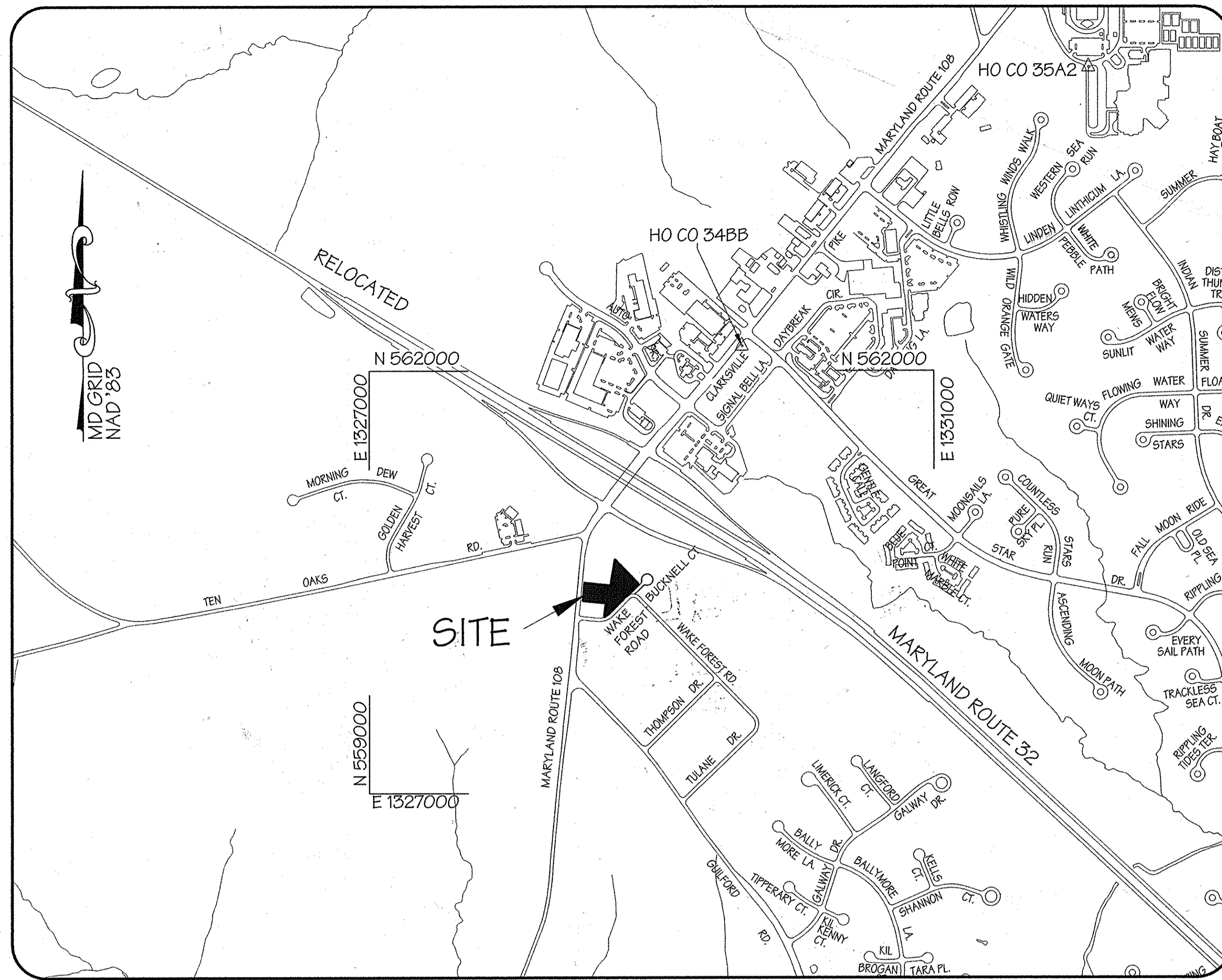


**GENERAL NOTES**

1. THE PURPOSE OF THIS SITE DEVELOPMENT PLAN IS TO PROVIDE CONSTRUCTION DOCUMENTS FOR A COMMERCIAL BUILDING IN ACCORDANCE WITH THE SITE DEVELOPMENT PLAN REGULATIONS.
2. All construction shall be in accordance with the latest standards and specifications of Howard County Design Manual Vol. IV and current MSHA standards & specifications.
3. Project Background:  
Location: Clarksville, Maryland  
Tax Map: Map 34 Tax Map Parcel 155  
Grid: 12  
Election District: 5th  
4. Existing Zoning: B-2 per 2/2/04 Comprehensive Zoning Plan.  
5. Current Deed Reference:  
Parcel 155: L. 9150 / F. 162 (Zoned B-2)  
6. Plat Reference: Zepp Plaza, Parcel A: Plat No. 17437.  
7. The internal property lines shall be removed via a consolidation plat; plat #17437.  
8. The Boundary shown hereon is based on a field run boundary survey performed by LDE, Inc. in October, 1999.  
9. Horizontal and vertical datum's are related to the Maryland State Plane Coordinate System as projected from Howard county control stations No. 348B and 35A2 (NAD 83).  
10. Any damage caused by the contractor to existing public right-of-way, existing paving, existing curb and gutter, existing utilities, etc. shall be corrected at the contractor's expense.  
11. The existing utilities shown hereon are located from field surveys and construction drawings of record. The contractor shall locate existing utilities to his own satisfaction and well in advance of any construction activities. Additionally, the contractor shall take all necessary precautions to protect all existing utilities and maintain uninterrupted service. Any damage incurred to utilities or existing features due to contractor's operation shall be repaired immediately at the contractor's expense.  
12. There may be additional utilities not shown on these plans. The engineer assumes no responsibility for utility locations not shown and it shall be the responsibility of the contractor to verify the locations of all existing utilities within the limits of construction and notify the engineer of any discrepancies, prior to the start of construction.  
13. Site Analysis Data:  
a. Total project Area: 1.398 Acres  
b. Area of Plan Submission: 1.398 Acres  
c. Limit of Disturbed Area: 1.239 Acres  
d. Present Use: Parcel 155 - Ex. Plumbing business  
Lawn / Landscaping  
e. Proposed Site and Structure Use: Commercial Office, Retail, Equipment Maintenance  
f. Building Area Per Floor: 1st Floor: 11,036 s.f. / 2nd Floor: 7,611 s.f. (18,647 s.f. Total)  
g. Building Floor Space per Use:  
1) Retail: 6,842 s.f.  
2) Office Use: 8,340 s.f. (Includes 18% common area)  
3) Equipment Maintenance: 2,865 s.f. (first floor only) **RESTAURANT**  
Total Building Area: 18,647 s.f.  
h. Maximum Number of Employees: 30  
i. Parking Required: **SEE REQUIRED SHARED PARKING CHART**  
j. Parking Provided: Van Accessible Handicap spaces provided = 4 spaces  
k. Building Coverage of Site: 0.256 Acres / 18.3% of gross site area.  
l. Applicable DPZ File Reference: F-05-027  
14. There are no streams, stream buffers, floodplains, wetlands, wetland buffers or steep slopes located within the boundary of this project per a field investigation by LDE, Inc. in March, 2002.  
15. The forest conservation obligation for this project is 0.21 acres. The total obligation shall be met via payment of \$4,574.00 Fee-in-Lieu. There are no existing forested areas onsite and no potential planting areas once the site is developed.  
16. Adjustments to the sequence of construction shall be approved by the Howard County Department of Inspections, Licenses and Permits, prior to such adjustments.  
17. Traffic control devices, markings and signing shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices (MUTCD). All street and regulatory signs shall be in place prior to the placement of any asphalt.  
18. The contractor shall notify the Department of Public Works/Bureau of Engineering/Construction Inspection at (410) 313 1880 at least five (5) working days prior to the start of work.  
19. The contractor shall notify "Miss Utility" at 1-800-257-7777 at least forty-eight (48) hours prior to any excavation work.  
20. This project is located within the Metropolitan District. Existing water and sewer stubs have been provided to this project via Contract No. 34-3669-D. Private connections to the proposed building from the existing stubs are shown on this plan.  
21. Stormwater quality management and stormwater quantity management is provided by an onsite underground StormTech detention system.  
22. The onsite underground StormTech facility will be privately owned and maintained by the property owner.  
23. The existing receiving storm drain system located in Wake Forest Road and Bucknell Court has been analyzed and found to be properly sized to accept all runoff from the subject site. The onsite grading has changed the originally approved drainage areas to existing inlets 1-1, 1-3 and 1-8. This site development plan includes a drainage area map showing the revised drainage areas to each inlet.  
24. The proposed storm drain system connection to the existing storm drain system will require open cutting across existing Bucknell Court. The contractor shall repair the paving and curb & gutter in Bucknell Court (Howard County Local Road) in accordance with County Standards and to the satisfaction of the Howard County Inspector.  
25. Any damage to Public "Right-of-Ways" or paved public roads shall be repaired immediately at the contractor's expense in accordance with the Howard County and MSHA Standards and Specifications.  
26. All fill shall be rolled to a minimum degree of compaction of 95% of the dry unit weight as determined by AASHTO T-180.  
27. There are no existing contiguous slopes 25% or greater which are greater than 20,000 square feet within the boundaries of the site.  
28. A Noise Study is not required for this Site Development Plan submission.  
29. A Geotechnical Report was completed for the proposed building and potential onsite stormwater management by Hillis Carnes Engineering Associates, Inc. on June 19, 2001.  
30. Earthwork quantities shown on this plan are estimated and should not be used for bid purposes. Contractors should perform independent earthwork analysis for bid purposes.  
31. Deviations from these plans and specifications without prior written consent of the civil engineer may cause the work to be unacceptable.  
32. The dimensions distances shall govern if scaled and dimensioned on this plan are found to be in disagreement.  
33. No work is permitted within the Maryland Route 108 Right-of-Way until an Access Permit is issued by the MSHA.  
34. The existing commercial entrance off Route 108 will be relocated for this project.  
35. Landscaping requirement per Section 16.124 of the Subdivision and Land Development Regulations shall be provided in accordance with a landscape plan on file with this site plan. Surety in the amount \$10,650.00 shall be made part of the Developer's Agreement for this site plan.  
36. The existing topography shown hereon is taken from a field run survey with two foot contour intervals prepared by LDE, Inc. in October, 1999.  
37. All exterior light fixtures shall be oriented to direct light inwards and downwards onsite away from adjoining properties and public roads in accordance with Section 134 of the Howard County Zoning Regulations.  
38. The existing brick building onsite will be removed. A Demolition Permit from the Department of Inspections, Licenses and Permits is required.  
39. The existing onsite well shall be sealed by a licensed well driller and the onsite septic system shall be abandoned in accordance with the Howard County Department of Environmental Health's abandonment procedures prior to issuance of the building permit.  
40. The existing water house connection to the existing brick building will be abandoned in accordance with the Howard County Bureau of Utilities procedures.  
41. This plan is subject to the Amended Fifth Edition of the Subdivision and Land Development Regulations per Council Bill 45-2003 and the Zoning Regulations as amended by CB 75-2003.  
42. On July 7, 2005, the Chief of the Development Engineering Division approved a Design Manual Waiver from Section 2.2.3 of Design Manual Volume III to allow a WB-40 vehicle to be used for turning movements onsite instead of the required WB-50 vehicle.  
43. Vehicular access to Wake Forest Road is prohibited.  
44. The permit application deadline for conversion of one-story Equipment Maintenance Space to Restaurant and the re-striping of the rear parking lot shall be September 22, 2011 (one year from Red-Line approval date).



LOCATION MAP  
Scale: 1" = 600'

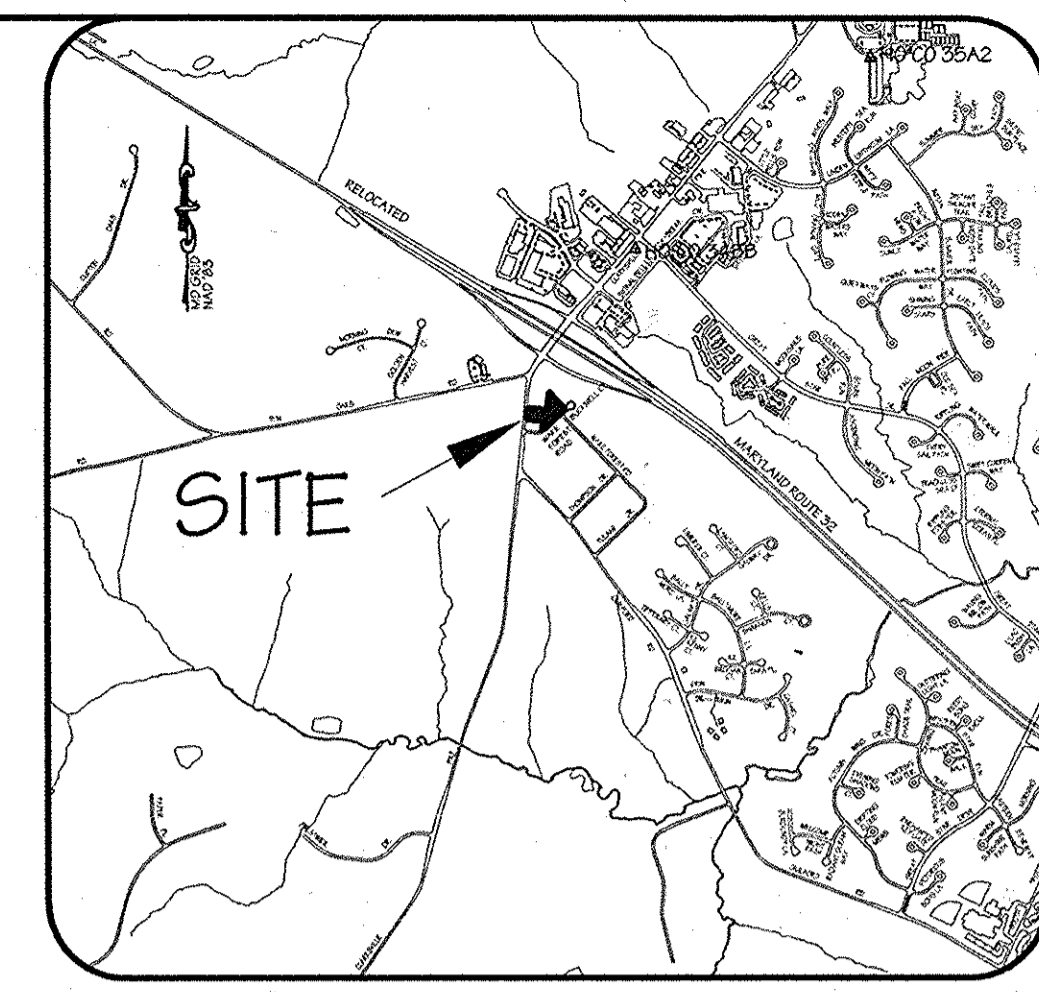
# SITE DEVELOPMENT PLAN ZEPP PLAZA

Parcel A  
Tax Map 34, Parcel 155  
12447 Clarksville Pike  
Clarksville, Maryland 21029

5th ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**LEGEND**

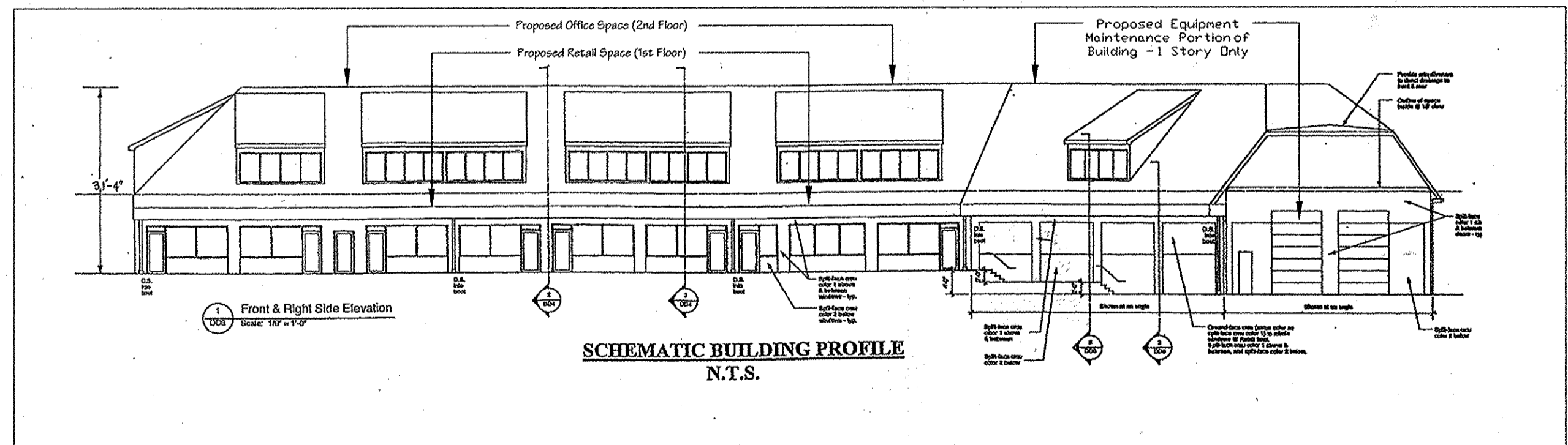
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- PROPOSED CONTOUR
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- EXISTING STORM DRAIN
- PROPOSED STORM DRAIN
- CENTER LINE OF ROAD
- EXISTING EDGE OF PAVEMENT
- EXISTING TREES
- PROPOSED TREES
- EXISTING ADJOINER PROPERTY LINES
- EXISTING FENCE
- EXISTING SANITARY SEWER
- EXISTING WATER
- LIMIT OF DISTURBANCE
- SILT FENCE
- RETAINING WALL
- LANDSCAPE FENCE
- SOIL BORING
- STABILIZED CONSTRUCTION ENTRANCE
- DRAINAGE DIVIDE
- EXISTING GAS
- EXISTING STORM SEWER
- UNDERGROUND DETENTION FACILITY
- PROPOSED STATE HIGHWAY PAVING



VICINITY MAP  
Scale: 1"=200'

SHEET INDEX	
Sheet Number	Description
1	Cover Sheet
2	Site Development Plan
3	Grading and Soil Erosion & Sediment Control Plan
4	Grading and Soil Erosion & Sediment Control Detail Sheet
5	Construction Details & Utility Profiles
6	U/G Det. Facility & SHA Drainage Details
7	Stormwater Management Details
8	Stormwater Management Notes & Details
9	Storm Drain Profiles & Details
10	Drainage Area & Soils Map
11	Forest Stand Delineation / Conservation Plan
12	Landscape Plan / Details
13	Traffic Control Plan

- BENCHMARKS**
1. Howard County Survey Control Station: 348B  
Standard Howard County Survey Disc set on a concrete monument. Located 15 feet south of CL Intersection of Great Star Drive and Route 108, 1.3 feet behind face of curb on North Bound Lane of Route 108.  
N. 562176.459  
E. 1029641.876  
Elev.= 485.25'
  2. Howard County Survey Control Station: 35A2  
Standard Howard County Survey Disc set on a concrete monument. Located 93' feet from BG&E Pole #166792 and 47.2 feet from BG&E Pole #370902 along south bound lane of Route 108. Approximately 214.5 feet from CL Intersection of Shepard Lane and Route 108.  
N. 564154.802  
E. 1331201.065  
Elev.= 488.64'



SCHEMATIC BUILDING PROFILE  
N.T.S.

**REDLINE PARKING LAYOUT  
SEPTEMBER, 2010**

Subdivision Name: Zepp Plaza	Sect./Area: N/A	Parcel No.: 155
Plot No.: 17437	Block No. Zone: 12 B-2	Tax Map No.: 34
Water Code: 111	Election District: 5th	Census Tract: 6051.02
	Sewer Code: 6650000	

ADDRESS CHART	
Parcel No.	Street Address
155	12435 Clarksville Pike

LDE, INC.  
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Cover Sheet <b>ZEPP PLAZA</b> Parcel A Tax Map 34, Parcel 155 Plat No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: F-05-027	SCALE As Shown
DRAWN J.D.R.		DRAWING 1 of 13
CHECKED B.D.B.		JOB NO. 99-062
DATE 1/2006		FILE NO. SDP-05-021
OWNER: Zepp Plaza, LLC 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712		DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700

**REVISED REQUIRED PARKING - ZEPP PLAZA**

Use	SF	Weekday					Weekend		Nighttime Parking Requirement
		Morning	Midday	Evening	Overnight	Evening	Overnight		
Office/Industrial	8,940	50%	100%	100%	100%	10%	5%	5%	3.3 spaces / 1000 SF
Retail	6,842	20%	60%	60%	60%	30%	5%	5%	5.0 spaces / 1000 SF
Restaurant (not fast food)	2,865	50%	20%	20%	20%	100%	10%	10%	4.0 spaces / 1000 SF
TOTAL	18,647	51	71	71	71	74	78	66	8

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 12813 - Expiration Date 2/28/17.

**REDLINE REVISION - PARKING LAYOUT / TRIPPLING PLAN**

**YANMAR ASSOCIATES, INC.**  
Engineers Surveyors Planners  
310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771  
(301) 829-2880 (301) 831-5015 (410) 548-2751  
FAX (301) 831-5688

**DEVELOPER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Rosemary W. Zepp*  
*Edgar W. Zepp II* 1/28/06

**ENGINEER'S CERTIFICATE**

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT A PRACTICAL AND WORKABLE PLAN BASED ON PROFESSIONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Bruce D. Burton* 1/27/06

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*David A. Leight* 2/16/06  
DIRECTOR

*Andy Hamilton* 2/16/06  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Chris Cavanaugh* 2/14/06  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

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

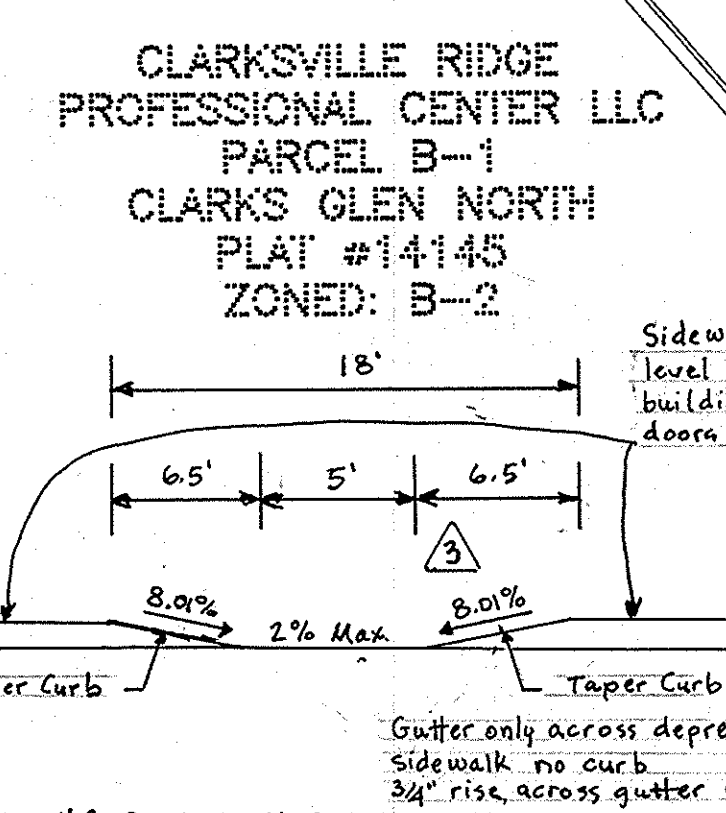
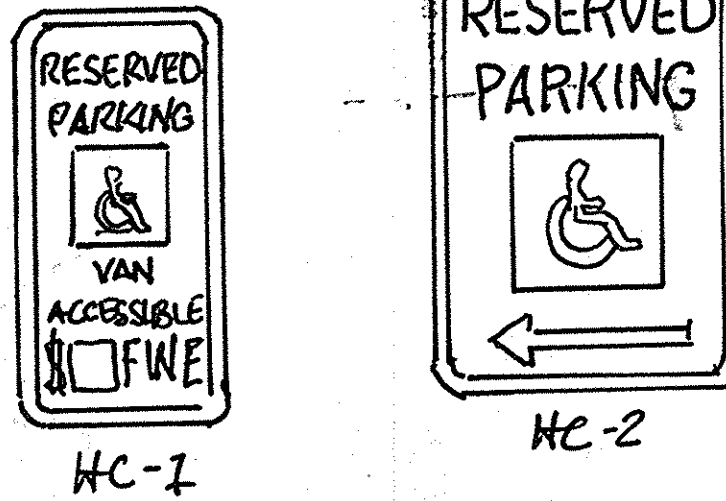
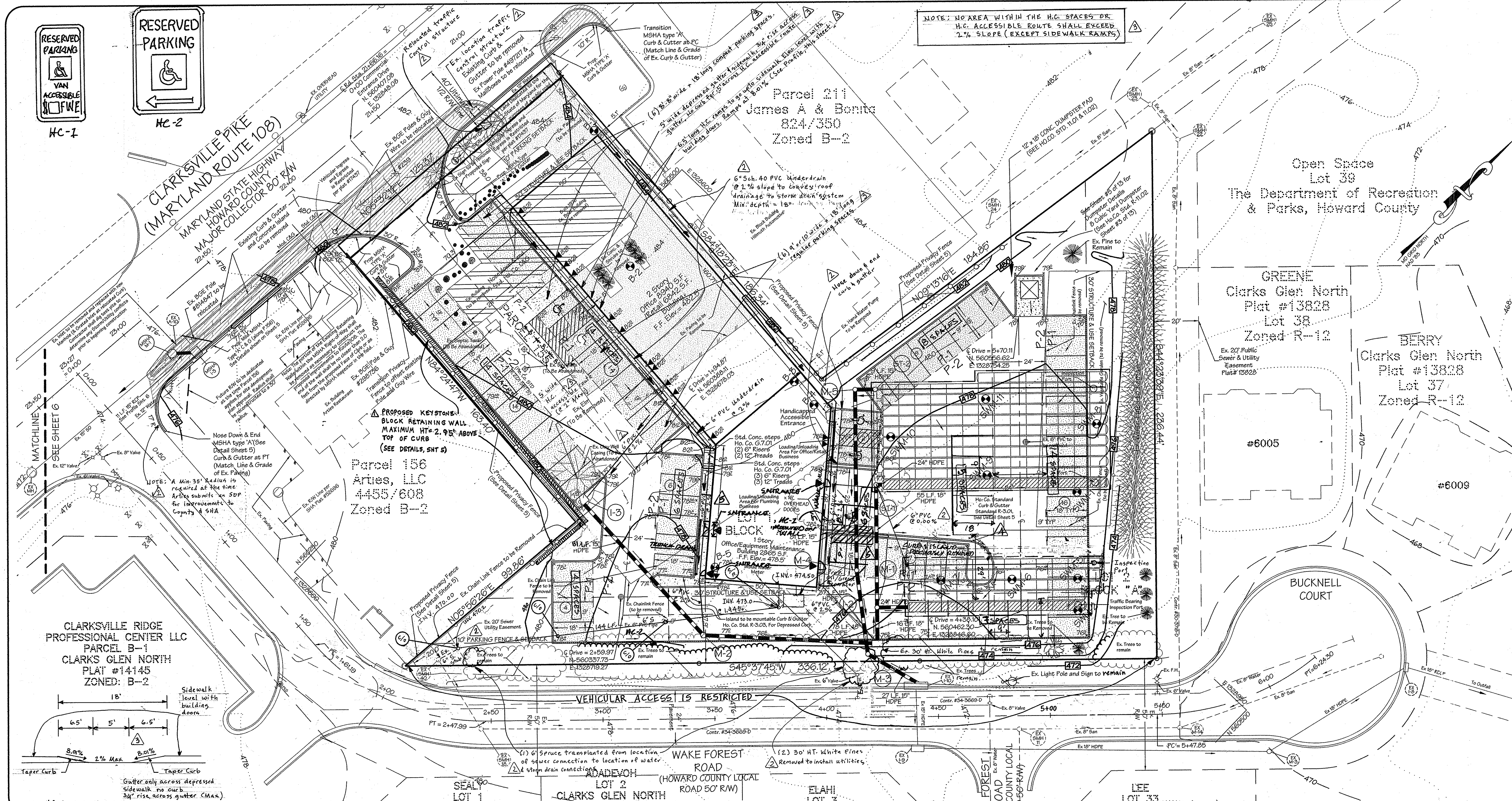
*Jim Meyer* 2/19/06  
NATURAL RESOURCE CONSERVATION SERVICE

*John K. Robertson* 2/19/06  
HOWARD SOIL CONSERVATION DISTRICT

**REVISIONS**

No.	Date	Description
1	09/16/10	REVISE PARKING LAYOUT / TRIPPLING PLAN
2	11/8/10	RESTAURANT ENTRANCE'S H.C. ACCESS





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Mark E. Gayle* 4/16/06  
DIRECTOR DATE

*Cindy Hamilton* 2/16/06  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*John D. Burton* 2/14/06  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

NATURAL RESOURCE CONSERVATION SERVICE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

Legend

P-1 Retaining

P-2 Retaining

MSHA Improvements

REDLINE REVISION - PARKING LAYOUT (SHALPARE PLAN)

VANMAR ASSOCIATES, INC.  
Engineers Surveyors Planners  
510 South Main Street, P.O. Box 288, Mount Airy, Maryland 21771  
410-528-2287 410-521-6245 410-545-2751

NOTE: All debris is to be kept out of the underground facility during and after construction.

Stormtech Underground Detention Facility (See Sheets 6-8 for Plan Sheet and Details)

No.	Date	Description
1	11/2006	Added retaining wall
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WA configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.
3	4/2007	Revised H.C. Ramp & accessible route in front of building per building Inspector

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. ALSO AUTHORIZED PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Rosemary W. Zepp* 1/27/06  
Signature of Developer DATE

STATE OF MARYLAND  
PROFESSIONAL ENGINEER  
*John D. Burton* 1/27/06  
Signature of Engineer DATE

ENGINEER'S CERTIFICATE

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

*John D. Burton* 1/27/06  
Signature of Engineer DATE

Subdivision Name: Zepp Plaza		Sect./Area: N/A		Parcel No.: 155	
Plat No.: 17437	Block No.: 12	Zone: B-2	Tax Map No.: 34	Election District: 5th	Census Tract: 6051.02
Water Code: III			Sewer Code: 6650000		

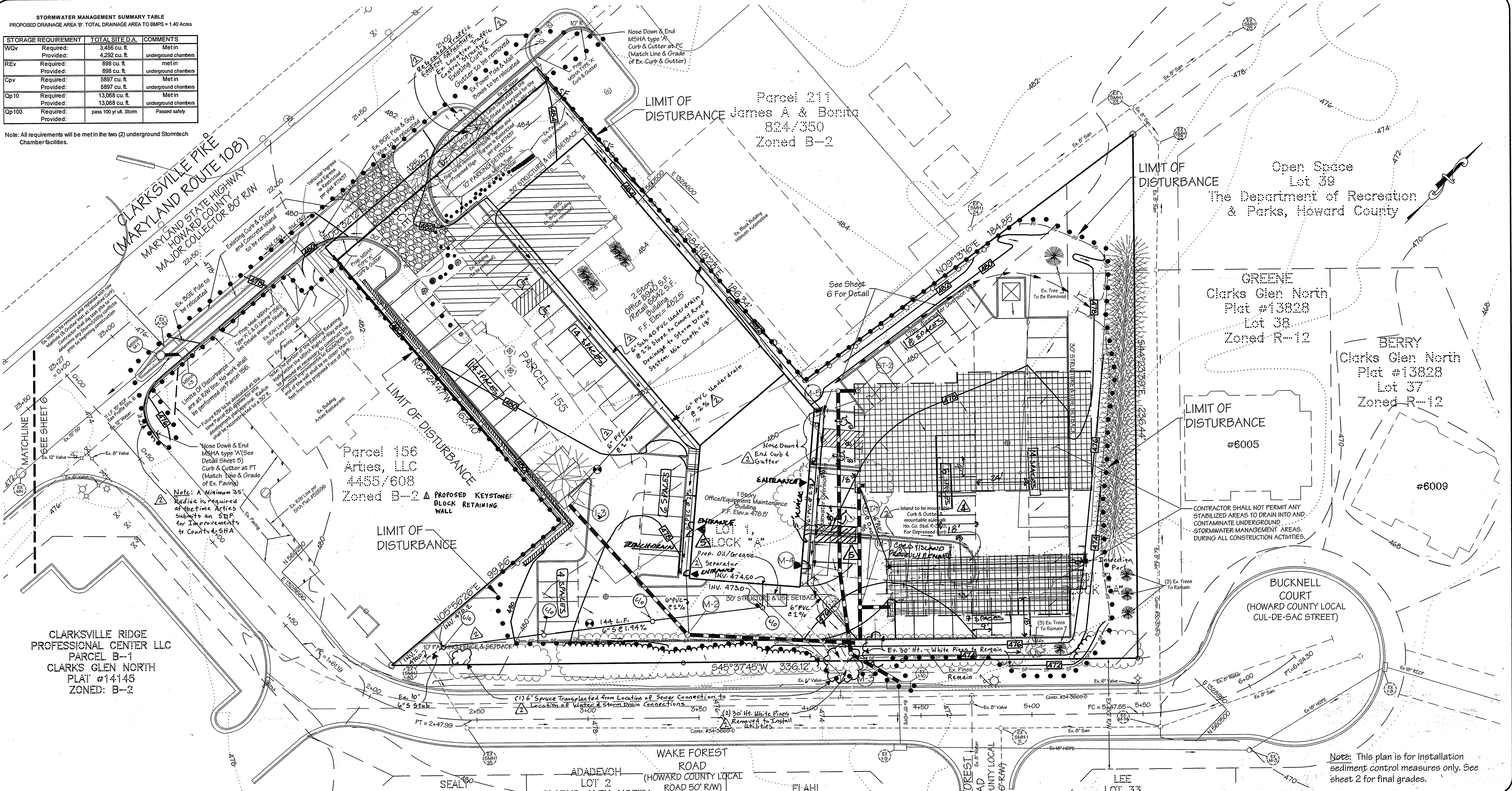
DESIGNED: S.D.H.		SCALE: 1"=20'
DRAWN: J.D.R.		
CHECKED: B.D.B.		DRAWING: 2 of 13
DATE: 1/2006		
OWNER: Zepp Plaza, LLC 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712		JOB NO.: 99-062
DEVELOPER: Crystal Hill Advisors 11737 Rte 108 Clarksville, Maryland (410) 531-6700		
FILE NO.: SDP-05-021		



**STORMWATER MANAGEMENT SUMMARY TABLE**  
PROPOSED DRAINAGE AREA BY TOTAL DRAINAGE AREA TO BMPs = 1.40 Acres

STORAGE REQUIREMENT	TOTAL SITE D.A.	COMMENTS
WQv Required: 3,456 cu. ft.	4,292 cu. ft.	Met in underground chambers
REV Required: 898 cu. ft.	898 cu. ft.	met in underground chambers
Cpv Required: 5897 cu. ft.	5897 cu. ft.	Met in underground chambers
Qp10 Required: 13,068 cu. ft.	13,068 cu. ft.	Met in underground chambers
Qp100 Required: 13,068 cu. ft.	13,068 cu. ft.	Met in underground chambers
Qp100 Provided: pass 100 yr. Storm		Passed safely

Note: All requirements will be met in the two (2) underground Stormtech Chamber facilities.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 Director: *[Signature]* 4/16/06  
 Chief, Division of Land Development: *[Signature]* 2/16/06  
 Chief, Development Engineering Division: *[Signature]* 2/16/06

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD COUNTY CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.  
 Approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District:  
*[Signature]* 2/19/06  
*[Signature]* 2/19/06

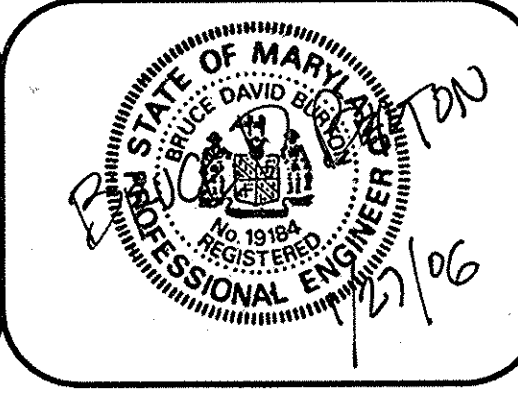
**PROFESSIONAL CERTIFICATION**  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 12335, Expiration Date: 7/18/12.  
 REDUKE RIVKOS - MECHANICAL CONSULTING PLANS  
 VANMAR ASSOCIATES, INC.  
 Engineers/Surveyors/Planners  
 310 South Main Street, P.O. Box 328, Mount Airy, Maryland 21771  
 (301) 829-2850 (301) 831-5015 (410) 549-2751  
 Fax (301) 831-5603

**REVISIONS**

No.	Date	Description
1	11/20/06	Added retaining wall
2	11/20/06	Revised sewer connection, revised landscaping, revised stormtech WR configuration, show relocated traffic control structure, added underdrain system to parking roof drains.
3	09/16/10	REVISE PARKING LAYOUT/STAIRING PLAN
4	11/8/10	RESTAURANT ENTRANCE & ITC ACCESS

Note: Proposed contours shown hereon are finished paving/curb grades. Contractor to allow for paving section in all areas to be paved.

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *[Signature]* 1/27/06  
 Signature of Developer: *[Signature]* 1/27/06



**ENGINEER'S CERTIFICATE**  
 I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT HAS PREVIOUSLY BEEN IN COMPLIANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 Signature: *[Signature]* 1/27/06  
 Signature of Engineer: *[Signature]* 1/27/06

Subdivision Name: Zepp Plaza		Sect/Area: N/A	Parcel No.: 155
Plot No.: 17437	Block No.: 12	Zone: B-2	Tax Map No.: 34
Water Code: 111	Sewer Code: 6650060	Election District: 5th	Census Tract: 6051.02

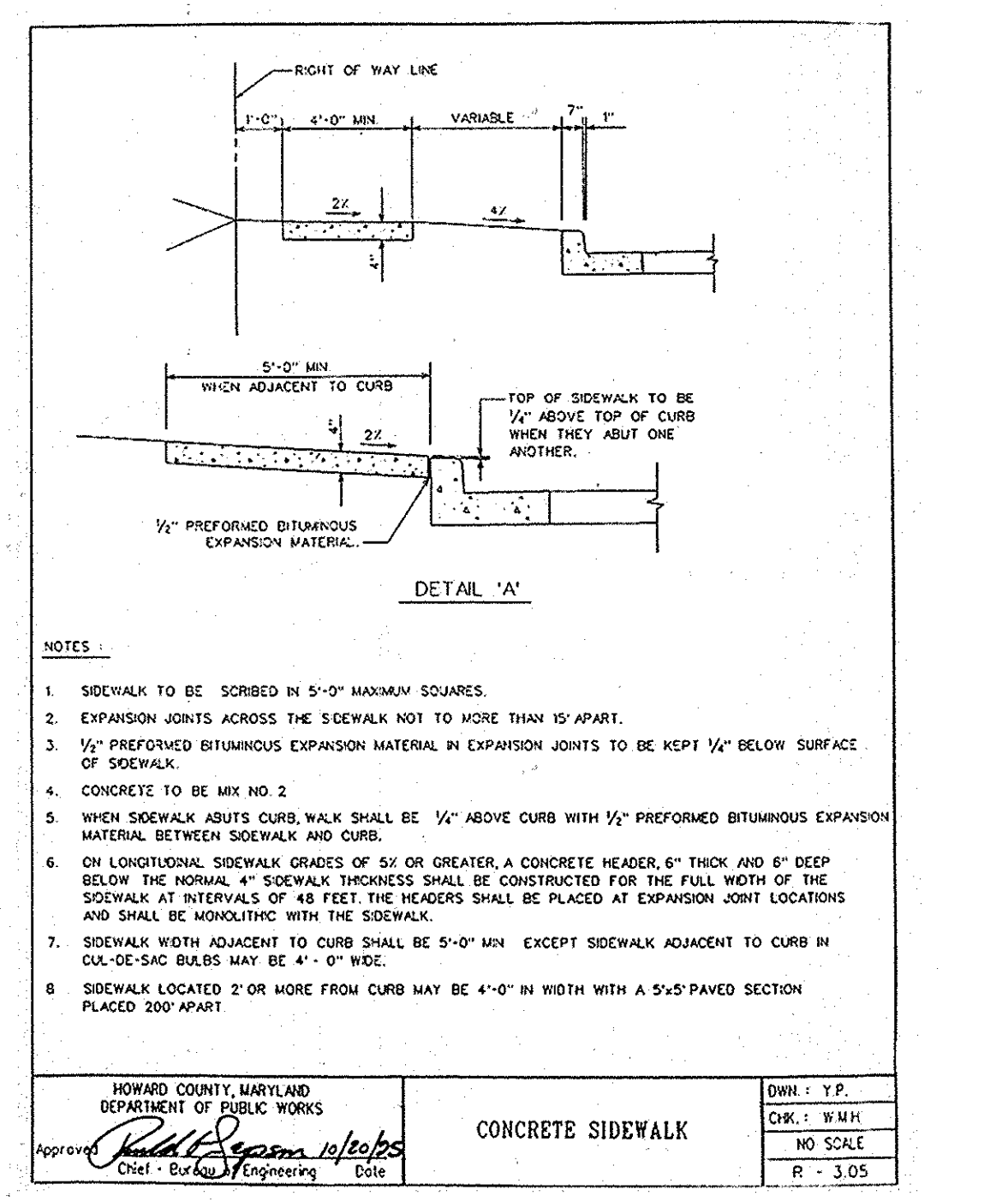
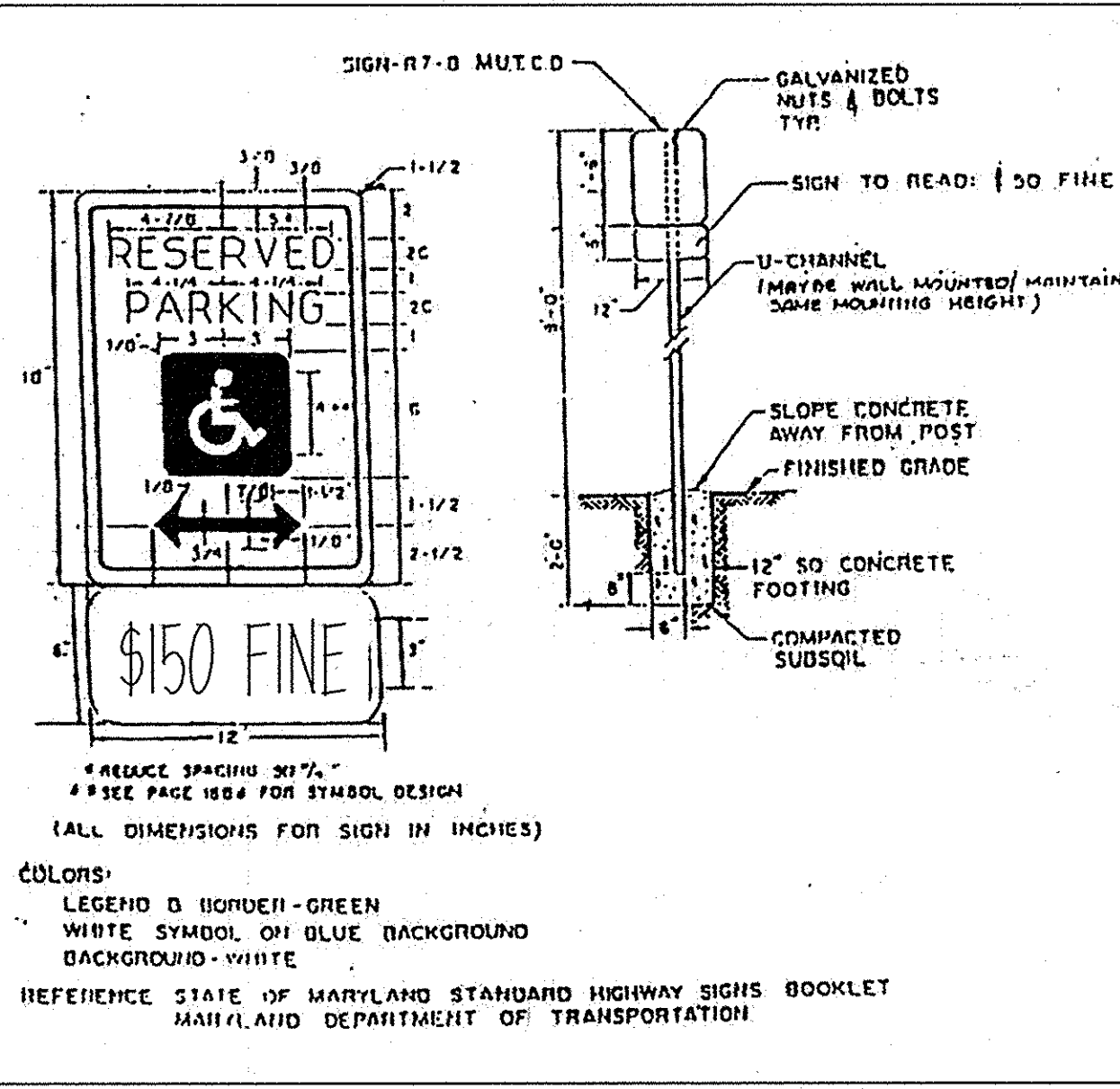
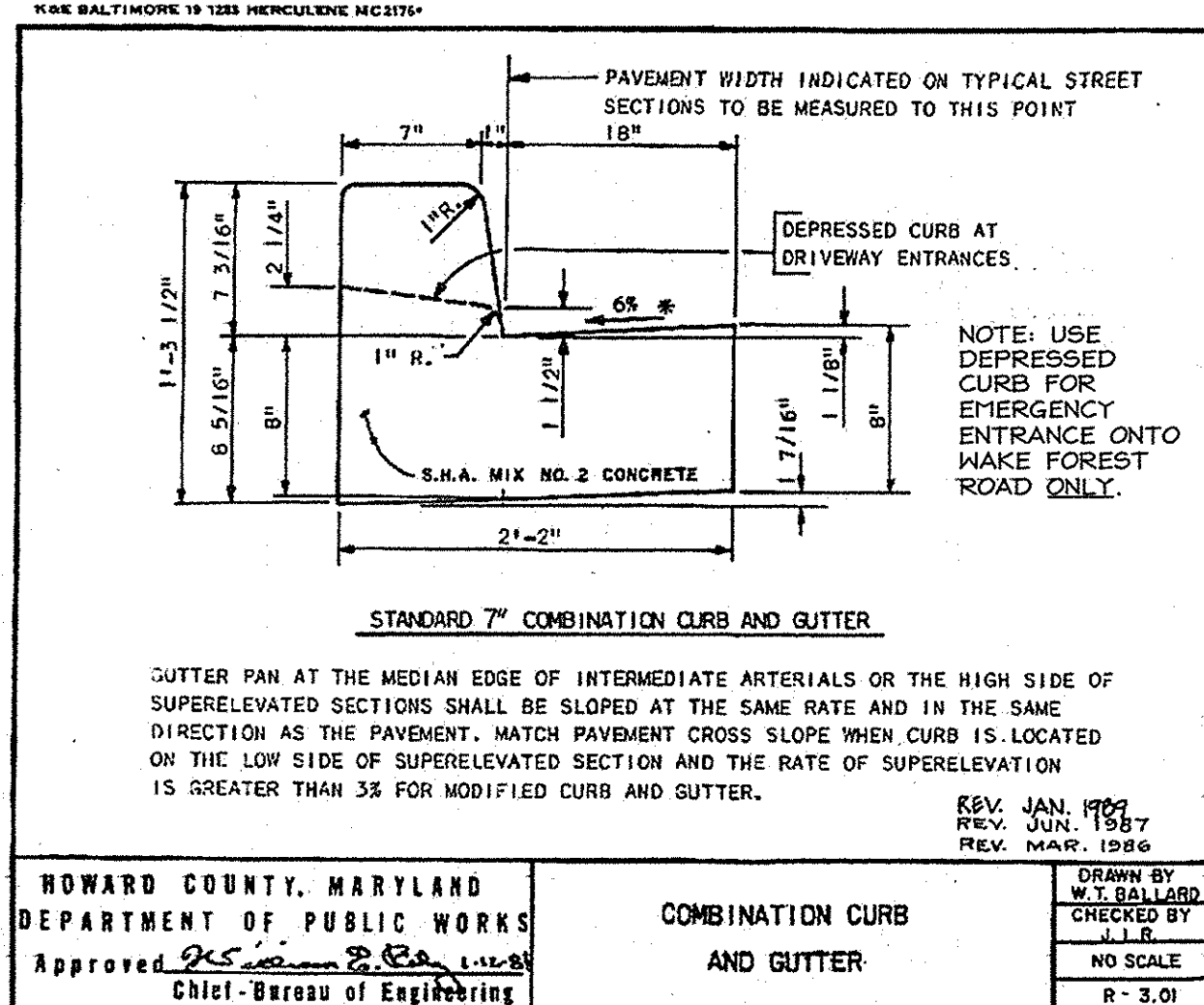
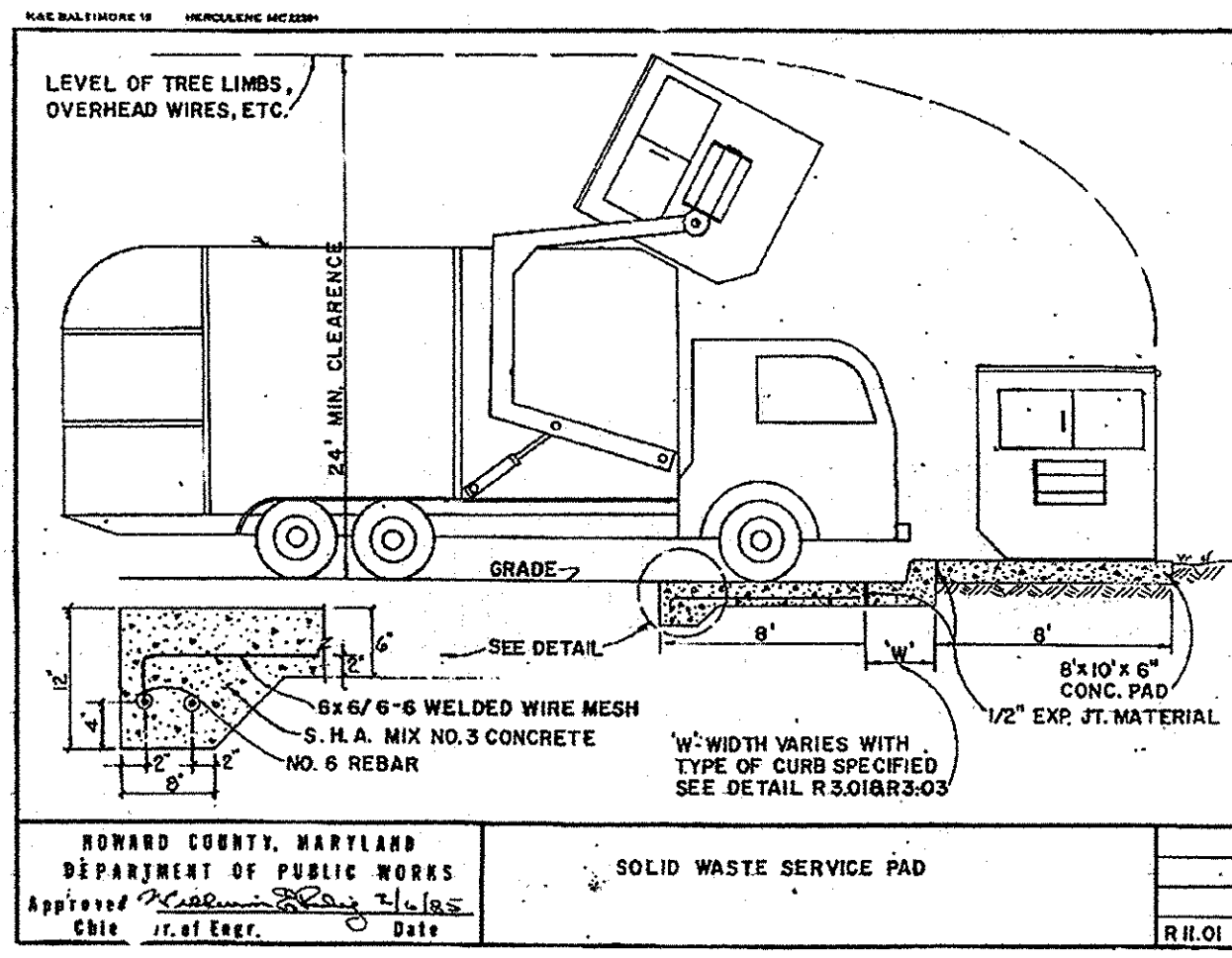
LDE, INC.  
 9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H.	Grading and Sediment Control Plan	SCALE: 1"=20'
DRAWN: J.D.R.	<b>ZEPP PLAZA</b>	DRAWING: 3 of 13
CHECKED: B.D.B.	Parcel A Tax Map 34, Parcel 155 Plot No. 17437 12447 Clarksville Pike Clarksville, Maryland 21029	JOB NO.: 99-062
DATE: 1/2006	5th Election District - Howard County, Maryland Previous Submittals: F-05-022	FILE NO.: SDP-05-021
OWNER: Zepp Plaza, LLC 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712	DEVELOPER: Crystal Hill Advisors 11737 Rte 106 Clarksville, Maryland (410) 531-6700	







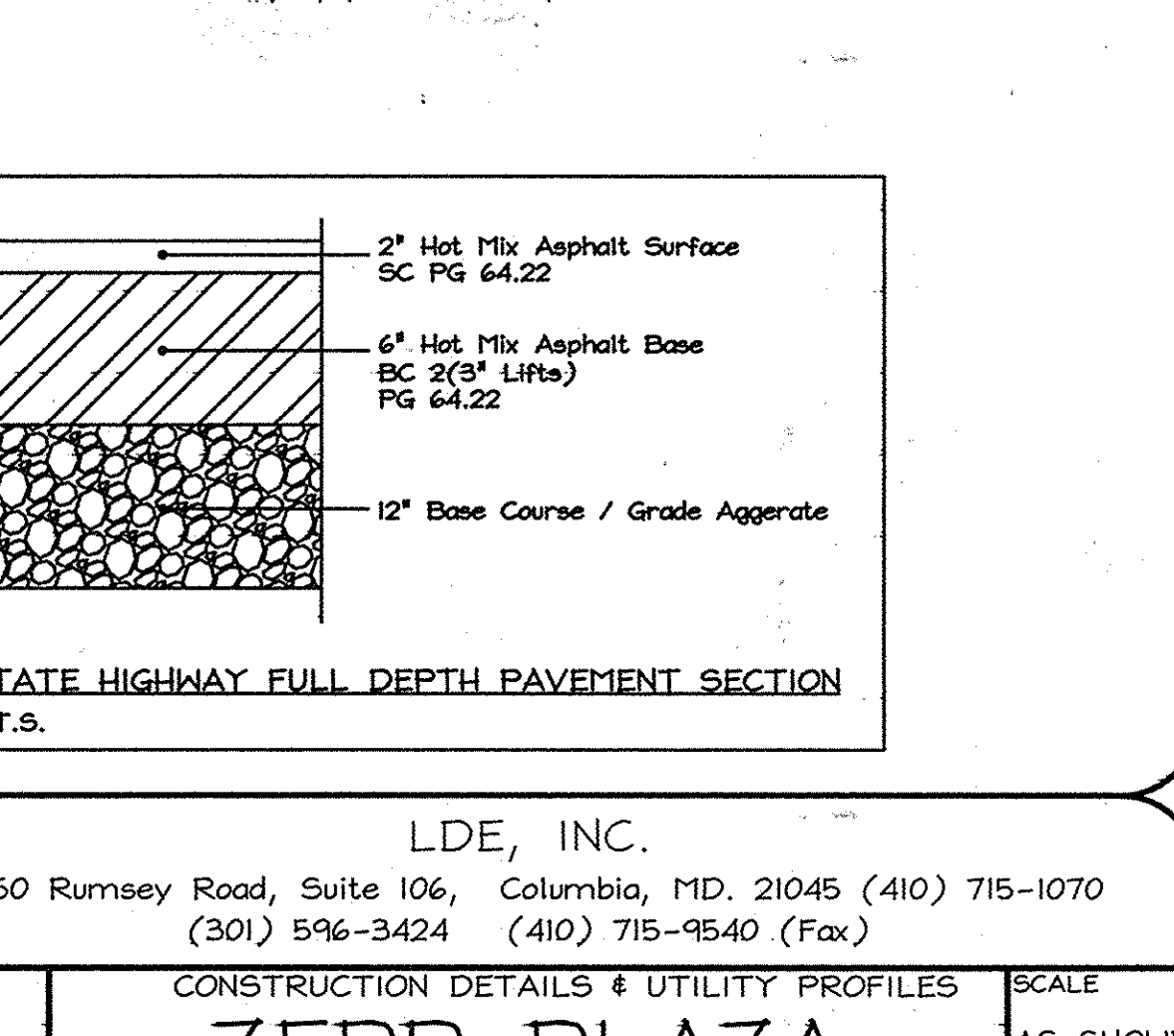
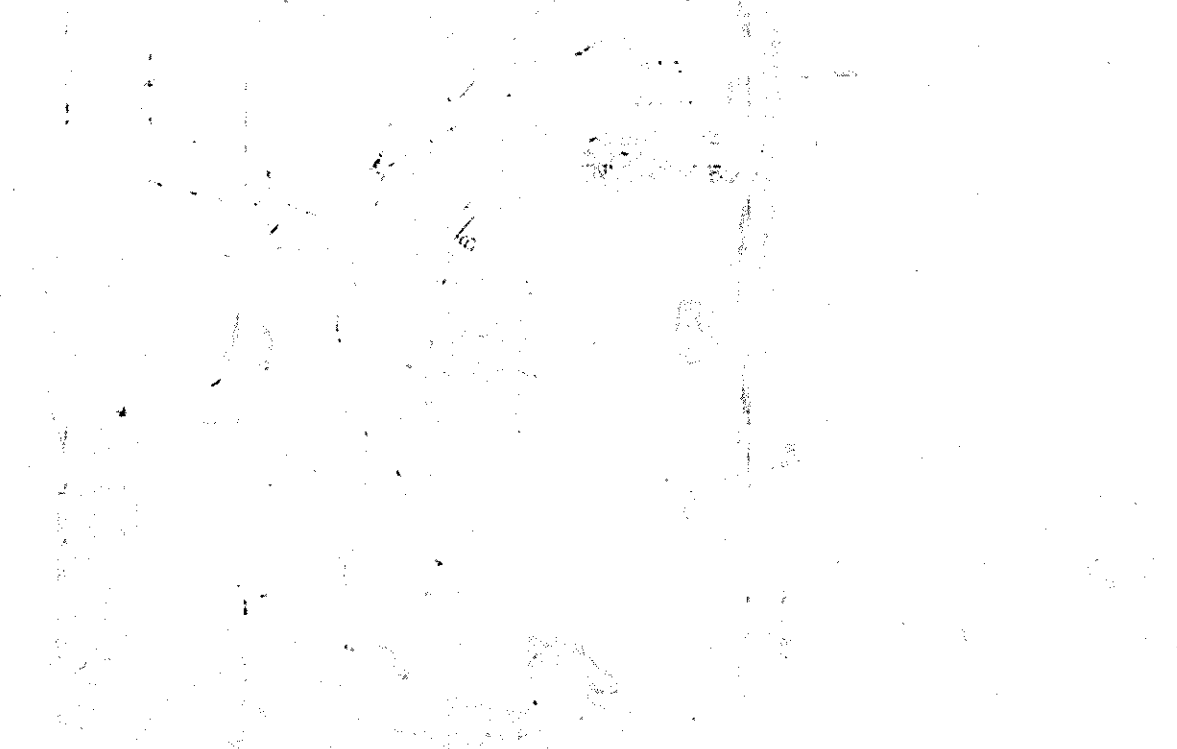
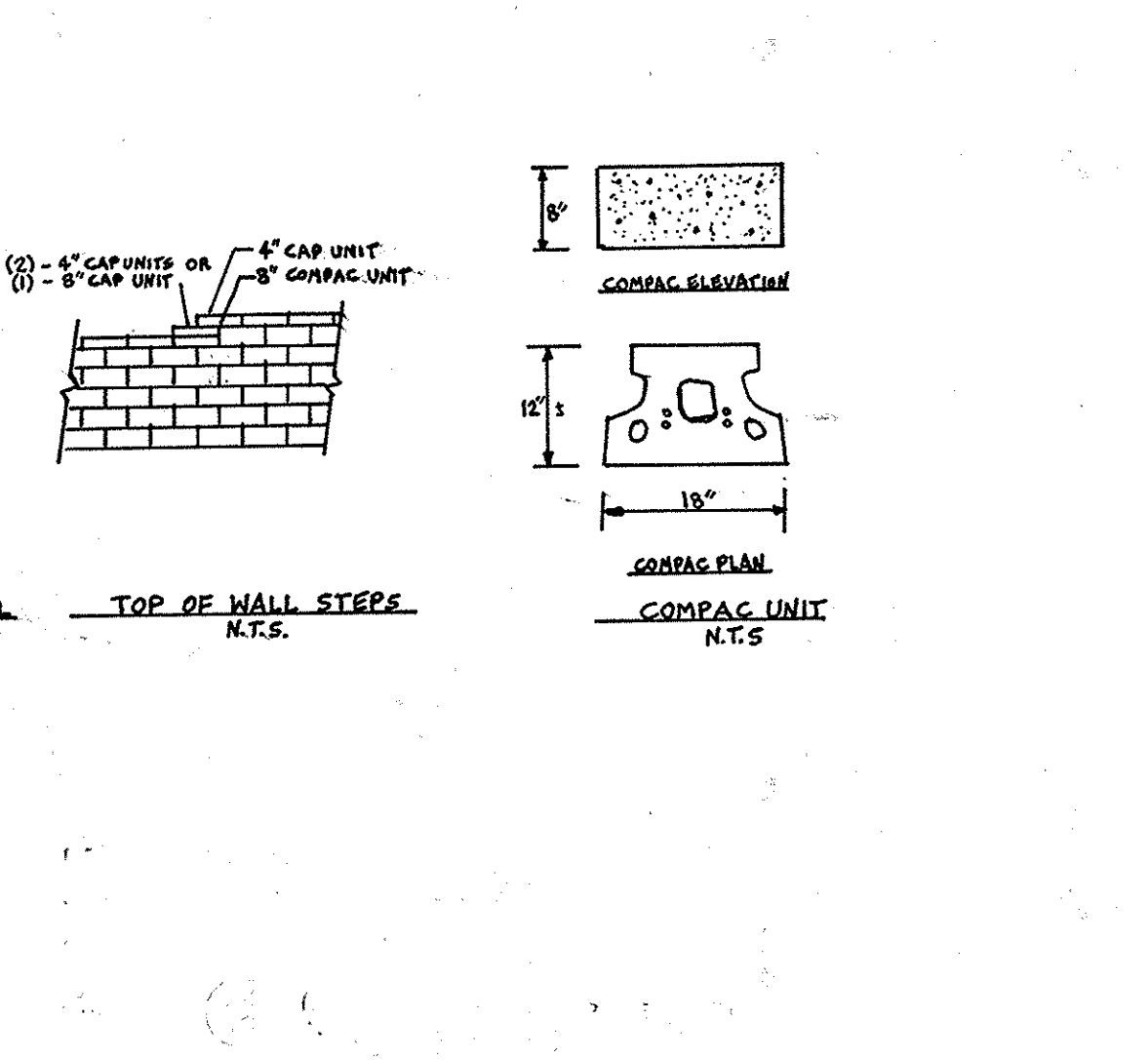
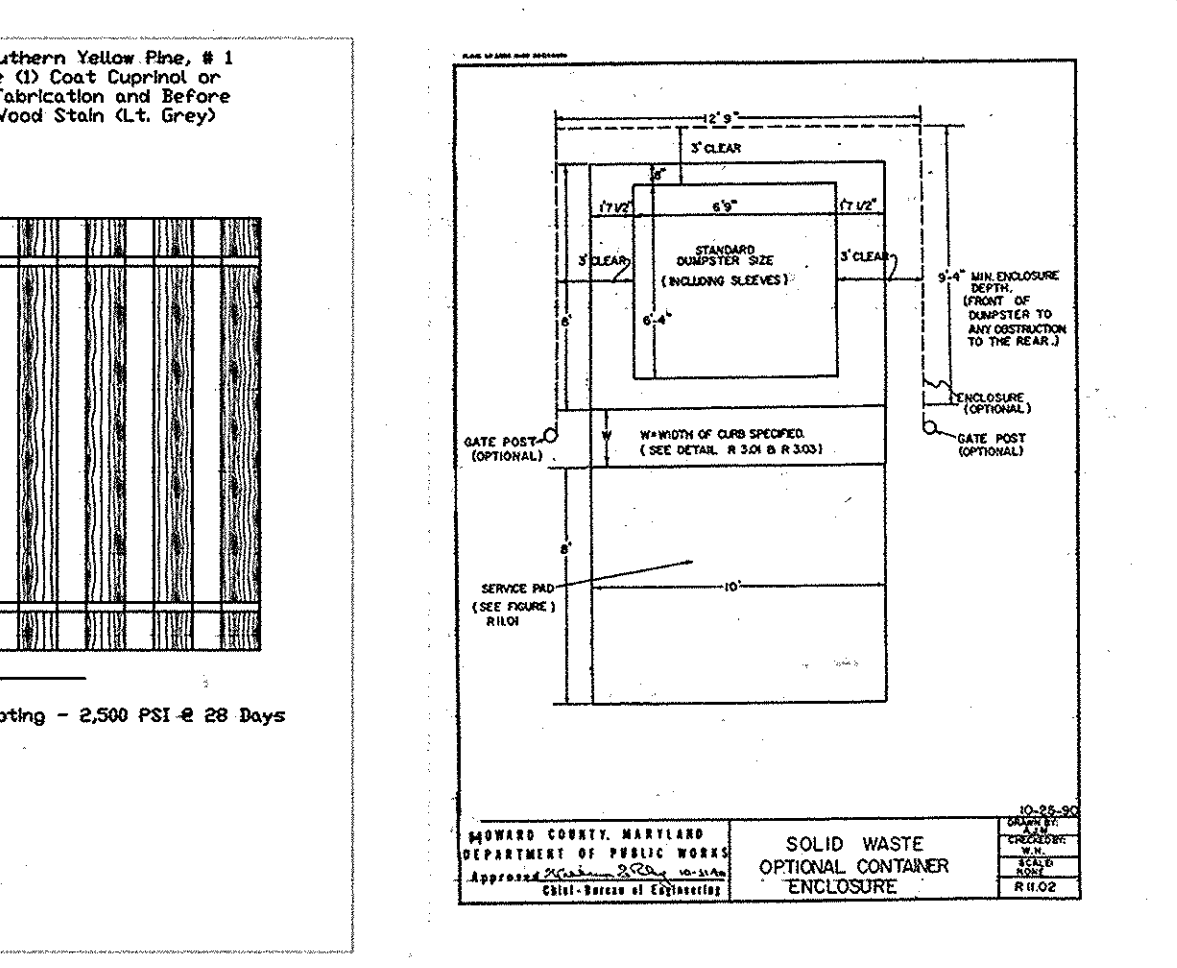
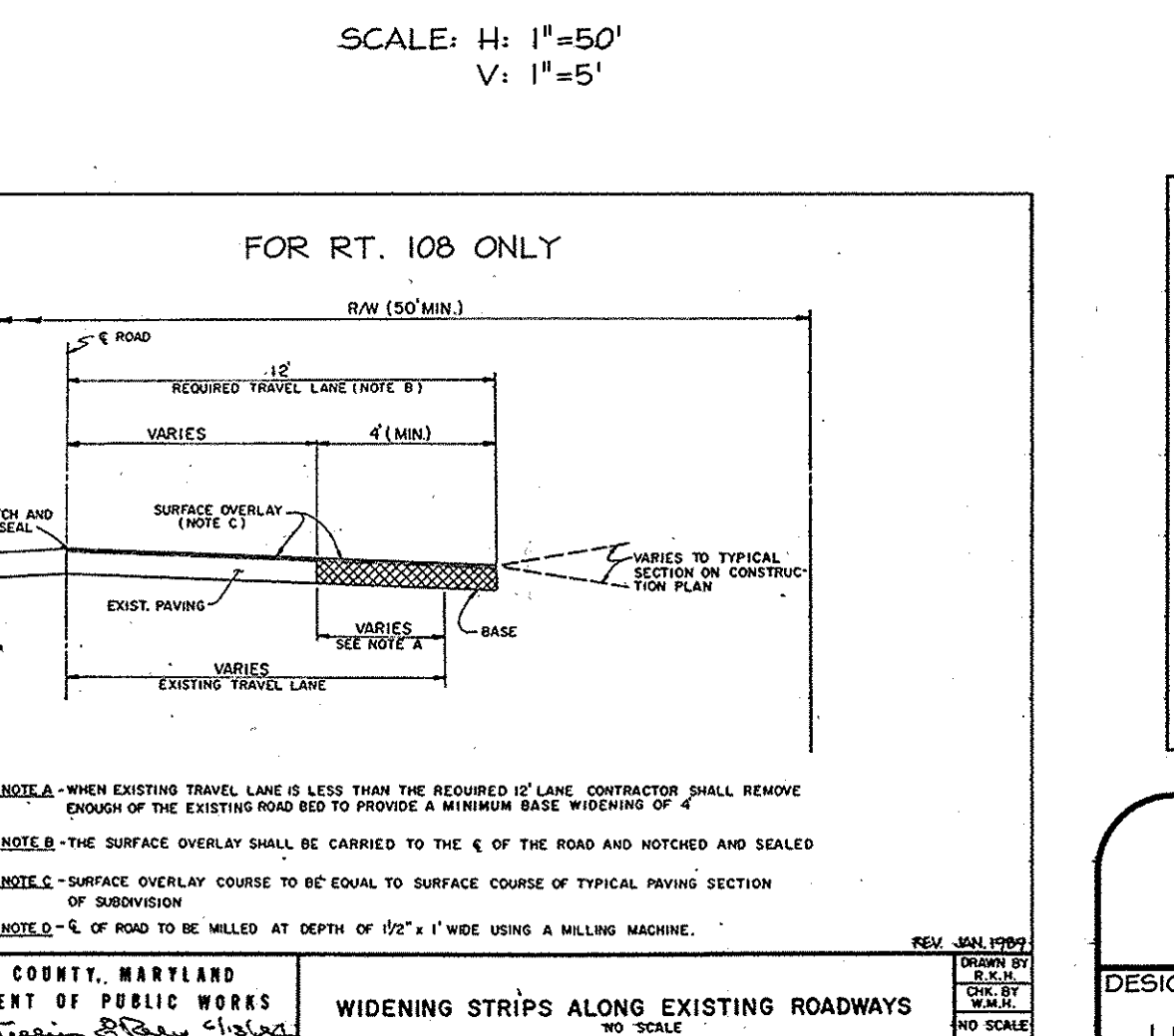
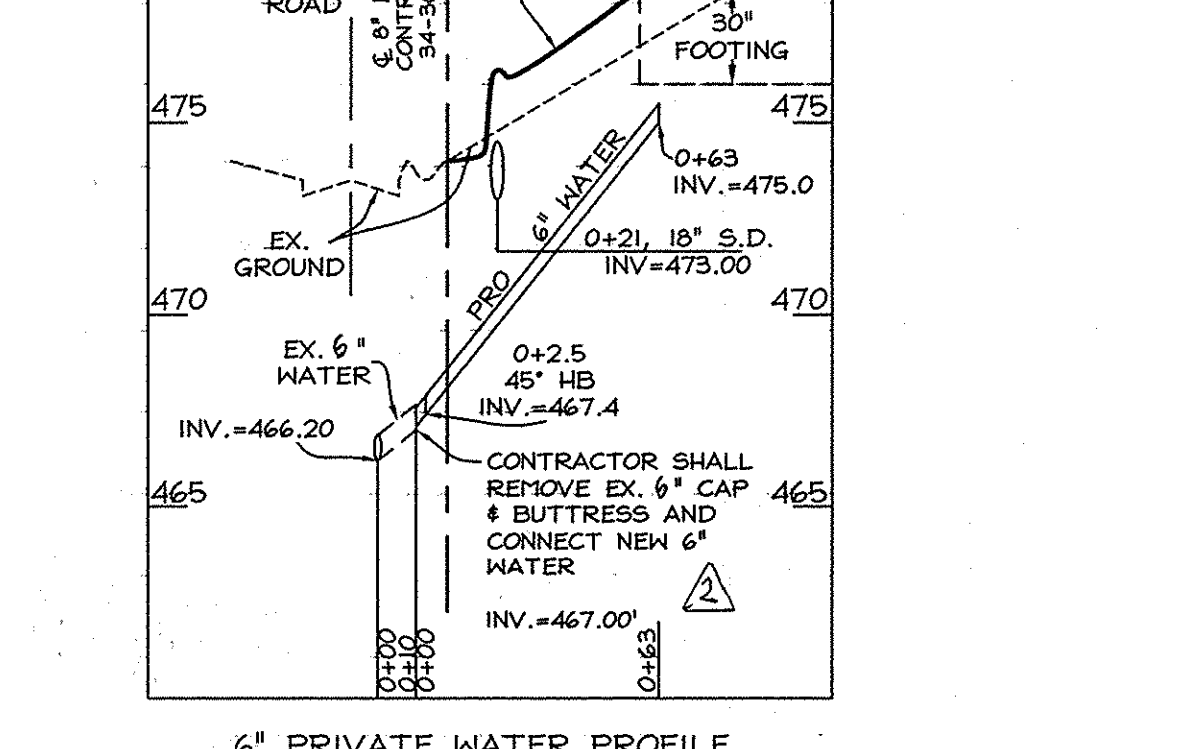
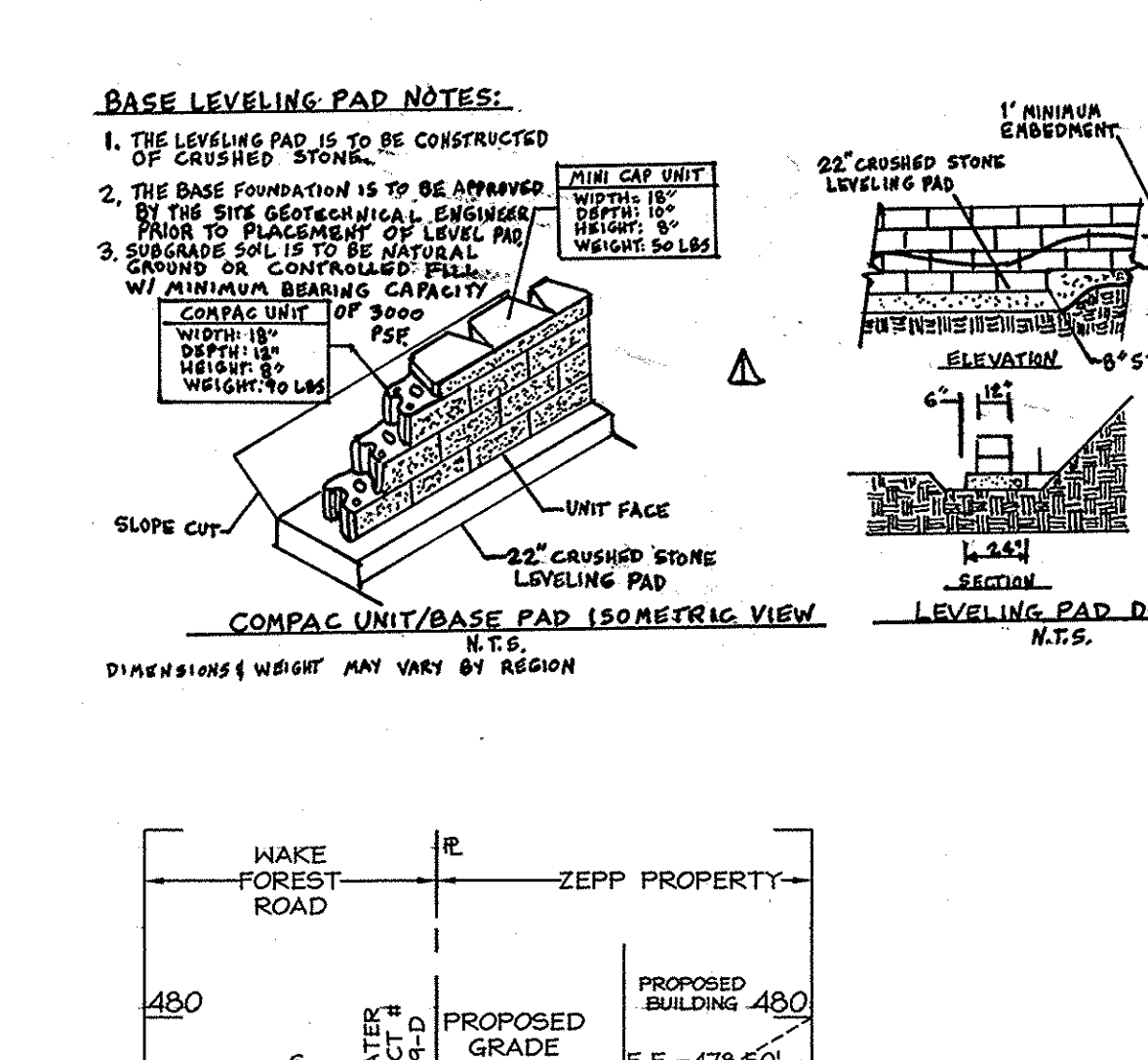
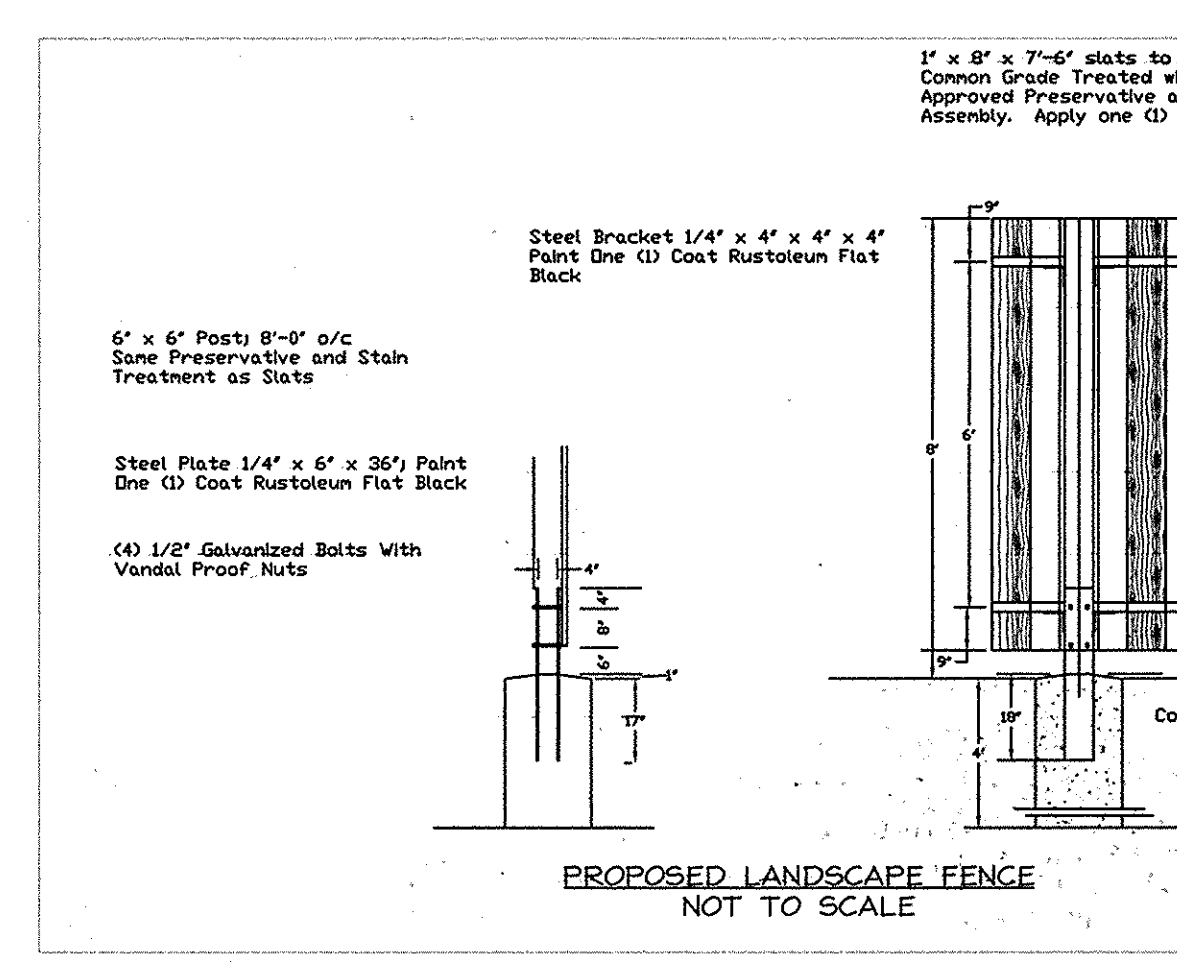
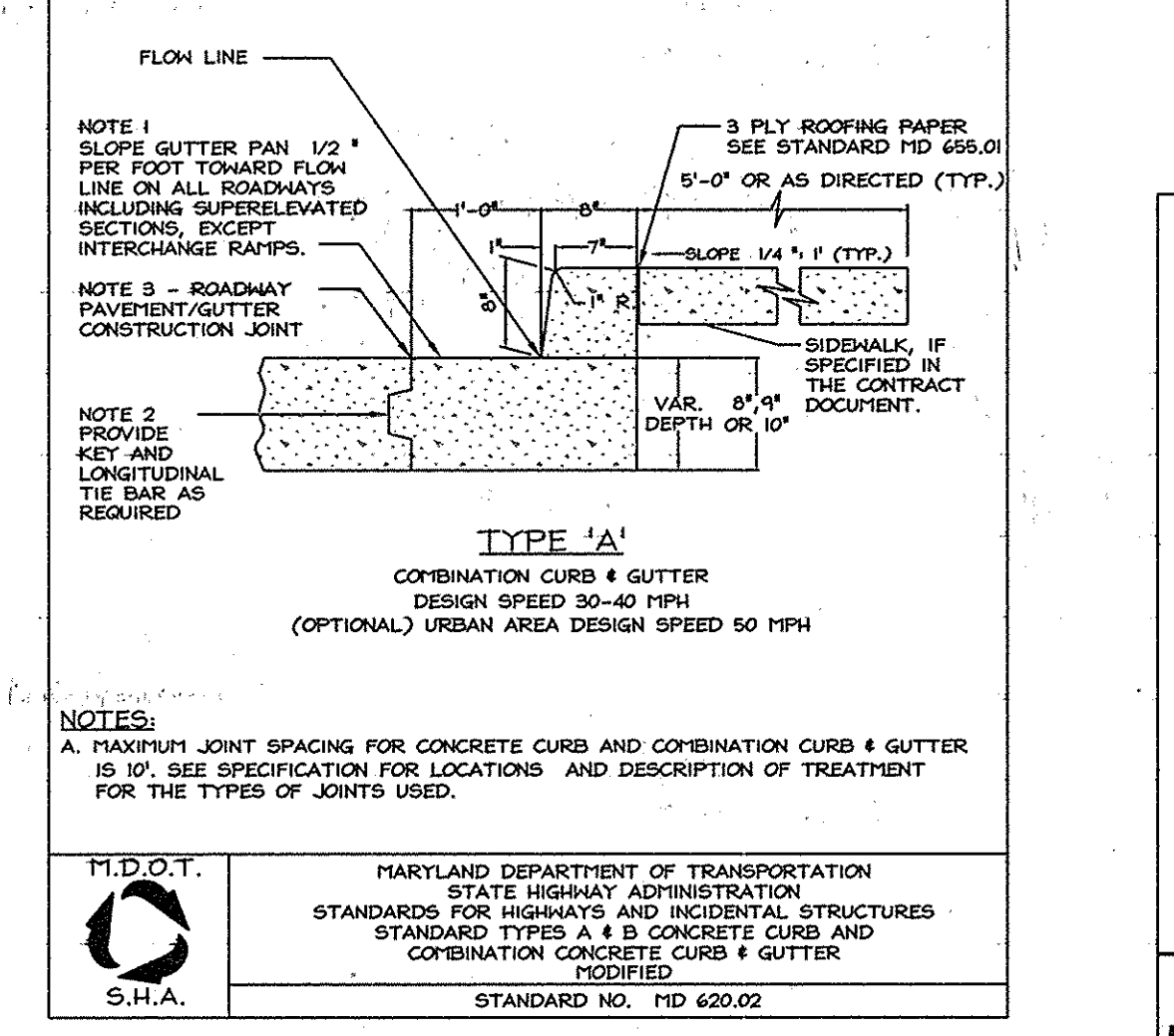
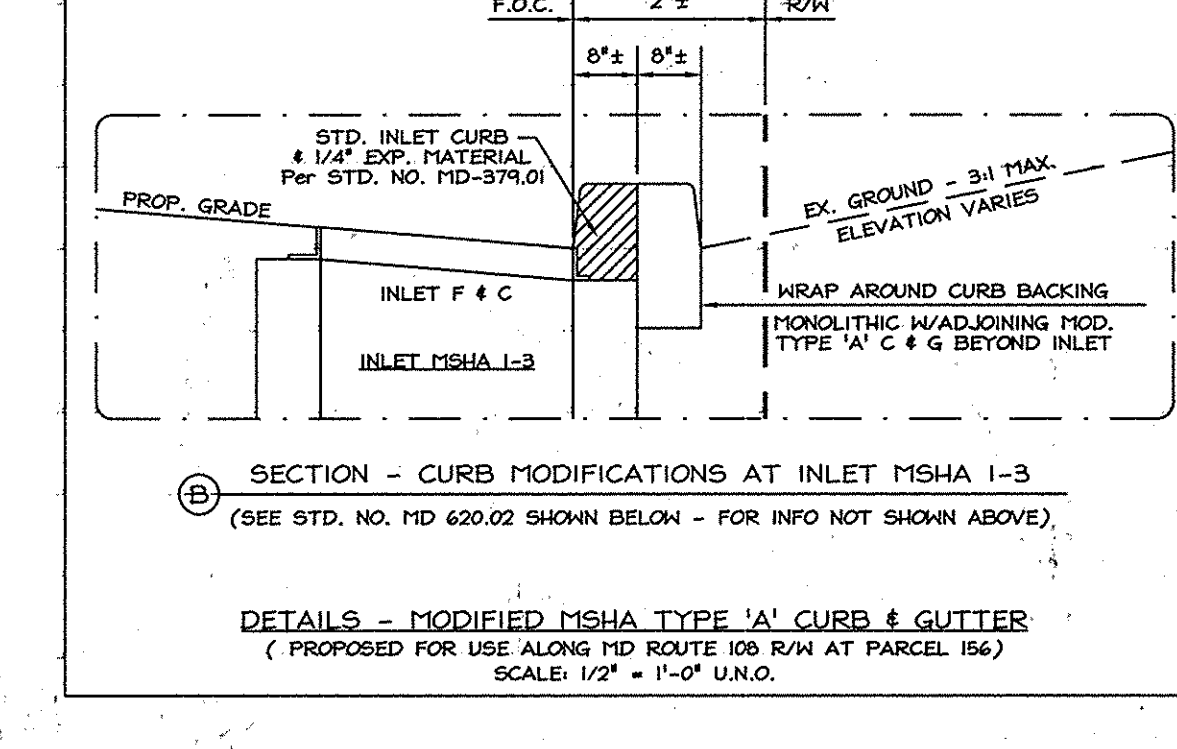
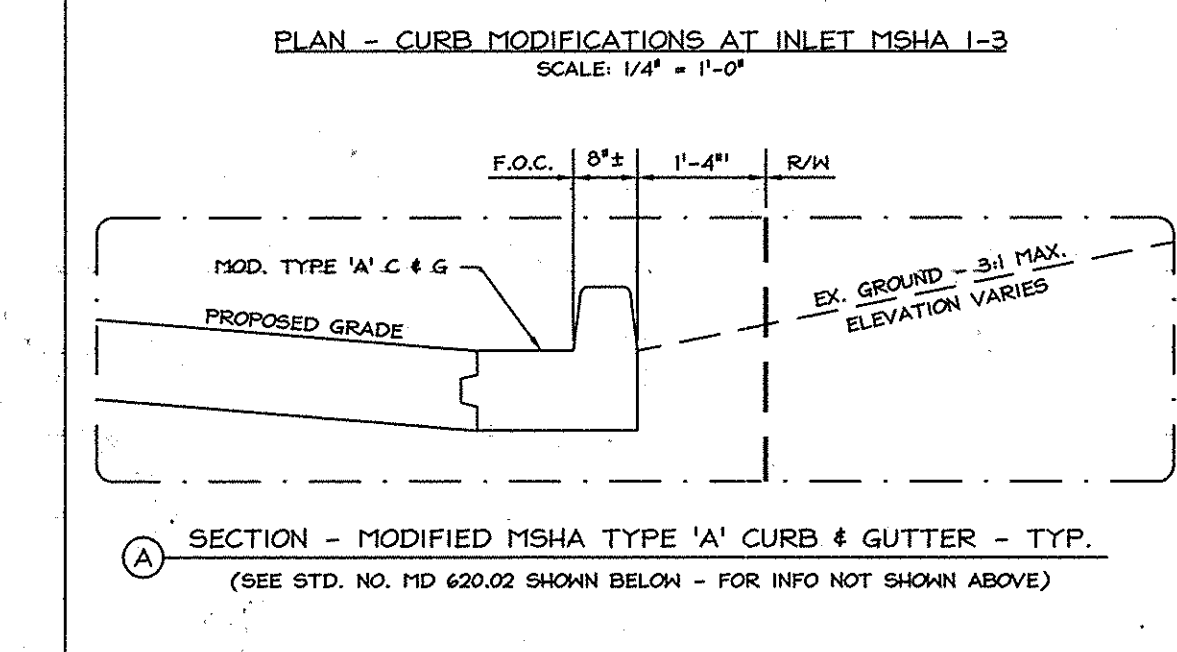
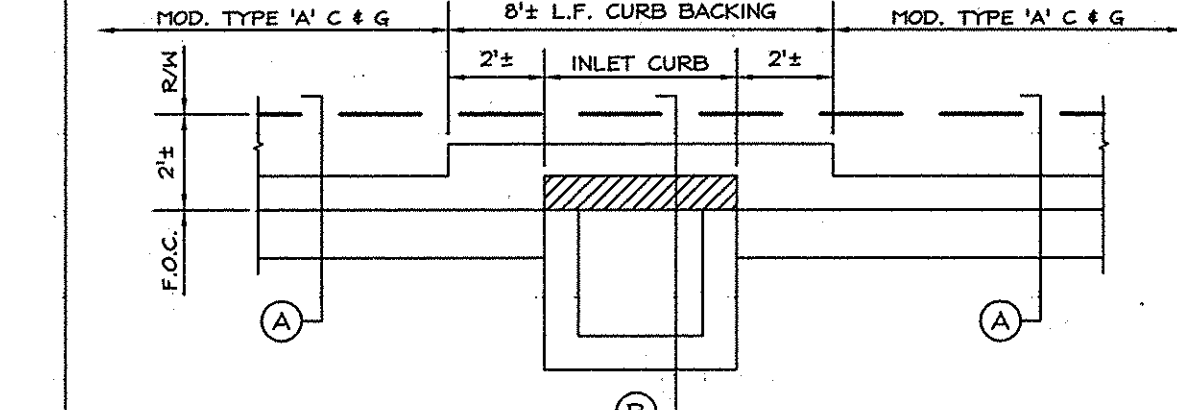
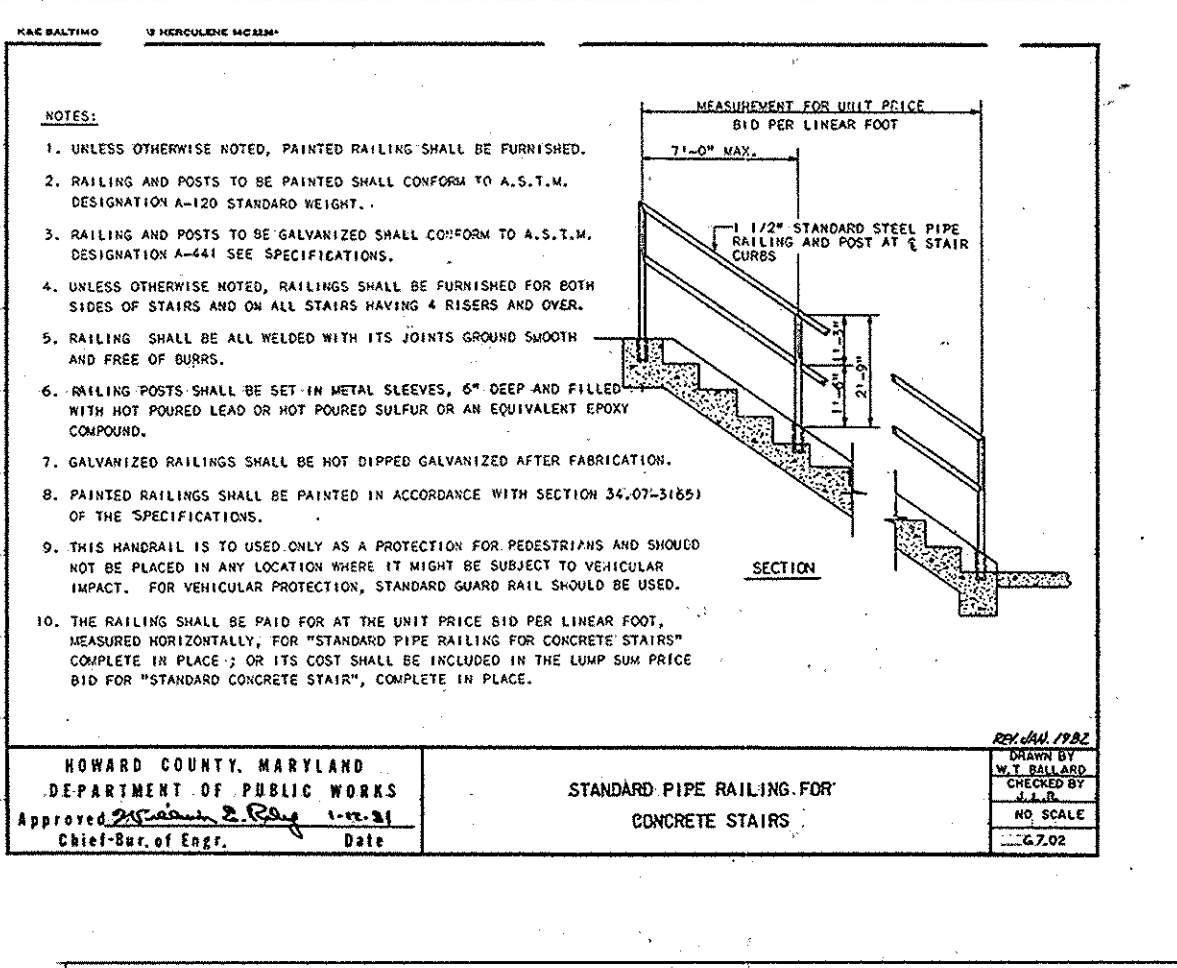
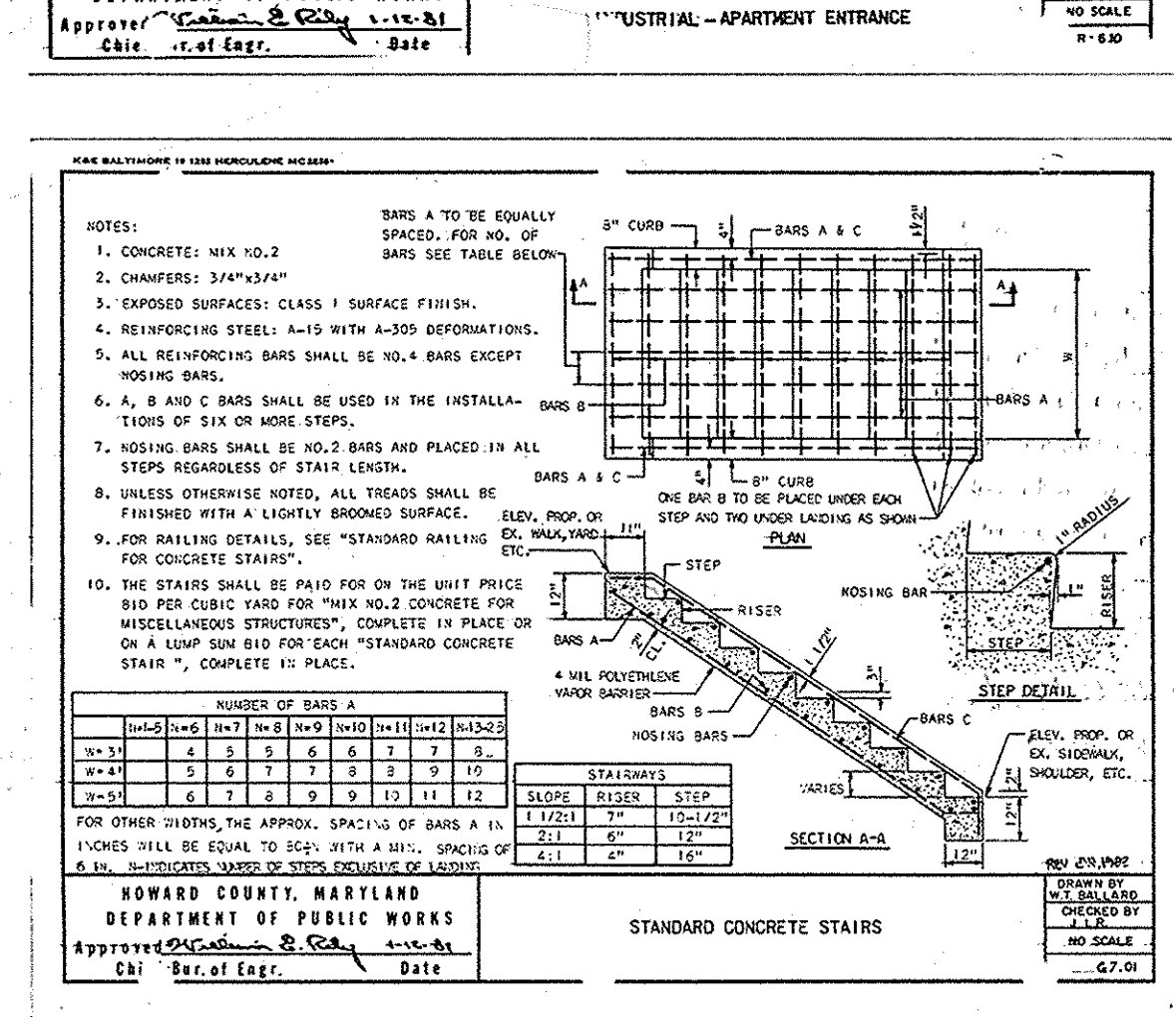
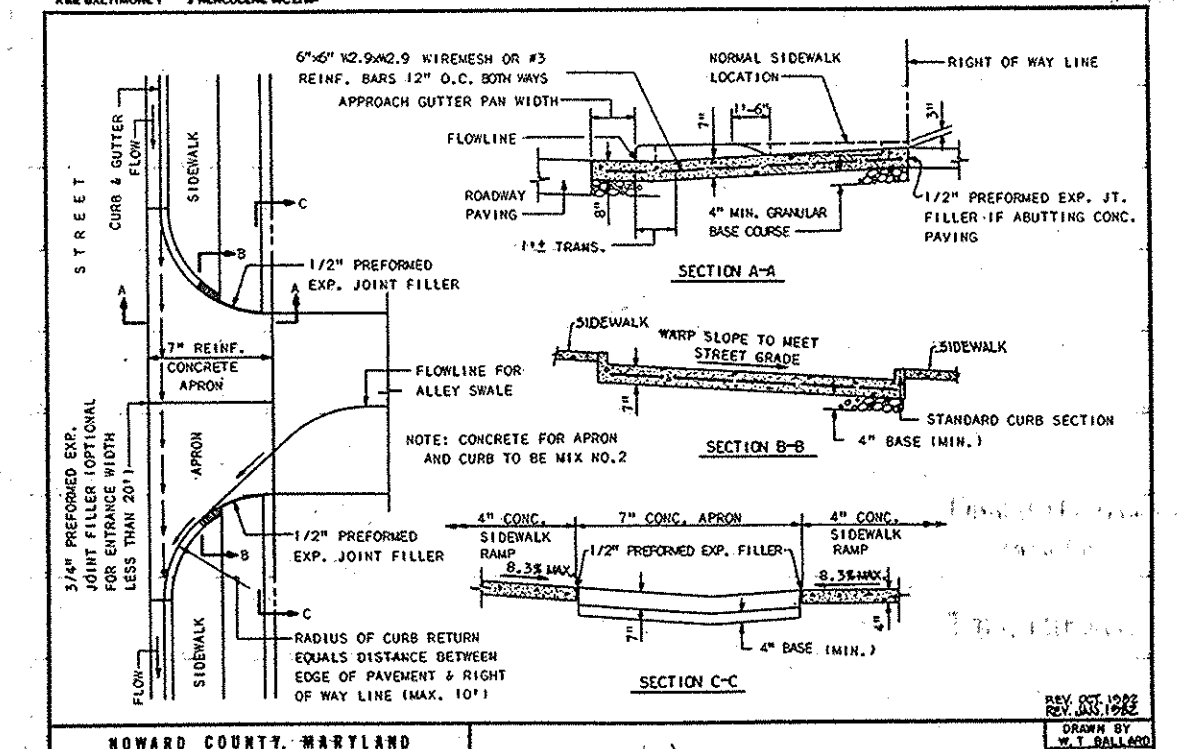


SECTION NUMBER	ROAD AND STREET CLASSIFICATION	PAVING MATERIALS	CONCRETE ALTERNATES
P-1	RESIDENTIAL ZONES, APARTMENTS AND COMMERCIAL, INTERMEDIATE ZONES WITH NO HEAVY TRUCKS	1" BIT. CONC. SURFACE 4" CARBON AGGREGATE BASE (2" MIN. THICK)	1" BIT. CONC. SURFACE 4" CARBON AGGREGATE BASE (2" MIN. THICK)
P-2	RESIDENTIAL ZONES, LOCAL CONC. STREETS, ALLEYS AND PRIVATE ROADS SERVING INDIVIDUAL HOMES	1 1/2" BIT. CONC. SURFACE 5" BIT. CONC. USE	1 1/2" BIT. CONC. SURFACE 5" BIT. CONC. USE

HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS

Approved: [Signature] Date: [Date]

Chief - Bureau of Engineering



No.	Date	Description
1	11/2006	Added retaining wall details
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated tr449, control structure, added underdrain system to pick up roof drainage.

DEVELOPER'S CERTIFICATE

I HEREBY CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: [Signature] Date: 1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT A PRACTICAL AND WORKABLE PLAN BASED ON PROFESSIONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Signature: [Signature] Date: 1/27/06

LDE, INC.

9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: J.L.M.

DRAWN: J.L.M.

CHECKED: B.D.B.

DATE: 1/2006

CONSTRUCTION DETAILS & UTILITY PROFILES

SCALE: AS SHOWN

DRAWING: 5 OF 13

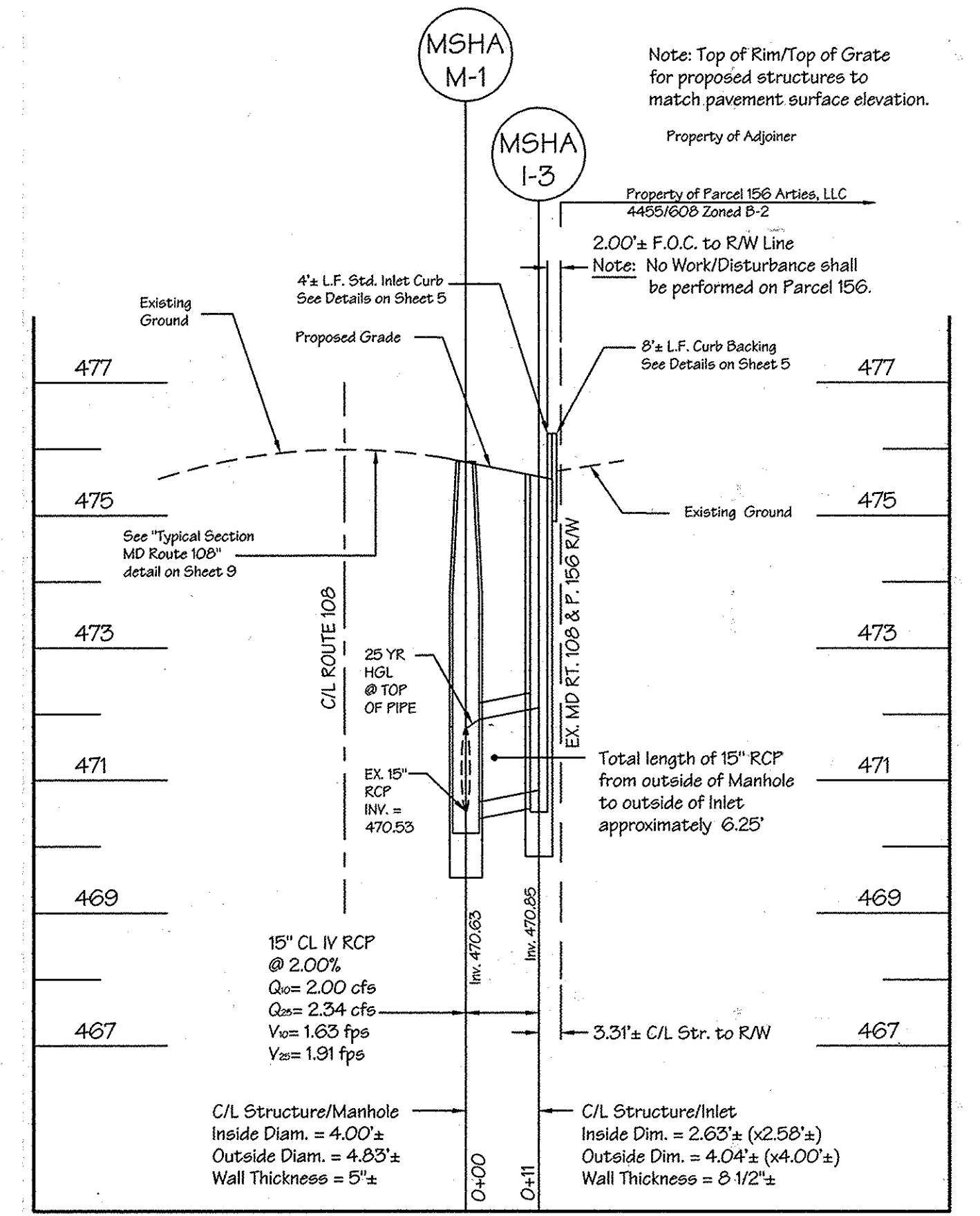
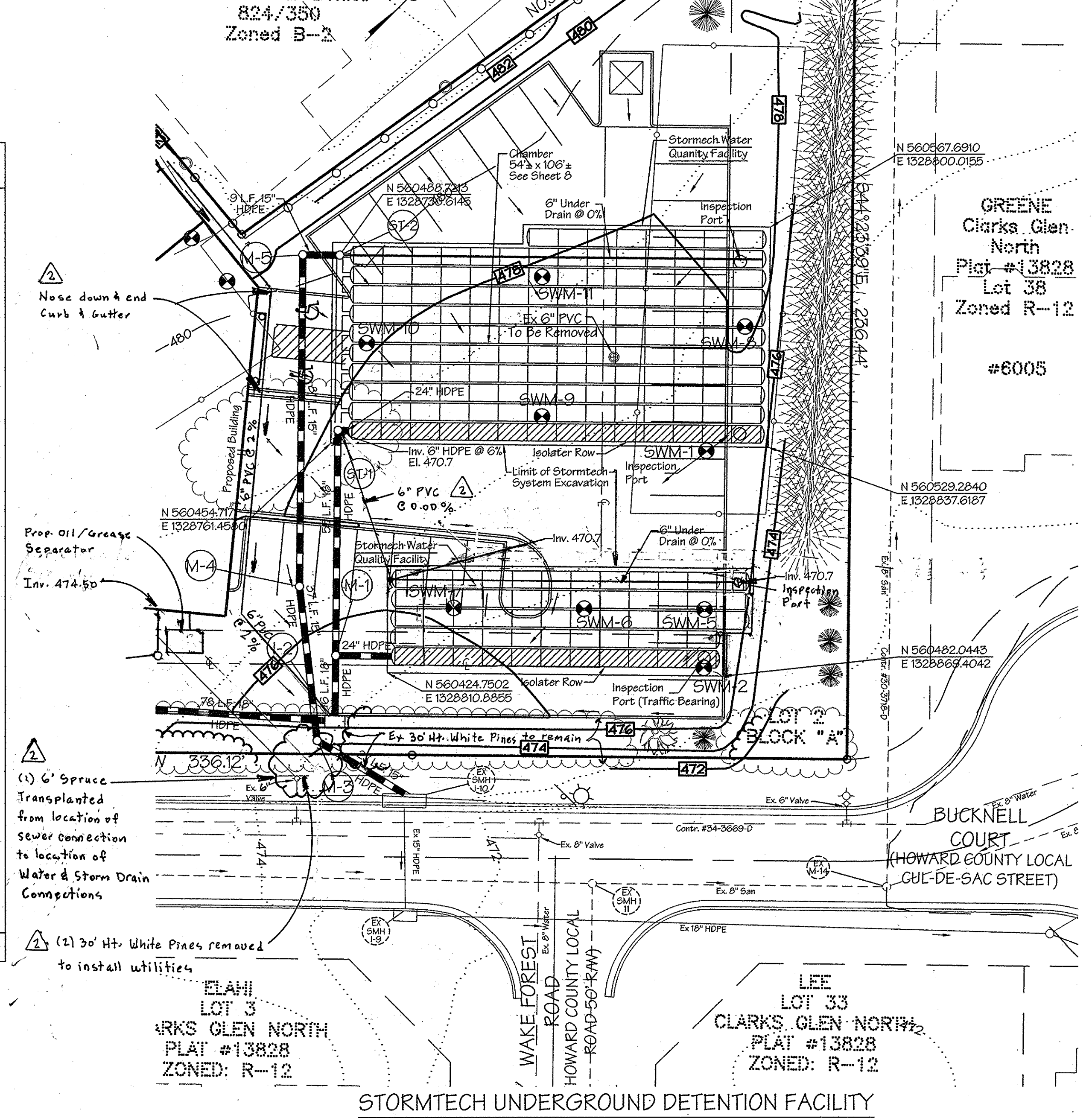
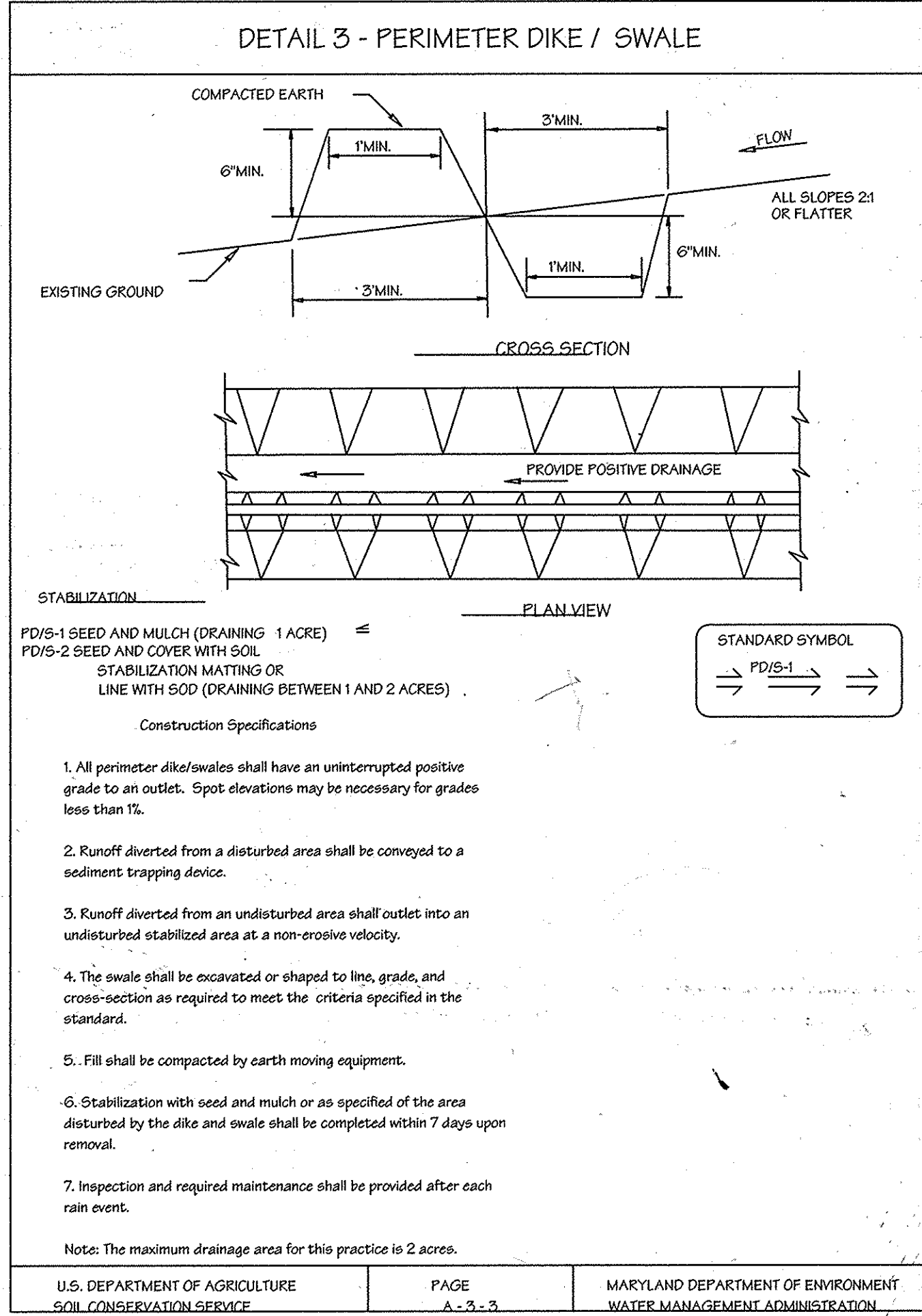
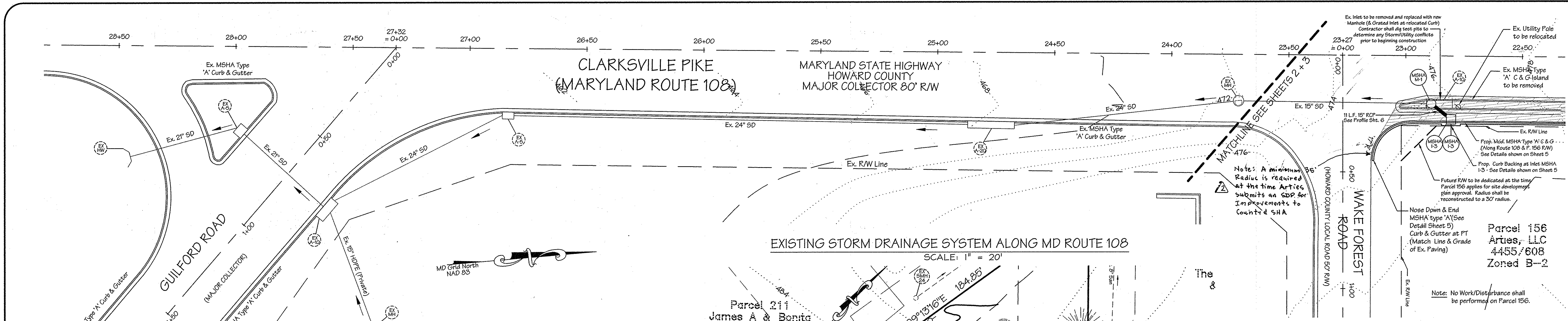
JOB NO.: 99-062

FILE NO.: SDP-05-021

OWNER: Zepp Plaza, LLC  
12435 Clarksville Pike  
Clarksville, Maryland  
(410) 531-6712

DEVELOPER: Crystal Hill Advisors  
11737 Rte 108  
Clarksville, Maryland  
(410) 531-6700





APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Mark L. Luger* 4/16/06  
DIRECTOR DATE

*Christy Hammonds* 2/16/06  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*David Williams* 2/16/06  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

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

NATURAL RESOURCE CONSERVATION SERVICE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

No.	Date	Description
1	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added under drain system to pick up roof drainage.

DEVELOPER'S CERTIFICATE

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Thomas W. Zepf*  
Signature of Developer

1/27/06  
Date

STATE OF MARYLAND

DAVID B. WILSON  
Professional Engineer

1/27/06

ENGINEER'S CERTIFICATE

I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT A PRACTICAL AND WORKABLE PLAN BASED ON MY PROFESSIONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN CONFORMANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

*Bruce D. Burton*  
Signature of Engineer

1/27/06  
Date

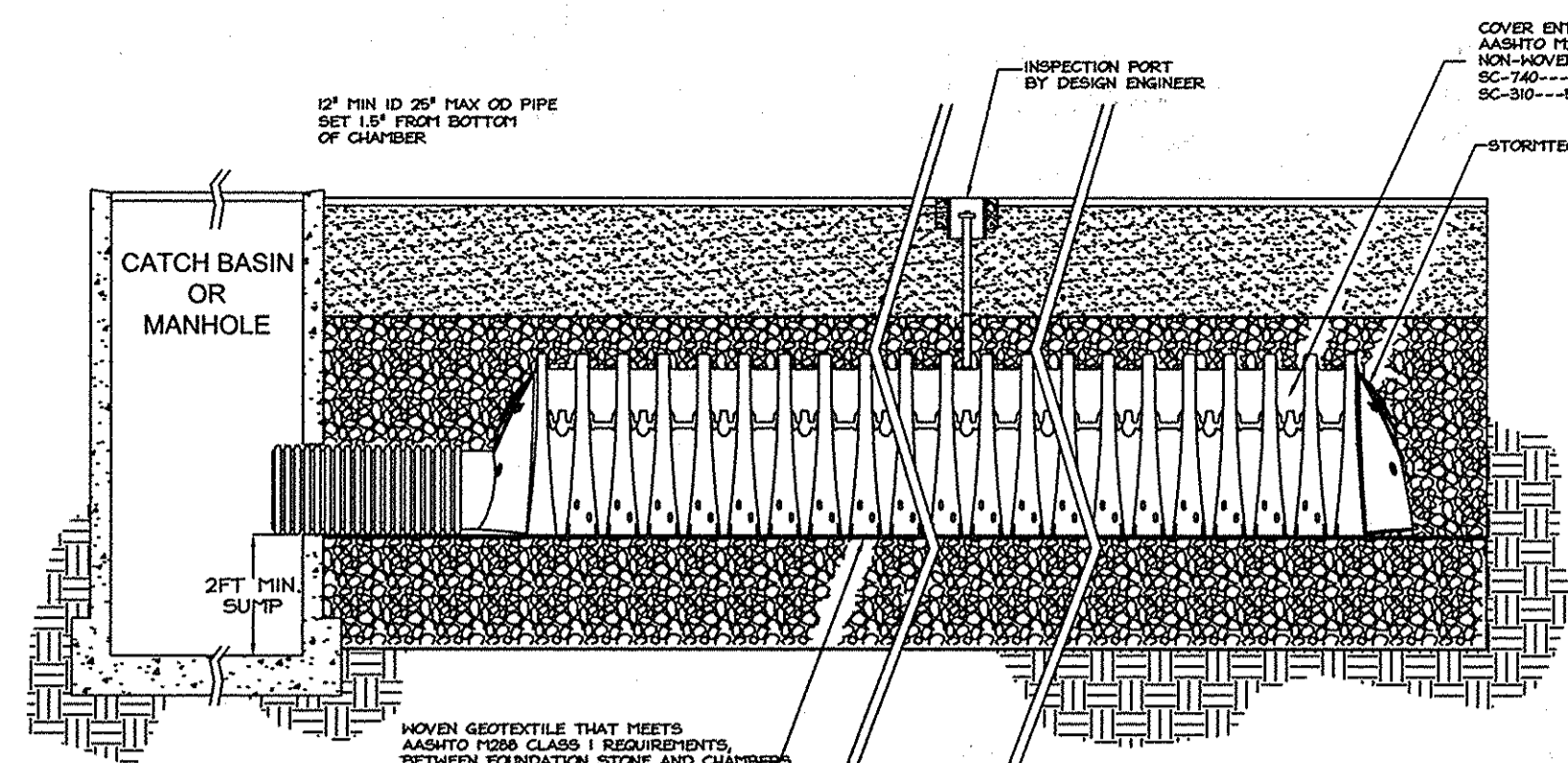
Subdivision Name:		Sect./Area	Parcel No.
Zepp Plaza		N/A	155
Plat No.	Block No. Zone	Tax Map No.	Election District
17437	12 B-2	34	5th
Water Code	Sewer Code	Census Tract	
III	6650000	6051.02	

DESIGNED		SCALE
S.D.H. Underground Detention Facility and State Highway Drainage Details		1" = 20'
DRAWN		DRAWING
J.M.B. Parcel A Tax Map 34, Parcel 155 Plat No. 17437		6 of 13
CHECKED		JOB NO.
B.D.B. 12447 Clarksville Pike Clarksville, Maryland 21029		99-062
DATE		FILE NO.
1/2006 OWNER: Zepp Plaza, LLC. DEVELOPER: Crystal Hill Advisors		SDP-05-021

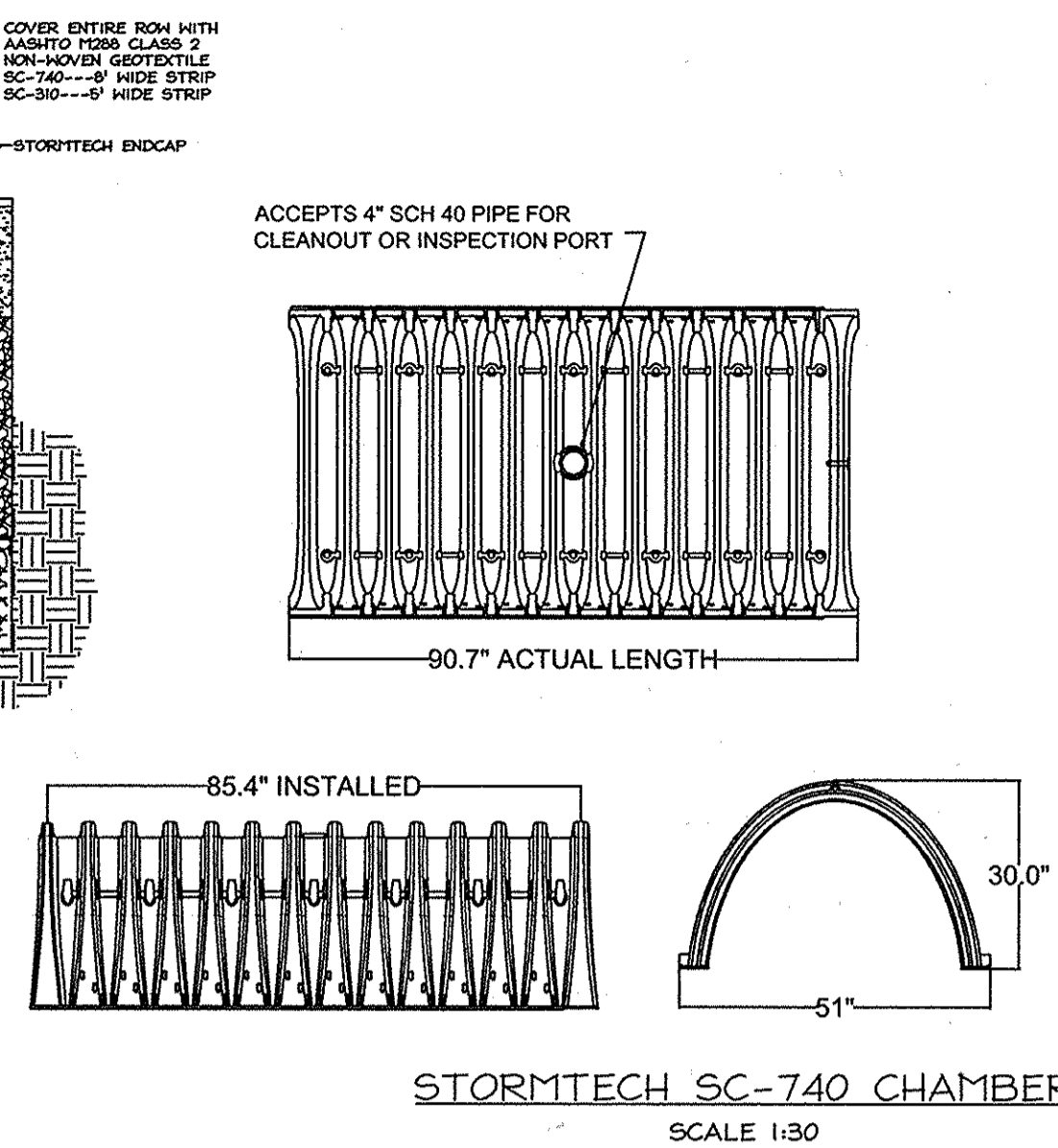








STORMTECH ISOLATOR ROW  
PROFILE VIEW DETAIL  
SCALE 1:30



STORMTECH SC-740 CHAMBER  
SCALE 1:30

STORMTECH PRODUCT SPECIFICATIONS

- 1.0 GENERAL
- 1.1 STORMTECH CHAMBERS ARE DESIGNED TO CONTROL STORMWATER RUNOFF. AS A SUBSURFACE RETENTION SYSTEM, STORMTECH CHAMBERS RETAIN AND ALLOW EFFECTIVE INFILTRATION OF WATER INTO THE SOIL. AS A SUBSURFACE DETENTION SYSTEM, STORMTECH CHAMBERS DETAIN AND ALLOW FOR THE METEDED FLOW OF WATER TO AN OUTFALL.
- 2.0 CHAMBER PARAMETERS
- 2.1 THE CHAMBER SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING (ESCR), AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.
- 2.2 THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-740 SHALL BE 30.0 INCHES TALL, 51.0 INCHES WIDE AND 90.7 INCHES LONG. THE NOMINAL CHAMBER DIMENSIONS OF THE STORMTECH SC-310 SHALL BE 16.0 INCHES TALL, 34.0 INCHES WIDE AND 90.7 INCHES LONG. THE INSTALLED LENGTH OF A JOINED CHAMBER SHALL BE 85.4 INCHES.
- 2.3 THE CHAMBER SHALL HAVE A CONTINUOUSLY CURVED SECTION PROFILE.
- 2.4 THE CHAMBER SHALL BE OPEN-BOTTOMED.
- 2.5 THE CHAMBER SHALL INCORPORATE AN OVERLAPPING CORRUGATION JOINT SYSTEM TO ALLOW CHAMBER ROWS OF ALMOST ANY LENGTH TO BE CREATED. THE OVERLAPPING CORRUGATION JOINT SYSTEM SHALL BE EFFECTIVE WHILE ALLOWING A CHAMBER TO BE TRIMMED TO SHORTEN ITS OVERALL LENGTH.
- 2.6 THE NOMINAL STORAGE VOLUME OF A JOINED STORMTECH SC-740 CHAMBER SHALL BE 74.9 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 2.2 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED. THE NOMINAL STORAGE VOLUME OF AN INSTALLED STORMTECH SC-310 CHAMBER SHALL BE 31.0 CUBIC FEET PER CHAMBER WHEN INSTALLED PER STORMTECH'S TYPICAL DETAILS (INCLUDES THE VOLUME OF CRUSHED ANGULAR STONE WITH AN ASSUMED 40% POROSITY). THIS EQUATES TO 1.3 CUBIC FEET OF STORAGE/SQUARE FOOT OF BED.
- 2.7 THE CHAMBER SHALL HAVE FORTY-EIGHT ORIFICES PENETRATING THE SIDEWALLS TO ALLOW FOR LATERAL CONVEYANCE OF WATER.
- 2.8 THE CHAMBER SHALL HAVE TWO ORIFICES NEAR ITS TOP TO ALLOW FOR EQUALIZATION OF AIR PRESSURE BETWEEN ITS INTERIOR AND EXTERIOR.
- 2.9 THE CHAMBER SHALL HAVE BOTH OF ITS ENDS OPEN TO ALLOW FOR UNIMPEDED HYDRAULIC FLOWS AND VISUAL INSPECTIONS DOWN A ROW'S ENTIRE LENGTH.
- 2.10 THE CHAMBER SHALL HAVE 14 CORRUGATIONS.
- 2.11 THE CHAMBER SHALL HAVE A CIRCULAR, INDENTED, FLAT SURFACE ON THE TOP OF THE CHAMBER FOR AN OPTIONAL 4-INCH INSPECTION PORT OR CLEAN-OUT.
- 2.12 THE CHAMBER SHALL BE ANALYZED AND DESIGNED USING AASHTO METHODS FOR THERMOPLASTIC CULVERTS CONTAINED IN THE LRFD BRIDGE DESIGN SPECIFICATIONS, 2ND EDITION, INCLUDING INTERIM SPECIFICATIONS THROUGH 2001. DESIGN LIVE LOAD SHALL BE THE AASHTO HS20 TRUCK. DESIGN SHALL CONSIDER EARTH AND LIVE LOADS AS APPROPRIATE FOR THE MINIMUM TO MAXIMUM SPECIFIED DEPTH OF FILL.
- 2.13 THE CHAMBER SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.
- 2.14 THE CHAMBER SHALL BE INJECTION MOLDED OF POLYPROPYLENE RESIN TO BE INHERENTLY RESISTANT TO ENVIRONMENTAL STRESS CRACKING, AND TO MAINTAIN ADEQUATE STIFFNESS THROUGH HIGHER TEMPERATURES EXPERIENCED DURING INSTALLATION AND SERVICE.
- 2.15 THE END CAP SHALL BE DESIGNED TO FIT INTO ANY CORRUGATION OF A CHAMBER, WHICH ALLOWS: CAPPING A CHAMBER THAT HAS ITS LENGTH TRIMMED; SEGMENTING ROWS INTO STORAGE BASINS OF VARIOUS LENGTHS.
- 2.16 THE END CAP SHALL HAVE SAW GUIDES TO ALLOW EASY CUTTING FOR VARIOUS DIAMETERS OF PIPE THAT MAY BE USED TO INLET THE SYSTEM.
- 2.17 THE END CAP SHALL HAVE EXCESS STRUCTURAL ADQUAGES TO ALLOW CUTTING AN ORIFICE OF ANY SIZE AT ANY INVERT ELEVATION.
- 2.18 THE PRIMARY FACE OF AN END CAP SHALL BE CURVED OUTWARD TO RESIST HORIZONTAL LOADS GENERATED NEAR THE EDGES OF BEDS.
- 2.19 THE END CAP SHALL BE MANUFACTURED IN AN ISO 9001:2000 CERTIFIED FACILITY.

NOMINAL CHAMBER SPECIFICATIONS

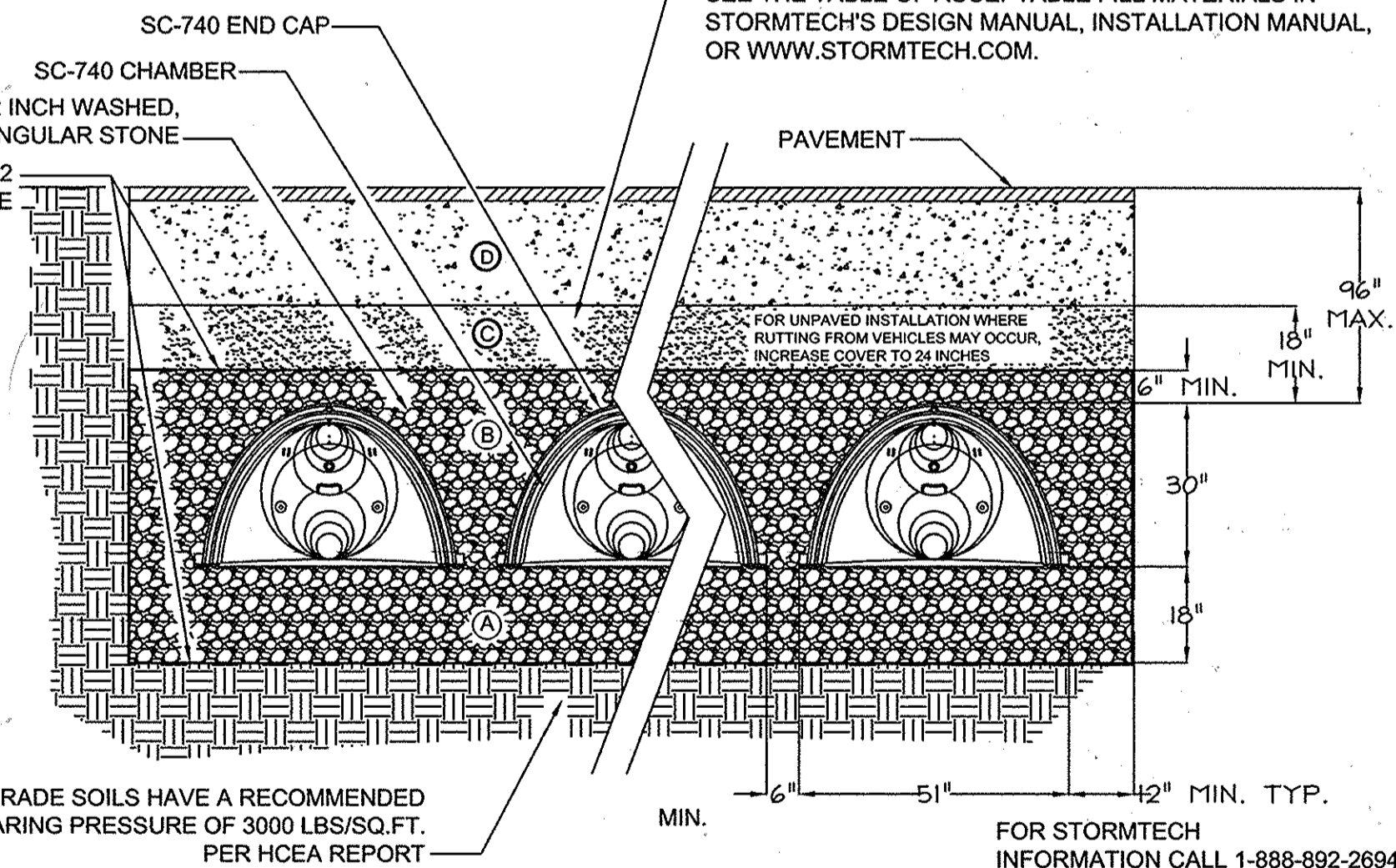
SIZE (W x L x INSTALLED LENGTH)	51.0" x 30.0" x 85.4"
CHAMBER STORAGE	45.9 CUBIC FEET
MINIMUM INSTALLED STORAGE	74.9 CUBIC FEET
WEIGHT	75 LBS.

FOR STORMTECH INFORMATION CALL 1-888-892-2694

STORMTECH GENERAL NOTES

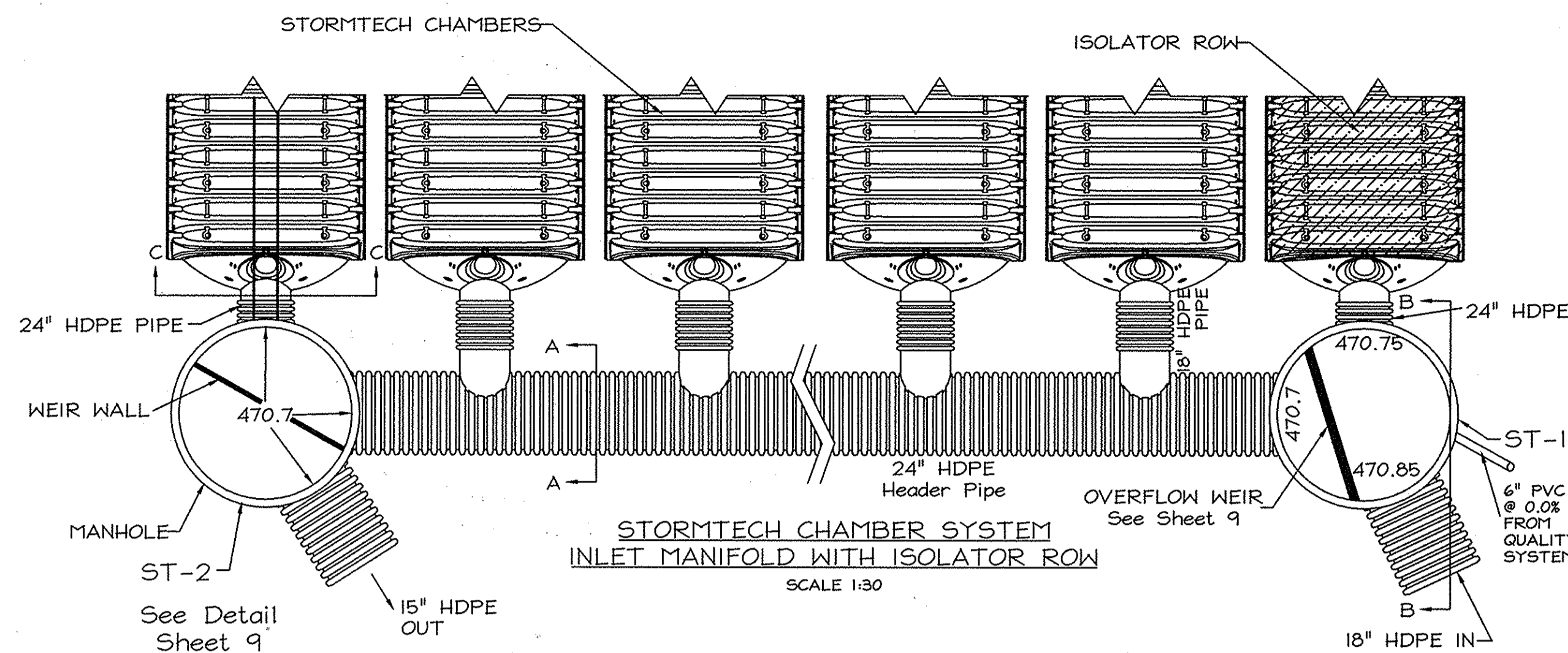
1. STORMTECH LLC ("STORMTECH") REQUIRES INSTALLING CONTRACTORS TO USE AND UNDERSTAND STORMTECH'S LATEST INSTALLATION INSTRUCTIONS PRIOR TO BEGINNING SYSTEM INSTALLATION.
2. OUR TECHNICAL SERVICES DEPARTMENT OFFERS INSTALLATION CONSULTATIONS TO INSTALLING CONTRACTORS. CONTACT OUR TECHNICAL SERVICES REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO SYSTEM INSTALLATION TO ARRANGE A PRE-INSTALLATION CONSULTATION. OUR REPRESENTATIVES CAN THEN ANSWER QUESTIONS OR ADDRESS COMMENTS ON THE STORMTECH CHAMBER SYSTEM AND INFORM THE INSTALLING CONTRACTOR OF THE MINIMUM INSTALLATION REQUIREMENTS BEFORE BEGINNING THE SYSTEM'S CONSTRUCTION. CALL 1-888-892-2694 TO SPEAK TO A TECHNICAL SERVICE REPRESENTATIVE OR VISIT WWW.STORMTECH.COM TO RECEIVE A COPY OF OUR INSTALLATION INSTRUCTIONS.
3. STORMTECH'S REQUIREMENTS FOR SYSTEMS WITH PAVEMENT DESIGN (ASPHALT, CONCRETE PAVERS, ETC.): MINIMUM COVER IS 18 INCHES NOT INCLUDING PAVEMENT. MAXIMUM COVER IS 96 INCHES INCLUDING PAVEMENT. FOR INSTALLATIONS THAT DO NOT INCLUDE PAVEMENT, WHERE RUTTING FROM VEHICLES MAY OCCUR, MINIMUM REQUIRED COVER IS 24 INCHES, MAXIMUM COVER IS 96 INCHES.
4. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE DESIGN ENGINEER.
5. AASHTO M288 CLASS 2 NON-WOVEN GEOTEXTILE (FILTER FABRIC) MUST BE USED AS INDICATED IN THE PROJECT PLANS.
6. STONE PLACEMENT BETWEEN CHAMBERS ROWS AND AROUND PERIMETER MUST FOLLOW INSTRUCTIONS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
7. BACKFILL SERVICES DEPARTMENT OFFERS REQUIREMENTS AS INDICATED IN THE MOST CURRENT VERSION OF STORMTECH'S INSTALLATION INSTRUCTIONS.
8. THE CONTRACTOR MUST REFER TO STORMTECH'S INSTALLATION INSTRUCTIONS FOR A TABLE OF ACCEPTABLE VEHICLE LOADS AT VARIOUS DEPTHS OF COVER. THIS INFORMATION IS ALSO AVAILABLE AT STORMTECH'S WEBSITE: WWW.STORMTECH.COM. THE CONTRACTOR IS RESPONSIBLE FOR PREVENTING VEHICLES THAT EXCEED STORMTECH'S REQUIREMENTS FROM TRAVELING ACROSS OR PARKING OVER THE STORMWATER SYSTEM. TEMPORARY FENCING, WARNING TAPE AND APPROPRIATELY LOCATED SIGNS ARE COMMONLY USED TO PREVENT UNAUTHORIZED VEHICLES FROM ENTERING SENSITIVE CONSTRUCTION AREAS.
9. THE CONTRACTOR MUST APPLY EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF SITE CONSTRUCTION PER LOCAL CODES AND DESIGN ENGINEER'S SPECIFICATIONS.
10. STORMTECH PRODUCT WARRANTY IS LIMITED. SEE CURRENT PRODUCT WARRANTY FOR DETAILS. TO ACQUIRE A COPY CALL STORMTECH AT 1-888-892-2694 OR VISIT WWW.STORMTECH.COM.

GRANULAR WELL GRADED SOIL/AGGREGATE MIXTURES, <35% FINES. COMPACT IN 6 IN LIFTS TO 95% PROCTOR DENSITY. SEE THE TABLE OF ACCEPTABLE FILL MATERIALS IN STORMTECH'S DESIGN MANUAL, INSTALLATION MANUAL, OR WWW.STORMTECH.COM.

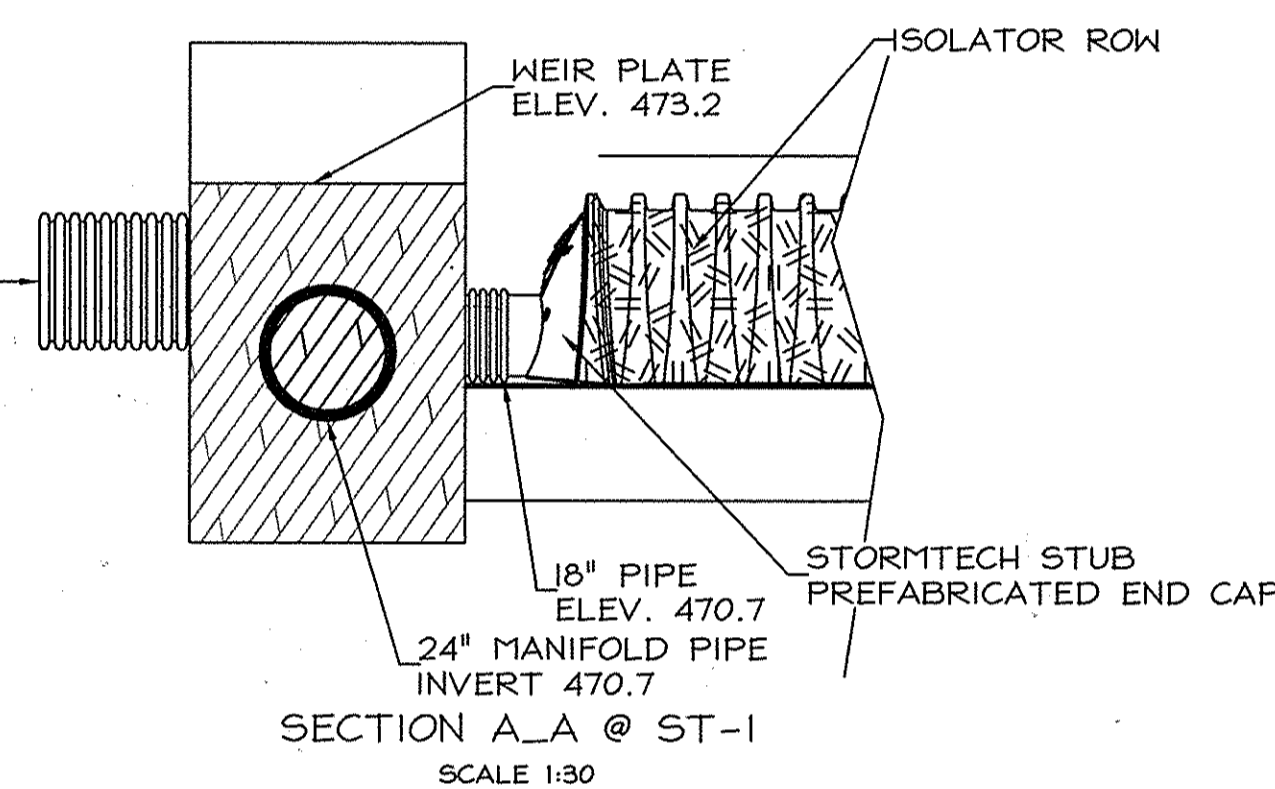


STORMTECH SC-740 CHAMBERS SYSTEM  
TYPICAL CROSS SECTION DETAIL  
SCALE 1:30

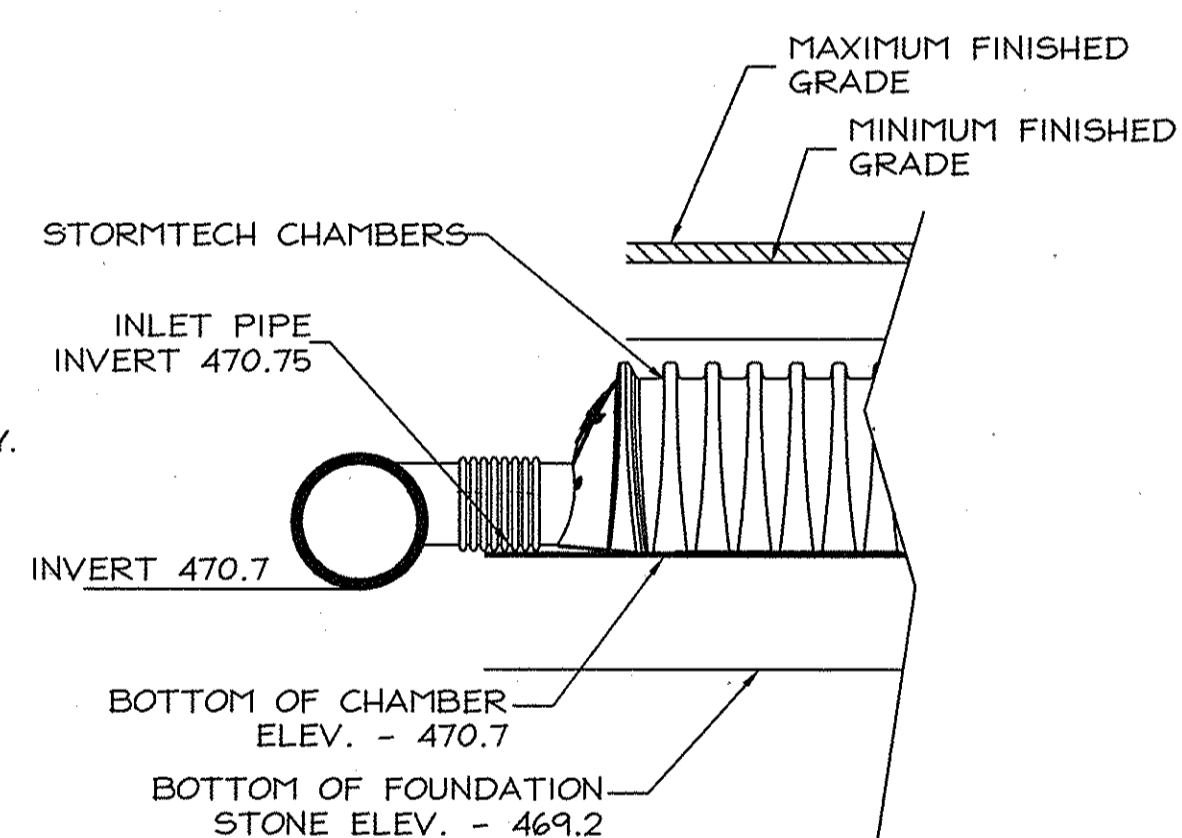
\*SEE STORMTECH'S DESIGN MANUAL



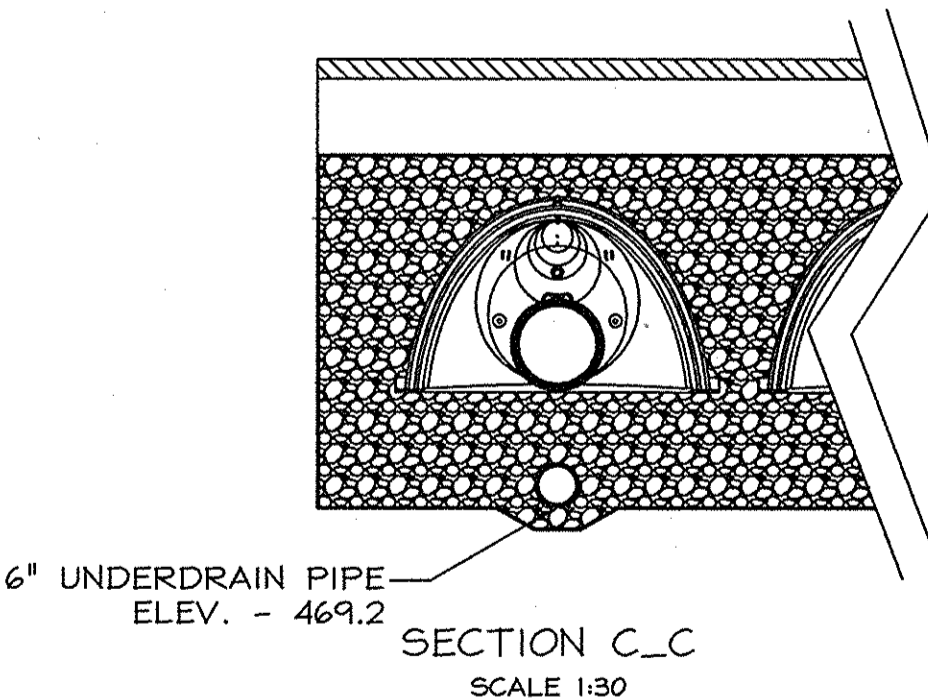
STORMTECH CHAMBER SYSTEM  
INLET MANIFOLD WITH ISOLATOR ROW  
SCALE 1:30



SECTION A-A @ ST-1  
SCALE 1:30

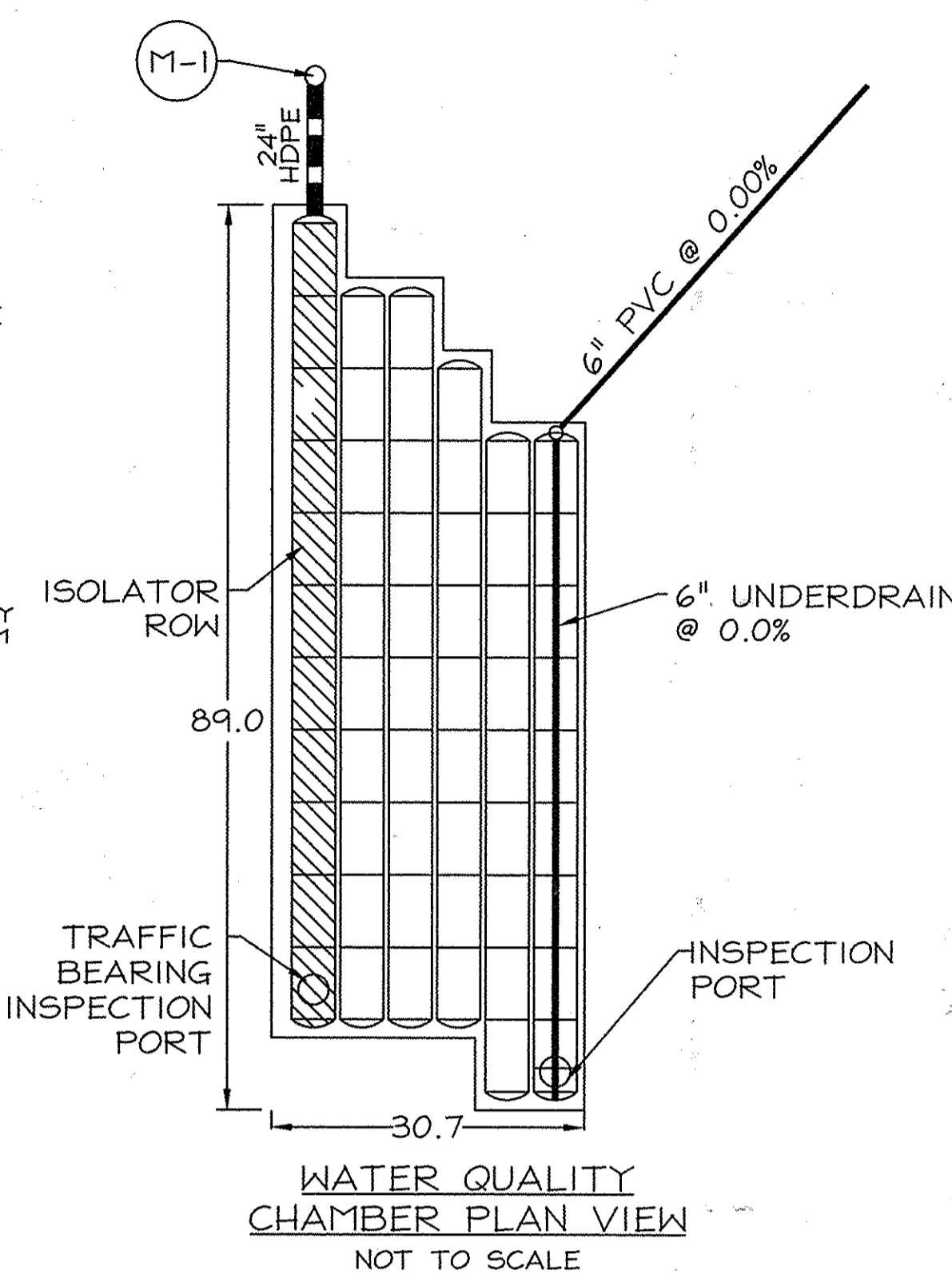


SECTION B-B @ ST-2  
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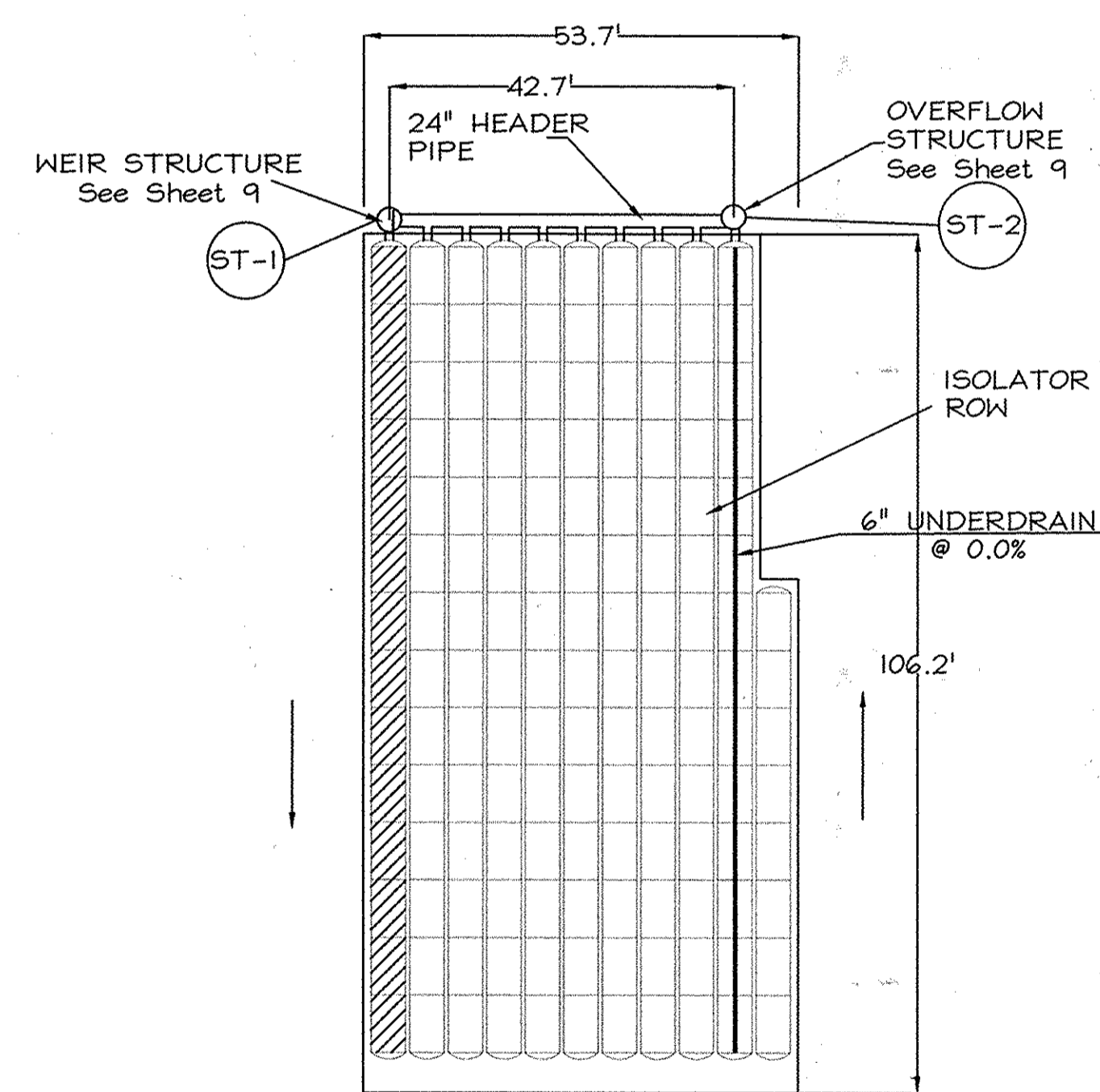
SECTION C-C  
SCALE 1:30

58 STORMTECH SC-740 CHAMBERS  
STORAGE PER CHAMBER - 88.4 CF (18 INCH STONE BASE)  
TOTAL STORAGE PROVIDED - 5,127.2 CF



WATER QUANTITY  
CHAMBER PLAN VIEW  
NOT TO SCALE

148 STORMTECH SC-740 CHAMBERS  
STORAGE PER CHAMBER - 88.4 CF (18 INCH STONE BASE)  
TOTAL STORAGE PROVIDED - 13,083.2 CF



WATER QUANTITY  
CHAMBER PLAN VIEW  
NOT TO SCALE

ACCEPTABLE FILL MATERIALS  
STORMTECH SC-310 AND SC-740 CHAMBER SYSTEMS

MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	AASHTO M145 DESIGNATION	COMPACTION/DENSITY REQUIREMENT
① FILL MATERIAL FROM 18" TO GRADE ABOVE CHAMBERS	ANY SOIL/ROCK MATERIALS, NATIVE SOILS OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	N/A	PREPARE PER ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
② FILL MATERIAL FOR 6" TO 18" ELEVATION ABOVE CHAMBERS (24" FOR UNPAVED INSTALLATIONS)	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES.	3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	A-1, A-2, A-3	COMPACT IN 6" LIFTS TO A MINIMUM 95% STANDARD PROCTOR DENSITY. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 20,000 LBS. DYNAMIC FORCE NOT TO EXCEED 20,000 LBS.
③ EMBEDMENT STONE SURROUNDING AND TO A 6" ELEVATION ABOVE CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	NO COMPACTION REQUIRED
④ FOUNDATION STONE BELOW CHAMBERS	WASHED ANGULAR STONE WITH THE MAJORITY OF PARTICLES BETWEEN 3/4 - 2 INCH	3, 357, 4, 467, 5, 56, 57	N/A	PLATE COMPACT OR ROLL TO ACHIEVE A 95% STANDARD PROCTOR DENSITY

SUBGRADE SOILS HAVE A RECOMMENDED BEARING PRESSURE OF 3000 LBS/SQ.FT. PER HCEA REPORT.

STORMTECH SC-740 CHAMBERS SYSTEM  
TYPICAL CROSS SECTION DETAIL  
SCALE 1:30

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Parade to Judge* 2/16/06  
DIRECTOR DATE

*Candice Hamrick* 2/16/06  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mike Cummings* 2/14/06  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENT.

NATURAL RESOURCE CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE



REVISIONS

No.	Date	Description

LDE, INC.

9250 Rumsey Road, Suite 106, Columbia, MD, 21045 (410) 715-1070  
(301) 596-3424 (410) 715-9540 (Fax)

DESIGNED S.D.H.	Stormwater Management Notes & Details <b>ZEPPLAZA</b> Parcel A Tax Map 34, Parcel 155 Plat #17437 12447 Clarksville Pike Clarksville, Maryland 21029 5th Election District - Howard County, Maryland Previous Submittals: N/A	SCALE AS SHOWN	
DRAWN M.D.L.		DRAWING 8 of 13	
CHECKED B.D.B.		JOB NO. 99-062	
DATE 1/2006		OWNER: Zepp Plaza, LLC 12435 Clarksville Pike Clarksville, Maryland (410) 531-6712	DEVELOPER: Crystal Hill Advisers 11737 Rte 106 Clarksville, Maryland (410) 531-6700
		FILE NO. SDP-05-021	

SDP-05-21



### PIPE SCHEDULE

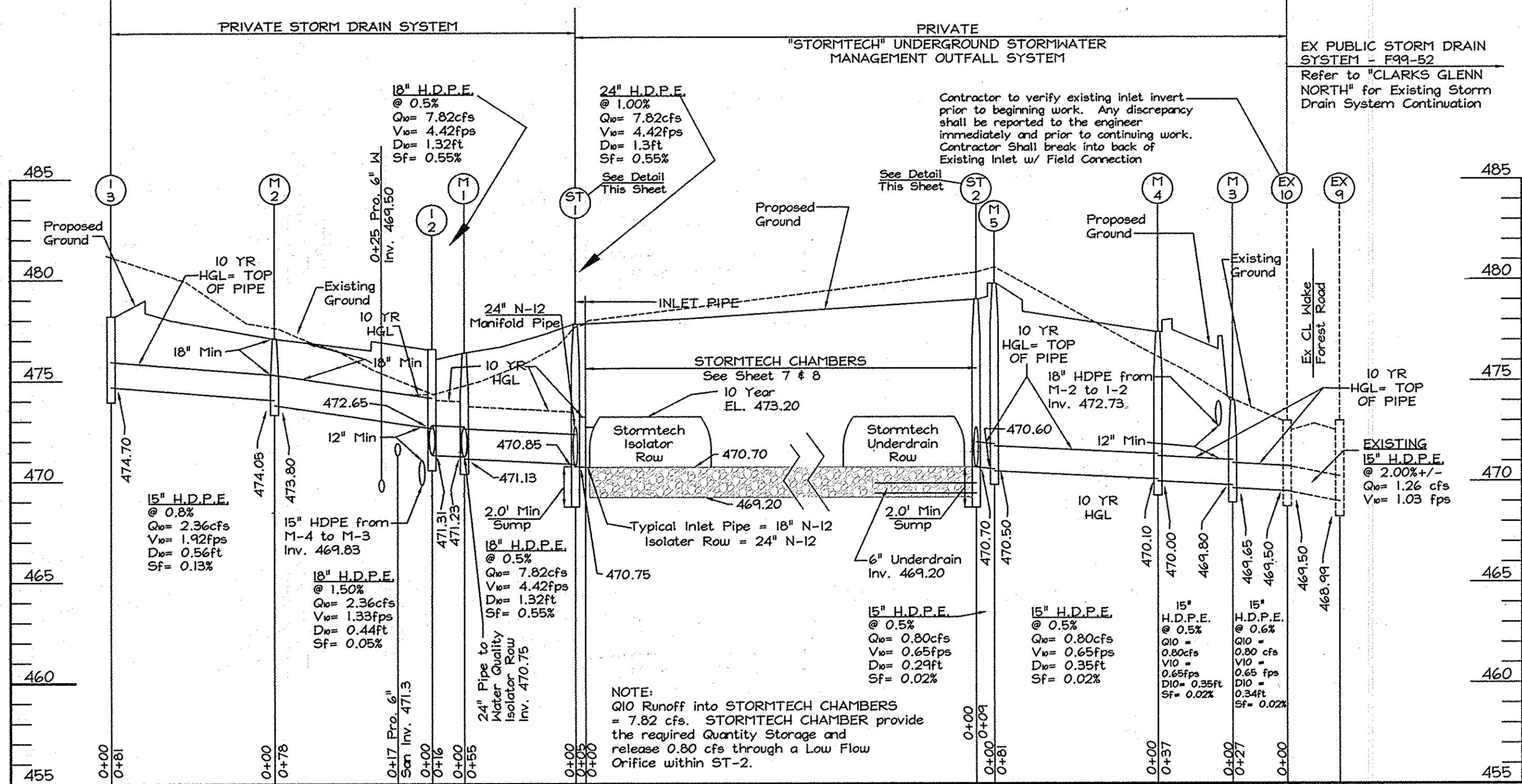
Size	Class	Total Length *
15"	HDPE Smooth Interior	235
18"	HDPE Smooth Interior	149
24"	HDPE Smooth Interior	16
15"	Class IV RCP	11

\* The total length of pipe does not take into account the slope of the pipe. This total is for linear feet only for center of structure to center of structure.

### STORM DRAIN STRUCTURE SCHEDULE

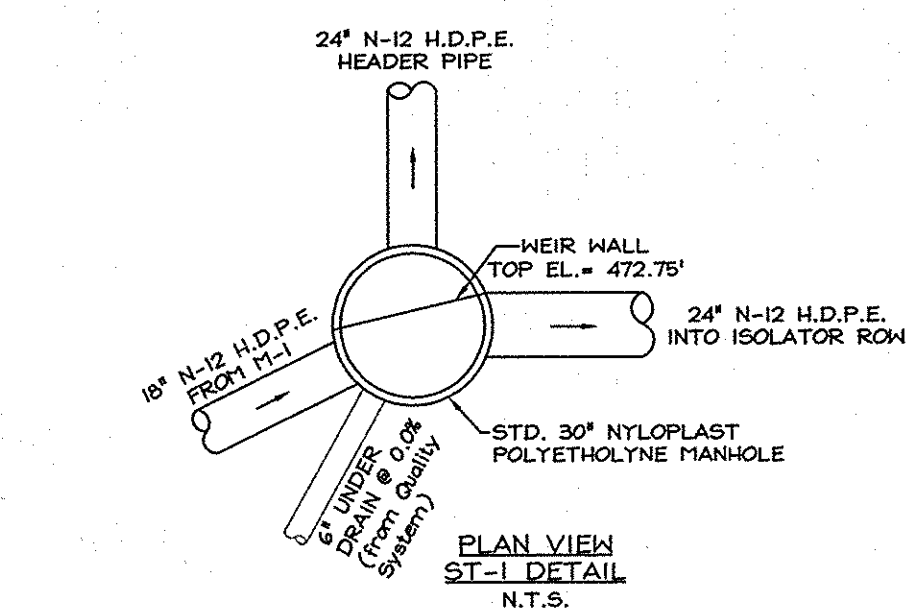
Structure No.	Type	Inv. In.	Inv. Out	Top of Rim/Grate/Slab	Detail	Location*	Remarks
I-2	A-5 Inlet	472.65	471.31	**476.50	SD 4.01	N. 560407.35 / E. 1328810.28	Standard A-5 Inlet
I-3	A-5 Inlet	-	474.70	**478.87	SD 4.01	N. 560361.73 / E. 1328670.41	Standard A-5 Inlet
M-1	Precast Manhole	471.23	471.13	475.80	G 5.12	N. 560418.87 / E. 1328798.99	Precast Manhole
M-2	Precast Manhole	474.05	473.80	477.10	G 5.12	N. 560356.16 / E. 1328751.50	Precast Manhole
M-3	Precast Manhole	469.80	469.65	475.00	G 5.12	N. 560400.97 / E. 1328810.49	Precast Manhole
M-4	Precast manhole	470.10	470.00	476.90	G 5.12	N. 560424.55 / E. 1328780.85	Precast Manhole
M-5	Precast Manhole	470.60	470.50	479.90	G 5.12	N. 560482.42 / E. 1328724.18	Precast Manhole
ST-1	H.D.P.E. Manhole	467.50	469.00	477.90	-	N. 560458.18 / E. 1328760.52	Nyloplast MH
ST-2	H.D.P.E. Manhole	469.00	467.50	479.10	-	N. 560488.72 / E. 1328730.61	Nyloplast MH
EX. I-10	Ex. A-10 Inlet	469.50	469.50	473.10	-	N. 560405.56 / E. 1328835.92	Field Connection to Ex. Inlet
MSHA M-1	48" Precast MH	470.63	470.53	475.81	MD 384.01	N. 560282.88 / E. 1328492.61	STD. MD-384.01
MSHA I-3	Type 'S' Single	-	470.80	475.56	MD 379.01	N. 560285.68 / E. 1328499.85	STD. MD-379.02-01 (Single Grate)

\* Coordinates are for the center of the structure  
 \*\*Throat opening invert, I-2 = 476.00 / I-3 = 478.2  
 \*\*\*Center point top elevation. Surface grate slopes 2.0%.



Private Onsite Storm Drain System  
 I-3 toward ST-1

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



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Director: *Howard County* 4/14/06  
 Chief, Division of Land Development: *Cynthia Hammonds* 2/16/06  
 Chief, Development Engineering Division: *Chris DeWanna* 2/16/06

THESE PLANS HAVE BEEN REVIEWED FOR THE NATURAL RESOURCE CONSERVATION SERVICE AND APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

HOWARD SOIL CONSERVATION DISTRICT DATE

Sample No.	Depth	Soil Description	Moisture (%)	Specific Gravity	Unit Weight (pcf)	Void Ratio	Porosity (%)	Relative Density
1	0-12"	...	...	...	...	...	...	...
2	12-24"	...	...	...	...	...	...	...

Sample No.	Depth	Soil Description	Moisture (%)	Specific Gravity	Unit Weight (pcf)	Void Ratio	Porosity (%)	Relative Density
3	0-12"	...	...	...	...	...	...	...
4	12-24"	...	...	...	...	...	...	...

Sample No.	Depth	Soil Description	Moisture (%)	Specific Gravity	Unit Weight (pcf)	Void Ratio	Porosity (%)	Relative Density
5	0-12"	...	...	...	...	...	...	...
6	12-24"	...	...	...	...	...	...	...

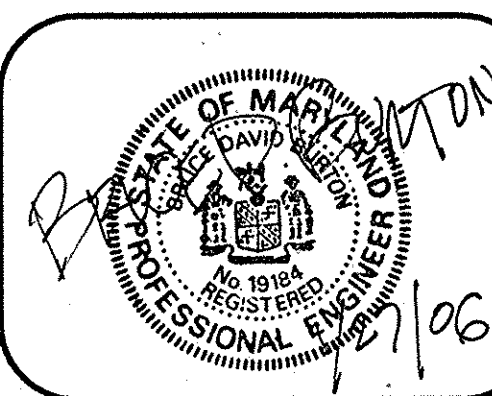
Sample No.	Depth	Soil Description	Moisture (%)	Specific Gravity	Unit Weight (pcf)	Void Ratio	Porosity (%)	Relative Density
7	0-12"	...	...	...	...	...	...	...
8	12-24"	...	...	...	...	...	...	...

Sample No.	Depth	Soil Description	Moisture (%)	Specific Gravity	Unit Weight (pcf)	Void Ratio	Porosity (%)	Relative Density
9	0-12"	...	...	...	...	...	...	...
10	12-24"	...	...	...	...	...	...	...

No.	Date	Description

DEVELOPER'S CERTIFICATE  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS FOR DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE FIELD ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*Edward W. Zeff* 1/27/06



ENGINEER'S CERTIFICATE  
 I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT 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.

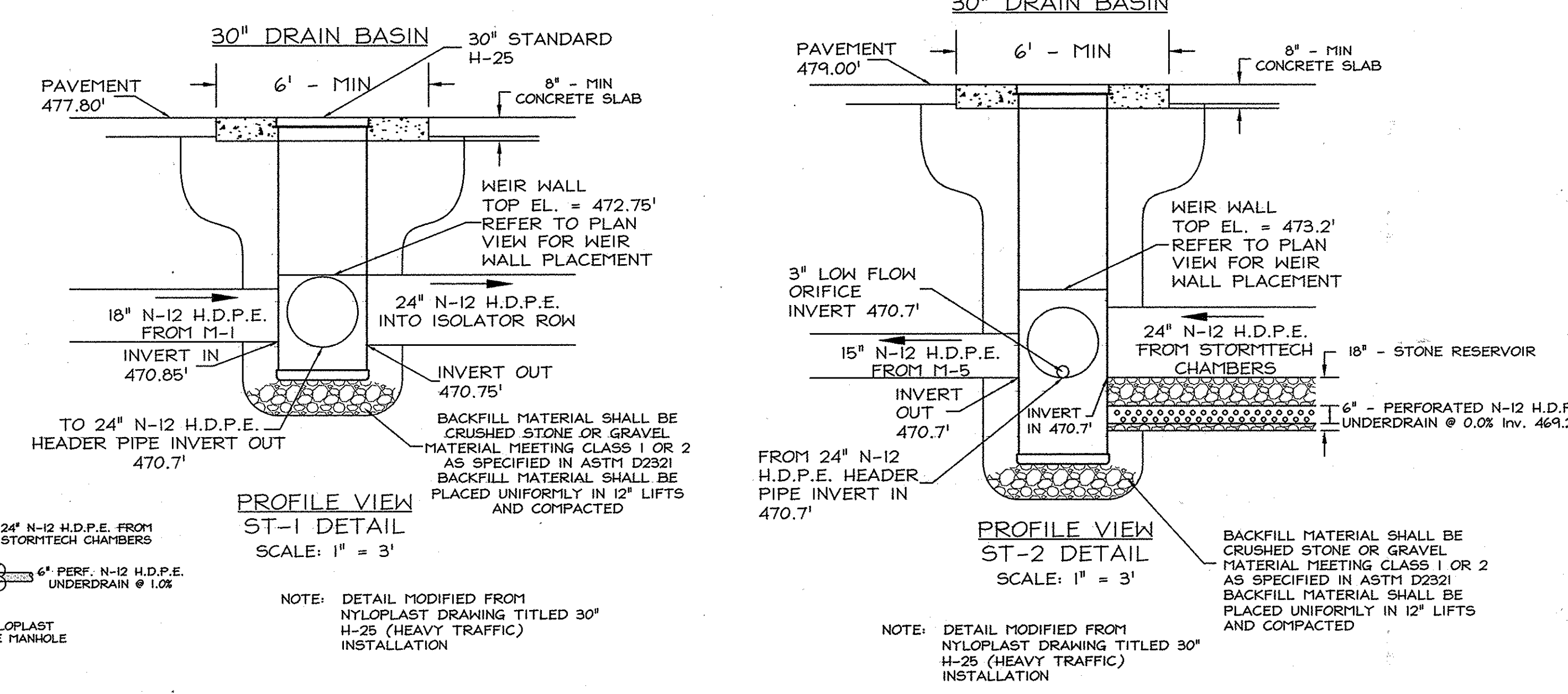
*Bruce D. B...* 1/27/06



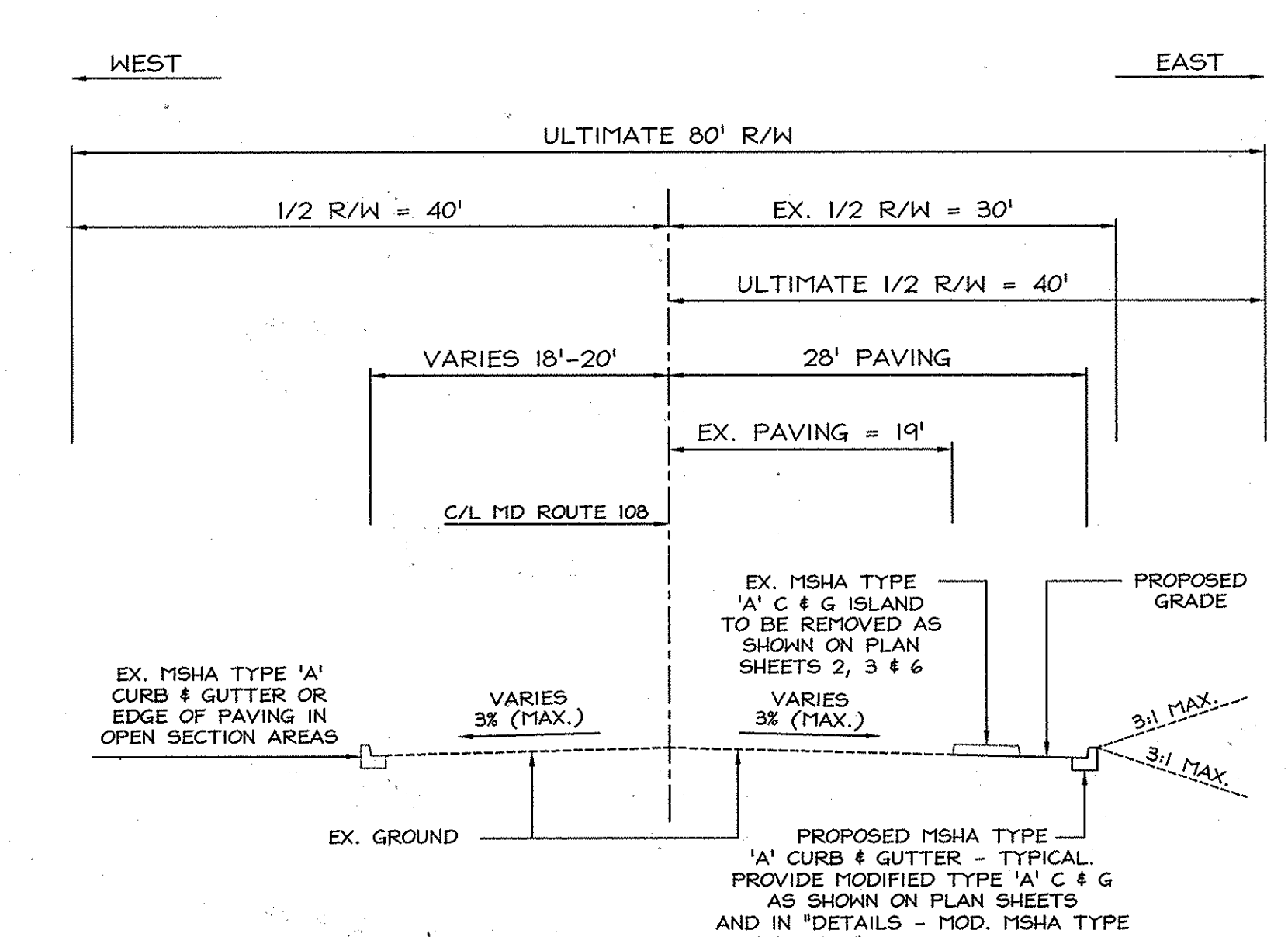
LDE, INC.  
 9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED	S.D.H.	SCALE	As Shown
DRAWN	J.D.R.	DRAWING	9 OF 13
CHECKED	B.D.B.	JOB NO.	99-062
DATE	1/2006	FILE NO.	SDP-05-021

OWNER: Zepp Plaza, LLC  
 DEVELOPER: Crystal Hill Advisors



NOTE: DETAIL MODIFIED FROM NYLOPLAST DRAINING TITLED 30" H-25 (HEAVY TRAFFIC) INSTALLATION



TYPICAL SECTION MD ROUTE 108  
 SCALE: 1" = 10'

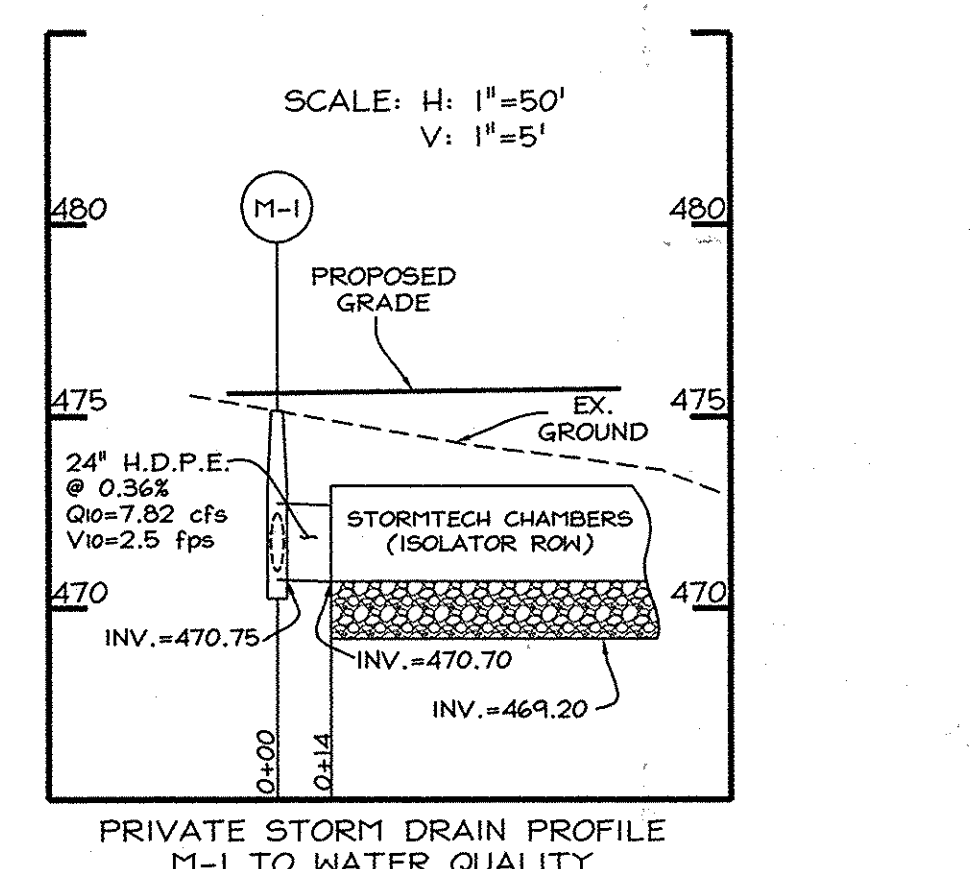
### 13.0 Inspection and Maintenance

**13.1 TREATMENT TRAIL INSPECTION AND MAINTENANCE**  
 The Stormtech recommended treatment trail system has three tiers of treatment upstream of the Stormtech chambers. It is recommended that inspection and maintenance (ISM) be initiated at the furthest upstream treatment tier and continue downstream as necessary. The following ISM procedures follow the approach provided in Stormtech's ISM Manual (see the following order: Tier 1 - Pre-treatment (PMPT), Tier 2 - Stormtech Isolator Row, Tier 3 - Eccentric Pipe Header System).

**13.2 CATCHBASIN/MANHOLE ISM**  
 Typically a stormtech system will have catchbasins and manholes upstream of the stormtech chambers. Regular ISM of catchbasins and manholes should be scheduled and performed as part of a site's routine maintenance plan.

**13.3 PRE-TREATMENT DEVICE ISM**  
 Manufacturer's ISM procedures should be followed for proprietary pre-treatment devices such as buffer boxes, level concentrators, oil-water separators, and filtration units. Table 13.0 provides some general guidelines but is not a substitute for a manufacturer's specific instructions.

Inspection	Frequency	Maintenance
Stormtech Isolator Row	As Needed	Remove Debris
Pre-treatment Device	Quarterly	Remove Debris
Catch Basin/Manhole	Quarterly	Remove Debris
Stormtech Chamber	Quarterly	Remove Debris
Stormtech Header	Quarterly	Remove Debris
Stormtech Manhole	Quarterly	Remove Debris
Stormtech Chamber	Quarterly	Remove Debris
Stormtech Header	Quarterly	Remove Debris
Stormtech Manhole	Quarterly	Remove Debris



PRIVATE STORM DRAIN PROFILE M-1 TO WATER QUALITY CHAMBERS



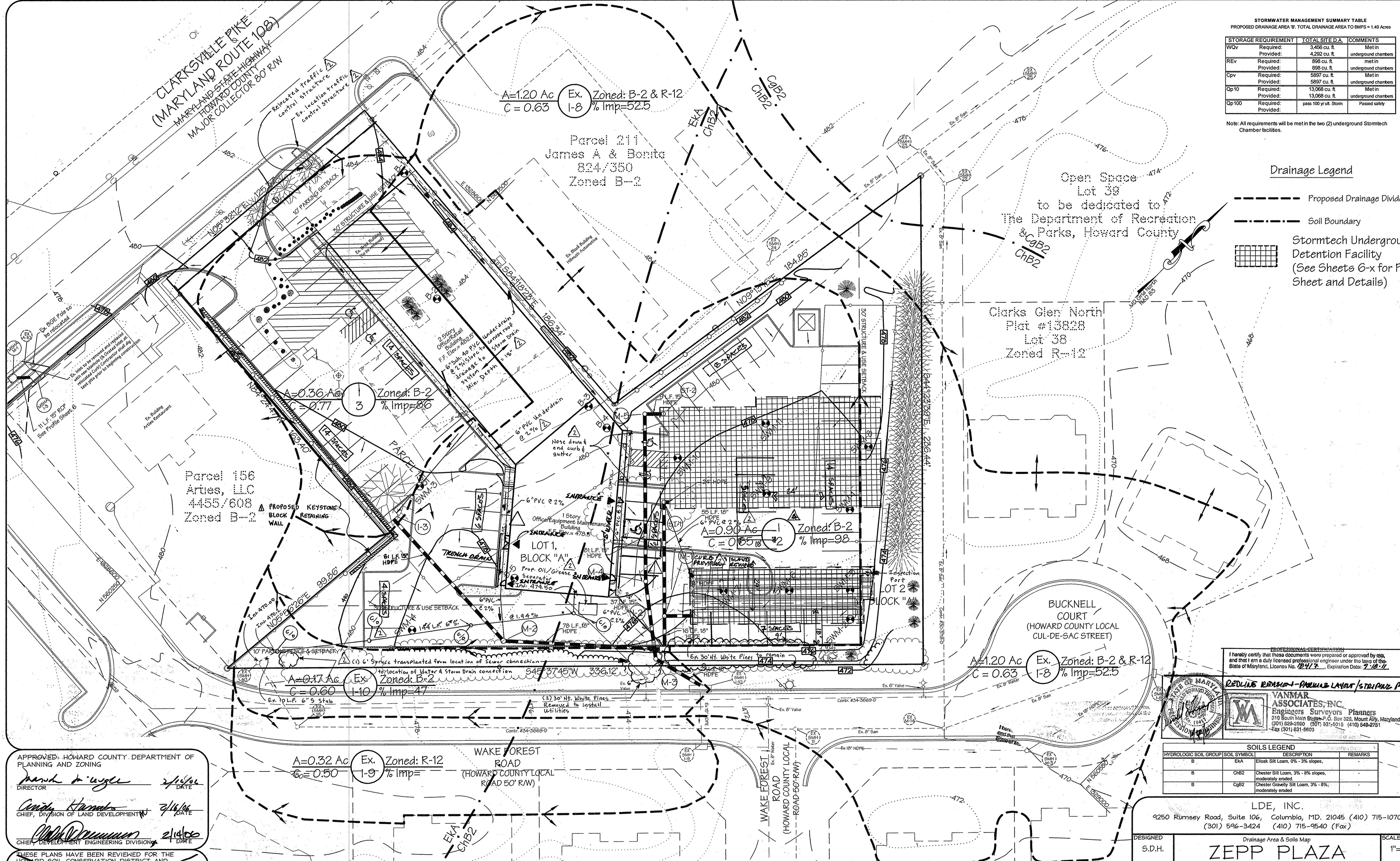
**STORMWATER MANAGEMENT SUMMARY TABLE**  
PROPOSED DRAINAGE AREA 'B'. TOTAL DRAINAGE AREA TO BMP'S = 1.40 Acres

STORAGE REQUIREMENT	TOTAL SITE D.A.	COMMENTS
WQv Required: 3,456 cu. ft. Provided: 4,292 cu. ft.		Met in underground chambers
REV Required: 898 cu. ft. Provided: 898 cu. ft.		met in underground chambers
Cpv Required: 5897 cu. ft. Provided: 5897 cu. ft.		Met in underground chambers
Op10 Required: 13,068 cu. ft. Provided: 13,068 cu. ft.		Met in underground chambers
Op100 Required: pass 100 yr ut. Storm Provided:		Passed safely

Note: All requirements will be met in the two (2) underground Stormtech Chamber facilities.

**Drainage Legend**

- Proposed Drainage Divide
- Soil Boundary
- Stormtech Underground Detention Facility (See Sheets G-x for Plan Sheet and Details)



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Frank A. Unger* 2/16/06  
 DIRECTOR DATE  
*Cathy Harms* 2/16/06  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE  
*Chris Williams* 2/16/06  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.  
 NATURAL RESOURCE CONSERVATION DISTRICT DATE  
 THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.  
 HOWARD SOIL CONSERVATION DISTRICT DATE

**REVISIONS**

No.	Date	Description
1	11/2006	Added retaining wall
2	11/2006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.
3	09/16/10	REVISE PARCEL LAYOUT/STRIPE PLAN
4	1/16/10	RESTAURANT ENTRANCE & ICE ACCESS

**DEVELOPER'S CERTIFICATE**  
 I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*Edward W. Zepp*  
 SIGNATURE OF DEVELOPER DATE 1/27/06

**STATE OF MARYLAND PROFESSIONAL ENGINEER**  
 Bruce D. Bunn  
 1/27/06

**ENGINEER'S CERTIFICATE**  
 I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT A PRACTICAL AND WORKABLE PLAN BASED ON THE BEST PROFESSIONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
 Bruce D. Bunn  
 SIGNATURE OF ENGINEER DATE 1/27/06

PROFESSIONAL CERTIFICATION  
 I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 12477 - Expiration Date: 2-18-11  
**REDLINE REVISION - PARCEL LAYOUT/STRIPE PLAN**  
**VANMAR ASSOCIATES, INC.**  
 Engineers Surveyors Planners  
 210 South Main Street, P.O. Box 325, Mount Airy, Maryland 21771  
 (301) 828-2200 (301) 931-5515 (410) 549-2751  
 Fax (301) 831-5603

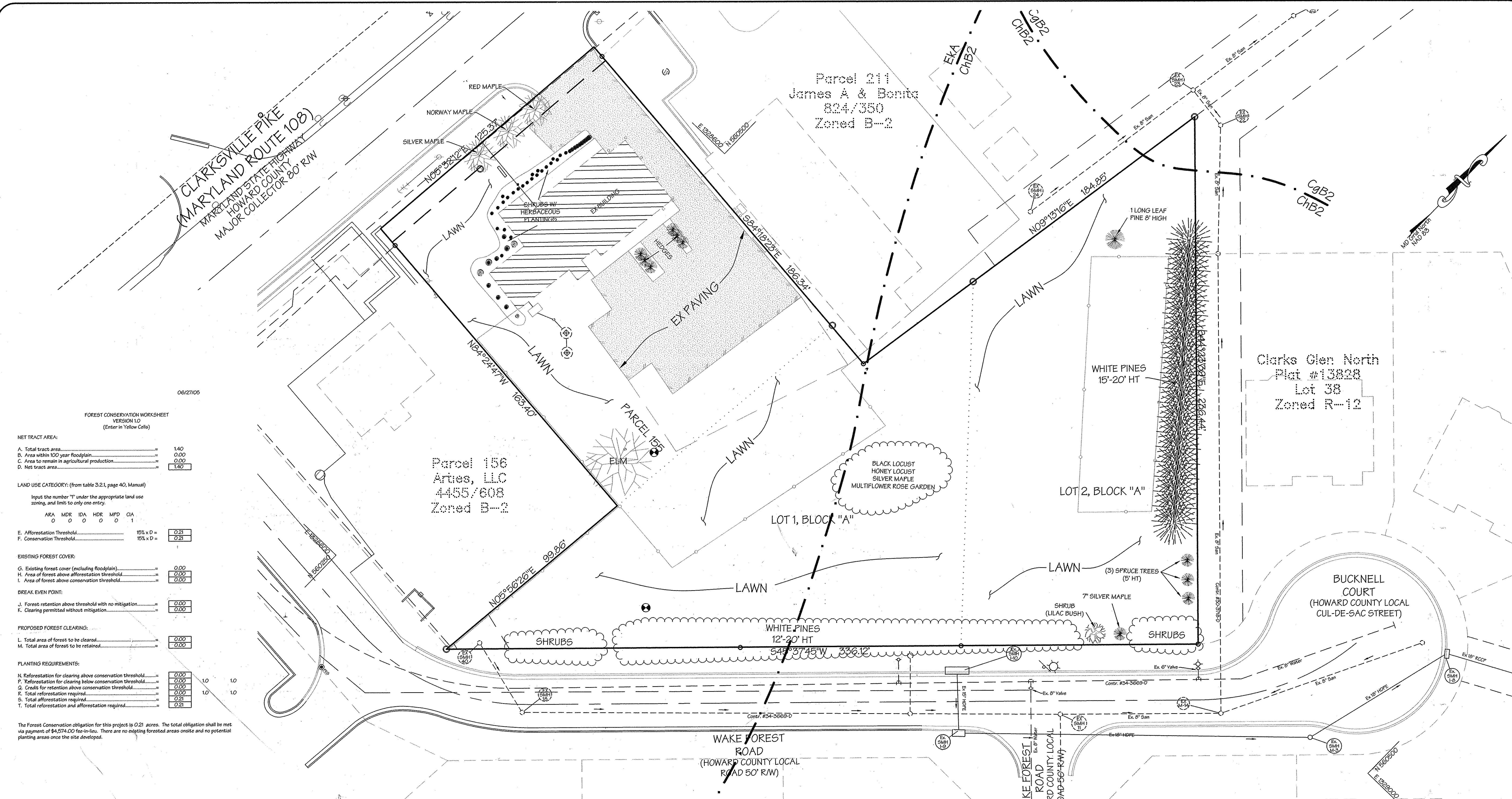
**SOILS LEGEND**

HYDROLOGIC SOIL GROUP SOIL SYMBOL	DESCRIPTION	REMARKS
B	EKA Eloak Sil Loam, 0% - 3% slopes.	
B	ChB2 Chester Sil Loam, 3% - 8% slopes, moderately eroded.	
B	CgB2 Chester Gravelly Sil Loam, 3% - 8%, moderately eroded.	

LDE, INC.  
 9250 Rümsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
 (301) 596-3424 (410) 715-9540 (Fax)

DESIGNED: S.D.H. SCALE: 1"=20'  
 DRAWN: J.D.R. DRAWING: 10 of 13  
 CHECKED: B.D.B. JOB NO.: 99-062  
 DATE: 1/2006  
**ZEPPE PLAZA**  
 Parcel A  
 Tax Map 34, Parcel 155  
 Plat No. 17437  
 12447 Clarksville Pike  
 Clarksville, Maryland 21029  
 5th Election District - Howard County, Maryland  
 Previous Submittals: F-05-027  
 OWNER: Zepp Plaza, LLC  
 12435 Clarksville Pike  
 Clarksville, Maryland  
 (410) 531-6712  
 DEVELOPER: Crystal Hill Advisors  
 11737 Rte 108  
 Clarksville, Maryland  
 (410) 531-6700  
 FILE NO.: SDP-05-021





06/21/05

**FOREST CONSERVATION WORKSHEET**  
(Enter in Yellow Cells)

NET TRACT AREA:

A. Total tract area.....	1.40
B. Area within 100 year floodplain.....	0.00
C. Area to remain in agricultural production.....	0.00
D. Net tract area.....	1.40

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)  
Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CLA
0	0	0	0	0	1

E. Afforestation Threshold..... 15% x D = 0.21

F. Conservation Threshold..... 15% x D = 0.21

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).....	0.00
H. Area of forest above afforestation threshold.....	0.00
I. Area of forest above conservation threshold.....	0.00

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation.....	0.00
K. Clearing permitted without mitigation.....	0.00

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared.....	0.00
M. Total area of forest to be retained.....	0.00

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold.....	0.00	1.0	1.0
P. Reforestation for clearing below conservation threshold.....	0.00		
Q. Credits for retention above conservation threshold.....	0.00		
R. Total reforestation required.....	0.00	1.0	1.0
S. Total afforestation required.....	0.21		
T. Total reforestation and afforestation required.....	0.21		

The Forest Conservation obligation for this project is 0.21 acres. The total obligation shall be met via payment of \$4,574.00 fee-in-lieu. There are no existing forested areas onsite and no potential planting areas once the site develops.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
*Mark A. Leight* 2/10/06  
DIRECTOR DATE

*Cindy Romanos* 2/10/06  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mark Romanos* 2/10/06  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

THESE PLANS HAVE BEEN REVIEWED FOR THE HOWARD SOIL CONSERVATION DISTRICT AND MEET THE TECHNICAL REQUIREMENTS.  
*[Signature]* DATE

**PROFESSIONAL CERTIFICATION:**

*Steve Heiss* 1/28/06  
Steve Heiss, Qualified Professional, MDPCA

**SOILS LEGEND**

HYDROLOGIC SOIL GROUP	SOIL SYMBOL	DESCRIPTION	REMARKS
B	EKA	Eliak Silt Loam, 0% - 3% slopes,	
B	ChB2	Chester Silt Loam, 3% - 8% slopes, moderately eroded	
B	CgB2	Chester Gravelly Silt Loam, 3% - 8%, moderately eroded	

Total Area Of Site = 1.4 Acres  
Area Of Onsite Floodplain = 0.0 Acres  
Net Tract Area = 1.4 Acres

**REVISIONS**

No.	Date	Description

**DEVELOPER'S CERTIFICATE**  
I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.  
*remay W. Zupp*  
*Edgar M. Zupp* 1/27/06  
SIGNATURE OF DEVELOPER DATE

**ENGINEER'S CERTIFICATE**  
I CERTIFY THAT THESE PLANS FOR SEDIMENT AND EROSION CONTROL REPRESENT A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE CONDITIONS AND THAT IT HAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.  
*Bruce D. Ben...* 1/27/06  
SIGNATURE OF ENGINEER DATE

LDE, INC.  
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
(301) 596-3424 (410) 715-9540 (Fax)

**DESIGNED** S.D.H.  
**DRAWN** J.D.R.  
**CHECKED** B.D.B.  
**DATE** 1/2006

**Forest Stand Delineation / Conservation Plan**  
**ZEPP PLAZA**  
Parcel A  
Tax Map 34, Parcel 155  
Plat No. 17437  
12447 Clarksville Pike  
Clarksville, Maryland 21029  
5th Election District - Howard County, Maryland  
Previous Submittals: F-05-027

**OWNER:** Zepp Plaza, LLC  
12435 Clarksville Pike  
Clarksville, Maryland  
(410) 531-6712

**DEVELOPER:** Crystal Hill Advisors  
11737 Rte 108  
Clarksville, Maryland  
(410) 531-6700

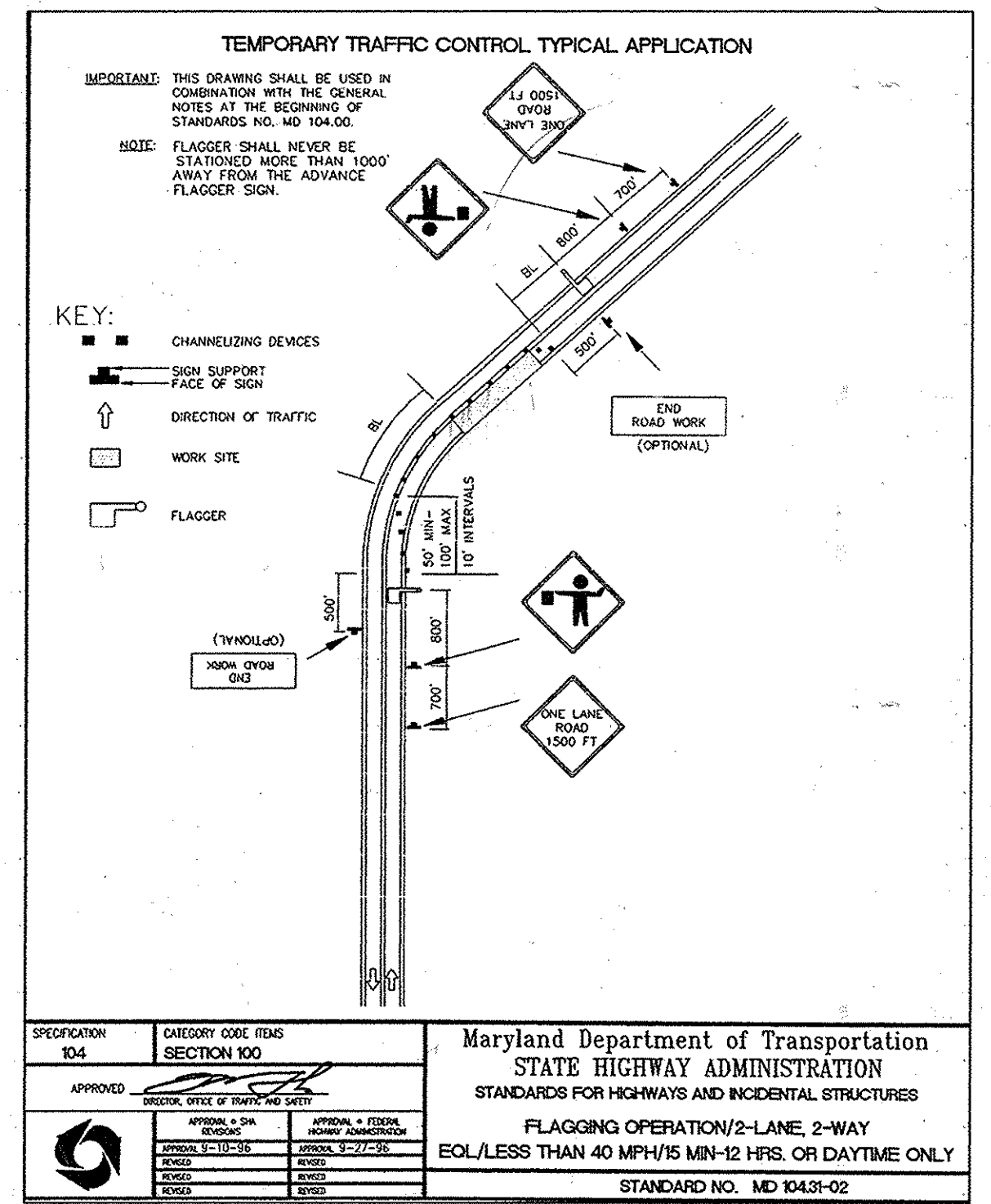
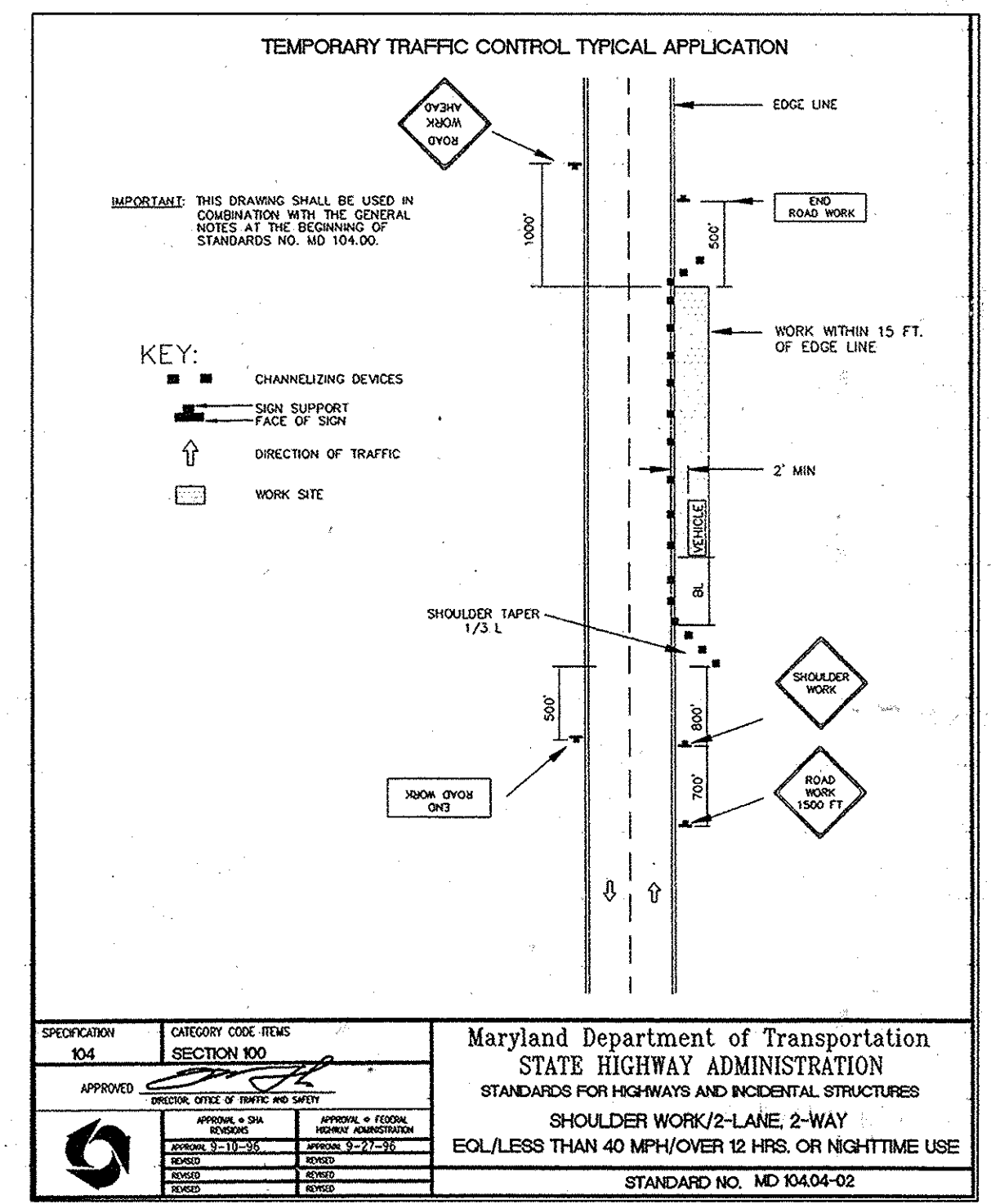
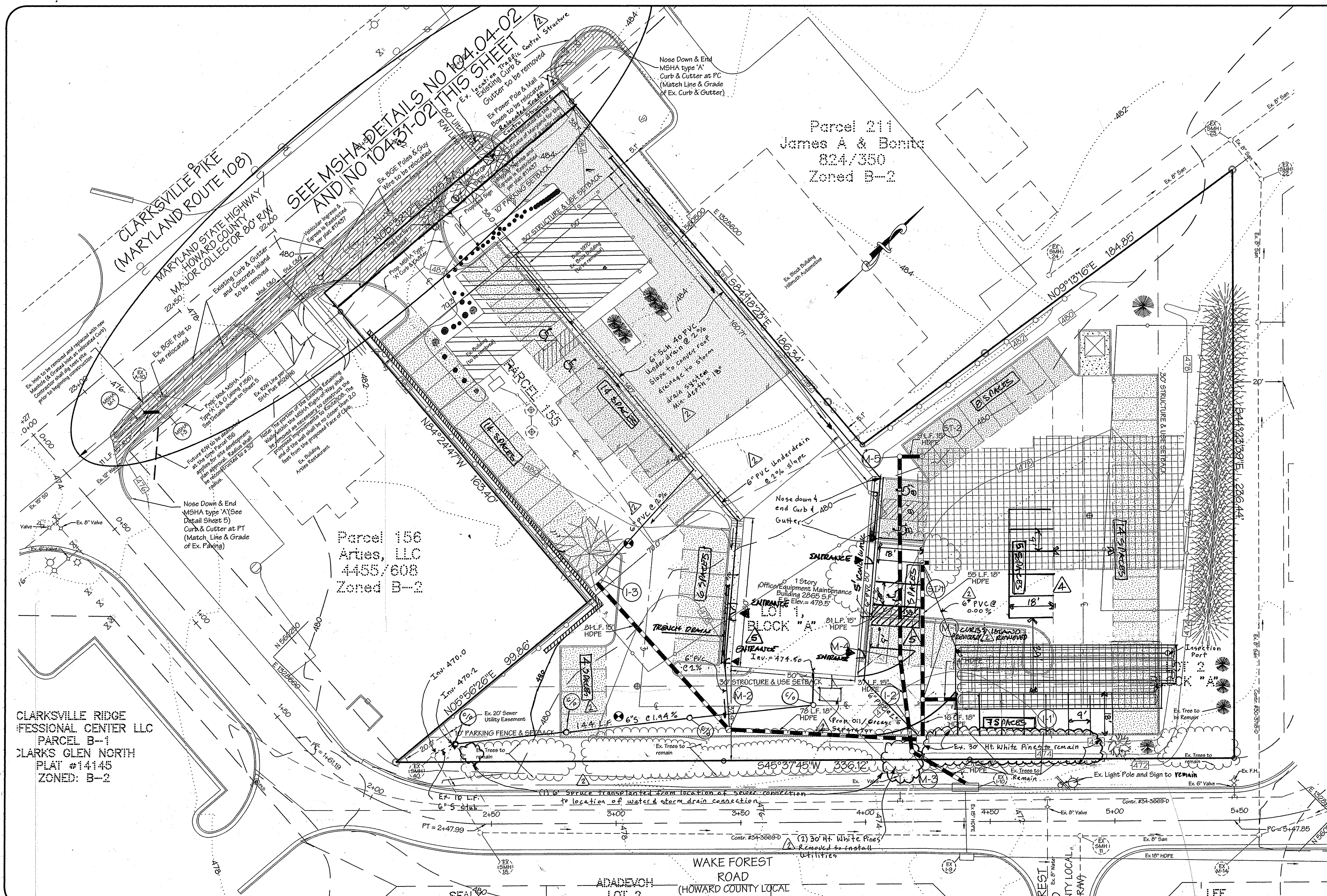
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DRAWING 11 of 13  
JOB NO. 99-062  
FILE NO. SDP-05-021

F:\05-062-1\05-062-1\FSD (1) Joby Forest Stand Delineation-Conservation Plan (1).DWG 1/27/2006 4:52:47 PM









APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*[Signature]* 2/16/06 DATE

*[Signature]* 3/16/06 DATE

*[Signature]* 2/16/06 DATE

**Legend**

- P-1 Paving
- P-2 Paving
- MSHA Improvements

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

NATURAL RESOURCE CONSERVATION SERVICE DATE

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

HOWARD SOIL CONSERVATION DISTRICT DATE

**REVISIONS**

No.	Date	Description
1	11/2/006	Added retaining wall
2	11/2/006	Revised sewer connection, revised landscaping, revised Stormtech WQ configuration, show relocated traffic control structure, added underdrain system to pick up roof drainage.
3	09/10/10	REVISE DRIVING LAYOUT / STRIPING PLAN
4	8/10/10	RESTAURANT ACCESS & MC ACCESS

**DEVELOPER'S CERTIFICATE**

I/WE CERTIFY THAT ALL DEVELOPMENT AND CONSTRUCTION WILL BE DONE ACCORDING TO THESE PLANS OF DEVELOPMENT 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 ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

*[Signature]* 1/29/06 DATE

**PROFESSIONAL CERTIFICATION**

I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 12477, Expiration Date: 2-11-10

*[Signature]* 1/29/06 DATE

**ENGINEER'S CERTIFICATE**

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

*[Signature]* 1/29/06 DATE

Subdivision Name: Zepp Plaza	Sect/Area: N/A	Parcel No.: 155
Plat No.: 17437	Block No.: 12	Zone: B-2
Tax Map No.: 34	Election District: 5th	Census Tract: 6051.02
Water Code: III	Sewer Code: 6650000	

LDE, INC.  
9250 Rumsey Road, Suite 106, Columbia, MD. 21045 (410) 715-1070  
(301) 596-3424 (410) 715-9540 (Fax)

Traffic Control Plan

**ZEPP PLAZA**

Parcel A  
Tax Map 34, Parcel 155  
Plat No. 17437  
12447 Clarksville Pike  
Clarksville, Maryland 21029

DESIGNED: S.D.H.  
DRAWN: J.D.R.  
CHECKED: B.D.B.  
DATE: 1/2006

OWNER: Zepp Plaza, LLC  
12435 Clarksville Pike  
Clarksville, Maryland  
(410) 531-6712

DEVELOPER: Crystal Hill Advisors  
11737 Rte 108  
Clarksville, Maryland  
(410) 531-6700

SCALE: 1"=20'  
DRAWING: 13 of 13  
JOB NO.: 99-062  
FILE NO.: SDP-05-021