

# FINAL ROAD CONSTRUCTION PLANS THE PADDOCKS EAST LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G' HOWARD COUNTY, MARYLAND

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ROAD CLASSIFICATION		
ROAD NAME	CLASSIFICATION	R/W
Julia Manor Way	Access Street	50'
Andrea Drive	Access Street	50'

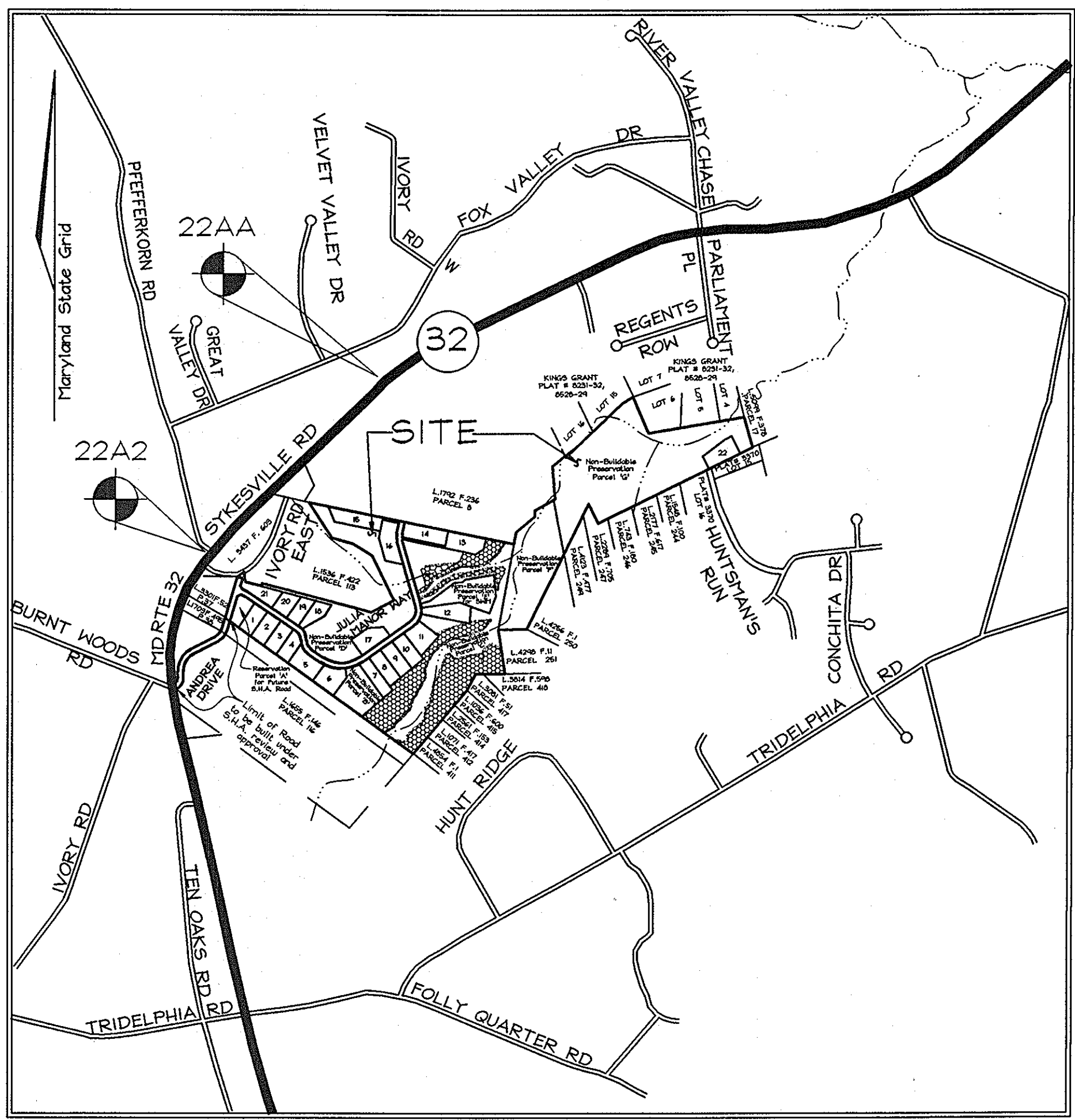
CENTERLINE ROAD CURVE DATA					
CURVE No.	RADIUS	LENGTH	DELTA	CHORD BEARING	CHORD LENGTH
C1	200.00'	62.44'	17°53'19"	N 64°37'23" W	62.19'
C2	130.00'	127.06'	56°00'00"	N 27°40'44" W	122.06'
C3	130.00'	127.06'	56°00'00"	S 27°40'44" E	122.06'
C4	315.00'	385.15'	70°03'19"	N 89°17'37" E	361.60'
C5	150.00'	183.26'	70°00'00"	N 19°15'57" E	172.07'
C6	150.00'	71.12'	27°04'52"	S 02°04'07" E	70.45'

\* Curve No. 3 meets the requirements for a speed control device

- GENERAL NOTES**
- Subject property zoned "RR-DEO" per 10/18/93 comprehensive zoning plan.
  - Coordinates based on NAD83, Maryland coordinate system as projected by Howard County geodetic control stations no. 22AA and no. 22A2.  $\diamond$  denotes approximate location (see vicinity map).
 

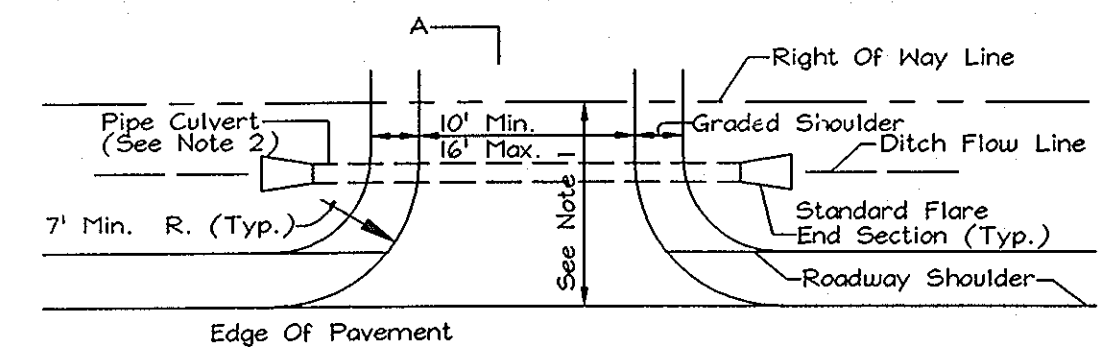
Sta. 22AA	N 179,071.1931 (Meters)	E 401,646.1007 (Meters)	Elev. 173.6488 (Meters)
	N 587,502.7391 (Feet)	E 1,317,897.957 (Feet)	Elev. 569.713 (Feet)
Sta. 22A2	N 178,604.6673 (Meters)	E 401,204.1246 (Meters)	Elev. 189.2491 (Meters)
	N 585,988.550 (Feet)	E 1,316,283.881 (Feet)	Elev. 620.895 (Feet)
  - Private water and sewer to be utilized. Public sewer to be utilized for Lots 1 through 4 and Lots 18 through 21.
  - Soils map no. 13 & 14.
  - ██████ This area designates a private sewage easement of at least 10,000 square feet (or 10,000 square feet per lot for shared drain fields associated with a shared sewage disposal facility) as required by the Maryland State Department of the Environment for individual sewage disposal (corner 26.04.03). Improvements of any nature in this area are restricted until public sewage is available. These easements shall become null and void upon connection to a public sewage system. The county health officer shall have the authority to grant variances for encroachments into the private sewage easement. Recordation of a modified sewage easement shall not be necessary.
  - The lots shown herein comply with the minimum ownership, width and lot area as required by the Maryland State department of the environment.
  - Total area of property = 103.52 ac.
  - Total number of Proposed Buildable Lots = 22
  - Total number of Proposed Buildable Preservation Parcels = 0
  - Total number of Proposed Non-Buildable Preservation Parcels = 6
  - Total number of Reservation Parcels for R/W = 1
  - Total area of Public Road R/W = 3.85 ac.
  - Total area of Buildable Lots = 22.71 ac.
  - Total area of Buildable Preservation Parcel = 0
  - Total area of Non-Buildable Preservation Parcels = 76.17 ac.
  - Total area of Non-Buildable Preservation Parcel 'E' S&M1 Easement = 2.91 ac.
  - Total area of Reservation Parcel 'A' = 0.79 ac.
  - Density calculations:
    - Number of lots based on own density:  
103.52 ac (total area) - 0.79 ac (reservation parcel) = 102.73 ac  
102.73 ac / 4.25 ac = 24.17 cluster lots therefore, 24 cluster lots.
    - Number of cluster lots proposed: 22 units.
  - Open space requirements:
    - Minimum open space required = 0
  - Topography is based on an aerial survey prepared by Harford aerial surveys on december, 2000 and Howard County 1998 aerial survey.
  - A.P.F.O. traffic study prepared by street traffic studies approved under S-01-05 on 1-26-01.
  - Wetlands delineation and report and forest stand delineation prepared by Exploration Research Inc. approved under S-01-05 on 1/26/01.
  - The project is not within the metropolitan district.
  - Previous Howard County file number S-01-05, P-02-04, WP-02-22.
  - The project is in conformance with the latest Howard County standards unless waivers have been approved.
  - S.H.M. for CPV and MOV is provided in a micro pool. The pond will be privately owned with joint maintenance by H.O.A. and Howard Co.
  - The floodplain delineation is based on a study prepared by F.S.H. Associates and approved under P-02-04.
  - The geotechnical report for this project was prepared by Herbst Benson and Associates dated August, 2001.
  - This plan is subject to compliance with the fourth edition of the Howard County subdivision regulations and the recently amended zoning regulations, council bill 50-2001.
  - For flag or pipe stem lots, refuse collection, snow removal and road maintenance are provided to the junction of the flag or pipestem and road right-of-way line and not to the pipestem lot driveway.
  - The contractor shall notify the following utility companies or agencies at least five(5) working days before starting work shown on these plans:
 

State Highway Administration	410.531.5533
BGE(contractor services)	410.850.4620
BGE(underground damage control)	410.787.9068
Miss Utility	1.800.257.7777
Colonial Pipeline Company	410.795.1390
Howard County, Dept. of Public Works, Bureau of Utilities	410.313.4900
Howard County Health Department	410.313.2640
  - The contractor shall notify Miss Utility at 1-800-257-7777 at least 48 hours prior to any excavation work being done.
  - The contractor shall notify the Department of Public Works/Bureau of Engineering Construction Inspection Division at (410) 313-1890 at least five (5) working days prior to the start of work.
  - The subdivision is subject to the fourth edition of the Howard County subdivision and Land Development regulations and the Zoning regulations adopted under Council Bill 50-2001.
  - Articles of Incorporation for the Homeowners Association were accepted by the State Dept. of Assessment and Taxation on 12/01/03, incorporation number D07670555.
  - This plan is subject to WP-02-22. On 10/15/01 the Planning Director denied a waiver from Sections 16.116.(a)(1) & (2)(i) and 16.116.(b)(1) of the Subdivision and Land Development Regulations.
  - Lot 12 shall have the septic system installed prior to building permit.
  - Existing barn on Lot 1 to be removed prior to recordation of this plot.
  - Julia Manor Way environmental crossing for access to Lots 13 thru 16 and Parcel 8 was determined to be essential per Section 16.116 (c).
  - MDE Tracking number 03-NT-0123/200362884.
  - 15% Compaction in fill areas per ASSHTO T-180.
  - Forest Conservation surety in the amount of \$125,757.80 will be posted as part of the Developer's Agreement.
  - Landscape surety for perimeter landscaping in the amount of \$42,750.00 will be posted as part of the Developer's Agreement.

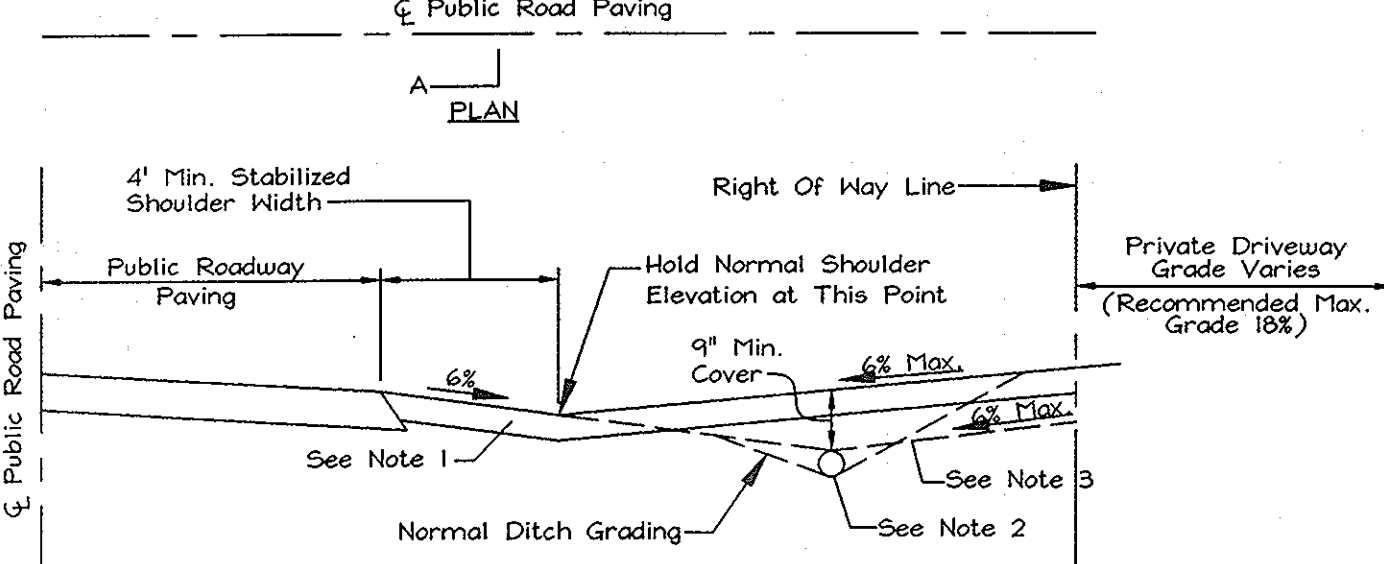


**VICINITY MAP**  
SCALE: 1" = 1200'

- LEGEND**
- PROPOSED HOUSE SITE
  - DENOTES NON-TIDAL WETLAND
  - DENOTES 25% OR GREATER SLOPES
  - DENOTES 15% - 24.9% SLOPES
  - DENOTES PROPOSED WELL
  - DENOTES PROPOSED WELL AREAS
  - DENOTES PROPOSED SEPTIC AREAS
  - DENOTES EXISTING CHAIN LINK FENCE



- NOTES:**
- Driveway must be paved from edge of public road to right of way line using standard paving section P-1 as shown on S&M. No. or alternate section equal to or better than P-1, as approved by D.P.W.
  - Drainage culvert shall be sized for a 10 year frequency storm and the minimum size shall be 12" dia. round or 14" x 9" arch pipe if larger pipe is required, ditch invert shall be lowered to provide min. ditch gradient of 0.5% and clearance shown.
  - Swale flow may be provided over driveway located at or near the crest of vertical curves on the public road where quantity of flow is small, as approved by D.P.W.
  - Tie-in grade of private driveway shall not exceed 14%.



**SECTION A-A  
RESIDENTIAL DRIVEWAY ENTRANCE**  
CONNECTION TO OPEN SECTION ROADWAY  
HOWARD COUNTY DETAIL R6.06  
NOT TO SCALE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
*William J. Mahan, Jr.* 3-10-04  
CHIEF, BUREAU OF HIGHWAYS MS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Christina J. ...* 4/6/04  
CHIEF, DIVISION OF LAND DEVELOPMENT JPA DATE

*...* 3/31/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MS DATE

**As-BUILT**  
FOR ROADS, STORMDRAINS,  
EROSION & SEDIMENT CONTROLS

**FOR STORMWATER  
MANAGEMENT & LANDSCAPING**

C. BROOKE MILLER DATE 4/20/2010  
PROP. L.S. # 135

ZACHARIA Y. FISCH DATE 4/20/2010  
P.E. # 22418

**COVER SHEET  
THE PADDOCKS EAST**  
LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND  
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'

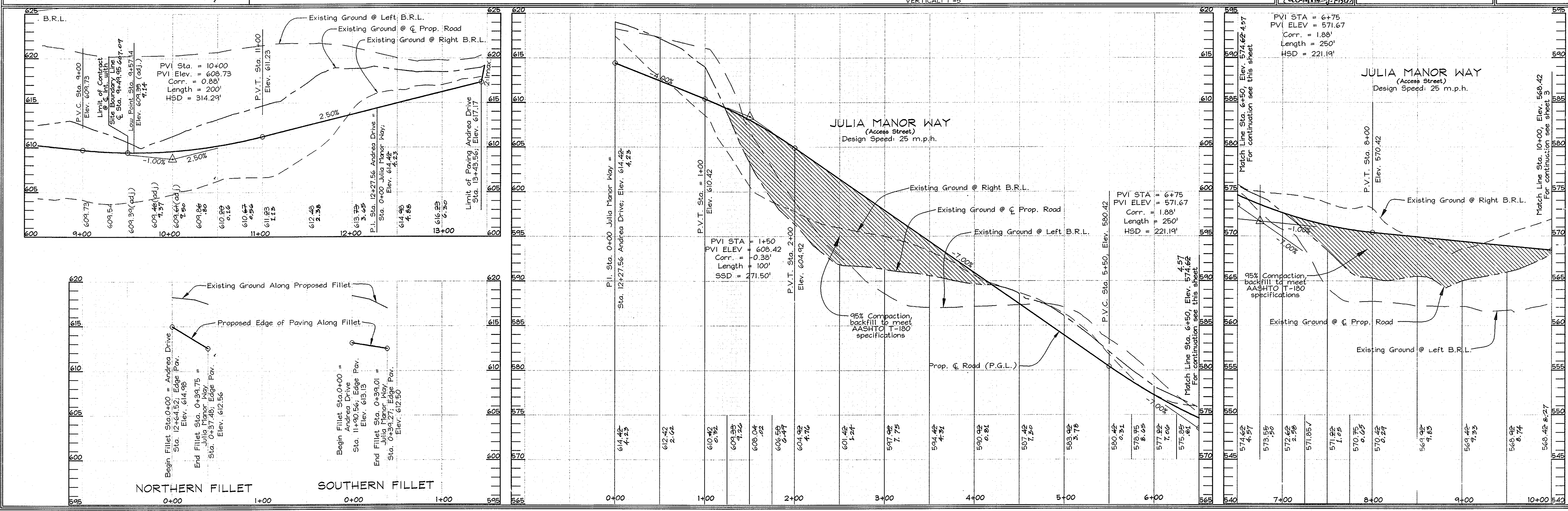
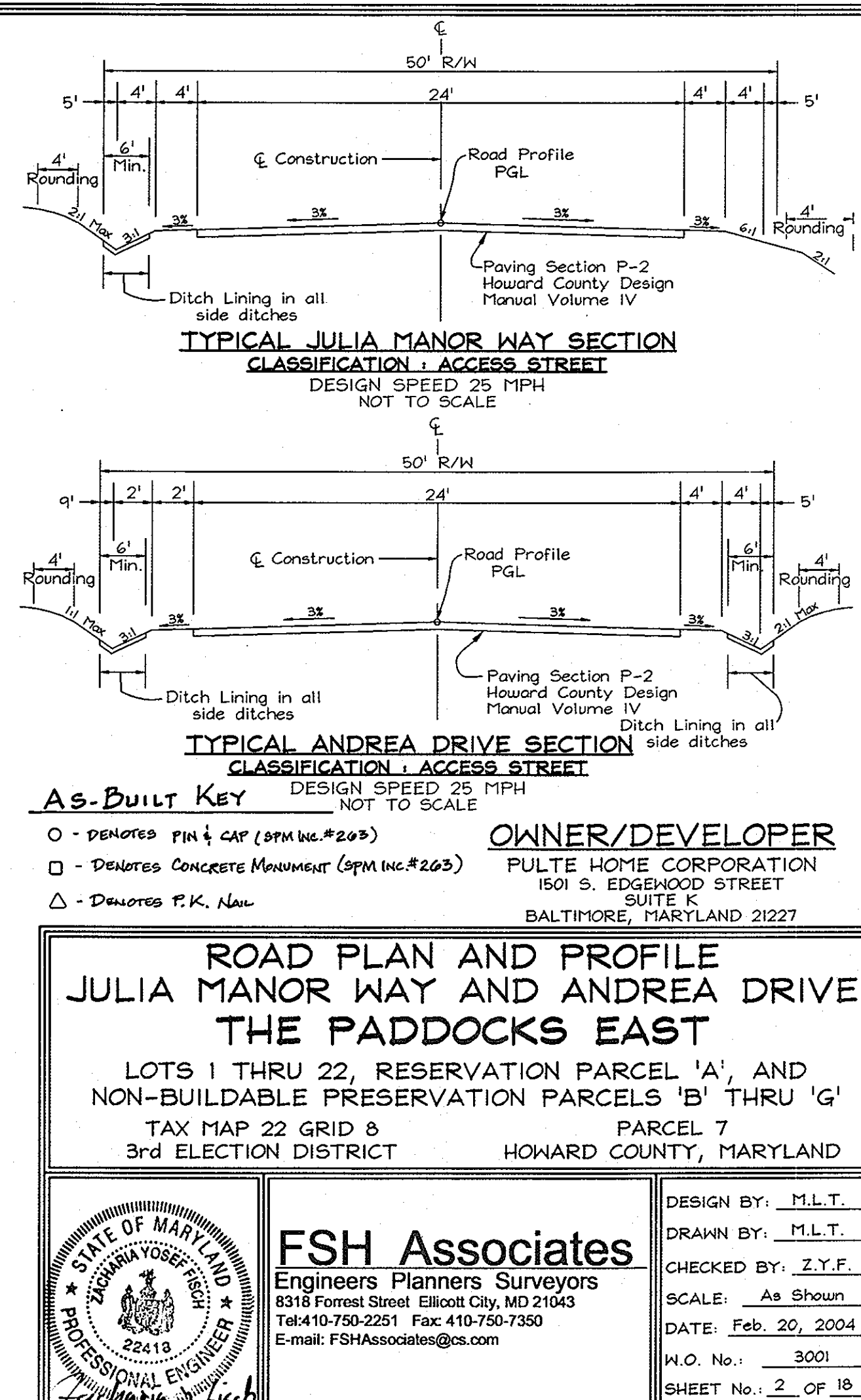
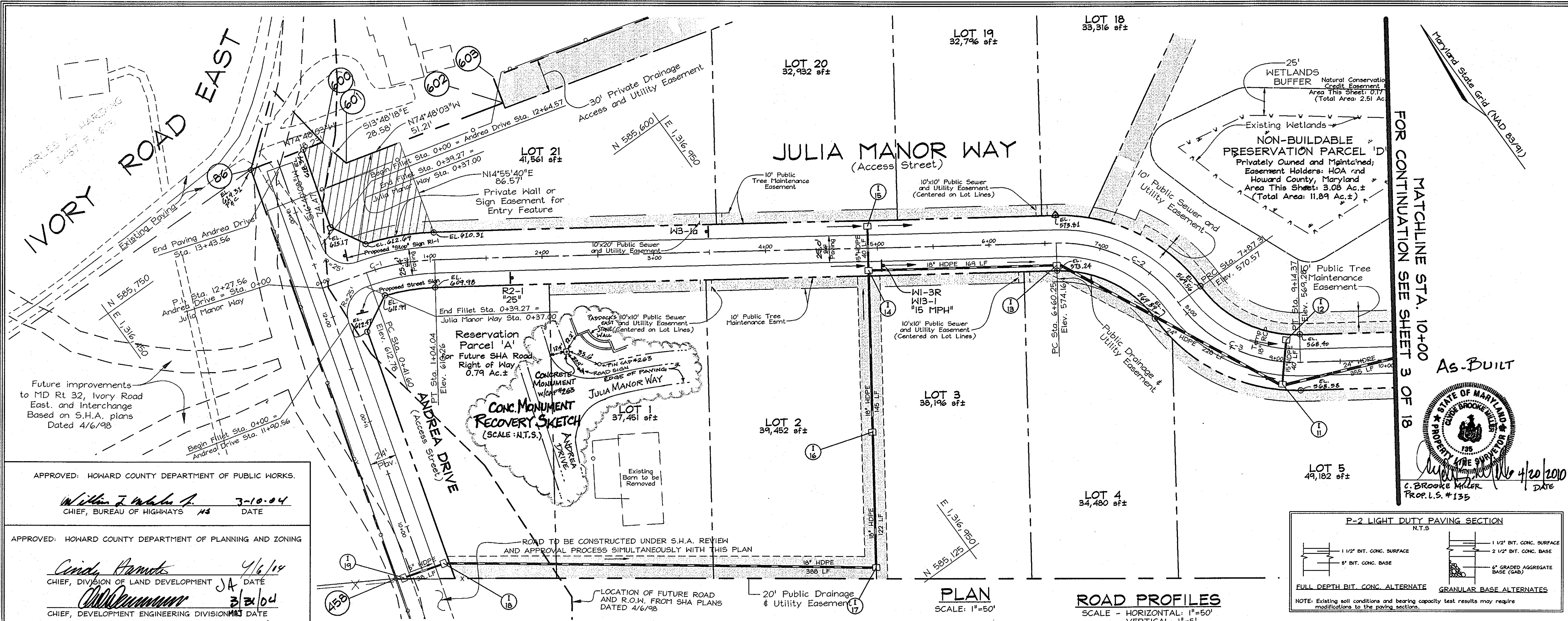
TAX MAP 22 GRID 8  
3rd ELECTION DISTRICT

PARCEL 7  
HOWARD COUNTY, MARYLAND

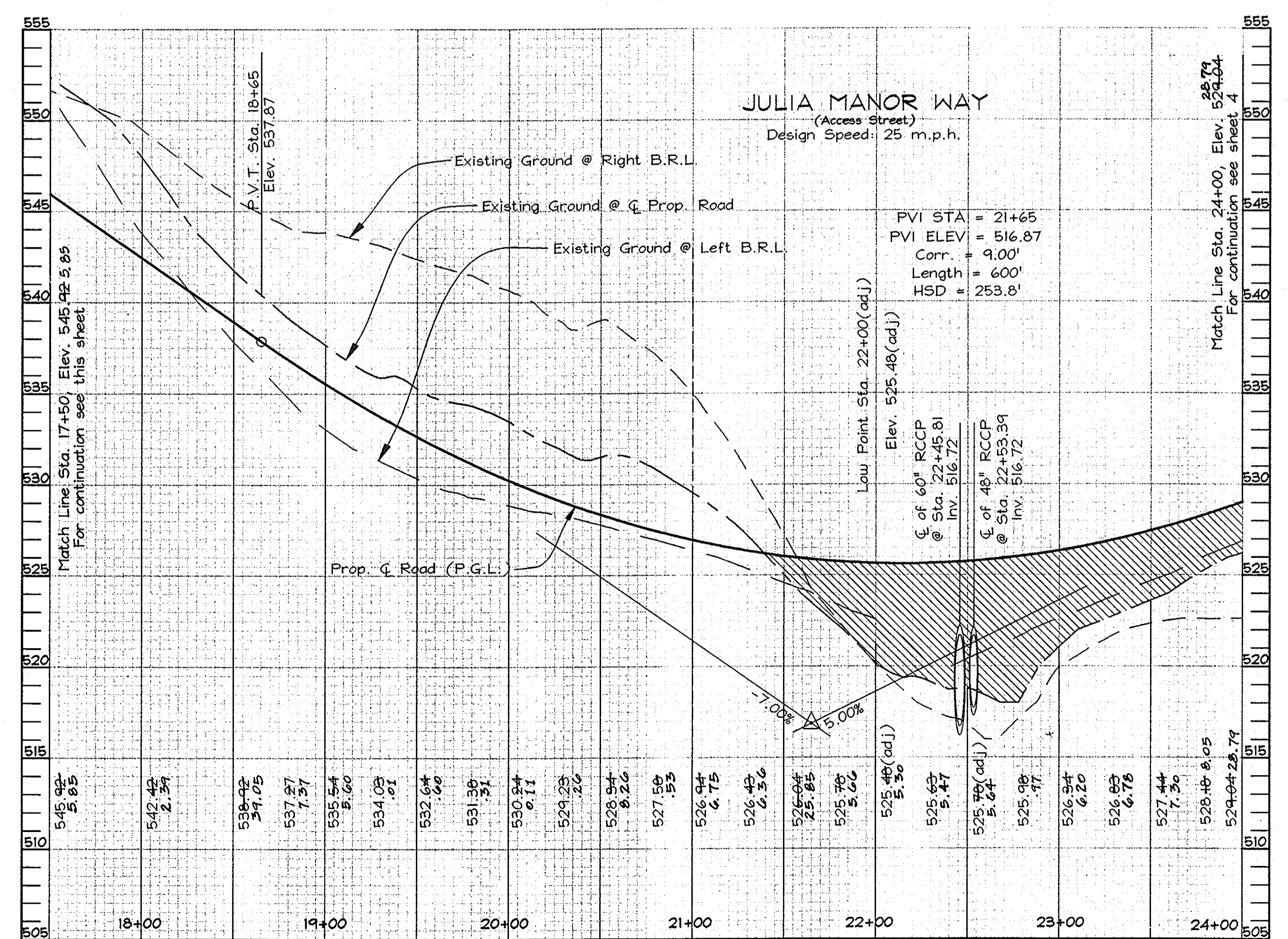
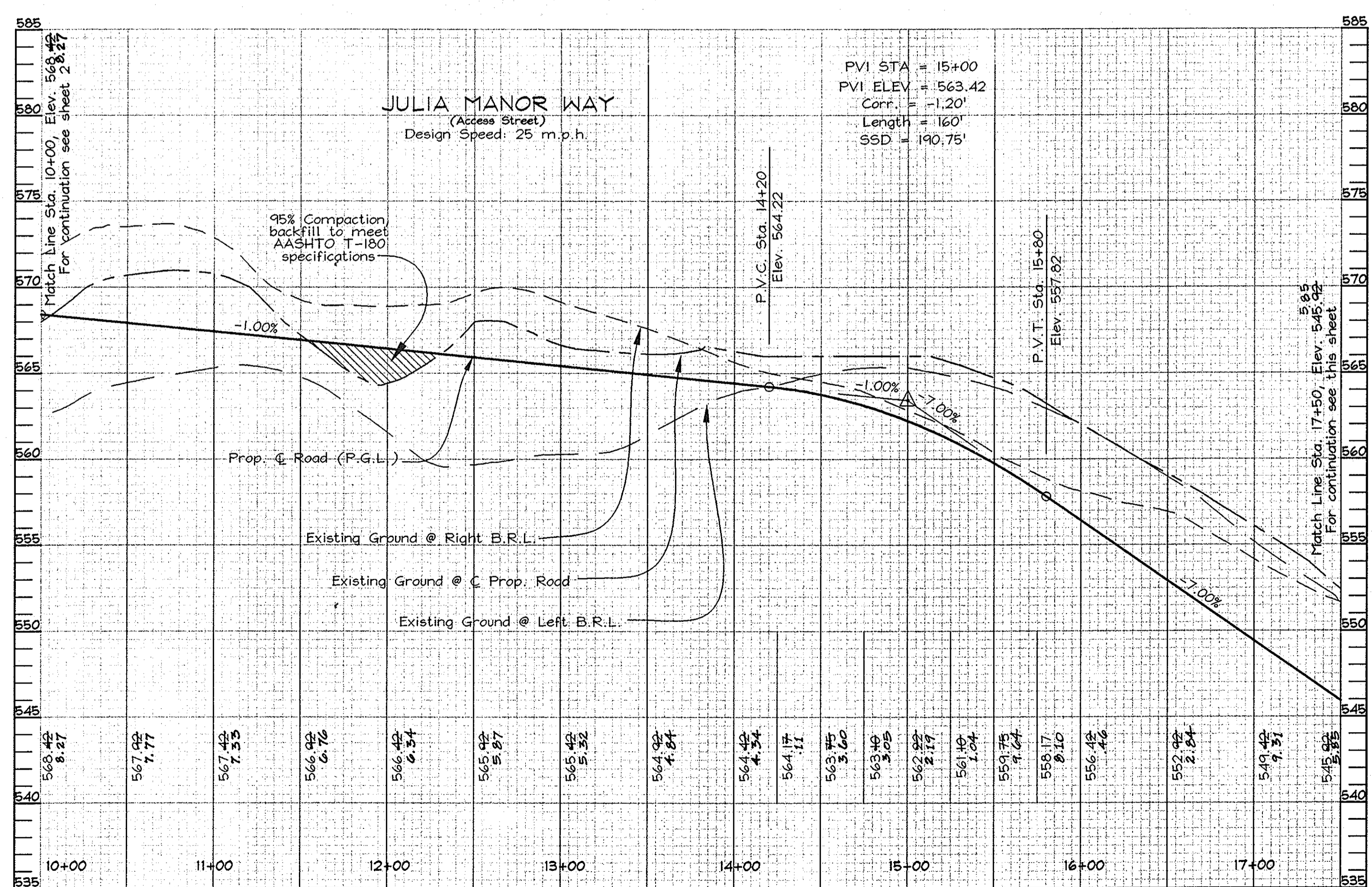
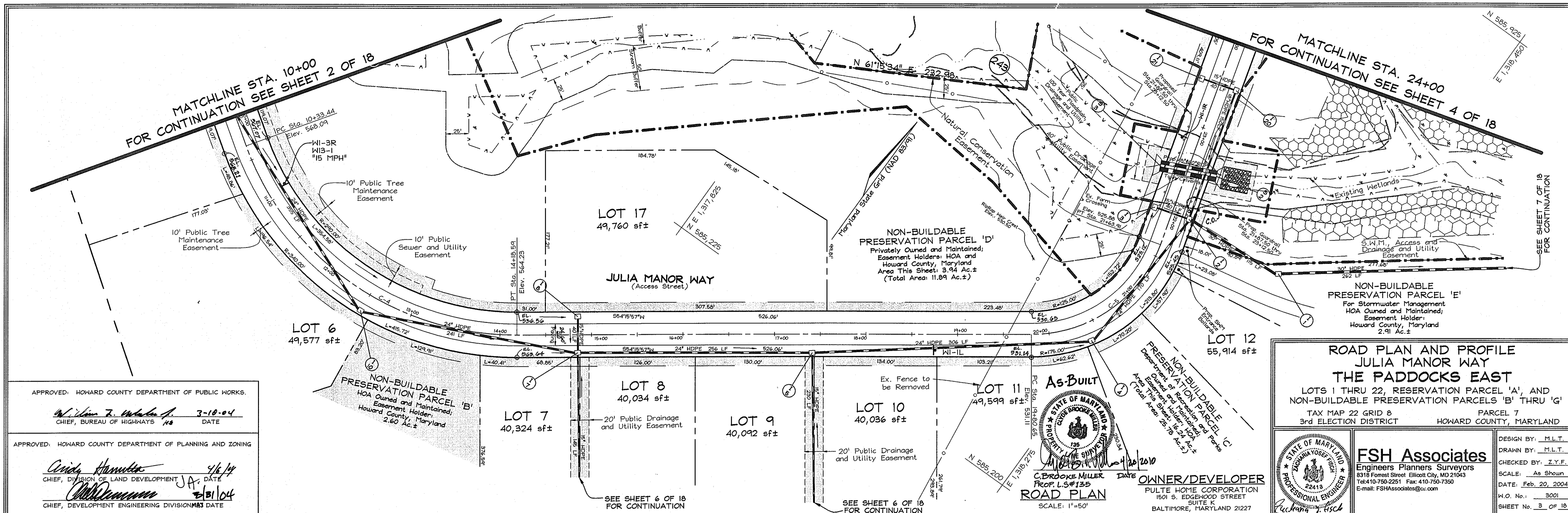
**FSH Associates**  
Engineers Planners Surveyors  
8318 Forrest Street, Ellicott City, MD 21043  
Tel: 410-750-2251 Fax: 410-750-7350  
E-mail: FSHAssociates@cs.com

DESIGN BY: MLT  
DRAWN BY: MLT  
CHECKED BY: ZYF  
SCALE: As Shown  
DATE: Feb. 20, 2004  
M.O. No.: 3001  
SHEET No. 1 OF 18



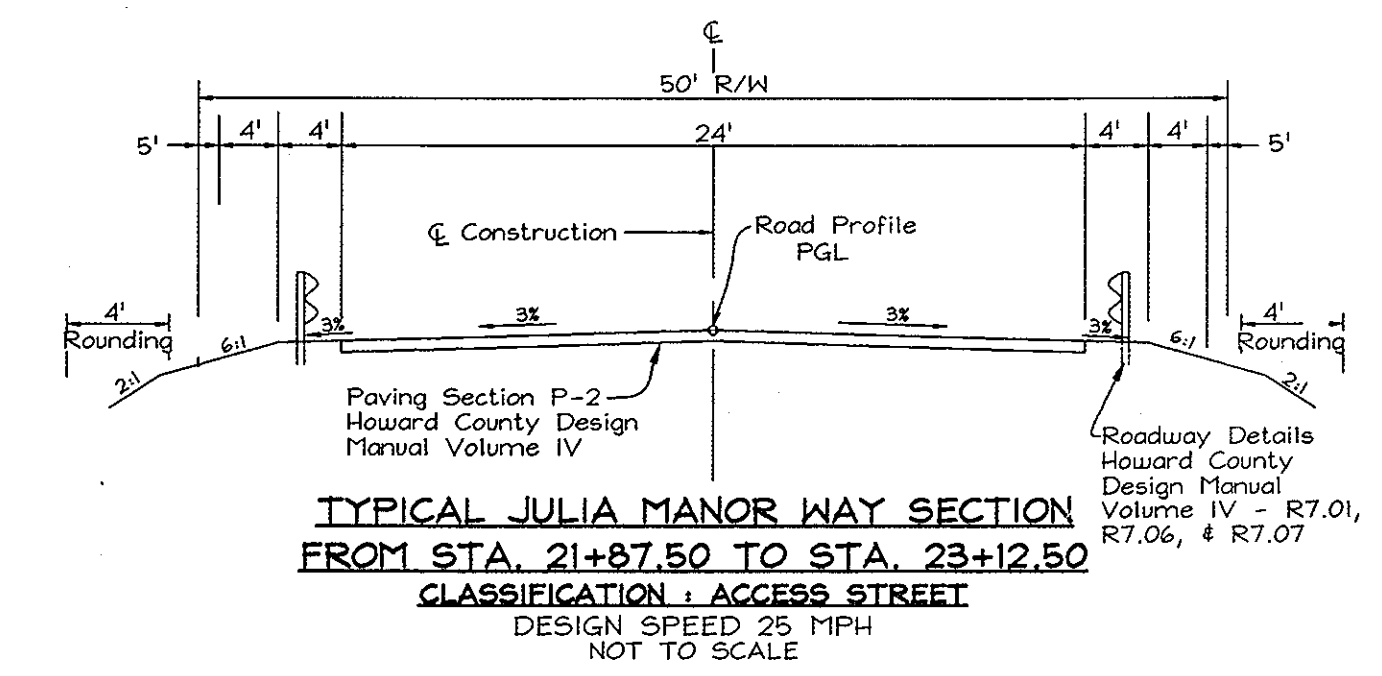
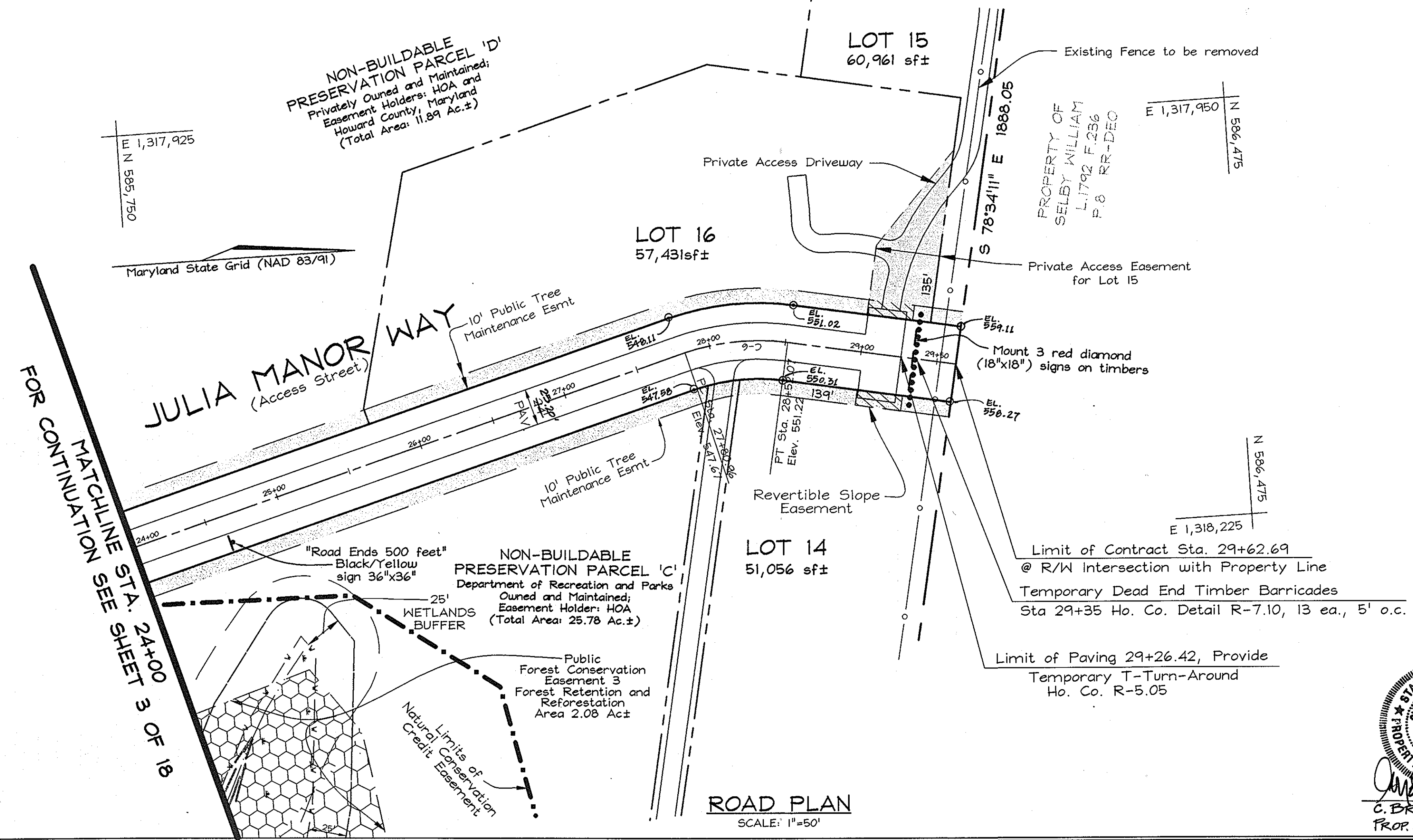






**ROAD PROFILES**  
SCALE- HORIZONTAL: 1"=50'  
VERTICAL: 1"=5'





**OWNER/DEVELOPER**  
PULTE HOME CORPORATION  
1501 S. EDGEWOOD STREET  
SUITE K  
BALTIMORE, MARYLAND 21227

**ROAD PLAN AND PROFILE**  
**JULIA MANOR WAY**  
**THE PADDOCKS EAST**  
LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND  
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
TAX MAP 22 GRID 8 PARCEL 7  
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**As-BUILT**

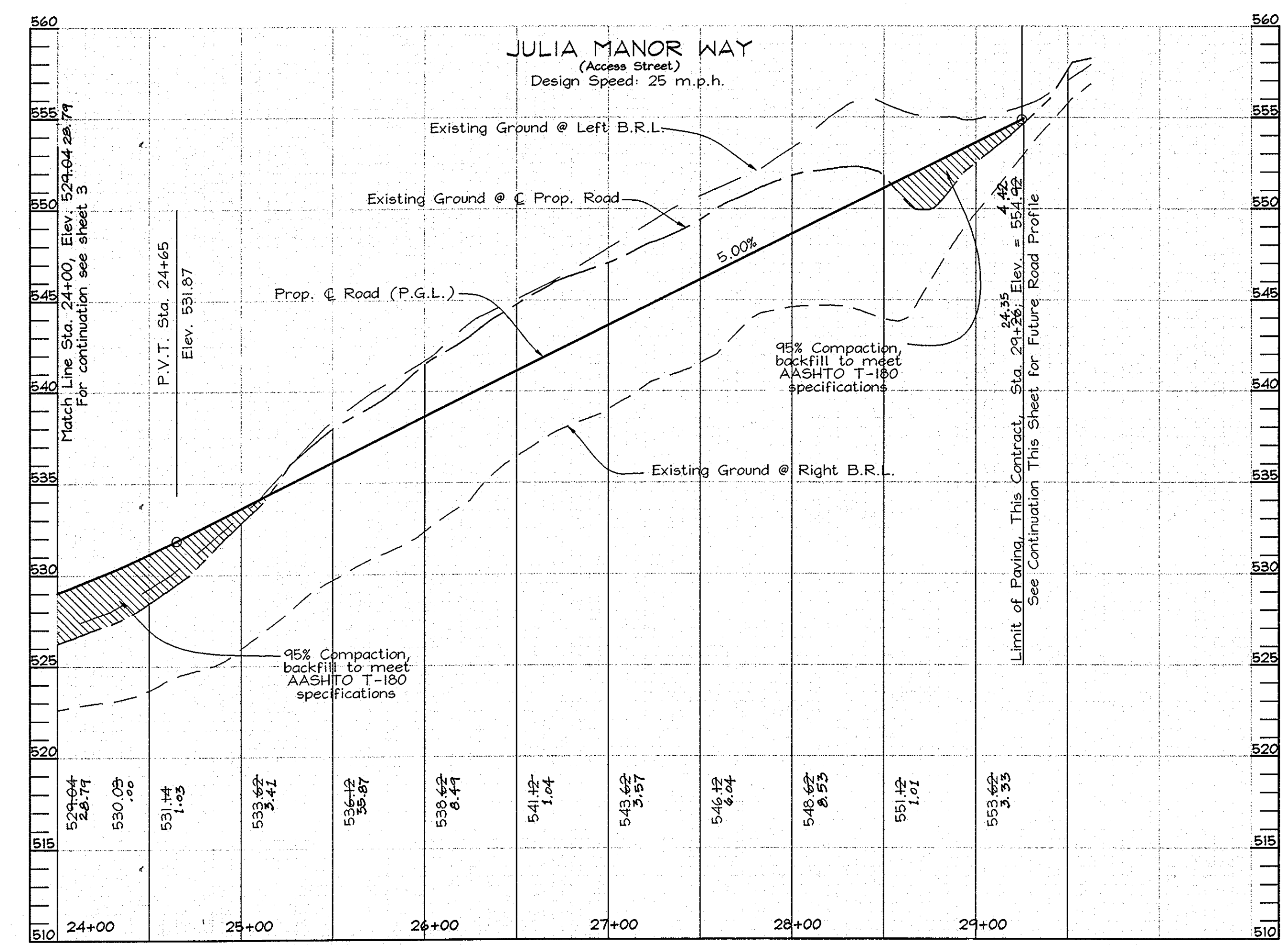
**C. BROOKE MILLER**  
PROF. L.S.#135  
DATE: 4/20/2010

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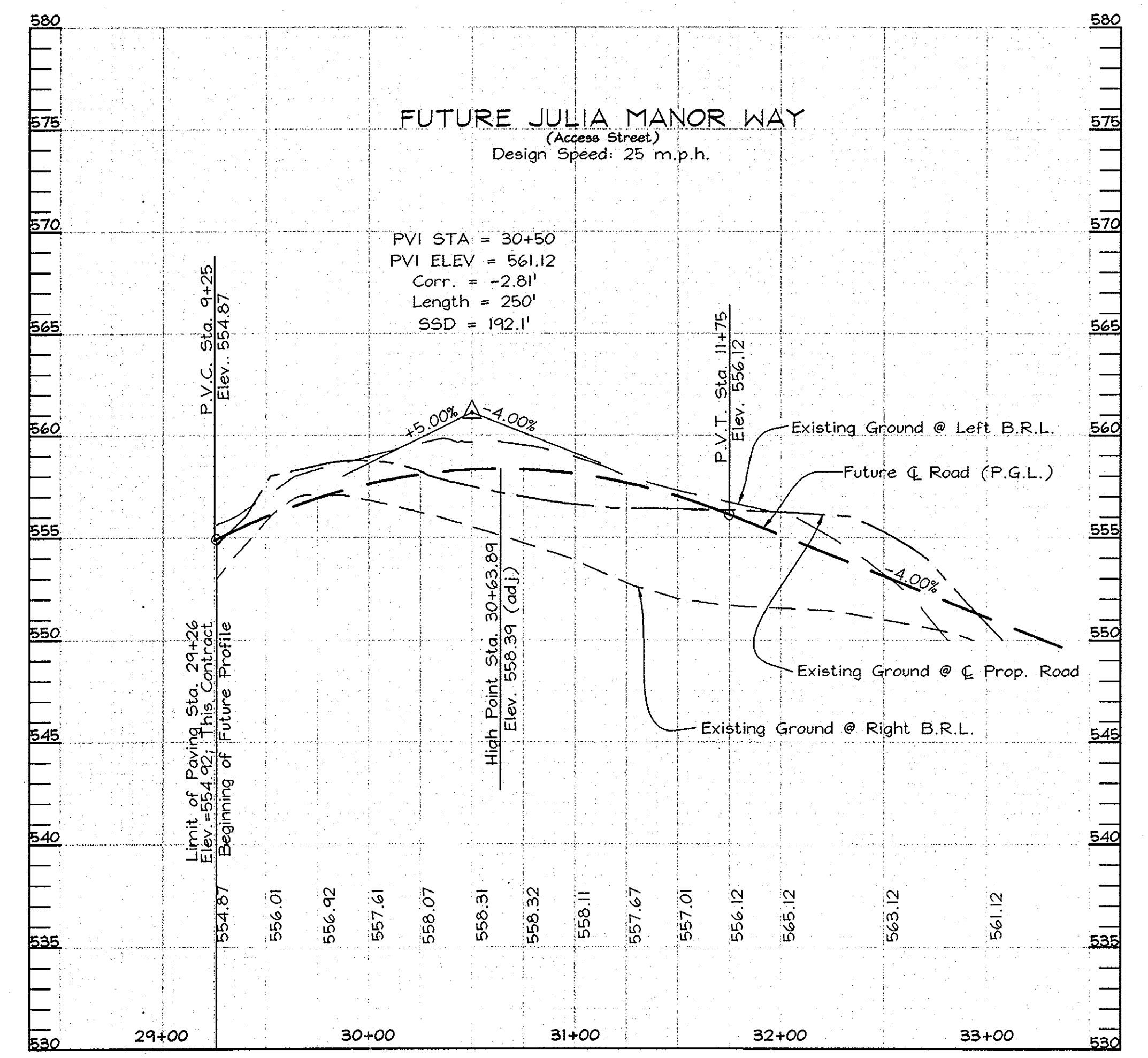
DESIGN BY: M.L.T.  
DRAWN BY: M.L.T.  
CHECKED BY: Z.Y.F.  
SCALE: As Shown  
DATE: Feb. 20, 2004  
W.O. No.: 3001  
SHEET No. 4 OF 18

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
*William J. White Jr.* 3-10-04  
CHIEF, BUREAU OF HIGHWAYS /S DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Cindy Hamrick* 4/6/10  
CHIEF, DIVISION OF LAND DEVELOPMENT /S DATE  
*Michael D. ...* 3/21/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION /S DATE



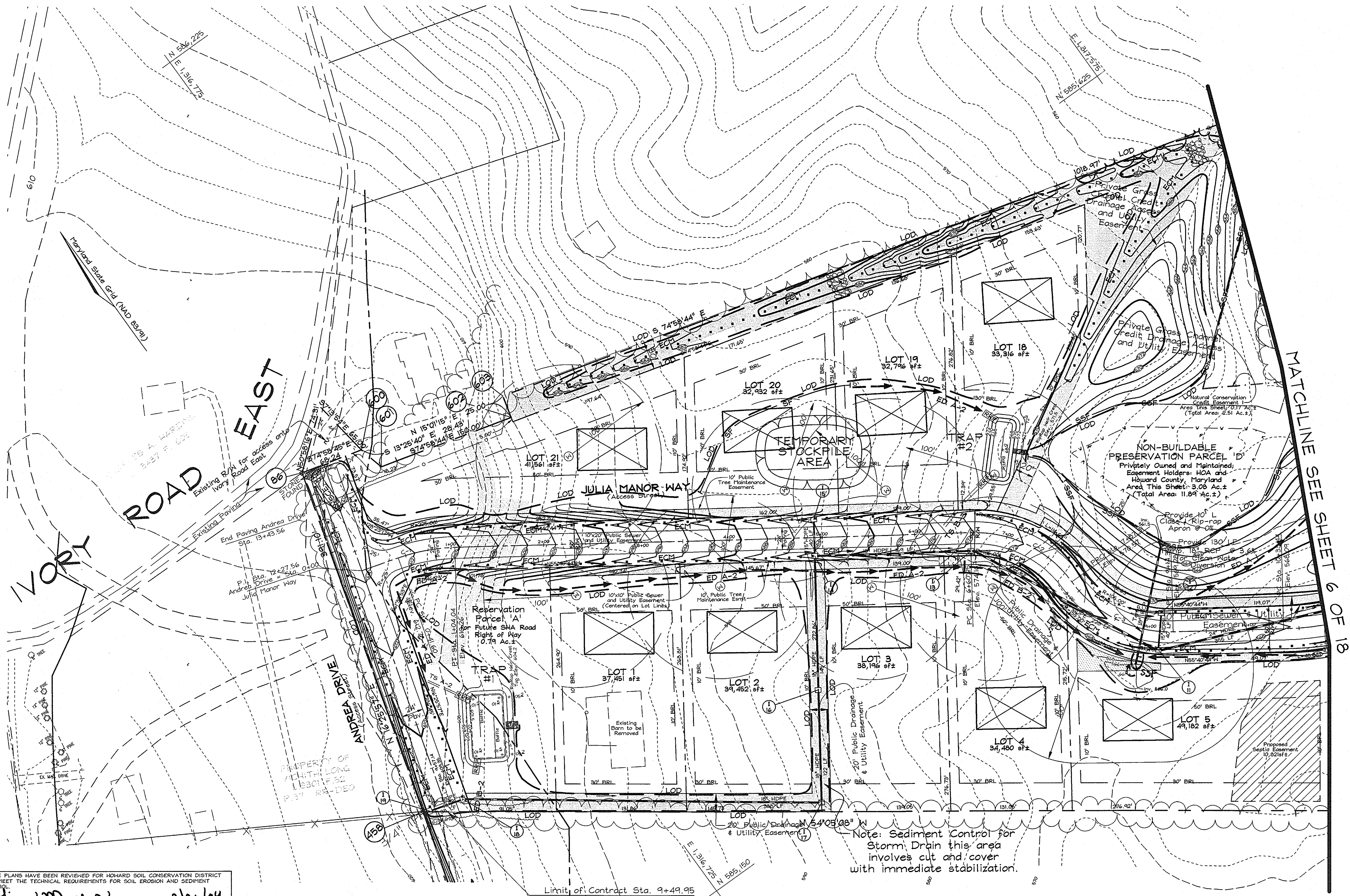
**ROAD PROFILES**  
SCALE- HORIZONTAL: 1"=50'  
VERTICAL: 1"=5'





LEGEND	
Existing Contour	--- 382
Proposed Contour	--- 382
Spot Elevation	+82.53
Direction of Flow	→
Tree Protection Fence	
Existing Trees to Remain	
Light Poles	☆ Post Top
Stabilized Construction Entrance	
Silt Fence	SF SF
Super Silt Fence	SSF SSF
Earth Dike	ED A-1
Limit of Disturbance	LOD
Erosion Control Matting	ECM
Rip-Rap Inflow Protection	RRP
Removable Pumping Station	RPS
Temporary Swale	TS B-3

Note: Limit of Disturbance is equal to Silt Fence or Super Silt Fence.



Note: Sediment Control for Storm Drain this area involves cut and cover with immediate stabilization.

THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim Myers* 2/26/04  
USDA NATURAL RESOURCES SERVICE DATE

*John R. Robertson* 2/26/04  
DATE

HOWARD SOIL CONSERVATION DISTRICT

**OWNER/DEVELOPER**  
PULTE HOME CORPORATION  
1601 S. EDGEWOOD STREET  
SUITE K  
BALTIMORE, MARYLAND 21227

Limit of Contract Sta. 9+49.95  
@ Intersection Sta. 9+49.95  
For continuation see plans submitted to State Highway Administration to be reviewed and approved simultaneously with this project.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*David Hancock* 4/6/04  
CHIEF, DIVISION OF LAND DEVELOPMENT JX DATE

*Chris DeWitt* 3/3/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*William F. ...* 3-10-04  
CHIEF, BUREAU OF HIGHWAYS DATE

**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.

*William F. ...* 2/19/04  
SIGNATURE OF DEVELOPER DATE

**ENGINEER'S CERTIFICATE**

I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Zacharia Y. Fisch* 2/20/04  
SIGNATURE OF ENGINEER DATE  
ZACHARIA Y. FISCH

**FSH Associates**  
Engineers Planners Surveyors  
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E-mail: FSHAssociates@cs.com

**GRADING, SEDIMENT AND EROSION CONTROL PLAN**

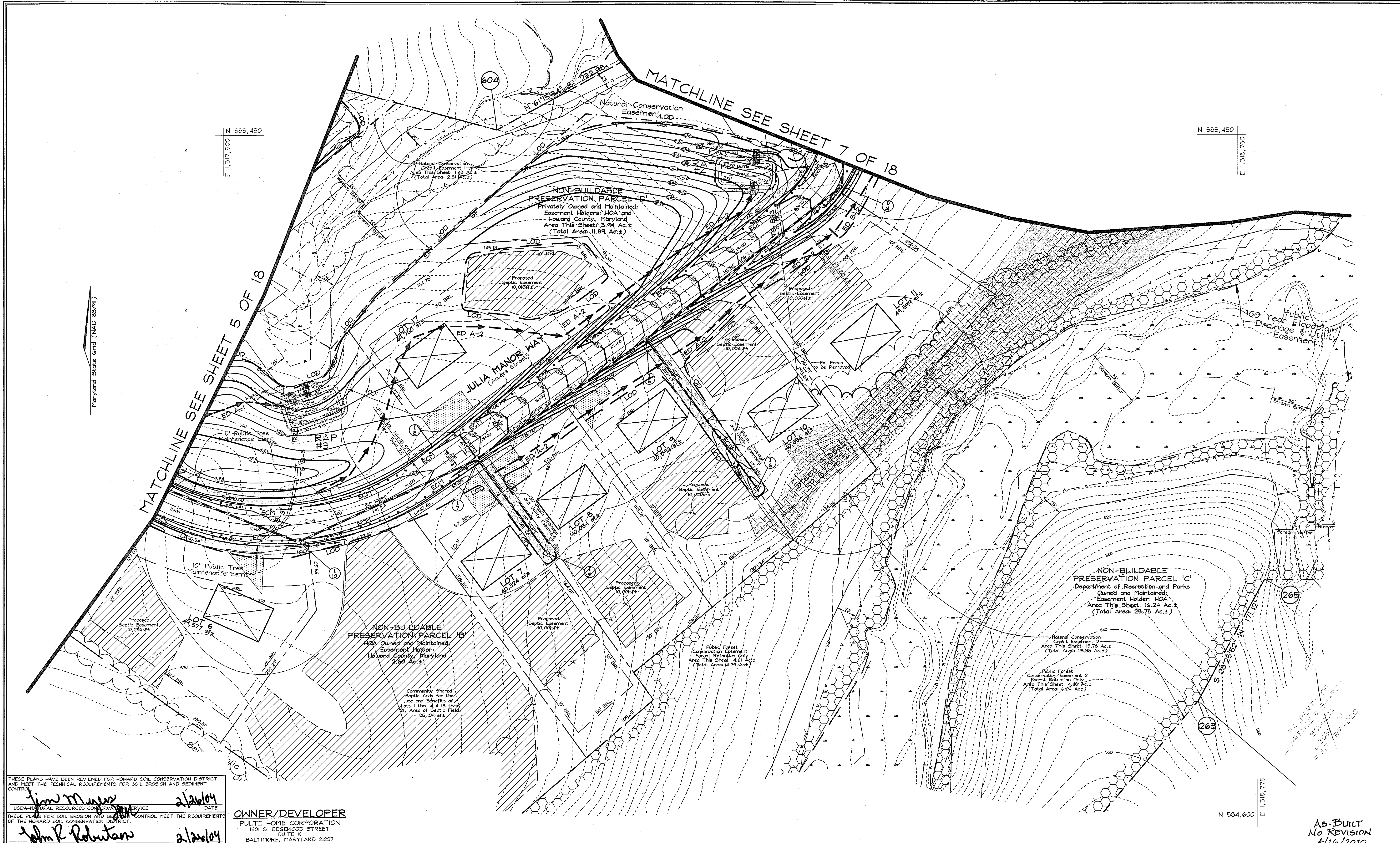
**THE PADDOCKS EAST**

LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
TAX MAP 22 GRID B PARCEL 7  
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: MLT  
DRAWN BY: Slim  
CHECKED BY: ZYF  
SCALE: 1"=50'  
DATE: Feb. 20, 2004  
W.O. No.: 3001  
SHEET No. 5 OF 18

AS-BUILT  
NO REVISION 4/16/2010





THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim Mauer* 2/26/04  
 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*John R. Robinson* 2/26/04  
 HOWARD SOIL CONSERVATION DISTRICT DATE

**OWNER/DEVELOPER**  
 PULTE HOME CORPORATION  
 1501 S. EDGEWOOD STREET  
 SUITE K  
 BALTIMORE, MARYLAND 21227

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Cindy Hamrick* 4/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT JCH DATE

*John Robinson* 3/31/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MRR DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

*William J. ...* 3-10-04  
 CHIEF, BUREAU OF HIGHWAYS HW DATE

**DEVELOPER'S CERTIFICATE**

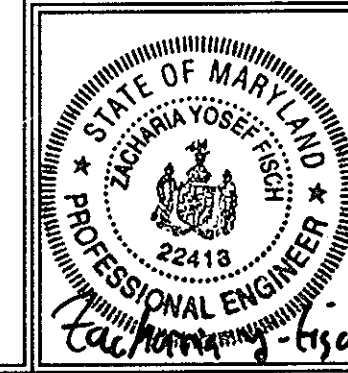
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*William J. ...* 2/19/04  
 SIGNATURE OF DEVELOPER DATE

**ENGINEERS CERTIFICATE**

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*Zacharia Y. Fisch* 2/20/04  
 SIGNATURE OF ENGINEER DATE  
 ZACHARIA Y. FISCH



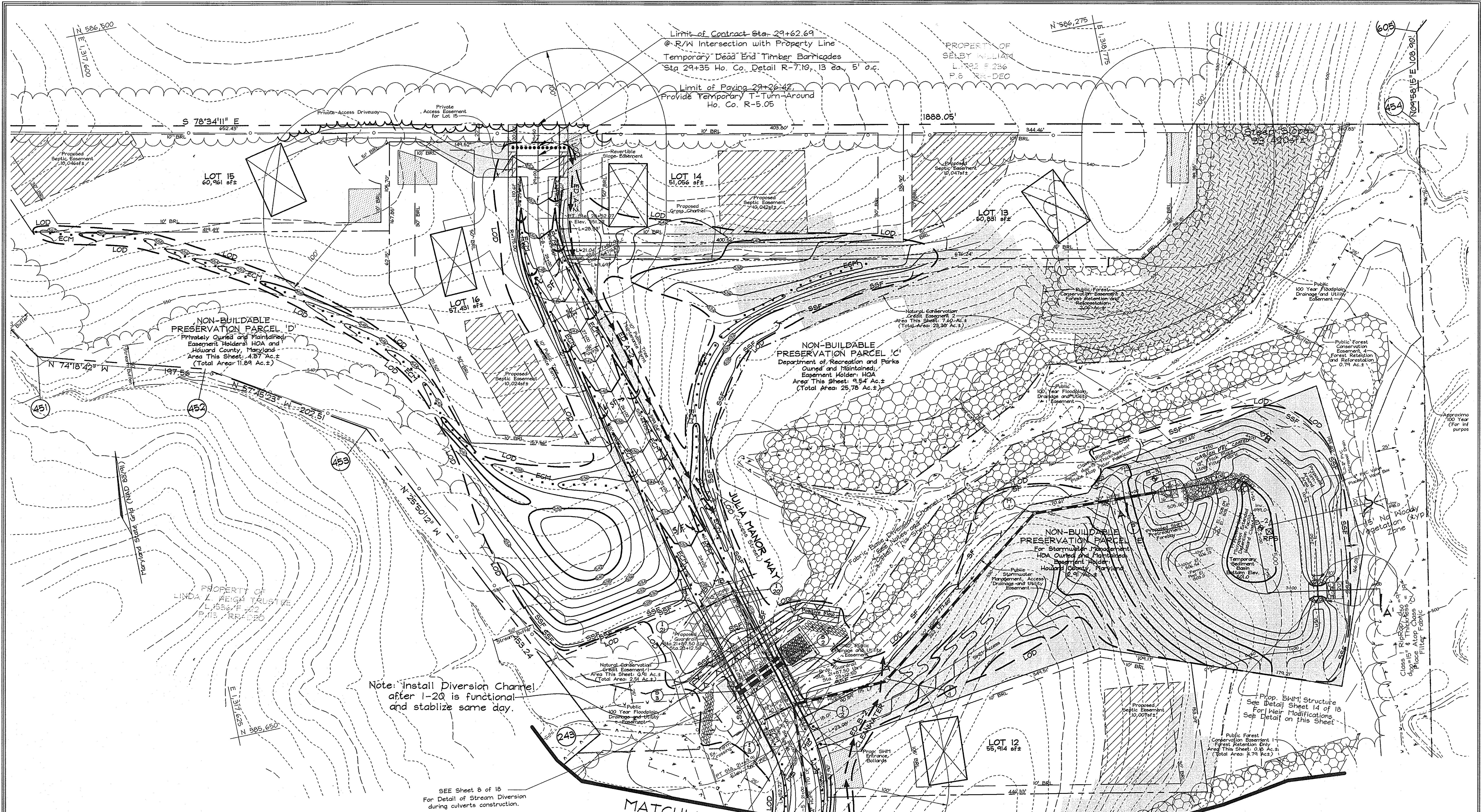
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**GRADING, SEDIMENT AND EROSION CONTROL PLAN**  
**THE PADDOCKS EAST**  
 LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'C'  
 TAX MAP 22 GRID 8 PARCEL 7  
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: *MILT*  
 DRAWN BY: *Slim*  
 CHECKED BY: *ZYF*  
 SCALE: 1"=50'  
 DATE: Feb. 20, 2004  
 H.O. No.: 3001  
 SHEET No. 6 OF 18

AS-BUILT  
 NO REVISION  
 4/16/2010





THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim Moran* 2/26/04  
 USDA-NATIONAL RESOURCES CONSERVATION SERVICE DATE

*John R. Anderson* 2/26/04  
 THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. HOWARD COUNTY CONSERVATION DISTRICT DATE

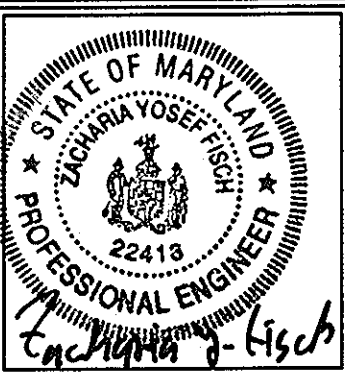
**OWNER/DEVELOPER**  
 PULTE HOME CORPORATION  
 1501 S. EDGEWOOD STREET  
 SUITE K  
 BALTIMORE, MARYLAND 21227

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*William F. ...* 2/19/04  
 SIGNATURE OF DEVELOPER DATE

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*Zacharia Y. Fisch* 2/20/04  
 SIGNATURE OF ENGINEER DATE  
 ZACHARIA Y. FISCH



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 TAX MAP 22 GRID 8 PARCEL 7  
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: *MILT*  
 DRAWN BY: *Stim*  
 CHECKED BY: *ZYF*  
 SCALE: 1"=50'  
 DATE: Feb. 20, 2004  
 H.O. No.: 3001  
 SHEET No. 7 OF 18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Colleen ...* 4/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT JAY DATE

*...* 3/21/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
*William F. ...* 3-10-04  
 CHIEF, BUREAU OF HIGHWAYS DATE

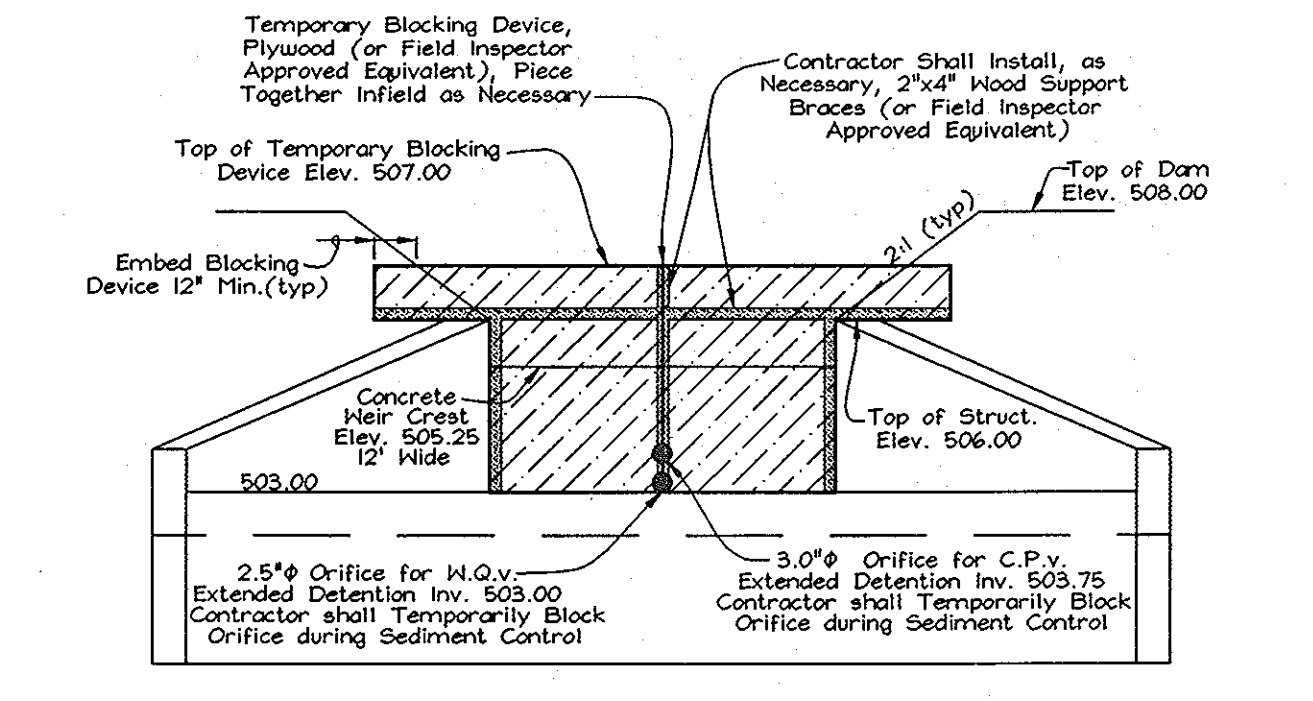
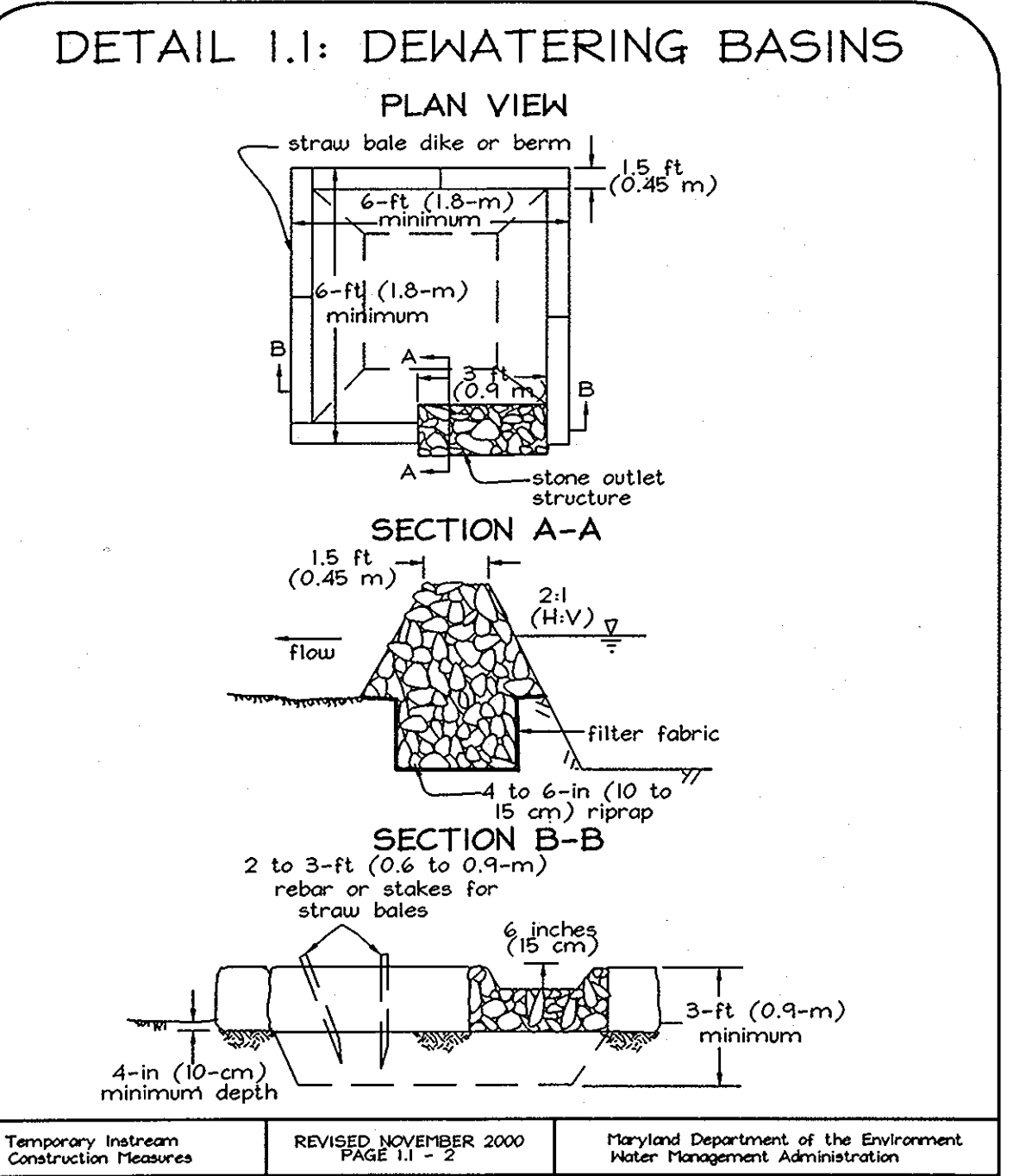
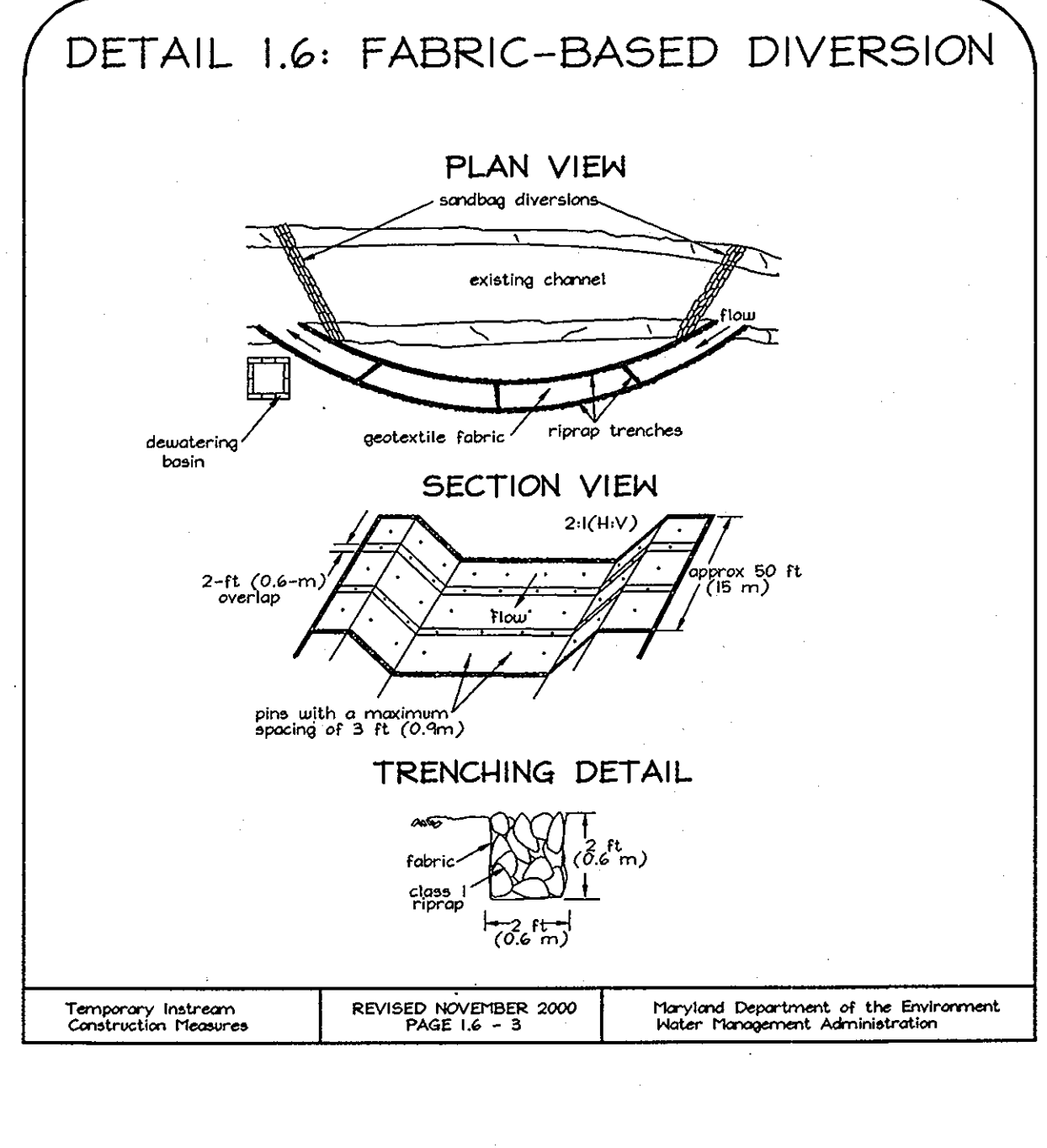
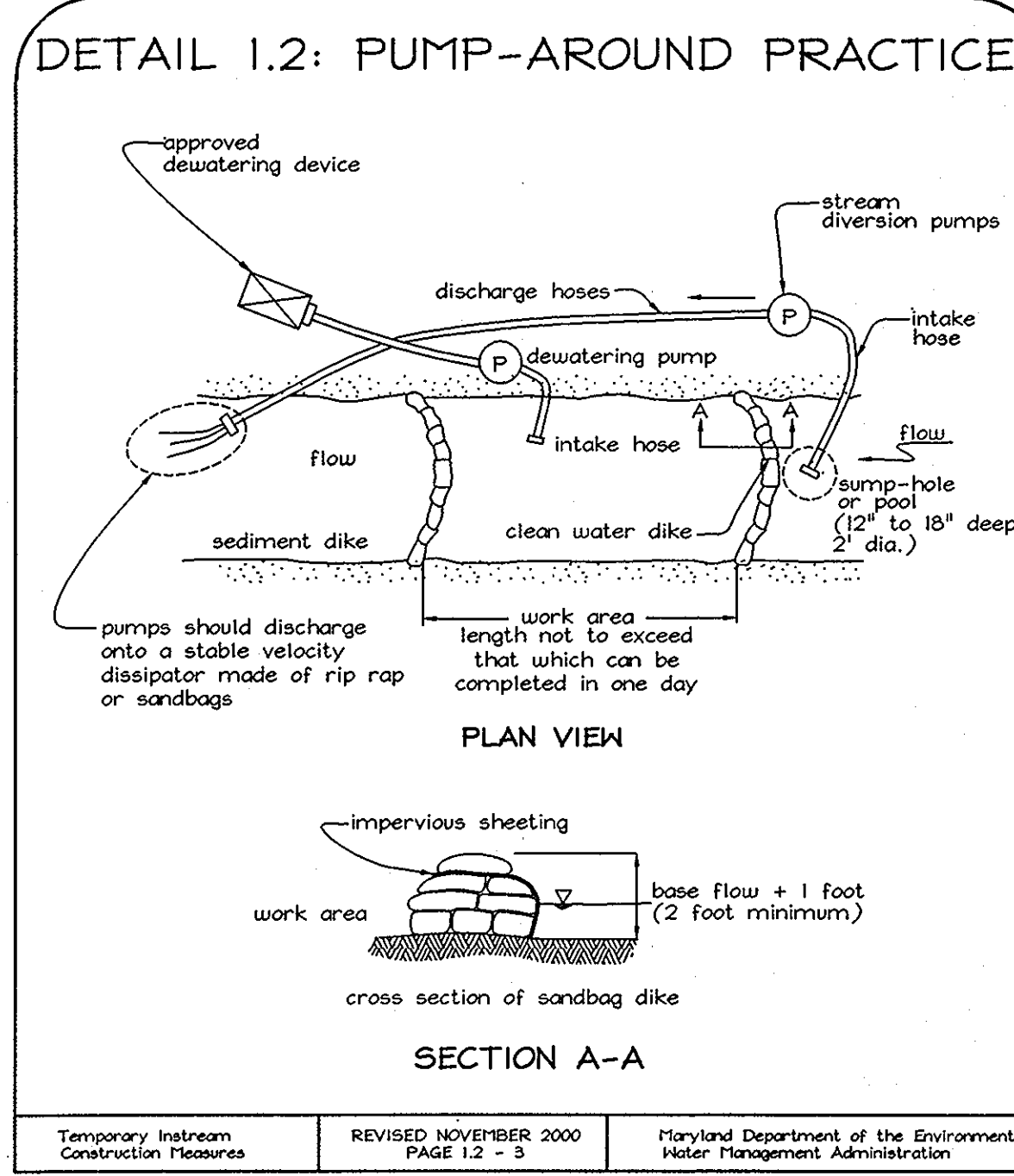
Note: For Section 'A'-'A' See Profile Sheet 14 of 18  
**AS-BUILT (SEE SHEET 14 FOR T&E)**  
 No REVISION 4/16/2010

MATCHLINE SEE SHEET 6 OF 18



SEDIMENT TRAP SCHEDULE				
TRAP NO.	1	2	3	4
TYPE	ST-II	ST-II	ST-II	ST-II
D.A.	2.0 Ac.	1.6 Ac.	2.0 Ac.	2.0 Ac.
Storage Required	3600 cfw 3600 cfd	2880 cfw 2880 cfd	3600 cfw 3600 cfd	3600 cfw 3600 cfd
Storage Provided	3940 cfw 3648 cfd	2880 cfw 2880 cfd	3712 cfw 3634 cfd	3712 cfw 3634 cfd
Weir Length	8.0 Ft.	8.0 Ft.	8.0 Ft.	8.0 Ft.
Top Embankment Elev.	605.2	572.5	557.0	531.5
Bottom Trap Elev.	601.5	568.0	552.5	527.0
Weir Crest Elev.	604.2	571.5	556.0	530.5
Clean Out Elev.	602.3	569.0	553.5	528.0

SEDIMENT BASIN SCHEDULE	
Type of Trap	Modified Stormwater Management Facility
Drainage Area	28.2 Ac.
Storage Required	101,520 Cu.Ft.
Storage Provided	102,802 Cu.Ft.
Weir Length	14.0 Ft.
Bottom Elevation	501.0
Cleanout Elevation	502.5
Embankment Elevation	508.0
Net Storage Elevation	504.0



- NOTES:**
- See sheet 12 for all weir structure details relating to SWM1.
  - The contractor may substitute proposed materials with the approval of sediment control inspector in field.
  - Limit of Disturbance is equal to Silt Fence or Super Silt Fence for grading shown except in vicinity of stream crossing.

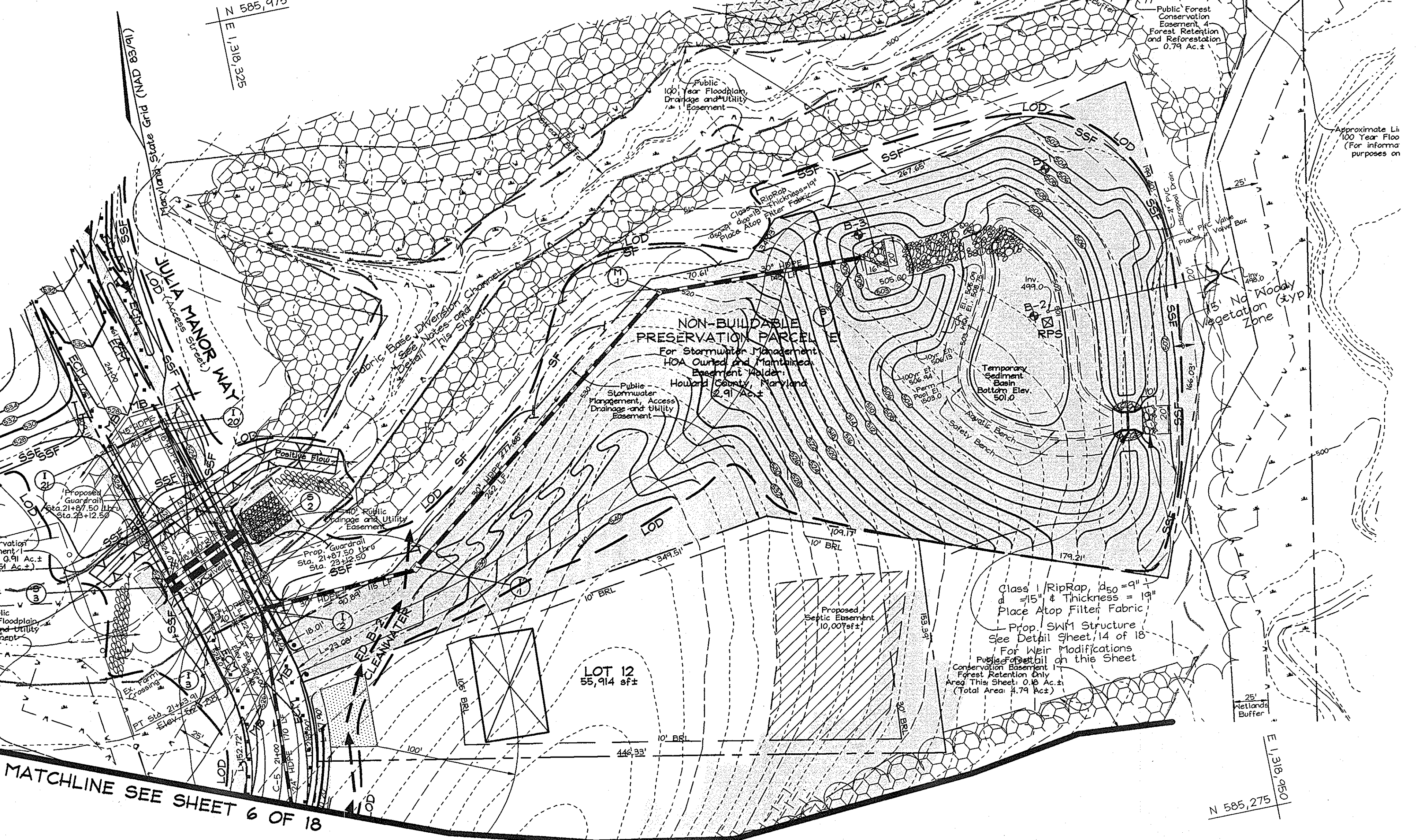
**BEST MANAGEMENT PRACTICES**

- For working in Nontidal Wetlands, Wetland Buffers, Waterways, and 100-Year Floodplains.
- No excess fill, constructed material, or debris shall be stockpiled or stored in Non-Tidal Wetland Buffers, Waterways, or 100-Year Floodplains.
  - Place materials in a location and manner which does not adversely impact surface or subsurface water flow into or out of Nontidal Wetlands, Nontidal Wetland Buffers, Waterways, or the 100-Year Floodplain.
  - Do not use the excavated material as backfill if it contains waste metal products, unsightly debris, toxic material, or any deleterious substance. If additional backfill is required, use clean material free of waste metal products, unsightly debris, toxic material, or any deleterious substance.
  - Place heavy equipment on mats or suitably operate the equipment to prevent damage to Nontidal Wetlands, Nontidal Wetland Buffers, Waterways, or the 100-Year Floodplain.
  - Repair and maintain any serviceable structure or fill so there is no permanent loss of Nontidal Wetlands, Nontidal Wetland Buffers, Waterways, or permanent modification of the 100-Year Floodplain in excess of that lost under the originally authorized structure or fill.
  - Rectify any Nontidal Wetlands, Wetland Buffers, Waterways, or 100-Year Floodplain temporarily impacted by construction.
  - All stabilization in the Nontidal Wetland and Nontidal Wetland Buffer shall consist of the following species:
    - Annual Rye Grass (Lolium Multiflorum)
    - Millet (Setaria Italica)
    - Barley (Hordeum Species)
    - Oats (Urtica SPP.)
    - Rye (Secale Cereale)
 These species will allow for the stabilization of the site while also allowing for the voluntary revegetation of natural wetland species. Other non-persistent vegetation may be acceptable, but must be approved by the Nontidal Wetlands and Waterways Division. Kentucky 31 Fescue shall not be utilized in Wetland or Buffer areas. The area should be seeded and mulched to reduce erosion after construction activities have been completed.
  - After installation has been completed, make post-construction grades and elevations the same as the original grades and elevations in temporary impacted areas.
  - To protect Aquatic species, in-stream work is prohibited as determined by the classification of the stream.
    - Use 1 water: in-stream work shall be conducted during the period March 1 through June 15, inclusive, during any year.
  - Stormwater runoff from impervious surfaces shall be controlled to prevent the washing of debris into the Waterway.
  - Culverts shall be constructed and any RipRap placed so as not to obstruct the movement of aquatic species, unless the purpose of the activity is to impound water.

**Diversion Channel Sizing Information**

Bottom Width = 6'  
Depth = 2'  
Side Slopes = 2:1

- Construction activities including the installation of erosion and sediment control measures shall not begin until all necessary easements and/or right-of-ways have been acquired. All existing utilities shall be marked in the field prior to construction. The contractor is responsible for any damage to existing utilities that may result from construction and shall repair the damage at his/her own expense to the county's satisfaction.
- The contractor shall notify the Maryland Department of the Environment or NIMA sediment control inspector at least 5 days before beginning construction. Additionally, the contractor shall inform the local environmental protection and resource management inspection and enforcement division and the provider of local utilities a minimum of 48 hours before starting construction.
- The contractor shall conduct a pre-construction meeting on site with the NIMA sediment control inspector, the county project manager, and the engineer to review limits of disturbance, erosion and sediment control requirements, and the sequence of construction. (The contractor shall stake out all limits of disturbance prior to the pre-construction meeting.) The participants will also designate the contractor's staging areas and flag all trees within the limit of disturbance which will be removed for construction access. Trees shall not be removed within the limit of disturbance without approval from the NIMA or local authority.
- Construction shall not begin until all sediment and erosion control measures have been installed and approved by the engineer and the sediment control inspector. The contractor shall stay within the limits of the disturbance as shown on the plans and minimize disturbance within the work area whenever possible.
- Upon installation of all sediment control measures and approval by the sediment control inspector and the local environmental protection and resource management inspection and enforcement division, the contractor shall begin work at the upstream section and proceed downstream beginning with the establishment of stabilized construction entrances. The sequence of construction must be followed unless the contractor gets written approval for deviations from the NIMA or local authority. The contractor shall only begin work in an area which can be completed by the end of the day (including grading adjacent to the channel). At the end of each work day, the work area must be stabilized and the pump around removed from the channel. Work shall not be conducted in the channel during rain events.
- Sandbag dikes shall be situated at the upstream and downstream ends of the work area as shown on the plans, and near flow shall be pumped around the work area. The pump shall discharge onto a stable velocity dissipator made of riprap or sandbags.
- Water from the work area shall be pumped to sediment filtering measure such as a sediment bag. The measure shall be located such that the water drains back into the channel below the downstream sandbag dike.
- Traversing a channel reach with equipment where no work is proposed should be avoided. If equipment has to traverse such a reach for access to another area, then timber mats or similar measures shall be used to minimize disturbance to the channel. Temporary stream crossings shall be used only when necessary and only where noted on the plans or specified by the engineer.
- All stream restoration measures shall be installed as indicated by the plans and all banks graded in accordance with the grading plans and typical cross-sections. All grading must be permanently stabilized at the end of each day with seed and mulch or seed and matting as specified on the plans.
- After an area is completed and stabilized, sandbag diversions, the water pump, and sediment filtering measures shall be moved to the next work area. This shall be accomplished by first moving the downstream sandbag diversion to the new upstream pump around location and then by relocating the upstream sandbag dike, velocity dissipator, and sediment filter to the new downstream location.
- A pump around must be installed on any tributary or storm drain outfall which contributes base-flow to the work area. This should be accomplished by locating a sandbag dike at the downstream end of the tributary or storm drain outfall and pumping the stream flow around the work area. This water should discharge onto the same velocity dissipator used for the main stem pump around.
- If a tributary is to be restored, construction should take place on the tributary before work on the main stem reaches the tributary confluence. Construction in the tributary, including pump around practices, shall follow the same sequence as for the main stem of the river or stream. When construction on the tributary is completed, work on the main stem shall resume. Water from the tributary shall continue to be pumped around the work area in the main stem.
- The contractor is responsible for providing access to and maintaining all erosion and sediment control devices until the sediment control inspector approved their removal.
- After construction, all disturbed areas shall be regraded and revegetated as per the planting plan.



THESE PLANS HAVE BEEN REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS FOR SOIL EROSION AND SEDIMENT CONTROL.

*Jim Meyer* 2/26/04  
USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE

*John R. Robertson* 2/26/04  
THESE PLANS FOR SOIL EROSION AND SEDIMENT CONTROL MEET THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Cindy Harvill* 4/1/04  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark Pennington* 3/31/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

*William J. ...* 3-10-04  
CHIEF, BUREAU OF HIGHWAYS DATE

**DEVELOPER'S CERTIFICATE**

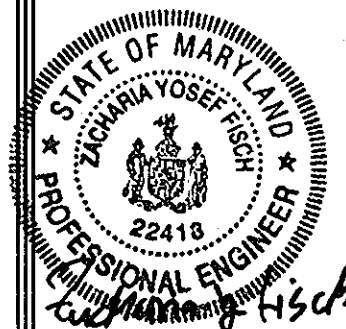
"I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THIS PLAN FOR SEDIMENT AND EROSION CONTROL AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE AT A DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL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

*W. W. ...* 2/19/04  
SIGNATURE OF DEVELOPER DATE

**ENGINEER'S CERTIFICATE**

"I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT."

*Zacharia Y. Fitch* 2/20/04  
SIGNATURE OF ENGINEER DATE



**FSH Associates**  
Engineers Planners Surveyors  
8318 Forrest Street, Ellicott City, MD 21043  
Tel: 410-750-2251 Fax: 410-750-7350  
E-mail: FSHAssociates@cs.com

**SEDIMENT AND EROSION CONTROL PLAN, AND PUMP AROUND NOTES AND DETAIL**

**THE PADDOCKS EAST**

LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
TAX MAP 22 GRID 8 PARCEL 7  
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: *MLT*  
DRAWN BY: *Slim*  
CHECKED BY: *ZIF*  
SCALE: *As Shown*  
DATE: *Feb. 20, 2004*  
H.O. No.: *3001*  
SHEET No. *8* OF *18*

**As-BUILT**  
NO REVISION  
SEE SHEET 14 OF 18  
4/16/2010

**OWNER/DEVELOPER**  
FULTE HOME CORPORATION  
1501 S. EDGEMOOR STREET  
SUITE K  
BALTIMORE, MARYLAND 21227







**SOILS LEGEND**


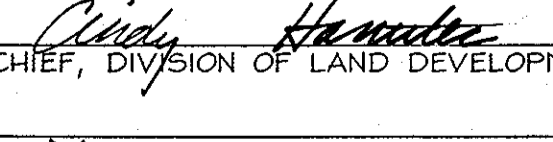
SYMBOL	NAME / DESCRIPTION	SOIL GROUP
Ba	Baile silt loam	D
CgB2	Chester gravelly silt loam, 3 to 8 percent slopes, moderately eroded	B
CgC2	Chester gravelly silt loam, 8 to 15 percent slopes, moderately eroded	B
ChA	Chester silt loam, 0 to 3 percent slopes	B
ChB2	Chester silt loam, 3 to 8 percent slopes, moderately eroded	B
ChC2	Chester silt loam, 8 to 15 percent slopes, moderately eroded	B
ChD3	Chester silt loam, 8 to 15 percent slopes, severely eroded	B
ChD2	Chester silt loam, 15 to 25 percent slopes, moderately eroded	B
Cs	Comus silt loam	B
CuB	Comus silt loam, local alluvium, 3 to 8 percent slopes	B
EKA	Eliok silt loam, 0 to 3 percent slopes	B
EKB2	Eliok silt loam, 3 to 8 percent slopes, moderately eroded	B
EKC2	Eliok silt loam, 8 to 15 percent slopes, moderately eroded	B
EKD2	Eliok silt loam, 15 to 25 percent slopes, moderately eroded	B
GIB2	Gienelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC2	Gienelg loam, 8 to 15 percent slopes, moderately eroded	B
GIC3	Gienelg loam, 8 to 15 percent slopes, severely eroded	B
GID2	Gienelg loam, 15 to 25 percent slopes, moderately eroded	B
GID3	Gienelg loam, 15 to 25 percent slopes, severely eroded	B
GNA	Glenville silt loam, 0 to 3 percent slopes	C
GnB2	Glenville silt loam, 3 to 8 percent slopes, moderately eroded	C
GnC2	Glenville silt loam, 8 to 15 percent slopes, moderately eroded	C
MgB2	Manor gravelly loam, 3 to 8 percent slopes, moderately eroded	B
MgC2	Manor gravelly loam, 8 to 15 percent slopes, moderately eroded	B
MgC3	Manor gravelly loam, 8 to 15 percent slopes, severely eroded	B
MIB2	Manor loam, 3 to 8 percent slopes, moderately eroded	B
MIC2	Manor loam, 8 to 15 percent slopes, moderately eroded	B
MID2	Manor loam, 15 to 25 percent slopes, moderately eroded	B
MID3	Manor loam, 15 to 25 percent slopes, severely eroded	B
MIE	Manor loam, 25 to 45 percent slopes	B
MnD	Manor very stony loam, 3 to 25 percent slopes	B
MnF	Manor very stony loam, 25 to 60 percent slopes	B

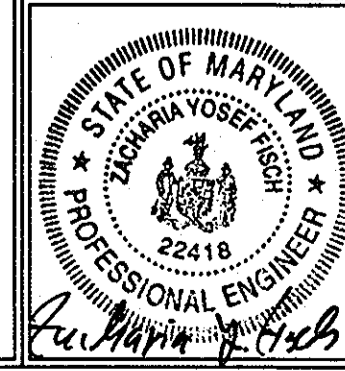


AS-BUILT  
4/16/2010  
FOR SWM POND ELEVATIONS  
SEE SHEET 14 OF 18  
NO REVISION

OWNER/DEVELOPER  
PULTE HOME CORPORATION  
1501 S. EDENWOOD STREET  
SUITE K  
BALTIMORE, MARYLAND 21227

**STORM DRAIN DRAINAGE AREA MAP**  
**THE PADDOCKS EAST**  
LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND  
NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
TAX MAP 22 GRID 8 PARCEL 7  
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

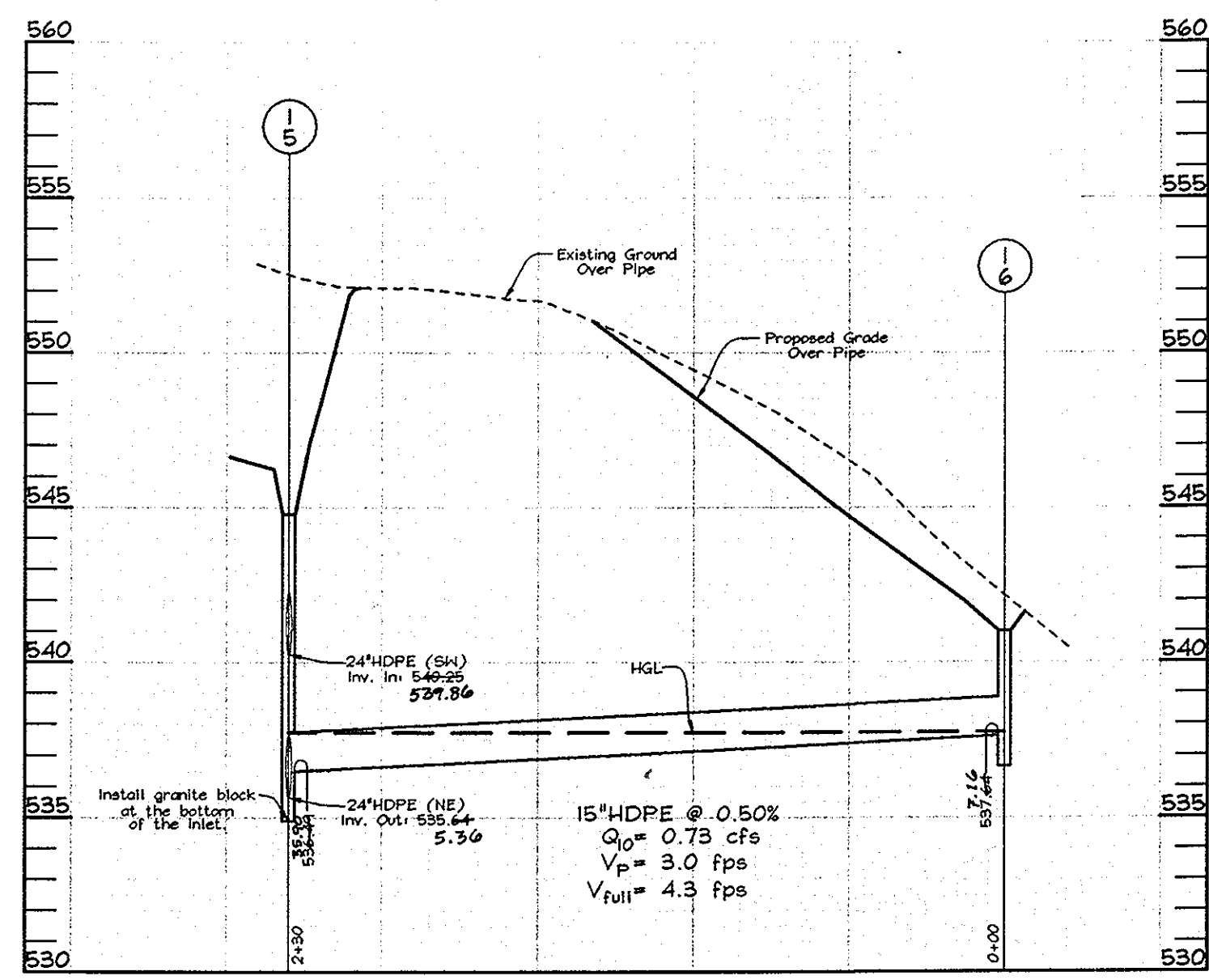
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 3/31/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION M.J.M. DATE  
 4/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT J.H.H. DATE  
 DIRECTOR DATE



**FSH Associates**  
Engineers Planners Surveyors  
8318 Forest Street, Ellicott City, MD 21043  
Tel: 410-750-2251 Fax: 410-750-7350  
E-mail: FSHAssociates@cs.com

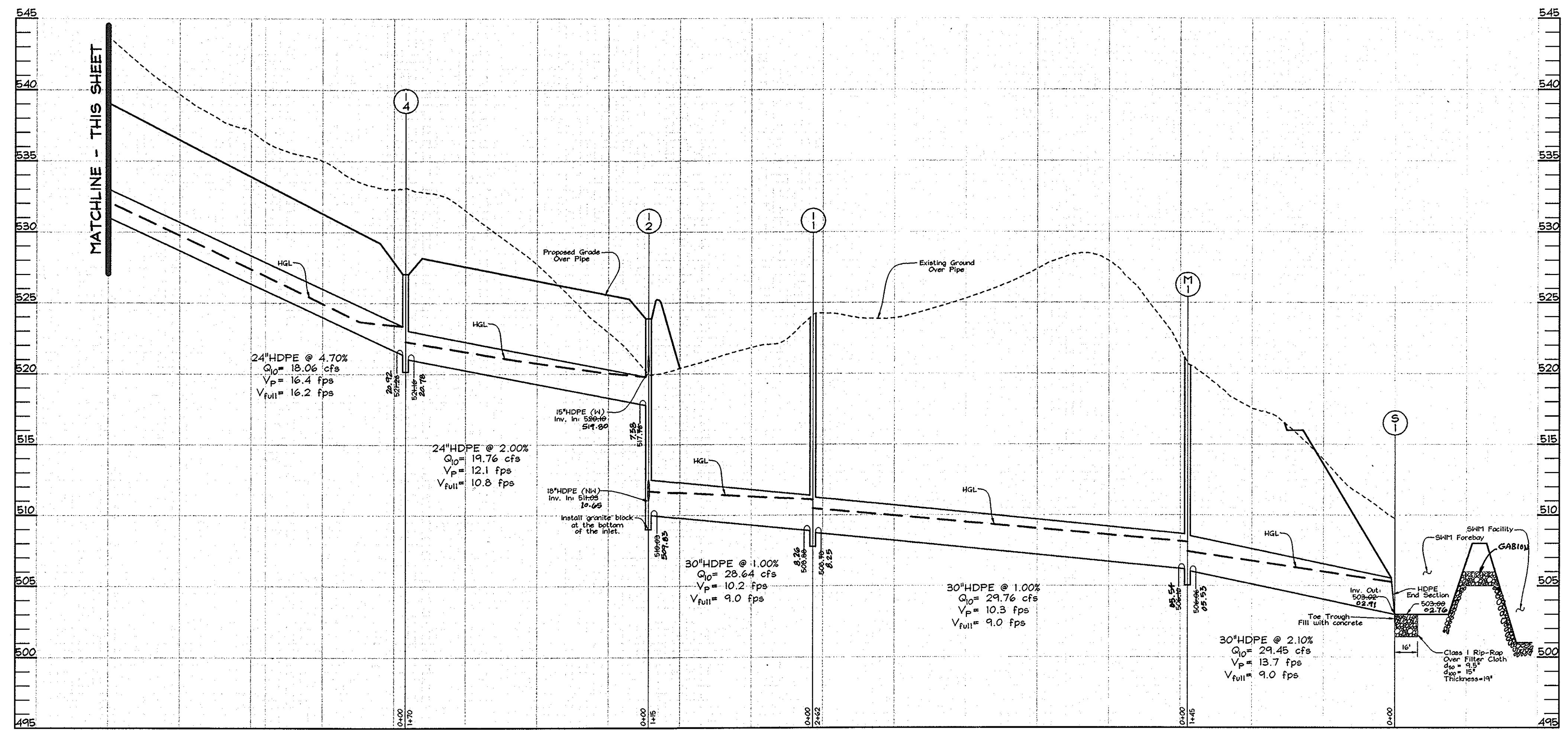
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DRAWN BY: Slm  
CHECKED BY: ZYF  
SCALE: 1"=100'  
DATE: Feb. 20, 2004  
W.O. No.: 3001  
SHEET No. 10 OF 18





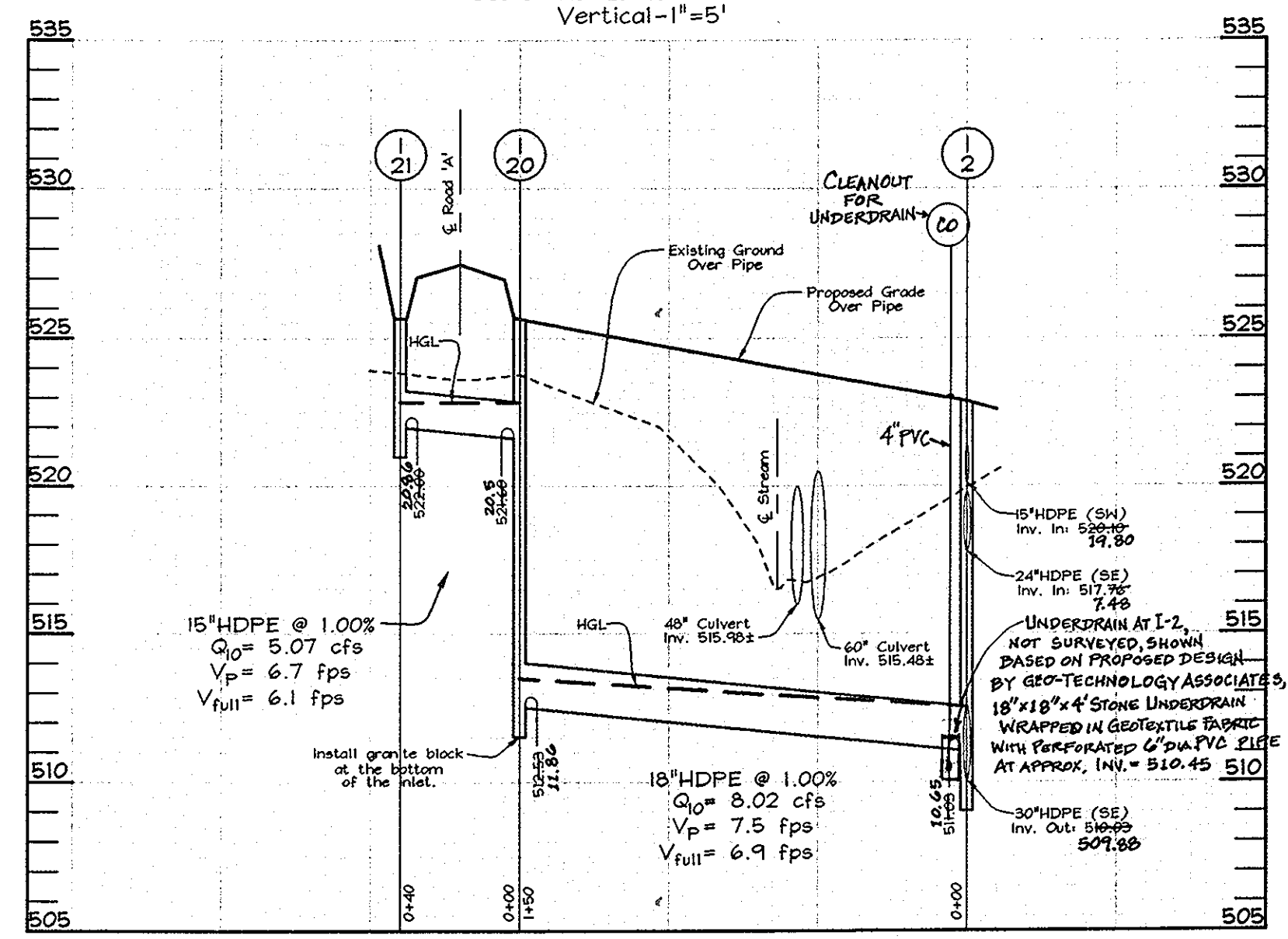
**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'



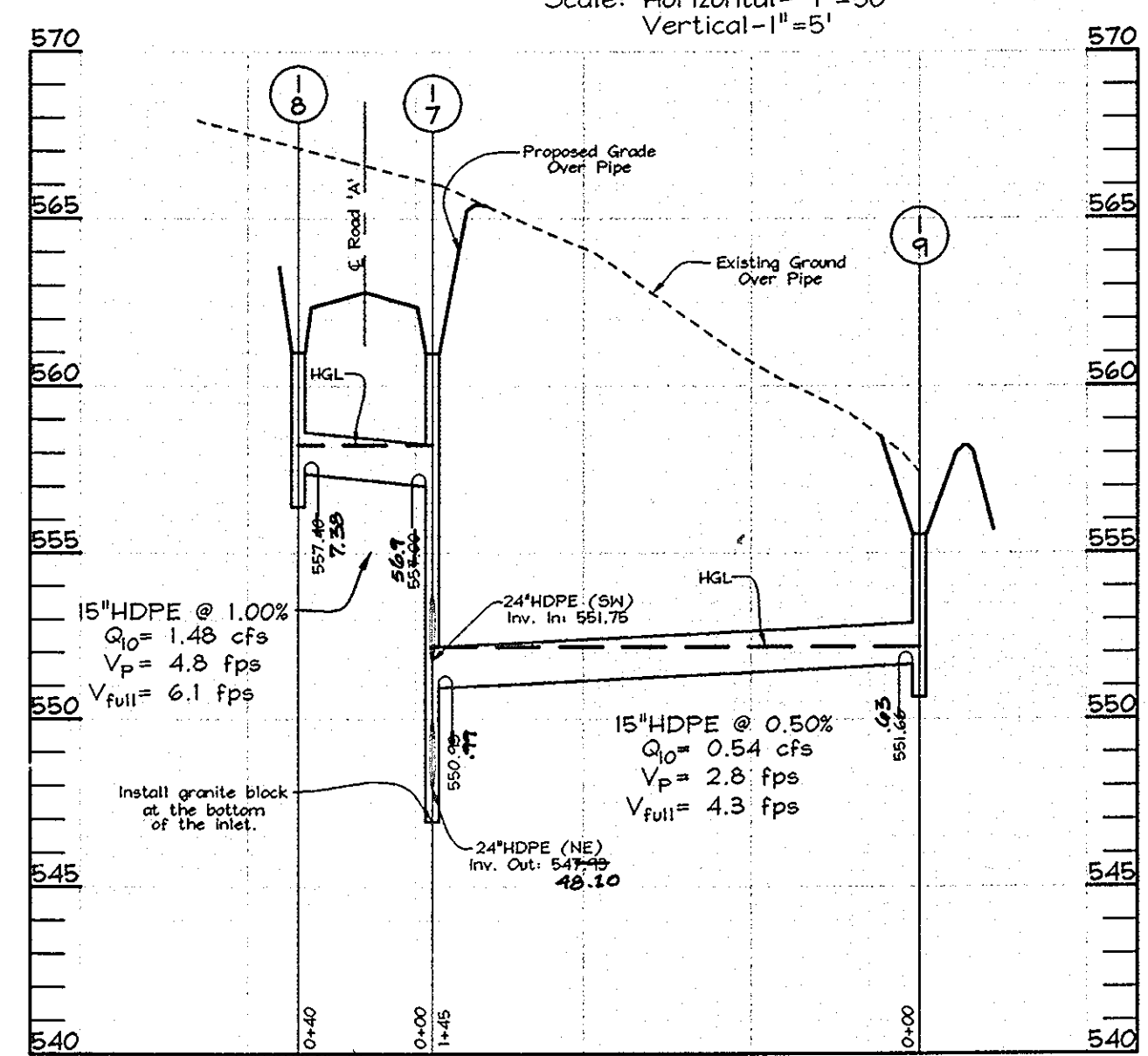
**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
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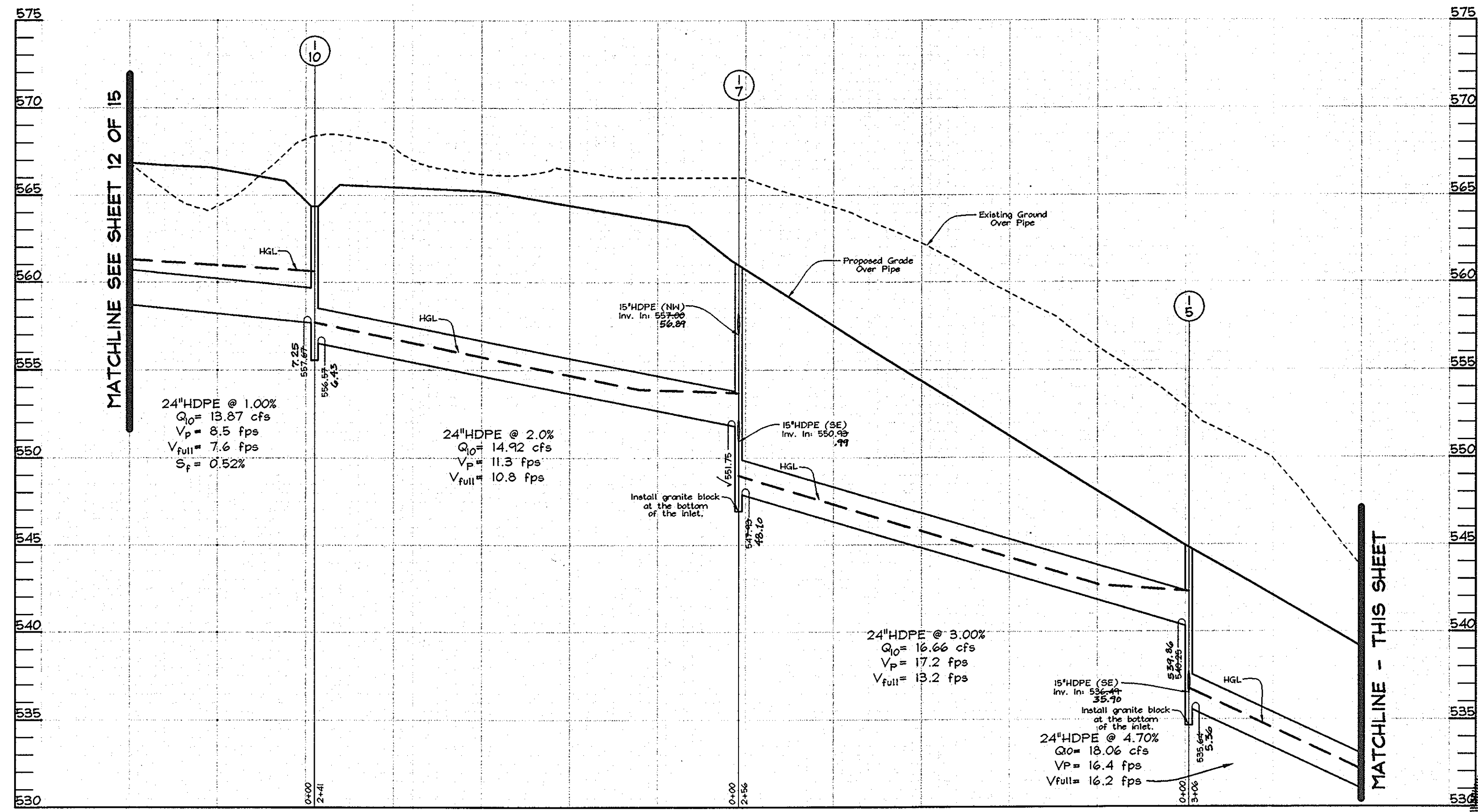
**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'



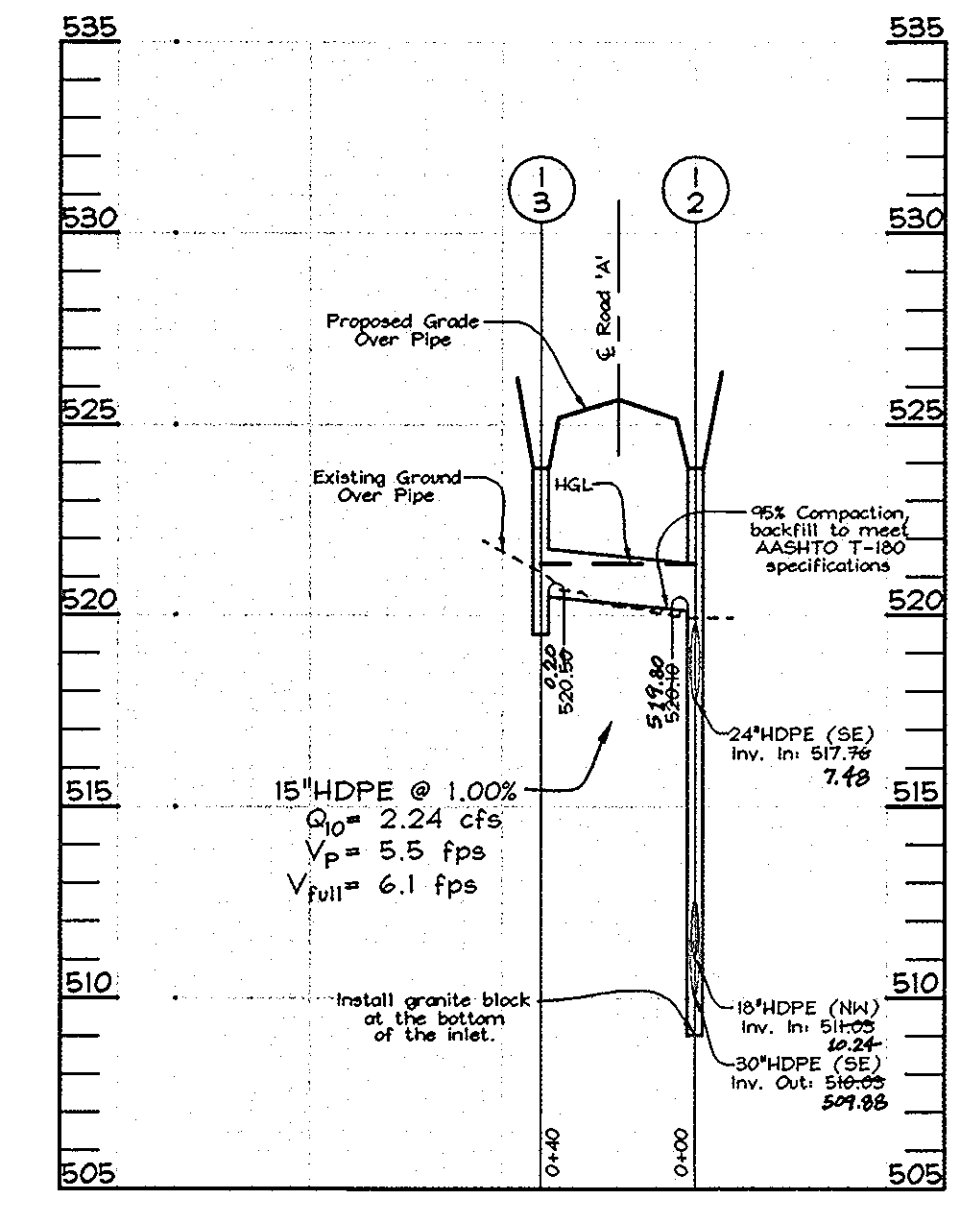
**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'



**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'



**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE: 3/21/04

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
  
 CHIEF, BUREAU OF HIGHWAYS  
 DATE: 3-10-04

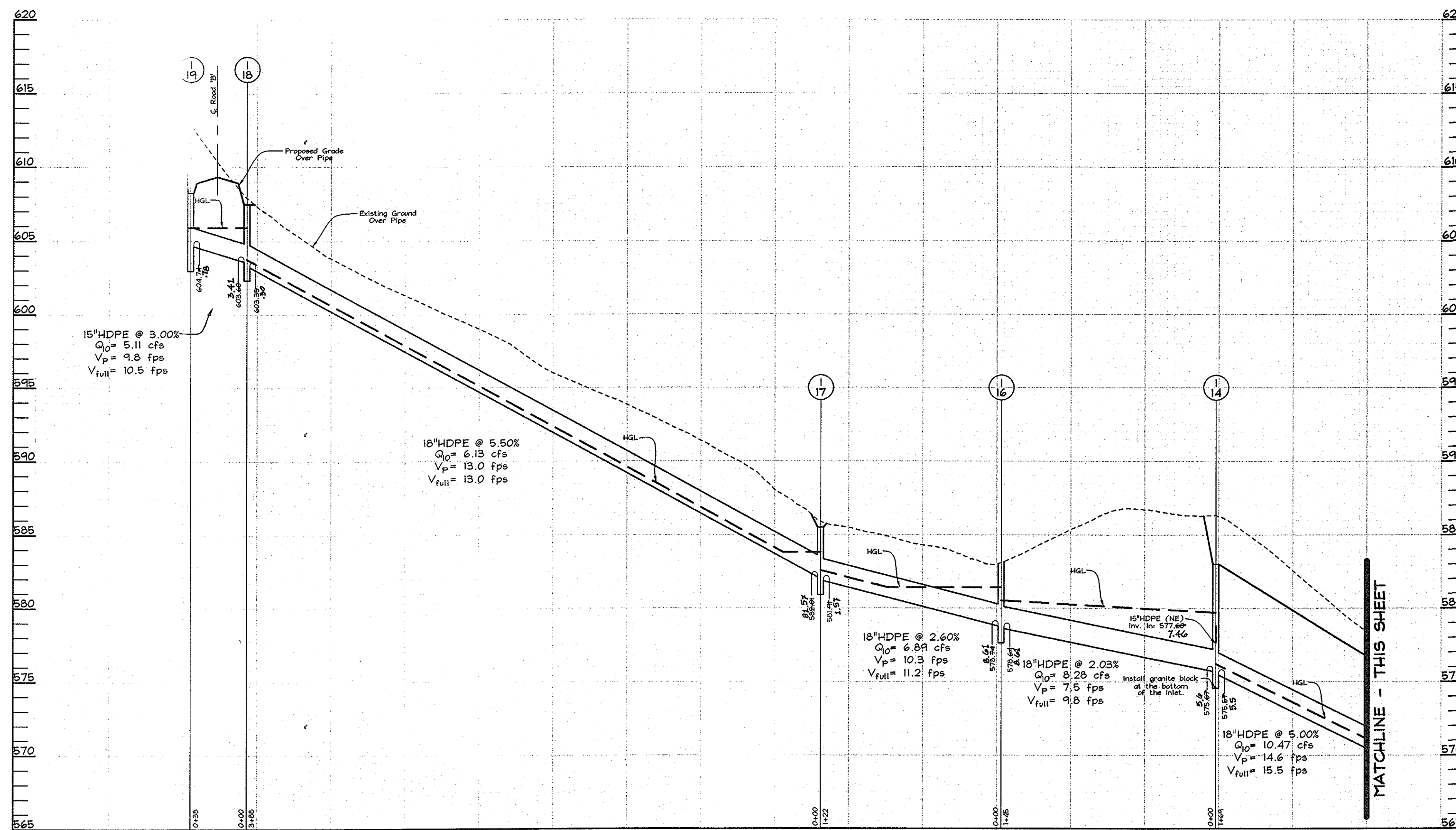
AS-BUILT  
  
 C. BROCK MILLER  
 PROP. L.S. #155  
 OWNER/DEVELOPER  
 PULTE HOME CORPORATION  
 1501 S. EDGEMOOD STREET  
 SUITE K  
 BALTIMORE, MARYLAND 21227

**STORM DRAIN PROFILES**  
**THE PADDOCKS EAST**  
 LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
 TAX MAP 22 GRID 8 3rd ELECTION DISTRICT  
 PARCEL 7  
 HOWARD COUNTY, MARYLAND

DESIGN BY: MLT  
 DRAWN BY: Slim  
 CHECKED BY: ZYF  
 SCALE: As Shown  
 DATE: Feb. 20, 2004  
 W.O. No.: 3001  
 SHEET No. 11 OF 18

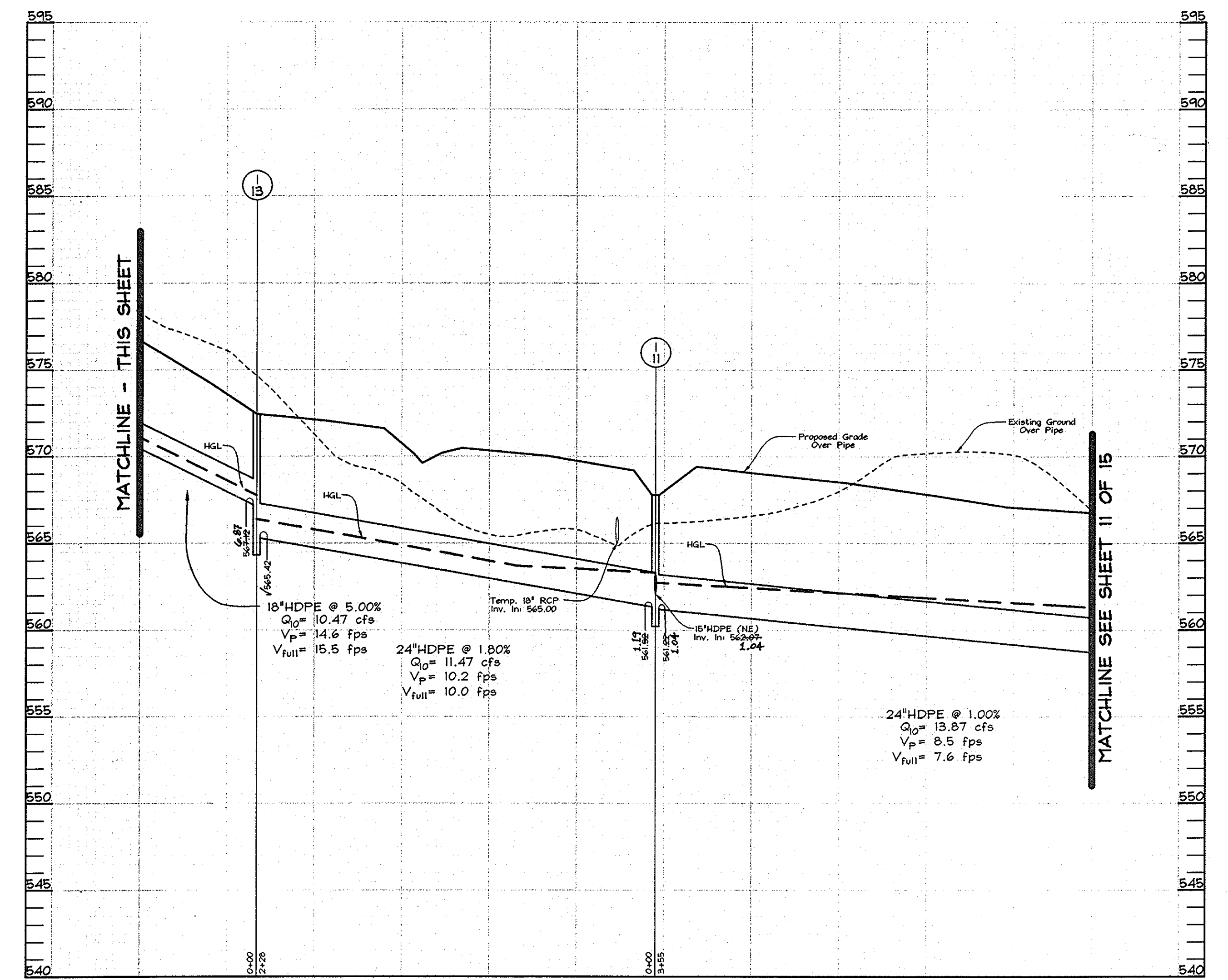
**FSH Associates**  
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 8318 Forrest Street, Elliott City, MD 21043  
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 E-mail: FSHAssociates@cs.com





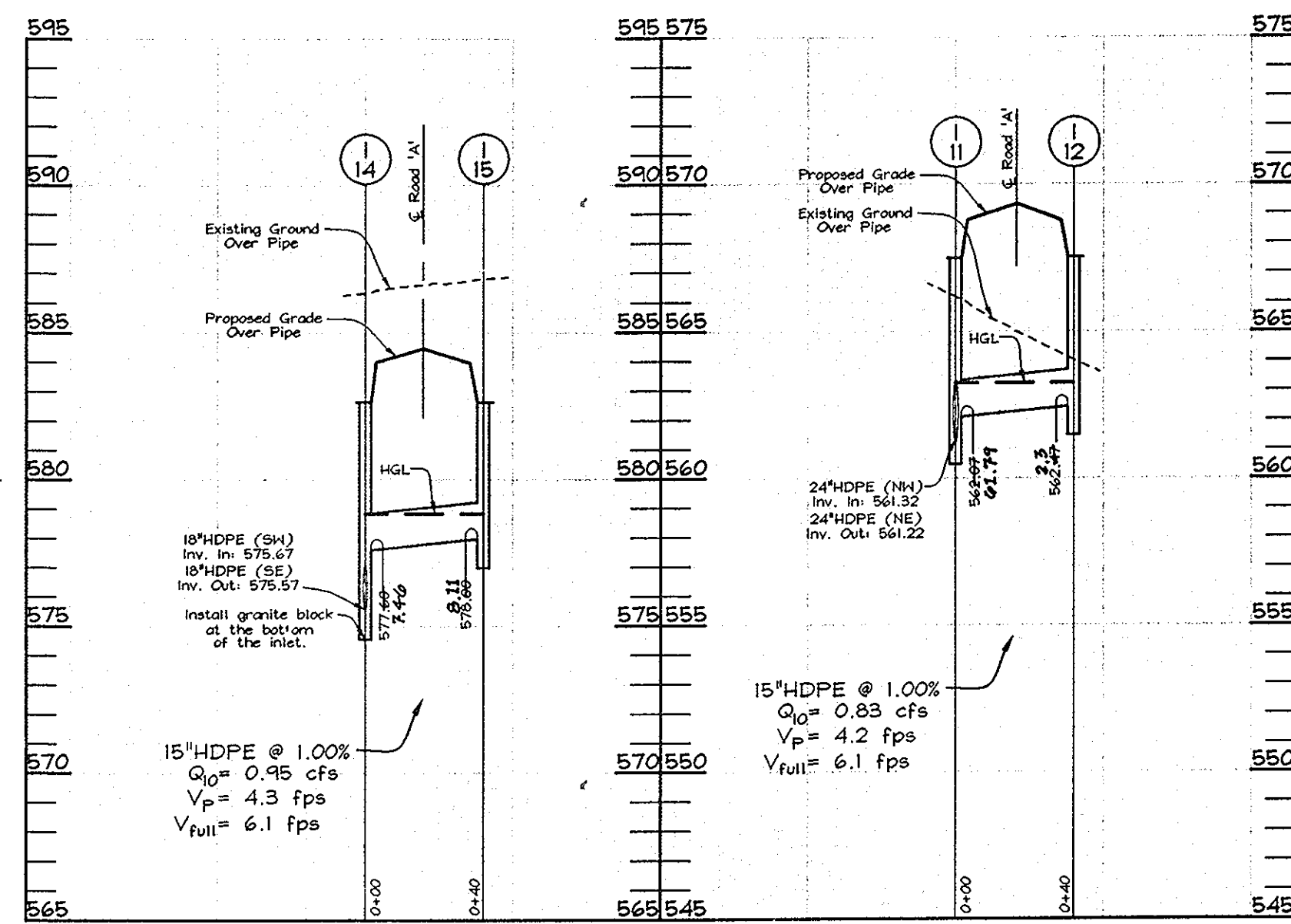
**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'



**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'



**STORM DRAIN PROFILES**

Scale: Horizontal-1"=50'  
Vertical-1"=5'

STRUCTURE SCHEDULE						* - SEE PROFILE	
NO.	TYPE	LOCATION	TOP ELEV.	INV. INLET	INV. OUTLET	REMARKS	AS BUILT TOP
1-1	Precast Open Grate (double opening)	N 585,563 ± 02.31	523.00	508.88	508.78	SD 4.36	522.81
1-2	Precast Open Grate (double opening)	Julia Manor Way C. Sta. 22+00.24	523.83	510.03	510.03	SD 4.36	523.61
1-3	Precast Open Grate (double opening)	Julia Manor Way C. Sta. 22+00.24	523.83	520.50	520.50	SD 4.36	523.60
1-4	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 20+46.34	526.87	521.26	521.16	SD 4.36	526.42
1-5	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 17+41.74	544.74	535.64	535.64	SD 4.36	544.46
1-6	Precast Open Grate (single opening)	N 585,011 ± 009.9	541.00	537.64	537.64	SD 4.36	540.01
1-7	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 14+05.62	560.97	547.93	547.93	SD 4.36	561.15
1-8	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 14+05.62	560.97	557.40	557.40	SD 4.36	561.18
1-9	Precast Open Grate (single opening)	N 584,991 ± 929.74	557.50	551.66	551.66	SD 4.36	556.88
1-10	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 12+49.87	564.11	556.57	556.57	SD 4.36	564.08
1-11	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 9+00.00	567.61	561.22	561.22	SD 4.36	567.54
1-12	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 8+25.61	567.61	562.47	562.47	SD 4.36	567.65
1-13	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 6+50.25	572.35	567.12	565.42	SD 4.36	572.42
1-14	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 4+91.25	582.67	575.57	575.57	SD 4.36	582.80
1-15	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 4+91.25	582.67	578.00	578.00	SD 4.36	582.96
1-16	Precast Open Grate (single opening)	N 585,262 ± 01.0	583.50	578.74	578.64	SD 4.36	583.46
1-17	Precast Open Grate (single opening)	N 585,161 ± 009.9	585.50	582.01	581.91	SD 4.36	585.39
1-18	Precast Open Grate (double opening)	Andrea Drive C. Sta. 9+57.14	607.54	603.60	603.35	SD 4.36	-NA-
1-19	Precast Open Grate (double opening)	Andrea Drive C. Sta. 9+57.14	608.27	604.74	604.74	SD 4.36	-NA-
1-20	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 23+50.26	525.63	521.60	521.53	SD 4.36	524.95
1-21	Precast Open Grate (single opening)	Julia Manor Way C. Sta. 23+50.26	525.63	522.00	522.00	SD 4.36	524.59
M-1	Standard Precast Manhole (4')	N 585,721.5	520.50	506.16	506.06	G 5.12	520.71
S-1	HDPE End Section	N 585,722.5	505.52	503.02	503.02	SD 5.11	-
S-2	Modified Ho. Co. Type 'A' Headwall	N 585,616 ± 12.2	521.84	521.84	521.84	SD 5.11	521.77
S-3	Modified Ho. Co. Type 'A' Headwall	N 585,582 ± 05.3	524.48	524.48	524.48	SD 5.11	524.29

- NOTES:
- Top elevation inlet is to top of concrete box.
  - Top elevations for Precast Manholes are to the center top of manhole cover.
  - For all inlets that exceed 5' in depth wall thickness adjustments shall be engineered to maintain the structural integrity of the inlet.

PIPE SCHEDULE		
SIZE	TYPE	LENGTH
15"	HDPE	613 LF
18"	HDPE	974 LF
24"	HDPE	1,556 LF
30"	HDPE	522 LF
48"	RCCP	65 LF
60"	RCCP	65 LF

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 3/31/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 [Signature] 4/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS  
 [Signature] 3-10-04  
 CHIEF, BUREAU OF HIGHWAYS

As-BUILT  
 [Seal: State of Maryland Professional Engineer]  
 C. BROOKS MILLER  
 P.L.S.# 135  
 OWNER/DEVELOPER  
 PULTE HOME CORPORATION  
 1501 S. EDGEWOOD STREET  
 SUITE K  
 BALTIMORE, MARYLAND 21227

**STORM DRAIN PROFILES**  
**THE PADDOCKS EAST**  
 LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
 TAX MAP 22 GRID 8 PARCEL 7  
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGN BY: MLT  
 DRAWN BY: Slim  
 CHECKED BY: ZYF  
 SCALE: As Shown  
 DATE: Feb. 20, 2004  
 W.O. No.: 3001  
 SHEET No. 12 OF 18

**FSH Associates**  
 Engineers Planners Surveyors  
 8318 Forrest Street Ellicott City, MD 21043  
 Tel: 410-750-2251 Fax: 410-750-7350  
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**OPERATION AND MAINTENANCE SCHEDULE FOR STORMWATER MANAGEMENT DETENTION FACILITY**

**STORMWATER MANAGEMENT FACILITY ROUTINE MAINTENANCE**

1. FACILITY WILL BE INSPECTED ANNUALLY AND AFTER MAJOR STORMS. INSPECTIONS SHOULD BE PERFORMED DURING WET WEATHER TO DETERMINE IF FUNCTIONING AS DESIGNED.

2. TOP AND SIDE SLOPES OF THE EMBANKMENT SHALL BE MOVED A MINIMUM OF TWO (2) TIMES A YEAR, ONCE IN JUNE AND ONCE IN SEPTEMBER.

3. OTHER SIDE SLOPES AND MAINTENANCE ACCESS SHOULD BE MOVED AS NEEDED.

4. DEBRIS AND LITTER NEXT TO THE OUTLET STRUCTURE SHALL BE REMOVED DURING REGULAR MAINTENANCE OPERATIONS AND AS NEEDED.

5. VISIBLE SIGNS OF EROSION IN THE POND AS WELL AS RIPRAP OUTLET AREAS SHALL BE REPAIRED AS SOON AS IT IS NOTICED.

**NON-ROUTINE MAINTENANCE**

1. STRUCTURAL COMPONENTS OF THE POND SUCH AS THE DAM, THE RISER, AND THE PIPES SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.

2. SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE, INTERFERES WITH THE FUNCTION OF THE RISER, WHEN DEEMED NECESSARY FOR AESTHETIC REASONS, OR WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

**OPERATION, MAINTENANCE AND INSPECTION**

INSPECTION OF THE POND(S) SHOWN HEREON SHALL BE PERFORMED AT LEAST ANNUALLY, IN ACCORDANCE WITH THE CHECKLIST AND REQUIREMENTS CONTAINED WITHIN USDA, SCS "STANDARDS AND SPECIFICATIONS FOR PONDS" (MD-378). THE POND OWNER(S) AND ANY HEIRS, SUCCESSORS, OR ASSIGNEES SHALL BE RESPONSIBLE FOR THE SAFETY OF THE POND AND THE CONTINUED OPERATION, SURVEILLANCE, INSPECTION, AND MAINTENANCE THEREOF. THE POND OWNER(S) SHALL PROMPTLY NOTIFY THE SOIL CONSERVATION DISTRICT OF ANY UNUSUAL OBSERVATIONS THAT MAY BE INDICATIONS OF DISTRESS SUCH AS EXCESSIVE SEEPAGE, TURBID SEEPAGE, SLIDING OR SLUMPING.

**MARYLAND 378 STORMWATER MANAGEMENT POND CONSTRUCTION SPECIFICATIONS**

These specifications are appropriate to all ponds within the scope of the Standard for practice MD-378. All references to ASTM and AASHTO specifications apply to the most recent version.

**Site Preparation**

Areas designated for borrow areas, embankment, and structural works shall be cleared, grubbed and stripped of topsoil. All trees, vegetation, roots and other objectionable material shall be removed. Channel banks and sharp breaks shall be sloped to no steeper than 1:1. All trees shall be cleared and grubbed within 10 feet of the top of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, fences, rubbish and other objectionable material unless otherwise designated on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface. For dry stormwater management ponds, a minimum of a 25-foot radius around the inlet structure shall be cleared.

**Earth Fill**

Material - The fill material shall be taken from approved designated borrow areas. It shall be free of roots, stumps, wood, rubbish, stones greater than 6", frozen or other objectionable materials. Fill material for the center of the embankment, and cut-off trench shall conform to Unified Soil Classification (SC, CL, or CI) and must have at least 30% passing the #200 sieve. Consideration may be given to the use of other materials in the embankment if designed by a geotechnical engineer. Special designs must have construction supervised by a geotechnical engineer. Materials used in the outer shell of the embankment must have the capability to support vegetation of the quality required for permanent erosion control.

**Placement** - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in maximum 8 inch thick (before compaction) layers which are to be continuous over the entire length of the fill. The most permeable borrow material shall be placed in the downstream portions of the embankment. The principal spillway must be installed concurrently with fill placement and not excavated into the embankment.

**Compaction** - The movement of the hauling and spreading equipment over the fill shall be controlled so that the entire surface of each fill shall be traversed by not less than one track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a sheepsfoot roller, rubber tired or vibratory roller. Fill material shall contain sufficient moisture such that the required degree of compaction will be obtained with the equipment used. The fill material shall contain sufficient moisture so that if formed into a ball it will not crumble, yet not so wet that water can seep out.

When required by the reviewing agency the minimum required density shall not be less than 95% of maximum dry density with a moisture content within +/-2% of optimum. Each layer of fill shall be compacted as necessary to obtain that density, and is to be certified by the Engineer at the time of construction. Fill compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

**Cut Off Trench** - The cutoff trench shall be excavated into impervious material along or parallel to the centerline of the embankment as shown on the plans. The bottom width of the trench shall be opened by the equipment used for excavation, with the minimum width being four feet. The depth shall be at least four feet below existing grade or as shown on the plans. The side slopes of the trench shall be 1 to 1 or flatter. The backfill shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

**Embankment Core** - The core shall be parallel to the centerline of the embankment as shown on the plans. The top width of the core shall be a minimum of four feet. The height shall extend up to at least the 10 year water elevation or as shown on the plans. The side slopes shall be 1 to 1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability.

**Structure Backfill**

Backfill adjacent to pipes or structures shall be of the type and quality conforming to that specified for the adjoining fill material. The fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material needs to fill completely all spaces under and adjacent to the pipe. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of a structure. Under no circumstances shall equipment be driven over any part of a concrete structure or pipe, unless there is a compacted fill of 24" or greater over the structure or pipe.

**Structure Backfill** may be floated fill meeting the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 313 as modified. The mixture shall have a 100-200 # sieve 25 day unconfined compressive strength. The floatable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that minimum of 6" measured perpendicular to the pipe of floatable fill shall be under (bedding), over and on the sides of the pipe. It only needs to extend up to the spring line for rigid conduits. Average slump of the fill shall be 7" to assure floatability of the material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using floatable fill, all metal pipe shall be bituminous coated. Any adjoining soil fill shall be placed in horizontal layers not to exceed four inches in thickness and compacted by hand tampers or other manually directed compaction equipment. The material shall completely fill all voids adjacent to the floatable fill zone. At no time during the backfilling operation shall driven equipment be allowed to operate closer than four feet, measured horizontally, to any part of the structure. Under no circumstances shall equipment be driven over any part of a structure or pipe unless there is a compacted fill of 24" or greater over the structure or pipe. Backfill (floatable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials.

**Pipe Conduits**

All pipes shall be circular in cross section.

**Corrugated Metal Pipe** - All of the following criteria shall apply for corrugated metal pipe:

1. Materials - (Polymer Coated Steel Pipe) - Steel pipes with polymeric coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. This pipe and its appurtenances shall conform to the requirements of AASHTO Specifications H-245 & H-246 with watertight coupling bands or flanges.

Materials - (Aluminum Coated Steel Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification H-274 with watertight coupling bands or flanges. Aluminum Coated Steel Pipe, when used with floatable fill or when soil and/or water conditions warrant the need for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification H-270 Type A. Any aluminum coating damaged or otherwise removed shall be replaced with cold applied bituminous coating compound. Aluminum surfaces that are to be in contact with earth and soil of zinc chromate primer or two coats of asphalt.

Materials - (Aluminum Pipe) - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification H-196 or H-211 with watertight coupling bands or flanges. Aluminum pipe, when used with floatable fill or when soil and/or water conditions warrant for increased durability, shall be fully bituminous coated per requirements of AASHTO Specification H-270 Type A. Aluminum surfaces that are to be in contact with earth and soil shall be primed with zinc chromate primer or two coats of asphalt. The pH of the surrounding soils shall be between 4 and 8.

2. Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material and coatings as the pipe. Metals must be insulated from dissimilar materials with use of rubber or plastic insulating materials at least 24 mils in thickness.

3. Connections - All connections with pipes must be completely watertight. The drain pipe or barrel connection to the riser shall be welded all around when the pipe and riser are metal. Anti-seep collars shall be connected to the pipe in such a manner as to be completely watertight. Dimple bands are not considered to be watertight.

All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled an adequate number of corrugations to accommodate the gasket. The following type connectors are acceptable for pipes less than 24 inches diameter. Flanges on both ends of the pipe with a circular 3/8 inch thick closed cell circular neoprene gasket, and a 12-inch wide stagger type band with crimped gaskets having a minimum diameter of 1/2 inch greater than the corrugation depth. Pipes 24 inches in diameter and larger shall be connected by 24 inch long areas corrugated band using a minimum of 4 (2" x 1/2") rods and nuts, 2 on each connecting pipe end. A 24-inch wide by 3/8-inch thick closed cell circular neoprene gasket shall be installed with 12 inches on the end of each pipe. Flanged joints with 3/8-inch closed cell gaskets the full width of the flange is also acceptable.

Helically corrugated pipe shall have either continuously welded seams or have lock seams with internal caulking of a neoprene bead.

4. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

5. Backfilling shall conform to "Structure Backfill".

6. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Reinforced Concrete Pipe shall of the following criteria shall apply for reinforced concrete pipe:

1. Materials - Reinforced concrete pipe shall have bell and spigot joints with rubber gaskets and shall equal or exceed ASTM C-361.

2. Bedding - Reinforced concrete pipe conduits shall be laid in a concrete bedding/grade for their entire length. The bedding/grade shall consist of high slump concrete placed under the pipe and up the sides of the pipe at least 50% of its outside diameter with a minimum thickness of 6 inches. Where a concrete grade is not needed for structural reasons, floatable fill may be used as described in the "Structure Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying pipe - Bell and spigot pipe shall be placed with the bell and upstream. Joints shall be made in accordance with recommendations of the manufacturer of the material. After the joints are sealed for the entire line, the bedding shall be placed so that all spaces under the pipe are filled. Care shall be exercised to prevent any deviation from the original line and grade of the pipe. The first joint must be located within 4 feet from the riser.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Plastic Pipe The following criteria shall apply for plastic pipe:

1. Materials - PVC pipe shall be PVC-1120 or PVC-1220 conforming to ASTM D-1785 or ASTM D-2241. Corrugated High Density Polyethylene (HDPE) pipe shall conform to ASTM D-1785 and shall be of the type "A" or "B". The pipe shall meet the requirements of AASHTO H252 Type 5, and 12" through 24" shall meet the requirements of AASHTO H254 Type 5.

2. Joints and connections to anti-seep collars shall be completely watertight.

3. Bedding - The pipe shall be firmly and uniformly bedded throughout its entire length. Where rock or soft, spongy or other unstable soil is encountered, all such material shall be removed and replaced with suitable earth compacted to provide adequate support.

4. Backfilling shall conform to "Structure Backfill".

5. Other details (anti-seep collars, valves, etc.) shall be as shown on the drawings.

Drainage Diaphragms - When a drainage diaphragm is used, a registered professional engineer will supervise the design and construction inspection.

Concrete

Concrete shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 414, Mix No. 3.

Rock Riprap

Rock riprap shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 311.

Gravelite shall be placed under all riprap and shall meet requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 921.04, Class C.

Care of Water during Construction

All work on permanent structures shall be carried out in areas free from water. The Contractor shall construct and maintain all temporary dikes, levees, cofferdams, drainage channels, and stream diversions necessary to protect to be occupied by the permanent works. The contractor shall also furnish, install, operate, and maintain all necessary pumping and other equipment required for removal of water from various parts of the work and for maintaining the excavations, foundation, and other parts of the work free from water as required or directed by the engineer for constructing each part of the work free from water as required or directed by the engineer for constructing each part of the work. After having served their purpose, all temporary protective works shall be removed or leveled and graded to the extent required to prevent obstruction in any degree whatsoever of the flow of water to the spillway or outlet works and so as not to interfere in any way with the operation or maintenance of the structure. Stream from the required excavation and the foundation shall be accomplished in a manner and to the extent that will maintain stability of the excavated slopes and bottom required excavations and will allow satisfactory performance of all construction operations. During the placing and compacting of material in required excavations, the water level at the locations being retailed shall be maintained below the bottom of the excavation at each location which may require draining the water pumps from which the water shall be pumped.

Stabilization

All borrow areas shall be graded to provide proper drainage and left in a slightly condition. All exposed surfaces of the embankment, spillway, spoil and borrow areas, and berms shall be stabilized by seeding, liming, fertilizing and mulching in accordance with the Natural Resources Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

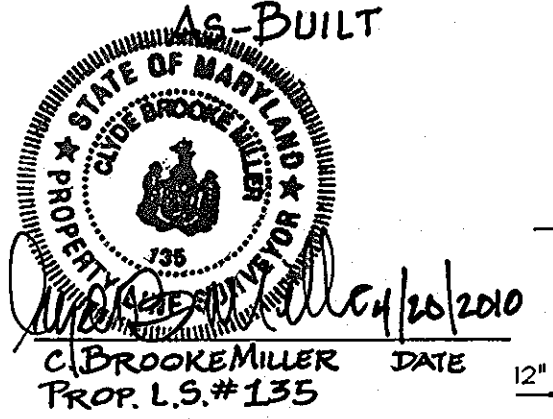
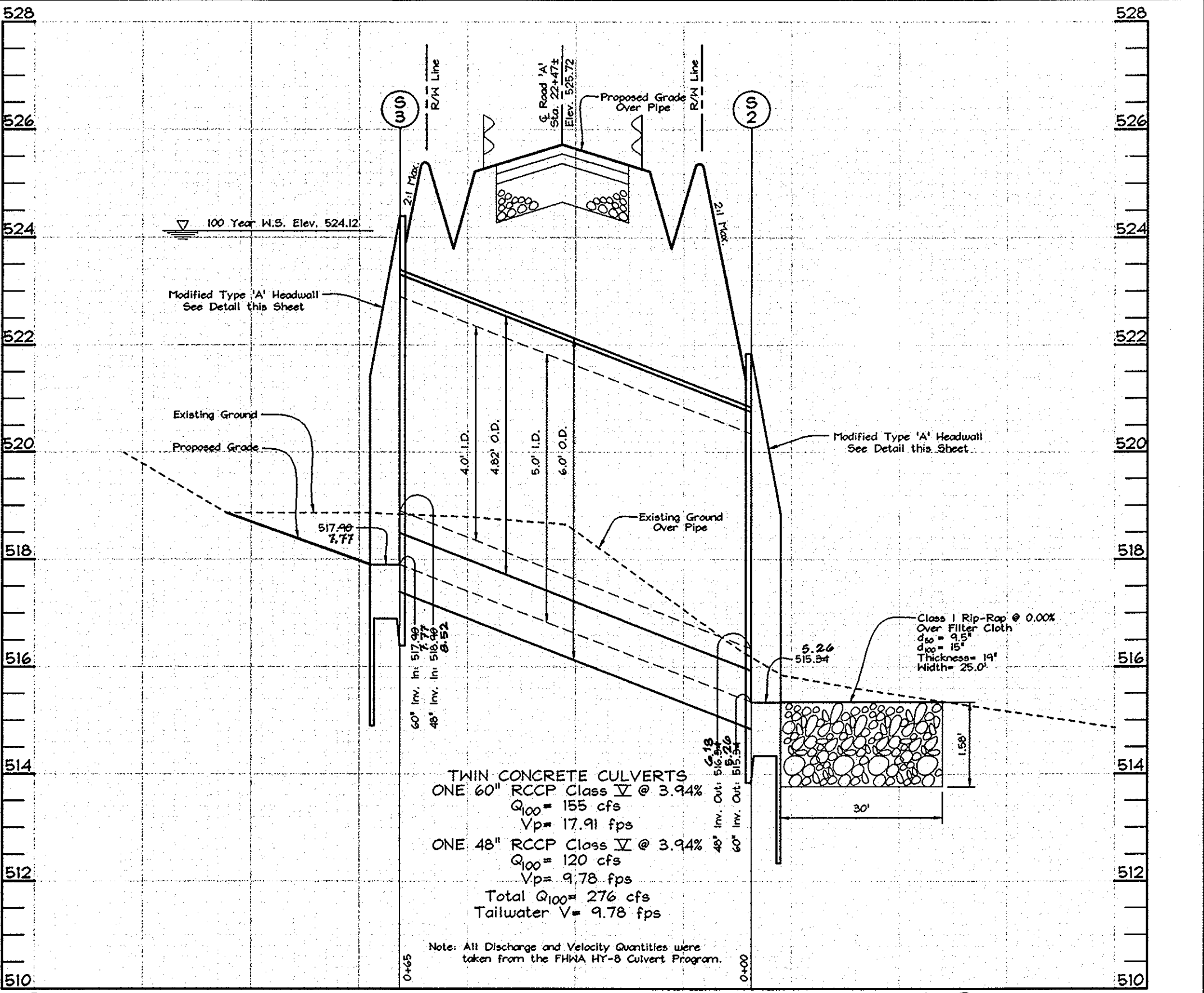
Erosion and Sediment Control

Construction operations will be carried out in such a manner that erosion will be controlled and water and air pollution minimized. Slope and loose base concrete pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures.

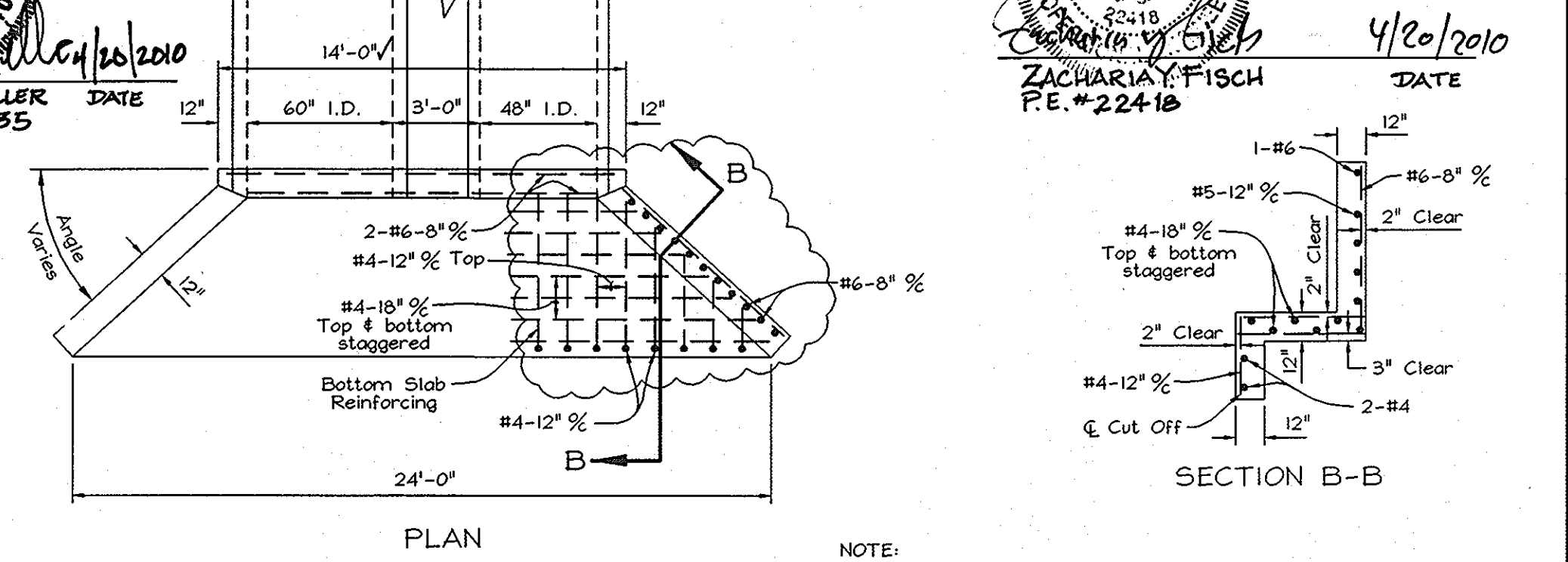
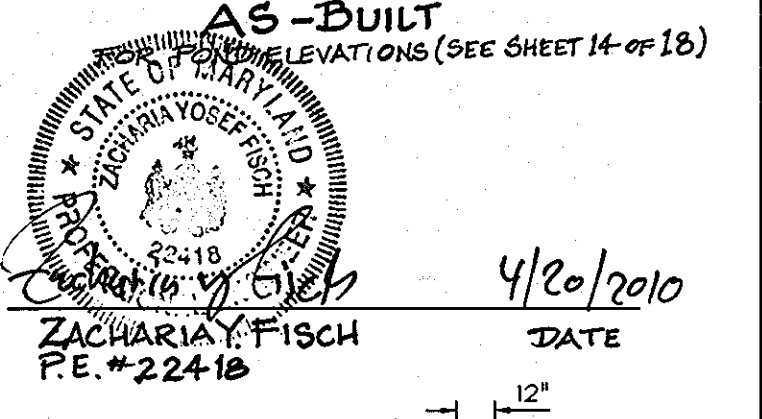
POND SUMMARY	1 YEAR	10 YEAR	100 YEAR		Recharge Obligation
FLOW INTO POND	7.14 c.f.s.	53.68 c.f.s.	102.62 c.f.s.	N.G.V. Required: 0.577 Ac. Ft. (Area to Pond)	Rev Required: 6,877 ft <sup>3</sup>
FLOW OUT OF POND	0.26 c.f.s.	32.76 c.f.s.	82.93 c.f.s.	0.288 Ac. Ft. Wet & 0.288 Ac. Ft. Dry	Rev Provided: N/A*
W.S. ELEVATION	505.09'	506.13'	506.94'	N.G.V. Provided: 0.55 Ac. Ft. (Permanent Wet Pond) and 0.302 Ac. Ft. (Extended Detention)	Rev Required: 1.65 Ac.
STORAGE VOLUME	0.63 Ac. Ft.	1.16 Ac. Ft.	1.65 Ac. Ft.		Rev Prov'd.: 3.40 Ac.

\*Recharge treated through Grass Channel Credit.

N.G.V. for all other areas not entering the pond is provided through credits, see SWFI computations.



**CULVERT PROFILE**  
Scale: Horizontal - 1"=20'  
Vertical - 1"=2'

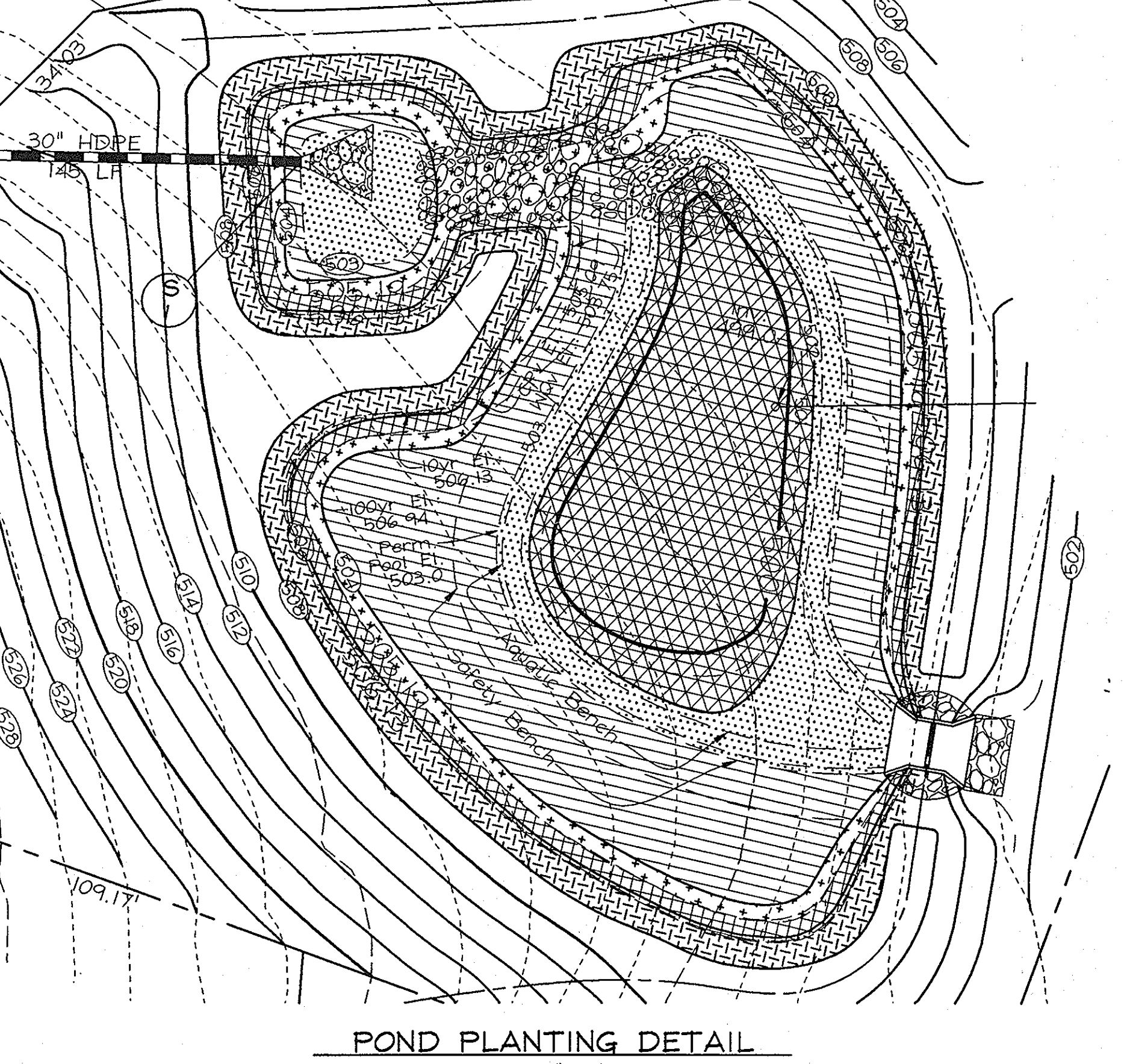


**PLANTING NOTES**

The planting zone requirements below shall be used by the contractor to specify the plants for installation. The given species are a guideline, but need not be checklist. The contractor shall choose a minimum of four species in Zones 1 and 2. For the seed mixes in Zones 3 through 6, the contractor shall specify a minimum of six species. Seeding rate requirements are based on plant type. There are many commercially available seed mixes that may be utilized for these areas. Potted stock shall be installed using three species at a rate of 2 plants/1000 sq. area.

**LEGEND**  
(SWM Facility Hydrologic Zones Planting Requirements)

	Zone 1 - 2275 s.f. - 12"-24" depth below normal pool elevation Pickenetweed, Deep Water Duck Potato, Sago Pond Plant, Wild Celery, Redhead Grass. Plugs or bare root at 24" centers.
	Zone 2 - 5721 s.f. - 0'-12" depth below normal pool elevation Blue Flag Iris, Duck Potato, Flowering Bulrush, Soft Rush, Sedges, Lobelia, Pond Cypress, various asters. Plugs or bare root at 24" centers.
	Zone 3 - 9894 s.f. - 0'-12" elevation above normal pool elevation New England Aster, Marsh Aster, Marsh Marigold (Apocynon Platensis), Tussock Sedge, Spotted Joe Pye Weed, Forget The Nuts, Inkberry, Purple, Red Osier Dogwood, Seed Mix Only
	Zone 4 - 2051 s.f. - 1' to 4' elevation above normal pool elevation Purple Cone Flower, Birds Foot Trefoil, Slender Rush, Deer Tongue Grass, Lespedeza, Switch Grass, Serviceberry, Gray Birch, Hackberry, Sweet Pepper, Bush (Coastal Plain), Gray Stern Dogwood, Red Osier Dogwood, Green Ash, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
	Zone 5 - 4868 s.f. - Cpv to Gpl0 of Qf water surface elevation (many wildflowers and native grasses), American Holly, Witch Hazel, Ninebark, Red Oak, American Elderberry, American Hemlock, Loblough, Blueberry, Blackberry Viburnum, Norway Spruce, Blackberry Viburnum, Seed Mix with potted stock (No trees/shrubs on dam slopes).*
	Zone 6 - 2602 s.f. - Qf water surface elevation and above (Floodplain). Mostly ornamentals as long as soil drains well. Many Natives. All species must be able to tolerate flood plain conditions. Hackberry, Pitch Pine, Sheep Fescue, Wildflowers, Many Native Grasses. Seed Mix with potted stock (No trees/shrubs on dam slopes).*



**POND PLANTING DETAIL**  
Scale: 1"=30'

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

With J. White, Chief, Bureau of Highways, dated 3/10/04.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Chief, Development Engineering Division, dated 3/23/04. Chief, Division of Land Development, dated 4/6/04.

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS. THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT. Signature of ZACHARIA Y. FISCH, dated 2/20/04.

ENGINEERS CERTIFICATE. I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT. Signature of ZACHARIA Y. FISCH, dated 2/20/04.

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. Signature of ZACHARIA Y. FISCH, dated 2/19/04.

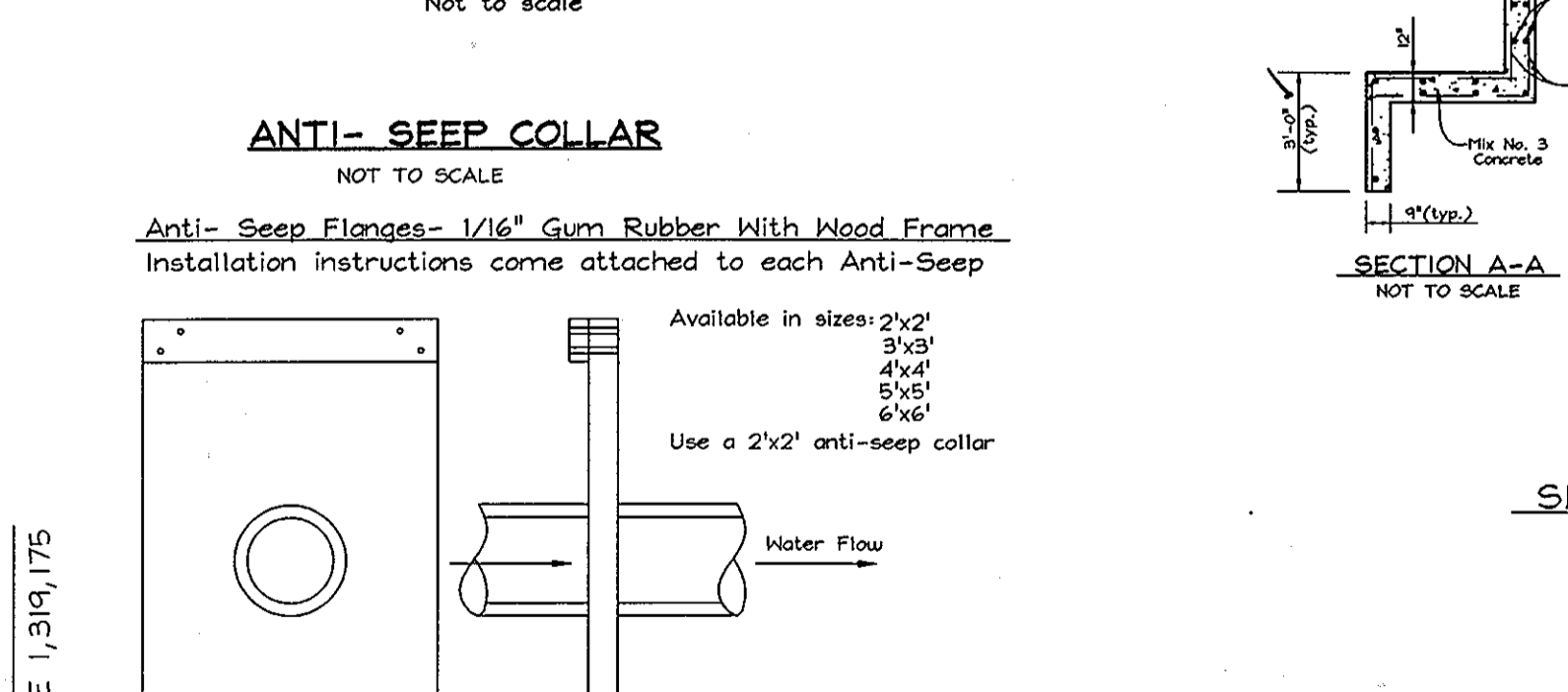
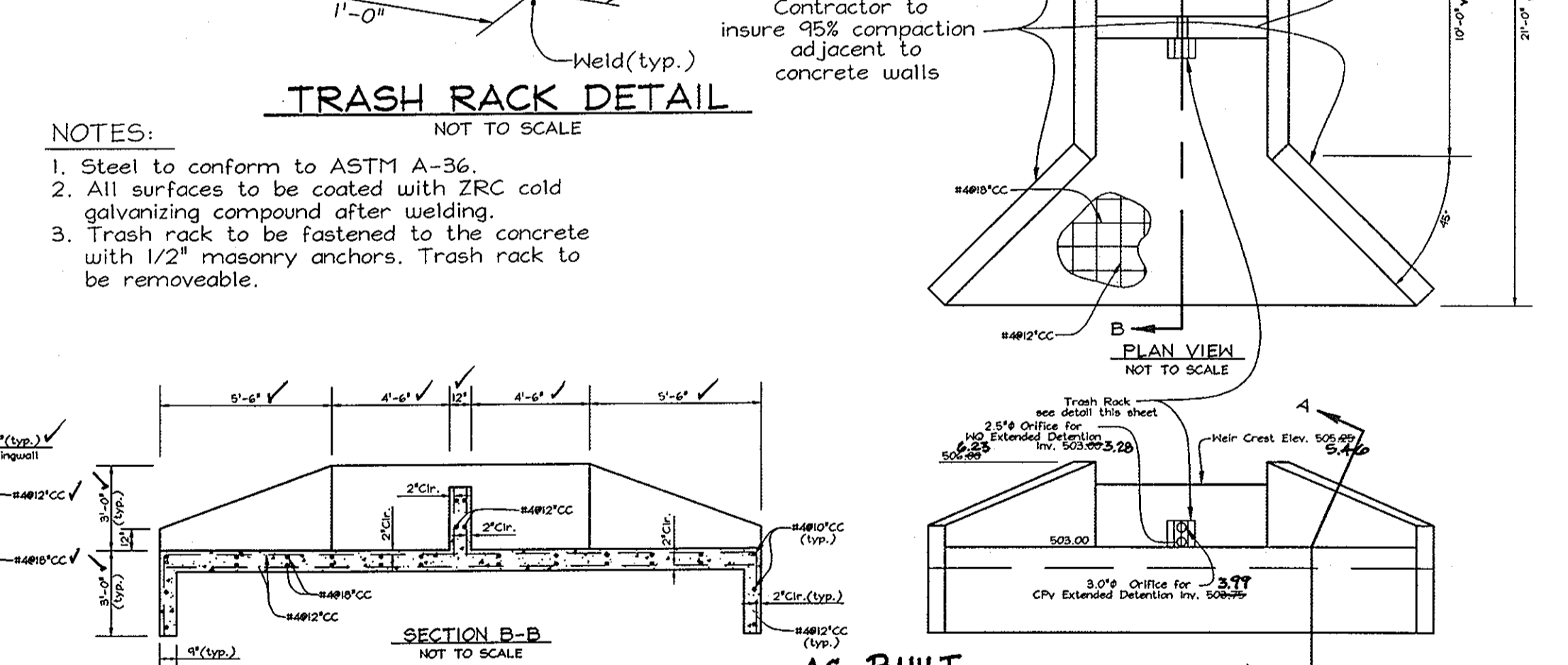
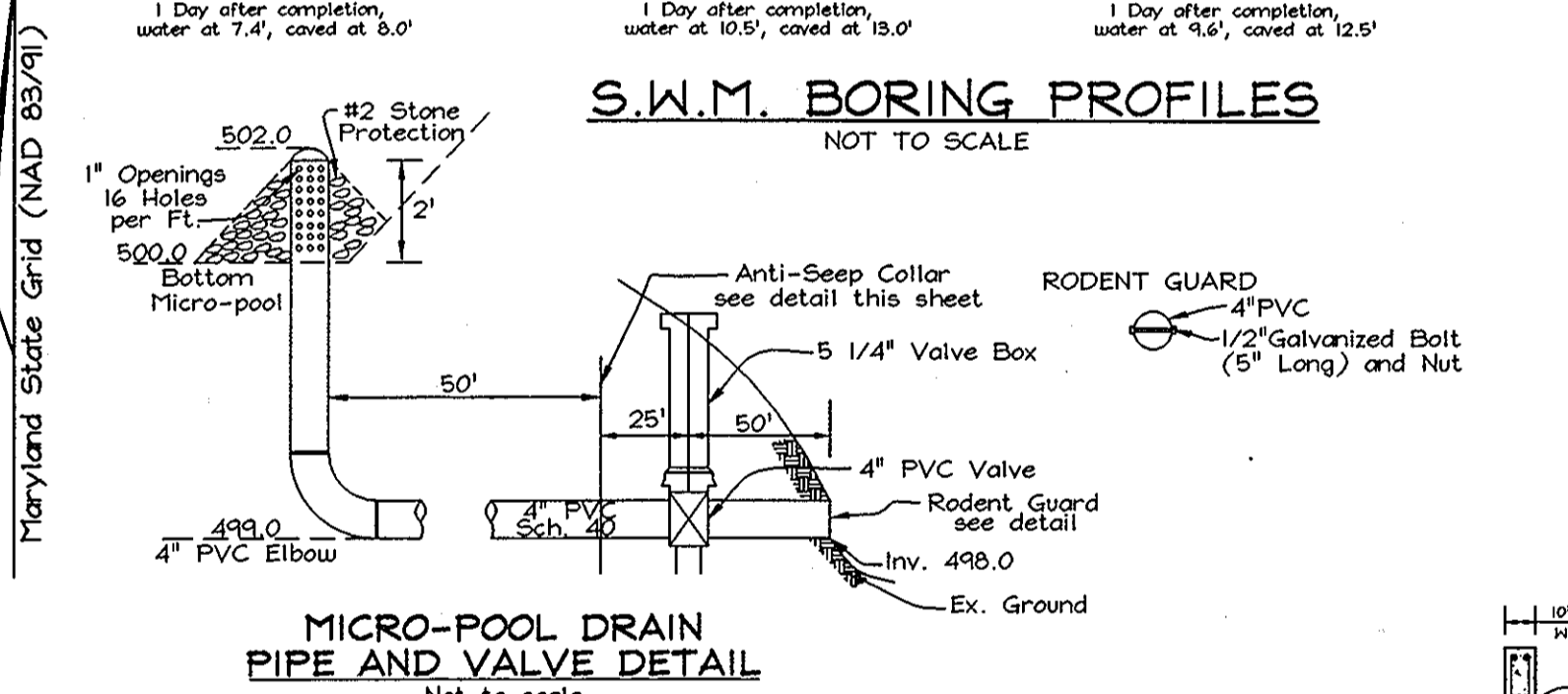
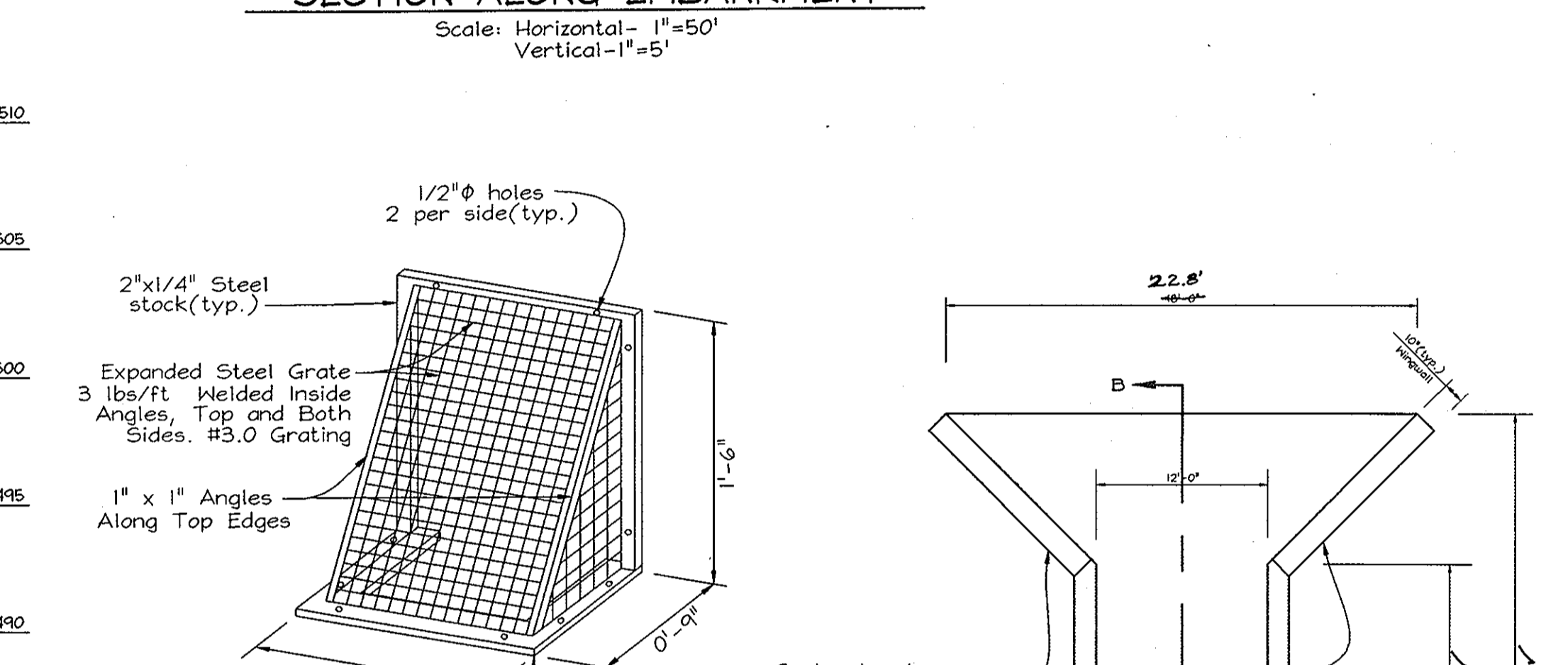
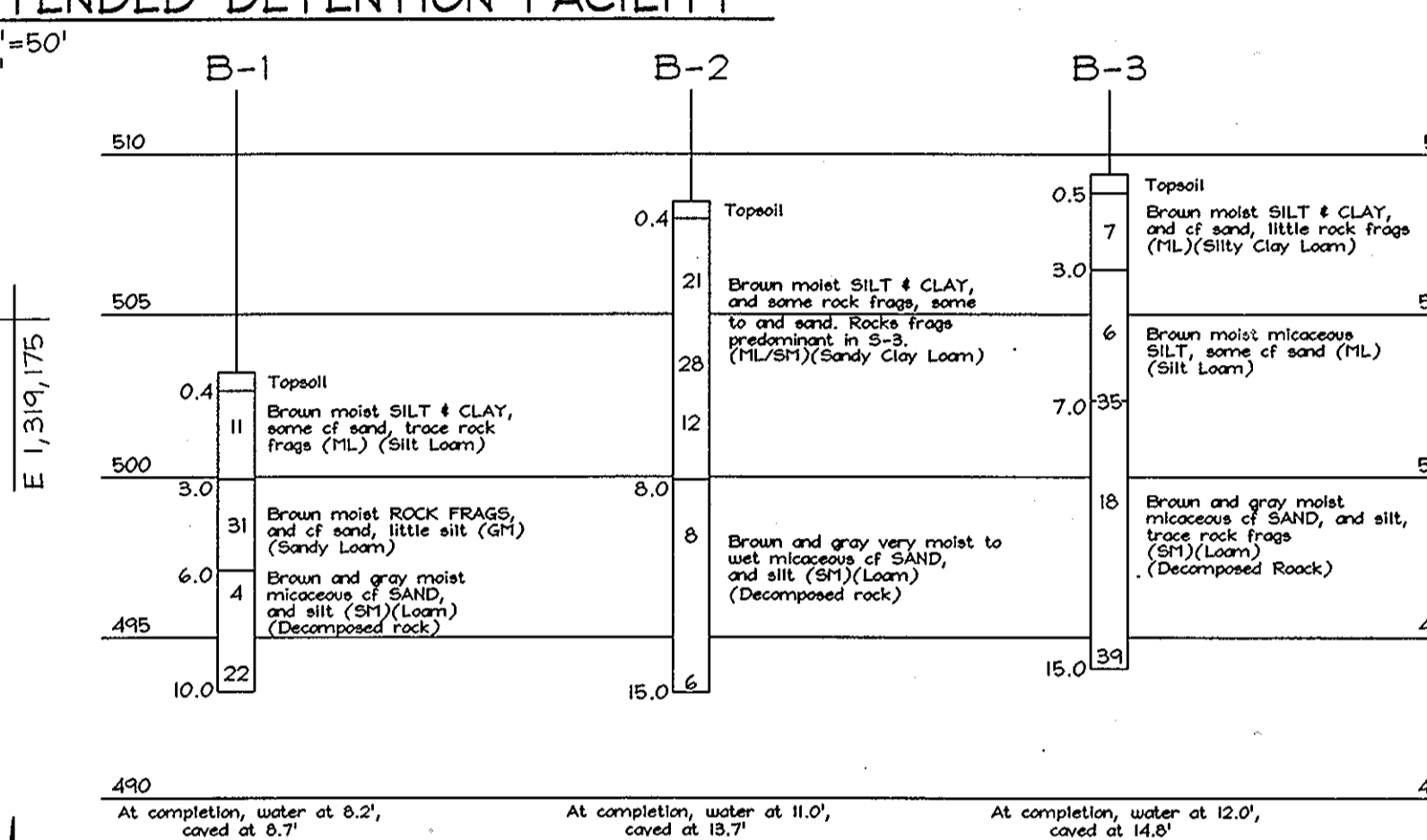
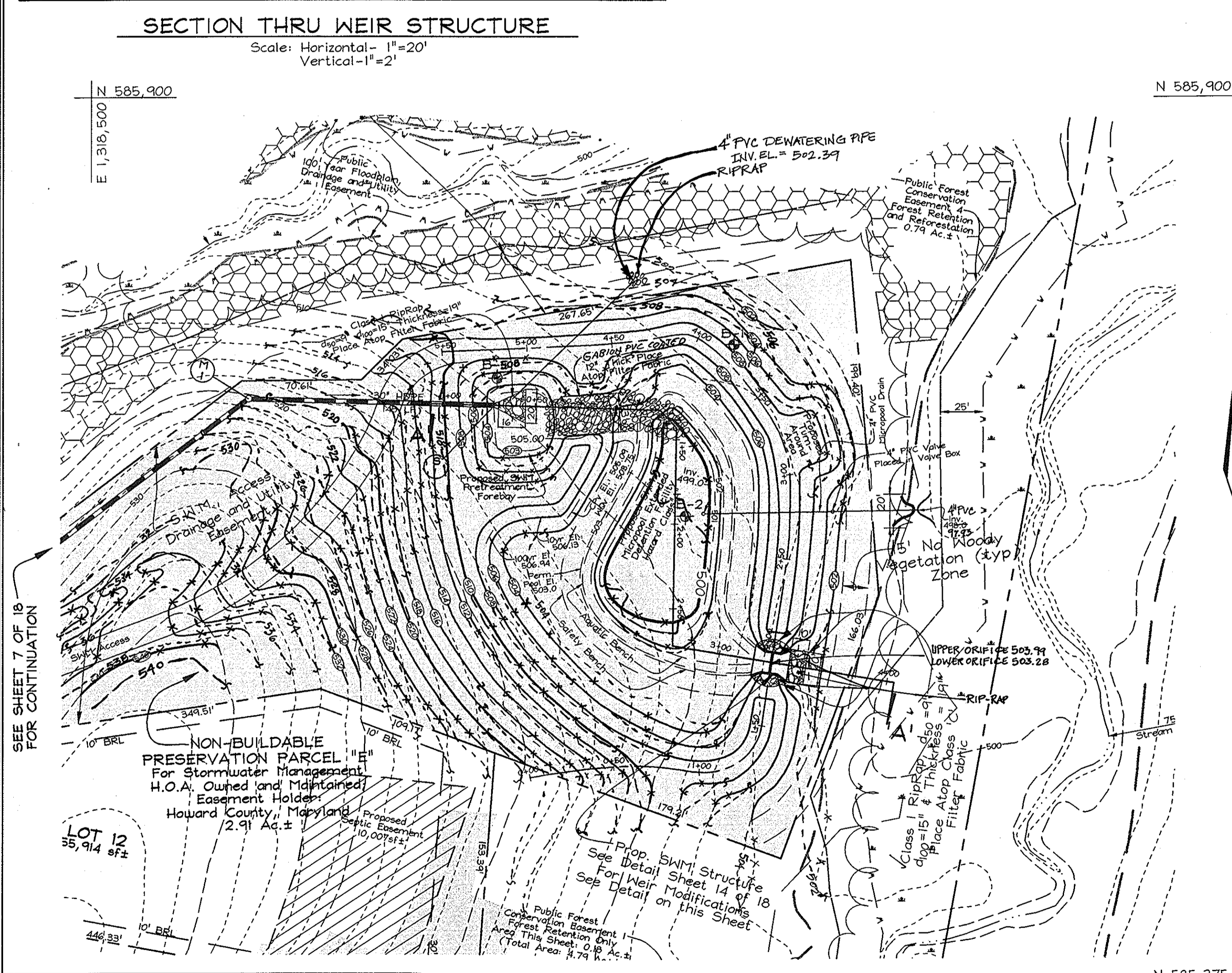
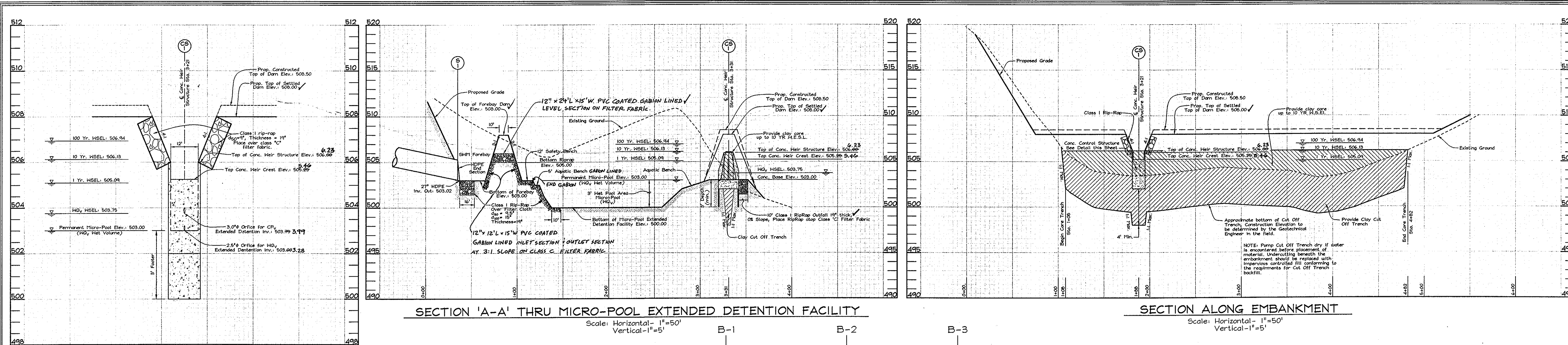
OWNER/DEVELOPER: PULTE HOME CORPORATION, 1501 S. EDGEWOOD STREET, SUITE K, BALTIMORE, MARYLAND 21227

**CULVERT PROFILE AND DETAILS AND SWM NOTES AND DETAILS AND POND PLANTING DETAIL**  
**THE PADDOCKS EAST**  
LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'. TAX MAP 22 GRID 8, PARCEL 7, 3rd ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

DESIGN BY: MLT  
DRAWN BY: Sjm  
CHECKED BY: ZYF  
SCALE: As Shown  
DATE: Feb. 20, 2004  
W.O. No.: 3001  
SHEET No. 13 OF 18

**FSH Associates**  
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Tel: 410-750-2251 Fax: 410-750-7350  
E-mail: FSHAssociates@cs.com





APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.  
*William J. Mahan* 3-10-04  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 3/31/04  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE  
*[Signature]* 4/6/04  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
 DIRECTOR DATE

REVIEWED FOR HOWARD SCD AND MEETS TECHNICAL REQUIREMENTS  
 USDA-NATURAL RESOURCES CONSERVATION SERVICE DATE  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT  
 HOWARD SCD DATE

**ENGINEERS CERTIFICATE**  
 "I CERTIFY THAT THIS PLAN FOR SEDIMENT AND EROSION CONTROL REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Zacharia Y. Fisch* 2/20/04  
 SIGNATURE OF ENGINEER DATE  
 ZACHARIA Y. FISCH

**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.  
*[Signature]* 2/19/04  
 SIGNATURE OF DEVELOPER DATE

**NOTES:**  
 1. Steel to conform to ASTM A-36.  
 2. All surfaces to be coated with ZRC cold galvanizing compound after welding.  
 3. Trash rack to be fastened to the concrete with 1/2" masonry anchors. Trash rack to be removable.

**NOTES:**  
 1. All exposed edges to have a 3/4"x3/4" chamfer or as directed.  
 2. Concrete shall be SHA mix #3 (f<sub>c</sub>=3500 psi @ 28 days)  
 3. Reinforcing steel shall be ASTM A-615 grade 60.

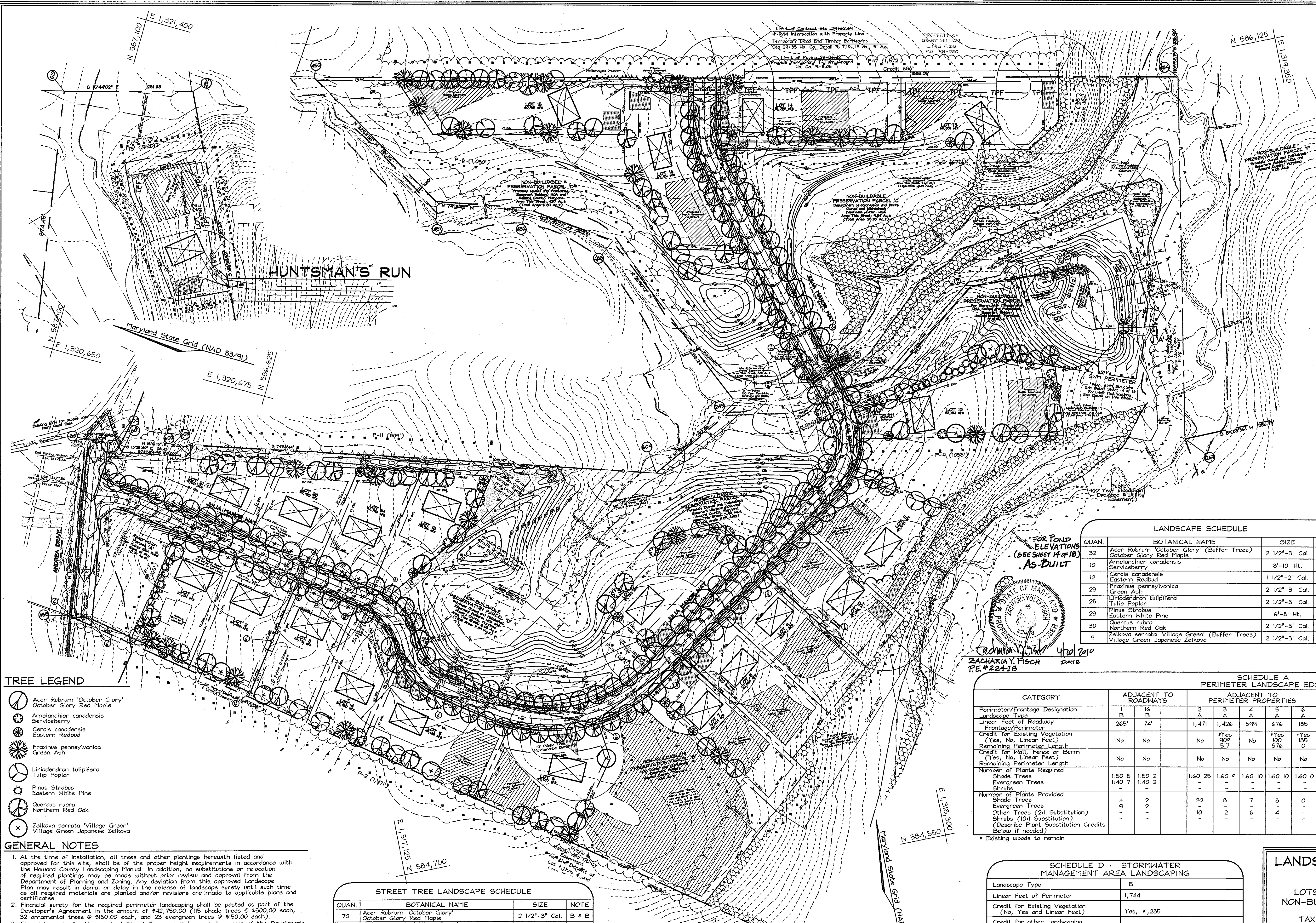
**AS-BUILT**  
*Zacharia Y. Fisch* 4/20/04  
 ZACHARIA Y. FISCH DATE  
 PE#22418

**STORM WATER MANAGEMENT PLAN, DETAILS AND PROFILES THE PADDOCKS EAST**  
 LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
 TAX MAP 22 GRID 8 PARCEL 7  
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

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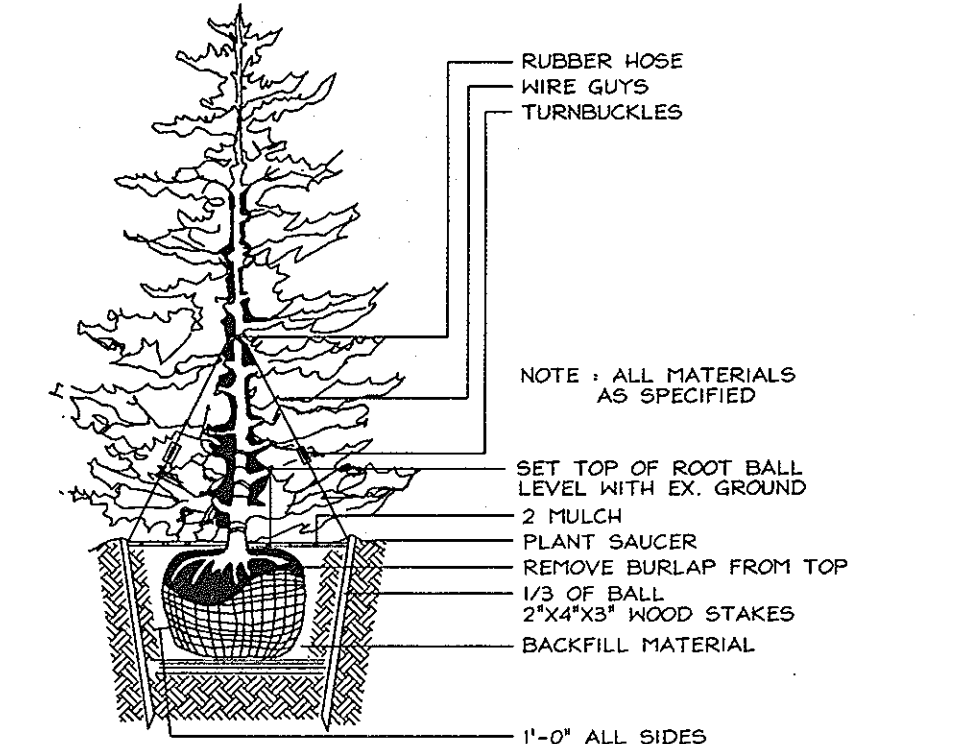
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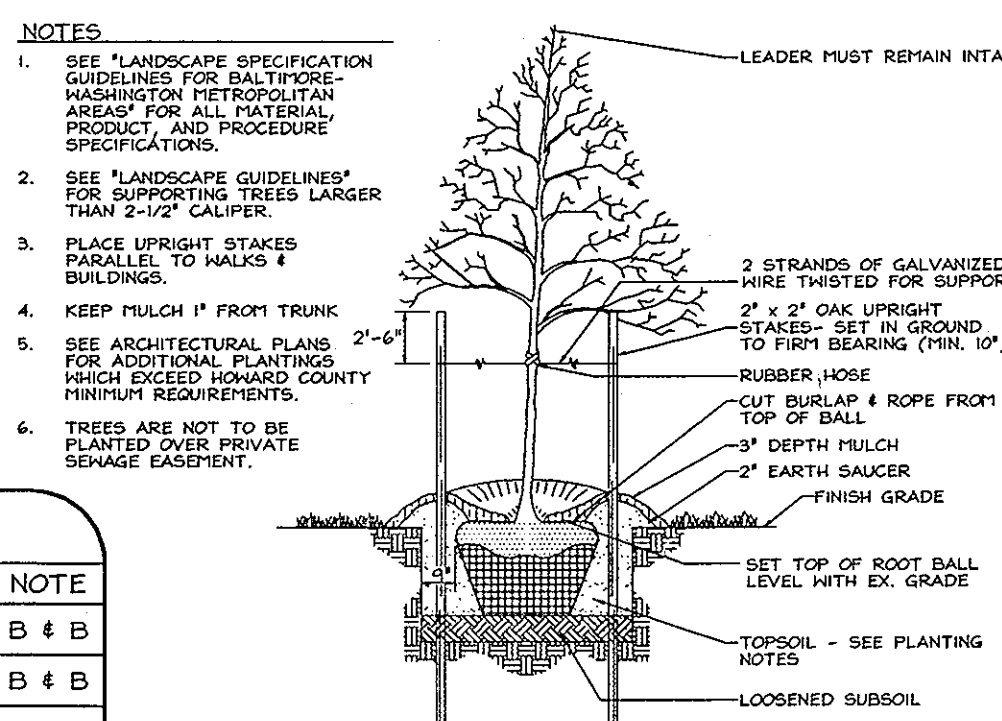


**LEGEND**

- Existing Contour
- Proposed Contour
- Existing Spot Elevation
- Proposed Spot Elevation
- Direction of Flow
- Tree Protection Fence
- Existing Trees to Remain
- Walk Out Basement
- Shade Trees and Street Trees
- Evergreen Tree
- Ornamental Tree
- Landscape Perimeter



**EVERGREEN TREE PLANTING DETAIL**  
NOT TO SCALE



**TREE PLANTING AND STAKING**  
DECIDUOUS TREES UP TO 2-1/2\"/>

**LANDSCAPE SCHEDULE**

QUAN.	BOTANICAL NAME	SIZE	NOTE
32	Acer Rubrum 'October Glory' (Buffer Trees)	2 1/2\"-3\" Cal.	B & B
10	October Glory Red Maple	8\"-10\" Ht.	B & B
12	Amelanchier canadensis Serviceberry	1 1/2\"-2\" Cal.	B & B
23	Cercis canadensis Green Ash	2 1/2\"-3\" Cal.	B & B
25	Fraxinus pennsylvanica Tulip Poplar	2 1/2\"-3\" Cal.	B & B
23	Pinus Strobus Eastern White Pine	6\"-8\" Ht.	B & B
30	Quercus rubra Northern Red Oak	2 1/2\"-3\" Cal.	B & B
9	Zelkova serrata 'Village Green' (Buffer Trees)	2 1/2\"-3\" Cal.	B & B
	Village Green Japanese Zelkova		

FOR POND ELEVATIONS (SEE SHEET H-18) AS-BUILT

**ZACHARIA Y. FISCH**  
DATE 4/20/2010  
PE #22418

**TREE LEGEND**

- Acer Rubrum 'October Glory' / October Glory Red Maple
- Amelanchier canadensis Serviceberry
- Cercis canadensis Green Ash
- Fraxinus pennsylvanica Tulip Poplar
- Pinus Strobus Eastern White Pine
- Quercus rubra Northern Red Oak
- Zelkova serrata 'Village Green' / Village Green Japanese Zelkova

**GENERAL NOTES**

- At the time of installation, all trees and other plantings herewith listed and approved for this site, shall be of the proper height requirements in accordance with the Howard County Landscaping Manual. In addition, no substitutions or relocation of required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviation from this approved Landscape Plan may result in denial or delay in the release of landscape surety until such time as all required materials are planted and/or revisions are made to applicable plans and certificates.
- Financial surety for the required perimeter landscaping shall be posted as part of the Developer's Agreement in the amount of \$42,750.00 (115 shade trees @ \$300.00 each, 32 ornamental trees @ \$150.00 each, and 23 evergreen trees @ \$150.00 each).
- Financial surety for the required Street Trees shall be posted as part of the Developer's Agreement in the amount of \$42,900.00 (143 street shade trees @ \$300.00 each).

**STREET TREE LANDSCAPE SCHEDULE**

QUAN.	BOTANICAL NAME	SIZE	NOTE
70	Acer Rubrum 'October Glory' / October Glory Red Maple	2 1/2\"-3\" Cal.	B & B
73	Zelkova serrata 'Village Green' / Village Green Japanese Zelkova	2 1/2\"-3\" Cal.	B & B

**SCHEDULE A PERIMETER LANDSCAPE EDGE**

CATEGORY	ADJACENT TO ROADWAYS		ADJACENT TO PERIMETER PROPERTIES														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
Perimeter/Frontage Designation	B	B	A	A	A	A	A	A	A	A	A	A	A	A	A		
Linear Feet of Roadway	265'	74'	1,471	1,426	599	676	185	1,572	1,080	607	355	809	292	175	316		
Frontage/Perimeter Credit for Existing Vegetation (Yes, No, Linear Feet)	No	No	Yes 909	No	Yes 100	Yes 576	Yes 68	Yes 88	No	No	No	No	Yes 292	Yes 175	Yes 316		
Remaining Perimeter Length (Yes, No, Linear Feet)	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No		
Number of Plants Required	1:50	5	1:60	25	1:60	9	1:60	10	1:60	0	1:60	15	1:60	18	1:60	10	
Number of Plants Provided	1:40	7	1:40	2	1:40	2	-	-	-	-	-	-	-	-	-	-	
Shade Trees	1:50	5	1:60	25	1:60	9	1:60	10	1:60	0	1:60	15	1:60	18	1:60	10	
Evergreen Trees	1:40	7	1:40	2	1:40	2	-	-	-	-	-	-	-	-	-	-	
Shrubs	1:4	2	1:4	2	1:4	2	20	8	7	8	0	15	18	8	4	12	
Other Trees (2:1 Substitution)	1:1	1	1:1	1	1:1	1	10	1	1	1	1	1	1	1	1	1	
Shrubs (10:1 Substitution)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Other Trees (2:1 Substitution Credits Below if needed)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**SCHEDULE D - STORMWATER MANAGEMENT AREA LANDSCAPING**

Landscape Type	B
Linear Feet of Perimeter	1,744
Credit for Existing Vegetation (No, Yes and Linear Feet)	Yes, #1,285
Credit for other Landscaping (No, Yes and %)	No
Number of Trees Required	9 Shade Trees
Evergreen Trees	12 Evergreen Trees
Number of Trees Provided	9 Shade Trees
Evergreen Trees	12 Evergreen Trees
Other Trees (2:1 Substitution)	0 Trees (0 Substitution Trees)

**LANDSCAPE AND STREET TREES PLAN THE PADDOCKS EAST**  
LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
TAX MAP 22 GRID 8 PARCEL 7  
3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 3/23/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION MAB DATE

*[Signature]* 4/6/04  
CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE

DIRECTOR DATE

**DEVELOPER'S BUILDER'S CERTIFICATE**

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.024 OF THE HOWARD COUNTY CODE AND THE HOWARD COUNTY LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION, A CERTIFICATION OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE (1) YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

*[Signature]* 2/19/04  
SIGNATURE OF DEVELOPER DATE

**EXPLORATION RESEARCH, INC.**  
ENVIRONMENTAL CONSULTANTS  
LANDSCAPE ARCHITECTS  
6818 FORREST STREET  
BELTSVILLE CITY, MARYLAND 21045  
TEL: (410) 750-1100 FAX: (410) 750-7350  
EMAIL: EXPLORATIONRES@CS.COM

**OWNER/DEVELOPER**  
PULTE HOME CORPORATION  
1501 S. EDGEMOOR STREET  
SUITE K  
BALTIMORE, MARYLAND 21227

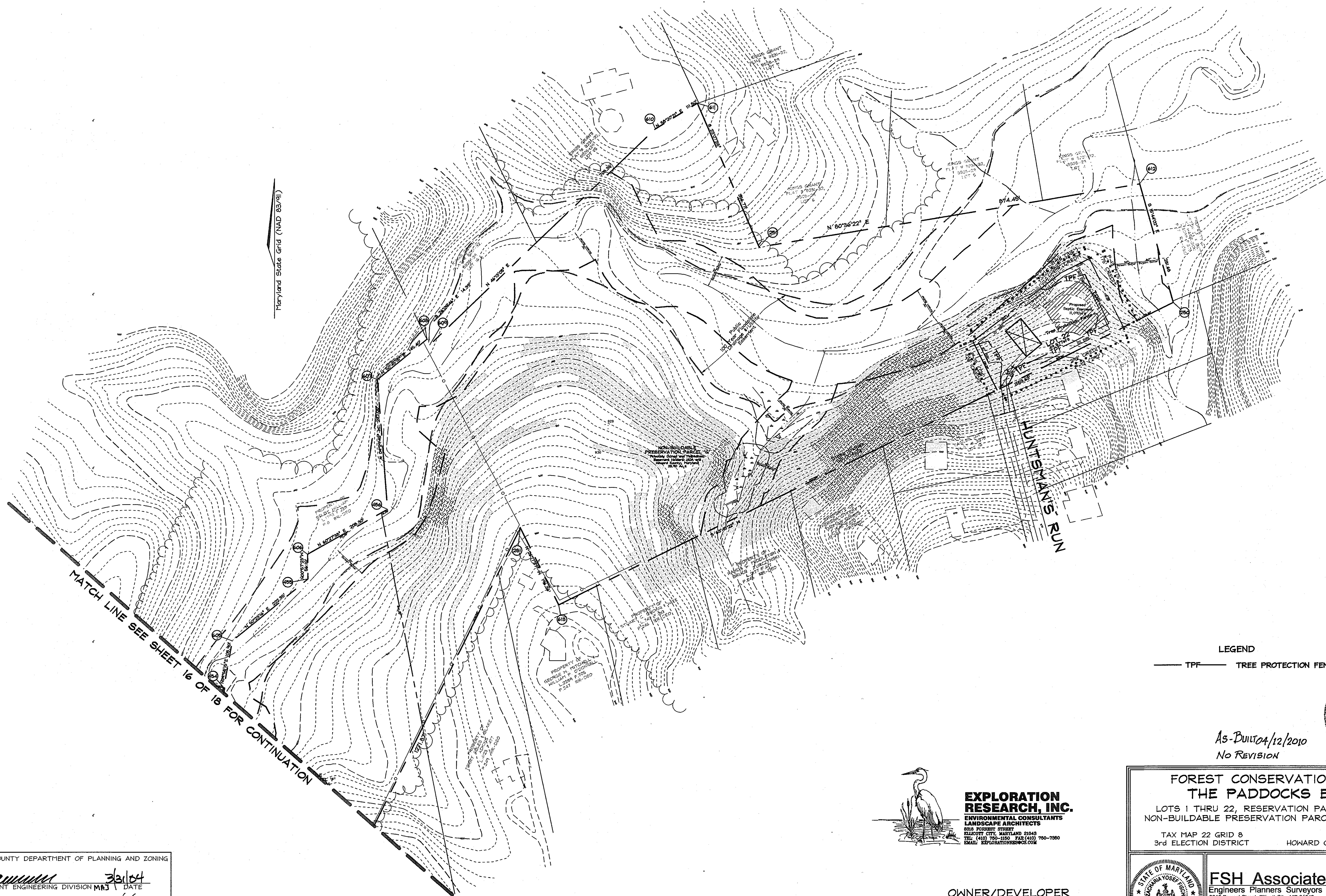
**FSH Associates**  
Engineers Planners Surveyors  
8318 Forrest Street Ellicott City, MD 21043  
Tel: 410-750-2251 Fax: 410-50-7350  
E-mail: FSHAssociates@cs.com

DESIGN BY: RAB  
DRAWN BY: MLT  
CHECKED BY: ZYF  
SCALE: 1\"/>









LEGEND  
 — TPF — TREE PROTECTION FENCE

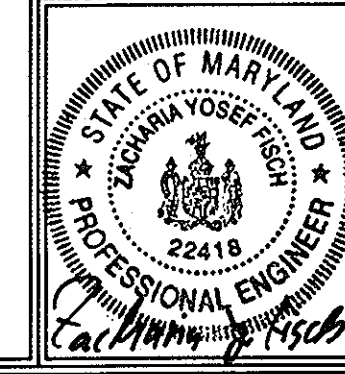
As-Built 04/12/2010  
 No REVISION



**EXPLORATION RESEARCH, INC.**  
 ENVIRONMENTAL CONSULTANTS  
 LANDSCAPE ARCHITECTS  
 8318 FOREST STREET  
 ELLICOTT CITY, MARYLAND 21043  
 TEL: (410) 750-2251 FAX: (410) 750-7350  
 EMAIL: EXPLORATION@EXR.COM

**OWNER/DEVELOPER**  
 PULTE HOME CORPORATION  
 1501 S. EDGEWOOD STREET  
 SUITE K  
 BALTIMORE, MARYLAND 21227

**FOREST CONSERVATION PLAN**  
**THE PADDOCKS EAST**  
 LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND  
 NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
 TAX MAP 22 GRID 8 PARCEL 7  
 3rd ELECTION DISTRICT HOWARD COUNTY, MARYLAND



**FSH Associates**  
 Engineers Planners Surveyors  
 8318 Forest Street, Ellicott City, MD 21043  
 Tel: 410-750-2251 Fax: 410-750-7350  
 E-mail: FSHAssociates@cs.com

DESIGN BY: RAB  
 DRAWN BY: RAB  
 CHECKED BY: SLH  
 SCALE: 1"=100'  
 DATE: Feb. 20, 2004  
 P.O. No.: 3001  
 SHEET No. 17 OF 18

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION MAR 1 DATE 3/31/04  
  
 CHIEF, DIVISION OF LAND DEVELOPMENT JA DATE 4/6/04  
 DIRECTOR DAE



**NARRATIVE**

This forest conservation plan is designed to preserve and protect the forest resources on the 103.52 Ac Parcel using Howard Forest Conservation Manual guidelines for Rural Cluster subdivisions, Option C. The area of change for the cluster subdivision is 50.91 Ac, which is made up of buildable lots, road Right-of-Way, Reservation Parcel A, and Preservation Parcels E, C, and E in their entirety. The floodplain and Preservation Parcels D, F and G have been netted out. A total of 13.31 Ac. of forest will be retained in easements on preservation parcels. On-site reforestation areas of 0.35 Ac. and 0.10 ac are proposed adjacent to retention area in FCE 3 and FCE 4.

Reforestation Area 1, contained within Forest Conservation Easement 3, will be planted with container grown seedlings at 350 trees/acre. Plant species have been chosen based on the proximity to riparian areas and existing forest composition.

Reforestation Area 2, contained within Forest Conservation Easement 4, will be planted with container grown seedlings at 350 trees/acre. Plant species have been chosen based on the proximity to riparian areas and existing forest composition.

Determination of Net Tract:  
Net tract area was calculated as follows:

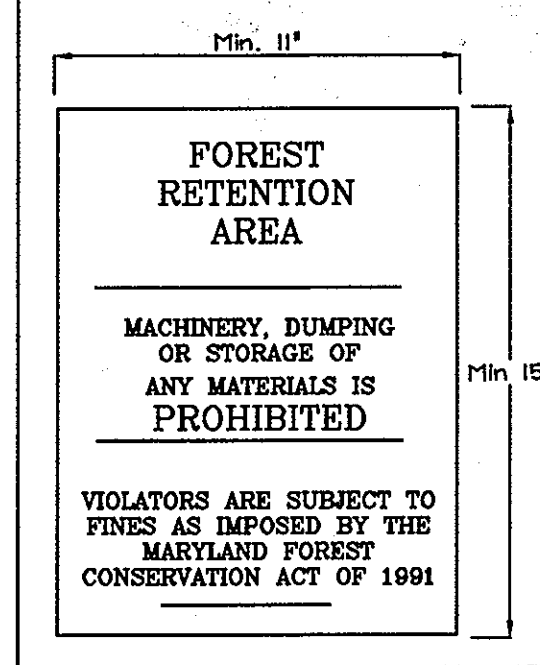
Buildable Lots:	22.71	Size (Ac.)
Road ROW:	3.85	
Reservation Parcel A:	0.79	
(reqd. @ <=3.00 ac.)		
Preservation Parcel B:	2.60	
(reqd. @ <=3.00 ac.)		
Preservation Parcel F:	2.91	
(reqd. @ <=3.00 ac.)		
Preservation Parcel C:	18.05	
(Included entire, y less floodplain)		
<b>Total:</b>	<b>50.91</b>	

Preservation Parcels D, F and G utilizing Cluster Option C, are excluded entirely from calculations.

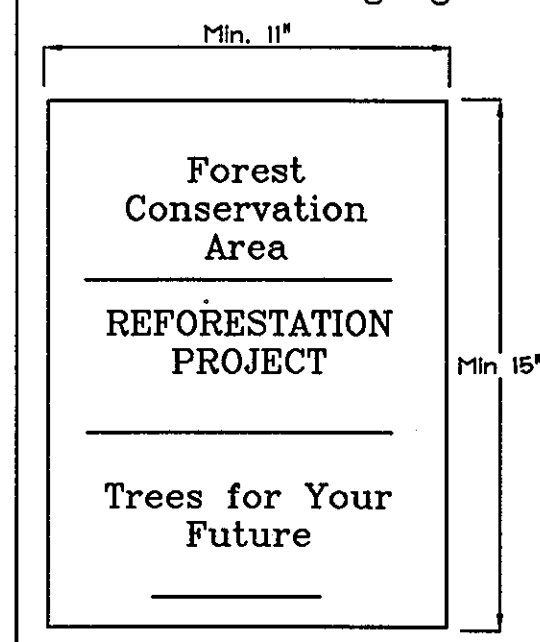
**MANAGEMENT NOTES FOR FOREST RETENTION AREAS**

- All proposed activities shall adhere to the conditions, schedules and terms of an approved sediment control and erosion plan.
- After the boundaries of the retention area have been staked and flagged and before any disturbance has taken place on-site, a preconstruction meeting at the construction site shall take place. The developer, contractor or project manager, and appropriate County inspectors shall attend.
  - Tree protection for all retained areas:
    - All retention areas within 50 feet of proposed construction activities shall be protected by highly visible, well anchored temporary protection devices (silt fence or blaze orange plastic mesh).
    - All protection devices shall be in place prior to any grading or land clearing.
    - All protection devices shall be properly maintained and shall remain in place until construction has ceased.
    - Attachment of signs, fencing or other objects to trees is prohibited.
    - No equipment, machinery, vehicles, materials or excessive pedestrian traffic shall be allowed within protected areas.
- If the critical root zone (see detail) is affected by construction activities such as grade change, digging for foundations and roads or utility installation:
  - Prune roots with a clean cut using proper pruning equipment (see root pruning detail)
  - Water and fertilize as needed.
- During construction phase, monitor and correct condition of retained trees for: soil compaction, root injury, flood conditions, drought conditions and other stress signs.
- Post-Construction Phase
  - Inspect existing trees around the perimeter of disturbed limits for evidence of soil compaction, root injury, limb injury, or other stress signs and correct with proper management techniques such as root or limb pruning, soil aeration, fertilization, crown reduction or watering. Inspection and evaluation shall be performed by a licensed arborist.
  - Inspect for dead or dying trees or limbs which may pose safety hazard and remove.
  - No burial of discarded materials will occur onsite within the conservation areas.
  - No burning within 100 feet of wooded area.
  - All temporary forest protection structures will be removed after construction.
  - Following completion of construction, prior to use, the County inspector shall inspect the entire area.

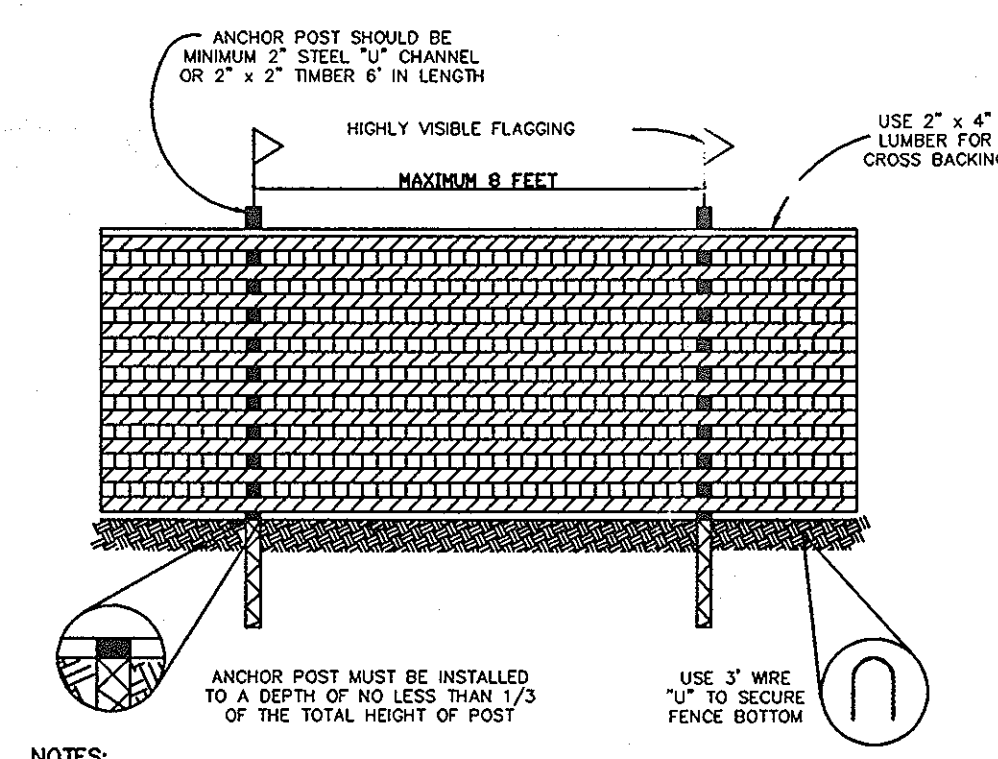
**Forest Retention Area Protection Signage**



**Reforestation and Afforestation Area Protection Signage**



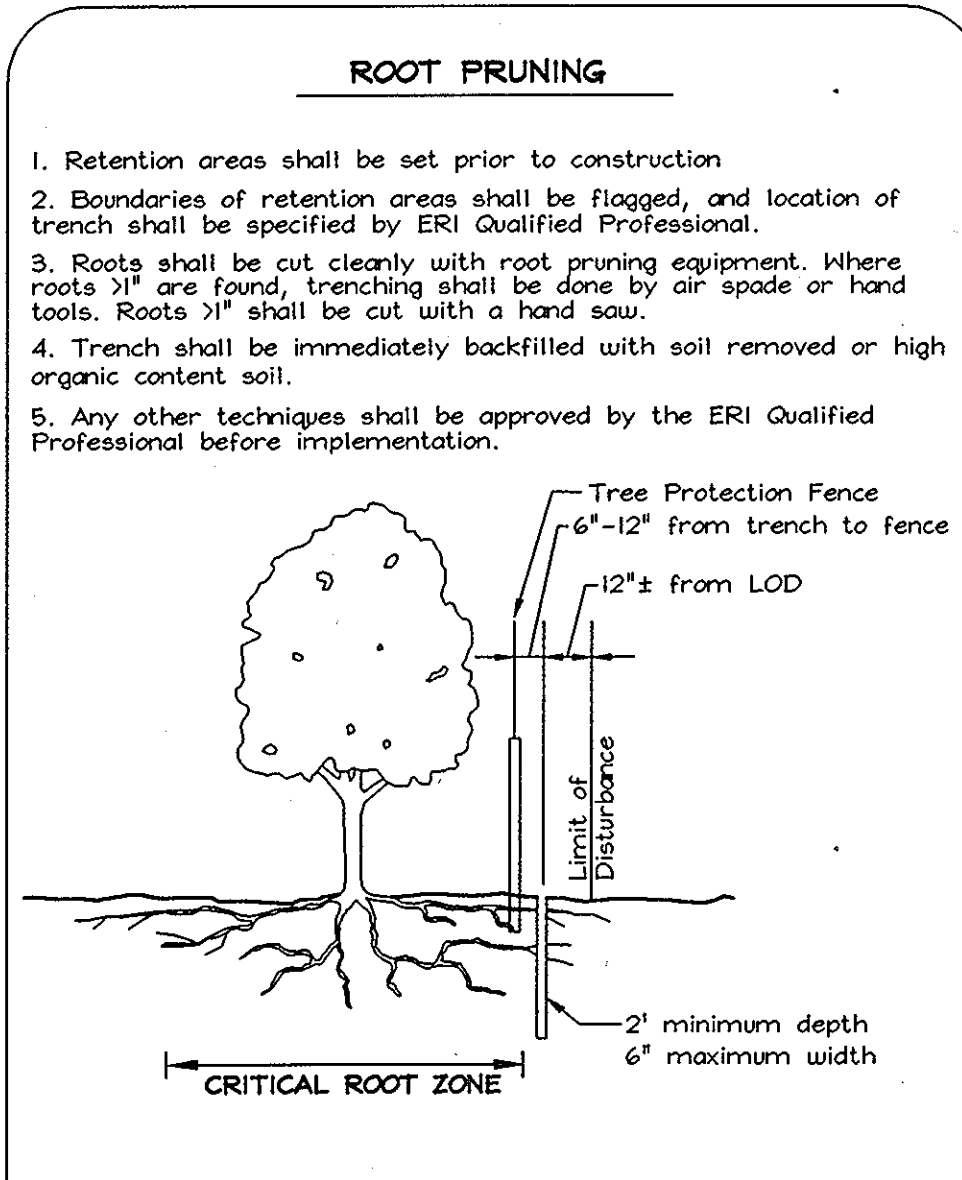
**BLAZE ORANGE PLASTIC MESH**



- NOTES:**
- FOREST PROTECTION DEVICE ONLY.
  - RETENTION AREA WILL BE SET AS PART OF THE REVIEW PROCESS.
  - BOUNDARIES OF RETENTION AREA SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
  - ROOT DAMAGE SHOULD BE AVOIDED.
  - PROTECTIVE SIGNAGE MAY ALSO BE USED.
  - DEVICE SHOULD BE MAINTAINED THROUGHOUT CONSTRUCTION.

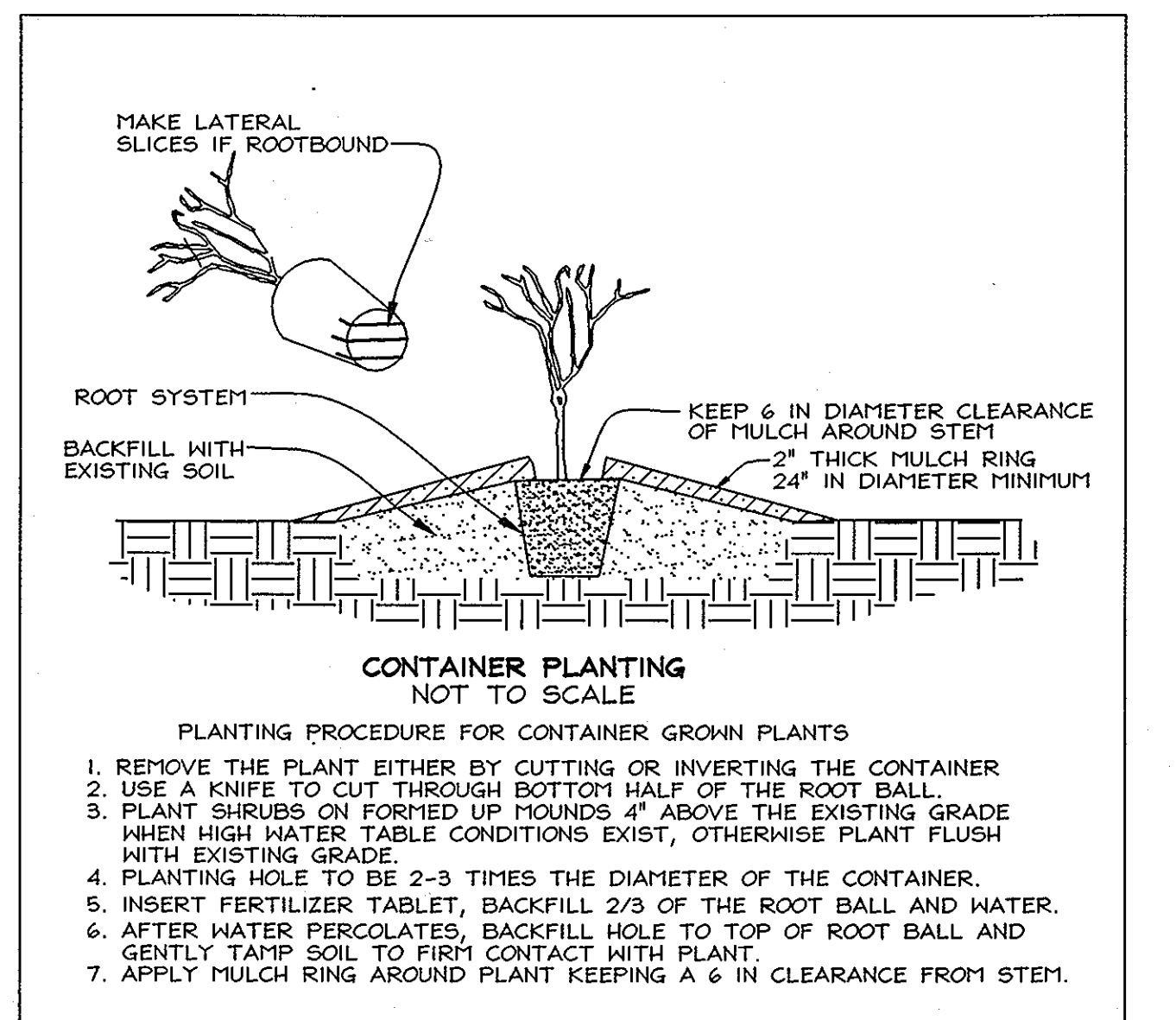
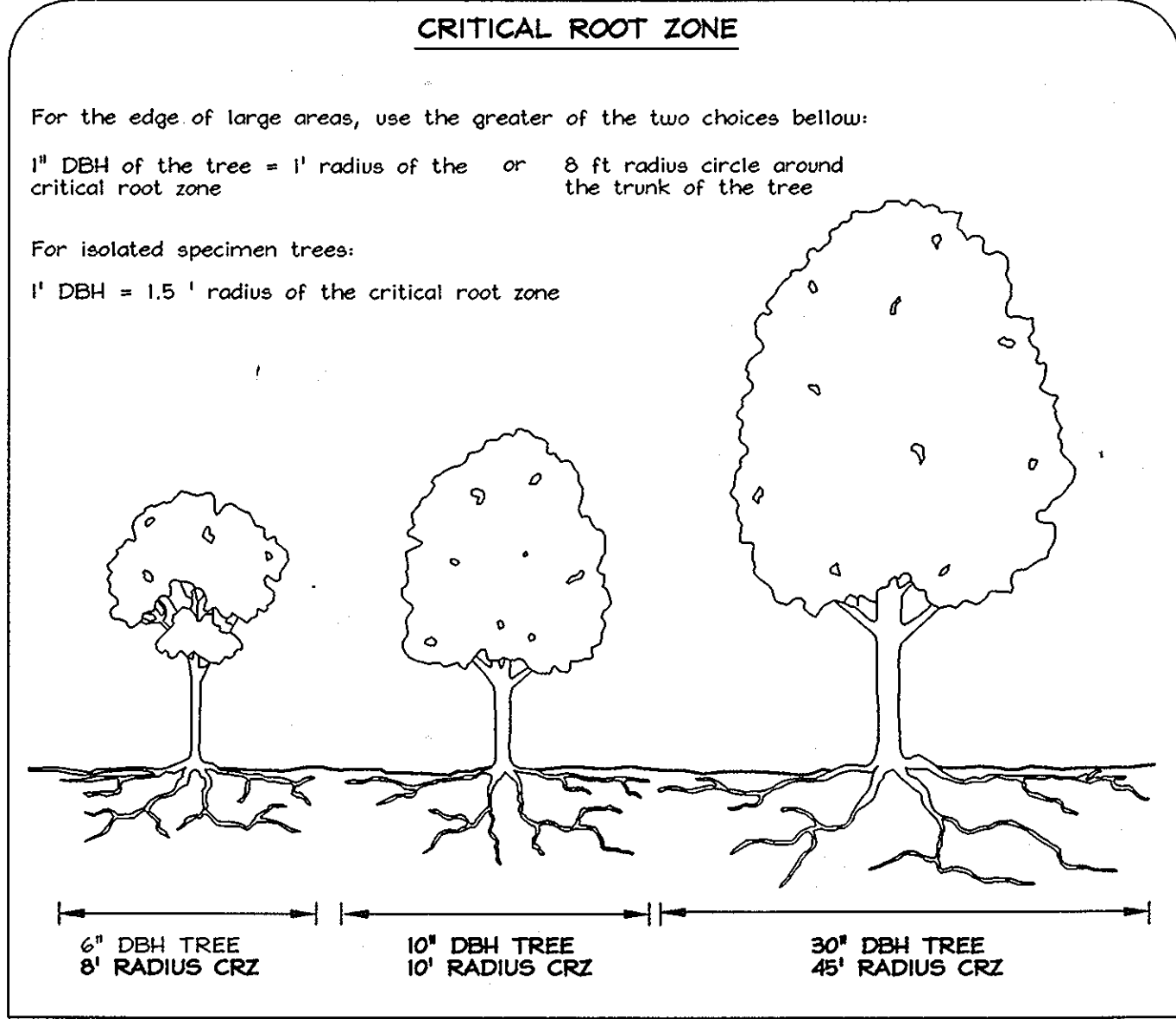
**TREE PROTECTION DETAIL**

NOT TO SCALE



**Soil Protection Zone Notes**

- The Soil Protection Zone shall include all areas contained inside the Limit of Disturbance.
- Where possible, the Soil Protection Zone shall extend to the drip line of specimen trees. For other groups of trees, the zone shall be the drip line or 40% of the height of the tree, whichever is greater.
- No construction activity is permitted within the Soil Protection Zone.
- If soil has been compacted or grading has taken place in the vicinity of the Soil Protection Zone, root pruning shall be implemented per Root Pruning detail, shown on this plan.
- Root pruning shall occur prior to the beginning of construction.
- Where the Soil Protection Zone must encroach inside the Critical Root Zone of a tree, soil disturbance shall be mitigated with vertical mulching, radial trenching, or another method approved by the ERI Forest Conservation Professional.
- Prior to construction, the Limits of Disturbance shall be marked and the ERI Professional shall determine which trees will need preventative treatment or removal.
- Tree maintenance and removal shall be undertaken by a qualified MD Tree Expert to ensure damage to surrounding trees is minimized.
- Brush and limbs removed for construction shall be chipped and spread at the edge of the Soil Protection Zone to a depth of 6 inches. This shall occur outside the Soil Protection Zone where compaction could impact otherwise unprotected Critical Root Zone.

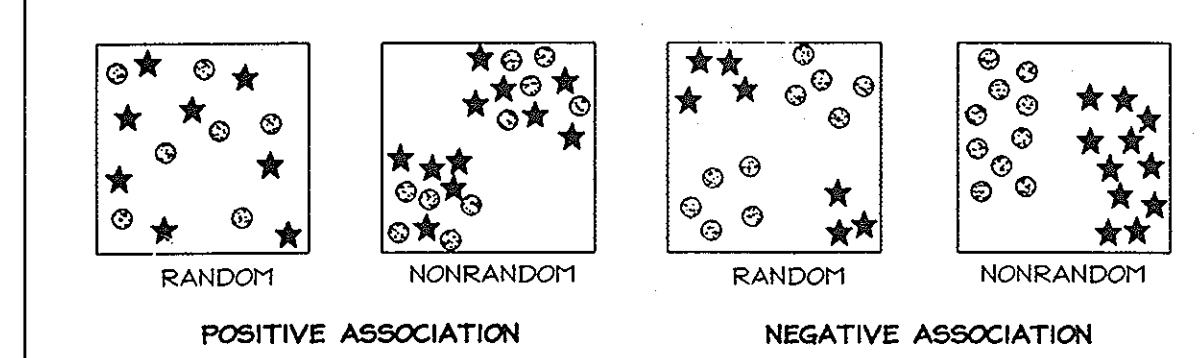


- PLANTING PROCEDURE FOR CONTAINER GROWN PLANTS**
- REMOVE THE PLANT EITHER BY CUTTING OR INVERTING THE CONTAINER
  - USE A KNIFE TO CUT THROUGH BOTTOM HALF OF THE ROOT BALL
  - PLANT SHRUBS ON FORMED UP MOUNDS 4\"/>

**REForestation PLANTING NOTES**

- Reforestation areas may be planted as soon as reasonable to do so. Late winter-early spring plantings are preferred. Earliest planting dates will vary from year to year but planting may generally begin as soon as the ground is no longer frozen. Alternate planting dates may be considered as condition warrants.
- Soil amendments and fertilization recommendations will be made based upon the results of soil analysis for nitrogen, phosphorus, potassium, organic matter content and pH. If required, fertilizer will be provided using a slow release, soluble 16-8-8-6 analysis designed to last 5-8 years contained in polyethylene perforated bags such as manufactured by ADCO Works, P.O. Box 310 Hollins, N.Y. 11423 or approved equal.
- Plant materials will be planted in accordance with the Planting Distribution Diagram, Planting Details and plant schedule.
- Plant material shall be nursery grown and inspected prior to planting. Plants not conforming to the American Standard for Nursery Stock specifications for size, form, vigor, or roots, or due to trunk wounds, brookage, insect or disease must be replaced.
- Planting stock must be protected from desiccation all times prior to planting. Materials held for planting shall be moistened and cool shaded areas until ready for placement.
- Newly planted trees may require watering at 1-2 inches per week during the first growing season depending on rainfall in order to be established. The initial planting operation should allow for watering during install material.
- Planting holes should be excavated to a minimum diameter of 2.5 to 3 times the diameter of the root ball or container. Mechanical mulch is preferred with scarification of the sides of each hole.
- Mulch shall be applied in accordance with the details provided and shall consist of composted, shredded hardwood bark mulch, tree or shrub mulch, or a similar material.

**TYPICAL FOREST TREE DISTRIBUTION PATTERNS**



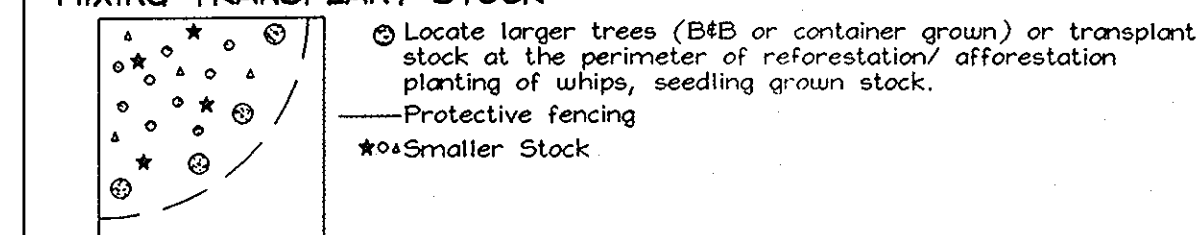
**NOTE:** Naturally occurring populations of trees tend to be found in informal groupings. A cluster of trees is really a mosaic of different species groups. The objective of an afforestation/reforestation plan is to select the appropriate species and distribution pattern for a chose site that mimic natural patterns. Source: Prince Georges County woodland Conservation Manual.

**AGGREGATE DISTRIBUTION DRIFT**



**NOTE:** When used, plant cluster type groupings that taper or feather out along the edges. Clusters often appear as elongated or tear drop shapes. Source: EOR, Inc.

**MIXING TRANSPLANT STOCK**



Source: Adapted from Forest Conservation Manual, 1991.

PLANTING DISTRIBUTION PATTERNS FIGURE 3.5.2

**REForestation AREA MONITORING NOTES**

- Monthly visits during the first growing season are to assess the success of the plantings and to determine if supplemental watering, pest control or other actions are necessary. Early spring visits will document winter kill and autumn visits will document summer kill.
- The minimum survival rate shall be 75% of the total number of trees planted per acre at the end of the two year maintenance period. Wild tree seedlings from natural regeneration on the planting site may be counted up to 50% toward the total survival number if they are healthy native species at least 12 inches tall. Certification at the end of the two-year post construction period must indicate that the survival rates will result in a 100 tree per acre ratio for a forest and the 3 to 4 foot height standard for whips by the end of the two growing season post construction period, with at least 50% of those trees having the potential of attaining having the potential of attaining a 2\"/>

**FOREST CONSERVATION WORKSHEET**

Acres (1/100 ac.)	
Net Tract Area	50.91
A. Total Tract Area	103.52
B. Area Within 100 Year Floodplain (on Parcel C) (on Parcels D, F, & G)	8.08 / 10.23
C. Other deductibles (Balance of Parcels D, F, & G)	34.30
D. Net Tract Area	50.91
Land Use Category: Cluster Medium Density Residential	
E. Afforestation Minimum (20% x D)	10.18
F. Conservation Threshold (25% x D)	12.72
Existing Forest Cover	
G. Existing Forest on Net Tract Area	17.18
H. Forest Area Above Conservation Threshold	4.45
Breakeven Point	
I. Forest Retention Above Threshold with no Mitigation	13.62
J. Clearing Permitted without Mitigation	3.56
Proposed Forest Clearing	
K. Forest Areas to be Cleared	3.87
L. Forest Areas to be Retained	13.31
Planting Requirements	
M. Reforestation for Clearing Above Threshold	0.97
N. Reforestation for Clearing Below Threshold	NA
P. Credit for Retention Above Conservation Threshold	0.58
Q. Total Reforestation Required	0.39
R. Total Afforestation Required	NA
S. Total Reforestation and Afforestation Requirement	0.39

REForestation AREA 1 0.35 Ac • 350 stems/acre = 126 stems

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
21	Acer rubrum	Red Maple	2-3' whip	11' o.c.	container
21	Fraxinus pennsylvanica	Green Ash	2-3' whip	11' o.c.	container
21	Nyssa sylvatica	Black Gum	2-3' whip	11' o.c.	container
21	Prunus serotina	Black Cherry	2-3' whip	11' o.c.	container
21	Quercus rubra	Red Oak	2-3' whip	11' o.c.	container
21	Cercis canadensis	Redbud	2-3' whip	11' o.c.	container

REForestation AREA 2 0.10 Ac • 350 stems/acre = 35 stems

Qty	Botanical Name	Common Name	Min. Size	Spacing	Notes
6	Acer rubrum	Red Maple	2-3' whip	11' o.c.	container
6	Fraxinus pennsylvanica	Green Ash	2-3' whip	11' o.c.	container
6	Nyssa sylvatica	Black Gum	2-3' whip	11' o.c.	container
6	Prunus serotina	Black Cherry	2-3' whip	11' o.c.	container
6	Quercus rubra	Red Oak	2-3' whip	11' o.c.	container
5	Cercis canadensis	Redbud	2-3' whip	11' o.c.	container

**FOREST CONSERVATION EASEMENT SUMMARY**

Easement 1	4.81 Ac.
Easement 2	6.04 Ac.
Easement 3	2.08 Ac.
Retention	1.73 Ac.
Reforestation	0.35 Ac.
Easement 4	0.83 Ac.
Retention	0.73 Ac.
Reforestation	0.10 Ac.
<b>Total Easement</b>	<b>13.76 Ac.</b>
Retention	13.31 Ac.
Reforestation	0.45 Ac.

Forest Conservation Surety in the amount of \$125,757.80 will be posted with the Developers Agreement.  
13.31 Ac Retention - 579,764\$.f.@\$.20/s.f. = \$115,956.80  
0.45 Ac Reforestation - 19,602\$.f.@\$.50/s.f. = \$9,801.00

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*[Signature]* 3/31/04  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
*[Signature]* 4/6/04  
CHIEF, DIVISION OF LAND DEVELOPMENT  
DIRECTOR

AS-BUILT 04/12/2010  
NO REVISION

**EXPLORATION RESEARCH, INC.**  
ENVIRONMENTAL CONSULTANTS  
LANDSCAPE ARCHITECTS  
800 FOREST STREET  
BILLYMONT CITY, MARYLAND 21045  
TEL: (410) 750-2251 FAX: (410) 750-7390  
EMAIL: EXPLORATION@EXRCS.COM

**FOREST CONSERVATION PLAN THE PADDOCKS EAST**  
LOTS 1 THRU 22, RESERVATION PARCEL 'A', AND NON-BUILDABLE PRESERVATION PARCELS 'B' THRU 'G'  
TAX MAP 22 GRID 8 3rd ELECTION DISTRICT PARCEL 7 HOWARD COUNTY, MARYLAND

DESIGN BY: RAB  
DRAWN BY: RAB  
CHECKED BY: SLH  
SCALE: AS SHOWN  
DATE: Feb. 20, 2004  
I.C. No.: 3001  
SHEET No. 18 OF 18

**FSH Associates**  
Engineers Planners Surveyors  
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