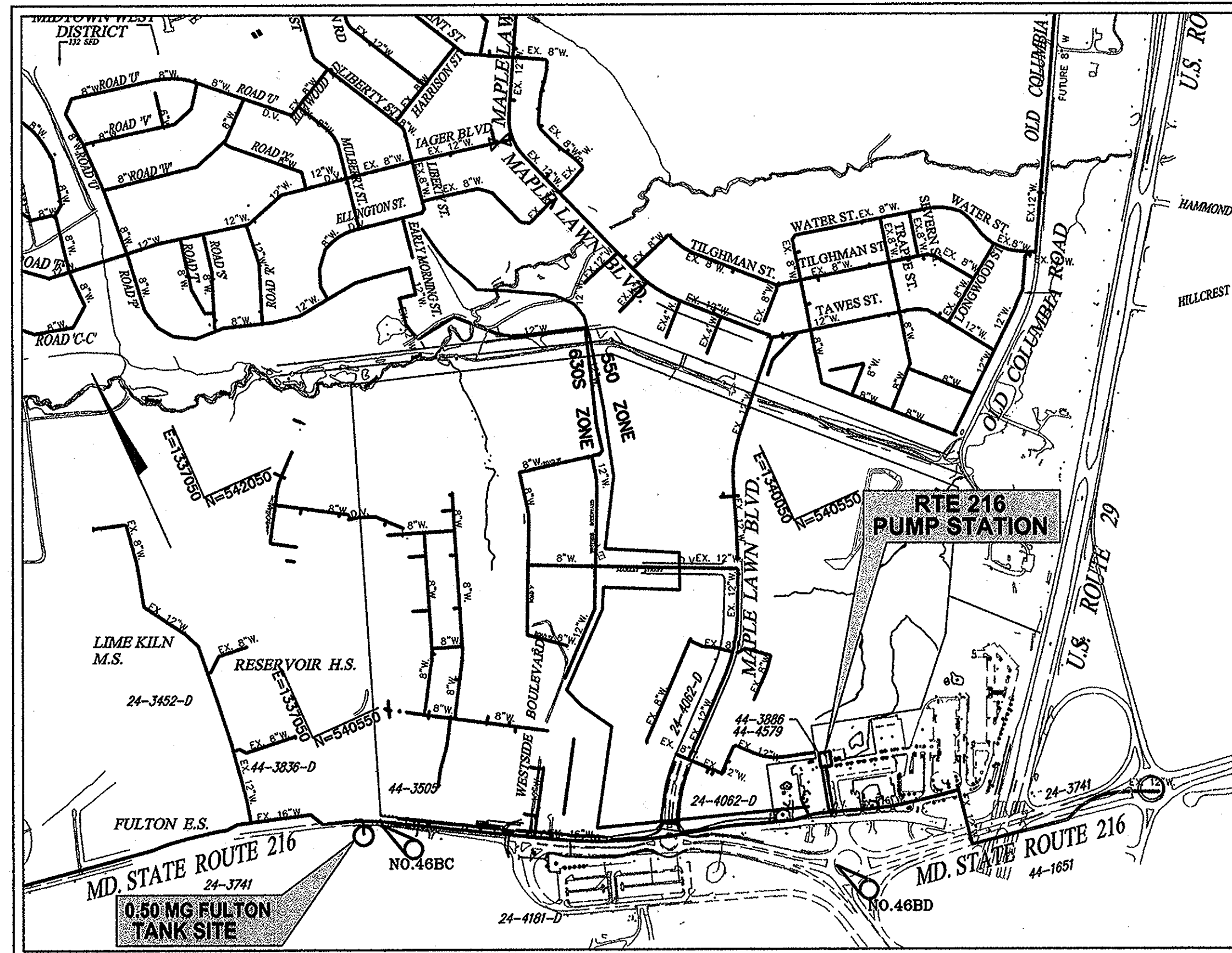


SITE DEVELOPMENT PLAN NOTES

**0.50MG FULTON ELEVATED WATER TANK
HOWARD COUNTY, MARYLAND
DEPARTMENT OF PUBLIC WORKS
CAPITAL PROJECT No. W8280
CONTRACT NO. 44-4517**

- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY AND MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
- THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK TO BE DONE.
- TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
- ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
- THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY KCI DATED FEBRUARY 2008.
- THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL, WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 46BC AND 46BD WERE USED FOR THIS PROJECT.
- WATER IS PUBLIC, AS DEFINED IN CONTRACT NO. 44-3505, DRAINAGE AREA: HAMMOND BRANCH.
- SEWER IS PUBLIC AS DEFINED IN CONTRACT NO. 24-3452-D, DRAINAGE AREA: HAMMOND BRANCH.
- STORMWATER MANAGEMENT SHALL BE REQUIRED. STORMWATER FACILITY IS A LOW HAZARD (CLASS A) BIORETENTION FACILITY, AND SHALL BE MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
- EXISTING UTILITIES ARE BASED ON CONTRACT NO. 44-3505.
- NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
- ACCORDING TO A REVIEW OF U.S. FISH & WILDLIFE SERVICES DIGITAL NATIONAL WETLAND INVENTORY DATA (1981-2002) CLARKSVILLE QUAD AND FEMA FLOODPLAIN PANEL 2400440042B (12/4/1986), NO WETLANDS, FLOODPLAINS, STREAMS, OR THEIR BUFFERS OCCUR ON THIS SITE.
- THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL WITH 2 SHADE TREES, 46 EVERGREEN TREES, AND 10 SHRUBS PROVIDED ON THE APPROVED LANDSCAPE PLAN. FINANCIAL SURETY IS NOT REQUIRED FOR THIS PROJECT BECAUSE THIS IS A COUNTY CAPITAL PROJECT.
- THIS PROJECT IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE SITE DEVELOPMENT PLAN, WAIVER PETITION APPLICATION, OR BUILDING/GRADING PERMIT APPLICATIONS. THE DEVELOPER SHALL APPLY FOR BUILDING PERMITS FOR ALL LOTS AS SHOWN ON THIS SITE DEVELOPMENT PLAN WITHIN ONE YEAR OF SIGNATURE APPROVAL OF THIS PLAN.
- THERE ARE NO BURIAL GROUNDS OR CEMETERY SITES LOCATED ON THE SUBJECT PROPERTY.
- THERE ARE NO HISTORIC STRUCTURES LOCATED ON THE SUBJECT PROPERTY.
- THE SUBJECT PROPERTY IS ZONED RR-DEO PER THE 2/02/04 COMPREHENSIVE ZONING PLAN AND PER THE "COMP LITE" ZONING AMENDMENTS EFFECTIVE 7/28/06.
- ACCORDING TO THE SECTION 128(A)(3)(D) OF THE HOWARD COUNTY ZONING REGULATIONS, THE WATER STORAGE STRUCTURE IS EXEMPT FROM HEIGHT LIMITATIONS WITHIN THE RR ZONING DISTRICT.
- ALL EXTERIOR LIGHT FIXTURES SHALL BE ORIENTED TO DIRECT LIGHT INWARDS AND DOWNWARDS ON-SITE AWAY FROM ALL ADJOINING RESIDENTIAL PROPERTIES AND PUBLIC ROADS AND SHALL BE IN COMPLIANCE WITH THE LIGHT TRESPASS LIMIT OF 0.5 FOOT CANDLES ONTO ANY OTHER ADJOINING PROPERTY ZONED OR USED FOR RESIDENTIAL PURPOSES IN ACCORDANCE WITH SECTION 134 OF THE HOWARD COUNTY ZONING REGULATIONS.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLE SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOL. III (1993) AND AS MODIFIED BY "GUIDELINES FOR STREET LIGHTS IN RESIDENTIAL DEVELOPMENTS (JUNE 1993)". A MINIMUM SPACING OF 20' SHALL BE MAINTAINED BETWEEN ANY STREETLIGHT AND ANY TREE.
- ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
- THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS PER APPENDIX 'O' OF THE FOREST CONSERVATION MANUAL FOR A COUNTY CAPITAL PROJECT LOCATED ON A SINGLE LOT OF ANY SIZE AND DOES NOT RESULT IN THE CUTTING, CLEARING OR GRADING OF MORE THAN 40,000 SF. OF FOREST.

INDEX OF SHEETS	
SHEET NUMBER	SHEET TITLE
SD-1	SITE DEVELOPMENT PLAN TITLE SHEET
SD-2	TANK SITE STAKE-OUT PLAN
SD-3	SITE DEVELOPMENT PLAN
SD-4	LANDSCAPE PLAN AND DETAILS
SD-5	PROFILES - ROAD AND SITE DETAILS
SD-6	SEDIMENT AND EROSION CONTROL NOTES AND DETAILS
SD-7	STORMWATER MANAGEMENT PLAN AND DETAILS
SD-8	STORMWATER MANAGEMENT NOTES AND DETAILS
SD-9	TEST BORING LOGS



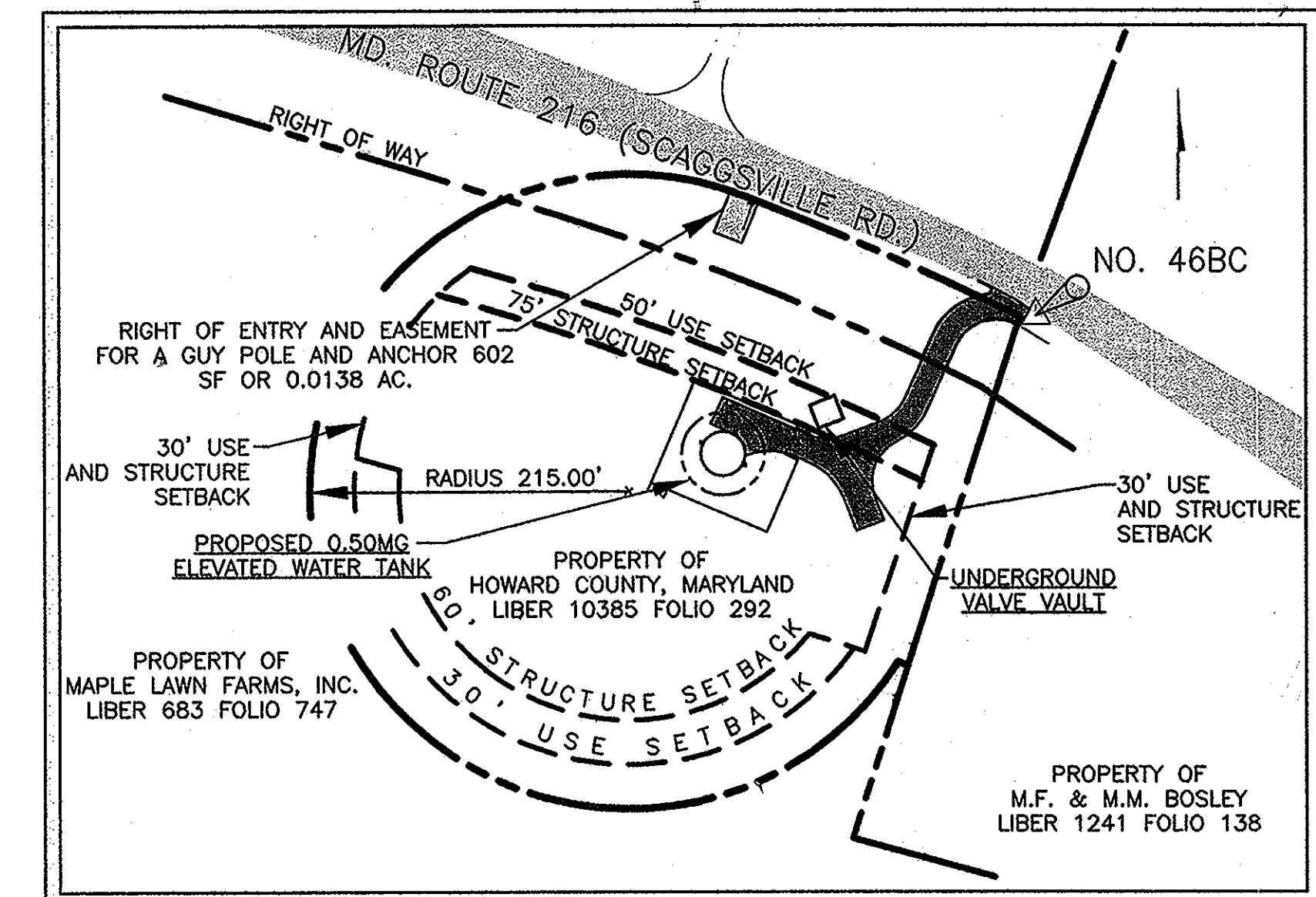
TYPE OF BUILDING: N/A
NUMBER OF PARCELS: N/A
DRAINAGE AREA: HAMMOND BRANCH
PRESSURE ZONE: 630S

VICINITY MAP
SCALE: 1" = 600'

NO. OF WHC: 0
NO. OF SHC: 0
ADC MAP 18, J5,K5

SITE ANALYSIS DATA CHART	
PROJECT AREA	3.52 ACRES
LIMIT OF DISTURBANCE (LOD)	39,850 SF (0.91 ACRES)
PRESENT ZONING DESIGNATION	RURAL RESIDENTIAL (RR)
PROPOSED PURPOSE	COUNTY ELEVATED WATER STORAGE TANK
TANK FOOT PRINT	707 SF
VALVE VAULT FOOT PRINT	297 SF
ON SITE PARKING	TWO (2) SPACES

ADDRESS CHART	
LOT/PARCEL #	STREET ADDRESS
EXISTING RESIDENCE #282	11475 RTE 216
NEW DPW SITE #389	11515 SCAGGSVILLE RD



SITE MAP
SCALE: 1" = 100'

PERMIT INFORMATION CHART					
SUBDIVISION NAME: N/A		SECTION/AREA: N/A		LOT/PARCEL NO. 389	
PLOT # OR L/F	GRID #	ZONING	TAX MAP NO.	ELEC. DISTRICT	CENSUS TRACT
L10385 F292/297	3	RR-DEO	46	5	6051.02

ADJACENT WATER & SEWER FACILITY CONTRACTS:

- YR. 1987, 44-1651 MD. RTE.216 ROUTINE WATER EXTENSION
- YR. 1996, 44-3505 WESTERN SCHOOL COMPLEX WATER MAIN EXTENSION
- YR. 1996, 24-3452-D WESTERN ELEMENTARY SCHOOL NO. 2 PARCEL NO. 115 WATER AND SEWER
- YR. 1998, 24-3741 MD. RTE.216 AND US RTE.29 12-INCH WATER AND 8-INCH SEWER RELOCATION
- YR. 2000 44-3886 MD. RTE.216 BOOSTER PUMPING STATION
- YR. 2000 44-3836-D EASTERN HIGH SCHOOL NO. 2 WATER SERVICE
- YR. 2003 24-4062-D MAPLE LAWN FARMS BUSINESS DISTRICT - AREA-1
- YR. 2004 24-4181-D GRACE COMMUNITY CHURCH WATER AND SEWER
- YR. 2009 44-4579 RTE. 216 PUMP STATION UPGRADE

HORIZONTAL & VERTICAL CONTROL

HORIZONTAL AND VERTICAL CONTROL IS BASED ON MARYLAND NAD 83/91 (HORIZONTAL) AND NAVD '88 (VERTICAL) DATUM. HOWARD COUNTY GEODETIC SURVEY CONTROL NUMBERS

NO. 46BC N 539925.13 E 1337205.77 ELEV. 472.16	NO. 46BD N 538656.76 E 1339461.55 ELEV. 431.17	OWNER: DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND 9250 BENOIX ROAD COLUMBIA, MARYLAND PHONE: (410)313-4400
---	---	---

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. 14364, Expiration Date 03/29/11

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, BUREAU OF DEVELOPMENT
DIRECTOR, DEP.

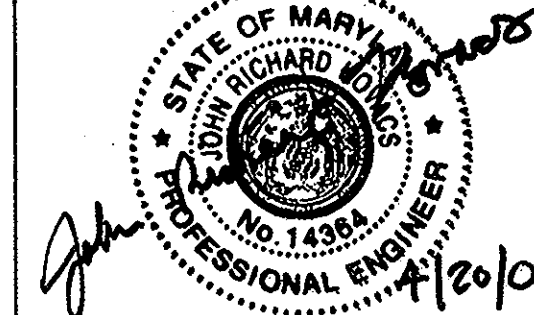
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

4/21/09
4/21/09
4/21/09

ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS

KCI
TECHNOLOGIES

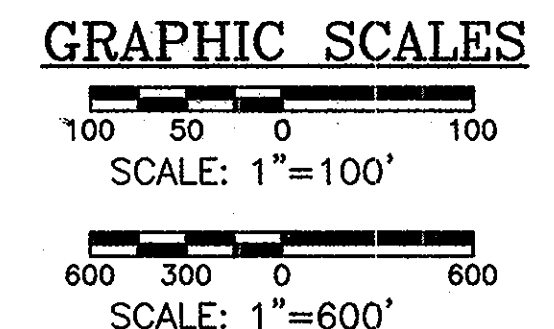
936 Ridgebrook Road
Sparks, MD 21152
Phone: (410) 316-7800
Fax: (410) 316-7935
www.kci.com



DES: SEA					
DRN: LFN					
CHK: JRK					
DATE: 3/20/09	BY	NO.	REVISION	DATE	600' SCALE MAP NO. 46 BLOCK NO. 4

**SITE DEVELOPMENT PLAN
TITLE SHEET**

TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389, ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297	SD-1 1 OF 9
FULTON ELEVATED WATER TANK CAPITAL PROJECT No. W8280 CONTRACT No. 44-4517 ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND	SCALE AS SHOWN CONTRACT SHEET 2 OF 22

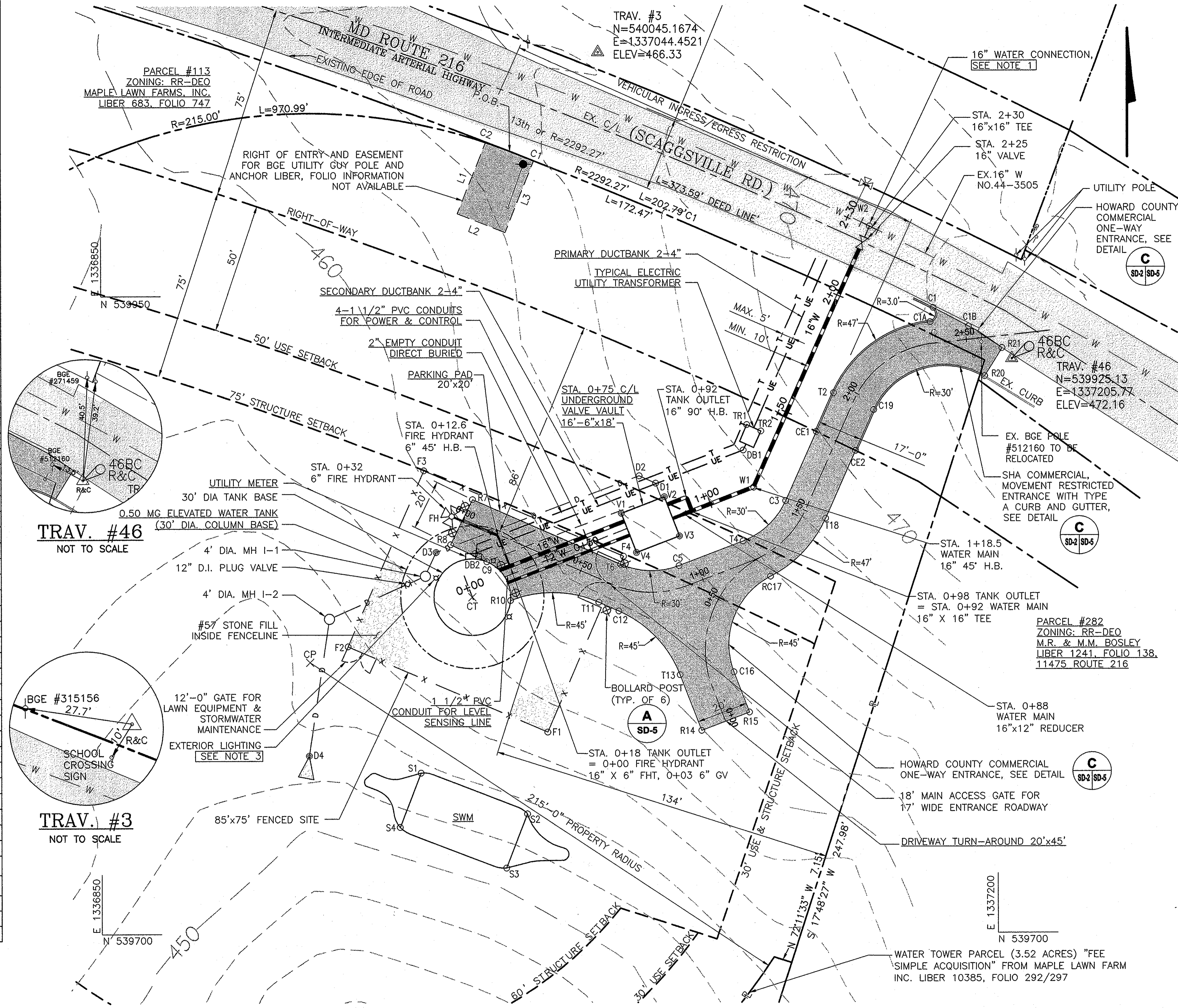


SITE STAKE-OUT COORDINATES

POINT	DESCRIPTION	NORTH	EAST
CT	CENTER OF TANK	539831.95	1336994.95
CP	CENTER OF PROPERTY	539806.43	1336931.49
F1	TANK SITE FENCE	539778.96	1337024.35
F2	TANK SITE FENCE	539812.65	1336946.32
F3	TANK SITE FENCE	539881.51	1336976.04
F4	TANK SITE FENCE	539847.82	1337054.08
C1	ENTRANCE ROAD	539945.04	1337175.13
C1A	ENTRANCE ROAD	539939.48	1337173.95
C1B	ENTRANCE ROAD	539937.73	1337188.90
T2	ENTRANCE ROAD	539911.66	1337136.24
CE1	CURB END	539896.53	1337129.51
C3	ENTRANCE ROAD	539869.50	1337117.50
T4	ENTRANCE ROAD	539853.67	1337100.81
C5	ENTRANCE ROAD	537844.09	1337075.80
T6	ENTRANCE ROAD	539844.66	1337052.96
R7	ENTRANCE ROAD	539870.18	1336995.08
R8	ENTRANCE ROAD	539852.52	1336986.52
C9	ENTRANCE ROAD	539845.82	1337000.65
R10	ENTRANCE ROAD	539830.59	1337009.89
T11	ENTRANCE ROAD	539829.85	1337044.42
C12	ENTRANCE ROAD	539826.39	1337052.25
T13	ENTRANCE ROAD	539801.31	1337076.12
R14	ENTRANCE ROAD	539779.43	1337084.50
R15	ENTRANCE ROAD	539786.58	1337103.17
C16	ENTRANCE ROAD	539802.40	1337097.12
RC17	ENTRANCE ROAD	539839.83	1337111.47
T18	ENTRANCE ROAD	539862.58	1337133.02
CE2	CURB END	539889.09	1337144.81
C19	ENTRANCE ROAD	539905.09	1337151.92
R20	ENTRANCE ROAD	539918.26	1337195.11
R21	ENTRANCE ROAD	539929.27	1337201.94
V1	VALVE VAULT	539864.67	1337053.26
V2	VALVE VAULT	539871.11	1337070.07
V3	VALVE VAULT	539855.70	1337075.97
V4	VALVE VAULT	539849.26	1337059.17
MH1	MANHOLE 1	539840.18	1336976.61
MH2	MANHOLE 2	539823.46	1336939.06
W1	16" WATER	539874.77	1337105.00
W2	16" WATER	539977.09	1337150.37
D1	DRAIN	539876.40	1337066.69
D2	DRAIN	539879.29	1337060.26
D3	DRAIN	539849.50	1336980.82
D4	DRAIN	539769.84	1336931.10
S1	SWM POND	539763.03	1336974.78
S2	SWM POND	539746.92	1337016.34
S3	SWM POND	539725.67	1337008.10
S4	SWM POND	539741.80	1336966.55
FH	FIRE HYDRANT	539862.26	1336987.06
DB1	DUCT BANK	539889.31	1337100.94
DB2	DUCT BANK	539849.03	1336995.97
TR1	TRANSFORMER	539899.30	1337102.33
TR2	TRANSFORMER	539896.78	1337107.84

GUY POLE EASEMENT

LINE TABLE		CURVE TABULATION			
LINE	BEARING	LENGTH	CURVE	BEARING	LENGTH
L1	S 29°52'44" W	30.00'	C1	S 68°27'57" E	11.56'
L2	N 69°07'16" W	20.00'	C2	N 69°44'05" W	8.44'
L3	N 20°52'44" E	30.04'			



- LEGEND:**
- EX. FEATURES
 - PROPOSED FEATURES
 - EXISTING CONTOURS
 - PROPOSED CONTOURS
 - PROPERTY LINE/RIGHT-OF-WAY
 - SETBACK / EASEMENT
 - LOD - LIMIT OF DISTURBANCE
 - SCSF - STABILIZED CONSTRUCTION ENTRANCE
 - SSF - SUPER SILT FENCE
 - PROPOSED ACCESS DRIVE
 - EXISTING ROADWAY
 - RIP RAP /ARCHITECTURAL STONE (AS NOTED)
 - STORM WATER MANAGEMENT
 - TEMPORARY STONE OUTLET STRUCTURE
 - BIORETENTION PLANTING AREA
 - SWM MAINTENANCE ACCESS
- UTILITIES:**
- PROPOSED WATER
 - UNDERGROUND ELECTRIC
 - TELEPHONE
 - EX. WATER
 - FENCE
 - DRAIN
 - UTILITY POLE
 - GATE VALVE
 - GUY POLE
 - EXTERIOR LIGHT
 - SERVICE HYDRANT
- CIVIL SITE SYMBOLS:**
- TEST PIT
 - SOIL BORING

- NOTES:**
- CONTRACTOR TEST PIT TO LOCATE WATER MAIN. OPEN CUT ROADWAY FOR 16" TEE AND ISOLATION GATE VALVE INSTALLATION. COORDINATE SHUT-DOWN PERIOD WITH COUNTY. COMPLY WITH SHA PERMIT AND TRAFFIC CONTROL REQUIREMENTS.
 - 100 YEAR FLOODPLAIN, WETLANDS, WETLAND BUFFER AND STREAMS ARE NON-EXISTENT ON THE PROPERTY.
 - 70 WATTS PHOTOCELL CONTROLLED EXTERIOR LIGHTING. TYPICAL OF 3. DISTANCE TO RESIDENTIAL PROPERTY IS APPROX. 146'.
 - SEE SHEET SD-3 FOR SOIL BORING LOCATIONS.
- GRAPHIC SCALE**
SCALE: 1"=20'

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature]
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 4/21/09

OWNER:
 DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MARYLAND
 PHONE: (410)313-4400

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. 33925, Expiration Date 01/15/11

1 ELEVATED WATER TANK SITE
 SCALE 1"=20'

TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
 ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

[Signature] 4/21/09
 DIRECTOR OF PUBLIC WORKS
 CHIEF, BUREAU OF UTILITIES

[Signature] 4/21/09
 CHIEF, BUREAU OF ENGINEERING
 CHIEF, UTILITY DESIGN DIVISION

KCI TECHNOLOGIES
 596 Ridgebrook Road
 Sparks, MD 21152
 Phone: (410) 316-7800
 Fax: (410) 316-7935
 www.kci.com

DES: SEA
 DRN: LFN
 CHK: JRK
 DATE: 3/20/09

TANK SITE STAKE-OUT PLAN

REVISION 4
 DATE 600' SCALE MAP NO. 46 BLOCK NO. 4

FULTON ELEVATED WATER TANK
 CAPITAL PROJECT No. W8280
 CONTRACT No. 44-4517
 ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
 CONTRACT SHEET 3 OF 22

APR 20, 2009 - 8:45am
 M:\2007\01070460\Drawings\ELEVATED TANK-2\C-1 (30) FUTURE RT 216 4-LANE EXPANSION.dwg
 User: kwojnski

MAPLE LAWN FARMS, INC.
LIBER 683, FOLIO 747

PARCEL #389
ZONING: RR-DEO
HOWARD COUNTY, MARYLAND
LIBER 10385, FOLIO 292/297
11515 SCAGGSVILLE ROAD

ADDITIONAL IMPERVIOUS AREA CALCULATION:

FENCED SITE	6375 SF
ACCESS ROAD (OUTSIDE FENCE)	4579 SF
SWM DESIGN REQUIREMENT >	5000 SF

EARTH WORK

	EXCAVATION	BACKFILL (*)
PIPE LINE	200 YD ³	216 YD ³
FOUNDATION	1500 YD ³	1100 YD ³
VAULT	450 YD ³	312 YD ³
SITE WORK	477 YD ³	716 YD ³
TOTALS	2627 YD ³	2344 YD ³
HAULING	283 YD ³	--

(* NOTE: ALL BACKFILL QUANTITIES INCLUDE A 20% COMPACTION FACTOR)

THIS DEVELOPMENT PLAN IS APPROVED FOR THE SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
John R. Roberts 4/22/09
APPROVED DATE
HOWARD S.C.D.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR, DEP.

OWNER:
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MARYLAND
PHONE: (410)313-4400

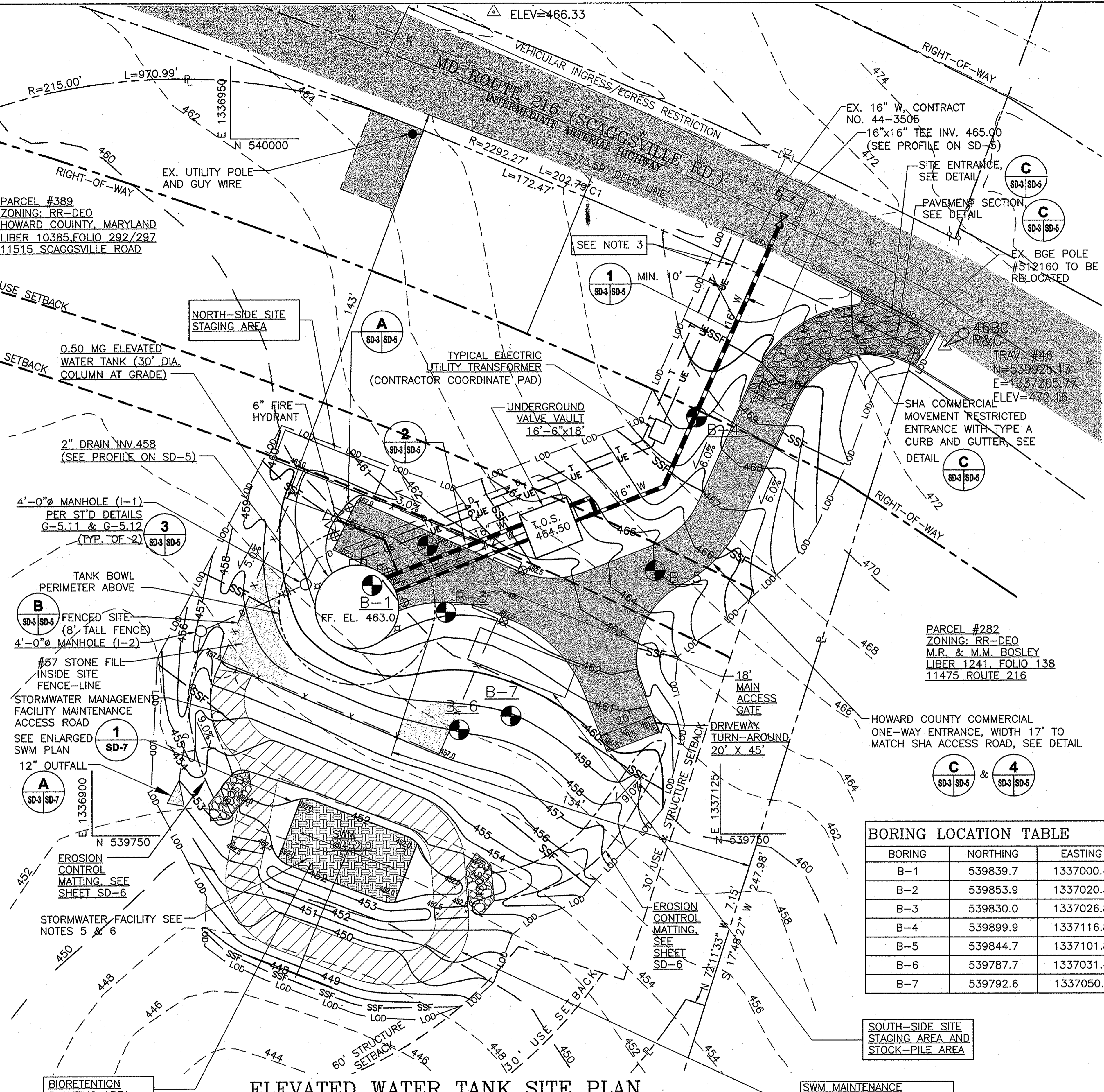
PROFESSIONAL CERTIFICATION. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 33925, Expiration Date 01/15/11

KCI
ENGINEERS
PLANNERS
SCIENTISTS
CONSTRUCTION MANAGERS
936 Ridgebrook Road
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Phone: (410) 316-7800
Fax: (410) 316-7935
www.kci.com

DES: SEA
DRN: LFN
CHK: JRK
DATE: 3/20/09
BY NO. REVISION DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
John G. De... 4/22/09
DIRECTOR OF PUBLIC WORKS DATE
John G. De... 4/22/09
CHIEF, BUREAU OF UTILITIES DATE

APR 20, 2009 - 9:45am
M:\2007\01070450\Drawings\ELEVATED TANK-C-2 GRADING AND SWM.dwg



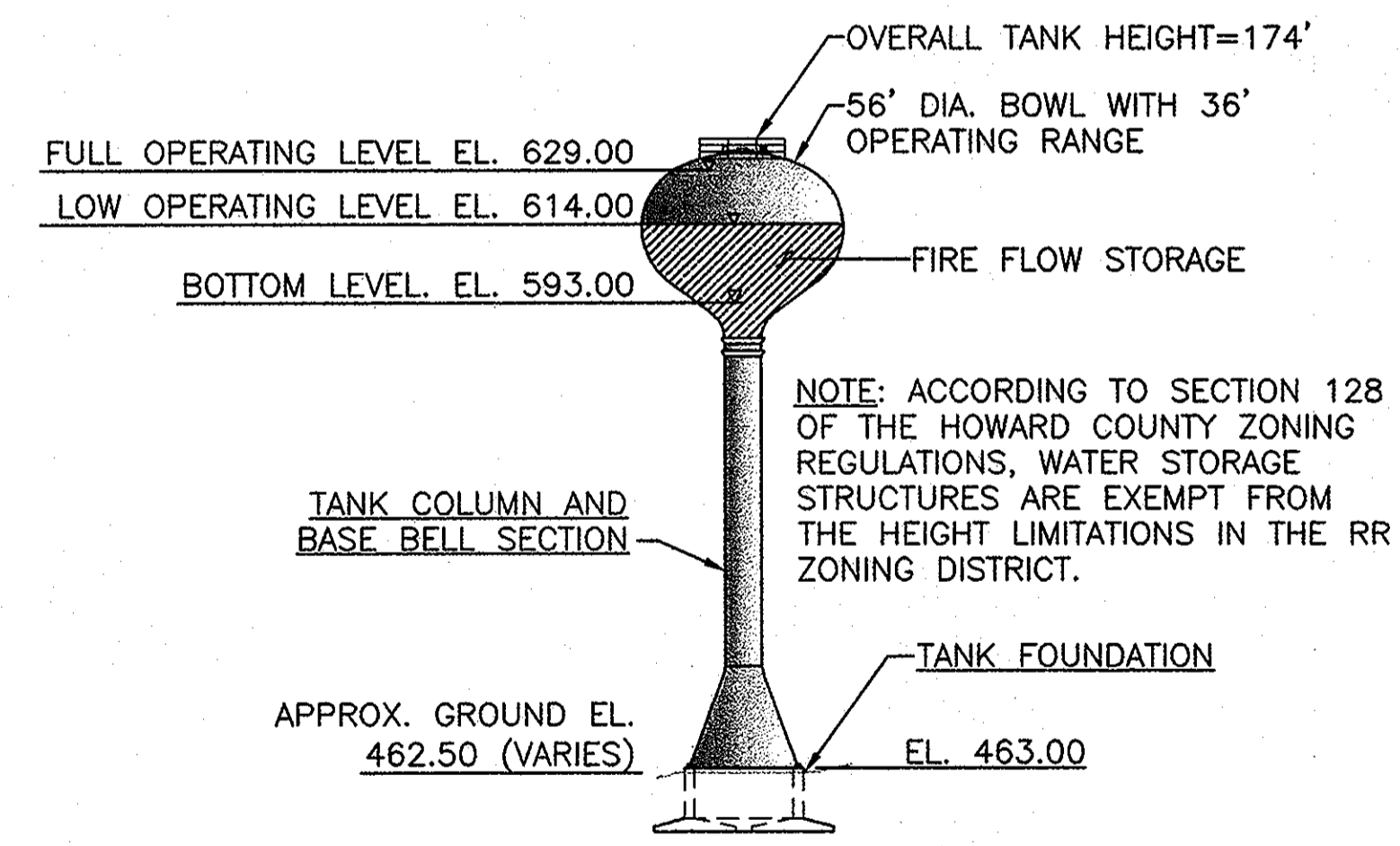
SEQUENCE OF CONSTRUCTION:

- 1-WEEK 1. CONTRACTOR SHALL OBTAIN GRADING PERMIT.
- 1-WEEK 2. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AND THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION (410-313-1880) AT LEAST 5 DAYS PRIOR TO BEGINNING ANY WORK.
- 1-DAY 3. CONTRACTOR SHALL COORDINATE AN ON-SITE PRE-CONSTRUCTION MEETING THAT SHALL INCLUDE, BUT NOT BE LIMITED TO, THE COUNTY PROJECT MANAGER, THE ENGINEER, AND A REPRESENTATIVE FROM HOWARD COUNTY CONSTRUCTION INSPECTION.
- 1-DAY 4. CLEAR AND GRUB THOSE AREAS WITHIN THE LIMIT OF DISTURBANCE REQUIRED TO ESTABLISH THE PROPOSED SEDIMENT CONTROL MEASURES.
- 3-DAYS 5. CONSTRUCT ALL PERIMETER CONTROL DEVICES INCLUDING SILT FENCE AND SCE. NO WORK SHALL BE PERFORMED UNTIL THESE DEVICES ARE APPROVED BY THE HOWARD COUNTY SEDIMENT CONTROL OFFICER.
- 1-DAY 6. COORDINATE SITE POWER WITH BGE, CONTRACTOR SET-UP TEMPORARY POWER. BGE POLE 512160 TO BE RELOCATED.
- 2-DAYS 7. CONNECT TO 18" WATER MAIN. PROVIDE OPEN CUT PROTECTION AND TRAFFIC CONTROL IN ACCORDANCE WITH SHA STANDARDS.
- 28-DAYS 8. EXCAVATE AND INSTALL TANK FOUNDATION.
- 3-DAYS 9. PROVIDE MASS-SITE EXCAVATION AND GRADING. ONLY CONSTRUCT RIPRAP DITCHES TO ELEVATION 455 AND PROVIDE TEMPORARY STONE OUTLET STRUCTURES AT THE END OF EACH DITCH AS SHOWN ON THE PLANS.
- 150-DAYS 10. ERECT ELEVATED TANK.
- 5-DAYS 11. INSTALL VALVE VAULT TEST AND CONNECT TO THE WATER MAINS.
- 5-DAYS 12. PROVIDE TANK POWER, CONTROLS AND TELEMETRY SERVICE.
- 2-DAYS 13. PROVIDE ENTRANCE ROADWAY AND SITE TURN-AROUND DRIVEWAY.
- 2-DAYS 14. FURNISH SITE FINISHED GRADING AND SEEDING.
- 2-DAYS 15. PROVIDE PERMANENT SITE FENCING.
- 5-DAYS 16. AFTER ALL UPSTREAM AREAS HAVE BEEN PERMANENTLY STABILIZED, CONSTRUCT BIORETENTION AREA.
- 3-DAY 17. INSTALL ALL LANDSCAPE PLANTINGS, INCLUDING BIORETENTION PLANTINGS.
- 1-DAY 18. WHEN THE SITE IS STABILIZED AND WITH THE PERMISSION OF THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE SEDIMENT CONTROL DEVICES AND STABILIZE ANY AREAS DISTURBED BY THIS ACTIVITY.
- 2-DAYS 19. CONTRACTOR DEMOBILIZATION/CONTRACT CLOSE-OUT.

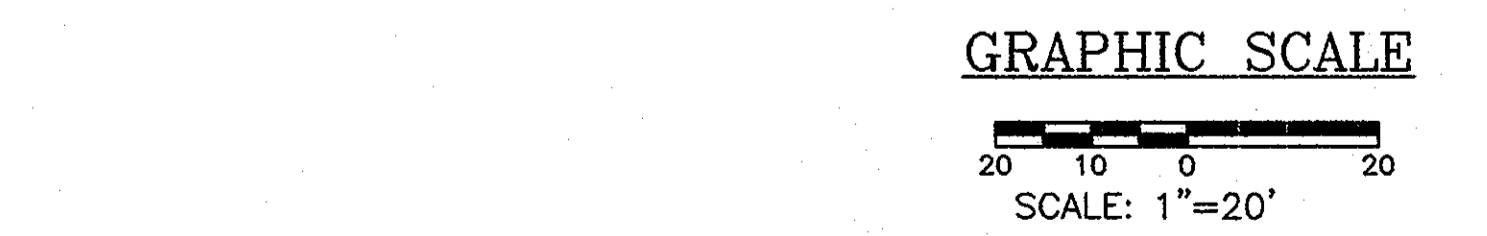
NOTE: PARALLEL EFFORTS ARE NOT DEFINED.

NOTES:

- 1. SEE SHEET SD-2 FOR WATER MAIN DESIGN STATIONING.
- 2. SEE SHEET SD-2 FOR SITE LEGEND AND UTILITY SYMBOLS.
- 3. TELEPHONE AND ELECTRIC UTILITIES SHALL BE FIELD RUN WITH A MINIMUM OF 24" COVER.
- 4. FOR UTILITIES LOCATION SEE STAKEOUT TABLE ON SD-2.
- 5. STORMWATER FACILITY SHOWN IS A LOW-HAZARD (CLASS A) BIORETENTION FACILITY.
- 6. STORMWATER FACILITY SHOWN IS OWNED AND SHALL BE MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
- 7. THE ENTIRE PROJECT SITE IS CLASSIFIED AS GLENELG SOIL (GgB), A TYPE "B" SOIL, BY THE SOIL CONSERVATION SERVICE HYDROLOGIC SOIL GROUP.



PROPOSED 0.50 MG TANK
SCALE: NOT TO SCALE



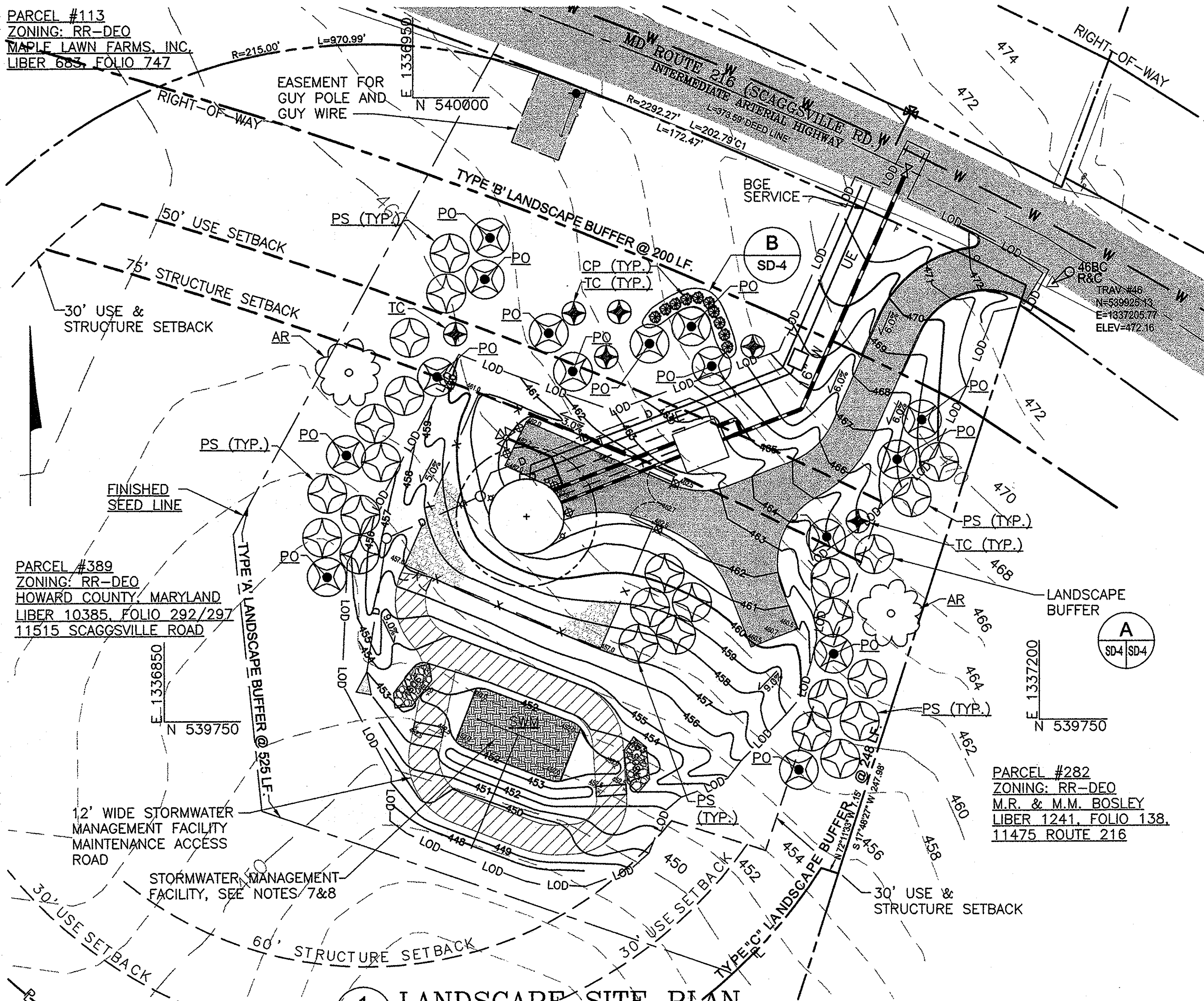
BORING LOCATION TABLE

BORING	NORTHING	EASTING
B-1	539839.7	1337000.4
B-2	539853.9	1337020.3
B-3	539830.0	1337026.8
B-4	539899.9	1337116.8
B-5	539844.7	1337101.8
B-6	539787.7	1337031.4
B-7	539792.6	1337050.1

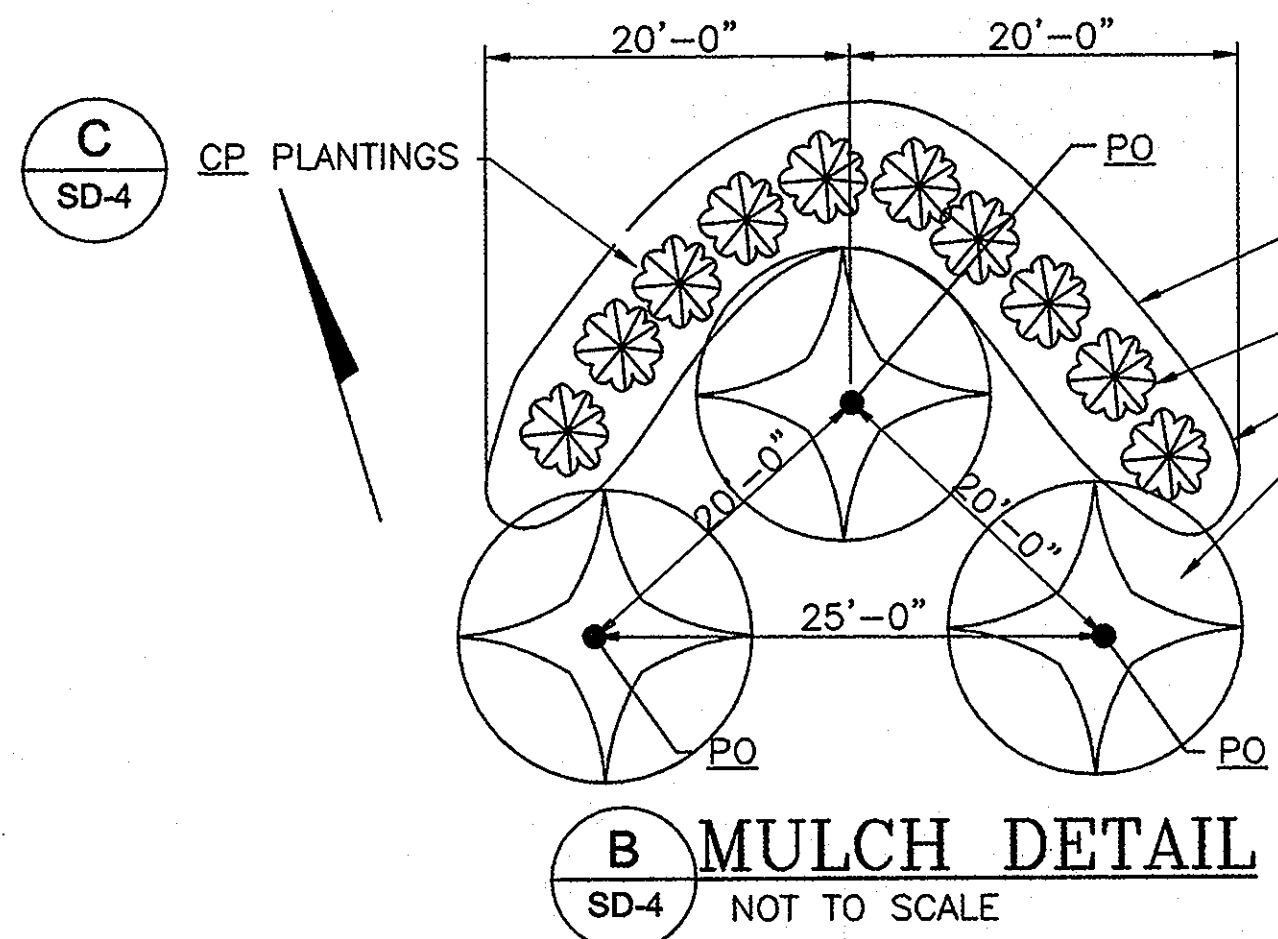
TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

FULTON ELEVATED WATER TANK
CAPITAL PROJECT No. W8280
CONTRACT No. 44-4517
ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

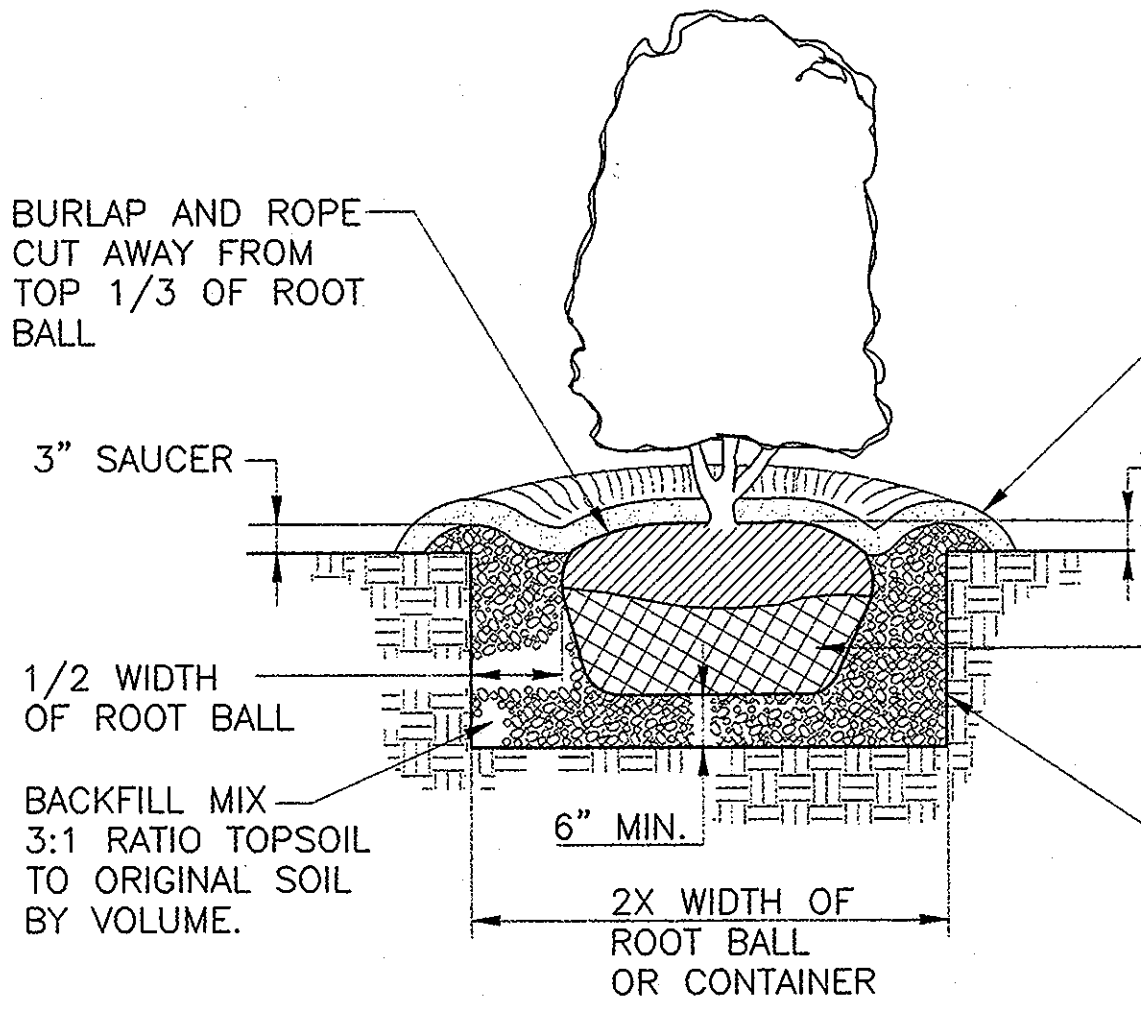
SITE DEVELOPMENT PLAN



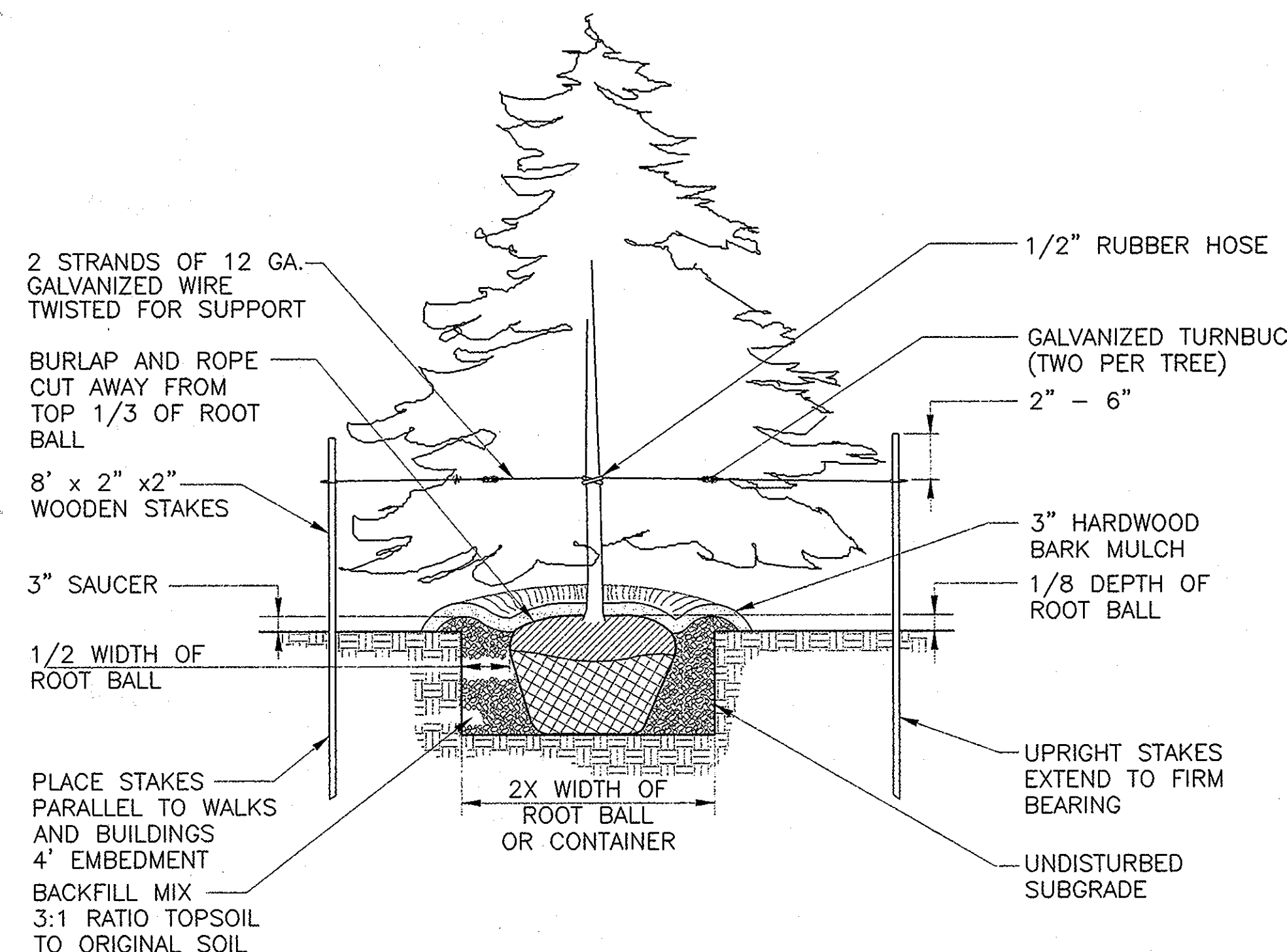
1 LANDSCAPE SITE PLAN
SCALE 1"=30'



B MULCH DETAIL
NOT TO SCALE



C SHRUB PLANTING DETAIL
NOT TO SCALE

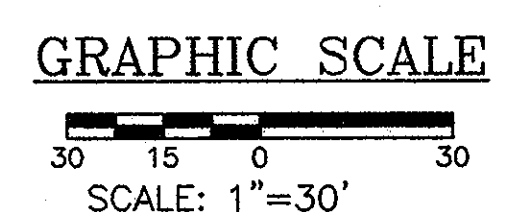


A TREE PLANTING DETAIL
NOT TO SCALE

PLANT LIST NOTE: QUANTITIES EXCEED PERIMETER LANDSCAPE SCHEDULE WITH PLANT SUBSTITUTIONS AT 1:1, SEE NOTE 1

SYMBOL	QTY.	NAMES (BOTANICAL/SCIENTIFIC)	SIZE	SPACING
SHADE TREES				
AR	2	ACER RUBRUM 'AUTUMN FLAME' AUTUMN FLAME MAPLE	8'-10' HT	20'-0"
SUBTOTAL				
EVERGREEN TREES				
PS	25	PINUS STROBUS WHITE PINE	6'-8' HT	16'-0"
PO	15	PICEA OMORIKA SERBIAN SPRUCE	6'-8' HT	15'-0"
TC	6	THUJA OCCIDENTALIS "NIGRA" NIGRA ARBORVITAE	6'-8' HT	10'-0"
SUBTOTAL				
EVERGREEN SHRUBS				
CP	10	CHAMAECYPARIS PISIFERA "AUREA MOPS" GOLD CYPRESS	1'-2' HT	4'-0"
SUBTOTAL				

CARE OF PLANTS AFTER CONSTRUCTION:
IF SOILS ARE NOT WET, THE AREA WILL BE WATERED IMMEDIATELY AFTER PLANTING. THE SOIL SUBSTRATE MUST BE KEPT SATURATED DURING PLANTING AND CONTINUED ACCORDING TO CLIMATIC CONDITIONS AND UNTIL PLANTINGS BECOME FULLY ESTABLISHED AS DETERMINED BY THE PROFESSIONAL LANDSCAPER. ALL PLANTS SHALL BE GUARANTEED FOR A PERIOD OF 1-YEAR AFTER FINAL ACCEPTANCE.



- LANDSCAPE NOTES:**
- THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND UTILITY LOCATIONS SHOWN WITHIN THE PROJECT LIMITS AND SHALL INFORM THE ENGINEER OF ANY DISCREPANCIES OR POTENTIAL PROBLEMS PRIOR TO COMMENCING WORK.
 - ALL PLANTING AND MULCHING SHALL BE DONE IN ACCORDANCE WITH HOWARD COUNTY STANDARDS AND MD SHA BOOK OF STANDARDS, HIGHWAY AND INCIDENTAL STRUCTURES, CATEGORY 7 - LANDSCAPING, AND THE 2000 MARYLAND STORM WATER DESIGN MANUAL, VOLUMES 1 AND 2.
 - DO NOT PLANT TREES OR SHRUBS WITHIN 5'-0" OF THE CENTERLINE OF UNDERGROUND UTILITY LINES. DO NOT PLANT TREES WITHIN 10'-0" OF THE CENTERLINE OF WATER MAINS OR OVERHEAD UTILITY LINES. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1-800-257-7777 A MINIMUM OF 72 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION FOR PLANT MATERIAL INSTALLATION.
 - ALL TREES GREATER THAN OR EQUAL TO 6'-0" IN HEIGHT SHALL BE STAKED PER THE PLANTING DETAILS.
 - TREES SHRUBS AND/OR ANY TYPE OF WOODY VEGETATION ARE NOT TO BE PLANTED ON ANY EMBANKMENT COMPRISED OF FILL MATERIAL.
 - TREES AND SHRUBS ARE NOT TO BE PLANTED WITHIN 10 FEET OF THE TOE OF SLOPE.
 - STORMWATER FACILITY SHOWN IS A LOW-HAZARD (CLASS A) BIORETENTION FACILITY.
 - STORMWATER FACILITY SHOWN IS OWNED AND WILL BE MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 - THE ENTIRE PROJECT SITE IS CLASSIFIED AS GLENELG SOIL (GgB), A TYPE "B" SOIL BY THE SOIL CONSERVATION SERVICES HYDROLOGIC SOIL GROUP.
 - AT THE TIME OF PLANT INSTALLATION, ALL TREES AND SHRUBS 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.
 - THE OWNER, TENANTS AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR THE 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.

PERIMETER LANDSCAPE SCHEDULE

CATEGORY	ADJACENT TO PERIMETER PROPERTIES			
	ADJACENT TO ROADWAY	B	C	A
LANDSCAPE TYPE	B	C	A	
LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	200	248	525	
CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	
CREDIT FOR WALL, FENCE OR BERM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO	NO	NO	
NUMBER OF PLANTS REQUIRED				
SHADE TREES	4	7	9	
EVERGREEN TREES	5	13	0	
SHRUBS	0	0	0	
NUMBER OF PLANTS PROVIDED (1)				
SHADE TREES	0	1	1	
EVERGREEN TREES REQUIRED	5	13	0	
EVERGREEN TREES SUBSTITUTED (1:1 SUBSTITUTION)	4	8	16	
SHRUBS (10:1 SUBSTITUTION)	10	0	0	

COMMENTS:
B - PROPERTY FRONTAGE (RTE. 216)
C - ADJACENT RESIDENTIAL
A - ADJACENT FARM LAND

NOTE: (1)
THE DEPARTMENT OF PLANNING AND ZONING APPROVED A 1:1 SUBSTITUTION RATIO FOR SHADE TREES TO EVERGREEN TREES. WITH A 1:1 RATIO THE COMBINED REQUIRED MINIMUM NUMBER OF SHADE AND EVERGREEN TREES IS 38 TREES. THIS PLAN INCLUDES 2 SHADE TREES, 46 EVERGREEN TREES AND 10 SHRUBS.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEPARTMENT OF PLANNING AND ZONING
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR, DEP.

OWNER:
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MARYLAND
PHONE: (410)313-4400

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. 33925, Expiration Date 01/15/11

DEVELOPER'S/OWNERS LANDSCAPE 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 LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works
Chief, Bureau of Utilities
Chief, Utility Design Division

KCI
936 Ridgebrook Road
Sparks, MD 21152
Phone: (410) 316-7800
Fax: (410) 316-7935
www.kci.com

STATE OF MARYLAND
PROFESSIONAL ENGINEER
4/20/09

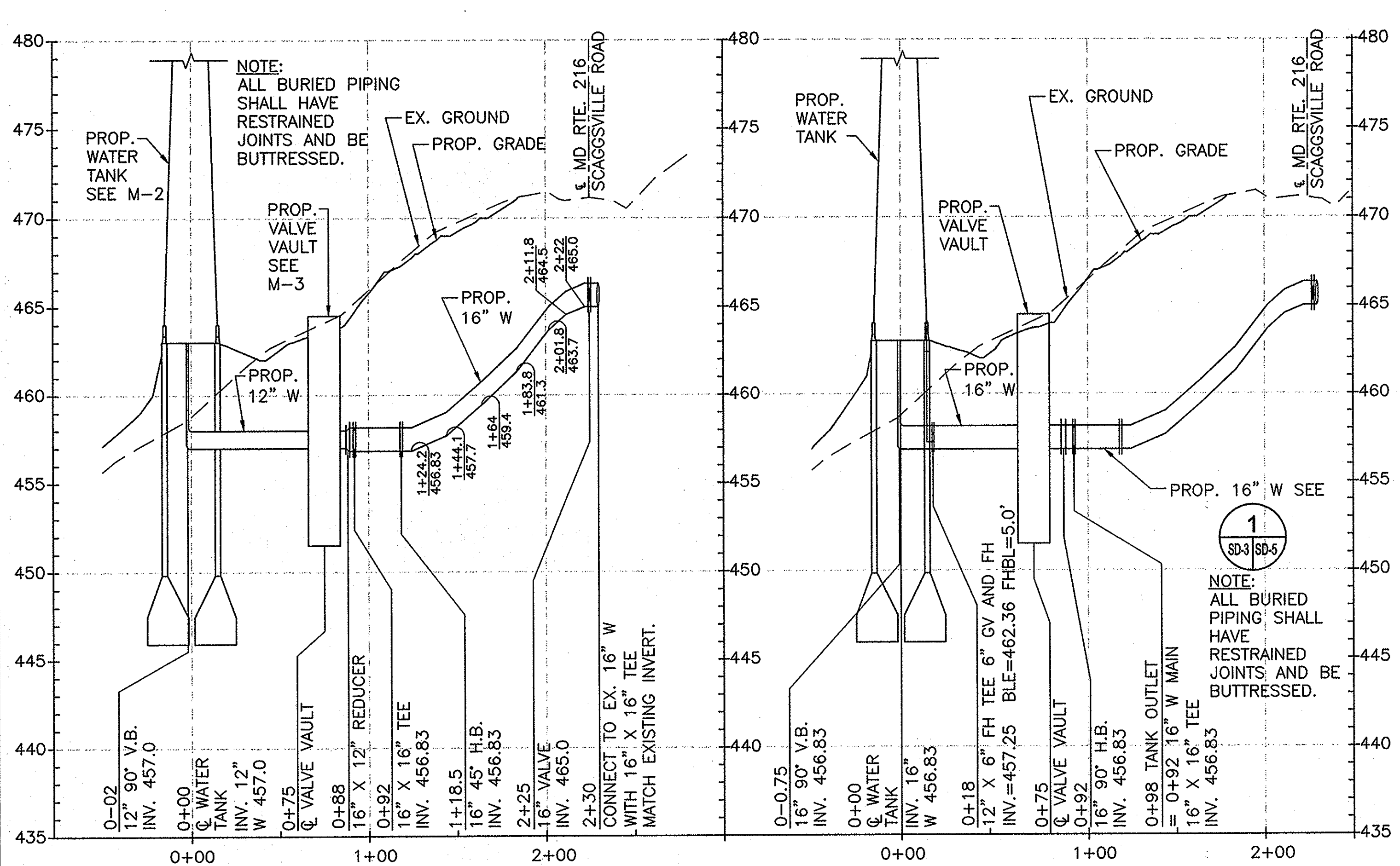
DES:	SEA	DATE:	3/20/09	BY:	NO.	REVISION	DATE:	600' SCALE MAP NO.	46	BLOCK NO.	4
DRN:	LFN										
CHK:	JRK										

LANDSCAPE PLAN AND DETAILS

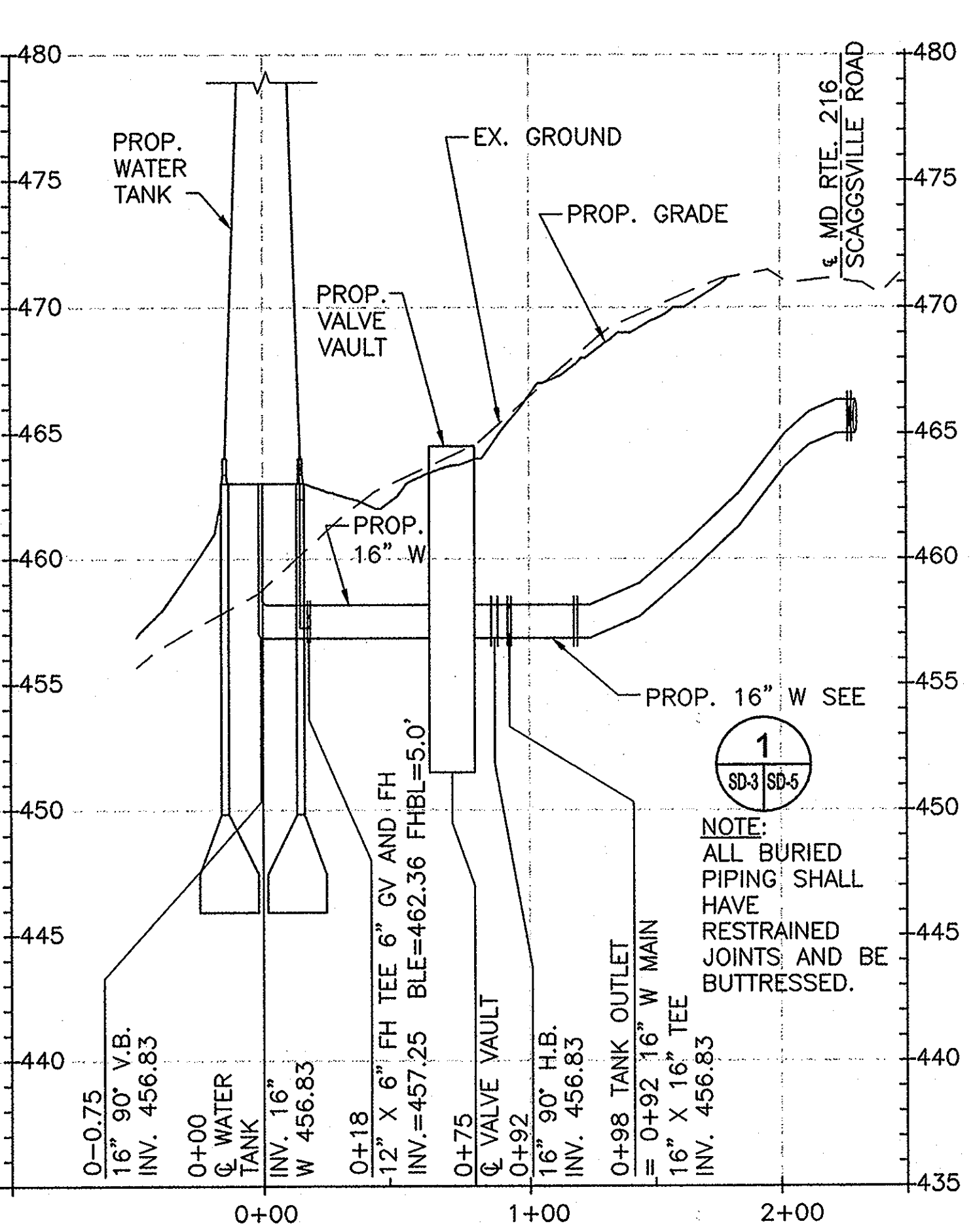
TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

FULTON ELEVATED WATER TANK
CAPITAL PROJECT No. W8280
CONTRACT No. 44-4517
ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

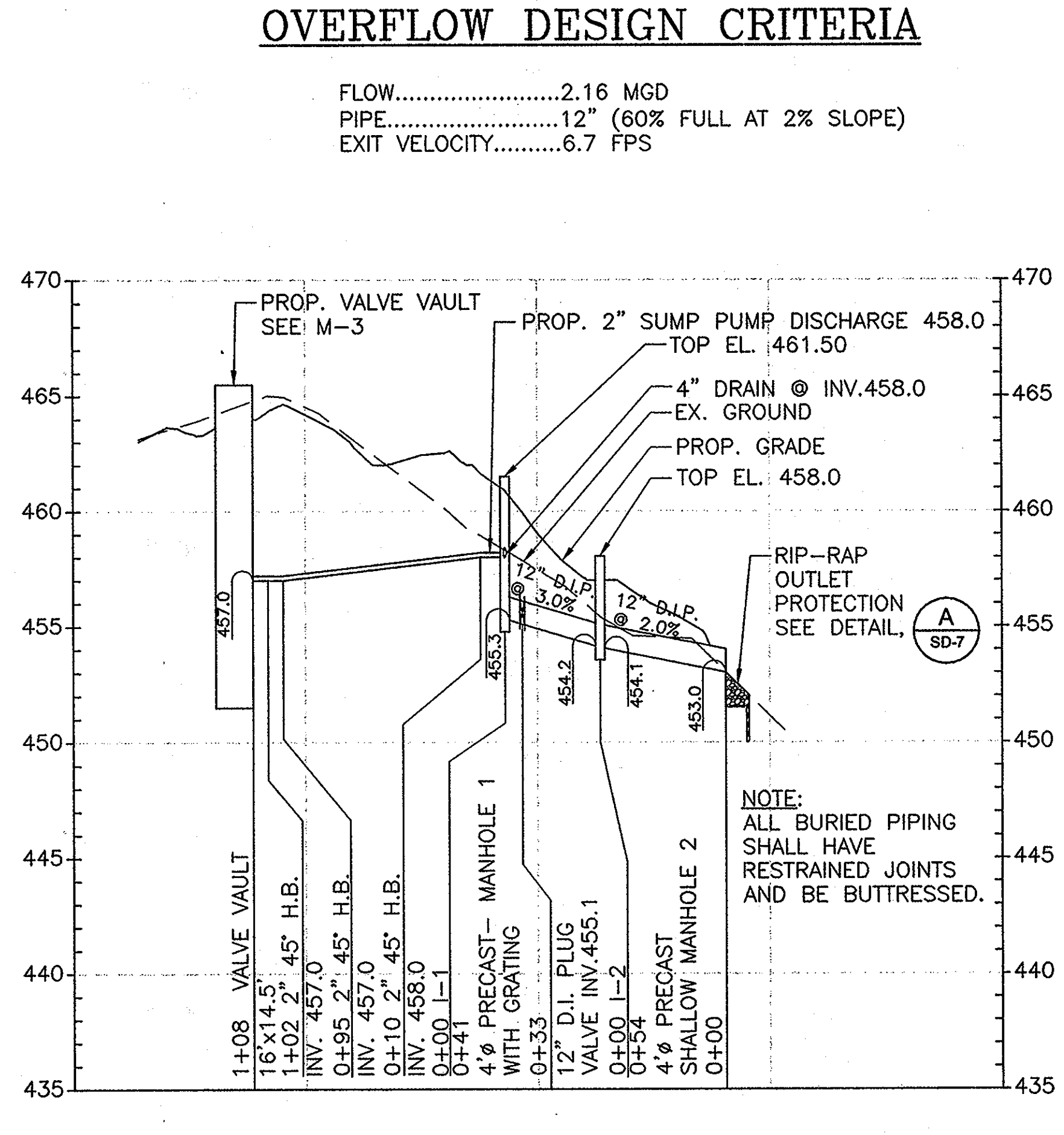
SD-4
4 OF 9
SCALE AS SHOWN
CONTRACT SHEET
5 OF 22



1 12"-16" WATER MAIN PROFILE
 SCALE: HORIZ: 1" = 50'
 VERT: 1" = 5'



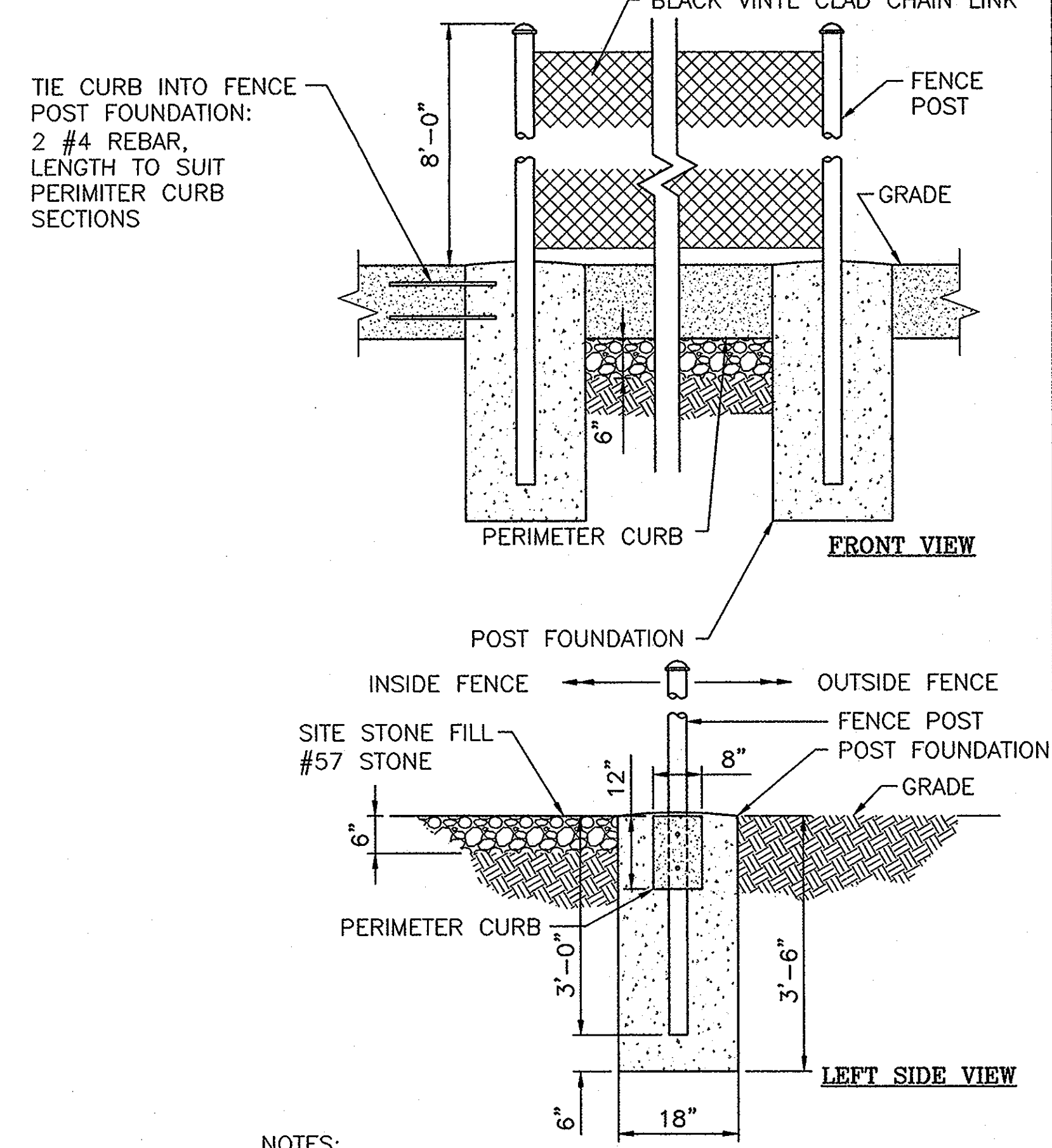
2 16" TANK OUTLET PROFILE
 SCALE: HORIZ: 1" = 50'
 VERT: 1" = 5'



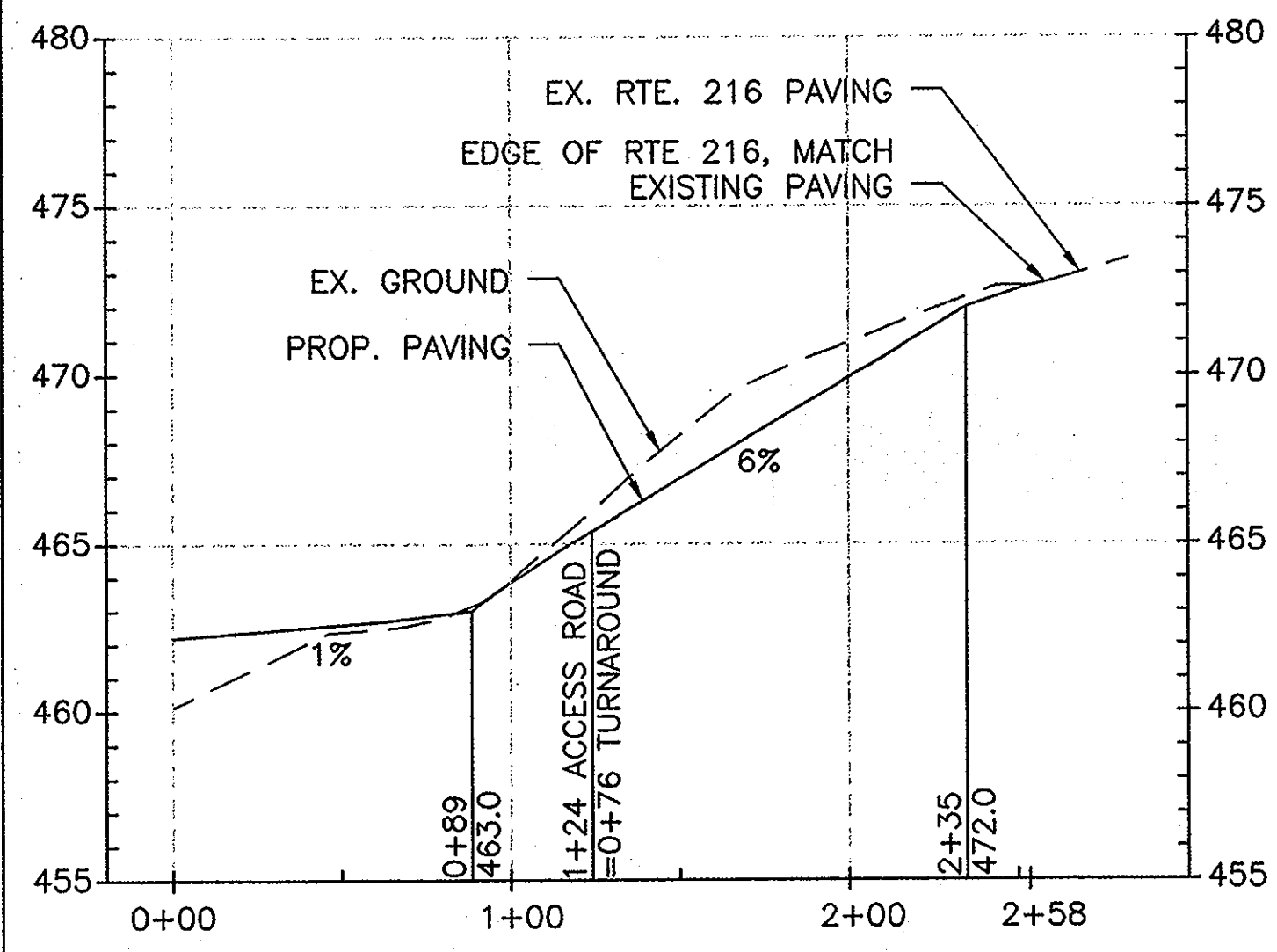
3 OVERFLOW DRAIN PROFILE
 SCALE: HORIZ: 1" = 50'
 VERT: 1" = 5'

OVERFLOW DESIGN CRITERIA

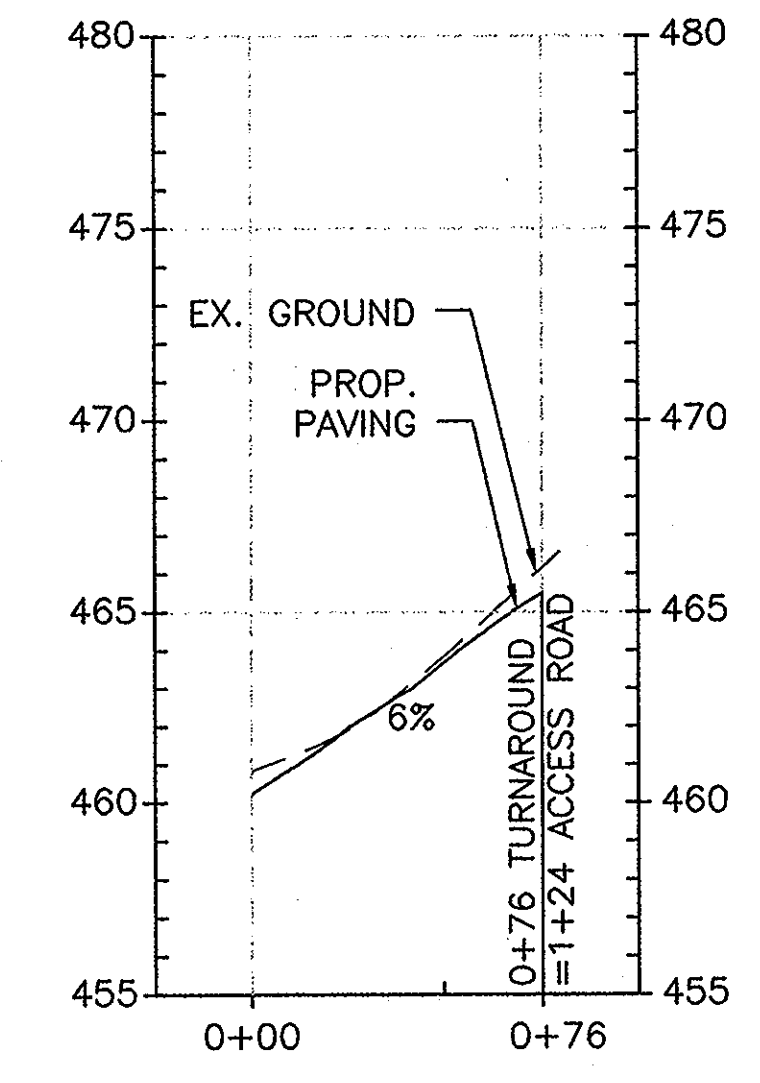
FLOW.....2.16 MGD
 PIPE.....12" (60% FULL AT 2% SLOPE)
 EXIT VELOCITY.....6.7 FPS



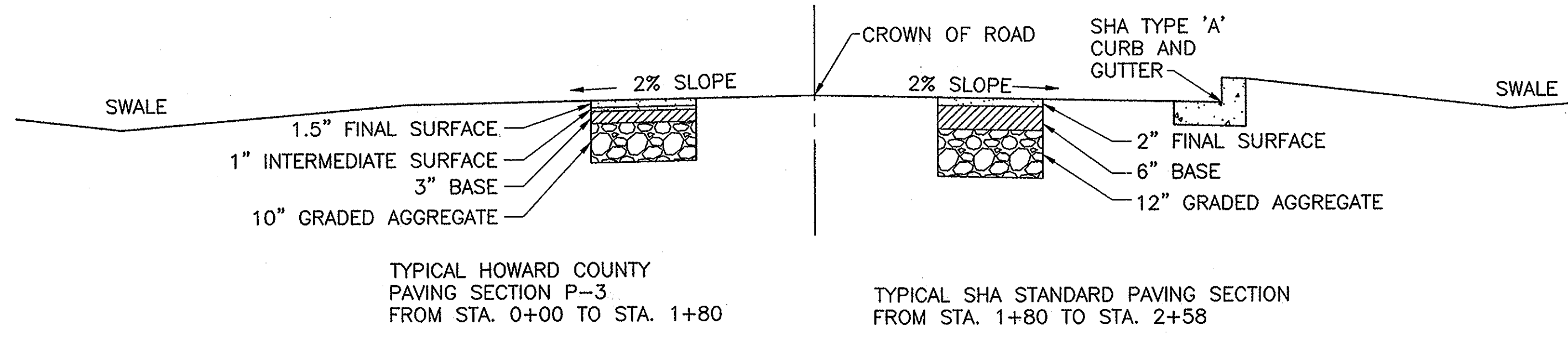
- NOTES:
- FENCE SHALL BE PROVIDED IN ACCORDANCE WITH HOWARD CO. CHAIN LINK FENCE DETAIL G-7.21 FOR 8' HIGH FENCE.
 - PERIMETER CURB SHALL BE PROVIDED TO CONNECT FENCE POST FOUNDATIONS FOR THE ENTIRE SITE AS SHOWN ON SHEET SD-3.



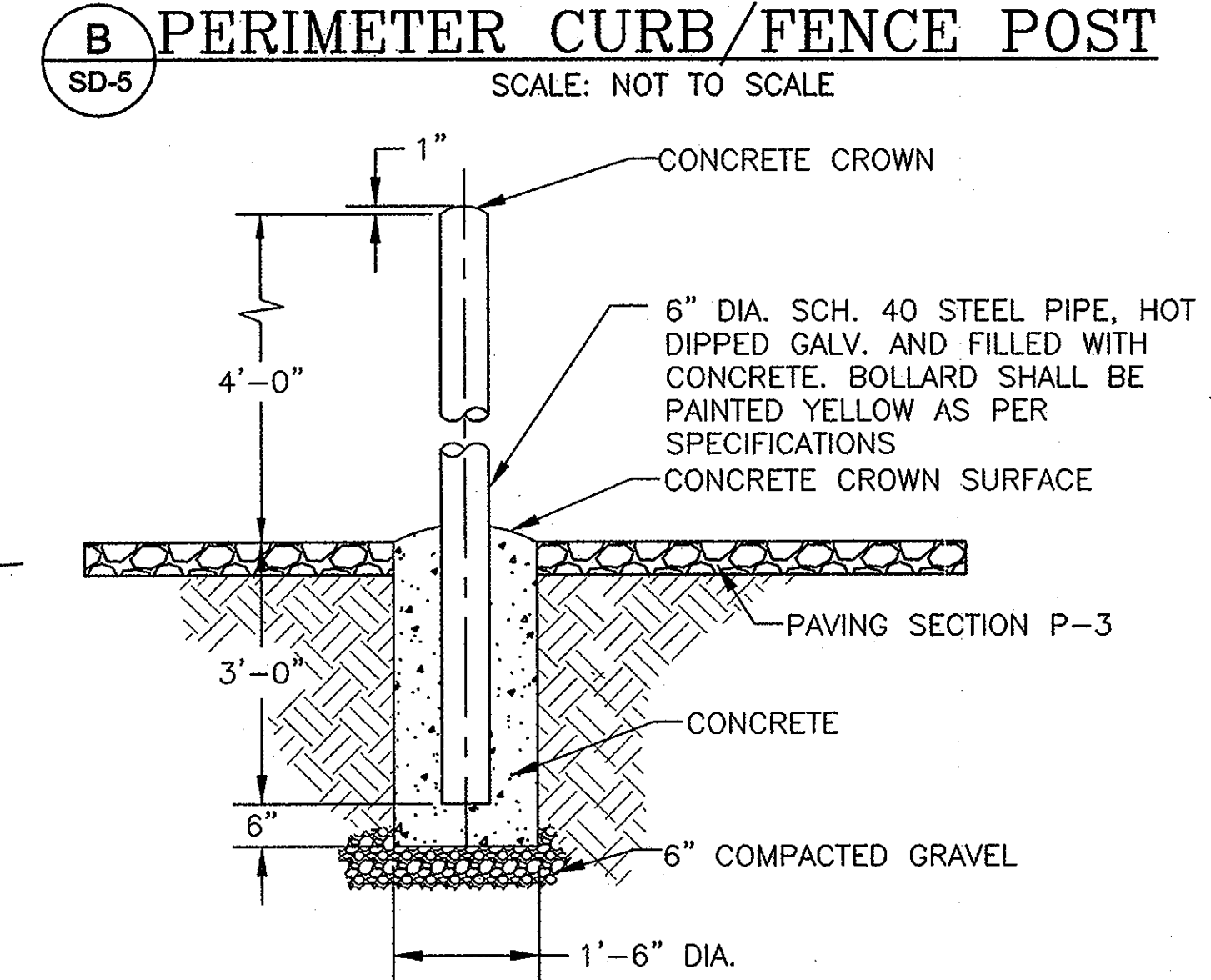
4 ACCESS ROAD TO TANK
 SCALE: HORIZ: 1" = 50'
 VERT: 1" = 5'



4 TURNAROUND TO ACCESS ROAD
 SCALE: HORIZ: 1" = 50'
 VERT: 1" = 5'



C ACCESS ROAD CROSS SECTION
 SCALE: NOT TO SCALE



A BOLLARD POST DETAIL
 SCALE: NOT TO SCALE



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR, DEP.

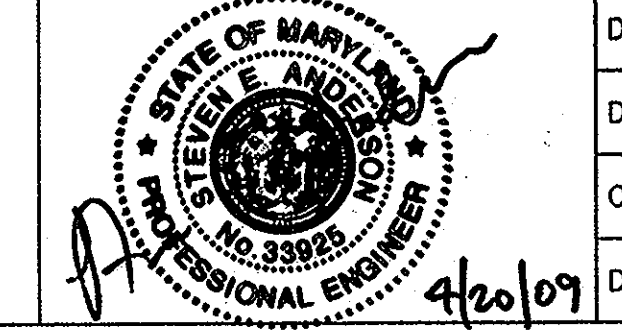
OWNER:
 DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MARYLAND
 PHONE: (410)313-4400

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. 33925, Expiration Date 01/15/11

TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
 ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

KCI TECHNOLOGIES
 ENGINEERS PLANNERS SURVEYORS CONSTRUCTION MANAGERS
 936 Ridgeway Road
 Sparks, MD 21152
 Phone: (410) 316-7800
 Fax: (410) 316-7935
 www.kci.com



DES: SEA					
DRN: LFN					
CHK: JRK					
DATE: 3/20/09	BY	NO.	REVISION	DATE	

PROFILES - ROAD AND SITE DETAILS

FULTON ELEVATED WATER TANK
 CAPITAL PROJECT No. W8280
 CONTRACT No. 44-4517
 ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

DETAIL 19 - STONE OUTLET STRUCTURE

Construction Specifications

- Crushed stone shall be used. Gravel may be used if crushed stone is not available. The stone shall be 2"-3" in size.
- The crest of the stone dike shall be at least 6" lower than the lowest elevation of the top of the earth dike and shall be level.
- The stone outlet structure shall be embedded into the soil a minimum of 4".
- The minimum length of the crest of the stone outlet structure shall be 6'.
- The stone outlet structure shall be inspected after each rain. Stone shall be replaced when the structure ceases to function and ponding results.
- The baffle board shall be extended one foot into the dike, staked and embedded 4" into the existing ground.
- The drainage area to this structure shall be less than 1/2 acre.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE C-11-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 33 - SUPER SILT FENCE

Construction Specifications

- Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway (SHA) Details for Chain Link Fencing. The (SHA) specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.
- The posts do not need to be set in concrete.
- Chain link fence shall be fastened securely to the fence posts with wire ties or staples. The lower tension wire, brace and truss rods, drive anchors and post caps are not required except on the ends of the fence. The chain link fencing shall be six (6) gauge or heavier.
- Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
- Filter cloth shall be embedded a minimum of 8" into the ground.
- When two sections of geotextile fabric adjoin each other, they shall be overlapped by 6" and folded.
- Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence, or when silt reaches 50% of fence height.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MODIFIED MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

SUPER SILT FENCE

Design Criteria

Slope	Slope Steepness	Slope Length (maximum)	Silt Fence Length (maximum)
0 - 10%	0 - 10:1	Unlimited	Unlimited
10 - 20%	10:1 - 5:1	200 feet	1,500 feet
20 - 33%	5:1 - 3:1	100 feet	1,000 feet
33 - 50%	3:1 - 2:1	100 feet	500 feet
50% +	2:1 +	50 feet	250 feet

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-28-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 30 - EROSION CONTROL MATTING

CONSTRUCTION SPECIFICATIONS

- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
- STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
- BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- STAPLES SHALL BE PLACED 2" APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
- WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4". SHIPLAP FASHION. REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

NOTE: IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-22-2A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE

Construction Specification

- 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 F-17-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

STANDARD SEDIMENT CONTROL NOTES

- 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, (313-1855).
- 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 REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN:
 - 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DIKES, PERIMETER SLOPES AND ALL SLOPES GREATER THAN 3:1.
 - 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. I, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL (SEC. 020.0) FOR PERMANENT SEEDINGS, SO2, TEMPORARY SEEDING AND MULCHING. 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	3.52	ACRES
AREA DISTURBED	0.91	ACRES
AREA TO BE ROOFED OR PAVED	0.26	ACRES
AREA TO BE VEGETATIVELY STABILIZED	0.65	ACRES
TOTAL CUT	2,627	CU. YDS.
TOTAL FILL	2,344	CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION	CONTRACTOR COORDINATE	
- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF THE DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROLS 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 INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING. OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE.
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE (3) PIPE LENGTHS OR THAT WHICH CAN BE BACK FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.
- CONTRACTOR SHALL PLACE EXCAVATED MATERIALS ON UPHILL SIDE OF TRENCH AND PLACE SILT FENCE ON DOWNHILL SIDE OF TRENCH.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE MODIFIED MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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 PER ACRES DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 600 LBS PER ACRE 10-10-10 FERTILIZER (14LBS/1000 SQ FT.) BEFORE SEEDING. HARROW OR DISK INTO UPPER THREE INCHES OF SOIL AT TIME OF SEEDING, APPLY 400 LBS PER ACRE 30-0-0 UREAFORM FERTILIZER (9 LBS/1000 SQ FT.).
- ACCEPTABLE** - APPLY 2 TONS PER ACRE DOLOMITIC LIMESTONE (92 LBS/1000 SQ FT.) AND 1000 LBS PER 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 THRU APRIL 30, AND AUGUST 1 THRU OCTOBER 15, SEED WITH 60 LBS PER ACRE (1.4 LBS/1000 SQ FT.) OF KENTUCKY 31 TALL FESCUE. FOR THE PERIOD MAY 1 THRU JULY 31, SEED WITH 60 LBS KENTUCKY 31 TALL FESCUE PER ACRE AND 2 LBS PER ACRE (.05 LBS/1000 SQ FT.) OF WEEPING LOVEGRASS. DURING THE PERIOD OF OCTOBER 16 THRU FEBRUARY 28, PROTECT SITE BY: OPTION (1) 2 TONS PER ACRE OF WELLY ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING. OPTION (2) USE SOO. OPTION (3) SEED WITH 80 LBS/ACRE KENTUCKY 31 TALL FESCUE AND MULCH WITH 2 TONS/ACRE WELLY 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 SLOPES 8 FEET OR HIGHER, USE 348 GALLONS PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

MAINTENANCE - INSPECT ALL SEEDING AREAS AND MAKE NEEDED REPAIRS, REPLACEMENTS AND RESEEDINGS.

TEMPORARY SEEDING NOTES

APPLY TO GRADED OR CLEARED AREAS LIKELY TO BE REDISTURBED 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 PER ACRE 10-10-10 FERTILIZER (14 LBS/1000 SQ FT.).

SEEDING: - FOR PERIODS MARCH 1 THRU APRIL 30 AND FROM AUGUST 15 THRU OCTOBER 15, SEED WITH 2-1/2 BUSHEL PER ACRE OF ANNUAL RYE (3.2 LBS/1000 SQ FT.). FOR THE PERIOD MAY 1 THRU AUGUST 14, SEED WITH 3 LBS PER ACRE OF WEEPING LOVEGRASS (.07 LBS/1000 SQ FT.). FOR THE PERIOD NOVEMBER 15 THRU FEBRUARY 28, PROTECT SITE BY APPLYING 2 TONS PER ACRE OF WELLY ANCHORED STRAW MULCH AND SEED AS SOON AS POSSIBLE IN THE SPRING, OR USE SOO.

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 GAL PER ACRE (5 GAL/1000 SQ FT.) OF EMULSIFIED ASPHALT ON FLAT AREAS. ON SLOPES 8 FT OR HIGHER, USE 348 GAL PER ACRE (8 GAL/1000 SQ FT.) FOR ANCHORING.

REFER TO THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR RATE AND METHODS NOT COVERED.

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-28-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

BEST MANAGEMENT PRACTICE (BMP) NOTES

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
- DO NOT USE THE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DELETERIOUS SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLANDS BUFFERS, WATERWAYS, OR THE 100 YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT MODIFICATION OF THE 100 YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, OR 100 YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARLEY (HORDEUM SP.), OATS (Avena SP.) AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY RE-VEGETATION OF NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NON-TIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDING AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM:

USE 1 WATER: IN STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAYS.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.

SEE SHEET SD-3 FOR PROJECT SEQUENCE OF CONSTRUCTION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-22-2 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

EROSION CONTROL MATTING

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE G-22-2A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

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

John R. Robinson 4/20/09
APPROVED DATE

HOWARD S.C.D.

ENGINEER'S CERTIFICATION

I/WE 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.

Steven E. Anderson 4/20/09
DATE

STEVEN E. ANDERSON
KCI TECHNOLOGIES, INC
936 RIDGEBROOK ROAD
SPARKS, MD 21152

DEVELOPER'S CERTIFICATION

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

Paul D. Spon 4/21/09
SIGNATURE OF DEVELOPER DATE

REVIEWED FOR HOWARD S.C.D. AND MEETS TECHNICAL REQUIREMENTS.

[Signature] DATE

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 4/20/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 4/20/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 4/20/09
DIRECTOR, DEP. DATE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 4/20/09
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 4/21/09
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 4/21/09
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 4/21/09
CHIEF, UTILITY DESIGN DIVISION DATE

OWNER:
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MARYLAND
PHONE: (410)313-4400

KCI TECHNOLOGIES
936 Ridgeway Road
Sparks, MD 21152
Phone: (410) 316-7800
Fax: (410) 316-7955
www.kci.com

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. 33925, Expiration Date 01/15/11.

[Signature] 4/20/09
DATE

DES: SEA			
DRN: LFN			
CHK: JRK			
DATE: 3/20/09	BY	NO.	
	REVISION	DATE	

600' SCALE MAP NO. 46 BLOCK NO. 4

SEDIMENT AND EROSION CONTROL NOTES AND DETAILS

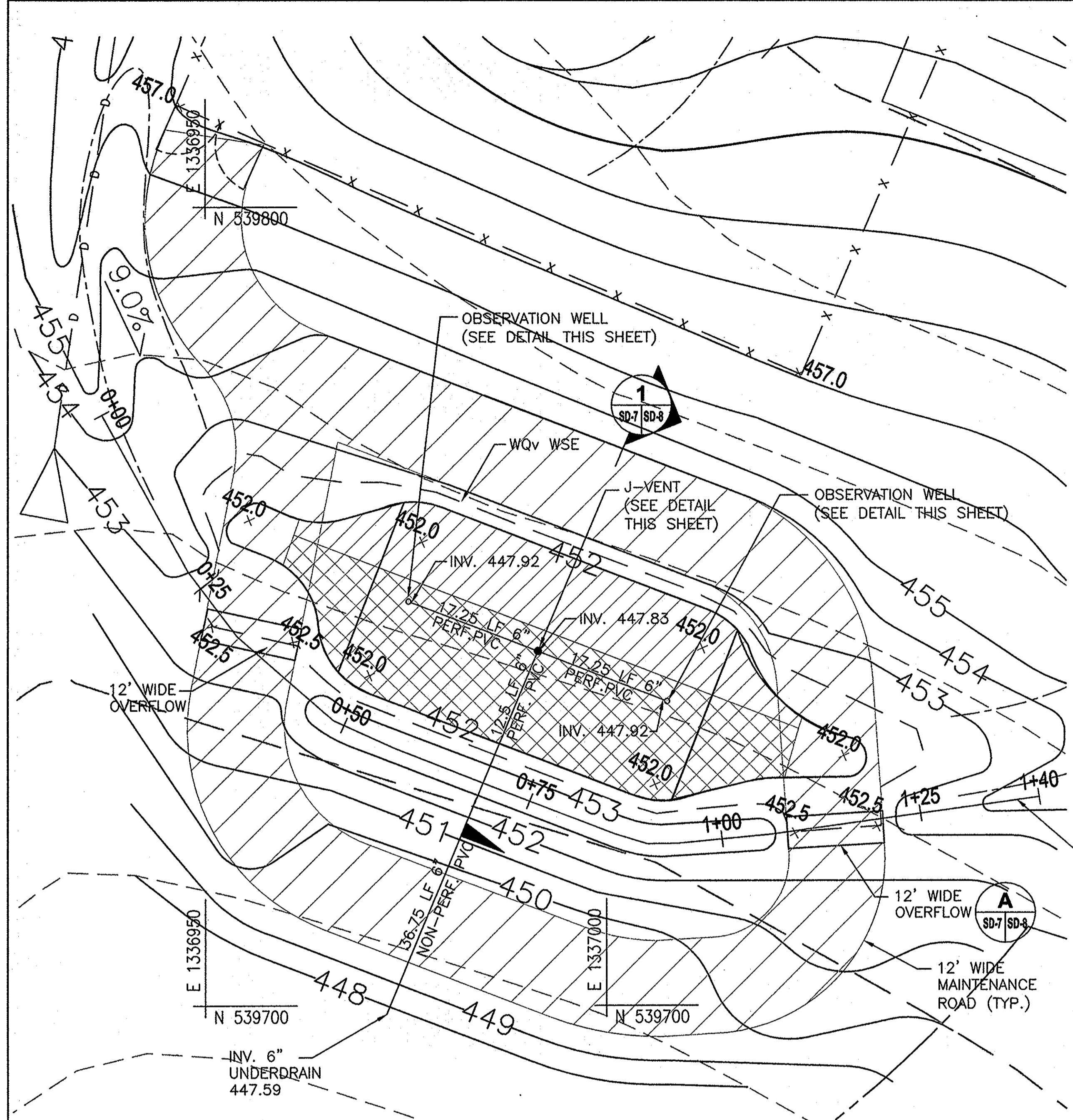
TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

SD-6
6 OF 9

FULTON ELEVATED WATER TANK
CAPITAL PROJECT No. W8280
CONTRACT No. 44-4517
ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
CONTRACT SHEET
7 OF 22

User: keri.jackson Date: 4/20/09 9:45am Plot: 01070460 Drawings: ELEVATED TANK-2 (S-1 SED & EROSION CONTROL) dwg



BIORETENTION FACILITY PLANT LIST

SYMBOL	QTY.	NAMES (BOTANICAL/SCIENTIFIC)	SIZE	SPACING	FORM
TREES					
▨	3	NYSSA SYLVATICA BLACK GUM	5'-0" HT	7'-0"	CONTAINER
▨	3	DIOSPYROS VIRGINIANA PERSIMMON	5'-0" HT	7'-0"	CONTAINER
▨	3	CHIONANTHUS VIRGINICUS FRINGE-TREE	5'-0" HT	7'-0"	CONTAINER
SHRUBS					
▨	6	ILEX GLABRA INKBERRY HOLLY	3'-0" HT	4'-0"	CONTAINER
▨	6	LINDERA BENZOIN SPICEBUSH	3'-0" HT	4'-0"	CONTAINER
▨	6	CEPHALANTHUS OCCIDENTALIS BUTTONBUSH	3'-0" HT	4'-0"	CONTAINER
▨	13	ILEX GLABRA INKBERRY HOLLY	3'-0" HT	4'-0"	CONTAINER
▨	13	LINDERA BENZOIN SPICEBUSH	3'-0" HT	4'-0"	CONTAINER
▨	13	CEPHALANTHUS OCCIDENTALIS BUTTONBUSH	3'-0" HT	4'-0"	CONTAINER

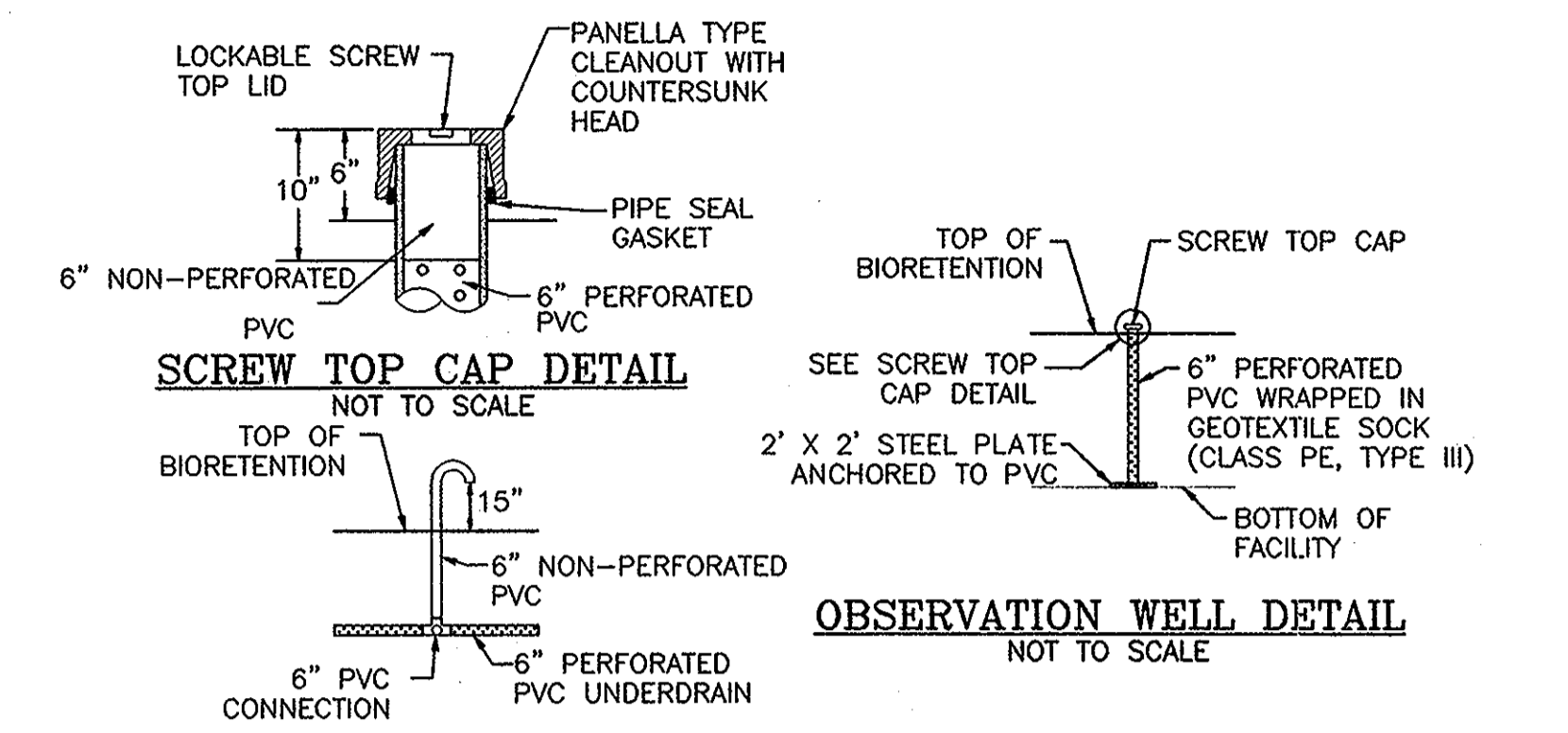
SEE CONTRACT SHEET SD-4 FOR TREE AND SHRUB PLANTING DETAILS. PLACEMENT SHALL BE RANDOM BUT MUST CONFORM TO SPACING ABOVE.

SYMBOL	NAMES (BOTANICAL/SCIENTIFIC)	PERCENT OF MIX	QUANTITY (LBS.)
HERBACEOUS SEED MIX			
1420 SF / 0.03 AC			
▨	ELMYUS VIRGINICUS VIRGINIA WILDRIE	25%	0.375
▨	CAREX VULPINOIDEA FOX SEDGE	25%	0.375
▨	AGROSTIS ALBA REDTOP	25%	0.375
▨	SCIRPUS PUNGENS THREE SQUARE BULRUSH	25%	0.375
TOTAL			1.5

STORMWATER MANAGEMENT SUMMARY TABLE

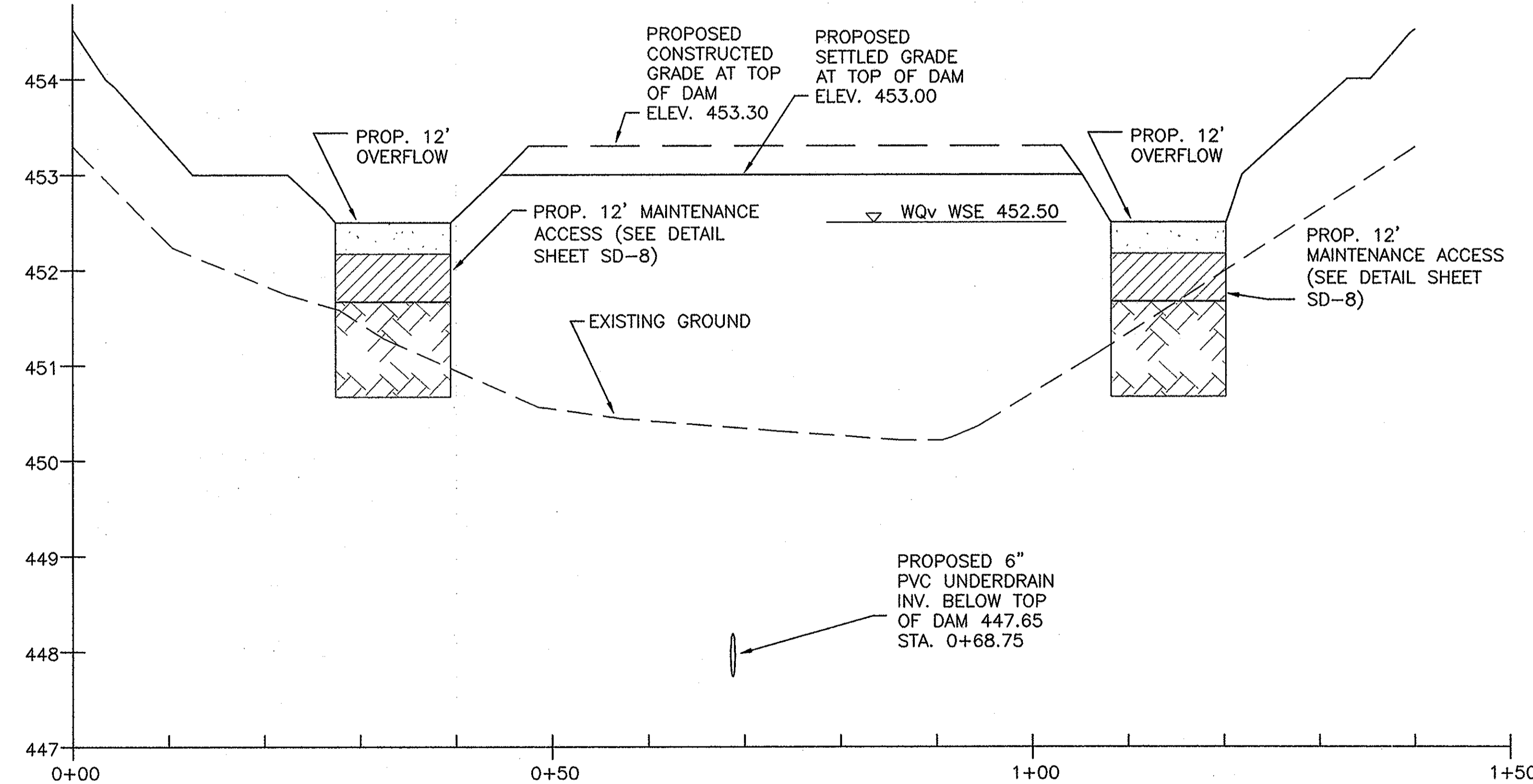
STUDY POINT	AREA AC.	WQV. REQ. CF	WQV. PROV. CF	REV. REQ. CF	REV. PROV. CF	Q10 PROP. CFS	Q100 PROP. CFS
1A	1.05	1138	1307	296	296	3.0	5.4
1B	1.35	0.0	0.0	0.0	0.0	3.1	6.2

WATER QUALITY WILL BE PROVIDED IN A PROPOSED BIORETENTION AREA. RECHARGE VOLUME WILL BE PROVIDED IN GRASS CHANNELS. CHANNEL PROTECTION VOLUME IS NOT REQUIRED.

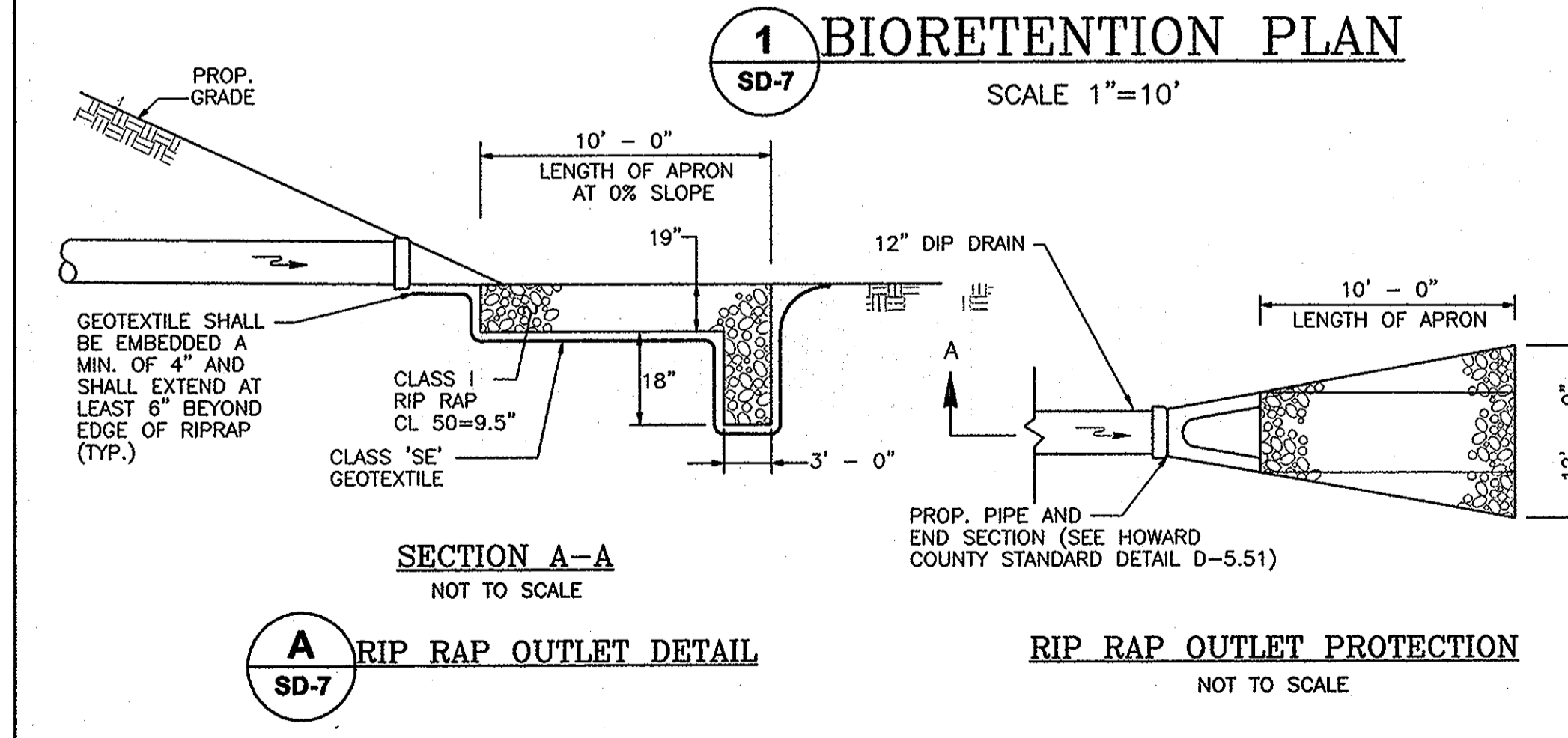
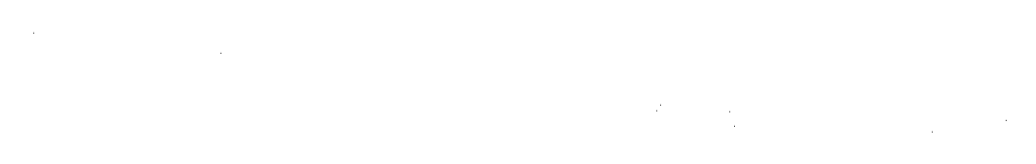


- NOTES:**
- FOR OBSERVATION WELL, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.
 - THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP LID SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.
 - THE ENTIRE PROJECT SITE IS CLASSIFIED AS GLENELG SOIL (GgB), A TYPE "B" SOIL BY THE SOIL CONSERVATION SERVICES HYDROLOGIC SOIL GROUP.

SEE PROFILE **2** SD-7



- NOTES:**
- SEE SHEET SD-2 FOR LEGEND, UTILITY AND CIVIL SITE SYMBOLS.
 - SEE SHEET SD-8 FOR BIORETENTION TYPICAL CROSS SECTION.
 - STORMWATER FACILITY SHOWN IS A LOW-HAZARD (CLASS A) BIORETENTION FACILITY.
 - STORMWATER FACILITY SHOWN IS OWNED AND WILL BE MAINTAINED BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
 - FOR OVERFLOW DESIGN CRITERIA SEE SHEET SD-5



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR, DEP.

OWNER:
 DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MARYLAND
 PHONE: (410)313-4400

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. 31201, Expiration Date 01/24/11

DES: MRS	
DRN: KFJ	
CHK: JRK	
DATE: 3/20/09	BY NO.
	REVISION
	DATE

STORMWATER MANAGEMENT
 PLAN AND DETAILS

TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
 ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

FULTON ELEVATED WATER TANK
 CAPITAL PROJECT No. W8280
 CONTRACT No. 44-4517
 ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

Director of Public Works: *James A. ...* 4/26/09
 Chief, Bureau of Engineering: *Paul ...* 4/16/09
 Chief, Bureau of Utilities: *John ...* 4/23/09
 Chief, Utility Design Division: *John ...* 4-21-09

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SPECIFICATIONS FOR BIORETENTION FACILITY

DESCRIPTION.
THIS WORK SHALL CONSIST OF INSTALLING BIORETENTION FACILITIES, SMALL LANDSCAPED BASINS THAT PROVIDE WATER QUALITY MANAGEMENT BY FILTERING STORMWATER RUNOFF BEFORE IT IS RELEASED INTO STORMDRAIN SYSTEMS AND WATERWAYS, AS SPECIFIED IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER.

MATERIALS.
CONCRETE SAND 901.01
NO. 57 AGGREGATE 901.01
NO. 7 AGGREGATE 901.01
NO. 2 AGGREGATE M-43, NO. 2
WATER 920.08.01
GEOTEXTILE, CLASS PE, TYPE III 921
BIORETENTION SOIL MIXTURE (BSM) 900
MULCH, SHREDDED HARDWOOD BARK 920.05.03 AND 920.05.04
PLANT MATERIALS 700 AND 920.07

PIPE, POLYVINYL CHLORIDE PROFILE WALL PIPE (PPWP) AND FITTINGS. THE MATERIAL SHALL HAVE A DIAMETER OF 6 IN. AND INCLUDES PERFORATED AND NON-PERFORATED PIPE. PIPE MATERIALS AND FITTINGS SHALL CONFORM TO M-304. PERFORATIONS SHALL BE SLOTTED. PERFORATED PPWP USED FOR OBSERVATION WELLS SHALL INCLUDE AN APPROPRIATE GEOTEXTILE SOCK AS RECOMMENDED AND SUPPLIED BY THE MANUFACTURER.

BIORETENTION SOIL MIXTURE (BSM). BSM IS A BLENDED MIXTURE OF SAND, MULCH, AND PLANTING SOIL. THE BSM SHALL BE A HOMOGENEOUS MIX, FREE OF STONES, STUMPS, ROOTS OR OTHER SIMILAR OBJECTS LARGER THAN 2 IN. AND SHALL BE FREE FROM ANY PARTS OF BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, MUGWORT, NUTSEDGE, POISON IVY, CANADIAN THISTLE, TEARthumb, PHRAGMITES, OR OTHER NOXIOUS WEEDS AS SPECIFIED IN COMAR 15.08.01.05. THE BSM SHALL CONSIST OF THE FOLLOWING:

- (A) SAND. THE SAND SHALL COMPOSE 50 PERCENT BY VOLUME OF THE BSM. THE SAND SHALL BE FINE AGGREGATE, SECTION 901.
- (B) MULCH. THE MULCH SHALL COMPOSE 20 PERCENT BY VOLUME OF THE BSM. THE MULCH SHALL BE DOUBLE SHREDDED HARDWOOD BARK CONSISTING OF THE BARK FROM HARDWOOD TREES WHICH HAS BEEN MILLED AND SCREENED TO A MAXIMUM 2 IN. PARTICLE SIZE AND PROVIDE A UNIFORM TEXTURE FREE FROM SAWDUST, TOXIC SUBSTANCES, AND FOREIGN MATERIALS AND SHALL BE AGED AT LEAST 6 MONTHS.
- (C) PLANTING SOIL. THE PLANTING SOIL SHALL COMPOSE 30 PERCENT BY VOLUME OF THE BSM. THE PLANTING SOIL SHALL BE A NATURAL OR FURNISHED, FRIABLE SOIL, UNIFORM IN COLOR AND TEXTURE. THE GRADING ANALYSIS SHALL BE AS FOLLOWS:

ITEM	CRITERIA	TEST METHOD
SAND (2.0 - 0.050 MM)	50 - 85%	T88
SILT (0.050 - 0.002 MM)	0 - 50%	T88
CLAY (LESS THAN 0.002 MM)	5 - 10%	T88
ORGANIC MATTER	1.5 - 10%	T194

THE TEXTURAL ANALYSIS FOR THE PLANTING SOIL SHALL BE AS FOLLOWS:

SIEVE SIZE	MINIMUM PERCENTPASSING BY WEIGHT
2 IN.	100
NO. 4	90
NO. 10	80

MIXING. THE SAND, MULCH, AND PLANTING SOIL SHALL BE HOMOGENOUSLY MIXED AND BLENDED TO CREATE THE BSM TO THE SATISFACTION OF THE ENGINEER. THE BSM SHALL NOT BE BLENDED UNTIL THE REQUIRED PLANTING SOIL HAS BEEN SAMPLED, TESTED, AND APPROVED.

THE BSM SHALL BE SAMPLED AND TESTED. SAMPLING WILL BE COMPLETED IN CONFORMANCE WITH MSMT 356 AND SHALL MEET THE FOLLOWING CRITERIA:

ITEM	CRITERIA	TEST METHOD
PH	5.5 - 7.5	D4972
MAGNESIUM	MINIMUM 35 PPM	*
PHOSPHORUS (PHOSPHATE- P ₂ O)	MINIMUM 75 PPM	*
POTASSIUM (K ₂ O)	MINIMUM 85 PPM	*
SOLUBLE SALTS	NOT TO EXCEED 500 PPM	*

* UNIVERSITY OF DELAWARE, COLLEGE OF AGRICULTURE AND NATURAL RESOURCES, SOIL TESTING PROGRAM TEST METHOD

AMENDMENTS. ANY BSM NOT MEETING THE ABOVE REQUIREMENTS SHALL BE AMENDED BY THE SUPPLIER. ALL AMENDMENTS SHALL BE MIXED UNIFORMLY INTO THE BSM AS FOLLOWS:

PH. THE PH SHALL BE ADJUSTED WITH DOLOMITIC LIMESTONE OR SULFUR (90%).
MAGNESIUM. MAGNESIUM DEFICIENCY SHALL BE AMENDED WITH DOLOMITIC LIMESTONE.
POTASSIUM. POTASSIUM DEFICIENCY SHALL BE AMENDED WITH 0-0-60 FERTILIZER.

AMENDED BSM SHALL BE SAMPLED AND TESTED TO ENSURE THE CRITERIA HAS BEEN MET.

ADDITIONAL REQUIREMENTS. AFTER A BSM STOCKPILE HAS BEEN FORMED FOR USE, THE BSM WILL BE SAMPLED AND TESTED AND SHALL MEET THE FOLLOWING GRADING ANALYSIS:

ITEM	CRITERIA	TEST METHOD
SAND (2.0 - 0.050 MM)	65 - 80%	T88
SILT (0.050 - 0.002 MM)	0 - 15%	T88
CLAY (LESS THAN 0.002 MM)	1 - 5%	T88
ORGANIC MATTER	15 - 25%	T194

CONSTRUCTION.
BIORETENTION FACILITIES SHALL NOT BE CONSTRUCTED UNTIL ALL CONTRIBUTING DRAINAGE AREAS ARE STABILIZED AS SHOWN ON THE CONTRACT PLANS AND TO THE SATISFACTION OF THE ENGINEER. BIORETENTION FACILITIES SHALL NOT BE USED AS SEDIMENT CONTROL FACILITIES NOR SHALL THEY BE CONSTRUCTED IN AREAS PREVIOUSLY USED FOR EROSION AND SEDIMENT CONTROL.

EXCAVATION. BIORETENTION FACILITIES SHALL BE EXCAVATED TO THE DIMENSIONS, SIDE SLOPES, AND ELEVATIONS AS SPECIFIED IN THE CONTRACT DOCUMENTS OR AS DIRECTED BY THE ENGINEER. THE METHOD OF EXCAVATION SHALL MINIMIZE THE COMPACTION OF THE BOTTOM OF THE BIORETENTION FACILITIES. EXCAVATORS AND BACKHOES, OPERATING ON THE GROUND ADJACENT TO THE BIORETENTION FACILITIES, SHALL BE USED FOR EXCAVATION WHENEVER POSSIBLE. OTHERWISSE, EXCAVATORS, BACKHOES AND OTHER EQUIPMENT SHALL BE WIDE-TRACK OR MARSH-TRACK FOR USE WITHIN THE BIORETENTION FACILITIES. THE USE OF LIGHT EQUIPMENT WITH TURF TIRES OPERATING WITHIN THE FACILITY IS ALSO ACCEPTABLE. THE USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS, OR HIGH-PRESSURE TIRES IS PROHIBITED WITHIN THE PERIMETER OF BIORETENTION FACILITIES.

AFTER THE EXCAVATION IS COMPLETE AND PRIOR TO PLACING AGGREGATE AND PIPE, THE BOTTOM OF THE EXCAVATION SHALL BE ROTO-TILLED TO A MINIMUM DEPTH OF 6 IN. TO ALLEVIATE COMPACTION FROM EXCAVATION ACTIVITIES. ANY SUBSTITUTE METHOD FOR ROTO-TILLING MUST BE APPROVED BY THE ENGINEER PRIOR TO USE. ANY STANDING WATER SHALL BE REMOVED FROM THE BOTTOM OF THE EXCAVATION AND THE SOIL SHALL BE FRIABLE BEFORE ROTO-TILLING. THE EXCAVATION BOTTOM SHALL NOT BE ROTO-TILLED WHILE IN A MUDDY OR FROZEN CONDITION.

GEOTEXTILE. AFTER ROTO-TILLING THE EXCAVATION BOTTOM, GEOTEXTILE SHALL BE PLACED ON ALL SIDES OF BIORETENTION FACILITIES, EXCLUDING THE EXCAVATED BOTTOM, AS SPECIFIED IN THE CONTRACT DOCUMENTS. GEOTEXTILE SHALL BE PLACED TIGHTLY AGAINST THE EXCAVATION WALLS TO ELIMINATE VOIDS BENEATH THE GEOTEXTILE. WRINKLES AND FOLDS IN THE GEOTEXTILE SHALL BE AVOIDED. A MINIMUM 6 IN. OVERLAP AT THE GEOTEXTILE JOINT ENDS OR BREAKS SHALL BE MAINTAINED. GEOTEXTILE JOINTS AND OVERLAPS SHALL BE PINNED TO SECURELY HOLD THE GEOTEXTILE IN PLACE UNTIL PLACEMENT OF THE AGGREGATE, PIPE, AND BSM.

PERFORATED PIPE SYSTEM AND AGGREGATE. THE PERFORATED PIPE SYSTEM USING PPWP SHALL BE PLACED ON A 6 IN. (MINIMUM) BED OF NO. 2 AGGREGATE THAT COMPLETELY COVERS THE BOTTOM OF BIORETENTION FACILITIES. THE NO. 2 AGGREGATE BED AND PERFORATED PIPE SYSTEM SHALL BE COVERED WITH 12 IN. OF NO. 57 AGGREGATE.

ALL AGGREGATE SHALL BE CLEAN AND FREE OF ALL SOIL AND FINES. CARE SHALL BE TAKEN TO PREVENT SOIL, FINES, AND OTHER DEBRIS FROM INTERMIXING WITH THE AGGREGATE.

THE ENDS OF PIPES NOT TERMINATING IN A CLEANOUT, VENT, OR DRAINAGE STRUCTURE SHALL BE CAPPED UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS.

OBSERVATION WELLS. OBSERVATION WELLS USING PERFORATED AND NON-PERFORATED PPWP SHALL BE PLACED VERTICALLY IN BIORETENTION FACILITIES AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE WELLS SHALL TERMINATE AT THE MULCH LAYER TOP ELEVATION AND SHALL BE CAPPED WITH A SCREW CAP. THE PERFORATED PPWP PORTION OF THE WELL SHALL BE WRAPPED WITH AN APPROPRIATE GEOTEXTILE SOCK AS RECOMMENDED AND SUPPLIED BY THE MANUFACTURER.

VENTS. INVERTED J-VENTS USING NON-PERFORATED PPWP SHALL BE PLACED IN BIORETENTION FACILITIES AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE VENTS SHALL BE CONNECTED TO THE PERFORATED PIPE SYSTEM WITH THE APPROPRIATE MANUFACTURED CONNECTIONS AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE INVERTED J-VENTS SHALL EXTEND ABOVE THE WATER SURFACE ELEVATION OF BIORETENTION FACILITIES.

PLACEMENT AND COMPACTION OF THE BIORETENTION SOIL MIXTURE (BSM). THE BSM SHALL BE PLACED AND GRADED BY USING EXCAVATION HOES OPERATING ON THE GROUND ADJACENT TO BIORETENTION FACILITIES OR, IF THE CONFIGURATION OF THE BIORETENTION FACILITIES IS EXCEEDINGLY LARGE, WIDE-TRACK OR MARSH-TRACK EQUIPMENT, OR LIGHT EQUIPMENT WITH TURF TIRES OPERATING WITHIN THE PERIMETER OF BIORETENTION FACILITIES MAY BE USED TO PLACE AND GRADE THE BSM. THE USE OF EQUIPMENT WITH NARROW TRACKS OR NARROW TIRES, RUBBER TIRES WITH LARGE LUGS OR HIGH-PRESSURE TIRES IS PROHIBITED WITHIN THE PERIMETER OF BIORETENTION FACILITIES.

THE BSM SHALL BE PLACED IN HORIZONTAL LAYERS NOT TO EXCEED 12 IN. AFTER EACH LIFT OF BSM IS PLACED, IT SHALL BE COMPACTED BY SATURATING WITH WATER UNTIL WATER FLOWS FROM THE PERFORATED PIPE SYSTEM. WATER FOR SATURATION SHALL BE APPLIED BY SPRAYING OR SPRINKLING. SATURATION OF EACH LIFT SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF THE ENGINEER. AN APPROPRIATE SEDIMENT CONTROL DEVICE SHALL BE USED TO TREAT ANY SEDIMENT-LADEN WATER DISCHARGED FROM THE PERFORATED PIPE SYSTEM.

FINAL GRADING OF THE BSM SHALL BE PERFORMED AFTER A 24-HOUR SETTLING PERIOD. FINAL ELEVATIONS SHALL BE WITHIN 2 IN. OF ELEVATIONS SPECIFIED IN THE CONTRACT DOCUMENTS.

PLANT INSTALLATION. PLANT MATERIAL SHALL BE INSTALLED IMMEDIATELY AFTER FINAL GRADING OF BIORETENTION FACILITIES AS SPECIFIED IN THE CONTRACT DOCUMENTS. MULCHING. BIORETENTION FACILITIES SHALL BE MULCHED IN ACCORDANCE WITH THE FOLLOWING, AS APPROPRIATE:

TYPICAL. IMMEDIATELY FOLLOWING PLANT INSTALLATION, OCCURRING IMMEDIATELY AFTER FINAL GRADING, BIORETENTION FACILITIES SHALL BE MULCHED TO A UNIFORM THICKNESS OF 3 IN., AND THE MULCH SHALL BE RAKED TO AN EVEN SURFACE.

TEMPORARY. FOR PLANT INSTALLATION THAT WILL COMMENCE WITHIN 30 CALENDAR DAYS OF FINAL GRADING, BIORETENTION FACILITIES SHALL BE MULCHED TO A MINIMUM THICKNESS OF 1 IN. IMMEDIATELY FOLLOWING FINAL GRADING. THE MULCH SHALL BE RAKED TO AN EVEN SURFACE. DURING PLANT INSTALLATION, CARE SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE MULCH AND BSM. IMMEDIATELY AFTER PLANT INSTALLATION, BIORETENTION FACILITIES SHALL BE MULCHED TO A TOTAL UNIFORM THICKNESS OF 3 IN. AND RAKED TO AN EVEN SURFACE.

EXTENDED TEMPORARY. FOR PLANT INSTALLATION THAT WILL COMMENCE BEYOND 30 CALENDAR DAYS OF FINAL GRADING, BIORETENTION FACILITIES SHALL BE MULCHED TO A UNIFORM THICKNESS OF 3 IN., AND THE MULCH SHALL BE RAKED TO AN EVEN SURFACE. PRIOR TO PLANT INSTALLATION, THE EXTENDED TEMPORARY MULCHING LAYER SHALL BE REMOVED IN ITS ENTIRETY FROM BIORETENTION FACILITIES AND DISPOSED OF AS EXCESS OR UNSUITABLE MATERIAL. CARE SHALL BE TAKEN TO PREVENT THE REMOVAL OF BSM DURING THE MULCH REMOVAL. IMMEDIATELY AFTER PLANT INSTALLATION, BIORETENTION FACILITIES SHALL BE MULCHED TO A UNIFORM THICKNESS OF 3 IN. AND RAKED TO AN EVEN SURFACE.

CONTRACTOR'S AS-BUILT NOTE

AS-BUILT PLANS AND CERTIFICATION ARE REQUIRED FOR THESE STORM WATER MANAGEMENT FACILITIES. THESE MUST BE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. AFTER FINAL ACCEPTANCE OF THE FACILITY, HOWARD COUNTY WILL PREPARE THE AS-BUILT PLANS AND THE AS BUILT CERTIFICATION.

TO PREPARE THE REQUIRED AS-BUILT PLANS AND CERTIFICATION, THESE STORM WATER MANAGEMENT FACILITIES MUST BE INSPECTED BY THE ENGINEER AT SPECIFIC STAGES DURING THE CONSTRUCTION AS REQUIRED BY THE CURRENT HOWARD COUNTY STORM WATER MANAGEMENT POLICY AND DESIGN MANUAL. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS.

CONSTRUCTION NOTE

UNLESS OTHERWISE NOTED, ALL CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.

MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION, JANUARY, 2001, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.

GENERAL NOTES

- THE PROPOSED GRADING SHOWN ON THIS PLAN MEETS THE REQUIREMENTS SET FORTH BY THE HOWARD COUNTY, HOWEVER, DUE TO BUILDING TYPES AND LAYOUT, SOME FIELD ADJUSTMENTS MAY BE REQUIRED. ALL CHANGES MUST COMPLY WITH THE ABOVE MENTIONED REQUIREMENTS.
- THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, OR DISTURBANCE OF VEGETATION IN ANY FOREST RETENTION AREAS, EXCEPT AS PERMITTED BY HOWARD COUNTY.
- OBSTRUCTIONS SHOWN ON THIS DRAWING ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. KCI TECHNOLOGIES, INC. DOES NOT WARRANT OR GUARANTEE THE CORRECTNESS OR THE COMPLETENESS OF THE INFORMATION GIVEN. THE CONTRACTOR MUST VERIFY ALL SUCH INFORMATION TO HIS OWN SATISFACTION.
- CONTRACTOR WILL CALL "MISS UTILITY" (800-257-7777) AT LEAST 48 HOURS PRIOR TO STARTING WORK.
- SHOULD THE CONTRACTOR DISCOVER DISCREPANCIES BETWEEN THE PLANS AND FIELD CONDITIONS, THE ENGINEER IS TO BE NOTIFIED IMMEDIATELY TO RESOLVE THE SITUATION. SHOULD THE CONTRACTOR MAKE FIELD CORRECTIONS OR ADJUSTMENTS WITHOUT WRITTEN PERMISSION OF THE ENGINEER, THEN THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR THOSE CHANGES.

DEVELOPER'S/LANDOWNER'S CERTIFICATION

I HEREBY CERTIFY THAT ALL PROPOSED WORK SHOWN ON THESE CONSTRUCTION DRAWING(S) AND ON THE APPROVED SEDIMENT CONTROL DRAWING(S) WILL BE ACCOMPLISHED PURSUANT TO THESE PLANS, I/WE ALSO UNDERSTAND THAT IT IS MY/OUR RESPONSIBILITY TO HAVE THE CONSTRUCTION SUPERVISED AND CERTIFIED, INCLUDING THE SUBMITTAL OF "AS-BUILT" PLANS WITHIN THIRTY (30) DAYS OF COMPLETION, BY A REGISTERED PROFESSIONAL ENGINEER.

Don Liell 4/22/09
SIGNATURE OWNER/DEVELOPER DATE

Don Liell, Chief Utility Design
PRINT NAME TITLE

"AS-BUILT" CERTIFICATION - SWM BMP

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

SIGNATURE TITLE

PRINT NAME MD LICENSE NUMBER

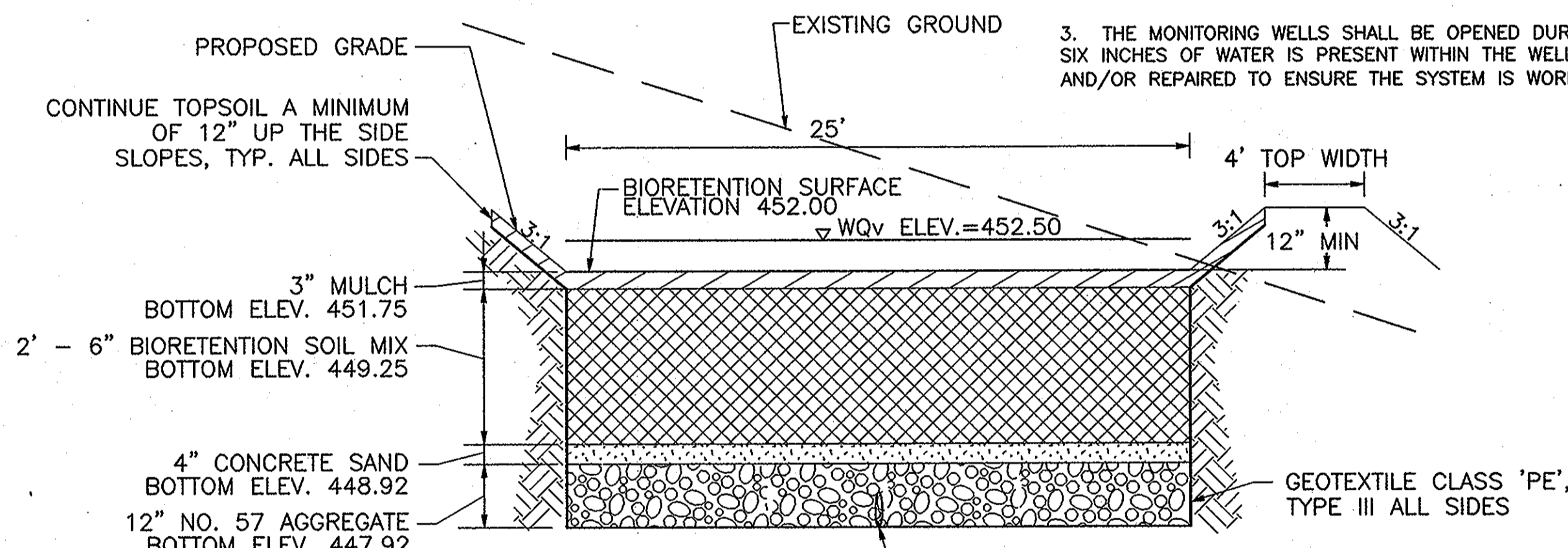
OPERATION AND MAINTENANCE SCHEDULE

ROUTINE MAINTENANCE:

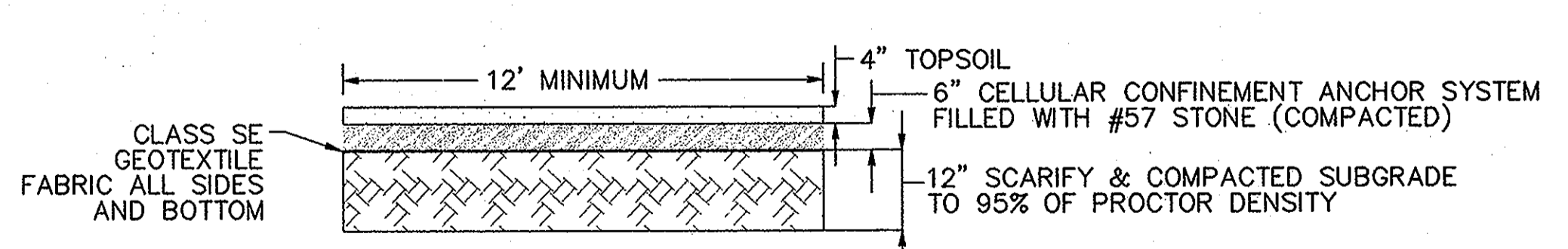
- FACILITY SHALL BE INSPECTED ON A TRIENNIAL BASIS. INSPECTIONS SHALL BE PERFORMED FOLLOWING AT LEAST 72 HOURS OF DRY WEATHER.
- TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOWED ONCE PER YEAR. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHALL BE MOWED AS NEEDED. THE SURFACE OF THE BIORETENTION AREA SHALL NOT BE MOWED.
- DEBRIS AND LITTER SHALL BE REMOVED DURING REGULAR MOWING OPERATIONS AND AS NEEDED.
- VISIBLE SIGNS OF EROSION AT THE INFLOW AREAS AS WELL AS THE OVERFLOW AND OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.
- PLANTINGS SHALL BE REPLACED AS NEEDED TO ENSURE A SIGNIFICANT NUMBER OF SHRUBS ARE PRESENT AND FULL HERBACEOUS COVERAGE EXISTS WITHIN THE FACILITY.

NON-ROUTINE MAINTENANCE:

- STRUCTURAL COMPONENTS OF THE FACILITY SUCH AS THE EMBANKMENT, UNDERDRAIN SYSTEM, AND OVERFLOWS SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE.
- SEDIMENT SHALL BE REMOVED FROM THE FACILITY IF 25% OR MORE OF THE SURFACE AREA IS COVERED.
- THE MONITORING WELLS SHALL BE OPENED DURING TRIENNIAL INSPECTIONS. IF MORE THAN SIX INCHES OF WATER IS PRESENT WITHIN THE WELL, THE UNDERDRAIN SYSTEM SHALL BE FLUSHED AND/OR REPAIRED TO ENSURE THE SYSTEM IS WORKING PROPERLY.



1 BIORETENTION AREA TYPICAL CROSS SECTION
SCALE: H: 1"=5', V: 1"=2'



A MAINTENANCE ACCESS ROAD
SCALE: NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
John J. Jackson 4/22/09
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
John J. Jackson 4/22/09
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
John J. Jackson 4/22/09
DIRECTOR, DEP. DATE

OWNER:
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
9250 BENDIX ROAD
COLUMBIA, MARYLAND
PHONE: (410)313-4400

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. 31201, Expiration Date 01/24/11

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
John J. Jackson 4/22/09
DIRECTOR OF PUBLIC WORKS DATE
John J. Jackson 4/22/09
CHIEF, BUREAU OF UTILITIES DATE

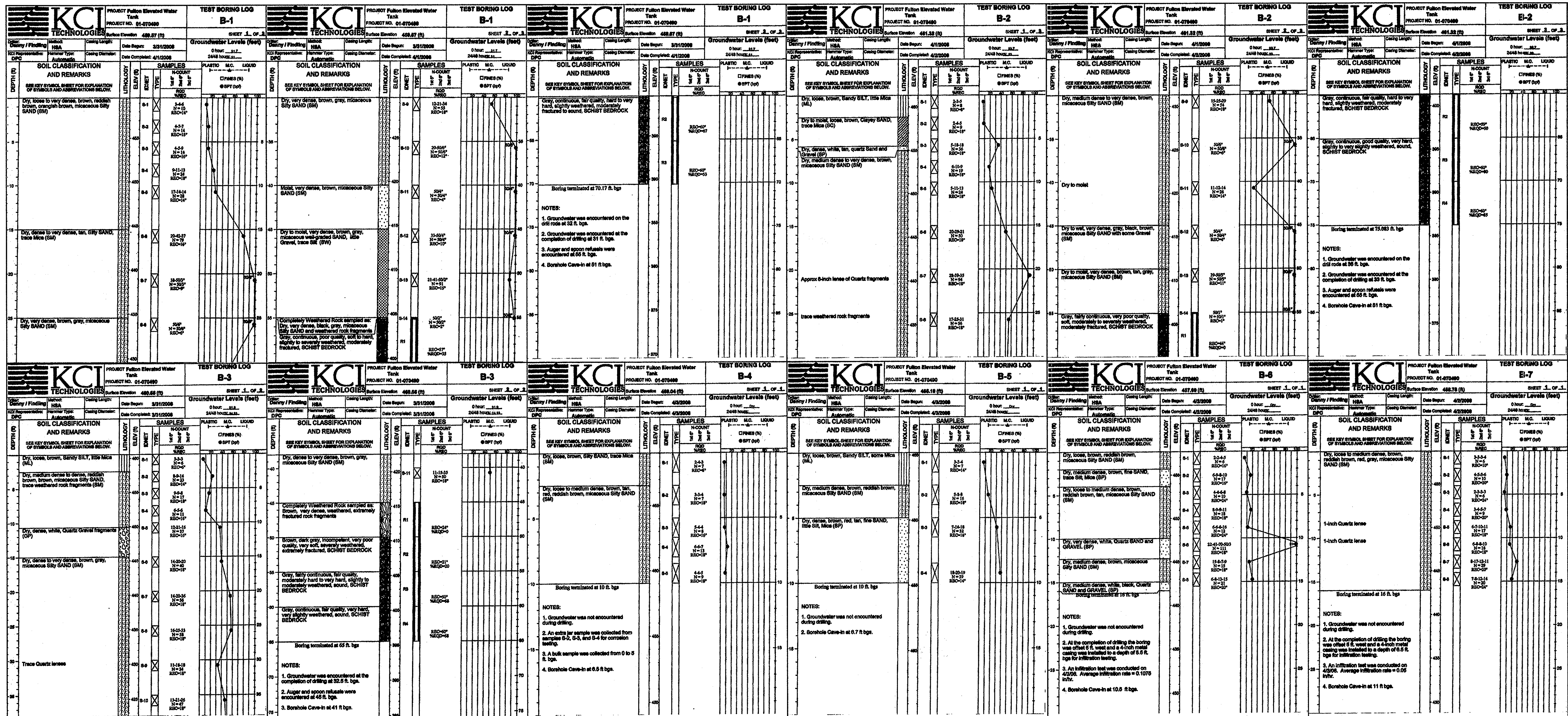
KCI TECHNOLOGIES
Engineers
Surveyors
Construction Managers
936 Ridgemoor Road
Sparks, MD 21152
Phone: (410) 316-7800
Fax: (410) 316-7955
www.kci.com

DES: MRS
DRN: KFJ
CHK: JRK
DATE: 3/20/09
BY NO. REVISION DATE 600' SCALE MAP NO. 46 BLOCK NO. 4

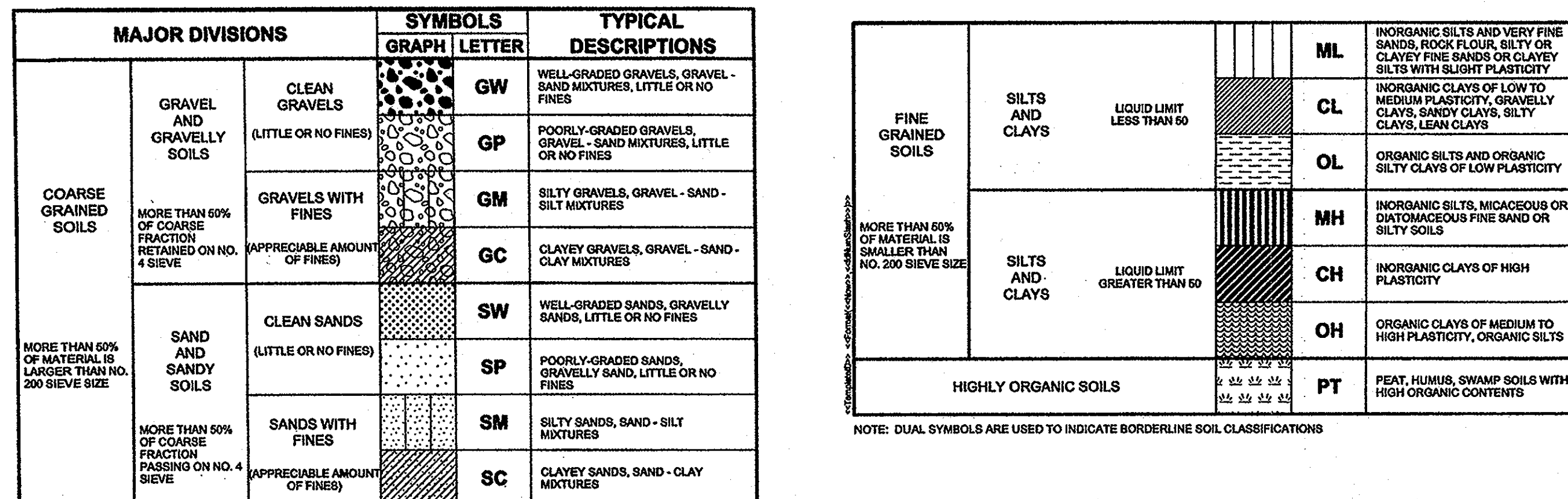
TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
ZONING RR-DEO, GRID 3, LIBER 10385, FOLIO 292/297

FULTON ELEVATED WATER TANK
SCALE AS SHOWN
CONTRACT SHEET 9 OF 22
CAPITAL PROJECT No. W8280
CONTRACT No. 44-4517
ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

APR 20, 2009 - 8:45am
M:\2007\01070680 (Stonleigh ELEVATED TANK-2) SW-2 STORMWATER MANAGEMENT NOTES AND DETAILS.dwg



USCS SOIL CLASSIFICATION CHART



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR, DEP.

OWNER:
 DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 9250 BENDIX ROAD
 COLUMBIA, MARYLAND
 PHONE: (410)313-4400

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. 33722. Expiration Date 12/18/10

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

4/2/09
 4/2/09
 4/2/09

ENGINEERS
 PLANNERS
 SCIENTISTS
 CONSTRUCTION MANAGERS

KCI TECHNOLOGIES
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 Sparks, MD 21152
 Phone: (410) 316-7800
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 www.kci.com

DES: KBA
 DRN: LFN
 CHK: JRK
 DATE: 3/20/09

REVISION

TEST BORING LOGS

600' SCALE MAP NO. 46 BLOCK NO. 4

TAX MAP 46, SECTION/AREA 3.52 AC, LOT/PARCEL 389,
 ZONING RR-DEQ, GRID 3, LIBER 10385, FOLIO 292/297

FULTON ELEVATED WATER TANK
 CAPITAL PROJECT No. W8280
 CONTRACT No. 44-4517
 ELECTION DISTRICT NO.5 HOWARD COUNTY, MARYLAND

SD-9
 9 OF 9

SCALE
 AS SHOWN

CONTRACT SHEET
 10 OF 22