

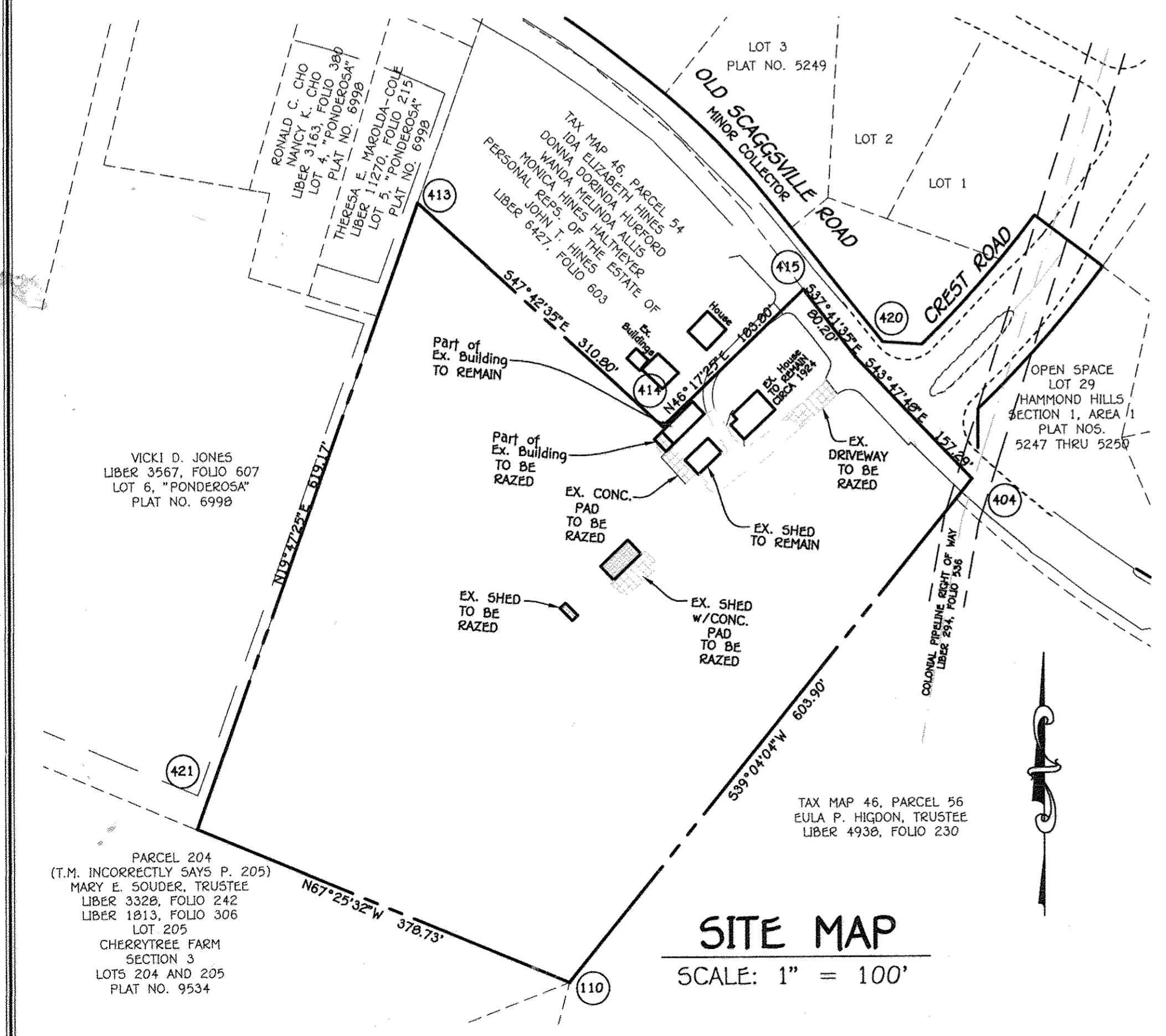
SHEET INDEX	
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	OLD SCAGGSVILLE ROAD WIDENING PLAN AND CROSS-SECTIONS
3	ORNDORFF WAY PLAN AND PROFILE
4	GRADING & SEDIMENT CONTROL PLAN
5	STORMDRAIN AND STORMWATER MANAGEMENT DRAINAGE AREA MAPS
6	STORMWATER MANAGEMENT PLANS
7	STORMWATER MANAGEMENT & STORM DRAIN DETAILS
8	STORMDRAIN PROFILES
9	SEDIMENT CONTROL NOTES & DETAILS
10	SEDIMENT CONTROL NOTES & DETAILS
11	WETLAND & FOREST STAND DELINEATION PLAN
12	STREET TREE, LANDSCAPE & STORMWATER MANAGEMENT FACILITY PLAN
13	FUTURE STORMWATER MANAGEMENT DETAILS
14	OLD SCAGGSVILLE ROAD STRIPING, ROAD SECTION DETAILS & TRAFFIC CONTROL PLAN
15	OFF-SITE FOREST AFFORESTATION PLAN
16-17	RETAINING WALL DETAILS

STORMWATER MANAGEMENT PRACTICES				
LOT No.	ADDRESS	PERMEABLE PAVING A-2 (Y/N)	DRY WELLS N-5 (NUMBER)	MICRO BIO-RETENTION N-6 (NUMBER)
1	0407 ORNDORFF WAY	Y	2	FACILITY #4
2	0411 ORNDORFF WAY	Y	2	
3	0415 ORNDORFF WAY	Y	2	
4	0423 ORNDORFF WAY	Y	2	
14	0428 ORNDORFF WAY	Y	2	FACILITY #8
15	0424 ORNDORFF WAY	Y	2	
16	0420 ORNDORFF WAY	Y	2	FACILITY #3
17	0416 ORNDORFF WAY	Y	2	
18	0412 ORNDORFF WAY	Y	2	
19	0408 ORNDORFF WAY	Y	2	FACILITY #5
20	0404 ORNDORFF WAY	N	5	FACILITY #7

STREET LIGHT CHART				
STREET NAME	STATION	OFFSET	FIXTURE/POLE TYPE	DESCRIPTION
ORNDORFF WAY	0+33	28R	250-WATT H.P.S. VARIOUS VARIOUS CORSA FIXTURE MOUNTED ON A 30-FOOT BRONZE FIBERGLASS POLE WITH A 12' ARM, ANGLE ARM TOWARDS CENTER OF INTERSECTION.	
ORNDORFF WAY	L.P. 1+30	5' BEHIND CURB	100-WATT H.P.S. COLONIAL POST TOP MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.	
ORNDORFF WAY	2+05	15'L	100-WATT H.P.S. COLONIAL POST TOP MOUNTED ON A 14-FOOT BLACK FIBERGLASS POLE.	

TRAFFIC CONTROL SIGNS				
ROAD NAME	CENTERLINE STA.	OFFSET	POSTED SIGN	SIGN CODE
ORNDORFF WAY	0+30	15' L	STOP	R1-1
ORNDORFF WAY	1+25	15' R	SPEED LIMIT 25	R2-1

ROADWAY INFORMATION CHART				
ROAD NAME	CLASSIFICATION	DESIGN SPEED	R/W WIDTH	
ORNDORFF WAY	PUBLIC ACCESS PLACE	25 M.P.H.	50'	



**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELLICOTT CITY, MARYLAND 21042  
 (410) 461-2895

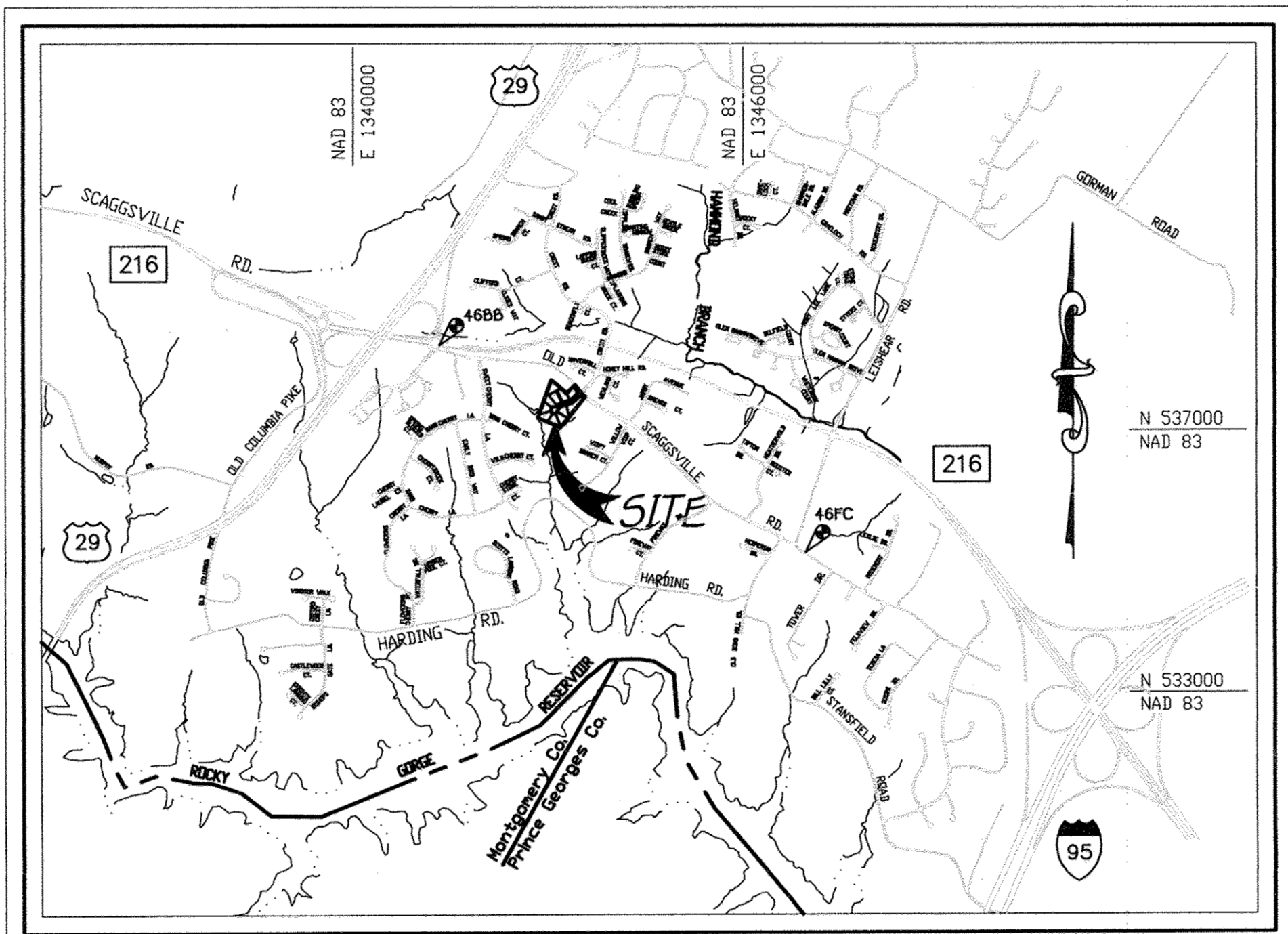
# FINAL ROAD CONSTRUCTION, GRADING AND STORMWATER MANAGEMENT PLANS

# CHERRYTREE VIEW

## BUILDABLE LOTS 1 - 4 AND 14 - 20 OPEN SPACE LOTS 12 & 13

**ZONING: R-20**

**TAX MAP No. 46 GRID No. 11 PARCEL No. 55**



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

# SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

**OWNER**  
 MR. & MRS. TILLY A. ORNDORFF  
 10909 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20723  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422

**DEVELOPER**  
 FAL DEVELOPERS, L.L.C.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELLICOTT CITY, MARYLAND 21042  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422



Aldo M. Vitucci, P.E.  
 2/1/14  
 DATE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 Chief, Bureau of Highways  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 Chief, Division of Land Development  
 APPROVED: DEVELOPMENT ENGINEERING DIVISION

REVISIONS		
NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 15	2/3/14
2	REMOVE SHEET 3 FROM CHERRYTREE VIEW OFF-SITE PLANNING	9/07/15
3	REMOVE SHEET 3 FROM CHERRYTREE VIEW OFF-SITE PLANNING	12/16/15

- GENERAL NOTES**
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY AND MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
  - THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS / BUREAU OF ENGINEERING / CONSTRUCTION INSPECTION DIVISION AT 410-313-1800 AT LEAST (5) WORKING DAYS PRIOR TO THE START OF WORK.
  - THE CONTRACTOR SHALL NOTIFY "HESB UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK BEING DONE.
  - TRAFFIC CONTROL DEVICES:
    - THE R-1 (STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED.
    - THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-5752) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES.
    - ALL TRAFFIC CONTROL DEVICES AND THESE LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD).
    - 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 (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE) - 3' LONG. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST.
  - THIS SUBDIVISION PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS AS AMENDED ON OCTOBER 2003.
  - THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM. HOWARD COUNTY MONUMENT NOS. 4688 AND 46FC WERE USED FOR THIS PROJECT.
 

HOWARD COUNTY STATION 4688 N 538306.50150000 E 1341329.19640000 ELEVATION: 422.64'	HOWARD COUNTY STATION 46FC N 535145.94450000 E 1346954.84270000 ELEVATION: 403.75'
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  - SUBJECT PROPERTY ZONED R-20 PER 02/02/04 COMPREHENSIVE ZONING PLAN AND THE "COMP LITE" ZONING AMENDMENTS EFFECTIVE 7/28/06.
  - BACKGROUND INFORMATION:
    - SUBDIVISION NAME: CHERRYTREE VIEW
    - TAX MAP NO. 46
    - PARCEL NO. 55
    - ZONING: R-20
    - ELECTION DISTRICT: SIXTH
    - GROSS AREA OF TRACT = 6.541 ACRES
    - NUMBER OF BUILDABLE LOTS: 11
    - NUMBER OF OPEN SPACE LOTS: 2
    - AREA OF BUILDABLE LOTS: 2.845 ACRES
    - AREA OF OPEN SPACE LOTS: 0.392 ACRES
    - AREA OF ROAD R/W TO BE DEDICATED: 0.904 ACRES
    - PREVIOUS DPT FILE NUMBERS: ECP-11-003, 11-065, 5P-11-001
    - AREA OF FLOODPLAIN = 0.00 ACRES
    - AREA OF 2% OR GREATER SLOPES = 0.00 ACRES
    - NET AREA OF TRACT = 6.541 AC.
    - OPEN SPACE REQUIREMENTS:
      - AREA OF OPEN SPACE REQUIRED = (6.541 x 6%) = 0.392 AC.
      - CREATED OPEN SPACE PROVIDED = 17,098 S.F. (LOT 12 + LOT 13 = 8,860 SQ.FT. + 8,207 SQ.FT.) = 0.392 AC.
      - RECREATIONAL AREA REQUIRED = 2,200 SQ.FT. (11 LOTS X 200 SQ.FT. PER LOT)
      - RECREATIONAL AREA PROVIDED = 2,750 SQ.FT. (2,200 SQ.FT. CREDITED)
    - OPEN SPACE USE:
 

OPEN SPACE LOT	OWNER	PURPOSE
12	H.O.A.	RECREATIONAL OPEN SPACE
13	REC. & PARKS	RECREATIONAL OPEN SPACE

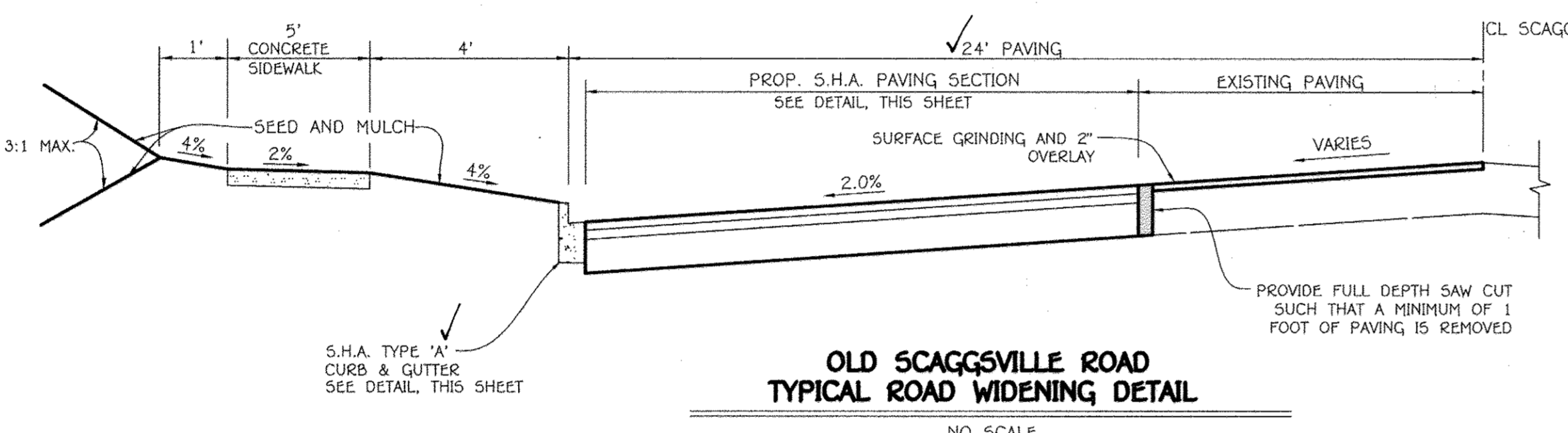
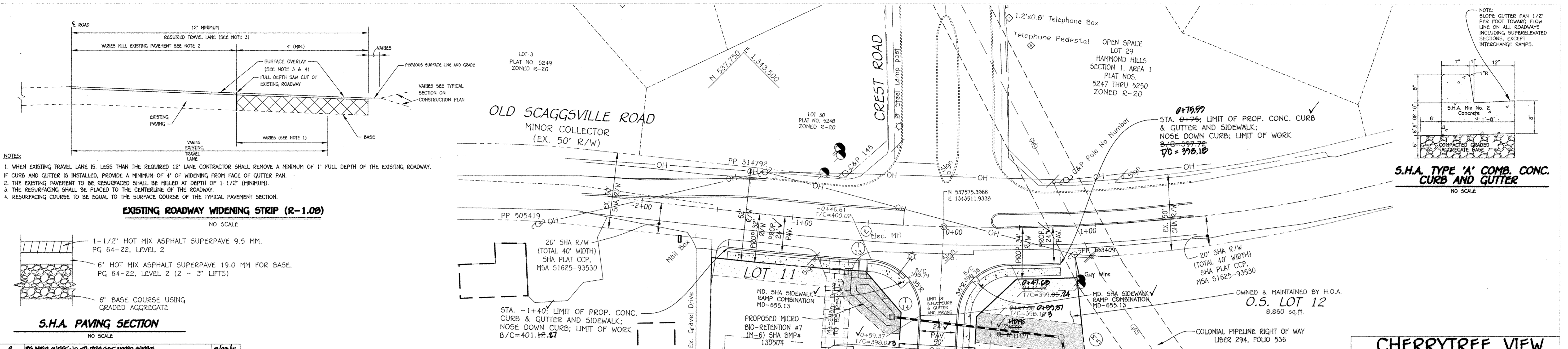
- ALL FILL AREAS WITHIN ROADWAYS AND UNDER STRUCTURES SHALL BE COMPACTED TO A MINIMUM OF 95% COMPACTION OF AASHTO T-160.
- SOILS INFORMATION TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND.
- TOPOGRAPHIC BOUNDARIES BASED ON FIELD RUN SURVEY PERFORMED BY FISHER, COLLINS & CARTER, INC. DATED ON OR ABOUT MAY, 2010.
- ALL EXISTING STRUCTURES LOCATED ON SITE ARE TO REMAIN UNLESS OTHERWISE NOTED. THERE IS AN EXISTING HOUSE ON LOT 11 TO REMAIN.
- NO NOISE STUDY IS REQUIRED FOR THIS PROJECT.
- WATER IS PUBLIC (CONTRACT NO. 24-4687-01). SEWER IS PUBLIC (CONTRACT NO. 24-4687-01).
- THERE ARE NO AREAS OF STEEP SLOPES LOCATED ON THIS PROPERTY AS DEFINED BY THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.b
- STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY AND MDC 2000 STORMWATER DESIGN MANUAL AS AMENDED IN 2010. REDUCED VOLUME WILL BE PROVIDED THROUGH THE USE OF A STONE RESERVOIR LOCATED BEHIND THE PROPOSED MICRO BIO-RETENTION AREAS. THESE FIVE (5) MICRO BIO-RETENTION FACILITIES PROVIDE THE REQUIRED WATER QUALITY VOLUMES FOR THE ROAD IMPROVEMENTS PROPOSED. OVERBANK FLOOD PROTECTION VOLUME AND EXTREME FLOOD VOLUMES ARE NOT REQUIRED FOR THIS SITE. THE FIVE (5) MICRO BIO-RETENTION FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY THE H.O.A. STREET TREES, PERFORATED UNDERDRAINS, FEEDERS, PLANTINGS, SWALES AND DRIVEWAY CURBETS, HOWARD COUNTY WILL ONLY MAINTAIN THE INLET STRUCTURE WITHIN THE MICRO BIO-RETENTION FACILITIES ADJACENT TO THE RIGHT-OF-WAY. DRIVEWAY AND PAVEMENT LOCATED ON THE BUILDABLE LOTS 11-4 & 14-20 PROVIDE WAY & REY FOR THE PROPOSED DWELLINGS AND ARE PRIVATELY OWNED AND MAINTAINED BY THE HOMEOWNER.
- THERE IS NO FLOODPLAIN WITHIN THIS SITE.
- THE TRAFFIC STUDY FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED JUNE, 2010 AND APPROVED ON SEPTEMBER 16, 2010 UNDER SP-11-001.
- THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.120 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY PROVIDING 1.0 ACRE OF OFF-SITE AFFORESTATION. THIS IS PROVIDED ON THE HOWARD HUNT PROPERTIES, INCORPORATED LOCATED AT TAX MAP 6, PARCELS 91 AND LIBER 4032, FOLIO 363 AND LIBER 4137, FOLIO 385 AT \$0.50/SF FOR 43,560 SF = \$21,780.00. TOTAL FOREST CONSERVATION SURETY = \$1,780.00.
- THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS-CARNE, DATED JULY, 2010 AND APPROVED UNDER SP-11-001.
- THE FOREST STAND DELINEATION AND WETLAND DELINEATION FOR THIS PROJECT WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC., DATED JUNE, 2010 AND APPROVED UNDER SP-11-001.
- THIS PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
- FOR FLAG OR PIPESTEM (LOT 9), REFUSE COLLECTION, SNOW REMOVAL AND ROAD MAINTENANCE ARE PROVIDED TO THE JUNCTION OF THE FLAG OR PIPESTEM AND THE ROAD R/W LINE AND NOT THE PIPESTEM LOT DRIVEWAY.
- NO CHETIVERES EXIST WITHIN THE BOUNDARIES OF THIS SUBDIVISION BASED ON A VISUAL SITE VISIT AND AN EXAMINATION OF THE HOWARD COUNTY CENTER CITY INVENTORY MAP.
- THE LANDSCAPE SURETY IN THE AMOUNT OF \$11,250.00 BASED ON 35 SHADE TREES @ \$300/TREE, 2 EVERGREEN TREES @ \$150/TREE AND 3 ORNAMENTAL TREES @ \$150/TREE HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT.
- THE STREET TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$9,300.00.
- STREET LIGHT PLACEMENT AND THE TYPE OF FIXTURES AND POLES SHALL BE IN ACCORDANCE WITH HOWARD COUNTY DESIGN MANUAL VOLUME 12. THE STREET LIGHTS SHALL BE MAINTAINED BY THE H.O.A.
- THE INSTALLATION OF PUBLIC WATER AND SEWER, LOT #11 MUST HAVE THE WELL AND SEPTIC PROPERLY ABANDONED/SEALED AND THE HOWARD COUNTY HEALTH DEPARTMENT WILL BE NOTIFIED. DOCUMENTATION OF PROPER ABANDONMENT OF THE WELL BY A LICENSED WELL DRILLER AND PROPER ABANDONMENT OF THE SEPTIC SYSTEM WILL BE FORWARDED TO THE HOWARD COUNTY HEALTH DEPARTMENT.
- DRIVEWAYS SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING (MINIMUM) REQUIREMENTS:
  - WIDTH - 12 FEET (16 FEET SERVING MORE THAN ONE RESIDENCE)
  - SURFACE - SIX (6") INCHES OF COMPACTED COURSE RUN BASE WITH TAR AND CHIP COATING
  - GEOMETRY - MAXIMUM 10% GRADE, MAXIMUM 10% CHANGE AND MINIMUM OF 45 TURNING RADII.
  - STRUCTURES (CULVERTS/PASSES) CAPABLE OF SUPPORTING 25 GROSS TONS (H 25 LOADING)
  - DIAMETER ELEMENTS - CAPABLE OF SAFELY PARKING 100 YEAR FLOOD WITH NO MORE THAN 1 FOOT DEPTH OVER DRIVEWAY SURFACE.
  - STRUCTURE CLEARANCES - MINIMUM 12 FEET.
  - MAINTENANCE - SUFFICIENT TO INSURE ALL WEATHER USE.
- A SPLIT RAIL FENCE SHALL BE CONSTRUCTED ADJACENT TO OPEN SPACE LOT 13 WITHIN LOTS 3 AND 4 ALONG COMMON LOT LINES WITH OPEN SPACE LOT 13. THIS FENCE WILL BE MAINTAINED BY THE H.O.A. AND ACCESSED BY UTILIZING THE 17' PROVIDED MAINTENANCE EASEMENT ON LOTS 3 & 4.
- DEVELOPER TO COMPLETE A LEASE AGREEMENT WITH DEPARTMENT OF RECREATION AND PARKS TO ALLOW H.O.A. MAINTENANCE OF OPEN SPACE LOT 13.
- OPEN SPACE LOT 12 TO BE OWNED BY H.O.A.
- OPEN SPACE LOT 13 TO BE OWNED BY HOWARD COUNTY, MARYLAND AND MAINTAINED BY H.O.A. (SEE GENERAL NOTE NO. 32)
- NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, BARRIERS AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS OR THESE REQUIRED BUFFERS, FLOODPLAIN AND FOREST CONSERVATION EASEMENT AREAS.
- THIS PROPERTY IS LISTED ON THE HOWARD COUNTY HISTORIC SITES INVENTORY AS HO-712. THE JOHN L. HINES HOUSE, ON OCTOBER 7, 2010 THE HISTORIC DISTRICT COMMISSION APPROVED THE REMOVAL OF THE STRUCTURES AS NOTED HEREON AFTER ADJUSTMENT OF COMMON LOT LINE BETWEEN LOT 10 AND LOT 11 TO RETAIN PART OF EXISTING SHED/BARN. THE COMMISSION APPROVED THE PLAN WHICH SHOWED THE HOUSE, SHED AND ORIGINAL BARN REMAINING. THE EXISTING BARN IS ALLOWED TO ENDOACH WITHIN THE 10' SETBACK ALONG THE PROPERTY LINE SHARED WITH PARCEL 54 SINCE IT IS AN EXISTING ENCROACHMENT AND THE BARN WAS CONSTRUCTED PRIOR TO THE EXISTING ZONING REGULATIONS. THE EXISTING HOUSE ON LOT 11 WILL REMAIN.
- THIS PLAN IS SUBJECT TO WAVE WP-11-065 TO WAVE SECTION 16.120(b)(4)(iii)(c) FOR R-20 INFILL SUBDIVISIONS THAT ARE RESTRICTED IN USING OPTIONAL LOT SIZES UNDER SECTION 16.121(a), STEEP SLOPES, FLOODPLAINS, WETLANDS, WETLAND BUFFERS, STREAMS AND STREAM BUFFERS MAY BE LOCATED ON LOTS WITH A 30' SETBACK FROM THE BUILDING ENVELOPE. THE WAVE WAS APPROVED BY THE PLANNING DIRECTOR ON NOVEMBER 22, 2010 SUBJECT TO THE FOLLOWING CONDITIONS:
  - A 35-FOOT SETBACK WILL BE MAINTAINED FROM ENVIRONMENTAL FEATURES AND BUFFERS LOCATED ON ALL RESIDENTIAL LOTS A DECK MAY PROJECT 10' BEYOND THE BUILDING ENVELOPE.
  - AN OPEN SPACE LOT (LOT 12) CONTAINING A PORTION OF THE REQUIRED 6% OF OPEN SPACE MUST BE PROVIDED AND THE REQUIRED RECREATIONAL OPEN SPACE WILL BE PROVIDED AT THIS LOCATION. THIS OPEN SPACE IS TO BE OWNED BY THE HOMEOWNER'S ASSOCIATION OF THIS SUBDIVISION.
  - AN ADDITIONAL OPEN SPACE LOT TO BE OWNED BY THE DEPARTMENT OF RECREATION AND PARKS WILL BE PROVIDED AS A 35' WIDE STRIP BETWEEN LOTS 3 AND 4 (ALSO TO WRAP TO THE PROPERTY CORNER BEHIND LOT 3 TO ENCOMPASS THE MAJORITY OF THE STREAM BUFFER), TO BE KNOWN AS OPEN SPACE LOT 13, AND CONTAINING THE REMAINING PORTION OF THE REQUIRED 6% OPEN SPACE AREA.
  - NO GRADING, REMOVAL OF VEGETATIVE COVER AND TREES, PAVING AND NEW STRUCTURES ARE PERMITTED WITHIN THE 25' WETLAND BUFFER AND THE 50' STREAM BUFFER.

**REVISED**  
**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1 - 4 AND 14 - 20,  
 OPEN SPACE LOTS 12 & 13

PREVIOUS FILE NO.: ECP-11-003, WP-11-065 & SP-11-001  
 TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY 3, 2014  
 SHEET 1 OF 17

AS-BUILT F-11-065





NO.	DESCRIPTION	DATE
1	REVISED AREA NO. 10 RELOCATED MICRO BUMP	7/27/15
2	REVISED THESE MICRO-BUMP LOCATIONS WITH A SINGLE MICRO-BUMP RETENTION LOCATED AT THE REAR OF LOT 15	8/3/14

NO.	DESCRIPTION	DATE
1	APPROVED: DEPARTMENT OF PLANNING AND ZONING	7/19/14
2	APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	7-13-11
3	APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS	7-11-2011

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



6/9/11 DATE

"Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-13."

**CHERRYTREE VIEW**  
BUILDABLE LOTS 1 - 4 AND 14-20,  
OPEN SPACE LOTS 12 & 13

PREVIOUS FILE NOS.: ECP-11-003 & WP-11-065  
TAX MAP No. 46 GRID No. 11 PARCEL No. 55  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

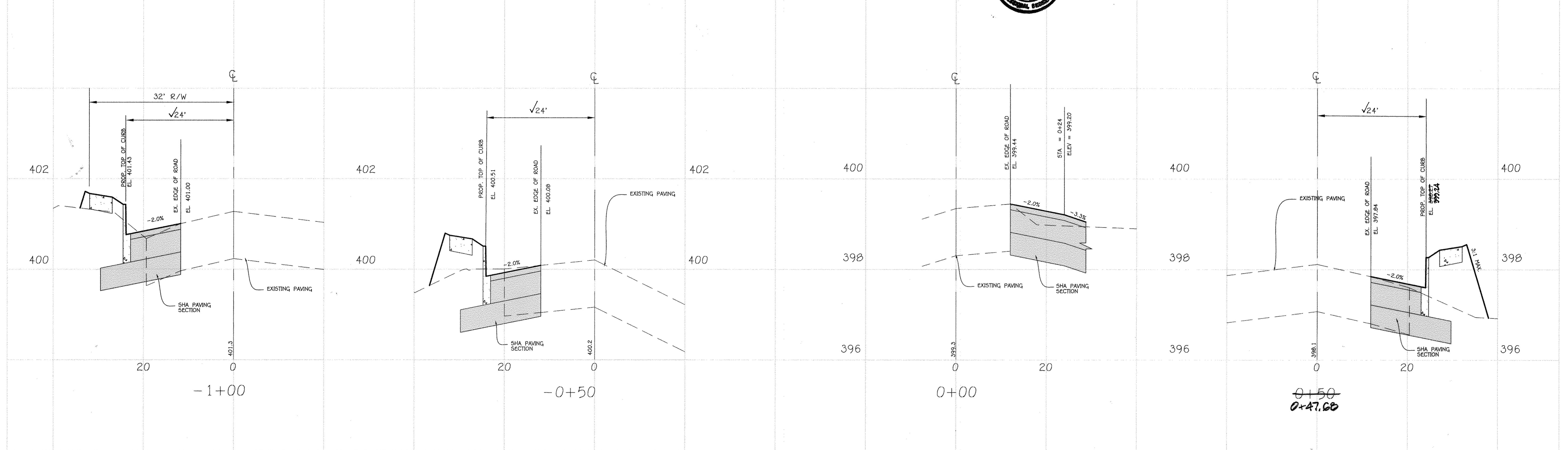
**OLD SCAGGSVILLE ROAD WIDENING**  
PLAN AND CROSS-SECTIONS

**OWNER:** MR. & MRS. HELEY A. OSWONOFF  
10909 SCAGGSVILLE ROAD  
LAUREL, MARYLAND 20723  
ATTN: MR. DONALD E. REUBNER, JR.  
443-367-0422

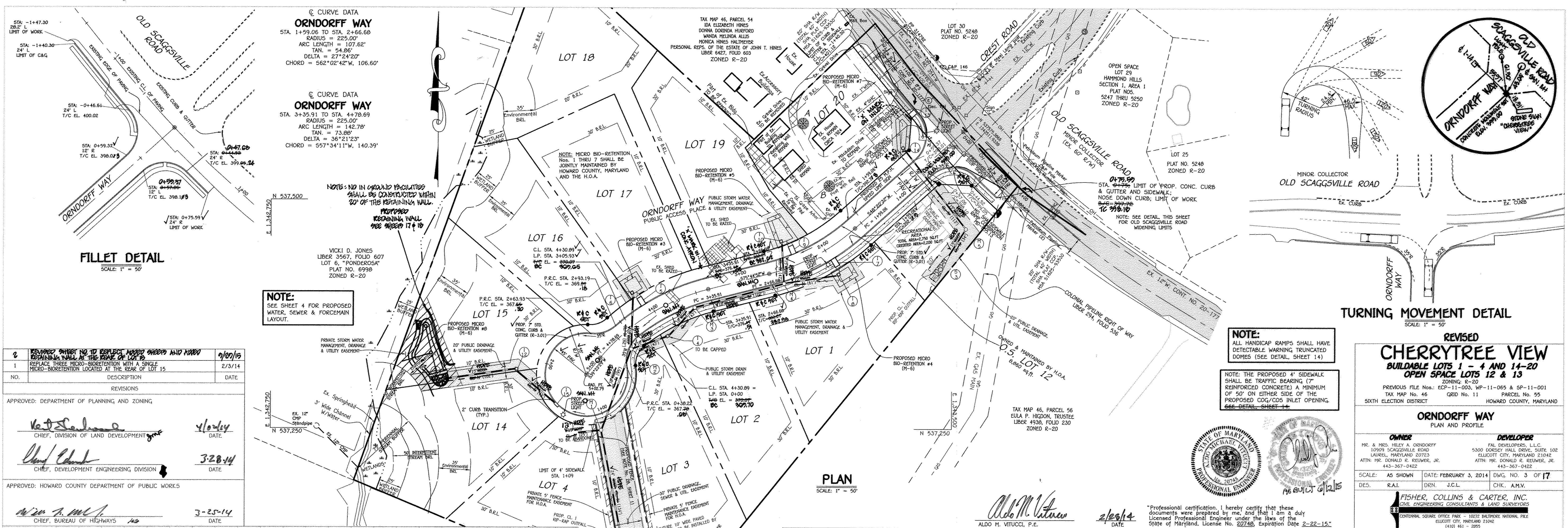
**DEVELOPER:** PAL DEVELOPERS, L.L.C.  
5300 DORSEY HALL DRIVE, SUITE 102  
ELICOTT CITY, MARYLAND 21042  
ATTN: MR. DONALD E. REUBNER, JR.  
443-367-0422

SCALE: AS SHOWN DATE: FEBRUARY 9, 2014 DWG. NO. 2 OF 17  
DES. R.A.L. DRN. J.C.L. CHK. A.M.V.

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELICOTT CITY, MARYLAND 21042  
(410) 461-2899







NO.	DESCRIPTION	DATE
2	REMOVED SHEET NO. 10 TO REFLECT ADDED SHEETS AND ADDED RETAINING WALL AT THE REAR OF LOT 15	0/20/15
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 15	2/3/14

APPROVED: DEPARTMENT OF PLANNING AND ZONING

*Victor Salas*  
 CHIEF, DIVISION OF LAND DEVELOPMENT

*Chief Clerk*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

APPROVED: HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS

*Walter A. Miller*  
 CHIEF, BUREAU OF HIGHWAYS

**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1 - 4 AND 14-20  
 OPEN SPACE LOTS 12 & 13

PREVIOUS FILE No.: ECP-11-003, WP-11-085 & SP-11-001  
 TAX MAP No. 46 PARCEL No. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND

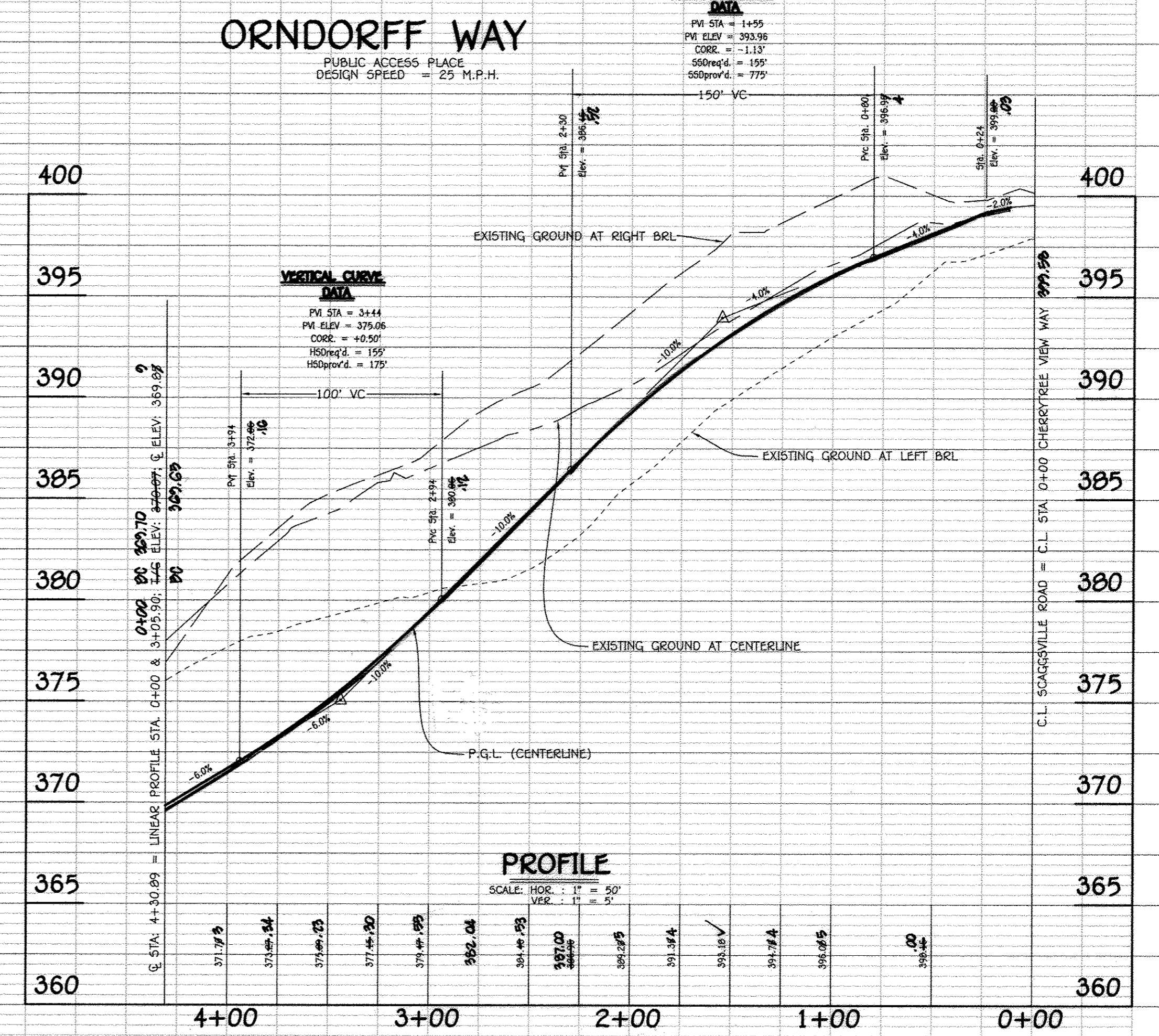
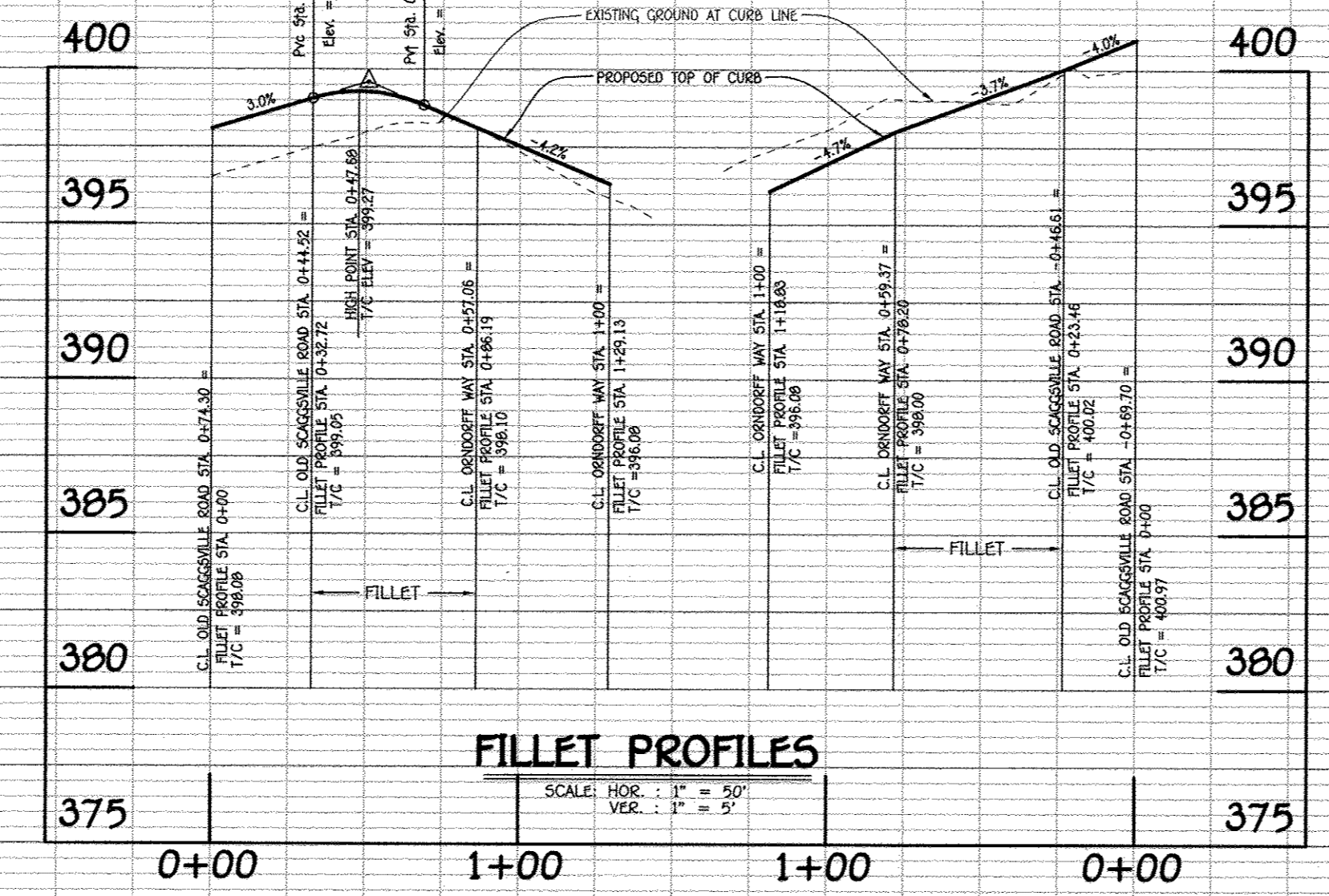
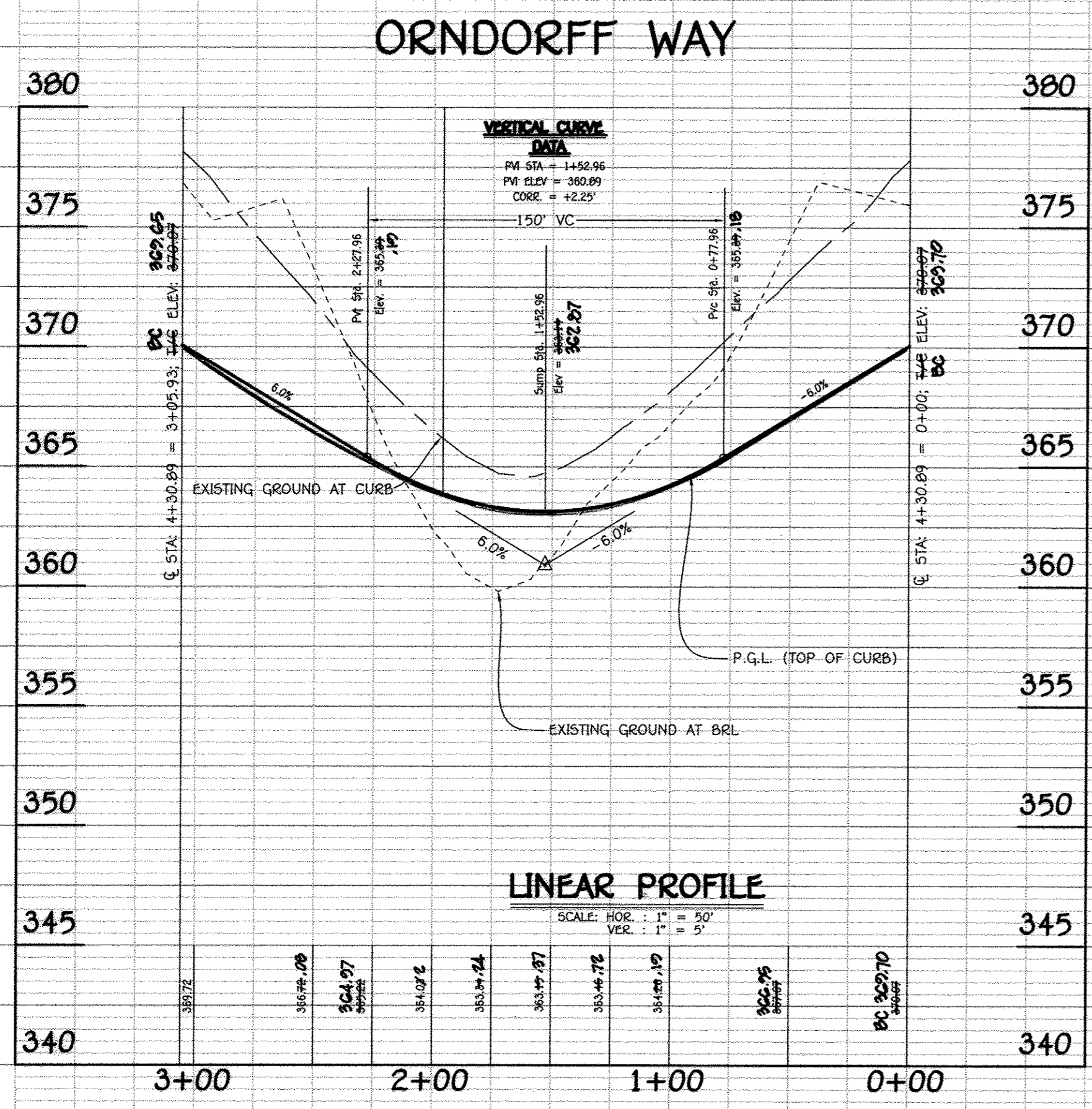
**ORNDORFF WAY**  
 PLAN AND PROFILE

**OWNER:** MR. & MRS. HELEN A. ORNDORFF  
 10909 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20723  
 ATTN: MR. DONALD R. REINER, JR.  
 443-367-0422

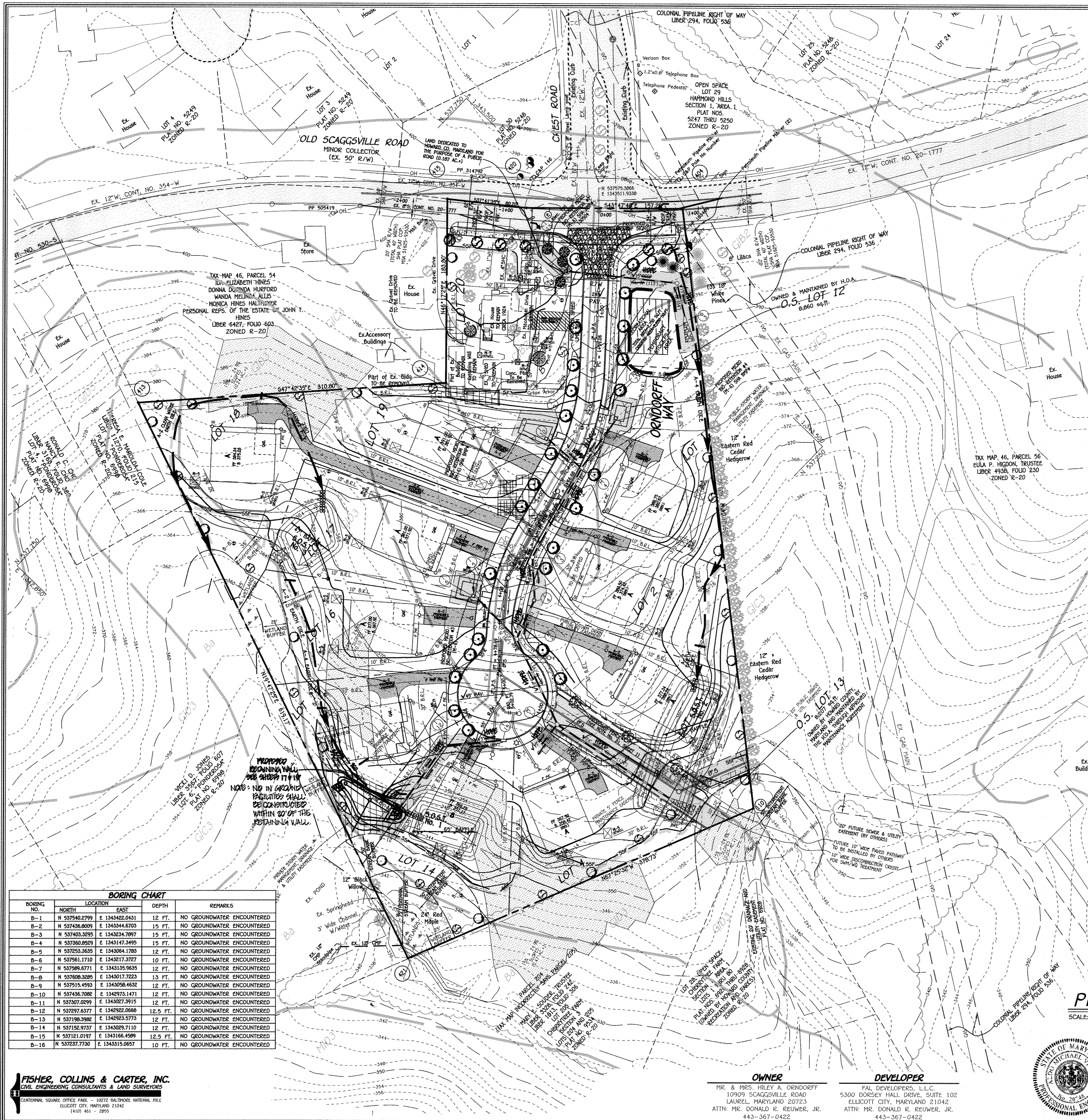
**DEVELOPER:** FAL DEVELOPERS, L.L.C.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELIJAH CITY, MARYLAND 21042  
 ATTN: MR. DONALD R. REINER, JR.  
 443-367-0422

SCALE: AS SHOWN DATE: FEBRUARY 3, 2014 DWG. NO. 3 OF 17  
 DES. R.A.I. DRN. J.C.L. CHK. A.M.V.

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELIJAH CITY, MARYLAND 21042  
 (410) 461-2055







**TEMPORARY S.O.S.T. (ST. II) No. 1**  
 INITIAL D.A. = 1.82 AC.  
 FINAL D.A. = 1.03 AC.  
 STORAGE REQUIRED:  
 WET = 1800 x 1.82 = 3,276 CUFT.  
 DRY = 1800 x 1.82 = 3,276 CUFT.  
 STORAGE PROVIDED:  
 WET = 3,276 CUFT. @ ELEV. 345.18  
 DRY = 3,276 CUFT. @ ELEV. 346.25  
 BOTTOM ELEV. = 344.00  
 STORAGE DEPTH = 1.82' WET, 2.40' DRY  
 TOP OF EMBANKMENT = 348.00  
 CLEAN OUT ELEV. = 344.60  
 WEIR CREST ELEV. = 347.00  
 WEIR LENGTH = 9'  
 TEMP. SWM FOR 1 YR. STORM NOT REQUIRED  
 D.A. < 2 AC.

**TEMPORARY S.O.S.T. (ST. II) No. 2**  
 INITIAL D.A. = 1.88 AC.  
 FINAL D.A. = 2.97 AC.  
 STORAGE REQUIRED:  
 WET = 1800 x 2.97 = 5,346 CUFT.  
 DRY = 1800 x 2.97 = 5,346 CUFT.  
 STORAGE PROVIDED:  
 WET = 5,346 CUFT. @ ELEV. 353.20  
 DRY = 5,346 CUFT. @ ELEV. 354.30  
 BOTTOM ELEV. = 352.00  
 STORAGE DEPTH = 1.80' WET, 2.45' DRY  
 TOP OF EMBANKMENT = 356.50  
 CLEAN OUT ELEV. = 352.55  
 WEIR CREST ELEV. = 355.50  
 WEIR LENGTH = 10'  
 FOR 1 YR. TEMP. STORM REQUIRED = 6,970 CUFT. @ 355.45

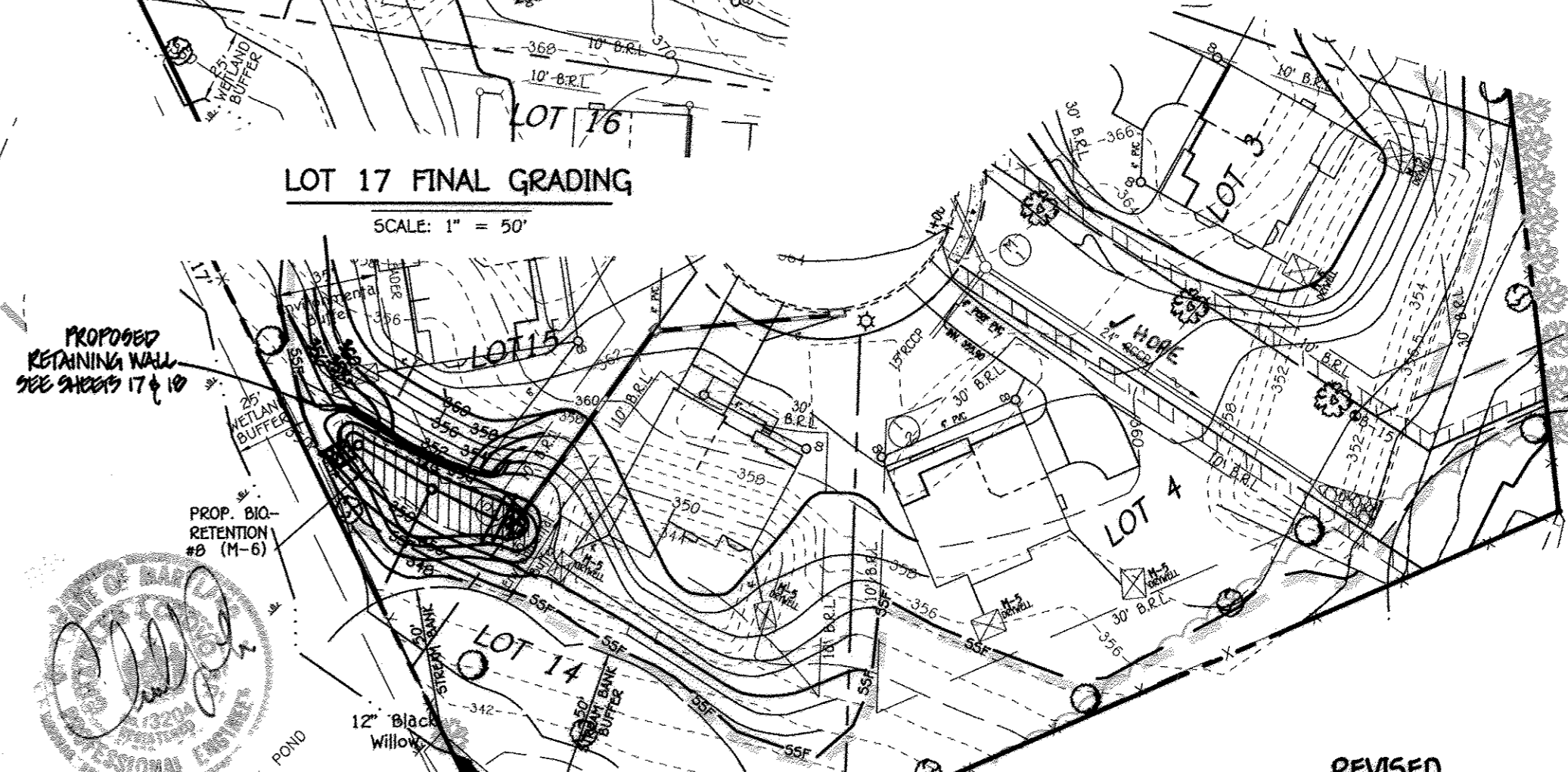
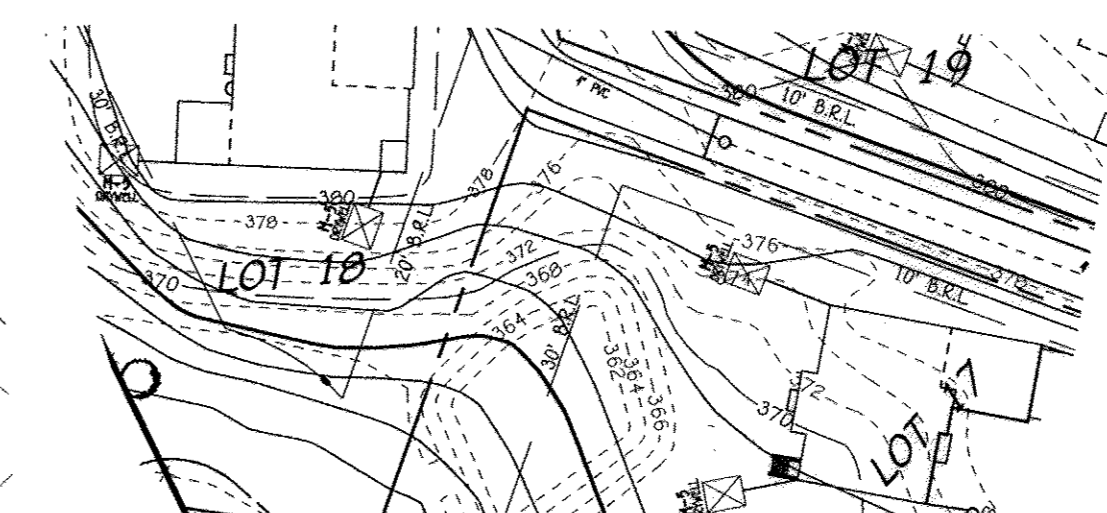
**TEMPORARY S.O.S.T. (ST. II) No. 3**  
 INITIAL D.A. = 1.59 AC.  
 FINAL D.A. = 1.21 AC.  
 STORAGE REQUIRED:  
 WET = 1800 x 1.59 = 2,862 CUFT.  
 DRY = 1800 x 1.59 = 2,862 CUFT.  
 STORAGE PROVIDED:  
 WET = 2,862 CUFT. @ ELEV. 363.40  
 DRY = 2,862 CUFT. @ ELEV. 364.43  
 BOTTOM ELEV. = 362.00  
 STORAGE DEPTH = 1.60' WET, 2.30' DRY  
 TOP OF EMBANKMENT = 366.00  
 CLEAN OUT ELEV. = 362.70  
 WEIR CREST ELEV. = 365.00  
 WEIR LENGTH = 12'  
 TEMP. SWM FOR 1 YR. STORM NOT REQUIRED  
 D.A. < 2 AC.

- LEGEND**
- SSF—SSF—SSF— SUPER-SILT FENCE
  - SF—SF—SF— SILT FENCE
  - TP—TP—TP— TREE PROTECTION FENCE
  - STABILIZED CONSTRUCTION ENTRANCE
  - EARTH DIKE
  - LIMIT OF DISTURBANCE
  - RIP-RAP INFLOW PROTECTION
  - SEDIMENT BAFFLE (SEE DETAIL, SHEET 10)

S.O.S.T. No. 1  
 BAFFLE DESIGN  
 D = 45'  
 A = 2,304 SQ.FT.  
 We = A/D = 2,304/45 = 51.2'  
 Le = 104'  
 Le/We = 104/51.2 = 2.03  
 2.03 > 2.0 OK

S.O.S.T. No. 2  
 BAFFLE DESIGN  
 D = 90'  
 A = 4,596 SQ.FT.  
 We = A/D = 4,596/90 = 50.95'  
 Le = 140'  
 Le/We = 140/50.95 = 2.74  
 2.74 > 2.0 OK

S.O.S.T. No. 3  
 BAFFLE DESIGN  
 D = 60'  
 A = 1,656 SQ.FT.  
 We = A/D = 1,656/60 = 27.6'  
 Le = 105'  
 Le/We = 105/27.6 = 3.8  
 3.8 > 2.0 OK



**BORING CHART**

BORING NO.	NORTH	EAST	DEPTH	REMARKS
B-1	N 537462.2799	E 1343492.0431	12 FT.	NO GROUNDWATER ENCOUNTERED
B-2	N 537436.8099	E 1343334.6703	15 FT.	NO GROUNDWATER ENCOUNTERED
B-3	N 537403.3295	E 1343234.7097	15 FT.	NO GROUNDWATER ENCOUNTERED
B-4	N 537360.8289	E 1343147.3495	15 FT.	NO GROUNDWATER ENCOUNTERED
B-5	N 537353.3635	E 1343064.1703	12 FT.	NO GROUNDWATER ENCOUNTERED
B-6	N 537361.1710	E 1343217.3727	10 FT.	NO GROUNDWATER ENCOUNTERED
B-7	N 537369.6771	E 1343135.9635	12 FT.	NO GROUNDWATER ENCOUNTERED
B-8	N 537368.3285	E 1343017.7223	13 FT.	NO GROUNDWATER ENCOUNTERED
B-9	N 537315.4993	E 1343098.4632	12 FT.	NO GROUNDWATER ENCOUNTERED
B-10	N 537436.7082	E 1342975.1471	12 FT.	NO GROUNDWATER ENCOUNTERED
B-11	N 537507.0299	E 1343227.3915	12 FT.	NO GROUNDWATER ENCOUNTERED
B-12	N 537377.6377	E 1342922.0660	12.5 FT.	NO GROUNDWATER ENCOUNTERED
B-13	N 537196.3982	E 1342923.5773	12 FT.	NO GROUNDWATER ENCOUNTERED
B-14	N 537152.9737	E 1343025.7110	12 FT.	NO GROUNDWATER ENCOUNTERED
B-15	N 537121.0197	E 1343166.4569	12.5 FT.	NO GROUNDWATER ENCOUNTERED
B-16	N 537237.7730	E 1343315.0657	10 FT.	NO GROUNDWATER ENCOUNTERED

By The Developer:  
 "I/We Certify That All Development And/Or Construction Will Be Done According To These Plans. And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I shall engage a Registered Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Period On-Site Inspections By The Howard Soil Conservation District."

Signature of Developer: *Donald R. Reumer, Jr.* Date: 3/3/14  
 Printed Name of Developer: DONALD R. REUMER, JR.

By The Engineer:  
 "I Certify That This Plan For Construction, Erosion And Sediment Control Represents A Practical And Workable Plan, Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I Have Notified The Developer That He/She Must Engage A Registered Professional Engineer To Supervise The Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Within 30 Days Of Completion."

Signature of Engineer: *John C. Robertson* Date: 3/13/14  
 Printed Name of Engineer: JOHN C. ROBERTSON

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.  
 Approved: Department Of Public Works  
*Wendy R. Smith* Date: 3-25-14  
 Chief, Bureau Of Highways

Approved: Department Of Planning And Zoning  
*Wendy R. Smith* Date: 4/02/14  
 Chief, Division Of Land Development  
*John C. Robertson* Date: 3-28-14  
 Chief, Development Engineering Division

**AS-BUILT CERTIFICATION**  
 I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: \_\_\_\_\_ P.E. No. \_\_\_\_\_  
 Date: \_\_\_\_\_

Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

**REVISIONS**

NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 15	2/3/14
2	REMOVED SHEET NO. 10 TO CORRECT MISSED AND ADDED RETAINING WALL AT THE REAR OF LOT 19	3/29/14

NOTE: SEE SHEET 13 FOR STORMWATER MANAGEMENT FACILITIES ON THE INDIVIDUAL LOTS TO BE CONSTRUCTED AT SDP STAGE.

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTENNIAL SQUARE OFFICE PARK - 10272 WALTHAM NATIONAL FIC  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2099

**OWNER**  
 MR. & MRS. HELEY A. ORNDORFF  
 10009 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20723  
 ATTN: MR. DONALD R. REUMER, JR.  
 443-367-0422

**DEVELOPER**  
 FAL DEVELOPERS, L.L.C.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELICOTT CITY, MARYLAND 21042  
 ATTN: MR. DONALD R. REUMER, JR.  
 443-367-0422



**PLAN**  
 SCALE: 1" = 50"  
 AS-BUILT  
 6/14/15  
 Aldo M. Vitucci, P.E.

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20746, expiration Date 2-22-15."  
 Date: 6/14/15

**REVISED GRADING & SEDIMENT CONTROL PLAN**  
**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1 - 4 AND 14 - 20  
 OPEN SPACE LOTS 12 & 13  
 ZONING: R-20  
 PREVIOUS FILE NOs: EOP-11-003, WP-11-065 & SP-11-001  
 TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY 3, 2014  
 SHEET 4 OF 17

AS-BUILT F-11-063

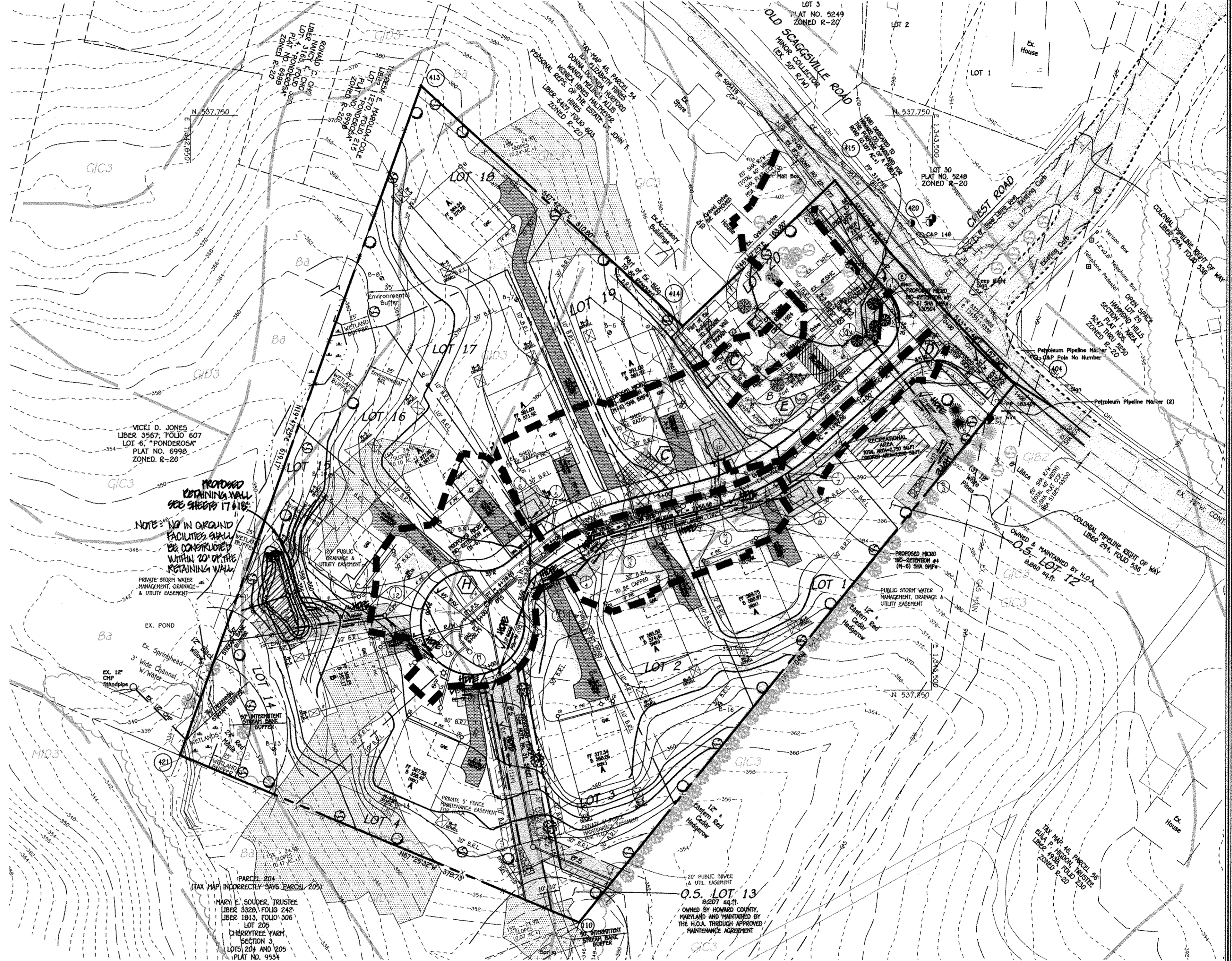




**STORMWATER MANAGEMENT DRAINAGE AREA MAP**  
SCALE: 1" = 60'

SOILS LEGEND		
SOIL	NAME	CLASS
**Ba	Baile silt loam	D
GIB2	Glenelg loam, 3 to 8 percent slopes, moderately eroded	B
GIC3	Glenelg loam, 8 to 15 percent slopes, severely eroded	B
QID3	Glenelg loam, 15 to 25 percent slopes, severely eroded	B

NOTES:  
 \* Hydric soils and/or contains hydric inclusions  
 \*\* May contain hydric inclusions  
 † Generally only within 100-year floodplain areas



**STORMDRAIN DRAINAGE AREA MAP**  
SCALE: 1" = 60'

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 [Signature] 3-25-14  
 CHIEF, BUREAU OF HIGHWAYS DATE

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 [Signature] 4/22/14  
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 3-28-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

REVISIONS		
NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 15	2/3/14
2	REPLACE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 15 AT THE REAR OF LOT 19	4/22/14

STORMWATER MANAGEMENT PRACTICES					
LOT NO.	DRY WELL (IN-5)	PERMEABLE PAVING (IN-2)	MICRO-BIO-RETENTION (IN-6)	ESDV = REQ'D.	ESDV = PROV'D.
1	0.02 Ac.	0.082 Ac.		444 Cu.Ft.	631 Cu.Ft.
2	0.02 Ac.	0.086 Ac.		450 Cu.Ft.	657 Cu.Ft.
3	0.02 Ac.	0.079 Ac.		441 Cu.Ft.	782 Cu.Ft.
4	0.02 Ac.	0.070 Ac.		445 Cu.Ft.	696 Cu.Ft.
14	0.01 Ac.	0.029 Ac.	0.015 Ac.	285 Cu.Ft.	352 Cu.Ft.
15	0.01 Ac.	0.064 Ac.	0.030 Ac.	285 Cu.Ft.	352 Cu.Ft.
16	0.02 Ac.	0.082 Ac.		443 Cu.Ft.	633 Cu.Ft.
17	0.02 Ac.	0.039 Ac.	0.018 Ac.	342 Cu.Ft.	493 Cu.Ft.
18	0.02 Ac.	0.166 Ac.		874 Cu.Ft.	1,277 Cu.Ft.
19	0.02 Ac.	0.676 Ac.		473 Cu.Ft.	661 Cu.Ft.
20	0.07 Ac.			240 Cu.Ft.	255 Cu.Ft.

TOTAL AREA OF PROPERTY = 6.54 AC.  
 DEVELOPABLE AREA (L.O.D.) = 5.11 AC.  
 COMPOSITE RCU = 57  
 TARGET Pe = 1.57 INCHES

TOTAL SITE AREA = 6.54 Ac.; L.O.D. = 5.11 Ac.;  
 TARGET RCU = 57  
 TARGET Pe = 1.57"

ESDV SUMMARY TABLE				REMARKS
AREA ID	ESDV = REQ'D. CU. FT.	ESDV = PROV'D. CU. FT.	PERCENT IMPERVIOUS	
C 1-6	428	560	46%	MICRO-BIO-RETENTION #3
D 1-8	447	456	61.5%	MICRO-BIO-RETENTION #4
E 1-10	592	648	16%	MICRO-BIO-RETENTION #5
G 1-14	606	632	85%	MICRO-BIO-RETENTION #7
H 1-15	1,632	1,632	32%	BIO-RETENTION #8
LOT 1	631	631	80%	2 DRY WELLS PERMEABLE PAVING
LOT 2	657	657	78%	2 DRY WELLS PERMEABLE PAVING
LOT 3	782	782	64%	2 DRY WELLS PERMEABLE PAVING
LOT 4	696	696	75%	2 DRY WELLS PERMEABLE PAVING
LOT 14	352	352	83%	2 DRY WELLS PERMEABLE PAVING
LOT 15	603	603	32%	2 DRY WELLS PERMEABLE PAVING
LOT 16	633	633	80%	2 DRY WELLS PERMEABLE PAVING
LOT 17	493	493	80%	2 DRY WELLS PERMEABLE PAVING
LOT 18	1,277	1,277	75%	2 DRY WELLS PERMEABLE PAVING
LOT 19	661	661	80%	2 DRY WELLS PERMEABLE PAVING
LOT 20	240	255	--%	5 DRY WELLS, 1-NON-ROOFTOP DISCONNECT & ROOFTOP DISCON.
TOTALS	10,687	11,371	62.9%-AVG.	

118% OF THE REQUIRED ESD VOLUME HAS BEEN PROVIDED

DRAINAGE AREA DATA				
STRUCTURE	DRAINAGE AREA	AREA 'C'	ZONED	% IMP.
I-5	C	0.74 AC.	R-20	43%
I-6	C	0.39 AC.	R-20	46%
I-7	D	0.11 AC.	R-20	80%
I-8	D	0.02 AC.	R-20	61%
I-9	E	0.51 AC.	R-20	37%
I-10	E	0.16 AC.	R-20	16%
I-11	F	0.28 AC.	R-20	65%
I-13	G	0.12 AC.	R-20	90%
I-14	G	0.13 AC.	R-20	85%
I-15	H	0.79 AC.	R-20	27%

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 10909 SCAGGSVILLE ROAD  
 ELICOTT CITY, MARYLAND 21042  
 4100 861 - 2295

**OWNER**  
 MR. & MRS. HILEY A. ORNDORFF  
 10909 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20723  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422

**DEVELOPER**  
 FAL DEVELOPERS, L.L.C.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELLICOTT CITY, MARYLAND 21042  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422



ALDO M. VITUCCI, P.E.  
 [Signature]  
 DATE: 4/22/14

"Professional certification, I hereby certify that these documents were prepared by me and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15."

REVISED  
**STORMDRAIN & STORMWATER  
 MANAGEMENT DRAINAGE AREA MAPS**  
**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1 - 11 AND 14-20  
 OPEN SPACE LOTS 12 & 13  
 ZONING: R-20  
 PREVIOUS FILE NO.: ECP-11-003, WP-11-065 & SP-11-001  
 TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY 3, 2014  
 SHEET 5 OF 17

AS-BUILT F-11-065







# Infiltration and Filter System Construction Specifications

Infiltration and filter systems either take advantage of existing permeable soils or create a permeable medium such as sand for (M-6) and (M-7). In some instances where permeability is great, these facilities may be used for (M-6) as well. The most common systems include infiltration trenches, infiltration basins, sand filters, and organic filters.

When properly planted, vegetation will thrive and enhance the functioning of these systems. For example, pre-treatment buffers will trap sediments that often are bound with phosphorus and metals. Vegetation planted in the facility will aid in nutrient uptake and water storage. Additionally, plant roots will provide aeration for stormwater to permeate soil for groundwater recharge. Finally, successful plantings provide aesthetic value and wildlife habitat making these facilities more desirable to the public.

**Design Constraints:**

- Planting buffer strips of at least 20 feet will cause sediments to settle out before reaching the facility, thereby reducing the possibility of clogging.
- Determine areas that will be saturated with water and water table depth so that appropriate plants may be selected (hydrology will be similar to infiltration facilities, see Figure A.5 and Table A.4 for planting material guidance).
- Plants known to send down deep taproots should be avoided in systems where filter fabric is used as part of facility design.
- Test soil conditions to determine if soil amendments are necessary.
- Plants shall be located so that access is possible for structure maintenance.
- Stabilize heavy flow areas with erosion control mats or sod.
- Temporarily divert flows from seeded areas until vegetation is established.
- See Table A.5 for additional design considerations.

**Bio-retention**

**Soil Bed Characteristics**

The characteristics of the soil for the bio-retention facility are perhaps as important as the facility location, size, and treatment volume. The soil must be permeable enough to allow runoff to filter through the media, while having characteristics suitable to protect and support a robust vegetative cover crop. In addition, much of the nutrient pollutant uptake (nitrogen and phosphorus) is accomplished through absorption and microbial activity within the soil profile. Therefore, soils must balance their chemical and physical properties to support biotic communities above and below ground.

The planting soil should be a sandy loam, loamy sand, loam (USDA), or a loam/sand mix (should contain a minimum 35 to 60% sand, by volume). The clay content for these soils should be less than 25% by volume (Environmental Quality Resources (EQR), 1996; Engineering Technology Inc. and Bushbriars, Inc. (ETAB), 1993). Soils should fall within the SM, ML, SC classifications of the United Soil Classification System (USCS). A permeability of at least 1.0 feet per day (0.27 in/h) is required (a conservative value of 0.5 feet per day is used for design). The soil should be free of stones, stumps, roots, or other woody material over 1" in diameter. Brush or seeds from noxious weeds (e.g., Johnson Grass, Mugwort, Nutsedge, and Canada Thistle or other noxious weeds as specified under COMAR 15.08.01.05) should not be present in the soil. Placement of the planting soil should be in 12 to 18 lifts that are loosely compacted (tamped lightly with a backhoe bucket or tamped by dozer tracks). The specific characteristics are presented in Table A.3.

**Table A.3 Planting Soil Characteristics**

Parameter	Value
pH range	5.2 to 7.00
Organic matter	1.5 to 4.0% (by weight)
Magnesium	35 lbs. per acre, minimum
Phosphorus (phosphate - P2O5)	75 lbs. per acre, minimum
Potassium (potash - K2O)	85 lbs. per acre, minimum
Soluble salts	500 ppm
Clay	10 to 25 %
Silt	30 to 55 %
Sand	35 to 60%

**Mulch Layer**

The mulch layer plays an important role in the performance of the bio-retention system. The mulch layer helps maintain soil moisture and avoids surface sealing, which reduces permeability. Mulch helps prevent erosion, and provides a microenvironment suitable for soil biota at the mulch/soil interface. It also serves as a pre-treatment layer, trapping the finer sediments, which remain suspended after the primary pretreatment.

The mulch layer should be standard landscape style, single or double shredded hardwood mulch or chips. The mulch layer should be well aged (reticulated or stored for at least 12 months), uniform in color, and free of other materials, such as weed seeds, soil, roots, etc. The mulch should be applied to a maximum depth of three inches. Grass clippings should not be used as a mulch material.

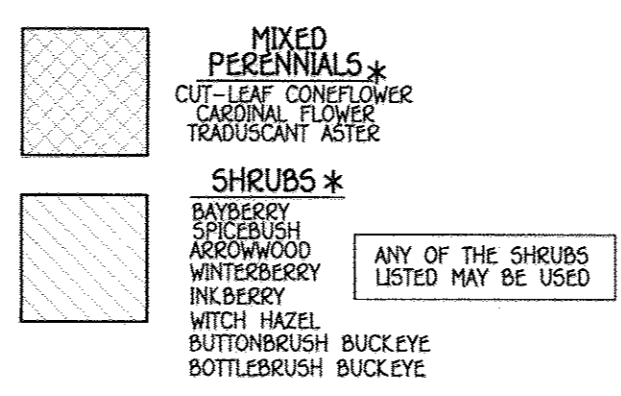
**Planting Guidance**

Plant material selection should be based on the goal of simulating a terrestrial forested community of native species. Bio-retention simulates an upland-species ecosystem. The community should be dominated by trees, but have a distinct community of understory trees, shrubs and herbaceous materials. By creating a diverse, dense plant cover, a bio-retention facility will be able to treat stormwater runoff and withhold urban stresses from insects, disease, drought, temperature, wind, and exposure.

The proper selection and installation of plant materials is key to a successful system. There are essentially three zones within a bio-retention facility (Figure A.3). The lowest elevation supports plant species adapted to standing and fluctuating water levels. The middle elevation supports plants that like drier soil conditions, but can still tolerate occasional inundation by water. The outer edge is the highest elevation and generally supports plants adapted to drier conditions. A sample of appropriate plant materials for bio-retention facilities are included in Table A.4. The layout of plant material should be flexible, but should follow the general principles described in Table A.5. The objective is to have a system, which resembles a random, and natural plant layout, while maintaining optimal conditions for plant establishment and growth. For a more extensive bio-retention plan, consult ETAB, 1993 or Clayton and Schaefer, 1997.

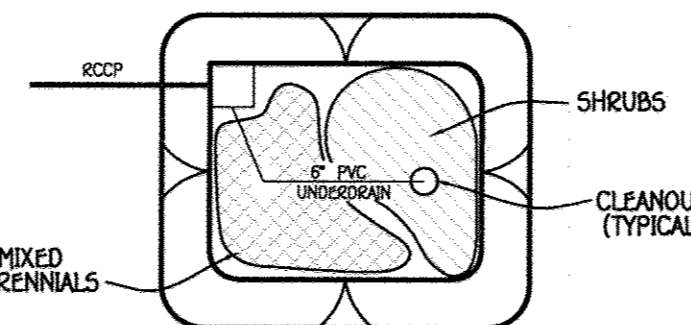
# OPERATION AND MAINTENANCE SCHEDULE FOR BIO-RETENTION AREAS (M-6) (FACILITY Nos. 3-5, 7-8)

- The owner shall maintain the plant material, mulch layer and soil layer annually. Maintenance of mulch and soil is limited to correcting areas of erosion or which out. Any mulch replacement shall be done in the spring. Plant material shall be checked for disease and insect infestation and maintenance will address dead material and pruning. Acceptable replacement plant material is limited to the following: 2000 Maryland stormwater design manual volume II, table A.4.1 and 2.
- The owner shall perform a plant in the spring and in the fall each year. During the inspection, the owner shall remove dead and diseased vegetation considered beyond treatment, replace dead plant material with acceptable replacement plant material. Treat diseased trees and shrubs and replace all deficient stakes and wires.
- The owner shall inspect the mulch each spring. The mulch shall be replaced every two to three years. The previous mulch layer shall be removed before the new layer is applied.
- The owner shall correct soil erosion on an as needed basis, with a minimum of once per month and after each heavy storm.

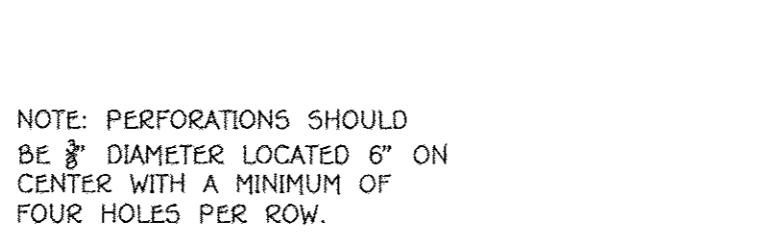


\* SEE PLANT MATERIAL CHARTS FOR QUANTITIES AND SPACING

NOTES: PLANT MATERIAL MUST COVER AT LEAST 50% OF THE SURFACE AREA OF THE BIO-RETENTION

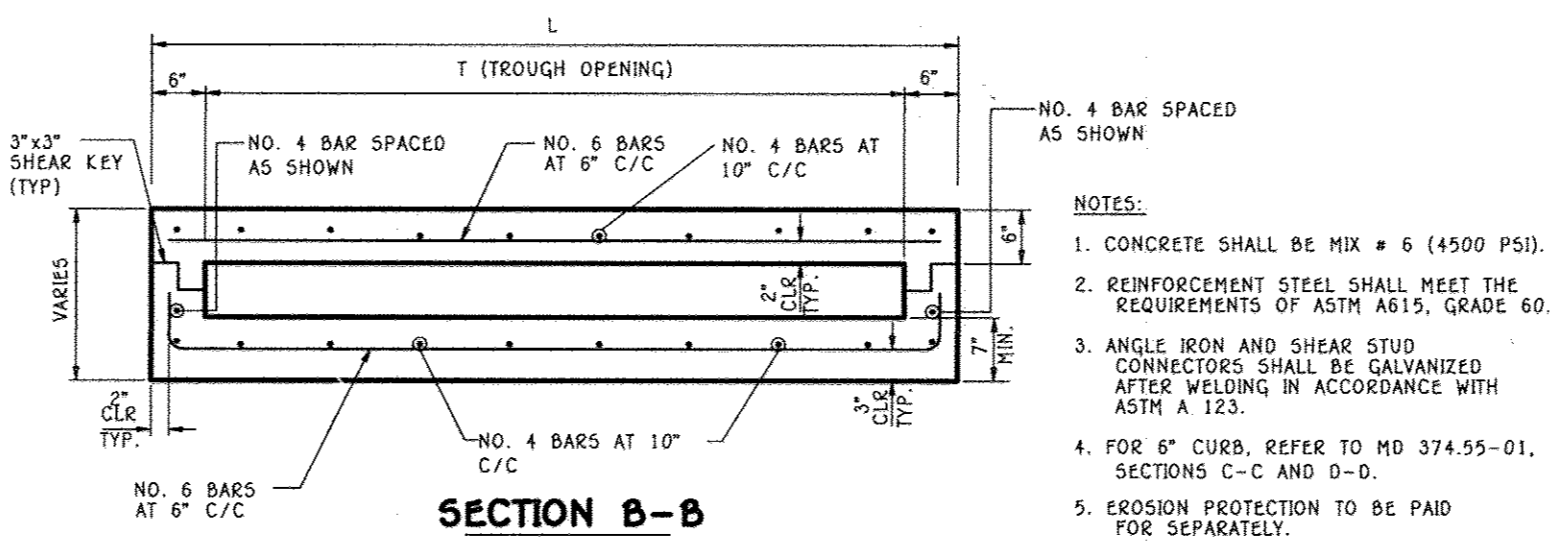
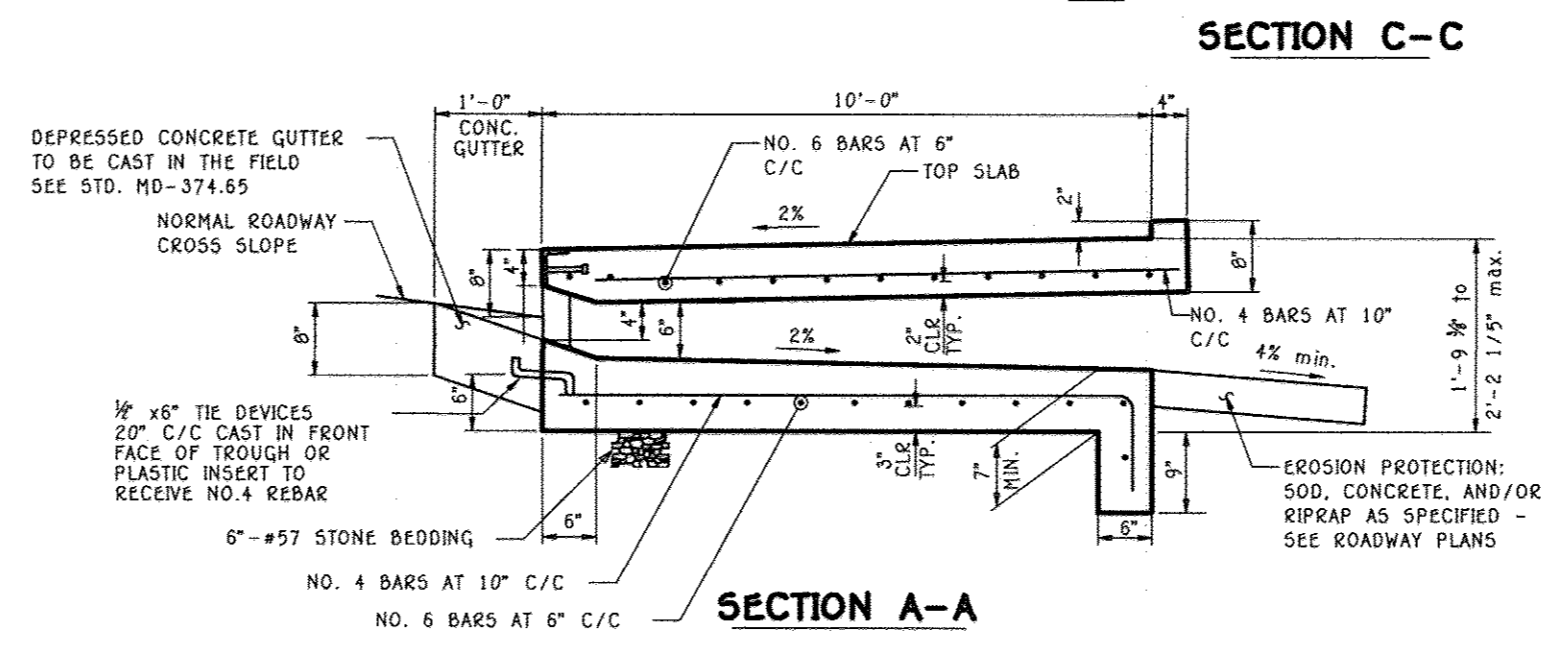
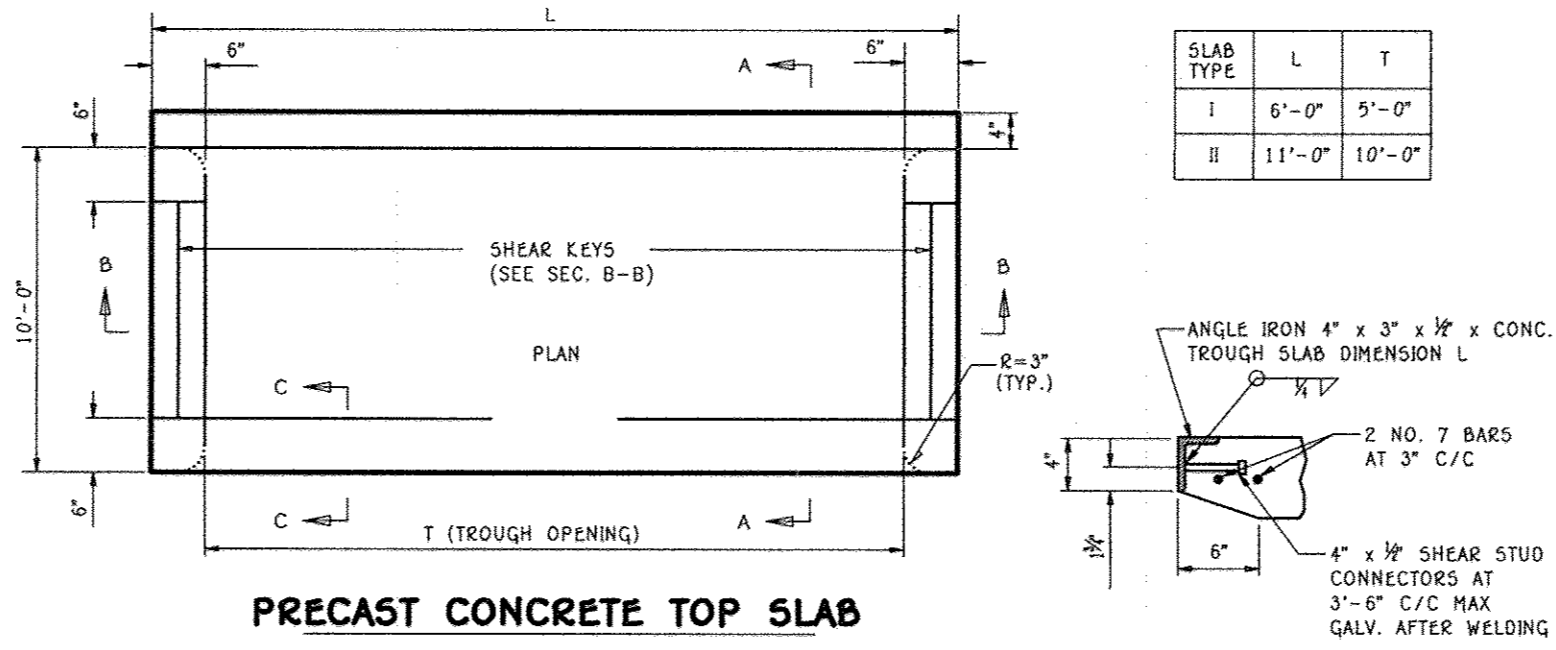


FACILITY NO.	A	B	C	D
BIO-RETENTION No. 3	368.87	366.85	364.85	8"
BIO-RETENTION No. 4	367.87	363.85	361.72	24"
BIO-RETENTION No. 5	363.67	361.47	359.67	8"
BIO-RETENTION No. 7	397.73	393.73	392.40	24"
BIO-RETENTION No. 8	349.00	348.00	345.00	8"



NOTE: PERFORATIONS SHOULD BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW.

**(FACILITY Nos. 3-5, 7-8)**  
**MICRO BIO-RETENTION (M-6) SECTION**  
NO SCALE



**PRECAST OR CAST IN PLACE COG/COS OPENING FOR 8" CURB 5' OR 10' ONLY**

**PLANT MATERIAL-BIO-RETENTION FILTER No. 3**

QUANTITY	NAME	MAXIMUM SPACING (FT.)
53	MIXED PERENNIALS	1 FT.
27	SHRUBS	2 FT.

**PLANT MATERIAL-BIO-RETENTION FILTER No. 4**

QUANTITY	NAME	MAXIMUM SPACING (FT.)
37	MIXED PERENNIALS	1 FT.
19	SHRUBS	2 FT.

**PLANT MATERIAL-BIO-RETENTION FILTER No. 5**

QUANTITY	NAME	MAXIMUM SPACING (FT.)
56	MIXED PERENNIALS	1 FT.
28	SHRUBS	2 FT.

**PLANT MATERIAL-BIO-RETENTION FILTER No. 7**

QUANTITY	NAME	MAXIMUM SPACING (FT.)
52	MIXED PERENNIALS	1 FT.
26	SHRUBS	2 FT.

**PLANT MATERIAL-BIO-RETENTION FILTER No. 8**

QUANTITY	NAME	MAXIMUM SPACING (FT.)
243	MIXED PERENNIALS	1 FT.
122	SHRUBS	2 FT.

NOTES:  
UNDERDRAIN PIPE SHALL BE 4" TO 6" DIAMETER SLOTTED OR PERFORATED RIGID PLASTIC PIPE (ASTM F750, TYPE P5 20 OR ASHTO-M-278) IN A GRAVEL LAYER. THE PREFERRED MATERIAL IS SLOTTED 4" RIGID PIPE (e.g., PVC OR HDPE).

PERFORATIONS SHALL BE 3/8" DIAMETER LOCATED 6" ON CENTER WITH A MINIMUM OF FOUR HOLES PER ROW. PIPE SHALL BE WRAPPED WITH A 1/4" (NO. 4 OR 4 x 4) GALVANIZED HARDWARE CLOTH.

GRAVEL LAYER SHALL BE (NO. 57 STONE PREFERRED) AT LEAST 3" THICK ABOVE AND BELOW THE UNDERDRAIN.

THE MAIN COLLECTOR PIPE SHALL BE AT A MINIMUM 0.5% SLOPE.

A RIGID, NON PERFORATED OBSERVATION WELL MUST BE PROVIDED (ONE PER EVERY 1,000 SQ.FT.) TO PROVIDE A CLEANOUT PORT AND MONITOR PERFORMANCE OF THE FILTER.

A 4" LAYER OF PEA GRAVEL (1/8" TO 3/8" STONE) SHALL BE LOCATED BETWEEN THE FILTER MEDIA AND UNDERDRAIN TO PREVENT MIGRATION OF FINES INTO THE UNDERDRAIN. THIS LAYER MAY BE CONSIDERED PART OF THE FILTER BED WHEN BED THICKNESS EXCEEDS 24".

By the Developer:  
I/We Certify That All Development And/Or Construction Will Be Done According To These Plans. And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project.

Signature of Developer: *Donald Reuter Jr.* Date: 9/3/14

By the Engineer:  
I Certify That This Plan For Bio-Retention Erosion And Sediment Control Represents A Practical And Feasible Design Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I, the Engineer, am a Licensed Professional Engineer, State of Maryland, License No. 22740, Expiration Date 2-22-15. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District.

Signature of Engineer: *Alfred M. Vitucci* Date: 2/1/14

By the Department of Public Works:  
These Plans For Bio-Retention Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.

Signature: *John P. Robertson* Date: 3/13/14

Approved: Department of Public Works  
Signature: *Miss T. ...* Date: 2-25-14

Approved: Department of Planning And Zoning  
Signature: *...* Date: 4/02/14

Signature: *...* Date: 3-24-14

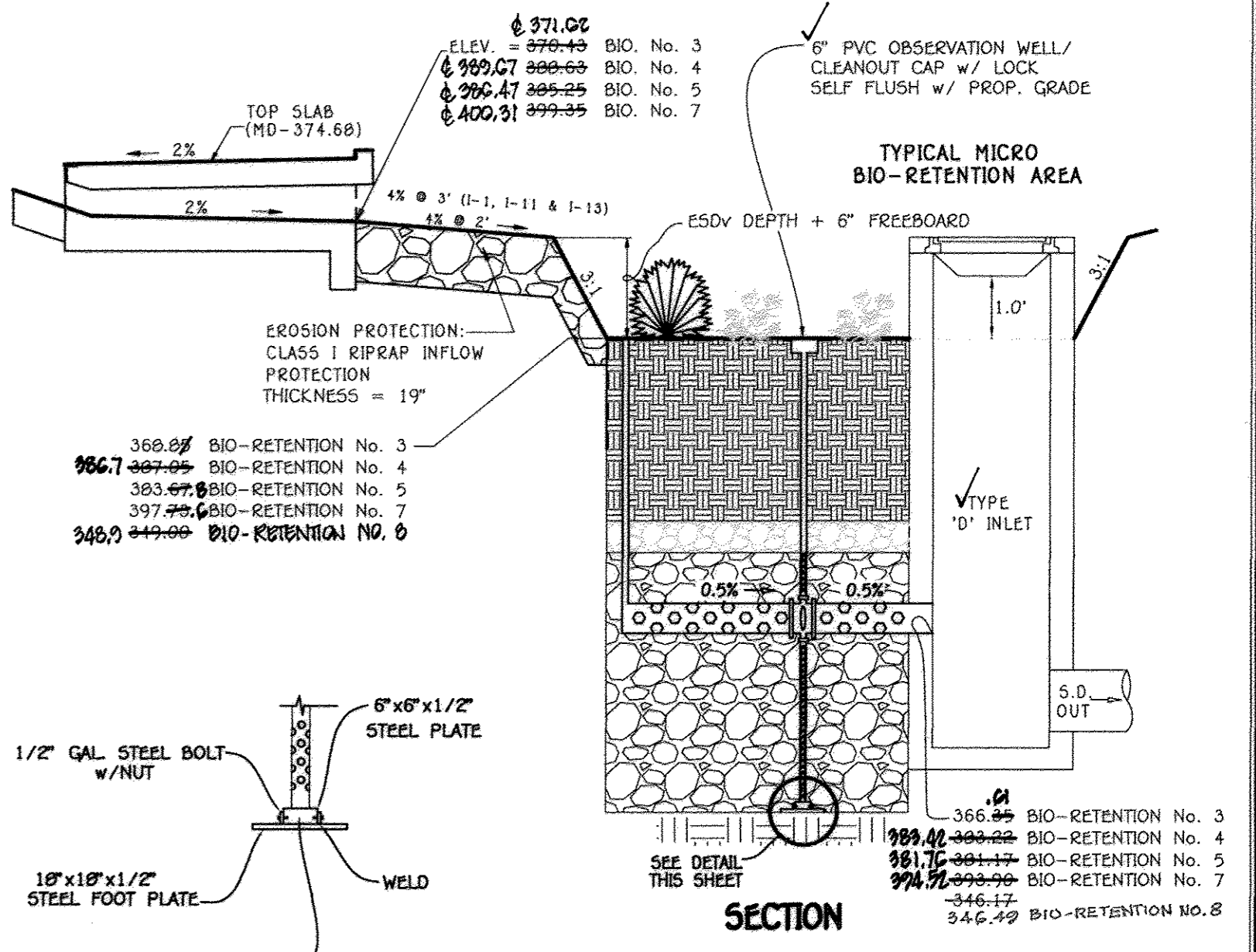
**AS-BUILT CERTIFICATION**

I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.

Signature: *...* Date: 6/12/15

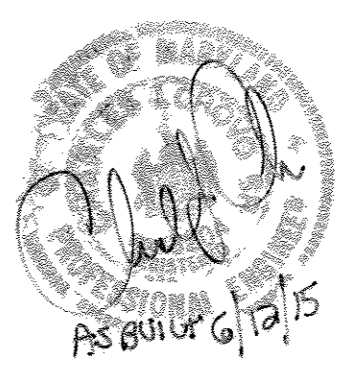
REVISIONS

NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE CENTER OF THE SECTION	2/3/14
2	REMOVED SHEET NO. 10 TO REFLECT MICRO-BIORETENTION	9/29/15



**AS-BUILT**

By: *...* Date: 9/3/17



**REVISED STORMWATER MANAGEMENT & STORM DRAIN DETAILS (FACILITY Nos. 3-5, 7-8)**

**CHERRY TREE VIEW**  
BUILDABLE LOTS 1 - 4 AND 14-20,  
OPEN SPACE LOTS 12 & 13

ZONING: R-20  
PREVIOUS FILE NO.: ECP-11-003, WP-11-065 & SP-11-001  
TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 95  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: FEBRUARY 3, 2014  
SHEET 7 OF 17



*Alfred M. Vitucci*  
ALDO M. VITUCCI, P.E.

Date: 2/1/14



**STRUCTURE SCHEDULE**

STRUCTURE NO.	TOP ELEVATION	INV. IN	INV. OUT	LOCATION	ROAD STA./COORDINATE	OFFSET	TYPE AND WIDTH	REMARKS
1-1	363.22			ORNDORFF WAY	L.P. 1+50.00		COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-2	361.41	357.60(4)	355.00	ORNDORFF WAY	L.P. 1+10.00		TYPE 'D' INLET	D = 4.10
1-3	363.22			ORNDORFF WAY	L.P. 1+06.70		COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-4 **	376.77	370.41(4) / 367.33	365.21	ORNDORFF WAY	4+00+72.10	30.5' ✓	TYPE 'D' INLET	D = 4.10
1-5	371.66			ORNDORFF WAY	4+06+34.30	48'21.00	COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-6	369.21	366.28(6)	365.50	ORNDORFF WAY	4+00+34.10	30.5' ✓	TYPE 'D' INLET	D = 4.10
1-7	369.21			ORNDORFF WAY	1+97.30	48'11.00	COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-8	388.05	387.19(6)	386.21	ORNDORFF WAY	2+00+48.67	30.5' ✓	TYPE 'D' INLET	D = 4.10
1-9	386.44		385.34	ORNDORFF WAY	2+33+1.67	12'2"	COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-10	384.67	381.04(4)	380.32	ORNDORFF WAY	2+44+9.49	30.5' ✓	TYPE 'D' INLET	D = 4.10
1-11	363.22			ORNDORFF WAY	L.P. 1+10.00		COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-12 **	364.40	355.21	355.50	ORNDORFF WAY	L.P. 1+42.00	32'11.74	TYPE 'D' INLET	D = 4.10
1-13	400.22	395.21	394.51	OLD SCAGGSVILLE ROAD	-0+51.07	44'12.16	COQ/COS OPENING	MD = 374.68 SUB TYP. 1
1-14	398.22	394.72	393.90(6)	ORNDORFF WAY	0+6+50.00	30.5' ✓	TYPE 'D' INLET	D = 4.10
1-15	388.05	387.61	386.97	ORNDORFF WAY	1+97.30	54.17	TYPE 'A'-5' INLET	D = 4.10
M-1	363.22	355.21	355.21	ORNDORFF WAY	L.P. 1+09+74.00	48'11.00	4" DIA. MANHOLE	G = 5.12
M-2	369.21	364.00	364.00	ORNDORFF WAY	4+49+10.00	48'11.00	4" DIA. MANHOLE	G = 5.12
M-3	374.66	370.20	368.00	ORNDORFF WAY	3+50+66.70	48'11.00	4" DIA. MANHOLE	G = 5.12
M-4	384.20	379.21	379.21	ORNDORFF WAY	2+54+27.60	15'11.70	4" DIA. MANHOLE	G = 5.12
M-5	393.60	389.49	389.49	N 537.469	0.00 E 1,343.57	G.15	4" DIA. MANHOLE	G = 5.12
S-1	357.00	355.00		N 537.117	E 1,343.14	0.07	BLANKET END SECTION	D = 5.51
S-2	350.17	348.90		N 537.304	E 1,342.94	0.06	BLANKET END SECTION	D = 5.51
S-3	389.47	388.22		N 537.440	E 1,343.49	0.50	BLANKET END SECTION	D = 5.51

NOTE: TOP ELEVATION OF COQ/COS OPENING IS AT 12" OFFSET FROM CENTERLINE ON ORNDORFF WAY  
 \* - DENOTES THROAT ELEVATION  
 NOTE: SEE SHEET 7 FOR COQ/COS OPENING DETAIL FOR SLAB TYPES  
 \*\* - DENOTES 'D' INLET CONVERTED TO JUNCTION BOX

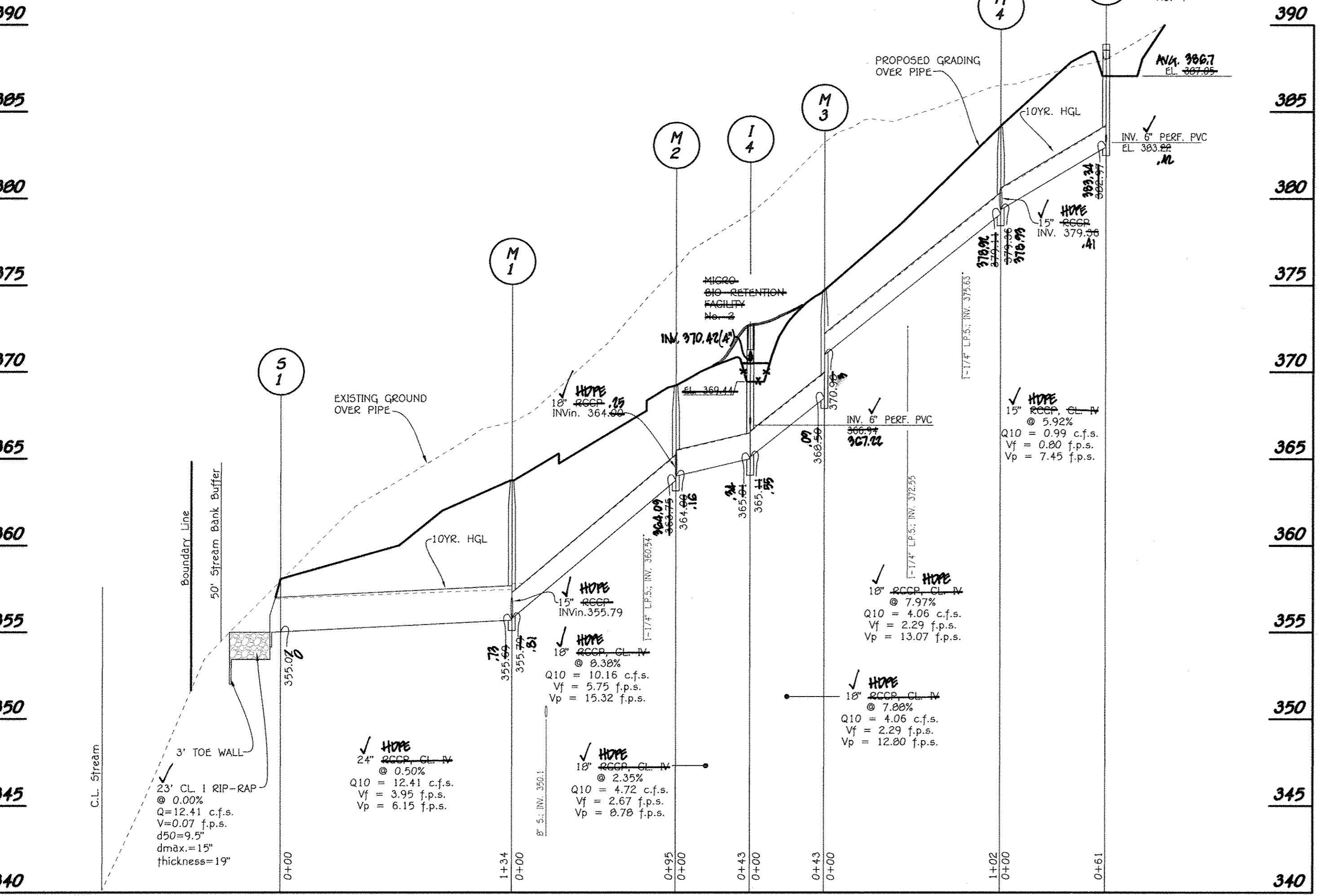
**PIPE SCHEDULE**

SIZE	CLASS	LENGTH
15"	HOPE	415 L.F.
18"	HOPE	345 L.F.
24"	HOPE	134 L.F.
6"	PERFORATED PVC	132 L.F.
12"	HOPE	43 L.F.

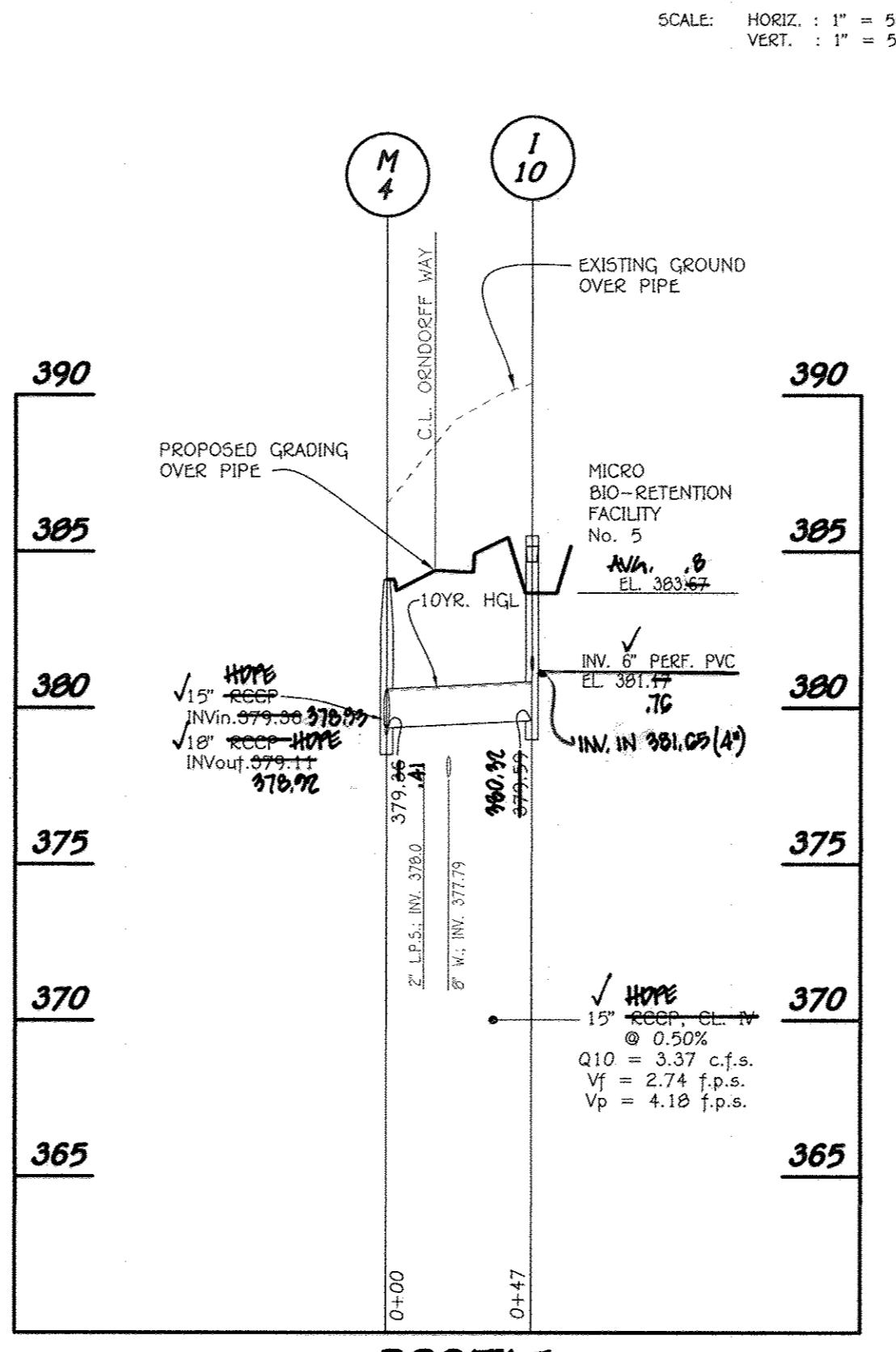
**RIP-RAP CHANNEL DESIGN DATA**

STRUCTURE	AREA (S.F.)	WETTED PERIMETER	R	R 2/3	S	S 1/2	W	d	n	V (f.p.s.)	Q (c.f.s.)	RIP-RAP SIZE D <sub>50</sub>	BLANKET THICKNESS	PIPE SIZE	LA
S-1	0.1470	12.37	1.7103	1.4301	0.005	0.0707	6.0'	2.85'	0.04	0.07	12.41	9.5"	15"	19"	23'
S-3	10.0	6.28	1.592	1.366	0.005	0.0707	4.0'	1.02'	0.04	0.21	0.96	9.5"	15"	19"	20'

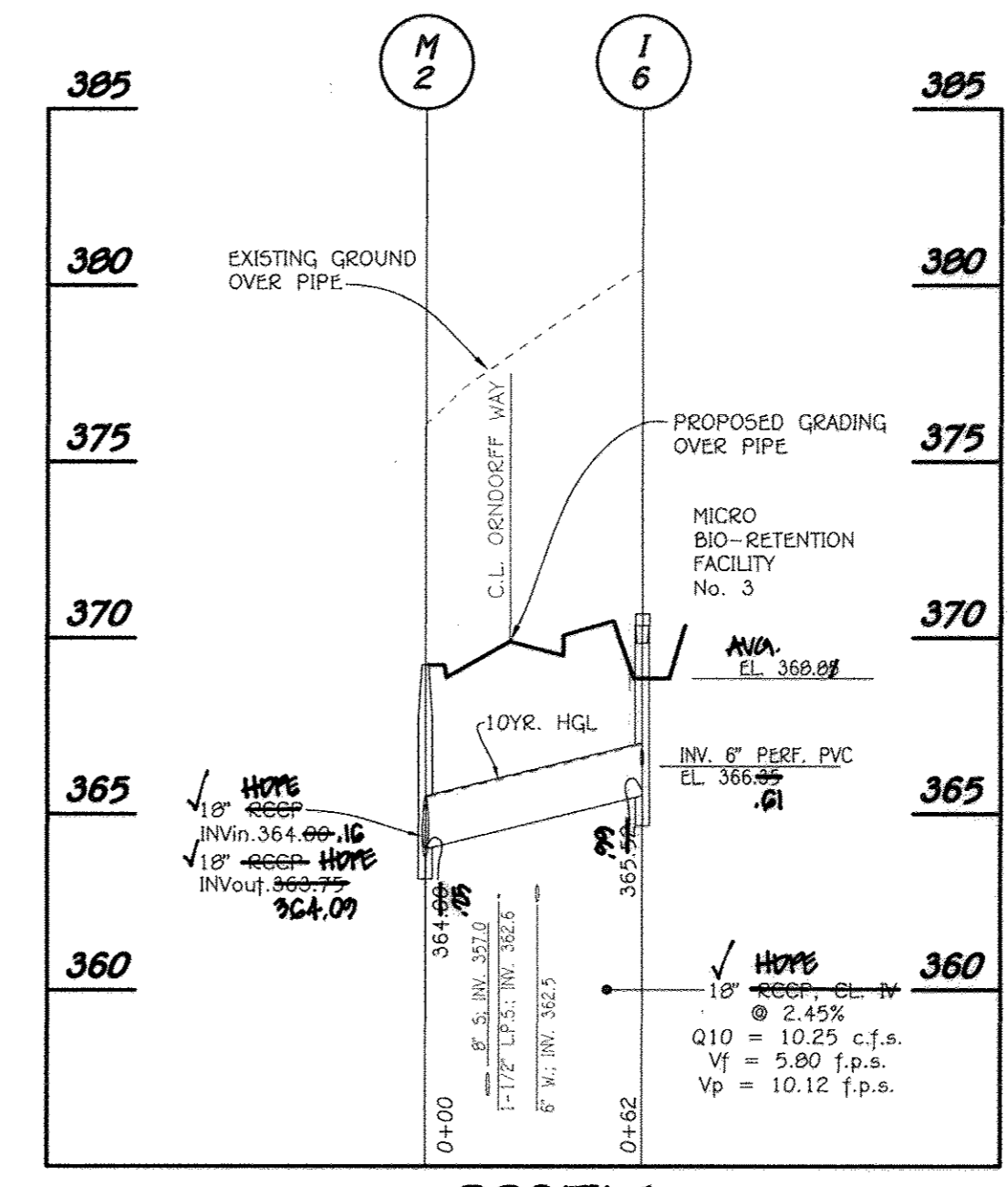
NOTE: RCCP, CL. IV MAY BE SUBSTITUTED WITH HOPE PIPE MATERIAL.



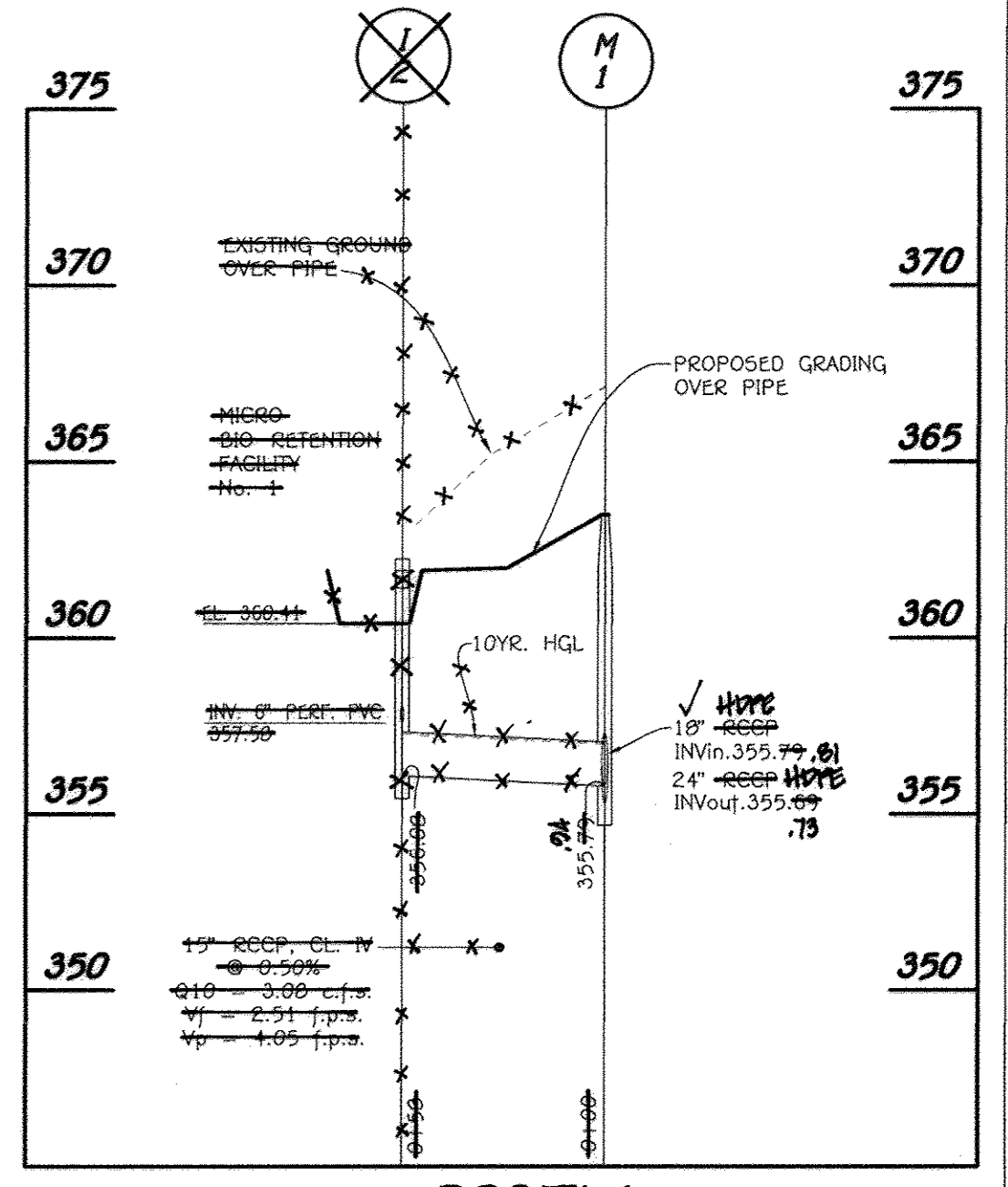
**PROFILE**  
 SCALE: HORIZ. : 1" = 50'  
 VERT. : 1" = 5'



**PROFILE**  
 SCALE: HORIZ. : 1" = 50'  
 VERT. : 1" = 5'



**PROFILE**  
 SCALE: HORIZ. : 1" = 50'  
 VERT. : 1" = 5'



**PROFILE**  
 SCALE: HORIZ. : 1" = 50'  
 VERT. : 1" = 5'

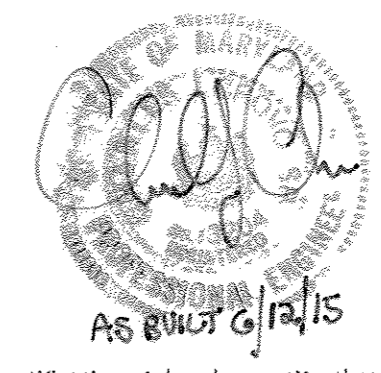
**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 11022 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895

**OWNER**  
 MR. & MRS. HILEY A. ORNDORFF  
 10909 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20723  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422

**DEVELOPER**  
 FAL DEVELOPERS, L.L.C.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELLICOTT CITY, MARYLAND 21042  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422

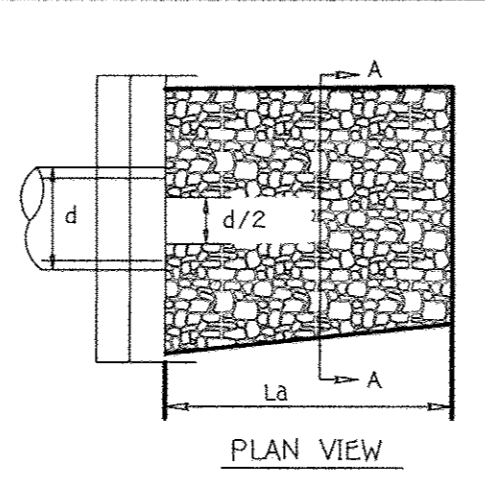


ALDO M. VITUCCI, P.E.  
 DATE: 2/14/15



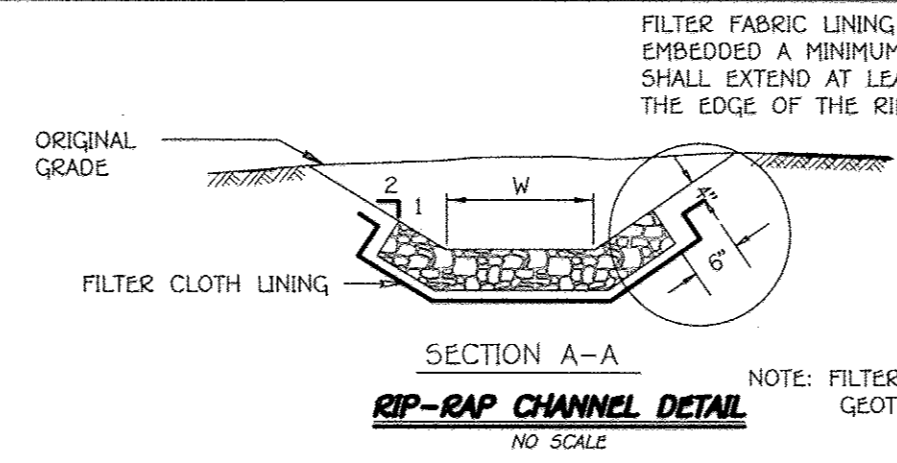
**REVISED STORM DRAIN PROFILES**  
**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1 - 4, AND 14-20  
 OPEN SPACE LOTS 12 & 13  
 ZONING: R-20  
 PREVIOUS FILE No.: ECP-11-003, WP-11-065 & SP-11-001  
 TAX MAP No. 46 GRID No. 11 PARCEL No. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: FEBRUARY 3, 2014  
 SHEET 9 OF 17

AS-BUILT F-11-065

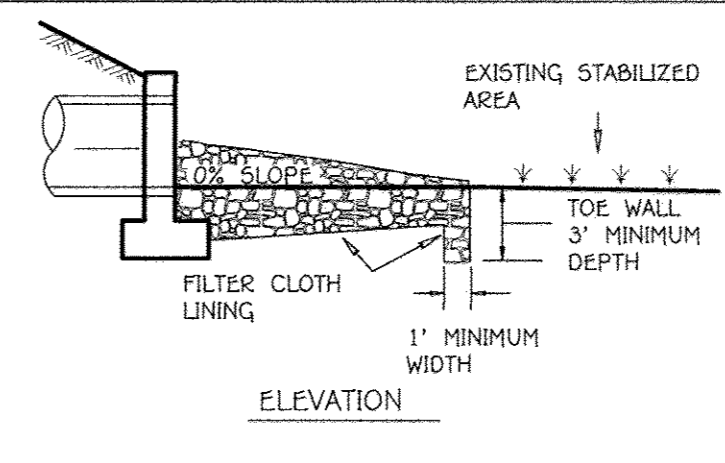


**CONSTRUCTION SPECIFICATIONS FOR RIP-RAP OUTFALLS**

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



**RIP-RAP CHANNEL DETAIL**  
 NO SCALE



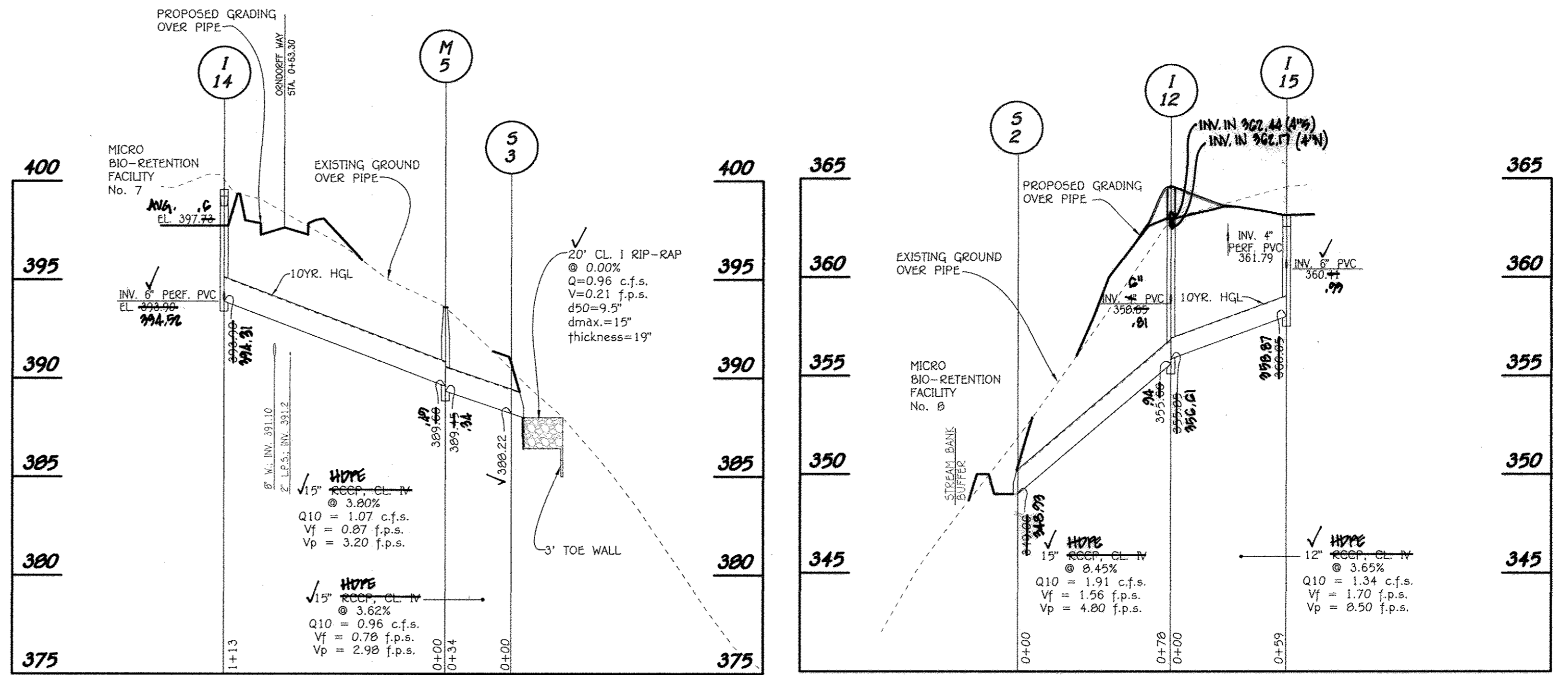
**ELEVATION**

APPROVED: DEPARTMENT OF PUBLIC WORKS  
 DATE: 7-25-14  
 CHIEF, BUREAU OF HIGHWAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 DATE: 4/20/14  
 CHIEF, DIVISION OF LAND DEVELOPMENT

APPROVED: DEPARTMENT OF ENGINEERING  
 DATE: 3-28-14  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE SEAK OF LOT 15	2/3/14
2	REMOVED SHEET NO. 10 REAR OF ADDD SHEETS	9/20/15



**PROFILE**  
 SCALE: HORIZ. : 1" = 50'  
 VERT. : 1" = 5'

**AS-BUILT**

By: [Signature] Date: 8/3/17



**SOIL STABILIZATION AND SPECIFICATIONS FOR VEGETATION ESTABLISHMENT**

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

**VEGETATION ESTABLISHMENT**

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

**CONITIONS WHERE PRACTICE APPLIES**

This practice shall be used on denuded areas as specified on the plans and may be used on highly erodible or critically eroding areas. This specification is divided into Temporary Seeding, Quick Establishment Vegetative cover for short duration (up to one year), and Permanent Seeding, for long term vegetative cover. Examples of applicable areas for Temporary Seeding are temporary Soil Stockpiles, cleared areas being left between construction phases, earth dikes, etc. and for Permanent Seeding are lawns, dunes, cut and fill slopes and areas of final grade, former embankment and retaining areas, etc.

**EFFECTS ON WATER QUALITY AND QUANTITY**

Planting vegetation in disturbed areas will have an effect on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, percolation, and groundwater recharge. Vegetation, over time, will increase organic matter content and improve the water holding capacity of the soil and subsequent plant growth. Vegetation will help reduce the movement of sediment, nutrients and other chemicals carried by runoff to receiving waters. Plants will also help protect groundwater supplies by assimilating those substances present within the root zone. Sediment control devices must remain in place during grading, seeding, preparation, seeding, mulching and vegetative establishment to prevent large quantities of sediment and associated materials from washing into surface waters.

**SECTION 2 - TEMPORARY SEEDING**

Vegetation - Annual grasses or grain used to provide cover on disturbed areas for up to 12 months. For longer duration of vegetative cover, Permanent Seeding is required.

A. Seed mixtures - Temporary Seeding

- Select one or more of the species or mixtures listed in Table 26 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in the Temporary Seeding Summary below, along with application rates, seeding dates and seeding depths. If this summary is not put on the plans and completed, then Table 26 must be put on the plans.
- For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the testing agency shall be written in. Soil tests are not required for Temporary Seeding.

No.	Species	Seed Mixture (Hardness Zone - 6b)		Seeding Dates	Seeding Depth	Fertilizer Rate (10-10-10)	Lime Rate
		Application Rate (lb./ac)	From Table 26				
1	BARLEY	122		3/1 - 5/15	1" - 2"	600 lb./ac	2 tons/ac
	OATS	96		8/15 - 10/15	1" - 2"	150 lb./1000sq ft	(100 lb./1000sq ft)
	RYS	140			1" - 2"		

**SECTION 3 - PERMANENT SEEDING**

Seeding grasses and legumes to establish ground cover for a minimum of one year on disturbed areas generally receiving low maintenance.

A. Seed mixtures - Permanent Seeding

- Select one or more of the species or mixtures listed in Table 25 for the appropriate Plant Hardness Zone (from Figure 5) and enter them in the Permanent Seeding Summary below, along with application rates and seeding dates. Seeding depths can be estimated using Table 26. If this summary is not put on the construction plans and completed, then Table 25 must be put on the plans. Additional planting specifications for exceptional sites such as shorelines, streambanks, or dunes or for special purposes such as wildlife or aesthetic treatment may be found in USDA-SCS Technical Field Office Guide, Section 342 - Critical Area Planning. For special lawn maintenance areas, see Sections V Soil and V Turfgrass.
- For sites having soil tests performed, the rates shown on this table shall be deleted and the rates recommended by the soil testing agency shall be written in.
- For areas receiving low maintenance, apply uniform fertilizer (16-0-0) at 3 1/2 lbs/1000 sq. ft. (150 lbs./ac), in addition to the above soil amendments shown in the table below, to be performed at the time of seeding.

No.	Species	Seed Mixture (Hardness Zone - 6b)		Seeding Dates	Seeding Depth	Fertilizer Rate (10-20-20)	Lime Rate
		Application Rate (lb./ac)	From Table 25				
1	TALL FESCUE (60%)	175		3/1 - 5/15	1" - 2"	90 lb./ac	175 lb./ac
3	PERENNIAL RYE GRASS (10%)	15		8/15 - 10/15	1" - 2"	150 lb./ac	150 lb./ac
	KENTUCKY BLUEGRASS (95%)	10		3/1 - 5/15	1" - 2"	150 lb./ac	150 lb./ac
10	HARD FESCUE (20%)	30		8/15 - 10/15	1" - 2"	150 lb./ac	150 lb./ac

1. Soil pH shall be between 6.0 and 7.0.

2. Soluble salts shall be less than 500 parts per million (ppm).

3. The soil shall contain less than 40% clay, but enough fine grained material (>50% all pass) to provide adequate water holding capacity and moderate amount of moisture. An exception is if legumes or serotinous species are to be planted, then a sandy soil (<30% silt) shall be acceptable.

4. Soil shall contain 1.5% minimum organic matter by weight.

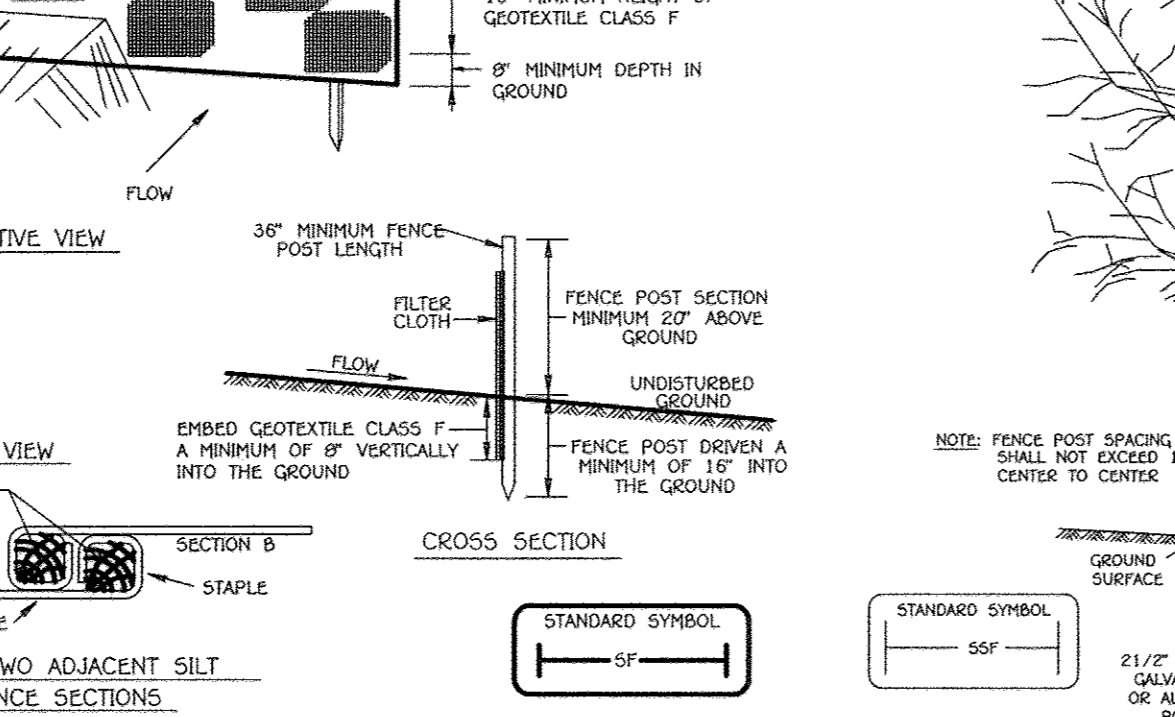
5. Soil must contain sufficient pore space to permit adequate root penetration.

6. If these conditions cannot be met by soil on site, adding topsoil is required in accordance with Section 21 Standard and Specifications for Earthwork.

B. Areas previously graded in conformance with the drawings shall be maintained in a true and even grade, then scarified or otherwise loosened to a depth of 3-5" to permit bonding of the topsoil to the surface area and to create horizontal surface to prevent topsoil from sliding down a slope.

C. Apply soil amendments as per soil test or as included on the plans.

D. Mix soil amendments into the top 3-5" of soil by disking or other suitable means. Lawn areas should be rolled to smooth the surface, remove large objects like stones and branches, and ready the area for seed and application, where site conditions will not permit normal seeded preparation, loosen surface soil by dragging with heavy chain or other equipment to roughen the surface. Step slopes (steeper than 3:1) should be tracked by a dozer leaving the soil in an irregular condition with vertical cutting parallel to the contour of the slope. The top 1-3" of soil should be loose and friable. Seeded loosening may not be necessary on newly disturbed areas.



**Construction Specifications**

- Fence posts shall be a minimum of 3/8" long driven 16" minimum into the ground. Wood posts shall be 1 1/2" x 1 1/2" square (minimum) cut, or 1 1/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard 1" or 1 1/4" fence weighing not less than 1.00 pound per linear foot.
- Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and meet the following requirements for geotextile Class F.
- Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass.
- Silt Fence Design Criteria

Slope Steepness	(Maximum) Slope Length	(Maximum) Silt Fence Length
Flatter than 50:1	unlimited	unlimited
50:1 to 10:1	125 feet	1,000 feet
10:1 to 5:1	100 feet	750 feet
5:1 to 3:1	60 feet	500 feet
3:1 to 2:1	40 feet	250 feet
2:1 and steeper	20 feet	125 feet

Note: In areas of less than 2:1 slope and sandy soils (USDA general classification system, soil Class A) maximum slope length and silt fence length will be unlimited. In these areas a silt fence may be the only perimeter control required.

**SILT FENCE**

NOT TO SCALE

SLOPE	SLOPE STEEPNESS	SLOPE LENGTH (MAXIMUM)	SILT FENCE LENGTH (MAXIMUM)
0 - 15%	0 - 10:1	UNLIMITED	UNLIMITED
15 - 20%	10:1 - 5:1	200 FEET	1,000 FEET
20 - 33%	5:1 - 3:1	100 FEET	750 FEET
33 - 50%	3:1 - 2:1	60 FEET	500 FEET
50% +	2:1 - 1:1	40 FEET	250 FEET

**SUPER SILT FENCE TREE PROTECTION FENCE**

NOT TO SCALE

1. Fencing shall be 42" in height and constructed in accordance with the latest Maryland State Highway Department Standard Specifications for Construction and Maintenance, Section 313 as modified. The specification for a 4" fence shall be used, substituting 42" fences and 6" length posts.

2. Chain link fence shall be fastened securely to the fence posts with wire ties. The lowest tension wire, back and inside rods, gate anchors and top caps are not required except on the ends of the fence.

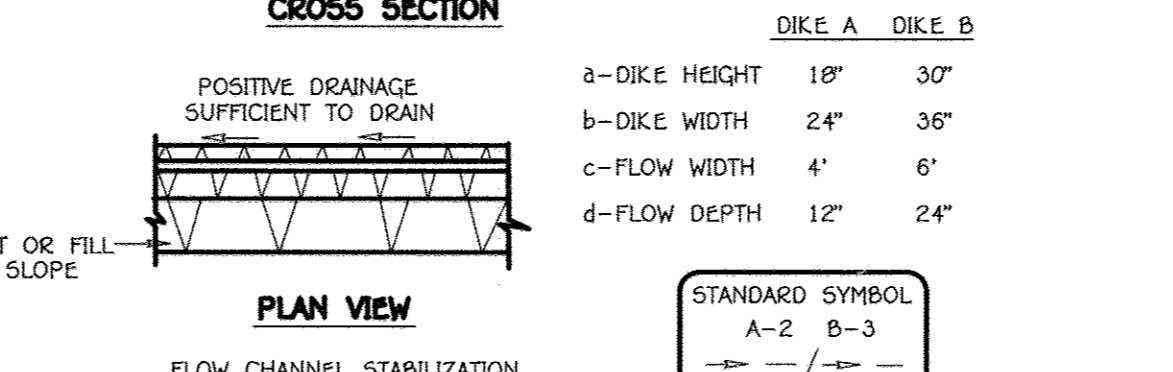
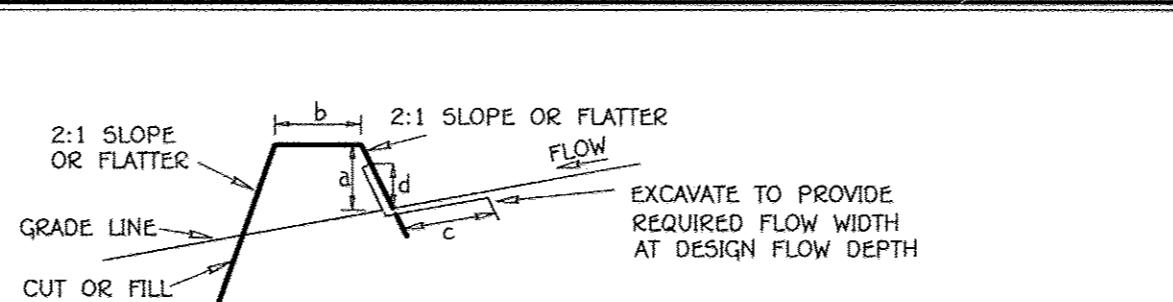
3. SPACING: SPACING SHALL BE 10 FEET AND 10 FEET SPACING.

4. FENCE CLOSURE SHALL BE MAINTAINED A MINIMUM OF 6" FROM THE GROUND.

5. WHERE TWO SECTIONS OF FENCE CLOSURE EACH OTHER, THEY SHALL BE INTERLOCKED BY 6" OVER LAP.

6. MAINTENANCE SHALL BE PERFORMED AS NECESSARY AND SELF-BUILDUP PROVIDED WHEN "BAGGIE" DEVELOPS IN THE SILT FENCE, OR WHEN SILT REACHES 50% OF FENCE HEIGHT.

7. FENCE CLOSURE SHALL BE MAINTAINED ACCORDING TO EACH FENCE POST WITH WIRE TIES.



**CONSTRUCTION SPECIFICATIONS**

- Seed and cover with straw mulch.
- Seed and cover with Erosion Control Matting or line with sod. 3" - 7" stone or recycled concrete equivalent pressed into the soil 7" minimum.

Construction Specifications

- All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1:1.
- Runoff diverted from a disturbed area shall be conveyed to a sediment trapping device.
- Runoff diverted from an undisturbed area shall outlet directly into an undisturbed, stabilized area at a non-erosive velocity.
- All trees, brush, stumps, obstructions, and other objectionable material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
- The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
- Fill shall be compacted by earth moving equipment.
- All earth removed and not needed for construction shall be placed so that it will not interfere with the functioning of the dike.
- Inspection and maintenance must be provided periodically and after each rain event.

**EARTH DIKE**

NOT TO SCALE

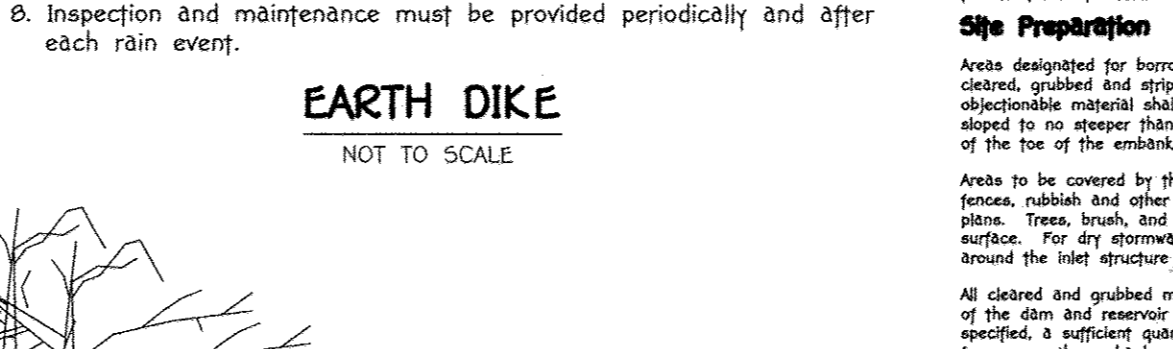
These specifications are appropriate to all ponds within the scope of the Standard for Section 313-319. All references to ASTM and AASHTO specifications apply to the most recent version.

**Site Preparation**

Areas designated for borrow areas, embankment, and structural works shall be cleared, graded and stripped of topsoil. All trees, vegetation, rocks and other objectionable material shall be removed. Channel banks and abutment breaks shall be cleared to no deeper than 1:1. All trees shall be cleared and grubbed within 15 feet of the toe of the embankment.

Areas to be covered by the reservoir will be cleared of all trees, brush, logs, stumps, rubbish and other objectionable material unless otherwise specified on the plans. Trees, brush, and stumps shall be cut approximately level with the ground surface and cuttings shall be disposed in a suitable location for disposal.

All cleared and grubbed material shall be disposed of outside and below the limits of the dike and reservoir as directed by the owner or representative. When specified in a contract, the material shall be disposed in a suitable location for use on the embankment and other designated areas.

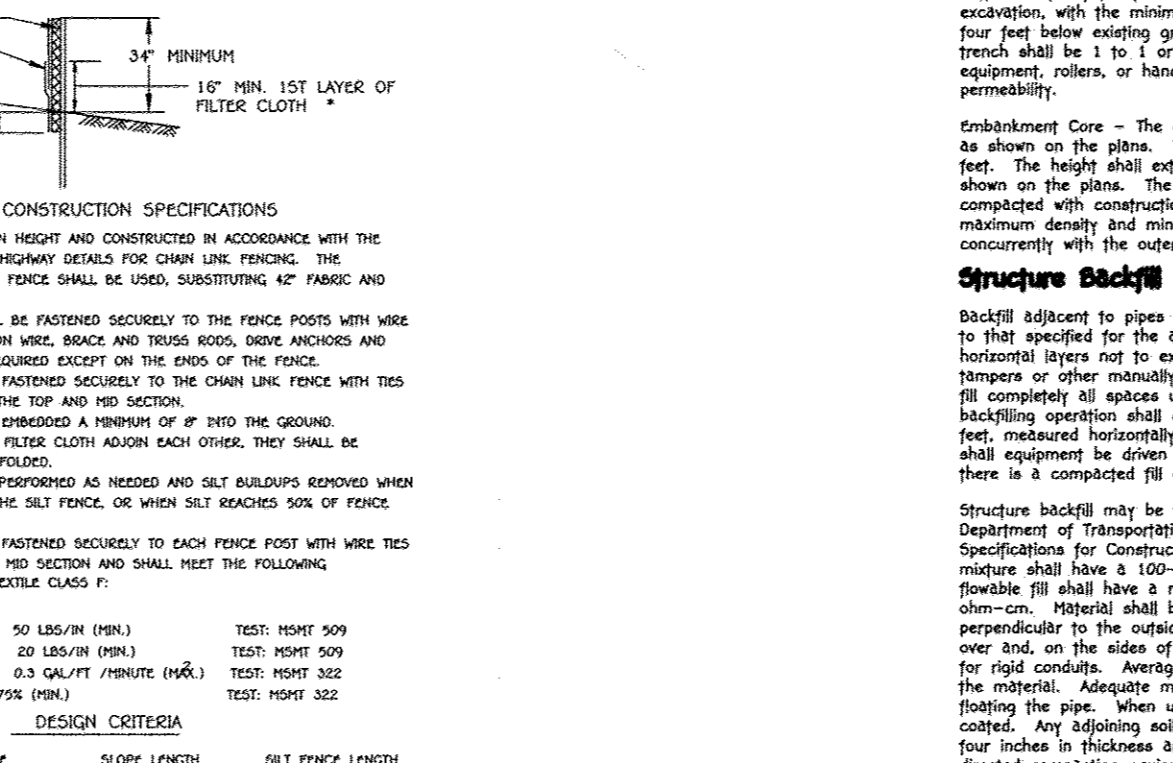


**STABILIZED CONSTRUCTION ENTRANCE**

CONSTRUCTION SPECIFICATION

- LENGTH - MINIMUM OF 50' (30' FOR SINGLE RESIDENCE LOT).
- WIDTH - 10' MINIMUM, SHOULD BE PLACED AT THE EXISTING ROAD TO PROVIDE A TURNING RADIUS.
- CONCRETE FIBER FILLED CLOTH SHALL BE PLACED OVER THE EXISTING GROUND PRIOR TO PLACING STONE - THE PLAN APPROVAL AUTHORITY MAY NOT REQUIRE SINGLE RESIDENCES TO USE STONE.
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All connections shall use a rubber or neoprene gasket when joining pipe sections. The end of each pipe shall be re-rolled to adequate number of convolutions to accommodate the humpback. The following pipe connections are acceptable for pipe less than 24-inches in diameter on both ends of the pipe with a circular 3/8" thick closed neoprene gasket, prepared to the flange bolt circle, sandwiched between adjacent flanges, a 12-inch wide exterior pipe tie band with 12-inch wide rubber or neoprene gasket on both ends of the pipe with a 12-inch wide hanger tie band with 6-inch gaskets having a minimum diameter of 1/2-inch extra over the diameter of the pipe and a 12-inch wide exterior pipe tie band with 12-inch wide rubber or neoprene gasket on both ends of the pipe shall be connected by a 24-inch long annular corrugated band with a minimum of 4 (four) rods and nuts and washers. A 24-inch wide exterior pipe tie band with 12-inch wide rubber or neoprene gasket shall be installed with 12-inches on the end of each pipe. The 24-inch wide exterior pipe tie band shall be installed with 12-inches on the end of each pipe. The 24-inch wide exterior pipe tie band shall be installed with 12-inches on the end of each pipe. The 24-inch wide exterior pipe tie band shall be installed with 12-inches on the end of each pipe.



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**PIPE CONDUITS**

All pipes shall be circular in cross section.

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

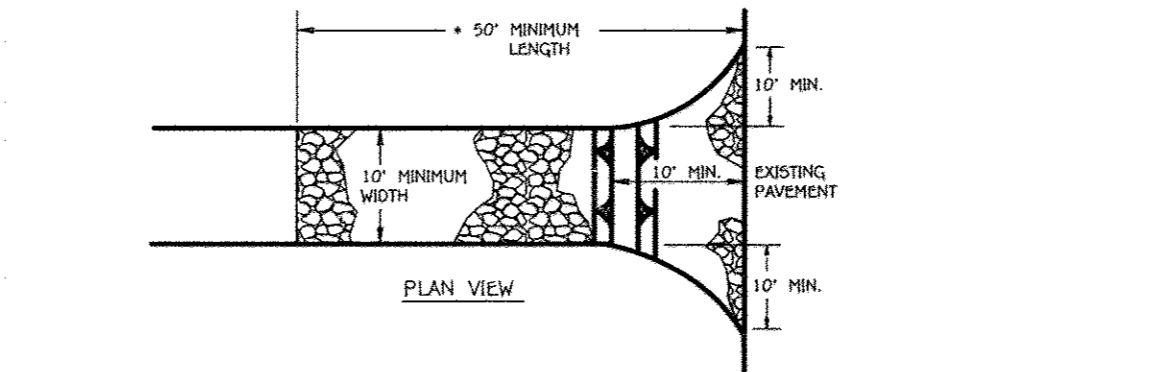
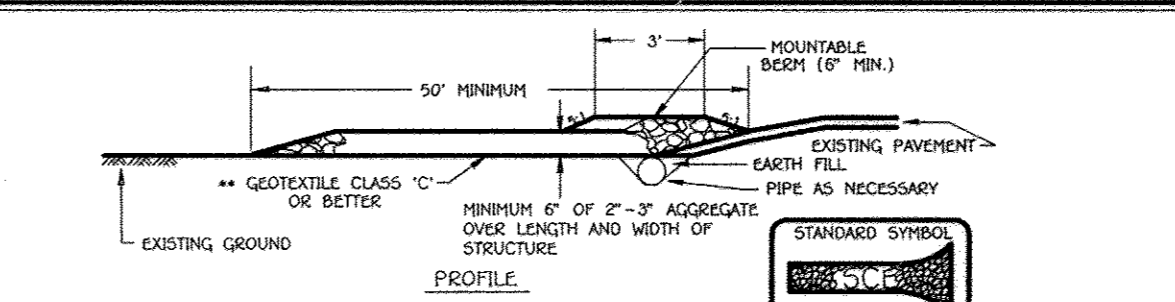
- Material - Polymer Coated Steel Pipe - Steel pipes with polymeric coating shall have a minimum coating thickness of 0.01 inch (10 mil) on both sides of the pipe. The coating shall be applied in accordance with the requirements of AASHTO Specification M-245 & M-246 with wetting coating bands or flanges.
- Material - Aluminum Coated Steel Pipe - This pipe and its appurtenances shall conform to the requirements of AASHTO Specification M-245 & M-246 with wetting coating bands or flanges. Aluminum Coated Steel Pipe, when used with flexible fill, shall be fully bituminous coated per requirements of AASHTO Specification M-130 Type A. All aluminum coating damaged or otherwise removed shall be replaced with a compatible material. Aluminum coating shall be applied to the interior and exterior surfaces of the pipe. Aluminum coating shall be applied to the interior and exterior surfaces of the pipe. Aluminum coating shall be applied to the interior and exterior surfaces of the pipe.
- Coupling bands, anti-seep collars, and sections, etc., must be composed of the same material and construction as the pipe. Neets must be installed from diameter materials with use of rubber plastic drainage at least 24 inches in thickness.

**OWNER**

MR. & MRS. HILEY A. ORNDORFF  
10909 SCAGGSVILLE DRIVE, SUITE 102  
LAUREL, MARYLAND 20723  
ATTN: MR. DONALD R. KEUWER, JR.  
443-367-0422

**DEVELOPER**

PAL DEVELOPERS, L.L.C.  
5300 DORSEY HALL DRIVE, SUITE 102  
ELLCOTT CITY, MARYLAND 21042  
ATTN: MR. DONALD R. KEUWER, JR.  
443-367-0422



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**ENGINEER'S CERTIFICATE**

I hereby certify that the Plan For Erosion And Sediment Control...  
Signature: [Signature]  
Date: 6/9/11

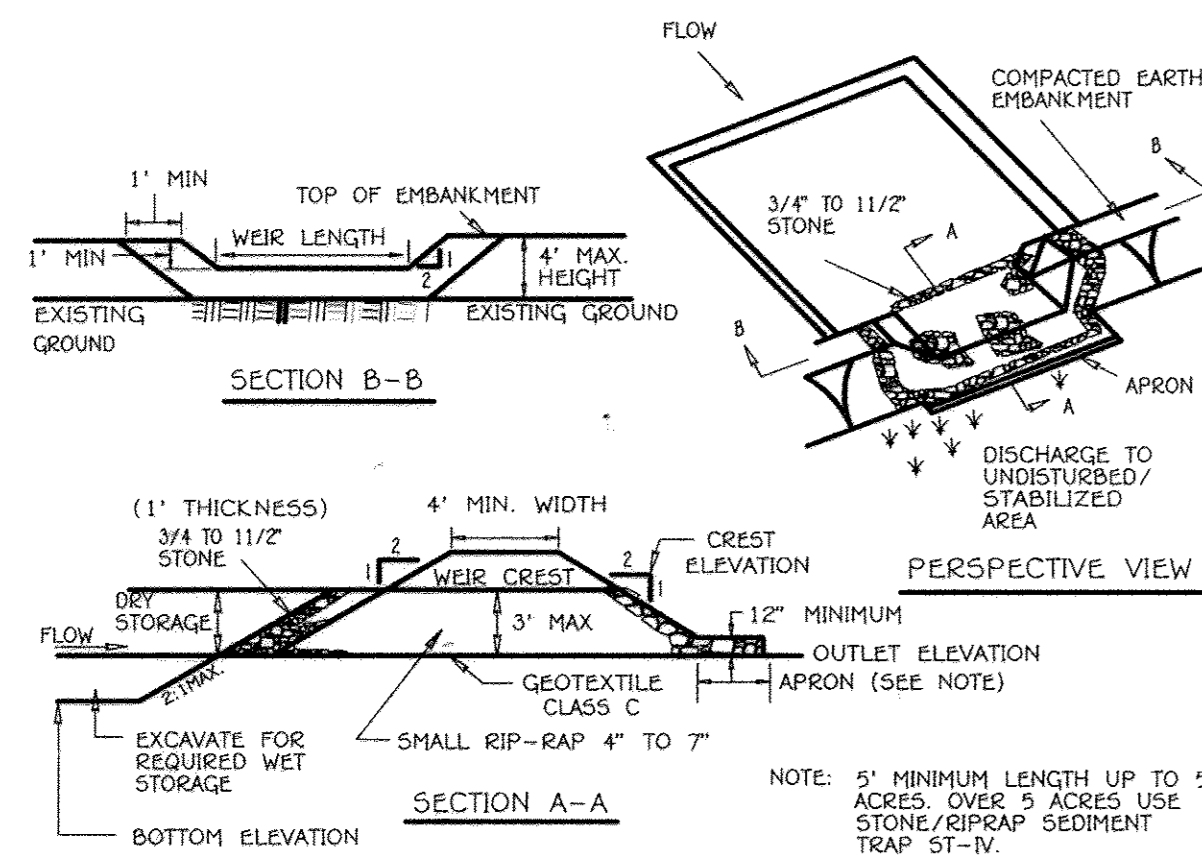
**DEVELOPER'S CERTIFICATE**

I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources 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 Or Their Authorized Agents, As Are Deemed Necessary.  
Signature of Developer: [Signature]  
Date: 6/3/2011

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.  
Signature: [Signature]  
Date: 6/28/11

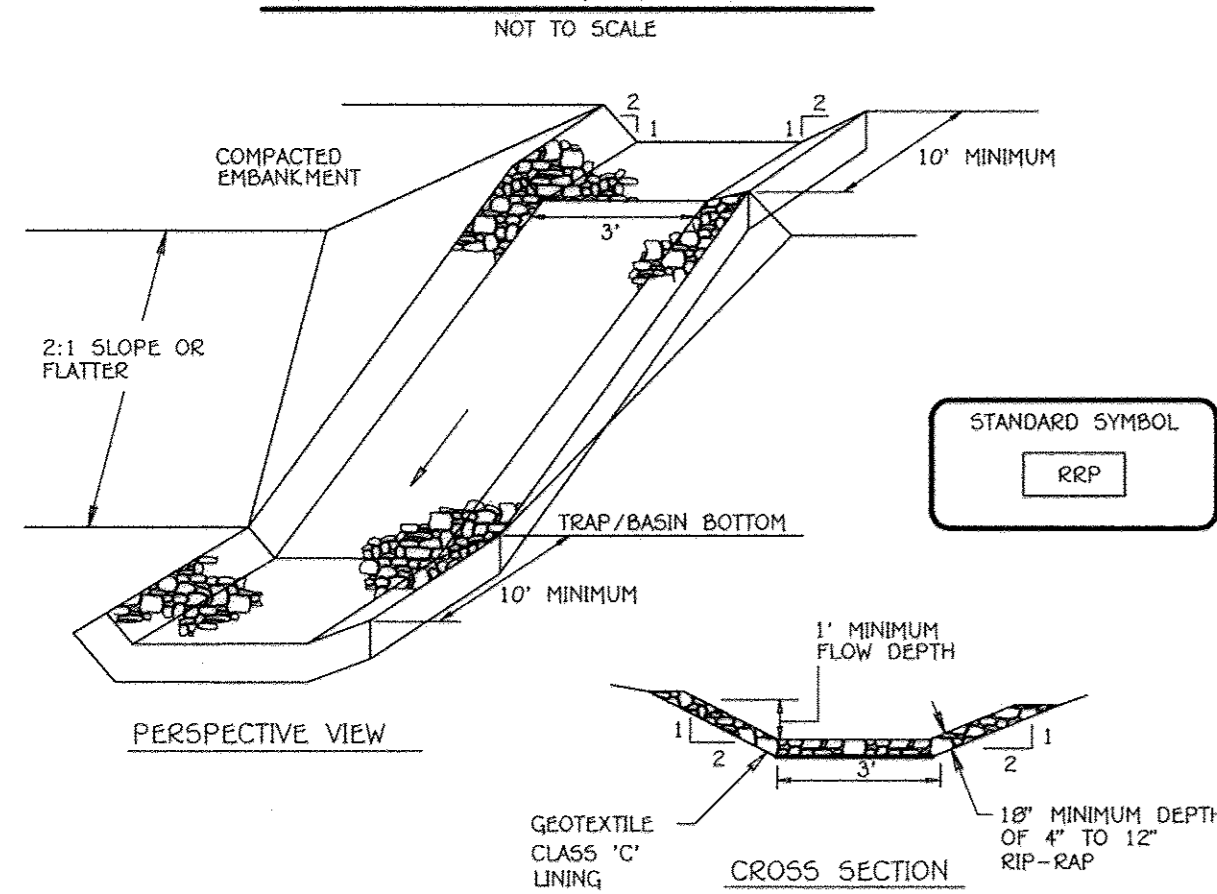


**STONE OUTLET SEDIMENT TRAP - ST II**



- Construction Specifications**
- Area under embankment shall be cleared, grubbed and stripped of any vegetation and root mat. The pool area shall be cleared.
  - The fill material for the embankment shall be free of roots and other woody vegetation as well as over-sized stones, rocks, organic material or other objectionable material. The embankment shall be compacted by traversing with equipment while it is being constructed.
  - All cut and fill slopes shall be 2:1 or flatter.
  - The stone used in the outlet shall be small rip-rap 4" to 7" in size with a 1" thick layer of 3/4" to 1 1/2" washed aggregate placed on the upstream face of the outlet. Stone facing shall be as necessary to prevent clogging. Geotextile Class C may be substituted for the stone facing by placing it on the inside face of the stone outlet.
  - Sediment shall be removed and trap restored to its original dimensions when the sediment has accumulated to one half of the wet storage depth of the trap. Removed sediment shall be deposited in a suitable area and in such a manner that it will not erode.
  - The structure shall be inspected periodically and after each rain and repairs made as needed.
  - Construction of traps shall be carried out in such a manner that sediment pollution is abated. Once constructed, the top and outside face of the embankment shall be stabilized with seed and mulch. Points of concentration inflow shall be protected in accordance with Grade Stabilization Structure criteria. The remainder of the interior slopes should be stabilized (one time) with seed and mulch upon trap completion and monitored and maintained erosion free during the life of the trap.
  - The structure shall be dewatered by approved methods, removed and the area stabilized when the drainage area has been properly stabilized.
  - Refer to Section D for specifications concerning trap dewatering.
  - Minimum trap depth shall be measured from the weir elevation.
  - The elevation of the top of any dike directing water into the trap must equal or exceed the elevation of the trap embankment.
  - Geotextile Class C shall be placed over the bottom and sides of the outlet channel prior to the placement of stone. Sections of filter cloth must overlap at least 1' with the section nearest the entrance placed on top. The filter cloth shall be embedded at least 6" into existing ground at the entrance of the outlet channel.
  - Outlet - An outlet shall be provided, including a means of conveying the discharge in an erosion free manner to an existing stable channel.

**RIP-RAP INFLOW PROTECTION**



- Construction Specifications**
- Rip-rap lined inflow channels shall be 1' in depth, have a trapezoidal cross section with 2:1 or flatter side slopes and 3" (min.) bottom width. The channel shall be lined with 4" to 12" rip-rap to a depth of 18".
  - Filter cloth shall be installed under all rip-rap. Filter cloth shall be Geotextile Class C.
  - Entrance and exit sections shall be installed as shown on the detail section.
  - Rip-rap used for the lining may be recycled for permanent outlet protection if the basin is to be converted to a stormwater management facility.
  - Gabion Inflow Protection may be used in lieu of Rip-rap Inflow Protection.
  - Rip-rap should blend into existing ground.
  - Rip-rap Inflow Protection shall be used where the slope is between 4:1 and 10:1; for slopes flatter than 10:1 use Earth Dike or Temporary Swale lining criteria.

**STANDARDS AND SPECIFICATIONS FOR TOPSOIL**

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

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

**Conditions Where Practice Applies**

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

**Construction and Material Specifications**

- Topsoil salvaged from the existing site may be used provided that it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-SCS in cooperation with Maryland Agricultural Experiment Station.
- Topsoil Specifications - Soil to be used as topsoil must meet the following:
  - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Regardless, topsoil shall not be a mixture of contrasting textured subsoils and shall comprise less than 2% by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2" in diameter.
  - Topsoil must be free of plants or plant parts such as bermuda grass, quackgrass, Johnson grass, nutgrass, poison ivy, thistle, or others as specified.
  - Where the subsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil. Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- For sites having disturbed areas under 5 acres:
  - Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.
- For sites having disturbed areas over 5 acres:
  - On soil meeting Topsoil specifications, obtain test results dictating fertilizer and lime amendments required to bring the soil into compliance with the following:
    - pH for topsoil shall be between 6.0 and 7.5. If the tested soil demonstrates a pH of less than 6.0, sufficient lime shall be prescribed to raise the pH to 6.5 or higher.
    - Organic content of topsoil shall be not less than 1.5 percent by weight.
    - Topsoil having soluble salt content greater than 500 parts per million shall not be used.
    - No soil or seed shall be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phytotoxic materials.

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

- Place topsoil (if required) and apply soil amendments as specified in 2.0 Vegetative Stabilization - Section I - Vegetative Stabilization Methods and Materials.

**V. Topsoil Application**

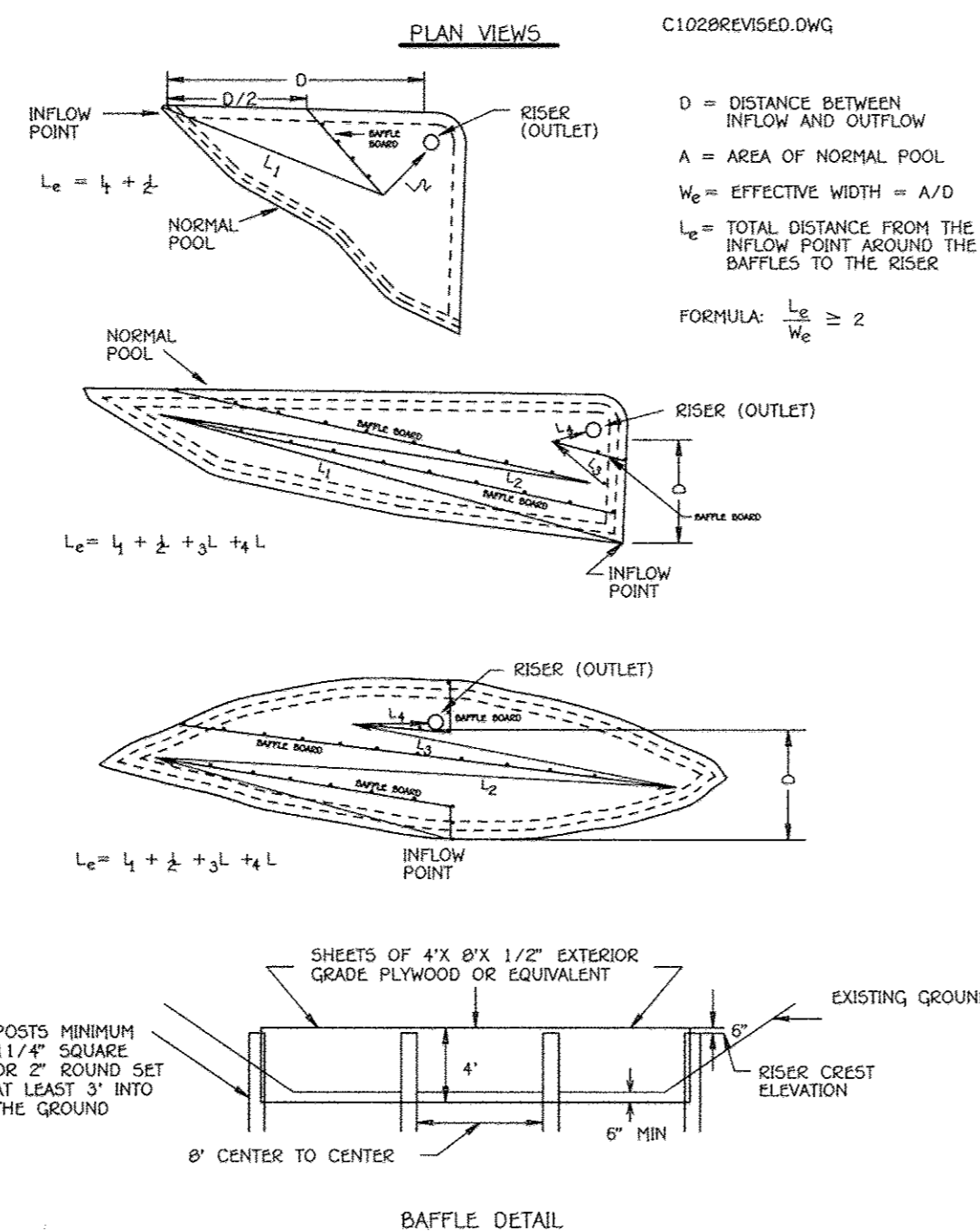
- When topsoiling, maintain needed erosion and sediment control practices such as diversions, Grade Stabilization Structures, Earth Dikes, Slope Silt Fence and Sediment Traps and Basins.
- Grades on the areas to be topsoiled, which have been previously established, shall be maintained about 4" - 6" higher in elevation.
- Topsoil shall be uniformly distributed in a 4" - 6" layer and lightly tamped to a minimum thickness of 4". Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets.
- Topsoil shall not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

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

- Composted Sludge Material for use as a soil conditioner for sites having disturbed areas over 5 acres shall be tested to prescribe amendments and for sites having disturbed areas under 5 acres shall conform to the following requirements:
  - Composted sludge shall be supplied by, or originate from, a person or persons that are permitted (at the time of acquisition of the compost) by the Maryland Department of the Environment under COMAR 26.04.06.
  - Composted sludge shall contain at least 1 percent nitrogen, 1.5 percent phosphorus, and 0.2 percent potassium and have a pH of 7.0 to 8.0. If compost does not meet these requirements, the appropriate constituents must be added to meet the requirements prior to use.
  - Composted sludge shall be applied at a rate of 1 ton/1,000 square feet.
- Composted sludge shall be amended with a potassium fertilizer applied at the rate of 4 lb/1,000 square feet and 1/3 the normal lime application rate.

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

**SEDIMENT BASIN BAFFLES**



**OWNER**  
MR. & MRS. HILEY A. ORNDORFF  
10909 SCAGGSVILLE ROAD  
LAUREL, MARYLAND 20723  
ATTN: MR. DONALD R. REUWER, JR.  
443-367-0422

**DEVELOPER**  
FAL DEVELOPERS, L.L.C.  
5300 DORSEY HALL DRIVE, SUITE 102  
ELLCOTT CITY, MARYLAND 21042  
ATTN: MR. DONALD R. REUWER, JR.  
443-367-0422

**DUST CONTROL**

**DEFINITION**  
CONTROLLING DUST BLOWING AND MOVEMENT ON CONSTRUCTION SITES AND ROADS.

**PURPOSE**  
TO PREVENT BLOWING AND MOVEMENT OF DUST FROM EXPOSED SOIL SURFACES, REDUCE ON AND OFF-SITE DAMAGE, HEALTH HAZARDS AND IMPROVE TRAFFIC SAFETY.

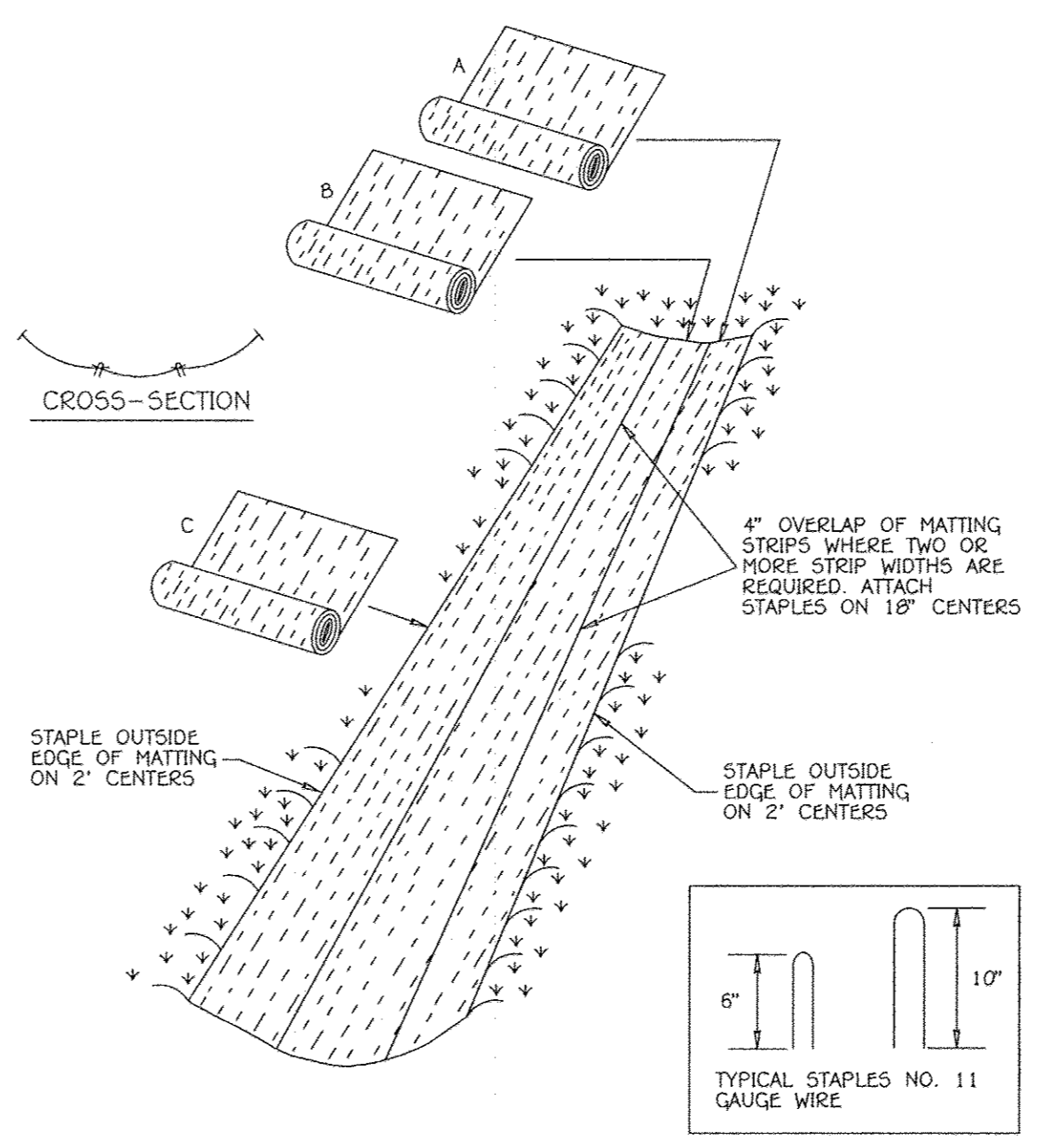
**CONDITIONS WHERE PRACTICE APPLIES**  
THIS PRACTICE IS APPLICABLE TO AREAS SUBJECT TO DUST BLOWING AND MOVEMENT WHERE ON AND OFF-SITE DAMAGE IS LIKELY WITHOUT TREATMENT.

**TEMPORARY METHODS**

- MULCHES - SEE STANDARDS FOR VEGETATIVE STABILIZATION WITH MULCHES ONLY. MULCH SHOULD BE CRIMPED OR TACKED TO PREVENT BLOWING.
- VEGETATIVE COVER - SEE STANDARDS FOR TEMPORARY VEGETATIVE COVER.
- TILLAGE - TO ROUGHEN SURFACE AND BRING CLODS TO THE SURFACE. THIS IS AN EMERGENCY MEASURE WHICH SHOULD BE USED BEFORE SOIL BLOWING STARTS. BEGIN FLOWING ON WINDWARD SIDE OF THE SITE. CHISEL-TYPE FLOWS SPACED ABOUT 12" APART, SPRING-TOOTHED HARROWS AND SIMILAR FLOWS ARE EXAMPLES OF EQUIPMENT WHICH MAY PRODUCE THE DESIRED EFFECT.
- IRRIGATION - THIS IS GENERALLY DONE AS AN EMERGENCY TREATMENT. SITE IS SPRINKLED WITH WATER UNTIL THE SURFACE IS MOIST. REPEAT AS NEEDED. AT NO TIME SHOULD THE SITE BE IRRIGATED TO THE POINT THAT RUNOFF BEGINS TO FLOW.
- BARRIERS - SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, STRAW BALE DIKES AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND SOIL BLOWING. BARRIERS PLACED AT RIGHT ANGLES TO PREVAILING CURRENTS AT INTERVALS OF ABOUT 10 TIMES THEIR HEIGHT ARE EFFECTIVE IN CONTROLLING SOIL BLOWING.
- CALCIUM CHLORIDE - APPLY AT RATES THAT WILL KEEP SURFACE MOIST. MAY NEED RETREATMENT.

**PERMANENT METHODS**

- PERMANENT VEGETATION - SEE STANDARDS FOR PERMANENT VEGETATIVE COVER AND PERMANENT STABILIZATION WITH SOIL. EXISTING TREES OR LARGE SHRUBS MAY AFFORD VALUABLE PROTECTION IF LEFT IN PLACE.
- TOPSOILING - COVERING WITH LESS EROSION SOIL MATERIALS. SEE STANDARDS FOR TOPSOILING.
- STONE - COVER SURFACE WITH CRUSHED STONE OR COARSE GRAVEL.



**CONSTRUCTION SPECIFICATIONS**

- KEY-IN THE MATTING BY PLACING THE TOP ENDS OF THE MATTING IN A NARROW TRENCH, 6" IN DEPTH. BACKFILL THE TRENCH AND TAMP FIRMLY TO CONFORM TO THE CHANNEL CROSS-SECTION. SECURE WITH A ROW OF STAPLES ABOUT 4" DOWN SLOPE FROM THE TRENCH. SPACING BETWEEN STAPLES IS 6".
- STAPLE THE 4" OVERLAP IN THE CHANNEL CENTER USING AN 18" SPACING BETWEEN STAPLES.
- BEFORE STAPLING THE OUTER EDGES OF THE MATTING, MAKE SURE THE MATTING IS SMOOTH AND IN FIRM CONTACT WITH THE SOIL.
- STAPLES SHALL BE PLACED 2' APART WITH 4 ROWS FOR EACH STRIP, 2 OUTER ROWS, AND 2 ALTERNATING ROWS DOWN THE CENTER.
- WHERE ONE ROLL OF MATTING ENDS AND ANOTHER BEGINS, THE END OF THE TOP STRIP SHALL OVERLAP THE UPPER END OF THE LOWER STRIP BY 4". SHIPLAP FASHION REINFORCE THE OVERLAP WITH A DOUBLE ROW OF STAPLES SPACED 6" APART IN A STAGGERED PATTERN ON EITHER SIDE.
- THE DISCHARGE END OF THE MATTING LINER SHOULD BE SIMILARLY SECURED WITH 2 DOUBLE ROWS OF STAPLES.

**NOTE:** IF FLOW WILL ENTER FROM THE EDGE OF THE MATTING THEN THE AREA EFFECTED BY THE FLOW MUST BE KEYED-IN.

**EROSION CONTROL MATTING**

**ENGINEER'S CERTIFICATE**

I Herewith Certify That This Plan For Erosion And Sediment Control Represents A Feasible And Workable Plan Based On My Personal Knowledge Of The Site Condition And That It Was Prepared In Accordance With The Standards Of The Howard Soil Conservation District.

Signature: *[Signature]* Date: 6/9/11

**DEVELOPER'S CERTIFICATE**

I/We Certify That All Development And Construction Will Be Done According To This Plan Of Development And Plan For Erosion And Sediment Control And That All Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of Natural Resources Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I Also Authorize Periodic On-Site Inspection By The Howard Soil Conservation District Or Their Authorized Agents, As Deemed Necessary.

Signature Of Developer: *[Signature]* Date: 6/13/2011

Approved: This Development Is Approved For Erosion And Sediment Control By The Howard Soil Conservation District.

Signature: *[Signature]* Date: 6/28/11  
District Howard Soil Conservation District

Approved: Department Of Planning And Zoning

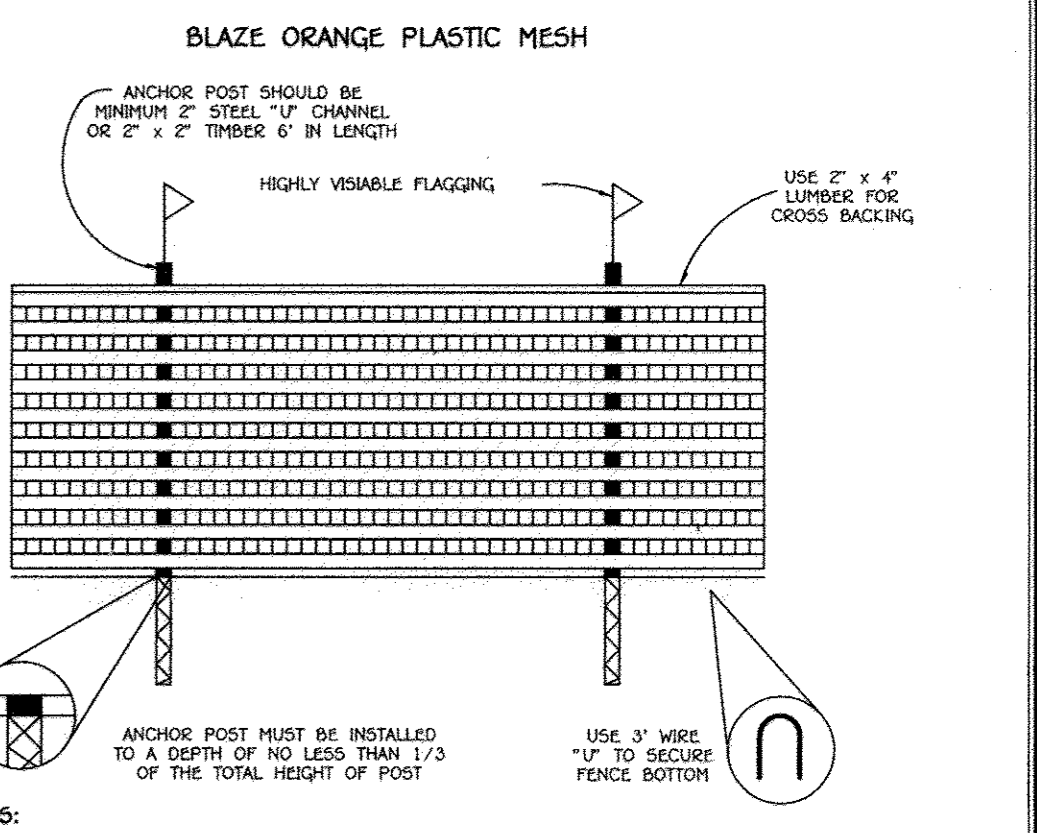
Signature: *[Signature]* Date: 7/19/11  
Chief, Division Of Land Development

Signature: *[Signature]* Date: 7-13-11  
Chief, Development Engineering Division

Approved: Howard County Department Of Public Works

Signature: *[Signature]* Date: 7-11-2011  
Chief, Bureau Of Highways

REVISIONS		
NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 12	6/9/11
2	REVISED SHEET NO. 10 TO REFLECT ADDED THEORY	6/28/11



**SEQUENCE OF CONSTRUCTION**

- OBTAIN A GRADING PERMIT.
- NOTIFY "MISS UTILITY" AT LEAST 48 HOURS BEFORE BEGINNING ANY WORK AT 1-800-257-7777. NOTIFY THE HOWARD COUNTY OFFICE OF CONSTRUCTION/INSPECTION AT 410-313-1330 AT LEAST 24 HOURS BEFORE STARTING WORK.
- INSTALL THE STABILIZED CONSTRUCTION ENTRANCE. INSTALL ALL SUPER-SILT FENCE FOR PERIMETER TO REMAIN UNDISTURBED AS INDICATED ON THE PLANS. INSTALL TREE PROTECTION FOR SPECIMEN TREE "B" (POST W/ BELT). (3 DAYS)
- INSTALL STONE OUTLET SEDIMENT TRAPS 1, 2 & 3 AS SHOWN ON PLAN. (3 DAYS)
- INSTALL ALL EARTH DIKES AND REMAINING PERIMETER SEDIMENT CONTROL DEVICES. (1 DAY)
- GRADE SITE TO PROPOSED SUBGRADE AND INSTALL THE STORM DRAIN SYSTEMS FIRST, WITH THE EXCEPTION OF PIPE FROM M-1 TO S-1. INSTALL WATER AND SEWER MAINS. STABILIZE ALL SLOPES IMMEDIATELY UPON COMPLETION OF GRADING. DO NOT BLOCK INLETS AS STORM DRAIN SYSTEM WILL BE USED TO CONVEY SEDIMENT RUNOFF INTO TRAP NO. 2. INSTALL TEMPORARY 18" FLEXIBLE PIPE AT TRAP 2 FROM M-1 (2 WEEKS)
- CONSTRUCT ROAD BASE COURSE FOR SUBDIVISION ROADS. (1 WEEK)
- FLUSH STORM DRAIN SYSTEM AND INSTALL ALL MICRO BIO-RETENTION FACILITIES AND STABILIZE ALL PROPOSED SLOPES. (4 DAYS)
- WHEN ALL CONTRIBUTING AREAS TO THE SEDIMENT CONTROL DEVICES HAVE BEEN STABILIZED AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, THE SEDIMENT CONTROL DEVICES MAY BE REMOVED AND/OR BACKFILLED AND THE REMAINING AREAS BROUGHT TO FINAL GRADE. STABILIZE ALL AREAS IN ACCORDANCE WITH PERMANENT SEEDING NOTES. INSTALL PERMANENT STORM DRAIN OUTFALL FROM M-1 TO S-1. (1 WEEK)
- NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.

**NOTE:** THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON ALL SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN HEREON, AFTER EACH RAINFALL AND ON A DAILY BASIS.

**NOTE:** ALL OF THE PRIVATE ON-LOT FACILITIES SHOWN ON SHEET 13 WILL BE CONSTRUCTED AT THE SITE DEVELOPMENT PLAN STAGE WHEN ALL ESD PRACTICES WILL BE CONSTRUCTED.

**SEDIMENT CONTROL NOTES & DETAILS**  
**CERRY TREE VIEW**  
BUILDABLE LOTS 1-4 AND 14-20,  
OPEN SPACE LOTS 12 & 13

ZONING: R-20  
PREVIOUS FILE NOS.: ECP-11-003, WF-11-065 & SP-11-001  
TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 55  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: FEBRUARY 3, 2014  
SHEET 10 OF 17

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SUPERVISORS  
CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
ELLCOTT CITY, MARYLAND 21042  
(410) 461-2095

**STATE OF MARYLAND**  
REGISTERED PROFESSIONAL ENGINEER  
No. 20748  
EXPIRES 12/31/13

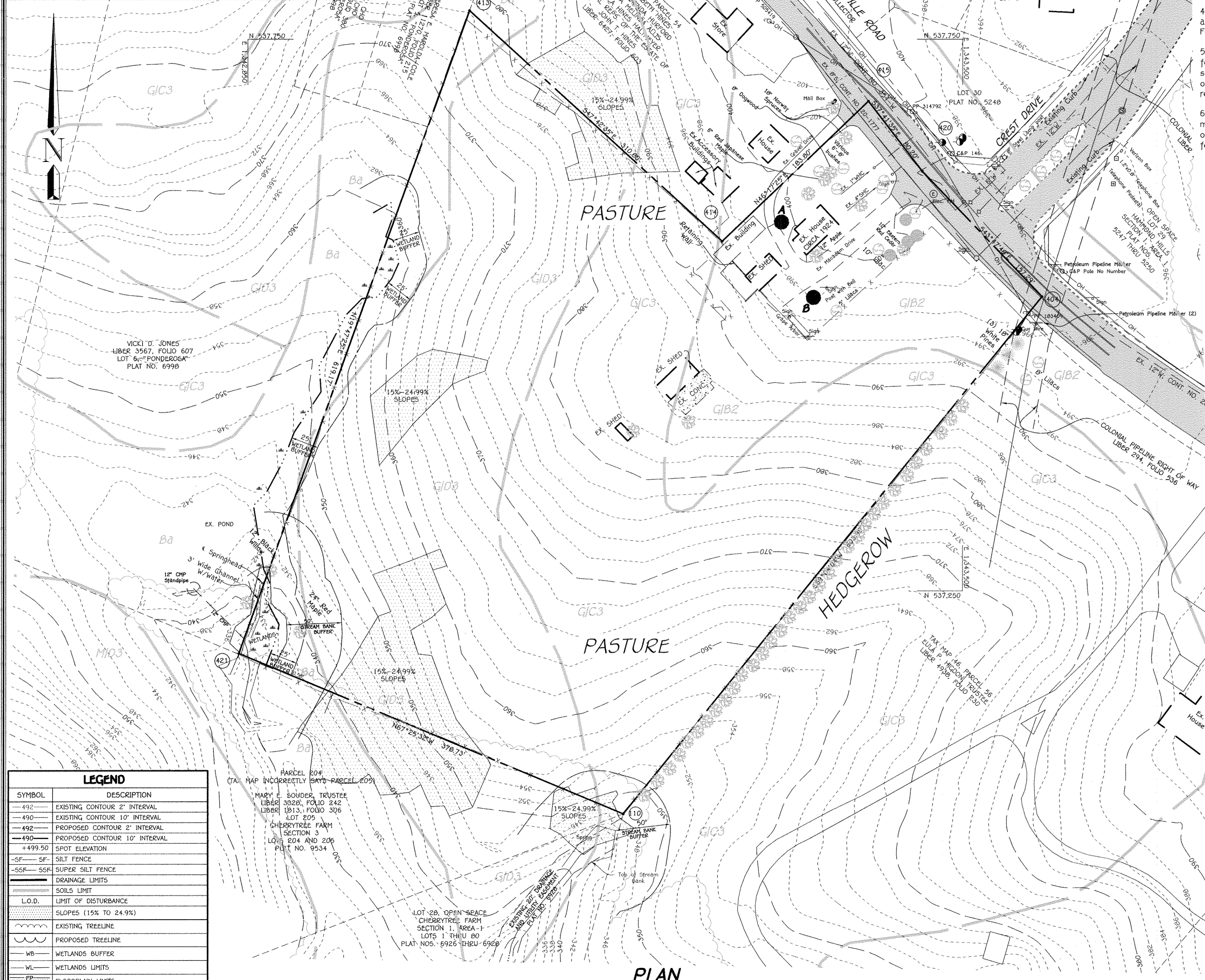
Signature: *[Signature]* Date: 6/9/11

THERE IS NO AS-BUILT INFORMATION ON THIS SHEET



APPROVED: DEPARTMENT OF PUBLIC WORKS  
 7-11-2011  
 CHIEF, BUREAU OF HIGHWAYS  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 7/19/11  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 APPROVED: DEPARTMENT OF PLANNING AND ZONING  
 7-13-11  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION

NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BROOKS WITH A SINGLE MICRO-BROOK LOCATED AT THE REAR OF LOT 13	2/2/14
2	REVISED SHEET NO. TO REFLECT ABOVE CHANGES	9/29/15



SYMBOL	DESCRIPTION
---492---	EXISTING CONTOUR 2' INTERVAL
---490---	EXISTING CONTOUR 10' INTERVAL
---492---	PROPOSED CONTOUR 2' INTERVAL
---490---	PROPOSED CONTOUR 10' INTERVAL
+499.50	SPOT ELEVATION
---SF---	SILT FENCE
---SSF---	SUPER SILT FENCE
---	DRAINAGE LIMITS
---	SOILS LIMIT
---	L.O.D. LIMIT OF DISTURBANCE
---	SLOPES (15% TO 24.9%)
---	EXISTING TREELINE
---	PROPOSED TREELINE
WB	WETLANDS BUFFER
WL	WETLANDS LIMITS
FP	FLOODPLAIN LIMITS

**FISHER, COLLINS & CARTER, INC.**  
 Civil Engineering Consultants & Land Surveyors  
 CENTENNIAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 CLIDDETT CITY, MARYLAND 21142  
 (410) 461-2095

**Eco-Science Professionals, Inc.**  
 CONSULTING ECOLOGISTS  
 100 DNR Qualified Professional  
 USACOE Wetland Delineator  
 Certification # WDCP93M00610044B  
 6/9/11  
 JOHN P. CANOLES

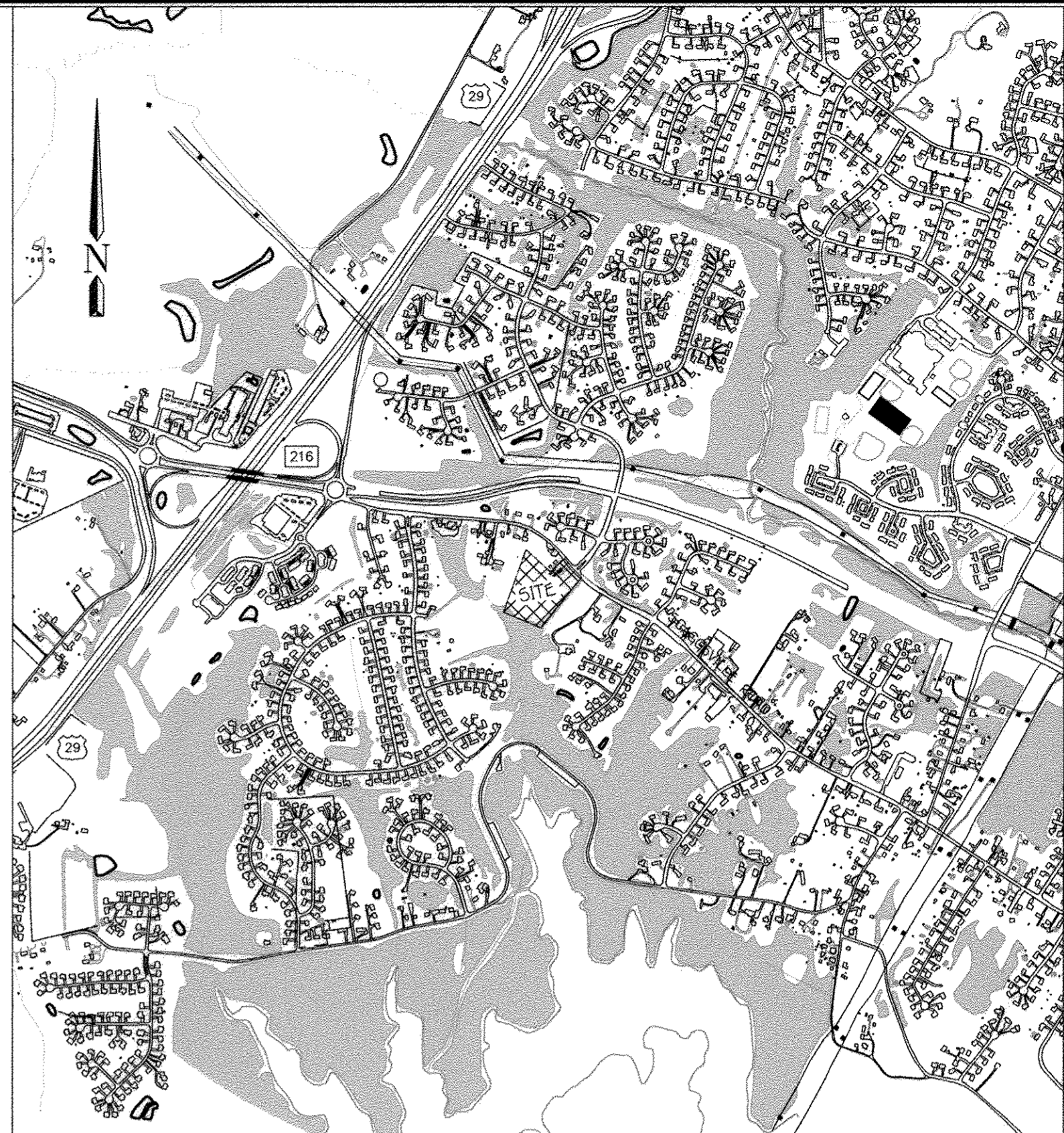
**OWNER**  
 MR. & MRS. HILEY A. ORNDORFF  
 10909 SCAGGSVILLE ROAD  
 LAUREL, MARYLAND 20723  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422

**DEVELOPER**  
 PAL DEVELOPERS, L.L.C.  
 5300 DORSEY HALL DRIVE, SUITE 102  
 ELLICOTT CITY, MARYLAND 21042  
 ATTN: MR. DONALD R. REUWER, JR.  
 443-367-0422

**PLAN**  
 SCALE: 1" = 50'

- FCP NOTES**
- Any Forest Conservation Easement (FCE) area shown hereon is subject to protective covenants which may be found in the Land Records of Howard County which restrict the disturbance and use of these areas.
  - Limits of disturbance shall be restricted to areas outside the limit of temporary fencing or within the shown limits of disturbance.
  - There shall be no clearing, grading, construction or disturbance of vegetation in the Forest Conservation Easement, except as permitted by Howard County DPZ. Permanent signage shall be retained on the easement limits in perpetuity.
  - No stockpiles, parking areas, equipment cleaning areas, etc. shall occur within areas designated as Forest Conservation Easements.
  - Temporary fencing shall be used to protect forest resources during construction. The fencing shall be installed along limits of disturbance occurring within 50 feet of the proposed forest retention limits.
  - The Forest Conservation Act requirements will be met through the afforestation of 1.0 acre. This obligation will be met through payment of a fee-in-lieu in the amount of \$32,670.00.

- NOTES:**
- NO RARE, THREATENED OR ENDANGERED SPECIES OR THEIR HABITATS WERE OBSERVED ON THE PROPERTY.
  - NO HISTORIC STRUCTURES OR CEMETERIES EXIST ON THE PROPERTY.
  - SURROUNDING LAND USE IS PRIMARILY MEDIUM DENSITY RESIDENTIAL DEVELOPMENT.
  - NO FOREST IS PRESENT ON THE SITE.



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

SOIL	NAME	CLASS
**Ba	Baile silt loam	D
GIB2	Glenely loam, 3 to 8 percent slopes, moderately eroded	B
GIC3	Glenely loam, 8 to 15 percent slopes, severely eroded	B
GIQ3	Glenely loam, 15 to 25 percent slopes, severely eroded	B

- NOTES:**
- Hydic soils and/or contains hydic inclusions
  - May contain hydic inclusions
  - Generally only within 100-year floodplain areas

WETLAND DATA		
WETLAND SYSTEM	COWardin CLASSIFICATION	DOMINANT VEGETATION
A	PEH1C	JUNCUS EFFUSUS, MENTHA SPICATA, IMPATIENS CAPENSIS, CIRCA ARBORESCENS, CAREX STRICTA, SALIX NIGRA

SPECIMEN TREE CHART		
SYMBOL	SPECIES, SIZE	COMMENT
●A	BLACK OAK, 51" DBH	GOOD CONDITION
●B	NORWAY MAPLE, 32" DBH	GOOD CONDITION, NON-NATIVE SPECIES

**NOTE:**  
 THE FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULLY MET BY PROVIDING 1.0 ACRE OF OFF-SITE AFFORESTATION. THIS IS PROVIDED ON THE JEFF HARRISON PROPERTY AT \$0.50/SF FOR 43,560 SF = \$21,780.00. TOTAL FOREST CONSERVATION SURETY = \$21,780.00

SEE PLAN AND DETAILS ON SHEETS 15 AND 16.

FOREST CONSERVATION WORKSHEET VERSION 1.0	
NET TRACT AREA	ACRES
A. TOTAL TRACT AREA	6.5
B. REDUCTIONS (AREA WITHIN 100 YEAR FLOODPLAIN)	0
C. AREA TO REMAIN IN AGRICULTURAL PRODUCTION	0
D. NET TRACT AREA	6.5
LAND USE CATEGORY: HIGH DENSITY RESIDENTIAL	
E. AFFORESTATION THRESHOLD (NET TRACT AREA (C) x 15%)	1.0
F. CONSERVATION THRESHOLD (NET TRACT AREA (C) x 22%)	1.5
EXISTING FOREST COVER	
G. EXISTING FOREST COVER WITHIN THE NET TRACT AREA	0
H. AREA OF FOREST ABOVE AFFORESTATION THRESHOLD	0
I. AREA OF FOREST ABOVE CONSERVATION THRESHOLD	0
BREAK-EVEN POINT	
J. FOREST RETENTION ABOVE THRESHOLD WITH NO MITIGATION	N/A
BREAK-EVEN POINT	
K. CLEARING PERMITTED WITHOUT MITIGATION	N/A
PROPOSED FOREST CLEARING	
L. TOTAL AREA OF FOREST TO BE CLEARED OR RETAINED OUTSIDE FCE	N/A
M. TOTAL AREA OF FOREST TO BE RETAINED	N/A
PLANTING REQUIREMENTS	
N. REAFFORESTATION FOR CLEARING ABOVE THE CONSERVATION THRESHOLD	0
P. REAFFORESTATION FOR CLEARING BELOW THE CONSERVATION THRESHOLD	0
Q. CREDIT FOR RETENTION ABOVE THE CONSERVATION THRESHOLD	0
R. TOTAL REAFFORESTATION REQUIRED	0
S. TOTAL AFFORESTATION REQUIRED	1.0
T. TOTAL PLANTING REQUIREMENT	1.0

**WETLAND & FOREST STAND DELINEATION PLAN**  
**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1-4 AND 14-20,  
 OPEN SPACE LOTS 12 & 13

ZONING: R-20  
 PREVIOUS FILE Nos.: ECP-11-003, WF-11-065 & SP-11-001  
 TAX MAP No. 46 GRID No. 11 PARCEL No. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: February 3, 2014  
 SHEET 11 OF 17

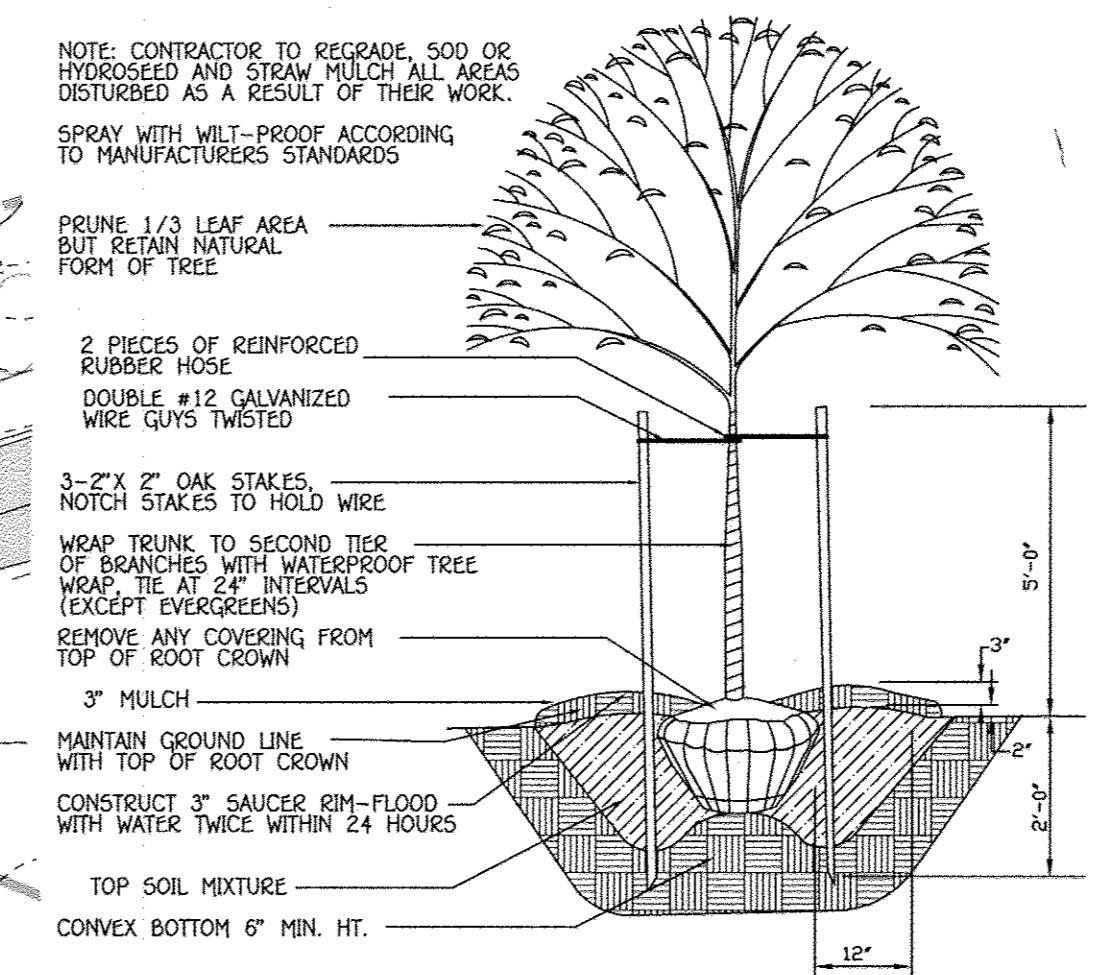
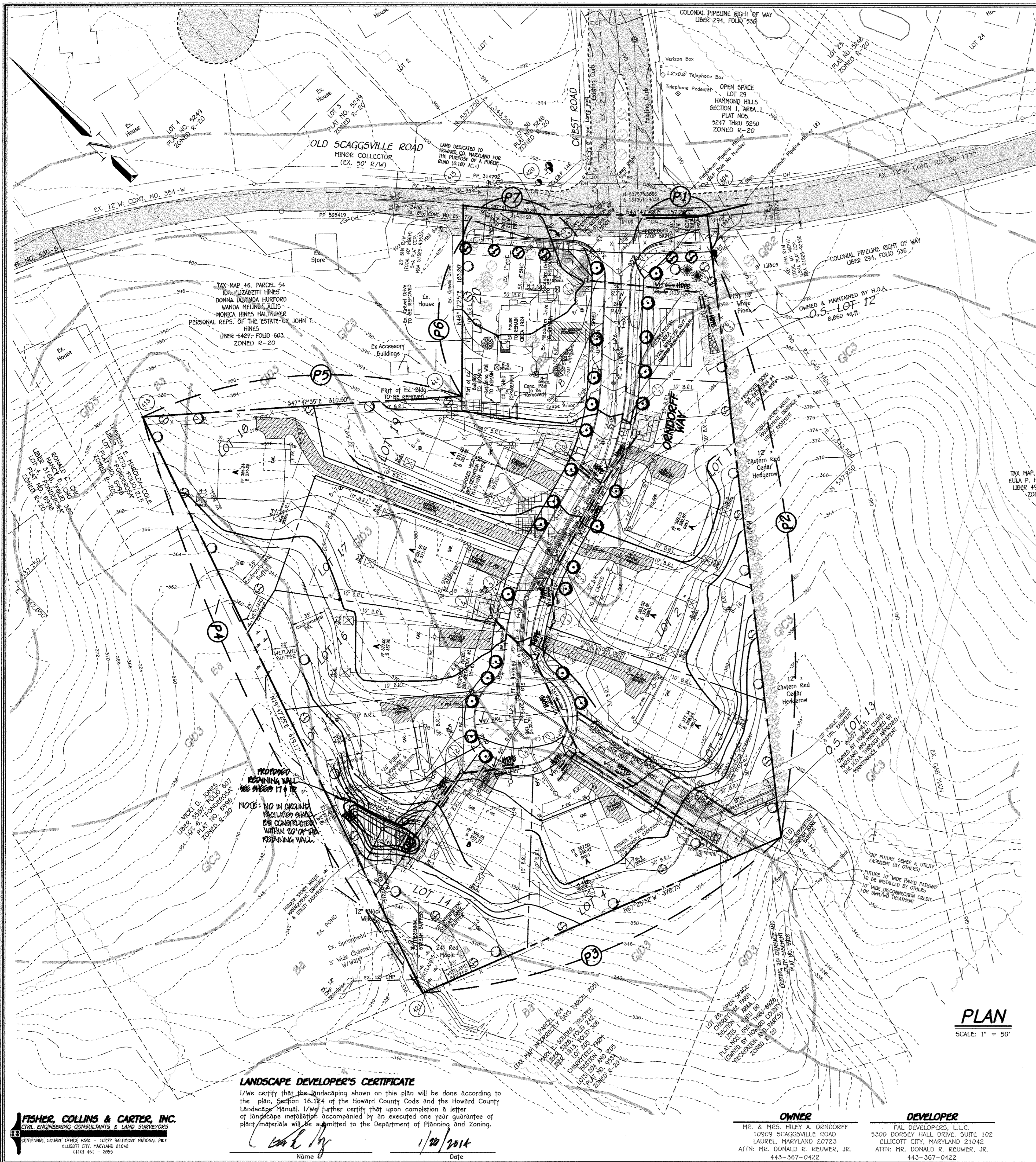


6/9/11  
 DATE

"Professional certification. I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-13."

**THERE IS NO AS-BUILT INFORMATION ON THIS SHEET**





**SHADE TREE PLANTING DETAIL**

**PLANTING SPECIFICATIONS**

Plants, related material, and operations shall meet the detailed description as given on the plans and as described herein. All plant material, unless otherwise specified, shall be nursery grown, uniformly branched, have a vigorous root system, and shall conform to the species, size, root and shape shown on the plans and the American Association of Nurserymen (A.A.N.) Standards. Plant material shall be healthy, vigorous, free from defects, decay, disfiguring roots, soil scald, injuries, abrasions of the bark, plant disease, insect pest eggs, borers and all forms of insect infestations or objectionable disfigurements. Plant material that is weak or which has been cut back from larger grades to meet specified requirements will be rejected. Trees with forked leaders will not be accepted. All plants shall be freshly dug; no balled-in plants from cold storage will be accepted. Unless otherwise specified, all general conditions, planting operations, details and planting specifications shall conform to "Landscape Specification Guidelines for Baltimore-Washington Metropolitan Area", 2nd Edition, "Landscape Guidelines" approved by the Landscape Contractors Association of Metropolitan Washington and the Institute of the American Society of Landscape Architects, latest edition, including all addenda. Contractor shall be required to guarantee all plant material for a period of one year after date of acceptance in accordance with the appropriate section of the Landscape Guidelines. Contractor's attention is directed to the maintenance requirements found within the one year specifications including watering and replacement of specified plant material. Contractor shall be responsible for notifying utility companies, utility contractors and "Gas Utility" a minimum of 48 hours prior to beginning any work. Contractor may make minor adjustments in spacing and location of plant material to avoid conflicts with utilities. Damage to existing structure and utilities shall be repaired at the expense of the Contractor. Protection of existing vegetation to remain shall be accomplished by the temporary installation of 4 foot High Snow Fence or blaze orange safety fence as the strip line. Contractor is responsible for installing all material in the proper planting season for each plant type. All planting is to be completed within the growing season of completion of site construction. All shrubs shall be planted in continuous trenches or prepared planting beds and mulched with composted hardwood mulch as details and specified except where noted on plans. Positive drainage shall be maintained in planting beds 2 percent slope. Planting mix shall be as follows: Deciduous Plants - two parts topsoil, one part well-rotted cow or horse manure, Add 3 lbs. of standard fertilizer per cubic yard of planting mix. Evergreen Plants - two parts topsoil, one part humus or other approved organic material. Add 3 lbs. of evergreen (acidic) fertilizer per cubic yard of planting mix. Topsoil shall conform to the Landscape Guidelines. Weed Control: Incorporate a pre-emergent herbicide into the planting bed following recommended rates on the label. Caution: Be sure to carefully check the chemical used to assure its suitability to the specific ground cover to be treated. All areas within contract limits disturbed during or prior to construction not designated to receive plants and mulch shall be fine graded and seeded. This plan is intended for landscape use only. See other plan sheets for more information on grading, sediment control, layout, etc.

**NOTES:**

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 3 inches in caliper and installed as required in the Howard County Landscape Manual. At the time of plant installation, all trees listed and approved on the landscape Plan, shall comply with the proper height requirement in accordance with the Howard County Landscape Manual. In addition, no substitutions or relocations of the required plantings may be made without prior review and approval from the Department of Planning and Zoning. Any deviations from the 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 the road drawing plans. The Owner, tenants and/or their agents shall be responsible for maintenance of the required perimeter landscaping. 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 the other required landscaping shall be permanently maintained in good condition, and when necessary, repaired or replaced.

**LEGEND**

- PROPOSED FENCE, SEE GENERAL NOTE No. 31
- ☉ EXISTING TREE TO BE REMOVED
- ☉ EXISTING TREE TO REMAIN
- ☉ PROPOSED LANDSCAPE TREE
- ☉ PROPOSED STREET TREE

STREET TREE SCHEDULE				
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE	COMMENTS
☉	222.89 / 40 = 5.57 6 TREES	CLADRASTIS KENTUCKEA YELLOWWOOD	2 1/2-3" CAL.	40' APART ON PUBLIC R/W OLD SCAGGSVILLE ROAD
☉	502.79 x 2 / 40 = 25.14 25 TREES	*ULMUS AMERICAN AMERICAN ELM (PRINCETON OR VALLEY FORGE)	2 1/2-3" CAL.	40' APART ON PUBLIC R/W ORNDORFF WAY

NOTE: FINANCIAL SURETY FOR THE REQUIRED 31 STREET TREES WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$9,300.00.  
\*TREE TYPE MUST BE PLANTED A MINIMUM OF 45 FEET FROM POWER LINES PER B.G.&E. PLANTING GUIDE.

NOTE: FINAL PLACEMENT OF STREET TREES WILL OCCUR IN THE FIELD AND BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB, BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES AND MAINTAIN A MINIMUM 5 FEET DISTANCE ON CENTER FROM A DRAIN INLET STRUCTURE, 5 FEET FROM AN OPEN SPACE ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*Chris Zumbly* 3-25-14  
CHIEF, BUREAU OF HIGHWAYS DATE

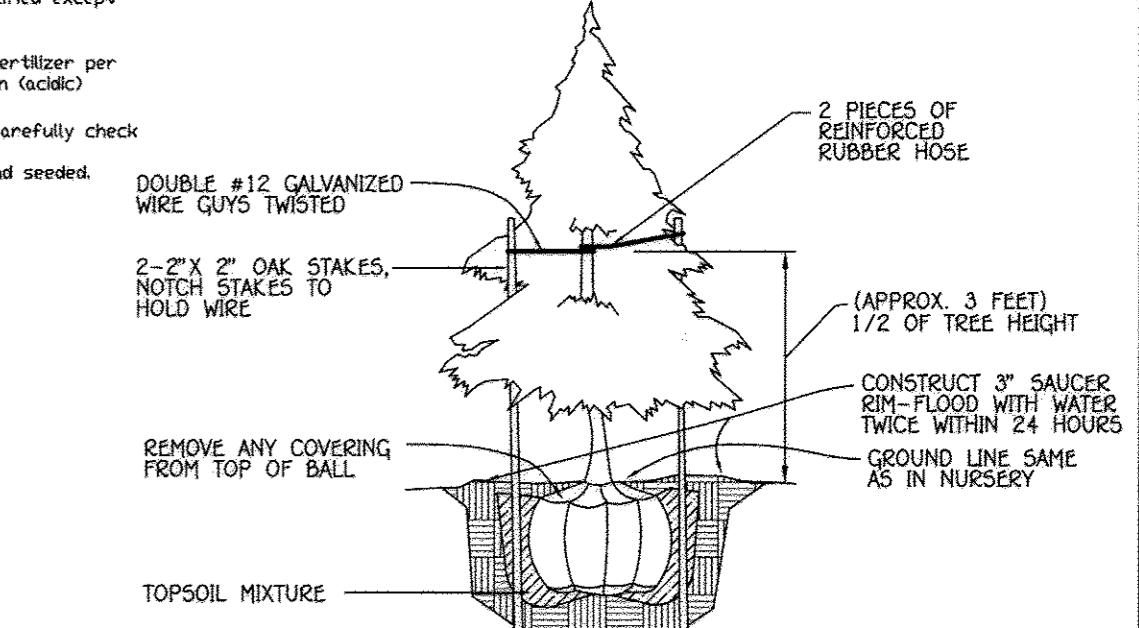
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Walt Sheehy* 4/22/14  
CHIEF, DIVISION OF LAND DEVELOPMENT gmr DATE

*Paul Edwards* 3-28-14  
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

REVISIONS		
NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIODEGRADABLE WITH A SINGLE MICRO-BIODEGRADABLE LOCATED AT THE REAR OF LOT 15	2/3/14
2	REMOVED SHEET NO. 10 TO REFLECT ADDED TREES AND ADDED EXISTING WALL AT REAR OF LOT 15	9/29/15

SCHEDULE A PERIMETER LANDSCAPE EDGE						
PERIMETER	CATEGORY (PROPERTIES/ROADWAYS)	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE PERIMETER	CREDIT FOR EXISTING VEGETATION (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR WALL, FENCE OR BEEM (YES, NO, LINEAR FEET) (DESCRIBE BELOW IF NEEDED)	NUMBER OF PLANTS REQUIRED AND PROVIDED
						SHADE TREES EVERGREEN TREES SHRUBS
P-1	ADJACENT TO ROADWAY	B	75.7'	NO	NO	2 2
P-2	ADJACENT TO PERIMETER	A	570.6'	NO	NO	10 - -
P-3	ADJACENT TO PERIMETER	A	378.7'	NO	NO	6 - -
P-4	ADJACENT TO PERIMETER	A	619.2'	NO	NO	10 - -
P-5	ADJACENT TO PERIMETER	A	310.8'	NO	NO	2 - -
P-6	ADJACENT TO PERIMETER	A	151.9'	YES - 51' BLACK OAK	NO	2 - -
P-7	FRONT TO ROADWAY	N/A	138.0'	NO	NO	- - -
O.S. LOT 13						3 - - -

\*1" BLACK OAK IS SPECIMEN TREE "A"  
THREE (3) ADDITIONAL NATIVE SHADE TREES SHALL BE PLANTED IN OPEN SPACE LOT 13 ALONG THE FUTURE PATHWAY



**EVERGREEN TREE PLANTING DETAIL**

PLANT LIST			
SYMBOL	QTY.	BOTANICAL AND COMMON NAME	SIZE
☉	18	CLADRASTIS KENTUCKEA YELLOWWOOD	2 1/2-3" CAL.
☉	17	PRUNUS SARGENTI SARGENT CHERRY	2 1/2-3" CAL.
☉	3	CORNUS KOUSA KOUSA DOGWOOD	8' - 10' HT.
☉	2	*ILEX OPACA AMERICAN HOLLY	5' - 6' HT.

"THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL". FINANCIAL SURETY FOR THE REQUIRED 35 SHADE, 2 EVERGREEN TREES & 3 ORNAMENTAL TREES HAS BEEN POSTED AS PART OF THE DEVELOPER'S AGREEMENT IN THE AMOUNT OF \$11,250.00.  
\*APPROVED TREE TYPE TO BE PLANTED WITHIN 20 - 45 FEET (YELLOW ZONE) OF POWER LINES PER B.G.&E. PLANTING GUIDE.

SPECIMEN TREE CHART		
SYMBOL	SPECIES, SIZE	COMMENT
☉ A	BLACK OAK, 51" DBH	GOOD CONDITION
☉ B	NORWAY MAPLE, 32" DBH	GOOD CONDITION, NON-NATIVE SPECIES

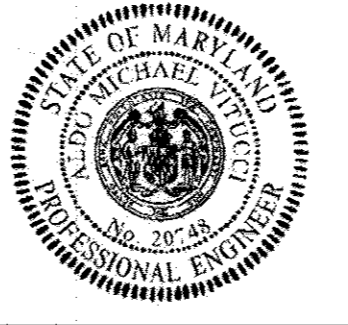
**LANDSCAPE DEVELOPER'S CERTIFICATE**  
I/we certify that the landscaping shown on this plan will be done according to the plan, Section 16.124 of the Howard County Code and the Howard County Landscape Manual. I/we further certify that upon completion a letter of landscape installation accompanied by an executed one year guarantee of plant materials will be submitted to the Department of Planning and Zoning.

*Walt Sheehy*  
Name  
1/20/2014  
Date

**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTRAL SQUARE OFFICE PARK - 10732 BALTIMORE NATIONAL PIKE  
ELLICOTT CITY, MARYLAND 21042  
443.461.7099

**OWNER**  
MR. & MRS. HILEY A. ORNDORFF  
10909 SCAGGSVILLE ROAD  
LAUREL, MARYLAND 20723  
ATTN: MR. DONALD R. REUWER, JR.  
443-367-0422

**DEVELOPER**  
FAL DEVELOPERS, L.L.C.  
5300 DORSEY HALL DRIVE, SUITE 102  
ELLICOTT CITY, MARYLAND 21042  
ATTN: MR. DONALD R. REUWER, JR.  
443-367-0422

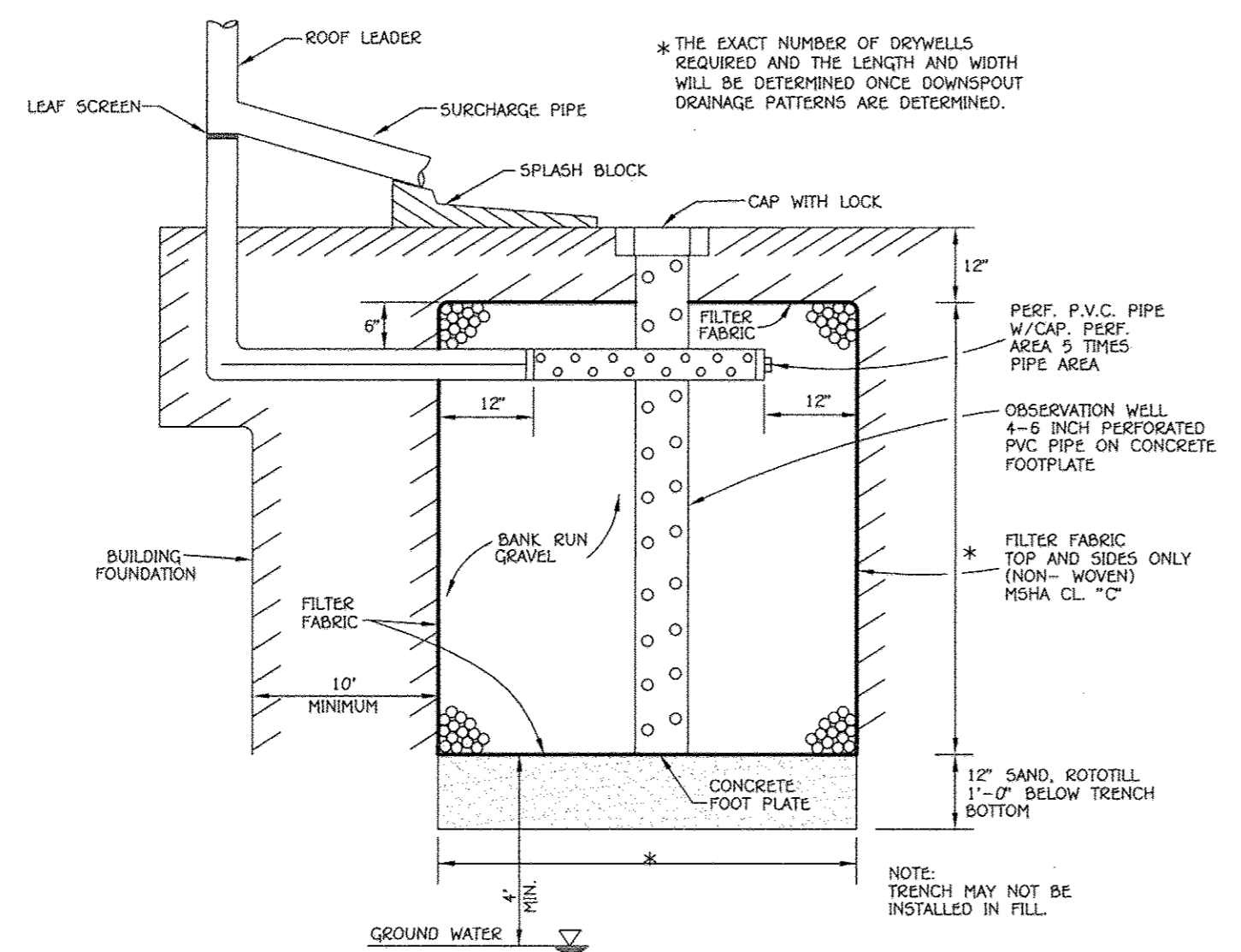


*Aldo M. Vitucci*  
ALDO M. VITUCCI, P.E.  
2/28/14  
DATE

"Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20746, expiration Date 2-22-15."

REVISED  
**STORMWATER MANAGEMENT FACILITY PLAN**  
**CHERRYTREE VIEW**  
BUILDABLE LOTS 1 - 11 AND 14-20  
OPEN SPACE LOTS 12 & 13  
ZONING: R-20  
PREVIOUS FILE NO.: ECP-11-003, WP-11-065 & SP-11-001  
TAX MAP NO. 48 GRID NO. 11 PARCEL NO. 55  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: FEBRUARY 3, 2014  
SHEET 12 OF 17

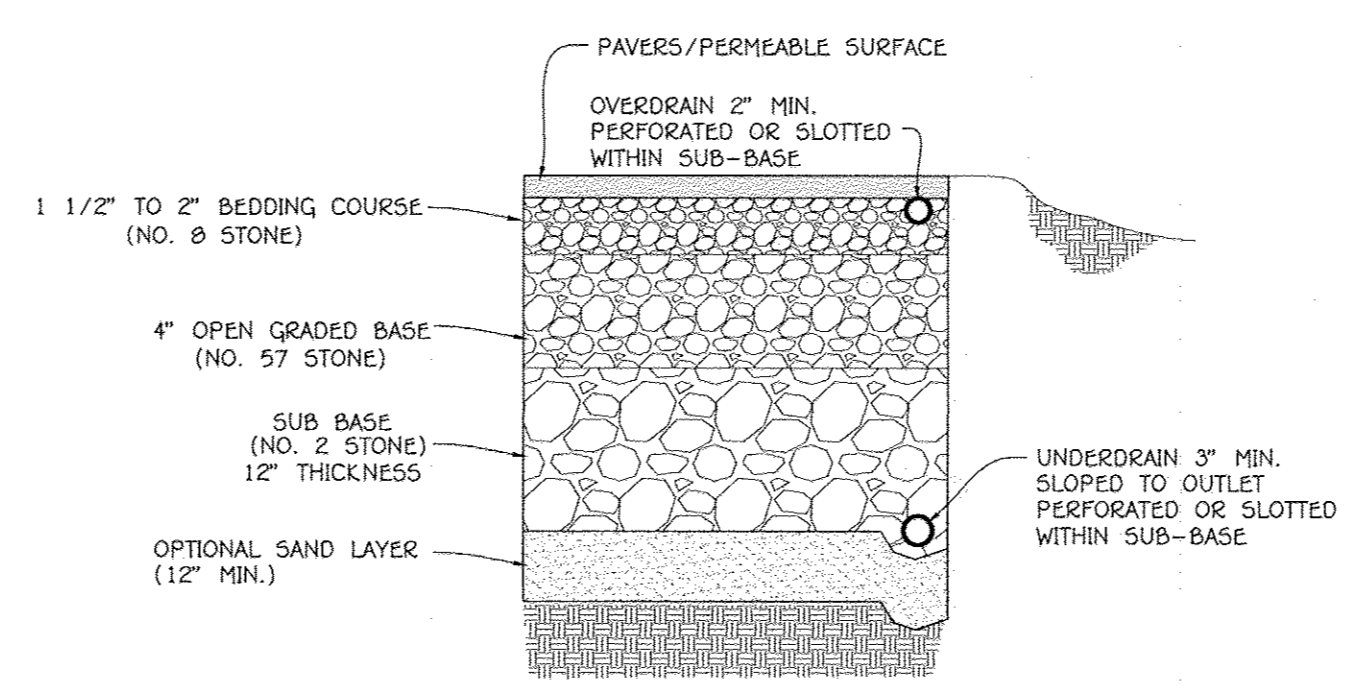




**LOT 10 DRY WELL DETAIL**  
NOT TO SCALE

**STORMWATER MANAGEMENT NOTES**

1. STORMWATER MANAGEMENT IS PROVIDED IN ACCORDANCE WITH THE 2000 MARYLAND STORMWATER DESIGN MANUAL.
2. CREDITS ARE GIVEN FOR DISCONNECTION OF IMPERVIOUS COVERS.
3. MAXIMUM CONTRIBUTING ROOF TOP AREA TO EACH DOWNSPOUT SHALL BE LESS THAN 500 SQ. FT.
4. DRYWELLS SHALL BE PROVIDED AT LOCATIONS WHERE THE LENGTH OF DISCONNECTION IS LESS THAN 75' AT 5% THE SIZE AND CONSTRUCTION OF THE DRYWELL SHALL BE IN ACCORDANCE WITH THE FIGURE 5.2 OF THE MANUAL AND THE DETAIL SHOWN ON THIS SHEET.
5. FINAL GRADING SHALL BE SHOWN ON SITE DEVELOPMENT PLAN.



**LOTS 2, 3, 6 THRU 11 TYPICAL SECTION - PERMEABLE PAVEMENT w/ OVERDRAIN & UNDERDRAIN (A-2)**  
NO SCALE

**OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)**

- a. The owner shall periodically sweep (or vacuum porous concrete pavement) the pavement surfaces to reduce sediment accumulation and insure continued surface porosity. Sweeping should be performed at least twice annually with a commercial cleaning unit. Washing or compressed air units should not be used to perform surface cleaning.
- b. The owner shall periodically clean drainage pipes, inlets, stone edge drains and other structures within or draining to the subbase.
- c. The owner shall use deicers in moderation. Deicers should be non-toxic and be applied either as calcium magnesium acetate or as pretreated salt.
- d. The owner shall ensure snow plowing is performed carefully with blades set one inch above the surface. Plowed snow piles and snowmelt should not be directed to permeable pavement.

**OPERATION AND MAINTENANCE SCHEDULE FOR DRYWELLS (M-5)**

- a. The owner shall inspect the monitoring wells and structures on a quarterly basis and after every heavy storm event.
- b. The owner shall record the water levels and sediment build up in the monitoring wells over a period of several days to insure trench drainage.
- c. The owner shall maintain a log book to determine the rate at which the facility drains.
- d. When the facility becomes clogged so that it does not drain down within a seventy two (72) hour time period, corrective action shall be taken.
- e. The maintenance log book shall be available to Howard County for inspection to insure compliance with operation and maintenance criteria.
- f. Once the performance characteristics of the infiltration facility 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.

By The Developer:  
"I/We Certify That All Development And/Or Construction Will Be Done According To These Plans. And That Any Responsible Personnel Involved In The Construction Project Will Have A Certificate Of Attendance At A Department Of The Environment Approved Training Program For The Control Of Sediment And Erosion Before Beginning The Project. I/We, the Engineer, Licensed Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature Of Developer: *Donald Reuwer, Jr.* Date: 9/9/14  
Printed Name Of Developer: DONALD REUWER, JR.

By The Engineer:  
"I Certify That This Plan For Pond Construction, Erosion And Sediment Control Represents A Practical And Feasible Based On My Personal Knowledge Of The Site Conditions. This Plan Was Prepared In Accordance With The Requirements Of The Howard Soil Conservation District. I/We, the Engineer, Licensed Professional Engineer To Supervise Pond Construction And Provide The Howard Soil Conservation District With An "As-Built" Plan Of The Pond Within 30 Days Of Completion. I Also Authorize Periodic On-Site Inspections By The Howard Soil Conservation District."

Signature: *Alfredo Vitucci, P.E.* Date: 2/13/14  
Printed Name Of Engineer: ALFREDO VITUCCI, P.E.

These Plans For Small Pond Construction, Soil Erosion And Sediment Control Meet The Requirements Of The Howard Soil Conservation District.  
Signature: *John R. Botwin* Date: 3/13/14  
Printed Name Of Engineer: JOHN R. BOTWIN

Approved: Department Of Public Works  
Signature: *W. J. Smith* Date: 3-23-14  
Chief, Bureau Of Highways

Approved: Department Of Planning And Zoning  
Signature: *Victor J. ...* Date: 4/10/14  
Chief, Division Of Land Development  
Signature: *Chad E. ...* Date: 3-28-14  
Chief, Development Engineering Division

**AS-BUILT CERTIFICATION**  
I Herby Certify That The Facility Shown On This Plan Was Constructed As Shown On The "As-Built" Plans And Meets The Approved Plans And Specifications.  
Signature: \_\_\_\_\_ P.E. No. \_\_\_\_\_  
Date: \_\_\_\_\_  
Certify Means To State Or Declare A Professional Opinion Based Upon Onsite Inspections And Material Tests Which Are Conducted During Construction. The Onsite Inspections And Material Tests Are Those Inspections And Tests Deemed Sufficient And Appropriate Commonly Accepted Engineering Standards. Certify Does Not Mean Or Imply A Guarantee By The Engineer Nor Does An Engineer's Certification Relieve Any Other Party From Meeting Requirements Imposed By Contract, Employment, Or Other Means, Including Meeting Commonly Accepted Industry Practices.

REVISIONS		
NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-BIORETENTION WITH A SINGLE MICRO-BIORETENTION LOCATED AT THE REAR OF LOT 15.	2/3/14
2	REMOVED SHEET NO. TO REFLECT ADDED SHEETS	9/09/15

**PRIVATE FACILITIES**  
NOTE: ALL PRIVATE FACILITIES ARE TO BE CONSTRUCTED & DETAILED AT THE SITE DEVELOPMENT PLAN PHASE, ONCE ACTUAL HOUSE TYPES ARE SELECTED.

**FUTURE STORMWATER MANAGEMENT DETAILS**  
**CHERRYTREE VIEW**  
BUILDABLE LOTS 1 - 4 AND 14 - 20  
OPEN SPACE LOTS 12 & 13  
PREVIOUS FILE NOS.: ECP-11-003, WP-11-065 & SP-11-001  
TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 55  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: FEBRUARY 3, 2014  
SHEET 13 OF 17

"Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-15."



Signature: *Alfredo Vitucci* Date: 2/13/14  
ALFREDO VITUCCI, P.E.

**OWNER**  
MR. & MRS. HILEY A. ORNDORFF  
10909 SCAGSVILLE ROAD  
LAUREL, MARYLAND 20723  
ATTN: MR. DONALD R. REUWER, JR.  
443-367-0422

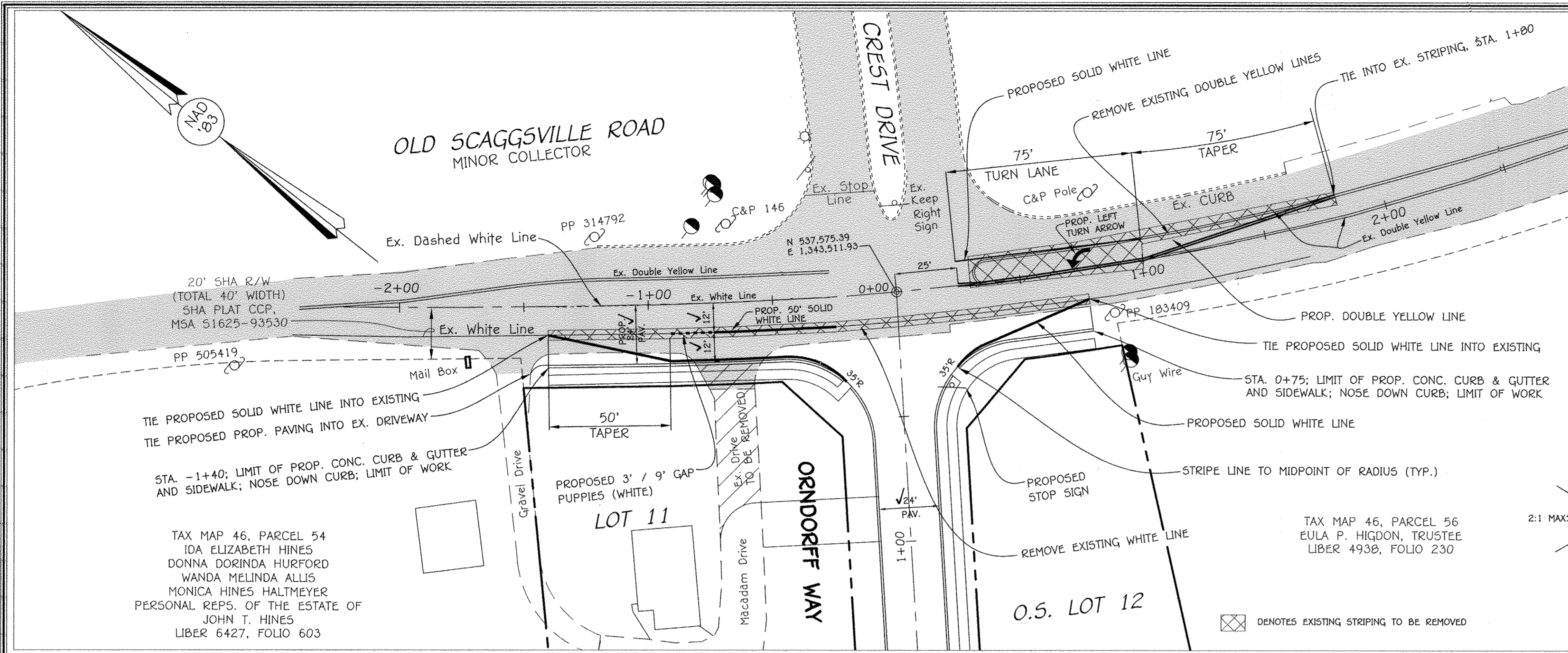
**DEVELOPER**  
FAL DEVELOPERS, L.L.C.  
5300 DORSEY HALL DRIVE, SUITE 102  
ELLCOTT CITY, MARYLAND 21042  
ATTN: MR. DONALD R. REUWER, JR.  
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**FISHER, COLLINS & CARTER, INC.**  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE, OFFICE 500 - 10775 DALLAS DRIVE, NATIONAL PIKE  
ELLCOTT CITY, MARYLAND 21042  
(410) 461-2099

I:\2010\10014\Drawings\FINAL\SR\Drawings and Replacements SDP\_Lots 1-4\_14-201010014\_Sheet 13.dwg, 2/10/2014 2:47:58 PM, HP Designer1 T1500 PS HPCL2 (temporary).pc3

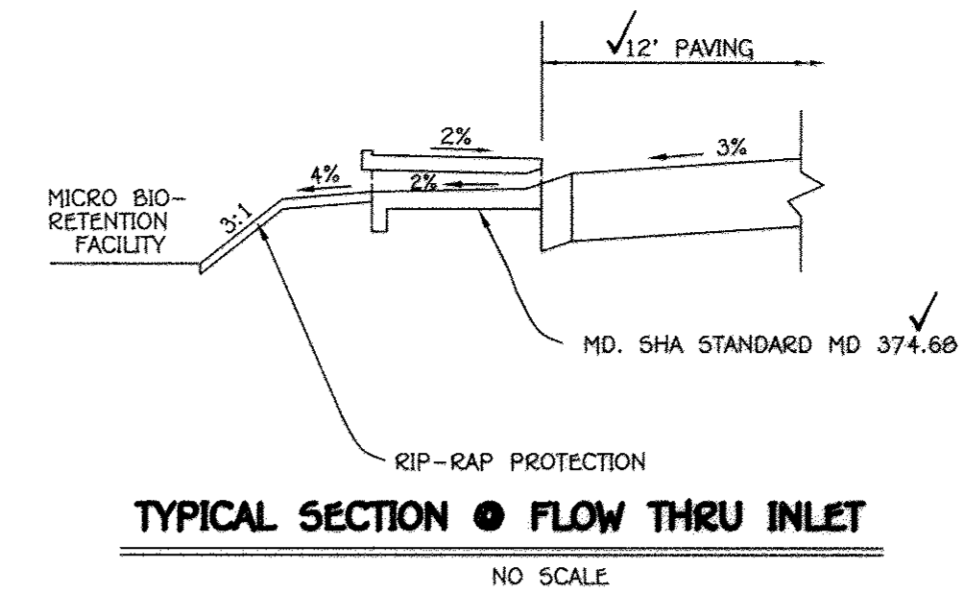
**THERE IS NO AS-BUILT INFORMATION ON THIS SHEET**





TAX MAP 46, PARCEL 54  
IDA ELIZABETH HINES  
DONNA DORINDA HURFORD  
WANDA MELINDA ALLIS  
MONICA HINES HALTMEYER  
PERSONAL REPS. OF THE ESTATE OF  
JOHN T. HINES  
LIBER 6427, FOLIO 603

TAX MAP 46, PARCEL 56  
EULA P. HIGDON, TRUSTEE  
LIBER 4938, FOLIO 230



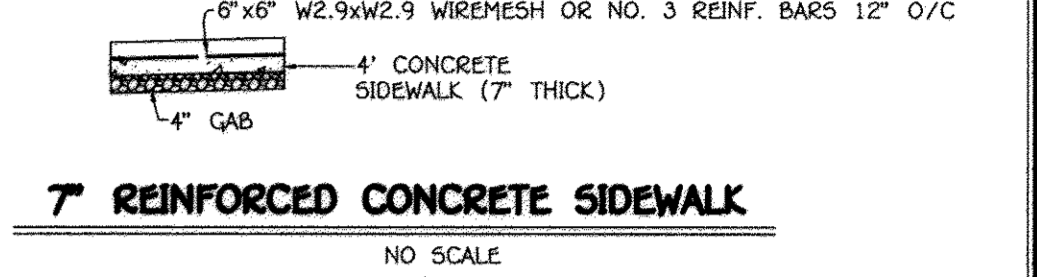
TYPICAL SECTION @ FLOW THRU INLET  
NO SCALE

APPROVED: DEPARTMENT OF PUBLIC WORKS  
*White 2. 2011* 7-11-2011  
CHIEF, BUREAU OF HIGHWAYS

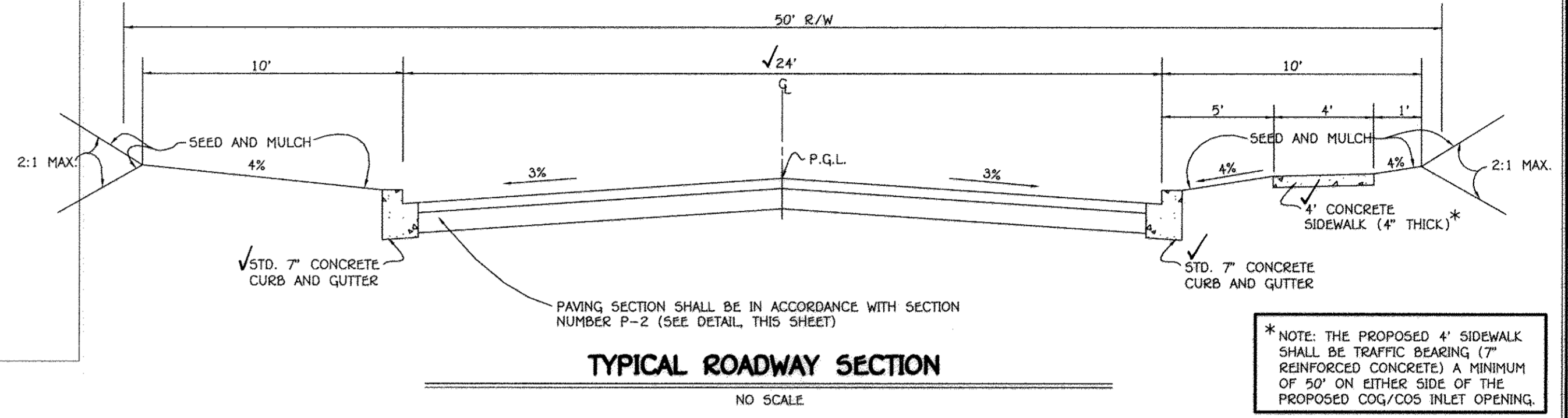
APPROVED: DEPARTMENT OF PLANNING AND ZONING  
*Keith S. ...* 7/19/11  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Paul ...* 7.17.11  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

REVISIONS		
NO.	DESCRIPTION	DATE
1	REPLACE THREE MICRO-RETENTION WITH A SINGLE MICRO-RETENTION LOCATED AT THE REAR OF LOT 12	2/9/11
2	REMOVED SHEET NO. 10 TO REFLECT ADDED SHEET	9/29/11



7 REINFORCED CONCRETE SIDEWALK  
NO SCALE



TYPICAL ROADWAY SECTION  
NO SCALE

\* NOTE: THE PROPOSED 4" SIDEWALK SHALL BE TRAFFIC DEAGING (7" REINFORCED CONCRETE) A MINIMUM OF 50' ON EITHER SIDE OF THE PROPOSED COG/COS INLET OPENING.

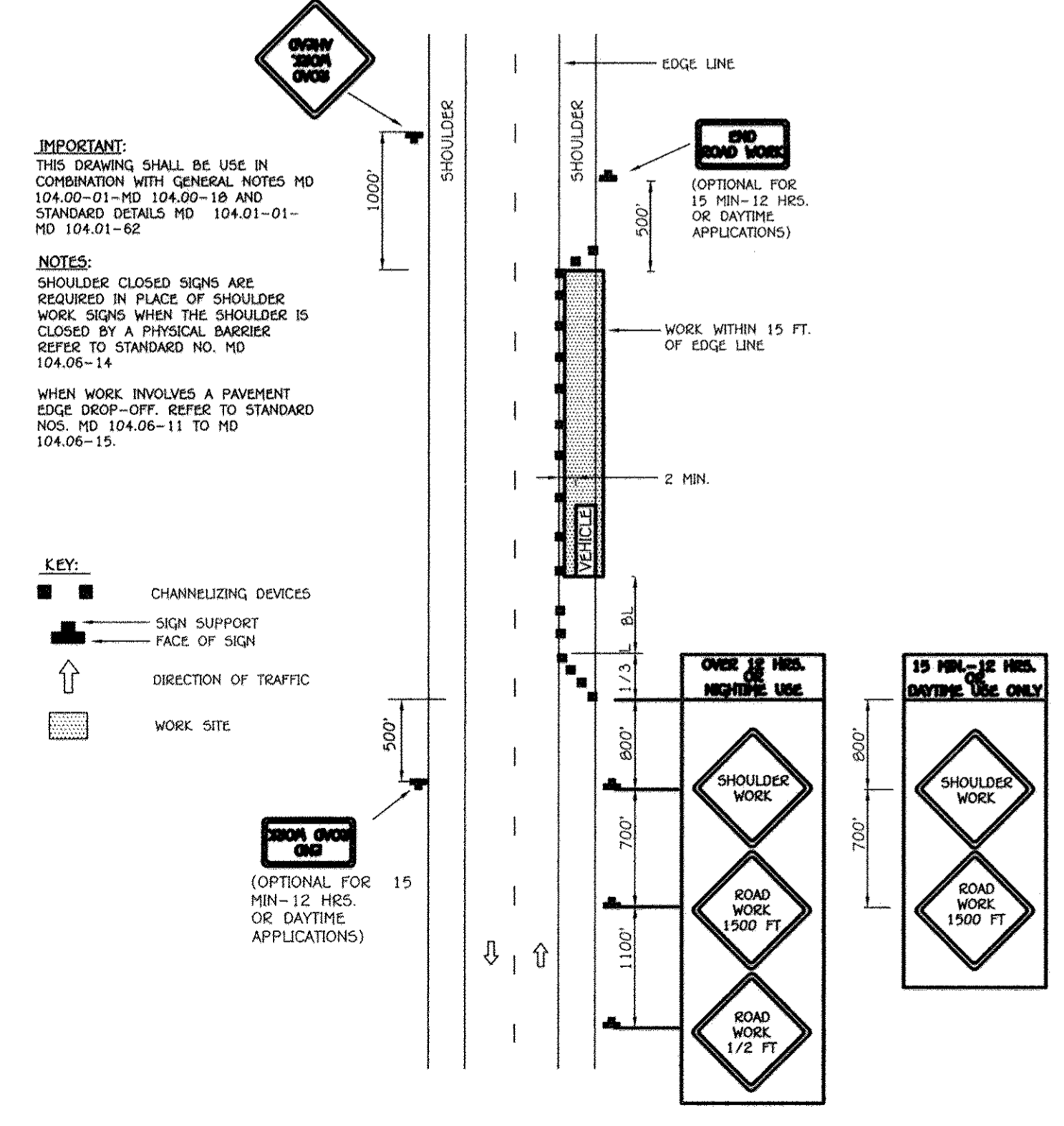
PAVEMENT MARKING NOTES:

- ALL EXISTING LINE REMOVAL SHALL BE DONE BY GRINDING AS DIRECTED BY TRAFFIC DIVISION.
- ALL LINE WIDTHS ARE 5".

STRIPING PLAN

SCALE: 1" = 30'

ROADWAY INFORMATION CHART					
ROAD NAME	CLASSIFICATION	DESIGN SPEED	ZONING	STATION LIMITS	PAVING SECTION
ORNDORFF WAY	PUBLIC ACCESS PLACE	25 M.P.H.	R-20	0+00 TO 5+02.79	P-2



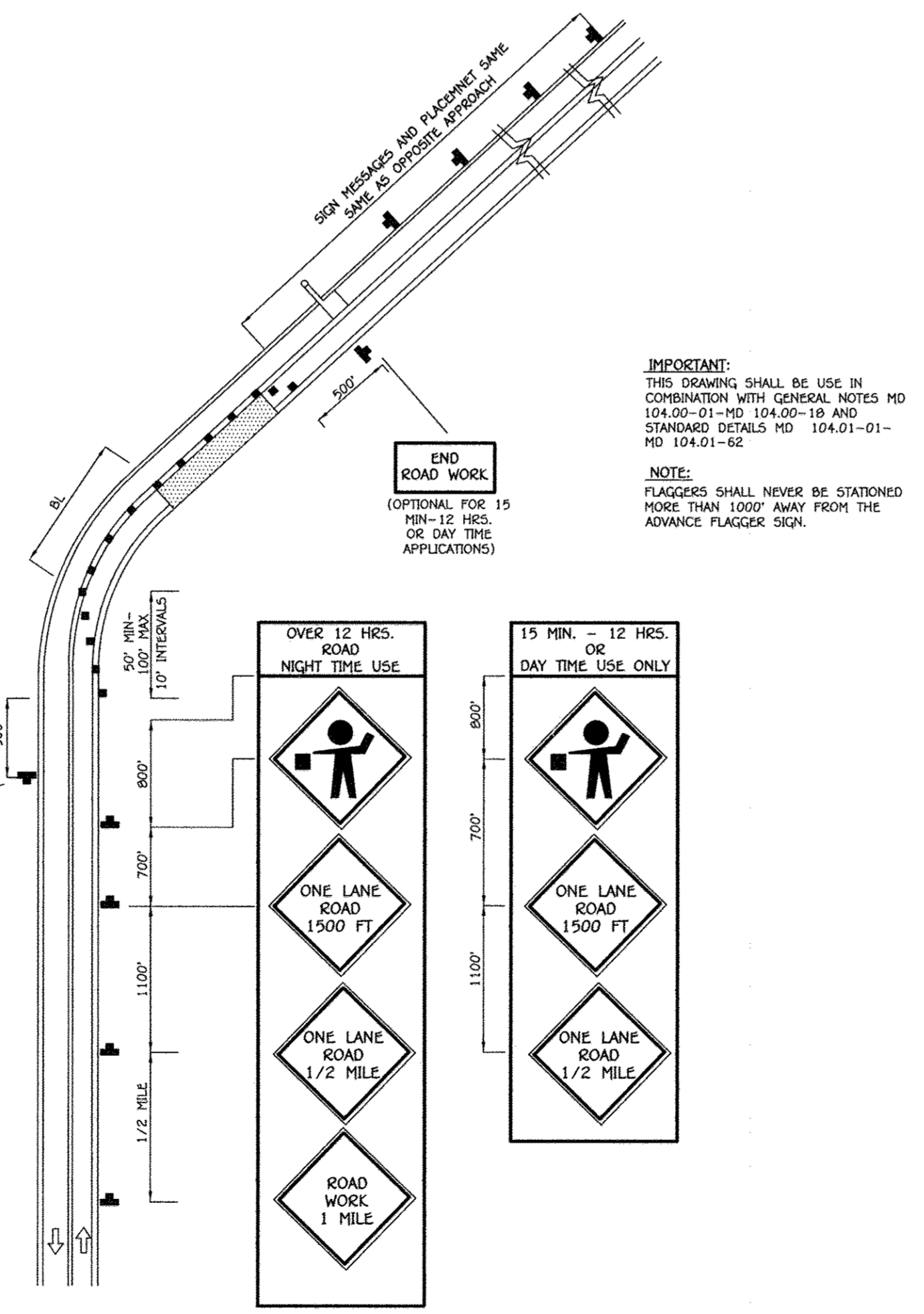
SHOULDER WORK / 2-LANE, 2-WAY  
GREATER THAN 40 MPH  
NO SCALE

**IMPORTANT:**  
THIS DRAWING SHALL BE USED IN COMBINATION WITH GENERAL NOTES MD 104.00-01-MD 104.00-18 AND STANDARD DETAILS MD 104.01-01-MD 104.01-62

**NOTES:**  
SHOULDER CLOSED SIGNS ARE REQUIRED IN PLACE OF SHOULDER WORK SIGNS WHEN THE SHOULDER IS CLOSED BY A PHYSICAL BARRIER REFER TO STANDARD NO. MD 104.06-14

WHEN WORK INVOLVES A PAVEMENT EDGE DROP-OFF, REFER TO STANDARD NOS. MD 104.06-11 TO MD 104.06-15.

**KEY:**  
CHANNELIZING DEVICES  
SIGN SUPPORT  
FACE OF SIGN  
DIRECTION OF TRAFFIC  
WORK SITE

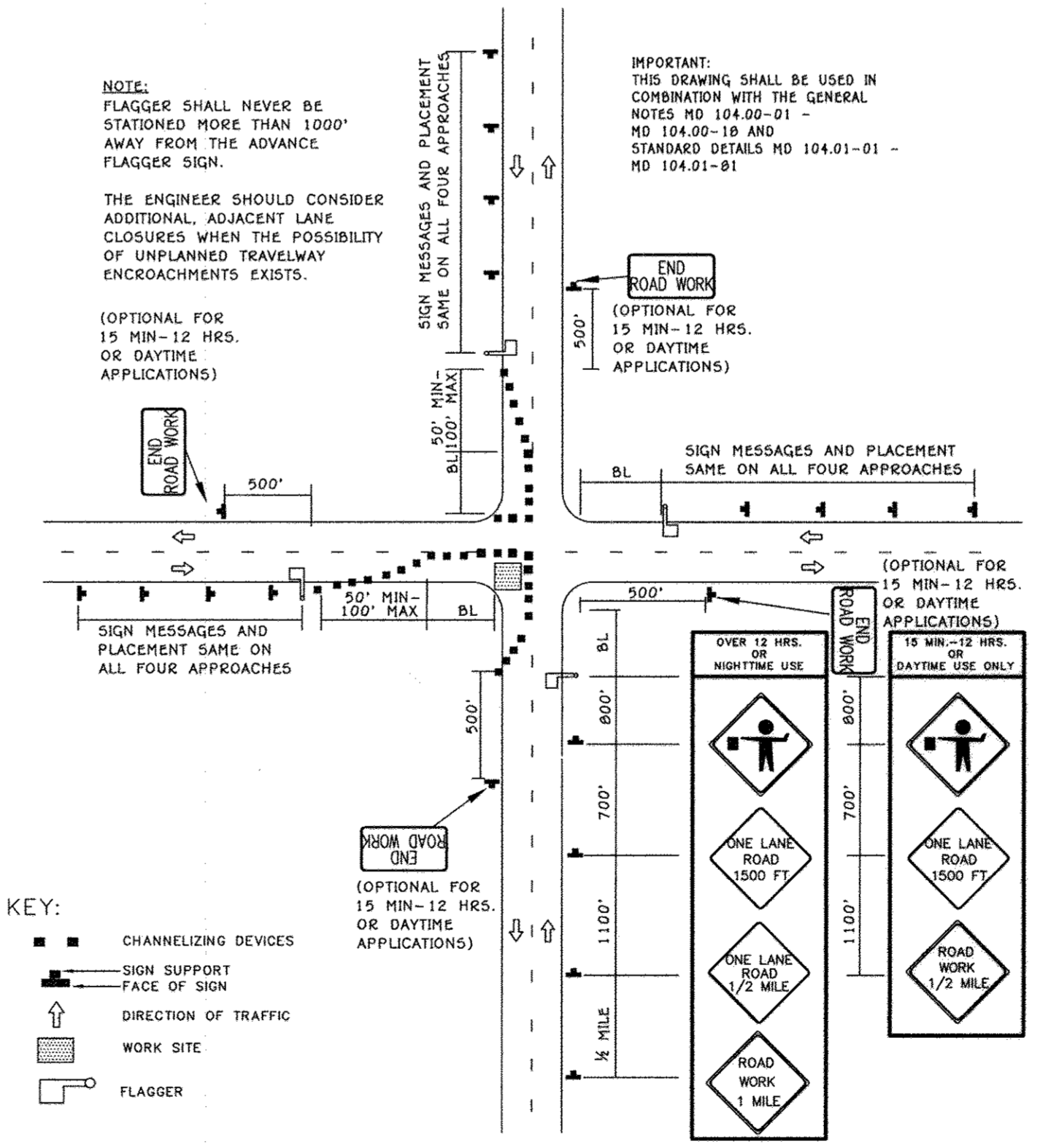


FLAGGING OPERATION / 1-LANE, 2-WAY  
GREATER THAN 40 MPH  
NO SCALE

**IMPORTANT:**  
THIS DRAWING SHALL BE USED IN COMBINATION WITH GENERAL NOTES MD 104.00-01-MD 104.00-18 AND STANDARD DETAILS MD 104.01-01-MD 104.01-62

**NOTES:**  
FLAGGERS SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

**KEY:**  
CHANNELIZING DEVICES  
SIGN SUPPORT  
FACE OF SIGN  
DIRECTION OF TRAFFIC  
WORK SITE  
FLAGGER



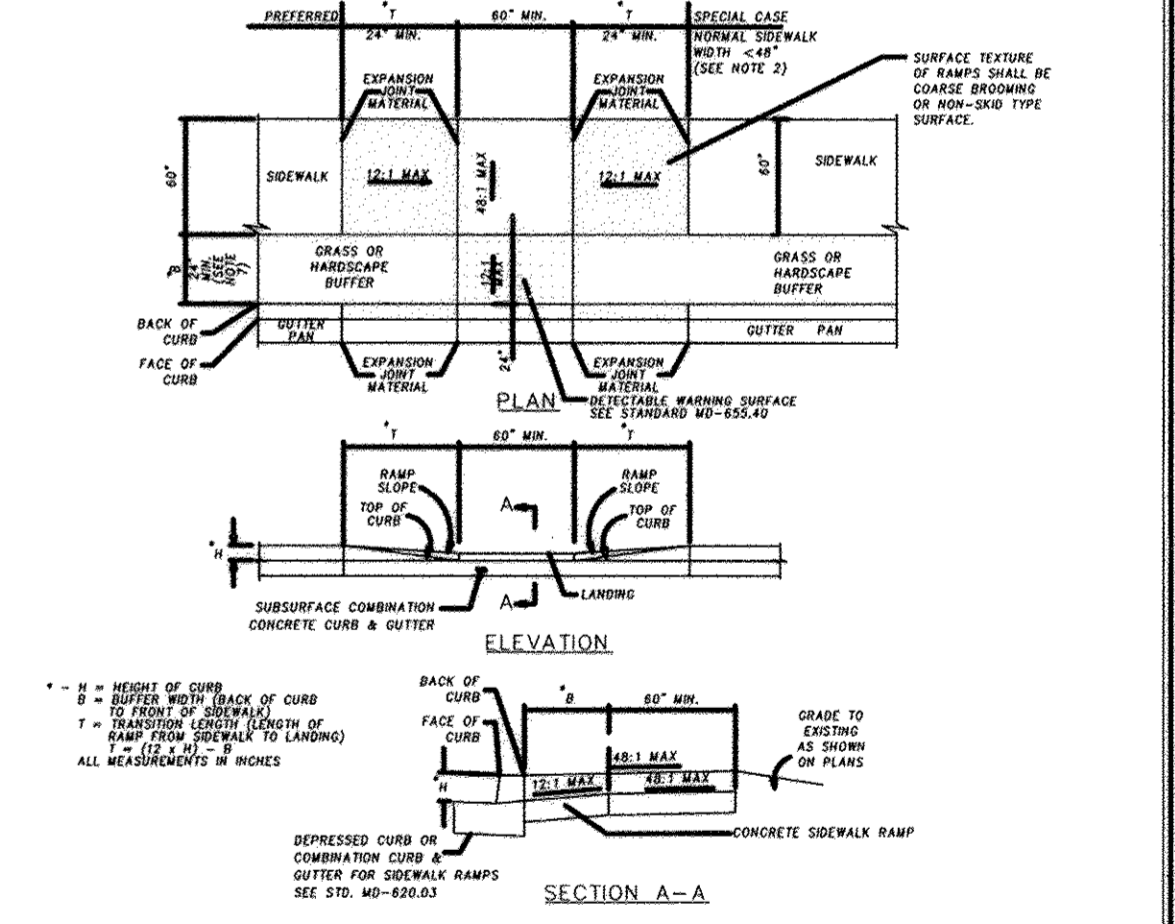
INTERSECTION FLAGGING OPERATION  
2-LANE, 2-WAY GREATER THAN 40 MPH  
NO SCALE

**NOTE:**  
FLAGGER SHALL NEVER BE STATIONED MORE THAN 1000' AWAY FROM THE ADVANCE FLAGGER SIGN.

THE ENGINEER SHOULD CONSIDER ADDITIONAL ADJACENT LANE CLOSURES WHEN THE POSSIBILITY OF UNPLANNED TRAVELWAY ENCROACHMENTS EXISTS.

**KEY:**  
CHANNELIZING DEVICES  
SIGN SUPPORT  
FACE OF SIGN  
DIRECTION OF TRAFFIC  
WORK SITE  
FLAGGER

**IMPORTANT:**  
THIS DRAWING SHALL BE USED IN COMBINATION WITH THE GENERAL NOTES MD 104.00-01 - MD 104.00-18 AND STANDARD DETAILS MD 104.01-01 - MD 104.01-61



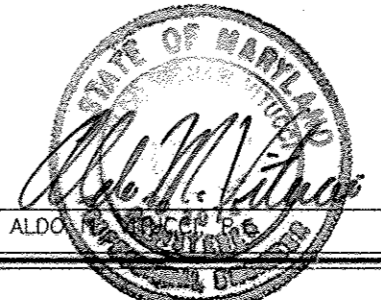
MD. SHA SIDEWALK RAMP COMBINATION  
MD-655.13

**NOTES:**  
1. NO. 2 SHALL BE USED WHEN AT LEAST 7'-0" EXIST BETWEEN THE BACK OF CURB AND THE BACK OF SIDEWALK. THIS STANDARD SHALL BE MODIFIED TO SUIT A PARTICULAR LOCATION.  
2. WIDTH OF SIDEWALK CAN NOT BE PROVIDED. A DESIGN WALKER MUST BE REQUESTED.  
3. NO REINFORCEMENT SHALL BE INSTALLED ON THE RAMP OR SIDEWALK SHALL EXCEED 12" IN THE DIRECTION OF PEDESTRIAN TRAVEL OR 48" PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL.  
4. EXPANSION JOINT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH STD. MD-855.2.  
5. SIDEWALK RAMP SHALL BE INCLUDED IN PRICE BID FOR CONCRETE SIDEWALK. DEPRESSION CURB AND CURB TRAVEL SHALL BE INCLUDED IN PRICE BID FOR CURB OF CURB & GUTTER ADJUSTED TO SIDEWALK RAMP. DETECTABLE WARNING SURFACE SHALL BE PAID FOR IN ACCORDANCE WITH SECTION 411 OF THE SPECIFICATIONS.  
6. SIDEWALK RAMP TO BE SHOWN ON PLANS TEMPORARILY AND REFERENCED WITH THE CENTER OF THE RAMP ADJUSTED TO A STATION ON THE CONSTRUCTION CENTERLINE. SEPARATE DETAILS SHALL SHOW WORK PROVIDED FOR EACH CASE.  
7. FOR BUFFER WIDTHS LESS THAN 24", WHEN SIDEWALK TO BACK OF CURB AS SHOWN FOR THE SPECIAL CASE, THEN BUILD PARALLEL RAMP SIGNS STANDARD MD-655.13.

FISHER, COLLINS & CARTER, INC.  
CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
CENTENNIAL SQUARE OFFICE PARK, SUITE 10772 BALTIMORE NATIONAL PIKE  
ELLICOTT CITY, MARYLAND 21042  
(410) 481-2855

**OWNER**  
MR. & MRS. HILEY A. ORNDORFF  
10909 SCAGGSVILLE ROAD  
LAUREL, MARYLAND 20723  
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443-367-0422

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5300 DORSEY HALL DRIVE, SUITE 102  
ELLICOTT CITY, MARYLAND 21042  
ATTN: MR. DONALD R. REUWER, JR.  
443-367-0422



"Professional certification, I hereby certify that these documents were prepared by me, and that I am a duly Licensed Professional Engineer under the laws of the State of Maryland, License No. 20748, Expiration Date 2-22-13."

OLD SCAGGSVILLE ROAD STRIPING,  
ROAD SECTION DETAILS & TRAFFIC  
CONTROL PLAN  
**CHERRYTREE VIEW**  
BUILDABLE LOTS 1-4 AND 14-20,  
OPEN SPACE LOTS 12 & 13  
ZONING: R-20  
PREVIOUS FILE NOS.: ECP-11-003, WP-11-065 & SP-11-001  
TAX MAP NO. 46 GRID NO. 11 PARCEL NO. 95  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: FEBRUARY 9, 2014  
SHEET 14 OF 17



**MULTIFLORA ROSE CONTROL NOTE:**

**PRIOR TO PLANTING ALL MULTIFLORA ROSE WITHIN PLANTING AREAS SHALL BE REMOVED.** Removal of the Multiflora Rose May Be Performed With Mowing And Herbicide Treatments. Physical Removal of All Top Growth Followed By A Periodic Herbicide Treatment Of Stump Sprouts Is Recommended. Native Tree And Shrub Species Occurring Within The Rose Thickets Should Be Retained Wherever Possible. Herbicide Treatments Shall Occur On Two (2) Month Intervals During The First Growing Season And Once In The Spring And Once In The Fall For Subsequent Years. Herbicide Used Shall Be Made Specifically To Address Woody Plant Material And Shall Be Applied As Per Manufacturers Specifications. Care Should Be Taken Not To Spray Planted Trees Or Naturally Occurring Native Tree And Shrub Seedlings. It Is Recommended That Initiation Of Rose Removal Be At Least Six Months Prior To Planting So That New Growth Of Roses Is Able To Be More Successfully Managed.

**PLANTING / SOIL SPECIFICATIONS**

- Planting Of Nursery Stock Shall Take Place Between March 15th And April 30th Or September 15th And November 15th.
- A Twelve (12) Inch Layer Of Topsoil Shall Be Spread Over All Reforestation Areas Impacted By Site Grading To Assure A Suitable Planting Area. If Applicable, Disturbed Areas Shall Be Seeded And Stabilized In Accordance With The Sediment & Erosion Control Plan For This Project. Planting Areas Not Impacted By Site Grading Shall Have No Additional Topsoil Installed.
- All Bare Root Planting Stock Shall Have Their Root System Dipped Into An Anti-Desiccant Gel Prior To Planting.
- Plants Shall Be Installed So That The Top Of The Root Mass Is Level With The Top Of Existing Grade. Backfill In The Planting Pits Shall Consist Of 3 Parts Existing Soil To 1 Part Fine Fines Or Equivalent.
- Fertilizer Shall Consist Of Agriform 22-8-2, Or Equivalent, Applied As Per Manufacturer's Specifications.
- A Two (2) Inch Layer Of Hardwood Mulch Shall Be Placed Over The Root Area Of All Plantings. See Planting Detail.
- Plant Material Shall Be Transported To The Site In A Tarped Or Covered Truck. Plants Shall Be Kept Moist Prior To Planting.
- All Non-Organic Debris Associated With The Planting Operation Shall Be Removed From The Site By The Contractor.

**SEQUENCE OF CONSTRUCTION**

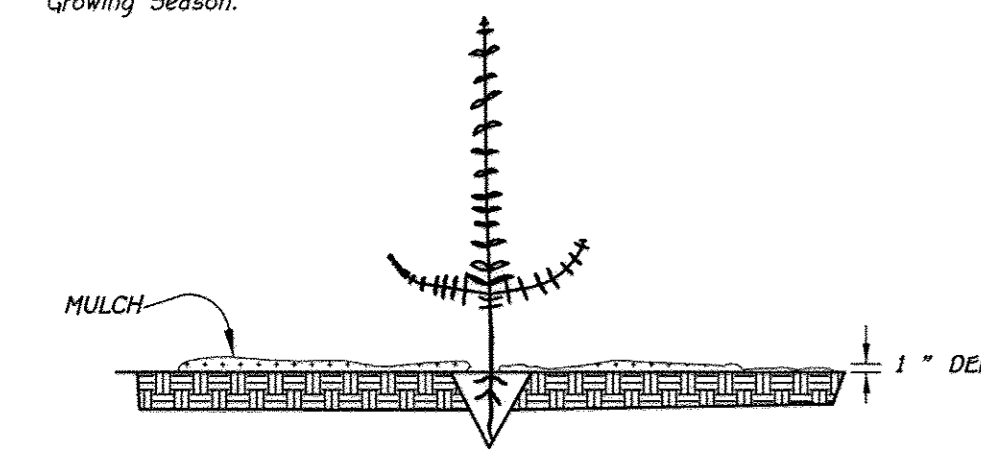
- Sediment Controls And Tree Protective Devices Shall Be Installed In Accordance With Sediment & Erosion Control Plans For This Site, If Applicable. Site Shall Be Graded In Accordance With The Plans.
- Proposed Reforestation Areas Impacted By The Site Grading Shall Be Topsoiled And Stabilized As Per Note 2 Of The "Planting / Soil Specifications".
- Plants Shall Be Installed And Maintained As Per Notes And Specifications For This Project.
- Upon Completion Of The Plantings, Signage Shall Be Installed As Per The Signage Detail.
- Plantings Shall Be Guaranteed And Maintained In Accordance With The "Guarantee Requirements" And "Maintenance Of Plantings" Associated With This Project.

**MAINTENANCE OF PLANTINGS**

- Maintenance Of Plantings Shall Last For A Period Of 26 Months.
- All Plant Material Shall Be Generally Watered Twice A Month During The 1st Growing Season. Watering May Be More Or Less Frequent Depending On Weather Conditions.
- During The 2nd Growing Season, Plant Material Shall Be Watered Once A Month From May To September, As Needed.
- Invasive Exotics And Noxious Weeds Shall Be Removed From The Reforestation Area(s). Old Field Successional Species Shall Be Retained.
- Plants Shall Be Examined A Minimum Of Two (2) Times During The Growing Season For Serious Plant Pests And Diseases With The Appropriate Agent.
- Dead Branched Shall Be Pruned From The Plantings.

**GUARANTEE REQUIREMENTS**

A 75% Survival Rate For The Reforestation Plantings Is Required At The End Of The 24 Month Maintenance Period. All Plant Material Below The 75% Threshold Is Required To Be Replaced At The Beginning Of The Next Growing Season.



**Seedling and Whip Planting Specification**  
 • Each whip to be protected by a tree shelter

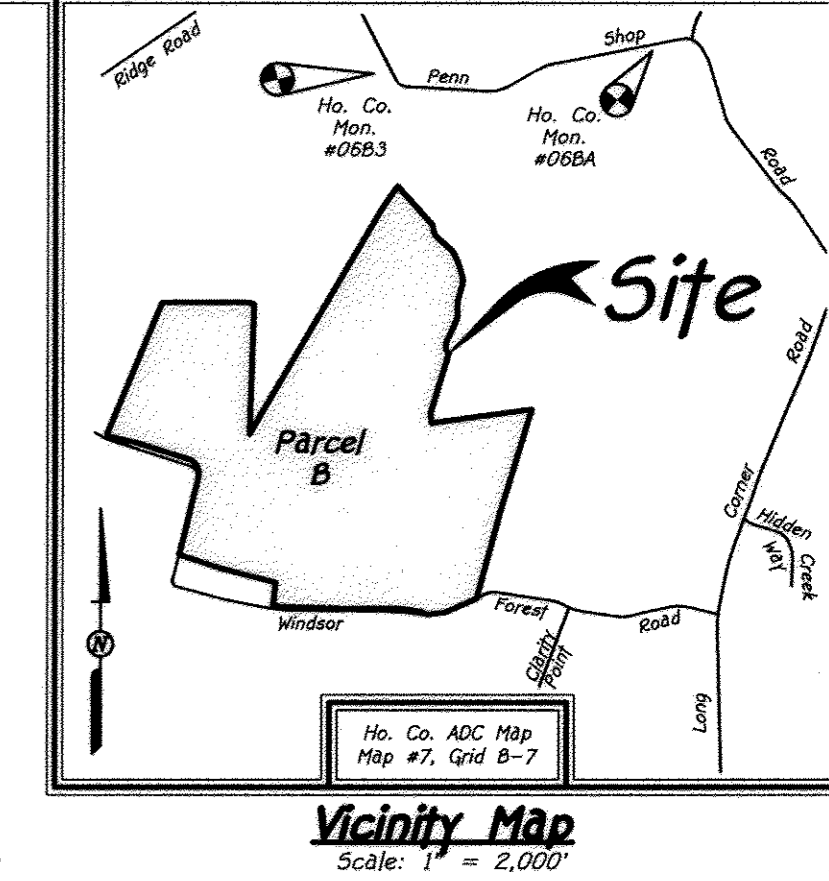
Total Computed Parcel Acreage	194,711.2 Acres	45 DEO Units	2 DEO Units
DEO Units Sent	63	Ashleigh Knolls, Phase 3, F-10-03 Tax Map 40, Parcel 174 Tax Map 41, Parcel 137	Ashleigh Knolls, Phase 3, F-10-03 Tax Map 40, Parcel 174 Tax Map 41, Parcel 137
Receiving Parcel	18 DEO Units	45 DEO Units	2 DEO Units
Size of Preservation Parcel	194,711.2 Acres	45 DEO Units	2 DEO Units

Approved: Howard County Department Of Planning And Zoning  
 Chief, Division Of Land Development  
 Chief, Development Engineering Division

1st Exchange	2nd Exchange
Windsor Forest Fox Chasing Tax Map 6, Part Of Parcel 15	Windsor Forest Fox Chasing Tax Map 6, Part Of Parcel 15
Total Parcel Computed Acreage	97,270 Acres
Preservation Parcel Acreage	43,435 Acres
DEO Units Sent (1-4-25)	0
DEO Units Sent (1-3)	43,435/3 = 14,478
DEO Units Sent (1-3)	15
DEO/DEO Units Sent (1-3)	0
Receiving Parcel Benson Branch	F-95-198 Windy Knolls Tax Map 34, P. 24 & 134

Windsor Forest Fox Chasing Tax Map 6, Part Of Parcel 15	Windsor Forest Fox Chasing Tax Map 6, Part Of Parcel 15
Total Parcel Computed Acreage	97,270 Acres
Preservation Parcel Acreage	52,25 Acres
DEO Units Sent (1-4-25)	0
DEO Units Sent (1-3)	17
DEO/DEO Units Sent (1-3)	9 (27 Acres)
DEO/DEO Units Sent (1-3)	0
Receiving Parcel Benson Branch	F-96-72 Tax Map 22, Parcel 16

Soil	Name	Class
B/A	Baile silt loam, 0 to 3 percent slopes	D
B/C	Brinklow channery loam, 0 to 15 percent slopes	B
B/D	Brinklow channery loam, 15 to 25 percent slopes	B
B/H	Brinklow-Blocktown channery loams, 25 to 65 percent slopes	B/C
C	Codorus and Hathoro silt loams, 0 to 3 percent slopes	C
G/A	Glenville silt loam, 0 to 3 percent slopes	C
G/B	Glenville silt loam, 3 to 8 percent slopes	C
G/C	Glenville silt loam, 8 to 15 percent slopes	C
G/D	Glenville-Baile silt loams, 0 to 8 percent slopes	C
H/A	Hathoro-Codorus silt loams, 0 to 3 percent slopes	D
O/B	Ocoquan loam, 3 to 8 percent slopes	B
O/C	Ocoquan loam, 8 to 15 percent slopes	B



**General Notes:**

- Subject Property Zoned RC-DEO Per The 10/06/13 Zoning Regulations.
- Coordinates Based On NAD '83 Maryland Coordinate System As Projected By Howard County Geodetic Control Stations No. 068A And 068B. Station No. 068A North 611,660.1436 East 1,267,349.3405 Station No. 068B North 611,265.3999 East 1,264,511.0860
- This Plot Is Based On Field Run Monumented Boundary Survey Performed On Or About May, 2012 By Vannmar Assoc., Inc., As Shown On Plot Nos. 22267 Thru 22269.
- Denotes Iron Pin Set With Cap "F.C.C. 106".
- Denotes Iron Pipe Or Iron Bar Found.
- Denotes Angular Change In Bearing Of Boundary Or Rights-Of-Way.
- Denotes Concrete Monument Set With Cap "F.C.C. 106".
- Denotes Concrete Monument Or Stone Found.
- No Grading, Removal Of Vegetative Cover Or Trees, Or Placement Of New Structures Is Permitted Within The Limits Of Wetlands, Or Their Buffers And Forest Conservation Easement Areas.
- All Lot Areas Are More Or Less As Shown.
- Distances Shown Are Based On Surface Measurement And Not Reduced To NAD '83 Grid Measurement.
- Previous Department Of Planning And Zoning File Numbers: F-82-13, F-95-29, F-96-072, F-06-19, F-07-030, F-07-030(F), F-08-203(F), F-11-026, F-11-026(F), F-13-059, F-13-064 And Council Resolution 17-2008.
- This Property Is Located Outside The Metropolitan District.
- There Are Existing Dwellings/Structures Located On Parcel B To Remain. No New Buildings, Extensions Or Additions To The Existing Dwellings(s) Are To Be Constructed At A Distance Less Than The Zoning Regulation Requirements.
- This Plot Is In Compliance With The Amended Fifth Edition Of The Subdivision And Land Development Regulations Per Council Bill 45-2003 And The Zoning Regulations As Amended By Council Bill 75-2003. Development Or Construction On These Lots Must Comply With Setback And Buffer Regulations In Effect At The Time Of Submission Of The Development Plan, Waiver Petition Application, Or Building/Grading Permit.
- This Property Is Encumbered By A Preservation Easement Deed With Howard County And The Howard County Conservancy, Inc., Dated June 30, 1995 And Recorded In Liber 3846 At Folio 637.
- This Area Designates A Private Sewerage Easement Of At Least 10,000 Square Feet As Required By The Maryland State Department Of The Environment For Individual Sewerage Disposal. Improvements Of Any Nature In This Easement Are Restricted. This Easement Shall Become Null And Void Upon Connection To A Public Sewerage System. The County Health Officer Shall Have The Authority To Grant Adjustments To The Private Sewerage Easement, Recodification Of A Revised Sewerage Easement Shall Not Be Necessary.
- The Lots Shown Hereon Conform With The Minimum Ownership With And Lot Area As Required By The Maryland State Department Of The Environment.
- A 35' Environmental Setback Is Required On Parcels/Lots That Contain Environmental Features.
- Topography Is Based On Howard County 2007 Scale Topographic Maps.
- This Plan Complies With The Requirements Of Section 16.1200 Of The Howard County Code For Forest Conservation By The Reforestation Of 1,000 Acres (43,560 Sq. Ft.) Of Forest, Surety For The Reforestation In The Amount Of \$21,780.00 (43,560 x \$50.50) Shall Be Posted As Part Of The DFW Developers Agreement Associated With Cherrytree View, F-11-063.

**REFORESTATION PLANTING NOTES**

- Plants, Related Material, And Operations Shall Meet The Detailed Description As Given On The Plans And As Described Herein.
- Plant Material, Unless Otherwise Specified, Shall Be Nursery Grown, Uniformly Branched And Have A Vigorous Root System. Plant Material Shall Be Healthy, Vigorous Plants Free From Defects, Decay, Disturbing Roots, Sunscald Injuries, Abrasions Of The Bark, Plant Disease, Insect Pest Eggs, Boxers, Infestations Or Objectionable Disfigurements. Plant Material That Is Weak Or Which Has Been Cut Back From Larger Grades To Meet Specified Requirements Will Be Rejected. Trees With Forked Leaders Will Not Be Accepted. Plants Shall Be Freshly Dug; No Heeled-In Plants Or Plants From Cold Storage Will Be Accepted.
- Unless Otherwise Specified, Plant Material Shall Conform To "American Standard For Nursery Stock" ANSI Z60.1-1990, Published By The American Association Of Nurserymen, Including All Addenda.
- Contractor Will Be Required To Guarantee Plant Material For A Period Of Two (2) Years After The Date Of Acceptance And Maintain A 75% Survivability At The End Of The Two (2) Year Period.
- To Lessen The Chance Of Loss, The Plantings Should Be Checked From Time To Time To Insure That They Are Receiving Sufficient Water. See "Maintenance Of Plantings" For Guidelines.
- The Location And Orientation Of All Plant Material Shall Be Randomly Planted In Designated Reforestation Areas By The Contractor. Contractor Shall Be Responsible For Moving Any Plant Material Installed Without Approval.
- Mowing And Applying Herbicides To The Reforestation Area Is Prohibited At Any An All Stages Of The Planting Process In Order To Encourage The Existing Saplings To Grow.
- Contractor Is Responsible For Installing And Pruning Plant Material In The Proper Planting Season For Each Plant Type. See Tree Planting & Maintenance Calendar.
- Upon Completion Of Installation, Signage Shall Be Installed As Shown.

**Purpose Statement**  
 The Purpose Of This Plot Is To Create Public Forest Conservation Easement No. 2 (1,000 Acre.) (Reforestation) On Parcel B, As Shown On Plans Entitled "Plot Of Resubdivision, Parcel A-1, Windsor Forest And Amended Plot Of Easement, Parcel B, Hobart Mullineux Property" Previously Recorded As Plot Nos. 22267-22269. Full Public Forest Conservation Off-Site Obligation For Cherrytree View, F-11-063, Tax Map 46, Grid 11, Parcel No. 55.

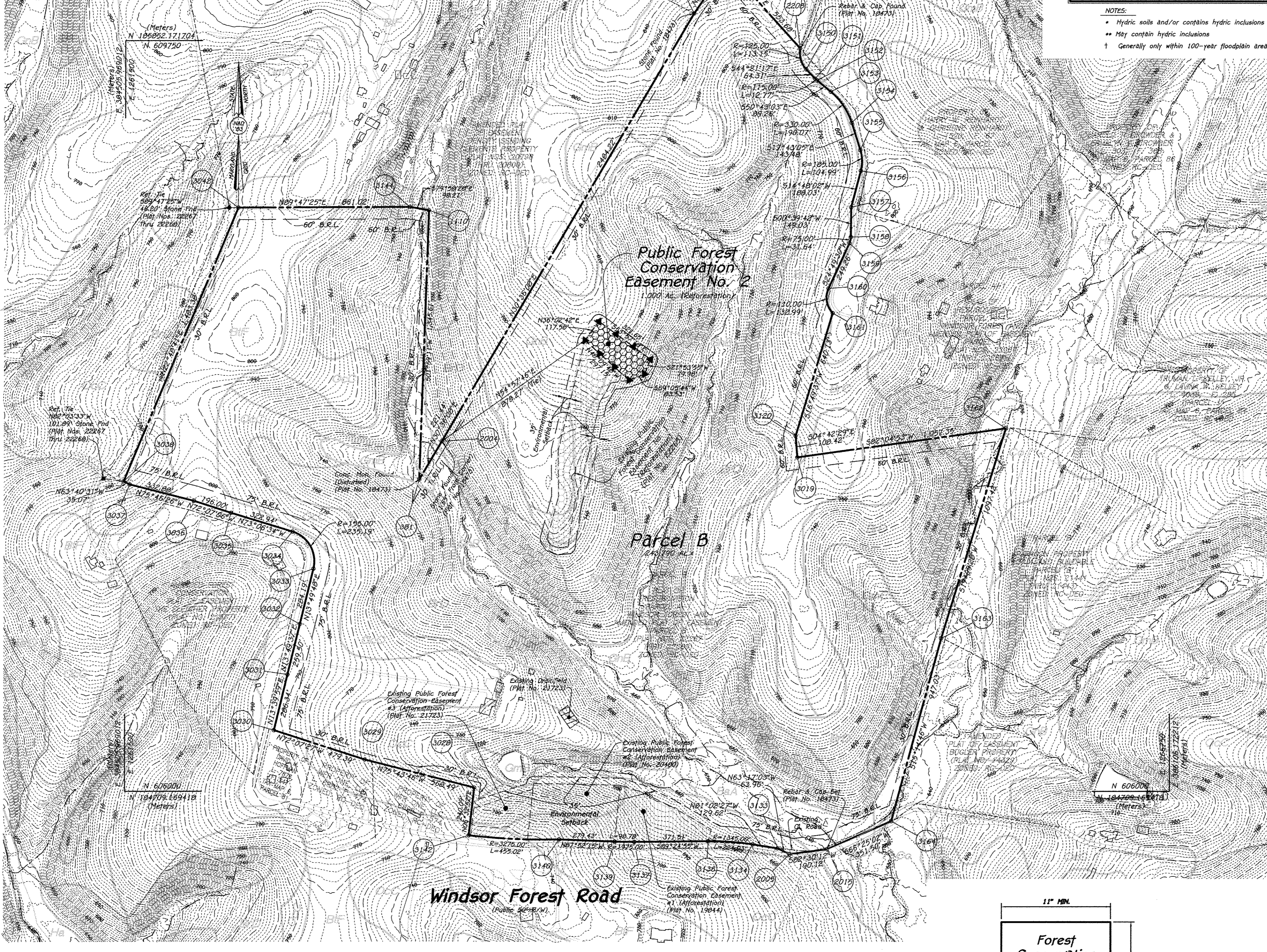
**Off-Site Forest Planting Plan On Hobart Mullineux Property Parcel B**

Tax Map #6 Grid #8 Parcel #15  
 Fourth Election District - Howard County, Maryland  
 Zoned: RC-DEO

**For**

**Cherrytree View (F-11-063)**  
**Buildable Lots 1 Thru 11 And**  
**Open Space Lots 12 And 13**

Zoned: R-20  
 Tax Map #46 Grid # 11 Parcel #55  
 Sixth Election District - Howard County, Maryland  
 Date: September 29, 2015

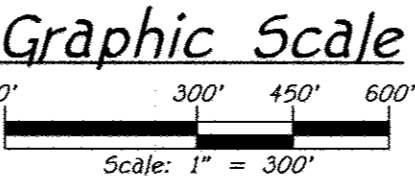


MD DNR Qualified Professional  
 Approved: [Signature]  
 Chief, Division Of Land Development

**Planting Schedule**  
 FCA # 2 1,000 Acres  
 Planting Required: 700  
 Planting Provided: 700

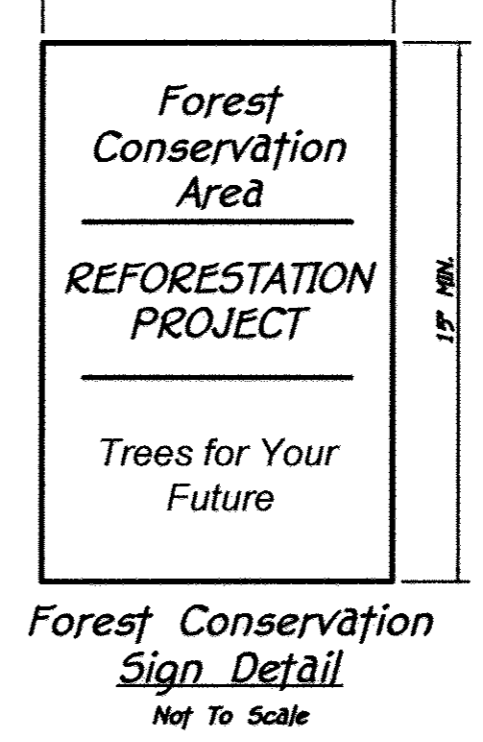
Qty	Species	Size	Spacing	Total FCA Units
50	Acer rubrum - Red maple	2-3" whip	11' o.c.	
25	Diospyros virginiana - Persimmon	2-3" whip	11' o.c.	
55	Liriodendron tulipifera - Tulip poplar	2-3" whip	11' o.c.	
40	Nyssa sylvatica - Black gum	2-3" whip	11' o.c.	
40	Platanus occidentalis - Sycamore	2-3" whip	11' o.c.	
50	Prunus serotina - Black cherry	2-3" whip	11' o.c.	
60	Quercus alba - White oak	2-3" whip	11' o.c.	
30	Ulmus rubra - Slippery elm	2-3" whip	11' o.c.	
350	<b>TOTAL</b>			<b>700</b>

Total Whip Plantings x 2 Units/Tree = FCA Unit Credit 700  
 Total Unit Credit 700



**Legend**

- Existing Public Forest Conservation Easement (Reforestation) (Plot No. 22269)
- Existing Public Forest Conservation Easement Nos. 1, 2 And 3 (Afforestation) (Plot Nos. 19844, 20490 And 21723)
- Public Forest Conservation (Reforestation)



**Owner**  
 Robert Arthur Scranton  
 18950 Windsor Forest Road  
 Mount Airy, Maryland 21771-3922  
 (410) 949-1669

**Developer**  
 Howard Land Developers, LLC  
 5300 Dorsey Hall Drive  
 Suite 102  
 Ellicott City, Maryland 21042  
 (443) 367-0422

**FISHER, COLLINS & CARTER, INC.**  
 CIVIL ENGINEERING CONSULTANTS & LAND SURVEYORS  
 CENTRAL SQUARE OFFICE PARK - 10272 BALTIMORE NATIONAL PIKE  
 ELICOTT CITY, MARYLAND 21042  
 (410) 461-2895



**SEGMENTAL RETAINING WALL SPECIFICATIONS**

**PART 1 - GENERAL**

**1.1 WORK INCLUDES**

FURNISHING AND INSTALLING SEGMENTAL RETAINING WALL UNITS, GEOGRID REINFORCEMENT, WALL FILL, AND BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS AND AS SPECIFIED HEREIN. THE CONTRACT ALSO INCLUDES THE FURNISHING AND INSTALLING OF ALL APPURTENANT MATERIALS, EQUIPMENT, AND LABOR REQUIRED FOR CONSTRUCTION OF THE GEOGRID REINFORCED, SEGMENTAL RETAINING WALL. ALL EXISTING AND PROPOSED CONSTRUCTION AND SITE GRADING INFORMATION WAS REFERENCED FROM THE TOPO WORKSHEET, PREPARED BY FISHER, COLLINS, & CARTER, INC., DATED FEBRUARY 4, 2015.

**1.2 REFERENCE STANDARDS**

- A. ASTM C90-75 (1981 REV) - HOLLOW LOAD BEARING MASONRY UNITS.
- B. ASTM C140-75 (1981 REV) - SAMPLING AND TESTING CONCRETE MASONRY UNITS.
- C. ASTM C146-75 (1981 REV) - SOLID LOAD BEARING CONCRETE MASONRY UNITS.
- D. GEOSYNTHETIC RESEARCH INSTITUTE (GRI), GRI-GG4 - DETERMINATION OF LONG TERM DESIGN STRENGTH OF GEOGRIDS.
- E. ASTM D 638 - TEST METHOD FOR TENSILE PROPERTIES OF PLASTIC.
- F. ASTM D 1248 - SPECIFICATION OF POLYETHYLENE PLASTICS MOLDING AND EXTRUSION MATERIALS.
- G. ASTM D 4218 - TEST METHOD FOR CARBON BLACK CONTENT IN POLYETHYLENE COMPOUNDS BY THE MUFFLE FURNACE TECHNIQUE.
- H. ASTM D 3034 - SPECIFICATION FOR POLYVINYL CHLORIDE (PVC) PIPE.
- I. ASTM C 1372 - SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
- J. INTERNATIONAL BUILDING CODE 2009 (IBC 2009)

**1.3 DELIVERY, STORAGE AND HANDLING**

- A. CONTRACTOR SHOULD CHECK THE MATERIALS UPON DELIVERY TO ASSURE THAT PROPER MATERIAL HAS BEEN RECEIVED.
- B. CONTRACTOR SHOULD PREVENT EXCESSIVE MUD, WET CEMENT, EPOXY, AND LIKE MATERIALS WHICH MAY AFFIX THEMSELVES, FROM COMING IN CONTACT WITH THE MATERIALS.
- C. GEOGRIDS SHOULD BE STORED ABOVE +20' F.
- D. CONTRACTOR SHOULD PROTECT THE MATERIALS FROM DAMAGE. DAMAGED MATERIAL SHOULD NOT BE INCORPORATED INTO THE REINFORCED RETAINING WALL.

**1.4 SUBMITTALS/CERTIFICATION**

THE CONTRACTOR SHALL SUBMIT A MANUFACTURER'S CERTIFICATION, PRIOR TO THE START OF THE WORK, THAT THE RETAINING WALL SYSTEM COMPONENTS MEET THE REQUIREMENTS OF ASTM C 1372 AND OTHER REQUIREMENTS SPECIFIED HEREIN. THIS CERTIFICATION SHOULD BE PROVIDED TO THE GEOTECHNICAL ENGINEER FOR REVIEW AND APPROVAL PRIOR TO WALL CONSTRUCTION.

**PART 2 - PRODUCTS**

**2.1 DEFINITIONS**

- A. GEOGRID IS A HIGH DENSITY POLYETHYLENE, POLYESTER, OR POLYPROPYLENE GRID, SPECIFICALLY FABRICATED FOR USE AS A SOIL REINFORCEMENT.
- B. CONCRETE RETAINING WALL UNITS ARE AS DETAILED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
- C. GEOSYNTHETIC DRAINAGE COMPOSITES ARE POLYETHYLENE NET STRUCTURE WITH NON-WOVEN GEOTEXTILES BONDED TO BOTH SIDES.
- D. EROSION CONTROL BLANKETS CONSIST OF A WEB OF POLYOLEFIN FIBERS SECURELY BOUNDED BY POLYOLEFIN THREADS BETWEEN TWO HIGH STRENGTH POLYOLEFIN NETS.
- E. BACKFILL IS THE SOIL WHICH IS USED AS FILL FOR THE REINFORCED SOIL MASS.
- F. FOUNDATION SOIL IS THE IN-SITU SOIL OR CONTROLLED COMPACTED FILL PLACED BELOW THE BOTTOM OF THE RETAINING WALL AND GEOGRID ZONE.

**2.2 MATERIALS**

THE CONTRACTOR SHOULD SUBMIT MANUFACTURER'S CATALOG AND SAMPLES OF THE PROPOSED MATERIALS FOR APPROVAL BY THE PROJECT GEOTECHNICAL ENGINEER A MINIMUM OF SEVEN DAYS BEFORE THE START OF CONSTRUCTION. MATERIALS SHOULD BE TRANSPORTED TO THE SITE ONLY AFTER APPROVAL OF THE PROPOSED MATERIALS BY THE PROJECT GEOTECHNICAL ENGINEER.

**A. CONCRETE UNITS**

- 1. MASONRY UNITS SHOULD BE DIAMOND PRO STRAIGHT FACE RETAINING WALL UNITS. BLOCK TYPE AND COLOR SHOULD MATCH THAT OF EXISTING ON-SITE RETAINING WALLS AND SHOULD BE APPROVED BY THE OWNER.
- 2. CONCRETE WALL UNITS SHOULD HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI, IN ACCORDANCE WITH ASTM C-90. THE CONCRETE SHOULD HAVE ADEQUATE FREEZE/THAW PROTECTION WITH A MAXIMUM MOISTURE ABSORPTION OF 6 PERCENT.
- 3. MODULAR CONCRETE MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C 1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.
- 4. THE UNITS SHALL PASS 100 FREEZE/THAW CYCLES IN WATER WITH LESS THAN 1% WEIGHT LOSS IN ACCORDANCE WITH ASTM C 1372.
- 5. UNITS SHOULD HAVE ANGLED SIDES AND BE CAPABLE OF ATTAINING CONCAVE AND CONVEX ALIGNMENT CURVES IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 6. UNITS SHOULD BE INTERLOCKED AS TO PROVIDE A MAXIMUM OF 1 INCH OF SETBACK PER BLOCK, WHERE REQUIRED.

**B. LEVELING PAD**

MATERIAL FOR LEVELING PAD/FOOTING SHOULD CONSIST OF COMPACTED FREE-DRAINING COARSE AGGREGATES MEETING THE REQUIREMENTS OF GRADED AGGREGATE BASE (GAB) PER MARYLAND STATE HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS. A MINIMUM OF 6 INCHES DEEP AND 30 INCHES WIDE COMPACTED LEVELING PAD IS REQUIRED.

**C. GEOGRID**

GEOGRID SHOULD BE SF55 WOVEN GEOGRID, MANUFACTURE BY SYNTEEN TECHNICAL FABRICS, OR EQUIVALENT AS APPROVED BY THE GEOTECHNICAL ENGINEER. THE GEOGRID SHOULD HAVE AN ALLOWABLE STRENGTH OF 1136 POUNDS PER FOOT. THE ALLOWABLE STRENGTH IS DEFINED AS THE ULTIMATE STRENGTH DIVIDED BY REDUCTION FACTORS FOR CREEP, DURABILITY, INSTALLATION DAMAGE AND AN OVERALL FACTOR OF SAFETY OF 1.5.

**D. REINFORCED BACKFILL**

REINFORCED BACKFILL SOILS SHOULD BE NON-PLASTIC, CONTROLLED FILL MEETING THE REQUIREMENTS OF AASHTO A-2-4, OR MORE GRANULAR, BASED ON THE AVAILABLE SUBSURFACE INFORMATION, CLAYEY SOILS WHICH DO NOT MEET THIS REQUIREMENT ARE PRESENT IN THE AREA OF THE PROPOSED RETAINING WALL. IMPORTED BACKFILL FROM OTHER PORTIONS OF THE SITE OR FROM OFF-SITE, MAY BE REQUIRED, AND SHOULD BE APPROVED BY THE GEOTECHNICAL ENGINEER. IF SUITABLE MATERIALS ARE GENERATED FROM ON-SITE EXCAVATIONS, THESE MATERIALS SHOULD BE CAREFULLY SEGREGATED AND STOCKPILED.

**E. CONTROLLED FILL**

CONTROLLED FILL SOILS TO BE PLACED OUTSIDE THE REINFORCED BACKFILL AREA AND WHERE SPECIFIED SHOULD CONSIST OF ON-SITE OR BORROW SOILS MEETING THE REQUIREMENTS OF AASHTO A-4 OR MORE GRANULAR. ALL FILL MATERIALS PROPOSED TO BE PLACED BEHIND THE REINFORCED BACKFILL SHOULD BE PLACED AS CONTROLLED FILL COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE STANDARD PROCTOR, ASTM D-698.

**F. LOW-PERMEABILITY SOIL**

LOW-PERMEABILITY SOILS TO BE PLACED AT THE TOP OF THE WALL WHERE SPECIFIED SHOULD CONSIST OF SANDY, SILTY OR CLAYEY SOILS MEETING THE REQUIREMENTS OF ML, CL, SM, OR SC WITH A MINIMUM OF 25% PASSING THE #200 SIEVE.

**G. DRAINAGE PIPE**

THE DRAINAGE PIPES SHOULD BE PERFORATED OR SLOTTED PVC PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D-3034, OR PERFORATED OR SLOTTED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM F-405.

**H. FILTER FABRIC**

FILTER FABRIC SHOULD BE NON-WOVEN, POLYPROPYLENE GEOTEXTILE, WINFAB 800N MANUFACTURED BY WILLACOOCHIEE INDUSTRIAL FABRICS, INC. OR APPROVED EQUIVALENT.

**PART 3 - EXECUTION**

**A. EXCAVATION**

- 1. THE CONTRACTOR SHOULD EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. UNDER NO CIRCUMSTANCES SHOULD THE EXCAVATION LINES AND GRADES BE EXCEEDED, EXCEPT WITH OWNER'S APPROVAL. THE CONTRACTOR SHOULD PROTECT THE EXCAVATION FROM SLOUGHING BY PLACING A MEMBRANE OVER THE FACE OF THE EXCAVATION.
- 2. PRIOR TO RETAINING WALL CONSTRUCTION AND PLACEMENT OF FILL, ALL TOPSOIL SHOULD BE STRIPPED AND REMOVED FROM THE SITE.
- 3. EXCAVATIONS SHOULD BE SLOPED OR OTHERWISE SUPPORTED IN ACCORDANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND OTHER LOCAL AND STATE REGULATIONS.

**B. FOUNDATION SUBGRADE PREPARATION**

- 1. FOUNDATION SOIL SHOULD BE EXCAVATED AS REQUIRED FOR INSTALLATION OF LEVELING PAD, GEOGRID AND OTHER ELEMENTS AND AS SHOWN ON THE CONSTRUCTION DRAWINGS.
- 2. FOUNDATION SOIL SHOULD BE EXAMINED BY THE ENGINEER TO ASSURE THAT THE ACTUAL FOUNDATION SOIL STRENGTH MEETS OR EXCEEDS THE ASSUMED DESIGN STRENGTH. SOILS NOT MEETING REQUIRED STRENGTH SHOULD BE REMOVED AND REPLACED WITH CONTROLLED, COMPACTED MATERIAL.
- 3. IF PREVIOUSLY PLACED FILLS ARE PRESENT AT THE FOUNDATION SUBGRADE FOLLOWING FOUNDATION EXCAVATION, HAND AUGER EXPLORATIONS OR BORHOLE EXCAVATED TEST PITS SHOULD BE PERFORMED TO 3 FEET BELOW THE FOUNDATION SUBGRADE. ANY EXISTING FILLS WHICH CONTAIN A SIGNIFICANT PROPORTION OF ORGANIC MATERIAL SHOULD BE OVER-EXCAVATED TO A SUITABLE BEARING STRATUM AND REPLACED WITH CONTROLLED, COMPACTED MATERIAL.
- 4. OVER-EXCAVATED AREAS SHOULD BE FILLED WITH SELECT AND APPROVED MATERIAL AND COMPACTED TO 95 PERCENT OF THE MAXIMUM DRY DENSITY IN ACCORDANCE WITH THE STANDARD PROCTOR, ASTM D-698.
- 5. ALLOWABLE BEARING PRESSURE FOR NATURAL AND CONTROLLED, COMPACTED FILL SOILS SHOULD BE AS SPECIFIED IN PART 5.
- 6. THE EXPOSED FOUNDATION SUBGRADE SHOULD BE PROOFROLLED WITH A LOADED DUMP TRUCK. ANY SOFT OR UNSTABLE AREAS IDENTIFIED DURING PROOFROLLING SHOULD BE OVEREXCAVATED AND BACKFILLED WITH CONTROLLED FILL. ANY FILLS REQUIRED TO ESTABLISH SLOPING SURFACES IN FRONT OF THE WALLS SHOULD CONSIST OF CONTROLLED FILL AND SHOULD BE PLACED, COMPACTED AND FIELD TESTED IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED HEREIN.

**C. LEVELING PAD**

- 1. THE LEVELING PAD SHOULD BE PLACED AS SHOWN ON THE CONSTRUCTION DRAWINGS WITH A MINIMUM THICKNESS OF 6 INCHES.
- 2. LEVELING PAD MATERIALS SHOULD BE INSTALLED UPON UNDISTURBED IN-SITU SOILS OR CONTROLLED, COMPACTED BACKFILL. LEVELING PAD SHOULD BE PREPARED TO ENSURE COMPLETE CONTACT OF RETAINING WALL UNIT WITH BASE. GAPS SHOULD NOT BE ALLOWED.

**D. UNIT INSTALLATION**

- 1. FIRST COURSE OF CONCRETE WALL UNITS SHOULD BE PLACED ON THE LEVELING PAD. THE UNITS SHOULD BE CHECKED FOR LEVEL AND ALIGNMENT. THE FIRST COURSE IS THE MOST IMPORTANT TO PROVIDE ACCURATE AND ACCEPTABLE RESULTS. ENSURE THAT UNITS ARE IN FULL CONTACT WITH BASE.
- 2. UNITS ARE TO BE PLACED SIDE BY SIDE FOR THE FULL LENGTH OF WALL ALIGNMENT. ALIGNMENT MAY BE ESTABLISHED BY MEANS OF A STRING LINE OR OFFSET FROM BASE LINE.
- 3. AT THE END OF EACH COURSE WHERE THE WALL CHANGES ELEVATION, UNITS SHOULD BE TURNED INTO THE BACKFILL. UNITS SHOULD BE LAID AS TO CREATE THE MINIMUM RADIUS POSSIBLE, UNLESS OTHERWISE SHOWN ON THE DRAWINGS, A MINIMUM OF ONE UNIT SHOULD BE INSTALLED INTO THE GRADE. ONLY THE FRONT FACE OF THE UNITS SHOULD BE VISIBLE FROM THE SIDE OF THE WALL.
- 4. CONCAVE CURVES SHOULD BE MADE USING TAPERED BLOCKS.
- 5. CAP UNITS SHOULD BE INSTALLED AND BONDED WITH CONSTRUCTION ADHESIVE OR EPOXY CEMENT AS REQUIRED BY MANUFACTURER.
- 6. THE CONTRACTOR SHOULD PROVIDE POSITIVE DRAINAGE FOR THE BACK OF THE RETAINING WALL DURING CONSTRUCTION.

**E. GEOGRID INSTALLATION**

- 1. ALL UTILITIES IN THE VICINITY OF ANY RETAINING WALL OR GEOGRID REINFORCEMENT MUST BE INSTALLED AND PROPERLY BACKFILLED PRIOR TO PLACING THE GEOGRID SOIL REINFORCEMENT OR CONSTRUCTING THE WALL.
- 2. CLEAN GRAVEL, SOIL, OR OTHER DEBRIS FROM TOP OF BLOCK AND PLACE GEOGRID.
- 3. THE GEOGRID REINFORCEMENT SHOULD BE LAID HORIZONTALLY ON COMPACTED BACKFILL, CONNECTED TO THE CONCRETE WALL UNITS. INSTALL HDPE CONNECTORS, PULL GEOGRID TAUT, AND ANCHOR BEFORE BACKFILL IS PLACED ON THE GEOGRID.
- 4. THE GEOGRID SOIL REINFORCEMENT SHOULD BE LAID HORIZONTALLY ON COMPACTED BACKFILL, CONNECTED TO THE CONCRETE WALL UNITS. INSTALL HDPE CONNECTORS, PULL TAUT, AND ANCHOR BEFORE BACKFILL IS PLACED ON THE GEOGRID.
- 5. SLACK IN THE GEOGRID AT THE WALL UNIT CONNECTIONS SHOULD BE REMOVED IN A MANNER, AND TO SUCH A DEGREE, AS APPROVED BY THE ENGINEER.
- 6. GEOGRID SHOULD BE LAID AT THE PROPER ELEVATION AND ORIENTATION AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
- 7. CORRECT ORIENTATION (ROLL DIRECTION) OF THE GEOGRID SHOULD BE VERIFIED BY THE CONTRACTOR.
- 8. GEOGRID SHOULD BE SECURED IN-PLACE WITH STAPLES, PINS, SAND BAGS, OR BACKFILL AS REQUIRED BY FILL PROPERTIES, FILL PLACEMENT PROCEDURES, OR WEATHER CONDITIONS, OR AS DIRECTED BY THE ENGINEER.
- 9. OVERLAPS.
- 10. UNIAXIAL GEOGRID DOES NOT NEED TO BE OVERLAPPED IN THE ACROSS THE ROLL DIRECTION, EXCEPT TO CONTAIN THE FILL AT THE SLOPE FACE WHEN WRAP-AROUND FACING IS USED. UNIAXIAL GRID SHOULD BE OVERLAPPED 48 INCHES IN THE ROLLED DIRECTION.
- 11. A LAYER OF SOIL A MINIMUM OF 3 INCHES IN THICKNESS SHOULD BE SPREAD BETWEEN UNIAXIAL GEOGRID LAYERS IN THE AREA TO BE OVERLAPPED, OR AS DIRECTED.

**F. FILL PLACEMENT**

- 1. WALL BACKFILL MATERIAL SHOULD BE PLACED IN NO MORE THAN 8-INCH LIFTS AND COMPACTED TO 95 PERCENT OF THE STANDARD PROCTOR (ASTM D-698).
- 2. BACKFILL SHOULD BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF WRINKLES IN AND/OR MOVEMENT OF THE GEOGRID.
- 3. ONLY HAND-OPERATED COMPACTION EQUIPMENT SHOULD BE ALLOWED WITHIN 4 FEET OF THE WALL FACE.
- 4. BACKFILL SHOULD BE PLACED FROM THE WALL OUTWARD TO ENSURE THAT THE GEOGRID REMAINS TAUT.
- 5. TRACKED CONSTRUCTION EQUIPMENT SHOULD NOT BE OPERATED BEHIND OR ABOVE THE WALL.
- 6. RUBBER-TIRED EQUIPMENT MAY PASS OVER THE GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND SHARP TURNING SHOULD BE AVOIDED.
- 7. PLACE FILTER FABRIC BETWEEN THE UNIT CORE FILL AND THE REINFORCED BACKFILL AS SHOWN ON PLANS. THE FILTER FABRIC SHOULD BE EMBEDDED A MINIMUM OF TWO FEET INTO THE REINFORCED FILL.
- 8. THE FINISHED SLOPING SURFACE ON THE TOE SIDE OF RETAINING WALLS SHOULD BE PROTECTED BY INSTALLING THE PERMANENT EROSION CONTROL BLANKET AND LOAMING AND SEEDING IN ACCORDANCE WITH PROJECT REQUIREMENTS.

**G. DRAINAGE**

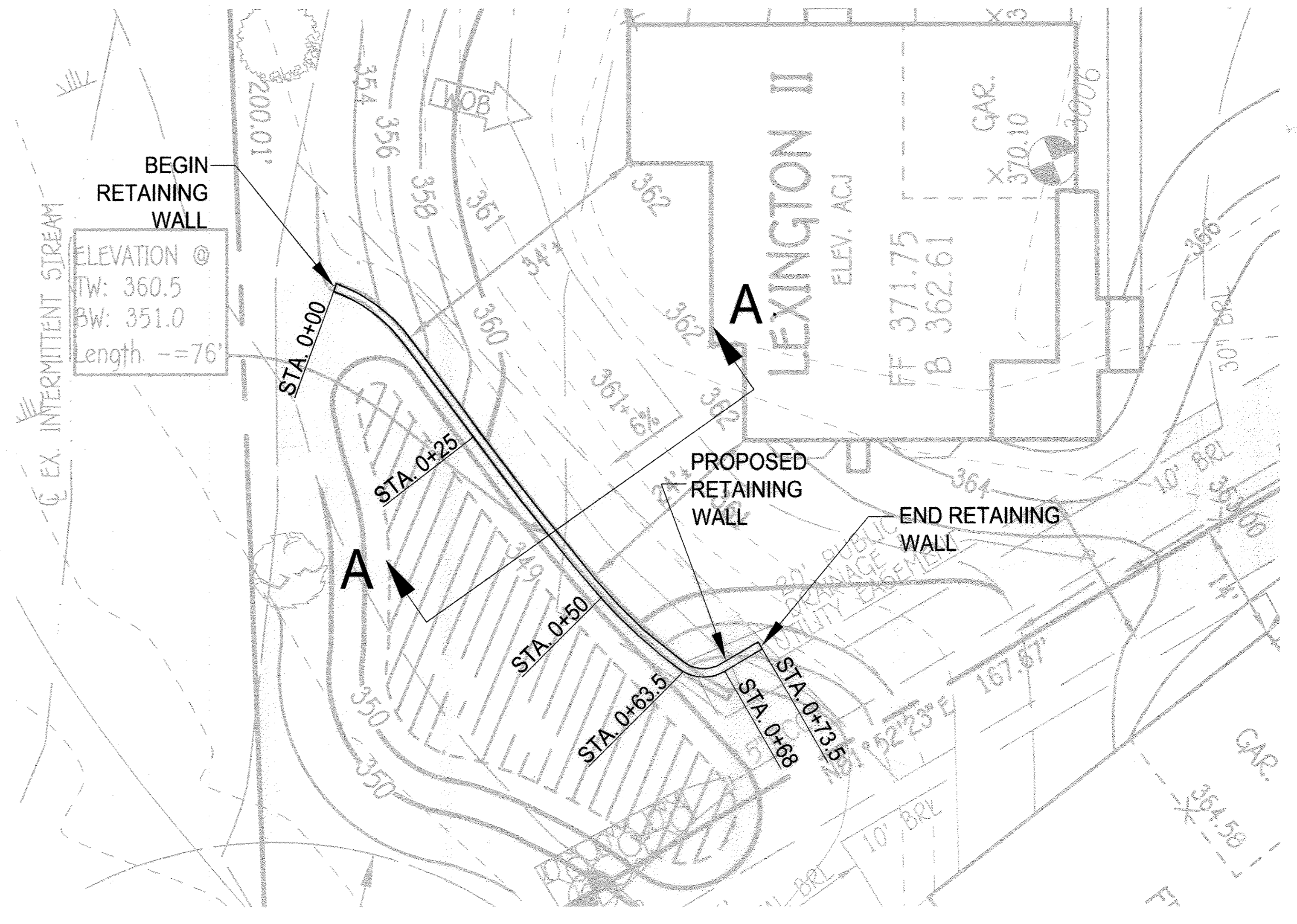
- 1. DRAINAGE FILL SHOULD BE PLACED BEHIND THE WALL TO THE LIMITS SHOWN. THE DRAINAGE FILL SHOULD BE A MINIMUM OF 12-INCHES THICK. THE DRAINAGE FILL SHOULD BE ASTM #57 STONE. THE DRAINAGE FILL SHOULD BE WRAPPED IN FILTER FABRIC (MIRAFI 140N OR EQUAL) AS SHOWN ON THE DRAWINGS.
- 2. POSITIVE DRAINAGE SHOULD BE MAINTAINED DURING AND AFTER CONSTRUCTION. SOILS WITHIN THE REINFORCED ZONE THAT BECOME WET DURING CONSTRUCTION SHOULD BE DRIED TO OPTIMUM MOISTURE OR REMOVED.
- 3. INSTALL THE PERFORATED DRAINAGE PIPES AND LATERAL DRAINAGE PIPES INCREMENTALLY ALONG WITH THE INSTALLATION OF CONCRETE UNITS AND PLACEMENT OF FILL.

**PART 4 - CONSTRUCTION OBSERVATION AND TESTING**

- A. RETAINING WALLS SHOULD ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A CERTIFIED (NICET, WACEL, OR EQUIVALENT) SOILS TECHNICIAN.
- B. THE REQUIRED BEARING PRESSURE BENEATH THE FOOTING OF THE WALL SHOULD BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE GEOTECHNICAL ENGINEER PRIOR TO THE START OF WALL CONSTRUCTION. THE REQUIRED TEST PROCEDURE SHALL BE THE DYNAMIC CONE PENETROMETER (DCP) TEST ASTM STP-399.
- C. THE SUITABILITY OF FILL MATERIAL SHOULD BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN.

**PART 5 - DESIGN CRITERIA**

- 1. REQUIRED MINIMUM ALLOWABLE FOUNDATION BEARING PRESSURE IS 2,000 PSF.
- 2. DESIGN INTERNAL FRICTION ANGLE FOR REINFORCED SOIL = 28 DEGREES.
- 3. DESIGN MOIST UNIT WEIGHT FOR REINFORCED SOIL = 120 PCF.
- 4. FOUNDATION AND RETAINED SOIL INTERNAL FRICTION ANGLE = 28 DEGREES AND COHESION = 0 PSF.
- 5. FOUNDATION AND RETAINED SOIL DESIGN MOIST UNIT WEIGHT = 120 PCF.
- 6. RETAINING WALLS ARE NOT DESIGNED TO RESIST HYDROSTATIC PRESSURE.



**RETAINING WALL LOCATION PLAN**

SCALE: 1" = 10'

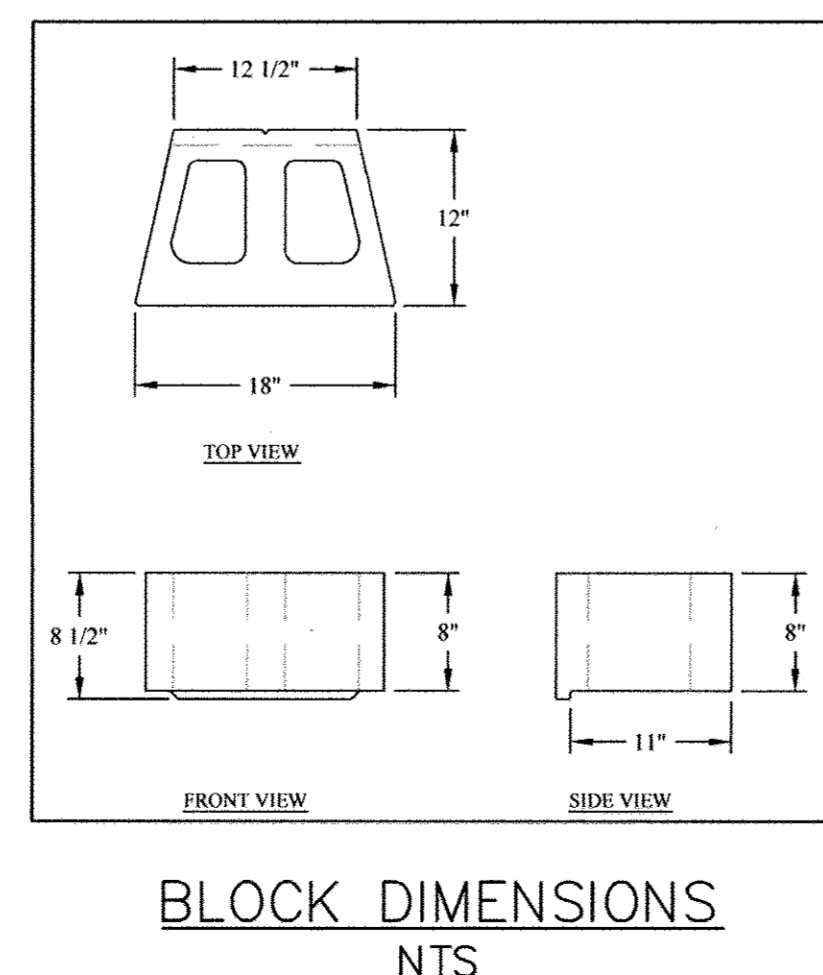
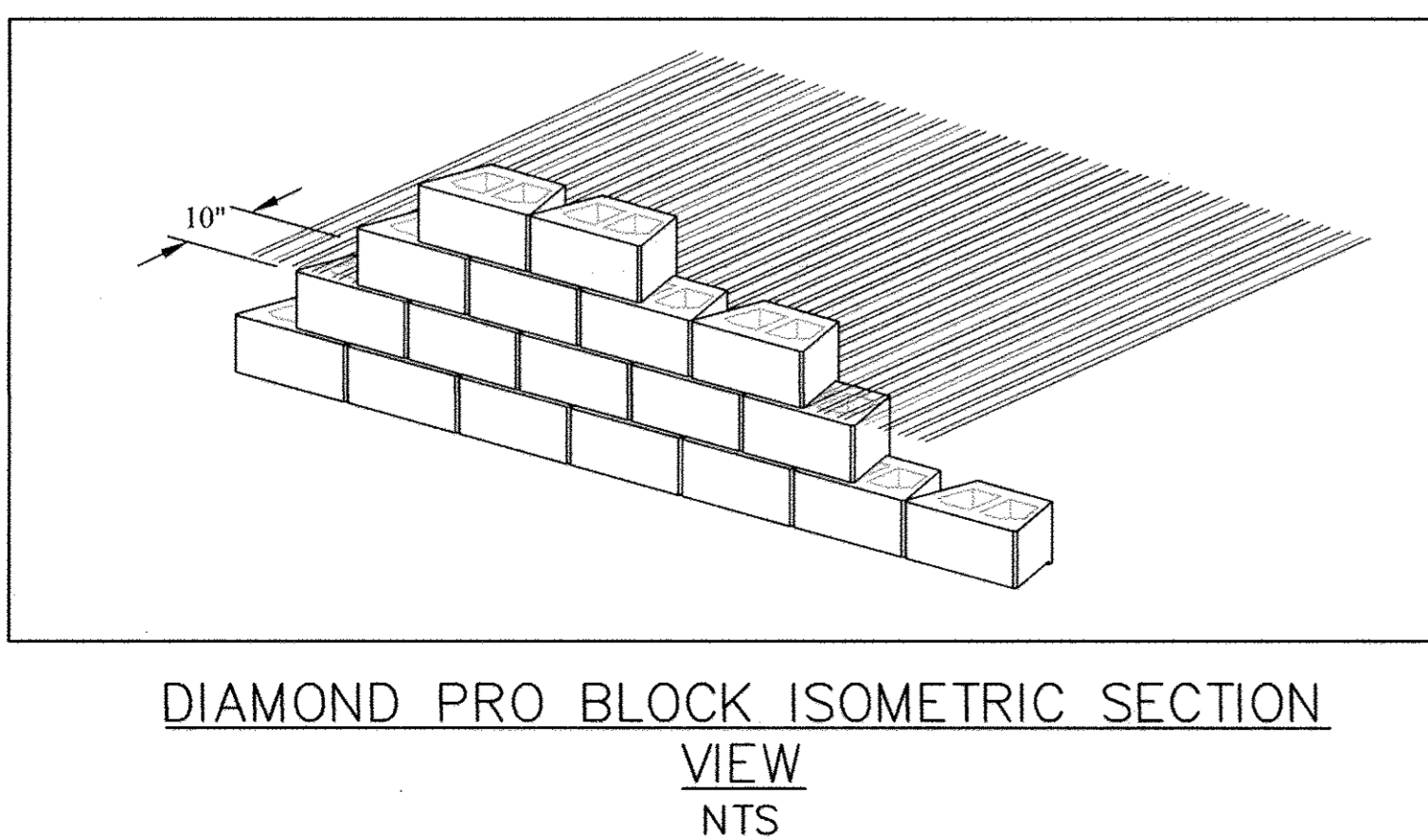
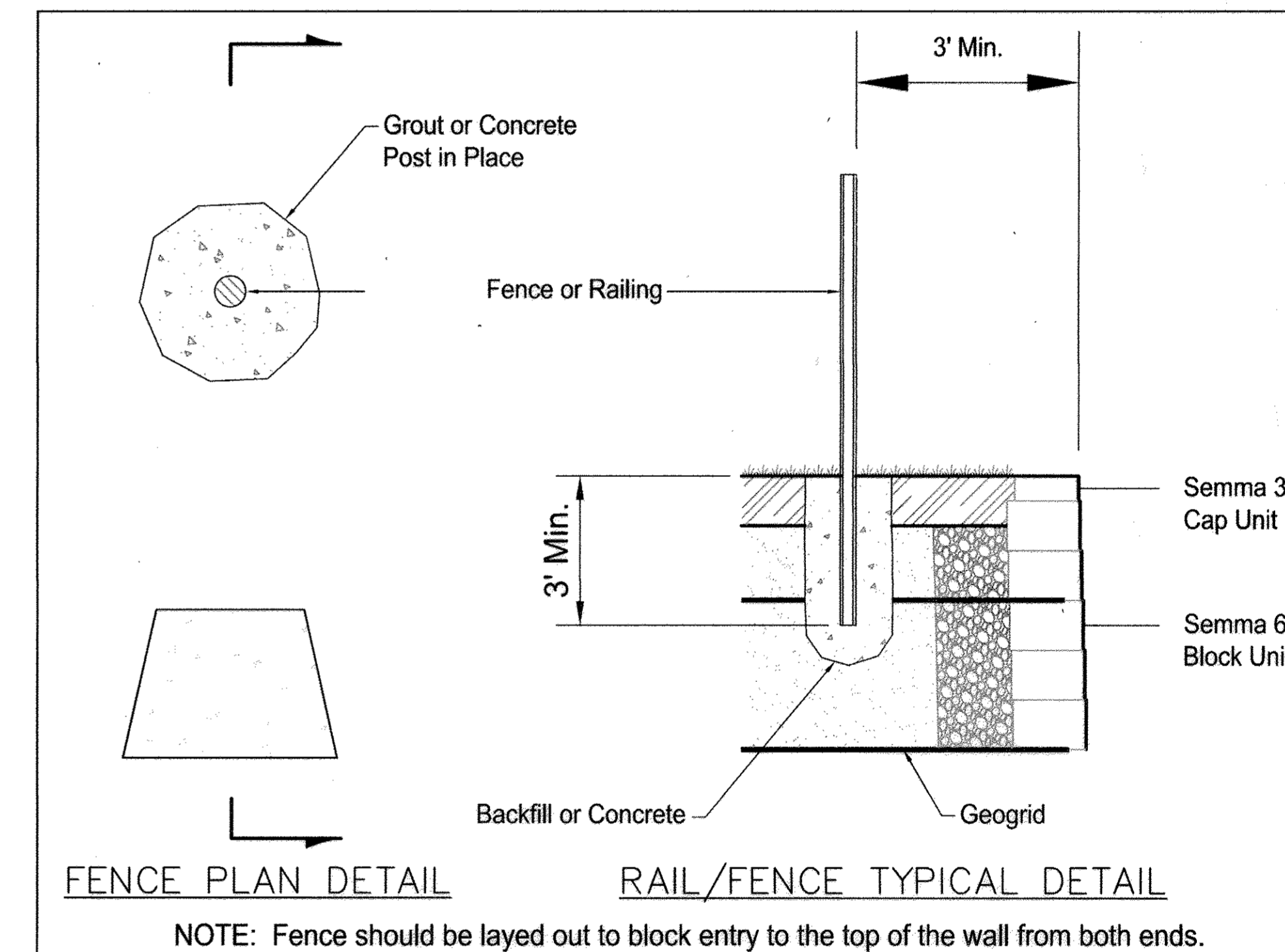
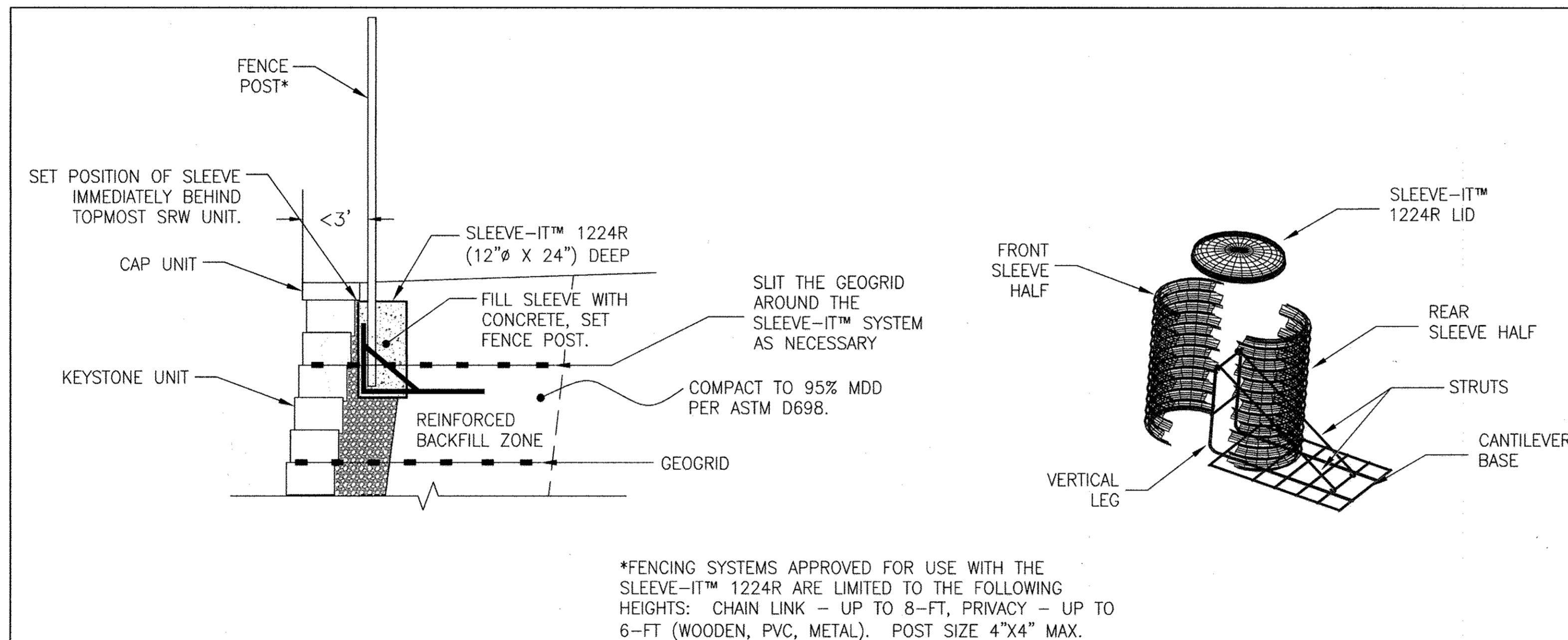
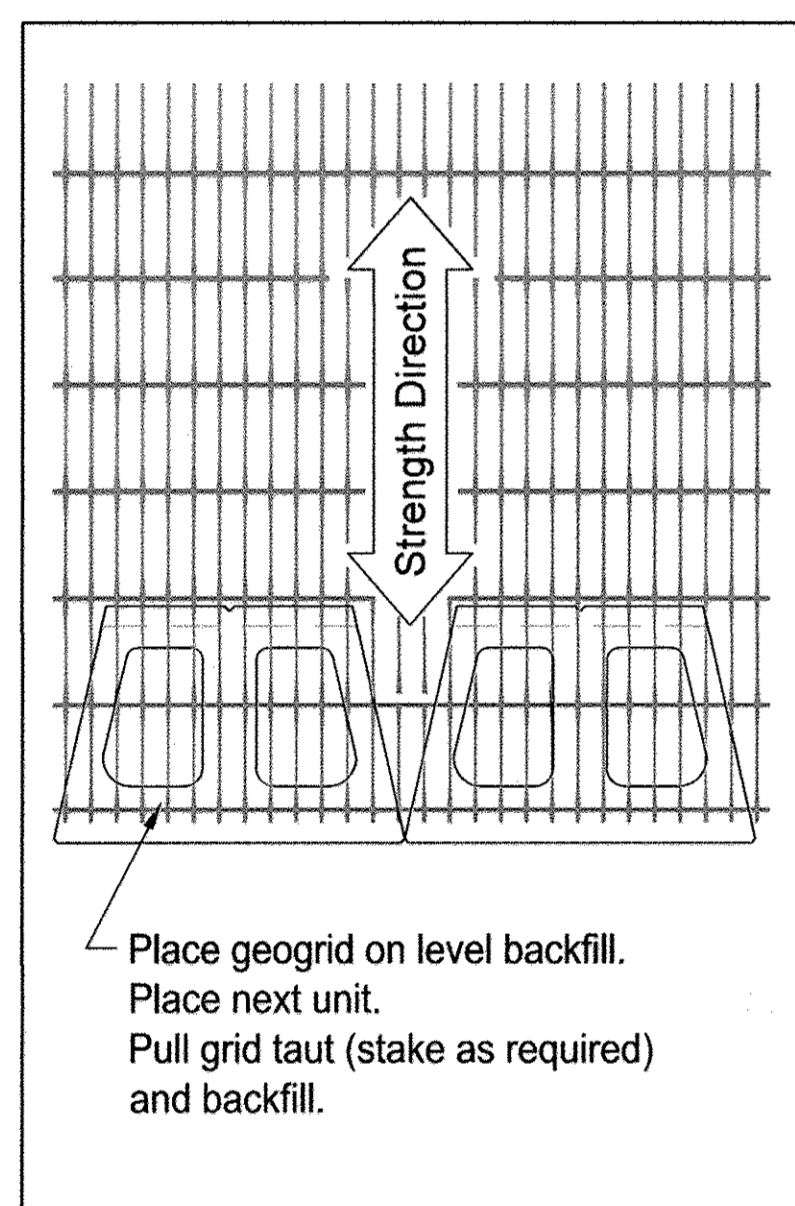
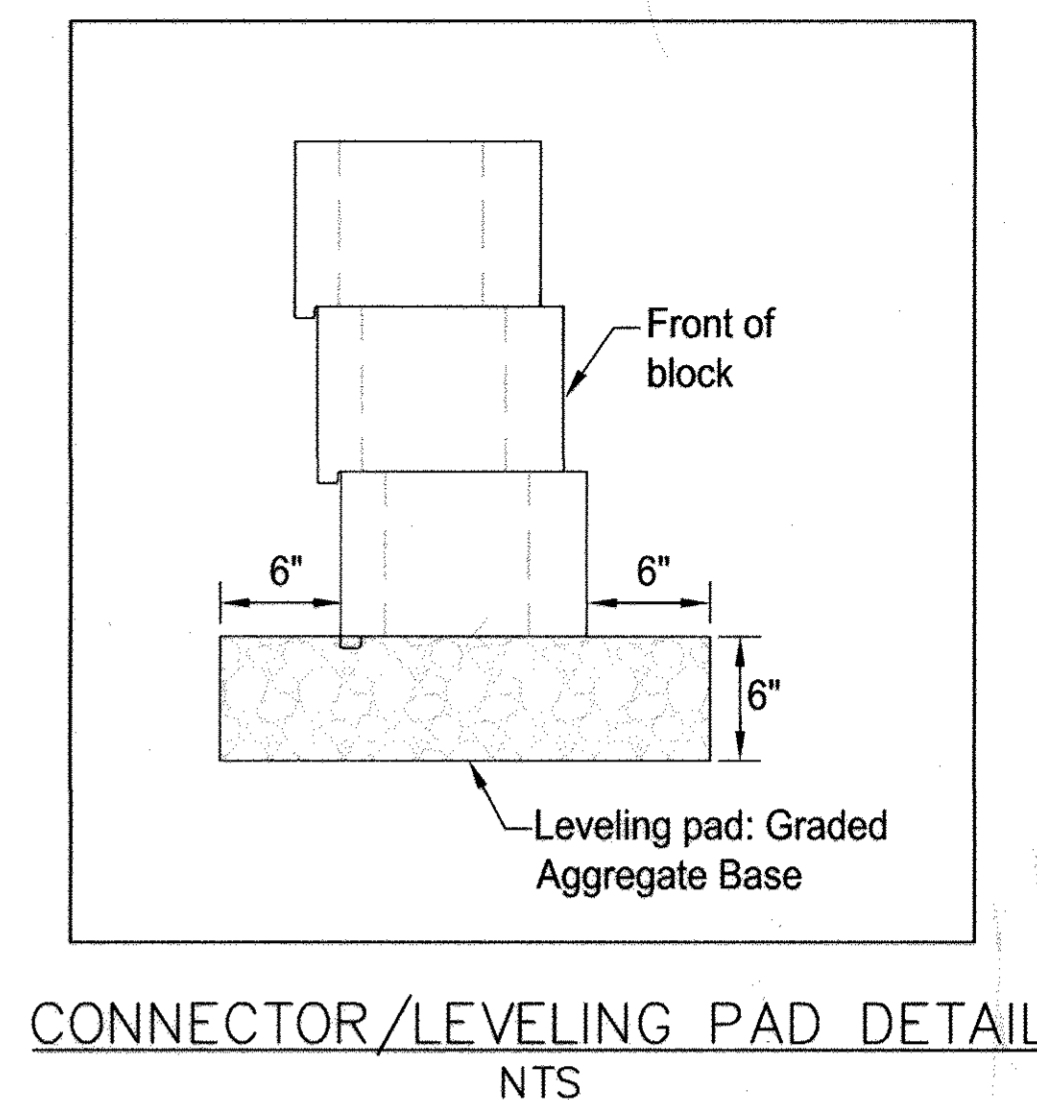
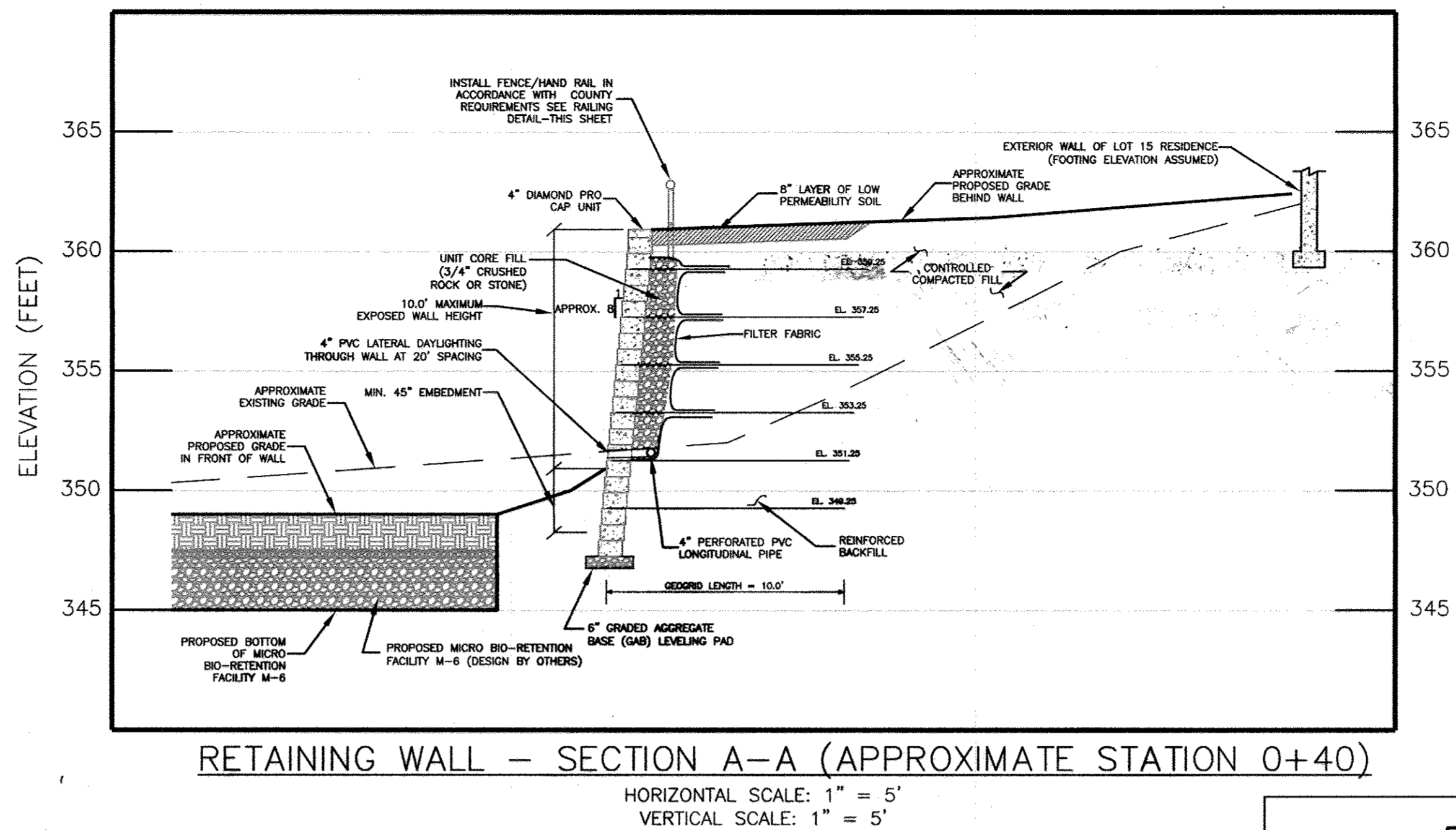
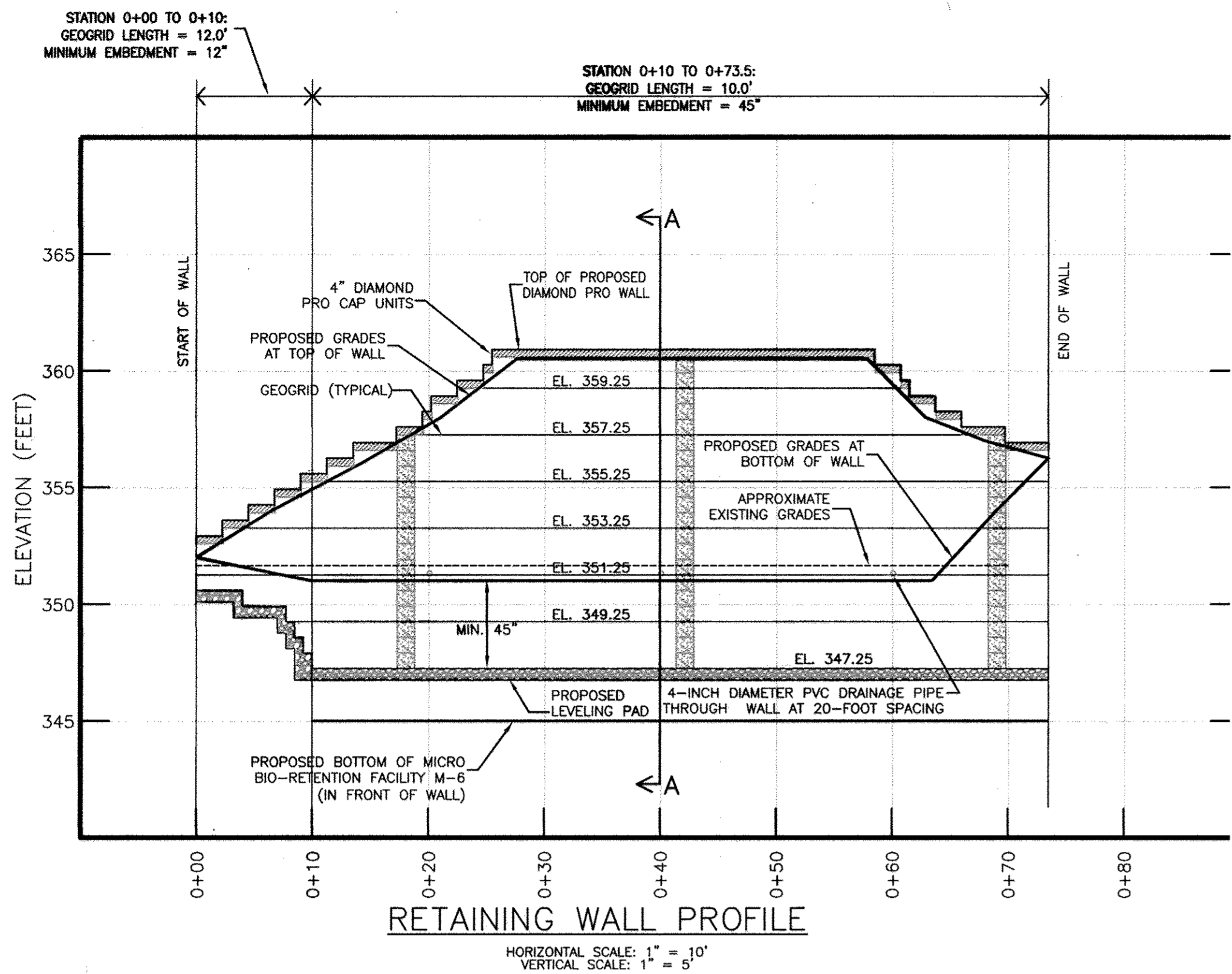
BASE MAP WAS ADAPTED FROM THE TOPO WORKSHEET, PREPARED BY FISHER, COLLINS, & CARTER, INC., DATED FEBRUARY 4, 2015 (ORIGINAL SCALE: 1"=10').

**CHERRYTREE VIEW**  
 BUILDABLE LOTS 1 - 11 AND  
 OPEN SPACE LOTS 12 & 13  
 ZONING: R-20  
 PREVIOUS FILE Nos.: ECP-11-003, WP-11-065 & SP-11-001  
 TAX MAP No. 48 GRID No. 11 PARCEL No. 55  
 SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 DATE: JULY 29, 2015  
 SHEET 17 OF 18

APPROVED: DEPARTMENT OF PUBLIC WORKS		
<i>[Signature]</i>	11/3/2015	
CHIEF, BUREAU OF HIGHWAYS	DATE	
APPROVED: DEPARTMENT OF PLANNING AND ZONING		
<i>[Signature]</i>	11-13-15	
CHIEF, DIVISION OF LAND DEVELOPMENT	DATE	
APPROVED: DEPARTMENT OF ENGINEERING		
<i>[Signature]</i>	11-12-15	
CHIEF, DEVELOPMENT ENGINEERING DIVISION	DATE	
REVISIONS		
NO.	DESCRIPTION	DATE

	<b>GEO-TECHNOLOGY ASSOCIATES, INC.</b> GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS 14280 PARK CENTER DRIVE, SUITE A LAUREL, MARYLAND 20707 (410) 792-9446 or (301) 470-4470 FAX: (410) 792-7395 WWW.GTAENG.COM	
	CHERRY TREE VIEW - LOT 15 PROPOSED RETAINING WALL PLAN AND GENERAL NOTES HOWARD COUNTY, MARYLAND	
	DATE	REVISIONS
MD 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. 24495, EXPIRATION DATE: 10/30/15.		JOB NO.: 141100 SCALE: AS SHOWN DATE: 4/7/2015 DRAWN BY: JPE DESIGN BY: JPE REVIEW BY: RPM SHEET: 16 OF 17





CHERRYTREE VIEW  
BUILDABLE LOTS 1 - 11 AND  
OPEN SPACE LOTS 12 & 13

ZONING: R-20  
PREVIOUS FILE Nos.: EOP-11-003, WP-11-065 & SP-11-001  
TAX MAP No. 46 GRID No. 11 PARCEL No. 59  
SIXTH ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
DATE: JULY 29, 2015  
SHEET 18 OF 18

F-11-063

APPROVED: DEPARTMENT OF PUBLIC WORKS CHIEF, BUREAU OF HIGHWAYS <i>[Signature]</i> DATE: 11/3/2015	APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DIVISION OF LAND DEVELOPMENT <i>[Signature]</i> DATE: 11-13-15	
APPROVED: DEPARTMENT OF PLANNING AND ZONING CHIEF, DEVELOPMENT ENGINEERING DIVISION <i>[Signature]</i> DATE: 11-22-15		
REVISIONS		
NO.	DESCRIPTION	DATE

**GEO-TECHNOLOGY ASSOCIATES, INC.**  
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS  
14280 PARK CENTER DRIVE, SUITE A  
LAUREL, MARYLAND 20707  
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CHERRY TREE VIEW - LOT 15  
PROPOSED RETAINING WALL  
PLAN AND GENERAL NOTES

HOWARD COUNTY, MARYLAND

DATE	REVISIONS	JOB NO.:
		141100
		SCALE: AS SHOWN
		DATE: 4/7/2015
		DRAWN BY: JPE
		DESIGN BY: JPE
		REVIEW BY: RPM
		SHEET: 17 OF 17

MR. 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. 24495, EXPIRATION DATE: 10/30/15.