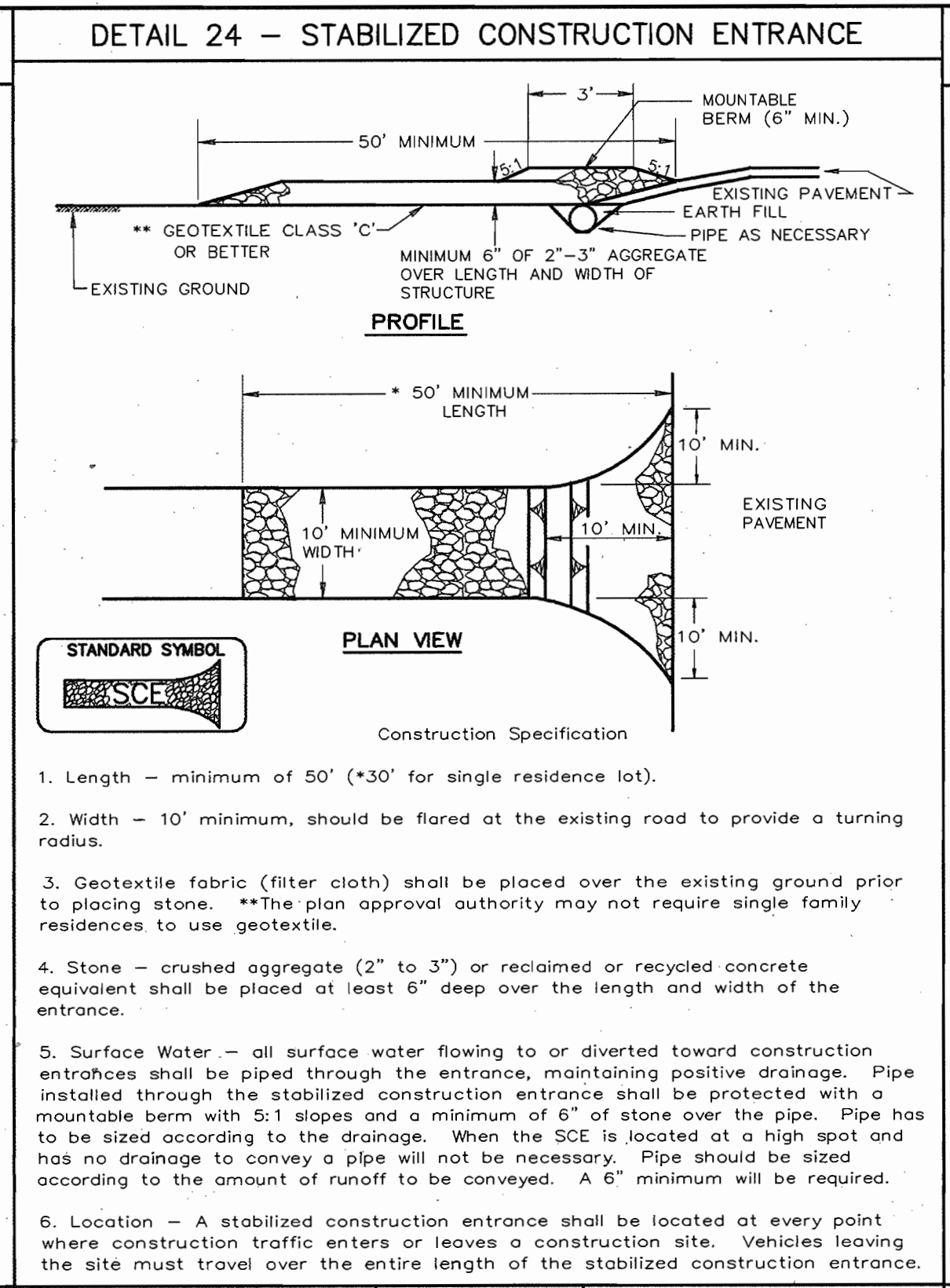
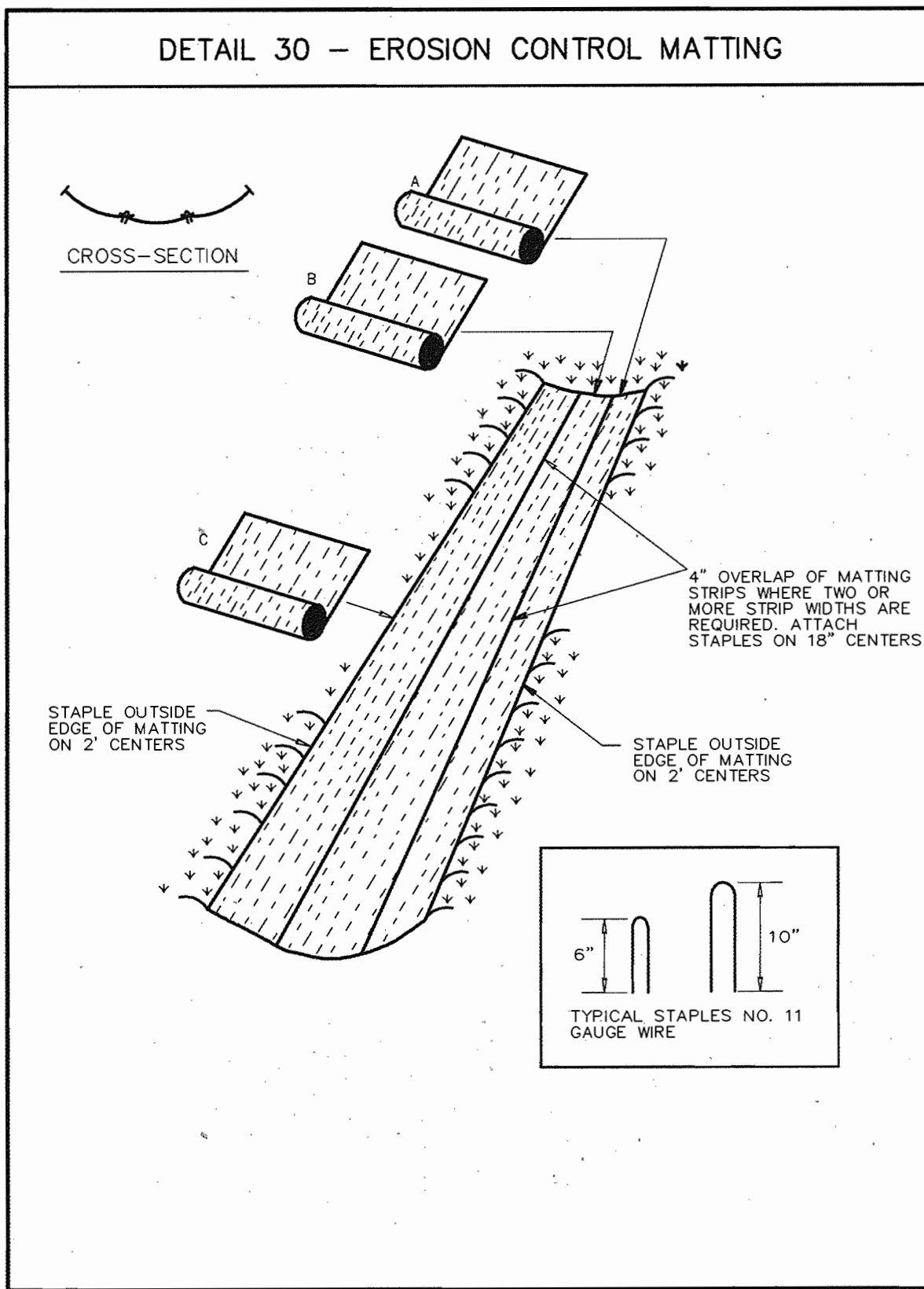
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PROJECT NO: 01284  
C900DET4.DWG

DATE: OCTOBER 14, 2002

SCALE: AS SHOWN

DRAWING NO. 5 OF 17



**AS-BUILT CERTIFICATE**

DATE: 10-15-02

BY THE DEVELOPER: *Tim Hogan* DATE: 10-15-02

BY THE ENGINEER: *Christopher J. Reid* DATE: 10-15-02

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

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.

DATE: 11/13/02

DATE: 11/13/02

DATE: 11/26/02

DATE: 11/14/02

DATE: 11/22/02

DATE NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL  
8101 DORSEY RUN ROAD  
JESSUP, MARYLAND 20794  
410-799-7724

DEVELOPER: OPUS EAST, LLC  
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ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
PARCEL A ZONED M-2  
6th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: SEDIMENT CONTROL NOTES AND DETAILS

Patton Harris Rust & Associates, PC  
Engineers, Surveyors, Planners, Landscape Architects.

8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

DATE: 10-15-02

DESIGNED BY: A.C.R.

DRAWN BY: DAM

CHECKED BY: C.J.R.

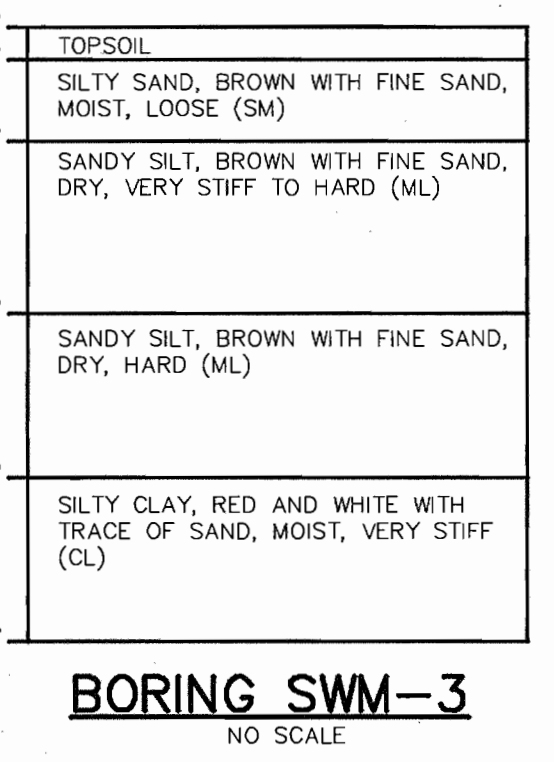
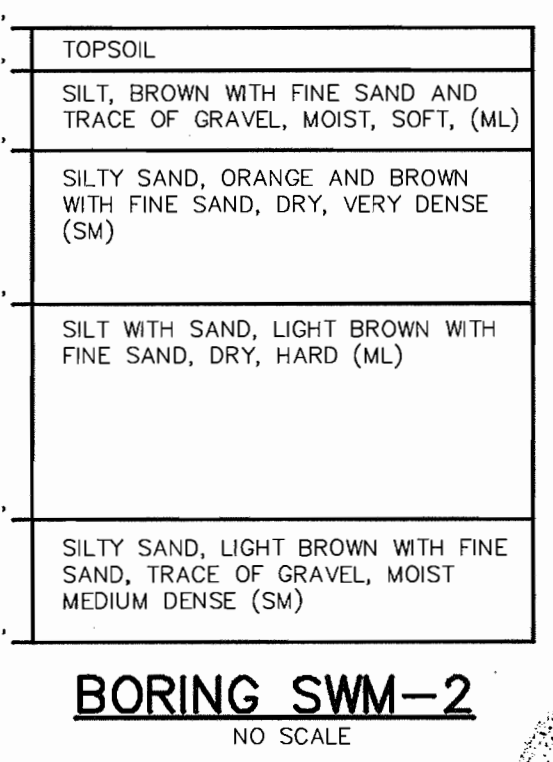
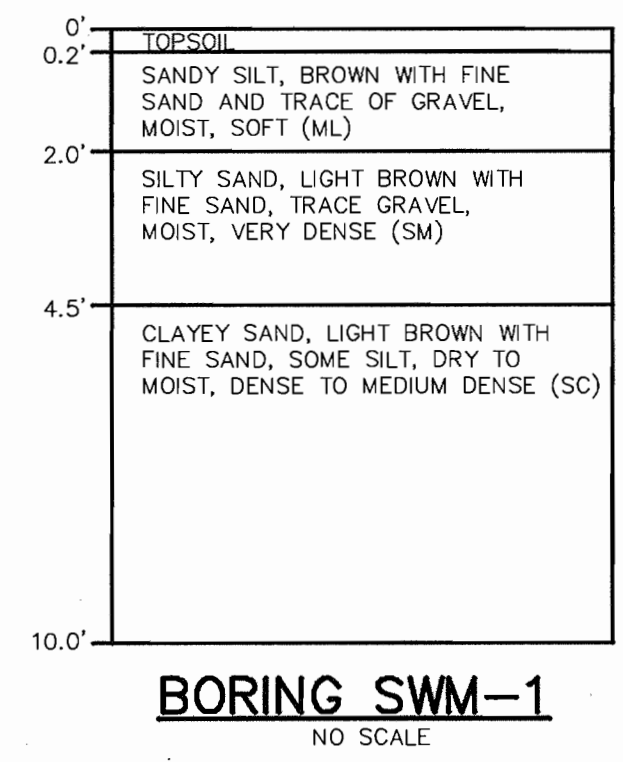
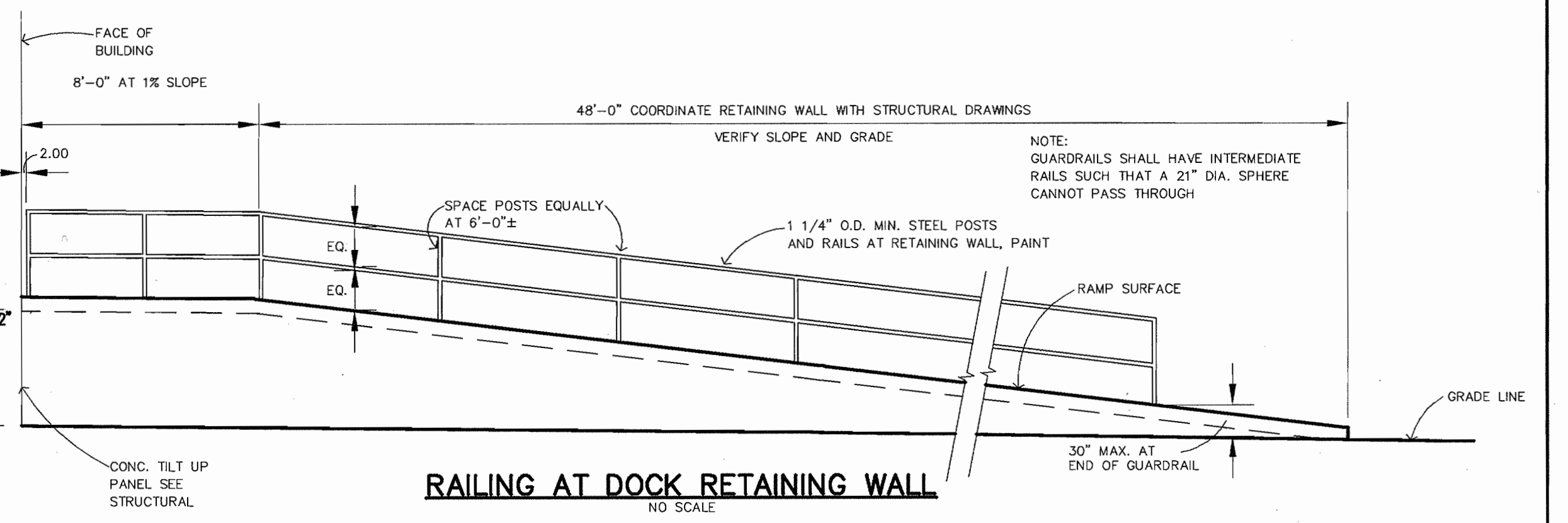
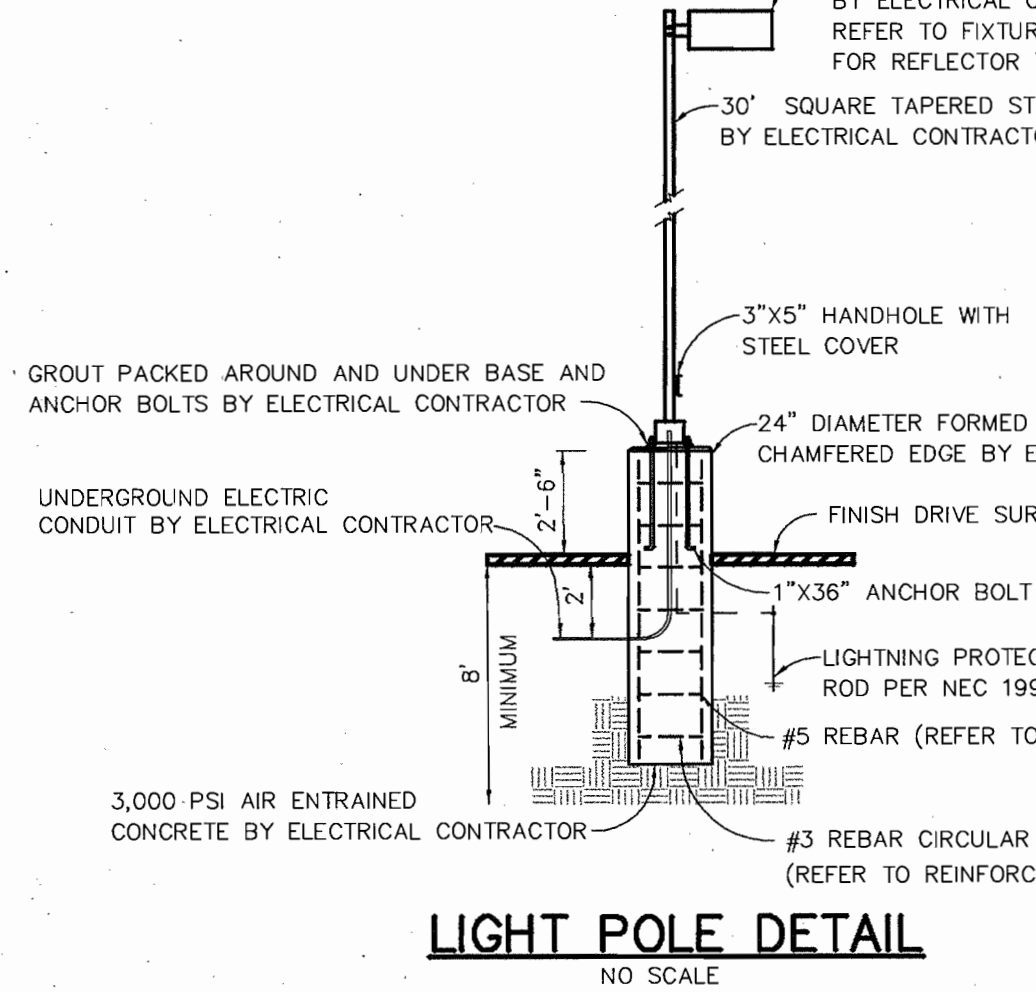
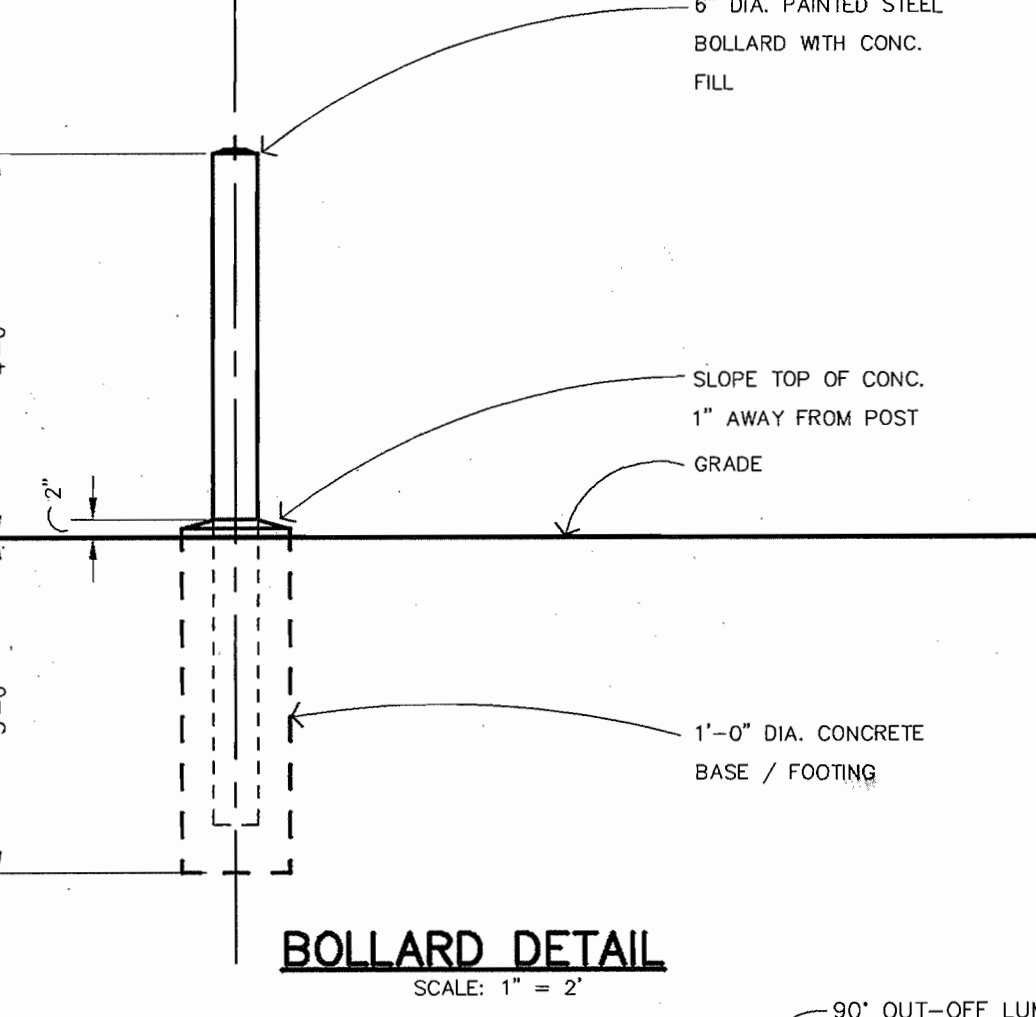
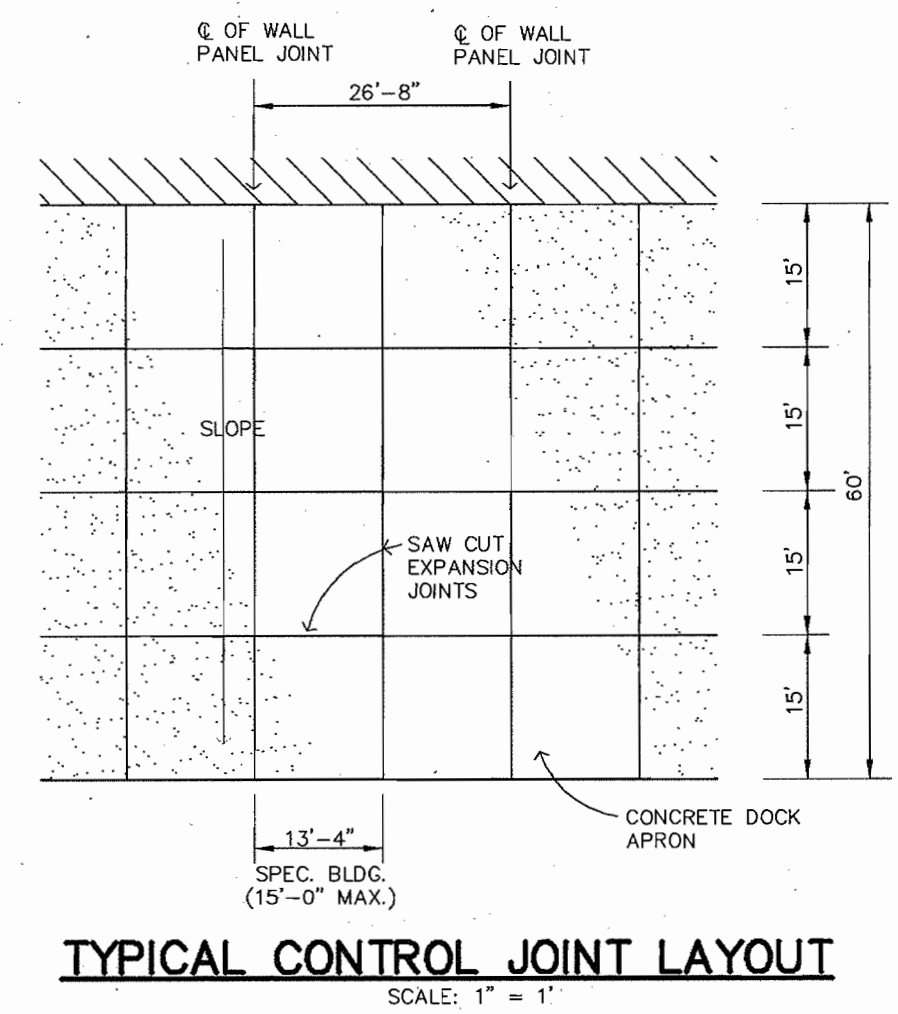
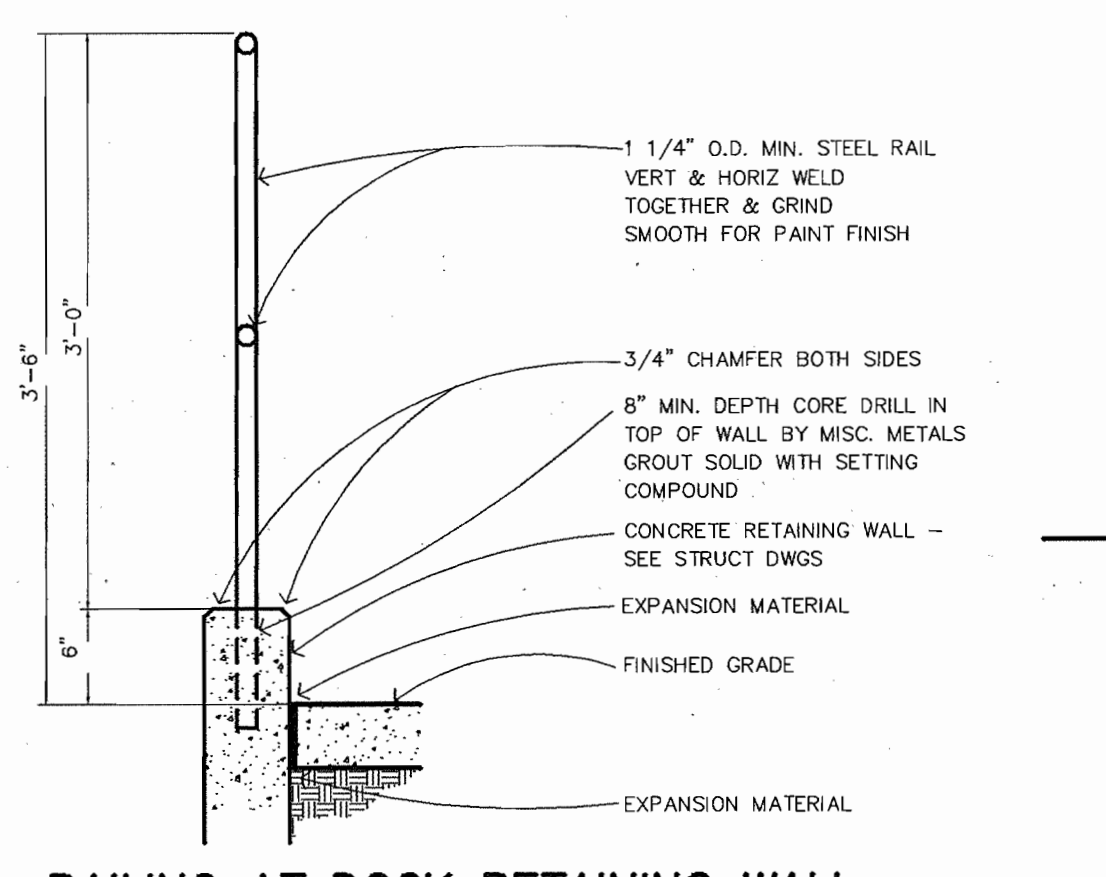
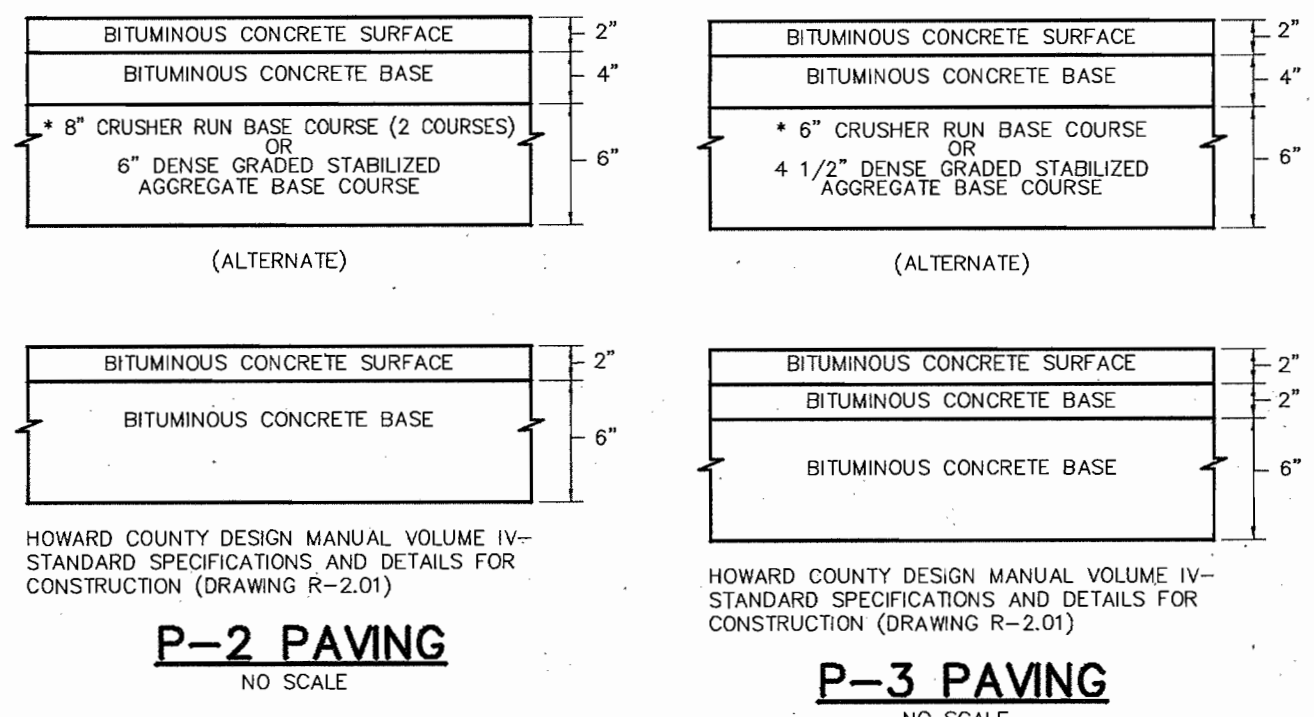
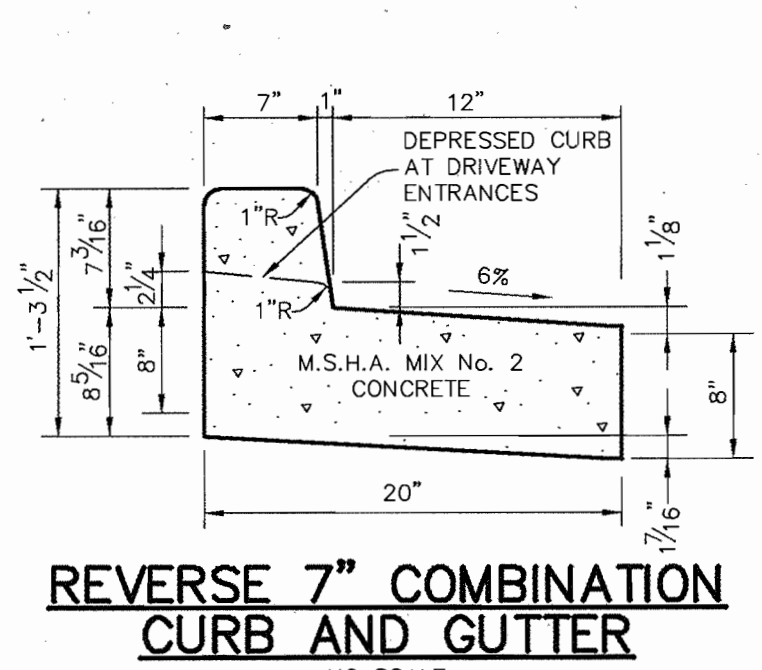
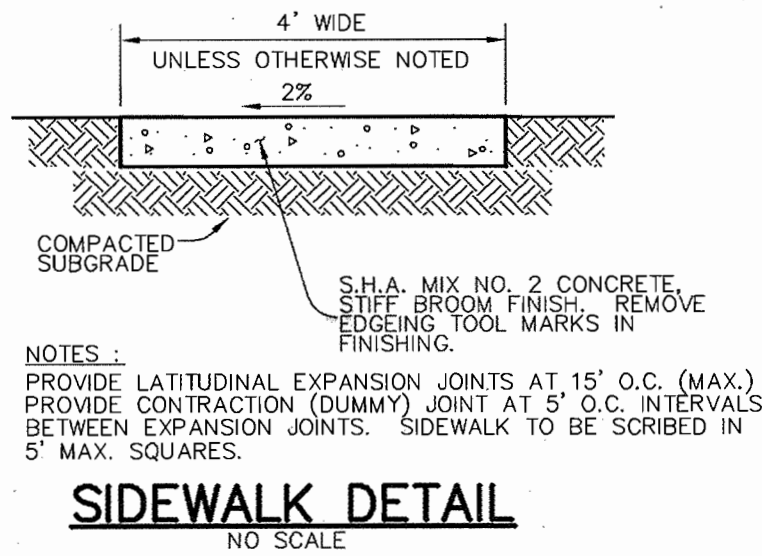
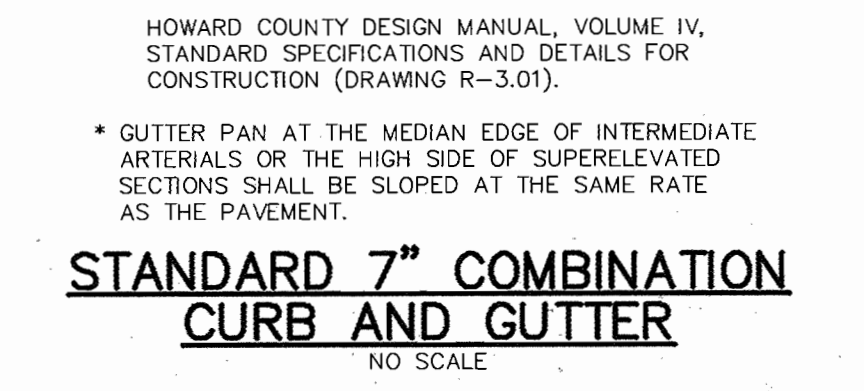
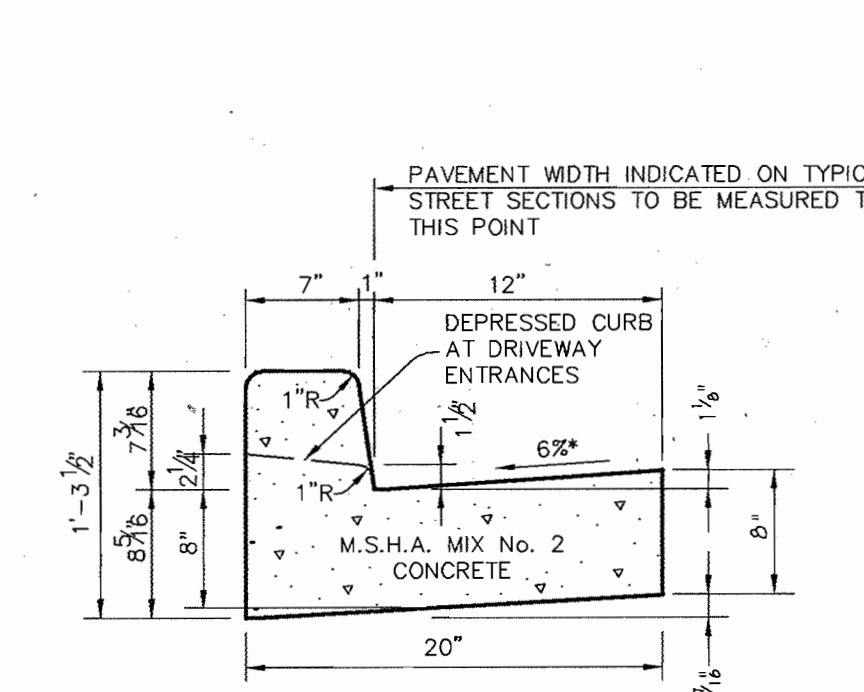
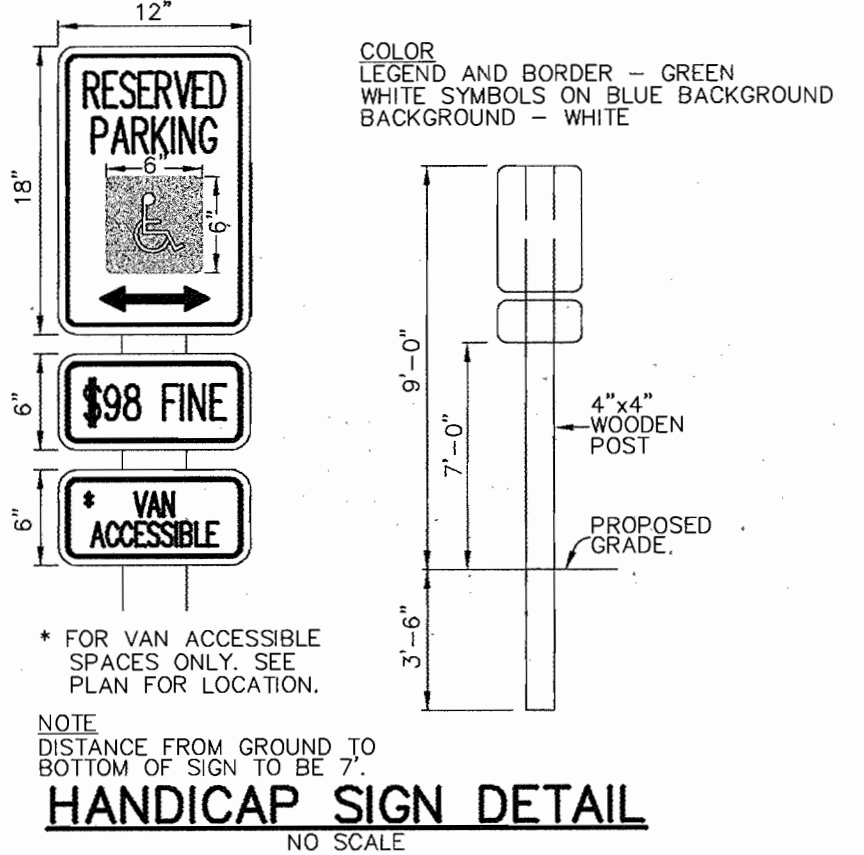
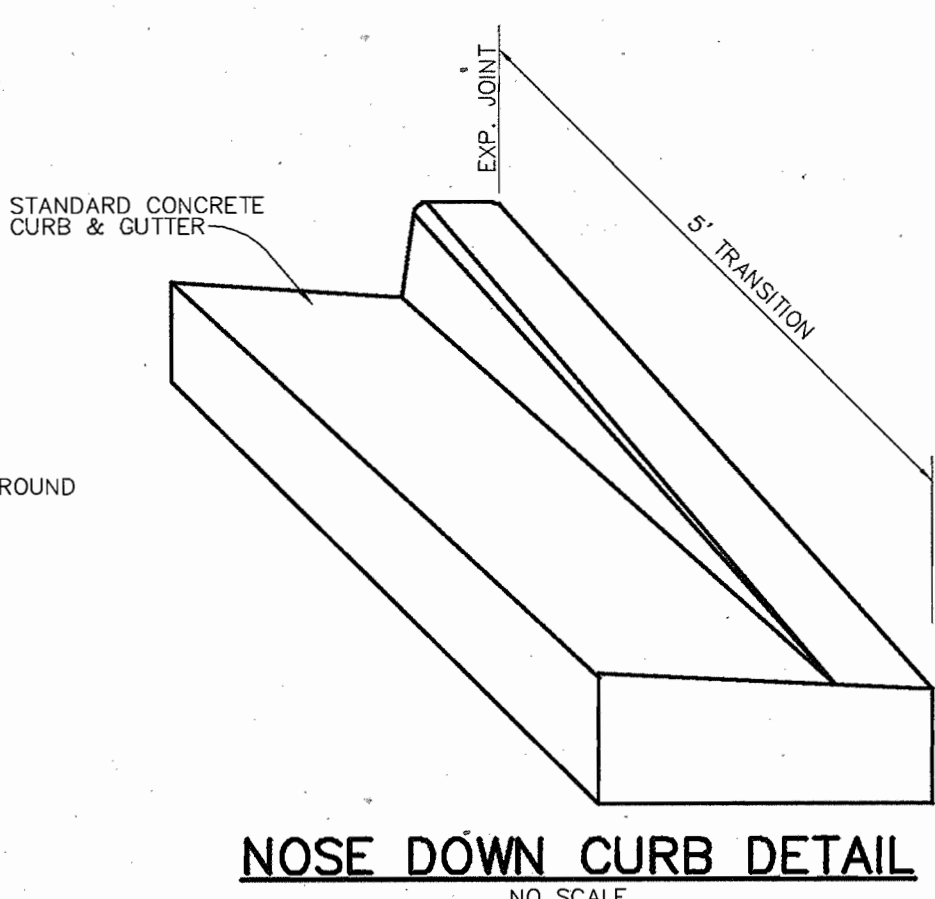
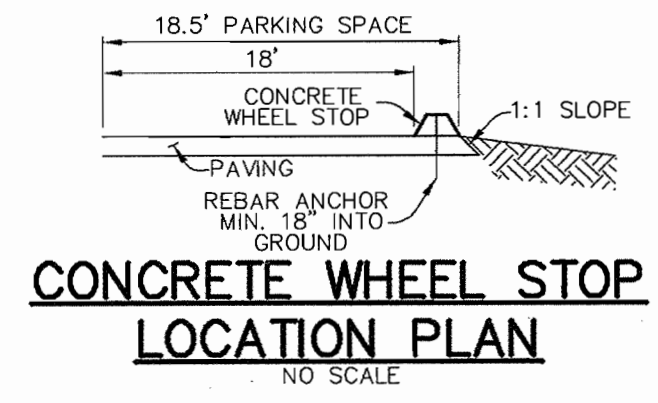
PROJECT NO: 01284  
C900DET2.DWG

DATE: OCTOBER 14, 2002

SCALE: AS SHOWN

DRAWING NO. 6 OF 17

CHRISTOPHER J. REID #19949

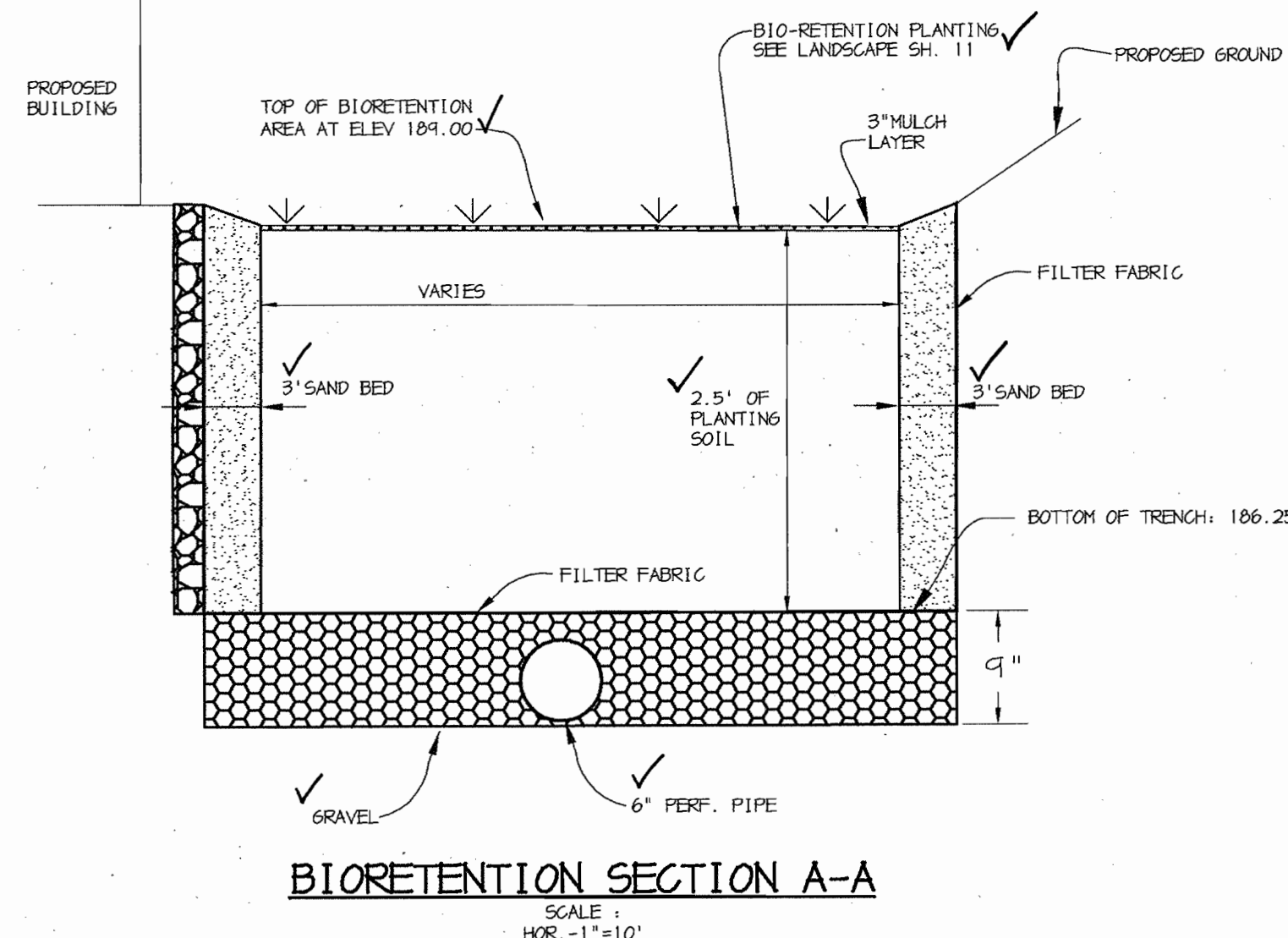


**PIPE SCHEDULE**

PIPE LENGTH	SIZE	TYPE
43	8"	ADS, N-12
118	10"	ADS, N-12
840	18"	ADS, N-12
261	24"	ADS, N-12
26	42"	ASTM, C-361

**STRUCTURE SCHEDULE**

STRUCTURE	TYPE	LOCATION	INV. IN	INV. OUT	TOP	REMARKS
I-1	A-5 3.5' WIDE	N 539,858.10 E 1,372,293.72	177.83 (18')	177.33 (24')	181.6	HOCO STD. DETAIL SD-4.40
I-2	S	N 539,813 E 1,372,248	-	178.15 (18')	181.5	HOCO STD. DETAIL SD-4.22
I-3	S	N 540,077.00 E 1,371,807.55	-	189.33 (18')	193.0	HOCO STD. DETAIL SD-4.22
I-4	A-5 3.5' WIDE	N 540,333.60 E 1,372,071.34	179.00 (18')	178.50 (24')	184.6	HOCO STD. DETAIL SD-4.40
I-5	DBL S	N 540,411.53 E 1,371,872.59	182.75 (18')	182.65 (18')	187.5	HOCO STD. DETAIL SD-4.23
I-6	DBL S	N 540,358.42 E 1,371,761.73	-	184.00 (18')	187.5	HOCO STD. DETAIL SD-4.23
M-1	4\"/>					
M-2	4\"/>					
M-3	4\"/>					
M-4	4\"/>					
E-1	24\"/>					
E-2	24\"/>					
E-3	24\"/>					
E-4	18\"/>					
S-1	MODIFIED STRUCTURE	N 540,159.75 E 1,372,208.91 (NE CNR) N 540,158.60 E 1,372,202.00 (NW CNR) N 540,145.44 E 1,372,211.28 (SE CNR) N 540,144.30 E 1,372,204.37 (SW CNR)	-	175.13 (42')	181.5	SEE SHEET 5
WQ-1	3K	N 549,994.60 E 1,372,228.89	176.57 (24')	176.32 (24')	184.2	SEE SHEET 9
WQ-2	3K	N 540,321.03 E 1,372,085.82	177.48 (24')	177.10 (24')	181.9	SEE SHEET 9



**Table: Materials Specifications for Bioretention**

MATERIAL	SPECIFICATIONS	SIZE	NOTES
PLANTINGS	SEE LANDSCAPE PLAN SHEET	N/A	
PLANTING SOIL (2.5' TO 4' DEEP)	SAND 35 - 60 % SILT 30 - 55 % CLAY 10 - 25 %	N/A	USDA SOIL TYPES LOAMY SAND, SANDY LOAM, OR LOAM
MULCH	SHREDDED HARDWOOD	N/A	AGED 6 MONTHS, MINIMUM
STONE DIAGRAM AND CURTAIN DRAIN	PEA GRAVEL: ASTM-D-448 ORNAMENTAL STONE: WASHED COBBLES	PEA GRAVEL: No. 6 STONE: -2" to 5"	
GEOTEXTILE	CLASSE "C" - APPARENT OPENING SIZE (ASTM-D-4751), GRAB TENSILE STRENGTH (ASTM-D-4632), PUNCTURE RESISTANCE (ASTM-D-4822)	N/A	FOR USE AS NECESSARY BENEATH UNDERDRAINS ONLY.
UNDERDRAIN GRAVEL	AASHTO M-43	0.375" to 0.75"	
UNDERDRAIN PIPE	F 758, TYPE PS 28 OR AASHTO M-278	4" TO 6" RIGID SCHEDULE 40 PVC OR SDR35	3/8" PERF. @ 6"/O.C. 4 HOLES PER ROW, MIN. OF 3" OF GRAVEL OVER PIPES.
SAND	AASHTO M-6 or ASTM C-33	0.02" to 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRASTONE #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATED OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.

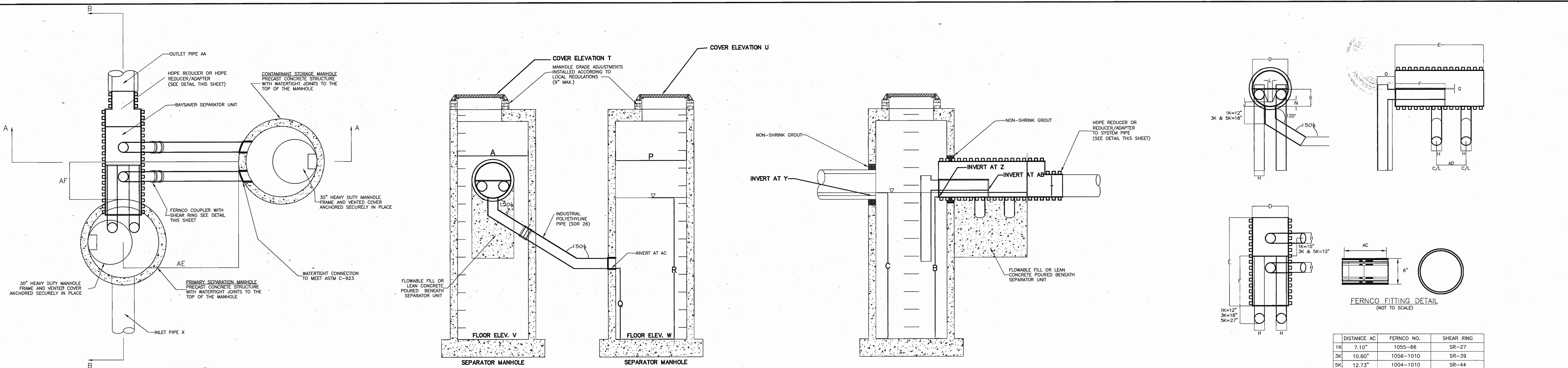
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
 DIRECTOR: *Christopher J. Reid* 11/26/02 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *William D. Duvall* 11/14/02 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT: *Wanda K. Hagan* 11/20/02 DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
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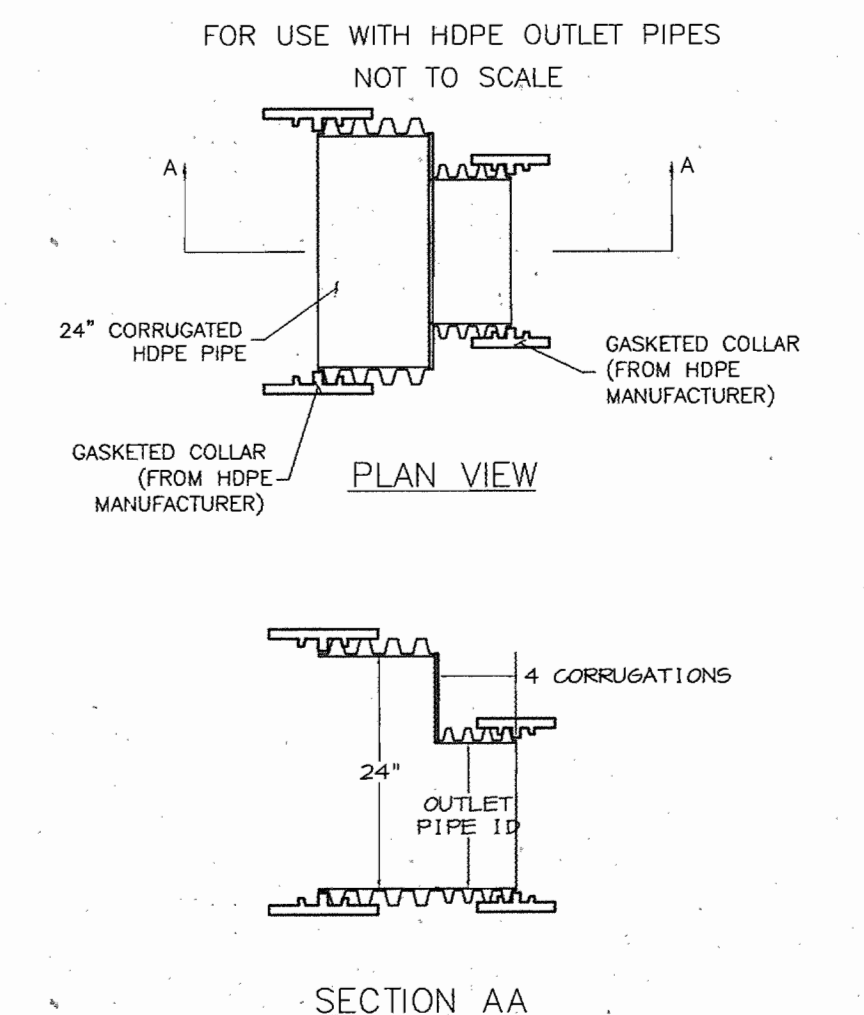
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 SCALE: AS SHOWN  
 DRAWING NO. 7 OF 17

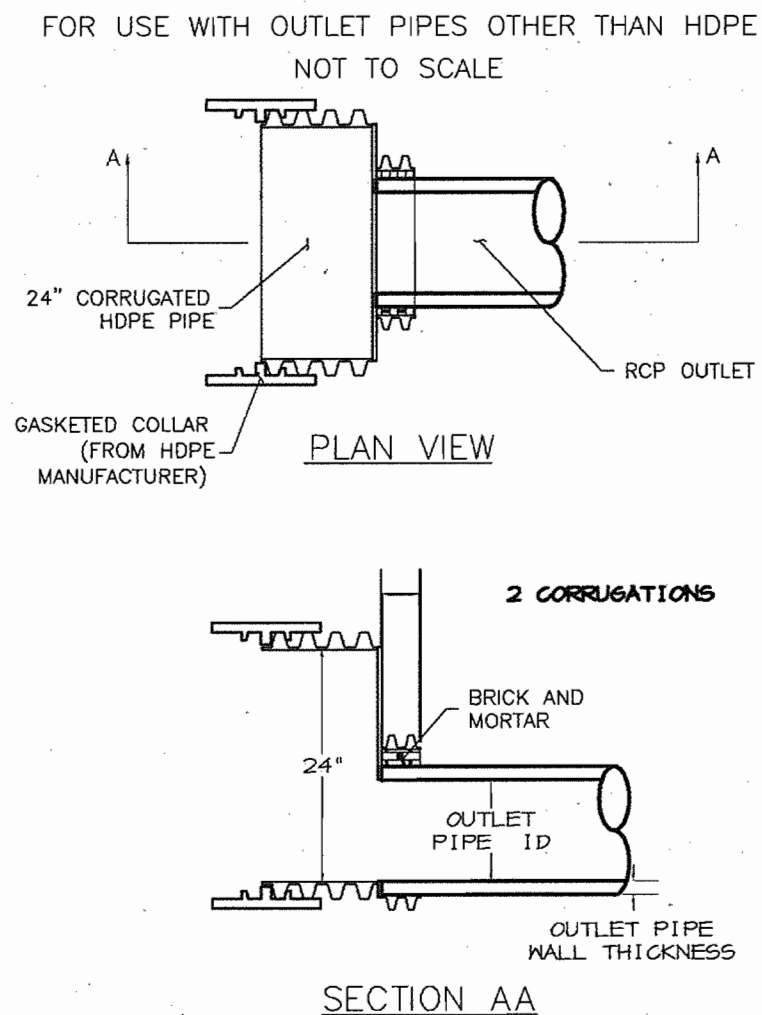




**HDPE-HDPE REDUCER DETAIL**



**REDUCER/ADAPTER DETAIL**



**SEQUENCE OF CONSTRUCTION AND INSPECTOR'S CHECK-OFF LIST FOR DUAL MANHOLE SEPARATORS**

STAGE (X = APPROVAL REQUIRED)	DEVELOPER'S/ENGINEER APPROVAL		INSPECTOR		GEOTECHNICAL ENGINEER	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
1. PRE-CONSTRUCTION MEETING.	X		X		X	
2. INSTALL MANHOLES AND ASSOCIATED STORM DRAINAGE. A. OBTAIN APPROVAL OF SUBGRADE FROM GEOTECHNICAL ENGINEER. (SUBGRADE TO HAVE A MINIMUM OF 95% COMPACTION)					X	
B. INSTALLATION OF PRECAST BASE, LOWER TANK AND LOWER PIPING.	X		X			
C. BACKFILL AND MIN. 95% COMPACTION AROUND LOWER TANK AND LOWER PIPING.					X	
D. INSTALLATION OF PRECAST MIDDLE SECTION(S) WITH SEPARATOR UNIT AND REMAINING PIPING.	X		X			
E. INSTALLATION OF PRECAST TOP SLAB.	X		X			
F. INSTALLATION OF ADJUSTMENT RINGS AND FRAME AND COVER.	X		X			
G. INSTALLATION OF FLOWABLE FILL OR CONCRETE BACKFILL.					X	
3. BACKFILLING OPERATION AND COMPACTION.					X	
4. SITE IS PERMANENTLY STABILIZED. SEDIMENT CONTROL MEASURES REMOVED AND ALL SEDIMENT AND DEBRIS REMOVED FROM DUAL MANHOLE SEPARATORS.			X			
5. FINAL INSPECTION.			X			

**GENERAL CONSTRUCTION NOTES**

- ALL WORK MUST BE DONE WITH REGARD FOR THE SAFETY OF THE CONSTRUCTION CREW.
- ALL WORK AND MATERIALS MUST COMPLY WITH APPLICABLE STATE AND LOCAL REGULATIONS.
- KNOW THE LOCATION AND DEPTH OF ANY UNDERGROUND UTILITIES BEFORE EXCAVATION BEGINS.

**NOTE:**  
 BAYSAYERS ARE TO BE INSTALLED WITH THE STORM DRAIN SYSTEM AND WILL FUNCTION AS SECONDARY SEDIMENT CONTROL DEVICES. UPON COMPLETION OF SITE STABILIZATION, EACH BAYSAYER SYSTEM SHALL BE FLUSHED CLEAN & THE MANHOLES CLEANED OUT AND REFILLED WITH CLEAN WATER.

**NOTE:** DIMENSIONAL SHOP DRAWINGS ARE TO BE APPROVED BY THE DESIGN ENGINEER

**BAYSAYER MAINTENANCE**

BAYSAYER SYSTEMS MUST BE INSPECTED AND MAINTAINED PERIODICALLY. INSPECTION IS MADE BY CHECKING THE DEPTH OF SEDIMENT IN EACH MANHOLE WITH A GRADE STICK OR SIMILAR DEVICE. MAINTENANCE IS REQUIRED WHEN THE SEDIMENT DEPTH IN EITHER MANHOLE EXCEEDS 2 FEET. MINIMUM INSPECTION IS REQUIRED TWICE A YEAR TO MAINTAIN OPERATION AND FUNCTION OF BAYSAYER.

**MAINTENANCE CONSISTS OF THE FOLLOWING:**

- A. CONTAMINANT STORAGE MANHOLE**
- REMOVE THE ENTIRE VOLUME OF THE CONTAMINATED WATER BY VACUUM TRUCK.
  - CLEAN THE MANHOLE WALLS AND FLUSH OUT THE MANHOLE USING A HIGH PRESSURE HOSE AND REMOVE FLUSHING WATER BY VACUUM TRUCK. MAKE CERTAIN MANHOLE IS CLEAN.
- B. PRIMARY SEPARATION MANHOLE**
- USING A SUBMERSIBLE PUMP, PUMP THE CLEAN WATER FROM THE CENTER OF THE MANHOLE DIRECTLY INTO THE EMPTY STORAGE MANHOLE UNTIL THE WATER LEVEL FALLS TO 1 FOOT ABOVE THE SEDIMENT LAYER.
  - REMOVE THE SETTLED SEDIMENT AND REMAINING WATER BY VACUUM TRUCK.
  - CLEAN THE MANHOLE WALLS AND FLUSH OUT THE MANHOLE USING A HIGH PRESSURE HOSE AND REMOVE FLUSHING WATER BY VACUUM TRUCK. MAKE CERTAIN MANHOLE IS CLEAN.
  - CONTAMINATED MATERIAL REMOVED FROM THE MANHOLES MUST BE DISPOSED OF RESPONSIBLY AND LEGALLY BY THE OPERATOR OF THE VACUUM TRUCK.

**BAYSAYER INSTALLATION INSTRUCTIONS**

- EXCAVATION MUST PROVIDE ADEQUATE SPACE TO CONNECT INLET AND OUTLET PIPES TO SEPARATOR MANHOLE AND BAYSAYER UNIT. INSTALL PRECAST DROP STRUCTURES ON SOLID GROUND AS VERIFIED BY A GEOTECHNICAL ENGINEER. MAINTENANCE CONSISTS OF THE FOLLOWING:
- VERIFY THE SUBGRADE ELEVATION AGAINST THE MANHOLE DIMENSIONS AND CONNECTING STORM DRAIN INVERTS.
- MAKING SURE THE BASES ARE LEVEL AND THE STORAGE MANHOLE OPENINGS ARE ALIGNED WITH THE SEPARATOR UNIT. INSTALL PRIMARY AND STORAGE MANHOLES. INSTALL RUBBER GASKETS ON BASE UNITS AND COAT WITH LUBRICATING GREASE. INSTALL ADDITIONAL MANHOLE SECTIONS AS REQUIRED. SEAL LIFT HOLES WITH NON-SHRINK GROUT.
- BACKFILL BASE SECTIONS OF MANHOLES TO INVERT OF STORAGE MANHOLE CONNECTING PIPES. USING APPROVED BACKFILL MATERIAL, BACKFILL AND COMPACT IN 6 INCH LIFTS. BACKFILL AND COMPACTION SHOULD BE MONITORED BY A GEOTECHNICAL ENGINEER.
- INSTALL BAYSAYER SEPARATOR UNIT AND CONNECTING PIPES. SEAL ALL CONNECTING JOINTS AND INSTALL SEPARATOR UNIT/STORM DRAIN JOINT COLLAR. CUT EXCESS LENGTH OF CONNECTING PIPES INSIDE STORAGE MANHOLE.
- BACKFILL SEPARATOR UNIT AND MANHOLES. AREAS NOT ACCESSIBLE TO COMPACTION EQUIPMENT MUST BE BACKFILLED WITH LEAN CONCRETE OR FLOWABLE FILL.
- INSTALL AND SET MANHOLE COVER GRADE ADJUSTMENT RINGS AS NECESSARY.
- INSTALL AND SET MANHOLE FRAME AND COVER UNITS.

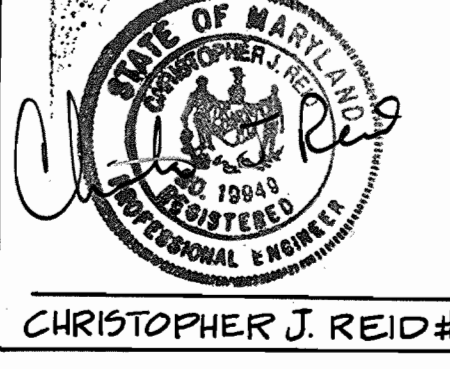
**BAYSAYER SYSTEM DIMENSIONS**

DESCRIPTION	SEPARATOR MANHOLE DIMENSIONS		
	1K SYSTEM	3K SYSTEM	5K SYSTEM
A PRIMARY MANHOLE DIAMETER	48"	60"	96"
B MANHOLE DEPTH BELOW OUTLET	8' - 0"	8' - 0"	8' - 0"
C MINIMUM FLUID DEPTH	8' - 3"	8' - 4 1/2"	8' - 6"
STANDARD SEPARATOR UNIT DIMENSIONS			
D SEPARATOR UNIT ID	24"	36"	48"
E SEPARATOR UNIT LENGTH	60"	80.0"	78"
F BYPASS PLATE LENGTH	34"	45"	45"
G WEIR/BYPASS PLATE THICKNESS	3/4"	3/4"	3/4"
H ELBOW AND CONNECTING PIPE OD	7.125"	10.75"	12.75"
I ELBOW LENGTH	48"	48"	48"
J WEIR HEIGHT ABOVE INVERT	3"	4"	6"
K BYPASS PLATE HEIGHT ABOVE INVERT	12"	18"	24"
L WIDTH OF WEIR AT BASE	3"	4 1/2"	6"
M OUTLET PIPE DIAMETER	M	M	M
N ELBOW INVERT HEIGHT ABOVE UNIT INVERT	4 1/2"	7 1/2"	11"
O ELBOW PIPE OVERHANG	12"	18"	24"
STORAGE MANHOLE DIMENSIONS			
P STORAGE MANHOLE DIAMETER	48"	60"	96"
Q MANHOLE DEPTH BELOW INLET/OUTLET	48"	48"	48"
R FLUID DEPTH	8' - 0"	8' - 0"	8' - 0"
S TOTAL STORAGE VOLUME	200 CF	300 CF	450 CF
SYSTEM DIMENSIONS AND ELEVATIONS			
T SEPARATOR MANHOLE COVER ELEVATION	T	T	T
U STORAGE MANHOLE COVER ELEVATION	U	U	U
V SEPARATOR MANHOLE FLOOR ELEVATION	V	V	V
W STORAGE MANHOLE FLOOR ELEVATION	W	W	W
X INLET PIPE ID AND MATERIAL	X1 X2	X1 X2	X1 X2
Y INLET PIPE INVERT	Y1 Y2	Y1 Y2	Y1 Y2
Z SEPARATOR UNIT INVERT	Z	Z	Z
AA OUTLET PIPE ID AND MATERIAL	AA	AA	AA
AB ELBOW INVERT ELEVATION	AB	AB	AB
AC CONNECTING PIPE INVERT ELEVATION	AC	AC	AC
AD CONNECTION PIPE SPACING	20"	24"	24"
AE STORAGE MANHOLE SIDE OFFSET	72 ± 6"	72 ± 6"	72 ± 6"
AF STORAGE MANHOLE DOWNSTREAM OFFSET	23"	31"	25"

**OPERATION AND MAINTENANCE SCHEDULE FOR BAYSAYER UNITS**

- BAYSAYER STRUCTURES WILL REQUIRE PERIODIC INSPECTION AND CLEANING TO MAINTAIN OPERATION AND FUNCTION. OWNERS WILL HAVE THE BAYSAYER UNIT INSPECTED YEARLY OR AS REQUIRED BY HOWARD COUNTY, UTILIZING THE BAYSAYER UNITS INSPECTION/MONITORING FORM. INSPECTIONS CAN BE DONE BY USING A CLEAR PLEXIGLAS TUBE ("SLUDGE JUDGE") TO EXTRACT A WATER COLUMN SAMPLE. WHEN SEDIMENT DEPTHS EXCEED THE SPECIFIED LEVEL (TABLE 6 OF TECHNICAL MANUAL) THEN CLEANING OF THE UNIT IS REQUIRED.
- BAYSAYER STRUCTURES MUST BE CHECKED AND CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. CONTACT APPROPRIATE REGULATORY AGENCIES.
- MAINTENANCE OF BAYSAYER UNITS SHOULD BE DONE BY A VACUUM TRUCK WHICH WILL REMOVE THE WATER, SEDIMENT, DEBRIS, FLOATING HYDROCARBONS, AND OTHER MATERIALS IN THE UNIT. THE PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIALS AND LIQUID MUST BE FOLLOWED.
- INLET AND OUTLET PIPES MUST BE CHECKED FOR ANY OBSTRUCTIONS AND IF ANY OBSTRUCTIONS ARE FOUND THEY MUST BE REMOVED. STRUCTURAL PARTS OF THE BAYSAYER WILL BE REPAIRED AS NEEDED.
- OWNER SHALL RETAIN AND MAKE BAYSAYER UNITS INSPECTION/MONITORING FORMS AVAILABLE TO HOWARD COUNTY OFFICIALS UPON THEIR REQUEST.

**AS-BUILT CERTIFICATE**



Baysaver Separator Unit	Baysaver Manhole Sizes (prim. x stor.)	Maximum Treatment (cfs)*1	Maximum Treatment (gpm)*1	Impervious Area (acres)
1K Baysaver Separator	48x48 48x60 48x72 60x60	2.4 2.4 2.4 2.4	1076 1076 1076 1076	1.2 WQ-1 1.4 1.6 1.5
3K Baysaver Separator	60x60 60x72 60x84 72x72	7.2 7.2 7.2 7.2	3231 3231 3231 3231	3.6 WQ-2 4.1 4.6 4.4
5K Baysaver Separator	72x72 72x84 72x96 96x96	11.1 11.1 11.1 11.1	4981 4981 4981 4981	5.5 6.5 7.5 8.0

**Project:** DORSEY WOODS **Designer:** PHR/A  
**Address:** DORSEY RUN ROAD **Contact:** AIMEE REMINGTON  
 JESSUP, MD **Phone:** 410-997-8900  
 20794 **Fax:** 410-997-9282

**Delivery Date:** \_\_\_\_\_

**Owner:** OPUS EAST LLC **Contractor:** \_\_\_\_\_  
**Contact:** TIM HOGAN **Address:** ROCKVILLE, MD  
 301 354-4444 **Phone:** \_\_\_\_\_  
 \_\_\_\_\_ **Fax:** \_\_\_\_\_

**Separator Unit Model:**

1K     
 3K     
 5K

Circle system orientation above

**Manhole Specifications:**

Primary Manhole Diameter: 60" inches  
 Storage Manhole Diameter: 60" inches

**Floor Elevations:**  
 Primary Manhole 169.10 ✓  
 Storage Manhole 169.10 ✓

**Primary Manhole Inverts:**  
 Separator Unit 177.48 ✓  
 Inlet Pipe(s) 177.48 (IN) ✓  
 177.10 (OUT) ✓

Please show orientation (including angle), size and material of inlet pipes above.

**Cover Elevations:**  
 Primary Manhole 184.21 ✓  
 Storage Manhole 184.21 ✓

WQ-2/WQ-2A

**Project:** DORSEY WOODS **Designer:** PHR/A  
**Address:** DORSEY RUN ROAD **Contact:** AIMEE REMINGTON  
 JESSUP, MD **Phone:** 410-997-8900  
 20794 **Fax:** 410-997-9282

**Delivery Date:** \_\_\_\_\_

**Owner:** OPUS EAST LLC **Contractor:** \_\_\_\_\_  
**Contact:** TIM HOGAN **Address:** ROCKVILLE, MD  
 301 354-4444 **Phone:** \_\_\_\_\_  
 \_\_\_\_\_ **Fax:** \_\_\_\_\_

**Separator Unit Model:**

1K     
 3K     
 5K

Circle system orientation above

**Manhole Specifications:**

Primary Manhole Diameter: 60" inches  
 Storage Manhole Diameter: 60" inches

**Floor Elevations:**  
 Primary Manhole 169.32 ✓  
 Storage Manhole 169.32 ✓

**Primary Manhole Inverts:**  
 Separator Unit 176.57 ✓  
 Inlet Pipe(s) 176.57 (IN) ✓  
 176.32 (OUT) ✓

Please show orientation (including angle), size and material of inlet pipes above.

**Cover Elevations:**  
 Primary Manhole 184.21 ✓  
 Storage Manhole 184.21 ✓

WQ-1/WQ-1A

This order can be faxed to Bay Saver, Inc. at (301) 829-3747

This order can be faxed to Bay Saver, Inc. at (301) 829-3747

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

*James S. Roth* 11/26/02  
 DIRECTOR DATE

*Mike Duvall* 11/14/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Chris Hovatt* 11/22/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

**OWNER:** MS. CHARLOTTE W. DIVALL AND  
 MR. BRYAN M. DIVALL  
 8101 DORSEY RUN ROAD  
 JESSUP, MARYLAND 20794  
 410-793-7724  
 ATTN: TIM HOGAN

**DEVELOPER:** OPUS EAST LLC  
 2099 GAITHER ROAD, SUITE 101  
 ROCKVILLE, MD 20850  
 (301) 354-4444  
 ATTN: TIM HOGAN

**PROJECT:** DORSEY WOODS  
**PARCEL A, AN OFFICE-WAREHOUSE BUILDING**

**AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2**  
 PARCEL A ZONED M-2  
 6th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

**TITLE:** BAYSAYER DETAILS

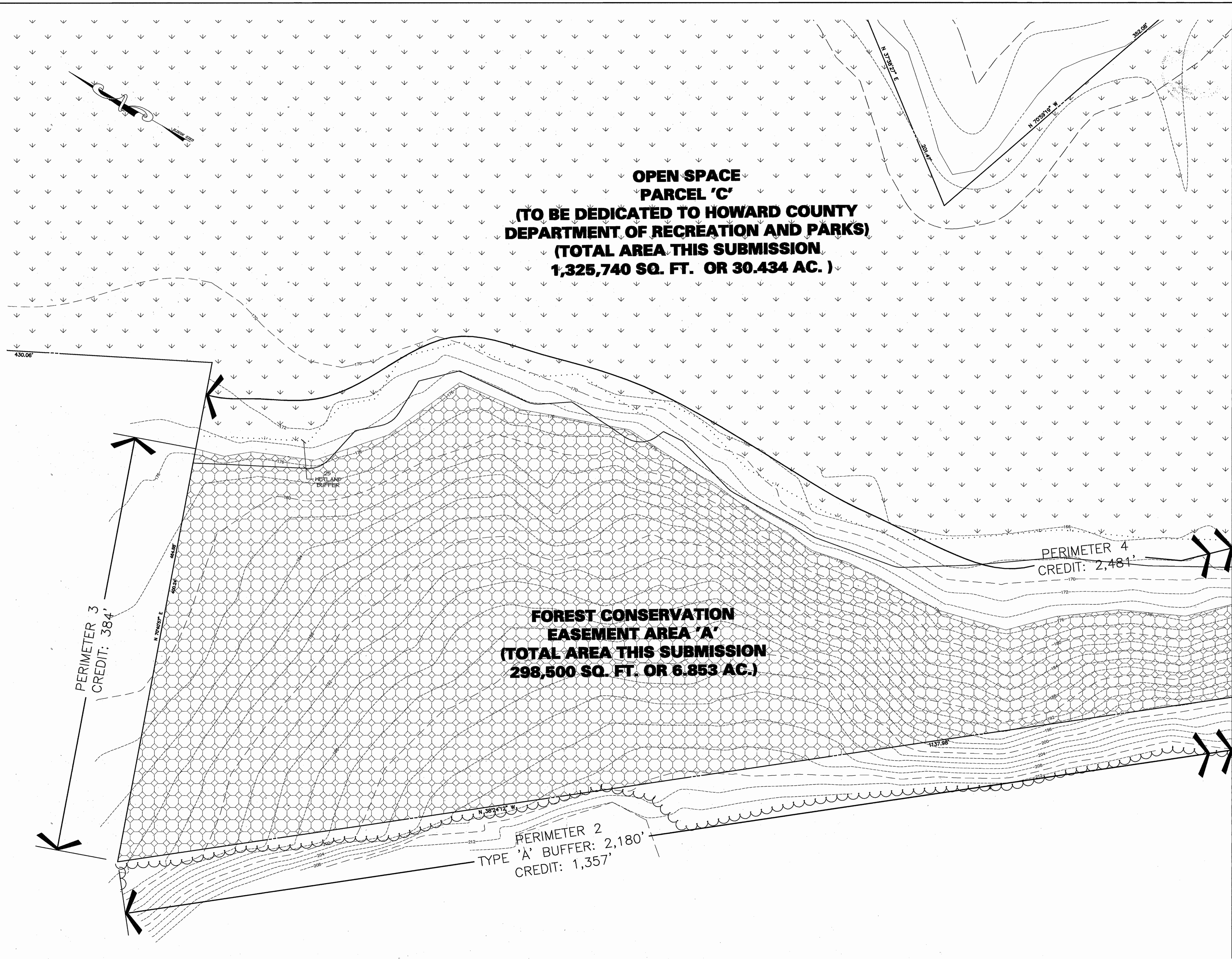
**Patton Harris Rust & Associates, p.c.**  
 Engineers, Surveyors, Planners, Landscape Architects.

**PHR/A** 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

10-15-02  
 DATE

DESIGNED BY: A.C.R.  
 DRAWN BY: DAM  
 CHECKED BY: C.J.R.  
 PROJECT NO: 01284  
 C900DET.DWG  
 DATE: OCTOBER 14, 2002  
 SCALE: AS SHOWN  
 DRAWING NO. 9 OF 17

CHRISTOPHER J. REID #19949  
 AS-BUILT- SDP-02-102



**OPEN SPACE  
PARCEL 'C'**  
(TO BE DEDICATED TO HOWARD COUNTY  
DEPARTMENT OF RECREATION AND PARKS)  
(TOTAL AREA THIS SUBMISSION  
1,325,740 SQ. FT. OR 30.434 AC.)

**FOREST CONSERVATION  
EASEMENT AREA 'A'**  
(TOTAL AREA THIS SUBMISSION  
298,500 SQ. FT. OR 6.853 AC.)

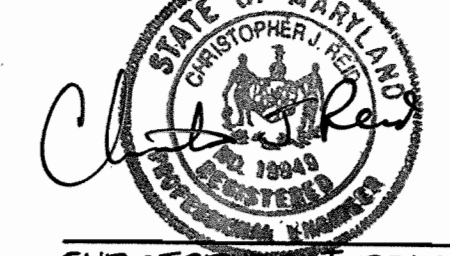
PERIMETER 3  
CREDIT: 384'

PERIMETER 2  
TYPE 'A' BUFFER: 2,180'  
CREDIT: 1,357'

PERIMETER 4  
CREDIT: 2,481'

FOR CONTINUATION SEE SHEET 11

AS-BUILT CERTIFICATE



6.24.07  
DATE

CHRISTOPHER J. REID #121848

LEGEND	
EX. TREELINE	
PROP. TREELINE	
PROPERTY LINE	
WETLANDS AND 25' BUFFER	
PERENNIAL STREAM AND 50' BUFFER	
100-YEAR FLOODPLAIN	
CONTOUR LINES	
EX. BUILDING	
PROP. SHADE TREE	
PROP. EVERGREEN TREE	
PROP. SHRUBS	
LANDSCAPE REQUIREMENT	
BIORETENTION PLANTING	
PERIMETER LANDSCAPE EDGE LIMITS	
PERIMETER LANDSCAPE EDGE CONTINUATION OFF THE SHEET	
CREDITED LANDSCAPE ISLAND	

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

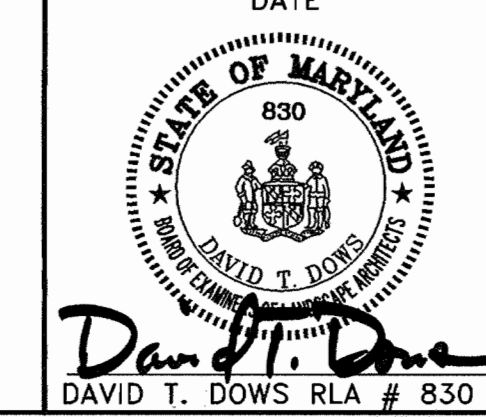
RECORDED: *[Signature]* 11/26/02 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 11/22/02 DATE

DATE	NO.	REVISION
OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724		
DEVELOPER: OPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 301-354-4444 ATTN: TIM HOGAN		
PROJECT: DORSEY WOODS PARCEL A, AN OFFICE-WAREHOUSE BUILDING		
AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2 PARCEL A ZONED M-2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		

TITLE: LANDSCAPE PLAN

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

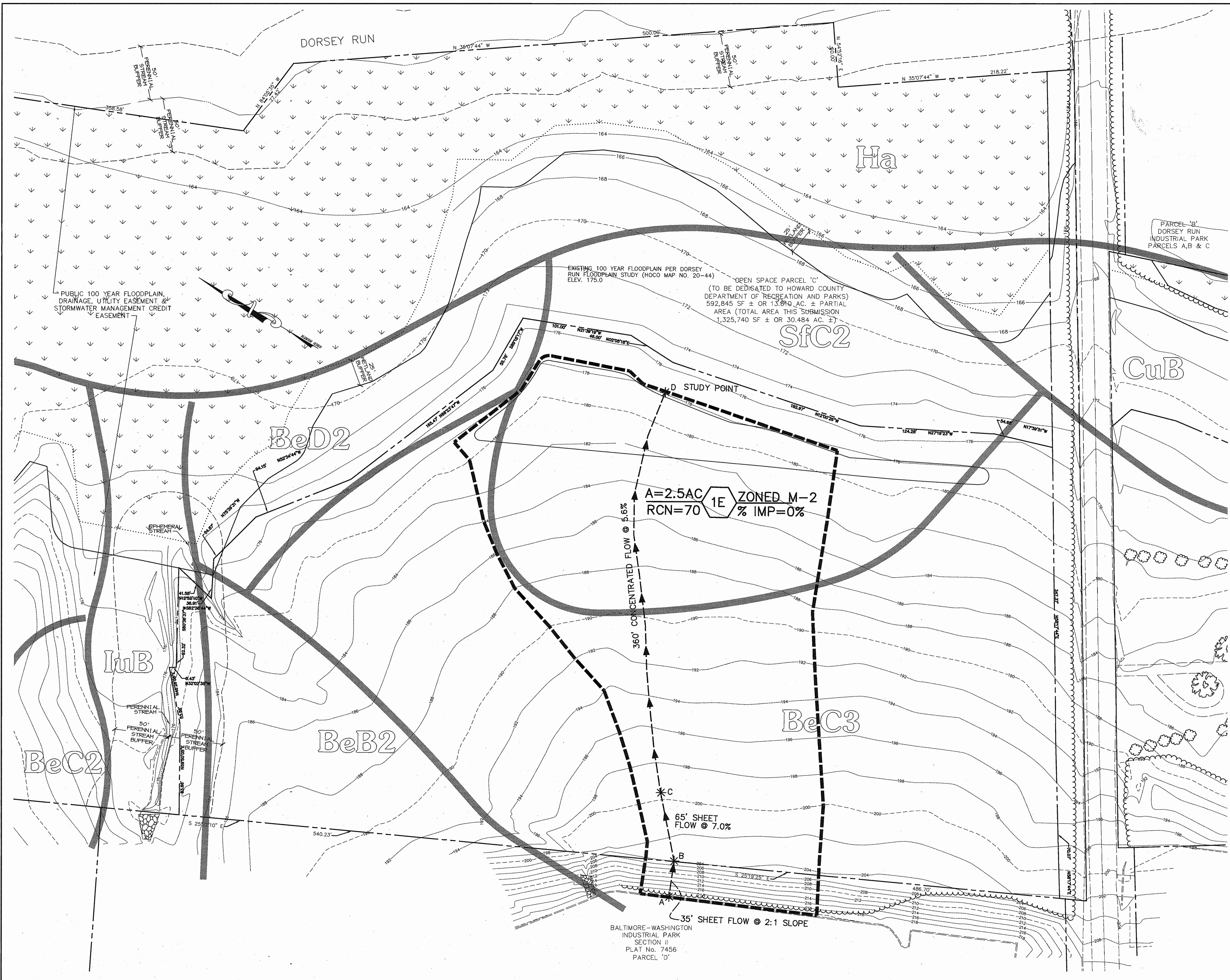
10.14.02 DATE	DESIGNED BY : GTH
	DRAWN BY : DAMGTH
	CHECKED BY : PJS
	PROJECT NO : 01284 L202LND.DWG
	DATE : OCTOBER 14, 2002
	SCALE : 1" = 40'
	DRAWING NO. 10 OF 17



DAVID T. DOWS RLA # 830

NO LANDSCAPING THIS SHEET

AS-BUILT - SDP-02-102



AS-BUILT CERTIFICATE



CHRISTOPHER J. REID #19949  
DATE 6.24.04

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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER  
Tim Hogan  
DATE 10-15-02

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

ENGINEER  
Christopher J. Reid  
DATE 10-15-02

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

NATURAL RESOURCES CONSERVATION SERVICE  
DATE

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

HOWARD SOIL CONSERVATION DISTRICT  
DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

DIRECTOR  
L. R. Rutter  
DATE 11/26/02

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
C. J. Reid  
DATE 11/14/02

CHIEF, DIVISION OF LAND DEVELOPMENT  
C. J. Reid  
DATE 11/20/02

DATE NO. REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL  
8101 DORSEY RUN ROAD  
JESSUP, MARYLAND 20794  
410-799-7724

DEVELOPER: OPUS EAST LLC  
2099 GATHER ROAD, SUITE 101  
ROCKVILLE, MD 20850  
(301) 354-4444  
ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
PARCEL A ZONED M-2  
6th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: EXISTING CONDITIONS  
STORMWATER DRAINAGE AREA MAP

Patton Harris Rust & Associates, pc  
Engineers, Surveyors, Planners, Landscape Architects.

P\_H\_R\_A  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.9900  
F 410.997.9282

DESIGNED BY: A.C.R.  
DATE 10-15-02

DRAWN BY: DAM

CHECKED BY: C.J.R.

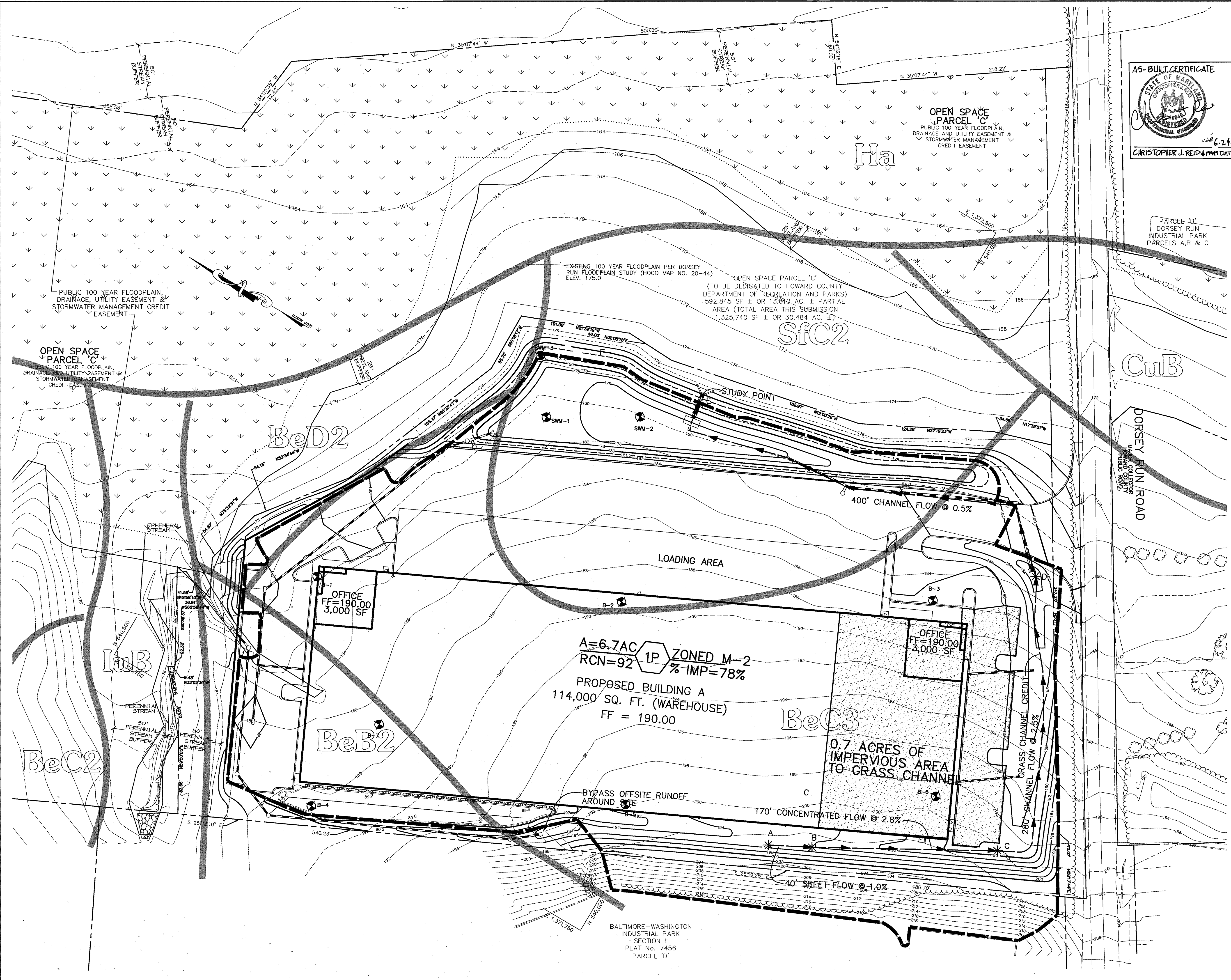
PROJECT NO: 01284  
C410XDA.DWG

DATE: OCTOBER 14, 2002

SCALE: 1" = 40'  
DRAWING NO. 13 OF 17

AS-BUILT- SDP-02-102

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**LEGEND**

TIME OF CONCENTRATION PATH

GRASS CHANNEL CREDIT

NATURAL AREA DIVIDE

NATURAL AREA CONSERVATION CREDIT

IMPERVIOUS AREA FOR REV

SOIL LINES

BORING LOCATION

**A5-BUILT CERTIFICATE**

STATE OF MARYLAND  
 PROFESSIONAL ENGINEER  
 CHRISTOPHER J. REID #19949  
 6-24-02

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 POND CONSTRUCTION AND PROVIDE THE HOWARD SOIL CONSERVATION DISTRICT WITH AN "AS-BUILT" PLAN OF THE POND WITHIN 30 DAYS OF COMPLETION. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

DEVELOPER **TIM HOGAN** 10-15-02 DATE

BY THE ENGINEER :

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

**Cheryl J. Reed** 10-15-02 DATE  
 ENGINEER

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.

**Jin Nguyen, Co** 11/13/02 DATE  
 NATURAL RESOURCES CONSERVATION SERVICE

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

**John A. ...** 4/18/02 DATE  
 HOWARD SOIL CONSERVATION DISTRICT

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

**Frank ...** 11/26/02 DATE  
 DIRECTOR

**John ...** 11/14/02 DATE  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

**Cindy ...** 11/24/02 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT

DATE NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVAL AND MR. BRYAN M. DUVAL  
 8101 DORSEY RUN ROAD  
 JESSUP, MARYLAND 20794  
 410-799-7724

DEVELOPER: CUPUS EATS, LLC  
 2099 GAITHER ROAD, SUITE 101  
 ROCKVILLE, MD 20850  
 (301) 354-4444  
 ATTN: TIM HOGAN

PROJECT: **DORSEY WOODS**  
 PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
 PARCEL A ZONED M-2  
 6th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: **PROPOSED CONDITIONS STORMWATER DRAINAGE AREA MAP**

Patton Harris Rust & Associates, pc  
 Engineers, Surveyors, Planners, Landscape Architects.

**PHRA** 8818 Centre Park Drive  
 Columbia, MD 21045  
 T 410.997.8900  
 F 410.997.9282

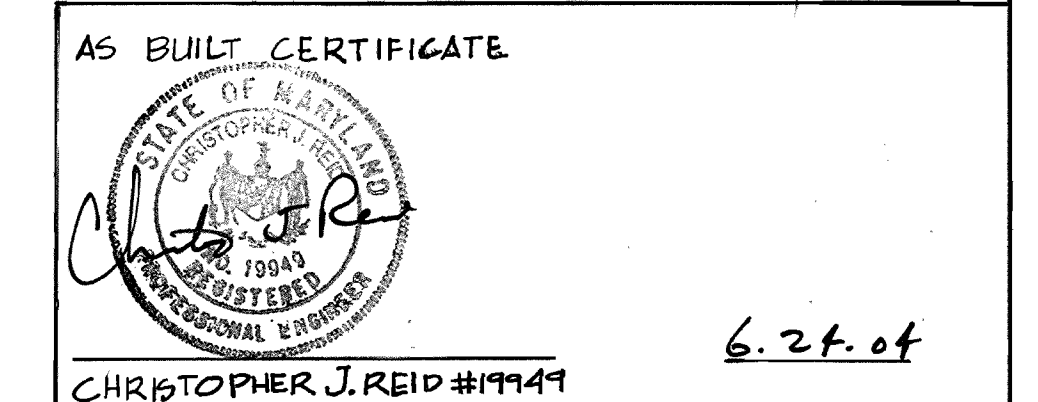
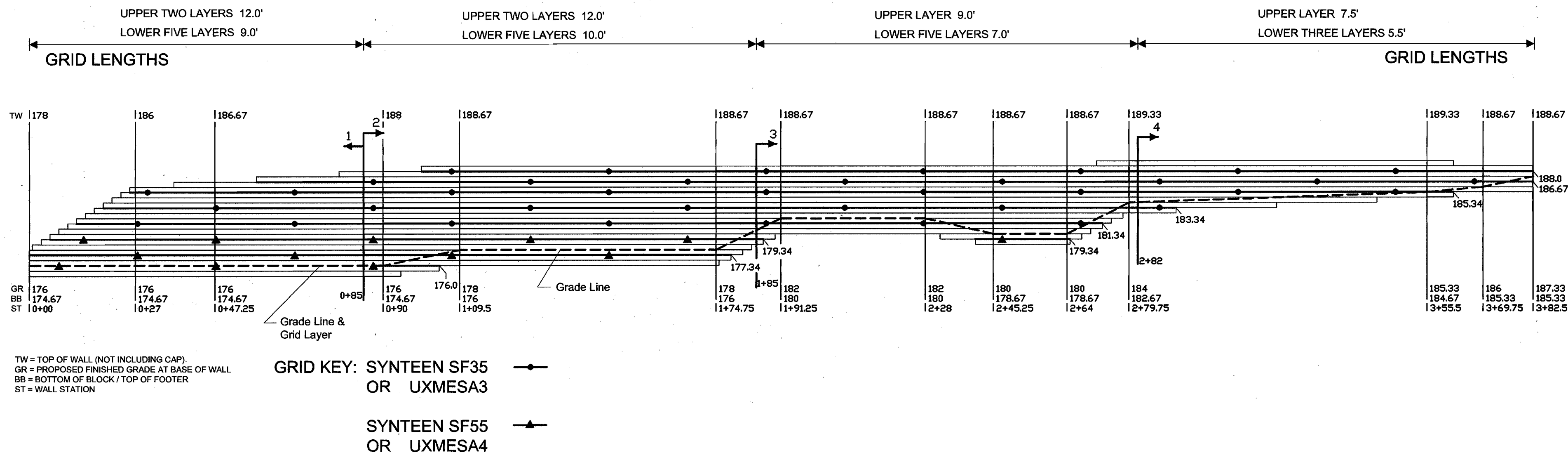
10-15-02 DATE

DESIGNED BY : A.C.R.  
 DRAWN BY : DAM  
 CHECKED BY : C.J.R.  
 PROJECT NO : 01284  
 C410PDA.DWG  
 DATE : OCTOBER 14, 2002  
 SCALE : 1" = 40'  
 DRAWING NO. 14 OF 17

I:\project\0284\1-01\fig\Plans\C410PDA.dwg, SITE, 10/11/02 11:43:51 AM, HP750C66.pcs, Arch D - 24 x 36 in. (landscape), 1:1

# CORNERSTONE RETAINING WALL ELEVATION

HORIZONTAL SCALE: 1" = 20' VERTICAL SCALE: 1" = 10'

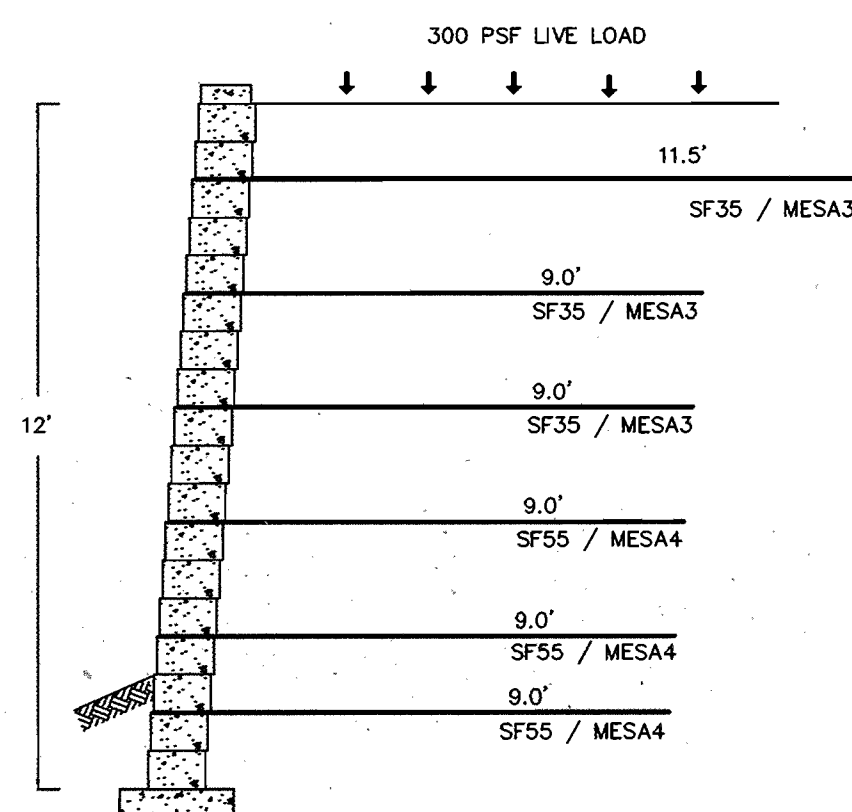


- The proposed retaining wall construction shall be performed under the observation of a Maryland Registered Professional Engineer.
- Foundation soils for the proposed retaining wall must be examined by the geotechnical engineer to assure the actual foundation soil strength meets or exceeds the assumed design strength.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
Director	11/26/02
Chief, Development Engineering Division	11/14/02
Chief, Division of Land Development	11/26/02

DATE	NO.	REVISION
05/21/02		Retaining Wall Design
OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN W. DUVALL, 8101 DORSEY WOOD ROAD, JESSUP, MARYLAND 20704, 410-799-7724		
DEVELOPER: OPUS EAST LLC, 2099 GAITHER ROAD, SUITE 101, ROCKVILLE, MD (301) 354-4444, ATTN: TIM HOGAN		
PROJECT: DORSEY WOODS		
PARCEL A, AN OFFICE-WAREHOUSE BUILDING		
AREA: TAX MAP 43, PARCELS A ZONED M-2, 6th ELECTION DISTRICT, HOWARD COUNTY, MARYLAND		
TITLE: RETAINING WALL ELEVATION & SPECIFIC CROSS SECTIONS		
Patton Harris Rust & Associates, pc Engineers, Surveyors, Planners, Landscape Architects. 8818 Centre Park Drive, Columbia, MD 21045, T 410.997.8900, F 410.997.9282		

WALL #1 SECTION 1  
0+00 TO 0+85



**Block Dimensions**  
Total Wall Height = 12' Block Height = 6.67'  
Angle of Setback = 4.5' Depth of Block = 1.00'  
Length of Block = 1.50'

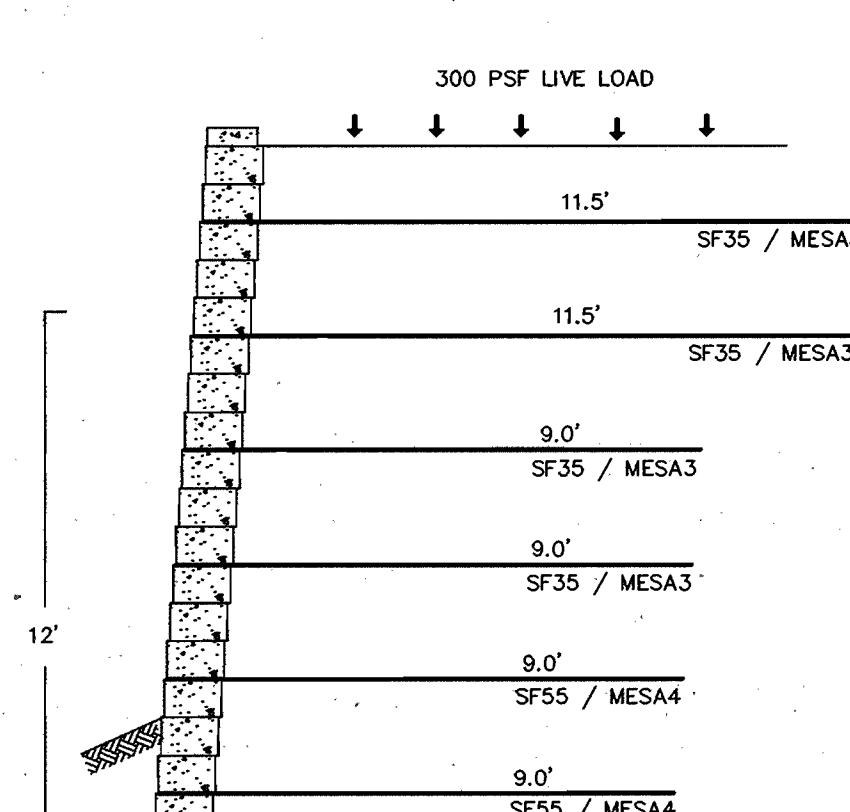
**SOIL PARAMETERS**  
Infill Friction Angle = 28° Unit Weight = 120 PSF  
Retained Friction Angle = 27° Unit Weight = 120 PSF  
Foundation Friction Angle = 27° Unit Weight = 120 PSF

Bearing Capacity Factor of Safety = 4.56  
MAXIMUM BEARING PRESSURE = 1981 PSF

**Safety Factors Static & Seismic**  
Minimum Sliding = 1.5 Actual Sliding = 2.06  
Minimum Overturning = 2.0 Actual Overturning = 4.36

N. T. S.

WALL #1 SECTION 2  
0+85 TO 1+85



**Block Dimensions**  
Total Wall Height = 12' Block Height = 6.67'  
Angle of Setback = 4.5' Depth of Block = 1.00'  
Length of Block = 1.50'

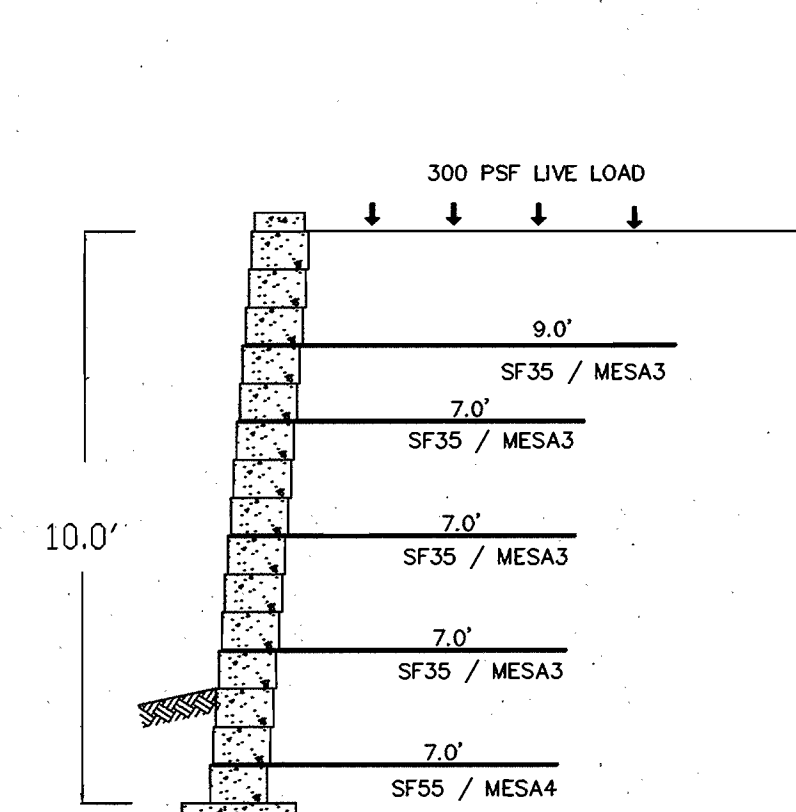
**SOIL PARAMETERS**  
Infill Friction Angle = 28° Unit Weight = 120 PSF  
Retained Friction Angle = 27° Unit Weight = 120 PSF  
Foundation Friction Angle = 27° Unit Weight = 120 PSF

Bearing Capacity Factor of Safety = 4.56  
MAXIMUM BEARING PRESSURE = 1981 PSF

**Safety Factors Static & Seismic**  
Minimum Sliding = 1.5 Actual Sliding = 2.06  
Minimum Overturning = 2.0 Actual Overturning = 4.36

N. T. S.

WALL #1 SECTION 3  
1+85 TO 2+82



**Block Dimensions**  
Total Wall Height = 10.0' Block Height = 6.67'  
Angle of Setback = 4.5' Depth of Block = 1.00'  
Length of Block = 1.50'

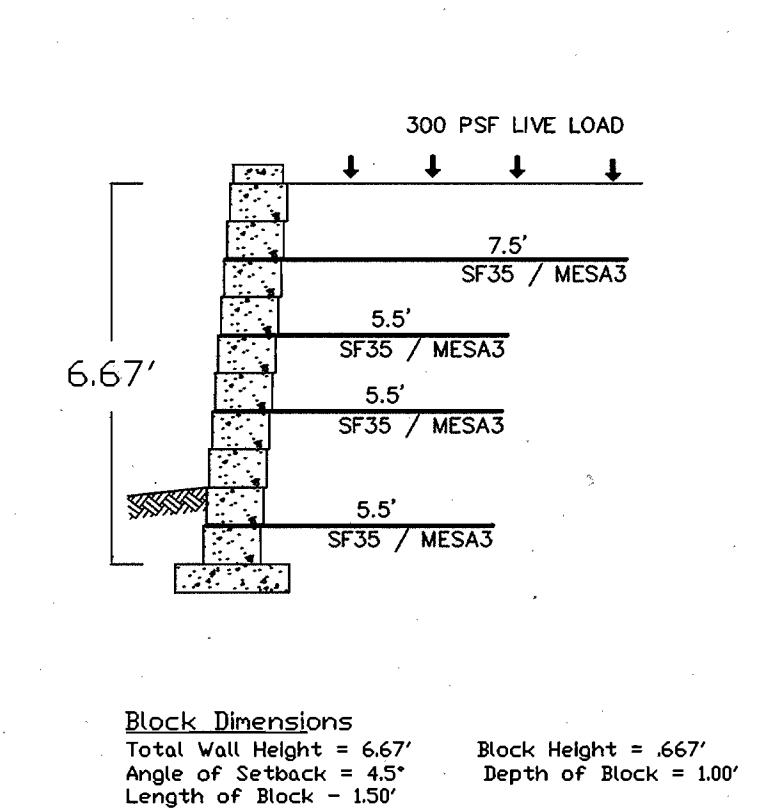
**SOIL PARAMETERS**  
Infill Friction Angle = 28° Unit Weight = 125 PSF  
Retained Friction Angle = 27° Unit Weight = 125 PSF  
Foundation Friction Angle = 27° Unit Weight = 125 PSF

Bearing Capacity Factor of Safety = 4.45  
MAXIMUM BEARING PRESSURE = 1872 PSF

**Safety Factors Static & Seismic**  
Minimum Sliding = 1.5 Actual Sliding = 1.72  
Minimum Overturning = 2.0 Actual Overturning = 3.42

N. T. S.

WALL #1 SECTION 4  
2+82 TO 3+82



**Block Dimensions**  
Total Wall Height = 6.67' Block Height = 6.67'  
Angle of Setback = 4.5' Depth of Block = 1.00'  
Length of Block = 1.50'

**SOIL PARAMETERS**  
Infill Friction Angle = 28° Unit Weight = 125 PSF  
Retained Friction Angle = 27° Unit Weight = 125 PSF  
Foundation Friction Angle = 27° Unit Weight = 125 PSF

Bearing Capacity Factor of Safety = 4.81  
MAXIMUM BEARING PRESSURE = 1295 PSF

**Safety Factors Static & Seismic**  
Minimum Sliding = 1.5 Actual Sliding = 1.73  
Minimum Overturning = 2.0 Actual Overturning = 3.85

N. T. S.

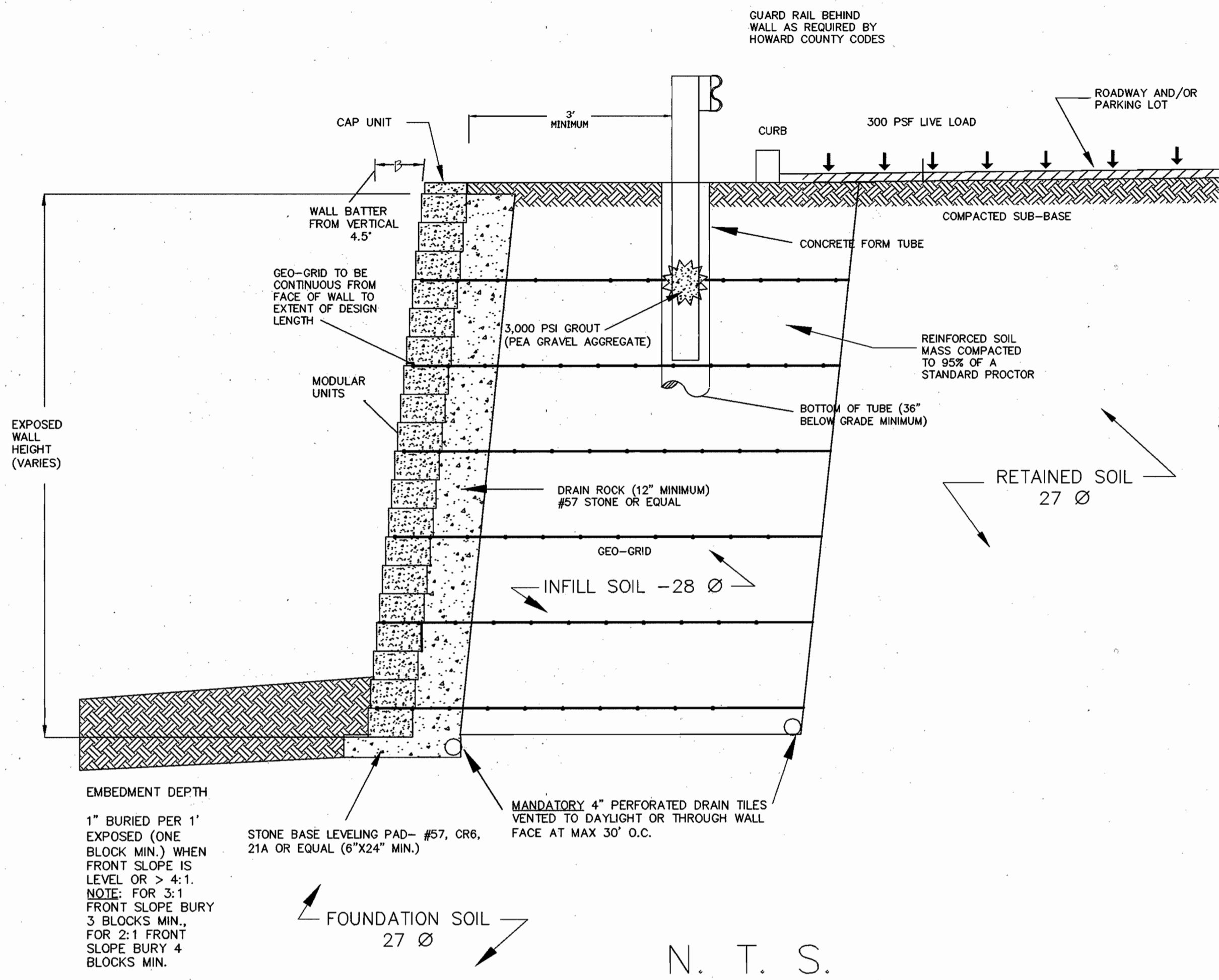
RYAN & ASSOCIATES  
A Division of WKR Consulting, Inc.  
RETAINING WALL DIVISION  
717-477-8400 fax 717-477-8410  
66 West King Street  
Shippensburg, PA 17257

DESIGNED BY: DKS	DATE: 10/02
DRAWN BY: RSP	
CHECKED BY: SLM	
PROJECT NO: PA221066	
DATE: MARCH 5, 2002	
SCALE: AS SHOWN	
DRAWING NO. 15 OF 17	

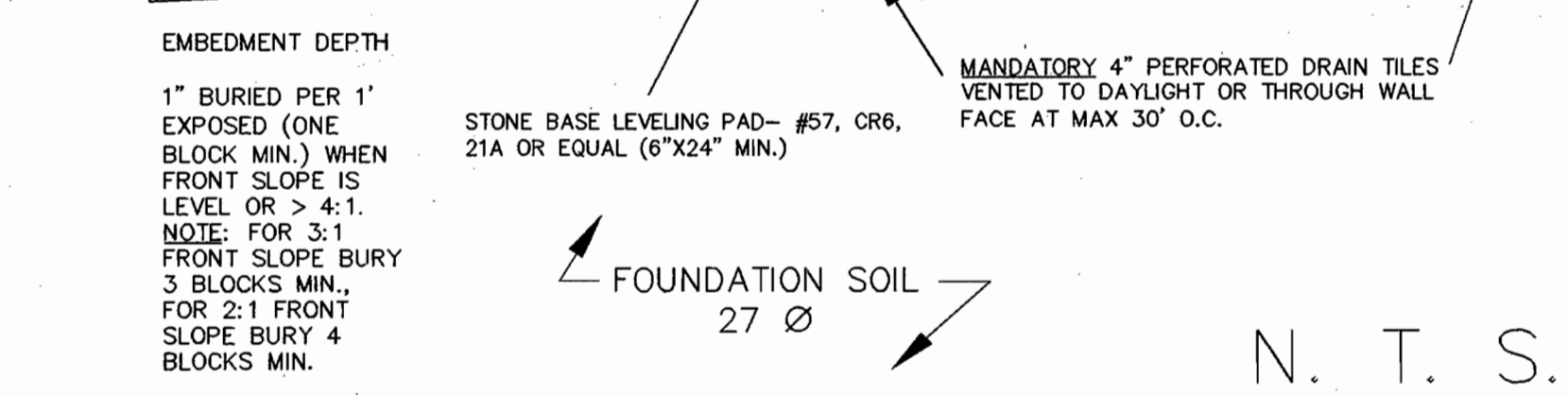
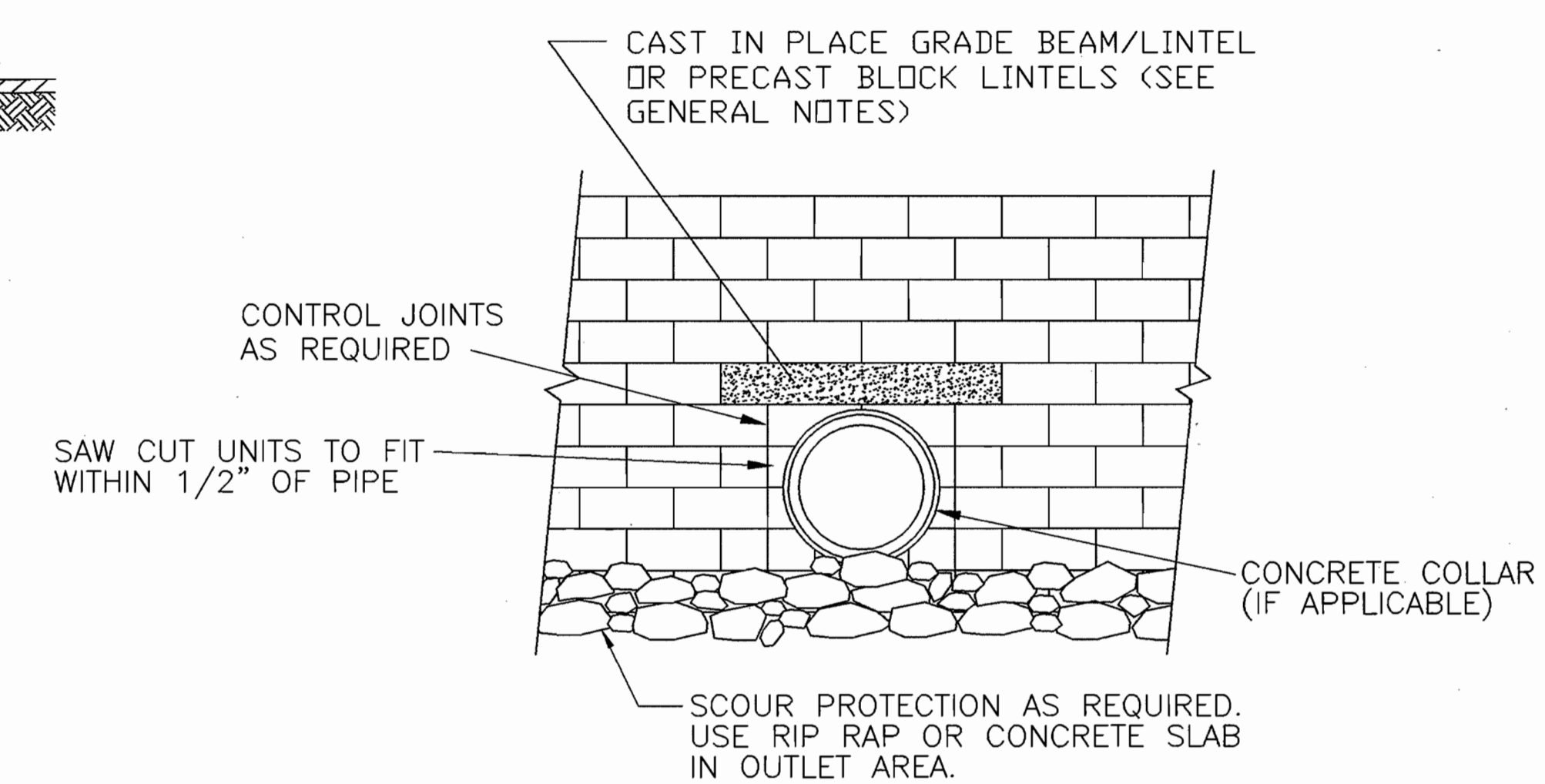
**GENERAL NOTES**

**TYPICAL SECTION WITH GUARD RAIL BEHIND WALL**

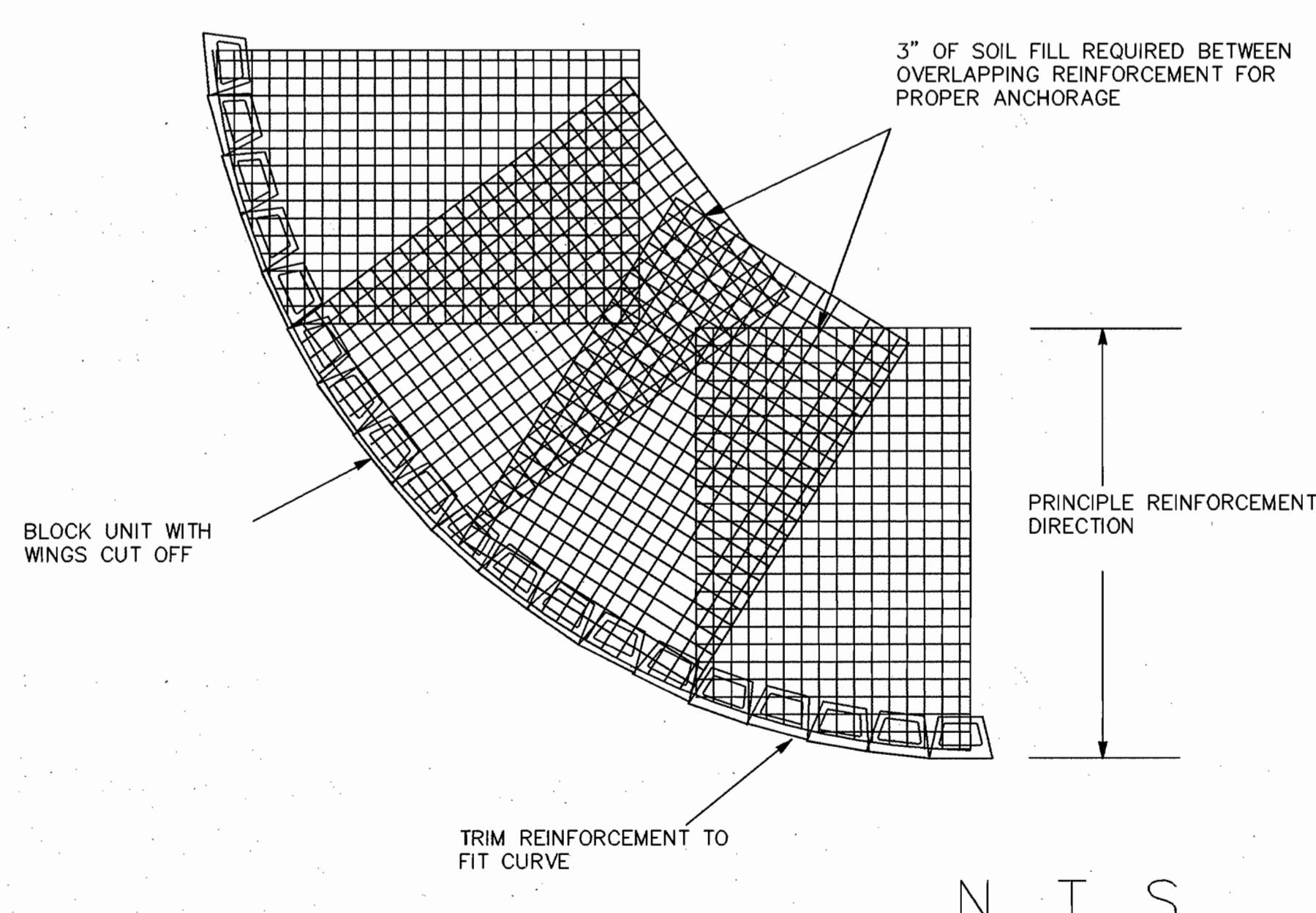
- SOIL PARAMETERS:** Based on the geo-technical report for this site dated February 18, 2002 done by Specialized Engineering, an internal angle of friction of 27° was used for the foundation and retained soils in this design. A friction angle of 28° was used for the infill soil. Clayey soils (CL & SC) are predominant in the lower elevations of the borings and silty/sandy soils (ML, SM & SP) are predominant in the upper lenses. The more favorable silty/sandy soils shall be used for infill (within the reinforced geo-grid zone). CH (fat clay), MH (elastic silt) and OH/OL/PT (organic) are not acceptable for wall construction. If these unsuitable soils are encountered they must be removed and replaced with soils meeting or exceeding the design friction angle of 27 (under the wall's footing and behind the reinforced zone to a distance that is twice the exposed wall height). The site geo-technical engineer shall monitor this closely during the construction process. An assumed unit weight of 125 PCF was used, and fluctuations of 5 PCF higher or lower will not change affect design.
- CONSTRUCTION OVERSIGHT:** The foundation soils must be examined by the site geo-technical engineer to assure that the actual foundation soil strength meets or exceeds that required in the "Bearing Capacity" section (item #3 below). The construction of these walls shall be performed under the observation of a Maryland Registered Professional Engineer.
- BEARING CAPACITY:** The footing sub-grade must be tested and have an allowable bearing capacity of 2,500 PSF prior to installation of the stone base. The sub-grade must be virgin (natural undisturbed soil) or fill compacted to 95% of a standard proctor maximum dry density. The actual highest bearing pressure exerted by this wall (including the surcharge above) is 2,360 PSF. Any areas of the footing not meeting this maximum pressure will require undercutting or enlarged grid reinforced footer.
- FACTORS OF SAFETY:** The following factors of safety have been met in this design: Sliding 1.5, Overturning 2.0, Bearing Capacity 2.0 and Global Stability 1.3, Geo-grid pullout 1.5 (from block and from soil), Geo-grid overstress 1.5 and Global Stability 1.3.
- SLOPES & SURCHARGES:** A live load surcharge of 300 PSF was applied to this wall for the proposed pavement and vehicles. There are no proposed slopes above this wall.
- DRAIN TILES:** Two 4" drainpipes are required on this wall- one within the footer (or behind the first course) and one at the rear of the reinforced geo-grid zone (mandated by Howard County). These drain tiles may be vented to daylight at the end(s) of the wall or through the wall face at maximum 30' on center. NOTE: If the pipes are vented through the wall face they must be at or within 6" above finished grade in front of the wall. The best method of venting these drain pipes for this particular site may be determined in the field by the wall installer, general contractor and site geo-technical engineer.
- WALL BATTER:** The wall batter is 4.5° (block setback of 5/8" per course).
- EMBEDMENT:** 2 blocks from station 0+00 to 0+90, 2 blocks increasing to 3 blocks from 0+90 to 1+09, 3 blocks from 1+09 to 2+28, 3 blocks decreasing to 2 blocks from 2+28 to 2+45, 2 blocks from 2+45 to 2+80, 2 blocks decreasing to 1 block from 2+80 to 3+55 and 1 block increasing to 3 blocks from 3+55 to 3+82.
- WALL PROFILE:** This elevation drawing was done to represent the grade changes necessary on the civil plans and was done in even block course increments of .667' (8"). Minor field changes may be necessary if the actual field grades differ from this profile. The cap height of .333' (4") is not shown on the profile drawing, however its height may have been used to obtain the desired TW elevations in some cases.
- SPECIFICATIONS:** Construction and materials must conform to the "Ryan & Associates segmental retaining wall specifications and installation guidelines for Cornerstone" (these are located in the separate 8 1/2" X 11" calculations submittal).
- GEO-GRIDS:** Syntex SF35 and SF55 geo-grids, which have LTDS (Long Term Design Strengths) of 1308 and 1906 respectively, were used in this design. Tensar UXMESA3 and UXMESA4, which have higher LTDS of 1876 and 2852 respectively, may also be used. All other grid substitutions must have prior approval of Ryan & Associates.
- GLOBAL STABILITY:** A global stability analysis was performed on the area of the wall referenced by Section #2. The analysis was pulled at wall station 1+09. 25# of cohesion was used. A copy of this analysis is included in the 8 1/2" X 11" calculations submittal.
- FILL SLOPES:** Portions of this wall rest on "fill slopes". It is imperative that these slopes are constructed in lifts and compacted to 95% of a standard proctor maximum dry density prior to wall construction.
- GUARDRAIL:** If a guardrail is required above this wall it must be kept back a minimum of 3' from the back of the wall if it is subject to vehicular impact. If it is installed closer than this 3' minimum from the back of the wall then wheel stops or curbing must be installed to prevent vehicular contact. If this is not possible, the wall installer may follow the special instructions on the detail sheet "GUARD RAIL WITH IMPACT LOAD" included in the 8 1/2" X 11" calculations submittal. This requires that concrete form tubes be installed in sections and that the grid becomes integral with them. The top two layers of grid must also be lengthened by 2' beyond the design length and the heavier SF55 geo-grid used.
- STORM WATER PIPES IN THE REINFORCED GEO-GRID ZONE:** In some cases the storm water pipes shown on the civil plans are behind the wall and are closer than the length of the geo-grid reinforcing. If their elevations put them up within the reinforced zone of the wall it is acceptable to shorten one layer of grid to meet the pipe structure. The layers above and below the shortened layer must be installed to the full design length. If the grid is shortened to the point where the wall installer's compaction equipment cannot properly compact the area between the wall and the pipe, all #57 stone must be used between the wall and the pipe and this confined area compacted with a vibratory plate compactor.
- STORMWATER PIPE:** A stormwater pipe intersects the wall at approximate wall station 2+62. This pipe is 18" ADS (plastic) and the segmental wall may not bear on it. The "BB" (bottom of block) elevation of the wall at this station is 178.67 and the top of pipe elevation is going to be approximately 178.25 +/- . Since it is directly under the wall a grade beam or lintels will need to be used. If a grade beam is cast in place, it shall be constructed of 3,000 PSI concrete and have dimensions of 1' wide X 4' long X 8" (one block course) high. Three #5 grade 60 bars shall be placed 5" down from the top (3" up from the bottom). The two outer bars shall be 3" in from the sides and the middle bar evenly spaced in between. It shall bear a minimum of 9" (half a block width) on either side. The top of this beam shall line up with the top of the next block course to prevent cutting of blocks. If the contractor opts to use precast block lintels, three 4" X 8" X 44" lintels (as manufactured by York Lintel & Cast Stone or equivalent) shall be stacked side by side and shall bear a minimum of 9" on the adjacent blocks.
- TANGENT ANGLE:** The angle point as drawn at wall station 1+75 on the civil plans should be built as a radius (outside curve) to avoid a vertical joint.



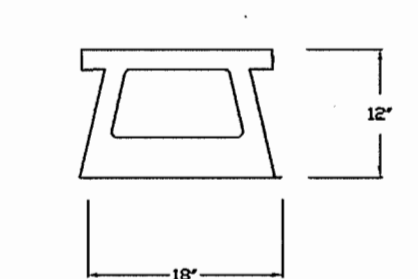
**TYPICAL PIPE OUTLET DETAIL**



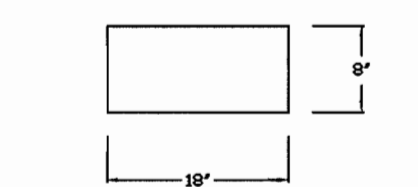
**REINFORCEMENT PLACEMENT FOR OUTSIDE CURVES**



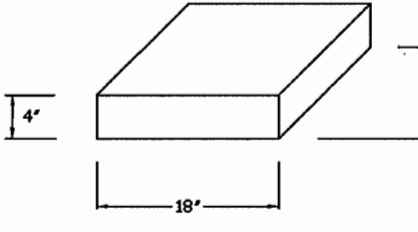
**CORNERSTONE BLOCK DIMENSIONS TOP VIEW**



**CORNERSTONE BLOCK DIMENSIONS FRONT VIEW**



**CORNERSTONE CAP DIMENSIONS**



**AS BUILT CERTIFICATE**

STATE OF MARYLAND  
 REGISTERED PROFESSIONAL ENGINEER  
 CHRIS P. REID #1949  
 DATE: 6.21.04

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
 DIRECTOR: [Signature] DATE: 11/26/02  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 11/14/02  
 CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 11/20/02

05/21/02 Retaining Wall Design

DATE	NO.	REVISION

OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL  
 8301 DORSEY RUN ROAD  
 JESSUP, MARYLAND 20794  
 410-799-7724

DEVELOPER: OPUS EAST LLC  
 2099 GAITHER ROAD, SUITE 101  
 ROCKVILLE, MD 20850  
 (301) 354-4444  
 ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
 PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA: TAX MAP 43  
 PARCELS A ZONED M-2  
 6th ELECTION DISTRICT  
 HOWARD COUNTY, MARYLAND

TITLE: RETAINING WALL DETAILS & GENERAL NOTES

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

10/8/02 DATE  
 DESIGNED BY: DKS  
 DRAWN BY: RSP  
 CHECKED BY: SLM  
 PROJECT NO: PA221066  
 DATE: MARCH 5, 2002  
 SCALE: AS SHOWN  
 DRAWING NO. 16 OF 17

WILLIAM K. RYAN, PE #21586

RYAN & ASSOCIATES  
 A Division of WKR Consulting, Inc.  
 RETAINING WALL DIVISION  
 717-477-8400 fax 717-477-8410  
 68 West King Street  
 Shippensburg, PA 17257

**SPECIFICATIONS FOR SEGMENTAL RETAINING WALL SYSTEMS**

**PART 1: GENERAL**

- 1.01 Description
- A. Work includes furnishing and installing segmental retaining wall (SRW) units to the lines and grades designated on the construction drawings. Also included is furnishing and installing appurtenant materials required for construction of the retaining wall as shown on the construction drawings.
- 1.02 Reference Standards
- A. ASTM C 140- Sampling and Testing Concrete Masonry Units
  - B. ASTM D 4595- Tensile Properties of Geotextiles by the Wide-Width Strip Method.
  - C. ASTM D 5262- Test Method for Evaluating the Unconfined Creep Behavior of Geo- Grids
  - D. GRI:GG1- Single Rib Geogrid Tensile Strength
  - E. GRI:GG5- Geogrid Pullout
  - F. ASTM D 698- Moisture Density Relationship for Soils, Standard Method
  - G. ASTM D 422- Gradation of Soils
  - H. ASTM 4318- Atterberg Limits of Soil
  - I. ASTM 3034- Specification for Polyvinyl Chloride (PVC) Plastic Pipe
  - J. ASTM D1248- Specification for Corrugated Plastic Pipe

**PART 2: MATERIALS**

- 2.01 Segmental Retaining Wall Units
- A. SRW units shall be machine formed, Portland Cement concrete blocks specifically designed for retaining wall applications. SRW unit currently approved for this project is:
- Comerstone as manufactured by United Concrete Products
- NOTE:** Where Comerstone specifications and reference documents conflict with these specifications, these specifications hold precedence.
- B. SRW units shall be capable of being erected with the horizontal gap between adjacent units not exceeding 1/8". The units shall be uniformly square and not trapezoidal in shape.
- C. SRW units shall have a minimum 4" overlap of units on each successive course so that walls are interlocked and continuous.
- D. SRW units shall be sound and free of cracks or other defects that would interfere with the proper placing of the unit or significantly impair the strength or permanence of the structure. Cracking or excessive chipping may be grounds for rejection. Units showing cracks longer than 1/2" shall not be used within the wall. Units showing chips visible at a distance of 30 feet from the wall shall not be used within the wall.
- E. Concrete used to manufacture SRW units shall have a minimum 28 days compressive strength of 3,000 psi and a maximum moisture absorption rate, by weight, of 8% as determined in accordance with ASTM C 140. Compressive strength test specimens shall conform to the saw-cut coupon provisions of Section 5.2.4 of ASTM C140 with the following exception: Coupon shall be taken from the least dimension of the unit of a size and shape representing the geometry of the unit as a whole.
- F. SRW units' molded dimensions shall not differ more than + 1/8 inch from that specified, except height which shall be ± 1/16 inch as measured in accordance with ASTM C140.

2.02 Geosynthetic Reinforcement

- A. Geosynthetic reinforcement shall consist of geogrids or geotextiles as indicated on the design plans. No grid substitutions shall be permitted without the approval of Ryan & Associates.

2.03 Leveling Pad

- A. Unless otherwise noted on the cross sections, the leveling pad shall be 6" deep X 24" wide. Material for leveling pad shall consist of compacted sand, gravel, or a combination thereof. (Typical stone used for this pad is #57, CR6, 21A, etc.) The leveling pad should extend laterally at least a distance of 6 inches from the toe and heel of the lowest SRW unit. In cases of poor bearing capacity or fill soils an enlarged, grid reinforced footer may be required. This typically consists of 1' deep X 4' wide with geo-grid under and within the stone. Lean, un-reinforced concrete with strength of 1500 PSI and 6" deep may also be used as for the leveling pad.

2.04 Drainage Aggregate

- A. Drainage aggregate shall be angular, clean stone or granular fill consisting of #57 or approved equal (i.e. median stone size 1/2" to 1 1/2"). Rounded, pea gravel is not permissible.

2.05 Drainage Pipe

- A. The drainage collection pipe shall be a 4" perforated or slotted PVC, or corrugated HDPE pipe.
- B. Drain pipes are mandatory and shall be vented to daylight at the end(s) of the wall or at a central low point of the wall. If this is not possible, vent through the wall above finished grade at maximum intervals of 30' O.C. In no case shall a continuous pipe be run for more than 300' without an outlet to daylight.

2.06 Reinforced (Infill) Soil: the reinforced geo-grid zone

- A. The soil used must meet or exceed the design friction angle noted on the design cross sections. The reinforced material shall be free of debris and organic material (i.e. no trash, plants or root matter, top soil, etc.). Unless otherwise noted on the plans, the reinforced zone material shall not consist of CH (fat clay), MH (fat silt), or OH (organic) soils.
- B. Rocks may be used as infill material as long as their diameter is 6" or less. NOTE: when all gravel is used as infill the LTDS of the geo-grid must be reduced to account for additional installation damage from the large particles. Recycled concrete is permissible for infill.

2.07 Retained Soil: the area beyond the infill soil and extending to a distance of twice the exposed wall height

- A. The soil used must meet or exceed the design friction angle noted on the design cross sections. Unless otherwise noted on the plans, the retained material shall not consist of CH (fat clay), MH (fat silt), or OH (organic) soils.

**PART 3: CONSTRUCTION**

3.01 Inspection

- A. The Owner or Owner's Representative is responsible for verifying that the contractor meets all the requirements of the specification. This includes all submittals for materials and design, qualifications, and proper installation of wall system.
- B. Contractor's field construction supervisor shall have demonstrated experience and be qualified to direct all work at the site.

3.02 Excavation

- A. Contractor shall excavate to the lines and grades shown on the project plans. Contractor shall take precautions to minimize over-excavation. Over-excavation shall be filled with compacted infill material or as directed by the Geotechnical Engineer.
- B. Contractor shall verify location of existing structures and utilities prior to excavation. Contractor shall ensure all surrounding structures are protected from the effects of wall excavation. Excavation support (shoring), if required, is the responsibility of the Contractor.

3.03 Foundation Preparation

- A. Following excavation, the foundation soil shall be examined by the Owner's Geotechnical Engineer to assure that the actual foundation soil strength meets or exceeds the allowable design bearing strength (this parameter can be found in the design's General Notes). Soils not meeting the required strength shall be removed and replaced with select structural fill compacted to 95% of a standard proctor for the full depth.
- B. If large deposits of fill are encountered an enlarged, grid reinforced footer may be required.

3.04 Leveling Pad Construction

- A. Leveling pad shall be placed as shown on the construction drawings with a minimum thickness of 6" and a minimum width of 24". The leveling pad should at a minimum extend laterally at least a distance of 6 inches from the toe and heel of the lower most SRW Unit.
- B. Soil leveling pad material shall be compacted with a vibratory plate compactor to provide a firm, level-bearing surface on which to place the first course of units. Compaction will be with mechanical plate compactors to achieve 95% of maximum standard proctor density (ASTM D 698). A thin layer (not to exceed 1/2") of well-graded sand or stone dust can be used to smooth the top of the leveling pad.

3.05 SRW Unit Installation

- A. All SRW units shall be installed at the proper elevation and orientation as shown on the wall profiles and details on the construction plans. The SRW units shall be installed in general accordance with the manufacturer's recommendations. The design engineer of record (Ryan & Associates) specifications and drawings shall govern in any conflict between the two requirements.
- B. First course of SRW units shall be placed on the leveling pad. The units shall be leveled side-to-side, front-to-rear and with adjacent units, and aligned to ensure intimate contact with the leveling pad. The first course is the most important to ensure accurate and acceptable results. No gaps shall be left between the front of adjacent units. Alignment may be done by means of a string line or offset from base line to the back of the units.
- C. Clean all excess debris from top of units and install next course.
- D. Lay out of curves and corners shall be installed in accordance with the plan details or in general accordance with SRW manufacturer's installation guidelines. Walls shall be interlocked by overlapping successive courses. Continuous vertical joints are not permitted unless glued. In general, all tangent angles shown on the civil drawings should be changed into curves to enhance the wall's strength and appearance. Inside and outside corners may be constructed without compromising the wall's integrity. Repeat procedures to extent of wall height.
- E. The wall face cant shall not differ more than ± 2 degrees from that specified.
- G. Embedment shall follow the general rule of 1" buried for every 1' of wall exposed when the front slope is 4:1 or greater. For 3:1 front slopes a minimum of 2 1/2" shall be buried, and for 2:1 front slopes a minimum of 29" shall be buried.

3.06 Geosynthetic Reinforcement Placement

- A. All geosynthetic reinforcement shall be installed at the proper elevation and orientation as shown on the wall profiles and details on the final construction plans. Partial grid coverage is not acceptable- no gaps shall be present between grid sections.
- B. At the elevations shown on the plans, the geosynthetic reinforcement shall be laid horizontally on compacted infill and on top of the concrete SRW units. Embedment of the geosynthetic in the SRW units shall be consistent with SRW manufacturer's recommendations. Correct orientation of the geosynthetic reinforcement shall be verified by the Contractor to be in accordance with the geosynthetic manufacturer's recommendations. The highest strength direction of the geosynthetic must be perpendicular to the wall face.
- C. Geosynthetic reinforcement layers shall be one continuous piece for their entire embedment length. Overlap of the geosynthetic in the design strength direction (perpendicular to the wall face) is not permitted.
- D. Tracked construction equipment shall not be operated directly on the geosynthetic reinforcement. A minimum of 6 inches of backfill is required prior to operation of tracked vehicles over the geosynthetic. Turning should be kept to a minimum. Rubber-tired equipment may pass over the geosynthetic reinforcement at slow speeds (less than 5 mph).
- E. The geosynthetic reinforcement shall be in tension and free of wrinkles prior to placement of soil fill. The nominal tension shall be applied to the reinforcement and secured in place with staples, stakes or by hand tensioning until reinforcement is covered by six inches of fill.

3.07 Drainage Materials

- A. Drainage aggregate shall be installed to the line, grades, and sections shown on the final plans. Drainage fill shall be placed to the minimum thickness of 12" as shown on the construction plans behind units. Drainage fill shall also fill all voids between and within (if hollow) the units.
- B. Drainage collection pipes shall be installed to maintain gravity flow of water outside the reinforced soil zone. The drainage collection pipe shall daylight into a storm sewer manhole or along a slope at an elevation lower than the lowest point of the pipe within the aggregate drain (see section 2.05).
- C. All drainage zone aggregate shall be compacted with a vibratory plate compactor with a minimum of two passes.

3.08 Backfill Placement

- A. The reinforced backfill shall be placed as shown in the construction plans in the maximum compacted lift thickness of 10 inches and shall be compacted to a minimum of 95% of standard proctor density (ASTM D 698) at a moisture content within 2% of optimum. The backfill shall be placed and spread in such a manner as to eliminate wrinkles or movement of the geosynthetic reinforcement and the SRW units. Compaction testing shall be done at 25%, 50%, 75%, and 100% of the wall height or as specified by the site geo-technical engineer.
- B. Only a vibratory plate or small-scale vibratory smooth drum compactor equipment shall be allowed within 3 feet of the front of the wall face ("consolidation zone"). Compaction within the 3 feet behind the wall shall be achieved by at least three (3) passes of the lightweight mechanical plate compactor or roller. Heavy equipment (such as track hoes, ride on rollers, pans, etc.) must be kept back a minimum of 3' from the rear of the wall ("compaction zone").
- D. At the end of each day's operation, the Contractor shall slope the last level of backfill away from the wall facing to direct water runoff away from the wall face.
- E. At completion of wall construction if final grading, paving, landscaping, and/or storm drainage installation adjacent to the wall is not placed immediately after wall completion, temporary grading shall be provided to ensure water runoff is not allowed to collect or pond behind the wall until final construction adjacent to the wall is completed.
- F. Filter fabric is neither required nor recommended behind the drainage layer. Installation of filter fabric has

proven to result in poor wall construction and its benefit has not been proven when used with clays, silts, and mixed soils. The exception is when all sand is used for infill material since it is non-cohesive and could potentially slough, clogging the drainage layer.

4.09 SRW Caps

- A. SRW caps shall be properly aligned and glued to underlying units with a flexible, high-strength concrete adhesive (adhesive should be designed for "concrete to concrete" applications). Rigid adhesive or mortar is not acceptable.

4.10 Water Applications

- A. When walls are installed in water applications (such as storm water ponds, streams, bulkheads, areas adjacent to flood plains, etc.) all granular material must be used as infill up to 1' above the 100 year flood elevation or the high water level. This material must be free draining and have less than 10% fines. The leveling pad and the reinforced zone (up to the extent of the stone infill) must be wrapped in filter fabric to prevent migration of fines. Rip rap stone is required in front of the bottom three course on walls installed in tidal waters. Rip rap may also be required to prevent scouring and erosion in front of walls installed in water sources prone to fluctuating water levels, and where pipes that frequently carry water exit through walls.

4.11 Rails, Fences, & Other Structures

- A. Open rails and fences not subject to wind loads may be placed directly behind the wall as long as they are not subject to vehicular impact. Solid or semi-solid fences that are subject to wind loads must be kept back a minimum of 3' from the rear of the wall to prevent loading of the wall.
- B. Guardrails subject to vehicular impact must be kept back a minimum of 3' to prevent loading of the wall. Guardrails may be placed closer than this 3' minimum only if a barrier (such as wheel stops, curbing, etc.) prevents impact.
- C. Light posts and similar structures subject to wind loads must be kept back a minimum of 3' to prevent loading of the wall.
- D. In cases where this 3' minimum cannot be met due to restraints on the site, additional analyses will need to be done to determine a method of stabilization. Ryan & Associates can be contracted to provide this design for an additional cost.

4.12 Storm Structures

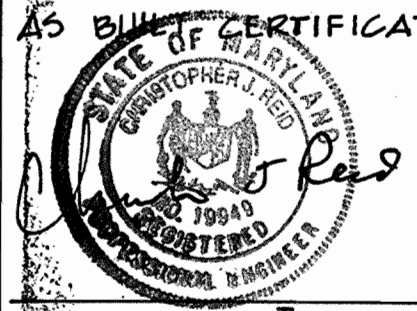
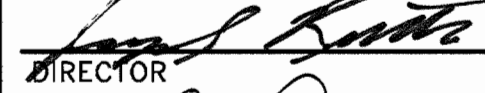

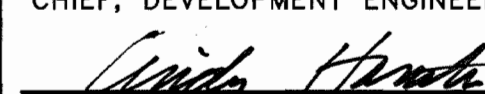
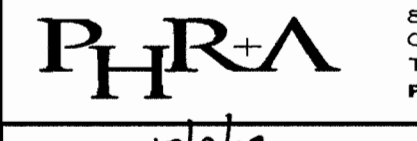

- A. RCP pipes may pass through the wall without compromising the design. The SRW units may be cut to fit around the pipe and the void filled with non-shrink grout or type "M" mortar. A concrete collar may be cast around the structure if desired. When a collar is cast, the top of the collar shall line up with an even block course to maintain proper alignment and neat workmanship. Corrugated steel pipes may not be able to support the wall's weight and may require a concrete beam. Check load capabilities with the pipe manufacturer.
- B. When a pipe is located in or below the leveling pad a grade beam may be required. Ryan & Associates shall be consulted to determine the size, strength and reinforcing of the beam.
- C. Concrete storm structures may be located behind a wall and within the reinforced zone as dictated by the project's civil drawings. If the structure(s) cannot be moved out of the reinforced zone and the grid installed to the full design length the following shall apply. On small structures (such as manholes, collection boxes, concrete pipes less than 20" O.D., etc.) it is acceptable to shorten the grid from the design length and meet the structure. The area between the wall and structure must be filled with #57 stone or equal- not the site soil. On large structures and in cases where pipes parallel the wall for long distances, Ryan & Associates shall be consulted to determine the impact on the wall before allowing this to be done.

4.13 Construction Adjacent to Completed Wall

- A. The Owner or Owner's Representative is responsible for ensuring that construction adjacent to the wall by others does not disturb the wall or place temporary construction loads on the wall that exceed design loads, including loads such as water pressure, temporary grades, or equipment loading. Heavy paving or grading equipment shall be kept a minimum of three feet behind the back of the wall face. Equipment with wheel loads in excess of 150 pcf live load shall not be operated with 10 feet of the face of the retaining wall during construction adjacent to the wall. Care should be taken by the General Contractor to ensure water runoff is directed away from the wall structure until final grading and surface drainage collection systems are completed.
- B. Care must be taken when installing appurtenances (such as transformers, generators, etc.) within the reinforced zone of the wall. The compaction integrity of the reinforced zone must be maintained, both below and beside (around) the appurtenance. Neglecting to do so may cause hydrostatic pressure and wall failure.

**END OF SECTION**

Revised 01-02-01

		6.24.04 DATE
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.		
	11/26/02 DATE	
DIRECTOR		
	11/14/02 DATE	
CHIEF, DEVELOPMENT ENGINEERING DIVISION		
	11/24/02 DATE	
CHIEF, DIVISION OF LAND DEVELOPMENT		
05/21/02 Retaining Wall Design		
DATE NO. REVISION		
OWNER: MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL 8101 DORSEY WOOD ROAD JESSUP, MARYLAND 20794 410-789-7724		
DEVELOPER: OPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 354-4444 ATTN: TIM HOGAN		
PROJECT: <b>DORSEY WOODS</b> <b>PARCEL A, AN OFFICE-WAREHOUSE BUILDING</b>		
AREA: TAX MAP 43 PARCELS A ZONED M-2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND		
TITLE: <b>RETAINING WALL SPECIFICATIONS</b>		
Patton Harris Rust & Associates, PC Engineers, Surveyors, Planners, Landscape Architects.		
		
8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282		
10/26/02 DATE	DESIGNED BY : DKS	
	DRAWN BY : RSP	
CHECKED BY : SLM		
PROJECT NO : PA221066		
DATE : MARCH 5, 2002		
SCALE : AS SHOWN		
DRAWING NO. 17 OF 17		
WILLIAM K. RYAN, PE #21586		

**RYAN & ASSOCIATES**  
 A Division of WKR Consulting, Inc.  
**RETAINING WALL DIVISION**  
 717-477-8400 fax 717-477-8410  
 88 West King Street  
 Shippensburg, PA 17257

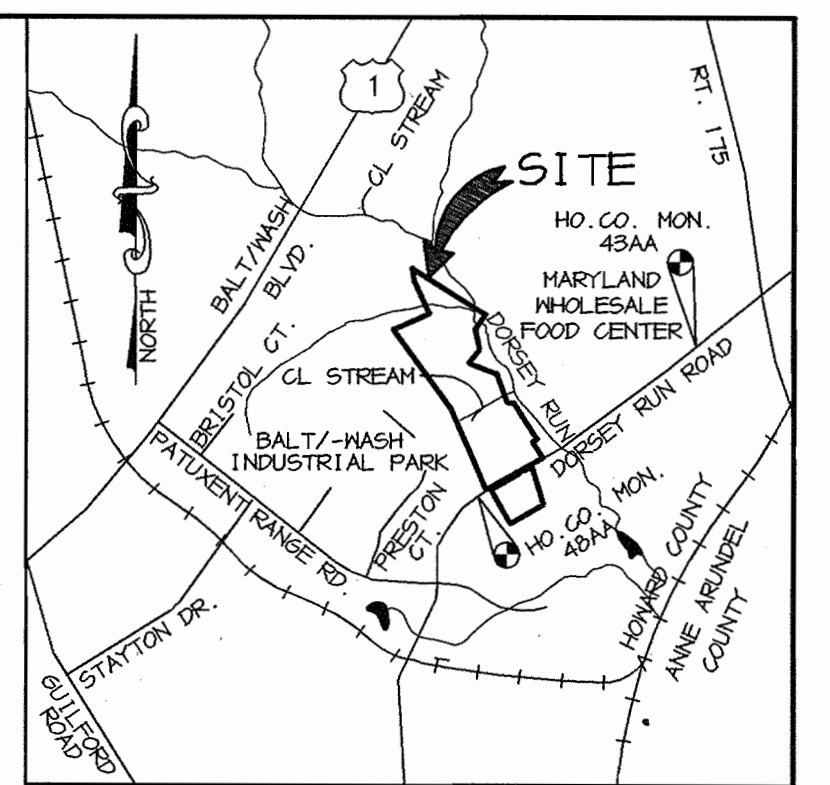
SHEET INDEX	
NO	DESCRIPTION
1	TITLE SHEET
2	SITE DEVELOPMENT PLAN
3	DRAINAGE AREA MAP AND SEDIMENT CONTROL PLAN
4	SEDIMENT CONTROL NOTES
5	SEDIMENT CONTROL NOTES AND DETAILS
6	SEDIMENT CONTROL NOTES AND DETAILS
7	DETAILS
8	PROFILES
9	BAYSAYER DETAILS
10	LANDSCAPE PLAN
11	LANDSCAPE PLAN
12	LANDSCAPE SCHEDULES AND DETAILS
13	EXISTING CONDITIONS STORMWATER DRAINAGE AREA MAP
14	PROPOSED CONDITIONS STORMWATER DRAINAGE AREA MAP
15	RETAINING WALL DETAILS
16	RETAINING WALL DETAILS
17	RETAINING WALL DETAILS

# SITE DEVELOPMENT PLAN DORSEY WOODS PARCELS 134 & 528 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

### AS-BUILT CONTROL BENCH MARK

HO. CO. SURVEY CONTROL STATION: 48AA  
N 539,314.900 E 1,371,539.251  
ELEVATION: 240.809'  
46' NORTH OF DORSEY RUN ROAD AND  
42.9' SOUTHEAST OF FENCED LOT,  
WEST CORNER.

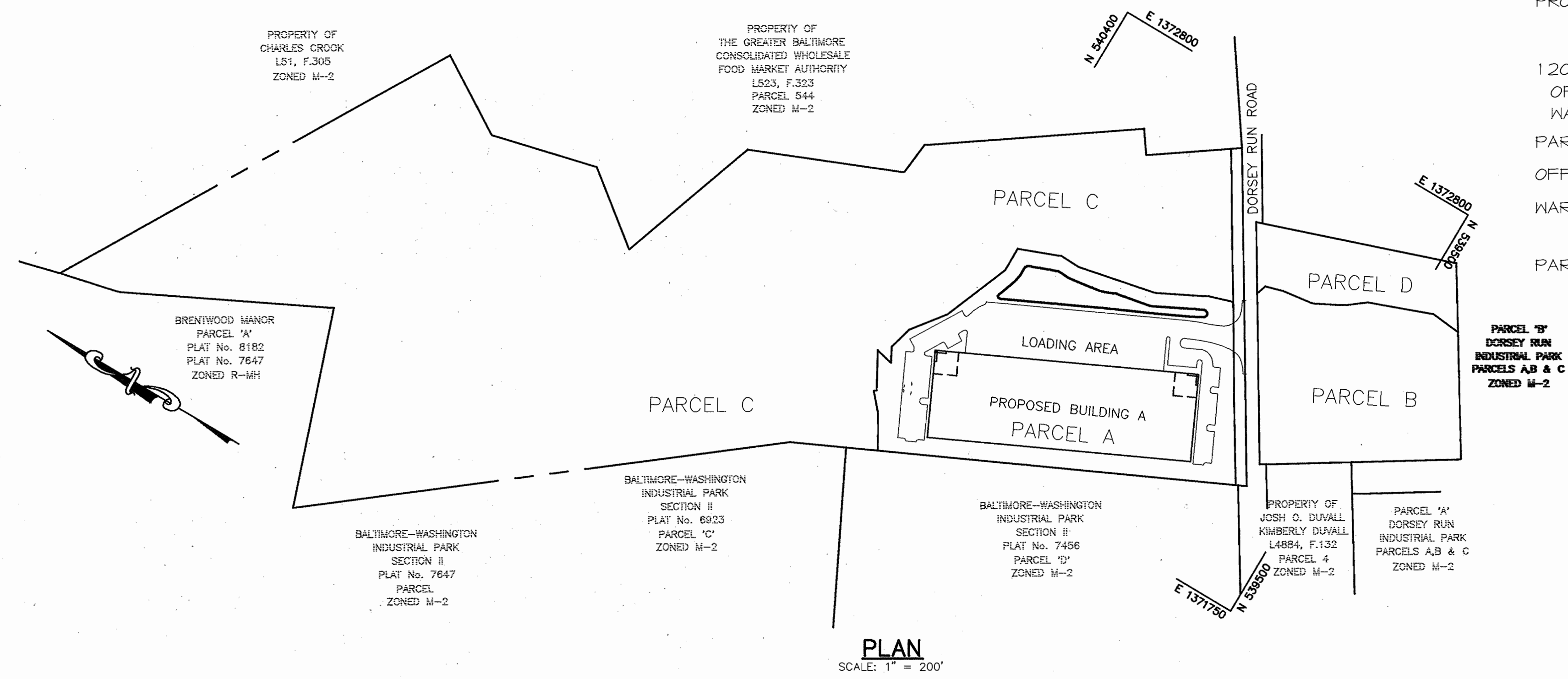
HO. CO. SURVEY CONTROL STATION: 43HA  
N 540,761.716 E 1,373,837.365  
ELEVATION: 224.907'  
70.5' FROM TOP WEST CORNER OF NORMAN  
GEIPE VAN LINE BLDG. HEADING TOWARD  
DORSEY RUN RD. AND 8.3' SOUTH OF  
DORSEY RUN RD. FACE OF CURB.



VICINITY MAP  
SCALE: 1"=2000'

### GENERAL NOTES

- 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/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY PHR&A DATED OCTOBER 2001.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 43AA AND 48AA WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC. CONTRACT NO. 454-W
- SEWER IS PUBLIC. SEWER DRAINAGE AREA: PATAPSCO CONTRACT NO. 487-S
- THE STORMWATER MANAGEMENT FACILITIES PROPOSED FOR THIS SITE ARE A PRIVATELY OWNED AND MAINTAINED EXTENDED DETENTION POND, GRASS CHANNEL, AND BIORETENTION BMP.
- APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT THE EXISTING UTILITIES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED DUE TO CONTRACTOR'S OPERATION SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE. EXISTING UTILITIES ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION.
- THE 100-YEAR FLOODPLAIN IS PER DORSEY RUN FLOODPLAIN STUDY (HOWARD COUNTY MAP NO. 20-44)
- THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY PHR&A DATED FEBRUARY 2002.
- THE TRAFFIC STUDY WAS PREPARED BY THE TRAFFIC GROUP INC. DATED FEBRUARY 2002.
- THE GEOTECHNICAL STUDY FOR STORMWATER MANAGEMENT FOR THIS PROJECT WAS PREPARED BY SPECIALIZED ENGINEERING DATED FEBRUARY 2002.
- THE BOUNDARY SURVEY FOR THIS PROJECT WAS PREPARED BY (PHR&A) DATED FEBRUARY 2002.
- SUBJECT PROPERTY ZONED M-2 PER 10-18-93 COMPREHENSIVE ZONING PLAN.
- ALL ELEVATIONS SHOWN ARE BASED ON THE U.S.C. AND G.S. MEAN SEA LEVEL DATUM, 1929.
- SEE DEPARTMENT OF PLANNING AND ZONING FILE NO'S. F-02-119, WP-02-84.
- THE CONTRACTOR SHALL VERIFY EXISTING UTILITIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE DRAWINGS.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- NO PIPE SHALL BE LAID UNTIL LINES OF EXCAVATION HAVE BEEN BROUGHT WITHIN 6" OF FINISHED GRADE.
- ALL INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH HOWARD COUNTY STANDARDS.
- ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
- STORM DRAIN TRENCHES WITHIN ROAD RIGHT OF WAY SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, I.E., STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION, LATEST AMENDMENTS.
- PROFILE STATIONS SHALL BE ADJUSTED AS NECESSARY TO CONFORM TO PLAN DIMENSIONS.
- ALL FILL AREAS WITHIN ROADWAY AND UNDER STRUCTURES TO BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO 199.
- THIS DEVELOPMENT COMPLIES WITH THE REQUIREMENTS OF 16.1200 OF HOWARD COUNTY CODES FOR FOREST CONSERVATION THROUGH THE ESTABLISHMENT OF A FOREST RETENTION EASEMENT THAT ENCOMPASSES 6.853 AC. OF EXISTING FOREST ON F-02-119, PLAT NO. 19640 & 19641.
- WP-02-84 IS A REQUEST TO WAIVE SECTION 16.102 (F)-MERGER OF NON-RESIDENTIAL PARCELS: WHERE TWO OR MORE NON-RESIDENTIAL PARCELS THAT HAVE NOT BEEN PART OF A PREVIOUSLY RECORDED SUBDIVISION ARE TO BE MERGED AND INTERIOR LOT LINES ARE TO BE ELIMINATED. NEITHER A SKETCH OR PRELIMINARY PLAN IS REQUIRED AS LONG AS NO PUBLIC ROAD IMPROVEMENTS ARE REQUIRED. THE INITIAL SUBDIVISION MAY BE A FINAL PLAN WAS APPROVED ON APRIL 15, 2002 WITH CONDITIONS.
- NO CLEARING, GRADING OR CONSTRUCTION IS PERMITTED WITHIN THE WETLANDS, STREAMS OR THEIR BUFFERS AND FOREST CONSERVATION AREAS.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING HAS BEEN POSTED AS PART OF THE DPW DEVELOPERS AND AGREEMENT IN THE AMOUNT OF \$14,670 FOR 29 SHADE TREES, 21 EVERGREEN TREES, 6 ORNAMENTAL TREES, AND 64 SHRUBS.
- A FEE-IN-LIEU PAYMENT WILL BE PAID BY DEVELOPER TO ADDRESS THE REQUIRED DORSEY RUN ROAD IMPROVEMENTS. THE FEE WILL BE APPLIED TO CAPITAL PROJECT J-4182.
- THIS STORMWATER MANAGEMENT FACILITY IS DESIGNED FOR IMPERVIOUS AREAS AS SHOWN ON THE SITE PLAN. NO ADDITIONAL INCREASE AREAS IS ALLOWED WITHOUT ADEQUATE STORMWATER QUALITY MANAGEMENT BEING ADDRESSED.



PLAN  
SCALE: 1" = 200'

### SITE TABULATION

SITE AREA-PARCEL A	7.489 ACRES
LIMIT OF DISTURBED AREA	7.5 ACRES
PRESENT ZONING	M-2
PROPOSED USE	OFFICE/ WAREHOUSE FACILITY (ONE STORY)
120,000 SF FLOOR AREA	
OFFICE 6,000 SF	
WAREHOUSE 114,000 SF	
PARKING SPACES REQUIRED	
OFFICE 3.3 SP/1000 SF	20 SPACES
WAREHOUSE 0.5 SP/1000 SF	57 SPACES
TOTAL	77 SPACES
PARKING SPACES PROVIDED	20 SPACES (INCLUDES 4 HC SPACES)

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>James Smith</i> DIRECTOR	11/26/02 DATE
<i>William ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	11/14/02 DATE
<i>Cindy Hammett</i> CHIEF, DIVISION OF LAND DEVELOPMENT	11/22/02 DATE

1-T-04	REVISED SITE TABULATION
DATE	REVISION
OWNER:	MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724
DEVELOPER	OPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 354-4444 ATTN: TIM HOGAN
PROJECT	DORSEY WOODS PARCEL A, AN OFFICE-WAREHOUSE BUILDING
AREA TAX MAP	43 BLOCK 20 & TAX MAP 48 BLOCK 2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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

DESIGNED BY :	A.C.R.
DRAWN BY :	DAM
CHECKED BY :	C.J.R.
PROJECT NO :	01284 C000COV.DWG
DATE :	OCTOBER 14, 2002
SCALE :	AS SHOWN
DRAWING NO. :	i OF 17

AS-BUILT CERTIFICATE

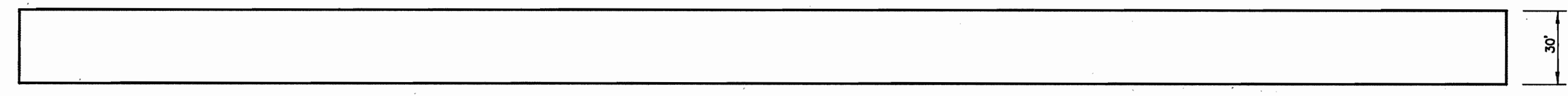
CHRISTOPHER J. REID #19949  
6.24.04  
DATE

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
	8100 DORSEY RUN ROAD

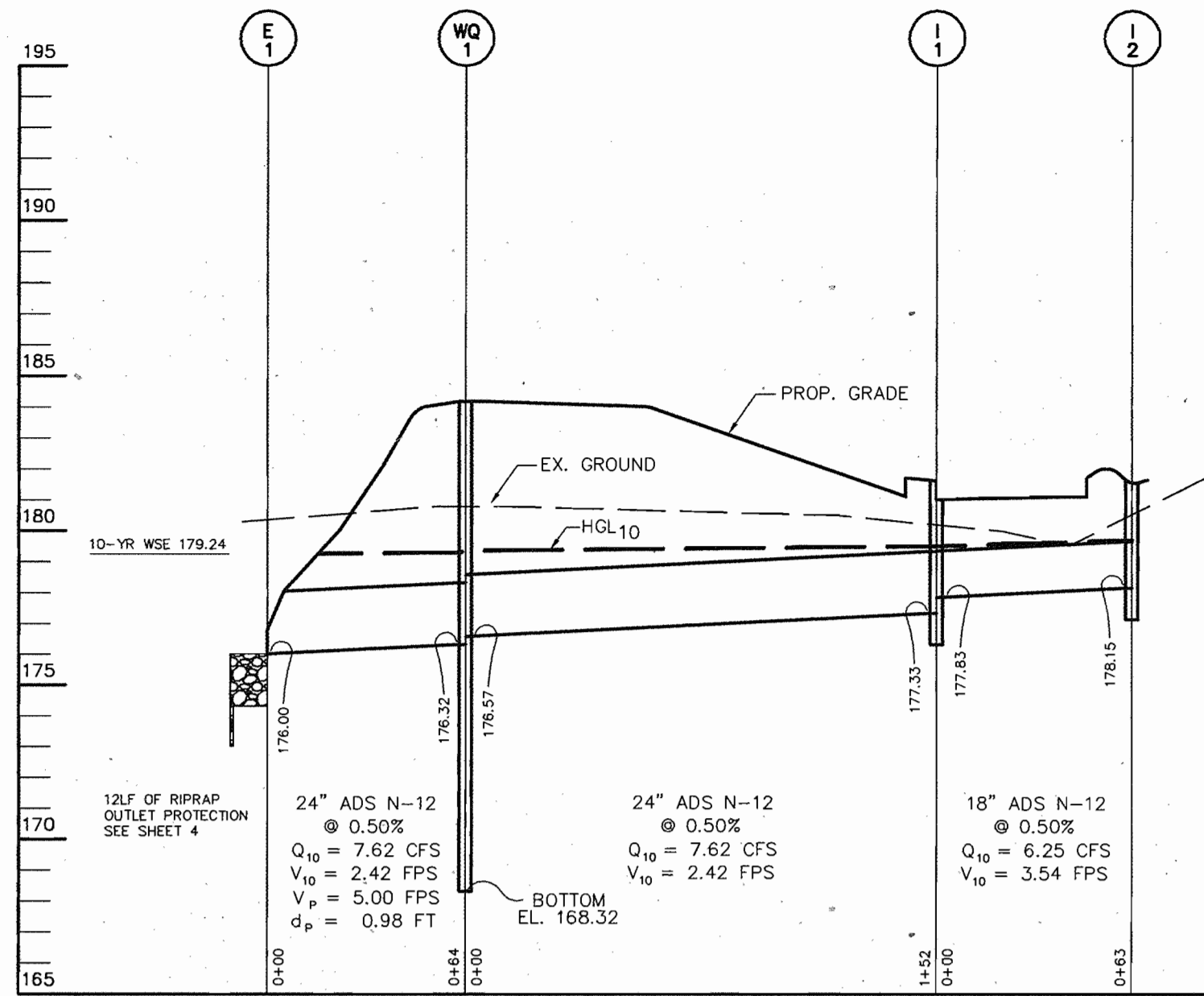
SUBDIVISION NAME	DORSEY WOODS	SECT./AREA	134 AND 528	PARCEL	
PLAT #	#9611	BLOCK #	2	ZONING	M-2
TAX MAP NO.	48	ELECT. DIST.	6	CENSUS TRACT	6069.01
WATER CODE	802	SEWER CODE	3020000		

### BUILDING ELEVATION

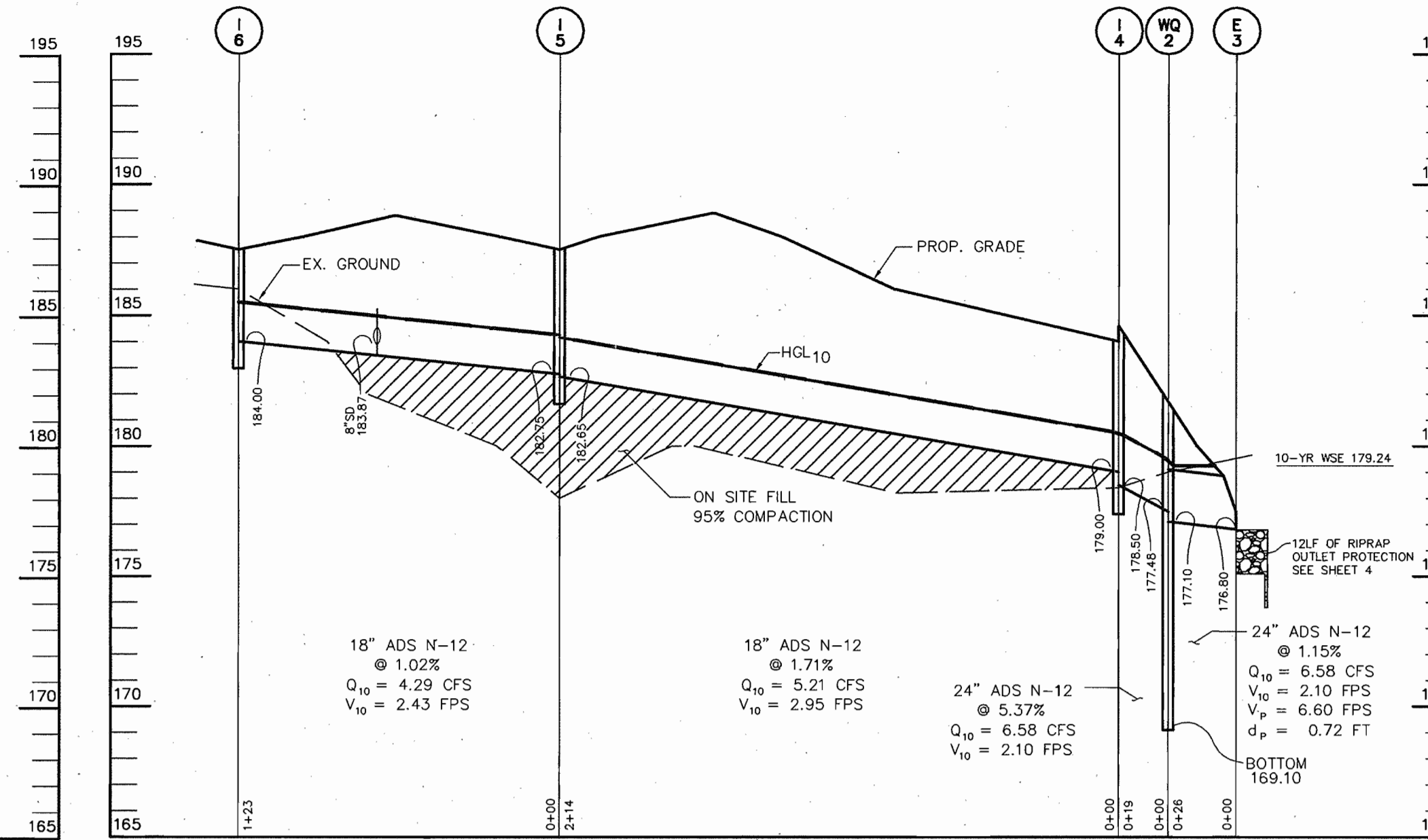
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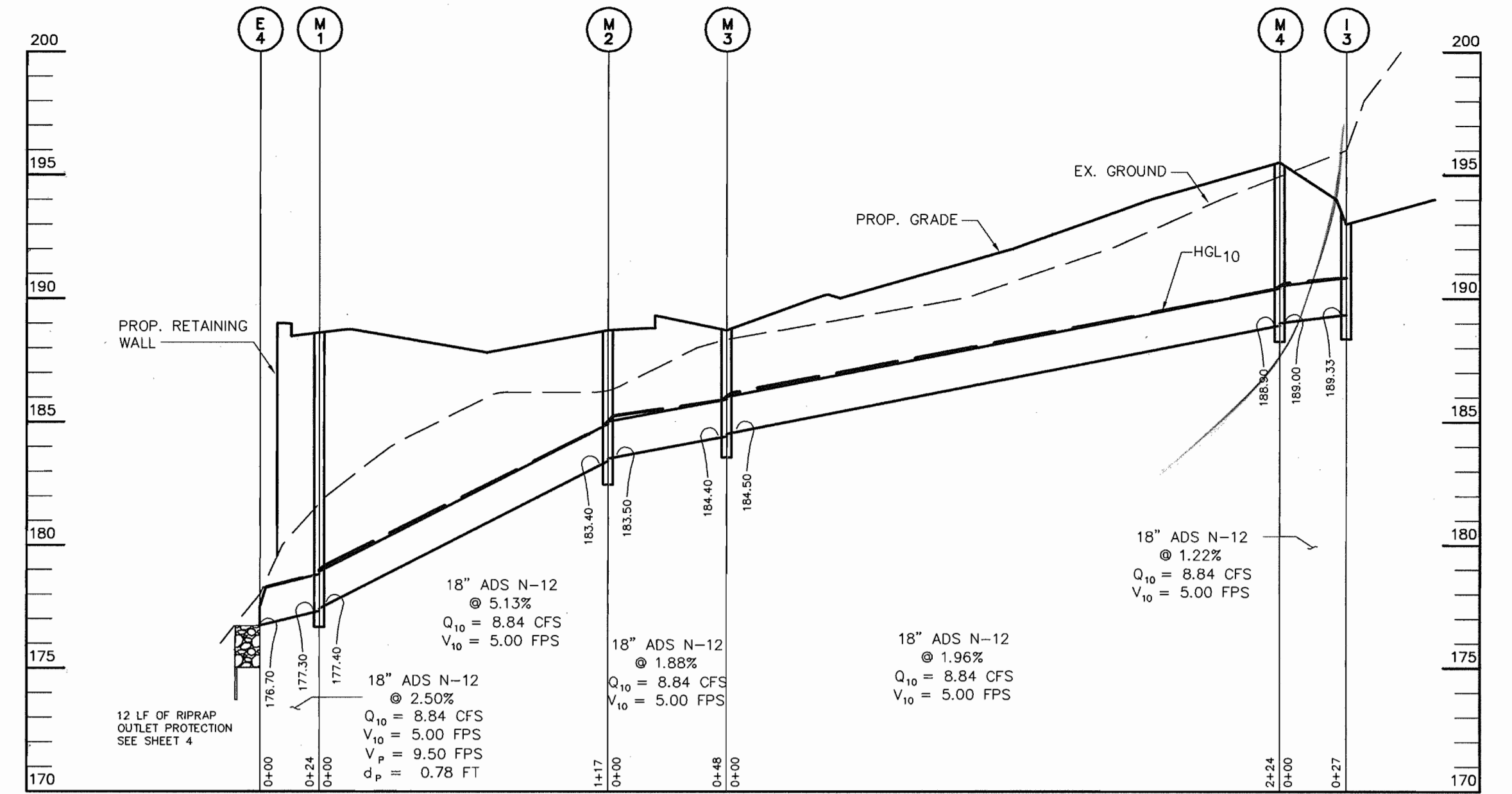




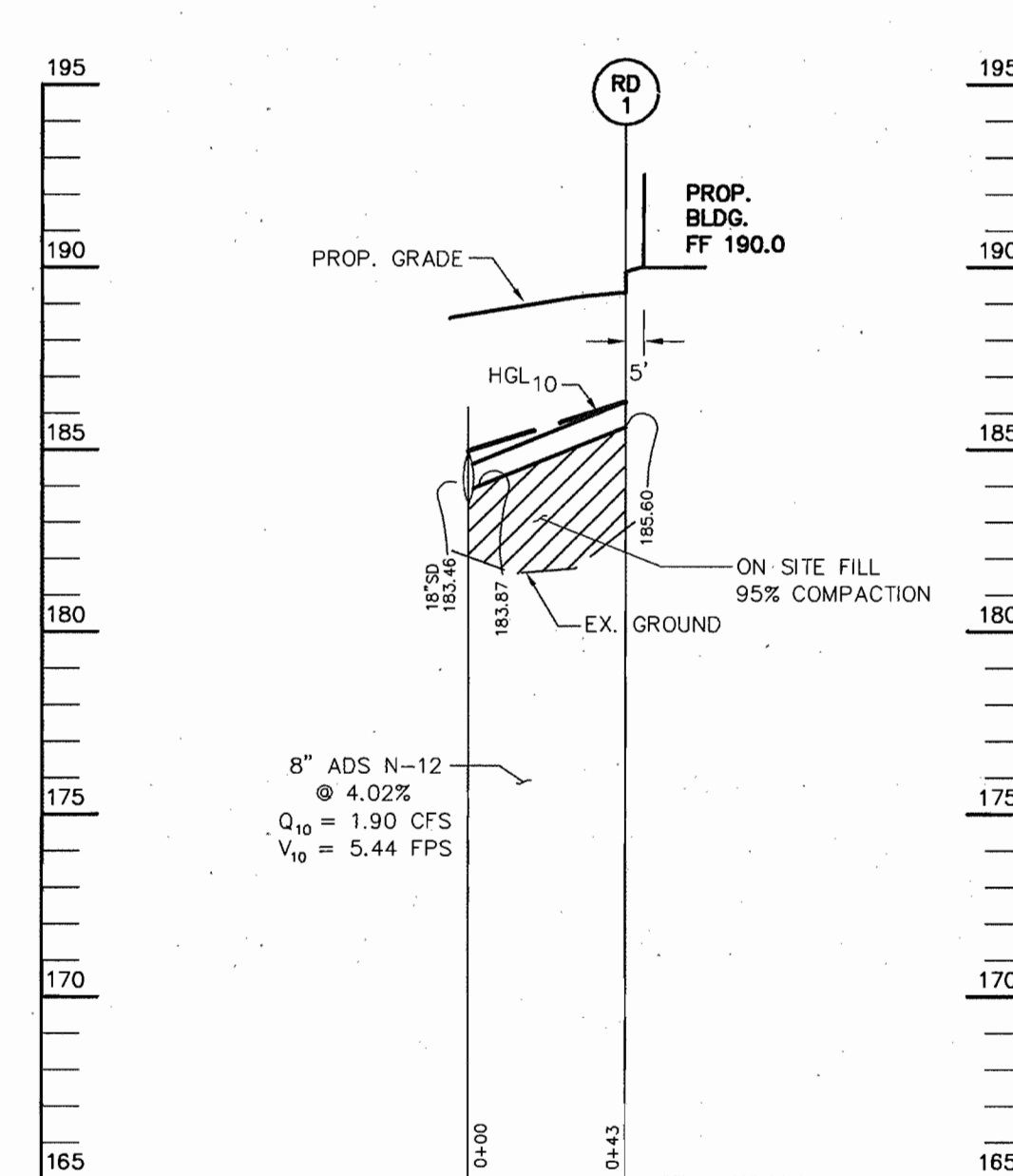
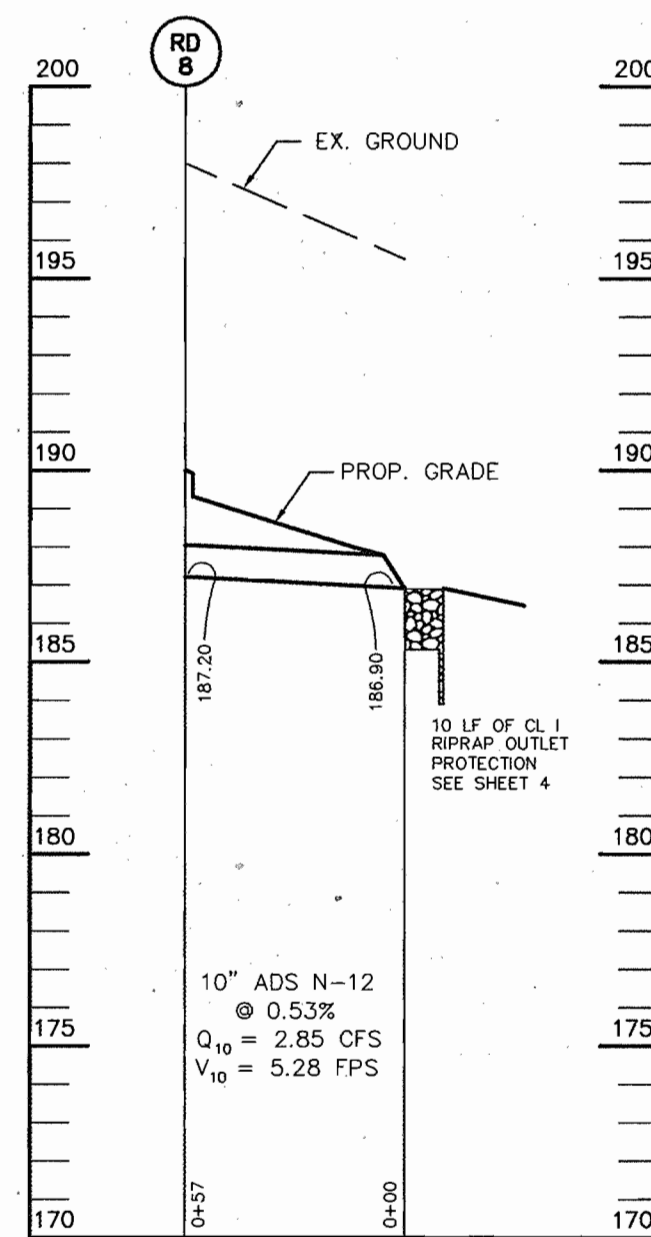
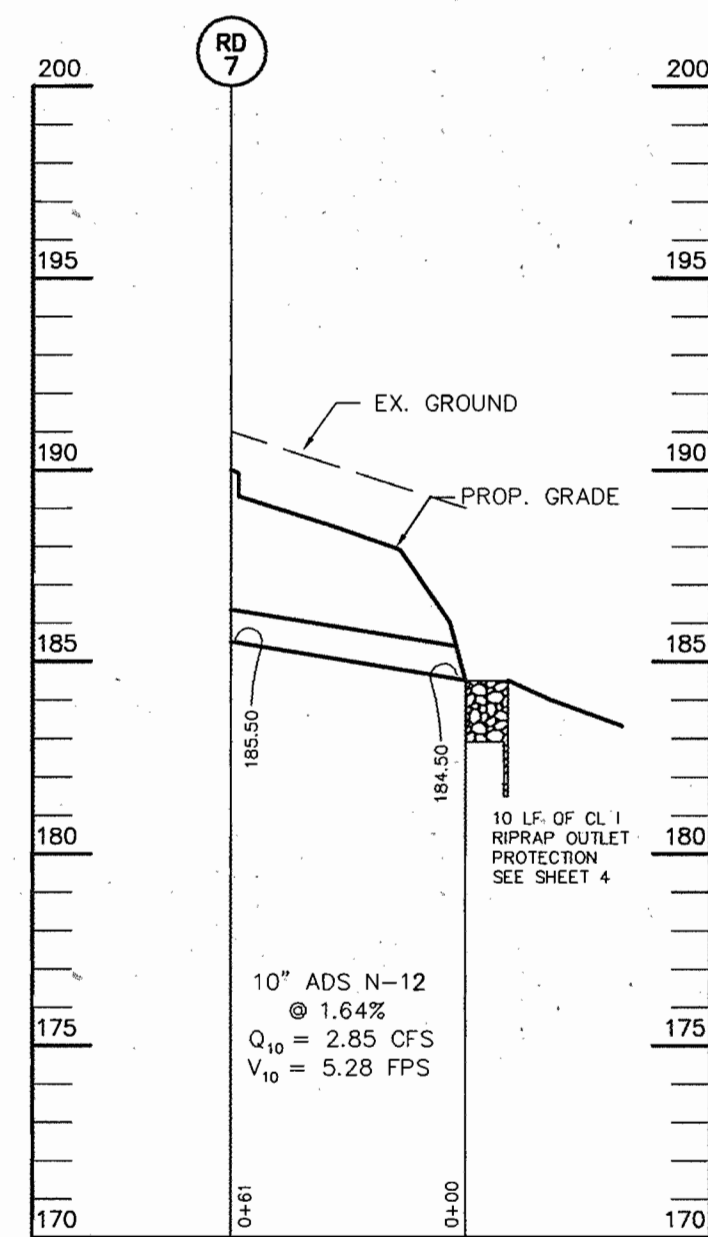
**PROFILE**  
SCALE:  
HOR.-1"=50'  
VERT.-1"=5'



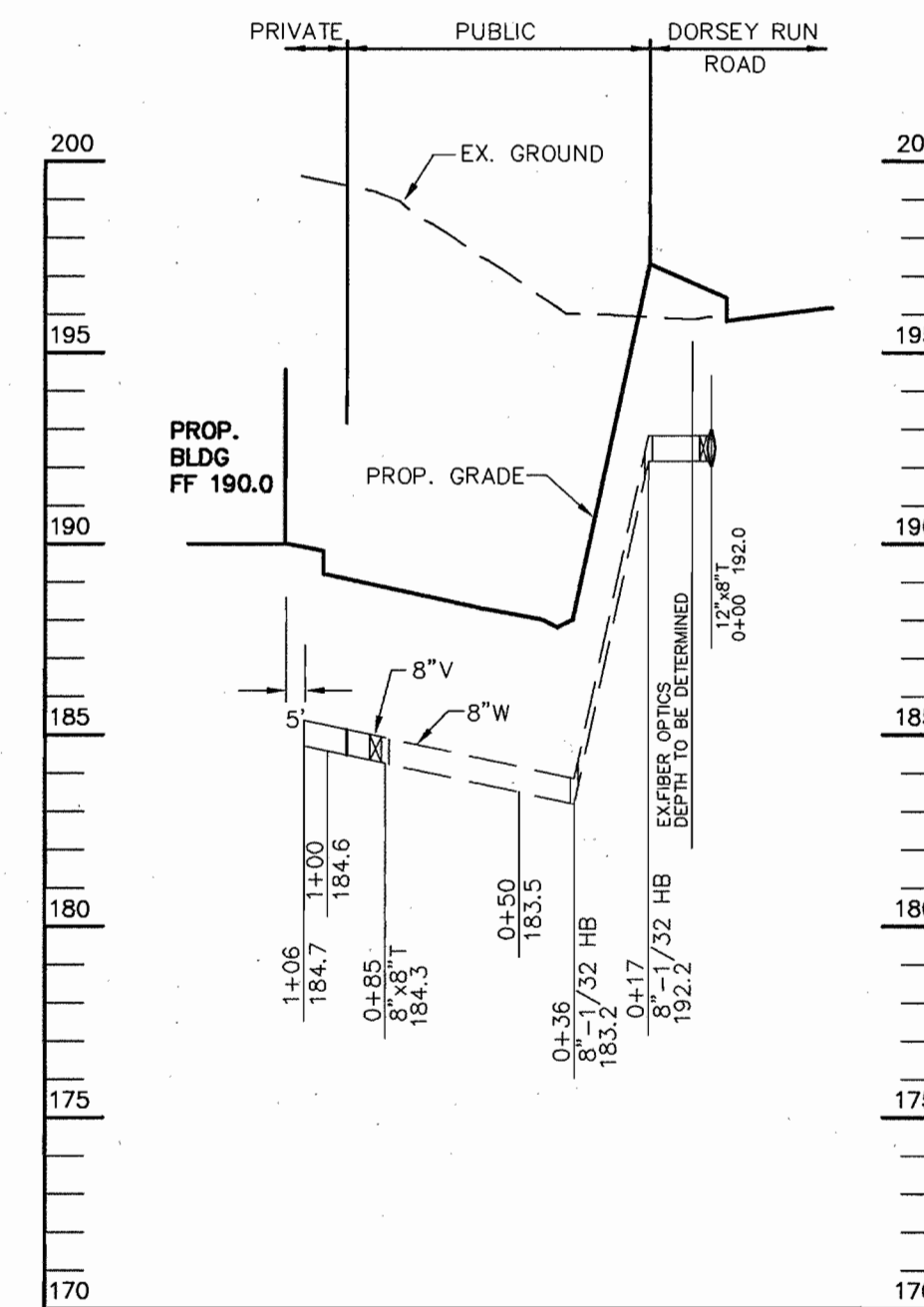
**PROFILE**  
SCALE:  
HOR.-1"=50'  
VERT.-1"=5'



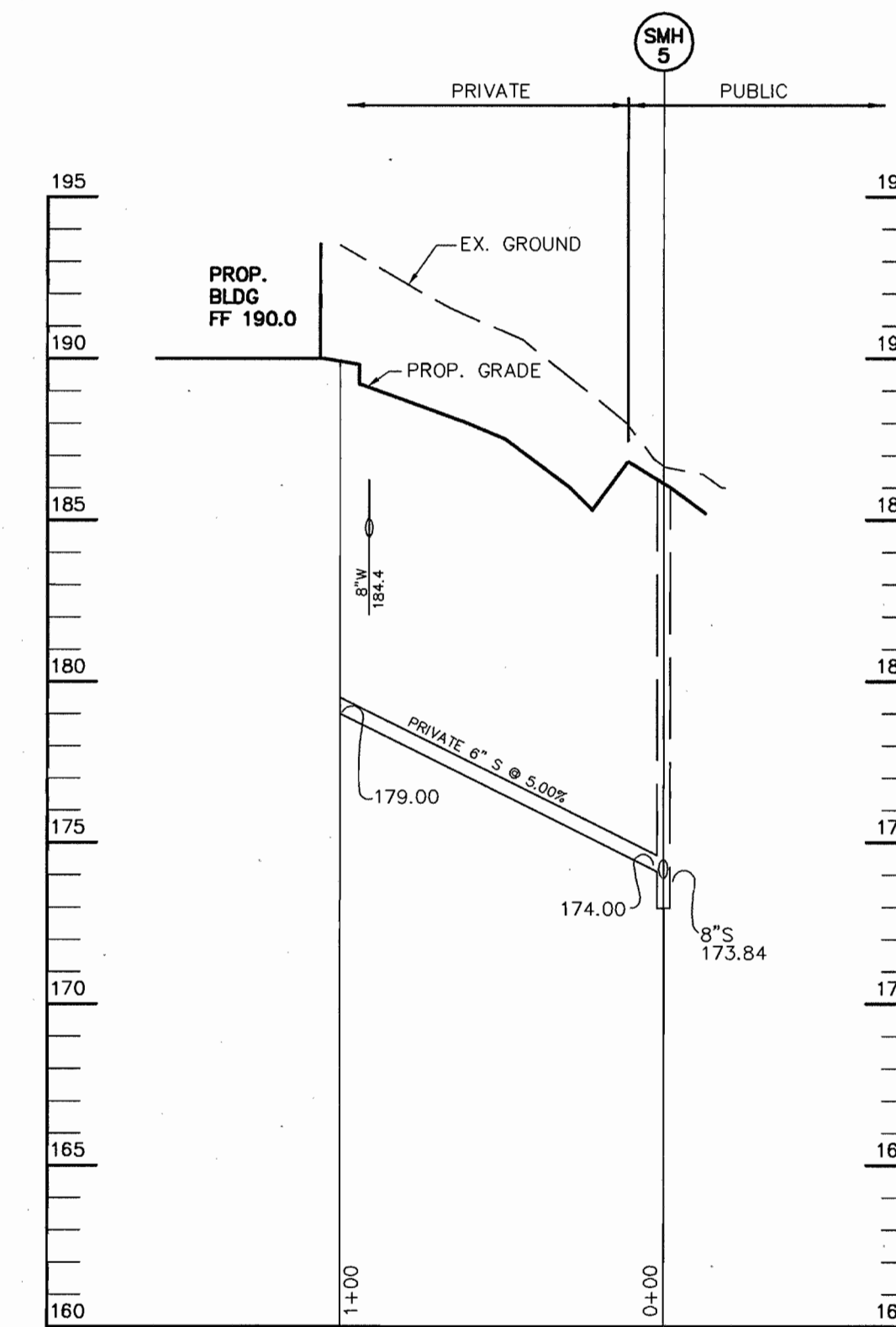
**PROFILE**  
SCALE:  
HOR.-1"=50'  
VERT.-1"=5'



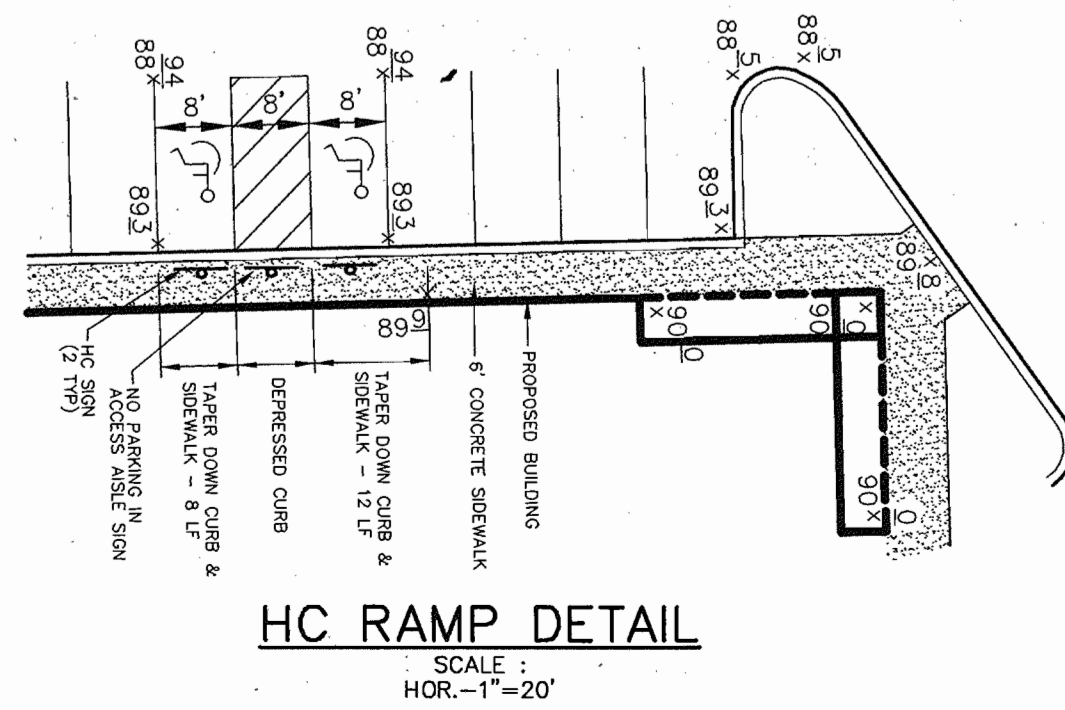
**PROFILE**  
SCALE:  
HOR.-1"=50'  
VERT.-1"=5'



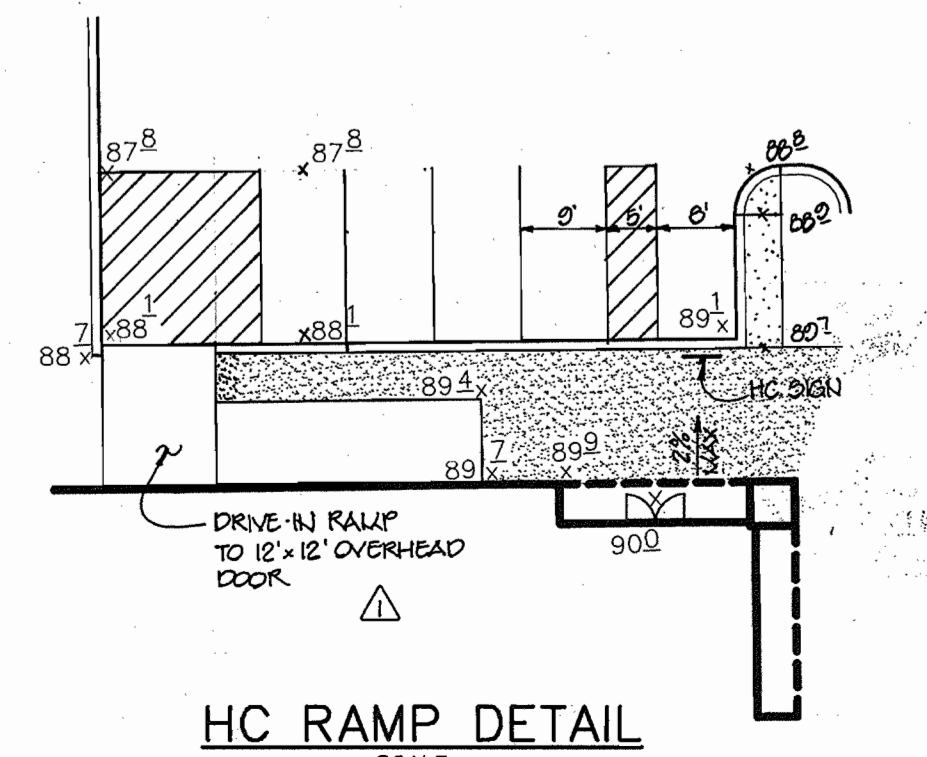
**WATER PROFILE**  
SCALE:  
HOR.-1"=50'  
VERT.-1"=5'



**SEWER PROFILE**  
SCALE:  
HOR.-1"=50'  
VERT.-1"=5'



**HC RAMP DETAIL**  
SCALE:  
HOR.-1"=20'



**HC RAMP DETAIL**  
SCALE:  
HOR.-1"=20'

**AS-BUILT CERTIFICATE**

STATE OF MARYLAND  
CHRISTOPHER J. REID  
PROFESSIONAL ENGINEER

6.24.04  
DATE

CHRISTOPHER J. REID #19949

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

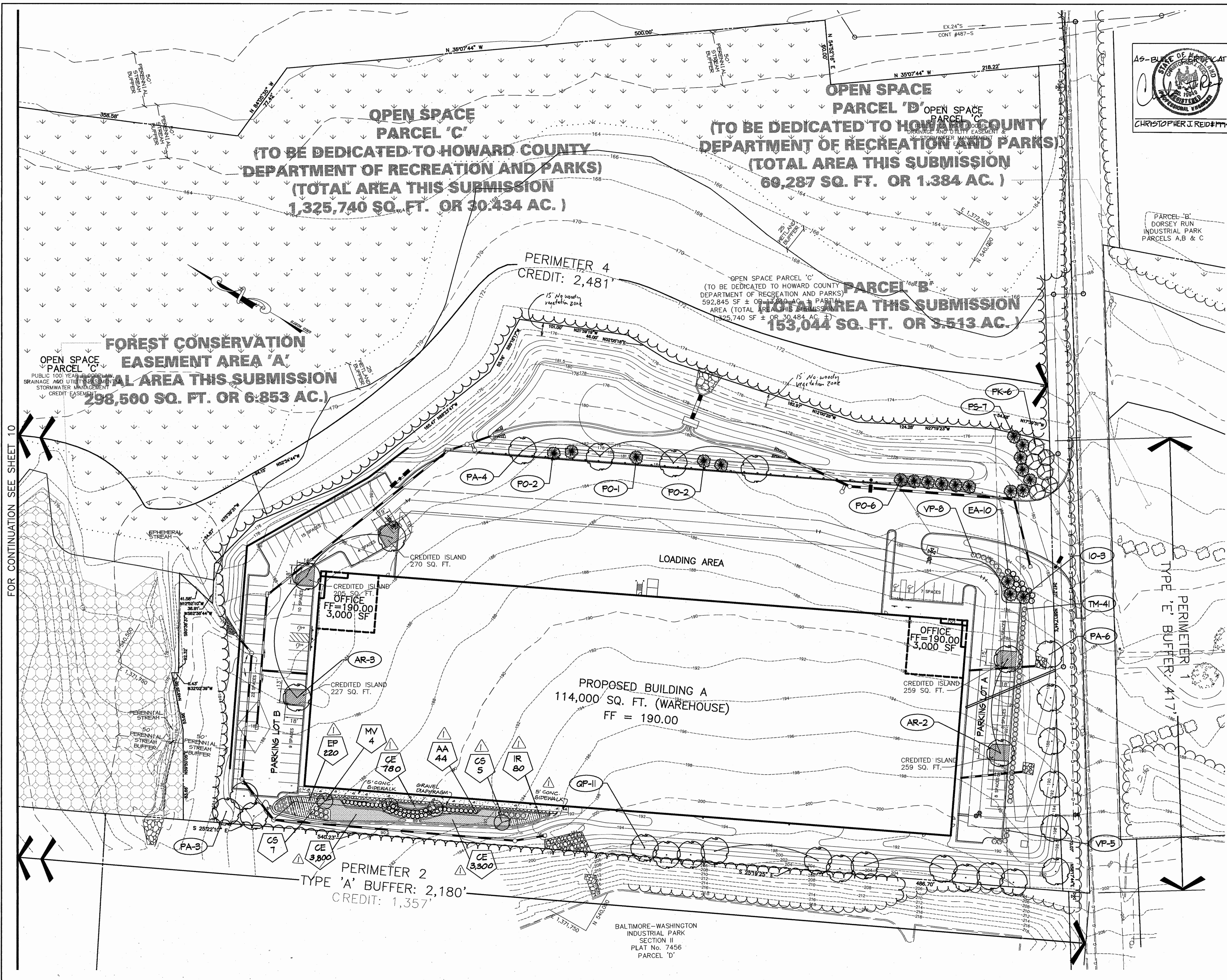
Director: *John S. Ruth* 11/26/02  
DATE

Chief, Development Engineering Division: *William D. ...* 11/14/02  
DATE

Chief, Division of Land Development: *Linda Harris* 11/22/02  
DATE

1-7-04	REV. HC RAMP DETAIL
DATE NO.	REVISION
OWNER:	MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724
DEVELOPER:	OPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 554-4444 ATTN: TIM HOGAN
PROJECT:	<b>DORSEY WOODS</b> PARCEL A, AN OFFICE-WAREHOUSE BUILDING
AREA:	TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2 PARCEL A ZONED M-2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
TITLE:	<b>PROFILES</b>
<b>Patton Harris Rust &amp; Associates, pc</b> Engineers, Surveyors, Planners, Landscape Architects. <b>PHRA</b> 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
DATE:	10.15.12
DESIGNED BY:	A.C.R.
DRAWN BY:	DAM
CHECKED BY:	C.J.R.
PROJECT NO.:	01284 C900DETS.DWG
DATE:	OCTOBER 14, 2002
SCALE:	AS SHOWN
DRAWING NO.:	8 OF 17

CHRISTOPHER J. REID #19949



AS-BUILT OF PERMITS  
  
 CHRISTOPHER J. REID #17111 DATE 6.29.02

LEGEND	
EX. TREELINE	
PROP. TREELINE	
PROPERTY LINE	
WETLANDS AND 25' BUFFER	
PERENNIAL STREAM AND 50' BUFFER	
100-YEAR FLOODPLAIN	
CONTOUR LINES	
EX. BUILDING	
PROP. SHADE TREE	
PROP. EVERGREEN TREE	
PROP. SHRUBS	
LANDSCAPE REQUIREMENT	
BIORETENTION PLANTING	
PERIMETER LANDSCAPE EDGE LIMITS	
PERIMETER LANDSCAPE EDGE CONTINUATION OFF THE SHEET	
CREDITED LANDSCAPE ISLAND	
FOREST CONSERVATION EASEMENT	

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.	
<i>Paul R. Rust</i> DIRECTOR	11/26/02 DATE
<i>Mark D. ...</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	11/14/02 DATE
<i>Condy ...</i> CHIEF, DIVISION OF LAND DEVELOPMENT	11/20/02 DATE
01-03-02  ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY REVISED LANDSCAPING	
DATE NO.	REVISION
OWNER:	MS. CHARLOTTE M. DUVALL AND MR. BRYAN M. DUVALL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724
DEVELOPER:	OPUS EAST LLC 2099 GATHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 354-4444 ATTN: TIM HOGAN
PROJECT:	DORSEY WOODS
PARCEL A, AN OFFICE-WAREHOUSE BUILDING	
AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2 PARCEL A ZONED M-2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE LANDSCAPE PLAN	
Patton Harris Rust & Associates, PC Engineers, Surveyors, Planners, Landscape Architects.	
 8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282	
DESIGNED BY:	GTH
DRAWN BY:	DAMGTH
CHECKED BY:	PJS
PROJECT NO.:	01284 L201LND.DWG
DATE:	OCTOBER 14, 2002
SCALE:	1" = 40'
DRAWING NO.:	11 OF 17

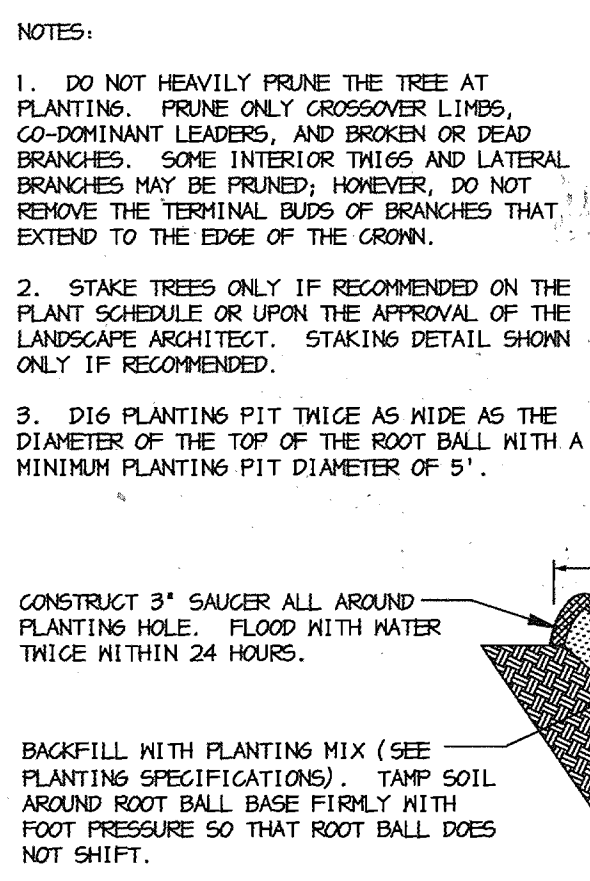
FOR CONTINUATION SEE SHEET 10

SCHEDULE A - PERIMETER LANDSCAPE EDGE				
PERIMETER	ADJACENT TO PERIMETER PROPERTIES			ADJACENT TO ROADWAYS
	2	3	4	1
LANDSCAPE TYPE	A	A	A	E
LINEAR FEET OF ROADWAY FRONTAGE/ PERIMETER	2,180' ±	384' ±	2,481' ±	417' ±
CREDIT FOR EXISTING DRIVE AISLE (LINEAR FEET)	NO	NO	NO	YES 44' ±
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 1,351' ±	YES 384' ±	YES 2,481' ±	NO
LINEAR FEET REMAINING	823' ±	0'	0'	373' ±
CREDIT FOR WALL, FENCE, OR BERM (YES/NO/LINEAR FEET)	NO	NO	NO	NO
NUMBER OF PLANTS REQUIRED				
SHADE TREES	14	0	0	9
EVERGREEN TREES	0	0	0	0
SHRUBS	0	0	0	94
NUMBER OF PLANTS PROVIDED				
SHADE TREES	14	0	0	6
EVERGREEN TREES	0	0	0	0
SHRUBS	0	0	0	64

SCHEDULE A SUBSTITUTION NOTES:  
PERIMETER 1: (6) ORNAMENTAL TREES AND (3) EVERGREENS WERE SUBSTITUTED FOR (3) SHADE TREES AND (30) SHRUBS.

SCHEDULE B - PARKING LOT INTERNAL LANDSCAPING		
PARKING LOT	A	B
NUMBER OF PARKING SPACES	28	56
NUMBER OF SHADE TREES REQUIRED (1/20 SPACES)	2	3
NUMBER OF TREES PROVIDED		
SHADE TREES	2	3
OTHER TREES (2:1 SUBSTITUTION)	-	-
NUMBER OF ISLANDS REQUIRED (1/20 SPACES)	2	3
NUMBER OF ISLANDS PROVIDED (200 SF/ISLAND)	2	3

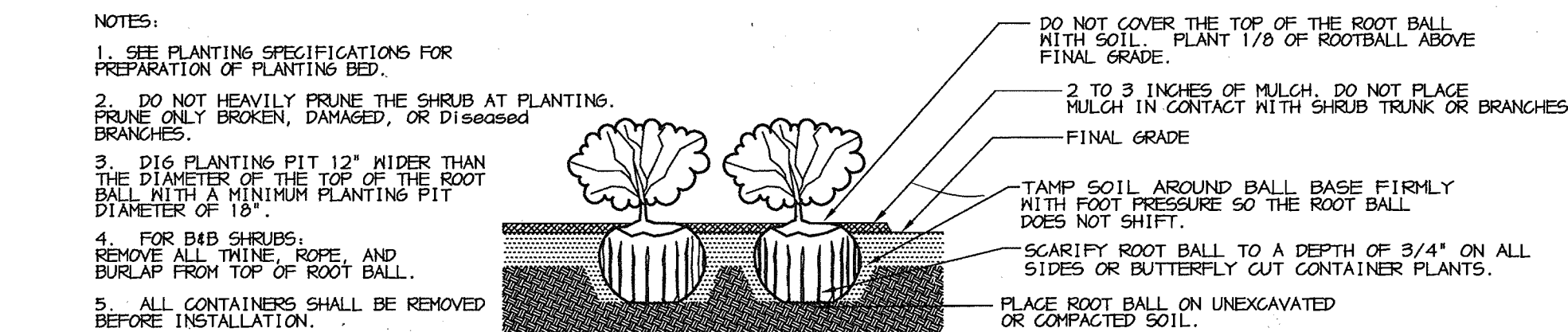
PLANT LIST					
SYMBOL	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	REMARKS
AR	5	Acers rubrum 'Red Sunset' Red Sunspet	2.5"-3" cal.	B&B	Plant as shown
PA	13	Platanus xacerifolia 'Bloodgood' Bloodgood London Planetree	2.5"-3" cal.	B&B	Plant as shown
QP	11	Quercus palustris Pin Oak	2.5"-3" cal.	B&B	Plant as shown
IO	3	Ilex opaca American Holly	6'-8' ht.	B&B	Plant as shown
PO	11	Picea abies Norway Spruce	6'-8' ht.	B&B	Plant as shown
PS	7	Pinus strobus Eastern White Pine	6'-8' ht.	B&B	Plant as shown
PK	6	Prunus serrulata 'Kwanzan' Kwanzan cherry	1.5"-2" ht.	B&B	Plant as shown
EA	10	Euonymus alatus 'Compactus' Dwarf Burning Bush	24"-30" ht.	Cont.	Plant 4.5' o.c.
TM	41	Taxus x media 'Densiflora' Densiflora Yew	24"-30" ht.	Cont.	Plant 4.5' o.c.
VP	13	Viburnum plicatum tomentosum Doublefile Viburnum	24"-30" ht.	Cont.	Plant 5' o.c.



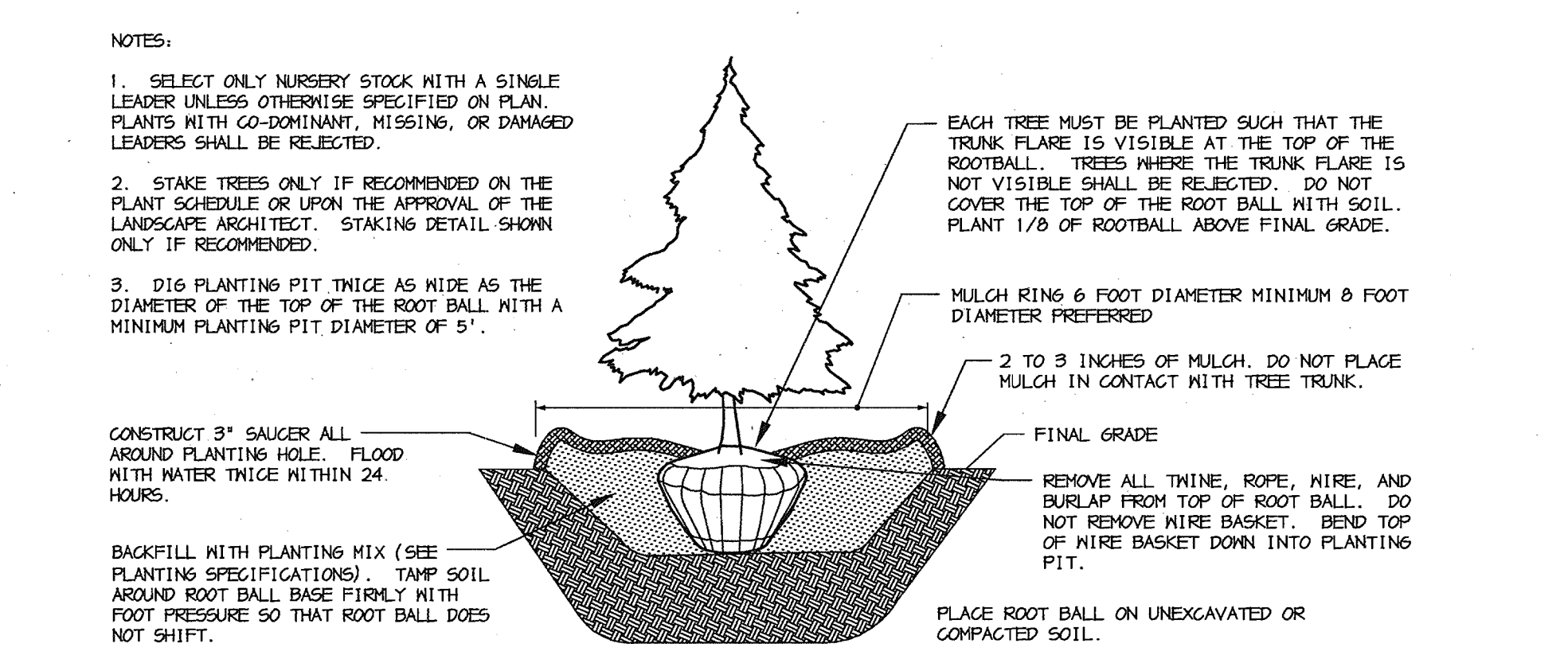
DECIDUOUS B&B TREE PLANTING DETAIL  
NOT TO SCALE

**PLANTING SPECIFICATIONS**

- Plants, related material, and operations shall meet the detailed description, as given on the plans and as described herein. Where discrepancies exist between Standards & Guidelines referenced within these specifications and the Howard County Landscape Manual, the latter takes precedence.
- All plant material, unless otherwise specified, that is not nursery grown, uniformly branched, does not have a vigorous root system, and does not conform to the most recent edition of the American Association of Nurserymen (AAN) Standards will be rejected. Plant material that is not healthy, vigorous, free from defects, decay, disfiguring roots, burrs, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements will be rejected. Plant material that is weak or which has been cut back from longer grades to meet specified requirements will be rejected. Trees with forked leaders will be rejected. All B & B plants shall be freshly dug; no heeled-in plants or plants from cold storage will be accepted.
- Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to the most recent edition of the "Landscape Specification Guidelines by the Landscape Contractors Association of MD, DC, & VA", (hereinafter "Landscape Guidelines") approved by the Landscape Contractors Association of Metropolitan Washington and the Potomac Chapter of the American Society of Landscape Architects.
- Contractor shall guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section on the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material.
- Contractor shall be responsible for notifying all relevant and appropriate utility companies, utility contractors, and "Miss Utility" a minimum of 48 hours prior to the beginning of any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Major changes will require the approval of the landscape architect. Damage to existing structure and utilities shall be repaired at the expense of the Contractor.
- Protection of existing vegetation to remain shall be accomplished via the temporary installation of 4 foot high snow fence at the drip line, see detail.
- Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within growing season of completion of site construction. Do not plant Pinus strobus or Xopressocarpus laylandii between November 15 and March 15. Landscape plants are not to be installed before site is graded to final grade.
- Contractor to regrade, fine grade, sod, hydroseed and straw mulch all areas disturbed by their work.
- Bid shall be based on actual site conditions. No extra payment shall be made for work arising from actual site conditions differing from those indicated on drawings and specifications.
- Plant quantities are provided for the convenience of the contractor only. If discrepancies exist between quantities shown on plan and those shown on the plant list, the quantities on the plant list take precedence. Where discrepancies on the plan exist between the symbols and the callout leader, the number of symbols take precedence.
- All plants spaced 6' o.c. or closer shall have a continuous mulch bed. All shrubs and groundcover areas shall be planted in continuous planting beds, prepared as specified, unless otherwise indicated on plans. (See Specification 13). Beds to be mulched with minimum 2" and maximum 3" of composted, double-shredded hardwood mulch throughout.
- Bed preparation shall be as follows: Till into a minimum depth of 6" 1 yard of Compro or Leafgro per 200 SF of planting bed, and 1 yard of topsoil per 100 SF of bed. Add 3 lbs of standard 5-10-5 fertilizer per cubic yard of planting mix and till. Biscuous plants (Azaleas, Rhododendrons, etc.), top dress after planting with iron sulfate or comparable product according to package directions. Taxus (Japanese Yew), top dress after planting with 1/4 to 1/2 cup lime each.
- Planting mix: For trees not in a prepared bed, mix 50% Compro or Leafgro with 50% soil from tree hole to use as backfill, see tree planting detail.
- Need insect control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. For tree planting, apply a pre-emergent on top of soil and root ball before mulching. Caution: For areas to be planted with a ground cover, be sure to carefully check the chemical used to assure its adaptability to the specific groundcover to be treated. Maintain the mulch weed-free for the extent of the warranty period. Under no circumstances is a pesticide containing diazinophos to be used as a means of pest control.
- Note: All plant material planted shall be watered thoroughly the day of planting. All plant material not yet planted shall be properly protected from drying out until planted. At a minimum, water unplanted plant material daily and as necessary to avoid desiccation.
- Pruning: Do not heavily prune trees and shrubs at planting. Prune only broken, dead, or diseased branches.
- All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded, grass seed planted, and covered with straw mulch.



SHRUB BED PLANTING DETAIL - B&B AND CONTAINER SHRUBS  
NOT TO SCALE



EVERGREEN B&B TREE PLANTING DETAIL  
NOT TO SCALE

BIORETENTION PLANT LIST						
KEY	QTY.	SCIENTIFIC/COMMON NAME	SIZE	ROOT	SPACING	ZONE*
MV	4	MAGNOLIA VIRGINIANA SHAMP MAGNOLIA	6-8' HT.	B&B	PLANT AS SHOWN	***
AA	44	ARONIA ARBUTIFOLIA RED CHOCERRY	24" HT.	CONT.	PLANT AS SHOWN	***
CS	12	CORNUS SERICEA RED TWIG DOGWOOD	24" HT.	CONT.	PLANT AS SHOWN	***
CE	7880	CAREX ELATA 'AUREA' BOWLES GOLDEN SEDGE	BAREROOT	CONT.	6' SPACING	(1,2),3
EP	220	EUPATORIUM PURPUREUM JOE PYE WEEB	1 GALL.	CONT.	18' SPACING	****
IR	80	IRIS VERSICOLOR 'BLUE FLAG' BLUE FLAG IRIS	BAREROOT	CONT.	18' SPACING	(1,2),3

**BIORETENTION PLANT LIST NOTES:**  
\* HYDROLOGIC ZONES ACCORDING TO APPENDIX A OF THE MARYLAND MODEL STORMWATER MANAGEMENT ORDINANCE JULY 2000.  
\*\* ALSO KNOWN CAREX STRICTA 'AUREA'  
\*\*\* KNOWN TO TOLERATE INUNDATION AS WELL AS DRY AREAS ACCORDING TO DIETZ, MICHAEL A., MANUAL OF MOODY LANDSCAPE PLANTS  
\*\*\*\* COMMONLY USED BIORETENTION SPECIES ACCORDING TO TABLE A.4 IN APPENDIX A OF THE MARYLAND MODEL STORMWATER MANAGEMENT ORDINANCE JULY 2000.

SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING	
S.N.M. POND PERIMETER	1
LANDSCAPE TYPE	
LINEAR FEET OF TOTAL PERIMETER	
CREDIT FOR EX. VEGETATION (NO OR YES & %)	
CREDIT FOR OTHER PROP. LANDSCAPING (NO OR YES & %)	
LINEAR FEET OF REMAINING PERIMETER	*
NUMBER OF TREES REQUIRED:	
SHADE TREES	
EVERGREEN TREES	
NUMBER OF PLANTS PROVIDED:	
SHADE TREES	
EVERGREEN TREES	
OTHER TREES (2:1 SUBSTITUTION, 50% MAX.)	

\* SEE GENERAL NOTE #4

**GENERAL NOTES:**

- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL.
- FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING MUST BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$14,670.  
21 EVERGREEN TREES @ \$300 = \$6,300  
21 EVERGREEN TREES @ \$150 = \$3,150  
6 ORNAMENTAL TREES @ \$150 = \$900  
64 SHRUBS @ \$30 = \$1,920
- THIS PLAN IS FOR LANDSCAPING PURPOSES ONLY.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND SAFETY PRECAUTIONS AND PROGRAMS.
- ALL MATERIAL SELECTED SHALL BE EQUAL TO OR BETTER THAN THE REQUIREMENTS OF THE "USA STANDARD FOR NURSERY STOCK", LATEST EDITION, AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- ALL MATERIAL SHALL BE PLANTED IN ACCORDANCE WITH THE MINIMUM STANDARDS CITED IN THE LATEST EDITION OF "LANDSCAPE SPECIFICATION GUIDELINES" PUBLISHED BY THE LANDSCAPE CONTRACTORS ASSOCIATION.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS SHALL BE OF THE PROPER HEIGHT AND/OR SPREAD REQUIREMENTS IN ACCORDANCE WITH THIS PLAN AND THE HOWARD COUNTY LANDSCAPE MANUAL.
- AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE, SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
- STORMWATER MANAGEMENT LANDSCAPING HAS BEEN PROVIDED WITH FOUR (4) SHADE TREES AND FIVE (5) EVERGREEN TREES, IN-LIEU OF A TYPE 'B' PERIMETER PLANTING REQUIREMENT, AS APPROVED BY HOWARD COUNTY DEPARTMENT OF PLANNING & ZONING.

**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 CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

SIGNATURE: Tim Hogan  
DATE: 10-15-02

**AS BUILT CERTIFICATE**

STATE OF MARYLAND  
DEPARTMENT OF PLANNING AND ZONING  
RECEIVED

6-24-04  
DATE

CHRISTOPHER J. REID #FF94

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.  
DIRECTOR: [Signature] DATE: 11/26/02  
CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 11/14/02  
CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 11/29/02

01-03-03 REVISOR BIORETENTION PLANT LIST (QTY.)

DATE NO. REVISION

OWNER: MS. CHARLOTTE M. DUVAL AND MR. BRYAN M. DUVAL  
8101 DORSEY RUN ROAD  
JESSUP, MARYLAND 20794  
410-799-7724

DEVELOPER: OPUS EAST LLC  
2099 GATHER ROAD SUITE 101  
ROCKVILLE, MD 20850  
(301) 354-4444  
ATTN: TIM HOGAN

PROJECT: DORSEY WOODS  
PARCEL A, AN OFFICE-WAREHOUSE BUILDING

AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2  
PARCEL A ZONED M-2  
6th ELECTION DISTRICT  
HOWARD COUNTY, MARYLAND

TITLE: LANDSCAPE SCHEDULES AND DETAILS

Patton Harris Rust & Associates, PC  
Engineers, Surveyors, Planners, Landscape Architects.

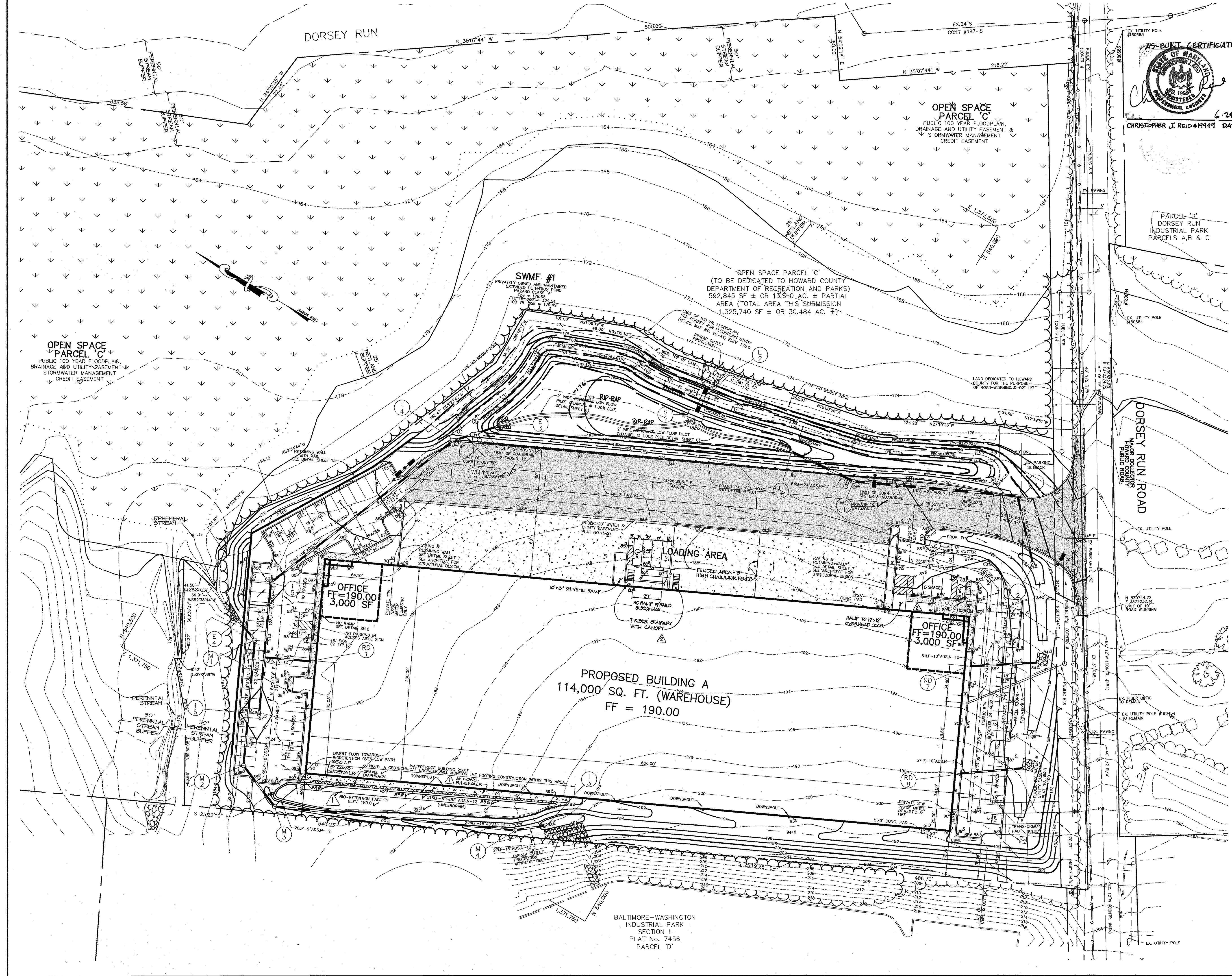
P.H.R.A.  
8818 Centre Park Drive  
Columbia, MD 21045  
T 410.997.8900  
F 410.997.9282

10-14-02  
DATE

DESIGNED BY: GTH  
DRAWN BY: DAMGTH  
CHECKED BY: PJS  
PROJECT NO: 01284  
L203LND.DWG  
DATE: OCTOBER 14, 2002  
SCALE: 1" = 40'  
DRAWING NO. 12 OF 17

DAVID T. DOWS RLA # 830

AS-BUILT - SDP-02-102



SWMF #1 SUMMARY CHART	
DRAINAGE AREA	6.7 Ac.
REV. REQUIRED	0.68 Ac.
REV. PROVIDED	0.7 Ac.
WQV. REQUIRED	0.125 Ac.-Ft.
WQV. PROVIDED	0.125 Ac.-Ft.
CPV. REQUIRED	0.65 Ac.-Ft.
CPV. PROVIDED	0.65 Ac.-Ft.

AS-BUILT CERTIFICATE  
 STATE OF MARYLAND  
 REGISTERED PROFESSIONAL ENGINEER  
 CHRISTOPHER J. REID #19949  
 DATE: 10.15.02

Rev IS PROVIDED VIA THE GRASS CHANNEL CREDIT.  
 WQV IS PROVIDED IN A BIORETENTION FACILITY.  
 CPV IS PROVIDED IN AN EXTENDED DETENTION POND.  
 Qp AND Qf ARE NOT REQUIRED FOR THIS SITE.  
 THE 100 YR. W.S.E. IS 179.09 WHICH PROVIDES 2 FEET OF FREEBOARD.  
 THE TOP OF DAM ELEV. IS 181.10.

**LEGEND**

- EX. CONTOUR
- PROP. CONTOUR
- EX. TREE LINE
- PROP. TREE LINE
- PROP. SPOT ELEVATION
- 100 YEAR FLOODPLAIN
- WETLANDS
- P-2 PAVING
- SIDEWALK
- P-3 PAVING
- LIGHT-ROADWAY/PARKING
- LIGHT-FIELD
- LIMIT OF WETLANDS
- AREA NOT INCLUDED IN APPROVED CONDITIONAL USE

**NOTES:**

- ALL RADII ARE 5' UNLESS OTHERWISE NOTED.
- ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
- ALL ON-SITE ROADS ARE PRIVATE.
- ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- \* STD/REV - STANDARD TO REVERSE CURB TRANSITION.
- SITE LIGHTS TO BE 175 WATT MH CUTOFF RECTILINEAR FIXTURE (COOPER) MOUNTED AT 20' ON AN EMBEDDED BRONZE FIBERGLASS POLE.

**DAM CENTERLINE DATA**

① N 540332.73, E 1372085.95	⑩ - ⑪ S 08° 52' 44" E, 43.37'
② - ③ R=316.00', L=17.39'	⑪ - ⑫ R=244.65', L=32.16'
③ - ④ S 68° 10' 31" E, 28.60'	⑫ - ⑬ R=13679.71', L=49.59'
④ - ⑤ R=116.00', L=54.50'	⑬ - ⑭ R=123.23', L=36.00'
⑤ - ⑥ S 13.75', L=17.07'	⑭ - ⑮ R=1267.21', L=58.50'
⑥ - ⑦ S 21° 17' 55" E, 61.31'	⑮ - ⑯ R=1792.51', L=19.32'
⑦ - ⑧ R=47.00', L=21.98'	⑯ - ⑰ R=31.14', L=18.46'
⑧ - ⑨ N 04° 25' 46" E, 5.87'	⑰ - ⑱ R=15.22', L=23.80'
⑨ - ⑩ R=113.00', L=22.03'	⑱ N 539879.99, E 1372294.28

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Director: *[Signature]* DATE: 11/26/02

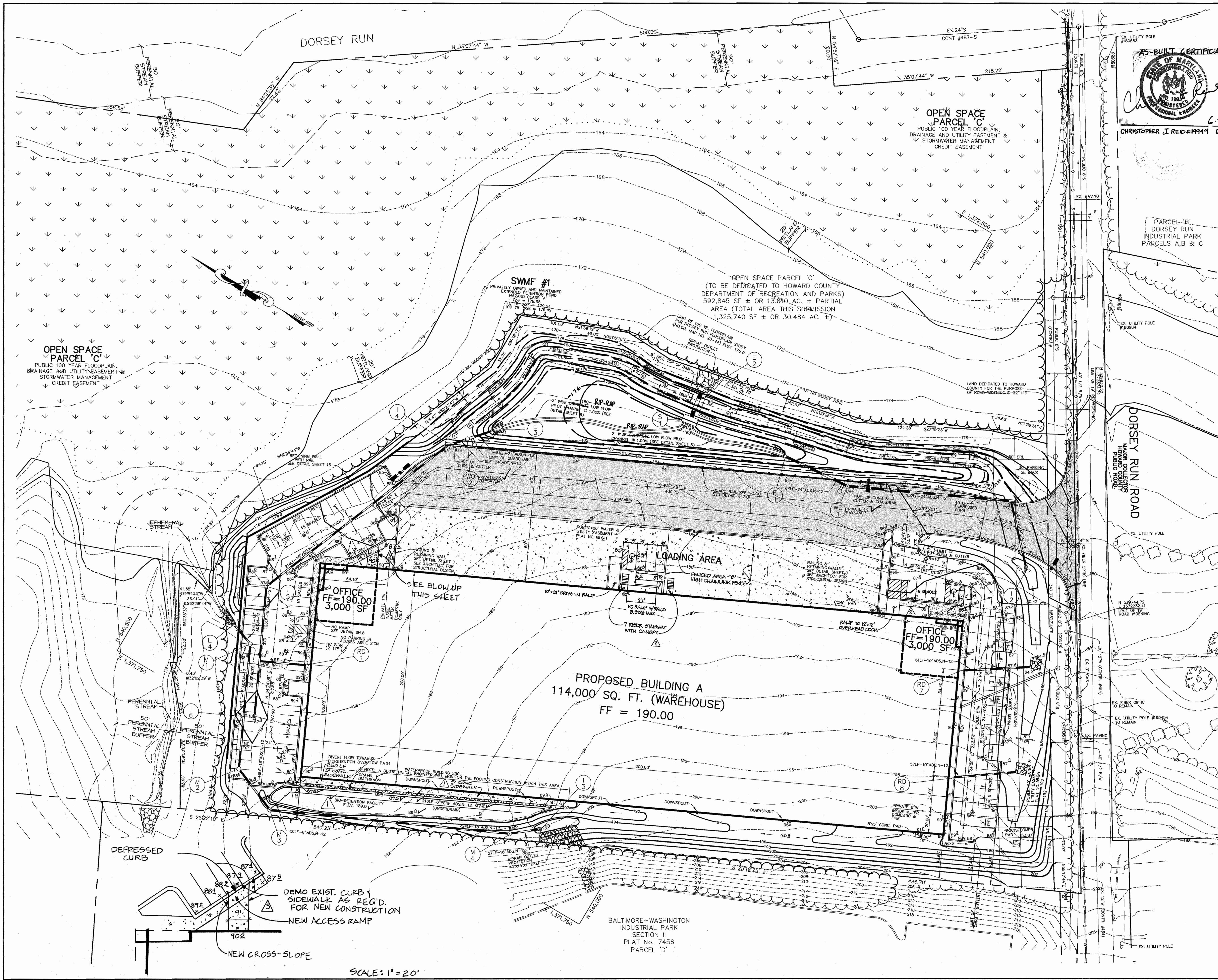
Chief, Development Engineering Division: *[Signature]* DATE: 11/14/02

Chief, Division of Land Development: *[Signature]* DATE: 11/22/02

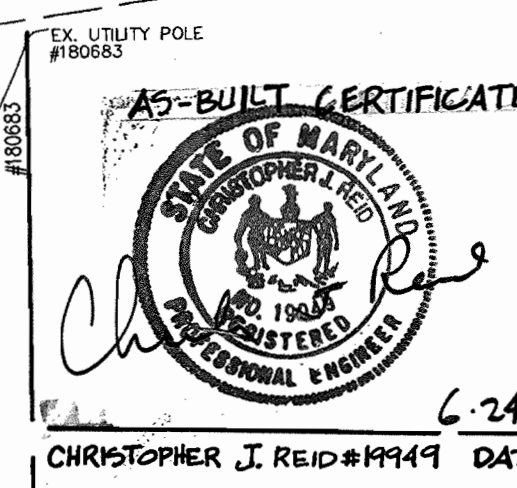
1-7-04 REV. HC PARKING, ADDED FENCE, RAISED & STAIRS  
 01-03-03 ADDED 5' SIDEWALK, ADJUSTED BI-RETENTION FACILITY

DATE NO.	REVISION
OWNER:	MS. CHARLOTTE M. DUVAL AND MR. BRYAN M. DUVAL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724
DEVELOPER:	CAPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 354-4444 ATTN: TIM HOGAN
PROJECT:	DORSEY WOODS PARCEL A, AN OFFICE-WAREHOUSE BUILDING
AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2 PARCEL A ZONED M-2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND	
TITLE:	SITE DEVELOPMENT PLAN
Patton Harris Rust & Associates, p.c. Engineers, Surveyors, Planners, Landscape Architects.	8818 Centre Park Drive Columbia, MD 21045 T 410.997.8900 F 410.997.9282
DESIGNED BY: A.C.R.	DATE: 10.15.02
DRAWN BY: DAM	
CHECKED BY: C.J.R.	
PROJECT NO: 01284 C400SIT.DWG	
DATE: OCTOBER 14, 2002	
SCALE: 1"= 40'	
DRAWING NO. 2 OF 17	

CHRISTOPHER J. REID #19949



SWMF #1 SUMMARY CHART	
DRAINAGE AREA	6.7 Ac.
REV. REQUIRED	0.68 Ac.
REV. PROVIDED	0.7 Ac.
WQV REQUIRED	0.125 Ac.-FT.
WQV PROVIDED	0.125 Ac.-FT.
CPV REQUIRED	0.65 Ac.-FT.
CPV PROVIDED	0.65 Ac.-FT.



Rev is PROVIDED VIA THE GRASS CHANNEL CREDIT.  
 WQV IS PROVIDED IN A BIORETENTION FACILITY.  
 CPV IS PROVIDED IN AN EXTENDED DETENTION POND.  
 Qp AND Qf ARE NOT REQUIRED FOR THIS SITE.  
 THE 100 YR. W.S.E. IS 179.09 WHICH PROVIDES 2 FEET OF FREEBOARD.  
 THE TOP OF DAM ELEV. IS 181.10.

**LEGEND**

EX. CONTOUR	---
PROP. CONTOUR	---
EX. TREELINE	---
PROP. TREELINE	---
PROP. SPOT ELEVATION	132
100 YEAR FLOODPLAIN	---
WETLANDS	---
P-2 PAVING	---
SIDEWALK	---
P-3 PAVING	---
LIGHT-ROADWAY/PARKING	---
LIGHT-FIELD	---
LIMIT OF WETLANDS	---
AREA NOT INCLUDED IN APPROVED CONDITIONAL USE	---

- NOTES:**
- ALL RADI ARE 5' UNLESS OTHERWISE NOTED.
  - ALL DIMENSIONS ARE TO FACE OF CURB OR BUILDING UNLESS OTHERWISE NOTED.
  - ALL ON-SITE ROADS ARE PRIVATE.
  - ALL LIGHTING IS TO BE DIRECTED/REFLECTED AWAY FROM ADJACENT PUBLIC ROADS AND RESIDENTIALLY ZONED PROPERTIES, AND BE IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
  - \* STD/REV - STANDARD TO REVERSE CURB TRANSITION.
  - SITE LIGHTS TO BE 175 WATT MH OUTLET RECLINABLE FIXTURE (COOPER) MOUNTED AT 20' ON AN EMBEDDED CEMENT FIBERGLASS POLE.

**DAM CENTERLINE DATA**

① N 540332.73, E 1372085.95	⑨ - ⑩ S 08° 52' 44" E, 43.37'
② - ③ R=316.00', L=17.39'	⑩ - ⑪ R=244.65', L=32.16'
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⑦ - ⑧ R=47.00', L=21.98'	⑮ - ⑯ R=1792.51', L=19.32'
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⑨ - ⑩ R=113.00', L=22.03'	⑰ - ⑱ R=15.22', L=23.80'

6-14-04 ADDED 9' SIDEWALK, ACCESS RAMP

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

<i>Leah Ruth</i>	11/26/02
DIRECTOR	DATE
<i>Chris Hermit</i>	11/14/02
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE
<i>Chris Hermit</i>	11/22/02
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE

1-7-04	REV. HC PARKING, ADDED FENCE, RAILS & STAIRS	
01-23-05	ADDED 5' SIDEWALK, ADJUSTED BIO-RETENTION FACILITY	
DATE	NO.	REVISION
OWNER:		MS. CHARLOTTE M. DUVAL AND MR. BRYAN L. DUVAL 8101 DORSEY RUN ROAD JESSUP, MARYLAND 20794 410-799-7724
DEVELOPER:		OPUS EAST LLC 2099 GAITHER ROAD, SUITE 101 ROCKVILLE, MD 20850 (301) 354-4444 ATTN: TIM HOGAN
PROJECT:		<b>DORSEY WOODS</b>
		<b>PARCEL A, AN OFFICE-WAREHOUSE BUILDING</b>
AREA TAX MAP 43 BLOCK 20 & TAX MAP 48 BLOCK 2		PARCEL A ZONED M-2 6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

TITLE **SITE DEVELOPMENT PLAN**

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

10.15.02	DESIGNED BY : A.C.R
DATE	
	DRAWN BY : DAM
	CHECKED BY : C.J.R.
	PROJECT NO : 01284 C400SIT.DWG
	DATE : OCTOBER 14, 2002
	SCALE : 1" = 40'
	DRAWING NO. 2 OF 17

2:\project\01284\1-01\Eng\Plans\C400SIT.dwg, SITE, 10/11/02 03:23:49 PM, HP750C(98).pc3, Arch D - 24 x 36 in. (landscape), 1:1