

**DRAWING LEGEND**

---	EXISTING MINOR CONTOUR (2' INTERVAL)
---	EXISTING MAJOR CONTOUR (10' INTERVAL)
---	ADJACENT PROPERTY LINE
---	EXISTING PROPERTY BOUNDARY
---	EX. ROAD / EDGE OF PAVING
---	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
---	EX. OVERHEAD ELECTRIC & UTILITY POLES
---	PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
---	PROPOSED EDGE OF PAVEMENT
---	PROPOSED CURB
---	PROPOSED STORM DRAIN W/ INLETS & MANHOLE
---	PROPOSED WATER LINE & HYDRANT
---	PROPOSED SEWER AND MANHOLES
---	EX. BUILDING
---	PROPOSED BUILDING
---	EXISTING TREELINE
---	STEEP SLOPES 15%-25% (0.27± Ac.)
---	STEEP SLOPES 25%+ (0.04± Ac.)
---	SITE LIGHTING

**DATA SOURCES:**  
 EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1981), NAVD-88. EXISTING ON-SITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

**DDC**  
 Development Design Consultants

Planners  
 Surveyors  
 Engineers  
 Landscape Architects

192 East Main Street  
 Westminster, MD 21157  
 410.386.0560  
 410.386.0564 (Fax)  
 DDC@DDCinc.us  
 www.DDCinc.us

**OWNER:**  
 SMITH DORSEY RUN ROAD, LLC.  
 ROBERT SMITH  
 6011 UNIVERSITY BLVD, STE. 350  
 ELLICOTT CITY, MD 21043  
 (443)40-4275

**DEVELOPER:**  
 MEADOWOOD DORSEY RUN, LLC.  
 THOM MCKEE  
 1202 SHADY CREEK ROAD  
 MARRIOTTSVILLE, MD 21104  
 (410)489-5080

**SITE ADDRESS:**  
 8101 DORSEY RUN ROAD  
 JESSUP, MD 20784

**AMERIGAS  
 DORSEY WOODS PARCEL 'B'  
 PROPOSED OFFICE AND WAREHOUSE  
 SITE LAYOUT  
 PLAN**

6TH ELECTION DISTRICT HOWARD COUNTY, MD

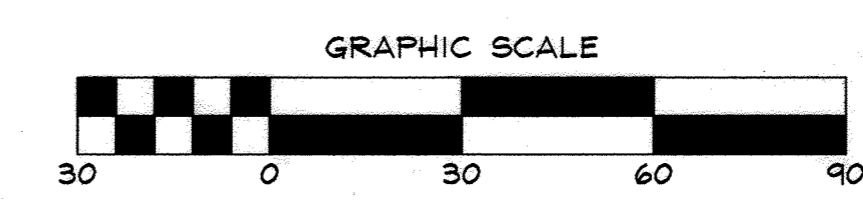
REVISIONS				
1	REDLINE REVISION TO SHIFT TANKS, RELOCATE RAMP AND INCLUDE MASS GRADING			
2	ADDED SHEETS 15 & 16			
NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
PLAT #	22354	DES. BY:	BKC	
TAX ACC. #	1406399924	DRN. BY:	CTS	
TAX MAP:	48	CHK. BY:	PGC	
BLOCK / GRID:	2	DATE:	4/23/13	
PARCEL #	134 / B	DDC JOB#:	11085.1	
ZONE / USE:	M-2	SHEET NUMBER:		
DWG. SCALE:	1"=30'			

**AS-BUILT**

4/23/13  
 DATE

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 27000, Expiration Date 4-25-14.

**PAUL G. CAVANAUGH**  
 P.E. 27020



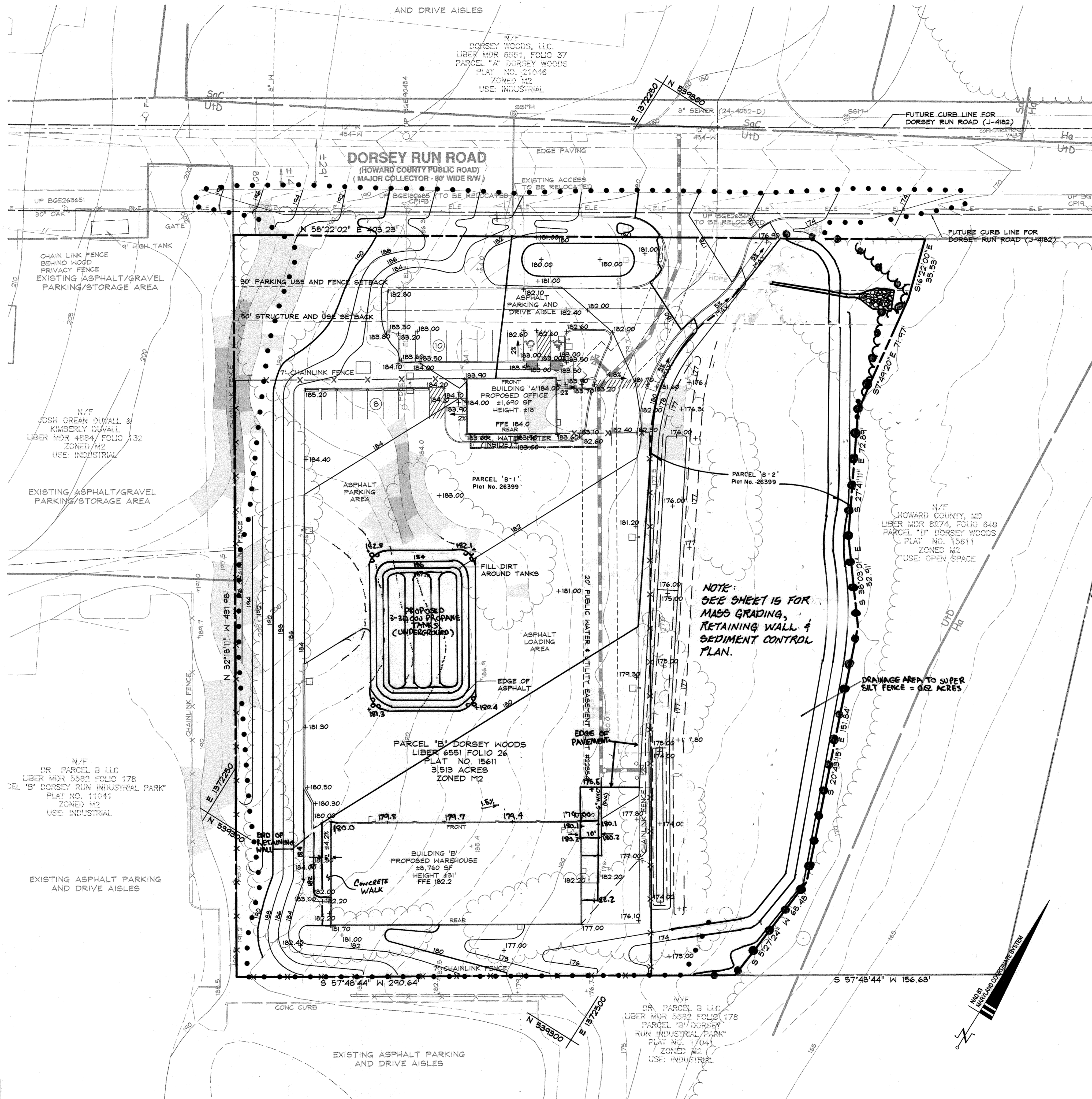
APPROVED: DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 5/7/13  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 5/14/13  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 5/14/13  
 DIRECTOR DATE





### DRAWING LEGEND

	EXISTING MINOR CONTOUR (2' INTERVAL)
	EXISTING MAJOR CONTOUR (10' INTERVAL)
	ADJACENT PROPERTY LINE
	EXISTING PROPERTY BOUNDARY
	EX. ROAD / EDGE OF PAVING
	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
	EX. OVERHEAD ELECTRIC & UTILITY POLES
	PROPOSED MINOR CONTOUR (2' INTERVAL)
	PROPOSED MAJOR CONTOUR (10' INTERVAL)
	PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
	EX. BUILDING
	PROPOSED BUILDING EXPANSION
	PROPOSED SPOT ELEVATION & FLOW ARROW
	EXISTING TREELINE
	SOIL DELINEATION LINE
	STEEP SLOPES 15%-25% (0.27± Ac.)
	STEEP SLOPES 25%+ (0.04± Ac.)
	SITE LIGHTING
	PROPOSED LIMIT OF DISTURBANCE

**DATA SOURCES:**  
 EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1983), NAVD-88. EXISTING ONSITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

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**SITE ADDRESS:**  
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 JESSUP, MD 20794

AMERIGAS  
 DORSEY WOODS PARCEL 'B'  
 PROPOSED OFFICE AND WAREHOUSE

## GRADING PLAN

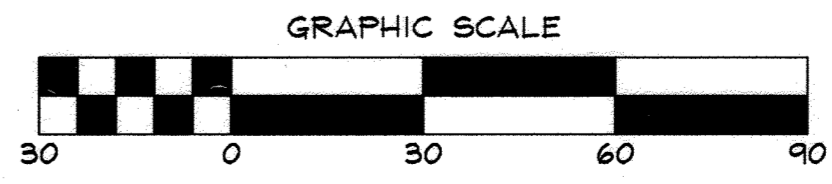
6TH ELECTION DISTRICT HOWARD COUNTY, MD

**AS-BUILT**

4/23/13  
 DATE

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020. Expiration Date: 12/31/14.

PAUL G. CAVANAUGH  
 P.E. 27020



APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 5/7/13

CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE: 5/14/13

DIRECTOR  
 DATE: 5/14/13

NO.	REVISIONS	DATE	DRN.	REV.	DATE
1	BEDLINE REVISION TO SHIFT TANKS, RELOCATE RAMP AND INCLUDE MASS GRADING	MBA PGC 7/16/13			
2	ADDED SHEETS 15 & 16	J.L. P.C. 3-24			

PLAT #	22354	DES. BY:	BKC
TAX ACC. #	1406399924	DRN. BY:	CTS
TAX MAP:	48	CHK. BY:	PGC
BLOCK / GRID:	2	DATE:	4/23/13
PARCEL #:	134 / B	DDC JOB#:	11085.1
ZONE / USE:	M-2	SHEET NUMBER:	
DRN. SCALE:	1"=30'		







- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction (315-1855).
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
- Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
- All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol 1, Chapter 7 of the HOWARD COUNTY DESIGN MANUAL, Sediment and Erosion Control.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding and mulching, all in section B-4. Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site analysis**  
 Total area of site: 3.51± Acres  
 Area disturbed: 3.32 Acres  
 Area to be vegetatively stabilized: 1.58± Acres  
 Total cut: 1248 CY (744 CY SWM)  
 Total fill: 1248 CY (744 CY SWM)  
 Offsite waste/borrow area location: N/A

- All quantities shown on plans are for reviewing agency only. Contractor shall verify quantities for bidding.
- Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of the installation of perimeter erosion and sediment controls but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval is made.
- Trenches for the construction of utilities is limited to three pipe lengths or that which shall be back-filled and stabilized by the end of each work day, whichever is shorter.

**DATA SOURCES:**  
 EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88. EXISTING ONSITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

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**AMERIGAS**  
 DORSEY WOODS PARCEL 'B'  
 PROPOSED OFFICE AND WAREHOUSE  
**SEDIMENT & EROSION CONTROL NOTES & DETAILS**

6TH ELECTION DISTRICT		HOWARD COUNTY, MD	
REVISIONS			
NO.	DESCRIPTION OF CHANGES	DRN.	REV.
1	ADDED SHEETS 15 & 16	J.L.	P.C. 3-24
PLAT #	22354	DES. BY:	BKC
TAX ACC. #	140639924	DRN. BY:	CTS
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ZONE / USE:	M-2	SHEET NUMBER:	
DWG. SCALE:	1"=30'		

**AS-BUILT**

4/23/13  
 DATE

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27000. Expiration Date: 04/23/14

**PAUL G. CAVANAUGH**  
 P.E. 27020

**HOWARD SOIL CONSERVATION DISTRICT**

**PERMANENT SEEDING NOTES**

Apply to graded or cleared areas not subject to immediate further disturbance where a permanent long-lived vegetative cover is needed.

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

**Soil Amendments:** In lieu of soil test recommendations, use one of the following schedules:

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

**Seeding --** For the periods March 1 -- April 30, and August 1 -- October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 Tall Fescue. For the period May 1 -- July 31, seed with 60 lbs Kentucky 31 Tall Fescue per acre and 2 lbs/acre (.05 lbs/100( ) sq. ft.) of weeping lovegrass. During the period of October 16 -- February 28, protect site by:

Option 1 -- Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring.  
 Option 2 -- Use sod. Option 3 -- Seed with 60 lbs/acre Kentucky 30 Tall Fescue and mulch with 2 tons/acre well anchored straw.

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

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

**TEMPORARY SEEDING NOTES**

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

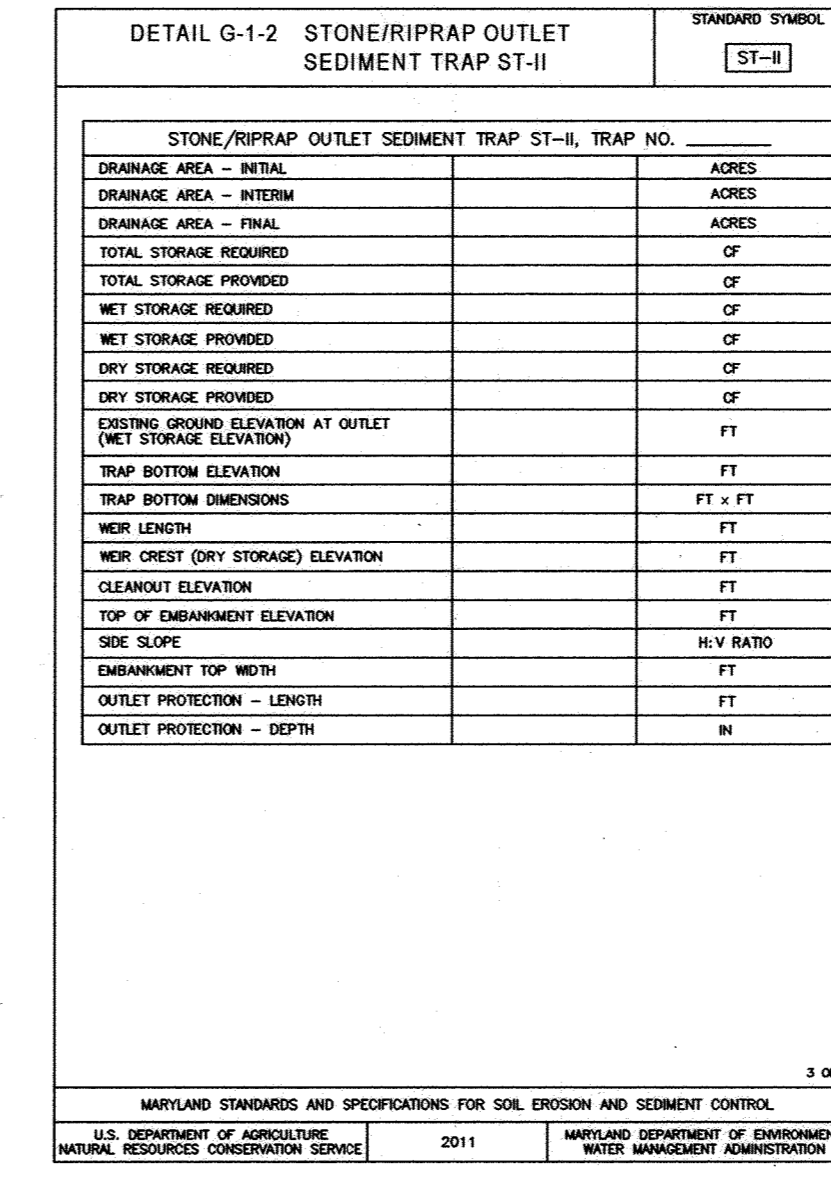
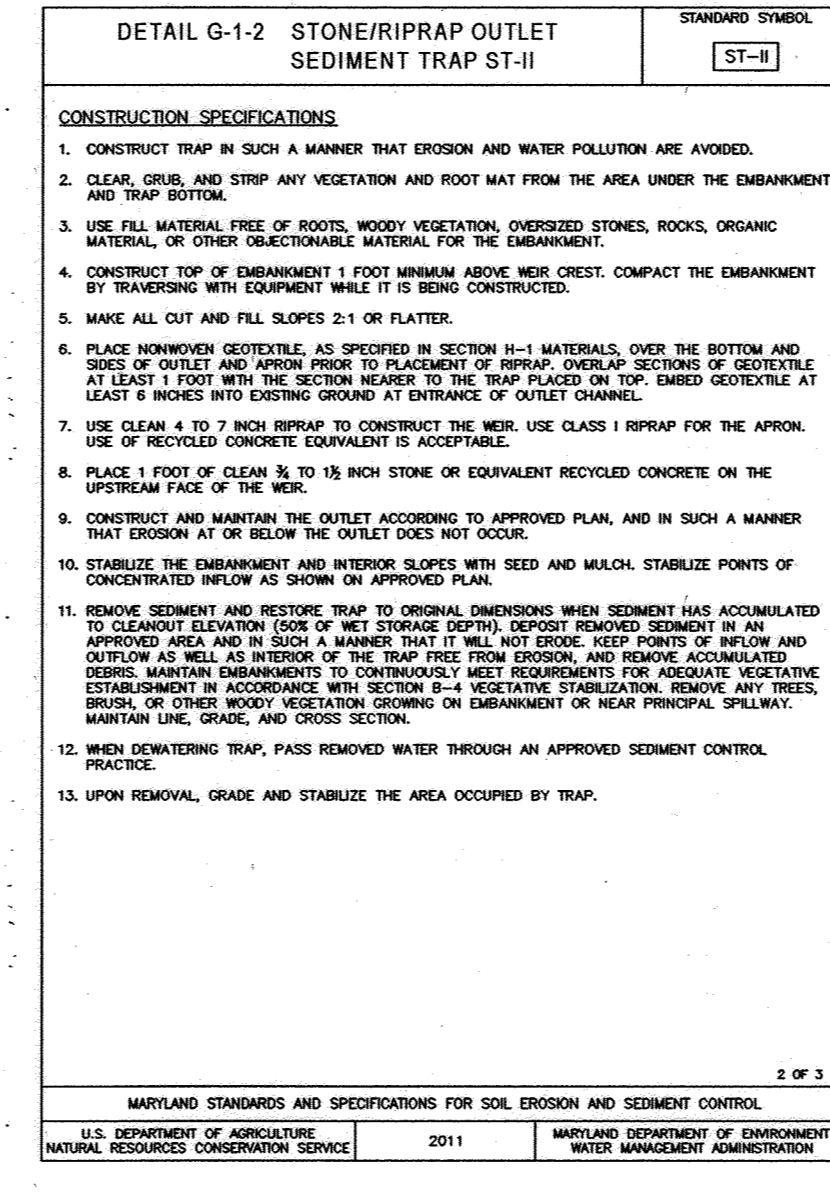
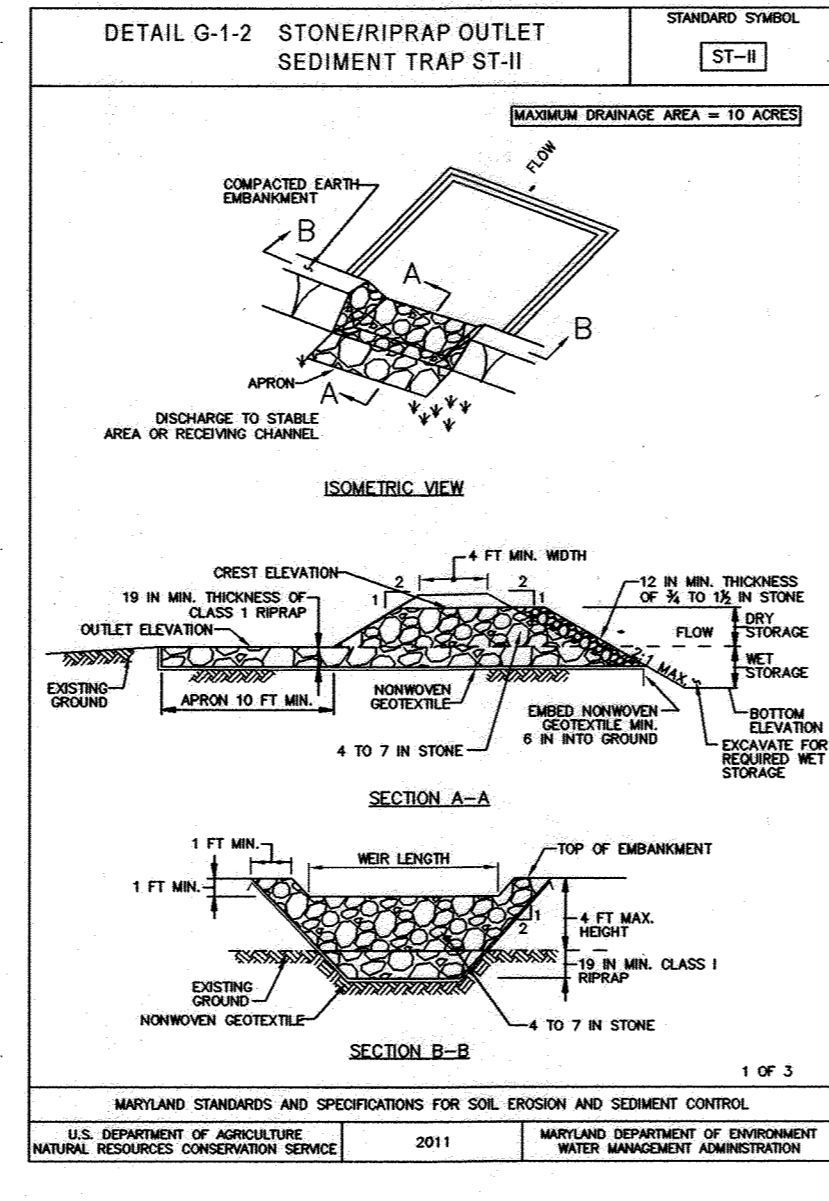
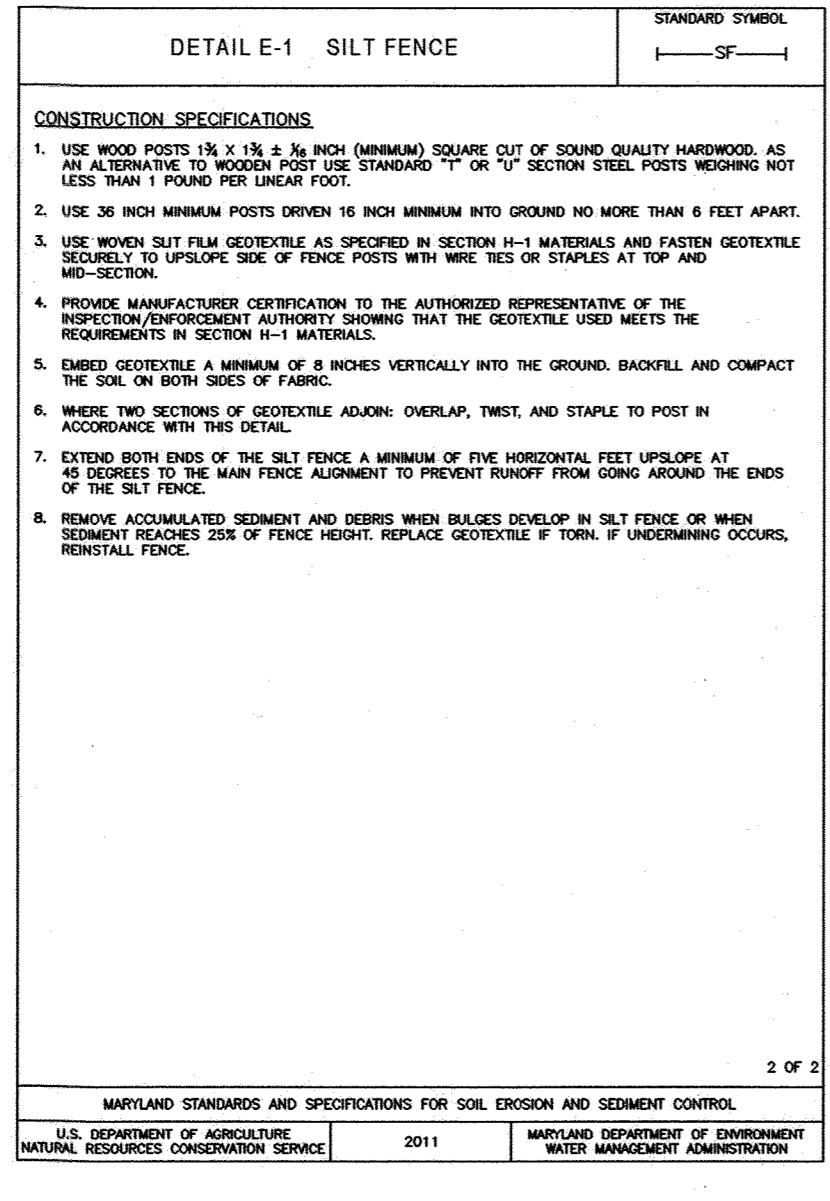
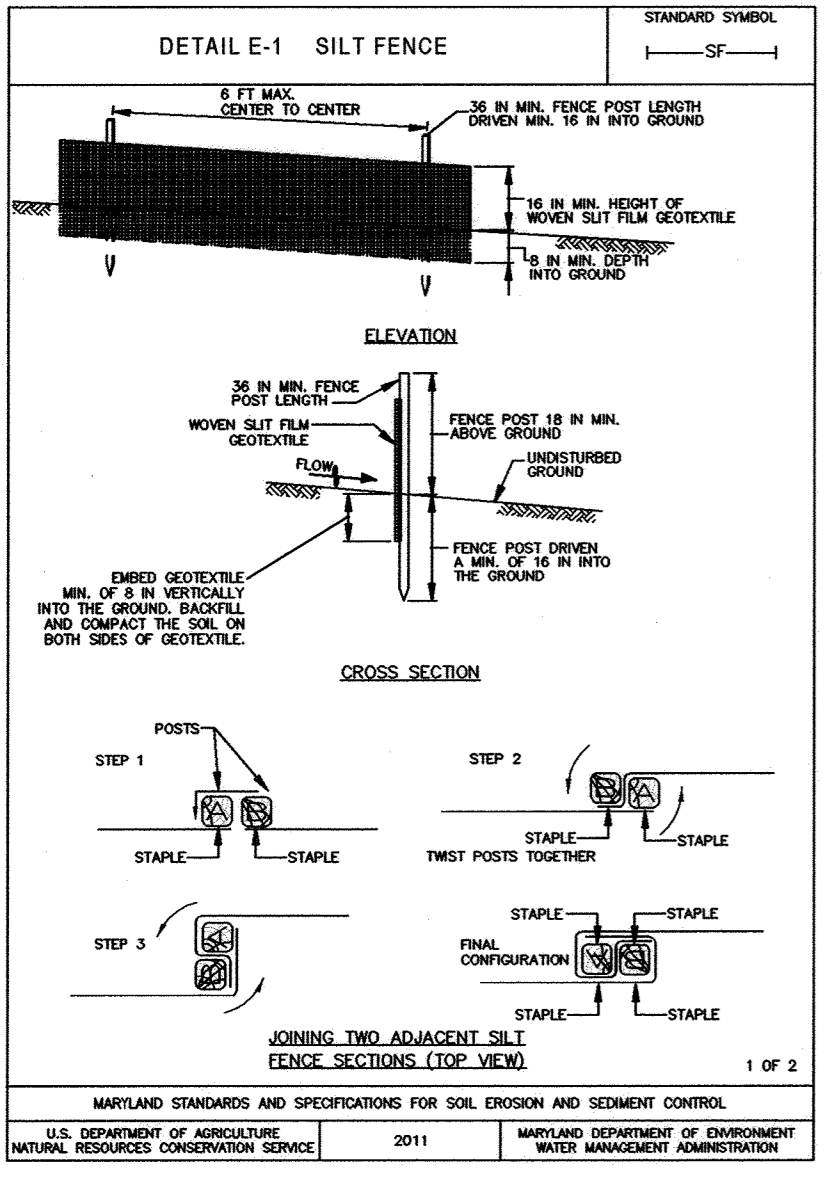
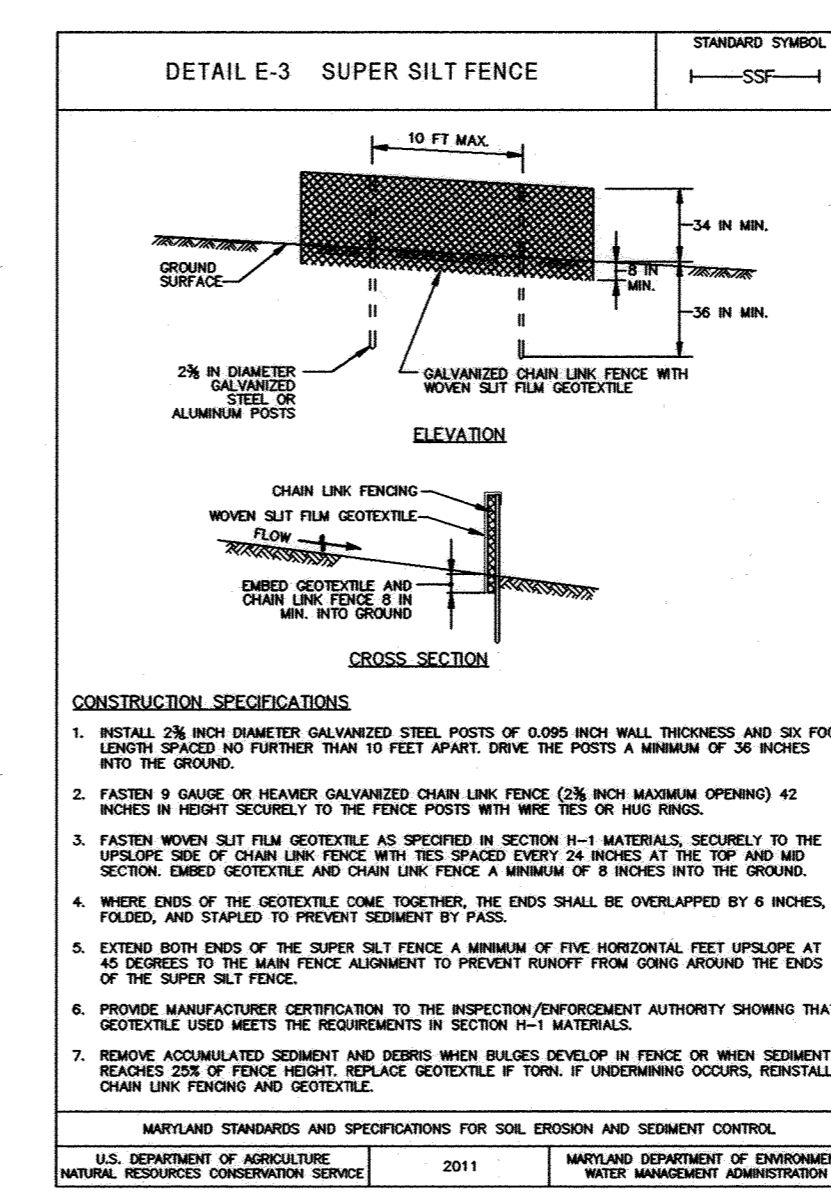
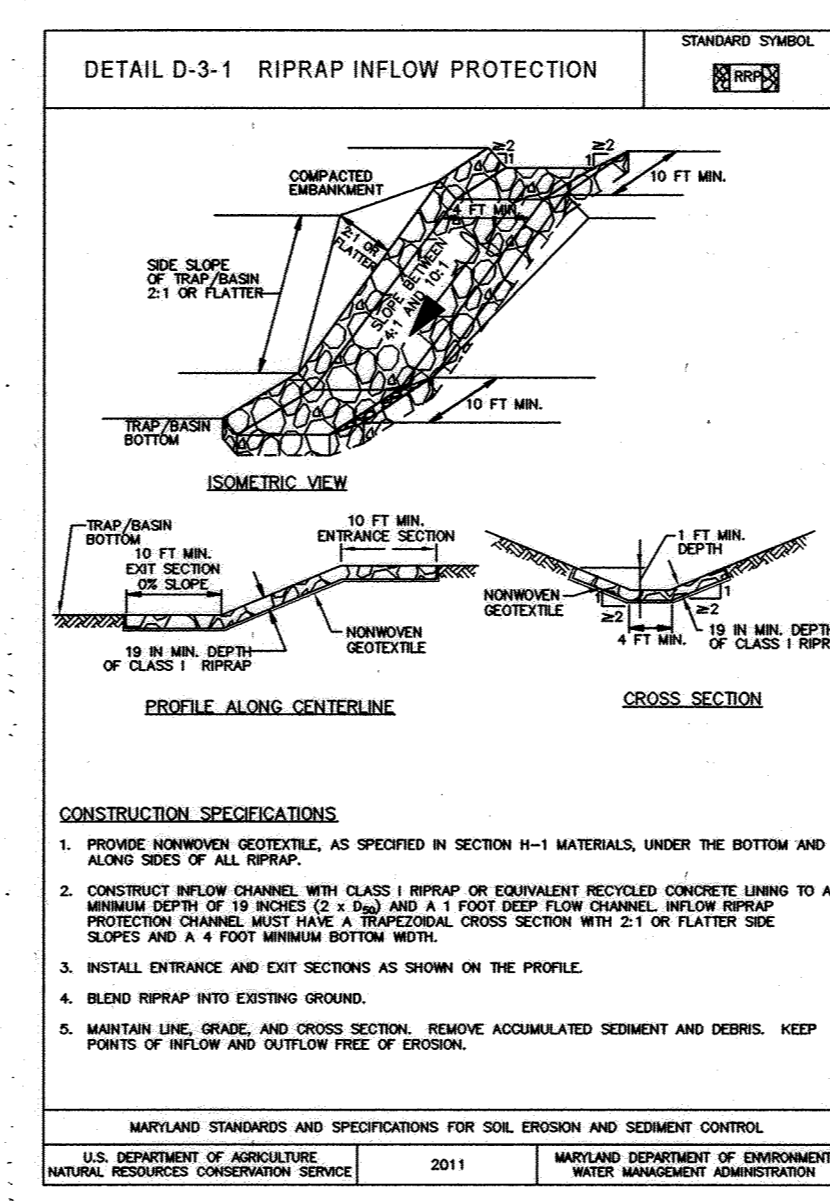
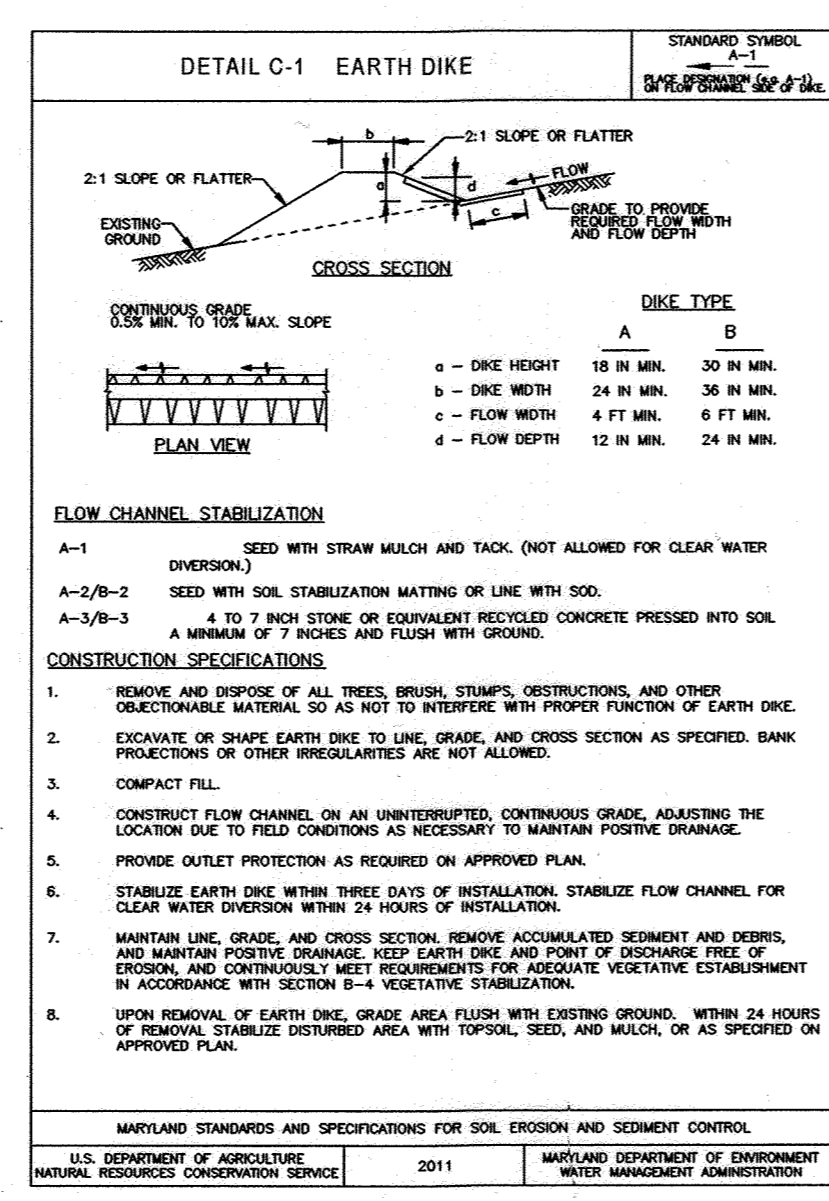
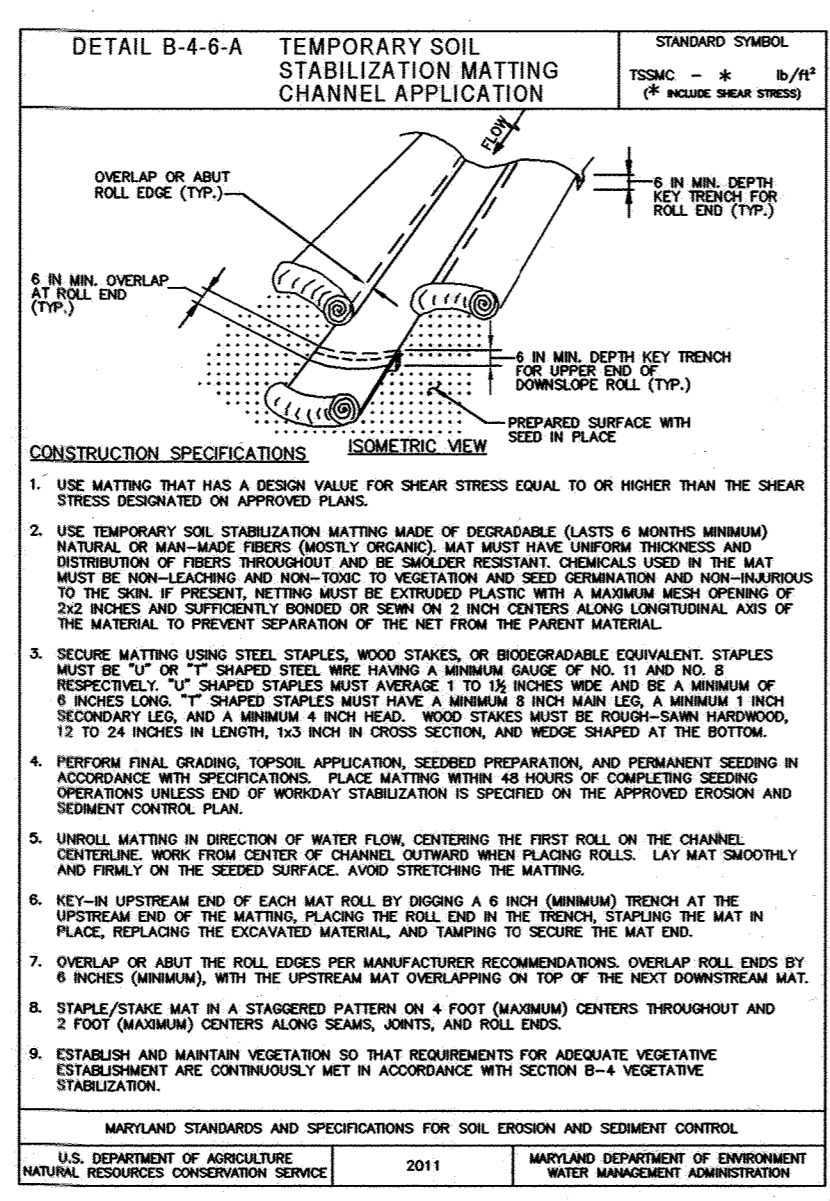
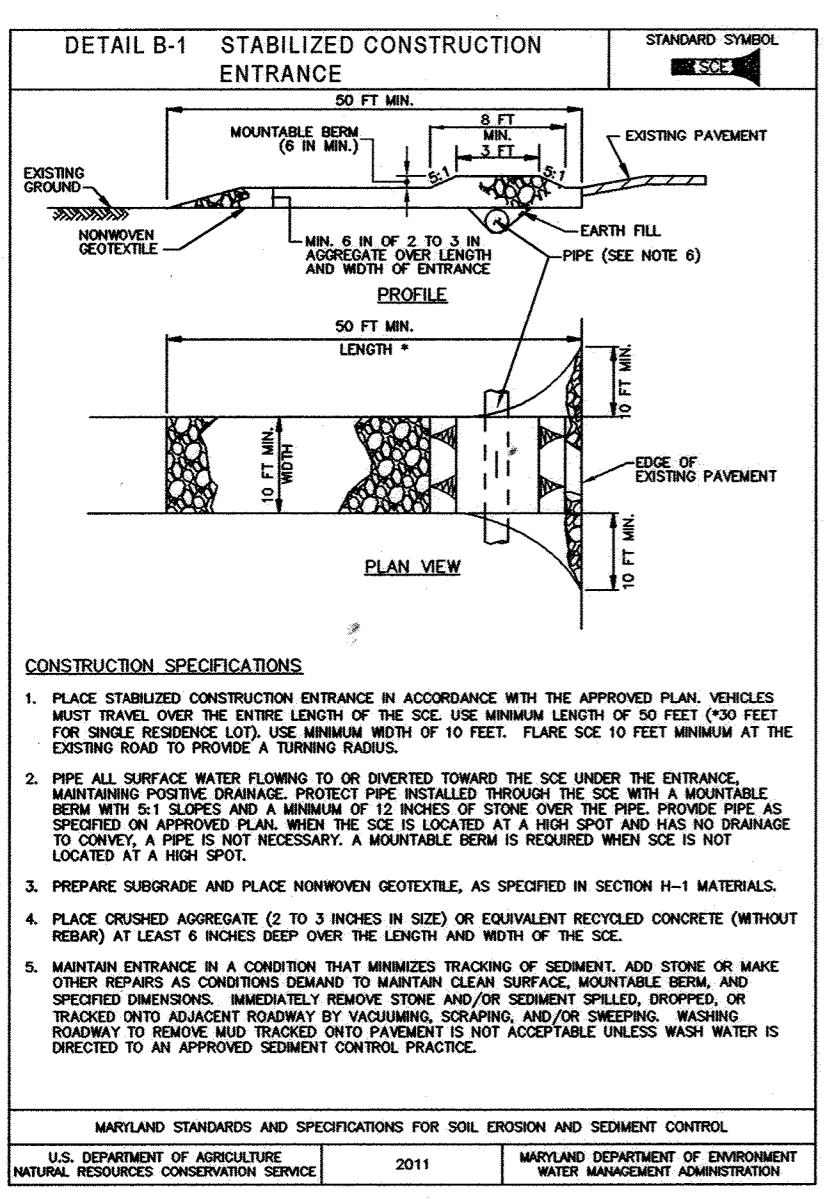
**Seedbed preparation:** -- Loosen upper three inches of soil by raking, disking or other acceptable means before seeding, if not previously loosened.

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

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

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

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



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

*John White* 4/23/13  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Michael J. ...* 5/13/13  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Kate ...* 5/14/13  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*...* 5/14/13  
 DIRECTOR DATE

BY THE DEVELOPER:

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

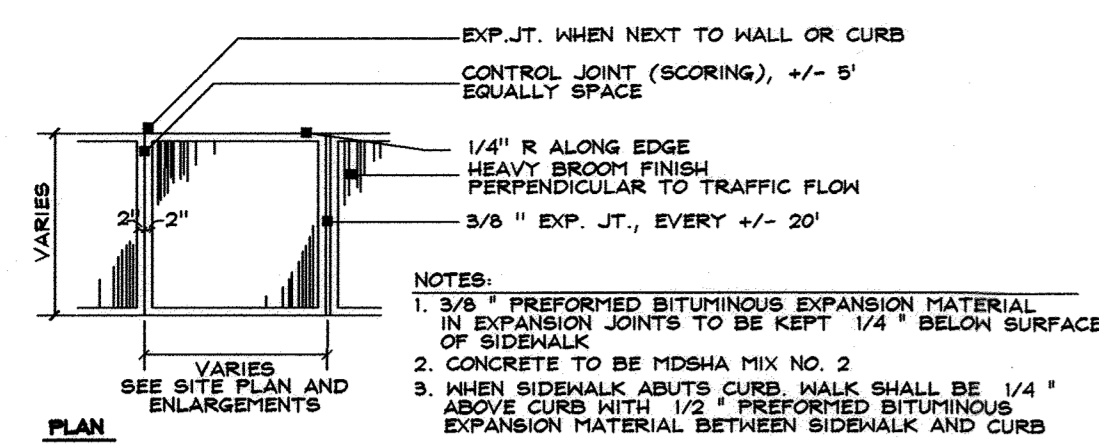
*...* 4/25/13  
 DEVELOPER DATE

ENGINEER

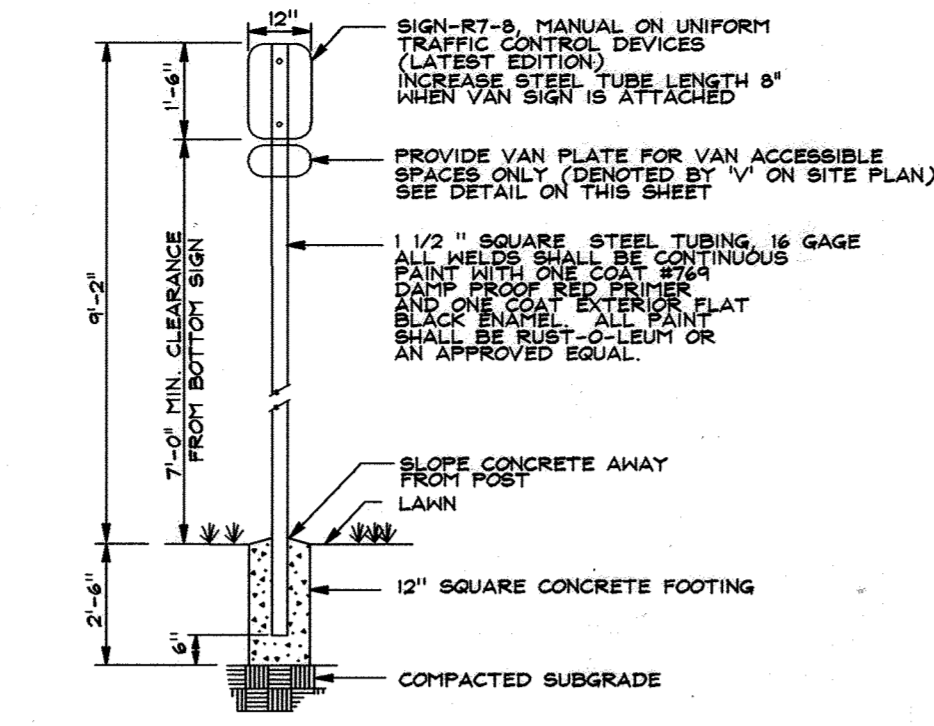
I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Paul G. Cavanaugh* 4/23/2013  
 ENGINEER DATE

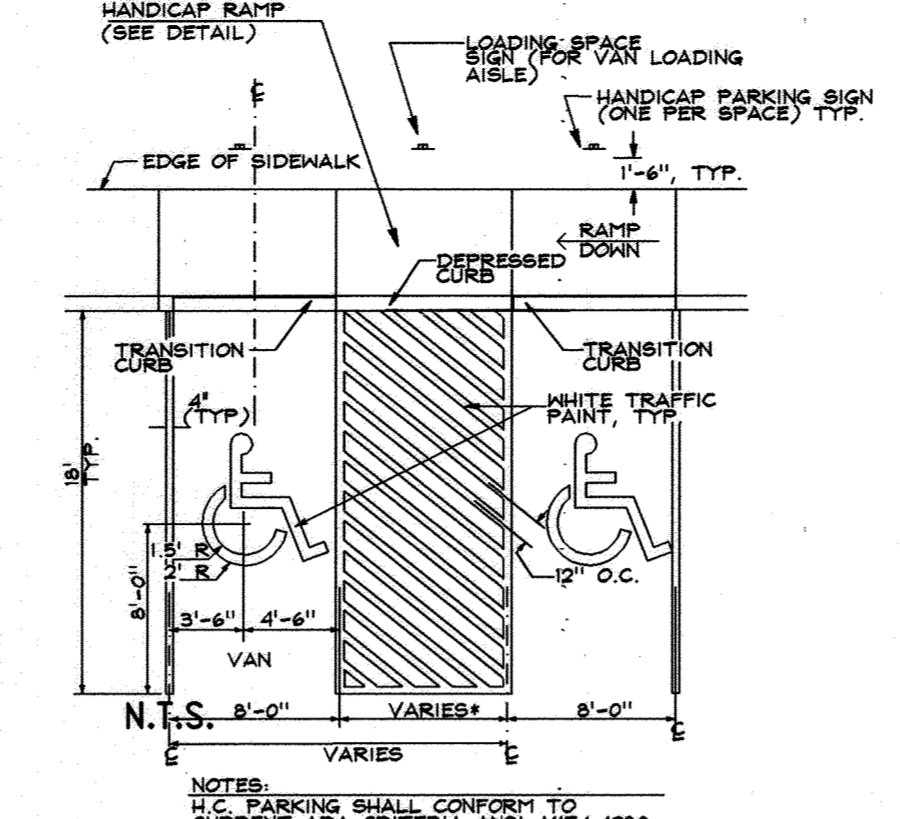




**A PRIVATE CONCRETE WALK (R-3.05)**  
6 N.T.S.



**B HANDICAP PARKING SIGN**  
6 N.T.S.



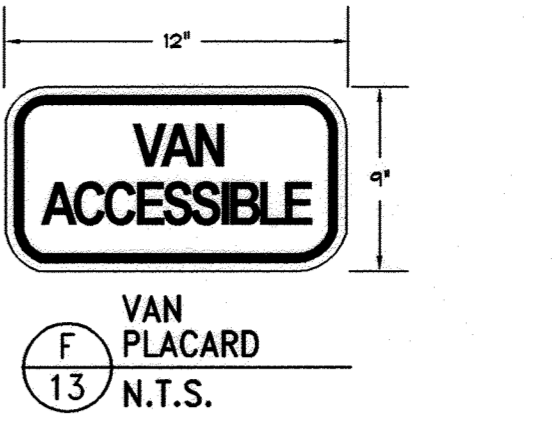
**C HANDICAP PARKING SPACES (CAR & VAN)**  
6 N.T.S.



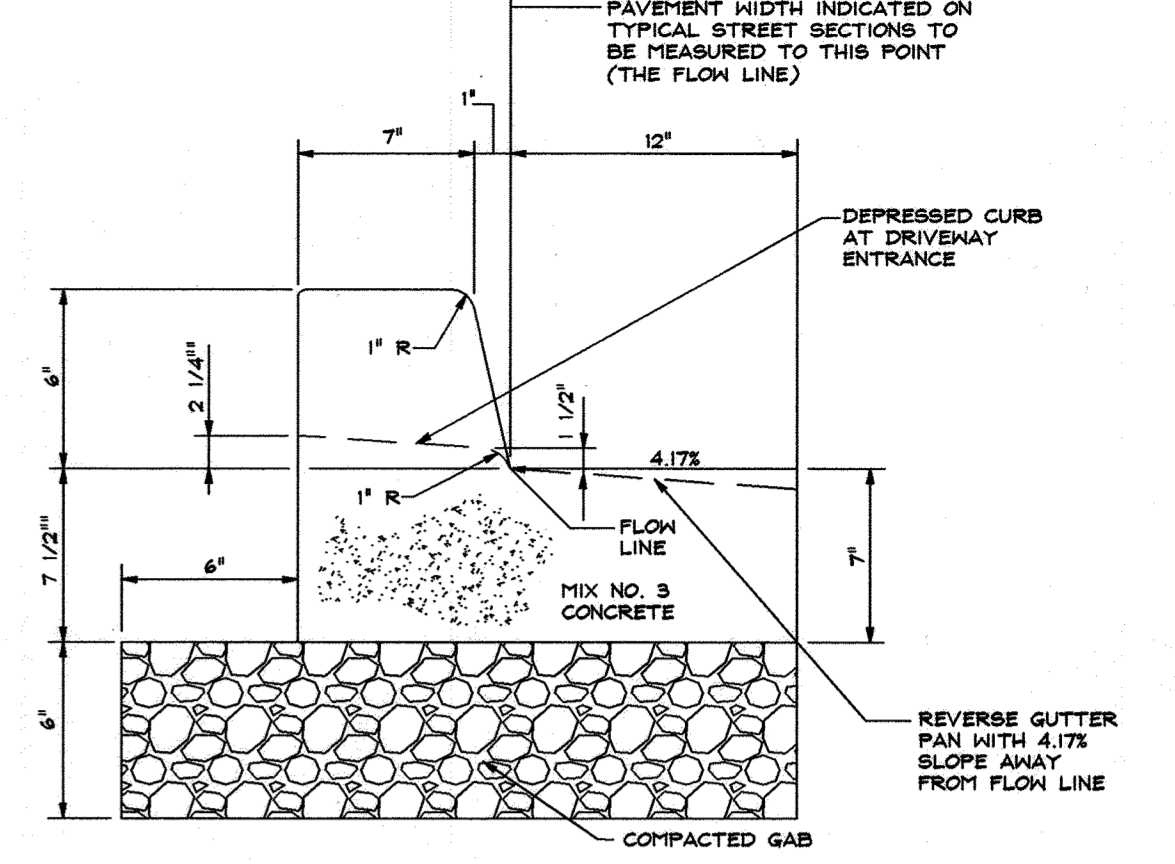
**D RESERVED PARKING SIGN HANDICAPPED**  
6 N.T.S.



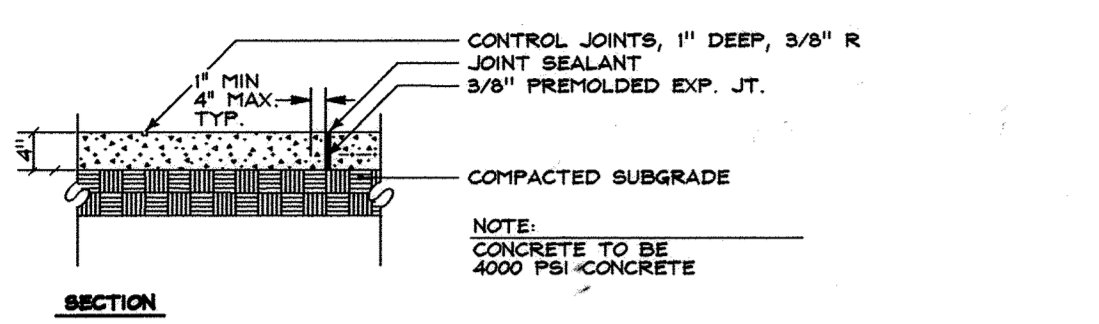
**E NO PARKING SIGN @ VAN ACCESS AISLE**  
6 N.T.S.



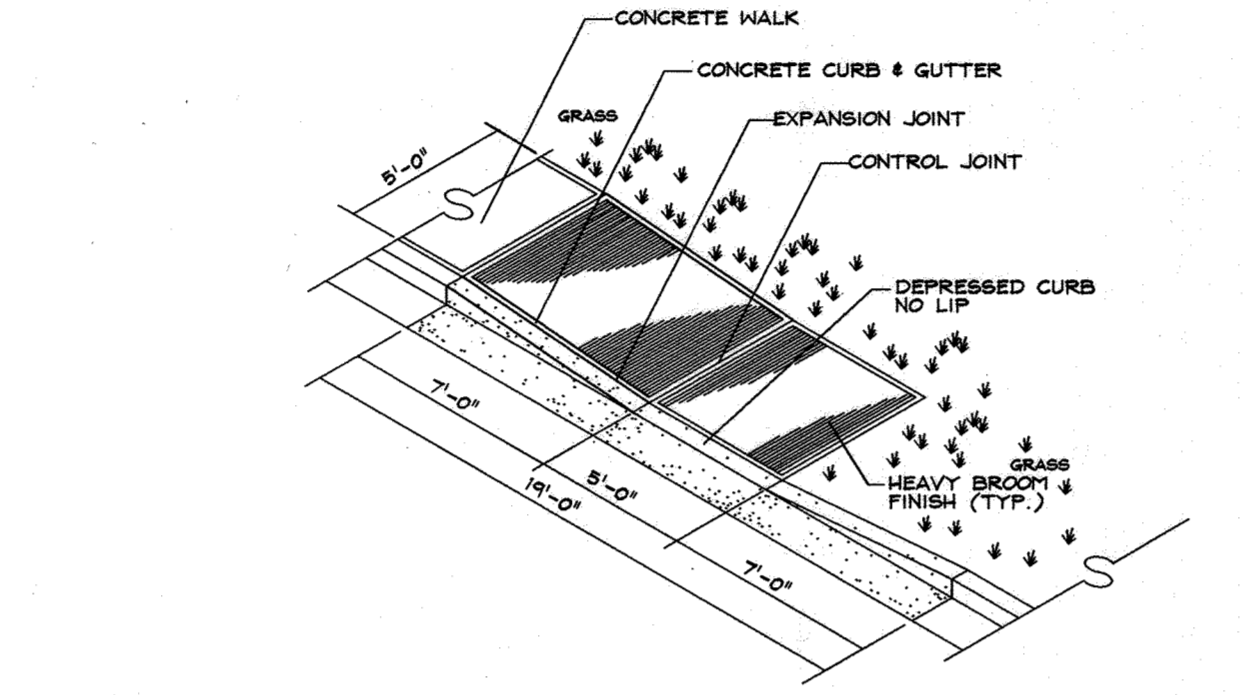
**F VAN PLACARD**  
6 N.T.S.



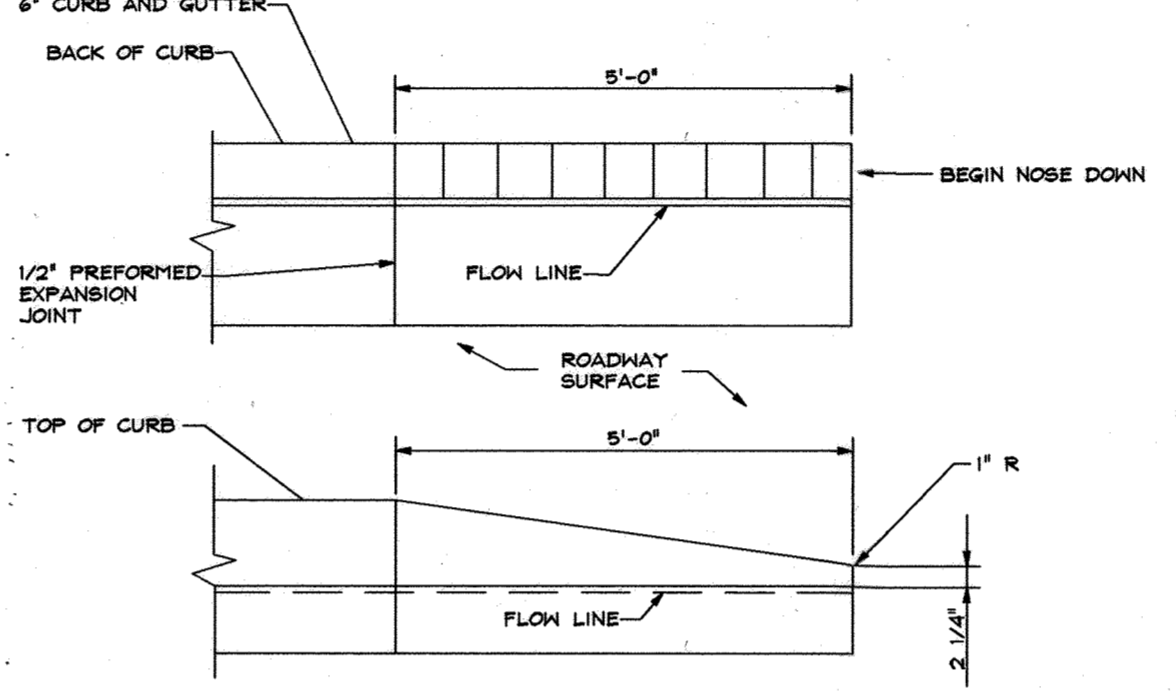
**G 6\"/>**



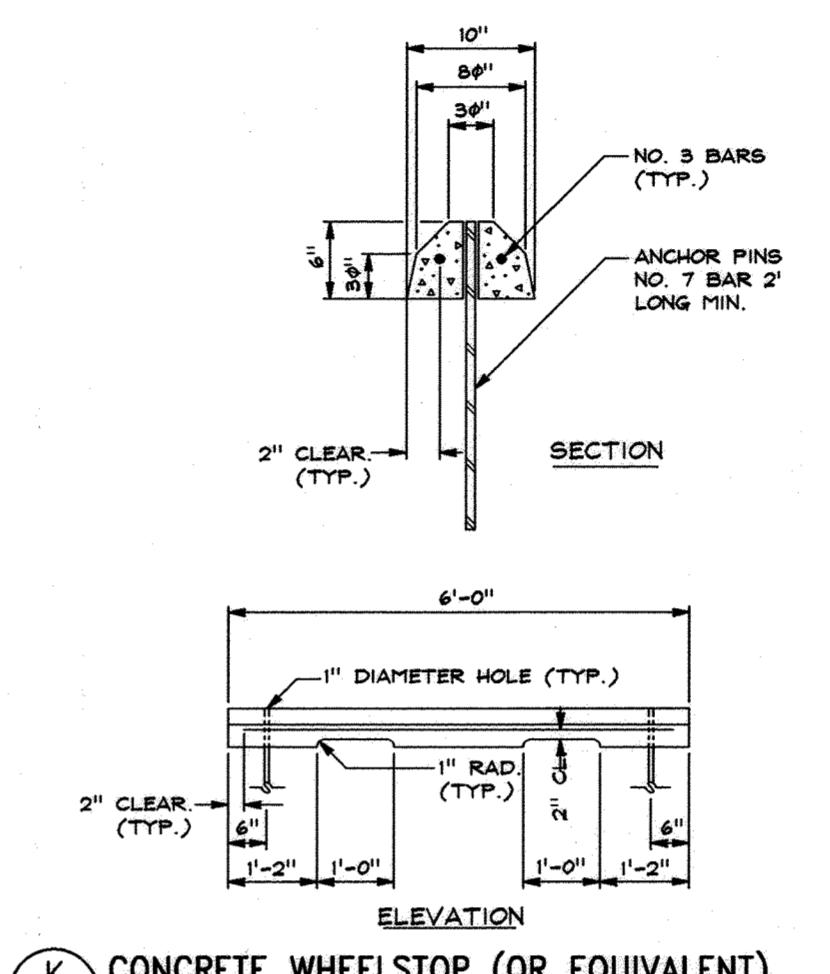
**H HANDICAP ACCESS RAMP (TYPE 'A')**  
6 N.T.S.



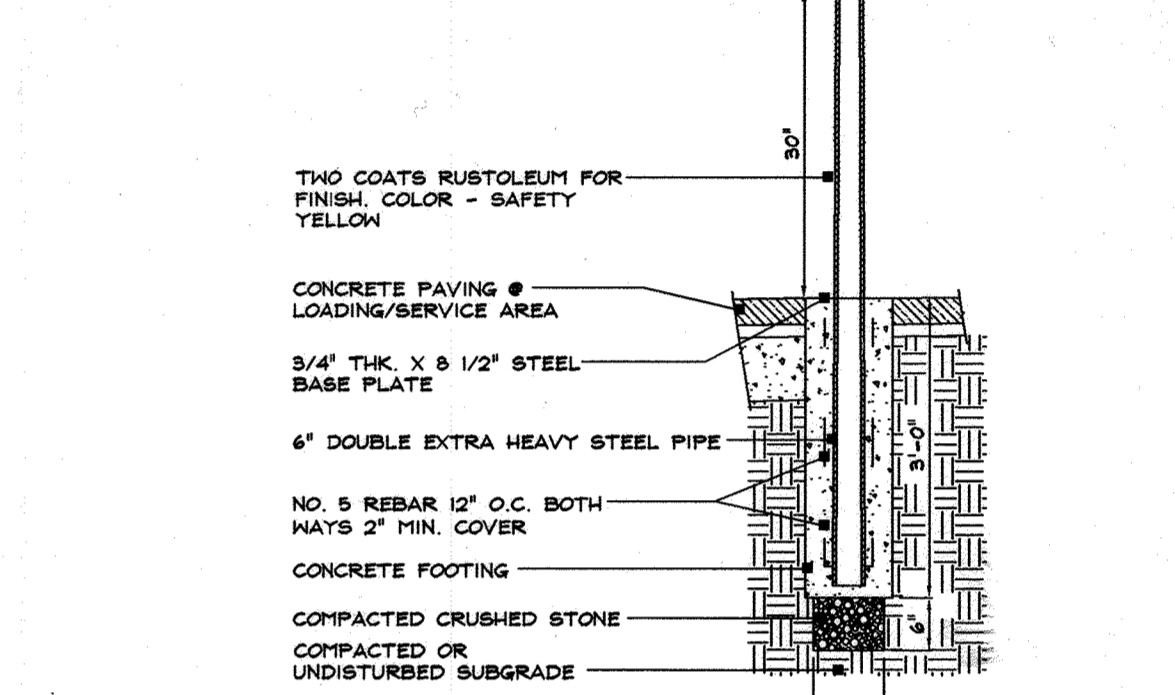
**I HANDICAP RAMP (TYPE 'B')**  
6 N.T.S.



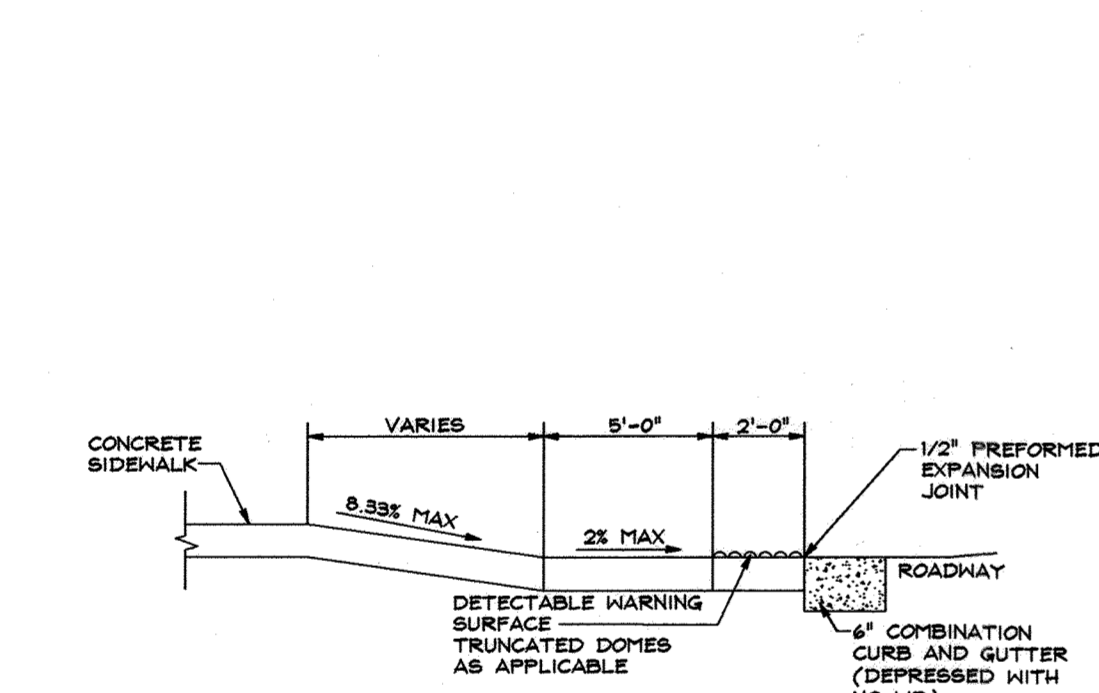
**J NOSE DOWN DETAIL (R-3.02)**  
6 N.T.S.



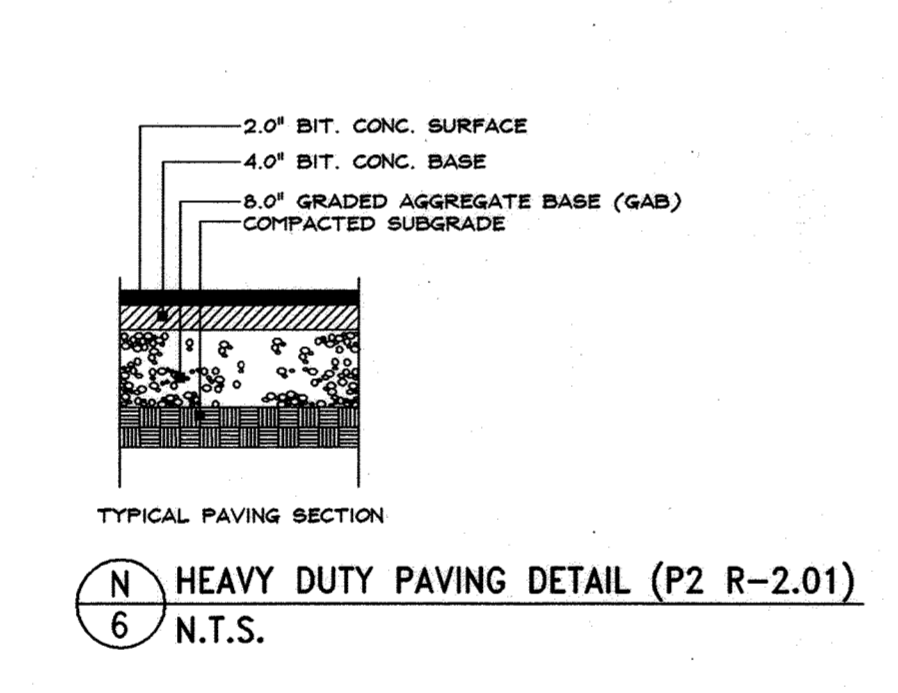
**K CONCRETE WHEELSTOP (OR EQUIVALENT)**  
6 N.T.S.



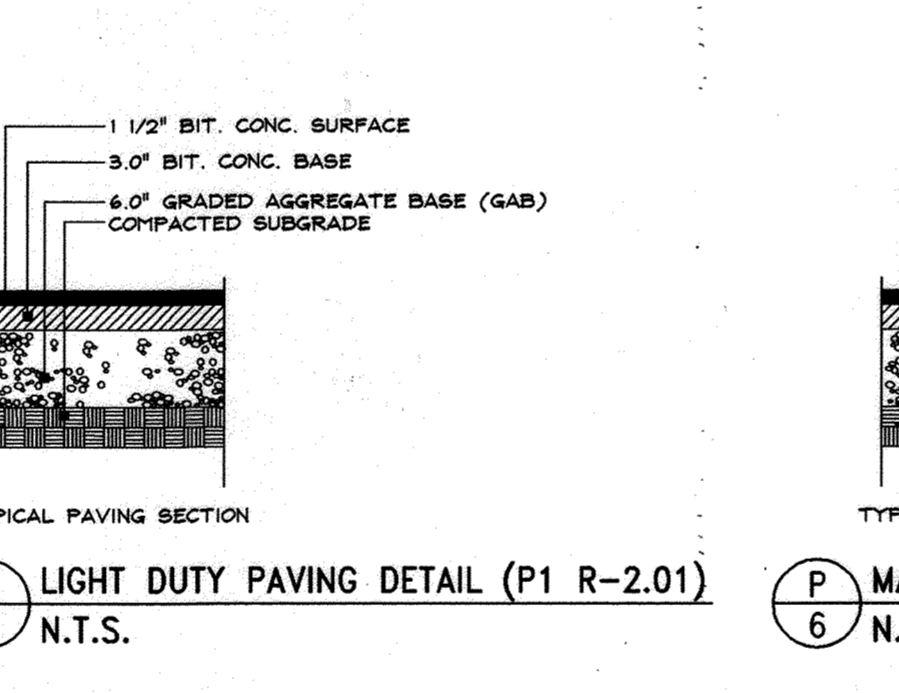
**L STEEL BOLLARD (OR EQUIVALENT)**  
6 N.T.S.



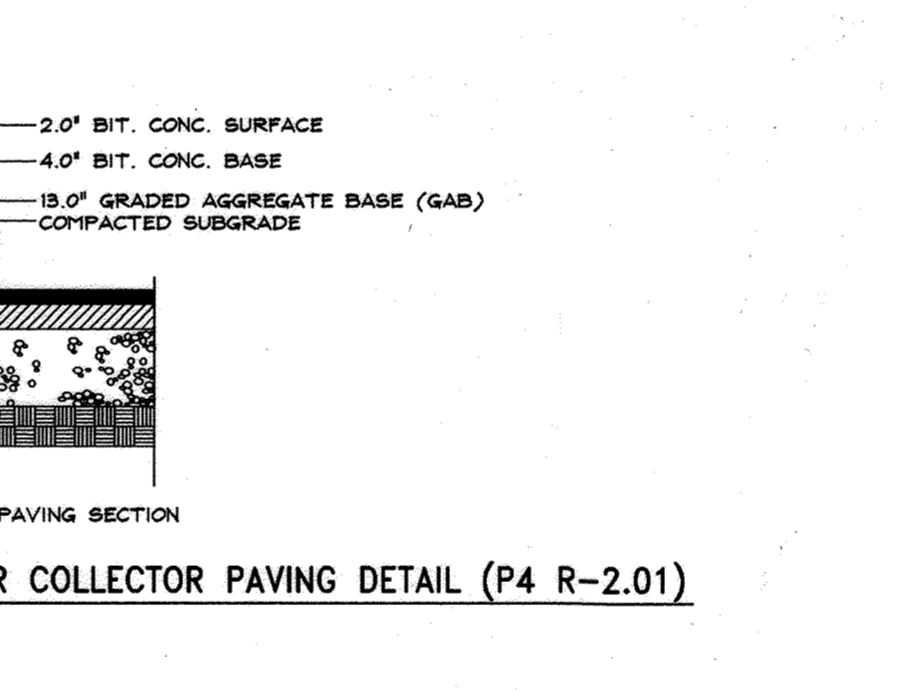
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6 N.T.S.



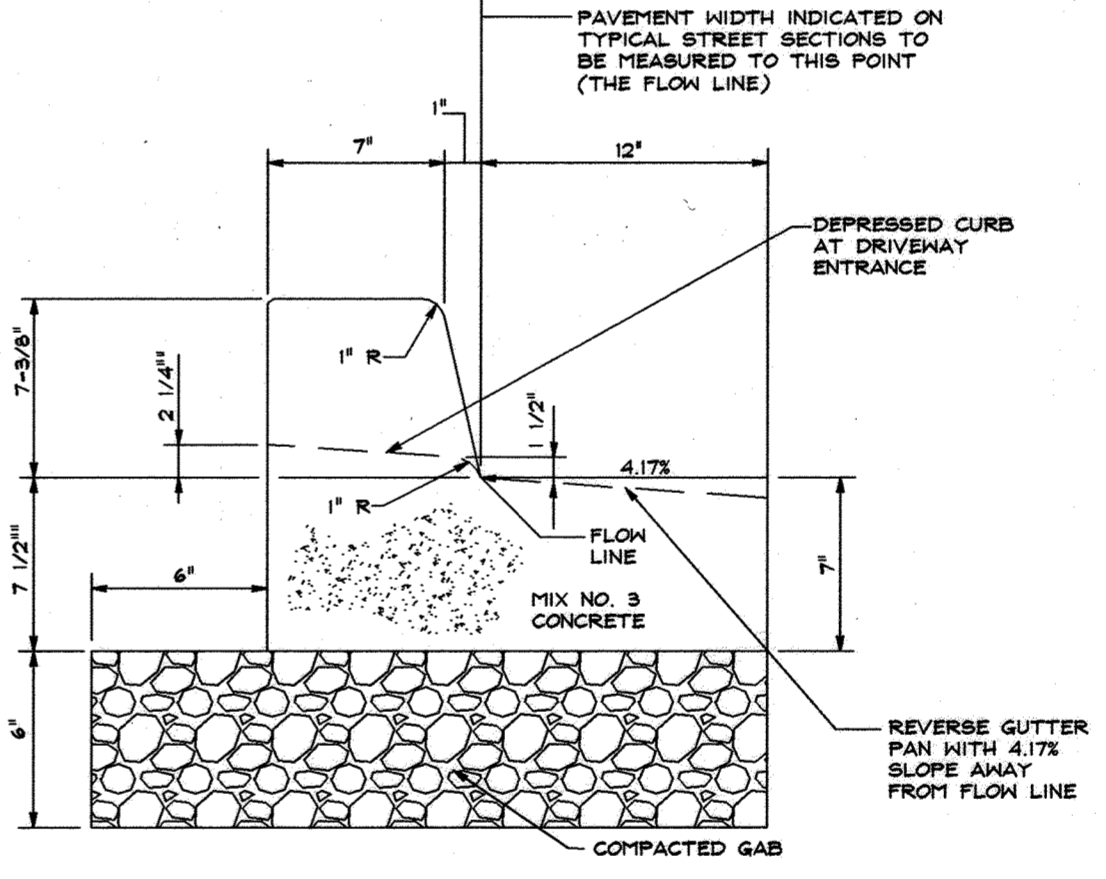
**N HEAVY DUTY PAVING DETAIL (P2 R-2.01)**  
6 N.T.S.



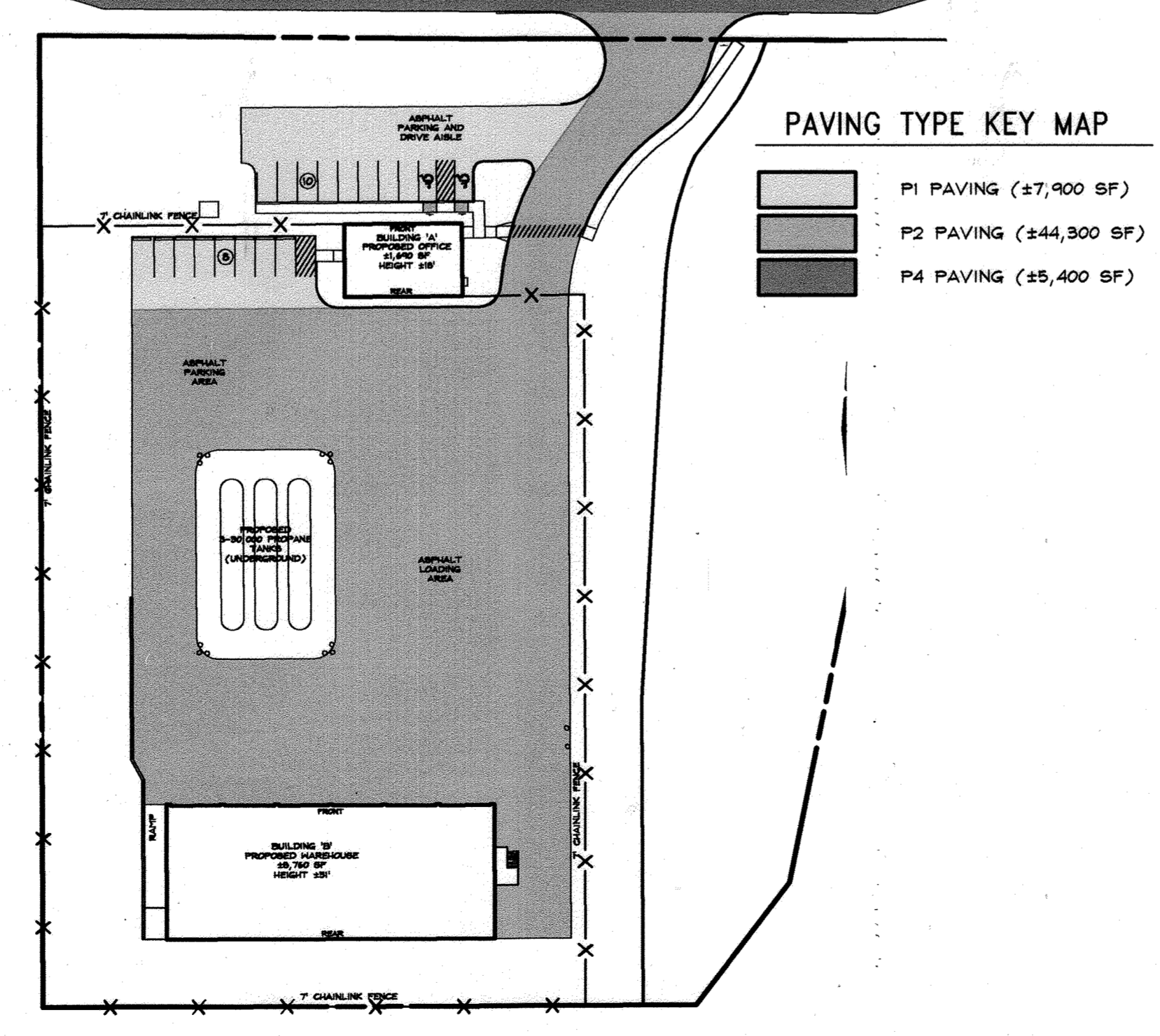
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6 N.T.S.



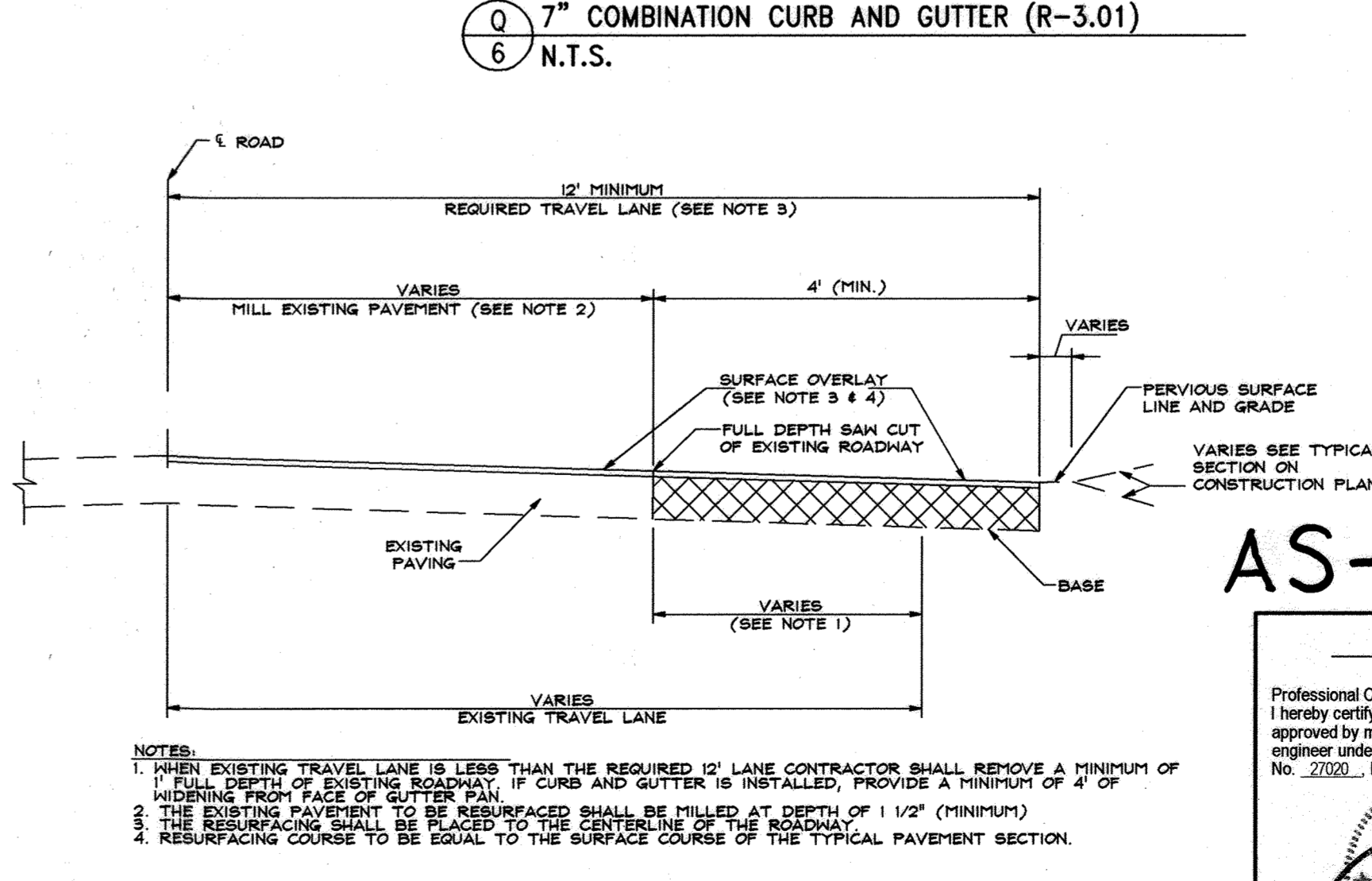
**P MAJOR COLLECTOR PAVING DETAIL (P4 R-2.01)**  
6 N.T.S.



**Q 7\"/>**



**R EXISTING ROADWAY WIDENING STRIP (R-1.08)**  
6 N.T.S.



**S 7\"/>**

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 5/7/13  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
 [Signature] 5/14/13  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 [Signature] 5/14/13  
 DIRECTOR DATE

**AS-BUILT**  
 4/23/13  
 DATE  
 Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020, Expired Date 12/31/14.  
 [Signature]  
 PAUL G. CAVANAUGH  
 P.E. 27020

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**DDC**  
 Development Design Consultants

OWNER:  
 SMITH DORSEY RUN ROAD, LLC.  
 ROBERT SMITH  
 6011 UNIVERSITY BLVD., STE. 350  
 ELLICOTT CITY, MD 21043  
 (443)540-4275  
 DEVELOPER:  
 MEADOWOOD-DORSEY RUN, LLC.  
 THOM MCKEE  
 1202 SHADY CREEK ROAD  
 MARRIOTTSVILLE, MD 21104  
 (410)489-5080

SITE ADDRESS:  
 8101 DORSEY RUN ROAD  
 JESSUP, MD 20794  
**AMERIGAS**  
**DORSEY WOODS PARCEL 'B'**  
**PROPOSED OFFICE AND WAREHOUSE**  
**SITE PLAN**  
**DETAILS**

6TH ELECTION DISTRICT		HOWARD COUNTY, MD	
REVISIONS			
NO.	DESCRIPTION OF CHANGES	DRN.	REV. DATE
1	ADDED SHEETS 15 & 16	J.L.	P.C. 3-24
PLAT #:	22354	DES. BY:	BKC
TAX ACC. #:	1406399924	DRN. BY:	BKC
TAX MAP:	48	CHK. BY:	PGC
BLOCK / GRID:	2	DATE:	4/23/13
PARCEL #:	134 / B	DDC JOB#:	11085.1
ZONE / USE:	M-2	SHEET NUMBER:	
DWG. SCALE:	AS SHOWN		6 of 16



N/F  
DORSEY WOODS, LLC.  
LIBER MDR 8584, FOLIO 37  
PARCEL "A" DORSEY WOODS  
PLAT NO. 21046  
ZONED M2  
USE: INDUSTRIAL

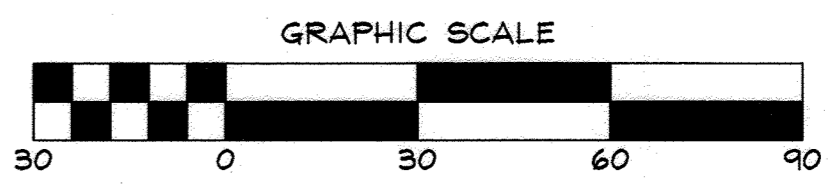
STORM DRAIN STRUCTURE SCHEDULE						
NO.	TYPE	DETAIL	INV. IN	INV. OUT	RIM	LOCATION
I-1**	TYPE 'D'	D-4.11	-	176.97	RIM=181.55 WEIR=180.75	N 539701.70 E 1372285.91
I-2*	YARD	D-4.14	-	176.63	GRATE=179.50	N 539717.10 E 1372276.22
ES-1**	15" HDPE END SECTION	***	173.21	172.94	-	N 539735.83 E 1372364.88
ES-2*	15" RCP END SECTION	D-5.51	173.04	172.82	-	N 539768.45 E 1372354.60

\*TO BE PUBLICLY MAINTAINED.  
\*\*TO BE PRIVATELY MAINTAINED.  
\*\*\*END SECTION TO BE ADS FLARED END SECTION OR APPROVED EQUAL.

DRAINAGE AREA COMPS			
DA	"C" FACTOR	% IMPERVIOUS	ACRES
1(1-1)	0.49	40%	0.50
2(1-2)	0.57	53%	0.77

PIPE SCHEDULE		
SIZE(IN.)	CATEGORY	LINEAR FT
15"	RCP	98
15"	HDPE	87

SOILS CHART			
CODE (CLASS)	NAME	HYDRIC (Y/N/INCL.)	K VALUE
Ud(D)	URBAN LAND-UDORTHEM'S COMPLEX	N	0.30
	IMPERVIOUS AREA		1.60 AC.



DATA SOURCES:  
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83 (FRI), NAVD-88. EXISTING ON-SITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

**DDC**  
Development Design Consultants

Planners  
Surveyors  
Engineers  
Landscape Architects

192 East Main Street  
Westminster, MD 21157  
410.386.0560  
410.386.0564 (Fax)  
DDC@DDCinc.us  
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JESSUP, MD 20794

AMERIGAS  
DORSEY WOODS PARCEL 'B'  
PROPOSED OFFICE AND WAREHOUSE  
**STORM DRAIN  
DRAINAGE AREA MAP**  
6TH ELECTION DISTRICT HOWARD COUNTY, MD

**AS-BUILT**

4/23/13  
DATE

Professional Certification  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 27002, Expiration Date 03-25-14.

**PAUL G. CAVANAUGH**  
P.E. 27020

REVISIONS		NBA	PGC	DATE
1	REDLINE REVISION TO SHEET TANKS, RELOCATE RAMP AND INCLUDE MASS GRADING			7/12/13
2	ADDED SHEETS 15 B 16	J.L.	P.C.	3-24

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
PLAT #	22354	DES. BY:	BKC	
TAX ACC. #	1406399924	DRN. BY:	CTS	
TAX MAP:	48	CHK. BY:	PGC	
BLOCK / GRID:	2	DATE:	4/23/13	
PARCEL #	134/B	DDC JOB#:	11085.1	
ZONE / USE:	M-2	SHEET NUMBER:		
DWG. SCALE:	1"=30'			7 of 16

SEE MATCHLINE THIS SHEET

SEE MATCHLINE THIS SHEET

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

*Paul G. Cavanaugh* 4/23/13  
DEVELOPER DATE

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

*Paul G. Cavanaugh* Apr 23, 2013  
ENGINEER DATE

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

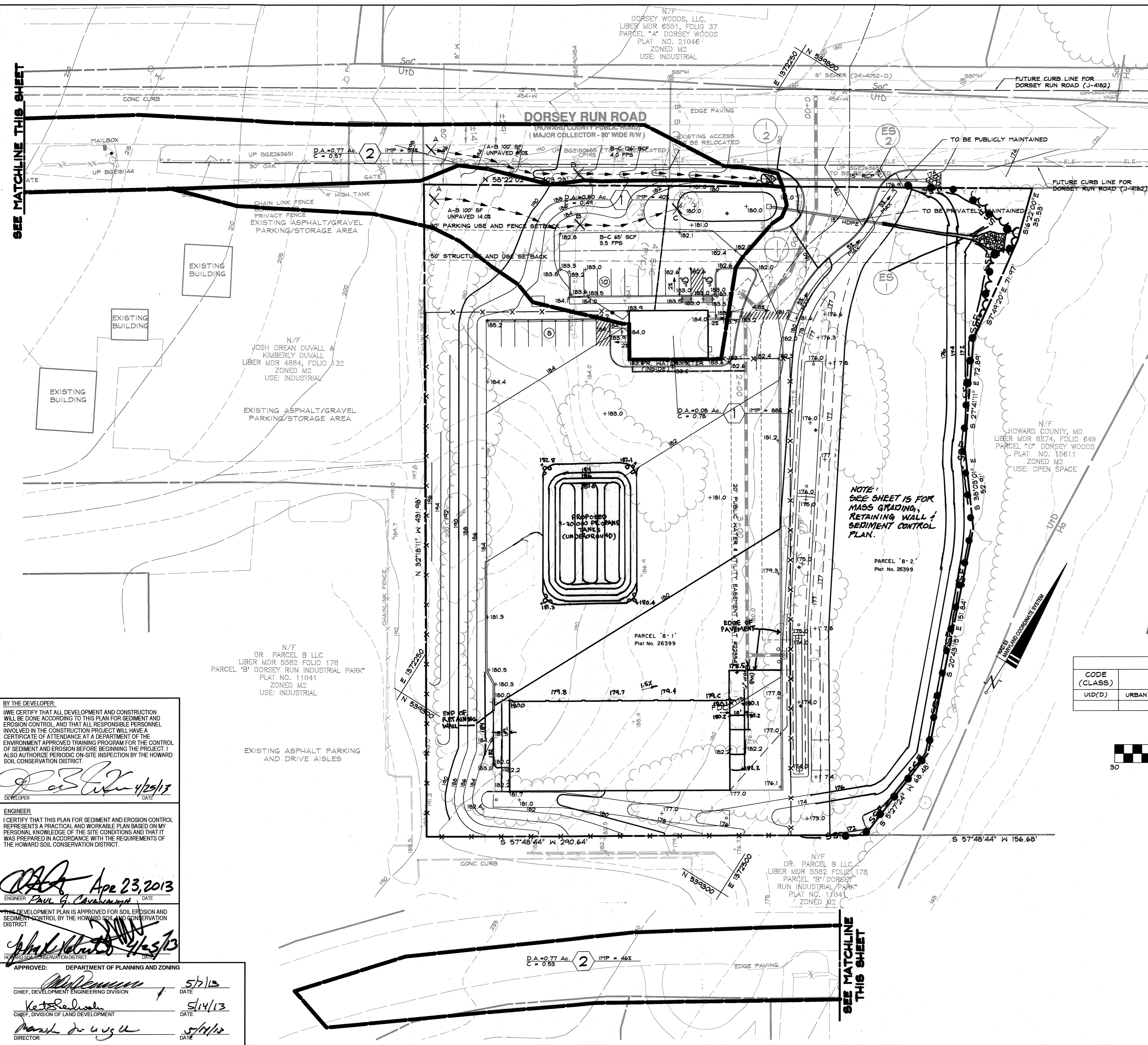
*Paul G. Cavanaugh* 4/23/13  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

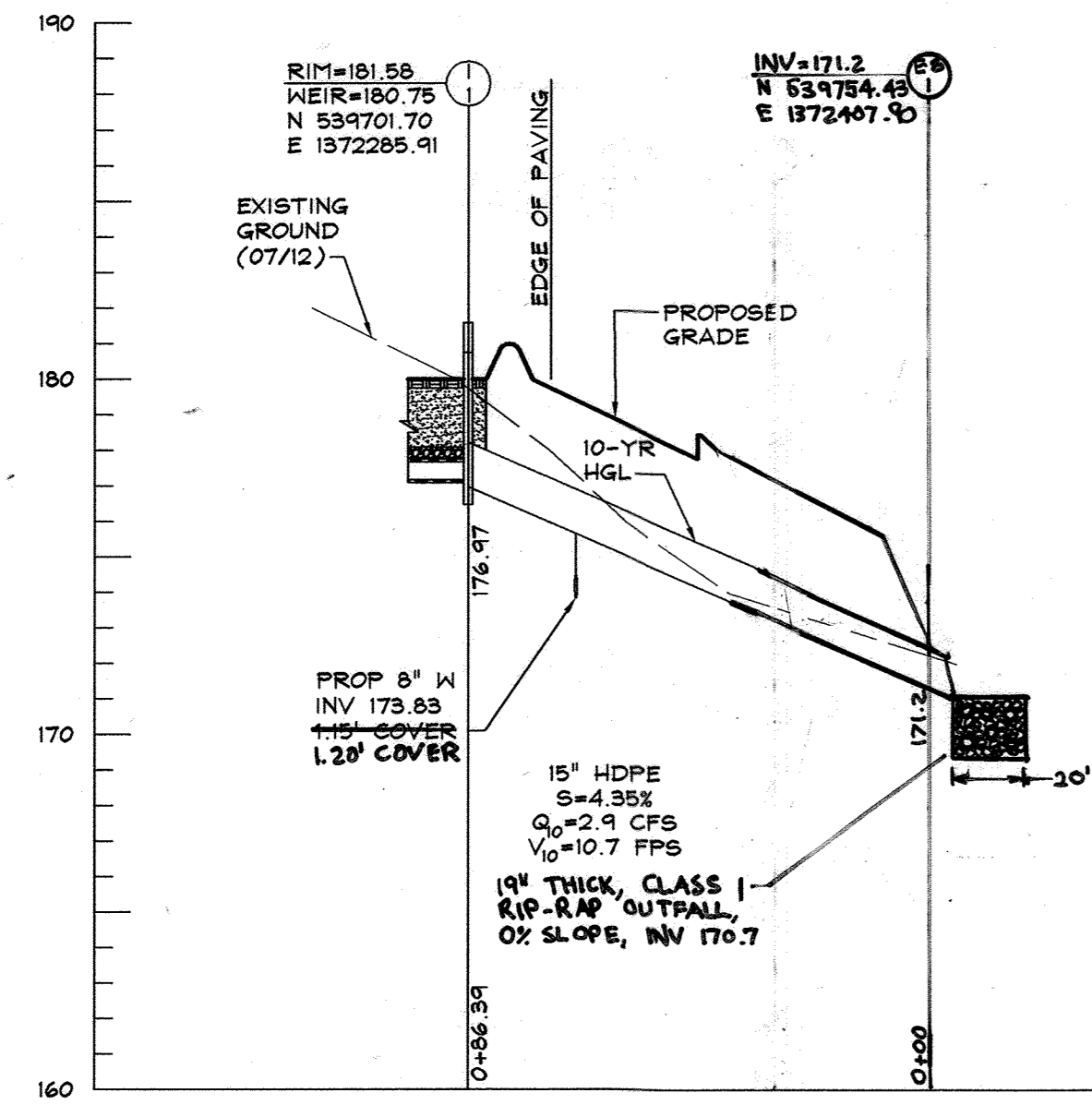
*Paul G. Cavanaugh* 5/7/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Kate Radwin* 5/14/13  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

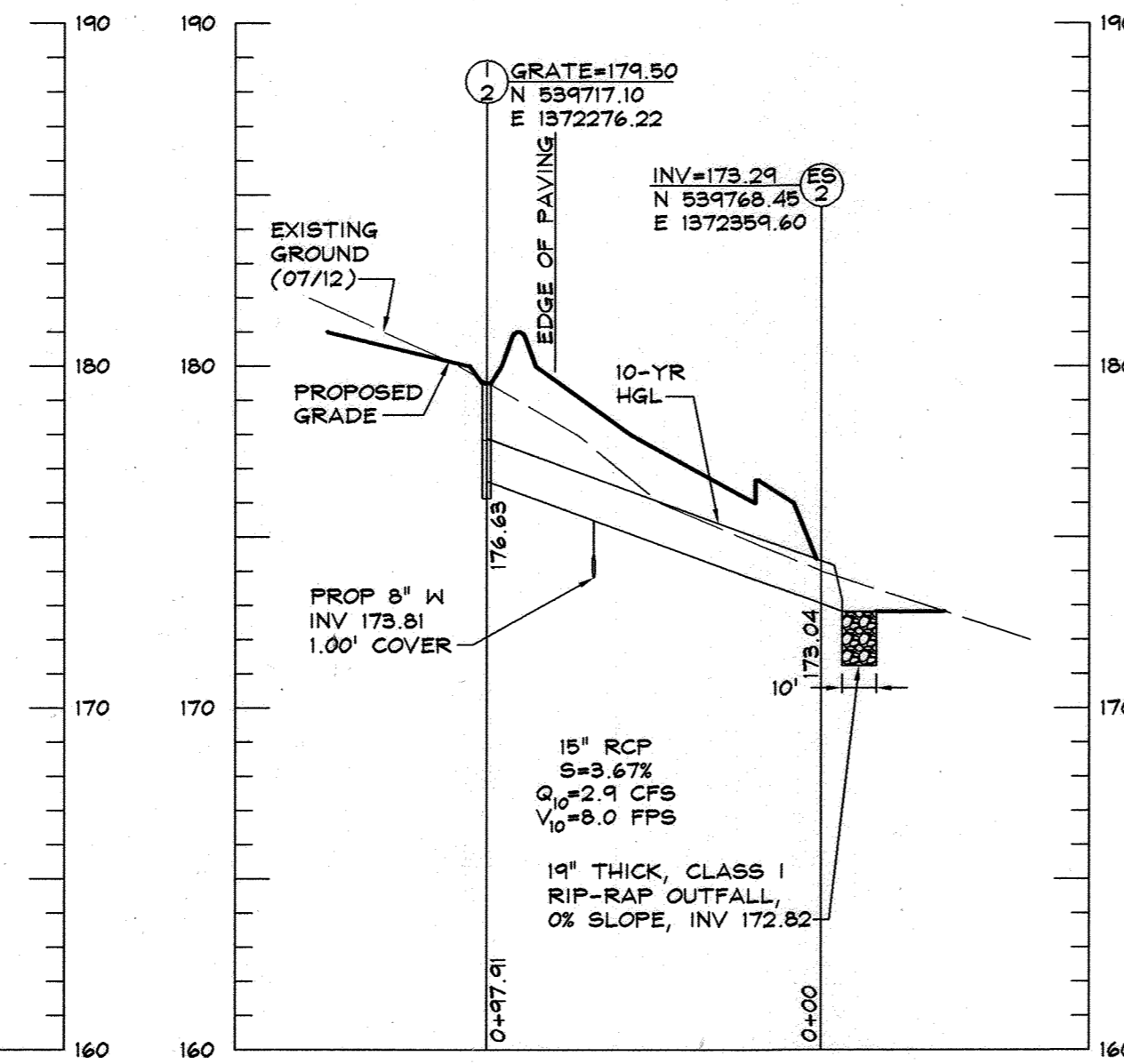
*Mark de Vey* 5/14/13  
DIRECTOR DATE



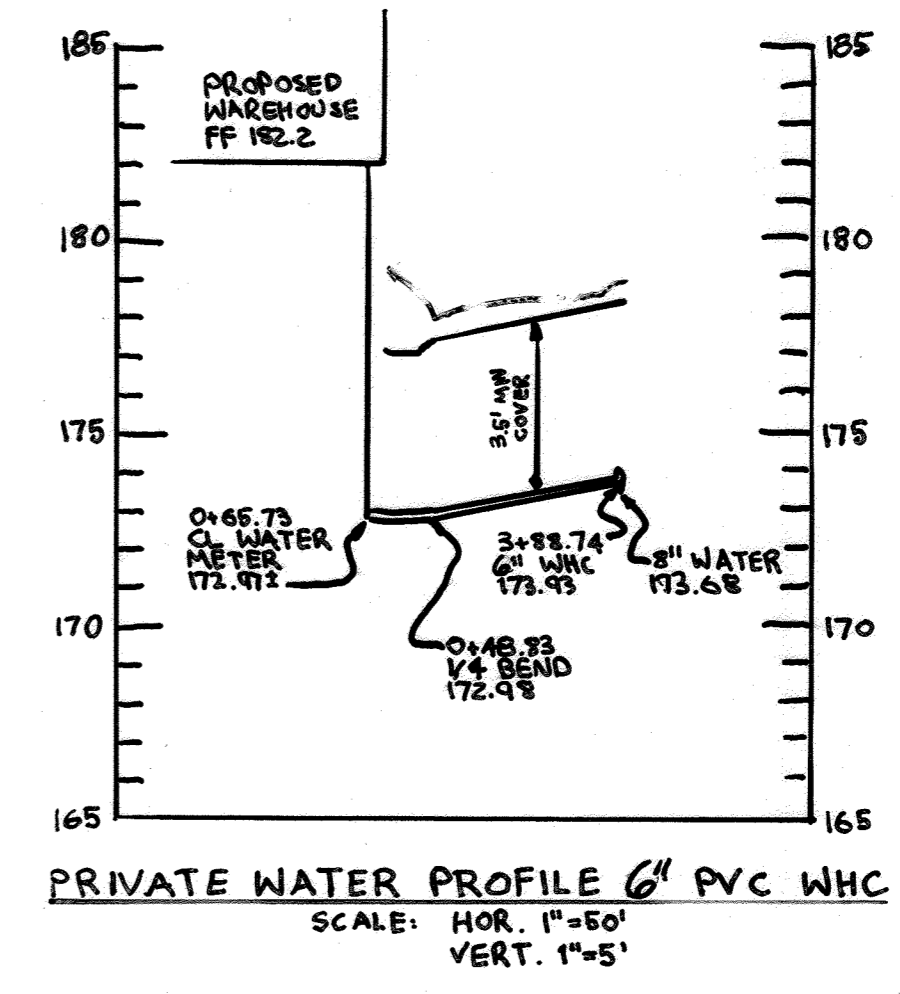




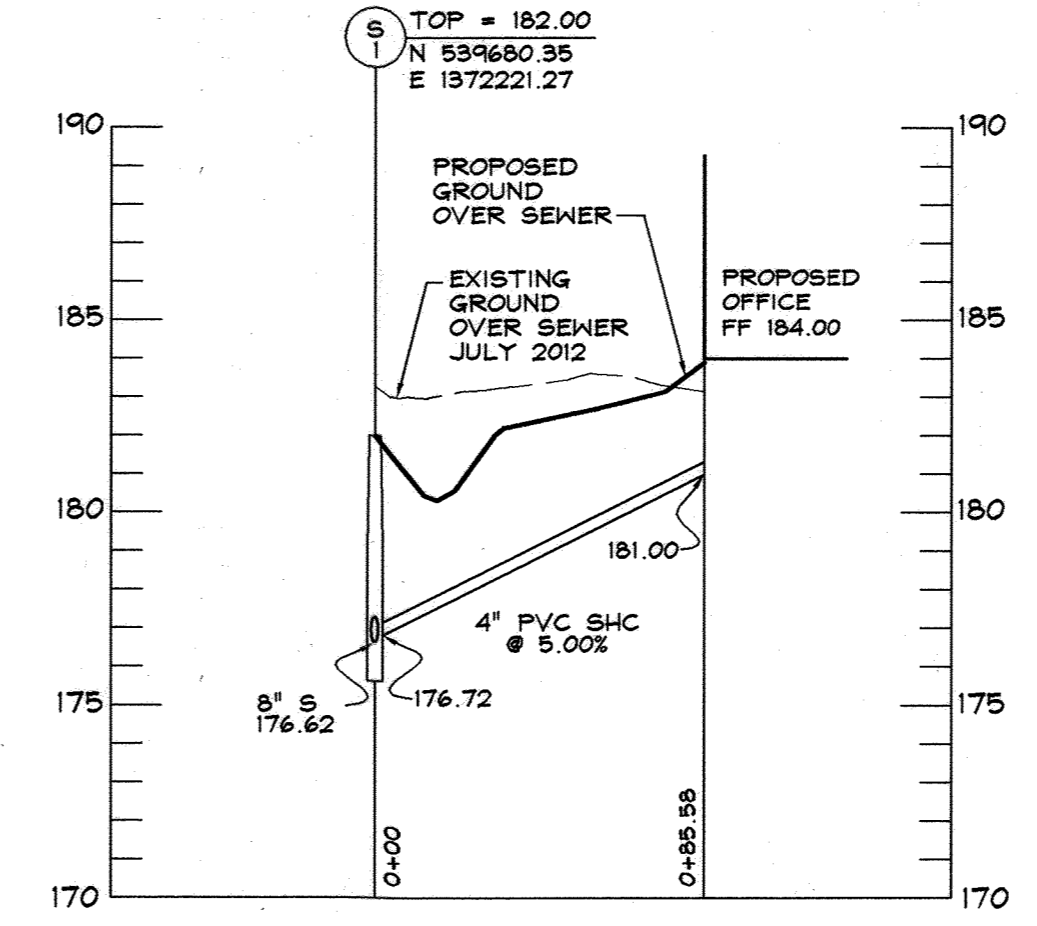
PRIVATE STORM DRAIN PROFILE  
1-1 TO ES-1  
TO BE PRIVATELY OWNED AND MAINTAINED  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



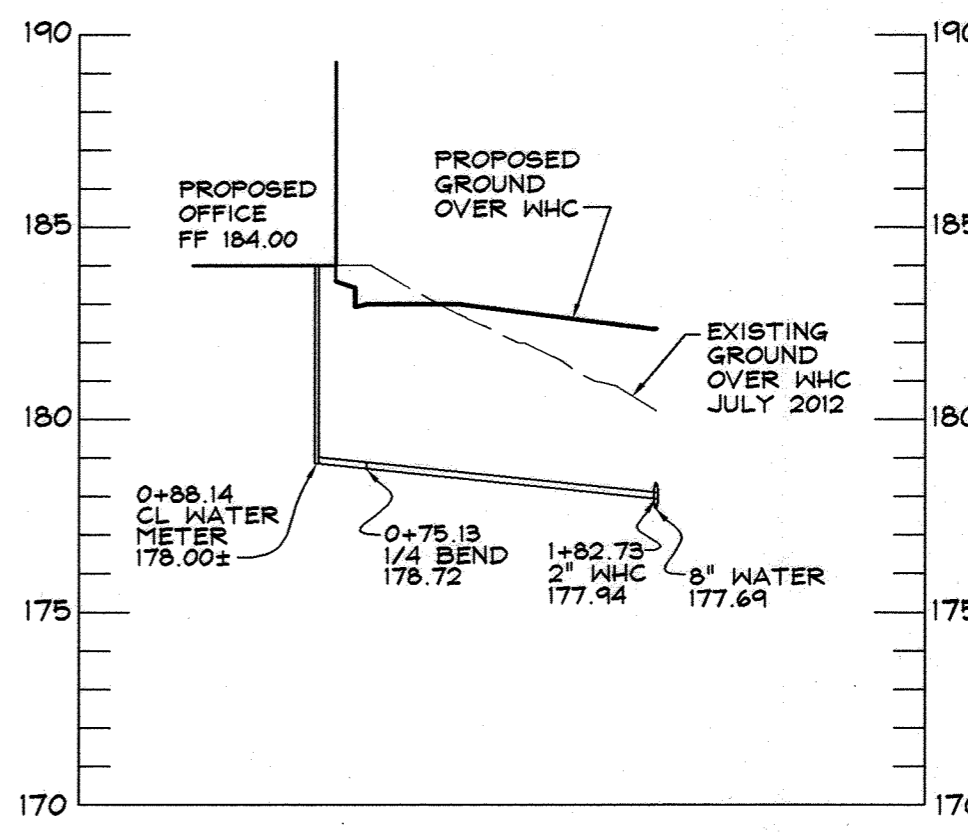
PUBLIC STORM DRAIN PROFILE  
1-2 TO ES-2  
TO BE PUBLICLY OWNED AND MAINTAINED  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



PRIVATE WATER PROFILE 6" PVC WHC  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



PRIVATE SEWER PROFILE 4" PVC SHC  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'



PRIVATE WATER PROFILE 2" Copper WHC  
SCALE: HORIZ. 1"=50'  
VERT. 1"=5'

NOTE:  
ALL PIPES IN FILL ARE TO BE  
CONSTRUCTED PER AASHTO T-180  
SPECIFICATIONS.

DATA SOURCES:  
EXISTING OFFSITE TOPOGRAPHY SHOWN PER  
HOWARD COUNTY OIT/GIS, BASED ON MARYLAND  
COORDINATE SYSTEM, NAD-83(1981), NAVD-88.  
EXISTING ON-SITE TOPOGRAPHY AND BOUNDARY  
SHOWN PER FIELD RUN SURVEY PERFORMED BY  
PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY  
2012. EXISTING SOILS SHOWN PER USDA WEB SOIL  
SURVEY.

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

*Paul G. Cavanaugh* 4/23/13  
DEVELOPER DATE

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

*Paul G. Cavanaugh* Apr 23, 2013  
ENGINEER DATE

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

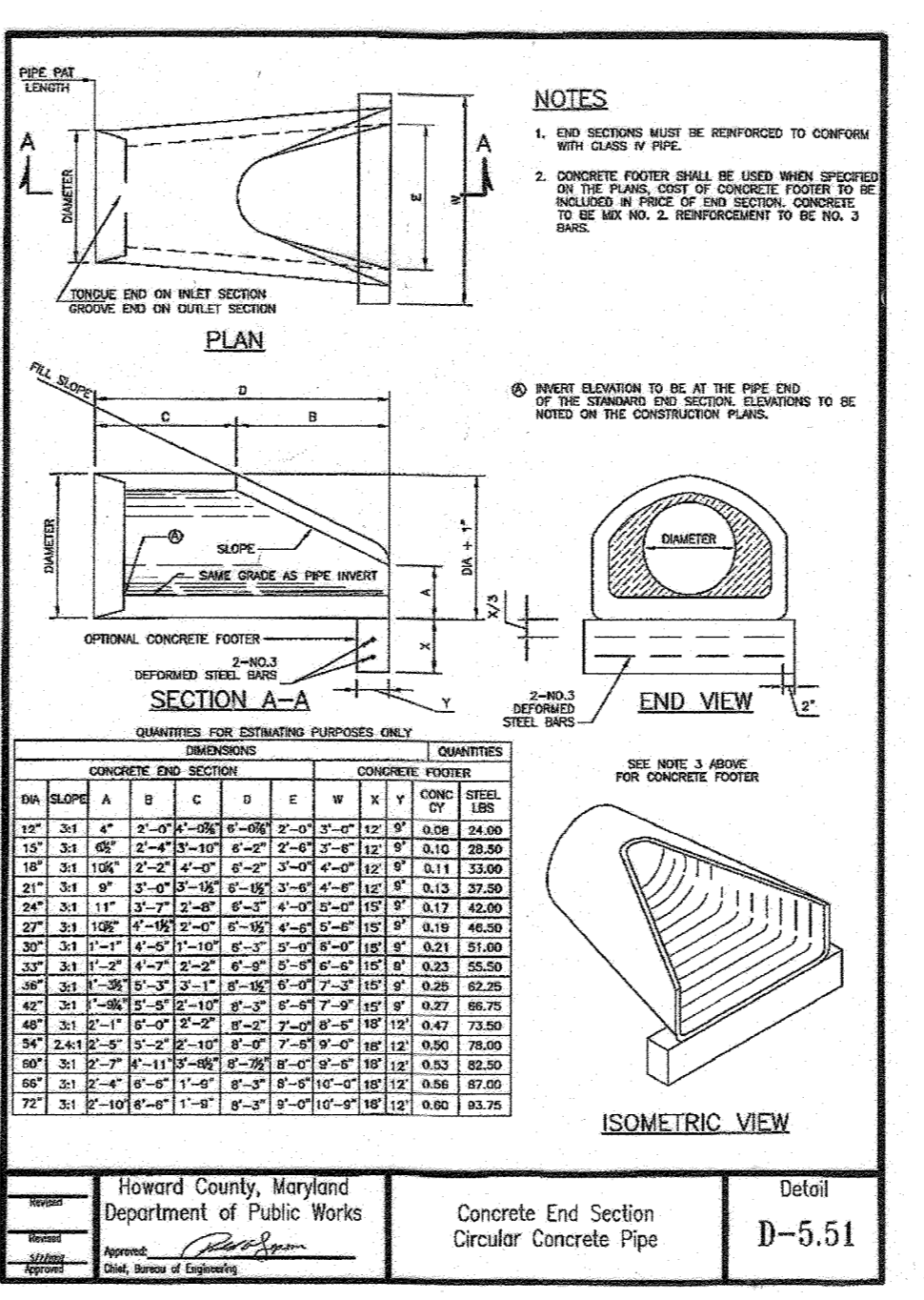
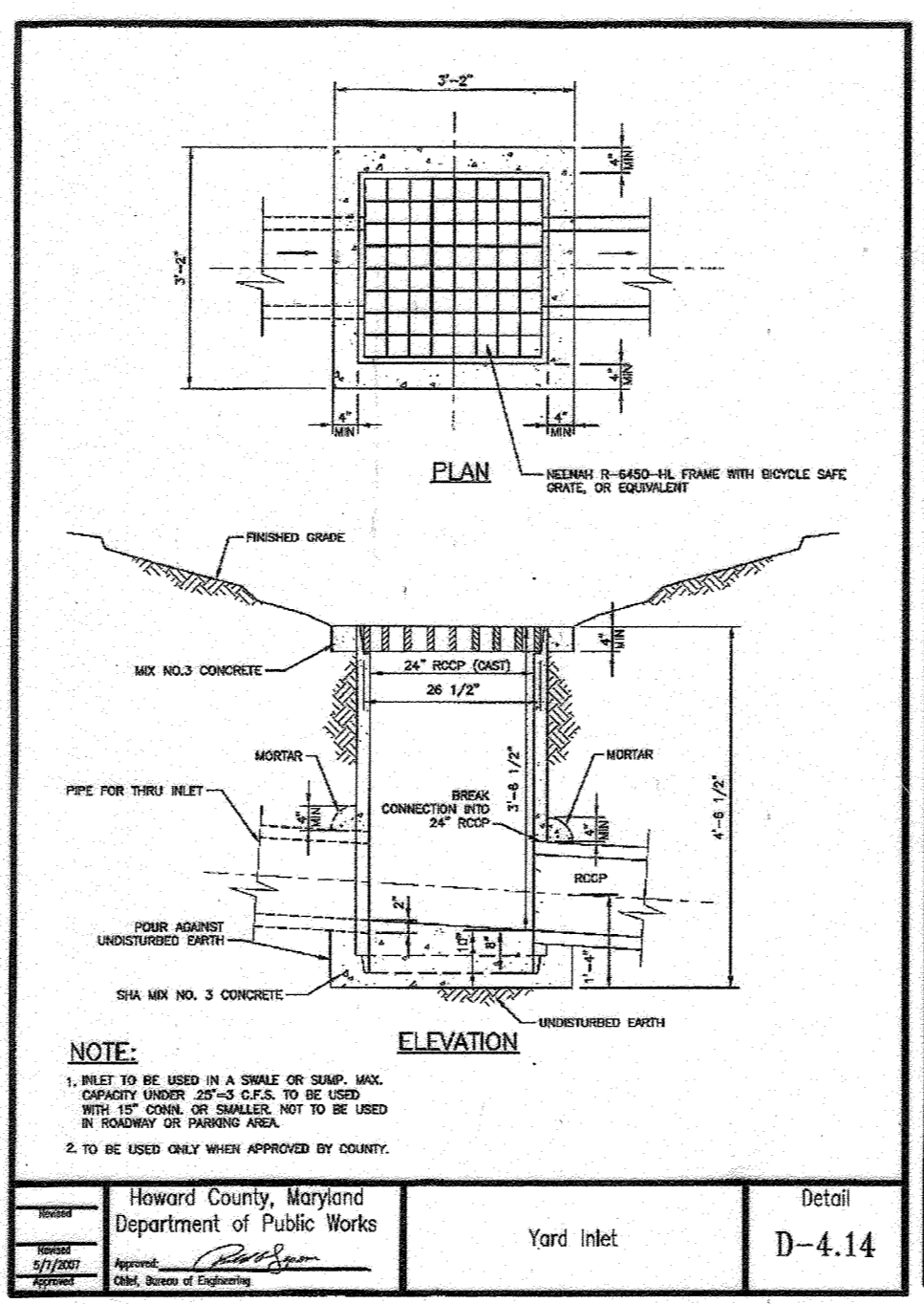
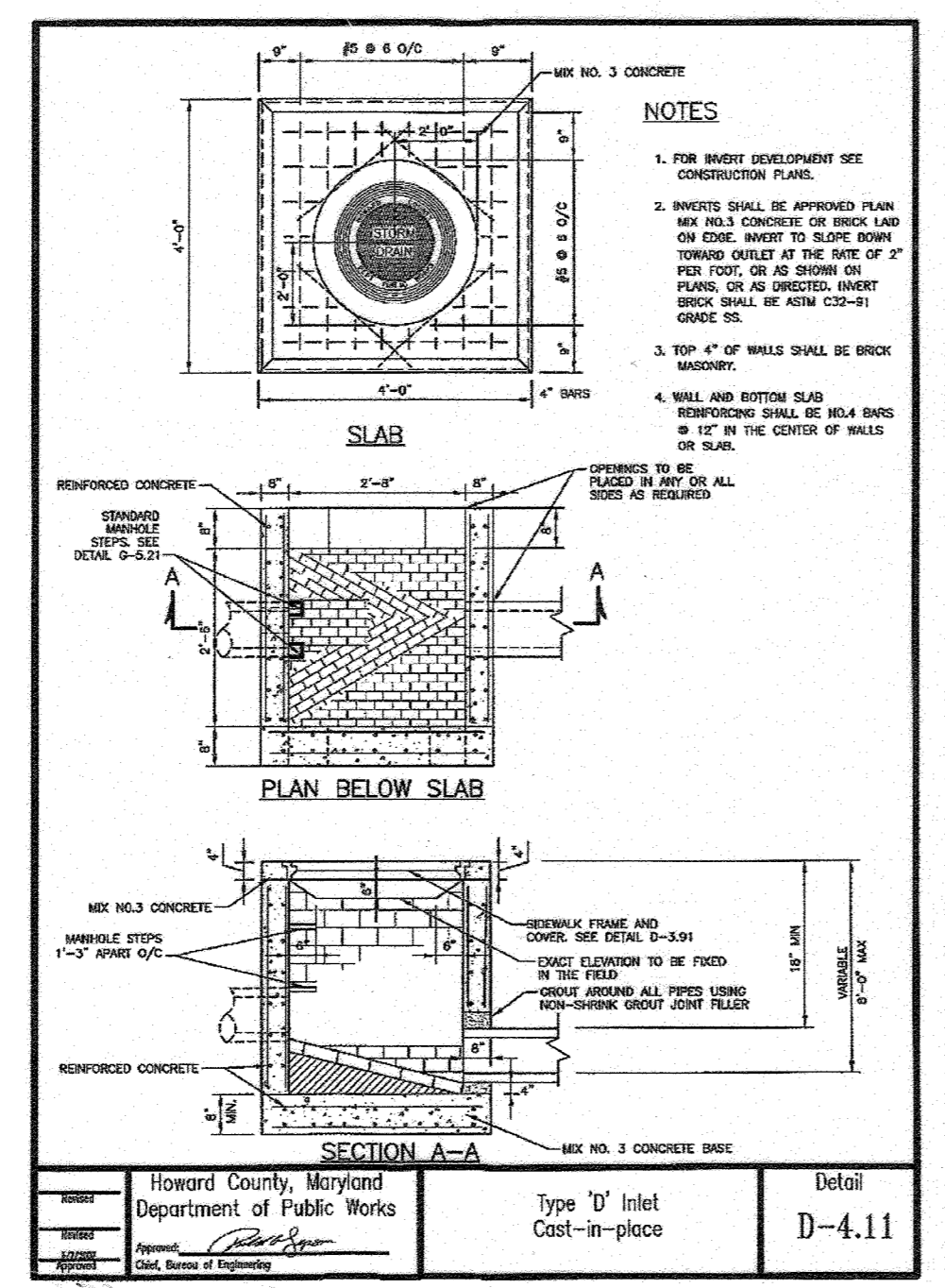
*John A. Blanton* 4/23/13  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*William J. ...* 5/7/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Kevin ...* 5/14/13  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*David ...* 5/14/13  
DIRECTOR DATE



Planners  
Surveyors  
Engineers  
Landscape Architects

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**DDC**  
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SITE ADDRESS:  
8101 DORSEY RUN ROAD  
JESSUP, MD 20794

AMERIGAS  
DORSEY WOODS PARCEL 'B'  
PROPOSED OFFICE AND WAREHOUSE  
**STORM DRAIN  
PROFILES AND  
DETAILS**  
6TH ELECTION DISTRICT HOWARD COUNTY, MD

AS-BUILT

4/23/13  
DATE

Professional Certification  
I hereby certify that these documents were prepared or  
approved by me, and that I am a duly licensed professional  
engineer under the laws of the State of Maryland, License  
No. 27200. Expiration Date: 11-25-14

*Paul G. Cavanaugh*  
PAUL G. CAVANAUGH  
P.E. 27200

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
1	REDEFINE REVISION TO SHIFT TANKS, RELOCATE RAMP AND INCLUDE MASS GRADING	NBA	REV	4/23/13
2	ADDED SHEETS 15 & 16	J.L.	P.C.	3-24

PLAT #: 22354  
TAX ACC. #: 140639924  
TAX MAP: 48  
BLOCK / GRID: 2  
PARCEL #: 134 / B  
ZONE / USE: M-2

DES. BY: CTS/LJC  
DRN. BY: CTS/LJC  
CHK. BY: PGC  
DATE: 4/23/13  
DDC JOB#: 11085.1  
SHEET NUMBER:  
8 of 16

DWG. SCALE: AS SHOWN



SWM SUMMARY TABLE			
	F-6 BIORETENTION 1	M-6 MICRO-BIORETENTION 2	M-8 BIO-SHALE 1
FACILITY OWNERSHIP/MAINT.	PRIVATE	PRIVATE	PRIVATE
OWNER NAME	AMERIGAS	AMERIGAS	AMERIGAS
DRAINAGE AREA TO FACILITY (Ac)	2.00	0.55	0.39
ESDy REQUIRED (cu-ft)	4,692	848	-
ESDy PROVIDED (cu-ft)	6,245	1,379	-
Pe REQUIRED (in)	1.8	1.6	1.8
Pe PROVIDED (in)	1.8	1.6	1.8
1-YR STORM, EXISTING AT D/F (cfs)	1.6	5.0	1.2
1-YR STORM, PR OUTFLOW (cfs)	1.6	1.2	1.6
10-YR STORM, PR OUTFLOW (cfs)	175.87	180.08	-
100-YR STORM, PR OUTFLOW (cfs)	177.24	180.08	-
100-YR STORM, PR OUTFLOW (cfs)	2.0	4.3	5.9
100-YR WATER SURFACE ELEV (ft)	178.15	180.11	-

TABLE B.4.1 Materials Specifications for Micro-Bio-retention, Rain Gardens, & Landscape Infiltration			
Material	Specification	Size	Notes
Plantings	see Appendix A, Table A.4	n/a	plantings are site-specific
Planting soil (2' to 4' deep)	loamy sand (60-65%) & compost (35-40%) or sandy loam (30%) coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content <5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type 1 nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
Underdrain piping	F 758, Type PB 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipe; not necessary underneath pipes. Perforated pipe shall be wrapped with 1/4" galvanized hardware cloth.
Poured in place concrete (if required)	MSHA Mix No. 3; f'c=3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 305/R/89; vertical loading [H-10 or H-20]; allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystones (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

**CONSTRUCTION SPECIFICATIONS FOR MICRO-BIORETENTION, RAIN GARDENS, LANDSCAPE INFILTRATION & INFILTRATION BERMS**

1. **Material specifications**  
The allowable materials to be used in these practices are detailed in Table B.4.1.

2. **Filtering Media or Planting Soil**  
The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bio-retention practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 19.06.01.05.

The planting soil shall be tested and shall meet the following criteria:  
- Soil Component - Loamy Sand or Sandy Loam (USDA Soil Textural Classification)  
- Organic Content - Minimum 10% by dry weight (ASTM D 2974). In general, this can be met with a mixture of loamy sand (60-65%) and compost (35-40%) or sandy loam (30%), coarse sand (30%), and compost (40%).  
- Clay Content - Media shall have a clay content of less than 5%.  
- pH Range - Should be between 5.5 - 7.0. Amendments (e.g., lime, iron sulfate plus sulfur) may be mixed into the soil to increase or decrease pH.

There shall be at least one soil test per project. Each test shall consist of both the standard soil test for pH, and additional tests of organic matter, and soluble salts. A textual analysis is required from the site stockpiled topsoil. If topsoil is imported, then a textual analysis shall be performed for each location where the topsoil was excavated.

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

*Paul G. Cavanaugh* 4/23/13  
DEVELOPER DATE

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

*Paul G. Cavanaugh* Apr 23, 2013  
ENGINEER DATE

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

*[Signature]*  
HOWARD SOIL CONSERVATION DISTRICT DATE

**APPROVED: DEPARTMENT OF PLANNING AND ZONING**

*[Signature]* 5/7/13  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*[Signature]* 5/14/13  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*[Signature]* 5/14/13  
DIRECTOR DATE

1. **Compaction**  
It is very important to minimize compaction of both the base of bio-retention practices and the required backfill. When possible, use excavation hoists to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bio-retention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bio-retention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base.

When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When backfilling the bio-retention facility, place soil in lifts 12" to 18". Do not use heavy equipment within the bio-retention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bio-retention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

2. **Plant Material**  
Recommended plant material for micro-bio-retention practices can be found in Appendix A, Section A.2.3.

3. **Plant Installation**  
Compost is a better organic material source, is less likely to float, and should be placed in the invert and other low areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bio-retention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

Rootstock of the plant material shall be kept moist during transport and on-site storage. The plant root ball should be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting process. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" by 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

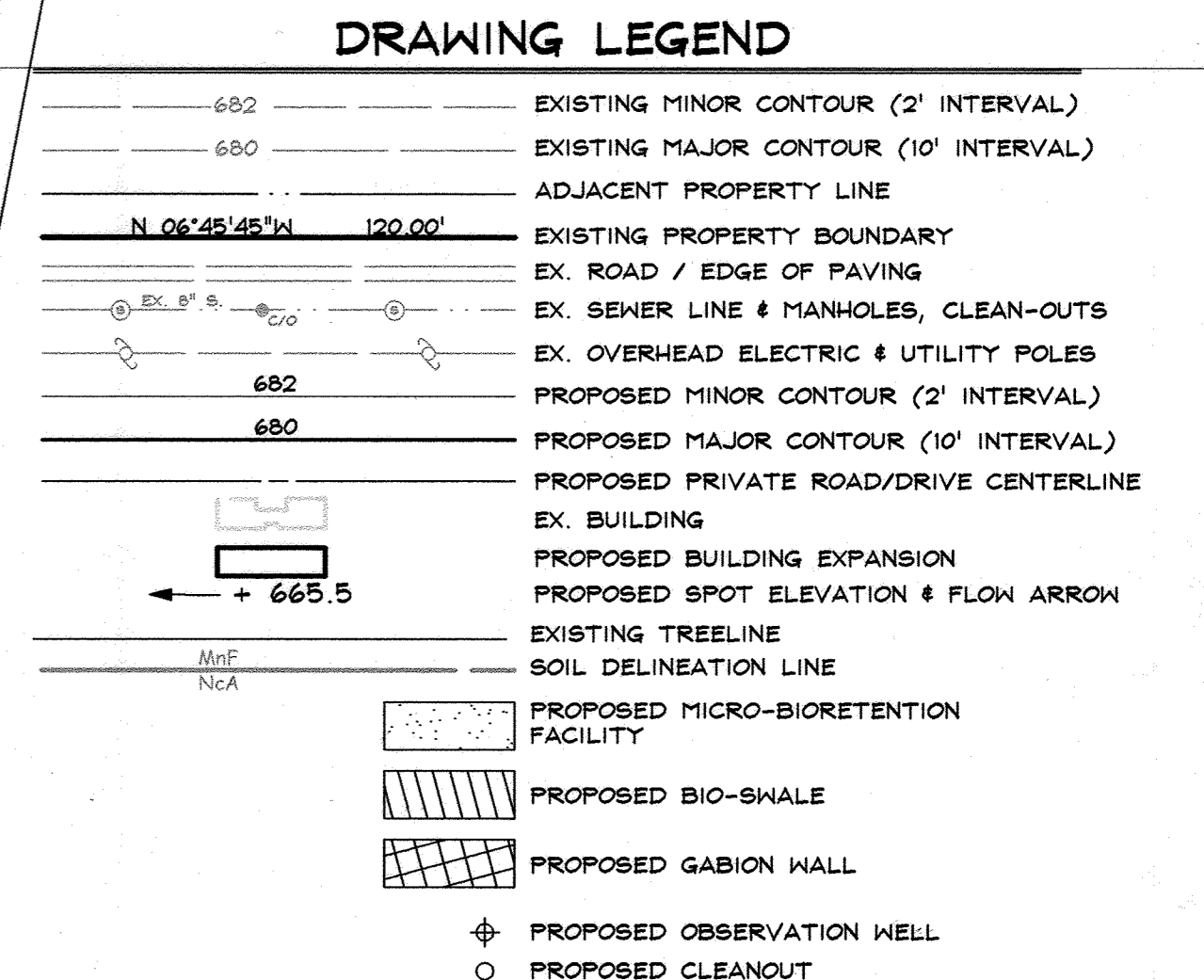
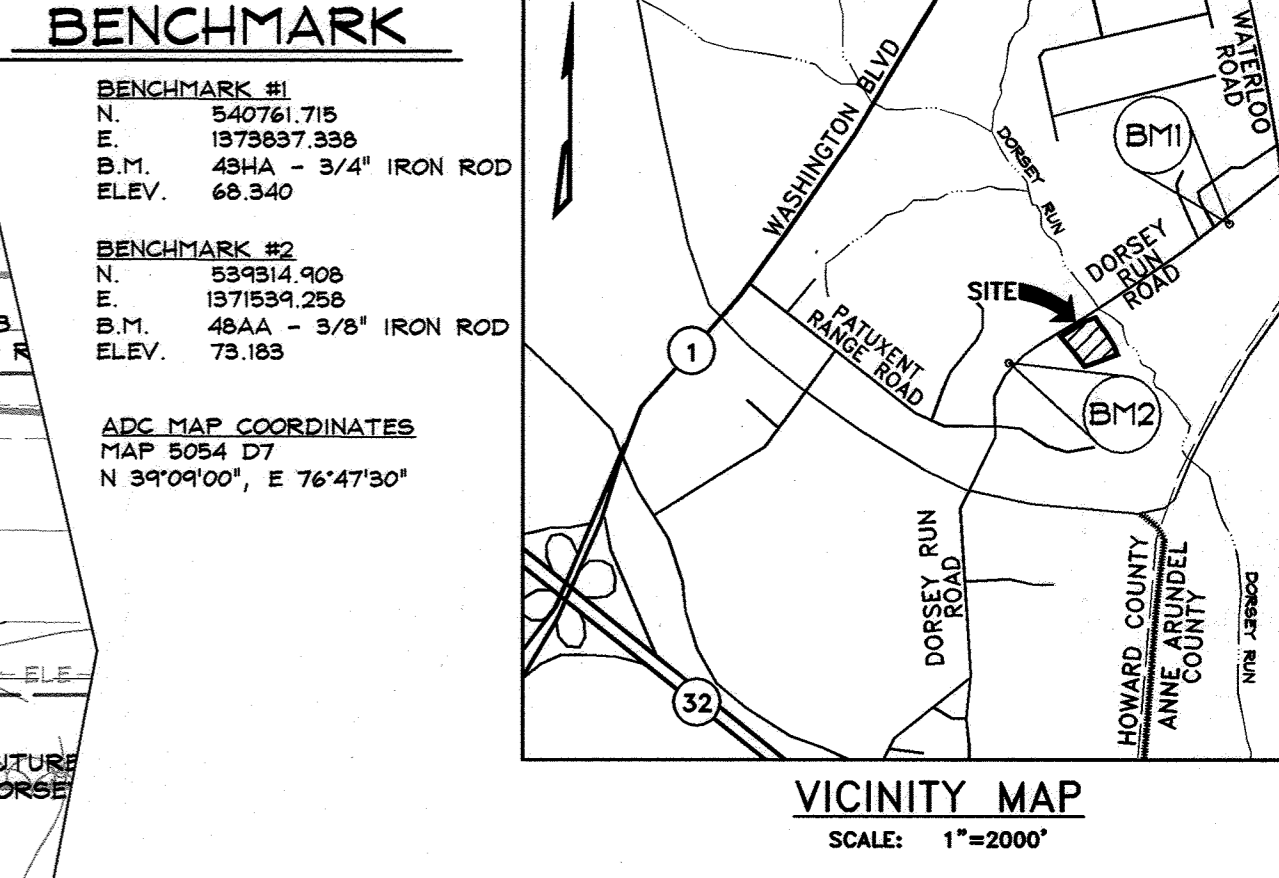
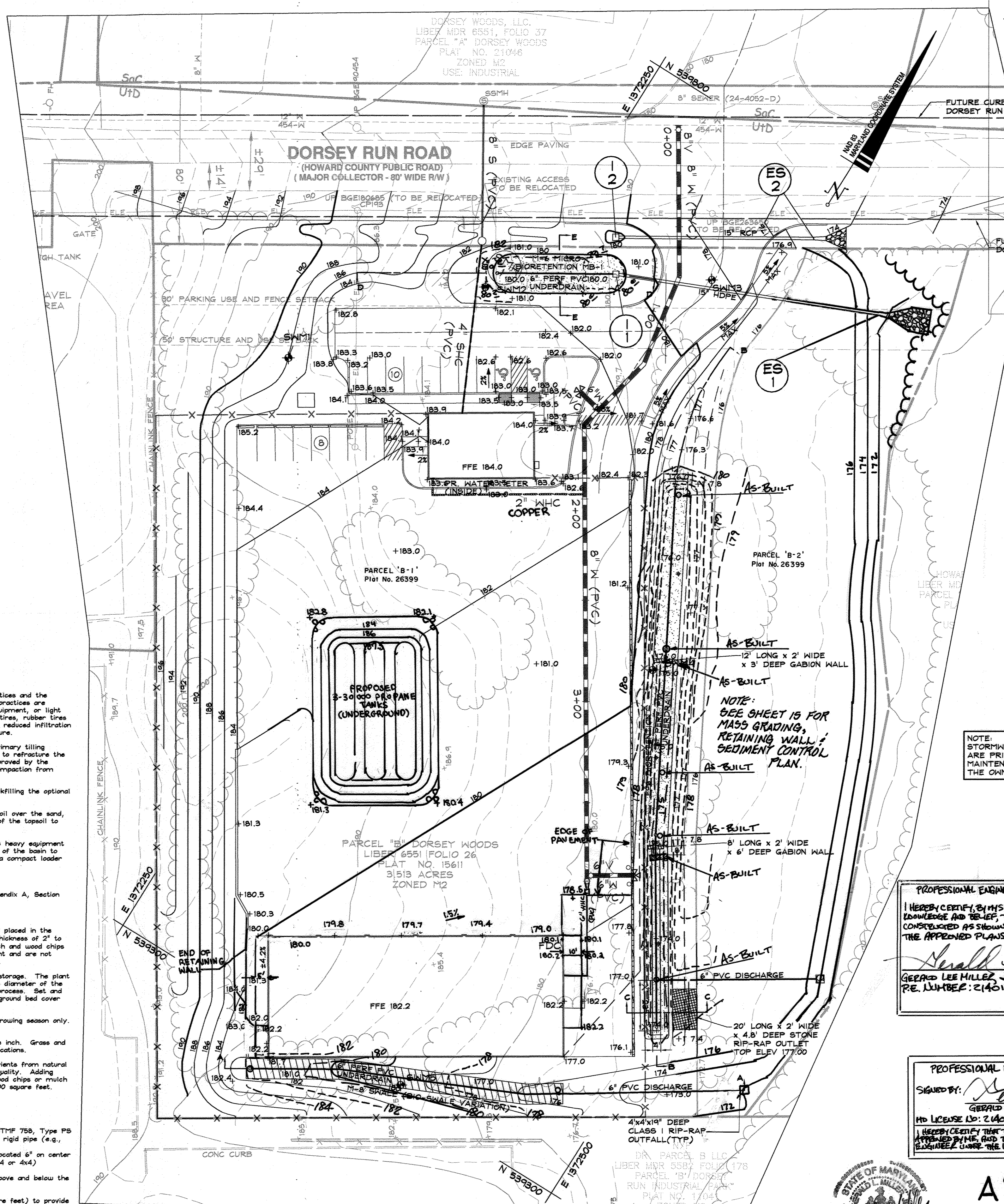
Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bio-retention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if used chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

4. **Underdrains**  
Underdrains should meet the following criteria:  
- Pipe - Should be 4" to 6" diameter, slotted or perforated rigid plastic pipe (ASTM F 758, Type PB 28 or AASHTO-M-278) in a gravel layer. The preferred material is slotted, 4" rigid pipe (e.g., PVC or HDPE).  
- Perforations - If perforated pipe is used, perforations should be 3/8" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with 1/4" (No. 4 or 4x4) galvanized hardware cloth.  
- Gravel - The gravel layer (No. 57 stone preferred) shall be at least 3" thick above and below the underdrain.  
- The main collector pipe shall be at a minimum 0.5% slope.  
- A rigid, non-perforated observation well must be provided (one every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.  
- A 4" layer of pea gravel (1/8" to 3/8" stone) shall be located between the filter media and underdrain to prevent migration of fines into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

5. **Miscellaneous**  
These practices may not be constructed until all contributing drainage area has been stabilized.



**DATA SOURCES:**  
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(99), NAVD-88. EXISTING ON-SITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

**PROFESSIONAL ENGINEER'S "AS-BUILT" CERTIFICATION**

I HEREBY CERTIFY, BY MY SEAL, THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THIS "AS-BUILT" PLAN AND MEET THE APPROVED PLANS AND SPECIFICATIONS.

*Gerard Lee Miller Jr.* 9/29/14  
GERARD LEE MILLER JR. DATE  
P.E. LICENSE #: 21421

**PROFESSIONAL ENGINEER'S CERTIFICATION**

SIGNED BY: *Gerard Lee Miller Jr.* 9/29/14  
GERARD LEE MILLER JR. P.E. DATE  
MD LICENSE NO: 21401, P.E. EXPIRES: 11/19/14  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

**DDC**  
Development Design Consultants  
192 East Main Street  
Westminster, MD 21157  
410.386.0560  
410.386.0564 (fax)  
DDC@DDCinc.us  
www.DDCinc.us

OWNER: SMITH DORSEY RUN ROAD, LLC  
ROBERT SMITH  
6011 UNIVERSITY BLVD, STE. 350  
ELLICOTT CITY, MD 21043  
(443)540-4275

DEVELOPER: MEADOWOOD-DORSEY RUN, LLC  
THOM MOORE  
1202 SHADY CREEK ROAD  
MARIOTTVILLE, MD 21104  
(410)489-5080

SITE ADDRESS:  
8101 DORSEY RUN ROAD  
JESSUP, MD 20794

**AS-BUILT**

4/23/13  
DATE

Professional Certification  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020. Expiration Date: 12-31-15.

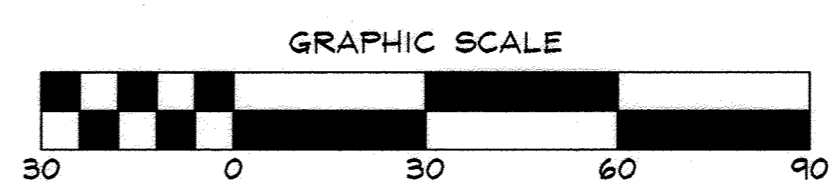
*[Signature]*  
PAUL G. CAVANAUGH  
P.E. 27020

**AMERIGAS DORSEY WOODS PARCEL 'B' PROPOSED OFFICE AND WAREHOUSE STORMWATER MANAGEMENT PLAN**

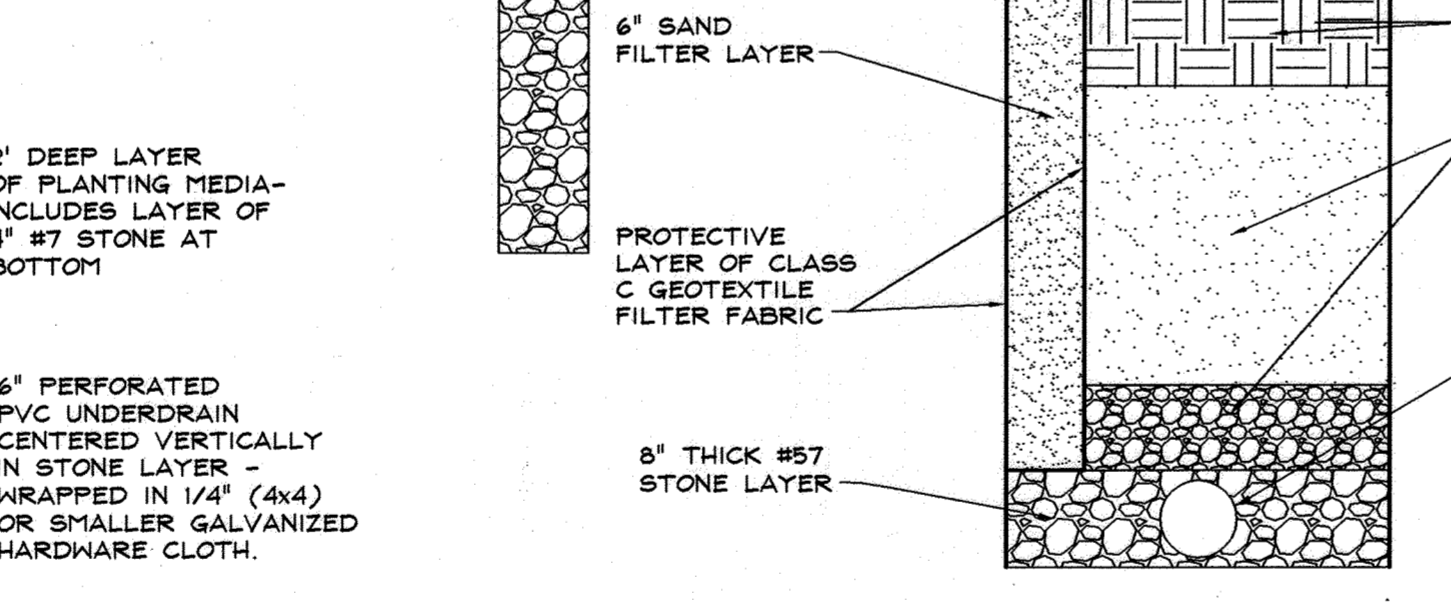
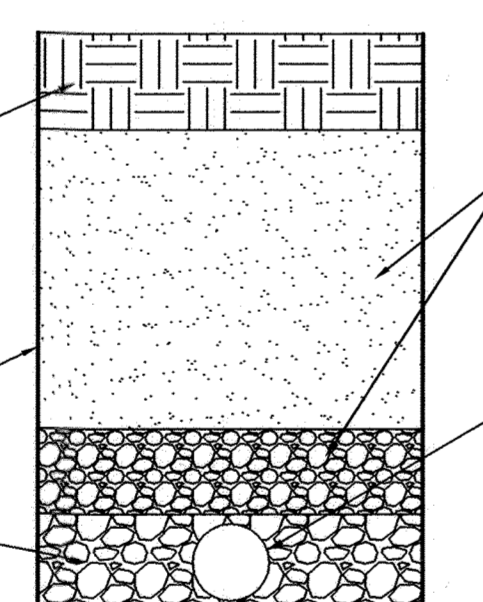
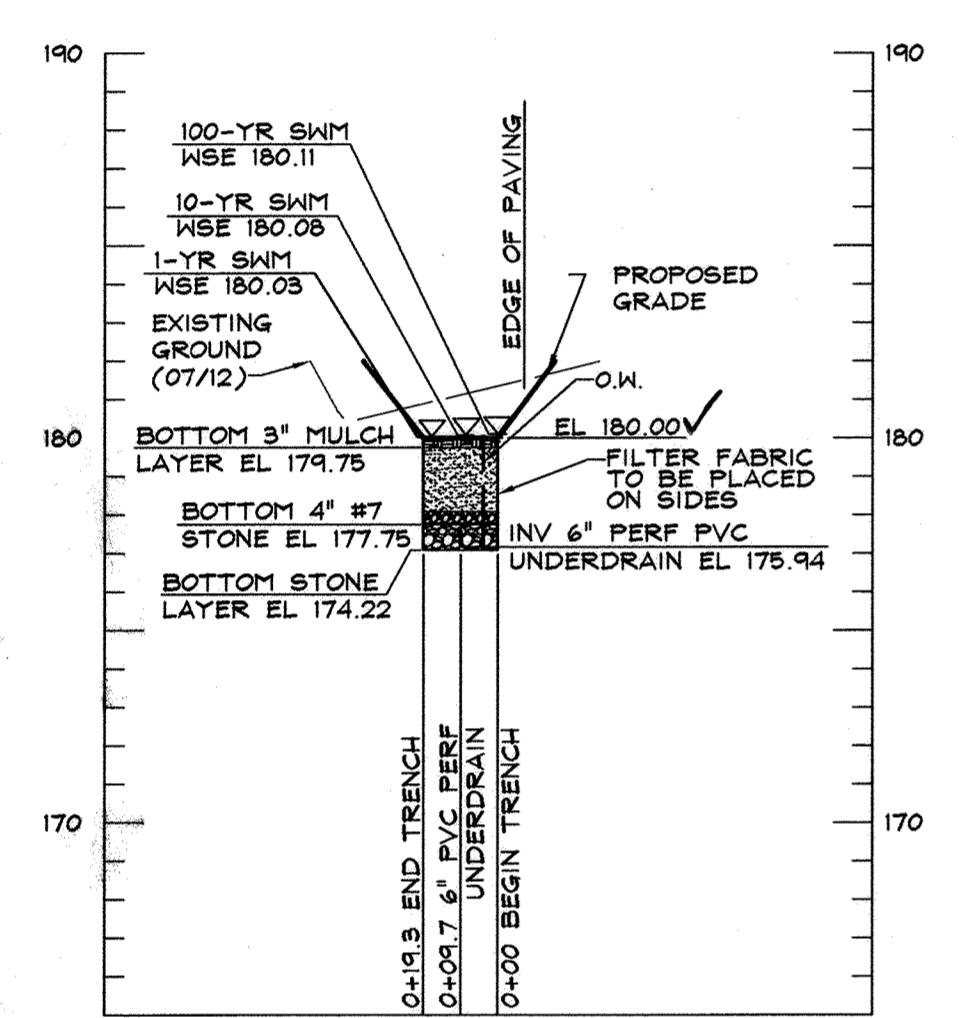
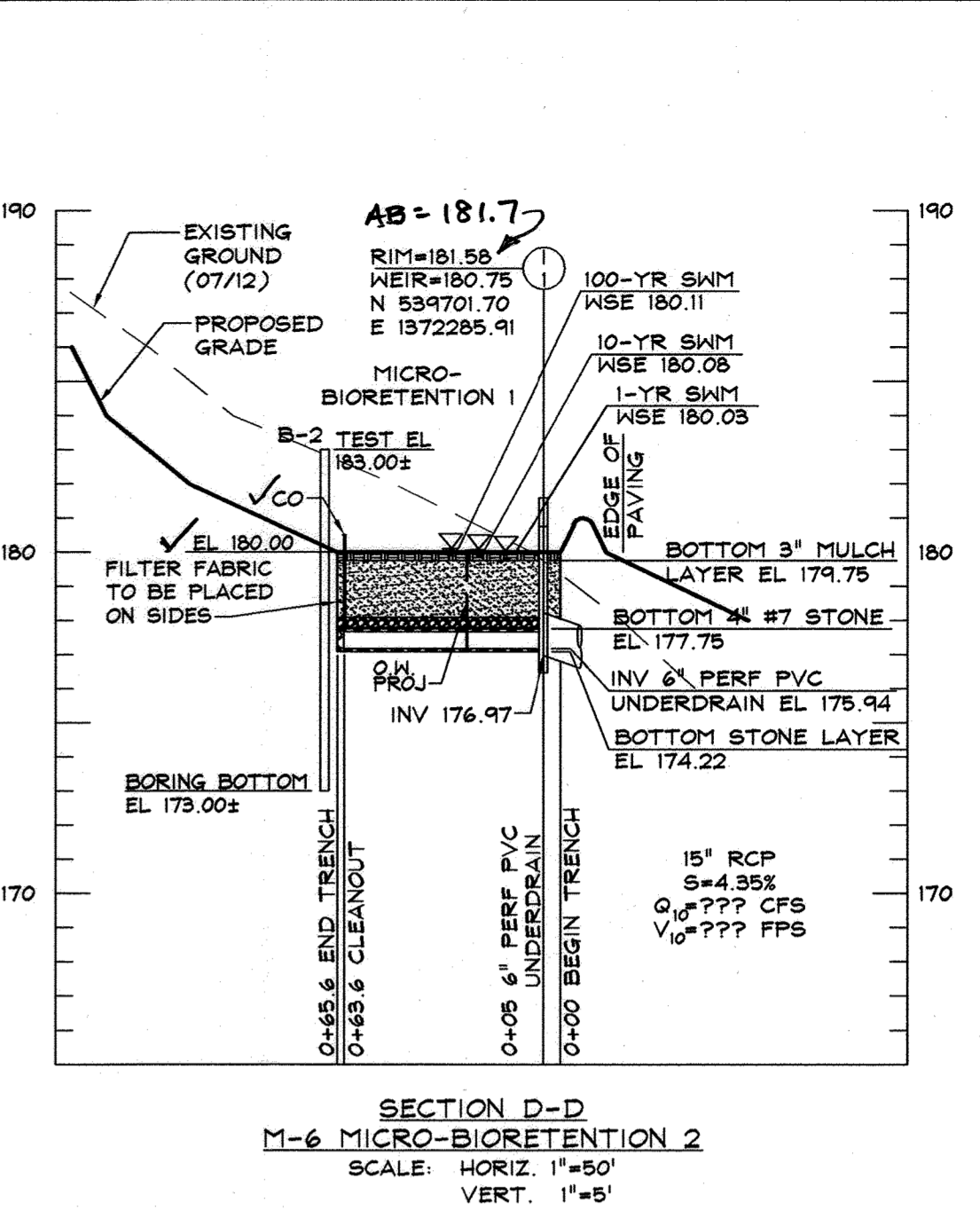
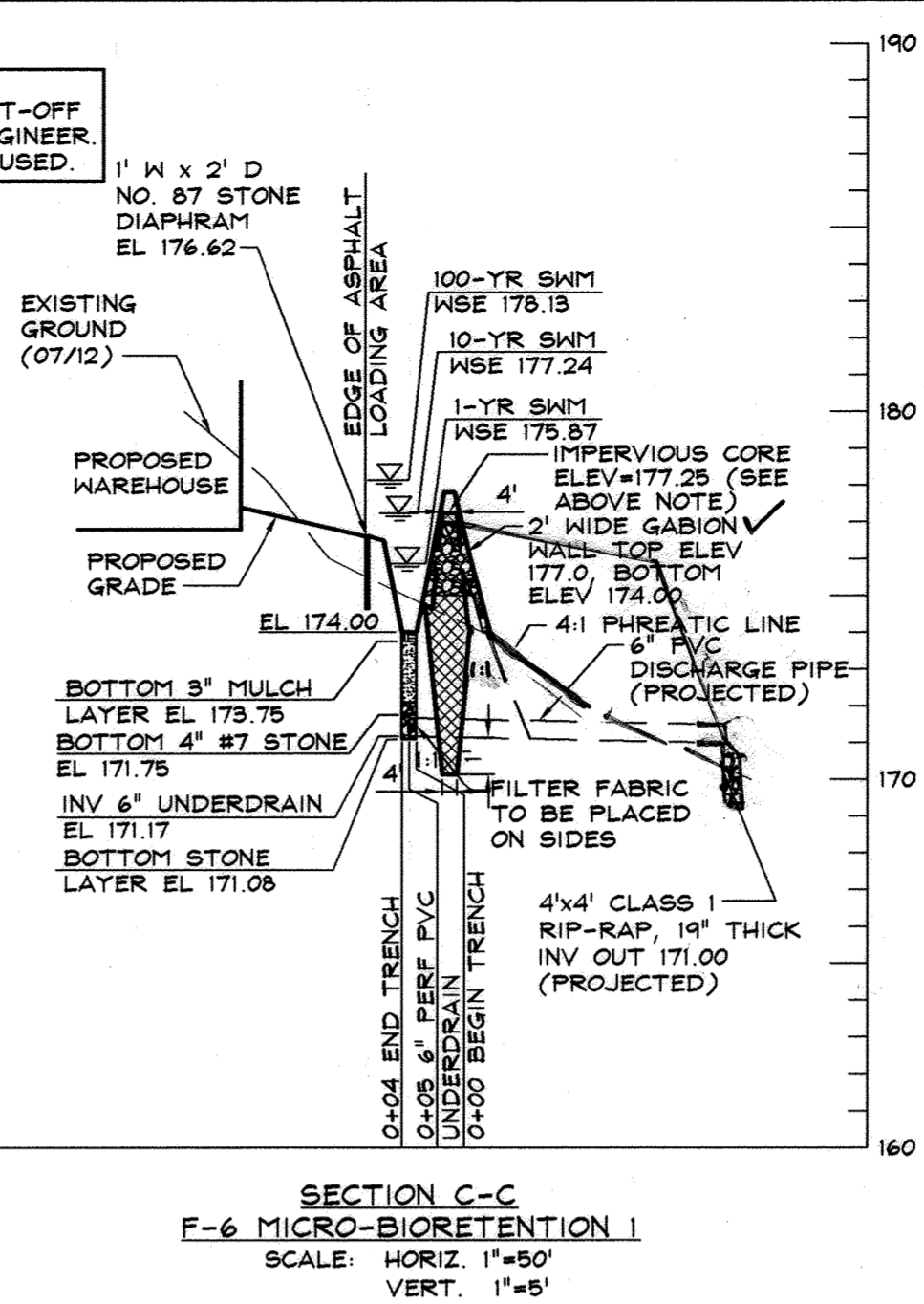
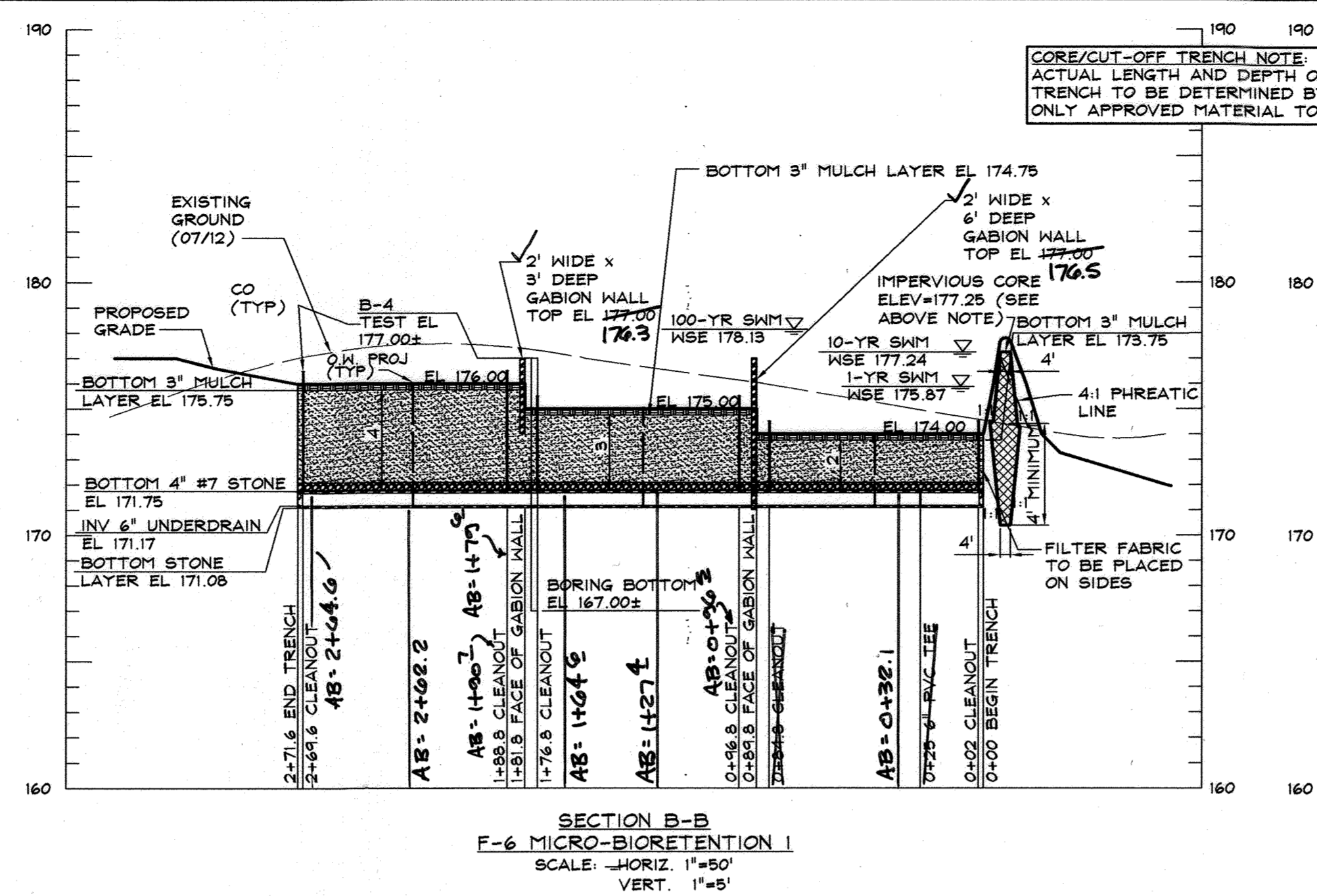
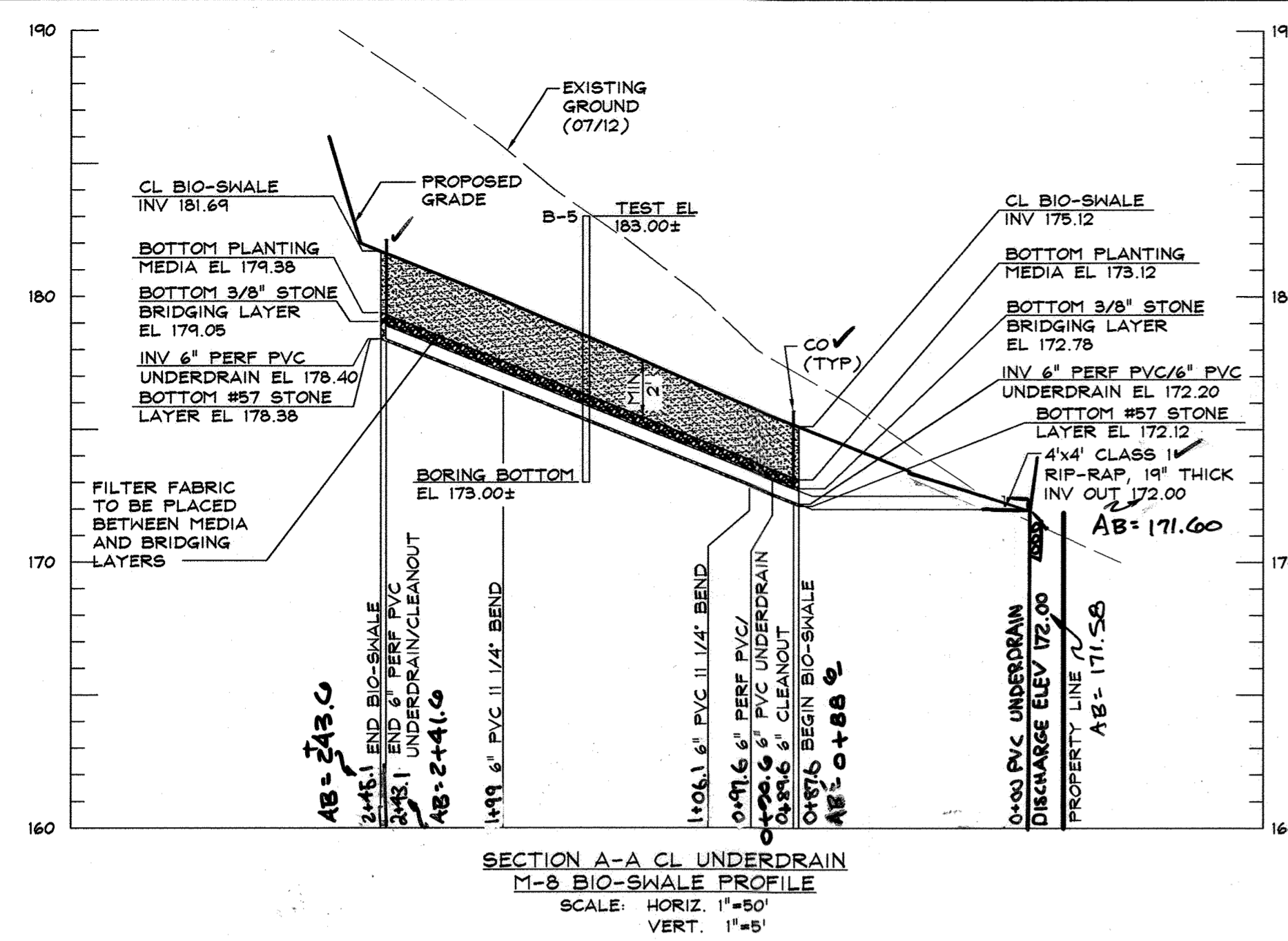
6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	REVISIONS	MBA	PGC	11/13
1	REDLINE REVISION TO SHEET TANKS, RELOCATE RAMP AND INCLUDE MASS GRADING			
2	ADDED SHEETS 15 & 16	J.L.	P.C.	3-24

NO.	DESCRIPTION OF CHANGES	DRN	REV	DATE
PLAT #:	22354	DES. BY:	PGC	
TAX ACC. #:	1406399924	DRN. BY:	CTS	
BLOCK / GRID:	2	CHK. BY:	PGC	
PARCEL #:	134 / B	DATE:	4/23/13	
ZONE / USE:	M-2	DDC JOB#:	11085.1	
DWG. SCALE:	1" = 30'	SHEET NUMBER:		
			9	of 16







**PROFESSIONAL ENGINEER'S "AS-BUILT" CERTIFICATION**  
 I HEREBY CERTIFY BY MY SEAL THAT TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE FACILITIES SHOWN ON THIS PLAN WERE CONSTRUCTED AS SHOWN ON THE "AS-BUILT" PLAN HEREIN THE APPROVED PLANS AND SPECIFICATIONS.  
 Gerald L. Miller, Jr. 9/24/14  
 P.E. NUMBER: 21401

**PROFESSIONAL ENGINEER'S CERTIFICATION**  
 SIGNED BY: Gerald L. Miller, Jr. 9/24/14  
 GERALD L. MILLER, JR., P.E. DATE: 9/24/14  
 MD LICENSE NO.: 21401 P.E. EXPIRES: 11/9/14  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A duly LICENSED P.E. ENGINEER UNDER THE LAWS OF THE STATE OF MD.

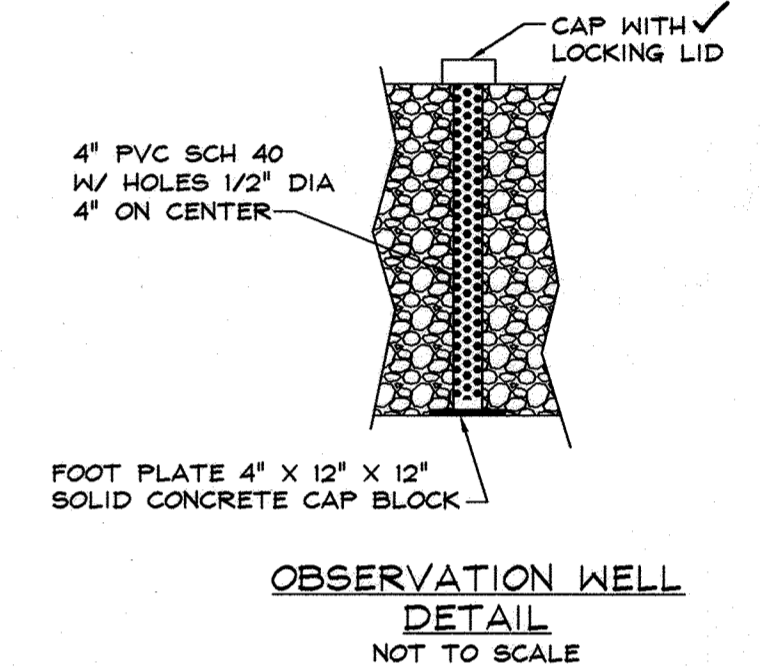
**Required Inspection Schedule for Micro-Bioretentation**

STAGE	DEVELOPER'S/ENGINEER'S APPROVAL					
	M-6 MICRO-BIORETENTION 1		F-6 MICRO-BIORETENTION 2		M-8 BIO-SWALE	
	INITIALS	DATE	INITIALS	DATE	INITIALS	DATE
1. Installation of sediment control, site built, stabilized with 2" stand of dense grass.						
2. Excavation for Micro-bioretentation. Installation of filter fabric on sides only.						
3. Installation of 8" stone layer with 6" PVC underdrain pipes, and bridging layer or 4" #7 stone layer where applicable.						
4. Installation of planting media, 3" mulch layer, rip-rap, fall, gabion wall, and finish grading.						
5. Uncap storm drain structures.						
6. Stormwater management as-built mylars signed, sealed and submitted to county.						

Engineer's name: Paul G. Caranagh Phone number: (410) 386-0560

**NOTE:**  
 ALL PERFORATED UNDERDRAIN PIPES ARE TO BE WRAPPED IN 1/4" MESH GALVANIZED HARDWARE CLOTH.

**NOTE:**  
 ALL PIPES IN FILL ARE TO BE CONSTRUCTED PER AASHTO T-180 SPECIFICATIONS.



- REQUIRED SEQUENCE OF CONSTRUCTION FOR M-8 BIO-SWALE**
- Notify engineer prior to beginning work on bio-swale.
  - Install site sediment control, including sediment basin. Build site and stabilize with a minimum of 2" stand of dense grass. (2 months)
  - Excavate micro-bioretentation facilities. The Contractor shall inform the engineer prior to each of the following steps for inspection. (3 days)
  - Install stone layer and 6" PVC underdrain and rip-rap outfall. (1 day)
  - Install bridging layer with filter fabric on top. (1 day)
  - Install planting media layer and stabilize. (1 day)
  - The engineer must submit signed and sealed stormwater management as-built mylars within 30 days of completion of these facilities to the Howard County Bureau of Resource Management.

- REQUIRED SEQUENCE OF CONSTRUCTION FOR F-6 & M-6 MICRO-BIORETENTION FACILITY**
- Notify engineer prior to beginning work on micro-bioretentation facility.
  - Install site sediment control, including sediment basin. Build site and stabilize with a minimum of 2" stand of dense grass. (2 months)
  - Excavate micro-bioretentation facilities. The Contractor shall inform the engineer prior to each of the following steps for inspection. (3 days)
  - Install stone layer and 6" PVC underdrain. (1 day)
  - Install 4" layer of #7 stone. (1 day)
  - Install planting media layer, rip-rap outfalls and gabion walls (where applicable), and stabilize. (1 week)
  - Once Engineer inspects facilities, outgassing pipes shall be uncapped and the micro-bioretentation facilities put online. (1 day)
  - The engineer must submit signed and sealed stormwater management as-built mylars within 30 days of completion of these facilities to the Howard County Bureau of Resource Management.

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

A. The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.

B. The Owner shall perform a plant in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.

C. The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.

D. The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after every heavy storm.

**DATA SOURCES:**  
 EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1981), NAVD-88. EXISTING ONSITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

**DDC Development Design Consultants**

Planners  
 Surveyors  
 Engineers  
 Landscape Architects

192 East Main Street  
 Westminster, MD 21157  
 410.386.0560  
 410.386.0564 (Fax)  
 DDC@DDCinc.us  
 www.DDCinc.us

**AMERIGAS DORSEY WOODS PARCEL 'B' PROPOSED OFFICE AND WAREHOUSE STORMWATER MANAGEMENT PROFILES, NOTES & DETAILS**

6TH ELECTION DISTRICT HOWARD COUNTY, MD

OWNER: SMITH DORSEY RUN ROAD, LLC. ROBERT SMITH 6011 UNIVERSITY BLVD, STE. 350 ELLICOTT CITY, MD 21043 (443)540-4275

DEVELOPER: MEADOWOOD-DORSEY RUN, LLC. THOM MOORE 1202 SHADY CREEK ROAD MARIOTTVILLE, MD 21104 (410)489-5080

SITE ADDRESS: 8101 DORSEY RUN ROAD JESSUP, MD 20794

APPROVED: DEPARTMENT OF PLANNING AND ZONING

5/7/13 DATE

5/14/13 DATE

5/14/13 DATE

NO.	DESCRIPTION	CHANGED BY	DATE
1	REVISIONS		
1	REDLINE REVISION TO SHIFT TANKS RELOCATE RAMP AND INCLUDE MASS GRADING	MBA PGC HZ	4/23/13
2	ADD SHTS. 15 & 16	J.L.	4/23/13
3	ADD SHTS. 17 & 18	P.C.	4/23/13

**AS-BUILT**

4/23/13 DATE

Professional Certification: I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 27020. Expiration Date: 11/15/14.

PAUL G. CAVANAUGH  
 P.E. 27020

PLAT # 22354  
 TAX ACC. # 1406399924  
 TAX MAP: 48  
 BLOCK / GRID: 2  
 PARCEL #: 134 / B  
 ZONE / USE: M-2  
 DWG. SCALE: AS SHOWN

DES. BY: CTS  
 DRN. BY: CTS  
 CHK. BY: PGC  
 DATE: 4/23/13  
 DDC JOB#: 11085.1  
 SHEET NUMBER: 10 of 16



**General Planting Notes**

- All plant materials to meet A.N.L.A. Standards.
- The Contractor is to follow specification guidelines for Baltimore & Washington Metropolitan Area as approved by the L.C.A. of Maryland, Washington D.C., & Virginia and described in the latest edition of "Landscape Specification Guidelines."
- No substitutions are to be made without the consent of the Landscape Architect and/or the Owner.
- All beds are to be topped with three (3) inches of hardwood mulch.
- Contractor shall notify Miss Utility at 1 (800) 257-7777, at least 72 hours prior to construction and verify the location of all utilities with the Owner before planting.
- Landscape Architect/Owner shall select, verify, and/or approve all plant material. At the Owner's discretion, specimen and other plant material may be selected.
- The Landscape Architect shall coordinate with the general, lighting, & irrigation contractors regarding timing and installation of plant material. At the time of final inspection with acceptance, all electric, water & drainage utilities, as well as plant material, shall remain undisturbed. Likewise, the Landscape Contractor and utilities contractors shall coordinate efforts to ensure that surface utilities are at the proper elevation relative to final grades.
- The owner, tenant, and/or their agents shall be responsible for maintenance of the required landscaping, including both plant materials and berms, fences and walls. All plant materials shall be maintained in good growing condition, and when necessary, replaced with new materials to ensure continued compliance with applicable regulations. All other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.
- This plan has been prepared in accordance with the provisions of Section 16.124 of the Ho. Co. Code. Financial surety for the required landscaping in the amount of \$10,830.00 must be posted as part of the Developer's Agreement (30 shade trees, 7 Evergreen Trees & 26 Shrubs).
- Developer/Builder's Certificate

I/We certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/We further certify that, upon completion, a letter of landscape installation, accompanied by an executed one-year guarantee of the plant materials, will be submitted to the Department of Planning and Zoning.

NAME: *[Signature]* DATE: 4/25/13

**SCHEDULE A PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES		
	P-1	P-2	P-3	P-4	P-4
LANDSCAPE TYPE 'A'					
LINEAR FEET OF PERIMETER		454 LF.	291 LF.	432 LF.	
LANDSCAPE TYPE 'B'	P-1				
LINEAR FEET OF PERIMETER	250 LF.				
LANDSCAPE TYPE 'E'		P-1			
LINEAR FEET OF PERIMETER		104 LF.			
CREDIT FOR EXISTING VEGETATION (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A
CREDIT FOR BERM (DESCRIBE BELOW IF NEEDED)	N/A	N/A	N/A	N/A	N/A
NUMBER OF PLANTS REQUIRED					
SHADE TREES	5	3	8	5	0
EVERGREEN TREES	7	0	0	0	0
SHRUBS	0	26	0	0	0
NUMBER OF PLANTS PROVIDED					
SHADE TREES	4	2	8	3	8
EVERGREEN TREES	7	0	0	0	0
OTHER TREES (2:1 SUBSTITUTION)	2	2	0	4	0
SHRUBS	0	26	0	0	0
(DESCRIBE PLANT SUBSTITUTION CREDITS BELOW IF NEEDED)					

NOTE: P-1 SUBSTITUTED 5 ORNAMENTAL TREES FOR 2 SHADE TREES AND 1 EVERGREEN TREE.  
P-3 SUBSTITUTED 4 EVERGREEN TREES FOR 2 SHADE TREES.

**SCHEDULE B PARKING LOT INTERNAL LANDSCAPING**

NUMBER OF PARKING SPACES	18
NUMBER OF TREES REQUIRED	1
NUMBER OF TREES PROVIDED	
SHADE TREES	1
OTHER TREES (2:1 SUBSTITUTION)	0
NUMBER OF ISLANDS REQUIRED	1
NUMBER OF ISLANDS PROVIDED	1

**PLANT LIST**

QTY	SYM	BOTANICAL NAME/ COMMON NAME	SIZE	REMARKS
<b>LARGE TREES</b>				
7	AR	ACER RUBRUM 'OCTOBER GLORY'	2 1/2" CAL. 12' - 14' HT.	B & B
6	GT	GLEDTISIA TRIACANTHOS 'IMPICOLE'		B & B
13	GP	QUERCUS PALUSTRIS PIN OAK	2 1/2" CAL. 12' - 14' HT.	B & B
<b>EVERGREEN TREES</b>				
11	PS	PINUS STROBUS EASTERN WHITE PINE	6' HT.	B & B HEAVY, UNSHEARED
<b>FLOWERING TREES</b>				
4	CC	CERCIS CANADENSIS EASTERN REDBUD	2" CAL. 6' - 8' HT.	B & B
<b>SHRUBS</b>				
26	IG	ILEX GLABRA INKBERY HOLLY	2 1/2"-3" HT.	CONTAINER

Note: At the time of plant installation, all shrubs and trees listed and approved on the landscape plan, shall comply with the proper height requirement in accordance with the Howard County landscape manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from the approved landscape plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to the applicable plans.

THIS AREA REPRESENTS 6,064 S.F. OF ERNST CONSERVATION SEED MIX (RETENTION BASIN FLOOR SEEDING - LOW MAINTENANCE GRASSLIKE SPECIES\* (ERNMX-126) APPLIED AT 1/2 LBS PER 1000 S.F.

**SEEDING & PLANTING METHODS**

SEEDING AND PLANTING SHOULD BEGIN IMMEDIATELY UPON COMPLETION OF THE MICRO-BIORETENTION FACILITY WHILE THE SOIL IS STILL FRIABLE AND BEFORE INVASIVE WEEDS EMERGE. PLAN SEEDING AND PLANTING BEFORE THE BASIN IS FLOODED OR ALLOW THE BASIN TO DRAIN BEFORE SEEDING. BROADCAST SEED EVENLY OVER EACH UNIT BY HAND SEEDING OR HYDRO SEEDING. SEEDING RATE SHOULD BE 1/2 POUND PER 1000 S.F., WHICH CAN BE BROADCAST OVER THE ENTIRE AREA TO BE PLANTED (SEE PLAN). MULCHING, IF USED, SHOULD BE SPARSE TO ALLOW SUNLIGHT TO REACH THE GROUND. REGULAR WATERING OF SEEDED AREAS IS VITAL UNTIL SEED BECOMES ESTABLISHED.

APPROVED: DEPARTMENT OF PLANNING AND ZONING

Chief, Development Engineering Division DATE: 5/7/13  
 Chief, Division of Land Development DATE: 5/14/13  
 Director DATE: 5/14/13

**DRAWING LEGEND**

- 682 EXISTING MINOR CONTOUR (2' INTERVAL)
- 680 EXISTING MAJOR CONTOUR (10' INTERVAL)
- ADJACENT PROPERTY LINE
- EXISTING PROPERTY BOUNDARY
- EX. ROAD / EDGE OF PAVING
- EX. SEWER LINE & MANHOLES, 'CLEAN-OUTS'
- EX. OVERHEAD ELECTRIC & UTILITY POLES
- PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
- PROPOSED EDGE OF PAVEMENT
- PROPOSED CURB
- PROPOSED STORM DRAIN W/ INLETS & MANHOLE
- PROPOSED WATER LINE & HYDRANT
- PROPOSED SEWER AND MANHOLES
- EX. BUILDING
- PROPOSED BUILDING
- EXISTING TREELINE
- PROPOSED ORNAMENTAL TREE
- PROPOSED SHADE TREE
- PROPOSED EVERGREEN TREE
- SA SITE LIGHTING
- SB
- SC
- SD
- SE
- SEWER
- STORMWATER MANAGEMENT PLANTING
- STEEP SLOPES 15%-25% (0.27± Ac.)
- STEEP SLOPES 25%+ (0.04± Ac.)

**DATA SOURCES:**

EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88. EXISTING ONSITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

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**SITE ADDRESS:** 8101 DORSEY RUN ROAD  
 JESSUP, MD 20794

**AMERIGAS DORSEY WOODS PARCEL 'B' PROPOSED OFFICE AND WAREHOUSE LANDSCAPE PLAN**

6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
2	ADD SHT. 15 & 16 REVISIONS	J.L.	P.C.	3-24
1	REVISED LANDSCAPING PER COMMENTS			
1	REDLINE REVISION TO SHIFT DOWNS, M&A P&C 7/12/13			
1	RELOCATE RAMP AND INCLUDE MASS GRADING			

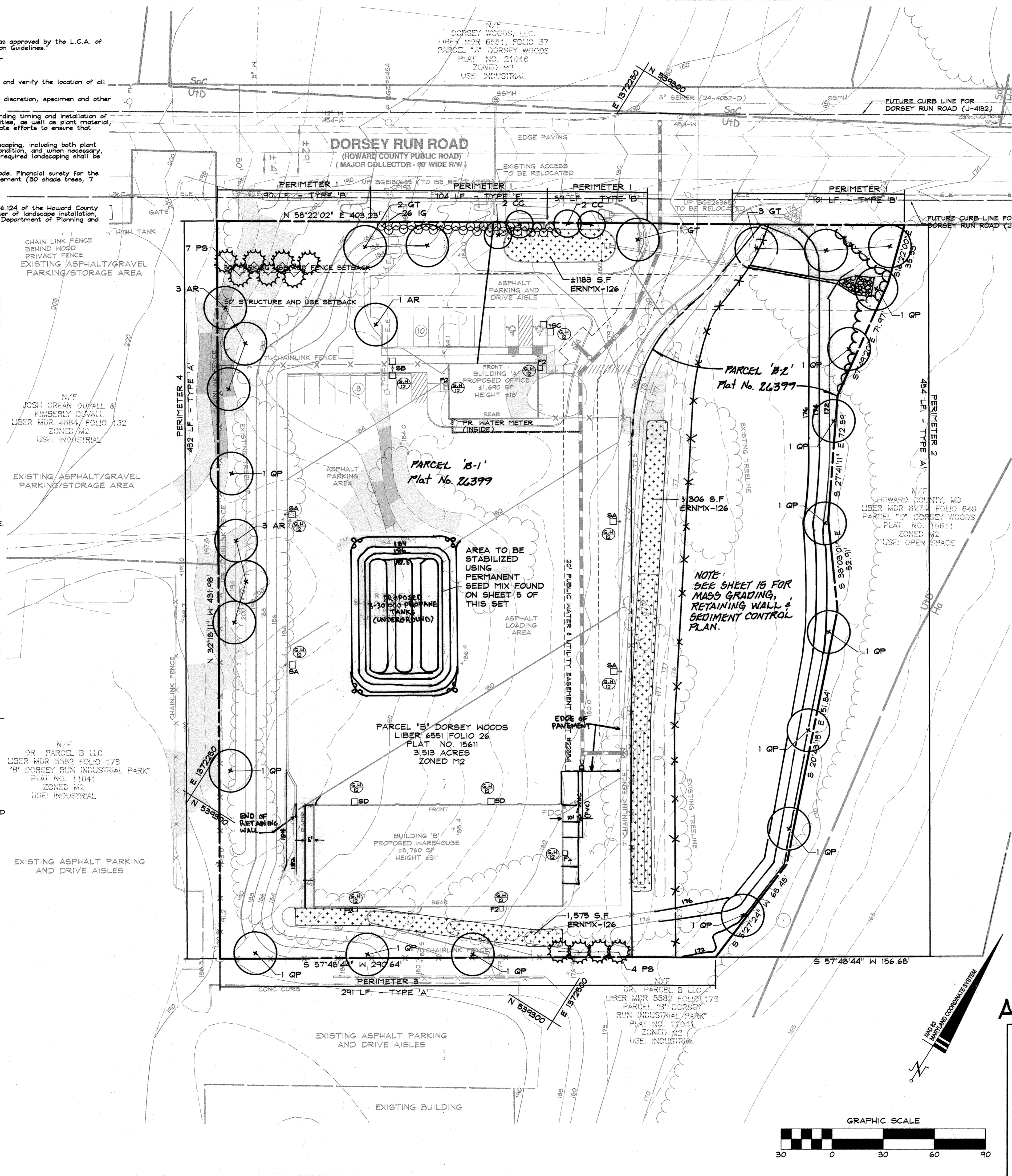
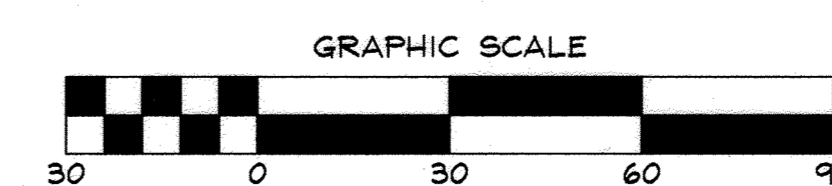
PLAT #	22354	DES. BY:	BKC
TAX ACC. #	1406399924	DRN. BY:	BKC
TAX MAP:	48	CHK. BY:	BKC
BLOCK / GRID:	2	DATE:	4/23/13
PARCEL #:	134 / B	DDC JOB#:	11085.1
ZONE / USE:	M-2	SHEET NUMBER:	
DWG. SCALE:	1"=30'		11 of 16

**AS-BUILT**

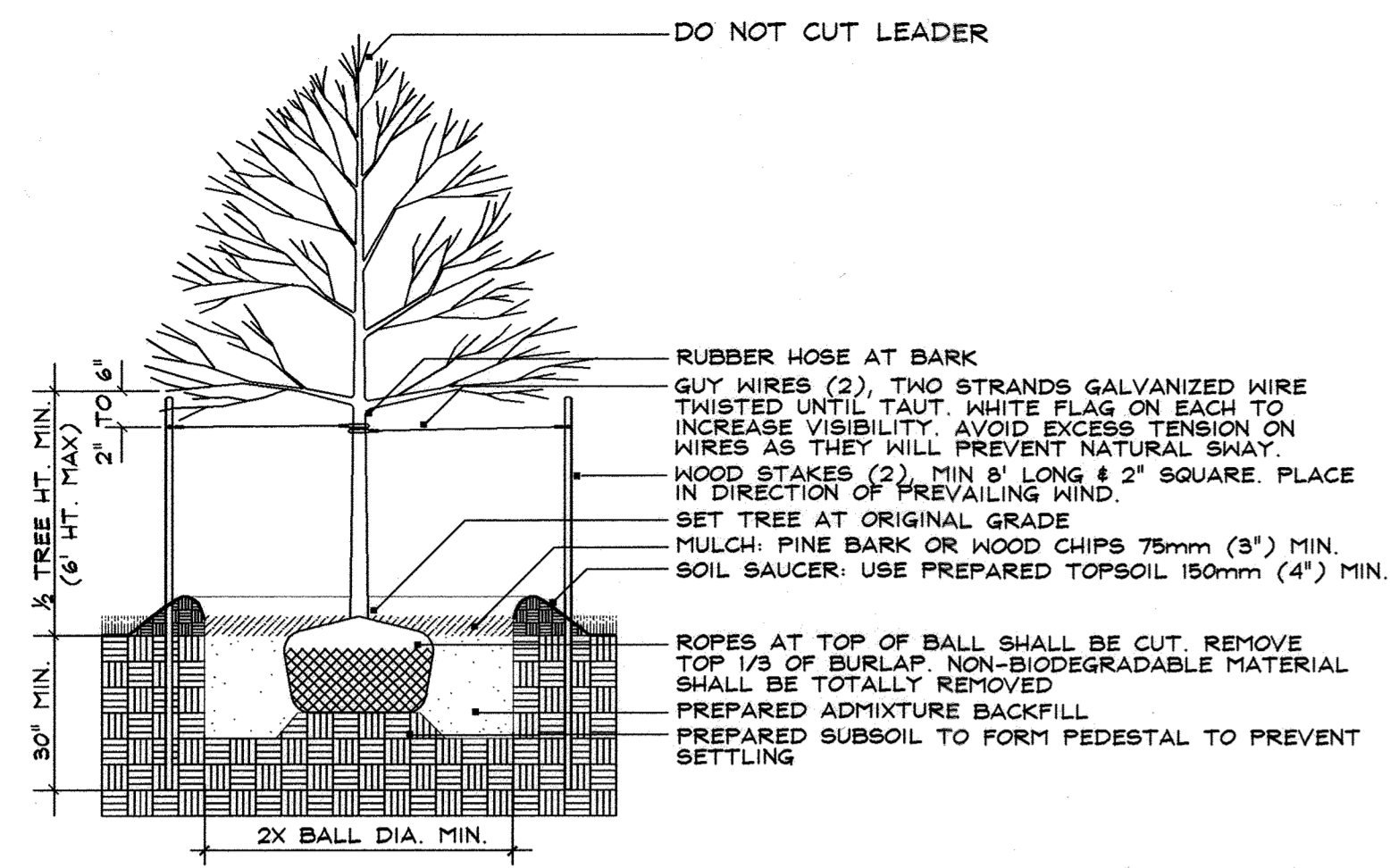
4/23/13  
 DATE

STATE OF MARYLAND  
 DEPARTMENT OF PLANNING AND ZONING  
 LANDSCAPE ARCHITECT

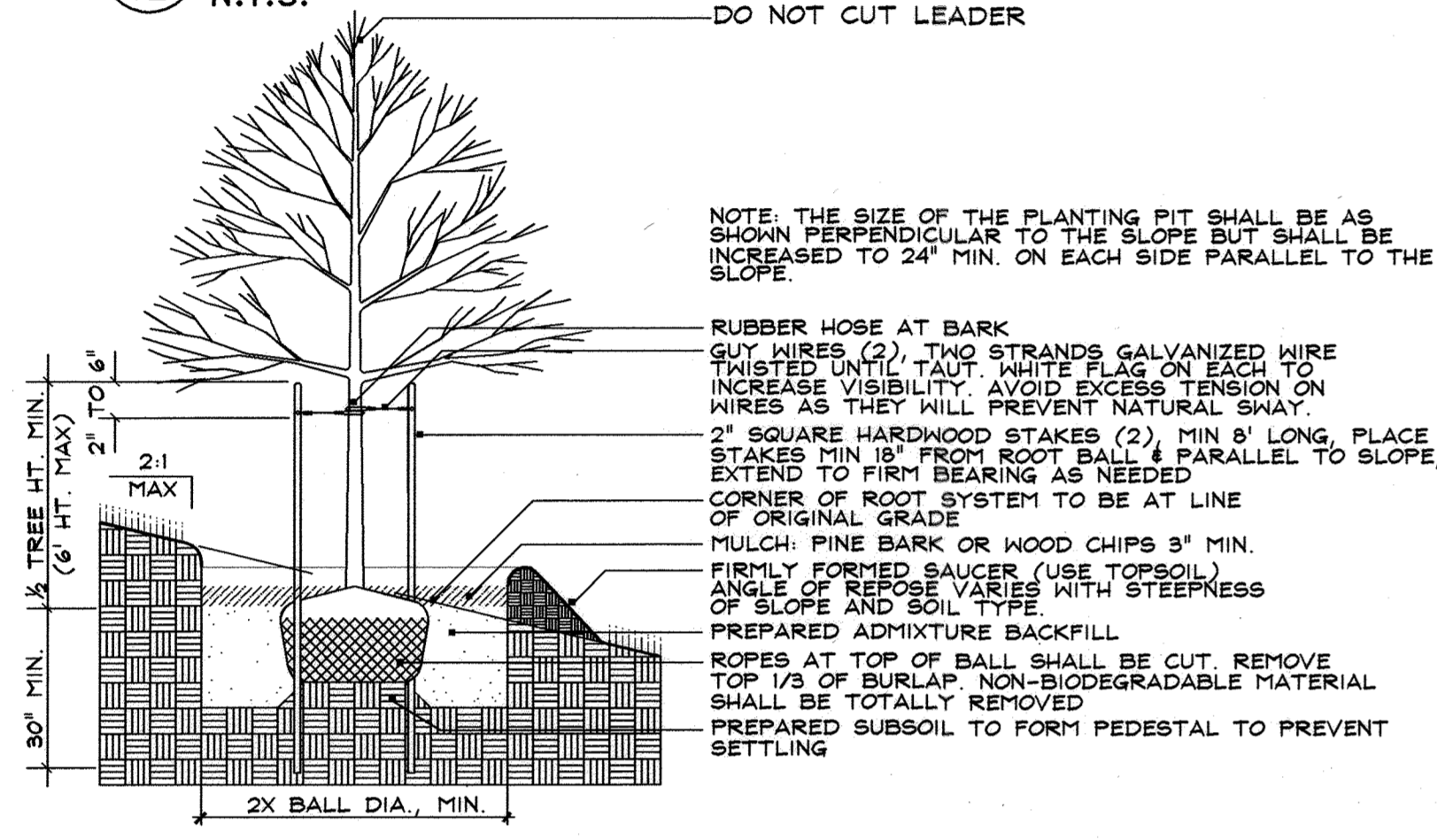
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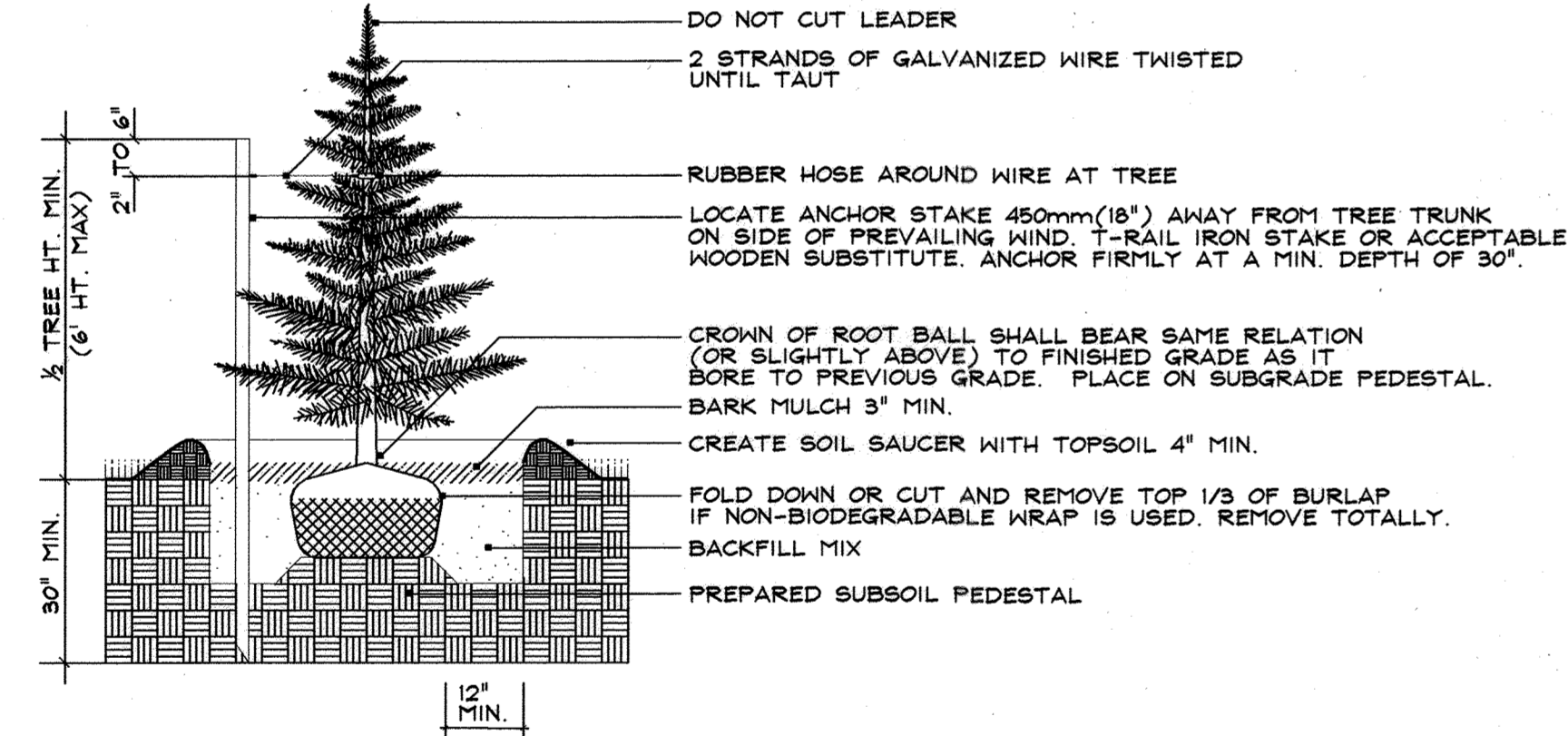




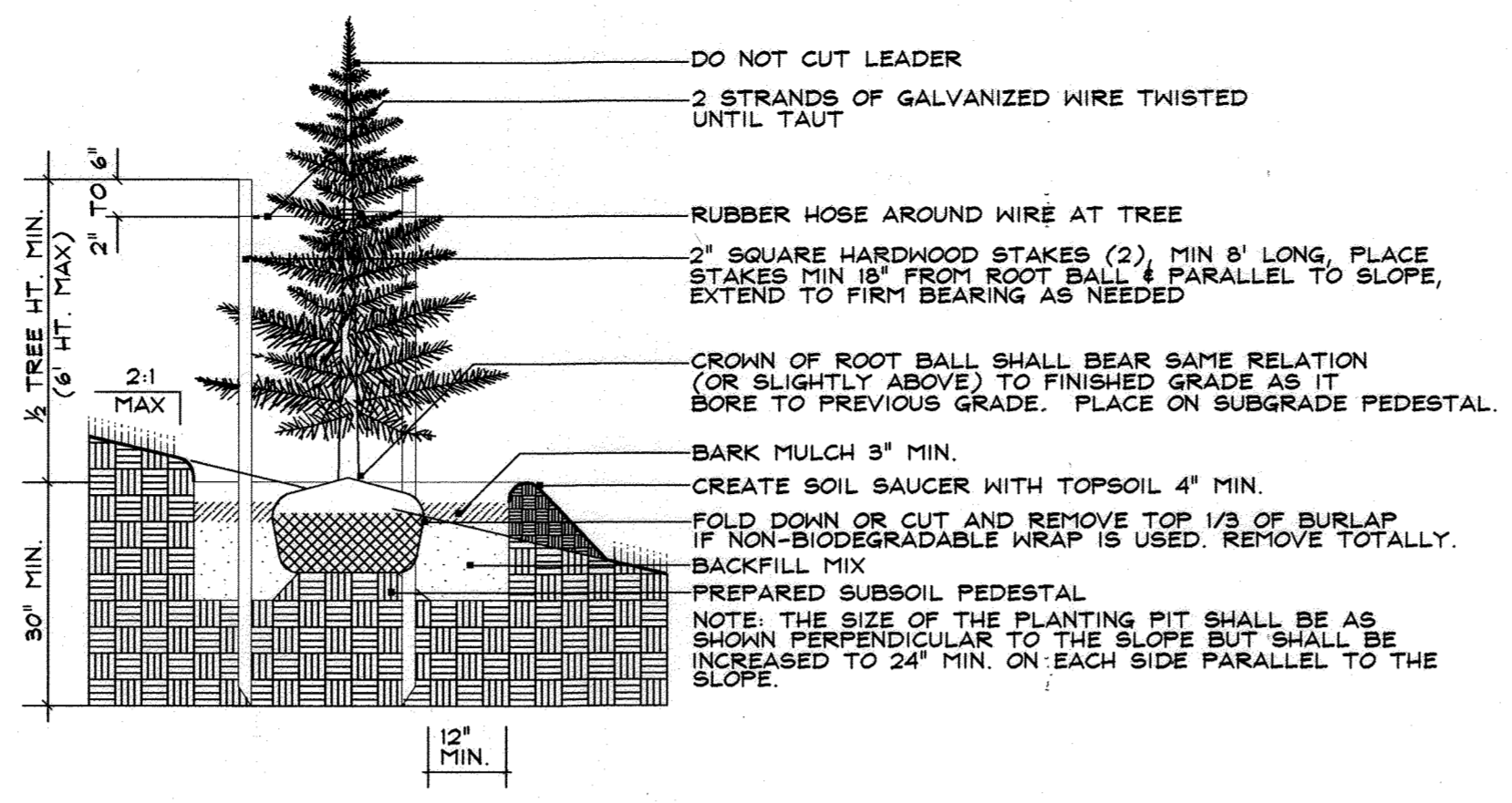
**A** DECIDUOUS TREE PLANTING (LESS THAN 3" CAL.)  
12 N.T.S.



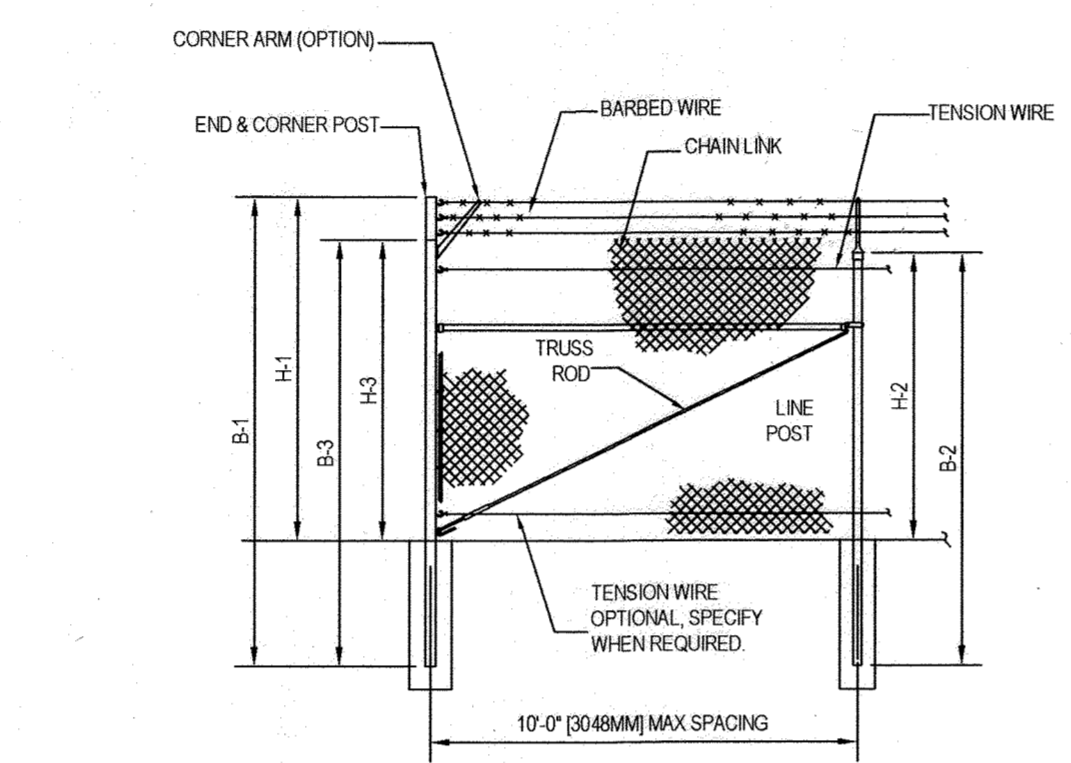
**B** DECIDUOUS TREE PLANTING ON SLOPE (LESS THAN 3" CAL.)  
12 N.T.S.



**C** EVERGREEN TREE PLANTING  
12 N.T.S.



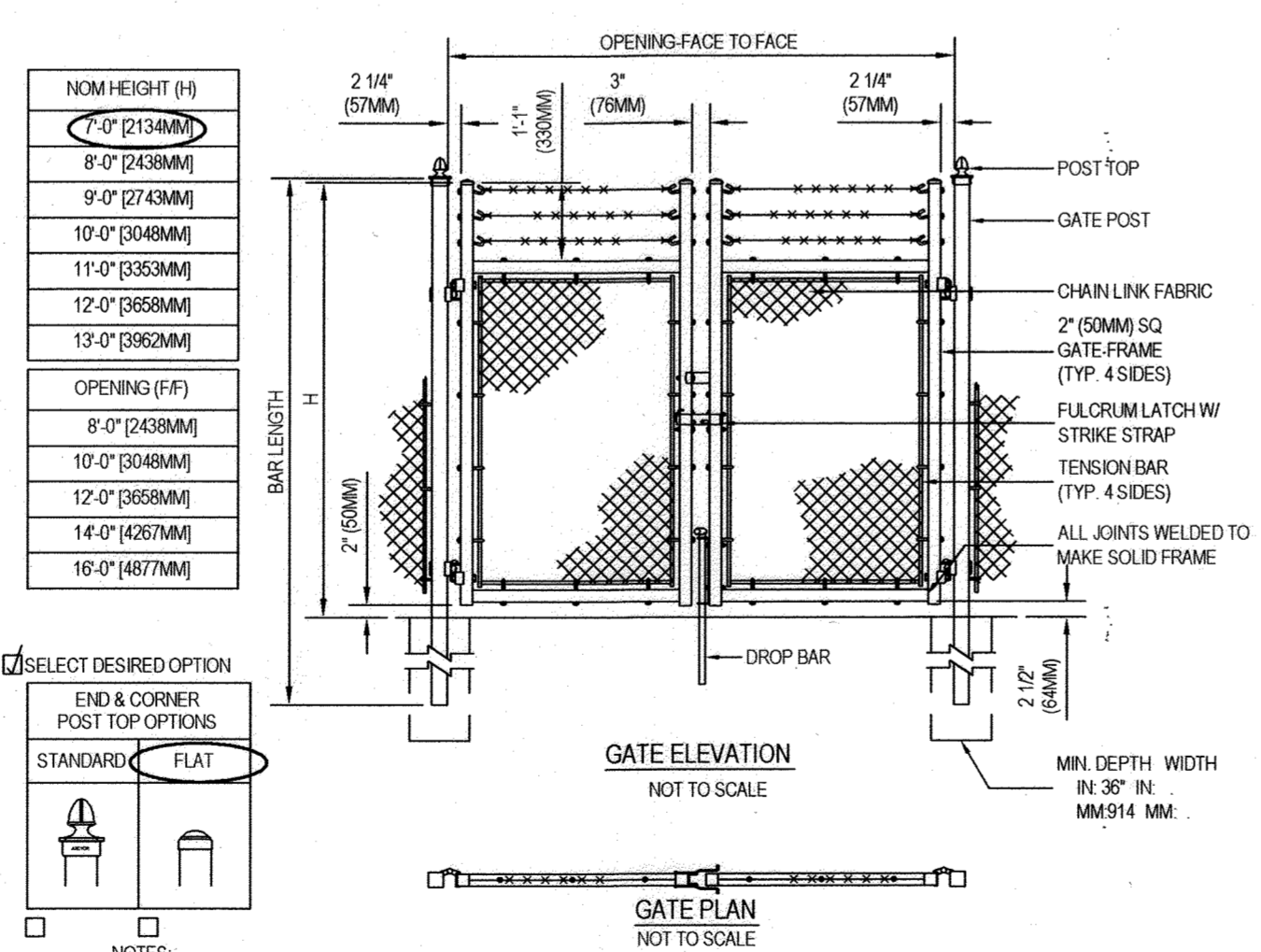
**D** EVERGREEN TREE PLANTING ON SLOPE  
12 N.T.S.



FENCE HEIGHT	UPRIGHT END & CORNER POSTS		LINE POSTS		CORNER POSTS WITH CORNER ARM	
	R-1	H-1	R-2	H-2	R-3	H-3
7'-0" (2134MM)	10'-0" (3048MM)	7'-0.58" (2150MM)	8'-0" (2438MM)	5'-8.78" (1749MM)	9'-0" (2743MM)	6'-0.58" (1854MM)
8'-0" (2438MM)	11'-0" (3353MM)	8'-0.58" (2450MM)	9'-0" (2743MM)	6'-8.78" (2054MM)	10'-0" (3048MM)	7'-0.58" (2150MM)
9'-0" (2743MM)	12'-0" (3658MM)	9'-0.58" (2756MM)	10'-0" (3048MM)	7'-8.78" (2354MM)	11'-0" (3353MM)	8'-0.58" (2450MM)
10'-0" (3048MM)	13'-0" (3963MM)	10'-0.58" (3066MM)	11'-0" (3353MM)	8'-8.78" (2654MM)	12'-0" (3658MM)	9'-0.58" (2756MM)
11'-0" (3353MM)	14'-0" (4268MM)	11'-0.58" (3368MM)	12'-0" (3658MM)	9'-8.78" (2954MM)	13'-0" (3963MM)	10'-0.58" (3066MM)
12'-0" (3658MM)	15'-0" (4573MM)	12'-0.58" (3670MM)	13'-0" (4168MM)	10'-8.78" (3254MM)	14'-0" (4268MM)	11'-0.58" (3368MM)

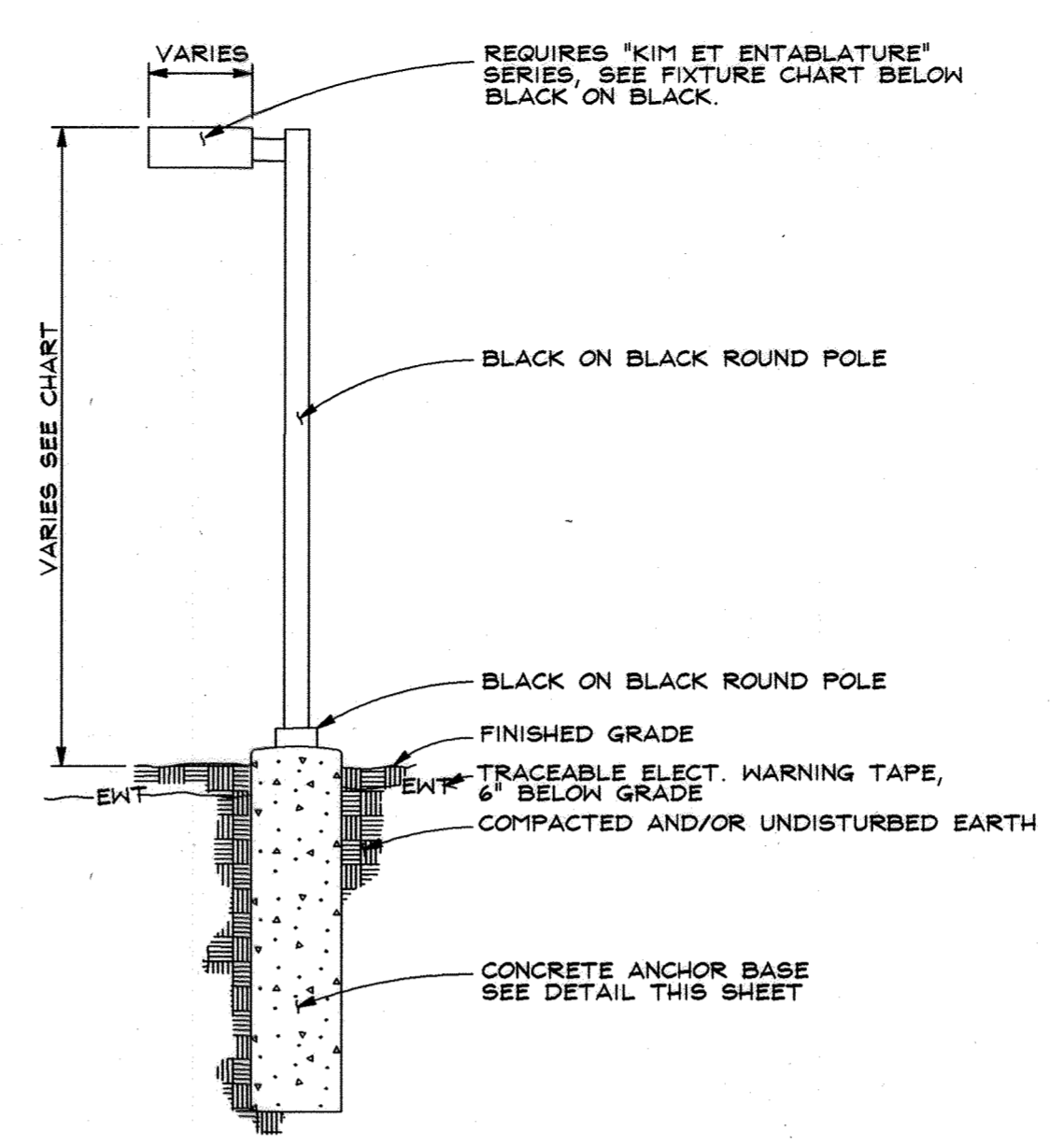
NOTES:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.  
2. DO NOT SCALE DRAWINGS.  
3. SPECIFICATIONS SHOWN CAN BE CHANGED BY THE MANUFACTURER ONLY.  
4. THIS DWG CORRESPONDS WITH DWGS: 1-1020, 1-1028 & 1-1148.  
5. CONTRACTORS NOTE: PRODUCT AND COMPANY INFORMATION VISIT: www.CADdetails.com/dfs  
REFERENCE NUMBER 014.0043

**E** CHAIN LINK FENCE SECTION ELEVATION (OR EQUIVALENT)  
12 WITHOUT TOP RAIL AND WITH BARBED WIRE



NOTES:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.  
2. DO NOT SCALE DRAWINGS.  
3. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.  
4. SPECIFICATIONS SHOWN CAN BE CHANGED BY THE MANUFACTURER ONLY.  
5. FOOTING WIDTH TO BE 600 POST WIDTH.  
6. GATES MAY BE MANUALLY OR ELECTRICALLY OPERATED. HARDWARE WILL VARY FOR ELECTRICALLY OPERATED GATES.  
7. CONTRACTORS NOTE: FOR PRODUCT AND COMPANY INFORMATION VISIT: www.CADdetails.com/dfs  
REFERENCE NUMBER 014.010

**F** TYPICAL DOUBLE SWING GATE  
12 SQUARE (OR ROUND) END POSTS WITHOUT BARBED WIRE - N.T.S.



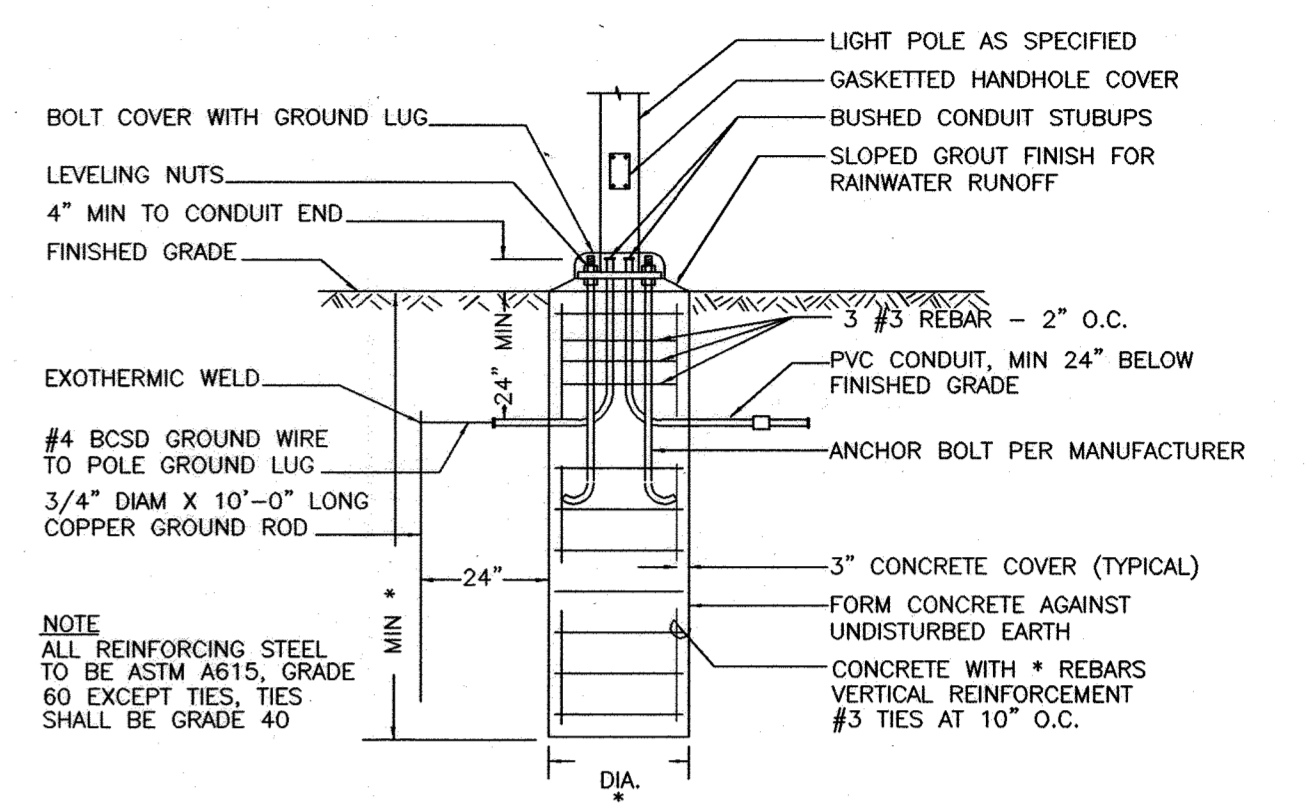
TYPE/QUANTITY	FIXTURE	MOUNTING HEIGHT
SA/4	400W-PMH SINGLE HEAD WITH CONVEX GLASS LENS AND HOUSE SIDE SHIELD	POLE MOUNTED AT 30 FT
SB/1	250W-PMH TWO HEADS @ 90° WITH FLAT GLASS LENS	POLE MOUNTED AT 25 FT
SC/1	250W-PMH TWO HEADS @ 90° WITH FLAT GLASS LENS	POLE MOUNTED AT 25 FT
SD/2	250W-PMH ENTABLATURE	BLDG MOUNTED AT 18 FT
FE/5	70W-MH ENTABLATURE	BLDG MOUNTED AT 16 FT

**G** SHARP CUTOFF AREA LIGHT (OR EQUIVALENT)  
12 N.T.S.

**Supplemental Landscape Notes & Specifications**

- The Contractor shall review architectural/engineering plans to become thoroughly familiar with the grading and surface utilities.
- The Contractor shall insure that his work does not interrupt established or projected drainage patterns.
- During planting operations, excess waste materials shall be promptly and frequently removed from the site.
- All equipment and tools shall be placed so as not to interfere or hinder the pedestrian and/or vehicular traffic flow. No vehicles, equipment, tools, etc. shall be placed on or within any indicated tree protection zone. No staging, storage or stockpiling of supplies or material within indicated tree protection zones.
- The contractor is responsible for verifying the location of all existing utilities. If utility lines are encountered in the excavation of tree pits, other locations for trees shall be made by the contractor without additional compensation. No changes of location shall be made without the approval of the Landscape Architect.
- Every possible safeguard shall be taken to protect building surfaces, equipment, and furnishings. The Contractor shall be responsible for any damage or injury to persons or property which may occur as a result of negligence in the execution of the work.
- In the event of a variation between quantities shown on the plant list and the plans, the plans shall govern. The Contractor is responsible for verifying all plant quantities prior to the commencement of work. Sod quantity takeoffs are the responsibility of the Contractor. All discrepancies shall be reported to the Landscape Architect for clarification prior to bidding. The Contractor shall furnish plant material in sizes specified in the plant list.
- Transport and handle plants so that foliage, roots, or root balls are protected from breakage, sun, and winds. Root stock of the plant material shall be kept moist during transport from the source to the job site and until planted. Tops or roots of plants allowed to dry out or which have been damaged and/or disturbed root balls will be rejected.
- The Contractor shall stake all material located on the site for review and/or adjustment by the Landscape Architect or the Owner prior to planting. All locations are to be approved by the Landscape Architect or Owner's Representative before excavation.
- The Contractor is responsible for testing project soils. The Contractor is to provide a certified soils report to the owner. The contractor shall verify that the soils on site are acceptable for the proper growth of the proposed plant material. Should the Contractor find poor soil conditions, the contractor shall be required to provide soil amendments as necessary. These amendments shall include, but not be limited to, fertilizers, lime and topsoil. Proper planting soils must be verified prior to planting materials.
- All plant material (nursery stock) to conform to American Nursery & Landscape Association's (A.N.L.A.) latest edition of "American Standard for Nursery Stock" (ANSI Z60.1), particularly with regard to size, growth, size and density of branch structure.
- All plants shall be identified in accordance with "Hortus Third, by the Staff of the L. H. Bailey Hortorium, Cornell University, 1976."
- Plants shall have normal, well developed branches and vigorous, fibrous root systems. They shall be healthy and free from disease, decay, sun scald, abrasions, insect pests or infestations and other damage.
- No substitutions shall be made without written consent of the Owner and/or Landscape Architect.
- The Landscape Architect or Owner shall have the right, at any stage of the operations, to reject any and all work and materials which, in his or her opinion, does not meet the requirements of these plans and specifications. All rejected material shall be removed from the site by the Contractor.
- All plant material should be backfilled with soil (amended as necessary) in layers to two-thirds of the depth of the planting pit. Soil should then be tamped and watered thoroughly at low pressure before being backfilled to proper grade. The planting pit should be flooded again, once backfilling is completed, so that backfill is thoroughly saturated and settled.
- If the soil is wet or compacted, all containerized and balled nursery stock should be planted such that the top one-third of the ball is above the existing grade.
- The top two-thirds of wire baskets on root balls should be removed.
- All trees and shrub planting beds are to be topped with three inches of hardwood mulch. No mulch shall be placed against trunks and/or stems. All groundcovers and seedlings should be mulched to a depth of one to two inches.
- All soils disturbed during installation of plant material shall be treated by incorporating composted organic material within the top four to six (4 - 6) inches.
- All planting beds adjacent to lawn, sod, or seeded areas shall be spade edged to a depth of three inches.
- The Contractor shall dispose of stumps and major roots of all plants to be removed. Any depressions caused by removal operations shall be refilled with fertile, friable, soil placed and compacted so as to reestablish proper grade for new planting and/or lawn areas.
- The Contractor shall insure adequate vertical drainage in all plant beds and planters.
- Upon completion of all landscaping, an acceptance of the work shall be held. The Contractor shall notify the Landscape Architect or the Owner for scheduling of the inspection at least seven (7) days prior to the anticipated inspection date.
- Maintenance shall begin after each plant has been installed and shall continue 90 days after initial acceptance by the Landscape Architect or the Owner's Representative. Maintenance shall include mowing of turf, watering, pruning, weeding, replacement of sick or dead plants, and other care necessary for the proper growth of the plant material. The Contractor shall be responsible for the use of all equipment, labor and material necessary to perform maintenance operations and any injury to plants or material caused by such equipment, labor or material shall be contacted and repaired by the Contractor at no additional expense to the owner.
- All trees shall be guaranteed for twelve (12) months from the date of acceptance. All shrubs and ground covers shall be guaranteed for twelve (12) months from the date of acceptance.
- All disturbed areas on the site not planted with shrubs or ground cover shall be fine graded and seeded or sodded as noted on landscape plan.
- All sod shall be obtained from areas having growing conditions familiar to areas to be covered. Areas to be sodded shall be raked of stones and debris. Debris and stones over one inch (1") shall be removed from the site. All damaged sod will be rejected. All sod must be placed with staggered joints, tightly butted, with no inequalities in grade. Place all sod rows at right angle to slope (where applicable).

POLE LENGTH	FOOTING DEPTH BELOW GRADE	FOOTING DIAMETER	REBAR REINFORCEMENT
8'-0" TO 15'-0"	3'-6"	1'-6"	6 #6
15'-1" TO 20'-0"	4'-0"	2'-0"	8 #6
21'-1" TO 25'-0"	5'-0"	2'-0"	8 #6
25'-1" TO 30'-0"	5'-6"	2'-6"	10 #8
30'-1" TO 40'-0"	6'-6"	3'-0"	12 #8



**H** SITE LIGHTING FLUSH MOUNT FOUNDATION (OR EQUIVALENT)  
12

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Development Engineering Division: *[Signature]* 5/7/13  
 Chief, Division of Land Development: *[Signature]* 5/14/13  
 Director: *[Signature]* 5/14/13

AS-BUILT

4/23/13  
DATE  
 STATE OF MARYLAND  
 BRYAN KEITH COLWELL  
 REGISTERED LANDSCAPE ARCHITECT  
 NO. 3174

**DDC**  
Development Design Consultants

Planners  
Surveyors  
Engineers  
Landscape Architects

192 East Main Street  
Westminster, MD 21157  
410.386.0560  
410.386.0564 (Fax)  
DDC@DDCinc.us  
www.DDCinc.us

OWNER: SMITH DORSEY RUN ROAD, LLC. ROBERT SMITH 6011 UNIVERSITY BLVD, STE. 350 ELLICOTT CITY, MD 21043 (443)540-4275  
 DEVELOPER: MEADOWOOD DORSEY RUN, LLC. THOM MCKEE 202 SHADY CREEK ROAD MARIOTTVILLE, MD 21104 (410)489-5080

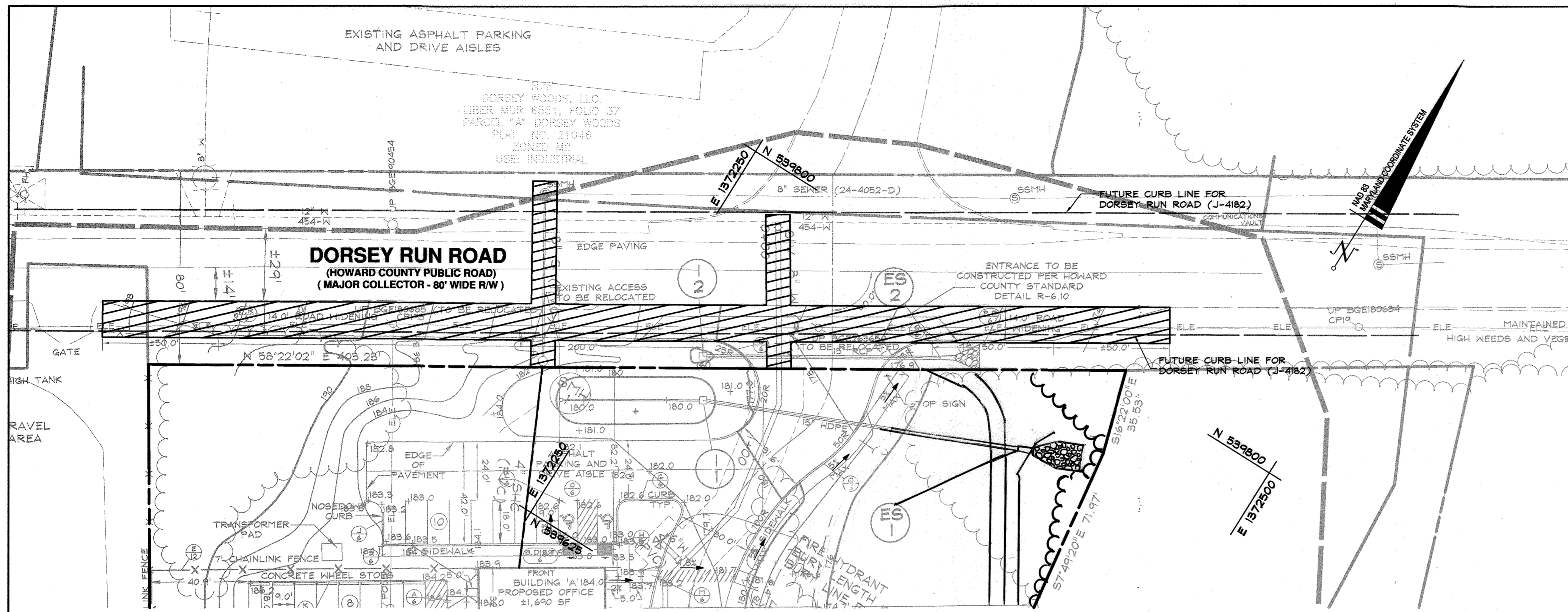
SITE ADDRESS: 8101 DORSEY RUN ROAD JESSUP, MD 20794

AMERIGAS DORSEY WOODS PARCEL 'B' PROPOSED OFFICE AND WAREHOUSE  
**LANDSCAPE NOTES & DETAILS**  
 6TH ELECTION DISTRICT HOWARD COUNTY, MD

REVISIONS	
NO.	DESCRIPTION OF CHANGES

PLAT # 22354 DES. BY: BKC  
 TAX ACC. #: 1406399924 DRN. BY: BKC  
 TAX MAP: 48 CHK. BY: BKC  
 BLOCK / GRID: 2 DATE: 4/23/13  
 PARCEL #: 134 / B DDC JOB#: 11085.1  
 ZONE / USE: M-2 SHEET NUMBER:  
 DWG. SCALE: AS SHOWN 12 of 16

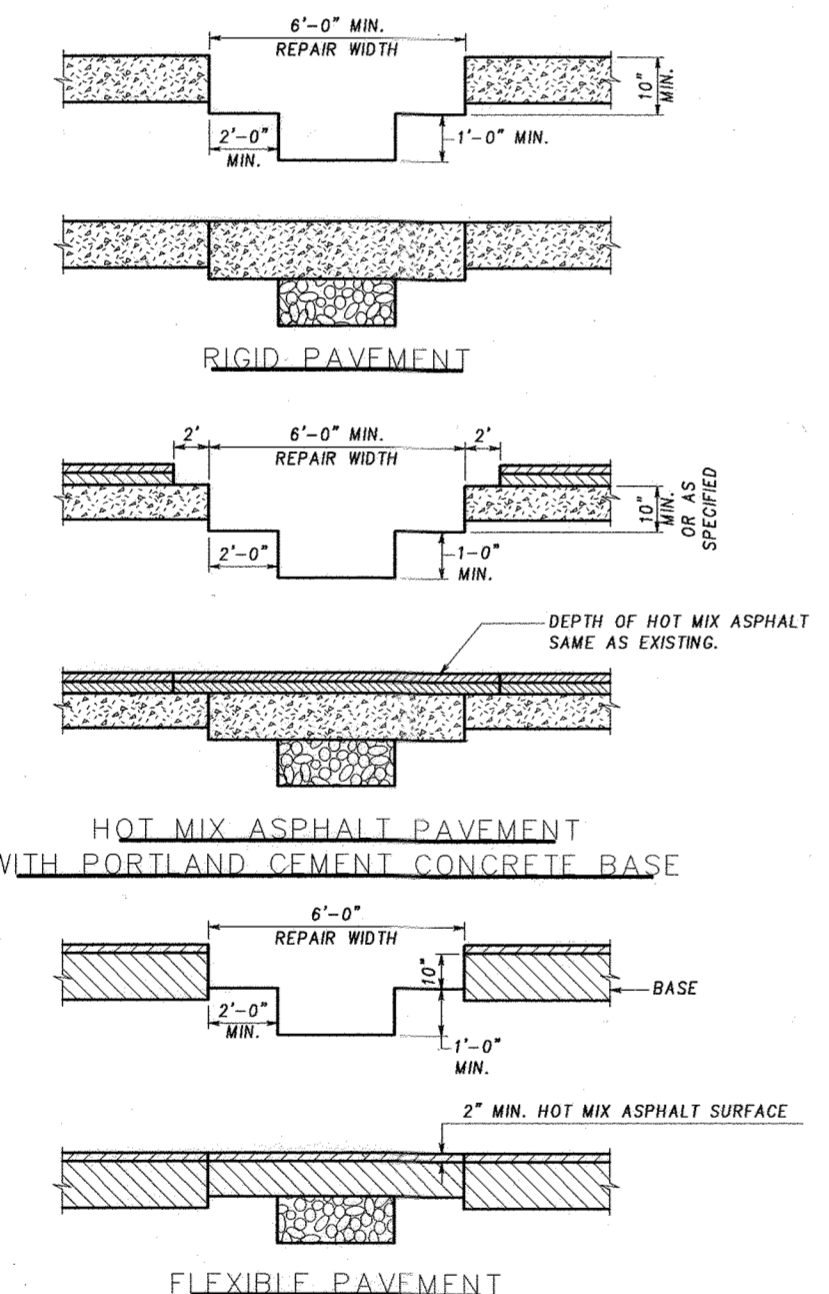




MOT PLAN  
SCALE: 1" = 30'

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION



NOTES

1. THIS STANDARD IS TO BE USED IN ACCORDANCE WITH SECTIONS 505 AND 522. THE ROADWAY SHALL BE PATCHED WITH THE SAME TYPE MATERIAL UNLESS NOTED IN THE SPECIFICATIONS. PORTLAND CEMENT CONCRETE PAVEMENT REPAIR SHALL BE IN ACCORDANCE WITH STANDARDS 577.02, 577.03, 577.04, 577.05, 577.06, OR 577.10.
2. THE TOP 1 FT. OF THE TRENCH SHALL BE FILLED WITH NO. 57 AGGREGATE. TRENCH TO BE EXTENDED TO DITCH LINE.
3. WHENEVER A TRENCH CROSSES A CONCRETE ROADWAY THAT HAS JOINT INSTALLATIONS THE ENTIRE SLAB BETWEEN THE EDGE OF THE TRENCH AND NEAREST JOINT SHALL BE REMOVED IF THE DISTANCE IS LESS THAN 6 FT.
4. CLEAN AND WET EDGES OF CUT AND SUBBASE BEFORE PLACING CONCRETE.
5. ALL WORK SUCH AS TRENCH BACKFILL, CURING OF CONCRETE, MATERIALS USED, ETC. SHALL BE IN ACCORDANCE WITH SECTIONS 201, 505 AND 522 OF THE SPECIFICATIONS OR AS SPECIFIED IN THE PERMIT.
6. ALL COSTS FOR SAWCUTS, TRENCH EXCAVATION, BACKFILL, HOT MIX ASPHALT, CONCRETE, NO. 57 AGGREGATE, MATERIALS, TOOLS, LABOR AND INCIDENTALS SHALL BE INCLUDED IN THE PRICE OF THE UTILITY ITEMS.
7. RIGID PAVEMENT REPAIRS AS SHOWN SHALL BE MADE USING CONCRETE MIX NO. 9 (NINE) MEETING THE REQUIREMENTS OF SECTION 802 OF THE SPECIFICATIONS UNLESS OTHERWISE SPECIFIED IN THE SPECIAL PROVISIONS, OR THE PLANS OR AS DIRECTED BY THE ENGINEER.

REPAIRING PAVEMENT OPENINGS FOR UTILITY TRENCHES  
STANDARD NO. MD 578.01  
NOT TO SCALE

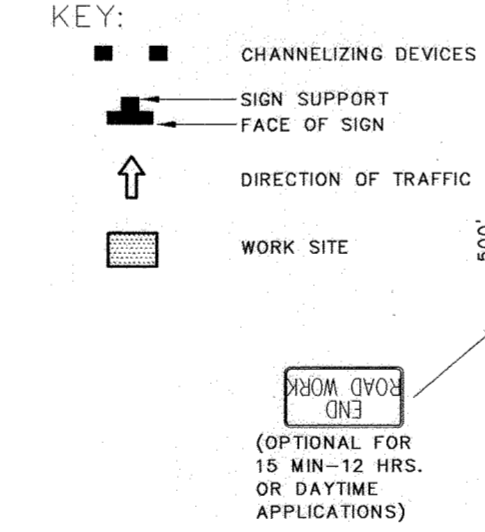
IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTES:  
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY POSITIVE PROTECTION (TEMPORARY CONCRETE BARRIER OR SIMILAR DEVICE). REFER TO STANDARD NO. MD 104.06-18.

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-15 TO MD 104.06-19.

THERE SHALL BE A MINIMUM OF SEVEN CHANNELIZING DEVICES IN THE SHOULDER TAPER.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.



SHOULDER WORK/2-LANE, 2-WAY  
EQL/LESS THAN 40 MPH  
STANDARD NO. MD 104.02-02  
NOT TO SCALE

SEQUENCE OF CONSTRUCTION - WATER CONNECTION, SEWER CONNECTION & COMMERCIAL ENTRANCE

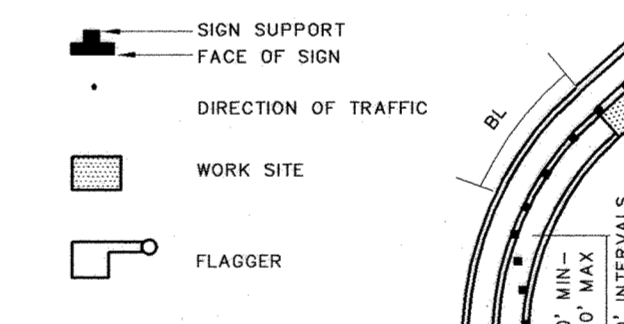
1. INSTALL WORK ZONE WARNING SIGNS AS DIRECTED BY TRAFFIC CONTROL MANAGER.
2. INSTALL TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH MD 104.02-02 & MD 104.02-10 (ON THIS SHEET). PERFORM WESTBOUND LANE WORK AND CLOSURE FIRST.
3. INSTALL PROPOSED WATER CONNECTION AND PROPOSED SEWER CONNECTION FROM EXISTING SEWER MANHOLE TO CENTER OF DORSEY RUN ROAD.
4. WITH WESTBOUND LANE WORK COMPLETE, SHIFT CLOSURE AND FLAGGING OPERATION TO EASTBOUND LANE TO COMPLETE WORK.
5. INSTALL COMMERCIAL ENTRANCE AND EXTEND WATER AND SEWER CONNECTIONS ONTO SITE.
6. MILL FOR EDGE OF ROAD REPAIR PER MDSA STD DETAIL MD 578.01 (ON THIS SHEET).
7. REMOVE SIGNS AND TRAFFIC CONTROL DEVICES.

NOTE: ROADSIDE EXCAVATION SHALL ADHERE TO SHA STANDARDS FOR PAVEMENT EDGE DROP-OFFS.

IMPORTANT: THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-81

NOTE:  
FLAGGER SHALL NEVER BE STATIONED MORE THAN 1500' AWAY FROM THE ADVANCE FLAGGER SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.



FLAGGING OPERATION/2-LANE, 2-WAY  
EQL/LESS THAN 40 MPH  
STANDARD NO. MD 104.02-10  
NOT TO SCALE

AS-BUILT

4/23/13  
DATE

Professional Certification  
I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 27020. Expiration Date: 4-23-14

PAUL G. CAVANAUGH  
P.E. 27020

DATA SOURCES:  
EXISTING OFFSITE TOPOGRAPHY SHOWN PER HONARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83 (1991), NAVD-88. EXISTING ON-SITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

Planners  
Surveyors  
Engineers  
Landscape Architects

192 East Main Street  
Westminster, MD 21157  
410.386.0560  
410.386.0564 (Fax)  
DDC@DDCinc.us  
www.DDCinc.us

OWNER:  
SMITH DORSEY RUN ROAD, LLC  
ROBERT SMITH  
6011 UNIVERSITY BLVD, STE. 350  
ELLICOTT CITY, MD 21043  
(443)540-4275

DEVELOPER:  
MEADOWOOD DORSEY RUN, LLC  
THOM MCKEE  
1202 SHADY CREEK ROAD  
MARRIOTTSVILLE, MD 21104  
(410)489-5080

SITE ADDRESS:  
8101 DORSEY RUN ROAD  
JESSUP, MD 20794

AMERIGAS DORSEY WOODS PARCEL 'B'  
PROPOSED OFFICE AND WAREHOUSE  
MAINTENANCE OF TRAFFIC PLAN

6TH ELECTION DISTRICT		HOWARD COUNTY, MD	
REVISIONS			
1	REDLINE REVISION TO SHIFT TANKS, RELOCATE RAMP AND INCLUDE MASS GRADING	MBA	PGC 7/13/13
2	ADDED SHEETS 15 & 16	J.L. P.C.	3-24
NO.	DESCRIPTION OF CHANGES	DRN.	REV. DATE
PLAT #	22354	DES. BY:	PGC
TAX ACC. #	1406399924	DRN. BY:	CTS
TAX MAP:	48	CHK. BY:	PGC
BLOCK / GRID:	2	DATE:	4/23/13
PARCEL #:	134 / B	DDC JOB #:	11085.1
ZONE / USE:	M-2	SHEET NUMBER:	
DWG. SCALE:	AS SHOWN		13 of 16

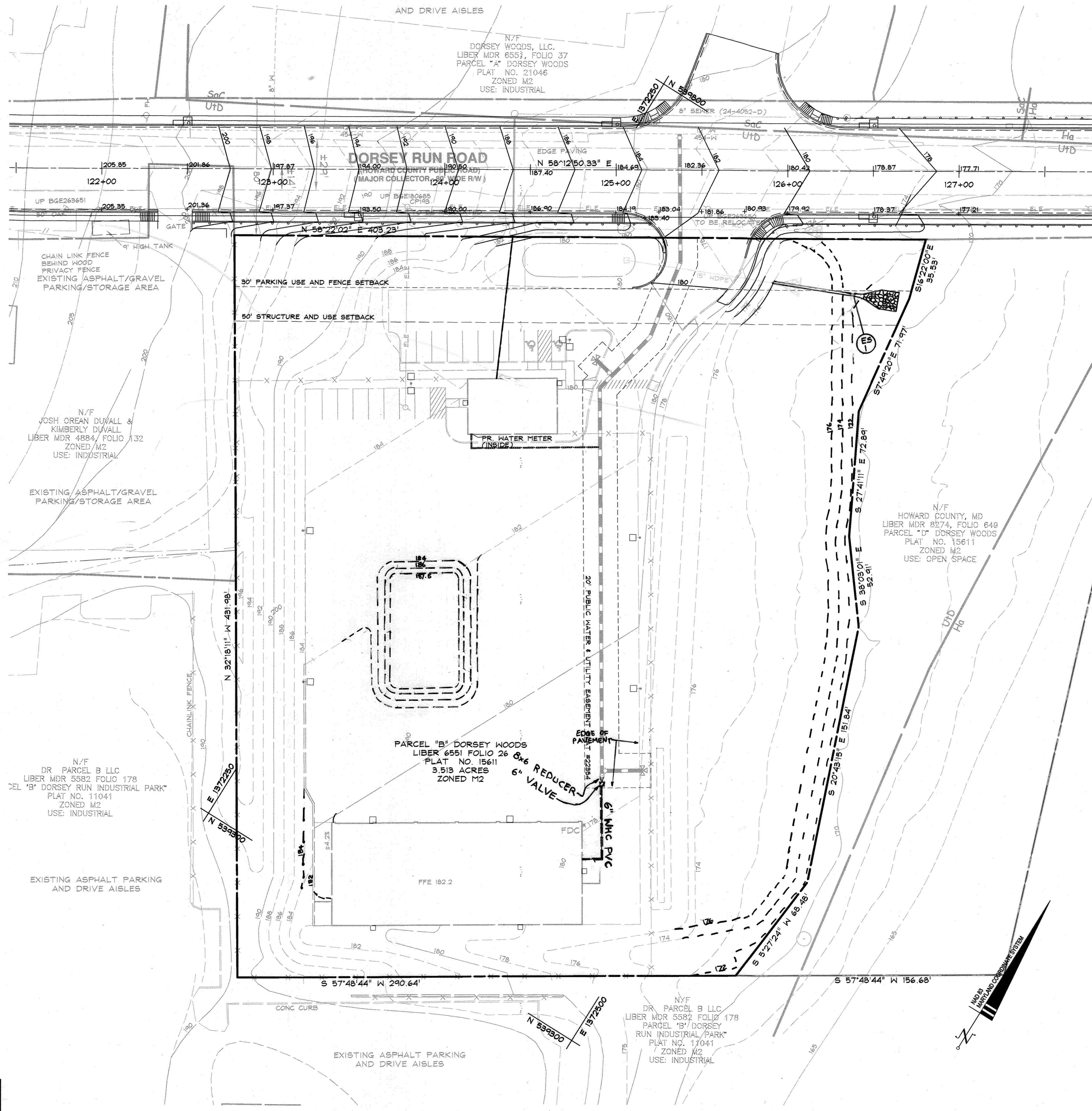
APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DATE: 5/7/13

CHIEF, DIVISION OF LAND DEVELOPMENT  
DATE: 5/14/13

DIRECTOR  
DATE: 5/14/13





**DRAWING LEGEND**

682	EXISTING MINOR CONTOUR (2' INTERVAL)
680	EXISTING MAJOR CONTOUR (10' INTERVAL)
---	ADJACENT PROPERTY LINE
N 06°48'48" W 120.00'	EXISTING PROPERTY BOUNDARY
---	EX. ROAD / EDGE OF PAVING
○	EX. SEWER LINE & MANHOLES, CLEAN-OUTS
○	EX. OVERHEAD ELECTRIC & UTILITY POLES
682	PROPOSED MINOR CONTOUR (2' INTERVAL)
680	PROPOSED MAJOR CONTOUR (10' INTERVAL)
---	PROPOSED PRIVATE ROAD/DRIVE CENTERLINE
▭	EX. BUILDING
▭	PROPOSED BUILDING EXPANSION
→	PROPOSED SPOT ELEVATION & FLOW ARROW
---	EXISTING TIE LINE
---	SOIL DELINEATION LINE
▭	STEEP SLOPES 15%-25% (0.27± Ac.)
▭	STEEP SLOPES 25%+ (0.04± Ac.)
□	SITE LIGHTING
---	PROPOSED LIMIT OF DISTURBANCE

**DATA SOURCES:**  
 EXISTING OFFSITE TOPOGRAPHY SHOWN PER HOWARD COUNTY OIT/GIS, BASED ON MARYLAND COORDINATE SYSTEM, NAD-83(1991), NAVD-88. EXISTING ONSITE TOPOGRAPHY AND BOUNDARY SHOWN PER FIELD RUN SURVEY PERFORMED BY PROFESSIONAL SURVEYS, LLC COMPLETED IN JULY 2012. EXISTING SOILS SHOWN PER USDA WEB SOIL SURVEY.

**DDC**  
 Development Design Consultants

Planners  
 Surveyors  
 Engineers  
 Landscape Architects

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 ROBERT SMITH  
 801 UNIVERSITY BLVD, STE. 350  
 ELLICOTT CITY, MD 21043  
 (443)540-4275

**DEVELOPER:**  
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 MARRIOTTSVILLE, MD 21104  
 (410)489-5080

**SITE ADDRESS:**  
 8101 DORSEY RUN ROAD  
 JESSUP, MD 20794

**AMERIGAS  
 DORSEY WOODS PARCEL 'B'  
 PROPOSED OFFICE AND WAREHOUSE  
 DORSEY RUN ROAD  
 FUTURE CONNECTION**

6TH ELECTION DISTRICT HOWARD COUNTY, MD

NO.	DESCRIPTION OF CHANGES	DRN.	REV.	DATE
1	REVISIONS REDLINE REVISION TO SHIFT TANKS, M&A P&C 7/2/13 RELOCATE RAMP AND INCLUDE MASS GRADING			
2	ADDED SHEETS 15 & 16	J.L.	P.C.	3-24

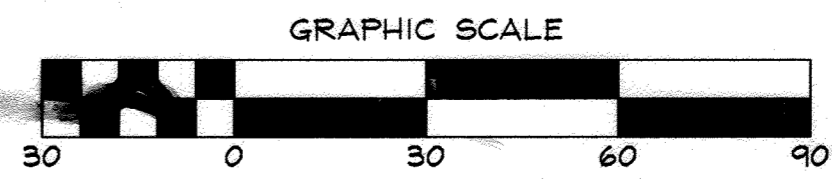
PLAT # 22354	DES. BY: BKC
TAX ACC. # 1406399924	DRN. BY: CTS
TAX MAP: 48	CHK. BY: PGC
BLOCK / GRID: 2	DATE: 4/23/13
PARCEL # 134 / B	DDC JOB#: 11085.1
ZONE / USE: M-2	SHEET NUMBER:
DWG. SCALE: 1"=30'	14 of 16

**AS-BUILT**

4/23/13  
 DATE

Professional Certification  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 27020, Expiration Date 12-31-14.

*Paul G. Cavanaugh*  
 PAUL G. CAVANAUGH  
 P.E. 27020



**NOT FOR CONSTRUCTION**

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Robert Smith* 5/7/13  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Vect. Spaulwood* 5/14/13  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Paul G. Cavanaugh* 5/14/13  
 DIRECTOR DATE



SOIL PREPARATION, TOPSOILING AND SOIL AMENDMENTS (B-4-2)

- 1. Temporary Stabilization
a. Seeded preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment...
b. Apply fertilizer and lime as prescribed on the plans.

TEMPORARY SEEDING NOTES (B-4-1)

- To stabilize disturbed soils with vegetation for up to 6 months.
To use fast growing vegetation that provides cover on disturbed soils.
Conditions Where Practice Applies
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Table with 4 columns: Species, Application Rate (lb/1000 sq ft), Seeding Depth (inches), Seeding Date. Rows include AMLEY, DATS, and RYE.

PERMANENT SEEDING NOTES (B-4-3)

- 1. General Use
a. Select one or more of the species or mixtures listed in Table B.1 for the appropriate P301 Hardness Zone...
b. Additional planting specifications for exceptional sites such as shorelines, stream banks, or dunes...
c. For sites having disturbed areas over 4 acres, use and show the rates recommended by the soil testing agency...

C. Soil Amendments (Fertilizer and Lime Specifications)

- 1. Soil tests must be performed to determine the appropriate rates for both lime and fertilizer...
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment...
3. Lime materials must be ground limestone (finest or hard) lime that is substantially equal when hydrosized...
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil...

STANDARDS AND SPECIFICATIONS FOR SEEDING AND MULCHING (B-4-3)

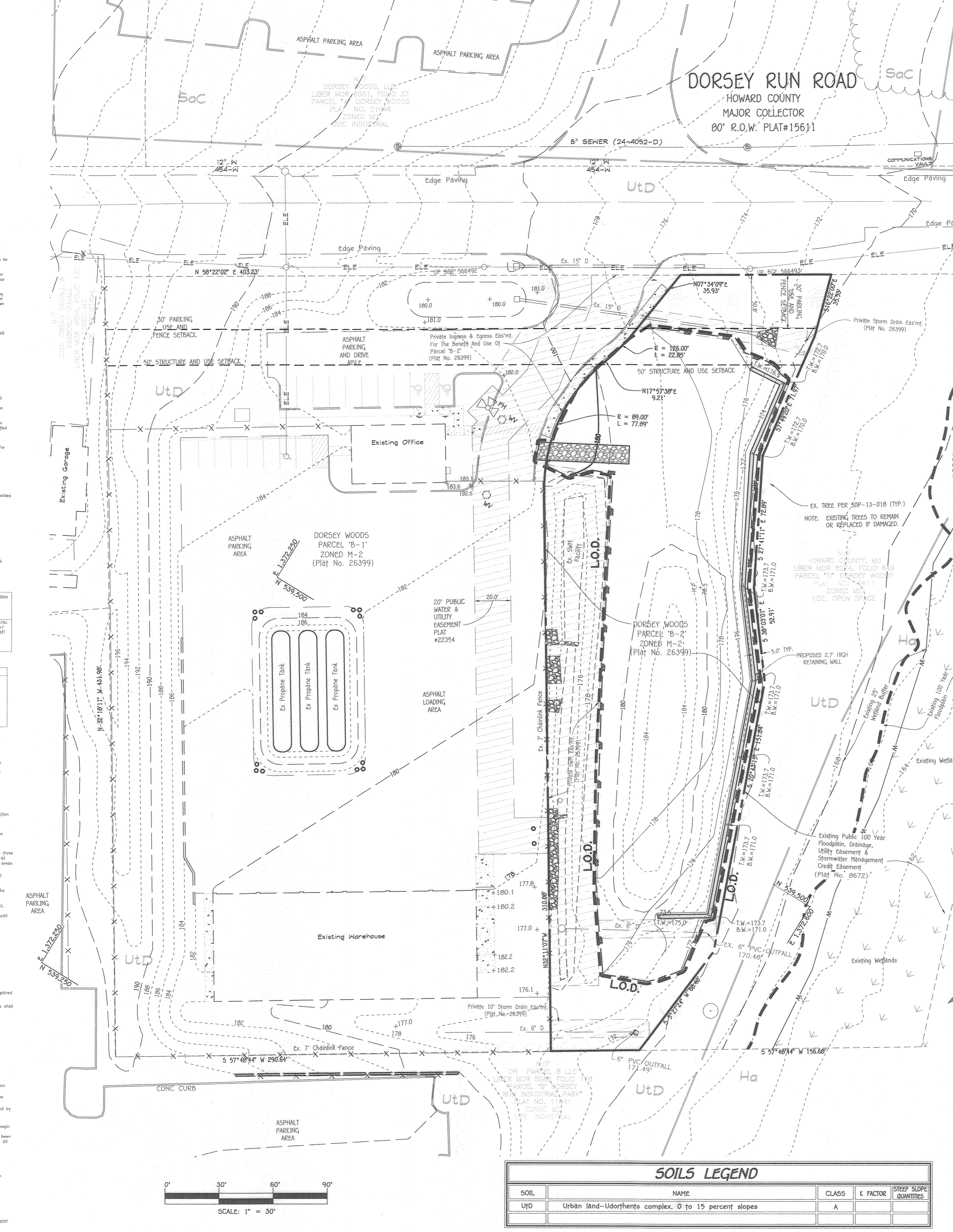
- To protect disturbed soils from erosion during and at the end of construction.
To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Table with 4 columns: Species, Application Rate (lb/1000 sq ft), Seeding Depth (inches), Seeding Date. Rows include TALL FESCUE and B.

STANDARD STABILIZATION NOTE
FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
a. 17 DAYS FOR CALCAREOUS SOILS TO THE SURFACE OF ALL PERIMETER DECKS, WALLS, ETC.

HOWARD SOIL CONSERVATION DISTRICT (HSCD) STANDARD SEDIMENT CONTROL NOTES

- 1. A pre-construction meeting must occur with the Howard County Department of Public Works, Construction Inspection Division (CID)...
2. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization is required within three (3) calendar days...
3. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 HANDBOOK...
4. All disturbed areas must be stabilized within the time period specified above in accordance with the 2011 HANDBOOK...
5. All sediment control structures are to remain in place, and are to be maintained in operative condition until permission for their removal has been obtained from the CID.



FISHER, COLLINS & CARTER, INC. CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTENAL SQUARE OFFICE: PARK PLAZA - 10722 BALTIMORE NATIONAL PIKE, ELICOTT CITY, MARYLAND 21042, (410) 461 - 2955

SOILS LEGEND table with columns: SOIL, NAME, CLASS, K FACTOR, STEEP SLOPE QUANTITIES. Row 1: Utd, Urban land-Udorthents complex, 0 to 15 percent slopes, A.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING
Chief, Development Engineering Division: 5-6-24
Date: 5/6/24

DESIGN CERTIFICATE
I hereby certify that this plan has been designed in accordance with current Maryland erosion and sediment control laws, regulations, and standards...
PAUL G. CAVANAUGH, Professional Engineer No. 27020

OWNER'S/DEVELOPER CERTIFICATE
I/We hereby certify that any clearing, grading, construction, or development will be done pursuant to this approved erosion and sediment control plan...
ALEXANDER BRATHIS, Howard Soil Conservation District

SEQUENCE OF CONSTRUCTION
1. OBTAIN GRADING PERMITS. (2 WEEKS)
2. NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE ANY WORK AT 1-800-257-7777...
3. INSTALL THE STABILIZED CONSTRUCTION ENTRANCE & PERIMETER SUPER SILT FENCE AS SHOWN ON THE PLANS...
4. INSTALL RETAINING WALL AS SHOWN. (SEE SHEET 16 FOR DETAILS). (2 WEEKS)

SEDIMENT CONTROL LEGEND
55F SUPER-SILT FENCE
STABILIZED CONSTRUCTION ENTRANCE
L.O.D. LIMIT OF DISTURBANCE

OWNER: SMITH DORSEY RUN ROAD, LLC
DEVELOPER: MEADOWOOD-DORSEY RUN, LLC
THOM MOCKE
1202 SHADY CREEK ROAD
MARTINSVILLE, MD 21104
(443)540-4275

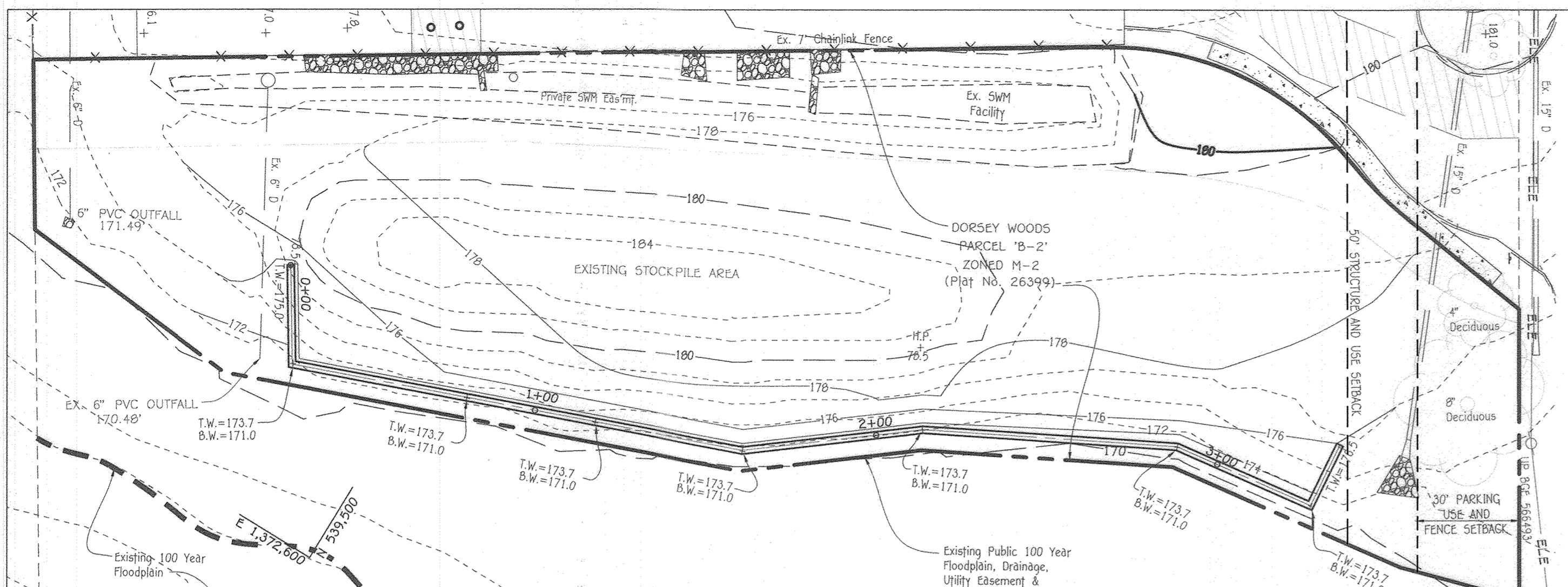
AMERIGAS
DORSEY WOODS PARCEL 'B'
PROPOSED OFFICE AND WAREHOUSE
MASS GRADING & SEDIMENT CONTROL PLAN
ZONED M-2

REVISIONS table with columns: NO., DESCRIPTION OF CHANGES, DRN, REV. DATE. Row 1: 1, CORRECTED THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 27020, EXPIRATION DATE: 03/11/2024.

NO. 22354, DES. BY: F.C.C., TAX ACC. #: 1406399924, DRN BY: J.C.L., TAX MAP: 48, CHK BY: P.G.C., BLOCK / GRID: 2, DATE: 3/11/24, PARCEL #: 134/B, FCC JOB #: 23056, ZONE / USE: M-2, SHEET NUMBER: 15 OF 16, DWG. SCALE: 1" = 30'

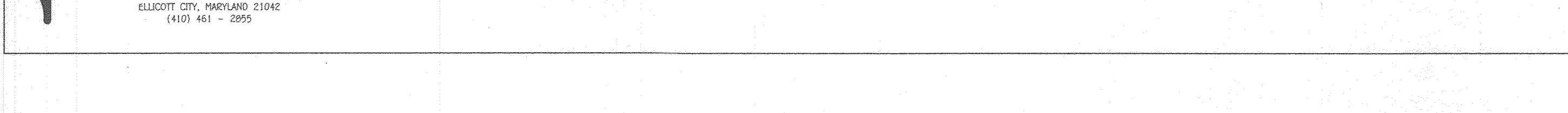
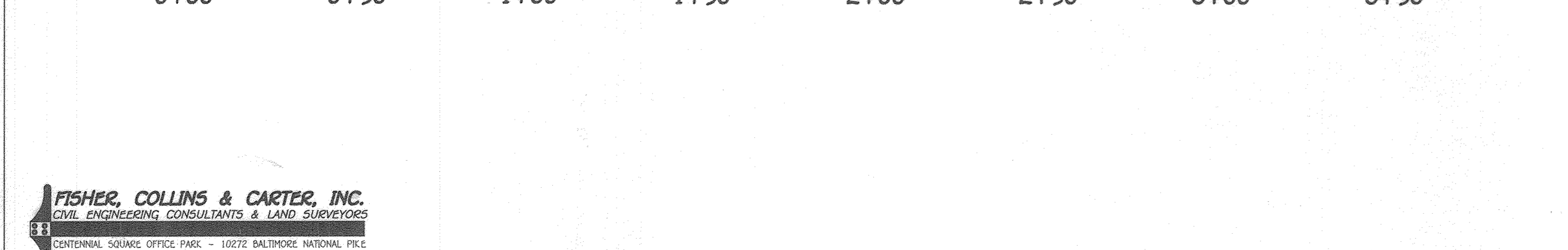
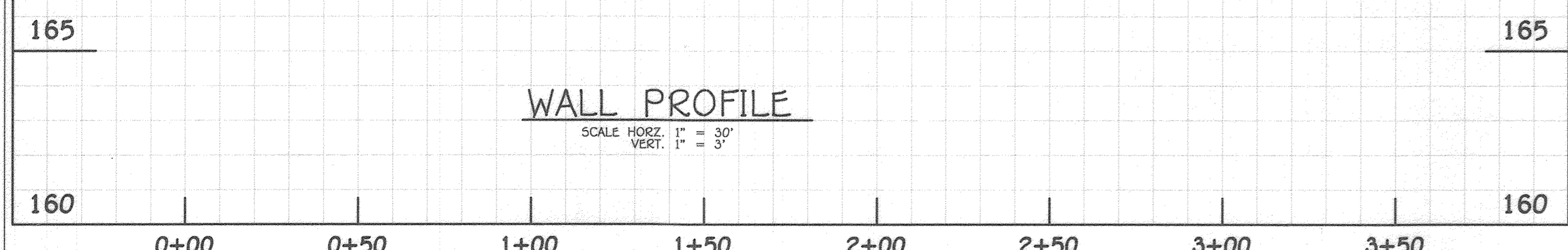
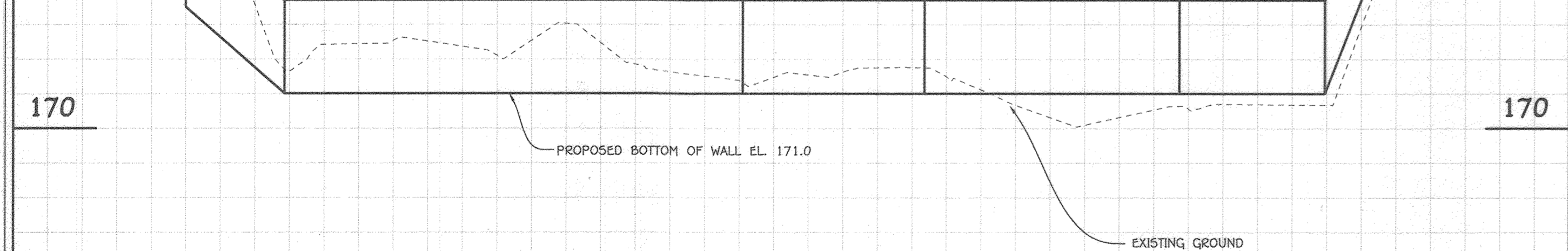
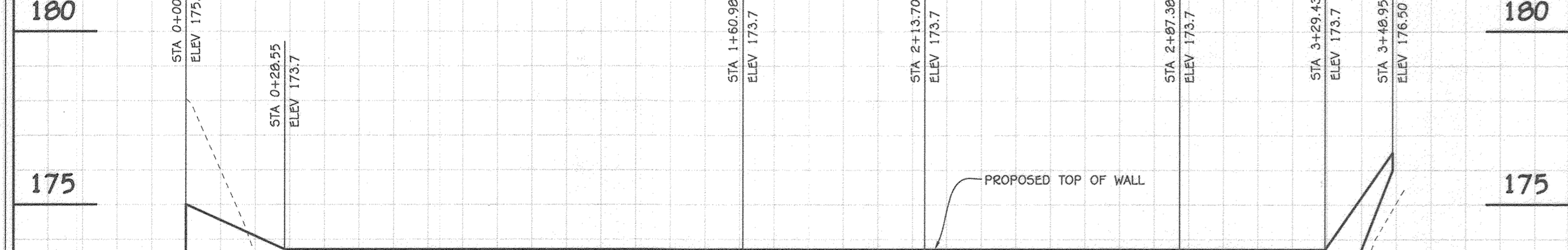
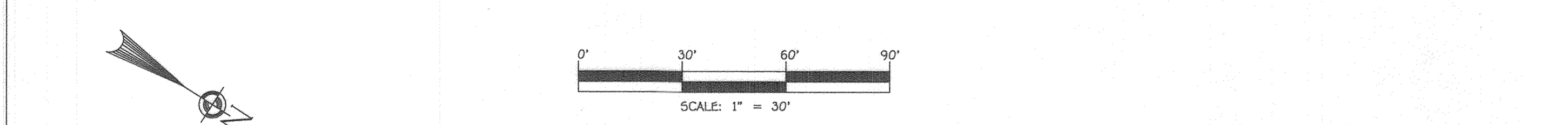
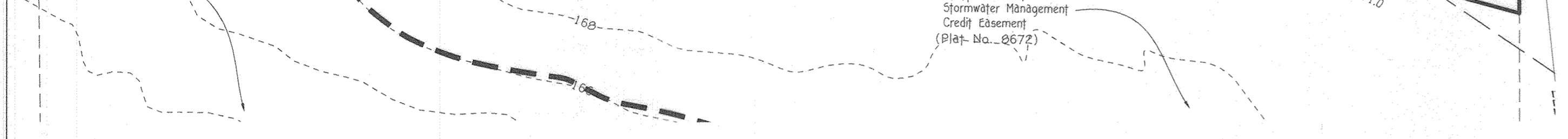


Chief, Development Engineering Division
Chief, Division of Land Development
Director
5/6/24
5/16/24
5/16/24



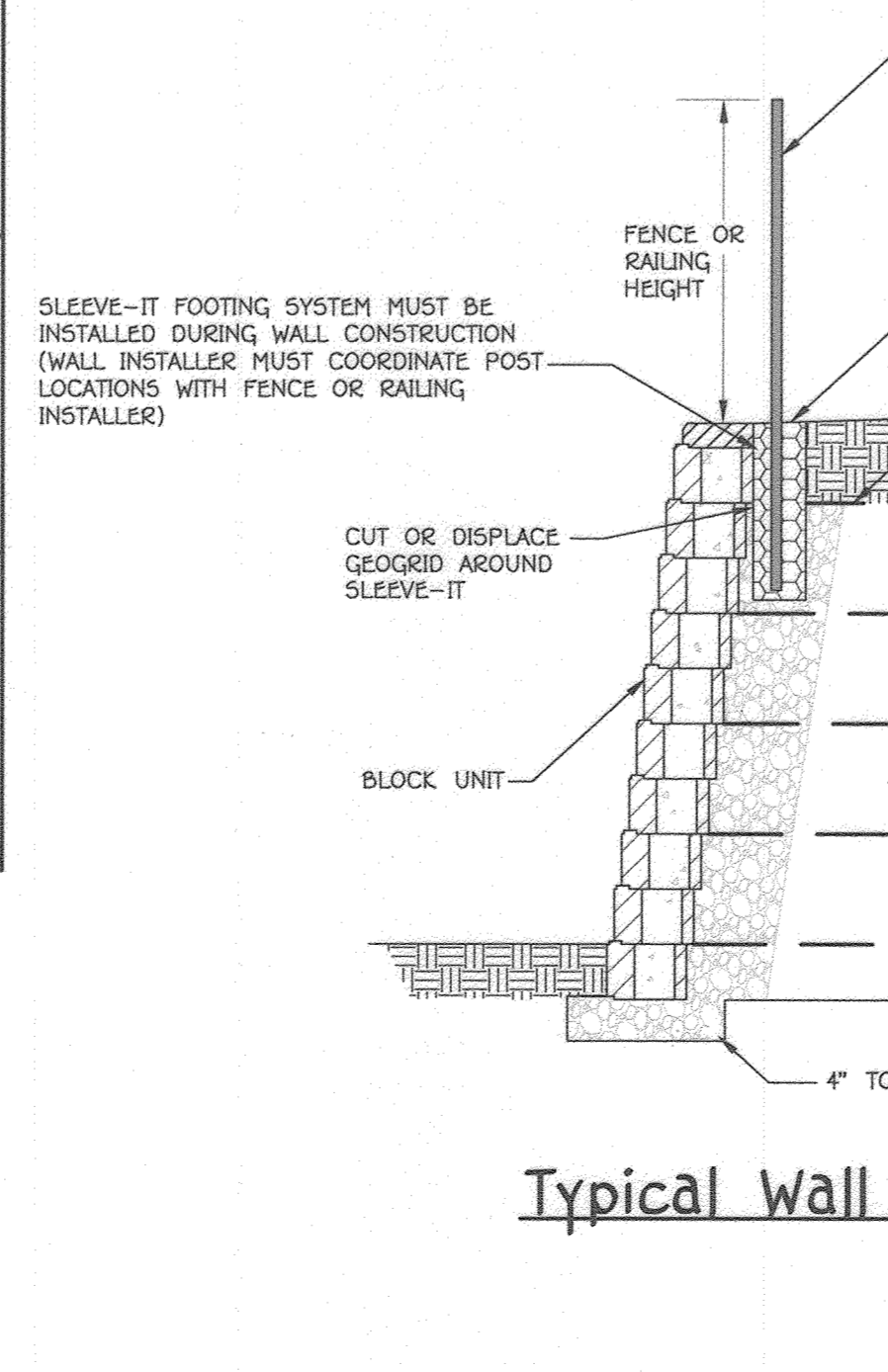
- GENERAL STRUCTURAL NOTES
1. THE RETAINING WALL SHALL BE DESIGNED AND CONSTRUCTED IN FULL COMPLIANCE WITH ALL APPLICABLE SECTIONS OF 2018 INTERNATIONAL BUILDING CODE...
2. THE STRUCTURE HAS BEEN DESIGNED FOR THE FOLLOWING LOADS UNDER NO CIRCUMSTANCES SHALL CONTRACTOR OR OWNER ENGAGE CONSTRUCTION PRACTICE OR WALL USE THAT WILL EXCEED THESE LOADS WITHOUT FIRST GAINING APPROVAL FROM THE ENGINEER...
3. THE RETAINING WALL IS DESIGNED BASED ON THE FOLLOWING PARAMETERS: UNIT WEIGHT, ACTIVE EQUIVALENT FLUID PRESSURE, ALLOWABLE SOIL PRESSURE, FACTOR OF SAFETY AGAINST OVERTURNING, FACTOR OF SAFETY AGAINST SLIDING, FRICTIONAL RESISTANCE COEFFICIENT...
4. WIND LOADS: BASIC DESIGN WIND SPEED, WIND IMPORTANCE FACTOR, WIND EXPOSURE...
5. DETAILS DESIGNATED AS 'TYPICAL' SHALL BE UNDERSTOOD TO APPLY TO ALL UNITS...
6. SCALES NOTED ON THE DRAWINGS ARE FOR GENERAL INFORMATION ONLY...
7. THE CONTRACTOR SHALL ESTABLISH THE METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION SUBJECT TO COMPLIANCE WITH ALL PROJECT REQUIREMENTS...
8. REFER TO CIVIL AND OTHER DIVISIONS OF THE CONTRACT DOCUMENTS FOR ADDITIONAL PROJECT REQUIREMENTS...
9. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE LOCATION OF ANY UTILITIES IN THE IMMEDIATE VICINITY OF CONSTRUCTION...
10. PRIOR TO PLACING FOOTINGS AND BACK FILLING, REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND CIVIL DRAWINGS FOR ADDITIONAL UNDERGROUND OR EMBEDDED WORK AND OTHER PROJECT REQUIREMENTS.

- 1.06 QUALITY ASSURANCE
A. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE RETAINING WALL SYSTEM...
B. CONTRACTOR SHALL VERIFY SHOP DRAWINGS FOR THE RETAINING WALL SYSTEM...
1.07 MATERIALS AND CERTIFICATION
A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPES, GRADES, COLORS, AND CERTIFICATION HAVE BEEN RECEIVED...
B. CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS...
PART 3. EXECUTION
3.01 EXCAVATION
3.02 BASE LEVELING PAD
A. LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS...
B. SOIL LEVELING PAD MATERIALS SHALL BE COMPACTED TO A MINIMUM OF 90% STANDARD PROCTOR DENSITY PER ASTM D697 OR 92% MODIFIED PROCTOR DENSITY PER ASTM D1557...
3.03 KEYSTONE UNIT INSTALLATION
A. FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE...
B. PLACE THE FRONT OF UNITS SIDE-BY-SIDE, DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS...
C. INSTALL SHEAR/CONNECTING PINS PER MANUFACTURER'S RECOMMENDATIONS...
D. PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS...
E. MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED TWO COURSES...
3.04 STRUCTURAL GEOTEXTILE INSTALLATION
A. GEOTEXTILE SHALL BE INSTALLED WITH THE HIGHEST STRENGTH DIRECTION PERPENDICULAR TO THE WALL ALIGNMENT...
B. GEOTEXTILE REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS...
C. THE GEOTEXTILE SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE KEYSTONE WALL UNIT PINS AND WITHIN 1 INCH OF THE FACE OF THE UNITS...
D. GEOTEXTILE REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL...
3.05 REINFORCED BACKFILL PLACEMENT
A. REINFORCED BACKFILL SHALL BE PLACED, SPREAD AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOTEXTILE AND INSTALLATION DAMAGE TO THE GEOTEXTILE...
B. REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES (150 MM) WHERE HAND OPERATED COMPACTION EQUIPMENT IS USED...
C. REINFORCED BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 90% OF STANDARD PROCTOR DENSITY PER ASTM D697 OR 92% MODIFIED PROCTOR DENSITY PER ASTM D1557...
D. ONLY HAND OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET (1 M) FROM THE BACK OF THE KEYSTONE CONCRETE UNITS...
E. TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOTEXTILE REINFORCEMENT...
F. RUBBER TRED EQUIPMENT MAY PASS OVER GEOTEXTILE REINFORCEMENT AT SLOW SPEEDS...
G. AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM THE WALL FACE...
3.06 FIELD QUALITY CONTROL
A. QUALITY ASSURANCE - THE OWNER SHALL/MAY ENGAGE INSPECTION AND TESTING SERVICES...
B. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INDEPENDENT INSPECTION AND TESTING SERVICES TO VERIFY SOIL TYPES AND STRENGTHS, COMPACTION AND MOISTURE CONDITIONS...
C. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INDEPENDENT INSPECTION AND TESTING SERVICES TO VERIFY SOIL TYPES AND STRENGTHS, COMPACTION AND MOISTURE CONDITIONS...
D. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INDEPENDENT INSPECTION AND TESTING SERVICES TO VERIFY SOIL TYPES AND STRENGTHS, COMPACTION AND MOISTURE CONDITIONS...



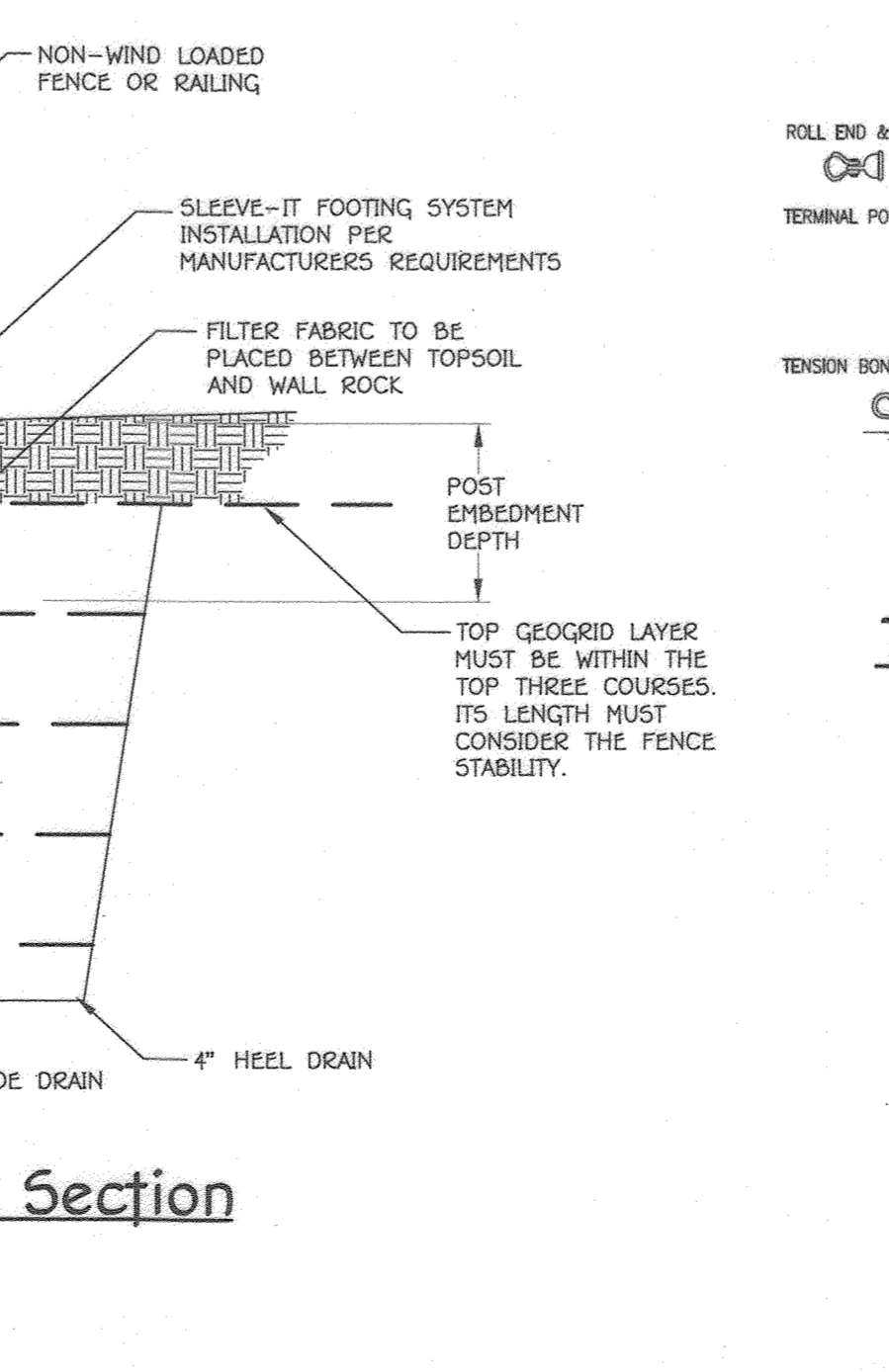
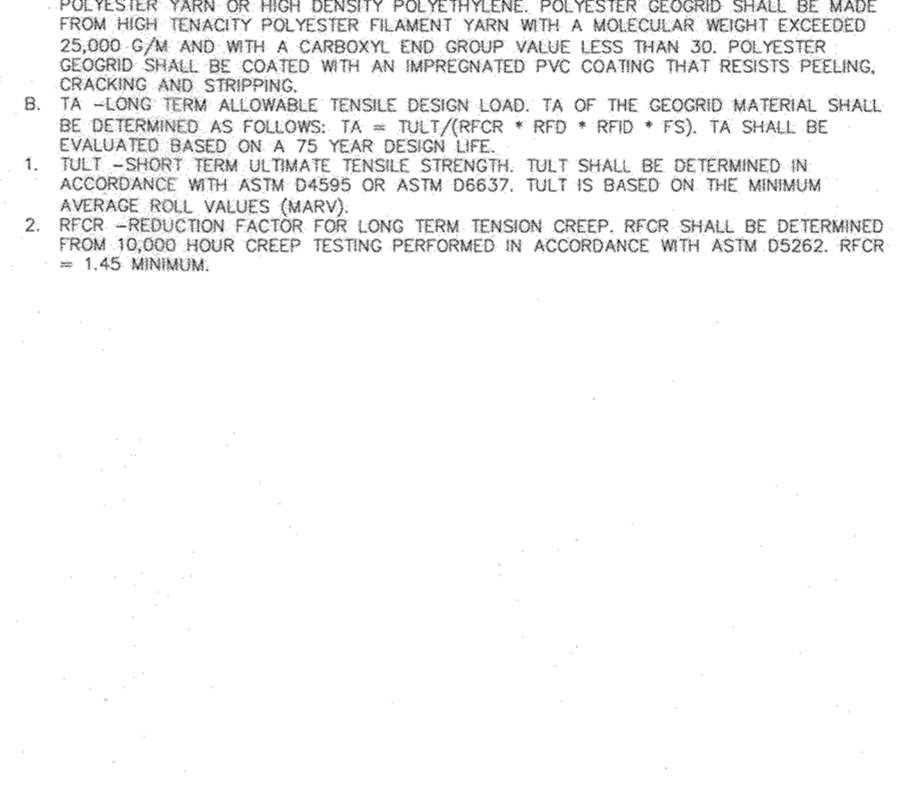
- KEYSTONE CONCRETE RETAINING WALL
PART 1. GENERAL
1.01 DESCRIPTION
A. WORK SHALL CONSIST OF DESIGNING, FURNISHING AND CONSTRUCTION OF A KEYSTONE HARDSCAPE STANDARD II UNIT RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLE CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN AND DIMENSIONS SHOWN ON THE PLANS. NO ALTERNATE WALL SYSTEMS WILL BE ALLOWED.
B. WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT FABRIC, FURNISHING AND INSTALLING GEOTEXTILE REINFORCEMENT TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
C. PROVIDE FURNISHING AND INSTALLING GEOTEXTILE SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.
1.02 RELATED SECTIONS
A. SECTION 31 00 00 - EARTHWORK
1.03 REFERENCE DOCUMENTS
A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)
1. AASHTO M 252 CORRUGATED POLYETHYLENE DRAINAGE PIPE
2. AASHTO M 288 GEOTEXTILE SPECIFICATION FOR HIGHWAY APPLICATIONS
B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
1. ASTM C140 SAMPLING AND TESTING CONCRETE MASONRY UNITS
2. ASTM C1372 SPECIFICATION FOR DRY-CAST SEGMENTAL RETAINING WALL UNITS
3. ASTM D4242 PARTICULATE SIZE ANALYSIS OF SOILS
4. ASTM D698 LABORATORY COMPACTION CHARACTERISTICS OF SOIL - STANDARD EFFORT
5. ASTM D1557 STANDARD TEST METHOD FOR DENSITY AND UNIT WEIGHT OF SOIL IN PLACE BY THE SAND CONE METHOD
6. ASTM D1557 LABORATORY COMPACTION CHARACTERISTICS OF SOIL - MODIFIED EFFORT
7. ASTM D2487 STANDARD CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOIL CLASSIFICATION SYSTEM)
8. ASTM D2922 STANDARD TEST METHODS FOR DENSITY OF SOIL AND SOIL-AGGREGATE IN PLACE BY NUCLEAR METHODS (SHALLOW DEPTH)
9. ASTM D3034 STANDARD SPECIFICATION FOR TYPE PSM POLY (VINYL CHLORIDE) (PVC) SEWER PIPES AND FITTINGS
10. ASTM D4318 LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS
11. ASTM D4475 HORIZONTAL SHEAR STRENGTH OF PULTRUDED REINFORCED PLASTIC RODS
12. ASTM D4476 FLUCTURAL PROPERTIES OF FIBER REINFORCED PULTRUDED PLASTIC RODS
13. ASTM D4495 STANDARD TEST METHOD FOR TENSILE PROPERTIES OF GEOTEXTILES BY WIDE-MOUTH STRIP METHOD
14. ASTM D4815 STANDARD GUIDE FOR IDENTIFICATION, STORAGE AND HANDLING OF GEOSYNTHETICS
15. ASTM D5918 STANDARD TEST METHOD FOR EVALUATING THE UNCONFINED TENSION CREEP BEHAVIOR OF GEOSYNTHETICS
16. ASTM D5921 STANDARD TEST METHOD FOR DETERMINING THE COEFFICIENT OF SOIL AND GEOSYNTHETIC OR GEOSYNTHETIC AND GEOSYNTHETIC FRICTION BY THE DIRECT SHEAR METHOD
17. ASTM D6818 STANDARD PRACTICE FOR OBTAINING SAMPLES OF GEOSYNTHETICS FROM A TEST SECTION FOR ASSESSMENT OF INSTALLATION DAMAGE
18. ASTM D6817 STANDARD TEST METHOD FOR DETERMINING TENSILE PROPERTIES OF GEOTEXTILES BY THE SINGLE OR MULTI-RIP METHOD
19. ASTM D6818 STANDARD TEST METHOD FOR DETERMINING CONNECTION STRENGTH BETWEEN GEOSYNTHETIC REINFORCEMENT AND SEGMENTAL CONCRETE UNITS
20. ASTM D6819 STANDARD TEST METHOD FOR MEASURING GEOSYNTHETIC PULLOUT RESISTANCE IN SOIL
21. ASTM D6820 STANDARD TEST METHOD FOR DETERMINING THE SHEAR STRENGTH BETWEEN SEGMENTAL CONCRETE UNITS
C. NATIONAL CONCRETE MASONRY ASSOCIATION (NCMA)
1. NCMA SRM-1 TEST METHOD FOR DETERMINING CONNECTION STRENGTH OF SRW
2. NCMA SRM-2 TEST METHOD FOR DETERMINING SHEAR STRENGTH OF SRW
1.04 DEFINITIONS
A. MODULAR UNIT - A DRY-STACKED CONCRETE RETAINING WALL UNIT MACHINE MADE FROM PORTLAND CEMENT, WATER, AGGREGATES, MANUFACTURED BY A LICENSED MANUFACTURER OF KEYSTONE.
B. STRUCTURAL GEOTEXTILE - A POLYMERIC MATERIAL FORMED BY A REGULAR NETWORK OF CONNECTED TENSILE ELEMENTS WITH APERTURES OF SUFFICIENT SIZE TO ALLOW INTERLOCKING WITH SURROUNDING SOIL, ROCK OR EARTH AND FUNCTION PRIMARILY AS REINFORCEMENT.
C. UNIT DRAINAGE FILL - DRAINAGE AGGREGATE THAT IS PLACED WITHIN AND IMMEDIATELY BEHIND THE KEYSTONE CONCRETE UNITS.
D. REINFORCED BACKFILL - COMPACTED SOIL THAT IS PLACED WITHIN THE REINFORCED SOIL VOLUME AS OUTLINED ON THE PLANS.
E. RETAINED SOIL - THE SOIL MASS BEHIND THE REINFORCED BACKFILL.
F. FOUNDATION SOIL - THE SOIL MASS BELOW THE LEVELING PAD AND REINFORCED BACKFILL.
G. LEVELING PAD - CRUSHED STONE, SAND AND GRAVEL OR UNREINFORCED CONCRETE MATERIAL PLACED TO PROVIDE A LEVEL SURFACE FOR PLACEMENT OF THE KEYSTONE CONCRETE UNITS.
H. GEOSYNTHETIC REINFORCEMENT - POLYMERIC MATERIAL DESIGNED SPECIFICALLY FOR SOIL REINFORCEMENT.
1.05 SUBMITTALS AND CERTIFICATION
A. CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO THE START OF WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF THIS SPECIFICATION AND THE STRUCTURE DESIGN.

- 3.06 FIELD QUALITY CONTROL
A. QUALITY ASSURANCE - THE OWNER SHALL/MAY ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION. THIS DOES NOT RELIEVE THE CONTRACTOR FROM SECURING THE NECESSARY CONSTRUCTION QUALITY CONTROL. TESTING.
B. QUALITY ASSURANCE SHOULD INCLUDE FOUNDATION SOIL INSPECTION AND TESTING AND VERIFICATION OF THE GEOTECHNICAL DESIGN PARAMETERS AND VERIFICATION THAT THE CONTRACTOR'S QUALITY CONTROL TESTING IS ADEQUATE AS A MINIMUM QUALITY ASSURANCE SHALL ALSO INCLUDE OBSERVATION OF THE CONSTRUCTION FOR GENERAL COMPLIANCE WITH THE DESIGN DRAWINGS AND PROJECT SPECIFICATIONS. QUALITY ASSURANCE IS USUALLY BEST PERFORMED BY THE SITE GEOTECHNICAL ENGINEER.
C. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INDEPENDENT INSPECTION AND TESTING SERVICES TO VERIFY SOIL TYPES AND STRENGTHS, COMPACTION AND MOISTURE CONDITIONS. TESTING DESCRIBED IN THE RETAINING WALL DESIGN PLANS AND SPECIFICATIONS. ONLY QUALIFIED AND EXPERIENCED TECHNICIANS AND ENGINEERS SHALL PERFORM QUALITY CONTROL, TESTING AND INSPECTION SERVICES.
D. QUALITY CONTROL TESTING SHALL INCLUDE SOIL AND BACKFILL TESTING TO VERIFY SOIL TYPES AND STRENGTHS, COMPACTION AND MOISTURE CONDITIONS AND VERIFICATION THAT THE RETAINING WALL IS BEING CONSTRUCTED IN ACCORDANCE WITH THE DESIGN PLANS AND SPECIFICATIONS.



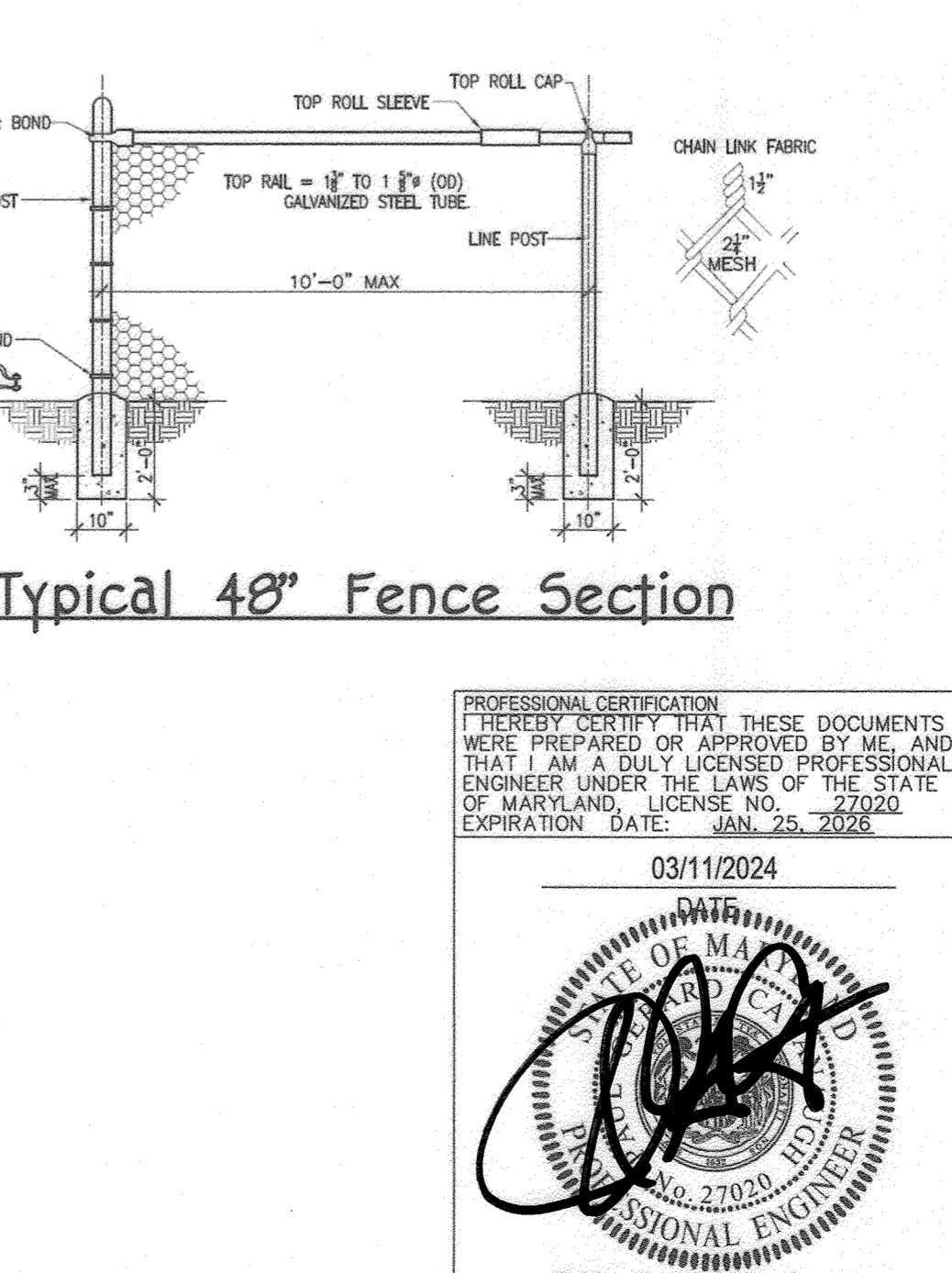
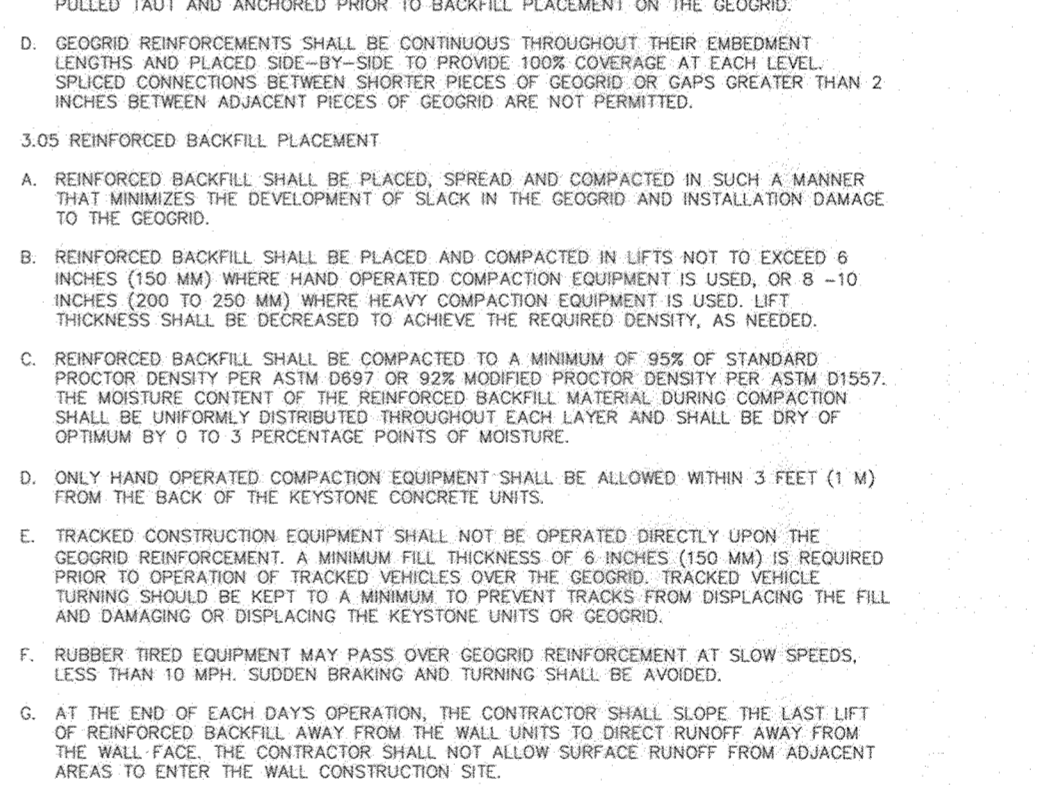
Typical Wall Section

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C. QUALITY CONTROL - THE CONTRACTOR SHALL ENGAGE INDEPENDENT INSPECTION AND TESTING SERVICES TO VERIFY SOIL TYPES AND STRENGTHS, COMPACTION AND MOISTURE CONDITIONS. TESTING DESCRIBED IN THE RETAINING WALL DESIGN PLANS AND SPECIFICATIONS. ONLY QUALIFIED AND EXPERIENCED TECHNICIANS AND ENGINEERS SHALL PERFORM QUALITY CONTROL, TESTING AND INSPECTION SERVICES.
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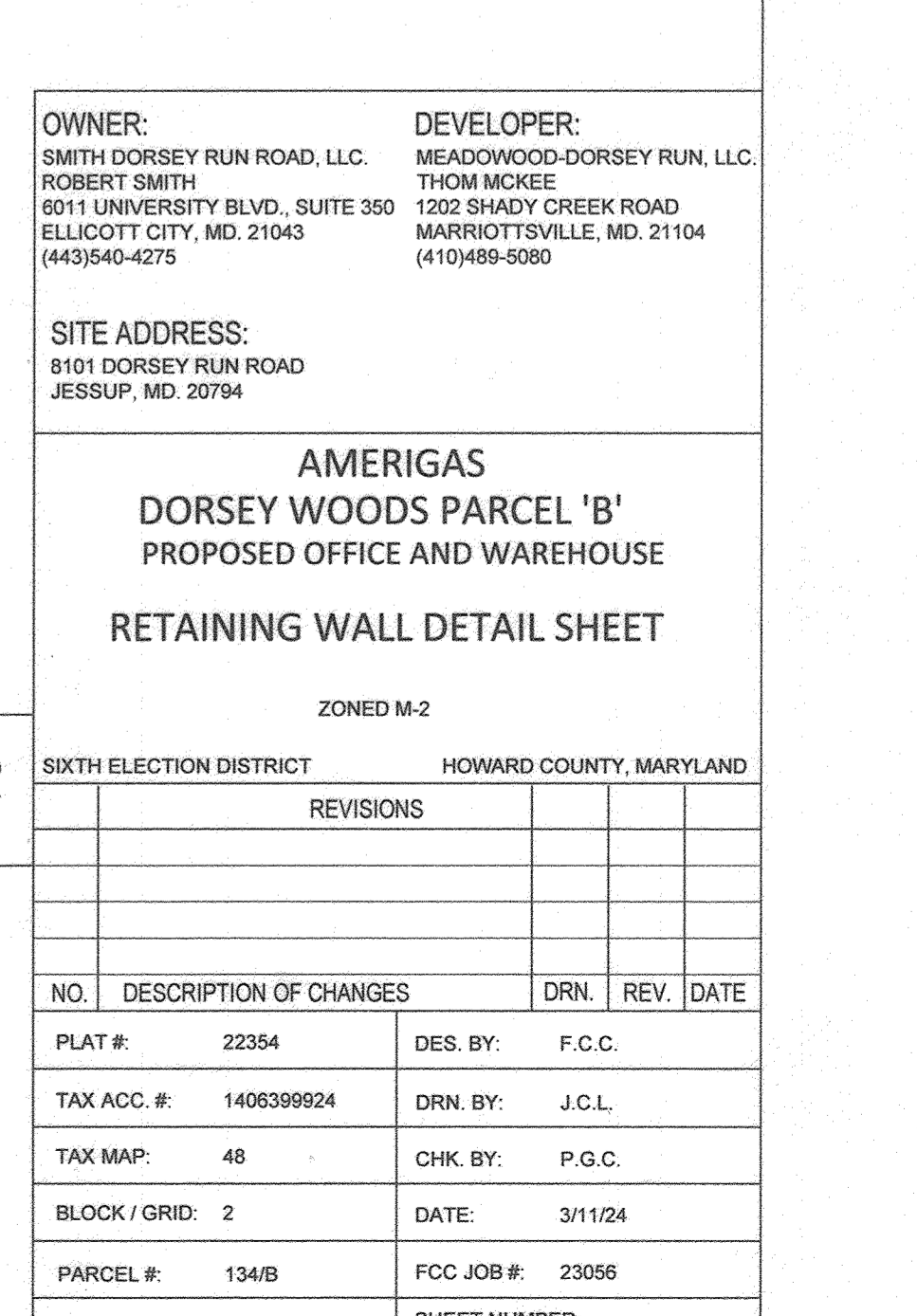
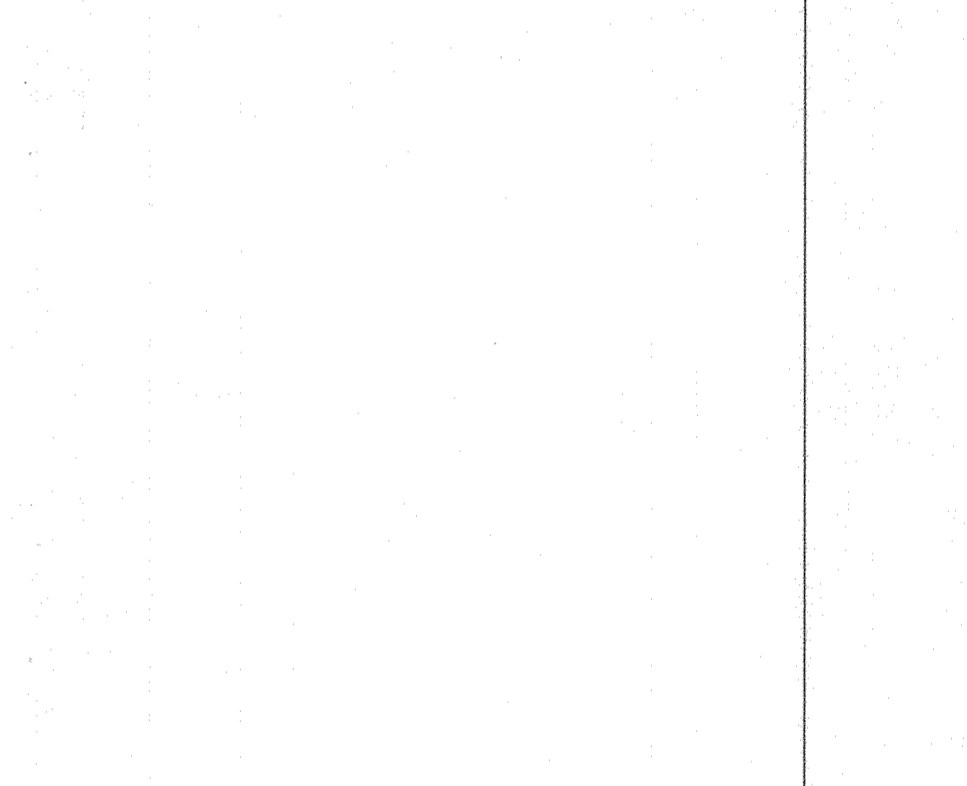
Typical 48" Fence Section

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Typical 48" Fence Section

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Typical 48" Fence Section

OWNER: SMITH DORSEY RUN ROAD, LLC. 6011 UNIVERSITY BLVD., SUITE 350 ELLICOTT CITY, MD. 21043 (443)540-4275
DEVELOPER: MEADOWOOD-DORSEY RUN, LLC. THOM MCKEE 1202 SHADY CREEK ROAD MARRIOTTVILLE, MD. 21104 (410)898-5080
SITE ADDRESS: 8101 DORSEY RUN ROAD JESSUP, MD. 20794

AMERIGAS DORSEY WOODS PARCEL 'B' PROPOSED OFFICE AND WAREHOUSE
RETAINING WALL DETAIL SHEET
ZONED M-2

Table with columns: NO., DESCRIPTION OF CHANGES, DRN., REV., DATE. Includes project details like PLAT # 22354, TAX ACC. # 1406399924, and DWG. SCALE 1" = 30'.

