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SITE DEVELOPMENT PLAN

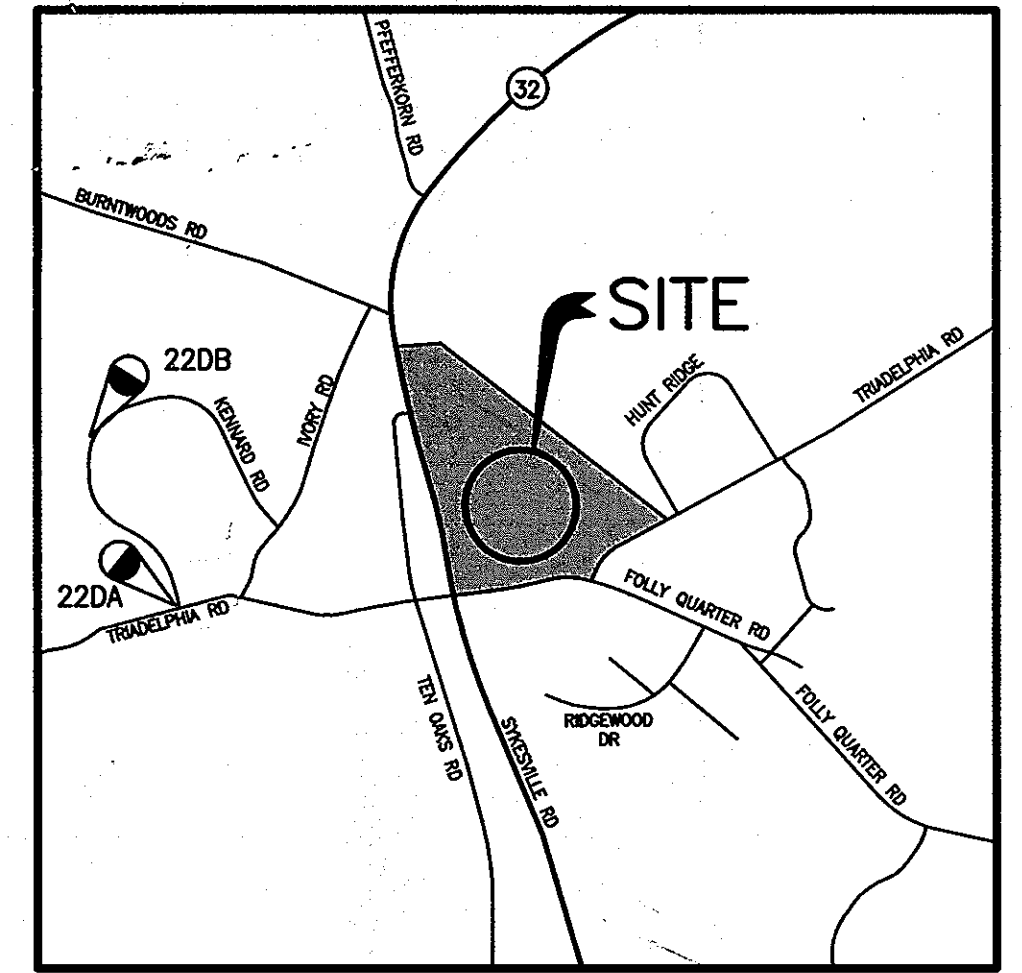
HOWARD COUNTY BOARD OF EDUCATION

FOLLY QUARTER MIDDLE & TRIADDELPHIA RIDGE ELEMENTARY SCHOOLS

WASTEWATER TREATMENT FACILITY

3rd ELECTION DISTRICT

HOWARD COUNTY, MARYLAND



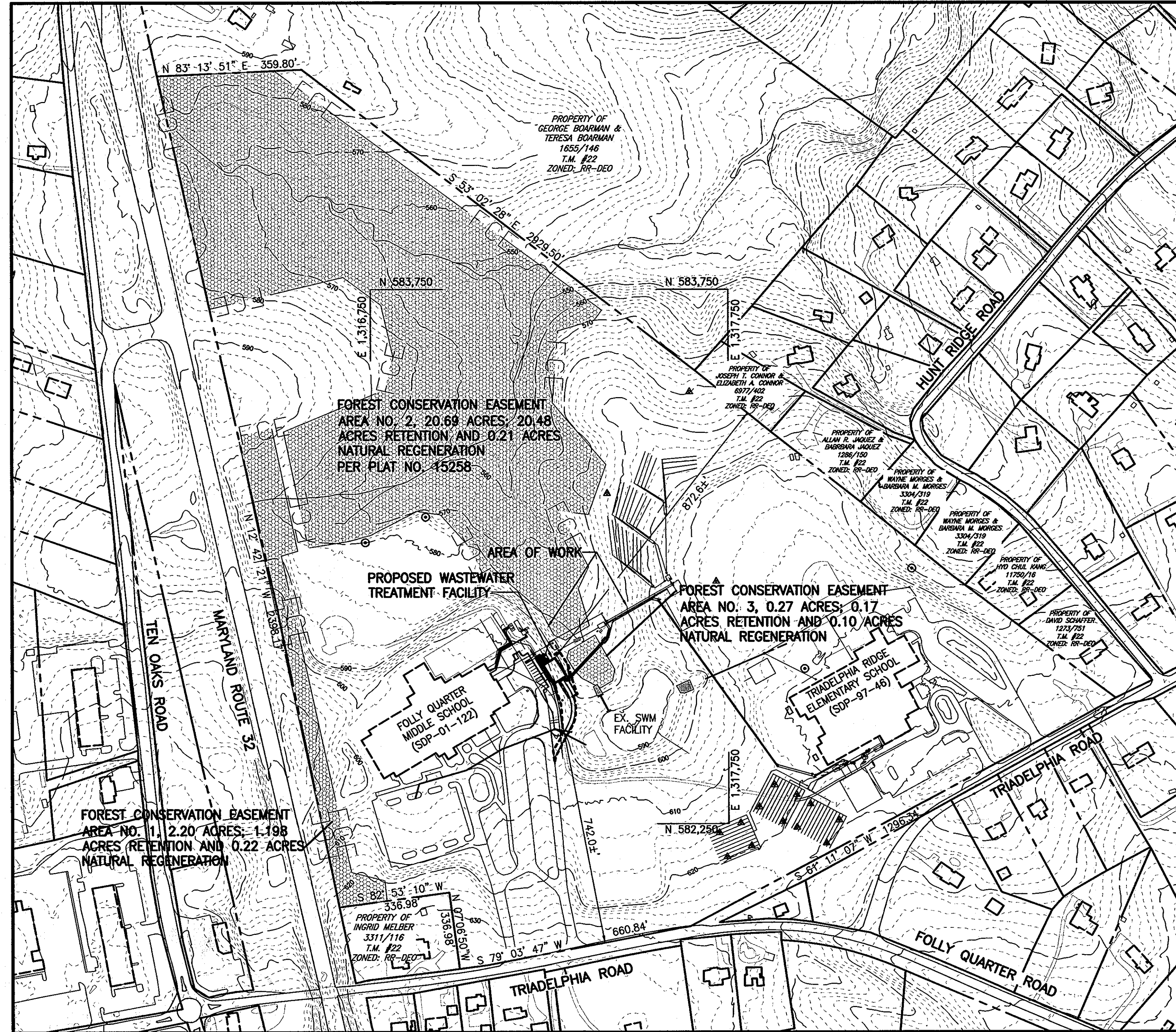
VICINITY MAP

SCALE: 1" = 2,000'

ADC MAP: HOWARD COUNTY, MARYLAND, MAP: 9, GRID J-10, COORDINATES: 521,500, 805,000.

DESIGN NARRATIVE
 The proposed wastewater treatment plant and facilities were located to avoid, to the maximum extent possible, disturbances to the intermittent stream, forest conservation area, and wetland. The design will achieve natural resource protection and enhancement by limiting the direct discharge of runoff from impervious surfaces on the site to the stream and wetland. Runoff from the building will be discharged to a micro bio-retention system and the access road will be constructed with reinforced turf. The proposed site grade has been designed to mimic natural flow patterns. Reinforced turf is being used for the access road in lieu of an impervious surface. Erosion and sediment controls (ESC) will discharge (where possible) to the existing stormwater management pond. All other ESC will be placed to reduce sediment laden discharges to the wetland and intermittent stream. Impacts to the site were reduced by changing the material for the access road and disconnecting roof drains from the building to route them to the micro-bioretenation facility. Stormwater Management systems were selected based on the Maryland Department of the Environment's Stormwater Design Manual. ESD planning techniques and practices were used to the maximum extent practical by using reinforced turf for the access road and the micro-bioretenation facility for runoff from the building. Both practices allow recharge into groundwater sources and treat runoff from impervious surfaces.

- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY, PLUS MSHA STANDARDS AND SPECIFICATIONS, IF APPLICABLE.
 - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
 - THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
 - TRAFFIC CONTROL DEVICES, MARKINGS AND SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE IN PLACE PRIOR TO THE PLACEMENT OF ANY ASPHALT.
 - ALL PLAN DIMENSIONS ARE TO FACE OF CURB, FACE OF BUILDING OR CENTERLINE, UNLESS OTHERWISE NOTED.
 - THE EXISTING TOPOGRAPHY IS TAKEN FROM FIELD RUN SURVEY WITH TWO FOOT CONTOUR INTERVALS PREPARED BY GEORGE MILES & BUHR, LLC, DATED JUNE, 2010, AND HOWARD COUNTY GIS.
 - THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM AS PROJECTED BY HOWARD COUNTY GEODETIC CONTROL STATIONS 22DA & 22DB.
 - WATER SERVICE FOR THIS SITE IS PRIVATE.
 - SEWER SERVICE FOR THIS SITE IS PRIVATE.
 - EXISTING UTILITIES ARE BASED ON FIELD RUN SURVEY AND EXISTING SITE DEVELOPMENT PLANS SDP-97-46 AND SDP-01-122.
 - THERE IS NO 100 YR. FLOODPLAIN ON THIS SITE.
 - THE WETLAND DELINEATION STUDY FOR THIS SITE WAS PREPARED BY KLEBASCO ENVIRONMENTAL, DATED JULY, 2010.
 - EXISTING STREAM IS CLASSIFIED AS INTERMITTENT.
 - NO TRAFFIC STUDY IS REQUIRED FOR THIS PROJECT.
 - THE SUBJECT PROPERTY IS ZONED RR-DEO PER THE FEBRUARY 2, 2004, COMPREHENSIVE ZONING PLAN.
 - NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
 - ADC MAP: HOWARD COUNTY, MARYLAND, MAP: 9, GRID J-10, COORDINATES: 521,500, 805,000.
 - FOREST CONSERVATION EASEMENTS ON THIS SITE HAVE BEEN ESTABLISHED TO FULFILL REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE, FOREST CONSERVATION ACT. NO GRADING OR CONSTRUCTION ARE PERMITTED WITHIN THE FOREST CONSERVATION EASEMENT EXCEPT AS DEFINED IN THE DEED OF FOREST CONSERVATION. OBLIGATIONS HAVE BEEN FULFILLED BY PLACEMENT OF 23.17 ACRES OF EXISTING FOREST AND REGENERATION AREA INTO AN EASEMENT AREA AS SHOWN ON PLAT NO. 15258, SDP-01-122FC, RECORDED FEBRUARY 25, 2002.
 - THIS PROJECT DOES NOT REQUIRE LANDSCAPING. PERIMETER LANDSCAPING HAS BEEN PREVIOUSLY ADDRESSED UNDER SDP-97-46 AND SDP-01-122.
 - GRADING WITHIN THE STREAM BANK BUFFER IS CONSIDERED ESSENTIAL DISTURBANCE TO INSTALL THE NEW MICRO BIOTRETENTION FACILITY.
 - 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.
 - EXISTING SEPTIC DRAIN FIELDS WERE INSTALLED UNDER SDP-97-46 AND SDP-01-122 AND SHALL REMAIN IN SERVICE. NO MODIFICATIONS TO EXISTING DRAIN FIELDS ARE PROPOSED UNDER THIS PLAN.
 - EXISTING DRAIN FIELDS ARE OPERATED UNDER STATE GROUNDWATER DISCHARGE PERMIT #07-DP-3223.
 - MDE SEWERAGE CONSTRUCTION PERMIT #11-25-1002 HAS BEEN ISSUED FOR CONSTRUCTION OF NEW TREATMENT FACILITY.
 - MDE HAS DETERMINED THAT THE PROJECT DOES NOT IMPACT ANY JURISDICTIONAL WETLAND, WATERWAY, OR FLOODPLAIN AND THAT NO AUTHORIZATION FROM MDE WATERWAYS CONSTRUCTION DIVISION OR THE US ARMY CORPS OF ENGINEERS IS NECESSARY TO PERFORM THE PROJECT (MDE TRACKING #201160558/11-N1-0129).
 - PROJECT WILL REQUIRE A HOWARD COUNTY ON-SITE SEWAGE DISPOSAL SYSTEM PERMIT. CONTACT THE HEALTH DEPARTMENT AT (410) 313-1771 A MINIMUM OF 48 HOURS IN ADVANCE TO SCHEDULE AN INSPECTION.
 - ADDITIONAL DETAILS ARE CONTAINED IN CONSTRUCTION DRAWINGS ENTITLED "WASTEWATER TREATMENT FACILITIES FOR TRIADDELPHIA RIDGE ELEMENTARY SCHOOL AND FOLLY QUARTER MIDDLE SCHOOL" AS DESIGNED BY GEORGE, MILES & BUHR, LLC, ARCHITECTS AND ENGINEERS, DATED JANUARY 2011.



SITE ANALYSIS DATA CHART

TOTAL PROJECT AREA:	78.67 AC.
LIMIT OF DISTURBED AREA:	1.31 AC.
AREA OF PLAN SUBMISSION:	0.26 AC.
ZONING:	RR-DEO
PROPOSED USE:	ON-SITE PRIVATE WASTEWATER TREATMENT FACILITY
BUILDING COVERAGE:	0.05 AC.
NUMBER OF EMPLOYEES:	UNOCCUPIED BUILDING, TWO EMPLOYEES
DPZ FILE REFERENCES:	SDP-97-46, SDP-01-122
WETLANDS/WETLANDS BUFFER (W/IN LOD):	0.00 AC.
100 YR. FLOODPLAIN (W/IN LOD):	0.00 AC.
FOREST (W/IN LOD):	0.00 AC.
15% & GREATER STEEP SLOPES (W/IN LOD):	0.21 AC.
IMPERVIOUS AREA (W/IN LOD):	0.12 AC.
GREEN OPEN AREA (W/IN LOD):	1.19 AC.

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- EX. WOODS LINE
- DRAINAGE AREA BOUNDARY
- EXISTING STREAM
- EXISTING FOREST CONSERVATION EASEMENT
- LIMITS OF DISTURBANCE
- EXISTING MONITORING WELL
- EXISTING WATER WELL

ADDRESS CHART

PARCEL No.	STREET ADDRESS
6	TRIADDELPHIA RIDGE ELEMENTARY SCHOOL 13400 TRIADDELPHIA ROAD
6	WASTEWATER TREATMENT FACILITY 13450 TRIADDELPHIA ROAD
6	FOLLY QUARTER MIDDLE SCHOOL 13500 TRIADDELPHIA ROAD

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADDELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY
 TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

TITLE SHEET

DESIGN	JEB	DRAWING NO.	SDP-1
DRAWN	BNA	SHEET	
CHECKED	JK		
JOB	090254		
DATE	AUGUST 10, 2011		

SITE OVERVIEW

SCALE: 1" = 200'

NO.	DATE	REVISIONS	ENGINEER:

GMB
 GEORGE, MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
 FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.

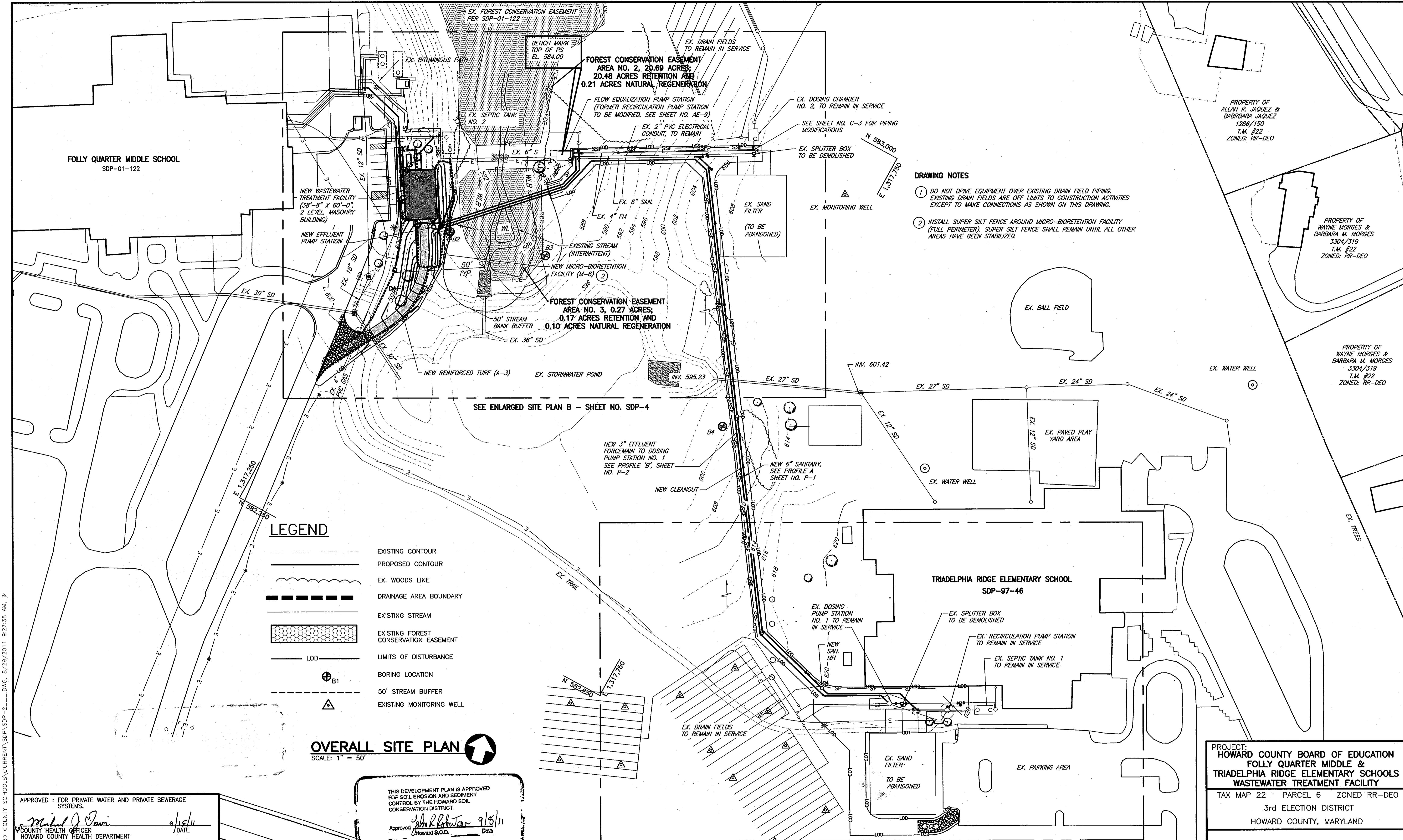
 JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM
 10910 ROUTE 108
 ELLICOTT CITY, MARYLAND 21043
 PH: 410-313-6600

PROJECT NAME	HOWARD COUNTY BOARD OF EDUCATION FOLLY QUARTER MIDDLE & TRIADDELPHIA RIDGE ELEMENTARY SCHOOLS WASTEWATER TREATMENT FACILITY	SECT./AREA	FOLLY QUARTER MIDDLE & TRIADDELPHIA RIDGE ELEMENTARY	PARCEL	6
PLAT #	L. 3813, F. 173	BLOCK #	8	ZONING	RR-DEO
TAX MAP NO.	22	ELECT. DIST.	3	CENSUS TRACT	6030
WATER CODE	PRIVATE	SEWER CODE	PRIVATE		

C:\DRAWINGS\090254 HOWARD COUNTY SCHOOLS\CURRENT\SDP-1 COVER.dwg, 8/29/2011 9:22:53 AM, jr



- DRAWING NOTES**
- DO NOT DRIVE EQUIPMENT OVER EXISTING DRAIN FIELD PIPING. EXISTING DRAIN FIELDS ARE OFF LIMITS TO CONSTRUCTION ACTIVITIES EXCEPT TO MAKE CONNECTIONS AS SHOWN ON THIS DRAWING.
 - INSTALL SUPER SILT FENCE AROUND MICRO-BIORETENTION FACILITY (FULL PERIMETER). SUPER SILT FENCE SHALL REMAIN UNTIL ALL OTHER AREAS HAVE BEEN STABILIZED.

LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EX. WOODS LINE
	DRAINAGE AREA BOUNDARY
	EXISTING STREAM
	EXISTING FOREST CONSERVATION EASEMENT
	LOD
	BORING LOCATION
	EXISTING MONITORING WELL
	LIMITS OF DISTURBANCE
	50' STREAM BUFFER

OVERALL SITE PLAN
SCALE: 1" = 50'

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

Approved: *[Signature]* 9/15/11
Howard S.C.D. Date

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

[Signature] 9/15/11
COUNTY HEALTH OFFICER DATE
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

[Signature] 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 9/22/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 9/22/11
DIRECTOR DATE

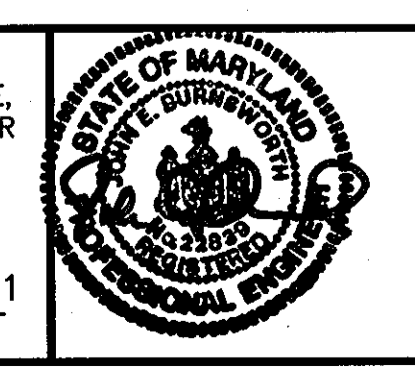
NO.	DATE	REVISIONS

ENGINEER:

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.

[Signature] AUGUST 10, 2011
JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

OVERALL SITE PLAN

DESIGN	JEB	DRAWING NO.	SDP-2
DRAWN	BNA	CHECKED	JK
JOB	090254	DATE	AUGUST 10, 2011
SHEET 2 OF 16		SDP-11-050	

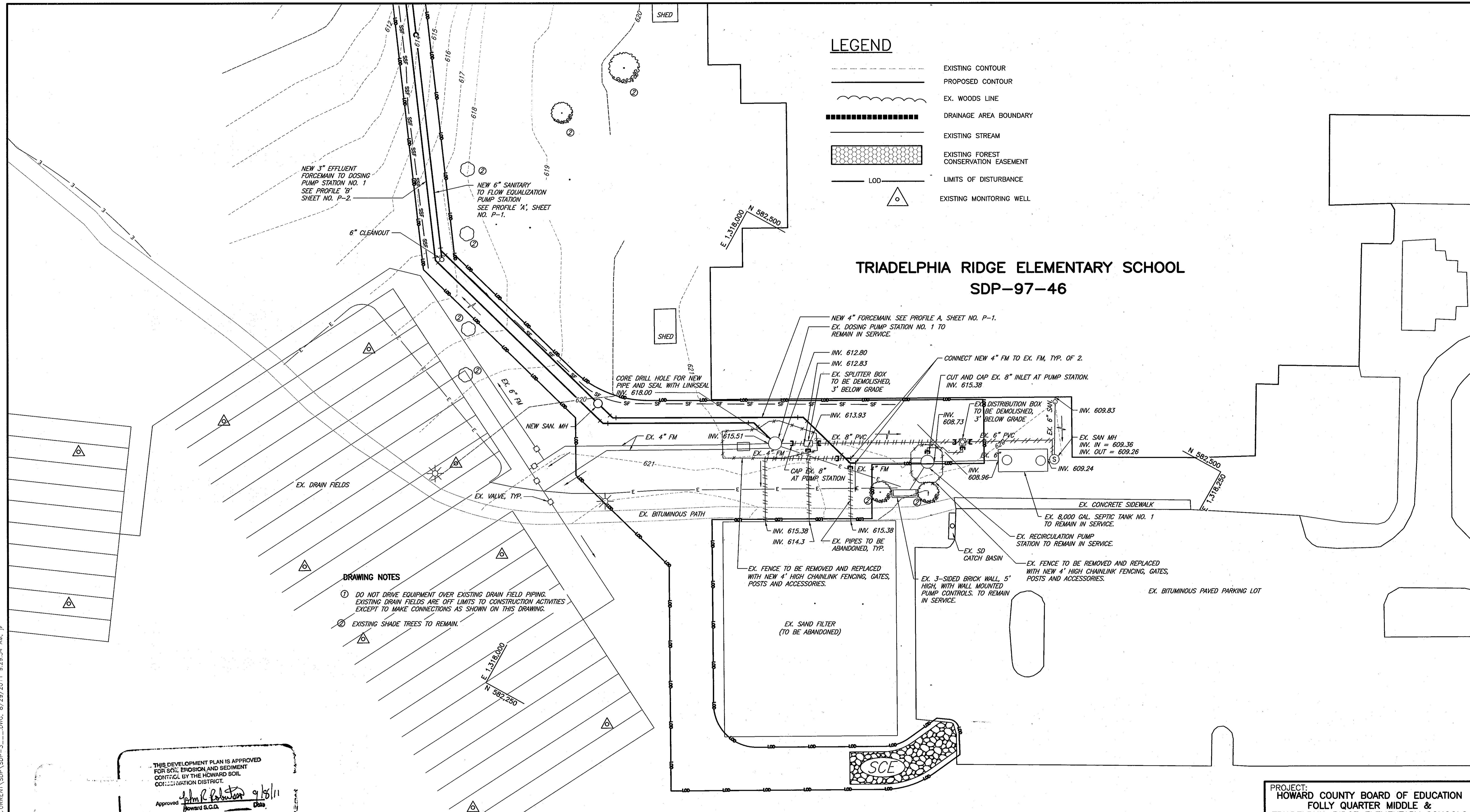
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LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- - - EX. WOODS LINE
- ===== DRAINAGE AREA BOUNDARY
- EXISTING STREAM
- [Hatched Box] EXISTING FOREST CONSERVATION EASEMENT
- LOD — LIMITS OF DISTURBANCE
- △ EXISTING MONITORING WELL

**TRIADELPHIA RIDGE ELEMENTARY SCHOOL
SDP-97-46**



DRAWING NOTES

- ① DO NOT DRIVE EQUIPMENT OVER EXISTING DRAIN FIELD PIPING. EXISTING DRAIN FIELDS ARE OFF LIMITS TO CONSTRUCTION ACTIVITIES EXCEPT TO MAKE CONNECTIONS AS SHOWN ON THIS DRAWING.
- ② EXISTING SHADE TREES TO REMAIN.

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

Approved: *John R. Robertson* 9/15/11
Howard S.C.D. Date

ENLARGED SITE PLAN A
SCALE: 1" = 20'

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

Michael J. Davis 9/15/11
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

West Reinhold 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Thomas J. Butler 9/23/11
CHIEF, DIVISION OF LAND DEVELOPMENT

Thomas J. Butler
DIRECTOR

NO.	DATE	REVISIONS

ENGINEER: **GMB**
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.

John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSWORTH DATE

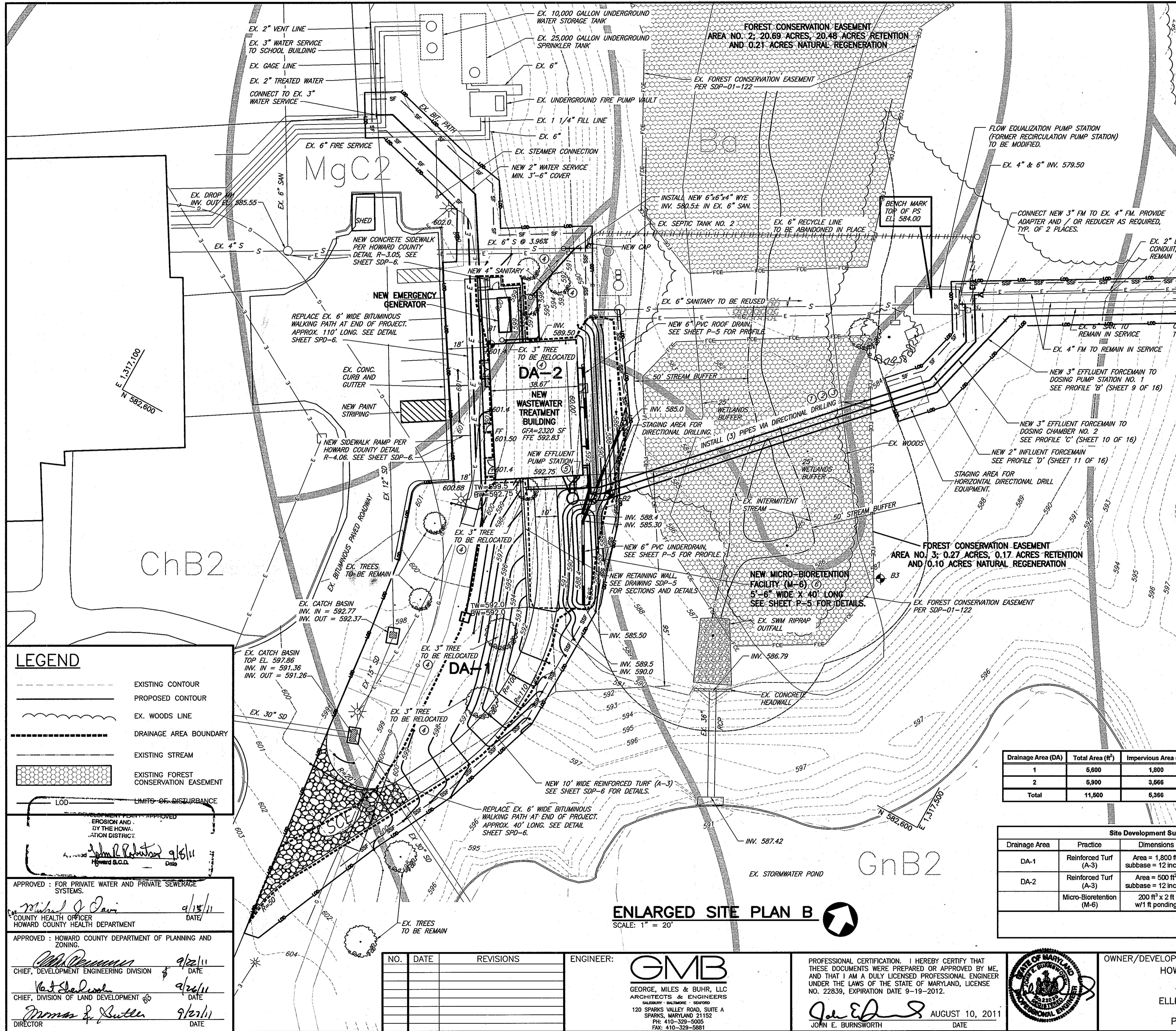


OWNER/DEVELOPER:
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

ENLARGED SITE PLAN A		DRAWING NO.
DESIGN	JEB	SDP-3
DRAWN	BNA	
CHECKED	JK	
JOB	090254	
DATE	AUGUST 10, 2011	
SHEET		3 OF 16



NOTES

- 1 PROPOSED PIPELINES SHALL BE INSTALLED VIA HORIZONTAL DRILLING METHODS ONLY. NO DISTURBANCE TO EXISTING VEGETATION WITHIN THE FOREST CONSERVATION EASEMENT OR WITHIN THE 50-FOOT STREAM BANK BUFFER SHALL BE PERMITTED.
- 2 LOCATION OF PROPOSED PIPELINES WAS SELECTED DUE TO SITE CONSTRAINTS AND OBSTRUCTIONS BY EXISTING SEPTIC TANK, PUMPING STATION, SHADE TREES, AND EXISTING UNDERGROUND UTILITIES.
- 3 HOWARD COUNTY DPZ HAS DETERMINED THAT HORIZONTAL DRILLING DOES NOT CONSTITUTE AN ENVIRONMENTAL DISTURBANCE.
- 4 EXISTING TREES SHALL BE EXCAVATED AND REPLANTED IN THEIR ORIGINAL (APPROXIMATE) LOCATION AFTER FINAL GRADING. SEE LANDSCAPE PLAN, SHEET SDP-7.
- 5 THE CONTRACTOR WILL BE REQUIRED TO TEST ALL NEW CONCRETE STRUCTURES IN ACCORDANCE WITH ACI 350.1R TESTING OF REINFORCED CONCRETE STRUCTURES FOR WATER TIGHTNESS. CONCRETE STRUCTURES SHALL BE FILLED TO MAXIMUM OPERATING WATER LEVEL AND ALLOWED TO STAND 48 HOURS. STRUCTURES SHALL BE INSPECTED FOR ANY NOTICEABLE LEAKS ON THE EXTERIOR OF THE STRUCTURE OR ANY DROP IN THE WATER LEVEL IN THE STRUCTURE. WATER LEVEL DROP SHALL NOT EXCEED THE EQUIVALENT OF 1/10 OF 1 PERCENT (0.10%) OF THE TANK VOLUME IN A 24 HOUR PERIOD. MANHOLES SHALL BE PLUGGED, FILLED WITH WATER AND ALLOWED TO STAND TWENTY-FOUR (24) HOURS. MANHOLES SHALL BE INSPECTED FOR ANY DROP IN WATER LEVEL, AND LEAKAGE SHALL NOT EXCEED ONE INCH PER DAY.
- 6 INSTALL SUPER SILT FENCE AROUND MICRO-BIORETENTION FACILITY (FULL PERIMETER). SUPER SILT FENCE SHALL REMAIN UNTIL ALL OTHER AREAS HAVE BEEN STABILIZED.
- 7 REPRESENTATIVE OF THE HOWARD COUNTY DEPARTMENT OF HEALTH SHALL BE PRESENT DURING WATER-TIGHTNESS TESTING OF THE EFFLUENT PUMPING STATION WET WELL. CONTACT THE HEALTH DEPARTMENT AT (410) 313-1771 A MINIMUM OF 48 HOURS IN ADVANCE OF THE TEST.
- 8 DRILLING WITHIN THE FC EASEMENT SHALL BE A MINIMUM OF 4' BELOW THE ROOT ZONE; NO DISTURBANCE OF TREES WILL OCCUR WITHIN THE EASEMENT AND NO TREE REMOVAL IS NECESSARY (SEE SHEETS 10 AND 11 FOR DRILLING PROFILES).

LEGEND

	EXISTING CONTOUR
	PROPOSED CONTOUR
	EX. WOODS LINE
	DRAINAGE AREA BOUNDARY
	EXISTING STREAM
	EXISTING FOREST CONSERVATION EASEMENT
	LIMITS OF DISTURBANCE

Drainage Area (DA)	Total Area (ft ²)	Impervious Area (ft ²)	% Impervious	Target ESD, (ft ³)	Proposed ESD, (ft ³)
1	6,600	1,800	32%	395	363
2	5,900	3,666	60%	416	494
Total	11,500	5,366	47%	811	847

Site Development Summary

Drainage Area	Practice	Dimensions	Area Treated	Volume (ESD)
DA-1	Reinforced Turf (A-3)	Area = 1,800 ft ² subbase = 12 inches	5,600 ft ²	353 ft ³
DA-2	Reinforced Turf (A-3)	Area = 500 ft ² subbase = 12 inches	—	98 ft ³
	Micro-Bioretention (M-6)	200 ft ³ x 2 ft w/1 ft ponding	5,900 ft ²	396 ft ³
Total				847 ft³
ESD, Required				811 ft³

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

Michael J. Davis 9/15/11
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

John R. Roberts 9/16/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Kat Stalovec 9/21/11
 CHIEF, DIVISION OF LAND DEVELOPMENT

Thomas J. Butler 9/21/11
 DIRECTOR

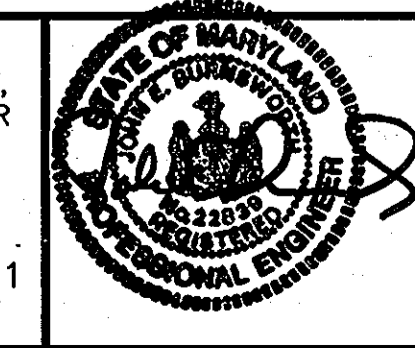
ENLARGED SITE PLAN B
 SCALE: 1" = 20"

NO.	DATE	REVISIONS	ENGINEER:

GMB
 GEORGE MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 SALESBURY - BALTIMORE - SEAFORD
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
 FAX: 410-329-5881

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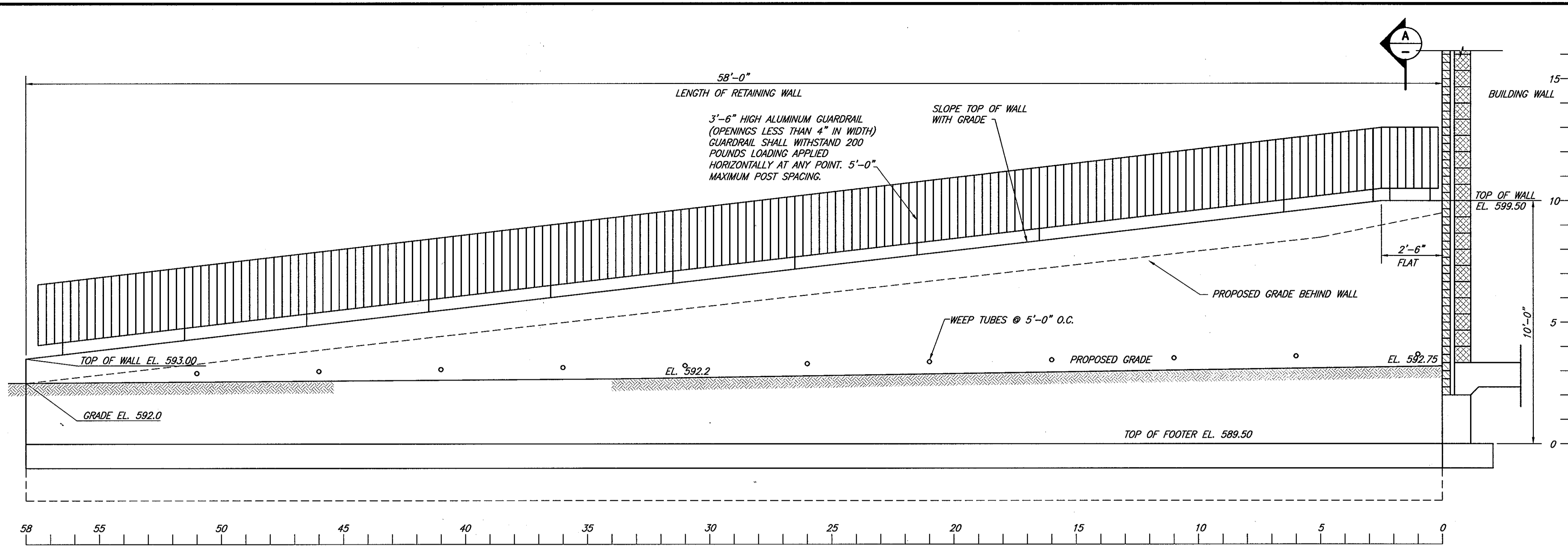
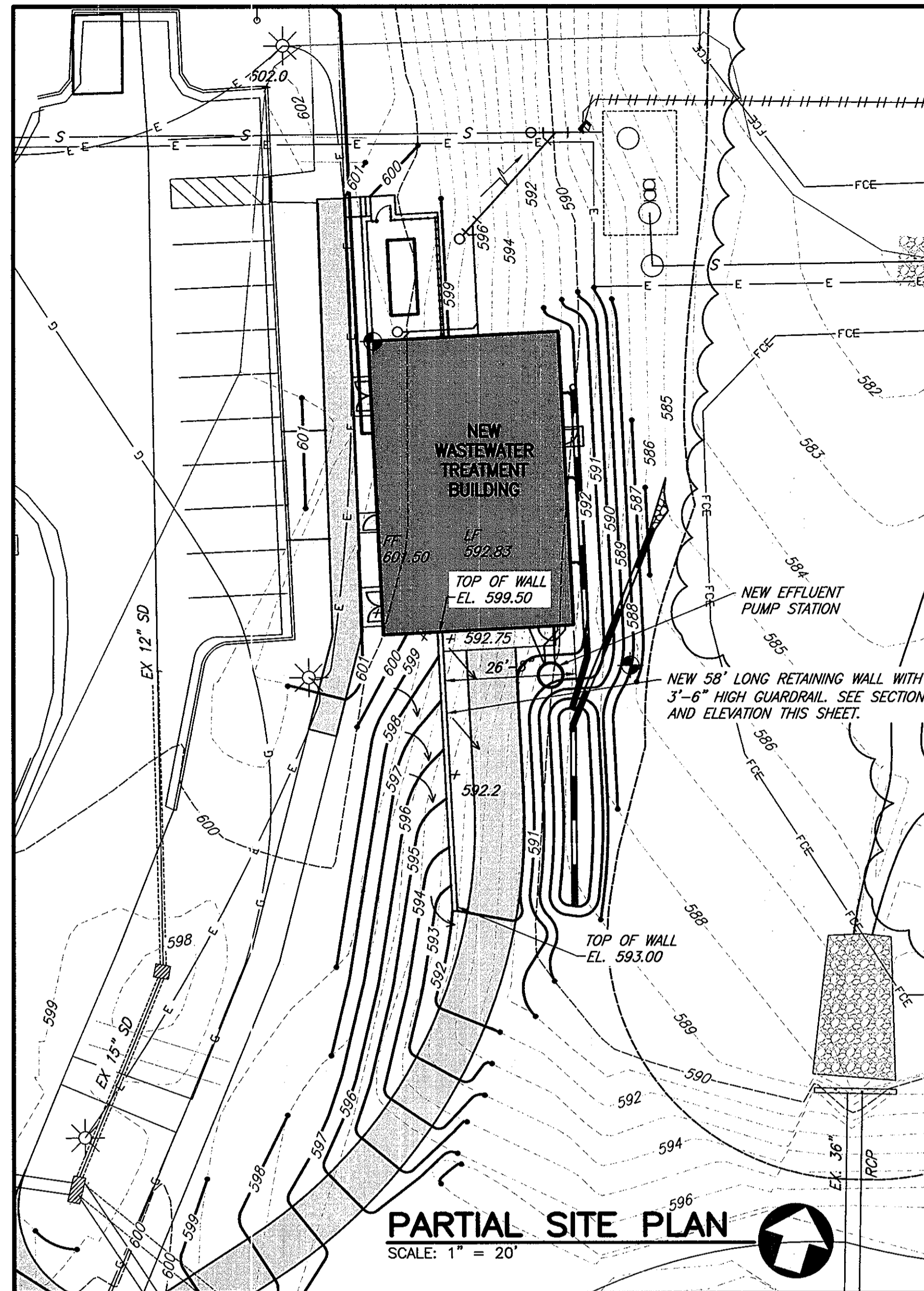
John E. Burnsworth AUGUST 10, 2011
 JOHN E. BURNSWORTH DATE



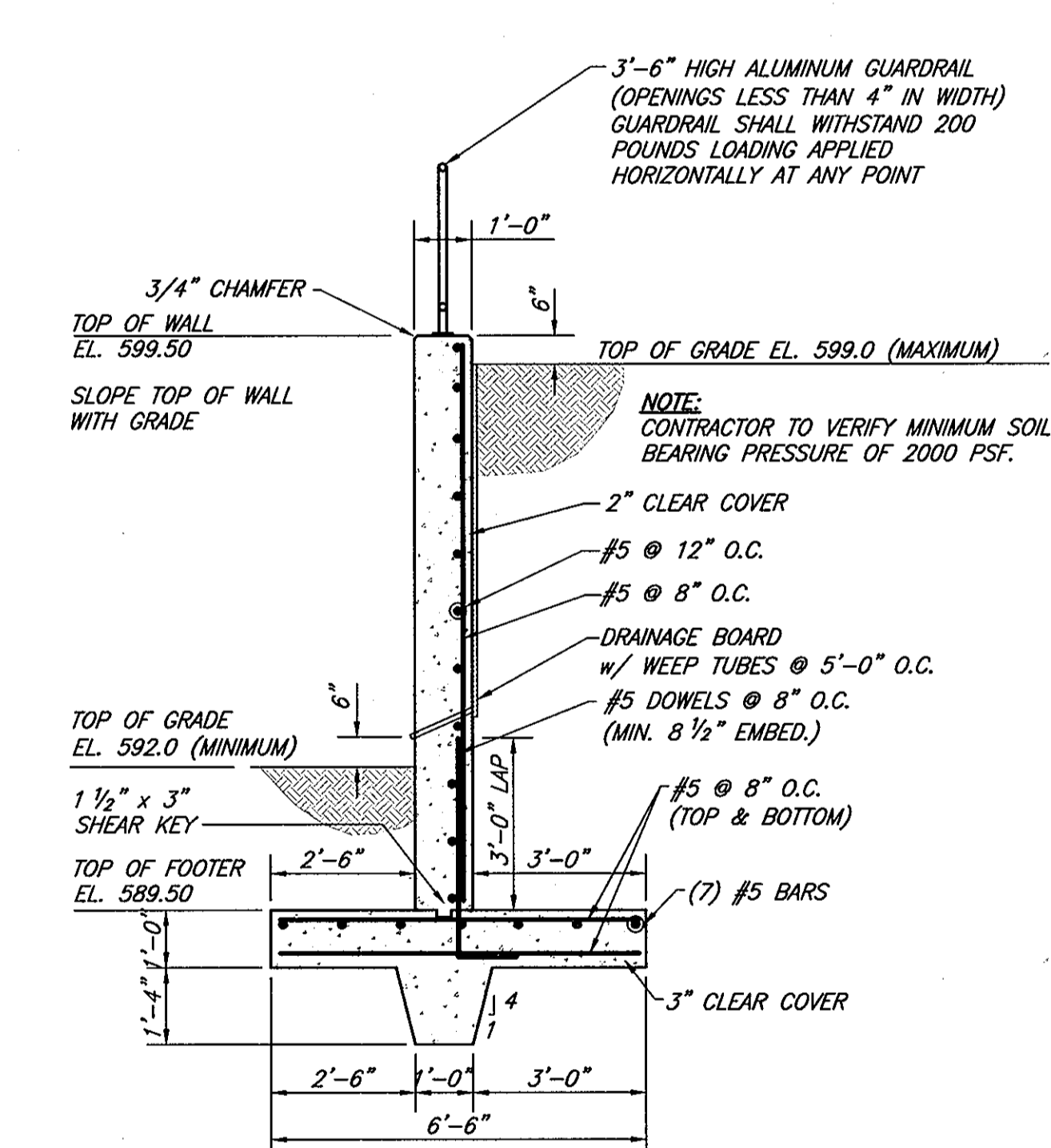
OWNER/DEVELOPER:
 HOWARD COUNTY PUBLIC
 SCHOOL SYSTEM
 11091 ROUTE 108
 ELLICOTT CITY, MARYLAND
 21043
 PH: 410-313-6600

ENLARGED SITE PLAN B

DESIGN	JEB	DRAWING NO.	
DRAWN	BNA	SDP-4	
CHECKED	JK	JOB	090254
DATE	AUGUST 10, 2011	SHEET	4 OF 16



RETAINING WALL ELEVATION
SCALE: 3/8" = 1'-0"



SECTION
SCALE: 3/8" = 1'-0"

- RETAINING WALL GENERAL NOTES**
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL OR EQUIVALENT) CERTIFIED SOILS TECHNICIAN.
 - THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
 - THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ONSITE SOILS TECHNICIAN. EACH EIGHT (8) INCH LIFT SHALL BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
 - FOR "CRITICAL" WALLS, ONE SOIL BORING SHALL BE REQUIRED EVERY 100' ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
 - IF NO SURCHARGE LOADS ARE CONSIDERED ADD A NOTE TO THE CROSS SECTION DETAILS STATING, "THIS WALL NOT DESIGNED FOR SURCHARGE LOADS."

CONCRETE (CAST-IN-PLACE)

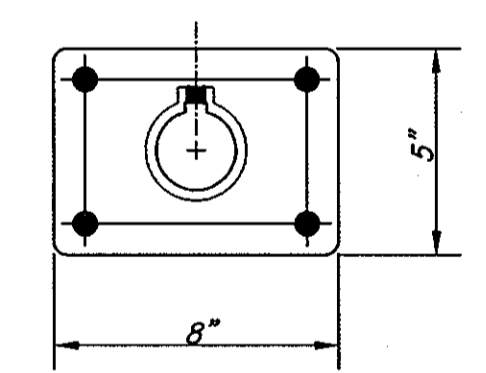
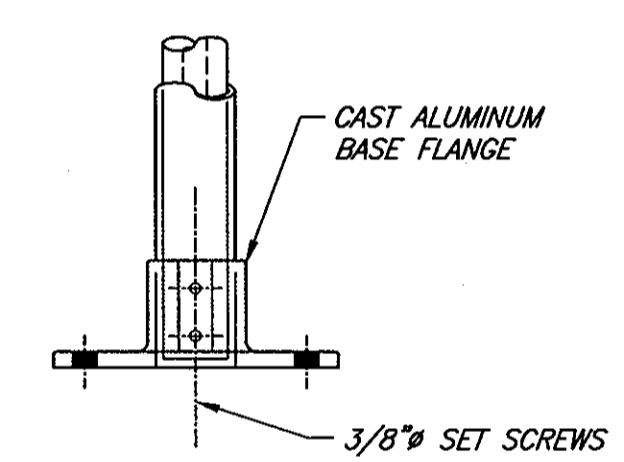
CONCRETE DESIGN & DETAILING SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-95. CONTRACTOR SHALL SUBMIT MIX DESIGNS ACCOMPANIED BY APPROPRIATE GRAPHS AND BACKGROUND DATA FOR APPROVAL. MIX DESIGN SHALL INDICATE 7 AND 28 DAY STRENGTHS, CEMENT CONTENT, AIR CONTENT, WATER-CEMENT RATIO, AMOUNT OF FINE AND COARSE AGGREGATES, AND ADMIXTURES.

MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE 4000 PSI.

ALL CONCRETE SHALL BE AIR-ENTRAINED (4% ± 1%). USE OF ADDITIVES SHALL NOT BE PERMITTED UNLESS SPECIFICALLY APPROVED BY THE STRUCTURAL ENGINEER. USE OF ADDITIVES CONTAINING CALCIUM CHLORIDE SHALL NOT BE PERMITTED.

REINFORCING STEEL

REINFORCING BARS SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, GRADE 60. BARS SHALL BE BRANDED BY THE MANUFACTURER WITH BAR SIZE AND GRADE OF STEEL AND CERTIFIED MILL REPORTS SHALL BE SUBMITTED FOR RECORD. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.



POST MOUNT
NOT TO SCALE

NOTE: USE ONLY S.S. EPOXY ANCHORS FOR MOUNTING NEW BRACKET AND BASE PLATES TO CONCRETE WALL.

G:\DRAWINGS\090254 HOWARD COUNTY SCHOOLS\CURRENT\SDP-5.dwg, 8/29/2011 9:31:27 AM, 17

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
Michael G. Davis 9/15/11
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
Victor J. Deane 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION

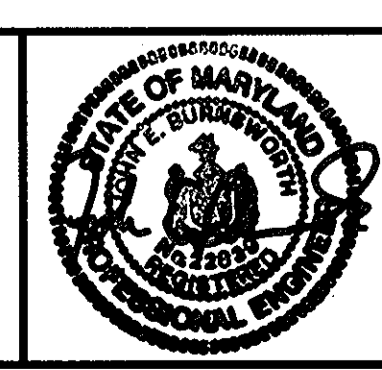
Norman J. Butcher 9/27/11
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

NO.	DATE	REVISIONS

ENGINEER: **GMB**
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY - BALTIMORE - SEAFORD
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.

John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSTWORTH DATE



OWNER/DEVELOPER:
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600

PROJECT:
**HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY**

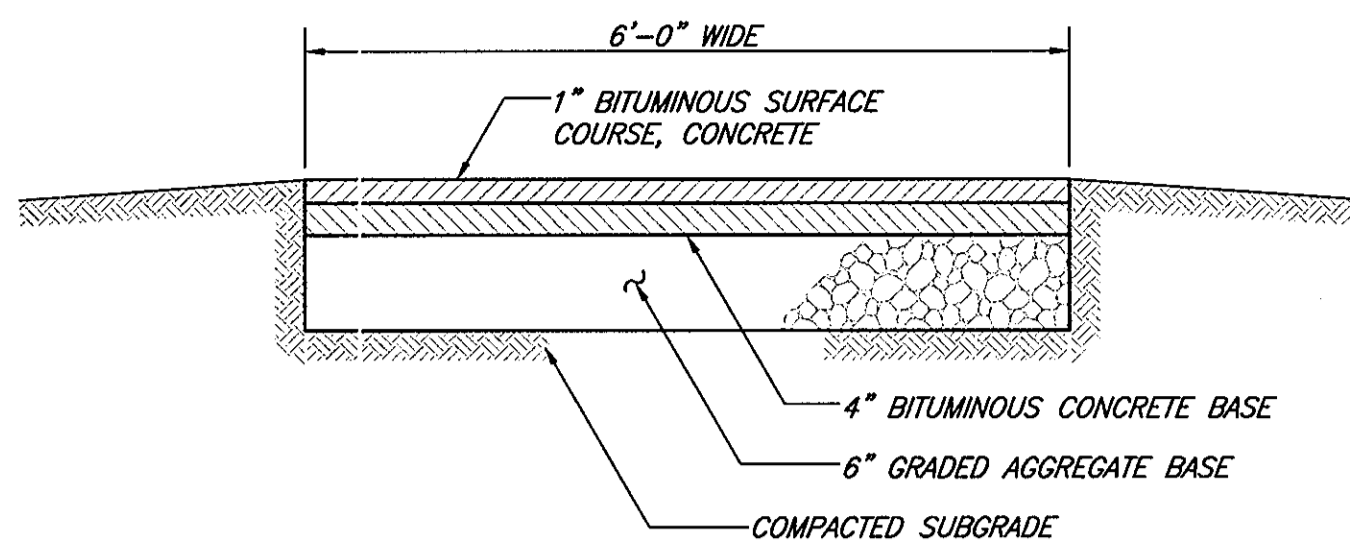
TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

RETAINING WALL SECTIONS AND ELEVATIONS

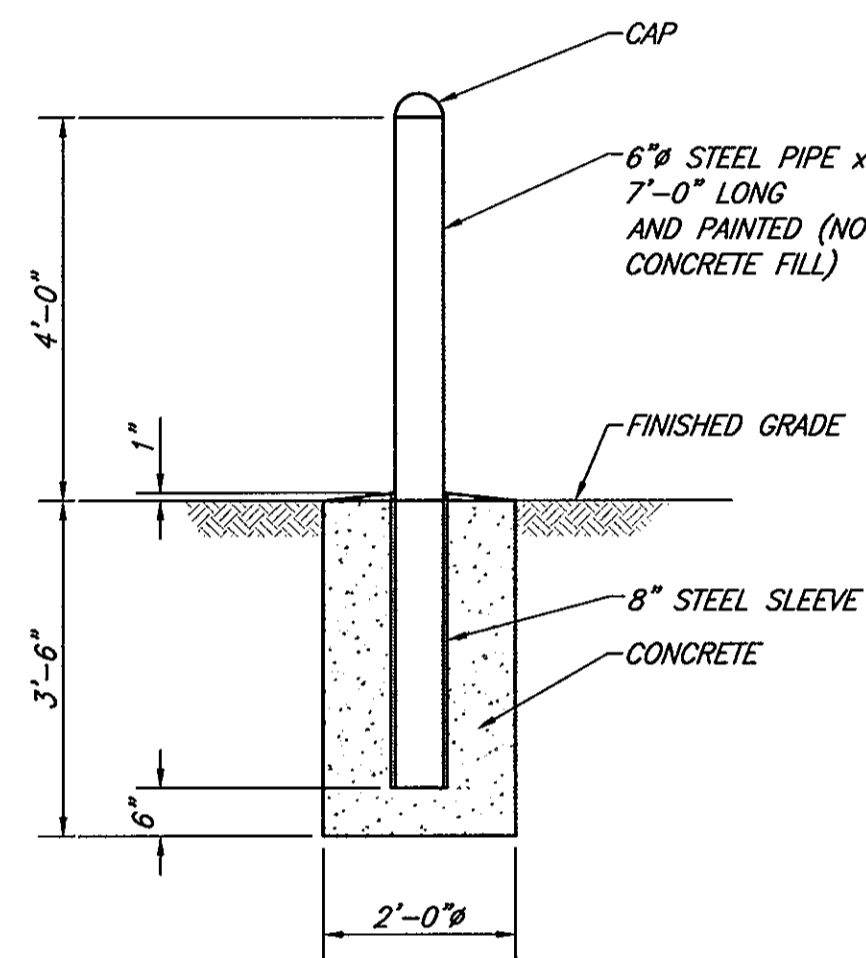
DESIGN	JIW	DRAWING NO.	SDP-5
DRAWN	BNA		
CHECKED	JK		
JOB	090254		
DATE	AUGUST 10, 2011	SHEET	5 OF 16

SDP-11-050

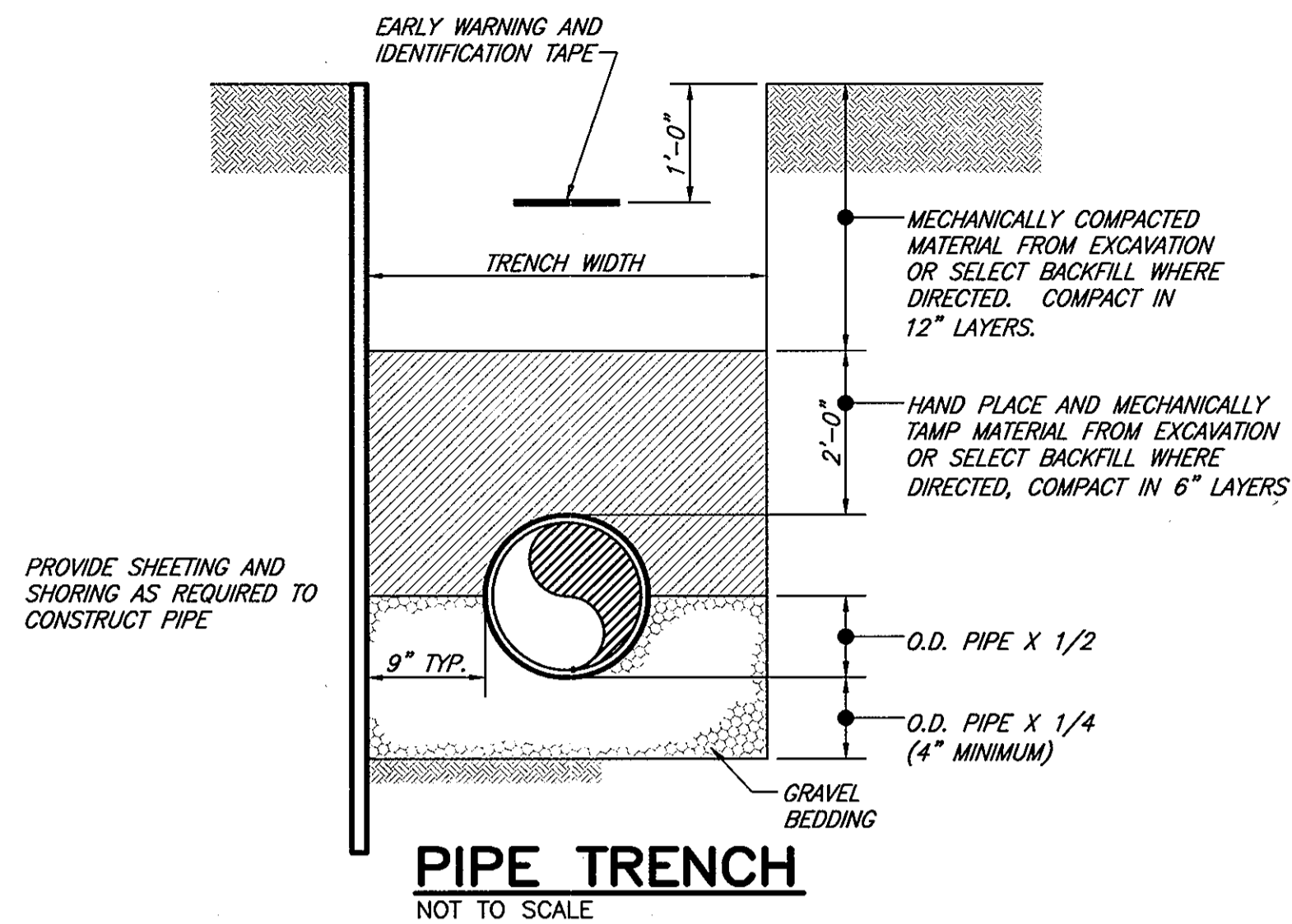
NOTE:
PAVING SECTION EXCEEDS REQUIREMENTS
OF HOWARD COUNTY STANDARD FOR (P-1) PAVING.



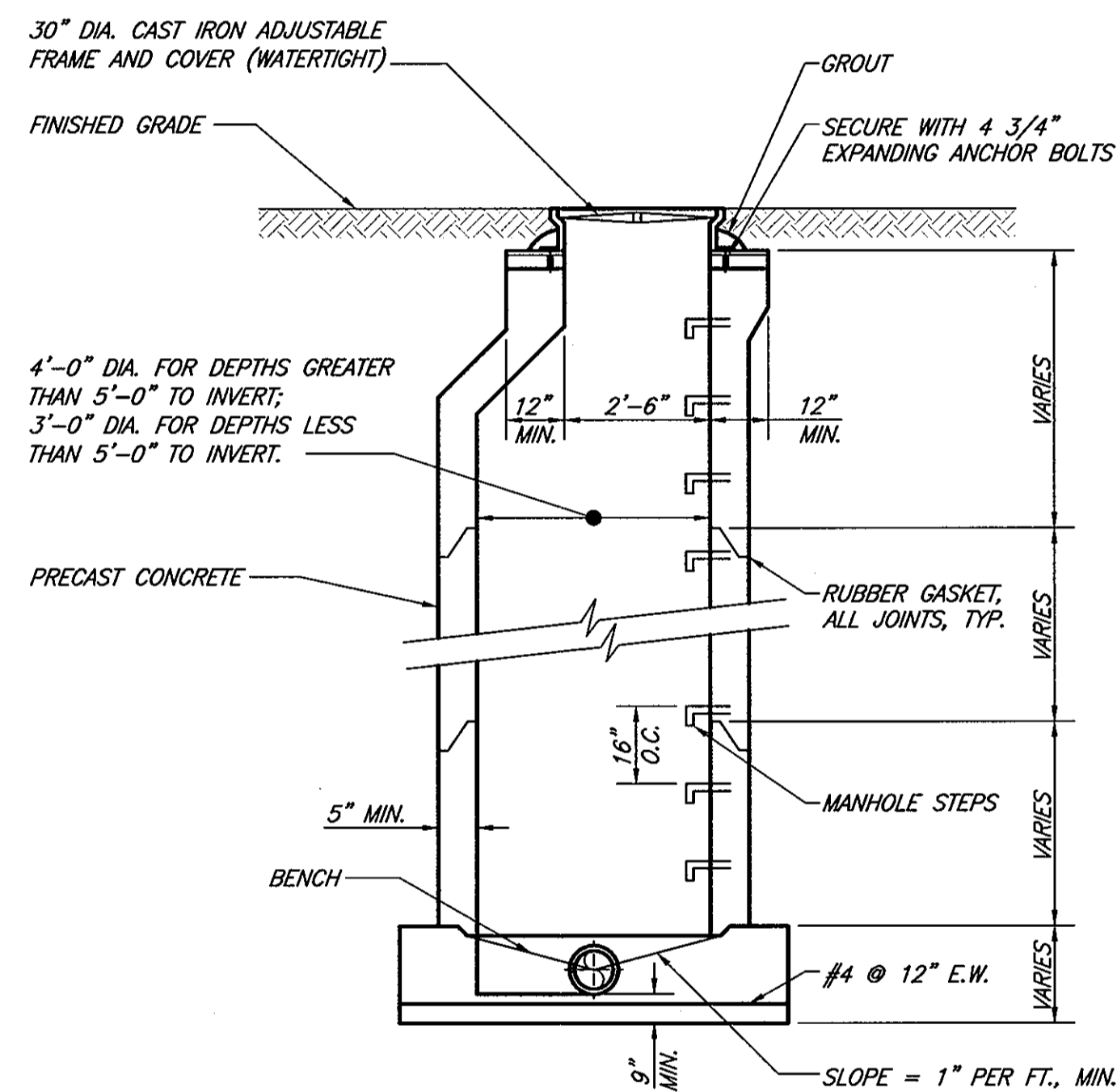
BITUMINOUS WALKING PATH
NOT TO SCALE



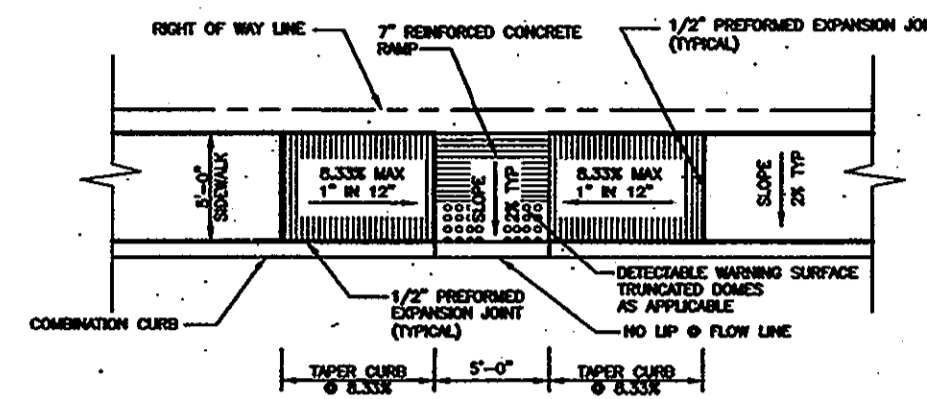
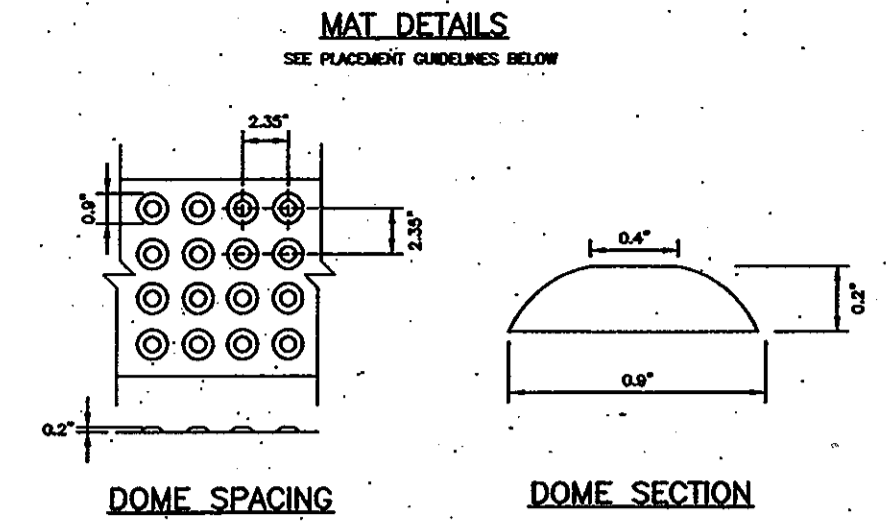
REMOVABLE BOLLARD DETAIL
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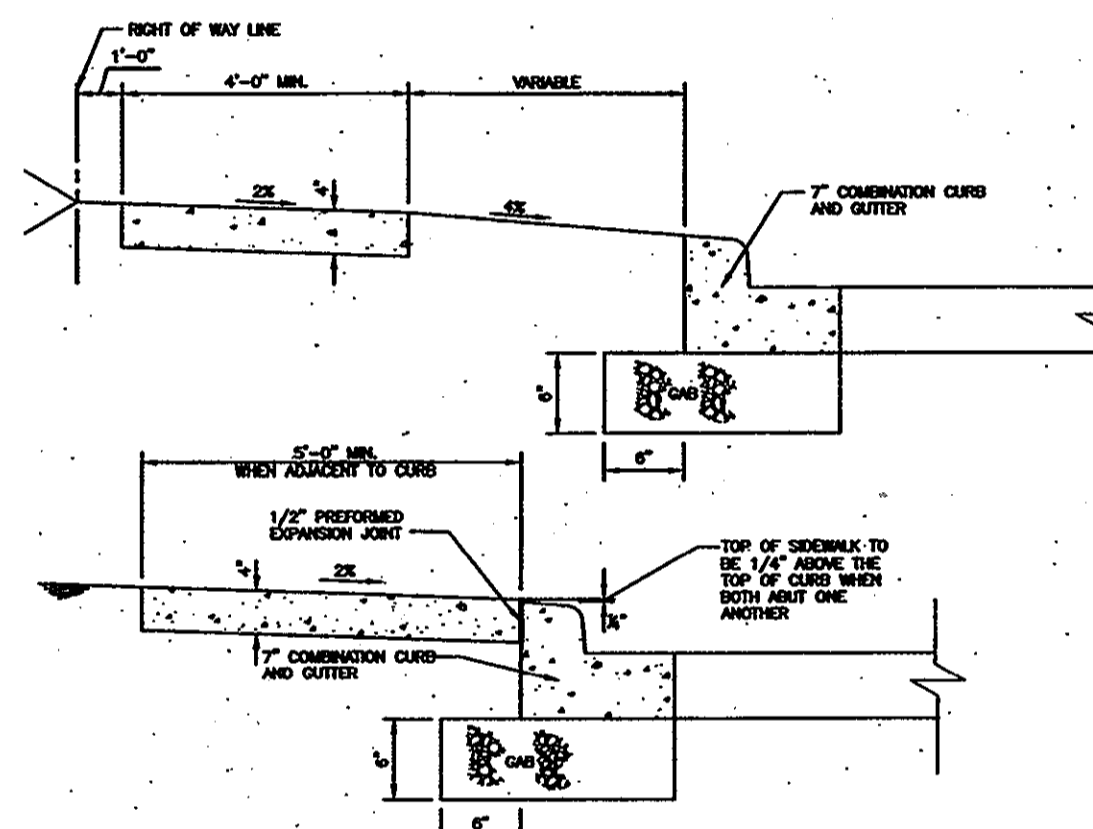
PIPE TRENCH
NOT TO SCALE



PRECAST CONCRETE MANHOLE (MH)
NOT TO SCALE



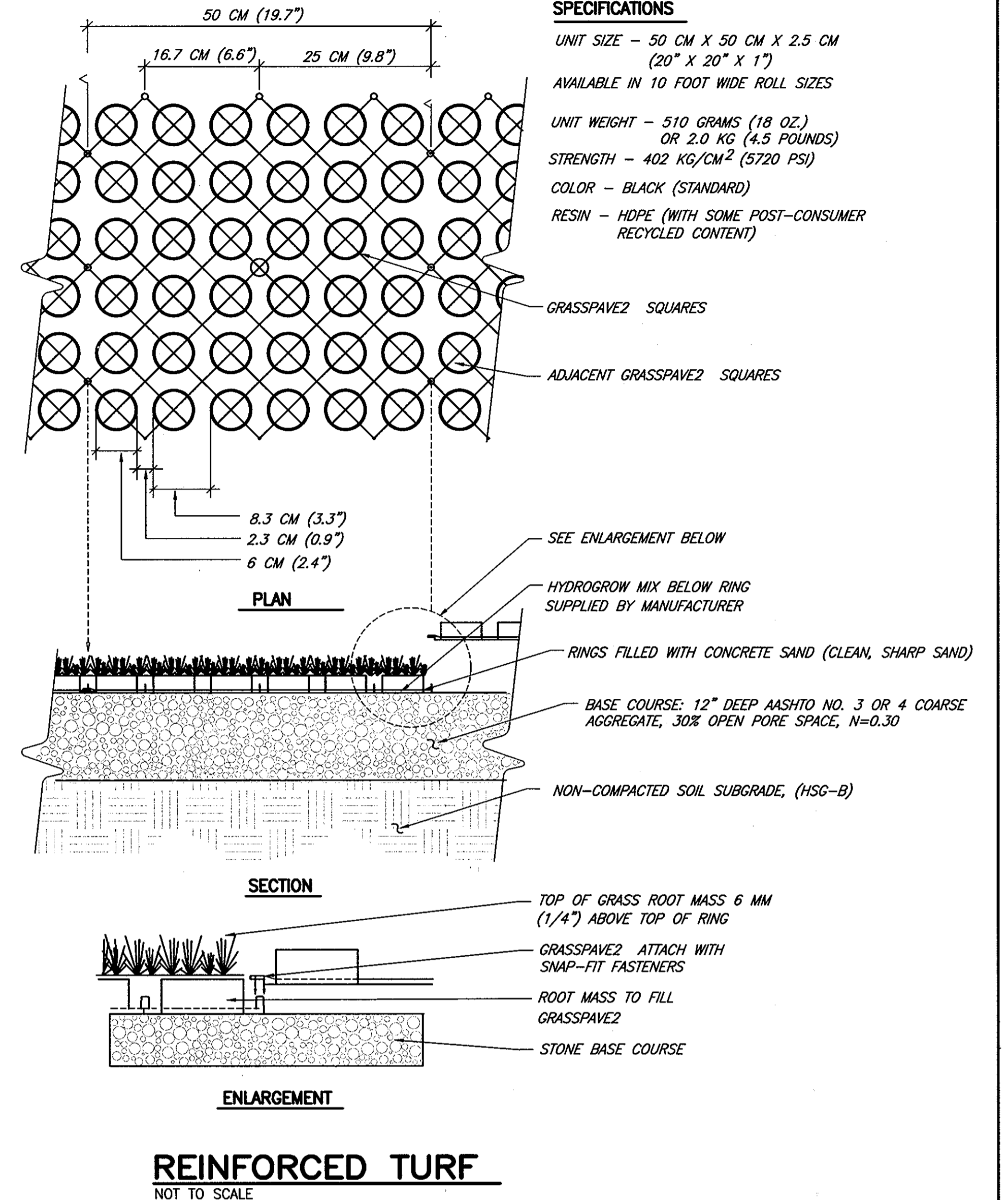
SIDEWALK RAMP
NOT TO SCALE



CONCRETE SIDEWALK
NOT TO SCALE

NOTES:

- SIDEWALK TO BE SCRIBED IN 5'-0" MAXIMUM SQUARES.
- EXPANSION JOINTS ACROSS THE SIDEWALK NOT TO BE MORE THAN 15' APART.
- 1/2" PREFORMED EXPANSION MATERIAL IN EXPANSION JOINTS TO BE KEPT 1/4" BELOW SURFACE OF SIDEWALK.
- CONCRETE TO BE MIX NO. 3
- WHEN SIDEWALK ABUTS CURB, SIDEWALK SHALL BE 1/4" ABOVE CURB WITH 1/2" PREFORMED EXPANSION JOINT BETWEEN SIDEWALK AND CURB.
- ON LONGITUDINAL SIDEWALK GRADES OF 5% OR GREATER, A CONCRETE HEADER, 6" THICK AND 6" DEEP BELOW THE NORMAL 4" SIDEWALK THICKNESS SHALL BE CONSTRUCTED FOR THE FULL WIDTH OF THE SIDEWALK AT INTERVALS OF 48 FEET. THE HEADERS SHALL BE PLACED AT THE EXPANSION JOINT LOCATIONS AND SHALL BE NONLITHIC WITH THE SIDEWALK.
- SIDEWALK WIDTH ADJACENT TO CURB SHALL BE 5'-0" MINIMUM EXCEPT SIDEWALK ADJACENT TO CURB IN CUL-DE-SAC BULBS MAY BE 4'-0" WIDE.
- SIDEWALK LOCATED 2' OR MORE FROM CURB MAY BE 4'-0" IN WIDTH WITH A 5' X 5' PAVED SECTION PLACED 200' APART.
- 4'-0" SIDEWALK REQUIRES A PASSING AREA (SEE DETAIL R-4.01).
- INSTALL 6 X 6 X 10 GAUGE WELDED WIRE FABRIC 2" CLEAR FROM TOP OF SIDEWALK.
- WHEN JOINING NEW SIDEWALK WITH EXISTING SIDEWALK:
-MATCH EXISTING SIDEWALK ELEVATION.
-SAWCUT EXISTING SIDEWALK AND PROVIDE EXPANSION JOINT BETWEEN NEW AND EXISTING SIDEWALK.
- PROVIDE 3/4" RADIUS ON ALL EDGES, BROOM FINISH SURFACE.



REINFORCED TURF
NOT TO SCALE

OPERATION AND MAINTENANCE SCHEDULE FOR REINFORCED TURF (A-3):

- The Owner shall regularly mow and vacuum grass clippings from reinforced turf to reduce debris and sediment accumulation and to ensure continued surface porosity.
- The Owner shall mow reinforced turf as needed and to the same extent as the adjacent lawn areas.
- The Owner shall inspect and remove unwanted weeds and other plant material on an annual basis. Chemical weed control and fertilizers may be applied to reinforced turf on an annual basis as needed to the same extent as adjacent lawn areas.
- The Owner shall replace failed plant material when the failed plant area exceeds five percent (5%) of the total reinforced turf area.
- The Owner shall irrigate newly installed turf during the first growing season. Saturate the turf at least once a week during the first growing season. After vegetation is established, irrigation may be required periodically during dry periods.
- The Owner shall use deicers only when necessary and only in moderation. Deicers should be non-toxic and be applied either as calcium magnesium acetate or as pretreated salt.
- The Owner shall ensure snow removal is performed carefully with plow blades or blower chutes set one inch above the surface. Snow piles and snowmelt drainage should not be directed to reinforced turf areas.

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
Michael O. Jansen 9/15/11
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
Keith Salvo 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Thomas & Brittle 9/27/11
CHIEF, DIVISION OF LAND DEVELOPMENT
DIRECTOR

NO.	DATE	REVISIONS	ENGINEER:

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.
John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY
TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

CIVIL DETAILS

DESIGN	JEB	DRAWING NO.	SDP-6
DRAWN	BNA		
CHECKED	JK		
JOB	090254		
DATE	AUGUST 10, 2011	SHEET	6 OF 16

SDP-11-050

REINFORCED TURF (A-3) - CONSTRUCTION SPECIFICATIONS

These specifications include information on acceptable materials for typical applications and are not exclusive or limiting. See drawings for project-specific specifications and conditions.

Materials: Reinforced turf consists of interlocking structural units with interstitial areas for placing gravel or growing grass. These units are suitable for light traffic loads and are commonly used for emergency vehicle access roads and overflow or occasionally used parking. Thickness shall be at least 1 1/2" thick with a load capacity capable of supporting the traffic and vehicle types that will be carried.

Soils: Reinforced turf shall not be placed on areas of compacted fill. Reinforced turf should be installed in HSG A, B, or C for maximum effectiveness.

Erosion and Sediment Control: Final grading for installation shall not take place until the surrounding site is stabilized. If this cannot be accomplished, runoff from disturbed areas shall be diverted around proposed locations.

Subbase Installation: The subbase shall be placed in lifts and lightly rolled. Subbase aggregate should be clean, washed, and free of fines.

Base Course: The base course shall be AASHTO No. 3 or 4 course aggregate with an assumed open pore space of 30% (n = 0.30). Depth as shown on the drawings.

Soil Compaction: Sub soils shall not be compacted. Construction should be performed with lightweight, wide tracked equipment to minimize compaction. It is very important to minimize compaction of the subbase soils. When possible, use excavation hoists to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure. Compaction can be alleviated at the subbase by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment. Excavated materials should be placed in a contained area.

Filter Cloth: Filter cloth shall not be used between the subbase and sub soils.

Inspection: Regular inspections shall be made during the following stages of construction:
 • During excavation to sub grade.
 • During placement of the subbase material.
 • During placement of the surface material.
 • Upon completion of final grading and establishment of permanent stabilization.

Landscaping: Reinforced turf shall be identified on landscaping plans. Trees and shrubs should not be located adjacent to reinforced turf where damage by root penetration is a concern.

MICRO-BIORETENTION FACILITY (M-6) - CONSTRUCTION SPECIFICATIONS

These specifications include information on acceptable materials for typical applications and are not exclusive or limiting. See drawings for project-specific specifications and conditions.

Materials: Specifications for allowable materials are detailed in Table B.4.1.

Filtering Media or Planting Soil: Soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the micro-bioretenion practice that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of Bermuda grass, Quackgrass, Johnson grass, or other noxious weeds as specified under COMAR 15.08.01.05.

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

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

Compaction: It is very important to minimize compaction of both the base of bio retention practices and the required backfill. When possible, use excavation hoists to remove original soil. If practices are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high-pressure tires will cause excessive compaction resulting in reduced infiltration rates and is not acceptable. Compaction will significantly contribute to design failure. Compaction can be alleviated at the base of the bio retention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to restructure the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment. Rototill 2 to 3 inches of sand into the base of the bio retention facility before backfilling the optional sand layer. Pump any ponded water before preparing (rototilling) base. When backfilling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill to a sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade. When backfilling the bio retention facility, place soil in lifts 2" to 18". Do not use heavy equipment within the bio retention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bio retention materials with light equipment such as a compact loader or a dozer/loader with marsh tracks.

Plant Materials: Per the landscaping plan.

Plant Installation: Compost is a better organic material source, is less likely to float, and should be placed in the invert and lower areas. Mulch should be placed in surrounding to a uniform thickness of 2" to 3". Shredded or chipped hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bio retention area during a storm event and are not acceptable. Shredded mulch must be well aged (15 to 12 months) for acceptance. Rootstock of the plant material shall be least moist during transport and on-site storage. The plant root ball shall be planted so 1/8th of the ball is above final grade surface. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

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

Grasses and legume seed should be drilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications. The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bio retention structure is to improve water quality. Adding fertilizers, detritus, or at a minimum, impedes this goal. On y add fertilizer if wood chips or mulch are used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

Underdrains: Underdrains should meet the following criteria:
 • Pipe - Diameter as shown on the drawing, slotted or perforated rigid plastic pipe (ASTM F 758, Type PS 28, or AASHTO-M-278) in a gravel layer.
 • Perforations - If perforated pipe is used, perforations should be 1/2" diameter located 6" on center with a minimum of four holes per row. Pipe shall be wrapped with 1/2" (No. 4 or 4x4) galvanized hardware cloth.
 • Gravel - The gravel layer (No. 57 stone, referred) shall be at least 3" thick above and below the underdrain.
 • The main collector pipe shall be at a minimum 0.5% slope.
 • A rigid, non-perforated observation well must be provided (one per every 1,000 square feet) to provide a clean-out port and monitor performance of the filter.
 • A 4" layer of pea gravel (1/2" to 3/4" stone) shall be located between the filter media and underdrain to prevent migration of fine into the underdrain. This layer may be considered part of the filter bed when bed thickness exceeds 24".

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

Approved: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

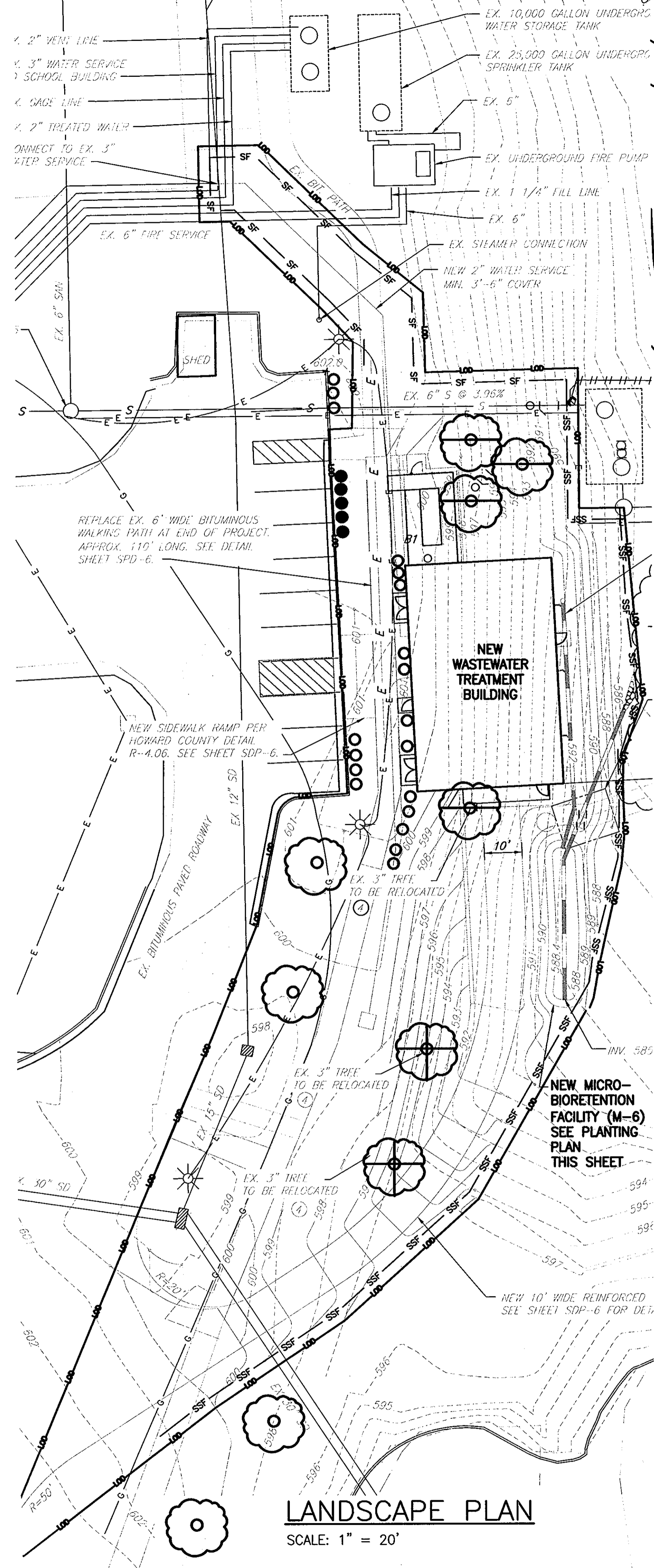
Richard J. Davis 9/15/11
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

Approved: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Christina... 9/22/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Neil... 9/26/11
 CHIEF, DIVISION OF LAND DEVELOPMENT

Thomas & Beidler 9/27/11
 DIRECTOR



LANDSCAPE PLAN

SCALE: 1" = 20'

NO.	DATE	REVISIONS

ENGINEER: **GMB**
 GEORGE MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
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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. 22839, EXPIRATION DATE 9-19-2012.

John E. Burnsworth AUGUST 10, 2011
 JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM
 10910 ROUTE 108
 ELLICOTT CITY, MARYLAND 21043
 PH: 410-313-6600

PLANTING PLAN - MICRO - BIORETENTION FACILITY

SCALE: 1" = 4'



KEY	SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE & CONDITION	REMARKS	QUANTITY
PLANT LIST						
SHADE TREES						
QP	⊙	QUERCUS PALUSTRIS	PIN OAK	2-1/2" - 3" CAL	EXISTING TO REMAIN	-
QP	⊕	QUERCUS PALUSTRIS	PIN OAK	2-1/2" - 3" CAL	EXISTING TO BE RELOCATED	2
ORNAMENTAL TREES						
PC	⊕	PRUNUS CERASIFERA "THUNDER CLOUD"	PURPLE LEAF FLOWERING PLUM	2" - 2-1/2" CAL	EX. TO BE RELOCATED	4
SHRUBS						
PF	●	PHOTINA FRASER	FRASER'S PHOTINA	36" - 42" CONT. AT 5'-0" O.C.	SPREAD AS SHOWN	5
IH	○	ILEX CRENATA HETZLI	HETZJ JAPANESE HOLLY	30" CONT. AT 3'-0" O.C.	SPREAD AS SHOWN	20
OTHER PLANTINGS						
EP	⊕	EUPATORIUM PURPUREA	JOE PYE WEED	2 GAL. AT 30" O.C.	MATCHED IN GROUPS	8
LC	⊕	LOBELIA CARDINALIS	CARDINAL FLOWER	2 GAL. AT 30" O.C.	MATCHED IN GROUPS	6
PV	⊕	PANICUM VIRGATUM	SWITCHGRASS	1 GAL. AT 24" O.C.	MATCHED IN GROUPS	10
RL	⊕	RUDEBECKIA LACINIATA	TALL CONEFLOWER	2 GAL. AT 30" O.C.	MATCHED IN GROUPS	12

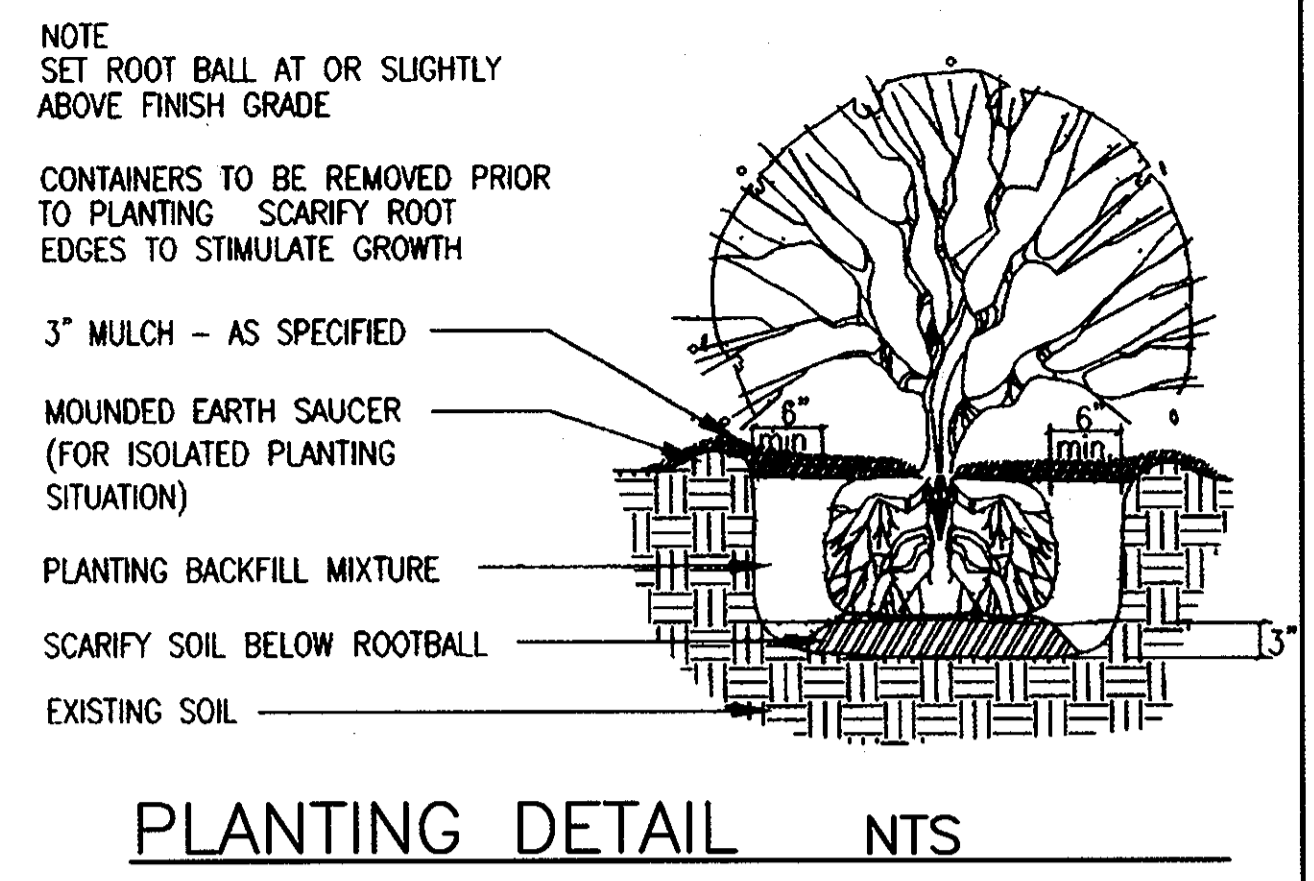
EXISTING TREES TO BE RELOCATED SHALL BE CAREFULLY EXCAVATED, BALLED FOR PROPER STORAGE, AND MAINTAINED BY THE CONTRACTOR UNTIL REPLANTED. REPLANT EXISTING TREES IN APPROXIMATELY ORIGINAL LOCATIONS OR AS DIRECTED BY THE ENGINEER IN THE FIELD. ALTERNATIVELY, THE CONTRACTOR MAY PURCHASE NEW TREES TO REPLACE EXISTING TREES IN KIND AT NO ADDITIONAL COST TO THE OWNER.

Table B.4.1 Materials Specifications for Micro-Bioretenion, Rain Gardens & Landscape Infiltration-

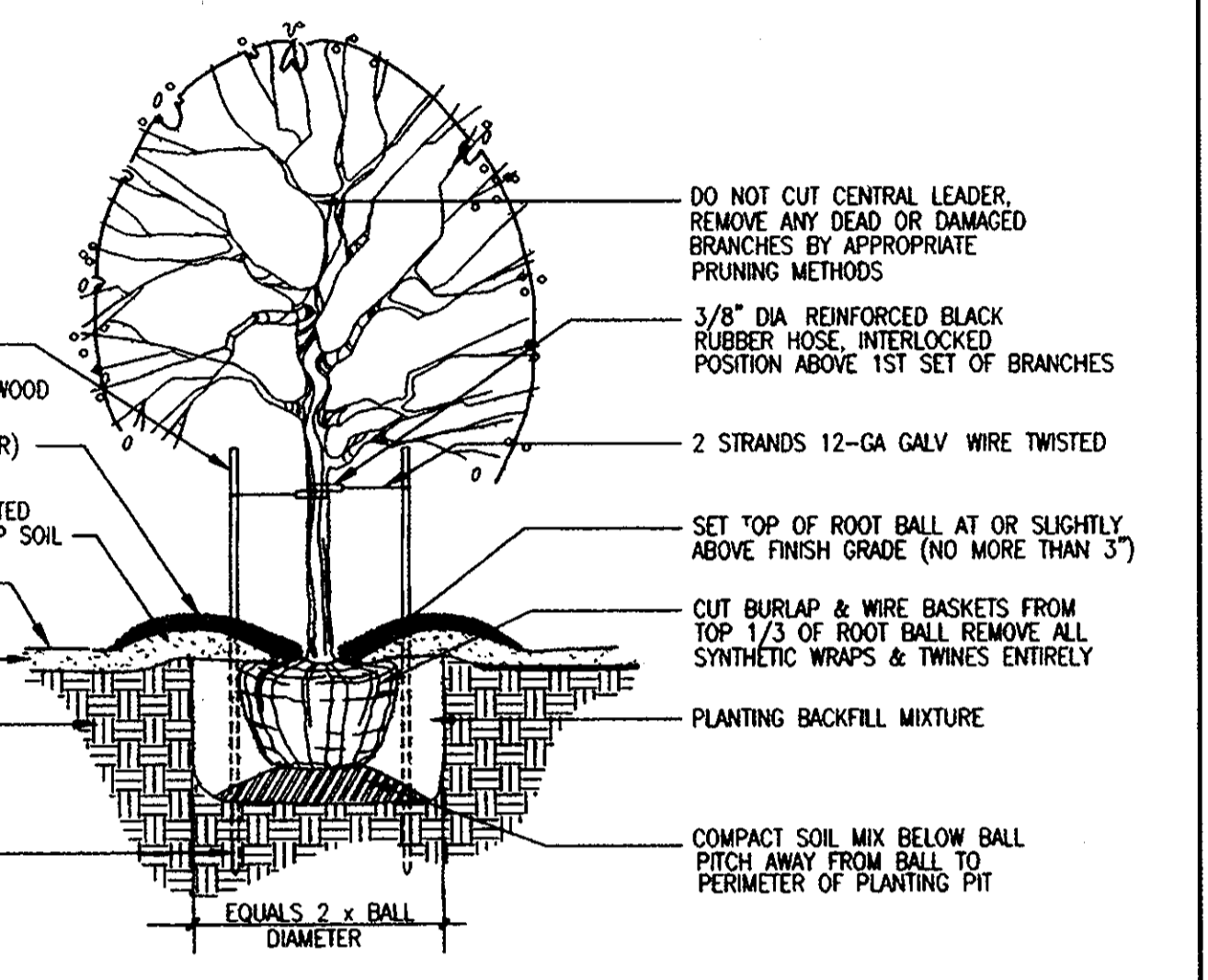
Material	Specification	Size	Notes
Plantings	See plant list	n/a	plantings are site-specific
Planting soil (2" to 4" deep)	loamy sand (60 - 65%) & compost (35 - 40%) or sandy loam (30%), coarse sand (30%) & compost (40%)	n/a	USDA soil types loamy sand or sandy loam; clay content < 5%
Organic content	Min. 10% by dry weight (ASTM D 2974)		
Mulch	shredded hardwood		aged 6 months, minimum; no pine or wood chips
Pea gravel diaphragm	pea gravel: ASTM-D-448	NO. 8 OR NO. 9 (1/8" TO 3/8")	
Curtain drain	ornamental stone: washed cobbles	stone: 2" to 5"	
Geotextile		n/a	PE Type I nonwoven
Gravel (underdrains and infiltration berms)	AASHTO M-43	NO. 57 OR NO. 6 AGGREGATE (3/8" TO 3/4")	
Underdrain piping	F 758, Type PS 28 or AASHTO M-278	4" to 6" rigid schedule 40 PVC or SDR35	Slotted or perforated pipe; 3/8" perf. @ 6" on center, 4 holes per underdrain pipe. Perforated pipe shall be wrapped with 1/2-inch galvanized hardware cloth
Poured in place concrete (if required)	MSHA Mix No. 3; f'c = 3500 psi @ 28 days, normal weight, air-entrained; reinforcing to meet ASTM-615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) not using previously approved State or local standards requires design drawings sealed and approved by a professional structural engineer licensed in the State of Maryland - design to include meeting ACI Code 350.R/89; vertical loading (H-10 or H-20); allowable horizontal loading (based on soil pressures); and analysis of potential cracking
Sand	AASHTO-M-6 or ASTM-C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone (AASHTO) #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

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

Approved *John E. Burnsworth* 9/18/11
 HOWARD S.C.D. DATE



PLANTING DETAIL NTS



NOTE: ALL SUPPORTING DEVICES (STAKES, WIRES, ETC) SHALL BE REMOVED AFTER 2 GROWING SEASONS

DECIDUOUS TREE PLANTING DETAIL NTS FOR PLANTING MATERIAL UP TO 3 1/2" CALIPER

LANDSCAPING NOTES:

- LANDSCAPING PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND CHAPTER IV OF THE HOWARD COUNTY LANDSCAPE MANUAL.
- PLANT QUANTITIES SHOWN IN THE PLANT LIST ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR. IN THE EVENT OF DISCREPANCIES BETWEEN THE PLANT LIST AND THE PLAN, THE QUANTITIES SHOWN ON THE PLAN SHALL TAKE PRECEDENCE.
- ALL PLANT MATERIAL SHALL BE FULL, HEAVY, WELL FORMED, AND SYMMETRICAL AND SHALL CONFORM TO A.A.N. SPECIFICATIONS AND BE INSTALLED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN CONSENT OF THE OWNER OR HIS REPRESENTATIVE.
- SEE SHEET P-5 FOR CONSTRUCTION DETAILS FOR THE MICRO-BIORETENTION FACILITY.
- SEE SHEET SDP-6 FOR CONSTRUCTION DETAILS FOR THE REINFORCED TURF DRIVEWAY.
- ALL EXPOSED AREAS WITHIN THE PLANTING LIMITS SHALL BE MULCHED WITH SHREDDED HARDWOOD MULCH, MINIMUM TWO INCHES THICK, UNLESS NOTED OTHERWISE.
- CONTRACTOR SHALL BE RESPONSIBLE TO WATER AND MAINTAIN ALL PLANTINGS THROUGHOUT THE CONSTRUCTION PERIOD AND FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE BY THE OWNER. FAILED PLANTINGS SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
- SEE TABLE B.4.1 FOR ADDITIONAL MATERIALS SPECIFICATIONS.
- REFER TO PLANTING DETAILS ON THIS SHEET.

PROJECT:
 HOWARD COUNTY BOARD OF EDUCATION
 FOLLY QUARTER MIDDLE &
 TRIADAPHA RIDGE ELEMENTARY SCHOOLS
 WASTEWATER TREATMENT FACILITY

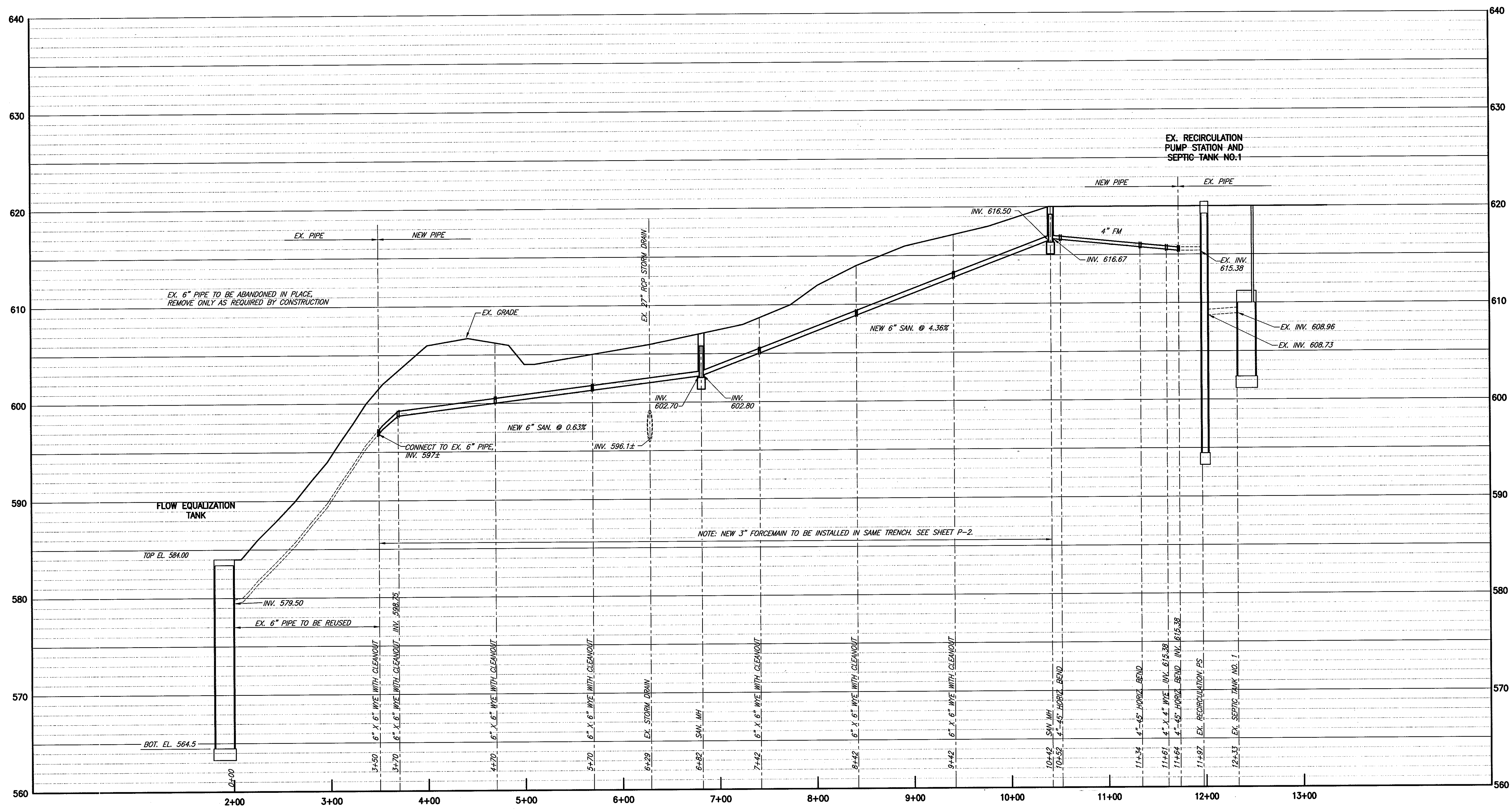
TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

LANDSCAPE PLAN

DESIGN	JEB	DRAWING NO.	
DRAWN	BNA		SDP-7
CHECKED	JK		
JOB	090254		
DATE	AUGUST 10, 2011	SHEET	7 OF 16

SDP-11-050

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PROFILE A - 6" EFFLUENT FROM EX. SEPTIC TANK NO. 1 TO FLOW EQUALIZATION TANK

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY
TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

PROFILE A

DESIGN	JEB	DRAWING NO.	P-1
DRAWN	BNA		
CHECKED	JK		
JOB	090254		
DATE	AUGUST 10, 2011	SHEET	8 OF 16

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
Richard J. Davis 9/15/11
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
Michael J. ... 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION

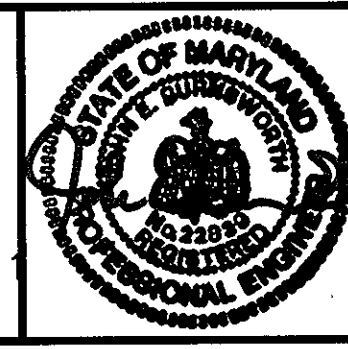
Neil ... 9/22/11
CHIEF, DIVISION OF LAND DEVELOPMENT

Thomas ... 9/22/11
DIRECTOR

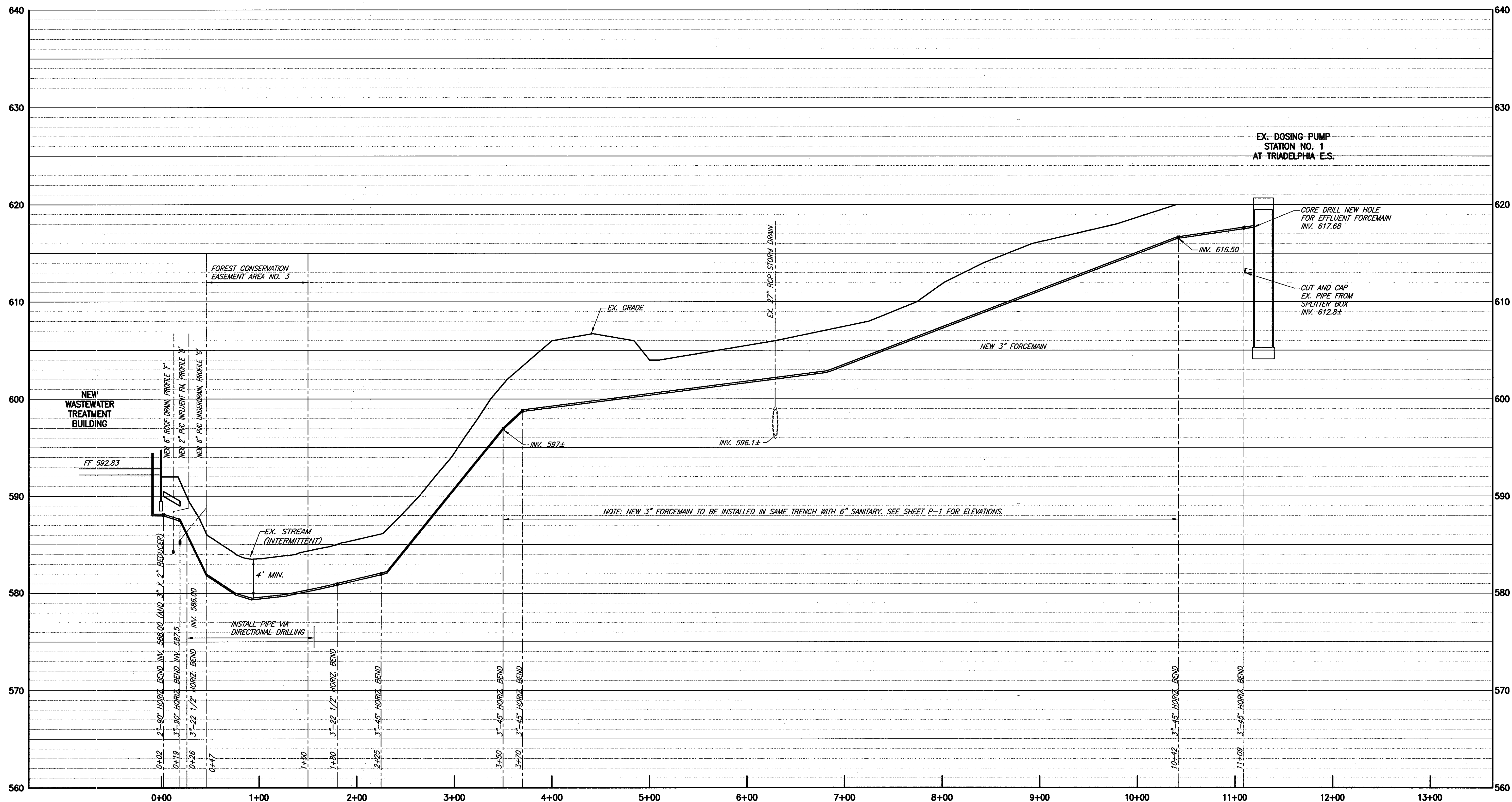
NO.	DATE	REVISIONS

ENGINEER:
GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SABRY BUILDING GROUP
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.
John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600



PROFILE B - 3" FORCEMAIN FROM EFFLUENT PUMP STATION TO DOSING PUMP STATION NO. 1

SCALE: HORIZ. 1" = 50'
VERT. 1" = 5'

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

Richard J. Davis 9/15/11
COUNTY HEALTH OFFICER /DATE
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

Thomas J. ... 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION /DATE

... .. 9/22/11
CHIEF, DIVISION OF LAND DEVELOPMENT /DATE

Thomas J. ... 9/27/11
DIRECTOR /DATE

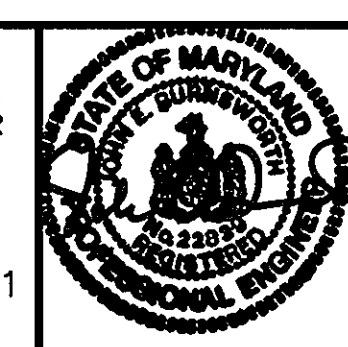
NO.	DATE	REVISIONS

ENGINEER:

GMB
GEORGE MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALESBURY - BALTIMORE - SEAFORD
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSWORTH /DATE



OWNER/DEVELOPER:

HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLICOTT CITY, MARYLAND 21043
PH: 410-313-6600

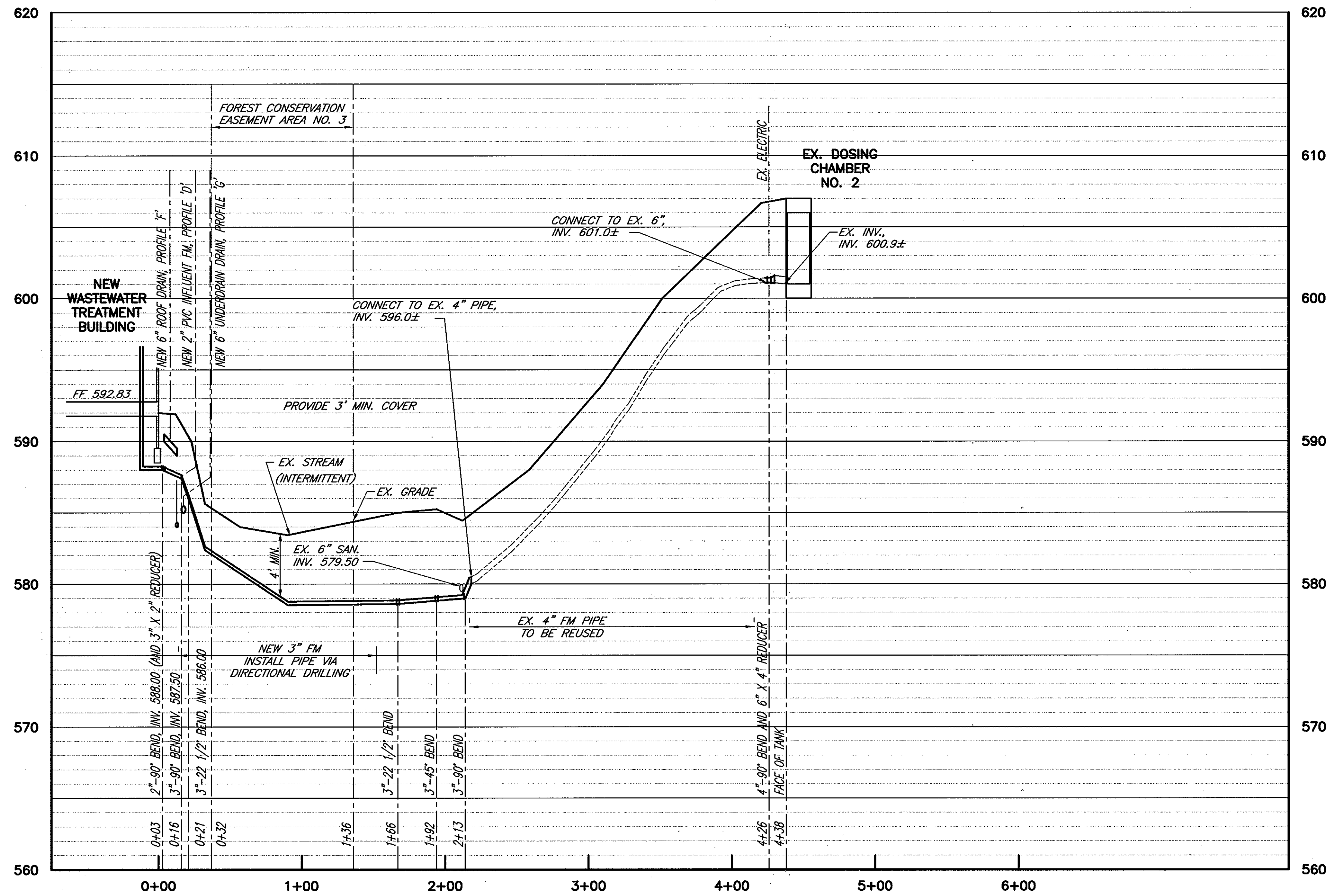
PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

PROFILE B

DESIGN	JEB	DRAWING NO.
DRAWN	BNA	P-2
CHECKED	JK	
JOB	090254	
DATE	AUGUST 10, 2011	SHEET 9 OF 16

SDP-11-050



PROFILE C
3" FORCE MAIN FROM EFFLUENT PUMP STATION TO DOSING CHAMBER NO. 2
 SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

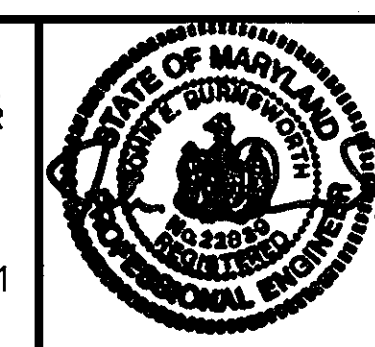
APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
Michael J. Davis 9/15/11
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
West Bealman 9/26/11
 CHIEF, DIVISION OF LAND DEVELOPMENT
Thomas E. Bantle 9/27/11
 DIRECTOR

NO.	DATE	REVISIONS

ENGINEER:
GMB
 GEORGE, MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 SALESBURY - BALTIMORE - SEAFORD
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
 FAX: 410-329-5881

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John E. Burnsworth AUGUST 10, 2011
 JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM
 10910 ROUTE 108
 ELLICOTT CITY, MARYLAND 21043
 PH: 410-313-6600

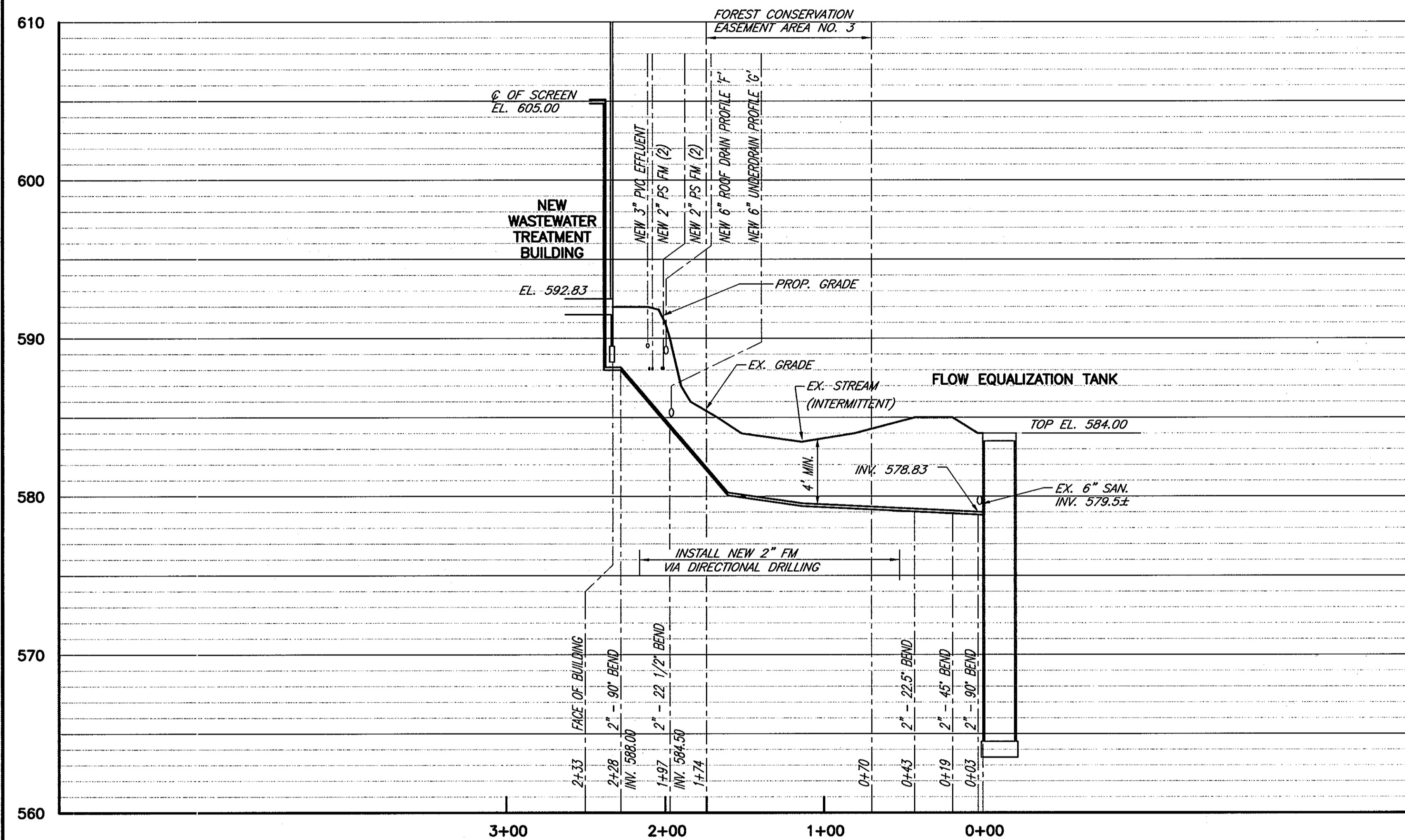
PROJECT:
 HOWARD COUNTY BOARD OF EDUCATION
 FOLLY QUARTER MIDDLE &
 TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
 WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

PROFILE C

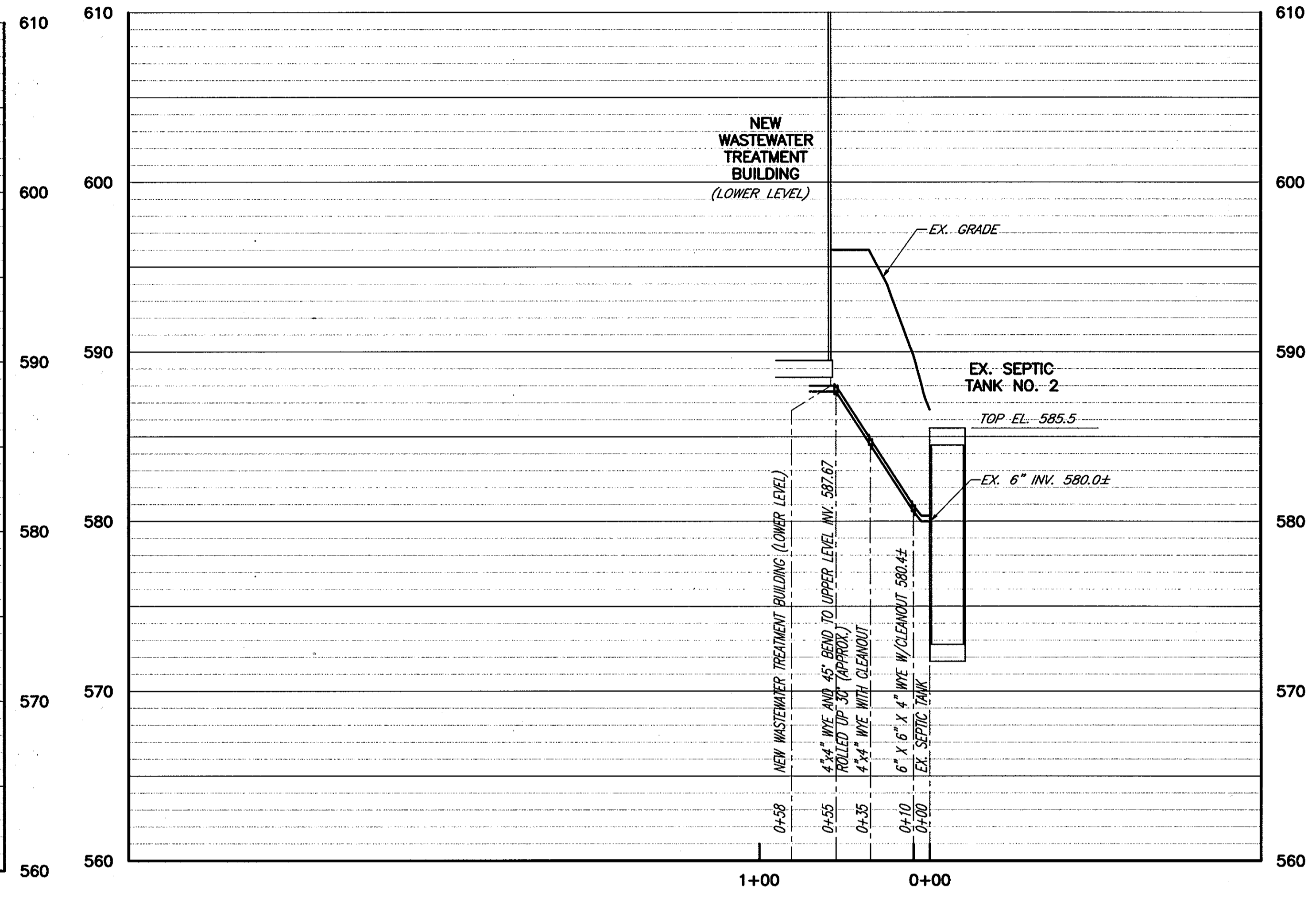
DESIGN	JEB	DRAWING NO.
DRAWN	BNA	P-3
CHECKED	JK	
JOB	090254	SHEET 10 OF 16
DATE	AUGUST 10, 2011	

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PROFILE D
2" INFLUENT TO NEW WASTEWATER TREATMENT BUILDING

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'



PROFILE E - 4" PVC SANITARY

SCALE: HORIZ. 1" = 50'
 VERT. 1" = 5'

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
[Signature] 9/15/11
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
[Signature] 9/22/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

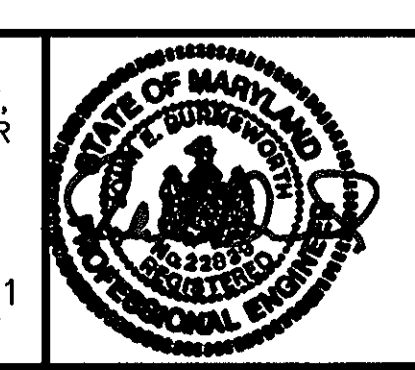
[Signature] 9/22/11
 CHIEF, DIVISION OF LAND DEVELOPMENT

[Signature] 9/23/11
 DIRECTOR

NO.	DATE	REVISIONS

ENGINEER:
GMB
 GEORGE, MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 SALESBURY - BALTIMORE - SEAFORD
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
 FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.
[Signature] AUGUST 10, 2011
 JOHN E. BURNSWORTH DATE



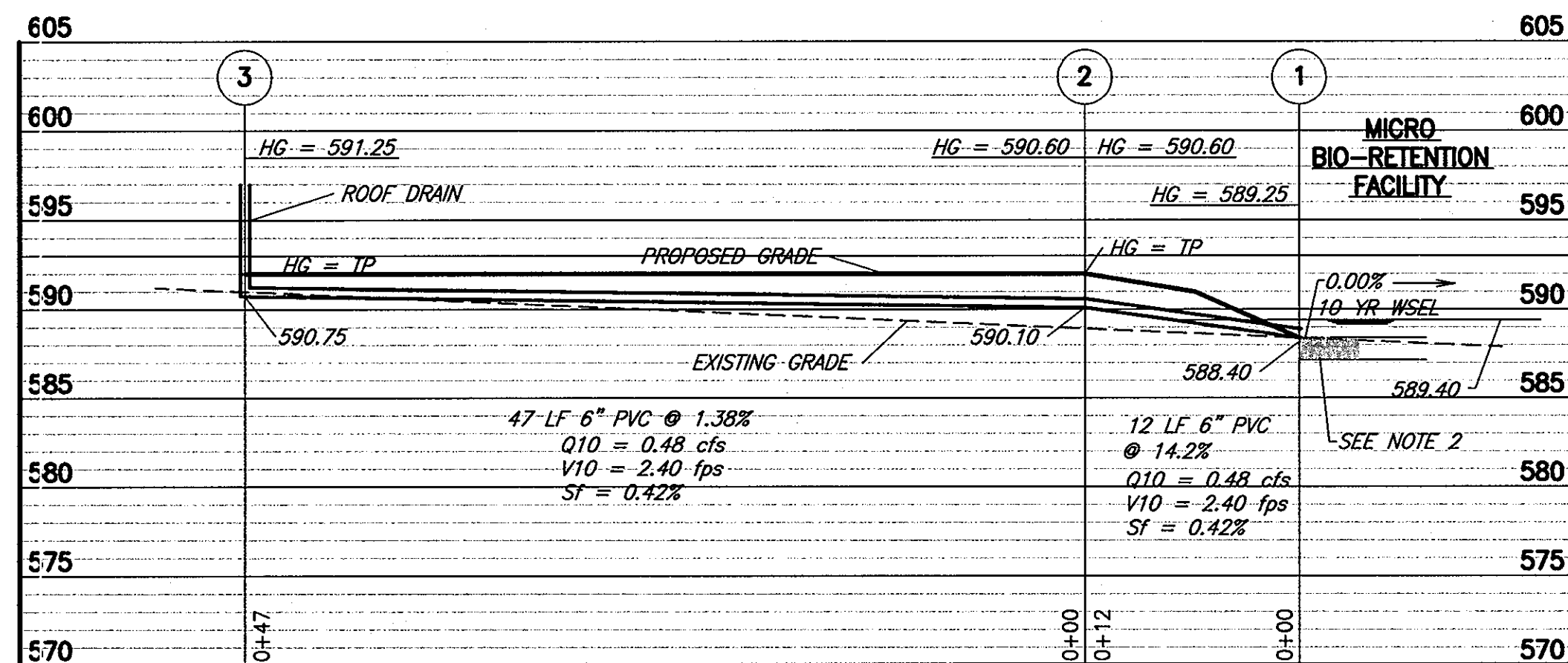
OWNER/DEVELOPER:
 HOWARD COUNTY PUBLIC SCHOOL SYSTEM
 10910 ROUTE 108
 ELLICOTT CITY, MARYLAND 21043
 PH: 410-313-6600

PROJECT:
 HOWARD COUNTY BOARD OF EDUCATION
 FOLLY QUARTER MIDDLE &
 TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
 WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

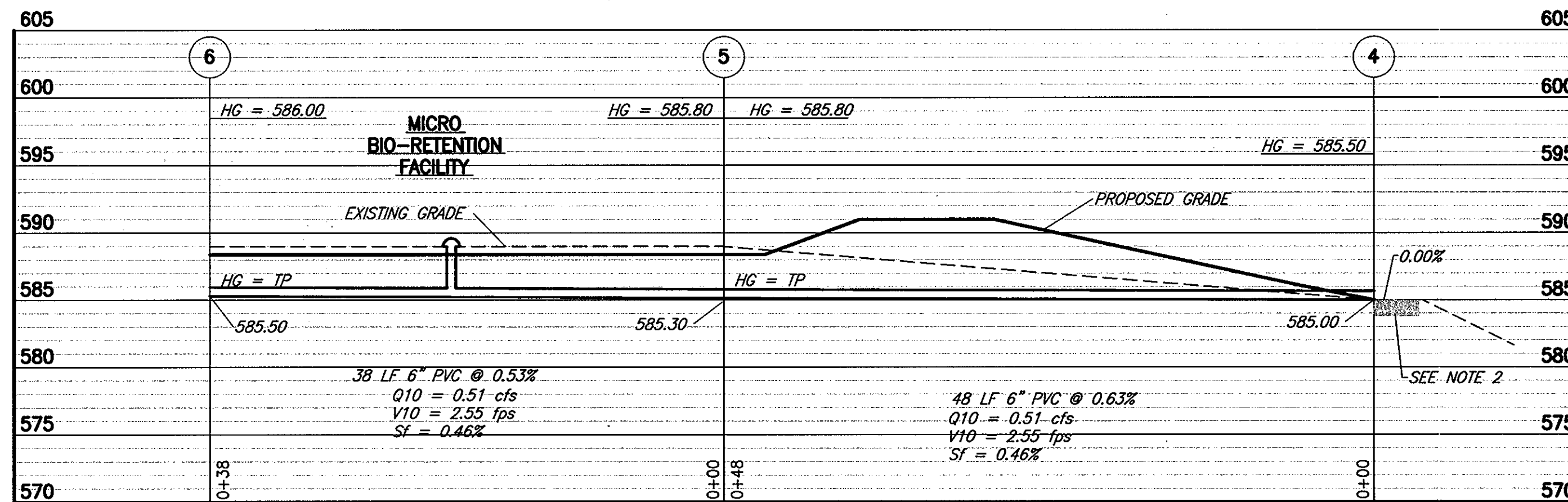
PROFILES D AND E

DESIGN	JEB	DRAWING NO.	P-4	
DRAWN	BNA	SHEET		11 OF 16
CHECKED	JK			
JOB	090254			
DATE	AUGUST 10, 2011			



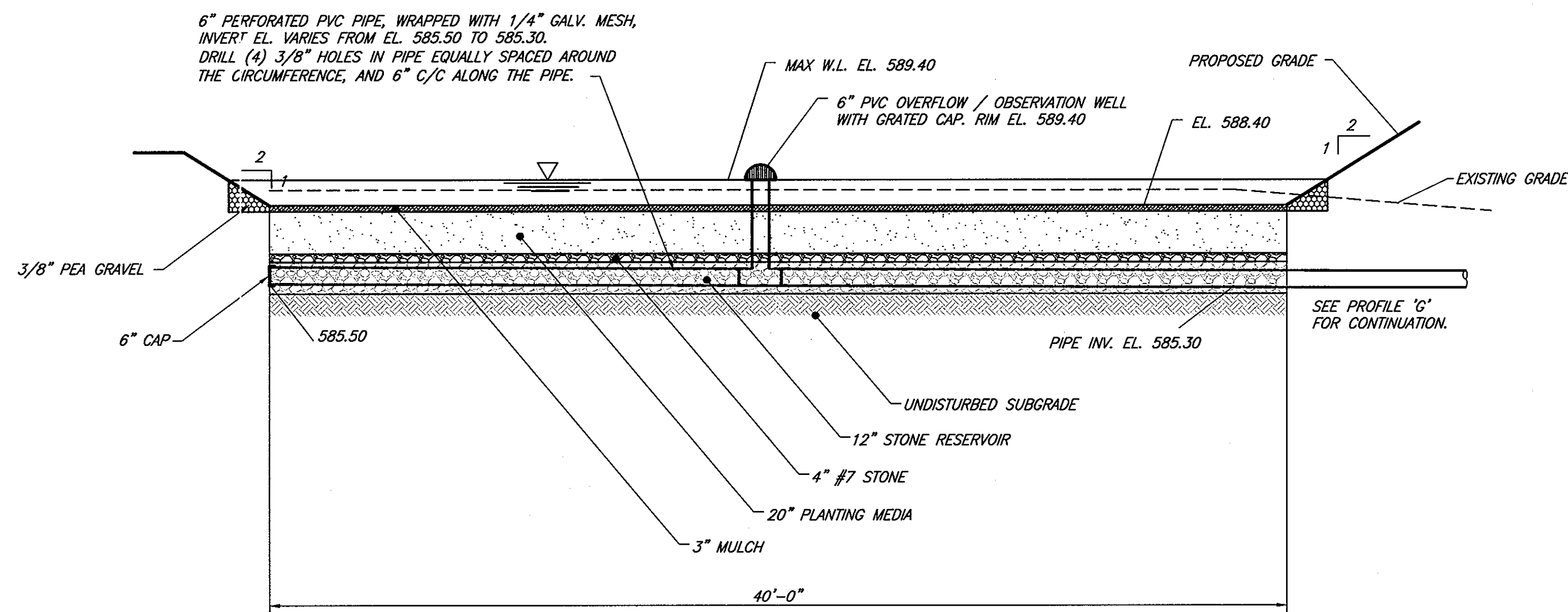
PROFILE F - 6" ROOF DRAIN

SCALE: 1/8" = 1'-0"



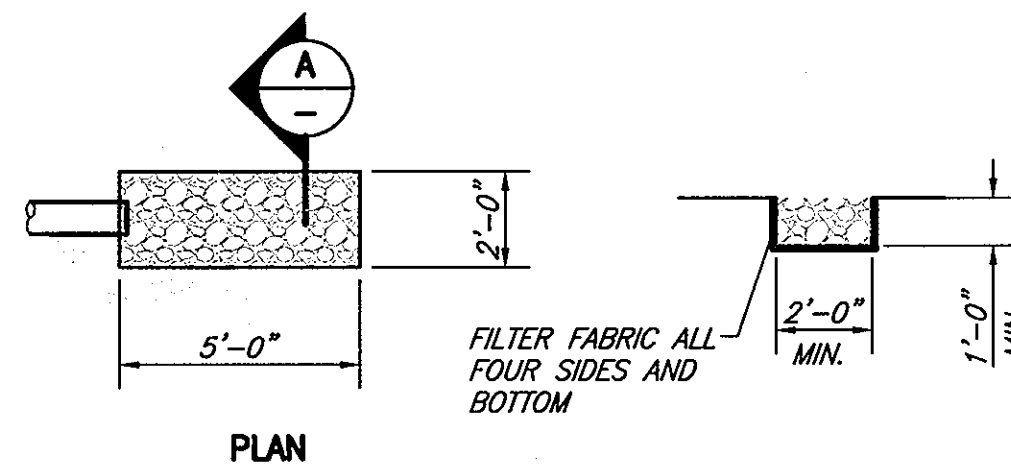
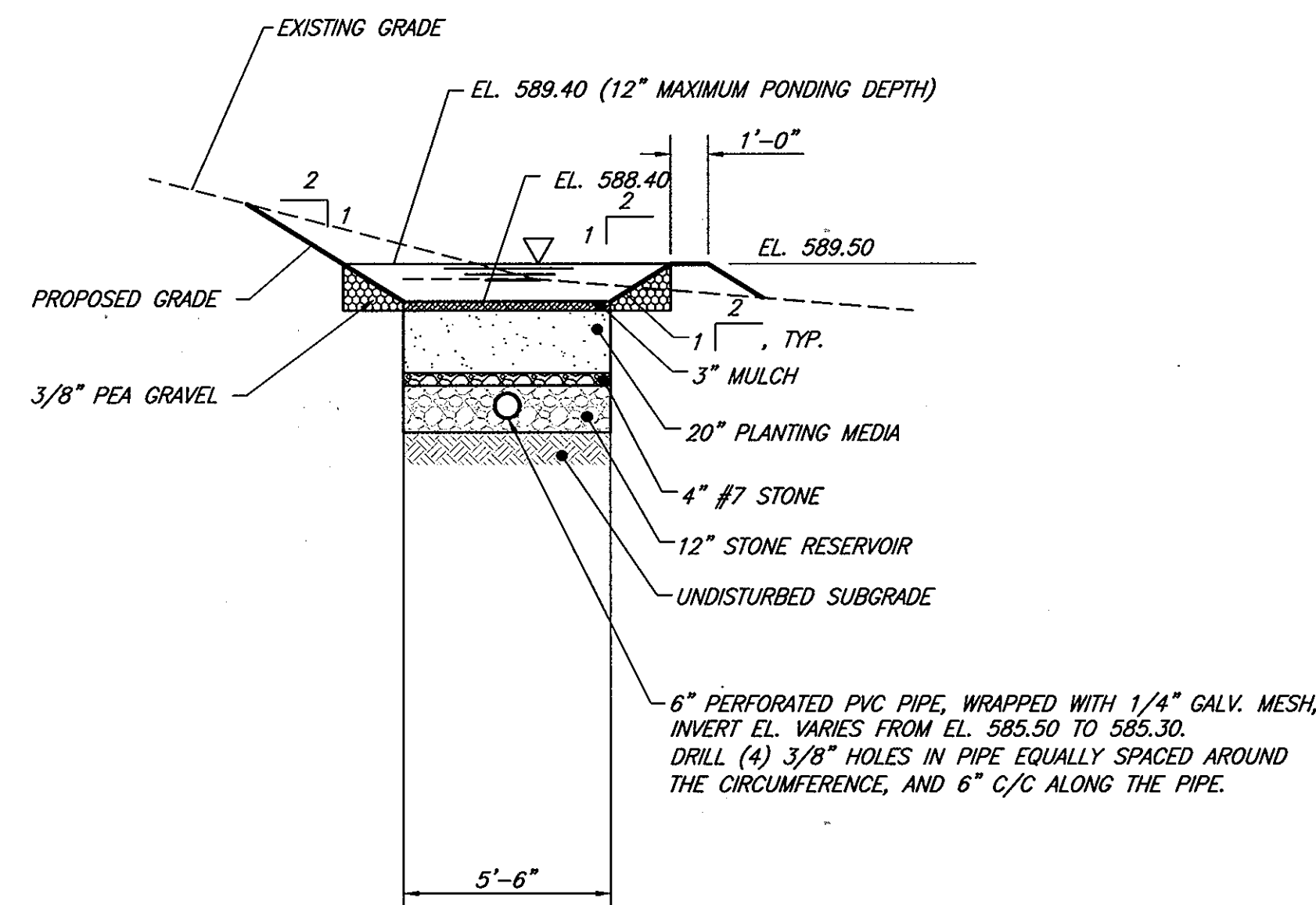
PROFILE G - 6" UNDERDRAIN

SCALE: 1/8" = 1'-0"



MICRO-BIORETENTION FACILITY

SCALE: 1/4" = 1'-0"



RIP-RAP APRON (CLASS 1)

SCALE: 1/4" = 1'-0"

NOTES:

- MICRO BIO-RETENTION FACILITY SHALL BE CONSTRUCTED IN ACCORDANCE WITH "CONSTRUCTION SPECIFICATIONS FOR ENVIRONMENTAL SITE DESIGN PRACTICES, APPENDIX B" OF THE MARYLAND STORMWATER DESIGN MANUAL, LATEST EDITION.
- PROVIDE 2'-0" WIDE X 5'-0" LONG RIP RAP (CLASS 1) APRON AT EACH OUTFALL. SEE DETAIL THIS SHEET.

OPERATION AND MAINTENANCE SCHEDULE FOR MICRO-BIORETENTION (M-6):

- The Owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or wash out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland Stormwater Design Manual Volume II, Table A.4.1 and 2.
- The Owner shall perform a plant inspection in the spring and in the fall of each year. During the inspection, the Owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material, treat diseased trees and shrubs, and replace all deficient stakes and wires.
- The Owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The Owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
Michael J. Davis 9/15/11
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
Mark S. ... 9/22/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

Ken ... 9/26/11
 CHIEF, DIVISION OF LAND DEVELOPMENT

Mamas & Butler 9/27/11
 DIRECTOR

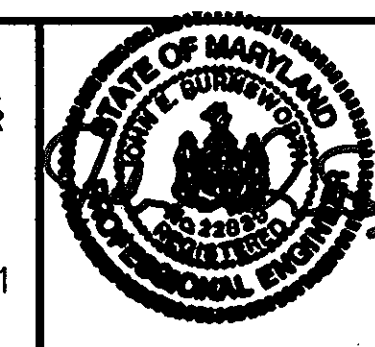
NO.	DATE	REVISIONS

ENGINEER:

GMB
 GEORGE, MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 SALESBURY - BALTIMORE - SEAFORD
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
 FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.

John E. Burnsworth AUGUST 10, 2011
 JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:

HOWARD COUNTY PUBLIC SCHOOL SYSTEM
 10910 ROUTE 108
 ELLICOTT CITY, MARYLAND 21043
 PH: 410-313-6600

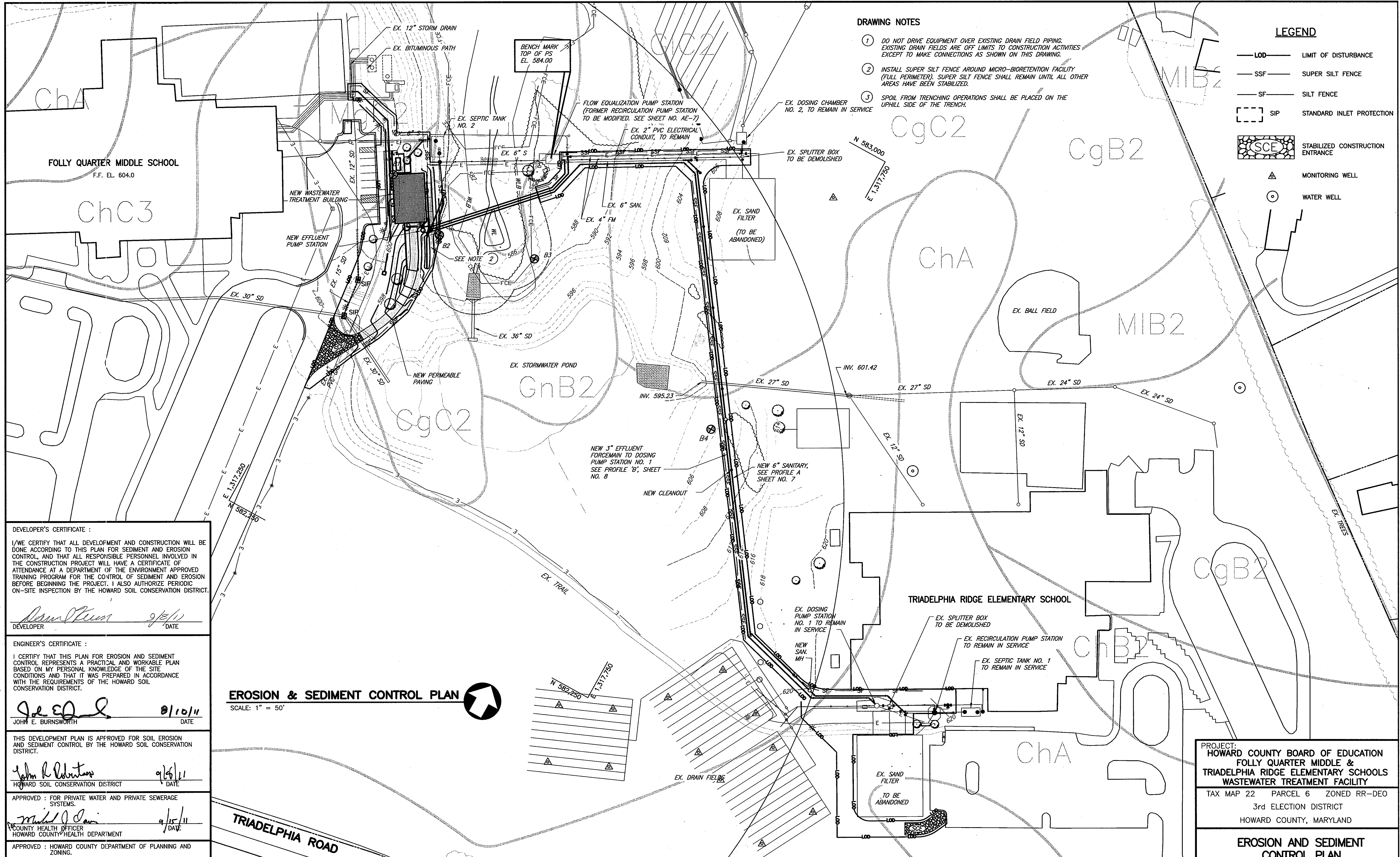
PROJECT:
 HOWARD COUNTY BOARD OF EDUCATION
 FOLLY QUARTER MIDDLE &
 TRIADAPLHIA RIDGE ELEMENTARY SCHOOLS
 WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

PROFILES F AND G

DESIGN	JEB	DRAWING NO.
DRAWN	BNA	P-5
CHECKED	JK	
JOB	090254	SHEET 12 OF 16
DATE	AUGUST 10, 2011	

SDP-11-050



- DRAWING NOTES**
- DO NOT DRIVE EQUIPMENT OVER EXISTING DRAIN FIELD PIPING. EXISTING DRAIN FIELDS ARE OFF LIMITS TO CONSTRUCTION ACTIVITIES EXCEPT TO MAKE CONNECTIONS AS SHOWN ON THIS DRAWING.
 - INSTALL SUPER SILT FENCE AROUND MICRO-BIORETENTION FACILITY (FULL PERIMETER). SUPER SILT FENCE SHALL REMAIN UNTIL ALL OTHER AREAS HAVE BEEN STABILIZED.
 - SPOIL FROM TRENCHING OPERATIONS SHALL BE PLACED ON THE UPHILL SIDE OF THE TRENCH.

- LEGEND**
- LOD — LIMIT OF DISTURBANCE
 - SSF — SUPER SILT FENCE
 - SF — SILT FENCE
 - SIP — STANDARD INLET PROTECTION
 - [Symbol] SCE — STABILIZED CONSTRUCTION ENTRANCE
 - [Symbol] — MONITORING WELL
 - [Symbol] — WATER WELL

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

Sam Kim 9/2/11
 DEVELOPER DATE

ENGINEER'S CERTIFICATE :
 I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

John E. Burnsworth 9/10/11
 JOHN E. BURNSWORTH DATE

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

John R. Roberts 9/16/11
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED : FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

Michael J. Davis 9/15/11
 COUNTY HEALTH OFFICER
 HOWARD COUNTY HEALTH DEPARTMENT DATE

APPROVED : HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

John E. Burnsworth 9/22/11
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Vest Dandridge 9/24/11
 CHIEF, DIVISION OF LAND DEVELOPMENT & DATE

Thomas G. Swindle 9/27/11
 DIRECTOR DATE

EROSION & SEDIMENT CONTROL PLAN
 SCALE: 1" = 50'

NO.	DATE	REVISIONS

ENGINEER:

GMB
 GEORGE, MILES & BUHR, LLC
 ARCHITECTS & ENGINEERS
 SALESBURY - BALTIMORE - SEAFORD
 120 SPARKS VALLEY ROAD, SUITE A
 SPARKS, MARYLAND 21152
 PH: 410-329-5005
 FAX: 410-329-5881

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John E. Burnsworth AUGUST 10, 2011
 JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:

HOWARD COUNTY PUBLIC SCHOOL SYSTEM
 10910 ROUTE 10B
 ELLICOTT CITY, MARYLAND 21043
 PH: 410-313-6600

PROJECT: HOWARD COUNTY BOARD OF EDUCATION
 FOLLY QUARTER MIDDLE &
 TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
 WASTEWATER TREATMENT FACILITY
 TAX MAP 22 PARCEL 6 ZONED RR-DEO
 3rd ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND

EROSION AND SEDIMENT CONTROL PLAN

DESIGN	JEB	DRAWING NO.	ESC-1	
DRAWN	BNA	SHEET		13 OF 16
CHECKED	JK			
JOB	090254			
DATE	AUGUST 10, 2011			

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SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- A. SITE PREPARATION**
- INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 - FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME, OR TRADEMARK, AND WARRANTIES OF THE PRODUCER.
 - LIME MATERIALS SHALL BE GROUND Limestone (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 85-100% WILL PASS THROUGH A #20 MESH SIEVE.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- C. SEEDBED PREPARATION**
- TEMPORARY SEEDING**
 - SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3"-5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR CRABBED PREPARATION, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - PERMANENT SEEDING**
 - MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.
 - SOIL PH SHALL BE BETWEEN 6.0 AND 7.0.
 - SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (ppm).
 - THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>30% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERICEA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.
 - AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
 - APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.
 - MIX SOIL AMENDMENTS INTO THE TOP 3"-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"-3" OF SOIL SHOULD BE LOOSE AND FRABLE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.
 - SEE TECHNICAL SPECIFICATIONS, SECTION 02260, FOR SPECIAL REQUIREMENTS.
- D. SEED SPECIFICATIONS**
- ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.

NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
 - INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING.

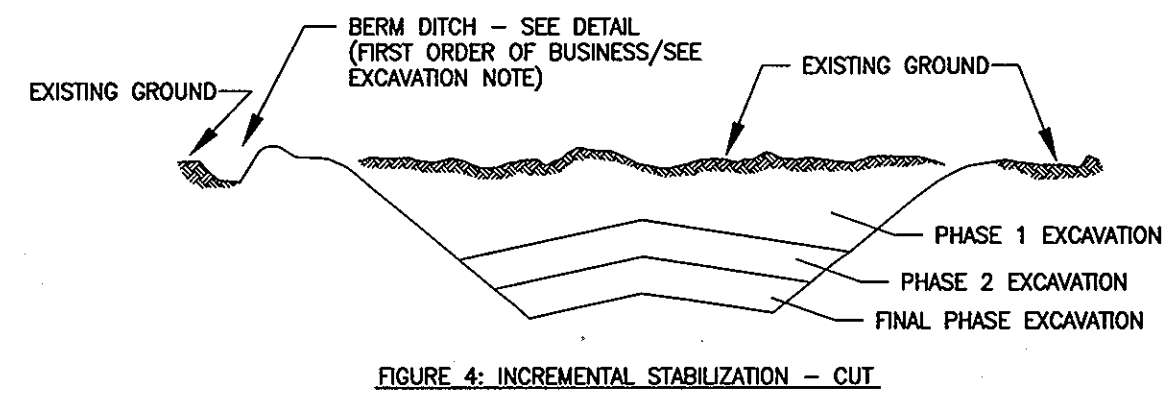
NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75°-80°F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
- E. METHODS OF SEEDING**
- HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTIPACKER SEEDER.
 - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATE AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 lbs. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 lbs. PER ACRE; K20 (POTASSIUM): 200 lbs. PER ACRE.
 - LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - SEED AND FERTILIZER SHALL BE MIXED ON-SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.
 - DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26. THE SEEDING AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

- DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - CULTIPACKER SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4" OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)**
- STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, WOLLY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEEDS SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
 - WOOD CELLULOSE FIBER MULCH (WCFM)
 - WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10mm, DIAMETER APPROXIMATELY 1mm, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.

NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
 - IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
 - WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS PER ACRE.
 - WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - SECURING STRAW MULCH (MULCH ANCHORING): MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
 - A MULCH ANCHORING TOOL IS A TRACTOR-DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED ON THE CONTOUR IF POSSIBLE.
 - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 lbs. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 lbs. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC OLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
 - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4'-15" WIDE AND 300'-3,000' LONG.

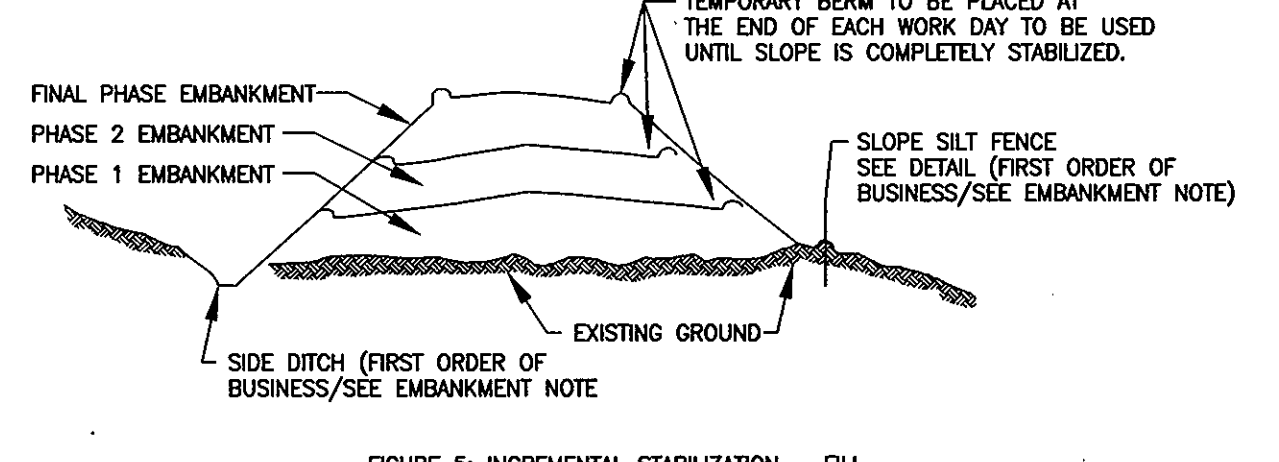
- I. INCREMENTAL STABILIZATION - CUT SLOPES**
- ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.
 - CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):
 - EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
 - PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
 - PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



- J. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES**
- EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
 - SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
 - AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-CROSSE MANNER TO A SEDIMENT TRAPPING DEVICE.
 - CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).
 - EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.
 - PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.
 - PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.



- SECTION II - TEMPORARY SEEDING**
- VEGETATION - ANNUAL GRASS OR GRAM USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.
- A. SEED MIXTURES - TEMPORARY SEEDING**
- SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.
 - FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

NO.	SPECIES	APPLICATION RATE (lb/acre)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-10-10)		LIME RATE
					N	P205	
	ANNUAL RYE	50	3/1-4/30 8/15-11/1	1/4" - 1/2"	600 lb/acre (15 lb/1000sf)	2 tons/acre 100 lb/1000sf	
	WEEPING LOVEGRASS	4	5/1-8/14	1/4" - 1/2"			

- SECTION III - PERMANENT SEEDING**
- SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.
- A. SEED MIXTURES - PERMANENT SEEDING**
- SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 25 FOR THE APPROPRIATE PLANT HARDNESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES AND SEEDING DATES. SEEDING DEPTHS CAN BE ESTIMATED USING TABLE 26. IF THIS SUMMARY IS NOT PUT ON THE CONSTRUCTION PLANS AND COMPLETED, THEN TABLE 25 MUST BE PUT ON THE PLANS. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAMBANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-SCS FIELD OFFICE TECHNICAL GUIDE, SECTION 342 - CRITICAL AREA PLANTING. FOR SPECIAL LAWN MAINTENANCE AREAS, SEE SECTIONS IV SOD AND V TURFGRASS.

- FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY SHALL BE WRITTEN IN.
- FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3-1/2 lbs. PER 1000 sq. ft. (150 lb/acre), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

NO.	SPECIES	APPLICATION RATE (lb/acre)	SEEDING DATES	SEEDING DEPTHS	FERTILIZER RATE (10-20-20)			LIME RATE
					N	P205	K20	
1	TALL FESCUE (75%) CANADA BLUEGRASS (10%) KENTUCKY BLUEGRASS (10%) REDTOP (5%)	150	3/1-5/15 AND 8/15-10/15	1"	80 lb/acre (2.0 lb/1000 sf)	175 lb/acre (4 lb/1000 sf)	175 lb/acre (4 lb/1000 sf)	2 tons/acre (100 lb/1000 sf)

- SECTION IV - SOD**
- TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).
- A. GENERAL SPECIFICATIONS**
- CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
 - SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PAGES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
 - STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10% OF THE SECTION.
 - SOD SHALL NOT BE HARVESTED OR TRANSPORTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPORTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

- B. SOD INSTALLATION**
- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
 - SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
 - WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
 - SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.
 - SOD MAINTENANCE
 - IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
 - AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN MOISTURE CONTENT.
 - THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

DEVELOPER'S CERTIFICATE:

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

John E. Burnsworth 9/3/11
DEVELOPER DATE

ENGINEER'S CERTIFICATE:

I CERTIFY THAT THIS PLAN FOR EROSION AND SEDIMENT 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.

John E. Burnsworth 8/10/11
JOHN E. BURNSWORTH DATE

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

John M. Robertson 9/6/11
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.

Michael J. Cain 9/15/11
COUNTY HEALTH OFFICER DATE
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED FOR HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.

William E. Butler 9/22/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

Kevin Sheehan 9/26/11
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

William E. Butler 9/27/11
DIRECTOR DATE

NO.	DATE	REVISIONS

ENGINEER:

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
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120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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. 22839, EXPIRATION DATE 9-19-2012.

John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSWORTH DATE



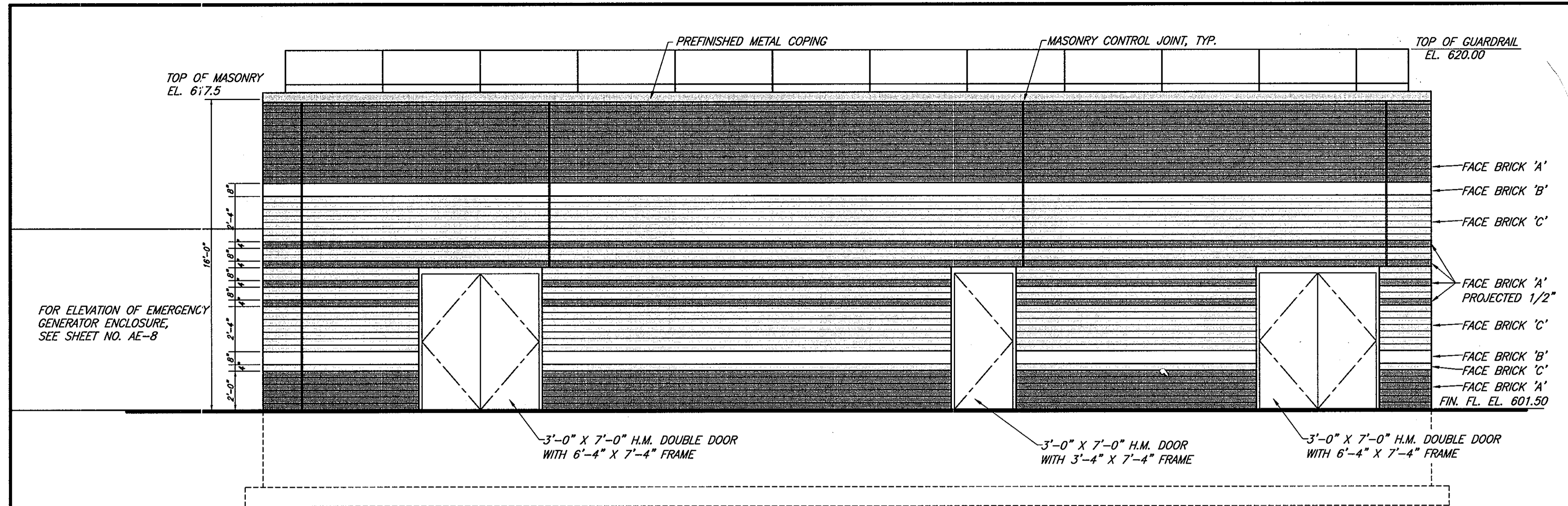
OWNER/DEVELOPER:

HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600

EROSION AND SEDIMENT CONTROL DETAILS	
DESIGN	JEB
DRAWN	BNA
CHECKED	JK
JOB	090254
DATE	AUGUST 10, 2011
DRAWING NO.	ESC-3
SHEET 15 OF 16	

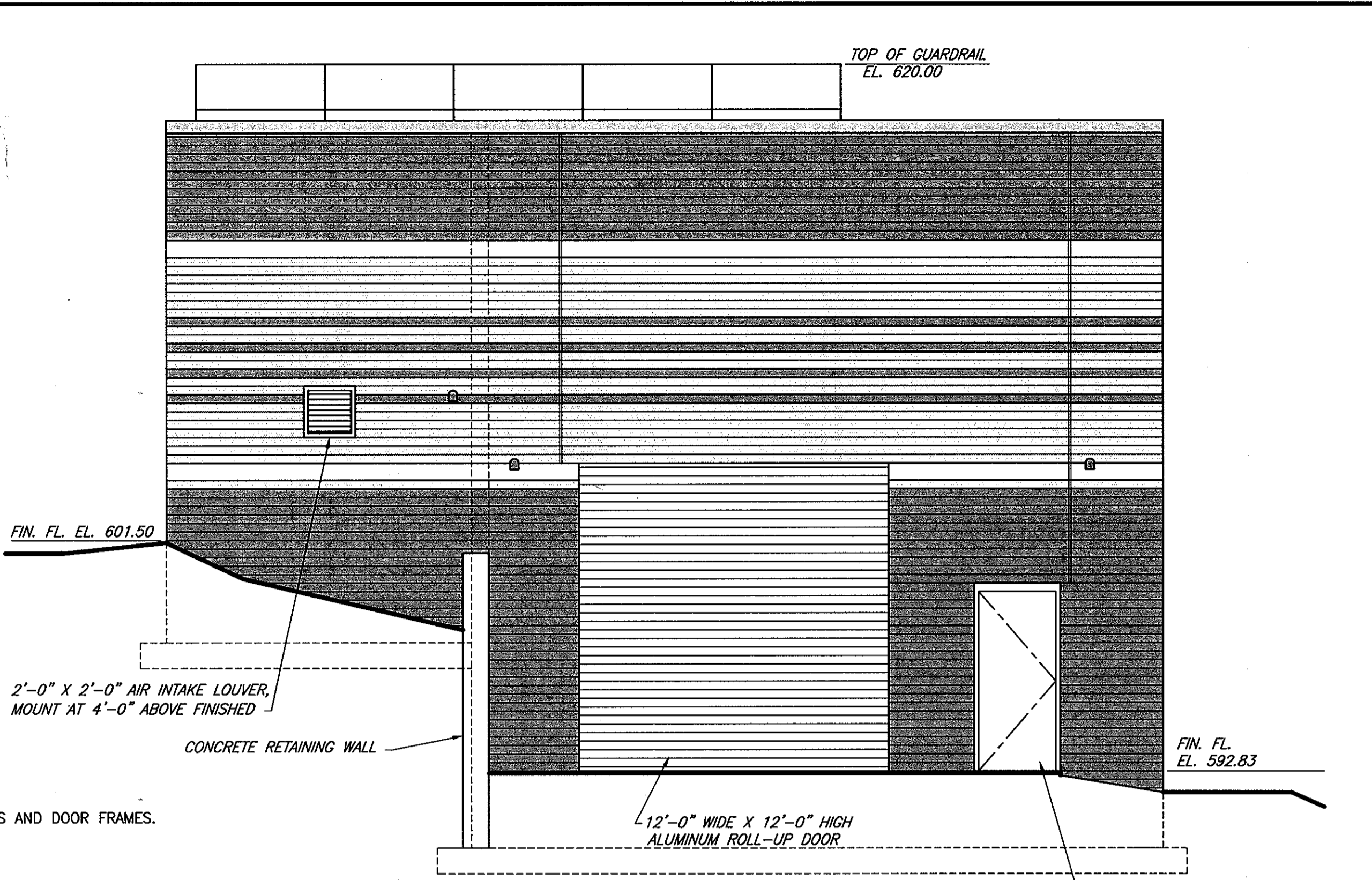
PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

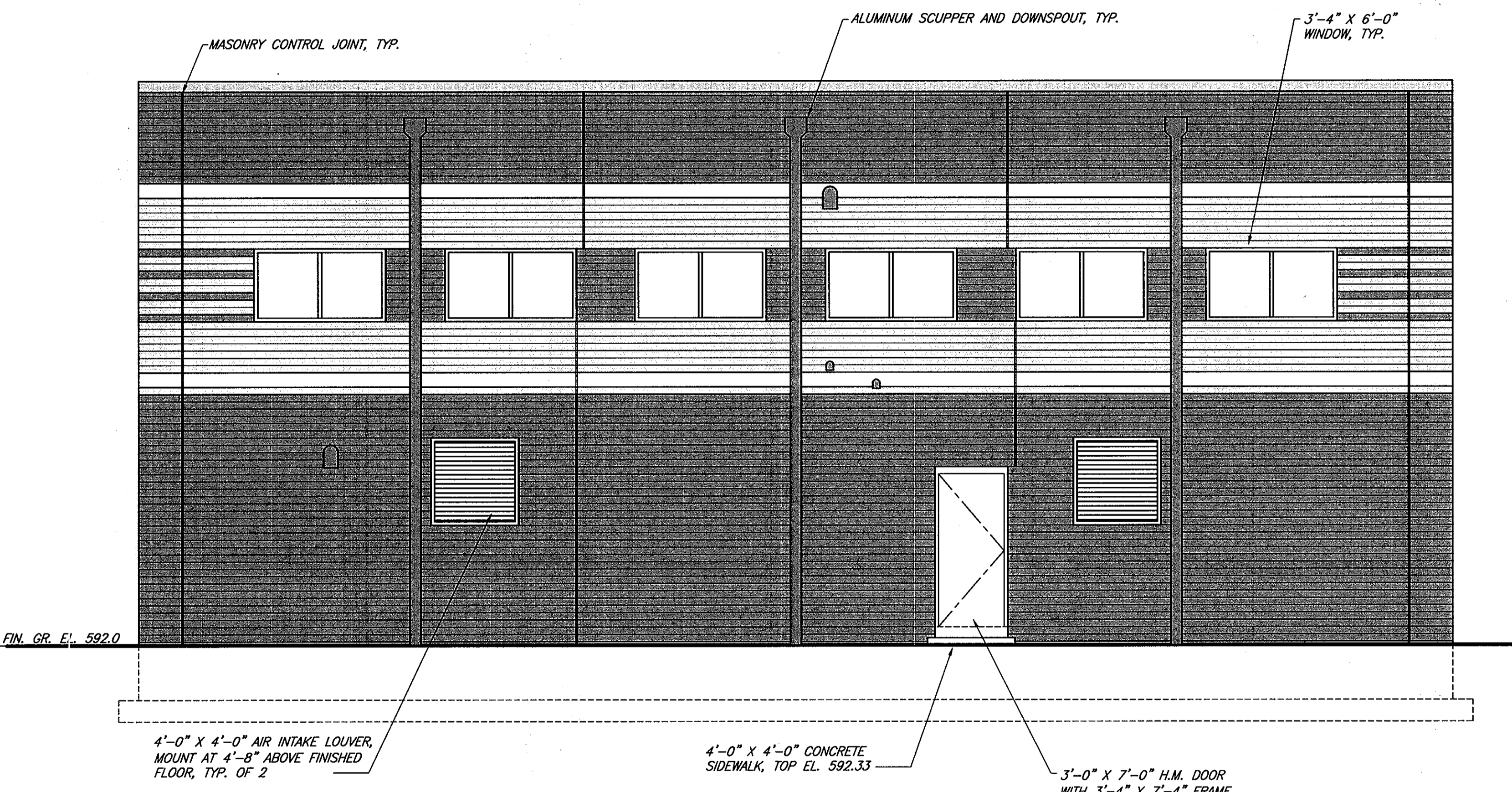


FRONT ELEVATION
SCALE: 1/4" = 1'-0"

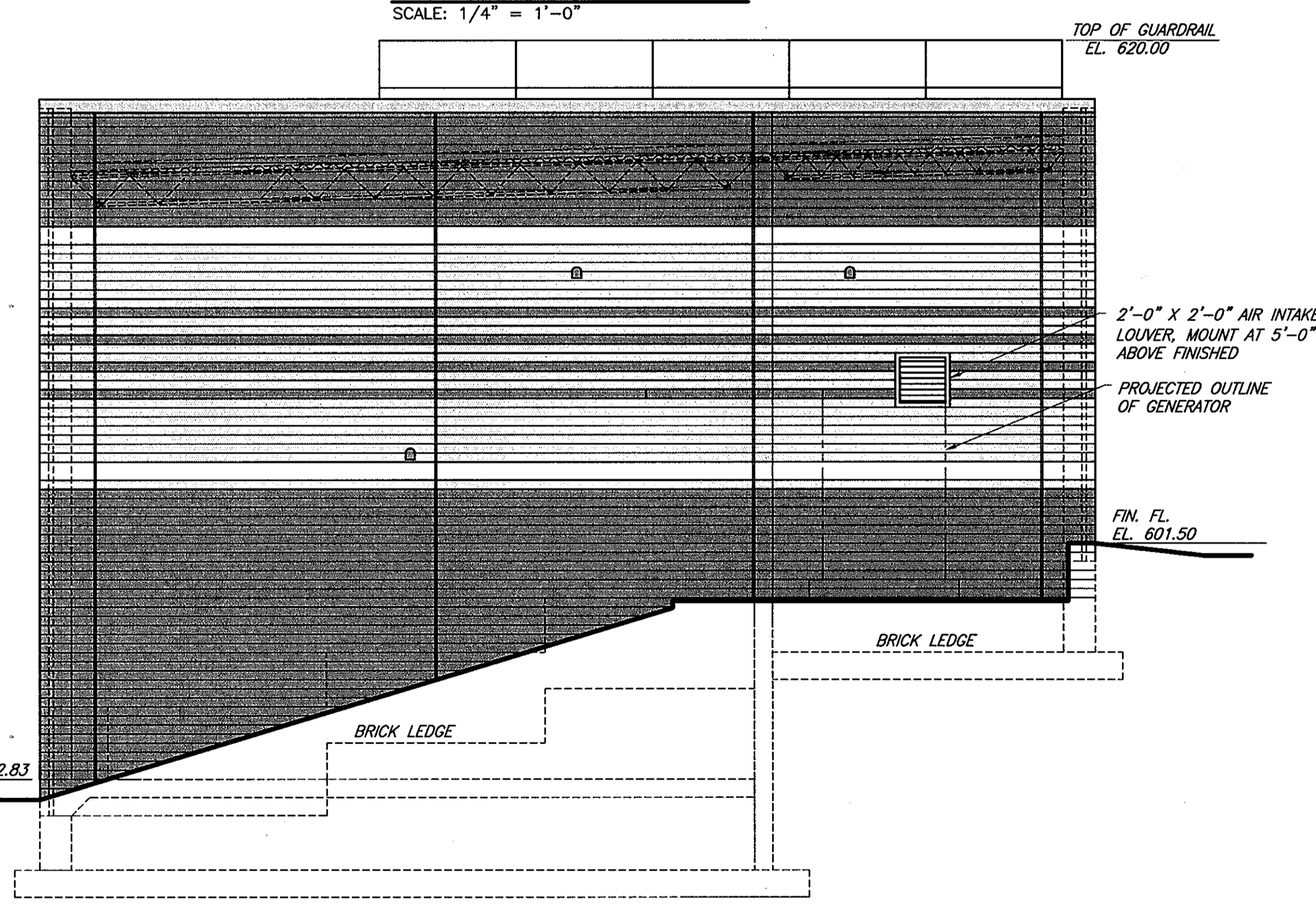
DRAWINGS NOTES
1 PROJECTED FACE BRICK 'A' DOES NOT RETURN AT WINDOWS AND DOOR FRAMES.



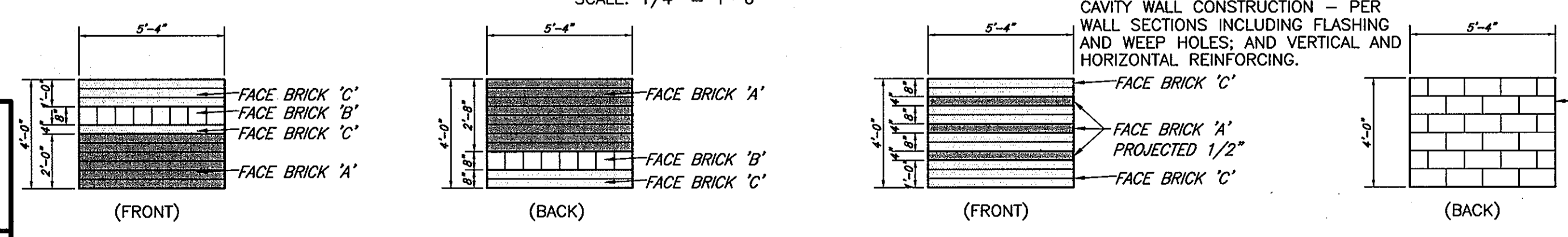
RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



BACK ELEVATION
SCALE: 1/4" = 1'-0"



LEFT ELEVATION
SCALE: 1/4" = 1'-0"



MASONRY SAMPLE PANELS
SCALE: 1/4" = 1'-0"

APPROVED: FOR PRIVATE WATER AND PRIVATE SEWERAGE SYSTEMS.
Michael J. Davis 9/15/11
COUNTY HEALTH OFFICER
HOWARD COUNTY HEALTH DEPARTMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING.
West DeDecker 9/26/11
CHIEF, DEVELOPMENT ENGINEERING DIVISION

Thomas E. Butcher 9/29/11
CHIEF, DIVISION OF LAND DEVELOPMENT & ZONING
DIRECTOR

PANEL NO. 1
8" WALL THICKNESS - NO CAVITY

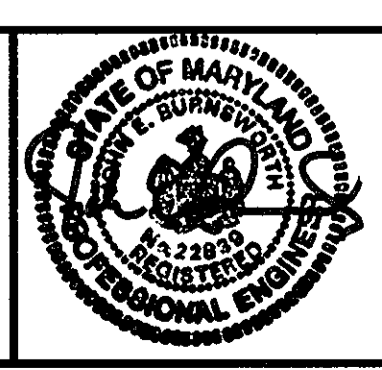
PANEL NO. 2

NO.	DATE	REVISIONS

ENGINEER:

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
120 SPARKS VALLEY ROAD, SUITE A
SPARKS, MARYLAND 21152
PH: 410-329-5005
FAX: 410-329-5881

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John E. Burnsworth AUGUST 10, 2011
JOHN E. BURNSWORTH DATE



OWNER/DEVELOPER:
HOWARD COUNTY PUBLIC SCHOOL SYSTEM
10910 ROUTE 108
ELLCOTT CITY, MARYLAND 21043
PH: 410-313-6600

PROJECT:
HOWARD COUNTY BOARD OF EDUCATION
FOLLY QUARTER MIDDLE &
TRIADELPHIA RIDGE ELEMENTARY SCHOOLS
WASTEWATER TREATMENT FACILITY

TAX MAP 22 PARCEL 6 ZONED RR-DEO
3rd ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

**WASTEWATER TREATMENT BUILDING
ARCHITECTURAL ELEVATIONS**

DESIGN	JEB	DRAWING NO.	AE-5
DRAWN	BNA		
CHECKED	JK		
JOB	090254		
DATE	AUGUST 10, 2011	SHEET	16 OF 16