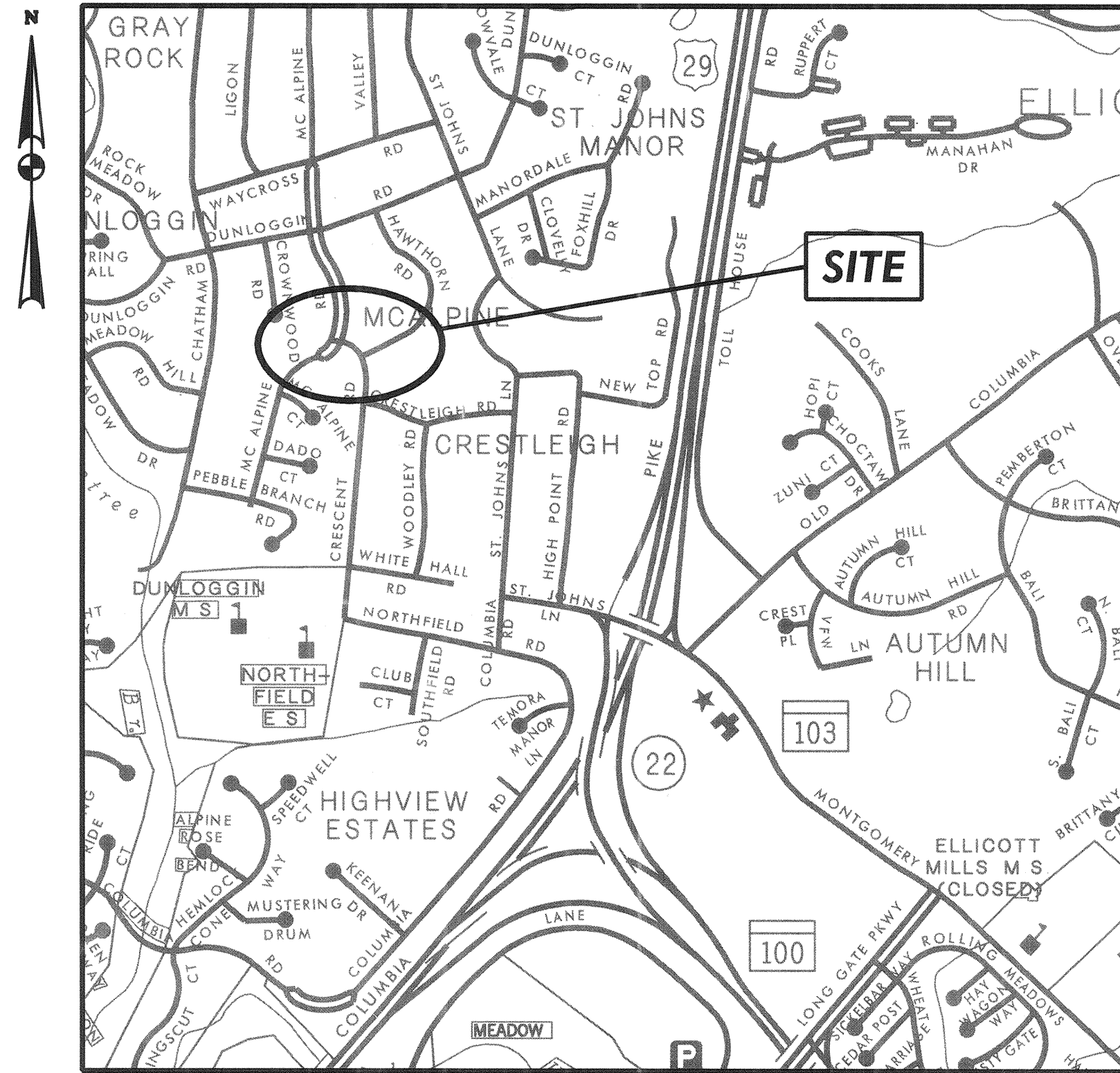


# ST. JOHN'S LANE STORMDRAIN IMPROVEMENTS – SYSTEM 1

HOWARD COUNTY, MARYLAND  
DEPARTMENT OF PUBLIC WORKS  
CAPITAL PROJECT NO.: D-1157

### SEQUENCE OF CONSTRUCTION

- 0 DAYS 1. OBTAIN A GRADING PERMIT FROM HOWARD COUNTY.
  - 0 DAYS 2. NOTIFY HOWARD COUNTY SEDIMENT AND EROSION CONTROL INSPECTOR AT LEAST 48 HOURS IN ADVANCE OF ANY CONSTRUCTION AND SCHEDULE A PRE-CONSTRUCTION WALK-THROUGH OF THE SITE.
  - 3 DAYS 3. INSTALL SEDIMENT CONTROLS FOR SYSTEM 1 AS SHOWN ON THE APPROVED SEDIMENT AND EROSION CONTROL PLAN. IMMEDIATELY STABILIZE ALL AREAS DISTURBED BY STORM DRAIN INSTALLATION. ALL TREE CLEARING SHALL BE MINIMIZED.
  - 30 DAYS 4. BEGIN INSTALLATION OF STORM DRAIN SYSTEM 1. CONSTRUCTION SHALL PROCEED FROM DOWNSTREAM TO UPSTREAM. STABILIZE DISTURBED AREA AT THE END OF EACH WORK DAY.
  - 5 DAYS 5. INSTALL NEW BITUMINOUS CURB.
  - 7 DAYS 6. INSTALL NEW BITUMINOUS PAVEMENT.
  - 2 DAYS 7. PLACE TOPSOIL AND SODDING IN ANY REMAINING DISTURBED AREAS.
  - 3 DAYS 8. ONCE ALL DISTURBED AREAS ARE STABILIZED AND WITH APPROVAL BY THE SEDIMENT AND EROSION CONTROL INSPECTOR, SEDIMENT CONTROL DEVICES MAY BE REMOVED.
- TOTAL 50 DAYS



LOCATION MAP

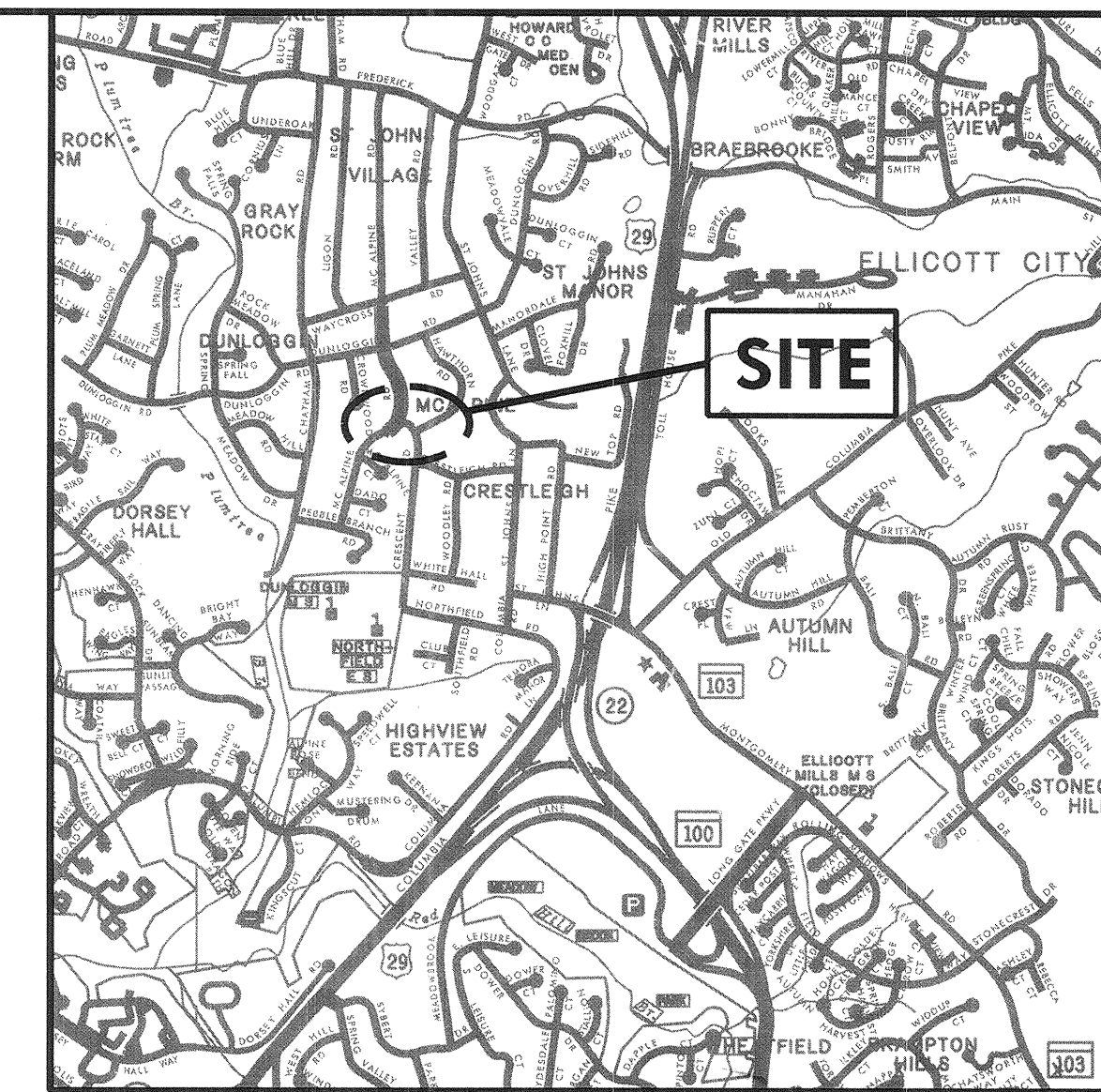
SCALE: 1" = 1000'

### INDEX

SHEET NO.	TITLE
1	TITLE SHEET
2	SITE GRADING & SEDIMENT AND EROSION CONTROL PLAN SHEET – SYSTEM 1
3	DRAINAGE PROFILE SHEET – SYSTEM 1
4	SEDIMENT AND EROSION CONTROL DETAILS
5	SEDIMENT AND EROSION CONTROL NOTES
6	DRAINAGE AREA MAP

### GENERAL NOTES

- INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM THE BEST AVAILABLE RECORDS. THE CONTRACTOR MUST DETERMINE THE EXACT LOCATIONS AND ELEVATIONS OF THE UTILITIES BY DIGGING TEST PITS AT ALL UTILITY CROSSINGS PRIOR TO CONSTRUCTION. IF CLEARANCES ARE LESS THAN SPECIFIED ON THIS PLAN OR LESS THAN 12 INCHES WHEN NOT SPECIFIED, CONTACT THE ENGINEER AND THE OWNER OF OTHER INVOLVED UTILITY.
- CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE (5) WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
  - MISS UTILITY 1-800-257-7777.
  - CONSTRUCTION INSPECTION DIVISION, HOWARD COUNTY (410) 313-1880.
  - BALTIMORE GAS & ELECTRIC COMPANY – UNDERGROUND ELECTRIC DISTRIBUTION CUSTOMER SERVICE (410) 685-0123.
  - VERIZON 1 (410) 224-9285.
  - AMERICAN TELEPHONE & TELEGRAPH CABLE LOCATION DIVISION (410) 393-3553.
  - BUREAU OF UTILITIES, HOWARD COUNTY (410) 313-2040.
  - HOWARD COUNTY SOIL CONSERVATION DISTRICT (410) 489-7987.
- THE SITE SURVEY WAS PERFORMED BY J.A. RICE, IN JULY OF 2006. THE HORIZONTAL IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 MARYLAND STATE PLANE GRID SYSTEM WITH THE 1991 HARNS ADJUSTMENT (NAD 8391). THE VERTICAL IS REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). THE HORIZONTAL AND VERTICAL ARE BASED ON AND ESTABLISHED FROM HOWARD COUNTY GEODETIC CONTROL STATIONS 0010 (24A), 24F4 and 24F3.
- AVOID DAMAGE TO TREES ON THE SITE TO MAXIMUM EXTENT. OTHER TREES WITHIN LIMITS OF CONSTRUCTION SHALL NOT BE DESTROYED WITHOUT APPROVAL OF THE ENGINEER. TREES > 12" DBH WITHIN LOD SHALL BE PROTECTED USING TREE PROTECTIVE FENCING.
- FOR DETAILS NOT SHOWN ON THESE DRAWINGS, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD CO. DESIGN MANUAL VOL. IV STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF VOL. IV ON THE JOB.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
- TRAFFIC CONTROL DEVICES MARKINGS AND SIGNINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD). ALL STREET AND REGULATORY SIGNS SHALL BE PLACED PRIOR TO THE PLACEMENT OF ANY ASPHALT.



VICINITY MAP

SCALE: 1" = 2000'

### LEGEND

- EX. CONTOURS ——— 400 ———
- EX. TREES [Symbol]
- EX. UTILITY POLE [Symbol]
- EX. FIRE HYDRANT [Symbol]
- EX. SANITARY MAIN ——— SAN ———
- EX. STORMDRAIN PIPE ——— ——— ———
- EX. STORMDRAIN STRUCTURE [Symbol]
- EX. WATER MAIN ——— ——— ———
- PROPOSED CONTOURS ——— 400 ———
- PROPOSED STORMDRAIN PIPE [Symbol]
- PROPOSED STORMDRAIN STRUCTURE [Symbol]
- PROPOSED OVERLAY AREA [Symbol]
- REMOVE AND REPLACE DRIVEWAY APRON [Symbol]
- AT-GRADE INLET PROTECTION [Symbol] AGIP
- LIMIT OF DISTURBANCE ——— LOD ———
- STABILIZED CONSTRUCTION ENTRANCE [Symbol]
- SUPER SILT FENCE ——— SSF ———
- DIVERSION FENCE ——— DF ———

Reviewed for Howard SCD and meets Technical Requirements

USDA - Natural Resources Conservation Service Date

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

*John P. Robertson* 4/19/10  
Howard SCD Date

DEVELOPERS CERTIFICATE

"I/We certify that all 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 of a Department of the Environment Approval 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 of Chief, Bureau of Engineering Date

ENGINEERS CERTIFICATE

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

*Charles McCallister* 4/19/10  
Signature of Engineer Date

Professional Certification:

"I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 11007, Expiration Date: 07/09/2008."

*Charles McCallister*  
Professional Engineer

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John P. Robertson* 5/14/10  
CHIEF, BUREAU OF HIGHWAYS DATE

*Steve Shaver* 5/14/10  
CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

**GPI** GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10977 GUILFORD RD., ANNAPOLIS JUNCTION, MD 20701  
WASH. (301) 410-2772 BAL. (410) 880-3555  
FAX: (301) 490-2840 www.gpi.com

DES. W.R.F.	DRN. W.K.T.	CHK. M.S.Z.	DATE	BY	NO	REVISION	DATE
			September, 2009				

TITLE SHEET

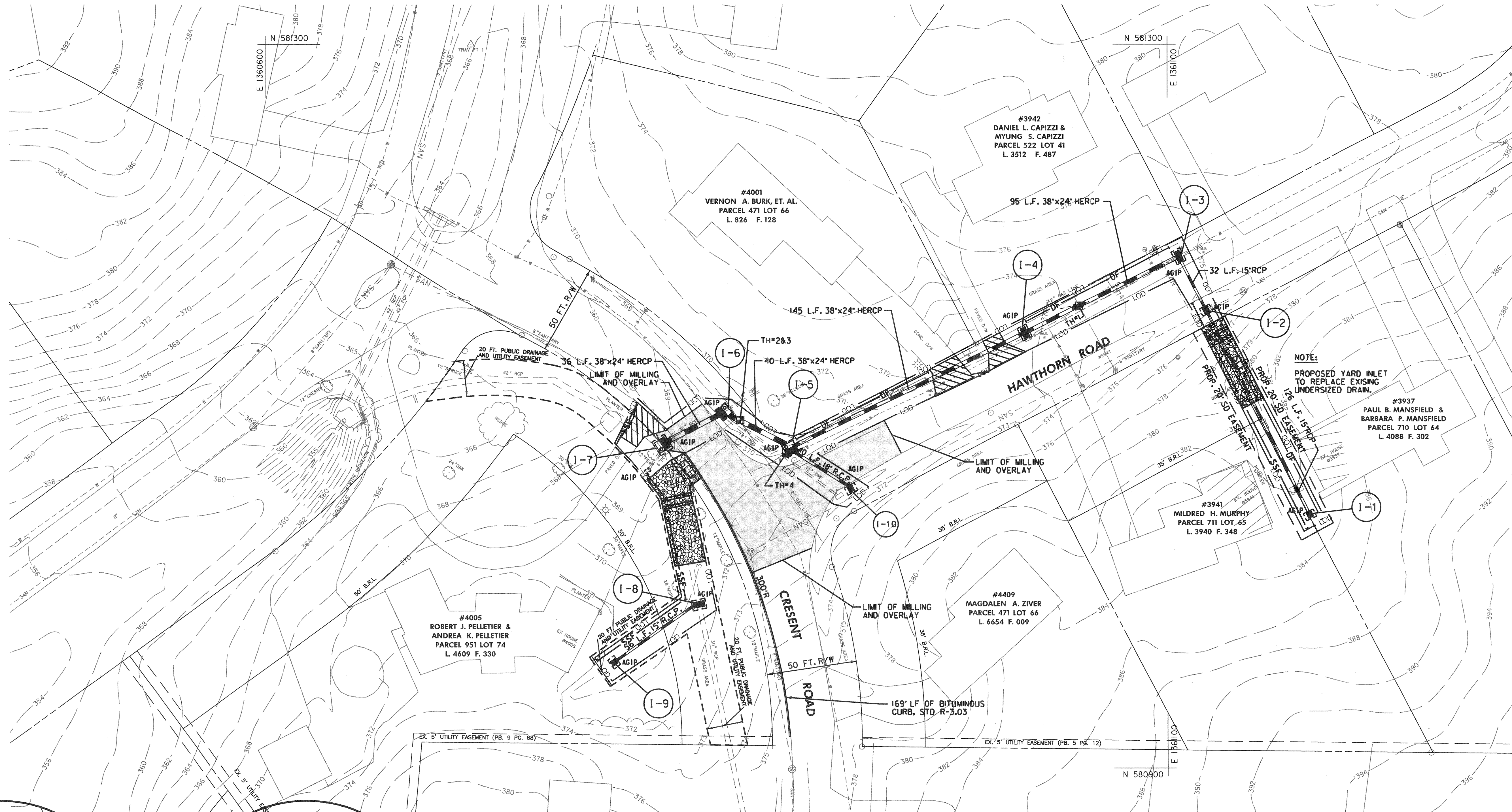
SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

ST. JOHNS LANE  
STORMDRAIN IMPROVEMENTS  
SYSTEM 1

HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO.: D-1157

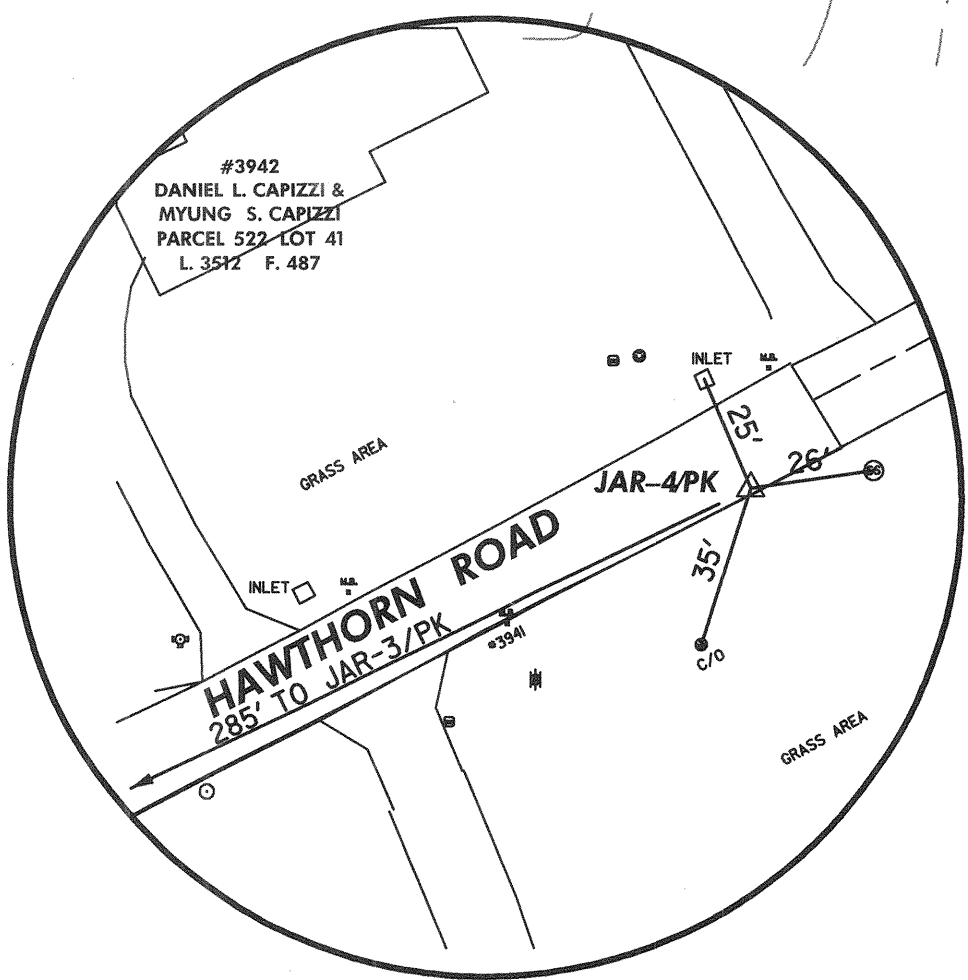
SCALE:  
AS SHOWN

1 SHEET OF 6

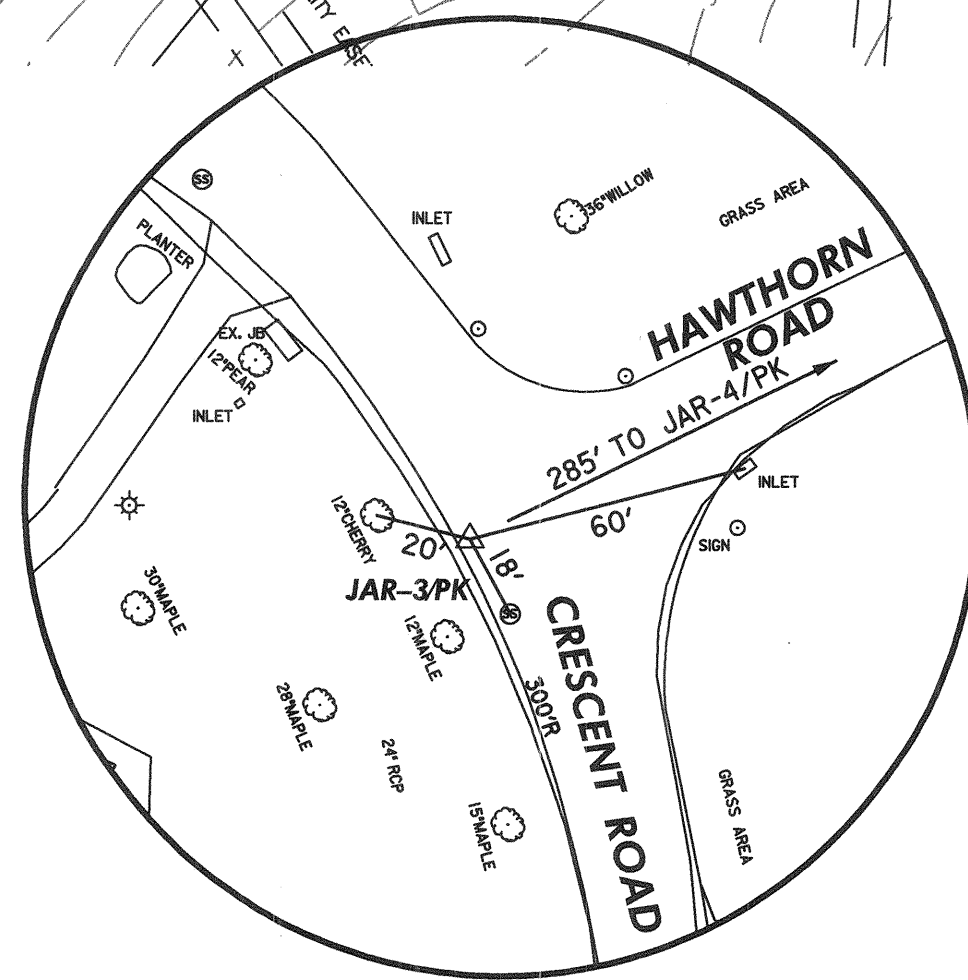


**SYSTEM 1**

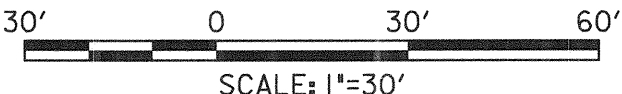
- CONSTRUCTION NOTES:**
1. ALL PIPES IN EXISTING MANHOLES AND INLETS ARE TO BE CONNECTED TO THE PROPOSED STRUCTURES BY THE CONTRACTOR.
  2. EXISTING C.M.P. AND R.C.P. PIPES BETWEEN STRUCTURES I-10 AND I-7 AND I-3 ARE TO BE REMOVED AND REPLACED WITH R.C.P. PIPES.
  3. ALL SPOIL MATERIAL FROM THE TRENCHING OPERATION IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.



JAR-4PK  
N 581159.60  
E 1361116.25  
ELEV. 374.98



JAR-3PK  
N 581035.34  
E 1360889.73  
ELEV. 371.39



Reviewed for Howard SCD and meets Technical Requirements

USDA - Natural Resources Conservation Service Date

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

*John K. Roberts*  
Howard SCD Date 4/20/10

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. 11007, Expiration Date: 07/09/2008.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John J. ...* DATE 5-14-10  
DIRECTOR OF PUBLIC WORKS

*Steve Shuman* DATE 5/14/10  
CHIEF, BUREAU OF HIGHWAYS

*Steve Shuman* DATE 5/14/10  
CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS DIVISION

DES. W.R.F.					
DRN. W.K.T.					
CHK. M.S.Z.					
DATE:	KCI	I	AS-BUILT REVISIONS	4-14-11	
September, 2009	BY	NO	REVISION	DATE	

**SYSTEM ONE  
SITE GRADING & SEDIMENT  
AND EROSION CONTROL  
PLAN SHEET**

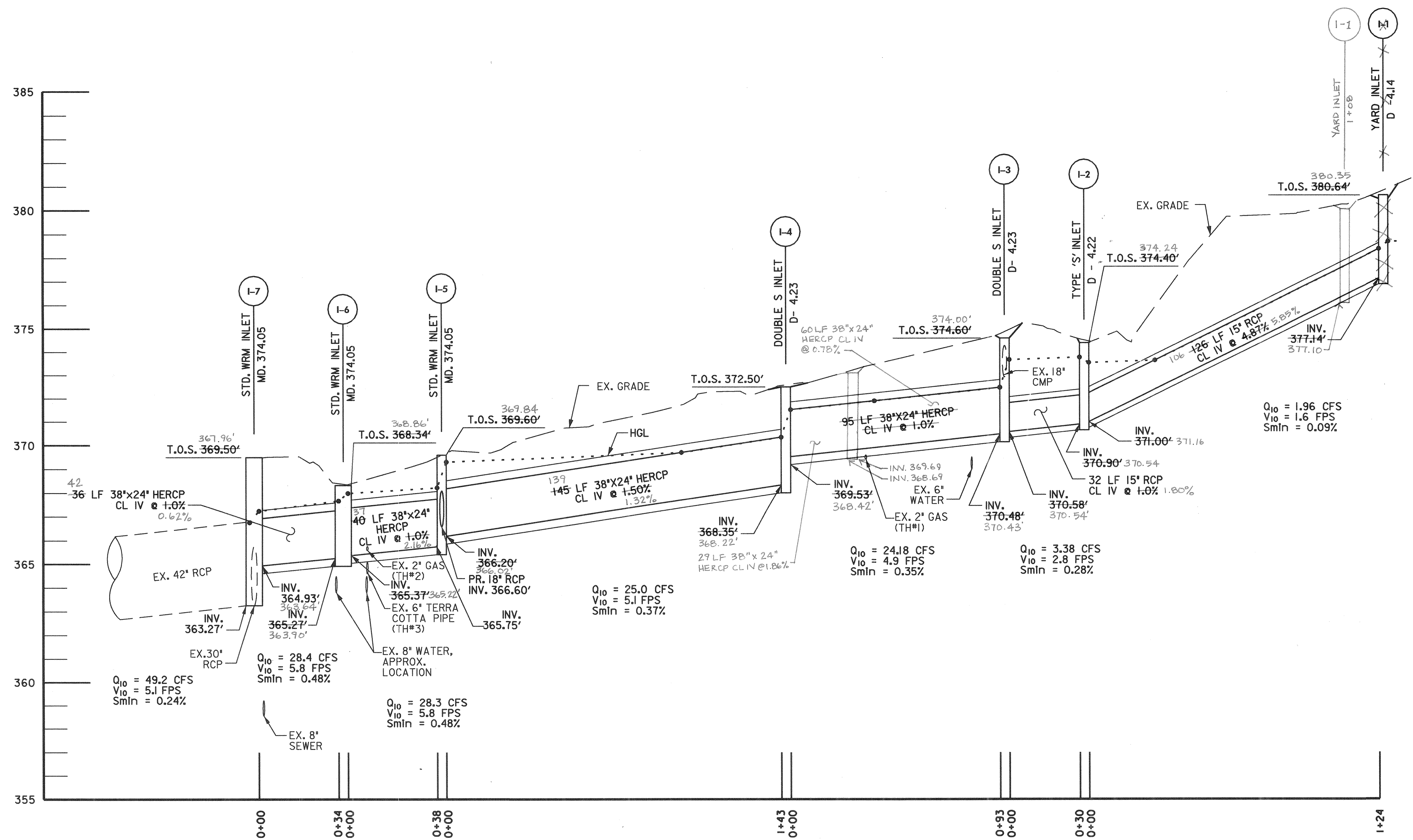
\* SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

ST. JOHNS LANE  
STORMDRAIN IMPROVEMENTS  
SYSTEM 1

HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO.: D-1157

SCALE:  
AS SHOWN

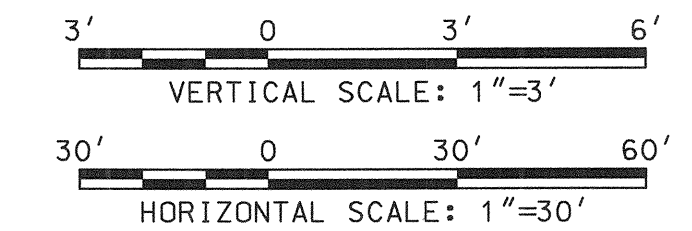
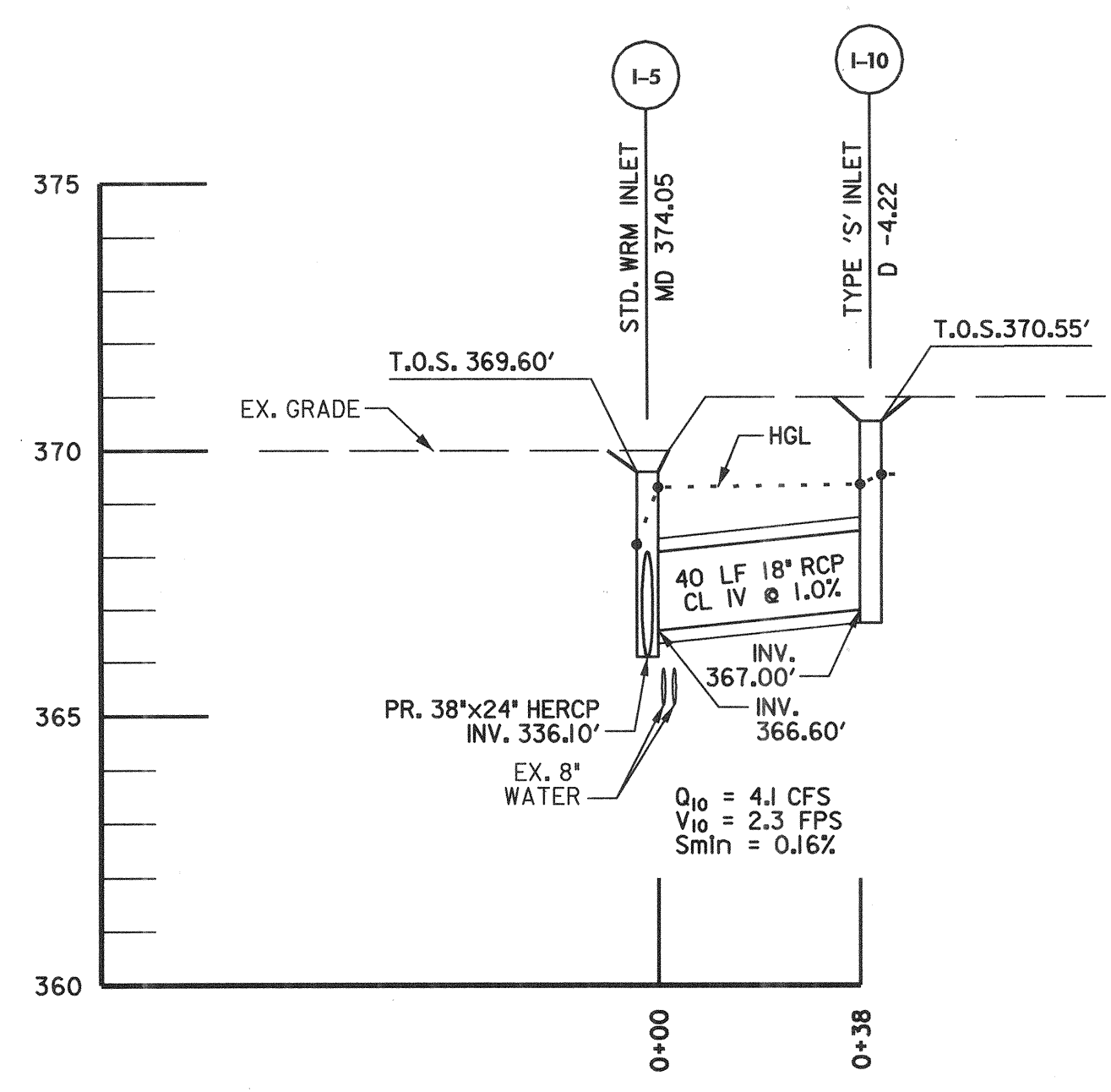
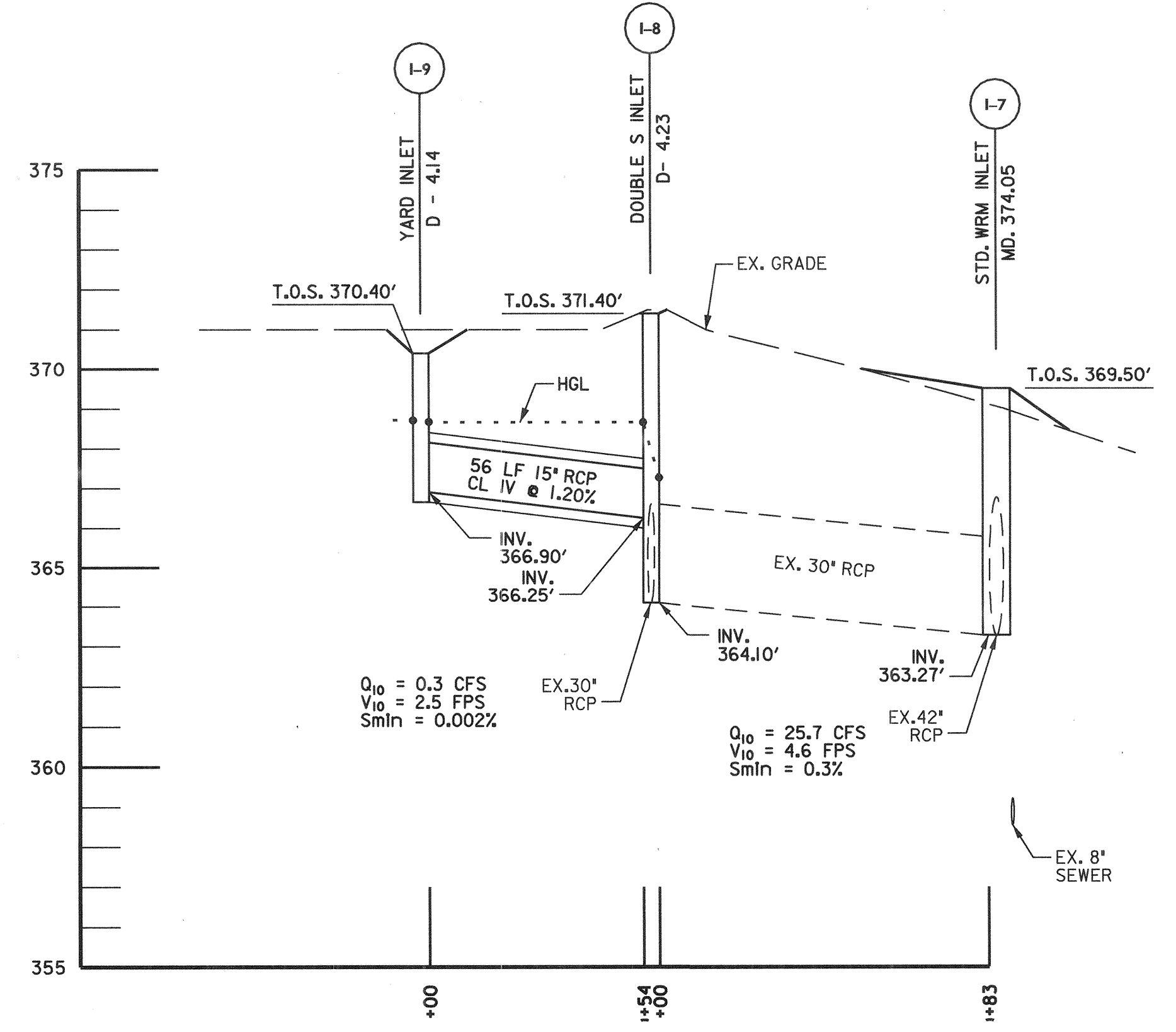
2 SHEET  
OF 6



STRUCTURE SCHEDULE					
NO.	STANDARD	LOCATION	T.O.S.	INV. OUT	NOTES
I-1	D - 4.14	N 581039.69 E 1361179.06	380.64	377.14	-
I-2	D - 4.22	N 581152.92 E 1361121.53	374.40	370.90	-
I-3	D - 4.23	N 581182.51 E 1361106.38	374.60	370.48	-
I-4	D - 4.23	N 581140.45 E 1361020.92	372.50	368.35	-
I-5	STD MD 374.05	N 581076.05 E 1360890.07	369.60	366.10	C.I.P. W/ MD 374.10 TOP SLAB
I-6	STD. MD 374.05	N 581096.51 E 1360853.68	368.34	365.60	C.I.P. W/ MD 374.10 TOP SLAB
I-7	STD. MD 374.05	N 581077.83 E 1360819.58	369.50	363.27	C.I.P. W/ MD 374.10 TOP SLAB
I-8	D - 4.23	N 580990.68 E 1360839.76	371.40	364.10	-
I-9	D - 4.14	N 580958.64 E 1360792.64	370.40	366.90	-
I-10	D - 4.22	N 581053.84 E 1360924.00	370.55	367.00	-

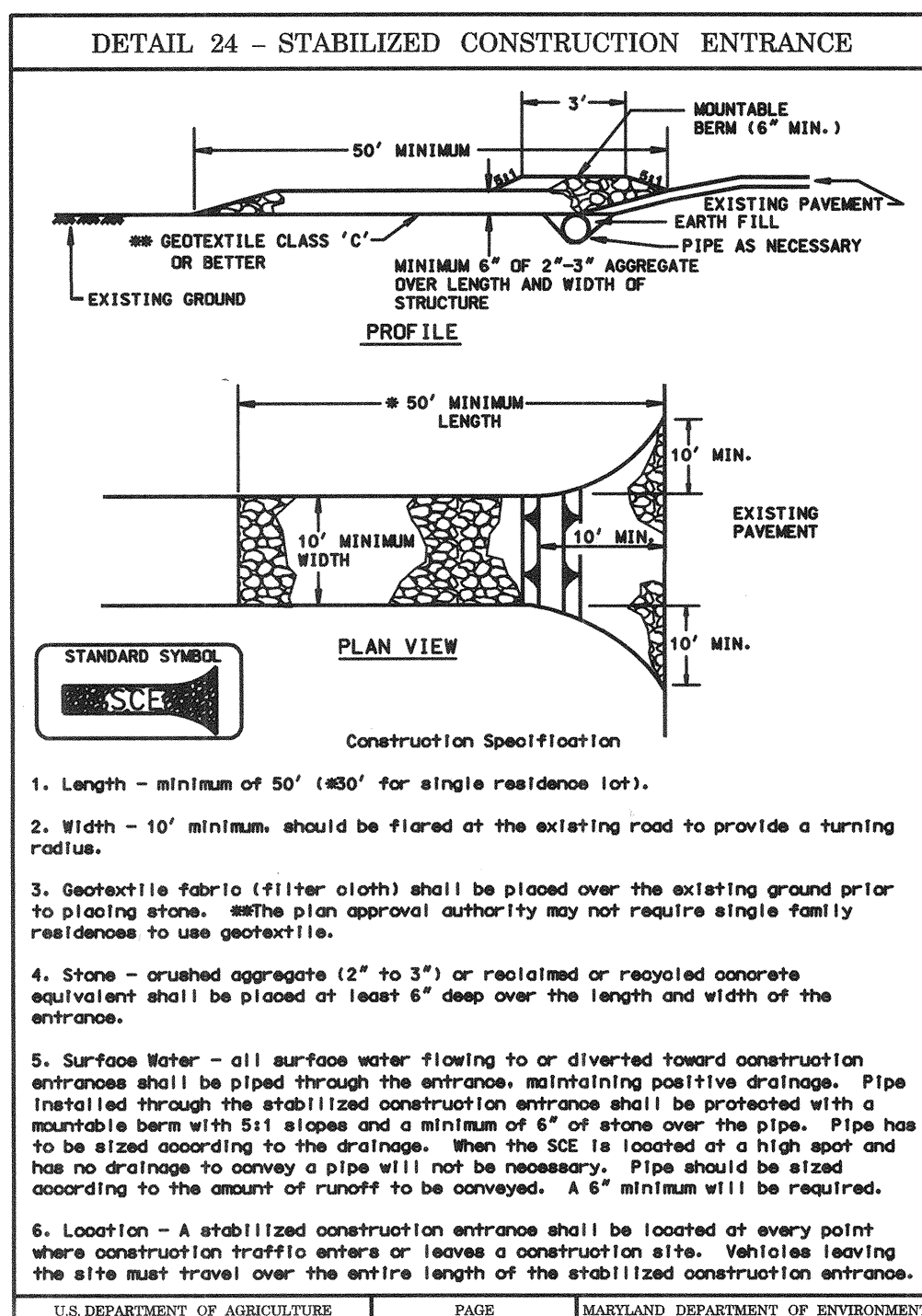
NO CURB IS REQUIRED ON INLET STRUCTURES.

PIPE SCHEDULE				
FROM	TO	TYPE	LENGTH	
I-1	I-2	15' R.C.P. CL. IV	126 L.F.	
I-2	I-3	15' R.C.P. CL. IV	32 L.F.	
I-3	I-4	38"X24" H.E.R.C.P. CL. IV	95 L.F.	
I-4	I-5	38"X24" H.E.R.C.P. CL. IV	145 L.F.	
I-5	I-6	38"X24" H.E.R.C.P. CL. IV	40 L.F.	
I-6	I-7	38"X24" H.E.R.C.P. CL. IV	36 L.F.	
I-10	I-5	18" R.C.P. CL. IV	40 L.F.	
I-8	I-9	15' R.C.P. CL. IV	56 L.F.	



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. 11007, Expiration Date: 07/09/2008.

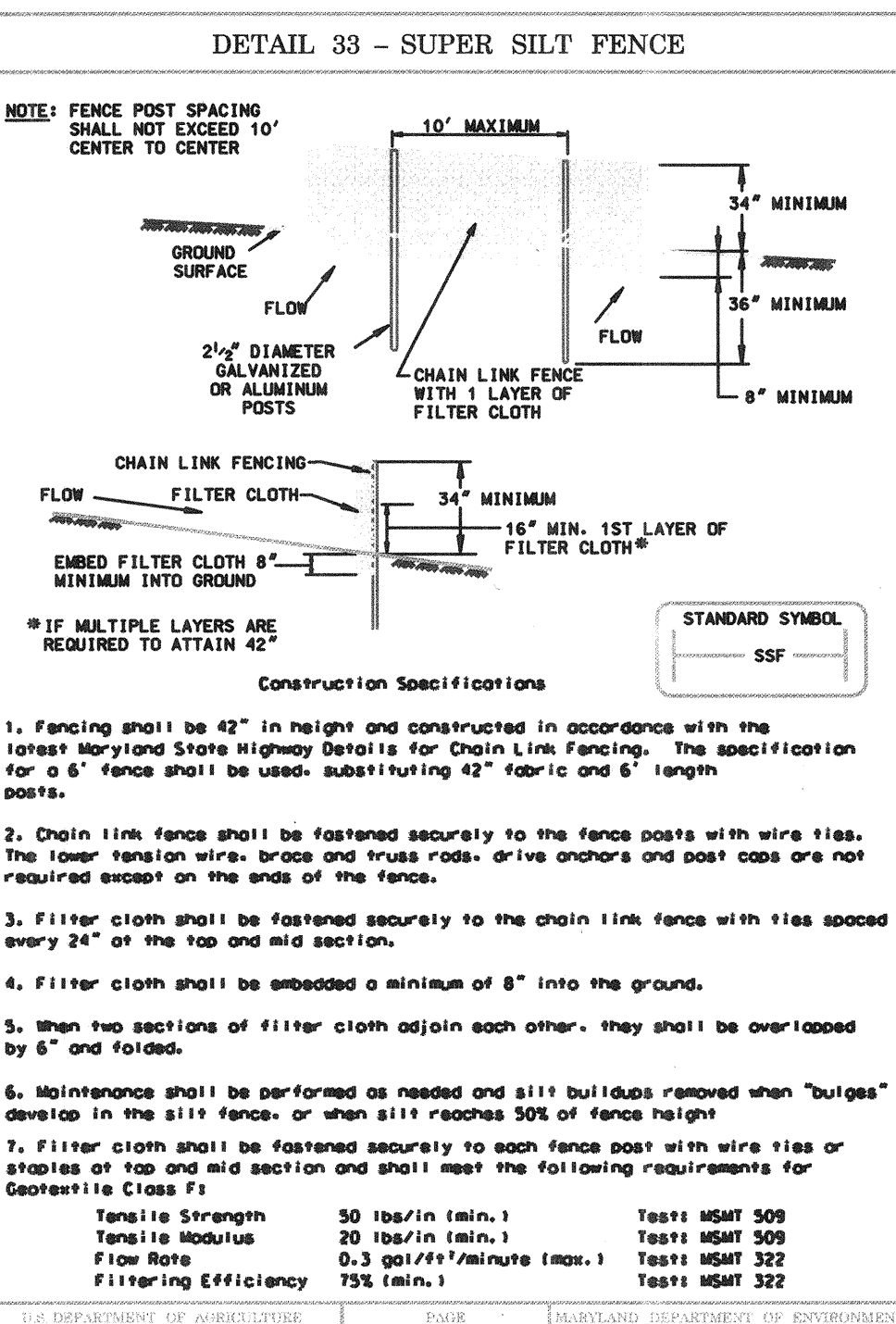
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>Jan K...</i> 5/14/10 Chief, Bureau of Engineering: <i>Steve Shaner</i> 5/14/10 Chief, Division of Transportation and Special Projects Division: <i>Steve Shaner</i> 5/14/10		<b>GPI</b> GREENMAN-PEDERSEN, INC. ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS 10977 GUALFORD RD., ANNAPOLIS JUNCTION, MD 20701 WASH. (301) 470-2772 BALT. (410) 880-3665 FAX: (301) 460-0948 www.gpi.net		DES. W.R.F. DRN. W.K.T. CHK. M.S.Z. DATE: 9/14/09 BY: NO REVISION		<b>SYSTEM ONE - DRAINAGE PROFILES</b> SCALE MAP NO. _____ BLOCK NO. _____		ST. JOHNS LANE STORMDRAIN IMPROVEMENTS SYSTEM 1 HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO.: D-1157		SCALE: AS SHOWN SHEET 3 OF 6
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### STABILIZED CONSTRUCTION ENTRANCE

Construction Specifications

- Length - minimum of 50' (40' for single residence lot).
- Width - 10' minimum, should be flared at the existing road to provide a turning radius.
- Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. The plan approval authority may not require single family residences to use geotextile.
- Stone - crushed aggregate (2\"/>



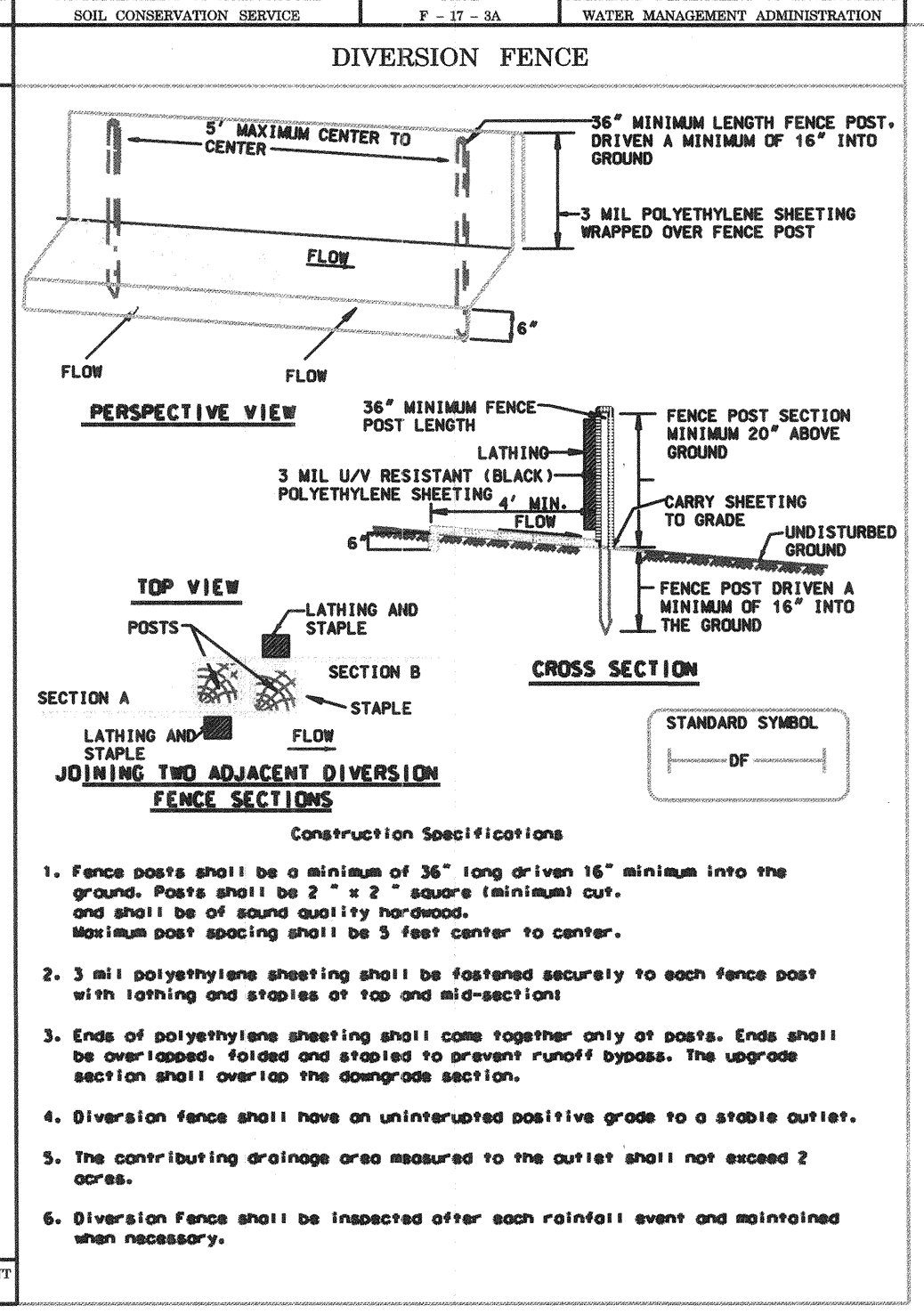
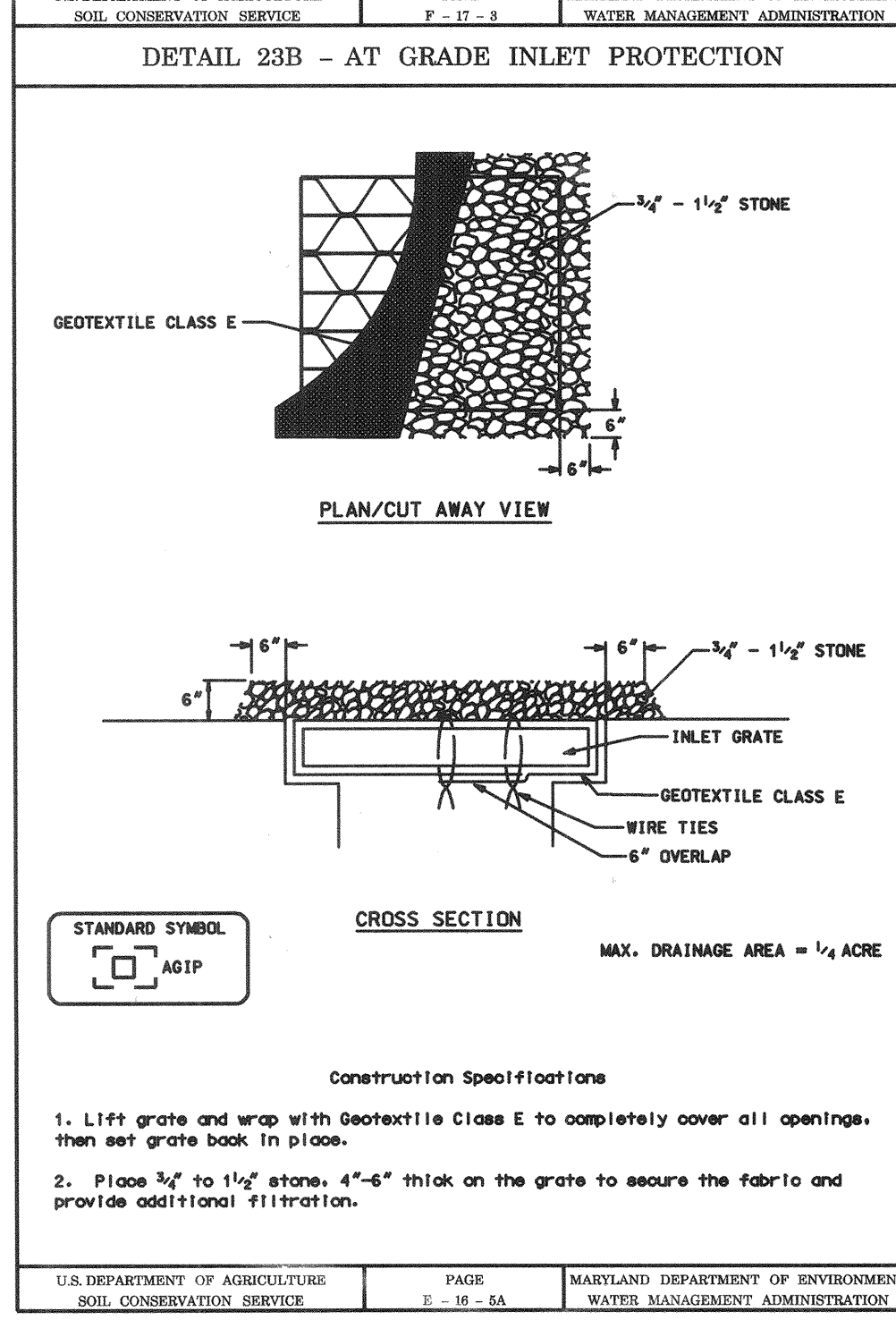
### SUPER SILT FENCE

Design Criteria

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

Construction Specifications

- Fencing shall be 42\"/>



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

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

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE PAGE H-26-3A MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Reviewed for Howard SCD and meets Technical Requirements

USDA - Natural Resources Conservation Service Date

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

*John R. Roberts* 4/20/10  
Howard SCD Date

Professional Certification:

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland license No. 11007, Expiration Date: 07/09/2008.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*James D. Galloway* 5/14/10  
DIRECTOR OF PUBLIC WORKS DATE

*Steve Shaper* 5/14/10  
CHIEF, BUREAU OF HIGHWAYS DATE

*Steve Shaper* 5/14/10  
CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

GPI GREENMAN-PEDERSEN, INC.  
ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
10077 GUILFORD RD., ANNAPOLIS, MARYLAND 20701  
WASH. (301) 470-2772 FAX: (410) 390-3355  
FAX: (201) 450-2549 www.gpiinc.com

DES: W.R.F.  
DRN: W.K.T.  
CHK: M.S.Z.  
DATE: September, 2009  
BY: NO REVISION DATE

SEDIMENT AND EROSION CONTROL DETAILS

SCALE MAP NO. BLOCK NO.

ST. JOHNS LANE STORMDRAIN IMPROVEMENTS SYSTEM 1

HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO.: D-1157

SCALE: AS SHOWN  
4 SHEET OF 6

19.0 STANDARDS AND SPECIFICATIONS FOR LAND GRADING  
Design Criteria

The grading plan should be based upon the incorporation of building designs and street layouts that fit and utilize existing topography and desirable natural surroundings to avoid extreme grade modifications. Information submitted must provide sufficient topographic surveys and soil investigations to determine limitations that must be imposed on the grading operation related to slope stability, effect on adjacent properties and drainage patterns, measures for drainage and water removal and vegetative treatment, etc.

Many counties have regulations and design procedures already established for land grading and cut and fill slopes. Where these requirements exist, they shall be followed. The plan must show existing and proposed contours of the area(s) to be graded. The plan shall also include practices for erosion control, slope stabilization, safe disposal of runoff water and drainage, such as waterways, lined ditches, reverse slope benches (include grade and cross section), grade stabilization structures, retaining walls and surface and subsurface drains. The plan shall also include phasing of these practices. The following shall be incorporated into the plan:

- I. Provisions shall be made to safely conduct surface runoff to storm drains, protected outlets or to stable water courses to insure that surface runoff will not damage slopes or other graded areas.
- II. Cut and fill slopes that are to be stabilized with grasses shall not be steeper than 2:1. (Where the slope is to be mowed the slope should be no steeper than 3:1, 4:1 is preferred because of safety factors related to mowing steep slopes.) Slopes exceeding 2:1 shall require special design and stabilization considerations that shall be adequately shown on the plans.
- III. Reverse benches shall be provided whenever the vertical interval (height) of any 2:1 slope exceeds 20 feet, for 3:1 slope it shall be increased to 30 feet and for 4:1 to 40 feet. Benches shall be located on the slope face as equally as possible and shall convey the water to a stable outlet. Soils, seeps, rock outcrops, etc., shall also be taken into consideration when designing benches.
  - A. Benches shall be a minimum of six-feet wide to provide for ease of maintenance.
  - B. Benches shall be designed with a reverse slope of 6:1 or flatter to the top of the upper slope and with a minimum of one foot in depth. Bench gradient to the outlet shall be between 2 percent and 3 percent, unless accompanied by appropriate design and computations.
  - C. The flow length within a bench shall not exceed 800' unless accompanied by appropriate design and computations. For flow channel stabilization see temporary.
- IV. Surface water shall be diverted from the face of all cut and/or fill slopes by the use of earth dikes, ditches and swales or conveyed downslope by the use of a designed structure, except:
  - A. The face of the slope is or shall be stabilized and the face of all graded slopes shall be protected from surface runoff until they are stabilized.
  - B. The face of the slope shall not be subject to any concentrated flows of surface water such as from natural drainageways, graded swales, downspouts, etc.
  - C. The face of the slope will be protected by special erosion control materials, to include, but not limited to approved vegetative stabilization practices (see section G), rip-rap or other approved stabilization methods.
- V. Cut slopes occurring in ripable rock shall be serrated as shown on the following diagram. These serrations shall be made with conventional equipment as the excavation is made. Each step or serration shall be constructed on the contour and will have steps cut at nominal two-foot intervals with nominal three-foot horizontal shelves. These steps will vary depending on the slope ratio or the cut slope. The nominal slope line is 1:1. These steps will weather and act to hold moisture, lime, fertilizer and seed thus producing a much quicker and longer lived vegetative cover and better slope stabilization. Overland flow shall be diverted from the top of all serrated cut slopes and canals to a suitable outlet.
- VI. Subsurface drainage shall be provided where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.
- VII. Slopes shall not be created so close to property lines as to endanger adjoining properties without adequately protecting such properties against sedimentation, erosion, slippage, settlement, subsidence or other related damages.
- VIII. Fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris, and other objectionable material. It should be free of stones over two (2) inches in diameter where compacted by hand or mechanical tampers or over eight (8) inches in diameter where compacted by rollers or other equipment. Frozen material shall not be placed in the fill nor shall the fill material be placed on a frozen foundation.
- IX. Stockpiles, borrow areas and spoil shall be shown on the plans and shall be subject to the provisions of this Standard and Specifications.
- X. All disturbed areas shall be stabilized, structurally or vegetatively in compliance with 20.0 Standards and Specifications for Vegetative Stabilization.

Seed Mix Table For Turf Establishment In Shaded areas

Common Name	Percent of Seed Mix	Percent Purty	Percent Weeds/seed	Percent Germination	Percent Min.
Shadow chewing fescue or other improved chewing fescue	30	90	1	80	
Aurora hard fescue or other improved hard fescue	30	90	1	80	
Flyer creeping red fescue or other creeping red fescue	20	90	1	80	
Glade kentucky bluegrass or improved kentucky bluegrass	10	90	1	80	
Manhattan II, Affinity or other improved perennial ryegrass	10	90	1	80	

- Note:
- \* Application rate shall be 20 lbs/Acre
  - \* Seed mix percentages are based upon weight.
  - \* This seed mix will supersede any other permanent seed mixture listed in the Contract Documents unless otherwise allowed by the engineer.
  - \* Seeds shall be mixed onsite and delivered thoroughly mixed.
  - \* This mix is to be used for temporary seeding when directed by the engineer.

21.0 STANDARD AND SPECIFICATIONS FOR TOPSOIL

Placement of topsoil over a prepared subsoil prior to establishment of permanent vegetation.

**Purpose**  
To provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.

**Conditions Where Practice Applies**  
I. This practice is limited to areas having 2:1 or flatter slopes where:

- A. The texture of the exposed subsoil parent material is not adequate to produce vegetative growth.
  - B. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
  - C. The original soil to be vegetated contains material toxic to plant growth.
  - D. The soil is so acidic that treatment with limestone is not feasible.
- II. For the purpose of these Standards and Specifications, areas having slopes steeper than 2:1 require special consideration and design for adequate stabilization. Areas having slopes steeper than 2:1 shall have the appropriate stabilization shown on the plans.

**Construction and Material Specifications**

I. Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experimental Station.

II. Topsoil Specifications - Soil to be used as topsoil must meet the following:

- A. Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall contain less than 5% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
- B. Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistle, or others as specified.
- C. Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.

III. For sites having disturbed areas under 5 acres, place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

IV. For sites having disturbed areas over 5 acres:

- A. On soil meeting topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
  1. pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
  2. Organic content of topsoil shall be not less than 1.5 percent by weight.
  3. Topsoil having soluble salt content greater than 500 parts per million shall not be used.
  4. No sod or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

Note: Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.

B. Place topsoil (if required) and apply soil amendments as specified in 20.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

V. Topsoil Application

A. When topsoiling, maintain needed erosion and sediment control practices such as gullies, Grade Stabilization Structures, Earth Dikes, Slope Sill Fence and Sediment Traps and Basins.

1. Grades on the areas to be topsoiled, which have been previously established, shall be maintained, albeit 4" - 8" higher in elevation.
2. Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly compacted to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
3. Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

VI. Alternative for Permanent Seeding - Instead of applying the full amounts of lime and commercial fertilizer, composted sludge and amendments may be applied as specified below.

A. Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:

1. Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
  2. Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
  3. Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
- B. Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet, and 1/3 the normal lime application rate.

References: Guideline Specifications, Soil Preparation and Sodding MD-VA, Pub. #1, Cooperative Extension Service, University of Maryland and Virginia Polytechnic Institute, Revised 1973.

HOWARD SOIL CONSERVATION DISTRICT  
PERMANENT SEEDING NOTES

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

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

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

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

Seeding: For the periods March 1 - April 30, and August 1 - October 15, seed with 60 lbs/acre (1.4 lbs/1000 sq. ft.) of Kentucky 31 tall fescue per acre and 2 lbs/acre (0.05 lbs/1000 sq. ft.) of weeping lovegrass. During the period of October 16 - February 28, protect site by: Option 1 - Two tons per acre of well anchored straw mulch and seed as soon as possible in the spring. Option 2 - Use sod.

Option 3 - seed with 60 lbs/acre Kentucky 30 tall fescue and mulch with 2 tons/acre well anchored straw. Mulching: Apply 1-12 to 2 tons per acre (70 - 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

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

TEMPORARY SEEDING NOTES

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

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

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

Seeding: For periods March 1 - April 30 and from August 15 - October 15, seed with 2-12 bushel per acre of annual ryegrass (3.2 lbs/1000 sq. ft.). For the period May 1 - August 14, seed with 3 lbs/acre of weeping lovegrass (0.07 lbs/1000 sq. ft.). For the period November 16 - February 28, protect site by applying 2 tons/acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.

Mulching: Apply 1-12 to 2 tons per acre (70 - 90 lbs/1000 sq. ft.) of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000 sq. ft.) of emulsified asphalt on flat areas. On slope 8 feet or higher, use 348 gallons per acre (8 gal/1000 sq. ft.) for anchoring.

HOWARD SOIL CONSERVATION DISTRICT

STANDARD SEDIMENT CONTROL NOTES

1. A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to start of any construction (819-1656).
2. All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL and revisions thereto.
3. Following initial soil disturbance or re-disturbance, permanent or temporary stabilization shall be completed within:
  - A) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes steeper than 3:1.
  - B) 14 calendar days as to all other disturbed or graded areas on the project site.
4. All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 7 of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
5. All disturbed areas must be stabilized within the time period specified above in accordance with the 1994 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding, sod, temporary seeding and mulching (section g). Temporary stabilization with mulch alone shall only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
6. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
7. Site Analysis:
 

Total Area of Site	=	0.35 Acres
Area Disturbed	=	0.35 Acres
Area to be Hooped or Paved	=	0.08 Acres
Area to be Vegetatively Stabilized	=	0.26 Acres
Total Fill	=	0 Cu. Yds.

Offsite waste/borrow area location to be determined by the contractor. A site with a current active erosion permit is needed for offsite waste/borrow. Site plan grading permit or waiver may be necessary. Sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
8. Any sediment control practice which is disturbed by the Howard County Sediment Control Inspector.
9. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
10. On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
11. Trenches for 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.

Reviewed for Howard SCD and meets Technical Requirements

USDA - Natural Resources Conservation Service Date

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

*John K. Roberts* 4/20/10  
Howard SCD Date

Professional Certification:

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the state of Maryland License No. 11007, Expiration Date: 07/09/2008.

DEPARTMENT OF PUBLIC WORKS  
HOWARD COUNTY, MARYLAND

*John R. Miller* 5/14/10  
DIRECTOR OF PUBLIC WORKS DATE

*Steve Slapan* 5/14/10  
CHIEF, BUREAU OF HIGHWAYS DATE

*Steve Slapan* 5/14/10  
CHIEF, BUREAU OF ENGINEERING DATE

*Steve Slapan* 5/14/10  
CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

GPI GREENMAN-PEDERSEN, INC.

10977 GULFORD RD., ANNAPOLIS, JUNCTION, MD 20701  
WASH. (301) 470-2772 BALT. (410) 889-2055  
FAX: (301) 490-2949 www.gpi.com

DES: W.R.F.			
DRN: W.K.T.			
CHK: M.S.Z.			
DATE:			
September, 2009	BY	NO	REVISION

SEDIMENT AND EROSION CONTROL NOTES

SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

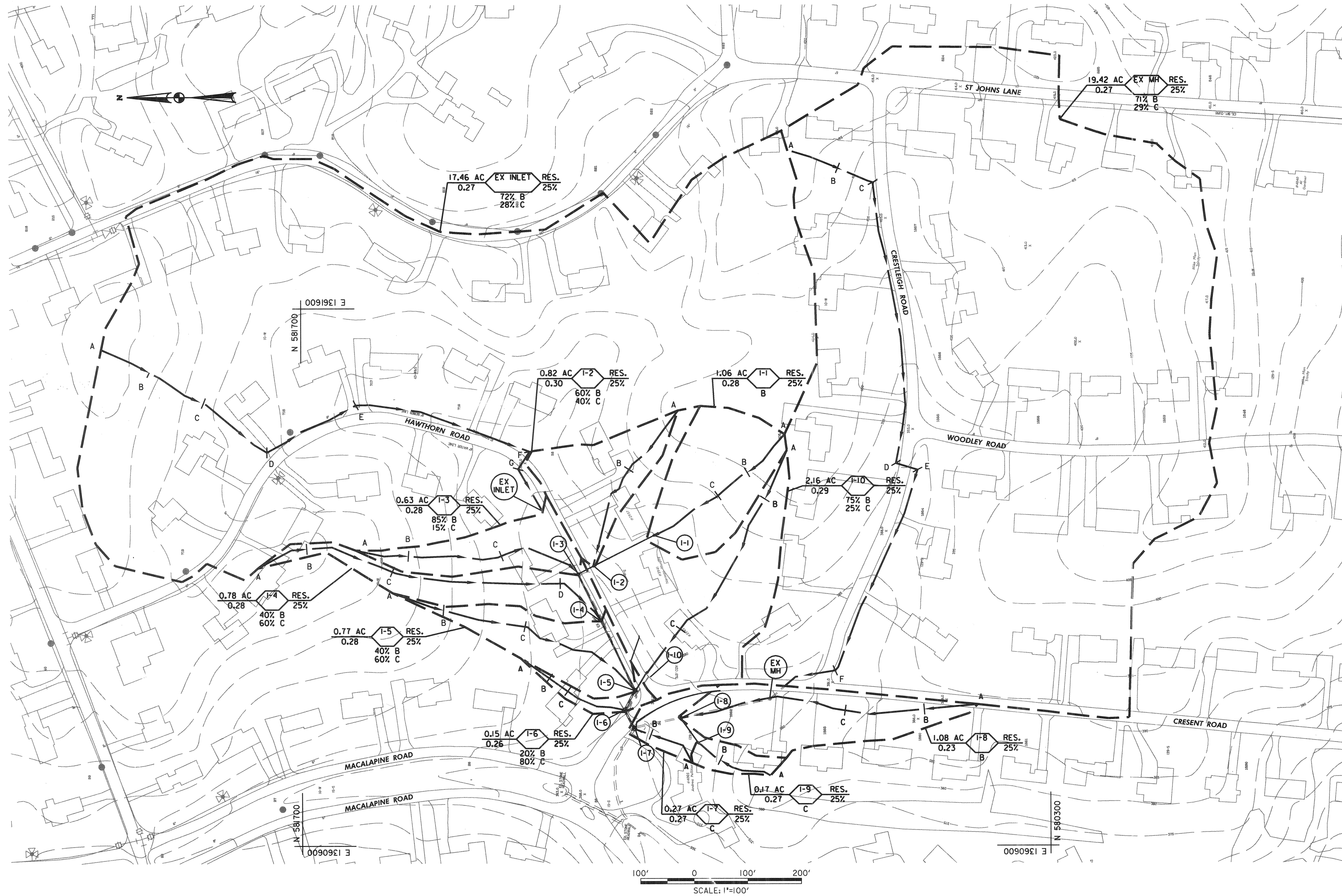
ST. JOHNS LANE  
STORMDRAIN IMPROVEMENTS  
SYSTEM 1

SCALE: AS SHOWN

5 SHEET OF 6

HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO.: D-1157

SYSTEM 1



**LEGEND**

- DRAINAGE DIVIDE
- TIME OF CONCENTRATION WITH FLOW DIVISIONS
- STRUCTURE LABEL
- DRAINAGE STRUCTURE
- STORMDRAIN PIPE
- DRAINAGE AREA INFORMATION

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. 11007, Expiration Date: 07/09/2008.

DEPARTMENT OF PUBLIC WORKS  
 HOWARD COUNTY, MARYLAND

*John R. Wall* 5/14/10  
 DIRECTOR OF PUBLIC WORKS DATE

*Steve Shayan* 5/14/10  
 CHIEF, BUREAU OF HIGHWAYS DATE

*Steve Shayan* 5/14/10  
 CHIEF, DIVISION OF TRANSPORTATION AND SPECIAL PROJECTS DIVISION DATE

**GPI** GREENMAN-PEDERSEN, INC.  
 ENGINEERS, ARCHITECTS, PLANNERS, CONSTRUCTION ENGINEERS & INSPECTORS  
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DES. W.R.F.	
DRN. W.K.T.	
CHK. M.S.Z.	
DATE:	September, 2009
BY	NO
REVISION	
DATE	

**DRAINAGE AREA MAP SYSTEM 1**

SCALE MAP NO. \_\_\_\_\_ BLOCK NO. \_\_\_\_\_

ST. JOHNS LANE  
 STORMDRAIN IMPROVEMENTS  
 SYSTEM 1

HOWARD COUNTY, MARYLAND CAPITAL PROJECT NO.: D-1157

SCALE:  
 AS SHOWN

SHEET  
 OF 6