

**Construction Notes**

1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS CONSTRUCTION INSPECTION DIVISION AT 410-313-1800 AT LEAST 24 HOURS PRIOR TO STARTING ANY OF THE WORK SHOWN HEREON.
2. ALL AREAS NOT BEING PAVED OR RECEIVING BUILDING COVERAGE SHALL BE STABILIZED IN ACCORDANCE WITH THE PLAN APPROVED BY THE HOWARD SOIL CONSERVATION DISTRICT.
3. THE CONTRACTOR SHALL NOTE THAT IN CASE OF DISCREPANCY BETWEEN ANY SCALED DIMENSIONS AND THE FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FIGURED DIMENSIONS SHALL GOVERN.
4. CONTRACTOR SHALL MEET ALL EXISTING IMPROVEMENTS SMOOTHLY FOR LINE, GRADE AND FINISH.
5. ALL WORK SHOWN ON THESE PLANS SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS AND OF THE MARYLAND STATE HIGHWAY ADMINISTRATION AND THE HOWARD COUNTY PLUMBING CODE, UNLESS OTHERWISE NOTED.
6. IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NORMALLY BE REQUIRED TO COMPLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO PERFORM SUCH WORK. THE COST OF SUCH WORK SHALL BE INCLUDED IN THE BASE BID.
7. THE CONTRACTOR SHALL INSPECT THE SITE TO DETERMINE IF ANY TREES, PAVING, ETC. ARE TO BE REMOVED PRIOR TO PLACING A BID ON SUCH ITEMS.
8. THE LOCATIONS OF EXISTING UTILITIES SHOWN HEREON ARE APPROXIMATE ONLY AND ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL NOTIFY MISS UTILITY AT 1-800-257-7777 A MINIMUM OF 5 WORKING DAYS PRIOR TO DIGGING. THE CONTRACTOR SHALL CONFIRM TO HIS OWN SATISFACTION THE LOCATION OF ALL UTILITIES PRIOR TO ANY EXCAVATION OR PLACEMENT OF MATERIALS. IF ANY CONFLICT IS FOUND BETWEEN UNDERGROUND UTILITIES AND THE PROPOSED LOCATION OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT G. W. STEPHENS AND THE OWNER OF THE UTILITY IMMEDIATELY. ANY DAMAGE OR DISRUPTION OF SERVICE SHALL BE AT THE EXPENSE OF THE CONTRACTOR. RELOCATION OF ANY EXISTING UTILITIES, IF NECESSARY, SHALL BE AT THE EXPENSE OF THE OWNER. THE CONTRACTOR SHALL COORDINATE RELOCATION OF THESE FACILITIES, IF NECESSARY.
9. CONTRACTOR SHALL PROTECT ALL EXISTING TREES OUTSIDE THE LIMIT OF DISTURBANCE AT ALL TIMES DURING CONSTRUCTION.
10. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS NOT SCHEDULED FOR REMOVAL OR DEMOLITION. COST OF REPAIR TO EXISTING IMPROVEMENTS SHALL BE INCLUDED IN THE BASE BID. ALL EXISTING SITE FEATURES NOT BEING RETAINED SHALL BE REMOVED AND DISPOSED OF AT AN APPROVED LOCATION. ANY DAMAGE TO OFFSITE ROADS, RIGHTS OF WAY, OR ADJACENT PROPERTY SHALL BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.
11. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES, PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA UNLESS OTHERWISE NOTED ON THE PLAN.
12. ONLY SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE PLACED AND COMPACTED AS SPECIFIED IN THE SOILS REPORT PREPARED FOR THIS SITE OR AS RECOMMENDED BY THE GEOTECH EXCEPTING THOSE ASSOCIATED WITH LANDSCAPE BERMING. ALL GRADING UNDER PROPOSED PAVING, AND ALL FILL AND COMPACTON SHALL BE APPROVED BY A GEOTECHNICAL ENGINEER.
13. CONTRACTOR SHALL PROVIDE MINIMUM 4 FOOT BENCH AT EDGE OF PAVING IN FILL AREAS. MAXIMUM SLOPE OF BENCH SHALL BE 4% (1/4 IN PER FOOT).
14. MAXIMUM SLOPE SHALL BE 2 HORIZONTALLY TO 1 VERTICALLY.
15. CONTRACTOR SHALL PLACE 4" MINIMUM TOPSOIL IN LANDSCAPE AREAS.
16. CONTRACTOR SHALL PLACE A WITNESS POST AT THE TERMINUS OF ALL UTILITY STUBS.
17. CONTRACTOR SHALL PROVIDE A MINIMUM OF 1 FOOT OF PROTECTIVE FILL OVER STORM DRAIN PIPES DURING CONSTRUCTION.
18. ALL TRAFFIC CONTROL DEVICES, MARKINGS, AND SIGNAGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES". ALL STREET AND REGULATORY SIGNS SHALL BE INSTALLED PRIOR TO INSTALLATION OF FINISHED PAVING.
19. THE CONTRACTOR SHALL REPLACE ANY EXISTING BITUMINOUS PAVING OR SUB-BASE WHICH IS DAMAGED OR REMOVED DURING CONSTRUCTION. ALL EXCAVATED AREAS SHALL BE BACKFILLED AND IN ACCORDANCE WITH THE SOILS REPORT AND/OR AS DIRECTED BY GEOTECHNICAL ENGINEER. ANY AREAS TO BE PAVED WHICH EXHIBIT UNSTABLE SUBGRADE CONDITIONS SHALL BE EXCAVATED TO BEARING SOIL, REFILLED AND COMPACTED.
20. IN AN AREA WHERE EXCAVATION IS NEEDED WITHIN THE ROAD RIGHT-OF-WAY, EXCAVATION MUST BE MADE WITHIN ONE (1) FOOT OF THE FINAL SUBGRADE.
21. WHERE FILL IS PROPOSED WITHIN THE ROAD RIGHT-OF-WAY, THE FILL SHALL BE A MINIMUM OF TWO (2) FEET BELOW THE FINAL ROAD SUBGRADE.
22. ALL LIGHTING TO COMPLY WITH ZONING REGULATION SPECIFICATIONS SECTION 154 OUTDOOR LIGHTING. LIGHT TRESPASS ONTO ADJOINING PROPERTIES SHALL BE LIMITED TO 01 FOOT CANDLES (PER SECTION 154.01 OF THE HOWARD COUNTY ZONING REGULATIONS). PER FDP-43-A-II SECTION 3 SITE CRITERIA PARKING AND ROADWAY LIGHTING SHALL BE DESIGNED TO BE CONSISTENT WITH THE LIGHTING CONCEPTS USED IN THE COLUMBIA TOWN CENTER. ALL EXPOSED METAL ON LIGHT FIXTURES OR POLES SHALL BE DARK BRONZE. PARKING AREAS SHALL BE LIGHTED BY 24" MAXIMUM HEIGHT, CUT-OFF LUMINARIES. THE LIGHTING SHALL BE PLACED AND DIRECTED IN SUCH MANNER SO AS NOT TO ILLUMINATE ADJACENT RESIDENTIAL AREAS.
23. ALL STORM DRAINS TO BE RCCP OR HDPE UNLESS OTHERWISE NOTED.

# Site Development Plan

for

# VILLAGE OF OAKLAND MILLS

## SECTION 3, AREA 1

# Parcel 'A'

# Walgreens #11949

# Howard County, Maryland

# SDP 08 - 097

**DESIGN MANUAL REQUEST WAIVER TO VOLUME 1, SECTION 5.2.7.D.1.b**  
WHICH REQUIRES THAT FOR ACCESS FOR THE UNDERGROUND FACILITY SHALL BE OUTSIDE OF TRAVELED AREAS AND BEHIND CURB LINES WAS APPROVED ON NOVEMBER 10, 2008 BY DEVELOPMENT ENGINEERING DIVISION.

**DESIGN MANUAL REQUEST WAIVER TO VOLUME 1, SECTION 5.2.7.D.1.a**  
WHICH REQUIRES THAT THE CONTROL STRUCTURE FOR AN UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE COMPOSED OF THE SAME MATERIAL AS THE PIPE ATTENUATION FACILITY WAS APPROVED ON NOVEMBER 10, 2008 BY DEVELOPMENT ENGINEERING DIVISION.

**WAIVER PETITION WP-09-016**  
REQUEST TO WAIVE SECTION 16.1B(6) WHICH STATES THAT GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, AND PAVING ARE NOT PERMITTED IN WETLANDS, STREAMS, WETLAND BUFFERS OR STEEP SLOPES. APPROVAL WAS GRANTED BY DEPARTMENT OF PLANNING AND ZONING DATED DECEMBER 03, 2009.

**GENERAL NOTES**

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTIONS DIVISION AT (410) 313-1800 AT LEAST FIVE (5) WORKING DAYS PRIOR TO THE START OF WORK.
3. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
4. 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.
5. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
6. THE EXISTING TOPOGRAPHY IS TAKEN FROM A FIELD RUN SURVEY WITH MAXIMUM TWO FOOT CONTOUR INTERVALS PREPARED BY G. W. STEPHENS JR. & ASSOC. DATED DECEMBER 2005.
7. THE COORDINATES SHOWN HEREON ARE BASED UPON HOWARD COUNTY'S GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM, HOWARD COUNTY MONUMENT NOS. 304A AND 368C WERE USED FOR THIS PROJECT.
8. WATER IS PUBLIC AND WILL BE CONSTRUCTED UNDER AN ADVANCED DEPOSIT ORDER (ADO). PATUXENT RIVER WATERSHED.
9. SEWER IS PUBLIC. PATUXENT RIVER WATERSHED.
10. STORMWATER MANAGEMENT QUANTITY WILL BE MET WITH THE USE OF AN UNDERGROUND PIPE STORAGE AND RELEASE STRUCTURE SYSTEM. BMPs FOR WATER QUALITY MANAGEMENT IS AN UNDERGROUND STORM FILTER VAULT. THE OPPOSITE SYSTEM THAT FLOWS CURRENTLY BY WAY OF OPEN GRASS CHANNEL WILL BE PIPED AROUND AND DISCHARGED DIRECTLY ABOVE EXISTING 27" CULVERT WITH A PROPOSED 30" RCCP. STORMWATER MANAGEMENT IS OWNED BY THE DEVELOPER MANEKIN, LLC.
11. EXISTING UTILITIES ARE BASED ON SITE DEVELOPMENT PLAN SDP 80-150C.
12. THERE IS NO FLOOD PLAIN ON SITE.
13. THE WETLANDS DELINEATION STUDY FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED MARCH 24, 2008 AND WAS APPROVED ON DECEMBER 03, 2008.
14. THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED MARCH 20, 2008 AND WAS APPROVED ON DECEMBER 02, 2008.
15. THIS SUBJECT PROPERTY IS ZONED NT PER THE 02/02/04 COMPREHENSIVE ZONING PLAN AND THE "COMP LITE" ZONING AMENDMENTS EFFECTIVE 07/29/06.
16. PREVIOUSLY APPROVED PLANS F79-21C, SDP NO. 80 - 150C, FDP PHASE 43-A-II
17. ALL EXTERIOR LIGHTING WILL BE DIRECTED / REFLECTED AWAY FROM ALL ADJACENT PUBLIC ROADS AND RESIDENTIAL ZONED DISTRICTS AND COMPLY WITH ALL OTHER REQUIREMENTS OF SECTION 154 OF THE ZONING REGULATIONS. LIGHT TRESPASS ONTO ADJOINING PROPERTIES SHALL BE LIMITED TO 01 FOOT CANDLES PER SECTION 154.01 OF THE HOWARD COUNTY ZONING REGULATIONS. PER FDP-43-A-II SECTION 3, SITE CRITERIA PARKING AND ROADWAY LIGHTING SHALL BE DESIGNED TO BE CONSISTENT WITH THE LIGHTING CONCEPTS USED IN THE COLUMBIA TOWN CENTER. ALL EXPOSED METAL ON LIGHT FIXTURES OR POLES SHALL BE DARK BRONZE FINISH. PARKING AREAS SHALL BE LIGHTED BY 24" MAXIMUM HEIGHT, CUT-OFF LUMINARIES. THE LIGHTING SHALL BE PLACED AND DIRECTED IN SUCH MANNER SO AS NOT TO ILLUMINATE ADJACENT RESIDENTIAL AREAS.
18. THERE ARE NO CEMETERIES OR BURIAL GROUNDS LOCATED ON THIS SITE.
19. THIS PROJECT IS EXEMPT FROM FOREST CONSERVATION REQUIREMENTS BECAUSE THE PROPERTY IS ZONED NT AND HAS PRELIMINARY APPROVAL PRIOR TO 12/31/92 PER SECTION 16.12(2)(b)(iv).
20. THE LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE NEW TOWN ALTERNATIVE COMPLIANCE PROVISIONS OF CHAPTER VI OF THE HOWARD COUNTY LANDSCAPE MANUAL. LANDSCAPE SURETY AMOUNT OF \$17,280 WITH THE DPM, DEVELOPER'S AGREEMENT.
21. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE REQUIRED WETLANDS, STREAM(S) OR THEIR BUFFERS, FOREST CONSERVATION EASEMENT AREAS AND 100 YEAR FLOODPLAIN.
22. THE BUILDING WILL HAVE AN AUTOMATIC SPRINKLER SYSTEM.
23. STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURE AND POLES SHALL BE IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL, VOLUME III (2006) SECTION 5.5.A. A MINIMUM OF 20" SHALL BE MAINTAINED BETWEEN ANY STREET LIGHT AND ANY TREE.
24. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL PERFORATED, SQUARE TUBE POST (1/4 GAUGE) INSERTED INTO A 2 - 1/2" GALVANIZED STEEL PERFORATED, SQUARE TUBE SLEEVE (1/2 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
25. TRASH COMPACTORS ENCLOSED AREA NEEDS TO HAVE LIGHT WEIGHT FOAM EXPANSION TANK OR A DRY WATER SPRINKLER SYSTEM WITH CHECK VALVE IN CASE OF A FIRE WITHIN THE TRASH COMPACTOR AREA PER THE FIRE MARSHALL OF HOWARD COUNTY.

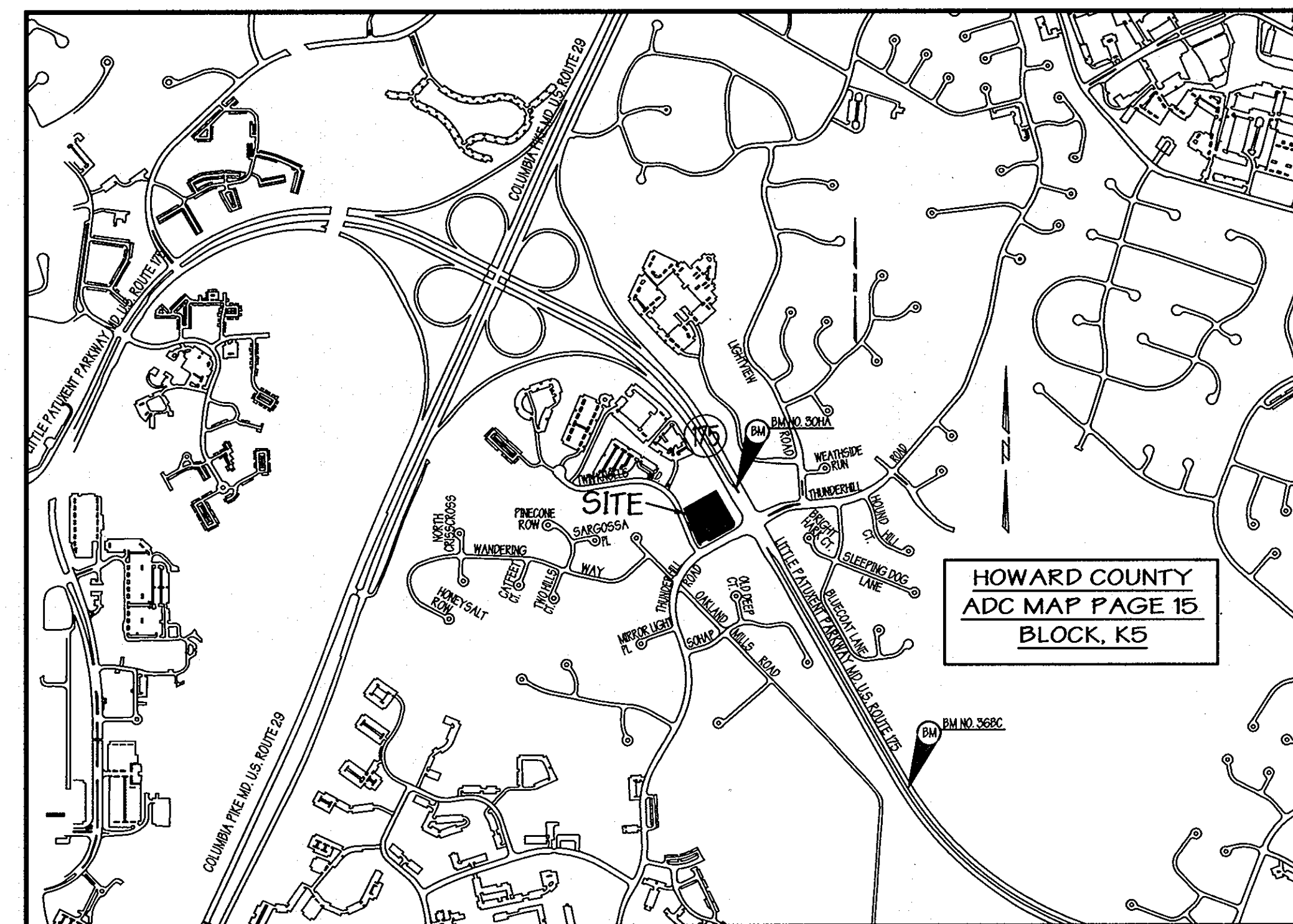
**SITE DATA**

1. SITE AREA OF PARCEL 'A': 114,128 SQ. FT. OR 2.62 AC±
2. EXISTING ZONING = NEW TOWN
3. PROPERTY REFERENCE = LIBER 9863 FOLIO 592
4. EXISTING USE = BANK
5. PROPOSED USE = ONE STORY WALGREENS PHARMACY = 14,820 SQ. FT.
6. BUILDING COVERAGE = 14,820 SQ. FT. OR 0.34 AC.
7. % OF BUILDING COVERAGE = 12.98%
8. AREA TO BE PAVED PLUS BUILDING AREA = 60,879 SQ. FT. OR 1.397 AC±
9. NUMBER OF PARKING SPACES REQUIRED (PER FDP PHASE 43-A-II REQUIREMENTS) 4 P.S. / 1,000 SQ. FT. X 14,820 = 60 P.S.
10. NUMBER OF PARKING SPACES PROVIDED 92 P.S. (INCL. 4 HANDICAPPED)
11. AREA TO BE DISTURBED = 130,680.00 SQ. FT. OR 3.00 AC.
12. AREA TO BE VEGETATIVELY STABILIZED = 531,143.20 SQ. FT. OR 122 AC±

**BENCHMARKS**

**BENCHMARK #30HA**  
HOWARD COUNTY GEODETIC CONTROL  
NAD 83  
N 566,030.60 E 1,357,989.57  
ELEVATION = 387.036'  
LOCATION - ROUTE 175 NEAR THUNDER HILL ROAD

**BENCHMARK #36BC**  
HOWARD COUNTY GEODETIC CONTROL  
NAD 83  
ELEVATION = 410.028'  
LOCATION - ROUTE 175 BETWEEN TAMAR DRIVE & THUNDERHILL ROAD



**INDEX of SHEETS**

- SHEET NO. 1 - COVER SHEET
- SHEET NO. 2 - EXISTING CONDITIONS PLAN
- SHEET NO. 3 - SITE PLAN
- SHEET NO. 4 - SITE PLAN DETAILS
- SHEET NO. 5 - DRAINAGE AREA MAP & UTILITY PROFILES
- SHEET NO. 6 - STORMDRAIN PROFILES
- SHEET NO. 7 - SWM EXISTING DRAINAGE AREA MAP
- SHEET NO. 8 - SWM PROPOSED DRAINAGE AREA MAP
- SHEET NO. 9 - SWM PLAN & PROFILES
- SHEET NO. 10 - WATER QUALITY PRETREATMENT PLAN, DETAILS & NOTES
- SHEET NO. 11 - WATER QUALITY PLAN & PROFILES
- SHEET NO. 12 - WATER QUALITY DETAILS & TRASH COMPACTOR DETAILS
- SHEET NO. 13 - WATER QUALITY RECHARGE STRUCTURES
- SHEET NO. 14 - SWM NOTES & DETAILS
- SHEET NO. 15 - SWM BORING LOGS
- SHEET NO. 16 - EROSION & SEDIMENT CONTROL PLAN & DEMOLITION PLAN PHASE I
- SHEET NO. 17 - EROSION & SEDIMENT CONTROL PLAN PHASE II
- SHEET NO. 18 - EROSION & SEDIMENT CONTROL NOTES & DETAILS
- SHEET NO. 19 - STRIPING & LIGHTING PLAN
- SHEET NO. 20 - MAINTENANCE OF TRAFFIC PLAN
- SHEET NO. 21 - LANDSCAPE PLAN
- SHEET NO. 22 - LANDSCAPE NOTES & DETAILS

APPROVED: Howard County Department of Planning and Zoning

*John D. ...* 6/2/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Keith ...* 6/7/10  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Momas ...* 6/2/10  
DIRECTOR DATE

Approved for public water and public sewerage systems:

COUNTY HEALTH OFFICER DATE  
HOWARD COUNTY HEALTH DEPARTMENT

Approved by the Planning Board of Howard County:  
Date 11-19-09

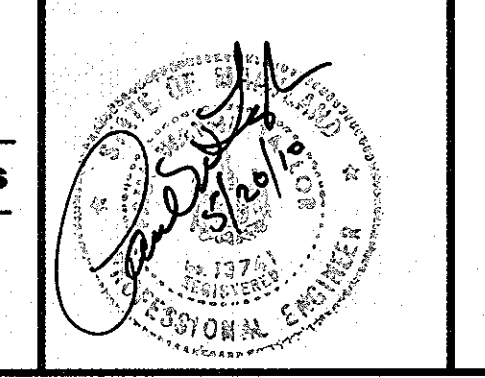
**VICINITY MAP**  
SCALE: 1" = 2,000'

\* 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. 13741, Expiration Date: 12-08-11.

ADDRESS CHART					
PARCEL NO.	STREET ADDRESS				
A	5585 TWIN KNOLLS ROAD				
PROJECT NAME					
VILLAGE OF OAKLAND MILLS					
SECTION NAME	PARCEL #				
3	A				
PLAT #	GRID	ZONE	TAX / ZONE MAP	ELECT. DIST.	CENSUS TRACT
#20954	22	NT	50		6606.03
WATER CODE	SEWER CODE				
E-06	5333000				

PREPARED BY:

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640



NOTE:  
The owner shall provide a separate and independent sewer connection for each tenant or occupant of any building shown on this site development plan who will discharge non-domestic waste to the public sewerage system. Each separate and independent sewer connection shall include a standard manhole and other waste pretreatment devices as required and approved by Howard County. Waste lines on the interior of the building shall be designed, constructed or modified such that non-domestic waste will be discharged to the separate and independent sewer connection. No tenant or occupant of any building shown on this site development plan shall discharge regulated non-domestic waste to the public sewerage system prior to installation of the separate and independent sewer connection and related interior waste lines. The above statement shall apply to all initial and future occupants or tenants.

**OWNER**  
**Thunder Hill, LLC**  
c/o Baver Properties Group, LLC  
1966 Greenspring Drive, Suite 50B  
Timonium, MD 21093  
410-560-0300

**DEVELOPER**  
**Manekin, LLC**  
2601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002

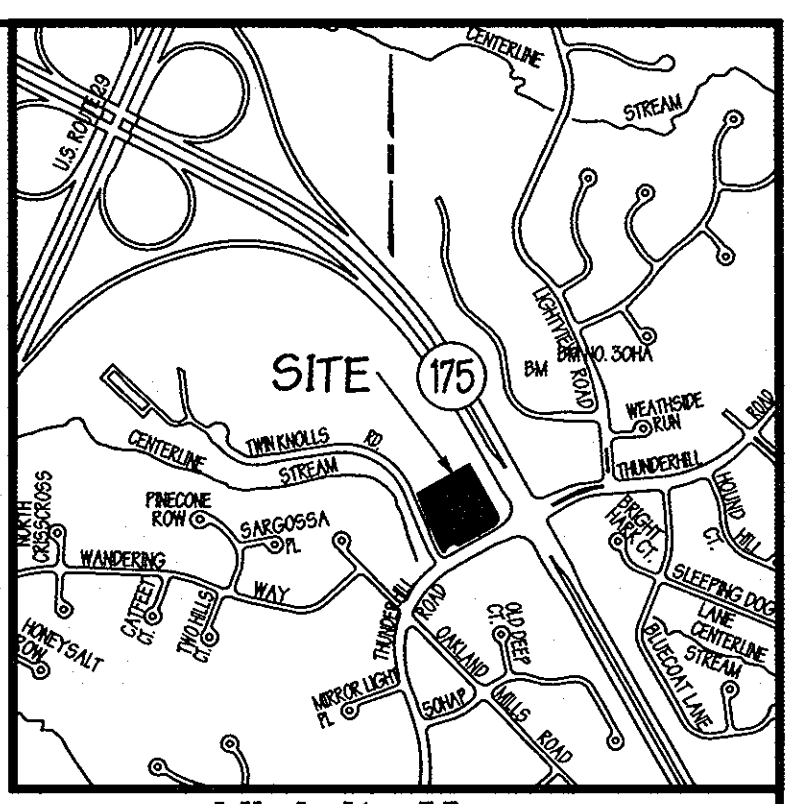
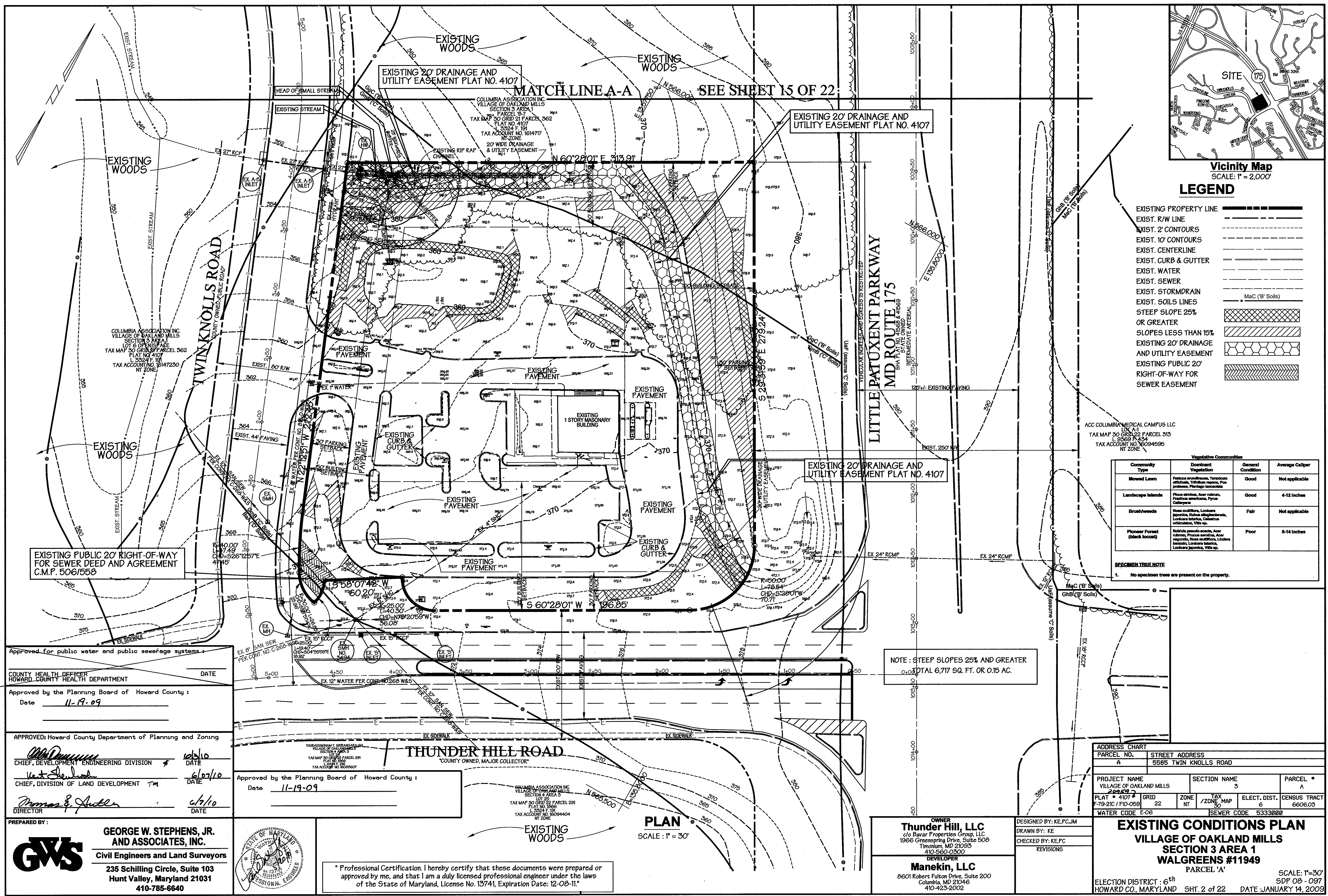
DESIGNED BY: KE,PC/JM  
DRAWN BY: KE  
CHECKED BY: KE,PC  
REVISIONS

**Cover Sheet**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
PARCEL 'A'

PREVIOUS FILE NO'S  
F79-21C, SDP 80-150C,  
FDP PHASE 43-A-II

ELECTION DISTRICT : 6<sup>th</sup>  
HOWARD CO., MARYLAND SHT. 1 of 22 DATE JANUARY 14, 2009  
SDP 08 - 097





**LEGEND**

EXISTING PROPERTY LINE  
 EXIST. R/W LINE  
 EXIST. 2' CONTOURS  
 EXIST. 10' CONTOURS  
 EXIST. CENTERLINE  
 EXIST. CURB & GUTTER  
 EXIST. WATER  
 EXIST. SEWER  
 EXIST. STORMDRAIN  
 EXIST. SOILS LINES  
 STEEP SLOPE 25% OR GREATER  
 SLOPES LESS THAN 15%  
 EXISTING 20' DRAINAGE AND UTILITY EASEMENT  
 EXISTING PUBLIC 20' RIGHT-OF-WAY FOR SEWER EASEMENT

**Vegetative Communities**

Community Type	Dominant Vegetation	General Condition	Average Caliper
Mowed Lawn	Poa annua, Festuca arvensis, Taraxacum officinale, Taraxacum officinale, Poa annua, Pteris caudata	Good	Not applicable
Landscape Islands	Pinus strobus, Acer rubrum, Prunus americana, Pyrus calleryana	Good	4-12 inches
Brush/woods	Rosa multiflora, Lonicera japonica, Ribes sanguineum, Lonicera tatarica, Calceolaria orthoceras, Vitis sp.	Fair	Not applicable
Pioneer Forest (black locust)	Robinia pseudo-acacia, Acer rubrum, Prunus serotina, Acer spicatum, Pteris caudata, Lonicera tatarica, Lonicera japonica, Vitis sp.	Poor	6-14 inches

**SPECIMEN TREE NOTE**  
 1. No specimen trees are present on the property.

NOTE: STEEP SLOPES 25% AND GREATER  
 TOTAL 6,717 SQ. FT. OR 0.15 AC.

**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME**  
 VILLAGE OF OAKLAND MILLS  
 SECTION 3 AREA 1  
 WALGREENS #11949

**SECTION NAME**  
 3

**PARCEL #**  
 A

**PLAT #** 4107  
**GRID** 22  
**ZONE** NT  
**TAX /ZONE MAP** 50  
**ELECT. DIST.** 6  
**CENSUS TRACT** 6606.03

**WATER CODE** E-06  
**SEWER CODE** 5333200

**OWNER**  
**Thunder Hill, LLC**  
 c/o Baver Properties Group, LLC  
 1966 Greenspring Drive, Suite 508  
 Timonium, MD 21093  
 410-560-0300

**DEVELOPER**  
**Manekin, LLC**  
 6601 Robert Fulton Drive, Suite 200  
 Columbia, MD 21046  
 410-423-2002

DESIGNED BY: KE, PC, JM  
 DRAWN BY: KE  
 CHECKED BY: KE, PC  
 REVISIONS

**EXISTING CONDITIONS PLAN**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
 PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup>  
 HOWARD CO., MARYLAND  
 SDP 08 - 097

SCALE: 1" = 30'  
 SDP 08 - 097  
 DATE: JANUARY 14, 2009  
 SHT. 2 of 22  
 P/N: 10-10642 P/N: 10642-sdp-02-exstingconditionsplan.01

Approved for public water and public sewerage systems

COUNTY HEALTH OFFICER  
 HOWARD COUNTY HEALTH DEPARTMENT

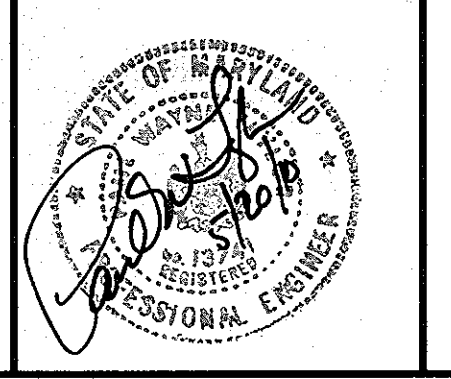
Approved by the Planning Board of Howard County:  
 Date 11-19-09

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 DATE 6/27/10

CHIEF, DIVISION OF LAND DEVELOPMENT  
 DATE 6/27/10

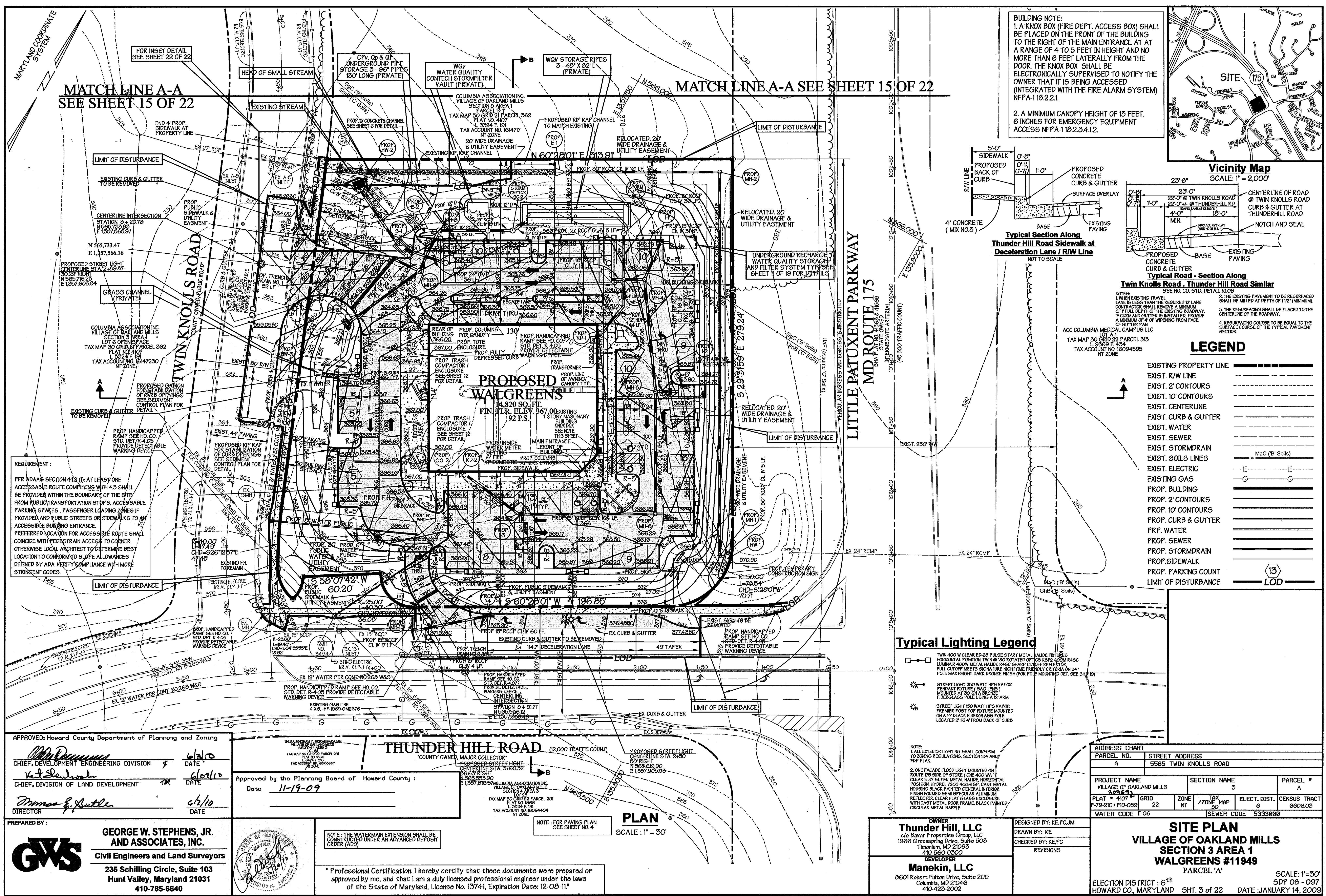
PREPARED BY:  
**GEORGE W. STEPHENS, JR.**  
**AND ASSOCIATES, INC.**  
 Civil Engineers and Land Surveyors  
 235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640



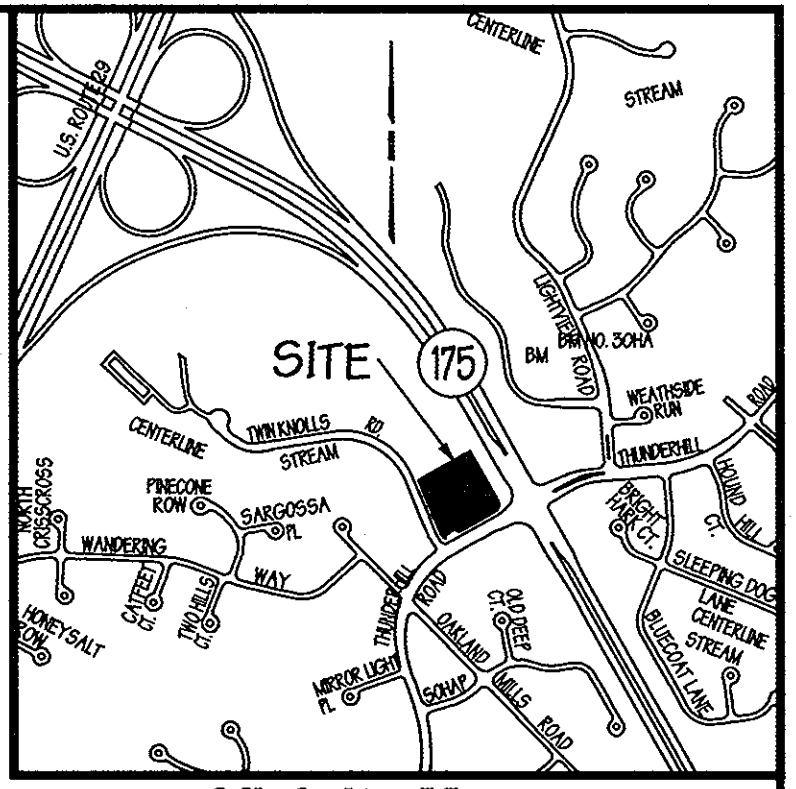
"Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12-08-11"

**PLAN**  
 SCALE: 1" = 30'





**BUILDING NOTE:**  
1. A KNOX BOX (FIRE DEPT. ACCESS BOX) SHALL BE PLACED ON THE FRONT OF THE BUILDING TO THE RIGHT OF THE MAIN ENTRANCE AT A RANGE OF 4 TO 5 FEET IN HEIGHT AND NO MORE THAN 6 FEET LATERALLY FROM THE DOOR. THE KNOX BOX SHALL BE ELECTRONICALLY SUPERVISED TO NOTIFY THE OWNER THAT IT IS BEING ACCESSED (INTEGRATED WITH THE FIRE ALARM SYSTEM) NFFA-118.2.2.1.  
2. A MINIMUM CANOPY HEIGHT OF 13 FEET, 6 INCHES FOR EMERGENCY EQUIPMENT ACCESS NFFA-118.2.3.4.1.2.



**REQUIREMENT:**  
PER ADAAG SECTION 4.13 (1): AT LEAST ONE ACCESSIBLE ROUTE COMPLYING WITH 4.3 SHALL BE PROVIDED WITHIN THE BOUNDARY OF THE SITE FROM PUBLIC TRANSPORTATION STOPS, ACCESSIBLE PARKING SPACES, PASSENGER LOADING ZONES IF PROVIDED AND PUBLIC STREETS OR SIDEWALKS TO AN ACCESSIBLE BUILDING ENTRANCE. PREFERRED LOCATION FOR ACCESSIBLE ROUTE SHALL COINCIDE WITH PEDESTRIAN ACCESS TO CORNER. OTHERWISE LOCAL ARCHITECT TO DETERMINE BEST LOCATION TO CONFORM TO SLOPE ALLOWANCES DEFINED BY ADA. VERIFY COMPLIANCE WITH MORE STRINGENT CODES.

APPROVED: Howard County Department of Planning and Zoning  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6/15/10  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/17/10  
 DIRECTOR DATE 6/17/10

Approved by the Planning Board of Howard County:  
 Date 11-19-09

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
 Civil Engineers and Land Surveyors  
 235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640

**THUNDER HILL ROAD** (12,000 TRAFFIC COUNT)  
 COUNTY OWNED, MAJOR COLLECTOR  
 PROPOSED STREET LIGHT CENTERLINE STA. 3+80.32  
 50' RIGHT N 66°58'19" E 1,557,905.95  
 50' LEFT N 66°58'19" E 1,557,905.95

**PLAN**  
 SCALE: 1" = 30'

NOTE: THE WATERMAIN EXTENSION SHALL BE CONSTRUCTED UNDER AN ADVANCED DEPOSIT ORDER (ADO)

\* 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. 13741, Expiration Date: 12-08-11.\*

**OWNER**  
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 c/o Bavar Properties Group, LLC  
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**DEVELOPER**  
**Manekin, LLC**  
 8601 Robert Fulton Drive, Suite 200  
 Columbia, MD 21046  
 410-423-2002

DESIGNED BY: KE, PC, JM  
 DRAWN BY: KE  
 CHECKED BY: KE, PC  
 REVISIONS

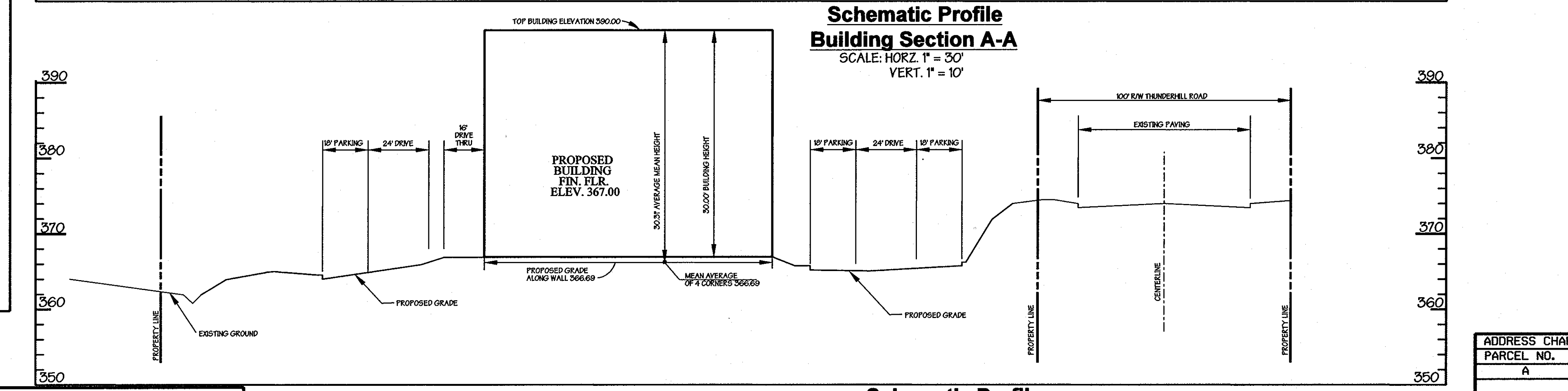
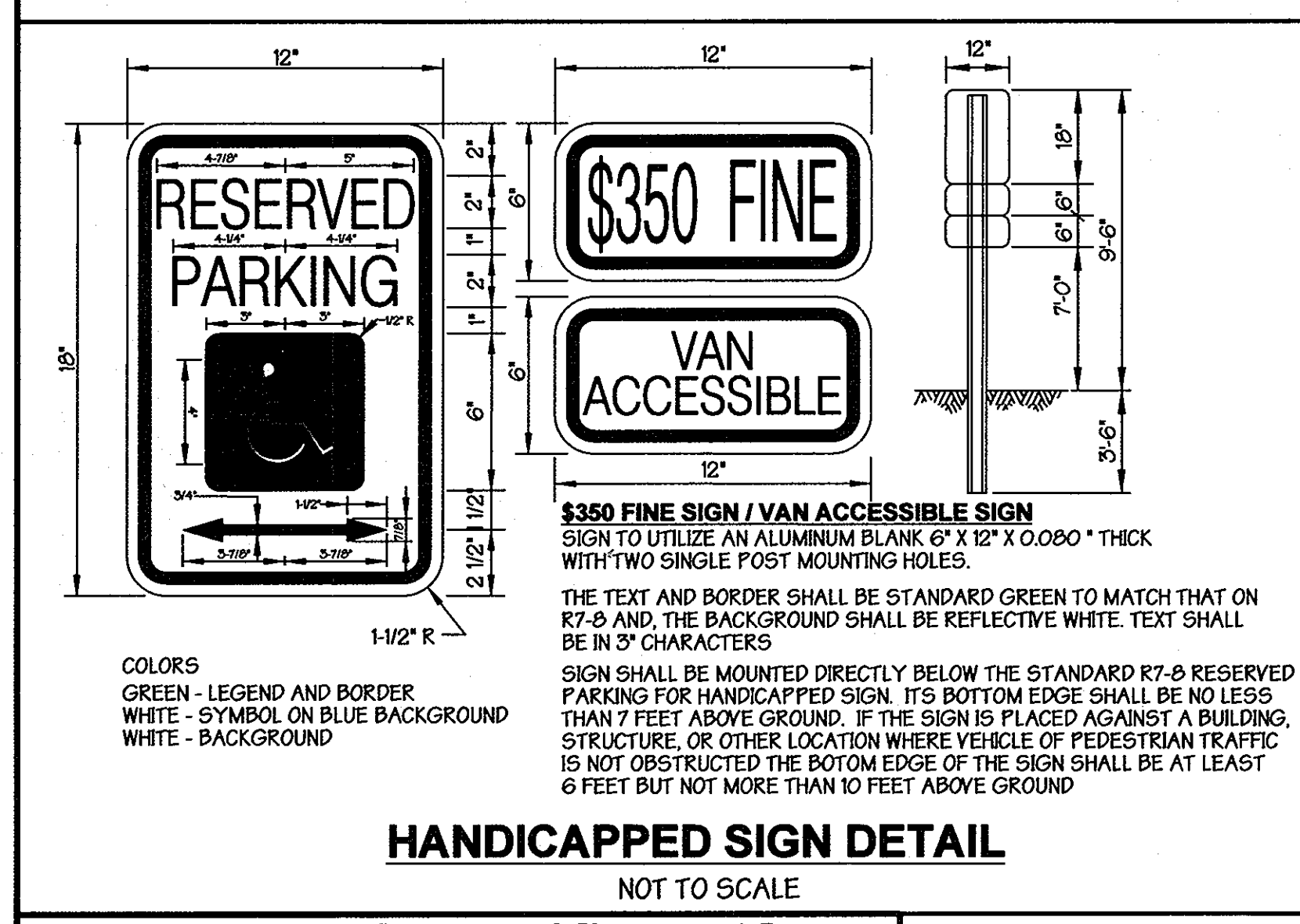
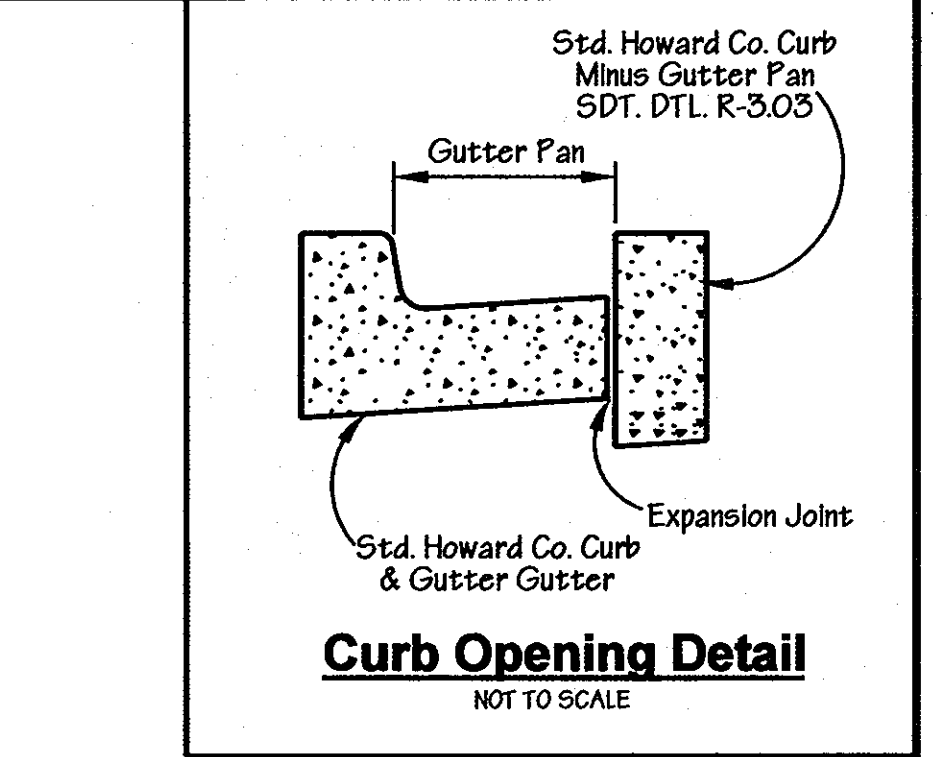
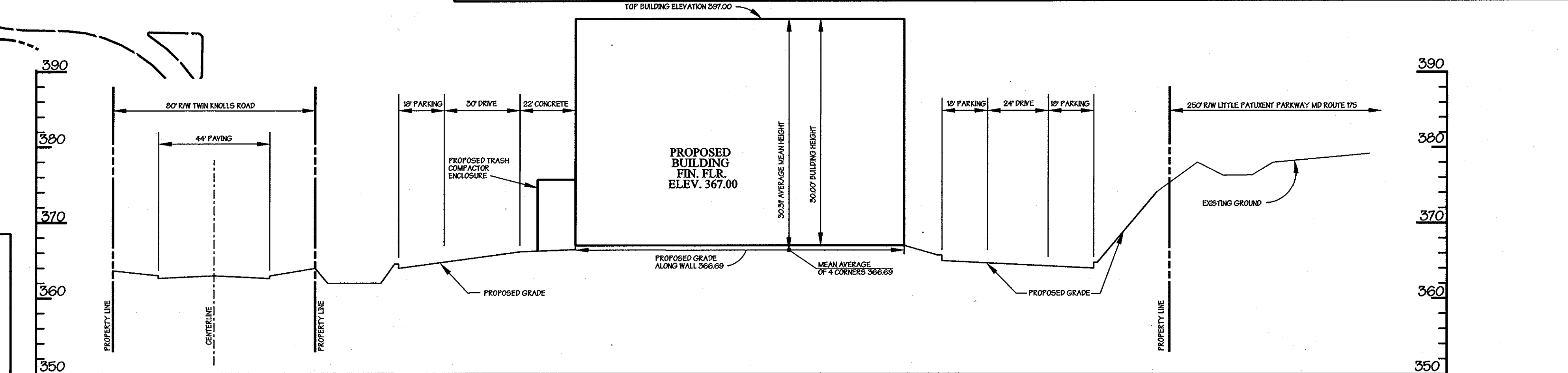
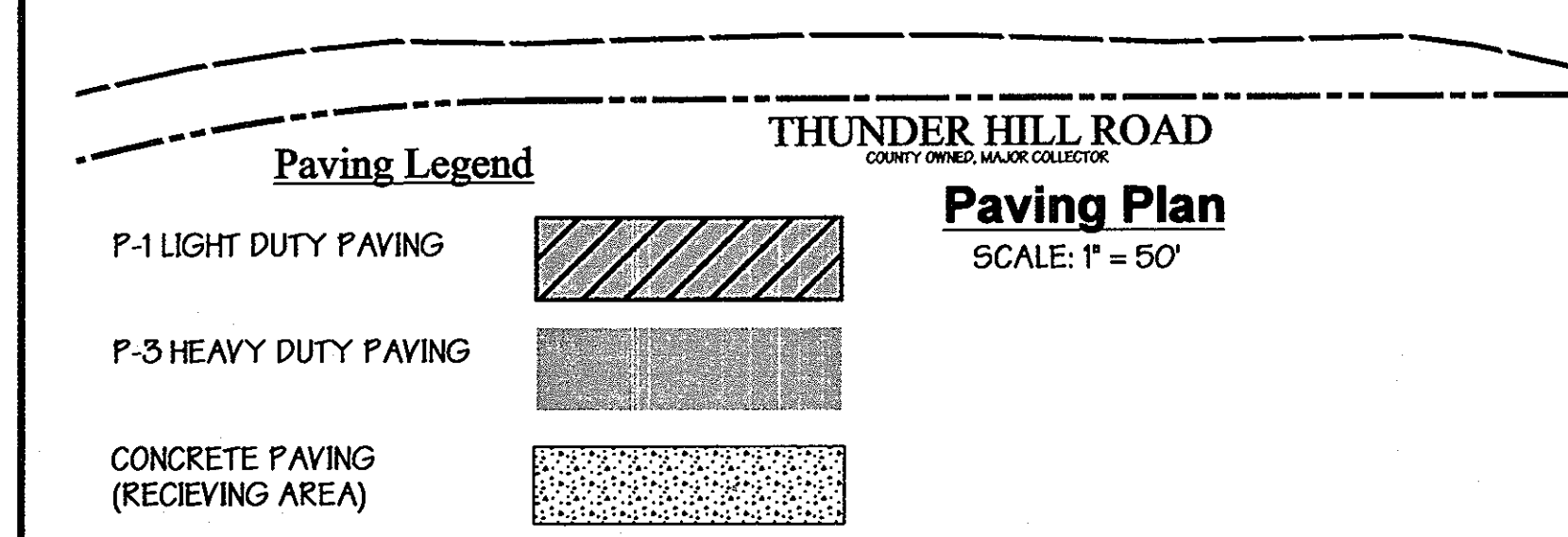
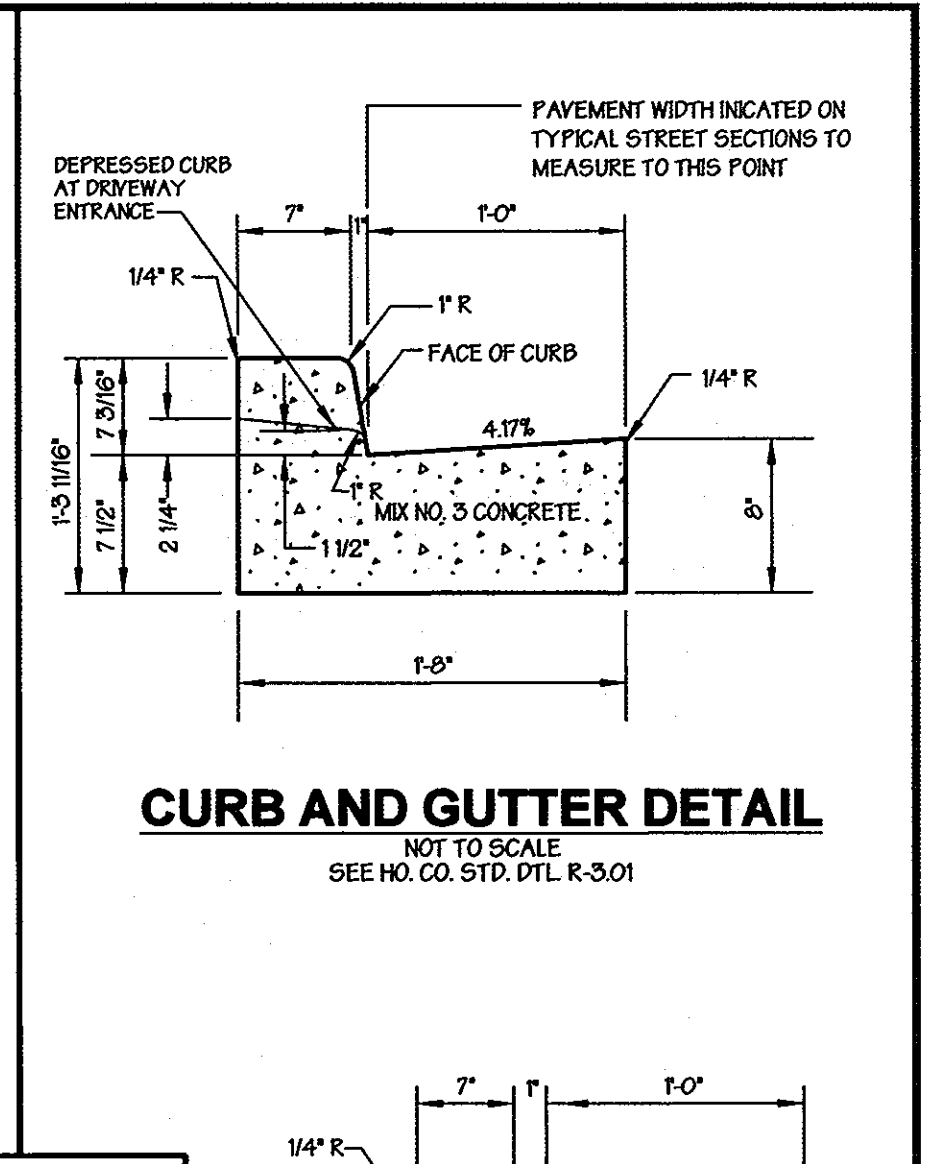
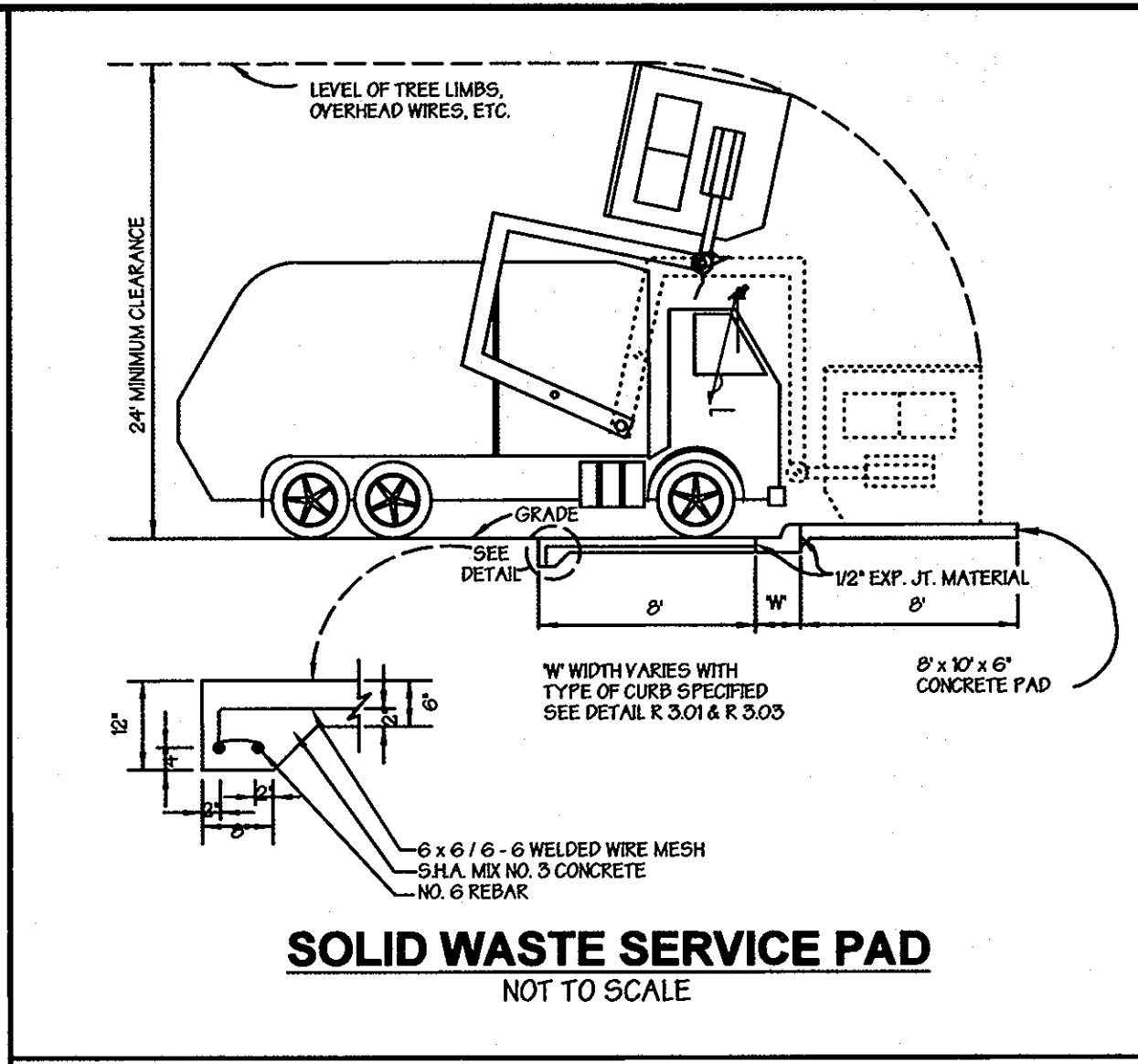
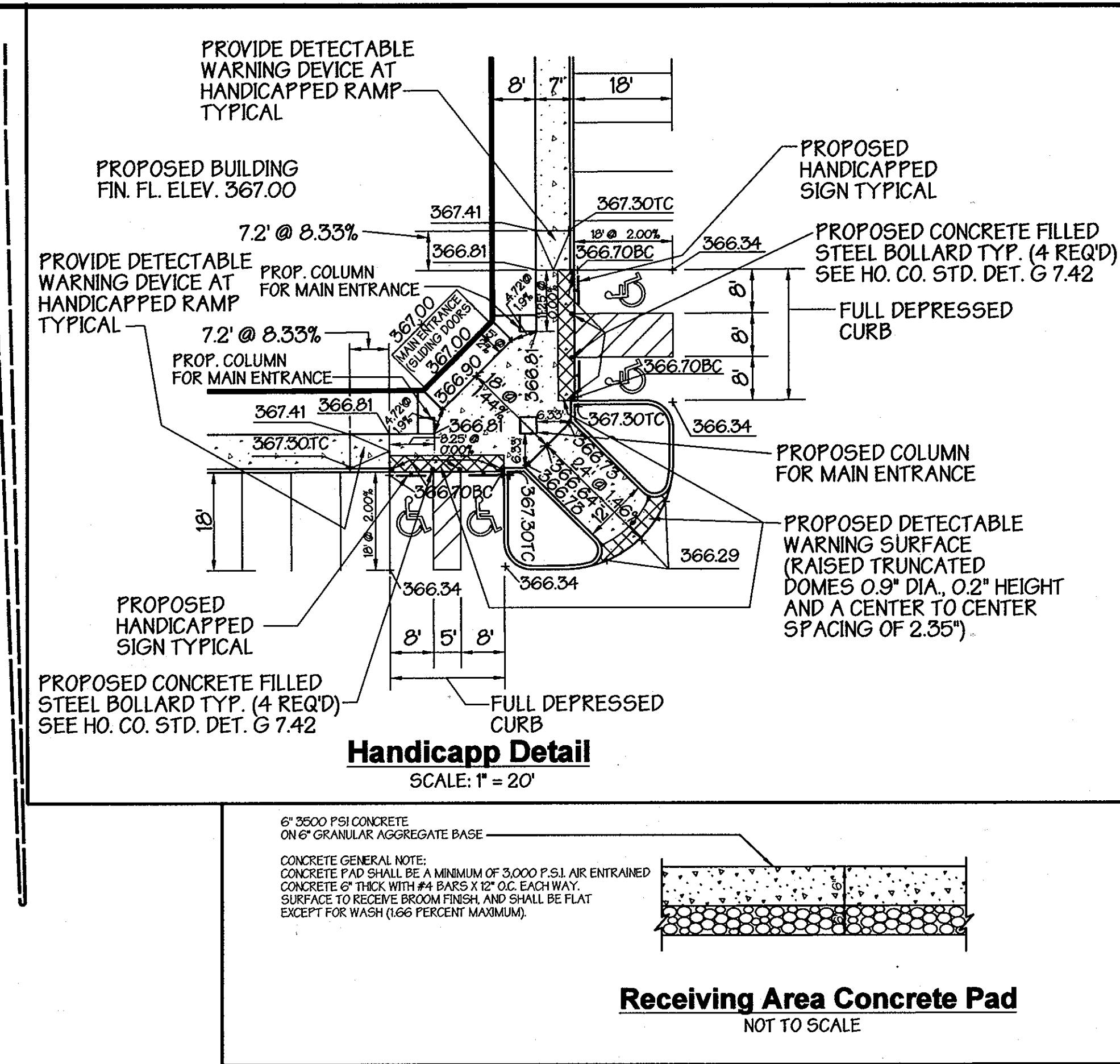
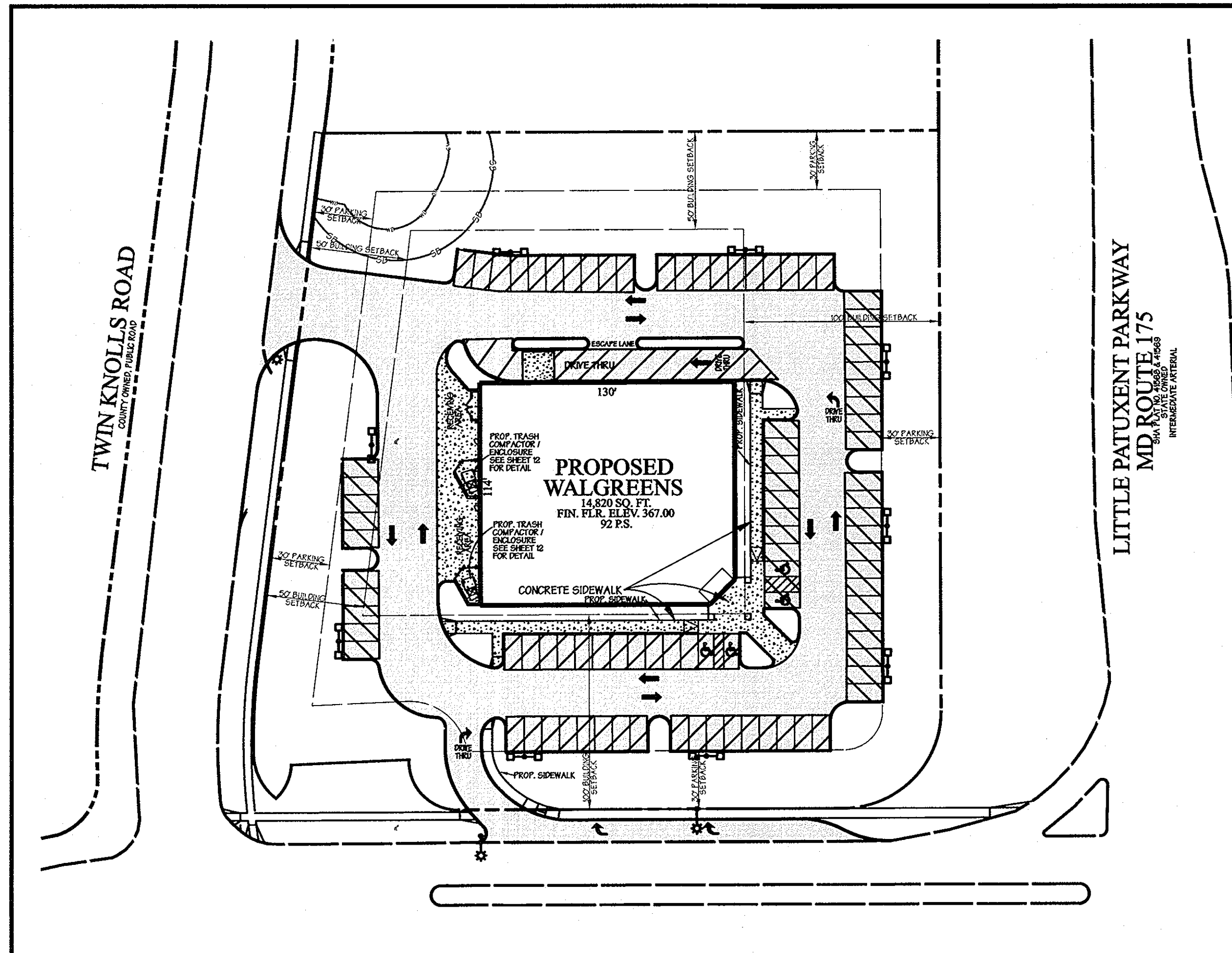
ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
A	5685 TWIN KNOLLS ROAD

PROJECT NAME	SECTION NAME	PARCEL #
VILLAGE OF OAKLAND MILLS	3	A

PLAT #	GRID	ZONE	TAX MAP	ELECT. DIST.	CENSUS TRACT
4107	22	NT	79-21C / F10-059	6	6606.03

SITE PLAN	
VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949	
PARCEL 'A'	
ELECTION DISTRICT: 6 <sup>th</sup>	SCALE: 1" = 30'
HOWARD CO., MARYLAND	SDP 08 - 097
SDP 08 - 097	DATE: JANUARY 14, 2009





APPROVED: Howard County Department of Planning and Zoning  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* 6/2/10  
 CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* 6/07/10  
 DIRECTOR: *[Signature]* 6/7/10

Approved by the Planning Board of Howard County:  
 Date: 11-19-09

\* 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. 13741, Expiration Date: 12-08-11.

PREPARED BY:  
**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
 Civil Engineers and Land Surveyors  
 235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640

OWNER: **Thunder Hill, LLC**  
 c/o Bayat Properties Group, LLC  
 1966 Greenspring Drive, Suite 508  
 Timonium, MD 21093  
 410-560-0300

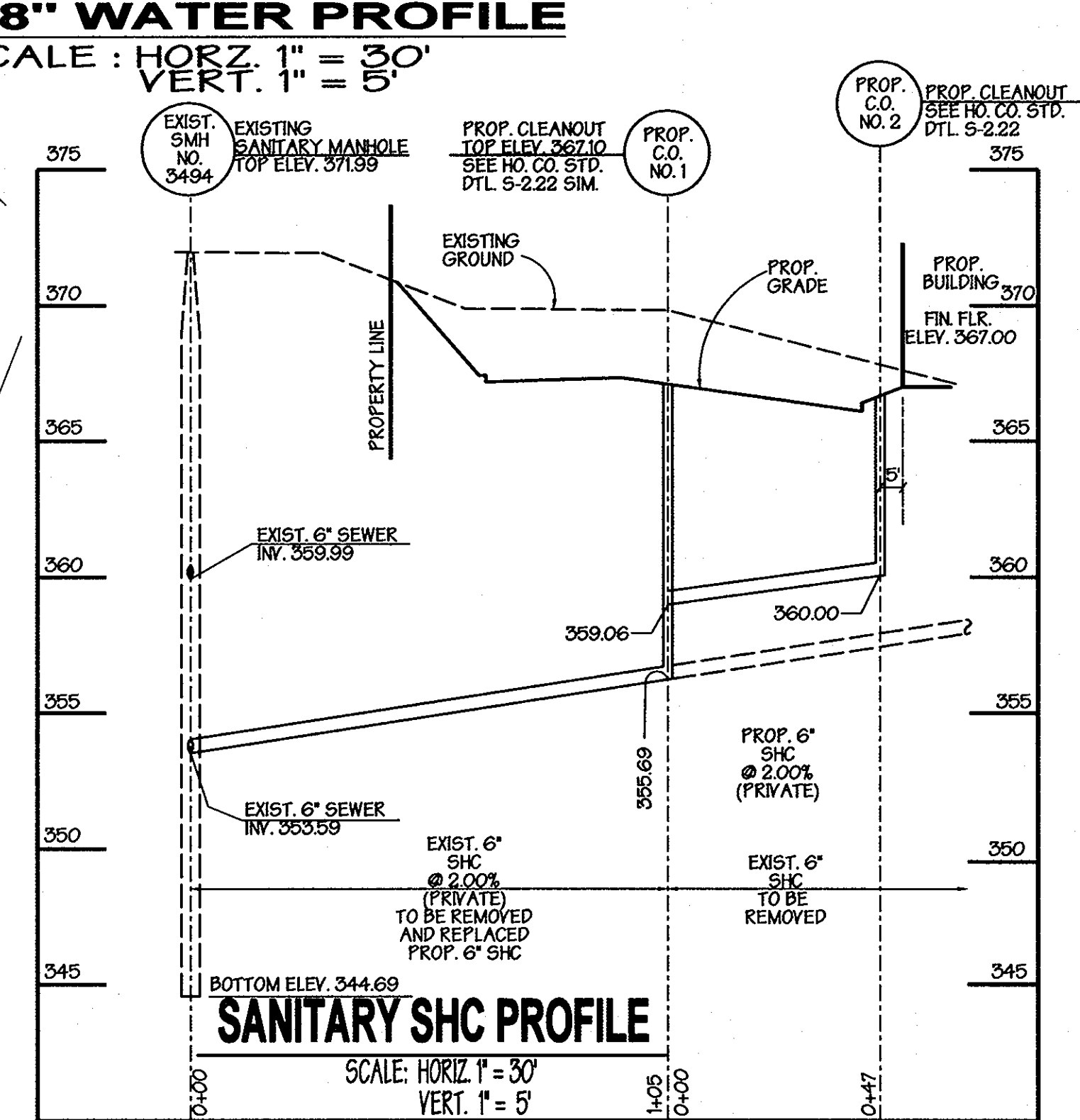
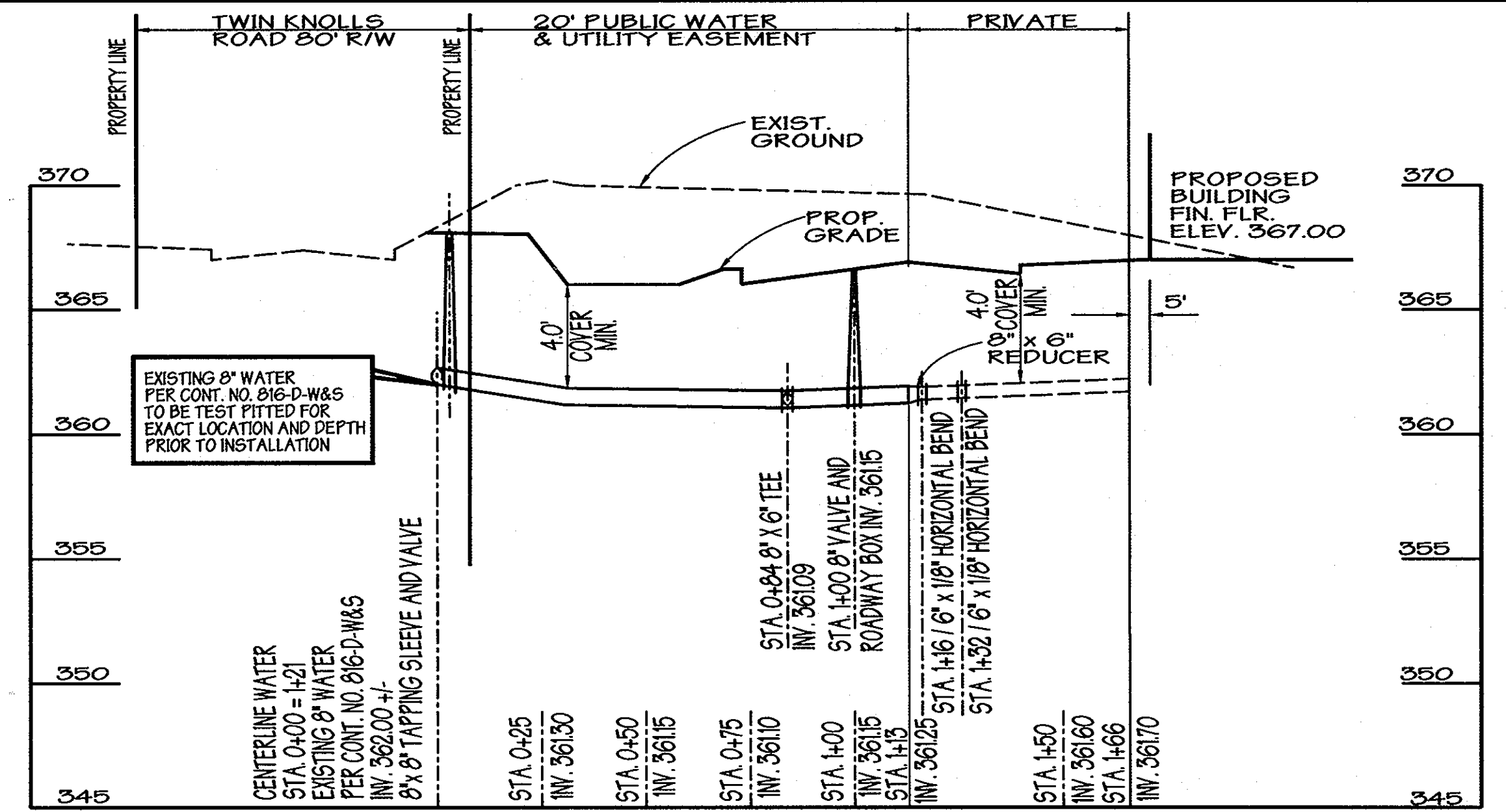
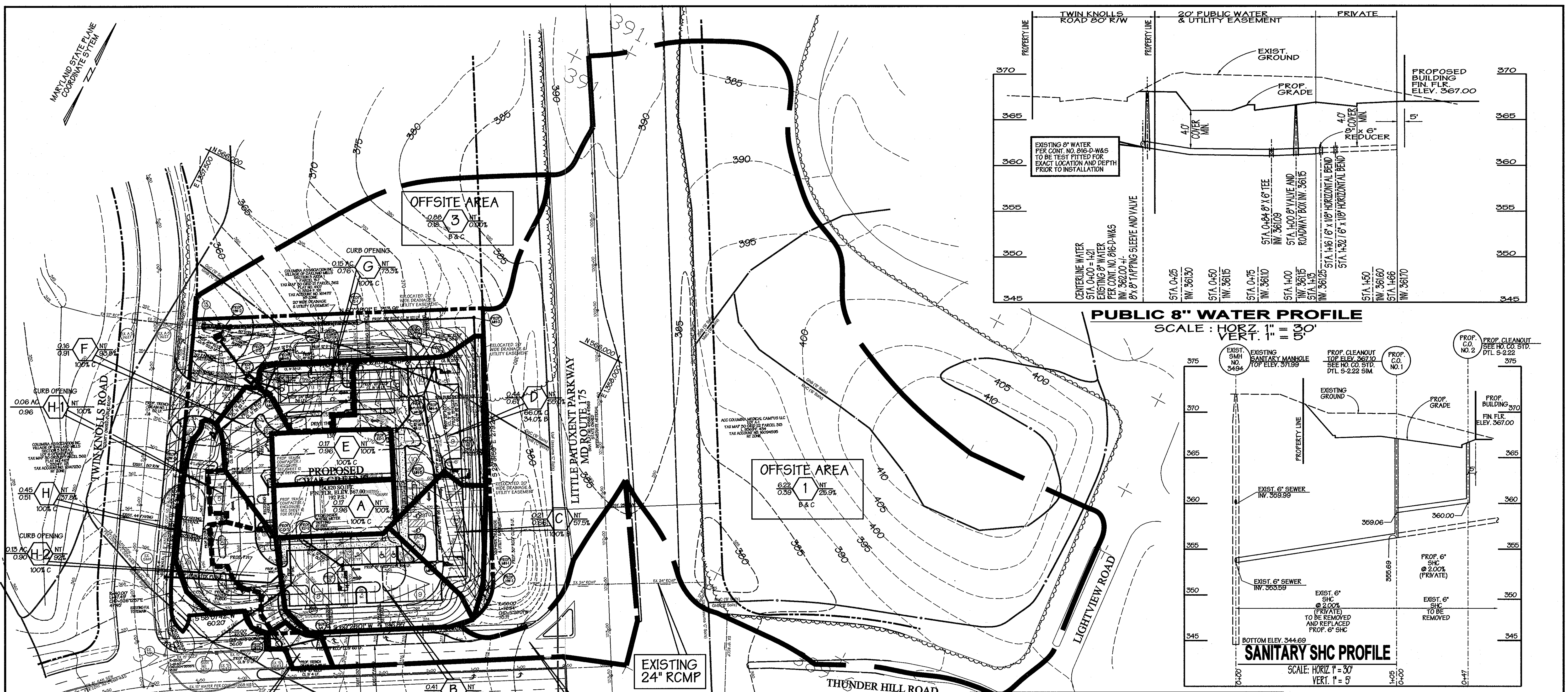
DEVELOPER: **Manekin, LLC**  
 6601 Robert Fulton Drive, Suite 200  
 Columbia, MD 21046  
 410-423-2002

DESIGNED BY: KE, PC, JM  
 DRAWN BY: KE  
 CHECKED BY: KE, PC  
 REVISIONS:

ADDRESS CHART	
PARCEL NO. A	STREET ADDRESS 5585 TWIN KNOLLS ROAD
PROJECT NAME VILLAGE OF OAKLAND MILLS	SECTION NAME 3
PARCEL # A	
PLAT # 4107	GRID 22
ZONE NT	TAX / ZONE MAP 50
ELECT. DIST. 6	CENSUS TRACT 6806.03
WATER CODE E-06	SEWER CODE 5333000

SITE DETAILS PLAN  
**VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949**  
 PARCEL 'A'  
 ELECTION DISTRICT: 6<sup>th</sup>  
 HOWARD CO., MARYLAND  
 SHEET 4 of 22  
 DATE JANUARY 14, 2009  
 SDP 08 - 097





### STRUCTURE SCHEDULE

NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	HO. CO. DTL.	PUBLIC / PRIVATE
MH-1	SHALLOW PRECAST MANHOLE	376.00	370.80	370.70	G-5.13	PUBLIC
MH-2	STD. PRECAST MANHOLE	377.50	365.10	365.00	G-5.13	PUBLIC
SPLITTER MH-3*	SPLITTER MANHOLE	364.16	*	*	SEE SHEET 10 OF 19	PRIVATE
MH-4	SHALLOW PRECAST MANHOLE	363.68	359.29	359.04	G-5.12	PRIVATE
MH-5	SHALLOW PRECAST MANHOLE	364.20	360.00	359.80	G-5.12	PRIVATE
MH-6	SHALLOW PRECAST MANHOLE	366.16	360.68	360.48	G-5.12	PRIVATE
SPLITTER MH-7*	SPLITTER MANHOLE	364.20	*	*	SEE SHEET 10 OF 19	PRIVATE
MH-8	SHALLOW PRECAST MANHOLE	362.70	358.69	358.59	G-5.12	PRIVATE
MH-9	SHALLOW PRECAST MANHOLE	363.00	358.97	358.87	G-5.12	PRIVATE
E-1	30\"/>					
E-2	12\"/>					
HW-1	TYPE 'N' HEADWALL	374.40	370.90		D5.11	PUBLIC
HW-2	TYPE 'N' HEADWALL	354.50		351.50	SEE SHEET 9 OF 19	PRIVATE
HW-3	TYPE 'N' HEADWALL	362.85		360.10	D5.11	PRIVATE
S-1	RISER	362.00	352.00	351.80	SEE SHEET 9 OF 19	PRIVATE

### INLET SCHEDULE

NO.	TYPE	TOP ELEV.	INV. IN	INV. OUT	Q <sub>c.f.s.</sub>	HO. CO. DTL.	PUBLIC / PRIVATE
I-1	DOUBLE 'S' COMB	362.79		359.30	2.83	D4.34	PRIVATE
I-2	SINGLE 'S'	363.80		360.20	1.19	D4.22	PRIVATE
I-3	SINGLE 'S'	364.63	361.45	361.20	2.64	D4.22	PRIVATE
I-4	DOUBLE 'S' COMB	373.20		369.00	3.83	D4.34	PRIVATE
TD-1	TRENCH DRAIN	362.00		359.08	1.28		PRIVATE
TD-2	TRENCH DRAIN	370.00		367.18	1.13		PRIVATE

### Legend

AREA	ACREAGE	C'	% IMP.
(A)	0.17Ac±	0.96	100%
(B)	0.41Ac±	0.66	58.5%
(C)	0.21Ac±	0.66	57.5%
(D)	0.44Ac±	0.67	55.0%
(E)	0.17Ac±	0.96	100%
(F)	0.16Ac±	0.91	93.8%
(G)	0.15Ac±	0.76	73.3%
(H)	0.45Ac±	0.51	37.8%

### DRAINAGE AREA TO CURB OPENING

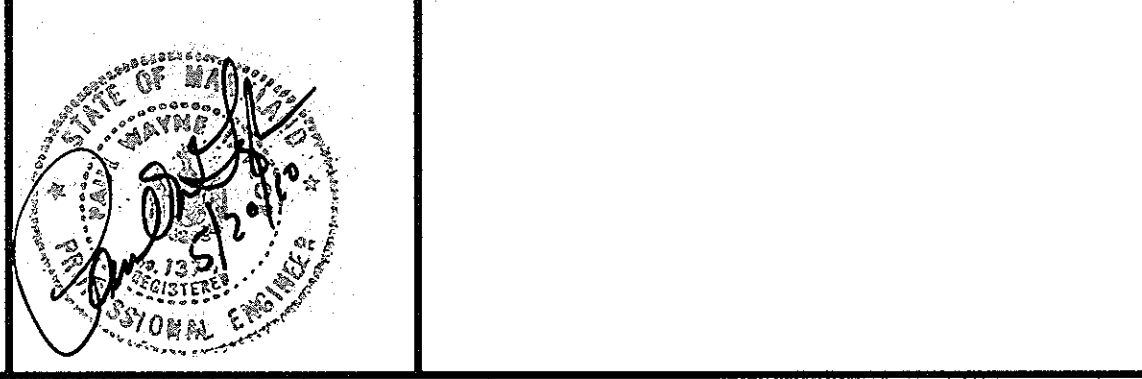
AREA	ACREAGE	C'	% IMP.
(H-1)	0.06Ac±	0.96	100%
(H-2)	0.15Ac±	0.90	92%

APPROVED: Howard County Department of Planning and Zoning  
 Chief, Development Engineering Division: *[Signature]* DATE: 6/2/10  
 Chief, Division of Land Development: *[Signature]* DATE: 6/7/10  
 Director: *[Signature]* DATE: 6/7/10

Approved by the Planning Board of Howard County:  
 Date: 11-19-09

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. 13741, Expiration Date: 12-08-11.

PREPARED BY:  
**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
 Civil Engineers and Land Surveyors  
 235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640



OWNER:  
**Thunder Hill, LLC**  
 c/o Bavar Properties Group, LLC  
 1966 Greening Drive, Suite 508  
 Timonium, MD 21093  
 410-560-0300

DEVELOPER:  
**Manekin, LLC**  
 8601 Robert Fulton Drive, Suite 200  
 Columbia, MD 21046  
 410-423-2002

DESIGNED BY: KE, PCJM  
 DRAWN BY: KE  
 CHECKED BY: KE, PC  
 REVISIONS:

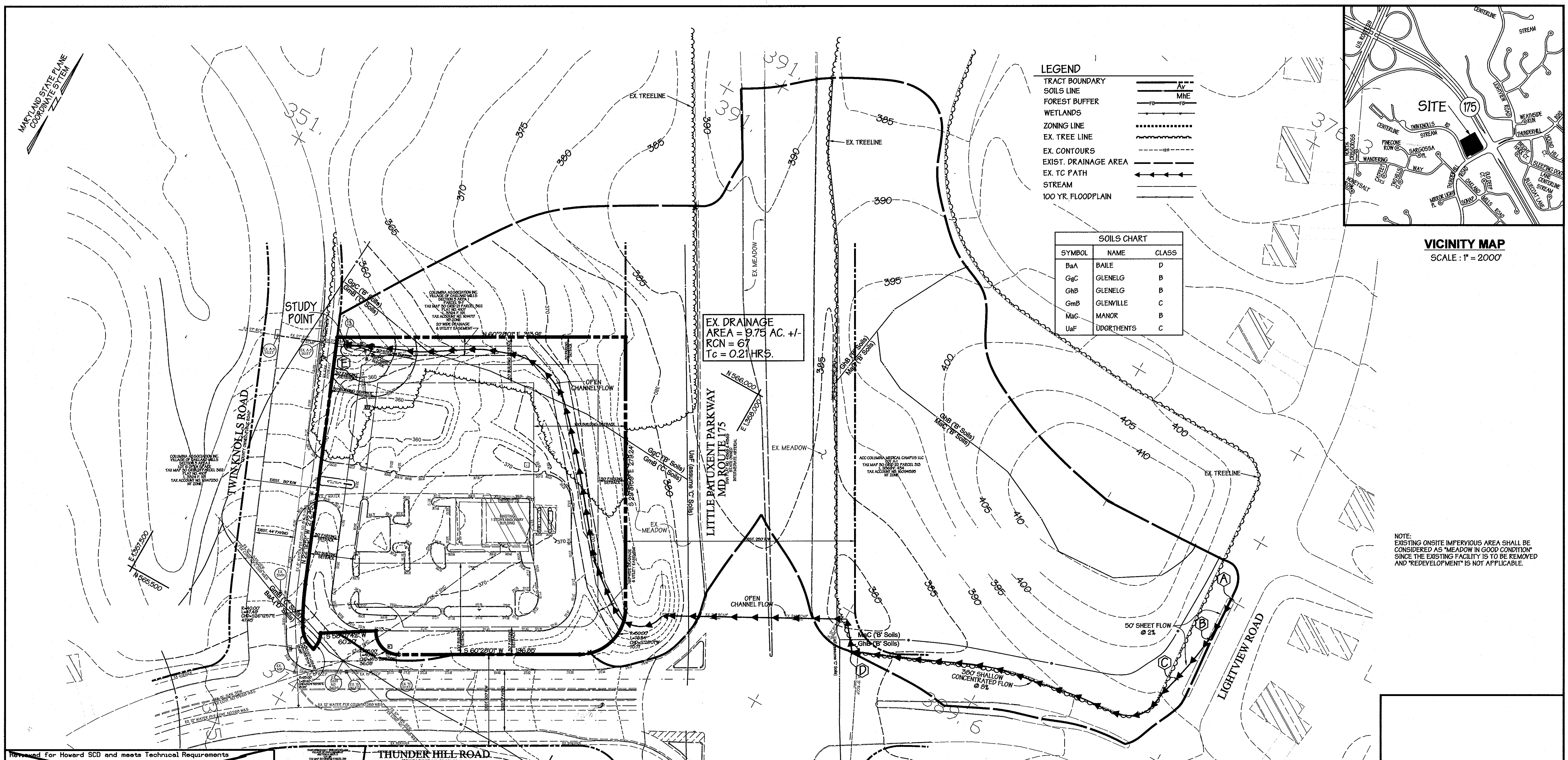
**Drainage Area Map**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
 PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup>  
 HOWARD CO., MARYLAND SHT. 5 of 22 DATE: JANUARY 14, 2009  
 SDP 08 - 097







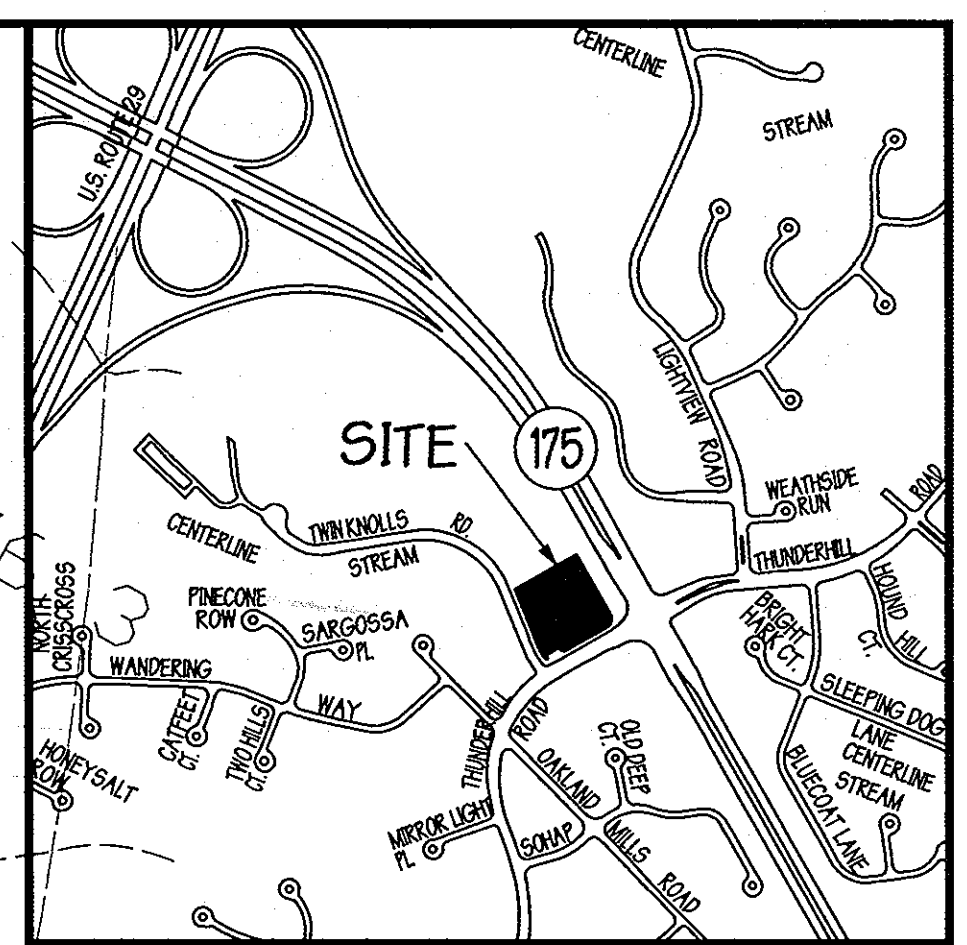


**LEGEND**

- TRACT BOUNDARY
- SOILS LINE
- FOREST BUFFER
- WETLANDS
- ZONING LINE
- EX. TREE LINE
- EX. CONTOURS
- EXIST. DRAINAGE AREA
- EX. TC PATH
- STREAM
- 100 YR. FLOODPLAIN

**SOILS CHART**

SYMBOL	NAME	CLASS
BaA	BAILE	D
GgC	GLENELG	B
GhB	GLENELG	B
GmB	GLENVILLE	C
MaC	MANOR	B
UaF	UDORTHENTS	C



**VICINITY MAP**  
SCALE: 1" = 2000'

NOTE: EXISTING ONSITE IMPERVIOUS AREA SHALL BE CONSIDERED AS "MEADOW IN GOOD CONDITION" SINCE THE EXISTING FACILITY IS TO BE REMOVED AND "REDEVELOPMENT" IS NOT APPLICABLE.

**EXISTING SUMMARY TABLE**

FREQUENCY STORM (YR)	PEAK DISCHARGE (cfs)
1	3.78
10	21.67
100	40.73

**EXISTING SWM DRAINAGE AREA MAP**  
SCALE: 1" = 50'

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 SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

*Mark Williams* 6/6/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Walt Shindler* 6/23/10  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Mona E. Butler* 6/7/10  
DIRECTOR DATE

Approved by the Planning Board of Howard County:  
Date 11-19-09

\* 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. 13741, Expiration Date: 12-08-11.

PREPARED BY:

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640

**ENGINEER CERTIFICATION:**

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 Engineer: *Paul W. Taylor* Date: 5/20/10  
Print Name: PAUL W. TAYLOR PE # 13741

**DEVELOPER CERTIFICATION:**

I/ We certify that all development and/or 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 inspections by the Howard Soil Conservation District.

Signature of Developer: *R. Callan Schuff, Jr.* Date: 5/20/10  
Print Name: R. Callan Schuff, Jr.

**PATUXENT RIVER WATERSHED**

OWNER  
**Thunder Hill, LLC**  
c/o Bavar Properties Group, LLC  
1966 Greenspring Drive, Suite 50B  
Timonium, MD 21093  
410-560-0300

DEVELOPER  
**Manekin, LLC**  
2601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002

DESIGNED BY: KE, PC, JM  
DRAWN BY: KE  
CHECKED BY: KE, PC  
REVISIONS

**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME** VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 PARCEL # A

FLAT # 4107 GRID 22 ZONE NT TAX MAP 30 ELECT. DIST. 6 CENSUS TRACT 6606.03

WATER CODE E-06 SEWER CODE 533300B

**EXISTING DRAINAGE AREA MAP**  
VILLAGE OF OAKLAND MILLS  
SECTION 3 AREA 1  
WALGREENS #11949  
PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup> HOWARD CO., MARYLAND SHT. 7 of 22 DATE: JANUARY 14, 2009  
SDP 08 - 097

SCALE: 1" = 50'  
SDP 08 - 097  
FIN: 10-10642



**STORMWATER MANAGEMENT NOTES**

THIS CONSTRUCTION MAY REQUIRE A PERMIT FROM THE ARMY CORPS OF ENGINEERS, THE WATER RESOURCES ADMINISTRATION AND/OR BALTIMORE COUNTY. IT IS THE RESPONSIBILITY OF THE LANDOWNERS TO CONTACT THESE AGENCIES TO DETERMINE IF THE PROJECT REQUIRES A PERMIT:

ARMY CORPS OF ENGINEERS (410) 962-3670  
 WRA - NONTIDAL WETLANDS & WATERWAYS (410) 974-3841  
 HOWARD COUNTY (410) 313-6416

UNLESS OTHERWISE NOTED, ALL CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:

1. HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS, 1976, ERRATA AND ADDENDA.
2. SOIL CONSERVATION SERVICE MARYLAND STANDARDS AND SPECIFICATIONS POND CODE 378, JANUARY 2000.
3. MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION, OCTOBER 1993, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.

STORMWATER MANAGEMENT APPROVED UNDER BILL 53-01.

S.W.M. FACILITY IS PRIVATE AND SHALL BE MAINTAINED BY THE OWNER OF THE PROPERTY.

SITE SUMMARY - (WITH UNDERGROUND STORMWATER MANAGEMENT FACILITY)								
FREQUENCY STORM	EXISTING SITE DISCHARGE RATE (CFS) TO EX. 27' CULVERT PLUS OFFSITE	PROP. INFLOW TO UNDERGROUND FACILITY (CFS)	PROP. UNDERGROUND FACILITY RELEASE RATE (CFS) TO DESIGN POINT	TOTAL PROP. BYPASS (CFS)	TOTAL PROP. OFFSITE (CFS)	TOTAL PROP. DISCHARGE (CFS) TO DESIGN POINT PLUS OFFSITE	PROP. UNDERGROUND WATER SURFACE ELEVATIONS (FT.)	PROP. UNDERGROUND STORAGE VOLUME (AC. FT.)
1 YR DESIGN	3.78	6.21	0.08	0.86	2.85	3.62	356.00	0.2250
10 YR DESIGN	21.67	13.12	4.65	1.92	15.49	20.96	359.87	0.4458
100 YR DESIGN	40.73	18.94	29.31	2.76	31.06	62.87	361.62	0.4501

POND SPECIFICATIONS	
DESCRIPTION	DATA
STRUCTURE CLASSIFICATION	A (UNDERGROUND)
STORAGE X HEIGHT PRODUCT	(0.4458 AC.FT.) (7.87) = 3.5 AC.FT.
PROPOSED ONSITE DRAINAGE AREA	2.28 AC.
HEIGHT TO EMERGENCY SPILLWAY	N/A
NORMAL SURFACE AREA	N/A
PRINCIPAL SPILLWAY CAPACITY	29.31 cfs
EMERGENCY SPILLWAY CAPACITY	N/A
FOND TYPE	UNDERGROUND DETENTION
FREEBOARD PROVIDED	1.17'
IMPERVIOUS AREA MANAGED	1.938 AC.
Rev REQUIRED	1.176 C.F.
Rev PROVIDED	1.267 C.F.
WQv REQUIRED	4,933 C.F.
WQv PROVIDED	4,933 C.F.
CPv REQUIRED	12,197 C.F.
CPv PROVIDED	12,200 C.F.

BASED ON ZONING 85% IMPERVIOUS  
 BYPASS D.A. #3  
 Area = 0.24 AC +/-  
 RCN = 93  
 Tc = 0.10 AC +/-

BASED ON ZONING 85% IMPERVIOUS  
 BYPASS D.A. #2  
 Area = 0.055 AC +/-  
 RCN = 94  
 Tc = 0.10 Hrs

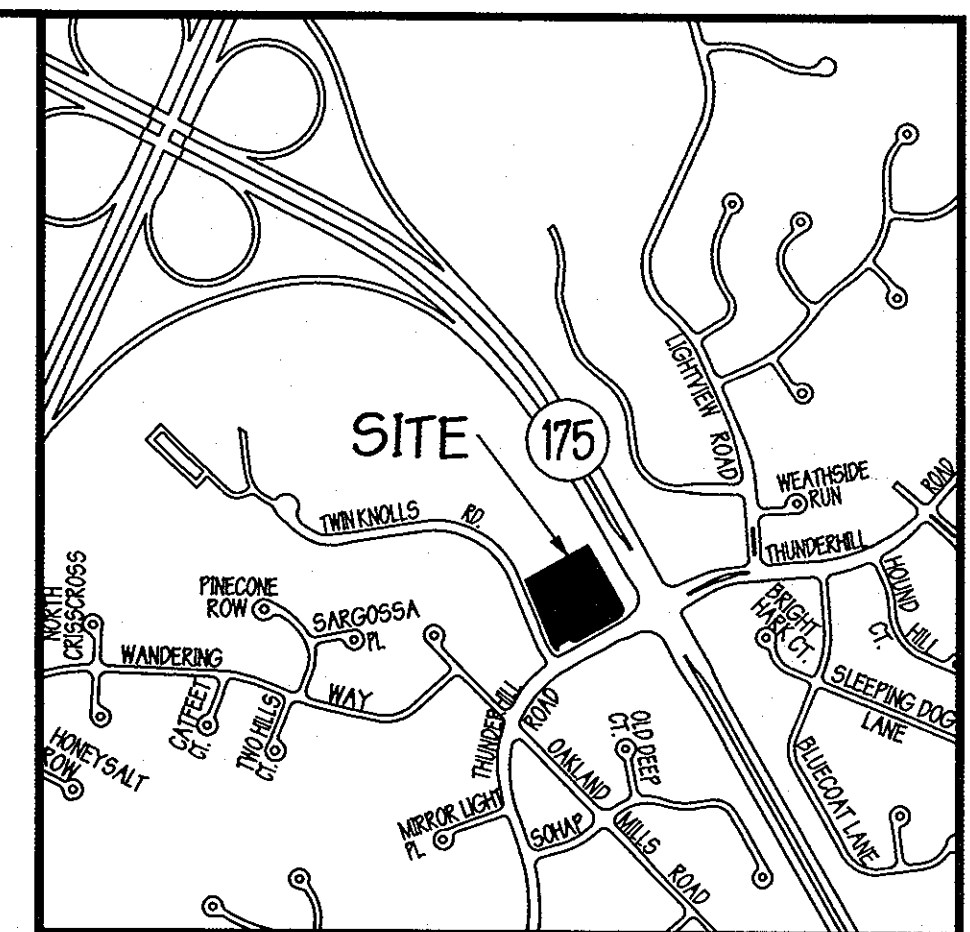
BASED ON ZONING 85% IMPERVIOUS  
 BYPASS D.A. #1  
 Area = 0.045 AC +/-  
 RCN = 94  
 Tc = 0.10 Hrs.

ULT OFFSITE DA #2  
 AREA = 0.04 AC +/-  
 RCN = 78  
 Tc = 0.10 Hrs.

ULT OFFSITE D.A. #3  
 Area = 0.88 AC +/-  
 RCN = 56  
 Tc = 0.18 HRS.

ULT OFFSITE D.A. #1  
 Area = 6.22 AC +/-  
 RCN = 68  
 Tc = 0.18 HRS.  
 (AREA TO BE CONVEYED AROUND SITE TO EX. CULVERT)

PROPOSED ONSITE D.A.  
 Area = 2.28 AC +/-  
 RCN = 94  
 Tc = 0.10 Hrs.



**LEGEND**

TRACT BOUNDARY	---
SOILS LINE	---
FOREST BUFFER	---
WETLANDS	---
ZONING LINE	---
EX. TREE LINE	---
EX. CONTOURS	---
EXIST. DRAINAGE AREA	---
EX. TC PATH	---
STREAM	---
100 YR. FLOODPLAIN	---

**VICINITY MAP**  
 SCALE: 1" = 200'

**WQv & Rev MANAGEMENT SUMMARY:**

- A CONTECH UNDERGROUND CMP STORAGE AND CARTRIDGE FILTERING SYSTEM SHALL BE USED FOR WATER QUALITY TREATMENT. STORMCEPTORS WILL BE IMPLEMENTED FOR PRETREATMENT.
- MULTIPLE UNDERGROUND STONE RESERVOIRS WILL BE USED TO MEET RECHARGE REQUIREMENT (SEE SHEET 11 OF 19 FOR REV DETAILS).
- NO STORMWATER CREDITS ARE BEING UTILIZED.

**SOILS CHART**

SYMBOL	NAME	CLASS
BaA	BAILE	D
GgC	GLENELG	B
GhB	GLENELG	B
GmB	GLENVILLE	C
MaC	MANOR	B
UaF	UDORTHENTS	C

**Typical Lighting Legend**

□	STREET LIGHT 200 WATT WFLV W/VAPORE
○	STREET LIGHT 150 WATT WFLV W/VAPORE
○	STREET LIGHT 100 WATT WFLV W/VAPORE
○	STREET LIGHT 75 WATT WFLV W/VAPORE
○	STREET LIGHT 50 WATT WFLV W/VAPORE

Approved for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

*John P. Ritten* 5/21/10  
 HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

*Ke J. Shen* 6/2/10  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

*Thomas G. Butler* 6/3/10  
 DIRECTOR DATE

Approved by the Planning Board of Howard County:  
 Date 11-19-09

\* 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. 13741, Expiration Date: 12-08-11\*

**PROPOSED SWM DRAINAGE AREA MAP**  
 SCALE: 1" = 50'

**PREPARED BY:**

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
 Civil Engineers and Land Surveyors  
 235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640

**ENGINEER CERTIFICATION:**

\*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 Engineer: *Paul W. Taylor* Date: 5/21/10  
 Print Name: PAUL W. TAYLOR PE # 13741

**DEVELOPER CERTIFICATION:**

\*I/ We certify that all development and/or 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 of a Department of the Environment Approved Training Program for the Control of Sediment and Erosion before beginning the project, also authorize periodic on-site inspections by the Howard Soil Conservation District.

Signature of Developer: *R. Colfax Schuch, Jr.* Date: 5/21/10  
 Print Name: R. Colfax Schuch, Jr.

**OWNER**  
**Thunder Hill, LLC**  
 c/o Bavar Properties Group, LLC  
 1966 Greenspring Drive, Suite 508  
 Timonium, MD 21093  
 410-560-0500

**DEVELOPER**  
**Manekin, LLC**  
 8601 Robert Fulton Drive, Suite 200  
 Columbia, MD 21046  
 410-425-2002

DESIGNED BY: KE,PC,JM  
 DRAWN BY: KE  
 CHECKED BY: KE,PC  
 REVISIONS:

**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME** VILLAGE OF OAKLAND MILLS  
**SECTION NAME** 3  
**PARCEL #** A

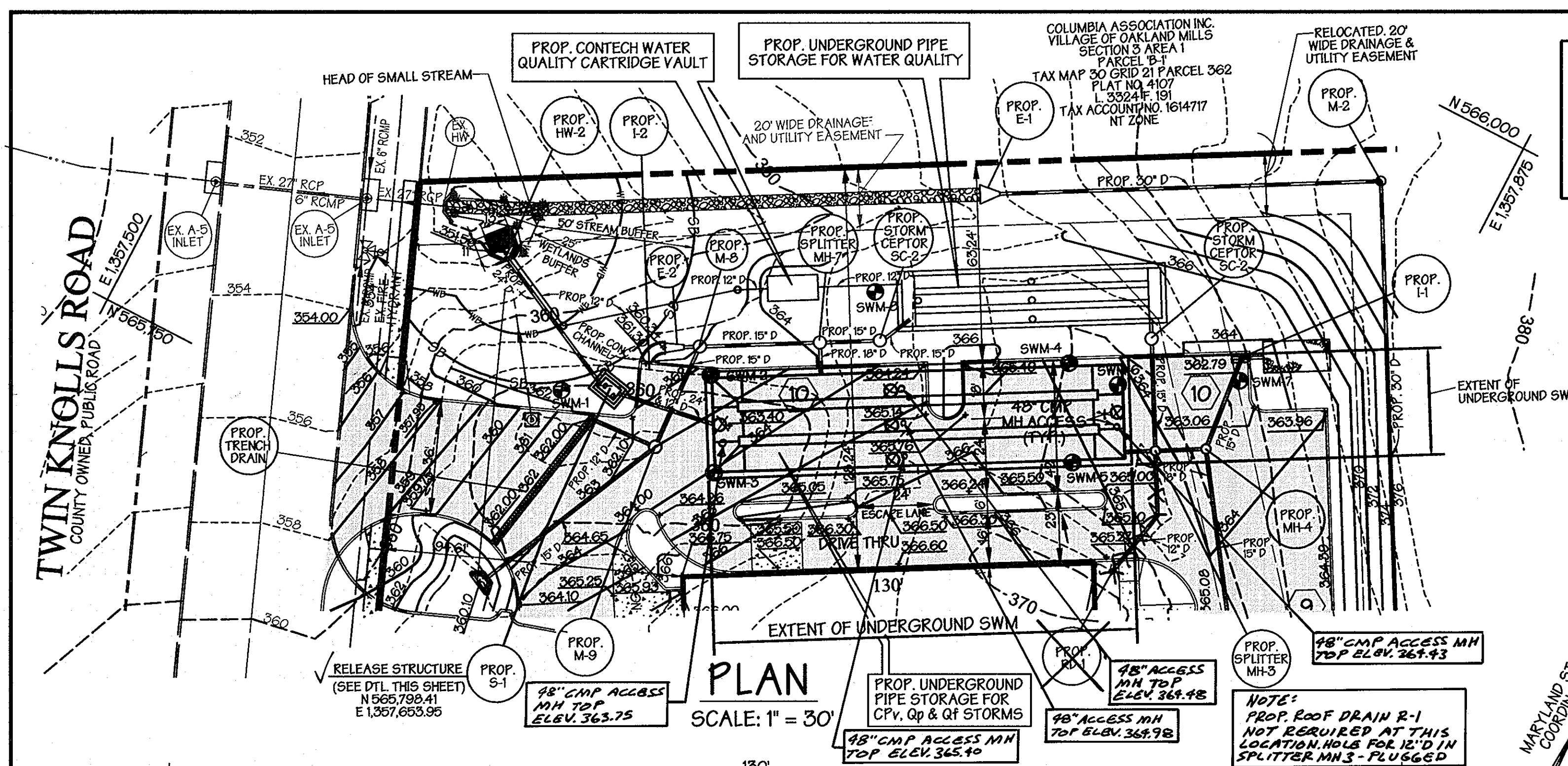
**PLAT #** 4107  
**GRID** 22  
**ZONE** NT  
**TAX MAP** 30  
**ELECT. DIST.** 6  
**CENSUS TRACT** 6606.03

**WATER CODE** E-06  
**SEWER CODE** 5333000

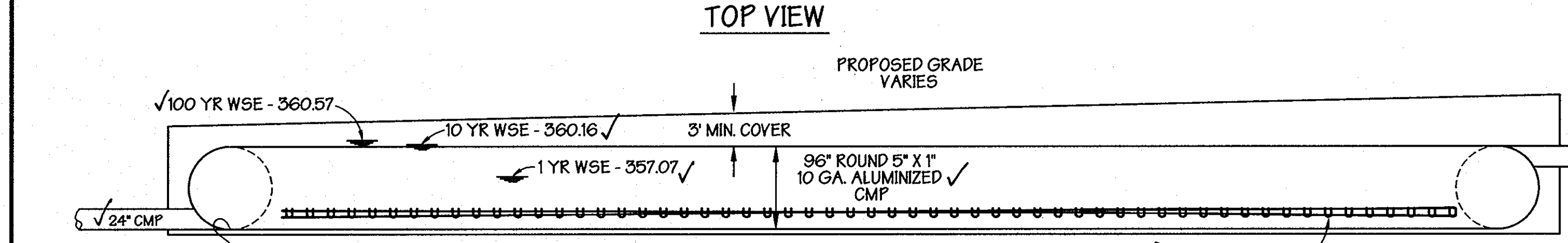
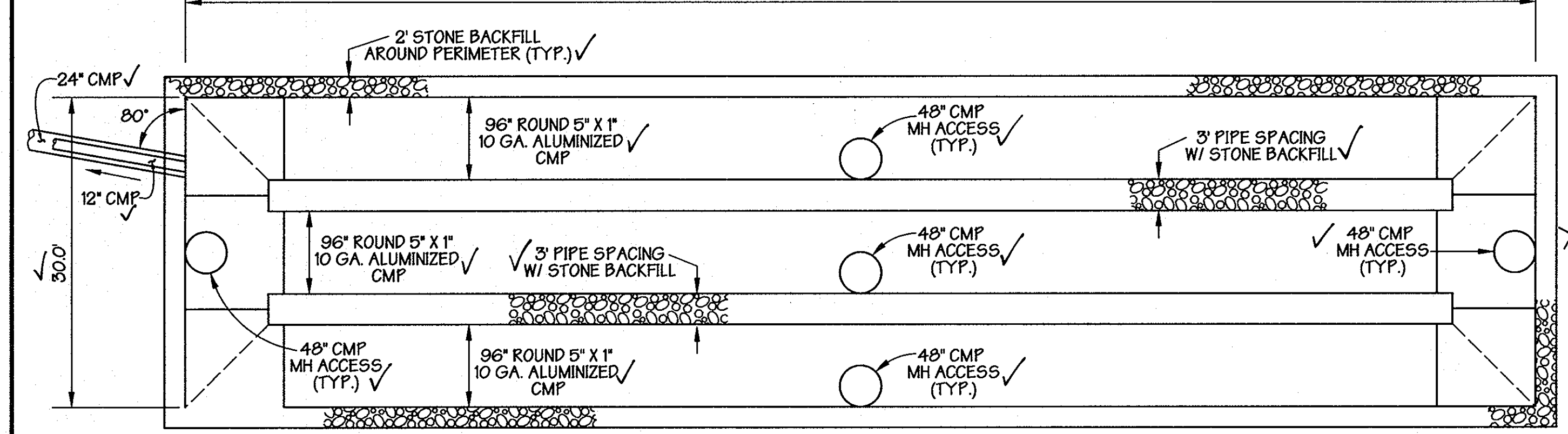
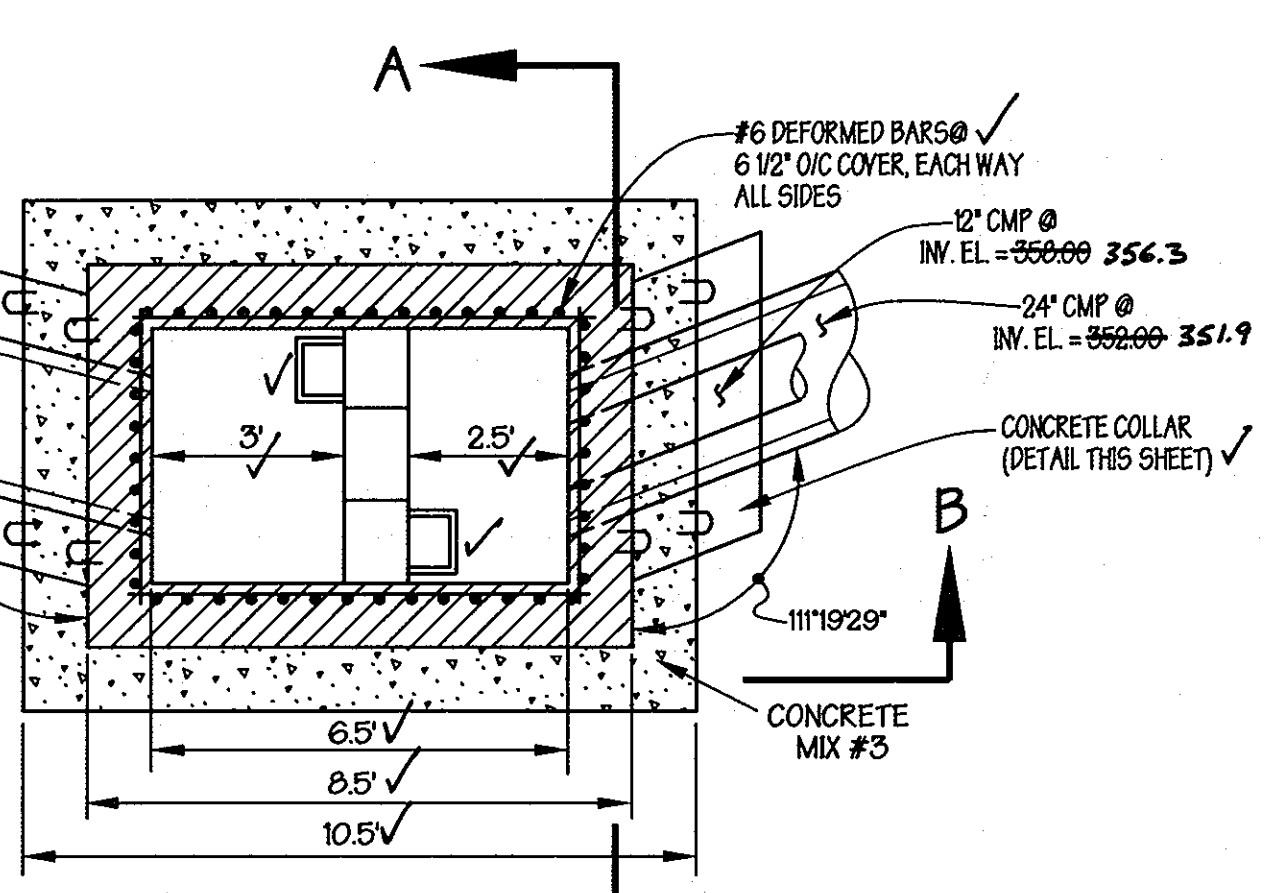
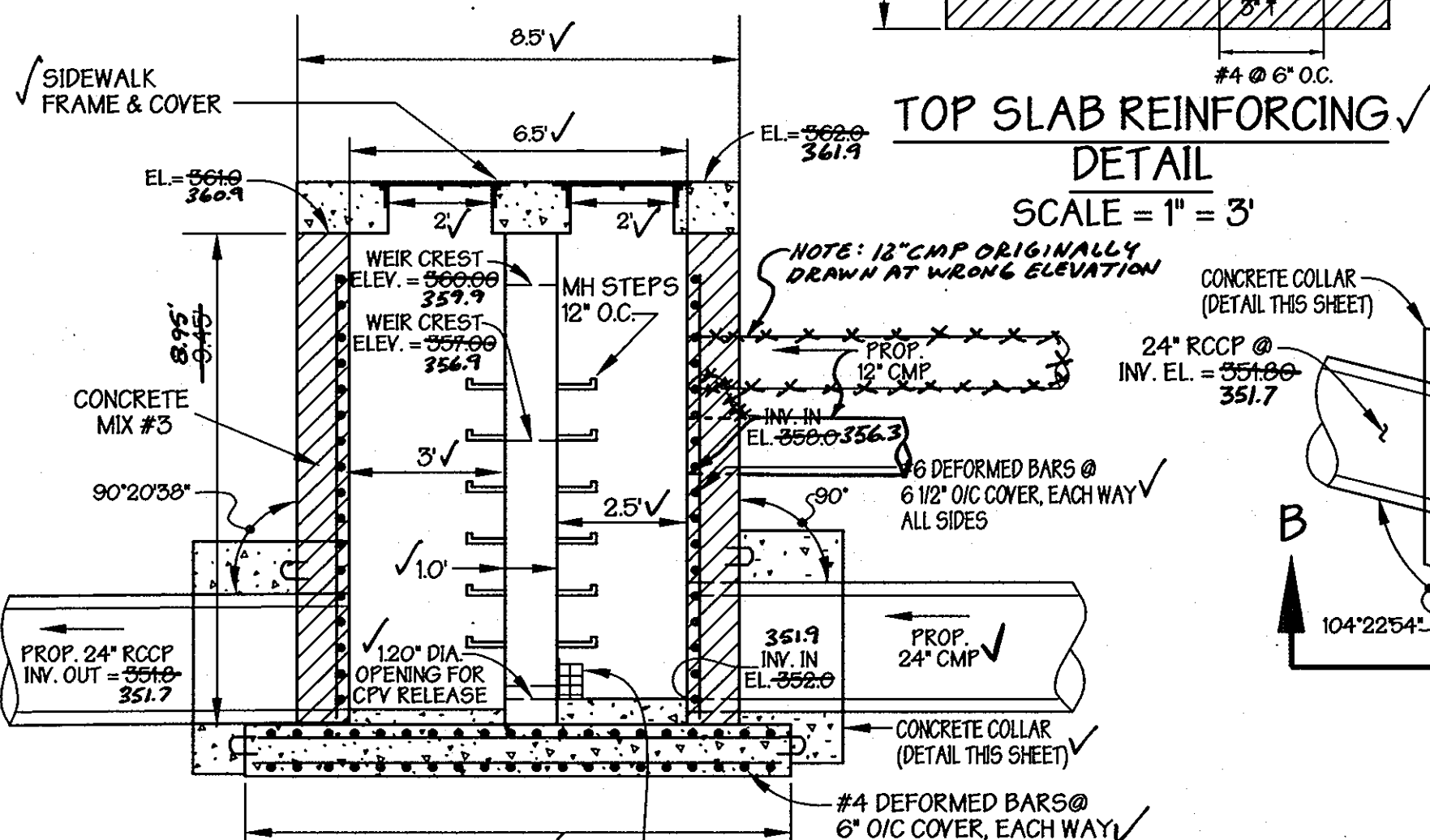
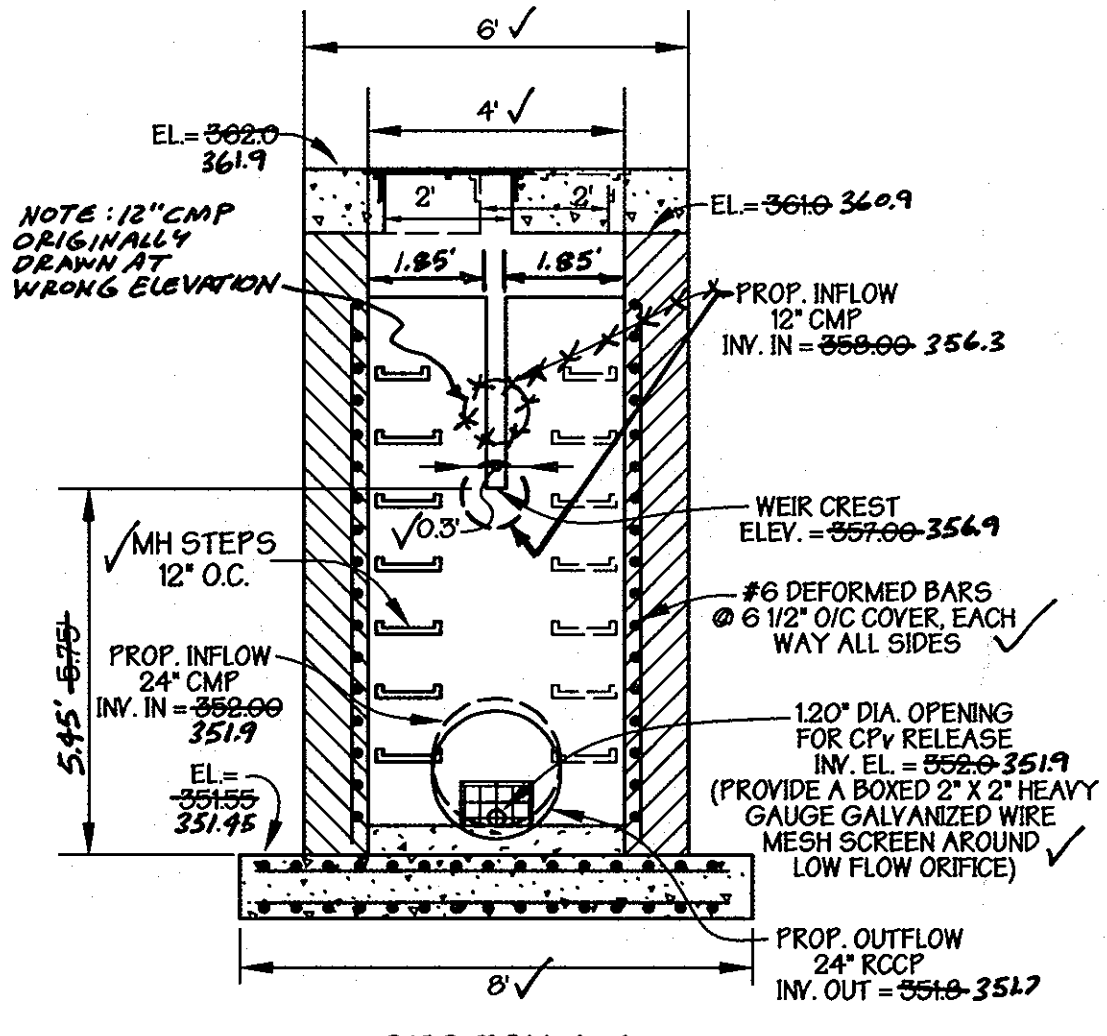
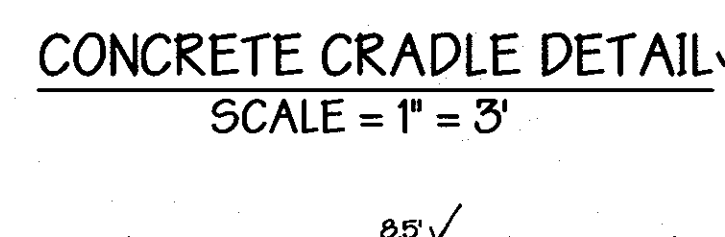
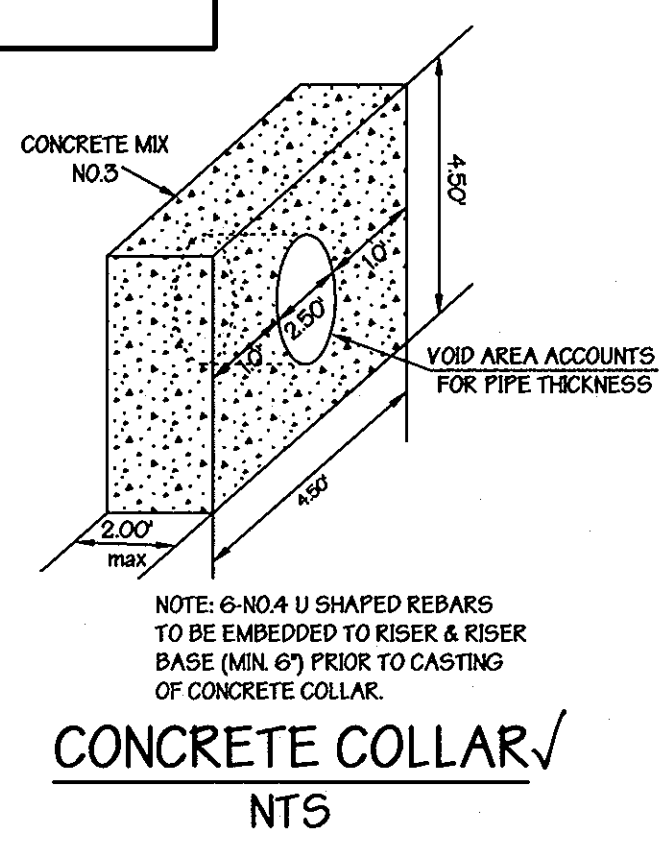
**PROPOSED DRAINAGE AREA MAP**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
 PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup>  
 HOWARD CO., MARYLAND SHT. 8 of 22 DATE: JANUARY 14, 2009  
 SDP 08 - 097 SCALE: 1" = 50'  
 SDP 08 - 097

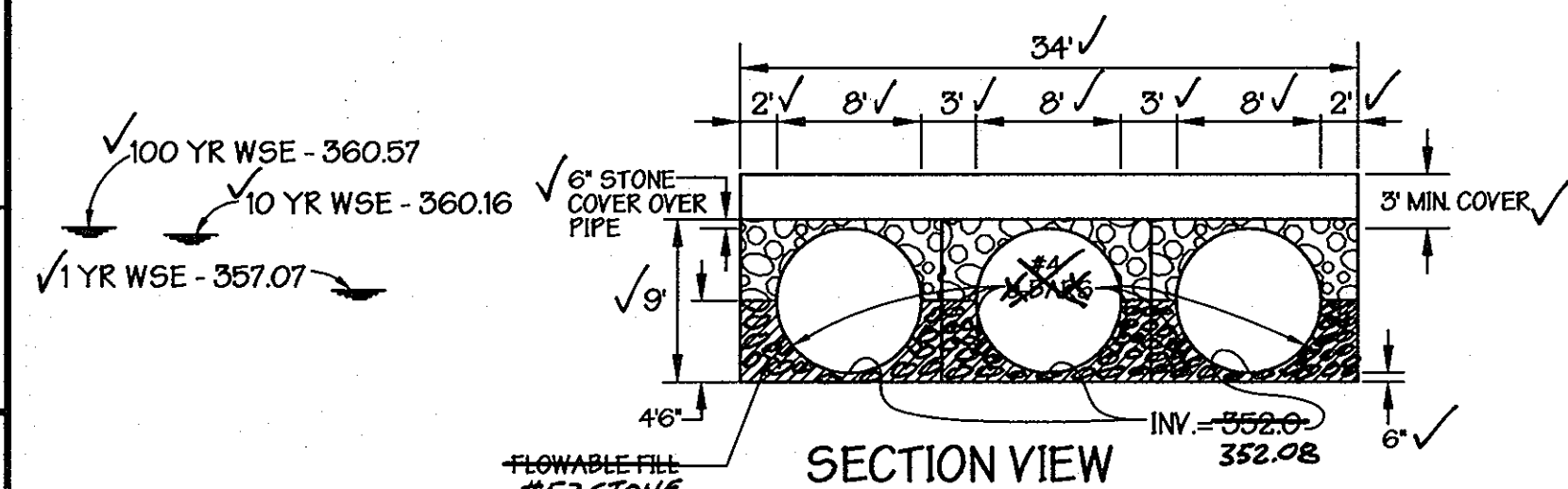




CONSULTANT HAZARD CLASS CERTIFICATION  
 I certify that the pond meets all requirements for hazard class Q or C. (requirements as stated in the soil conservation service - Maryland standards and specifications for pond code 370, November 1982). All necessary investigations and computations have been performed to verify this finding. A complete information has been supplied to Howard County soil conservation district.  
 Engineer: *Paul W. Taylor* Date: 5/2/10  
 Name: PAUL W. TAYLOR

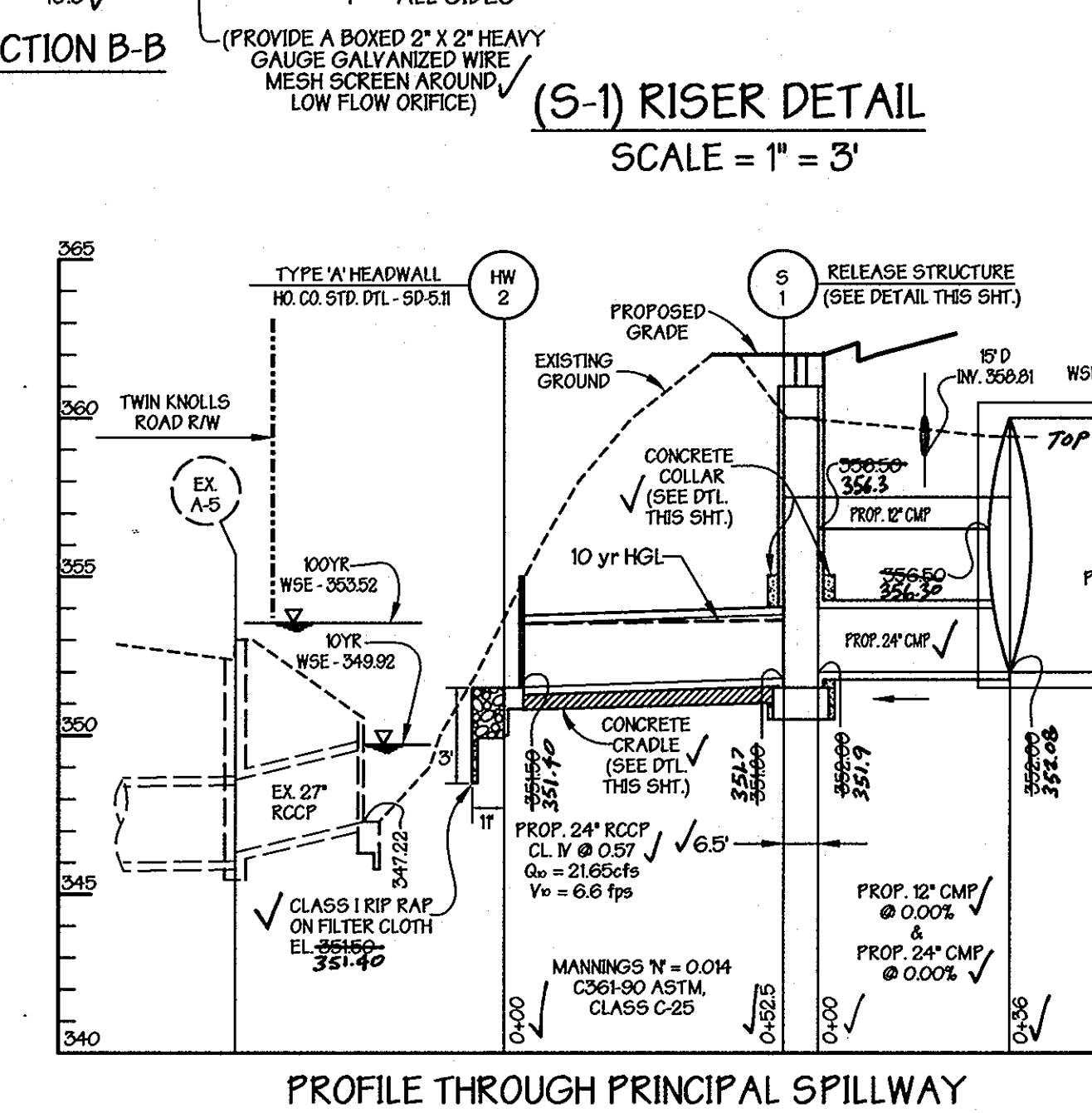


**UNDERGROUND STORAGE FACILITY FOR CPV, QP & SAFE PASSAGE OF QF**  
 SCALE: 1" = 3'



- STORM WATER MANAGEMENT SEQUENCE OF CONSTRUCTION**
1. AFTER ALL PERIMETER SEDIMENT CONTROL DEVICES ARE INSTALLED AND MASS GRADING OPERATIONS HAVE BEEN COMPLETED, CONSTRUCT 30\"/>
  2. EXCAVATE AREA FOR 96\"/>
  3. CONSTRUCT CAST-IN-PLACE RISER & CONCRETE COLLAR, (5 DAYS)
  4. INSTALL 96\"/>
  5. BLOCK INFLOW PIPE TO 96\"/>
  6. EXCAVATE AREA FOR 48\"/>
  7. EXCAVATE AREA FOR 48\"/>
  8. INSTALL 48\"/>
  9. INSTALL PRE-CAST CONTECH FILTER CARTRIDGE SYSTEM VAULT AND DIVERSION MANHOLE AND PIPE, (2 DAYS)
  10. BLOCK INFLOW PIPE TO DIVERSION MANHOLE UNTIL ONSITE DRAIN SYSTEM IS BUILT, (1 DAY)

- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED UNDERGROUND FACILITIES**
- ROUTINE MAINTENANCE:
1. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
  2. THE UNDERGROUND STORMWATER MANAGEMENT FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
  3. WHEN SEDIMENT ACCUMULATION OF MORE THAN 2\"/>
  4. THE FACILITIES SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATORY AGENCIES NOTIFYING THEM OF THE SPILL AND CLEANUP OPERATION.
  5. THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND STORMWATER MANAGEMENT FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.
  6. THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX (6) MONTHS. IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.
- NON ROUTINE MAINTENANCE:
1. STRUCTURAL COMPONENTS OF THE UNDERGROUND FACILITY SUCH AS THE CONTROL STRUCTURE, PIPES, MANHOLES AND CLEANOUTS 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 CAPACITY OF THE CONTROL STRUCTURE, WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.



- GENERAL NOTES**
1. ALL DEBRIS IS TO BE KEPT OUT OF THE UNDERGROUND FACILITY DURING CONSTRUCTION.
  2. PROVIDE WATER TIGHT JOINTS AT ALL PIPE CONNECTIONS WITHIN THE UNDERGROUND DETENTION SYSTEM.
  3. ALL METAL SURFACES SHALL BE GALVANIZED AND PAINTED WITH TWO COATS OF BATTLESHIP GRAY PAINT OR EQUIVALENT.
  4. THE RISER AND BARREL PIPE SHALL BE MADE OF CONCRETE AND THE STORAGE PIPES SHALL BE MADE OF ALUMINIZED CMP.

Reviewed for Howard SCD and meets Technical Requirements  
 USDA-NATURAL RESOURCES CONSERVATION SERVICE  
 This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District  
 Approved: Howard County Department of Planning and Zoning  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DIRECTOR

Approved by the Planning Board of Howard County:  
 Date: 11-19-09

\* 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. 13741, Expiration Date: 12-08-11"

"SWM AS BUILT"

PREPARED BY:  
**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
 Civil Engineers and Land Surveyors  
 235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640

ENGINEER CERTIFICATION:  
 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 Engineer: *Paul W. Taylor* Date: 5/2/10  
 Print Name: PAUL W. TAYLOR PE # 13741

DEVELOPER CERTIFICATION:  
 I/ We certify that all development and/or 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 inspections by the Howard Soil Conservation District.  
 Signature of Developer: *R. Colter Schaff, Jr.* Date: 5/2/10  
 Print Name: R. Colter Schaff, Jr.

OWNER:  
**Thunder Hill, LLC**  
 c/o Baran Properties Group, LLC  
 1966 GreenSpring Drive, Suite 508  
 Timonium, MD 21093  
 410-560-0300

DESIGNED BY: KE, PC, JM  
 DRAWN BY: KE  
 CHECKED BY: KE, PC  
 REVISIONS:

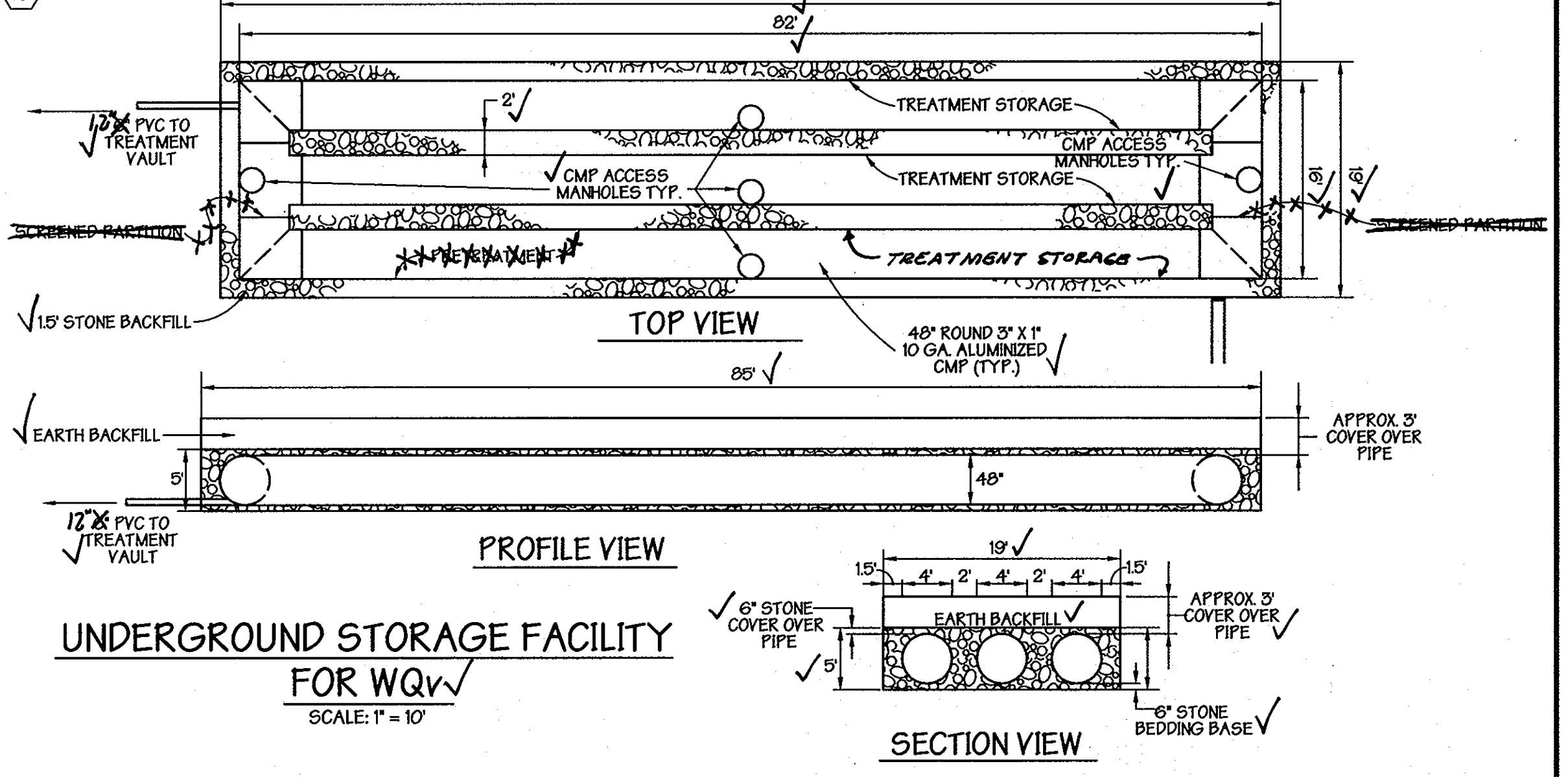
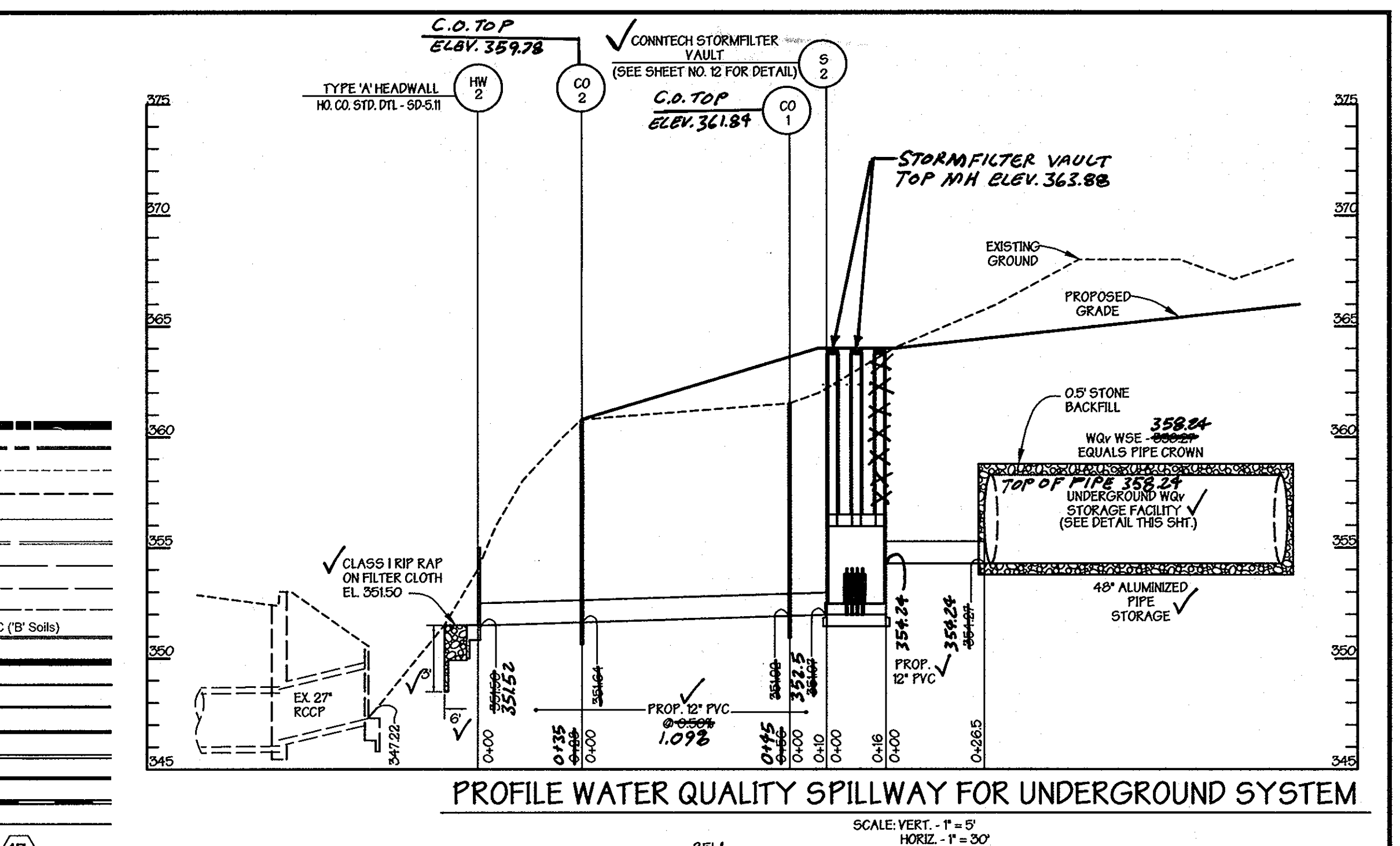
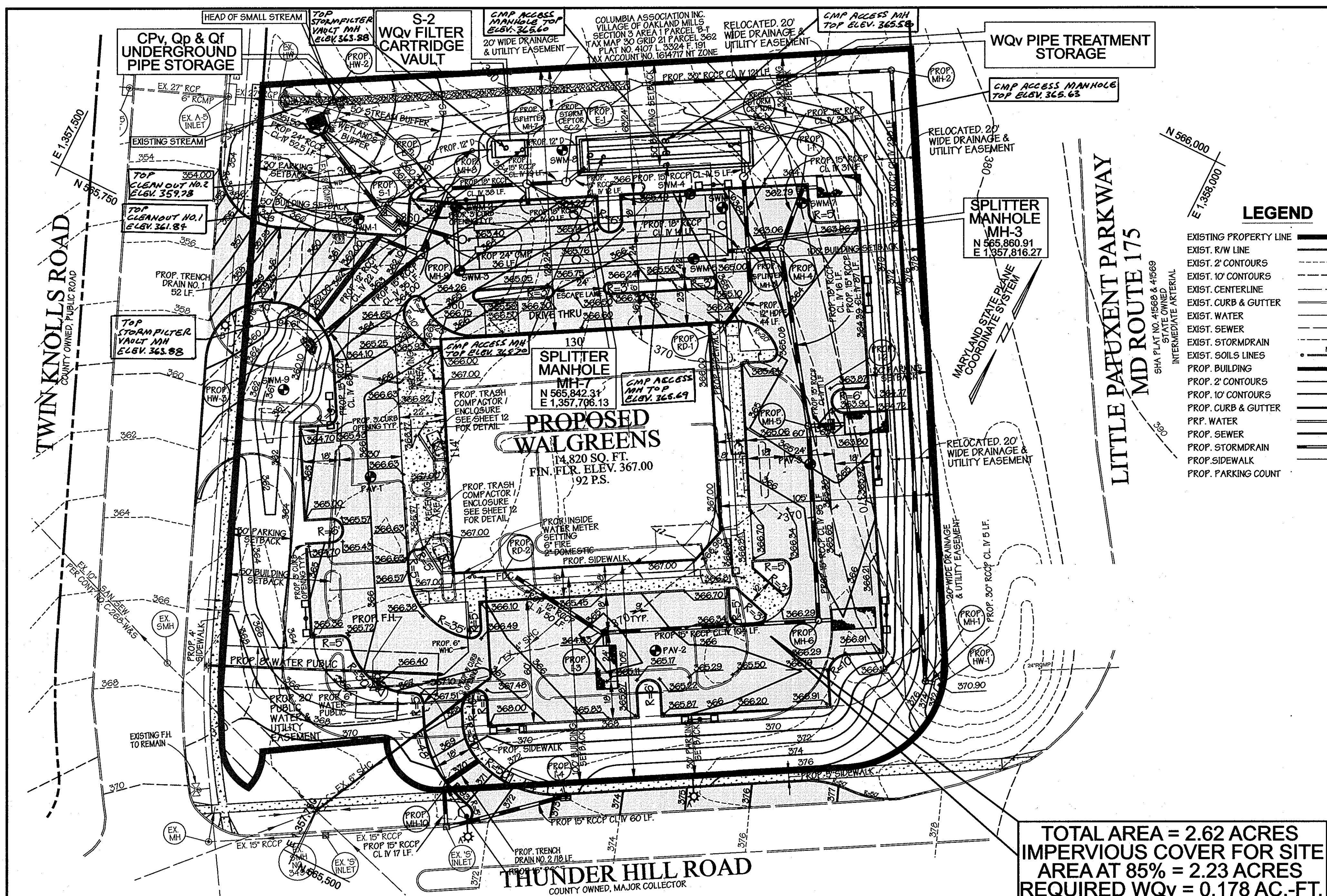
ADDRESS CHART	
PARCEL NO. A	STREET ADDRESS 5585 TWIN KNOLLS ROAD
PROJECT NAME VILLAGE OF OAKLAND MILLS	SECTION NAME 3
PARCEL # A	
PLAT # 4107	GRID 22
ZONE NT	TAX MAP # 21093
ELECT. DIST. 6	CENSUS TRACT 6606.03
WATER CODE E-06	SEWER CODE 5333000

**SWM PLAN & PROFILES**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
 PARCEL 'A'  
 ELECTION DISTRICT: 6<sup>th</sup>  
 HOWARD CO., MARYLAND SHT. 9 of 22 DATE: JANUARY 14, 2009  
 SDP 08 - 097









**TOTAL AREA = 2.62 ACRES  
IMPERVIOUS COVER FOR SITE  
AREA AT 85% = 2.23 ACRES  
REQUIRED WQv = 0.178 AC.-FT.  
REQUIRED REV = 0.027 AC.-FT.**

NOTE : NO CREDITS ARE BEING UTILIZED

**NOTE : FOR CONTECH STORMFILTER VAULT  
SEE SHEET NO. 12.**

**WATER QUALITY DRAINAGE AREA MAP**

SCALE: 1" = 30'

**Typical Lighting Legend**

- TWIN 400 W CLEAR ED-99 PULSE START METAL HALIDE FIXTURES HORIZONTAL POSITION, TWIN 180 ROTATED OPTICS K92 400M R45C LUMINAIR 400W METAL HALIDE R45C SHARP CUTOFF REFLECTOR. FULL CUTOFF MEETS SIGNATURE NIGHTTIME FRIENDLY CRITERIA ON 24" POLE MAX HEIGHT DARK BRONZE FINISH (FOR POLE MOUNTING DET. SEE SHT. 10)
- STREET LIGHT 250 WATT HPS VAPOR PENDANT FIXTURE (SAG LENS) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- STREET LIGHT 150 WATT HPS VAPOR PREMIER POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE LOCATED 2' TO 4' FROM BACK OF CURB

NOTE:  
1. ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 304 AND FDP PLAN.  
2. ONE FACADE FLOOD LIGHT MOUNTED ON ROUTE 175 SIDE OF STORE (ONE 400 WATT CLEAR E-37 SUPER METAL HALIDE, HORIZONTAL POSITION, HYDREL 7200 400M SP, CAST METAL HOUSING BLACK PAINTED GENERAL INTERIOR FINISH FORMED SEMI-SPHERICAL ALUMINUM REFLECTOR, CLEAR FLAT GLASS ENCLOSURE WITH CAST METAL DOOR FRAME, BLACK PAINTED CIRCULAR METAL Baffle.

**SUMMARY TABLE**

	75% WQv (ft.)	Rev (ft.)	CPv (ft.)
REQUIRED	4,933	1,176	12,197
PROVIDED	4,933	1,267	12,200

**OPERATION AND MAINTENANCE SCHEDULE FOR UNDERGROUND WATER QUALITY FACILITY**

**ROUTINE MAINTENANCE:**

- THE UNDERGROUND WATER QUALITY FACILITY IS PRIVATELY OWNED AND IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO PERIODICALLY INSPECT AND CLEAN THE FACILITY TO MAINTAIN ITS OPERATION AND FUNCTION.
- THE UNDERGROUND WATER QUALITY FACILITY SHALL BE INSPECTED YEARLY AT A MINIMUM AND AFTER ESPECIALLY SEVERE STORM EVENTS.
- WHEN SEDIMENT ACCUMULATION OF MORE THAN 2" IS OBSERVED OR ANY DEBRIS THAT MIGHT OBSTRUCT THE OUTFALL IS OBSERVED, THE FACILITY SHALL BE CLEANED.
- THE FACILITIES SHALL BE CLEANED IMMEDIATELY AFTER PETROLEUM SPILLS. THE OWNER SHALL CONTACT THE APPROPRIATE REGULATORY AGENCIES NOTIFYING THEM OF THE SPILL AND CLEANUP OPERATION.
- THE SEDIMENT AND DEBRIS SHALL BE REMOVED FROM THE UNDERGROUND WATER QUALITY FACILITY BY VACUUM TRUCK OR OTHER MANUAL MEANS. THE OWNER SHALL FOLLOW PROPER CLEANING AND DISPOSAL OF THE REMOVED MATERIAL AND LIQUID.
- THE INLET AND OUTLET PIPES SHALL BE CHECKED FOR ANY OBSTRUCTIONS AT LEAST ONCE EVERY SIX (6) MONTHS IF OBSTRUCTIONS ARE FOUND, THE OWNER SHALL HAVE THEM REMOVED AND PROPERLY DISPOSED OF.

**NON ROUTINE MAINTENANCE:**

- STRUCTURAL COMPONENTS OF THE UNDERGROUND FACILITY SUCH AS THE STORAGE PIPES, STORM FILTER VAULT, PIPES CLEANOUTS AND OUTFALL SHALL BE REPAIRED UPON DETECTION OF ANY DAMAGE. THE COMPONENTS SHOULD BE INSPECTED DURING ROUTINE MAINTENANCE OPERATIONS.
- SEDIMENT SHOULD BE REMOVED WHEN ITS ACCUMULATION SIGNIFICANTLY REDUCES THE DESIGN STORAGE CAPACITY OF THE FACILITY. THE OWNER SHALL BE RESPONSIBLE FOR THE REMOVAL OF SEDIMENT THAT INTERFERES WITH THE FUNCTION OF THE WATER QUALITY FACILITY, WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

**GENERAL NOTES**

- ALL DEBRIS IS TO BE KEPT OUT OF FACILITY DURING CONSTRUCTION.
- PROVIDE WATERTIGHT JOINTS AT ALL PIPE CONNECTIONS.
- ALL METAL SURFACES SHALL BE GALVANIZED AND PAINTED WITH TWO COATS OF BATTLESHIP GRAY PAINT OF EQUIVALENT.

**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME**  
VILLAGE OF OAKLAND MILLS

**SECTION NAME**  
3

**PARCEL #**  
A

**PLAT #**  
4107.1

**GRID**  
22

**ZONE**  
NT

**TAX /ZONE MAP #**  
F-79-21C / F10-059

**ELECT. DIST.**  
6

**CENSUS TRACT**  
6606.03

**WATER CODE**  
E-06

**SEWER CODE**  
5333000

**Water Quality Plan, Profile, Details, and Notes**

**VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949**

PARCEL 'A'

SCALE: AS NOTED  
SDP 08 - 097

ELECTION DISTRICT : 6<sup>th</sup>  
HOWARD CO., MARYLAND SHT. 11 of 22 DATE: JANUARY 14, 2009  
SDP 08 - 097 FN: 10-10642

CONSULTANTS HAZARD CLASS CERTIFICATION:  
I certify that this plan meets all requirements for hazard class B or C. (requirements as stated in the soil conservation service - Maryland standards and specifications for pond, code 310, November 1992). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been supplied to Howard County soil conservation district.

Engineer: *Paul W. Taylor* Date: 5/24/10  
Name: PAUL W. TAYLOR, P.E.

Reviewed for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE STATE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

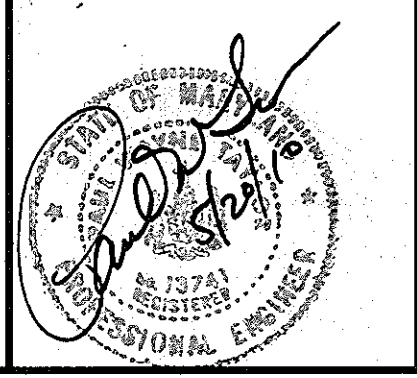
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6/3/10  
*Walt Sheehan*

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/10/10  
*Thomas J. Suttle*

DIRECTOR DATE 6/10/10

\* Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12-08-11.

Approved by the Planning Board of Howard County:  
Date 11-19-09



**ENGINEER CERTIFICATION:**

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 Engineer: *Paul W. Taylor* Date: 5/24/10  
Print Name: PAUL W. TAYLOR PE # 13741

**DEVELOPER CERTIFICATION:**

I/ We certify that all development and/or 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 inspections by the Howard Soil Conservation District.

Signature of Developer: *R. K. Schaefer, Jr.* Date: 5/26/10  
Print Name: R. K. Schaefer, Jr.

**OWNER**  
Thunder Hill, LLC  
c/o Bayat Properties Group, LLC  
1966 Greenspring Drive, Suite 508  
Timonium, MD 21093  
410-560-0300

**DEVELOPER**  
Manekin, LLC  
6601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002

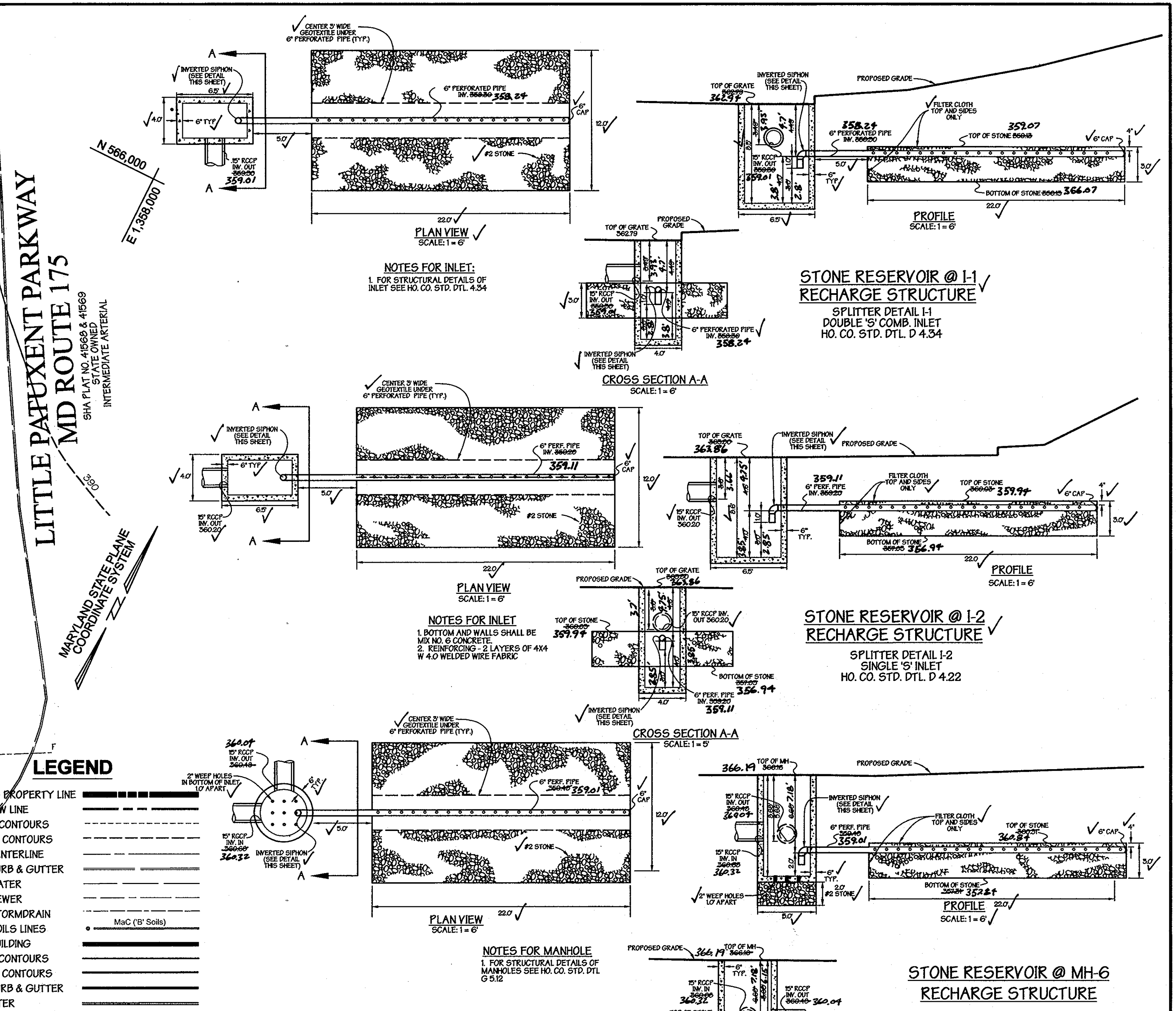
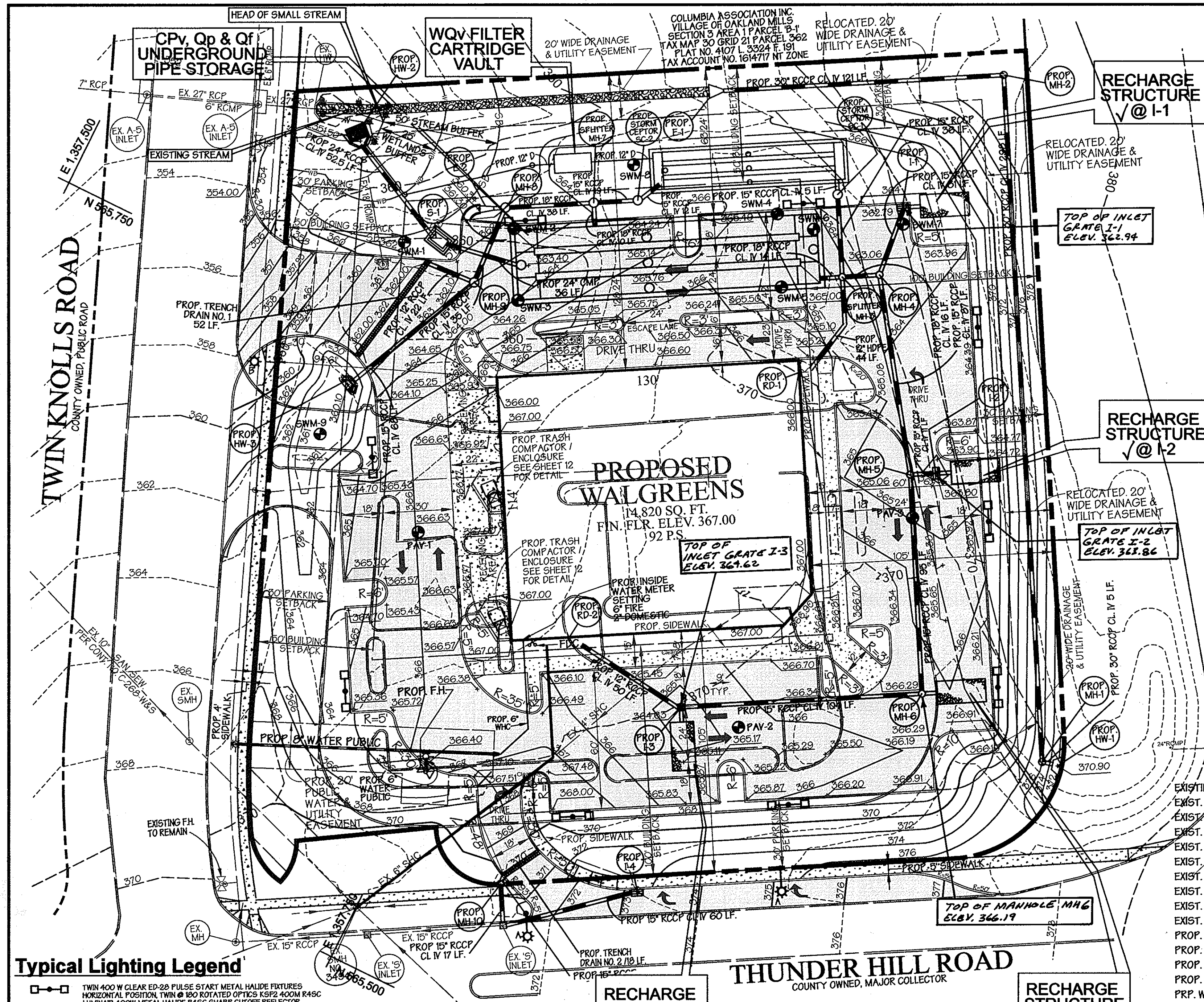
DESIGNED BY: KE, PC, JM  
DRAWN BY: KE  
CHECKED BY: KE, PC  
REVISIONS

PREPARED BY:  
**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640









**Typical Lighting Legend**

- TWIN 400 W CLEAR ED-28 PULSE START METAL HALIDE FIXTURES HORIZONTAL POSITION, TWIN @ 180 ROTATED OPTICS KSF2 400M R43C LUMINAIR 400W METAL HALIDE R430 SHARP CUTOFF REFLECTOR. FULL CUTOFF MEETS SIGNATURE NIGHTTIME FRIENDLY CRITERIA ON 24" POLE MAX HEIGHT DARK BRONZE FINISH (FOR POLE MOUNTING DET. SEE SHT. 19)
- STREET LIGHT 250 WATT HPS VAPOR PRIMARY FIXTURE (SAG LENS) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12" ARM
- STREET LIGHT 150 WATT HPS VAPOR PRIMER POST TOP FIXTURE MOUNTED ON A 14" CAST OF CURB
- 1. ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 134 AND PDP PLAN
- 2. ONE FACADE FLOOD LIGHT MOUNTED ON ROUTE FTS SIDE OF STORE (ONE 400 WATT CLEAR E-33 SUPER METAL HALIDE HORIZONTAL POSITION, HYDREL 7000 400M SR, CAST METAL HOUSING BLACK PAINTED GENERAL INTERIOR FRESH PRESSED 35M SPECIAL ALUMINUM REFLECTOR, CLEAR FLAT GLASS ENCLOSURE WITH CAST METAL DOOR FRAME, BLACK PAINTED CIRCULAR METAL BAFFLE)

Reviewed for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT DATE

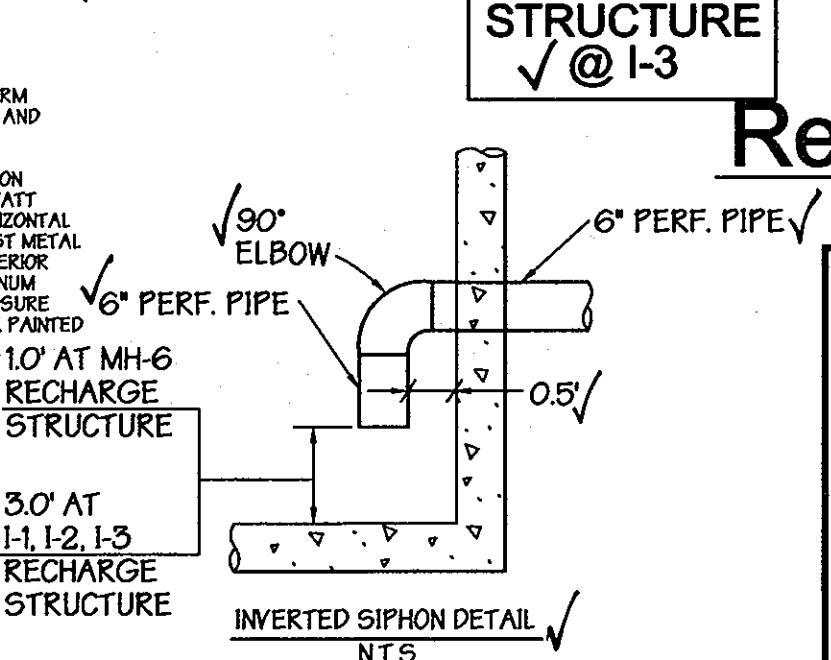
APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 6/3/10

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/2/10

DIRECTOR DATE 6/1/10

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640



CONSULTANTS HAZARD CLASS CERTIFICATION  
I certify that this plan meets all requirements for hazard class B or C. (Requirements as stated in the soil conservation service - Maryland standards and specifications for plan code 370, November 1995). All necessary investigations and computations have been performed to verify this finding. A copy of said information has been submitted to Howard County soil conservation district.  
Engineer: *Paul W. Taylor* Date: 5/26/10  
Name: PAUL W. TAYLOR, P.E.

Approved by the Planning Board of Howard County: Date 11-19-09

**Recharge Structure Plan**  
SCALE: 1" = 30'

- OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED STORMWATER RECHARGE STRUCTURES**
- ROUTINE MAINTENANCE:**
1. THE RECHARGE STRUCTURES SHALL BE INSPECTED ON A QUARTERLY BASIS AND AFTER EVERY LARGE STORM EVENT.
  2. WATER LEVELS AND SEDIMENT BUILD UP IN STRUCTURES SHALL BE RECORDED OVER A PERIOD OF SEVERAL DAYS TO INSURE PROPER DRAINAGE.
  3. A LOGBOOK SHALL BE MAINTAINED TO DETERMINE THE RATE AT WHICH THE STRUCTURE DRAINS.
  4. WHEN THE FACILITY BECOMES CLOGGED SO THAT IT DOES NOT DRAIN DOWN WITHIN THE 72 HOUR TIME PERIOD, CORRECTIVE ACTION SHALL BE TAKEN.
  5. THE MAINTENANCE LOGBOOK SHALL BE AVAILABLE TO HOWARD COUNTY FOR INSPECTION TO INSURE COMPLIANCE WITH OPERATION AND MAINTENANCE CRITERIA.
  6. ONCE THE PERFORMANCE CHARACTERISTICS OF THE RECHARGE STRUCTURE HAVE BEEN VERIFIED, THE MONITORING SCHEDULE CAN BE REDUCED TO AN ANNUAL BASIS UNLESS THE PERFORMANCE DATA INDICATES THAT A MORE FREQUENT SCHEDULE IS REQUIRED.
- NON ROUTINE MAINTENANCE:**
1. STRUCTURAL COMPONENTS OF THE RECHARGE FACILITY SUCH AS THE INLETS, PIPES, MANHOLES AND STONE 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 RECHARGE STRUCTURE, WHEN DEEMED NECESSARY BY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.

\* 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. 13741, Expiration Date 12-08-11.

**ENGINEER CERTIFICATION:**  
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 Engineer: *Paul W. Taylor* Date: 5/26/10  
Print Name: PAUL W. TAYLOR PE # 13741

**DEVELOPER CERTIFICATION:**  
I/ We certify that all development and/or 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 inspections by the Howard Soil Conservation District.  
Signature of Developer: *R. Edgar Schaefer, Jr.* Date: 5/26/10  
Print Name: R. Edgar Schaefer, Jr.

**LEGEND**

- EXISTING PROPERTY LINE
- EXIST. RAW LINE
- EXIST. 2' CONTOURS
- EXIST. 10' CONTOURS
- EXIST. CENTERLINE
- EXIST. CURB & GUTTER
- EXIST. WATER
- EXIST. SEWER
- EXIST. STORMDRAIN
- EXIST. SOILS LINES
- PROP. BUILDING
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. CURB & GUTTER
- PROP. WATER
- PROP. SEWER
- PROP. STORMDRAIN
- PROP. SIDEWALK

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

PROJECT NAME	SECTION NAME	PARCEL #
VILLAGE OF OAKLAND MILLS	3	A
PLAT # 4107	GRID 22	ZONE NT
TAX MAP 79-21C / F10-059	TAX / ZONE MAP	ELECT. DIST. 6
WATER CODE E-06	SEWER CODE 5333000	CENSUS TRACT 6606.03

**Recharge Structures**  
**VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949**  
PARCEL 'A'  
SCALE: AS NOTED  
ELECTION DISTRICT: 6<sup>th</sup> HOWARD CO., MARYLAND SHT. 13 of 22 DATE: JANUARY 14, 2009 SDP 08 - 097  
SDP 08 - 097 FIN: 10-10642

**OWNER**  
**Thunder Hill, LLC**  
c/o Baver Properties Group, LLC  
1966 Greenspring Drive, Suite 508  
Timonium, MD 21093  
410-560-0300

**DEVELOPER**  
**Manekin, LLC**  
6601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-872-2743

DESIGNED BY: GDT  
DRAWN BY: ADM  
CHECKED BY: GDT  
REVISIONS



**POND CONSTRUCTION SPECIFICATIONS**

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

**SITE PREPARATION**

Area designed for borrow areas, embankment, and structural works shall be cleared, grubbed, and stripped of topsoil. All trees, 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 toe of the embankment.

Areas to be covered by the reservoir will be cleared of all 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.

All cleared and grubbed material shall be disposed of outside and below the limits of the dam and reservoir as directed by the owner or his representative. When specified, a sufficient quantity of topsoil will be stockpiled in a suitable location for use on the embankment and other designated areas.

**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 United Soil Classification GC, SC, CH, or CL and must have at least 30% passing the #20 sieve. Consideration may be given to the use of other materials in the embankment if design and construction are 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 to prevent erosion of the embankment.

**PLACEMENT** - Areas on which fill is to be placed shall be scarified prior to placement of fill. Fill materials shall be placed in a maximum 9" 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 lift shall be traversed by not less than one tread track of heavy equipment or compaction shall be achieved by a minimum of four complete passes of a slope foot, 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 will contain sufficient moisture so that if formed into a ball it will not crumble, yet not be so wet that the water can be squeezed 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 the 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. All compaction is to be determined by AASHTO Method T-99 (Standard Proctor).

**CUTOFF 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 governed 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 1:1 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 contourline of the embankment as shown on the plans. The top width of the core shall be a minimum width 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 1:1 or flatter. The core shall be compacted with construction equipment, rollers, or hand tampers to assure maximum density and minimum permeability. In addition, the core shall be placed concurrently with the outer shell of the embankment.

**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.

Structure backfill may be flowable 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 psi, 28 day unconfined compressive strength. The flowable fill shall have a minimum pH of 4.0 and a minimum resistivity of 2,000 ohm-cm. Material shall be placed such that a minimum of 6" (measured perpendicular to the outside of the pipe) of flowable 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 flowability of the

material. Adequate measures shall be taken (sand bags, etc.) to prevent floating the pipe. When using flowable 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 flowable 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 a 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 of pipe. Backfill material outside the structural backfill (flowable fill) zone shall be of the type and quality conforming to that specified for the core of the embankment or other embankment materials determined by AASHTO Method T-99 (Standard Proctor).

**PIPE CONDUITS** - All pipes shall be circular in cross section.

**REINFORCED CONCRETE PIPE** - All pipe to be circular in cross section.

All 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 be equal or exceed ASTM Designation C-361.

2. Bedding - All reinforced concrete pipe conduits shall be laid on a concrete cradle for their entire length. This bedding/cradle 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 cradle is not needed for structural reasons, flowable fill may be used as described in the "Structural Backfill" section of this standard. Gravel bedding is not permitted.

3. Laying Pipe - Bell and spigot pipe shall be placed with the bell end upstream. Joints shall be laid 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 shown on the drawings.

**PERFORATED PIPE**

Bituminous coated corrugated metal pipe (BCOMP) shall conform to the requirements of AASHTO M36 (pipe should be specified to be fully bituminous coated in accordance with AASHTO M390). Perforated pipe is TYPE III. Pipe shall have CLASS 2 perforations 3/8" in diameter.

**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.

**REINFORCING STEEL IN CONCRETE STRUCTURES**

Reinforcing steel shall be ASTM A 615, Grade 60. Steel angles and anchor bars shall be ASTM 136.

**ROCK RIP-RAP**

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

Grout shall be placed under all rip-rap and shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specification for Construction and Materials, Section 921.09, 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 the areas 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 the 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. 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 diversions shall be maintained until the full flow can be passed through the permanent works. The removal of water 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 of 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 refilled shall be maintained below the bottom of the excavation at such locations which may require draining the water to sumps from which 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 Maryland Soil Conservation Service Standards and Specifications for Critical Area Planting (MD-342) or as shown on the accompanying drawings.

Stormwater management facility will be stabilized with permanent slope seeding as follows:

1. Seeded Preparation - loosen upper 3 inches of soil by raking, discing or other acceptable means before seeding.
2. Soil Amendments - apply 2 tons per acre Dolomitic Limestone (92 lbs./1000 sq. ft.), 600 lbs. per acre 10-10-10 fertilizer (14 lbs./1000 sq. ft.), and 400 lbs. per acre of 30-0-0 Ureaform Fertilizer (92 lbs./1000 sq. ft.). Harrow or disc lime and fertilizer into upper 3 inches of soil. At time of seeding, apply 400 lbs. (92 lbs./1000 sq. ft.) of 30-0-0 Ureaform Fertilizer and 500 lbs. per acre (115 lbs./1000 sq. ft.) of 10-0-0 fertilizer.
3. Seeding - for the period March 1 through April 30 seed with 40 lbs. per acre Kentucky 31 Tall Fescue, and 15 lbs. per acre inoculated Crown Vetch. For the period May 1 through July 31 seed with 60 lbs. per acre Kentucky 31 Tall Fescue and 2 lbs. per acre inoculated Weeping Lovegrass. For the period August 1 through October 15 seed with 40 lbs. per acre Kentucky 31 Tall Fescue, and 20 lbs. per acre inoculated Interstate Sericea Lespedeza. For the period October 16 through February 28 seed with 40 lbs. per acre of well anchored straw. For the period March 1 through February 28 inoculated Crown Vetch shall be applied during the subsequent period of March 1 through April 30 at the rate of 15 lbs. per acre.
4. Mulching - apply 15 to 2 tons per acre of unrotted small grain straw immediately after seeding. Much anchoring shall be performed immediately following application to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon size of area and erosion hazard:

Approved by the Planning Board of Howard County:

Date 11-19-09

- a. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of two inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should be used on the contour if possible.
- b. Wood cellulose fiber may be used for anchoring straw. The fiber binder shall be applied as a wet dry weight of 750 pounds/acre. The wood cellulose fiber shall be mixed with water and the mixture shall contain a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- c. Application of liquid binders should be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. The remainder of area should appear uniform after binder application. Synthetic binders - such as Acrylic DLR (Agro-Track), DCA-70, Petrosel, Terra Tack II, Terra Tack AR or other approved equal may be used at rates recommended by the manufacturer to anchor mulch.
- d. Lightweight plastic netting may be stapled over the mulch according to manufacturers recommendations. Netting is usually available in rolls 4' to 15' feet wide and 500 to 3,000 feet long.

5. Maintenance - inspect all seeded areas and make needed repairs, replacements and re-seeding.

**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. State and local laws concerning pollution abatement will be followed. Construction plans shall detail erosion and sediment control measures to be employed during the construction process.

**PERMANENT SLOPE SEEDING**

After spreading 4" topsoil, seed with a mixture of 30% inoculated Crown Vetch and 70% Kentucky 31 Tall Fescue applied at a rate of 60 lbs/ acre; 10-20-20 fertilizer shall be applied at a rate of 25 lbs./1000 sq. ft.; lime at a rate of 92 lbs / 1000 sq. ft.; mulch area with unweathered small grain straw at a rate of 15 tons/acre; anchor mulch immediately by one of the methods described under the stabilization portion of pond construction specifications

**FILTER CLOTH**

Filter cloth shall meet or exceed the requirements in Section 20.25-5 of the Baltimore County Standard Specifications and Details for Construction. Durable filter fabrics for drainage purposes are not limited to Mirafi 1405, DuPont TYAC No. 3341 or 3401.

Filter cloth shall be protected from punching or tearing. Any damage other than an occasional small hole shall be repaired by placing another small piece of filter cloth over the damaged area or by replacing the cloth section. All overlaps shall be a minimum of one foot.

**GABIONS**

Gabions shall meet the requirements of Maryland Department of Transportation, State Highway Administration Standard Specifications for Construction and Materials, Section 312 and must be CL IV, PVC coated.

**OUTLET PROTECTION**

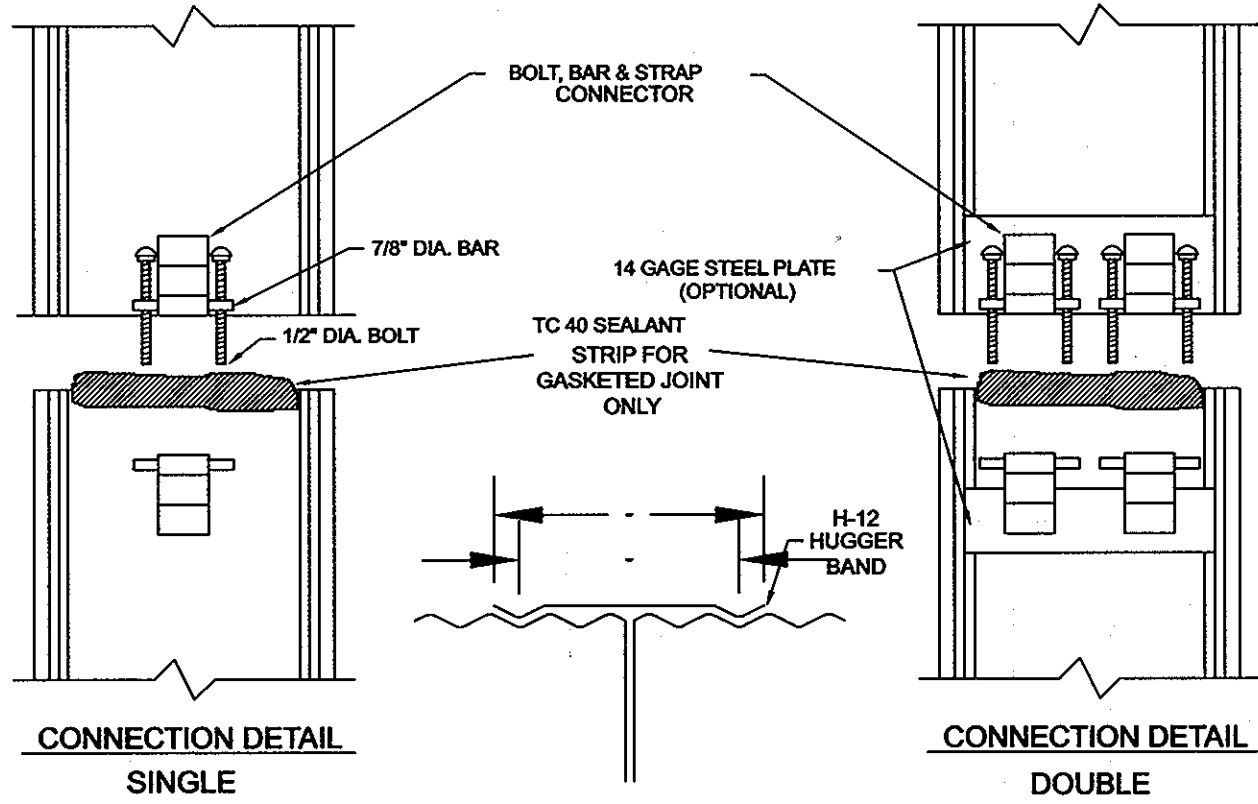
Subgrade for rip-rap or gabion outlets shall be prepared to the required line and grades. Any fill required in the subgrade shall be compacted to a density of approximately that of the surrounding undisturbed material. All rock or gravel shall conform to the specified grading limits when installed in the rip-rap or gabion. All stone shall be delivered and placed in a manner that will insure the stone in place shall be reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another, with the smaller rocks filling the voids between the larger rocks. Stones for outlets may be placed by equipment. Rip-rap or gabion outlets shall be constructed to full course thickness in one operation and in such a manner as to avoid any displacement of underlying materials. The contractor shall avoid damage to the filter blanket or cloth during placement of rip-rap. Hand placement shall be required as needed to prevent damage to the permanent works. Filter cloth shall be placed under all rip-rap and gabions.

**FENCE**

Construct fencing in accordance with the State Highway Administration standard details 690.01 and 690.02. Use specifications for a 6' fence, substituting 42" fabric and 6" 8' pipe posts. Construct the gate in accordance with the S.H.A. standard detail 690.01 with 42" fabric. The fabric used for the fence and gate must conform to AASHTO designation M-191-74. Dark vinyl coating is required for the fence posts and wire fabric in accordance with the landscape manual adopted by resolution 56-90, October 1, 1990.

**DRAWDOWN VALVES**

Gate valve with ductile iron body & bonnet, stainless steel extension stem & bonnet bolts, stem sealing to be NBR O-rings, ductile iron handwheel or approved equal. (See sheet 3 of 6, SWM-3, riser detail, section B-B)



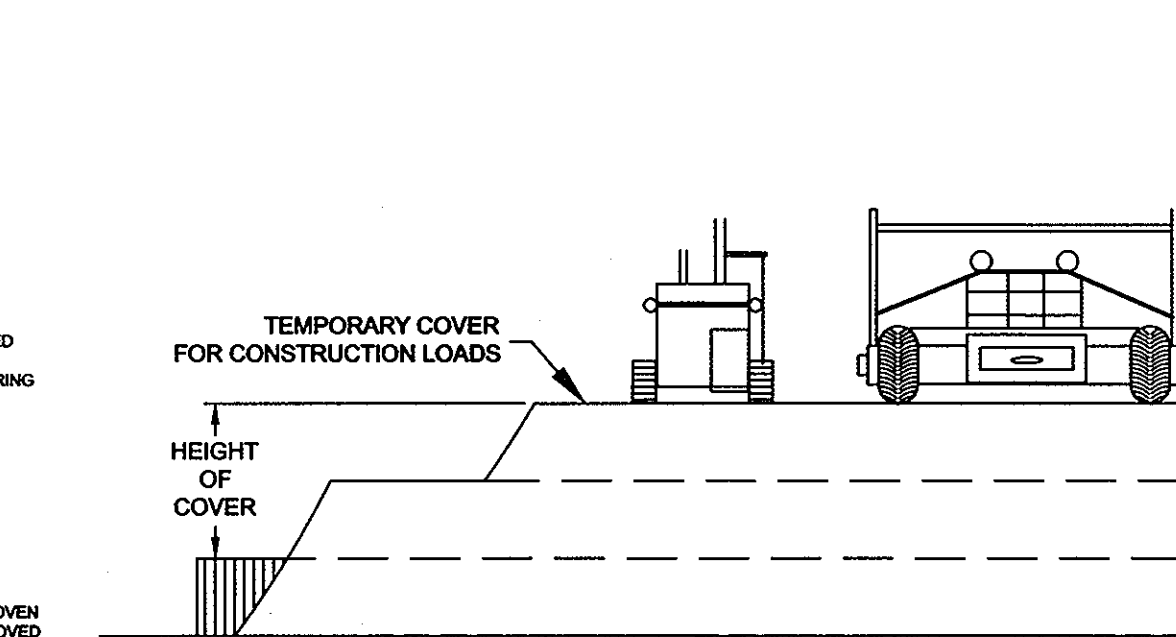
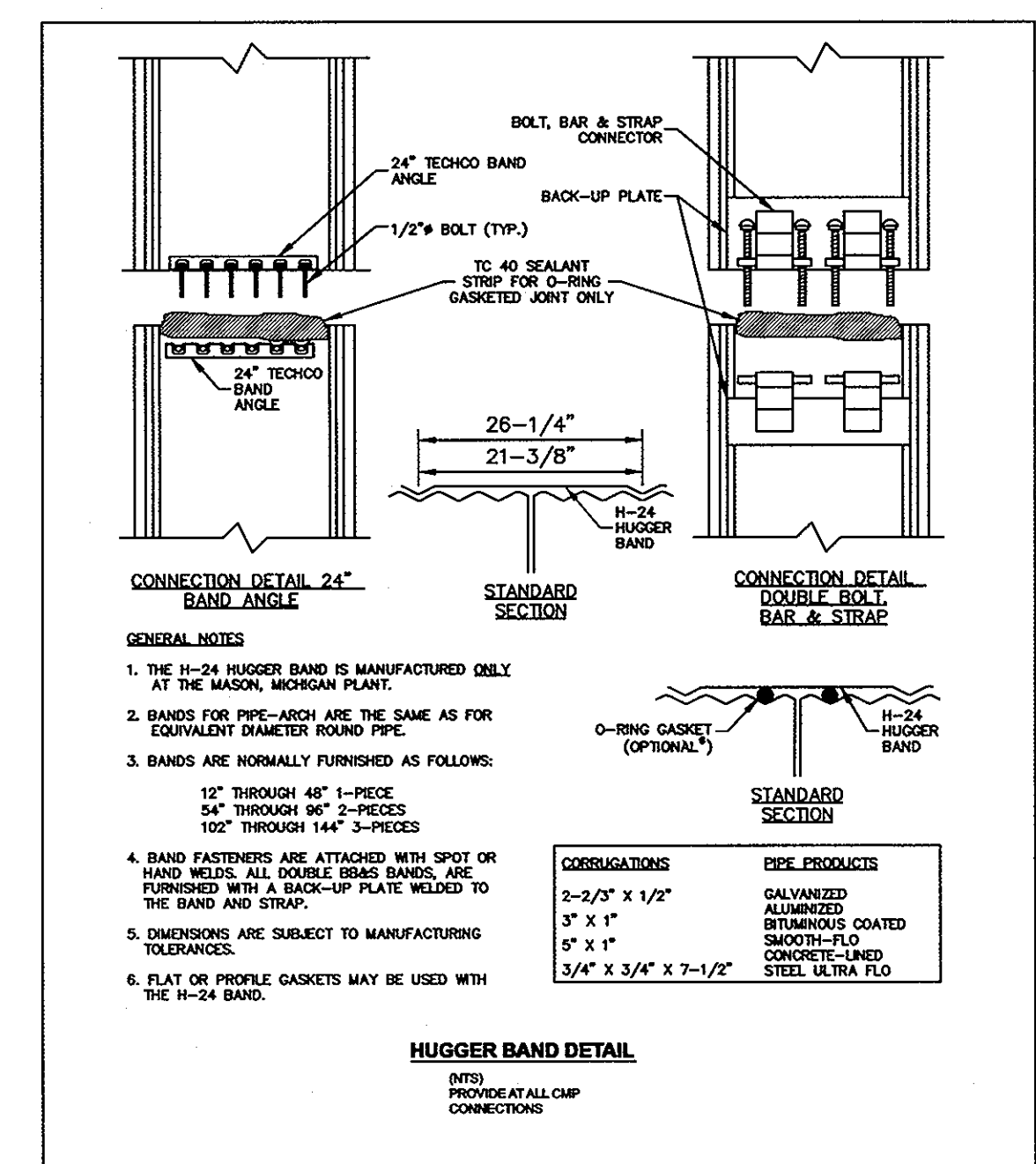
**GENERAL NOTES**

1. Refer to CONTECH Band Selection Guide for band width, gage, and fastener type.
2. Bands for pipe-arch are the same as for equivalent diameter round pipe.
3. Bands are normally furnished as follows: 12" thru 48" 1 piece 54" thru 96" 2 pieces 102" thru 144" 3 pieces
4. Band fasteners are attached with spot welds, rivets or hand welds. All aluminum bands, both single and double BBSs, are furnished with a 14 gage aluminum back-up plate welded to the band and the strap.
5. Reinforced annular end corrugations are normally 2-2/3" x 1/2". 6. Dimensions are subject to manufacturing tolerances.

"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. 13741, Expiration Date: 12-08-11"

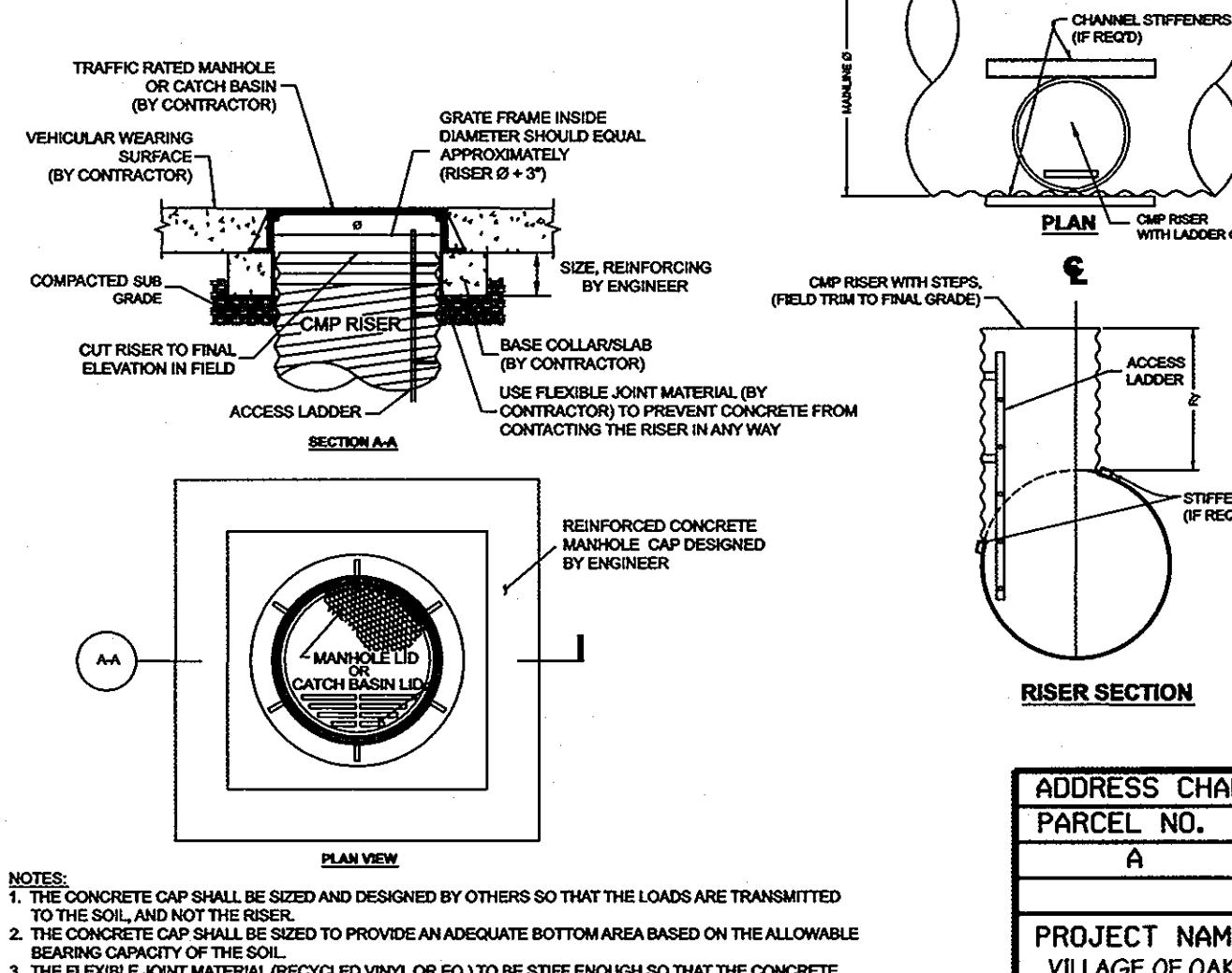
**GENERAL NOTES**

1. THE CONTRACTOR SHALL INSPECT THE PROJECT TO DETERMINE IF ANY TREES, EX. PAVING, STRUCTURES, ETC. ARE TO BE REMOVED PRIOR TO PLACING A BID ON SUCH ITEMS.
2. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE OF ALL TREES DESIGNATED TO BE REMOVED, EX. PAVING, STRUCTURES, ETC. WITHIN THE CONSTRUCTION AREA.
3. SUITABLE MATERIAL SHALL BE USED AS FILL AND ALL FILL SHALL BE ROLLED TO A MINIMUM DEGREE OF COMPACTION OF 95% OF THE DRY UNIT WEIGHT AS DETERMINED BY AASHTO T-99 STD. ALL UNSUITABLE MATERIAL SHALL BE REMOVED.
4. THE LOCATION OF ALL EXISTING UTILITIES IS APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND IDENTIFY ALL UTILITIES TO HIS OWN SATISFACTION PRIOR TO BEGINNING CONSTRUCTION.
5. ALL CONSTRUCTION ON SITE SHALL BE IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND THE PLUMBING CODE, UNLESS OTHERWISE NOTED.
6. ANY DAMAGE TO OFFSITE R/W, PUBLIC ROADS, OR ADJACENT PROPERTIES SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTORS EXPENSE.
7. THE CONTRACTOR SHALL NOTIFY THE GAS AND ELECTRIC COMPANY AND THE C & P TELEPHONE COMPANY FIVE DAYS IN PRIOR TO BEGINNING WORK AS SHOWN ON THESE PLANS. CALL MISS UTILITY @ 1-800-287-7777.
8. UNLESS OTHERWISE NOTED, ALL CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH:
  - HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD SPECIFICATIONS FOR CONSTRUCTION MATERIAL 2000, ARRATA & APPEND A.
  - NATURAL RESOURCES CONSERVATION SERVICE OF MARYLAND STANDARDS AND SPECIFICATIONS, POND CODE 378, JANUARY 2000.
  - MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION, JANUARY 2000, STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIAL.



PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.0

\*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.



ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

PROJECT NAME	SECTION NAME	PARCEL #
VILLAGE OF OAKLAND MILLS	3	A

PLAT #	GRID	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
E-79-21C / F10-059	22	NT	50	6	6608.03

WATER CODE	SEWER CODE
E-06	5333000

DESIGNED BY: KE,PC,JM  
DRAWN BY: KE  
CHECKED BY: KE,PC  
REVISIONS

**Stormwater Management Notes and Details**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
PARCEL 'A'  
ELECTION DISTRICT : 6<sup>th</sup>  
HOWARD CO., MARYLAND SHT. 14 of 22  
DATE: JANUARY 14, 2009  
SCALE: AS NOTED  
SDP 08 - 097

Reviewed for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

HOWARD SOIL CONSERVATION DISTRICT

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 12/10

CHIEF, DIVISION OF LAND DEVELOPMENT DATE 6/2/10

DIRECTOR DATE 6/2/10

PREPARED BY:

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640

ENGINEER CERTIFICATION:

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 based in accordance with the requirements of the Howard Soil Conservation District.

Signature of Engineer: [Signature]  
Date: 5/20/10  
Print Name: PAUL W. TAYLOR  
PE # 13741

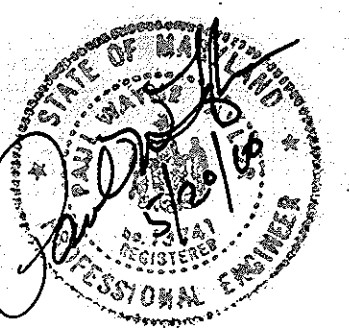
DEVELOPER CERTIFICATION:

I/We certify that all development and/or 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 inspections by the Howard Soil Conservation District.

Signature of Developer: [Signature]  
Date: 5/20/10  
Print Name: R. Colfax Schumel, Jr.

OWNER  
**Thunder Hill, LLC**  
10 Bavar Properties Group, LLC  
1966 Greenspring Drive, Suite 50B  
Timonium, MD 21093  
410-560-0300

DEVELOPER  
**Manekin, LLC**  
8601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002





**LOG OF BORING NO. SWM-1** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 359.3  
 DATE: 4/10/08  
 WATER ENCOUNTERED DURING DRILLING: N/E  
 GROUND SURFACE ELEVATION: 359.3  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	10	348.3	7	Greenish-brown, moist, micaceous, medium silt, S&T, with sand.	Topsoil 0 in.
2.25	18	348.3	7	ASHTO: A-4 Brown, moist, micaceous, silt, S&T, trace gravel.	
3.50	18	344.9	7	ASHTO: A-2.6 Reddish brown, moist, micaceous, medium silt, sandy S&T.	
4.85	18	344.9	7	ASHTO: A-2.4 Reddish brown to green, moist, micaceous, loose, silty SAND, with gravel.	
6.15	18	343.3	7	ASHTO: A-2.6 Multicolored, moist, micaceous, silt, S&T.	
6.15	18	343.3	7	ASHTO: A-2.6 Bottom of hole at 15.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-2** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 362.2  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	362.2	0	Brown, moist, micaceous, very loose, sandy S&T, with organic.	Topsoil 0 in.
2.25	18	361.4	4	ASHTO: A-4 Reddish brown to brown, moist, micaceous, very loose to loose, sandy S&T.	
3.50	18	361.4	4	ASHTO: A-4 Brown to tan, moist, medium dense, silty SAND, trace gravel/rock fragments.	
4.85	18	361.4	4	ASHTO: A-2.4 Brown to tan, moist, medium dense, silty SAND, trace gravel/rock fragments.	
6.15	18	361.4	4	ASHTO: A-2.4 Bottom of hole at 15.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-3** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 4.5  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 358.4  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	358.4	0	Dark brown, moist, micaceous, loose, S&T, trace gravel.	Topsoil 0 in.
2.25	18	354.2	4	ASHTO: A-4 Brown, moist, micaceous, silt, S&T, with sand.	
3.50	18	354.2	4	ASHTO: A-7.5 Greenish brown, moist, micaceous, silt, S&T, with sand.	
4.85	18	354.2	4	ASHTO: A-4 Tan-brown, moist, medium silt, S&T, with sand.	
6.15	18	354.2	4	ASHTO: A-2.4 Yellowish brown, moist, loose to medium dense, silty SAND.	
6.15	18	354.2	4	ASHTO: A-2.4 Bottom of hole at 25.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-4** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 378.3  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	378.3	0	Brown, moist, very loose, silty SAND, with organic.	Topsoil 0 in.
2.25	18	374.1	4	ASHTO: A-2.4 Brown, moist, medium silt, sandy S&T.	
3.50	18	374.1	4	ASHTO: A-7.5 Tan-brown, moist, medium silt, S&T, with sand.	
4.85	18	374.1	4	ASHTO: A-4 Yellowish brown, moist, loose to medium dense, silty SAND.	
6.15	18	374.1	4	ASHTO: A-2.4 Greenish brown, moist, medium dense, silty SAND.	
6.15	18	374.1	4	ASHTO: A-2.4 Bottom of hole at 25.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-5** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 378.3  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	378.3	0	Brown, moist, loose, micaceous, silty SAND, with organic and gravel.	Topsoil 0 in.
2.25	18	374.1	4	ASHTO: A-2.4 Brown, moist, medium silt, micaceous, sandy S&T, with gravel.	
3.50	18	374.1	4	ASHTO: A-7.5 Light brown, moist to wet, loose to medium dense, silty SAND.	
4.85	18	374.1	4	ASHTO: A-2.4 Bottom of hole at 25.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-6** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 371.8  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	371.8	0	Brown, moist, micaceous, medium silt, sandy S&T, trace organic.	Topsoil 0 in.
2.25	18	366.6	4	ASHTO: A-2.6 Reddish brown, moist, micaceous, medium silt, sandy S&T.	
3.50	18	366.6	4	ASHTO: A-7.6 Greyish brown, moist, loose, silty S&T.	
4.85	18	366.6	4	ASHTO: A-4 Dark brown, moist, micaceous, loose to medium dense, silty SAND.	
6.15	18	366.6	4	ASHTO: A-4 Dark brown, moist, micaceous, medium dense, sandy S&T.	
6.15	18	366.6	4	ASHTO: A-4 Bottom of hole at 25.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-7** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 11, 2008  
 DATE COMPLETED: April 11, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 369.7  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	369.7	0	Brown, moist, silt, S&T, with organic.	Topsoil 0 in.
2.25	18	369.7	4	ASHTO: A-7.6 Brown, moist, loose, silty SAND.	
3.50	18	369.7	4	ASHTO: A-2.4 Greyish brown, moist, loose, sandy S&T.	
4.85	18	369.7	4	ASHTO: A-2.4 Dark brown, moist, micaceous, loose to medium dense, silty SAND.	
6.15	18	369.7	4	ASHTO: A-2.4 Bottom of hole at 15.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-8** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 8, 2008  
 DATE COMPLETED: April 8, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 366.6  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	366.6	0	Brown, moist, micaceous, very loose, silty SAND, with organic.	Topsoil 0 in.
2.25	18	366.6	4	ASHTO: A-2.4 Brown, moist, micaceous, medium dense, silty SAND.	
3.50	18	366.6	4	ASHTO: A-2.4 Light brown, moist, silt, S&T.	
4.85	18	366.6	4	ASHTO: A-7.5 Dark brown, moist, micaceous, very loose to loose, silty SAND.	
6.15	18	366.6	4	ASHTO: A-2.4 Bottom of hole at 15.0 Feet.	

NOTES: NE-Not Encountered

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**LOG OF BORING NO. SWM-9** Sheet 1 of 1

PROJECT: Walgreens - Village of Oakland Mills  
 PROJECT NO: 090322  
 PROJECT LOCATION: Howard County, Maryland  
 DATE STARTED: April 10, 2008  
 DATE COMPLETED: April 10, 2008  
 DRILLING CONTRACTOR: Geo-Technology Associates, Inc.  
 DRILLER: J. McCabe  
 LOGGED BY: J. McCabe  
 CHECKED BY: G. Pfeiffer

WATER LEVEL: 7.0  
 DATE: 4/10/08  
 GROUND SURFACE ELEVATION: 355.0  
 DATE: 4/10/08

DEPTH (FT)	DIAPHRAGM	LOGS	SYMBOLS	DESCRIPTION	REMARKS
1.00	18	355.0	0	Black, moist, silt, micaceous, S&T, with organic. (F#)	Topsoil 0 in.
2.25	18	351.8	4	ASHTO: A-7.5 Black, moist, micaceous, dense, Polygraded GRAVEL (Block and Asphalt Fragments), with silt. (F#)	
3.50	18	351.8	4	ASHTO: A-1.5 Light brown, moist, silt, S&T.	
4.85	18	351.8	4	ASHTO: A-2.4 Dark greenish brown, micaceous, very dense, Highly Weathered Rock.	
6.15	18	351.8	4	ASHTO: A-2.4 Bottom of hole at 15.0 Feet. Auger Refused at 10 Feet.	

NOTES: NE-Not Encountered. Boring was offset. Elevation is approximate.

GTA GEO-TECHNOLOGY ASSOCIATES, INC.  
 14200 Park Center Drive, Suite A  
 Laurel, MD 20707

**NOTES FOR EXPLORATION LOGS**

**KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS**

MAJOR DIVISIONS	SYMBOLS	DESCRIPTION	GRAVIC LETTER
GRAVEL AND GRAVELLY SOILS	GW	CLEAN GRAVELS	GW
	GP	LESS THAN 5% FINER THAN NO. 20 SIEVE	GP
	GM	GRAVELS WITH FINE	GM
	GC	MORE THAN 5% FINER THAN NO. 20 SIEVE	GC
SAND AND SANDY SOILS	SW	CLEAN SANDS	SW
	SP	LESS THAN 5% FINER THAN NO. 20 SIEVE	SP
	SM	SANDS WITH FINE	SM
	SC	MORE THAN 5% FINER THAN NO. 20 SIEVE	SC
FINE GRAINED SOILS	ML	SILT OR CLAY	ML
	CL	SILT OR CLAY WITH MORE THAN 40% SAND	CL
	OL	SANDY OR GRAVELLY SILT OR CLAY (40% FINER THAN NO. 20 SIEVE)	OL
	MH	SILT OR CLAY WITH MORE THAN 40% SAND	MH
	CH	SANDY OR GRAVELLY SILT OR CLAY (40% FINER THAN NO. 20 SIEVE)	CH
	PT	HIGHLY ORGANIC SOILS	PT

**ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS**

DESCRIPTION	GRAPHIC SYMBOLS
TOPSOIL	[Symbol]
MANMADE FILL	[Symbol]
GLACIAL TILL	[Symbol]
COBBLES AND Boulders	[Symbol]
RESIDUAL SOIL	[Symbol]
PARTIALLY WEATHERED ROCK	[Symbol]
HEAVILY WEATHERED ROCK	[Symbol]

**WATER DESIGNATION**

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	W
UPON COMPLETION OF DRILLING	W
16 HOURS AFTER COMPLETION	W

**COARSE GRAINED SOILS (PERCENT FINER)**

DESIGNATION	PERCENT FINER (PT)
VERY LOOSE	0-4
LOOSE	4-10
MEDIUM DENSE	10-30
DENSE	30-50
VERY DENSE	>50

**FINE GRAINED SOILS (SILT AND CLAY)**

DESIGNATION	PERCENT FINER (PT)
VERY STIFF	<2
STIFF	2-4
MEDIUM STIFF	4-6
STIFF	6-15
VERY STIFF	15-30
HARD	>30

**ADDITIONAL NOTES:**

- NOTE: ADDITIONAL DESIGNATIONS TO BE USED AS INDICATED BY THE FIELD LOGS.
- NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME THE BORING WAS DRILLED. PROPERTY OF SOILS MAY CHANGE WITH WATER LEVEL CHANGES.

\* 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. 13741, Expiration Date: 12-08-11.

Reviewed for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

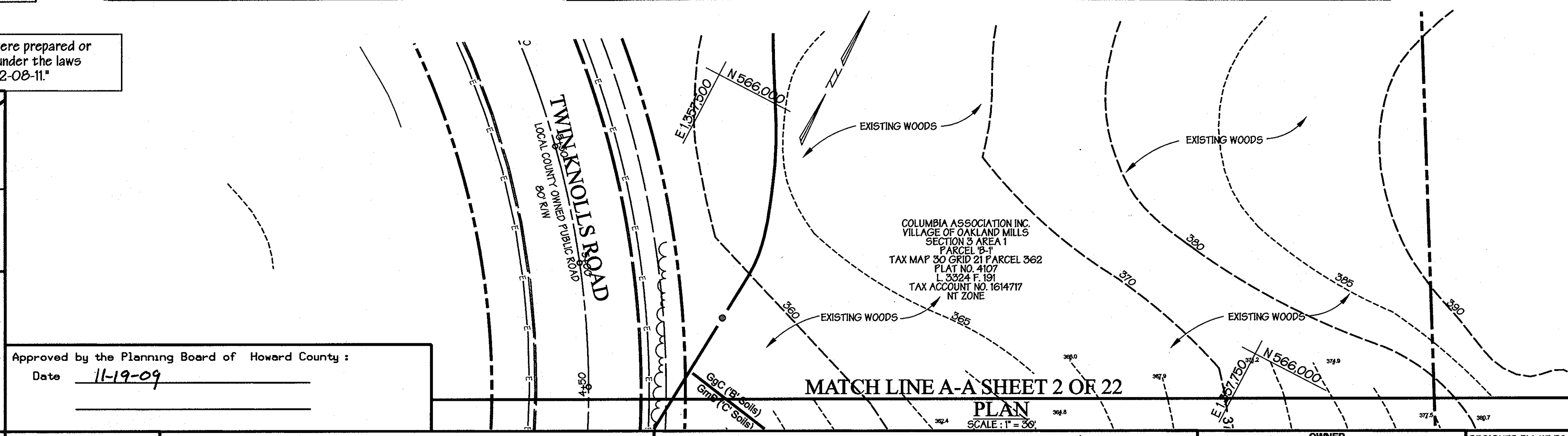
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED: Howard County Department of Planning and Zoning

Chief, Development Engineering Division DATE 6/2/10

Chief, Division of Land Development DATE 6/07/10

DIRECTOR DATE 6/7/10



**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME** VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949 PARCEL 'A'

**PLAT** 4107 **GRID** 22 **ZONE** NT **TAX / ZONE MAP** 30 **ELECT. DIST.** 6 **CENSUS TRACT** 6606.03

**WATER CODE** E-06 **SEWER CODE** 5333000

**PREPARED BY:** GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC. Civil Engineers and Land Surveyors 235 Schilling Circle, Suite 103 Hunt Valley, Maryland 21031 410-785-6640

**ENGINEER CERTIFICATION:** 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 Engineer: [Signature] Date: 5/20/10 Print Name: PAUL W. TAYLOR PE # 13741

**DEVELOPER CERTIFICATION:** I/ We certify that all development and/or 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 inspections by the Howard Soil Conservation District. Signature of Developer: [Signature] Date: 5/20/10 Print Name: R. Colfax Schaefer, Jr.

**OWNER:** Thunder Hill, LLC c/o Bavar Properties Group, LLC 1966 Greenspring Drive, Suite 500 Timonium, MD 21093 410-560-0300

**DEVELOPER:** Manekin, LLC 6601 Robert Fulton Drive, Suite 200 Columbia, MD 21046 410-423-2002

**DESIGNED BY:** KE, PC, JM  
**DRAWN BY:** KE  
**CHECKED BY:** KE, PC  
**REVISIONS:**

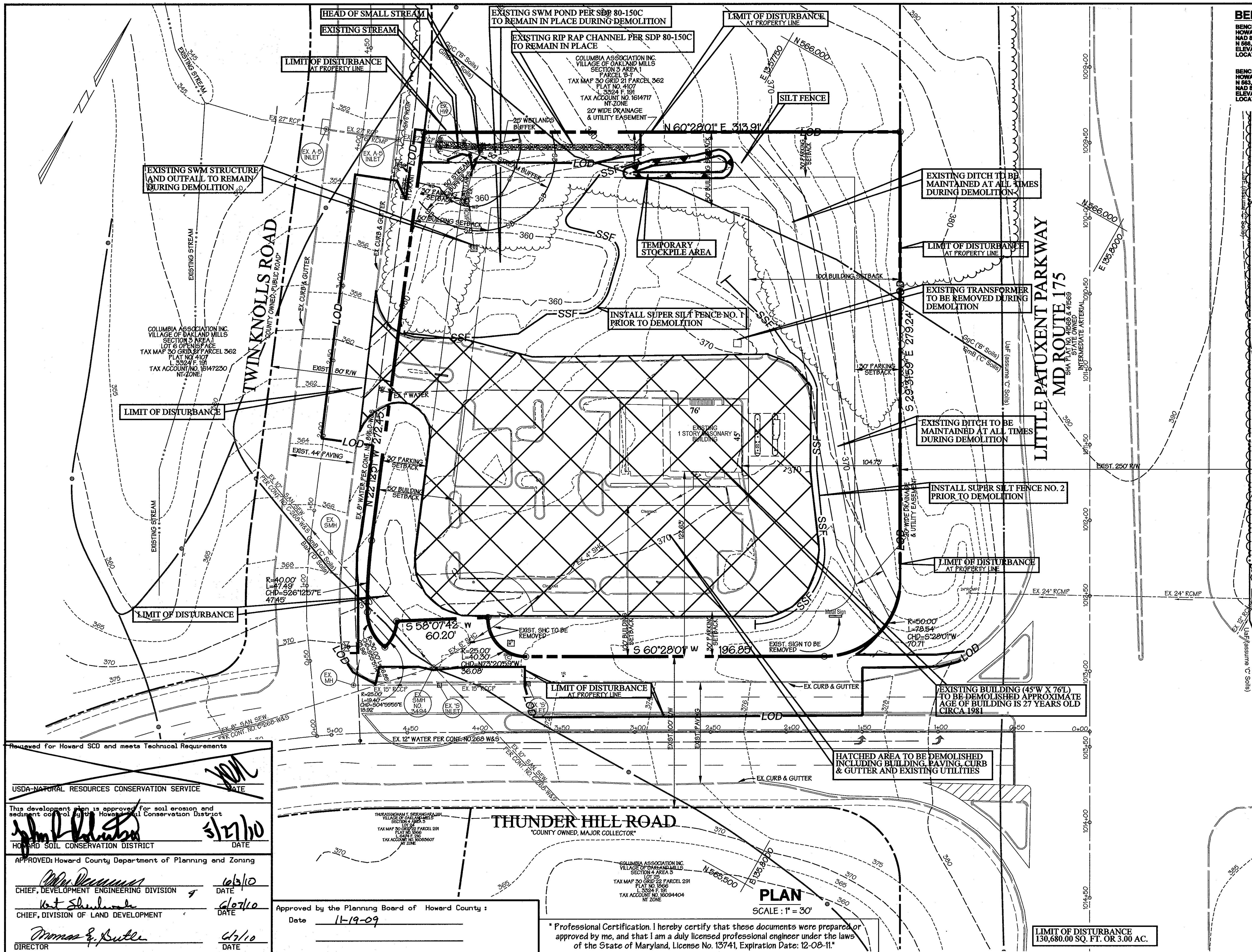
**SWM BORING LOGS**

**VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949 PARCEL 'A'**

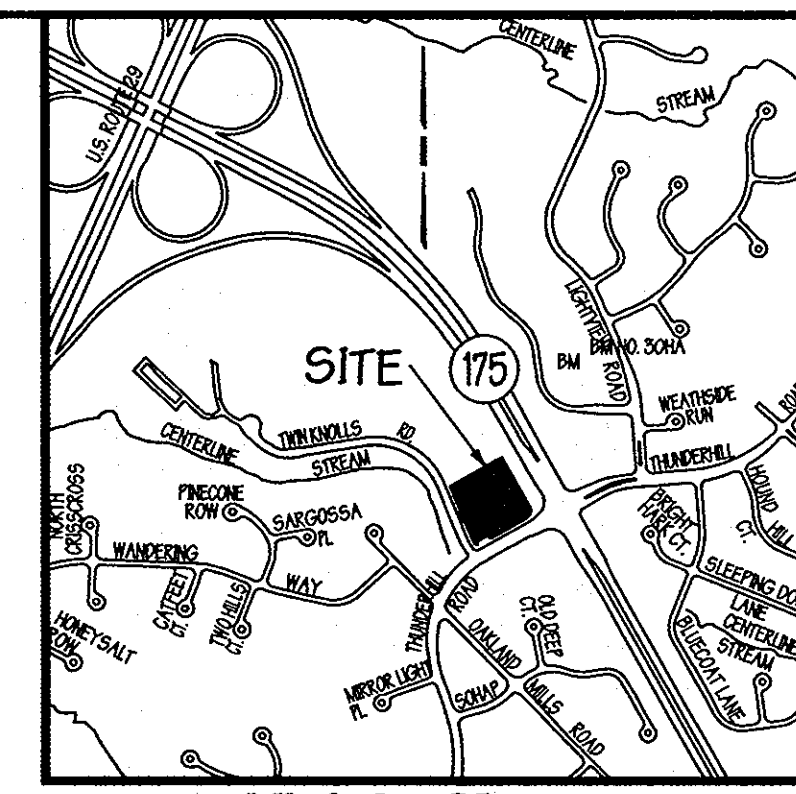
**ELECTION DISTRICT:** 6<sup>th</sup> HOWARD CO., MARYLAND **SHT. 15 OF 22** **DATE:** JANUARY 14, 2009 **SDP 08 - 097**

**SDP 08 - 097** **P/N: 10-10642**





**BENCHMARKS**  
 BENCHMARK #308A  
 HOWARD COUNTY GEODETIC CONTROL  
 NAD 83  
 N 568,030.80 E 1,387,989.57  
 ELEVATION = 387.03F  
 LOCATION - ROUTE 175 NEAR THUNDER HILL ROAD  
 BENCHMARK #368C  
 HOWARD COUNTY GEODETIC CONTROL  
 NAD 83  
 N 563,284.10 E 1,359,588.74  
 ELEVATION = 410.02F  
 LOCATION - ROUTE 175 BETWEEN TAMAR DRIVE & THUNDERHILL ROAD



**Sequence of Operation Phase I**

1. OBTAIN GRADING PERMIT. (1 DAY)
2. OBTAIN DEMOLITION PERMIT. (1 DAY)
3. NOTIFY THE HOWARD COUNTY DEPARTMENT OF PERMITS AND LICENSES 48 HOURS BEFORE BEGINNING WORK. (1 DAY)
4. WITH PERMISSION FROM SEDIMENT CONTROL INSPECTION INSTALL SUPER SILT FENCE NO. 1 AND NO. 2 PRIOR TO DEMOLITION OF EXISTING SITE. (3 DAYS)
5. WITH PERMISSION FROM SEDIMENT CONTROL INSPECTION, DEMOLISH EXISTING BUILDING, PAVING, CURB AND GUTTER AND EXISTING UTILITIES. (7 DAYS)
6. WITH PERMISSION FROM SEDIMENT CONTROL INSPECTION CONTINUE WITH NEXT PHASE OF PROJECT. (1 DAY)

**LEGEND**

- EXISTING PROPERTY LINE
- EXIST. R/W LINE
- EXIST. 2' CONTOURS
- EXIST. 10' CONTOURS
- EXIST. CENTERLINE
- EXIST. CURB & GUTTER
- EXIST. WATER
- EXIST. SEWER
- EXIST. STORMDRAIN
- EXIST. SOILS LINES
- LIMIT OF DISTURBANCE
- SUPER SILT FENCE

- NOTES:**
1. CONTRACTOR SHALL LAYOUT COLUMNS AND FOOTING LOCATIONS FOR THE PROPOSED WALGREENS AND TEST PIT AT ALL LOCATIONS TO SEE IF THERE IS ANY CONFLICT WITH THE EXISTING STORM DRAIN OR SANITARY SYSTEMS. WHERE CONFLICT EXISTS, FOLLOW GEOTECH RECOMMENDATIONS FOR REMOVAL AND BACKFILL, PLUGGING OR FILLING/GROUTING.
  2. CONTRACTOR TO REMOVE AND/OR GROUT EXISTING STORM DRAIN AND SANITARY LINES. FOLLOW GEOTECH RECOMMENDATION FOR REMOVAL AND BACKFILL, PLUGGING OR FILLING/GROUTING. BID SHALL BE UNIT PRICE PER BID FORM.
  3. CONTRACTOR TO PROTECT ALL UTILITIES NOT DESIGNATED TO BE ABANDONED.
  4. CONTRACTOR SHALL COMPLETELY REMOVE ALL FOOTINGS, FOUNDATIONS, AND WALLS WITHIN EXISTING BUILDING TO BE RAZED. STRUCTURAL BACKFILL SHALL BE PER GEOTECH REPORT.

Requested for Howard SCD and meets Technical Requirements

USDA-NATURAL RESOURCES CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION

CHIEF, DIVISION OF LAND DEVELOPMENT

DIRECTOR

Approved by the Planning Board of Howard County:

Date: 11-19-09

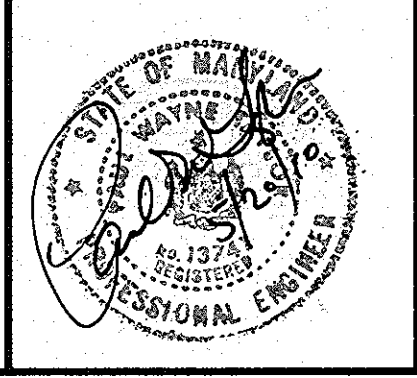
Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland, License No. 13741, Expiration Date: 12-08-11.

PREPARED BY:

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**

Civil Engineers and Land Surveyors

235 Schilling Circle, Suite 103  
 Hunt Valley, Maryland 21031  
 410-785-6640



**ENGINEER CERTIFICATION:**

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 Engineer: Paul W. Taylor

Date: 5/2/10

Print Name: PAUL W. TAYLOR

PE # 13741

**DEVELOPER CERTIFICATION:**

I/We certify that all development and/or 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 inspections by the Howard Soil Conservation District.

Signature of Developer: R. Colfax Schaefer, Jr.

Date: 5/2/10

Print Name: R. Colfax Schaefer, Jr.

**OWNER:**

**Thunder Hill, LLC**

c/o Baran Properties Group, LLC  
 1966 Greenspring Drive, Suite 508  
 Timonium, MD 21093  
 410-560-0300

**DEVELOPER:**

**Manekin, LLC**

6601 Robert Fulton Drive, Suite 200  
 Columbia, MD 21046  
 410-423-2002

DESIGNED BY: KE.PCJM  
 DRAWN BY: KE  
 CHECKED BY: KE.PC  
 REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

PROJECT NAME	SECTION NAME	PARCEL #
VILLAGE OF OAKLAND MILLS	3	A

PLAT	GRID	ZONE	TAX ZONE MAP	ELECT. DIST.	CENSUS TRACT
#79-21C / F10-059	22	NT	30	6	6606.03

WATER CODE	SEWER CODE
E-06	5333000

**Erosion & Sediment Control Plan / Demolition Plan**

**VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949**

PARCEL 'A'

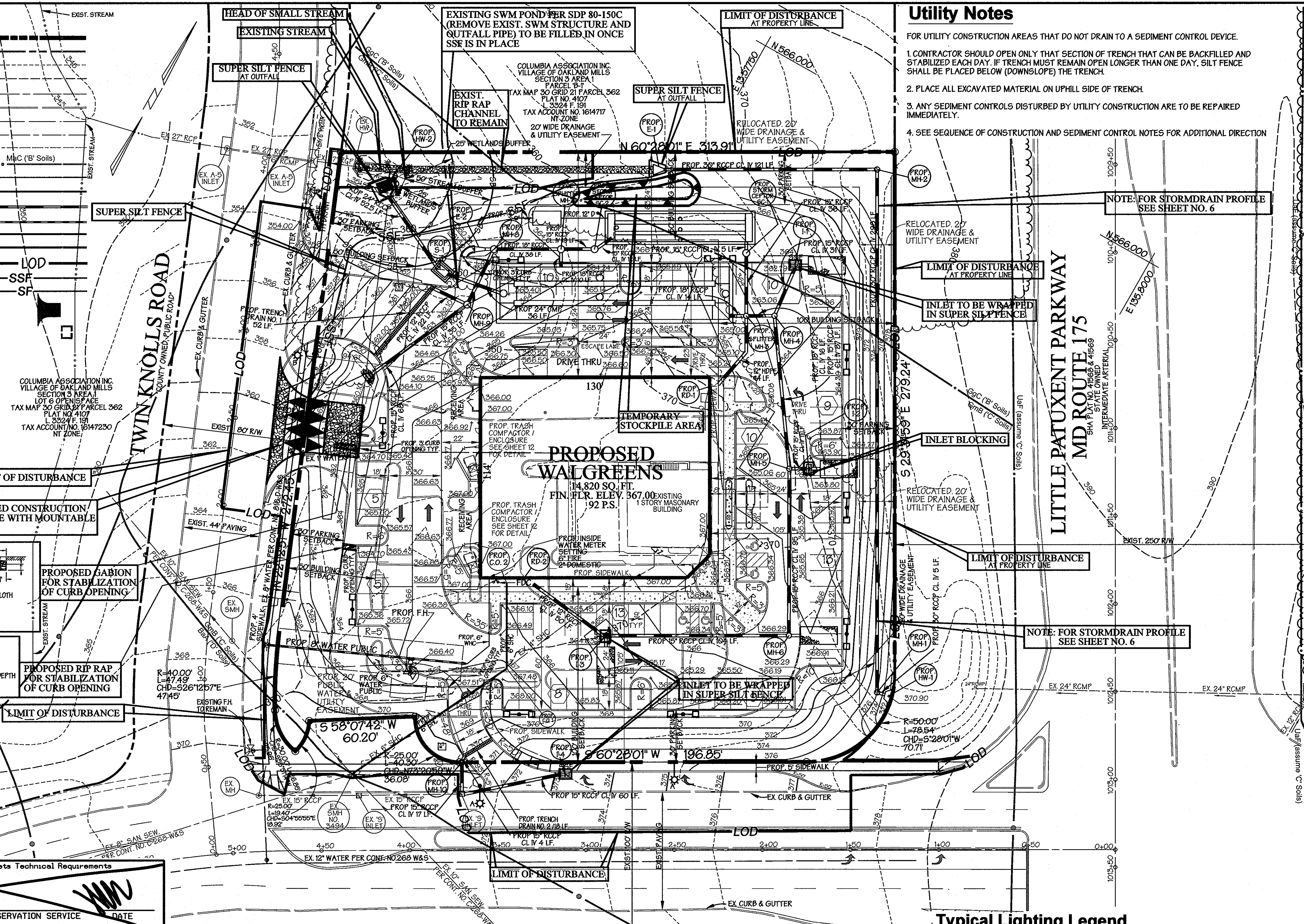
ELECTION DISTRICT: 6<sup>th</sup>  
 HOWARD CO., MARYLAND SHT. 16 of 22 DATE: JANUARY 14, 2009  
 SDP 08 - 097

SCALE: 1"=30'  
 SDP 08 - 097



**LEGEND**

- EXISTING PROPERTY LINE
- EXIST. R/W LINE
- EXIST. 2' CONTOURS
- EXIST. 10' CONTOURS
- EXIST. CENTERLINE
- EXIST. CURB & GUTTER
- EXIST. WATER
- EXIST. SEWER
- EXIST. STORMDRAIN
- EXIST. SOILS LINES
- PROP. 2' CONTOURS
- PROP. 10' CONTOURS
- PROP. STORMDRAIN
- PROP. WATER
- PROP. SEWER
- PROP. C & G
- LIMIT OF DISTURBANCE
- SILT FENCE
- SUPER SILT FENCE
- STABILIZED CONSTRUCTION ENTRANCE W/ MOUNTABLE BERM
- INLET BLOCKING

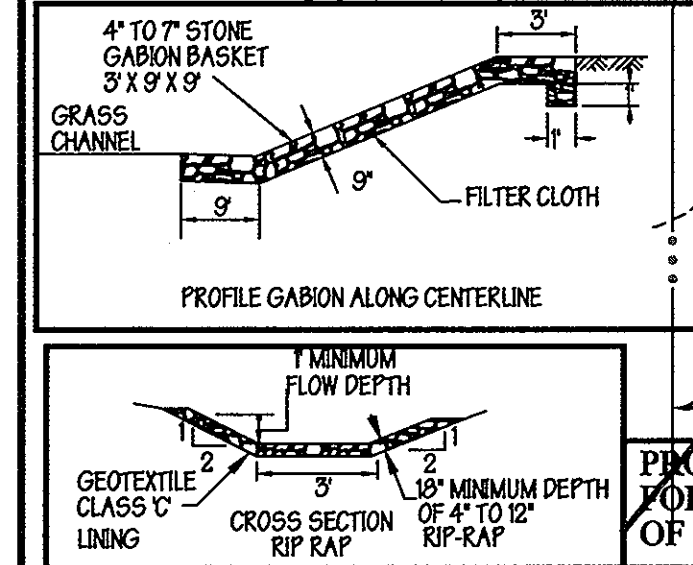
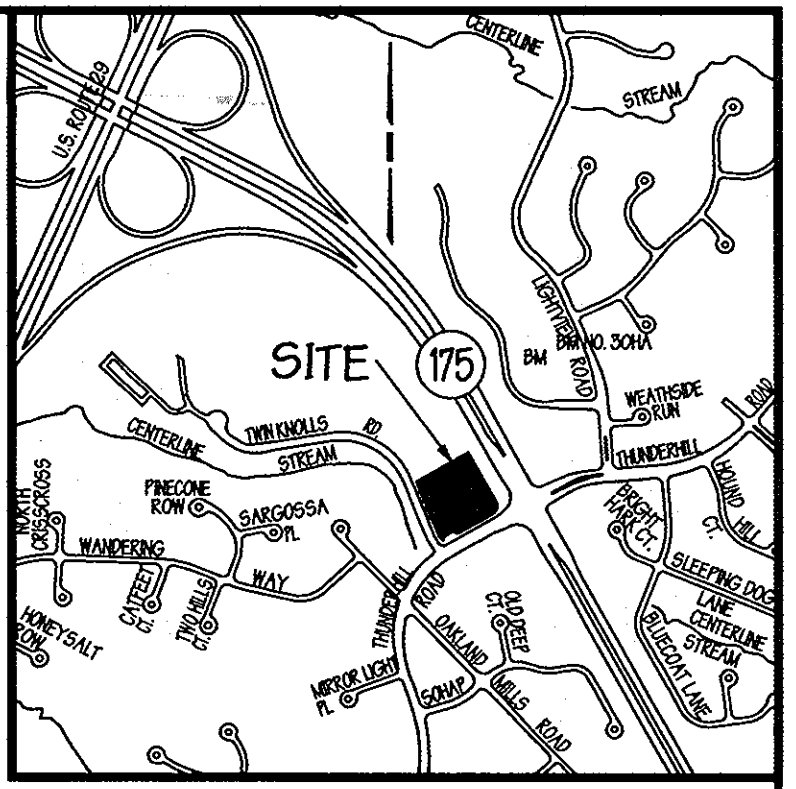


**Utility Notes**

- FOR UTILITY CONSTRUCTION AREAS THAT DO NOT DRAIN TO A SEDIMENT CONTROL DEVICE.
1. CONTRACTOR SHOULD OPEN ONLY THAT SECTION OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE DAY, SILT FENCE SHALL BE PLACED BELOW (DOWNSLOPE) THE TRENCH.
  2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
  3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
  4. SEE SEQUENCE OF CONSTRUCTION AND SEDIMENT CONTROL NOTES FOR ADDITIONAL DIRECTION

**Sequence of Operation Phase 2**

1. OBTAIN GRADING PERMIT. (1 DAY)
2. INSTALL STABILIZED CONSTRUCTION ENTRANCE WITH MOUNTABLE BERM. (1 DAY)
3. INSTALL SUPER SILT FENCE NO. 3 SEE THIS SHEET. REMOVE SUPER SILT FENCE NO. 1 AND NO. 2 SEE SHEET 12. (3 DAYS)
4. WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR, INSTALL STORMDRAINS BETWEEN E-1 AND HW-1 AND PROPOSED GRADES AT THESE STORMDRAINS. (3 DAYS)
5. ONCE STORMDRAINS BETWEEN E-1 AND HW-1 ARE INSTALLED AND STABILIZED WITH PERMISSION FROM SEDIMENT CONTROL INSPECTOR REMOVE EXISTING SWM STRUCTURE AND OUTFALL PIPE. PROCEED WITH GRADING OPERATIONS AND BEGIN BUILDING CONSTRUCTION. (7 DAYS)
6. INSTALL SANITARY, WATER, UNDERGROUND SWM STRUCTURE S-1 OUTFALL PIPE AND HW-2, AND STORMDRAINS. WRAP INLETS I-1, I-3, AND I-4 WITH SUPER SILT FENCE, PROVIDE INLET BLOCKING AT INLET I-2. (10 DAYS)
7. BEGIN STONE SUBBASE AND INSTALL CURB & GUTTER AND SIDEWALKS. FINE GRADE GRASS AREAS AND STABILIZE. (6 DAYS)
8. ONCE NEW ENTRANCE IS IN PLACE REMOVE STABILIZED CONSTRUCTION ENTRANCE AND FINISH FINE GRADING GRASS AREA AND STABILIZE. (3 DAYS)
9. UPON STABILIZATION OF SITE FLUSH STORMDRAINS. (2 DAYS)
10. PROCEED WITH FINAL PAVING OPERATIONS AND LANDSCAPING (10 DAYS)
11. AFTER ALL AREAS HAVE BEEN COMPLETELY STABILIZED WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR REMOVE REMAINING SEDIMENT CONTROL DEVICES. (2 DAYS)



Approved for Howard SCD and meets Technical Requirements

FOR NATURAL RESOURCES CONSERVATION SERVICE

This development plan is approved for soil erosion and sediment control by the Howard Soil Conservation District

*John D. ...* DATE 6/23/10

APPROVED: Howard County Department of Planning and Zoning

*John D. ...* DATE 6/23/10

CHIEF, DEVELOPMENT ENGINEERING DIVISION

*John D. ...* DATE 6/23/10

CHIEF, DIVISION OF LAND DEVELOPMENT

*Thomas E. ...* DATE 6/23/10

DIRECTOR

Approved by the Planning Board of Howard County:

Date 11-19-09

\* 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. 13741, Expiration Date: 12-08-11\*

**Typical Lighting Legend**

- TWIN 400 W CLEAR ED-20 PULSE START METAL HALIDE FIXTURES
- HORIZONTAL POSITION, TWIN @ 180 ROTATED OPTICS KSP2 400M R4SC
- LUMINAIR 400W METAL HALIDE R4SC SHARP CUTOFF REFLECTOR
- FULL CUTOFF MEETS SIGNATURE NIGHTTIME FRIENDLY CRITERIA ON 24" POLE MAX HEIGHT DARK BRONZE FINISH (FOR POLE MOUNTING DET. SEE SHT. 19)
- STREET LIGHT 250 WATT HPS VAPOR PENDANT FIXTURE (SAG LENS) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12 ARM
- STREET LIGHT 150 WATT HPS VAPOR PREMIER POST TOP FIXTURE MOUNTED ON A W BLACK FIBERGLASS POLE LOCATED 2' TO 4' FROM BACK OF CURB

**PREPARED BY:**

**GWS** **GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**

Civil Engineers and Land Surveyors

235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640

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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 Engineer: *Paul W. Taylor* Date: 5/20/10

Print Name: PAUL W. TAYLOR PE # 13741

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Signature of Developer: *R. Brian Schmitt, Jr.* Date: 5/20/10

Print Name: R. Brian Schmitt, Jr.

**OWNER:**

**Thunder Hill, LLC**  
c/o Baran Properties Group, LLC  
1966 Greenspring Drive, Suite 508  
Towson, MD 21286  
410-560-0300

**DEVELOPER:**

**Manekin, LLC**  
8601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002

DESIGNED BY: KE, PC, JM  
DRAWN BY: KE  
CHECKED BY: KE, PC

REVISIONS

ADDRESS CHART	
PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

PROJECT NAME	SECTION NAME	PARCEL #
VILLAGE OF OAKLAND MILLS	3	A

PLAT #	GRID	ZONE	TAX MAP	ELECT. DIST.	CENSUS TRACT
79-21C / 110-059	22	NT	30	6	6606.03

WATER CODE	SEWER CODE
E-06	5333000

**Erosion & Sediment Control Plan**

**VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949**

PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup> HOWARD CO., MARYLAND SHT. 17 of 22 DATE: JANUARY 14, 2009

SDP 08 - 097 SCALE: 1" = 30'



Stabilization Specifications

Section I - Vegetative Stabilization Methods and Materials

- A. Site Preparation
1. Install erosion and sediment control structures...
2. Perform all grading operations at right angles to the slope...
3. Schedule required soil tests to determine soil amendment composition...
4. Soil Amendments (Fertilizer and Lime Specifications)
5. Soil tests must be performed to determine the exact ratios and application rates...

- C. Seeded Preparation
1. Seeded preparation shall consist of loosening soil to a depth of 2-4 inches...
2. Minimum soil conditions required for permanent vegetative establishment:
3. Areas previously graded in conformance with the drawings shall be maintained...

- D. Seed Specifications
1. All seed must meet the requirements of the Maryland State Seed Law...
2. Inoculant - The inoculant for treating legume seed in the seed mixture...

- E. Temporary Seeding
1. Hydroseeding: Apply seed uniformly with hydroseeder...
2. Hand sowing: Apply seed in rows or strips...

- F. Mulch Specifications (In order of preference)
1. Straw: Straw consists of thoroughly threshed wheat, rice or oat straw...
2. Wood Cellulose Fiber Mulch (WCFFM)
3. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state...

- G. Misting Grasses Is Desired
1. If grading to completed outside of the seeding season, mulch alone shall be applied...
2. Misting Grasses: Misting grasses shall be applied to all seeded areas immediately after seeding...

- H. Turfgrass Establishment
1. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites...
2. Turfgrass: Turfgrass shall be established in accordance with the following specifications...

- I. Sod Installation
1. During periods of excessively high temperature or in areas having dry subsoil...
2. Sod: Sod shall be watered immediately following rolling or tamping...

- J. Sod Maintenance
1. In the absence of adequate rainfall, watering shall be performed daily...
2. Watering: Watering shall be performed in a manner that will result in uniform moisture...

- K. Sod Installation (Continued)
1. Sod shall be watered immediately following rolling or tamping...
2. Sod: Sod shall be watered immediately following rolling or tamping...

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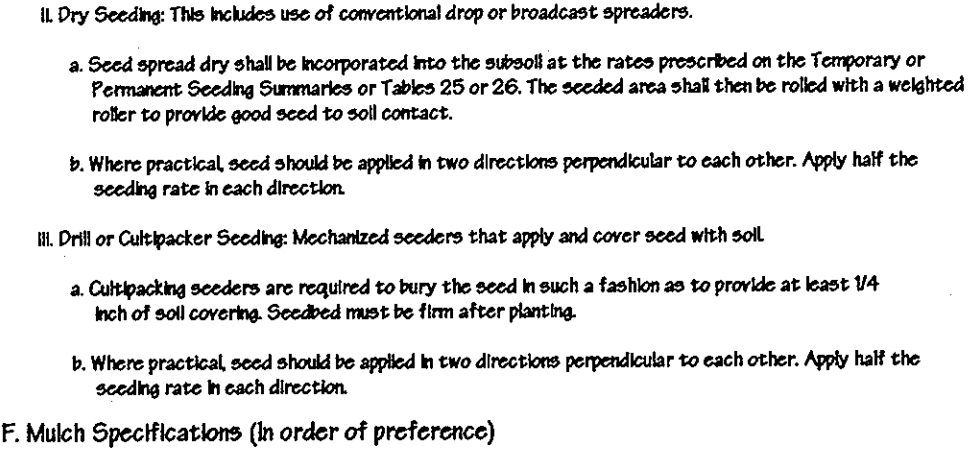
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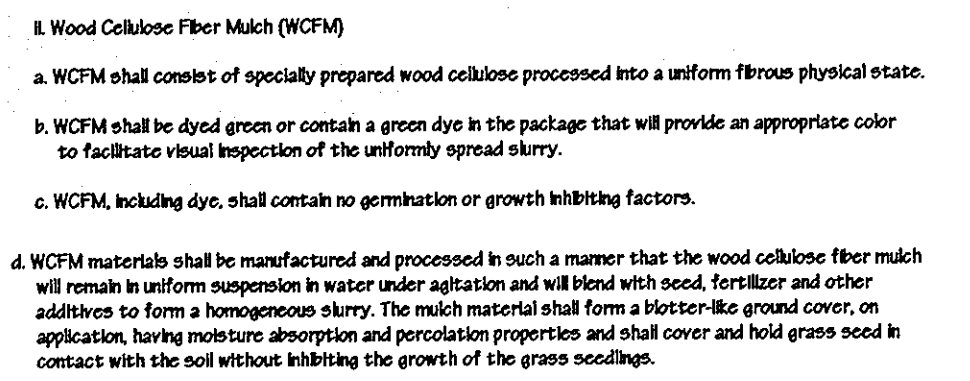
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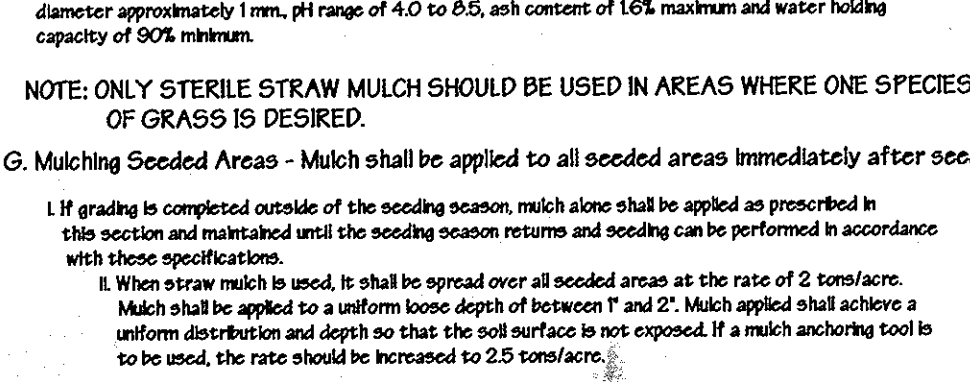
DETAIL - INLET BLOCKING



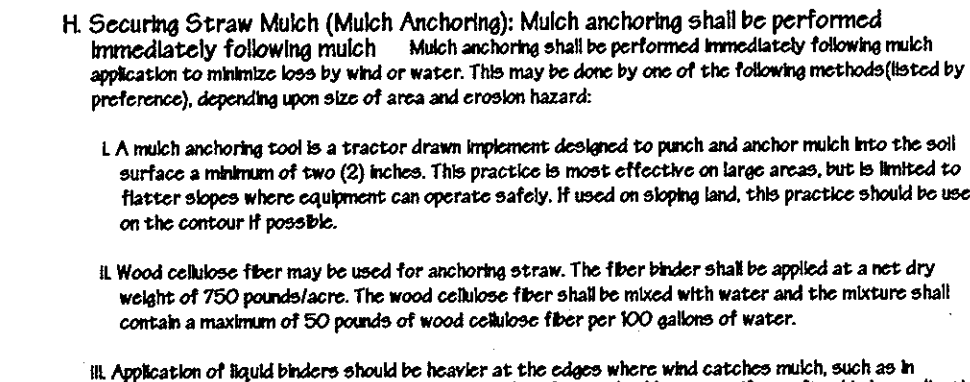
DETAIL 24 - STABILIZED CONSTRUCTION ENTRANCE



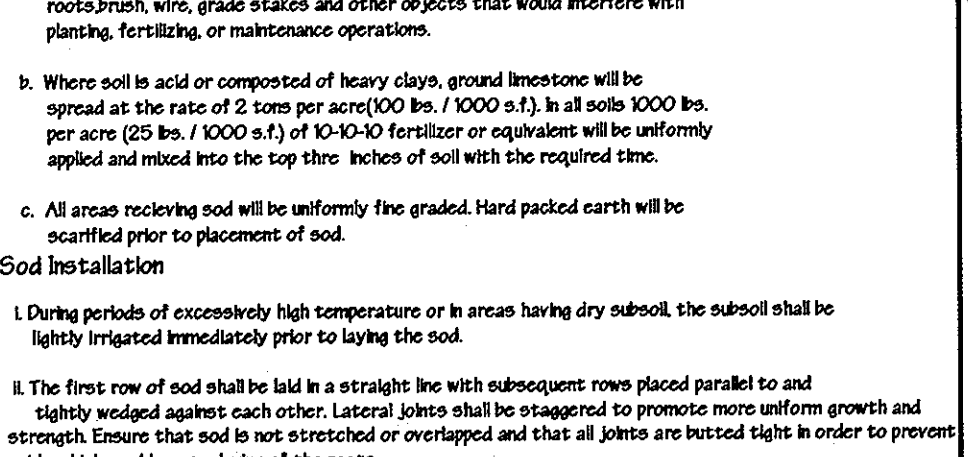
DETAIL 22 - SILT FENCE



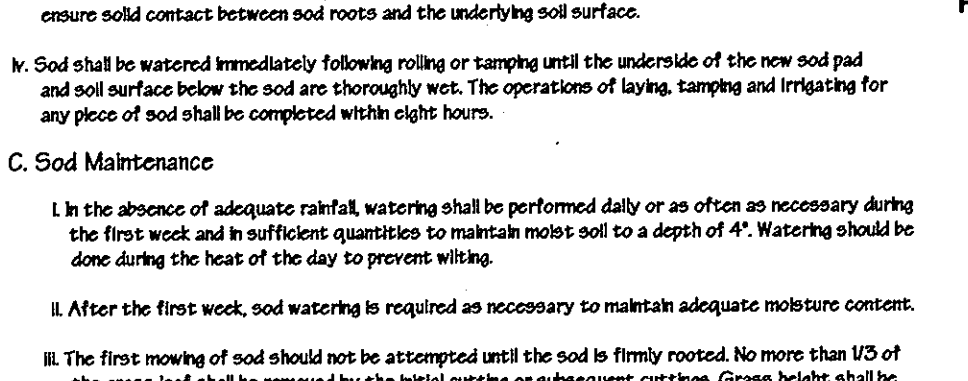
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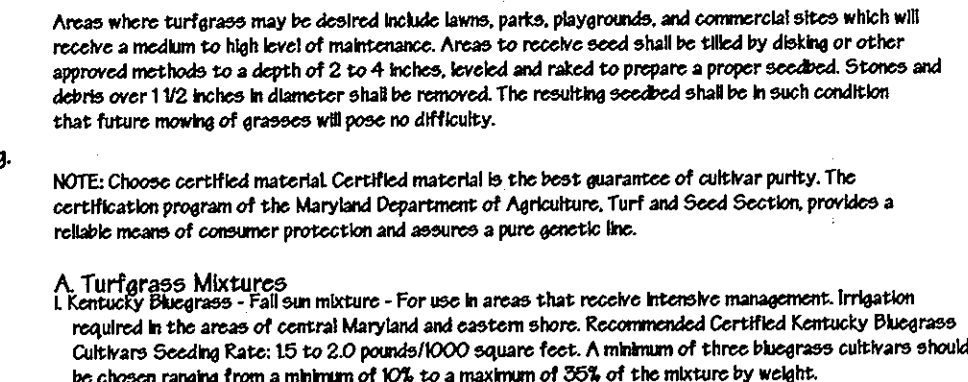
DETAIL - INLET BLOCKING



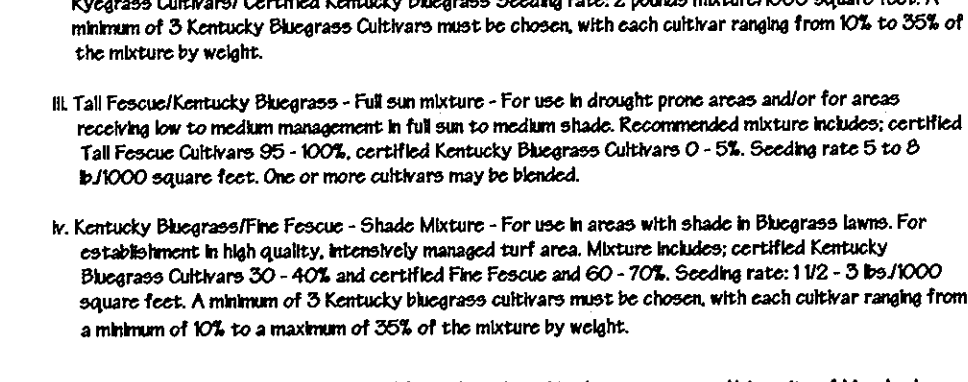
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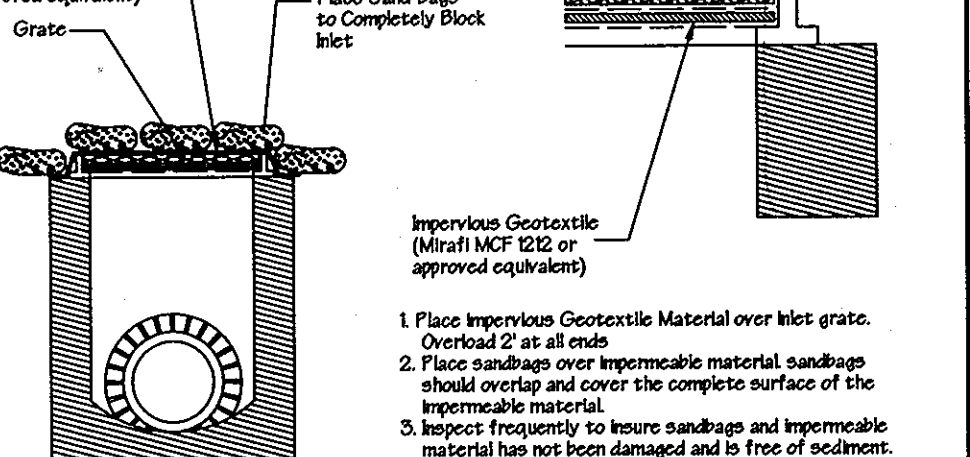
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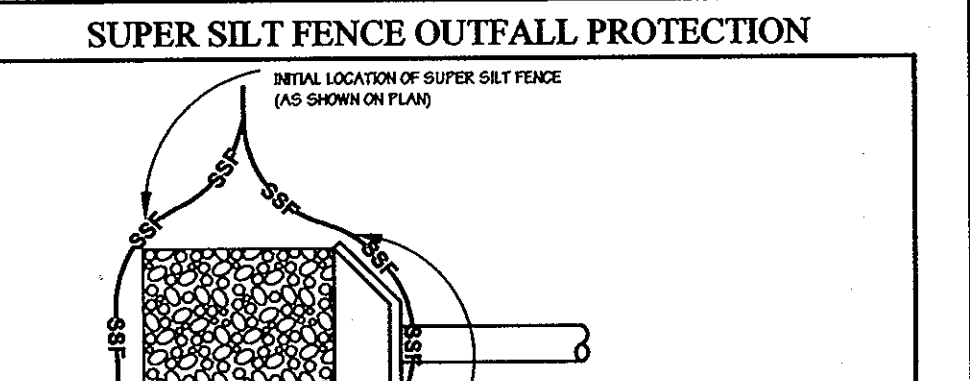
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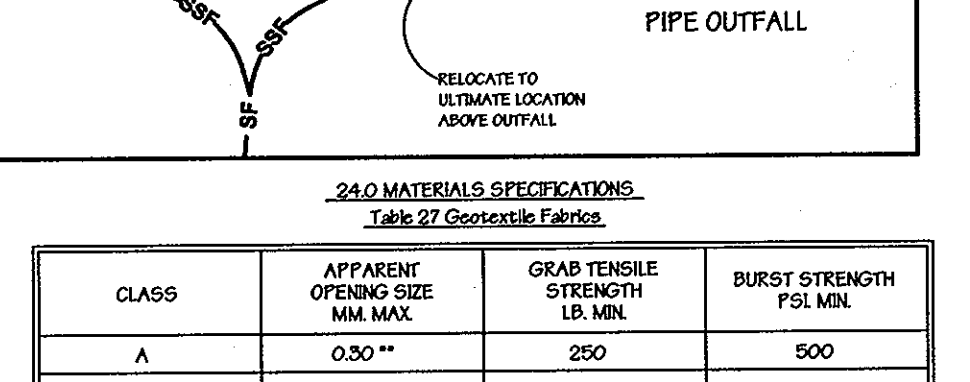
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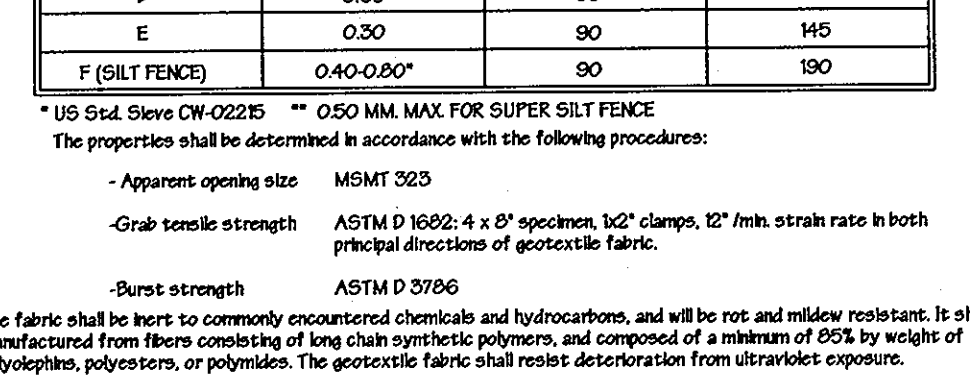
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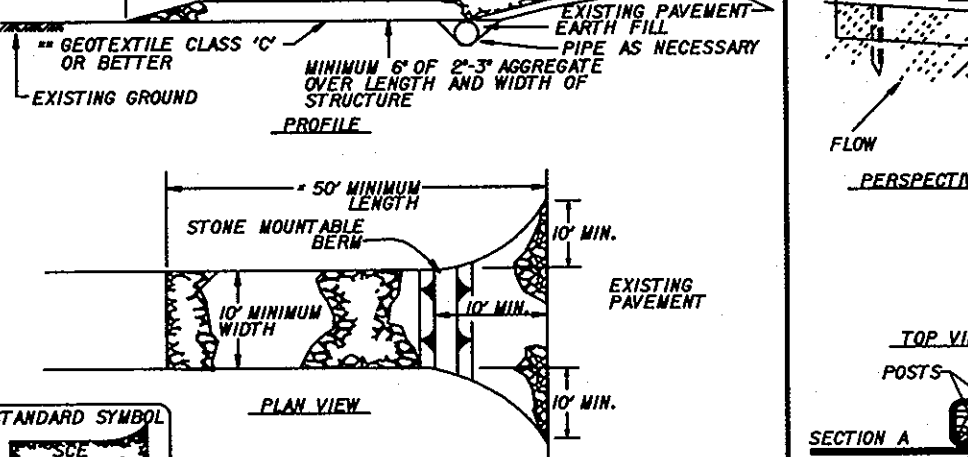
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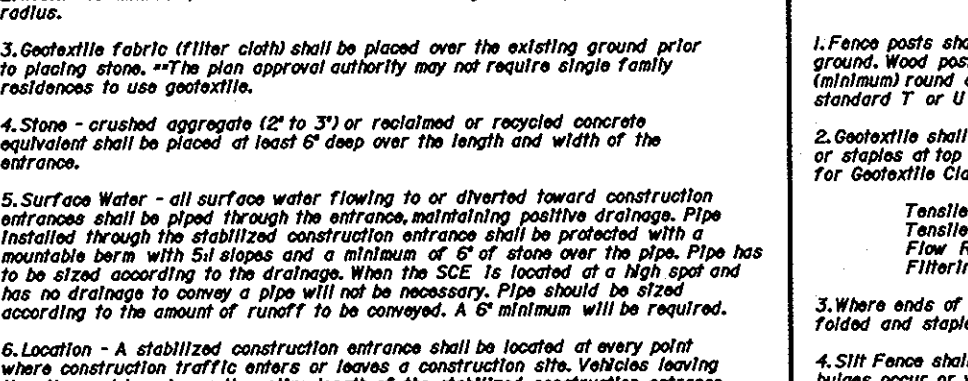
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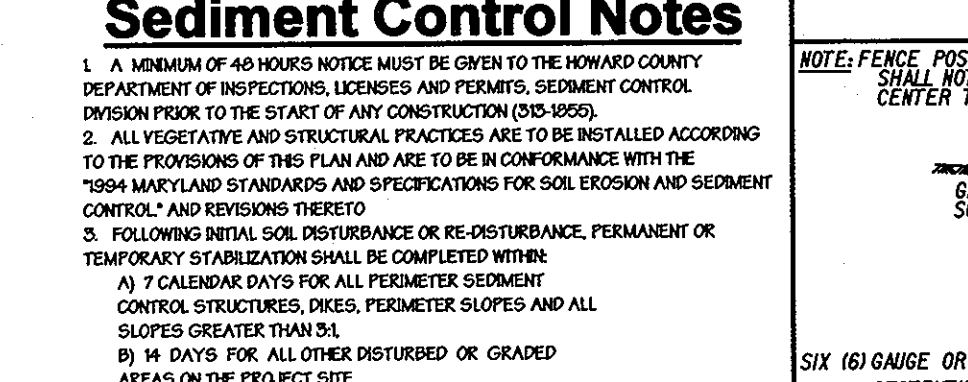
DETAIL - INLET BLOCKING



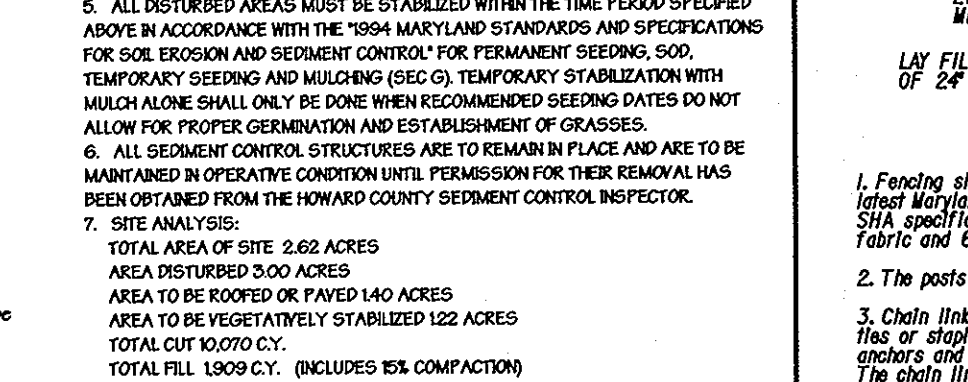
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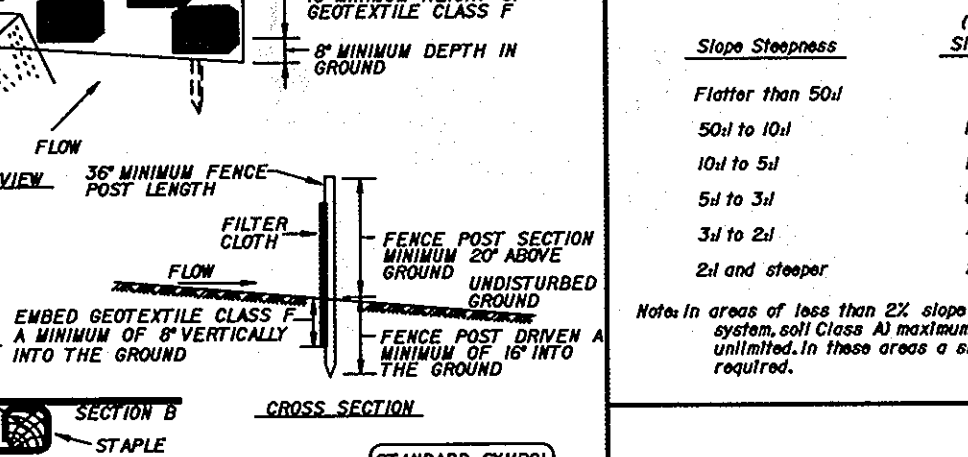
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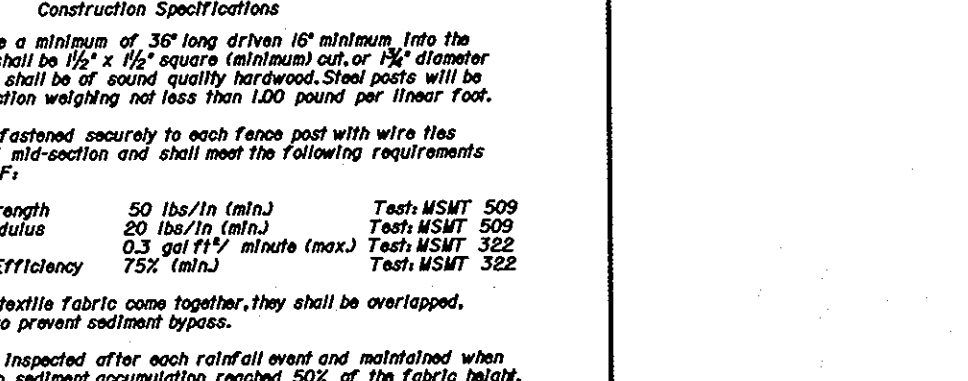
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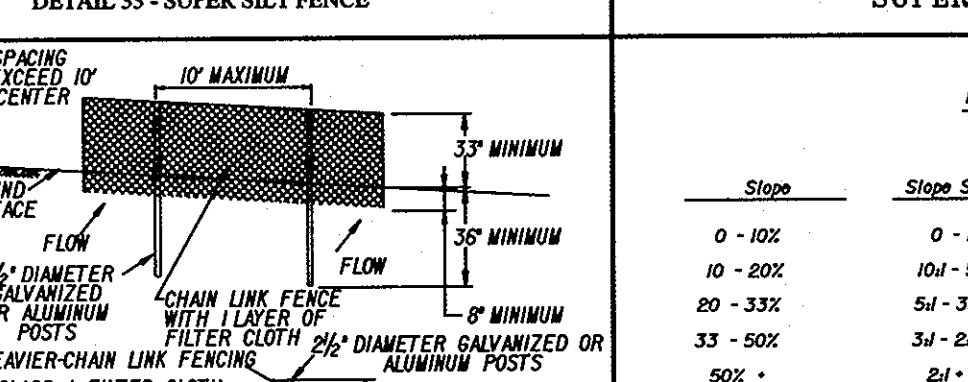
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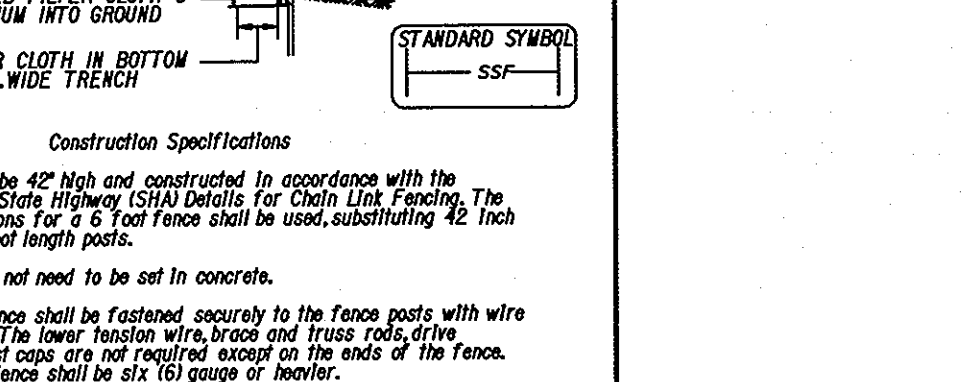
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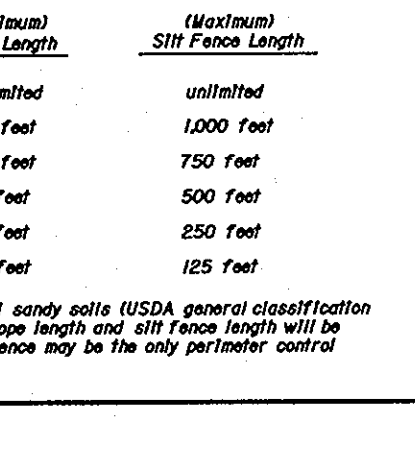
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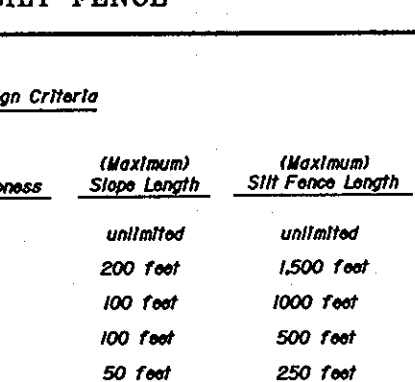
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NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

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- A. Site Preparation
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1. All seed must meet the requirements of the Maryland State Seed Law...
2. Inoculant - The inoculant for treating legume seed in the seed mixture...

- E. Temporary Seeding
1. Hydroseeding: Apply seed uniformly with hydroseeder...
2. Hand sowing: Apply seed in rows or strips...

- F. Mulch Specifications (In order of preference)
1. Straw: Straw consists of thoroughly threshed wheat, rice or oat straw...
2. Wood Cellulose Fiber Mulch (WCFFM)
3. WCFM shall consist of specially prepared wood cellulose processed into a uniform fibrous physical state...

- G. Misting Grasses Is Desired
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- H. Turfgrass Establishment
1. Areas where turfgrass may be desired include lawns, parks, playgrounds, and commercial sites...
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Table 26: Temporary Seeding Rates, Depths, and Dates. Columns: SPECIES, SEEDING RATE, DEPTH, DATE.

Table 27: Permanent Seeding Rates for Low Maintenance Areas. Columns: SPECIES, SEEDING RATE, DEPTH, DATE.

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Howard Soil Conservation District logo and seal. Includes text: 'Approved for Howard SCD and meets Technical Requirements', 'USDA-NATURAL RESOURCES CONSERVATION SERVICE', 'HOWARD SOIL CONSERVATION DISTRICT', and a signature block.

Professional Certification section. Includes text: 'I, the undersigned, do 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. 13741, Expiration Date: 12-08-11.' and a signature block.

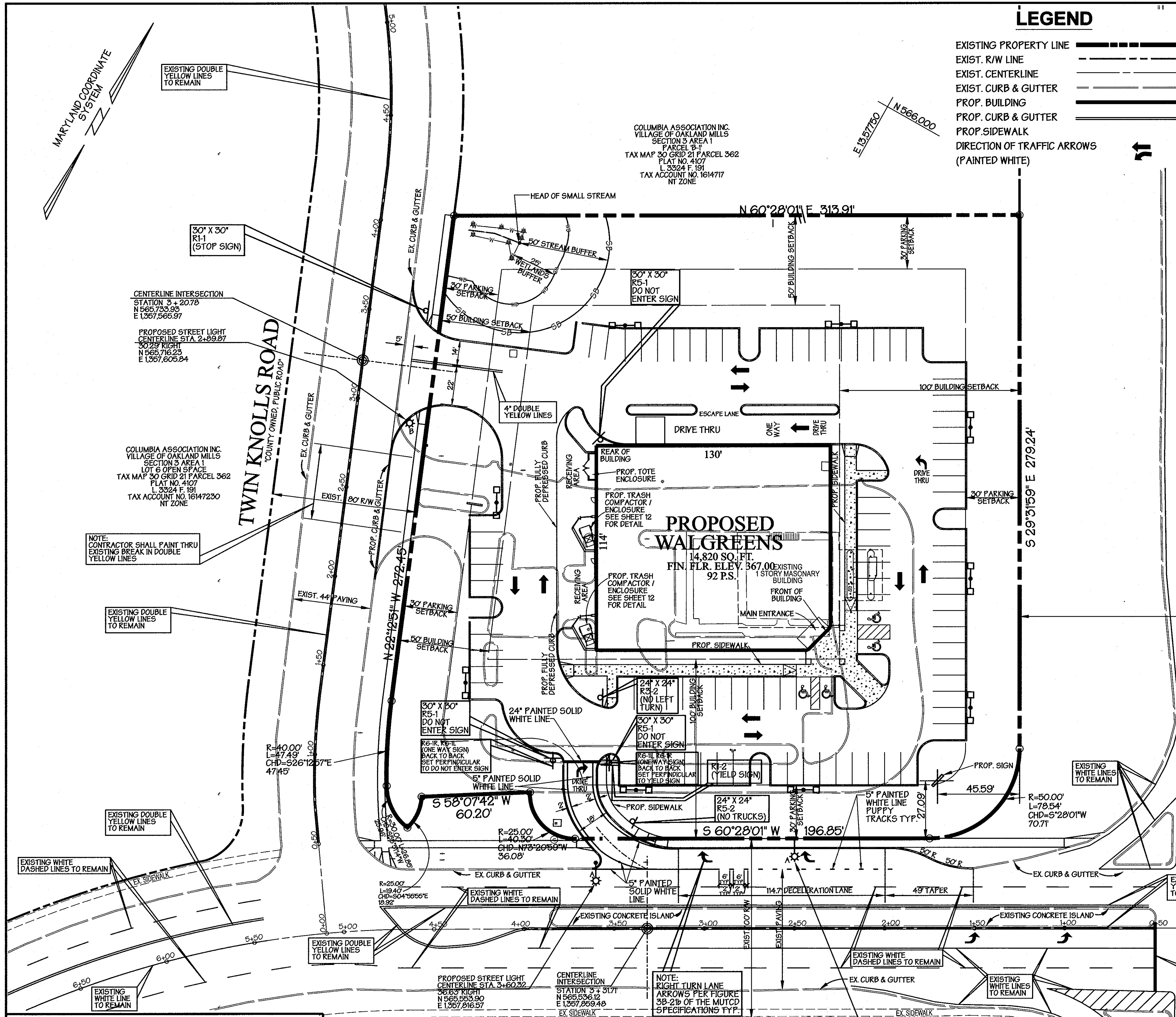
Developer Certification section. Includes text: 'I/We certify that all development and/or construction will be done according to this plan for sediment and erosion control, and that all responsible personnel involved in the construction project will have a certificate of Attendance at a Department of the Environment Training Program for the Control of Sediment and Erosion before beginning the project, also authorize periodic on-site inspections by the Howard Soil Conservation District.' and a signature block.

Fertilizer and Lime Rates section. Includes tables for Fertilizer Rate and Lime Rate. Tables show rates for various nutrients (N, P, K, S, Ca, Mg) and lime types (SOLBAC, TONSAC).

Owner and Developer information section. Includes contact information for Thunder Hill, LLC and Manekin, LLC. Includes text: 'OWNER: Thunder Hill, LLC, c/o Bavar Properties Group, LLC, 1966 Greenspring Drive, Suite 508, Timonium, MD 21093'. 'DEVELOPER: Manekin, LLC, 8601 Robert Fulton Drive, Suite 200, Columbia, MD 21045, 410-423-2002'.

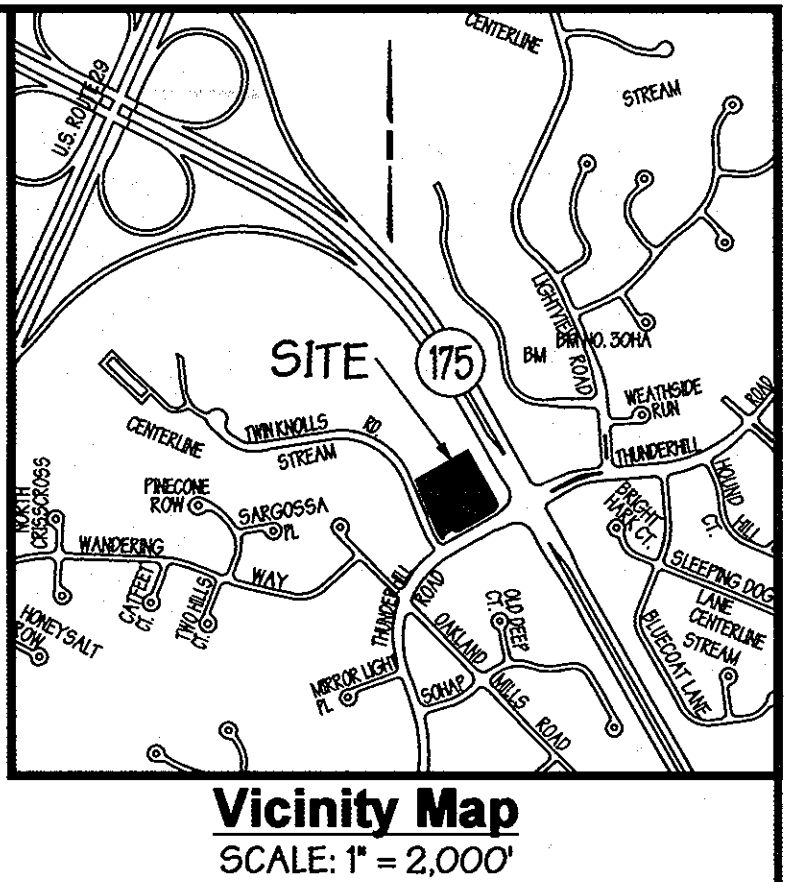
Address Chart and Sediment & Erosion Control Notes & Details section. Includes address: '5585 TWIN KNOLLS ROAD'. Includes project name: 'VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949'. Includes notes: 'Sediment & Erosion Control Notes & Details', 'VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949', 'PARCEL A', 'SCALE: AS NOTED', 'ELECTION DISTRICT: 6th HOWARD CO, MARYLAND', 'SHT 18 of 22', 'DATE: JANUARY 14, 2009', 'SDP 08 - 097'.





**LEGEND**

- EXISTING PROPERTY LINE
- EXIST. R/W LINE
- EXIST. CENTERLINE
- EXIST. CURB & GUTTER
- PROP. BUILDING
- PROP. CURB & GUTTER
- PROP. SIDEWALK
- DIRECTION OF TRAFFIC ARROWS (PAINTED WHITE)



**Technical Information**

Item	Quantity	Unit	Notes
1. 2" GALV. STEEL PERFORATED SQUARE TUBE POST	10	POST	FOR TRAFFIC CONTROL SIGNS
2. 14" GALV. STEEL PERFORATED SQUARE TUBE POST	10	POST	FOR TRAFFIC CONTROL SIGNS
3. 1/2" GALV. STEEL PERFORATED SQUARE TUBE SLEEVE	10	SLEEVE	FOR TRAFFIC CONTROL SIGNS
4. 3" LONG GALV. STEEL PERFORATED SQUARE TUBE SLEEVE	10	SLEEVE	FOR TRAFFIC CONTROL SIGNS
5. 1/2" GALV. STEEL PERFORATED SQUARE TUBE CAP	10	CAP	FOR TRAFFIC CONTROL SIGNS

**NOTE:** ALL SIGN POST USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALV. STEEL PERFORATED SQUARE TUBE POST (14 GAUGE) INSERTED INTO 2-1/2" GALV. STEEL PERFORATED SQUARE TUBE SLEEVE (12 GAUGE) 3" LONG. A GALV. STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.

**Typical Lighting Legend**

- TWIN 400 W CLEAR ED-20 PULSE START METAL HALIDE FIXTURES HORIZONTAL POSITION, TWIN 180 ROTATED OPTICS, RSP2 400M R43C LUMINAIR 400W METAL HALIDE R43C SHARP CUTOFF REFLECTOR, FULL CUTOFF MEETS SIGNATURE NIGHTTIME FRIENDLY CRITERIA ON 24' POLE MAX HEIGHT DARK BRONZE FINISH (FOR POLE MOUNTING DET. SEE THIS SHEET)
- STREET LIGHT 250 WATT HPS VAPOR PENDANT FIXTURE (SAG LENS) MOUNTED AT 30' ON A BRONZE FIBERGLASS POLE USING A 12' ARM
- STREET LIGHT 150 WATT HPS VAPOR PREMIER POST TOP FIXTURE MOUNTED ON A 14' BLACK FIBERGLASS POLE LOCATED 2' TO 4' FROM BACK OF CURB

**NOTE:** ALL EXTERIOR LIGHTING SHALL CONFORM TO ZONING REGULATIONS, SECTION 194 AND TOP PLAN.

2. ONE FACADE FLOOD LIGHT MOUNTED ON ROUTE 175 SIDE OF STORE (ONE 400 WATT CLEAR E-37 SUPER METAL HALIDE, HORIZONTAL POSITION HYDREL 7200-400M SFP, CAST METAL HOUSING BLACK PAINTED GENERAL INTERIOR FINISH FORMED SEMI SPECULAR ALUMINUM REFLECTOR, CLEAR FLAT GLASS ENCLOSURE WITH CAST METAL DOOR FRAME, BLACK PAINTED CIRCULAR METAL BAFFLE)

3. PER SECTION 3.2 (RIGHT CRITERIA LIGHTING) OF FOP-43-A-11 ANY LIGHTING ON TWIN KNOLLS ROAD SHALL BE LIGHTED WITH STREET LIGHTS NO HIGHER THAN 10 FEET WITH A CONCEALED LIGHT SOURCE, EXCEPT AS THESE STANDARDS MAY CONFLICT WITH REQUIREMENTS OF HOWARD COUNTY AGENTS.

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION: *[Signature]* DATE: 6/2/10

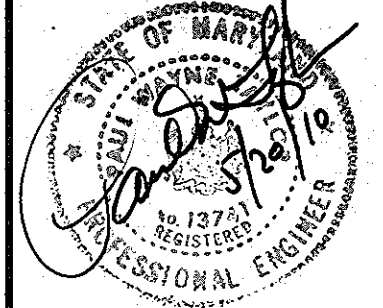
CHIEF, DIVISION OF LAND DEVELOPMENT: *[Signature]* DATE: 6/07/10

DIRECTOR: *[Signature]* DATE: 6/1/10

Approved by the Planning Board of Howard County: \_\_\_\_\_ Date: 11-19-09

**PREPARED BY:**

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640



"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. 13741, Expiration Date: 12-08-11."

**THUNDER HILL ROAD** (12,000 TRAFFIC COUNT)  
"COUNTY OWNED, MAJOR COLLECTOR"

COLUMBIA ASSOCIATION INC. VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 PARCEL 291 TAX MAP 30 GRID 21 PARCEL 362 PLAT NO. 1366 L 3324 F. 191 TAX ACCOUNT NO. 1614717 NT ZONE

**PLAN**  
SCALE: 1" = 30'

**OWNER:** Thunder Hill, LLC  
c/o Barav Properties Group, LLC  
1966 Greenspring Drive, Suite 508  
Timonium, MD 21093  
410-560-0300

**DEVELOPER:** Manekin, LLC  
8601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002

DESIGNED BY: KE, PC, JM  
DRAWN BY: KE  
CHECKED BY: KE, PC

**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME:** VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949

**SECTION NAME:** 3

**PARCEL #:** A

**PLAT #:** 4107

**GRID:** 22

**ZONE:** NT

**TAX / ZONE MAP #:** 30

**ELECT. DIST.:** 6

**CENSUS TRACT:** 6606.03

**WATER CODE:** E-06

**SEWER CODE:** 5333000

**STRIPING & LIGHTING PLAN**  
VILLAGE OF OAKLAND MILLS SECTION 3 AREA 1 WALGREENS #11949

PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup>

HOWARD CO., MARYLAND SHT. 19 OF 22 DATE: JANUARY 14, 2009

SDP 08-097

SCALE: 1" = 30'

SDP 08-097

FIN-10-10692







KEY	QUANT.	BOTANICAL NAME	COMMON NAME	SIZE / COND.	SPACING	REMARKS
<b>Shade Trees</b>						
AF	9	Acer x freemanii 'Armstrong'	'Armstrong' Freemanii Maple	2 1/2-3' cal. / B & B	as shown	full crown
NS	5	Nyssa sylvatica	Black Tupelo	2 1/2-3' cal. / B & B	as shown	full crown
QR	3	Quercus rubra	Red Oak	2 1/2-3' cal. / B & B	as shown	full crown
UV	16	Ulmus americana 'Valley Forge'	'Valley Forge' American Elm	2 1/2-3' cal. / B & B	as shown	full crown
<b>Flowering Trees</b>						
AL	15	Amelanchier laevis	Allegheny Serviceberry	8-10' ht. / B & B	as shown	multi-stemmed
CCF	5	Cercis canadensis 'Forest Pansy'	Forest Pansy Eastern Redbud	2-2 1/2' caliper / B & B	as shown	full crown
CV	6	Chionanthus virginicus	White Fringe Tree	8-10' ht. / B & B	as shown	multi-stemmed
<b>Evergreens</b>						
10'	6	Ilex opaca	American Holly	6-8' ht. / B & B	as shown	full to base
JY	9	Juniperus virginiana	Eastern Red Cedar	6-8' ht. / B & B	as shown	ratio in groups
PS	9	Pinus strobus	White Pine	6-8' ht. / B & B	as shown	full to base
<b>Shrubs</b>						
MT	73	Malus sargentii 'Tina'	Tina Crabapple	3-4' ht. / B & B	as shown	multi-stemmed, pruned as necessary
IGD	8	Ilex glabra 'Densa'	Densa Inkberry	3' O.C.		heavy
KE	42	Kalmia latifolia 'Elf'	Elf Mountain Laurel	3' O.C.		heavy
MF	101	Myrica cerifera 'Fairfax'	Fairfax Southern Bayberry	3' O.C.		heavy
VN	16	Viburnum nudum 'Winterthur'	'Winterthur' Withered Viburnum	3' O.C.		heavy
<b>Ornamental Grasses/ Groundcovers</b>						
9 lbs.		Festuca rubra	Creeping Red Fescue	seed	N/A	*Festuca rubra only NOT SEED MIX. Plugs or containers also acceptable based on availability. Plugs or containers plant at 6-8" O.C.
141		Carex lurida	Sallow Sedge	Plugs or 1 gal. container	15" O.C. at random	
141		Juncus effusus	Soft Rush	Plugs or 1 gal. container	15" O.C. at random	
141		Leersia oryzoides	Rice Cutgrass	Plugs or 1 gal. container	15" O.C. at random	
669		Panicum virgatum 'Heavy Metal'	Heavy Metal Switch Grass	Plugs or 1 gal. container	20" O.C.	
1437		Andropogon gerardii	Big Bluestem	Plugs or 1 gal. container	18" O.C.	
172		Geranium maculatum	Wild geranium	Plugs or 1 gal. container	18" O.C.	
3,071		Phlox stolonifera 'Sherwood Purple'	Sherwood Purple Creeping Phlox	Plugs	18" O.C.	
<b>Perennials</b>						
138		Helianthus divaricatus	Woodland Sunflower	1 gallon container	18" O.C. at random	
138		Lilium superbum	Turks Cap Lily	1 gallon container	18" O.C. at random	
340		Monarda fistulosa	Bergamot	1 gallon container	15" O.C. at random	

LOCATION BY SPECIFIC AREA	GRASS AREA 1	GRASS AREA 2
<b>Ornamental Grasses</b>		
Festuca rubra	9 lbs.	0
Carex lurida	141	0
Juncus effusus	141	0
Leersia oryzoides	141	0
Panicum virgatum 'Heavy Metal'	445	224
Andropogon gerardii	323	514
<b>Perennials</b>		
Helianthus divaricatus	92	46
Lilium superbum	92	46
Monarda fistulosa	273 (41 SWALE BOTTOM / 132 PY MIX)	67

SCHEDULE A PERIMETER 1 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 1	144.68	180.46	0
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	3	5	0
Evergreen Trees	4	0	0
Shrubs	0	46	0
Number of Plants Provided			
Shade Trees	2	4	0
Evergreen Trees	0	0	0
Other Trees (2:1 sub.)	0	2	0
Shrubs (10:1 sub.)	40	46	0

SCHEDULE A PERIMETER 2 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 2	9173	255.46	0
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	YES*	YES*	NO
Number of Plants Required			
Shade Trees	2	7	0
Evergreen Trees	0	0	0
Shrubs	0	0	0
Number of Plants Provided			
Shade Trees	2	4	0
Evergreen Trees	0	0	0
Other Trees (2:1 sub.)	0	0	0
Shrubs (10:1 sub.)	0	6	0

SCHEDULE A PERIMETER 3 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 3	0	0	313.91
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	0	0	8
Evergreen Trees	0	0	16
Shrubs	0	0	0
Number of Plants Provided			
Shade Trees	0	0	8
Evergreen Trees	0	0	16
Other Trees (2:1 sub.)	0	0	0
Shrubs (10:1 sub.)	0	0	0

SCHEDULE A PERIMETER 4 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 4	135.40	157.38	0
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	3	4	0
Evergreen Trees	4	0	0
Shrubs	0	40	0
Number of Plants Provided			
Shade Trees	2	3	0
Evergreen Trees	0	0	0
Other Trees (2:1 sub.)	2	2	0
Shrubs (10:1 sub.)	40	40	0

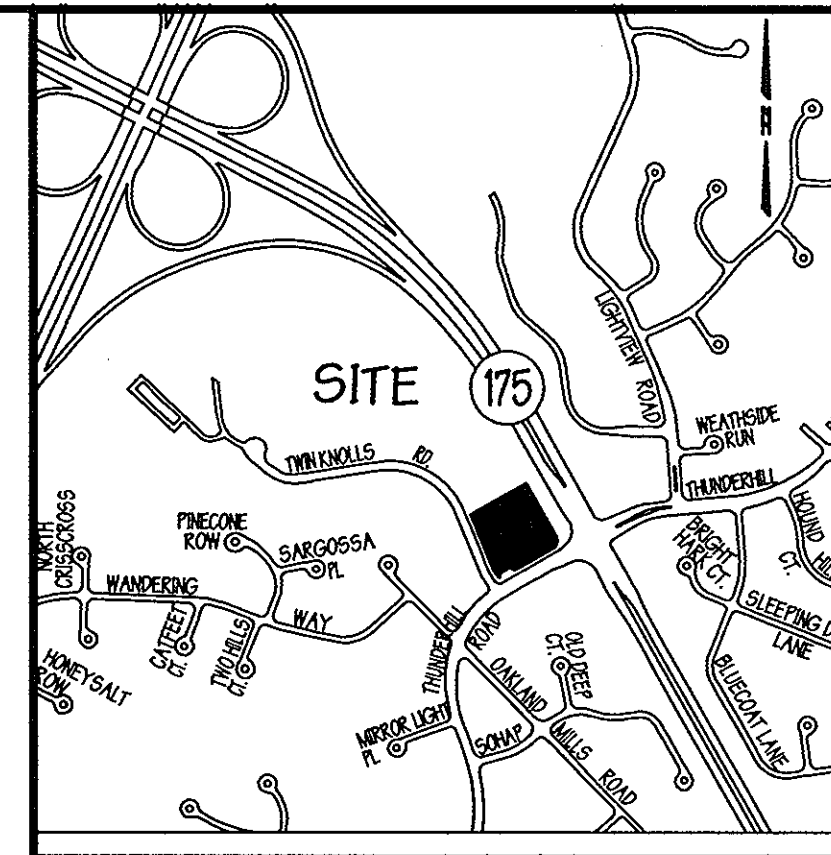
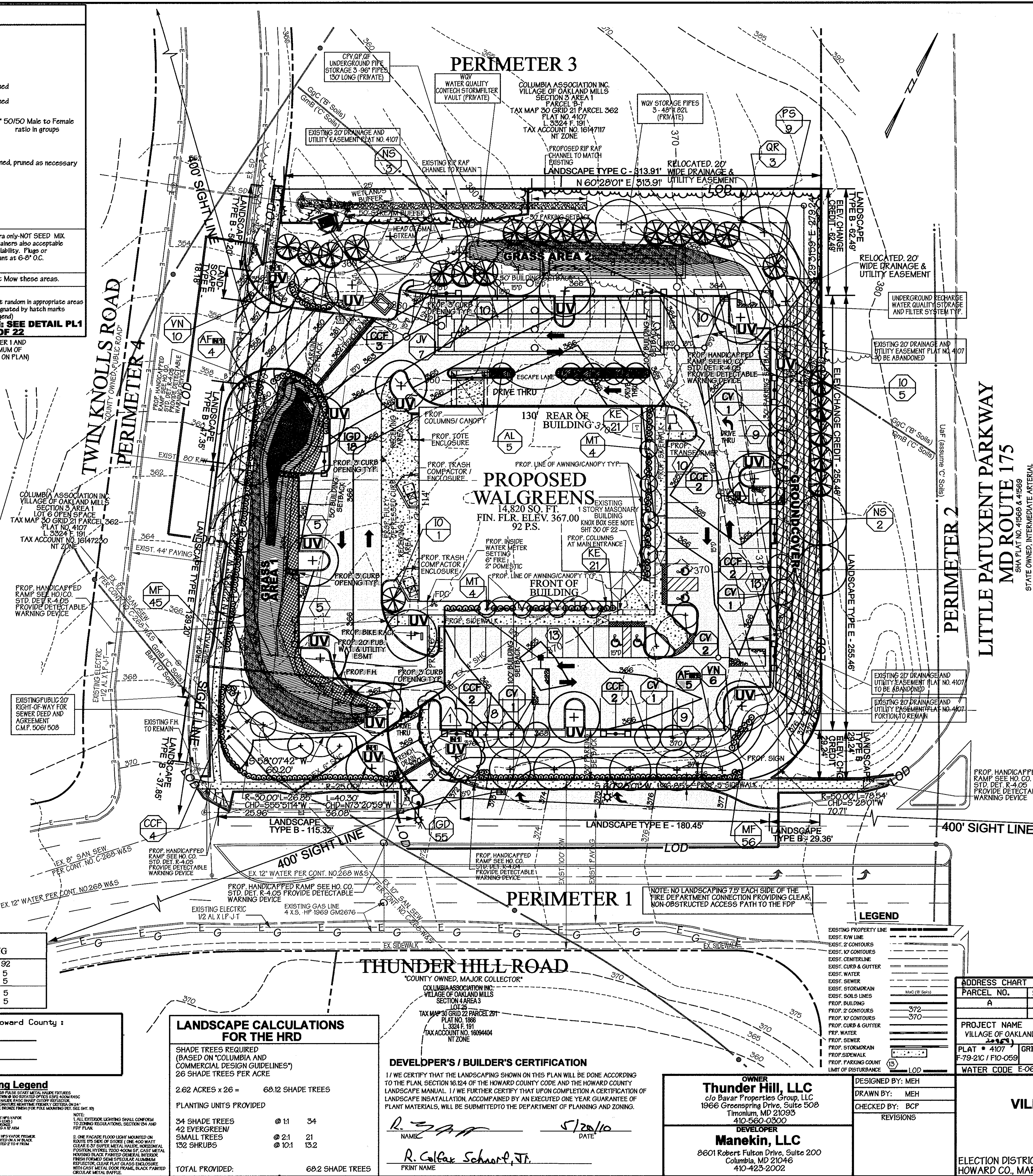
SCHEDULE B PARKING LOT INTERNAL LANDSCAPING	
Number of Parking Spaces	92
Number of Islands Required	5
Number of Trees Required	5
Number of Islands Provided	5
Number of Shade Trees Provided	5

SCHEDULE A PERIMETER 1 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 1	144.68	180.46	0
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	3	5	0
Evergreen Trees	4	0	0
Shrubs	0	46	0
Number of Plants Provided			
Shade Trees	2	4	0
Evergreen Trees	0	0	0
Other Trees (2:1 sub.)	0	2	0
Shrubs (10:1 sub.)	40	46	0

SCHEDULE A PERIMETER 2 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 2	9173	255.46	0
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	YES*	YES*	NO
Number of Plants Required			
Shade Trees	2	7	0
Evergreen Trees	0	0	0
Shrubs	0	0	0
Number of Plants Provided			
Shade Trees	2	4	0
Evergreen Trees	0	0	0
Other Trees (2:1 sub.)	0	0	0
Shrubs (10:1 sub.)	0	6	0

SCHEDULE A PERIMETER 3 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 3	0	0	313.91
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	0	0	8
Evergreen Trees	0	0	16
Shrubs	0	0	0
Number of Plants Provided			
Shade Trees	0	0	8
Evergreen Trees	0	0	16
Other Trees (2:1 sub.)	0	0	0
Shrubs (10:1 sub.)	0	0	0

SCHEDULE A PERIMETER 4 LANDSCAPE EDGE			
ROADWAYS	PERIMETER PROPERTIES		
Linear Feet of Perimeter 4	135.40	157.38	0
Credit for existing Vegetation (Yes, No Linear Feet)	NO	NO	NO
Credit for Wall Fence, or Berm (Yes, No Linear Feet)	NO	NO	NO
Number of Plants Required			
Shade Trees	3	4	0
Evergreen Trees	4	0	0
Shrubs	0	40	0
Number of Plants Provided			
Shade Trees	2	3	0
Evergreen Trees	0	0	0
Other Trees (2:1 sub.)	2	2	0
Shrubs (10:1 sub.)	40	40	0



**Vicinity Map**  
SCALE: 1" = 1,000'

**HATCH LEGEND**

- A. SWALE BOTTOM - SEE DETAIL PL1 SHT. 22 OF 22
- GRASSES: CAREX LURIDA (SALLOW SEDGE) (25% OF AREA), JUNCUS EFFUSUS (SOFT RUSH) (25% OF AREA), LEERSIA ORYZOIDES (RICE CUTGRASS) (25% OF AREA)
- WILDFLOWERS: MONARDA FISTULOSA (BERGAMOT) (25% OF AREA)
- B. ANDROPOGON GERARDII (BIG BLUE STEM)
- C. GERANIUM MACULATUM (WILD GERANIUM)
- D. PY MIX - SEE DETAIL PL1 SHT. 22 OF 22
- GRASSES: PANICUM VIRGATUM 'HEAVY METAL' (75% OF AREA), PRAIRIE METAL SWITCH GRASS
- WILDFLOWERS: LILIUM SUPERBUM (TURKS CAP LILY) (8.33% OF AREA), HELIANTHUS DIVARICATUS (WOODLAND SUNFLOWER) (8.33% OF AREA), MONARDA FISTULOSA (BERGAMOT) (8.33% OF AREA)
- E. FESTUCA RUBRA (RED FESCUE)
- F. PHLOX SUBULATA (MOSS PHOX)

**LANDSCAPE LEGEND**

- SHADE TREE
- FLOWERING TREE
- EVERGREEN TREE
- SHRUB

**LANDSCAPE CALCULATIONS FOR THE HRD**

SHADE TREES REQUIRED (BASED ON COLUMBIA AND COMMERCIAL DESIGN GUIDELINES\*)  
26 SHADE TREES PER ACRE

2.62 ACRES x 26 = 68.12 SHADE TREES

PLANTING UNITS PROVIDED

34 SHADE TREES	@ 1:1	34
42 EVERGREEN	@ 2:1	21
132 SHRUBS	@ 10:1	132

TOTAL PROVIDED: 68.2 SHADE TREES

**DEVELOPER'S / BUILDER'S CERTIFICATION**

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 YEAR GUARANTEE OF PLANT MATERIALS WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: R. Colfax Schaefer, Jr. DATE: 5/20/10

PRINT NAME: R. Colfax Schaefer, Jr.

**OWNER**  
**Thunder Hill, LLC**  
c/o Bavar Properties Group, LLC  
1926 Greening Drive, Suite 508  
Timonium, MD 21093  
410-560-0300

**DESIGNED BY:** MEH  
**DRAWN BY:** MEH  
**CHECKED BY:** BCF  
**REVISIONS:**

**ADDRESS CHART**

PARCEL NO.	STREET ADDRESS
A	5585 TWIN KNOLLS ROAD

**PROJECT NAME** VILLAGE OF OAKLAND MILLS  
**SECTION NAME** 3  
**PARCEL #** A

PLAT	GRID	ZONE	TAX /ZONE MAP	ELECT. DIST.	CENSUS TRACT
F-79-21C / F10-059	22	NT	30	6	6606.03

**WATER CODE** E-06 **SEWER CODE** 5333000

**LANDSCAPE PLAN**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
PARCEL 'A'

ELECTION DISTRICT: 6<sup>th</sup>  
HOWARD CO., MARYLAND SHT. 21 of 22 DATE: JANUARY 14, 2009  
SDP 08 - 097

APPROVED: Howard County Department of Planning and Zoning

CHIEF, DEVELOPMENT ENGINEERING DIVISION: [Signature] DATE: 6/2/10

CHIEF, DIVISION OF LAND DEVELOPMENT: [Signature] DATE: 6/2/10

DIRECTOR: [Signature] DATE: 6/2/10

PREPARED BY:  
**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640

Approved by the Planning Board of Howard County:  
Date: 11-19-09

**Typical Lighting Legend**

1. ALL EXTERIOR LIGHTING SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 16.024 AND 16.025 OF THE HOWARD COUNTY CODE.

2. ONE FLOOD LIGHT MOUNTED ON THE SOUTH SIDE OF A BUILDING SHALL BE PROVIDED FOR EACH 1000 SQ. FT. OF GLASS AREA.

3. FLOOD LIGHTS SHALL BE MOUNTED ON A WALL OR CEILING AND LOCATED AT LEAST 10 FEET FROM THE CURB.



**LANDSCAPE NOTES**

**A. STANDARDS**

1. ALL PLANT MATERIAL, CONSTRUCTION METHODS AND MATERIAL PLACEMENT SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF "AMERICAN STANDARD FOR NURSERY STOCK," AS PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC. THE "LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREAS," AS PROPOSED BY THE LANDSCAPE CONTRACTORS ASSOCIATION, EDITION OF THE "STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS" OF THE MARYLAND STATE DEPARTMENT OF TRANSPORTATION. INFERIOR NURSERY STOCK WILL BE SUBJECT TO REJECTION BY THE LANDSCAPE ARCHITECT.
2. ALL TREES SHALL BE DELIVERED TO THE SITE BALLED AND BURLAPPED. ALL SHRUBS SHALL BE BALLED AND BURLAPPED OR IN CONTAINERS. ALL GRASSES & PERENNIALS SHALL BE IN CONTAINERS. BARE-ROOT SHALL NOT BE ALLOWED.
3. LANDSCAPE SPECIFICATION SHALL CONFORM TO LCA LANDSCAPE SPECIFICATION GUIDELINES FOR BALTIMORE-WASHINGTON METROPOLITAN AREA, INCLUDING PLANTING PROCEDURES AND SOIL PREPARATION FOR SHRUBS AND PERENNIAL BEDS. A ONE-YEAR WARRANTY PERIOD SHALL BE REQUIRED. MAINTENANCE REQUIRED TO HONOR THE ONE YEAR WARRANTY SHALL BE PERFORMED AS PART OF THIS CONTRACT.
4. PLANT LOCATIONS SHALL BE FIELD ADJUSTED TO AVOID UTILITIES. CONTRACTOR IS RESPONSIBLE FOR LOCATING UTILITIES PRIOR TO START OF WORK. ALL TREES AND SHRUBS SHALL BE MULCHED TO A MINIMUM OF 10" BEYOND THE EDGE OF THE ROOT BALL. SHRUBS MASSSES SHALL BE PLANTED IN CONTINUOUS MULCH BEDS. ALL WIRE PLASTIC AND TWINE TIES SHALL BE REMOVED FROM TOP OF THE ROOT BALL.
5. NO EXCEPTIONS TO THE GUARANTEE PROVISIONS ARE ALLOWED UNLESS AGREED TO IN WRITING PRIOR TO PLANTING.
6. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH SECTION 16.124 AND CHAPTER V OF THE HOWARD COUNTY CODE LANDSCAPE MANUAL AND THE HRD - COLUMBIA OFFICE AND COMMERCIAL DESIGN GUIDELINES. FINANCIAL SURETY FOR THE REQUIRED LANDSCAPING IN THE AMOUNT OF \$17,280.00 HAS BEEN POSTED AS A PART OF THE DEVELOPER'S AGREEMENT.

**B. WATERING**

1. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATERING SHALL NOT BE DONE DURING THE HEAT OF THE DAY. CONTRACTOR SHALL PROVIDE A SEPARATE LUMP SUM PRICE IN THE OVERALL LANDSCAPE BID FOR WATERING TO ALL NEW PLANTINGS DURING ONE GROWING SEASON.

**C. MAINTENANCE:**

1. AFTER THE PLANTING HAS BEEN APPROVED BY THE LANDSCAPE ARCHITECT AND THE OWNER, THE MAINTENANCE OF WATERING AND WEEDING OF SUCH PLANTS AND PLANTED AREAS SHALL BE PROVIDED BY THE OWNER. SINCE THE PLANTS ARE TO BE GUARANTEED BY THE CONTRACTOR, THE CONTRACTOR SHALL PERIODICALLY CHECK THE MAINTENANCE CONDUCTED BY THE OWNER. IF THE CONTRACTOR IS NOT SATISFIED WITH THE MAINTENANCE OF THE PLANTS, A WRITTEN REPORT, IN TRIPPLICATE, STATING APPROPRIATE CHANGES SHALL BE GIVEN IMMEDIATELY TO THE LANDSCAPE ARCHITECT; TWO COPIES WILL BE FORWARDED TO THE OWNER. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING.

**D. EXCAVATION**

1. CONTRACTOR IS ENCOURAGED TO PERFORM SOIL TESTING. TEST RESULTS SHALL BE SUBMITTED 30 DAYS BEFORE PLANTING. FAILURE TO PERFORM TESTING WILL NOT VOID GUARANTEE PROVISIONS.
2. CONTRACTOR SHALL REVIEW AND TEST SUBSOIL DRAINAGE CHARACTERISTICS 30 DAYS PRIOR TO PLANTING AND NOTIFY OWNER UNACCEPTABLE CONDITIONS.
3. DEPTH AND WIDTH OF EXCAVATION FOR PLANTING OF ALL PLANTS SHALL BE TWICE THE DEPTH AND WIDTH OF ROOT BALL OR CONTAINER OF PLANT TO BE INSTALLED, EXCEPT AS NOTED ON DETAILS.

**E. TOPSOIL & PLANTING MIX**

1. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVISION OF REQUIRED TOPSOIL. A MINIMUM OF 4" OF TOPSOIL SHALL BE PLACED IN ALL LANDSCAPED AREAS. PLANTING PITS SHALL RECEIVE TOPSOIL AS NOTED ON DETAILS SHOWN HEREON.
2. ALL TOPSOIL SHALL BE WELL GRADED LOAM OF GOOD UNIFORM QUALITY AND SHALL BE A NATURAL FRAGILE SOIL FREE OF OBJECTS LARGER THAN ONE INCH IN ANY DIMENSION, AND FREE OF TOXIC SUBSTANCES, WEEDS AND ANY MATERIAL OF SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH.
3. FOR PLANTING MIX, MIX THOROUGHLY 2/3 APPROVED TOPSOIL AND 1/3 APPROVED ORGANIC MATTER.

**F. SUBSTITUTIONS**

1. PLANT TYPES (DECIDUOUS TREES, EVERGREEN, ETC.), QUANTITIES, SPACING, LOCATION, AND SPECIES SHOWN ON THE APPROVED LANDSCAPE PLAN ARE BASED ON REQUIREMENTS STATED IN THE LATEST HOWARD COUNTY LANDSCAPE MANUAL. ANY CHANGE IN THESE ITEMS MAY AFFECT THE REQUIRED APPROVAL AND CERTIFICATION OF THE INSTALLED PLANTING. OWNER IS REQUIRED TO ARRANGE AND PAY FOR CERTIFICATION BY LANDSCAPE ARCHITECT. IF A PLANT IS FOUND NOT TO BE SUITABLE OR AVAILABLE, THE LANDSCAPE CONTRACTOR IS TO NOTIFY THE LANDSCAPE ARCHITECT BEFORE BIDDING. THE LANDSCAPE ARCHITECT WILL THEN SELECT A REASONABLE ALTERNATE OR INFORM ALL LANDSCAPE CONTRACTORS OF THE AVAILABILITY OF THE ORIGINAL PLANT.

**G. PRUNING, CLEANUP, PROTECTION OF EXISTING MATERIALS AND RESTORATION**

1. DURING COURSE OF PLANTING, EXCESS AND WASTE MATERIALS SHALL BE CONTINUOUSLY AND PROMPTLY REMOVED. LAWN AREAS KEPT CLEAR, AND ALL REASONABLE PRECAUTIONS TAKEN TO AVOID DAMAGE TO ANY EXISTING LAWNS, PAVING, ETC. NOT SCHEDULED FOR REMOVAL. WHEN PLANTING IN AN AREA HAS BEEN COMPLETED, THE AREA SHALL BE CLEANED UP THOROUGHLY. DEBRIS, RUBBISH, SUBSOIL AND WASTE MATERIALS SHALL BE CLEANED UP AND REMOVED FROM THE PROPERTY. EXISTING GRASS AREAS WHICH HAVE BEEN INJURED BY THE WORK SHALL BE REGRASSED AND SOODED TO MATCH THE EXISTING LAWN. THE ENTIRE AREA SHALL BE NEAT AND CLEAN TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.
2. CONTRACTOR SHALL, AT ALL TIMES, PROTECT ALL PLANTS AND LAWNS FROM DAMAGE. THE MOVING OF HEAVY EQUIPMENT OR MATERIAL OVER THE LAWN AREAS SHALL BE DONE ON PLANKS OR PONTOONS.
3. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION ALL PAVEMENTS, SOODED OR PLANTED AREAS, STRUCTURES, OR SUBSTRUCTURES, NOT SCHEDULED FOR REMOVAL WHICH ARE DISTURBED BY THE CONTRACTOR DURING PLANTING OPERATIONS. SUCH RESTORATION SHALL BE IN A MANNER SATISFACTORY TO THE LANDSCAPE ARCHITECT AND AT NO ADDITIONAL COST TO THE OWNER.

**H. FERTILIZER, MULCH & SOIL AMENDMENTS**

1. FERTILIZER TABLETS OR SPIKES SHALL BE PLACED AT EACH TREE AND SHRUB AT A RATE OF 1 PER 2" OF TRUNK CALIPER OR GALLON OF ROOTBALL. TABLETS OR SPIKES SHALL NOT BE IN CONTACT WITH THE ROOTBALL.
2. MULCH MATERIAL SHALL BE OF UNIFORM SIZE, FINESHREDDED HARDWOOD MULCH OR APPROVED EQUAL. MULCH SHALL BE LAID TO A UNIFORM MINIMUM DEPTH OF 2 INCHES. MULCH AREAS AROUND TREES AT THE RATE OF 1" OF DIAMETER PER 1" OF TRUNK CALIPER.
3. HYDROGEL ABSORBENT MATERIAL SHALL BE ADDED TO THE PLANTING HOLE FOR EACH TREE AND SHRUB AT THE RATE OF 4 OUNCES PER 2-1/2" CALIPER OR PER GALLON OF ROOTBALL.

**I. FINAL INSPECTION AND GUARANTEE**

1. AFTER PLANTING IS COMPLETED (INCLUDING MULCHING AND CLEANUP) THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING TO REQUEST FINAL INSPECTION OF THE TOTAL PLANTING. THE LANDSCAPE ARCHITECT SHALL MAKE A FINAL INSPECTION VISIT AS SOON AS POSSIBLE. LANDSCAPE ARCHITECT SHALL NOTIFY THE LANDSCAPE CONTRACTOR, IN WRITING, WHEN ALL WORK IS SATISFACTORILY COMPLETE.
2. ALL PLANT MATERIAL AND LAWN AREAS SHALL BE GUARANTEED TO BE IN A VIGOROUS GROWING CONDITION ONE YEAR FROM THE DATE OF FINAL INSPECTION AND ACCEPTANCE. AT THE TERMINATION OF THIS PERIOD, THE CONTRACTOR SHALL HAVE COMPLETED THE PRECEDING MAINTENANCE SCHEDULE. ANY PLANTS INFECTED WITH DISEASE OR INSECTS WILL BE REMOVED OR TREATED. ALL DEAD OR UNACCEPTABLE PLANTS WILL BE REPLACED BY THE SAME PLANTS AND SIZES DESIGNATED ON THE PLANT LIST. THESE PLANTS SHALL BE PLANTED, MULCHED, AND GUYED AS SPECIFIED HEREIN AND WITHOUT EXTRA COMPENSATION TO THE CONTRACTOR. AT THE COMPLETION OF ALL SUCH WORK AND WITH THE APPROVAL OF THE LANDSCAPE ARCHITECT, THE CONTRACT WILL BE CONSIDERED COMPLETE. IF WORK IS NOT SATISFACTORILY COMPLETE, THE LANDSCAPE ARCHITECT WILL NOTIFY THE LANDSCAPE CONTRACTOR, IN WRITING AS TO THE DEFICIENCIES IN THE WORK AND THE NECESSARY CORRECTIVE MEASURES. THE LANDSCAPE CONTRACTOR WILL BE GIVEN A REASONABLE AMOUNT OF TIME TO CORRECT THE DEFICIENCIES, AND ANOTHER FINAL INSPECTION WILL BE SCHEDULED BY THE LANDSCAPE ARCHITECT.

**NOTE J:**

- (1) CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO A MAJOR PHASE INSTALLATION OF PLANT MATERIAL.
- (2) WHERE FENCING IS INSTALLED IN CLOSE PROXIMITY TO PROPOSED LANDSCAPING, THE PLANTING LOCATIONS SHALL BE REVIEWED AND APPROVED BY THE LANDSCAPE ARCHITECT.

**NOTE K:**

SHOULD ANY TREE DESIGNATED FOR PRESERVATION FOR WHICH LANDSCAPING CREDIT IS GIVEN, DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 5" IN CALIPER AND INSTALLED AS REQUIRED IN THE HOWARD COUNTY LANDSCAPE MANUAL.

**NOTE L:**

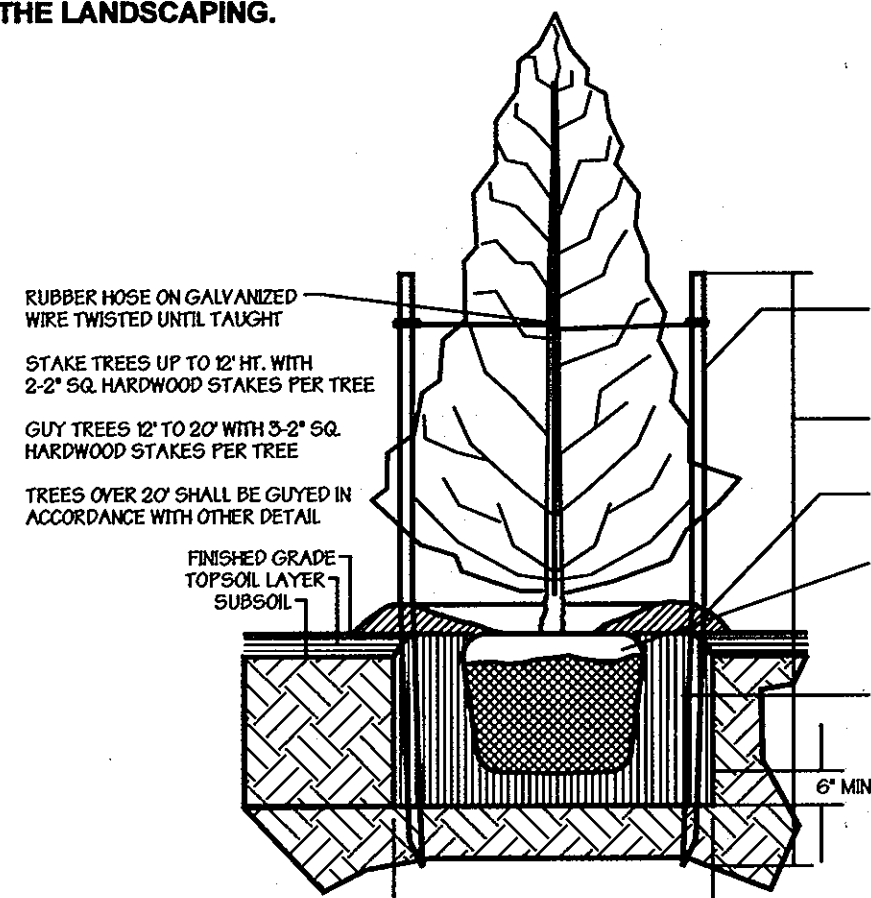
THE OWNER, TENANT, AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, INCLUDING BOTH PLANT MATERIALS AND BERRINS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION, AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS. ALL OTHER REQUIRED LANDSCAPING SHALL BE PERMANENTLY MAINTAINED IN GOOD CONDITION AND WHEN NECESSARY, REPAIRED OR REPLACED.

**NOTE M:**

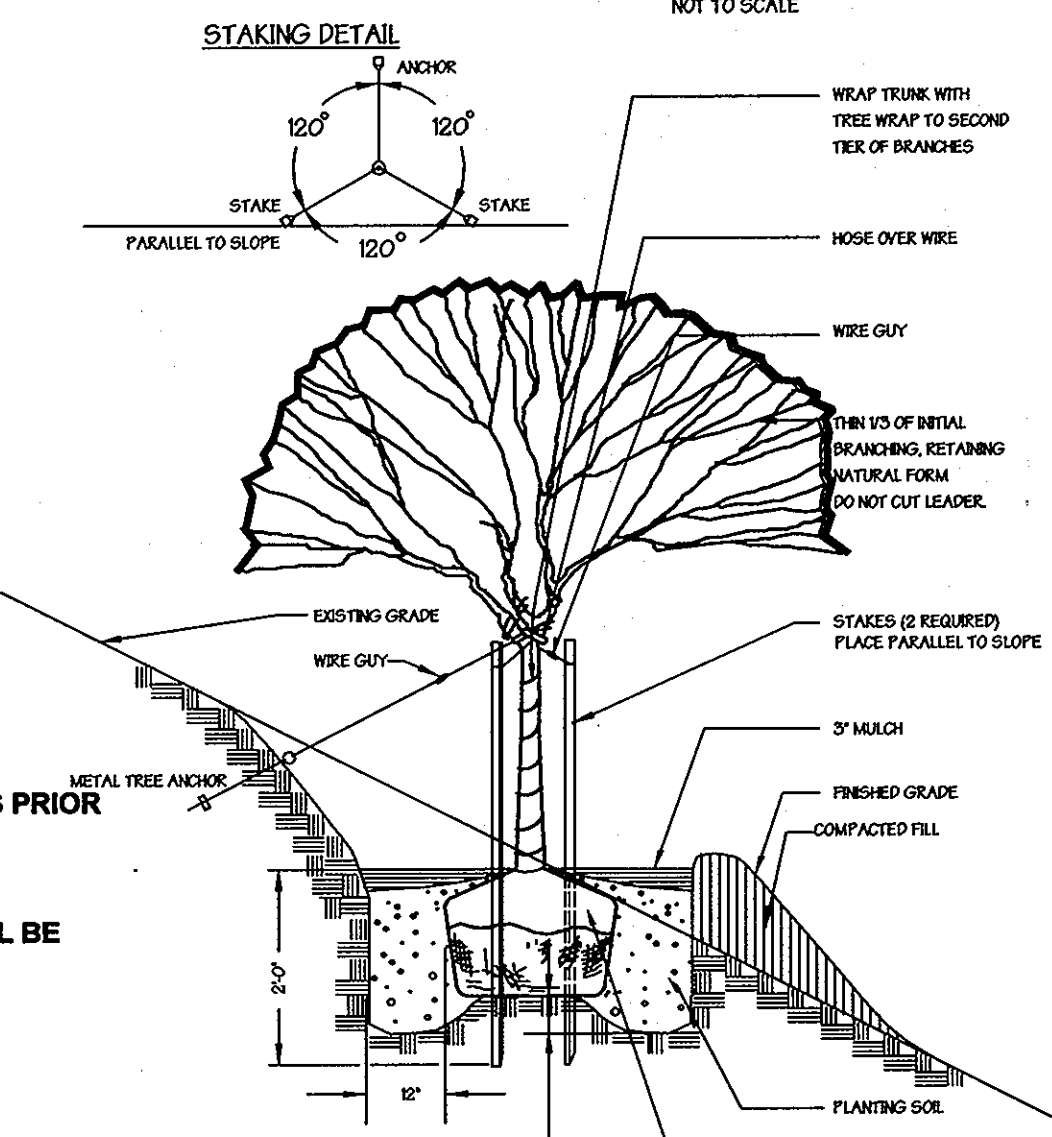
AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITH LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPING MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OF REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW 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.

**NOTE N:**

ALL PLANTING ISLANDS MUST BE MOUNDING SLIGHTLY TO MAXIMIZE THE EFFECT OF THE LANDSCAPING.



**Evergreen Planting Detail**



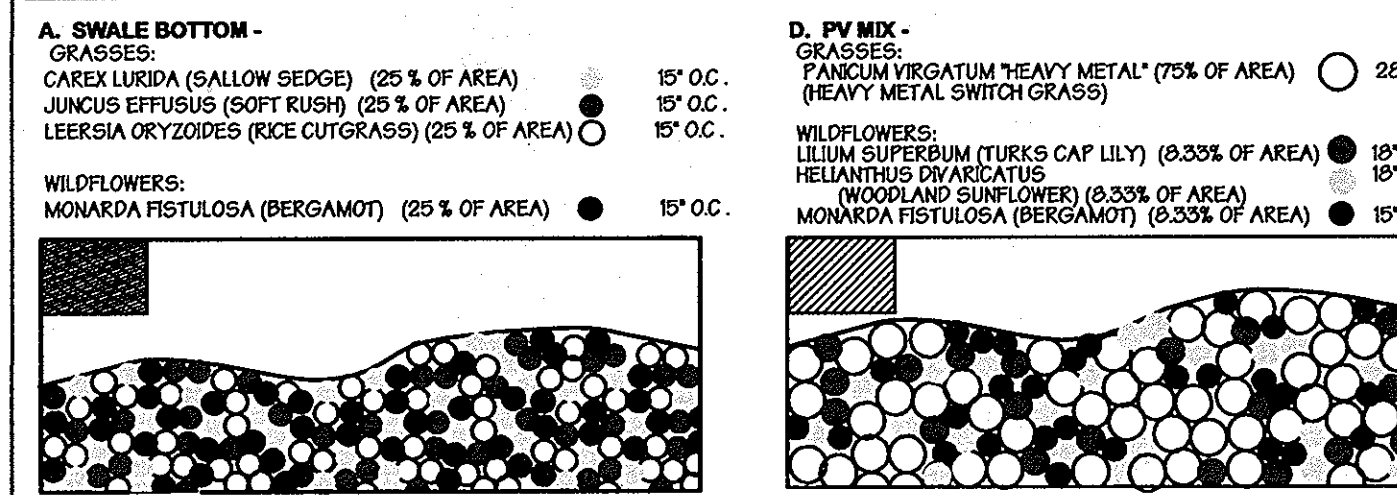
**Tree Planting Detail**

**DEVELOPER'S / BUILDER'S CERTIFICATION**

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 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-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

NAME: *R. Colfax Schmitt, Jr.* DATE: *5/26/10*

**DETAIL PL-1 AT RANDOM = MIX SPECIES AT MINIMUM SPECIFIED SPACING**

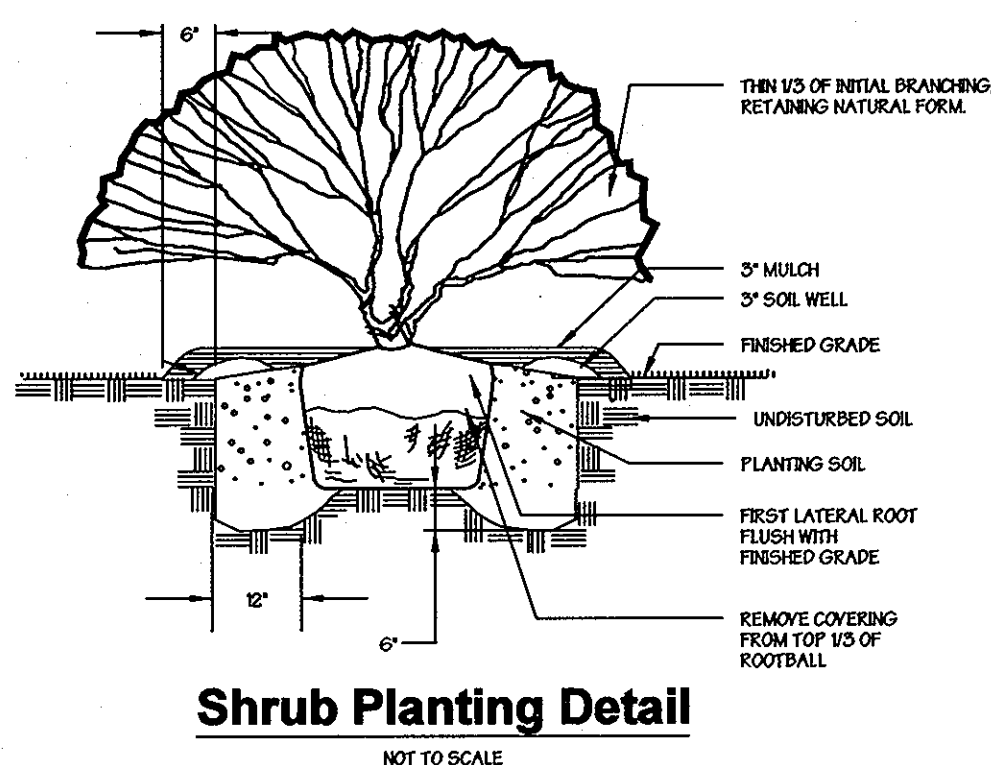


**NOTE:**

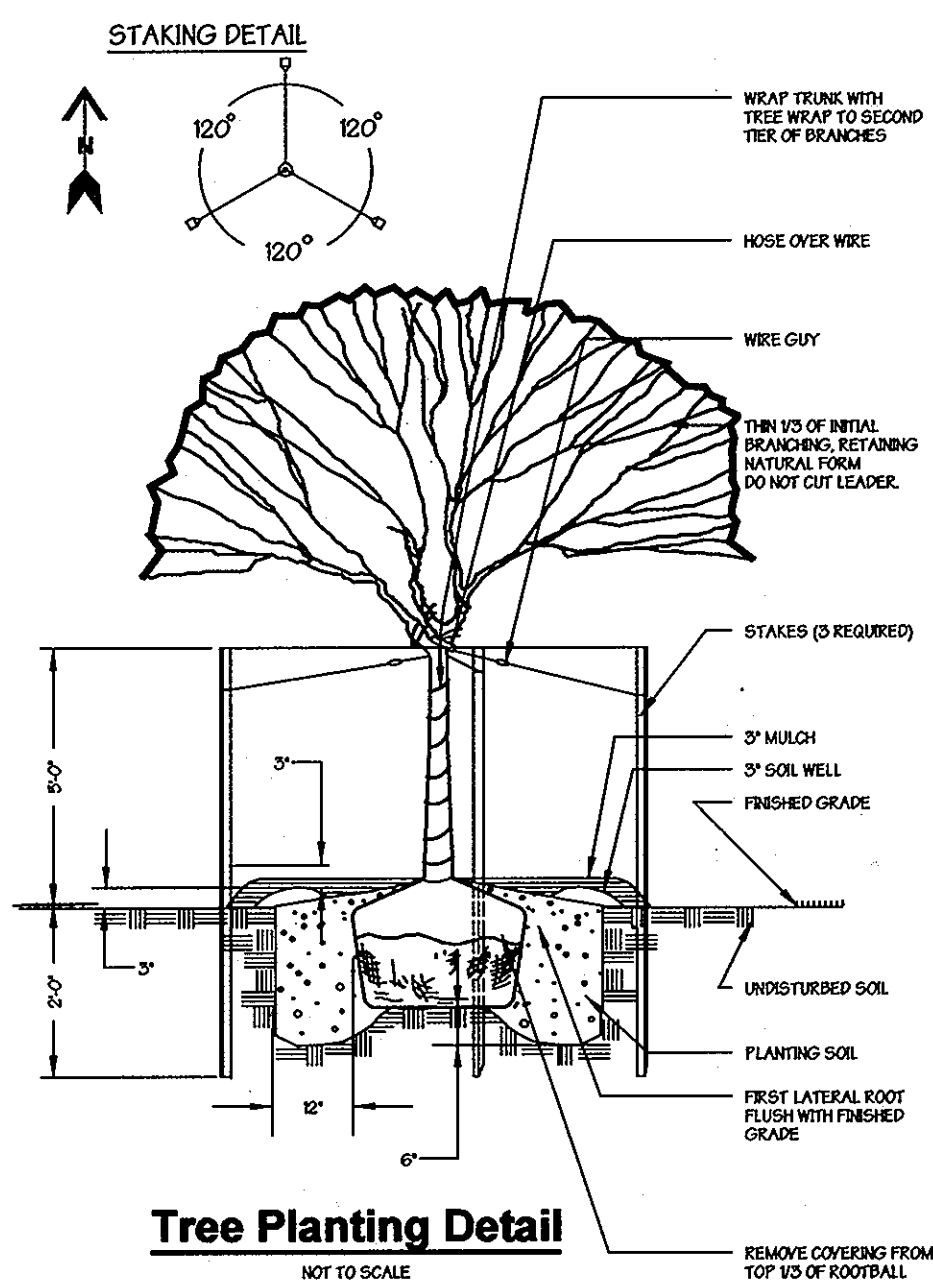
**HATCHED AREAS (GRASS/GROUNDCOVER) ARE NOT TO BE MOWED. GRASS AREAS 1 & 2 SHALL BE TRIMMED BACK ONCE A YEAR TO 5-6" IN LATE WINTER.**

**TRIMMING OF GRASSES RECOMMENDED TO BE PERFORMED AT THE END OF THE COLD SEASON JUST BEFORE THE GROWTH SEASONS BEGINS, TO ALLOW FOR WINTER INTEREST.**

**\*\*NOTE: SWALE WILL NOT BE OPEN TO FLOW UNTIL PLANTS ARE ESTABLISHED ENOUGH TO NOT BE UPROOTED OR DAMAGED IN ANY WAY IN A STORM EVENT.**



**Shrub Planting Detail**



**Tree Planting Detail**

APPROVED: Howard County Department of Planning and Zoning

*Michael J. Williams* 6/23/10  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

*Keith S. Schmitt* 6/10/10  
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

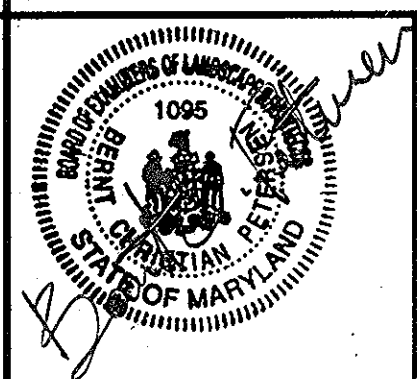
*Thomas & Sutler* 6/16/10  
DIRECTOR DATE

**LANDSCAPE SURETY**

SHADE TREES	37 @ 300.00	= \$11,100.00
EVERGREEN TREES	24 @ 150.00	= \$3,600.00
SHRUBS	86 @ 30.00	= \$2,580.00
TOTAL:		\$17,280.00

Approved by the Planning Board of Howard County:  
Date: *11-19-09*

**GEORGE W. STEPHENS, JR. AND ASSOCIATES, INC.**  
Civil Engineers and Land Surveyors  
235 Schilling Circle, Suite 103  
Hunt Valley, Maryland 21031  
410-785-6640



**OWNER**  
**Thunder Hill, LLC**  
c/o Bavar Properties Group, LLC  
1966 Greenspring Drive, Suite 508  
Timonium, MD 21093  
410-560-0300

**DESIGNED BY:** M.E.H.  
**DRAWN BY:** M.E.H.  
**CHECKED BY:** B.C.F.  
REVISIONS

**DEVELOPER**  
**Manekin, LLC**  
8601 Robert Fulton Drive, Suite 200  
Columbia, MD 21046  
410-423-2002

ADDRESS CHART	
PARCEL NO. A	STREET ADDRESS 5585 TWIN KNOLLS ROAD

PROJECT NAME VILLAGE OF OAKLAND MILLS	SECTION NAME 3	PARCEL # A
PLAT # 4107	GRID 22	ZONE NT
TAX MAP /ZONE MAP F-79-21C / F10-059	ELECT. DIST. 6	CENSUS TRACT 6606.03
WATER CODE E-06	SEWER CODE 5333000	

**LANDSCAPE NOTES & DETAILS**  
**VILLAGE OF OAKLAND MILLS**  
**SECTION 3 AREA 1**  
**WALGREENS #11949**  
PARCEL 'A'

ELECTION DISTRICT : 6<sup>th</sup>  
HOWARD CO., MARYLAND

SHT. 22 OF 22 DATE: JANUARY 14, 2009

SDP 08 - 097  
SDP 08 - 097  
FIN: 10-10642