

SWM CONCEPT PLAN

Walmart

SUPERCENTER #2412-03

3200 NORTH RIDGE RD.

ELLICOTT CITY

HOWARD COUNTY, MARYLAND

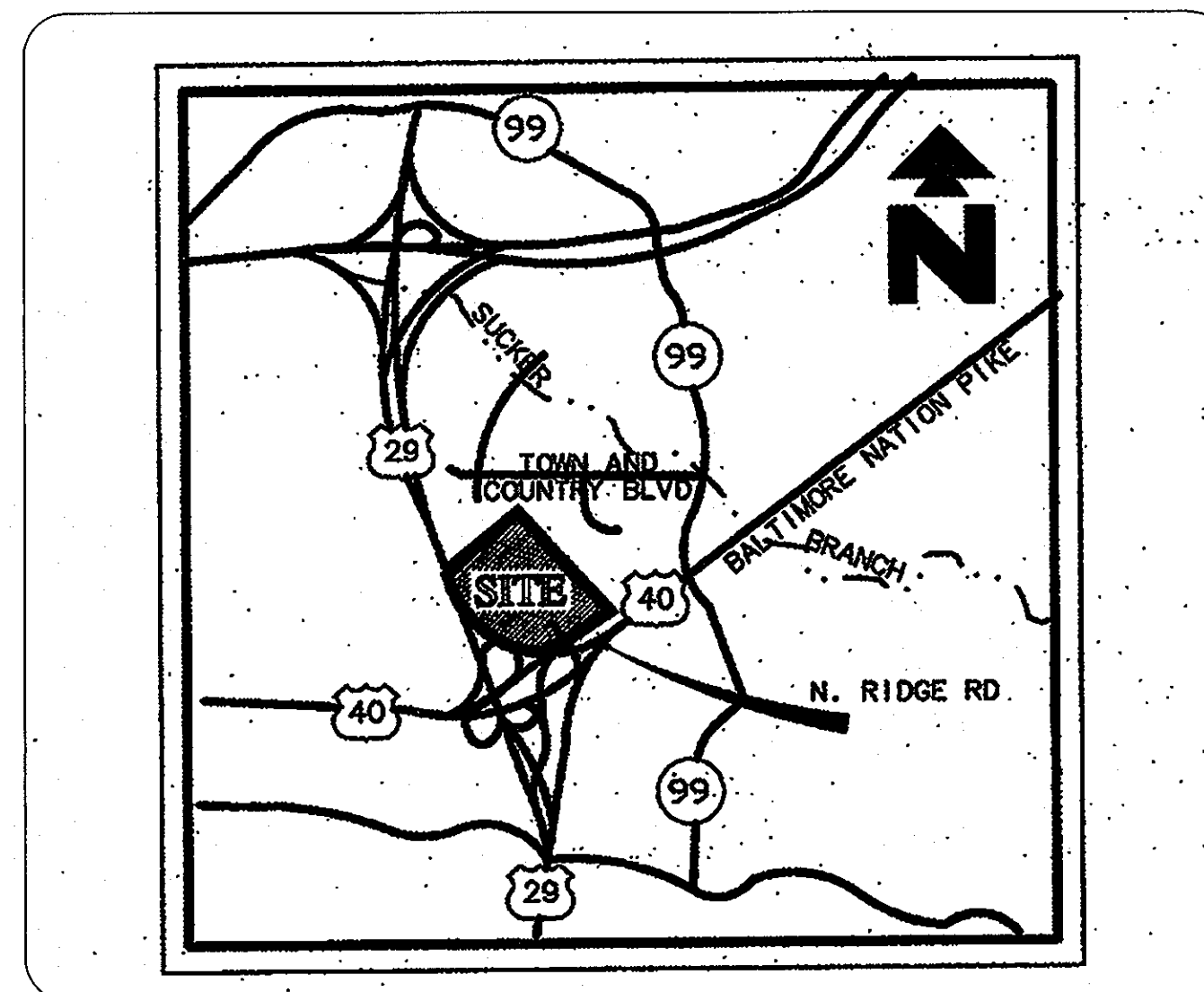
UTILITY RESPONSIBILITY MATRIX FOR THIS PROJECT

UTILITY/ GOVERNING AGENCIES CONTACTS	CONTRACTOR RESPONSIBILITY-	OTHERS RESPONSIBILITY-
GAS BALTIMORE GAS & ELECTRIC (BGE) 7225 WINDSOR BLVD. BALTIMORE, MD 21244 PHONE: 410-685-0123	-COORDINATE CONSTRUCTION ACTIVITIES WITH BGE TO ENSURE INSTALLATION OF GAS LINES ARE COMPLETED PRIOR TO ASPHALT OR CURB PLACEMENT	-SERVICE FROM THE POINT OF CONNECTION AT THE EXISTING LINE UP TO AND INCLUDING SETTING OF METER WILL BE BY BALTIMORE GAS & ELECTRIC COMPANY (BGE) -ANY RELOCATION OF EXISTING WILL BE DONE BY BALTIMORE GAS & ELECTRIC COMPANY (BGE)
TELEPHONE VERIZON P.O. BOX 9000 ANNAPOLIS, MD 21401 CONTACT: VERIZON ANNAPOLIS SRC PHONE: 800-837-4966	-COORDINATE CONSTRUCTION ACTIVITIES WITH VERIZON TO ENSURE INSTALLATION OF UNDERGROUND LINES ARE COMPLETED PRIOR TO ASPHALT OR CURB PLACEMENT -PROVIDE AND INSTALL 2-4" SCHEDULE 40 PVC CONDUITS WITH PULL ROPES, INCLUDING ALL TRENCHING AND BACKFILLING, FROM THE RISER POLE UP TO THE BUILDING -PROVIDE AND INSTALL PULL BOXES AS PER TELEPHONE COMPANY REQUIREMENTS	-VERIZON WILL PROVIDE AND INSTALL ALL TELEPHONE CABLES FROM THE POINT OF CONNECTION UP TO THE BUILDING -ANY RELOCATION OF EXISTING WILL BE DONE BY VERIZON
ELECTRIC BALTIMORE GAS & ELECTRIC (BGE) 7225 WINDSOR BLVD. BALTIMORE, MD 21244 PHONE: 410-685-0123	-COORDINATE CONSTRUCTION ACTIVITIES WITH BGE TO ENSURE INSTALLATION OF UNDERGROUND LINES ARE COMPLETED PRIOR TO ASPHALT OR CURB PLACEMENT	-ANY RELOCATION OF EXISTING LINES OR POLES WILL BE DONE BY BGE.
SANITARY SEWER HOWARD COUNTY BUREAU OF UTILITIES 8250 OLD MONTGOMERY ROAD COLUMBIA, MD 21045 PHONE: 410-313-4900	-PROVIDE AND INSTALL SANITARY SEWER LINES AND ASSOCIATED APPURTENANCES PER THE PLANS AND SPECIFICATION -ALL PUBLIC AND PRIVATE SANITARY SEWER LINES SHALL BE PVC AND RATED SDR 26 -COORDINATE REQUIRED INSPECTION SERVICES WITH ENGINEER OF RECORD AND HOWARD COUNTY BUREAU OF UTILITIES. SEE UTILITY PLAN FOR REQUIREMENTS.	
WATER HOWARD COUNTY BUREAU OF UTILITIES 8250 OLD MONTGOMERY ROAD COLUMBIA, MD 21045 PHONE: 410-313-4900	-PROVIDE AND INSTALL ALL WATER MAINS AND ASSOCIATED APPURTENANCES PER THE PLANS AND SPECIFICATION -ALL PUBLIC AND PRIVATE WATER MAINS SHALL BE DIP. -ALL PORTIONS OF THE FIRE PROTECTION WATER SYSTEM SHALL BE INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR -ALL PORTIONS OF OTHER NON FIRE PROTECTION RELATED LINES MAY BE INSTALLED BY THE PLUMBING CONTRACTOR -COORDINATE REQUIRED INSPECTION SERVICES WITH ENGINEER OF RECORD AND HOWARD COUNTY BUREAU OF UTILITIES. SEE UTILITY PLAN FOR REQUIREMENTS. -DOMESTIC TAP FROM THE POINT OF CONNECTION AT THE EXISTING LINE UP TO AND INCLUDING SETTING OF METER AT THE PROPERTY LINE WILL BE BY THE CONTRACTOR. -ANY RELOCATION OF EXISTING WILL BE DONE BY CONTRACTOR.	-DOMESTIC TAP FROM THE POINT OF CONNECTION AT THE EXISTING LINE UP TO AND INCLUDING SETTING OF WATER METER AT THE PROPERTY LINE WILL BE BY THE HOWARD COUNTY BUREAU OF UTILITIES.
STORM SEWER HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS 3430 COURT HOUSE DRIVE ELLICOTT CITY, MD 21043 PHONE: 410-313-3440	-PROVIDE AND INSTALL ALL STORM SEWER LINES AND ASSOCIATED APPURTENANCES PER THE PLANS AND SPECIFICATION -REFER TO GRADING PLAN FOR INFORMATION ON ALLOWABLE STORM SEWER MATERIALS	

THIS MATRIX HAS BEEN PROVIDED FOR INFORMATIONAL PURPOSES. THE CONTRACTOR SHALL PROVIDE ANY AND ALL APPURTENANCES, TRENCHING AND BACKFILL, AND OTHER INCIDENTALS TO MEET OR EXCEED THE SPECIFICATIONS OF THE ITEMS LISTED.

SHEET INDEX

- 1 COVER SHEET
- 2 STORMWATER MANAGEMENT CONCEPT PLAN (1 OF 2)
- 3 STORMWATER MANAGEMENT CONCEPT PLAN (2 OF 2)
- 4 EROSION AND SEDIMENT CONTROL PLAN
- 5 EROSION AND SEDIMENT CONTROL DETAILS



VICINITY MAP

SCALE: 1" = 2000'
ADC MAP 4815 GRID J-5
HOWARD COUNTY GEODETIC CONTROL
MONUMENT NOS 24C2 AND 18G1

ADDITIONAL PROJECT CONTACTS

LOCAL ZONING OFFICE
HOWARD COUNTY ZONING DEPARTMENT
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043
PHONE: 410-313-4415
FAX: 410-313-3467
ZONING ADMINISTRATOR: CURTIS BRATHWAITE

HOWARD COUNTY FIRE DEPARTMENT
HOWARD COUNTY DEPARTMENT OF FIRE AND RESCUE
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043
PHONE: 410-313-6000

OWNER/DEVELOPER:
WAL-MART REAL ESTATE BUSINESS TRUST
2001 SOUTHEAST 10TH STREET, SWDC
BENTONVILLE, AR 72716-0550
CONTACT: MIKE THOMAS
PHONE: (479) 273-4000

LOCAL PLANNING OFFICE
HOWARD COUNTY PLANNING OFFICE
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043
PHONE: 410-313-2406
FAX: 410-313-3467
CONTACT: CHAD EDMONDSON

DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043
PHONE: 410-313-3440
DIVISION CHIEF: CINDY HAMILTON

SURVEYOR
BOWMAN CONSULTING
9813 GODWIN DRIVE
MANASSAS, VA 20110
PHONE: (703) 530-8093
FAX: (703) 481-9720

INSPECTIONS AND PERMITS
HOWARD COUNTY DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS
3430 COURT HOUSE DRIVE
ELLICOTT CITY, MD 21043
PHONE: (301) 268-2455

ARCHITECT
LAW KINGDON ARCHITECTS
345 RIVERVIEW, SUITE 200
WICHITA, KANSAS 67203
PHONE: (316) 268-0230
CONTACT: JAMEY FLOWERS

GEOTECH
ECS MID-ATLANTIC, LLC
9409 INNOVATION DRIVE
MANASSAS, VA 20110
PHONE: (703) 396-6259

ADDRESS CHART	
LOT NUMBER	STREET ADDRESS
	3200 NORTH RIDGE ROAD

PERMIT INFORMATION CHART					
SUBDIVISION NAME	SECTION/AREA	PARCEL #	TAX/ZONE MAP	ELECTION DISTRICT	CENSUS TRACT
ELLICOTT CITY WALMART	N.A.	PARCEL B/ p/o TM 1085	24	2ND	6026
PLAT #	BLOCK #	ZONE	TAX/ZONE MAP	ELECTION DISTRICT	CENSUS TRACT
12107 & 13226	6	B-2	24	2ND	6026
WATER CODE	SEWER CODE				
F03	1452800				

APPROVED: DEPARTMENT OF PLANNING AND ZONING

W. D. ...
CHIEF, DEVELOPMENT ENGINEERING DIVISION

10/1/10
DATE

W. D. ...
CHIEF, DIVISION OF LAND DEVELOPMENT

9/27/10
DATE

SITE ANALYSIS

AREA OF PARCEL:	799,847 S.F. OR 18.36 AC
PRESENT ZONING:	B-2 ZONING BOARD CASE ZB-941
USE OF STRUCTURE:	COMMERCIAL/RETAIL
EXISTING FLOOR AREA:	124,622 S.F.
EXISTING GREEN HOUSE AREA:	131,148 S.F.
PROPOSED FLOOR AREA:	151,567 S.F.
PROPOSED GREEN HOUSE AREA:	5,917 S.F.
TOTAL # OF UNITS:	1 BUILDING
MAXIMUM # OF EMPLOYEES:	200-250 ASSOCIATES (70% FULL TIME)
REQUIRED PARKING RATIO:	RETAIL 5 S.P. / 1000 S.F. - 758 SPACES GREEN HOUSE 1 S.P. / 1000 S.F. - 6 SPACES
EXISTING # OF PARKING SPACES:	626 SP. (FIELD INSPECTED)
PROPOSED # OF PARKING SPACES:	615 SP.
PROPOSED BUILDING COVERAGE OF SITE:	19%
EXISTING IMPERVIOUS AREA:	9.84 AC.
PROPOSED IMPERVIOUS AREA:	11 AC.
PROPOSED GREEN OPEN AREA:	7.36 AC.
LIMIT OF DISTURBANCE AREA:	4.73 AC.
WETLANDS AND THEIR BUFFERS:	0.25 AC.
FLOODPLAINS AND THEIR BUFFERS:	0 AC.
STEEP SLOPES 15% AND MORE:	1.98 AC.
REFORESTATION CONSERVATION AREA:	1.50 AC.

SUBDIVISION 'ELLICOTT CITY WALMART'

ELECTION DISTRICT NO. 2	HOWARD COUNTY, MARYLAND
TAX MAP 17 & 24	P/O TM PARCEL 1085
REZONING CASE NUMBER ZB-941	DATED: OCTOBER 18, 1993
SKETCH PLAN S-95-01	APPROVED: 12-2-1994
PRELIMINARY PLAN P-95-21	APPROVED: 06-06-1995
SITE PLAN SDP-96-II	APPROVED: 06-21-1996
MASS GRADING PLAN SDP-96-001	APPROVED: 04-03-1996
FINAL ROAD CONSTRUCTION PLAN FOR NORTH RIDGE RD. F-96-01	APPROVED: 11-08-1995
FINAL RECORD PLATS	F-96-009, F-96-091 & F-98-157
WATER NO. F03	SEWER NOS. 1452800

DESIGN NARRATIVE

SEE SHEET 3 FOR DESIGN NARRATIVE

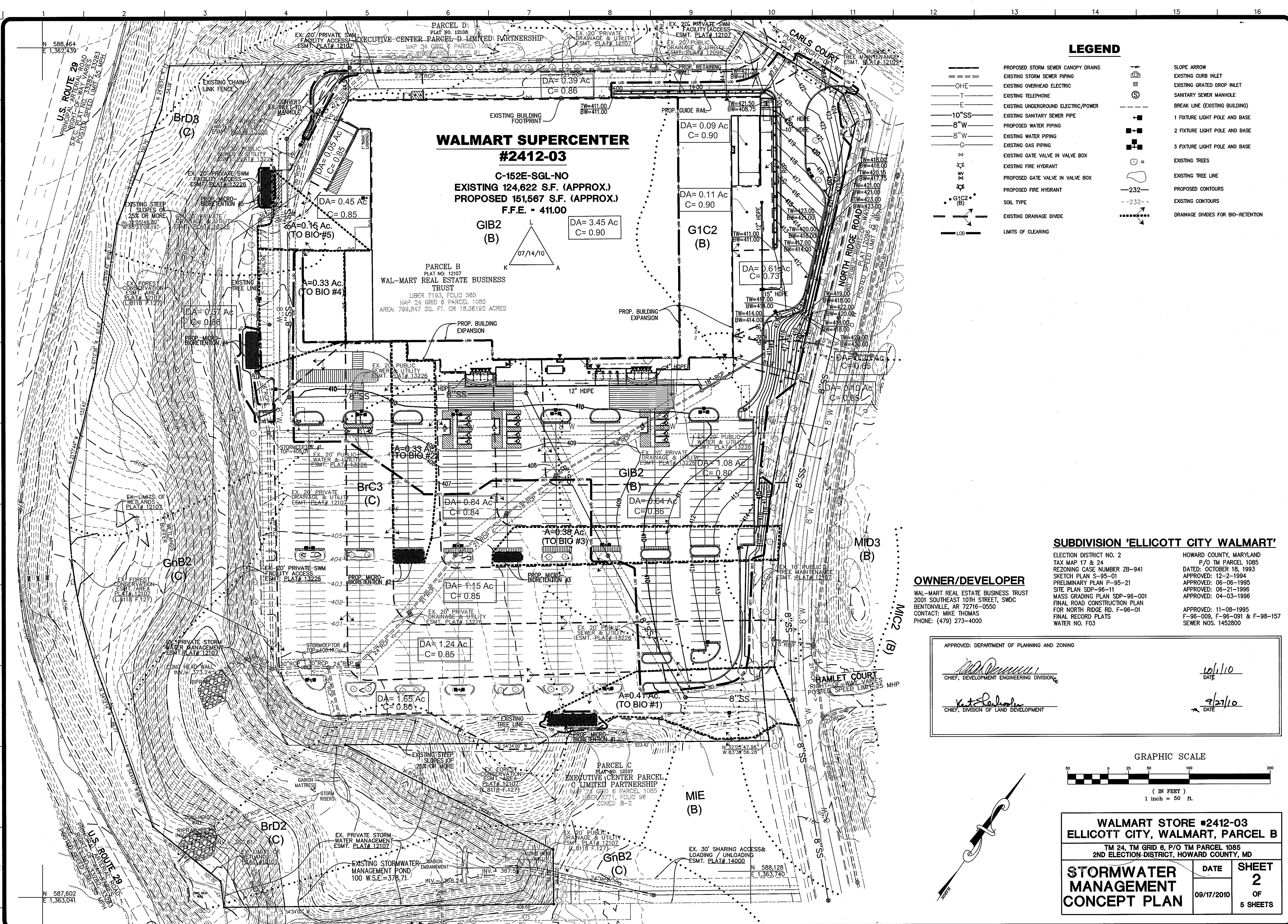
Bowman

CONSULTING

Bowman Consulting Group, Ltd. Telephone: (703) 530-8093
9813 Godwin Drive Fax: (703) 481-9720
Manassas, VA 20110 www.bowmanconsulting.com
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WALMART STORE #2412-03 ELLICOTT CITY, WALMART, PARCEL B		
TM 24, TM GRID 6, P/O TM PARCEL 1085 2ND ELECTION DISTRICT, HOWARD COUNTY, MD		
DATE	SHEET	
09/17/2010	1 OF 5 SHEETS	
STORMWATER MANAGEMENT CONCEPT PLAN		



LEGEND

- PROPOSED STORM SEWER CANOPY DRAINS
- EXISTING STORM SEWER PIPING
- EXISTING OVERHEAD ELECTRIC
- EXISTING TELEPHONE
- EXISTING UNDERGROUND ELECTRIC/POWER
- 10"SS— EXISTING SANITARY SEWER PIPE
- 8"W— PROPOSED WATER PIPING
- 8"W— EXISTING WATER PIPING
- G— EXISTING GAS PIPING
- EXISTING GATE VALVE IN VALVE BOX
- EXISTING FIRE HYDRANT
- PROPOSED GATE VALVE IN VALVE BOX
- PROPOSED FIRE HYDRANT
- SOIL TYPE
- EXISTING DRAINAGE DIVIDE
- LOD— LIMITS OF CLEARING
- ▲ SLOPE ARROW
- ⊕ EXISTING CURB INLET
- ⊕ EXISTING GRATED DROP INLET
- ⊕ SANITARY SEWER MANHOLE
- BREAK LINE (EXISTING BUILDING)
- 1 FUTURE LIGHT POLE AND BASE
- 2 FUTURE LIGHT POLE AND BASE
- 3 FUTURE LIGHT POLE AND BASE
- ⊕ EXISTING TREES
- EXISTING TREE LINE
- PROPOSED CONTOURS
- EXISTING CONTOURS
- DRAINAGE DIVIDES FOR BIO-RETENTION

**WALMART SUPERCENTER
#2412-03**

C-152E-SGL-NO
EXISTING 124,622 S.F. (APPROX.)
PROPOSED 151,567 S.F. (APPROX.)
F.F.E. - 411.00

PARCEL B
PLAT NO. 12107
WAL-MART REAL ESTATE BUSINESS TRUST
LIBER 7193, FOLIO 565
MAP 24 GRID 6 PARCEL 1085
AREA: 799,847 SQ. FT. OR 18.36192 ACRES

SUBDIVISION 'ELLCOTT CITY WALMART'

OWNER/DEVELOPER

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2001 SOUTHEAST 10TH STREET, SWDC
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CONTACT: MIKE THOMAS
PHONE: (479) 273-4000

ELECTION DISTRICT NO. 2
TAX MAP 17 & 24
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FINAL ROAD CONSTRUCTION PLAN FOR NORTH RIDGE RD. F-96-01
FINAL RECORD PLATS WATER NO. F03

HOWARD COUNTY, MARYLAND
P/O TM PARCEL 1085
DATED: OCTOBER 18, 1993
APPROVED: 12-2-1994
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APPROVED: 11-08-1995
F-96-009, F-96-091 & F-98-157
SEWER NOS. 1452800

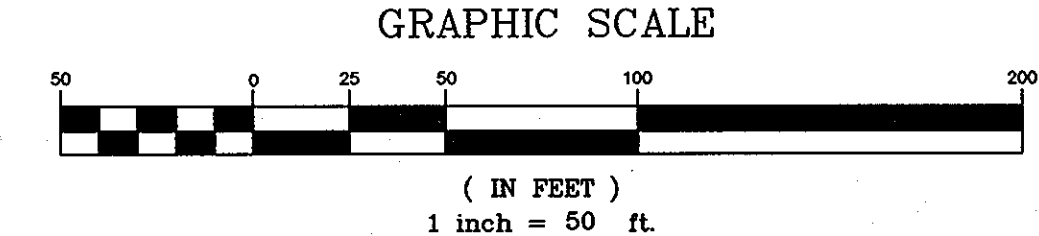
APPROVED: DEPARTMENT OF PLANNING AND ZONING

Michael Thomas
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Ken Thomas
CHIEF, DIVISION OF LAND DEVELOPMENT

10/1/10
DATE

9/27/10
DATE



WALMART STORE #2412-03
ELLCOTT CITY, WALMART, PARCEL B

TM 24, TM GRID 6, P/O TM PARCEL 1085
2ND ELECTION DISTRICT, HOWARD COUNTY, MD

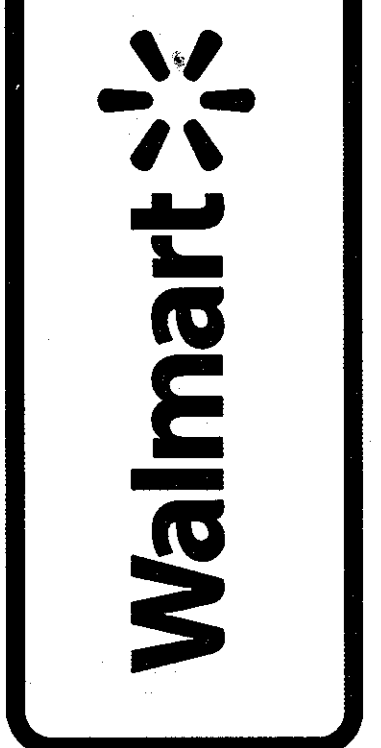
STORMWATER MANAGEMENT CONCEPT PLAN

DATE	SHEET
09/17/2010	2 OF 5 SHEETS

REVISIONS	BY
09/17/10-CONCEPT	GD/KD
COUNTY SUBMISSION	

Bowman CONSULTING
Bowman Consulting Group, Ltd.
8819 Godwin Drive
Manassas, Virginia 20110
Telephone: (703) 590-9093
Fax: (703) 590-9475
www.bowmanconsulting.com

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WAL-MART REAL ESTATE BUSINESS TRUST
2001 SE 10TH STREET
BENTONVILLE, AR 72716

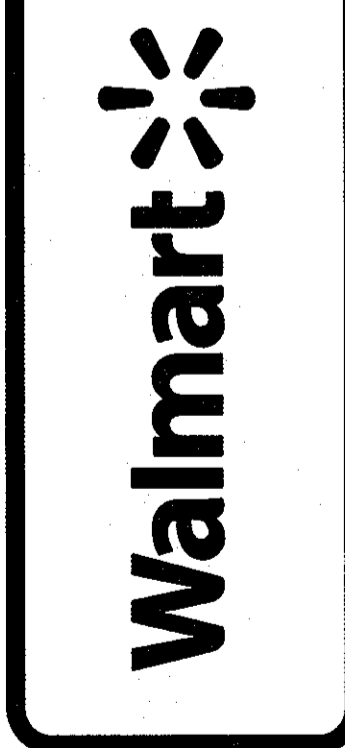


DESIGN DRAWN
CHECKED
DATE 07/15/2010
SCALE 1"=50'
JOB No.
SHEET 2
OF 5 SHEETS

REVISIONS	BY
09/17/10-CONCEPT	GD/KD
COUNTY SUBMISSION	

Bowman CONSULTING
 Telephone: (703) 530-9093
 Fax: (703) 530-9475
 8813 Godwin Drive
 Manassas, Virginia 20110
 www.bowmanconsulting.com
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SUPERCENTER # 2412-03
 ELLICOTT CITY, HOWARD COUNTY, MARYLAND
 WAL-MART REAL ESTATE BUSINESS TRUST
 2001 SE 10TH STREET
 BENTONVILLE, AR 72716



DESIGN DRAWN
CHECKED
DATE 07/15/2010
SCALE N/A
JOB No.
SHEET 3
OF 5 SHEETS

BIORETENTION FILTER CALCULATIONS (BIORETENTION FILTER #1)	BIORETENTION FILTER CALCULATIONS (BIORETENTION FILTER #2)	BIORETENTION FILTER CALCULATIONS (BIORETENTION FILTER #3)	BIORETENTION FILTER CALCULATIONS (BIORETENTION FILTER #4)	BIORETENTION FILTER CALCULATIONS (BIORETENTION FILTER #5)
DRAINAGE AREA (MAXIMUM 20,000 SF) A _{DRN} 17860 ft ²	DRAINAGE AREA (MAXIMUM 20,000 SF) A _{DRN} 14375 ft ²	DRAINAGE AREA (MAXIMUM 20,000 SF) A _{DRN} 16553 ft ²	DRAINAGE AREA (MAXIMUM 20,000 SF) A _{DRN} 14375 ft ²	DRAINAGE AREA (MAXIMUM 20,000 SF) A _{DRN} 6534 ft ²
SIZE RATIO (LENGTH / WIDTH) R _{LW} 5.45 :1	SIZE RATIO (LENGTH / WIDTH) R _{LW} 2.33 :1	SIZE RATIO (LENGTH / WIDTH) R _{LW} 3.18 :1	SIZE RATIO (LENGTH / WIDTH) R _{LW} 3.00 :1	SIZE RATIO (LENGTH / WIDTH) R _{LW} 3.75 :1
SIDE SLOPE OF PONDING AREA (MAXIMUM 3:1) S _{SIDE} 3.0 :1	SIDE SLOPE OF PONDING AREA (MAXIMUM 3:1) S _{SIDE} 3.0 :1	SIDE SLOPE OF PONDING AREA (MAXIMUM 3:1) S _{SIDE} 3.0 :1	SIDE SLOPE OF PONDING AREA (MAXIMUM 3:1) S _{SIDE} 3.0 :1	SIDE SLOPE OF PONDING AREA (MAXIMUM 3:1) S _{SIDE} 3.0 :1
DEPTH OF SOIL (MAXIMUM 4) D _{SOIL} 3.0 ft	DEPTH OF SOIL (MAXIMUM 4) D _{SOIL} 2.5 ft	DEPTH OF SOIL (MAXIMUM 4) D _{SOIL} 2.5 ft	DEPTH OF SOIL (MAXIMUM 4) D _{SOIL} 3.0 ft	DEPTH OF SOIL (MAXIMUM 4) D _{SOIL} 3.0 ft
LENGTH OF BASIN (MINIMUM 15) L _{BASIN} 60.0 ft	LENGTH OF BASIN (MINIMUM 15) L _{BASIN} 35.0 ft	LENGTH OF BASIN (MINIMUM 15) L _{BASIN} 35.0 ft	LENGTH OF BASIN (MINIMUM 15) L _{BASIN} 45.0 ft	LENGTH OF BASIN (MINIMUM 15) L _{BASIN} 45.0 ft
WIDTH OF BASIN (MINIMUM 10) W _{BASIN} 12.5 ft	WIDTH OF BASIN (MINIMUM 10) W _{BASIN} 14.0 ft	WIDTH OF BASIN (MINIMUM 10) W _{BASIN} 11.0 ft	WIDTH OF BASIN (MINIMUM 10) W _{BASIN} 15.0 ft	WIDTH OF BASIN (MINIMUM 10) W _{BASIN} 12.0 ft
AREA AT TOP OF PONDING (MINIMUM 150ft ²) A _{TOP} 750.0 ft ²	AREA AT TOP OF PONDING (MINIMUM 150ft ²) A _{TOP} 490.0 ft ²	AREA AT TOP OF PONDING (MINIMUM 150ft ²) A _{TOP} 385.0 ft ²	AREA AT TOP OF PONDING (MINIMUM 150ft ²) A _{TOP} 675.0 ft ²	AREA AT TOP OF PONDING (MINIMUM 150ft ²) A _{TOP} 540.0 ft ²
VOLUME OF PONDING (MAXIMUM 1' DEEP) V _{POND} 550.5 ft ³	VOLUME OF PONDING (MAXIMUM 1' DEEP) V _{POND} 361.0 ft ³	VOLUME OF PONDING (MAXIMUM 1' DEEP) V _{POND} 285.0 ft ³	VOLUME OF PONDING (MAXIMUM 1' DEEP) V _{POND} 513.0 ft ³	VOLUME OF PONDING (MAXIMUM 1' DEEP) V _{POND} 387.0 ft ³
STORAGE VOLUME OF SOIL (SOIL POROSITY 0.30) V _{SOIL} 734.9 ft ³	STORAGE VOLUME OF SOIL (SOIL POROSITY 0.30) V _{SOIL} 406.2 ft ³	STORAGE VOLUME OF SOIL (SOIL POROSITY 0.30) V _{SOIL} 324.8 ft ³	STORAGE VOLUME OF SOIL (SOIL POROSITY 0.30) V _{SOIL} 656.1 ft ³	STORAGE VOLUME OF SOIL (SOIL POROSITY 0.30) V _{SOIL} 531.9 ft ³
TOTAL FACILITY VOLUME V _{BASIN} 1285.4 ft ³	TOTAL FACILITY VOLUME V _{BASIN} 767.2 ft ³	TOTAL FACILITY VOLUME V _{BASIN} 589.8 ft ³	TOTAL FACILITY VOLUME V _{BASIN} 1169.1 ft ³	TOTAL FACILITY VOLUME V _{BASIN} 918.9 ft ³

TOTAL ESDv PROVIDED = 4730.3 CF

SITE CONDITIONS

DEVELOPABLE AREA (Ac.) = 4.81

HYDROLOGIC SOIL TYPES	RCN*	AREA (Ac.)	PERCENT
A	38	0.00	0%
B	55	3.48	72%
C	70	1.33	28%
D	77	0	0%

* RCN for "Woods in good condition" per Table 2.2 of TR-55

REDEVELOPMENT

EXISTING IMPERVIOUS AREA (Ac.) = 3.01
 PROPOSED IMPERVIOUS AREA (Ac.) = 4.17
 INCREASE IN IMPERVIOUSNESS (Ac.) = 1.16
 50% EXISTING IMPERVIOUSNESS (Ac.) = 1.51
 SITE IMPERVIOUSNESS (%) = 60%
 Prop. Impervious over Ex. Green (Ac.) = 1.16

Because this is a redevelopment, 50% of the existing impervious area within LOD only requires WQv (1") treatment and proposed impervious area over existing green area requires full WQv (2.6") to be treated. A weighted P_e will be used for ESDv facility sizing.

Weighted P_e = $\frac{(1.16)(2.6) + (1.51)(1)}{4.81 - 1.51}$
 Weighted P_e = 1.37

ESDv SIZING COMPUTATIONS

AREA TREATED BY ESD - B SOILS (Ac.) = 0.92	Rv = 0.05 + 0.009 * (60)	ESDv = (1.37) * (0.59) * (1.6 Ac.)
AREA TREATED BY ESD - C SOILS (Ac.) = 0.68	Rv = 0.59	ESDv = 12
PERVIOUS AREA (Ac.) = 0.64		ESDv = 0.1075 Ac-ft ESDv = 4681 cf

ESDv REQUIRED = 4,681 CF.
 ESDv PROVIDED = 4,730 CF.

RCN COMPUTATIONS

BEFORE CREDIT
 RCN = $\frac{(4.17 \text{ ac}) * (98) + (0.64 \text{ ac}) * (61)}{4.81}$
 RCN = 4.81

RCN_{BEFORE CREDIT} = 93

WITH RE-DEVELOPMENT
 RCN = $\frac{(2.67 \text{ ac}) * (98) + (0.64 \text{ ac}) * (61)}{3.31}$
 RCN = 3.31

RCN_{W/REDEVELOPMENT} = 91

"WOODS IN GOOD CONDITION" (Targeted RCN Value)
 RCN = $\frac{(1.51 \text{ ac}) * (98) + (1.98 \text{ ac}) * (55) + (1.33 \text{ ac}) * (70)}{4.81}$
 RCN = 4.81

RCN_{WOODS GOOD} = 73

RCN WITH ESD PRACTICES APPLIED
 RCN = $\frac{(1.07 \text{ ac}) * (98) + (0.92 \text{ ac}) * (55) + (0.68 \text{ ac}) * (70) + (0.64 \text{ ac}) * (61)}{3.31}$
 RCN = 3.31

RCN_{W/ESD APPLIED} = 73

RCNw/esd < RCNwoods good RCN REQUIREMENT SATISFIED

STORMWATER MANAGEMENT DESIGN NARRATIVE

The project consists of approximately 26,800 square feet expansion to the existing Walmart Store #2412 and construction of additional parking spaces at 3200 North Ridge Road, Ellicott City, Howard County, Maryland. The subject site is approximately 18.36 acres, and is bounded by Columbia Pike (Rt. 29) to the West, undeveloped property to the North, North Ridge Road to the East, and an existing office building with surface parking to the South.

The subject site currently has an existing retail building and associated parking lot. There are some areas with steep slopes of 25% or more located along the western boundary of the site however the rest of the site has gradual slopes since the majority of site is already developed. On-site existing vegetation consisting of trees and shrubs are located at the western and southern portion of the site. There is also 1.5 acres forest conservation area dedicated at the western part of the site. The subject site has B and C hydrologic soil types.

On-site existing impervious cover includes existing one-story retail building and parking lot. The existing building footprint is 124,622 square foot and overall existing impervious cover for the subject site equals to 9.84 acres. This project proposes an expansion of 26,800 square foot to the existing building, an additional loading dock and parking spaces, which accumulates 1.16 acres increase in impervious area and brings the total proposed site imperviousness to 11 acres.

Non-structural micro-bioretenation facilities have been selected as ESD to the MEP in order to meet the stormwater management requirements. Micro-bioretenation facilities are strategically located on-site around the existing parking lot and in the parking lot islands in order to receive a sheet flow from gradual slopes (< 5%) and from drainage areas not more than 20,000 square feet. Depressed curb cuts have been placed along the curbs where the micro-bioretenation facilities are located to provide sufficient inflow of storm water into the filtering bed and outflow cleanouts are provided within the micro-bioretenation facilities in order to convey the excessive stormwater above ESDv level into the existing storm drain system. Underdrain systems are also placed for each bio-retentions facility to discharge treated stormwater safely downstream. Existing storm drain system on site adequately conveys the treated stormwater from micro-bioretenation facilities and the intercepted stormwater by storm structures into the existing pond located at the southern portion of the property. As shown on the concept plan, existing drainage divides and on-site natural flow patterns have been honored by the proposed development. Required ESD volume for the micro-bioretenation facilities have been determined and associated sizing computations have been shown on this sheet.

It's our opinion that stormwater management requirements under governing redevelopment regulations have been met and the required water quality treatment for the subject site has been achieved by proposed on-site micro-bioretenation facilities.

SUBDIVISION 'ELlicOTT CITY WALMART'

ELECTION DISTRICT NO. 2
 TAX MAP 17 & 24
 REZONING CASE NUMBER ZB-941
 SKETCH PLAN S-95-01
 PRELIMINARY PLAN P-95-21
 SITE PLAN SDP-96-11
 MASS GRADING PLAN SDP-96-001
 FINAL ROAD CONSTRUCTION PLAN FOR NORTH RIDGE RD. F-96-01
 FINAL RECORD PLATS
 WATER NO. F03

HOWARD COUNTY, MARYLAND
 P/O TM PARCEL 1085
 DATED: OCTOBER 18, 1993
 APPROVED: 12-2-1994
 APPROVED: 06-06-1995
 APPROVED: 06-21-1996
 APPROVED: 04-03-1996

APPROVED: 11-08-1995
 F-96-009, F-96-091 & F-98-157
 SEWER NOS. 1452800

OWNER/DEVELOPER

WAL-MART REAL ESTATE BUSINESS TRUST
 2001 SOUTHEAST 10TH STREET, SWDC
 BENTONVILLE, AR 72716-0550
 CONTACT: MIKE THOMAS
 PHONE: (479) 273-4000

APPROVED: DEPARTMENT OF PLANNING AND ZONING

John P. Williams
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 10/10

Kevin J. Shenk
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 9/27/10

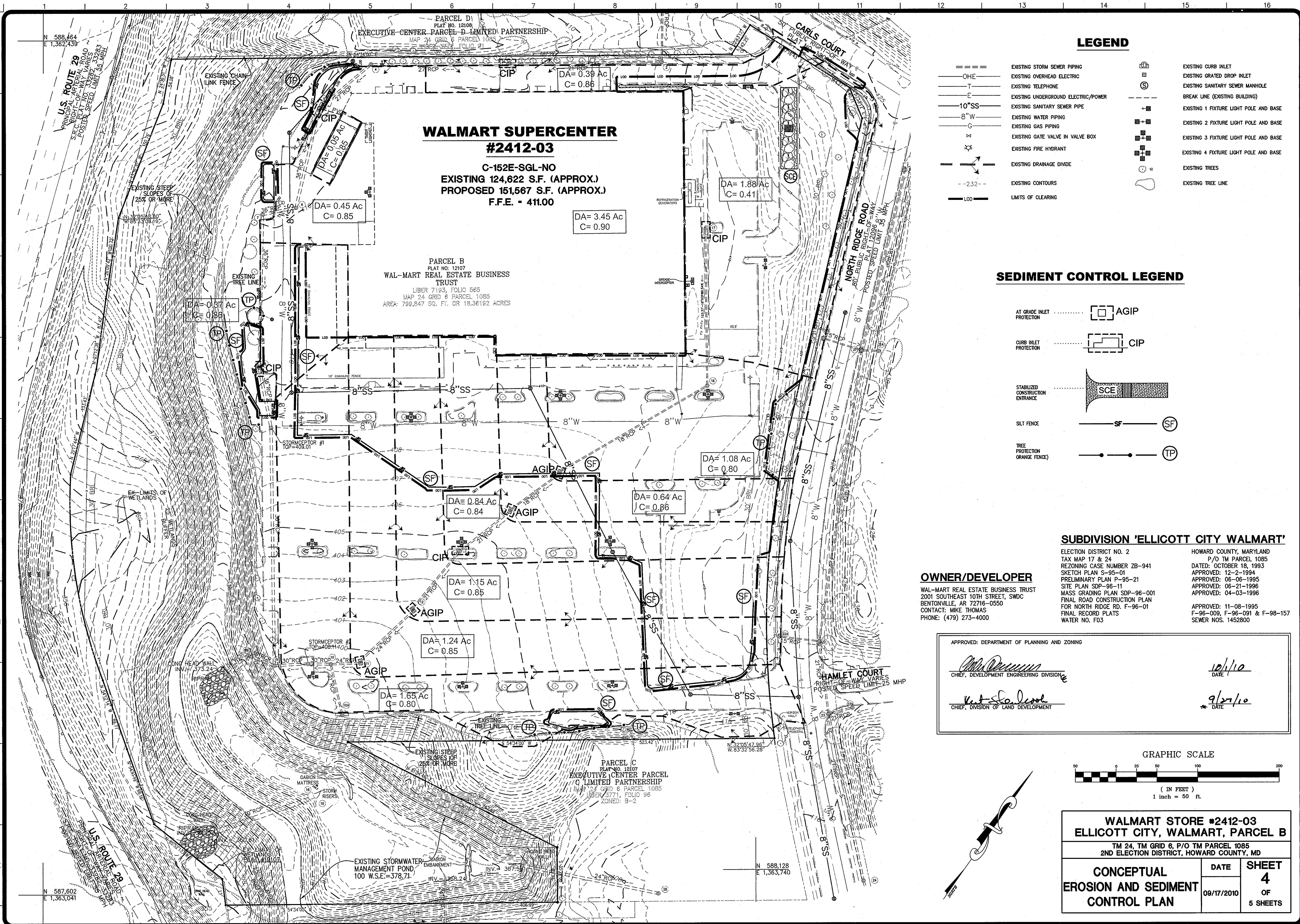
**WALMART STORE #2412-03
 ELLICOTT CITY, WALMART, PARCEL B**

TM 24, TM GRID 6, P/O TM PARCEL 1085
 2ND ELECTION DISTRICT, HOWARD COUNTY, MD

**STORMWATER
 MANAGEMENT
 CONCEPT PLAN**

DATE: 09/17/2010

SHEET **3** OF 5 SHEETS



**WALMART SUPERCENTER
#2412-03**
C-152E-SGL-NO
EXISTING 124,622 S.F. (APPROX.)
PROPOSED 151,567 S.F. (APPROX.)
F.F.E. - 411.00

PARCEL B
PLAT NO. 12107
WAL-MART REAL ESTATE BUSINESS TRUST
LIBER 7193, FOLIO 565
MAP 24 GRID 6 PARCEL 1085
AREA: 799,847 SQ. FT. OR 18.36192 ACRES

DA= 3.45 Ac
C= 0.90

DA= 1.88 Ac
C= 0.41

DA= 1.08 Ac
C= 0.80

DA= 0.64 Ac
C= 0.86

DA= 1.15 Ac
C= 0.85

DA= 1.24 Ac
C= 0.85

DA= 1.65 Ac
C= 0.80

PARCEL C
PLAT NO. 12107
EXECUTIVE CENTER PARCEL C LIMITED PARTNERSHIP
MAP 24 GRID 6 PARCEL 1085
LIBER 5771, FOLIO 96
ZONED: B-2

LEGEND

- | | | | |
|---------|-------------------------------------|-----|--|
| ===== | EXISTING STORM SEWER PIPING | ⊠ | EXISTING CURB INLET |
| —OHE— | EXISTING OVERHEAD ELECTRIC | ⊞ | EXISTING GRATED DROP INLET |
| —T— | EXISTING TELEPHONE | ⊚ | EXISTING SANITARY SEWER MANHOLE |
| —E— | EXISTING UNDERGROUND ELECTRIC/POWER | —○— | BREAK LINE (EXISTING BUILDING) |
| —10"SS— | EXISTING SANITARY SEWER PIPE | ⊕ | EXISTING 1 FIXTURE LIGHT POLE AND BASE |
| —8" W— | EXISTING WATER PIPING | ⊕ | EXISTING 2 FIXTURE LIGHT POLE AND BASE |
| —G— | EXISTING GAS PIPING | ⊕ | EXISTING 3 FIXTURE LIGHT POLE AND BASE |
| ⊕ | EXISTING GATE VALVE IN VALVE BOX | ⊕ | EXISTING 4 FIXTURE LIGHT POLE AND BASE |
| ⊕ | EXISTING FIRE HYDRANT | ⊕ | EXISTING TREES |
| — | EXISTING DRAINAGE DIVIDE | ⊕ | EXISTING TREE LINE |
| —2.32— | EXISTING CONTOURS | | |
| —LOO— | LIMITS OF CLEARING | | |

SEDIMENT CONTROL LEGEND

- | | |
|----------------------------------|------|
| AT GRADE INLET PROTECTION | AGIP |
| CURB INLET PROTECTION | CIP |
| STABILIZED CONSTRUCTION ENTRANCE | SCE |
| SILT FENCE | SF |
| TREE PROTECTOR (ORANGE FENCE) | TP |

SUBDIVISION 'ELLCOTT CITY WALMART'

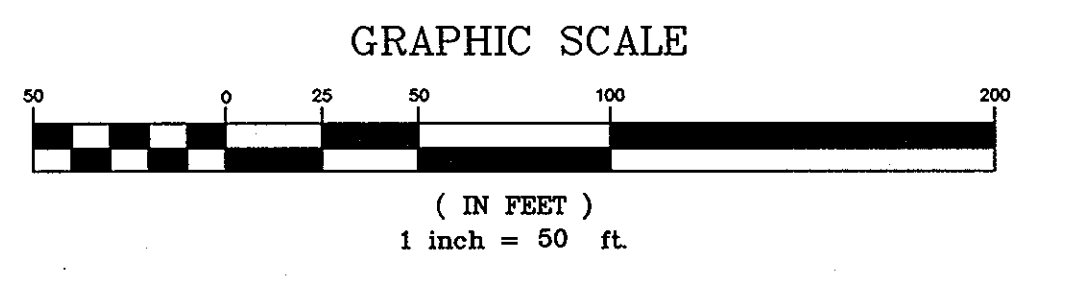
ELECTION DISTRICT NO. 2	HOWARD COUNTY, MARYLAND
TAX MAP 17 & 24	P/O TM PARCEL 1085
REZONING CASE NUMBER ZB-941	DATED: OCTOBER 18, 1993
SKETCH PLAN S-95-01	APPROVED: 12-2-1994
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FINAL RECORD PLATS	F-96-009, F-96-091 & F-98-157
WATER NO. F03	SEWER NOS. 1452800

OWNER/DEVELOPER

WAL-MART REAL ESTATE BUSINESS TRUST
2001 SOUTHEAST 10TH STREET, SWDC
BENTONVILLE, AR 72716-0550
CONTACT: MIKE THOMAS
PHONE: (479) 273-4000

APPROVED: DEPARTMENT OF PLANNING AND ZONING

<i>Mike Thomas</i> CHIEF, DEVELOPMENT ENGINEERING DIVISION	10/1/10 DATE
<i>Mike Thomas</i> CHIEF, DIVISION OF LAND DEVELOPMENT	9/27/10 DATE



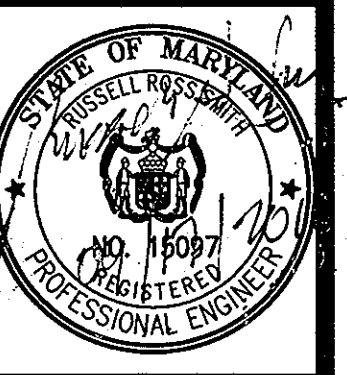
**WALMART STORE #2412-03
ELLCOTT CITY, WALMART, PARCEL B**

TM 24, TM GRID 6, P/O TM PARCEL 1085
2ND ELECTION DISTRICT, HOWARD COUNTY, MD

CONCEPTUAL EROSION AND SEDIMENT CONTROL PLAN	DATE	SHEET 4 OF 5 SHEETS
	09/17/2010	

REVISIONS	BY
09/17/10-CONCEPT	GD/KD
COUNTY SUBMISSION	

Bowman CONSULTING
Bowman Consulting Group, Ltd.
Telephone: (703) 550-0085
Fax: (703) 550-0425
www.bowmanconsulting.com
8613 Goshaw Drive
Manassas, Virginia 20110

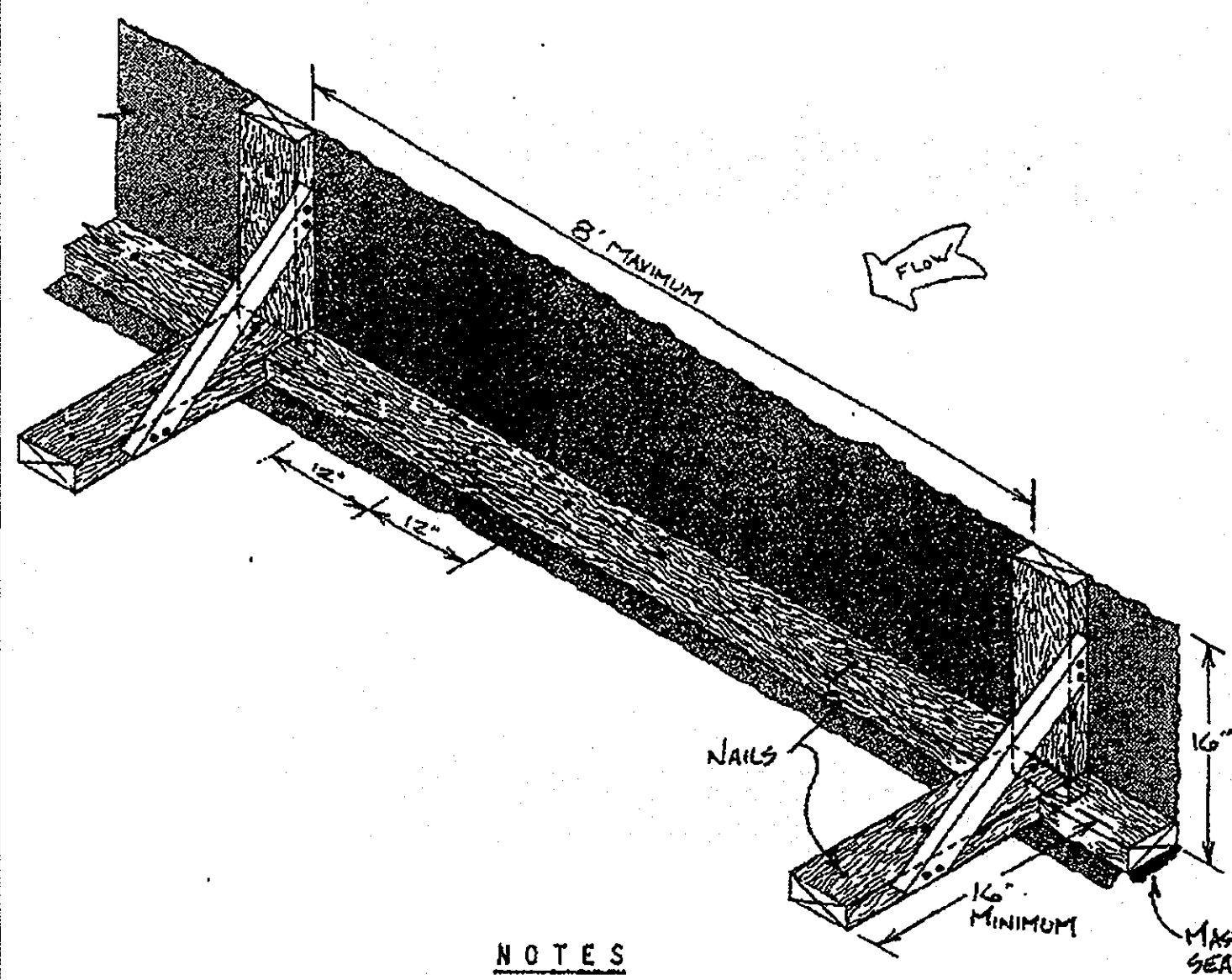


SUPERCENTER #2412-03
ELLCOTT CITY, HOWARD COUNTY, MARYLAND
WAL-MART REAL ESTATE BUSINESS TRUST
2001 SE 10TH STREET
BENTONVILLE, AR 72716



DESIGN DRAWN
CHECKED
DATE 07/15/2010
SCALE 1"=50'
JOB No.
SHEET 4
OF 5 SHEETS

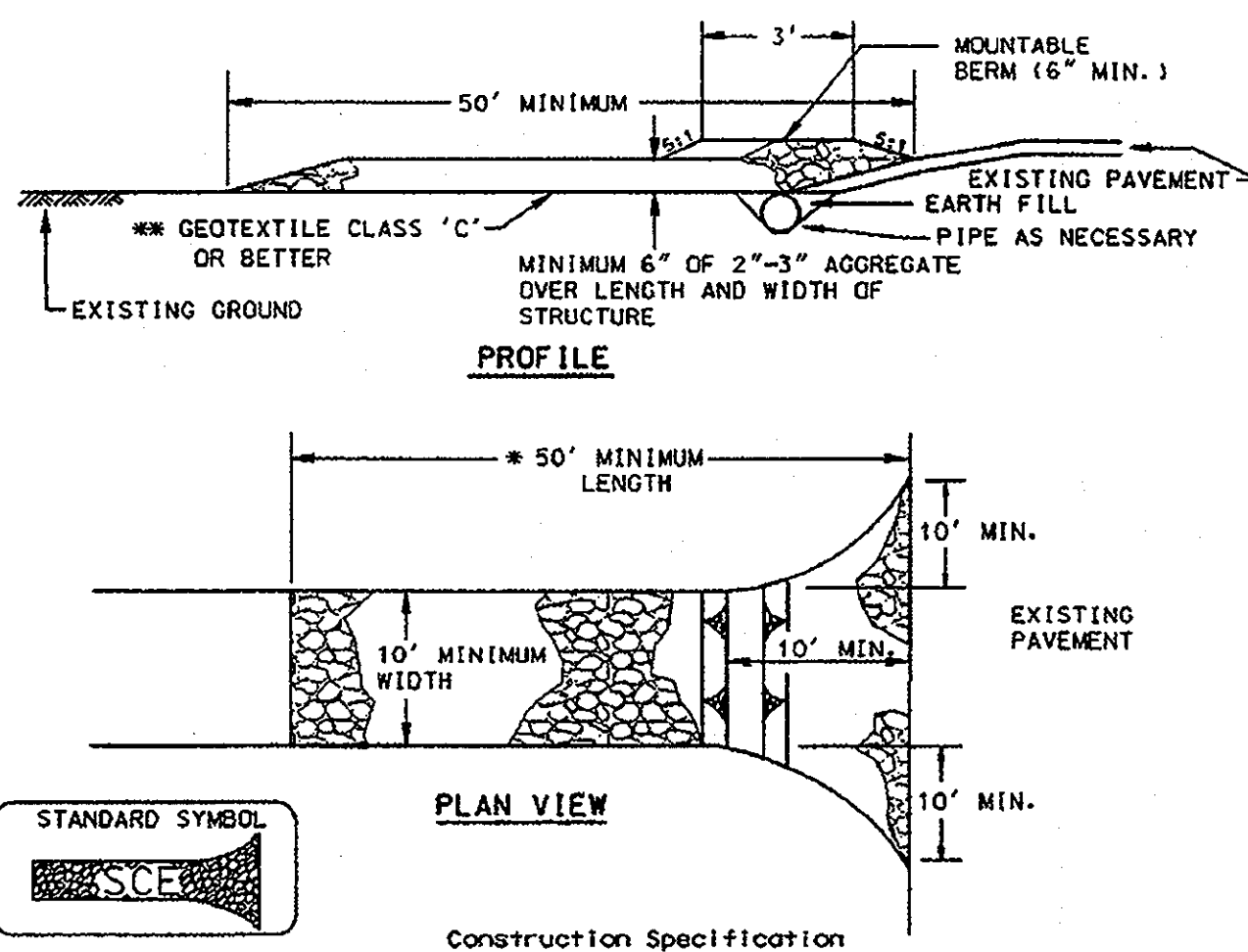
DETAIL - SILT FENCE INSTALLATION ON ASPHALT PAVEMENT



NOTES

- All finished lumber shall be 2" x 4" minimum.
- A mastic seal shall be provided, as shown, to prevent sediment laden water escaping untreated beneath silt fence installation.
- Silt fence fabric shall be taut and securely stapled to face of upright supports.
- Nails used to secure boards to pavement shall be 20d x 4" minimum length.
- Application design and materials criteria shall be as stated in the Maryland Standards and Specifications for Soil Erosion and Sediment Control.

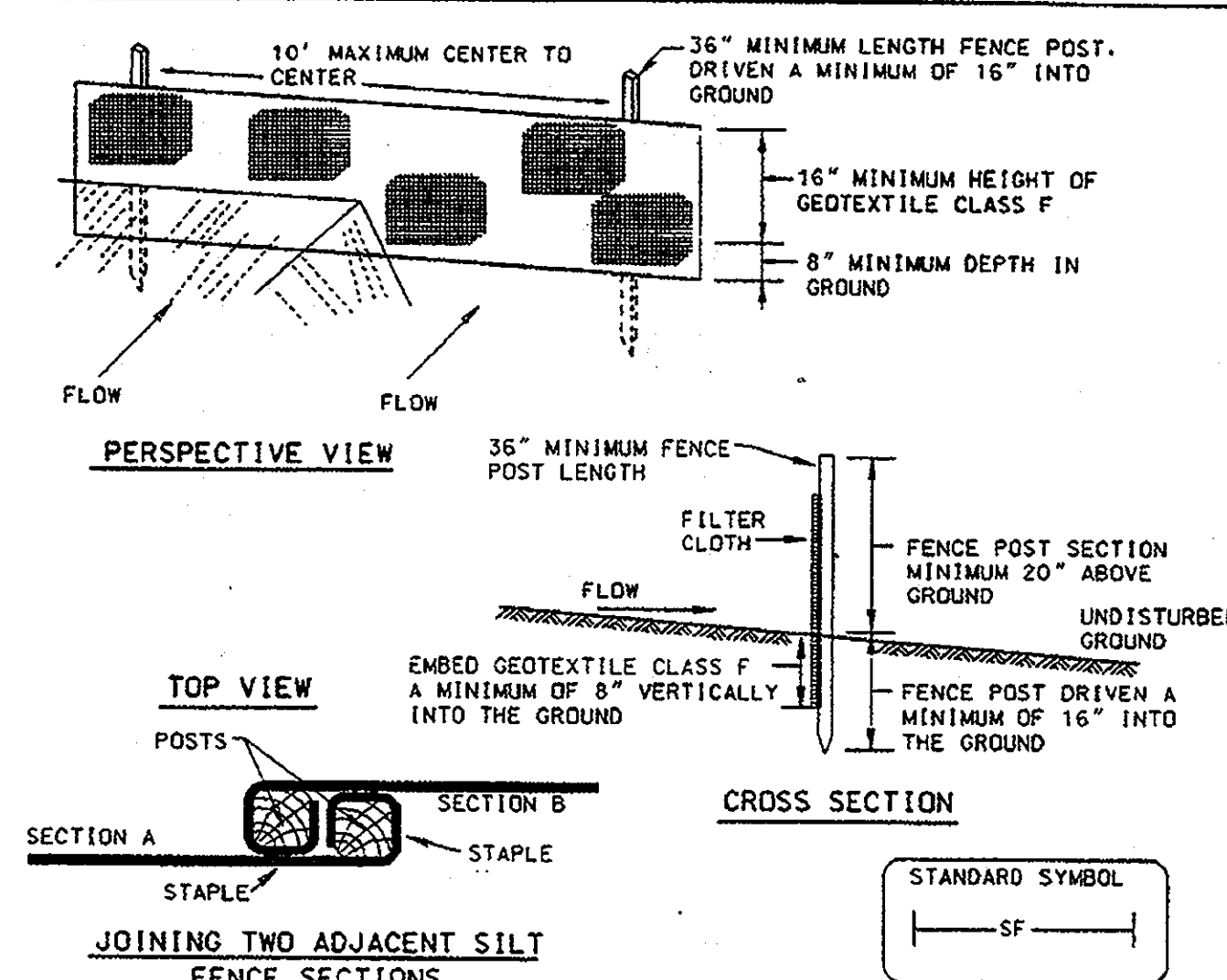
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



- Length - minimum of 50' (#30' for single residence lot).
- Width - 10' minimum; should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2" to 3") or reclaimed or recycled concrete equivalent shall be placed at least 6" deep over the length and width of the entrance.
- Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6" of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.
- Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE 2-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 22 - SILT FENCE

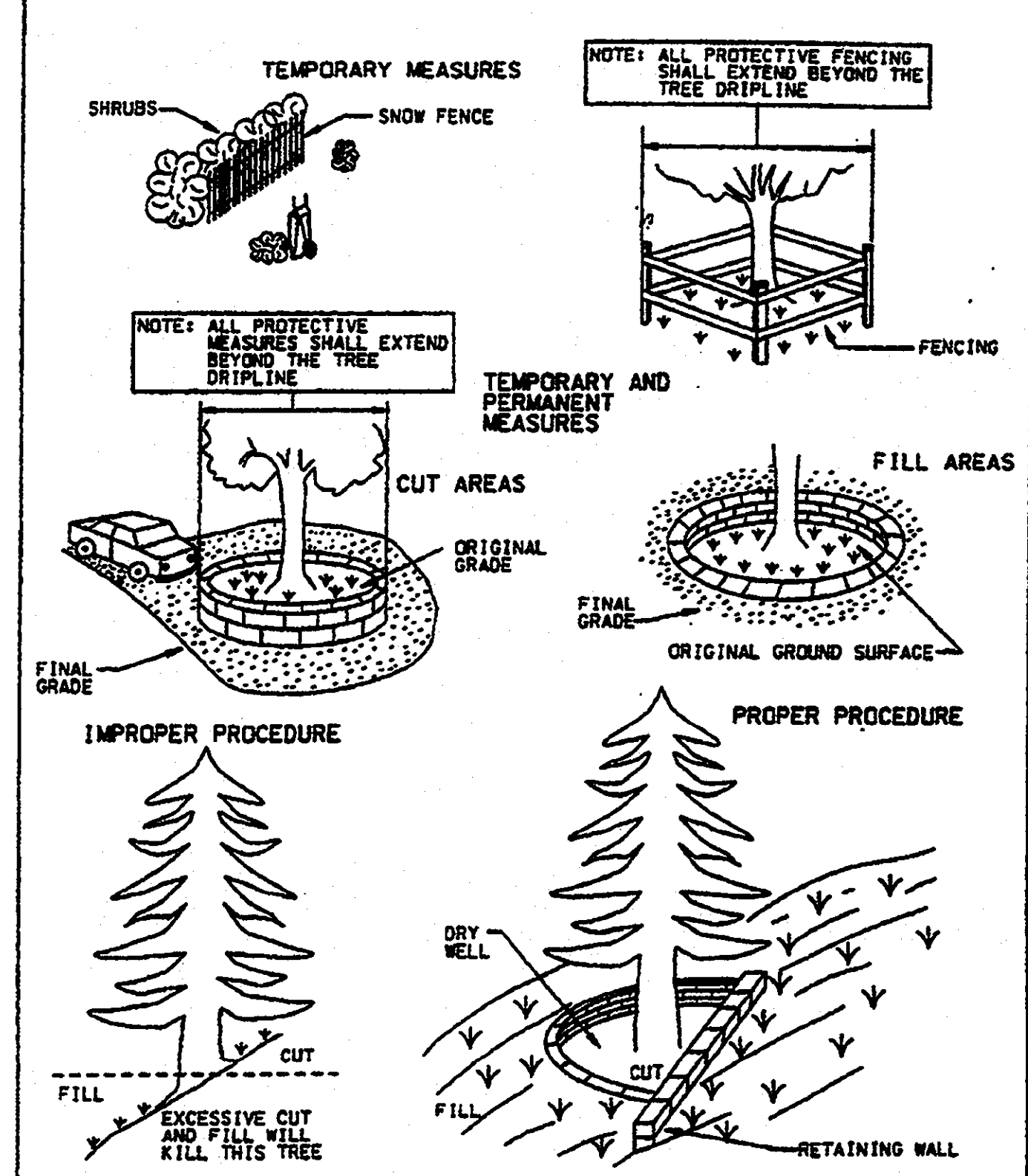


- Fence posts shall be a minimum of 36" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum cut) or 1 1/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighting not less than 1.00 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the following requirements for Geotextile Class F:

Tensile Strength	50 lbs/in (min.)	Test: MSMT 509
Tensile Modulus	20 lbs/in (min.)	Test: MSMT 509
Flow Rate	0.3 gal ft ² /minute (max.)	Test: MSMT 322
Filtering Efficiency	75% (min.)	Test: MSMT 322
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence shall be inspected after each rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

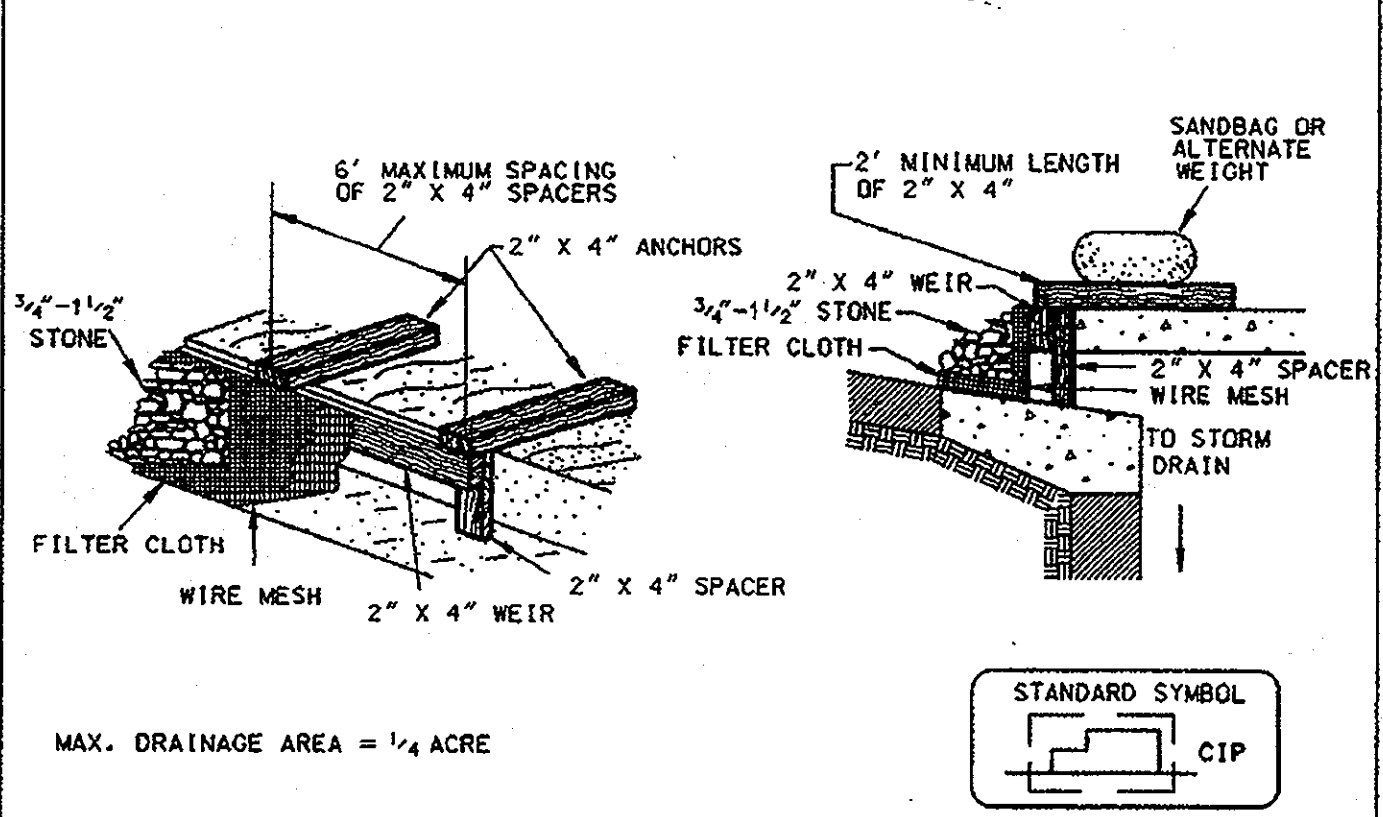
U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-15-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 31 TREE PROTECTION



U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-25-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

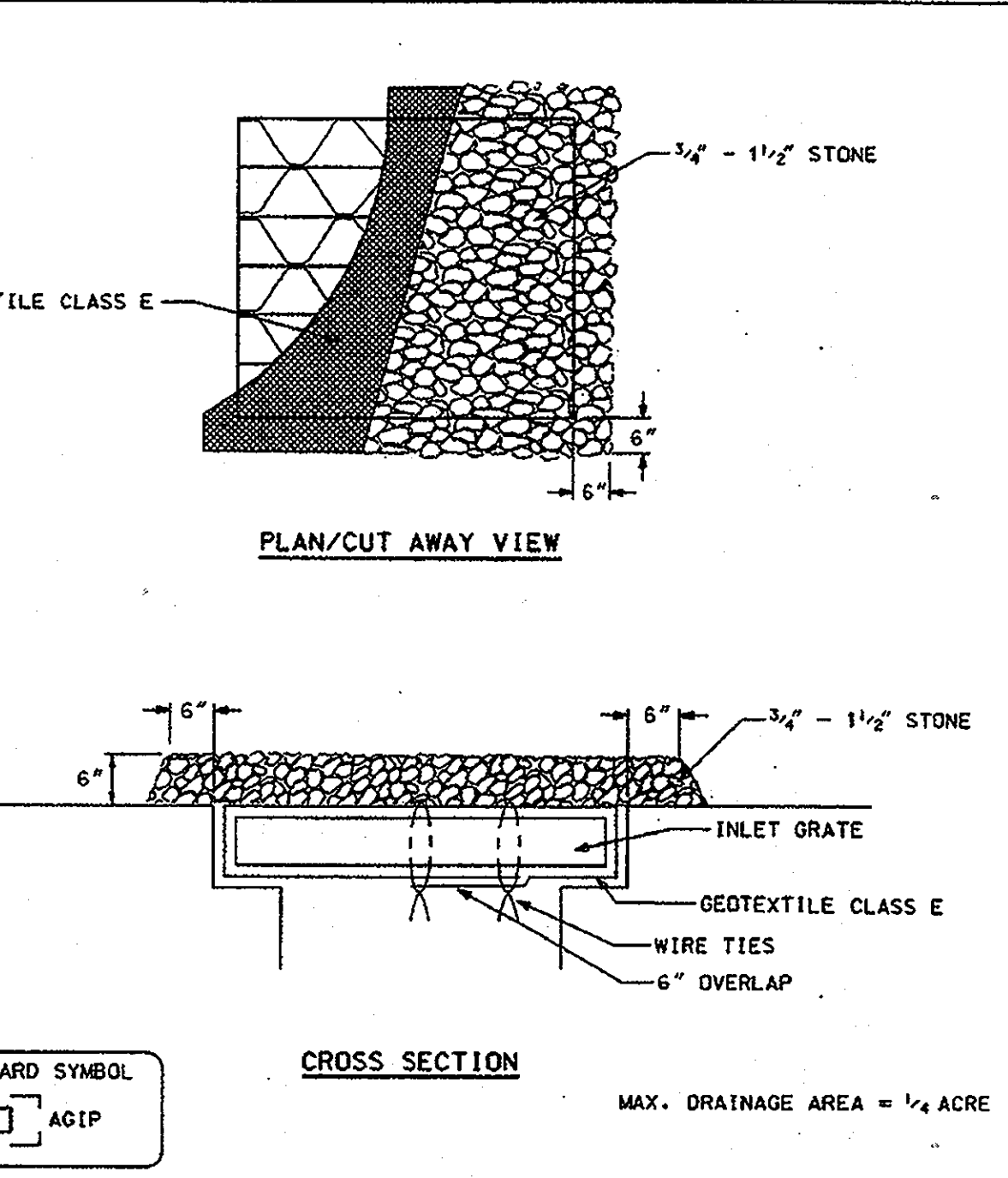
DETAIL 23C - CURB INLET PROTECTION (COG OR COS INLETS)



- Attach a continuous piece of wire mesh (30" minimum width by throat length plus 4") to the 2" x 4" weir (measuring throat length plus 2") as shown on the standard drawing.
- Place a continuous piece of Geotextile Class E the same dimensions as the wire mesh over the wire mesh and securely attach it to the 2" x 4" weir.
- Securely nail the 2" x 4" weir to a 9" long vertical spacer to be located between the weir and the inlet face (max. 4" apart).
- Place the assembly against the inlet throat and nail (minimum 2" lengths of 2" x 4" to the top of the weir at spacer locations). These 2" x 4" anchors shall extend across the inlet top and be held in place by sandbags or alternate weight.
- The assembly shall be placed so that the end spacers are a minimum 1' beyond both ends of the throat opening.
- Form the 1/2" x 1/2" wire mesh and the geotextile fabric to the concrete gutter and against the face of the curb on both sides of the inlet. Place clean 3/4" x 1 1/2" stone over the wire mesh and geotextile in such a manner to prevent water from entering the inlet under or around the geotextile.
- This type of protection must be inspected frequently and the filter cloth and stone replaced when clogged with sediment.
- Assure that storm flow does not bypass the inlet by installing a temporary earth or asphalt dike to direct the flow to the inlet.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE F-16-5B MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 23B - AT GRADE INLET PROTECTION



- Lift grate and wrap with Geotextile Class E to completely cover all openings, then set grate back in place.
- Place 3/4" to 1 1/2" stone, 4"-6" thick on the grate to secure the fabric and provide additional filtration.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE E-16-5A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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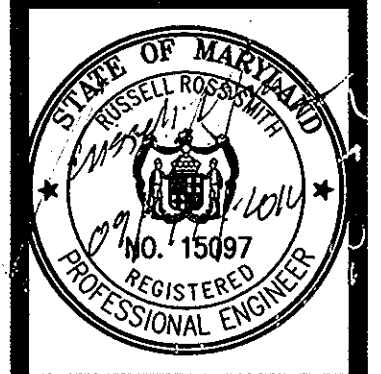
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
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 CHIEF, DIVISION OF LAND DEVELOPMENT
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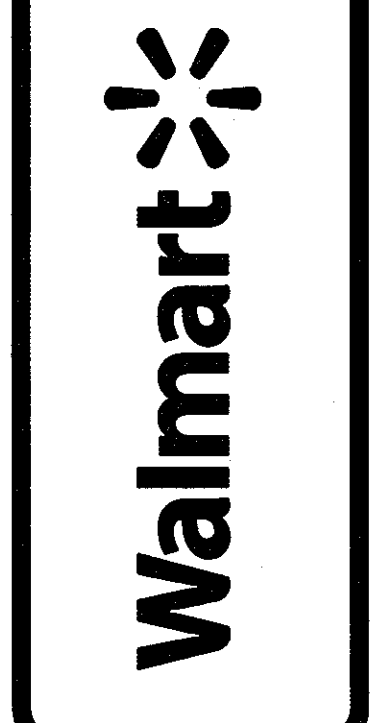
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**CONCEPTUAL
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09/17/10-CONCEPT	GD/KD
COUNTY SUBMISSION	

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