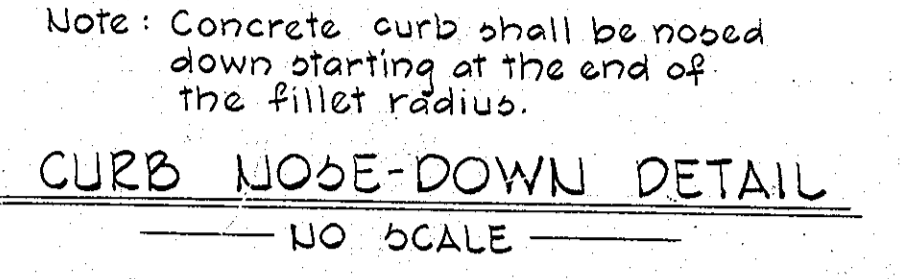
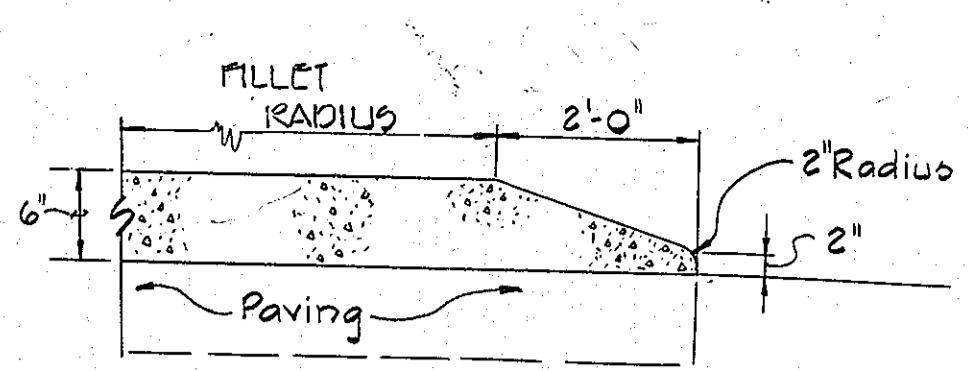


37070
24,500
14570

SITE ANALYSIS

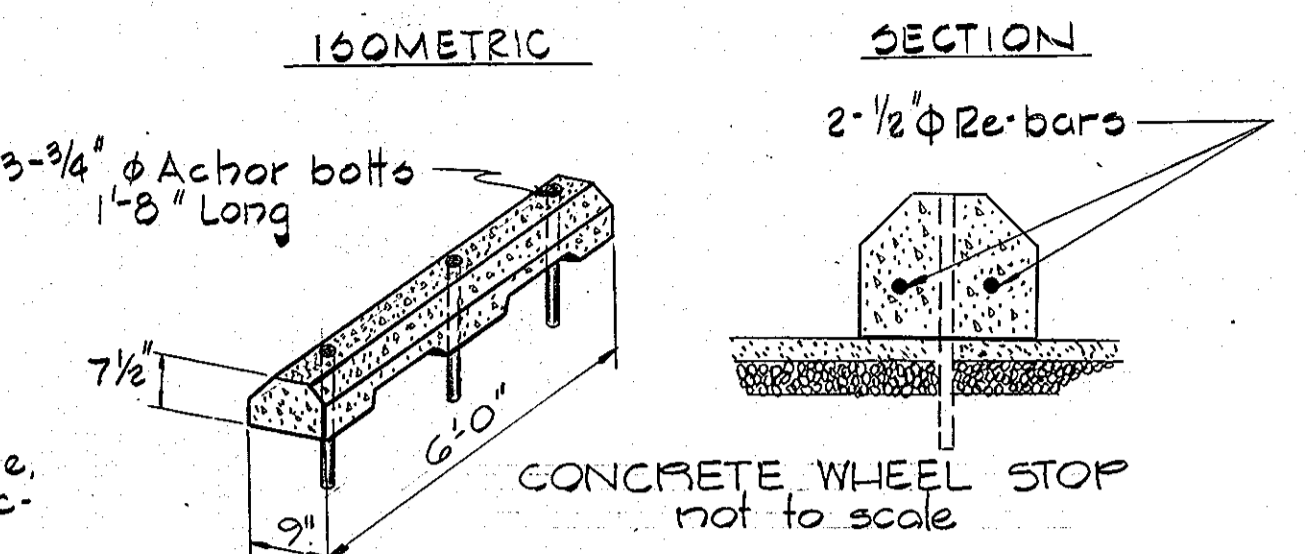
- Total area within limit of submission 8.186 Ac ±
- Total disturbed area 37,070 S.F. (9-30-11) 179,800 S.F.
- Total area paved 22,500 S.F. (9-30-11) 71,800 S.F.
- Total area to be revegetated 14,570 S.F. (9-30-11) 80,000 S.F.
- Off-street parking data:
Total floor area = 28,000 S.F.
Parking required at 1/300 of 30 spaces
Parking provided = 58 spaces including 3 handicapped
- Number of employees = 25
- Deed references - 711-651 & 779-731
- Open Space = 25%
- Percolation test sites were field located in May 1978, November 1978, and December 1978.
- OFF-STREET PARKING DATA:
PARKING REQUIRED - 50 SPACES
RETAIL - 24' x 30' = 720 SF - 4 SPACES
OFFICE - 36' x 80' = 2160 SF
11' x 44' = 484 SF - 21 SPACES
- WAREHOUSE -
80' x 350' = 24,636 SF - 25 SPACES
PARKING PROVIDED - 58 SPACES INCLUDING 3 HANDICAPPED



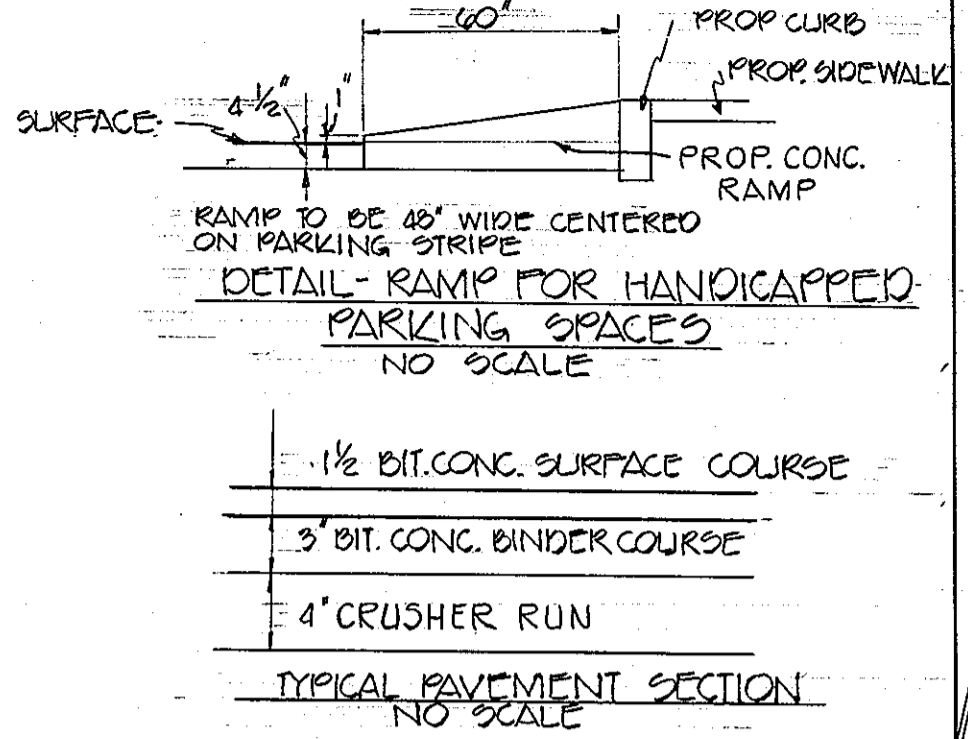
Note: Concrete curb shall be nosed down starting at the end of the fillet radius.

Note: For tank identification, size, and exact location see Architectural plans.

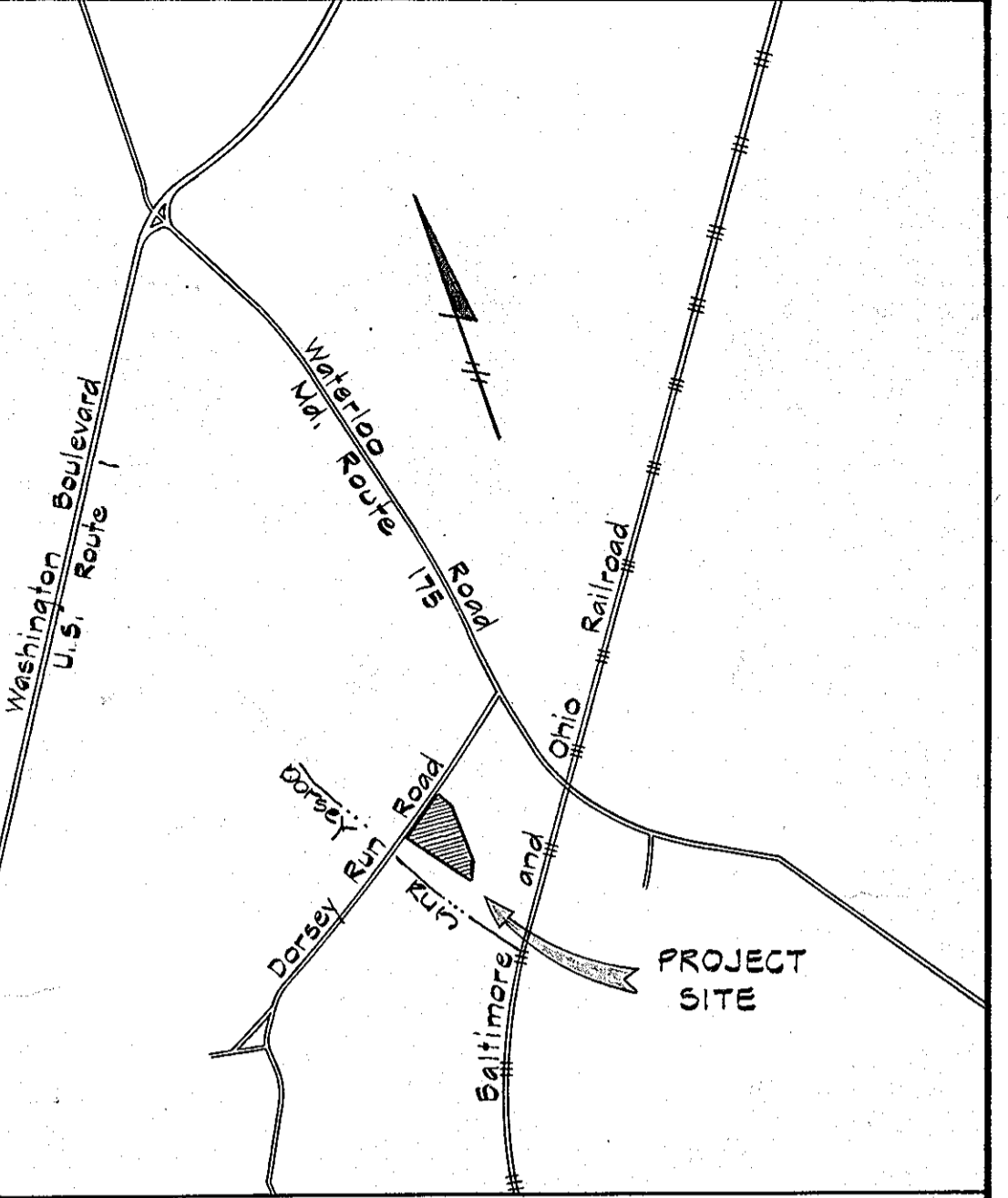
Critical Area Stabilization See Sediment Control Notes



NOTE: SITE LIGHTING TO BE MCGRAW EDISON 250 W METAL HALIDE LUMINAIRE MOUNTED ON 6\"/>



- LEGEND
- PROPOSED 2 1/2 CALIPER DECIDUOUS TREES (ACER RUVRUM)
 - PROPOSED SITE LIGHTING
 - PROPOSED CONCRETE PAVING
 - STRAW BALE DIKE
 - DIVERSION DIKE
 - HANDICAPPED PARKING SPACES (12x20')
 - DENOTES PERCOLATION TEST LOCATION
 - DENOTES A PRIVATE SEWAGE EASEMENT OF 10,000 S.F. MINIMUM AREA REQUIRED BY THE STATE OF MARYLAND HEALTH DEPT.
 - SOIL BORING LOCATION

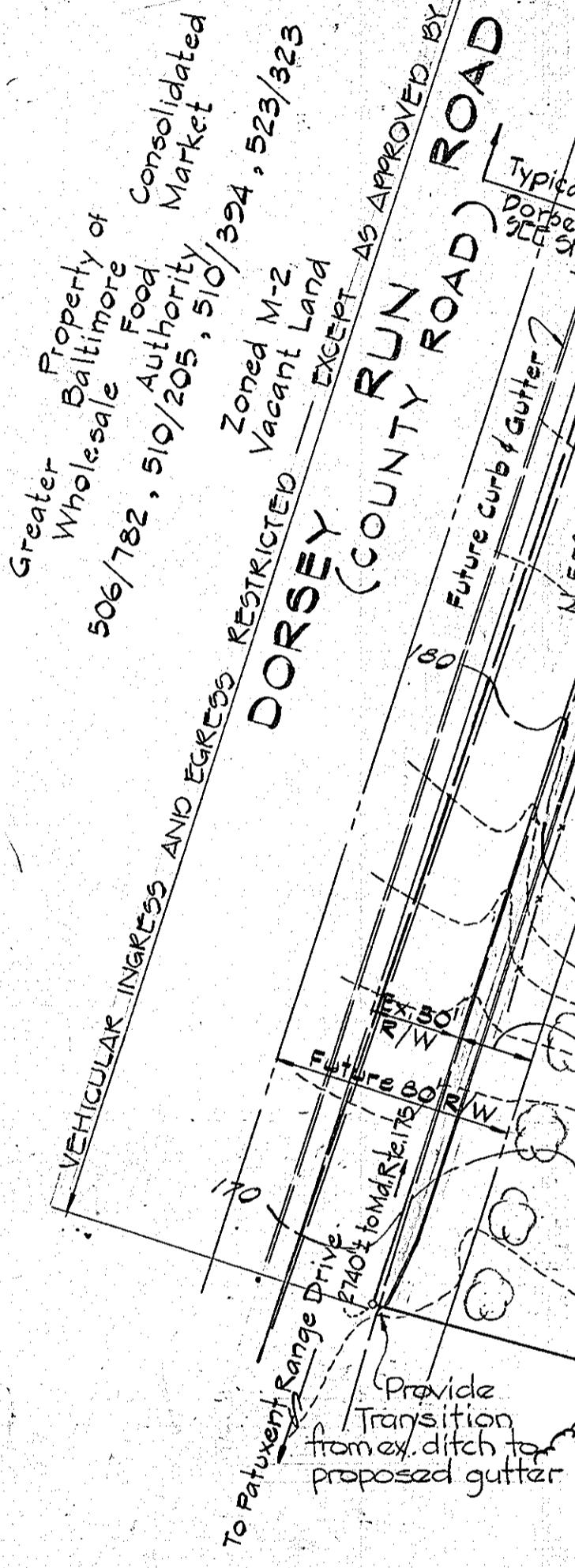


VICINITY MAP
SCALE: 1" = 200'

APPROVED
DIVISION OF LAND DEVELOPMENT
HOWARD COUNTY, MARYLAND
DATE 1-10-79

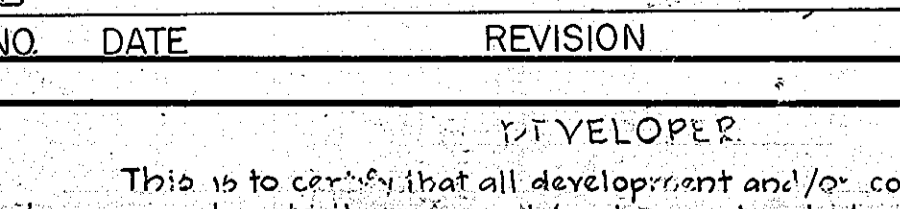
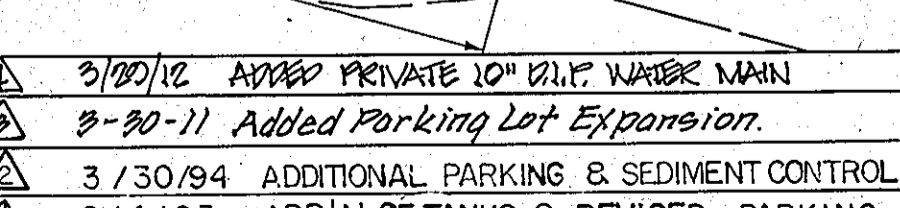
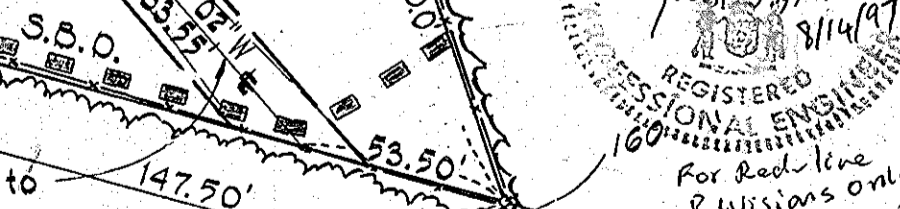
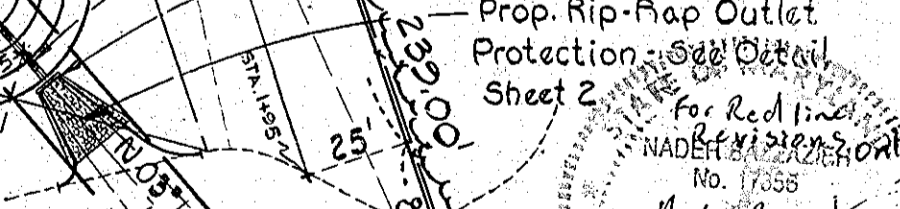
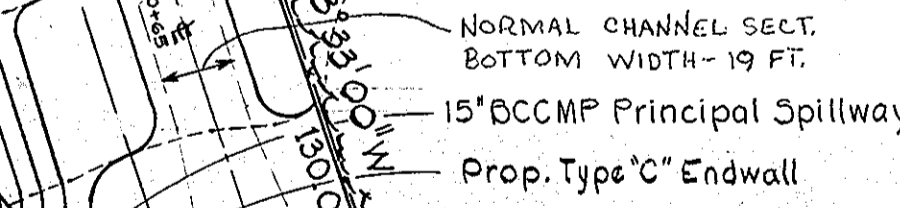
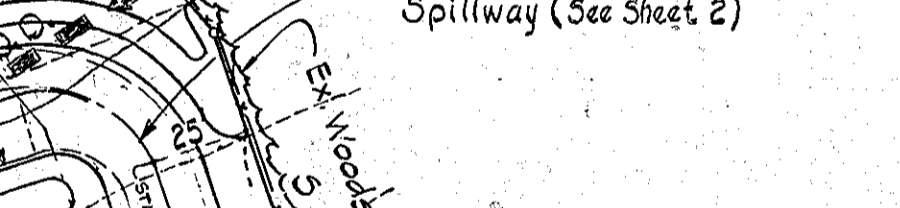
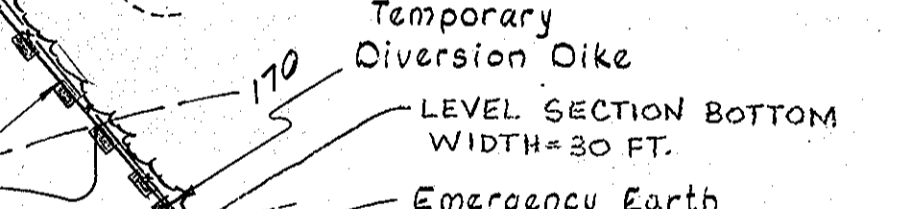
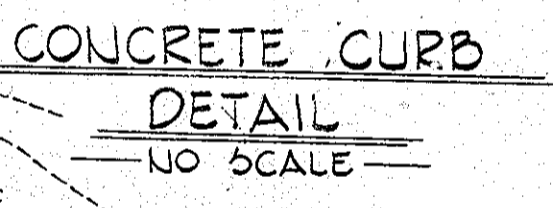
SEDIMENT CONTROL NOTES

- The developer shall notify the Ho. Co. Office of Inspections and Permits at least 24 hours prior to beginning any construction shown hereon.
- Dikes, sediment traps, etc. to be constructed prior to any onsite grading or disturbance to any existing surface material and are to be stabilized as soon as constructed.
- All sediment control structures to remain in place until permission for their removal has been obtained from the Ho. Co. Office of Inspections and Permits.
- All graded areas not to be sodded shall be stabilized by seeding and mulching in accordance with the following:
 - Site Preparation:
 - Narrow or disc in areas proposed to be seeded with the following materials at the specified rate to a depth of 3":
 - Pulverized limestone at 1/2 tons per acre
 - Commercial fertilizer 10-10-10 at 1/4 ton per acre
 - Super phosphate of 600 lbs per acre
 - Seeding:
 - Sow the following seed mixture at the rate of 200 lbs per acre with a mechanical spreader:
 - Temporary: Italian or Perennial Rye Grass
 - Permanent: 40% Marion Blue Grass, 40% South Dakota Blue Grass, 20% Penn Lawn Creeping Red Fescue
 - The seeded area shall then be raked with a York Rake (minimum of 2 passes) corners and compacted with Cultipacker or other approved method
 - Mulching:
 - Seeded areas shall be uniformly mulched immediately after seeding with weathered small grain straw at the rate of 1/2 to 2 tons per acre
 - Tie mulch down with liquid asphalt at 0.1 gal per sq. ft. or emulsified asphalt at 0.04 gal per sq. ft. on mulch netting
 - Sodding:
 - Apply 10-10-10 Fertilizer @ 1000 lbs per acre (25 lbs per 1000 sq ft)
 - Apply Ground Agricultural Limestone @ 2000 lbs per acre (50 lbs per 1000 sq ft)
 - Incorporate both lime and fertilizer into soil by discing. Firm up after incorporation
 - Lay sod to a tight fit. Roll to ensure contact with underlying soil. Water as necessary for first two weeks (in summer) to ensure establishment
 - Critical area (2:1 slope) stabilization shall be Common Kentucky K-31 (certified) @ 40# per acre and Crownvetch scarified and inoculated @ 15# per acre
 - The owner shall be responsible for the maintenance of all sediment control devices and maintenance schedules are subject to the approval of the Sediment Control Inspector



GENERAL NOTES

- Total area of property 8.186 Ac ±
- Area within the limits of this submission 6.186 Ac ±
- Present zoning M-2 with special options
- Drawing and page numbers shown hereon are referred to the Howard County Road Construction Code and standard specifications, dated Aug 1978
- The location of existing utilities shown hereon are based on the latest available information. The contractor shall however determine the exact location before making any connections.
- The contractor shall notify "Miss Utility" at least 3 days prior to beginning any work shown hereon
- All workmanship and materials shall be in accordance with the Howard County Road Construction Code and standard specifications unless otherwise specified
- Use of building and site is to manufacture, sell, store and distribution of Non-toxic gases
- Any damage to the county owned right-of-way or paving shall be corrected at developers expense
- The sewage disposal system to consist of 3 trenches, 100' long, 18" wide, set 15' apart with the top being 3' and the bottom 7' below original ground. Health Department approval of the constructed disposal system is required before a building permit will be issued.
- Previous File Number: ECF-11-040
- The forest conservation obligation of 0.92 ac. of reforestation for the 0.92 ac. of forest for the proposed 20' x 250' parking/paved area has been met by a payment of \$10,162.70 made to the Ho. Co. Forest Conservation Fund.



OWNED & DEVELOPED
Burdett Oxygen Company
4401 Eastern Ave.
Baltimore, Maryland 21224

ARCHITECT
Brown, Vorrall & Johnson
2435 N. Calvert St.
Baltimore Md. 21218

Note: The developer shall provide the soil conservation service "As Built" drawings prepared and signed by a Civil Engineer registered in the State of Maryland within 30 days following completion of the Storm Water Retention Structure

This plan for small pond construction meets the requirements of Howard Soil Conservation District.

This plan has been reviewed for Howard Soil Conservation District and meets the technical requirements for small pond construction

HOWARD SOIL CONSERVATION DISTRICT
Reviewed for Howard Soil Conservation District and meets technical requirements
This development plan is approved for soil erosion & sediment control by the Howard Soil Conservation District
Approved: _____ Date: _____

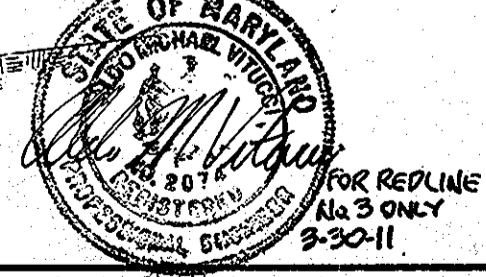
PROFESSIONAL ENGINEER
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

Date: _____

REVIEWED

Date: _____

NO.	DATE	REVISION
1	3/30/78	ADDED PRIVATE 10" D.I.P. WATER MAIN
2	8-30-78	Added Parking Lot Expansion
3	3/30/94	ADDITIONAL PARKING & SEDIMENT CONTROL
4	6/4/93	ADD'N OF TANKS & REVISED PARKING



PURDUM & JESCHKE
CONSULTING ENGINEERS
LAND SURVEYORS
1023 North Calvert Street
Baltimore, Maryland 21202 301/837-0194

Approved For public water and private sewerage Howard County Department of Public Works
George F. Nemy, Director, 2/15/79
W O Lambert, Chief Bureau of Engineering, 7-15-79

Approved: Howard County Office of Planning and Zoning
James L. Hamill, Planning Director, 2-16-79
John W. Markham, Chief, Division of Land and Gen. Serv., 2-16-79

Approved For public water and private sewerage system Howard County Health Department
Joseph B. Bredas, County Health Officer, 1-30-79

DEVELOPER
This is to certify that all development and/or construction will be done according to this plan of development and plan for erosion and sediment control and to authorize periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as may be deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District

Date: _____

TAX MAP - 40
6th Eastern District
Scale: 1" = 20'

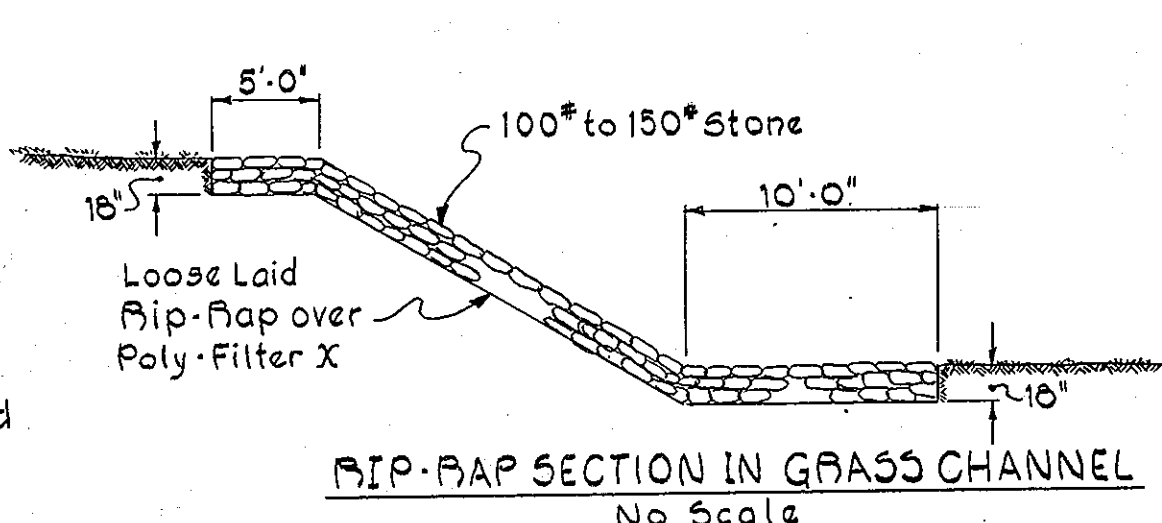
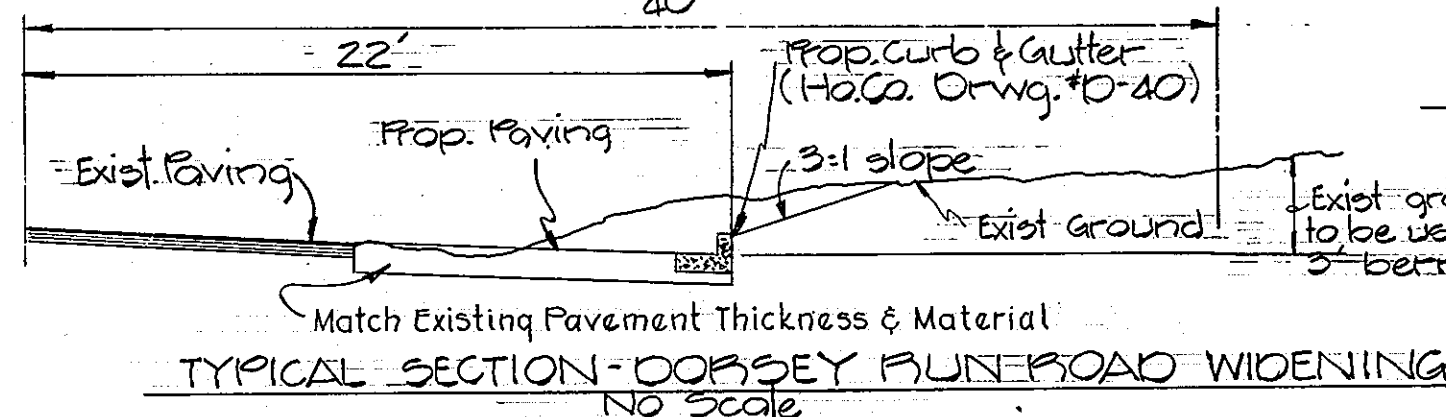
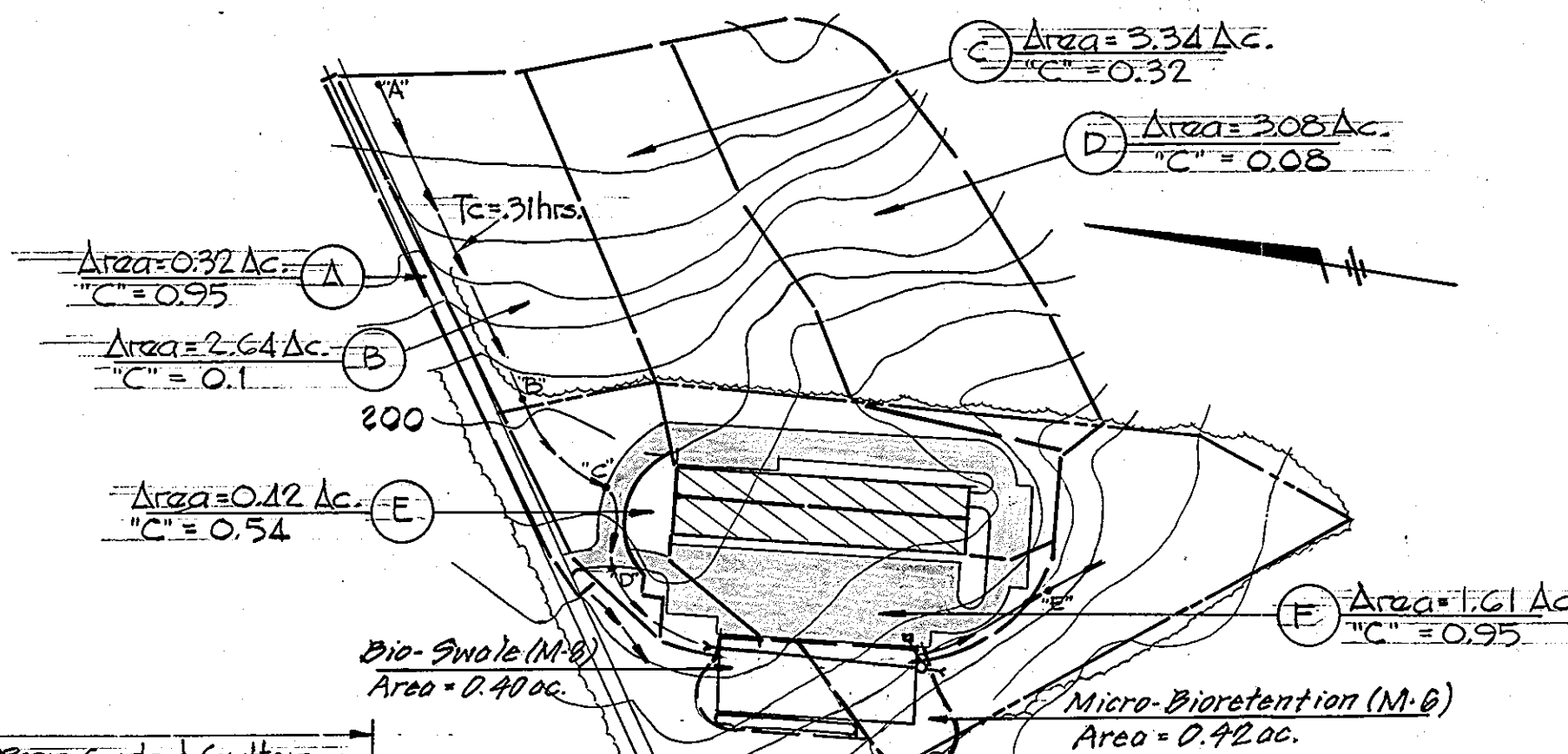
SITE PLAN
BURDETT OXYGEN COMPANY
JESOLIP
PARCEL 8
Howard Co, Md
MARCH, 2012
SDP-79-37

SHEET 1 OF 9

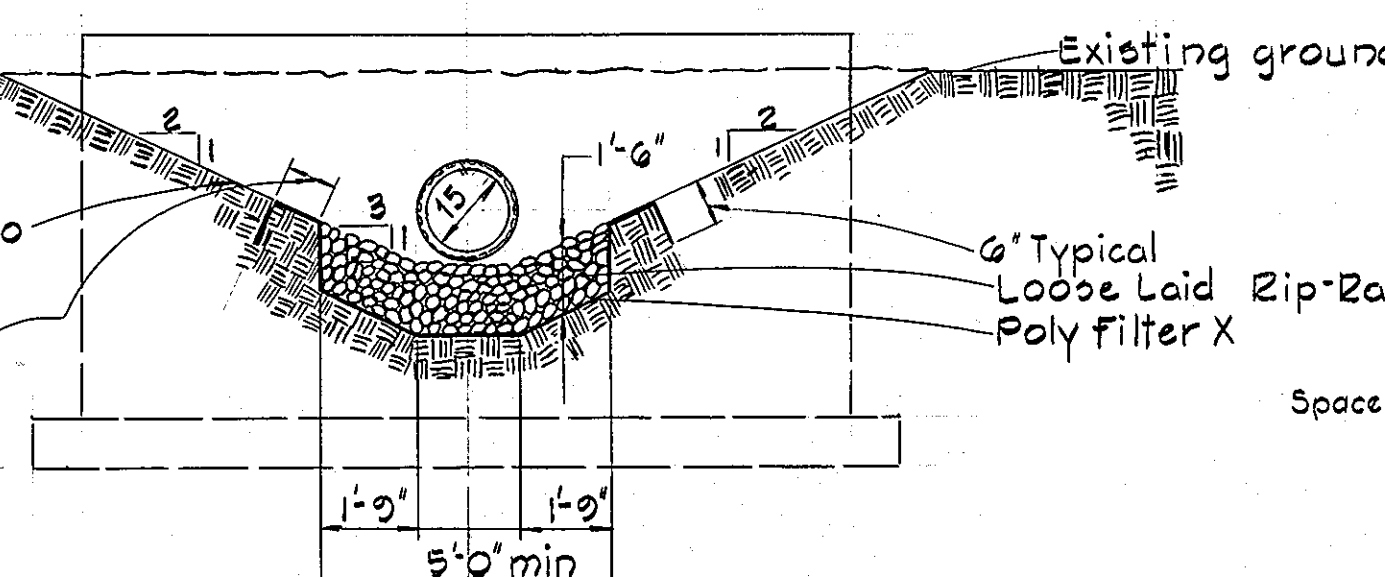
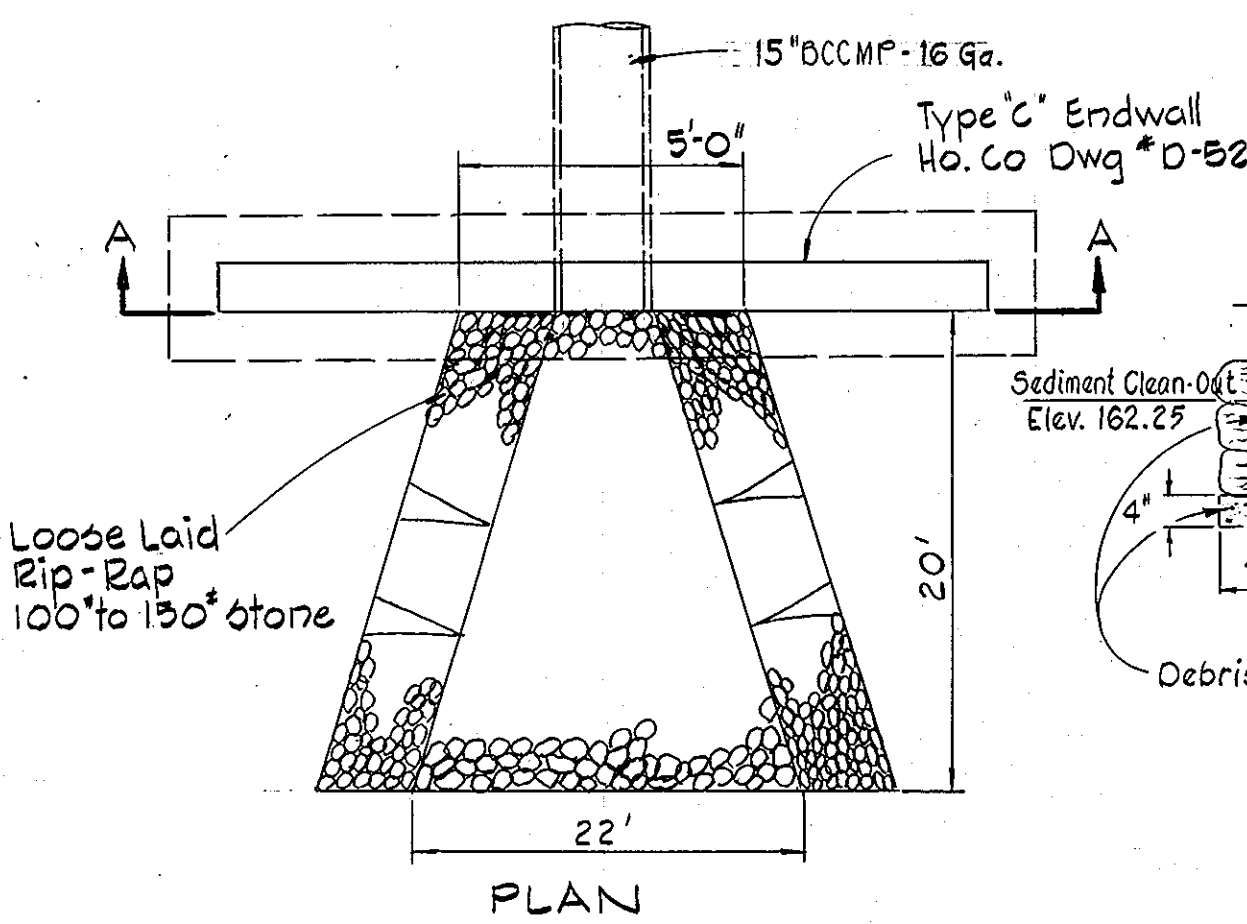
Designed By	RJT
Drawn By	JAW/BCC
Checked By	RJT
Rev	Loc Date

CONSTRUCTION NOTES

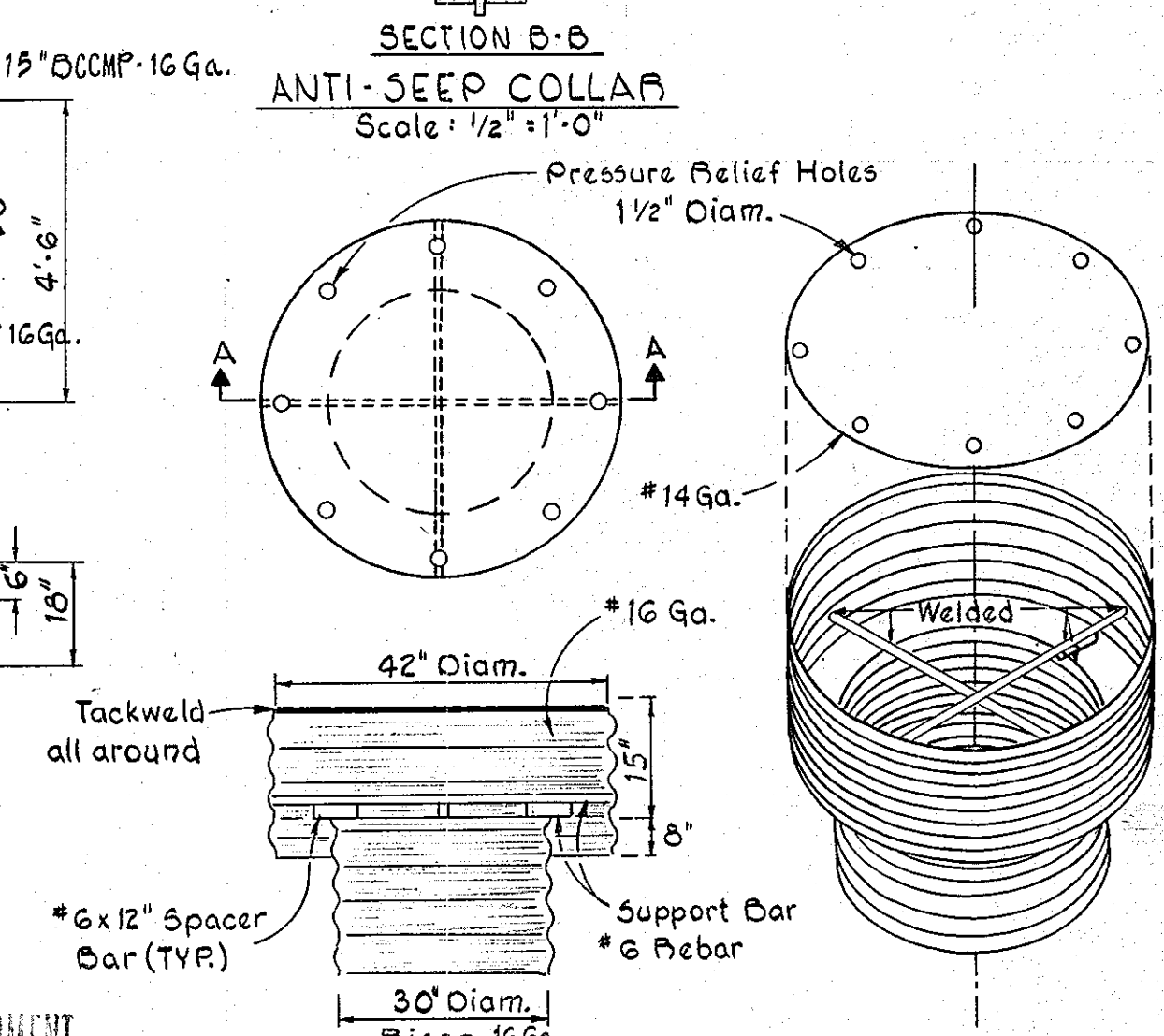
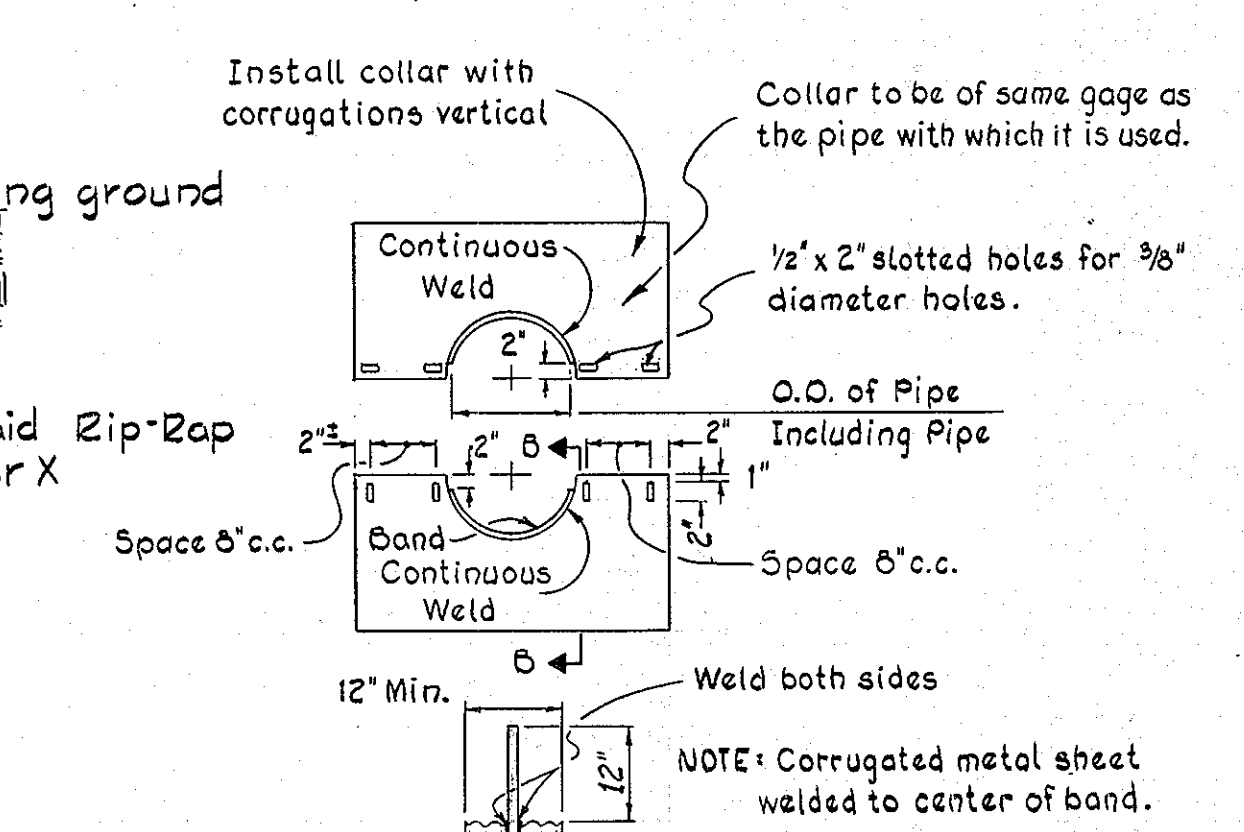
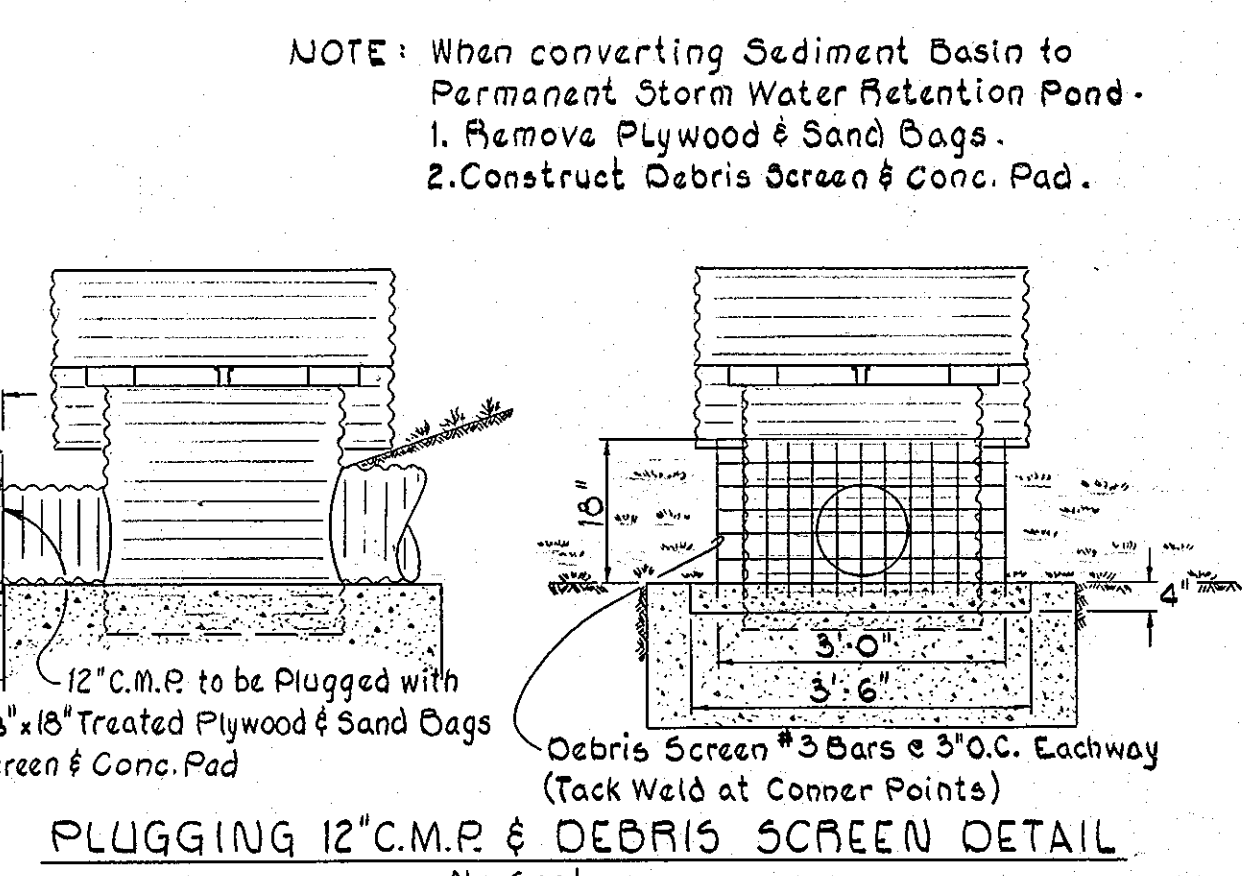
- Obtain grading permit - Oct 1978
- Construct temporary stabilized entrance and place straw bale dike as shown.
- Rough grade building site, excavate drainage channel, and construct storm water management pond embankment. Embankment materials shall be placed in 6" maximum lifts and compacted with excavating equipment. Sufficient moisture shall be maintained to insure an adequate degree of compaction. The porous materials shall be placed on downstream side.
- Plug 6" x 12" pipes in Modified D Inlet and stabilize embankment using 'Temporary Seeding' (see Sediment Control Notes).
- Grade parking areas and roads to subgrade and place aggregate base course. Construct building foundation Nov. 1978
- Fine grade site and stabilize with 'Permanent Seeding' (see Sediment Control Notes).
- Place bituminous surface and base courses
- Remove temporary sediment control devices, shape up sediment basin, remove plugs in Modified 'D' inlet and stabilize disturbed area as per Sediment Control Notes.



GRASS CHANNEL
No Scale
HYDRAULICS
d = 0.50
r²/s = 0.5497
s² = 0.1414
n = 0.03
V = 3.83 f.p.s.
Q = 14.43 c.f.s.

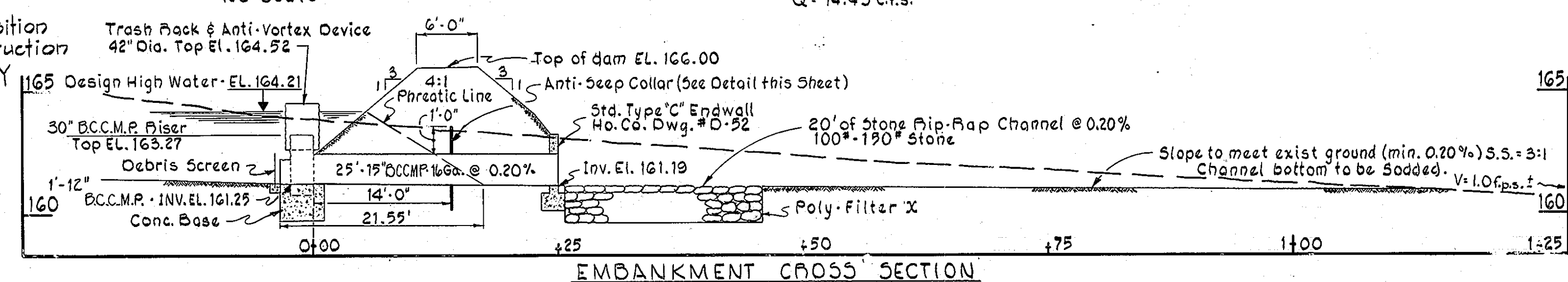


SECTION A-A
RIP-RAP OUTLET PROTECTION
NOT TO SCALE

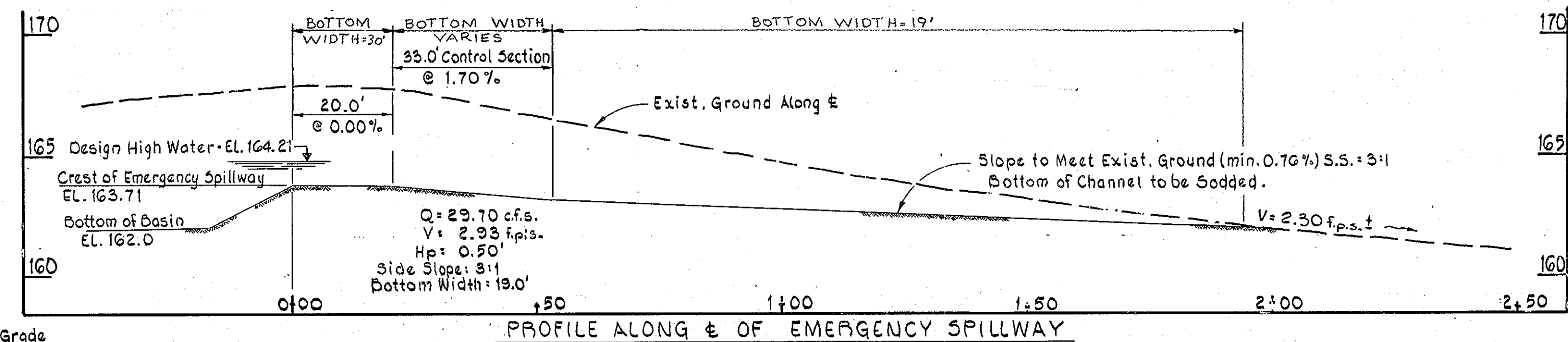


APPROVED
DIVISION OF LAND DEVELOPMENT
HOWARD COUNTY, MARYLAND
DATE 1-10-79

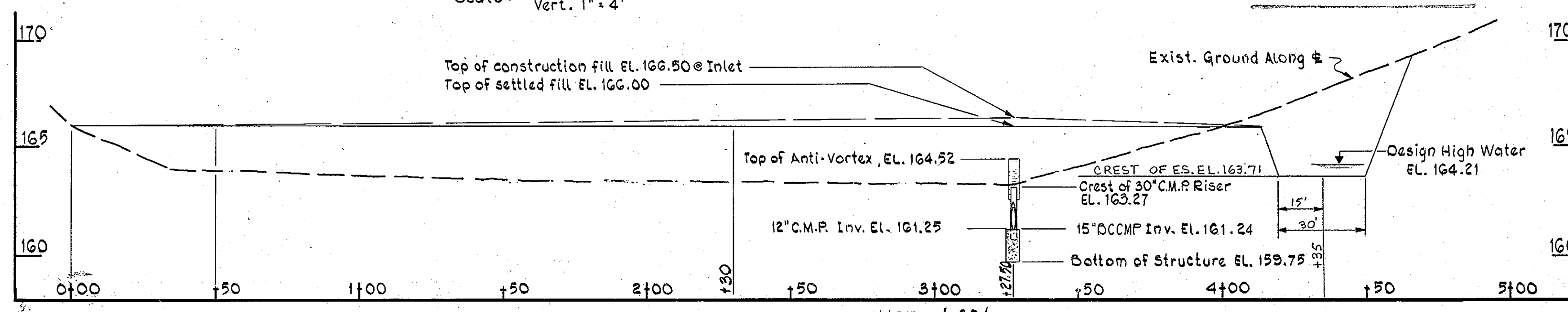
SECTION A-A
ISOMETRIC
CONCENTRIC TRASH RACK & ANTI-VORTEX DEVICE
No Scale



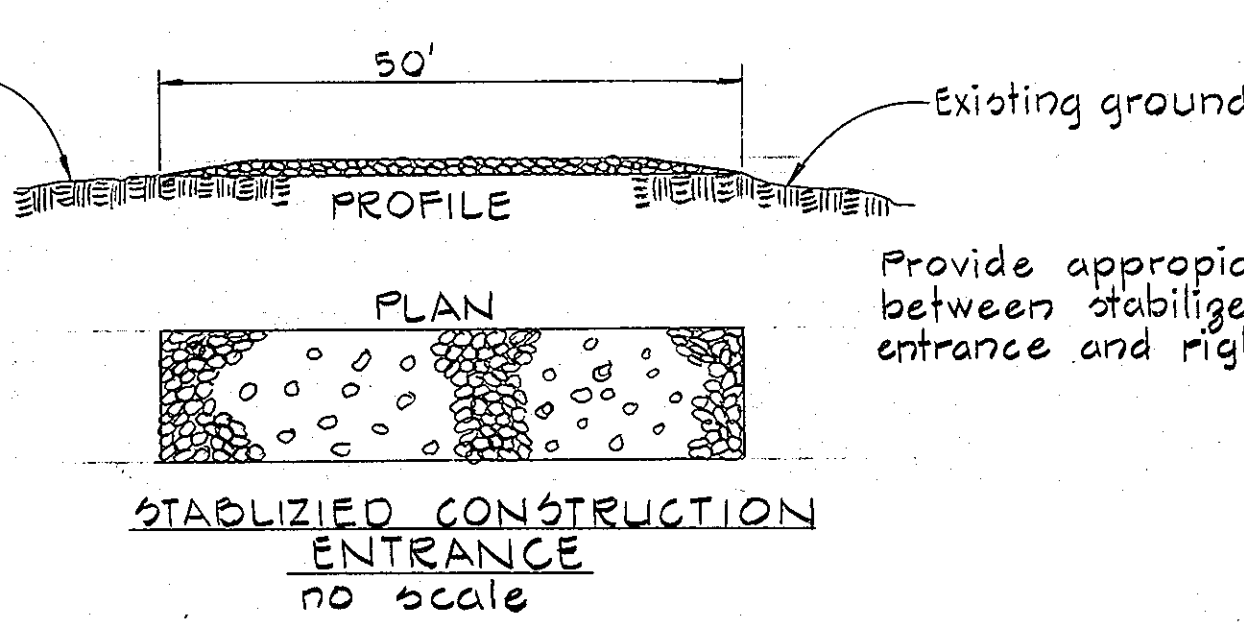
EMBANKMENT CROSS SECTION
Scale: Horiz. 1" = 10'
Vert. 1" = 4'



PROFILE ALONG & OF EMERGENCY SPILLWAY
Scale: Horiz. 1" = 20'
Vert. 1" = 4'



PROFILE ALONG & OF EMBANKMENT SCALE: HOR. 1" = 30'
VERT. 1" = 4'

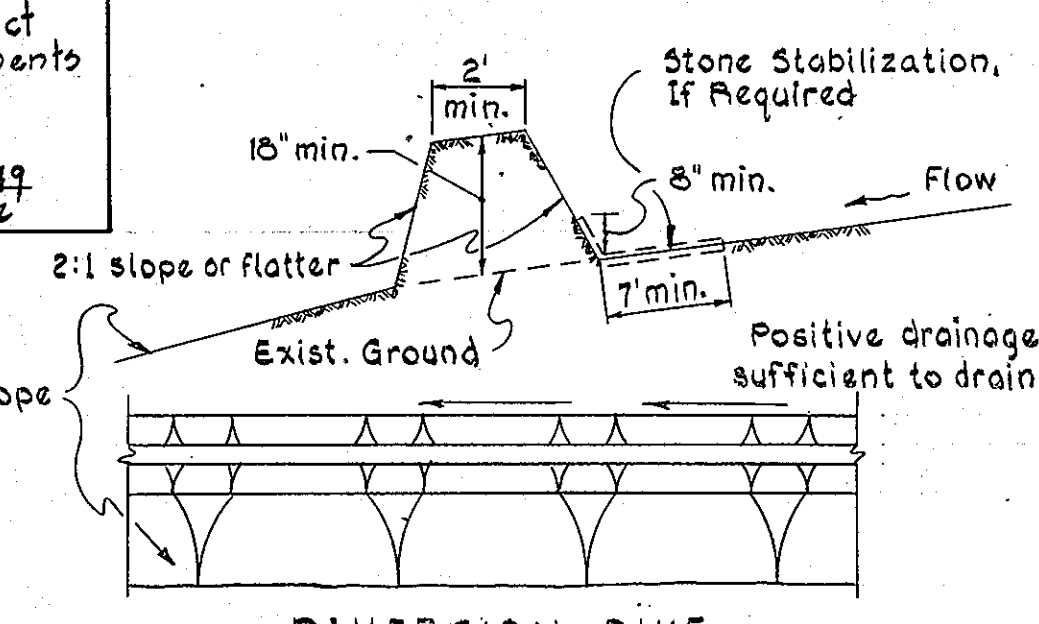


Provide appropriate transition between stabilized construction entrance and right of way

This plan for small pond construction meets the requirements of Howard Soil Conservation District
Winsted Burdett 1/19/79 Date

This plan has been reviewed for Howard Soil Conservation District and meets the technical requirements for small pond construction.
Robert Zichow 1/19/79 Date
Soil Conservation Service

Note: The developer shall provide the Soil Conservation Service "As Built" drawings prepared and signed by a Civil Engineer registered in the State of Maryland within 30 days following completion of the Storm Water Retention structure.



STORMWATER MANAGEMENT DETENTION POND DESIGN INFORMATION

YEAR	RAINFALL		RUNOFF DEPTH		STORAGE		RELEASE DATE		
	UNDEV.	DEV.	INDEX	DEV.	REQUIRED	ACTUAL	MAX. ALLOW.	ACTUAL	
STORM	(INCHES)	(INCHES)	(INCHES)	(INCHES)	(ft ³)	(ft ³)	c.f.s.	c.f.s.	
2 Year	5.8	0.9	3.2	0.35	0.81	8,276	8,276	2.31	2.60
10 Year	5.8	0.9	5.1	1.25	2.10	35,629	35,629	3.25	6.50

Approved: For public water, private sewerage, Howard County Department of Public Works.
Wm. F. Nunn 2/5/79 Date
Director
W. O. Seltzer 2-25-79 Date
Chief, Bureau of Highways

Approved: Howard County Office of Planning and Zoning.
William A. Davis 2-16-79 Date
Planning Director
William A. Davis 2-16-79 Date
Chief, Division of Land Dev.

Approved: For public water and private sewerage systems Howard County Health Department.
William G. Rosh II 1-30-79 Date
County Health Officer

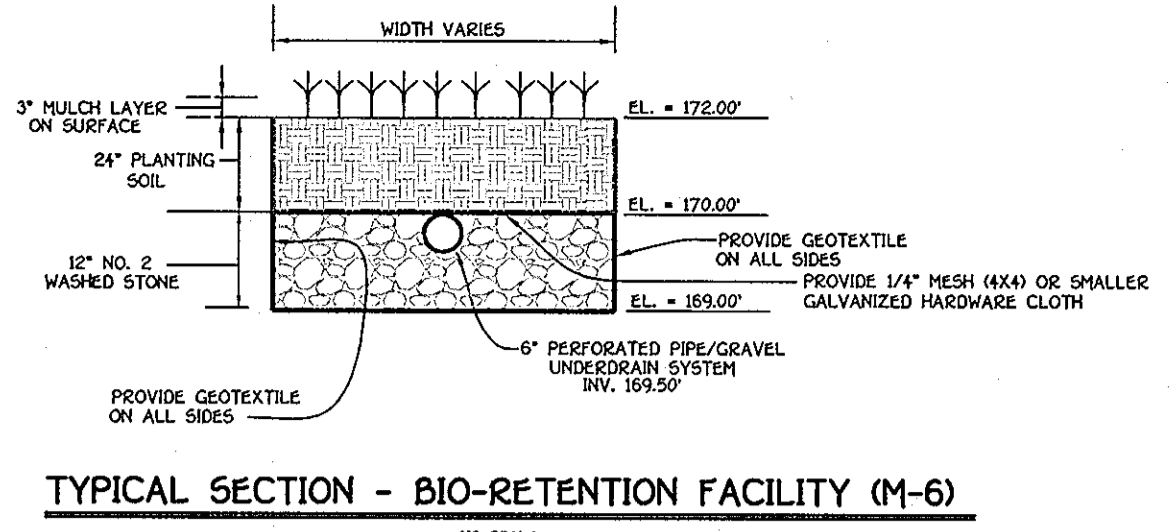
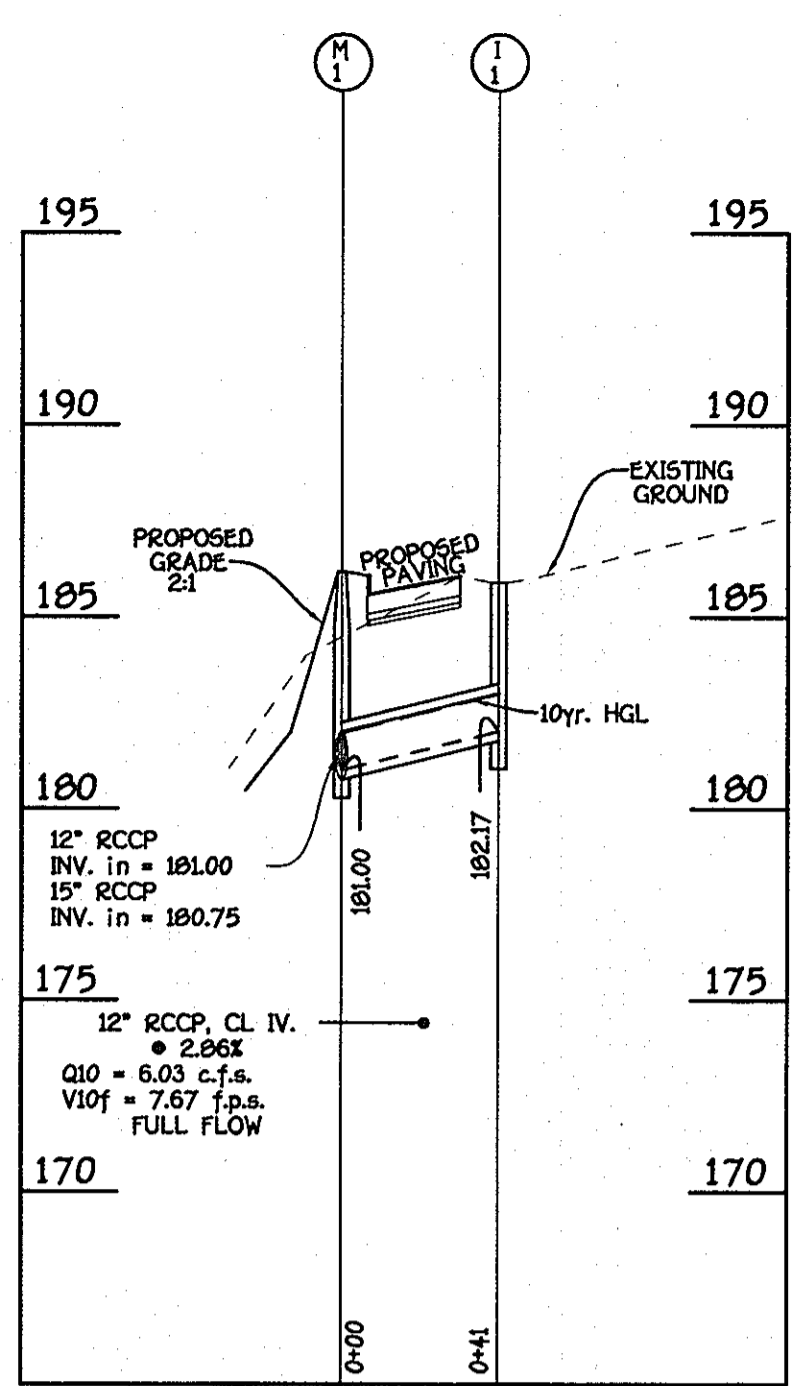
PURDUM & JESCHKE
CONSULTING ENGINEERS
LAND SURVEYORS
1023 North Calvert Street
Baltimore, Maryland 21202 301/837-0194

HOWARD SOIL CONSERVATION DISTRICT
Reviewed for Howard Soil Conservation District and meets technical requirements.
Winsted Burdett 1-18-79 Date
This development plan is approved for soil erosion & sediment control by the Howard Soil Conservation District.
Winsted Burdett 1-18-79 Date
Approved: Howard Soil Conservation Dist.

DEVELOPER
This is to certify that all development and/or construction will be done according to this plan of development and plan for erosion and sediment control and to authorize periodic on-site inspection by the Howard Soil Conservation District of their authorized agents, as are deemed necessary. Deviation from this plan will not be made unless authorized by the Howard Soil Conservation District.
Winsted Burdett 9/14/78 Date

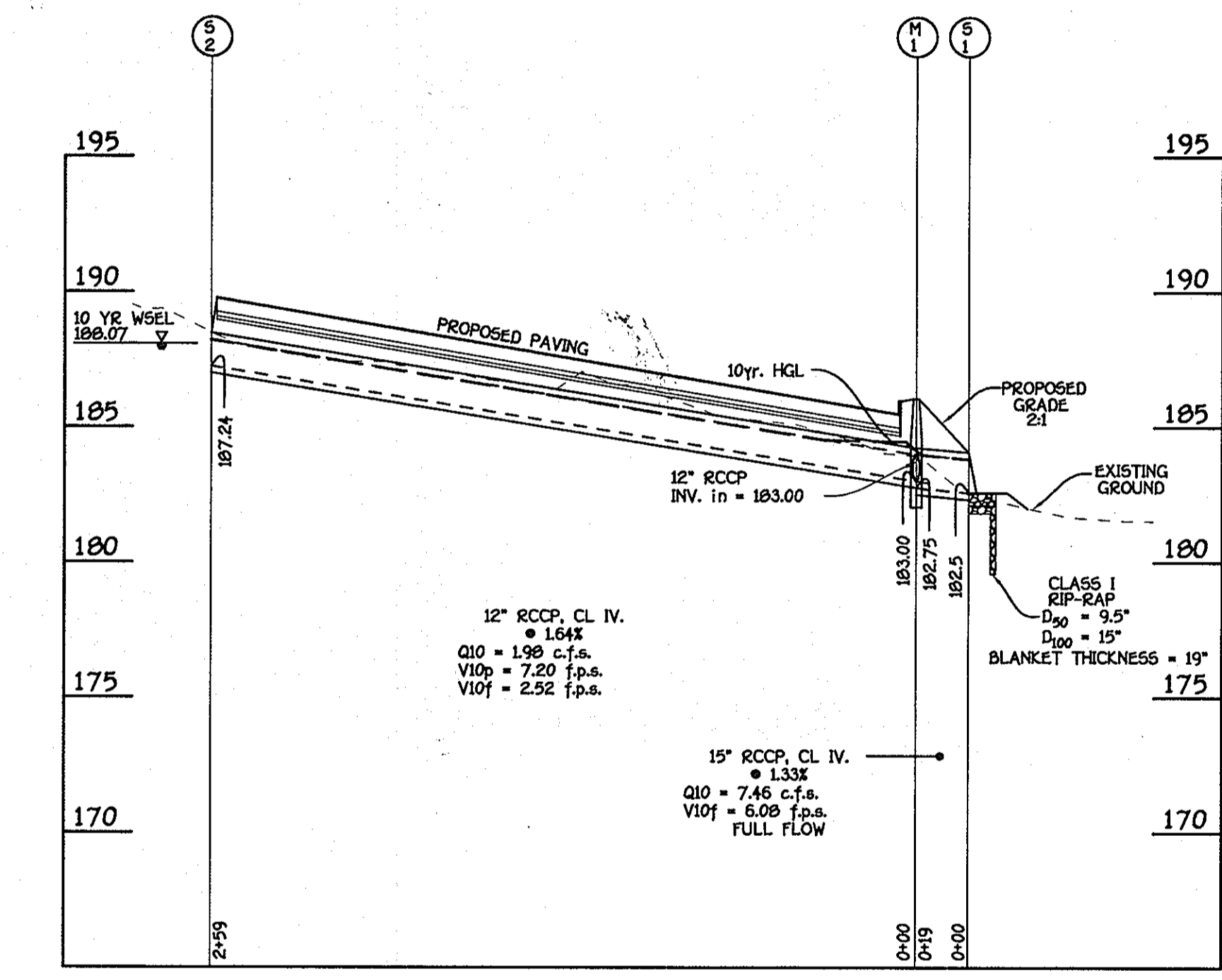
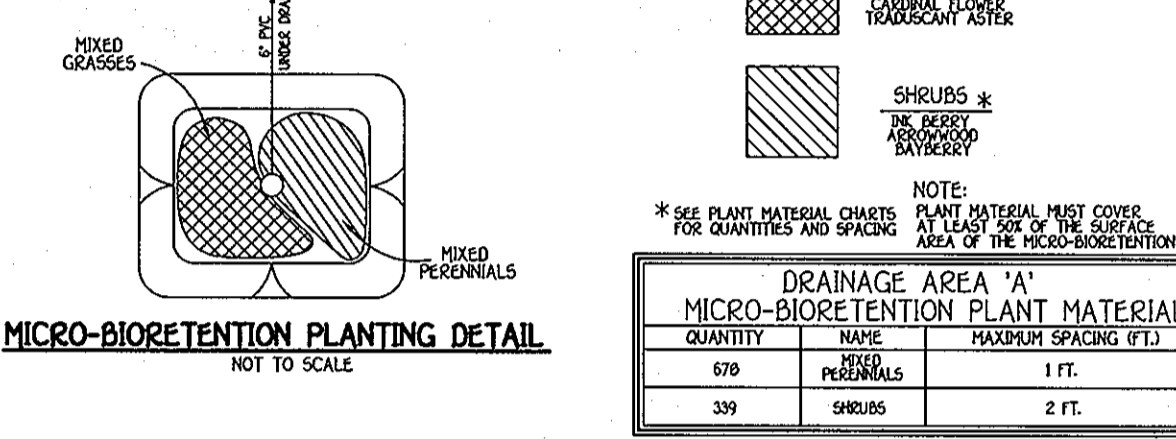
PROFESSIONAL ENGINEER
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.
William G. Rosh II 9/14/78 Date

STORMWATER MANAGEMENT AND SEDIMENT CONTROL DETAILS
BURDETT OXYGEN COMPANY
JES5UP
6th Election District
Scale: 1" = 50'
Howard Co. Md.
August 22, 1978
SHEET 2 of 5
Designed By: R.J.T.
Drawn By: W.K.F.
Checked By: R.J.T.
Rev. Loc. Date



OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-6)

- Annual maintenance of plant material, mulch layer and soil layer is required. 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.
- Schedule of plant inspection will be twice a year in spring and fall. This inspection will include removal of dead and diseased vegetation considered beyond treatment, treatment of all diseased trees and shrubs and replacement of all deficient stakes and wires.
- Mulch shall be inspected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
- Soil erosion to be addressed on an as needed basis, with a minimum of once per month and after heavy storm events.



STRUCTURE SCHEDULE (PRIVATE)

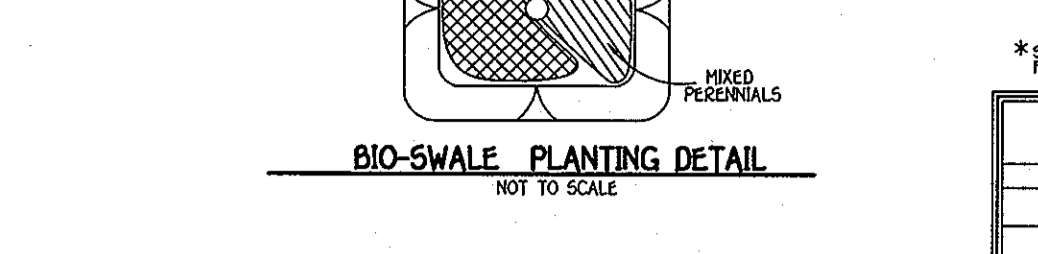
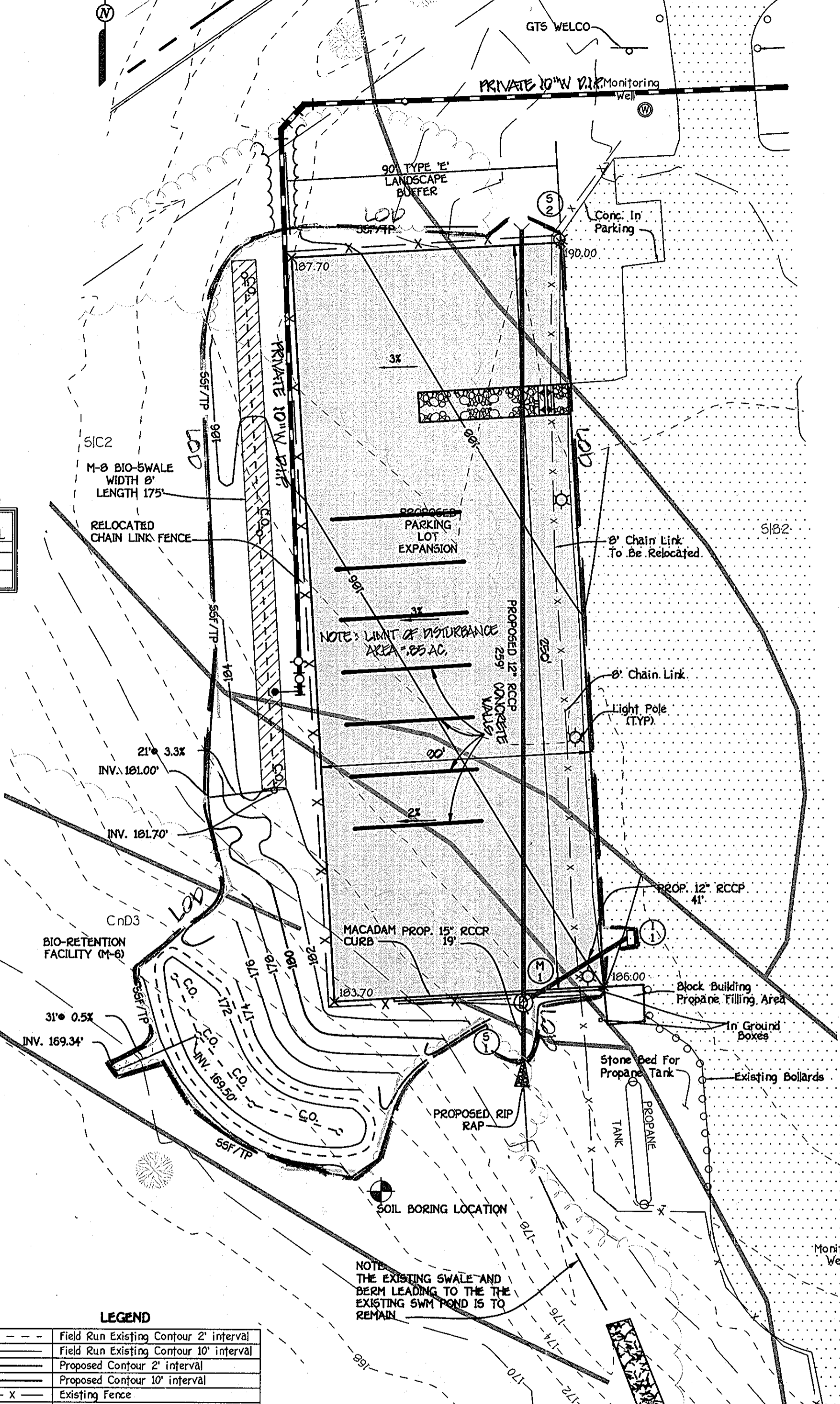
STRUCTURE NO.	TOP ELEVATION	INV. IN.	INV. OUT.	TYPE & WIDTH	REMARKS
H-1	185.90	—	182.90	5" INLET	D - 4.22
H-1	186.17	181.00 / 181.00	180.75	MANHOLE	G - 5.12
S-1	—	—	180.56	TYPE 'C' HEADWALL	D - 5.11
S-2	—	—	187.24	TYPE 'C' HEADWALL	D - 5.11

PIPE SCHEDULE (PRIVATE)

SIZE	CLASS	LENGTH
6"	Perforated 6" Schedule 40 PVC	25'
6"	Schedule 40 PVC	50'
12"	RCCP, CL. IV.	34'
15"	RCCP, CL. IV.	19'

LEGEND

- Field Run Existing Contour 2' interval
- Field Run Existing Contour 10' interval
- Proposed Contour 2' interval
- Proposed Contour 10' interval
- Existing Fence
- Existing Tree Line
- Proposed Tree Line
- Proposed Boring
- Ex. Water
- Limit of Disturbance
- Super Silt Fence
- 6" Schedule 40 PVC
- Perforated 6" Schedule 40 PVC
- Proposed Fence
- Existing Paving
- Proposed Paving
- Clean Out

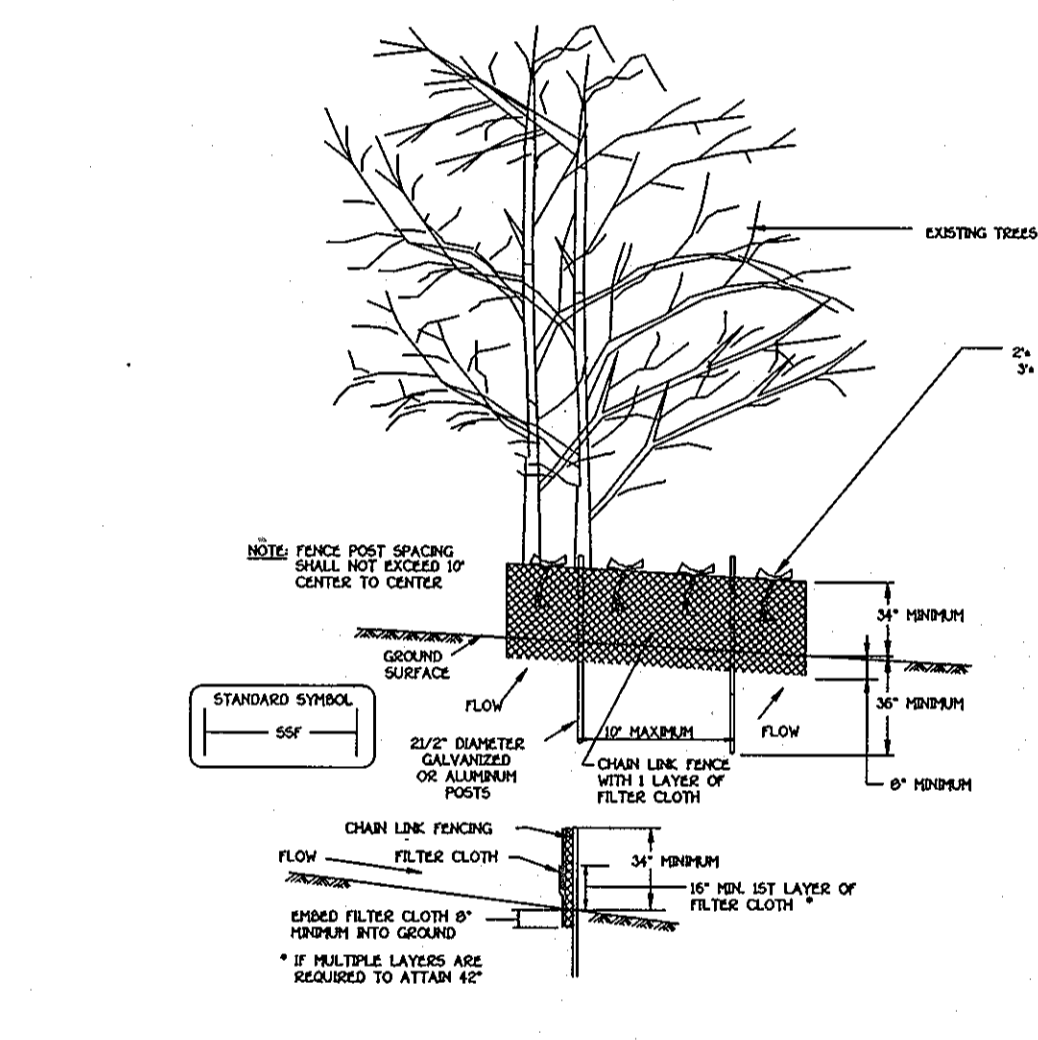


OPERATION AND MAINTENANCE SCHEDULE FOR BIO-SWALE AREAS (M-8)

- Annual maintenance of plant material, mulch layer and soil layer is required. 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.
- Schedule of plant inspection will be twice a year in spring and fall. This inspection will include removal of dead and diseased vegetation considered beyond treatment, treatment of all diseased trees and shrubs and replacement of all deficient stakes and wires.
- Mulch shall be inspected each spring. Remove previous mulch layer before applying new layer once every 2 to 3 years.
- Soil erosion to be addressed on an as needed basis, with a minimum of once per month and after heavy storm events.

SOILS LEGEND

SOIL	NAME	CLASS
CnB2	Chilpan-Fairfax loam, 1 to 5 percent slopes, moderately eroded	C
CnB3	Chilpan-Fairfax loam, 5 to 15 percent slopes, moderately eroded	C
Hs	Hartford silt loam	D
Mo	Mixed silt/clay loam	D
SnB2	Sandyfine loam, 1 to 5 percent slopes, moderately eroded	B
SnB3	Sandyfine loam, 5 to 10 percent slopes, moderately eroded	B
SnB4	Sandyfine loam, 10 to 15 percent slopes, moderately eroded	B



CONSTRUCTION SPECIFICATIONS

- FENCING SHALL BE 42" IN HEIGHT AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST MARYLAND STATE HIGHWAY DETAILS FOR CHAIN LINK FENCING. THE SPECIFICATION FOR A 6" FENCE SHALL BE USED, SUBSTITUTING 42" FABRIC AND 6" LENGTH POSTS. CHAIN LINK FENCE SHALL BE FASTENED SECURELY TO THE FENCE POSTS WITH WIRE.
- TIES, THE LOWER TENSION WIRE, BRACE AND TRUSS RODS, DRIVE ANCHORS AND POST CAPS ARE NOT REQUIRED EXCEPT ON THE ENDS OF THE FENCE. 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 6" INTO THE GROUND.
- WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED BY 6" AND FOLDED. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND SILT BUILDUPS REMOVED WHEN.
- "BAGLES" DEVELOP IN THE SILT FENCE, OR WHEN SILT REACHES SOLE OF FENCE. HEIGHT FILTER CLOTH SHALL BE FASTENED SECURELY TO EACH FENCE POST WITH WIRE TIES.
- OR STAPLES AT TOP AND MID SECTION AND SHALL MEET THE FOLLOWING REQUIREMENTS FOR GEOTEXTILE CLASS 7:

DESIGN CRITERIA

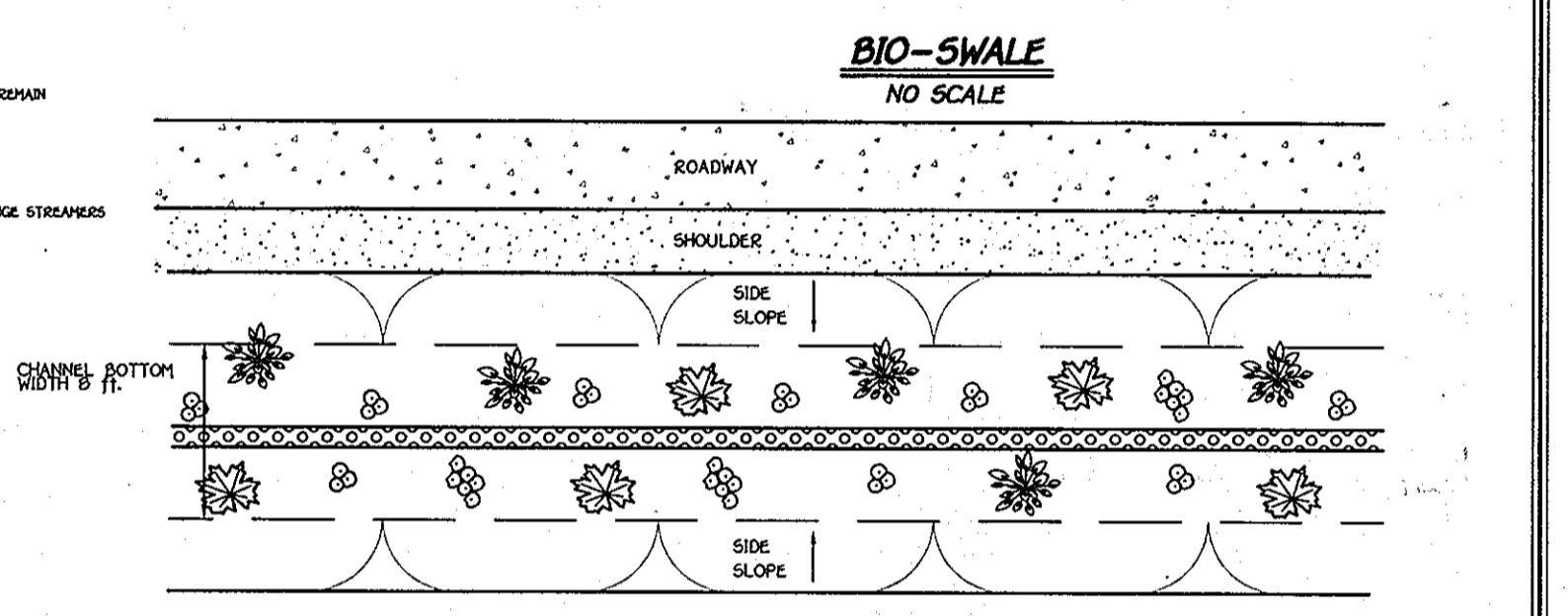
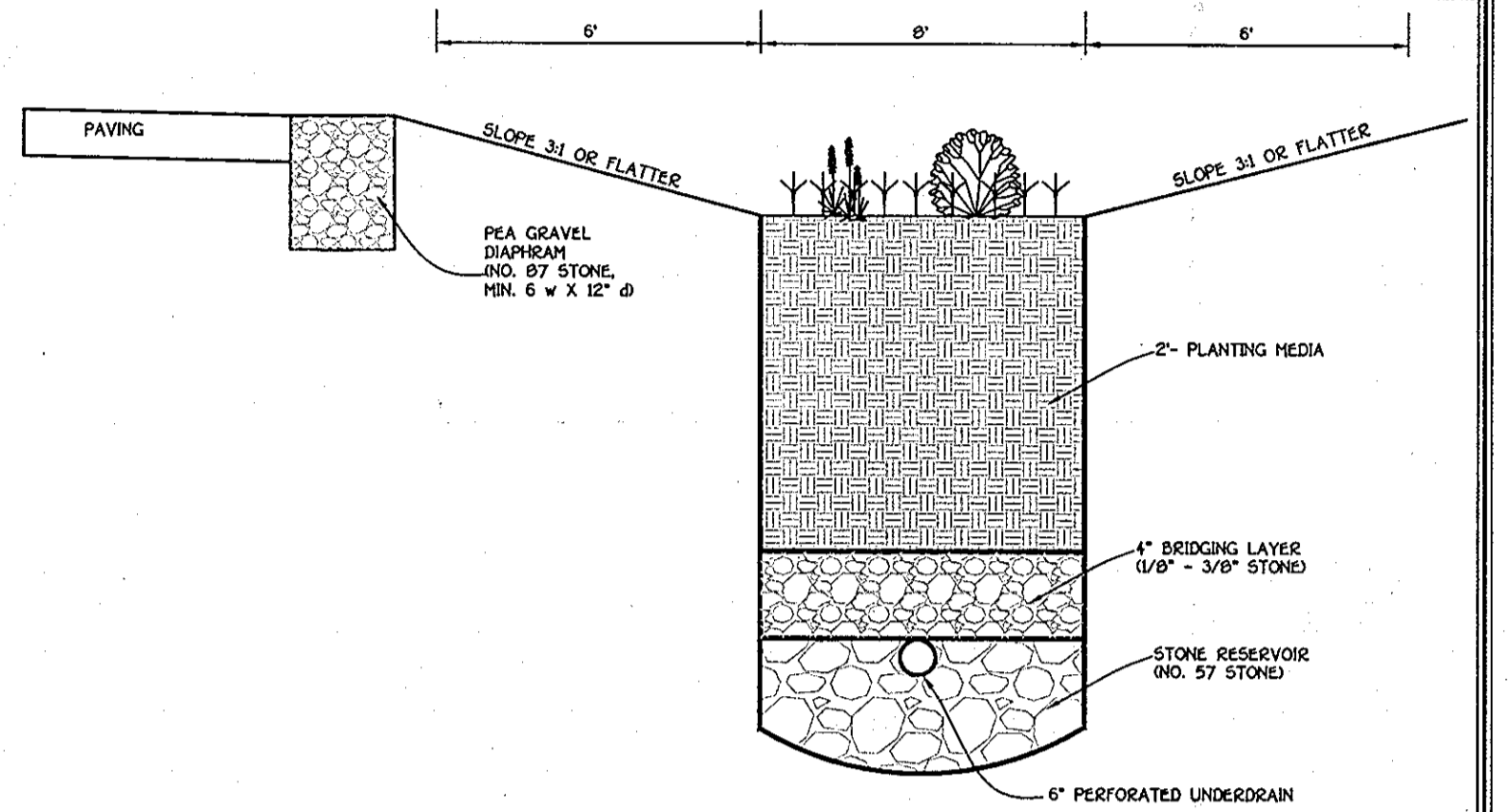
SLOPE	SLOPE STEEPNESS	SLOPE LENGTH (MAXIMUM)	SILT FENCE LENGTH
0 - 10%	0 - 10%	UNLIMITED	UNLIMITED
10 - 20%	10% - 5%	200 FEET	1,500 FEET
20 - 33%	5% - 3%	100 FEET	1,000 FEET
33 - 50%	3% - 2%	100 FEET	500 FEET
50% +	2% +	50 FEET	250 FEET

RIP-RAP CHANNEL DESIGN DATA

STRUCTURE	AREA	WETTED PERIMETER	R	R ^{2/3}	S	S ^{1/2}	W	d	N	V (ft/s)	Q (cfs)	SP-RAP SIZE (D ₅₀)	BLANKET THICKNESS
S-1	2.90	58.55'	7.12'	3.72'	0.005	0.0707	6.00'	1.98'	0.04	1.86	7.46	9.5"	15"

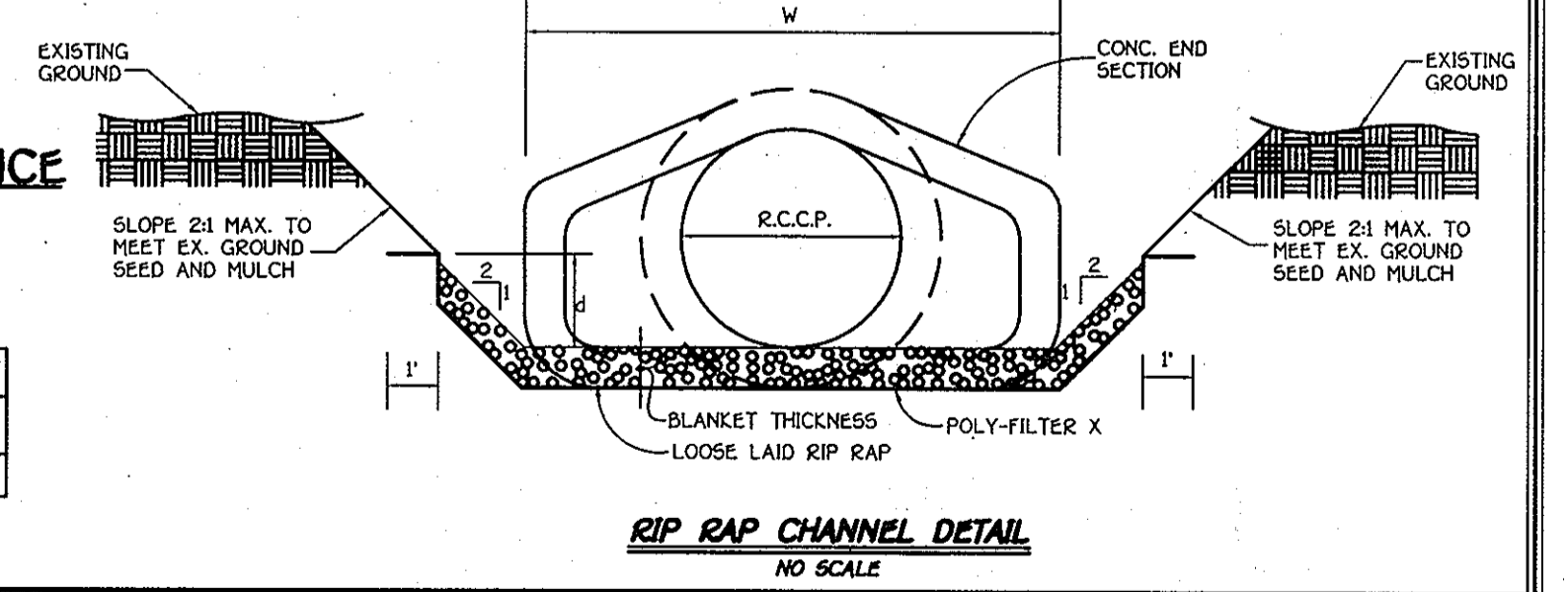
SCHEDULE A PERIMETER LANDSCAPE EDGE

PERIMETER	P-1
CATEGORY	ADJACENT TO ROAD
LANDSCAPE TYPE	E
LINEAR FEET OR ROADWAY FRONTAGE/PERIMETER	90'
CREDIT FOR EXISTING VEGETATION (YES, NO LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	YES 90'
CREDIT FOR WALL, FENCE OR BERM (YES, NO LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NO
NUMBER OF PLANTS REQUIRED SHADE TREES EVERGREEN TREES SHRUBS	N/A



CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS

- The subgrade for the filter, rip-rap or gabion shall be prepared to the required lines and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material.
- The rock or gravel shall conform to the specified grading limits when installed respectively in the rip-rap or filter.
- Filter cloth shall be protected from punching, cutting or tearing. Any damage other than an occasional small hole shall be repaired by placing another piece of cloth over the damaged part or by completely replacing the cloth. All overlaps whether for repairs or for joining two pieces of cloth shall be a minimum of one foot.
- Stone for the rip-rap or gabion outlets may be placed by equipment. Both shall each be constructed to the full course thickness in one operation and in such a manner as to avoid displacement of underlying materials. The stone for rip-rap or gabion outlets shall be delivered and placed in a manner that will insure that it is reasonably homogenous with the smaller stones and spalls filling the voids between the larger stones. Rip-rap shall be placed in a manner to prevent damage to the filter blanket or filter cloth. Hand placement will be required to the extent necessary to prevent damage to the permanent works.



FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 1272 BALDWIN NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 20628
(410) 466-3222

REVISION BLOCK

DATE	DESCRIPTION	REVISION
5/20/12	ADDED PRIVATE 10" DWP WATER MAIN	

ENGINEER'S CERTIFICATE
I certify that this erosion and sediment control represents a practical and workable plan based on my knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

ALDO M. VITUCCI
Date: 3-30-11

OWNER/DEVELOPER'S CERTIFICATE
"I/we certify that development and construction will be done according to this plan and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

JOHN DUNN
Date: 3-6-11

This development plan is approved for soil erosion and sediment control by the HOWARD SOIL CONSERVATION DISTRICT.

John R. Robertson
Date: 4/6/11

OWNERS
GTS-WELCO
8025 DORSEY RUN ROAD
JESSUP, MD 20794
410-796-8845

DEVELOPER
CPE INCORPORATED
8131 DORSEY RUN ROAD
JESSUP, MD 20794
410-799-1169 EXT. 10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Victor S. Dardanos
Date: 11-17-11

Thomas J. Dardanos
Date: 11-15-11

Morgan S. Dardanos
Date: 11/16/11

SUBDIVISION N/A
SECTION/AREA N/A
LOT NO. N/A

PLAT BOOK N/A
PARCEL NO. 8
ZONE M-2
TAX MAP 48
ELEC. DIST. 6th
CENSUS TR. 606901

REVISED SEDIMENT AND EROSION CONTROL PLAN

BURDETT OXYGEN COMPANY

TAX MAP No: 48 GRID No: 3 PARCEL No: 8
6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2012
SHEET 3 OF 5 **SDP-79-037**

20.0 STANDARDS AND SPECIFICATIONS FOR VEGETATIVE STABILIZATION

DEFINITION
Using vegetation as cover for barren soil to protect it from forces that cause erosion.

PURPOSE
Vegetative stabilization specifications are used to promote the establishment of vegetation on exposed soil. When soil is stabilized with vegetation, the soil is less likely to erode and more likely to allow infiltration of rainfall, thereby reducing sediment loads and run-off to downstream areas, and improving wildlife habitat and visual resources.

CONDITIONS WHERE PRACTICE APPLIES
This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, to quickly establish vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left idle between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dams, cut and fill slopes and other areas at final grade, former stockpile and staging areas, etc.

EFFECTS ON WATER QUALITY AND QUANTITY
Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff. Infiltration and evapotranspiration will be increased. Vegetation over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients, and other chemicals carried by runoff to receiving waters. Planting will also help protect against supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seeded preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated chemicals and nutrients from washing into surface waters.

SECTION 1 - 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 analyzed for chemical analysis.
- Fertilizers shall be uniform in composition, free flowing and suitable for accurate application by approved equipment. Nutrients may be substituted for fertilizer with prior approval from the appropriate 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 warranty 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 90-100% will pass through a #20 mesh sieve.
- Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.

C. Seeded Preparation

- Temporary Seeding
 - Seeded preparation shall consist of loosening soil to a depth of 3" to 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 dragged smooth, 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.
 - After fertilizer and lime is prescribed on the plans.
 - Incorporate lime and fertilizer into the top 3-5" of soil by diking or other suitable means.
- Permanent Seeding
 - Minimum soil conditions required for permanent vegetative establishment:
 - Soil pH shall be between 6.0 and 7.0.
 - Soil salinity shall be less than 500 parts per million (ppm).
 - The soil shall contain less than 40% clay, but enough fine grained material to provide the capacity to hold a moderate amount of moisture. An exception is if loess or silt loess is to be planted, then a sandy soil (30% silt and 70% sand) 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 diking 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 and application. Where site conditions will not permit normal seeded preparation, loosen surface soil by diking 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 friable. Seeded loosening may not be necessary on newly disturbed areas.

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 in the seed mixture 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 package. Use four times the recommended rate when hydroseeding. 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 seeded, or a cultipacker seeder.

- If fertilizer is being applied at the time of seeding, the application rates amounts will not exceed the following: nitrogen maximum of 100 lbs. per acre total of soluble nitrogen P205 (phosphorous) 200 lbs/acre; K2O (potassium) 200 lbs/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 seeded 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 inch of soil covering. Seeded 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, reasonable bright in color, and shall not be musty, mold, decayed, or excessively dusty and shall be free of noxious weed seeds as specified in the Maryland Seed Law.
- Wood Cellulose Fiber Mulch (WCFF)
 - WCFF shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - WCFF shall be dried and contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniform spread slurry.
 - WCFF, including dye, shall contain no germination or growth inhibiting pesticides.
 - WCFF 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 soil without inhibiting the growth of the grass seedlings.
 - WCFF material shall contain no elements or compounds at concentrations levels that will phytotoxic to plants.
 - WCFF must conform to the following physical requirements: fiber length to be approximately 1 mm, diameter approximately 1 mm, pH range of 4.5 to 8.5, ash content of 1% maximum and water holding capacity of 90% minimum.
 - WCFF shall be applied to a uniform 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/acre.
- When straw mulch is used, it shall be spread over all seeded areas at the rate of 2 tons/acre. Mulch shall be applied to a uniform 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/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 shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons of water.

H. 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 size of area and erosion hazard):

- A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil. It is limited to flatter slopes where equipment can operate safely. If used on sloping areas, this method is not recommended.
- Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied at a net dry weight of 750 pounds/acre. Synthetic binders such as Acryl-DAC (Acryl-Tack) Petroset, Terra-Tack II, Terra-Tack AG or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
- Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and crest of banks. The remainder of area should be applied uniform after binder application. Synthetic binders such as Acryl-DAC (Acryl-Tack) Petroset, Terra-Tack II, Terra-Tack AG 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' to 15' feet wide and 300 to 3,000 feet long.

SECTION 2 - TEMPORARY SEEDING

Vegetation - annual grass or grain 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 the appropriate Plant Hardiness Zone (from Figure 3) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates, seeding depths and seed depths. If this summary is not put on the construction 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.

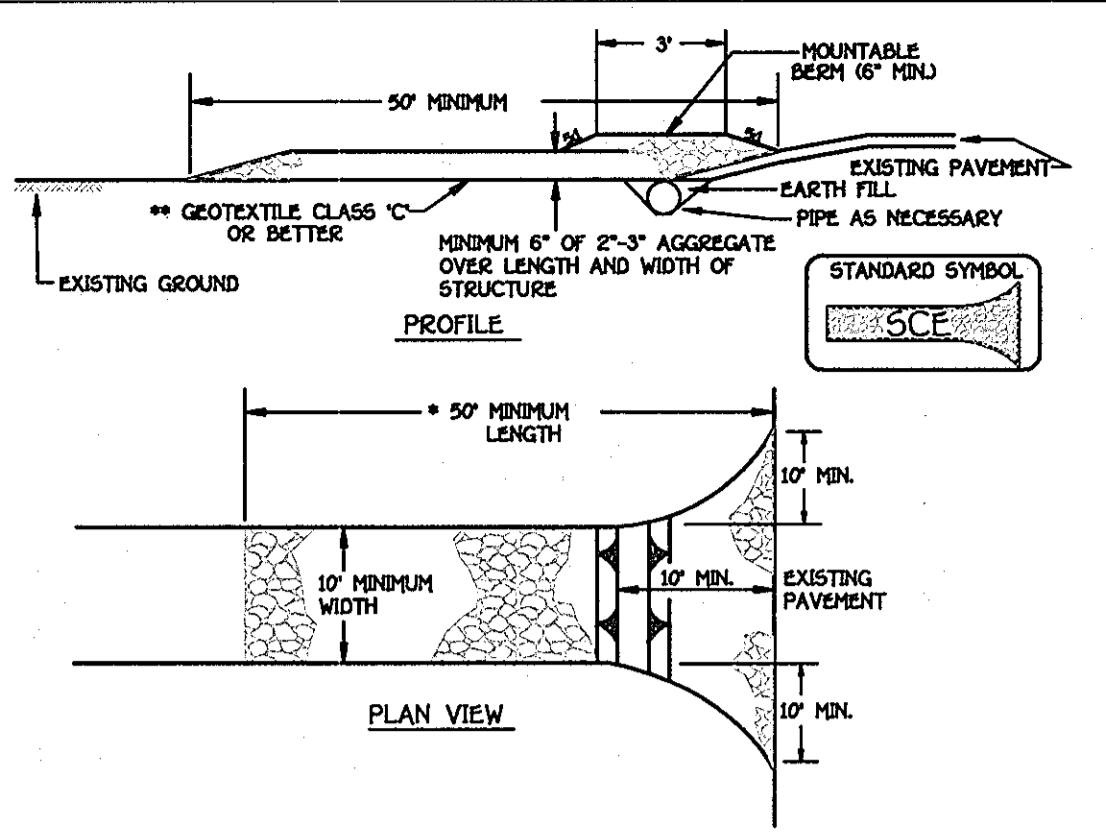
Seed Mixture (Hardness Zone ----- 6b.)		From Table 26		Fertilizer Rate	Lime Rate
No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	(10-10-10)
1	BARLEY	122	3/1 - 5/15	1" - 2"	600 lb/acre
	OATS	96	8/15 - 10/15	1" - 2"	2 tons/acre
	RYE	140		1" - 2"	US lb/1000sf

SECTION 3 - PERMANENT SEEDING

A. Seed mixtures - Permanent Seeding

- Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardiness Zone (from Figure 3) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths may 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 aesthetic treatment may be found in USDA-ARS Technical Field Office 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/1000 sq. ft. (150 lbs/acre), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

Seed Mixture (Hardness Zone ----- 6b.)		From Table 25		Fertilizer Rate	Lime Rate
No.	Species	Application Rate (lb/acre)	Seeding Dates	Seeding Depths	N P205 K2O
3	TALL FESCUE (955)	125	3/1 - 5/15	1" - 2"	90 lb/acre
	PERENNIAL RYE GRASS (100)	15	8/15 - 10/15	1" - 2"	175 lb/acre
	KENTUCKY BLUEGRASS (95)	10		1" - 2"	175 lb/acre
10	TALL FESCUE (955)	120	3/1 - 5/15	1" - 2"	140 lb/acre
	HARD FESCUE (203)	30	8/15 - 10/15	1" - 2"	1000sf



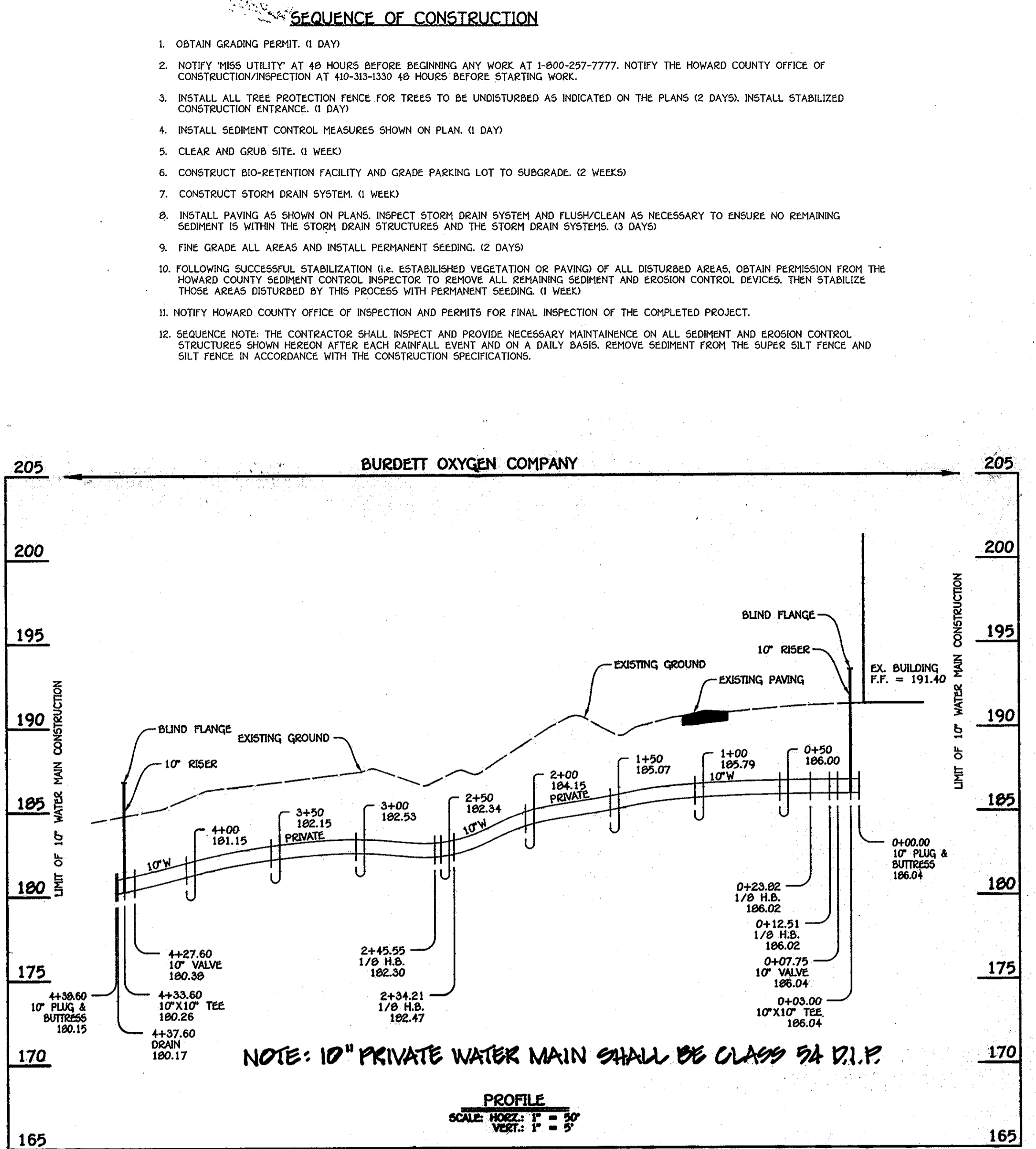
CONSTRUCTION SPECIFICATION

- LENGTH - MINIMUM OF 50' FOR SINGLE RESIDENCE LOT.
- WIDTH - 10' MINIMUM SHOULD BE PLACED 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 1/2" TO 3/4" 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 BEAM 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 SIZE 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.

STABILIZED CONSTRUCTION ENTRANCE

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 (31-1859).
- ALL VEGETATIVE AND STRUCTURE PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, DICES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1, BY 14 DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE.
- ALL SEDIMENT TRAP/BASINS SHOWN MUST BE FENCED AND WARNING SIGNS POSTED AROUND THEIR PERIMETER IN ACCORDANCE WITH VOL. 1, CHAPTER 12, OF THE HOWARD COUNTY DESIGN MANUAL, STORM DRAINAGE.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR PERMANENT SEEDING (SEC. 31) SOD (SEC. 34), TEMPORARY SEEDING (SEC. 30), AND MULCHING (SEC. 32). 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 TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR.
- NOTE: THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH SHALL BE BACK-FILLED AND STABILIZED WITHIN ONE WORKING DAY, WHICHEVER IS SHORTER.



10" PRIVATE WATER MAIN

WATER MAIN TABULATION CHART

W.M. STA.	APPURTENANCE	NORTHING	EASTING
10" WATER MAIN (PRIVATE)			
0+00.00	10" PLUG & BUTTRESS	540301.72	1373483.15
0+03.00	10"X10" TEE	540304.71	1373482.96
0+07.75	10" VALVE	540309.46	1373482.66
0+12.51	1/8" H.B.	540314.20	1373482.36
0+23.82	1/8" H.B.	540321.68	1373473.87
2+34.21	1/8" H.B.	540308.41	1373263.90
2+45.55	1/8" H.B.	540299.92	1373263.90
++27.60	10" VALVE	540118.19	1373267.09
++33.60	10"X10" TEE	540112.20	1373267.44
++37.60	DRAIN	540108.21	1373267.68
++38.60	10" PLUG & BUTTRESS	540107.21	1373267.74

FISHER, COLLINS & CARTER, INC.
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS
CENTRAL SQUARE OFFICE PARK - 10772 BALTIMORE NATIONAL PIKE
ELLSWORTH CITY, MARYLAND 21842
410.430.2000

DATE: 3/25/12
DESCRIPTION: ADDED PRIVATE 10" D.I.P. WATER MAIN PROFILE & CHART
REVISION BLOCK

ENGINEER'S CERTIFICATE

I certify that this plan for erosion and sediment control represents a practical and workable plan based on the best knowledge of the site conditions and that it was prepared in accordance with the standards and requirements of the Howard Soil Conservation District.

Signature: *ALDO H. VITUCCI*
Date: 3-30-11

OWNER'S/DEVELOPER'S CERTIFICATE

"I/we certify that the development and construction will be done according to this plan and that any responsible personnel involved in the construction project will have a Certificate of Attendance at a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project. I also authorize periodic on-site inspection by the Howard Soil Conservation District."

Signature: *JOSH DUMAL*
Date: 4-6-11

OWNERS
GTS-WELCO
8025 DORSEY RUN ROAD
JESSUP, MD 20794
410-796-0845

DEVELOPER
C/O INCORPORATED
C/O JOHN MCCONNELL
8313 DORSEY RUN ROAD
JESSUP, MD 20794
410-799-1069 EXT. 10

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Signature: *John R. Blanton*
Date: 4/6/11

Signature: *James S. Butler*
Date: 4/12/11

SUBDIVISION
N/A

SECTION/AREA
N/A

LOT NO.
N/A

PLAT BOOK
N/A

PARCEL NO.
B

ZONE
M-2

TAX MAP
4B

ELEC. DIST.
6th

CENSUS TR.
606901

REVISED
SEDIMENT AND EROSION NOTES AND DETAILS
AND PRIVATE WATER MAIN PROFILE & CHART
BURDETT OXYGEN COMPANY

TAX MAP No: 4B GRID No: 3 PARCEL No: B
6th ELECTION DISTRICT HOWARD COUNTY, MARYLAND
SCALE: AS SHOWN DATE: MARCH, 2012
SHEET 4 OF 5 SDP-79-037

